ACHTECK

CUTTING TOOL CATALOGUE

2025





In the Northern depths, a wondrous sight
A fish so vast, a true delight,
Named Kun, it spans a thousand miles
A creature of immense style.

Transformed to Peng, a bird so rare
Its wingspan vast, beyond compare
Thousands of miles, it takes to flight,
A soaring wonder, a true delight.

When Peng takes flight, its rage is seen,
Its wings a sight, like clouds serene,
A sight that leaves us all in awe,
A vision of beauty, without a flaw.





Company Profile

Ganzhou Achteck Tool Technology Co, Ltd. is a wholly-owned subsidiary of Chongyi Zhangyuan Tungsten Co, Ltd. (Listed Company with stock code 002378). The registered capital of Achteck is 260 million USD with 800 employees. The main products include: Coated Carbide Inserts, Carbide Rod and supporting tool holders. Achteck is known for its outstanding R&D competence, production & testing equipment and its coated carbide insert production technology. Achteck produces inserts for Turning, Grooving, Milling and Drilling that are widely applied in automotive, energy, die & mold, general machinery, aerospace and other industries.

Achteck Tool is technology oriented, owns a strong research team that keeps on innovating Having "Benefits from Resources, Reliance on Technologies, Devotion to Humanity and Top with Trust" as the operating philosophy and "Safety, Harmony, Efficiency and Innovation" as the target Achteck aims to become a wellknown brand in the world and a first-class cemented carbide manufacturer in China.

Small tools



Product Features and Applications

- Small tools has a wide range of product offering combined with various grades to meet the machining requests of different applications.
- Ground inserts with geometry UF and LF are good for high precision finishing and good chip breaking.
- Multi-function ASW series could combine with parting off, backturning and threading inserts for multipurpose machining to reduce the cost.
- Small Dia. solid carbide cutting tools can cover different machining, such as grooving, threading and small diameter boring.

AP010S Heat-Resistant Alloy Machining Grade

ISO Turning Insert



Product Features and Applications

- AP010S employs substrate strengthening technology to enhance the bonding force between cobalt and tungsten carbide, as well as the heat-resistant resistance of the binder phase, thereby improving substrate strength.
- The innovative nano-coating with ultra-high aluminum content delivers exceptional hardness, superior structural and chemical stability. The specially treated smooth coating surface reduces the friction coefficient, enhances anti-built-up edge (BUE) resistance, and significantly boosts tool wear resistance and service life.
- It is the first choice for high-speed cutting of S-class iron-based, cobalt-based, nickelbased heat-resistant alloys, as well as titanium and titanium alloys, and is also suitable for high-speed precision machining of stainless steel and light cutting of hardened materials.
- ISO application range: S01-S15, M01-M15, H05-H15.

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AROWANA SERIES



Product Features and Applications

- Arowana Series - Heat-resistant Alloy Grooving Tools, featuring AP130S grade, are primarily used for machining hard-to-cut materials such as Ni-based, Ti-based, Fe-based heat-resistant alloys, titanium alloys, and stainless steel.
- With a variety of grooving walls such as CS, CM, GS, TSR, RMR, RS, etc., they comprehensively meet customers' needs for cutting, grooving, slotting, and profiling operations.
- Compared to previous materials, significant improvements in performance have been made, resulting in a substantial increase in tool life, which has gained the favor of many users.
- Excellent high-temperature resistance, wear resistance, shock resistance, and high-temperature oxidation resistance provide stable and long-lasting machining performance.

2025 NEW

AP130S Grade

Heat-Resistant Alloy Grooving Tools

Product Features and Applications

External machining holder:

- Multiple insert clamping methods and a wide range of tool holder types cover various applications for external turning.
- Good clamping performance ensures secured insert installation, maintaining cutting stability while reducing holder deformation.
- The tool body surface is nickel-plated, nice looking and good wear resistance.

Internal machining holder:

- Bi-directional chip pocket design for better chip removal.
- The holder adopts the strongest structural design to effectively prevent high-frequency vibration.
- Minimum machining diameter: Φ5mm.
- Holders for different materials meet the application requirements for various hole depths.



Turning Tool Holders

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Steel Turning – Upgraded Grades AC052P/AC152P/AC252P

ISO Turning Insert



2025 NEW

Product Features and Applications

- Unique grain alignment and advanced gradient sintering technology, which enhances substrate thermal stability and wear resistance.
- Nano-coating with specially structured alumina significantly improves crater wear resistance. Combined with superior post-coating treatment, it reduces built-up edge (BUE) formation and flank wear by over 30% compared to previous generations.
- Three grades cover medium-to-high-speed steel turning, from continuous finishing to interrupted semi-roughing and general roughing, ensuring efficient and stable machining for most steel types.

AFM45-SE12

Face Milling Cutter

Product Features and Applications

- Positive-type 4-flute design with large rake angle for smooth cutting and low resistance.
- Multiple geometries adapt to diverse machining conditions.
- Including short and long wiper inserts for roughing, semi-finishing, and finishing.
- 45° approach angle with coarse/fine pitch options for broad versatility.
- Integrated shim protect the cutter body, ensuring safety and reliability.
- Diameter range: Φ32–250mm (arbor-type, cylindrical shank, side-lock variants).
- Black oxide surface treatment enhances corrosion resistance and precision.



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Product Features and Applications

- Precise 90° approach angle ensures accurate square shoulder machining.
- Helical insert design with low resistance and light cutting, offering good versatility.
- Inserts with wipers to achieve good surface roughness.
- Three insert sizes available: 06/10/12, with a full range of materials.
- The helical milling cutter is available in both solid and segmented versions. with a maximum cutting depth of up to 85mm, offering high machining efficiency.
- Various connection methods, including shank-style, cylindrical, and sidelock, to meet different application needs.



2025 NEW

ASM90-AO06/10/12 Series

Square Shoulder Milling Cutter

ASM90-SO12

Square Shoulder Milling Cutter

Product Features and Applications

- Precise 90° approach angle ensures accurate square shoulder machining.
- Positive 4-flute pressed inserts to offer cost efficiency.
- Dual-relief helical cutting edges reduce cutting forces; short wiper design improves surface roughness.
- Multi-material compatibility across ISO groups (P, M, K, etc.).
- Diameter range: Φ 32–250mm (arbor-type, cylindrical shank, side-lock variants).



Round Tool Series

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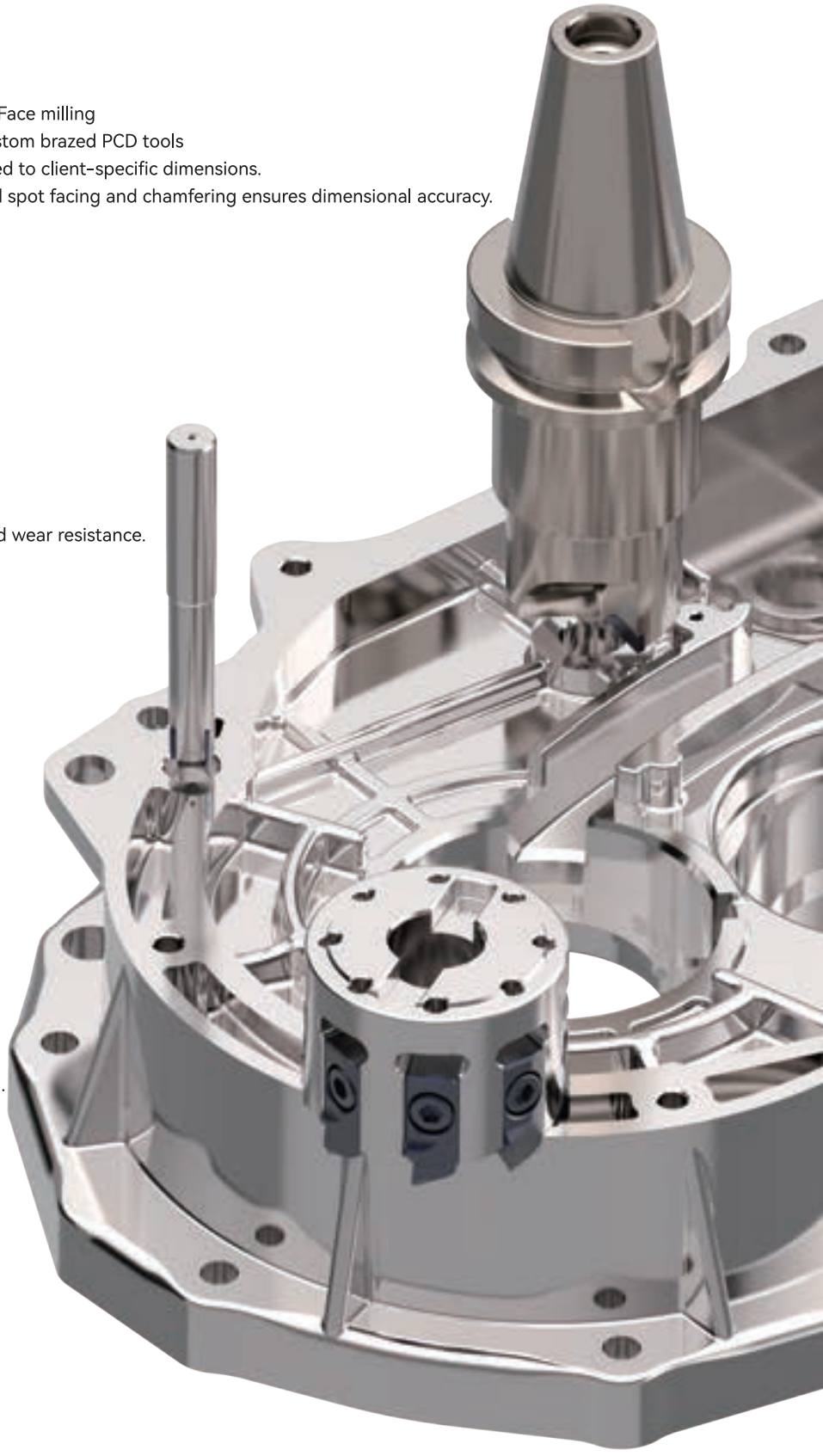
Product Features and Applications

- "Sharpen your tools to excel in your craft." ACHTECK delivers high-efficiency, cost-effective solutions for drilling, milling, and threading.
- Three major product lines: ECO (general-purpose), PRO (high-efficiency), and XP (expert), covering a variety of tools required for small to medium batch production, large batch production, and specialized high-efficiency production.
- Drilling solutions: D105/D106/D108/D151 standard drills: Diameter range 3–20mm, with 3×D to 8×D lengths (general and specialized variants).
- Milling: M200/M210/M216/M150/M170 carbide milling cutters, 2–6 flutes, corner-radius to wavy-edge designs, covering general to specialized machining.

Application: Face milling
Solution: Custom brazed PCD tools
- Customized to client-specific dimensions.
- Integrated spot facing and chamfering ensures dimensional accuracy.

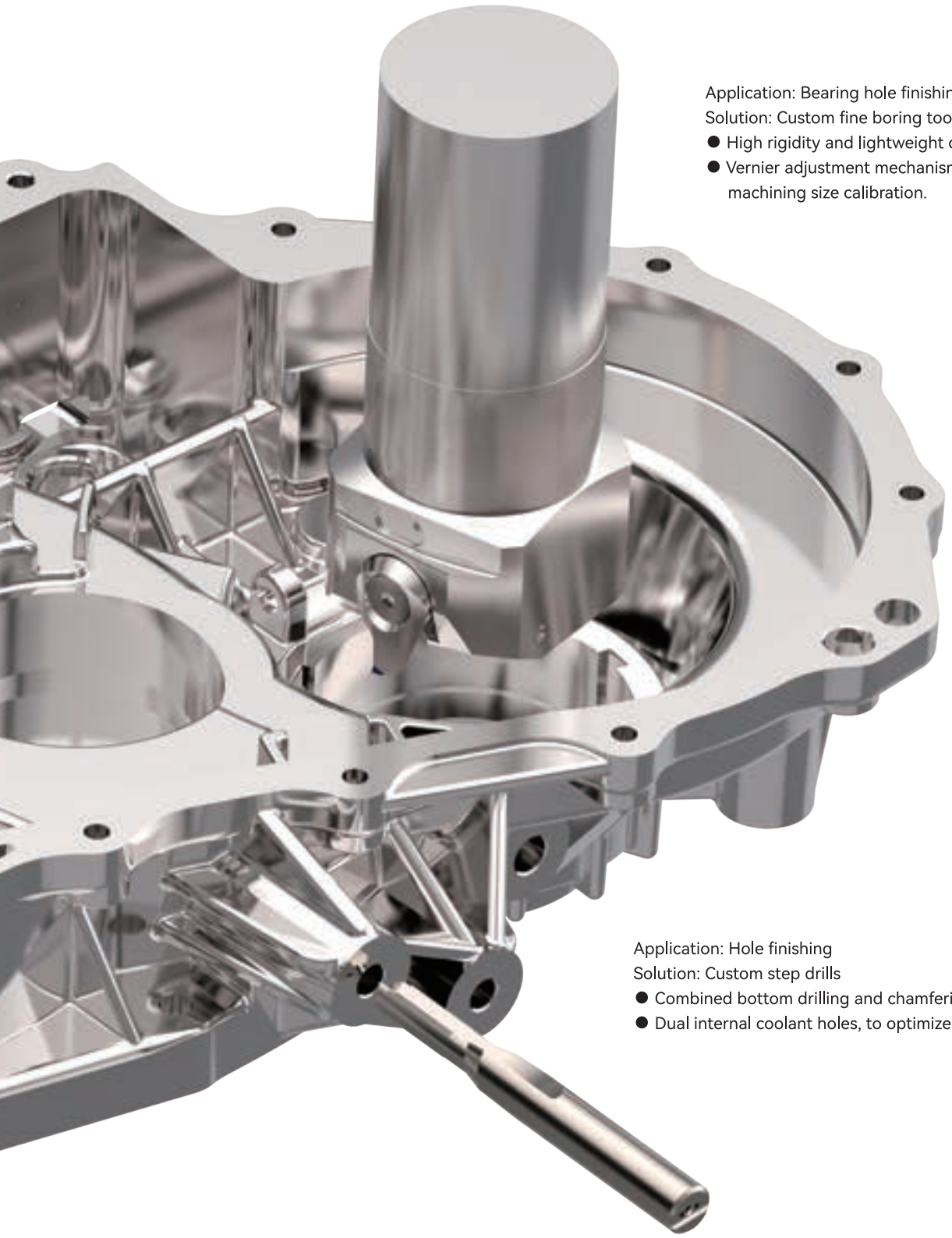
Application: Joint surface machining
Solution: Brazed PCD reamers
- Semi-custom design for fast delivery.
- PD10 grade delivers high efficiency and wear resistance.

Application: Pin hole machining
Solution: Adjustable PCD face milling cutters
- Bore diameter range: D50–D250.
- Aluminum alloy cutter body (for D80+ sizes).
- Precision internal coolant channels + variable pitch design.
- Optional types: face milling, square shoulder milling, overlapping curve surface milling, wiper edge.



New Energy Vehicle Tooling Solutions

Reducer Housing



Application: Bearing hole finishing
Solution: Custom fine boring tools
- High rigidity and lightweight compact design.
- Vernier adjustment mechanism for rapid machining size calibration.

Application: Hole finishing
Solution: Custom step drills
- Combined bottom drilling and chamfering in one operation.
- Dual internal coolant holes, to optimize cooling and chip evacuation.

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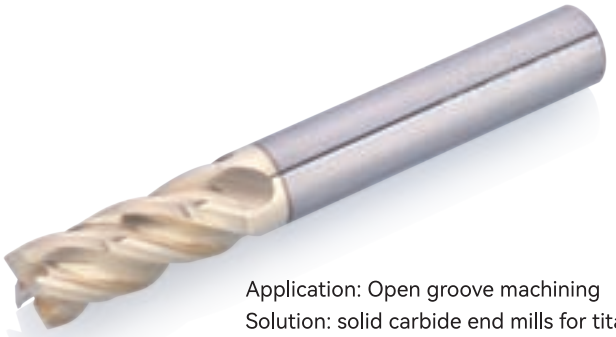
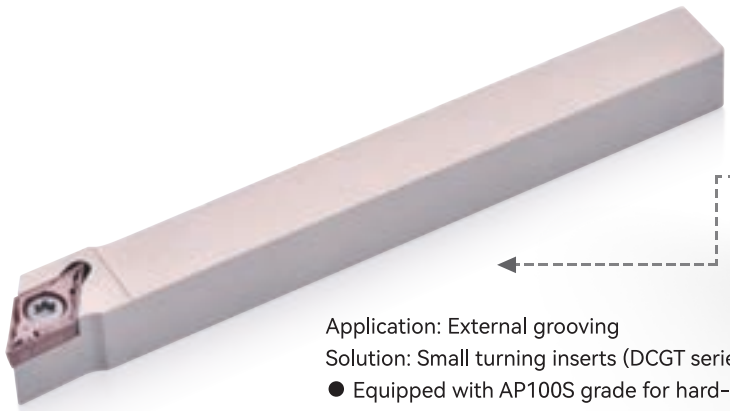
Orthopedics – Cervical Pedicle Screw DovetailHead



Application: Open groove machining
Solution: solid carbide end mills for titanium (M150 Series)

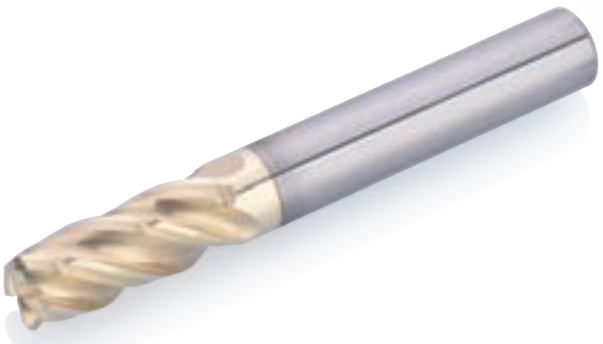
- New substrate grade AK12E, with superior impact resistance and thermal fatigue resistance.
- Unequal pitch and fluted geometry, which reduces vibration and enhances chip evacuation.





Application: External grooving
Solution: Small turning inserts (DCGT series)

- Equipped with AP100S grade for hard-to-cut materials.



Application: Side lug hole machining
Solution: solid carbide end mills for titanium (M150 series)

- New substrate grade AK12E, with superior impact resistance and thermal fatigue resistance.
- Unequal pitch and fluted geometry, which reduces vibration and enhances chip evacuation.

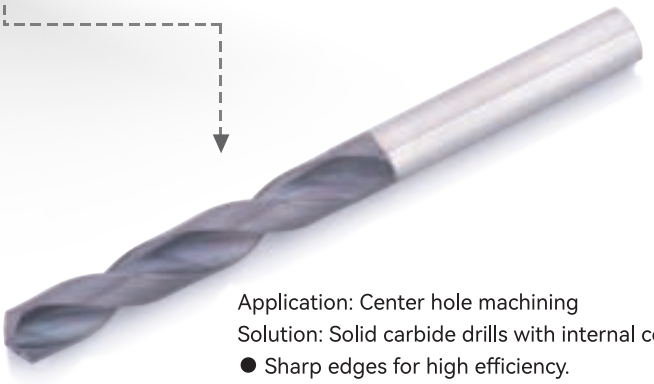


Application: Internal thread machining
Solution: Solid internal threading tool
- AP220U grade with PVD coating, able to handle stainless steel, titanium, heat-resistant alloys.
- Available in various thread specifications, including universal threads, ISO, UN, NPT, etc.





Application: Internal groove machining
Solution: Solid internal grooving cutter
- AP220U grade with PVD coating, able to handle stainless steel, titanium, heat-resistant alloys.
- Available in various standard geometries, such as flat and radius grooves.



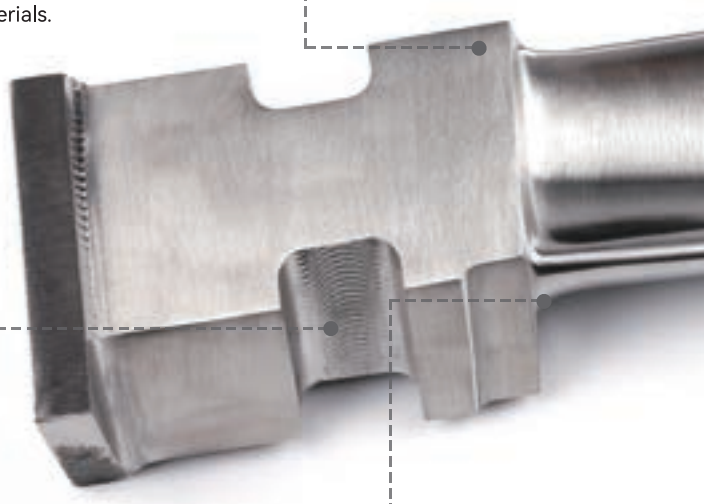
Application: Center hole machining
Solution: Solid carbide drills with internal coolant (D151 Series)
- Sharp edges for high efficiency.
- Formed groove design and polished chip removal grooves ensure excellent chip flow and removal.

Material: Titanium alloy

Material: Heat-resistant stainless steel, heatresistant alloy



Application: Blade root face machining
Solution: AFM90-SD09 precision face milling cutter
- Single-sided square inserts for cost efficiency.
- Multiple geometries and grades, adapted to diverse materials.





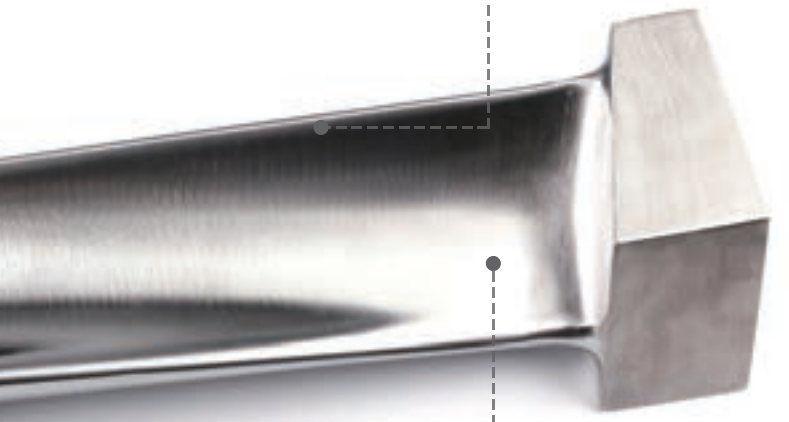
Application: Blade root groove roughing
Solution: ASM90-AO12 square shoulder milling cutter
- Wiper edge design, to improve surface finish.
- Helical cutting edges, which reduce cutting forces and offers good versatility.



Application: Root-to-aerofoil transition arc finishing
Solution: Custom tapered ball-nose milling cutter
- Self-made carbide rods.
- Multiple taper angles for various blade maching。



Application: Blade aerofoil roughing
Solution: APM00-RO10/12 milling cutters
- Anti-rotation slot design, to prevent tool displacement and extend tool life.
- Versatile insert geometries and grades for complex materials.





Application: Root-to-aerofoil transition arc machining
Solution: APM00-RP08/10 milling cutters
- Anti-rotation slot design, to enhance insert stability.
- Versatile insert geometries and grades for complex materials.

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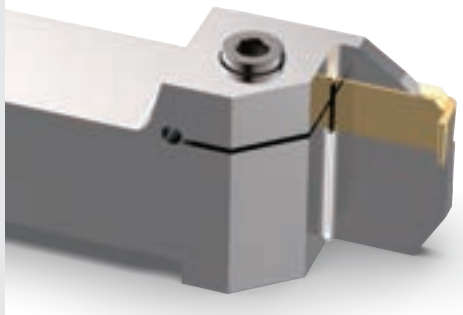
Energy Industry-Turbine Blades



Application: External grooving
Solution: Standard external grooving tools
- V-shaped insert base ensures secure positioning.
- High-strength alloy steel shanks for extended service life.
- High-pressure coolant for hard-to-cut materials.

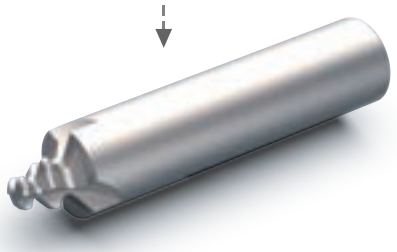


Application: Face grooving
Solution: Face grooving tools
- V-shaped insert base ensures secure positioning.
- High-strength alloy steel shanks for extended service life.
- High-pressure coolant for hard-to-cut materials.



Application: Profile grooving
Solution: Custom grooving tools
- Semi-finished blanks for fast delivery.
- Precision-ground edges for high dimensional accuracy.
- Optimized substrates/coatings for hard-to-cut materials.





Application: Christmas tree milling
Solution: Custom Christmas tree milling cutters
- Complete roughing-to-finishing solutions.
- Multi-axis grinding ensures contour accuracy.
- Substrate/coating options for hard-to-cut materials.

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Aerospace-Blisk Solutions

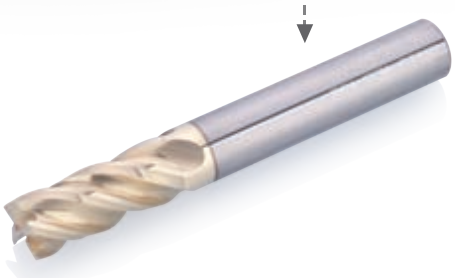




Application: High-Efficiency turning of hard-tocut materials
Solution: Standard high-pressure coolant turning tool holders



Application: Internal grooving for disc/ring parts
Solution: High-pressure ID grooving tools with internal coolant
- Rigid custom inserts for narrow grooves.
- Precision-ground inserts+high-pressure internal coolant clamp.
- AP130S grade recommended for semifinishing/finishing.



Application: Contour milling
Solution: Solid carbide end mills for titanium (M150 Series)
- New substrate grade AK12E, with superior impact resistance and thermal fatigue resistance.
- Unequal pitch and fluted geometry, to reduce vibration and enhance chip evacuation.



Application: Boss hole machining
Solution: Solid carbide drills with internal coolant (D106 Series)
- Nano-composite coating for extreme wear resistance and toughness.
- 3×D / 5×D length options.

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THE EXPERT OF DIFFICULT MACHINING



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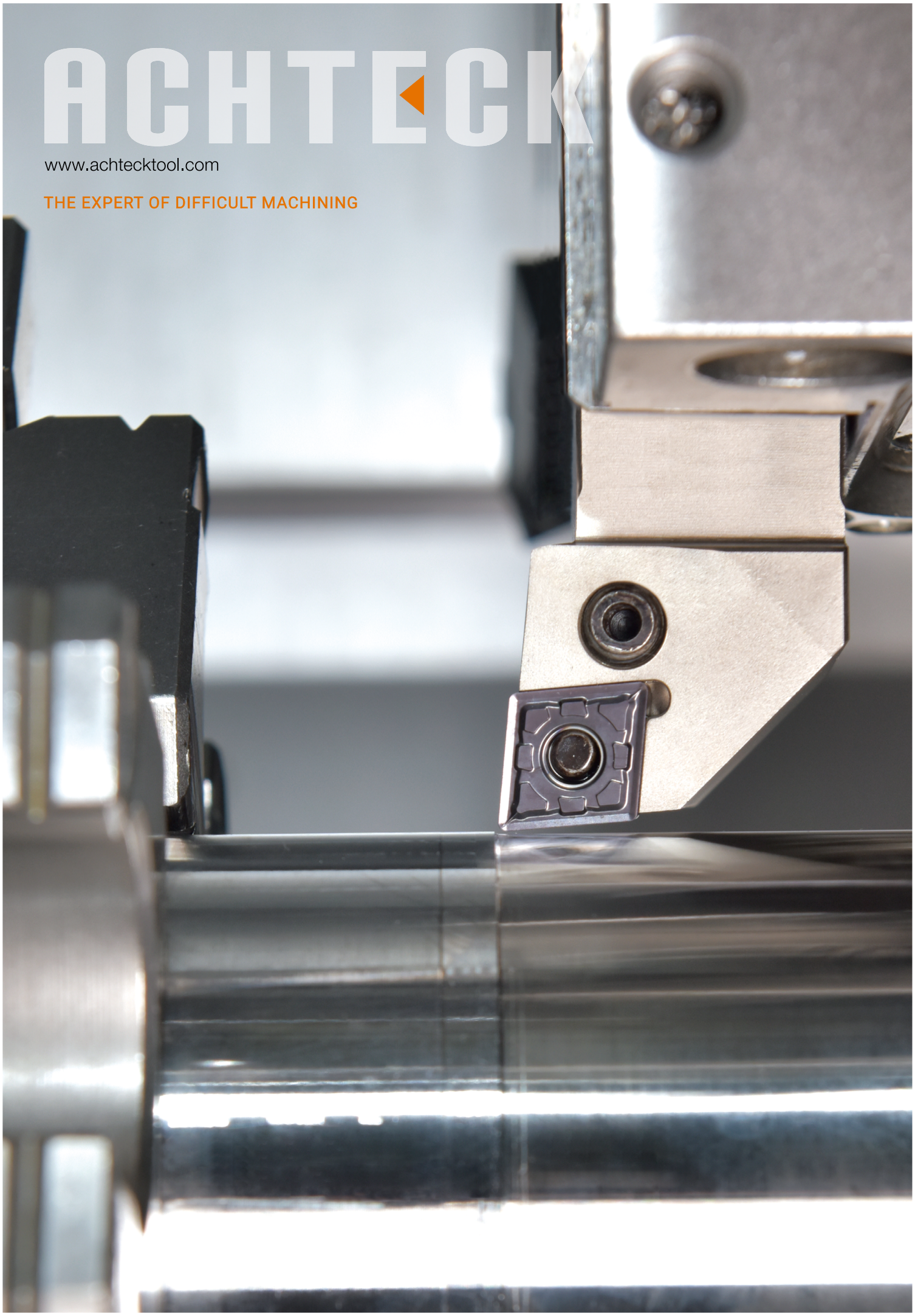

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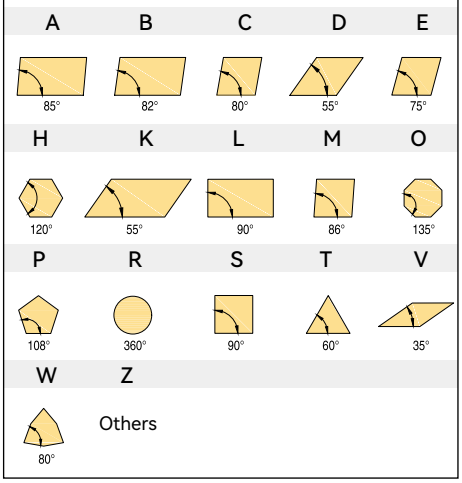
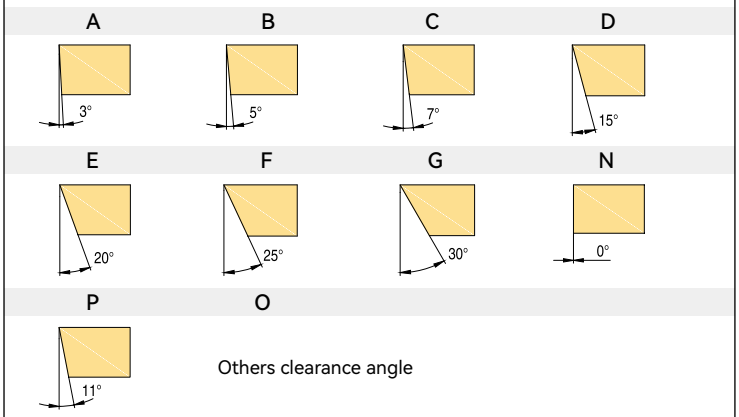
ISO Turning Insert Denomination System

C	N	M	G
1	2	3	4

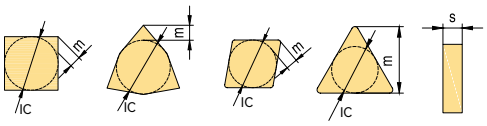
1- Shape/Code



2- Clearance Angle



3- Tolerance



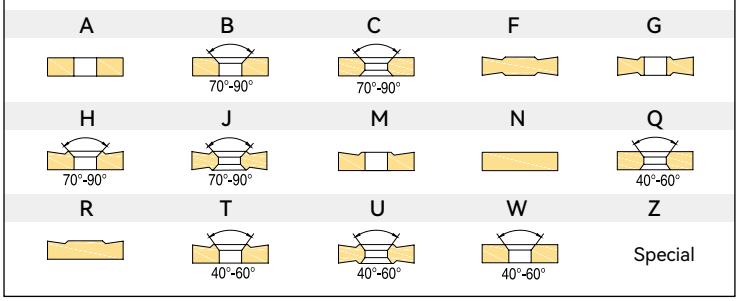
Class	Unit	In.Circle dimension IC	Nose height m	Thickness s
A	mm	± 0,025	± 0,005	± 0,025
C	mm	± 0,025	± 0,013	± 0,025
E	mm	± 0,025	± 0,025	± 0,025
F	mm	± 0,013	± 0,005	± 0,025
G	mm	± 0,025	± 0,025	± 0,130
H	mm	± 0,013	± 0,013	± 0,025
J	mm	*	± 0,005	± 0,025
K	mm	*	± 0,013	± 0,025
L	mm	*	± 0,025	± 0,025
M	mm	*	*	± 0,127
U	mm	*	*	± 0,127
N	mm	*	*	± 0,025

* For details refer to right and below tables

Shape: C, E, H, M, O, P, S, T, R, W				
IC	IC		m	
	J,K,L,M,N	U	M, N	U
4.76	± 0,05	± 0,08	± 0,08	± 0,13
5.56	± 0,05	± 0,08	± 0,08	± 0,13
6.00	± 0,05	± 0,08	± 0,08	± 0,13
6.35	± 0,05	± 0,08	± 0,08	± 0,13
7.94	± 0,05	± 0,08	± 0,08	± 0,13
8.00	± 0,05	± 0,08	± 0,08	± 0,13
9.525	± 0,05	± 0,08	± 0,08	± 0,13
10.00	± 0,05	± 0,08	± 0,08	± 0,13
12.00	± 0,08	± 0,13	± 0,13	± 0,20
12.70	± 0,08	± 0,13	± 0,13	± 0,20
15.875	± 0,10	± 0,18	± 0,15	± 0,27
16.00	± 0,10	± 0,18	± 0,15	± 0,27
19.05	± 0,10	± 0,18	± 0,15	± 0,27
20.00	± 0,10	± 0,18	± 0,15	± 0,27
25.00	± 0,13	± 0,25	± 0,18	± 0,38
25.40	± 0,13	± 0,25	± 0,18	± 0,38
31.75	± 0,15	± 0,25	± 0,20	± 0,38
32.00	± 0,15	± 0,25	± 0,20	± 0,38

M&N class	D shape		V shape	
IC	ic	m	ic	m
5.56	± 0,05	± 0,11		
6.35	± 0,05	± 0,11	± 0,05	± 0,16
7.94	± 0,05	± 0,11	± 0,05	± 0,16
9.525	± 0,05	± 0,11	± 0,05	± 0,16
12.70	± 0,08	± 0,15	± 0,08	± 0,20
15.875	± 0,10	± 0,18	± 0,10	± 0,27
19.05	± 0,10	± 0,18	± 0,10	± 0,27

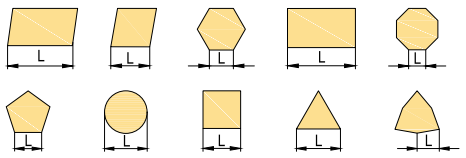
4- Type of Insert



12			04	08	E	-	KC4
5			6	7	8	-	9

5- Cutting Edge Length

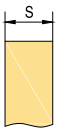
In.Circle Dimension (mm)	Insert shape C	D	R	S	T	V	W	K
3.97					06		02	
5.00			05					
5.56					09			
6.00		06						
6.35	06	07			11	11	04	
8.00			08					
9.525	09	11	09	09	16	16	06	16
10.00			10					
12.00			12					
12.70	12	15	12	12	22	22	08	
15.875	16		15	15	27			
16.00			16					
19.05	19		19	19	33			
20.00			20					
25.00			25					
25.40	25		25	25				
31.75			31					
32.00			32					



6- Thickness

Round down plus zero or T

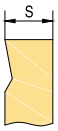
A, B, C, N, O, W



Example:

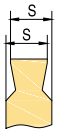
01 = 1.59
T1 = 1.98
02 = 2.38

H, M, R, T



03 = 3.18
T3 = 3.97
04 = 4.76
05 = 5.56
06 = 6.35
07 = 7.94

F, G, J, U



09 = 9.525
11 = 11.11
12 = 12.70
14 = 14.29
15 = 15.88

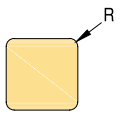
7- Nose Radius

Corner radius

Example:

M0 = Round insert (metric)

00 = Sharp	20 = 2.00
003 = 0.03	24 = 2.40
005 = 0.05	28 = 2.80
01 = 0.10	32 = 3.20
02 = 0.20	40 = 4.00
04 = 0.40	48 = 4.80
08 = 0.80	56 = 5.60
12 = 1.20	64 = 6.40
16 = 1.60	X = Others



8- Edge Preparation

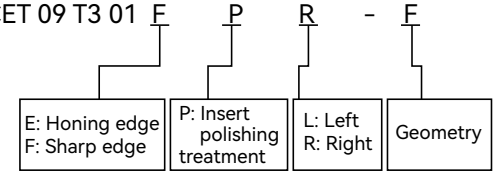
Code	Edge shape	Description
F		Sharp cutting edge
E		Honed cutting edge
T		T-land
S		T-land+Honed cutting edge

9- Chip Breaker Description

Refer to page: P28-43

Ground Positive Insert Example

CCET 09 T3 01 F P R - F



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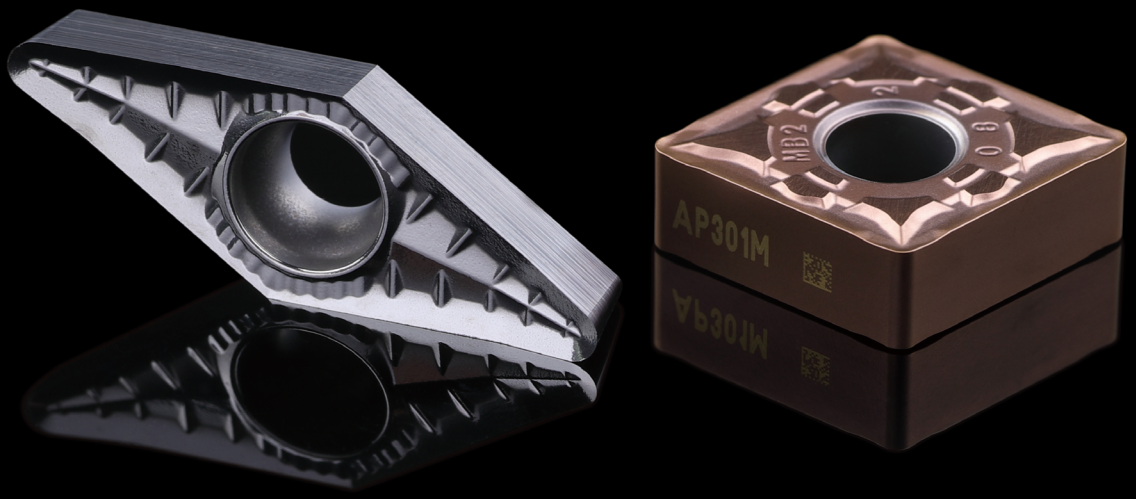
THE EXPERT OF DIFFICULT MACHINING



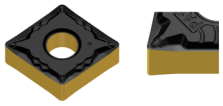
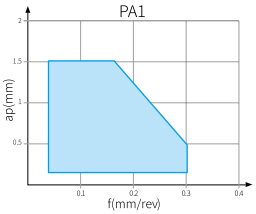
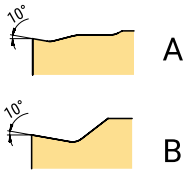
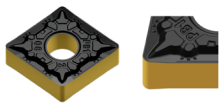
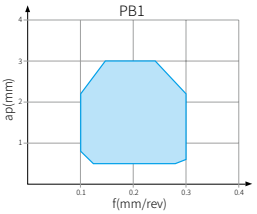
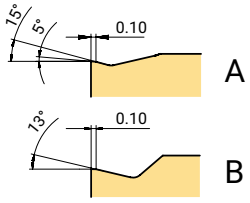
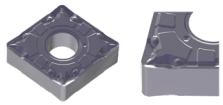
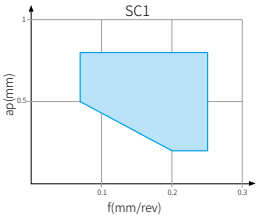
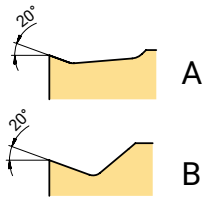
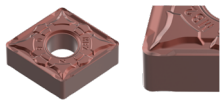
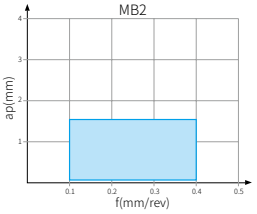
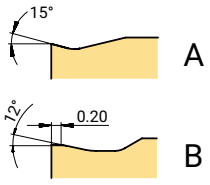
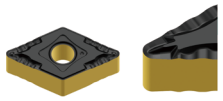
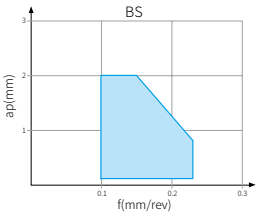
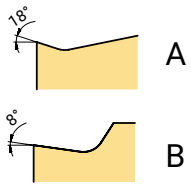
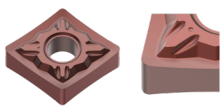
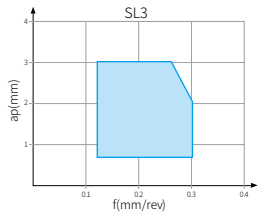
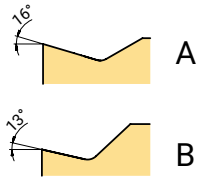
Turning Inserts

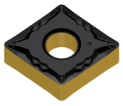
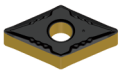
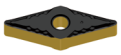
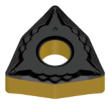
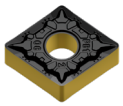
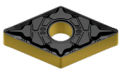
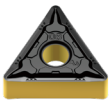
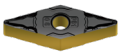
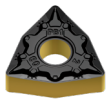
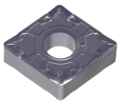
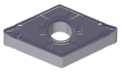
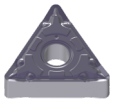
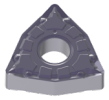
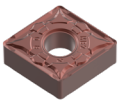
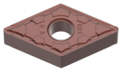
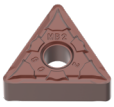
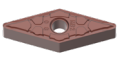
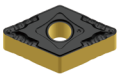
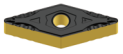
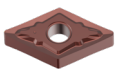
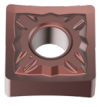
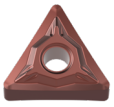
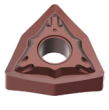
Turning and Grooving Grade Application Guide

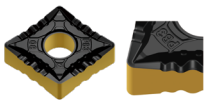
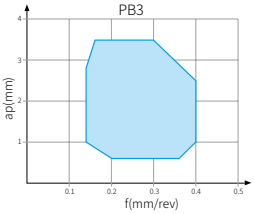
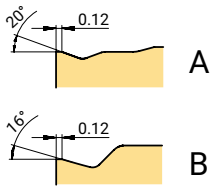
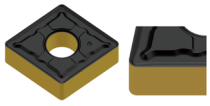
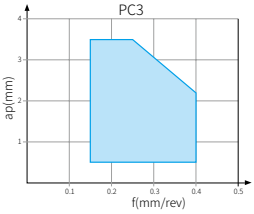
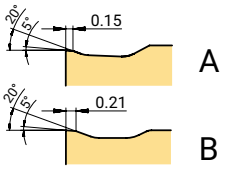
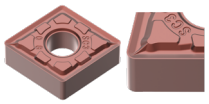
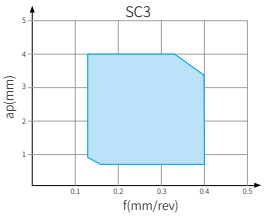
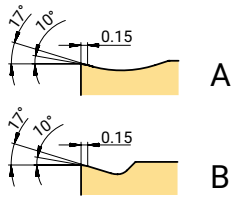
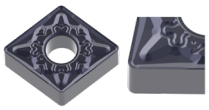
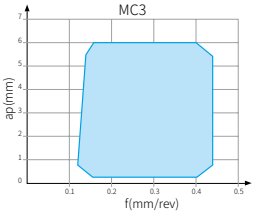
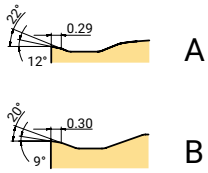
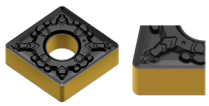
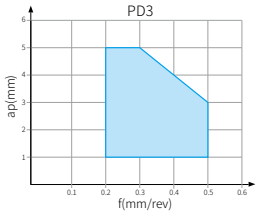
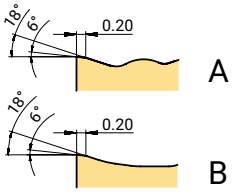
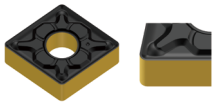
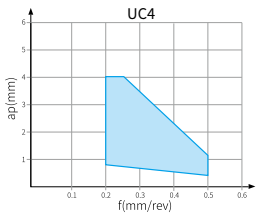
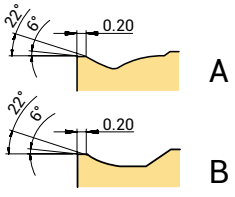
Material Group		ISO	Turning																		Grooving/Parting off						ISO
			Coated										Cermet		Uncoated	PCBN			PCD			Coated				Uncoated	
			CVD						PVD													CVD		PVD			
P	Non-alloy steels/ Alloyed steels	P01	AC052P																								P01
		P10		AC152P		AC252P						AP200U	AT202	AT210A								AC230P		AP301U				P10
		P20					AC200M																		AP330M			P20
		P30				AC350P																						P30
		P40																										P40
		P50																										P50
M	Stainless steels	M01	AC100M						AP010S																AP130S			M01
		M10		AC200M						AP200U	AP301M												AP301U					M10
		M20																							AP330M			M20
		M30																										M30
		M40																										M40
K	Cast iron	K01	AC100K															PB90									K01
		K10		AC102K		AC202K							AT202	AT210A														K10
		K20																										K20
		K30																										K30
		K40																										K40
		K50																										K50
N	Aluminum/ Aluminum alloys	N01													AW100K					PD20						AW100K		N01
		N10																										N10
		N20																										N20
		N30																										N30
S	Heat resistant alloys	S01	AC100M						AP010S	AP100S														AP130S				S01
		S10		AC200M							AP301M																	S10
		S20																										S20
		S30																										S30
		S40																										S40
H	Hardened steels/ Chilled cast iron	H01														PB30											H01
		H10															PB60										H10
		H20																										H20
		H30																										H30

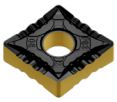
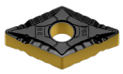
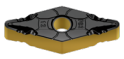
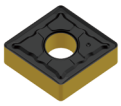
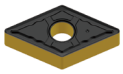
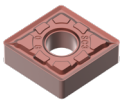
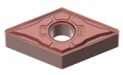
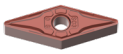
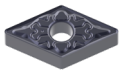
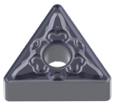
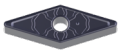
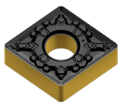
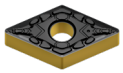
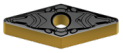
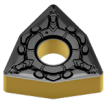
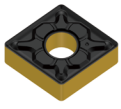
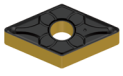
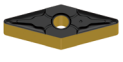
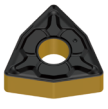
Overview of Turning Insert Geometries

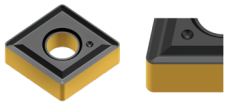
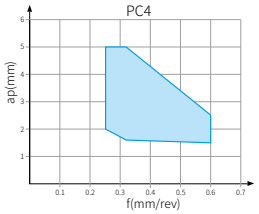
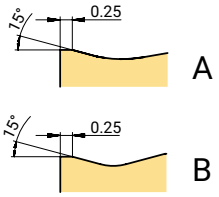
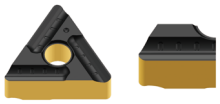
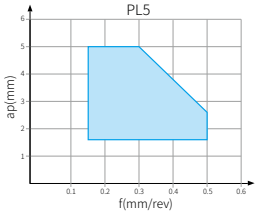
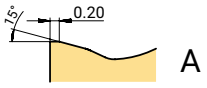
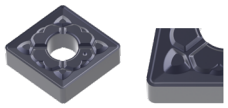
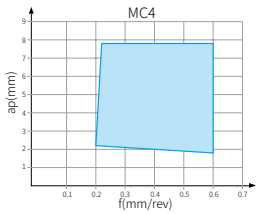
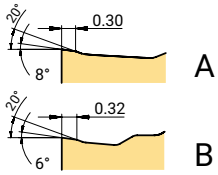
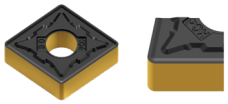
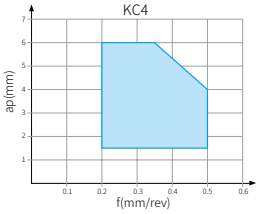
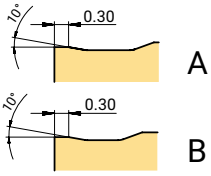
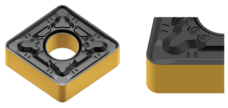
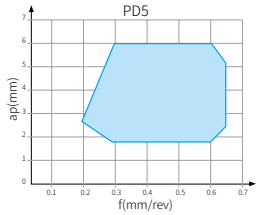
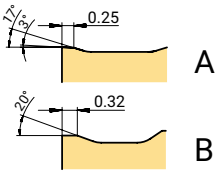
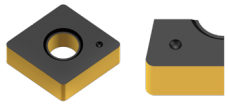
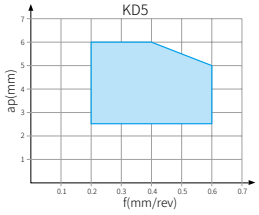
Negative Inserts

Application	Chip breaker	Features	Chip breaking range	Cross section geometry
Finishing	PA1 	**Steel finishing machining chip breaker** Chip breaker structure design to break chips at varied depths of cut, featuring good sharpness and smooth edge inclination design, which can effectively improve the chip flow and reduce cutting force.		
	PB1 	**1st choice for steel finish to semi-finishing turning** Light cutting chip breaker, low cutting force, suitable for slender shaft, thin walled and poorly clamped parts. Overall good cutting performance.		
	SC1 	**1st choice for heat resistant alloy finish turning** Excellent performance at low depth of cut.		
	MB2 	**1st choice for stainless steel finish turning** High positive rake angle reduced cutting force and built-up edge, can obtain much better surface quality. Very good chip breaking at low feed and cutting depth.		
Profiling	BS 	**Recommended for profile turning** Suitable for profiling with changing depth of cut. Smooth chip evacuation		
Light cutting	SL3 	**Recommended for heat resistant alloy light turning.** Suitable for heat resistant alloy, Ti-alloy. Sharp and wavy cutting edge can get good surface finish and good chip breaking results.		

	80° Rhombus	55° Rhombus	90° Square	60° Triangle	35° Rhombus	80° Trigon	Round
	CNMG-PA1  P54	DNMG-PA1  P58		TNMG-PA1  P66	VNMG-PA1  P70	WNMG-PA1  P72	
	CNMG-PB1  P54	DNMG-PB1  P58	SNMG-PB1  P62	TNMG-PB1  P66	VNMG-PB1  P70	WNMG-PB1  P72	
	CNMG-SC1  P54	DNMG-SC1  P58		TNMG-SC1  P66	VNMG-SC1  P70	WNMG-SC1  P72	
	CNMG-MB2  P54	DNMG-MB2  P58	SNMG-MB2  P62	TNMG-MB2  P66	VNMG-MB2  P70	WNMG-MB2  P72	
		DNMG-BS  P58			VNMG-BS  P70		
	CNMG-SL3  P54	DNMG-SL3  P58	SNMG-SL3  P62	TNMG-SL3  P66	VNMG-SL3  P70	WNMG-SL3  P73	

Application	Chip breaker	Features	Chip breaking range	Cross section geometry A/B	
Semi-finishing	PB3 	**1st choice for steel semi finish turning** The positive rake angle combined with small land guaranteed edge strength and sharpness, reduced the cutting force. The wavy side edge design has a good chip breaking result in small leading angle turning on the shoulder, and in profile turning at different cutting depths.			
	PC3 	**Alternative chipbreaker for steel semi-finish turning** Unique geometry design offers wider chip breaking range. Double rake angle makes the cutting smoothly. Enhanced insert tip reduced crater wear.			
	SC3 	**1st choice for heat resistant alloy medium turning** Used in heat resistant alloy and titanium alloy medium turning. Large rake angle + small land width design, easy cutting, is also suitable for soft steel turning.			
	MC3 	**1st choice for stainless steel medium turning** Sharp cutting edge, low cutting force, wide chip breaking range and good chip removal ability.			
Medium	PD3 	**1st choice for steel medium turning** It has a strong chip control ability at low feed and cutting depth, and reduces crater wear. The chip breaking is also very good at high feed and cutting depth due to the geometry design. Double rake angle design makes sharp cutting edge and reduces cutting force.			
	UC4 	**1st choice for carbon steel & alloyed steel (medium-cutting conditions)** **Alternative chip breaker for cast iron finishing & light-duty machining** Wide applicability across P, M, K-class workpiece materials for general-purpose medium-duty machining. Positive land angle geometry for reduced cutting forces and enhanced process stability. Features an optimized edge preparation technique to balance cutting-edge sharpness and strength.			

	80° Rhombus	55° Rhombus	90° Square	60° Triangle	35° Rhombus	80° Trigon	Round
	CNMG-PB3  P54	DNMG-PB3  P59		TNMG-PB3  P67	VNMG PB3  P70	WNMG-PB3  P73	
	CNMG-PC3  P54	DNMG-PC3  P59	SNMG-PC3  P62	TNMG-PC3  P67	VNMG-PC3  P70	WNMG-PC3  P73	
	CNMG-SC3  P55	DNMG-SC3  P59	SNMG-SC3  P62	TNMG-SC3  P67	VNMG-SC3  P70	WNMG-SC3  P73	
	CNMG-MC3  P55	DNMG-MC3  P59	SNMG-MC3  P62	TNMG-MC3  P67	VNMG-MC3  P70	WNMG-MC3  P73	
	CNMG-PD3  P55	DNMG-PD3  P60	SNMG-PD3  P63	TNMG-PD3  P67	VNMG-PD3  P71	WNMG-PD3  P73	
	CNMG-UC4  P55	DNMG-UC4  P60	SNMG-UC4  P62	TNMG-UC4  P67	VNMG-UC4  P71	WNMG-UC4  P73	

Application	Chip breaker	Features	Chip breaking range	Cross section geometry
Medium	PC4 	**1st choice for cast iron medium turning Alternative chipbreaker for carbon steel and alloy steel medium turning** Flat T-land guarantee the strength of cutting edge. This multi-purpose geometry can be used in universal applications.		
	PL5 	**1st choice for steel slender bar turning** Open chip breaker leads to smooth cutting with low cutting force, which is suitable for slender shaft turning.		
Roughing	MC4 	**Alternative chipbreaker for stainless steel and heat resistant alloy rough turning** Large chip breaker design, smooth chip evacuation, good chip breaking, with high metal removal rate.		
	KC4 	**1st choice for cast iron turning** It has strong cutting edge, reliable and stable performance.		
	PD5 	**Alternative chipbreaker for steel rough turning** A strong cutting edge. Double rake angle design effectively reduces the cutting force, can still have good chip breaking at small cutting depth.		
	KD5 	**1st choice for cast iron rough turning** High cutting edge strength, suitable for interrupt cutting and unstable cutting.		

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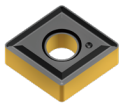
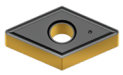
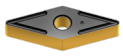
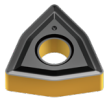
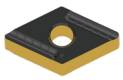
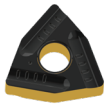
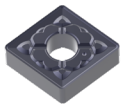
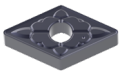
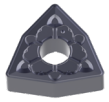
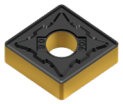
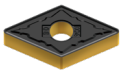
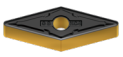
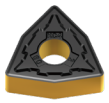
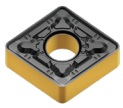
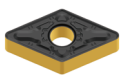
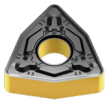
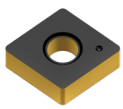
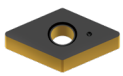
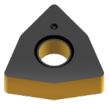
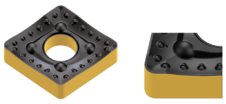
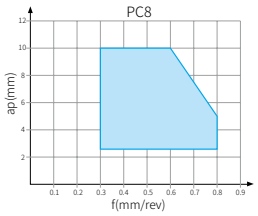
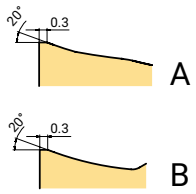
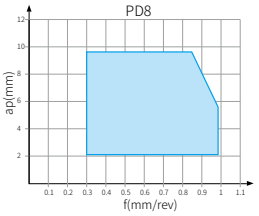
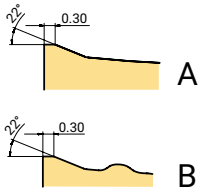
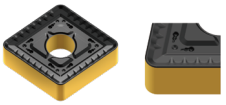
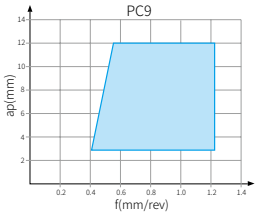
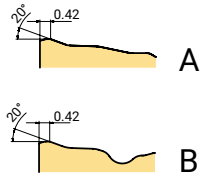
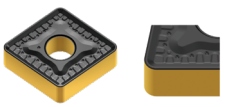
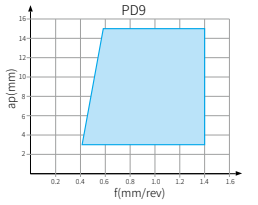
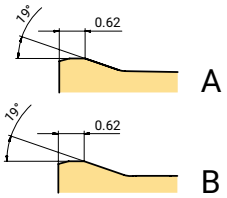
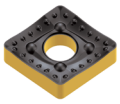
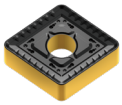
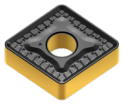
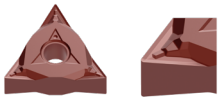
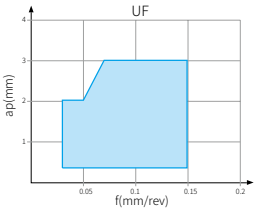
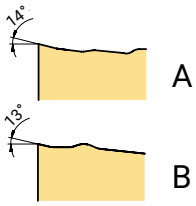
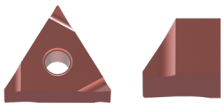
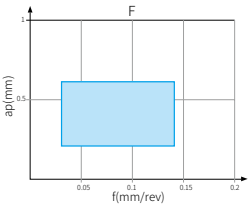
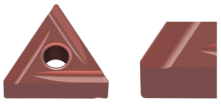
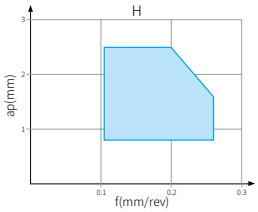
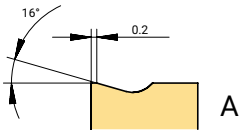
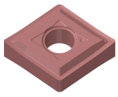
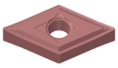
	CNMG-PC4  P55	DNMG-PC4  P60	SNMG-PC4  P63	TNMG-PC4  P67	VNMG-PC4  P71	WNMG-PC4  P74	
		DNMG-PL5  P60		TNMG-PL5  P67		WNMG-PL5  P74	
	CNMG-MC4  P56	DNMG-MC4  P61	SNMG-MC4  P63	TNMG-MC4  P68		WNMG-MC4  P74	
	CNMG-KC4  P56	DNMG-KC4  P61	SNMG-KC4  P64	TNMG-KC4  P68	VNMG-KC4  P71	WNMG-KC4  P74	
	CNMG-PD5  P56	DNMG-PD5  P61	SNMG-PD5  P64	TNMG-PD5  P68		WNMG-PD5  P74	
	CNMA-KD5  P57	DNMA-KD5  P61	SNMA-KD5  P64	TNMA-KD5  P68		WNMA-KD5  P74	

Application	Chip breaker	Features	Chip breaking range	Cross section geometry	
Heavy roughing	PC8 	**Light cutting geometry for heavy turning** Positive rake angle and curved cutting edge design, low cutting force.			
	PD8 	**Heavy turning geometry for soft steel and stainless steel** The geometry design ensures low cutting force. Suitable for low power machine tools. Applied in steel, stainless steel and cast iron heavy turning.			
	PC9 	**1st choice for steel heavy rough turning** Wavy geometry is good for chip breaking. The geometry has a big space for chips, which is suitable for high metal removal rate.			
	PD9 	**Alternative chipbreaker for steel heavy rough turning** High edge strength is suitable for large cutting depth and high feed turning. High machining reliability.			

	80° Rhombus	55° Rhombus	90° Square	60° Triangle	35° Rhombus	80° Trigon	Round
	CNMM-PC8  P57						
	CNMM-PD8  P57		SNMM-PD8  P65	TNMM-PD8  P69			
	CNMM-PC9  P57		SNMM-PC9  P65				
	CNMM-PD9  P57		SNMM-PD9  P65				

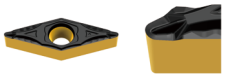
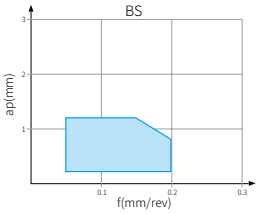
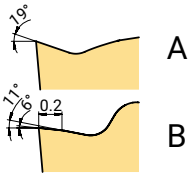
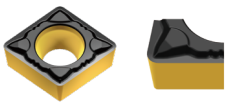
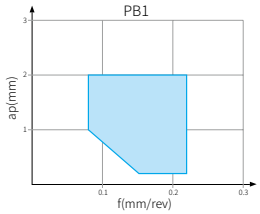
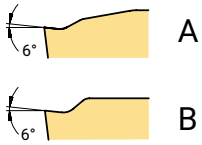
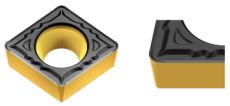
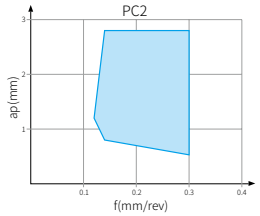
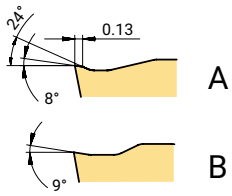
Negative Ground Insert

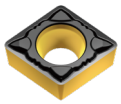
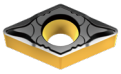
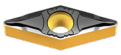
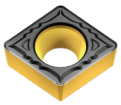
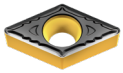
Application	Chip breaker	Features	Chip breaking range	Cross section geometry	
Finishing	UF 	**Suitable for precision turning** Low cutting forces, good chip breaking, suitable for finish turning.			
	F 	**Finish turning** Low cutting force, good chip control. The sharp edge produces a good surface finish.			
Semi-finishing-Rough machining	H 	**Light turning** Excellent chip control at low to medium feed rates. Strong edge strength.			

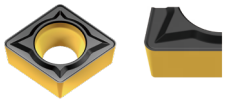
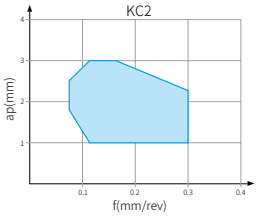
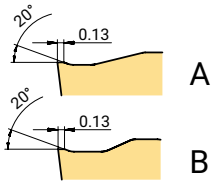
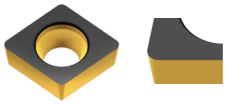
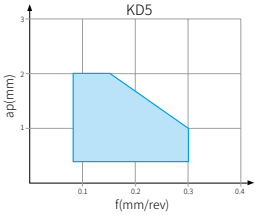
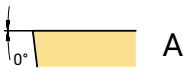
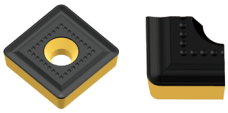
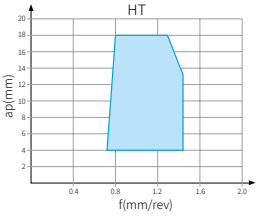
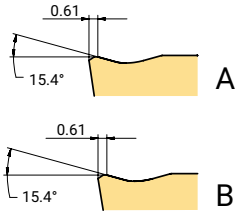
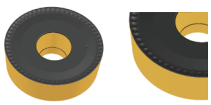
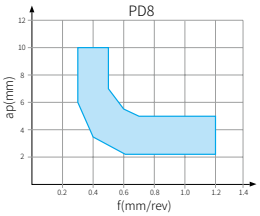
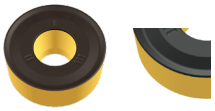
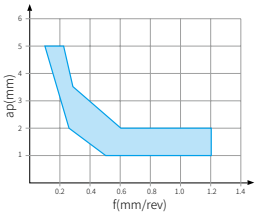
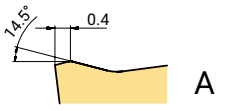
	80° Rhombus	55° Rhombus	90° Square	60° Triangle	35° Rhombus	80° Trigon	Round
	CNGG-UF  P54	DNGG-UF  P58		TNGG-UF  P66	VNGG-UF  P70		
				TNGG-F  P69			
				TNGG-H  P69			

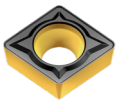
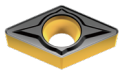
Overview of Turing Insert Geometry

Positive Pressed Insert

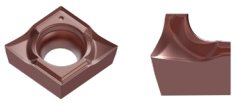
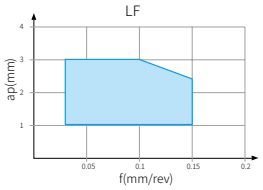
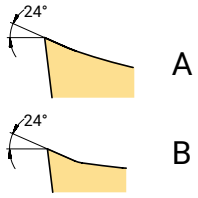
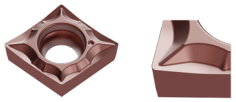
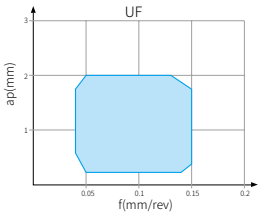
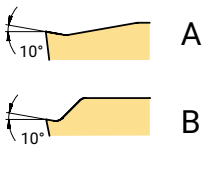
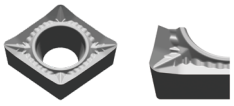
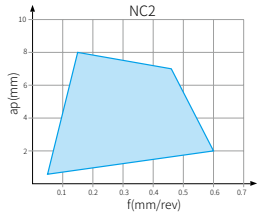
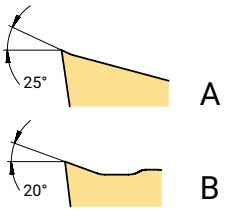
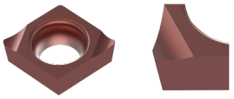
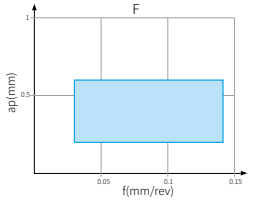
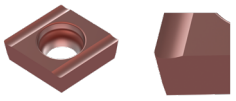
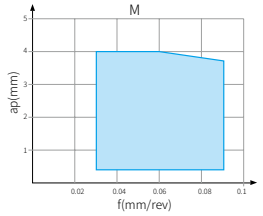
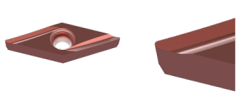
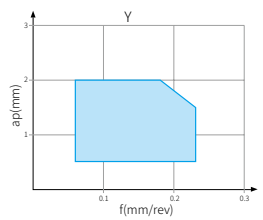
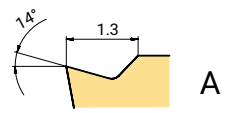
Application	Chip breaker	Features	Chip breaking range	Cross section geometry A/ B	
Profiling	BS 	**Finish turning** Profile turning or turning with changing depth of cut, smooth chip evacuation.			
Finishing	PB1 	**1st choice for steel finish turning** Positive rake angle reduces cutting force and built-up edge, and obtains better surface finish and longer tool life. Also can be used in stainless steel turning.			
Semi-finishing	PC2 	**1st choice for steel and stainless steel semi-finish turning** Sharp geometry design ensures low cutting force, less built-up edge and excellent chip control.			

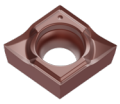
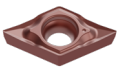
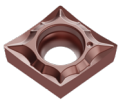
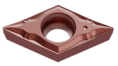
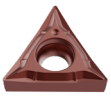
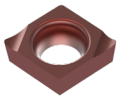
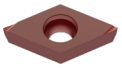
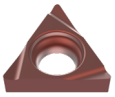
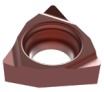
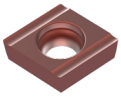
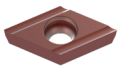
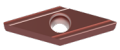
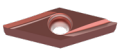
	80° Rhombus	55° Rhombus	90° Square	60° Triangle	35° Rhombus	80° Trigon	Round
					VBMT-BS  P90		
	CCMT-PB1 CPMT-PB1  P77、80	DCMT-PB1  P82	SCMT-PB1  P84	TCMT-PB1 TPMT-PB1  P86、88	VBMT-PB1 VCMT-PB1  P90、93		
	CCMT-PC2 CPMT-PC2  P77、80	DCMT-PC2  P82	SCMT-PC2  P84	TCMT-PC2 TPMT-PC2  P86、88	VBMT-PC2 VCMT-PC2  P91、93		

Application	Chip breaker	Features	Chip breaking range	Cross section geometry	
Medium	KC2 	**General purpose geometry for steel, stainless steel and cast iron turning** Suitable for medium and rough turning. Simple and durable chip breaker design, very good versatility and wide application range.			
Roughing	KD5 	**Geometry for cast iron rough turning** Suitable for unstable machining due to its strong cutting edge. Reduced chipping.			
	HT 	**Geometry for steel turning with large cutting depth** Open chip breaker is suitable for large cutting depth with smooth chip evacuation. Good cost efficiency.			
Semi-finishing	PD8 	**Geometry for carbon steel and alloy steel semi-finishing turning** A wide chipbreaker avoid chip jam at large cutting depth. Chip control can be also good at small cutting depth.			
Medium	No code 	**Alternative chipbreaker for cast iron and alloy steel medium turning** Negative land and large rake angle design ensure cutting edge strength and sharpness.			

	80° Rhombus	55° Rhombus	90° Square	60° Triangle	35° Rhombus	80° Trigon	Round
	CCMT-KC2  P78	DCMT-KC2  P82	SCMT-KC2  P84	TCMT-KC2  P87	VBMT-KC2  P91		
	CCMW-KD5  P78	DCMW-KD5  P82	SCMW-KD5  P84	TCMW-KD5  P87			
			SCMT-HT  P84				
							RCMX-PD8  P96
							RCMX  P96

正型磨制 Inserts

Application	Chip breaker	Features	Chip breaking range	Cross section geometry
Finishing	LF 	**Finish turning** Sharp cutting edge, low cutting force, suitable for Swiss-type automatic lathe with 2 direction machining.		
	UF 	**1st choice for heat resistant alloy turning** Peripheral ground finish turning inserts. High repeatability on insert positioning. Sharp cutting edge can achieve good machining tolerance.		
Semi-finishing	NC2 	**Choice for aluminium alloy turning** Very positive rake angle is designed for non-ferrous metal finish and semi-finish turning. It reduces the cutting force and make smooth chip evacuation. The polished rake surface, with reduced friction and built-up edge.		
Finishing	F 	**Choice for finish turning** Excellent chip control at low feed rate. Very low cutting force.		
Low feed	M 	**Suitable for medium turning in automatic lathes** Excellent chip control at low to medium feed rate. Reliable machining. large rake angle avoid work hardening.		
Semi-finishing	Y 	**Choice for semi-finish to rough turning in automatic lathe** The strong edge can be used in rough turning. Good chip control for low to medium feed rate		

	80° Rhombus	55° Rhombus	90° Square	60° Triangle	35° Rhombus	80° Trigon	Round
	CCGT-LF  P76	DCGT-LF  P81		TCGT-LF  P85	VBGT-LF VCGT-LF VPGT-LF  P90、93、94		
	CCGT-UF  P76	DCGT-UF  P81		TCGT-UF  P85、86	VBGT-UF VCGT-UF VPGT-UF  P90、93、94		
	CCGT-NC2  P76	DCGT-NC2  P81	SCGT-NC2  P84	TCGT-NC2  P86	VCGT-NC2 VPGT-NC2  P93、94		RCGT-NC2  P96
	CCET-F  P78	DCET-F  P82、83		TBET-F TCET-F TPEH-F  P85、87、89	VBET-F VCET-F VPET-F  P91、93、94	WBET-F  P95	
	CCET-M  P79	DCET-M  P83		TCET-M  P87	VBET-M VPET-M  P92、94		
					VBET-Y  P92		

Turning Grade Description

Basic Grades for Turning

P Steel, cast steel, ferrite/martensite stainless steel and malleable cast iron

Basic grade

AC052P P05(P01-P15)

CVD coated grade, has good crater resistance and chipping resistance, which is recommanded for high productivity medium and rough turning in stable condition, can keep edge reliability in dry or wet machining with high temperature.

AC152P P15(P05-P25)

CVD coated grade, can be used in finish to rough turning on steel and cast steel, and is recommanded in continuous and light interrupted cutting where it can keep high metal removal rate.

AC252P P25(P15-P35)

CVD coated grade, 1st choice for steel turning, used in finish to rough turning on steel and cast steel. It's recommanded for continuous and interrupted machining.

AC350P P35(P30-P45)

CVD coated grade, can be used in rough turning on steel and cast steel under poor conditions. Reliable cutting edge made this grade good for interrupted machining with high metal removal rate.

AT210A P15(P10-P20)

Coated cermet grade, the combination of ultra-fine crystalline hard phase and composite bonding phase to realize the balance of wear resistance and chipping resistance; suitable for continuous medium to fine turning processing of steel materials, and offer high-quality machining surface.

AT202 P15(P10-P20)

Uncoated cermet grade. It has excellent built-up edge resistance and chipping resistance which can be used in finish turning with good surface quality or low cutting force requests.

Supplemental grade

AP200U P25(P15-P35)

PVD coated grade, recommanded for finish turning on low carbon steel with low cutting speed or low feed.

M Austenitic stainless steel, cast steel, manganese steel, alloyed cast iron, malleable cast iron and free cutting iron

Basic grade

AC100M M15(M05-M20)

CVD coated grade. It's recommanded for finish machining and light rough machining. It's suitable for machining at medium to high cutting speed due to its heat resistance feature of wear resistant coating.

AC200M M25(M15-M30)

CVD coated grade, optimised for semi-finish to rough turning, can be used in interrupted machining in which it can keep edge reliability due to good thermal shock stability and mechanical shock resistance.

AP301M M25(M15-M35)

PVD coated grade. Mainly used in machining steel and stainless steel small parts. It has excellent built-up edge resistance, good machining stability, can obtain good surface quality, and achieve longer tool life.

Supplemental grade

AP010S (M01-M15)

PVD coated grade, recommanded for finish turning due to its high hardness and resistance to plastic deformation.

AP200U M25(M15-M35)

PVD coated grade, used in complementary stainless steel applications at low to medium cutting speeds and also in interrupted turning due to excellent thermal stability, outstanding performance in machining when sharp edge and edge toughness or good surface quality are requeste

K Cast iron, chilled cast iron and short chip malleable cast iron

Basic grade

AC100K K05(K01-K15)
CVD coated grade, has thick and smooth wear resistant coating and very hard substrate, recommanded for grey cast iron high speed turning.

AC102K K10(K05-K20)
CVD coated grade, has thick and smooth wear resistant coating and hard substrate, recommanded for nodular cast iron high speed turning.

AC202K K15(K10-K30)
1st choice for cast iron turning. It can deal with interrupted cutting due to its high wear-resitant CVD coating, used in finish to rough turning on cast iron at low to medium cutting speed.

Supplemental grade

PB90 K10(K01-K20)
CBN grade. Suitable for grey cast iron and chilled cast iron interrupted finish turning due to its good edge strength and wear resistance.

AT210A K15(K10-K20)
Coated cermet grade. The combination of ultra-fine crystalline hard phase and composite bonding phase to provide a balance of abrasion resistance and chipping resistance; suitable for continuous and medium turning of cast iron materials; offer high-quality machining surfaces.

AT202 K15(K10-K20)
Uncoated cermet grade. It has excellent built-up edge resistance and good plastic deformation resistance. It can be used in nodular cast iron finish turning when surface quality, small tolerance or low cutting force are requested.

N Non-ferrous metals

Basic grade

AW100K N15(N05-N25)
Uncoated grade. It has both excellent wear resistance and sharp edge. Used in Al alloy rough to finish machining.

PD20 N10 (N01-N20)
PCD grade, used in non-ferrous material and non-metal material machining which can have longer tool life, completely clean cutting and good surface quality.

S Heat resistant alloys

Basic grade

AP010S S05(S01-S15)
With extremely high hardness, structural and chemical stability, it can not only meet the needs of high cutting speed finishing stable working conditions, but also suitable for high toughness of medium or semi-finishing and other general working conditions.

AP100S S10(S05-S20)
1st choice for heat resistant alloy. PVD coated grade has high hardness and plastic deformation resistance, can keep high performance and good wear resistance.

AP301M S25(S15-S35)
PVD coated grade. Used in low cutting speed or light interrupted cutting. Suitable for semi-roughing or continuous machining for a short time due to its good notch wear resistance and anti-heat shock capability.

Supplemental grade

AC100M S15(S05-S20)
CVD coated grade, suitable for heat resistant alloy continuous high speed machining .

AC200M S25(S15-S35)
CVD coated grade, suitable for heat resistant alloy general machining.

H Hardened materials

Basic grade

PB30 H10(H05-H15)
CBN grade with low CBN content, is used in hardened steel continuous machining at high speed and light interrupted machining.

PB60 H15(H10-H25)
1st choice of CBN grade medium CBN content for hardened steel interrupted machining and continuous machining at medium speed.

Cutting Data Recommendation--Negative Insert

Materials												
ISO	Workpiece Materials			Brinell Hardness (HB)	Tensile strength (N/mm^2)	AT202 f (mm/rev)			AT210A f (mm/rev)			
						0.10	0.30	0.50	0.10	0.30	0.50	
P	Unalloyed steel	C ≤ 0.25%	Annealed	125	428	200	100	70	310	200	160	
		0.25 < C ≤ 0.55%	Annealed	190	639	200	100	70	310	200	160	
		0.25 < C ≤ 0.55%	Heat-treated	210	708	200	80	50	310	180	140	
		C > 0.55%	Annealed	190	639	200	80	50	310	180	140	
		C > 0.55%	Heat-treated	300	1013	200	80	50	310	180	140	
		Free cutting steel(short chip)	Annealed	220	745	200	80	50	310	180	140	
	Low-alloyed steel	Annealed		175	591	180	80	50	290	180	140	
		Heat-treated		300	1013	180	80	50	290	180	140	
		Heat-treated		380	1282	180	80	50	290	180	140	
		Heat-treated		430	1477	180	80	50	290	180	140	
	High-alloyed steel and high-alloyed tool steel	Annealed		200	675	160	80	50	270	180	140	
		Hardened and tempered		300	1013	160	80	50	270	180	140	
		Hardened and tempered		400	1361	150	80	50	270	180	140	
	Stainless steel	Ferritic/Martensite, Annealed		200	675							
		Martensite, Heat-treated		330	1114							
M	Stainless steel	Austenitic,hardened		200	675							
		Austenitic,precipitation hardened stainless steel(PH stainless steel)		300	1013							
		Austenitic, ferritic, duplex		230	778							
K	Malleable cast iron	Ferritic		200	400							
		Pearlitic		260	700							
	Grey cast iron	Low tensile strength		180	200							
		High tensile strength/Austenitic		245	350							
	Nodular cast iron	Ferritic		155	400							
		Pearlitic		265	700							
	GGV(CGI)			230	400							
N	Wrought aluminum alloy	Non-aging alloy		30	-							
		Aged alloy		100	340							
	Cast aluminum alloy	≤ 12% Si, non-aging alloy		75	260							
		≤ 12% Si, aged alloy		90	310							
		> 12% Si, non-aging alloy		130	450							
	Magnesium alloy			70	250							
	Copper and copper alloy (bronze/brass)	Unalloyed, electrolytic copper		100	340							
		Brass, bronze, red brass		90	310							
		Cu alloy, short chip		110	380							
		High tensile, Ampco alloy		300	1010							
S	Heat-resistant alloy	Fe-based	Annealed	200	680							
			Aged	280	940							
		Ni or Co based	Annealed	250	840							
			Aged	350	1180							
			Cast	320	1080							
	Titanium alloy	Pure Titanium		200	680							
		α and β alloy, aged		375	1260							
		β alloy		410	1400							
	Tungsten alloy			300	1010							
	Molybdenum alloy			300	1010							
H	Hardened steel	Hardened and tempered		50HRC								
		Hardened and tempered		55HRC								
		Hardened and tempered		60HRC								
	Chilled cast iron	Hardened and tempered		55HRC								

* The recommended cutting data always refer to general cutting conditions. The actual selection should be adjusted according to the factors such as machine rigidity, tool body, workpiece conditions and coolant (f should be adjust according to insert radius)

Achteck turning grade																		
Initial value of cutting speed Vc(m/min)																		
	AC052P			AC152P			AC252P			AC350P			AC100M			AC200M		
	f (mm/rev)			f (mm/rev)			f (mm/rev)			f (mm/rev)			f (mm/rev)			f (mm/rev)		
	0.10	0.40	0.60	0.10	0.40	0.60	0.10	0.40	0.60	0.10	0.40	0.60	0.10	0.30	0.50	0.10	0.30	0.50
	620	450	330	485	360	270	380	260	210	250	170	140						
	560	405	295	370	270	210	280	200	150	200	135	110						
	400	280	200	260	220	170	200	160	135	150	125	90						
	530	385	275	270	220	160	240	160	125	170	110	90						
	380	245	180	210	180	150	160	120	110	125	75	65						
	600	420	300	440	310	250	340	220	175	220	145	115						
	610	410	285	350	260	220	240	175	135	200	165	150						
	530	350	250	220	170	150	140	100	85	135	90	70						
	330	230	175	160	120	100	100	70	55	90	65	45						
	265	185	140	90	70													
	445	295	215	330	230	150	210	145	85	180	150	85						
	300	200	160	230	140	110	130	85	65	110	85	65						
	220	140	105	80	70													
							180	150	120	150	120	95	220	180	150	190	160	130
							140	100	70	110	80	60	170	140	130	140	110	100
													250	190	150	200	160	110
													180	160		150	120	
													190	170	130	160	130	100
													360	300	260			
													330	280	250			
													450	400	350			
													350	300	250			
													300	250	200			
													300	250	200			
													80	60	40	70	50	30
													70	50	30	60	40	20
													70	50	35	60	40	25
													70	50	30	60	40	20
													70	50	30	60	40	20

Cutting Data Recommendation--Negative Insert

Materials												
ISO	Workpiece Materials			Brinell Hardness (HB)	Tensile strength (N/mm^2)	AP200U f (mm/rev)			AP301M f (mm/rev)			
						0.10	0.30	0.50	0.10	0.30	0.50	
P	Unalloyed steel	C ≤ 0.25%	Annealed	125	428	220	210					
		0.25 < C ≤ 0.55%	Annealed	190	639	170	150					
		0.25 < C ≤ 0.55%	Heat-treated	210	708	140	120					
		C > 0.55%	Annealed	190	639	130	120					
		C > 0.55%	Heat-treated	300	1013							
		Free cutting steel(short chip)	Annealed	220	745	190	170					
	Low-alloyed steel	Annealed		175	591	130	110					
		Heat-treated		300	1013							
		Heat-treated		380	1282							
		Heat-treated		430	1477							
	High-alloyed steel and high-alloyed tool steel	Annealed		200	675	120	80					
		Hardened and tempered		300	1013							
		Hardened and tempered		400	1361							
	Stainless steel	Ferritic/Martensite, Annealed		200	675	145	130	90				
		Martensite, Heat-treated		330	1114	105	80	70				
M	Stainless steel	Austenitic,hardened		200	675	180	120	80	180	120	80	
		Austenitic,precipitation hardened stainless steel(PH stainless steel)		300	1013	110	90		110	90		
		Austenitic, ferritic, duplex		230	778	120	100	70	120	100	70	
K	Malleable cast iron	Ferritic		200	400							
		Pearlitic		260	700							
	Grey cast iron	Low tensile strength		180	200							
		High tensile strength/Austenitic		245	350							
	Nodular cast iron	Ferritic		155	400							
		Pearlitic		265	700							
	GGV(CGI)			230	400							
N	Wrought aluminum alloy	Non-aging alloy		30	-							
		Aged alloy		100	340							
	Cast aluminum alloy	≤ 12% Si, non-aging alloy		75	260							
		≤ 12% Si, aged alloy		90	310							
		> 12% Si, non-aging alloy		130	450							
	Magnesium alloy			70	250							
	Copper and copper alloy (bronze/brass)	Unalloyed, electrolytic copper		100	340							
		Brass, bronze, red brass		90	310							
		Cu alloy, short chip		110	380							
		High tensile, Ampco alloy		300	1010							
S	Heat-resistant alloy	Fe-based	Annealed	200	680				40	25		
			Aged	280	940				30	20		
		Ni or Co based	Annealed	250	840				30	25		
			Aged	350	1180				30	20		
			Cast	320	1080				30	20		
	Titanium alloy	Pure Titanium		200	680							
		α and β alloy, aged		375	1260							
		β alloy		410	1400							
	Tungsten alloy			300	1010							
	Molybdenum alloy			300	1010							
H	Hardened steel	Hardened and tempered		50HRC								
		Hardened and tempered		55HRC								
		Hardened and tempered		60HRC								
	Chilled cast iron	Hardened and tempered		55HRC								

* The recommended cutting data always refer to general cutting conditions. The actual selection should be adjusted according to the factors such as machine rigidity, tool body, workpiece conditions and coolant (f should be adjust according to insert radius)

Achteck turning grade																		
Initial value of cutting speed Vc(m/min)																		
	AC100K			AC102K			AC202K			AW100K			AP010S			AP100S		
	f (mm/rev)			f (mm/rev)			f (mm/rev)			f (mm/rev)			f (mm/rev)			f (mm/rev)		
	0.10	0.30	0.50	0.10	0.30	0.50	0.10	0.30	0.50	0.10	0.20	0.40	0.10	0.30	0.50	0.10	0.30	0.50
													240	190	150	240	190	150
													150	85		150	85	
													170	145	100	170	145	100
	280	200	170	270	190	160	240	160	130									
	250	170	130	245	160	125	200	120	95									
	490	260	200	490	250	190	400	210	150									
	250	180	140	240	170	130	200	150	100									
	270	200	150	260	190	250	230	170	120									
	210	160	140	200	150	130	170	120	100									
													100	65		100	65	
													80	55		80	55	
													80	55		80	55	
													70	45		70	45	
													60	30		60	30	
													200	180	140	200	180	140
													90	55	45	90	55	45
													55	35	30	55	35	30

Cutting Data Recommendation--Positive Insert

Materials												
ISO	Workpiece Materials			Brinell Hardness (HB)	Tensile strength (N/mm^2)	AT202 f (mm/rev)			AT210A f (mm/rev)			
						0.10	0.30	0.50	0.10	0.30	0.50	
P	Unalloyed steel	C ≤ 0.25%	Annealed	125	428	200	100	70	310	200	160	
		0.25 < C ≤ 0.55%	Annealed	190	639	200	100	70	310	200	160	
		0.25 < C ≤ 0.55%	Heat-treated	210	708	200	80	50	310	180	140	
		C > 0.55%	Annealed	190	639	200	80	50	310	180	140	
		C > 0.55%	Heat-treated	300	1013	200	80	50	310	180	140	
		Free cutting steel(short chip)	Annealed	220	745	200	80	50	310	180	140	
	Low-alloyed steel	Annealed		175	591	180	80	50	290	180	140	
		Heat-treated		300	1013	180	80	50	290	180	140	
		Heat-treated		380	1282	180	80	50	290	180	140	
		Heat-treated		430	1477	180	80	50	290	180	140	
	High-alloyed steel and high-alloyed tool steel	Annealed		200	675	160	80	50	270	180	140	
		Hardened and tempered		300	1013	160	80	50	270	180	140	
		Hardened and tempered		400	1361	150	80	50	270	180	140	
	Stainless steel	Ferritic/Martensite, Annealed		200	675							
		Martensite, Heat-treated		330	1114							
M	Stainless steel	Austenitic,hardened		200	675							
		Austenitic,precipitation hardened stainless steel(PH stainless steel)		300	1013							
		Austenitic, ferritic, duplex		230	778							
K	Malleable cast iron	Ferritic		200	400							
		Pearlitic		260	700							
	Grey cast iron	Low tensile strength		180	200							
		High tensile strength/Austenitic		245	350							
	Nodular cast iron	Ferritic		155	400							
		Pearlitic		265	700							
	GGV(CGI)			230	400							
N	Wrought aluminum alloy	Non-aging alloy		30	-							
		Aged alloy		100	340							
	Cast aluminum alloy	≤ 12% Si, non-aging alloy		75	260							
		≤ 12% Si, aged alloy		90	310							
		> 12% Si, non-aging alloy		130	450							
	Magnesium alloy			70	250							
	Copper and copper alloy (bronze/brass)	Unalloyed, electrolytic copper		100	340							
		Brass, bronze, red brass		90	310							
		Cu alloy, short chip		110	380							
		High tensile, Ampco alloy		300	1010							
S	Heat-resistant alloy	Fe-based	Annealed	200	680							
			Aged	280	940							
		Ni or Co based	Annealed	250	840							
			Aged	350	1180							
			Cast	320	1080							
	Titanium alloy	Pure Titanium		200	680							
		α and β alloy, aged		375	1260							
		β alloy		410	1400							
	Tungsten alloy			300	1010							
	Molybdenum alloy			300	1010							
H	Hardened steel	Hardened and tempered		50HRC								
		Hardened and tempered		55HRC								
		Hardened and tempered		60HRC								
	Chilled cast iron	Hardened and tempered		55HRC								

* The recommended cutting data always refer to general cutting conditions. The actual selection should be adjusted according to the factors such as machine rigidity, tool body, workpiece conditions and coolant (f should be adjust according to insert radius)

Achteck turning grade																		
Initial value of cutting speed Vc(m/min)																		
	AC052P			AC152P			AC252P			AC350P			AC100M			AC200M		
	f (mm/rev)			f (mm/rev)			f (mm/rev)			f (mm/rev)			f (mm/rev)			f (mm/rev)		
	0.10	0.40	0.60	0.10	0.40	0.60	0.10	0.40	0.60	0.10	0.40	0.60	0.10	0.30	0.50	0.10	0.30	0.50
	600	430	310	465	400	330	360	310	260	230	150	120						
	540	385	275	360	330	260	290	250	190	180	115	100						
	380	260	180	270	240	220	200	180	160	130	115	85						
	520	365	255	330	300	290	250	220	210	150	100	85						
	360	225	160	210	180	170	160	130	120	115	65	55						
	580	400	280	440	400	380	320	290	275	210	135	105						
	590	390	265	330	310	300	260	240	220	190	155	130						
	510	330	230	180	170	160	135	120	100	125	80	65						
	320	210	155	120	100	90	100	85	65	90	65	45						
	265	165	120	80	70		65	55										
	425	275	195	320	290	280	270	240	220	170	140	75						
	280	180	140	200	170	150	170	140	120	100	80	60						
	200	120	105	80	70		65	66										
							190	170	150	120	100	90	200	170	140	180	150	120
							90	80	60	70	60	50	160	140	130	130	110	100
													230	180	140	190	150	110
													170	150		140	110	
													180	160	130	150	120	100

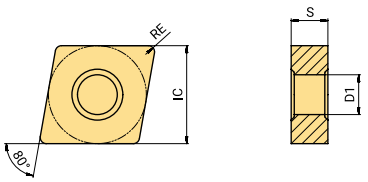
Cutting Data Recommendation--Positive Insert

Materials												
ISO	Workpiece Materials			Brinell Hardness (HB)	Tensile strength (N/mm^2)	AP200U f (mm/rev)			AP301M f (mm/rev)			
						0.10	0.30	0.50	0.10	0.30	0.50	
P	Unalloyed steel	C ≤ 0.25%	Annealed	125	428	210	200					
		0.25 < C ≤ 0.55%	Annealed	190	639	160	140					
		0.25 < C ≤ 0.55%	Heat-treated	210	708	140	120					
		C > 0.55%	Annealed	190	639	130	120					
		C > 0.55%	Heat-treated	300	1013							
		Free cutting steel(short chip)	Annealed	220	745	190	170					
	Low-alloyed steel	Annealed		175	591	130	110					
		Heat-treated		300	1013							
		Heat-treated		380	1282							
		Heat-treated		430	1477							
	High-alloyed steel and high-alloyed tool steel	Annealed		200	675	120	80					
		Hardened and tempered		300	1013							
		Hardened and tempered		400	1361							
	Stainless steel	Ferritic/Martensite, Annealed		200	675	135	120	90				
		Martensite, Heat-treated		330	1114	105	80	70				
M	Stainless steel	Austenitic,hardened		200	675	170	110	80	170	110	80	
		Austenitic,precipitation hardened stainless steel(PH stainless steel)		300	1013	110	80		110	80		
		Austenitic, ferritic, duplex		230	778	110	90	70	110	90	70	
K	Malleable cast iron	Ferritic		200	400							
		Pearlitic		260	700							
	Grey cast iron	Low tensile strength		180	200							
		High tensile strength/Austenitic		245	350							
	Nodular cast iron	Ferritic		155	400							
		Pearlitic		265	700							
	GGV(CGI)			230	400							
N	Wrought aluminum alloy	Non-aging alloy		30	-							
		Aged alloy		100	340							
	Cast aluminum alloy	≤ 12% Si, non-aging alloy		75	260							
		≤ 12% Si, aged alloy		90	310							
		> 12% Si, non-aging alloy		130	450							
	Magnesium alloy			70	250							
	Copper and copper alloy (bronze/brass)	Unalloyed, electrolytic copper		100	340							
		Brass, bronze, red brass		90	310							
		Cu alloy, short chip		110	380							
		High tensile, Ampco alloy		300	1010							
S	Heat-resistant alloy	Fe-based	Annealed	200	680				40	25		
			Aged	280	940				30	20		
		Ni or Co based	Annealed	250	840				30	25		
			Aged	350	1180				30	20		
			Cast	320	1080				30	20		
	Titanium alloy	Pure Titanium		200	680							
		α and β alloy, aged		375	1260				65	45	35	
		β alloy		410	1400				35	35	30	
	Tungsten alloy			300	1010							
	Molybdenum alloy			300	1010							
H	Hardened steel	Hardened and tempered		50HRC								
		Hardened and tempered		55HRC								
		Hardened and tempered		60HRC								
	Chilled cast iron	Hardened and tempered		55HRC								

* The recommended cutting data always refer to general cutting conditions. The actual selection should be adjusted according to the factors such as machine rigidity, tool body, workpiece conditions and coolant (f should be adjust according to insert radius)

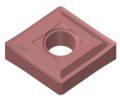
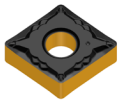
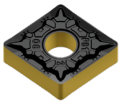
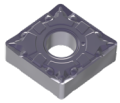
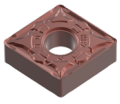
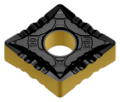
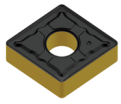
Achteck turning grade															
Initial value of cutting speed Vc(m/min)															
	AC102K			AC202K			AW100K			AP010S			AP100S		
	f (mm/rev)			f (mm/rev)			f (mm/rev)			f (mm/rev)			f (mm/rev)		
	0.10	0.30	0.50	0.10	0.30	0.50	0.10	0.20	0.40	0.10	0.30	0.50	0.10	0.30	0.50
										240	190	150	220	200	130
										150	85		160	140	
										170	145	100	170	150	110
	260	190	160	250	180	150									
	230	160	120	235	150	115									
	470	250	190	470	240	180									
	230	170	130	220	160	120									
	250	190	140	240	180	140									
	190	150	130	180	140	120									
							750	600	300						
							800	450	300						
							500	300	200						
							600	400	270						
							400	300	200						
							280	200	130						
										100	65		100	70	
										80	55		80	60	
										80	55		80	60	
										70	45		70	50	
										60	30		60	40	

Negative 80° (C)



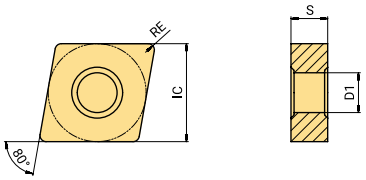
(mm)

Product code	IC	S	D1
CN_1204_	12.70	4.76	5.16
CN_1606_	15.875	6.35	6.35
CN_1906_	19.05	6.35	7.94

Inserts		Product code	RE (mm)	Recommanded parameters f (mm/rev)	Recommanded parameters ap (mm)	Machining conditions ● Good Conditions ◐ General Conditions ✱ Bad Conditions														
						●	●	●	◐	✱	✱	●	◐	◐	◐	●	◐	✱	●	●	●
						P						M				K			N	S	
						AT202	AT210A	AC052P	AC152P	AC252P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP010S	AP100S
Finishing		**CNGG 120401FP-UF**	0.10	0.02-0.12	0.50-2.50									○	●					●	○
		120402FP-UF	0.20	0.02-0.12	0.50-2.50									○	●					●	○
		120404FP-UF	0.40	0.02-0.12	0.50-2.50									○	●					●	○
		**CNMG 120402E-PA1**	0.20	0.04-0.25	0.20-1.50	●	●	●	●												
		120404E-PA1	0.40	0.04-0.28	0.20-1.50	●	●	●	●												
		120408E-PA1	0.80	0.05-0.35	0.20-1.50	●	●	●	●												
		120412E-PA1	1.20	0.05-0.42	0.20-1.50	●	●		●												
		**CNMG 120404E-PB1**	0.40	0.05-0.15	0.26-3.20	●	●	●	●	○											
		120408E-PB1	0.80	0.10-0.30	0.52-3.20	●	●	○	●	○											
		120412E-PB1	1.20	0.15-0.45	0.78-3.20	○	○	●	●	●											
		**CNMG 120404E-SC1**	0.40	0.07-0.18	0.20-0.80									●						●	
		120408E-SC1	0.80	0.10-0.25	0.20-0.80									●						●	
		**CNMG 120404E-MB2**	0.40	0.05-0.15	0.26-3.20							●	●	●	●						
		120408E-MB2	0.80	0.10-0.30	0.52-3.20							●	●	●	●						
Semi-finishing		**CNMG 120404E-SL3**	0.40	0.12-0.25	0.60-3.00									●						●	●
		120408E-SL3	0.80	0.15-0.30	0.80-3.00									●						●	●
		**CNMG 120404-F2K**	0.40	0.12-0.24	0.50-2.50	●															
		120408-F2K	0.80	0.15-0.30	0.50-2.50	●															
		**CNMG 120404E-PB3**	0.40	0.06-0.18	0.30-3.50	●	●	●	●	○											
		120408E-PB3	0.80	0.12-0.36	0.60-3.50	●	●	●	●	○											
		120412E-PB3	1.20	0.18-0.54	0.90-3.50	●	●	○	●	○											
		**CNMG 120404E-PC3**	0.40	0.07-0.20	0.34-3.90	●	●		○												
		120408E-PC3	0.80	0.14-0.40	0.68-3.90	●	●	●	●												
		120412E-PC3	1.20	0.20-0.60	1.02-3.90	●	●		○	○											
		**CNMG 120404E-SC3**	0.40	0.08-0.22	0.40-4.30							●	●	●						●	●
		120408E-SC3	0.80	0.15-0.44	0.80-4.30							●	●	●	●					●	●
		120412E-SC3	1.20	0.23-0.66	1.20-4.30							●	●	●						●	●
		160612E-SC3	1.20	0.23-0.66	1.20-5.30							●	●	●						●	●

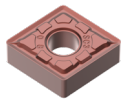
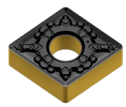
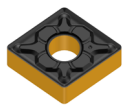
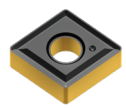
● : Standard stock ○ : Made-to-Order

Negative 80° (C)



(mm)

Product code	IC	S	D1
CN_1204_	12.70	4.76	5.16
CN_1606_	15.875	6.35	6.35
CN_1906_	19.05	6.35	7.94

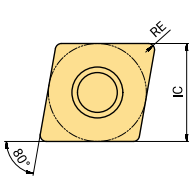
Inserts		Product code	RE (mm)	Recommanded parameters f (mm/rev)	Recommanded parameters ap (mm)	Machining conditions: ● Good Conditions ◖◗ General Conditions ✱ Bad Conditions														
						●	●	●	◖◗	✱	✱	●	◖◗	◖◗	◖◗	●	◖◗	✱	●	●	●
						P						M				K			N	S	
						AT202	AT210A	AC052P	AC152P	AC252P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP010S	AP100S
Semi-finishing		**CNMG 160616E-SC3**	1.60	0.30-0.88	1.60-5.30							●	●	●						●	●
		190612E-SC3	1.20	0.23-0.66	1.20-6.40							●	●	●						●	●
		190616E-SC3	1.60	0.30-0.88	1.60-6.40							●	●	●						●	●
		**CNMG 120404E-MC3**	0.40	0.08-0.22	0.32-4.30							●	●	●	●						
		120408E-MC3	0.80	0.15-0.44	0.64-4.30							●	●	●	●						●
		120412E-MC3	1.20	0.23-0.66	0.96-4.30							●	●	●	●						
		120416E-MC3	1.60	0.30-0.88	1.28-4.30							●	●	●							
		160608E-MC3	0.80	0.15-0.44	0.64-5.30							●	●	●	●						
		160612E-MC3	1.20	0.23-0.66	0.96-5.30							●	●	●							
		190608E-MC3	0.80	0.15-0.44	0.64-6.40							●	●	●	●						
		190612E-MC3	1.20	0.23-0.66	0.96-6.40							●	●	●							
Medium		**CNMG 120404E-PD3**	0.40	0.08-0.22	0.40-4.30	●	●		●	●											
		120408E-PD3	0.80	0.15-0.44	0.80-4.30	●	●	●	●	●	●										
		120412E-PD3	1.20	0.23-0.66	1.20-4.30	●	●	●	●	○	●										
		160608E-PD3	0.80	0.15-0.44	0.80-5.30			○	○	●											
		160612E-PD3	1.20	0.23-0.66	1.20-5.30			●	●	○	●										
		190608E-PD3	0.80	0.15-0.44	0.80-6.40			●	○	○											
		190612E-PD3	1.20	0.23-0.66	1.20-6.40			○	●	●											
		190616E-PD3	1.60	0.30-0.66	1.60-6.40			●	○	●											
		**CNMG 120404E-UC4**	0.40	0.08-0.24	0.40-5.00			●	●	●				●							
		120408E-UC4	0.80	0.15-0.48	0.80-5.00			●	●	●				●							
		120412E-UC4	1.20	0.23-0.72	1.20-5.00			●	●	●				●							
		160608E-UC4	0.80	0.15-0.48	0.80-5.50			●	●	●											
		160612E-UC4	1.20	0.23-0.72	1.20-5.50			●	●	●											
		**CNMG 120404E-PC4**	0.40	0.08-0.22	0.40-4.30				●	○							●	●			
		120408E-PC4	0.80	0.15-0.44	0.80-4.30			○	○	●							●	●			
		120412E-PC4	1.20	0.23-0.66	1.20-4.30			○	●	○							●	●			
		160612E-PC4	1.20	0.23-0.66	1.20-5.30			○	●								●	●			
		160616E-PC4	1.60	0.30-0.88	1.60-5.30			○	○								●	●			
		190612E-PC4	1.20	0.23-0.66	1.20-6.40			○	○								●	●			

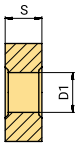
● : Standard stock ○ : Made-to-Order

Negative 80° (C)

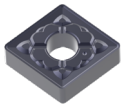
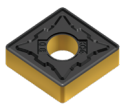
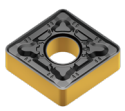
(mm)

Product code	IC	S	D1
CN_0903_	9.525	3.18	3.81
CN_1204_	12.70	4.76	5.16
CN_1606_	15.875	6.35	6.35
CN_1906_	19.05	6.35	7.94





● Good Conditions ◖◗ General Conditions ✱ Bad Conditions

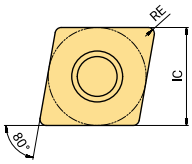
Inserts		Product code	RE (mm)	Recommanded parameters f (mm/rev)	Recommanded parameters ap (mm)	P AT202	P AT210A	P AC052P	P AC152P	P AC252P	P AC350P	M AC100M	M AC200M	M AP200U	M AP301M	K AC100K	K AC102K	K AC202K	N AW100K	S AP010S	S AP100S
Roughing		**CNMG 120408E-MC4**	0.80	0.20-0.60	1.20-6.40							●	●	●	●						●
		120412E-MC4	1.20	0.30-0.90	1.80-6.40							●	●	●	●						●
		160612E-MC4	1.20	0.30-0.90	1.80-8.10							●	●	●	●						●
		160616E-MC4	1.60	0.40-1.20	2.40-8.10							●	●	●							
		190612E-MC4	1.20	0.30-0.90	1.80-9.70							●	●	●	●						
		190616E-MC4	1.60	0.40-1.20	2.40-9.70							●	●	●	●						
		**CNMG 090308E-KC4**	0.80	0.18-0.48	0.96-3.90												●	●			
		120404E-KC4	0.40	0.09-0.24	0.48-5.20												●	●			
		120408E-KC4	0.80	0.18-0.48	0.96-5.20											●	●	●			
		120412E-KC4	1.20	0.26-0.72	1.44-5.20											●	●	●			
		120416E-KC4	1.60	0.35-0.96	1.92-5.20												●	●			
		160608E-KC4	0.80	0.18-0.48	0.96-6.40												●	●			
		160612E-KC4	1.20	0.26-0.72	1.44-6.40												●	●			
		160616E-KC4	1.60	0.35-0.96	1.92-6.40											●	●	●			
		190608E-KC4	0.80	0.18-0.48	0.96-7.70												●	●			
		190612E-KC4	1.20	0.26-0.72	1.44-7.70												●	●			
		190616E-KC4	1.60	0.35-0.96	1.92-7.70												●	●			
		190624E-KC4	2.40	0.53-1.44	2.88-7.70												●	●			
		**CNMG 120408E-PD5**	0.80	0.20-0.60	1.20-6.40			●	●	●	●										
		120412E-PD5	1.20	0.30-0.90	1.80-6.40			○	●	●	●										
		160608E-PD5	0.80	0.20-0.60	1.20-8.10			●	○												
		160612E-PD5	1.20	0.30-0.90	1.80-8.10			●	●	●	●										
		160616E-PD5	1.60	0.40-1.20	2.40-8.10			○	○	○	●										
		160624E-PD5	2.40	0.60-1.80	3.60-8.10			○	●	○											
		190612E-PD5	1.20	0.30-0.90	1.80-9.70			●	●	●	●										
		190616E-PD5	1.60	0.40-1.20	2.40-9.70			○	●	●											

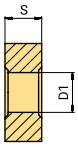
● : Standard stock ○ : Made-to-Order

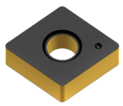
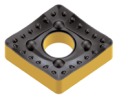
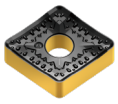
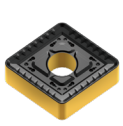
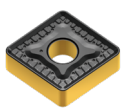
Negative 80° (C)

(mm)

Product code	IC	S	D1
CN_1204_	12.70	4.76	5.16
CN_1606_	15.875	6.35	6.35
CN_1906_	19.05	6.35	7.94
CN_2507_	25.40	7.94	9.12
CN_2509_	25.40	9.52	9.12

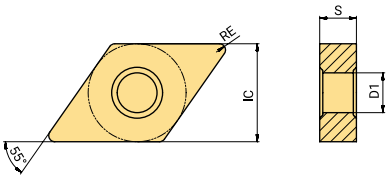




Inserts		Product code	RE (mm)	Recommanded parameters f (mm/rev)	Recommanded parameters ap (mm)	P AT202	P AT210A	P AC052P	P AC152P	P AC252P	P AC350P	M AC100M	M AC200M	M AP200U	M AP301M	K AC100K	K AC102K	K AC202K	N AW100K	S AP010S	S AP100S
		Machining conditions				●	●	●	◐	✱	✱	●	◐	◐	◐	●	◐	✱	●	●	●
Roughing		**CNMA 120404E-KD5**	0.40	0.10-0.30	0.60-6.40												●	●			
		120408E-KD5	0.80	0.20-0.60	1.20-6.40											●	●	●			
		120412E-KD5	1.20	0.30-0.90	1.80-6.40											●	●	●			
		120416E-KD5	1.60	0.40-1.20	2.40-6.40											●	●	●			
		160608E-KD5	0.80	0.20-0.60	1.20-8.10												●	●			
		160612E-KD5	1.20	0.30-0.90	1.80-8.10											●	●	●			
		160616E-KD5	1.60	0.40-1.20	2.40-8.10											●	●	●			
		160620E-KD5	2.00	0.50-1.50	3.00-8.10												●	●			
		190608E-KD5	0.80	0.20-0.60	1.20-9.70											●	●	●			
		190612E-KD5	1.20	0.30-0.90	1.80-9.70											●	●	●			
		190616E-KD5	1.60	0.40-1.20	2.40-9.70											●	●	●			
Heavy roughing		**CNMM 190616E-PC8**	1.60	0.32-0.64	2.88-7.70				○	○											
		190624E-PC8	2.40	0.48-0.96	4.32-7.70				○	○											
		**CNMM 120408E-PD8**	0.80	0.16-0.32	1.44-5.20				○	○											
		120412E-PD8	1.20	0.24-0.48	2.16-5.20				○	○	●										
		160612E-PD8	1.20	0.24-0.48	2.16-6.40				○	●	●										
		160616E-PD8	1.60	0.32-0.64	2.88-6.40				○	●											
		160624E-PD8	2.40	0.48-0.96	4.32-6.40				○	○											
		190612E-PD8	1.20	0.24-0.48	2.16-7.70			○	○	●											
		190616E-PD8	1.60	0.32-0.64	2.88-7.70			○	○	●											
		190624E-PD8	2.40	0.48-0.96	4.32-7.70			○	○	○	●										
		250724E-PD8	2.40	0.48-0.96	4.32-10.30				○	○											
		250924E-PD8	2.40	0.48-0.96	4.32-10.30				○	○											
		**CNMM 190612S-PC9**	1.20	0.26-0.60	2.40-9.70				○	●											
		190616S-PC9	1.60	0.35-0.80	3.20-9.70			●	●	●											
		190624S-PC9	2.40	0.53-1.20	4.80-9.70				●	○											
		250724S-PC9	2.40	0.53-1.20	4.80-12.90				○	○											
		250924S-PC9	2.40	0.53-1.20	4.80-12.90				●	●											
		**CNMM 190612S-PD9**	1.20	0.30-0.72	2.64-11.60				○	○	●										
		190616S-PD9	1.60	0.40-0.96	3.52-11.60				○	○											
		190624S-PD9	2.40	0.60-1.44	5.28-11.60				●	○											
		250724S-PD9	2.40	0.60-1.44	5.28-15.50				○	○											
		250924S-PD9	2.40	0.60-1.44	5.28-15.50				○	○	●										

● : Standard stock ○ : Made-to-Order

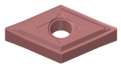
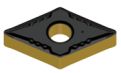
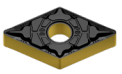
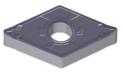
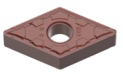
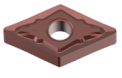
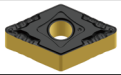
Negative 55° (D)



(mm)

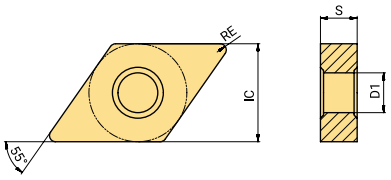
Product code	IC	S	D1
DN_1104_	9.525	4.76	3.81
DN_1504_	12.70	4.76	5.16
DN_1506_	12.70	6.35	5.16

● Good Conditions ◐ General Conditions
✱ Bad Conditions

Inserts		Product code	RE (mm)	Recommanded parameters f (mm/rev)	Recommanded parameters ap (mm)	P AT202	P AT210A	P AC052P	P AC152P	P AC252P	P AC350P	M AC100M	M AC200M	M AP200U	M AP301M	K AC100K	K AC102K	K AC202K	N AW100K	S AP010S	S AP100S
				Machining conditions		●	●	●	◐	✱	✱	●	◐	◐	◐	●	◐	✱	●	●	●
Finishing		**DNGG 150401FP-UF**	0.10	0.02-0.12	0.50-2.50									○	●						
		150402FP-UF	0.20	0.02-0.12	0.50-2.50									○	●						
		150404FP-UF	0.40	0.02-0.12	0.50-2.50									○	●						
		**DNMG 150402E-PA1**	0.20	0.04-0.25	0.20-1.50	●	●		○												
		150404E-PA1	0.40	0.04-0.28	0.20-1.50	●	●	●	●												
		150408E-PA1	0.80	0.05-0.35	0.20-1.50	●	●	●	●												
		150412E-PA1	1.20	0.05-0.42	0.20-1.50	●	●	○	○												
		150602E-PA1	0.20	0.04-0.25	0.20-1.50	●	●		○												
		150604E-PA1	0.40	0.04-0.28	0.20-1.50	●	●	○	○												
		150608E-PA1	0.80	0.05-0.35	0.20-1.50	●	●	●	●												
		150612E-PA1	1.20	0.05-0.42	0.20-1.50	●	●														
		**DNMG 110404E-PB1**	0.40	0.05-0.15	0.26-2.30	●	●	○	●	○											
		150404E-PB1	0.40	0.05-0.15	0.26-3.10	●	●	○	●	○											
		150408E-PB1	0.80	0.10-0.30	0.52-3.10	●	●	○	●	●											
		150604E-PB1	0.40	0.05-0.15	0.26-3.10	●	●		●	●											
		150608E-PB1	0.80	0.10-0.30	0.52-3.10	●	●	○	●	○											
		150612E-PB1	0.80	0.10-0.30	0.52-3.10				●	○											
		**DNMG 150404E-SC1**	0.40	0.07-0.18	0.20-0.80										●					●	
		150408E-SC1	0.80	0.10-0.25	0.20-0.80										●					●	
		150604E-SC1	0.40	0.07-0.18	0.20-0.80										●					●	
		150608E-SC1	0.80	0.10-0.25	0.20-0.80										●					●	
		**DNMG 150404E-MB2**	0.40	0.05-0.15	0.26-2.90							●		●							●
		150408E-MB2	0.80	0.10-0.30	0.52-2.90							●									●
		150604E-MB2	0.40	0.05-0.15	0.26-2.90							●		●							●
		150608E-MB2	0.80	0.10-0.30	0.52-2.90							●		●							●
Semi-finishing		**DNMG 110408E-SL3**	0.80	0.12-0.30	0.80-2.50										●					●	●
		150404E-SL3	0.40	0.12-0.25	0.60-2.50										●					●	●
		150408E-SL3	0.80	0.12-0.30	0.80-2.50										●					●	●
		150604E-SL3	0.40	0.12-0.25	0.60-2.50										●					●	●
		150608E-SL3	0.80	0.12-0.30	0.80-2.50										●					●	●
		**DNMG 110408E-BS**	0.80	0.10-0.25	0.70-2.00			●	○												

● : Standard stock ○ : Made-to-Order

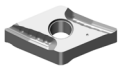
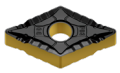
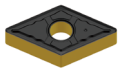
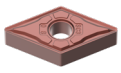
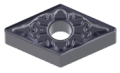
Negative 55° (D)



(mm)

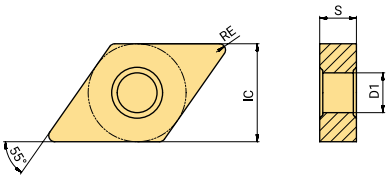
Product code	IC	S	D1
DN_1104_	9.525	4.76	3.81
DN_1504_	12.70	4.76	5.16
DN_1506_	12.70	6.35	5.16

● Good Conditions ◐ General Conditions ✱ Bad Conditions

Inserts		Product code	RE (mm)	Recommanded parameters f (mm/rev)	Recommanded parameters ap (mm)	Machining conditions															
						●	●	●	◐	✱	✱	●	◐	◐	◐	●	◐	✱	●	●	●
						P						M				K			N	S	
						AT202	AT210A	AC052P	AC152P	AC252P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP010S	AP100S
Semi-finishing		**DNMG 150404R-M1T**	0.40	0.10-0.35	0.70-4.50	●	●														
		150404L-M1T	0.40	0.10-0.35	0.70-4.50	●	●														
		**DNMG 150404E-PB3**	0.40	0.06-0.18	0.30-3.10	●	●	●	●	○											
		150408E-PB3	0.80	0.12-0.36	0.60-3.10	●	●	●	●	○											
		150412E-PB3	1.20	0.18-0.54	0.90-3.10	●	●	○	●	○											
		150604E-PB3	0.40	0.06-0.18	0.30-3.10	●	●		●	●											
		150608E-PB3	0.80	0.12-0.36	0.60-3.10	●	●	●	●	○											
		150612E-PB3	1.20	0.18-0.54	0.90-3.10	●	●	○	●	●											
		**DNMG 110408E-PC3**	0.80	0.14-0.40	0.68-2.60				○												
		110412E-PC3	1.20	0.20-0.60	1.02-2.60				●												
		150404E-PC3	0.40	0.07-0.20	0.34-3.50	●	●		○												
		150408E-PC3	0.80	0.14-0.40	0.68-3.50	●	●	○	○												
		150412E-PC3	1.20	0.20-0.60	1.02-3.50	●	●		○												
		150604E-PC3	0.40	0.07-0.20	0.34-3.50	●	●		○												
		150608E-PC3	0.80	0.14-0.40	0.68-3.50	●	●		●	○											
		150612E-PC3	1.20	0.20-0.60	1.02-3.50	●	●		●												
		**DNMG 150404E-SC3**	0.40	0.08-0.22	0.40-3.90							●			●					●	●
		150408E-SC3	0.80	0.15-0.44	0.80-3.90							●			●					●	●
		150412E-SC3	1.20	0.23-0.66	1.20-3.90							●			●					●	●
		150604E-SC3	0.40	0.08-0.22	0.40-3.90							●			●					●	●
		150608E-SC3	0.80	0.15-0.44	0.80-3.90							●			●					●	●
		150612E-SC3	1.20	0.23-0.66	1.20-3.90							●			●					●	●
		**DNMG 110404E-MC3**	0.40	0.08-0.22	0.32-2.90							●		●	●						
		110408E-MC3	0.80	0.15-0.44	0.64-2.90							●		●	●						
		150404E-MC3	0.40	0.08-0.22	0.32-3.90							●	●	●	●						
		150408E-MC3	0.80	0.15-0.44	0.64-3.90							●		●	●						
		150412E-MC3	1.20	0.23-0.66	0.96-3.90							●		●	●						
		150604E-MC3	0.40	0.08-0.22	0.32-3.90							●		●	●						
		150608E-MC3	0.80	0.15-0.44	0.64-3.90							●		●	●						
		150612E-MC3	1.20	0.23-0.66	0.96-3.90							●		●	●						

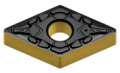
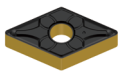
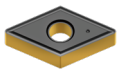
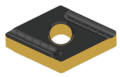
● : Standard stock ○ : Made-to-Order

Negative 55° (D)



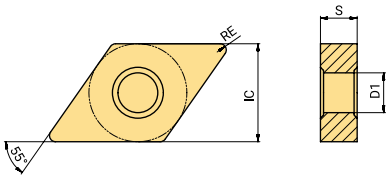
(mm)

Product code	IC	S	D1
DN_1104_	9.525	4.76	3.81
DN_1504_	12.70	4.76	5.16
DN_1506_	12.70	6.35	5.16

Inserts		Product code	RE (mm)	Recommanded parameters f (mm/rev)	Recommanded parameters ap (mm)	P AT202	P AT210A	P AC052P	P AC152P	P AC252P	P AC350P	M AC100M	M AC200M	M AP200U	M AP301M	K AC100K	K AC102K	K AC202K	N AW100K	S AP010S	S AP100S
		Machining conditions				●	●	●	◐	✱	✱	●	◐	◐	◐	●	◐	✱	●	●	●
Medium		**DNMG 110404E-PD3**	0.40	0.08-0.22	0.40-2.90	●	●		●	○											
		110408E-PD3	0.80	0.15-0.44	0.80-2.90	●	●	●	●	●											
		110412E-PD3	1.20	1.20-2.90	0.23-0.66				○												
		150404E-PD3	0.40	0.08-0.22	0.40-3.90	●	●		●	○											
		150408E-PD3	0.80	0.15-0.44	0.80-3.90	●	●	○	●	○	●										
		150412E-PD3	1.20	0.23-0.66	1.20-3.90			○	●	●	●										
		150604E-PD3	0.40	0.08-0.22	0.40-3.90				●	●	●										
		150608E-PD3	0.80	0.15-0.44	0.80-3.90			●	●	●	●										
		150612E-PD3	1.20	0.23-0.66	1.20-3.90			●	●	●	●										
		**DNMG 150408E-UC4**	0.80	0.15-0.48	0.80-4.50			●	●	●											
		150608E-UC4	0.80	0.15-0.48	0.80-4.50			●	●	●											
		150612E-UC4	1.20	0.23-0.72	1.20-4.50			●	●	●											
		**DNMG 150404E-PC4**	0.40	0.08-0.22	0.40-3.90	●	●		○	○							●	●			
		150408E-PC4	0.80	0.15-0.44	0.80-3.90	●	●	○	○	○							●	●			
		150412E-PC4	1.20	0.23-0.66	1.20-3.90			○	○	○							●	●			
		150604E-PC4	0.40	0.08-0.22	0.40-3.90	●	●		○	○							●	●			
		150608E-PC4	0.80	0.15-0.44	0.80-3.90	●	●	●	●	●							●	●			
		150612E-PC4	1.20	0.23-0.66	1.20-3.90			●	●	○							●	●			
		**DNMG 150608R-PL5**	0.80	0.15-0.44	0.80-3.90				●	●											

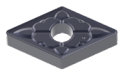
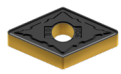
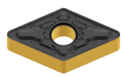
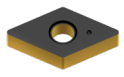
● : Standard stock ○ : Made-to-Order

Negative 55° (D)



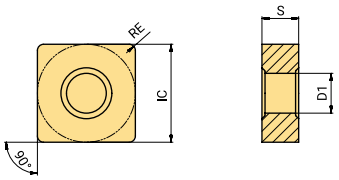
(mm)

Product code	IC	S	D1
DN_1104_	9.525	4.76	3.81
DN_1504_	12.70	4.76	5.16
DN_1506_	12.70	6.35	5.16

Inserts		Product code	RE (mm)	Recommanded parameters f (mm/rev)	Recommanded parameters ap (mm)	Machining conditions ● Good Conditions ◖◗ General Conditions ✱ Bad Conditions														
						●	●	●	◖◗	✱	✱	●	◖◗	◖◗	◖◗	●	◖◗	✱	●	●	●
						P						M				K			N	S	
						AT202	AT210A	AC052P	AC152P	AC252P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP010S	AP100S
Roughing		**DNMG 150408E-MC4**	0.80	0.20-0.60	1.20-5.40							●		●	●						
		150412E-MC4	1.20	0.30-0.90	1.80-5.40							●			●						
		150608E-MC4	0.80	0.20-0.60	1.20-5.40							●		●	●						●
		150612E-MC4	1.20	0.30-0.90	1.80-5.40							●		●	●						●
		**DNMG 110404E-KC4**	0.40	0.09-0.24	0.48-3.50												●	●			
		110408E-KC4	0.80	0.18-0.48	0.96-3.50												●	●			
		150404E-KC4	0.40	0.09-0.24	0.48-4.60												●	●			
		150408E-KC4	0.80	0.18-0.48	0.96-4.60												●	●			
		150412E-KC4	1.20	0.26-0.72	1.44-4.60												●	●			
		150604E-KC4	0.40	0.09-0.24	0.48-4.60												●	●			
		150608E-KC4	0.80	0.18-0.48	0.96-4.60												●	●			
		150612E-KC4	1.20	0.26-0.72	1.44-4.60												●	●			
		**DNMG 150408E-PD5**	0.80	0.20-0.60	1.20-5.40			○	○	○											
		150412E-PD5	1.20	0.30-0.90	1.80-5.40			●	○	○											
		150416E-PD5	1.60	0.40-1.20	2.40-5.40			○	○	●											
		150608E-PD5	0.80	0.20-0.60	1.20-5.40			○	○	●	●										
		150612E-PD5	1.20	0.30-0.90	1.80-5.40			○	●	●	●										
		150616E-PD5	1.60	0.40-1.20	2.40-5.40			●	●	○											
		**DNMA 150404E-KD5**	0.40	0.10-0.30	0.60-5.40												●	●			
		150408E-KD5	0.80	0.20-0.60	1.20-5.40											●	●	●			
		150412E-KD5	1.20	0.30-0.90	1.80-5.40											●	●	●			
		150604E-KD5	0.40	0.10-0.30	0.60-5.40												●	●			
		150608E-KD5	0.80	0.20-0.60	1.20-5.40											●	●	●			
		150612E-KD5	1.20	0.30-0.90	1.80-5.40											●	●	●			

● : Standard stock ○ : Made-to-Order

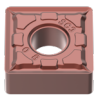
Negative 90° (S)



(mm)

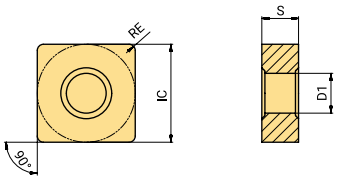
Product code	IC	S	D1
SN_1204_	12.70	4.76	5.16
SN_1506_	15.875	6.35	6.35
SN_1906_	19.05	6.35	7.94

● Good Conditions ⊕ General Conditions ✱ Bad Conditions

Inserts		Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	P: AT202	AT210A	AC052P	AC152P	AC252P	AC350P	M: AC100M	AC200M	AP200U	AP301M	K: AC100K	AC102K	AC202K	N: AW100K	S: AP010S	AP100S
						●	●	●	⊕	✱	✱	●	⊕	⊕	⊕	●	⊕	✱	●	●	●
Finishing		**SNMG 120404E-PB1**	0.40	0.05-0.15	0.26-3.20	●	●	●	○	○											
		120408E-PB1	0.80	0.10-0.30	0.52-3.20	●	●	○	●	○											
		120412E-PB1	1.20	0.15-0.45	0.78-3.20			●	●	○											
		**SNMG 120404E-MB2**	0.40	0.05-0.15	0.26-3.20							●	●		●						●
		120408E-MB2	0.80	0.10-0.30	0.52-3.20							●	●		●						●
		120412E-MB2	1.20	0.15-0.45	0.78-3.20							●	●		●						●
Semi-finishing		**SNMG 120404E-SL3**	0.40	0.12-0.25	0.60-3.00										●					●	●
		120408E-SL3	0.80	0.15-0.30	0.80-3.00										●					●	●
		120412E-SL3	1.20	0.18-0.35	1.00-3.00										●					●	●
		**SNMG 120404E-PC3**	0.40	0.07-0.20	0.34-3.80	●	●		○												
		120408E-PC3	0.80	0.14-0.40	0.68-3.80	●	●		●												
		120412E-PC3	1.20	0.20-0.60	1.02-3.80	●	●		○												
		**SNMG 120408E-SC3**	0.80	0.15-0.44	0.80-4.20							●	●		●					●	●
		120412E-SC3	1.20	0.23-0.66	1.20-4.20							●	●		●					●	●
		150612E-SC3	1.20	0.23-0.66	1.20-5.20							●	●		●					●	●
		150616E-SC3	1.60	0.30-0.88	1.60-5.20							●	●		●					●	●
		190612E-SC3	1.20	0.23-0.66	1.20-6.30							●	●		●					●	●
		**SNMG 120404E-MC3**	0.40	0.08-0.22	0.32-4.20							●	●		●						
		120408E-MC3	0.80	0.15-0.44	0.64-4.20							●	●		●						
		120412E-MC3	1.20	0.23-0.66	0.96-4.20							●	●		●						
		150612E-MC3	1.20	0.23-0.66	0.96-5.20							●	●		●						
		150616E-MC3	1.60	0.30-0.88	1.28-5.20							●	●		●						
		190612E-MC3	1.20	0.23-0.66	0.96-6.30							●	●		●						
		190616E-MC3	1.60	0.30-0.88	1.28-6.30							●	●		●						

● : Standard stock ○ : Made-to-Order

Negative 90° (S)



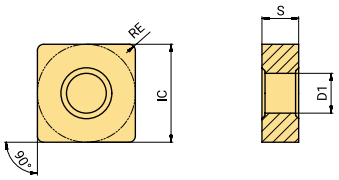
(mm)

Product code	IC	S	D1
SN_1204_	12.70	4.76	5.16
SN_1506_	15.875	6.35	6.35
SN_1906_	19.05	6.35	7.94

Inserts		Product code	RE (mm)	Recommanded parameters f (mm/rev)	Recommanded parameters ap (mm)	P AT202	P AT210A	P AC052P	P AC152P	P AC252P	P AC350P	M AC100M	M AC200M	M AP200U	M AP301M	K AC100K	K AC102K	K AC202K	N AW100K	S AP010S	S AP100S
		Machining conditions				●	●	●	◐	✱	✱	●	◐	◐	◐	●	◐	✱	●	●	●
Medium		**SNMG 120404E-PD3**	0.40	0.08-0.22	0.40-4.20	●	●		●	○											
		120408E-PD3	0.80	0.15-0.44	0.80-4.20	●	●	○	●	○											
		120412E-PD3	1.20	0.23-0.66	1.20-4.20	●	●	○	○	○											
		190608E-PD3	0.80	0.15-0.44	0.80-6.30			○	○	○	●										
		**SNMG 120404E-M3T**	0.40	0.20-0.40	1.00-4.00	●	●														
		120408E-M3T	0.80	0.20-0.40	1.00-4.00	●	●														
		**SNMG 120408E-UC4**	0.80	0.15-0.48	0.80-4.50			●	●	●											
		120412E-UC4	1.20	0.23-0.72	1.20-4.50			●	●	●											
		150612E-UC4	1.20	0.23-0.72	1.20-5.50			○	●	●											
		**SNMG 120404E-PC4**	0.40	0.08-0.22	0.40-4.20	●	●		○								●	●			
		120408E-PC4	0.80	0.15-0.44	0.80-4.20	●	●	○	○	○						●	●	●			
		120412E-PC4	1.20	0.23-0.66	1.20-4.20	●	●	○	○	●						●	●	●			
Roughing		**SNMG 120408E-MC4**	0.80	0.20-0.60	1.20-6.40							●	●		●						●
		120412E-MC4	1.20	0.30-0.90	1.80-6.40							●	●		●						●
		150612E-MC4	1.20	0.30-0.90	1.80-7.90							●	●		●						
		150616E-MC4	1.60	0.40-1.20	2.40-7.90							●	●		●						
		190612E-MC4	1.20	0.30-0.90	1.80-9.50							●	●		●						
		190616E-MC4	1.60	0.40-1.20	2.40-9.50							●	●		●						●

● : Standard stock ○ : Made-to-Order

Negative 90° (S)



(mm)

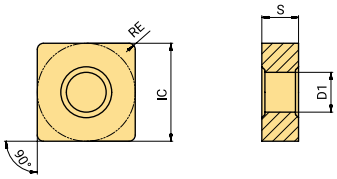
Product code	IC	S	D1
SN_0903_	9.525	3.18	3.81
SN_1204_	12.70	4.76	5.16
SN_1506_	15.875	6.35	6.35
SN_1906_	19.05	6.35	7.94

● Good Conditions ◐ General Conditions ✱ Bad Conditions

Inserts		Product code	RE (mm)	Recommanded parameters f (mm/rev)	Recommanded parameters ap (mm)	P AT202	P AT210A	P AC052P	P AC152P	P AC252P	P AC350P	M AC100M	M AC200M	M AP200U	M AP301M	K AC100K	K AC102K	K AC202K	N AW100K	S AP010S	S AP100S
Roughing		**SNMG 090304E-KC4**	0.40	0.09-0.24	0.48-3.80												●	●			
		090308E-KC4	0.80	0.18-0.48	0.96-3.80												●	●			
		120404E-KC4	0.40	0.09-0.24	0.48-5.10												●	●			
		120408E-KC4	0.80	0.18-0.48	0.96-5.10												●	●			
		120412E-KC4	1.20	0.26-0.72	1.44-5.10												●	●			
		150608E-KC4	0.80	0.18-0.48	0.96-6.40												●	●			
		150612E-KC4	1.20	0.26-0.72	1.44-6.40												●	●			
		150616E-KC4	1.60	0.35-0.96	1.92-6.40												●	●			
		190608E-KC4	0.80	0.18-0.48	0.96-7.60												●	●			
		190612E-KC4	1.20	0.26-0.72	1.44-7.60												●	●			
		190616E-KC4	1.60	0.35-0.96	1.92-7.60												●	●			
		190624E-KC4	2.40	0.53-1.44	2.88-7.60												○	○			
		**SNMG 150412E-PD5**	1.20	1.80-6.40	0.30-0.90			○	○	●											
		150608E-PD5	0.80	0.20-0.60	1.20-7.90			●	●	○											
		150612E-PD5	1.20	0.30-0.90	1.80-7.90			○	○	●	●										
		150616E-PD5	1.60	0.40-1.20	2.40-7.90			○	○	○											
		190612E-PD5	1.20	0.30-0.90	1.80-9.50			○	●	●	●										
		190616E-PD5	1.60	0.40-1.20	2.40-9.50			●	●	○	●										
		**SNMA 120408E-KD5**	0.80	0.20-0.60	1.20-6.40											●	●	●			
		120412E-KD5	1.20	0.30-0.90	1.80-6.40											●	●	●			
		120416E-KD5	1.60	0.40-1.20	2.40-6.40											●	●	●			
		150612E-KD5	1.20	0.30-0.90	1.80-7.90												●	●			
		150616E-KD5	1.60	0.40-1.20	2.40-7.90												●	●			
		190612E-KD5	1.20	0.30-0.90	1.80-9.50												●	●			
		190616E-KD5	1.60	0.40-1.20	2.40-9.50												●	●			

● : Standard stock ○ : Made-to-Order

Negative 90° (S)



(mm)

Product code	IC	S	D1
SN_1204_	12.70	4.76	5.16
SN_1506_	15.875	6.35	6.35
SN_1906_	19.05	6.35	7.94
SN_2507_	25.40	7.94	9.12
SN_2509_	25.40	7.94	9.12
SN_3109_	31.75	9.52	9.45

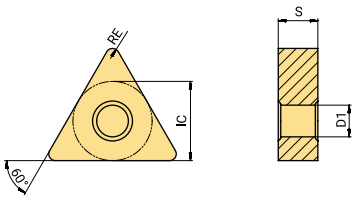
Inserts		Product code	RE (mm)	Machining conditions: ● Good Conditions ◖◗ General Conditions ✱ Bad Conditions															
				●	●	●	◖◗	✱	✱	●	◖◗	◖◗	◖◗	●	◖◗	✱	●	●	●
				Recommanded parameters		P				M				K			N	S	
				f (mm/rev)	ap (mm)	AT202	AT210A	AC052P	AC152P	AC252P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP010S	AP100S
Heavy roughing		**SNMM 120408E-PD8**	0.80	0.16-0.32	1.44-5.10			○	○	○											
		120412E-PD8	1.20	0.24-0.48	2.16-5.10			○	○	○											
		150612E-PD8	1.20	0.24-0.48	2.16-6.40			○	○	○	●										
		150616E-PD8	1.60	0.32-0.64	2.88-6.40			○	○	○											
		190612E-PD8	1.20	0.24-0.48	2.16-7.60			○	○	●	●										
		190616E-PD8	1.60	0.32-0.64	2.88-7.60			●	●	●	●										
		190624E-PD8	2.40	0.48-0.96	4.32-7.60			○	●	○											
		250724E-PD8	2.40	0.48-0.96	4.32-10.20			○	○	○											
		250924E-PD8	2.40	0.48-0.96	4.32-10.20			○	●	●											
		**SNMM 190612S-PC9**	1.20	0.26-0.60	2.40-9.50			○	○	●											
		190616S-PC9	1.60	0.35-0.80	3.20-9.50			○	●	○											
		190624S-PC9	2.40	0.53-1.20	4.80-9.50			○	●	●											
		250724S-PC9	2.40	0.53-1.20	4.80-12.70			○	○	○											
		250924S-PC9	2.40	0.53-1.20	4.80-12.70			○	●	●											
		SNMH 310924S-PC9	2.40	0.53-1.20	4.80-15.90				○												
		**SNMM 190612S-PD9**	1.20	0.30-0.72	2.64-11.40			○	○	○											
		190616S-PD9	1.60	0.40-0.96	3.52-11.40			○	○	○											
		190624S-PD9	2.40	0.60-1.44	5.28-11.40			○	○	○											
		250724S-PD9	2.40	0.60-1.44	5.28-15.20			○	●	○	●										
		250924S-PD9	2.40	0.60-1.44	5.28-15.20			○	●	●											
		SNMX 310924S-PD9	2.40	0.60-1.44	5.28-19.10				○		●										

● : Standard stock ○ : Made-to-Order

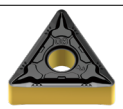
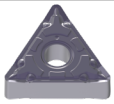
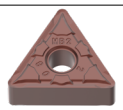
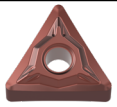
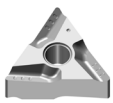
Negative 60° (T)

(mm)

Product code	IC	S	D1
TN_1604_	9.525	4.76	3.81

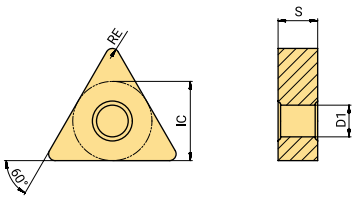


● Good Conditions ◖◗ General Conditions ✱ Bad Conditions

Inserts		Product code	RE (mm)	Recommanded parameters f (mm/rev)	Recommanded parameters ap (mm)	P AT202	P AT210A	P AC052P	P AC152P	P AC252P	P AC350P	M AC100M	M AC200M	M AP200U	M AP301M	K AC100K	K AC102K	K AC202K	N AW100K	S AP010S	S AP100S
Finishing		**TNGG 160401FP-UF**	0.10	0.03-0.11	0.30-2.50										●						
		160402FP-UF	0.20	0.03-0.11	0.30-2.50										●						
		160404FP-UF	0.40	0.03-0.11	0.30-2.50										●						
		**TNMG 160404-F1T**	0.40	0.05-0.15	0.50-2.50	●	●														
		160408-F1T	0.80	0.05-0.15	0.50-2.50	●	●														
		**TNMG 160404-F1Y**	0.40	0.08-0.20	0.30-1.50	●	●														
		TNMG 160408-F1Y	0.80	0.08-0.20	0.30-1.50	●	●														
		**TNMG 160402E-PA1**	0.20	0.04-0.25	0.20-1.50	●	●	○	○												
		160404E-PA1	0.40	0.04-0.28	0.20-1.50	●	●	●	●												
		160408E-PA1	0.80	0.05-0.35	0.20-1.50	●	●	●	○												
		160412E-PA1	1.20	0.05-0.42	0.20-1.50	●	●		○												
		**TNMG 160404E-PB1**	0.40	0.05-0.15	0.26-3.10	●	●	○	●	○					●						
		160408E-PB1	0.80	0.10-0.30	0.52-3.10	●	●	○	●	○											
		160412E-PB1	1.20	0.15-0.45	0.78-3.10	●	●	○	○	○											
		**TNMG 160404E-SC1**	0.40	0.07-0.18	0.20-0.80									●						●	
		160408E-SC1	0.80	0.10-0.25	0.20-0.80									●						●	
		**TNMG 160404E-MB2**	0.40	0.05-0.15	0.26-3.10							●	●	●	●						●
		160408E-MB2	0.80	0.10-0.30	0.52-3.10							●	●	●	●						●
Semi-finishing		**TNMG 160404E-SL3**	0.40	0.12-0.25	0.60-3.00									●						●	●
		160408E-SL3	0.80	0.15-0.30	0.80-3.00									●						●	●
		160412E-SL3	1.20	0.18-0.30	1.00-3.00									●						●	●
		**TNMG 160404-F2K**	0.40	0.08-0.20	0.50-2.00	●	●														
		160408-F2K	0.80	0.10-0.25	0.50-2.00	●	●														
		**TNMG 160404R-M1T**	0.40	0.10-0.30	0.10-0.30	●	●														
		160404L-M1T	0.40	0.10-0.30	0.10-0.30	●	●														

● : Standard stock ○ : Made-to-Order

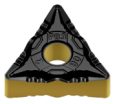
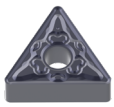
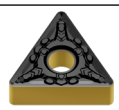
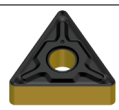
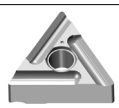
Negative 60° (T)



(mm)

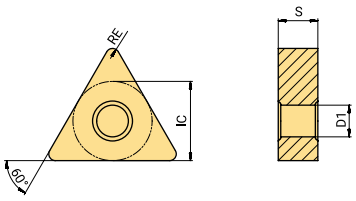
Product code	IC	S	D1
TN_1604_	9.525	4.76	3.81
TN_2204_	12.70	4.76	5.16

● Good Conditions ◐ General Conditions
✱ Bad Conditions

Inserts		Product code	RE (mm)	Recommanded parameters f (mm/rev)	Recommanded parameters ap (mm)	P AT202	P AT210A	P AC052P	P AC152P	P AC252P	P AC350P	M AC100M	M AC200M	M AP200U	M AP301M	K AC100K	K AC102K	K AC202K	N AW100K	S AP010S	S AP100S
				Machining conditions		●	●	●	◐	✱	✱	●	◐	◐	◐	●	◐	✱	●	●	●
Semi-finishing		**TNMG 160404E-PB3**	0.40	0.06-0.18	0.30-3.30	●	●		●	●											
		160408E-PB3	0.80	0.12-0.36	0.60-3.30	●	●	○	○	○											
		160412E-PB3	1.20	0.18-0.54	0.90-3.30	●	●	○	○	○											
		**TNMG 160404E-PC3**	0.40	0.07-0.20	0.34-3.70	●	●		●	○											
		160408E-PC3	0.80	0.14-0.40	0.68-3.70	●	●		○	○											
		160412E-PC3	1.20	0.20-0.60	1.02-3.70	●	●		●												
		**TNMG 160404E-SC3**	0.40	0.08-0.22	0.40-4.10							●	●	●						●	●
		160408E-SC3	0.80	0.15-0.44	0.80-4.10							●	●	●						●	●
		160412E-SC3	1.20	0.23-0.66	1.20-4.10							●	●	●						●	●
		**TNMG 160404E-MC3**	0.40	0.08-0.22	0.32-4.10							●	●	●	●						
		160408E-MC3	0.80	0.15-0.44	0.64-4.10							●	●	●	●						
		160412E-MC3	1.20	0.23-0.66	0.96-4.10							●	●	●	●						
		220408E-MC3	0.80	0.15-0.44	0.64-4.90							●	●	●	●						●
		220412E-MC3	1.20	0.23-0.66	0.96-4.90							●	●	●	●						
Medium		**TNMG 160404E-PD3**	0.40	0.08-0.22	0.40-4.10	●	●	○	●	●											
		160408E-PD3	0.80	0.15-0.44	0.80-4.10	●	●	●	●	○	●										
		160412E-PD3	1.20	0.23-0.66	1.20-4.10	●	●	●	●	●	●										
		**TNMG 160404-M3T**	0.40	0.20-0.40	1.00-4.00	●	●														
		160408-M3T	0.80	0.20-0.40	1.00-4.00	●	●														
		**TNMG 160408E-UC4**	0.80	0.15-0.48	0.80-4.50			●	●	●	●										
		160412E-UC4	1.20	0.23-0.72	1.20-4.50			●	●	●											
		**TNMG 160404E-PC4**	0.40	0.08-0.22	0.40-4.10	●	●		○												
		160408E-PC4	0.80	0.15-0.44	0.80-4.10	●	●	○	●												
		160412E-PC4	1.20	0.23-0.66	1.20-4.10			●	●												
		220412E-PC4	1.20	0.23-0.66	1.20-4.90				○	●											
		**TNMG 160404R-M2T**	0.40	0.10-0.30	0.70-3.50	●	●														
		160404L-M2T	0.40	0.10-0.30	0.70-3.50	●	●														

● : Standard stock ○ : Made-to-Order

Negative 60° (T)



(mm)

Product code	IC	S	D1
TN_1103_	6.35	3.18	2.26
TN_1604_	9.525	4.76	3.81
TN_2204_	12.70	4.76	5.16

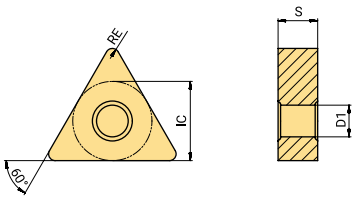
Inserts		Product code	RE (mm)	Recommanded parameters f (mm/rev)	Recommanded parameters ap (mm)	Machining conditions: ● Good Conditions ⬮ General Conditions ✱ Bad Conditions															
						●	●	●	⬮	✱	✱	●	⬮	⬮	⬮	●	⬮	✱	●	●	●
						P						M				K			N	S	
						AT202	AT210A	AC052P	AC152P	AC252P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP010S	AP100S
Medium		**TNMG 160404R-PL5**	0.40	0.08-0.22	0.40-4.10	●	●		●	●											
		160404L-PL5	0.80	0.15-0.44	0.80-4.10	●	●	○	○	●											
		160408R-PL5	0.40	0.08-0.22	0.40-4.10	●	●	○	●	○											
		160408L-PL5	0.80	0.15-0.44	0.80-4.10	●	●	●	○	●											
Roughing		**TNMG 160408E-MC4**	0.80	0.20-0.60	1.20-5.80							●	●	●	●						●
		160412E-MC4	1.20	0.30-0.90	1.80-5.80							●	●	●	●						●
		220408E-MC4	0.80	0.20-0.60	1.20-6.60							●	●	●							
		220412E-MC4	1.20	0.30-0.90	1.80-6.60							●	●	●							
		**TNMG 110304E-KC4**	0.40	0.09-0.24	0.48-3.30												●	●			
		160404E-KC4	0.40	0.09-0.24	0.48-4.90												●	●			
		160408E-KC4	0.80	0.18-0.48	0.96-4.90											●	●	●			
		160412E-KC4	1.20	0.26-0.72	1.44-4.90											●	●	●			
		160416E-KC4	1.60	0.35-0.96	1.92-4.90												●	●			
		220412E-KC4	1.20	0.26-0.72	1.44-6.00												●	●			
		220416E-KC4	1.60	0.35-0.96	1.92-6.00												●	●			
		**TNMG 160408E-PD5**	0.80	0.20-0.60	1.20-5.80			○	○	○											
		160412E-PD5	1.20	0.30-0.90	1.80-5.80			○	○	○	●										
		220408E-PD5	0.80	0.20-0.60	1.20-7.70			○	●	○											
		220412E-PD5	1.20	0.30-0.90	1.80-7.70			○	○	●											
		220416E-PD5	1.60	0.40-1.20	2.40-7.70			○	●	●											
		**TNMA 160404E-KD5**	0.40	0.10-0.30	0.60-5.80												●	●			
		160408E-KD5	0.80	0.20-0.60	1.20-5.80											●	●	●			
		160412E-KD5	1.20	0.30-0.90	1.80-5.80											●	●	●			
		160416E-KD5	1.60	0.40-1.20	2.40-5.80											●	●	●			
		220408E-KD5	0.80	0.20-0.60	1.20-7.70												●	●			
		220412E-KD5	1.20	0.30-0.90	1.80-7.70												●	●			
		220416E-KD5	1.60	0.40-1.20	2.40-7.70												●	●			

● : Standard stock ○ : Made-to-Order

Negative 60° (T)

(mm)

Product code	IC	S	D1
TN_1604_	9.525	4.76	3.81
TN_2204_	12.70	4.76	5.16



● Good Conditions ◖◗ General Conditions ✱ Bad Conditions

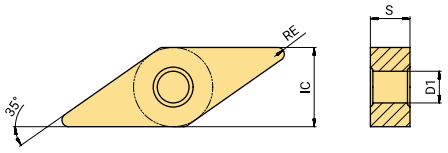
Inserts		Product code	RE (mm)	Recommanded parameters f (mm/rev)	Recommanded parameters ap (mm)	P AT202	P AT210A	P AC052P	P AC152P	P AC252P	P AC350P	M AC100M	M AC200M	M AP200U	M AP301M	K AC100K	K AC102K	K AC202K	N AW100K	S AP010S	S AP100S
Heavy roughing		**TNMM 160408E-PD8**	0.80	0.16-0.32	1.44-4.90			○	○	○											
		160412E-PD8	1.20	0.24-0.48	2.16-4.90			○	○	○											
		220408E-PD8	0.80	0.16-0.32	1.44-6.00			○	○	○											
		220412E-PD8	1.20	0.24-0.48	2.16-6.00			○	○	○											
		220416E-PD8	1.60	0.32-0.64	2.88-6.00			○	○	○											
Finishing		**TNGG 160402FR-F**	0.20	0.08-0.20	0.50-2.30										●						
		160402FL-F	0.20	0.08-0.20	0.50-2.30										●						
		160404FR-F	0.40	0.08-0.20	0.50-2.30										●						
		160404FL-F	0.40	0.08-0.20	0.50-2.30										●						
Semi-finishing--Roughing		**TNGG 160404R-H**	0.40	0.22-0.38	1.20-3.80										●						
		160404L-H	0.40	0.22-0.38	1.20-3.80										●						
		160408R-H	0.80	0.22-0.38	1.20-3.80										●						
		160408L-H	0.80	0.22-0.38	1.20-3.80										●						

● : Standard stock ○ : Made-to-Order

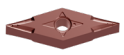
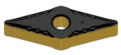
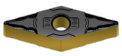
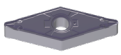
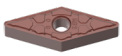
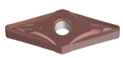
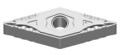
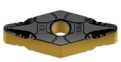
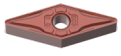
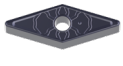
Negative 35° (V)

(mm)

Product code	IC	S	D1
VN_1604_	9.525	4.76	3.81



● Good Conditions ◐ General Conditions ✱ Bad Conditions

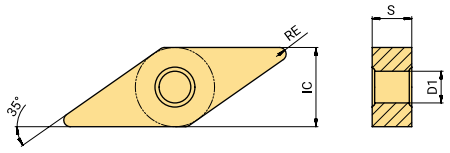
Inserts		Product code	RE (mm)	Recommanded parameters f (mm/rev)	Recommanded parameters ap (mm)	P AT202	P AT210A	P AC052P	P AC152P	P AC252P	P AC350P	M AC100M	M AC200M	M AP200U	M AP301M	K AC100K	K AC102K	K AC202K	N AW100K	S AP010S	S AP100S
Finishing		VNGG 160401FP-UF	0.10	0.02-0.10	0.50-2.00										●						
		160402FP-UF	0.20	0.02-0.10	0.50-2.00										●						
		160404FP-UF	0.40	0.02-0.10	0.50-2.00										●						
		VNMG 160402E-PA1	0.20	0.04-0.25	0.20-1.50	●	●	●	○												
		160404E-PA1	0.40	0.04-0.28	0.20-1.50	●	●	●	●												
		160408E-PA1	0.80	0.05-0.35	0.20-1.50	●	●	●	●												
		160412E-PA1	1.20	0.05-0.42	0.20-1.50	●	●														
		VNMG 160404E-PB1	0.40	0.05-0.15	0.26-2.10	●	●	●	●	○											
		160408E-PB1	0.80	0.10-0.30	0.52-2.10	●	●	●	●	●											
		VNMG 160404E-SC1	0.40	0.10-0.25	0.20-0.80									●						●	
		160408E-SC1	0.80	0.15-0.30	0.20-0.80									●						●	
		VNMG 160404E-MB2	0.40	0.05-0.15	0.26-2.10							●	●	●	●						●
		160408E-MB2	0.80	0.10-0.30	0.52-2.10							●	●	●	●						●
Semi-finishing		VNMG 160404E-SL3	0.40	0.10-0.20	0.60-2.50									●						●	●
		160408E-SL3	0.80	0.12-0.25	0.80-2.50									●						●	●
		VNMG 160404E-BS	0.40	0.07-0.16	0.30-2.00	●	●	●	●	○											
		160408E-BS	0.80	0.08-0.20	0.30-2.00	●	●	●	●	●											
		160412E-BS	1.20	0.09-0.22	0.30-2.00	●	○	○	●												
		VNMG 160404-F2K	0.40	0.08-0.20	0.50-2.00	●	●														
		160408-F2K	0.80	0.10-0.25	0.50-2.00	●	●														
		VNMG 160404E-PB3	0.40	0.06-0.18	0.30-3.10	●	●	●	●	○											
		160408E-PB3	0.80	0.12-0.36	0.60-3.10	●	●	●	●	●											
		160412E-PB3	1.20	0.18-0.54	0.90-3.10	●	●	○	●	○											
		VNMG 160404E-PC3	0.40	0.07-0.20	0.34-3.30	●	●		●												
		160408E-PC3	0.80	0.14-0.40	0.68-3.30	●	●		●	○											
		160412E-PC3	1.20	0.20-0.60	1.02-3.30	●	●		○												
		VNMG 160404E-SC3	0.40	0.08-0.22	0.40-3.30							●	●	●						●	●
		160408E-SC3	0.80	0.15-0.44	0.80-3.30							●	●	●						●	●
		160412E-SC3	1.20	0.23-0.66	1.20-3.30							●	●	●						●	●
		VNMG 160404E-MC3	0.40	0.08-0.22	0.32-3.30							●	●	●	●						
		160408E-MC3	0.80	0.15-0.44	0.64-3.30							●	●	●	●						

● : Standard stock ○ : Made-to-Order

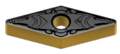
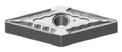
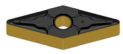
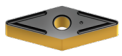
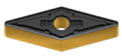
Negative 35° (V)

(mm)

Product code	IC	S	D1
VN_12T3 _	7.15	3.97	3.81
VN_1604_	9.525	4.76	3.81



● Good Conditions ◐ General Conditions
✱ Bad Conditions

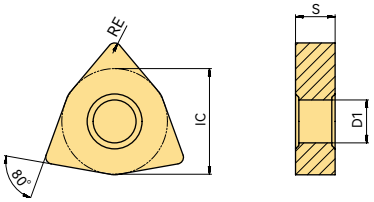
Inserts		Product code	RE (mm)	Recommanded parameters f (mm/rev)	Recommanded parameters ap (mm)	P AT202	P AT210A	P AC052P	P AC152P	P AC252P	P AC350P	M AC100M	M AC200M	M AP200U	M AP301M	K AC100K	K AC102K	K AC202K	N AW100K	S AP010S	S AP100S
				Machining conditions		●	●	●	◐	✱	✱	●	◐	◐	◐	●	◐	✱	●	●	●
Medium		**VNMG 12T304E-PD3**	0.40	0.08-0.22	0.40-2.50				●	○											
		12T308E-PD3	0.80	0.15-0.44	0.80-2.50				●	○											
		160404E-PD3	0.40	0.08-0.22	0.40-3.30	●	●		●	○											
		160408E-PD3	0.80	0.15-0.44	0.80-3.30	●	●	○	●	○	●										
		160412E-PD3	1.20	0.23-0.66	1.20-3.30	●	●	●	●	○											
		**VNMG 160404-M3T**	0.40	0.20-0.40	1.00-4.00	●	●														
		160408-M3T	0.80	0.20-0.40	1.00-4.00	●	●														
		**VNMG 160408E-UC4**	0.80	0.15-0.48	0.80-4.50			●	●	●	●			●	○		○	○			
		160412E-UC4	1.20	0.23-0.72	1.20-4.50			●	●	●											
		**VNMG 160404E-PC4**	0.40	0.08-0.22	0.40-3.30	●	●		○								●	●			
		160408E-PC4	0.80	0.15-0.44	0.80-3.30	●	●	○	○								●	●			
		160412E-PC4	1.20	0.23-0.66	1.20-3.30	●	●	○	○								●	●			
Roughing		**VNMG 160404E-KC4**	0.40	0.09-0.24	0.48-3.30												●	●			
		160408E-KC4	0.80	0.18-0.48	0.96-3.30												●	●			
		160412E-KC4	1.20	0.26-0.72	1.44-3.30												●	●			

● : Standard stock ○ : Made-to-Order

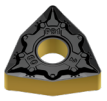
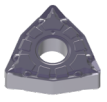
Negative 80° (W)

(mm)

Product code	IC	S	D1
WN_0604_	9.525	4.76	3.81
WN_0804_	12.70	4.76	5.16



● Good Conditions ◖◗ General Conditions ✱ Bad Conditions

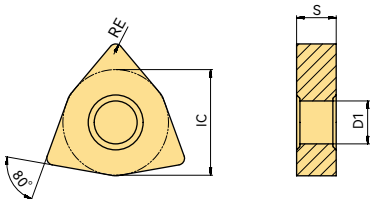
Inserts		Product code	RE (mm)	Recommanded parameters f (mm/rev)	Recommanded parameters ap (mm)	Machining conditions															
						●	●	●	◖◗	✱	✱	●	◖◗	◖◗	◖◗	●	◖◗	✱	●	●	●
						P						M				K			N	S	
						AT202	AT210A	AC052P	AC152P	AC252P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP010S	AP100S
Finishing		**WNMG 080404-F1T**	0.40	0.05-0.15	0.50-2.50	●	●														
		080408-F1T	0.80	0.05-0.15	0.50-2.50	●	●														
		**WNMG 080404-F1Y**	0.40	0.08-0.20	0.30-1.50	●	●														
		080408-F1Y	0.80	0.08-0.20	0.30-1.50	●	●														
		**WNMG 080402E-PA1**	0.20	0.04-0.25	0.20-1.50	●	●	○	○												
		080404E-PA1	0.40	0.04-0.28	0.20-1.50	●	●	●	●												
		080408E-PA1	0.80	0.05-0.35	0.20-1.50	●	●	●	●												
		080412E-PA1	1.20	0.05-0.42	0.20-1.50	●	●		○												
		**WNMG 080404E-PB1**	0.40	0.05-0.15	0.26-2.20	●	●	●	●	●											
		080408E-PB1	0.80	0.10-0.30	0.52-2.20	●	●	●	●	○											
		080412E-PB1	1.20	0.15-0.45	0.78-2.20	●	●	○	●	○											
		**WNMG 080404E-SC1**	0.40	0.10-0.25	0.20-0.80								●						●		●
		080408E-SC1	0.80	0.15-0.30	0.20-0.80								●						●		●
		**WNMG 080404E-MB2**	0.40	0.05-0.15	0.26-2.20						●	●								●	●
		080408E-MB2	0.80	0.10-0.30	0.52-2.20						●	●								●	●

● : Standard stock ○ : Made-to-Order

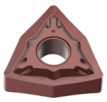
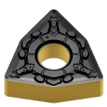
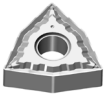
Negative 80° (W)

(mm)

Product code	IC	S	D1
WN_0604_	9.525	4.76	3.81
WN_0804_	12.70	4.76	5.16



● Good Conditions ◐ General Conditions
✱ Bad Conditions

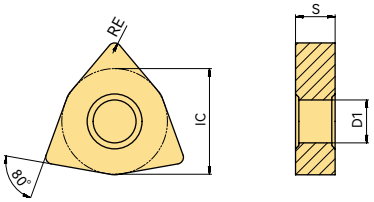
Inserts		Product code	RE (mm)	Recommanded parameters f (mm/rev)	Recommanded parameters ap (mm)	P AT202	P AT210A	P AC052P	P AC152P	P AC252P	P AC350P	M AC100M	M AC200M	M AP200U	M AP301M	K AC100K	K AC102K	K AC202K	N AW100K	S AP010S	S AP100S
				Machining conditions		●	●	●	◐	✱	✱	●	◐	◐	◐	●	◐	✱	●	●	●
Semi-finishing		**WNMG 060404E-SL3**	0.40	0.12-0.25	0.60-2.50								●						●	●	
		060408E-SL3	0.80	0.15-0.25	0.80-2.50								●						●	●	
		080404E-SL3	0.40	0.12-0.25	0.60-3.00								●						●	●	
		080408E-SL3	0.80	0.15-0.25	0.80-3.00								●						●	●	
		080412E-SL3	1.20	0.18-0.30	1.00-3.00								●						●	●	
		**WNMG 080404-F2K**	0.40	0.12-0.24	0.50-2.50	●	●														
		080408-F2K	0.80	0.12-0.24	0.50-2.50	●	●														
		**WNMG 080404E-PB3**	0.40	0.06-0.18	0.30-2.30	●	●		●	○											
		080408E-PB3	0.80	0.12-0.36	0.60-2.30	●	●	●	●	●											
		080412E-PB3	1.20	0.18-0.54	0.90-2.30	●	●	●	○	●											
		**WNMG 080404E-PC3**	0.40	0.07-0.20	0.34-2.60	●	●		○												
		080408E-PC3	0.80	0.14-0.40	0.68-2.60	●	●	●	●	○											●
		080412E-PC3	1.20	0.20-0.60	1.02-2.60	●	●	○	●												●
		**WNMG 080404E-SC3**	0.40	0.08-0.22	0.40-2.90						●	●	●						●	●	
		080408E-SC3	0.80	0.15-0.44	0.80-2.90						●	●	●						●	●	
		080412E-SC3	1.20	0.23-0.66	1.20-2.90						●	●	●						●	●	
		**WNMG 060408E-MC3**	0.80	0.15-0.44	0.64-2.10						●	●	●								
		060412E-MC3	1.20	0.23-0.66	0.96-2.10						●	●	●								
		080404E-MC3	0.40	0.08-0.22	0.32-2.90						●	●	●								
		080408E-MC3	0.80	0.15-0.44	0.64-2.90						●	●	●	●						●	
		080412E-MC3	1.20	0.23-0.66	0.96-2.90						●	●	●								
Medium		**WNMG 060408E-PD3**	0.80	0.15-0.44	0.80-2.10			●	●	●											
		080404E-PD3	0.40	0.08-0.22	0.40-2.90	●	●	●	●	●											
		080408E-PD3	0.80	0.15-0.44	0.80-2.90	●	●	●	●	●											
		080412E-PD3	1.20	0.23-0.66	1.20-2.90	●	●	●	●	●											
		**WNMG 080404-M3T**	0.40	0.20-0.40	1.00-4.00	●	●														
		080408-M3T	0.80	0.20-0.40	1.00-4.00	●	●														

● : Standard stock ○ : Made-to-Order

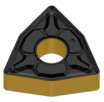
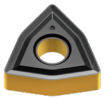
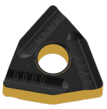
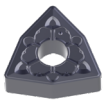
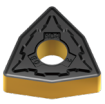
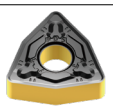
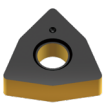
Negative 80° (W)

(mm)

Product code	IC	S	D1
WN_0604_	9.525	4.76	3.81
WN_0804_	12.70	4.76	5.16



● Good Conditions ◖◗ General Conditions ✱ Bad Conditions

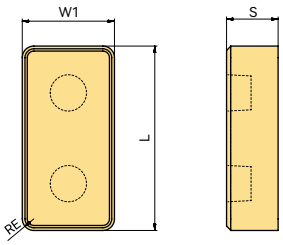
	Inserts	Product code	RE (mm)	Recommanded parameters f (mm/rev)	Recommanded parameters ap (mm)	P AT202	P AT210A	P AC052P	P AC152P	P AC252P	P AC350P	M AC100M	M AC200M	M AP200U	M AP301M	K AC100K	K AC102K	K AC202K	N AW100K	S AP010S	S AP100S
				Machining conditions		●	●	●	◖◗	✱	✱	●	◖◗	◖◗	◖◗	●	◖◗	✱	●	●	●
Medium		WNMG 060412E-UC4	1.20	0.23-0.72	1.20-3.20			●	●	●											
		080404E-UC4	0.40	0.08-0.24	0.40-3.20			●	●	●											
		080408E-UC4	0.80	0.15-0.48	0.80-3.20			●	●	●											
		080412E-UC4	1.20	0.23-0.72	1.20-3.20			●	●	●											
		WNMG 080404E-PC4	0.40	0.08-0.22	0.40-2.90	●	●		○							●	●				
		080408E-PC4	0.80	0.15-0.44	0.80-2.90	●	●	○	●							●	●				
		080412E-PC4	1.20	0.23-0.66	1.20-2.90	●	●	●	●	○						●	●				
		WNMG 080404R-PL5	0.40	0.20-0.50	0.40-4.00				○	○											●
		080404L-PL5	0.40	0.20-0.50	0.40-4.00				○	○											
		080408R-PL5	0.80	0.20-0.50	0.40-5.00				○	○			●								
		080408L-PL5	0.80	0.20-0.50	0.40-5.00				○	●			●								
Roughing		WNMG 060408E-MC4	0.80	0.20-0.60	1.20-3.30						○	○	○								
		060412E-MC4	1.20	0.30-0.90	1.80-3.30						●	●	●								
		080408E-MC4	0.80	0.20-0.60	1.20-4.30						●	●	●							●	
		080412E-MC4	1.20	0.30-0.90	1.80-4.30						●	●	●							●	
		WNMG 060404E-KC4	0.40	0.09-0.24	0.48-2.60											●	●				
		060408E-KC4	0.80	0.18-0.48	0.96-2.60											●	●				
		080404E-KC4	0.40	0.09-0.24	0.48-3.50											●	●				●
		080408E-KC4	0.80	0.18-0.48	0.96-3.50										●	●	●				●
		080412E-KC4	1.20	0.26-0.72	1.44-3.50										●	●	●				
		080416E-KC4	1.60	0.35-0.96	1.92-3.50											●	●				●
		WNMG 080408E-PD5	0.80	0.20-0.60	1.20-4.30			○	●	○											●
		080412E-PD5	1.20	0.30-0.90	1.80-4.30			●	●	●											
		WNMA 080404E-KD5	0.40	0.10-0.30	0.60-4.30											●	●				
		080408E-KD5	0.80	0.20-0.60	1.20-4.30										●	●	●				
		080412E-KD5	1.20	0.30-0.90	1.80-4.30										●	●	●				
		080416E-KD5	1.60	0.40-1.20	2.40-4.30											●	●				

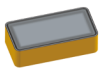
● : Standard stock ○ : Made-to-Order

Negative 90° (L)

(mm)

Product code	L	S	W1
LN_5014_	50.80	14.20	25.40



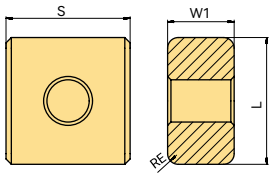
Inserts		Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	P AC052P	P AC152P	P AC252P	P AC350P	M AC100M	M AC200M	M AP200U	M AP301M	K AC100K	K AC102K	K AC202K	N AW100K	S AP010S	S AP100S
Heavy roughing		**LNMX 501432S-HE**	3.20	0.70-1.60	6.00-40.00				●										

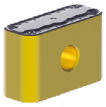
Negative 90° (L)

Railway wheel reconditioning

(mm)

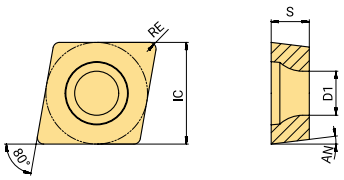
Product code	L	S	W1
LN_1919_	19.05	19.05	10
LN_3019_	30	19.05	12



Inserts		Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	P AC052P	P AC152P	P AC252P	P AC350P	M AC100M	M AC200M	M AP200U	M AP301M	K AC100K	K AC102K	K AC202K	N AW100K	S AP010S	S AP100S
Finishing		**LNMX 191940-AS**	4.00	0.70-1.20	2.00-10.00	○	○												
Medium		**LNMX 191940-AM**	4.00	0.70-1.20	2.00-10.00	●	●	●											
		LNMX 301940-AM	4.00	0.70-1.20	2.00-20.00	●	●	●											
Roughing		**LNMX 301940-AR**	4.00	0.70-1.20	2.00-20.00	●	●	●											

● : Standard stock ○ : Made-to-Order

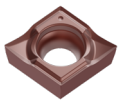
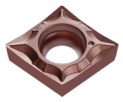
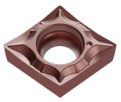
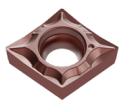
Turning Inserts Positive 80° (C)



(mm)

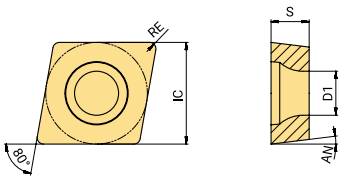
Product code	IC	S	D1	AN
CC_0602_	6.35	2.38	2.80	7°
CC_09T3_	9.525	3.97	4.40	7°
CC_1204_	12.688	4.76	5.50	7°

● Good Conditions ⬮ General Conditions
✱ Bad Conditions

Inserts		Product code	RE (mm)	Recommanded parameters		P						M				K			N	S
				f (mm/rev)	ap (mm)	AT202	AT210A	AC052P	AC152P	AC252P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Finishing		**CCGT 060201FP-LF**	<0.10	0.05-0.20	0.35-3.00									○	●					
		060202FP-LF	0.20	0.05-0.20	0.35-3.00									●	●					
		060204FP-LF	0.40	0.05-0.20	0.35-3.00									●	●					
		09T301FP-LF	<0.10	0.05-0.20	0.35-3.00									○	●					
		09T302FP-LF	0.20	0.05-0.20	0.35-3.00									○	●					
		09T304FP-LF	0.40	0.05-0.20	0.35-3.00									○	●					
		**CCGT 060201FP-UF**	0.10	0.02-0.15	0.10-1.40									○	●					
		060202FP-UF	0.20	0.02-0.15	0.10-1.40									●	●					
		060204FP-UF	0.40	0.03-0.20	0.10-1.40									●	●					
		09T301FP-UF	0.10	0.02-0.15	0.10-2.40									○	●					
		09T302FP-UF	0.20	0.02-0.15	0.10-2.40									○	●					
		09T304FP-UF	0.40	0.03-0.20	0.10-2.40									○	●					
		**CCGT 060201F-UF**	0.10	0.02-0.15	0.10-1.40		○													
		060202F-UF	0.20	0.02-0.15	0.10-1.40		○													
		060204F-UF	0.40	0.03-0.20	0.10-1.40		●													
		09T301F-UF	0.10	0.02-0.15	0.10-2.40		○													
		09T302F-UF	0.20	0.02-0.15	0.10-2.40		○													
		09T304F-UF	0.40	0.03-0.20	0.10-2.40		○													
		09T308F-UF	0.80	0.03-0.25	0.10-2.40		○													
		**CCGT 060201E-UF**	0.10	0.02-0.15	0.10-1.40		○							●	●					●
		060202E-UF	0.20	0.02-0.15	0.10-1.40		●							●	●					●
		060204E-UF	0.40	0.03-0.20	0.10-1.40		●							●	●					●
		09T301E-UF	0.10	0.02-0.15	0.10-2.40		○							●	●					●
		09T302E-UF	0.20	0.02-0.15	0.10-2.40		●							●	●					●
		09T304E-UF	0.40	0.03-0.20	0.10-2.40		●							●	●					●
		09T308E-UF	0.80	0.03-0.25	0.10-2.40		●							●	●					●
Semi-finishing		**CCGT 060204F-NC2**	0.40	0.05-0.20	0.32-2.90														●	
		09T302F-NC2	0.20	0.02-0.10	0.16-4.40														●	
		09T304F-NC2	0.40	0.05-0.20	0.32-4.40														●	
		09T308F-NC2	0.80	0.10-0.40	0.64-4.40														●	
		120404F-NC2	0.40	0.05-0.20	0.32-5.80														●	
		120408F-NC2	0.80	0.10-0.40	0.64-5.80														●	

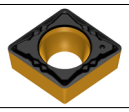
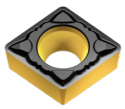
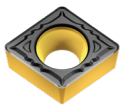
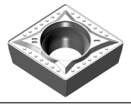
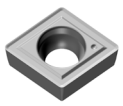
● : Standard stock ○ : Made-to-Order

Turning Inserts Positive 80° (C)



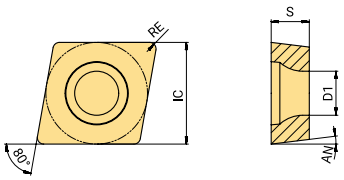
(mm)

Product code	IC	S	D1	AN
CC_0602_	6.35	2.38	2.80	7°
CC_09T3_	9.525	3.97	4.40	7°
CC_1204_	12.688	4.76	5.50	7°

Inserts		Product code	RE (mm)	Recommanded parameters f (mm/rev)	Recommanded parameters ap (mm)	Machining conditions: ● Good Conditions ◖◗ General Conditions ✱ Bad Conditions													
						●	●	●	◖◗	✱	✱	●	◖◗	◖◗	◖◗	●	◖◗	✱	●	●
						P						M				K			N	S
						AT202	AT210A	AC052P	AC152P	AC252P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Finishing		**CCMT 060202-F1T**	0.20	0.05-0.15	0.30-1.50	●	●													
		060204-F1T	0.40	0.05-0.15	0.30-1.50	●	●													
		09T304-F1T	0.40	0.10-0.25	0.60-1.50	●	●													
		09T308-F1T	0.80	0.10-0.25	0.60-1.50	●	●													
		**CCMT 060202E-PA1**	0.20	0.04-0.25	0.10-0.80	●	●	●	○											
		09T308E-PA1	0.80	0.05-0.30	0.10-0.80	●	●	●	●											
		**CCMT 060202E-PB1**	0.20	0.02-0.07	0.15-1.60	●	●		●	●		●	●	●						
		060204E-PB1	0.40	0.04-0.14	0.30-1.60	●	●		●	○		●	●	●						
		060208E-PB1	0.80	0.09-0.28	0.60-1.60	●	●		○	○		●	●	●						
		09T302E-PB1	0.20	0.02-0.07	0.15-2.40	●	●		●	●		●	●	●						
		09T304E-PB1	0.40	0.04-0.14	0.30-2.40	●	●		●	○		●	●	●						●
		09T308E-PB1	0.80	0.09-0.28	0.60-2.40	●	●	●	●	○		●	●	●						
		**CCMT 060202-F2K**	0.20	0.06-0.15	0.50-2.00	●	●													
		060204-F2K	0.40	0.08-0.20	0.50-2.00	●	●													
		09T302-F2K	0.20	0.06-0.15	0.50-2.00	●	●													
		09T304-F2K	0.40	0.08-0.20	0.50-2.00	●	●													
		09T308-F2K	0.80	0.10-0.25	0.50-2.00	●	●													
Semi-finishing		**CCMT 060204E-PC2**	0.40	0.05-0.16	0.35-1.90	●	●		●	●		●	●	●						●
		060208E-PC2	0.80	0.10-0.32	0.70-1.90	●	●		●	●		●	●	●						●
		09T304E-PC2	0.40	0.05-0.16	0.35-2.90	●	●	●	●	●		●	●	●						●
		09T308E-PC2	0.80	0.10-0.32	0.70-2.90	●	●	○	●	○		●	●	●						●
		09T312E-PC2	1.20	0.16-0.48	1.05-2.90				●	○		●	●	●						
		120404E-PC2	0.40	0.05-0.16	0.35-3.90	●	●		●	●		●	●	●						●
		120408E-PC2	0.80	0.10-0.32	0.70-3.90	●	●		●	○		●	●	●						●
		120412E-PC2	1.20	0.16-0.48	1.05-3.90	●	●		○	○		●	●	●						●
		**CCMT 09T304E-M2T**	0.40	0.10-0.25	0.70-3.50	●	●													
		09T308E-M2T	0.80	0.10-0.25	0.70-3.50	●	●													
		**CCMT 060204-M2Y**	0.40	0.08-0.25	0.50-2.50	●	●													

● : Standard stock ○ : Made-to-Order

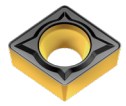
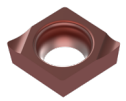
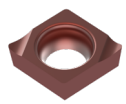
Turning Inserts Positive 80° (C)



(mm)

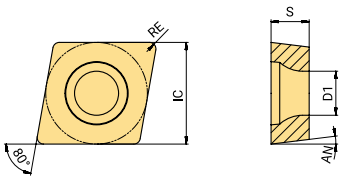
Product code	IC	S	D1	AN
CC_0301_	3.50	1.43	2.20	7°
CC_0401_	4.30	1.83	2.30	7°
CC_0602_	6.35	2.38	2.80	7°
CC_09T3_	9.525	3.97	4.40	7°
CC_1204_	12.688	4.76	5.50	7°

● Good Conditions ⬮ General Conditions
✱ Bad Conditions

Inserts		Product code	RE (mm)	Recommanded parameters		P						M				K			N	S
				f (mm/rev)	ap (mm)	AT202	AT210A	AC052P	AC152P	AC252P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Medium		**CCMT 060204E-KC2**	0.40	0.06-0.18	0.40-2.10	●	●		●	●		●	●	●			●	●		●
		060208E-KC2	0.80	0.12-0.36	0.80-2.10	●	●		●	●	●	●	●	●			●	●		
		09T304E-KC2	0.40	0.06-0.18	0.40-3.20	●	●	○	○	●	●	●	●	●		●	●	●		
		09T308E-KC2	0.80	0.12-0.36	0.80-3.20	●	●	○	●	○		●	●	●		●	●	●		
		120404E-KC2	0.40	0.06-0.18	0.40-4.30	●	●	●	○	○		●	●	●			●	●		
		120408E-KC2	0.80	0.12-0.36	0.80-4.30	●	●	●	●	●	●	●	●	●			●	●		
		120412E-KC2	1.20	0.18-0.54	1.20-4.30	●	●		○	○		●	●	●			●	●		
Roughing		**CCMW 060204E-KD5**	0.40	0.10-0.22	0.40-3.20												●	●		
		09T304E-KD5	0.40	0.10-0.22	0.40-4.80												●	●		
		09T308E-KD5	0.80	0.20-0.44	0.80-4.80												●	●		
		120404E-KD5	0.40	0.10-0.22	0.40-6.40												●	●		
		120408E-KD5	0.80	0.20-0.44	0.80-6.40												●	●		
		120412E-KD5	1.20	0.30-0.66	1.20-6.40												●	●		
Finishing		**CCET 0301003FR-F**	<0.03	0.01-0.05	0.10-0.30									○	●					
		0301003FL-F	<0.03	0.01-0.05	0.10-0.30									○	●					
		0301005FR-F	<0.05	0.01-0.05	0.10-0.30									○	●					
		0301005FL-F	<0.05	0.01-0.05	0.10-0.30									○	●					
		030101FR-F	<0.10	0.01-0.05	0.10-0.30		○							○	●					
		030101FL-F	<0.10	0.01-0.05	0.10-0.30		○							○	●					
		030102FR-F	<0.20	0.01-0.05	0.10-0.30		○							○	●					
		030102FL-F	<0.20	0.01-0.05	0.10-0.30		●							○	●					
		030104FR-F	<0.40	0.01-0.05	0.10-0.30		○							○	●					
		030104FL-F	<0.40	0.01-0.05	0.10-0.30		●							○	●					
		**CCET 0401003FR-F**	<0.03	0.01-0.06	0.10-0.40									○	●					
		0401003FL-F	<0.03	0.01-0.06	0.10-0.40									○	●					
		0401005FR-F	<0.05	0.01-0.06	0.10-0.40									○	●					
		0401005FL-F	<0.05	0.01-0.06	0.10-0.40									○	●					
		040101FR-F	<0.10	0.01-0.06	0.10-0.40		○							○	●					
		040101FL-F	<0.10	0.01-0.06	0.10-0.40		○							○	●					
		040102FR-F	<0.20	0.01-0.06	0.10-0.40		○							○	●					
		040102FL-F	<0.20	0.01-0.06	0.10-0.40		●							○	●					
		040104FR-F	<0.40	0.01-0.06	0.10-0.40		○							○	●					
		040104FL-F	<0.40	0.01-0.06	0.10-0.40		○							○	●					

● : Standard stock ○ : Made-to-Order

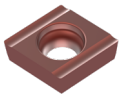
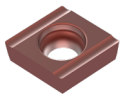
Turning Inserts Positive 80° (C)



(mm)

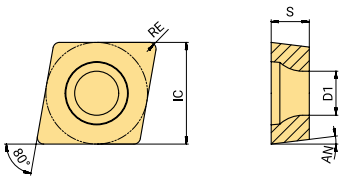
Product code	IC	S	D1	AN
CC_0602_	6.35	2.38	2.80	7°
CC_09T3_	9.525	3.97	4.40	7°

● Good Conditions ◐ General Conditions ✱ Bad Conditions

Inserts		Product code	RE (mm)	Recommanded parameters		P						M				K			N	S
				f (mm/rev)	ap (mm)	AT202	AT210A	AC052P	AC152P	AC252P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Low feed		**CCET 0602003FR-M**	<0.03	0.02-0.10	0.50-2.50									○	●					
		0602003FL-M	<0.03	0.02-0.10	0.50-2.50									○	●					
		0602005FR-M	<0.05	0.02-0.10	0.50-2.50									○	●					
		0602005FL-M	<0.05	0.02-0.10	0.50-2.50									○	●					
		060201FR-M	<0.10	0.02-0.10	0.50-2.50		○							○	●					
		060201FL-M	<0.10	0.02-0.10	0.50-2.50		○							○	●					
		060202FR-M	<0.20	0.02-0.10	0.50-2.50		○							○	●					
		060202FL-M	<0.20	0.02-0.10	0.50-2.50		●							○	●					
		060204FR-M	<0.40	0.01-0.10	0.50-2.50		○							○	●					
		060204FL-M	<0.40	0.01-0.10	0.50-2.50		○							○	●					
		**CCET 09T3003FR-M**	<0.03	0.02-0.10	0.50-4.00									○	●					
		09T3003FL-M	<0.03	0.02-0.10	0.50-4.00									○	●					
		09T3005FR-M	<0.05	0.02-0.10	0.50-4.00									○	●					
		09T3005FL-M	<0.05	0.02-0.10	0.50-4.00									○	●					
		09T301FR-M	<0.10	0.02-0.10	0.50-4.00		○							○	●					
		09T301FL-M	<0.10	0.02-0.10	0.50-4.00		○							○	●					
		09T302FR-M	<0.20	0.02-0.10	0.50-4.00		○							○	●					
		09T302FL-M	<0.20	0.02-0.10	0.50-4.00		○							○	●					
		09T304FR-M	<0.40	0.02-0.10	0.50-4.00		●							○	●					
		09T304FL-M	<0.40	0.02-0.10	0.50-4.00		○							○	●					

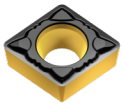
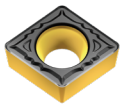
● : Standard stock ○ : Made-to-Order

Turning Inserts Positive 80° (C)



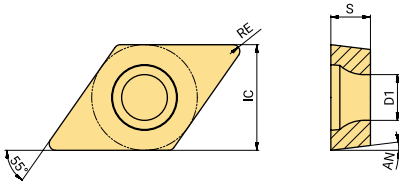
(mm)

Product code	IC	S	D1	AN
CP_0802 _	7.94	3.40	2.38	11°
CP_0903 _	9.513	3.18	4.40	11°

Inserts		Product code	RE (mm)	Recommanded parameters		Machining conditions: ● Good Conditions ⧓ General Conditions ✱ Bad Conditions														
				f (mm/rev)	ap (mm)	●	●	●	⧓	✱	✱	●	⧓	⧓	⧓	●	⧓	✱	●	●
						P						M				K			N	S
						AT202	AT210A	AC052P	AC152P	AC252P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Finishing		**CPMT 080202E-PB1**	0.20	0.02-0.07	0.15-2.00	●	●	○												
		080204E-PB1	0.40	0.04-0.14	0.30-2.00	●	●	○												
		090302E-PB1	0.20	0.02-0.07	0.15-2.40	●	●	○												
		090304E-PB1	0.40	0.04-0.14	0.30-2.40	●	●	○												
		090308E-PB1	0.80	0.09-0.28	0.60-2.40	●	●	○												
Semi-finishing		**CPMT 090304E-PC2**	0.40	0.05-0.15	0.35-2.90	●	●	○												
		090308E-PC2	0.80	0.10-0.32	0.70-2.90	●	●	○												

● : Standard stock ○ : Made-to-Order

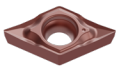
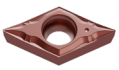
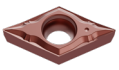
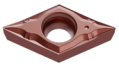
Turning Inserts Positive 55° (D)



(mm)

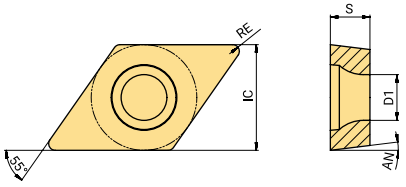
Product code	IC	S	D1	AN
DC_0702_	6.35	2.38	2.80	7°
DC_11T3_	9.525	3.97	4.40	7°

Machining conditions: ● Good Conditions ◐ General Conditions ✱ Bad Conditions

Inserts		Product code	RE (mm)	Recommanded parameters f (mm/rev)	Recommanded parameters ap (mm)	P AT202	P AT210A	P AC052P	P AC152P	P AC252P	P AC350P	M AC100M	M AC200M	M AP200U	M AP301M	K AC100K	K AC102K	K AC202K	N AW100K	S AP100S
						●	●	●	◐	✱	✱	●	◐	◐	◐	●	◐	✱	●	●
Finishing		**DCGT 0702005FP-LF**	<0.05	0.05-0.15	0.35-3.00									○	●					
		070201FP-LF	<0.10	0.05-0.20	0.35-3.00									○	●					
		070202FP-LF	0.20	0.05-0.20	0.35-3.00									○	●					
		070204FP-LF	0.40	0.05-0.20	0.35-3.00									○	●					
		11T301FP-LF	<0.10	0.05-0.20	0.35-3.00									●	●					
		11T302FP-LF	0.20	0.05-0.20	0.35-3.00									●	●					
		11T304FP-LF	0.40	0.05-0.20	0.35-3.00									●	●					
		**DCGT 0702005FP-UF**	<0.05	0.02-0.15	0.10-1.40									○	●					
		070201FP-UF	0.10	0.02-0.15	0.10-1.40									○	●					
		070202FP-UF	0.20	0.02-0.15	0.10-1.40									○	●					
		070204FP-UF	0.40	0.03-0.20	0.10-1.40									○	●					
		11T301FP-UF	0.10	0.02-0.15	0.10-2.40									●	●					
		11T302FP-UF	0.20	0.02-0.15	0.10-2.40									●	●					
		11T304FP-UF	0.40	0.03-0.20	0.10-2.40									●	●					
		**DCGT 070201F-UF**	0.10	0.02-0.15	0.10-1.40		●													
		070202F-UF	0.20	0.02-0.15	0.10-1.40		○													
		070204F-UF	0.40	0.03-0.20	0.10-1.40		○													
		11T301F-UF	0.10	0.02-0.15	0.10-2.40		○													
		11T302F-UF	0.20	0.02-0.15	0.10-2.40		●													
		11T304F-UF	0.40	0.03-0.20	0.10-2.40		●													
		**DCGT 070201E-UF**	0.10	0.02-0.15	0.10-1.40		○							●	●					●
		070202E-UF	0.20	0.02-0.15	0.10-1.40		●							●	●					●
		070204E-UF	0.40	0.03-0.20	0.10-1.40		○							●	●					●
		11T301E-UF	0.10	0.02-0.15	0.10-2.40		○							●	●					●
		11T302E-UF	0.20	0.02-0.15	0.10-2.40		●							●	●					●
		11T304E-UF	0.40	0.03-0.20	0.10-2.40		●							●	●					●
Semi-finishing		**DCGT 070202F-NC2**	0.20	0.02-0.10	0.16-3.50														●	
		070204F-NC2	0.40	0.05-0.20	0.32-3.50														●	
		11T302F-NC2	0.20	0.02-0.10	0.16-5.20														●	
		11T304F-NC2	0.40	0.05-0.20	0.32-5.20														●	
		11T308F-NC2	0.80	0.10-0.40	0.64-5.20														●	
Finishing		**DCMT 070202-F1T**	0.20	0.07-0.20	0.40-1.50	●	●													
		070204-F1T	0.40	0.07-0.20	0.40-1.50	●	●													
		11T302-F1T	0.20	0.07-0.20	0.40-1.50	●	●													
		11T304-F1T	0.40	0.10-0.25	0.60-1.50	●	●													
		11T308-F1T	0.80	0.10-0.25	0.60-1.50	●	●													

● : Standard stock ○ : Made-to-Order

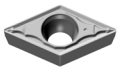
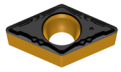
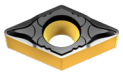
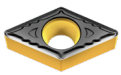
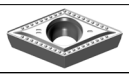
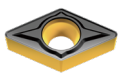
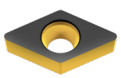
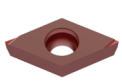
Turning Inserts Positive 55° (D)



(mm)

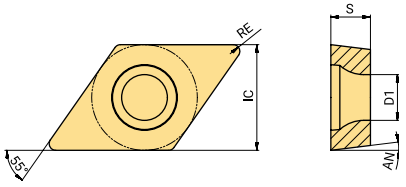
Product code	IC	S	D1	AN
DC_0702_	6.35	2.38	2.80	7°
DC_11T3_	9.525	3.97	4.40	7°

● Good Conditions ⧓ General Conditions ✱ Bad Conditions

Inserts		Product code	RE (mm)	Recommanded parameters		P						M				K			N	S
				f (mm/rev)	ap (mm)	AT202	AT210A	AC052P	AC152P	AC252P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Finishing		DCMT 11T304-F1Y	0.40	0.08-0.25	0.50-2.00	●	●													
		DCMT 11T302E-PA1	0.20	0.04-0.25	0.10-1.00	●	●	●	○											
		11T304E-PA1	0.40	0.04-0.25	0.10-1.00	●	●	●	●											
		11T308E-PA1	0.80	0.05-0.30	0.10-1.00	●	●	●	●											
		DCMT 070202E-PB1	0.20	0.02-0.07	0.15-1.50	●	●		○	●		●	●	●						
		070204E-PB1	0.40	0.04-0.14	0.30-1.50	●	●		●	●		●	●	●						
		11T302E-PB1	0.20	0.02-0.07	0.15-2.30	●	●		○	○		●	●	●						
		11T304E-PB1	0.40	0.04-0.14	0.30-2.30	●	●	●	●	●		●	●	●						
		11T308E-PB1	0.80	0.09-0.28	0.60-2.30	●	●	●	○	●		●	●	●						
		DCMT 070202-F2K	0.20	0.06-0.15	0.50-2.00	●	●													
		070204-F2K	0.40	0.08-0.20	0.50-2.00	●	●													
		11T302-F2K	0.20	0.06-0.15	0.50-2.00	●	●													
		11T304-F2K	0.40	0.08-0.20	0.50-2.00	●	●													
		11T308-F2K	0.80	0.10-0.25	0.50-2.00	●	●													
Semi-finishing		DCMT 070204E-PC2	0.40	0.05-0.16	0.35-2.10	●	●		●	○		●	●	●						●
		070208E-PC2	0.80	0.10-0.32	0.70-2.10	●	●		●	●		●	●	●						●
		11T304E-PC2	0.40	0.05-0.16	0.35-3.10	●	●	●	●	●		●	●	●						●
		11T308E-PC2	0.80	0.10-0.32	0.70-3.10	●	●	○	●	●		●	●	●						●
		11T312E-PC2	1.20	0.16-0.48	1.05-3.10	●	●		●	○		●	●	●						●
		DCMT 11T304-M2T	0.40	0.10-0.25	0.50-3.00	●	●													
		11T308-M2T	0.80	0.10-0.25	0.50-3.00	●	●													
Medium		DCMT 070204E-KC2	0.40	0.06-0.18	0.40-2.30	●	●		●	○							●	●		
		070208E-KC2	0.80	0.12-0.36	0.80-2.30	●	●		○	○							●	●		
		11T304E-KC2	0.40	0.06-0.18	0.40-3.50	●	●		●	●							●	●		
		11T308E-KC2	0.80	0.12-0.36	0.80-3.50	●	●	○	●	●						●	●	●		
		11T312E-KC2	1.20	0.18-0.54	1.20-3.50			○	●	○							●	●		
Roughing		DCMW 070204E-KD5	0.40	0.06-0.18	0.40-3.90												●	●		
		070208E-KD5	0.80	0.12-0.36	0.80-3.90												●	●		
		11T304E-KD5	0.40	0.06-0.18	0.40-5.80												●	●		
		11T308E-KD5	0.80	0.12-0.36	0.80-5.80												●	●		
Finishing		DCET 0702003FR-F	<0.03	0.02-0.18	0.10-0.40									○	●					
		0702003FL-F	<0.03	0.02-0.18	0.10-0.40									○	●					
		0702005FR-F	<0.05	0.02-0.18	0.10-0.40									○	●					
		0702005FL-F	<0.05	0.02-0.18	0.10-0.40									○	●					
		070201FR-F	<0.10	0.02-0.18	0.10-0.40		●							○	●					

● : Standard stock ○ : Made-to-Order

Turning Inserts Positive 55° (D)



(mm)

Product code	IC	S	D1	AN
DC_0702_	6.35	2.38	2.80	7°
DC_11T3_	9.525	3.97	4.40	7°

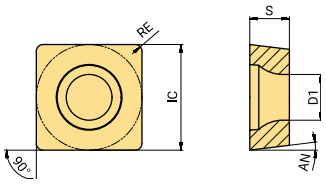
Inserts		Product code	RE (mm)	Recommanded parameters f (mm/rev)	Recommanded parameters ap (mm)	Machining conditions: ● Good Conditions ⬮ General Conditions ✱ Bad Conditions													
						●	●	●	⬮	✱	✱	●	⬮	⬮	⬮	●	⬮	✱	●	●
						P						M				K			N	S
						AT202	AT210A	AC052P	AC152P	AC252P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Finishing		**DCET 070201FL-F**	<0.10	0.02-0.18	0.10-0.40		○							○	●					
		070202FR-F	<0.20	0.02-0.18	0.10-0.40		○							○	●					
		070202FL-F	<0.20	0.02-0.18	0.10-0.40		○							○	●					
		070204FR-F	<0.40	0.02-0.18	0.10-0.40		○							○	●					
		070204FL-F	<0.40	0.02-0.18	0.10-0.40		○							○	●					
		DCET 11T3003FR-F	<0.03	0.02-0.20	0.10-0.40									○	●					
		11T3003FL-F	<0.03	0.02-0.20	0.10-0.40									○	●					
		11T3005FR-F	<0.05	0.02-0.20	0.10-0.40									○	●					
		11T3005FL-F	<0.05	0.02-0.20	0.10-0.40									○	●					
		11T301FR-F	<0.10	0.02-0.20	0.10-0.40		○							○	●					
		11T301FL-F	<0.10	0.02-0.20	0.10-0.40		○							○	●					
		11T302FR-F	<0.20	0.02-0.20	0.10-0.40		●							○	●					
		11T302FL-F	<0.20	0.02-0.20	0.10-0.40		○							○	●					
		11T304FR-F	<0.40	0.02-0.20	0.10-0.40		●							○	●					
		11T304FL-F	<0.40	0.02-0.20	0.10-0.40		○							○	●					
Low feed		**DCET 0702003FR-M**	<0.03	0.01-0.08	0.50-2.80									○	●					
		0702003FL-M	<0.03	0.01-0.08	0.50-2.80									○	●					
		0702005FR-M	<0.05	0.01-0.08	0.50-2.80									○	●					
		0702005FL-M	<0.05	0.01-0.08	0.50-2.80									○	●					
		070201FR-M	<0.10	0.01-0.08	0.50-2.80		○							○	●					
		070201FL-M	<0.10	0.01-0.08	0.50-2.80		○							○	●					
		070202FR-M	<0.20	0.01-0.08	0.50-2.80		●							○	●					
		070202FL-M	<0.20	0.01-0.08	0.50-2.80		○							○	●					
		070204FR-M	<0.40	0.01-0.08	0.50-2.80		○							○	●					
		070204FL-M	<0.40	0.01-0.08	0.50-2.80		○							○	●					
		DCET 11T3003FR-M	<0.03	0.01-0.10	0.50-4.00									○	●					
		11T3003FL-M	<0.03	0.01-0.10	0.50-4.00									○	●					
		11T3005FR-M	<0.05	0.01-0.10	0.50-4.00									○	●					
		11T3005FL-M	<0.05	0.01-0.10	0.50-4.00									○	●					
		11T301FR-M	<0.10	0.01-0.10	0.50-4.00		○							○	●					
		11T301FL-M	<0.10	0.01-0.10	0.50-4.00		○							○	●					
		11T302FR-M	<0.20	0.01-0.10	0.50-4.00		●							○	●					
		11T302FL-M	<0.20	0.01-0.10	0.50-4.00		○							○	●					
		11T304FR-M	<0.40	0.01-0.10	0.50-4.00		●							○	●					
		11T304FL-M	<0.40	0.01-0.10	0.50-4.00		○							○	●					

● : Standard stock ○ : Made-to-Order

Turning Inserts Positive 90° (S)

(mm)

Product code	IC	S	D1	AN
SC_09T3_	9.525	3.97	4.40	7°
SC_1204_	12.70	4.76	5.50	7°
SC_3809_	38.10	9.525	9.80	7°



● Good Conditions ◐ General Conditions ✱ Bad Conditions

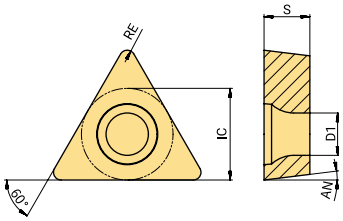
Inserts		Product code	RE (mm)	Recommanded parameters		P						M				K			N	S
				f (mm/rev)	ap (mm)	AT202	AT210A	AC052P	AC152P	AC252P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Semi-finishing		**SCGT 09T308F-NC2**	0.80	0.10-0.40	0.64-4.30														●	
Finishing		**SCMT 09T304E-PB1**	0.40	0.04-0.14	0.30-2.40	●	●		○	●		●	●	●						
		09T308E-PB1	0.80	0.09-0.28	0.60-2.40	●	●		●	○		●	●	●	●					
		120404E-PB1	0.40	0.04-0.14	0.30-3.20				○	○		●	●	●						
Semi-finishing		**SCMT 09T304E-PC2**	0.40	0.05-0.16	0.35-2.90	●	●		○	●		●	●	●	●					●
		09T308E-PC2	0.80	0.10-0.32	0.70-2.90	●	●		○	●		●	●	●	●					●
		120404E-PC2	0.40	0.05-0.16	0.35-3.80	●	●		●	○		●	●	●	●					●
		120408E-PC2	0.80	0.10-0.32	0.70-3.80	●	●	○	●	○		●	●	●	●					●
		120412E-PC2	1.20	0.16-0.48	1.05-3.80			○	○	●		●	●	●						●
		**SCMT 09T304-M2T**	0.40	0.10-0.25	0.70-3.50	●	●													
		09T308-M2T	0.80	0.10-0.25	0.70-3.50	●	●													
Medium		**SCMT 09T304E-KC2**	0.40	0.06-0.18	0.40-3.10	●	●		○	○							●	●		
		09T308E-KC2	0.80	0.12-0.36	0.80-3.10	●	●		●	○					●		●	●		
		120404E-KC2	0.40	0.06-0.18	0.40-4.20	●	●		●	○							●	●		
		120408E-KC2	0.80	0.12-0.36	0.80-4.20	●	●		●	○							●	●		
		120412E-KC2	1.20	0.18-0.54	1.20-4.20				●	●							●	●		
		**SCMW 09T304E-KD5**	0.40	0.10-0.22	0.40-4.80												●	●		
		09T308E-KD5	0.80	0.20-0.44	0.80-4.80											●	●	●		
		120404E-KD5	0.40	0.10-0.22	0.40-6.40												●	●		
		120408E-KD5	0.80	0.20-0.44	0.80-6.40												●	●		
		120412E-KD5	1.20	0.30-0.66	1.20-6.40											●	●	●		
Roughing		**SCMT 380932S-HT**	3.20	0.70-1.40	4.00-18.00						●									

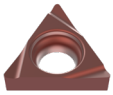
● : Standard stock ○ : Made-to-Order

Turning Inserts Positive60° (T)

(mm)

Product code	IC	S	D1	AN
TBET_0601_	3.97	1.59	2.30	5°

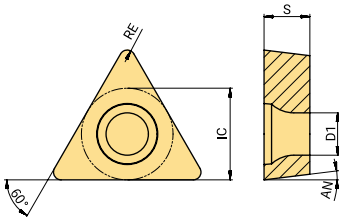


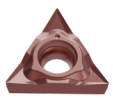
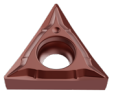
Inserts		Product code	RE (mm)	Recommanded parameters		Machining conditions: ● Good Conditions ⧓ General Conditions ✱ Bad Conditions														
				f (mm/rev)	ap (mm)	P						M				K			N	S
						AT202	AT210A	AC052P	AC152P	AC252P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Finishing		**TBET 0601003FR-F**	<0.03	0.03-0.08	0.10-0.50									○	●					
		0601003FL-F	<0.03	0.03-0.08	0.10-0.50									○	●					
		0601005FR-F	<0.05	0.03-0.08	0.10-0.50									○	●					
		0601005FL-F	<0.05	0.03-0.08	0.10-0.50									○	●					
		060101FR-F	<0.10	0.03-0.08	0.10-0.50		○							○	●					
		060101FL-F	<0.10	0.03-0.08	0.10-0.50		○							○	●					
		060102FR-F	<0.20	0.03-0.08	0.10-0.50		○							○	●					
		060102FL-F	<0.20	0.03-0.08	0.10-0.50		●							○	●					
		060104FR-F	<0.40	0.03-0.08	0.10-0.50		○							○	●					
		060104FL-F	<0.40	0.03-0.08	0.10-0.50		●							○	●					

Turning Inserts Positive 60° (T)

(mm)

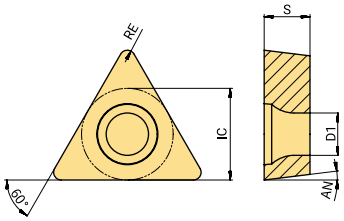
Product code	IC	S	D1	AN
TC_1102_	6.35	2.38	2.80	7°
TC_16T3_	9.525	3.97	4.40	7°



Inserts		Product code	RE (mm)	Recommanded parameters		Machining conditions: ● Good Conditions ⧓ General Conditions ✱ Bad Conditions														
				f (mm/rev)	ap (mm)	P						M				K			N	S
						AT202	AT210A	AC052P	AC152P	AC252P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Finishing		**TCGT 110201FP-LF**	<0.10	0.05-0.20	0.35-3.00									○	●					
		110202FP-LF	0.20	0.05-0.20	0.35-3.00									○	●					
		110204FP-LF	0.40	0.05-0.20	0.35-3.00									○	●					
		16T304FP-LF	0.40	0.05-0.20	0.35-3.00									○	●					
		**TCGT 110201FP-UF**	<0.10	0.02-0.15	0.10-2.40									○	●					
		110202FP-UF	0.20	0.02-0.15	0.20-2.40									○	●					
		110204FP-UF	0.40	0.03-0.20	0.20-2.40									○	●					
		16T304FP-UF	0.40	0.03-0.20	0.20-2.40									○	●					

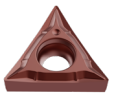
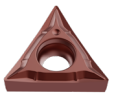
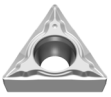
● : Standard stock ○ : Made-to-Order

Turning Inserts Positive 60° (T)



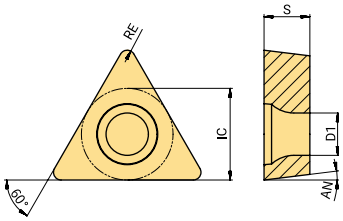
(mm)

Product code	IC	S	D1	AN
TC_0902_	5.56	2.38	2.50	7°
TC_1102_	6.35	2.38	2.80	7°
TC_16T3_	9.525	3.97	4.40	7°

Inserts		Product code	RE (mm)	Recommanded parameters f (mm/rev)	Recommanded parameters ap (mm)	Machining conditions: ● Good Conditions ⧓ General Conditions ✱ Bad Conditions													
						P						M				K			N	S
						AT202	AT210A	AC052P	AC152P	AC252P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Finishing		**TCGT 110201F-UF**	0.10	0.02-0.15	0.10-2.40		○													
		110202F-UF	0.20	0.02-0.15	0.20-2.40		○													
		110204F-UF	0.40	0.03-0.20	0.20-2.40		○													
		16T304F-UF	0.40	0.03-0.20	0.20-2.40		○													
		**TCGT 110201E-UF**	0.10	0.02-0.15	0.10-2.40		○							●	●					●
		110202E-UF	0.20	0.02-0.15	0.20-2.40		●							●	●					●
		110204E-UF	0.40	0.03-0.20	0.20-2.40		●							●	●					●
		16T304E-UF	0.40	0.03-0.20	0.20-2.40		○							●	●					●
Semi-finishing		**TCGT 110204F-NC2**	0.40	0.05-0.20	0.32-4.90														●	
		16T304F-NC2	0.40	0.05-0.20	0.32-7.40														●	
		16T308F-NC2	0.80	0.10-0.40	0.64-7.40														●	
Finishing		**TCMT 110204-F1T**	0.40	0.07-0.20	0.40-1.50	●	●													
		16T304-F1T	0.40	0.10-0.25	0.60-1.50	●	●													
		**TCMT 090204E-PB1**	0.40	0.04-0.14	0.30-1.90	●	●		○	●		●	●	●	●					
		110202E-PB1	0.20	0.02-0.07	0.15-2.20	●	●		○	○		●	●	●						
		110204E-PB1	0.40	0.04-0.14	0.30-2.20	●	●		●	●		●	●	●						
		110208E-PB1	0.80	0.09-0.28	0.60-2.20	●	●		○	○		●	●	●						
		16T304E-PB1	0.40	0.04-0.14	0.30-3.30	●	●		●	●		●	●	●	●					
		16T308E-PB1	0.80	0.09-0.28	0.60-3.30	●	●		●	○		●	●	●						
		**TCMT 110204-F2K**	0.40	0.08-0.20	0.50-2.00	●	●													
		110208-F2K	0.80	0.10-0.25	0.50-2.00	●	●													
Semi-finishing		**TCMT 090204E-PC2**	0.40	0.05-0.16	0.35-2.60	●	●		●	●		●	●	●	●					●
		090208E-PC2	0.80	0.10-0.32	0.70-2.60	●	●		●	○		●	●	●	●					●
		110204E-PC2	0.40	0.05-0.16	0.35-3.00	●	●		●	●		●	●	●	●					●
		110208E-PC2	0.80	0.10-0.32	0.70-3.00	●	●		●	○		●	●	●	●					●
		16T304E-PC2	0.40	0.05-0.16	0.35-4.50	●	●	○	○	●		●	●	●	●					●
		16T308E-PC2	0.80	0.10-0.32	0.70-4.50	●	●	●	●	●		●	●	●	●					●
		16T312E-PC2	1.20	0.16-0.48	1.05-4.50	●	●		○	○		●	●	●						●
		**TCMT 110204-M2T**	0.40	0.10-0.25	0.60-2.00	●	●													
		110208-M2T	0.80	0.10-0.25	0.60-2.00	●	●													
		110302-M2T	0.20	0.06-0.18	0.60-2.00	●	●													
		**TCMT 16T304-M2T**	0.40	0.06-0.18	0.40-2.90	●	●													
		16T308-M2T	0.80	0.12-0.36	0.80-2.90	●	●													

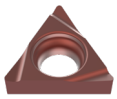
● : Standard stock ○ : Made-to-Order

Turning Inserts Positive 60° (T)



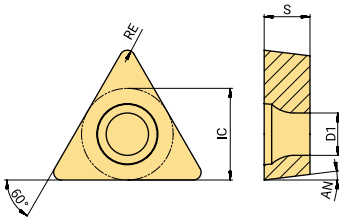
(mm)

Product code	IC	S	D1	AN
TC_0802_	4.76	2.38	2.30	7°
TC-0902_	5.56	2.38	2.50	7°
TC_1102_	6.35	2.38	2.80	7°
TC_16T3_	9.525	3.97	4.40	7°

Inserts		Product code	RE (mm)	Recommanded parameters		Machining conditions: ● Good Conditions ⧓ General Conditions ✱ Bad Conditions													
						●	●	●	⧓	✱	✱	●	⧓	⧓	⧓	●	⧓	✱	●	●
						P						M				K			N	S
				f (mm/rev)	ap (mm)	AT202	AT210A	AC052P	AC152P	AC252P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Medium		**TCMT 090204E-KC2**	0.40	0.06-0.18	0.40-2.90	●	●		○	●		●	●	●			●	●		
		090208E-KC2	0.80	0.12-0.36	0.80-2.90	●	●		○	○		●	●	●			●	●		
		110204E-KC2	0.40	0.06-0.18	0.40-3.30	●	●		●	○		●	●	●			●	●		
		110208E-KC2	0.80	0.12-0.36	0.80-3.30	●	●		○	○		●	●	●			●	●		
		16T304E-KC2	0.40	0.06-0.18	0.40-4.90	●	●	○	○	●		●	●	●			●	●		
		16T308E-KC2	0.80	0.12-0.36	0.80-4.90	●	●	○	●	○		●	●	●			●	●		
		16T312E-KC2	1.20	0.18-0.54	1.20-4.90	●	●		●	●		●	●	●		●	●	●		
Roughing		**TCMW 110204E-KD5**	0.40	0.06-0.18	0.40-5.50												●	●		
		110208E-KD5	0.80	0.12-0.36	0.80-5.50												●	●		
		16T304E-KD5	0.40	0.06-0.18	0.40-8.20												●	●		
		16T308E-KD5	0.80	0.12-0.36	0.80-8.20												●	●		
Finishing		**TCET 110201FR-F**	<0.10	0.03-0.13	0.10-0.80		○							○	●					
		110201FL-F	<0.10	0.03-0.13	0.10-0.80		○							○	●					
		110202FR-F	<0.20	0.03-0.13	0.10-0.80		○							○	●					
		110202FL-F	<0.20	0.03-0.13	0.10-0.80		○							○	●					
		110204FR-F	<0.40	0.03-0.13	0.10-0.80		○							○	●					
		110204FL-F	<0.40	0.03-0.13	0.10-0.80		●							○	●					
		110208FR-F	<0.80	0.03-0.13	0.10-0.80		○							○	●					
		110208FL-F	<0.80	0.03-0.13	0.10-0.80		○							○	●					
Low feed		**TCET 0802003FR-M**	<0.03	0.01-0.08	0.50-2.50									○	●					
		0802003FL-M	<0.03	0.01-0.08	0.50-2.50									○	●					
		080201FR-M	<0.10	0.01-0.08	0.50-2.50		○							○	●					
		080201FL-M	<0.10	0.01-0.08	0.50-2.50		○							○	●					
		080202FR-M	<0.20	0.01-0.08	0.50-2.50		○							○	●					
		080202FL-M	<0.20	0.01-0.08	0.50-2.50		●							○	●					
		**TCET 1103003FR-M**	<0.03	0.02-0.10	0.50-4.00									○	●					
		1103003FL-M	<0.03	0.02-0.10	0.50-4.00									○	●					
		110301FR-M	<0.10	0.02-0.10	0.50-4.00		○							○	●					
		110301FL-M	<0.10	0.02-0.10	0.50-4.00		○							○	●					
		110302FR-M	<0.20	0.02-0.10	0.50-4.00		○							○	●					
		110302FL-M	<0.20	0.02-0.10	0.50-4.00		○							○	●					
		110304FR-M	<0.40	0.02-0.10	0.50-4.00		●							○	●					
		110304FL-M	<0.40	0.02-0.10	0.50-4.00		○							○	●					

● : Standard stock ○ : Made-to-Order

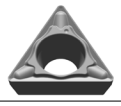
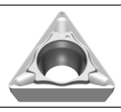
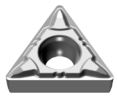
Turning Inserts Positive 60° (T)



(mm)

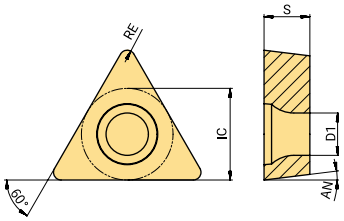
Product code	IC	S	D1	AN
TP_0902_	5.56	2.38	2.50	11°
TP_1103_	6.35	3.18	3.40	11°
TP_1603_	9.525	3.18	4.40	11°

● Good Conditions ⧓ General Conditions
✱ Bad Conditions

	Inserts	Product code	RE (mm)	Recommanded parameters		P						M				K			N	S
				f (mm/rev)	ap (mm)	AT202	AT210A	AC052P	AC152P	AC252P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Finishing		**TPMT 110304-F1T**	0.40	0.07-0.20	0.40-1.50	●	●													
		**TPMT 110308E-PA1**	0.80	0.05-0.30	0.10-1.00	●	●	●	●											
		**TPMT 090202E-PB1**	0.20	0.02-0.07	0.15-1.90	●	●	●												
		090204E-PB1	0.40	0.04-0.14	0.30-1.90	●	●	○							●					
		090208E-PB1	0.80	0.09-0.28	0.60-1.90	●	●	○												
		110302E-PB1	0.20	0.02-0.07	0.15-2.20	●	●	●												
		110304E-PB1	0.40	0.04-0.14	0.30-2.20	●	●	●							●					
		110308E-PB1	0.80	0.09-0.28	0.60-2.20	●	●	○												
		160304E-PB1	0.40	0.04-0.14	0.30-3.30	●	●	○												
		160308E-PB1	0.80	0.09-0.28	0.60-3.30	●	●	○												
		**TPMT 110304-F2K**	0.40	0.08-0.20	0.50-2.00	●	●													
Semi-finishing		**TPMT 090204E-PC2**	0.40	0.05-0.16	0.35-2.60	●	●	○				●	●	●						
		090208E-PC2	0.80	0.10-0.32	0.70-2.60	●	●	○				●	●	●	●					
		110304E-PC2	0.40	0.05-0.16	0.35-3.00	●	●	○				●	●	●						●
		110308E-PC2	0.80	0.10-0.32	0.70-3.00	●	●	○				●	●	●	●					
		160304E-PC2	0.40	0.10-0.25	0.60-2.00	●	●	○				●	●	●						
		160308E-PC2	0.80	0.10-0.25	0.60-2.00	●	●	○				●	●	●						

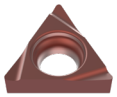
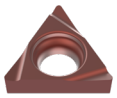
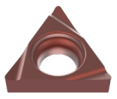
● : Standard stock ○ : Made-to-Order

Turning Inserts Positive 60° (T)



(mm)

Product code	IC	S	D1	AN
TP_0802_	4.76	2.38	2.30	11°
TP_0902_	5.56	2.38	2.50	11°
TP_1103_	6.35	3.18	3.40	11°

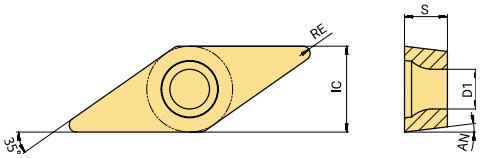
Inserts		Product code	RE (mm)	Recommanded parameters		Machining conditions: ● Good Conditions ⧓ General Conditions ✱ Bad Conditions													
						P						M				K			N	S
				f (mm/rev)	ap (mm)	AT202	AT210A	AC052P	AC152P	AC252P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Finishing		**TPEH 080201FR-F**	<0.10	0.01-0.10	0.10-0.80		○							○	●					
		080201FL-F	<0.10	0.01-0.10	0.10-0.80		○							○	●					
		080202FR-F	<0.20	0.01-0.10	0.10-0.80		○							○	●					
		080202FL-F	<0.20	0.01-0.10	0.10-0.80		●							○	●					
		080204FR-F	<0.40	0.01-0.10	0.10-0.80		○							○	●					
		080204FL-F	<0.40	0.01-0.10	0.10-0.80		●							○	●					
		**TPEH 090201FR-F**	<0.10	0.01-0.10	0.10-0.80		○							○	●					
		090201FL-F	<0.10	0.01-0.10	0.10-0.80		○							○	●					
		090202FR-F	<0.20	0.01-0.10	0.10-0.80		○							○	●					
		090202FL-F	<0.20	0.01-0.10	0.10-0.80		●							○	●					
		090204FR-F	<0.40	0.01-0.10	0.10-0.80		○							○	●					
		090204FL-F	<0.40	0.01-0.10	0.10-0.80		○							○	●					
		**TPEH 110302FR-F**	<0.20	0.01-0.12	0.20-0.80		○							○	●					
		110302FL-F	<0.20	0.01-0.12	0.20-0.80		●							○	●					
		110304FR-F	<0.40	0.01-0.12	0.20-0.80		○							○	●					
		110304FL-F	<0.40	0.01-0.12	0.20-0.80		●							○	●					
		110308FR-F	<0.80	0.01-0.12	0.20-0.80		○							○	●					
		110308FL-F	<0.80	0.01-0.12	0.20-0.80		○							○	●					

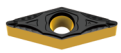
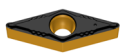
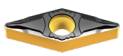
● : Standard stock ○ : Made-to-Order

Turning Inserts Positive 35° (V)

(mm)

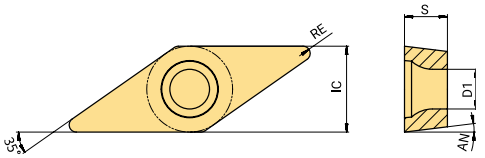
Product code	IC	S	D1	AN
VB_1103_	6.35	3.18	2.80	5°
VB_1604_	9.52	4.76	4.40	5°



Inserts		Product code	RE (mm)	Recommanded parameters f (mm/rev)	Recommanded parameters ap (mm)	Machining conditions: ● Good Conditions ⧓ General Conditions ✱ Bad Conditions													
						P						M				K			N	S
						AT202	AT210A	AC052P	AC152P	AC252P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Finishing		VBGT 1103005FP-LF	<0.05	0.05-0.20	0.35-3.00									○	●					
		110301FP-LF	<0.10	0.05-0.20	0.35-3.00									●	●					
		110302FP-LF	0.20	0.05-0.20	0.35-3.00									●	●					
		110304FP-LF	0.40	0.05-0.20	0.35-3.00									●	●					
		160401FP-LF	<0.10	0.05-0.20	0.35-3.00									○	●					
		160402FP-LF	0.20	0.05-0.20	0.35-3.00									○	●					
		VBGT 110301FP-UF	0.10	0.02-0.15	0.10-1.40									●	●					
		110302FP-UF	0.20	0.02-0.15	0.20-1.40									●	●					
		110304FP-UF	0.40	0.03-0.20	0.20-1.40									●	●					
		160401FP-UF	0.10	0.02-0.15	0.10-1.40									○	●					
		160402FP-UF	0.20	0.02-0.15	0.20-1.40									○	●					
		VBGT 110301F-UF	0.10	0.02-0.15	0.10-1.40		○													
		110302F-UF	0.20	0.02-0.15	0.20-1.40		●													
		110304F-UF	0.40	0.03-0.20	0.20-1.40		●													
		160401F-UF	0.10	0.02-0.15	0.10-1.40		○													
		160402F-UF	0.20	0.02-0.15	0.20-1.40		●													
		VBGT 110301E-UF	0.10	0.02-0.15	0.10-1.40		○							●	●					●
		110302E-UF	0.20	0.02-0.15	0.20-1.40		●							●	●					●
		110304E-UF	0.40	0.03-0.20	0.20-1.40		●							●	●					●
		160401E-UF	0.10	0.02-0.15	0.10-1.40		○							○	●					●
		160402E-UF	0.20	0.02-0.15	0.20-1.40		●							●	●					●
Profiling		VBMT 110302E-BS	0.20	0.10-0.32	0.70-2.10	●	●	●	○											
		110304E-BS	0.40	0.05-0.16	0.35-3.10	●	●	●	○											
		110308E-BS	0.80	0.10-0.32	0.70-3.10	●	●	●	○											
		160402E-BS	0.20	0.04-0.14	0.30-1.50	●	●	●	○											
		160404E-BS	0.40	0.06-0.18	0.40-3.30	●	●	●	○											
		160408E-BS	0.80	0.12-0.36	0.80-3.30	●	●	●	○	○										
		160412E-BS	1.20	0.18-0.54	1.20-3.30	●	●	●	○											
Finishing		VBMT 110302E-PA1	0.20	0.04-0.25	0.10-1.00	●	●	●	●											
		160404E-PA1	0.40	0.04-0.25	0.10-1.00	●	●	●	●											
		160408E-PA1	0.80	0.05-0.30	0.10-1.00	●	●	●	●											
		VBMT 110304E-PB1	0.40	0.04-0.14	0.30-1.40	●	●		●	○		●	●	●	●					
		110308E-PB1	0.80	0.09-0.28	0.60-1.40	●	●		○	○		●	●	●	●					
		160402E-PB1	0.20	0.02-0.07	0.15-2.10	●	●		○	●		●	●	●	●					
		160404E-PB1	0.40	0.04-0.14	0.30-2.10	●	●		○	○		●	●	●	●					
		160408E-PB1	0.80	0.09-0.28	0.60-2.10	●	●	○	●	●		●	●	●	●					

● : Standard stock ○ : Made-to-Order

Turning Inserts Positive 35° (V)



(mm)

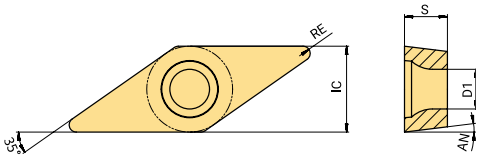
Product code	IC	S	D1	AN
VB_1103_	6.35	3.18	2.80	5°
VB_1604_	9.52	4.76	4.40	5°

● Good Conditions ⧓ General Conditions
✱ Bad Conditions

Inserts		Product code	RE (mm)	Recommanded parameters		P						M				K			N	S
				f (mm/rev)	ap (mm)	AT202	AT210A	AC052P	AC152P	AC252P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Finishing		**VBMT 110304-F2K**	0.40	0.08-0.20	0.50-2.00	●	●													
		160404-F2K	0.40	0.08-0.20	0.50-2.00	●	●													
		160408-F2K	0.80	0.10-0.25	0.50-2.00	●	●													
Semi-finishing		**VBMT 110304E-PC2**	0.40	0.05-0.16	0.35-2.10	●	●					●	●	●	●					●
		110308E-PC2	0.80	0.10-0.32	0.70-2.10	●	●					●	●	●	●					●
		160404E-PC2	0.40	0.05-0.16	0.35-3.10	●	●	●				●	●	●	●					●
		160408E-PC2	0.80	0.10-0.32	0.70-3.10	●	●	●				●	●	●	●					●
		160412E-PC2	1.20	0.16-0.48	1.05-3.10			●				●	●	●	●					●
Medium		**VBMT 160404E-KC2**	0.40	0.06-0.18	0.40-3.30	●	●		●	○		●	●	●			●	●		
		160408E-KC2	0.80	0.12-0.36	0.80-3.30	●	●	●	●	●		●	●	●			●	●		
		160412E-KC2	1.20	0.18-0.54	1.20-3.30	●	●	●	●	○		●	●	●			●	●		
Finishing		**VBET 1103003FR-F**	<0.03	0.01-0.18	0.10-0.30									○	●					
		1103003FL-F	<0.03	0.01-0.18	0.10-0.30									○	●					
		1103005FR-F	<0.05	0.01-0.18	0.10-0.30									○	●					
		1103005FL-F	<0.05	0.01-0.18	0.10-0.30									○	●					
		110301FR-F	<0.10	0.01-0.18	0.10-0.30		○							○	●					
		110301FL-F	<0.10	0.01-0.18	0.10-0.30		○							○	●					
		110302FR-F	<0.20	0.01-0.18	0.10-0.30		●							○	●					
		110302FL-F	<0.20	0.01-0.18	0.10-0.30		○							○	●					

● : Standard stock ○ : Made-to-Order

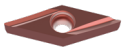
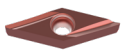
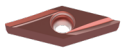
Turning Inserts Positive 35° (V)



(mm)

Product code	IC	S	D1	AN
VB_1103_	6.35	3.18	2.80	5°
VB_1604_	9.52	4.76	4.40	5°

Machining conditions: ● Good Conditions ◐ General Conditions ✱ Bad Conditions

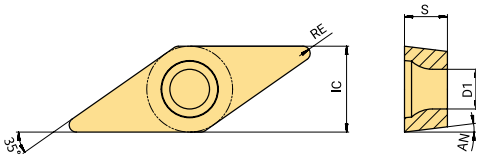
Inserts		Product code	RE (mm)	Recommanded parameters f (mm/rev)	Recommanded parameters ap (mm)	P AT202	P AT210A	P AC052P	P AC152P	P AC252P	P AC350P	M AC100M	M AC200M	M AP200U	M AP301M	K AC100K	K AC102K	K AC202K	N AW100K	S AP100S
						●	●	●	◐	✱	✱	●	◐	◐	◐	●	◐	✱	●	●
Low feed		**VBET 1103005FR-M**	<0.05	0.01-0.06	0.20-2.00									○	●					
		1103005FL-M	<0.05	0.01-0.06	0.20-2.00									○	●					
		110301FR-M	<0.10	0.01-0.06	0.20-2.00		○							○	●					
		110301FL-M	<0.10	0.01-0.06	0.20-2.00		○							○	●					
		110302FR-M	<0.20	0.01-0.06	0.20-2.00		●							○	●					
		110302FL-M	<0.20	0.01-0.06	0.20-2.00		○							○	●					
		110304FR-M	<0.40	0.01-0.06	0.20-2.00		●							○	●					
		110304FL-M	<0.40	0.01-0.06	0.20-2.00		○							○	●					
		**VBET 1103003FR-Y**	<0.03	0.08-0.22	0.50-1.80									○	●					
		1103003FL-Y	<0.03	0.08-0.22	0.50-1.80									○	●					
		1103005FR-Y	<0.05	0.08-0.22	0.50-1.80									○	●					
		1103005FL-Y	<0.05	0.08-0.22	0.50-1.80									○	●					
		110301FR-Y	<0.10	0.08-0.22	0.50-1.80		○							○	●					
		110301FL-Y	<0.10	0.08-0.22	0.50-1.80		○							○	●					
		110302FR-Y	<0.20	0.08-0.22	0.50-1.80		●							○	●					
		110302FL-Y	<0.20	0.08-0.22	0.50-1.80		○							○	●					
		110304FR-Y	<0.40	0.08-0.22	0.50-1.80		●							○	●					
		110304FL-Y	<0.40	0.08-0.22	0.50-1.80		○							○	●					
		**VBET 160402FR-Y**	<0.20	0.10-0.25	0.80-2.00		●							○	●					
		160402FL-Y	<0.20	0.10-0.25	0.80-2.00		○							○	●					
		160404FR-Y	<0.40	0.10-0.25	0.80-2.00		●							○	●					
		160404FL-Y	<0.40	0.10-0.25	0.80-2.00		○							○	●					
		160408FR-Y	0.80	0.10-0.25	0.80-2.00		○							○	●					
		160408FL-Y	0.80	0.10-0.25	0.80-2.00		○							○	●					

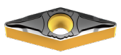
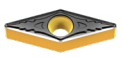
● : Standard stock ○ : Made-to-Order

Turning Inserts Positive 35° (V)

(mm)

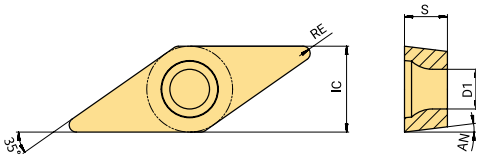
Product code	IC	S	D1	AN
VC_1103_	6.35	3.18	2.80	7°
VC_1604_	9.525	4.76	4.40	7°
VC_2205_	12.70	5.56	5.50	7°



Inserts		Product code	RE (mm)	Recommanded parameters f (mm/rev)	Recommanded parameters ap (mm)	Machining conditions: ● Good Conditions ⧓ General Conditions ✱ Bad Conditions													
						●	●	●	⧓	✱	✱	●	⧓	⧓	⧓	●	⧓	✱	●	●
						P						M				K			N	S
						AT202	AT210A	AC052P	AC152P	AC252P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Finishing		**VCGT 1103005FP-LF**	<0.05	0.05-0.20	0.35-3.00									○	●					
		110301FP-LF	<0.10	0.05-0.20	0.35-3.00									●	●					
		110302FP-LF	0.20	0.05-0.20	0.35-3.00									●	●					
		110304FP-LF	0.40	0.05-0.20	0.35-3.00									●	●					
		**VCGT 1103005FP-UF**	<0.05	0.02-0.15	0.10-1.40									○	●					
		110301FP-UF	0.10	0.02-0.15	0.10-1.40									●	●					
		110302FP-UF	0.20	0.02-0.15	0.20-1.40									●	●					
		110304FP-UF	0.40	0.03-0.20	0.20-1.40									●	●					
		**VCGT 1103005F-UF**	<0.05	0.02-0.15	0.10-1.40										○					
		110301F-UF	0.10	0.02-0.15	0.10-1.40		○													
		110302F-UF	0.20	0.02-0.15	0.20-1.40		●													
		110304F-UF	0.40	0.03-0.20	0.20-1.40		○													
		**VCGT 110301E-UF**	0.10	0.02-0.15	0.10-1.40		○							●	●					●
		110302E-UF	0.20	0.02-0.15	0.20-1.40		●							●	●					●
		110304E-UF	0.40	0.03-0.20	0.20-1.40		●							●	●					●
Semi-finishing		**VCGT 110302F-NC2**	0.20	0.02-0.10	0.16-2.80														●	
		110304F-NC2	0.40	0.05-0.20	0.32-2.80														●	
		160404F-NC2	0.40	0.05-0.20	0.32-4.20														●	
		160408F-NC2	0.80	0.10-0.40	0.64-4.20														●	
		160412F-NC2	1.20	0.14-0.60	0.96-4.20														●	
		220530F-NC2	3.00	0.36-1.50	2.40-5.50														●	
Finishing		**VCMT 160404E-PB1**	0.40	0.04-0.14	0.30-2.10				●	○		●	●	●						
		160408E-PB1	0.80	0.09-0.28	0.60-2.10				●	○		●	●	●						
Semi-finishing		**VCMT 110304E-PC2**	0.40	0.05-0.16	0.35-2.10				●	○		●	●	●	●					
		110308E-PC2	0.80	0.10-0.32	0.70-2.10				●	●		●	●	●	●					
		160404E-PC2	0.40	0.05-0.16	0.35-3.10			○	●	○		●	●	●	●					
		160408E-PC2	0.80	0.10-0.32	0.70-3.10			●	●	●		●	●	●	●					
		160412E-PC2	1.20	0.16-0.48	1.05-3.10			●	●	○		●	●	●						
Finishing		**VCET 1103005FR-F**	<0.05	0.01-0.18	0.10-0.30									○	●					
		1103005FL-F	<0.05	0.01-0.18	0.10-0.30									○	●					
		110301FR-F	<0.10	0.01-0.18	0.10-0.30		●							○	●					
		110301FL-F	<0.10	0.01-0.18	0.10-0.30		○							○	●					
		110302FR-F	<0.20	0.01-0.18	0.10-0.30		●							○	●					
		110302FL-F	<0.20	0.01-0.18	0.10-0.30		○							○	●					
		110304FR-F	<0.40	0.01-0.18	0.10-0.30		○							○	●					
		110304FL-F	<0.40	0.01-0.18	0.10-0.30		○							○	●					

● : Standard stock ○ : Made-to-Order

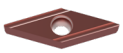
Turning Inserts Positive 35° (V)



(mm)

Product code	IC	S	D1	AN
VP_0802_	4.76	2.38	2.30	11°
VP_1103_	6.35	3.18	2.80	11°
VP_2205_	12.70	5.56	5.50	11°

● Good Conditions ⬮ General Conditions ✱ Bad Conditions

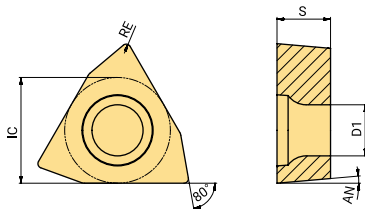
Inserts		Product code	RE (mm)	Recommanded parameters		Machining conditions	P						M				K			N	S
				f (mm/rev)	ap (mm)		AT202	AT210A	AC052P	AC152P	AC252P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
							●	●	●	⬮	✱	✱	●	⬮	⬮	⬮	●	⬮	✱	●	●
Finishing		VPGT 1103005FP-LF	<0.05	0.05-0.20	0.35-3.00										○	●					
		110301FP-LF	<0.10	0.05-0.20	0.35-3.00										○	●					
		110302FP-LF	0.20	0.05-0.20	0.35-3.00										○	●					
		VPGT 110301FP-UF	0.10	0.02-0.15	0.10-1.40										○	●					
		110302FP-UF	0.20	0.02-0.15	0.20-1.40										○	●					
		VPGT 110301F-UF	0.10	0.02-0.15	0.10-1.40			○													
		110302F-UF	0.20	0.02-0.15	0.20-1.40			○													
Semi-finishing		VPGT 220520E-NC2	2.00	0.24-1.00	1.60-5.50															●	
		220520F-NC2	2.00	0.24-1.00	1.60-5.50															●	
Finishing		VPET 080201FR-F	<0.10	0.02-0.15	0.05-0.20			○							○	●					
		080201FL-F	<0.10	0.02-0.15	0.05-0.20			○							○	●					
		080202FR-F	<0.20	0.02-0.15	0.05-0.20			○							○	●					
		080202FL-F	<0.20	0.02-0.15	0.05-0.20			●							○	●					
Low feed		VPET 080201FR-M	<0.10	0.01-0.06	0.20-1.50			○							○	●					
		080201FL-M	<0.10	0.01-0.06	0.20-1.50			○							○	●					
		080202FR-M	<0.20	0.01-0.06	0.20-1.50			○							○	●					
		080202FL-M	<0.20	0.01-0.06	0.20-1.50			●							○	●					
		VPET 110301FR-M	<0.10	0.01-0.06	0.20-2.00			○							○	●					
		110301FL-M	<0.10	0.01-0.06	0.20-2.00			○							○	●					
		110302FR-M	<0.20	0.01-0.06	0.20-2.00			●							○	●					
		110302FL-M	<0.20	0.01-0.06	0.20-2.00			○							○	●					
		110304FR-M	<0.40	0.01-0.06	0.20-2.00			●							○	●					
		110304FL-M	<0.40	0.01-0.06	0.20-2.00			○							○	●					

● : Standard stock ○ : Made-to-Order

Turning Inserts Positive 80° (W)

(mm)

Product code	IC	S	D1	AN
WB_0601_	3.97	1.59	2.30	5°
WB_0802_	4.76	2.38	2.30	5°

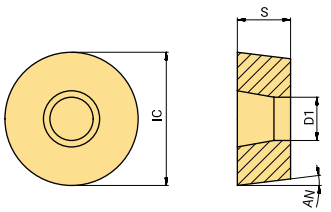


● Good Conditions ◐ General Conditions
✱ Bad Conditions

Inserts		Product code	RE (mm)	Recommanded parameters f (mm/rev)	Recommanded parameters ap (mm)	Machining conditions													
						●	●	●	◐	✱	✱	●	◐	◐	◐	●	◐	✱	●	●
						P						M				K			N	S
						AT202	AT210A	AC052P	AC152P	AC252P	AC350P	AC100M	AC200M	AP200U	AP301M	AC100K	AC102K	AC202K	AW100K	AP100S
Finishing		**WBET 0601003FR-F**	<0.03	0.05-0.08	0.10-0.80										●					
		0601003FL-F	<0.03	0.05-0.08	0.10-0.80										●					
		060101FR-F	<0.10	0.05-0.08	0.10-0.80										●					
		060101FL-F	<0.10	0.05-0.08	0.10-0.80										●					
		060102FR-F	<0.20	0.05-0.08	0.10-0.80										●					
		060102FL-F	<0.20	0.05-0.08	0.10-0.80										●					
		060104FR-F	<0.40	0.05-0.08	0.10-0.80										●					
		060104FL-F	<0.40	0.05-0.08	0.10-0.80										●					
		**WBET 0802003FR-F**	<0.03	0.05-0.08	0.10-0.80										●					
		0802003FL-F	<0.03	0.05-0.08	0.10-0.80										●					
		080201FR-F	<0.10	0.05-0.08	0.10-0.80										●					
		080201FL-F	<0.10	0.05-0.08	0.10-0.80										●					
		080202FR-F	<0.20	0.05-0.08	0.10-0.80										●					
		080202FL-F	<0.20	0.05-0.08	0.10-0.80										●					
		080204FR-F	<0.40	0.05-0.08	0.10-0.80										●					
		080204FL-F	<0.40	0.05-0.08	0.10-0.80										●					

● : Standard stock ○ : Made-to-Order

Turning Inserts Positive Round (R)



(mm)

Product code	IC	S	D1	AN
RCGT_0803_	8.00	3.18	3.40	7°
RCGT_1003_	10.00	3.18	4.40	7°
RCGT_10T3_	10.00	3.97	4.40	7°
RCMX_1003_	10.00	3.18	3.60	7°
RCMX_1204_	12.00	4.76	4.20	7°
RCMX_1606_	16.00	6.35	5.20	7°
RCMX_2006_	20.00	6.35	6.50	7°
RCMX_2507_	25.00	7.94	7.20	7°
RCMX_3209_	32.00	9.525	9.60	7°

● Good Conditions ◐ General Conditions
✱ Bad Conditions

Inserts		Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	P: AT202	AT210A	AC052P	AC152P	AC252P	AC350P	M: AC100M	AC200M	AP200U	AP301M	K: AC100K	AC102K	AC202K	N: AW100K	S: AP100S
				●	●	●	◐	✱	✱	●	◐	◐	◐	●	◐	✱	●	●		
Semi-finishing		**RCGT 0803MOF-NC2**	-	0.10-1.00	0.70-3.30														●	
		1003MOF-NC2	-	0.20-1.30	0.90-4.00														●	
		10T3MOF-NC2	-	0.20-1.30	0.90-4.00														●	
		**RCMT 0803MOE-PD8**	-	0.06-0.31	0.80-3.20															
		10T3MOS-PD8	-	0.06-0.31	1.00-4.00															
		1204MOS-PD8	-	0.08-0.38	1.20-4.80		○	○	○											
		1606MOS-PD8	-	0.10-0.50	1.60-6.40															
		2006MOS-PD8	-	0.21-1.26	2.00-8.00															
		2507MOS-PD8	-	0.28-1.53	2.50-10		○													
		**RCMX 2006MOS-PD8**	-	0.48-0.90	3.50-9.00			●	●											
		2507MOS-PD8	-	0.55-1.20	4.00-12.00			●	●											
		3209MOS-PD8	-	0.65-1.50	5.00-15.00			●	●											
Medium		**RCMX 100300S**	-	0.25-0.50	1.50-4.00		○	○	●											
		120400S	-	0.30-0.60	2.50-5.00			●	○											
		160600S	-	0.40-0.75	3.00-7.00			●	○											
		200600S	-	0.48-0.90	3.50-9.00			●	○											
		250700S	-	0.55-1.20	4.00-12.00			○	○											
		320900S	-	0.65-1.50	5.00-15.00		○	●	○											

● : Standard stock ○ : Made-to-Order

ACHTECK

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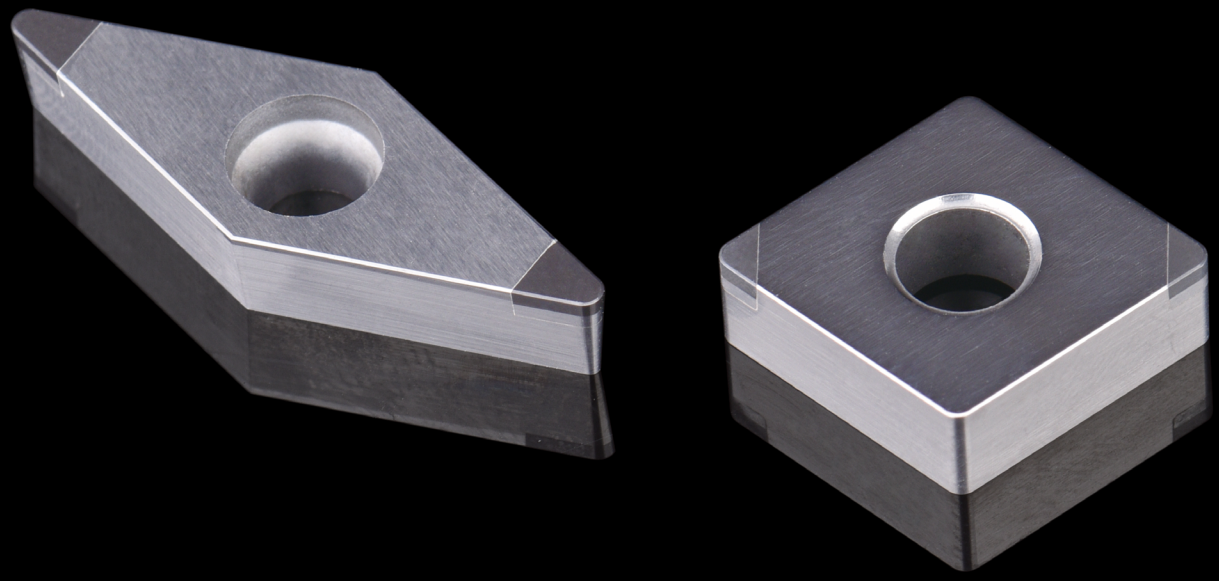
THE EXPERT OF DIFFICULT MACHINING



PCBN/PCD Inserts

PCBN/PCD

CUTTING TOOL CATALOGUE

PCBN Inserts 97

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PCD Insert Denomination System 104
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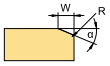
PCBN Insert Denomination System

CNGA 120408	-	S	010	20	-	SL	-	2	-	CB	PB30
1		2	3	4		5		6		7	8

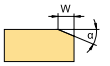
1- Standard ISO Code System

2- Cutting Edge Shape

S-- Land + Honed



T-- Land



3- T-land Width

005--0.05mm
010--0.10mm
015--0.15mm
020--0.20mm

4- T-land Angle

10--10°
15--15°
20--20°
25--25°

5- CBN Insert Structure

FT-- Full-face composite



SD-- Solid CBN



SL-- Standard



QL-- Heavy-duty through-cut



6- Number Of Cutting Edges

2-- Two cutting edges
3-- Three cutting edges

7- Cutting Edge Preparation

CB-- With chip breaker
WG-- With wiper edge
"None"-- Without chip breaker

8- Grade

PB30-- Low content CBN
PB60-- Medium content CBN
PB90-- High content CBN

PCBN Insert Grade Introduction

Grade	Grade Characteristics	Main Applications	ISO Group
PB30	Excellent wear resistance for medium-to-high-speed machining	Versatile; suitable for continuous and light interrupted cutting of hardened steel	H05-H15
PB60	Balanced toughness for medium cutting speeds	Moderate-interrupted cutting of hardened steel, interrupted and continuous machining of powder metallurgy, gray cast iron machining	H10-H25
PB90	High CBN content with superior hardness & fracture resistance	K- Mainly for cast iron machining H- Severe interrupted cutting of hardened steel, powder metallurgy machining	K01-K20

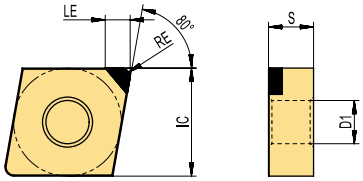
Recommended Parameters for PCBN Insert

Grade	Workpiece Material	Hardness Range	Cutting Speed Vc (m/min)	Feed fn (mm/rev)	Depth of Cut ap (mm)	Recommended Application Conditions
PB30	Hardened steel	HRC58-62	150--250	0.03--0.2	0.05-0.3	Continuous
PB60	Hardened steel	HRC55-60	50--150	0.03--0.2	0.05-0.5	Interrupted
	Cast iron	HB180-220	150--450	0.03--0.3	0.30-0.5	Continuous/Interrupted
	Powder metallurgy	-	200--500	0.03--0.3	0.10-0.3	Continuous/Interrupted
PB90	Hardened steel	HRC55-60	30--120	0.03--0.2	0.05-0.5	Heavy interrupted
	Cast iron	HB180-220	150--450	0.03--0.3	0.30-0.5	Continuous/Interrupted
	Powder metallurgy	-	300--800	0.03--0.3	0.10-0.3	Continuous/Interrupted

Grade Application Guide

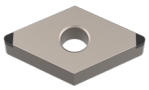
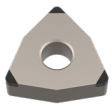
Material Group		ISO	ISO Group of PCBN Insert Grade			ISO
			Uncoated			
			PB30	PB60	PB90	
P	Non-alloy steels/ Alloyed steels	P01				P01
		P10				P10
		P20				P20
		P30				P30
		P40				P40
		P50				P50
M	Stainless steels	M01				M01
		M10				M10
		M20				M20
		M30				M30
		M40				M40
K	Cast iron	K01			PB90	K01
		K10				K10
		K20				K20
		K30				K30
		K40				K40
		K50				K50
N	Aluminum/ Aluminum alloys	N01				N01
		N10				N10
		N20				N20
		N30				N30
S	Heat resistant alloys	S01				S01
		S10				S10
		S20				S20
		S30				S30
		S40				S40
H	Hardened steels/ Chilled cast iron	H01	PB30			H01
		H10		PB60		H10
		H20				H20
		H30				H30

Overview of PCBN Negative Inserts



(mm)

Product code	IC	S	LE	D1
CN_1204_	12.7	4.76	2.2	5.16
DN_1504_	12.7	4.76	2.2	5.16
DN_1506_	12.7	6.35	2.2	5.16
TN_1604_	9.525	4.76	2.2	3.81
VN_1604_	9.525	4.76	2.2	3.81
WN_0804_	12.7	4.76	2.2	5.16

Inserts	Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good Conditions ⊕ General Conditions ✱ Bad Conditions: ●	⊕	●
					H		K
					PB30	PB60	PB90
	**CNGA 120404-S01020-SL-2**	0.4	0.03-0.3	0.05-0.5	●	●	●
	120408-S01020-SL-2	0.8	0.03-0.3	0.05-0.5	●	●	●
	120412-S01020-SL-2	1.2	0.03-0.3	0.05-0.5			●
	**DNGA 150404-S01020-SL-2**	0.4	0.03-0.3	0.05-0.5	●	●	●
	150408-S01020-SL-2	0.8	0.03-0.3	0.05-0.5	●	●	●
	150412-S01020-SL-2	1.2	0.03-0.3	0.05-0.5			●
	150604-S01020-SL-2	0.4	0.03-0.3	0.05-0.5	●	●	●
	150608-S01020-SL-2	0.8	0.03-0.3	0.05-0.5	●	●	●
	150612-S01020-SL-2	1.2	0.03-0.3	0.05-0.5			●
	**TNGA 160404-S01020-SL-3**	0.4	0.03-0.3	0.05-0.5	●	●	●
	160408-S01020-SL-3	0.8	0.03-0.3	0.05-0.5	●	●	●
	160412-S01020-SL-3	1.2	0.03-0.3	0.05-0.5			●
	**VNGA 160404-S01020-SL-2**	0.4	0.03-0.3	0.05-0.5	●	●	●
	160408-S01020-SL-2	0.8	0.03-0.3	0.05-0.5	●	●	●
	160412-S01020-SL-2	1.2	0.03-0.3	0.05-0.5			●
	**WNGA 080404-S01020-SL-3**	0.4	0.03-0.3	0.05-0.5	●	●	●
	080408-S01020-SL-3	0.8	0.03-0.3	0.05-0.5	●	●	●
	080412-S01020-SL-3	1.2	0.03-0.3	0.05-0.5			●

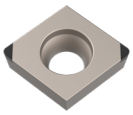
For hard material turning, negative PCBN Inserts are preferred to use double-clamped D-type tool holders to reduce vibration and chipping.

● : Standard stock ○ : Made-to-Order

Overview of PCBN Positive Inserts

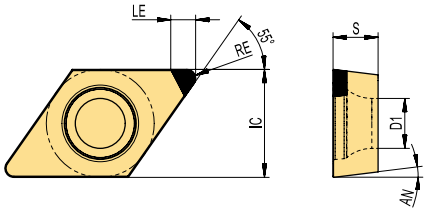
(mm)

Product code	IC	S	LE	D1	AN
CC_0602_	6.35	2.38	2.2	2.8	7°
CC_09T3_	9.525	3.97	2.2	4.4	7°
CC_1204_	12.7	4.76	2.2	5.5	7°
TC_1102_	6.35	2.38	2.2	2.8	7°
TP_0802_	4.76	2.38	2.2	2.3	11°
TP_0902_	5.56	2.38	2.2	2.8	11°
TP_1103_	6.35	3.18	2.2	3.4	11°
TP_1604_	9.525	3.18	2.2	4.4	11°

Inserts	Product code	RE (mm)	Recommanded parameters		Machining conditions: ● Good Conditions ⬮ General Conditions ✱ Bad Conditions		
			f (mm/rev)	ap (mm)	H		K
					PB30	PB60	PB90
	**CCGW 060202-S01020-SL-2**	0.2	0.03-0.3	0.05-0.5	●	●	
	060204-S01020-SL-2	0.4	0.03-0.3	0.05-0.5	●	●	●
	09T302-S01020-SL-2	0.2	0.03-0.3	0.05-0.5	●		
	09T304-S01020-SL-2	0.4	0.03-0.3	0.05-0.5	●	●	●
	09T308-S01020-SL-2	0.8	0.03-0.3	0.05-0.5	●	●	●
	120404-S01020-SL-2	0.4	0.03-0.3	0.05-0.5	●	●	●
	120408-S01020-SL-2	0.8	0.03-0.3	0.05-0.5	●	●	●
	120412-S01020-SL-2	1.2	0.03-0.3	0.05-0.5			●
	**TPGW 080202-S01020-SL-3**	0.2	0.03-0.3	0.05-0.5	●	●	
	080204-S01020-SL-3	0.4	0.03-0.3	0.05-0.5	●	●	●
	090202-S01020-SL-3	0.2	0.03-0.3	0.05-0.5	●	●	
	090204-S01020-SL-3	0.4	0.03-0.3	0.05-0.5	●	●	●
	090208-S01020-SL-3	0.8	0.03-0.3	0.05-0.5	●	●	●
	110302-S01020-SL-3	0.2	0.03-0.3	0.05-0.5	●	●	
	110304-S01020-SL-3	0.4	0.03-0.3	0.05-0.5	●	●	●
	160402-S01020-SL-3	0.2	0.03-0.3	0.05-0.5	●	●	
	160404-S01020-SL-3	0.4	0.03-0.3	0.05-0.5	●	●	●
	160408-S01020-SL-3	0.8	0.03-0.3	0.05-0.5	●	●	●
	TCGW 110204-S01020-SL-3	0.4	0.03-0.3	0.05-0.5	●	●	●
	110208-S01020-SL-3	0.8	0.03-0.3	0.05-0.5	●	●	●

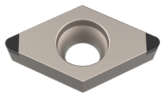
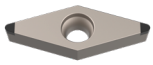
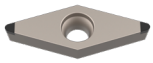
● : Standard stock ○ : Made-to-Order

Overview of PCBN Positive Inserts



(mm)

Product code	IC	S	LE	D1	AN
DC_0702_	6.35	2.38	2.2	2.8	7°
DC_11T3_	9.525	3.97	2.2	4.4	7°
VB_1103_	6.35	3.18	2.2	2.8	5°
VC_1103_	6.35	3.18	2.2	2.8	7°
VB_1604_	9.525	4.76	2.2	4.4	5°
VC_1604_	9.525	4.76	2.2	4.4	7°

Inserts	Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	ap (mm)	● Good Conditions ◐ General Conditions ✱ Bad Conditions		
					●	◐	●
					H		K
					PB30	PB60	PB90
	**DCGW 070202-S01020-SL-2**	0.2	0.03-0.3	0.05-0.5	●		
	070204-S01020-SL-2	0.4	0.03-0.3	0.05-0.5	●	●	●
	070208-S01020-SL-2	0.8	0.03-0.3	0.05-0.5	●	●	●
	11T302-S01020-SL-2	0.2	0.03-0.3	0.05-0.5	●		
	11T304-S01020-SL-2	0.4	0.03-0.3	0.05-0.5	●	●	●
	11T308-S01020-SL-2	0.8	0.03-0.3	0.05-0.5	●	●	●
	11T312-S01020-SL-2	1.2	0.03-0.3	0.05-0.5		●	●
	**VBGW 110302-S01020-SL-2**	0.2	0.03-0.3	0.05-0.5	●		
	110304-S01020-SL-2	0.4	0.03-0.3	0.05-0.5	●	●	●
	110308-S01020-SL-2	0.8	0.03-0.3	0.05-0.5	●	●	●
	160402-S01020-SL-2	0.2	0.03-0.3	0.05-0.5	●		
	160404-S01020-SL-2	0.4	0.03-0.3	0.05-0.5	●	●	●
	160408-S01020-SL-2	0.8	0.03-0.3	0.05-0.5	●	●	●
	**VCGW 110302-S01020-SL-2**	0.2	0.03-0.3	0.05-0.5	●		
	110304-S01020-SL-2	0.4	0.03-0.3	0.05-0.5	●	●	●
	110308-S01020-SL-2	0.8	0.03-0.3	0.05-0.5	●	●	●
	160402-S01020-SL-2	0.2	0.03-0.3	0.05-0.5	●		
	160404-S01020-SL-2	0.4	0.03-0.3	0.05-0.5	●	●	●
	160408-S01020-SL-2	0.8	0.03-0.3	0.05-0.5	●	●	●

● : Standard stock ○ : Made-to-Order

PCD Insert Denomination System

CCGW 09T304	-	1	-	NL	-	05	-	CB	PD20
1		2		3		4		5	6

1- Standard ISO Code System

2- Number Of Cutting Edges

1-- One cutting edge

3- PCD Insert Structure

NL--Standard



LL--Full edge tippde



4- Rake Angle

00--0°
05--5°
07--7°
10--10°

5- Cutting Edge Preparation

CB-- With chip breaker
WG-- With wiper edge
“ - ” -- Without chip breaker

6- Grade

PD01-- Fine grain PCD
PD10-- Medium grain PCD
PD20-- Mixed grain PCD

PCD Insert Grade Introduction

Grade	Grade Characteristics	Main Applications	ISO Group
PD20	2-30μm mixed grain size; superior wear resistance & edge integrity; excellent surface finish	1st choice for general aluminum machining, roughing of high-silicon Al, graphite, carbide rolls	N01-N20
PD10	10μm avg. grain size; balanced toughness & wear resistance; premium finish	Single-workpiece roughing/finishing; medium/low-silicon aluminum	N01-N20

PCD Recommended Cutting Parameter

Grade	Workpiece Material	Cutting Speed Vc (m/min)	Feed fn (mm/rev)	Depth of Cut ap (mm)
PD20	Low-Si Al (si ≤ 12%)	600-2000	0.03-0.3	0.05-0.5
	High-Si Al (si > 12%)	300-500	0.03-0.2	0.05-0.2
	Copper alloys	400-1000	0.1-0.3	0.1-2
	Sintered carbides	20-40	0.03-0.2	0.05-0.2
	CFRP/graphite	100-600	0.1-0.3	0.1-2

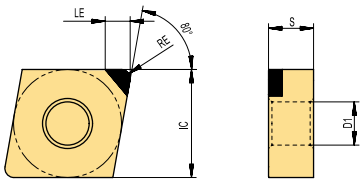
Grade Application Guide

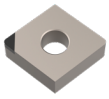
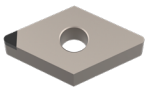
Material Group		ISO	ISO Group of PCD Insert Grade	ISO
			Uncoated	
			PD20	
P	Non-alloy steels/ Alloyed steels	P01		P01
		P10		P10
		P20		P20
		P30		P30
		P40		P40
		P50		P50
M	Stainless steels	M01		M01
		M10		M10
		M20		M20
		M30		M30
		M40		M40
K	Cast iron	K01		K01
		K10		K10
		K20		K20
		K30		K30
		K40		K40
		K50		K50
N	Aluminum/ Aluminum alloys	N01	PD20	N01
		N10		N10
		N20		N20
		N30		N30
S	Heat resistant alloys	S01		S01
		S10		S10
		S20		S20
		S30		S30
		S40		S40
H	Hardened steels/ Chilled cast iron	H01		H01
		H10		H10
		H20		H20
		H30		H30

Overview of PCD Negative Inserts

(mm)

Product code	IC	S	LE	D1
CN_1204_	12.7	4.76	3.0	5.16
DN_1504_	12.7	4.76	3.0	5.16
TN_1604_	9.525	4.76	3.0	3.81
VN_1604_	9.525	4.76	3.0	3.81



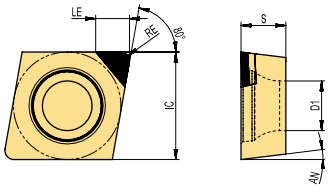
Inserts	Product code	RE (mm)	Machining conditions: Recommanded parameters f (mm/rev)	Machining conditions: Recommanded parameters ap (mm)	● Good Conditions: N: PD20
	**CNGA 120404-1-NL-00**	0.4	0.03-0.2	0.05-0.5	●
	120408-1-NL-00	0.8	0.03-0.2	0.05-0.5	●
	**DNGA 150404-1-NL-00**	0.4	0.03-0.2	0.05-0.5	●
	150408-1-NL-00	0.8	0.03-0.2	0.05-0.5	●
	**TNGA 160404-1-NL-00**	0.4	0.03-0.2	0.05-0.5	●
	160408-1-NL-00	0.8	0.03-0.2	0.05-0.5	●
	**VNGA 160404-1-NL-00**	0.4	0.03-0.2	0.05-0.5	●
	160408-1-NL-00	0.8	0.03-0.2	0.05-0.5	●

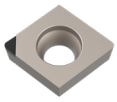
● : Standard stock ○ : Made-to-Order

Overview of PCD Positive Inserts

(mm)

Product code	IC	S	LE	D1	AN
CC_0602_	6.35	2.38	3.0	2.8	7°
CC_09T3_	9.525	3.97	3.0	4.4	7°
CC_1204_	12.7	4.76	3.0	5.5	7°



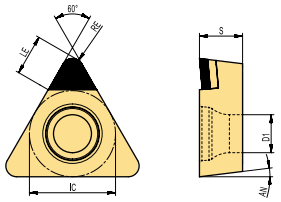
Inserts	Product code	RE (mm)	Rake Angle (°)	Machining conditions: Recommanded parameters f (mm/rev)	Machining conditions: Recommanded parameters ap (mm)	● Good Conditions: N: PD20
	**CCGW 060202-1-NL-05**	0.2	5°	0.03-0.2	0.05-0.5	●
	060204-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	09T302-1-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	09T304-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	09T308-1-NL-05	0.8	5°	0.03-0.2	0.05-0.5	●
	120402-1-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	120404-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	120408-1-NL-05	0.8	5°	0.03-0.2	0.05-0.5	●

● : Standard stock ○ : Made-to-Order

Overview of PCD Positive Inserts

(mm)

Product code	IC	S	LE	D1	AN
TB_0601_	3.97	1.59	2.0	2.2	5°
TC_1102_	6.35	2.38	3.0	2.8	7°
TC_1103_	6.35	3.18	3.0	2.8	7°
TC_16T3_	9.525	3.97	3.0	4.4	7°
TP_0802_	4.76	2.38	3.0	2.4	11°
TP_0902_	5.56	2.38	3.0	2.8	11°



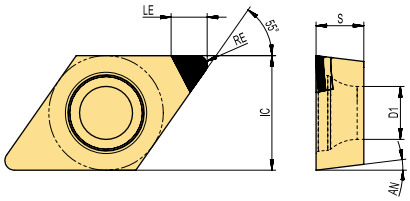
Inserts	Product code	RE (mm)	Rake Angle (°)	Machining conditions / Recommanded parameters f (mm/rev)	Machining conditions / Recommanded parameters ap (mm)	● Good Conditions / N / PD20
	**TBGW 060102-1-NL-05**	0.2	5°	0.03-0.2	0.05-0.5	●
	060104-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	TCGW 110202-1-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	110204-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	110302-1-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	110304-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	110308-1-NL-05	0.8	5°	0.03-0.2	0.05-0.5	●
	16T302-1-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	16T304-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	16T308-1-NL-05	0.8	5°	0.03-0.2	0.05-0.5	●
	**TPGW 080202-1-NL-05**	0.2	5°	0.03-0.2	0.05-0.5	●
	080204-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	090202-1-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	090204-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●

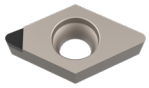
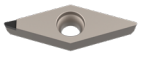
● : Standard stock ○ : Made-to-Order

Overview of PCD Positive Inserts

(mm)

Product code	IC	S	LE	D1	AN
DC_0702_	6.35	2.38	3.0	2.8	7°
DC_11T3_	9.525	3.97	3.0	4.4	7°
VB_1103_	6.35	3.18	3.0	2.8	5°
VB_1604_	9.525	4.76	3.0	4.4	5°



Inserts	Product code	RE (mm)	Rake Angle (°)	Machining conditions: Recommanded parameters f (mm/rev)	Machining conditions: Recommanded parameters ap (mm)	● Good Conditions ● N PD20
	**DCGW 070202-1-NL-05**	0.2	5°	0.03-0.2	0.05-0.5	●
	070204-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	11T302-1-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	11T304-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	11T308-1-NL-05	0.8	5°	0.03-0.2	0.05-0.5	●
	**VBGW 110302-1-NL-05**	0.2	5°	0.03-0.2	0.05-0.5	●
	110304-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	160402-1-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	160404-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	110302-1-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	110304-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●
	160402-1-NL-05	0.2	5°	0.03-0.2	0.05-0.5	●
	160404-1-NL-05	0.4	5°	0.03-0.2	0.05-0.5	●

● : Standard stock ○ : Made-to-Order

Turning Tools

CUTTING TOOL CATALOGUE

Turning Tools 110

External Turning 111
External Turning Toolholder Denomination System 111
External Turning Toolholder
CN ☐☐ Inserts MCLNR/L DCLNR/L PCLNR/L 112
DN ☐☐ Inserts MDJNR/L DDJNR/L PDJNR/L 114
SN ☐☐ Inserts DSBNR/L PSBNR/L PSSNR/L PSDNN 116
TN ☐☐ Inserts PTGNR/L DTGNR/L PTFNR/L MTENN 118
VN ☐☐ Inserts MVJNR/L DVJNR/L PVLNR/L PVPNR/L 120
MVVNN DVVNN PVVNN
WN ☐☐ Inserts MWLNR/L DWLNR/L PWLNR/L 123

Internal Turning 125
Boring Bar Denomination System 125
Boring Bar with positive inserts
CC ☐☐ Inserts 126
CP ☐☐ Inserts 128
DC ☐☐ Inserts 129
TC·TP·TB ☐☐ Inserts 131
VP·VC·VB ☐☐ Inserts 134
WB ☐☐ Inserts 139
Boring Bar with negative inserts 141
CN ☐☐ Inserts 141
DN ☐☐ Inserts 142
SN ☐☐ Inserts 146
TN ☐☐ Inserts 146
WN ☐☐ Inserts 147

External Turning Toolholder Denomination System

D	C	L	N	R	20	20	K	12	Other Remarks
1	2	3	4	5	Height of Shank	Width of Shank	8	9	-

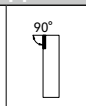
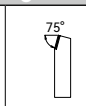
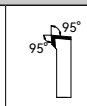
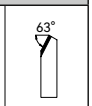
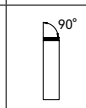
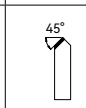
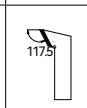
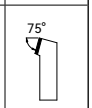
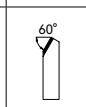
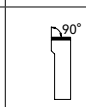
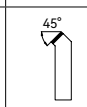
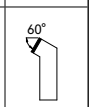
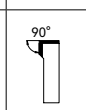
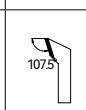
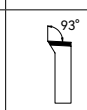
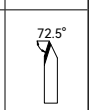
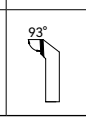
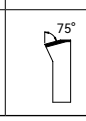
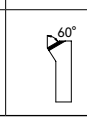
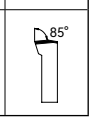
1- Clamping Type

A: Back clamping	C: Top clamping
D: Double clamping	M: Multiple clamping
P: Lever clamping	S: Screw clamping
W: Wedge clamping	

2- Insert Shape

C: 80° Rhombic	D: 55° Rhombic
R: Round	S: 90° Square
T: 60° Triangle	V: 35° Rhombic
W: 80° Trigon	

3- Approaching Angle

A		B		L		N	
C		D		P		R	
E		F		S		T	
G		H		U		V	
J		K		W		Y	

4- Clearance Angle

B: 5° positive angle	C: 7° positive angle
D: 15° positive angle	E: 20° positive angle
N: 0° negative angle	P: 11° positive angle

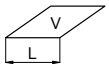
5-Hand of Tool

R: Right hand
L: Left hand
N: Left Neutral

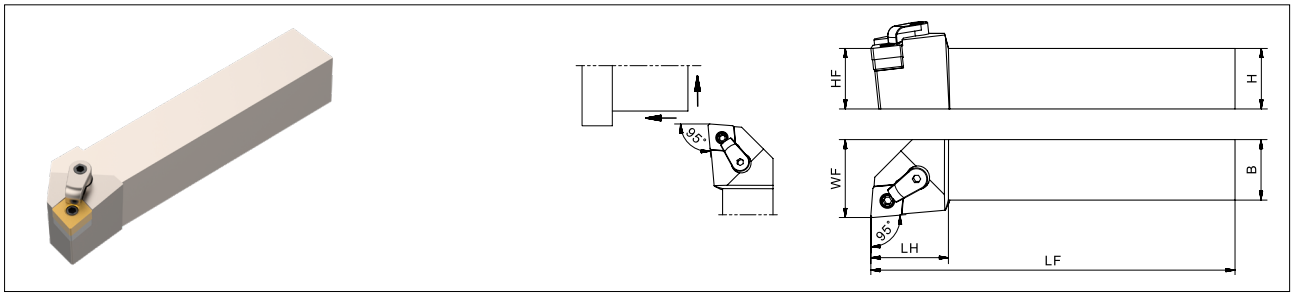
8- Toolholder Length

A: 32	B: 40	C: 50	D: 60	E: 70	F: 80	G: 90	H: 100
J: 110	K: 125	L: 140	M: 150	N: 160	P: 170	Q: 180	R: 200
R: 200	S: 250	T: 300	U: 350	V: 400	W: 450		

9- Length of Cutting Edge

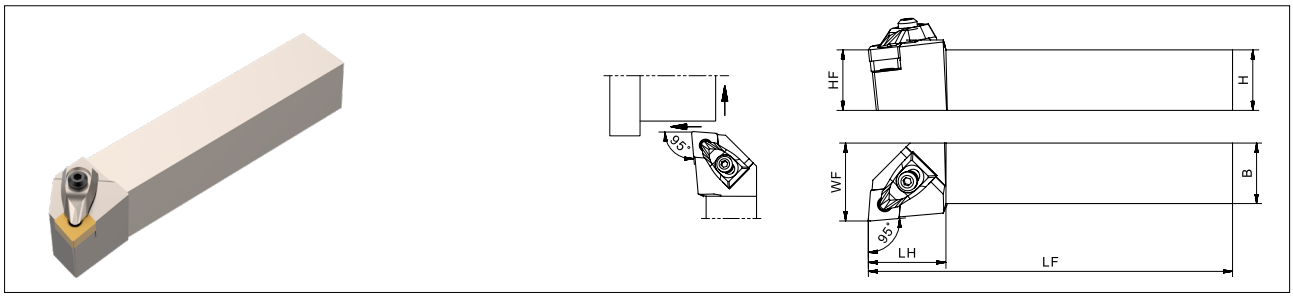
MCLN (External/Face Turning)



Product code		Stock		Dimension						Insert corner radius (RE)	Spare parts					Insert
		R	L	H	HF	B	LF	LH	WF		Wrench	Clamp screw	Clamp	Lock pin	Shim	
MCLN$^{R}/_{L}$	**2020K-12**	●	●	20	20	20	125	33	35	0.8	LT-H3	CD060255X	CLM180130	CS060170	S-MCN12048	CN*A 1204… CN*G 1204… CN*M 1204…
	2525M-12	●	●	25	25	25	150	32	32							

● : Standard stock ○ : Made-to-Order

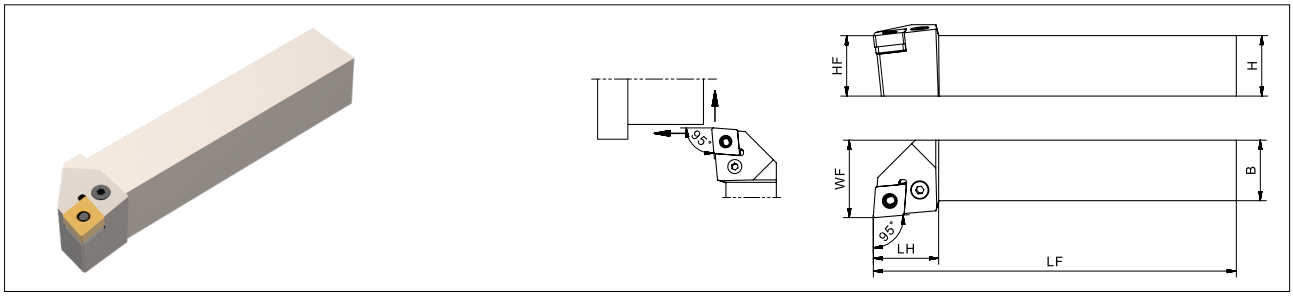
DCLN (External/Face Turning)



Product code		Stock		Dimension						Insert corner radius (RE)	Spare parts						Insert
		R	L	H	HF	B	LF	LH	WF		Wrench	Clamp screw	Clamp	Spring	Shim screw	Shim	
DCLN$^{R}/_{L}$	**2020K-12**	●	●	20	20	20	125	32	25	0.8	LT-H3	CH050215	CLD255090	YB0.20-2.50-12-5.5	SH060100X	S-DCN12048	CN*A 1204… CN*G 1204… CN*M 1204…
	2525M-12	●	●	25	25	25	150		32								

● : Standard stock ○ : Made-to-Order

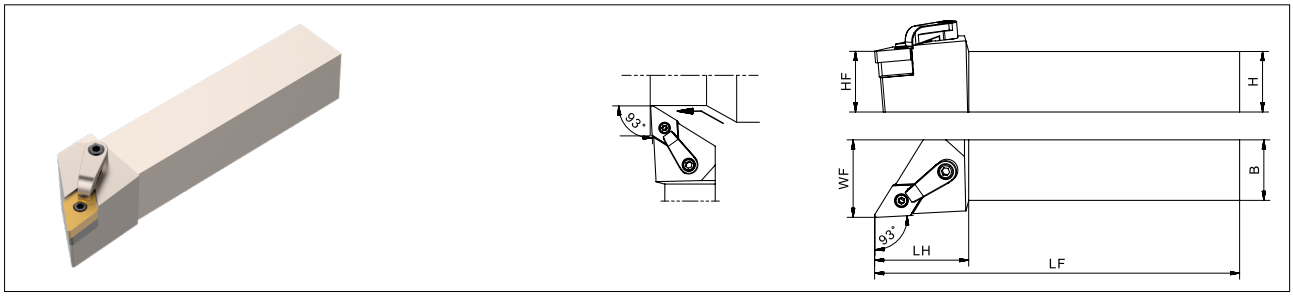
PCLN (External/Face Turning)



Product code		Stock		Dimension						Insert corner radius (RE)	Spare parts					Insert
											Wrench	Lever screw	Lever	Shim	Shim pin	
		R	L	H	HF	B	LF	LH	WF							
PCLN$^{R}/_{L}$	**1616H-0903**	○	○	16	16	16	100	22	20	0.8	LT-H2.5	LH060170	LV3	S-PCN09032	SP3	CN*G 0903…
	2020K-0903	○	○	20	20	20	125		25							
	2525M-0903	○	○	25	25	25	150		32							
PCLN$^{R}/_{L}$	**1616H-12**	○	○	16	16	16	100	27	20		LT-H3	LH080200	LV4C	S-PCN12032	SP4N	CN*A 1204… CN*G 1204… CN*M 1204…
	2020K-12	○	●	20	20	20	125		25							
	2525M-12	●	●	25	25	25	150		32							
	3232P-12	○	○	32	32	32	170		40							
PCLN$^{R}/_{L}$	**2525M-16**	○	○	25	25	25	150	32	32			LH080235	LV5	S-PCN16048	SP5	CN*A 1606… CN*G 1606… CN*M 1606…
	3232P-16	○	○	32	32	32	170		40							
	4040S-16	○	○	40	40	40	250		50							
PCLN$^{R}/_{L}$	**3232P-19**	○	○	32	32	32	170	38	40	1.2	LT-H4	LH100270	LV6	S-PCN19048	SP6	CN*A 1906… CN*G 1906… CN*M 1906…
	4040S-19	○	○	40	40	40	250		50							
PCLN$^{R}/_{L}$	**3232P-2507**	○	○	32	32	32	170	45	45	2.4	LT-H5	LH120360	LV8	S-PCN25080	SP8N	CN*A 2507… CN*G 2507… CN*M 2507…
	4040S-2507	○	○	40	40	40	250		45							
PCLN$^{R}/_{L}$	**3232P-2509**	○	○	32	32	32	170		45					S-PCN25064		CN*A 2509… CN*G 2509… CN*M 2509…
	4040S-2509	○	○	40	40	40	250		45							

● : Standard stock ○ : Made-to-Order

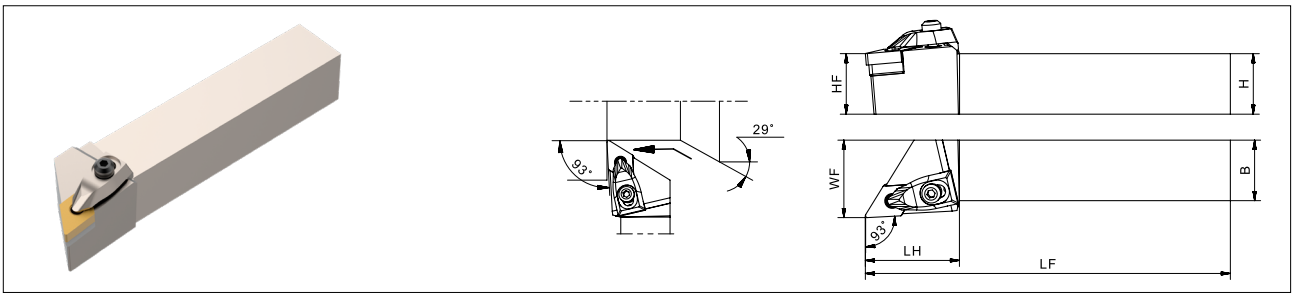
MDJN (External/Profile Turning)



Product code		Stock		Dimension						Insert corner radius (RE)	Spare parts					Insert
											Wrench	Clamp screw	Clamp	Lock pin	Shim	
		R	L	H	HF	B	LF	LH	WF							
MDJNR/L	**2020K-1504**	○	○	20	20	20	125	39	25	0.8	LT-H3	CD060255X	CLM210140	CS060190	S-MDN15064	DN*A 1504… DN*G 1504… DN*M 1504…
	2525M-1504	●	○	25	25	25	150		32							
MDJNR/L	**2020K-1506**	○	○	20	20	20	125		25						S-MDN15048	DN*A 1506… DN*G 1506… DN*M 1506…
	2525M-1506	○	○	25	25	25	150		32							

● : Standard stock ○ : Made-to-Order

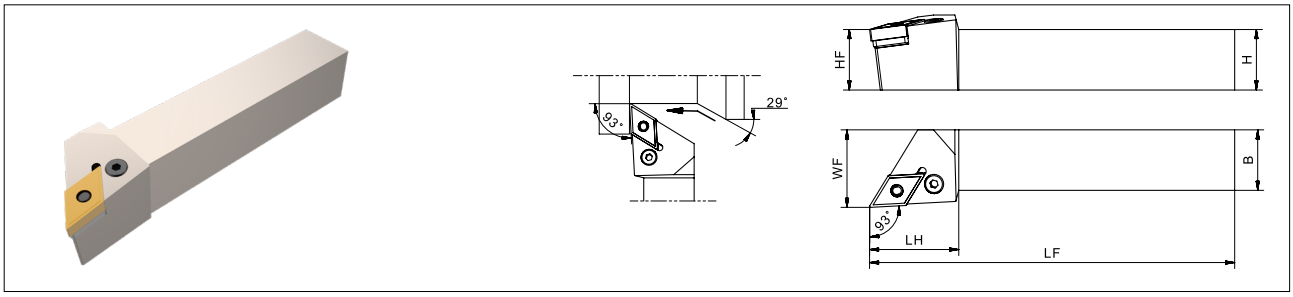
DDJN (External/Profile Turning)



Product code		Stock		Dimension						Insert corner radius (RE)	Spare parts						Insert
											Wrench	Clamp screw	Clamp	Spring	Shim screw	Shim	
		R	L	H	HF	B	LF	LH	WF								
DDJNR/L	**2020K-1504**	○	○	20	20	20	125	39	25	0.8	LT-H3	CH050215	CLD283090	YB0.20-2.50-12-5.5	SH060100X	S-DDN15064	DN*A 1504… DN*G 1504… DN*M 1504…
	2525M-1504	●	○	25	25	25	150		32								
DDJNR/L	**2020K-1506**	○	○	20	20	20	125		25							S-DDN15048	DN*A 1506… DN*G 1506… DN*M 1506…
	2525M-1506	○	○	25	25	25	150		32								

● : Standard stock ○ : Made-to-Order

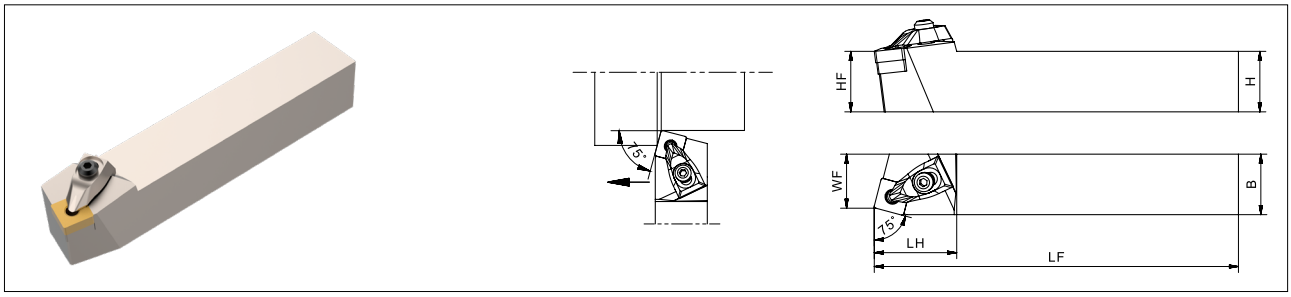
PDJN (External/Profile Turning)



Product code		Stock		Dimension						Insert corner radius (RE)	Spare parts					Insert
		R	L	H	HF	B	LF	LH	WF		Wrench	Lever screw	Lever	Shim	Shim pin	
PDJN$^{R}_{L}$	**1616H-11**	○	○	16	16	16	100	28	20	0.4	LT-H2.5	LH060170	LV3B	S-PDN11027	SP3	DN*G 1104…
	2020K-11	●	●	20	20	20	125		25							
	2525M-11	●	●	25	25	25	150	36	32	0.8						
PDJN$^{R}_{L}$	**2020K-1504**	●	○	20	20	20	125	36	25		LT-H3	LH080200	LV4B	S-PDN15048	SP4N	DN*A 1504… DN*G 1504… DN*M 1504…
	2525M-1504	●	●	25	25	25	150		32							
	3232P-1504	○	○	32	32	32	170		40							
PDJN$^{R}_{L}$	**2020K-1506**	○	○	20	20	20	125		25					S-PDN15032		DN*A 1506… DN*G 1506… DN*M 1506…
	2525M-1506	○	○	25	25	25	150		32							
	3232P-1506	○	○	32	32	32	170		40							

● : Standard stock ○ : Made-to-Order

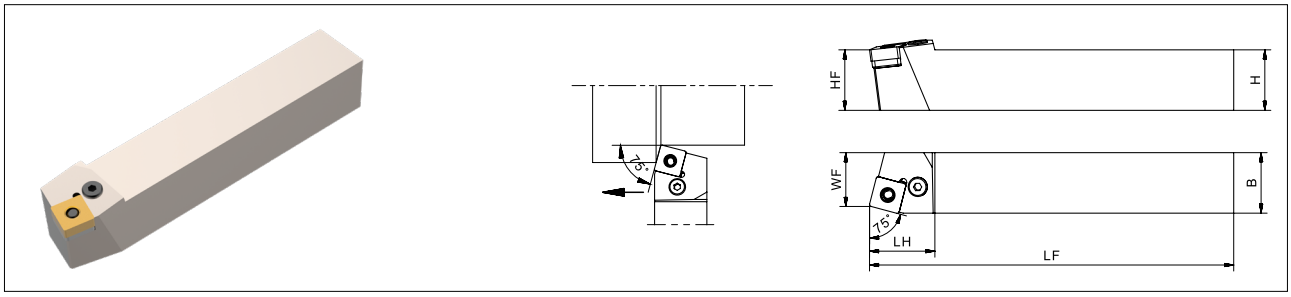
DSBN (External Turning)



Product code		Stock		Dimension						Insert corner radius (RE)	Spare parts						Insert
		R	L	H	HF	B	LF	LH	WF		Wrench	Clamp screw	Clamp	Spring	Shim screw	Shim	
DSBN$^{R}/_{L}$	2020K-12	○	○	20	20	20	125	34	17	0.8	LT-H3	CH050215	CLD255090	YB0.20-2.50-12-5.5	SH060080X	S-DSN12048	SN*A 1204… SN*G 1204… SN*M 1204…
	2525M-12	●	○	25	25	25	150		22								
	3232P-12	○	○	32	32	32	170		27								
DSBN$^{R}/_{L}$	2525M-15	○	○	25	25	25	150	41	22	0.8			CLD283090		SH060100X	S-DSN15048	SN*A 1506… SN*G 1506… SN*M 1506…
	3232P-15	○	○	32	32	32	170		27								
DSBN$^{R}/_{L}$	4040S-2507	○	○	40	40	40	250	56	35	1.6		CH080235	CLD380150	YB0.40-2.50-15-8.5	SH060130X	S-DSN25080	SN*A 2507… SN*G 2507… SN*M 2507…
DSBN$^{R}/_{L}$	4040S-2509	○	○													S-DSN25064	SN*A 2509… SN*G 2509… SN*M 2509…

● : Standard stock ○ : Made-to-Order

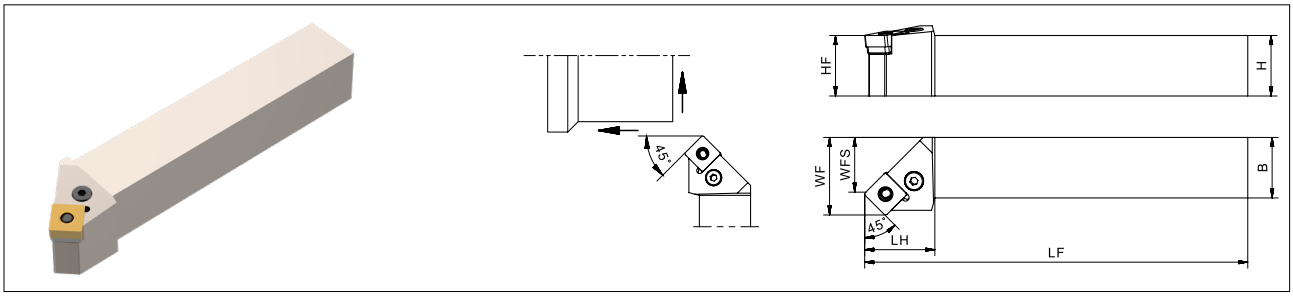
PSBN (External Turning)



Product code		Stock		Dimension						Insert corner radius (RE)	Spare parts					Insert
		R	L	H	HF	B	LF	LH	WF		Wrench	Lever screw	Lever	Shim	Shim pin	
PSBN$^{R}/_{L}$	2020K-12	●	○	20	20	20	125	27	17	0.8	LT-H3	LH080200	LV4C	S-PSN12032	SP4N	SN*A 1204… SN*G 1204… SN*M 1204…
	2525M-12	●	●	25	25	25	150		22							

● : Standard stock ○ : Made-to-Order

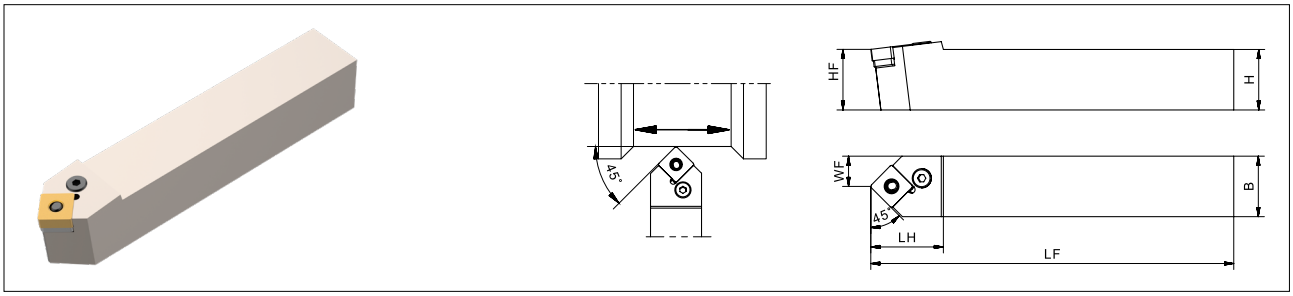
DSBN (External Turning)



Product code		Stock		Dimension							Insert corner radius (RE)	Spare parts					Insert
		R	L	H	HF	B	LF	LH	WF	WFS		Wrench	Lever screw	Lever	Shim	Shim pin	
PSSNR/L	**2020K-12**	○	○	20	20	20	125	29	25	16.4	0.8	LT-H3	LH080200	LV4C	S-PSN12032	SP4N	SN*A 1204… SN*G 1204… SN*M 1204…
	2525M-12	●	●	25	25	25	150		32	23.4							
	3232P-12	○	○	32	32	32	170		40	31.4							
PSSNR/L	**2525M-15**	○	○	25	25	25	150	32	32	21.27			LH080235	LV5	S-PSN15048	SP5	SN*A 1506… SN*G 1506… SN*M 1506…
	3232P-15	○	○	32	32	32	170		40	29.1							
PSSNR/L	**3232P-19**	○	○					40		27	1.2	LT-H4	LH100270	LV6	S-PSN19048	SP6	SN*G 1906… SN*M 1906…
	4040S-19	○	○	40	40	40	250		50	37							

● : Standard stock ○ : Made-to-Order

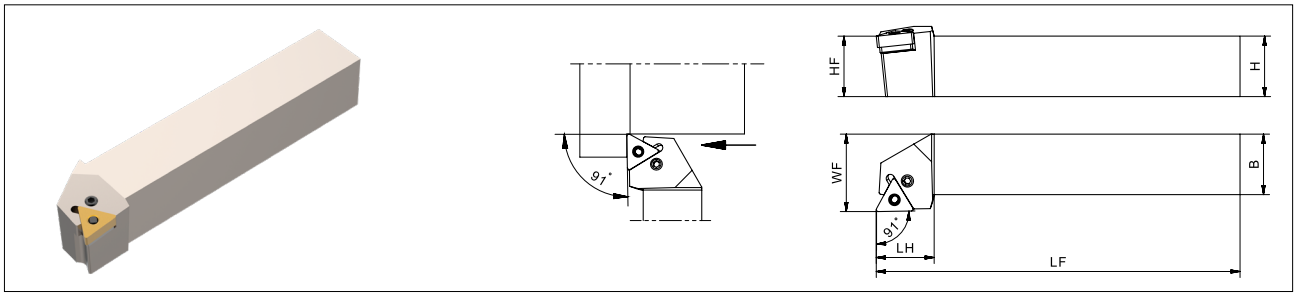
PSDN (External/Chamfer Turning)



Product code		Stock	Dimension						Insert corner radius (RE)	Spare parts					Insert
		N	H	HF	B	LF	LH	WF		Wrench	Lever screw	Lever	Shim	Shim pin	
PSDNN	**2020K-12**	○	20	20	20	125	30	10	0.8	LT-H3	LH080200	LV4C	S-PSN12032	SP4N	SN*A 1204… SN*G 1204… SN*M 1204…
	2525M-12	●	25	25	25	150		12.5							

● : Standard stock ○ : Made-to-Order

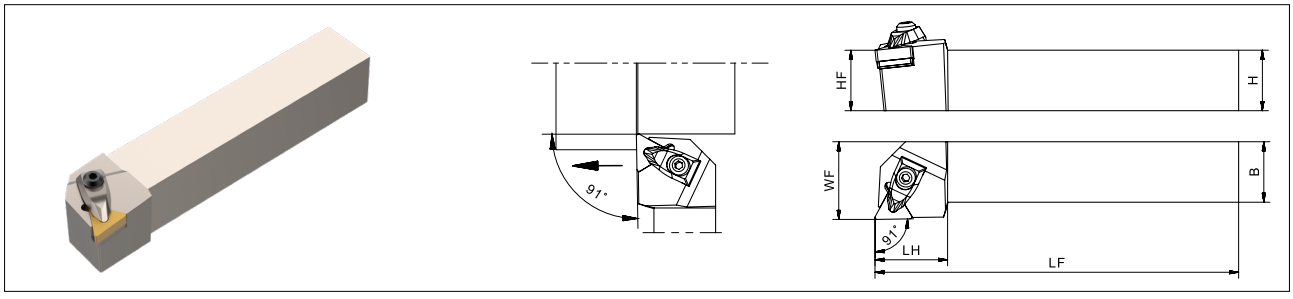
PTGN (External Turning)



Product code		Stock		Dimension						Insert corner radius (RE)	Spare parts					Insert
											Wrench	Lever screw	Lever	Shim	Shim pin	
		R	L	H	HF	B	LF	LH	WF							
PTGNR/L **1616H-16**		○	○	16	16	16	100	24	20	0.8	LT-H2.5	LH060170	LV3	S-PTN16027	SP3	TN*A 1604… TN*G 1604… TN*M 1604…
	2020K-16	●	●	20	20	20	125		25							
	2525M-16	●	●	25	25	25	150		32							
PTGNR/L **2525M-22**		●	●					28			LT-H3	LH080200	LV4C	S-PTN22032	SP4N	TN*A 2204… TN*G 2204… TN*M 2204…

● : Standard stock ○ : Made-to-Order

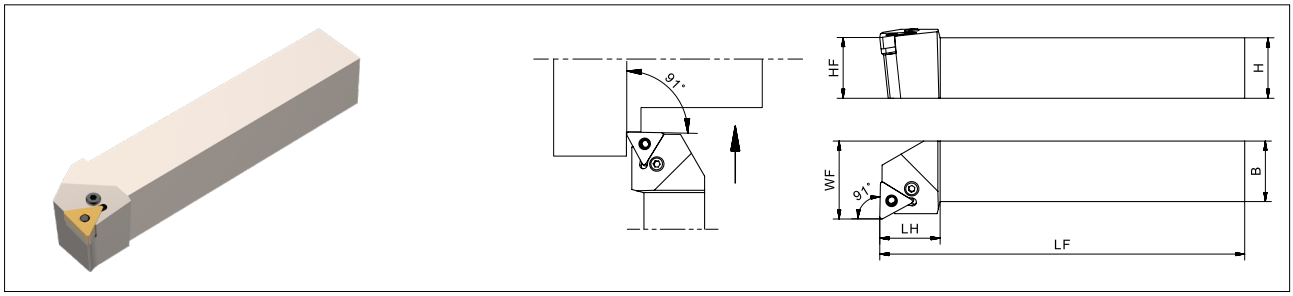
DTGN (External Turning)



Product code		Stock		Dimension						Insert corner radius (RE)	Spare parts						Insert
											Wrench	Clamp screw	Clamp	Spring	Shim screw	Shim	
		R	L	H	HF	B	LF	LH	WF								
DTGNR/L **2020K-16**		○	○	20	20	20	125	25	25	0.8	LT-H3	CH050215	CLD225075	YB0.20-2.50-12-5.5	SH050140X	S-DTN16032	TN*A 1604… TN*G 1604… TN*M 1604…
	2525M-16	○	○	25	25	25	150		32		LT-H2						

● : Standard stock ○ : Made-to-Order

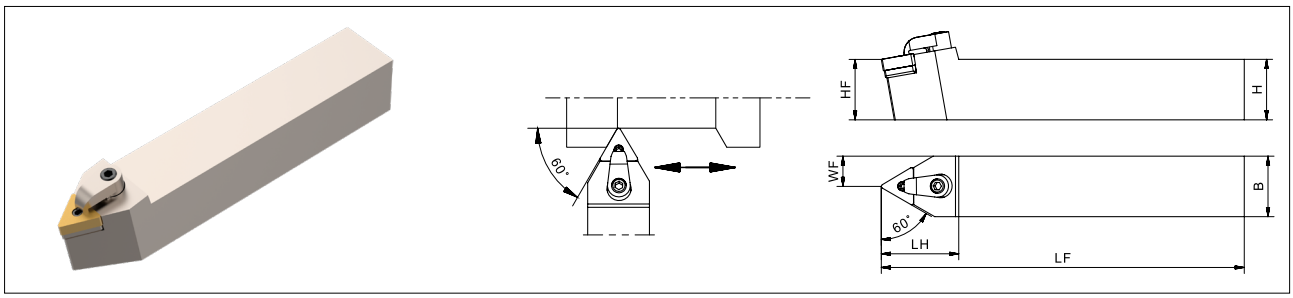
PTFN (Face Turning)



Product code		Stock		Dimension						Insert corner radius (RE)	Spare parts					Insert
		R	L	H	HF	B	LF	LH	WF		Wrench	Lever screw	Lever	Shim	Shim pin	
PTFN$^{R}/_{L}$	**2020K-16**	●	●	20	20	20	125	22	25	0.8	LT-H2.5	LH060170	LV3	S-PTN16027	SP3	TN*A 1604… TN*G 1604… TN*M 1604…
	2525M-16	●	●	25	25	25	150	25	32							

● : Standard stock ○ : Made-to-Order

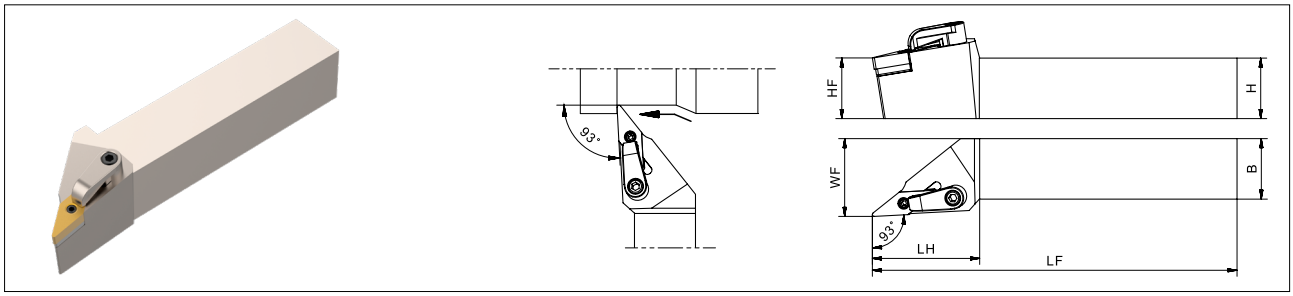
MTEN (External/Chamfer Turning)



Product code		Stock	Dimension						Insert corner radius (RE)	Spare parts					Insert
		N	H	HF	B	LF	LH	WF		Wrench	Clamp screw	Clamp	Lock pin	Shim	
MTENN	**2020K-16**	○	20	20	20	125	32	10	0.8	LT-H2/LT-H3	CD060255X	CLM198138	CS050140	S-MTN16032	TN*A 1604… TN*G 1604… TN*M 1604…
	2525M-16	○	25	25	25	150		12.5							

● : Standard stock ○ : Made-to-Order

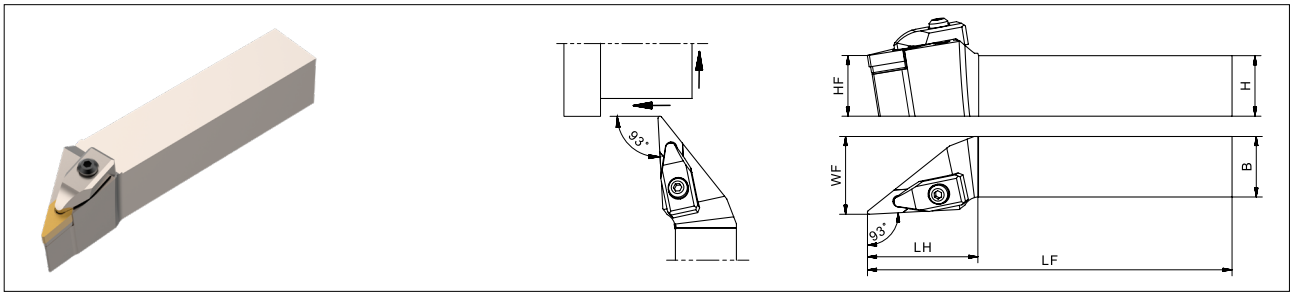
MVJN (External/Profile Turning)



Product code		Stock		Dimension						Insert corner radius (RE)	Spare parts					Insert
		R	L	H	HF	B	LF	LH	WF		Wrench	Clamp screw	Clamp	Lock pin	Shim	
MVJN$^{R}_{L}$	2020K-16	●	●	20	20	20	125	44	25	0.8	LT-H2/LT-H3	CD060255X	CLM240130	CS050140	S-MVN16032	VN*A 1604… VN*G 1604… VN*M 1604…
	2525M-16	●	●	25	25	25	150	44	32	0.8						

● : Standard stock ○ : Made-to-Order

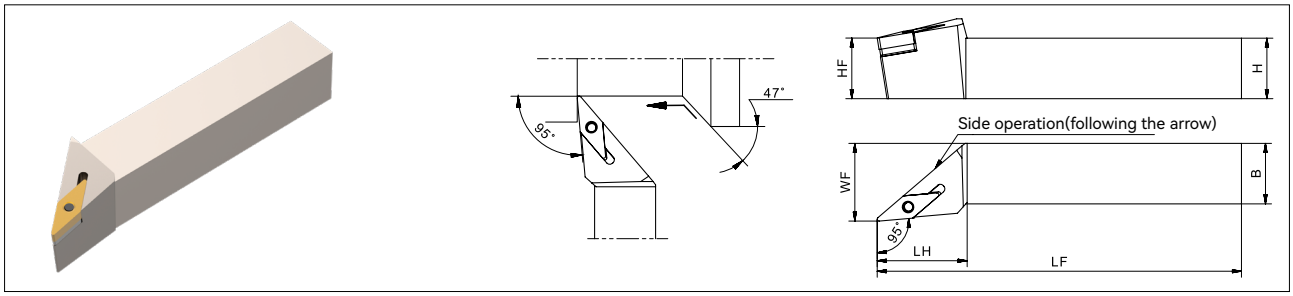
DVJN (Exteral/Profile Turning)



Product code		Stock		Dimension						Insert corner radius (RE)	Spare parts						Insert
		R	L	H	HF	B	LF	LH	WF		Wrench	Clamp screw	Clamp	Spring	Shim screw	Shim	
DVJN$^{R}_{L}$	2020K-16	○	○	20	20	20	125	46	25	0.8	LT-H3	CH050215	CLD296090	YB0.20-2.50-12-5.5	SH050080X	S-DVN16033	VN*A 1604… VN*G 1604… VN*M 1604…
	2525M-16	○	○	25	25	25	150		32								

● : Standard stock ○ : Made-to-Order

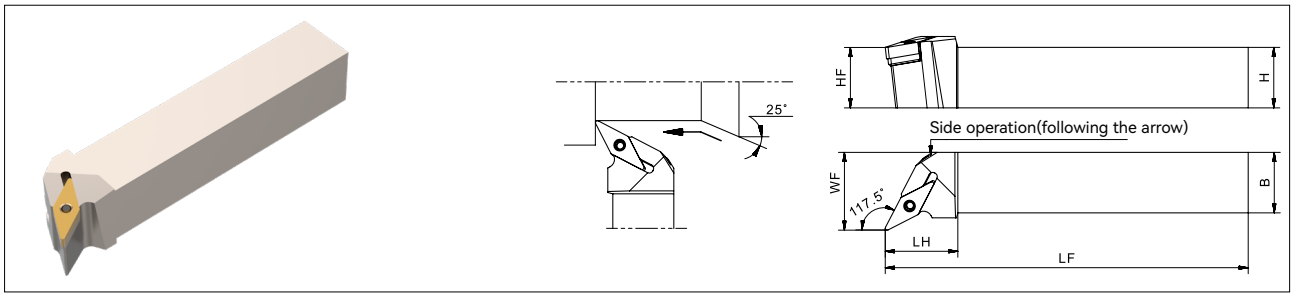
PVLN (External/Profile Turning)



Product code		Stock		Dimension						Insert corner radius (RE)	Spare parts				Insert
		R	L	H	HF	B	LF	LH	WF		Wrench	Lever screw	Lever	Shim	
PVLNR/L	**2020K-16**	○	○	20	20	20	125	37	25	0.8	LT-H3	AH060125	LC3	S-PVN16032	VN*A 1604… VN*G 1604… VN*M 1604…
	2525M-16	●	●	25	25	25	150		32						

● : Standard stock ○ : Made-to-Order

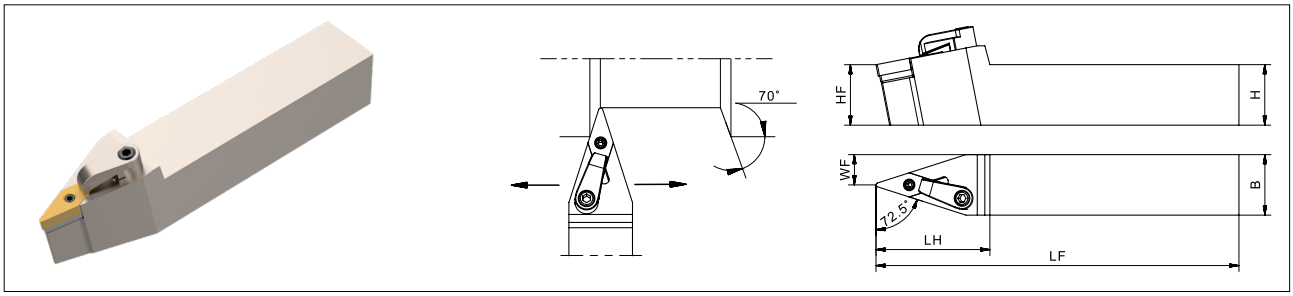
PVPN (External/Face/Profile/undercut Turning)



Product code		Stock		Dimension						Insert corner radius (RE)	Spare parts				Insert
		R	L	H	HF	B	LF	LH	WF		Wrench	Lever screw	Lever	Shim	
PVPNR/L	**2020K-16**	○	○	20	20	20	125	30	25	0.8	LT-H3	AH060125	LC3	S-PVN16032	VN*A 1604… VN*G 1604… VN*M 1604…
	2525M-16	●	○	25	25	25	150		32						

● : Standard stock ○ : Made-to-Order

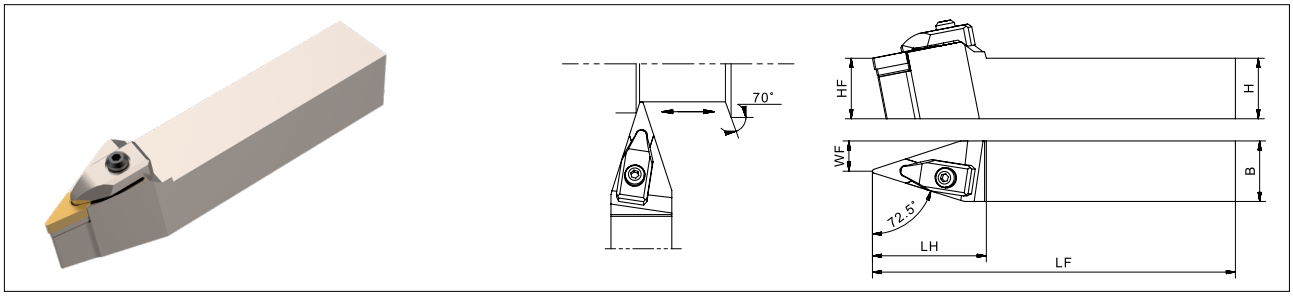
MVVN (External/Profile Turning)



Product code		Stock	Dimension						Insert corner radius (RE)	Spare parts					Insert
		N	H	HF	B	LF	LH	WF		Wrench	Clamp screw	Clamp	Lock pin	Shim	
MVVNN	2020K-16	●	20	20	20	125	47	10	0.8	LT-H2/LT-H3	CD060255X	CLM240130	CS050140	S-MVN16032	VN*A 1604… VN*G 1604… VN*M 1604…
	2525M-16	●	25	25	25	150	47	12.5	0.8						

● : Standard stock ○ : Made-to-Order

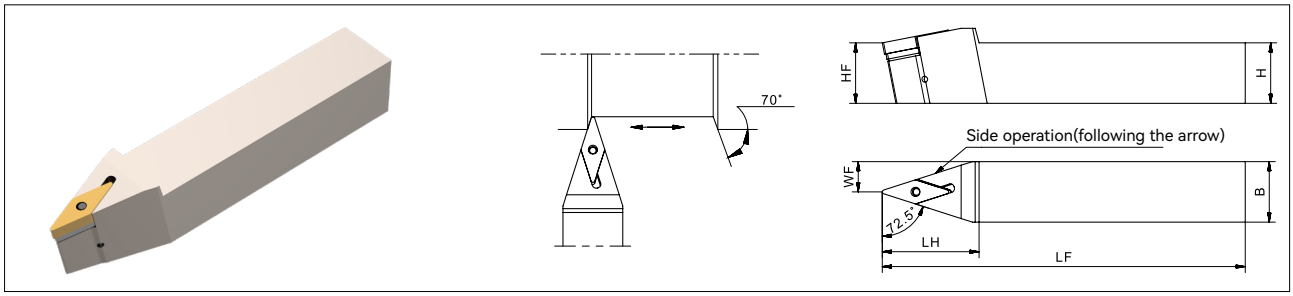
DVVN (External/Profile Turning)



Product code		Stock	Dimension						Insert corner radius (RE)	Spare parts						Insert
		N	H	HF	B	LF	LH	WF		Wrench	Clamp screw	Clamp	Spring	Shim screw	Shim	
DVVNN	2020K-16	○	20	20	20	125	47	10	0.8	LT-H3	CH050215	CLD296090	YB0.20-2.50-12-5.5	SH050080X	S-DVN16033	VN*A 1604… VN*G 1604… VN*M 1604…
	2525M-16	○	25	25	25	150		12.5								

● : Standard stock ○ : Made-to-Order

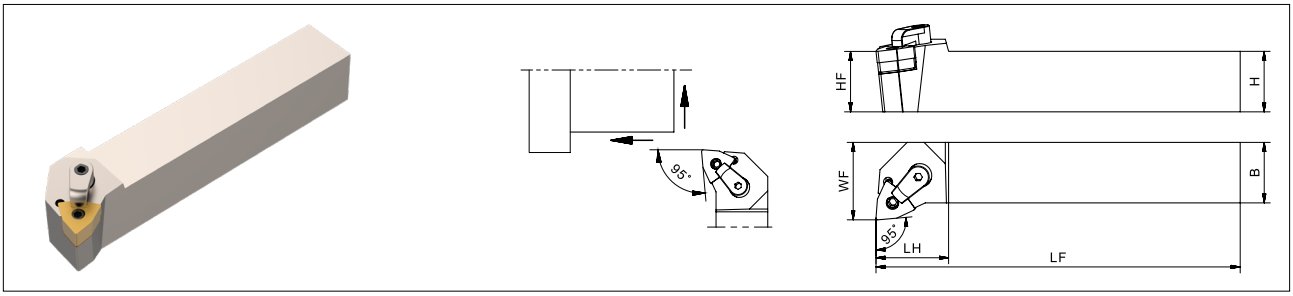
PVVN (External/Profile Turning)



Product code		Stock	Dimension						Insert corner radius (RE)	Spare parts				Insert
		N	H	HF	B	LF	LH	WF		Wrench	Lever screw	Lever	Shim	
PVVNN	**2020K-16**	○	20	20	20	125	35	10	0.8	LT-H3	AH060125	LC3	S-PVN16032	VN*A 1604… VN*G 1604… VN*M 1604…
	2525M-16	●	25	25	25	150	40	12.5						

● : Standard stock ○ : Made-to-Order

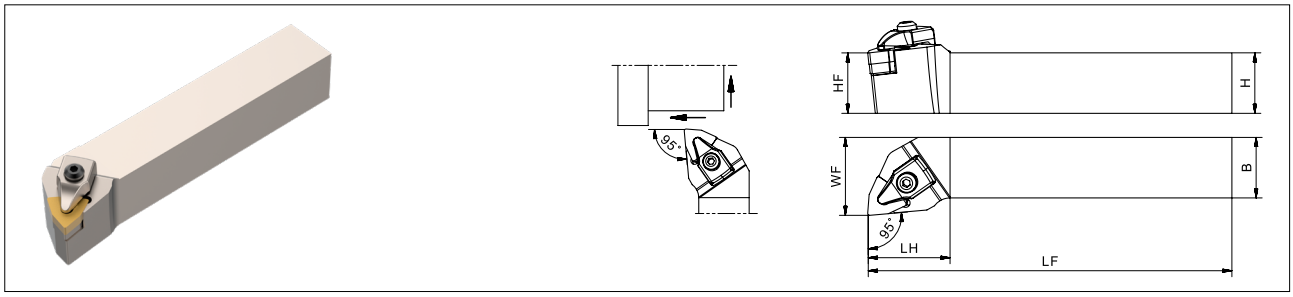
MWLN (External/Profile Turning)



Product code		Stock		Dimension						Insert corner radius (RE)	Spare parts					Insert
		R	L	H	HF	B	LF	LH	WF		Wrench	Clamp screw	Clamp	Lock pin	Shim	
MWLN$^{R}/_{L}$	**2020K-08**	●	●	20	20	20	125	34	25	0.8	LT-H3	CD060255X	CLM180130	CS060170	S-MWN08048	WN*A 0804… WN*G 0804… WN*M 0804…
	2525M-08	●	●	25	25	25	150	30	32							

● : Standard stock ○ : Made-to-Order

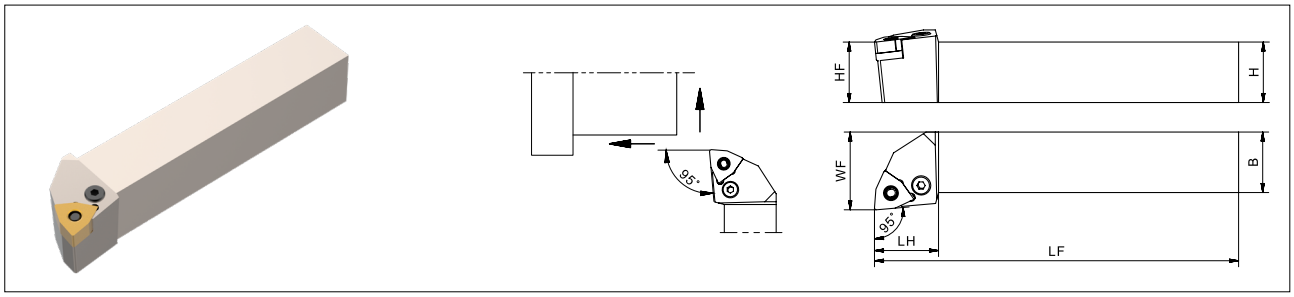
DWLN (External/Face Turning)



Product code		Stock		Dimension						Insert corner radius (RE)	Spare parts						Insert
		R	L	H	HF	B	LF	LH	WF		Wrench	Clamp screw	Clamp	Spring	Shim screw	Shim	
DWLNR/L	**2020K-08**	○	○	20	20	20	125	34	25	0.8	LT-H3	CH050215	CLD245088	YB0.20-2.50-12-5.5	SH060100X	S-DWN08048	WN*A 0804… WN*G 0804… WN*M 0804…
	2525M-08	○	○	25	25	25	150		32								

● : Standard stock ○ : Made-to-Order

PWLN (External/Face Turning)



Product code		Stock		Dimension						Insert corner radius (RE)	Spare parts					Insert
		R	L	H	HF	B	LF	LH	WF		Wrench	Lever screw	Lever	Shim	Shim pin	
PWLNR/L	**1616H-06**	○	○	16	16	16	100	22	20	0.8	LT-H2.5	LH060170	LV3	S-PWN06027	SP3	WN*G 0604…
	2020K-06	●	○	20	20	20	125		25							
	2525M-06	●	●	25	25	25	150		32							
PWLNR/L	**2020K-08**	●	●	20	20	20	125	26	25		LT-H3	LH080200	LV4C	S-PWN08032	SP4N	WN*A 0804… WN*G 0804… WN*M 0804…
	2525M-08	●	●	25	25	25	150		32							

● : Standard stock ○ : Made-to-Order

Internal Boring Bar Denomination System

A	20	R	-	S	C	L	C	R	09	-	22
1	2	3		4	5	6	7	8	9		Min. Boring Dia.

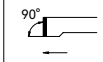
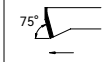
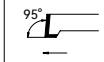
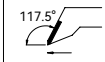
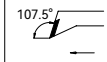
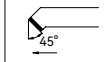
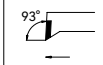
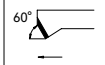
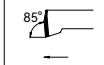
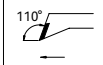
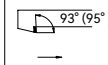
1-boring Bar Material	
S: Steel shank	A: Steel shank (with internal coolant)
C: Carbide shank	E: Carbide shank (with internal coolant)

2- Shank Diameter
20mm

3-boring Bar Length	
Q: 180	R: 200
S: 250	T: 300
U: 350	V: 400
W: 450	Y: 500

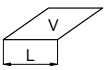
4-Clamping Type	
C: Top clamping	W: Wedge clamping
S: Screw clamping	P: Lever clamping
M: Multiple clamping	

5-Insert Shape	
C: 80° Rhombic	D: 55° Rhombic
R: Round	S: 90° Square
T: 60° Triangle	V: 35° Rhombic
W: Trigon	

6-Approaching Angle											
F		E		L		P		Q		S	
U		W		Y		X		Z			

7-Clearance Angle	
B: 5° positive angle	C: 7° positive angle
D: 15° positive angle	E: 20° positive angle
N: 0° Negative angle	P: 11° positive angle

8-Hand of Tool
R: Right hand
L: left hand
N: Neutral

9-Length of Cutting Edge		
		
		

S/A-SCLC Steel Boring Bar (Internal /Internal Face Boring)



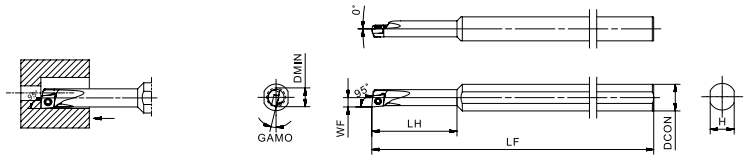


Illustration 1

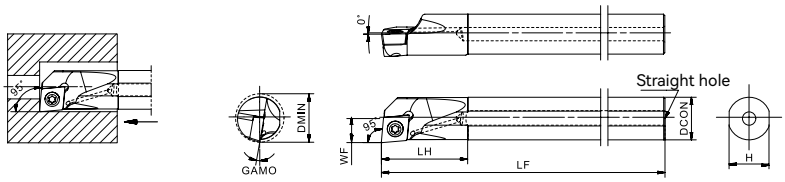


Illustration 2

Product code	Stock		Minimum boring hole diameter (mm)	Dimension						Insert corner radius (RE)	Internal coolant	Illustration	Spare parts		Insert
				DCON	H	LF	LH	WF	GAMO				Screw	Wrench	
	R	L	DMIN												
S10H-SCLCR/L03-05	○	○	5	10	9	100	24	2.5	15°	0.2	Without	1	SP016032	FT-TP05	CC*T 0301… CC*W 0301…
S10H-SCLCR/L03-06	○	○	6				28	3	13°						
S10H-SCLCR/L04-07	●	●	7				32	3.5	14°				SP020035	FT-TP06	CC*T 0401… CC*W 0401…
S10H-SCLCR/L04-08	○	○	8				37	4	11°						
A08H-SCLCR/L06-10	●	●	10	8	7	100	16	5	14°	0.4	With	2	SP025045	FT-TP08	CC*T 0602… CC*W 0602…
A10K-SCLCR/L06-12	●	●	12	10	9	125	22	6	12°						
A12M-SCLCR/L06-14	●	●	14	12	11	150	26	7	10°						
A16Q-SCLCR/L09-18	●	●	18	16	15	180	32.4	9					SP040065	FT-TP15	CC*T 09T3… CC*W 09T3…
A20R-SCLCR/L09-22	●	●	22	20	19	200	38.5	11	8°				SP040093X		
A25S-SCLCR/L09-27	○	○	27	25	24	250	46	13.5	6°						

● : Standard stock ○ : Made-to-Order

C/E-SCLC Carbide Boring Bar (Internal/Internal Face Boring)



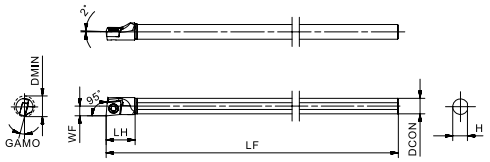


Illustration 1

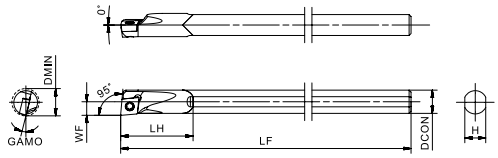


Illustration 2

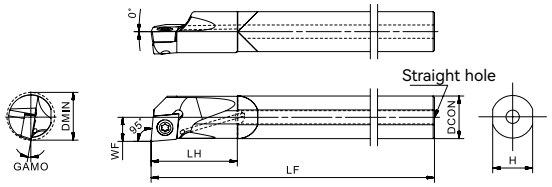
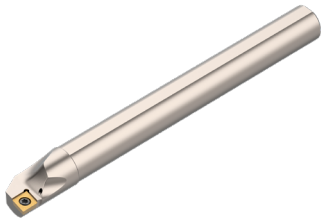


Illustration 3

Product code	Stock		Minimum boring hole diameter (mm)	Dimension						Insert corner radius (RE)	Internal coolant	Illustration	Spare parts		Insert
				DCON	H	LF	LH	WF	GAMO				Screw	Wrench	
	R	L	DMIN												
C04F-SCLCR/L03-05	○	○	5	4	3.8	80	7	2.5	15°	0.2	Without	1	SP016032	FT-TP05	CC*T 0301… CC*W 0301…
C05G-SCLCR/L03-06	○	○	6	5	4.4	90	9	3	13°			2	SP020035	FT-TP06	CC*T 0401… CC*W 0401…
C06H-SCLCR/L04-07	●	●	7	6	5.4	100	14	3.5	14°						
C07J-SCLCR/L04-08	○	○	8	7	6.4	110	11	4	11°						
E08K-SCLCR/L06-10	○	○	10	8	7	125	14	5	14°	0.4	With	3	SP025045	FT-TP08	CC*T 0602… CC*W 0602…
E10M-SCLCR/L06-12	○	○	12	10	9	150	18	6	12°						
E12M-SCLCR/L06-14	●	●	14	12	11	150	27	7	10°						
E16Q-SCLCR/L09-18	●	●	18	16	15	180	32.4	9	10°				SP040065	FT-TP15	CC*T 09T3… CC*W 09T3…
E20R-SCLCR/L09-22	○	○	22	20	19	200	32	11	8°				SP040093X		
E25S-SCLCR/L09-27	○	○	27	25	24	250	38	13.5	6°						

● : Standard stock ○ : Made-to-Order

A-SCLP Steel Boring Bar(Internal/Internal Face Boring)



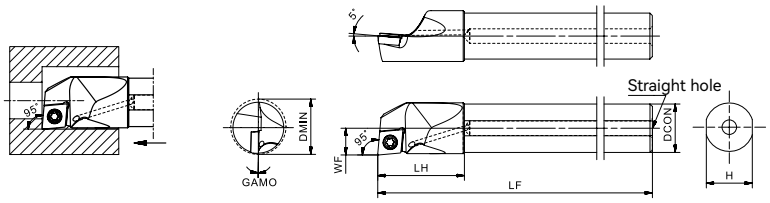
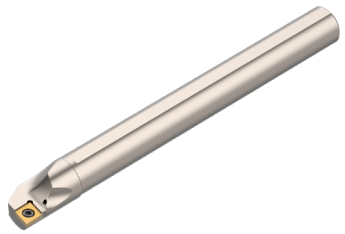


Illustration 1

Product code	Stock		Minimum boring hole diameter (mm)	Dimension						Insert corner radius (RE)	Internal coolant	Illustration	Spare parts		Insert
				DCON	H	LF	LH	WF	GAMO				Screw	Wrench	
	R	L	DMIN												
A10K-SCLPR/L08-12	○	○	12	10	9	125	20	6	5°	0.4	With	1	SP030065	FT-TP08	CP*T 0802…
A12M-SCLPR/L08-14	○	○	14	12	11	150	24	7	4°						
A16Q-SCLPR/L09-18	○	○	18	16	15	180	30	9	3.5°				SP040065	FT-TP15	CP*T 0903…
A20R-SCLPR/L09-22	○	○	22	20	19	200	36	11	2°				SP040093X		
A25S-SCLPR/L09-27	○	○	27	25	24	250	46	13.5	0°						

● : Standard stock ○ : Made-to-Order

E-SCLP Carbide Boring Bar (Internal/Internal Face Boring)



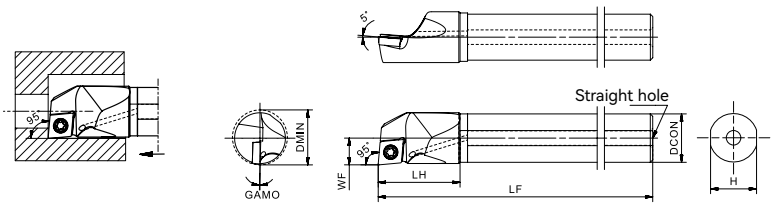


Illustration 1

Product code	Stock		Minimum boring hole diameter (mm)	Dimension						Insert corner radius (RE)	Internal coolant	Illustration	Spare parts		Insert
				DCON	H	LF	LH	WF	GAMO				Screw	Wrench	
	R	L	DMIN												
E10M-SCLPR/L08-12	○	○	12	10	9	150	18	6	5°	0.4	With	1	SP030065	FT-TP08	CP*T 0802…
E12M-SCLPR/L08-14	○	○	14	12	11	150	23	7	4°						
E16Q-SCLPR/L09-18	○	○	18	16	15	180	28	9	3.5°				SP040065	FT-TP15	CP*T 0903…
E20R-SCLPR/L09-22	○	○	22	20	19	200	32	11	2°				SP040093X		
E25S-SCLPR/L09-27	○	○	27	25	24	250	38	13.5	0°						

● : Standard stock ○ : Made-to-Order

A-SDUC Steel Boring Bar (Internal/Internal Profile Boring)



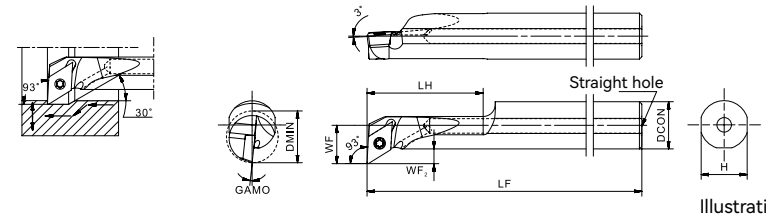


Illustration 1

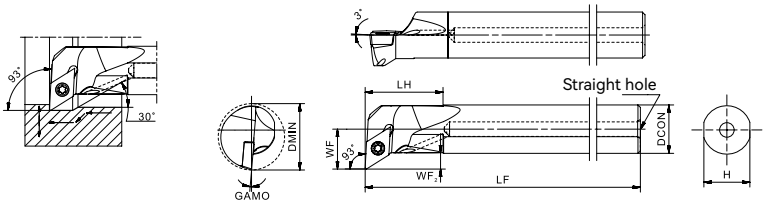


Illustration 2

Product code	Stock		Minimum boring hole diameter (mm)	Dimension							Insert corner radius (RE)	Internal coolant	Illustration	Spare parts		Insert
				DCON	H	LF	LH	WF	WF2	GAMO				Screw	Wrench	
	R	L	DMIN													
A10K-SDUCR/L07-14	○	○	14	10	9	125	19	8.7	3.3	5°	0.4	With	2	SP025064	FT-TP08	DC*T 0702… DC*W 0702…
A16Q-SDUCR/L07-14	○	○		16	15	180	28	10.8	4.4				1			
A12M-SDUCR/L07-16	○	○	16	12	11	150	21	9.7	3.3				2			
A16Q-SDUCR/L07-20	●	●	20	16	15	180	27	11.3	3.5							
A20R-SDUCR/L11-20	●	●		20	19	200	53	15.6	6.1				1	SP040065	FT-TP15	DC*T 11T3… DC*W11T3…
A16Q-SDUCR/L11-23	●	●	23	16	15	180	25.8	14.5	6.5				2			
A20R-SDUCR/L11-27	●	●	27	20	19	200	32.2	16.5						SP040093X		
A25S-SDUCR/L11-32	●	●	32	25	24	250	36.9	19								

● : Standard stock ○ : Made-to-Order

E-SDUC Carbide Boring Bar (Internal/Internal Profile Boring)

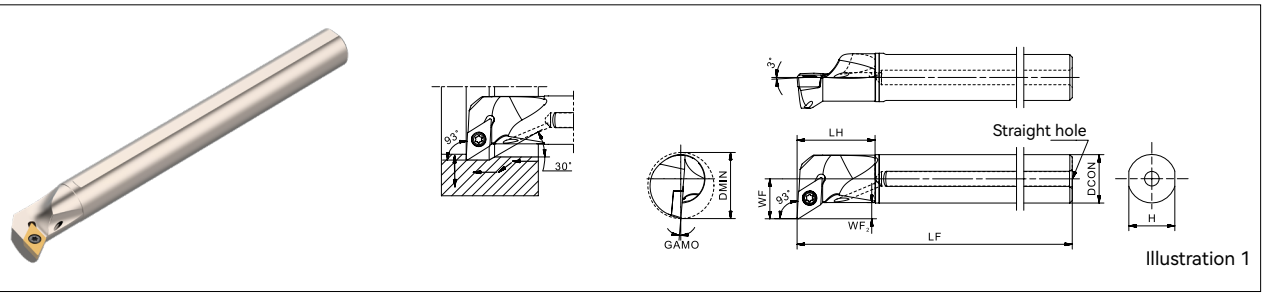


Illustration 1

Product code	Stock		Minimum boring hole diameter (mm)	Dimension							Insert corner radius (RE)	Internal coolant	Illustration	Spare parts		Insert
				DCON	H	LF	LH	WF	WF2	GAMO				Screw	Wrench	
	R	L	DMIN													
E10M-SDUCR/L07-14	○	○	14	10	9	150	20	8.7	3.3	5°	0.4	With	1	SP025064	FT-TP08	DC*T 0702… DC*W 0702…
E12M-SDUCR/L07-16	○	○	16	12	11	150	23	9.7								
E16Q-SDUCR/L07-20	○	○	20	16	15	180	28	11.7								
E16Q-SDUCR/L11-23	●	●	23	16	15	180	25.8	14.5	6.5					SP040065	FT-TP15	DC*T 11T3… DC*W11T3…
E20R-SDUCR/L11-27	●	●	27	20	19	200	32	16.5						SP040093X		
E25S-SDUCR/L11-32	○	○	32	25	24	250	38	19								

● : Standard stock ○ : Made-to-Order

A-SDQC Steel Boring Bar (Internal/Internal Profile Boring)

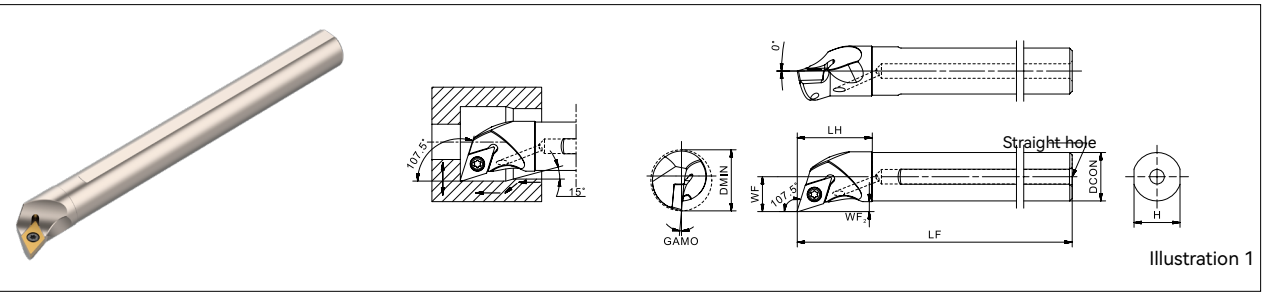
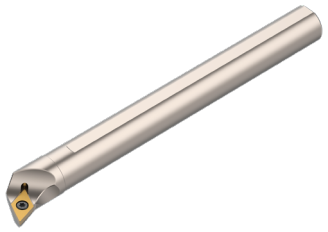


Illustration 1

Product code	Stock		Minimum boring hole diameter (mm)	Dimension							Insert corner radius (RE)	Internal coolant	Illustration	Spare parts		Insert
				DCON	H	LF	LH	WF	WF2	GAMO				Screw	Wrench	
	R	L	DMIN													
A10K-SDQCR/L07-13	○	○	13	10	9	125	19	7.5	2.1	10°	0.4	With	1	SP025064	FT-TP08	DC*T 0702… DC*W 0702…
A12M-SDQCR/L07-16	○	○	16	12	11	150	22	9.25	2.6	8°						
A16Q-SDQCR/L07-20	○	○	20	16	15	180	25	11.3		6°						
A20R-SDQCR/L11-25	●	●	25	20	19	200	31	14.4	3.7	5°				SP040065	FT-TP15	DC*T 11T3… DC*W11T3…
A25S-SDQCR/L11-30	○	○	30	25	24	250	38	16.9		4°				SP040093X		

● : Standard stock ○ : Made-to-Order

E-SDQC Carbide Boring Bar (Internal/Internal Profile Boring)



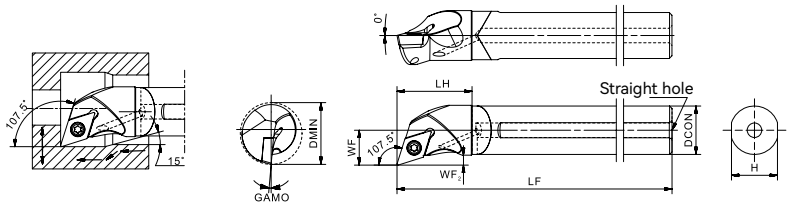
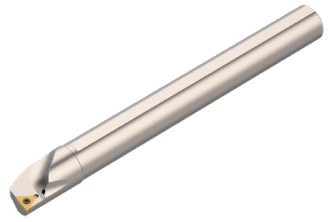


Illustration 1

Product code	Stock		Minimum boring hole diameter (mm)	Dimension							Insert corner radius (RE)	Internal coolant	Illustration	Spare parts		Insert
				DCON	H	LF	LH	WF	WF2	GAMO				Screw	Wrench	
	R	L	DMIN													
E10M-SDQCR/L07-13	○	○	13	10	9	150	20	7.5	2.1	10°	0.4	With	1	SP025064	FT-TP08	DC*T 0702… DC*W 0702…
E12M-SDQCR/L07-16	○	○	16	12	11	150	23	9.25	2.6	8°						
E16Q-SDQCR/L07-20	○	○	20	16	15	180	28	11.3		6°						
E20R-SDQCR/L11-25	●	●	25	20	19	200	31	14.4	3.7	5°				SP040065	FT-TP15	DC*T 11T3… DC*W11T3…
E25S-SDQCR/L11-30	○	○	30	25	24	250	38	16.9		4°				SP040093X		

● : Standard stock ○ : Made-to-Order

A-STLC Steel Boring Bar (Internal/Internal Face Boring)



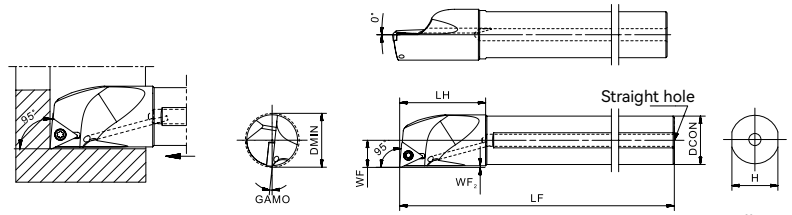
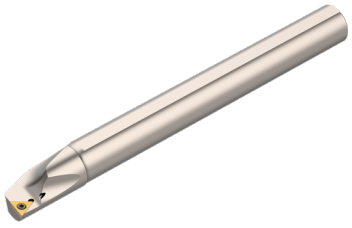


Illustration 1

Product code	Stock		Minimum boring hole diameter (mm)	Dimension							Insert corner radius (RE)	Internal coolant	Illustration	Spare parts		Insert
				DCON	H	LF	LH	WF	WF2	GAMO				Screw	Wrench	
	R	L	DMIN													
A08H-STLCR/L09-10	○	○	10	8	7	100	16	5	0.5	14°	0.4	With	1	SP022052	FT-TP07	TC*T 0902…
A10K-STLCR/L09-12	○	○	12	10	9	125	20	6.2	0.9	12°						
A10K-STLCR/L11-12	●	●					18.6							SP025064	FT-TP08	TC*T 1102… TC*W 1102…
A12M-STLCR/L11-14	●	○	14	12	11	150	24	7.2	0.7	10°						
A16Q-STLCR/L11-18	○	○	18	16	15	180	30	9.2		8°						
A20R-STLCR/L11-22	●	●	22	20	19	200	36	11.2		6°						
A16Q-STLCR/L16-18	○	○	18	16	15	180	32	9.2		8°				SP040065	FT-TP15	TC*T 16T3… TC*W 16T3…
A20Q-STLCR/L16-22	○	○	22	20	18			11.2		6°						
A25R-STLCR/L16-27	○	○	27	25	23	200	46	13.7		4°				SP040093X		

● : Standard stock ○ : Made-to-Order

A-STLP Steel Boring Bar (Internal/Internal Face Boring)



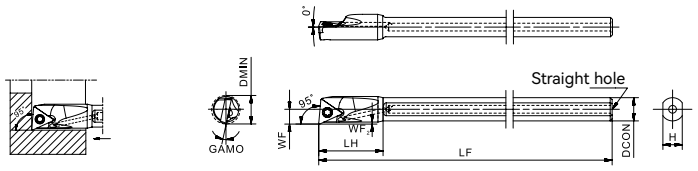


Illustration 1

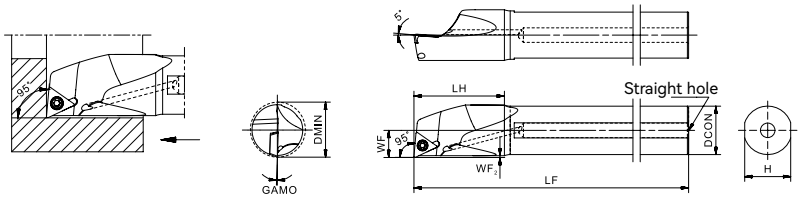
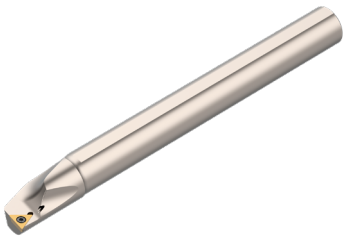


Illustration 2

Product code	Stock		Minimum boring hole diameter (mm)	Dimension							Insert corner radius (RE)	Internal coolant	Illustration	Spare parts		Insert
				DCON	H	LF	LH	WF	WF2	GAMO				Screw	Wrench	
	R	L	DMIN													
A06F-STLBR/L06-08	●	●	8	6	5	80	15.3	3.8	0.5	12°	0.2	With	1	SP020035	FT-TP06	TB*T 0601…
A08H-STLPR/L08-10	○	○	10	8	7	100	16	5		10°	0.4		2	SP022052	FT-TP07	TP*H 0802…
A08H-STLPR/L09-10	○	○												SP025045	FT-TP08	TP*T 0902… TP*H 0902…
A08H-STLPR/L09-10 (M2.2)	○	○												SP022052	FT-TP07	
A10K-STLPR/L09-12	●	●	12	10	9	125	25.7	6.2	0.9	8°	0.2			SP025045	FT-TP08	
A10K-STLPR/L09-12 (M2.2)	●	○					20				0.4			SP022052	FT-TP07	
A10K-STLPR/L11-12	○	○						6	0.7	10°				SP030065	FT-TP08	TP*T 1103… TP*H 1103…
A12M-STLPR/L11-14	○	○	14	12	11	150	24	7.2	0.8	7°						
A12M-STLPR/L09-16	○	○	16					8	0.6	5°				SP025045	FT-TP08	TP*T 0902… TP*H 0902…
A12M-STLPR/L09-16 (M2.2)	○	○												SP022052	FT-TP07	
A16Q-STLPR/L11-18	●	●	18	16	15	180	30	9.2	0.7	3.5°				SP030065	FT-TP08	TP*T 1103… TP*H 1103…
A20R-STLPR/L11-22	●	○	22	20	19	200	37.4	11.2		2°						
A25S-STLPR/L16-27	○	○	27	25	24	250	46	13.7		0°				SP040065	FT-TP15	TP*T 1603…

● : Standard stock ○ : Made-to-Order

E-STLP Carbide Boring Bar (Internal/Internal Face Boring)



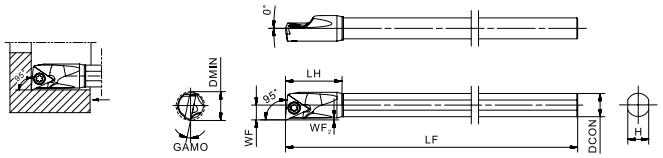


Illustration 1

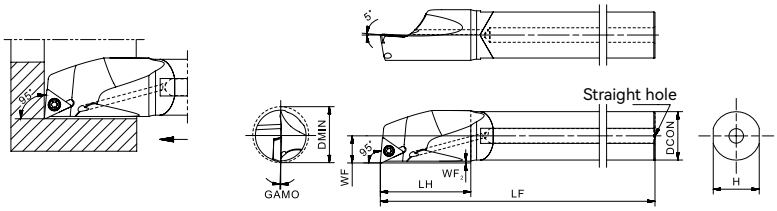
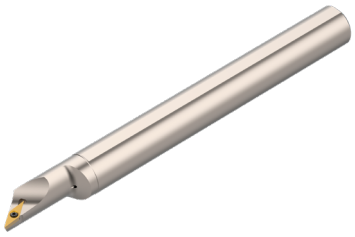


Illustration 2

Product code	Stock		Minimum boring hole diameter (mm)	Dimension							Insert corner radius (RE)	Internal coolant	Illustration	Spare parts		Insert
				DCON	H	LF	LH	WF	WF2	GAMO				Screw	Wrench	
	R	L	DMIN													
C06F-STLBR/L06-08	○	○	8	6	5.4	80	10	3.8	0.5	12°	0.2	Without	1	SP020035	FT-TP06	TB*T 0601…
E08K-STLPR/L08-10	○	○	10	8	7	125	14	5	0.5	10°	0.4	With	2	SP022052	FT-TP07	TP*H 0802…
E08K-STLPR/L09-10	○	○												SP025045	FT-TP08	TP*T 0902… TP*H 0902…
E08H-STLPR/L09-10（M2.2）	○	○				100								SP022052	FT-TP07	
E10M-STLPR/L09-12	○	○	12	10	9	150	18	6.2	0.9	8°				SP025045	FT-TP08	
E10K-STLPR/L09-12（M2.2）	○	○				125								SP022052	FT-TP07	
E10M-STLPR/L11-12	○	○				150		6	0.7	10°				SP030065	FT-TP08	TP*T 1103… TP*H 1103…
E12M-STLPR/L11-14	○	○	14	12	11		23	7.2	0.8	7°						
E12M-STLPR/L09-16	○	○	16					8	0.6	5°				SP025045		TP*T 0902… TP*H 0902…
E12M-STLPR/L09-16（M2.2）	○	○												SP022052	FT-TP07	
E16Q-STLPR/L11-18	●	●	18	16	15	180	30	9.2	0.7	3.5°				SP030065	FT-TP08	TP*T 1103… TP*H 1103…
E20R-STLPR/L11-22	●	○	22	20	19	200	37.5	11.2		2°						
E20R-STLPR/L16-25	○	○	25				32	13		0°				SP040065	FT-TP15	TP*T 1603…
E25S-STLPR/L16-27	○	○	27	25	24	250	38	13.7								

● : Standard stock ○ : Made-to-Order

A-SVJC/B Steel Boring Bar (Internal Face/Internal Profile Boring)



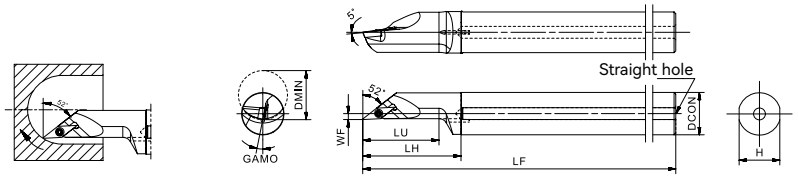


Illustration 1

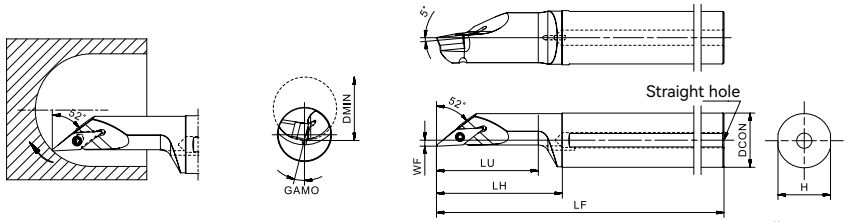
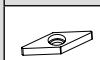
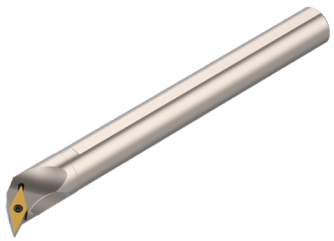


Illustration 2

Product code	Stock		Minimum boring hole diameter (mm)	Dimension							Insert corner radius (RE)	Internal coolant	Illustration	Spare parts					Insert
				DCON	H	LF	LU	LH	WF	GAMO				Shim	Shim screw	Wrench (Shim screw)	Screw	Wrench	
	R	L	DMIN																
A12M-SVJPR/L08-16	○	○	16	12	11	150	26	33	2	5°	0.2	With	1	-	-	-	SP020050	FT-TP06	VP*T 0802…
A12M-SVJCR/L08-16	○	○									0.4			-	-	-			VC*T 0802…
A16Q-SVJCR/L08-20	○	○	20	16	15	180	36	43	2					-	-	-			
A20R-SVJBR/L11-25	○	○	25	20	19	200	37.5	48	2					-	-	-	SP025064	FT-TP08	VB*T 1103…
A25S-SVJBR/L11-30	●	●	30	25	24	250	45	58	3.5					-	-	-			
A32S-SVJBR/L16-40	○	○	40	32	31		60	74		8°			2	S-SVN16032	SH050084X	LT-H3.5	SP035120	FT-TP15	VB*T 1604…
A40T-SVJBR/L16-50	○	○	50	40	39	300	75	91	4.5	7°									

● : Standard stock ○ : Made-to-Order

A-SVPP/B Steel Boring Bar (Internal Profile/Internal Undercut Boring)



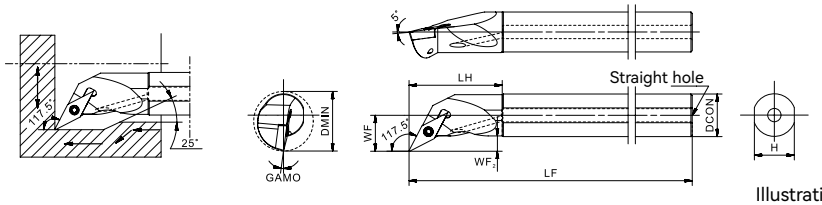


Illustration 1

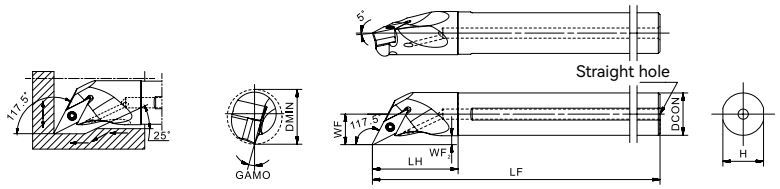
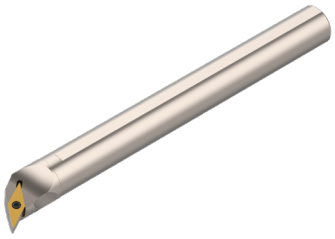


Illustration 2

Product code	Stock		Minimum boring hole diameter (mm)	Dimension							Insert corner radius (RE)	Internal coolant	Illustration	Spare parts					Insert
	R	L	DMIN	DCON	H	LF	LH	WF	WF2	GAMO				Shim	Shim screw	Wrench (Shim screw)	Screw	Wrench	
A10K-SVPPR/L08-14	○	○	14	10	9	125	24	8.5	3	8°	0.4	With	1	-	-	-	SP020050	FT-TP06	VP*T 0802...
A12M-SVPBR/L11-18	○	○	18	12	11	150	29	11	4.5					-	-	-	SP025064	FT-TP08	VB*T 1103...
A16Q-SVPBR/L11-22	●	●	22	16	15	180	35	13.5	5.5	5°				-	-	-			
A20R-SVPBR/L11-26	○	○	26	20	19	200	41	15.5	5					-	-	-			
A25S-SVPBR/L16-31	○	○	31	25	24	250	51	18	5	13°			2	S-SVN16032	SH050084X	LT-H3.5	SP035120	FT-TP15	VB*T 1604...
A32S-SVPBR/L16-40	○	○	40	32	31		54	23	6.5	9°									

● : Standard stock ○ : Made-to-Order

E-SVPP/B Carbide Boring Bar (Internal Profile/Internal Undercut Boring)



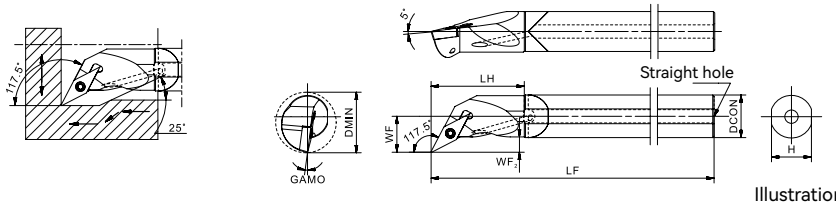


Illustration 1

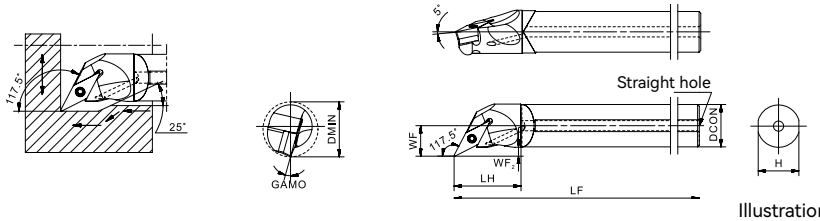


Illustration 2

Product code	Stock		Minimum boring hole diameter (mm)	Dimension							Insert corner radius (RE)	Internal coolant	Illustration	Spare parts					Insert
	R	L	DMIN	DCON	H	LF	LH	WF	WF2	GAMO				Shim	Shim screw	Wrench (Shim screw)	Screw	Wrench	
E10M-SVPPR/L08-14	○	○	14	10	9	150	21.5	8.5	3	8°	0.4	With	1	-	-	-	SP020050	FT-TP06	VP*T 0802...
E12M-SVPBR/L11-18	○	○	18	12	11		23	11	4.5					-	-	-	SP025064	FT-TP08	VB*T 1103...
E16Q-SVPBR/L11-22	●	●	22	16	15	180	35	13.5	5.5	5°				-	-	-			
E20R-SVPBR/L11-26	○	○	26	20	19	200	32	15.5	5					-	-	-			
E25S-SVPBR/L16-31	○	○	31	25	24	250	38	18	5	13°			2	S-SVN16032	SH050084X	LT-H3.5	SP035120	FT-TP15	VB*T 1604...

● : Standard stock ○ : Made-to-Order

A-SVIP/B Steel Boring Bar (Internal Profile Boring)



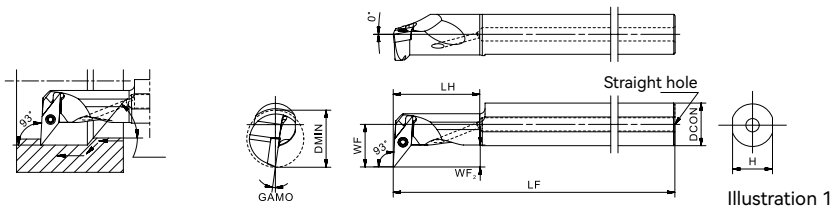


Illustration 1

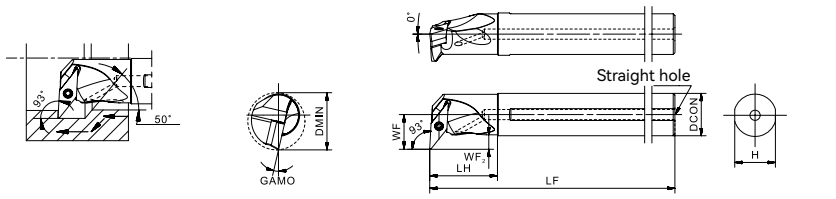
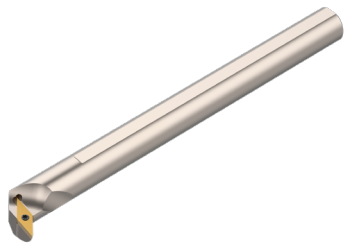


Illustration 2

Product code	Stock		Minimum boring hole diameter (mm)	Dimension							Insert corner radius (RE)	Internal coolant	Illustration	Spare parts					Insert
	R	L	DMIN	DCON	H	LF	LH	WF	WF2	GAMO				Shim	Shim screw	Wrench (Shim screw)	Screw	Wrench	
A12M-SVUPR/L08-16	○	○	16	12	11	150	25.5	11.5	5.5	8°	0.4	With	1	-	-	-	SP020050	FT-TP06	VP*T 0802...
A16Q-SVUBR/L11-20	●	●	20	16	15	180	32.5	16	8					-	-	-	SP025064	FT-TP08	VB*T 1103...
A20R-SVUBR/L11-25	●	●	25	20	19	200	40.5	18		7°				-	-	-			
A25S-SVUBR/L16-34	●	○	34	25	24	250	40	20.5	8.5	13°			2	S-SVN16032	SH050084X	LT-H3.5	SP035120	FT-TP15	VB*T 1604...
A32S-SVUBR/L16-40	○	○	40	32	31	250	84	28	12	9°									

● : Standard stock ○ : Made-to-Order

E-SVUP/B Carbide Boring Bar (Internal Profile Boring)



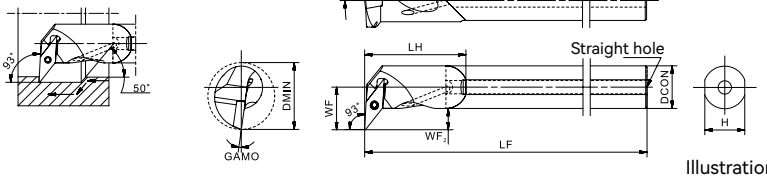


Illustration 1

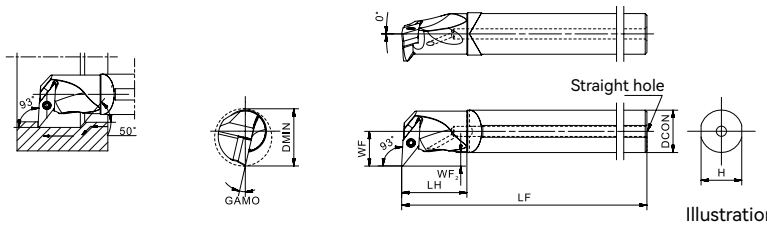
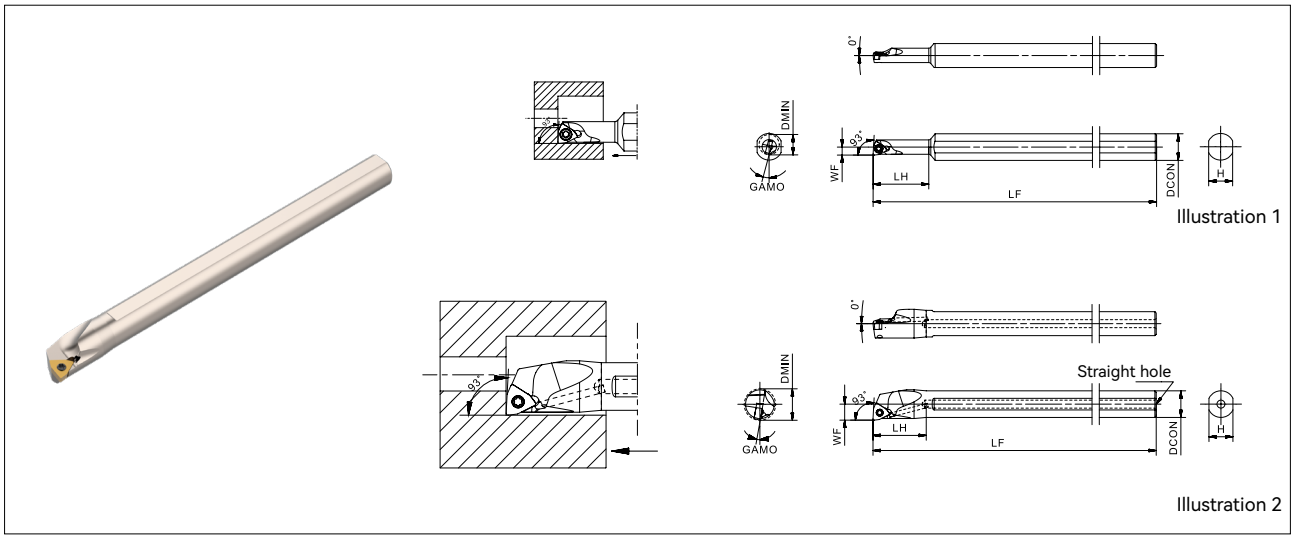


Illustration 2

Product code	Stock		Minimum boring hole diameter (mm)	Dimension							Insert corner radius (RE)	Internal coolant	Illustration	Spare parts					Insert
	R	L	DMIN	DCON	H	LF	LH	WF	WF2	GAMO				Shim	Shim screw	Wrench (Shim screw)	Screw	Wrench	
E12M-SVUPR/L08-18	○	○	18	12	11	150	23	11.5	5.5	8°	0.4	With	1	-	-	-	SP020050	FT-TP06	VP*T 0802...
E16Q-SVUBR/L11-25	●	●	25	16	15	180	28	16	8	8°				-	-	-	SP025064	FT-TP08	VB*T 1103...
E20R-SVUBR/L11-29	○	○	29	20	19	200	32	18		7°				-	-	-			
E25S-SVUBR/L16-34	●	○	34	25	24	250	38	20.5	8.5	13°			2	S-SVN16032	SH050084X	LT-H3.5	SP035120	FT-TP15	VB*T 1604...

● : Standard stock ○ : Made-to-Order

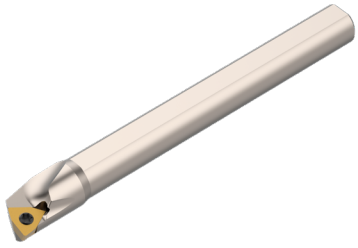
A-SWUB Steel Boring Bar (Internal Boring)



Product code	Stock		Minimum boring hole diameter (mm)	Dimension						Insert corner radius (RE)	Internal coolant	Illustration	Screw	Wrench	Insert
	R	L	DMIN	DCON	H	LF	LH	WF	GAMO						
S10H-SWUBR/L06-06	●	●	6	10	9	100	21	3	15°	0.4	Without	1	SP020035	FT-TP06	WB*T 0601...
S10H-SWUBR/L06-07	○	○	7				25	3.5	13°	0.2					
S10H-SWUBR/L08-08	○	○	8				28	4	15°						WB*T 0802...
A08H-SWUBR/L08-10	○	○	10	8	7		16	5	13°		With	2	SP020050		
A10K-SWUBR/L-08-12	●	●	12	10	9	125	20	6	10°	0.4					

● : Standard stock ○ : Made-to-Order

E-SWUB Carbide Boring Bar (Internal Boring)



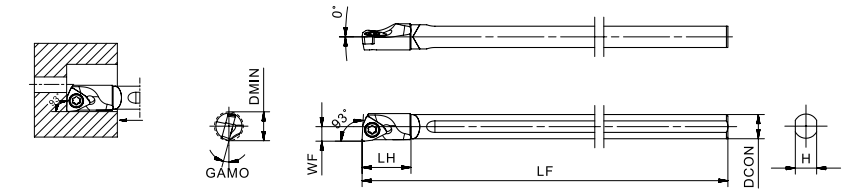


Illustration 1

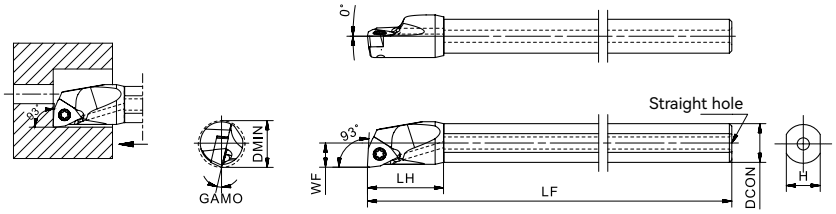
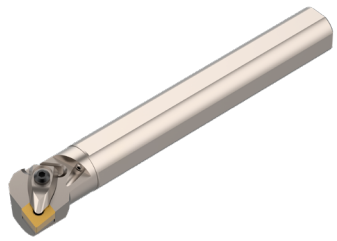


Illustration 2

Product code	Stock		Minimum boring hole diameter (mm)	Dimension						Insert corner radius (RE)	Internal coolant	Illustration	Screw	Wrench	Insert
	R	L	DMIN	DCON	H	LF	LH	WF	GAMO						
C05G-SWUBR/L06-06	●	●	6	5	4.4	90	10	3	15°	0.4	Without	1	SP020035	FT-TP06	WB*T 0601…
C06H-SWUBR/L06-07	○	○	7	6	5.4	100		3.5	13°	0.2					
C07J-SWUBR/L08-08	○	○	8	7	6.4	110	11	4	15°						WB*T 0802…
E08K-SWUBR/L08-10	●	●	10	8	7	125	14	5	13°	0.4	With	2	SP020050		
E10M-SWUBR/L08-12	●	●	12	10	9	150	20	6	10°						

● : Standard stock ○ : Made-to-Order

A-DCLN Steel Boring Bar(Internal/Internal Face Boring)



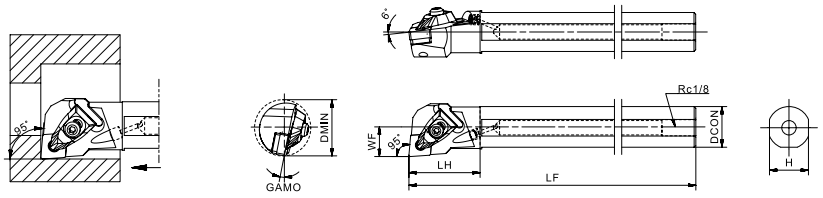
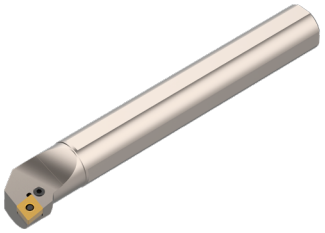


Illustration 1

Product code	Stock		Minimum boring hole diameter (mm)	Dimension						Insert corner radius (RE)	Internal coolant	Illustration	Spare parts							Insert
	R	L	DMIN	DCON	H	LF	LH	WF	GAMO				Wrench	Lever screw	Clamp	Spring	Shim	Shim screw	Nozzle	
A25R-DCLNR/L12-32	●	●	32	25	23	200	42	17	11°	0.8	With	1	LT-H3	CH 050215	CLD 255090	YB0.20-2.50-12-5.5	S-DCN 12032	SH 060080X	NZ 060020	CN*A 1204… CN*G 1204… CN*M 1204…
A32S-DCLNR/L12-40	●	●	40	32	30	250	50	22												
A40T-DCLNR/L12-50	○	○	50	40	37	300	60	27	14°											

● : Standard stock ○ : Made-to-Order

S-PCLN Steel Boring Bar(Internal/Internal Face Boring)



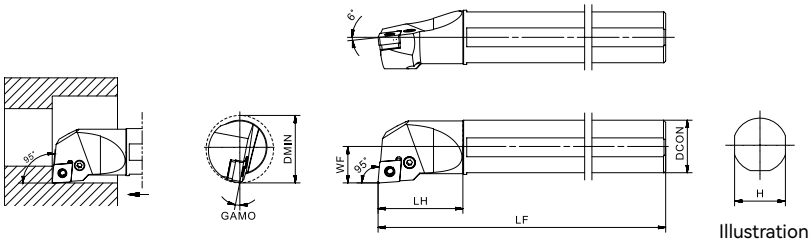


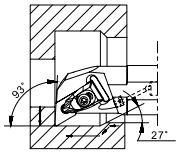
Illustration 1

Product code	Stock		Minimum boring hole diameter (mm)	Dimension						Insert corner radius (RE)	Internal coolant	Illustration	Spare parts					Insert
	R	L	DMIN	DCON	H	LF	LH	WF	GAMO				Wrench	Lever screw	Lever	Shim	Shim pin	
S25R-PCLNR/L12-32	○	○	32	25	24	200	42	16.3	16°	0.8	Without	1	LT-H3	LH080200	LV4C	S-PCN12032	SP4N	CN*A 1204… CN*G 1204… CN*M 1204…
S32S-PCLNR/L12-40	●	●	40	32	30	250	50	21	10°									
S40T-PCLNR/L12-50	○	○	50	40	37	300	60	25										

● : Standard stock ○ : Made-to-Order

A-DDUN Steel Boring Bar(Internal/Internal Profile Boring)





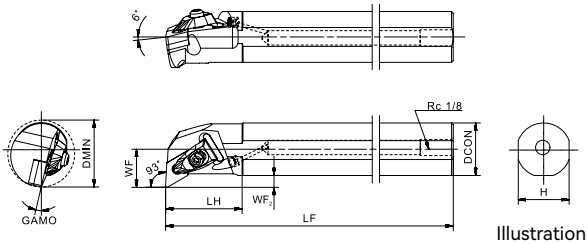
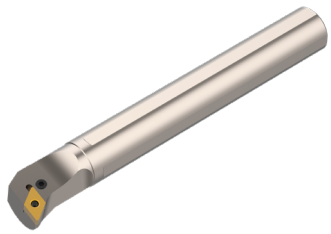


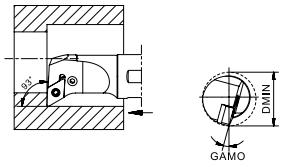
Illustration 1

Product code	Stock		Minimum boring hole diameter (mm)	Dimension							Insert corner radius (RE)	Internal coolant	Illustration	Spare parts							Insert
	R	L	DMIN	DCON	H	LF	LH	WF	WF2	GAMO				Wrench	Lever screw	Clamp	Spring	Shim	Shim screw	Nozzle	
A32S-DDUNR/L15-40	●	●	40	32	30	250	45	22	8	13°	0.8	With	1	LT-H3	CH 050215	CLD 255090	YB0.20-2.50-12-5.5	S-DDN 15032	SH 060100X	NZ 060020	DN*A 1504… DN*G 1504… DN*M 1504…
A40T-DDUNR/L15-50	○	○	50	40	37	300	55	27	8.5	12°											
A50U-DDUNR/L15-63	○	○	63	50	47	350	65	35	10.5												

● : Standard stock ○ : Made-to-Order

S-PDUN Steel Boring Bar(Internal/Internal Profile Boring)





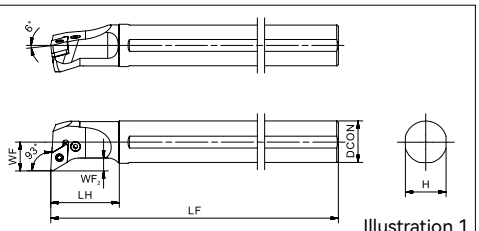


Illustration 1

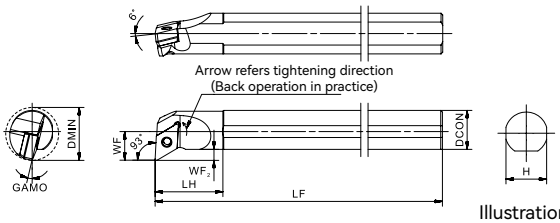


Illustration 2

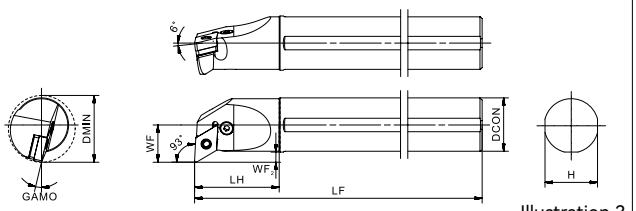
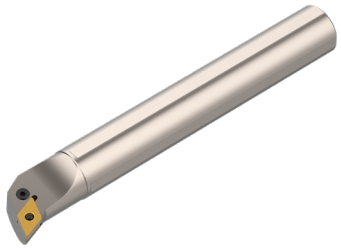


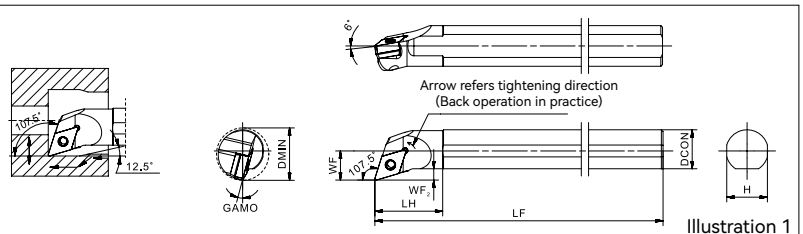
Illustration 3

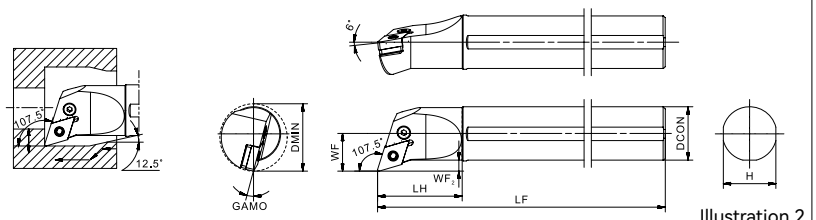
Product code	Stock		Minimum boring hole diameter (mm)	Dimension							Insert corner radius (RE)	Internal coolant	Illustration	Spare parts						Insert
	R	L	DMIN	DCON	H	LF	LH	WF	WF2	GAMO				Wrench	Lever screw	Lever	Shim	Shim pin	Eccentric pin	
S20Q-PDUNR/L11-27	○	○	27	20	19	180	35	16	7.6	17°	0.8	Without	1	LT-H2.5	LH060142	LV3	S-PDN11027	SP3	-	DN*G 1104…
S25R-PDUNR/L11-32	○	○	32	25	24	200	40	17		15°										
S32S-PDUNR/L11-40	○	○	40	32	31	250	45	22	8.5	12°										
S25R-PDUNR/L15-32	○	○	32	25	24	200	40	17	6.5	13°			2	LT-H3	-	-	S-PDN15032X	-	EP046140	DN*A 1504… DN*G 1504… DN*M 1504…
S32S-PDUNR/L15-44	○	○	44	32	31	250	50	22					3		LH080200	LV4B	S-PDN15032	SP4N	-	
S40T-PDUNR/L15-54	○	○	54	40	39	300	65	27	7.5	12°										

● : Standard stock ○ : Made-to-Order

S-PDQN Steel Boring Bar(Internal/Internal Profile Boring)



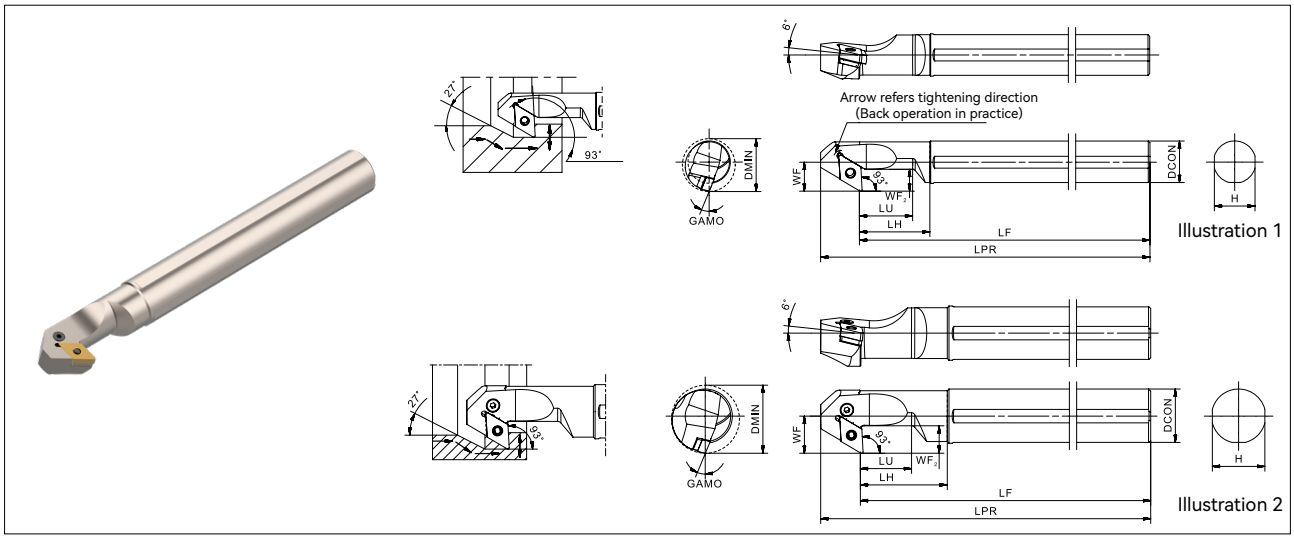




Product code	Stock		Minimum boring hole diameter (mm)	Dimension							Insert corner radius (RE)	Internal coolant	Illustration	Spare parts						Insert
	R	L	DMIN	DCON	H	LF	LH	WF	WF2	GAMO				Wrench	Lever screw	Lever	Shim	Shim pin	Eccentric pin	
S25R-PDQNR/L15-32	○	○	32	25	24	200	40	17	6.5	13°	0.8	Without	1	LT-H3	SP020050	-	S-PDN15032X	-	EP046140	DN*A 1504… DN*G 1504… DN*M 1504…
S32S-PDQNR/L15-44	○	○	44	32	31	250	50	22					2		LH080200	LV4B	S-PDN15032	SP4N	-	
S40T-PDQNR/L15-54	○	○	54	40	39	300	65	27	7.5	12°										

● : Standard stock ○ : Made-to-Order

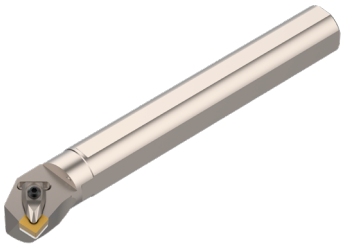
S-PDZN Steel Boring Bar(Internal Back Boring)



Product code	Stock		Minimum boring hole diameter (mm)	Dimension								GAMO	Insert corner radius (RE)	Internal coolant	Illustration	Spare parts						Insert
	R	L	DMIN	DCON	H	LPR	LF	LH	LU	WF	WF2					GAMO	Lever screw	Lever	Shim	Shim pin	Eccentric pin	
S25R-PDZNR/L15-32	○	○	32	25	24	225	200	40	30	17	13	13°	0.8	Without	1	LT-H3	SP 020050	-	S-PDN 15032X	-	EP 046140	DN*A 1504… DN*G 1504… DN*M 1504…
S32S-PDZNR/L15-44	○	○	44	32	31	275	250	50		22	16				2		LH 080200	LV4B	S-PDN 15032	SP4N	-	
S40T-PDZNR/L15-54	○	○	54	40	39	325	300	65	50	27		12°										

● : Standard stock ○ : Made-to-Order

A-DSKN Steel Boring Bar(Internal Boring)



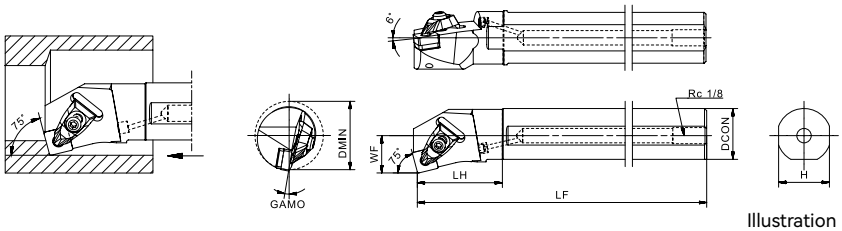
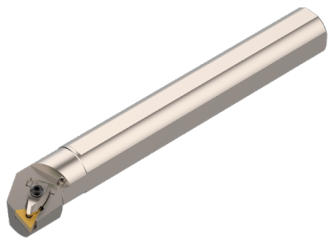


Illustration 1

Product code	Stock		Minimum boring hole diameter (mm)	Dimension						Insert corner radius (RE)	Internal coolant	Illustration	Spare parts							Insert
	R	L	DMIN	DCON	H	LF	LH	WF	GAMO				Wrench	Lever screw	Clamp	Spring	Shim	Shim screw	Nozzle	
A25R-DSKNR/L12-32	○	○	32	25	23	200	43	17	11°	0.8	With	1	LT-H3	CH 050215	CLD 255090	YB0.20-2.50-12-5.5	S-DSN 12032	SH 060080X	NZ 060020	SN*A 1204… SN*G 1204… SN*M 1204…
A32S-DSKNR/L12-40	○	○	40	32	30	250	43	22												
A40T-DSKNR/L12-50	○	○	50	40	37	300	53	27											NZ 100040	

● : Standard stock ○ : Made-to-Order

A-DTFN Steel Boring Bar(Internal Boring)



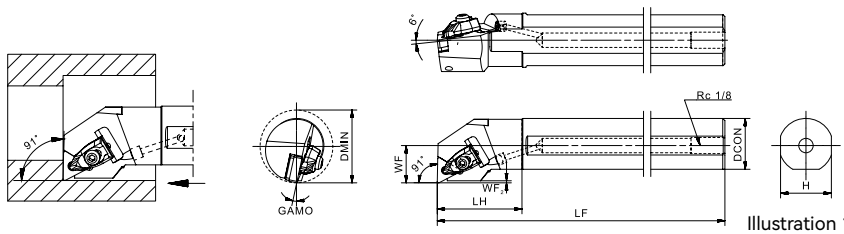


Illustration 1

Product code	Stock		Minimum boring hole diameter (mm)	Dimension							Insert corner radius (RE)	Internal coolant	Illustration	Spare parts							Insert
	R	L	DMIN	DCON	H	LF	LH	WF	WF2	GAMO				Wrench	Lever screw	Clamp	Spring	Shim	Shim screw	Nozzle	
A25R-DTFNR/L16-32	○	○	32	25	23	200	42	17	0.8	12°	0.8	With	1	LT-H3	CH 050215	CLD 222075	YB0.20-2.50-12-5.5	S-DTN 16027	SH 050090X	NZ 060020	TN*A 1604… TN*G 1604… TN*M 1604…
A32S-DTFNR/L16-40	○	○	40	32	30	250	50	22	1.2												
A40T-DTFNR/L22-50	○	○	50	40	37	300	60	27	1.5							CLD 255090		S-DTN 22048	SH 060100X	NZ 100040	TN*A 2204… TN*G 2204… TN*M 2204…

● : Standard stock ○ : Made-to-Order

S-PTUN Steel Boring Bar(Internal Boring)

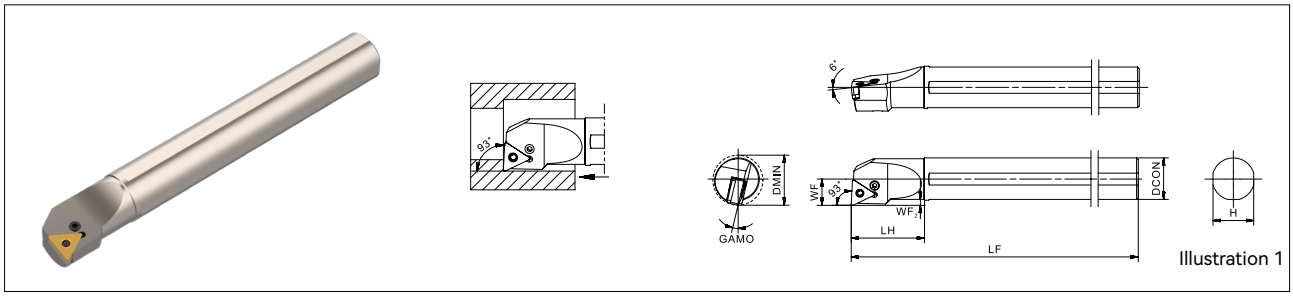


Illustration 1

Product code	Stock		Minimum boring hole diameter (mm)	Dimension							Insert corner radius (RE)	Internal coolant	Illustration	Spare parts					Insert
	R	L	DMIN	DCON	H	LF	LH	WF	WF2	GAMO				Wrench	Lever screw	Lever	Shim	Shim pin	
S32S-PTUNR/L16-40	○	○	40	32	30	250	50	22	0.7	13°	0.8	Without	1	LT-H2.5	LH060170	LV3	S-PTN16027	SP3	TN*A 1604… TN*G 1604… TN*M 1604…
S40T-PTUNR/L16-50	○	○	50	40	37	300	60	27	0.6	11°									

● : Standard stock ○ : Made-to-Order

A-DWLN Steel Boring Bar(Internal/Internal Face Boring)

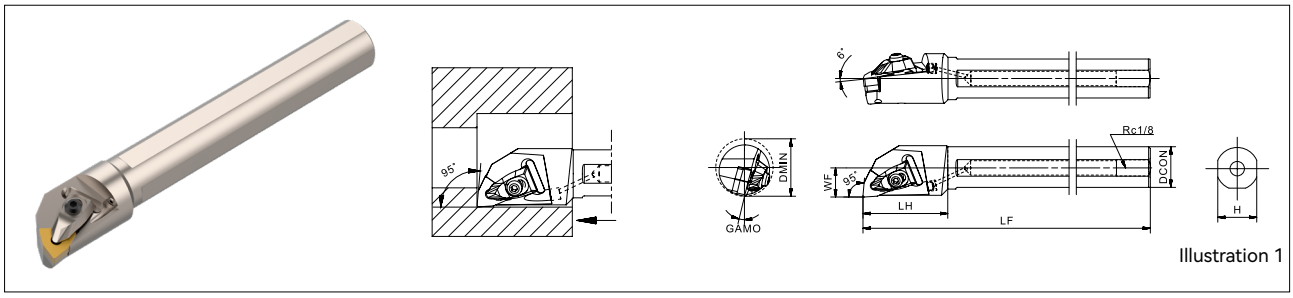
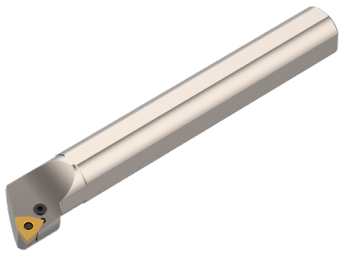


Illustration 1

Product code	Stock		Minimum boring hole diameter (mm)	Dimension						Insert corner radius (RE)	Internal coolant	Illustration	Spare parts							Insert
	R	L	DMIN	DCON	H	LF	LH	WF	GAMO				Wrench	Lever screw	Clamp	Spring	Shim	Shim screw	Nozzle	
A25R-DWLNR/L08-32	●	●	32	25	23	200	50	17	13°	0.8	With	1	LT-H3	CH 050215	CLD 255090	YB0.20-2.50-12-5.5	S-DWN 08032	SH 060080X	NZ 060020	WN*A 0804… WN*G 0804… WN*M 0804…
A32S-DWLNR/L08-40	○	○	40	32	30	250	50	22												
A40T-DWLNR/L08-50	○	○	50	40	37	300	60	27											NZ 100040	

● : Standard stock ○ : Made-to-Order

S-PWLN Steel Boring Bar(Internal/Internal Face Boring)



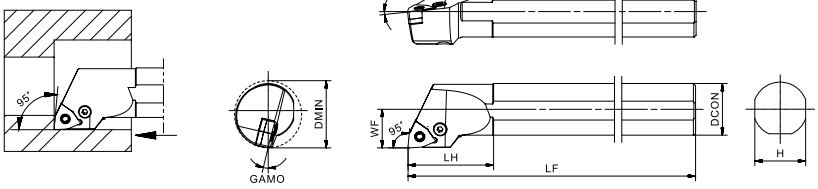


Illustration 1

Product code	Stock		Minimum boring hole diameter (mm)	Dimension						Insert corner radius (RE)	Internal coolant	Illustration	Spare parts					Insert
	R	L	DMIN	DCON	H	LF	LH	WF	GAMO				Wrench	Lever screw	Lever	Shim	Shim pin	
S16M-PWLNR/L06-20	○	○	20	16	15	150	34	11	16°	0.8	Without	1	LT-H2.5	LH060170	LV3	S-PWN06027	SP3	WN*G 0604…
S20Q-PWLNR/L06-27	●	●	27	20	19	180	36.5	14.2	17°									
S25R-PWLNR/L06-32	○	○	32	25	24	200	42	15.7	15°									
S32S-PWLNR/L08-40	○	○	40	32	30	250	50	22	10°				LT-H3	LH080200	LV4C	S-PWN08032	SP4N	WN*A 0804… WN*G 0804… WN*M 0804…
S40T-PWLNR/L08-50	○	○	50	40	37	300	60	27										

● : Standard stock ○ : Made-to-Order

Note

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Turning Shank Denomination System 152
CC ☐☐ Insert 154
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TC ☐☐ Insert 157
VB ☐☐ Insert 158
VC ☐☐ Insert 160
VP ☐☐ Insert 161
External Sleeve Holder Denomination System 162
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DC ☐☐ Insert 165
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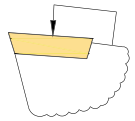
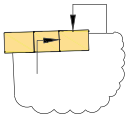
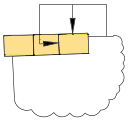
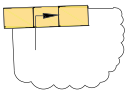
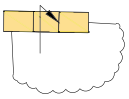
ASWB Backturning Series Inserts 170
ASWT Threading Series Inserts 170
ASW Series Holders 171
ABF Backturning Series 172
ASIB Solid Boring Tools 173
ASIG Solid Inner Grooving Inserts 177
ASIF Solid Face Grooving Inserts 182
ASIT Solid Threading Inserts 183
Boring Holder Sleeves 186

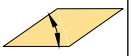
Turning Shank Denomination System

S	C	L	C	R
1	2	3	4	5

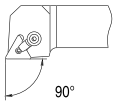
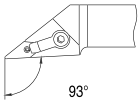
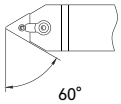
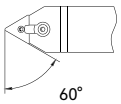
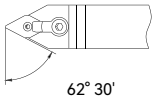
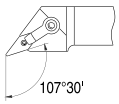
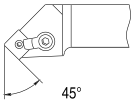
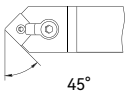
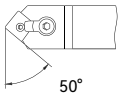
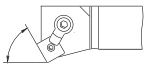
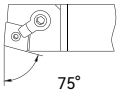
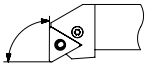
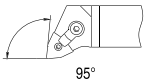
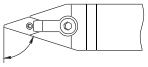
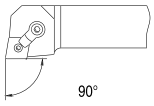
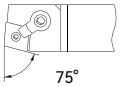
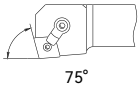
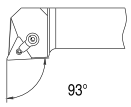
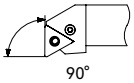
1- Clamping Type

C: Top clamp	M: Top wedge clamping	D: Rigid clamping	P: lever clamping	S: Screw clamping
				

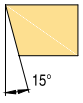
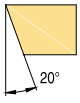
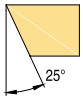
2- Insert Shape

C	D	H	K	O	R	S	T	V	W
 80°	 55°	 120°	 55°	 135°	 360°	 90°	 60°	 35°	 80°

3- Approach Angle

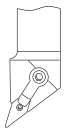
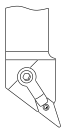
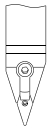
A	 90°	J	 93°	T	 60°	E	 60°	N	 62° 30'
H	 107°30'	S	 45°	D	 45°	M	 50°	W	 60°
R	 75°	C	 90°	L	 95°	V	 72°30'	G	 90°
B	 75°	K	 75°	U	 93°	F	 90°	X	Special Approach angle, explanation needed.

4- Clearance Angle

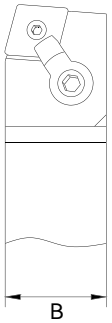
B	C	D	E	F	N	P	O
 5°	 7°	 15°	 20°	 25°	 0°	11°	Other clearance angle

12	12	JX	09	F
6	7	8	9	10

5- Hand of Tool

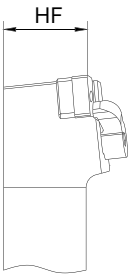
L Left hand	
R Right hand	
N Neutral	

6- Center Height of Tool (mm)



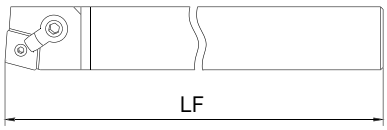
06=6
08=8
10=10
12=12
14=14
16=16
20=20
25=25
30=30
40=40
50=50

7- Width of Shank (mm)



06=6
08=8
10=10
12=12
14=14
16=16
20=20
25=25
30=30
40=40
50=50

8- Tool Length (mm)



A=32	M=150
B=40	N=160
C=50	P=170
D=60	Q=180
E=70	R=200
F=80	S=250
FX=85	T=300
G=90	U=350
H=100	V=400
J=110	W=450
JX=120	Y=500
K=125	
L=140	X=Special

9- Length of Cutting Edge

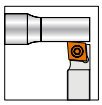
C、D、E、M、V	H	O
		

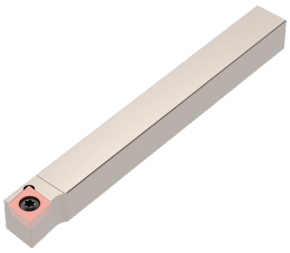
R	S	T	W
			

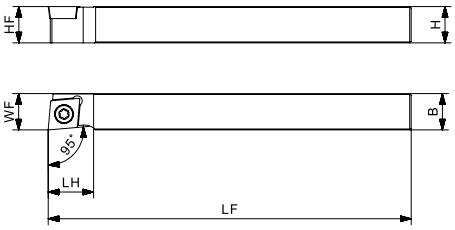
10- Added Symbol

F	Without Offset
J	With high pressure coolant

SCLC External Turning Shank - Without Offset

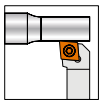


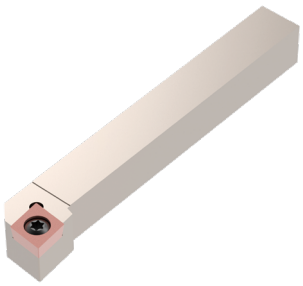


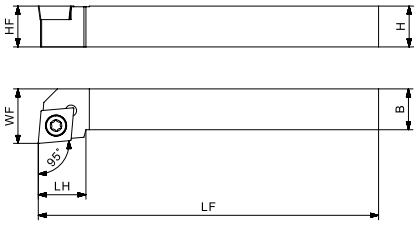


Product code	Dimension (mm)						Stock		Spare parts	
	H	B	HF	LF	LH	WF	R	L	Screw	Wrench
SCLCR/L 0808F-06F	8	8	8	80	-	8	○	○	SP025065	FT-TP08
SCLCR/L 1010JX-06F	10	10	10	120	-	10	●	●		
SCLCR/L 1010JX-09F	10	10	10	120	15	10	●	●	SP040090X	FT-TP15
SCLCR/L 1212F-09F	12	12	12	80	-	12	●	●		
SCLCR/L 1212JX-09F	12	12	12	120	-	12	●	●		
SCLCR/L 1616JX-09F	16	16	16	120	-	16	●	●		

SCLC External Turning Shank - With Offset

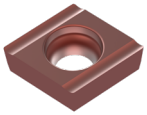
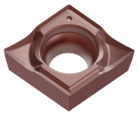
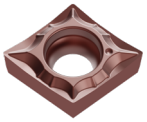






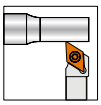
Product code	Dimension (mm)						Stock		Spare parts	
	H	B	HF	LF	LH	WF	R	L	Screw	Wrench
SCLCR/L 1010F-06	10	10	10	80	9	12	●	●	SP025065	FT-TP08
SCLCR/L 1010F-09	10	10	10	80	14	14	●	●	SP040090X	FT-TP15
SCLCR/L 1212H-09	12	12	12	100	14	16	●	●		
SCLCR/L 1616H-09	16	16	16	100	15	20	●	●		

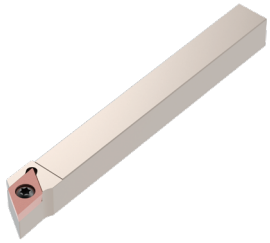
Applicable Insert

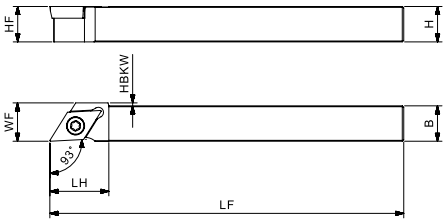
Applicaiton	Finishing	Finishing	Semi-finishing--Finishing
Insert shape / Product code	M	LF	UF
			
SCLCR/L···-06/06F	CCET 0602	CCGT 0602	CCGT 0602
SCLCR/L···-09/09F	CCET 09T3	CCGT 09T3	CCGT 09T3
Reference page	P79	P76	P76

● : Standard stock ○ : Made-to-Order

SDJC External Turning Shank - Without Offset







Product code	Dimension (mm)							Stock		Spare parts	
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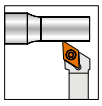
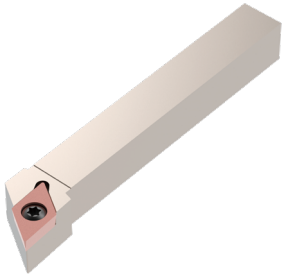
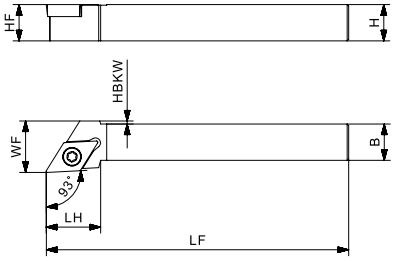
SDJCR/L 0808F-07F	8	8	8	80	14	8	0.5	○	○	SP025065	FT-TP08
SDJCR/L 1010JX-07F	10	10	10	120	-	10	-	●	●		
SDJCR/L 1010JX-11F	10	10	10	120	20	10	3	●	●	SP040090X	FT-TP15
SDJCR/L 1212F-11F	12	12	12	80	20	12	1	●	●		
SDJCR/L 1212JX-11F	12	12	12	120	20	12	1	●	●		
SDJCR/L 1616JX-11F	16	16	16	120	-	16	-	●	●		

SDJC External Turning Shank - With Offset

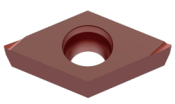
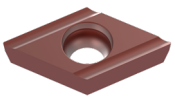
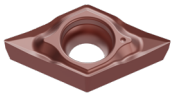
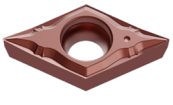






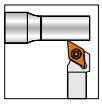
Product code	Dimension (mm)							Stock		Spare parts	
	H	B	HF	LF	LH	WF	HBKW	R	L	Screw	Wrench
SDJCR/L 1010F-07	10	10	10	80	12	12	-	●	●	SP025065	FT-TP08
SDJCR/L 1010F-11	10	10	10	80	18	12	3	●	●	SP040090X	FT-TP15
SDJCR/L 1212H-11	12	12	12	100	18	16	1	●	●		
SDJCR/L 1616H-11	16	16	16	100	18	20	-	●	●		

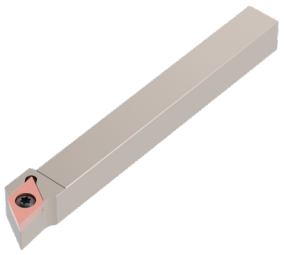
Applicable Insert

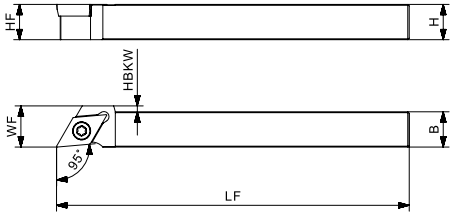
Applicaiton	Finishing	Finishing	Finishing	Semi-finishing--Finishing
Insert shape / Product code	F	M	LF	UF
				
SDJCR/L···-07/07F	DCET 0702	DCET 0702	DCGT 0702	DCGT 0702
SDJCR/L···-11/11F	DCET 11T3	DCET 11T3	DCGT 11T3	DCGT 11T3
Reference page	P82	P83	P81	P81

● : Standard stock ○ : Made-to-Order

SDLC External Turning Shank - Without Offset

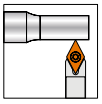




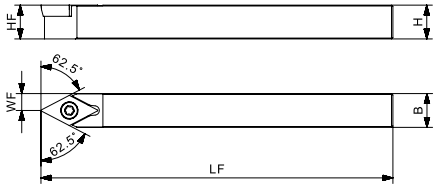


Product code	Dimension (mm)						Stock		Spare parts	
	H	B	HF	LF	WF	HBKW	R	L	Screw	Wrench
SDLCR/L 1010JX-07F	10	10	10	120	10	-	●	●	SP025065	FT-TP08
SDLCR/L 1212F-07F	12	12	12	80	12	-	●	●		
SDLCR/L 1212JX-07F	12	12	12	120	12	-	●	●		
SDLCR/L 1616JX-07F	16	16	16	120	16	-	●	●		
SDLCR 1010F-11F	10	10	10	80	10	4	●	-	SP040090X	FT-TP15
SDLCR/L 1010JX-11F	10	10	10	120	10	4	●	●		
SDLCR 1212F-11F	12	12	12	80	12	2	●	-		
SDLCR/L 1212JX-11F	12	12	12	120	12	2	●	●		
SDLCR 1616H-11F	16	16	16	100	16	-	●	-		
SDLCR/L 1616JX-11F	16	16	16	120	16	-	●	●		

SDNC External Turning Shank - Neutral







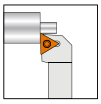
Product code	Dimension (mm)					Stock	Spare parts	
	H	B	HF	LF	WF	N	Screw	Wrench
SDNCN 0808F-07	8	8	8	80	4	○	SP025065	FT-TP08
SDNCN 1010JX-07	10	10	10	120	5	●		
SDNCN 1212JX-07	12	12	12	120	6	●		
SDNCN 1010F-11	10	10	10	80	5	●	SP040090X	FT-TP15
SDNCN 1010JX-11	10	10	10	120	5	●		
SDNCN 1212F-11	12	12	12	80	6	●		
SDNCN 1212JX-11	12	12	12	120	6	●		
SDNCN 1616H-11	16	16	16	100	8	●		
SDNCN 1616JX-11	16	16	16	120	8	●		

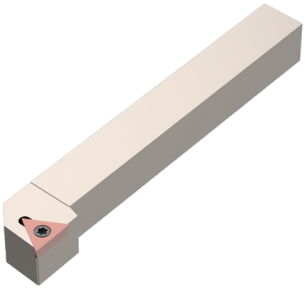
Applicable Insert

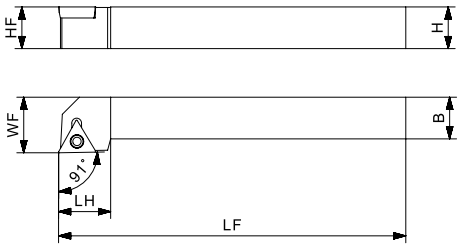
Applicaiton	Finishing	Finishing	Finishing	Semi-finishing--Finishing
Insert shape / Product code	F	M	LF	UF
SDLCR/L···-07F **SDNCN ···-07**	DCET 0702	DCET 0702	DCGT 0702	DCGT 0702
SDLCR/L···-11F **SDNCN ···-11**	DCET 11T3	DCET 11T3	DCGT 11T3	DCGT 11T3
Reference page	P82	P83	P81	P81

● : Standard stock ○ : Made-to-Order

STGC/STGP External Turning Shank - With Offset

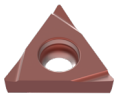






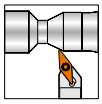
Product code	Dimension (mm)						Stock		Spare parts	
	H	B	HF	LF	LH	WF	R	L	Screw	Wrench
STGCR 0808F-08	8	8	8	80	12	10	○	-	SP020049	FT-TP06
STGCR/L 1010F-11	10	10	10	80	15	14	●	●	SP025065	FT-TP08
STGCR/L 1212H-11	12	12	12	100	15	16	●	●		
STGCR/L 1616H-11	16	16	16	100	15	20	●	●		
STGPR 0808F-08	8	8	8	80	12	10	○	-	SP020049	FT-TP06
STGPR/L 1010F-11	10	10	10	80	15	14	●	●	SP030082	FT-TP09
STGPR/L 1212H-11	12	12	12	100	15	16	●	●		
STGPR/L 1616H-11	16	16	16	100	15	20	●	●		

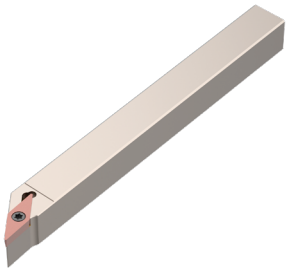
Applicable Insert

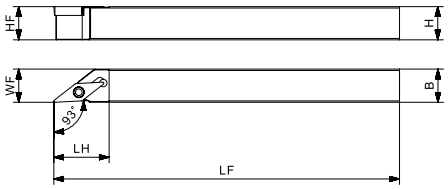
Applicaiton	Finishing	Finishing
Insert shape / Product code	F 	M 
STGCR 0808F-08	-	TCET 0802
STGPR 0808F-08	TPEH 0802	-
STGC··· -11	-	TCET 1103
STGP··· -11	TPEH 1103	-
Reference page	P89	P87

● : Standard stock ○ : Made-to-Order

SVJB External Turning Shank - Without Offset

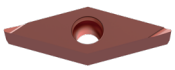
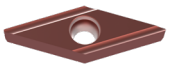
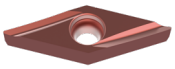
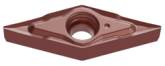
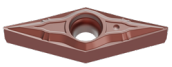






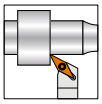
Product code	Dimension (mm)						Stock		Spare parts	
	H	B	HF	LF	LH	WF	R	L	Screw	Wrench
SVJBR/L 1010JX-11F	10	10	10	120	-	10	●	●	SP025065	FT-TP08
SVJBR/L 1212JX-11F	12	12	12	120	-	12	●	●		
SVJBR/L 1616JX-11F	16	16	16	120	-	16	●	●		
SVJBR/L 2020JX-11F	20	20	20	120	20	20	●	●		

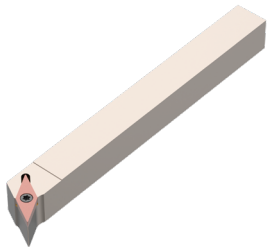
Applicable Insert

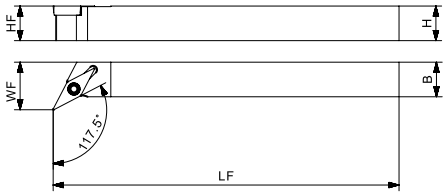
Applicaiton	Finishing	Finishing	Finishing	Finishing	Semi-finishing--Finishing
Insert shape / Product code	F	M	Y	LF	UF
					
SVJBR/L···-11F	VBET 1103	VBET 1103	VBET 1103	VBGT 1103	VBGT 1103
Reference page	P91	P92	P92	P90	P90

● : Standard stock ○ : Made-to-Order

SVPB External Turning Shank - With Offset

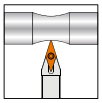


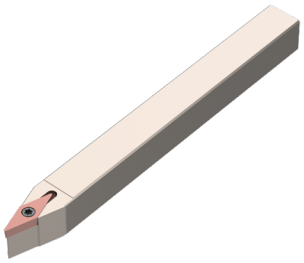


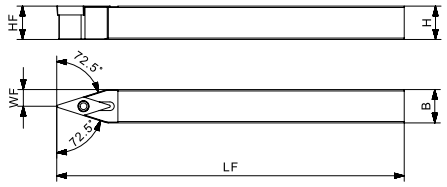


Product code	Dimension (mm)					Stock		Spare parts	
	H	B	HF	LF	WF	R	L	Screw	Wrench
SVPBR/L 1010JX-11	10	10	10	120	14.5	●	●	SP025065	FT-TP08
SVPBR/L 1212JX-11	12	12	12	120	16.5	●	●		
SVPBR/L 1616JX-11	16	16	16	120	20.5	●	●		
SVPBR/L 2020K-11	20	20	20	125	25	●	●		

SVVBN External Turning Shank - Neutral

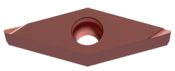
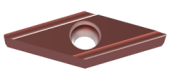
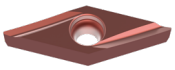
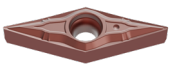






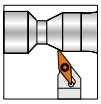
Product code	Dimension (mm)					Stock	Spare parts	
	H	B	HF	LF	WF	N	Screw	Wrench
SVVBN 1010JX-11	10	10	10	120	5	●	SP025065	FT-TP08
SVVBN 1212JX-11	12	12	12	120	6	●		
SVVBN 1616JX-11	16	16	16	120	8	●		
SVVBN 2020K-11	20	20	20	125	10	●		

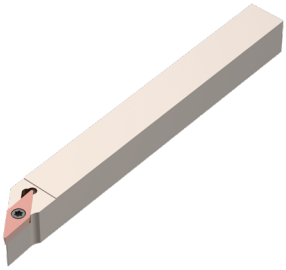
Applicable Insert

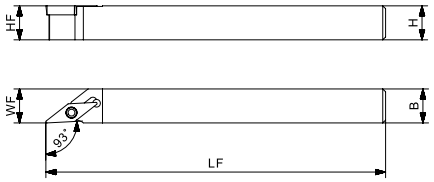
Applicaiton	Finishing	Finishing	Finishing	Finishing	Semi-finishing--Finishing
Insert shape / Product code	F	M	Y	LF	UF
					
SVPBR/L···-11 **SVVBN ···-11**	VBET 1103	VBET 1103	VBET 1103	VBGT 1103	VBGT 1103
Reference page	P91	P92	P92	P90	P90

● : Standard stock ○ : Made-to-Order

SVJC External Turning Shank - Without Offset

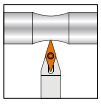


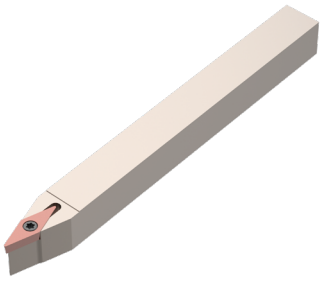


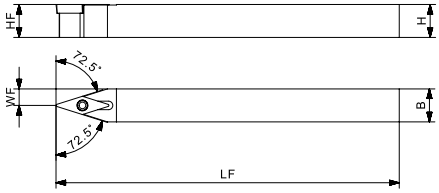


Product code	Dimension (mm)					Stock		Spare parts	
	H	B	HF	LF	WF	R	L	Screw	Wrench
SVJCR/L 1010JX-11F	10	10	10	120	10	●	●	SP025065	FT-TP08
SVJCR/L 1212JX-11F	12	12	12	120	12	●	●		
SVJCR/L 1616JX-11F	16	16	16	120	16	●	●		
SVJCR/L 2020JX-11F	20	20	20	120	20	●	●		

SVVCN External Turning Shank - Neutral







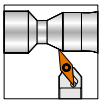
Product code	Dimension (mm)					Stock	Spare parts	
	H	B	HF	LF	WF	N	Screw	Wrench
SVVCN 1010JX-11	10	10	10	120	5	●	SP025065	FT-TP08
SVVCN 1212JX-11	12	12	12	120	6	●		
SVVCN 1616JX-11	16	16	16	120	8	●		

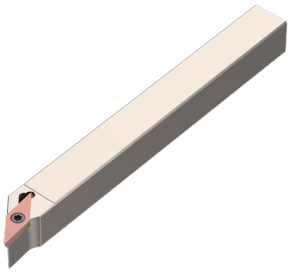
Applicable Insert

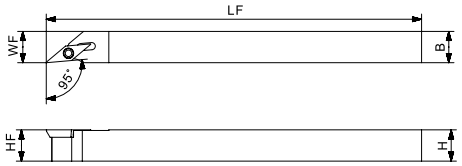
Applicaiton	Finishing	Finishing	Finishing
Insert shape / Product code	F	LF	UF
			
SVJCR/L···-11F **SVVCN ····-11**	VCET 1103	VCGT 1103	VCGT 1103
Reference page	P93	P93	P93

● : Standard stock ○ : Made-to-Order

SVLP External Turning Shank - Without Offset

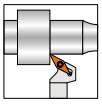


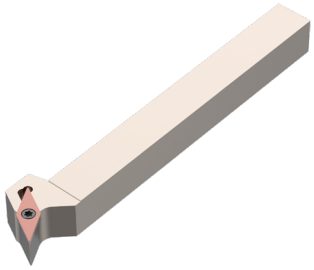


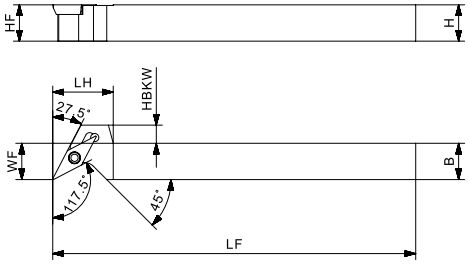


Product code	Dimension (mm)					Stock		Spare parts	
	H	B	HF	LF	WF	R	L	Screw	Wrench
SVLPR/L 1010JX-08F	10	10	10	120	10	●	●	SP020049	FT-TP06
SVLPR/L 1212JX-08F	12	12	12	120	12	●	●		
SVLPR/L 1616JX-08F	16	16	16	120	16	●	●		
SVLPR/L 1212JX-11F	10	10	10	120	10	●	●	SP025065	FT-TP08
SVLPR/L 1616JX-11F	12	12	12	120	12	●	●		
SVLPR/L 2020K-11F	16	16	16	120	16	●	●		

SVPP External Turning Shank - Step Style







Product code	Dimension (mm)							Stock		Spare parts	
	H	B	HF	LF	LH	WF	HBKW	R	L	Screw	Wrench
SVPPR/L 1010JX-08F	10	10	10	120	16	10	4	●	●	SP020049	FT-TP06
SVPPR/L 1212JX-08F	12	12	12	120	16	12	2	●	●		
SVPPR/L 1616JX-08F	16	16	16	120	20	16	-	●	●		
SVPPR/L 1010JX-11F	10	10	10	120	20	10	8	●	●	SP025065	FT-TP08
SVPPR/L 1212JX-11F	12	12	12	120	20	12	6	●	●		
SVPPR/L 1616JX-11F	16	16	16	120	20	16	2	●	●		

Applicable Insert

Applicaiton	Finishing	Finishing	Finishing	Semi-finishing--Finishing
Insert shape / Product code	F	M	LF	UF
SVLPR/L···-08F **SVPPR/L···-08F**	VPET 0802	VPET 0802	-	-
SVLPR/L···-11F **SVPPR/L···-11F**	-	VPET 1103	VPGT 1103	VPGT 1103
Reference page	P94	P94	P94	P94

● : Standard stock ○ : Made-to-Order

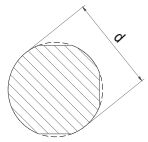
External Sleeve Holder Denomination System

S	20	JX	S	C
1	2	3	4	5

1- Holder Structure

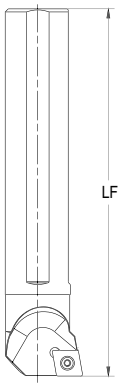
A	Steel shank with internal coolant
C	Carbide
E	Carbide with internal coolant
S	Steel shank

2- Holder Diameter (mm)



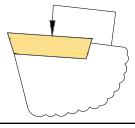
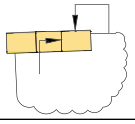
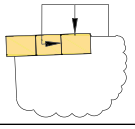
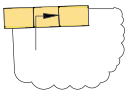
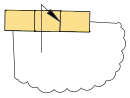
06 = 6	16 = 16	25.0 = 25.4
08 = 8	19.0 = 19.05	32 = 32
10 = 10	20 = 20	40 = 40
12 = 12	22 = 22	50 = 50
15.0 = 15.875	25 = 25	

3- Holder Length (mm)

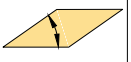


E=70	K=125
F=80	L=140
FX=85	M=150
G=90	N=160
H=100	P=170
J=110	Q=180
JX=120	R=200

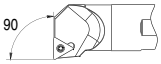
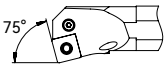
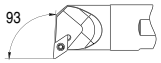
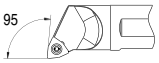
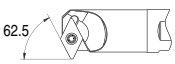
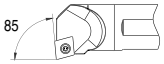
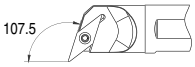
4- Clamping Type

C: Top clamp	M: Top wedge clamping	D: Rigid clamping	P: lever clamping	S: Screw clamping
				

5- Insert Shape

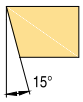
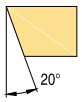
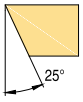
C	D	H	K	O	R	S	T	V	W
 80°	 55°	 120°	 55°	 135°	 360°	 90°	 60°	 35°	 80°

6- Approach Angle

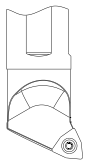
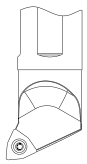
F	 90	S	 45	K	 75°	U	 93
L	 95	W	 62.5	Y	 85	Q	 107.5

L	C	L	09
6	7	8	9

7- Clearance Angle

B	C	D	E
			
F	**N**	**P**	**O**
			Other clearance angle

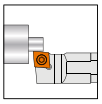
8- Hand of Tool

R Right hand	
L Left hand	

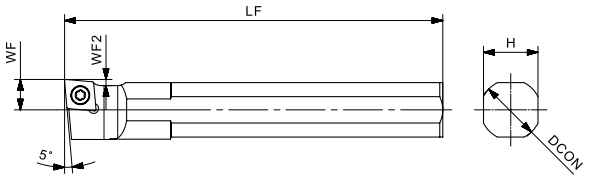
9- Length of Cutting Edge

C、D、E、M、V	H	O
		
R	**S**	**T**	**W**
			

External Sleeve Holder -Suitable for C Type Insert

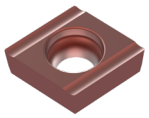
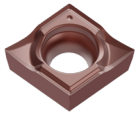
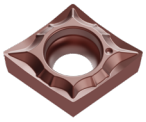






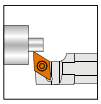
Product code	Dimension (mm)					Stock	Spare parts	
	DCON	LF	H	WF	WF2	L	Screw	Wrench
S12F-SCLCL06	12	80	11	6	1	●	SP025065	FT-TP08
S14H-SCLCL06	14	100	13	6	1	●		
S15.0H-SCLCL06	15.875	100	15	6	1	●		
S16H-SCLCL06	16	100	15	6	1	●		
S19.0JX-SCLCL06	19.05	120	17	6	1	●		
S20JX-SCLCL06	20	120	18	6	1	●		
S19.0JX-SCLCL09	19.05	120	17	10	2	●	SP040090X	FT-TP15
S20JX-SCLCL09	20	120	18	10	2	●		
S22JX-SCLCL09	22	120	20	10	2	●		
S25JX-SCLCL09	25	120	23	10	2	●		
S25.0JX-SCLCL09	25.4	120	23	10	2	●		

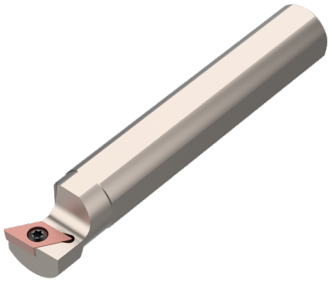
Applicable Insert

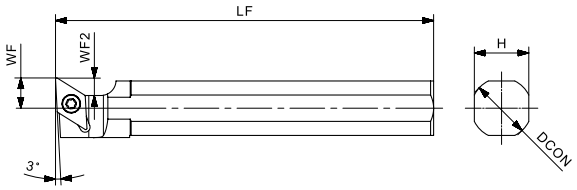
Applicaiton	Finishing	Finishing	Semi-finishing--Finishing
Insert shape / Product code	M	LF	UF
			
S-SCLC06	CCET 0602	CCGT 0602	CCGT 0602
S-SCLC09	CCET 09T3	CCGT 09T3	CCGT 09T3
Reference page	P79	P76	P76

● : Standard stock ○ : Made-to-Order

External Sleeve Holder-Suitable for D Type Insert







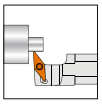
Product code	Dimension (mm)					Stock	Spare parts	
	DCON	LF	H	WF	WF2	L	Screw	Wrench
S12F-SDUCL07	12	80	11	6	3.8	●	SP025065	FT-TP08
S14H-SDUCL07	14	100	13	6	3.8	●		
S15.0H-SDUCL07	15.875	100	15	6	3.8	●		
S16H-SDUCL07	16	100	15	6	3.8	●		
S19.0JX-SDUCL07	19.05	120	17	6	3.8	●		
S20JX-SDUCL07	20	120	18	6	3.8	●		
S19.0JX-SDUCL11	19.05	120	17	10	5.8	●	SP040090X	FT-TP15
S20JX-SDUCL11	20	120	20	10	5.8	●		
S22JX-SDUCL11	22	120	20	10	5.8	●		
S25JX-SDUCL11	25	120	23	10	5.8	●		
S25.0JX-SDUCL11	25.4	120	23	10	5.8	●		

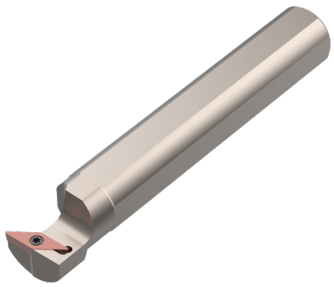
Applicable Insert

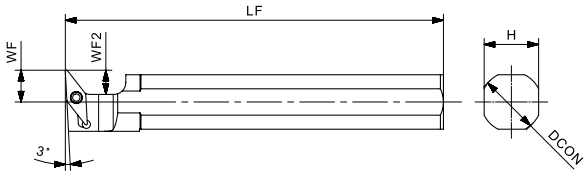
Applicaiton	Finishing	Finishing	Finishing	Semi-finishing--Finishing
Insert shape / Product code	F	M	LF	UF
S-SDUCL07	DCET 0702	DCET 0702	DCGT 0702	DCGT 0702
S-SDUCL11	DCET 11T3	DCET 11T3	DCGT 11T3	DCGT 11T3
Reference page	P82	P83	P80	P80

● : Standard stock ○ : Made-to-Order

External Sleeve Holder-Suitable for V Type Insert

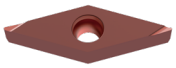
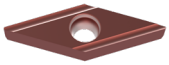
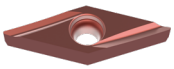






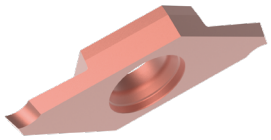
Product code	Dimension (mm)					Stock	Spare parts	
	DCON	LF	H	WF	WF2	L	Screw	Wrench
S12F-SVUPL08	12	80	11	7.5	5.5	●	SP020049	FT-TP06
S14H-SVUPL08	14	100	13	7.5	5.5	●		
S15.0H-SVUPL08	15.875	100	15	8	5.5	●		
S16H-SVUPL08	16	100	15	8	5.5	●		
S19.0JX-SVUBL11	19.05	120	17	10.5	8	●	SP025065	FT-TP08
S20JX-SVUBL11	20	120	18	10.5	8	●		
S22JX-SVUBL11	22	120	20	10.5	8	●		
S25JX-SVUBL11	25	120	23	10.5	8	●		
S25.0JX-SVUBL11	25.4	120	23	10.5	8	●		

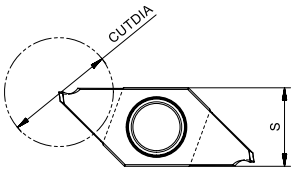
Applicable Insert

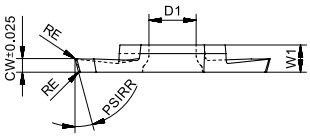
Applicaiton	Finishing	Finishing	Finishing	Finishing	Semi-finishing--Finishing
Insert shape / Product code	F	M	Y	LF	UF
					
S-SVUPL08	VPET 0802	VPET 0802	-	-	-
S-SVUBL11	VBET 1103	VBET 1103	VBET 1103	VBGT 1103	VBGT 1103
Reference page	P91	P92	P92	P90	P90

● : Standard stock ○ : Made-to-Order

Parting off Insert



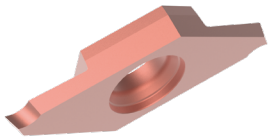


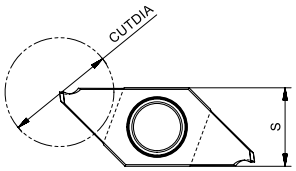


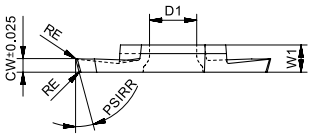
Product code	Dimension (mm)								Grade	
	CW	CUTDIA	RE	PSIRR	GAN	W1	S	D1	AP301U	AP301M
ASWP 09R050D05-F	0.5	5	0.03	0°	15°	3	8.7	5.2	○	●
ASWP 09L050D05-F	0.5	5	0.03	0°	15°	3	8.7	5.2	○	○
ASWP 09R070D08-F	0.7	8	0.03	0°	15°	3	8.7	5.2	○	○
ASWP 09L070D08-F	0.7	8	0.03	0°	15°	3	8.7	5.2	○	●
ASWP 09R100D12-F	1	12	0.03	0°	15°	3	8.7	5.2	●	●
ASWP 09L100D12-F	1	12	0.03	0°	15°	3	8.7	5.2	○	○
ASWP 09R120D12-F	1.2	12	0.03	0°	15°	3	8.7	5.2	○	○
ASWP 09L120D12-F	1.2	12	0.03	0°	15°	3	8.7	5.2	●	●
ASWP 09R150D12-F	1.5	12	0.03	0°	15°	3	8.7	5.2	●	●
ASWP 09L150D12-F	1.5	12	0.03	0°	15°	3	8.7	5.2	○	●
ASWP 09R200D12-F	2	12	0.03	0°	15°	3	8.7	5.2	○	●
ASWP 09L200D12-F	2	12	0.03	0°	15°	3	8.7	5.2	○	●
ASWP 09R050D05-F16R	0.5	5	0.03	16°	25°	3	8.7	5.2	○	●
ASWP 09L050D05-F16R	0.5	5	0.03	16°	25°	3	8.7	5.2	○	○
ASWP 09R070D08-F16R	0.7	8	0.03	16°	25°	3	8.7	5.2	○	○
ASWP 09L070D08-F16R	0.7	8	0.03	16°	25°	3	8.7	5.2	○	○
ASWP 09R100D12-F16R	1	12	0.03	16°	25°	3	8.7	5.2	●	●
ASWP 09L100D12-F16R	1	12	0.03	16°	25°	3	8.7	5.2	○	●
ASWP 09R120D12-F16R	1.2	12	0.03	16°	25°	3	8.7	5.2	○	●
ASWP 09L120D12-F16R	1.2	12	0.03	16°	25°	3	8.7	5.2	○	○
ASWP 09R150D12-F16R	1.5	12	0.03	16°	15°	3	8.7	5.2	●	●
ASWP 09L150D12-F16R	1.5	12	0.03	16°	15°	3	8.7	5.2	●	●
ASWP 09R200D12-F16R	2	12	0.03	16°	15°	3	8.7	5.2	●	●
ASWP 09L200D12-F16R	2	12	0.03	16°	15°	3	8.7	5.2	○	●
ASWP 09R100D12-M	1	12	0.08	0°	12°	3	8.7	5.2	○	●
ASWP 09L100D12-M	1	12	0.08	0°	12°	3	8.7	5.2	●	●
ASWP 09R150D12-M	1.5	12	0.08	0°	12°	3	8.7	5.2	●	●
ASWP 09L150D12-M	1.5	12	0.08	0°	12°	3	8.7	5.2	○	●
ASWP 09R200D12-M	2	12	0.08	0°	12°	3	8.7	5.2	●	○
ASWP 09L200D12-M	2	12	0.08	0°	12°	3	8.7	5.2	○	○

● : Standard stock ○ : Made-to-Order

Parting off Insert



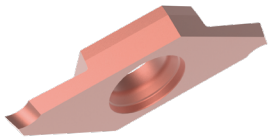


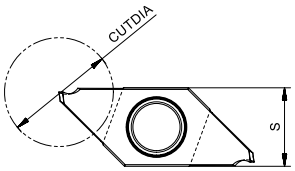


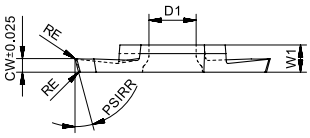
Product code	Dimension (mm)								Grade	
	CW	CUTDIA	RE	PSIRR	GAN	W1	S	D1	AP301U	AP301M
ASWP 09R100D12-M16R	1	12	0.08	16°	12°	3	8.7	5.2	○	○
ASWP 09L100D12-M16R	1	12	0.08	16°	12°	3	8.7	5.2	○	○
ASWP 09R150D12-M16R	1.5	12	0.08	16°	12°	3	8.7	5.2	●	●
ASWP 09L150D12-M16R	1.5	12	0.08	16°	12°	3	8.7	5.2	●	●
ASWP 09R200D12-M16R	2	12	0.08	16°	12°	3	8.7	5.2	○	○
ASWP 09L200D12-M16R	2	12	0.08	16°	12°	3	8.7	5.2	○	○
ASWP 09R050D05-T	0.5	5	0	0°	0°	3	8.7	5.2	○	●
ASWP 09L050D05-T	0.5	5	0	0°	0°	3	8.7	5.2	○	○
ASWP 09R070D08-T	0.7	8	0	0°	0°	3	8.7	5.2	○	●
ASWP 09L070D08-T	0.7	8	0	0°	0°	3	8.7	5.2	○	○
ASWP 09R100D12-T	1	12	0	0°	0°	3	8.7	5.2	●	○
ASWP 09L100D12-T	1	12	0	0°	0°	3	8.7	5.2	●	●
ASWP 09R120D12-T	1.2	12	0	0°	0°	3	8.7	5.2	○	○
ASWP 09L120D12-T	1.2	12	0	0°	0°	3	8.7	5.2	○	○
ASWP 09R150D12-T	1.5	12	0	0°	0°	3	8.7	5.2	●	●
ASWP 09L150D12-T	1.5	12	0	0°	0°	3	8.7	5.2	○	○
ASWP 09R200D12-T	2	12	0	0°	0°	3	8.7	5.2	○	○
ASWP 09L200D12-T	2	12	0	0°	0°	3	8.7	5.2	○	○
ASWP 09R050D05-T20R	0.5	5	0	20°	0°	3	8.7	5.2	○	○
ASWP 09L050D05-T20R	0.5	5	0	20°	0°	3	8.7	5.2	○	○
ASWP 09R070D08-T20R	0.7	8	0	20°	0°	3	8.7	5.2	○	○
ASWP 09L070D08-T20R	0.7	8	0	20°	0°	3	8.7	5.2	○	○
ASWP 09R100D12-T20R	1	12	0	20°	0°	3	8.7	5.2	●	●
ASWP 09L100D12-T20R	1	12	0	20°	0°	3	8.7	5.2	○	○
ASWP 09R120D12-T20R	1.2	12	0	20°	0°	3	8.7	5.2	○	○
ASWP 09L120D12-T20R	1.2	12	0	20°	0°	3	8.7	5.2	○	○
ASWP 09R150D12-T20R	1.5	12	0	20°	0°	3	8.7	5.2	●	●
ASWP 09L150D12-T20R	1.5	12	0	20°	0°	3	8.7	5.2	○	○
ASWP 09R200D12-T20R	2	12	0	20°	0°	3	8.7	5.2	●	●
ASWP 09L200D12-T20R	2	12	0	20°	0°	3	8.7	5.2	○	○

● : Standard stock ○ : Made-to-Order

Parting off Insert

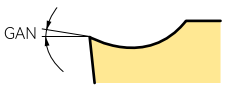






Product code	Dimension (mm)								Grade	
	CW	CUTDIA	RE	PSIRR	GAN	W1	S	D1	AP301U	AP301M
ASWP 10R150D16-F	1.5	16	0.05	0°	20°	4	9.5	5.2	●	●
ASWP 10L150D16-F	1.5	16	0.05	0°	20°	4	9.5	5.2	○	●
ASWP 10R200D16-F	2	16	0.05	0°	20°	4	9.5	5.2	●	●
ASWP 10L200D16-F	2	16	0.05	0°	20°	4	9.5	5.2	○	●
ASWP 10R150D16-F16R	1.5	16	0.05	16°	20°	4	9.5	5.2	●	●
ASWP 10L150D16-F16R	1.5	16	0.05	16°	20°	4	9.5	5.2	○	○
ASWP 10R200D16-F16R	2	16	0.05	16°	20°	4	9.5	5.2	●	●
ASWP 10L200D16-F16R	2	16	0.05	16°	20°	4	9.5	5.2	○	●
ASWP 10R150D16-M	1.5	16	0.08	0°	12°	4	9.5	5.2	○	○
ASWP 10L150D16-M	1.5	16	0.08	0°	12°	4	9.5	5.2	○	○
ASWP 10R200D16-M	2	16	0.08	0°	12°	4	9.5	5.2	●	○
ASWP 10L200D16-M	2	16	0.08	0°	12°	4	9.5	5.2	●	●
ASWP 10R150D16-M16R	1.5	16	0.08	16°	12°	4	9.5	5.2	○	●
ASWP 10L150D16-M16R	1.5	16	0.08	16°	12°	4	9.5	5.2	○	●
ASWP 10R200D16-M16R	2	16	0.08	16°	12°	4	9.5	5.2	●	●
ASWP 10L200D16-M16R	2	16	0.08	16°	12°	4	9.5	5.2	○	○
ASWP 10R150D16-T	1.5	16	0	0°	0°	4	9.5	5.2	○	●
ASWP 10L150D16-T	1.5	16	0	0°	0°	4	9.5	5.2	○	○
ASWP 10R200D16-T	2	16	0	0°	0°	4	9.5	5.2	●	●
ASWP 10L200D16-T	2	16	0	0°	0°	4	9.5	5.2	●	●
ASWP 10R150D16-T20R	1.5	16	0	20°	0°	4	9.5	5.2	○	●
ASWP 10L150D16-T20R	1.5	16	0	20°	0°	4	9.5	5.2	○	●
ASWP 10R200D16-T20R	2	16	0	20°	0°	4	9.5	5.2	●	●
ASWP 10L200D16-T20R	2	16	0	20°	0°	4	9.5	5.2	○	○

Descriptions of Geometry Edge Shape



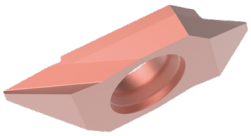
Geometry	Rake Angle/GAN
ASWP 09...F	15
ASWP 09...F16R	25
ASWP 10...F/F16R	20
ASWP.....M/M16R	12
ASWP.....T/T20R	0

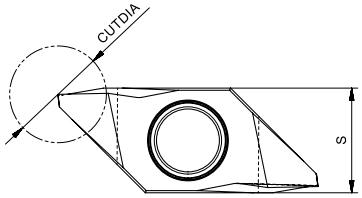
Recommended Cutting Parameters

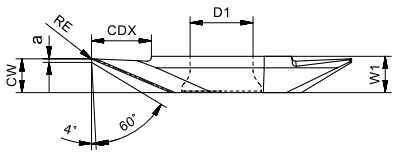
Machining Material	Recommend ed Grade	Linear Speed Vc (m/min)	Feed Rate f (mm/ rev)
P	AP301U	70-150	0.01-0.03
M	AP301M	60-100	0.01-0.03

● : Standard stock ○ : Made-to-Order

Backturning Insert

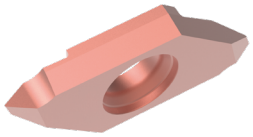


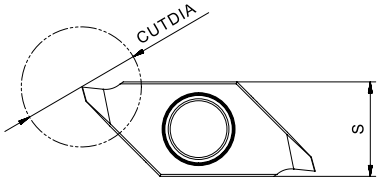


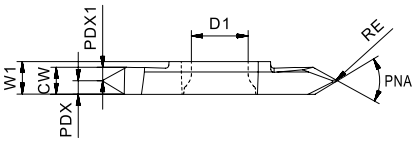


Product code	Dimension (mm)							Grade	
	CW	a	CDX	W1	S	D1	RE	AP301U	AP301M
ASWB 09R150005-FR	1.5	0.25	2.6	3	8.7	5.2	0.05	○	●
ASWB 09R280005-FR	2.8	0.3	4.6	3	8.7	5.2	0.05	○	●
ASWB 09L280005-FR	2.8	0.3	4.6	3	8.7	5.2	0.05	○	●
ASWB 09R280010-FR	2.8	0.3	4.6	3	8.7	5.2	0.1	●	●
ASWB 09L280010-FR	2.8	0.3	4.6	3	8.7	5.2	0.1	○	●
ASWB 10R380005-FR	3.8	0.3	6.3	4	9.5	5.2	0.05	○	●
ASWB 10L380005-FR	3.8	0.3	6.3	4	9.5	5.2	0.05	○	●
ASWB 10R380010-FR	3.8	0.3	6.3	4	9.5	5.2	0.1	○	●
ASWB 10L380010-FR	3.8	0.3	6.3	4	9.5	5.2	0.1	○	●

Threading Insert







Product code	Angle	Applicable Thread		Dimension (mm)						Grade	
	PNA	mm	Thread/Inch	PDX	RE	CW	W1	S	D1	AP301U	AP301M
ASWT 09R60000-FR	60	0.2~0.6	64~48	0.4	0.05	2.5	3	8.7	5.2	●	●
ASWT 09R60000-FL	60	0.2~0.6	64~48	2.1	0.05	2.5	3	8.7	5.2	○	○
ASWT 09R60005-FR	60	0.5~1.25	48~24	0.8	0.05	2.5	3	8.7	5.2	●	●
ASWT 09R60005-FL	60	0.5~1.25	48~24	1.7	0.05	2.5	3	8.7	5.2	○	○
ASWT 09R60010-FN	60	1.0~1.5	24~18	1.25	0.1	2.5	3	8.7	5.2	○	●
ASWT 09R55005-FR	55	-	40~16	0.8	0.05	2.5	3	8.7	5.2	○	○
ASWT 09R55005-FL	55	-	40~16	1.7	0.05	2.5	3	8.7	5.2	○	○
ASWT 09L60000-FR	60	0.2~0.6	64~48	2.1	0.05	2.5	3	8.7	5.2	○	●
ASWT 09L60000-FL	60	0.2~0.6	64~48	0.4	0.05	2.5	3	8.7	5.2	○	○

Nose Position Fig.

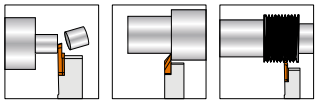
Code	-FR	-FL	-FN
Fig. (Right-hand tool)			

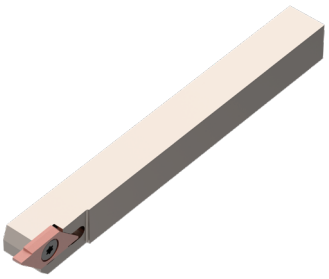
ASWT Insert Denomination System

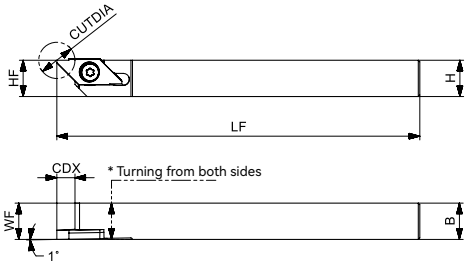
ASWT	09	R	60	005	-	F	R
Series Name	Insert dimensions	Insert direction	Thread angle	Nose Rounding Radius		Sharp Type	Nose position

● : Standard stock ○ : Made-to-Order

ASW Multifunctional Tool Holder

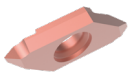






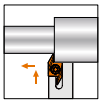
Product code	Dimension (mm)							Stock		Spare parts	
	H	HF	B	LF	LH	WF	CDX	R	L	Screw	Wrench
ASWSR/L 1010-09	10	10	10	120	15	10	6	○	○	SP04509357	FT-TP10
ASWSR/L 1212-09	12	12	12	120	-	12	6	●	●		
ASWSR/L 1616-09	16	16	16	120	-	16	6	●	●		
ASWSR/L 2020-09	20	20	20	120	-	20	6	●	●		
ASWSR/L 1010-10	10	10	10	120	20	10	8	○	○		
ASWSR/L 1212-10	12	12	12	120	-	12	8	●	●		
ASWSR/L 1616-10	16	16	16	120	-	16	8	●	●		
ASWSR/L 2020-10	20	20	20	120	-	20	8	●	●		

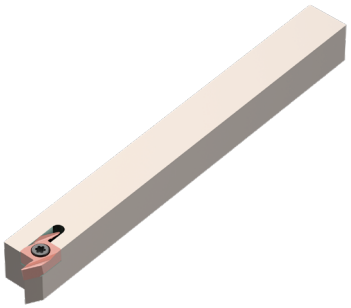
Applicable Insert

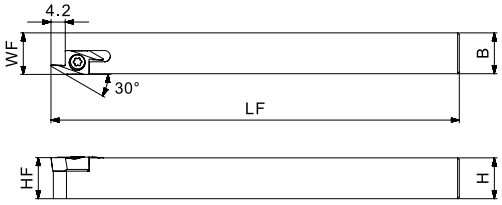
Applicaiton	Parting off	Backturning	Threading
Insert shape / Product code			
ASWSR/L···-09	ASWP 09R/L	ASWB 09R/L	ASWT 09R/L
ASWSR/L···-10	ASWP 10R/L	ASWB 10R/L	-
Reference page	P167	P170	P170

● : Standard stock ○ : Made-to-Order

ABF Backturning Tool Hoder

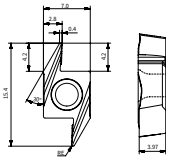






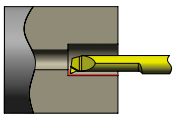
Product code	Dimension (mm)					Stock	Spare parts	
	H	B	HF	LF	WF	R	Screw	Wrench
ABFSR 1010-07	10	10	10	120	10.2	●	SP030082	FT-TP09
ABFSR 1212-07	12	12	12	120	12.2	●		
ABFSR 1616-07	16	16	16	120	16.2	●		

ABF Backturning Insert

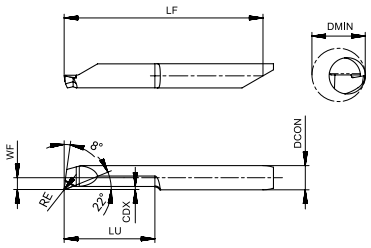
Insert	Dimension (mm)	Product code	Dimension (mm)	Grade
			RE	AP301M
		**ABF 07R280005-FR**	0.05	●
		ABF 07R280010-FR	0.1	●
		ABF 07R280015-FR	0.15	●
		ABF 07R280020-FR	0.2	●

● : Standard stock ○ : Made-to-Order

ASIB T Type-Small Dia. Boring Tool



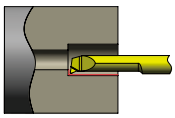




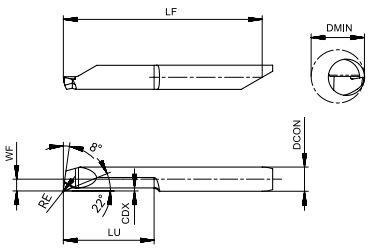
Product code	Dimension (mm)							AP220U	
	DCON	RE	WF	LF	DMIN	LU	CDX	R	L
ASIBR/L 04T000-0602	4	0	0.3	27.3	0.6	2.5	0.1	●	○
ASIBR/L 04T000-0703	4	0	0.3	27.3	0.7	3.5	0.1	○	○
ASIBR/L 04T000-0804	4	0	0.4	27.3	0.8	4	0.1	○	○
ASIBR/L 04T000-0905	4	0	0.4	27.3	0.9	5	0.1	●	○
ASIBR/L 04T005-1004	4	0.05	0.5	27.3	1	4	0.1	●	○
ASIBR/L 04T005-1006	4	0.05	0.5	27.3	1	6	0.1	○	○
ASIBR/L 04T010-1004	4	0.1	0.5	27.3	1	4	0.1	●	○
ASIBR/L 04T010-1006	4	0.1	0.5	27.3	1	6	0.1	●	○
ASIBR/L 04T005-1706	4	0.05	0.7	27.3	1.7	6	0.2	●	○
ASIBR/L 04T005-1709	4	0.05	0.7	27.3	1.7	9	0.2	●	○
ASIBR/L 04T010-1706	4	0.1	0.7	27.3	1.7	6	0.2	●	○
ASIBR/L 04T010-1709	4	0.1	0.7	27.3	1.7	9	0.2	●	○
ASIBR/L 04T005-2206	4	0.05	1	27.3	2.2	6	0.2	●	○
ASIBR/L 04T005-2209	4	0.05	1	27.3	2.2	9	0.2	●	○
ASIBR/L 04T010-2206	4	0.1	1	27.3	2.2	6	0.2	●	○
ASIBR/L 04T010-2209	4	0.1	1	27.3	2.2	9	0.2	●	○
ASIBR/L 04T010-2213	4	0.1	1	32.3	2.2	13	0.2	●	●
ASIBR/L 04T003-2710	4	0.03	1.2	27.3	2.7	10	0.2	●	○
ASIBR/L 04T005-2710	4	0.05	1.2	27.3	2.7	10	0.2	●	○
ASIBR/L 04T005-2715	4	0.05	1.2	32.3	2.7	15	0.2	●	○
ASIBR/L 04T015-2710	4	0.15	1.2	27.3	2.7	10	0.2	●	○
ASIBR/L 04T015-2715	4	0.15	1.2	32.3	2.7	15	0.2	●	○
ASIBR/L 04T003-3210	4	0.03	1.5	27.3	3.2	10	0.2	○	○
ASIBR/L 04T005-3215	4	0.05	1.5	32.3	3.2	15	0.2	●	○
ASIBR/L 04T005-3220	4	0.05	1.5	37.3	3.2	20	0.2	●	○
ASIBR/L 04T015-3210	4	0.15	1.5	27.3	3.2	10	0.2	●	○
ASIBR/L 04T015-3215	4	0.15	1.5	32.3	3.2	15	0.2	●	●
ASIBR/L 04T015-3220	4	0.15	1.5	37.3	3.2	20	0.2	●	●
ASIBR/L 04T003-4210	4	0.03	2	27.3	4.2	10	0.3	○	○
ASIBR/L 04T005-4215	4	0.05	2	32.3	4.2	15	0.3	●	○
ASIBR/L 04T005-4220	4	0.05	2	37.3	4.2	20	0.3	●	○
ASIBR/L 04T005-4225	4	0.05	2	42.3	4.2	25	0.3	●	○
ASIBR/L 04T015-4210	4	0.15	2	27.3	4.2	10	0.3	●	○
ASIBR/L 04T015-4215	4	0.15	2	32.3	4.2	15	0.3	●	●
ASIBR/L 04T015-4220	4	0.15	2	37.3	4.2	20	0.3	●	○

● : Standard stock ○ : Made-to-Order (MOQ: 30 pcs)

ASIB T Type-Small Dia. Boring Tool



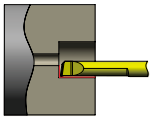




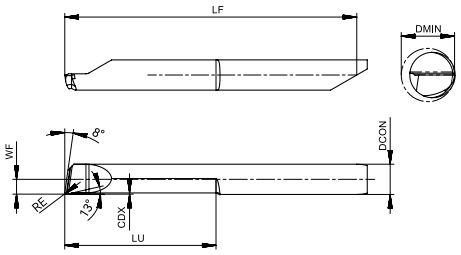
Product code	Dimension (mm)							AP220U	
	DCON	RE	WF	LF	DMIN	LU	CDX	R	L
ASIBR/L 04T015-4225	4	0.15	2	42.3	4.2	25	0.3	●	○
ASIBR/L 05T005-5220	5	0.05	2.5	42.3	5.2	20	0.5	●	●
ASIBR/L 05T005-5230	5	0.05	2.5	52.3	5.2	30	0.5	●	○
ASIBR/L 05T020-5210	5	0.2	2.5	32.3	5.2	10	0.5	●	○
ASIBR/L 05T020-5215	5	0.2	2.5	42.3	5.2	15	0.5	●	○
ASIBR/L 05T020-5220	5	0.2	2.5	42.3	5.2	20	0.5	●	○
ASIBR/L 05T020-5225	5	0.2	2.5	47.3	5.2	25	0.5	●	○
ASIBR/L 05T020-5230	5	0.2	2.5	52.3	5.2	30	0.5	●	○
ASIBR/L 05T020-5235	5	0.2	2.5	57.3	5.2	35	0.5	●	○
ASIBR/L 05T020-5240	5	0.2	2.5	62.3	5.2	40	0.5	●	○
ASIBR/L 06T005-6220	6	0.05	3	42.3	6.2	20	0.5	●	●
ASIBR/L 06T020-6215	6	0.2	3	37.3	6.2	15	0.5	●	○
ASIBR/L 06T020-6220	6	0.2	3	42.3	6.2	20	0.5	●	○
ASIBR/L 06T020-6225	6	0.2	3	47.3	6.2	25	0.5	○	●
ASIBR/L 06T020-6230	6	0.2	3	52.3	6.2	30	0.5	●	●
ASIBR/L 06T020-6235	6	0.2	3	57.3	6.2	35	0.5	●	○
ASIBR/L 06T020-6240	6	0.2	3	62.3	6.2	40	0.5	●	●

● : Standard stock ○ : Made-to-Order (MOQ: 30 pcs)

ASIB E Type-Small Dia. Boring Tool



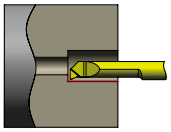




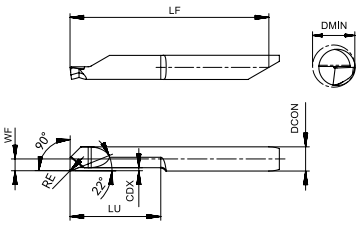
Product code	Dimension (mm)							AP220U	
	DCON	RE	WF	LF	DMIN	LU	CDX	R	L
ASIBR 04E008-4230	4	0.08	2	52.3	4.2	30	0.5	●	-
ASIBR/L 04E015-4210	4	0.15	2	27.3	4.2	10.3	0.5	●	○
ASIBR/L 04E015-4220	4	0.15	2	37.3	4.2	20.3	0.5	●	●
ASIBR/L 04E015-4225	4	0.15	2	42.3	4.2	25.3	0.5	●	●
ASIBR/L 04E020-4215	4	0.2	2	32.3	4.2	15.3	0.3	●	○
ASIBR 05E008-5240	5	0.08	2.5	67.3	5.2	40	0.5	●	-
ASIBR/L 05E020-5210	5	0.2	2.5	32.3	5.2	10.2	0.6	○	○
ASIBR/L 05E020-5215	5	0.2	2.5	37.3	5.2	15	0.5	●	○
ASIBR/L 05E020-5220	5	0.2	2.5	42.3	5.2	20.3	0.6	●	○
ASIBR/L 05E020-5225	5	0.2	2.5	47.3	5.2	25.4	0.5	●	○
ASIBR/L 05E020-5230	5	0.2	2.5	52.3	5.2	30.5	0.6	○	○
ASIBR 06E008-6245	6	0.08	3	72.3	6.2	45	0.5	○	-
ASIBR/L 06E020-6215	6	0.2	3	37.3	6.2	15.2	0.8	●	○
ASIBR/L 06E020-6220	6	0.2	3	42.3	6.2	20.3	0.8	●	○
ASIBR/L 06E020-6225	6	0.2	3	47.3	6.2	25.4	0.8	●	○
ASIBR/L 06E020-6230	6	0.2	3	52.3	6.2	30.5	0.5	●	○
ASIBR/L 06E020-6240	6	0.2	3	62.3	6.2	40	0.5	●	○

● : Standard stock ○ : Made-to-Order (MOQ: 30 pcs)

ASIB S Type-Small Dia. Boring Tool

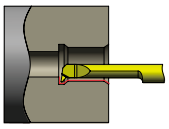




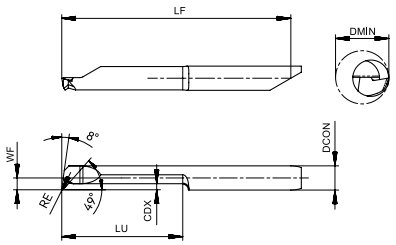


Product code	Dimension (mm)							AP220U	
	DCON	RE	WF	LF	DMIN	LU	APMX	R	L
ASIBR/L 04S015-3212	4	0.15	1.5	29.3	3.2	12	0.2	●	○
ASIBR/L 04S015-4215	4	0.15	2	32.3	4.2	15	0.3	●	○
ASIBR/L 05S020-5210	5	0.2	2.5	32.3	5.2	10	0.5	○	○
ASIBR/L 05S020-5215	5	0.2	2.5	37.3	5.2	15	0.5	●	●
ASIBR/L 05S020-5220	5	0.2	2.5	42.3	5.2	20	0.5	●	○

ASIB V Type-Small Dia. Boring Tool



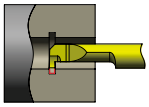




Product code	Dimension (mm)								AP220U	
	DCON	RE	WF	LF	DMIN	LU	APMX	CDX	R	L
ASIBR/L 04V015-4220	4	0.15	2	37.3	4.2	20	0.8	1	●	●
ASIBR/L 05V015-5225	5	0.15	2.5	47.3	5.2	25	1	1.2	●	●
ASIBR/L 06V015-6230	6	0.15	3	52.3	6.2	30	1.8	2	●	●

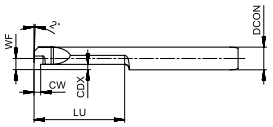
● : Standard stock ○ : Made-to-Order (MOQ: 30 pcs)

ASIG S Type-Small Dia. Internal Grooving Tool





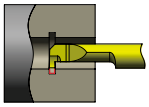




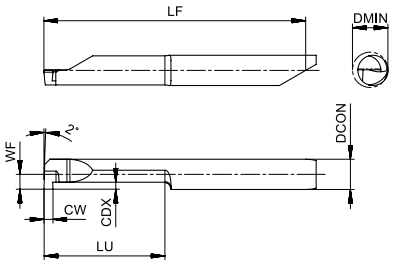
Product code	Dimension (mm)							AP220U	
	DCON	CW	WF	LF	DMIN	LU	CDX	R	L
ASIGR/L 04S050-2006	4	0.5	2	23.3	2	6	0.4	●	○
ASIGR/L 04S050-2009	4	0.5	2	26.3	2	9	0.4	●	○
ASIGR/L 04S050-2012	4	0.5	2	29.3	2	12	0.4	●	○
ASIGR/L 04S070-3008	4	0.7	1.4	25.3	3	8	0.6	●	●
ASIGR/L 04S070-3012	4	0.7	1.4	29.3	3	12	0.6	●	○
ASIGR/L 04S070-3016	4	0.7	1.4	33.3	3	16	0.6	●	○
ASIGR/L 04S100-4210	4	1	2	27.3	4.2	10	0.8	●	○
ASIGR/L 04S100-4215	4	1	2	32.3	4.2	15	0.8	●	○
ASIGR/L 04S100-4220	4	1	2	37.3	4.2	20	0.8	●	○
ASIGR/L 05S100-5210	5	1	2.5	32.3	5.2	10	1	●	○
ASIGR/L 05S100-5215	5	1	2.5	37.3	5.2	15	1	●	○
ASIGR/L 05S100-5220	5	1	2.5	42.3	5.2	20	1	●	○
ASIGR/L 05S100-5225	5	1	2.5	47.3	5.2	25	1	●	○
ASIGR/L 05S100-5230	5	1	2.5	52.3	5.2	30	1	○	○
ASIGR/L 05S100-5235	5	1	2.5	57.3	5.2	35	1	●	○
ASIGR/L 05S150-5210	5	1.5	2.5	32.3	5.2	10	1	●	○
ASIGR/L 05S150-5215	5	1.5	2.5	37.3	5.2	15	1	○	○
ASIGR/L 05S150-5220	5	1.5	2.5	42.3	5.2	20	1	●	○
ASIGR/L 05S150-5225	5	1.5	2.5	47.3	5.2	25	1	○	○
ASIGR/L 05S150-5230	5	1.5	2.5	52.3	5.2	30	1	○	○
ASIGR/L 05S150-5235	5	1.5	2.5	57.3	5.2	35	1	○	○
ASIGR/L 05S200-5210	5	2	2.5	32.3	5.2	10	1	○	○
ASIGR/L 05S200-5215	5	2	2.5	37.3	5.2	15	1	●	○
ASIGR/L 05S200-5220	5	2	2.5	42.3	5.2	20	1	○	○
ASIGR/L 05S200-5225	5	2	2.5	47.3	5.2	25	1	●	○
ASIGR/L 05S200-5230	5	2	2.5	52.3	5.2	30	1	○	○

● : Standard stock ○ : Made-to-Order (MOQ: 30 pcs)

ASIG S Type-Small Dia. Internal Grooving Tool



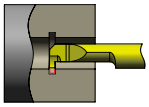




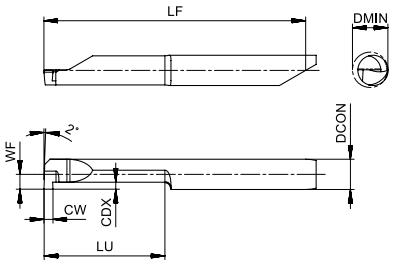
Product code	Dimension (mm)							AP220U	
	DCON	CW	WF	LF	DMIN	LU	CDX	R	L
ASIGR/L 06S100-6210	6	1	3	32.3	6.2	10	1.8	●	○
ASIGR/L 06S100-6215	6	1	3	37.3	6.2	15	1.8	●	●
ASIGR/L 06S100-6220	6	1	3	42.3	6.2	20	1.8	●	○
ASIGR/L 06S100-6225	6	1	3	47.3	6.2	25	1.8	●	○
ASIGR/L 06S100-6230	6	1	3	52.3	6.2	30	1.8	●	○
ASIGR/L 06S100-6235	6	1	3	57.3	6.2	35	1.8	○	○
ASIGR/L 06S100-6240	6	1	3	62.3	6.2	40	1.8	○	○
ASIGR/L 06S150-6210	6	1.5	3	32.3	6.2	10	1.8	○	○
ASIGR/L 06S150-6215	6	1.5	3	37.3	6.2	15	1.8	○	○
ASIGR/L 06S150-6220	6	1.5	3	42.3	6.2	20	1.8	●	○
ASIGR/L 06S150-6225	6	1.5	3	47.3	6.2	25	1.8	●	○
ASIGR/L 06S150-6230	6	1.5	3	52.3	6.2	30	1.8	○	○
ASIGR/L 06S150-6235	6	1.5	3	57.3	6.2	35	1.8	○	○
ASIGR/L 06S200-6210	6	2	3	32.3	6.2	10	1.8	○	○
ASIGR/L 06S200-6215	6	2	3	37.3	6.2	15	1.8	●	●
ASIGR/L 06S200-6220	6	2	3	42.3	6.2	20	1.8	●	○
ASIGR/L 06S200-6225	6	2	3	47.3	6.2	25	1.8	●	○
ASIGR/L 06S200-6230	6	2	3	52.3	6.2	30	1.8	●	○

● : Standard stock ○ : Made-to-Order (MOQ: 30 pcs)

ASIG S Type-Small Dia. Internal Grooving Tool (For Circlip Groove)



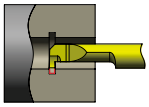




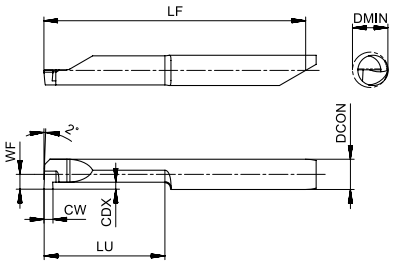
Product code	Dimension (mm)							AP220U	
	DCON	CW	WF	LF	DMIN	LU	CDX	R	L
ASIGR/L 04S078-4210	4	0.78	2	27.3	4.2	10	0.8	○	○
ASIGR/L 04S078-4215	4	0.78	2	32.3	4.2	15	0.8	○	○
ASIGR/L 04S078-4220	4	0.78	2	37.3	4.2	20	0.8	○	○
ASIGR/L 04S078-4225	4	0.78	2	42.3	4.2	25	0.8	○	○
ASIGR/L 05S078-5210	5	0.78	2.5	32.3	5.2	10	1	○	○
ASIGR/L 05S078-5215	5	0.78	2.5	37.3	5.2	15	1	○	○
ASIGR/L 05S078-5220	5	0.78	2.5	42.3	5.2	20	1	○	○
ASIGR/L 05S078-5225	5	0.78	2.5	47.3	5.2	25	1	○	○
ASIGR/L 05S078-5230	5	0.78	2.5	52.3	5.2	30	1	○	○
ASIGR/L 05S078-5235	5	0.78	2.5	57.3	5.2	35	1	○	○
ASIGR/L 05S117-5210	5	1.17	2.5	32.3	5.2	10	1	○	○
ASIGR/L 05S117-5215	5	1.17	2.5	37.3	5.2	15	1	○	○
ASIGR/L 05S117-5220	5	1.17	2.5	42.3	5.2	20	1	○	○
ASIGR/L 05S117-5225	5	1.17	2.5	47.3	5.2	25	1	○	○
ASIGR/L 05S117-5230	5	1.17	2.5	52.3	5.2	30	1	○	○
ASIGR/L 05S117-5235	5	1.17	2.5	57.3	5.2	35	1	○	○
ASIGR/L 05S157-5210	5	1.57	2.5	32.3	5.2	10	1	○	○
ASIGR/L 05S157-5215	5	1.57	2.5	37.3	5.2	15	1	○	○
ASIGR/L 05S157-5220	5	1.57	2.5	42.3	5.2	20	1	○	○
ASIGR/L 05S157-5225	5	1.57	2.5	47.3	5.2	25	1	○	○
ASIGR/L 05S157-5230	5	1.57	2.5	52.3	5.2	30	1	○	○
ASIGR/L 05S198-5210	5	1.98	2.5	32.3	5.2	10	1	○	○
ASIGR/L 05S198-5215	5	1.98	2.5	37.3	5.2	15	1	○	○
ASIGR/L 05S198-5220	5	1.98	2.5	42.3	5.2	20	1	○	○
ASIGR/L 05S198-5225	5	1.98	2.5	47.3	5.2	25	1	○	○
ASIGR/L 05S198-5230	5	1.98	2.5	52.3	5.2	30	1	○	○

● : Standard stock ○ : Made-to-Order (MOQ: 30 pcs)

ASIG S Type-Small Dia. Internal Grooving Tool (For Circlip Groove)



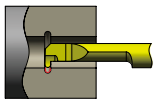




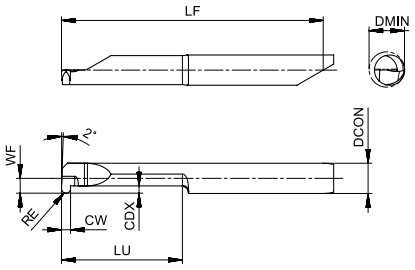
Product code	Dimension (mm)							AP220U	
	DCON	CW	WF	LF	DMIN	LU	CDX	R	L
ASIGR/L 06S078-6210	6	0.78	3	32.3	6.2	10	1.8	○	○
ASIGR/L 06S078-6215	6	0.78	3	37.3	6.2	15	1.8	○	○
ASIGR/L 06S078-6220	6	0.78	3	42.3	6.2	20	1.8	○	○
ASIGR/L 06S078-6225	6	0.78	3	47.3	6.2	25	1.8	○	○
ASIGR/L 06S078-6230	6	0.78	3	52.3	6.2	30	1.8	○	○
ASIGR/L 06S078-6235	6	0.78	3	57.3	6.2	35	1.8	○	○
ASIGR/L 06S117-6210	6	1.17	3	32.3	6.2	10	1.8	○	○
ASIGR/L 06S117-6215	6	1.17	3	37.3	6.2	15	1.8	○	○
ASIGR/L 06S117-6220	6	1.17	3	42.3	6.2	20	1.8	○	○
ASIGR/L 06S117-6225	6	1.17	3	47.3	6.2	25	1.8	○	○
ASIGR/L 06S117-6230	6	1.17	3	52.3	6.2	30	1.8	○	○
ASIGR/L 06S117-6235	6	1.17	3	57.3	6.2	35	1.8	○	○
ASIGR/L 06S117-6240	6	1.17	3	62.3	6.2	40	1.8	○	○
ASIGR/L 06S157-6210	6	1.57	3	32.3	6.2	10	1.8	○	○
ASIGR/L 06S157-6215	6	1.57	3	37.3	6.2	15	1.8	○	○
ASIGR/L 06S157-6220	6	1.57	3	42.3	6.2	20	1.8	○	○
ASIGR/L 06S157-6225	6	1.57	3	47.3	6.2	25	1.8	○	○
ASIGR/L 06S157-6230	6	1.57	3	52.3	6.2	30	1.8	○	○
ASIGR/L 06S157-6235	6	1.57	3	57.3	6.2	35	1.8	○	○
ASIGR/L 06S157-6240	6	1.57	3	62.3	6.2	40	1.8	○	○
ASIGR/L 06S198-6210	6	1.98	3	32.3	6.2	10	1.8	○	○
ASIGR/L 06S198-6215	6	1.98	3	37.3	6.2	15	1.8	●	○
ASIGR/L 06S198-6225	6	1.98	3	47.3	6.2	25	1.8	○	○
ASIGR/L 06S198-6235	6	1.98	3	57.3	6.2	35	1.8	○	○

● : Standard stock ○ : Made-to-Order (MOQ: 30 pcs)

ASIG R Type-Small Dia. Internal Grooving Tool

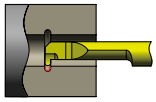




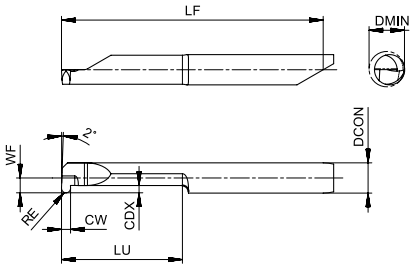


Product code	Dimension (mm)							AP220U	
	DCON	CW	WF	LF	DMIN	LU	CDX	R	L
ASIGR/L 04R100-4215	4	1	2	32.3	4.2	15	0.8	●	●
ASIGR/L 05R100-5220	5	1	2.5	42.3	5.2	20	1	●	●
ASIGR/L 05R150-5220	5	1.5	2.5	42.3	5.2	20	1	●	○
ASIGR/L 05R200-5220	5	2	2.5	42.3	5.2	20	1	●	○
ASIGR/L 06R100-6225	6	1	3	47.3	6.2	25	1.8	●	●
ASIGR/L 06R150-6225	6	1.5	3	47.3	6.2	25	1.8	●	○
ASIGR/L 06R200-6225	6	2	3	47.3	6.2	25	1.8	●	●

ASIG R Type-Small Dia. Internal Grooving Tool（For Circlip Groove）



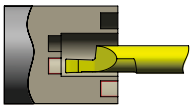




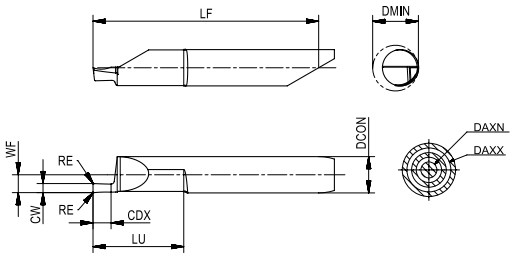
Product code	Dimension (mm)							AP220U	
	DCON	CW	WF	LF	DMIN	LU	CDX	R	L
ASIGR/L 04R117-4215	4	1.17	2	32.3	4.2	15	0.8	○	○
ASIGR/L 05R117-5220	5	1.17	2.5	42.3	5.2	20	1	○	○
ASIGR/L 05R163-5220	5	1.63	2.5	42.3	5.2	20	1	○	○
ASIGR/L 05R198-5220	5	1.98	2.5	42.3	5.2	20	1	○	○
ASIGR/L 06R117-6225	6	1.17	3	47.3	6.2	25	1.8	○	○
ASIGR/L 06R163-6225	6	1.63	3	47.3	6.2	25	1.8	○	○
ASIGR/L 06R198-6225	6	1.98	3	47.3	6.2	25	1.8	○	○

● : Standard stock ○ : Made-to-Order (MOQ: 30 pcs)

ASIF A Type - Small Dia. Internal Face Grooving (Inward Deviation)

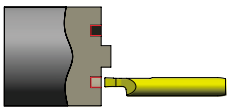




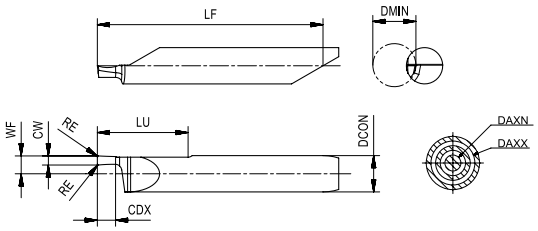


Product code	Dimension (mm)								AP220U	
	DCON	CW	WF	RE	LF	DAXN	LU	CDX	R	L
ASIFR/L 06A100-6215	6	1	3	0.15	37.3	4.2	15	2	●	○
ASIFR/L 06A150-6215	6	1.5	3	0.15	37.3	3.2	15	3	●	○
ASIFR/L 06A200-6215	6	2	3	0.15	37.3	2.2	15	4	●	○
ASIFR/L 06A250-6215	6	2.5	3	0.15	37.3	1.2	15	5	●	○
ASIFR/L 06A300-6215	6	3	3	0.15	37.3	0.2	15	6	●	○
ASIFR/L 08A200-8015	8	2	3	0.2	44.3	11	15	15	●	●
ASIFR/L 08A250-8010	8	2.5	3	0.2	39.3	5	10	10	○	○
ASIFR/L 08A300-8010	8	3	3	0.2	39.3	4	10	10	○	●
ASIFR/L 08A300-8015	8	3	3	0.2	44.3	9	15	15	●	○
ASIFR/L 08A400-8010	8	4	3	0.2	39.3	2	10	10	○	○
ASIFR/L 08A400-8015	8	4	3	0.2	44.3	7	15	15	○	○

ASIF B Type - Small Dia. Internal Face Grooving (Outward Deviation)



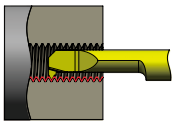




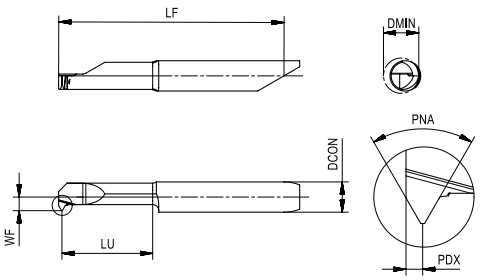
Product code	Dimension (mm)								AP220U	
	DCON	CW	WF	RE	LF	DAXN	LU	CDX	R	L
ASIFR/L 06B100-6215	6	1	3	0.15	37.3	4.2	15	2	●	○
ASIFR/L 06B150-6215	6	1.5	3	0.15	37.3	3.2	15	3	●	○
ASIFR/L 06B200-6215	6	2	3	0.15	37.3	2.2	15	4	○	○
ASIFR/L 06B250-6215	6	2.5	3	0.15	37.3	1.2	15	5	●	●
ASIFR/L 06B300-6215	6	3	3	0.15	37.3	0.2	15	6	●	●

● : Standard stock ○ : Made-to-Order (MOQ: 30 pcs)

ASIT V Type - Small Dia. Internal 60° Partial Profile Threading Tool

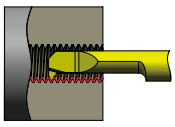




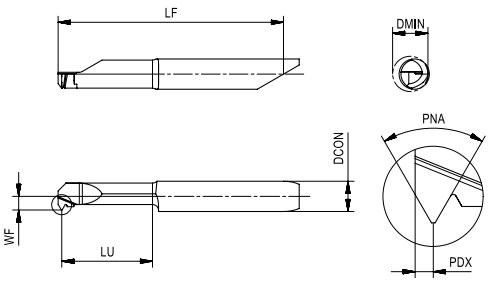


Product code	Dimension (mm)								AP220U	
	DCON	PDX	PNA	WF	LF	P	DMIN	LU	R	L
ASITR/L 04V050-4215	4	0.4	60°	2	32.7	0.5~0.7	4.2	15	●	●
ASITR 05V050-5215	5	0.4	60°	2.5	37.7	0.5~0.75	5.2	15	●	-
ASITR 05V070-5115	5	0.5	60°	2.4	37.8	0.7~1	5.1	15	●	-
ASITR/L 05V100-4815	5	0.6	60°	2.3	37.9	1~1.25	4.8	15	●	●
ASITR 06V100-6215	6	0.6	60°	3	37.9	1~1.25	6.2	15	●	-
ASITR/L 06V125-6215	6	0.8	60°	3	38.1	1.25~1.5	6.2	15	●	●
ASITR/L 06V150-6215	6	1	60°	3	38.3	1.5~1.75	6.2	15	●	●

ASIT M Type - Small Dia. Internal ISO Threading Tool



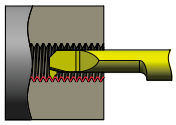




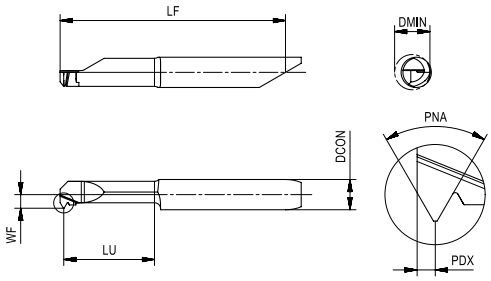
Product code	Dimension (mm)								AP220U	
	DCON	PDX	PNA	WF	LF	P	DMIN	LU	R	L
ASITR 04M050-4215	4	0.4	60°	2	32.7	0.5	4.4	15	○	-
ASITR 04M070-4215	4	0.5	60°	1.9	32.8	0.7	4.4	15	○	-
ASITR 04M080-4015	4	0.5	60°	1.9	32.8	0.8	4	15	●	-
ASITR 05M050-5215	5	0.4	60°	2.5	37.7	0.5	5.2	15	○	-
ASITR 05M075-5115	5	0.5	60°	2.4	37.8	0.75	5.1	15	●	-
ASITR 05M100-4815	5	0.6	60°	2.3	37.9	1	4.8	15	●	-
ASITR 06M100-6215	6	0.6	60°	3	37.9	1	6.2	15	○	-
ASITR 06M125-6215	6	0.7	60°	3	38	1.25	6.2	15	○	-
ASITR 06M150-6215	6	0.8	60°	3	38.1	1.5	6.2	15	●	-
ASITR 06M175-6215	6	0.9	60°	3	38.2	1.75	6.2	15	○	-
ASITR 06M200-6215	6	1	60°	3	38.3	2	6.2	15	●	-

● : Standard stock ○ : Made-to-Order (MOQ: 30 pcs)

ASIT U Type - Small Dia. Internal UN Threading Tool

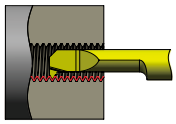




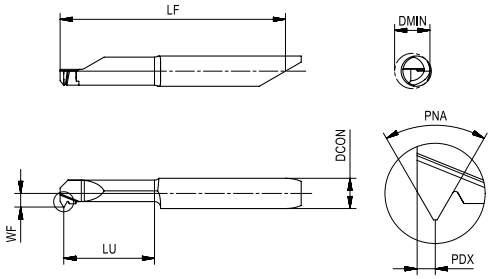


Product code	Dimension (mm)								AP220U	
	DCON	PDX	PNA	WF	LF	P	DMIN	LU	R	L
ASITR 04U032-4015	4	0.6	60°	1.9	32.9	28	4	15	○	-
ASITR 04U028-4015	4	0.6	60°	1.9	32.9	32	4	15	○	-
ASITR 04U024-4215	4	0.7	60°	2	33	24	4.2	15	○	-
ASITR 05U020-5215	5	0.7	60°	2.5	38	20	5.2	15	○	-
ASITR 06U018-6215	6	0.6	60°	3	38.1	18	6.2	15	○	-
ASITR 06U016-6215	6	0.9	60°	3	38.2	16	6.2	15	●	-

ASIT W Type - Small Dia. Internal Worth Threading Tool



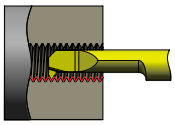




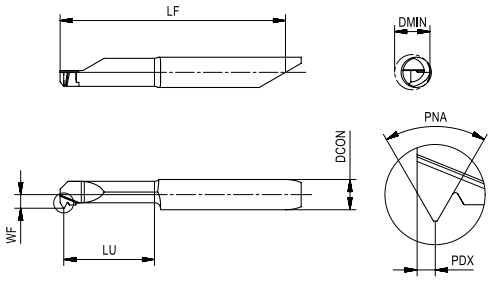
Product code	Dimension (mm)								AP220U	
	DCON	PDX	PNA	WF	LF	P	DMIN	LU	R	L
ASITR 05W028-5215	5	0.8	55°	2.5	38.1	28	5.2	15	○	-
ASITR 05W026-5215	5	0.8	55°	2.5	38.1	26	5.2	15	○	-
ASITR 05W024-5215	5	0.8	55°	2.5	38.1	24	5.2	15	○	-
ASITR 06W028-6215	6	0.8	55°	3	38.1	28	6.2	15	○	-
ASITR 06W026-6215	6	0.8	55°	3	38.1	26	6.2	15	○	-
ASITR 06W024-6215	6	0.8	55°	3	38.1	24	6.2	15	○	-
ASITR 06W022-6215	6	1	55°	3	38.3	22	6.2	15	○	-
ASITR 06W020-6215	6	1	55°	3	38.3	20	6.2	15	○	-
ASITR/L 06W019-6215	6	1	55°	3	38.3	19	6.2	15	○	○

● : Standard stock ○ : Made-to-Order (MOQ: 30 pcs)

ASIT N Type - Small Dia. Internal NPT Threading Tool

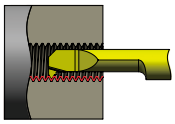




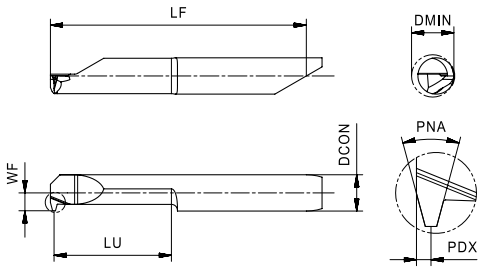


Product code	Dimension (mm)								AP220U	
	DCON	PDX	PNA	WF	LF	P	DMIN	LU	R	L
ASITR 06N027-6215	6	0.8	60°	3	38.1	27	6.2	15	○	-
ASITR/L 06N018-6215	6	1	60°	3	38.3	18	6.2	15	●	○

ASIT T Type - Small Dia. Internal TR Threading Tool





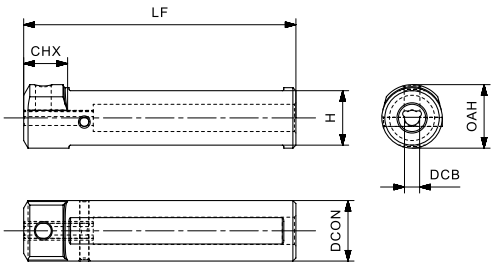


Product code	Dimension (mm)								AP220U	
	DCON	PDX	PNA	WF	LF	P	DMIN	LU	R	L
ASITR 06T150-6220	6	0.6	30°	3	38.2	1.5	6.2	20	●	-
ASITR 06T200-6220	6	0.8	30°	3	38.4	2	6.2	20	●	-

● : Standard stock ○ : Made-to-Order (MOQ: 30 pcs)

Boring Tool Sleeves





Product code	DCB	DCON	LF	H	Stock
ASI 0010-04	4	10	65	8	●
ASI 0010-05	5				●
ASI 0012-04	4	12	70	10	●
ASI 0012-05	5				●
ASI 0012-06	6				●
ASI 0016-04	4	16	75	14	●
ASI 0016-05	5				●
ASI 0016-06	6				●
ASI 0016-08	8				●
ASI 0020-04	4	20	90	18	●
ASI 0020-05	5				●
ASI 0020-06	6				●
ASI 0020-08	8				●
ASI 0025-04	4	25	110	23	●
ASI 0025-05	5				●
ASI 0025-06	6				●
ASI 0025-08	8				●

● : Standard stock ○ : Made-to-Order

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Grooving Tool Holder

CUTTING TOOL CATALOGUE

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Overview of Grooving Holders

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			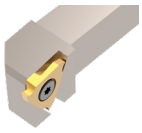		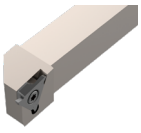	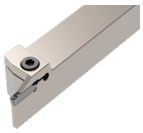	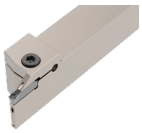	
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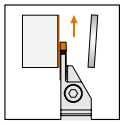
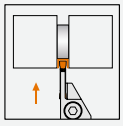
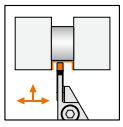
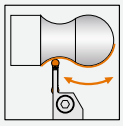
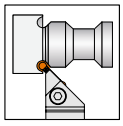
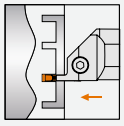
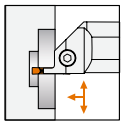
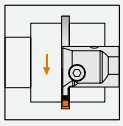
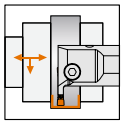
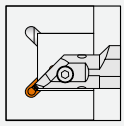
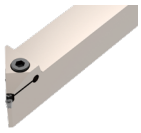
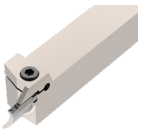
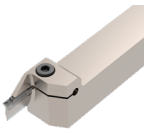
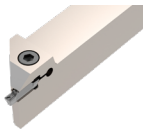
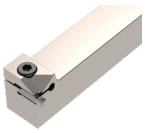
External Grooving	Parting off					●	●	●
	Grooving		●	●	●	●	●	●
	Turning					●	●	●
	Profiling		●	●	●	●	●	●
	Undercutting							
Face Grooving	Grooving							
	Turning							
Internal Machining	Grooving							
	Turning							
	Undercutting							

Marked: ● : Primary application ○ : Secondary application

Overview of Grooving Holders

Application \ Holder			External Grooving		Face Grooving			
			ATSER/L-SW	AGUER/L	ATSFR/L	ATSFR/L-OB	AGSFR/L	AGPFR/L
								
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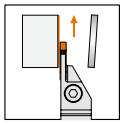
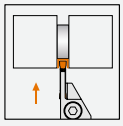
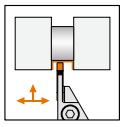
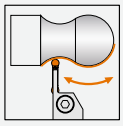
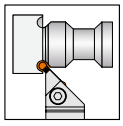
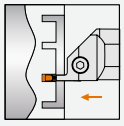
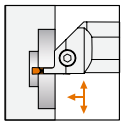
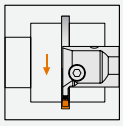
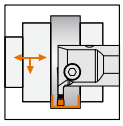
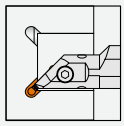
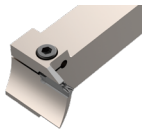
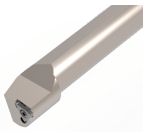
External Grooving	Parting off		●					
	Grooving		●					●
	Turning		●					○
	Profiling		●					
	Undercutting			●				
Face Grooving	Grooving				●	●	●	●
	Turning				●	●	●	●
Internal Machining	Grooving							
	Turning							
	Undercutting							

Marked: ● : Primary application ○ : Secondary application

Overview of Grooving Holders

Application \ Holder			Face Grooving	Internal Machining				
			ATPFR/L	ATPIR/L	ATGIR/L	ATSIR/L	AGSIR/L	AGUIR/L
								
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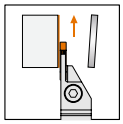
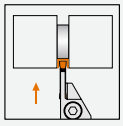
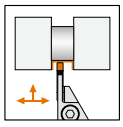
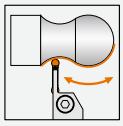
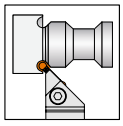
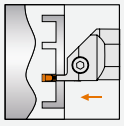
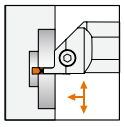
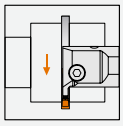
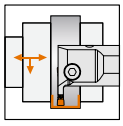
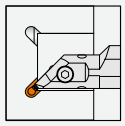
External Grooving	Parting off							
	Grooving							
	Turning							
	Profiling							
	Undercutting							●
Face Grooving	Grooving		●			●	●	
	Turning		●			●	●	
Internal Machining	Grooving			●	●			
	Turning			●				
	Undercutting							●

Marked: ● : Primary application ○ : Secondary application

ASGH Grooving Holder Denomination System

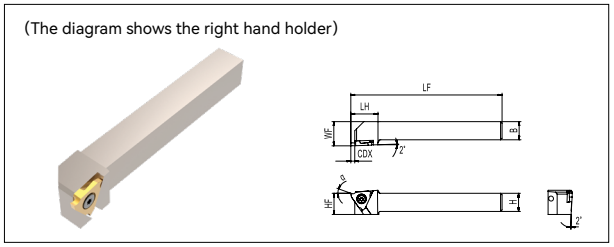
A	S	G	H	R	20	20	JX	-	32	F
1	2	3	4	5	6	7	8	-	9	10

1- Company Name	2- Matching Insert Type		3- Application		4- Holder Type		5- Hand of Tool	
ACHTECK	S	For swiss lathe	G	Grooving	H	Holder	L	Left
							R	Right

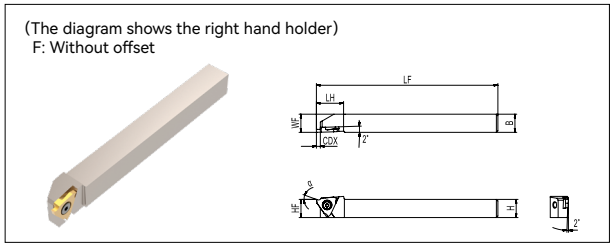
6- Holder Height	7- Holder Width	8- Holder Length	9- Matching Insert Size (IC)	10- Shape of Holder Head
20=20.0mm	20=20.0mm	JX=120mm	32=9.525mm	F: Without dimple

ASGHR/L External Shallow Grooving Holder for Swiss Lathe

(The diagram shows the right hand holder)



(The diagram shows the right hand holder)
F: Without offset



Product code		Dimension (mm)					Spare parts	
		H	B	LF	LH	CDX	Screw	Wrench
ASGHR/L	**1010JX-32F**	10	10	120	18.5	2.5	SP040070	FT-TP08
	1212FX-32F	12	12	85	18.5	2.5		
	1212JX-32F	12	12	120	18.5	2.5		
	1616JX-32F	16	16	120	18.5	2.5		
	2020JX-32F	16	16	120	18.5	2.5		
	1010F-32	10	10	80	18.5	2.5		
	1212H-32	12	12	100	18.5	2.5		
	1616H-32	16	16	100	18.5	2.5		
	2020K-32	20	20	125	20	2.5		
	2525M-32	25	25	150	20	2.5		

Insert Application

Application	Grooving
Insert shape / Product code	
ASGHR**	ASG 32R
ASGHL**	ASG 32L
Reference page	P227

S...ASGH Sleeve Tool Holder Denomination System

S	20	JX	-	A	S	G	H	L	32
1	2	3	-	4	5	6	7	8	9

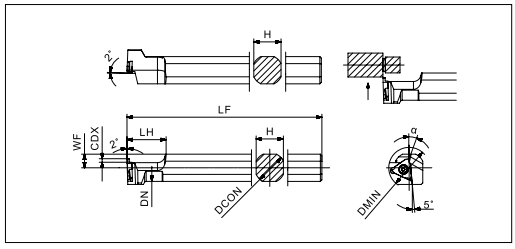
1- Holder Material	2- Holder Shank Diameter	3- Holder Length	4- Company Name
S=Steel	20=20mm	JX=120mm	ACHTECK

5- Matching Insert Type		6- Application		7- Holder Type		8- Hand of Tool	
S	Swiss	G	Grooving	H	Holder	L	Left

9- Matching Insert Size (IC)
32=9.525mm

S..ASGHL External Shallow Grooving Sleeve Holder for Swiss Lathe





Product code	Dimension (mm)					Spare parts	
	DCON	LF	WF	DN	DMIN	Screw	Wrench
S12F-ASGHL32	12	80	6	11	27	SP040070	FT-TP08
S14H-ASGHL32	14	100		13			
S15.0H-ASGHL32	15.875			15.875			
S16H-ASGHL32	16						
S19.0JX-ASGHL32	19.05	120		17.6			
S20JX-ASGHL32	20	120		18.6			
S22JX-ASGHL32	22	120					
S25JX-ASGHL32	25	120		23.6	32		
S25.0JX-ASGHL32	25.4	120	10	23.6			

Insert Application

Application	Grooving
Insert shape / Product code	
S....ASGHL**	ASG 32R
Reference page	P227

ATGH Tool Holder Denomination System

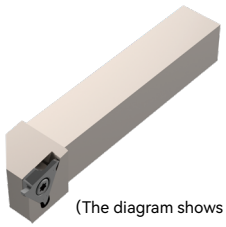
A	T	G	H	R	25	25	M	43	-	10	T25
1	2	3	4	5	6	7	8	9	-	10	11

1- Company Name	2- Matching Insert Type		3- Application		4- Holder Type	
ACHTECK	T	Triangular	G	Grooving	H	Holder

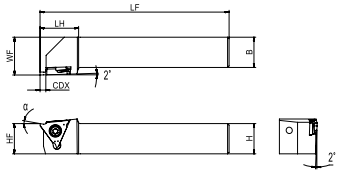
5- Hand of Tool		6- Holder Height	7- Holder Width	8- Holder Length
L	Left	20=20.0mm 25=25.0mm	20=20.0mm 25=25.0mm	K=125mm M=150mm
R	Right			

9- Matching Insert Size (IC)	10- Matching Insert Minimun Width	11- Maximum CDX
32=9.525mm	10=1.0mm	T25=2.5mm

ATGHR/L External Shallow Grooving Holder

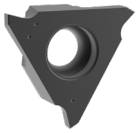
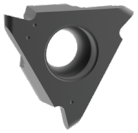


(The diagram shows the right hand holder)



Product code		Dimension (mm)						Spare parts	
		H	B	LF	LH	WF	CDX	Screw	Wrench
ATGHR/L	**2020K32-T25**	20	20	125	24	25	2.5	SP040085	FT-TP15
	2525M32-T25	25	25	150	24	30	2.5		
	2020K43-10T40	20	20	125	25.5	25	4.0	SP05008550	FT-TP20
	2525M43-10T40	25	25	150	25.5	30	4.0		
	2020K43-20T45	20	20	125	25.5	25	4.5		
	2525M43-20T45	25	25	150	25.5	30	4.5		
	2020K43-20T55	20	20	125	25.5	25	5.5		
	2525M43-20T55	25	25	150	25.5	30	5.5		
	2020K43-30T55	20	20	125	25.5	25	5.5		
	2525M43-30T55	25	25	150	25.5	30	5.5		

Insert Application

Application	Grooving	Profiling
Insert shape / Product code		
ATGHR 32**	ATG 32R	ATG 32R
ATGHR 43**	ATG 43R	ATG 43R
ATGHL 32**	ATG 32L	ATG 32L
ATGHL 43**	ATG 43L	ATG 43L
Reference page	P228	P228

Grooving Holder Denomination System

A	G	U	E	R	25	25	-	4	T25	-	40	-	80	-	SW
1	2	3	4	5	7	8	-	9	10	-	11	-	12	-	13

	32
	6

1- Company Name

ACHTECK

2- Application

G	Grooving
T	Turning

3- Shape of Holder Head

S: Straight
U: Undercutting
P: Perpendicular

4- Machining Type

E: External
I: Internal
F: Facing

5- Hand of Tool

L	Left
R	Right

6- Holder Diameter

20=20.0mm
25=25.0mm
32=32.0mm

7- Holder Height

20=20.0mm
25=25.0mm
32=32.0mm

8- Holder Width

20=20.0mm
25=25.0mm
32=32.0mm

9- Insert Width

2=2.0mm
3=3.0mm
4=4.0mm

10- Maximum CDX

T25=25.0mm

11- Minimum Cutting Diameter

40=40.0mm

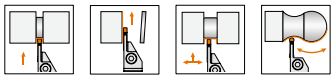
12- Maximum Cutting Diameter

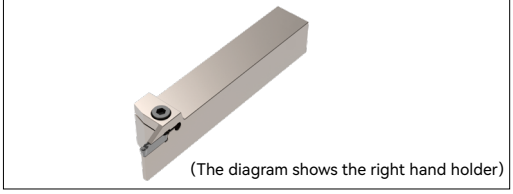
80=80.0mm

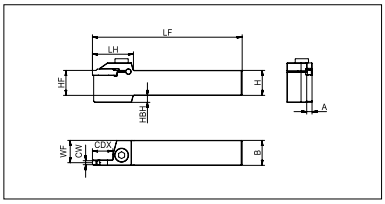
13- Special Code

SW: For swiss lathe
OB: Outside bulge holders
C: With internal coolant
D: Reinforced holders
J: High-pressure internal coolant

ATSER/L External Turning and Grooving Holder




(The diagram shows the right hand holder)

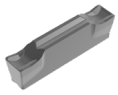
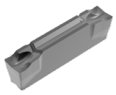
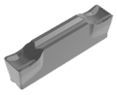
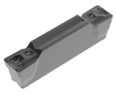


Product code		Dimension (mm)									Spare parts	
		H	B	HF	HBH	A	LF	LH	WF	CDX	Screw	Wrench
ATSER/L	**1616-2T08**	16	16	16	4	1.8	110	33	15.1	8	SH050160	LT-H4
	1616-2T12	16	16	16	4	1.8	110	32	15.1	12		
	1616-2T17	16	16	16	4	1.8	110	37	15.1	17		
	2020-2T08	20	20	20	0	1.8	125	33	19.1	8	SH050200	
	2020-2T12	20	20	20	0	1.8	125	32	19.1	12		
	2020-2T17	20	20	20	0	1.8	125	37	19.1	17		
	2525-2T08	25	25	25	0	1.8	150	33	24.1	8	SH050250	
	2525-2T12	25	25	25	0	1.8	150	32	24.1	12		
	2525-2T17	25	25	25	0	1.8	150	37	24.1	17		
	3232-2T08	32	32	32	0	1.8	170	37	31.1	8		
	3232-2T12	32	32	32	0	1.8	170	37	31.1	12		
	3232-2T17	32	32	32	0	1.8	170	37	31.1	17		
	1616-3T09	16	16	16	4	2.4	110	32	14.8	9	SH050160	
	1616-3T12	16	16	16	4	2.4	110	32	14.8	12		
	1616-3T16	16	16	16	4	2.4	110	35	14.8	16		
	1616-3T20	16	16	16	4	2.4	110	38.5	14.8	20		
	2020-3T09	20	20	20	0	2.4	125	32	18.8	9	SH050200	
	2020-3T12	20	20	20	0	2.4	125	32	18.8	12		
	2020-3T16	20	20	20	0	2.4	125	35	18.8	16		
	2020-3T20	20	20	20	0	2.4	125	38.5	18.8	20		
	2525-3T09	25	25	25	0	2.4	150	32	23.8	9	SH050250	
	2525-3T12	25	25	25	0	2.4	150	32	23.8	12		
	2525-3T16	25	25	25	0	2.4	150	35	23.8	16		
	2525-3T20	25	25	25	0	2.4	150	37.5	23.8	20		
	2525-3T25	25	25	25	0	2.4	150	44.5	23.8	25		
	3232-3T09	32	32	32	0	2.4	170	35	30.8	9		
	3232-3T12	32	32	32	0	2.4	170	35	30.8	12		
	3232-3T16	32	32	32	0	2.4	170	35	30.8	16		
	3232-3T20	32	32	32	0	2.4	170	42	30.8	20		
	3232-3T25	32	32	32	0	2.4	170	44.5	30.8	25		
	1616-4T10	16	16	16	4	3.35	110	32	14.3	10	SH060160	LT-H5
	1616-4T15	16	16	16	4	3.35	110	33	14.3	15		
	1616-4T25	16	16	16	4	3.35	110	45	14.3	25		
	2020-4T10	20	20	20	0	3.35	125	32	18.3	10	SH060200	
	2020-4T15	20	20	20	0	3.35	125	33	18.3	15		
	2020-4T20	20	20	20	0	3.35	125	40	18.3	20		
	2020-4T25	20	20	20	0	3.35	125	45	18.3	25		

ATSER/L External Turning and Grooving Holder

Product code		Dimension (mm)									Spare parts	
		H	B	HF	HBH	A	LF	LH	WF	CDX	Screw	Wrench
ATSER/L	**2525-4T10**	25	25	25	0	3.35	150	32	23.3	10	SH060250	LT-H5
	2525-4T15	25	25	25	0	3.35	150	33	23.3	15		
	2525-4T20	25	25	25	0	3.35	150	40	23.3	20		
	2525-4T25	25	25	25	0	3.35	150	45	23.3	25		
	3232-4T10	32	32	32	0	3.35	170	32	30.3	10		
	3232-4T15	32	32	32	0	3.35	170	33	30.3	15		
	3232-4T20	32	32	32	0	3.35	170	40	30.3	20		
	3232-4T25	32	32	32	0	3.35	170	45	30.3	25		
	2020-5T12	20	20	20	0	4.35	125	37	17.8	12	SH060200	
	2020-5T16	20	20	20	0	4.35	125	37	17.8	16		
	2020-5T20	20	20	20	0	4.35	125	37	17.8	20		
	2525-5T12	25	25	25	0	4.35	150	37	22.8	12	SH060250	
	2525-5T16	25	25	25	0	4.35	150	37	22.8	16		
	2525-5T20	25	25	25	0	4.35	150	37	22.8	20		
	2525-5T25	25	25	25	0	4.35	150	46	22.8	25		
	2525-5T32	25	25	25	0	4.35	150	54	22.8	32		
	3232-5T12	32	32	32	0	4.35	170	37	29.8	12		
	3232-5T16	32	32	32	0	4.35	170	38	29.8	16		
	3232-5T20	32	32	32	0	4.35	170	39	29.8	20		
	3232-5T25	32	32	32	0	4.35	170	46	29.8	25		
	3232-5T32	32	32	32	0	4.35	170	56	29.8	32		
	2020-6T12	20	20	20	0	5.35	125	37	17.3	12	SH080200	LT-H6
	2020-6T16	20	20	20	0	5.35	125	37	17.3	16		
	2020-6T20	20	20	20	0	5.35	125	41	17.3	20		
	2525-6T16	25	25	25	7	5.35	150	37	22.3	16	SH080250	
	2525-6T12	25	25	25	7	5.35	150	37	22.3	12		
	2525-6T20	25	25	25	7	5.35	150	41	22.3	20		
	2525-6T25	25	25	25	7	5.35	150	46	22.3	25		
	2525-6T32	25	25	25	7	5.35	150	56	22.3	32		
	3232-6T12	32	32	32	0	5.35	170	37	29.3	12		
	3232-6T16	32	32	32	0	5.35	170	37	29.3	16		
	3232-6T20	32	32	32	0	5.35	170	41	29.3	20		
	3232-6T25	32	32	32	0	5.35	170	46	29.3	25		
	3232-6T32	32	32	32	0	5.35	170	56.2	29.3	32		
	2525-8T16	25	25	25	7	6.2	150	47	21.9	16		
	2525-8T25	25	25	25	7	6.2	150	47	21.9	25		
	2525-8T36	25	25	25	7	6.2	150	60	21.9	36		
	3232-8T16	32	32	32	0	6.2	170	47	28.9	16		
	3232-8T25	32	32	32	0	6.2	170	47	28.9	25		
	3232-8T36	32	32	32	0	6.2	170	60	28.9	36		

Insert Application

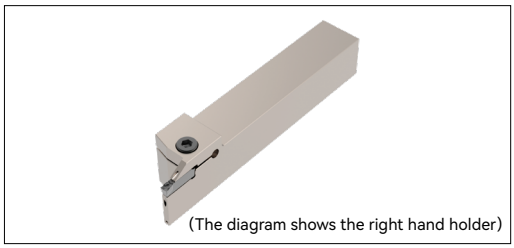
Application	Low feed rate	Low-Medium feed rate	Medium feed rate	Finishing	Low Cutting Force	Medium feed rate	Profiling
Insert shape / Product code	CS 	CM 	CH 	GS 	TS 	TM 	RM 
ATSER/L**	ACD 202 ACD 302	ACD/ACS 202 …… ACD/ACS 603	ACD/ACS 202 …… ACD/ACS 603	ATD 300E …… ATD 400E	ATD 203 …… ATD 808	ATD 304 …… ATD 812	ATD 210 …… ATD 840
Reference page	P230	P231	P232	P233	P234	P235	P236

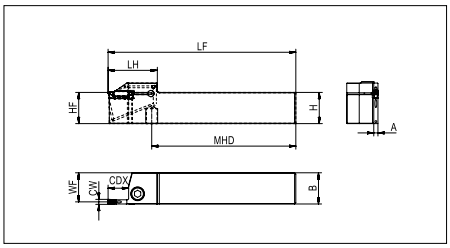
Application	Low Cutting Force	Medium feed rate	Profiling	Ground Profiling	Ground Profiling	Ground
Insert shape / Product code	TSR 	TMR 	RMR 	RA 	RS 	G 
ATSER/L**	ATD 203 …… ATD 808	ATD 304 …… ATD 812	ATD 210 …… ATD 840	ATD 315 …… ATD 840	ATD 210 …… ATD 840	ATD 100E …… ATD 800E
Reference page	P234	P235	P236	P237	P237	P239

Inserts*: ACD/ACS series are only applicable to grooving and parting off machining.

ATSER/L-J External High-Pressure Turning and Grooving Holder with Internal Coolant

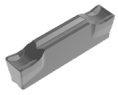
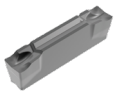
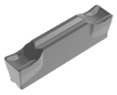
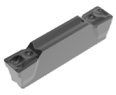


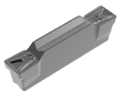

(The diagram shows the right hand holder)



Product code		Dimension (mm)									MHD	Spare parts	
		H	B	HF	HBH	A	LF	LH	WF	CDX		Screw	Wrench
ATSER/L	**2020-2T12-J**	20	20	20	0	1.8	125	37	19.1	12	73	SH050200	LT-H4
	2020-3T12-J	20	20	20	0	2.4	125	37	18.8	12	73		
	2020-4T10-J	20	20	20	0	3.35	125	37	18.3	10	73	SH060200	LT-H5
	2525-2T12-J	25	25	25	0	1.8	125	39	24.1	12	115.5	SH050250	LT-H4
	2525-3T12-J	25	25	25	0	2.4	150	39	23.8	12	115.5		
	2525-4T15-J	25	25	25	0	3.35	150	39	23.3	15	115.5	SH060250	LT-H5
	2525-5T20-J	25	25	25	0	4.35	150	45	22.8	20	111		
	2525-6T20-J	25	25	25	0	5.35	150	52	22.3	20	120.5	SH080250	LT-H6
	2525-8T25-J	25	25	25	0	6.2	150	58	21.9	25	115		

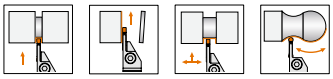
Insert Application

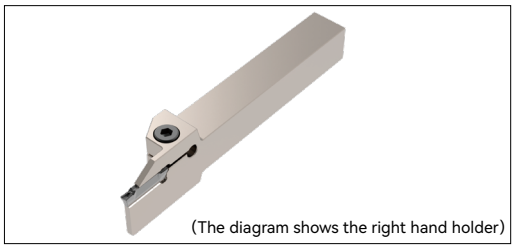
Application	Low feed rate	Low-Medium feed rate	Medium feed rate	Finishing	Low Cutting Force	Medium feed rate	Profiling
Insert shape / Product code	CS	CM	CH	GS	TS	TM	RM
							
ATSER/L-J**	ACD 202 ACD 302	ACD/ACS 202 ..... ACD/ACS 603	ACD/ACS 202 ..... ACD/ACS 603	ATD 300E ..... ATD 400E	ATD 203 ..... ATD 808	ATD 304 ..... ATD 812	ATD 210 ..... ATD 840
Reference page	P230	P231	P232	P233	P234	P235	P236

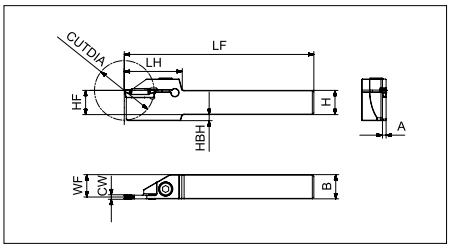
Application	Low Cutting Force	Medium feed rate	Profiling	Ground Profiling	Ground Profiling	Ground
Insert shape / Product code	TSR	TMR	RMR	RA	RS	G
						
ATSER/L-J**	ATD 203 ..... ATD 808	ATD 304 ..... ATD 812	ATD 210 ..... ATD 840	ATD 315 ..... ATD 840	ATD 210 ..... ATD 840	ATD 100E ..... ATD 800E
Reference page	P234	P235	P236	P237	P237	P239

Inserts*: ACD/ACS series are only applicable to grooving and parting off machining

ATSER/L-D Reinforced External Turning and Grooving Holder

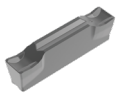
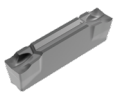
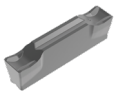






Product code		Dimension (mm)									CUTDIA	Spare parts	
		H	B	HF	HBH	A	LF	LH	WF	CDX		Screw	Wrench
ATSER/L	**1010-2T15-D40**	10	10	10	6	1.8	125	32	9.1	15	40	SH050160	LT-H4
	1212-2T15-D40	12	12	12	4	1.8	125	32	11.1	15	40		
	1616-2T20-D45	16	16	16	4	1.8	125	38	15.1	20	45		
	2020-2T20-D45	20	20	20	0	1.8	125	38	19.1	20	45	SH050200	
	2525-2T20-D45	25	25	25	0	1.8	150	38	24.1	20	45	SH050250	
	1212-3T15-D40	12	12	12	4	2.4	125	32	10.8	15	40	SH050160	
	1616-3T20-D45	16	16	16	4	2.4	125	38	14.8	20	45	SH050200	
	2020-3T20-D45	20	20	20	0	2.4	125	38	18.8	20	45		
	2525-3T20-D45	25	25	25	0	2.4	150	38	23.8	20	45	SH050250	
	2525-3T25-D60	25	25	25	7	2.4	150	43	23.8	25	60		

Insert Application

Application	Low feed rate	Low-Medium feed rate	Medium feed rate	Finishing	Low Cutting Force	Medium feed rate	Profiling
Insert shape / Product code	CS	CM	CH	GS	TS	TM	RM
							
ATSER/L-D**	ACD 202 ACD 302	ACD/ACS 202 ..... ACD/ACS 603	ACD/ACS 202 ..... ACD/ACS 603	ATD 300E ..... ATD 400E	ATD 203 ..... ATD 808	ATD 304 ..... ATD 812	ATD 210 ..... ATD 840
Reference page	P230	P231	P232	P233	P234	P235	P236

Application	Low Cutting Force	Medium feed rate	Profiling	Ground Profiling	Ground Profiling	Ground
Insert shape / Product code	TSR	TMR	RMR	RA	RS	G
						
ATSER/L-D**	ATD 203 ..... ATD 808	ATD 304 ..... ATD 812	ATD 210 ..... ATD 840	ATD 315 ..... ATD 840	ATD 210 ..... ATD 840	ATD 100E ..... ATD 800E
Reference page	P234	P235	P236	P237	P237	P239

Inserts*: ACD/ACS series are only applicable to grooving and parting off machining

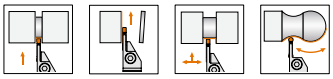
ATSER/L-D Reinforced External Turning and Grooving Holder

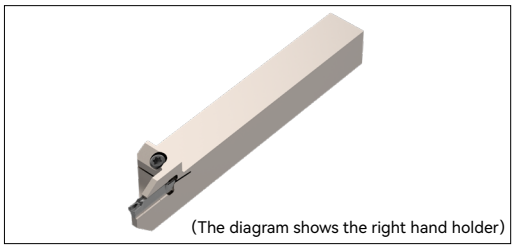
The max. cutting depth vs workpiece diameter

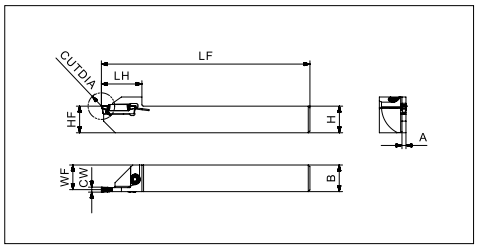
Product code		Workpiece diameter	CDX															
			≤ 8	9	10	11	12	13	14	15	17	18	19	20	21	22	23	24	25
ATSER/L	**1010-2T15-D40**	CUTDIA	∞	∞	∞	269	120	79	59	40	-	-	-	-	-	-	-	-	-
	1212-2T15-D40		∞	∞	∞	269	120	79	59	40	-	-	-	-	-	-	-	-	-
	1616-2T20-D45		∞	∞	∞	∞	∞	432	193	125	76	64	57	45	-	-	-	-	-
	2020-2T20-D45		∞	∞	∞	∞	∞	432	193	125	76	64	57	45	-	-	-	-	-
	2525-2T20-D45		∞	1468	339	193	136	106	87	75	60	56	52	45	-	-	-	-	-
	1212-3T15-D40		∞	∞	∞	269	120	79	59	40	-	-	-	-	-	-	-	-	-
	1616-3T20-D45		∞	∞	∞	∞	∞	432	193	125	76	64	57	45	-	-	-	-	-
	2020-3T20-D45		∞	∞	∞	∞	∞	432	193	125	76	64	57	45	-	-	-	-	-
	2525-3T20-D45		∞	1468	339	193	136	106	87	75	60	56	52	45	-	-	-	-	-
	2525-3T25-D60		∞	∞	∞	∞	∞	∞	∞	∞	418	237	167	130	107	91	81	73	60

“∞”: The diameter is infinite

ATSER/L-SW External Turning and Grooving Holder for Swiss Lathe



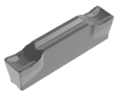
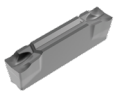
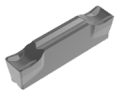
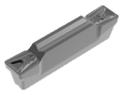




Product code		Dimension (mm)									Spare parts	
		H	B	HF	HBH	A	LF	LH	WF	CUTDIA	Screw	Wrench
ATSER/L	**1010-2D20-SW**	10	10	10	2	1.8	125	19	9.1	20	SP040125	LT-TP15
	1212-2D24-SW	12	12	12	2	1.8	125	19	11.1	24		
	1414-2D24-SW	14	14	14	0	1.8	125	19	13.1	24		
	1616-2D32-SW	16	16	16	0	1.8	125	24	15.1	32		
	1212-3D24-SW	12	12	12	2	2.4	125	19	10.8	24		
	1616-3D32-SW	16	16	16	0	2.4	125	24	14.8	32		
	1616-3D38-SW	16	16	16	0	2.4	125	27	14.8	38		
	2020-3D45-SW	20	20	20	0	2.4	125	30.5	18.8	45		

ATSER/L-SW External Turning and Grooving Holder for Swiss Lathe

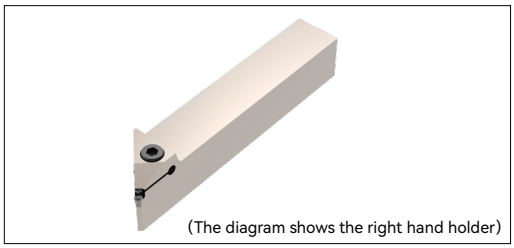
Insert Application

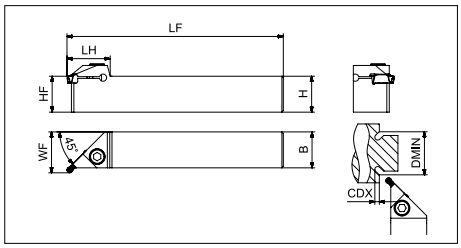
Application	Low feed rate	Low-Medium feed rate	Medium feed rate	Finishing	Low Cutting Force	Medium feed rate	Profiling
Insert shape / Product code	CS	CM	CH	GS	TS	TM	RM
							
ATSER/LSW**	ACD 202 ACD 302	ACD/ACS 302 ..... ACD/ACS 302	ACD/ACS 302 ..... ACD/ACS 302	ATD 300E ..... ATD 318E	ATD 203 ..... ATD 303	ATD 304	ATD 210 ..... ATD 315
Reference page	P230	P231	P232	P233	P234	P235	P236

Application	Low Cutting Force	Medium feed rate	Profiling	Ground Profiling	Ground Profiling	Ground
Insert shape / Product code	TSR	TMR	RMR	RA	RS	G
						
ATSER/LSW**	ATD 203 ..... ATD 303	ATD 304	ATD 210 ..... ATD 315	ATD 315	ATD 210 ATD 315	ATD 100E ..... ATD 300E
Reference page	P234	P235	P236	P237	P237	P239

Inserts*: ACD/ACS series are only applicable to grooving and parting off machining

AGUER/L External Undercutting Holder



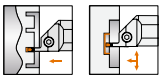


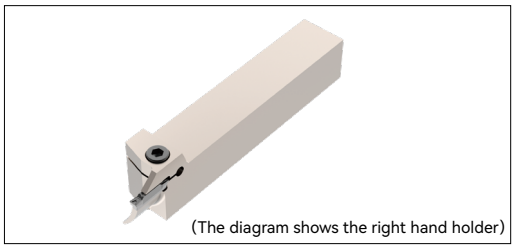
Product code		Insert width (mm)	Dimension (mm)								Spare parts	
			H	B	HF	LF	LH	WF	CDX	DMIN	Screw	Wrench
AGUER/L	**1616-3**	2，3	16	16	16	110	30.2	19.6	3	60	SH050160	LT-H4
	1616-4	4	16	16	16	110	30.2	19.8	3	55	SH060160	
	2020-3	2，3	20	20	20	125	30.2	23.6	3	60	SH050200	
	2020-4	4	20	20	20	125	30.2	23.8	3	55	SH060200	LT-H5
	2525-3	2，3	25	25	25	150	30.2	28.6	3	60	SH050250	
	2525-4	4	25	25	25	150	30.2	28.8	3	55	SH060250	
	2525-6	5，6	25	25	25	150	33.6	29.2	3.5	55		

Insert Application

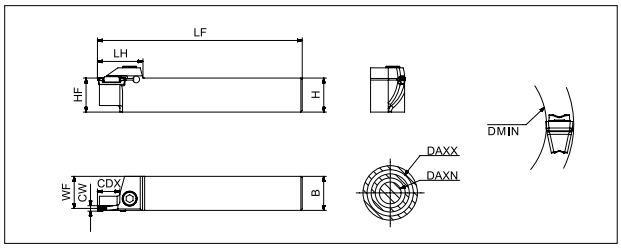
Application	Profiling	Ground Profiling	Ground Profiling	Ground	Profiling
Insert shape / Product code	RM	RA	RS	G	RMR
					
AGUER/L**	ATD 210 ..... ATD 630	ATD 315 ..... ATD 630	ATD 210 ..... ATD 630	ATD 100E ..... ATD 600E	ATD 210 ..... ATD 630
Reference page	P236	P237	P237	P239	P236

ATSFR/L Face Grooving and Turning Holder





(The diagram shows the right hand holder)



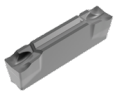
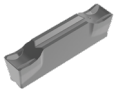
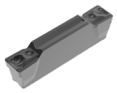
Product code		Dimension (mm)									Spare parts	
		H	B	HF	LF	LH	WF	CDX	DAXN	DAXX	Screw	Wrench
ATSFR/L	2020-3T10-35-45	20	20	20	140	32	18.95	10	35	45	SH050200	LT-H4
	2020-3T10-40-55	20	20	20	140	32	18.95	10	40	55		
	2020-3T10-50-85	20	20	20	140	32	18.95	10	50	85		
	2020-3T10-80-130	20	20	20	140	32	18.95	10	80	130		
	2020-3T10-125-250	20	20	20	140	32	18.95	10	125	250		
	2020-3T10-200-000	20	20	20	140	32	18.95	10	200	∞		
	2020-3T15-45-65	20	20	20	140	32	18.95	15	45	65		
	2020-3T15-55-85	20	20	20	140	32	18.95	15	55	85		
	2020-3T15-80-130	20	20	20	140	32	18.95	15	80	130		
	2020-3T15-125-250	20	20	20	140	32	18.95	15	125	250		
	2020-3T15-200-000	20	20	20	140	35	18.95	15	200	∞		
	2020-4T15-55-85	20	20	20	140	33	18.3	15	55	85	SH060200	LT-H5
	2020-4T15-80-130	20	20	20	140	33	18.3	15	80	130		
	2020-4T15-125-250	20	20	20	140	33	18.3	15	125	250		
	2525-3T10-35-45	25	25	25	150	32	23.95	10	35	45	SH050250	LT-H4
	2525-3T10-40-55	25	25	25	150	32	23.95	10	40	55		
	2525-3T10-50-85	25	25	25	150	32	23.95	10	50	85		
	2525-3T10-80-130	25	25	25	150	32	23.95	10	80	130		
	2525-3T10-125-250	25	25	25	150	32	23.95	10	125	250		
	2525-3T10-200-000	25	25	25	150	32	23.95	10	200	∞		
	2525-3T15-45-65	25	25	25	150	32	23.95	15	45	65		
	2525-3T15-55-85	25	25	25	150	32	23.95	15	55	85		
	2525-3T15-80-130	25	25	25	150	32	23.95	15	80	130		
	2525-3T15-125-250	25	25	25	150	32	23.95	15	125	250		
	2525-3T15-200-000	25	25	25	150	32	23.95	15	200	∞		
	2525-4T10-35-50	25	25	25	150	32	23.55	10	35	50		
	2525-4T10-45-65	25	25	25	150	32	23.55	10	45	65		
	2525-4T10-55-85	25	25	25	150	32	23.55	10	55	85		
	2525-4T10-80-130	25	25	25	150	32	23.55	10	80	130		
	2525-4T10-125-250	25	25	25	150	32	23.55	10	125	250		
	2525-4T15-35-50	25	25	25	150	33	23.55	15	35	50	SH060250	LT-H5
	2525-4T15-45-65	25	25	25	150	33	23.55	15	45	65		
	2525-4T15-55-85	25	25	25	150	33	23.55	15	55	85		
	2525-4T15-80-130	25	25	25	150	32	23.55	15	80	130		
	2525-4T15-125-250	25	25	25	150	32	23.55	15	125	250		
	2525-5T15-70-110	25	25	25	150	41	23.05	15	70	110	SH080250	LT-H6
	2525-5T15-100-150	25	25	25	150	37	22.8	15	100	150		
	2525-5T15-140-200	25	25	25	150	37	22.8	15	140	200		
	2525-5T15-190-000	25	25	25	150	37	22.8	15	190	∞		
	2525-5T20-50-80	25	25	25	150	41	23.05	20	50	80		
	2525-5T20-70-110	25	25	25	150	41	23.05	20	70	110		
	2525-5T20-100-150	25	25	25	150	41	23.05	20	100	150		
	2525-5T20-140-200	25	25	25	150	41	23.05	20	140	200		

ATSFR/L Face Grooving and Turning Holder

Product code		Dimension (mm)									Spare parts	
		H	B	HF	LF	LH	WF	CDX	DAXN	DAXX	Screw	Wrench
ATSFR/L	2525-5T20-190-000	25	25	25	150	40	23.05	20	190	∞	SH080250	LT-H6
	2525-6T12-50-85	25	25	25	150	37	22.3	12	50	85		
	2525-6T12-75-150	25	25	25	150	37	22.3	12	75	150		
	2525-6T12-140-250	25	25	25	150	37	22.3	12	140	250		
	2525-6T12-200-000	25	25	25	150	37	22.3	12	200	∞		
	2525-6T20-50-85	25	25	25	150	41	22.55	20	50	85		
	2525-6T20-75-150	25	25	25	150	41	22.55	20	75	150		
	2525-6T20-140-250	25	25	25	150	41	22.55	20	140	250		
	2525-6T20-200-000	25	25	25	150	41	22.55	20	200	∞		
	2525-8T25-75-150	25	25	25	150	49	21.9	25	75	150		
	2525-8T25-140-250	25	25	25	150	49	21.9	25	140	250		
	2525-8T25-200-000	25	25	25	150	49	21.9	25	200	∞		
	2525-8T25-80-115	25	25	25	150	49	21.9	25	80	115		
	3232-3T10-50-85	32	32	32	170	32	30.8	32	50	85	SH060250	LT-H5
	3232-3T10-80-130	32	32	32	170	32	30.8	32	80	130		
	3232-3T10-125-250	32	32	32	170	32	30.8	32	125	250		
	3232-3T10-200-000	32	32	32	170	32	30.8	32	200	∞		
	3232-3T15-80-130	32	32	32	170	35	30.8	32	80	130		
	3232-3T15-125-250	32	32	32	170	35	30.8	32	125	250		
	3232-3T15-200-000	32	32	32	170	35	30.8	32	200	∞		
	3232-4T10-35-50	32	32	32	170	32	30.5	32	35	50		
	3232-4T10-45-65	32	32	32	170	32	30.5	32	45	65		
	3232-4T10-55-85	32	32	32	170	32	30.5	32	55	85		
	3232-4T10-80-130	32	32	32	170	32	30.5	32	80	130		
	3232-4T10-125-250	32	32	32	170	32	30.5	32	125	250		
	3232-4T15-35-50	32	32	32	170	35	30.5	32	35	50		
	3232-4T15-45-65	32	32	32	170	35	30.5	32	45	65		
	3232-4T15-55-85	32	32	32	170	35	30.5	32	55	85		
	3232-4T15-80-130	32	32	32	170	35	30.5	32	80	130		
	3232-4T15-125-250	32	32	32	170	35	30.5	32	125	250		
	3232-5T15-50-80	32	32	32	170	37	30.05	32	50	80	SH080250	LT-H6
	3232-5T15-70-110	32	32	32	170	37	30.05	32	70	110		
	3232-5T15-100-150	32	32	32	170	37	30.05	32	100	150		
	3232-5T15-140-200	32	32	32	170	37	30.05	32	140	200		
	3232-5T15-190-000	32	32	32	170	37	30.05	32	190	∞		
	3232-5T20-50-80	32	32	32	170	39	30.05	32	50	80		
	3232-5T20-70-110	32	32	32	170	39	30.05	32	70	110		
	3232-5T20-100-150	32	32	32	170	39	30.05	32	100	150		
	3232-5T20-140-200	32	32	32	170	39	30.05	32	140	200		
	3232-5T20-190-000	32	32	32	170	39	30.05	32	190	∞		
	3232-6T12-50-85	32	32	32	170	37	29.55	32	50	85		
	3232-6T12-75-150	32	32	32	170	37	29.55	32	75	150		
	3232-6T12-140-250	32	32	32	170	37	29.55	32	140	250		
	3232-6T12-200-000	32	32	32	170	37	29.55	32	200	∞		
	3232-6T20-50-85	32	32	32	170	41	29.55	32	50	85		
	3232-6T20-75-150	32	32	32	170	41	29.55	32	75	150		
	3232-6T20-140-250	32	32	32	170	41	29.55	32	140	250		
	3232-6T20-200-000	32	32	32	170	41	29.55	32	200	∞		
	3232-8T25-75-150	32	32	32	170	47	28.9	32	75	150		
	3232-8T25-140-250	32	32	32	170	47	28.9	32	140	250		
	3232-8T25-200-000	32	32	32	170	47	28.9	32	200	∞		

ATSFR/L Face Grooving and Turning Holder

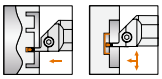
Insert Application

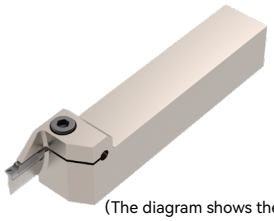
Application	Low-Medium feed rate	Medium feed rate	Finishing	Low Cutting Force	Medium feed rate	Profiling
Insert shape / Product code / Minimum machining diameter DMIN (mm)	CM	CH	GS	TS	TM	RM
						
ATSFR/L 3232/2525-3T	79	79	59	35	35	59
ATSFR/L 3232/2525-4T	42	42	42	35	35	42
ATSFR/L 3232/2525-5T	50	50	50	50	50	50
ATSFR/L 3232/2525-6T	50	50	50	50	50	50
ATSFR/L 3232/2525-8T	-	60	-	60	60	60
Reference page	P231	P232	P233	P234	P235	P236

Application	Low Cutting Force	Medium feed rate	Profiling	Ground Profiling	Ground Profiling	Ground
Insert shape / Product code / Minimum machining diameter DMIN (mm)	TSR	TMR	RMR	RA	RS	G
						
ATSFR/L 3232/2525-3T	79	79	79	59	79	59
ATSFR/L 3232/2525-4T	55	55	55	42	55	42
ATSFR/L 3232/2525-5T	60	60	60	50	60	50
ATSFR/L 3232/2525-6T	60	60	60	50	60	50
ATSFR/L 3232/2525-8T	60	60	60	60	60	60
Reference page	P234	P235	P236	P237	P237	P239

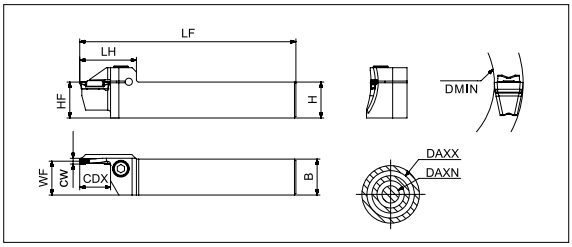
1. Inserts*: ACD/ACS series are only applicable to grooving
2. -: Indicates that the insert is not available
3. Having selected the range of tool holder, please check the minimum face grooving machining diameter of the selected insert

ATSFR/L-OB Face Grooving and Turning Holder (Outside Bluge Type)





(The diagram shows the right hand holder)



Product code		Dimension (mm)									Spare parts	
		H	B	HF	LF	LH	WF	CDX	DAXN	DAXX	Screw	Wrench
ATSFR/L	2020-3T10-30-40-OB	20	20	20	140	31	18.95	10	30	40	SH060200	LT-H5
	2020-3T10-35-50-OB	20	20	20	140	31	18.95	10	35	50		
	2020-3T10-45-70-OB	20	20	20	140	31	18.95	10	45	70		
	2020-3T10-65-100-OB	20	20	20	140	31	18.95	10	65	100		
	2020-3T10-95-200-OB	20	20	20	140	31	18.95	10	95	200		
	2020-3T10-190-000-OB	20	20	20	140	31	18.95	10	190	∞		
	2020-3T15-45-70-OB	20	20	20	140	35	18.95	15	45	70		
	2020-3T15-65-100-OB	20	20	20	140	35	18.95	15	65	100		
	2020-4T10-20-30-OB	20	20	20	140	31	18.55	10	20	30		
	2020-4T10-25-35-OB	20	20	20	140	31	18.55	10	25	35		
	2020-4T10-30-45-OB	20	20	20	140	31	18.55	10	30	45		
	2020-4T10-35-50-OB	20	20	20	140	31	18.55	10	35	50		
	2020-4T10-45-70-OB	20	20	20	140	31	18.55	10	45	70		
	2020-4T10-65-120-OB	20	20	20	140	31	18.55	10	65	120		
	2020-4T10-115-200-OB	20	20	20	140	31	18.55	10	115	200		
	2020-4T16-30-45-OB	20	20	20	140	36	18.55	16	30	45		
	2020-4T16-35-50-OB	20	20	20	140	36	18.55	16	35	50		
	2020-4T16-45-70-OB	20	20	20	140	36	18.55	16	45	70		
	2020-4T16-65-120-OB	20	20	20	140	36	18.55	16	65	120		
	2020-4T16-115-200-OB	20	20	20	140	36	18.55	16	115	200		
	2525-3T10-35-50-OB	25	25	25	150	38	23.95	10	35	50	SH060250	LT-H5
	2525-3T10-45-70-OB	25	25	25	150	38	23.95	10	45	70		
	2525-3T10-65-100-OB	25	25	25	150	38	23.95	10	65	100		
	2525-3T10-95-200-OB	25	25	25	150	38	23.95	10	95	200		
	2525-3T10-190-000-OB	25	25	25	150	38	23.95	10	190	∞		
	2525-3T15-45-70-OB	25	25	25	150	38	23.95	15	45	70		
	2525-3T15-65-100-OB	25	25	25	150	38	23.95	15	65	100		
	2525-4T10-25-35-OB	25	25	25	150	39	23.55	10	25	35		
	2525-4T10-30-45-OB	25	25	25	150	39	23.55	10	30	45		
	2525-4T10-35-50-OB	25	25	25	150	39	23.55	10	35	50		
	2525-4T10-45-70-OB	25	25	25	150	39	23.55	10	45	70		
	2525-4T10-65-120-OB	25	25	25	150	39	23.55	10	65	120		
	2525-4T10-115-200-OB	25	25	25	150	39	23.55	10	115	200		
	2525-4T10-190-000-OB	25	25	25	150	39	23.55	10	190	∞		
	2525-4T20-30-45-OB	25	25	25	150	39	23.55	20	30	45		
	2525-4T20-35-50-OB	25	25	25	150	39	23.55	20	35	50		
	2525-4T20-45-70-OB	25	25	25	150	39	23.55	20	45	70		
	2525-4T20-65-125-OB	25	25	25	150	39	23.55	20	65	125		
	2525-4T20-115-200-OB	25	25	25	150	39	23.55	20	115	200		
	2525-4T20-190-000-OB	25	25	25	150	39	23.55	20	190	∞		

ATSFR/L-OB Face Grooving and Turning Holder (Outside Bluge Type)

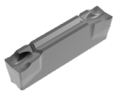
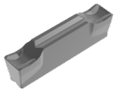
Product code		Dimension (mm)									Spare parts	
		H	B	HF	LF	LH	WF	CDX	DAXN	DAXX	Screw	Wrench
ATSFR/L	2525-5T15-50-80-OB	25	25	25	150	41	23.05	15	50	80	SH080250	LT-H6
	2525-5T15-70-110-OB	25	25	25	150	41	23.05	15	70	110		
	2525-5T15-100-150-OB	25	25	25	150	41	23.05	15	100	150		
	2525-5T15-140-200-OB	25	25	25	150	41	23.05	15	140	200		
	2525-5T15-190-000-OB	25	25	25	150	41	23	15	190	∞		
	2525-5T25-50-80-OB	25	25	25	150	49	23.05	25	50	80		
	2525-5T25-70-110-OB	25	25	25	150	49	23.05	25	70	110		
	2525-5T25-100-150-OB	25	25	25	150	49	23.05	25	100	150		
	2525-5T25-140-200-OB	25	25	25	150	49	23.05	25	140	200		
	2525-5T25-190-000-OB	25	25	25	150	49	23.05	25	190	∞		
	2525-6T15-50-70-OB	25	25	25	150	41	22.55	15	50	70		
	2525-6T15-60-100-OB	25	25	25	150	41	22.55	15	60	100		
	2525-6T15-90-180-OB	25	25	25	150	41	22.55	15	90	180		
	2525-6T15-170-400-OB	25	25	25	150	41	22.55	15	170	400		
	2525-6T15-390-000-OB	25	25	25	150	41	22.55	15	390	∞		
	2525-6T25-50-70-OB	25	25	25	150	49	22.55	25	50	70		
	2525-6T25-60-100-OB	25	25	25	150	49	22.55	25	60	100		
	2525-6T25-90-180-OB	25	25	25	150	49	22.55	25	90	180		
	2525-6T25-170-400-OB	25	25	25	150	49	22.55	25	170	400		
	2525-6T25-390-000-OB	25	25	25	150	49	22.55	25	390	∞		
	2525-8T25-60-100-OB	25	25	25	150	49	21.55	25	60	100		
	2525-8T25-90-180-OB	25	25	25	150	49	21.55	25	90	180		
	2525-8T25-170-400-OB	25	25	25	150	49	21.55	25	170	400		
	2525-8T25-390-000-OB	25	25	25	150	49	21.55	25	390	∞		
	3232-3T10-45-70-OB	32	32	38	170	38	30.95	10	45	70	SH060250	LT-H5
	3232-3T10-65-100-OB	32	32	38	170	38	30.95	10	65	100		
	3232-3T10-95-200-OB	32	32	38	170	38	30.95	10	95	200		
	3232-3T10-190-000-OB	32	32	38	170	38	30.95	10	190	∞		
	3232-3T15-45-70-OB	32	32	38	170	38	30.95	15	45	70		
	3232-3T15-65-100-OB	32	32	38	170	38	30.95	15	65	100		
	3232-3T15-95-200-OB	32	32	38	170	38	30.95	15	95	200		
	3232-3T15-190-000-OB	32	32	38	170	38	30.8	15	190	∞		
	3232-4T10-30-45-OB	32	32	38	170	39	30.55	10	30	45		
	3232-4T10-35-50-OB	32	32	38	170	39	30.55	10	35	50		
	3232-4T10-45-70-OB	32	32	38	170	39	30.55	10	45	70		
	3232-4T10-65-120-OB	32	32	38	170	39	30.55	10	65	120		
	3232-4T10-115-200-OB	32	32	38	170	39	30.55	10	115	200		
	3232-4T10-190-000-OB	32	32	38	170	39	30.5	10	190	∞		
	3232-4T20-30-45-OB	32	32	38	170	39	30.55	20	30	45		
	3232-4T20-35-50-OB	32	32	38	170	39	30.55	20	35	50		
	3232-4T20-45-70-OB	32	32	38	170	39	30.55	20	45	70		
	3232-4T20-65-120-OB	32	32	38	170	39	30.55	20	65	120		
	3232-4T20-115-200-OB	32	32	38	170	39	30.55	20	115	200		
	3232-4T20-190-000-OB	32	32	38	170	39	30.5	20	190	∞		

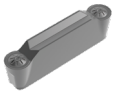
ATSFR/L-OB Face Grooving and Turning Holder (Outside Bluge Type)

Product code		Dimension (mm)									Spare parts	
		H	B	HF	LF	LH	WF	CDX	DAXN	DAXX	Screw	Wrench
												
ATSFR/L	3232-5T15-50-80-OB	32	32	32	170	41	30.05	15	50	80	SH080250	LT-H6
	3232-5T15-70-110-OB	32	32	32	170	41	30.05	15	70	110		
	3232-5T15-100-150-OB	32	32	32	170	41	30.05	15	100	150		
	3232-5T15-140-200-OB	32	32	32	170	41	30.05	15	140	200		
	3232-5T15-190-000-OB	32	32	32	170	41	30.05	15	190	∞		
	3232-5T25-50-80-OB	32	32	32	170	49	30.05	25	50	80		
	3232-5T25-70-110-OB	32	32	32	170	49	30.05	25	70	110		
	3232-5T25-100-150-OB	32	32	32	170	49	30.05	25	100	150		
	3232-5T25-140-200-OB	32	32	32	170	49	30.05	25	140	200		
	3232-5T25-190-000-OB	32	32	32	170	49	30.05	25	190	∞		
	3232-6T15-50-70-OB	32	32	32	170	41	29.55	15	50	70		
	3232-6T15-60-100-OB	32	32	32	170	41	29.55	15	60	100		
	3232-6T15-90-180-OB	32	32	32	170	41	29.55	15	90	180		
	3232-6T15-170-400-OB	32	32	32	170	41	29.55	15	170	400		
	3232-6T15-390-000-OB	32	32	32	170	41	29.55	15	390	∞		
	3232-6T25-50-70-OB	32	32	32	170	49	29.55	25	50	70		
	3232-6T25-60-100-OB	32	32	32	170	49	29.55	25	60	100		
	3232-6T25-90-180-OB	32	32	32	170	49	29.55	25	90	180		
	3232-6T25-170-400-OB	32	32	32	170	49	29.55	25	170	400		
	3232-6T25-390-000-OB	32	32	32	170	49	29.5	25	390	∞		
	3232-8T25-60-100-OB	32	32	32	170	49	28.55	25	60	100		
	3232-8T25-90-180-OB	32	32	32	170	49	28.55	25	90	180		
	3232-8T25-170-400-OB	32	32	32	170	49	28.55	25	170	400		
	3232-8T25-390-000-OB	32	32	32	170	49	28.55	25	390	∞		

ATSFR/L-OB Face Grooving and Turning Holder (Outside Bluge Type)

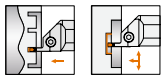
Insert Application

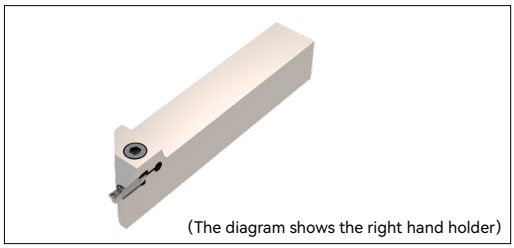
Application	Low-Medium feed rate	Medium feed rate	Finishing	Low Cutting Force	Medium feed rate	Profiling
Insert shape / Product code / Minimum machining diameter DMIN (mm)	CM	CH	GS	TS	TM	RM
						
ATSFR/L 2020-3T...OB	79	79	59	30	30	59
ATSFR/L 2020-4T...OB	42	42	42	22	22	42
ATSFR/L 2525/3232-3T...OB	79	79	59	35	35	59
ATSFR/L 2525/3232-4T...OB	42	42	42	25	25	42
ATSFR/L 2525/3232-5T...OB	50	50	50	50	50	50
ATSFR/L 2525/3232-6T...OB	50	50	50	50	50	50
ATSFR/L 2525/3232-8T...OB	-	60	-	60	60	60
Reference page	P231	P232	P233	P234	P235	P236

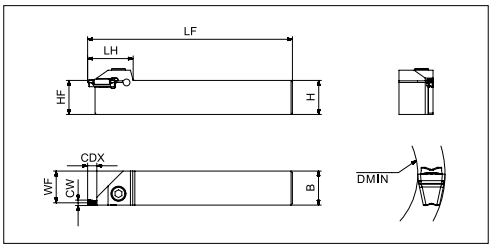
Application	Low Cutting Force	Medium feed rate	Profiling	Ground Profiling	Ground Profiling	Ground
Insert shape / Product code / Minimum machining diameter DMIN (mm)	TSR	TMR	RMR	RA	RS	G
						
ATSFR/L 2020-3T...OB	79	79	79	59	79	59
ATSFR/L 2020-4T...OB	55	55	55	42	55	42
ATSFR/L 2525/3232-3T...OB	79	79	79	59	79	59
ATSFR/L 2525/3232-4T...OB	55	55	55	42	55	42
ATSFR/L 2525/3232-5T...OB	60	60	60	50	60	50
ATSFR/L 2525/3232-6T...OB	60	60	60	50	60	50
ATSFR/L 2525/3232-8T...OB	60	60	60	60	60	60
Reference page	P234	P235	P236	P237	P237	P239

1. Inserts*: ACD/ACS series are only applicable to grooving
2. -: Indicates that the insert is not available
3. Having selected the range of tool holder, please check the minimum face grooving machining diameter of the selected insert

AGSFR/L External & Face Grooving and Turning Holder







Product code		Insert width (mm)	Dimension (mm)							Spare parts	
			H	B	HF	LF	LH	WF	CDX	Screw	Wrench
AGSFR/L	**1616-4**	2, 3, 4	16	16	16	110	33	14.30	4.6	SH060160	LT-H5
	2020-4	2, 3, 4	20	20	20	125	33	18.30	4.6	SH060200	
	2020-6	5, 6	20	20	20	125	37	17.30	4.6		
	2525-4	2, 3, 4	25	25	25	150	33	23.30	4.6	SH060250	
	2525-6	5, 6	25	25	25	150	37	22.30	4.6		

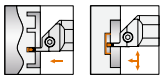
Insert Application

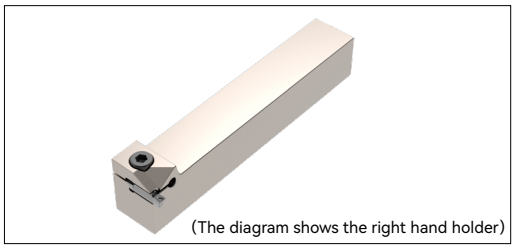
Application / Insert shape / Product code / Minimum machining diameter DMIN (mm)	Insert width (mm)	Low feed rate	Low-Medium feed rate	Medium feed rate	Finishing	Low Cutting Force	Medium feed rate	Profiling
		CS	CM	CH	GS	TS	TM	RM
AGSFR/L.....	2	196	196	196	100	196	-	196
	3	79	79	79	59	24	24	59
	4	-	42	42	42	22	22	42
	5	-	50	50	40	20	20	40
	6	-	48	48	38	18	18	38
Reference page		P230	P231	P232	P233	P234	P235	P236

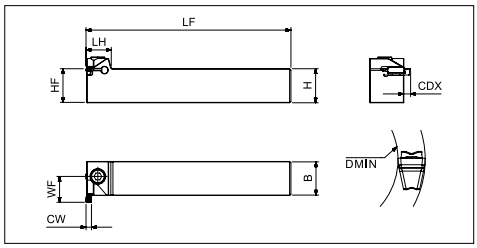
Application / Insert shape / Product code / Minimum machining diameter DMIN (mm)	Insert width (mm)	Low Cutting Force	Medium feed rate	Profiling	Ground Profiling	Ground Profiling	Ground
		TSR	TMR	RMR	RA	RS	G
AGSFR/L.....	2	300	-	300	-	300	100
	3	79	79	79	59	79	59
	4	55	55	55	42	55	42
	5	60	60	60	50	60	40
	6	60	60	60	50	60	38
Reference page		P234	P235	P236	P237	P237	P239

1. Inserts*: ACD/ACS series are only applicable to grooving
2. — : Indicates that the insert is not available
3. Having selected the range of tool holder, please check the minimum face grooving machining diameter of the selected insert

AGPFR/L Face Grooving and Turning Holder







Product code		Insert width (mm)	Dimension (mm)						Spare parts	
			H	B	HF	LF	LH	CDX	Screw	Wrench
AGPFR/L	2020-4	2, 3, 4	20	20	20	125	18	4.6	SH060200	LT-H5
	2525-4	2, 3, 4	25	25	25	150	18	4.6	SH060250	LT-H5
	2525-6	5, 6	25	25	25	150	22	4.6		

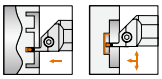
Insert Application

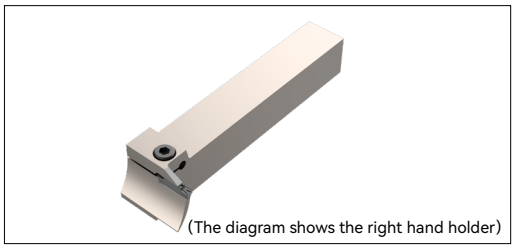
Application / Insert shape / Product code / Minimum machining diameter DMIN (mm)	Insert width (mm)	Low feed rate	Low-Medium feed rate	Medium feed rate	Finishing	Low Cutting Force	Medium feed rate	Profiling
		CS	CM	CH	GS	TS	TM	RM
AGPFR/L.....	2	196	196	196	100	196	-	196
	3	79	79	79	59	24	24	59
	4	-	42	42	42	22	22	42
	5	-	50	50	40	20	20	40
	6	-	48	48	38	18	18	38
Reference page		P230	P231	P232	P233	P234	P235	P236

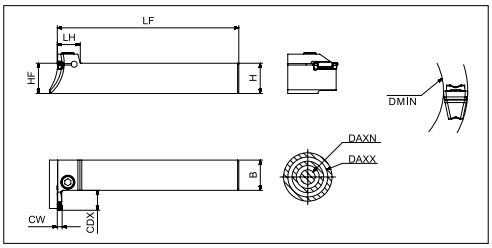
Application / Insert shape / Product code / Minimum machining diameter DMIN (mm)	Insert width (mm)	Low Cutting Force	Medium feed rate	Profiling	Ground Profiling	Ground Profiling	Ground
		TSR	TMR	RMR	RA	RS	G
AGPFR/L.....	2	300	-	300	-	300	100
	3	79	79	79	59	79	59
	4	55	55	55	42	55	42
	5	60	60	60	50	60	40
	6	60	60	60	50	60	38
Reference page		P234	P235	P236	P237	P237	P239

1. Inserts*: ACD/ACS series are only applicable to grooving
2. — : Indicates that the insert is not available
3. Having selected the range of tool holder, please check the minimum face grooving machining diameter of the selected insert

ATPFR/L Face Grooving and Turning Holder



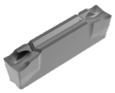
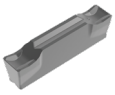
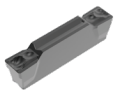
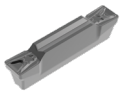




Product code		Insert width (mm)	Dimension (mm)							Spare parts	
			H	B	LF	LH	CDX	DAXN	DAXX	Screw	Wrench
ATPFR/L	**2525-3T10-30-40**	3	25	25	150	18	10	30	40	SH050250	LT-H4
	2525-3T10-35-50	3	25	25	150	18	10	35	50		
	2525-3T15-45-60	3	25	25	150	18	15	45	60		
	2525-3T15-55-85	3	25	25	150	18	15	55	85		
	2525-4T12-25-40	4	25	25	150	18.5	12	25	40	SH060250	LT-H5
	2525-4T15-35-50	4	25	25	150	18.5	15	35	50		
	2525-4T15-45-60	4	25	25	150	18.5	15	45	60		
	2525-4T15-55-85	4	25	25	150	18.5	15	55	85		
	2525-5T20-50-80	5	25	25	150	22	20	50	80	SH080250	LT-H6
	2525-5T20-70-110	5	25	25	150	22	20	70	110		
	2525-5T20-100-150	5	25	25	150	22	20	100	150		
	2525-5T20-140-200	5	25	25	150	22	20	140	200		
	2525-5T20-190-000	5	25	25	150	22	20	190	∞		
	2525-6T20-50-85	6	25	25	150	22	20	50	85		
	2525-6T20-75-150	6	25	25	150	22	20	75	150		
	2525-6T20-140-250	6	25	25	150	22	20	140	250		
	2525-6T20-240-000	6	25	25	150	22	20	240	∞		

ATPFR/L Face Grooving and Turning Holder

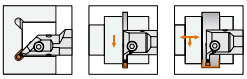
Insert Application

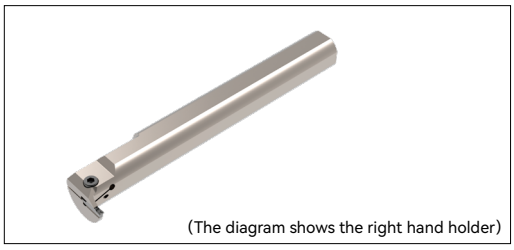
Application	Low-Medium feed rate	Medium feed rate	Finishing	Low Cutting Force	Medium feed rate	Profiling
Insert shape / Product code / Minimum machining diameter DMIN (mm)	CM 	CH 	GS 	TS 	TM 	RM 
ATPFR/L 2525-3T	79	79	59	35	35	59
ATPFR/L 2525-4T	42	42	42	35	35	42
ATPFR/L 2525-5T	50	50	50	50	50	50
ATPFR/L 2525-6T	50	50	50	50	50	50
Reference page	P231	P232	P233	P234	P235	P236

Application	Low Cutting Force	Medium feed rate	Profiling	Ground Profiling	Ground Profiling	Ground
Insert shape / Product code / Minimum machining diameter DMIN (mm)	TSR 	TMR 	RMR 	RA 	RS 	G 
ATPFR/L 2525-3T	79	79	79	59	79	59
ATPFR/L 2525-4T	55	55	55	42	55	42
ATPFR/L 2525-5T	60	60	60	50	60	50
ATPFR/L 2525-6T	60	60	38	50	60	50
Reference page	P234	P235	P236	P237	P237	P239

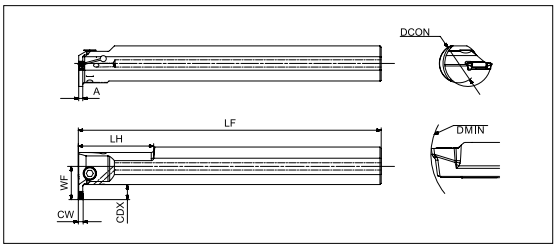
1. Inserts*: ACD/ACS series are only applicable to grooving
2. — : Indicates that the insert is not available
3. Having selected the range of tool holder, please check the minimum face grooving machining diameter of the selected insert

ATPIR/L Internal Turning, Grooving and Profiling Holder





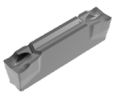
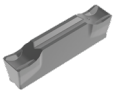
(The diagram shows the right hand holder)



Product code		Dimension (mm)							Spare parts	
		DCON	LF	LH	WF	A	CDX	DMIN	Screw	Wrench
ATPIR/L	**20-2T6-25-C**	20	160	40	15.8	1.8	6	25	SH050120	LT-H4
	25-2T5-25-C	25	200	40.2	17.5	1.8	5	25	SH050160	
	32-2T5-30-C	32	250	40	19.8	1.8	5	30		
	20-3T6-25-C	20	160	40	15.8	2.4	6	25	SH050120	
	25-3T5-25-C	25	200	40.3	17.5	2.4	5	25	SH050160	
	25-3T8-32-C	25	200	40	21.5	2.4	8	32		
	32-3T5-30-C	32	250	60	19.8	2.4	5	30		
	32-3T10-40-C	32	200	60	27	2.4	10	40		
	40-3T12-50-C	40	300	65	33	2.4	12	50		
	20-4T6-25-C	20	160	40	15.8	3.35	6	25	SH050120	
	25-4T5-25-C	25	200	40.5	17.5	3.35	5	25	SH050160	
	25-4T8-32-C	25	200	40.4	21.5	3.35	8	32		
	32-4T5-30-C	32	250	60	20.8	3.35	5	30	SH060160	LT-H5
	32-4T10-40-C	32	250	60	27	3.35	10	40		
	40-4T12-50-C	40	300	65.4	33	3.35	12	50		
	50-4T14-60-C	50	350	70.4	40	3.35	14	60	SH060200	
	25-5T5-31-C	25	200	40.5	17.3	4.35	5	31	SH060160	
	32-5T5-31-C	32	250	60.5	20.8	4.35	5	31	SH060200	
	32-5T10-40-C	32	250	60	27	4.35	10	40		
	40-5T12-50-C	40	300	65.5	33	4.35	12	50	SH060250	
	50-5T14-60-C	50	350	70.5	40	4.35	14	60		
	32-6T5-31-C	32	250	60.5	20.8	5.35	5	31	SH060200	
	32-6T10-40-C	32	250	60.5	27	5.35	10	40		
	40-6T12-50-C	40	300	65.5	33	5.35	12	50	SH060250	
	50-6T14-60-C	50	350	70.5	40	5.35	14	60		
	32-8T6-38-C	32	250	60	21.3	7.35	6	38	SH060200	
	40-8T6-42-C	40	300	65	25.8	7.35	6	42	SH060250	

ATPIR/L Internal Turning, Grooving and Profiling Holder

Insert Application

Application	Low-Medium feed rate	Medium feed rate	Finishing	Low Cutting Force	Medium feed rate	Profiling
Insert shape / Product code / Minimum machining diameter DMIN (mm)	CM	CH	GS	TS	TM	RM
						
ATPIR/L **-2T	-	-	25	25	-	25
ATPIR/L **-3T	50	50	25	25	25	25
ATPIR/L **-4T	50	50	25	25	25	25
ATPIR/L **-5T	50	50	31	31	31	31
ATPIR/L **-6T	50	50	31	31	31	31
ATPIR/L **-8T	-	-	-	38	38	38
Reference page	P231	P232	P233	P234	P235	P236

Application	Low Cutting Force	Medium feed rate	Profiling	Ground Profiling	Ground Profiling	Ground
Insert shape / Product code / Minimum machining diameter DMIN (mm)	TSR	TMR	RMR	RA	RS	G
						
ATPIR/L **-2T	25	-	25	-	25	25
ATPIR/L **-3T	25	25	25	25	25	25
ATPIR/L **-4T	25	25	31	25	25	25
ATPIR/L **-5T	31	31	31	31	31	31
ATPIR/L **-6T	31	31	38	31	31	31
ATPIR/L **-8T	38	38	38	38	38	38
Reference page	P234	P235	P236	P237	P237	P239

1. Inserts*: ACD/ACS series are only applicable to grooving
2. — : Indicates that the insert is not available
3. Having selected the range of tool holder, please check the minimum face grooving machining diameter of the selected insert

ATGI Tool Holder Denomination System

A	T	G	I	R	25	S	43	-	40	T30
1	2	3	4	5	6	7	8	-	9	10

1- Company Name
ACHTECK

2- Matching Insert Type	
T	Triangular

3- Application	
G	Grooving

4- Holder Type	
I	Internal machining

5- Hand of Tool	
L	Left
R	Right

6- Holder Size
25=25.0mm 32=32.0mm

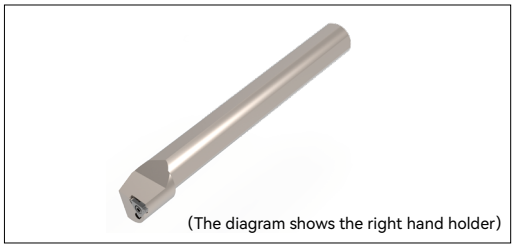
7- Holder Length
R:220mm S:250mm

8- Matching Insert Size (IC)
43=12.70mm

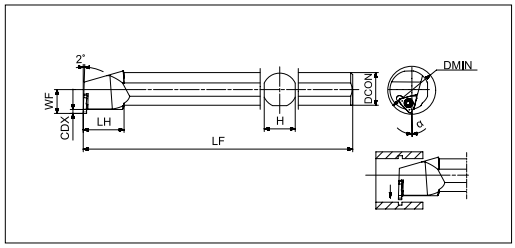
9- Minimum Internal Machining Diameter
40=40mm

10- Maximum CDX
T30=3.0mm

ATGIR/L Internal Shallow Grooving Holder

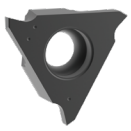
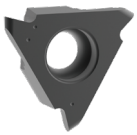


(The diagram shows the right hand holder)

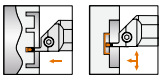


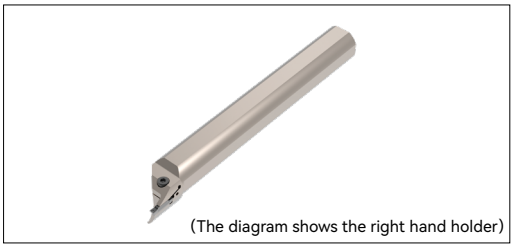
Product code		Dimension (mm)						Spare parts	
		DMIN	DCON	LF	LH	WF	CDX	Screw	Wrench
ATGIR/L	25R32-35T28	35	25	220	30	17.5	2.8	SP040085	FT-TP15
	32S43-40T30	40	32	250	30	23.0	3.0	SP05008550	FT-TP20

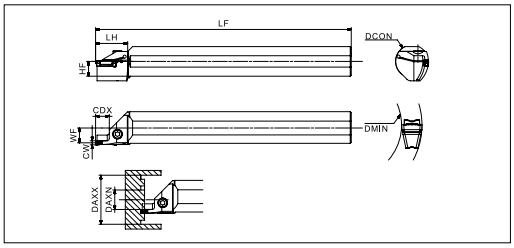
Insert Application

Application	Grooving	Profiling
Insert shape / Product code		
ATGIR 32	ATG 32L	ATG 32L
ATGIR 43	ATG 43L	ATG 43L
ATGIL 32	ATG 32R	ATG 32R
ATGIL 43	ATG 43R	ATG 43R
Reference page	P228	P228

ATSIR/L Internal Face Grooving and Turning Holder

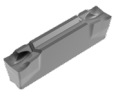
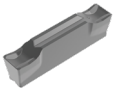






Product code		Dimension (mm)							Spare parts	
		DCON	LF	LH	WF	CDX	DAXN	DAXX	Screw	Wrench
ATSIR/L	**25-3T12-35-45-C**	25	200	31	11.4	12	35	45	SH050160	LT-H4
	25-3T12-40-60-C	25	200	31	11.4	12	40	60		
	25-3T12-55-90-C	25	200	31	11.4	12	55	90		
	25-3T12-80-150-C	25	200	31	11.4	12	80	150		
	25-4T12-20-35-C	25	200	31	11	12	20	35		
	25-4T12-28-45-C	25	200	31	11	12	28	45		
	25-4T12-35-55-C	25	200	31	11	12	35	55		
	32-4T12-45-70-C	32	250	31	14.5	12	45	70		
	32-4T12-60-100-C	32	250	31	14.5	12	60	100		
	32-4T12-90-180-C	32	250	31	14.5	12	90	180		

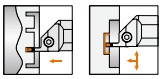
Insert Application

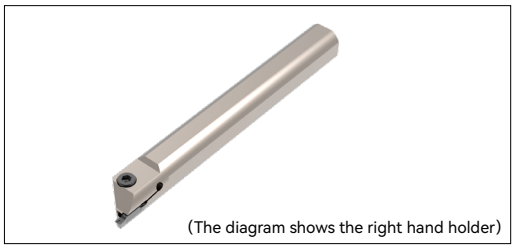
Application	Low-Medium feed rate	Medium feed rate	Finishing	Low Cutting Force	Medium feed rate	Profiling
Insert shape / Product code / Minimum machining diameter DMIN (mm)	CM	CH	GS	TS	TM	RM
						
ATSIR/L **3T	80	80	59	35	35	59
ATSIR/L **4T	42	42	42	22	22	42
Reference page	P231	P232	P233	P234	P235	P236

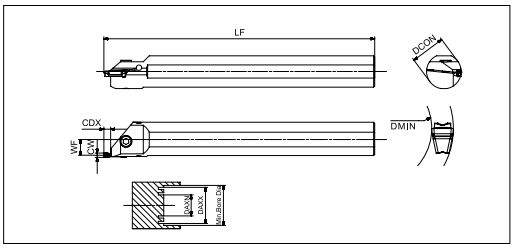
Application	Low Cutting Force	Medium feed rate	Profiling	Ground Profiling	Ground Profiling	Ground
Insert shape / Product code / Minimum machining diameter DMIN (mm)	TSR	TMR	RMR	RA	RS	G
						
ATSIR/L **3T	80	80	80	59	80	59
ATSIR/L **4T	55	55	55	42	55	42
Reference page	P234	P235	P236	P237	P237	P239

1. Inserts*: ACD/ACS series are only applicable to grooving
2. — : Indicates that the insert is not available
3. Having selected the range of tool holder, please check the minimum face grooving machining diameter of the selected insert

AGSIR/L Internal Face Grooving and Turning Holder







Product code		Insert width (mm)	Dimension (mm)					Spare parts	
			DCON	LF	LH	WF	CDX	Screw	Wrench
AGSIR/L	**25-4T5-C**	2，3，4	25	200	12.3	10.9	5.8	SH060160	LT-H5
	25-6T5-C	5，6	25	200	12.3	10.3	5.8		
	32-4T5-C	2，3，4	32	250	15.8	14.5	5.8		
	32-6T5-C	5，6	32	250	15.8	13.8	5.8		

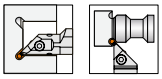
Insert Application

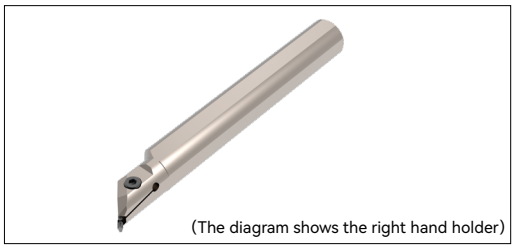
Application / Insert shape / Product code / Minimum machining diameter DMIN (mm)	Insert width (mm)	Low feed rate	Low-Medium feed rate	Medium feed rate	Finishing	Low Cutting Force	Medium feed rate	Profiling
		CS	CM	CH	GS	TS	TM	RM
AGSIR/L.....	2	196	196	196	100	196	-	196
	3	79	79	79	59	24	24	59
	4	-	42	42	42	22	22	42
	5	-	50	50	40	20	20	40
	6	-	48	48	38	18	18	38
Reference page		P230	P231	P232	P233	P234	P235	P236

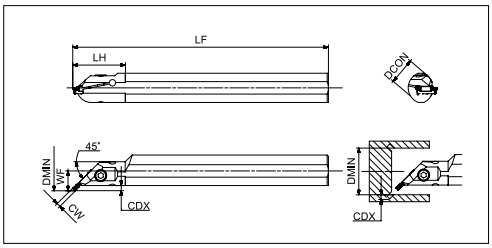
Application / Insert shape / Product code / Minimum machining diameter DMIN (mm)	Insert width (mm)	Low Cutting Force	Medium feed rate	Profiling	Ground Profiling	Ground Profiling	Ground
		TSR	TMR	RMR	RA	RS	G
AGSIR/L.....	2	300	-	300	-	300	100
	3	79	79	79	59	79	59
	4	55	55	55	42	55	42
	5	60	60	60	50	60	40
	6	60	60	60	50	60	38
Reference page		P234	P235	P236	P237	P237	P239

1. Inserts*: ACD/ACS series are only applicable to grooving
2. — : Indicates that the insert is not available
3. Having selected the range of tool holder, please check the minimum face grooving machining diameter of the selected insert

AGUIR/L Internal Undercutting Holder







Product code		Dimension (mm)						Spare parts	
		DCON	LF	LH	WF	CDX	DIMN	Screw	Wrench
AGUIR/L	**20-3T3-45**	20	160	40	12.3	3	45	SH050120	LT-H4
	20-4T3-45	20	160	40	12.3	3	45		
	25-3T3-45	25	200	40	14.4	3	45	SH050160	
	25-4T3-45	25	200	40	14.4	3	45		
	25-6T3-45	25	200	40	14.4	3	45	SH060160	LT-H5

Insert Application

Application	Profiling	Ground Profiling	Ground Profiling	Ground
Insert shape / Product code	RM	RA	RS	G
				
AGUER/L**	ATD 315 ..... ATD 630	ATD 315 ..... ATD 630	ATD 210 ..... ATD 630	ATD 300E ..... ATD 600E
Reference page	P236	P237	P237	P239

ACHTECK

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Grooving Inserts

Turning Grade Description

Grooving Grade Description

P Steel, cast steel, long chiping malleable cast iron

Basic grade

AP301U P25(P15-P35)

PVD coated grade, suitable for steel, stainless steel and heat resistant alloy grooving. High strength and wear resistant submicron carbide substrate with nanostructured PVD coating. Good coating adhesion, high wear resistance.

AC230P P20(P10-P30)

CVD coated grade. It's mainly used in steel, grey cast iron and nodular cast iron grooving, turning and profiling under high cutting speed. High toughness and wear resistant substrate combined with nano-structured coating offered good wear resistance, coating adhesion, machining stability and longer tool life.

Supplemental grade

AP330M P35(P25-P45)

Brand new PVD coated grade. Suitable for stainless steel and steel finishing, semi-finishing and rough grooving. It's the 1st choice for stainless steel turning, and good for steel turning as well. It has high thermal stability, wear resistance, and excellent thermal crack resistance. Enriched cobalt superfine grain substrate offers high hardness and good anti shock capability which reduces the edge chipping problem.

M Austenitic/ferrite/martensite, cast iron, manganese steel, alloyed cast iron, malleable cast iron, free cutting iron

Basic grade

AP330M M35(M25-M45)

Brand new PVD coated grade. Suitable for stainless steel and steel finishing, semi-finishing and rough grooving. It's the 1st choice for stainless steel turning, and good for steel turning as well. It has high thermal stability, wear resistance, and excellent thermal crack resistance. Enriched cobalt superfine grain substrate offers high hardness and good anti shock capability which reduces the edge chipping problem.

Supplemental grade

AP301U M20(M15-M35)

PVD coated grade. Suitable for steel, stainless steel and heat resistant alloy grooving. High strength and wear resistant submicron carbide substrate with nanostructured PVD coating. Good coating adhesion, high wear resistance.

AP130S M10(M05-M20)

PVD coated carbide material. Suitable for turning grooves in nickel-based, titanium-based, iron-based superalloys, titanium alloys, stainless steel, and other materials. The substrate adopts binder phase strengthening technology, enhancing the tool's high-temperature resistance and impact resistance. Paired with the newly developed PVD coating, which features a dense structure and low surface friction coefficient, the tool's resistance to built-up edge, wear resistance, and high-temperature oxidation resistance are improved.

N Non-ferrous metal

Basic grade

AW100K N15 (N05-N25)

Uncoated ultra-fine grain substrate, specially treated cutting edge, suitable for aluminum alloy grooving.

S Heat resistant alloys

Basic grade

AP130S S15(S10-S20)

PVD coated carbide material. Suitable for turning grooves in nickel-based, titanium-based, iron-based superalloys, titanium alloys, stainless steel, and other materials. The substrate adopts binder phase strengthening technology, enhancing the tool's high-temperature resistance and impact resistance. Paired with the newly developed PVD coating, which features a dense structure and low surface friction coefficient, the tool's resistance to built-up edge, wear resistance, and high-temperature oxidation resistance are improved.

Grade Application Guide

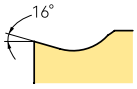
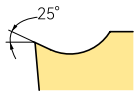
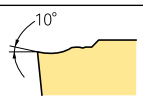
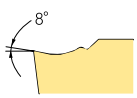
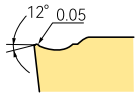
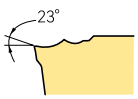
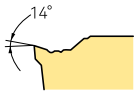
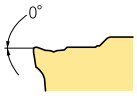
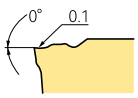
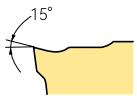
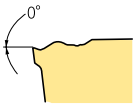
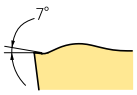
Material Group		ISO	ISO Group of Grooving Insert Grades					ISO
			PVD coated			CVD coated	Uncoated	
			AP301U	AP130S	AP330M	AC230P	AW100K	
P	Unalloyed steels /Alloyed steels	P01						P01
		P10	AP301U			AC230P		P10
		P20			AP330M			P20
		P30						P30
		P40						P40
		P50						P50
M	Stainless steels	M01		AP130S				M01
		M10	AP301U					M10
		M20			AP330M			M20
		M30						M30
		M40						M40
K	Cast iron	K01						K01
		K10						K10
		K20						K20
		K30						K30
		K40						K40
		K50						K50
N	Aluminum/ Aluminum alloys	N01					AW100K	N01
		N10						N10
		N20						N20
		N30						N30
S	Heat resistant alloys	S01						S01
		S10						S10
		S20		AP130S				S20
		S30						S30
		S40						S40
H	Hardened steels/ Chilled cast iron	H01						H01
		H10						H10
		H20						H20
		H30						H30

Grade Application Guide

Materials				Turning grade application				
				PVD coated			CVD coated	Uncoated
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	AP301U	AP130S	AP330M	AC230P	AW100K
P	Unalloyed steel	<600	<180	●	◐	●	●	-
		<950	<280	●	◐	●	●	-
	Alloyed steel	700-950	200-280	●	◐	●	●	-
		950-1200	280-355	●	◐	●	●	-
		1200-1400	355-415	●	◐	●	●	-
M	Duplex stainless steel	778	230	●	●	●	-	-
	Austenitic stainless steel	675	200	●	●	●	-	-
	Precipitation-hardening stainless steel	1013	300	●	●	●	-	-
K	Grey cast iron	700	220	◐	-	-	●	-
	Nodular cast iron	880	260	◐	-	-	●	-
	Malleable cast iron	800	250	◐	-	-	●	-
N	Aluminum	260	75	-	-	-	-	●
	Aluminum alloy	447	130	-	-	-	-	●
S	Fe-based alloy	943	280	-	●	-	-	-
	Co-based alloy	1076	320	-	●	-	-	-
	Ni-based alloy	1177	350	-	●	-	-	-
	Ti-alloy	1262	370	-	●	-	-	-
H	Hardened steel	-	50-60HRC	-	-	-	-	-
	Chilled cast iron	-	55HRC	-	-	-	-	-

● 1st choice
◐ 2nd choice
- Inapplicable

Insert Geometry Introduction

Geometry	Insert	Shape of cutting edge	Description	Geometry width (mm)								
				External grooving					Face grooving		Internal grooving	
				Grooving	Parting off	Turning	Profiling	Undercutting	Grooving	Turning	Grooving	Turning
ATG			• High precision insert • Positive rake angle reduces the vibration • 3 teeth design, with good flexibility.	0.33 | 4.5	-	-	0.5 1.0 1.5 2.0 3.0 4.0	-	-	-	0.33 | 4.5	-
ASG			• High precision insert • Big rake angle and sharp teeth design obtain good surface quality. • 3 teeth design	0.8 | 2.5	-	-	-	-	-	-	0.8 | 2.5	
CS			• Used in parting off & grooving stainless steel, heat resistant alloy and low carbon steel • For low feed rate application	2.0 | 3.0	2.0 | 3.0	-	-	-	3.0	-	3.0	-
CM			• Used in parting off & grooving low carbon steel and stainless steel • For sticky material, pipe fitting, thin-walled part parting off, low cutting force • For low to medium feed rate	2.0 3.0 4.0 5.0 6.0	2.0 3.0 4.0 5.0 6.0	-	-	-	3.0 4.0 5.0 6.0	-	3.0 4.0 5.0 6.0	-
CH			• Used in parting off and grooving steel, alloy steel and stainless steel with high hardness and toughness. • Strong cutting edge • For parting off and grooving at medium to high feed rate	2.0 3.0 4.0 5.0 6.0 8.0	2.0 3.0 4.0 5.0 6.0 8.0	-	-	-	3.0 4.0 5.0 6.0	-	3.0 4.0 5.0 6.0	-
GS			• Excellent chip breaking, suitable for grooving and finish turning. • Geometry for finish machining, low cutting force, low feed, excellent surface quality. • Ground insert, better precision control and positioning repeatability.	2.0 | 4.00	2.0 | 4.00	2.0 | 4.00	-	-	3.0 | 4.00	3.0 | 4.00	2.0 | 4.00	2.0 | 4.00
TS			• Multifunctional insert for external, internal turning and grooving, parting off, face grooving and face turning • Excellent chip control • For low and medium feed rate • Extended diameter range for internal and face machining	2.0 3.0 4.0 5.0 6.0 8.0	2.0 3.0 4.0 5.0 6.0 8.0	2.0 3.0 4.0 5.0 6.0 8.0	-	-	3.0 4.0 5.0 6.0	3.0 4.0 5.0 6.0	2.0 3.0 4.0 5.0 6.0 8.0	2.0 3.0 4.0 5.0 6.0 8.0
TM			• Multifunctional insert for external, internal turning and grooving, parting off, face grooving and face turning • Stronger cutting edge design • For medium feed rate • Extended diameter range for internal and face machining	2.0 3.0 4.0 5.0 6.0 8.0	2.0 3.0 4.0 5.0 6.0 8.0	2.0 3.0 4.0 5.0 6.0 8.0	-	-	3.0 4.0 5.0 6.0	3.0 4.0 5.0 6.0	2.0 3.0 4.0 5.0 6.0 8.0	2.0 3.0 4.0 5.0 6.0 8.0
RM			• External grooving, turning, profiling • Medium feed rate	2.0 3.0 4.0 5.0 6.0 8.0	-	2.0 3.0 4.0 5.0 6.0 8.0	2.0 3.0 4.0 5.0 6.0 8.0	2.0 3.0 4.0 5.0 6.0 8.0	3.0 4.0 5.0 6.0	3.0 4.0 5.0 6.0	2.0 3.0 4.0 5.0 6.0 8.0	2.0 3.0 4.0 5.0 6.0 8.0
RA			• For turning and profiling aluminum alloy • High positive rake angle and sharp cutting edge • Ground inserts with high precision	3.0 4.0 5.0 6.0 8.0	-	3.0 4.0 5.0 6.0 8.0	3.0 4.0 5.0 6.0 8.0	3.0 4.0 5.0 6.0 8.0	3.0 4.0 5.0 6.0 8.0	3.0 4.0 5.0 6.0 8.0	3.0 4.0 5.0 6.0 8.0	3.0 4.0 5.0 6.0 8.0
RS			• External grooving, turning, profiling • Robust cutting edge design • Low feed applications • Sharpened grade circular inserts with high precision control • Good surface quality	2.0 3.0 4.0 5.0 6.0 8.0	-	2.0 3.0 4.0 5.0 6.0 8.0	2.0 3.0 4.0 5.0 6.0 8.0	2.0 3.0 4.0 5.0 6.0 8.0	- 3.0 4.0 5.0 6.0 8.0	- 3.0 4.0 5.0 6.0 8.0	2.0 3.0 4.0 5.0 6.0 8.0	2.0 3.0 4.0 5.0 6.0 8.0
Precision ground			• Ground insert with high precision, better precision control • Complete product offering • Good surface quality	1.0 | 8.0	-	2.22 | 8.0	3.0 4.0 4.8 5.0 6.0 8.0	3.0 4.0 4.8 5.0 6.0 8.0	3.0 4.0 4.8 5.0 6.0 8.0	3.0 4.0 4.8 5.0 6.0 8.0	2.22 | 8.0	2.22 | 8.0

Triangular Shallow Grooving Insert Denomination System

A	T	G	32	R/L	050	T12	-	R005
1	2	3	4	5	6	7	-	8

1- Company Name
ACHTECK

2- Insert Type	
T	Triangular
S	Only applied to Swiss lathe

3- Application	
G	Grooving

4- Insert IC Size
32=9.525mm
43=12.70mm

5- Hand of Tool	
L	Left
R	Right

6- Insert Width
050=0.5mm

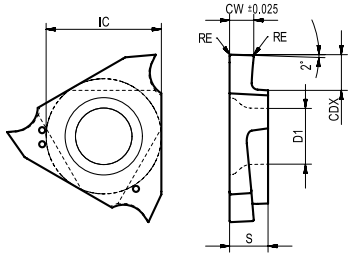
7- Maximum CDX
T12=1.2mm

8- Insert Corner
R005=0.05mm

Shallow Grooving Series

ASG: Applied to external shallow grooving for Swiss lathe

Product code	IC	S	D1
ASG 32-	9.525	3.18	4.6



(The diagram shows the right hand insert)

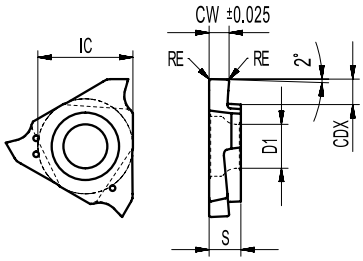
Inserts	Product code	Machining conditions: Cutting parameter: Grooving f (mm/rev)	CDX	Dimensions: CW	RE	● Good Conditions ◐ General Conditions ✱ Bad Conditions							
						●	✱	◐	✱	●	◐	●	●
						P			M		K		N
						AP301U	AP330M	AC230P	AP330M	AP301U	AC230P	AP301U	AW100K
	**ASG 32R/L033T08-R005**	0.01-0.05	0.8	0.33	0.05	●				●		●	
	ASG 32R/L050T12-R005	0.01-0.05	1.2	0.50	0.05	●				●		●	
	ASG 32R/L075T20-R010	0.02-0.07	2.0	0.75	0.10	●				●		●	
	ASG 32R/L095T20-R010	0.02-0.07	2.0	0.95	0.10	●				●		●	
	ASG 32R/L100T20-R010	0.03-0.08	2.0	1.00	0.10	●				●		●	
	ASG 32R/L120T20-R010	0.03-0.08	2.0	1.20	0.10	●				●		●	
	ASG 32R/L125T20-R010	0.03-0.08	2.0	1.25	0.10	●				●		●	
	ASG 32R/L140T20-R010	0.03-0.08	2.0	1.40	0.10	●				●		●	
	ASG 32R/L145T20-R010	0.03-0.08	2.0	1.45	0.10	●				●		●	
	ASG 32R/L150T20-R010	0.03-0.08	2.0	1.50	0.10	●				●		●	
	ASG 32R/L175T20-R010	0.03-0.08	2.0	1.75	0.10	●				●		●	
	ASG 32R/L200T25-R010	0.03-0.08	2.5	2.00	0.10	●				●		●	
	ASG 32R/L250T25-R010	0.03-0.08	2.5	2.50	0.10	●				●		●	

● : Standard stock ○ : Made-to-Order

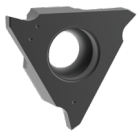
Shallow Grooving Series

ATG: Applied to external and internal shallow grooving

Product code	IC	S	D1
ATG 32-	9.525	3.18	4.4
ATG 43-	12.7	4.76	5.5
ATG 43R/L450	12.7	5.0	5.5



(The diagram shows the right hand insert)

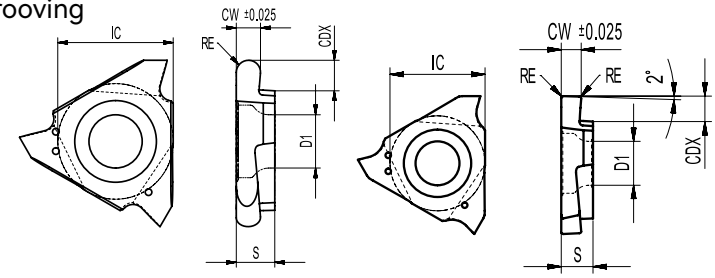
Inserts	Product code	Machining conditions				● Good Conditions ⧓ General Conditions ✱ Bad Conditions							
						●	✱	⧓	✱	●	⧓	●	●
		Cutting parameter		Dimensions		P			M		K		N
		Grooving f (mm/rev)	CDX	CW	RE	AP301U	AP330M	AC230P	AP330M	AP301U	AC230P	AP301U	AW100K
	**ATG 32R/L033T08-R005**	0.03-0.08	0.8	0.33	0.05	●				●		●	
	ATG 32R/L050T12-R005	0.03-0.08	1.2	0.50	0.05	●				●		●	
	ATG 32R/L075T20-R005	0.03-0.08	2.0	0.75	0.05	●				●		●	
	ATG 32R/L095T20-R005	0.03-0.08	2.0	0.95	0.05	●				●		●	
	ATG 32R/L100T20-R005	0.03-0.08	2.0	1.00	0.05	●				●		●	
	ATG 32R/L110T20-R005	0.03-0.08	2.0	1.10	0.05	●				●		●	
	ATG 32R/L120T20-R005	0.03-0.08	2.0	1.20	0.05	●				●		●	
	ATG 32R/L125T20-R020	0.04-0.09	2.0	1.25	0.20	●				●		●	
	ATG 32R/L130T20-R020	0.04-0.09	2.0	1.30	0.20	●				●		●	
	ATG 32R/L140T25-R020	0.04-0.09	2.5	1.40	0.20	●				●		●	
	ATG 32R/L145T25-R020	0.04-0.09	2.5	1.45	0.20	●				●		●	
	ATG 32R/L150T25-R020	0.04-0.09	2.5	1.50	0.20	●				●		●	
	ATG 32R/L160T25-R020	0.04-0.09	2.5	1.60	0.20	●				●		●	
	ATG 32R/L170T25-R020	0.04-0.09	2.5	1.70	0.20	●				●		●	
	ATG 32R/L175T25-R020	0.04-0.09	2.5	1.75	0.20	●				●		●	
	ATG 32R/L200T25-R020	0.04-0.09	2.5	2.00	0.20	●				●		●	
	ATG 32R/L225T25-R020	0.04-0.09	2.5	2.25	0.20	●				●		●	
	ATG 32R/L250T25-R020	0.05-0.10	2.5	2.50	0.20	●				●		●	
	ATG 32R/L300T25-R020	0.05-0.10	2.5	3.00	0.20	●				●		●	
	ATG 43R/L100T20-R010	0.03-0.08	2.0	1.00	0.10	●				●		●	
	ATG 43R/L125T20-R010	0.04-0.09	2.0	1.25	0.10	●				●		●	
	ATG 43R/L125T20-R020	0.04-0.09	2.0	1.25	0.20	●				●		●	
	ATG 43R/L130T30-R010	0.04-0.09	3.0	1.30	0.10	●				●		●	
	ATG 43R/L130T30-R020	0.04-0.09	3.0	1.30	0.20	●				●		●	
	ATG 43R/L140T35-R020	0.04-0.09	3.5	1.40	0.20	●				●		●	
	ATG 43R/L145T35-R020	0.04-0.09	3.5	1.45	0.20	●				●		●	
	ATG 43R/L150T35-R010	0.04-0.09	3.5	1.50	0.10	●				●		●	
	ATG 43R/L150T35-R020	0.04-0.09	3.5	1.50	0.20	●				●		●	
	ATG 43R/L170T35-R020	0.04-0.09	3.5	1.70	0.20	●				●		●	
	ATG 43R/L175T35-R020	0.04-0.09	3.5	1.75	0.20	●				●		●	
	ATG 43R/L185T35-R020	0.04-0.09	3.5	1.85	0.20	●				●		●	
	ATG 43R/L195T35-R020	0.04-0.09	3.5	1.95	0.20	●				●		●	

● : Standard stock ○ : Made-to-Order

Shallow Grooving Series

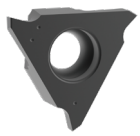
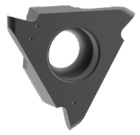
ATG: Applied to external and internal shallow grooving

Product code	IC	S	D1
ATG 32-	9.525	3.18	4.4
ATG 43-	12.7	4.76	5.5
ATG 43R/L450	12.7	5.0	5.5



(The diagram shows the right hand insert)

● Good Conditions ⬮ General Conditions ✱ Bad Conditions

Inserts	Product code	Machining conditions				●	✱	⬮	✱	●	⬮	●	●
		Cutting parameter		Dimensions		P			M		K		N
		Grooving f (mm/rev)	CDX	CW	RE	AP301U	AP330M	AC230P	AP330M	AP301U	AC230P	AP301U	AW100K
	**ATG 43R/L200T35-R010**	0.04-0.09	3.5	2.00	0.10	●				●		●	
	ATG 43R/L200T35-R020	0.04-0.09	3.5	2.00	0.20	●				●		●	
	ATG 43R/L225T35-R020	0.04-0.09	3.5	2.25	0.20	●				●		●	
	ATG 43R/L230T35-R020	0.05-0.10	3.5	2.30	0.20	●				●		●	
	ATG 43R/L250T50-R010	0.05-0.10	5.0	2.50	0.10	●				●		●	
	ATG 43R/L250T50-R030	0.05-0.10	5.0	2.50	0.30	●				●		●	
	ATG 43R/L265T50-R030	0.05-0.10	5.0	2.65	0.30	●				●		●	
	ATG 43R/L280T50-R030	0.05-0.10	5.0	2.80	0.30	●				●		●	
	ATG 43R/L300T50-R010	0.05-0.10	5.0	3.00	0.10	●				●		●	
	ATG 43R/L300T50-R030	0.05-0.10	5.0	3.00	0.30	●				●		●	
	ATG 43R/L325T50-R030	0.05-0.10	5.0	3.25	0.30	●				●		●	
	ATG 43R/L330T50-R030	0.05-0.12	5.0	3.30	0.30	●				●		●	
	ATG 43R/L350T50-R010	0.05-0.12	5.0	3.50	0.10	●				●		●	
	ATG 43R/L350T50-R030	0.05-0.12	5.0	3.50	0.30	●				●		●	
	ATG 43R/L400T50-R010	0.05-0.12	5.0	4.00	0.10	●				●		●	
	ATG 43R/L400T50-R040	0.05-0.12	5.0	4.00	0.40	●				●		●	
	ATG 43R/L430T50-R040	0.05-0.12	5.0	4.30	0.40	●				●		●	
	ATG 43R/L450T50-R040	0.05-0.12	5.0	4.50	0.40	●				●		●	
	**ATG 32R/L050T12-R025**	0.03-0.08	1.2	0.50	0.25	●				●		●	
	ATG 32R/L100T12-R050	0.03-0.08	1.2	1.00	0.50	●				●		●	
	ATG 32R/L150T25-R075	0.04-0.09	2.5	1.50	0.75	●				●		●	
	ATG 32R/L200T25-R100	0.04-0.09	2.5	2.00	1.00	●				●		●	
	ATG 32R/L300T25-R150	0.05-0.10	2.5	3.00	1.50	●				●		●	
	ATG 43R/L100T20-R050	0.03-0.08	2.0	1.00	0.50	●				●		●	
	ATG 43R/L150T35-R075	0.04-0.09	3.5	1.50	0.75	●				●		●	
	ATG 43R/L200T35-R100	0.04-0.09	3.5	2.00	1.00	●				●		●	
	ATG 43R/L250T40-R125	0.05-0.10	5.0	2.50	1.25	●				●		●	
	ATG 43R/L300T40-R150	0.05-0.10	5.0	3.00	1.50	●				●		●	
	ATG 43R/L400T50-R200	0.05-0.12	5.0	4.00	2.00	●				●		●	

● : Standard stock ○ : Made-to-Order

Insert Denomination System (Pressing Insert)

A	C	D	4	0	3	-	CM	6	R
1	2	3	4	5		-	6	7	8

1- Company Name
ACHTECK

2- Application	
C	Grooving/Parting off
T	Turning/Grooving

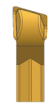
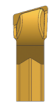
3- Insert Shape	
S	Single-edged
D	Double-edged

4- Insert Width
2=2.0mm 3=3.0mm 4=4.0mm

5-Insert Corner
02=0.2mm 03=0.3mm 04=0.4mm

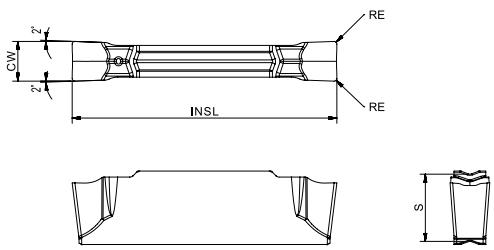
6-Geometry
CS CM CH GS TS TM RM RA

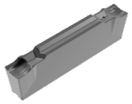
7-Cutting Edge Angle
6=6° 15=15°

8-Hand of Tool	
	L: Left
	R: Right

Parting Off-Grooving Series

CS: Double-edged inserts applicable to parting off and grooving



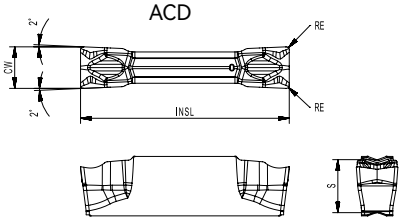
Inserts	Product code	Machining conditions						● Good Conditions ⊕ General Conditions ✱ Bad Conditions									
								●	✱	⊕	✱	✱	●	⊕	●	✱	●
		Cutting parameter		Dimensions				P			M			K		S	N
		CDX	f (mm/rev)	CW	RE	INSL	S	AP301U	AP330M	AC230P	AP330M	AP130S	AP301U	AC230P	AP301U	AP130S	AW100K
	**ACD 202 CS**	19.7	0.04-0.13	2	0.2	20	5.1	●	●		●	●	●		●	●	
	ACD 302 CS	19.7	0.05-0.15	3	0.2	20	5.1	●	●		●	●	●		●	●	

● : Standard stock ○ : Made-to-Order

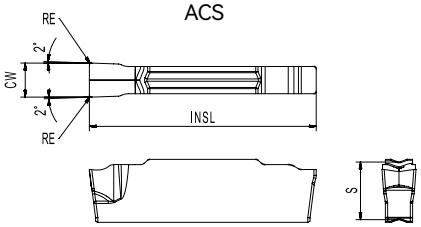
Parting Off-Grooving Series

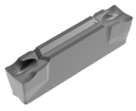
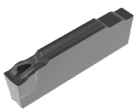
CM: Double-edged inserts applicable to parting off and grooving

ACD



ACS



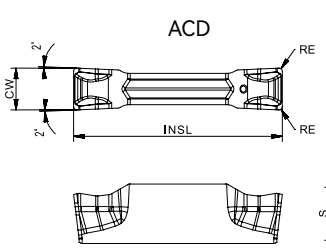
Inserts	Product code	Machining conditions: ● Good Conditions ⇹ General Conditions ✱ Bad Conditions													
		●	✱	⇹	✱	✱	●	⇹	●	✱	●				
		Cutting parameter		Dimensions				P			M			K		S	N
		CDX	f (mm/rev)	CW	RE	INSL	S	AP301U	AP330M	AC230P	AP330M	AP130S	AP301U	AC230P	AP301U	AP130S	AW100K
	**ACD 202-CM**	19.7	0.04-0.15	2	0.2	20	5.1	●	●		●	●	●		●	●	
	ACD 202-CM-6R	19.7	0.03-0.09	2	0.2	20.7	5.1	●	●		●		●		●		
	ACD 202-CM-6L	19.7	0.03-0.09	2	0.2	20.7	5.1	●	○		○		●		●		
	ACD 202-CM-15R	19.7	0.03-0.09	2	0.2	21	5.1	●	●		●		●		●		
	ACD 202-CM-15L	19.7	0.03-0.09	2	0.2	21	5.1	●	○		○		●		●		
	ACD 302-CM	19.7	0.05-0.16	3	0.2	20	5.1	●	●		●	●	●		●	●	
	ACD 302-CM-6R	19.7	0.04-0.14	3	0.2	20.7	5.1	●	○		○		●		●		
	ACD 302-CM-6L	19.7	0.04-0.14	3	0.2	20.7	5.1	●	●		●		●		●		
	ACD 302-CM-15R	19.7	0.04-0.14	3	0.2	21	5.1	●	●		●		●		●		
	ACD 302-CM-15L	19.7	0.04-0.14	3	0.2	21	5.1	●	○		○		●		●		
	ACD 403-CM	19.7	0.06-0.18	4	0.3	20	5.1	●	●		●		●		●		
	ACD 403-CM-4R	19.7	0.05-0.16	4	0.3	20.7	5.1	●	●		●		●		●		
	ACD 403-CM-4L	19.7	0.05-0.16	4	0.3	20.7	5.1	●	●		●		●		●		
	ACD 503-CM	24.7	0.06-0.20	5	0.3	25	5.0	●	○		○		●		●		
	ACD 503-CM-4R	24.7	0.06-0.18	5	0.3	25.7	5.0	○	○		○		○		○		
	ACD 503-CM-4L	24.7	0.06-0.18	5	0.3	25.7	5.0	○	○		○		○		○		
	ACD 603-CM	29.7	0.06-0.22	6	0.3	25	5.0	●	○		○		●		●		
	**ACS 202-CM**	—	0.04-0.15	2	0.2	20	5.1	●	●		●		●		●		
	ACS 302-CM	—	0.05-0.16	3	0.2	20	5.1	●	○		○		●		●		
	ACS 403-CM	—	0.06-0.18	4	0.3	20	5.1	○	○		○		○		○		
	ACS 503-CM	—	0.06-0.20	5	0.3	25	5.0	○	○		○		○		○		
	ACS 603-CM	—	0.06-0.22	6	0.3	25	5.0	○	○		○		○		○		

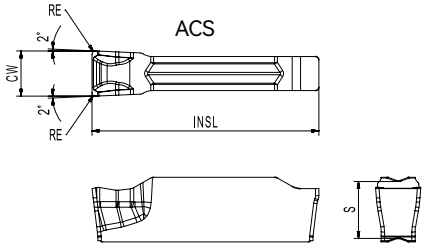
● : Standard stock ○ : Made-to-Order

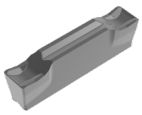
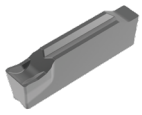
Remark: 1. if R/L style inserts are selected, the feed need to be reduced by 20-40%.
2. ACS single edged insert's Tmax is determined according to the tool holder.

Parting Off-Grooving Series

CH: Double-edged inserts applicable to parting off and grooving





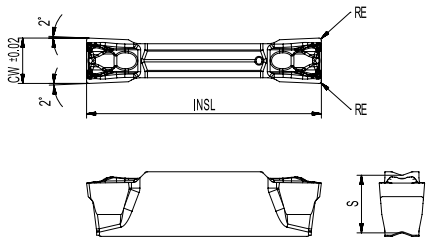
Inserts	Product code	Machining conditions						● Good Conditions ◐ General Conditions ✱ Bad Conditions							
								●	✱	◐	✱	●	◐	●	●
		Cutting parameter		Dimensions				P			M		K		N
		CDX	f (mm/rev)	CW	RE	INSL	S	AP301U	AP330M	AC230P	AP330M	AP301U	AC230P	AP301U	AW100K
	**ACD 202-CH**	19.7	0.05-0.20	2	0.2	20	5.1	●	●		●	●		●	
	ACD 202-CH-6R	19.7	0.04-0.16	2	0.2	20.7	5.1	●	●		●	●		●	
	ACD 202-CH-6L	19.7	0.04-0.16	2	0.2	20.7	5.1	●	○		○	●		●	
	ACD 202-CH-15R	19.7	0.04-0.15	2	0.2	21	5.1	●	●		●	●		●	
	ACD 202-CH-15L	19.7	0.04-0.15	2	0.2	21	5.1	●	○		○	●		●	
	ACD 2.502-CH	19.7	0.07-0.20	2.5	0.2	20	5.1	●	○		○	●		●	
	ACD 302-CH	19.7	0.07-0.25	3	0.2	20	5.1	●	●		●	●		●	
	ACD 302-CH-6R	20.7	0.05-0.20	3	0.2	20.7	5.1	●	●		●	●		●	
	ACD 302-CH-6L	21.7	0.05-0.20	3	0.2	20.7	5.1	●	●		●	●		●	
	ACD 302-CH-15R	20	0.05-0.18	3	0.2	21	5.1	●	●		●	●		●	
	ACD 302-CH-15L	20	0.05-0.18	3	0.2	21	5.1	●	○		○	●		●	
	ACD 403-CH	19	0.08-0.30	4	0.3	20	5.1	●	●		●	●		●	
	ACD 403-CH-4R	19.7	0.06-0.25	4	0.3	20.7	5.1	●	●		●	●		●	
	ACD 403-CH-4L	19.7	0.06-0.25	4	0.3	20.7	5.1	●	●		●	●		●	
	ACD 503-CH	24	0.09-0.35	5	0.3	25	5.0	●	●		●	●		●	
	ACD 503-CH-4R	24.7	0.08-0.30	5	0.3	25.7	5.0	●	●		●	●		●	
	ACD 503-CH-4L	25.7	0.08-0.30	5	0.3	25.7	5.0	●	●		●	●		●	
	ACD 603-CH	24	0.12-0.40	6	0.3	25	5.0	●	●		●	●		●	
	ACD 804-CH	29	0.15-0.45	8	0.4	30	6.1	●	●		●	●		●	
	**ACS 202-CH**	—	0.05-0.20	2	0.2	20	5.1	●	○		○	●		●	
	ACS 302-CH	—	0.07-0.25	3	0.2	20	5.1	●	●		●	●		●	
	ACS 403-CH	—	0.08-0.30	4	0.3	20	5.1	●	●		●	●		●	
	ACS 503-CH	—	0.09-0.35	5	0.3	25	5.0	●	●		●	●		●	
	ACS 603-CH	—	0.12-0.40	6	0.3	25	5.0	○	○		○	○		○	

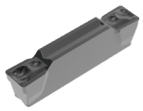
● : Standard stock ○ : Made-to-Order

Remark: 1. if R/L style inserts are selected, the feed need to be reduced by 20-40%.
2. ACS single edged insert's Tmax is determined according to the tool holder.

Grooving-Turning Series

GS: Double-edged inserts applicable to external, internal and face turning, grooving and parting off

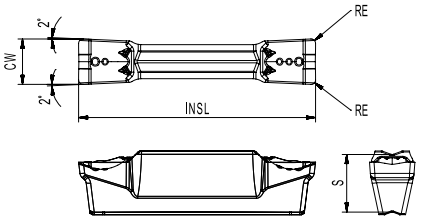


Inserts	Product code	Machining conditions							● Good Conditions ⊕ General Conditions ✱ Bad Conditions									
									●	✱	⊕	✱	✱	●	⊕	●	✱	●
		Cutting parameter			Dimensions				P			M			K		S	N
		Grooving	Turning		CW	RE	INSL	S	AP301U	AP330M	AC230P	AP330M	AP130S	AP301U	AC230P	AP301U	AP130S	AW100K
		f (mm/rev)	f (mm/rev)	Ap (mm)														
	**ATD 200E020-GS**	0.04-0.20	0.05-0.20	0.30-1.5	2	0.20	20.70	5.1	●				●				●	
	ATD 300E020-GS	0.04-0.20	0.05-0.20	0.30-2.0	3.00	0.20	20.70	5.1	●				●	●		●	●	
	ATD 300E040-GS	0.04-0.20	0.05-0.20	0.45-2.0	3.00	0.40	20.70	5.1	●				●	●		●	●	
	ATD 310E020-GS	0.04-0.20	0.05-0.20	0.25-2.0	3.15	0.20	20.70	5.1	●					●		●		
	ATD 318E020-GS	0.04-0.20	0.05-0.20	0.25-2.0	3.18	0.20	20.70	5.1	●					●		●		
	ATD 318E040-GS	0.04-0.20	0.05-0.20	0.45-2.0	3.18	0.40	20.70	5.1	●					●		●		
	ATD 318E080-GS	0.04-0.20	0.05-0.20	0.85-2.0	3.18	0.80	20.70	5.1	●					●		●		
	ATD 361E030-GS	0.04-0.20	0.06-0.23	0.35-2.0	3.61	0.30	20.70	5.1	●					●		●		
	ATD 396E020-GS	0.05-0.25	0.07-0.25	0.25-2.50	3.96	0.20	20.70	5.1	●					●		●		
	ATD 396E040-GS	0.05-0.25	0.07-0.25	0.45-2.50	3.96	0.40	20.70	5.1	●					●		●		
	ATD 396E080-GS	0.05-0.25	0.07-0.25	0.85-2.50	3.96	0.80	20.70	5.1	●					●		●		
	ATD 400E020-GS	0.05-0.25	0.07-0.25	0.25-2.50	4.00	0.20	20.70	5.1	●				●	●		●	●	
	ATD 400E040-GS	0.05-0.25	0.07-0.25	0.45-2.50	4.00	0.40	20.70	5.1	●				●	●		●	●	

● : Standard stock ○ : Made-to-Order

Grooving-Turning Series

TS: Double-edged inserts applicable to external, internal and face turning, grooving and parting off

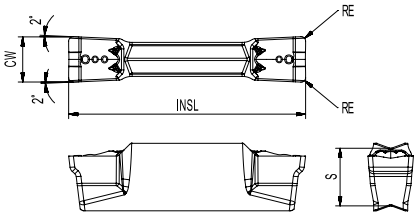


Inserts	Product code	Machining conditions: CDX	Cutting parameter: Grooving f (mm/rev)	Cutting parameter: Turning f (mm/rev)	Cutting parameter: Turning Ap (mm)	Dimensions: CW	Dimensions: RE	Dimensions: INSL	Dimensions: S	P: AP301U	P: AP330M	P: AC230P	M: AP330M	M: AP130S	K: AP301U	K: AC230P	K: AP301U	S: AP130S	N: AW100K
	ATD 203-TS	19.7	0.04-0.20	0.12-0.19	0.40-1.50	2	0.3	20.7	5.1	●	○	○	○		●	○	●		
	ATD 303-TS	19.7	0.05-0.25	0.15-0.23	0.45-2.00	3	0.3	20.7	5.1	●	●	○	●		●	○	●	●	
	ATD 404-TS	19.7	0.06-0.27	0.18-0.25	0.50-2.50	4	0.4	20.7	5.1	●	●	○	●	●	●	○	●		
	ATD 408-TS	19.7	0.06-0.27	0.18-0.25	1.00-2.50	4	0.8	20.7	5.1	●	○	●	○		●	●	●		
	ATD 504-TS	24.7	0.07-0.30	0.20-0.30	0.55-3.50	5	0.4	25.7	5.0	●	●	○	●		●	○	●		
	ATD 508-TS	24.7	0.07-0.30	0.20-0.30	1.00-3.50	5	0.8	25.7	5.0	●	●	○	●		●	○	●		
	ATD 604-TS	24.7	0.10-0.40	0.22-0.45	0.65-3.80	6	0.4	25.7	5.0	●	○	○	○		●	○	●		
	ATD 608-TS	24.7	0.10-0.40	0.22-0.45	1.0-3.80	6	0.8	25.7	5.0	●	●	●	●		●	●	●		
	ATD 808-TS	30.5	0.12-0.45	0.28-0.50	1.0-4.50	8	0.8	31.5	6.1	●	○	○	○		●	○	●		

● : Standard stock ○ : Made-to-Order

Grooving-Turning Series

TSR: Double-edged inserts applicable to external, internal and face turning, grooving and parting off

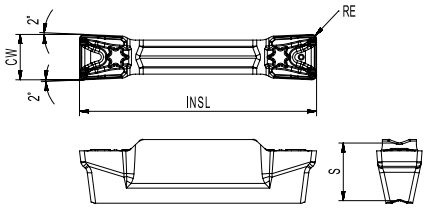


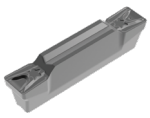
Inserts	Product code	Machining conditions: CDX	Cutting parameter: Grooving f (mm/rev)	Cutting parameter: Turning f (mm/rev)	Cutting parameter: Turning Ap (mm)	Dimensions: CW	Dimensions: RE	Dimensions: INSL	Dimensions: S	P: AP301U	P: AP330M	P: AC230P	M: AP330M	M: AP130S	K: AP301U	K: AC230P	K: AP301U	S: AP130S	N: AW100K
	ATD 203-TSR	19.7	0.04-0.20	0.12-0.19	0.40-1.50	2	0.3	20.7	5.1	●				●	●		●	●	
	ATD 303-TSR	19.7	0.05-0.25	0.15-0.23	0.45-2.00	3	0.3	20.7	5.1	●				●	●		●	●	
	ATD 404-TSR	19.7	0.06-0.27	0.18-0.25	0.50-2.50	4	0.4	20.7	5.1	●				●	●		●	●	
	ATD 408-TSR	19.7	0.06-0.27	0.18-0.25	1.00-2.50	4	0.8	20.7	5.1	●				●	●		●	●	
	ATD 504-TSR	24.7	0.07-0.30	0.20-0.30	0.55-3.50	5	0.4	25.7	5.0	●				●	●		●	●	
	ATD 508-TSR	24.7	0.07-0.30	0.20-0.30	1.00-3.50	5	0.8	25.7	5.0	●				●	●		●	●	
	ATD 604-TSR	24.7	0.10-0.40	0.22-0.45	0.65-3.80	6	0.4	25.7	5.0	●				●	●		●	●	
	ATD 608-TSR	24.7	0.10-0.40	0.22-0.45	1.0-3.80	6	0.8	25.7	5.0	●				●	●		●	●	
	ATD 808-TSR	30.5	0.12-0.45	0.28-0.50	1.0-4.50	8	0.8	31.5	6.1	●				○	●		●	○	

● : Standard stock ○ : Made-to-Order

Grooving-Turning Series

TM: Double-edged inserts applicable to external turning, grooving and parting off

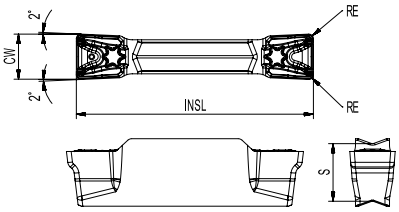


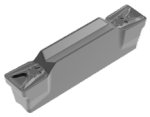
Inserts	Product code	Machining conditions: Cutting parameter: Grooving CDX	Grooving f (mm/rev)	Turning f (mm/rev)	Turning Ap (mm)	Dimensions: CW	RE	INSL	S	P: AP301U	P: AP330M	P: AC230P	M: AP330M	M: AP301U	K: AC230P	K: AP301U	N: AW100K
		● Good Conditions ⇕ General Conditions ✱ Bad Conditions								●	✱	⇕	✱	●	⇕	●	●
	**ATD 304-TM**	19.7	0.1-0.25	0.15-0.22	0.5-2.0	3	0.4	20.7	5.1	●	○	○	○	●	○	○	
	ATD 404-TM	19.7	0.15-0.30	0.18-0.27	0.5-2.50	4	0.4	20.7	5.1	●	●	●	●	●	●	●	
	ATD 408-TM	19.7	0.15-0.30	0.18-0.27	1.0-2.50	4	0.8	20.7	5.1	●	●	○	●	●	○	●	
	ATD 504-TM	24.7	0.18-0.35	0.20-0.35	0.55-3.50	5	0.4	25.7	5.0	●	●	●	●	●	●	●	
	ATD 508-TM	24.7	0.18-0.35	0.20-0.35	1.0-3.50	5	0.8	25.7	5.0	●	●	○	●	●	○	●	
	ATD 604-TM	24.7	0.20-0.45	0.22-0.45	0.65-4.0	6	0.4	25.7	5.0	●	●	●	●	●	●	●	
	ATD 608-TM	24.7	0.20-0.45	0.22-0.45	1.0-4.0	6	0.8	25.7	5.0	●	●	●	●	●	●	●	
	ATD 808-TM	30.5	0.22-0.50	0.28-0.5	1.0-5.0	8	0.8	31.5	6.1	○	○	○	○	○	○	○	
	ATD 812-TM	30.5	0.22-0.50	0.28-0.5	1.5-5.0	8	1.2	31.5	6.1	●	○	○	○	●	○	○	

● : Standard stock ○ : Made-to-Order

Grooving-Turning Series

TMR: Double-edged ground inserts applicable to aluminium alloy turning and parting off

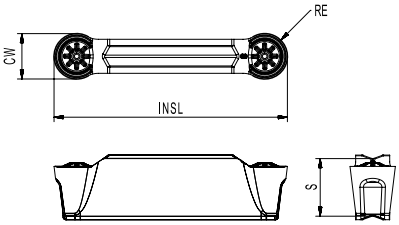


Inserts	Product code	Machining conditions: Cutting parameter: Grooving CDX	Grooving f (mm/rev)	Turning f (mm/rev)	Turning Ap (mm)	Dimensions: CW	RE	INSL	S	P: AP301U	P: AP330M	P: AC230P	M: AP330M	M: AP301U	K: AC230P	K: AP301U	N: AW100K
		● Good Conditions ⇕ General Conditions ✱ Bad Conditions								●	✱	⇕	✱	●	⇕	●	●
	**ATD 304-TMR**	19.7	0.1-0.25	0.15-0.22	0.5-2.0	3	0.4	20.7	5.1	●				●		●	
	ATD 404-TMR	19.7	0.15-0.30	0.18-0.27	0.5-2.50	4	0.4	20.7	5.1	●				●		●	
	ATD 408-TMR	19.7	0.15-0.30	0.18-0.27	1.0-2.50	4	0.8	20.7	5.1	●				●		●	
	ATD 504-TMR	24.7	0.18-0.35	0.20-0.35	0.55-3.50	5	0.4	25.7	5.0	●				●		●	
	ATD 508-TMR	24.7	0.18-0.35	0.20-0.35	1.0-3.50	5	0.8	25.7	5.0	●				●		●	
	ATD 604-TMR	24.7	0.20-0.45	0.22-0.45	0.65-4.0	6	0.4	25.7	5.0	●				●		●	
	ATD 608-TMR	24.7	0.20-0.45	0.22-0.45	1.0-4.0	6	0.8	25.7	5.0	●				●		●	
	ATD 812-TMR	30.5	0.22-0.50	0.28-0.5	1.5-5.0	8	1.2	31.5	6.1	●				●		●	

● : Standard stock ○ : Made-to-Order

Grooving-Turning Series

RM: Double-edged inserts applicable to external turning, grooving and profiling

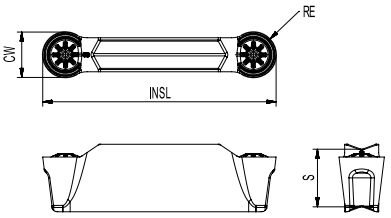


Inserts	Product code	Machining conditions: Cutting parameter – Grooving f (mm/rev)	Machining conditions: Cutting parameter – Turning f (mm/rev)	Machining conditions: Cutting parameter – Turning Ap (mm)	Dimensions CW	Dimensions RE	Dimensions INSL	Dimensions S	P AP301U	P AP330M	P AC230P	M AP330M	M AP301U	K AC230P	K AP301U	N AW100K
		● Good Conditions ◐ General Conditions ✱ Bad Conditions							●	✱	◐	✱	●	◐	●	●
	**ATD 210-RM**	0.06-0.15	0.12-0.25	0.4-1.0	2	1	20.7	5.1	●	●	○	●	●	○	●	
	ATD 315-RM	0.08-0.18	0.15-0.30	0.5-1.5	3	1.5	20.7	5.1	●	●	●	●	●	●	●	
	ATD 420-RM	0.10-0.20	0.18-0.35	0.6-2.0	4	2	20.7	5.1	●	●	●	●	●	●	●	
	ATD 525-RM	0.12-0.25	0.20-0.40	0.7-2.5	5	2.5	25.7	5.0	●	●	●	●	●	●	●	
	ATD 630-RM	0.15-0.30	0.25-0.50	0.9-3.0	6	3	25.7	5.0	●	●	○	●	●	○	●	
	ATD 840-RM	0.18-0.35	0.30-0.60	1.0-4.0	8	4	31.5	6.1	●	○	○	○	●	○	●	

● : Standard stock ○ : Made-to-Order

Grooving-Turning Series

RMR: Double-edged round inserts applicable to external turning, grooving and profiling

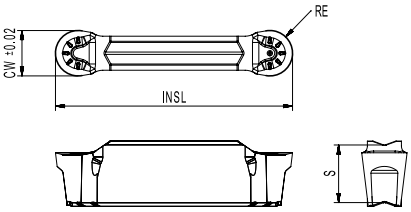


Inserts	Product code	Machining conditions: Cutting parameter – Grooving f (mm/rev)	Machining conditions: Cutting parameter – Turning f (mm/rev)	Machining conditions: Cutting parameter – Turning Ap (mm)	Dimensions CW	Dimensions RE	Dimensions INSL	Dimensions S	P AP301U	P AP330M	P AC230P	M AP330M	M AP130S	M AP301U	K AC230P	K AP301U	S AP130S	N AW100K
		● Good Conditions ◐ General Conditions ✱ Bad Conditions							●	✱	◐	✱	✱	●	◐	●	✱	●
	**ATD 210-RMR**	0.06-0.15	0.12-0.25	0.4-1.0	2	1	20.7	5.1	●				●	●		●	●	
	ATD 315-RMR	0.08-0.18	0.15-0.30	0.5-1.5	3	1.5	20.7	5.1	●				●	●		●	●	
	ATD 420-RMR	0.10-0.20	0.18-0.35	0.6-2.0	4	2	20.7	5.1	●				●	●		●	●	
	ATD 525-RMR	0.12-0.25	0.20-0.40	0.7-2.5	5	2.5	25.7	5.0	●				○	●		●	○	

● : Standard stock ○ : Made-to-Order

Grooving-Turning Series

RA: Double-edged ground inserts applicable to aluminium alloy turning and profiling

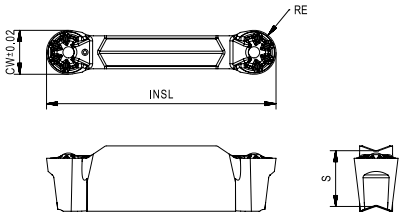


Inserts	Product code	Machining conditions: Cutting parameter – Grooving f (mm/rev)	Machining conditions: Cutting parameter – Turning f (mm/rev)	Machining conditions: Cutting parameter – Turning Ap (mm)	Dimensions: CW	Dimensions: RE	Dimensions: INSL	Dimensions: S	P: AP301U	P: AP330M	P: AC230P	M: AP330M	M: AP301U	K: AC230P	K: AP301U	N: AW100K
		● Good Conditions ✱ Bad Conditions							●	✱	⬌	✱	●	⬌	●	●
	**ATD 315-RA**	0.08-0.18	0.15-0.30	0.5-1.5	3	1.5	20.7	5.1								●
	ATD 420-RA	0.10-0.25	0.2-0.45	0.6-0.2	4	2	20.7	5.1								●
	ATD 525-RA	0.11-0.28	0.2-0.50	0.7-2.5	5	2.5	25.7	5.0								●
	ATD 630-RA	0.12-0.30	0.22-0.60	0.9-3.0	6	3	25.7	5.0								●
	ATD 840-RA	0.15-0.40	0.25-0.65	1.0-4.0	8	4	31.5	6.1								●

● : Standard stock ○ : Made-to-Order

Grooving-Turning Series

RS: Double-edged precision ground inserts, turning and profiling



Inserts	Product code	Machining conditions: Cutting parameter – Grooving f (mm/rev)	Machining conditions: Cutting parameter – Turning f (mm/rev)	Machining conditions: Cutting parameter – Turning Ap (mm)	Dimensions: CW	Dimensions: RE	Dimensions: INSL	Dimensions: S	P: AP301U	P: AP330M	P: AC230P	M: AP330M	M: AP130S	M: AP301U	K: AC230P	K: AP301U	S: AP130S	N: AW100K
		● Good Conditions ✱ Bad Conditions							●	✱	⬌	✱	✱	●	⬌	●	✱	●
	**ATD 210-RS**	0.08-0.15	0.10-0.22	0-1.0	2.0	1.0	20.7	5.1					●				●	
	ATD 315-RS	0.08-0.18	0.15-0.30	0-1.5	3.0	1.5	20.7	5.1					●				●	
	ATD 420-RS	0.10-0.20	0.18-0.35	0-2.0	4.0	2	20.7	5.1					●				●	
	ATD 525-RS	0.13-0.25	0.25-0.55	0-2.5	5.0	2.5	25.7	5.0					●				●	
	ATD 630-RS	0.15-0.28	0.30-0.65	0-3.0	6.0	3	25.7	5.0					●				●	
	ATD 840-RS	0.18-0.35	0.35-0.65	0-4.0	8.0	4	31.5	6.1					○				○	

● : Standard stock ○ : Made-to-Order

Insert Denomination System (Ground Insert)

A	T	D	215	E	010	G	R/L
1	2	3	4	5	6	7	8

1- Company Name
ACHTECK

2- Application	
C	Grooving/Parting off
T	Turning/Grooving

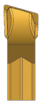
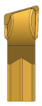
3- Insert Shape	
S	Single-edged
D	Double-edged

4- Insert Width
215=2.15mm
145=1.45mm

5- Application
E: External F: Facing I: Internal

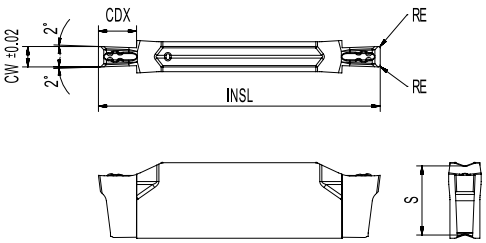
6- Insert Corner
010=0.10mm 020=0.20mm 200=2.00mm

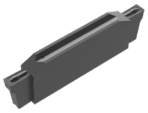
7- Application Limited	
G	only applicable to parting off

8- Hand of Tool	
	L: Left
	R: Right

Grooving-Turning Ground Series

Ground inserts applicable to turning and grooving



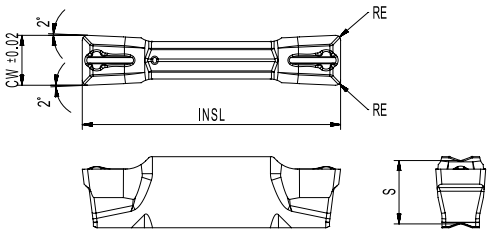
Inserts	Product code	Suitable tool holder (mm)	Machining conditions: Cutting parameter Grooving f (mm/rev)	Dimensions: CW	RE	CDX	S	INSL	● Good Conditions ⊕ General Conditions ✱ Bad Conditions: ●	✱	⊕	✱	●	⊕	●	●
									P			M		K		N
									AP301U	AP330M	AC230P	AP330M	AP301U	AC230P	AP301U	AW100K
	**ATD 100E000G**	2	0.02-0.05	1.00	0.00	2.00	5.1	20.700	●				●		●	
	ATD 104E000G	2	0.02-0.05	1.04	0.00	2.00	5.1	20.700	●				●		●	
	ATD 115E000G	2	0.02-0.05	1.15	0.00	2.00	5.1	20.700	●				●		●	
	ATD 120E000G	2	0.03-0.05	1.20	0.00	2.00	5.1	20.700	●				●		●	
	ATD 125E010G	2	0.03-0.05	1.25	0.10	2.00	5.1	20.700	●				●		●	
	ATD 130E000G	2	0.03-0.05	1.30	0.00	2.00	5.1	20.700	●				●		●	
	ATD 135E000G	2	0.03-0.05	1.35	0.00	2.00	5.1	20.700	●				●		●	
	ATD 140E000G	2	0.03-0.06	1.40	0.00	2.00	5.1	20.700	●				●		●	
	ATD 145E010G	2	0.03-0.06	1.45	0.10	2.00	5.1	20.700	●				●		●	
	ATD 147E000G	2	0.03-0.06	1.47	0.00	2.50	5.1	20.700	●				●		●	
	ATD 150E010G	2	0.03-0.06	1.50	0.10	2.50	5.1	20.700	●				●		●	
	ATD 157E015G	2	0.03-0.07	1.57	0.15	2.70	5.1	20.700	●				●		●	
	ATD 165E010G	2	0.03-0.07	1.65	0.10	2.70	5.1	20.700	●				●		●	
	ATD 170E010G	2	0.03-0.07	1.70	0.10	3.00	5.1	20.700	●				●		●	
	ATD 178E018G	2	0.03-0.07	1.78	0.18	3.00	5.1	20.700	●				●		●	
	ATD 190E010G	2	0.04-0.09	1.90	0.10	3.00	5.1	20.700	●				●		●	
	ATD 196E015G	2	0.04-0.09	1.96	0.15	3.00	5.1	20.700	●				●		●	
	ATD 200E020G	2	0.04-0.09	2.00	0.20	3.00	5.1	20.700	●				●		●	
	ATD 215E010G	2	0.04-0.10	2.15	0.10	3.00	5.1	20.700	●				●		●	
	ATD 222E015G	2	0.04-0.10	2.22	0.15	-	5.1	20.700	●				●		●	
	ATD 230E020G	2	0.04-0.10	2.30	0.20	-	5.1	20.700	●				●		●	
	ATD 100E050G	2	0.03-0.06	1.00	0.50	2.00	5.1	20.700	●				●		●	
	ATD 140E070G	2	0.04-0.07	1.40	0.70	2.00	5.1	20.700	●				●		●	
	ATD 157E079G	2	0.04-0.08	1.57	0.785	2.70	5.1	20.700	●				●		●	
	ATD 200E100G	2	0.05-0.11	2.00	1.00	3.00	5.1	20.700	●				●		●	
	ATD 239E120G	2	0.06-0.12	2.39	1.195	-	5.1	20.700	●				●		●	

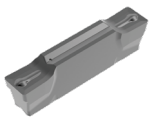
● : Standard stock ○ : Made-to-Order

1. When the width of insert is less than 1.78mm, please pay attention to size A of the holder.

Grooving-Turning Ground Series

Ground inserts applicable to turning and grooving

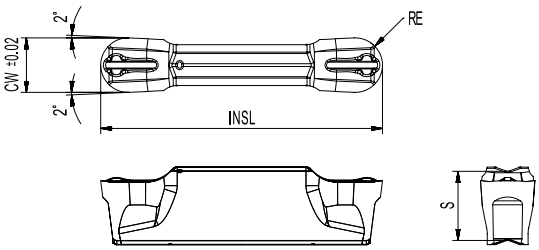


Inserts	Product code	Suitable tool holder (mm)	Machining conditions: Turning f (mm/rev)	Turning Ap (mm)	Grooving f (mm/rev)	Dimensions CW	RE	CDX	S	INSL	● Good Conditions ◐ General Conditions ✱ Bad Conditions: ●	✱	◐	✱	●	◐	●	●
											P			M		K		N
											AP301U	AP330M	AC230P	AP330M	AP301U	AC230P	AP301U	AW100K
	**ATD 265E015**	3	0.10-0.18	0.20-1.80	0.04-0.12	2.65	0.15	-	5.1	20.70	●				●		●	
	ATD 300E020	3	0.11-0.20	0.30-2.00	0.06-0.14	3.00	0.20	-	5.1	20.70	●				●		●	
	ATD 300E040	3	0.15-0.23	0.50-2.20	0.06-0.15	3.00	0.40	-	5.1	20.70	●				●		●	
	ATD 400E040	4	0.16-0.30	0.50-2.50	0.08-0.19	4.00	0.40	-	5.1	20.70	●				●		●	
	ATD 400E080	4	0.16-0.30	1.00-2.50	0.08-0.19	4.00	0.80	-	5.1	20.70	●				●		●	
	ATD 415E015	4	0.16-0.30	0.20-2.50	0.08-0.19	4.15	0.15	-	5.1	20.70	●				●		●	
	ATD 478E055	5	0.20-0.35	0.60-2.60	0.10-0.20	4.78	0.55	-	5.0	25.70	●				●		●	
	ATD 500E040	5	0.20-0.35	0.50-2.60	0.10-0.20	5.00	0.40	-	5.0	25.70	●				●		●	
	ATD 500E080	5	0.22-0.35	1.00-3.00	0.10-0.20	5.00	0.80	-	5.0	25.70	●				●		●	
	ATD 515E015	5	0.22-0.35	0.20-3.00	0.10-0.22	5.15	0.15	-	5.0	25.70	●				●		●	
	ATD 555E055	6	0.23-0.40	0.60-3.00	0.12-0.28	5.55	0.55	-	5.0	25.70	●				●		●	
	ATD 600E080	6	0.25-0.45	1.00-3.50	0.12-0.30	6.00	0.80	-	5.0	25.70	●				●		●	
	ATD 600E120	6	0.25-0.45	1.30-3.50	0.12-0.30	6.00	1.20	-	5.0	25.70	●				●		●	
	ATD 635E080	6	0.25-0.45	1.00-3.50	0.13-0.30	6.35	0.80	-	5.0	25.70	●				●		●	
	ATD 800E080	8	0.30-0.55	1.00-4.80	0.15-0.40	8.00	0.80	-	6.1	31.50	●				●		●	
	ATD 800E120	8	0.30-0.55	1.20-4.80	0.15-0.40	8.00	1.20	-	6.1	31.50	●				●		●	

● : Standard stock ○ : Made-to-Order

Grooving-Turning Ground Series

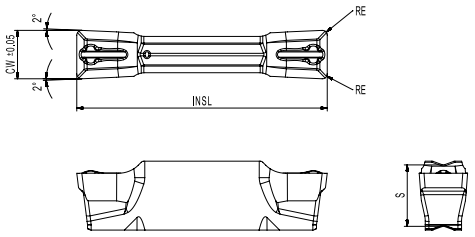
Ground inserts applicable to turning and grooving



Inserts	Product code	Suitable tool holder (mm)	Machining conditions: Turning f (mm/rev)	Turning Ap (mm)	Grooving f (mm/rev)	Dimensions CW	RE	CDX	S	INSL	P AP301U	P AP330M	P AC230P	M AP330M	M AP301U	K AC230P	K AP301U	N AW100K
			● Good Conditions ◐ General Conditions ✱ Bad Conditions								●	✱	◐	✱	●	◐	●	●
	**ATD 300E150**	3	0.15-0.30	0-1.50	0.08-0.19	3.00	1.50	-	5.1	20.700	●				●		●	
	ATD 400E200	4	0.18-0.35	0-2.00	0.10-0.20	4.00	2.00	-	5.1	20.700	●				●		●	
	ATD 478E239	5	0.22-0.45	0-2.40	0.12-0.24	4.78	2.39	-	5.0	25.700	●				●		●	
	ATD 500E250	5	0.22-0.45	0-2.50	0.12-0.24	5.00	2.50	-	5.0	25.700	●				●		●	
	ATD 600E300	6	0.25-0.50	0-3.00	0.15-0.30	6.00	3.00	-	5.0	25.700	●				●		●	
	ATD 800E400	8	0.30-0.65	0-4.00	0.18-0.35	8.00	4.00	-	6.1	31.50	●				●		●	

● : Standard stock ○ : Made-to-Order

Blank Inserts of ATBD



Inserts	Product code	Suitable tool holder (mm)	Dimensions CW	RE	INSL	S	P	M	K	N	S	H
	**ATBD 2.6 M200**	2	2.60	0.10	21.2	5.1	●	●	●	●	●	
	ATBD 3.5 M200	3	3.50	0.10	21.2	5.1	●	●	●	●	●	
	ATBD 4.5 M200	4	4.50	0.10	21.2	5.1	●	●	●	●	●	
	ATBD 5.5 M200	5	5.50	0.10	26.2	5.0	●	●	●	●	●	
	ATBD 6.5 M200	6	6.50	0.10	26.2	5.0	●	●	●	●	●	
	ATBD 8.5 M200	8	8.74	0.12	32.0	6.1	●	●	●	●	●	

● : Standard stock ○ : Made-to-Order

Finished inserts need to be used together with Achteck grooving holder.

Cutting Data Recommandation Table

Materials						Cutting parameter recommended table of parting off and grooving application														
ISO	Workpiece material			Brinell hardness (HB/HRC)	Tensile strength (N/mm^2)	AP301U			AP130S			AP330M			AC230P			AW100K		
						f (mm/rev)			f (mm/rev)			f (mm/rev)			f (mm/rev)			f (mm/rev)		
						0.1	0.3	0.5	0.1	0.3	0.5	0.1	0.3	0.5	0.1	0.3	0.5	0.1	0.2	0.4
P	Unalloyed steel	C ≤ 0.25%	Annealed	125	428	180	145	130	180	145	130	160	130	100	220	180	160	-	-	-
		0.25 < C ≤ 0.55%	Annealed	190	639	145	130	115	145	130	115	120	100	90	160	130	115	-	-	-
		0.25 < C ≤ 0.55%	Heat-treated	210	708	130	115	100	130	115	100	120	100	90	130	115	100	-	-	-
		C > 0.55%	Annealed	190	639	145	130	115	145	130	115	145	130	80	160	130	115	-	-	-
		C > 0.55%	Heat-treated	300	1013	115	100	80	115	100	80	115	100	80	115	100	80	-	-	-
		Free cutting steel (short-chip)	Annealed	220	745	130	115	100	130	115	100	130	115	100	130	115	100	-	-	-
	Low-alloyed steel	Annealed		175	591	180	145	130	180	145	130	-	-	-	-	-	-	-	-	-
		Heat-treated		300	1013	115	100	80	115	100	80	-	-	-	-	-	-	-	-	-
		Heat-treated		380	1282	170	90	105	170	90	105	-	-	-	-	-	-	-	-	-
		Heat-treated		430	1477	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	High-alloyed steel and high-alloyed tool steel	Annealed		200	675	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Hardened and tempered		300	1013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Hardened and tempered		400	1361	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Stainless steel	Ferritic/martensitic, annealed		200	675	165	135	105	165	135	105	-	-	-	-	-	-	-	-	-
		Martensitic, heat-treated		330	1114	150	115	70	150	115	70	-	-	-	-	-	-	-	-	-
M	Stainless steel	Austenitic, quench hardened		200	675	165	135	105	165	135	105	165	135	105	-	-	-	-	-	-
		Austenitic, precipitation hardened (PH)		300	1013	155	120	80	155	120	80	155	120	80	-	-	-	-	-	-
		Austenitic/ferritic, duplex		230	778	135	110	85	135	110	85	135	110	85	-	-	-	-	-	-
K	Malleable cast iron	Ferritic		200	400	115	90	65	-	-	-	-	-	-	115	90	65	-	-	-
		Pearlitic		260	700	115	90	65	-	-	-	-	-	-	115	90	65	-	-	-
	Grey cast iron	Low tensile strength		180	200	185	140	95	-	-	-	-	-	-	200	160	120	-	-	-
		High tensile strength/austenitic		245	350	185	140	95	-	-	-	-	-	-	200	160	120	-	-	-
	Nodular cast iron	Ferritic		155	400	145	110	80	-	-	-	-	-	-	160	130	100	-	-	-
		Pearlitic		265	700	145	110	80	-	-	-	-	-	-	160	130	100	-	-	-
	GGV(CGI)			230	400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N	Wrought aluminium alloys	Non-aging		30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Aged		100	340	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Cast aluminium alloys	≤ 12% Si, non-aging		75	260	-	-	-	-	-	-	-	-	-	-	-	-	850	500	200
		≤ 12% Si, aged		90	310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		12% Si, non-aging		130	450	-	-	-	-	-	-	-	-	-	-	-	-	450	250	40
	Magnesium alloys			70	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Copper and copper alloys	Unalloyed, electrolytic copper		100	340	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Brass, bronze, red brass		90	310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Cu alloys, short-chipping		110	380	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		High-tensile, Ampco alloy		300	1010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S	Heat-resistant alloys	Fe-based	Annealed	200	680	-	-	-	80	60	40	-	-	-	-	-	-	-	-	-
			Hardened	280	940	-	-	-	80	60	40	-	-	-	-	-	-	-	-	-
		Ni or Co based	Annealed	250	840	-	-	-	80	60	40	-	-	-	-	-	-	-	-	-
			Hardened	350	1180	-	-	-	80	60	40	-	-	-	-	-	-	-	-	-
			Cast	320	1080	-	-	-	80	60	40	-	-	-	-	-	-	-	-	-
	Titanium alloys	Pure titanium		200	680	-	-	-	80	60	40	-	-	-	-	-	-	-	-	-
		α and β alloys, hardened		375	1260	-	-	-	80	60	40	-	-	-	-	-	-	-	-	-
		β alloys		410	1400	-	-	-	80	60	40	-	-	-	-	-	-	-	-	-
	Tungsten alloys			300	1010	-	-	-	80	60	40	-	-	-	-	-	-	-	-	-
	Molybdenum alloys			300	1010	-	-	-	80	60	40	-	-	-	-	-	-	-	-	-
H	Hardened steel	Hardened and tempered		50HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Hardened and tempered		55HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Hardened and tempered		60HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chilled cast iron	Hardened and tempered		55HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

The recommended cutting data always refer to general cutting conditions. The actual selection should be adjusted according to machine rigidity, tool body and workpiece conditions and coolant.
(f=mm/rev to be adjusted for insert radius)

Note



ACHTECK

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THE EXPERT OF DIFFICULT MACHINING

CUTTING TOOL CATALOGUE

Milling Cutters 244

Milling Cutter Denomination System 246
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ON Product Series Face Milling Cutter 261
SE Product Series Face Milling Cutter 263
SD Product Series Face Milling Cutter 266
SN Product Series Face Milling Cutter 278
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SO Product Series Square Shoulder Milling Cutter 323
AO Product Series Square Shoulder Milling Cutter 326
AP Product Series Square Shoulder Milling Cutter 335
LN Series Helical Milling Cutter 340
AO Series Helical Milling Cutter 346
LNMX Series High Feed Milling Cutter 350
XD Series High Feed Milling Cutter 358
SD Series High Feed Milling Cutter 365
RPM Product Series Profile Milling Cutter 372
RO Product Series Profile Milling Cutter 374
SD Product Series Chamfer Milling Cutter 386

Milling Cutter Denomination System

A	FM	88	-	080	-	Z07	A	27	R	-	SN12	-	C
1	2	3		4		5	6	7	8		9		10

1- A--ACHTECK

2- Machining Method

Face milling	FM
Square shoulder milling	SM
Profile milling	PM
High feed milling	HM
Side & face milling	DM
Thread milling	TM
Chamfer milling	CM
Finish milling	FF

3- Approach Angle (Kr)

Figure	Angle
90	90°
88	88°
75	75°
60	60°
45	45°
42	42°
*	*
15	15°
00	Profile milling

4- Cutter Dia.

025	25mm
063	63mm
080	80mm
*	*
250	250mm

5- Number of Teeth

Z02	2 teeth
Z04	4 teeth
Z05	5 teeth
*	*
Z30	30 teeth

6- Connection Type

A	Arbor
W	Weldon shank
C	Cylindrical shank
N	Whistle notch shank
M	Screw clamping modular head

7- Coupling Size

27-Coupling diameter 27mm

8- Direction of Tool

R	Right
L	Left
N	Neutral

9- Insert Info

SN12-SN12 series insert

10- Others

C	Internal coolant
M	Wedge clamping type
S	Carbide shim type
No mark	Without internal coolant

Helical Milling Cutter Denomination System

A	PE	90	-	063	-	Z04	-	A	27	R	-	LN13	-	L56	-	F	-	C
1	2	3		4		5		6	7	8		9		10		11		12

1- A--ACHTECK

2- Machining Method	
Helical Milling cutter	PE

3- Approach Angle（Kr）	
90	90°
88	88°
75	75°
60	60°
45	45°
42	42°
*	*

4- Cutter Dia.	
025	25mm
063	63mm
080	80mm
*	*
250	250mm

5- Number of Teeth	
Z02	2 teeth
Z04	4 teeth
Z05	5 teeth
*	*
Z30	30 teeth

6- Connection Type	
A	Arbor
W	Weldon shank
C	Cylindrical shank
N	Whistle notch shank
M	Screw clamping modular head

7- Coupling Size
27-Coupling diameter 27mm

8- Direction of Tool	
R	Right
L	Left
N	Neutral

9- Insert Info
LN13--LN13 series insert

10- Max.Cutting Depth	
L30	30mm
L45	45mm
L56	56mm

11- Tool Type	
F	Full teeth
H	Half teeth

12- Others	
C	Internal coolant
No mark	Without internal coolant

ACHTECK

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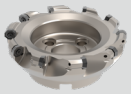
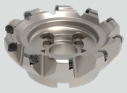
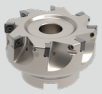
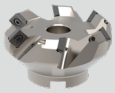
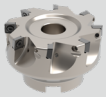
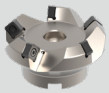
Milling Cutters

Overview of Milling Products

Product family			AFM42-OD06 	AFM40-ON05 	AFM45-SE12 	AFM45-SD09 	AFM90-SD09 
Page			P259	P261	P263	P266	P268
Approach angle			42°	40°	45°	45°	90°
Max.ap (mm)			3	2.5	6	4	7
Diameter range (mm)			⌀50-160	⌀50-160	⌀32-250	⌀16-125	⌀25-100
Insert type			OD..0605..	ON..0504..	SE..12T3..	SD..09T3..EN..	SD..09T3..EN..
Application	Face milling		●	●	●	●	●
	Square shoulder milling						
	Slot milling						
	Ramping		●				
	Helical interpolate milling		●				
	Plunging						
	Profile milling						
	Chamfer milling					●	
	Pocket milling		●				

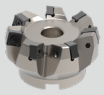
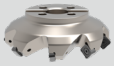
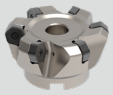
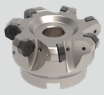
Remark: ● Recommended application

Overview of Milling Products

Product family			AFM89-SD09 	AFM45-SD12 	AFM90-SD12 	AFM89-SD12 	AFM45-SN12 
Page			P270	P272	P274	P276	P278
Approach angle			89.5°	45°	90°	89.5°	45°
Max.ap (mm)			7	6	11	9	6
Diameter range (mm)			∅25-80	∅50-125	∅50-125	∅50-125	∅50-315
Insert type			SD..09T3..N..	SD..1204..EN..	SD..1204..EN..	SD..1204..N..	SN..1206..
Application	Face milling		●	●	●	●	●
	Square shoulder milling						
	Slot milling						
	Ramping						
	Helical interpolate milling						
	Plunging						
	Profile milling						
	Chamfer milling			●			
	Pocket milling						

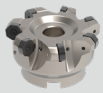
Remark: ● Recommended application

Overview of Milling Products

Product family			AFM75-SN12 	AFM88-SN12 	AFM45-SN19 	AFM45-HN09 	AFM45-XN07 
Page			P281	P284	P287	P289	P291
Approach angle			75°	88°	45°	45°	45°
Max.ap (mm)			8	9	10	5	3.5
Diameter range (mm)			⌀50-250	⌀50-315	⌀160-250	⌀63-160	⌀40-250
Insert type			SN..1206..	SN..1206..	SN..1909..	HN..0906..	XN..0705..
Application	Face milling		●	●	●	●	●
	Square shoulder milling						
	Slot milling						
	Ramping						
	Helical interpolate milling						
	Plunging						
	Profile milling						
	Chamfer milling						
	Pocket milling						

Remark: ● Recommended application

Overview of Milling Products

Product family			AFM45-XN09 	AFM45-XN09(W) 	AFF40-LN12 	AFF40-LN15 	ASM90-LN12 
Page			P295	P296	P299	P299	P302
Approach angle			45°	45°	40°	40°	90°
Max.ap (mm)			5	5	0.5	0.5	5
Diameter range (mm)			⌀63-315	⌀80-315	⌀80-100	⌀125-250	⌀63-250
Insert type			XN..0906..	XN..0906..	ON..0504.. LN..1204..	ON..0504.. LN..1504..	LN..1206..
Application	Face milling		●	●	●	●	●
	Square shoulder milling						●
	Slot milling						
	Ramping						
	Helical interpolate milling						
	Plunging						
	Profile milling						
	Chamfer milling						
	Pocket milling						

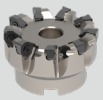
Remark: ● Recommended application

Overview of Milling Products

Product family			ASM90-LN09 	ASM90-LN13 	ASM90-LN16 	ASM90-WN04 	ASM90-WN08 
Page			P304	P307	P310	P312	P314
Approach angle			90°	90°	90°	90°	90°
Max.ap (mm)			8	12	15	4	7
Diameter range (mm)			∅20-80	∅40-315	∅63-160	∅20-40	∅40-250
Insert type			LN..0904..	LN..1306..	LN..1607..	WN..0403..	WN..0806..
Application	Face milling		●	●	●	●	●
	Square shoulder milling		●	●	●	●	●
	Slot milling		●	●	●	●	●
	Ramping						
	Helical interpolate milling						
	Plunging						
	Profile milling						
	Chamfer milling						
	Pocket milling						

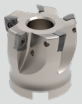
Remark: ● Recommended application

Overview of Milling Products

Product family			ASM90-WN08-N 	ASM90-TD15 	ASM90-SO12 	ASM90-AP10 	ASM90-AP17 
Page			P317	P319	P323	P335	P337
Approach angle			90°	90°	90°	90°	90°
Max.ap (mm)			7	11	9	9	15.5
Diameter range (mm)			∅40-250	∅32-250	∅32-250	∅16-63	∅25-100
Insert type			WNMU 0806..	TD..1505..	SO..1204..	AP..1003..	AP..1705..
Application	Face milling		●	●	●	●	●
	Square shoulder milling		●	●	●	●	●
	Slot milling		●	●	●	●	●
	Ramping			●		●	●
	Helical interpolate milling			●		●	●
	Plunging						
	Profile milling						
	Chamfer milling						
	Pocket milling			●	●	●	●

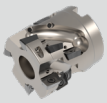
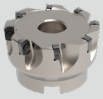
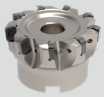
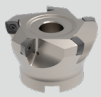
Remark: ● Recommended application

Overview of Milling Products

Product family			ASM90-AO06 	ASM90-AO10 	ASM90-AO12 	APE90-LN09 	APE90-LN13 
Page			P326	P328	P331	P340	P343
Approach angle			90°	90°	90°	90°	90°
Max.ap (mm)			5	9	10	46	56
Diameter range (mm)			⌀10-25	⌀16-40	⌀20-80	⌀25-50	⌀40-80
Insert type			AO..0602..	AO..10T3..	AO..1204..	LN..0904..	LN..1306..
Application	Face milling		●	●	●	●	●
	Square shoulder milling		●	●	●	●	●
	Slot milling		●	●	●		
	Ramping		●	●	●		
	Helical interpolate milling		●	●	●		
	Plunging						
	Profile milling						
	Chamfer milling						
	Pocket milling		●	●	●		

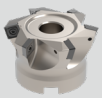
Remark: ● Recommended application

Overview of Milling Products

Product family			APE90-AO12 	AHM20-LN06 	AHM25-LN10 	AHM15-XD09 	AHM15-XD12 
Page			P346	P350	P354	P358	P360
Approach angle			90°	20°	25°	15°	15°
Max.ap (mm)			84	0.65	1.2	1.2	1.6
Diameter range (mm)			⌀25-80	⌀16-63	⌀25-125	⌀25-50	⌀32-125
Insert type			AO..1204..	LN..0604..	LN..1005..	XD..0904..	XD..1205..
Application	Face milling		●	●	●	●	●
	Square shoulder milling		●				
	Slot milling			●	●	●	●
	Ramping			●	●	●	●
	Helical interpolate milling			●	●	●	●
	Plunging			●	●	●	●
	Profile milling						
	Chamfer milling						
	Pocket milling			●	●	●	●

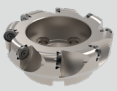
Remark: ● Recommended application

Overview of Milling Products

Product family			AHM15-SD09 	AHM15-SD12 	APM00-RP 	APM00-RO08 	APM00-RO10 
Page			P365	P369	P372	P374	P378
Approach angle			15°	15°	—	—	—
Max.ap (mm)			1.5	2.0	28	4	5
Diameter range (mm)			⌀25-63	⌀50-125	⌀16-32	⌀16-25	⌀25-50
Insert type			SD..09T3..N..	SD..1204..N..	RPM 080/100/160	RO.. 0803..	RO..10T3..
Application	Face milling		●	●		●	●
	Square shoulder milling						
	Slot milling		●	●			
	Ramping		●	●	●	●	●
	Helical interpolate milling		●	●		●	●
	Plunging		●	●			
	Profile milling				●	●	●
	Chamfer milling						
	Pocket milling		●	●		●	●

Remark: ● Recommended application

Overview of Milling Products

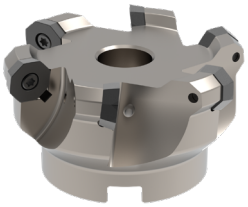
Product family			APM00-RO12 	APM00-RO16 	APM00-RO20 	ACM45-SD09 	ACM45-SD12 
Page			P380	P382	P384	P386	P388
Approach angle			—	—	—	45°	45°
Max.ap (mm)			6	8	10	5.5	7.5
Diameter range (mm)			⌀32-80	⌀63-100	⌀100-160	⌀12-32	⌀25-32
Insert type			RO..1204..	RO..1605..	RO..2006..	SD..09T3..N..	SD..1204..N..
Application	Face milling		●	●	●		
	Square shoulder milling						
	Slot milling						
	Ramping		●	●	●		
	Helical interpolate milling		●	●	●		
	Plunging						
	Profile milling		●	●	●		
	Chamfer milling					●	●
	Pocket milling		●	●	●		

Remark: ● Recommended application

AFM42-OD06

42° Approach angle face milling cutter





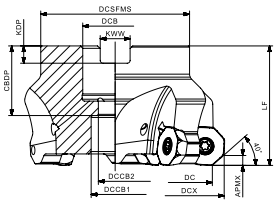


Fig. 1

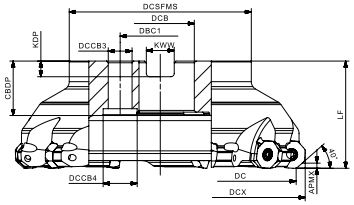
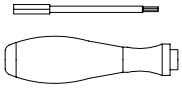


Fig. 2

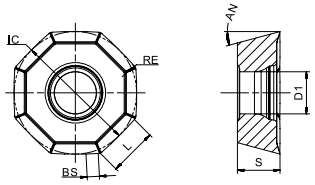
Product code	Dimension (mm)														Internal coolant	Weight (kg)	Z	Fig.	Inserts
	DC	DCX	DCSFMS	DCB	DBC1	DCCB1	DCCB2	DCCB3	DCCB4	LF	CBDP	KDP	KWW	APMX					
AFM42-050-Z04-A16R-OD06-C	50	60.4	40	16	-	14	9	-	-	40	24	5.8	8.4	3		0.4	4	1	OD..0605..
063-Z05-A22R-OD06-C	63	73.4	48	22	-	18	11	-	-	40	26	6.5	10.4	3		0.5	5		
080-Z05-A27R-OD06-C	80	90.4	62	27	-	20	14	-	-	50	29	7.2	12.4	3		1.0	5		
080-Z06-A27R-OD06-C	80	90.4	62	27	-	20	14	-	-	50	29	7.2	12.4	3		1.1	6		
100-Z06-A32R-OD06-C	100	110.4	80	32	-	26	18	-	-	50	32	8.2	14.4	3		2.0	6		
100-Z07-A32R-OD06-C	100	110.4	80	32	-	26	18	-	-	50	32	8.2	14.4	3		2.0	7		
125-Z07-A40R-OD06-C	125	135.4	87	40	-	33	22	-	-	63	38	9.2	16.4	3		3.7	7		
125-Z08-A40R-OD06-C	125	135.4	87	40	-	33	22	-	-	63	38	9.2	16.4	3		3.7	8		
160-Z10-A40R-OD06	160	170.4	107	40	66.7	-	-	14	20	63	32	9.2	16.4	3		4.4	10	2	

Note: With internal coolant

Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
∅50-160			5.0Nm
	SP04512043	DT-TP20	

Compatible Inserts



Insert shape	Product code	Machining conditions: Dimension (mm) L	IC	S	RE	BS	D1	AN	● Good Conditions ◐ General Conditions ✱ Bad Conditions									
									●	◐	◐	◐	✱	●	●	●	●	✱
									P			M		K			N	S
									AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
	**ODET 0605APFN-FM2**	6.3	16	5.56	0.8	1.6	5.5	15°									●	
	**ODMT 060508EN-MM3**	6.3	16	5.56	0.8	-	5.5	15°	●	●	●			●	●			
	ODMT 060512EN-MM3	6.1	16	5.56	1.2	-	5.5	15°	●				○					●
	**ODHT 0605APEN-MM3**	6.3	16	5.56	0.8	1.6	5.5	15°	●	●	●	●		●	●	●		●
	**ODEW 0605APSR-HR2**	6.5	16	5.56	-	1.6	5.5	15°						●	●			
	**ODMW 060512EN-HR2**	6.1	16	5.56	1.2	-	5.5	15°						●	●			

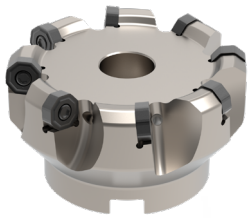
● : Standard stock ○ : Made-to-Order

Materials: ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	Cutting depth and feed: OD..0605.. ap (mm) min	ap (mm) max	HR2 fz (mm) min	HR2 fz (mm) max	MM3 fz (mm) min	MM3 fz (mm) max	FM2 fz (mm) min	FM2 fz (mm) max
P	Unalloyed steel	<600	<180	0.20	3.00	0.15	0.40	0.12	0.35	-	-
		<950	<280								
	Alloyed steel	700-950	200-280			0.12	0.35	0.10	0.30	-	-
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			-	-	0.08	0.28	-	-
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300								
K	Grey cast iron	700	220			0.15	0.40	0.12	0.35	-	-
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
N	Aluminum	260	75			-	-	-	-	0.10	0.35
	Aluminum alloy	447	130								
S	Fe-based alloy	943	280			-	-	-	-	-	-
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
H	Hardened steel	-	50-60HRC			0.10	0.25	-	-	-	-
	Chilled cast iron	-	55HRC								

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

AFM40-ON05

40° Approach angle face milling cutter



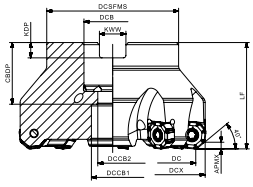


Fig. 1

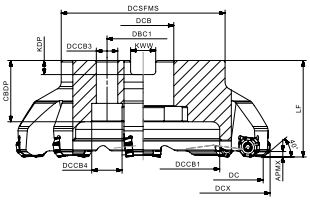
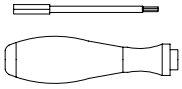


Fig. 2

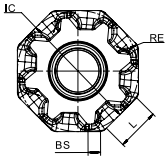
Product code	Dimension (mm)														Internal coolant	Weight (kg)	Z	Fig.	Inserts
	DC	DCX	DCSFMS	DCB	DBC1	DCCB1	DCCB2	DCCB3	DCCB4	LF	CBDP	KDP	KWW	APMX					
AFM40-050-Z04-A22R-ON05-N-C	50	58.8	47	22	-	18	11	-	-	40	26	6.5	10.4	2.5		0.5	4	1	ON..0504..
050-Z06-A22R-ON05-N-C	50	58.8	47	22	-	18	11	-	-	40	26	6.5	10.4	2.5		0.5	6		
063-Z05-A22R-ON05-N-C	63	71.8	52	22	-	18	11	-	-	40	26	6.5	10.4	2.5		0.7	5		
063-Z06-A22R-ON05-N-C	63	71.8	52	22	-	18	11	-	-	40	26	6.5	10.4	2.5		0.7	6		
063-Z08-A22R-ON05-N-C	63	71.8	52	22	-	18	11	-	-	40	26	6.5	10.4	2.5		0.7	8		
080-Z06-A27R-ON05-N-C	80	88.8	62	27	-	20	14	-	-	50	29	7.2	12.4	2.5		1.4	6		
080-Z08-A27R-ON05-N-C	80	88.8	62	27	-	20	14	-	-	50	29	7.2	12.4	2.5		1.4	8		
080-Z09-A27R-ON05-N-C	80	88.8	62	27	-	20	14	-	-	50	29	7.2	12.4	2.5		1.4	9		
100-Z07-A32R-ON05-N-C	100	108.8	77	32	-	26	18	-	-	50	32	8.2	14.4	2.5		2.0	7		
100-Z09-A32R-ON05-N-C	100	108.8	77	32	-	26	18	-	-	50	32	8.2	14.4	2.5		2.1	9		
100-Z11-A32R-ON05-N-C	100	108.8	77	32	-	26	18	-	-	50	32	8.2	14.4	2.5		2.1	11		
125-Z07-A40R-ON05-N-C	125	133.8	90	40	-	33	22	-	-	63	38	9.2	16.4	2.5		3.8	7		
125-Z09-A40R-ON05-N-C	125	133.8	90	40	-	33	22	-	-	63	38	9.2	16.4	2.5		3.8	9		
125-Z14-A40R-ON05-N-C	125	133.8	90	40	-	33	22	-	-	63	38	9.2	16.4	2.5		3.8	14		
160-Z10-A40R-ON05-N	160	168.8	107	40	66.7	-	-	14	20	63	40	9.2	16.4	2.5		4.5	10	2	

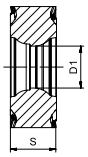
Note: With internal coolant

Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
∅50-160			4.0Nm
	SP040090	DT-TP15	

Compatible Inserts





Insert shape	Product code	L	IC	S	RE	BS	D1	● Good Conditions ◐ General Conditions ✱ Bad Conditions									
		Dimension (mm)						P			M		K			N	S
								AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
	**ONHU 050408-MM3**	4.9	12.7	4.76	0.8	-	4.4	●									
	ONMU 050408-MM4	4.9	12.7	4.76	0.8	-	4.4	●	●				●	●	●		
	**ONHU 0504ZNR-MM3**	5.0	12.7	4.76	0.8	1.4	4.4	○			●						

● : Standard stock ○ : Made-to-Order

Materials				Cutting depth and feed					
				ON..0504..					
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	ap		Geometry			
						MM3		MM4	
						fz			
				(mm)					
				min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.20	2.50	0.10	0.25	0.15	0.35
		<950	<280						
	Alloyed steel	700-950	200-280						
		950-1200	280-355						
		1200-1400	355-415						
M	Duplex stainless steel	778	230			0.08	0.20	0.10	0.25
	Austenitic stainless steel	675	200						
	Precipitation-hardening stainless steel	1013	300						
K	Grey cast iron	700	220			0.10	0.25	0.15	0.35
	Nodular cast iron	880	260						
	Malleable cast iron	800	250						
N	Aluminum	260	75			-	-	-	-
	Aluminum alloy	447	130						
S	Fe-based alloy	943	280			-	-	-	-
	Co-based alloy	1076	320						
	Ni-based alloy	1177	350						
	Ti-alloy	1262	370						
H	Hardened steel	-	50-60HRC			-	-	-	-
	Chilled cast iron	-	55HRC						

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

AFM45-SE12

45° Approach angle face milling cutter



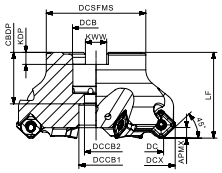


Fig. 1

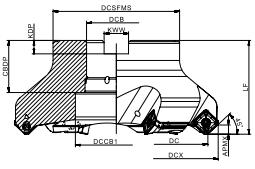


Fig. 2

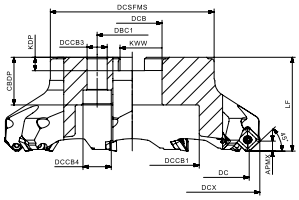
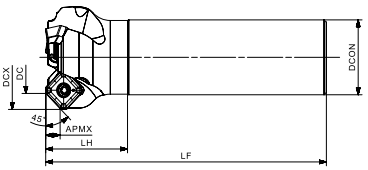


Fig. 3

Product code	Dimension (mm)														Internal coolant	Weight (kg)	Z	Fig.	Inserts
	DC	DCX	DCSFMS	DCB	DBC1	DCCB1	DCCB2	DCCB3	DCCB4	LF	CBDP	KDP	KWW	APMX					
AFM45-050-Z04-A22R-SE12-C-S	50	63	42	22	-	17	11	-	-	40	26	6.3	10.4	6	●	0.4	4	1	SE..12T3..
063-Z04-A22R-SE12-C-S	63	76	47	22	-	17	11	-	-	40	26	6.3	10.4	6	●	0.6	4		
063-Z05-A22R-SE12-C-S	63	76	47	22	-	17	11	-	-	40	26	6.3	10.4	6	●	0.6	5		
080-Z04-A27R-SE12-C-S	80	93	58	27	-	20	13.5	-	-	50	30	7	12.4	6	●	1.2	4		
080-Z06-A27R-SE12-C-S	80	93	58	27	-	20	13.5	-	-	50	30	7	12.4	6	●	1.2	6		
100-Z05-A32R-SE12-C-S	100	113	66	32	-	45	-	-	-	50	30	8	14.4	6	●	1.5	5	2	
100-Z07-A32R-SE12-C-S	100	113	66	32	-	45	-	-	-	50	30	8	14.4	6	●	1.5	7		
125-Z06-A40R-SE12-C-S	125	138	85	40	-	55	-	-	-	63	35	9	16.4	6	●	3.0	6		
125-Z08-A40R-SE12-C-S	125	138	85	40	-	55	-	-	-	63	35	9	16.4	6	●	3.0	8		
160-Z07-A40R-SE12-S	160	173	110	40	66.7	90	-	14	20	63	32	9	16.4	6	○	4.3	7	3	
160-Z10-A40R-SE12-S	160	173	110	40	66.7	90	-	14	20	63	32	9	16.4	6	○	4.2	10		
200-Z08-A60R-SE12-S	200	213	140	60	101.6	140	-	18	27	63	45	14	25.7	6	○	6.3	8		
200-Z12-A60R-SE12-S	200	213	140	60	101.6	140	-	18	27	63	45	14	25.7	6	○	6.5	12		
250-Z10-A60R-SE12-S	250	263	160	60	101.6	140	-	18	27	63	45	14	25.7	6	○	10.4	10		
250-Z14-A60R-SE12-S	250	263	160	60	101.6	140	-	18	27	63	45	14	25.7	6	○	10.6	14		





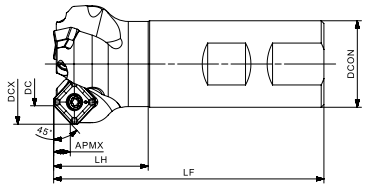
Product code	Dimension (mm)						Internal coolant	Weight (kg)	Z	Inserts
	DC	DCX	DCON	LF	LH	APMX				
AFM45-032-Z03-C32R-SE12-L120-C-S	32	45	32	120	35	6	●	0.6	3	SE..12T3..
040-Z03-C32R-SE12-L120-C-S	40	53	32	120	35	6	●	0.8	3	

Note: ● With internal coolant
○ Without internal coolant

AFM45-SE12

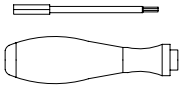
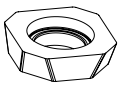
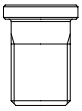
45° Approach angle face milling cutter



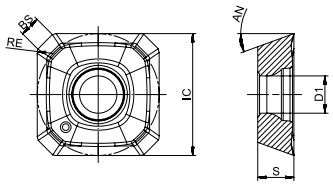


Product code	Dimension (mm)						Internal coolant	Weight (kg)	Z	Inserts
	DC	DCX	DCON	LF	LH	APMX				
AFM45-032-Z03-W32R-SE12-C-S	32	45	32	100	35	6	✓	0.6	3	SE..12T3..
040-Z03-W32R-SE12-C-S	40	53	32	100	35	6	✓	0.6	3	

Note: With internal coolant
Without internal coolant

Cutter diameter (mm)	Spare parts					
	Screw	Wrench	Shim	Shim screw	Shim screw wrench	Torque
∅32-250						3.5Nm
	SP035120H	DT-TP15	S-SE12030	SS050085F	LT-H3.5	

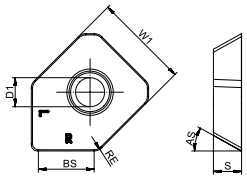
Compatible Inserts



Insert shape	Product code	IC	S	RE	BS	D1	AN	● Good Conditions ◐ General Conditions ✱ Bad Conditions									
								●	◐	◐	◐	✱	●	●	●	✱	●
		Dimension (mm)						P			M		K		N	S	H
								AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC151K	AW100K	AP403S	AP151H
	**SEHT 12T3AEEN-FM2**	13.4	3.97	1.5	2.3	4.1	20°								●		
	**SEMT 12T3AEEN-MM3**	13.4	3.97	1.5	2.0	4.1	20°	●			●	●	●	●		●	
	**SEGT 12T3AEEN-MM4**	13.4	3.97	1.5	2.1	4.1	20°	●					●				●
	SEMT 12T3AEEN-MM4	13.4	3.97	1.5	2.0	4.1	20°	●		●	●	●	●	●			
	**SEMT 12T3AEEN-MR6**	13.4	3.97	1.5	2.0	4.1	20°					●	●	●			

● : Standard stock ○ : Made-to-Order

Compatible Inserts

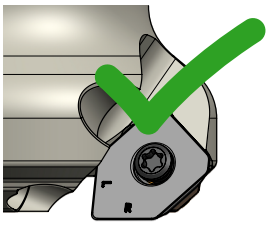


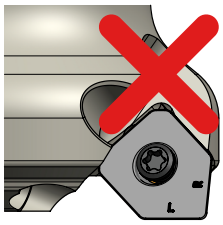
Insert shape	Product code	W1	S	RE	BS	D1	AS	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC151K	AW100K	AP403S	AP151H
		Machining conditions						● Good Conditions ◐ General Conditions ✱ Bad Conditions									
		Dimension (mm)						P			M		K		N	S	H
	**SEHT 12T3AEEN-W**	13.4	3.97	1.5	7.8	4.1	29°	●						●			

● : Standard stock ○ : Made-to-Order

Precaution

When installing the wiper insert, refer to the left Fig. below (for example, the right-hand cutter); if installed as shown in the right Fig., the wiper effect will not be achieved.





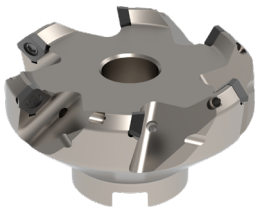
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	Cutting depth and feed: SE..12T3.. ap (mm) min	ap (mm) max	fz (mm) Geometry MR6 min	MR6 max	MM4 min	MM4 max	MM3 min	MM3 max	FM2 min	FM2 max
P	Unalloyed steel	<600	<180	0.20	6.00	0.10	0.35	0.10	0.30	0.05	0.28	-	-
		<950	<280										
	Alloyed steel	700-950	200-280			0.15	0.30	0.12	0.28	0.05	0.28	-	-
		950-1200	280-355										
		1200-1400	355-415										
M	Duplex stainless steel	778	230			0.05	0.40	0.05	0.40	0.10	0.40	-	-
	Austenitic stainless steel	675	200										
	Precipitation-hardening stainless steel	1013	300										
K	Grey cast iron	700	220			0.10	0.40	0.10	0.40	0.10	0.40	-	-
	Nodular cast iron	880	260										
	Malleable cast iron	800	250										
N	Aluminum	260	75			-	-	-	-	-	-	0.10	0.22
	Aluminum alloy	447	130										
S	Fe-based alloy	943	280			-	-	-	-	0.10	0.40	-	-
	Co-based alloy	1076	320										
	Ni-based alloy	1177	350										
	Ti-alloy	1262	370										
H	Hardened steel	-	50-60HRC			-	-	0.10	0.30	0.10	0.30	-	-
	Chilled cast iron	-	55HRC										

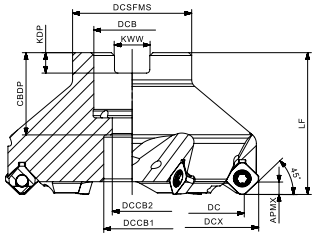
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

AFM45-SD09

45° Approach angle face milling cutter

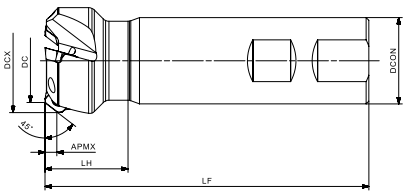






Product code	Dimension (mm)											Internal coolant	Weight (kg)	Z	Inserts
	DC	DCX	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX				
AFM45-032-Z04-A16R-SD09-C	32	41.6	30	16	14	9	40	24	5.8	8.4	4	✓	0.3	4	SD..09T3..EN..
040-Z05-A16R-SD09-C	40	49.6	35	16	14	9	40	24	5.8	8.4	4	✓	0.4	5	
050-Z05-A22R-SD09-C	50	59.6	42	22	18	11	40	26	6.5	10.4	4	✓	0.5	5	
050-Z06-A22R-SD09-C	50	59.6	42	22	18	11	40	26	6.5	10.4	4	✓	0.5	6	
063-Z05-A22R-SD09-C	63	72.6	42	22	18	11	40	26	6.5	10.4	4	✓	0.7	5	
063-Z07-A22R-SD09-C	63	72.6	42	22	18	11	40	26	6.5	10.4	4	✓	0.7	7	
080-Z06-A27R-SD09-C	80	89.6	42	27	20	14	50	29	7.2	12.4	4	✓	1.4	6	
080-Z09-A27R-SD09-C	80	89.6	42	27	20	14	50	29	7.2	12.4	4	✓	1.4	9	
100-Z07-A32R-SD09-C	100	109.6	80	32	26	18	50	32	8.2	14.4	4	✓	2.3	7	
100-Z11-A32R-SD09-C	100	109.6	80	32	26	18	50	32	8.2	14.4	4	✓	2.3	11	
125-Z08-A40R-SD09-C	125	134.6	87	40	33	22	63	38	9.2	16.4	4	✓	4.1	8	

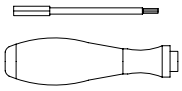




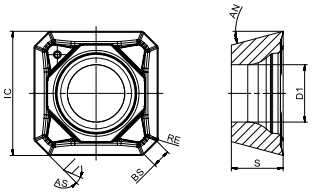
Product code	Dimension (mm)						Internal coolant	Weight (kg)	Z	Inserts
	DC	DCX	DCON	LF	LH	APMX				
AFM45-016-Z02-W16R-SD09-C	16	25.2	16	90	25	4	✓	0.2	2	SD..09T3..EN..
020-Z02-W20R-SD09-C	20	29.2	20	110	27	4	✓	0.3	2	
025-Z03-W25R-SD09-C	25	34	25	120	27	4	✓	0.5	3	
032-Z03-W32R-SD09-C	32	41	32	120	31	4	✓	0.7	3	

Note: ✓ With internal coolant

✗ Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
⌀16-32			3.5Nm
	ST040075	DT-T15	
⌀40-125	SP040090	DT-TP15	

Compatible Inserts



Insert shape	Product code	Machining conditions: Dimension (mm) IC	S	RE	BS	D1	AN	● Good Conditions ⇳ General Conditions ⇲ Bad Conditions: P AP251U	P AP351U	P AC251P	M AP351M	M AP403M	K AP251K	K AC301K	K AC151K	N AW100K	S AP403S
	**SDMT 09T304EN-MM3**	9.525	3.97	0.4	-	4.4	15°	●	●	●			●	●			
	SDMT 09T308EN-MM3	9.525	3.97	0.8	-	4.4	15°	●	●					●	●		
	**SDGT 09T3AEEN-MM4**	9.252	3.97	0.3	1.4	4.4	15°	○	○								

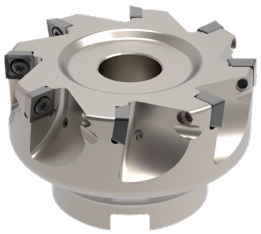
● : Standard stock ○ : Made-to-Order

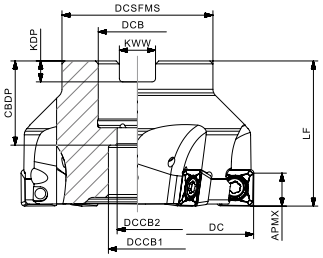
Materials: ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	Cutting depth and feed: SD..09T3..EN.. ap (mm) min	ap (mm) max	Geometry MM3 fz (mm) min	MM3 fz (mm) max	Geometry MM4 fz (mm) min	MM4 fz (mm) max
P	Unalloyed steel	<600	<180	0.20	4.00	0.08	0.30	0.10	0.32
		<950	<280						
	Alloyed steel	700-950	200-280			0.05	0.28	0.08	0.30
		950-1200	280-355						
		1200-1400	355-415						
M	Duplex stainless steel	778	230			0.05	0.25	0.08	0.28
	Austenitic stainless steel	675	200						
	Precipitation-hardening stainless steel	1013	300						
K	Grey cast iron	700	220			0.08	0.30	-	-
	Nodular cast iron	880	260						
	Malleable cast iron	800	250						
N	Aluminum	260	75			-	-	-	-
	Aluminum alloy	447	130						
S	Fe-based alloy	943	280			-	-	-	-
	Co-based alloy	1076	320						
	Ni-based alloy	1177	350						
	Ti-alloy	1262	370						
H	Hardened steel	-	50-60HRC			-	-	-	-
	Chilled cast iron	-	55HRC						

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

AFM90-SD09

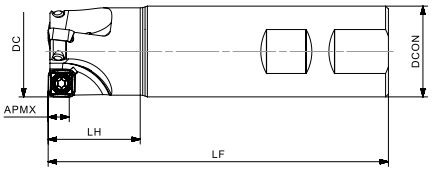
90° Approach angle face milling cutter



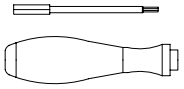


Product code	Dimension (mm)										Internal coolant	Weight (kg)	Z	Inserts
	DC	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX				
AFM90-040-Z04-A16R-SD09-C	40	35	16	14	9	40	24	5.8	8.4	7		0.3	4	SD..09T3..EN..
050-Z05-A22R-SD09-C	50	42	22	18	11	40	26	6.5	10.4	7		0.4	5	
063-Z06-A22R-SD09-C	63	48	22	18	11	40	26	6.5	10.4	7		0.6	6	
080-Z08-A27R-SD09-C	80	52	27	20	14	50	29	7.2	12.4	7		1.2	8	
100-Z10-A32R-SD09-C	100	80	32	26	18	50	32	8.2	14.4	7		2.1	10	



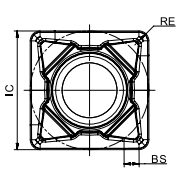


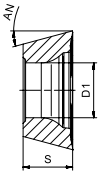
Product code	Dimension (mm)					Internal coolant	Weight (kg)	Z	Inserts
	DC	DCON	LF	LH	APMX				
AFM90-025-Z02-W25R-SD09-C	25	25	120	27.7	7		0.4	2	SD..09T3..EN..
032-Z03-W32R-SD09-C	32	32	120	32.4	7		0.7	3	

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
∅25-32			3.5Nm
	ST040075	DT-T15	
∅40-100	SP040090	DT-TP15	

Note: With internal coolant
Without internal coolant

Compatible Inserts





Insert shape	Product code	IC	S	RE	BS	D1	AN	Machining conditions: ● Good Conditions ◐ General Conditions ✱ Bad Conditions									
		Dimension (mm)						P			M		K			N	S
								AP251U	AP351U	AC251P	AP351M	AP403M	AC301K	AP251K	AC151K	AW100K	AP403S
	**SDMT 09T304EN-MM3**	9.525	3.97	0.4	-	4.4	15°	●	●	●			●	●			
	SDMT 09T308EN-MM3	9.525	3.97	0.8	-	4.4	15°	●	●				●		●		
	**SDGT 09T3PDER-MR6**	9.516	3.97	0.8	1.2	4.4	15°	○	●					●			

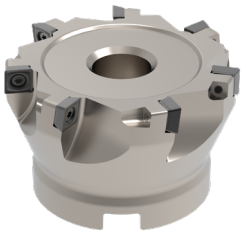
● : Standard stock ○ : Made-to-Order

Materials				Cutting depth and feed					
				SD..09T3..EN..					
				ap		Geometry			
						MR6		MM3	
						fz			
				(mm)					
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.20	7.00	0.10	0.35	0.08	0.30
		<950	<280						
	Alloyed steel	700-950	200-280			0.08	0.30	0.05	0.28
		950-1200	280-355						
		1200-1400	355-415						
M	Duplex stainless steel	778	230			-	-	0.05	0.25
	Austenitic stainless steel	675	200						
	Precipitation-hardening stainless steel	1013	300						
K	Grey cast iron	700	220			0.10	0.35	0.08	0.30
	Nodular cast iron	880	260						
	Malleable cast iron	800	250						
N	Aluminum	260	75			-	-	-	-
	Aluminum alloy	447	130						
S	Fe-based alloy	943	280			-	-	-	-
	Co-based alloy	1076	320						
	Ni-based alloy	1177	350						
	Ti-alloy	1262	370						
H	Hardened steel	-	50-60HRC			-	-	-	-
	Chilled cast iron	-	55HRC						

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

AFM89-SD09

89° Approach angle face milling cutter



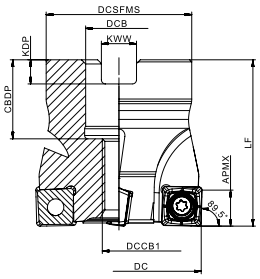


Fig. 1

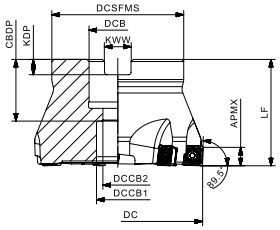
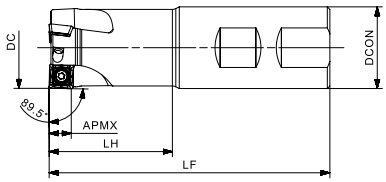


Fig. 2

Product code	Dimension (mm)										Internal coolant	Weight (kg)	Z	Fig.	Inserts
	DC	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX					
AFM89-040-Z04-A16R-SD09	40	35	16	M8	-	40	-	5.8	8.4	7		0.2	4	1	SD..09T3..N..
050-Z05-A22R-SD09	50	45	22	18	11	40	26	6.5	10.4	7		0.3	5	2	
063-Z06-A22R-SD09	63	48	22	18	11	40	26	6.5	10.4	7		0.5	6		
080-Z07-A27R-SD09	80	62	27	20	14	50	29	7.2	12.4	7		1.1	7		

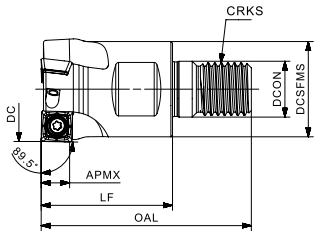
Note: AFM89-040-Z04-A16R-SD09 is connected using a dowel screw.





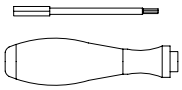
Product code	Dimension (mm)					Internal coolant	Weight (kg)	Z	Inserts
	DC	DCON	LF	LH	APMX				
AFM89-025-Z02-W25R-SD09	25	25	100	42	7		0.3	2	SD..09T3..N..
032-Z03-W32R-SD09	32	32	110	48	7		0.6	3	
040-Z04-W40R-SD09	40	40	120	47	7		1.0	4	



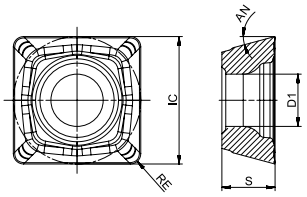


Product code	Dimension (mm)							Internal coolant	Weight (kg)	Z	Inserts
	DC	DCSFMS	DCON	OAL	LF	CRKS	APMX				
AFM89-025-Z02-M12R-SD09	25	23	12.5	57	35	M12	7		0.1	2	SD..09T3..N...
032-Z02-M16R-SD09	32	29	17	64	40	M16	7		0.2	2	
032-Z03-M16R-SD09	32	29	17	64	40	M16	7		0.2	3	

Note: With internal coolant
Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
∅25-80			3.0Nm
	SP035086	DT-TP10	

Compatible Inserts



Insert shape	Product code	Machining conditions: IC	S	RE	D1	AN	● Good Conditions ◐ General Conditions ✱ Bad Conditions									
		Dimension (mm)					P			M		K			N	S
							AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
	**SDMT 09T308N-MM4**	9.525	3.97	0.8	3.9	15°	●			●	●	●		●		
	SDMT 09T320N-MM4	9.520	3.97	2.0	3.9	15°	●			●	●	●		●		●
	**SDMT 09T308N-MR2**	9.525	3.97	0.8	3.9	15°	●			●	●	●		●		
	SDMT 09T320N-MR2	9.520	3.97	2.0	3.9	15°	●			●	●	●		●		

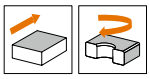
● : Standard stock ○ : Made-to-Order

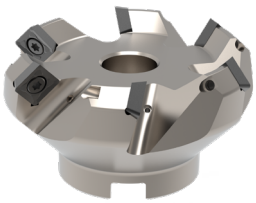
Materials				Cutting depth and feed					
				SD..09T3..N..					
				ap		Geometry			
						MM4		MR2	
						fz			
				(mm)					
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.10	7.00	0.05	0.25	0.05	0.35
		<950	<280						
	Alloyed steel	700-950	200-280			0.05	0.22	0.05	0.30
		950-1200	280-355						
		1200-1400	355-415						
M	Duplex stainless steel	778	230			-	-	0.08	0.35
	Austenitic stainless steel	675	200						
	Precipitation-hardening stainless steel	1013	300						
K	Grey cast iron	700	220			0.08	0.30	0.08	0.30
	Nodular cast iron	880	260						
	Malleable cast iron	800	250						
N	Aluminum	260	75			-	-	-	-
	Aluminum alloy	447	130						
S	Fe-based alloy	943	280			0.05	0.30	-	-
	Co-based alloy	1076	320						
	Ni-based alloy	1177	350						
	Ti-alloy	1262	370						
H	Hardened steel	-	50-60HRC			-	-	-	-
	Chilled cast iron	-	55HRC						

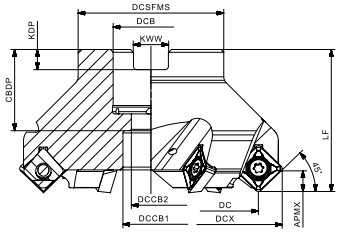
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

AFM45-SD12

45° Approach angle face milling cutter

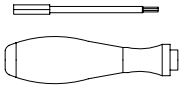




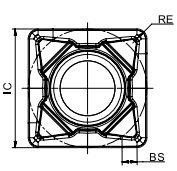


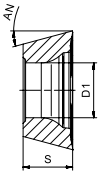
Product code	Dimension (mm)											Internal coolant	Weight (kg)	Z	Inserts
	DC	DCX	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX				
AFM45-050-Z04-A22R-SD12-C	50	63	42	22	18	11	40	26	6.5	10.4	6	✓	0.5	4	SD..1204..EN..
063-Z05-A22R-SD12-C	63	76	48	22	18	11	40	26	6.5	10.4	6	✓	0.6	5	
080-Z06-A27R-SD12-C	80	93	52	27	20	14	50	29	7.2	12.4	6	✓	1.1	6	
100-Z07-A32R-SD12-C	100	113	80	32	26	18	50	32	8.2	14.4	6	✓	2.0	7	
125-Z08-A40R-SD12-C	125	138	87	40	33	22	63	38	9.2	16.4	6	✓	3.8	8	

Note: With internal coolant
Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
Ø50-125			5.0Nm
	SP04511555	DT-TP20	

Compatible Inserts





Insert shape	Product code	IC	S	RE	BS	D1	AN	Machining conditions: ● Good Conditions ◐ General Conditions ✱ Bad Conditions									
		Dimension (mm)						P			M		K			N	S
								AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
	**SDMT 120408EN-MM4**	12.7	4.76	0.8	-	5.5	15°	●	●	●		●	●	●			
	SDMT 120412EN-MM3	12.7	4.76	1.2	-	5.5	15°	●	●	○				●			
	**SDKT 1204AEEN-MR2**	12.7	4.76	2.3	1.5	5.5	15°	○		●			●				

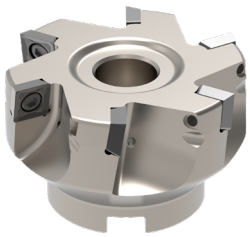
● : Standard stock ○ : Made-to-Order

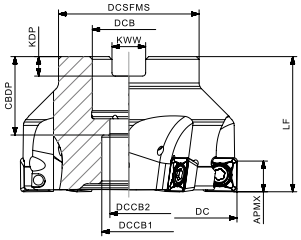
Materials				Cutting depth and feed							
				SD..1204..EN..							
				ap		Geometry					
						MR2		MM4		MM3	
						fz					
						(mm)					
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.20	6.00	0.15	0.30	0.15	0.30	0.12	0.28
		<950	<280								
	Alloyed steel	700-950	200-280			0.15	0.25	0.15	0.25	0.10	0.25
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.12	0.25	0.10	0.25	0.08	0.20
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300								
K	Grey cast iron	700	220			0.12	0.28	0.10	0.25	0.10	0.22
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
N	Aluminum	260	75			-	-	-	-	-	-
	Aluminum alloy	447	130								
S	Fe-based alloy	943	280			-	-	0.08	0.20	-	-
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
H	Hardened steel	-	50-60HRC			-	-	-	-	-	-
	Chilled cast iron	-	55HRC								

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

AFM90-SD12

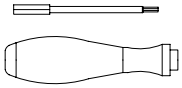
90° Approach angle face milling cutter



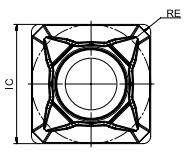


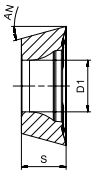
Product code	Dimension (mm)										Internal coolant	Weight (kg)	Z	Inserts
	DC	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX				
AFM90-050-Z04-A22R-SD12-C	50	42	22	18	11	40	26	6.5	10.4	11	✓	0.3	4	SD..1204..EN..
063-Z05-A22R-SD12-C	63	48	22	18	11	40	26	6.5	10.4	11	✓	0.5	5	
080-Z06-A27R-SD12-C	80	52	27	20	14	50	29	7.2	12.4	11	✓	1.1	6	
100-Z08-A32R-SD12-C	100	80	32	26	18	50	32	8.2	14.4	11	✓	2.0	8	
125-Z10-A40R-SD12-C	125	87	40	33	22	63	38	9.2	16.4	11	✓	3.8	10	

Note: ✓ With internal coolant
✗ Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
Ø50-125			5.0Nm
	SP04511555	DT-TP20	

Compatible Inserts





Insert shape	Product code	IC	S	RE	BS	D1	AN	● Good Conditions ◐ General Conditions ✱ Bad Conditions									
								●	◐	◐	◐	✱	●	●	●	●	✱
		Dimension (mm)						P			M		K			N	S
								AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
	**SDMT 120408EN-MM4**	12.7	4.76	0.8	-	5.5	15°	●	●	●		●	●	●			
	SDMT 120412EN-MM3	12.7	4.76	1.2	-	5.5	15°	●	●	○				●			

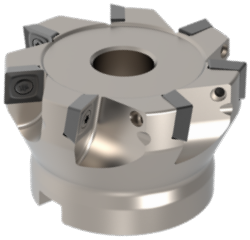
● : Standard stock ○ : Made-to-Order

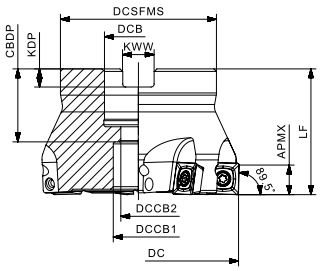
Materials				Cutting depth and feed					
				SD..1204..EN..					
				ap		Geometry			
						MM4		MM3	
						fz			
				(mm)					
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.20	11.00	0.15	0.30	0.12	0.28
		<950	<280						
	Alloyed steel	700-950	200-280			0.15	0.25	0.10	0.25
		950-1200	280-355						
		1200-1400	355-415						
M	Duplex stainless steel	778	230			0.10	0.25	0.08	0.20
	Austenitic stainless steel	675	200						
	Precipitation-hardening stainless steel	1013	300						
K	Grey cast iron	700	220			0.10	0.25	0.10	0.22
	Nodular cast iron	880	260						
	Malleable cast iron	800	250						
N	Aluminum	260	75			-	-	-	-
	Aluminum alloy	447	130						
S	Fe-based alloy	943	280			0.08	0.20	-	-
	Co-based alloy	1076	320						
	Ni-based alloy	1177	350						
	Ti-alloy	1262	370						
H	Hardened steel	-	50-60HRC			-	-	-	-
	Chilled cast iron	-	55HRC						

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

AFM89-SD12

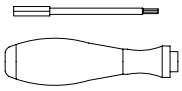
89° Approach angle face milling cutter



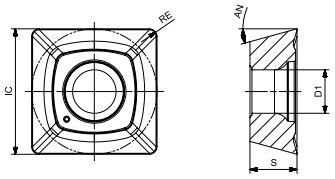


Product code	Dimension (mm)										Internal coolant	Weight (kg)	Z	Inserts
	DC	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX				
AFM89-050-Z04-A22R-SD12	50	45	22	18	11	40	26	6.5	10.4	9		0.3	4	SD..1204..N..
063-Z05-A22R-SD12	63	48	22	18	11	40	26	6.5	10.4	9		0.5	5	
080-Z07-A27R-SD12	80	62	27	20	14	50	29	7.2	12.4	9		1.1	7	
100-Z08-A32R-SD12	100	80	32	26	18	50	32	8.2	14.4	9		1.7	8	
125-Z09-A40R-SD12	125	87	40	33	22	63	38	9.2	16.4	9		3.0	9	
125-Z10-A40R-SD12	125	87	40	33	22	63	38	9.2	16.4	9		3.0	10	

Note: With internal coolant
Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
∅50-125			3.5Nm
	SP040112	DT-TP15	

Compatible Inserts



Insert shape	Product code	IC	S	RE	D1	AN	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
		Machining conditions					● Good Conditions ◐ General Conditions ✱ Bad Conditions									
							●	◐	◐	◐	✱	●	●	●	●	✱
		Dimension (mm)					P			M		K			N	S
	**SDMT 120408N-MM4**	12.7	4.76	0.8	4.4	15.3°	●			●	●	●		●		
	SDMT 120420N-MM4	12.7	4.76	2.0	4.4	15.3°	○					●				
	SDMT 120425N-MM4	12.7	4.76	2.5	4.4	15.3°				○	●					○
	SDMT 120430N-MM4	12.7	4.76	3.0	4.4	15.3°		○				●				
	**SDMT 120408N-MR2**	12.7	4.76	0.8	4.4	15.3°	●		●	●	●	●		●		

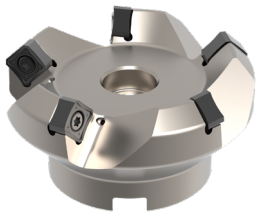
● : Standard stock ○ : Made-to-Order

ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	Cutting depth and feed: SD..1204..N.. ap (mm) min	ap (mm) max	Geometry MM4 fz (mm) min	MM4 fz (mm) max	Geometry MR2 fz (mm) min	MR2 fz (mm) max
P	Unalloyed steel	<600	<180	0.20	9.00	0.10	0.30	0.10	0.35
		<950	<280						
	Alloyed steel	700-950	200-280			0.12	0.25	0.10	0.30
		950-1200	280-355						
		1200-1400	355-415						
M	Duplex stainless steel	778	230			0.06	0.20	0.10	0.30
	Austenitic stainless steel	675	200						
	Precipitation-hardening stainless steel	1013	300						
K	Grey cast iron	700	220			0.10	0.30	0.10	0.35
	Nodular cast iron	880	260						
	Malleable cast iron	800	250						
N	Aluminum	260	75			-	-	-	-
	Aluminum alloy	447	130						
S	Fe-based alloy	943	280			0.06	0.12	-	-
	Co-based alloy	1076	320						
	Ni-based alloy	1177	350						
	Ti-alloy	1262	370						
H	Hardened steel	-	50-60HRC			-	-	-	-
	Chilled cast iron	-	55HRC						

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

AFM45-SN12

45° Approach angle face milling cutter



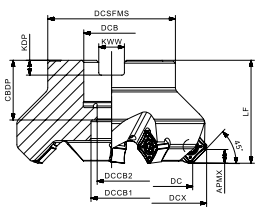


Fig. 1

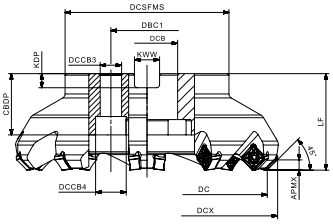
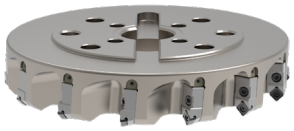
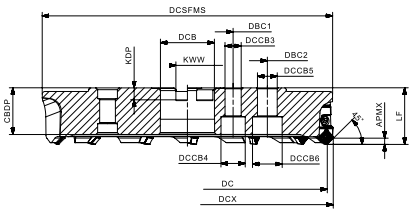


Fig. 2

Product code	Dimension (mm)														Internal coolant	Weight (kg)	Z	Fig.	Inserts
	DC	DCX	DCSFMS	DCB	DBC1	DCCB1	DCCB2	DCCB3	DCCB4	LF	CBDP	KDP	KWW	APMX					
AFM45-050-Z04-A22R-SN12-N-C	50	64	47	22	-	18	11	-	-	40	26	6.5	10.4	6		0.5	4		
050-Z06-A22R-SN12-N-C	50	64	47	22	-	18	11	-	-	40	26	6.5	10.4	6		0.5	6		
063-Z04-A22R-SN12-N-C	63	77	52	22	-	18	11	-	-	40	24.5	6.3	10.4	6		0.7	4		
063-Z06-A22R-SN12-N-C	63	77	52	22	-	18	11	-	-	40	26	6.5	10.4	6		0.6	6		
063-Z08-A22R-SN12-N-C	63	77	52	22	-	18	11	-	-	40	26	6.5	10.4	6		0.6	8		
080-Z04-A27R-SN12-N-C	80	94	62	27	-	20	14	-	-	50	30	7	12.4	6		1.3	4		
080-Z05-A27R-SN12-N-C	80	94	62	27	-	20	14	-	-	50	29	7.2	12.4	6		1.2	5	1	
080-Z07-A27R-SN12-N-C	80	94	62	27	-	20	14	-	-	50	29	7.2	12.4	6		1.2	7		SN..1206ANN.. SN..1206..
100-Z06-A32R-SN12-N-C	100	114	77	32	-	26	18	-	-	50	32	8.2	14.4	6		1.8	6		
100-Z08-A32R-SN12-N-C	100	114	77	32	-	26	18	-	-	50	32	8.2	14.4	6		1.8	8		
125-Z07-A40R-SN12-N-C	125	139	90	40	-	33	22	-	-	63	38	9.2	16.4	6		3.8	7		
125-Z08-A40R-SN12-N-C	125	139	90	40	-	33	22	-	-	63	38	9.2	16.4	6		3.8	8		
125-Z10-A40R-SN12-N-C	125	139	90	40	-	33	22	-	-	63	38	9.2	16.4	6		3.7	10		
160-Z10-A40R-SN12-N	160	174	107	40	66.7	-	-	14	20	63	30	9.2	16.4	6		4.7	10		
200-Z14-A60R-SN12-N	200	214	130	60	101.6	-	-	18	27	63	45	14.2	25.6	6		7.2	14	2	
250-Z16-A60R-SN12-N	250	264	180	60	101.6	-	-	18	27	63	45	14.2	25.6	6		13.0	16		

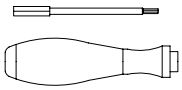


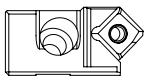
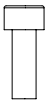


Product code	Dimension (mm)														Internal coolant	Weight (kg)	Z	Inserts
	DC	DCX	DCSFMS	DCB	DBC1	DBC2	DCCB3	DCCB4	DCCB5	DCCB6	LF	CBDP	KDP	KWW	APMX				
AFM45-315-Z14-A60R-SN12-M	315	329	220	60	101.6	177.8	18	27	22	33	63	52	14.2	25.6	6		26.8	14	SN..1206ANN SN..1206..

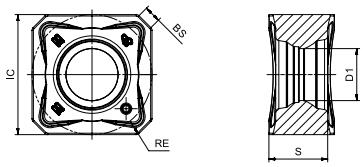
Note: With internal coolant

Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
∅50-315			3.5Nm
	SP050120	DT-TP20	

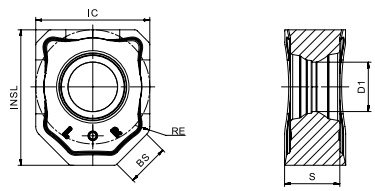
Cartridge	Cartridge screw	Cartridge screw wrench	Wedge	Wedge screw	Wedge screw wrench
					
C-SN1242-62-45	ACH622	LT-H5	AWG-6H-6	AWCH624	LT-H3

Compatible Inserts



Insert shape	Product code	Machining conditions					● Good Conditions ⊕ General Conditions ✱ Bad Conditions									
							●	⊕	⊕	⊕	✱	●	●	●	●	✱
		Dimension (mm)					P			M		K			N	S
		IC	S	RE	BS	D1	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
	**SNHX 1206ANN-FM2**	12.7	6.24	0.5	1.7	5.5									●	
	**SNGX 1206ANN-MM3**	12.7	6.24	0.4	1.8	5.5	●	●	●			●	●	●		
	SNMX 1206ANN-MM3	12.7	6.25	0.4	1.8	5.5	●	●	○			●	●			
	**SNGX 1206ANN-MM4**	12.7	6.22	0.4	1.8	5.5	●		●		●	●		●		
	SNMX 1206ANN-MM4	12.7	6.22	0.4	1.8	5.5	●	●	●		●	●	●	●		
	**SNGX 1206ANN-MR6**	12.7	6.25	0.4	1.8	5.5	●	●	○			●	●	●		
	SNMX 1206ANN-MR6	12.7	6.25	0.4	1.8	5.5	○	●	○			●	●	●		
	**SNGX 1206ANN-RR2**	12.7	6.29	0.5	1.7	5.5	○	●	○			●	●	○		

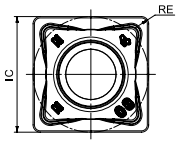
● : Standard stock ○ : Made-to-Order

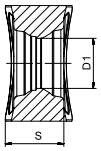


Insert shape	Product code	Machining conditions						● Good Conditions ⊕ General Conditions ✱ Bad Conditions									
								●	⊕	⊕	⊕	✱	●	●	●	●	✱
		Dimension (mm)						P			M		K			N	S
		INSL	IC	S	RE	BS	D1	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP405S
	**SNHX 1206ANN-W**	15.1	12.7	6.15	1.2	4.7	5.5	●					●	●	●		

● : Standard stock ○ : Made-to-Order

Compatible Inserts





Insert shape	Product code	IC	S	RE	BS	D1	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
		Machining conditions					● Good Conditions ◐ General Conditions ✱ Bad Conditions									
							●	◐	◐	◐	✱	●	●	●	●	✱
		Dimension (mm)					P			M		K			N	S
	**SNMX 120612-MM3**	12.7	6.40	1.2	-	5.5	○	●	○		●	●	●			
	**SNGX 120608-MM4**	12.7	6.43	0.8	-	5.5	●	●	●			●	●	●		
	SNGX 120612-MM4	12.7	6.38	1.2	-	5.5	●									
	SNMX 120608-MM4	12.7	6.43	0.8	-	5.5	●	●				●	●	●		
	SNMX 120612-MM4	12.7	6.38	1.2	-	5.5	●	●	●			●	●	●		
	SNMX 120620-MM4	12.7	6.28	2.0	-	5.5		●	○			●	●	●		
	SNMX 120630-MM4	12.7	6.14	3.0	-	5.5						●				
	**SNMX 120612-MR6**	12.7	6.41	1.2	-	5.5	●	●	●			●	●	●		
	**SNMX 120612-RR2**	12.7	6.44	1.2	-	5.5	●	●	○			●	●			
	SNMX 120620-RR2	12.7	6.34	2.0	-	5.5		●	●			●	●			
	**SNMX 120612R-MM4**	12.7	6.85	1.2	-	5.5	●	●	○		●	●	●			

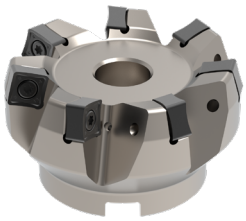
● : Standard stock ○ : Made-to-Order

ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	ap min	ap max	SN.. 1206.. Geometry MM3 fz (mm) min	MM3 max	MM4 min	MM4 max	MR6 min	MR6 max	RR2 min	RR2 max	FM2 min	FM2 max
	Materials			Cutting depth and feed											
P	Unalloyed steel	<600	<180	0.20	6.00	0.15	0.35	0.18	0.38	0.18	0.40	0.18	0.45	-	-
		<950	<280												
	Alloyed steel	700-950	200-280			0.12	0.32	0.15	0.35	0.15	0.38	0.15	0.38	-	-
		950-1200	280-355												
		1200-1400	355-415												
M	Duplex stainless steel	778	230			0.12	0.30	0.12	0.32	-	-	-	-	-	-
	Austenitic stainless steel	675	200												
	Precipitation-hardening stainless steel	1013	300												
K	Grey cast iron	700	220			0.15	0.35	0.18	0.38	0.18	0.40	0.18	0.45	-	-
	Nodular cast iron	880	260												
	Malleable cast iron	800	250												
N	Aluminum	260	75			-	-	-	-	-	-	-	-	0.15	0.35
	Aluminum alloy	447	130												
S	Fe-based alloy	943	280			0.10	0.25	0.12	0.28	-	-	-	-	-	-
	Co-based alloy	1076	320												
	Ni-based alloy	1177	350												
	Ti-alloy	1262	370												
H	Hardened steel	-	50-60HRC			-	-	-	-	-	-	-	-	-	-
	Chilled cast iron	-	55HRC												

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

AFM75-SN12

75° Approach angle face milling cutter



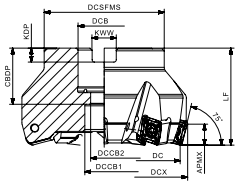


Fig. 1

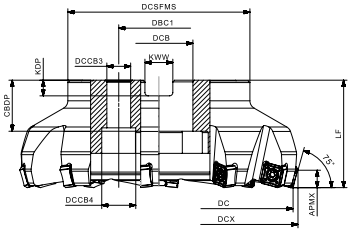
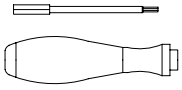


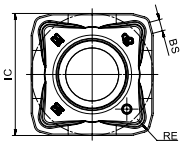
Fig. 2

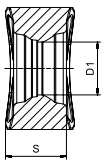
Product code	Dimension (mm)														Internal coolant	Weight (kg)	Z	Fig.	Inserts
	DC	DCX	DCSFMS	DCB	DBC1	DCCB1	DCCB2	DCCB3	DCCB4	LF	CBDP	KDP	KWW	APMX					
AFM75-050-Z04-A22R-SN12-N-C	50	56	42	22	-	18	11	-	-	40	26	6.5	10.4	8	●	0.4	4	1	SN..1206ENN.. SN..1206..
063-Z06-A22R-SN12-N-C	63	69	52	22	-	18	11	-	-	40	26	6.5	10.4	8	●	0.6	6		
080-Z07-A27R-SN12-N-C	80	86	62	27	-	20	14	-	-	50	29	7.2	12.4	8	●	1.3	7		
100-Z08-A32R-SN12-N-C	100	106	67	32	-	26	18	-	-	50	32	8.2	14.4	8	●	1.9	8		
125-Z08-A40R-SN12-N-C	125	131	90	40	-	33	22	-	-	63	38	9.2	16.4	8	●	3.5	8		
125-Z10-A40R-SN12-N-C	125	131	90	40	-	33	22	-	-	63	38	9.2	16.4	8	●	3.8	10		
160-Z10-A40R-SN12-N	160	166	107	40	66.7	-	-	14	20	63	30	9.2	16.4	8	○	4.7	10	2	
200-Z14-A60R-SN12-N	200	206	130	60	101.6	-	-	18	27	63	45	14.2	25.6	8	○	7.4	14		
250-Z16-A60R-SN12-N	250	256	180	60	101.6	-	-	18	27	63	45	14.2	25.6	8	○	13.4	16		

Note: ● With internal coolant
○ Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
∅50-250			3.5Nm
	SP050120	DT-TP20	

Compatible Inserts

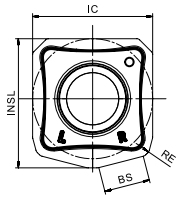




Insert shape	Product code	IC	S	RE	BS	D1	Machining conditions: ● Good Conditions ◐ General Conditions ✱ Bad Conditions									
							●	◐	◐	◐	✱	●	●	●	●	✱
							Dimension (mm)					P			N	S
							AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
	**SNGX 1206ENN-MM3**	12.7	6.36	0.8	1.2	5.5	●	●	○			●	●	○		
	**SNGX 1206ENN-MM4**	12.7	6.34	0.8	1.2	5.5	●	●	●			●	●			
	SNMX 1206ENN-MM4	12.7	6.34	0.8	1.2	5.5			○		●	●				
	**SNGX 1206ENN-MR6**	12.7	6.32	0.8	1.2	5.5	●	●	●			●	●			

● : Standard stock ○ : Made-to-Order

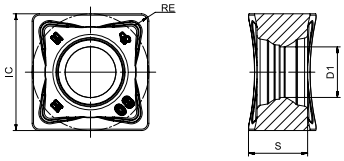
Compatible Inserts



Insert shape	Product code	Machining conditions						● Good Conditions ◐ General Conditions ✱ Bad Conditions									
		Dimension (mm)						P			M		K			N	S
		INSL	IC	S	RE	BS	D1	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
	**SNHX 1206ENN-W**	13.66	12.7	6.24	0.6	4.8	5.5	●		●					●		

● : Standard stock ○ : Made-to-Order

Compatible Inserts



Insert shape	Product code	Machining conditions					● Good Conditions ◐ General Conditions ✱ Bad Conditions									
		Dimension (mm)					P			M		K			N	S
		IC	S	RE	BS	D1	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
	**SNMX 120612-MM3**	12.7	6.40	1.2	-	5.5	○	●	○		●	●	●			
	**SNGX 120608-MM4**	12.7	6.43	0.8	-	5.5	●	●	●			●	●	●		
	SNGX 120612-MM4	12.7	6.38	1.2	-	5.5	●									
	SNMX 120608-MM4	12.7	6.43	0.8	-	5.5	●	●				●	●	●		
	SNMX 120612-MM4	12.7	6.38	1.2	-	5.5	●	●	●			●	●	●		
	SNMX 120620-MM4	12.7	6.28	2.0	-	5.5		●	○			●	●	●		
	SNMX 120630-MM4	12.7	6.14	3.0	-	5.5						●				
	**SNMX 120612-MR6**	12.7	6.41	1.2	-	5.5	●	●	●			●	●	●		
	**SNMX 120612-RR2**	12.7	6.44	1.2	-	5.5	●	●	○			●	●			
	SNMX 120620-RR2	12.7	6.34	2.0	-	5.5		●	●			●	●			
	**SNMX 120612R-MM4**	12.7	6.85	1.2	-	5.5	●	●	○		●	●	●			

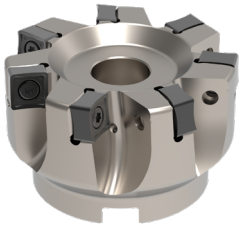
● : Standard stock ○ : Made-to-Order

Materials				Cutting depth and feed									
				SN.. 1206..									
				ap		Geometry							
						MM3		MM4		MR6		RR2	
						fz							
						(mm)							
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	min	max	min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.20	8.00	0.12	0.32	0.19	0.35	0.15	0.38	0.18	0.40
		<950	<280										
	Alloyed steel	700-950	200-280			0.10	0.30	0.12	0.32	0.10	0.35	0.15	0.35
		950-1200	280-355										
		1200-1400	355-415										
M	Duplex stainless steel	778	230			0.10	0.28	0.10	0.30	-	-	-	-
	Austenitic stainless steel	675	200										
	Precipitation-hardening stainless steel	1013	300										
K	Grey cast iron	700	220			0.12	0.32	0.15	0.35	0.12	0.35	0.18	0.40
	Nodular cast iron	880	260										
	Malleable cast iron	800	250										
N	Aluminum	260	75			-	-	-	-	-	-	-	-
	Aluminum alloy	447	130										
S	Fe-based alloy	943	280			0.10	0.22	0.10	0.25	-	-	-	-
	Co-based alloy	1076	320										
	Ni-based alloy	1177	350										
	Ti-alloy	1262	370										
H	Hardened steel	-	50-60HRC			-	-	-	-	-	-	-	-
	Chilled cast iron	-	55HRC										

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

AFM88-SN12

88° Approach angle face milling cutter



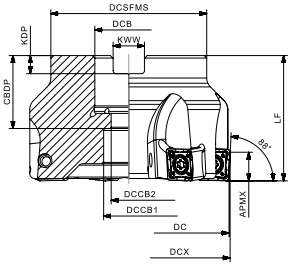


Fig. 1

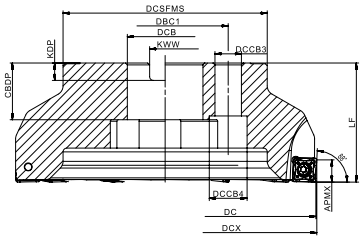
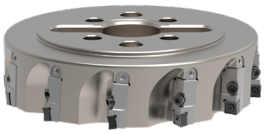


Fig. 2

Product code	Dimension (mm)														Internal coolant	Weight (kg)	Z	Fig.	Inserts
	DC	DCX	DCSFMS	DCB	DBC1	DCCB1	DCCB2	DCCB3	DCCB4	LF	CBDP	KDP	KWW	APMX					
AFM88-050-Z04-A22R-SN12-N-C	50	51	42	22	-	18	11	-	-	40	26	6.5	10.4	9	✓	0.4	4	1	SN..1206ZNN.. SN..1206..
063-Z04-A22R-SN12-N-C	63	64	52	22	-	18	11	-	-	40	25	6.3	10.4	9	✓	0.6	4		
063-Z06-A22R-SN12-N-C	63	64	52	22	-	18	11	-	-	40	26	6.5	10.4	9	✓	0.6	6		
080-Z04-A27R-SN12-N-C	80	81	62	27	-	20	14	-	-	50	30	7.0	12.4	9	✓	1.2	4		
080-Z07-A27R-SN12-N-C	80	81	62	27	-	20	14	-	-	50	29	7.2	12.4	9	✓	1.2	7		
100-Z08-A32R-SN12-N-C	100	101	77	32	-	26	18	-	-	50	32	8.2	14.4	9	✓	1.8	8		
100-Z11-A32R-SN12-N-C	100	101	77	32	-	26	18	-	-	50	32	8.2	14.4	9	✓	1.6	11		
125-Z10-A40R-SN12-N-C	125	126	90	40	-	33	22	-	-	63	38	9.2	16.4	9	✓	3.5	10		
125-Z13-A40R-SN12-N-C	125	126	90	40	-	33	22	-	-	63	38	9.2	16.4	9	✓	3.5	13		
160-Z12-A40R-SN12-N	160	161	108	40	66.7	-	-	14	20	63	30	9.2	16.4	9	✗	4.5	12	2	
200-Z14-A60R-SN12-N	200	201	130	60	101.6	-	-	18	27	63	45	14.2	25.6	9	✗	7.2	14		



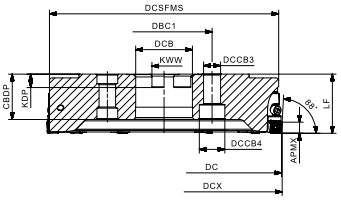


Fig. 3

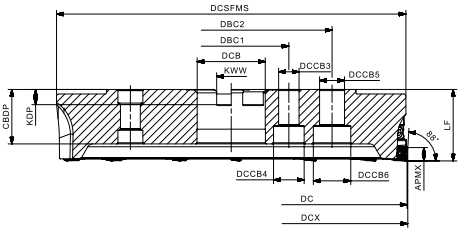
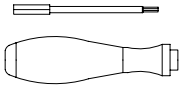


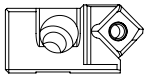
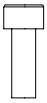
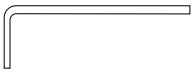
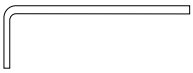
Fig. 4

Product code	Dimension (mm)															Internal coolant	Weight (kg)	Z	Fig.	Inserts
	DC	DCX	DCSFMS	DCB	DBC1	DBC2	DCCB3	DCCB4	DCCB5	DCCB6	LF	CBDP	KDP	KWW	APMX					
AFM88-250-Z12-A60R-SN12-M	250	251	180	60	101.6	-	18	27	-	-	63	48	14.2	25.6	9	✗	15.7	12	3	SN..1206ZNN.. SN..1206..
315-Z14-A60R-SN12-M	315	316	220	60	101.6	177.8	18	27	22	33	63	48	14.2	25.6	9	✗	24.4	14	4	

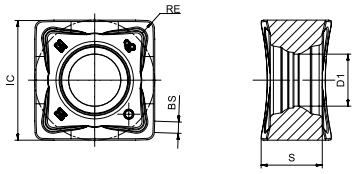
Note: With internal coolant

Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
⌀50-315			3.5Nm
	SP050120	DT-TP20	

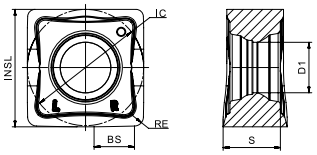
Cartridge	Cartridge screw	Cartridge screw wrench	Wedge	Wedge screw	Wedge screw wrench
					
C-SN1242-62-88	ACH622	LT-H5	AWG-6H-6	AWCH624	LT-H3

Compatible Inserts



Insert shape	Product code	IC	S	RE	BS	D1	Machining conditions: ● Good Conditions ◐ General Conditions ✱ Bad Conditions									
		Dimension (mm)					P			M		K			N	S
							AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
	**SNHX 1206ZNN-FM2**	12.7	6.56	0.8	1.2	5.5									●	
	**SNGX 1206ZNN-MM3**	12.7	6.49	0.8	1.2	5.5	●	●	●			●	●	●		
	**SNGX 1206ZNN-MM4**	12.7	6.46	0.8	1.2	5.5	●	●	●		●	●	●	●		●
	SNMX 1206ZNN-MM4	12.7	6.46	0.8	1.2	5.5	●	○	●		●	●	○	○		
	**SNGX 1206ZNN-MR6**	12.7	6.44	0.8	1.2	5.5	●	●	○		●	●	●	●		

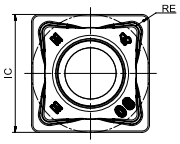
● : Standard stock ○ : Made-to-Order

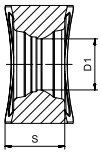


Insert shape	Product code	INSL	IC	S	RE	BS	D1	Machining conditions: ● Good Conditions ◐ General Conditions ✱ Bad Conditions									
		Dimension (mm)						P			M		K			N	S
								AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
	**SNHX 1206ZNN-W**	12.8	12.7	6.24	0.8	4.4	5.5	●		●				●	●		

● : Standard stock ○ : Made-to-Order

Compatible Inserts





Insert shape	Product code	IC	S	RE	BS	D1	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
		Machining conditions					● Good Conditions ◐ General Conditions ✱ Bad Conditions									
							●	◐	◐	◐	✱	●	●	●	●	✱
		Dimension (mm)					P			M		K			N	S
	**SNMX 120612-MM3**	12.7	6.40	1.2	-	5.5	○	●	○		●	●	●			
	**SNGX 120608-MM4**	12.7	6.43	0.8	-	5.5	●	●	●			●	●	●		
	SNGX 120612-MM4	12.7	6.38	1.2	-	5.5	●									
	SNMX 120608-MM4	12.7	6.43	0.8	-	5.5	●	●				●	●	●		
	SNMX 120612-MM4	12.7	6.38	1.2	-	5.5	●	●	●			●	●	●		
	SNMX 120620-MM4	12.7	6.28	2.0	-	5.5		●	○			●	●	●		
	SNMX 120630-MM4	12.7	6.14	3.0	-	5.5						●				
	**SNMX 120612-MR6**	12.7	6.41	1.2	-	5.5	●	●	●			●	●	●		
	**SNMX 120612-RR2**	12.7	6.44	1.2	-	5.5	●	●	○			●	●			
	SNMX 120620-RR2	12.7	6.34	2.0	-	5.5		●	●			●	●			
	**SNMX 120612R-MM4**	12.7	6.85	1.2	-	5.5	●	●	○		●	●	●			

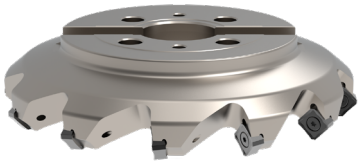
● : Standard stock ○ : Made-to-Order

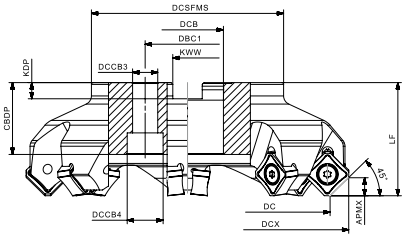
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	Cutting depth and feed											
				SN.. 1206..											
				ap		Geometry									
						MM3		MM4		MR6		RR2		FM2	
						fz									
						(mm)									
				min	max	min	max	min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.20	9.00	0.12	0.32	0.19	0.35	0.15	0.38	0.18	0.40	-	-
		<950	<280												
	Alloyed steel	700-950	200-280			0.10	0.30	0.12	0.32	0.10	0.35	0.15	0.35	-	-
		950-1200	280-355												
		1200-1400	355-415												
M	Duplex stainless steel	778	230			0.10	0.28	0.10	0.30	-	-	-	-	-	-
	Austenitic stainless steel	675	200												
	Precipitation-hardening stainless steel	1013	300												
K	Grey cast iron	700	220			0.12	0.32	0.15	0.35	0.12	0.35	0.18	0.40	-	-
	Nodular cast iron	880	260												
	Malleable cast iron	800	250												
N	Aluminum	260	75			-	-	-	-	-	-	-	-	0.12	0.32
	Aluminum alloy	447	130												
S	Fe-based alloy	943	280			0.10	0.22	0.10	0.25	-	-	-	-	-	-
	Co-based alloy	1076	320												
	Ni-based alloy	1177	350												
	Ti-alloy	1262	370												
H	Hardened steel	-	50-60HRC			-	-	-	-	-	-	-	-	-	-
	Chilled cast iron	-	55HRC												

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

AFM45-SN19

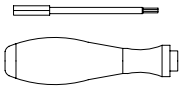
45° Approach angle face milling cutter



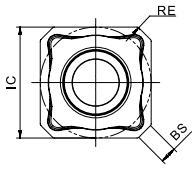


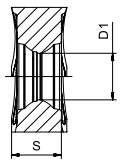
Product code	Dimension (mm)												Internal coolant	Weight (kg)	Z	Inserts
	DC	DCX	DCSFMS	DCB	DBC1	DCCB3	DCCB4	LF	CBDP	KDP	KWW	APMX				
AFM45-160-Z08-A40R-SN19	160	181.3	107	40	66.7	14	20	63	40	9.0	16.4	10		4.9	8	
200-Z10-A60R-SN19	200	221.3	130	60	101.6	18	27	63	46	14.2	25.6	10		7.7	10	SN..1909ANN..
250-Z12-A60R-SN19	250	271.3	180	60	101.6	18	26	63	46	14.0	25.6	10		12.7	12	

Note: With internal coolant
Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
Ø160-250			5.0Nm
	SP06018070	DT-TP25	

Compatible Inserts





Insert shape	Product code	IC	S	RE	BS	D1	Machining conditions: ● Good Conditions ⬌ General Conditions ✱ Bad Conditions									
							●	⬌	⬌	⬌	✱	●	●	●	●	✱
		Dimension (mm)					P			M		K			N	S
							AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
	**SNGX 1909ANN-MM3**	19.05	8.58	0.4	2.8	8		●								
	**SNGX 1909ANN-MR6**	19.05	8.50	0.8	2.7	8		●			●					

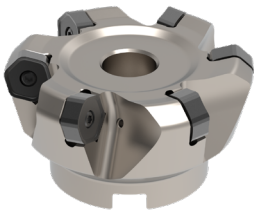
● : Standard stock ○ : Made-to-Order

Materials				Cutting depth and feed					
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	SN.. 1909..					
				ap		Geometry			
						MM3		MR6	
						fz			
				(mm)					
				min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.80	10.00	0.10	0.40	0.13	0.43
		<950	<280						
	Alloyed steel	700-950	200-280			0.08	0.35	0.10	0.40
		950-1200	280-355						
		1200-1400	355-415						
M	Duplex stainless steel	778	230			-	-	0.10	0.40
	Austenitic stainless steel	675	200						
	Precipitation-hardening stainless steel	1013	300						
K	Grey cast iron	700	220			-	-	-	-
	Nodular cast iron	880	260						
	Malleable cast iron	800	250						
N	Aluminum	260	75			-	-	-	-
	Aluminum alloy	447	130						
S	Fe-based alloy	943	280			-	-	-	-
	Co-based alloy	1076	320						
	Ni-based alloy	1177	350						
	Ti-alloy	1262	370						
H	Hardened steel	-	50-60HRC			-	-	-	-
	Chilled cast iron	-	55HRC						

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

AFM45-HN09

45° Approach angle face milling cutter



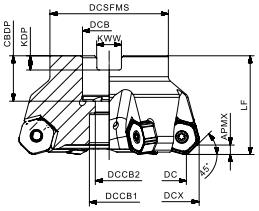


Fig. 1

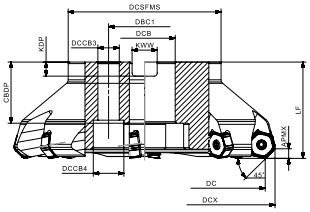
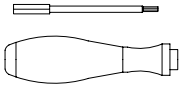


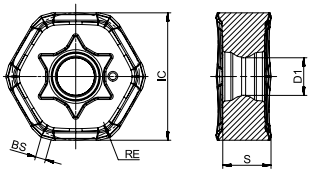
Fig. 2

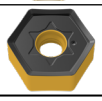
Product code	Dimension (mm)														Internal coolant	Weight (kg)	Z	Fig.	Inserts
	DC	DCX	DCSFMS	DCB	DBC1	DCCB1	DCCB2	DCCB3	DCCB4	LF	CBDP	KDP	KWW	APMX					
AFM45-063-Z04-A22R-HN09-C	63	75	48	22	-	18	11	-	-	40	26	6.5	10.4	5	✓	0.6	4	1	HN..0906..
063-Z05-A22R-HN09-C	63	75	48	22	-	18	11	-	-	40	26	6.5	10.4	5	✓	0.5	5		
080-Z05-A27R-HN09-C	80	92	60	27	-	20	14	-	-	50	29	7.2	12.4	5	✓	1.2	5		
080-Z06-A27R-HN09-C	80	92	60	27	-	20	14	-	-	50	29	7.2	12.4	5	✓	1.2	6		
100-Z06-A32R-HN09-C	100	112	80	32	-	26	18	-	-	50	32	8.2	14.4	5	✓	1.8	6		
100-Z08-A32R-HN09-C	100	112	80	32	-	26	18	-	-	50	32	8.2	14.4	5	✓	1.8	8		
100-Z10-A32R-HN09-C	100	112	80	32	-	26	18	-	-	50	32	8.2	14.4	5	✓	1.9	10		
125-Z06-A40R-HN09-C	125	137	87	40	-	33	22	-	-	63	38	9.2	16.4	5	✓	3.7	6		
125-Z10-A40R-HN09-C	125	137	87	40	-	33	22	-	-	63	38	9.2	16.4	5	✓	3.5	10		
125-Z12-A40R-HN09-C	125	137	87	40	-	33	22	-	-	63	38	9.2	16.4	5	✓	3.7	12		
160-Z08-A40R-HN09	160	172	100	40	66.7	-	-	14	20	63	40	9.2	16.4	5	✗	5.2	8	2	
160-Z12-A40R-HN09	160	172	100	40	66.7	-	-	14	20	63	40	9.2	16.4	5	✗	5.3	12		

Note: ✓ With internal coolant
✗ Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
Ø63-160			5.0Nm
	SP045120	DT-TP15	

Compatible Inserts



Insert shape	Product code	IC	S	RE	BS	D1	● Good Conditions ◐ General Conditions ✱ Bad Conditions									
							●	◐	◐	◐	✱	●	●	●	●	✱
		Dimension (mm)					P			M		K			N	S
							AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
	**HNGX 0906ANN-MR6**	16.5	6.35	1.0	1.1	4.86	●		●	○	●	●		●		
	**HNMX 0906ANN-MM4**	16.5	6.35	1.0	1.1	4.86	●		●	○	●	●		●		
	**HNMX 090612-MM4**	16.5	6.35	1.2	-	4.86	●		●	○	●	●		●		

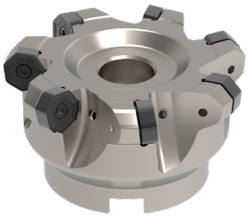
● : Standard stock ○ : Made-to-Order

Materials				Cutting depth and feed					
				HN..0906..					
				ap		Geometry			
						MR6		MM4	
						fz			
				(mm)					
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.20	5.00	0.30	0.50	0.17	0.35
		<950	<280						
	Alloyed steel	700-950	200-280			0.28	0.45	-	-
		950-1200	280-355						
		1200-1400	355-415						
M	Duplex stainless steel	778	230			-	-	-	-
	Austenitic stainless steel	675	200						
	Precipitation-hardening stainless steel	1013	300						
K	Grey cast iron	700	220			0.30	0.50	0.17	0.35
	Nodular cast iron	880	260						
	Malleable cast iron	800	250						
N	Aluminum	260	75			-	-	-	-
	Aluminum alloy	447	130						
S	Fe-based alloy	943	280			-	-	-	-
	Co-based alloy	1076	320						
	Ni-based alloy	1177	350						
	Ti-alloy	1262	370						
H	Hardened steel	-	50-60HRC			-	-	-	-
	Chilled cast iron	-	55HRC						

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

AFM45-XN07

45° Approach angle face milling cutter



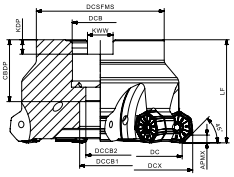


Fig. 1

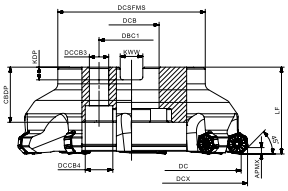


Fig. 2

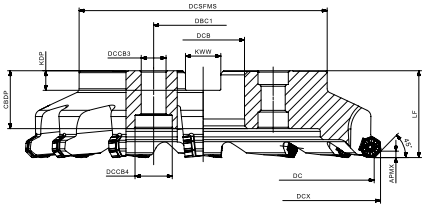
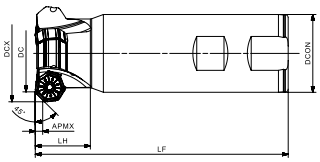


Fig. 3

Product code	Dimension (mm)														Internal coolant	Weight (kg)	Z	Fig.	Inserts
	DC	DCX	DCSFMS	DCB	DBC1	DCCB1	DCCB2	DCCB3	DCCB4	LF	CBDP	KDP	KWW	APMX					
AFM45-040-Z03-A16R-XN07-C	40	49.7	35	16	-	14	9	-	-	40	25	5.6	8.4	3.5	✓	0.3	3	1	XN..0705..
050-Z04-A22R-XN07-C	50	59.7	42	22	-	18	11	-	-	40	26	6.5	10.4	3.5	✓	0.4	4		
050-Z05-A22R-XN07-C	50	59.7	42	22	-	18	11	-	-	40	26	6.5	10.4	3.5	✓	0.4	5		
063-Z05-A22R-XN07-C	63	72.7	48	22	-	18	11	-	-	40	26	6.5	10.4	3.5	✓	0.6	5		
063-Z06-A22R-XN07-C	63	72.7	48	22	-	18	11	-	-	40	26	6.5	10.4	3.5	✓	0.6	6		
080-Z06-A27R-XN07-C	80	89.7	62	27	-	20	14	-	-	50	29	7.2	12.4	3.5	✓	1.3	6		
080-Z07-A27R-XN07-C	80	89.7	62	27	-	20	14	-	-	50	29	7.2	12.4	3.5	✓	1.3	7		
100-Z07-A32R-XN07-C	100	109.7	80	32	-	26	18	-	-	50	32	8.2	14.4	3.5	✓	1.9	7		
100-Z08-A32R-XN07-C	100	109.7	80	32	-	26	18	-	-	50	32	8.2	14.4	3.5	✓	1.9	8		
125-Z08-A40R-XN07-C	125	134.7	90	40	-	33	22	-	-	63	38	9.2	16.4	3.5	✓	3.6	8		
125-Z10-A40R-XN07-C	125	134.7	90	40	-	33	22	-	-	63	38	9.2	16.4	3.5	✓	3.6	10		
160-Z09-A40R-XN07	160	169.7	107	40	66.7	-	-	14	20	63	40	9.2	16.4	3.5	✗	4.5	9	2	
160-Z12-A40R-XN07	160	169.7	107	40	66.7	-	-	14	20	63	40	9.2	16.4	3.5	✗	4.4	12		
200-Z14-A60R-XN07	200	209.6	130	60	101.6	-	-	18	27	63	45	14.2	25.6	3.5	✗	7.0	14		
250-Z14-A60R-XN07-S	250	259.6	180	60	101.6	-	-	18	27	63	42	14.2	25.6	3.5	✗	11.0	14	3	





Product code	Dimension (mm)						Internal coolant	Weight (kg)	Z	Inserts
	DC	DCX	DCON	LF	LH	APMX				
AFM45-040-Z03-W40R-XN07-C	40	49.8	40	130	28.3	3.5	✓	1.2	3	XN..0705..

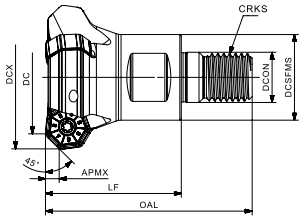
Note: ✓ With internal coolant

✗ Without internal coolant

AFM45-XN07

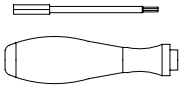
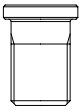
45° Approach angle face milling cutter



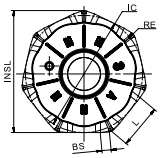


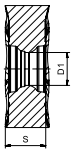
Product code	Dimension (mm)								Internal coolant	Weight (kg)	Z	Inserts
	DC	DCX	DCSFMS	DCON	OAL	LF	CRKS	APMX				
AFM45-040-Z03-M16R-XN07-C	40	49.3	29	17	70	46	M16	3.5		0.3	3	XN..0705..

Note: With internal coolant
Without internal coolant

Cutter diameter (mm)	Spare parts					
	Screw	Wrench	Shim	Shim screw	Shim screw wrench	Torque
∅40-250						3.5Nm
	SP035120H	DT-TP15	S-XN07030	SS050085F	LT-H3.5	

Compatible Inserts

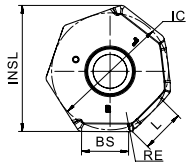


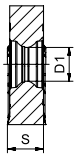


Insert shape	Product code	Machining conditions: Dimension (mm) L	INSL	IC	S	RE	BS	D1	● Good Conditions ⇕ General Conditions ✱ Bad Conditions										
									●	⇕	⇕	⇕	✱	●	●	●	●		✱
									P			M		K			N	S	
									AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S	
	**XNGU 0705ANN-MM3**	5.5	15.09	14.5	5.0	0.8	1.1	4.07	●	●				●	●	●			
	**XNGU 0705ANN-MM4**	5.5	15.09	14.5	5.0	0.8	1.1	4.07	●			●	●		●				
	XNMU 0705ANN-MM4	5.5	15.09	14.5	5.0	0.8	1.1	4.07	●	●	●	●	●	●	●	●			
	**XNMU 0705ANN-MR6**	5.5	15.09	14.5	5.05	0.8	1.1	4.07	●	●				●	●				
	**XNMU 0705ANN-MM4N**	5.5	15.09	14.5	5.3	0.8	1.0	4.07	●		●		●	●					

● : Standard stock ○ : Made-to-Order

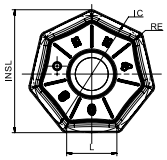
Compatible Inserts

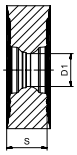




Insert shape	Product code	L	INSL	IC	S	RE	BS	D1	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
		Machining conditions							● Good Conditions ⊕ General Conditions ✱ Bad Conditions									
									●	⊕	⊕	⊕	✱	●	●	●	●	✱
		Dimension (mm)							P			M		K			N	S
	**XNGX 0705ANN-W**	5.4	15.09	14.5	5.0	0.8	5.6	4.07	●					●	●	●		

● : Standard stock ○ : Made-to-Order





Insert shape	Product code	L	INSL	IC	S	RE	BS	D1	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
		Machining conditions							● Good Conditions ⊕ General Conditions ✱ Bad Conditions									
									●	⊕	⊕	⊕	✱	●	●	●	●	✱
		Dimension (mm)							P			M		K			N	S
	**XNMU 070508-MM4**	6.6	15.21	14.5	5.0	0.8	-	4.07	●	●	●		●	●	●	●		
	**XNMU 070508-MM4N**	6.6	15.21	14.5	5.3	0.8	-	4.07						●		●		

● : Standard stock ○ : Made-to-Order

Precautions for using XN07..W long wiper inserts

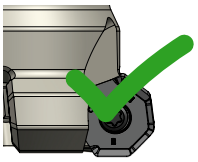


Fig.1 (correct)

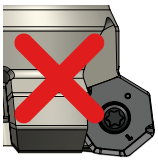


Fig.2 (wrong)

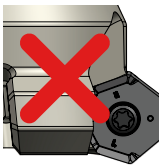


Fig.3 (wrong)

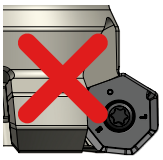


Fig.4 (wrong)

This insert features two right-hand cutting edges and two left-hand cutting edges.

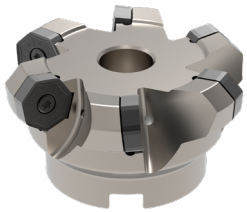
While a single wiper insert can achieve satisfactory surface finish, when the feed rate equals or exceeds the wiper edge length, it is recommended to install two or more wiper inserts in the tool holder. For optimal performance, the long wiper insert XNGX 0705ANN-W should be used in combination with standard wiper inserts XN..0705ANN..

Materials				Cutting depth and feed							
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	XN.. 0705..							
				ap		Geometry					
						MM3		MM4		MR6	
						fz					
				(mm)							
				min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.20	3.50	0.15	0.35	0.18	0.38	0.18	0.40
		<950	<280								
	Alloyed steel	700-950	200-280			0.12	0.32	0.15	0.35	0.15	0.38
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.12	0.30	0.12	0.32	-	-
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300								
K	Grey cast iron	700	220			0.15	0.35	0.18	0.38	0.18	0.40
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
N	Aluminum	260	75			-	-	-	-	-	-
	Aluminum alloy	447	130								
S	Fe-based alloy	943	280			0.10	0.25	0.12	0.28	-	-
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
H	Hardened steel	-	50-60HRC			-	-	-	-	-	-
	Chilled cast iron	-	55HRC								

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

AFM45-XN09

45° Approach angle face milling cutter



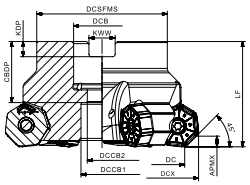


Fig. 1

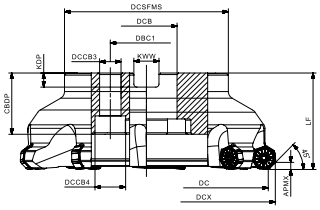
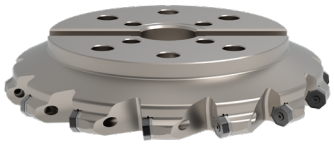


Fig. 2

Product code	Dimension (mm)														Internal coolant	Weight (kg)	Z	Fig.	Inserts
	DC	DCX	DCSFMS	DCB	DBC1	DCCB1	DCCB2	DCCB3	DCCB4	LF	CBDP	KDP	KWW	APMX					
AFM45-063-Z05-A22R-XN09-C	63	75.2	48	22	-	18	11	-	-	40	26	6.5	10.4	5		0.6	5	1	XN..0906..
080-Z06-A27R-XN09-C	80	92.2	62	27	-	20	14	-	-	50	29	7.2	12.4	5		1.2	6		
100-Z07-A32R-XN09-C	100	112.2	80	32	-	26	18	-	-	50	32	8.2	14.4	5		1.9	7		
100-Z08-A32R-XN09-C	100	112.2	80	32	-	26	18	-	-	50	32	8.2	14.4	5		2.0	8		
125-Z08-A40R-XN09-C	125	137.2	87	40	-	33	22	-	-	63	38	9.2	16.4	5		3.5	8		
125-Z10-A40R-XN09-C	125	137.2	87	40	-	33	22	-	-	63	38	9.2	16.4	5		3.5	10		
160-Z09-A40R-XN09	160	172.2	107	40	66.7	-	-	14	20	63	30	9.2	16.4	5		4.4	9	2	
160-Z11-A40R-XN09	160	172.2	107	40	66.7	-	-	14	20	63	30	9.2	16.4	5		4.3	11		
200-Z12-A60R-XN09	200	212.2	130	60	101.6	-	-	18	27	63	48	14.2	25.6	5		6.9	12		



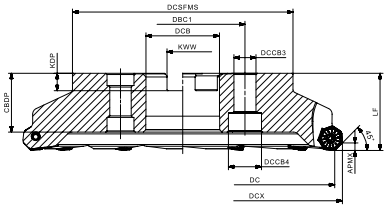


Fig. 3

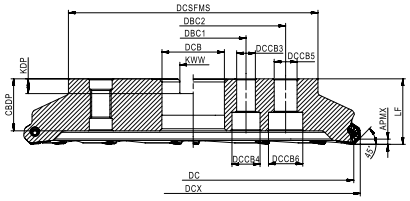
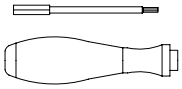
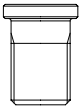
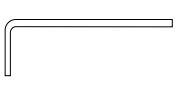


Fig. 4

Product code	Dimension (mm)														Internal coolant	Weight (kg)	Z	Fig.	Inserts
	DC	DCX	DCSFMS	DCB	DBC1	DBC2	DCCB3	DCCB4	DCCB5	DCCB6	LF	CBDP	KDP	KWW	APMX					
AFM45-250-Z12-A60R-XN09-S	250	262.7	180	60	101.6	-	18	27	-	-	63	48	14.2	25.6	5		12.4	12	3	XN..0906..
315-Z14-A60R-XN09-S	315	327.7	240	60	101.6	177.8	18	27	22	33	63	50	14.2	25.6	5		21.8	14	4	

Note: With internal coolant

Without internal coolant

Cutter diameter (mm)	Spare parts					
	Screw	Wrench	Shim	Shim screw	Shim screw wrench	Torque
∅63-315						5.0Nm
	SP050130	DT-TP20	S-XN09040	SS080100F	LT-H5	

AFM45-XN09-W

45° Wedge clamping face milling cutter



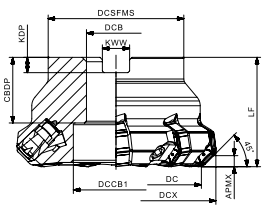


Fig. 1

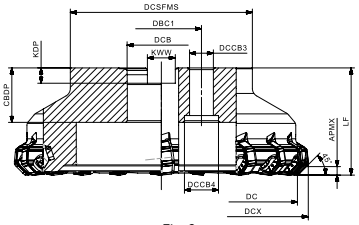


Fig. 2

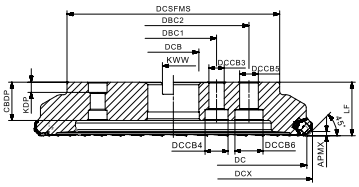
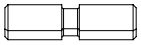


Fig. 3

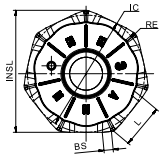
Product code	Dimension (mm)																Internal coolant	Weight (kg)	Z	Fig.	Inserts
	DC	DCX	DCSFMS	DCB	DBC1	DBC2	DCCB1	DCCB3	DCCB4	DCCB5	DCCB6	LF	CBDP	KDP	KWW	APMX					
AFM45-080-Z09-A27R-XN09-W	80	92.7	62	27	-	-	39	-	-	-	-	50	30	7.0	12.5	5		1.2	9	1	XN..0906..
100-Z12-A32R-XN09-W	100	112.7	80	32	-	-	48	-	-	-	-	50	28.5	8.2	14.4	5		2.1	12		
125-Z16-A40R-XN09-W	125	137.7	87	40	-	-	58	-	-	-	-	63	30	9.2	16.4	5		3.9	16		
125-Z16-A40L-XN09-W	125	137.7	87	40	-	-	58	-	-	-	-	63	30	9.2	16.4	5		3.9	16		
160-Z20-A40R-XN09-W	160	172.7	107	40	66.7	-	-	14	20	-	-	63	32	9.0	16.4	5		4.9	20	2	
160-Z20-A40L-XN09-W	160	172.7	107	40	66.7	-	-	14	20	-	-	63	32	9.0	16.4	5		4.9	20		
200-Z26-A60R-XN09-W	200	212.7	130	60	101.6	-	-	18	27	-	-	63	48	14.2	25.6	5		7.2	26		
200-Z26-A60L-XN09-W	200	212.7	130	60	101.6	-	-	18	27	-	-	63	48	14.2	25.6	5		7.2	26		
250-Z30-A60R-XN09-W	250	262.2	170	60	101.6	-	-	18	27	-	-	63	45	14.2	25.6	5		13.0	30		
315-Z39-A60R-XN09-W	315	327.2	250	60	101.6	177.8	-	18	27	22	33	63	45	14.2	25.6	5		23.2	39	3	

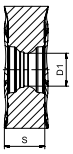
Note: With internal coolant

Without internal coolant

Cutter diameter (mm)	Spare parts			
	Wedge	Screw	Wrench	Torque
∅80-315				7.0Nm
	AWG-8H	WD080320F	LT-H4	

Compatible Inserts

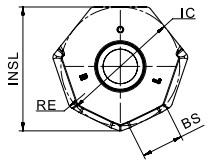


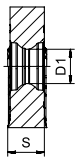


Insert shape	Product code	L	INSL	IC	S	RE	BS	D1	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
		Machining conditions							● Good Conditions ⊕ General Conditions ✱ Bad Conditions									
									●	⊕	⊕	⊕	✱	●	●	●	●	✱
		Dimension (mm)							P			M		K			N	S
	**XNGU 0906ANN-MM3**	7.3	19.86	19.0	5.875	0.8	1.4	5.5		●					●			
	**XNGU 0906ANN-MM4**	7.3	19.86	19.0	5.875	0.8	1.4	5.5	○	●	●			●	●	●		
	**XNMU 0906ANN-MR6**	7.3	19.86	19.0	5.927	0.8	1.4	5.5	●		●			●	●	●		
	**XNMF 0906ANN-MR6**	7.3	19.86	19.0	5.927	0.8	1.4	3.0						●	●	●		

Note: XNMF inserts are for use with wedge cutter only.

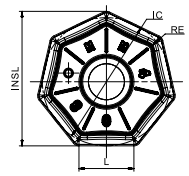
● : Standard stock ○ : Made-to-Order

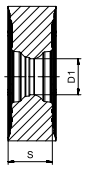




Insert shape	Product code	L	INSL	IC	S	RE	BS	D1	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
		Machining conditions							● Good Conditions ⊕ General Conditions ✱ Bad Conditions									
									●	⊕	⊕	⊕	✱	●	●	●	●	✱
		Dimension (mm)							P			M		K			N	S
	**XNGX 0906ANN-W**	7.2	19.86	19.0	5.88	1.0	7.6	5.5	●						●			

● : Standard stock ○ : Made-to-Order





Insert shape	Product code	L	INSL	IC	S	RE	BS	D1	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
		Machining conditions							● Good Conditions ⊕ General Conditions ✱ Bad Conditions									
									●	⊕	⊕	⊕	✱	●	●	●	●	✱
		Dimension (mm)							P			M		K			N	S
	**XNMU 090612-MM4**	8.6	19.97	19.0	5.875	1.2	-	5.5	●	●	●			●	●	●		
	**XNMU 090612-MM4N**	8.6	19.97	19.0	5.875	1.2	-	5.5						●				

● : Standard stock ○ : Made-to-Order

Precautions for using XN09..W long wiper inserts

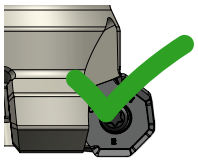


Fig.1 (correct)

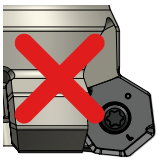


Fig.2 (wrong)

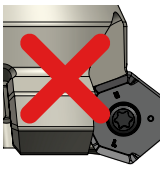


Fig.3 (wrong)

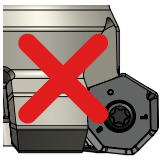


Fig.4 (wrong)

This insert features two right-hand cutting edges and two left-hand cutting edges.

While a single wiper insert can achieve satisfactory surface finish, when the feed rate equals or exceeds the wiper edge length, it is recommended to install two or more wiper inserts in the tool holder. For optimal performance, the long wiper insert XNGX 0906ANN-W should be used in combination with short wiper inserts XN..0906ANN..

Materials				Cutting depth and feed							
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	XN..0906..							
				ap		Geometry					
						MM3		MM4		MR6	
						fz					
				(mm)							
				min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.20	5.00	0.15	0.35	0.18	0.38	0.18	0.40
		<950	<280								
	Alloyed steel	700-950	200-280			0.12	0.32	0.15	0.35	0.15	0.38
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.12	0.30	0.12	0.32	-	-
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300								
K	Grey cast iron	700	220			0.15	0.35	0.18	0.38	0.18	0.40
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
N	Aluminum	260	75			-	-	-	-	-	-
	Aluminum alloy	447	130								
S	Fe-based alloy	943	280			0.10	0.25	0.12	0.28	-	-
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
H	Hardened steel	-	50-60HRC			-	-	-	-	-	-
	Chilled cast iron	-	55HRC								

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

AFF40-LN12/LN15

40° Approach angle cast iron finishing milling cutter



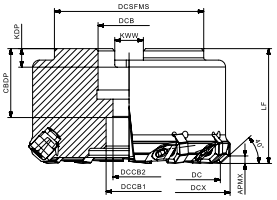


Fig. 1

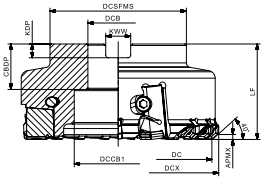


Fig. 2

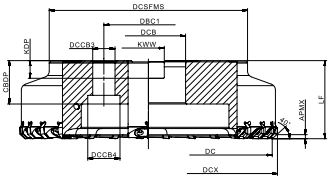
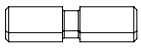


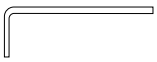
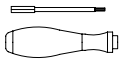
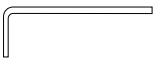
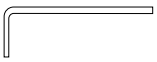
Fig. 3

Product code	Dimension (mm)														Internal coolant	Weight (kg)	Z	Fig.	Inserts
	DC	DCX	DCSFMS	DCB	DBC1	DCCB1	DCCB2	DCCB3	DCCB4	LF	CBDP	KDP	KWW	APMX					
AFF40-080-Z08-A27R-LN12	80	88.4	65	27	-	20	14	-	-	50	30	8.1	12.4	0.5		1.6	8+2	1	ONHF 050408-MM3 LNHQ 120408FN-W
100-Z10-A32R-LN12	100	108.4	80	32	-	48	-	-	-	50	30	10.1	14.4	0.5		2.4	10+2	2	
125-Z15-A40R-LN15	125	133.4	90	40	-	58	-	-	-	63	30	9.1	16.4	0.5		3.9	15+3		ONHF 050408-MM3 LNHQ 150416FN-W
160-Z18-A40R-LN15	160	168.4	120	40	66.7	92	-	14	20	63	30	9.1	16.4	0.5		6.3	18+3	3	
200-Z24-A60R-LN15	200	208.4	160	60	101.6	130	-	18	26	63	35	14.2	25.64	0.5		9.4	24+3		
250-Z30-A60R-LN15	250	258.4	200	60	101.6	170	-	18	26	63	35	14.2	25.64	0.5		14.8	30+3		

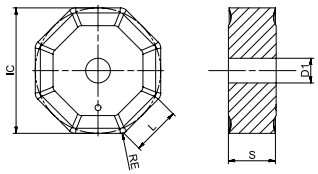
*Z=8+2 means 8pcs rough inserts and 2pcs finish inserts

Note: With internal coolant
Without internal coolant

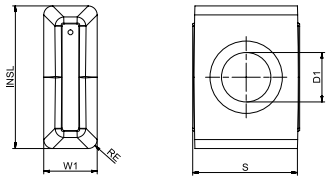
Cutter diameter (mm)	Spare parts				
	Wedge	Wedge locking screw	Wiper insert locking screw	Wiper insert adjusting screw	Wiper cartridge locking screw
⌀80-250					
	AWG-6H-13B	WD060200	SP040085H	AH050100F	SH060250

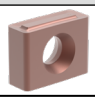
Cutter diameter (mm)	Spare parts					
	Wedge screw Wrench	Wiper insert screw wrench	Wiper insert adjusting screw wrench	Wiper insert cartridge locking screw wrench	Wiper cartridge	
⌀80-250						
	LT-H3	DT-TP10	LT-H2.5	LT-H5	⌀80-100	⌀125-250
					C-LN1235-2545	C-LN1535-2545

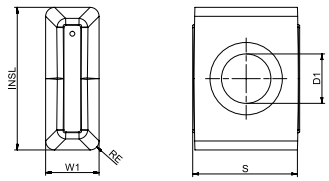
Compatible Inserts



Insert shape	Product code	L	INSL	IC	S	RE	D1	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AP403S	AP151H
		Machining conditions						● Good Conditions ◐ General Conditions ✱ Bad Conditions									
		Dimension (mm)						P			M		K			S	H
	**ONHF 050408-MM3**	4.9	-	12.7	4.76	0.8	2.5										●



Insert shape	Product code	W1	INSL	IC	S	RE	D1	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AP403S	AP151H
		Machining conditions						● Good Conditions ◐ General Conditions ✱ Bad Conditions									
		Dimension (mm)						P			M		K			S	H
	**LNHQ 120408FN-W**	4.76	12.7	-	9.4	0.8	4.4										●



Insert shape	Product code	W1	INSL	IC	S	RE	D1	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AP403S	AP151H
		Machining conditions						● Good Conditions ◐ General Conditions ✱ Bad Conditions									
		Dimension (mm)						P			M		K			S	H
	**LNHQ 150416FN-W**	4.76	15.875	-	9.25	1.6	4.4										●

● : Standard stock ○ : Made-to-Order

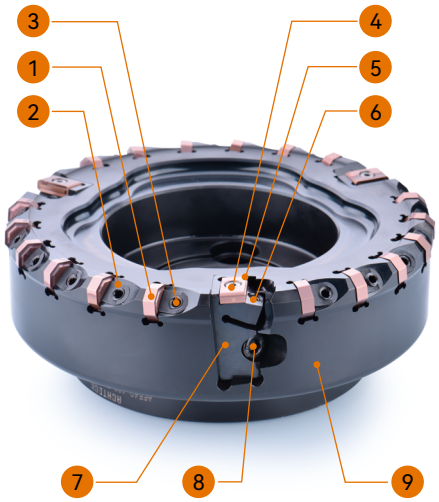
Materials				Cutting depth and feed			
				ONHF 05.. + LNHQ 12/15..			
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	ap		Geometry MM3 + W fz	
				(mm)			
				min	max	min	max
K	Grey cast iron	700	220	0.20	0.50	0.08	0.25
	Nodular cast iron	880	260				
	Malleable cast iron	800	250				

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

Installation and Adjustment Method for Cast Iron Finishing Milling Cutter

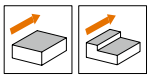
1. Clean wiper cartridge (7), completely release adjusting screw (6);
2. Clean each insert pocket, cartridge pocket, clean inserts and cartridges;
3. Install roughing inserts (1), wiper cartridges (7) and use finger to push them to the locating surface and lock the screws;
4. Install wiper inserts (5);
5. Measure the axial run out of each roughing (1) and wiper insert (5);
6. Adjusting wiper inserts height through adjusting screw (6);
7. Wiper inserts Max. run out should be higher than roughing inserts by 0.03-0.06mm.

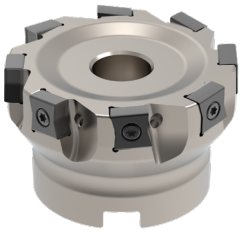
1. Roughing inserts (ON..05..)
2. Locking wedge
3. Double-headed wedge locking screws
4. Wiper insert clamping screw
5. Wiper insert (LN12/15)
6. Adjusting screw
7. Wiper cartridge
8. Locking screw for wiper cartridge
9. Cutter



ASM90-LN12

90° Approach angle square shoulder milling cutter





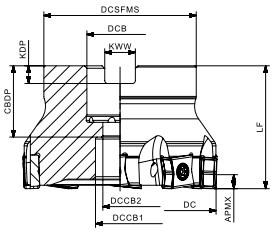


Fig. 1

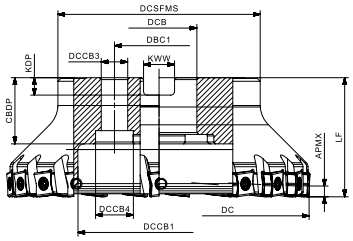
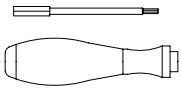


Fig. 2

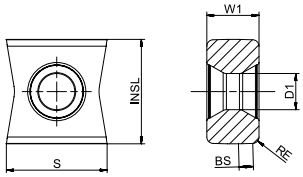
Product code	Dimension (mm)													Internal coolant	Weight (kg)	Z	Fig.	Inserts
	DC	DCSFMS	DCB	DBC1	DCCB1	DCCB2	DCCB3	DCCB4	LF	CBDP	KDP	KWW	APMX					
ASM90-063-Z06-A22R-LN12-C	63	52	22	-	18	11	-	-	40	26	6.5	10.4	5	✓	0.6	6	1	LN..1206..
063-Z06-A22L-LN12-C	63	52	22	-	18	11	-	-	40	26	6.5	10.4	5	✓	0.6	6		
063-Z08-A22R-LN12	63	52	22	-	18	11	-	-	40	26	6.5	10.4	5	✗	0.6	8		
063-Z08-A22L-LN12	63	52	22	-	18	11	-	-	40	26	6.5	10.4	5	✗	0.6	8		
080-Z08-A27R-LN12-C	80	62	27	-	20	14	-	-	50	29	7.2	12.4	5	✓	1.2	8		
080-Z08-A27L-LN12-C	80	62	27	-	20	14	-	-	50	29	7.2	12.4	5	✓	1.2	8		
080-Z10-A27R-LN12	80	62	27	-	20	14	-	-	50	29	7.2	12.4	5	✗	1.2	10		
080-Z10-A27L-LN12	80	62	27	-	20	14	-	-	50	29	7.2	12.4	5	✗	1.2	10		
100-Z09-A32R-LN12	100	78	32	-	26	18	-	-	50	32	8.2	14.4	5	✗	1.9	9		
100-Z09-A32L-LN12	100	78	32	-	26	18	-	-	50	32	8.2	14.4	5	✗	1.9	9		
100-Z13-A32R-LN12	100	78	32	-	26	18	-	-	50	32	8.2	14.4	5	✗	1.9	13		
100-Z13-A32L-LN12	100	78	32	-	26	18	-	-	50	32	8.2	14.4	5	✗	1.9	13		
125-Z10-A40R-LN12	125	90	40	-	33	22	-	-	63	38	9.2	16.4	5	✗	3.5	10		
125-Z10-A40L-LN12	125	90	40	-	33	22	-	-	63	38	9.2	16.4	5	✗	3.5	10		
125-Z16-A40R-LN12	125	90	40	-	33	22	-	-	63	38	9.2	16.4	5	✗	3.5	16		
125-Z16-A40L-LN12	125	90	40	-	33	22	-	-	63	38	9.2	16.4	5	✗	3.5	16		
160-Z13-A40R-LN12	160	107	40	66.7	98	-	14	20	63	35	9.2	16.4	5	✗	4.0	13	2	
160-Z13-A40L-LN12	160	107	40	66.7	98	-	14	20	63	35	9.2	16.4	5	✗	4.0	13		
160-Z21-A40R-LN12	160	107	40	66.7	98	-	14	20	63	35	9.2	16.4	5	✗	4.1	21		
160-Z21-A40L-LN12	160	107	40	66.7	98	-	14	20	63	35	9.2	16.4	5	✗	4.1	21		
200-Z16-A60R-LN12	200	130	60	101.6	135	-	18	27	63	45	14.2	25.6	5	✗	6.4	16		
200-Z16-A60L-LN12	200	130	60	101.6	135	-	18	27	63	45	14.2	25.6	5	✗	6.4	16		
200-Z26-A60R-LN12	200	130	60	101.6	135	-	18	27	63	45	14.2	25.6	5	✗	6.5	26		
200-Z26-A60L-LN12	200	130	60	101.6	135	-	18	27	63	45	14.2	25.6	5	✗	6.5	26		
250-Z20-A60R-LN12	250	180	60	101.6	180	-	18	27	63	45	14.2	25.6	5	✗	11.8	20		
250-Z20-A60L-LN12	250	180	60	101.6	180	-	18	27	63	45	14.2	25.6	5	✗	11.8	20		
250-Z32-A60R-LN12	250	180	60	101.6	180	-	18	27	63	45	14.2	25.6	5	✗	11.9	32		
250-Z32-A60L-LN12	250	180	60	101.6	180	-	18	27	63	45	14.2	25.6	5	✗	11.9	32		

Note: ✓ With internal coolant

✗ Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
⌀63-250			3.5Nm
	SP040112	DT-TP15	

Compatible Inserts



Insert shape	Product code	Machining conditions: Dimension (mm) INSL	W1	S	RE	BS	D1	● Good Conditions ⬌ General Conditions ✱ Bad Conditions									
								●	⬌	⬌	⬌	✱	●	●	●	✱	●
								P			M		K			S	H
								AP251U	AP351U	AC251P	AP403M	AP351M	AP251K	AC301K	AC151K	AP403S	AP151H
	**LNET 1206-MM4**	12.7	6.35	12.3	0.8	1.7	4.4	●			●		●		●		○

● : Standard stock ○ : Made-to-Order

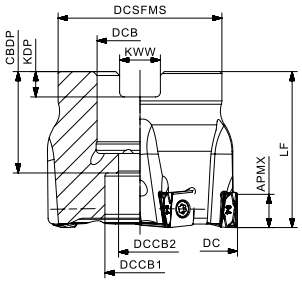
Materials				Cutting depth and feed			
				LN..1206..			
				ap		Geometry	
						MM4	
						fz	
				(mm)			
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	min	max	min	max
P	Unalloyed steel	<600	<180	0.20	5.00	0.08	0.35
		<950	<280				
	Alloyed steel	700-950	200-280			0.08	0.30
		950-1200	280-355				
		1200-1400	355-415				
M	Duplex stainless steel	778	230			0.05	0.25
	Austenitic stainless steel	675	200				
	Precipitation-hardening stainless steel	1013	300				
K	Grey cast iron	700	220			0.10	0.35
	Nodular cast iron	880	260				
	Malleable cast iron	800	250				
N	Aluminum	260	75			-	-
	Aluminum alloy	447	130				
S	Fe-based alloy	943	280			0.05	0.20
	Co-based alloy	1076	320				
	Ni-based alloy	1177	350				
	Ti-alloy	1262	370				
H	Hardened steel	-	50-60HRC			0.08	0.20
	Chilled cast iron	-	55HRC				

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

ASM90-LN09

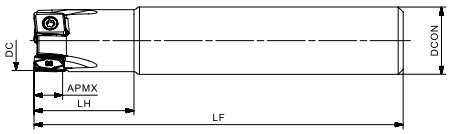
90° Approach angle square shoulder milling cutter





Product code	Dimension (mm)										Internal coolant	Weight (kg)	Z	Inserts
	DC	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX				
ASM90-040-Z04-A16R-LN09-C	40	35	16	14	9	40	24	5.8	8.4	8	✓	0.3	4	LN..0904..
040-Z06-A16R-LN09-C	40	35	16	14	9	40	24	5.8	8.4	8	✓	0.3	6	
050-Z05-A22R-LN09-C	50	42	22	18	11	40	26	6.5	10.4	8	✓	0.4	5	
050-Z07-A22R-LN09-C	50	42	22	18	11	40	26	6.5	10.4	8	✓	0.4	7	
063-Z07-A22R-LN09-C	63	48	22	18	11	40	26	6.5	10.4	8	✓	0.6	7	
063-Z10-A22R-LN09-C	63	48	22	18	11	40	26	6.5	10.4	8	✓	0.6	10	
080-Z09-A27R-LN09-C	80	62	27	20	14	50	29	7.2	12.4	8	✓	1.2	9	
080-Z13-A27R-LN09-C	80	62	27	20	14	50	29	7.2	12.4	8	✓	1.2	13	



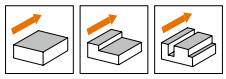


Product code	Dimension (mm)					Internal coolant	Weight (kg)	Z	Inserts
	DC	DCON	LF	LH	APMX				
ASM90-020-Z02-C20R-LN09-L110	20	20	110	30	8	✗	0.3	2	LN..0904..
020-Z03-C20R-LN09-L110	20	20	110	30	8	✗	0.3	3	
021-Z02-C20R-LN09-L200	21	20	200	30	8	✗	0.5	2	
025-Z03-C25R-LN09-L200-C	25	25	200	34	8	✓	0.7	3	
025-Z04-C25R-LN09-L200-C	25	25	200	34	8	✓	0.7	4	
026-Z03-C25R-LN09-L200-C	26	25	200	34	8	✓	0.7	3	
028-Z03-C25R-LN09-L110-C	28	25	110	34	8	✓	0.4	3	
032-Z04-C32R-LN09-L250-C	32	32	250	45	8	✓	1.4	4	
032-Z05-C32R-LN09-L250-C	32	32	250	45	8	✓	1.5	5	
033-Z04-C32R-LN09-L250-C	33	32	250	45	8	✓	1.4	4	

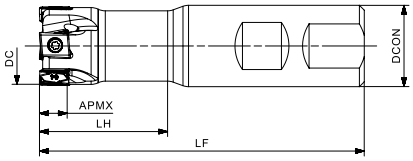
Note: ✓ With internal coolant
✗ Without internal coolant

ASM90-LN09

90° Approach angle square shoulder milling cutter



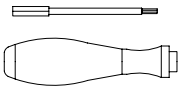




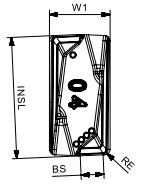
Product code	Dimension (mm)					Internal coolant	Weight (kg)	Z	Inserts
	DC	DCON	LF	LH	APMX				
ASM90-025-Z03-W25R-LN09-C	25	25	100	39	8		0.3	3	LN..0904..
025-Z04-W25R-LN09-C	25	25	100	39	8		0.3	4	
032-Z04-W32R-LN09-C	32	32	110	44	8		0.6	4	
032-Z05-W32R-LN09-C	32	32	110	44	8		0.6	5	
040-Z04-W32R-LN09-C	40	32	110	25	8		0.7	4	
040-Z06-W32R-LN09-C	40	32	110	25	8		0.7	6	

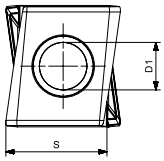
Note: With internal coolant

Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
⌀20-80			1.8Nm
	SP030083	DT-TP09	

Compatible Inserts





Insert shape	Product code	INSL	W1	S	RE	BS	D1	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
		Machining conditions						● Good Conditions ◐ General Conditions ✱ Bad Conditions									
		Dimension (mm)						P			M		K			N	S
	**LNHU 090404ER-FM2**	9	4.5	7.5	0.4	1.7	3.5									●	
	**LNHU 090404ER-MM3**	9	4.5	7.5	0.4	1.7	3.5		●			●					
	**LNHU 090404ER-MM4**	9	4.5	7.5	0.4	1.7	3.5	●				●	●				
	LNHU 090408ER-MM4	9	4.5	7.5	0.8	1.4	3.5	●			●	●	●				
	**LNHU 090404ER-MR2**	9	4.5	7.5	0.4	1.7	3.5	●	●			●	●	●			
	LNHU 090408ER-MR2	9	4.5	7.45	0.8	1.4	3.5	●		●		●	●	●	●		
	LNHU 090412ER-MR2	9	4.5	7.4	1.2	1.0	3.5	●				●		●			
	LNHU 090416ER-MR2	9	4.5	7.35	1.6	0.65	3.5	●				●		●			
	LNHU 090420ER-MR2	9	4.5	7.3	2.0	0.2	3.5	●				●		●			
	**LNHU 0904PDER-W**	9	4.5	7.48	0.4	3.6	3.5	●						●			

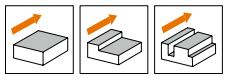
● : Standard stock ○ : Made-to-Order

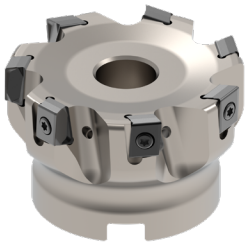
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	Cutting depth and feed: LN..0904.. ap min	ap max	Geometry MR2 fz min (mm)	MR2 fz max (mm)	MM4 fz min (mm)	MM4 fz max (mm)	FM2 fz min (mm)	FM2 fz max (mm)
P	Unalloyed steel	<600	<180	0.20	8.00	0.08	0.28	0.08	0.25	-	-
		<950	<280								
	Alloyed steel	700-950	200-280			0.06	0.22	0.06	0.20	-	-
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.06	0.22	0.06	0.20	-	-
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300								
K	Grey cast iron	700	220			0.08	0.30	0.08	0.28	-	-
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
N	Aluminum	260	75			-	-	-	-	0.06	0.30
	Aluminum alloy	447	130								
S	Fe-based alloy	943	280			-	-	0.08	0.15	-	-
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
H	Hardened steel	-	50-60HRC			-	-	-	-	-	-
	Chilled cast iron	-	55HRC								

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

ASM90-LN13

90° Approach angle square shoulder milling cutter





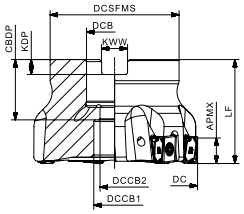


Fig. 1

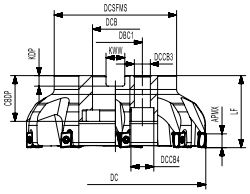


Fig. 2

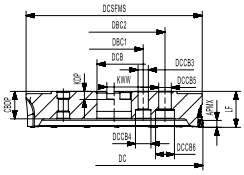


Fig. 3

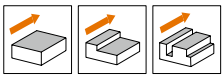
Product code	Dimension (mm)																Internal coolant	Weight (kg)	Z	Fig.	Inserts
	DC	DCSFMS	DCB	DBC1	DBC2	DCCB1	DCCB2	DCCB3	DCCB4	DCCB5	DCCB6	LF	CBDP	KDP	KWW	APMX					
ASM90-040-Z04-A16R-LN13-C	40	35	16	-	-	14	9	-	-	-	-	40	24	5.8	8.4	12		0.2	4	1	LN..1306..
040-Z05-A16R-LN13-C	40	35	16	-	-	14	9	-	-	-	-	40	24	5.8	8.4	12		0.2	5		
050-Z05-A22R-LN13-C	50	42	22	-	-	18	11	-	-	-	-	40	26	6.5	10.4	12		0.3	5		
050-Z06-A22R-LN13-C	50	42	22	-	-	18	11	-	-	-	-	40	26	6.5	10.4	12		0.3	6		
063-Z04-A22R-LN13-C	63	48	22	-	-	18	11	-	-	-	-	40	26	6.5	10.4	12		0.6	4		
063-Z06-A22R-LN13-C	63	48	22	-	-	18	11	-	-	-	-	40	26	6.5	10.4	12		0.5	6		
063-Z08-A22R-LN13-C	63	48	22	-	-	18	11	-	-	-	-	40	26	6.5	10.4	12		0.5	8		
080-Z05-A27R-LN13-C	80	62	27	-	-	20	14	-	-	-	-	50	29	7.2	12.4	12		1.2	5		
080-Z07-A27R-LN13-C	80	62	27	-	-	20	14	-	-	-	-	50	29	7.2	12.4	12		1.1	7		
080-Z10-A27R-LN13-C	80	62	27	-	-	20	14	-	-	-	-	50	29	7.2	12.4	12		1.1	10		
100-Z07-A32R-LN13-C	100	80	32	-	-	26	18	-	-	-	-	50	29	8.2	14.4	12		2.0	7		
100-Z09-A32R-LN13-C	100	80	32	-	-	26	18	-	-	-	-	50	29	8.2	14.4	12		1.8	9		
100-Z13-A32R-LN13-C	100	80	32	-	-	26	18	-	-	-	-	50	32	8.2	14.4	12		1.9	13		
125-Z09-A40R-LN13-C	125	87	40	-	-	33	22	-	-	-	-	63	32	9.2	16.4	12		3.5	9		
125-Z11-A40R-LN13-C	125	87	40	-	-	33	22	-	-	-	-	63	32	9.2	16.4	12		3.4	11		
125-Z16-A40R-LN13-C	125	87	40	-	-	33	22	-	-	-	-	63	38	9.2	16.4	12		3.5	16		
160-Z09-A40R-LN13	160	107	40	66.7	-	-	-	14	20	-	-	63	38	9.2	16.4	12		4.8	9	2	
160-Z13-A40R-LN13	160	107	40	66.7	-	-	-	14	20	-	-	63	38	9.2	16.4	12		4.4	13		
200-Z12-A60R-LN13	200	140	60	101.6	-	-	-	18	27	-	-	63	35	14.2	25.6	12		6.8	12		
250-Z12-A60R-LN13-M	250	180	60	101.6	-	-	-	18	27	-	-	63	35	14.2	25.6	12		15.8	12		
315-Z14-A60R-LN13-M	315	220	60	101.6	177.8	-	-	18	27	22	33	63	35	14.2	25.6	12		24.4	14	3	

Note: With internal coolant

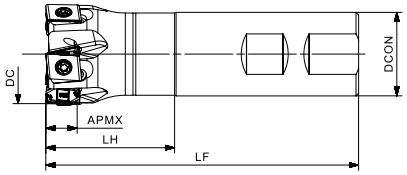
Without internal coolant

ASM90-LN13

90° Approach angle square shoulder milling cutter

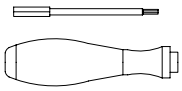


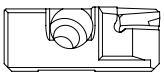
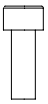




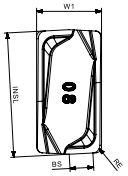
Product code	Dimension (mm)					Internal coolant	Weight (kg)	Z	Inserts
	DC	DCON	LF	LH	APMX				
ASM90-040-Z05-W32R-LN13-C	40	32	120	49	12		0.8	5	LN..1306..

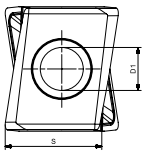
Note: With internal coolant
Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
∅40-315			3.5Nm
	SP040115	DT-TP15	

Wedge	Wedge wrench	Wedge screw	Cartridge	Cartridge wrench	Cartridge screw
					
AWG-6H-6	LT-H3	AWCH624	C-LN1342-62-90	LT-H5	ACH622

Compatible Inserts





Insert shape	Product code	Machining conditions: INSL	W1	S	RE	BS	D1	● Good Conditions ◐ General Conditions ✱ Bad Conditions: ●	◐	◐	◐	✱	●	●	●	●	✱
		Dimension (mm)						P			M		K			N	S
								AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
	**LNHU 130608ER-FM2**	13	6.8	10.1	0.8	2.5	4.5									●	
	**LNHU 130608ER-MM3**	13	6.8	10.1	0.8	2.5	4.5					●					
	**LNHU 130608ER-MM4**	13	6.8	10.15	0.8	2.5	4.5	●			●	●	●				
	**LNHU 130608ER-MR2**	13	6.8	10.15	0.8	2.5	4.5	●	●	●		●	●	●	●		
	LNHU 130612ER-MR2	13	6.8	10.09	1.2	2.1	4.5	●	●			●	●	●			
	LNHU 130616ER-MR2	13	6.8	10.04	1.6	1.8	4.5	●	●			●	●	●			
	LNHU 130620ER-MR2	13	6.8	9.98	2.0	1.4	4.5	●	●		●	●		●			
	LNHU 130624ER-MR2	13	6.8	9.93	2.4	0.9	4.5		●			●		●			
	LNHU 130631ER-MR2	13	6.8	9.84	3.1	0.3	4.5		●			●		●			
	**LNHU 1306PDR-W**	13	6.8	10.08	0.9	5.2	4.5	●					●				

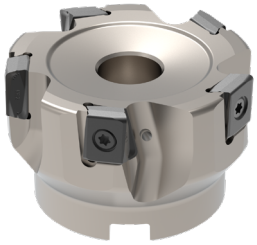
● : Standard stock ○ : Made-to-Order

Materials: ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	Cutting depth and feed: LN..1306.. ap (mm) min	ap (mm) max	Geometry MR2 fz (mm) min	MR2 fz (mm) max	Geometry MM4 fz (mm) min	MM4 fz (mm) max	Geometry FM2 fz (mm) min	FM2 fz (mm) max
P	Unalloyed steel	<600	<180	0.50	12.00	0.12	0.35	0.08	0.25	-	-
		<950	<280								
	Alloyed steel	700-950	200-280			0.10	0.30	0.06	0.20	-	-
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.08	0.25	0.06	0.20	-	-
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300								
K	Grey cast iron	700	220			0.12	0.35	0.08	0.28	-	-
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
N	Aluminum	260	75			-	-	-	-	0.06	0.25
	Aluminum alloy	447	130								
S	Fe-based alloy	943	280			-	-	0.08	0.15	-	-
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
H	Hardened steel	-	50-60HRC			-	-	-	-	-	-
	Chilled cast iron	-	55HRC								

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

ASM90-LN16

90° Approach angle square shoulder milling cutter



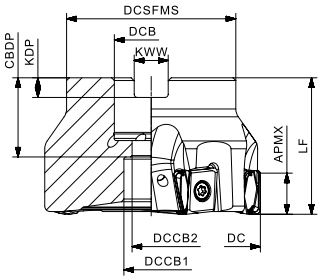


Fig. 1

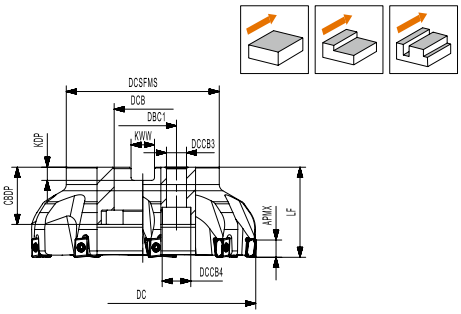
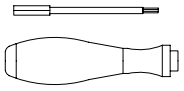


Fig. 2

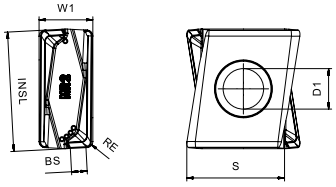
Product code	Dimension (mm)													Internal coolant	Weight (kg)	Z	Fig.	Inserts
	DC	DCSFMS	DCB	DBC1	DCCB1	DCCB2	DCCB3	DCCB4	LF	CBDP	KDP	KWW	APMX					
ASM90-063-Z04-A22R-LN16-C	63	52	22	-	18	11	-	-	40	26	6.5	10.4	15		0.6	4	1	LN..1607..
080-Z05-A27R-LN16-C	80	62	27	-	20	14	-	-	50	29	7.2	12.4	15		1.1	5		
100-Z06-A32R-LN16-C	100	80	32	-	26	18	-	-	50	32	8.2	14.4	15		2	6		
125-Z07-A40R-LN16-C	125	87	40	-	33	22	-	-	63	38	9.2	16.4	15		3.6	7		
160-Z08-A40R-LN16	160	107	40	66.7	-	-	14	20	63	30	9.2	16.4	15		4.6	8	2	

Note: With internal coolant

Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
∅63-160			5.0Nm
	ST05013063	DT-T20	

Compatible Inserts



Insert shape	Product code	INSL	W1	S	RE	BS	D1	P AP251U	P AP351U	P AC251P	M AP351M	M AP403M	K AP251K	K AC301K	K AC151K	N AW100K	S AP403S
		Machining conditions						● Good Conditions ◐ General Conditions ✱ Bad Conditions									
		Dimension (mm)						●	◐	◐	◐	✱	●	●	●	●	✱
								P			M		K			N	S
	**LNHU 160708ER-MR2**	16	7.2	13	0.8	1.9	5.4	●	●				●	●	●		
	LNHU 160716ER-MR2	16	7.2	13	1.6	1.5	5.4	●						●			

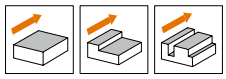
● : Standard stock ○ : Made-to-Order

ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	Cutting depth and feed: LN..1607.. ap (mm) min	ap (mm) max	Geometry MR2 fz (mm) min	fz (mm) max
P	Unalloyed steel	<600	<180	1.00	15.00	0.10	0.30
		<950	<280				
	Alloyed steel	700-950	200-280			0.08	0.28
		950-1200	280-355				
		1200-1400	355-415				
M	Duplex stainless steel	778	230			0.08	0.25
	Austenitic stainless steel	675	200				
	Precipitation-hardening stainless steel	1013	300				
K	Grey cast iron	700	220			0.10	0.30
	Nodular cast iron	880	260				
	Malleable cast iron	800	250				
N	Aluminum	260	75			-	-
	Aluminum alloy	447	130				
S	Fe-based alloy	943	280			-	-
	Co-based alloy	1076	320				
	Ni-based alloy	1177	350				
	Ti-alloy	1262	370				
H	Hardened steel	-	50-60HRC			-	-
	Chilled cast iron	-	55HRC				

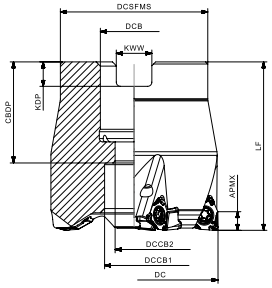
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

ASM90-WN04

90° Approach angle square shoulder milling cutter

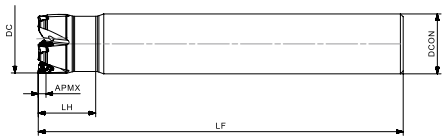






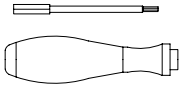
Product code	Dimension (mm)										Internal coolant	Weight (kg)	Z	Inserts
	DC	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX				
ASM90-040-Z05-A16R-WN04-C	40	35	16	14	9	40	24	5.8	8.4	4		0.3	5	WN..0403..



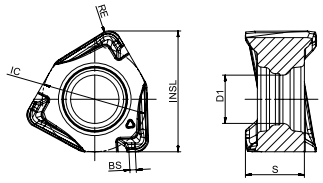


Product code	Dimension (mm)					Internal coolant	Weight (kg)	Z	Inserts
	DC	DCON	LF	LH	APMX				
ASM90-020-Z02-C20R-WN04-C	20	20	150	29	4		0.3	2	WN..0403..
025-Z04-C25R-WN04-C	25	25	170	35	4		0.6	4	
032-Z05-C32R-WN04-C	32	32	195	31	4		1.1	5	

Note: With internal coolant
Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
∅20-40			1.2Nm
	SP02506450H	DT-TP08	

Compatible Inserts



Insert shape	Product code	INSL	IC	S	RE	BS	D1	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP151H
		Dimension (mm)						P			M		K			N	H
		Machining conditions						●	◐	◐	◐	✱	●	●	●	●	●
								● Good Conditions ◐ General Conditions ✱ Bad Conditions									
	**WNGU 040308R-MM4**	7.7	6.7	3.8	0.8	0.4	3.0	●			●	●	●				

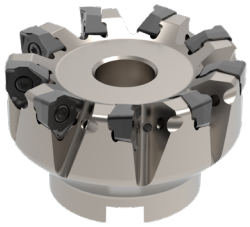
● : Standard stock ○ : Made-to-Order

Materials				Cutting depth and feed			
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	WN..0403..			
				ap		Geometry	
						MM4	
						fz	
				(mm)			
				min	max	min	max
P	Unalloyed steel	<600	<180	0.10	4.00	0.08	0.25
		<950	<280				
	Alloyed steel	700-950	200-280			0.06	0.22
		950-1200	280-355				
		1200-1400	355-415				
M	Duplex stainless steel	778	230			0.06	0.20
	Austenitic stainless steel	675	200				
	Precipitation-hardening stainless steel	1013	300				
K	Grey cast iron	700	220			0.08	0.25
	Nodular cast iron	880	260				
	Malleable cast iron	800	250				
N	Aluminum	260	75			0.06	0.30
	Aluminum alloy	447	130				
S	Fe-based alloy	943	280			-	-
	Co-based alloy	1076	320				
	Ni-based alloy	1177	350				
	Ti-alloy	1262	370				
H	Hardened steel	-	50-60HRC			-	-
	Chilled cast iron	-	55HRC				

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

ASM90-WN08

90° Approach angle square shoulder milling cutter



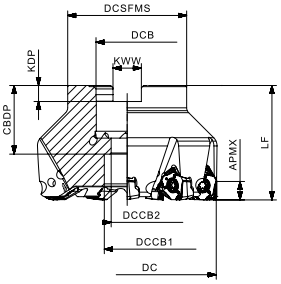


Fig. 1

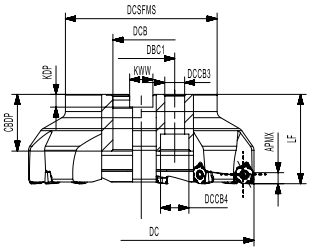
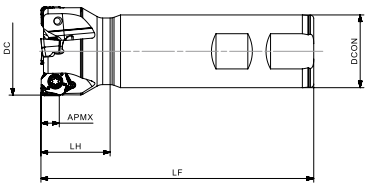


Fig. 2

Product code	Dimension (mm)													Internal coolant	Weight (kg)	Z	Fig.	Inserts
	DC	DCSFMS	DCB	DBC1	DCCB1	DCCB2	DCCB3	DCCB4	LF	CBDP	KDP	KWW	APMX					
ASM90-050-Z04-A22R-WN08-C	50	42	22	-	17	11	-	-	40	26	6.5	10.4	7	✓	0.4	4	1	WN..0806..
050-Z05-A22R-WN08-C	50	42	22	-	17	11	-	-	40	26	6.5	10.4	7	✓	0.3	5		
063-Z04-A22R-WN08-C	63	48	22	-	18	11	-	-	40	26	6.5	10.4	7	✓	0.6	4		
063-Z06-A22R-WN08-C	63	48	22	-	18	11	-	-	40	26	6.5	10.4	7	✓	0.6	6		
063-Z07-A22R-WN08-C	63	48	22	-	18	11	-	-	40	26	6.5	10.4	7	✓	0.6	7		
080-Z05-A27R-WN08-C	80	52	27	-	20	14	-	-	50	29	7.2	12.4	7	✓	1.1	5		
080-Z07-A27R-WN08-C	80	52	27	-	20	14	-	-	50	29	7.2	12.4	7	✓	1.1	7		
080-Z09-A27R-WN08-C	80	52	27	-	20	14	-	-	50	29	7.2	12.4	7	✓	1.1	9		
100-Z06-A32R-WN08-C	100	80	32	-	26	18	-	-	50	32	8.2	14.4	7	✓	2.0	6		
100-Z08-A32R-WN08-C	100	80	32	-	26	18	-	-	50	32	8.2	14.4	7	✓	2.0	8		
100-Z11-A32R-WN08-C	100	80	32	-	26	18	-	-	50	32	8.2	14.4	7	✓	2.0	11		
125-Z07-A40R-WN08-C	125	87	40	-	33	22	-	-	63	38	9.2	16.4	7	✓	3.5	7		
125-Z11-A40R-WN08-C	125	87	40	-	33	22	-	-	63	38	9.2	16.4	7	✓	3.5	11		
125-Z13-A40R-WN08-C	125	87	40	-	33	22	-	-	63	38	9.2	16.4	7	✓	3.5	13		
160-Z08-A40R-WN08	160	107	40	66.7	-	-	14	20	63	30	9.2	16.4	7	✗	4.7	8	2	
160-Z12-A40R-WN08	160	107	40	66.7	-	-	14	20	63	30	9.2	16.4	7	✗	4.3	12		
200-Z14-A60R-WN08	200	140	60	101.6	-	-	18	26	63	38	14.2	25.6	7	✗	6.7	14		
250-Z16-A60R-WN08	250	180	60	101.6	-	-	18	26	63	38	14.2	25.6	7	✗	11.6	16		

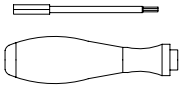




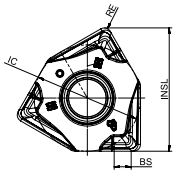
Product code	Dimension (mm)					Internal coolant	Weight (kg)	Z	Inserts
	DC	DCON	LF	LH	APMX				
ASM90-040-Z03-W32R-WN08-C	40	32	120	30	7	✓	0.7	3	WN..0806..
040-Z04-W32R-WN08-C	40	32	120	30	7	✓	0.7	4	

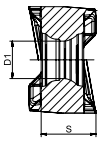
Note: ✓ With internal coolant

✗ Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
∅40-250			3.5Nm
	SP040090	DT-TP15	

Compatible Inserts





Insert shape	Product code	Machining conditions: INSL	IC	S	RE	BS	D1	● Good Conditions ◐ General Conditions ✱ Bad Conditions									
								●	◐	◐	◐	✱	●	●	●	●	●
		Dimension (mm)						P			M		K			N	H
								AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP151H
	**WNHU 080608R-FM2**	14.5	12.5	6.46	0.8	2.0	4.4									●	
	**WNGU 080604R-MM3**	14.6	12.5	6.44	0.4	2.2	4.4		●								
	WNGU 080608R-MM3	14.5	12.5	6.45	0.8	2.0	4.4	●	●			●	●		●		
	**WNGU 080604R-MM4**	14.6	12.5	6.44	0.4	2.2	4.4	●	●				●				
	WNGU 080608R-MM4	14.6	12.5	6.44	0.8	2.0	4.4	●	●	●			●	●	●		●
	WNGU 080612R-MM4	14.3	12.5	6.44	1.2	1.6	4.4	●	●								
	WNGU 080616R-MM4	14.2	12.5	6.44	1.6	1.2	4.4	●	●								
	**WNGU 080608R-MR2**	14.5	12.5	6.46	0.8	2.0	4.4	●				●	●	●	●		
	WNGU 080612R-MR2	14.3	12.5	6.46	1.2	1.6	4.4	●					●		●		
	WNGU 080616R-MR2	14.2	12.5	6.46	1.6	1.2	4.4	●					●		●		
	**WNHX 0806ZZR-W**	14.4	12.5	6.47	1.1	4.7	4.4	●						●			

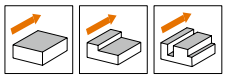
● : Standard stock ○ : Made-to-Order

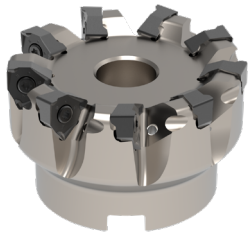
Materials				Cutting depth and feed							
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	WN..0806..							
				ap		Geometry					
						MR2		MM4		FM2	
						fz					
				(mm)							
				min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.20	7.00	0.12	0.30	0.08	0.25	-	-
		<950	<280								
	Alloyed steel	700-950	200-280			0.10	0.28	0.10	0.25	-	-
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.06	0.22	0.08	0.20	-	-
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300								
K	Grey cast iron	700	220			0.15	0.30	0.10	0.28	-	-
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
N	Aluminum	260	75			-	-	-	-	0.10	0.30
	Aluminum alloy	447	130								
S	Fe-based alloy	943	280			-	-	0.10	0.15	-	-
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
H	Hardened steel	-	50-60HRC			-	-	0.08	0.25	-	-
	Chilled cast iron	-	55HRC								

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

ASM90-WN08-N

90° Approach angle square shoulder milling cutter





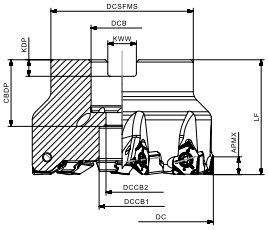


Fig. 1

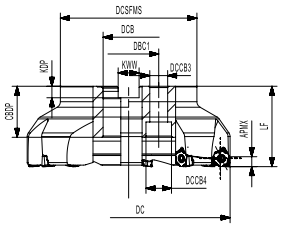
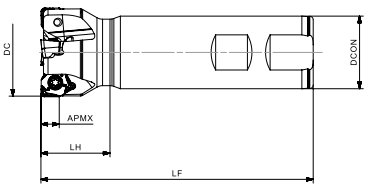


Fig. 2

Product code	Dimension (mm)												Internal coolant	Weight (kg)	Z	Fig.	Inserts
	DC	DCSFMS	DCB	DCCB1	DCCB2	DCCB3	DCCB4	LF	CBDP	KDP	KWW	APMX					
ASM90-050-Z04-A22R-WN08-N-C	50	42	22	18	11	-	-	40	26	6.5	10.4	7	✓	0.4	4	1	WNMU 0806..
050-Z05-A22R-WN08-N-C	50	42	22	18	11	-	-	40	26	6.5	10.4	7	✓	0.4	5		
063-Z04-A22R-WN08-N-C	63	48	22	18	11	-	-	40	26	6.5	10.4	7	✓	0.6	4		
063-Z06-A22R-WN08-N-C	63	48	22	18	11	-	-	40	26	6.5	10.4	7	✓	0.6	6		
063-Z07-A22R-WN08-N-C	63	48	22	18	11	-	-	40	26	6.5	10.4	7	✓	0.6	7		
080-Z05-A27R-WN08-N-C	80	62	27	20	14	-	-	50	29	7.2	12.4	7	✓	1.2	5		
080-Z07-A27R-WN08-N-C	80	62	27	20	14	-	-	50	29	7.2	12.4	7	✓	1.1	7		
080-Z09-A27R-WN08-N-C	80	62	27	20	14	-	-	50	29	7.2	12.4	7	✓	1.2	9		
100-Z06-A32R-WN08-N-C	100	80	32	26	18	-	-	50	32	8.2	14.4	7	✓	1.9	6		
100-Z08-A32R-WN08-N-C	100	80	32	26	18	-	-	50	32	8.2	14.4	7	✓	1.9	8		
100-Z11-A32R-WN08-N-C	100	80	32	26	18	-	-	50	32	8.2	14.4	7	✓	1.8	11		
125-Z07-A40R-WN08-N-C	125	87	40	33	22	-	-	63	38	9.2	16.4	7	✓	3.6	7		
125-Z11-A40R-WN08-N-C	125	87	40	33	22	-	-	63	38	9.2	16.4	7	✓	3.6	11		
125-Z13-A40R-WN08-N-C	125	87	40	33	22	-	-	63	38	9.2	16.4	7	✓	3.5	13		
160-Z08-A40R-WN08-N	160	107	40	-	-	14	20	63	30	9.2	16.4	7	✗	4.4	8	2	
160-Z12-A40R-WN08-N	160	107	40	-	-	14	20	63	30	9.2	16.4	7	✗	4.3	12		
200-Z14-A60R-WN08-N	200	140	60	-	-	18	27	63	45	14.2	25.6	7	✗	6.4	14		
250-Z16-A60R-WN08-N	250	180	60	-	-	18	27	63	45	14.2	25.6	7	✗	11.9	16		

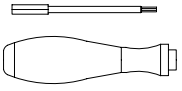




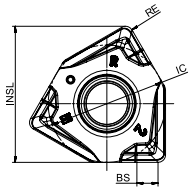
Product code	Dimension (mm)					Internal coolant	Weight (kg)	Z	Inserts
	DC	DCON	LF	LH	APMX				
ASM90-040-Z03-W32R-WN08-N-C	40	32	120	30	7	✓	0.7	3	WNMU 0806..
040-Z04-W32R-WN08-N-C	40	32	120	30	7	✓	0.7	4	

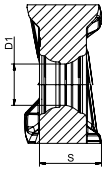
Note: ✓ With internal coolant

✗ Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
∅40-250			3.5Nm
	SP040112	DT-TP15	

Compatible Inserts





Insert shape	Product code	Machining conditions: Dimension (mm) INSL	IC	S	RE	BS	D1	● Good Conditions ◐ General Conditions ✱ Bad Conditions									
								P			M		K			N	H
								AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP151H
	**WNMU 080608R-MM3**	14.5	12.5	6.58	0.8	2.2	4.4	●		○	●	●	●				
	**WNMU 080608R-MM4**	14.5	12.5	6.58	0.8	2.2	4.4	●	○	●	●	●	●	○			
	WNMU 080612R-MM4	14.3	12.5	6.47	1.2	1.2	4.4	●			●	●	●		●		
	WNMU 080616R-MM4	14.3	12.5	6.50	1.6	0.8	4.4	●			●	●	●		●		
	**WNMU 080608R-MR2**	14.5	12.5	6.60	0.8	2.2	4.4	●	○		●	●	●	○			
	WNMU 080612R-MR2	14.3	12.5	6.47	1.2	1.2	4.4	●			●	●	●				
	WNMU 080616R-MR2	14.3	12.5	6.50	1.6	0.8	4.4	●				●	●		●		

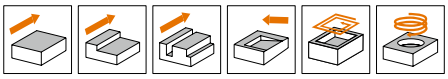
● : Standard stock ○ : Made-to-Order

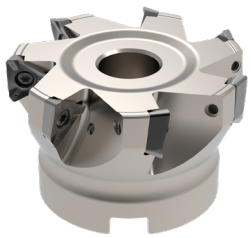
Materials				Cutting depth and feed							
				WNMU 0806..							
				ap		Geometry					
						MR2		MM4		MM3	
						fz					
						(mm)					
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.6	7.00	0.08	0.28	0.08	0.25	0.12	0.25
		<950	<280								
	Alloyed steel	700-950	200-280			0.06	0.22	0.06	0.20	0.10	0.20
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.06	0.22	0.06	0.20	0.10	0.18
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300								
K	Grey cast iron	700	220			0.08	0.30	0.08	0.28	-	-
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
N	Aluminum	260	75			-	-	-	-	-	-
	Aluminum alloy	447	130								
S	Fe-based alloy	943	280			-	-	0.08	0.15	-	-
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
H	Hardened steel	-	50-60HRC			-	-	-	-	-	-
	Chilled cast iron	-	55HRC								

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

ASM90-TD15

90° Approach angle square shoulder milling cutter





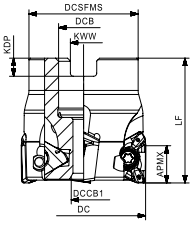


Fig. 1

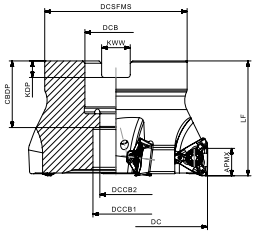


Fig. 2

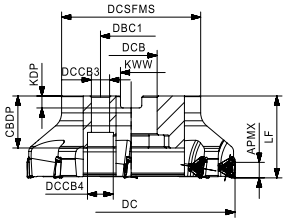


Fig. 3

Product code	Dimension (mm)													Internal coolant	Weight (kg)	Z	Fig.	Inserts
	DC	DCSFMS	DCB	DBC1	DCCB1	DCCB2	DCCB3	DCCB4	LF	CBDP	KDP	KWW	APMX					
ASM90-040-Z04-A16R-TD15-C	40	35	16	-	M8	-	-	-	40	-	5.8	8.4	11	✓	0.2	4	1	TD..1505..
050-Z04-A22R-TD15-C	50	46	22	-	18	11	-	-	40	26	6.5	10.4	11	✓	0.4	4	2	
050-Z05-A22R-TD15-C	50	46	22	-	18	11	-	-	40	26	6.5	10.4	11	✓	0.3	5		
063-Z04-A22R-TD15-C	63	48	22	-	18	11	-	-	40	26	6.5	10.4	11	✓	0.5	4		
063-Z05-A22R-TD15-C	63	48	22	-	18	11	-	-	40	26	6.5	10.4	11	✓	0.5	5		
063-Z06-A22R-TD15-C	63	48	22	-	18	11	-	-	40	26	6.5	10.4	11	✓	0.5	6		
080-Z05-A27R-TD15-C	80	62	27	-	20	14	-	-	50	29	7.2	12.6	11	✓	1.1	5		
080-Z06-A27R-TD15-C	80	62	27	-	20	14	-	-	50	29	7.2	12.6	11	✓	1.1	6		
080-Z07-A27R-TD15-C	80	62	27	-	20	14	-	-	50	29	7.2	12.6	11	✓	1.1	7		
100-Z06-A32R-TD15-C	100	78	32	-	26	18	-	-	50	32	8.2	14.4	11	✓	1.8	6		
100-Z08-A32R-TD15-C	100	78	32	-	26	18	-	-	50	32	8.2	14.4	11	✓	1.8	8		
125-Z07-A40R-TD15-C	125	90	40	-	33	22	-	-	63	38	9.2	16.4	11	✓	3.2	7		
125-Z09-A40R-TD15-C	125	90	40	-	33	22	-	-	63	38	9.2	16.4	11	✓	3.3	9		
160-Z08-A40R-TD15	160	107	40	66.7	-	-	14	20	63	30	9.2	16.4	11	✗	4.2	8	3	
160-Z10-A40R-TD15	160	107	40	66.7	-	-	14	20	63	30	9.2	16.4	11	✗	4.2	10		
200-Z09-A60R-TD15	200	130	60	101.6	-	-	18	27	63	48	14.2	25.6	11	✗	6.4	9		
250-Z11-A60R-TD15-M	250	180	60	101.6	-	-	18	27	63	45	14.2	25.6	11	✗	14.6	11		

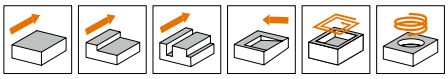
Note: ASM90-040-204-A16R-TD15-C is connected with dowel screws.

Note: ✓ With internal coolant

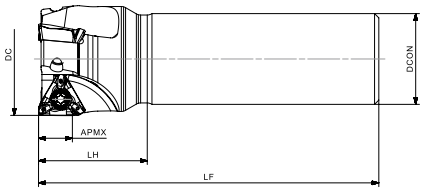
✗ Without internal coolant

ASM90-TD15

90° Approach angle square shoulder milling cutter



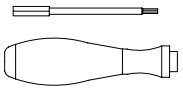




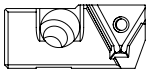
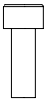
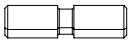
Product code	Dimension (mm)					Internal coolant	Weight (kg)	Z	Inserts
	DC	DCON	LF	LH	APMX				
ASM90-032-Z02-C32R-TD15-C	32	32	110	36	11		0.6	2	TD..1505..
032-Z02-C32R-TD15-L200-C	32	32	200	36	11		1.1	2	
040-Z03-C32R-TD15-C	40	32	120	38	11		0.7	3	
040-Z03-C32R-TD15-L200-C	40	32	200	38	11		1.2	3	

Note: When the inserts' nose radius R ≥ 3.1mm, the cutters' nose area must be ground.
For R3.1 inserts, grind the tool body's nose area to R2.0mm.
For R4.0 inserts, grind the tool body's nose area to R4.0mm.

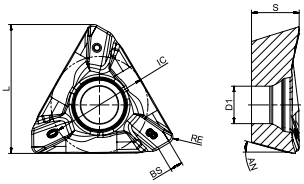
Note: With internal coolant
Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
∅32-250			3.5Nm
	SP040100H	DT-TP15	

Wedge	Wedge screw wrench	Wedge screw	Dowel screw wrench
			
AWG-6H-6	LT-H3	AWCH624	LT-H4

Cartridge	Cartridge screw wrench	Cartridge screw	Dowel screw
			
C-TD1540-62-90	LT-H5	ACH622	WD080300

Compatible Inserts



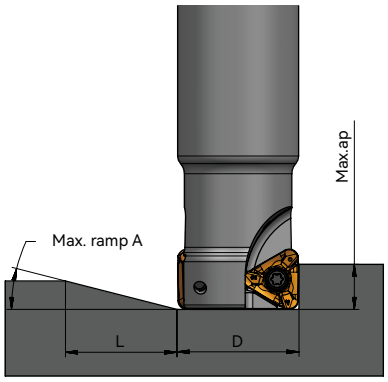
Insert shape	Product code	Machining conditions: Dimension (mm) L	IC	S	RE	BS	D1	AN	● Good Conditions ⊕ General Conditions ✱ Bad Conditions: P AP251U	P AP351U	P AC251P	M AP351M	M AP403M	K AP251K	K AC301K	K AC151K	N AW100K	S AP403S
	**TDHT 150508R-FM2**	15.4	11.4	5.56	0.8	1.6	4.4	15°									●	
	**TDMT 150508R-MM3**	15.1	11.4	5.56	0.8	1.5	4.4	15°	●			●	●					
	TDHT 150508R-MM3	15.1	11.4	5.56	0.8	1.5	4.4	15°	●			●	●	●				●
	**TDMT 150508R-MM4**	15.1	11.4	5.6	0.8	1.5	4.4	15°	●		●	●	●	●	●			
	TDHT 150508R-MM4	15.1	11.4	5.6	0.8	1.5	4.4	15°	●	●			●	●				
	TDMT 150512R-MM4	15.0	11.4	5.6	1.2	1.0	4.4	15°	●			●	●	●	●			
	TDMT 150516R-MM4	14.9	11.4	5.6	1.6	0.9	4.4	15°	●			●	●	●	●			
	TDMT 150520R-MM4	14.7	11.4	5.6	2.0	0.7	4.4	15°					●					
	TDMT 150524R-MM4	14.6	11.4	5.6	2.4	0.6	4.4	15°					●					
	TDMT 150531R-MM4	14.1	11.4	5.56	3.1	0.4	4.4	15°					●					
	TDMT 150540R-MM4	13.4	11.4	5.56	4.0	0.4	4.4	15°					●					

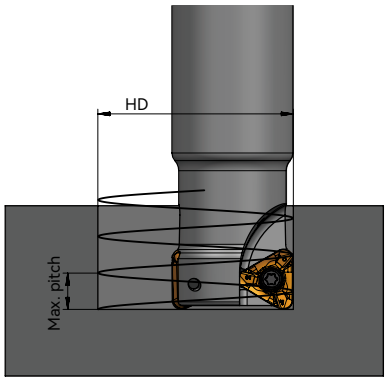
● : Standard stock ○ : Made-to-Order

Materials: ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	Cutting depth and feed: TD.. 1505.. ap min (mm)	ap max (mm)	Geometry MM4 fz min (mm)	MM4 fz max (mm)	MM3 fz min (mm)	MM3 fz max (mm)	FM2 fz min (mm)	FM2 fz max (mm)
P	Unalloyed steel	<600	<180	0.30	11.00	0.08	0.28	0.08	0.25	-	-
		<950	<280								
	Alloyed steel	700-950	200-280			0.06	0.22	0.06	0.20	-	-
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.06	0.22	0.06	0.20	-	-
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300								
K	Grey cast iron	700	220			0.08	0.30	0.08	0.28	-	-
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
N	Aluminum	260	75			-	-	-	-	0.06	0.35
	Aluminum alloy	447	130								
S	Fe-based alloy	943	280			0.08	0.15	0.08	0.15	-	-
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
H	Hardened steel	-	50-60HRC			-	-	-	-	-	-
	Chilled cast iron	-	55HRC								

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

TD15 Milling Cutter Series

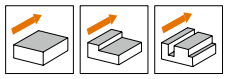


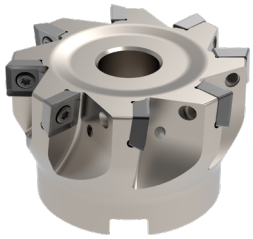


Cutter diameter (D)	Straight Ramping			Circular interpolate milling		
	Max. ramp-A	Min. length-L (mm)	Max.ap (mm)	Min. Dia. (HD)	Max. Dia. (HD)	Max. pitch (rev)
32	1.4°	479	11	53.5		1.4
					64	2.1
40	1.0°	633	11	70.1		1.5
					80	1.3
50	0.8°	824	11	90.1		1.5
					100	1.9
63	0.6°	1073	11	116.1		1.5
					126	1.8
80	0.5°	1399	11	150.3		1.5
					160	1.8
100	0.3°	2144	11	190.5		1.3
					200	1.4
125	0.3°	2262	11	240.3		1.6
					250	1.7
160	0.2°	2933	11	310.3		1.6
					320	1.7
200	0.2°	3692	11	390.3		1.6
					400	1.7

ASM90-SO12

90° Approach angle square shoulder milling cutter





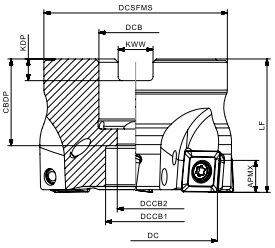


Fig. 1

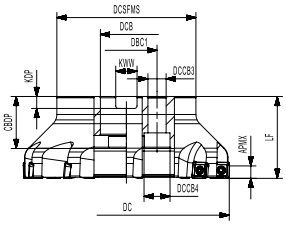
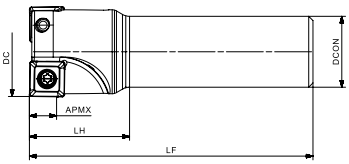


Fig. 2

Product code	Dimension (mm)													Internal coolant	Weight (kg)	Z	Fig.	Inserts
	DC	DCSFMS	DCB	DBC1	DCCB1	DCCB2	DCCB3	DCCB4	LF	CBDP	KDP	KWW	APMX					
ASM90-050-Z04-A22R-SO12-C	50	45	22	-	18	11	-	-	40	26	6.5	10.4	9	✓	0.3	4	1	SO..1204..
050-Z05-A22R-SO12-C	50	45	22	-	18	11	-	-	40	26	6.5	10.4	9	✓	0.3	5		
063-Z05-A22R-SO12-C	63	55	22	-	18	11	-	-	40	26	6.5	10.4	9	✓	0.5	5		
063-Z06-A22R-SO12-C	63	55	22	-	18	11	-	-	40	26	6.5	10.4	9	✓	0.5	6		
080-Z06-A27R-SO12-C	80	62	27	-	20	14	-	-	50	29	7.2	12.4	9	✓	1.1	6		
080-Z08-A27R-SO12-C	80	62	27	-	20	14	-	-	50	29	7.2	12.4	9	✓	1.1	8		
100-Z05-A32R-SO12-C	100	80	32	-	26	18	-	-	50	32	8.2	14.4	9	✓	1.7	5		
100-Z07-A32R-SO12-C	100	80	32	-	26	18	-	-	50	32	8.2	14.4	9	✓	1.7	7		
100-Z10-A32R-SO12-C	100	80	32	-	26	18	-	-	50	32	8.2	14.4	9	✓	1.8	10		
125-Z08-A40R-SO12-C	125	90	40	-	33	22	-	-	63	38	9.2	16.4	9	✓	3.3	8		
125-Z12-A40R-SO12-C	125	90	40	-	33	22	-	-	63	38	9.2	16.4	9	✓	3.5	12		
160-Z12-A40R-SO12	160	107	40	66.7	-	-	14	20	63	30	9.2	16.4	9	✗	4.0	12	2	
160-Z15-A40R-SO12	160	107	40	66.7	-	-	14	20	63	30	9.2	16.4	9	✗	4.0	15		
200-Z16-A60R-SO12	200	130	60	101.6	-	-	18	27	63	48	14.2	25.6	9	✗	6.8	16		
250-Z18-A60R-SO12	250	180	60	101.6	-	-	18	27	63	48	14.2	25.6	9	✗	12.8	18		





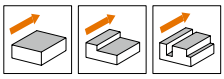
Product code	Dimension (mm)					Internal coolant	Weight (kg)	Z	Inserts
	DC	DCON	LF	LH	APMX				
ASM90-032-Z02-C25R-SO12-L100-C	32	25	100	35	9	✓	0.4	2	SO..1204..
032-Z03-C32R-SO12-L130-C	32	32	130	29	9	✓	0.7	3	
040-Z03-C32R-SO12-L170-C	40	32	170	36	9	✓	1.0	3	
050-Z03-C32R-SO12-L120-C	50	32	120	37	9	✓	0.8	3	
050-Z04-C32R-SO12-L120-C	50	32	120	37	9	✓	0.8	4	

Note: ✓ With internal coolant

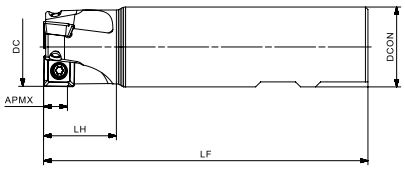
✗ Without internal coolant

ASM90-SO12

90° Approach angle square shoulder milling cutter

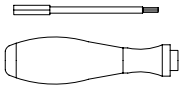




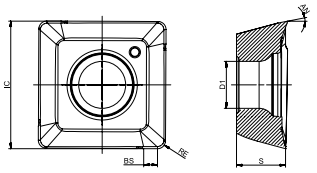


Product code	Dimension (mm)					Internal coolant	Weight (kg)	Z	Inserts
	DC	DCON	LF	LH	APMX				
ASM90-032-Z03-W32R-SO12-L130-C	32	32	130	29	9	✓	0.7	3	SO..1204..
040-Z04-W32R-SO12-L110-C	40	32	110	36	9	✓	0.7	4	

Note: With internal coolant
Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
⌀32-250			3.5Nm
	SP040112	DT-TP15	

Compatible Inserts



Insert shape	Product code	IC	S	RE	BS	D1	AN	Machining conditions: ● Good Conditions ◐ General Conditions ✱ Bad Conditions									
		Dimension (mm)						P			M		K			S	H
								AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AP403S	AP151H
	**SOMT 120408PDER-MM4**	12.46	4.8	0.8	1.3	4.6	15°	●		●	●	●	●		●	●	

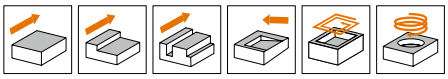
● : Standard stock ○ : Made-to-Order

ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	Cutting depth and feed: SO..1204.. ap (mm) min	ap (mm) max	Geometry MM4 fz (mm) min	fz (mm) max
P	Unalloyed steel	<600	<180	0.50	9.00	0.08	0.25
		<950	<280				
	Alloyed steel	700-950	200-280			0.06	0.22
		950-1200	280-355				
		1200-1400	355-415				
M	Duplex stainless steel	778	230			0.06	0.20
	Austenitic stainless steel	675	200				
	Precipitation-hardening stainless steel	1013	300				
K	Grey cast iron	700	220			0.08	0.25
	Nodular cast iron	880	260				
	Malleable cast iron	800	250				
N	Aluminum	260	75			-	-
	Aluminum alloy	447	130				
S	Fe-based alloy	943	280			0.06	0.18
	Co-based alloy	1076	320				
	Ni-based alloy	1177	350				
	Ti-alloy	1262	370				
H	Hardened steel	-	50-60HRC			-	-
	Chilled cast iron	-	55HRC				

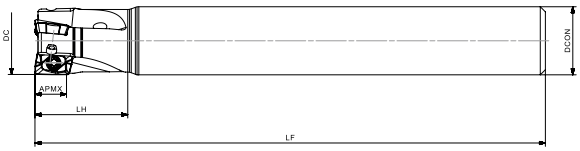
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

ASM90-AO06

90° Approach angle square shoulder milling cutter

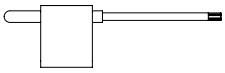




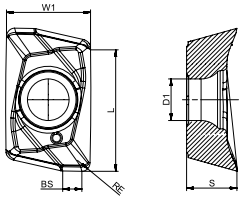


Product code	Dimension (mm)					Internal coolant	Weight (kg)	Z	Inserts
	DC	DCON	LF	LH	APMX				
ASM90-010-Z02-C10R-AO06-L060-C	10	10	60	18	5		0.1	2	AO..0602..
010-Z02-C10R-AO06-L100-C	10	10	100	32	5		0.1	2	
012-Z03-C12R-AO06-L070-C	12	12	70	17	5		0.1	3	
012-Z03-C12R-AO06-L120-C	12	12	120	32	5		0.1	3	
014-Z03-C16R-AO06-L100-C	14	16	100	34	5		0.1	3	
016-Z04-C16R-AO06-L090-C	16	16	90	32	5		0.1	4	
016-Z03-C16R-AO06-L150-C	16	16	150	32	5		0.2	3	
020-Z05-C20R-AO06-L100-C	20	20	100	32	5		0.2	5	
020-Z04-C20R-AO06-L150-C	20	20	150	32	5		0.3	4	
025-Z05-C25R-AO06-L100-C	25	25	100	32	5		0.3	5	

Note: With internal coolant
Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
∅10-25			0.3Nm
	SP01803655	FT-TP05	

Compatible Inserts

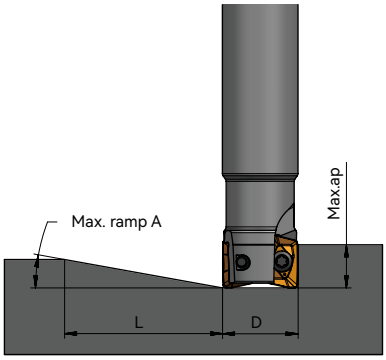


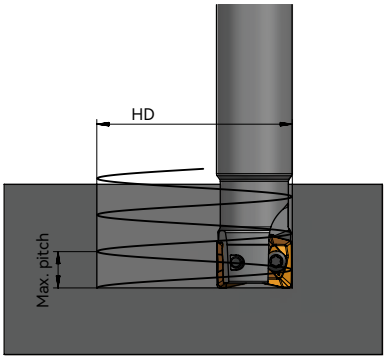
Insert shape	Product code	Machining conditions							● Good Conditions ⊕ General Conditions ✱ Bad Conditions									
									●	⊕	⊕	⊕	✱	●	●	●	✱	●
		Dimension (mm)							P			M		K			S	H
		L	W1	S	RE	BS	D1	AN	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AP403S	AP151H
	**AOMT 060204ER-MM3**	5.8	4.1	2.45	0.4	0.9	2.0	15°	●			●	●				●	
	AOMT 060208ER-MM3	5.8	4.1	2.45	0.8	0.5	2.0	15°	●			●	●				●	

● : Standard stock ○ : Made-to-Order

Materials				Cutting depth and feed			
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	AO..0602..			
				ap		Geometry	
						MM3	
						fz	
				(mm)			
				min	max	min	max
P	Unalloyed steel	<600	<180	0.10	5.00	0.08	0.25
		<950	<280				
	Alloyed steel	700-950	200-280			0.06	0.22
		950-1200	280-355				
		1200-1400	355-415				
M	Duplex stainless steel	778	230			0.06	0.20
	Austenitic stainless steel	675	200				
	Precipitation-hardening stainless steel	1013	300				
K	Grey cast iron	700	220			0.08	0.25
	Nodular cast iron	880	260				
	Malleable cast iron	800	250				
N	Aluminum	260	75			-	-
	Aluminum alloy	447	130				
S	Fe-based alloy	943	280			0.06	0.18
	Co-based alloy	1076	320				
	Ni-based alloy	1177	350				
	Ti-alloy	1262	370				
H	Hardened steel	-	50-60HRC			-	-
	Chilled cast iron	-	55HRC				

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

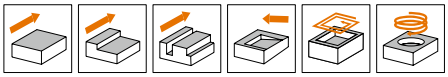


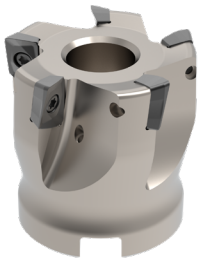


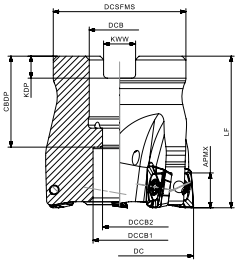
Cutter diameter (D)	Straight Ramping			Circular interpolate milling		
	Max. ramp-A	Min. length-L (mm)	Max.ap (mm)	Min. Dia. (HD)	Max. Dia. (HD)	Max. pitch (rev)
10	3.8°	84	5.0	12.2		0.4
					20	1.8
12	3.6°	89.6	5.0	16.2		0.7
					24	2
14	2.9°	112	5.0	20.2		0.8
					28	1.9
16	1.9°	168	5.0	24.2		0.7
					32	1.4
20	1.4°	224	5.0	32.2		0.8
					40	1.3
25	1.1°	294	5.0	42.2		0.9
					50	1.3

ASM90-AO10

90° Approach angle square shoulder milling cutter

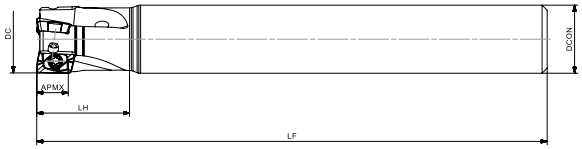






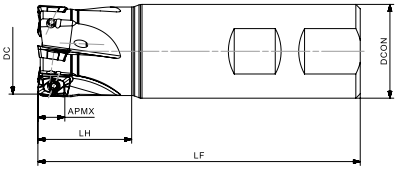
Product code	Dimension (mm)										Internal coolant	Weight (kg)	Z	Inserts
	DC	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX				
ASM90-040-Z05-A16R-AO10-C	40	35	16	14	9	40	24	5.8	8.4	9	✓	0.2	5	AO..10T3..





Product code	Dimension (mm)					Internal coolant	Weight (kg)	Z	Inserts
	DC	DCON	LF	LH	APMX				
ASM90-016-Z02-C16R-AO10-L130-C	16	16	130	24	9	✓	0.2	2	AO..10T3..
020-Z03-C20R-AO10-L150-C	20	20	150	28	9	✓	0.4	3	

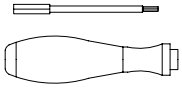




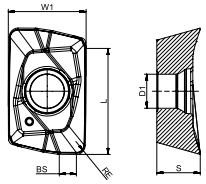
Product code	Dimension (mm)					Internal coolant	Weight (kg)	Z	Inserts
	DC	DCON	LF	LH	APMX				
ASM90-025-Z04-W25R-AO10-C	25	25	100	32.5	9	✓	0.4	4	AO..10T3..
032-Z05-W32R-AO10-C	32	32	110	32.5	9	✓	0.6	5	

Note: ✓ With internal coolant

✗ Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
∅16-40			1.2Nm
	SP02506450H	DT-TP08	

Compatible Inserts

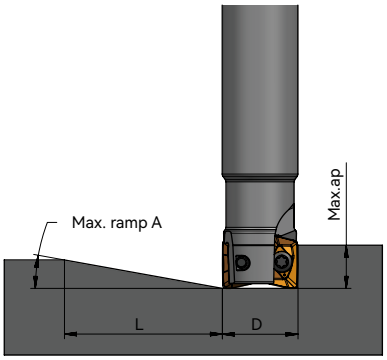


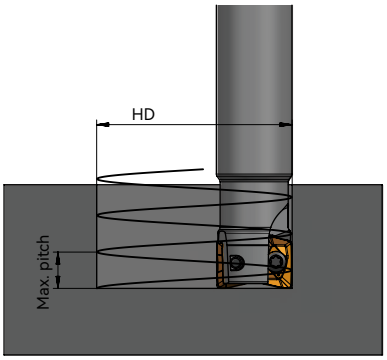
Insert shape	Product code	L	W1	S	RE	BS	D1	AN	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AP403S	AP151H
		Machining conditions							● Good Conditions ◐ General Conditions ✱ Bad Conditions									
		Dimension (mm)							P			M		K			S	H
	**AOMT 10T308ER-MM4**	9.3	6.85	3.83	0.8	1.5	3.0	15°	●			●					●	●
	AOMT 10T316ER-MM4	9.3	6.85	3.83	1.6	1.2	3.0	15°				●	●				●	
	AOMT 10T331ER-MM4	9.4	6.85	3.83	3.1	-	3.0	15°		○							●	

● : Standard stock ○ : Made-to-Order

ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	Cutting depth and feed			
				AO..10T3..			
				ap		Geometry MM4 fz	
				(mm)			
				min	max	min	max
P	Unalloyed steel	<600	<180	0.10	9.00	0.08	0.25
		<950	<280				
	Alloyed steel	700-950	200-280			0.06	0.22
		950-1200	280-355				
		1200-1400	355-415				
M	Duplex stainless steel	778	230			0.06	0.20
	Austenitic stainless steel	675	200				
	Precipitation-hardening stainless steel	1013	300				
K	Grey cast iron	700	220			0.08	0.25
	Nodular cast iron	880	260				
	Malleable cast iron	800	250				
N	Aluminum	260	75			-	-
	Aluminum alloy	447	130				
S	Fe-based alloy	943	280			0.06	0.18
	Co-based alloy	1076	320				
	Ni-based alloy	1177	350				
	Ti-alloy	1262	370				
H	Hardened steel	-	50-60HRC			-	-
	Chilled cast iron	-	55HRC				

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

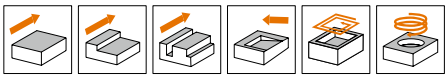


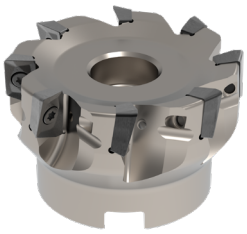


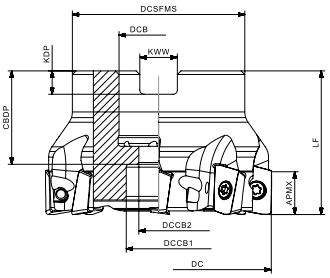
Cutter diameter (D)	Straight Ramping			Circular interpolate milling		
	Max. ramp-A	Min. length-L (mm)	Max.ap (mm)	Min. Dia. (HD)	Max. Dia. (HD)	Max. pitch (rev)
16	5.0°	103.5	9	18.6		0.6
					32	3.7
20	3.5°	148.5	9	26.6		1.1
					40	3.2
25	1.9°	273	9	36.6		1
					50	2.2
32	1.4°	378	9	50.6		1.2
					64	2
40	1.0°	498	9	66.6		1.3
					80	1.9

ASM90-AO12

90° Approach angle square shoulder milling cutter

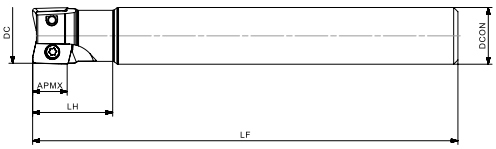






Product code	Dimension (mm)										Internal coolant	Weight (kg)	Z	Inserts
	DC	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX				
ASM90-040-Z04-A16R-AO12-C	40	35	16	14	9	40	24	5.8	8.4	10	●	0.2	4	AO..1204..
050-Z05-A22R-AO12-C	50	42	22	18	11	40	26	6.5	10.4	10	●	0.3	5	
050-Z07-A22R-AO12-C	50	42	22	18	11	40	26	6.5	10.4	10	●	0.3	7	
063-Z06-A22R-AO12-C	63	48	22	18	11	40	26	6.5	10.4	10	●	0.5	6	
063-Z08-A22R-AO12-C	63	48	22	18	11	40	26	6.5	10.4	10	●	0.5	8	
080-Z07-A27R-AO12-C	80	62	27	20	14	50	29	7.2	12.4	10	●	1.2	7	
080-Z10-A27R-AO12-C	80	62	27	20	14	50	29	7.2	12.4	10	●	1.1	10	



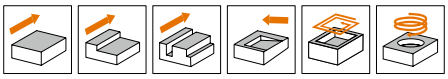


Product code	Dimension (mm)					Internal coolant	Weight (kg)	Z	Inserts
	DC	DCON	LF	LH	APMX				
ASM90-020-Z02-C20R-AO12-L150-C	20	20	150	28	10	●	0.3	2	AO..1204..
025-Z03-C25R-AO12-L170-C	25	25	170	33	10	●	0.6	3	
032-Z04-C32R-AO12-L250-C	32	32	250	35	10	●	1.4	4	

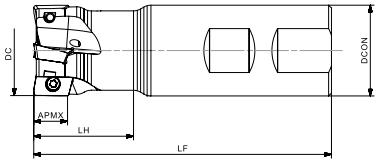
Note: ● With internal coolant
○ Without internal coolant

ASM90-AO12

90° Approach angle square shoulder milling cutter

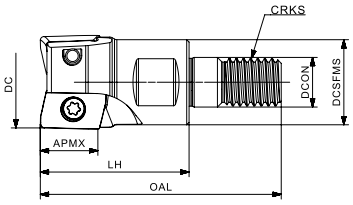






Product code	Dimension (mm)					Internal coolant	Weight (kg)	Z	Inserts
	DC	DCON	LF	LH	APMX				
ASM90-020-Z02-W20R-AO12-C	20	20	85	28.5	10		0.2	2	AO..1204..
025-Z03-W20R-AO12-C	25	20	95	33	10		0.2	3	
032-Z04-W32R-AO12-C	32	32	105	36.5	10		0.5	4	
040-Z04-W32R-AO12-C	40	32	120	43	10		0.7	4	

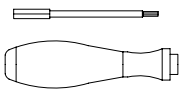




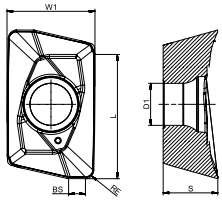
Product code	Dimension (mm)							Internal coolant	Weight (kg)	Z	Inserts
	DC	DCSFMS	DCON	OAL	LF	CRKS	APMX				
ASM90-020-Z02-M10R-AO12-C	20	18	10.5	51	31.5	M10	10		0.1	2	AO..1204..
025-Z03-M12R-AO12-C	25	23	12.5	59	37	M12	10		0.1	3	
032-Z04-M16R-AO12-C	32	29	17	72	48	M16	10		0.2	4	
035-Z04-M16R-AO12-C	35	29	17	72	48	M16	10		0.3	4	

Note: When the inserts' nose radius R ≥ 2.4mm, the cutters' nose area must be ground.
For R2.4 inserts, grind the tool body's nose area to R1.5mm.
For R3.1 inserts, grind the tool body's nose area to R2.0mm.
For R4.0 inserts, grind the tool body's nose area to R3.0mm.

Note: With internal coolant
Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
∅20-35			4.0Nm
	SP035078	DT-TP10	
∅40-80	SP035086		

Compatible Inserts

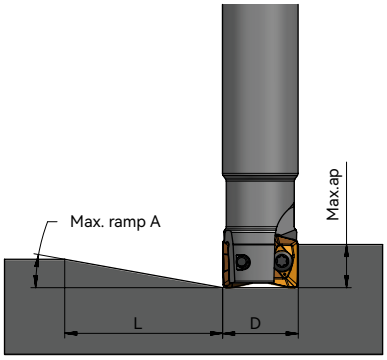


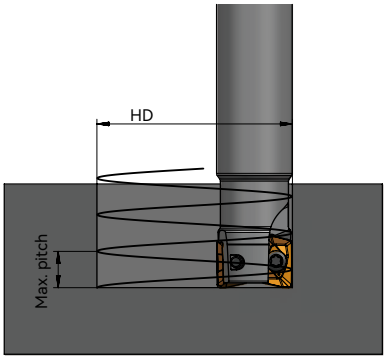
Insert shape	Product code	Machining conditions: Dimension (mm) L	W1	S	RE	BS	D1	AN	● Good Conditions ◐ General Conditions ✱ Bad Conditions: P AP251U	P AP351U	P AC251P	M AP351M	M AP403M	K AP251K	K AC301K	K AC151K	N AW100K	S AP403S
	**AOHT 120408ER-FM2**	11.3	8.15	5.07	0.8	1.5	3.9	15°									●	
	**AOHT 120404ER-MM3**	11.3	8.15	5.07	0.4	1.9	3.9	15°	●			●	●					●
	AOHT 120408ER-MM3	11.3	8.15	5.07	0.8	1.5	3.9	15°	●			●	●	●				●
	AOMT 120408ER-MM3	11.3	8.15	5.07	0.8	1.4	3.9	15°	●			●	●	●				●
	**AOMT 120404ER-MM4**	11.5	8.15	5.07	0.4	1.9	3.9	15°	●			●	●	●				●
	AOMT 120408ER-MM4	11.5	8.15	5.07	0.8	1.5	3.9	15°	●	●		●	●	●				●
	AOMT 120412ER-MM4	11.5	8.15	5.07	1.2	1.2	3.9	15°				●	●					●
	AOMT 120416ER-MM4	11.3	8.15	5.07	1.6	1.2	3.9	15°				●	●					●
	AOMT 120420ER-MM4	11.2	8.15	5.07	2.0	1.0	3.9	15°	●			●	●					●
	AOMT 120424ER-MM4	11.0	8.15	5.07	2.4	0.9	3.9	15°	●			●	●					●
	AOMT 120431ER-MM4	10.9	8.15	5.07	3.1	0.6	3.9	15°	●			●	●					●
	AOMT 120440ER-MM4	10.6	8.15	5.07	4.0	0.8	3.9	15°				●	●					●

● : Standard stock ○ : Made-to-Order

Materials: ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	Cutting depth and feed: AO..1204.. ap min	ap max	Geometry MM4 fz min (mm)	MM4 max	MM3 min	MM3 max	FM2 min	FM2 max
P	Unalloyed steel	<600	<180	0.10	10.00	0.08	0.28	0.08	0.25	-	-
		<950	<280								
	Alloyed steel	700-950	200-280			0.06	0.22	0.06	0.20	-	-
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.06	0.22	0.06	0.20	-	-
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300								
K	Grey cast iron	700	220			0.08	0.30	0.08	0.28	-	-
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
N	Aluminum	260	75			-	-	-	-	0.06	0.35
	Aluminum alloy	447	130								
S	Fe-based alloy	943	280			0.08	0.15	0.08	0.15	-	-
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
H	Hardened steel	-	50-60HRC			-	-	-	-	-	-
	Chilled cast iron	-	55HRC								

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

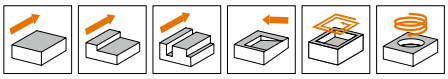


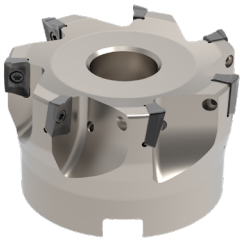


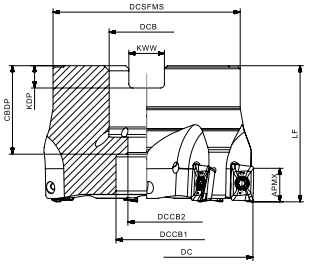
Cutter diameter (D)	Straight Ramping			Circular interpolate milling		
	Max. ramp-A	Min. length-L (mm)	Max.ap (mm)	Min. Dia. (HD)	Max. Dia. (HD)	Max. pitch (rev)
20	5.3	119.6	10	25		1.2
					40	4.9
25	3.6	175.6	10	35		1.7
					50	4.2
32	1.7	378.0	10	49		1.3
					64	2.5
35	1.5	424.5	10	55		1.4
					70	2.4
40	1.3	468.9	10	65		1.6
					80	2.5
50	1.3	501.5	10	85		2.0
					100	2.9
63	0.9	708.6	10	111		2.0
					126	2.6
80	0.7	875.2	10	145		2.2
					160	2.7

ASM90-AP10

90° Approach angle square shoulder milling cutter

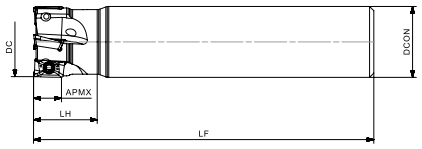






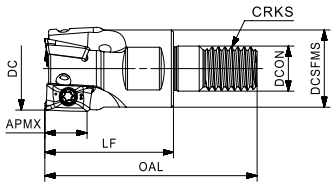
Product code	Dimension (mm)										Internal coolant	Weight (kg)	Z	Inserts
	DC	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX				
ASM90-040-Z06-A16R-AP10-C	40	35	16	14	9	40	24	5.8	8.4	9	●	0.2	6	AP..1003..
050-Z07-A22R-AP10-C	50	45	22	18	11	40	26	6.5	10.4	9	●	0.3	7	
063-Z07-A22R-AP10-C	63	55	22	18	11	40	26	6.5	10.4	9	●	0.6	7	





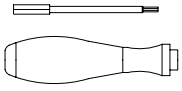
Product code	Dimension (mm)					Internal coolant	Weight (kg)	Z	Inserts
	DC	DCON	LF	LH	APMX				
ASM90-016-Z02-C16R-AP10-L90-C	16	16	90	22	9	●	0.2	2	AP..1003..
020-Z03-C20R-AP10-L110-C	20	20	110	22	9	●	0.3	3	
025-Z04-C25R-AP10-L120-C	25	25	120	22	9	●	0.5	4	
032-Z05-C32R-AP10-L130-C	32	32	130	26	9	●	0.8	5	



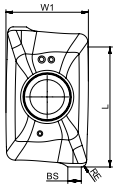


Product code	Dimension (mm)							Internal coolant	Weight (kg)	Z	Inserts
	DC	DCSFMS	DCON	OAL	LF	CRKS	APMX				
ASM90-020-Z03-M10R-AP10-C	20	23	10.5	49.5	30	M10	9	●	0.1	3	AP..1003..
025-Z04-M12R-AP10-C	25	30	12.5	57.2	35	M12	9	●	0.2	4	
032-Z05-M16R-AP10-C	32	30	17	67	43	M16	9	●	0.2	5	

Note: ● With internal coolant
○ Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
Ø16-63			1.2Nm
	SP02506450H	DT-TP08	

Compatible Inserts



Insert shape	Product code	Machining conditions: Dimension (mm) L	W1	S	RE	BS	D1	AS	● Good Conditions ◐ General Conditions ✱ Bad Conditions: P AP251U	P AP351U	P AC251P	M AP351M	M AP403M	K AP251K	K AC301K	K AC151K	S AP403S	H AP151H
	**APKT 1003PDER-IT**	10.8	6.66	3.8	0.8	1.1	2.8	17°	●	●							●	

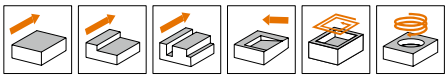
● : Standard stock ○ : Made-to-Order

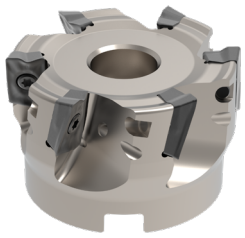
Materials: ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	Cutting depth and feed: AP..1003.. ap (mm) min	ap (mm) max	Geometry IT fz (mm) min	Geometry IT fz (mm) max
P	Unalloyed steel	<600	<180	0.10	9.00	0.08	0.25
		<950	<280				
	Alloyed steel	700-950	200-280			0.06	0.22
		950-1200	280-355				
		1200-1400	355-415				
M	Duplex stainless steel	778	230			0.06	0.20
	Austenitic stainless steel	675	200				
	Precipitation-hardening stainless steel	1013	300				
K	Grey cast iron	700	220			0.08	0.25
	Nodular cast iron	880	260				
	Malleable cast iron	800	250				
N	Aluminum	260	75			-	-
	Aluminum alloy	447	130				
S	Fe-based alloy	943	280			0.06	0.18
	Co-based alloy	1076	320				
	Ni-based alloy	1177	350				
	Ti-alloy	1262	370				
H	Hardened steel	-	50-60HRC			-	-
	Chilled cast iron	-	55HRC				

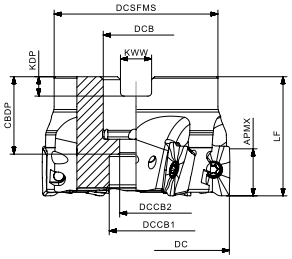
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

ASM90-AP17

90° Approach angle square shoulder milling cutter

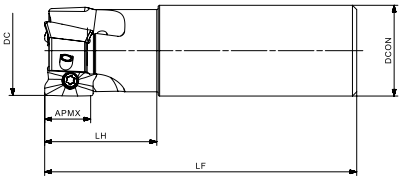






Product code	Dimension (mm)										Internal coolant	Weight (kg)	Z	Inserts
	DC	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX				
ASM90-050-Z05-A22R-AP17-C	50	45	22	18	11	40	26	6.5	10.4	15.5	✓	0.4	5	AP..1705..
063-Z06-A22R-AP17-C	63	55	22	18	11	40	26	6.5	10.4	15.5	✓	0.6	6	
080-Z06-A27R-AP17-C	80	62	27	20	14	50	29	7.2	12.4	15.5	✓	1.1	6	
100-Z08-A32R-AP17-C	100	78	32	26	18	50	32	8.2	14.4	15.5	✓	1.8	8	

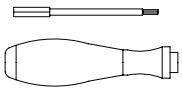




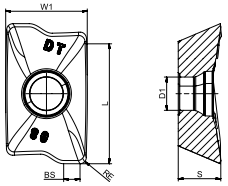
Product code	Dimension (mm)					Internal coolant	Weight (kg)	Z	Inserts
	DC	DCON	LF	LH	APMX				
ASM90-025-Z02-C25R-AP17-L100-C	25	25	100	37	15.5	✓	0.4	2	AP..1705..
032-Z03-C32R-AP17-L110-C	32	32	110	39	15.5	✓	0.6	3	
032-Z03-C32R-AP17-L200-C	32	32	200	39	15.5	✓	1.1	3	
040-Z04-C32R-AP17-L120-C	40	32	120	49	15.5	✓	0.8	4	

Note: ✓ With internal coolant

✗ Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
⌀25			4.0Nm
	SP040084	DT-TP15	
⌀32-100	SP040100H	DT-TP15	

Compatible Inserts

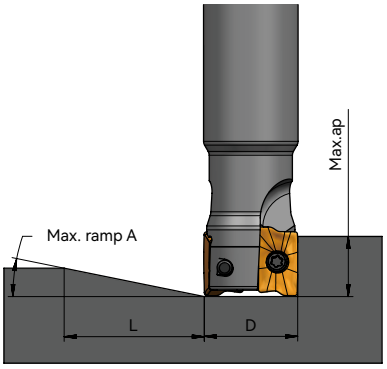


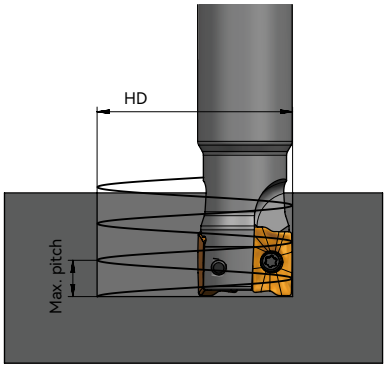
Insert shape	Product code	L	W1	S	RE	BS	D1	AN	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP151H
		Machining conditions							● Good Conditions ◐ General Conditions ✱ Bad Conditions									
		Dimension (mm)							P			M		K			N	H
	**APKT 1705PER-DT**	16.5	10.76	5.63	0.8	2.2	4.4	11°	●	●	○		●	●				
	APKT 170516R-DT	16.8	10.74	5.63	1.6	1.7	4.4	11°	●					●				

● : Standard stock ○ : Made-to-Order

ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	Cutting depth and feed AP..1705.. ap (mm) min	ap (mm) max	Geometry DT fz (mm) min	fz (mm) max
P	Unalloyed steel	<600	<180	0.50	15.50	0.08	0.25
		<950	<280				
	Alloyed steel	700-950	200-280			0.06	0.22
		950-1200	280-355				
		1200-1400	355-415				
M	Duplex stainless steel	778	230			0.06	0.20
	Austenitic stainless steel	675	200				
	Precipitation-hardening stainless steel	1013	300				
K	Grey cast iron	700	220			0.08	0.25
	Nodular cast iron	880	260				
	Malleable cast iron	800	250				
N	Aluminum	260	75			-	-
	Aluminum alloy	447	130				
S	Fe-based alloy	943	280			0.06	0.18
	Co-based alloy	1076	320				
	Ni-based alloy	1177	350				
	Ti-alloy	1262	370				
H	Hardened steel	-	50-60HRC			-	-
	Chilled cast iron	-	55HRC				

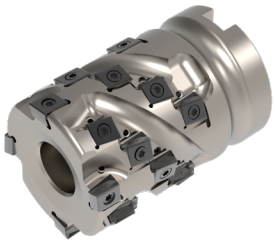
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

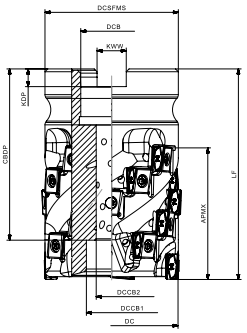




Cutter diameter (D)	Straight Ramping			Circular interpolate milling		
	Max. ramp-A	Min. length-L (mm)	Max.ap (mm)	Min. Dia. (HD)	Max. Dia. (HD)	Max. pitch (rev)
25	5.0°	184	15.5	30.6		1.3
					50	5.8
32	9.0°	102	15.5	44.6		5.3
					64	13.5
40	5.0°	184	15.5	40.6		4.8
					80	9.3
50	4.4°	209	15.5	80.6		6.3
					100	10.3
63	3.2°	288	15.5	106.6		6.5
					126	9.4
80	2.3°	401	15.5	140.6		6.5
					160	8.6
100	1.8°	513	15.5	180.6		6.8
					200	8.4

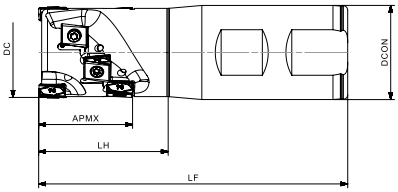
APE90-LN09 Helical Milling Cutter





Product code	Dimension (mm)										Internal coolant	Weight (kg)	Z	Row	Insert QTY	Clamping screw	Inserts
	DC	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX							
APE90-040-Z03-A16R-LN09-L32-F-C	40	38	16	15	9	55	44	5.8	8.4	31		0.3	3	4	12	SH080400	
040-Z03-A16R-LN09-L40-F-C	40	38	16	15	9	65	54	5.8	8.4	39		0.4	3	5	15	SH080500	LN..0904..
050-Z04-A22R-LN09-L48-F-C	50	47	22	18	11	75	61	6.5	10.4	46		0.7	4	6	24	SH100550	

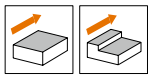




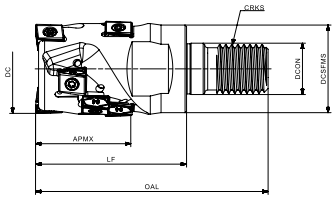
Product code	Dimension (mm)					Internal coolant	Weight (kg)	Z	Row	Insert QTY	Inserts
	DC	DCON	LF	LH	APMX						
APE90-025-Z02-W25R-LN09-L32-F-C	25	25	100	43	31		0.3	2	4	8	
032-Z02-W32R-LN09-L32-F-C	32	32	105	44	31		0.5	2	4	8	
032-Z02-W32R-LN09-L40-F-C	32	32	110	50	39		0.5	2	5	10	LN..0904..
040-Z03-W40R-LN09-L40-F-C	40	40	125	55	39		1.0	3	5	15	
040-Z03-W40R-LN09-L48-F-C	40	40	130	59	46		1.0	3	6	18	

Note: With internal coolant
Without internal coolant

APE90-LN09 Helical Milling Cutter

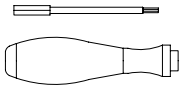
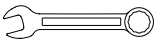


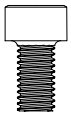




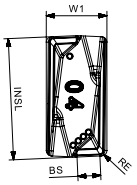
Product code	Dimension (mm)							Internal coolant	Weight (kg)	Z	Row	Insert QTY	Inserts
	DC	DCSFMS	DCON	OAL	LF	CRKS	APMX						
APE90-025-Z02-M12R-LN09-L24-F-C	25	23	12.5	64	40	M12	23		0.1	2	3	6	
032-Z02-M16R-LN09-L24-F-C	32	29	17	67	40	M16	23		0.2	2	3	6	LN..0904..
032-Z02-M16R-LN09-L32-F-C	32	29	17	77	50	M16	31		0.2	2	4	8	

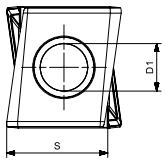
Note: With internal coolant
Without internal coolant

Cutter diameter (mm)	Spare parts			
	Screw	Wrench	Installation wrench	Torque
∅25-50				LN..0904..
	SP030083	DT-TP09	AFW-15/24	

Clamping screw		Screw type	Torque
	SH080400	M8*40	41Nm
	SH080500	M8*50	41Nm
	SH100550	M10*55	81Nm

Compatible Inserts





Insert shape	Product code	INSL	W1	S	RE	BS	D1	Machining conditions: ● Good Conditions ⬤ General Conditions ✱ Bad Conditions									
		Dimension (mm)						P			M		K			N	S
								AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
	**LNHU 090404ER-FM2**	9	4.5	7.5	0.4	1.7	3.5									●	
	**LNHU 090404ER-MM3**	9	4.5	7.5	0.4	1.7	3.5		●			●					
	**LNHU 090404ER-MM4**	9	4.5	7.5	0.4	1.7	3.5	●				●	●				
	LNHU 090408ER-MM4	9	4.5	7.5	0.8	1.4	3.5	●			●	●	●				
	**LNHU 090404ER-MR2**	9	4.5	7.5	0.4	1.7	3.5	●	●		●	●	●	●			
	LNHU 090408ER-MR2	9	4.5	7.45	0.8	1.4	3.5	●		●		●	●	●	●		
	LNHU 090412ER-MR2	9	4.5	7.4	1.2	1.0	3.5	●				●		●			
	LNHU 090416ER-MR2	9	4.5	7.35	1.6	0.7	3.5	●				●		●			
	LNHU 090420ER-MR2	9	4.5	7.3	2.0	0.2	3.5	●				●		●			
	**LNHU 0904PDER-W**	9	4.5	7.48	0.4	3.6	3.5	●						●			

Installing precautions for APE90-LN09 Helical Milling Cutter:
1. APE90-LN09 front part is compatible with LNHU 090404ER/LNHU 090408ER inserts.
2. APE90-LN09 basic part is compatible with just LNHU 090404ER inserts.

● : Standard stock ○ : Made-to-Order

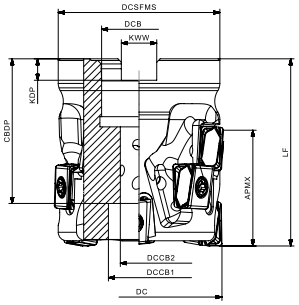
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	Cutting depth and feed: LN..0904.. ap (mm) min	ap (mm) max	Geometry MR2 fz (mm) min	MR2 fz (mm) max	MM4 fz (mm) min	MM4 fz (mm) max	FM2 fz (mm) min	FM2 fz (mm) max
P	Unalloyed steel	<600	<180	3.00	46.00	0.08	0.28	0.08	0.25	-	-
		<950	<280								
	Alloyed steel	700-950	200-280			0.06	0.22	0.06	0.20	-	-
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.06	0.22	0.06	0.20	-	-
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300								
K	Grey cast iron	700	220			0.08	0.30	0.08	0.28	-	-
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
N	Aluminum	260	75			-	-	-	-	0.06	0.25
	Aluminum alloy	447	130								
S	Fe-based alloy	943	280			-	-	0.08	0.15	-	-
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
H	Hardened steel	-	50-60HRC			-	-	-	-	-	-
	Chilled cast iron	-	55HRC								

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

APE90-LN13 Helical Milling Cutter

90° Approach angle square shoulder milling cutter





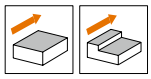
Product code	Dimension (mm)										Internal coolant	Weight (kg)	Z	Row	Insert QTY	Clamping screw	Inserts
	DC	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX							
APE90-040-Z02-A16R-LN13-L34-F-C	40	39	16	15	9	55	43	5.8	8.4	34		0.4	2	3	6	SH080400	
040-Z02-A16R-LN13-L45-F-C	40	39	16	15	9	65	54.5	5.8	8.4	45		0.4	2	4	8	SH080450	
050-Z03-A22R-LN13-L34-F-C	50	47.5	22	18	11	55	42.5	6.5	10.4	34		0.5	3	3	9	SH100400	
050-Z03-A22R-LN13-L45-F-C	50	47.5	22	18	11	65	52	6.5	10.4	45		0.6	3	4	12	SH100500	LN..1306..
063-Z04-A27R-LN13-L56-F-C	63	59.5	27	20	14	80	63	7.2	12.4	56		1.2	4	5	20	SH120600	
063-Z04-A27R-LN13-L45-F-C	63	59.5	27	20	14	70	53	7.2	12.4	45		1.0	4	4	16	SH120500	
080-Z05-A32R-LN13-L56-F-C	80	75.6	32	26	18	85	65	8.2	14.4	56		2.1	5	5	25	SH160650	

Note: With internal coolant

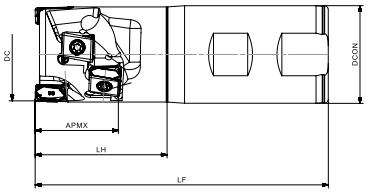
Without internal coolant

APE90-LN13 Helical Milling Cutter

90° Approach angle square shoulder milling cutter



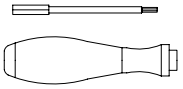


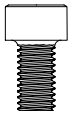


Product code	Dimension (mm)					Internal coolant	Weight (kg)	Z	Row	Insert QTY	Inserts
	DC	DCON	LF	LH	APMX						
APE90-040-Z02-W40R-LN13-L34-F-C	40	40	120	54	34		0.2	2	3	6	LN..1306..
040-Z02-W40R-LN13-L45-F-C	40	40	135	64	45		0.2	2	4	8	

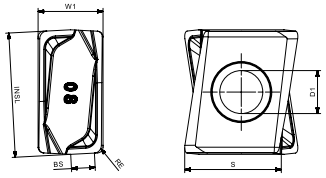
Note: With internal coolant

Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
∅40-80			3.5Nm
	SP040115	DT-TP15	

Clamping screw		Screw type	Torque
	SH080400	M8*40	41Nm
	SH080500	M8*50	41Nm
	SH100550	M10*55	81Nm
	SH100400	M10*40	81Nm
	SH100500	M10*50	81Nm
	SH120500	M12*50	142Nm
	SH120600	M12*60	142Nm
	SH160650	M16*65	350Nm

Compatible Inserts



Insert shape	Product code	INSL	W1	S	RE	BS	D1	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
		Dimension (mm)						P			M		K			N	S
		Machining conditions						● Good Conditions ◐ General Conditions ✱ Bad Conditions									
								●	◐	◐	◐	✱	●	●	●	●	✱
	**LNHU 130608ER-FM2**	13	6.8	10.1	0.8	2.5	4.5									●	
	**LNHU 130608ER-MM3**	13	6.8	10.1	0.8	2.5	4.5					●					
	**LNHU 130608ER-MM4**	13	6.8	10.15	0.8	2.5	4.5	●			●	●	●				
	**LNHU 130608ER-MR2**	13	6.8	10.15	0.8	2.5	4.5	●	●	●	●	●	●	●	●		
	LNHU 130612ER-MR2	13	6.8	10.09	1.2	2.1	4.5	●	●			●	●	●			
	LNHU 130616ER-MR2	13	6.8	10.04	1.6	1.8	4.5	●	●			●	●	●			
	LNHU 130620ER-MR2	13	6.8	9.98	2.0	1.4	4.5	●	●		●	●		●			
	LNHU 130624ER-MR2	13	6.8	9.93	2.4	0.9	4.5		●			●		●			
	LNHU 130631ER-MR2	13	6.8	9.84	3.1	0.3	4.5		●			●		●			
	**LNHU 1306PDR-W**	13	6.8	10.08	0.9	5.2	4.5	●					●				

Precautions for APE90-LN13 Helical Milling cutter installation:
1. APE90-LN13 front part is compatible with R ≤ 2.4mm inserts.
2. APE90-LN13 basic part is compatible with just LNHU 130608ER inserts.

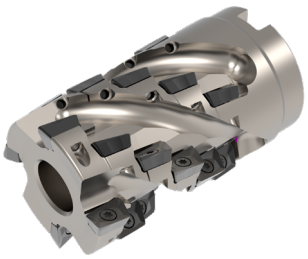
● : Standard stock ○ : Made-to-Order

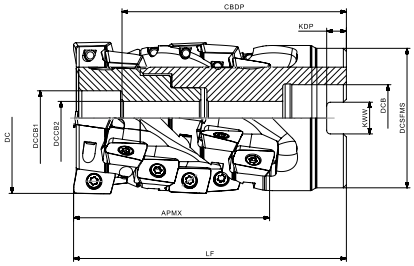
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	ap		Geometry MR2 fz		Geometry MM4 fz		Geometry FM2 fz	
		Materials		Cutting depth and feed							
				LN..1306..							
						(mm)					
				min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	3.00	56.00	0.08	0.28	0.08	0.25	-	-
		<950	<280								
	Alloyed steel	700-950	200-280			0.06	0.22	0.06	0.20	-	-
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.06	0.22	0.06	0.20	-	-
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300								
K	Grey cast iron	700	220			0.08	0.30	0.08	0.28	-	-
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
N	Aluminum	260	75			-	-	-	-	0.06	0.25
	Aluminum alloy	447	130								
S	Fe-based alloy	943	280			-	-	0.08	0.15	-	-
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
H	Hardened steel	-	50-60HRC			-	-	-	-	-	-
	Chilled cast iron	-	55HRC								

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

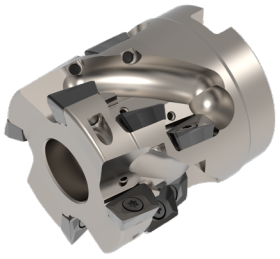
APE90-AO12 Helical Milling Cutter

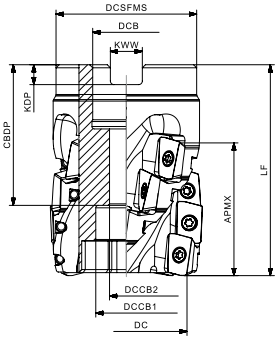
90° Approach angle square shoulder milling cutter





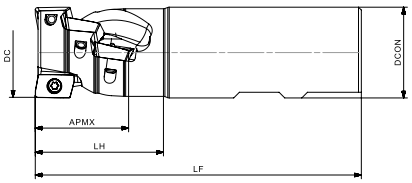
Product code	Dimension (mm)										Internal coolant	Weight (kg)	Z	Row	Insert QTY	Clamping screw	Inserts
	DC	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX							
APE90S-050-Z04-A22R-AO12-L64-F	50	46	22	18	11	90	74	6.5	10.4	63		0.7	4	6	24	SH100700	AO..1204..
063-Z05-A27R-AO12-L74-F	63	59	27	20	14	100	84	7.2	12.4	74		1.4	5	7	35	SH120800	
080-Z06-A32R-AO12-L85-F	80	76	32	26	18	110	92	8.2	14.4	84		2.8	6	8	48	SH160900	





Product code	Dimension (mm)										Internal coolant	Weight (kg)	Z	Row	Insert QTY	Clamping screw	Inserts
	DC	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX							
APE90-050-Z04-A22R-AO12-L32-F-C	50	47	22	18	11	55	43	6.5	10.4	32		0.4	4	3	12	SH100400	AO..1204..
063-Z05-A27R-AO12-L43-F-C	63	59.5	27	20	14	66	52	7.2	12.4	43		1.0	5	4	20	SH120500	
080-Z06-A32R-AO12-L64-F-C	80	76	32	26	18	88	69	8.2	14.4	63		2.2	6	6	36	SH160700	





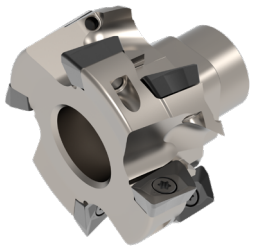
Product code	Dimension (mm)					Internal coolant	Weight (kg)	Z	Row	Insert QTY	Inserts
	DC	DCON	LF	LH	APMX						
APE90-025-Z02-W25R-AO12-L32-F-C	25	25	115	38.5	31		0.3	2	3	6	AO..1204..
032-Z02-W32R-AO12-L32-F-C	32	32	115	45	32		0.6	2	3	6	
040-Z03-W40R-AO12-L43-F-C	40	40	130	56	42		1.0	3	4	12	

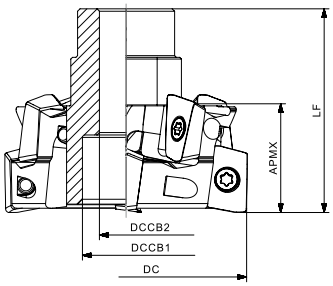
Note: With internal coolant

Without internal coolant

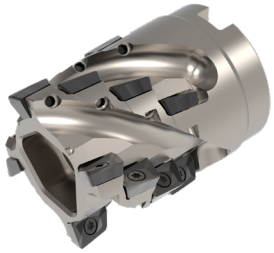
APE90-AO12 Helical Milling Cutter

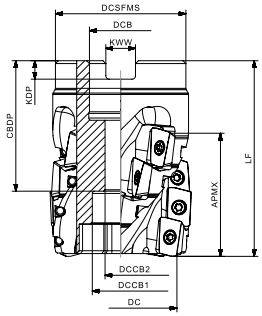
90° Approach angle square shoulder milling cutter





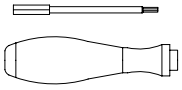
Product code	Dimension (mm)					Internal coolant	Weight (kg)	Z	Row	Insert QTY	Inserts
	DC	DCCB1	DCCB2	LF	APMX						
APE90H-050-Z04-AO12-L21-F	50	18	11	42	21	✗	0.2	4	2	8	AO..1204..
063-Z05-AO12-L21-F	63	20	14	42	21	✗	0.4	5	2	10	
080-Z06-AO12-L21-F	80	26	18	42	21	✗	0.6	6	2	12	

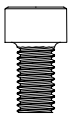




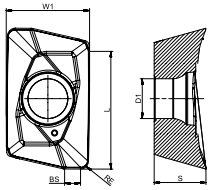
Product code	Dimension (mm)										Internal coolant	Weight (kg)	Z	Row	Insert QTY	Inserts
	DC	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX						
APE90B-050-Z04-A22R-AO12-L43-F	50	46	22	20	11	69	46	6.5	10.4	43	✓	0.5	4	4	16	AO..1204..
063-Z05-A27R-AO12-L53-F	63	59	27	22	14	79	56	7.2	12.4	53	✓	1.1	5	5	25	
080-Z06-A32R-AO12-L64-F	80	76	32	28	18	89	67.5	8.2	14.4	64	✓	2.2	6	6	36	

Note: ✓ With internal coolant
✗ Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
∅25-80			4.0Nm
	SP035086	DT-TP10	

Clamping screw	Bolt spc.	Torque
	SH100400	M10*40	81N-m
	SH120500	M12*50	142N-m
	SH160700	M16*70	350N-m
	SH100700	M10*70	81N-m
	SH120800	M12*80	142N-m
	SH160900	M16*90	350N-m

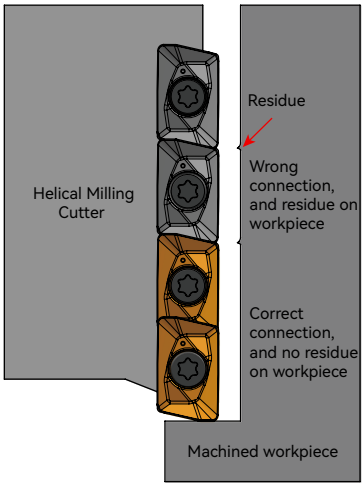
Compatible Inserts



Insert shape	Product code	Machining conditions: Dimension (mm) L	W1	S	RE	BS	D1	AN	● Good Conditions ◐ General Conditions ✱ Bad Conditions: ●	◐	◐	◐	✱	●	●	●	●	●
									P			M		K			N	S
									AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
	**AOHT 120408ER-FM2**	11.3	8.15	5.07	0.8	1.5	3.9	15°									●	
	**AOHT 120404ER-MM3**	11.3	8.15	5.07	0.4	1.9	3.9	15°	●			●	●					●
	AOHT 120408ER-MM3	11.3	8.15	5.07	0.8	1.5	3.9	15°	●			●	●	●				●
	AOMT 120408ER-MM3	11.3	8.15	5.07	0.8	1.4	3.9	15°	●			●	●	●				●
	**AOMT 120404ER-MM4**	11.5	8.15	5.07	0.4	1.9	3.9	15°	●			●	●	●				●
	AOMT 120408ER-MM4	11.5	8.15	5.07	0.8	1.5	3.9	15°	●	●		●	●	●				●
	AOMT 120412ER-MM4	11.5	8.15	5.07	1.2	1.2	3.9	15°				●	●					●
	AOMT 120416ER-MM4	11.3	8.15	5.07	1.6	1.2	3.9	15.				●	●					●
	AOMT 120420ER-MM4	11.2	8.15	5.07	2.0	1.0	3.9	15°	●			●	●					●
	AOMT 120424ER-MM4	11.0	8.15	5.07	2.4	0.9	3.9	15°	●			●	●					●
	AOMT 120431ER-MM4	10.9	8.15	5.07	3.1	0.6	3.9	15°	●			●	●					●
	AOMT 120440ER-MM4	10.6	8.15	5.07	4.0	0.8	3.9	15°				●	●					●

Installing precautions for APE90-AO12 Helical Milling cutter:
1. APE90-AO12 front part is compatible with all AOMT 1204.. inserts.
2. APE90-AO12 basic part is compatible with R ≤ 1.2mm inserts.

● : Standard stock ○ : Made-to-Order

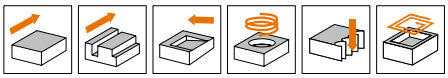


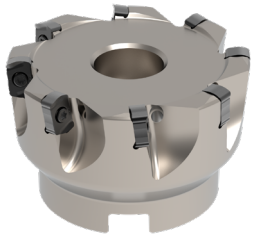
Materials				Cutting depth and feed							
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	AO..1204..							
				ap		Geometry					
						MM4		MM3		FM2	
						fz					
				(mm)							
				min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	3.00	85.00	0.08	0.28	0.08	0.25	-	-
		<950	<280								
	Alloyed steel	700-950	200-280			0.06	0.22	0.06	0.20	-	-
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.06	0.22	0.06	0.20	-	-
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300								
K	Grey cast iron	700	220			0.08	0.30	0.08	0.28	-	-
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
N	Aluminum	260	75			-	-	-	-	0.06	0.35
	Aluminum alloy	447	130								
S	Fe-based alloy	943	280			0.08	0.15	0.08	0.15	-	-
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
H	Hardened steel	-	50-60HRC			-	-	-	-	-	-
	Chilled cast iron	-	55HRC								

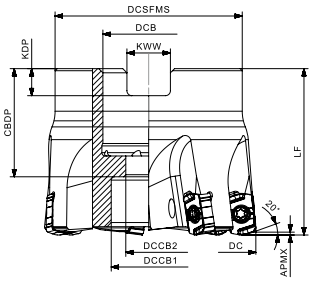
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

AHM20-LN06

20° Approach angle high feed milling cutter

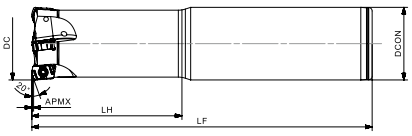






Product code	Dimension (mm)										Internal coolant	Weight (kg)	Z	Inserts
	DC	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX				
AHM20-040-Z06-A16R-LN06-C	40	35	16	14	9	40	24	5.8	8.4	0.65	✓	0.3	6	LN..0604..
050-Z07-A22R-LN06-C	50	45	22	18	11	40	26	6.5	10.4	0.65	✓	0.4	7	
052-Z07-A22R-LN06-C	52	45	22	18	11	40	26	6.5	10.4	0.65	✓	0.4	7	
063-Z08-A22R-LN06-C	63	48	22	18	11	40	26	6.5	10.4	0.65	✓	0.6	8	





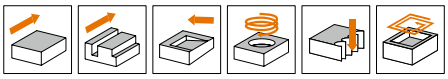
Product code	Dimension (mm)					Internal coolant	Weight (kg)	Z	Inserts
	DC	DCON	LF	LH	APMX				
AHM20-016-Z02-C16R-LN06-L100-C	16	16	100	25	0.65	✓	0.2	2	LN..0604..
017-Z02-C16R-LN06-L150-C	17	16	150	21	0.65	✓	0.2	2	
020-Z03-C20R-LN06-L130-C	20	20	130	30	0.65	✓	0.3	3	
021-Z03-C20R-LN06-L160-C	21	20	160	26	0.65	✓	0.4	3	
025-Z03-C25R-LN06-L140-C	25	25	140	56	0.65	✓	0.5	3	
026-Z03-C25R-LN06-L180-C	26	25	180	30	0.65	✓	0.6	3	
032-Z04-C32R-LN06-L150-C	32	32	150	66	0.65	✓	0.8	4	
033-Z04-C32R-LN06-L200-C	33	32	200	31.5	0.65	✓	1.1	4	
035-Z05-C32R-LN06-L200-C	35	32	200	32	0.65	✓	1.2	5	

Note: ✓ With internal coolant

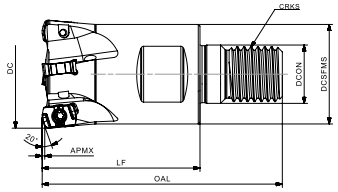
✗ Without internal coolant

AHM20-LN06

20° Approach angle high feed milling cutter



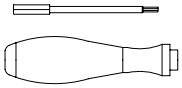




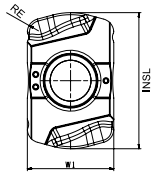
Product code	Dimension (mm)							Internal coolant	Weight (kg)	Z	Inserts
	DC	DCON	DCSFMS	OAL	LF	CRKS	APMX				
AHM20-016-Z02-M08R-LN06-C	16	8.5	15	42	25	M8	0.65		0.1	2	LN..0604..
017-Z02-M08R-LN06-C	17	8.5	14.5	42	25	M8	0.65		0.1	2	
020-Z03-M10R-LN06-C	20	10.5	18	49.5	30	M10	0.65		0.1	3	
021-Z03-M10R-LN06-C	21	10.5	18	51	31.5	M10	0.65		0.1	3	
025-Z04-M12R-LN06-C	25	12.5	23	59	35	M12	0.65		0.1	4	
026-Z03-M12R-LN06-C	26	12.5	23	59	35	M12	0.65		0.1	3	
026-Z04-M12R-LN06-C	26	12.5	23	59	35	M12	0.65		0.1	4	
032-Z04-M16R-LN06-C	32	17	29	70	46	M16	0.65		0.3	4	
032-Z05-M16R-LN06-C	32	17	29	70	46	M16	0.65		0.3	5	
033-Z05-M16R-LN06-C	33	17	29	70	46	M16	0.65		0.3	5	
035-Z05-M16R-LN06-C	35	17	29	70	46	M16	0.65		0.3	5	
040-Z06-M16R-LN06-C	40	17	29	70	46	M16	0.65		0.3	6	

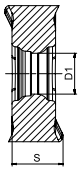
Note: With internal coolant

Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
∅16-63			1.0Nm
	SP02506450H	DT-TP08	

Compatible Inserts





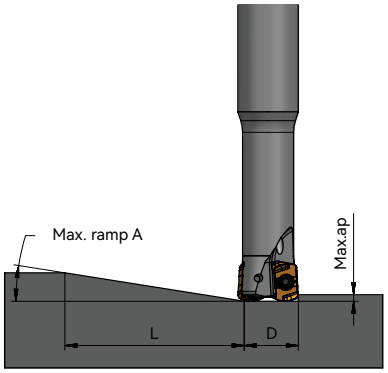
Insert shape	Product code	INSL	W1	S	RE	D1	Machining conditions: ● Good Conditions ◐ General Conditions ✱ Bad Conditions									
		Dimension (mm)					P			M		K			S	H
							AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AP403S	AP151H
	**LNMX 060410ER-MM3**	10	6.35	3.6	1.0	3	●	●			●				●	●
	**LNMX 060410ER-MM4**	10	6.35	3.6	1.0	3	●	●	○			○			●	●
	**LNMX 060410ER-MM4N**	10	6.35	3.6	1.0	3	●	●			●		●		●	●

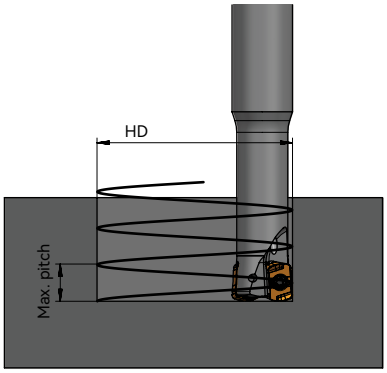
● : Standard stock ○ : Made-to-Order

ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	Cutting depth and feed: LN..0604..							
				High feed milling				Plunging			
				ap		fz		ae		fz	
				(mm)							
				min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.30	0.65	0.30	1.00	0.50	4.00	0.08	0.15
		<950	<280								
	Alloyed steel	700-950	200-280								
		950-1200	280-355			0.30	1.00			0.06	0.12
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.25	0.80			0.06	0.12
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300			0.25	0.60				
K	Grey cast iron	700	220								
	Nodular cast iron	880	260			0.30	1.00			0.08	0.15
	Malleable cast iron	800	250								
N	Aluminum	260	75			–	–			–	–
	Aluminum alloy	447	130								
S	Fe-based alloy	943	280								
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350			0.25	0.60			0.06	0.10
	Ti-alloy	1262	370								
H	Hardened steel	-	50-60HRC								
	Chilled cast iron	-	55HRC			0.25	0.60			0.06	0.10

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

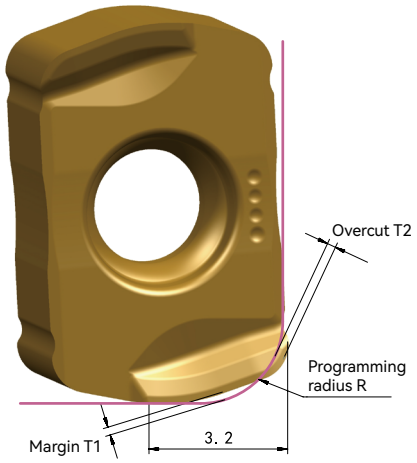
LN06 Milling Cutter Series





Cutter dia. (D)	Straight Ramping			Circular interpolate milling		
	Max. ramp-A	Max. ap (mm)	Min. length-L (mm)	Min. Dia. (HD)	Max. Dia.(HD)	Max. pitch (rev)
⌀16	2.9°	0.65	13.8	23	32	0.65
⌀17	2.6°	0.65	15.4	25	34	0.65
⌀20	1.9°	0.65	21.1	31	40	0.65
⌀21	1.8°	0.65	22.3	33	42	0.65
⌀25	1.3°	0.65	30.8	41	50	0.65
⌀26	1.3°	0.65	30.8	43	52	0.65
⌀32	0.9°	0.65	44.6	55	64	0.65
⌀33	0.9°	0.65	44.6	57	66	0.65
⌀40	0.7°	0.65	57.3	71	80	0.65
⌀50	0.5°	0.65	80.2	91	100	0.65
⌀63	0.4°	0.65	100.3	117	126	0.65

Tool programming radius



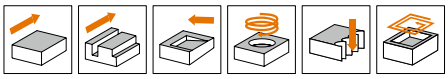
Programming radius R, margin and overcut analysis

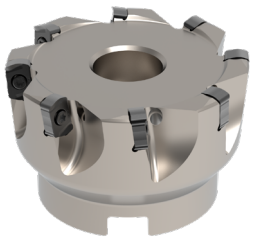
	Programming radius R	Margin T1	Overcut T2
✓	R1.5	0.43	0
✗	R2.0	0.29	0.06
✗	R2.5	0.15	0.24

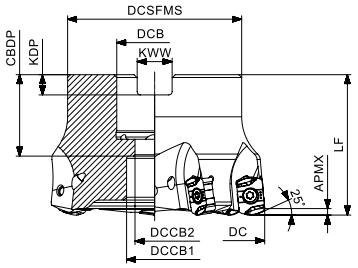
No overcutting of the workpiece when programmed with R1.5

AHM25-LN10

25° Approach angle high feed milling cutter

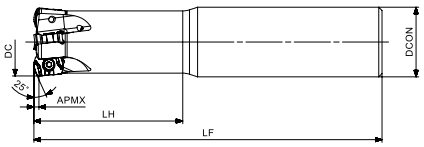






Product code	Dimension (mm)										Internal coolant	Weight (kg)	Z	Inserts
	DC	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX				
AHM25-040-Z04-A16R-LN10-C	40	38	16	14	9	40	24	5.8	8.4	1.2	●	0.3	4	LN..1005..
040-Z05-A16R-LN10-C	40	38	16	14	9	40	24	5.8	8.4	1.2	●	0.3	5	
050-Z05-A22R-LN10-C	50	45	22	18	11	40	26	6.5	10.4	1.2	●	0.4	5	
050-Z07-A22R-LN10-C	50	45	22	18	11	40	26	6.5	10.4	1.2	●	0.4	7	
063-Z06-A22R-LN10-C	63	52	22	18	11	40	26	6.5	10.4	1.2	●	0.6	6	
063-Z08-A22R-LN10-C	63	52	22	18	11	40	26	6.5	10.4	1.2	●	0.6	8	
080-Z07-A27R-LN10-C	80	62	27	20	14	50	29	7.2	12.4	1.2	●	1.1	7	
080-Z09-A27R-LN10-C	80	62	27	20	14	50	29	7.2	12.4	1.2	●	1.1	9	
100-Z08-A32R-LN10-C	100	78	32	26	18	50	32	8.2	14.4	1.2	●	1.7	8	
100-Z10-A32R-LN10-C	100	78	32	26	18	50	32	8.2	14.4	1.2	●	1.8	10	
125-Z12-A40R-LN10-C	125	90	40	33	22	63	38	9.2	16.4	1.2	●	3.3	12	





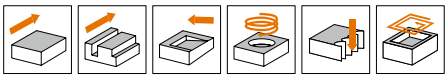
Product code	Dimension (mm)					Internal coolant	Weight (kg)	Z	Inserts
	DC	DCON	LF	LH	APMX				
AHM25-025-Z02-C25R-LN10-L150-C	25	25	150	68	1.2	●	0.5	2	LN..1005..
025-Z03-C25R-LN10-L150-C	25	25	150	68	1.2	●	0.5	3	
026-Z03-C25R-LN10-L150-C	26	25	150	28	1.2	●	0.5	3	
026-Z03-C25R-LN10-L220-C	26	25	220	28	1.2	●	0.8	3	
032-Z03-C32R-LN10-L160-C	32	32	160	68	1.2	●	0.9	3	
032-Z04-C32R-LN10-L160-C	32	32	160	68	1.2	●	0.9	4	
033-Z04-C32R-LN10-L180-C	33	32	180	28	1.2	●	1.0	4	
033-Z04-C32R-LN10-L250-C	33	32	250	28	1.2	●	1.4	4	

Note: ● With internal coolant

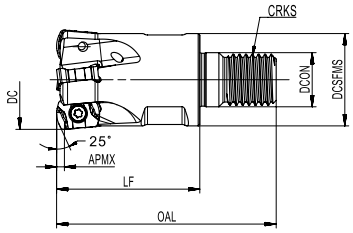
○ Without internal coolant

AHM25-LN10

25° Approach angle high feed milling cutter

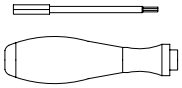




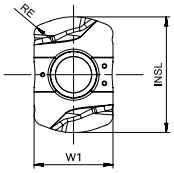


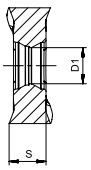
Product code	Dimension (mm)							Internal coolant	Weight (kg)	Z	Inserts
	DC	DCON	DCSFMS	OAL	LF	CRKS	APMX				
AHM25-025-Z02-M12R-LN10-C	25	12.5	23	61	39	M12	1.2	●	0.2	2	LN..1005..
025-Z03-M12R-LN10-C	25	12.5	23	61	39	M12	1.2	●	0.2	3	
026-Z03-M12R-LN10-C	26	12.5	23	61	39	M12	1.2	●	0.2	3	
032-Z03-M16R-LN10-C	32	17	29	69	45	M16	1.2	●	0.3	3	
032-Z04-M16R-LN10-C	32	17	29	69	45	M16	1.2	●	0.3	4	
033-Z04-M16R-LN10-C	33	17	29	69	45	M16	1.2	●	0.3	4	

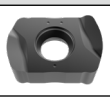
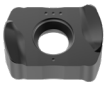
Note: ● With internal coolant
○ Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
⌀25-125			3.0Nm
	SP035087H	DT-TP10	

Compatible Inserts





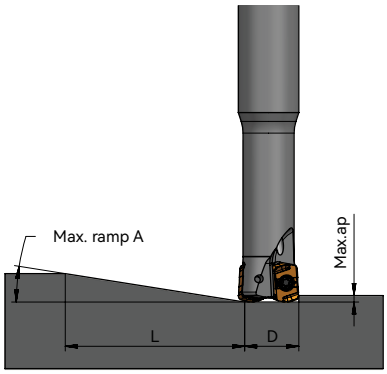
Insert shape	Product code	INSL	W1	S	RE	D1	Machining conditions: ● Good Conditions ◐ General Conditions ✱ Bad Conditions									
							●	◐	◐	◐	✱	●	●	●	✱	●
							Dimension (mm)	P		M		K			S	H
								AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AP403S	AP151H
	**LNMX 100512ER-MM3**	13.5	9.2	4.55	1.2	4.21	●	●		●	●				●	●
	**LNMX 100512ER-MM4**	13.5	9.2	4.55	1.2	4.21	●	●			●					●

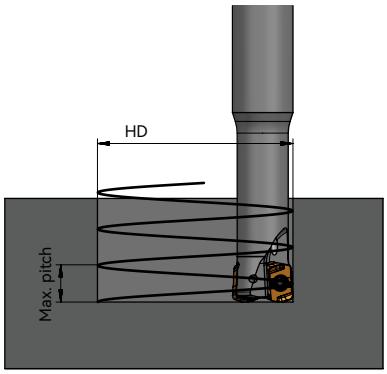
● : Standard stock ○ : Made-to-Order

Materials				Cutting depth and feed							
				LN.. 1005..							
				High feed milling				Plunging			
				ap		fz		ae		fz	
				(mm)							
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.30	1.20	0.30	1.00	0.50	4.00	0.08	0.15
		<950	<280								
	Alloyed steel	700-950	200-280			0.30	1.00			0.06	0.12
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.25	0.80			0.06	0.12
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300			0.25	0.60				
K	Grey cast iron	700	220			0.30	1.00			0.08	0.15
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
N	Aluminum	260	75			–	–			–	–
	Aluminum alloy	447	130								
S	Fe-based alloy	943	280			0.25	0.60			0.06	0.10
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
H	Hardened steel	-	50-60HRC			0.25	0.60			0.06	0.10
	Chilled cast iron	-	55HRC								

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

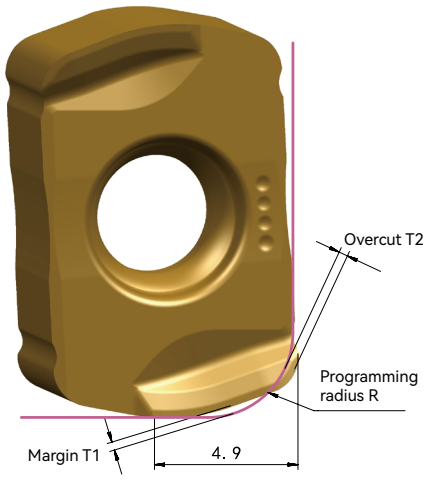
LN10 Milling Cutter Series





Cutter dia. (D)	Straight Ramping			Circular interpolate milling		
	Max. ramp-A	Max.ap (mm)	Min. length-L (mm)	Min. Dia. (HD)	Max. Dia.(HD)	Max. pitch (rev)
⌀25	3.2	1.20	21.8	34	50	0.8
⌀26	2.9	1.20	23.6	36	52	0.8
⌀32	2.0	1.20	34.7	48	64	0.9
⌀33	1.9	1.20	36.5	50	66	0.9
⌀35	1.7	1.20	40.2	54	70	0.9
⌀40	1.4	1.20	49.5	64	80	1.0
⌀50	1.0	1.20	67.9	84	100	1.0
⌀63	0.7	1.20	91.9	110	126	1.0
⌀80	0.6	1.20	123.3	144	160	1.1
⌀100	0.4	1.20	160.2	184	200	1.1
⌀125	0.3	1.20	206.4	234	250	1.1

Tool programming radius



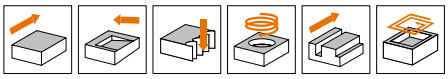
Programming radius R, margin and overcut analysis

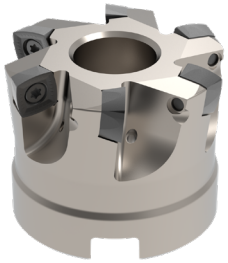
	Programming radius R	Margin T1	Overcut T2
✓	R2.3	0.57	0
✗	R2.5	0.53	0.03
✗	R3.0	0.37	0.15

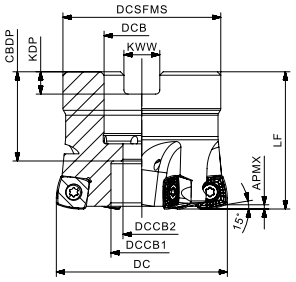
No overcutting of the workpiece when programmed with R1.5

AHM15-XD09

15° Approach angle high feed milling cutter

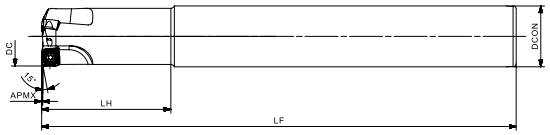






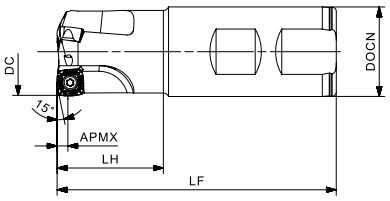
Product code	Dimension (mm)										Internal coolant	Weight (kg)	Z	Inserts
	DC	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX				
AHM15-040-Z03-A16R-XD09-C	40	35	16	14	9	32	24	5.8	8.4	1.2		0.2	3	XD..0904..
040-Z04-A16R-XD09-C	40	35	16	14	9	32	24	5.8	8.4	1.2		0.2	4	
040-Z05-A16R-XD09-C	40	35	16	14	9	32	24	5.8	8.4	1.2		0.2	5	
050-Z05-A22R-XD09-C	50	46	22	18	11	40	26	6.5	10.4	1.2		0.4	5	
050-Z06-A22R-XD09-C	50	46	22	18	11	40	26	6.5	10.4	1.2		0.4	6	





Product code	Dimension (mm)					Internal coolant	Weight (kg)	Z	Inserts
	DC	DCON	LF	LH	APMX				
AHM15-025-Z02-C25R-XD09-C	25	25	200	48	1.2		0.7	2	XD..0904..
026-Z02-C25R-XD09-L180-C	26	25	180	28	1.2		0.6	2	
032-Z03-C32R-XD09-C	32	32	250	67	1.2		1.4	3	

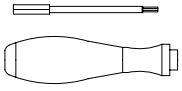




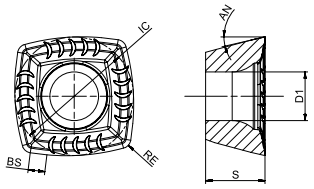
Product code	Dimension (mm)					Internal coolant	Weight (kg)	Z	Inserts
	DC	DCON	LF	LH	APMX				
AHM15-025-Z02-W25R-XD09-C	25	25	96	37	1.2		0.3	2	XD..0904..
032-Z03-W32R-XD09-C	32	32	100	37	1.2		0.5	3	

Note: With internal coolant

Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
∅25-50			3.0Nm
	SP035086	DT-TP10	

Compatible Inserts



Insert shape	Product code	IC	S	RE	BS	D1	AN	Machining conditions: Dimension (mm)									
								● Good Conditions ◐ General Conditions ✱ Bad Conditions									
								●	◐	◐	◐	✱	●	●	●	✱	●
								P			M		K			S	H
								AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AP403S	AP151H
	**XDLT 090408ER-MM3**	9.525	4.76	0.8	1.3	3.9	15°	●	●	●				●		●	
	**XDMW 090408ER-HR2**	9.506	4.76	0.8	1.6	3.9	15°						○	●			

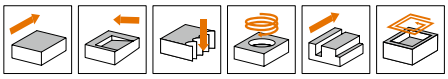
● : Standard stock ○ : Made-to-Order

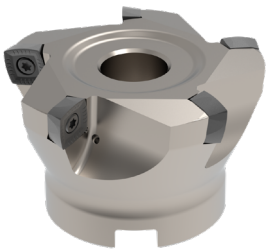
Materials				Cutting depth and feed							
				XD..0904..							
				High feed milling				Plunging			
				ap		fz		ae		fz	
				(mm)							
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.20	1.20	0.30	1.50	0.00	7.00	0.05	0.15
		<950	<280								
	Alloyed steel	700-950	200-280			0.30	1.50			0.05	0.12
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.20	0.80			0.05	0.10
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300								
K	Grey cast iron	700	220			0.30	1.50			0.05	0.15
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
N	Aluminum	260	75			–	–			–	–
	Aluminum alloy	447	130								
S	Fe-based alloy	943	280			0.10	0.50			0.05	0.10
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
H	Hardened steel	-	50-60HRC			0.30	1.00			0.05	0.10
	Chilled cast iron	-	55HRC								

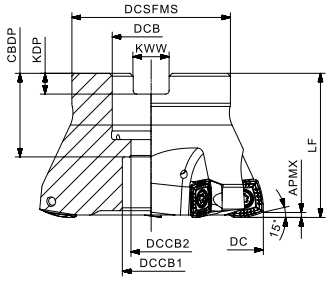
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

AHM15-XD12

15° Approach angle high feed milling cutter







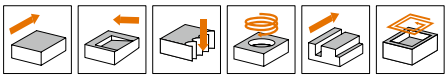
Product code	Dimension (mm)										Internal coolant	Weight (kg)	Z	Inserts
	DC	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX				
AHM15-052-Z03-A22R-XD12-C	52	45	22	18	11	40	26	6.5	10.4	1.6		0.4	3	
052-Z04-A22R-XD12-C	52	45	22	18	11	40	26	6.5	10.4	1.6		0.4	4	
052-Z05-A22R-XD12-C	52	45	22	18	11	40	26	6.5	10.4	1.6		0.4	5	
063-Z04-A22R-XD12-C	63	48	22	18	11	40	26	6.5	10.4	1.6		0.5	4	
063-Z05-A22R-XD12-C	63	48	22	18	11	40	26	6.5	10.4	1.6		0.5	5	
063-Z04-60A22R-XD12-C	63	60	22	18	11	40	26	6.5	10.4	1.6		0.6	4	
063-Z05-60A22R-XD12-C	63	60	22	18	11	40	26	6.5	10.4	1.6		0.6	5	
066-Z04-A27R-XD12-C	66	50	27	20	14	45	29	7.2	12.4	1.6		0.5	4	
066-Z05-A27R-XD12-C	66	50	27	20	14	45	29	7.2	12.4	1.6		0.5	5	
066-Z04-63A27R-XD12-C	66	63	27	20	14	45	29	7.2	12.4	1.6		0.7	4	
066-Z05-63A27R-XD12-C	66	63	27	20	14	45	29	7.2	12.4	1.6		0.7	5	
080-Z05-A27R-XD12-C	80	55	27	20	14	50	29	7.2	12.4	1.6		0.9	5	XD..1205..
080-Z08-A27R-XD12-C	80	55	27	20	14	50	29	7.2	12.4	1.6		0.9	8	
080-Z05-76A27R-XD12-C	80	76	27	20	14	50	29	7.2	12.4	1.6		1.2	5	
080-Z08-76A27R-XD12-C	80	76	27	20	14	50	29	7.2	12.4	1.6		1.3	8	
100-Z06-A32R-XD12-C	100	80	32	26	18	50	32	8.2	14.4	1.6		1.7	6	
100-Z09-A32R-XD12-C	100	80	32	26	18	50	32	8.2	14.4	1.6		1.7	9	
100-Z06-96A32R-XD12-C	100	96	32	26	18	50	32	8.2	14.4	1.6		2.0	6	
100-Z09-96A32R-XD12-C	100	96	32	26	18	50	32	8.2	14.4	1.6		2.0	9	
125-Z08-A40R-XD12-C	125	89	40	33	22	63	38	9.2	16.4	1.6		3.1	8	
125-Z11-A40R-XD12-C	125	89	40	33	22	63	38	9.2	16.4	1.6		3.2	11	
125-Z08-100A40R-XD12-C	125	100	40	33	22	63	38	9.2	16.4	1.6		3.4	8	
125-Z11-100A40R-XD12-C	125	100	40	33	22	63	38	9.2	16.4	1.6		3.5	11	

Note: With internal coolant

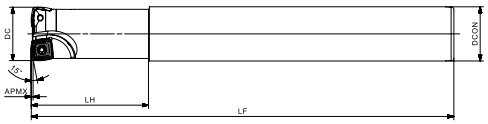
Without internal coolant

AHM15-XD12

15° Approach angle high feed milling cutter

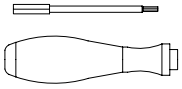




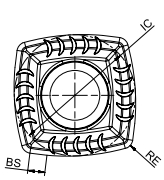


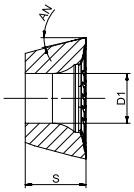
Product code	Dimension (mm)					Internal coolant	Weight (kg)	Z	Inserts
	DC	DCON	LF	LH	APMX				
AHM15-032-Z02-C32R-XD12-C	32	32	250	70	1.6		1.5	2	XD..1205..

Note: With internal coolant
Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
∅32-125			3.5Nm
	SP040112	DT-TP15	

Compatible Inserts





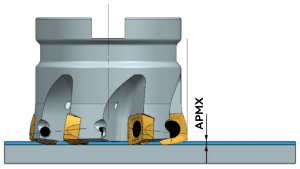
Insert shape	Product code	IC	S	RE	BS	D1	AN	Machining conditions: ● Good Conditions ⧓ General Conditions ✱ Bad Conditions									
								●	⧓	⧓	⧓	✱	●	●	●	✱	●
								Dimension (mm)									
								P			M		K			S	H
								AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AP403S	AP151H
	**XDLT 120508ER-MM3**	12.7	5.56	0.8	2.2	4.4	15°	●	●	●		○	●	●	●	●	
	XDLT 120512ER-MM3	12.7	5.56	1.2	2.2	4.4	15°	●	●	●			●	●			
	**XDMW 120508ER-HR2**	12.7	5.56	0.8	2.5	4.4	15°	●					○	●			

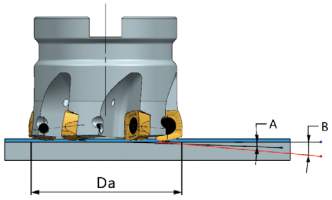
● : Standard stock ○ : Made-to-Order

Materials				Cutting depth and feed							
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	XD..1205..							
				High feed milling				Plunging			
				ap		fz		ae		fz	
				(mm)							
				min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.50	1.60	0.30	2.00	0.00	10.00	0.06	0.18
		<950	<280								
	Alloyed steel	700-950	200-280			0.30	2.00			0.06	0.15
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.20	1.00			0.06	0.12
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300			0.10	0.60			0.50	0.10
K	Grey cast iron	700	220			0.30	2.00			0.06	0.18
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
N	Aluminum	260	75			–	–			–	–
	Aluminum alloy	447	130								
S	Fe-based alloy	943	280			0.30	2.00			0.05	0.12
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
H	Hardened steel	-	50-60HRC			0.30	1.00			0.05	0.12
	Chilled cast iron	-	55HRC								

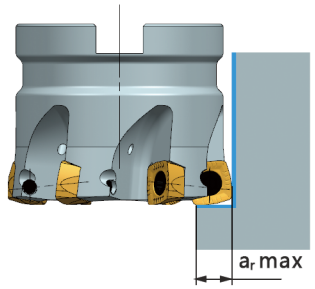
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

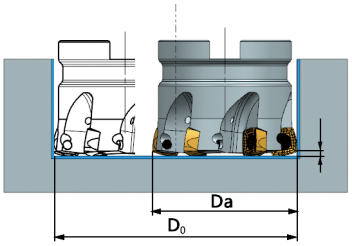
Application of AHM15-XD High Feed Milling Cutter

Face milling	ap (mm)		
	APMX	XD..0904..	XD..1205..
		1.2	1.6

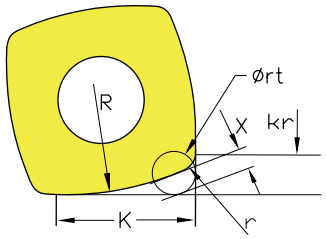
Sloping	Max. bevel			
	Da (mm)	XD..0904..		XD..1205..	
		Max. bevel A	Max. bevel B	Max. bevel A	Max. bevel B
	25	2.80°	6.30°	-	-
	32	1.50°	5.00°	-	-
	40	0.80°	2.70°	-	-
	52	-	-	0.8°	2.7°
	63	-	-	0.6°	1.8°
	66	-	-	0.45°	1.8°
	100	-	-	0.32°	1.45°
	125	-	-	0.24°	1.06°

A = Max. bevel using full plane contact
B = Max. bevel using full contact and corner radius

Plunging	Max. cutting depth a,(mm)		
	Da (mm)	XD..0904..	XD..1205..
	25	6.0	-
	32	6.0	-
	40	6.0	-
	50	6.0	-
	52	-	9.0
	63	-	9.0
	66	-	9.0
	80	-	9.0
	100		9.0
	125	-	9.0

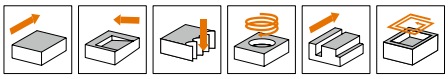
Helical interpolate milling on soild materials	Diameter range (mm) of holes milled in one feed				
	Da (mm)	XD..0904..		XD..1205..	
		D_0 min (mm)	D_0 max (mm)	D_0 min (mm)	D_0 max (mm)
	25	30	50	-	-
	32	51	64	-	-
	40	67	80	-	-
	50	87	100	-	-
	52	-	-	87.2	104
	63	-	-	109.2	126
	66	-	-	115.2	132
	80	-	-	143.2	160
	100	-	-	183.2	200
	125	-	-	233.2	250

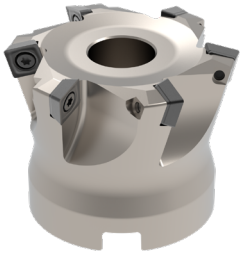
Programming information

Helical interpolate milling on soild materials							
	Indexable insert	R	r (Insert radius)	rt (Approximate radius)	k	kr	x
	XD..090408	17	0.8	2.0	6.5	1.9	1.47
	XD..120508	22.8	0.8	2.5	8.4	2.4	1.00
	XD..120512	20	1.2	3.0	8.3	2.8	0.86
	XD..120520	20	2.0	3.0	8.0	3.4	0.90
	Programming with the theoretical tool radius “rt” produces the maximum deviation from the final contour shown above. The small deviations that occur only in the corners can be corrected by other tools in the subsequent process.						

AHM15-SD09

15° Approach angle high feed milling cutter





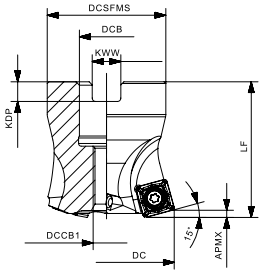


Fig. 1

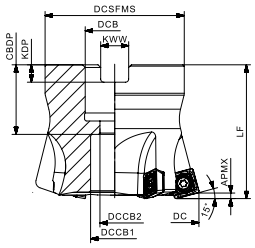
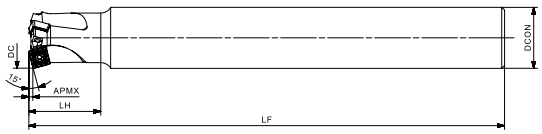


Fig. 2

Product code	Dimension (mm)										Internal coolant	Weight (kg)	Z	Fig.	Inserts
	DC	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX					
AHM15-040-Z03-A16R-SD09	40	35	16	M8	-	40	-	5.8	8.4	1.5		0.2	3	1	SD..09T3..N..
042-Z04-A16R-SD09	42	35	16	14	9	40	24	5.8	8.4	1.5		0.2	4	2	
050-Z05-A22R-SD09	50	45	22	18	11	40	26	6.5	10.4	1.5		0.3	5		
052-Z05-A22R-SD09	52	45	22	18	11	40	26	6.5	10.4	1.5		0.3	5		
063-Z06-A22R-SD09	63	52	22	18	11	50	26	6.5	10.4	1.5		0.6	6		

Note: AHM15-040-Z03-A16R-SD09 is connected using dowel screw





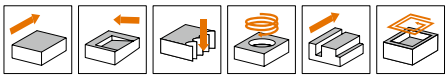
Product code	Dimension (mm)					Internal coolant	Weight (kg)	Z	Inserts
	DC	DCON	LF	LH	APMX				
AHM15-025-Z02-C25R-SD09-L200	25	25	200	25	1.5		0.6	2	SD..09T3..N..
032-Z03-C32R-SD09-L250	32	32	250	37	1.5		1.4	3	

Note: With internal coolant

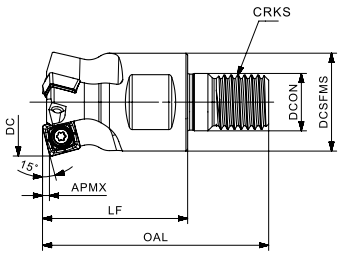
Without internal coolant

AHM15-SD09

15° Approach angle high feed milling cutter

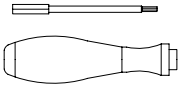
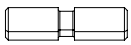




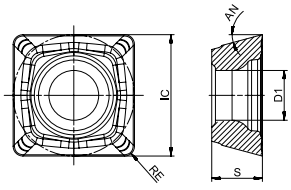


Product code	Dimension (mm)							Internal coolant	Weight (kg)	Z	Inserts
	DC	DCSFMS	DCON	OAL	LF	CRKS	APMX				
AHM15-025-Z02-M12R-SD09	25	23	12.5	57	35	M12	1.5		0.1	2	SD..09T3..N...
026-Z02-M12R-SD09	26	23	12.5	57	35	M12	1.5		0.1	2	
032-Z03-M16R-SD09	32	29	17	67	43	M16	1.5		0.2	3	
033-Z03-M16R-SD09	33	29	17	67	43	M16	1.5		0.2	3	

Note: With internal coolant
Without internal coolant

Cutter diameter (mm)	Spare parts			
	Screw	Wrench	Dowel screw	Torque
∅25-63				3.0Nm
	SP035086	DT-TP10	WD080300	

Compatible Inserts



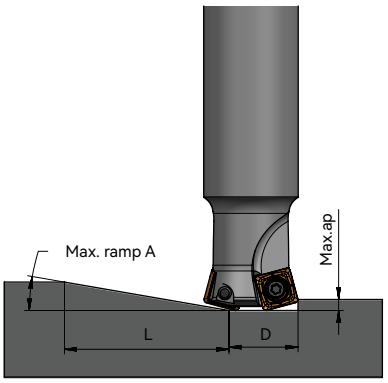
Insert shape	Product code	IC	S	RE	D1	AN	Machining conditions: Dimension (mm)									
							● Good Conditions ◐ General Conditions ✱ Bad Conditions									
							●	◐	◐	◐	✱	●	●	●	●	✱
							P			M		K			N	S
							AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
	**SDMT 09T308N-MM4**	9.525	3.97	0.8	3.9	15°	●			●	●	●		●		
	SDMT 09T320N-MM4	9.520	3.97	2.0	3.9	15°	●			●	●	●		●		●
	**SDMT 09T308N-MR2**	9.525	3.97	0.8	3.9	15°	●			●	●	●		●		
	SDMT 09T320N-MR2	9.520	3.97	2.0	3.9	15°	●			●	●	●		●		

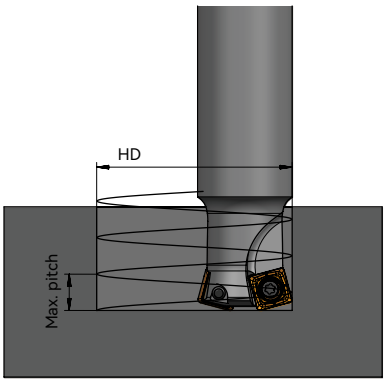
● : Standard stock ○ : Made-to-Order

Materials				Cutting depth and feed							
				SD..09T3..N..							
				High feed milling				Plunging			
				ap		fz		ap		fz	
				(mm)							
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.10	1.50	0.80	1.40	0.00	8.40	0.12	0.22
		<950	<280								
	Alloyed steel	700-950	200-280			0.80	1.50			0.12	0.25
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.05	0.50			0.05	0.12
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300								
K	Grey cast iron	700	220			0.50	1.40			0.10	0.25
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
N	Aluminum	260	75			-	-			-	-
	Aluminum alloy	447	130								
S	Fe-based alloy	943	280			0.10	0.60			-	-
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
H	Hardened steel	-	50-60HRC			-	-			-	-
	Chilled cast iron	-	55HRC								

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

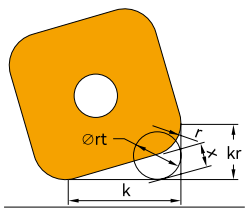
Application of AHM15-SD09 High Feed Milling Cutter





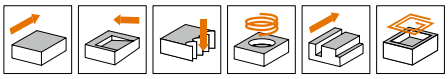
Product family	Cutter dia. (D)	Sloping			Helical interpolate milling		
		Max. ramp -A	Max.ap (mm)	Min. length-L (mm)	Min. Dia.(mm)	Max. Dia.(mm)	Max. pitch (mm)
AHM15-SD09	25	6.2°	1.5	17.6	32.4		1.5
	25	6.2°	1.5	17.6		50.0	1.5
	26	5.4°	1.5	20.0	34.4		1.5
	26	5.4°	1.5	20.0		52.0	1.5
	32	3.2°	1.5	34.2	46.4		1.5
	32	3.2°	1.5	34.2		64.0	1.5
	33	3.0°	1.5	36.6	48.4		1.5
	33	3.0°	1.5	36.6		66.0	1.5
	40	2.0°	1.5	53.2	62.4		1.5
	40	2.0°	1.5	53.2		80.0	1.5
	42	1.9°	1.5	58.0	66.4		1.5
	42	1.9°	1.5	58.0		84.0	1.5
	50	1.4°	1.5	77.0	82.4		1.5
	50	1.4°	1.5	77.0		100.0	1.5
	52	1.3°	1.5	81.7	86.4		1.5
	52	1.3°	1.5	81.7		104.0	1.5
	63	1.0°	1.5	107.8	108.4		1.5
	63	1.0°	1.5	107.8		126.0	1.5

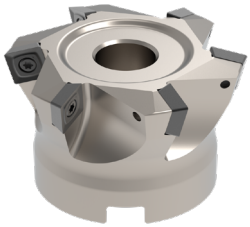
Programming information

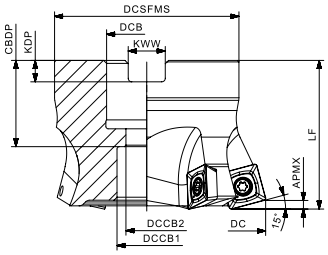
Helical interpolate milling on soild materials						
	Indexable insert	r (Insert radius)	rt (Approximate radius)	k	kr	x
	SD..09T308	0.8	2.5	8.35	2.85	1.91
	SD..09T320	2.0	3.0	7.04	3.43	1.51

AHM15-SD12

15° Approach angle high feed milling cutter



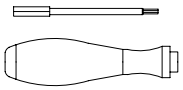
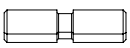




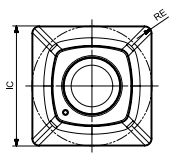
Product code	Dimension (mm)										Internal coolant	Weight (kg)	Z	Inserts
	DC	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX				
AHM15-050-Z04-A22R-SD12	50	45	22	M10	-	40	-	6.5	10.4	2.0		0.3	4	SD..1204..N..
052-Z04-A22R-SD12	52	45	22	18	11	40	26	6.5	10.4	2.0		0.3	4	
063-Z05-A22R-SD12	63	48	22	18	11	50	26	6.5	10.4	2.0		0.5	5	
080-Z06-A27R-SD12	80	62	27	20	14	50	29	7.2	12.4	2.0		0.9	6	
100-Z07-A32R-SD12	100	80	32	26	18	50	32	8.2	14.4	2.0		1.6	7	
125-Z08-A40R-SD12	125	87	40	33	22	63	38	9.2	16.4	2.0		2.8	8	

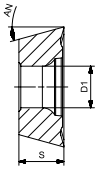
Note: AHM15-050-204-A22R-SD12 is clamped using dowel screw

Note: With internal coolant
Without internal coolant

Cutter diameter (mm)	Spare parts			
	Screw	Wrench	Dowel screw	Torque
⌀50-125				3.5Nm
	SP040112	DT-TP15	WD100300	

Compatible Inserts





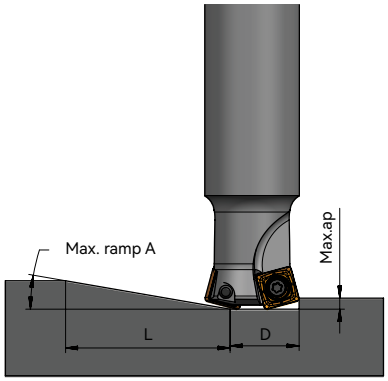
Insert shape	Product code	IC	S	RE	D1	AN	Machining conditions: ● Good Conditions ◐ General Conditions ✱ Bad Conditions									
							●	◐	◐	◐	✱	●	●	●	●	✱
							Dimension (mm)					P			N	S
							AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
	**SDMT 120408N-MM4**	12.7	4.76	0.8	4.4	15.3°	●			●	●	●		●		
	SDMT 120420N-MM4	12.7	4.76	2.0	4.4	15.3°	○					●				
	SDMT 120425N-MM4	12.7	4.76	2.5	4.4	15.3°				○	●					○
	SDMT 120430N-MM4	12.7	4.76	3.0	4.4	15.3°		○				●				
	**SDMT 120408N-MR2**	12.7	4.76	0.8	4.4	15.3°	●		●	●	●	●		●		

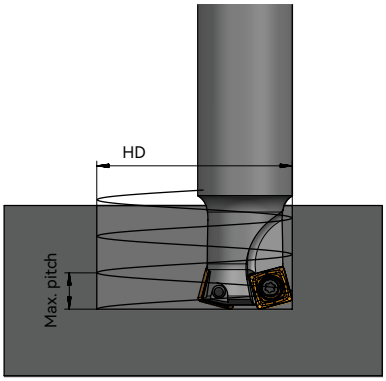
● : Standard stock ○ : Made-to-Order

Materials				Cutting depth and feed							
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	SD..1204..N..							
				High feed milling				Plunging			
				ap		fz		ap		fz	
				(mm)							
				min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.20	2.00	1.00	1.80	0.00	11.40	0.15	0.25
		<950	<280								
	Alloyed steel	700-950	200-280			1.00	1.20			0.15	0.30
		950-1200	280-355								
		1200-1400	355-415								
M	Duplex stainless steel	778	230			0.05	0.80			0.05	0.15
	Austenitic stainless steel	675	200								
	Precipitation-hardening stainless steel	1013	300								
K	Grey cast iron	700	220			0.80	1.60			0.10	0.30
	Nodular cast iron	880	260								
	Malleable cast iron	800	250								
N	Aluminum	260	75			-	-			-	-
	Aluminum alloy	447	130								
S	Fe-based alloy	943	280			0.10	0.80			-	-
	Co-based alloy	1076	320								
	Ni-based alloy	1177	350								
	Ti-alloy	1262	370								
H	Hardened steel	-	50-60HRC			-	-			-	-
	Chilled cast iron	-	55HRC								

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

Application of AHM15-SD12 High Feed Milling Cutter

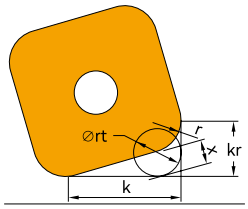




Product family	Cutter dia. (D)	Sloping			Helical interpolate milling		
		Max. ramp -A	Max.ap (mm)	Min. length-L (mm)	Min. Dia.(mm)	Max. Dia.(mm)	Max. pitch (mm)
AHM15-SD12	50	1.5°	2.0	89.1	76.0		1.9
	50	1.5°	2.0	89.1		100.0	2.0
	52	1.4°	2.0	96.0	80.0		1.9
	52	1.4°	2.0	96.0		104.0	2.0
	63	1.0°	2.0	133.7	102.0		1.9
	63	1.0°	2.0	133.7		126.0	2.0
	80	0.7°	2.0	192.0	136.0		1.9
	80	0.7°	2.0	192.0		160.0	2.0
	100	0.5°	2.0	260.6	176.0		1.9
	100	0.5°	2.0	260.6		200.0	2.0
	125	0.4°	2.0	346.3	226.0		1.9
	125	0.4°	2.0	346.3		250.0	1.9

Programming information

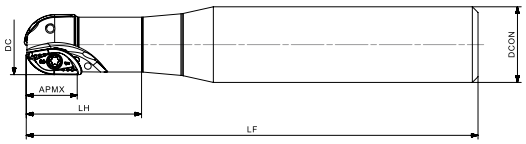
Helical interpolate milling on soild materials



Indexable insert	r (Insert radius)	rt (Approximate radius)	k	kr	x
SD..120408	0.8	3.0	11.43	3.65	2.62
SD..120420..	2.0	3.0	10.12	4.28	2.32
SD..120425	2.5	3.0	9.59	4.51	2.18
SD..120430..	3.0	3.0	9.07	4.76	2.04

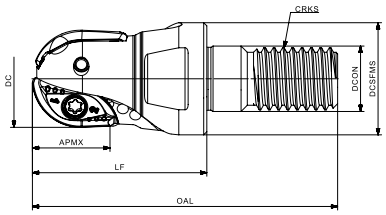
APM00-RP
Profile milling cutter





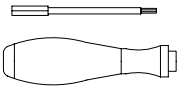
Product code	Dimension (mm)					Internal coolant	Weight (kg)	Z	Inserts
	DC	DCON	LF	LH	APMX				
APM00-016-Z02-C20R-RP080-L120-C	16	16	120	31	14		0.3	2	RPM 080ER-MM4
020-Z02-C25R-RP100-L126-C	20	20	126	42	18		0.3	2	RPM 100ER-MM4
020-Z02-C25R-RP100-L176-C	20	20	176	42	18		0.5	2	
032-Z02-C32R-RP160-L130-C	32	32	130	53	28		0.6	2	RPM 160ER-MM4



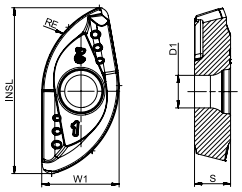


Product code	Dimension (mm)							Internal coolant	Weight (kg)	Inserts
	DC	DCSFMS	DCON	OAL	LF	CRKS	APMX			
APM00-016-Z02-M10R-RP080-C	16	18	10.5	50	28	M10	14		0.08	RPM 080ER-MM4
020-Z02-M10R-RP100-C	20	18	10.5	50	30	M10	18		0.04	RPM 100ER-MM4
032-Z02-M16R-RP160-C	32	29	17	64	40	M16	28		0.15	RPM 160ER-MM4

Note: With internal coolant
Without internal coolant

Cutter diameter (mm)	Spare parts			
	Screw	Wrench	Installation wrench	Torque
⌀16				1.2Nm
	SP02506450H	DT-TP08	AFW-15	
⌀20	SP030072H	DT-TP09	AFW-15	2.0Nm
⌀32	SP040100H	DT-TP15	AFW-24	3.5Nm

Compatible Inserts



Insert shape	Product code	INSL	W1	S	RE	D1	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
		Machining conditions					● Good Conditions ⬌ General Conditions ✖ Bad Conditions									
							●	⬌	⬌	⬌	✖	●	●	●	●	✖
		Dimension (mm)					P			M		K			N	S
	**RPM 080ER-MM4**	14.77	6.9	3.2	8.2	2.9	●			●	●					●
	RPM 100ER-MM4	18.85	8.63	3.9	10.3	3.5	●			●	○					●
	RPM 160ER-MM4	29.54	12.68	6.2	16.4	4.6				○	●					

● : Standard stock ○ : Made-to-Order

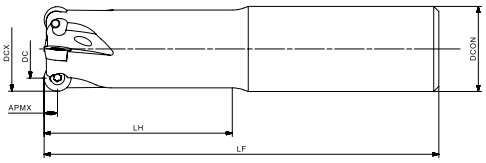
Materials				Cutting depth and feed			
				RPM....			
				ap		MM4	
						fz	
				(mm)			
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	min	max	min	max
P	Unalloyed steel	<600	<180	0.20	28.00	0.10	0.20
		<950	<280				
	Alloyed steel	700-950	200-280			0.10	0.18
		950-1200	280-355				
		1200-1400	355-415				
M	Duplex stainless steel	778	230			0.10	0.18
	Austenitic stainless steel	675	200				
	Precipitation-hardening stainless steel	1013	300				
K	Grey cast iron	700	220			-	-
	Nodular cast iron	880	260				
	Malleable cast iron	800	250				
N	Aluminum	260	75			-	-
	Aluminum alloy	447	130				
S	Fe-based alloy	943	280			0.06	0.12
	Co-based alloy	1076	320				
	Ni-based alloy	1177	350				
	Ti-alloy	1262	370				
H	Hardened steel	-	50-60HRC			-	-
	Chilled cast iron	-	55HRC				

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

APM00-RO08
Profile milling cutter

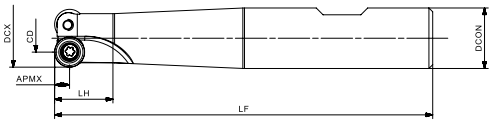






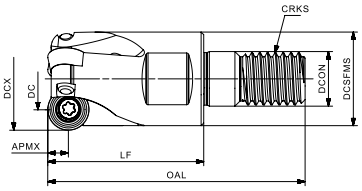
Product code	Dimension (mm)						Internal coolant	Weight (kg)	Z	Inserts
	DC	DCX	DCON	LF	LH	APMX				
APM00-025-Z04-C25R-RO08-L116-C	17	25	25	116	55.3	4	✓	0.4	4	RO..08..MOE..





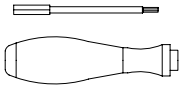
Product code	Dimension (mm)						Internal coolant	Weight (kg)	Z	Inserts
	DC	DCX	DCON	LF	LH	APMX				
APM00-016-Z02-W16R-RO08-L100	8	16	16	100	15.6	4	✗	0.1	2	RO..08..MOE..

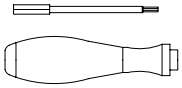




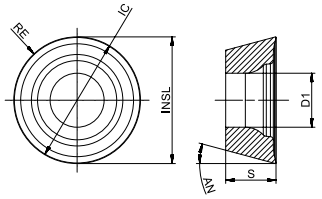
Product code	Dimension (mm)								Internal coolant	Weight (kg)	Z	Inserts
	DC	DCX	DCSFMS	DCON	OAL	LF	CRKS	APMX				
APM00-020-Z03-M10R-RO08-C	12	20	18	10.5	49.5	30	M10	4	✓	0.1	3	RO..08..MOE..

Note: ✓ With internal coolant
✗ Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
Ø16-25			2.0Nm
	SP030072H	DT-TP09	

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
∅16-25			2.0Nm
	SP030072H	DT-TP09	

Compatible Inserts



Insert shape	Product code	Machining conditions						● Good Conditions ⊕ General Conditions ✱ Bad Conditions									
								●	⊕	⊕	⊕	✱	●	●	●	●	✱
		Dimension (mm)						P			M		K			N	S
		INSL	IC	S	RE	D1	AN	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
	**ROHT 0803MOE-MM3**	8	8	3.18	-	3.4	15°					●					●

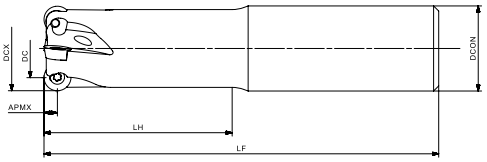
● : Standard stock ○ : Made-to-Order

Materials				Cutting depth and feed					
				RO..0803..					
				MM3					
				ap		fz			
						0.1 < ap ≤ 1		1 < ap ≤ 4	
				(mm)					
ISO	Material classification	Tensile strength (N/mm²)	Hardness (HB)	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.50	4.00	0.15	0.50	0.08	0.30
		<950	<280						
	Alloyed steel	700-950	200-280			0.12	0.45	0.06	0.28
		950-1200	280-355						
		1200-1400	355-415						
M	Duplex stainless steel	778	230			0.10	0.40	0.06	0.25
	Austenitic stainless steel	675	200						
	Precipitation-hardening stainless steel	1013	300						
K	Grey cast iron	700	220			-	-	-	-
	Nodular cast iron	880	260						
	Malleable cast iron	800	250						
N	Aluminum	260	75			-	-	-	-
	Aluminum alloy	447	130						
S	Fe-based alloy	943	280			0.10	0.35	0.06	0.25
	Co-based alloy	1076	320						
	Ni-based alloy	1177	350						
	Ti-alloy	1262	370						
H	Hardened steel	-	50-60HRC			-	-	-	-
	Chilled cast iron	-	55HRC						

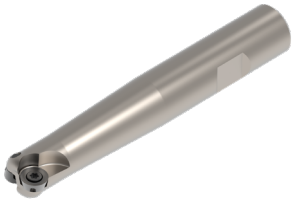
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

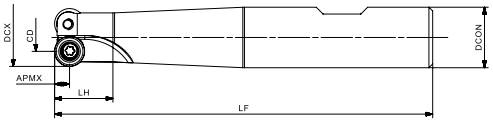
APM00-RO08
Profile milling cutter





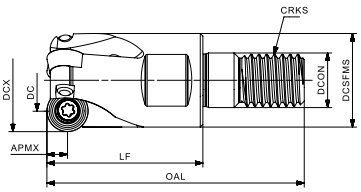
Product code	Dimension (mm)						Internal coolant	Weight (kg)	Z	Inserts
	DC	DCX	DCON	LF	LH	APMX				
APM00-020-Z03-C20R-RO08-L120-N-C	12	20	20	120	61.8	4	✓	0.3	4	RO..08..M4E..
025-Z04-C25R-RO08-L116-N-C	17	25	25	116	53.2	4	✓	0.4	4	





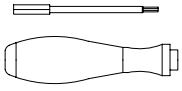
Product code	Dimension (mm)						Internal coolant	Weight (kg)	Z	Inserts
	DC	DCX	DCON	LF	LH	APMX				
APM00-016-Z02-W16R-RO08-L100-N	8	16	16	100	15.6	4	✗	0.1	2	RO..08..M4E..



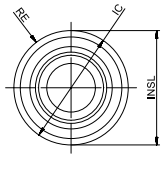


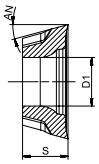
Product code	Dimension (mm)								Internal coolant	Weight (kg)	Z	Inserts
	DC	DCX	DCSFMS	DCON	OAL	LF	CRKS	APMX				
APM00-020-Z03-M10R-RO08-N-C	12	20	18	10.5	49.5	30	M10	4	✓	0.1	3	RO..08..M4E..

Note: ✓ With internal coolant
✗ Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
Ø16-25			2.0Nm
	SP030072H	DT-TP09	

Compatible Inserts





Insert shape	Product code	INSL	IC	S	RE	D1	AN	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
		Machining conditions						● Good Conditions ⇔ General Conditions ✱ Bad Conditions									
		Dimension (mm)						P			M		K			N	S
	**ROHT 0803M4E-MM3**	8	8	3.18	-	3.4	15°					●					●

● : Standard stock ○ : Made-to-Order

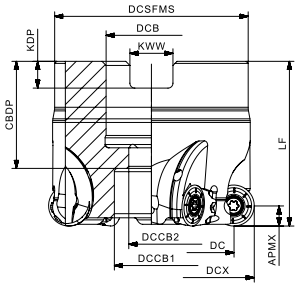
Materials				Cutting depth and feed					
				RO..0803..					
				MM3					
				ap		fz			
						0.1 < ap ≤ 1		1 < ap ≤ 4	
				(mm)					
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.50	4.00	0.15	0.50	0.08	0.30
		<950	<280						
	Alloyed steel	700-950	200-280			0.12	0.45	0.06	0.28
		950-1200	280-355						
		1200-1400	355-415						
M	Duplex stainless steel	778	230			0.10	0.40	0.06	0.25
	Austenitic stainless steel	675	200						
	Precipitation-hardening stainless steel	1013	300						
K	Grey cast iron	700	220			-	-	-	-
	Nodular cast iron	880	260						
	Malleable cast iron	800	250						
N	Aluminum	260	75			-	-	-	-
	Aluminum alloy	447	130						
S	Fe-based alloy	943	280			0.10	0.35	0.06	0.25
	Co-based alloy	1076	320						
	Ni-based alloy	1177	350						
	Ti-alloy	1262	370						
H	Hardened steel	-	50-60HRC			-	-	-	-
	Chilled cast iron	-	55HRC						

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

APM00-RO10
Profile milling cutter

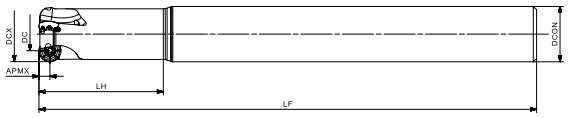






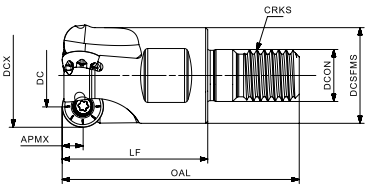
Product code	Dimension (mm)											Internal coolant	Weight (kg)	Z	Inserts
	DC	DCX	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX				
APM00-040-Z05-A16R-RO10-C	30	40	35	16	14	9	40	24	5.8	8.4	5	✓	0.3	5	RO..10T3..
050-Z06-A22R-RO10-C	40	50	47	22	18	11	40	26	6.5	10.4	5	✓	0.4	6	





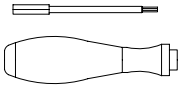
Product code	Dimension (mm)						Internal coolant	Weight (kg)	Z	Inserts
	DC	DCX	DCON	LF	LH	APMX				
APM00-025-Z03-C25R-RO10-L225-C	15	25	25	225	56.2	5	✓	0.8	3	RO..10T3..
032-Z04-C32R-RO10-L130-C	22	32	32	130	65	5	✓	0.7	4	



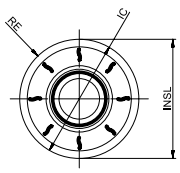


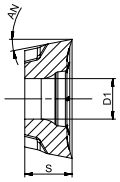
Product code	Dimension (mm)								Internal coolant	Weight (kg)	Z	Inserts
	DC	DCX	DCSFMS	DCON	OAL	LF	CRKS	APMX				
APM00-025-Z03-M12R-RO10-C	15	25	23	12.5	57	35	M12	5	✓	0.1	3	RO..10T3..
032-Z04-M16R-RO10-C	22	32	29	17	67	43	M16	5	✓	0.3	4	

Note: ✓ With internal coolant
✗ Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
∅25-50			2.0Nm
	SP030072H	DT-TP09	

Compatible Inserts





Insert shape	Product code	INSL	IC	S	RE	D1	AN	● Good Conditions ◐ General Conditions ✱ Bad Conditions									
								●	◐	◐	◐	✱	●	●	●	●	✱
		Dimension (mm)						P			M		K			N	S
								AP251U	AP351U	AC251P	AP403M	AP351M	AP251K	AC301K	AC151K	AW100K	AP403S
	**ROHT 10T3M8E-MM3**	10	10	3.97	-	3.4	11°				●						●
	**ROMT 10T3M4E-MR6**	10	10	3.97	-	3.4	11°		○		●						●

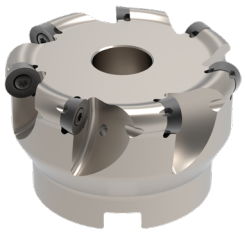
● : Standard stock ○ : Made-to-Order

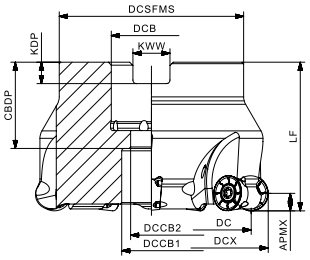
Materials				Cutting depth and feed									
				RO..10T3..									
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	ap		MM3				MR6			
						fz							
						0.1 < ap ≤ 1.2		1.2 < ap ≤ 5		0.1 < ap ≤ 1.2		1.2 < ap ≤ 5	
				(mm)									
				min	max	min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.80	5.00	0.15	0.55	0.10	0.30	0.15	0.60	0.10	0.32
		<950	<280										
	Alloyed steel	700-950	200-280			0.12	0.50	0.08	0.28	0.12	0.55	0.08	0.30
		950-1200	280-355										
		1200-1400	355-415										
M	Duplex stainless steel	778	230			0.10	0.45	0.08	0.25	0.10	0.50	0.08	0.28
	Austenitic stainless steel	675	200										
	Precipitation-hardening stainless steel	1013	300										
K	Grey cast iron	700	220			-	-	-	-	-	-	-	-
	Nodular cast iron	880	260										
	Malleable cast iron	800	250										
N	Aluminum	260	75			-	-	-	-	-	-	-	-
	Aluminum alloy	447	130										
S	Fe-based alloy	943	280			0.10	0.40	0.08	0.25	-	-	-	-
	Co-based alloy	1076	320										
	Ni-based alloy	1177	350										
	Ti-alloy	1262	370										
H	Hardened steel	-	50-60HRC			-	-	-	-	-	-	-	-
	Chilled cast iron	-	55HRC										

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

APM00-RO12
Profile milling cutter

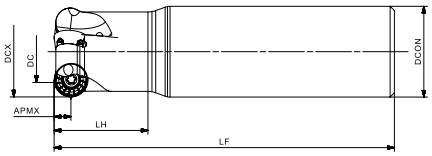






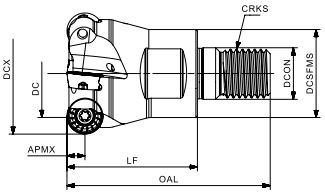
Product code	Dimension (mm)											Internal coolant	Weight (kg)	Z	Inserts
	DC	DCX	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX				
APM00-040-Z04-A16R-RO12-C	28	40	35	16	14	9	40	24	5.8	8.4	6	✓	0.3	4	RO..1204..
050-Z05-A22R-RO12-C	38	50	45	22	18	11	40	26	6.5	10.4	6	✓	0.4	5	
063-Z06-A22R-RO12-C	51	63	48	22	18	11	40	26	6.5	10.4	6	✓	0.6	6	
080-Z07-A27R-RO12-C	68	80	62	27	20	14	50	29	7.2	12.4	6	✓	1.2	7	





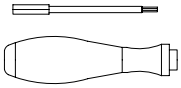
Product code	Dimension (mm)						Internal coolant	Weight (kg)	Z	Inserts
	DC	DCX	DCON	LF	LH	APMX				
APM00-032-Z03-C32R-RO12-L120-C	20	32	32	120	33	6	✓	0.7	3	RO..1204..



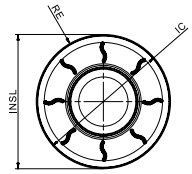


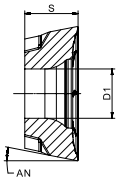
Product code	Dimension (mm)								Internal coolant	Weight (kg)	Z	Inserts
	DC	DCX	DCSFMS	DCON	OAL	LF	CRKS	APMX				
APM00-040-Z04-M16R-RO12-C	28	40	29	17	67	43	M16	6	✓	0.3	4	RO..1204..

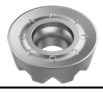
Note: ✓ With internal coolant
✗ Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
∅32-80			4.0Nm
	SP040085H	DT-TP10	

Compatible Inserts





Insert shape	Product code	INSL	IC	S	RE	D1	AN	Machining conditions: ● Good Conditions ◐ General Conditions ✱ Bad Conditions									
								●	◐	◐	◐	✱	●	●	●	●	✱
		Dimension (mm)						P			M		K			N	S
								AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
	**ROHT 1204M4E-MM3**	12	12	4.76	-	4.4	11°					●					●
	ROHT 1204M6E-MM3	12	12	4.76	-	4.4	11°					●					●
	**ROMT 1204M6E-MR6**	12	12	4.76	-	4.4	11°	○				●					●

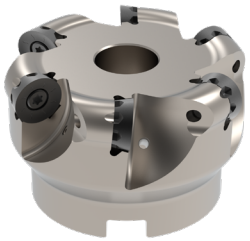
● : Standard stock ○ : Made-to-Order

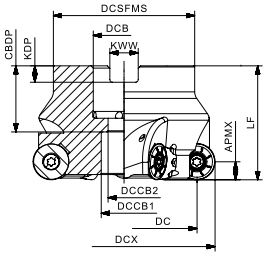
Materials				Cutting depth and feed									
				RO..1204..									
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	ap		MM3				MR6			
						fz							
						0.1 < ap ≤ 1.5		1.5 < ap ≤ 6		0.1 < ap ≤ 1.5		1.5 < ap ≤ 6	
				(mm)									
				min	max	min	max	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.80	6.00	0.18	0.60	0.12	0.32	0.18	0.65	0.12	0.35
		<950	<280										
	Alloyed steel	700-950	200-280			0.15	0.55	0.10	0.30	0.15	0.60	0.10	0.32
		950-1200	280-355										
		1200-1400	355-415										
M	Duplex stainless steel	778	230			0.12	0.50	0.10	0.28	0.12	0.55	0.10	0.30
	Austenitic stainless steel	675	200										
	Precipitation-hardening stainless steel	1013	300										
K	Grey cast iron	700	220			-	-	-	-	-	-	-	-
	Nodular cast iron	880	260										
	Malleable cast iron	800	250										
N	Aluminum	260	75			-	-	-	-	-	-	-	-
	Aluminum alloy	447	130										
S	Fe-based alloy	943	280			0.12	0.45	0.10	0.28	-	-	-	-
	Co-based alloy	1076	320										
	Ni-based alloy	1177	350										
	Ti-alloy	1262	370										
H	Hardened steel	-	50-60HRC			-	-	-	-	-	-	-	-
	Chilled cast iron	-	55HRC										

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

APM00-RO16
Profile milling cutter

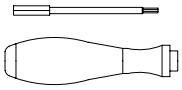




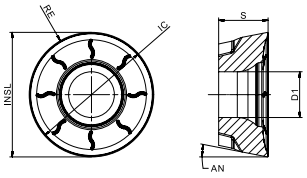


Product code	Dimension (mm)											Internal coolant	Weight (kg)	Z	Inserts
	DC	DCX	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX				
APM00-063-Z05-A22R-RO16-C	47	63	48	22	18	11	40	26	6.5	10.4	8		0.5	5	RO..1605..
080-Z06-A27R-RO16-C	64	80	62	27	20	14	50	29	7.2	12.4	8		1.2	6	
100-Z07-A32R-RO16-C	84	100	80	32	26	18	50	32	8.2	14.4	8		1.8	7	

Note: With internal coolant
Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
∅63-100			5.0Nm
	SP050120	DT-TP20	

Compatible Inserts



Insert shape	Product code	Machining conditions: Dimension (mm) INSL	IC	S	RE	D1	AN	● Good Conditions ● General Conditions ● Bad Conditions: P AP251U	P AP351U	P AC251P	M AP351M	M AP403M	K AP251K	K AC301K	K AC151K	N AW100K	S AP403S
	**ROHT 1605M8E-MM3**	16	16	5.56	-	5.5	11°					●					●
	**ROMT 1605M6E-MR6**	16	16	5.56	-	5.5	11°			●		●					●

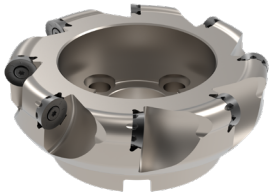
● : Standard stock ○ : Made-to-Order

Materials: ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	Cutting depth and feed: RO..1605.. ap (mm) min	ap (mm) max	MM3 fz 0.1 < ap ≤ 1.5 min	MM3 fz 0.1 < ap ≤ 1.5 max	MM3 fz 1.5 < ap ≤ 8 min	MM3 fz 1.5 < ap ≤ 8 max	MR6 fz 0.1 < ap ≤ 1.5 min	MR6 fz 0.1 < ap ≤ 1.5 max	MR6 fz 1.5 < ap ≤ 8 min	MR6 fz 1.5 < ap ≤ 8 max
P	Unalloyed steel	<600	<180	0.80	8.00	0.20	0.65	0.12	0.35	0.20	0.68	0.12	0.38
		<950	<280										
	Alloyed steel	700-950	200-280			0.18	0.60	0.10	0.32	0.18	0.65	0.10	0.35
		950-1200	280-355										
		1200-1400	355-415										
M	Duplex stainless steel	778	230			0.15	0.55	0.10	0.30	0.15	0.58	0.10	0.32
	Austenitic stainless steel	675	200										
	Precipitation-hardening stainless steel	1013	300										
K	Grey cast iron	700	220			-	-	-	-	-	-	-	-
	Nodular cast iron	880	260										
	Malleable cast iron	800	250										
N	Aluminum	260	75			-	-	-	-	-	-	-	-
	Aluminum alloy	447	130										
S	Fe-based alloy	943	280			0.15	0.50	0.10	0.30	-	-	-	-
	Co-based alloy	1076	320										
	Ni-based alloy	1177	350										
	Ti-alloy	1262	370										
H	Hardened steel	-	50-60HRC			-	-	-	-	-	-	-	-
	Chilled cast iron	-	55HRC										

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

APM00-RO20
Profile milling cutter





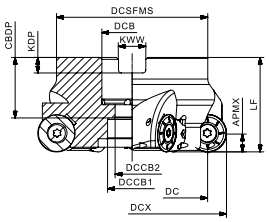


Fig. 1

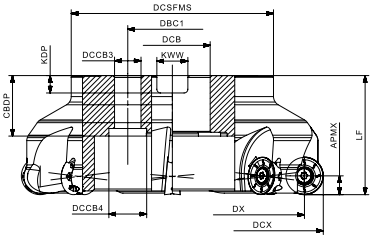
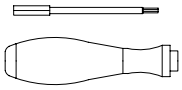


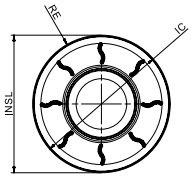
Fig. 2

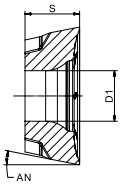
Product code	Dimension (mm)														Internal coolant	Weight (kg)	Z	Fig.	Inserts
	DC	DCX	DCSFMS	DCB	DBC1	DCCB1	DCCB2	DCCB3	DCCB4	LF	CBDP	KDP	KWW	APMX					
APM00-100-Z06-A32R-RO20-C	80	100	80	32	-	26	18	-	-	50	32	8.2	14.4	10		1.7	6	1	RO..2006..
125-Z07-A40R-RO20-C	105	125	87	40	-	33	22	-	-	63	38	9.2	16.4	10		3.5	7		
160-Z08-A40R-RO20	140	160	107	40	66.7	58	-	14	20	63	32	9.2	16.4	10		4.5	8	2	

Note: With internal coolant
Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
∅100-160			7.0Nm
	SP060180	DT-TP25	

Compatible Inserts





Insert shape	Product code	INSL	IC	S	RE	D1	AN	Machining conditions: ● Good Conditions ◐ General Conditions ✱ Bad Conditions									
								●	◐	◐	◐	✱	●	●	●	●	✱
		Dimension (mm)						P			M		K			N	S
								AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
	**ROHT 2006M8E-MM3**	20	20	6.35	-	6.5	11°					●					●
	**ROMT 2006M8E-MR6**	20	20	6.35	-	6.5	11°					●		○			●

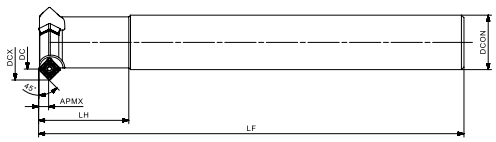
● : Standard stock ○ : Made-to-Order

ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	Cutting depth and feed: RO..2006.. ap (mm) min	ap (mm) max	MM3 fz (mm) 0.1 < ap ≤ 2.5 min	MM3 fz (mm) 0.1 < ap ≤ 2.5 max	MM3 fz (mm) 2.5 < ap ≤ 10 min	MM3 fz (mm) 2.5 < ap ≤ 10 max	MR6 fz (mm) 0.1 < ap ≤ 2.5 min	MR6 fz (mm) 0.1 < ap ≤ 2.5 max	MR6 fz (mm) 2.5 < ap ≤ 10 min	MR6 fz (mm) 2.5 < ap ≤ 10 max
P	Unalloyed steel	<600	<180	1.00	10.00	0.20	0.70	0.15	0.38	0.20	0.80	0.15	0.40
		<950	<280										
	Alloyed steel	700-950	200-280			0.18	0.65	0.12	0.35	0.18	0.70	0.12	0.38
		950-1200	280-355										
		1200-1400	355-415										
M	Duplex stainless steel	778	230			0.15	0.60	0.12	0.32	0.15	0.65	0.12	0.35
	Austenitic stainless steel	675	200										
	Precipitation-hardening stainless steel	1013	300										
K	Grey cast iron	700	220			-	-	-	-	-	-	-	-
	Nodular cast iron	880	260										
	Malleable cast iron	800	250										
N	Aluminum	260	75			-	-	-	-	-	-	-	-
	Aluminum alloy	447	130										
S	Fe-based alloy	943	280			0.15	0.55	0.12	0.32	-	-	-	-
	Co-based alloy	1076	320										
	Ni-based alloy	1177	350										
	Ti-alloy	1262	370										
H	Hardened steel	-	50-60HRC			-	-	-	-	-	-	-	-
	Chilled cast iron	-	55HRC										

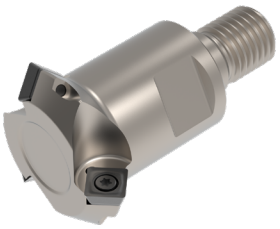
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

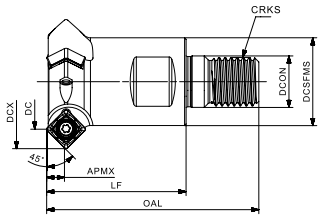
ACM45-SD09
Chamfer milling cutter





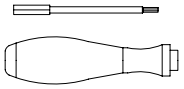
Product code	Dimension (mm)						Internal coolant	Weight (kg)	Z	Inserts
	DC	DCX	DCON	LF	LH	APMX				
ACM45-012-Z01-C16R-SD09-L160	12	24	16	160	25	5.5		0.3	1	SD..09T3..N..
016-Z02-C16R-SD09-L160	16	28	16	160	30	5.5		0.2	2	
020-Z02-C20R-SD09-L180	20	32	20	180	35	5.5		0.4	2	
025-Z03-C25R-SD09-L200	25	37	25	200	42	5.5		0.7	3	
032-Z03-C32R-SD09-L250	32	44	32	250	53	5.5		1.5	3	



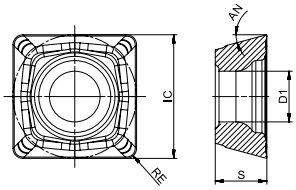


Product code	Dimension (mm)								Internal coolant	Weight (kg)	Z	Inserts
	DC	DCX	DCSFMS	DCON	OAL	LF	CRKS	APMX				
ACM45-016-Z02-M08R-SD09	16	28	15	8.5	42	25	M08	5.5		0.1	2	SD..09T3..N..
020-Z02-M10R-SD09	20	32	18	10.5	51	31	M10	5.5		0.1	2	
025-Z03-M12R-SD09	25	37	23	12.5	59	37	M12	5.5		0.1	3	
032-Z03-M16R-SD09	32	44	29	17	70	46	M16	5.5		0.3	3	

Note: With internal coolant
Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
Ø12-32			3.0Nm
	SP035086	DT-TP10	

Compatible Inserts



Insert shape	Product code	IC	S	RE	BS	D1	AN	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
		Machining conditions						● Good Conditions ◐ General Conditions ✱ Bad Conditions									
								●	◐	◐	◐	✱	●	●	●	●	✱
		Dimension (mm)						P			M		K			N	S
	**SDMT 09T308N-MM4**	9.525	3.97	0.8	-	3.9	15°	●			●	●	●		●		
	SDMT 09T320N-MM4	9.520	3.97	2.0	-	3.9	15°	●			●	●	●		●		●
	**SDMT 09T308N-MR2**	9.525	3.97	0.8	-	3.9	15°	●			●	●	●		●		
	SDMT 09T320N-MR2	9.520	3.97	2.0	-	3.9	15°	●			●	●	●		●		

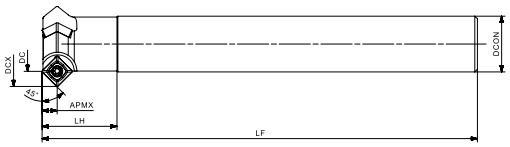
● : Standard stock ○ : Made-to-Order

Materials				Cutting depth and feed					
				SD..09T3..N..					
				ap		Geometry			
						MM4		MR2	
						fz			
				(mm)					
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.10	5.50	0.05	0.25	0.05	0.35
		<950	<280						
	Alloyed steel	700-950	200-280			0.05	0.22	0.05	0.30
		950-1200	280-355						
		1200-1400	355-415						
M	Duplex stainless steel	778	230			-	-	0.08	0.35
	Austenitic stainless steel	675	200						
	Precipitation-hardening stainless steel	1013	300						
K	Grey cast iron	700	220			0.08	0.30	0.08	0.30
	Nodular cast iron	880	260						
	Malleable cast iron	800	250						
N	Aluminum	260	75			-	-	-	-
	Aluminum alloy	447	130						
S	Fe-based alloy	943	280			0.05	0.30	-	-
	Co-based alloy	1076	320						
	Ni-based alloy	1177	350						
	Ti-alloy	1262	370						
H	Hardened steel	-	50-60HRC			-	-	-	-
	Chilled cast iron	-	55HRC						

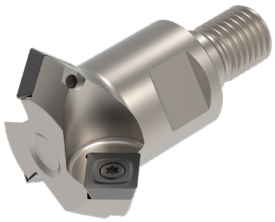
*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

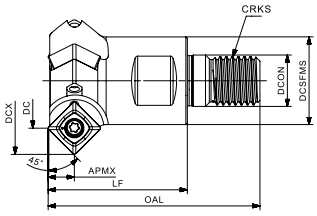
ACM45-SD12
Chamfer milling cutter





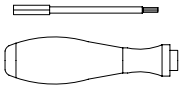
Product code	Dimension (mm)						Internal coolant	Weight (kg)	Z	Inserts
	DC	DCX	DCON	LF	LH	APMX				
ACM45-025-Z02-C25R-SD12-L200	25	41	25	200	30	7.5		0.8	2	SD..1204..N..
032-Z03-C32R-SD12-L250	32	48	32	250	43	7.5		1.5	3	



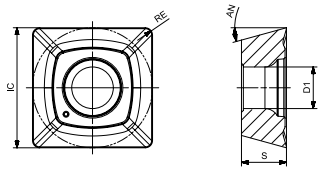


Product code	Dimension (mm)								Internal coolant	Weight (kg)	Z	Inserts
	DC	DCX	DCSFMS	DCON	OAL	LF	CRKS	APMX				
ACM45-025-Z02-M12R-SD12	25	41	23	12.5	59	37	M12	7.5		0.1	2	SD..1204..N..
032-Z03-M16R-SD12	32	48	29	17	70	46	M16	7.5		0.2	3	

Note: With internal coolant
Without internal coolant

Cutter diameter (mm)	Spare parts		
	Screw	Wrench	Torque
Ø25-32			3.5Nm
	SP040112	DT-TP15	

Compatible Inserts



Insert shape	Product code	IC	S	RE	D1	AN	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
		Machining conditions					● Good Conditions ⊕ General Conditions ✱ Bad Conditions									
		Dimension (mm)					P			M		K			N	S
	**SDMT 120408N-MM4**	12.7	4.76	0.8	4.4	15.3°	●			●	●	●		●		
	SDMT 120420N-MM4	12.7	4.76	2.0	4.4	15.3°	○					●				
	SDMT 120425N-MM4	12.7	4.76	2.5	4.4	15.3°				○	●					○
	SDMT 120430N-MM4	12.7	4.76	3.0	4.4	15.3°		○				●				
	**SDMT 120408N-MR2**	12.7	4.76	0.8	4.4	15.3°	●		●	●	●	●		●		

● : Standard stock ○ : Made-to-Order

Materials				Cutting depth and feed					
				SD..1204..N..					
				ap		Geometry			
						MM4		MR2	
						fz			
				(mm)					
ISO	Material classification	Tensile strength (N/mm²)	Hardness (HB)	min	max	min	max	min	max
P	Unalloyed steel	<600	<180	0.20	7.50	0.10	0.30	0.10	0.35
		<950	<280						
	Alloyed steel	700-950	200-280			0.12	0.25	0.10	0.30
		950-1200	280-355						
		1200-1400	355-415						
M	Duplex stainless steel	778	230			0.06	0.20	0.10	0.30
	Austenitic stainless steel	675	200						
	Precipitation-hardening stainless steel	1013	300						
K	Grey cast iron	700	220			0.10	0.30	0.10	0.35
	Nodular cast iron	880	260						
	Malleable cast iron	800	250						
N	Aluminum	260	75			-	-	-	-
	Aluminum alloy	447	130						
S	Fe-based alloy	943	280			0.06	0.12	-	-
	Co-based alloy	1076	320						
	Ni-based alloy	1177	350						
	Ti-alloy	1262	370						
H	Hardened steel	-	50-60HRC			-	-	-	-
	Chilled cast iron	-	55HRC						

*The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant. Average chip thickness (hm)=fz x sinkr.

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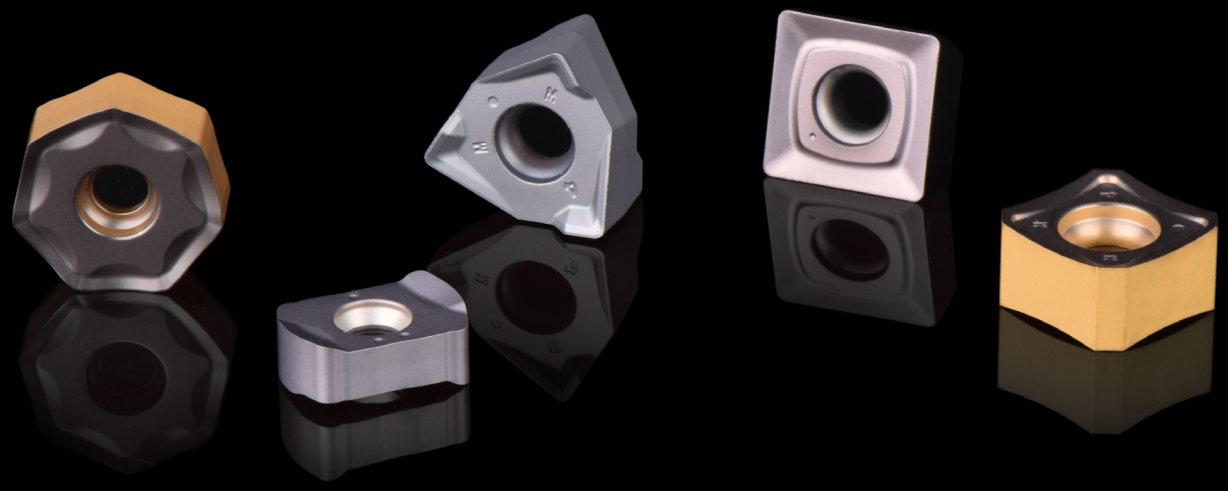

Milling Inserts

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Milling Insert Denomination System

A	O	M	T
1	2	3	4

1- Shape/Code

A	H	M	O	R
85°	120°	86°	135°	360°

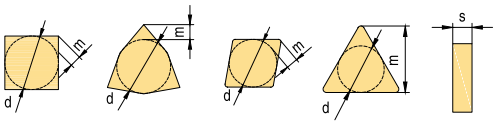
S	T	Z	X
90°	60°	86°	Special

2- Clearance Angle

C	D	E	F
7°	15°	20°	25°

G	N	P	O
30°	0°	11°	Other clearance angle

3- Tolerance



Class	Unit	In.Circle dimension d	Nose height m	Thickness s
A	mm	± 0,025	± 0,005	± 0,025
C	mm	± 0,025	± 0,013	± 0,025
E	mm	± 0,025	± 0,025	± 0,025
F	mm	± 0,013	± 0,005	± 0,025
G	mm	± 0,025	± 0,025	± 0,13
H	mm	± 0,013	± 0,013	± 0,025
J	mm	*	± 0,005	± 0,025
K	mm	*	± 0,013	± 0,025
L	mm	*	± 0,025	± 0,025
M	mm	*	*	± 0,127
U	mm	*	*	± 0,127
N	mm	*	*	± 0,025

* For details refer to right and below tables

Shape: C, E, H, M, O, P, S, T, R, W				
IC	d		m	
	J,K,L,M,N	U	M, N	U
4.76	± 0,05	± 0,08	± 0,08	± 0,13
5.56	± 0,05	± 0,08	± 0,08	± 0,13
6	± 0,05	± 0,08	± 0,08	± 0,13
6.35	± 0,05	± 0,08	± 0,08	± 0,13
7.94	± 0,05	± 0,08	± 0,08	± 0,13
8	± 0,05	± 0,08	± 0,08	± 0,13
9.525	± 0,05	± 0,08	± 0,08	± 0,13
10	± 0,05	± 0,08	± 0,08	± 0,13
12	± 0,08	± 0,13	± 0,13	± 0,2
12.7	± 0,08	± 0,13	± 0,13	± 0,2
15.875	± 0,1	± 0,18	± 0,15	± 0,27
16	± 0,1	± 0,18	± 0,15	± 0,27
19.05	± 0,1	± 0,18	± 0,15	± 0,27
20	± 0,1	± 0,18	± 0,15	± 0,27
25	± 0,13	± 0,25	± 0,18	± 0,38
25.4	± 0,13	± 0,25	± 0,18	± 0,38
31.75	± 0,15	± 0,25	± 0,2	± 0,38
32	± 0,15	± 0,25	± 0,2	± 0,38

M&N shape	D shape		V shape	
IC	d	m	d	m
5.56	± 0,05	± 0,11		
6.35	± 0,05	± 0,11	± 0,05	± 0,16
7.94	± 0,05	± 0,11	± 0,05	± 0,16
9.525	± 0,05	± 0,11	± 0,05	± 0,16
12.7	± 0,08	± 0,15	± 0,08	± 0,2
15.875	± 0,10	± 0,18	± 0,10	± 0,27
19.05	± 0,10	± 0,18	± 0,10	± 0,27

4- Clamping Type

A	B	C	F	G
	70°-90°	70°-90°		

H	J	M	N	Q
70°-90°	70°-90°			40°-60°

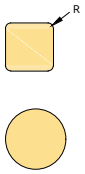
R	T	U	W	Z
	40°-60°	40°-60°	40°-60°	Special

12	04	08	E	R	-	MM4
5	6	7	8	9	-	10

5- Cutting Edge Length

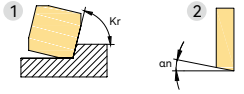
In.Circle dimension (mm)	H	M	O	R	S	T	Z
3.180						05	
3.970						06	
5.000				05			
5.560						09	
6.000				06			
6.350						11	
7.940						13	
8.000				08			
9.525				09	09	16	
10.000				10			
12.000				12			
12.700			04	12	12	22	
15.875				15	15	27	
16.000			06	16			
19.050				19	19	33	
20.000				20			
25.000				25	25		
25.400				25			
31.750				31			
32.000				32			

7- Corner Radius and Wiper Edge



00	= sharp	24	= 2.4
01	= 0.1	28	= 2.8
02	= 0.2	32	= 3.2
04	= 0.4	40	= 4.0
08	= 0.8	48	= 4.8
12	= 1.2	56	= 5.6
16	= 1.6	64	= 6.4
20	= 2.0	X	= others

Round insert:MO refers to metric dia. size



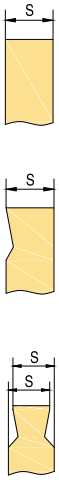
1 Approach angle (Entering angle) (Kr)

A = 45°
D = 60°
E = 75°
F = 85°
P = 90°
Z = Others

2 Clearance angle of wiper edge(n)

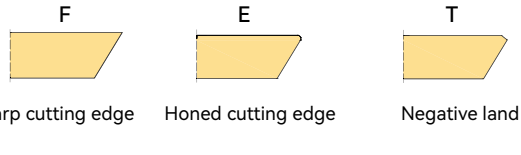
A = 3°
B = 5°
C = 7°
D = 15°
E = 20°
F = 25°
G = 30°
N = 0°
P = 11°
Z = Others

6- Insert Thickness

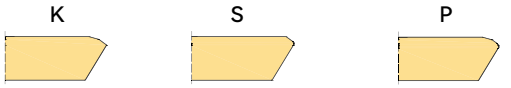


01=1.59mm
T1=1.98mm
02=2.38mm
T2=2.78mm
03=3.18mm
T3=3.97mm
04=4.76mm
05=5.56mm
06=6.35mm
07=7.94mm
09=9.52mm

8- Edge Preparation

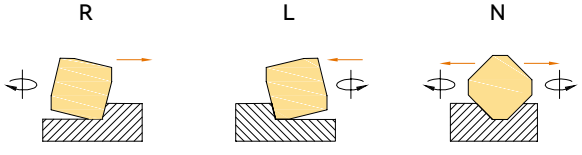


Sharp cutting edge | Honed cutting edge | Negative land



Double negative land | Negative land +honed | Double negative land +honed

9-Hand of Tool



Right hand | Left hand | Neutral

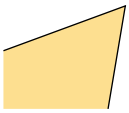
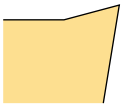
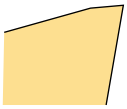
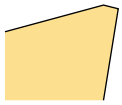
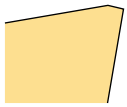
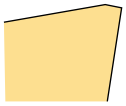
10- Geometry Refers to Geometry Introduction

Geometry Application Guide

Materials				Milling geometry application						
				FM2	MM3	MM4	MR2	MR6	RR2	HR2
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	Suitable for machining aluminium alloy	Light cutting	General purpose	Medium machining	Roughing	Heavy roughing	Roughing
P	Unalloyed steel	<600	<180	-	◐	●	●	●	-	-
		<950	<280	-	◐	●	●	●	-	-
	Alloyed steel	700-950	200-280	-	◐	●	●	●	-	-
		950-1200	280-355	-	◐	●	●	●	-	-
		1200-1400	355-415	-	◐	●	●	●	-	-
M	Duplex stainless steel	778	230	-	◐	●	◐	-	-	-
	Austenitic stainless steel	675	200	-	◐	●	◐	-	-	-
	Precipitation-hardening stainless steel	1013	300	-	◐	●	◐	-	-	-
K	Grey cast iron	700	220	-	-	◐	●	●	●	●
	Nodular cast iron	880	260	-	-	◐	●	●	●	●
	Malleable cast iron	800	250	-	-	◐	●	●	●	●
N	Aluminum	260	75	●	-	-	-	-	-	-
	Aluminum alloy	447	130	●	-	-	-	-	-	-
S	Fe-based alloy	943	280	-	●	◐	◐	-	-	-
	Co-based alloy	1076	320	-	●	◐	◐	-	-	-
	Ni-based alloy	1177	350	-	●	◐	◐	-	-	-
	Ti-alloy	1262	370	-	●	◐	◐	-	-	-
H	Hardened steel	-	50-60HRC	-	-	◐	●	-	-	-
	Chilled cast iron	-	55HRC	-	-	◐	●	-	-	-

● 1st choice
◐ 2nd choice
- Inapplicable

Milling Geometry Introduction

Insert geometry	Edge shape	Application
FM2		▪ Low cutting force, for weak machining condition ▪ Sharp geometry ▪ For aluminium material machining
MM3		▪ Low cutting force, for weak machining condition ▪ Sharp geometry ▪ For steel, stainless-steel and heat resistant alloy machining
MM4		▪ For medium machining condition ▪ Universal geometry ▪ For machining most materials
MR2		▪ For medium or better machining condition ▪ Universal geometry ▪ For machining most materials
MR6		▪ For stable machining condition ▪ Roughing geometry ▪ For machining most materials
HR2		▪ For stable machining condition ▪ Roughing geometry ▪ Mainly for cast iron machining
RR2		▪ For stable machining condition ▪ Heavy roughing geometry ▪ Mainly for cast iron and steel machining
IT		▪ Sharp geometry, for specified product
DT		▪ Universal geometry, for specified product

Grade Application Guide

Material List of Indexable Milling Inserts														
Material Group	Material classification	ISO	Coated											Uncoated
			PVD							CVD				
P	unalloy steels / Alloyed steels	P01	AP251U		AP351U	AP351M	AP403M						AC251P	
		P05												
		P10												
		P15												
		P20												
		P25												
		P30												
		P35												
		P40												
		P45												
		P50												
M	Stainless steels	M01	AP251U		AP351U	AP351M	AP403M	AP403S						
		M05												
		M10												
		M15												
		M20												
		M25												
		M30												
		M35												
		M40												
		M45												
		M50												
K	Cast iron	K01												
		K05												
		K10							AP151H	AP251K	AC151K	AC301K		
		K15												
		K20												
		K25											AC251P	
		K30												
		K35												
		K40												
		K45												
		K50												
N	Aluminum/ Aluminum alloys	N01												
		N05												
		N10												AW100K
		N15												
		N20												
		N25												
		N30												
S	Heat resistant alloys	S01												
		S05												
		S10												
		S15												
		S20												
		S25				AP351M								
		S30												
		S35					AP403M	AP403S						
		S40												
		S45												
		S50												
H	Hardened steels/ Chilled cast iron	H01												
		H05												
		H10							AP151H					
		H15												
		H20												
		H25												
		H30												

Grade Application Guide

Materials				Milling grade application										
				PVD coated							CVD coated			Uncoated
ISO	Material classification	Tensile strength (N/mm^2)	Hardness (HB)	AP251U	AP351U	AP351M	AP403M	AP251K	AP403S	AP151H	AC251P	AC151K	AC301K	AW100K
P	Unalloyed steel	<600	<180	●	●	◐	◐	-	-	-	●	-	-	-
		<950	<280	●	●	◐	◐	-	-	-	●	-	-	-
	Alloyed steel	700-950	200-280	●	●	◐	◐	-	-	-	●	-	-	-
		950-1200	280-355	●	●	◐	◐	-	-	-	●	-	-	-
		1200-1400	355-415	●	●	◐	◐	-	-	-	●	-	-	-
M	Duplex stainless steel	778	230	◐	◐	●	●	-	◐	-	-	-	-	-
	Austenitic stainless steel	675	200	◐	◐	●	●	-	◐	-	-	-	-	-
	Precipitation-hardening stainless steel	1013	300	◐	◐	●	●	-	◐	-	-	-	-	-
K	Grey cast iron	700	220	-	-	-	-	●	-	◐	◐	●	●	-
	Nodular cast iron	880	260	-	-	-	-	●	-	◐	◐	●	●	-
	Malleable cast iron	800	250	-	-	-	-	●	-	◐	◐	●	●	-
N	Aluminum	260	75	-	-	-	-	-	-	-	-	-	-	●
	Aluminum alloy	447	130	-	-	-	-	-	-	-	-	-	-	●
S	Fe-based alloy	943	280	-	◐	◐	◐	-	●	-	-	-	-	-
	Co-based alloy	1076	320	-	◐	◐	◐	-	●	-	-	-	-	-
	Ni-based alloy	1177	350	-	◐	◐	◐	-	●	-	-	-	-	-
	Ti-alloy	1262	370	-	◐	◐	◐	-	●	-	-	-	-	◐
H	Hardened steel	-	50-60HRC	-	-	-	-	-	-	●	-	-	-	-
	Chilled cast iron	-	55HRC	-	-	-	-	-	-	●	-	-	-	-

● 1st choice
◐ 2nd choice
- Inapplicable

Grade for Milling

P Steel, alloyed steel, unalloyed steel

Basic grade

AP251U P25(P15-P35)

PVD-coated grade, suitable for most applications. First choice for steel machining. It is recommended to be used in rough to finish machining of steel under stable working conditions, good for dry and wet machining with small cutting width, complex tool path and sticky materials.

AC251P P35(P25-P40)

CVD coated grade is suitable for big cutting depth, medium to high speed milling of steel under bad machining conditions.

Supplemental grade

AP351M P35(P25-P45)

PVD coated grade, medium hardness substrate, which is a supplement for AP251U in steel milling when high-toughness is requested.

AP351U P35(P30-P45)

PVD coated grade, medium hardness substrate, which is a supplement for AP251U in steel milling when high-toughness is requested.

M Stainless steel, austenite stainless steel, martensite stainless steel

Basic grade

AP351M M35(M25-M45)

PVD coated grade is used for milling stainless steel and steel at medium and low speed under bad machining conditions.

AP403M M35(M35-M50)

Ultra-thick PVD coated grade is the first choice for stainless steel milling. It is suitable for rough milling of stainless steel under bad machining conditions.

Supplemental grade

AP251U M25(M15-M35)

PVD coated grade is used in rough and finish milling of stainless steel under very stable machining conditions.

AP403S M45(M35-M50)

PVD coated grade, the substrate has both toughness and red hardness characteristics, and is suitable for rough milling of stainless steel under bad machining conditions. Milling at low cutting speed can get longer tool life.

AP351U M35(M30-M45)

PVD coated grade, medium hardness substrate, which is a supplement for AP251U in steel milling when high-toughness is requested.

K Cast iron, grey cast iron, nodular cast iron

Basic grade

AC301K K25(K10-K35)

CVD coated grade, suitable for semi-finish milling and rough milling of grey cast iron at medium and high cutting speed, Recommended for dry cutting conditions, can achieve longer tool life.

AC151K K25(K10-K35)

CVD coated grade, the combination of a high wear-resistant substrate and a high bonding strength CVD coating provides excellent performance in semi-finish and rough milling of cast iron materials.

AP251K K25(K15-K40)

PVD coated grade is suitable for semi-finish and rough milling of grey cast iron and nodular cast iron at medium and low cutting speed, and has good tool life under dry and wet conditions.

Supplemental grade

AP151H K15(K10-K20)

PVD coated grade is suitable for finish milling of grey cast iron and nodular cast iron, which can get constant surface quality and longer tool life.

AC251P K35(K25-K40)

PVD coated grade recommended for high speed dry cutting of cast iron.

N Non-ferrous metals

Basic grade

AW100K N15 (N10-N20)

Uncoated grade, combined with sharp cutting edge, used in aluminum alloy milling.

S Heat resistant alloy

Basic grade

AP403S S45(S35-S50)

PVD coated grade, the substrate has both toughness and red hardness characteristics, and is the first choice for titanium alloy machining, as well as the machining of heat resistant alloy under weak rigidity. It is applicable to the milling at low cutting speed and can get longer tool life.

Supplemental grade

AP351M S35(S25-S45)

PVD coated grade is suitable for semi-finishing to light rough machining of heat resistant alloy and titanium alloys.

AP403M S45(S35-S50)

The ultra-thick PVD coated grade is suitable for low-speed milling of heat resistant alloy and titanium alloys when high toughness is requested, especially in case of large cutting width.

H Hard material, hardened steel

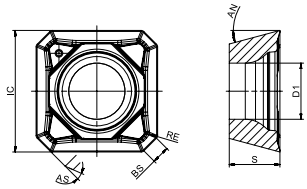
Basic grade

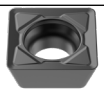
AP151H H15(H10-H20)

PVD coated grade, suitable for milling hardened steel, can be used in rough and finish milling, meeting the needs of most occasions.

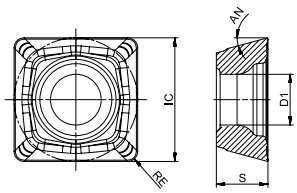
SD..09T3..

Positive square milling inserts



Insert shape	Product code	IC	S	RE	BS	D1	AN	● Good Conditions ◐ General Conditions ✱ Bad Conditions									
		Dimension (mm)						P			M		K			N	S
								●	◐	●	◐	✱	●	●	●	●	✱
								AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
	**SDMT 09T304EN-MM3**	9.525	3.97	0.4	-	4.4	15°	●	●	●			●	●			
	SDMT 09T308EN-MM3	9.525	3.97	0.8	-	4.4	15°	●	●					●	●		
	**SDGT 09T3AEEN-MM4**	9.252	3.97	0.3	1.4	4.4	15°	○	○								
	**SDGT 09T3PDER-MR6**	9.516	3.97	0.8	1.2	4.4	15°	○	●					●			

● : Standard stock ○ : Made-to-Order

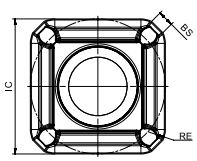


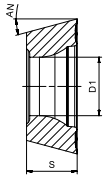
Insert shape	Product code	IC	S	RE	D1	AN	● Good Conditions ◐ General Conditions ✱ Bad Conditions									
		Dimension (mm)					P			M		K			N	S
							●	◐	◐	◐	✱	●	●	●	●	✱
							AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
	**SDMT 09T308N-MM4**	9.525	3.97	0.8	3.9	15°	●			●	●	●		●		
	SDMT 09T320N-MM4	9.520	3.97	2.0	3.9	15°	●			●	●	●		●		●
	**SDMT 09T308N-MR2**	9.525	3.97	0.8	3.9	15°	●			●	●	●		●		
	SDMT 09T320N-MR2	9.520	3.97	2.0	3.9	15°	●			●	●	●		●		

● : Standard stock ○ : Made-to-Order

SD..1204..

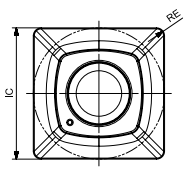
Positive square milling inserts

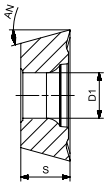




Insert shape	Product code	Machining conditions Dimension (mm) IC	S	RE	BS	D1	AN	● Good Conditions ⊕ General Conditions ✱ Bad Conditions P AP251U	AP351U	AC251P	M AP351M	AP403M	K AP251K	AC301K	AC151K	N AW100K	S AP403S
	**SDMT 120408EN-MM4**	12.7	4.76	0.8	-	5.5	15°	●	●	●		●	●	●			
	SDMT 120412EN-MM3	12.7	4.76	1.2	-	5.5	15°	●	●	○				●			
	**SDKT 1204AEEN-MR2**	12.7	4.76	2.3	1.5	5.5	15°	○		●			●				

● : Standard stock ○ : Made-to-Order



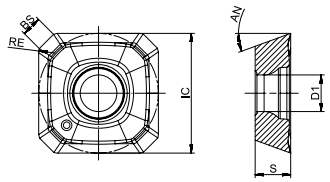


Insert shape	Product code	Machining conditions Dimension (mm) IC	S	RE	D1	AN	● Good Conditions ⊕ General Conditions ✱ Bad Conditions P AP251U	AP351U	AC251P	M AP351M	AP403M	K AP251K	AC301K	AC151K	N AW100K	S AP403S
	**SDMT 120408N-MM4**	12.7	4.76	0.8	4.4	15.3°	●			●	●	●		●		
	SDMT 120420N-MM4	12.7	4.76	2.0	4.4	15.3°	○					●				
	SDMT 120425N-MM4	12.7	4.76	2.5	4.4	15.3°				○	●					○
	SDMT 120430N-MM4	12.7	4.76	3.0	4.4	15.3°		○				●				
	**SDMT 120408N-MR2**	12.7	4.76	0.8	4.4	15.3°	●		●	●	●	●		●		

● : Standard stock ○ : Made-to-Order

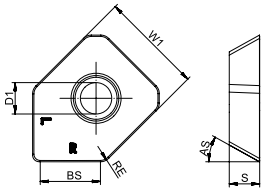
SE..12T3..

Positive square short wiper milling cutter inserts



Insert shape	Product code	IC	S	RE	BS	D1	AN	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC151K	AW100K	AP403S	AP151H
		Machining conditions						● Good Conditions ◐ General Conditions ✱ Bad Conditions									
		Dimension (mm)						P			M		K		N	S	H
	**SEHT 12T3AEEN-FM2**	13.4	3.97	1.5	2.3	4.1	20°								●		
	**SEMT 12T3AEEN-MM3**	13.4	3.97	1.5	2.0	4.1	20°	●			●	●	●	●		●	
	**SEGT 12T3AEEN-MM4**	13.4	3.97	1.5	2.1	4.1	20°	●					●				●
	SEMT 12T3AEEN-MM4	13.4	3.97	1.5	2.0	4.1	20°	●		●	●	●	●	●			
	**SEMT 12T3AEEN-MR6**	13.4	3.97	1.5	2.0	4.1	20°					●	●	●			

● : Standard stock ○ : Made-to-Order

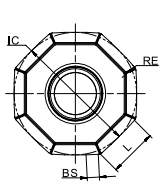


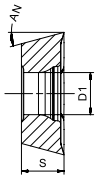
Insert shape	Product code	W1	S	RE	BS	D1	AS	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC151K	AW100K	AP403S	AP151H
		Machining conditions						● Good Conditions ◐ General Conditions ✱ Bad Conditions									
		Dimension (mm)						P			M		K		N	S	H
	**SEHT 12T3AEEN-W**	13.4	3.97	1.5	7.8	4.1	29°	●						●			

● : Standard stock ○ : Made-to-Order

OD..0605..

Positive octagonal milling inserts



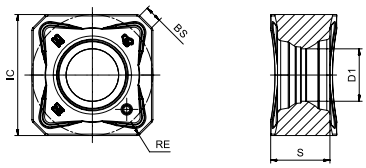


Insert shape	Product code	Machining conditions Dimension (mm) L	IC	S	RE	BS	D1	AN	● Good Conditions ◐ General Conditions ✱ Bad Conditions P AP251U	AP351U	AC251P	M AP351M	AP403M	K AP251K	AC301K	AC151K	N AW100K	S AP403S
	**ODET 0605APFN-FM2**	6.3	16	5.56	0.8	1.6	5.5	15°									●	
	**ODMT 060508EN-MM3**	6.3	16	5.56	0.8	-	5.5	15°	●	●	●			●	●			
	ODMT 060512EN-MM3	6.1	16	5.56	1.2	-	5.5	15°	●				○					●
	**ODHT 0605APEN-MM3**	6.3	16	5.56	0.8	1.6	5.5	15°	●	●	●	●		●	●	●		●
	**ODEW 0605APSR-HR2**	6.5	16	5.56	-	1.6	5.5	15°						●	●			
	**ODMW 060512EN-HR2**	6.1	16	5.56	1.2	-	5.5	15°						●	●			

● : Standard stock ○ : Made-to-Order

SN..1206ANN..

Negative short wiper milling inserts (applicable to AFM45-SN12 milling cutter)

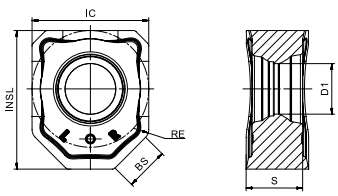


Insert shape	Product code	IC	S	RE	BS	D1	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
		Machining conditions					● Good Conditions ⊕ General Conditions ✱ Bad Conditions									
							●	⊕	⊕	⊕	✱	●	●	●	●	✱
		Dimension (mm)					P			M		K			N	S
	**SNHX 1206ANN-FM2**	12.7	6.24	0.5	1.7	5.5									●	
	**SNGX 1206ANN-MM3**	12.7	6.24	0.4	1.8	5.5	●	●	●			●	●	●		
	SNMX 1206ANN-MM3	12.7	6.25	0.4	1.8	5.5	●	●	○			●	●			
	**SNGX 1206ANN-MM4**	12.7	6.22	0.4	1.8	5.5	●		●		●	●		●		
	SNMX 1206ANN-MM4	12.7	6.22	0.4	1.8	5.5	●	●	●		●	●	●	●		
	**SNGX 1206ANN-MR6**	12.7	6.25	0.4	1.8	5.5	●	●	○			●	●	●		
	SNMX 1206ANN-MR6	12.7	6.25	0.4	1.8	5.5	○	●	○			●	●	●		
	**SNGX 1206ANN-RR2**	12.7	6.29	0.5	1.7	5.5	○	●	○			●	●	○		

● : Standard stock ○ : Made-to-Order

SNHX 1206ANN..

Negative long wiper milling inserts (applicable to AFM45-SN12 milling cutter)

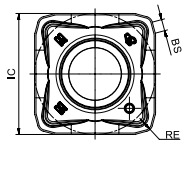


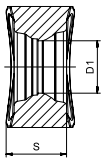
Insert shape	Product code	INSL	IC	S	RE	BS	D1	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP405S
		Machining conditions						● Good Conditions ⊕ General Conditions ✱ Bad Conditions									
								●	⊕	⊕	⊕	✱	●	●	●	●	✱
		Dimension (mm)						P			M		K			N	S
	**SNHX 1206ANN-W**	15.1	12.7	6.15	1.2	4.7	5.5	●					●	●	●		

● : Standard stock ○ : Made-to-Order

SN..1206ENN..

Negative short wiper milling inserts (applicable to AFM75-SN12 milling cutter)



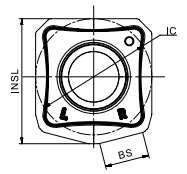


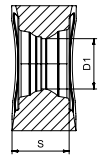
Insert shape	Product code	Machining conditions Dimension (mm) IC	S	RE	BS	D1	● Good Conditions ◐ General Conditions ✱ Bad Conditions P AP251U	AP351U	AC251P	M AP351M	AP403M	K AP251K	AC301K	AC151K	N AW100K	S AP403S
	**SNGX 1206ENN-MM3**	12.7	6.36	0.8	1.2	5.5	●	●	○			●	●	○		
	**SNGX 1206ENN-MM4**	12.7	6.34	0.8	1.2	5.5	●	●	●			●	●			
	SNMX 1206ENN-MM4	12.7	6.34	0.8	1.2	5.5			○		●	●				
	**SNGX 1206ENN-MR6**	12.7	6.32	0.8	1.2	5.5	●	●	●			●	●			

● : Standard stock ○ : Made-to-Order

SNHX 1206ENN..

Negative long wiper milling inserts (applicable to AFM75-SN12 milling cutter)



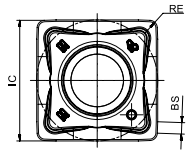


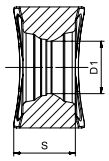
Insert shape	Product code	Machining conditions Dimension (mm) INSL	IC	S	RE	BS	D1	● Good Conditions ◐ General Conditions ✱ Bad Conditions P AP251U	AP351U	AC251P	M AP351M	AP403M	K AP251K	AC301K	AC151K	N AW100K	S AP403S
	**SNHX 1206ENN-W**	13.66	12.7	6.24	0.6	4.8	5.5	●		●					●		

● : Standard stock ○ : Made-to-Order

SN..1206ZNN..

Negative short wiper milling inserts (applicable to AFM88-SN12 milling cutter)



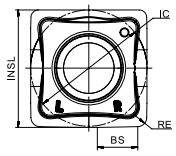


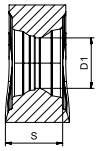
Insert shape	Product code	IC	S	RE	BS	D1	Machining conditions: ● Good Conditions ◐ General Conditions ✱ Bad Conditions									
		Dimension (mm)					P			M		K			N	S
							AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
	**SNHX 1206ZNN-FM2**	12.7	6.56	0.8	1.2	5.5									●	
	**SNGX 1206ZNN-MM3**	12.7	6.49	0.8	1.2	5.5	●	●	●			●	●	●		
	**SNGX 1206ZNN-MM4**	12.7	6.46	0.8	1.2	5.5	●	●	●		●	●	●	●		●
	SNMX 1206ZNN-MM4	12.7	6.46	0.8	1.2	5.5	●	○	●		●	●	○	○		
	**SNGX 1206ZNN-MR6**	12.7	6.44	0.8	1.2	5.5	●	●	○		●	●	●	●		

● : Standard stock ○ : Made-to-Order

SNHX 1206ZNN..

Negative long wiper milling inserts (applicable to AFM88-SN12 milling cutter)



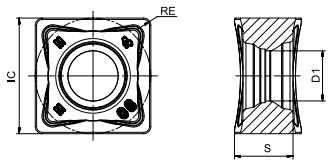


Insert shape	Product code	INSL	IC	S	RE	BS	D1	Machining conditions: ● Good Conditions ◐ General Conditions ✱ Bad Conditions									
		Dimension (mm)						P			M		K			N	S
								AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
	**SNHX 1206ZNN-W**	12.8	12.7	6.24	0.8	4.4	5.5	●		●				●	●		

● : Standard stock ○ : Made-to-Order

SN..1206..

Negative milling cutter with corner radius

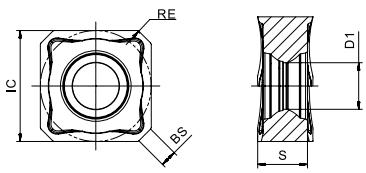


Insert shape	Product code	IC	S	RE	BS	D1	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
		Machining conditions					● Good Conditions ⊕ General Conditions ✱ Bad Conditions									
							●	⊕	⊕	⊕	✱	●	●	●	●	✱
		Dimension (mm)					P			M		K			N	S
	**SNMX 120612-MM3**	12.7	6.40	1.2	-	5.5	○	●	○		●	●	●			
	**SNGX 120608-MM4**	12.7	6.43	0.8	-	5.5	●	●	●			●	●	●		
	SNGX 120612-MM4	12.7	6.38	1.2	-	5.5	●									
	SNMX 120608-MM4	12.7	6.43	0.8	-	5.5	●	●				●	●	●		
	SNMX 120612-MM4	12.7	6.38	1.2	-	5.5	●	●	●			●	●	●		
	SNMX 120620-MM4	12.7	6.28	2.0	-	5.5		●	○			●	●	●		
	SNMX 120630-MM4	12.7	6.14	3.0	-	5.5						●				
	**SNMX 120612-MR6**	12.7	6.41	1.2	-	5.5	●	●	●			●	●	●		
	**SNMX 120612-RR2**	12.7	6.44	1.2	-	5.5	●	●	○			●	●			
	SNMX 120620-RR2	12.7	6.34	2.0	-	5.5		●	●			●	●			
	**SNMX 120612R-MM4**	12.7	6.85	1.2	-	5.5	●	●	○		●	●	●			

● : Standard stock ○ : Made-to-Order

SN..1909ANN..

Negative short wiper milling inserts (applicable to AFM45-SN19 milling cutter)

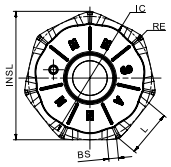


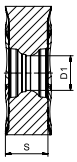
Insert shape	Product code	IC	S	RE	BS	D1	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
		Machining conditions					● Good Conditions ⊕ General Conditions ✱ Bad Conditions									
							●	⊕	⊕	⊕	✱	●	●	●	●	✱
		Dimension (mm)					P			M		K			N	S
	**SNGX 1909ANN-MM3**	19.05	8.58	0.4	2.8	8		●								
	**SNGX 1909ANN-MR6**	19.05	8.50	0.8	2.7	8		●			●					

● : Standard stock ○ : Made-to-Order

XN..0705ANN..

Negative heptagonal short wiper milling inserts



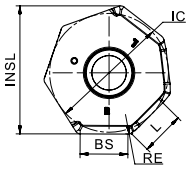


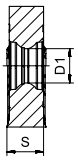
Insert shape	Product code	Machining conditions: Dimension (mm) L	INSL	IC	S	RE	BS	D1	● Good Conditions ◐ General Conditions ✱ Bad Conditions: P AP251U	P AP351U	P AC251P	M AP351M	M AP403M	K AP251K	K AC301K	K AC151K	N AW100K	S AP403S
	**XNGU 0705ANN-MM3**	5.5	15.09	14.5	5.0	0.8	1.1	4.07	●	●				●	●	●		
	**XNGU 0705ANN-MM4**	5.5	15.09	14.5	5.0	0.8	1.1	4.07	●			●	●		●			
	XNMU 0705ANN-MM4	5.5	15.09	14.5	5.0	0.8	1.1	4.07	●	●	●	●	●	●	●	●		
	**XNMU 0705ANN-MR6**	5.5	15.09	14.5	5.05	0.8	1.1	4.07	●	●				●	●			
	**XNMU 0705ANN-MM4N**	5.5	15.09	14.5	5.3	0.8	1.0	4.07	●		●		●	●				

● : Standard stock ○ : Made-to-Order

XN..0705ANN..W

Negative heptagonal long wiper milling inserts



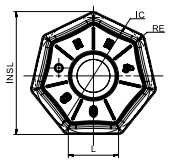


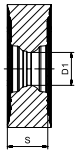
Insert shape	Product code	Machining conditions: Dimension (mm) L	INSL	IC	S	RE	BS	D1	● Good Conditions ◐ General Conditions ✱ Bad Conditions: P AP251U	P AP351U	P AC251P	M AP351M	M AP403M	K AP251K	K AC301K	K AC151K	N AW100K	S AP403S
	**XNGX 0705ANN-W**	5.4	15.09	14.5	5	0.8	5.6	4.07	●					●	●	●		

● : Standard stock ○ : Made-to-Order

XN..0705..

Negative heptagonal milling inserts with corner radius



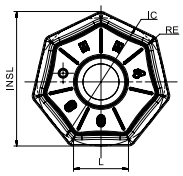


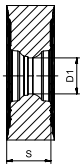
		Machining conditions							● Good Conditions ⊕ General Conditions ✱ Bad Conditions									
									●	⊕	⊕	⊕	✱	●	●	●	●	✱
		Dimension (mm)							P			M		K			N	S
Insert shape	Product code	L	INSL	IC	S	RE	BS	D1	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
	**XNMU 070508-MM4**	6.6	15.21	14.5	5.0	0.8	-	4.07	●	●	●		●	●	●	●		
	**XNMU 070508-MM4N**	6.6	15.21	14.5	5.3	0.8	-	4.07						●		●		

● : Standard stock ○ : Made-to-Order

XN..0906..

Negative heptagonal milling inserts with corner radius



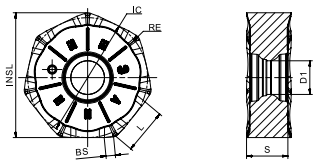


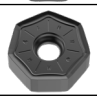
		Machining conditions							● Good Conditions ⊕ General Conditions ✱ Bad Conditions									
									●	⊕	⊕	⊕	✱	●	●	●	●	✱
		Dimension (mm)							P			M		K			N	S
Insert shape	Product code	L	INSL	IC	S	RE	BS	D1	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
	**XNMU 090612-MM4**	8.6	19.97	19.0	5.875	1.2	-	5.5	●	●	●			●	●	●		
	**XNMU 090612-MM4N**	8.6	19.97	19.0	5.875	1.2	-	5.5						●				

● : Standard stock ○ : Made-to-Order

XN..0906ANN..

Negative heptagonal short wiper milling inserts

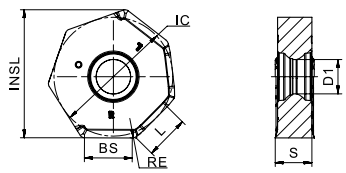


Insert shape	Product code	L	INSL	IC	S	RE	BS	D1	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
		Machining conditions							● Good Conditions ⊕ General Conditions ✱ Bad Conditions									
									●	⊕	⊕	⊕	✱	●	●	●	●	✱
		Dimension (mm)							P			M		K			N	S
	**XNGU 0906ANN-MM3**	7.3	19.86	19.0	5.875	0.8	1.4	5.5		●					●			
	**XNGU 0906ANN-MM4**	7.3	19.86	19.0	5.875	0.8	1.4	5.5	○	●	●			●	●	●		
	**XNMU 0906ANN-MR6**	7.3	19.86	19.0	5.927	0.8	1.4	5.5	●		●			●	●	●		
	**XNMF 0906ANN-MR6**	7.3	19.86	19.0	5.927	0.8	1.4	3.0						●	●	●		

● : Standard stock ○ : Made-to-Order

XN..0906ANN..W

Negative heptagonal long wiper milling inserts

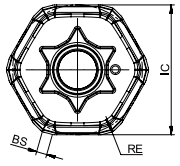


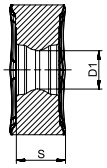
Insert shape	Product code	L	INSL	IC	S	RE	BS	D1	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
		Machining conditions							● Good Conditions ⊕ General Conditions ✱ Bad Conditions									
									●	⊕	⊕	⊕	✱	●	●	●	●	✱
		Dimension (mm)							P			M		K			N	S
	**XNGX 0906ANN-W**	7.2	19.86	19.0	5.88	1.0	7.6	5.5	●						●			

● : Standard stock ○ : Made-to-Order

HN..0906..

Negative hexagonal milling inserts



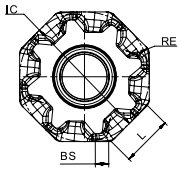


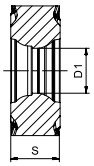
Insert shape	Product code	Machining conditions: Dimension (mm) IC	S	RE	BS	D1	● Good Conditions ◐ General Conditions ✱ Bad Conditions: AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
							P			M		K			N	S
	**HNGX 0906ANN-MR6**	16.5	6.35	1.0	1.1	4.86	●		●	○	●	●		●		
	**HNMX 0906ANN-MM4**	16.5	6.35	1.0	1.1	4.86	●		●	○	●	●		●		
	**HNMX 090612-MM4**	16.5	6.35	1.2	-	4.86	●		●	○	●	●		●		

● : Standard stock ○ : Made-to-Order

ON..0504..

Negative octagonal milling inserts



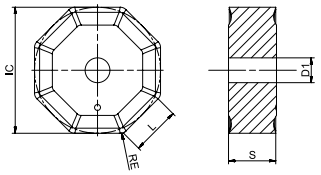


Insert shape	Product code	Machining conditions: Dimension (mm) L	IC	S	RE	BS	D1	● Good Conditions ◐ General Conditions ✱ Bad Conditions: AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
								P			M		K			N	S
	**ONHU 050408-MM3**	4.9	12.7	4.76	0.8	-	4.4	●									
	ONMU 050408-MM4	4.9	12.7	4.76	0.8	-	4.4	●	●				●	●	●		
	**ONHU 0504ZNR-MM3**	5.0	12.7	4.76	0.8	1.4	4.4	○			●						

● : Standard stock ○ : Made-to-Order

ON..0504..

Cast iron finish milling cutter roughing inserts



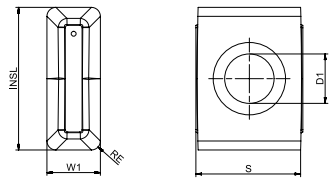
Insert shape	Product code	L	INSL	IC	S	RE	D1	AP251U	AP351U	AP251P	AP351M	AP403M	AP251K	AC301K	AC151K	AP403S	AP151H
	ONHF 050408-MM3	4.9	-	12.7	4.76	0.8	2.5										●

Machining conditions: ● Good Conditions ◐ General Conditions ✱ Bad Conditions

Dimension (mm) — P: AP251U, AP351U, AP251P; M: AP351M, AP403M; K: AP251K, AC301K, AC151K; S: AP403S; H: AP151H

LN..1204..

Cast iron finish milling cutter finishing inserts



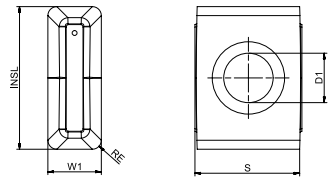
Insert shape	Product code	W1	INSL	IC	S	RE	D1	AP251U	AP351U	AP251P	AP351M	AP403M	AP251K	AC301K	AC151K	AP403S	AP151H
	LNHQ 120408FN-W	4.76	12.7	-	9.4	0.8	4.4										●

Machining conditions: ● Good Conditions ◐ General Conditions ✱ Bad Conditions

Dimension (mm) — P: AP251U, AP351U, AP251P; M: AP351M, AP403M; K: AP251K, AC301K, AC151K; S: AP403S; H: AP151H

LN..1504..

Cast iron finish milling cutter finishing inserts



Insert shape	Product code	W1	INSL	IC	S	RE	D1	AP251U	AP351U	AP251P	AP351M	AP403M	AP251K	AC301K	AC151K	AP403S	AP151H
	LNHQ 150416FN-W	4.76	15.875	-	9.25	1.6	4.4										●

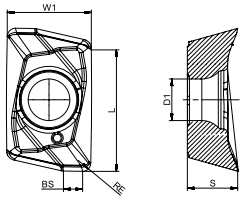
Machining conditions: ● Good Conditions ◐ General Conditions ✱ Bad Conditions

Dimension (mm) — P: AP251U, AP351U, AP251P; M: AP351M, AP403M; K: AP251K, AC301K, AC151K; S: AP403S; H: AP151H

● : Standard stock ○ : Made-to-Order

AO..0602..

Positive square shoulder milling cutter inserts

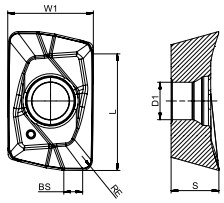


Insert shape	Product code	L	W1	S	RE	BS	D1	AN	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AP403S	AP151H
		Machining conditions							● Good Conditions ⊕ General Conditions ✱ Bad Conditions									
									●	⊕	⊕	⊕	✱	●	●	●	✱	●
		Dimension (mm)							P			M		K			S	H
	**AOMT 060204ER-MM3**	5.8	4.1	2.45	0.4	0.9	2.0	15°	●			●	●				●	
	AOMT 060208ER-MM3	5.8	4.1	2.45	0.8	0.5	2.0	15°	●			●	●				●	

● : Standard stock ○ : Made-to-Order

AO..10T3..

Positive square shoulder milling cutter inserts

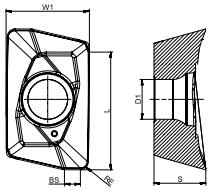


Insert shape	Product code	L	W1	S	RE	BS	D1	AN	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AP403S	AP151H
		Machining conditions							● Good Conditions ⊕ General Conditions ✱ Bad Conditions									
									●	⊕	⊕	⊕	✱	●	●	●	✱	●
		Dimension (mm)							P			M		K			S	H
	**AOMT 10T308ER-MM4**	9.3	6.85	3.83	0.8	1.5	3.0	15°	●			●					●	●
	AOMT 10T316ER-MM4	9.3	6.85	3.83	1.6	1.2	3.0	15°				●	●				●	
	AOMT 10T331ER-MM4	9.4	6.85	3.83	3.1	-	3.0	15°		○							●	

● : Standard stock ○ : Made-to-Order

AO..1204..

Positive square shoulder milling cutter inserts

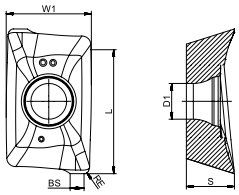


Insert shape	Product code	L	W1	S	RE	BS	D1	AN	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
		Machining conditions							● Good Conditions ⊕ General Conditions ✱ Bad Conditions									
									●	⊕	⊕	⊕	✱	●	●	●	●	●
		Dimension (mm)							P			M		K			N	S
	**AOHT 120408ER-FM2**	11.3	8.15	5.07	0.8	1.5	3.9	15°									●	
	**AOHT 120404ER-MM3**	11.3	8.15	5.07	0.4	1.9	3.9	15°	●			●	●					●
	AOHT 120408ER-MM3	11.3	8.15	5.07	0.8	1.5	3.9	15°	●			●	●	●				●
	AOMT 120408ER-MM3	11.3	8.15	5.07	0.8	1.4	3.9	15°	●			●	●	●				●
	**AOMT 120404ER-MM4**	11.5	8.15	5.07	0.4	1.9	3.9	15°	●			●	●	●				●
	AOMT 120408ER-MM4	11.5	8.15	5.07	0.8	1.5	3.9	15°	●	●		●	●	●				●
	AOMT 120412ER-MM4	11.5	8.15	5.07	1.2	1.2	3.9	15°				●	●					●
	AOMT 120416ER-MM4	11.3	8.15	5.07	1.6	1.2	3.9	15°				●	●					●
	AOMT 120420ER-MM4	11.2	8.15	5.07	2.0	1.0	3.9	15°	●			●	●					●
	AOMT 120424ER-MM4	11.0	8.15	5.07	2.4	0.9	3.9	15°	●			●	●					●
	AOMT 120431ER-MM4	10.9	8.15	5.07	3.1	0.6	3.9	15°	●			●	●					●
	AOMT 120440ER-MM4	10.6	8.15	5.07	4.0	0.8	3.9	15°				●	●					●

● : Standard stock ○ : Made-to-Order

AP..1003..

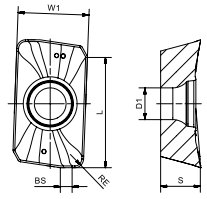
Positive square shoulder milling cutter inserts



Insert shape	Product code	L	W1	S	RE	BS	D1	AN	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AP403S	AP151H
		Machining conditions							● Good Conditions ⊕ General Conditions ✱ Bad Conditions									
									●	⊕	⊕	⊕	✱	●	●	●	✱	●
		Dimension (mm)							P			M		K			S	H
	**APKT 1003PDER-IT**	10.8	6.66	3.8	0.8	1.1	2.8	11°	●	●							●	

● : Standard stock ○ : Made-to-Order

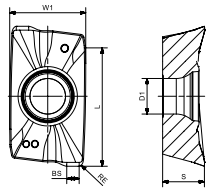
AP..1135..
Positive square shoulder milling cutter inserts



Insert shape	Product code	L	W1	S	RE	BS	D1	AN	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP151H
		Machining conditions							● Good Conditions ⇹ General Conditions ✱ Bad Conditions									
									●	⇹	⇹	⇹	✱	●	●	●	●	●
		Dimension (mm)							P			M		K			N	H
	**APMT 1135PDER**	9.7	6.26	3.5	0.8	1.2	2.8	11°	●	●		●		●				●
	APMT 113508PDER	9.7	6.17	3.5	0.8	0.8	2.9	11°	●	●								

● : Standard stock ○ : Made-to-Order

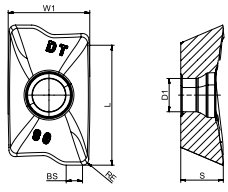
AP..1604..
Positive square shoulder milling cutter inserts



Insert shape	Product code	L	W1	S	RE	BS	D1	AN	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP151H
		Machining conditions							● Good Conditions ⇹ General Conditions ✱ Bad Conditions									
									●	⇹	⇹	⇹	✱	●	●	●	●	●
		Dimension (mm)							P			M		K			N	H
	**APMT 1604PDER**	14.7	9.37	5.17	0.8	1.5	4.4	11°	●	●	●	●		●				●
	**APHT 1604PDER -FM2**	14.7	9.35	5.17	0.8	1.4	4.4	11°									●	

● : Standard stock ○ : Made-to-Order

AP..1705..
Positive square shoulder milling cutter inserts

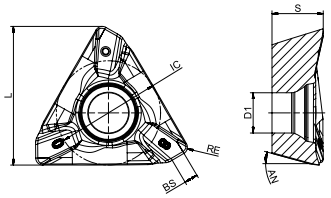


Insert shape	Product code	L	W1	S	RE	BS	D1	AN	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP151H
		Machining conditions							● Good Conditions ⇹ General Conditions ✱ Bad Conditions									
									●	⇹	⇹	⇹	✱	●	●	●	●	●
		Dimension (mm)							P			M		K			N	H
	**APKT 1705PER-DT**	16.5	10.76	5.63	0.8	2.2	4.4	11°	●	●	○		●	●				
	APKT 170516R-DT	16.8	10.74	5.63	1.6	1.7	4.4	11°	●					●				

● : Standard stock ○ : Made-to-Order

TD..1505..

Positive square shoulder milling cutter inserts

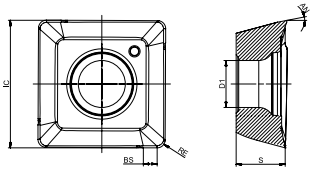


Insert shape	Product code	L	IC	S	RE	BS	D1	AN	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
		Machining conditions							● Good Conditions ⊕ General Conditions ✱ Bad Conditions									
									●	⊕	⊕	⊕	✱	●	●	●	●	✱
		Dimension (mm)							P			M		K			N	S
	**TDHT 150508R-FM2**	15.4	11.4	5.56	0.8	1.6	4.4	15°									●	
	**TDMT 150508R-MM3**	15.1	11.4	5.56	0.8	1.5	4.4	15°	●			●	●					
	TDHT 150508R-MM3	15.1	11.4	5.56	0.8	1.5	4.4	15°	●			●	●	●				●
	**TDMT 150508R-MM4**	15.1	11.4	5.6	0.8	1.5	4.4	15°	●		●	●	●	●	●			
	TDHT 150508R-MM4	15.1	11.4	5.6	0.8	1.5	4.4	15°	●	●			●	●				
	TDMT 150512R-MM4	15.0	11.4	5.6	1.2	1.0	4.4	15°	●			●	●	●	●			
	TDMT 150516R-MM4	14.9	11.4	5.6	1.6	0.9	4.4	15°	●			●	●	●	●			
	TDMT 150520R-MM4	14.7	11.4	5.6	2.0	0.7	4.4	15°					●					
	TDMT 150524R-MM4	14.6	11.4	5.6	2.4	0.6	4.4	15°					●					
	TDMT 150531R-MM4	14.1	11.4	5.56	3.1	0.4	4.4	15°					●					
	TDMT 150540R-MM4	13.4	11.4	5.56	4.0	0.4	4.4	15°					●					

● : Standard stock ○ : Made-to-Order

SO..1204..

Positive square shoulder milling cutter inserts

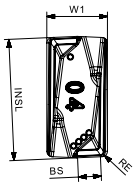


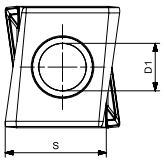
Insert shape	Product code	IC	S	RE	BS	D1	AN	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AP403S	AP151H
		Machining conditions						● Good Conditions ⊕ General Conditions ✱ Bad Conditions									
								●	⊕	⊕	⊕	✱	●	●	●	✱	●
		Dimension (mm)						P			M		K			S	H
	**SOMT 120408PDER-MM4**	12.46	4.8	0.8	1.3	4.6	15°	●		●	●	●	●		●	●	

● : Standard stock ○ : Made-to-Order

LN..0904..

Negative square shoulder milling cutter inserts



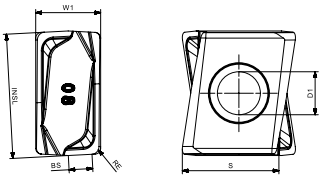


Insert shape	Product code	INSL	W1	S	RE	BS	D1	● Good Conditions ⇹ General Conditions ✱ Bad Conditions									
		Dimension (mm)						●	⇹	⇹	⇹	✱	●	●	●	●	✱
								P			M		K			N	S
								AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
	**LNHU 090404ER-FM2**	9	4.5	7.5	0.4	1.7	3.5									●	
	**LNHU 090404ER-MM3**	9	4.5	7.5	0.4	1.7	3.5		●			●					
	**LNHU 090404ER-MM4**	9	4.5	7.5	0.4	1.7	3.5	●				●	●				
	LNHU 090408ER-MM4	9	4.5	7.5	0.8	1.4	3.5	●			●	●	●				
	**LNHU 090404ER-MR2**	9	4.5	7.5	0.4	1.7	3.5	●	●			●	●	●			
	LNHU 090408ER-MR2	9	4.5	7.45	0.8	1.4	3.5	●		●		●	●	●	●		
	LNHU 090412ER-MR2	9	4.5	7.4	1.2	1.0	3.5	●				●		●			
	LNHU 090416ER-MR2	9	4.5	7.35	1.6	0.65	3.5	●				●		●			
	LNHU 090420ER-MR2	9	4.5	7.3	2.0	0.2	3.5	●				●		●			
	**LNHU 0904PDER-W**	9	4.5	7.48	0.4	3.6	3.5	●						●			

● : Standard stock ○ : Made-to-Order

LN..1306..

Negative square shoulder milling cutter inserts

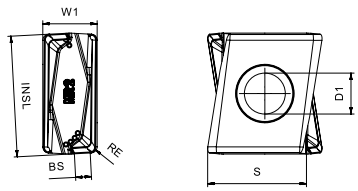


Insert shape	Product code	INSL	W1	S	RE	BS	D1	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
		Machining conditions						● Good Conditions ⊕ General Conditions ✱ Bad Conditions									
								●	⊕	⊕	⊕	✱	●	●	●	●	✱
		Dimension (mm)						P			M		K			N	S
	**LNHU 130608ER-FM2**	13	6.8	10.1	0.8	2.5	4.5									●	
	**LNHU 130608ER-MM3**	13	6.8	10.1	0.8	2.5	4.5					●					
	**LNHU 130608ER-MM4**	13	6.8	10.15	0.8	2.5	4.5	●			●	●	●				
	**LNHU 130608ER-MR2**	13	6.8	10.15	0.8	2.5	4.5	●	●	●		●	●	●	●		
	LNHU 130612ER-MR2	13	6.8	10.09	1.2	2.1	4.5	●	●			●	●	●			
	LNHU 130616ER-MR2	13	6.8	10.04	1.6	1.8	4.5	●	●			●	●	●			
	LNHU 130620ER-MR2	13	6.8	9.98	2.0	1.4	4.5	●	●		●	●		●			
	LNHU 130624ER-MR2	13	6.8	9.93	2.4	0.9	4.5		●			●		●			
	LNHU 130631ER-MR2	13	6.8	9.84	3.1	0.3	4.5		●			●		●			
	**LNHU 1306PDR-W**	13	6.8	10.08	0.9	5.2	4.5	●					●				

● : Standard stock ○ : Made-to-Order

LN..1607..

Negative square shoulder milling cutter inserts

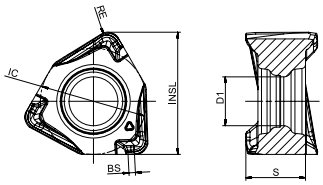


Insert shape	Product code	INSL	W1	S	RE	BS	D1	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
		Machining conditions						● Good Conditions ⊕ General Conditions ✱ Bad Conditions									
								●	⊕	⊕	⊕	✱	●	●	●	●	✱
		Dimension (mm)						P			M		K			N	S
	**LNHU 160708ER-MR2**	16	7.2	13	0.8	1.9	5.4	●	●				●	●	●		
	LNHU 160716ER-MR2	16	7.2	13	1.6	1.5	5.4	●						●			

● : Standard stock ○ : Made-to-Order

WN..0403..

Negative square shoulder milling cutter inserts

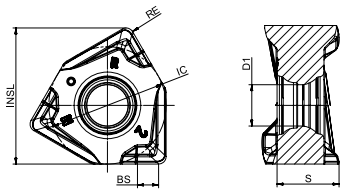


Insert shape	Product code	INSL	IC	S	RE	BS	D1	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP151H
		Machining conditions						● Good Conditions ⊕ General Conditions ✱ Bad Conditions									
								●	⊕	⊕	⊕	✱	●	●	●	●	●
		Dimension (mm)						P			M		K			N	H
	**WNGU 040308R-MM4**	7.7	6.7	3.8	0.8	0.4	3.0	●			●	●	●				

● : Standard stock ○ : Made-to-Order

WN..0806..

Negative square shoulder milling cutter inserts

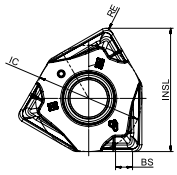


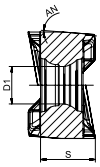
Insert shape	Product code	INSL	IC	S	RE	BS	D1	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP151H
		Machining conditions						● Good Conditions ⊕ General Conditions ✱ Bad Conditions									
								●	⊕	⊕	⊕	✱	●	●	●	●	●
		Dimension (mm)						P			M		K			N	H
	**WNMU 080608R-MM3**	14.5	12.5	6.58	0.8	2.2	4.4	●		○	●	●	●				
	**WNMU 080608R-MM4**	14.5	12.5	6.58	0.8	2.2	4.4	●	○	●	●	●	●	○			
	WNMU 080612R-MM4	14.3	12.5	6.47	1.2	1.2	4.4	●			●	●	●		●		
	WNMU 080616R-MM4	14.3	12.5	6.50	1.6	0.8	4.4	●			●	●	●		●		
	**WNMU 080608R-MR2**	14.5	12.5	6.60	0.8	2.2	4.4	●	○		●	●	●	○			
	WNMU 080612R-MR2	14.3	12.5	6.47	1.2	1.2	4.4	●			●	●	●				
	WNMU 080616R-MR2	14.3	12.5	6.50	1.6	0.8	4.4	●				●	●		●		

● : Standard stock ○ : Made-to-Order

WN..0806..

Negative square shoulder milling cutter inserts



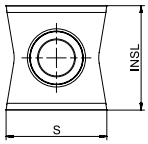


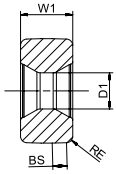
Insert shape	Product code	INSL	IC	S	RE	BS	D1	● Good Conditions ◐ General Conditions ✱ Bad Conditions									
		Dimension (mm)						P			M		K			N	H
								AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP151H
	**WNHU 080608R-FM2**	14.5	12.5	6.46	0.8	2.0	4.4									●	
	**WNGU 080604R-MM3**	14.6	12.5	6.44	0.4	2.2	4.4		●								
	WNGU 080608R-MM3	14.5	12.5	6.45	0.8	2.0	4.4	●	●			●	●		●		
	**WNGU 080604R-MM4**	14.6	12.5	6.44	0.4	2.2	4.4	●	●				●				
	WNGU 080608R-MM4	14.6	12.5	6.44	0.8	2.0	4.4	●	●	●			●	●	●		●
	WNGU 080612R-MM4	14.3	12.5	6.44	1.2	1.6	4.4	●	●								
	WNGU 080616R-MM4	14.2	12.5	6.44	1.6	1.2	4.4	●	●								
	**WNGU 080608R-MR2**	14.5	12.5	6.46	0.8	2.0	4.4	●				●	●	●	●		
	WNGU 080612R-MR2	14.3	12.5	6.46	1.2	1.6	4.4	●					●		●		
	WNGU 080616R-MR2	14.2	12.5	6.46	1.6	1.2	4.4	●					●		●		
	**WNHX 0806ZZR-W**	14.4	12.5	6.47	1.1	4.7	4.4	●						●			

● : Standard stock ○ : Made-to-Order

LN..1206..

Square shoulder milling inserts

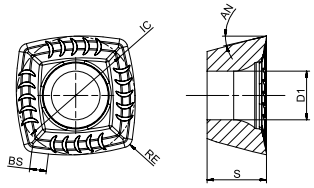




Insert shape	Product code	INSL	W1	S	RE	BS	D1	● Good Conditions ◐ General Conditions ✱ Bad Conditions									
		Dimension (mm)						P			M		K			S	H
								AP251U	AP351U	AC251P	AP403M	AP351M	AP251K	AC301K	AC151K	AP403S	AP151H
	**LNET 1206-MM4**	12.7	6.35	12.3	0.8	1.7	4.4	●			●		●		●		○

● : Standard stock ○ : Made-to-Order

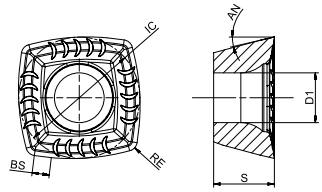
XD..0904..
Positive high feed milling inserts



Insert shape	Product code	IC	S	RE	BS	D1	AN	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AP403S	AP151H
		Machining conditions						● Good Conditions ◐ General Conditions ✱ Bad Conditions									
								●	◐	◐	◐	✱	●	●	●	✱	●
		Dimension (mm)						P			M		K			S	H
	**XDLT 090408ER-MM3**	9.525	4.76	0.8	1.3	3.9	15°	●	●	●				●		●	
	**XDMW 090408ER-HR2**	9.506	4.76	0.8	1.6	3.9	15°						○	●			

● : Standard stock ○ : Made-to-Order

XD..1205..
Positive high feed milling inserts

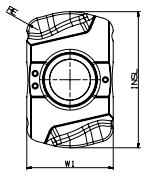


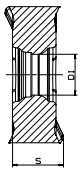
Insert shape	Product code	IC	S	RE	BS	D1	AN	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AP403S	AP151H
		Machining conditions						● Good Conditions ◐ General Conditions ✱ Bad Conditions									
								●	◐	◐	◐	✱	●	●	●	✱	●
		Dimension (mm)						P			M		K			S	H
	**XDLT 120508ER-MM3**	12.7	5.56	0.8	2.2	4.4	15°	●	●	●		○	●	●	●	●	
	XDLT 120512ER-MM3	12.7	5.56	1.2	2.2	4.4	15°	●	●	●			●	●			
	**XDMW 120508ER-HR2**	12.7	5.56	0.8	2.5	4.4	15°	●					○	●			

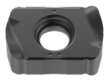
● : Standard stock ○ : Made-to-Order

LN..0604..

Negative high feed milling inserts



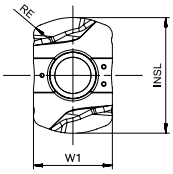


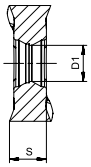
Insert shape	Product code	INSL	W1	S	RE	D1	● Good Conditions ◐ General Conditions ✱ Bad Conditions									
							●	◐	◐	◐	✱	●	●	●	✱	●
		Dimension (mm)					P			M		K			S	H
							AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AP403S	AP151H
	**LNMX 060410ER-MM3**	10	6.35	3.6	1.0	3	●	●			●				●	●
	**LNMX 060410ER-MM4**	10	6.35	3.6	1.0	3	●	●	○			○			●	●
	**LNMX 060410ER-MM4N**	10	6.35	3.6	1.0	3	●	●			●		●		●	●

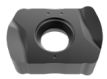
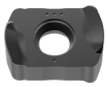
● : Standard stock ○ : Made-to-Order

LN..1005..

Negative high feed milling inserts

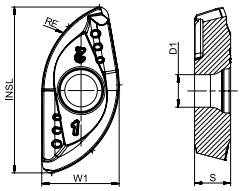




Insert shape	Product code	INSL	W1	S	RE	D1	● Good Conditions ◐ General Conditions ✱ Bad Conditions									
							●	◐	◐	◐	✱	●	●	●	✱	●
		Dimension (mm)					P			M		K			S	H
							AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AP403S	AP151H
	**LNMX 100512ER-MM3**	13.5	9.2	4.55	1.2	4.21	●	●		●	●				●	●
	**LNMX 100512ER-MM4**	13.5	9.2	4.55	1.2	4.21	●	●			●					●

● : Standard stock ○ : Made-to-Order

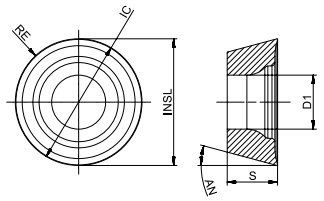
RPM ..
Profile milling inserts



Insert shape	Product code	INSL	W1	S	RE	D1	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
		Machining conditions					● Good Conditions ◐ General Conditions ✱ Bad Conditions									
							●	◐	◐	◐	✱	●	●	●	●	✱
		Dimension (mm)					P			M		K			N	S
	**RPM 080ER-MM4**	14.77	6.9	3.2	8.2	2.9	●			●	●					●
	RPM 100ER-MM4	18.85	8.63	3.9	10.3	3.5	●			●	○					●
	RPM 160ER-MM4	29.54	12.68	6.2	16.4	4.6				○	●					

● : Standard stock ○ : Made-to-Order

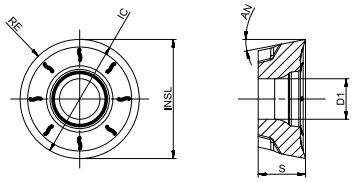
RO..0803..
Profile milling inserts

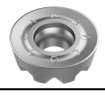


Insert shape	Product code	INSL	IC	S	RE	D1	AN	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
		Machining conditions						● Good Conditions ◐ General Conditions ✱ Bad Conditions									
								●	◐	◐	◐	✱	●	●	●	●	✱
		Dimension (mm)						P			M		K			N	S
	**ROHT 0803MOE-MM3**	8	8	3.18	-	3.4	15°					●					●
	**ROHT 0803M4E-MM3**	8	8	3.18	-	3.4	15°					●					●

● : Standard stock ○ : Made-to-Order

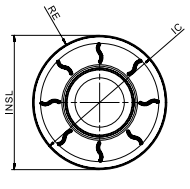
RO..10T3..
Profile milling inserts



Insert shape	Product code	INSL	IC	S	RE	D1	AN	AP251U	AP351U	AC251P	AP403M	AP351M	AP251K	AC301K	AC151K	AW100K	AP403S
		Machining conditions						● Good Conditions ◐ General Conditions ✱ Bad Conditions									
								●	◐	◐	◐	✱	●	●	●	●	✱
		Dimension (mm)						P			M		K			N	S
	**ROHT 10T3M8E-MM3**	10	10	3.97	-	3.4	11°				●						●
	**ROMT 10T3M4E-MR6**	10	10	3.97	-	3.4	11°		○		●						●

● : Standard stock ○ : Made-to-Order

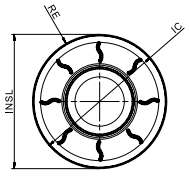
RO..1204..
Profile milling inserts



Insert shape	Product code	INSL	IC	S	RE	D1	AN	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
		Machining conditions						● Good Conditions ⬌ General Conditions ✱ Bad Conditions									
		Dimension (mm)						P			M		K			N	S
	**ROHT 1204M4E-MM3**	12	12	4.76	-	4.4	11°					●					●
	ROHT 1204M6E-MM3	12	12	4.76	-	4.4	11°					●					●
	**ROMT 1204M6E-MR6**	12	12	4.76	-	4.4	11°	○				●					●

● : Standard stock ○ : Made-to-Order

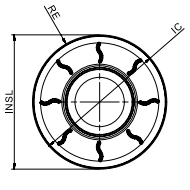
RO..1605..
Profile milling inserts



Insert shape	Product code	INSL	IC	S	RE	D1	AN	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
		Machining conditions						● Good Conditions ⬌ General Conditions ✱ Bad Conditions									
		Dimension (mm)						P			M		K			N	S
	**ROHT 1605M8E-MM3**	16	16	5.56	-	5.5	11°					●					●
	**ROMT 1605M6E-MR6**	16	16	5.56	-	5.5	11°			●		●					●

● : Standard stock ○ : Made-to-Order

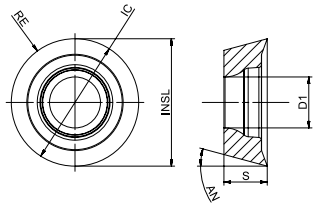
RO..2006..
Profile milling inserts



Insert shape	Product code	INSL	IC	S	RE	D1	AN	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AW100K	AP403S
		Machining conditions						● Good Conditions ⬌ General Conditions ✱ Bad Conditions									
		Dimension (mm)						P			M		K			N	S
	**ROHT 2006M8E-MM3**	20	20	6.35	-	6.5	11°					●					●
	**ROMT 2006M8E-MR6**	20	20	6.35	-	6.5	11°					●		○			●

● : Standard stock ○ : Made-to-Order

RD/RP
Profile milling inserts



Insert shape	Product code	INSL	IC	S	RE	D1	AN	AP251U	AP351U	AC251P	AP351M	AP403M	AP251K	AC301K	AC151K	AP403S	AP151H
		Machining conditions						● Good Conditions ◐ General Conditions ✱ Bad Conditions									
								●	◐	◐	◐	✱	●	●	●	✱	●
		Dimension (mm)						P			M		K			S	H
	**RDHT 1003MOE-MM3**	10	10	3.18	-	4.4	15°	○									
	RDHT 12T3MOE-MM3	12	12	3.97	-	4.4	15°		●	○			○				
	RDHT 1606MOE-MM3	16	16	6.35	-	5.5	15°		●					●			
	RDHT 1604MOE-MM3	16	16	4.76	-	5.5	15°	○	●				○				
	**RDHW 0702MOS-HR2**	7	7	2.38	-	2.8	15°	●					○				●
	RDHW 1003MOS-HR2	10	10	3.18	-	4.4	15°	○	●								
	RDHW 12T3MOS-HR2	12	12	3.97	-	4.4	15°	○	●				●				
	RDHW 1606MOS-HR2	16	16	6.35	-	5.5	15°	●									
	**RDMT 1003MOE-MM3**	10	10	3.18	-	4.4	15°	○	●					○			
	RDMT 12T3MOE-MM3	12	12	3.97	-	4.4	15°	●	●	○							
	RDMT 1606MOE-MM3	16	16	6.35	-	5.5	15°	○		○				○			
	RDMT 1604MOE-MM3	16	16	4.76	-	5.5	15°			○				●			
	**RDMW 1204MOE-HR2**	12	12	4.76	-	4.4	15°	●	●								
	RDMW 1606MOE-HR2	16	16	6.35	-	5.5	15°							●			
	RDMW 1604MOE-HR2	16	16	4.76		5.5	15°	●	○								
	**RPMW 1003MOE-HR2**	10	10	3.18	-	4.4	11°	●	●								●
	RPMW 10T3MOE-HR2	10	10	3.97	-	4.4	11°	●	●								●
	**RPMT 1204MOE**	12	12	4.76	-	4.4	12°	●	●								●

● : Standard stock ○ : Made-to-Order

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Solid End Mills

Solid Carbide End Mills

CUTTING TOOL CATALOGUE

Solid Carbide End Mills 426

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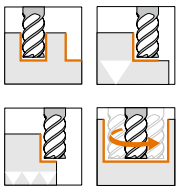
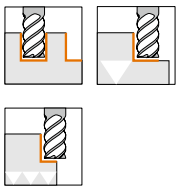
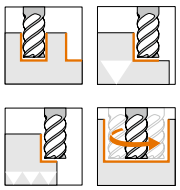
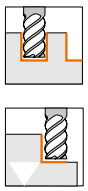
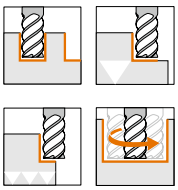
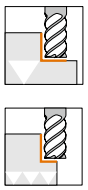
Product Overview of Solid Carbide End Mill Series

Product Name	Square Shoulder Milling				
Machining Application					
Category	ECO	ECO	ECO	PRO	
Series	M200	M205	M245	M210	
Illustration					
Diameter Range (mm)	1-20	6-20	1-20	3-20	
No. of Teeth	2-4	6	2-3	4	
Corner Radius (mm)	0.2-5			0.2-3	
Length	S/SP/L/LP/X	S	S/L	S	
Shank Type	Cylindrical/Weldon	Cylindrical	Cylindrical	Cylindrical/Weldon	
Dimension Table Page	P431	P441	P442	P445	
Cutting Data Table Page	P458	P460	P461	P463	
P	●●	●●		●●	
M	●	●		●	
K	●●	●●		●●	
N			●●		
S				●	
H					

Square Shoulder Milling			Profile Milling		Form Milling
					
PRO	PRO	PRO	ECO	PRO	ECO
M216	M150	M170	M200	M170	M180
					
6–20	1–20	4–16	1–20	2–16	6–16
4–6	4	4–6	2	2	4
	0.2–2	0.2–3	0.5–10	1–8	
S	S/L	S	S/L/X	S	S
Cylindrical	Cylindrical	Cylindrical	Cylindrical	Cylindrical	Cylindrical
P448	P449	P451	P454	P456	P457
P466	P468	P471	P473	P474	P475
••	••	•	••	•	••
••	••		•		•
•		•	••	•	••
					•
•	••				•
		••		••	

Icon Description

Icon	Description
	Slot Milling And Square Shoulder Milling
	Square Shoulder Milling Rough Milling
	Square Shoulder Milling Finsih Milling
	High-Feed Milling
	Dynamic Milling Cycloid Milling
	Profifile Milling
	Chamfering & Deburring

Icon	Description
AlTiN	Altin Coating
AlCrN	Alcrn Coating
UN	Uncoated
TiSiAl CrN	Tisialcrn Coating
AlTiN /Zr	Altin/Zr Coating
HA DIN 6535	Cylindrical Shank
HB DIN 6535	Weldon Shank

Icon	Description
	30° Helix Angle
	35° Helix Angle
	35° /38° Helix Angle
	36° /38° Helix Angle
	40° Helix Angle
	37° /39° /41° Helix Angle
	45° Helix Angle

Icon	Description
	Square
	Round Corner
	Ball Nose
	Corner Chamfer
	Chamfer
	Waved Edge

Solid Carbide End Mill Denomination System

M	2	00	-	4	R	S	-	060	002	W
1	2	3	-	4	5	6	-	7	8	9

1- Tool Category
M milling cutter

2- Gen.
1
2

3- Series
00 Universal milling (HRC45)
10 High-efficiency universal milling
20 High-performance milling
30 Steel-specific milling
40 Aluminum milling
50 S.S. milling
60 Hard-to-cut materials milling
70 Harden steel milling
80&90 Others

4- Number of
2,3,4,5,6.....

5- Tool Type
E Flat end
B Ball nose
R Corner radius
C Chamfer
P Wavy edge
W Form milling
T Tapered
H High-feed

6- Length Standard
S Standard
L Long
X Extra-long
A Ultra-long
SN Shortened flute
SP Extended flute
LP Long & extended flute

7- Tool Diameter
060=6.0mm
200=20.0mm

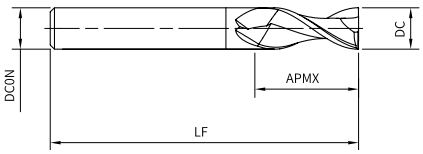
8- Corner Radius
002=0.2mm

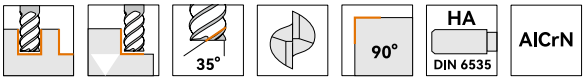
9- Structure Type
N Straight neck
C Tapered neck
W Side lock shank
P Special shank dia.
Default: Standard necking

Solid Carbide End Mill M200

Eco line
2 flutes square end mill

Solid carbide end mill
Workpiece materials <HRC45





P	M	K	N	S	H
●●	●	●●			

●● 1st choice ● 2nd choice

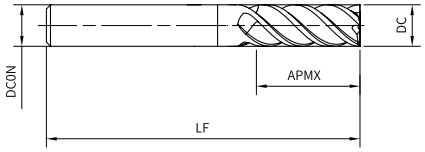
Product code	DC (mm) h9	DCON (mm) h6	APMX (mm)	LF (mm)	ZEFP	Stock
M200-2ES-010	1	4	3	50	2	●
M200-2ES-015	1.5	4	4	50	2	●
M200-2ES-020	2	4	6	50	2	●
M200-2ES-025	2.5	4	8	50	2	●
M200-2ES-030	3	4	8	50	2	●
M200-2ES-040	4	4	12	50	2	●
M200-2ES-050	5	6	13	50	2	●
M200-2ES-060	6	6	16	50	2	●
M200-2ES-070	7	8	20	60	2	●
M200-2ES-080	8	8	20	60	2	●
M200-2ES-090	9	10	23	75	2	●
M200-2ES-100	10	10	25	75	2	●
M200-2ES-120	12	12	30	75	2	●
M200-2ES-140	14	14	34	100	2	●
M200-2ES-160	16	16	36	100	2	●
M200-2ES-180	18	18	40	100	2	●
M200-2ES-200	20	20	45	100	2	●

● :Standard stock ○ :Made-to-Order

Solid Carbide End Mill M200

Eco line
4 flutes square end mill

Solid carbide end mill
Workpiece materials <HRC45





P	M	K	N	S	H
●●	●	●●			

●● 1st choice ● 2nd choice

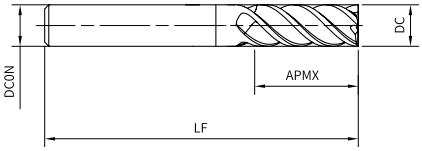
Product code	DC (mm) h9	DCON (mm) h6	APMX (mm)	LF (mm)	ZEFP	Stock
M200-4ES-010	1	4	3	50	4	●
M200-4ES-015	1.5	4	4	50	4	●
M200-4ES-020	2	4	6	50	4	●
M200-4ES-025	2.5	4	8	50	4	●
M200-4ES-030	3	4	8	50	4	●
M200-4ES-030P	3	6	8	50	4	●
M200-4ES-035	3.5	4	11	50	4	●
M200-4ES-040	4	4	12	50	4	●
M200-4ES-040P	4	6	12	50	4	●
M200-4ES-045	4.5	6	12	50	4	●
M200-4ES-050	5	6	13	50	4	●
M200-4ES-055	5.5	6	16	50	4	●
M200-4ES-060	6	6	16	50	4	●
M200-4ES-065	6.5	8	16	60	4	●
M200-4ES-070	7	8	20	60	4	●
M200-4ES-075	7.5	8	20	60	4	●
M200-4ES-080	8	8	20	60	4	●
M200-4ES-085	8.5	10	23	75	4	●
M200-4ES-090	9	10	23	75	4	●
M200-4ES-095	9.5	10	25	75	4	●
M200-4ES-100	10	10	25	75	4	●
M200-4ES-110	11	12	28	75	4	●
M200-4ES-120	12	12	30	75	4	●
M200-4ES-140	14	14	34	100	4	●
M200-4ES-160	16	16	36	100	4	●
M200-4ES-180	18	18	40	100	4	●
M200-4ES-200	20	20	45	100	4	●

● : Standard stock ○ : Made-to-Order

Solid Carbide End Mill M200

Eco line
4 flutes square end mill

Solid carbide end mill
Workpiece materials <HRC45





P	M	K	N	S	H
●●	●	●●			

●● 1st choice ● 2nd choice

Product code	DC (mm) h9	DCON (mm) h6	APMX (mm)	LF (mm)	ZEFP	Stock
M200-4ESP-010	1	4	4	50	4	●
M200-4ESP-020	2	4	10	50	4	●
M200-4ESP-030	3	4	12	50	4	●
M200-4ESP-040	4	4	16	50	4	●
M200-4ESP-050	5	6	18	50	4	●
M200-4ESP-060	6	6	20	50	4	●
M200-4ESP-080	8	8	24	60	4	●
M200-4ESP-100	10	10	30	75	4	●
M200-4ESP-120	12	12	35	75	4	●
M200-4ESP-140	14	14	40	100	4	●
M200-4ESP-160	16	16	45	100	4	●
M200-4ESP-180	18	18	45	100	4	●

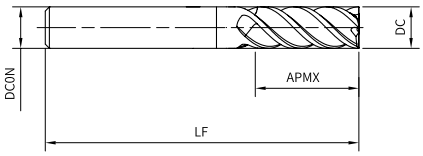
Product code	DC (mm) h9	DCON (mm) h6	APMX (mm)	LF (mm)	ZEFP	Stock
M200-4EL-030	3	4	15	60	4	●
M200-4EL-030P	3	6	15	60	4	●
M200-4EL-040	4	4	20	60	4	●
M200-4EL-050	5	6	25	75	4	●
M200-4EL-060	6	6	25	75	4	●
M200-4EL-080	8	8	30	75	4	●
M200-4EL-100	10	10	40	100	4	●
M200-4EL-120	12	12	45	100	4	●
M200-4EL-140	14	14	60	150	4	●
M200-4EL-160	16	16	70	150	4	●
M200-4EL-180	18	18	70	150	4	●
M200-4EL-200	20	20	70	150	4	●

● : Standard stock ○ : Made-to-Order

Solid Carbide End Mill M200

Eco line
4 flutes square end mill

Solid carbide end mill
Workpiece materials <HRC45





P	M	K	N	S	H
●●	●	●●			

●● 1st choice ● 2nd choice

Product code	DC (mm) h9	DCON (mm) h6	APMX (mm)	LF (mm)	ZEFP	Stock
M200-4ELP-050	5	6	30	75	4	●
M200-4ELP-060	6	6	35	75	4	●
M200-4ELP-100	10	10	50	100	4	●
M200-4ELP-120	12	12	50	100	4	●
M200-4ELP-200	20	20	80	150	4	●

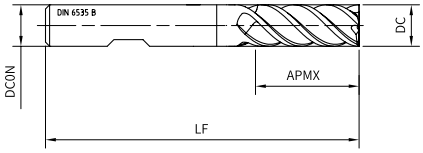
Product code	DC (mm) h9	DCON (mm) h6	APMX (mm)	LF (mm)	ZEFP	Stock
M200-4EX-040	4	4	30	75	4	●
M200-4EX-040P	4	6	20	75	4	●
M200-4EX-060	6	6	35	100	4	●
M200-4EX-080	8	8	35	100	4	●

● : Standard stock ○ : Made-to-Order

Solid Carbide End Mill M200

Eco line
4 flutes square end mill

Solid carbide end mill
Workpiece materials <HRC45





P	M	K	N	S	H
●●	●	●●			

●● 1st choice ● 2nd choice

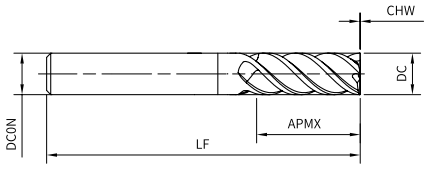
Product code	DC (mm) h9	DCON (mm) h6	APMX (mm)	LF (mm)	ZEFP	Stock
M200-4ES-030W	3	6	8	50	4	●
M200-4ES-050W	5	6	13	50	4	●
M200-4ES-060W	6	6	16	50	4	●
M200-4ES-080W	8	8	20	60	4	●
M200-4ES-100W	10	10	25	75	4	●
M200-4ES-120W	12	12	30	75	4	●
M200-4ES-140W	14	14	34	100	4	●
M200-4ES-160W	16	16	36	100	4	●
M200-4ES-180W	18	18	40	100	4	●
M200-4ES-200W	20	20	45	100	4	●

● : Standard stock ○ : Made-to-Order

Solid Carbide End Mill M200

Eco line
4 flutes end mill with corner chamfer

Solid carbide end mill
Workpiece materials <HRC45





P	M	K	N	S	H
●●	●	●●			

●● 1st choice ● 2nd choice

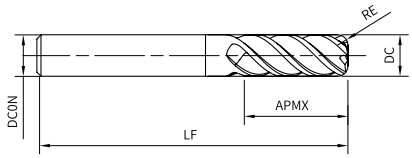
Product code	DC (mm) h9	DCON (mm) h6	CHW (mm)	APMX (mm)	LF (mm)	ZEFP	Stock
M200-4CS-040	4	4	C0.1	12	50	4	●
M200-4CS-050	5	6	C0.1	13	50	4	●
M200-4CS-060	6	6	C0.1	16	50	4	●
M200-4CS-080	8	8	C0.1	20	60	4	●
M200-4CS-100	10	10	C0.1	25	75	4	●
M200-4CS-120	12	12	C0.1	30	75	4	●
M200-4CS-140	14	14	C0.15	34	100	4	●
M200-4CS-160	16	16	C0.15	36	100	4	●
M200-4CS-180	18	18	C0.15	40	100	4	●
M200-4CS-200	20	20	C0.15	45	100	4	●

● : Standard stock ○ : Made-to-Order

Solid Carbide End Mill M200

Eco line
4 flutes end mill with corner radius

Solid carbide end mill
Workpiece materials <HRC45





P	M	K	N	S	H
●●	●	●●			

●● 1st choice ● 2nd choice

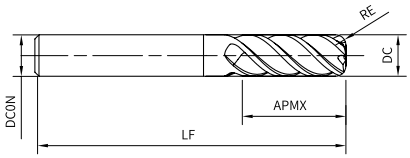
Product code	DC (mm) h9	DCON (mm) h6	RE (mm)	APMX (mm)	LF (mm)	ZEFP	Stock
M200-4RS-010002	1	4	R0.2	3	50	4	●
M200-4RS-015002	1.5	4	R0.2	4	50	4	●
M200-4RS-020002	2	4	R0.2	6	50	4	●
M200-4RS-030002	3	4	R0.2	8	50	4	●
M200-4RS-030003	3	4	R0.3	8	50	4	●
M200-4RS-030005	3	4	R0.5	8	50	4	●
M200-4RS-040002	4	4	R0.2	12	50	4	●
M200-4RS-040003	4	4	R0.3	12	50	4	●
M200-4RS-040005	4	4	R0.5	12	50	4	●
M200-4RS-040010	4	4	R1	12	50	4	●
M200-4RS-050002	5	6	R0.2	13	50	4	●
M200-4RS-050005	5	6	R0.5	13	50	4	●
M200-4RS-050010	5	6	R1	13	50	4	●
M200-4RS-050015	5	6	R1.5	13	50	4	●
M200-4RS-060002	6	6	R0.2	16	50	4	●
M200-4RS-060005	6	6	R0.5	16	50	4	●
M200-4RS-060010	6	6	R1	16	50	4	●
M200-4RS-060015	6	6	R1.5	16	50	4	●
M200-4RS-080002	8	8	R0.2	20	60	4	●
M200-4RS-080003	8	8	R0.3	20	60	4	●
M200-4RS-080005	8	8	R0.5	20	60	4	●
M200-4RS-080010	8	8	R1	20	60	4	●
M200-4RS-080015	8	8	R1.5	20	60	4	●
M200-4RS-080020	8	8	R2	20	60	4	●
M200-4RS-100002	10	10	R0.2	25	75	4	●
M200-4RS-100003	10	10	R0.3	25	75	4	●
M200-4RS-100005	10	10	R0.5	25	75	4	●

● : Standard stock ○ : Made-to-Order

Solid Carbide End Mill M200

Eco line
4 flutes end mill with corner radius

Solid carbide end mill
Workpiece materials <HRC45





P	M	K	N	S	H
●●	●	●●			

●● 1st choice ● 2nd choice

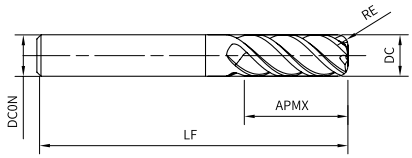
Product code	DC (mm) h9	DCON (mm) h6	RE (mm)	APMX (mm)	LF (mm)	ZEFP	Stock
M200-4RS-100010	10	10	R1	25	75	4	●
M200-4RS-100015	10	10	R1.5	25	75	4	●
M200-4RS-100020	10	10	R2	25	75	4	●
M200-4RS-100025	10	10	R2.5	25	75	4	●
M200-4RS-100030	10	10	R3	25	75	4	●
M200-4RS-120005	12	12	R0.5	30	75	4	●
M200-4RS-120010	12	12	R1	30	75	4	●
M200-4RS-120015	12	12	R1.5	30	75	4	●
M200-4RS-120020	12	12	R2	30	75	4	●
M200-4RS-120025	12	12	R2.5	30	75	4	●
M200-4RS-120030	12	12	R3	30	75	4	●
M200-4RS-140010	14	14	R1	34	100	4	●
M200-4RS-140020	14	14	R2	34	100	4	●
M200-4RS-160005	16	16	R0.5	36	100	4	●
M200-4RS-160010	16	16	R1	36	100	4	●
M200-4RS-160020	16	16	R2	36	100	4	●
M200-4RS-160030	16	16	R3	36	100	4	●
M200-4RS-160040	16	16	R4	36	100	4	●
M200-4RS-180010	18	18	R1	40	100	4	●
M200-4RS-180020	18	18	R2	40	100	4	●
M200-4RS-180040	18	18	R4	40	100	4	●
M200-4RS-200010	20	20	R1	45	100	4	●
M200-4RS-200020	20	20	R2	45	100	4	●
M200-4RS-200030	20	20	R3	45	100	4	●
M200-4RS-200040	20	20	R4	45	100	4	●
M200-4RS-200050	20	20	R5	45	100	4	●

● : Standard stock ○ : Made-to-Order

Solid Carbide End Mill M200

Eco line
4 flutes end mill with corner radius

Solid carbide end mill
Workpiece materials <HRC45





P	M	K	N	S	H
●●	●	●●			

●● 1st choice ● 2nd choice

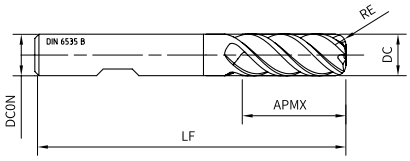
Product code	DC (mm) h9	DCON (mm) h6	RE (mm)	APMX (mm)	LF (mm)	ZEFP	Stock
M200-4RL-030005	3	4	R0.5	8	75	4	●
M200-4RL-040002	4	4	R0.2	12	75	4	●
M200-4RL-040005	4	4	R0.5	12	75	4	●
M200-4RL-040010	4	4	R1	12	75	4	●
M200-4RL-060002	6	6	R0.2	16	75	4	●
M200-4RL-060005	6	6	R0.5	16	75	4	●
M200-4RL-060010	6	6	R1	16	75	4	●
M200-4RL-060015	6	6	R1.5	16	75	4	●
M200-4RL-080005	8	8	R0.5	20	100	4	●
M200-4RL-080010	8	8	R1	20	100	4	●
M200-4RL-080015	8	8	R1.5	20	100	4	●
M200-4RL-080020	8	8	R2	20	100	4	●
M200-4RL-100005	10	10	R0.5	25	100	4	●
M200-4RL-100010	10	10	R1	25	100	4	●
M200-4RL-100015	10	10	R1.5	25	100	4	●
M200-4RL-100020	10	10	R2	25	100	4	●
M200-4RL-120005	12	12	R0.5	30	100	4	●
M200-4RL-120010	12	12	R1	30	100	4	●
M200-4RL-120015	12	12	R1.5	30	100	4	●
M200-4RL-120020	12	12	R2	30	100	4	●
M200-4RL-120025	12	12	R2.5	30	100	4	●
M200-4RL-120030	12	12	R3	30	100	4	●
M200-4RL-140020	14	14	R2	36	150	4	●
M200-4RL-160005	16	16	R0.5	36	150	4	●
M200-4RL-160010	16	16	R1	36	150	4	●
M200-4RL-160020	16	16	R2	36	150	4	●
M200-4RL-160030	16	16	R3	36	150	4	●
M200-4RL-160040	16	16	R4	36	150	4	●
M200-4RL-180010	18	18	R1	45	150	4	●
M200-4RL-180020	18	18	R2	45	150	4	●
M200-4RL-200010	20	20	R1	45	150	4	●
M200-4RL-200020	20	20	R2	45	150	4	●

● : Standard stock ○ : Made-to-Order

Solid Carbide End Mill M200

Eco line
4 flutes end mill with corner radius

Solid carbide end mill
Workpiece materials <HRC45





P	M	K	N	S	H
●●	●	●●			

●● 1st choice ● 2nd choice

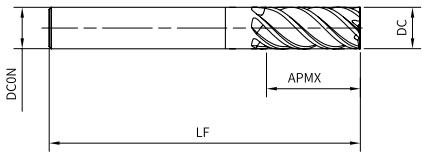
Product code	DC (mm) h9	DCON (mm) h6	RE (mm)	APMX (mm)	LF (mm)	ZEFP	Stock
M200-4RS-060005W	6	6	R0.5	16	50	4	●
M200-4RS-060010W	6	6	R1	16	50	4	●
M200-4RS-080005W	8	8	R0.5	20	60	4	●
M200-4RS-080010W	8	8	R1	20	60	4	●
M200-4RS-100005W	10	10	R0.5	25	75	4	●
M200-4RS-100010W	10	10	R1	25	75	4	●
M200-4RS-100015W	10	10	R1.5	25	75	4	●
M200-4RS-100020W	10	10	R2	25	75	4	●
M200-4RS-120005W	12	12	R0.5	30	75	4	●
M200-4RS-120010W	12	12	R1	30	75	4	●
M200-4RS-120015W	12	12	R1.5	30	75	4	●
M200-4RS-120020W	12	12	R2	30	75	4	●

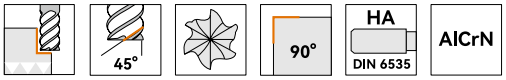
● : Standard stock ○ : Made-to-Order

Solid Carbide End Mill M205

Eco line
6 flutes square end mill

Solid carbide end mill
Workpiece materials <HRC45





P	M	K	N	S	H
●●	●	●●			

●● 1st choice ● 2nd choice

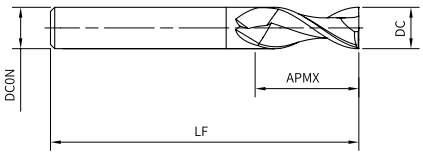
Product code	DC (mm) h9	DCON (mm) h6	APMX (mm)	LF (mm)	ZEFP	Stock
M205-6ES-060	6	6	16	50	6	●
M205-6ES-080	8	8	20	60	6	●
M205-6ES-100	10	10	25	75	6	●
M205-6ES-120	12	12	30	75	6	●
M205-6ES-140	14	14	34	100	6	●
M205-6ES-160	16	16	36	100	6	●
M205-6ES-180	18	18	40	100	6	●
M205-6ES-200	20	20	45	100	6	●

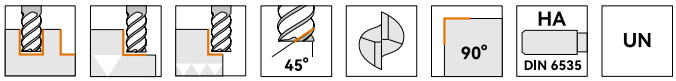
● : Standard stock ○ : Made-to-Order

Solid Carbide End Mill M245

Eco line
2 flutes square end mill for aluminum

Solid carbide end mill





P	M	K	N	S	H
			●●		

●● 1st choice ● 2nd choice

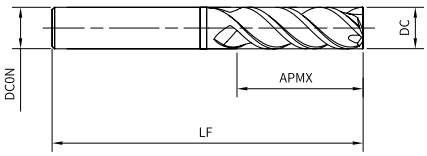
Product code	DC (mm) h9	DCON (mm) h6	APMX (mm)	LF (mm)	ZEFP	Stock
M245-2ES-030	3	4	8	50	2	●
M245-2ES-040	4	4	12	50	2	●
M245-2ES-050	5	6	13	50	2	●
M245-2ES-060	6	6	16	50	2	●
M245-2ES-080	8	8	20	60	2	●
M245-2ES-100	10	10	25	75	2	●
M245-2ES-120	12	12	30	75	2	●
M245-2ES-160	16	16	45	100	2	●
M245-2ES-200	20	20	45	100	2	●

● : Standard stock ○ : Made-to-Order

Solid Carbide End Mill M245

Eco line
3 flutes square end mill for aluminum

Solid carbide end mill





P	M	K	N	S	H
			●●		

●● 1st choice ● 2nd choice

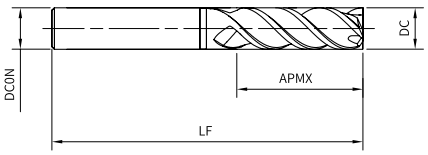
Product code	DC (mm) h9	DCON (mm) h6	APMX (mm)	LF (mm)	ZEFP	Stock
M245-3ES-010	1	4	3	50	3	●
M245-3ES-015	1.5	4	4	50	3	●
M245-3ES-020	2	4	6	50	3	●
M245-3ES-025	2.5	4	8	50	3	●
M245-3ES-030	3	4	8	50	3	●
M245-3ES-040	4	4	12	50	3	●
M245-3ES-050	5	6	13	50	3	●
M245-3ES-060	6	6	16	50	3	●
M245-3ES-080	8	8	20	60	3	●
M245-3ES-100	10	10	25	75	3	●
M245-3ES-120	12	12	30	75	3	●
M245-3ES-160	16	16	45	100	3	●
M245-3ES-180	18	18	45	100	3	●
M245-3ES-200	20	20	45	100	3	●

● : Standard stock ○ : Made-to-Order

Solid Carbide End Mill M245

Eco line
3 flutes square end mill for aluminum

Solid carbide end mill





P	M	K	N	S	H
			●●		

●● 1st choice ● 2nd choice

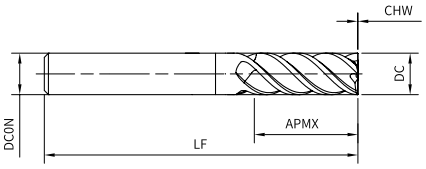
Product code	DC (mm) h9	DCON (mm) h6	APMX (mm)	LF (mm)	ZEFP	Stock
M245-3EL-040	4	4	16	60	3	●
M245-3EL-060	6	6	25	75	3	●
M245-3EL-080	8	8	32	75	3	●
M245-3EL-100	10	10	45	100	3	●
M245-3EL-120	12	12	50	100	3	●
M245-3EL-160	16	16	60	150	3	●
M245-3EL-200	20	20	70	150	3	●

● : Standard stock ○ : Made-to-Order

Solid Carbide End Mill M210

Pro line
4 flutes end mill with corner chamfer

Solid carbide end mill
Workpiece materials <HRC50





P	M	K	N	S	H
●●	●	●●		●	

●● 1st choice ● 2nd choice

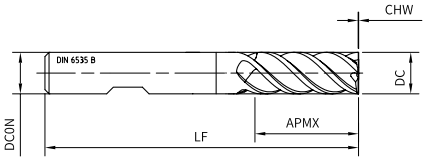
Product code	DC (mm) h9	DCON (mm) h6	CHW (mm)	APMX (mm)	LF (mm)	ZEFP	Stock
M210-4CS-030	3	4	C0.04	8	50	4	●
M210-4CS-040	4	4	C0.06	12	50	4	●
M210-4CS-050	5	6	C0.06	13	50	4	●
M210-4CS-060	6	6	C0.08	16	50	4	●
M210-4CS-080	8	8	C0.1	20	60	4	●
M210-4CS-100	10	10	C0.1	25	75	4	●
M210-4CS-120	12	12	C0.12	30	75	4	●
M210-4CS-140	14	14	C0.12	34	100	4	○
M210-4CS-160	16	16	C0.15	36	100	4	●
M210-4CS-180	18	18	C0.15	40	100	4	○
M210-4CS-200	20	20	C0.15	45	100	4	○

● : Standard stock ○ : Made-to-Order

Solid Carbide End Mill M210

Pro line
4 flutes end mill with corner chamfer

Solid carbide end mill
Workpiece materials <HRC50





P	M	K	N	S	H
●●	●	●●		●	

●● 1st choice ● 2nd choice

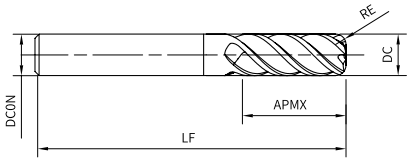
Product code	DC (mm) h9	DCON (mm) h6	CHW (mm)	APMX (mm)	LF (mm)	ZEFP	Stock
M210-4CS-050W	5	6	C0.06	13	50	4	○
M210-4CS-060W	6	6	C0.08	16	50	4	●
M210-4CS-080W	8	8	C0.1	20	60	4	●
M210-4CS-100W	10	10	C0.1	25	75	4	●
M210-4CS-120W	12	12	C0.12	30	75	4	●
M210-4CS-140W	14	14	C0.12	34	100	4	○
M210-4CS-160W	16	16	C0.15	36	100	4	○
M210-4CS-180W	18	18	C0.15	40	100	4	○
M210-4CS-200W	20	20	C0.15	45	100	4	○

● : Standard stock ○ : Made-to-Order

Solid Carbide End Mill M210

Pro line
4 flutes end mill

Solid carbide end mill
Workpiece materials <HRC50





P	M	K	N	S	H
●●	●	●●		●	

●● 1st choice ● 2nd choice

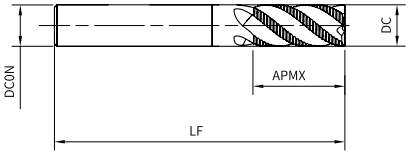
Product code	DC (mm) h9	DCON (mm) h6	RE (mm)	APMX (mm)	LF (mm)	ZEFP	Stock
M210-4RS-040002	4	4	R0.2	12	50	4	○
M210-4RS-040005	4	4	R0.5	12	50	4	●
M210-4RS-040010	4	4	R1	12	50	4	●
M210-4RS-060002	6	6	R0.2	16	50	4	○
M210-4RS-060005	6	6	R0.5	16	50	4	●
M210-4RS-060010	6	6	R1	16	50	4	●
M210-4RS-080005	8	8	R0.5	20	60	4	●
M210-4RS-080010	8	8	R1	20	60	4	●
M210-4RS-080015	8	8	R1.5	20	60	4	○
M210-4RS-080020	8	8	R2	20	60	4	●
M210-4RS-100005	10	10	R0.5	25	75	4	●
M210-4RS-100010	10	10	R1	25	75	4	●
M210-4RS-100015	10	10	R1.5	25	75	4	○
M210-4RS-100020	10	10	R2	25	75	4	●
M210-4RS-100025	10	10	R2.5	25	75	4	○
M210-4RS-120005	12	12	R0.5	30	75	4	●
M210-4RS-120010	12	12	R1	30	75	4	●
M210-4RS-120015	12	12	R1.5	30	75	4	○
M210-4RS-120020	12	12	R2	30	75	4	●
M210-4RS-120025	12	12	R2.5	30	75	4	○
M210-4RS-120030	12	12	R3	30	75	4	○

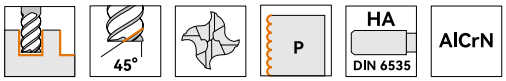
● : Standard stock ○ : Made-to-Order

Solid Carbide End Mill M216

Pro line
4/6 flutes end mill with roughing profile

Solid carbide end mill
Workpiece materials <HRC40





P	M	K	N	S	H
●●	●●	●		●	

●● 1st choice ● 2nd choice

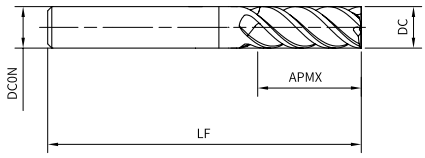
Product code	DC (mm) h9	DCON (mm) h6	APMX (mm)	LF (mm)	ZEFP	Stock
M216-4PS-060	6	6	16	50	4	●
M216-4PS-080	8	8	20	60	4	●
M216-4PS-100	10	10	25	75	4	●
M216-4PS-120	12	12	30	75	4	●
M216-5PS-160	16	16	45	100	5	●
M216-6PS-200	20	20	45	100	6	●

● : Standard stock ○ : Made-to-Order

Solid Carbide End Mill M150

Pro line
4 flutes square end mill

Solid carbide end mill





P	M	K	N	S	H
●●	●●			●●	

●● 1st choice ● 2nd choice

Product code	DC (mm) h9	DCON (mm) h6	APMX (mm)	LF (mm)	ZEFP	Stock
M150-4ES-010	1	4	3	50	4	○
M150-4ES-015	1.5	4	4	50	4	○
M150-4ES-020	2	4	6	50	4	○
M150-4ES-025	2.5	4	8	50	4	○
M150-4ES-030	3	4	8	50	4	●
M150-4ES-040	4	4	12	50	4	●
M150-4ES-050	5	6	13	50	4	●
M150-4ES-060	6	6	16	50	4	●
M150-4ES-080	8	8	20	60	4	●
M150-4ES-100	10	10	25	75	4	●
M150-4ES-120	12	12	30	75	4	●
M150-4ES-160	16	16	36	100	4	●
M150-4ES-200	20	20	45	100	4	○

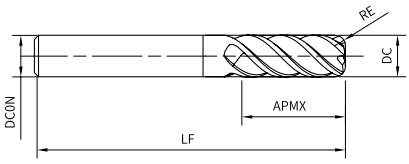
Product code	DC (mm) h9	DCON (mm) h6	APMX (mm)	LF (mm)	ZEFP	Stock
M150-4EL-030	3	4	15	60	4	○
M150-4EL-040	4	4	20	60	4	○
M150-4EL-060	6	6	25	75	4	○
M150-4EL-080	8	8	30	75	4	○
M150-4EL-100	10	10	40	100	4	○
M150-4EL-120	12	12	45	100	4	○

● : Standard stock ○ : Made-to-Order

Solid Carbide End Mill M150

Pro line
4 flutes end mill

Solid carbide end mill





P	M	K	N	S	H
●●	●●			●●	

●● 1st choice ● 2nd choice

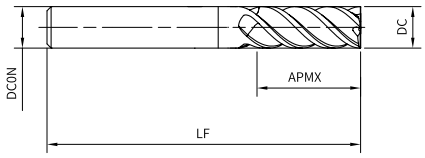
Product code	DC (mm) h9	DCON (mm) h6	RE (mm)	APMX (mm)	LF (mm)	ZEFP	Stock
M150-4RS-010002	1	4	R0.2	3	50	4	○
M150-4RS-015002	1.5	4	R0.2	4	50	4	○
M150-4RS-020002	2	4	R0.2	6	50	4	○
M150-4RS-020005	2	4	R0.5	6	50	4	○
M150-4RS-025005	2.5	4	R0.5	8	50	4	○
M150-4RS-030002	3	4	R0.2	8	50	4	○
M150-4RS-030005	3	4	R0.5	8	50	4	○
M150-4RS-040002	4	4	R0.2	12	50	4	●
M150-4RS-040005	4	4	R0.5	12	50	4	○
M150-4RS-040010	4	4	R1	12	50	4	○
M150-4RS-060002	6	6	R0.2	16	50	4	●
M150-4RS-060005	6	6	R0.5	16	50	4	○
M150-4RS-060010	6	6	R1	16	50	4	○
M150-4RS-080002	8	8	R0.2	20	60	4	●
M150-4RS-080005	8	8	R0.5	20	60	4	●
M150-4RS-080010	8	8	R1	20	60	4	●
M150-4RS-100005	10	10	R0.5	25	75	4	●
M150-4RS-100010	10	10	R1	25	75	4	●
M150-4RS-100020	10	10	R2	25	75	4	●
M150-4RS-120005	12	12	R0.5	30	75	4	●
M150-4RS-120010	12	12	R1	30	75	4	●
M150-4RS-120020	12	12	R2	30	75	4	●

● : Standard stock ○ : Made-to-Order

Solid Carbide End Mill M170

Pro line
4 flutes square end mill

Solid carbide end mill
Workpiece materials <HRC45-60





P	M	K	N	S	H
•		•			••

•• 1st choice • 2nd choice

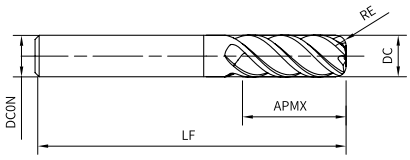
Product code	DC (mm) h9	DCON (mm) h6	APMX (mm)	LF (mm)	ZEFP	Stock
M170-4ES-040	4	4	12	50	4	●
M170-4ES-060	6	6	16	50	4	●
M170-4ES-080	8	8	20	60	4	●
M170-4ES-100	10	10	25	75	4	●
M170-4ES-120	12	12	30	75	4	●
M170-4ES-160	16	16	36	100	4	●

● : Standard stock ○ : Made-to-Order

Solid Carbide End Mill M170

Pro line
4 flutes end mill

Solid carbide end mill
Workpiece materials <HRC45-60





P	M	K	N	S	H
•		•			••

•• 1st choice • 2nd choice

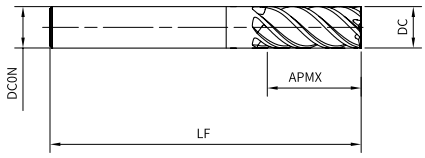
Product code	DC (mm) h9	DCON (mm) h6	RE (mm)	APMX (mm)	LF (mm)	ZEEP	Stock
M170-4RS-040002	4	4	R0.2	12	50	4	●
M170-4RS-040005	4	4	R0.5	12	50	4	●
M170-4RS-060002	6	6	R0.2	16	50	4	●
M170-4RS-060005	6	6	R0.5	16	50	4	●
M170-4RS-060010	6	6	R1	16	50	4	●
M170-4RS-080002	8	8	R0.2	20	60	4	●
M170-4RS-080005	8	8	R0.5	20	60	4	●
M170-4RS-080010	8	8	R1	20	60	4	●
M170-4RS-100002	10	10	R0.2	25	75	4	●
M170-4RS-100005	10	10	R0.5	25	75	4	●
M170-4RS-100010	10	10	R1	25	75	4	●
M170-4RS-100020	10	10	R2	25	75	4	●
M170-4RS-120005	12	12	R0.5	30	75	4	●
M170-4RS-120010	12	12	R1	30	75	4	●
M170-4RS-120020	12	12	R2	30	75	4	●
M170-4RS-120030	12	12	R3	30	75	4	●

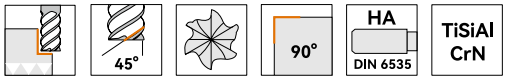
● : Standard stock ○ : Made-to-Order

Solid Carbide End Mill M170

Pro line
5/6 flutes square end mill

Solid carbide end mill
Workpiece materials <HRC45-60





P	M	K	N	S	H
•		•			••

•• 1st choice • 2nd choice

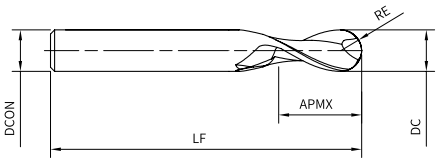
Product code	DC (mm) h9	DCON (mm) h6	APMX (mm)	LF (mm)	ZEFP	Stock
M170-5ES-040	4	4	12	50	5	●
M170-5ES-060	6	6	16	50	5	●
M170-6ES-080	8	8	20	60	6	●
M170-6ES-100	10	10	25	75	6	●
M170-6ES-120	12	12	30	75	6	●
M170-6ES-160	16	16	36	100	6	●

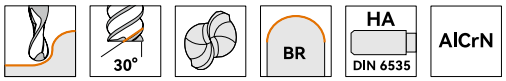
● : Standard stock ○ : Made-to-Order

Solid Carbide End Mill M200

Eco line
2 flutes ball nose end mill

Solid carbide end mill
Workpiece materials <HRC45





P	M	K	N	S	H
●●	●	●●			

●● 1st choice ● 2nd choice

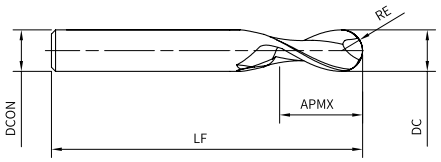
Product code	DC (mm) h9	DCON (mm) h6	RE (mm)	APMX (mm)	LF (mm)	ZEFP	Stock
M200-2BS-010	1	4	R0.5	2	50	2	●
M200-2BS-015	1.5	4	R0.75	3	50	2	●
M200-2BS-020	2	4	R1	4	50	2	●
M200-2BS-025	2.5	4	R1.25	5	50	2	●
M200-2BS-030	3	4	R1.5	6	50	2	●
M200-2BS-040	4	4	R2	8	50	2	●
M200-2BS-050	5	6	R2.5	10	50	2	●
M200-2BS-060	6	6	R3	12	50	2	●
M200-2BS-070	7	8	R3.5	14	60	2	●
M200-2BS-080	8	8	R4	14	60	2	●
M200-2BS-100	10	10	R5	18	75	2	●
M200-2BS-110	11	12	R5.5	20	75	2	●
M200-2BS-120	12	12	R6	22	75	2	●
M200-2BS-140	14	14	R7	26	100	2	●
M200-2BS-160	16	16	R8	30	100	2	●
M200-2BS-180	18	18	R9	34	100	2	●
M200-2BS-200	20	20	R10	38	100	2	●

● : Standard stock ○ : Made-to-Order

Solid Carbide End Mill M200

Eco line
2 flutes ball nose end mill

Solid carbide end mill
Workpiece materials <HRC45





P	M	K	N	S	H
●●	●	●●			

●● 1st choice ● 2nd choice

Product code	DC (mm) h9	DCON (mm) h6	RE (mm)	APMX (mm)	LF (mm)	ZEFP	Stock
M200-2BL-010P	1	6	R0.5	2	75	2	●
M200-2BL-015P	1.5	6	R0.75	3	75	2	●
M200-2BL-020	2	4	R1	4	75	2	●
M200-2BL-020P	2	6	R1	4	75	2	●
M200-2BL-030	3	4	R1.5	6	75	2	●
M200-2BL-030P	3	6	R1.5	6	75	2	●
M200-2BL-040	4	4	R2	8	75	2	●
M200-2BL-050	5	6	R2.5	10	75	2	●
M200-2BL-060	6	6	R3	12	75	2	●
M200-2BL-080	8	8	R4	14	75	2	●
M200-2BL-090	9	10	R4.5	16	100	2	●
M200-2BL-100	10	10	R5	18	100	2	●
M200-2BL-110	11	12	R5.5	20	100	2	●
M200-2BL-120	12	12	R6	22	100	2	●
M200-2BL-140	14	14	R7	26	150	2	●
M200-2BL-160	16	16	R8	30	150	2	●
M200-2BL-180	18	18	R9	34	150	2	●
M200-2BL-200	20	20	R10	38	150	2	●

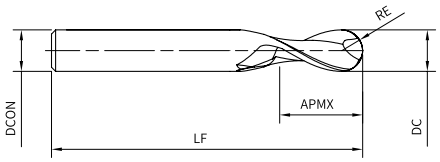
Product code	DC (mm) h7	DCON (mm) h6	RE (mm)	APMX (mm)	LF (mm)	ZEFP	Stock
M200-2BX-040	4	4	R2	8	100	2	●
M200-2BX-060	6	6	R3	12	100	2	●
M200-2BX-070	7	8	R3.5	14	100	2	●
M200-2BX-080	8	8	R4	14	100	2	●
M200-2BX-100	10	10	R5	18	150	2	●
M200-2BX-120	12	12	R6	22	150	2	●

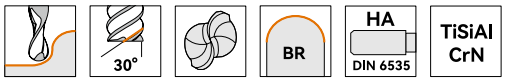
● : Standard stock ○ : Made-to-Order

Solid Carbide End Mill M170

Pro line
2 flutes ball nose end mill

Solid carbide end mill
Workpiece materials <HRC45-60





P	M	K	N	S	H
•		•			••

•• 1st choice • 2nd choice

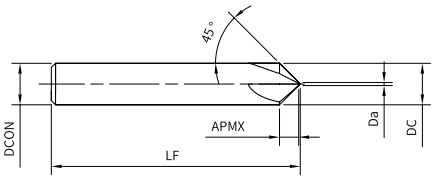
Product code	DC (mm) h7	DCON (mm) h5	RE (mm)	APMX (mm)	LF (mm)	ZEFP	Stock
M170-2BS-020	2	4	R1	4	50	2	○
M170-2BS-030	3	4	R1.5	6	50	2	○
M170-2BS-040	4	4	R2	8	50	2	○
M170-2BS-060	6	6	R3	12	50	2	○
M170-2BS-080	8	8	R4	16	60	2	○
M170-2BS-100	10	10	R5	18	75	2	○
M170-2BS-120	12	12	R6	22	75	2	○
M170-2BS-160	16	16	R8	30	100	2	○

● : Standard stock ○ : Made-to-Order

Solid Carbide End Mill M180

Eco line
4 flutes chamfer mill

Solid carbide end mill





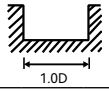
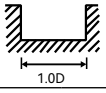
P	M	K	N	S	H
●●	●	●●	●	●	

●● 1st choice ● 2nd choice

Product code	DC (mm) h9	DCON (mm) h6	Da (mm)	APMX (mm)	LF (mm)	ZEFP	Stock
M180-4WS-060	6	6	1	2.5	50	4	●
M180-4WS-080	8	8	2	3	60	4	●
M180-4WS-100	10	10	1.5	4.25	75	4	●
M180-4WS-120	12	12	3	4.5	75	4	●
M180-4WS-160	16	16	4	6	100	4	●

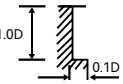
● : Standard stock ○ : Made-to-Order

Solid Carbide End Mill M200 Cutting Data Recommendation

Materials						M200-2ES Slot milling 1.0D (ISO P/K)  Slot milling 0.5D (ISO M) 									
ISO	Workpiece Materials			Brinell Hardness(HB)	Tensile strength (N/mm^2)	Cutting speed Vc(m/min)	fz [mm/Tooth] Mill diameter [mm]								
							2	4	6	8	10	12	14	16	20
P	Unalloyed steel	C ≤ 0.25%	Annealed	125	428	85-120	0.007	0.018	0.027	0.045	0.054	0.059	0.063	0.072	0.099
		0.25 < C ≤ 0.55%	Annealed	190	639	95-130	0.008	0.020	0.030	0.050	0.060	0.065	0.070	0.080	0.110
		0.25 < C ≤ 0.55%	Heat-treated	210	708	95-130	0.008	0.020	0.030	0.050	0.060	0.065	0.070	0.080	0.100
		C > 0.55%	Annealed	190	639	95-130	0.008	0.019	0.029	0.048	0.057	0.062	0.067	0.076	0.105
		C > 0.55%	Heat-treated	300	1013	75-100	0.007	0.018	0.027	0.045	0.054	0.059	0.063	0.072	0.099
		Free cutting steel	Annealed	220	745	80-120	0.008	0.019	0.029	0.048	0.057	0.062	0.067	0.076	0.105
	Low-alloyed steel	Annealed		175	591	100-120	0.008	0.019	0.029	0.048	0.057	0.062	0.067	0.076	0.105
		Heat-treated		300	1013	60-100	0.007	0.018	0.027	0.045	0.054	0.059	0.063	0.072	0.099
		Heat-treated		380	1282	60-100	0.007	0.017	0.026	0.043	0.052	0.056	0.060	0.069	0.095
		Heat-treated		430	1477	50-75	0.007	0.016	0.025	0.041	0.049	0.053	0.057	0.066	0.090
	High-alloyed steel and highalloyed tool steel	Annealed		200	675	90-120	0.007	0.018	0.027	0.045	0.054	0.059	0.063	0.072	0.099
		Hardened and tempered		300	1013	75-100	0.007	0.018	0.027	0.045	0.054	0.059	0.063	0.072	0.099
		Hardened and tempered		400	1361	50-80	0.007	0.017	0.026	0.043	0.052	0.056	0.060	0.069	0.095
	Stainless steels	Ferritic/Martensite,Annealed		200	675	40-70	0.006	0.015	0.023	0.038	0.045	0.049	0.053	0.060	0.083
		Martensite,Heat-treated		330	1114	40-50	0.005	0.013	0.020	0.033	0.039	0.042	0.046	0.052	0.072
M	Stainless steels	Austenitic,hardened		200	675	50-70	0.006	0.020	0.035	0.043	0.050	0.055	0.060	0.067	0.080
		Austenitic,precipitation hardened stainless steel(PH stainless steel)		300	1013	30-50	0.005	0.016	0.028	0.034	0.040	0.044	0.048	0.054	0.064
		Austenitic,ferritic,duplex		230	778	40-50	0.006	0.019	0.033	0.041	0.048	0.052	0.057	0.064	0.076
K	Malleable cast iron	Ferritic		200	400	110-145	0.012	0.020	0.042	0.060	0.075	0.085	0.100	0.110	0.125
		Pearlitic		260	700	90-120	0.010	0.017	0.036	0.051	0.064	0.072	0.085	0.094	0.106
	Grey cast iron	Low tensile strength		180	200	120-130	0.012	0.020	0.042	0.060	0.075	0.085	0.100	0.110	0.125
		High tensile strength/Austenitic		245	350	100-120	0.011	0.018	0.038	0.054	0.068	0.077	0.090	0.099	0.113
	Nodular cast iron	Ferritic		155	400	100-120	0.012	0.020	0.042	0.060	0.075	0.085	0.100	0.110	0.125
		Pearlitic		265	700	85-115	0.010	0.017	0.036	0.051	0.064	0.072	0.085	0.094	0.106
	GGV(CGI)			230	400	60-95	0.010	0.016	0.034	0.048	0.060	0.068	0.080	0.088	0.100
N	Wrought aluminum alloy	Non-aging alloy		30	-										
		Aged alloy		100	340										
	Cast aluminum alloy	≤ 12% Si, non-aging alloy		75	260										
		≤ 12% Si, aged alloy		90	310										
		> 12% Si, non-aging alloy		130	450										
	Magnesium alloy			70	250										
	Copper and copper alloy(bronze/ brass)	Unalloyed,electrolytic copper		100	340										
		Brass,bronze,red brass		90	310										
		Cu alloy,short chip		110	380										
		High tensile,Ampco alloy		300	1010										
S	Fe-based alloy	Fe-based	Annealed	200	680										
			Aged	280	940										
		Ni or Co based	Annealed	250	840										
			Aged	350	1180										
			Cast	320	1080										
	Titanium alloy	Pure Titanium		200	680										
		α and β alloy, aged		375	1260										
		β alloy		410	1400										
	Tungsten alloy			300	1010										
	Molybdenum alloy			300	1010										
H	Hardened steel	Hardened and tempered		50HRC	-										
		Hardened and tempered		55HRC	-										
		Hardened and tempered		60HRC	-										
	Chilled cast iron	Hardened and tempered		55HRC	-										

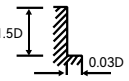
The cutting data are average recommended values. For special applications, adjustment is needed.

Solid Carbide End Mill M200 Cutting Data Recommendation

Materials						M200-4ES, M200-4ESP, M200-4EL, M200-4ELP, M200-4EX, M200-4RS, M200-4RL, M200-4CS — Square shoudler milling (rough machining) 								
ISO	Workpiece Materials			Brinell Hardness(HB)	Tensile strength (N/mm^2)	Cutting speed Vc(m/min)	fz [mm/Tooth] Mill diameter [mm]								
							2	4	6	8	10	12	14	16	20
P	Unalloyed steel	C ≤ 0.25%	Annealed	125	428	100-220	0.018	0.036	0.063	0.072	0.090	0.108	0.135	0.153	0.180
		0.25 < C ≤ 0.55%	Annealed	190	639	140-250	0.020	0.040	0.070	0.080	0.100	0.120	0.150	0.170	0.200
		0.25 < C ≤ 0.55%	Heat-treated	210	708	160-250	0.020	0.040	0.070	0.080	0.100	0.120	0.150	0.170	0.200
		C > 0.55%	Annealed	190	639	160-250	0.019	0.038	0.067	0.076	0.095	0.114	0.143	0.162	0.190
		C > 0.55%	Heat-treated	300	1013	120-190	0.018	0.036	0.063	0.072	0.090	0.108	0.135	0.153	0.180
		Free cutting steel	Annealed	220	745	170-230	0.019	0.038	0.067	0.076	0.095	0.114	0.143	0.162	0.190
	Low-alloyed steel	Annealed		175	591	170-220	0.019	0.038	0.067	0.076	0.095	0.114	0.143	0.162	0.190
		Heat-treated		300	1013	100-180	0.018	0.036	0.063	0.072	0.090	0.108	0.135	0.153	0.180
		Heat-treated		380	1282	95-170	0.017	0.034	0.060	0.069	0.086	0.103	0.129	0.146	0.172
		Heat-treated		430	1477	80-120	0.016	0.033	0.057	0.066	0.082	0.098	0.123	0.139	0.164
	High-alloyed steel and highalloyed tool steel	Annealed		200	675	160-180	0.018	0.036	0.063	0.072	0.090	0.108	0.135	0.153	0.180
		Hardened and tempered		300	1013	120-180	0.018	0.036	0.063	0.072	0.090	0.108	0.135	0.153	0.180
		Hardened and tempered		400	1361	90-130	0.017	0.034	0.060	0.069	0.086	0.103	0.129	0.146	0.172
	Stainless steels	Ferritic/Martensite,Annealed		200	675	75-100	0.015	0.030	0.053	0.060	0.075	0.090	0.113	0.128	0.150
		Martensite,Heat-treated		330	1114	55-980	0.013	0.026	0.046	0.052	0.065	0.078	0.098	0.111	0.130
M	Stainless steels	Austenitic,hardened		200	675	80-130	0.012	0.032	0.050	0.060	0.080	0.100	0.120	0.140	0.160
		Austenitic,precipitation hardened stainless steel(PH stainless steel)		300	1013	50-80	0.010	0.026	0.040	0.048	0.064	0.080	0.096	0.112	0.128
		Austenitic,ferritic,duplex		230	778	50-90	0.011	0.030	0.048	0.057	0.076	0.095	0.114	0.133	0.152
K	Malleable cast iron	Ferritic		200	400	180-250	0.020	0.040	0.070	0.090	0.120	0.140	0.160	0.180	0.220
		Pearlitic		260	700	150-165	0.017	0.034	0.060	0.077	0.102	0.119	0.136	0.153	0.187
	Grey cast iron	Low tensile strength		180	200	180-200	0.020	0.040	0.070	0.090	0.120	0.140	0.160	0.180	0.220
		High tensile strength/Austenitic		245	350	160-200	0.018	0.036	0.063	0.081	0.108	0.126	0.144	0.162	0.198
	Nodular cast iron	Ferritic		155	400	150-230	0.020	0.040	0.070	0.090	0.120	0.140	0.160	0.180	0.220
		Pearlitic		265	700	150-195	0.017	0.034	0.060	0.077	0.102	0.119	0.136	0.153	0.187
	GGV(CGI)			230	400	125-160	0.016	0.032	0.056	0.072	0.096	0.112	0.128	0.144	0.176
N	Wrought aluminum alloy	Non-aging alloy		30	-										
		Aged alloy		100	340										
	Cast aluminum alloy	≤ 12% Si, non-aging alloy		75	260										
		≤ 12% Si, aged alloy		90	310										
		> 12% Si, non-aging alloy		130	450										
	Magnesium alloy			70	250										
	Copper and copper alloy(bronze/ brass)	Unalloyed,electrolytic copper		100	340										
		Brass,bronze,red brass		90	310										
		Cu alloy,short chip		110	380										
		High tensile,Ampco alloy		300	1010										
S	Fe-based alloy	Fe-based	Annealed	200	680										
			Aged	280	940										
		Ni or Co based	Annealed	250	840										
			Aged	350	1180										
			Cast	320	1080										
	Titanium alloy	Pure Titanium		200	680										
		α and β alloy, aged		375	1260										
		β alloy		410	1400										
	Tungsten alloy			300	1010										
	Molybdenum alloy			300	1010										
H	Hardened steel	Hardened and tempered		50HRC	-										
		Hardened and tempered		55HRC	-										
		Hardened and tempered		60HRC	-										
	Chilled cast iron	Hardened and tempered		55HRC	-										

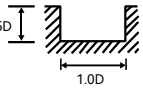
The cutting data are average recommended values. For special applications, adjustment is needed.

Solid Carbide End Mill M200/M205 Cutting Data Recommendation

Materials						M200-4ES, M200-4ESP, M200-4ELP M200-4EL, M200-4EX M200-4RS, M200-4RL M200-4CS, M205-6ES Square shoulder milling (Finsih milling) 									
ISO	Workpiece Materials			Brinell Hardness(HB)	Tensile strength (N/mm^2)	Cutting speed Vc(m/min)	fz [mm/Tooth] Mill diameter [mm]								
							2	4	6	8	10	12	14	16	20
P	Unalloyed steel	C ≤ 0.25%	Annealed	125	428	160-280	0.027	0.045	0.099	0.126	0.153	0.180	0.225	0.270	0.315
		0.25 < C ≤ 0.55%	Annealed	190	639	180-300	0.030	0.050	0.110	0.140	0.170	0.200	0.250	0.300	0.350
		0.25 < C ≤ 0.55%	Heat-treated	210	708	160-280	0.030	0.050	0.110	0.140	0.170	0.200	0.250	0.300	0.350
		C > 0.55%	Annealed	190	639	180-300	0.029	0.048	0.105	0.133	0.162	0.190	0.238	0.285	0.333
		C > 0.55%	Heat-treated	300	1013	100-210	0.027	0.045	0.099	0.126	0.153	0.180	0.225	0.270	0.315
		Free cutting steel	Annealed	220	745	130-240	0.029	0.048	0.105	0.133	0.162	0.190	0.238	0.285	0.333
	Low-alloyed steel	Annealed		175	591	160-240	0.029	0.048	0.105	0.133	0.162	0.190	0.238	0.285	0.333
		Heat-treated		300	1013	100-190	0.027	0.045	0.099	0.126	0.153	0.180	0.225	0.270	0.315
		Heat-treated		380	1282	95-160	0.026	0.043	0.095	0.120	0.146	0.172	0.215	0.258	0.301
		Heat-treated		430	1477	80-150	0.025	0.041	0.090	0.115	0.139	0.164	0.205	0.246	0.287
	High-alloyed steel and highalloyed tool steel	Annealed		200	675	160-280	0.027	0.045	0.099	0.126	0.153	0.180	0.225	0.270	0.315
		Hardened and tempered		300	1013	120-190	0.027	0.045	0.099	0.126	0.153	0.180	0.225	0.270	0.315
		Hardened and tempered		400	1361	85-120	0.026	0.043	0.095	0.120	0.146	0.172	0.215	0.258	0.301
	Stainless steels	Ferritic/Martensite,Annealed		200	675	65-100	0.023	0.038	0.083	0.105	0.128	0.150	0.188	0.225	0.263
		Martensite,Heat-treated		330	1114	55-90	0.020	0.033	0.072	0.091	0.111	0.130	0.163	0.195	0.228
M	Stainless steels	Austenitic,hardened		200	675	75-150	0.023	0.040	0.060	0.080	0.110	0.140	0.180	0.240	0.300
		Austenitic,precipitation hardened stainless steel(PH stainless steel)		300	1013	50-80	0.018	0.032	0.048	0.064	0.088	0.112	0.144	0.192	0.240
		Austenitic,ferritic,duplex		230	778	70-80	0.022	0.038	0.057	0.076	0.105	0.133	0.171	0.228	0.285
K	Malleable cast iron	Ferritic		200	400	200-300	0.030	0.080	0.130	0.160	0.200	0.250	0.300	0.350	0.400
		Pearlitic		260	700	150-250	0.026	0.068	0.111	0.136	0.170	0.213	0.255	0.298	0.340
	Grey cast iron	Low tensile strength		180	200	180-200	0.030	0.080	0.130	0.160	0.200	0.250	0.300	0.350	0.400
		High tensile strength/Austenitic		245	350	160-260	0.027	0.072	0.117	0.144	0.180	0.225	0.270	0.315	0.360
	Nodular cast iron	Ferritic		155	400	180-260	0.030	0.080	0.130	0.160	0.200	0.250	0.300	0.350	0.400
		Pearlitic		265	700	150-220	0.026	0.068	0.111	0.136	0.170	0.213	0.255	0.298	0.340
	GGV(CGI)			230	400	135-190	0.024	0.064	0.104	0.128	0.160	0.200	0.240	0.280	0.320
N	Wrought aluminum alloy	Non-aging alloy		30	-										
		Aged alloy		100	340										
	Cast aluminum alloy	≤ 12% Si, non-aging alloy		75	260										
		≤ 12% Si, aged alloy		90	310										
		> 12% Si, non-aging alloy		130	450										
	Magnesium alloy			70	250										
	Copper and copper alloy(bronze/ brass)	Unalloyed,electrolytic copper		100	340										
		Brass,bronze,red brass		90	310										
		Cu alloy,short chip		110	380										
		High tensile,Ampco alloy		300	1010										
S	Fe-based alloy	Fe-based	Annealed	200	680										
			Aged	280	940										
		Ni or Co based	Annealed	250	840										
			Aged	350	1180										
			Cast	320	1080										
	Titanium alloy	Pure Titanium		200	680										
		α and β alloy, aged		375	1260										
		β alloy		410	1400										
	Tungsten alloy			300	1010										
	Molybdenum alloy			300	1010										
H	Hardened steel	Hardened and tempered		50HRC	-										
		Hardened and tempered		55HRC	-										
		Hardened and tempered		60HRC	-										
	Chilled cast iron	Hardened and tempered		55HRC	-										

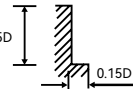
The cutting data are average recommended values. For special applications, adjustment is needed.

Solid Carbide End Mill M245 Cutting Data Recommendation

Materials						M245-2ES M245-3ES M245-3EL	Slot milling 								
ISO	Workpiece Materials			Brinell Hardness(HB)	Tensile strength (N/mm^2)	Cutting speed Vc(m/min)	fz [mm/Tooth]								
							Mill diameter [mm]								
							2	4	6	8	10	12	14	16	20
P	Unalloyed steel	C ≤ 0.25%	Annealed	125	428										
		0.25 < C ≤ 0.55%	Annealed	190	639										
		0.25 < C ≤ 0.55%	Heat-treated	210	708										
		C > 0.55%	Annealed	190	639										
		C > 0.55%	Heat-treated	300	1013										
		Free cutting steel	Annealed	220	745										
	Low-alloyed steel	Annealed		175	591										
		Heat-treated		300	1013										
		Heat-treated		380	1282										
		Heat-treated		430	1477										
	High-alloyed steel and highalloyed tool steel	Annealed		200	675										
		Hardened and tempered		300	1013										
		Hardened and tempered		400	1361										
	Stainless steels	Ferritic/Martensite,Annealed		200	675										
		Martensite,Heat-treated		330	1114										
M	Stainless steels	Austenitic,hardened		200	675										
		Austenitic,precipitation hardened stainless steel(PH stainless steel)		300	1013										
		Austenitic,ferritic,duplex		230	778										
K	Malleable cast iron	Ferritic		200	400										
		Pearlitic		260	700										
	Grey cast iron	Low tensile strength		180	200										
		High tensile strength/Austenitic		245	350										
	Nodular cast iron	Ferritic		155	400										
		Pearlitic		265	700										
	GGV(CGI)			230	400										
N	Wrought aluminum alloy	Non-aging alloy		30	-	330-500	0.020	0.040	0.060	0.100	0.120	0.140	0.160	0.180	0.200
		Aged alloy		100	340	330-400	0.020	0.040	0.060	0.100	0.120	0.140	0.160	0.180	0.200
	Cast aluminum alloy	≤ 12% Si, non-aging alloy		75	260	330-400	0.020	0.040	0.060	0.100	0.120	0.140	0.160	0.180	0.200
		≤ 12% Si, aged alloy		90	310	330-400	0.020	0.040	0.060	0.100	0.120	0.140	0.160	0.180	0.200
		> 12% Si, non-aging alloy		130	450	150-300	0.017	0.034	0.051	0.085	0.102	0.119	0.136	0.153	0.170
	Magnesium alloy			70	250										
	Copper and copper alloy(bronze/brass)	Unalloyed,electrolytic copper		100	340	250-400	0.018	0.036	0.054	0.090	0.108	0.126	0.144	0.162	0.180
		Brass,bronze,red brass		90	310	250-300	0.018	0.036	0.054	0.090	0.108	0.126	0.144	0.162	0.180
		Cu alloy,short chip		110	380	200-250	0.018	0.036	0.054	0.090	0.108	0.126	0.144	0.162	0.180
		High tensile,Ampco alloy		300	1010										
S	Fe-based alloy	Fe-based	Annealed	200	680										
			Aged	280	940										
		Ni or Co based	Annealed	250	840										
			Aged	350	1180										
			Cast	320	1080										
	Titanium alloy	Pure Titanium		200	680										
		α and β alloy, aged		375	1260										
		β alloy		410	1400										
	Tungsten alloy			300	1010										
	Molybdenum alloy			300	1010										
H	Hardened steel	Hardened and tempered		50HRC	-										
		Hardened and tempered		55HRC	-										
		Hardened and tempered		60HRC	-										
	Chilled cast iron	Hardened and tempered		55HRC	-										

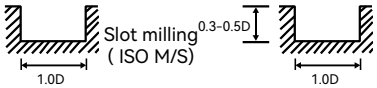
The cutting data are average recommended values. For special applications, adjustment is needed.

Solid Carbide End Mill M245 Cutting Data Recommendation

Materials						M245-2ES M245-3ES M245-3EL Square shoulder milling 									
ISO	Workpiece Materials			Brinell Hardness(HB)	Tensile strength (N/mm^2)	Cutting speed Vc(m/min)	fz [mm/Tooth] Mill diameter [mm]								
							2	4	6	8	10	12	14	16	20
P	Unalloyed steel	C ≤ 0.25%	Annealed	125	428										
		0.25 < C ≤ 0.55%	Annealed	190	639										
		0.25 < C ≤ 0.55%	Heat-treated	210	708										
		C > 0.55%	Annealed	190	639										
		C > 0.55%	Heat-treated	300	1013										
		Free cutting steel	Annealed	220	745										
	Low-alloyed steel	Annealed		175	591										
		Heat-treated		300	1013										
		Heat-treated		380	1282										
		Heat-treated		430	1477										
	High-alloyed steel and highalloyed tool steel	Annealed		200	675										
		Hardened and tempered		300	1013										
		Hardened and tempered		400	1361										
	Stainless steels	Ferritic/Martensite,Annealed		200	675										
		Martensite,Heat-treated		330	1114										
M	Stainless steels	Austenitic,hardened		200	675										
		Austenitic,precipitation hardened stainless steel(PH stainless steel)		300	1013										
		Austenitic,ferritic,duplex		230	778										
K	Malleable cast iron	Ferritic		200	400										
		Pearlitic		260	700										
	Grey cast iron	Low tensile strength		180	200										
		High tensile strength/Austenitic		245	350										
	Nodular cast iron	Ferritic		155	400										
		Pearlitic		265	700										
	GGV(CGI)			230	400										
N	Wrought aluminum alloy	Non-aging alloy		30	-	380-450	0.022	0.040	0.055	0.065	0.090	0.110	0.120	0.140	0.160
		Aged alloy		100	340	320-380	0.022	0.040	0.055	0.065	0.090	0.110	0.120	0.140	0.160
	Cast aluminum alloy	≤ 12% Si, non-aging alloy		75	260	260-300	0.022	0.040	0.055	0.065	0.090	0.110	0.120	0.140	0.160
		≤ 12% Si, aged alloy		90	310	260-300	0.022	0.040	0.055	0.065	0.090	0.110	0.120	0.140	0.160
		> 12% Si, non-aging alloy		130	450	250-290	0.019	0.034	0.047	0.055	0.077	0.094	0.102	0.119	0.136
	Magnesium alloy			70	250										
	Copper and copper alloy(bronze/ brass)	Unalloyed,electrolytic copper		100	340	280-350	0.020	0.036	0.050	0.059	0.081	0.099	0.108	0.126	0.144
		Brass,bronze,red brass		90	310	250-300	0.020	0.036	0.050	0.059	0.081	0.099	0.108	0.126	0.144
		Cu alloy,short chip		110	380	200-250	0.020	0.036	0.050	0.059	0.081	0.099	0.108	0.126	0.144
		High tensile,Ampco alloy		300	1010										
S	Fe-based alloy	Fe-based	Annealed	200	680										
			Aged	280	940										
		Ni or Co based	Annealed	250	840										
			Aged	350	1180										
			Cast	320	1080										
	Titanium alloy	Pure Titanium		200	680										
		α and β alloy, aged		375	1260										
		β alloy		410	1400										
	Tungsten alloy			300	1010										
	Molybdenum alloy			300	1010										
H	Hardened steel	Hardened and tempered		50HRC	-										
		Hardened and tempered		55HRC	-										
		Hardened and tempered		60HRC	-										
	Chilled cast iron	Hardened and tempered		55HRC	-										

The cutting data are average recommended values. For special applications, adjustment is needed.

Solid Carbide End Mill M210 Cutting Data Recommendation

Materials						M210-4CS Slot milling 1.0D (ISO P/K) M210-4RS Slot milling 0.3-0.5D (ISO M/S) 								
ISO	Workpiece Materials			Brinell Hardness(HB)	Tensile strength (N/mm^2)	Cutting speed Vc(m/min)	fz [mm/Tooth] Mill diameter [mm]								
							4	6	8	10	12	14	16	18	20
P	Unalloyed steel	C ≤ 0.25%	Annealed	125	428	85-150	0.016	0.023	0.032	0.040	0.054	0.059	0.063	0.072	0.081
		0.25 < C ≤ 0.55%	Annealed	190	639	110-150	0.018	0.025	0.035	0.044	0.060	0.065	0.070	0.080	0.090
		0.25 < C ≤ 0.55%	Heat-treated	210	708	110-150	0.018	0.025	0.035	0.044	0.060	0.065	0.070	0.080	0.090
		C > 0.55%	Annealed	190	639	100-120	0.017	0.024	0.033	0.042	0.057	0.062	0.067	0.076	0.086
		C > 0.55%	Heat-treated	300	1013	80-110	0.016	0.023	0.032	0.040	0.054	0.059	0.063	0.072	0.081
		Free cutting steel	Annealed	220	745	100-120	0.017	0.024	0.033	0.042	0.057	0.062	0.067	0.076	0.086
	Low-alloyed steel	Annealed		175	591	100-120	0.017	0.024	0.033	0.042	0.057	0.062	0.067	0.076	0.086
		Heat-treated		300	1013	80-110	0.016	0.023	0.032	0.040	0.054	0.059	0.063	0.072	0.081
		Heat-treated		380	1282	80-100	0.015	0.022	0.030	0.038	0.052	0.056	0.060	0.069	0.077
		Heat-treated		430	1477	70-110	0.015	0.021	0.029	0.036	0.049	0.053	0.057	0.066	0.074
	High-alloyed steel and highalloyed tool steel	Annealed		200	675	100-120	0.016	0.023	0.032	0.040	0.054	0.059	0.063	0.072	0.081
		Hardened and tempered		300	1013	80-100	0.016	0.023	0.032	0.040	0.054	0.059	0.063	0.072	0.081
		Hardened and tempered		400	1361	70-110	0.015	0.022	0.030	0.038	0.052	0.056	0.060	0.069	0.077
	Stainless steels	Ferritic/Martensite,Annealed		200	675	50-70	0.014	0.019	0.026	0.033	0.045	0.049	0.053	0.060	0.068
		Martensite,Heat-treated		330	1114	40-60	0.012	0.016	0.023	0.029	0.039	0.042	0.046	0.052	0.059
M	Stainless steels	Austenitic,hardened		200	675	60-80	0.017	0.025	0.035	0.040	0.045	0.050	0.060	0.070	0.080
		Austenitic,precipitation hardened stainless steel(PH stainless steel)		300	1013	30-45	0.014	0.020	0.028	0.032	0.036	0.040	0.048	0.056	0.064
		Austenitic,ferritic,duplex		230	778	40-50	0.016	0.024	0.033	0.038	0.043	0.048	0.057	0.067	0.076
K	Malleable cast iron	Ferritic		200	400	100-130	0.020	0.035	0.050	0.070	0.080	0.090	0.090	0.100	0.110
		Pearlitic		260	700	90-120	0.017	0.030	0.043	0.060	0.068	0.077	0.077	0.085	0.094
	Grey cast iron	Low tensile strength		180	200	120-130	0.020	0.035	0.050	0.070	0.080	0.090	0.090	0.100	0.110
		High tensile strength/Austenitic		245	350	95-110	0.018	0.032	0.045	0.063	0.072	0.081	0.081	0.090	0.099
	Nodular cast iron	Ferritic		155	400	110-130	0.020	0.035	0.050	0.070	0.080	0.090	0.090	0.100	0.110
		Pearlitic		265	700	85-110	0.017	0.030	0.043	0.060	0.068	0.077	0.077	0.085	0.094
	GGV(CGI)			230	400	95-110	0.016	0.028	0.040	0.056	0.064	0.072	0.072	0.080	0.088
N	Wrought aluminum alloy	Non-aging alloy		30	-										
		Aged alloy		100	340										
	Cast aluminum alloy	≤ 12% Si, non-aging alloy		75	260										
		≤ 12% Si, aged alloy		90	310										
		> 12% Si, non-aging alloy		130	450										
	Magnesium alloy			70	250										
	Copper and copper alloy(bronze/ brass)	Unalloyed,electrolytic copper		100	340										
		Brass,bronze,red brass		90	310										
		Cu alloy,short chip		110	380										
		High tensile,Ampco alloy		300	1010										
S	Fe-based alloy	Fe-based	Annealed	200	680	40-55	0.011	0.019	0.025	0.035	0.045	0.060	0.070	0.070	0.080
			Aged	280	940	30-40	0.009	0.015	0.020	0.028	0.036	0.048	0.056	0.056	0.064
		Ni or Co based	Annealed	250	840	40-55	0.011	0.019	0.025	0.035	0.045	0.060	0.070	0.070	0.080
			Aged	350	1180	30-40	0.009	0.015	0.020	0.028	0.036	0.048	0.056	0.056	0.064
			Cast	320	1080	30-40	0.009	0.015	0.020	0.028	0.036	0.048	0.056	0.056	0.064
	Titanium alloy	Pure Titanium		200	680	40-55	0.012	0.021	0.028	0.039	0.050	0.066	0.077	0.077	0.088
		α and β alloy, aged		375	1260	40-55	0.012	0.021	0.028	0.039	0.050	0.066	0.077	0.077	0.088
		β alloy		410	1400	30-40	0.008	0.014	0.019	0.026	0.034	0.045	0.053	0.053	0.060
	Tungsten alloy			300	1010	50-60	0.013	0.023	0.030	0.042	0.054	0.072	0.084	0.084	0.096
	Molybdenum alloy			300	1010	50-60	0.013	0.023	0.030	0.042	0.054	0.072	0.084	0.084	0.096
H	Hardened steel	Hardened and tempered		50HRC	-										
		Hardened and tempered		55HRC	-										
		Hardened and tempered		60HRC	-										
	Chilled cast iron	Hardened and tempered		55HRC	-										

The cutting data are average recommended values. For special applications, adjustment is needed.

Solid Carbide End Mill M210 Cutting Data Recommendation

Materials						M210-4CS / M210-4RS Square shoulder milling (Rough milling) 1.0D, 0.1D									
ISO	Workpiece Materials			Brinell Hardness(HB)	Tensile strength (N/mm^2)	Cutting speed Vc(m/min)	fz [mm/Tooth] Mill diameter [mm] 4	6	8	10	12	14	16	18	20
P	Unalloyed steel	C ≤ 0.25%	Annealed	125	428	140-280	0.045	0.059	0.077	0.099	0.117	0.135	0.153	0.171	0.180
		0.25 < C ≤ 0.55%	Annealed	190	639	180-280	0.050	0.065	0.085	0.110	0.130	0.150	0.170	0.190	0.200
		0.25 < C ≤ 0.55%	Heat-treated	210	708	160-250	0.050	0.065	0.085	0.110	0.130	0.150	0.170	0.190	0.200
		C > 0.55%	Annealed	190	639	160-280	0.048	0.062	0.081	0.105	0.124	0.143	0.162	0.181	0.190
		C > 0.55%	Heat-treated	300	1013	120-200	0.045	0.059	0.077	0.099	0.117	0.135	0.153	0.171	0.180
		Free cutting steel	Annealed	220	745	190-280	0.048	0.062	0.081	0.105	0.124	0.143	0.162	0.181	0.190
	Low-alloyed steel	Annealed		175	591	200-280	0.048	0.062	0.081	0.105	0.124	0.143	0.162	0.181	0.190
		Heat-treated		300	1013	120-190	0.045	0.059	0.077	0.099	0.117	0.135	0.153	0.171	0.180
		Heat-treated		380	1282	110-160	0.043	0.056	0.073	0.095	0.112	0.129	0.146	0.163	0.172
		Heat-treated		430	1477	90-110	0.041	0.053	0.070	0.090	0.107	0.123	0.139	0.156	0.164
	High-alloyed steel and highalloyed tool steel	Annealed		200	675	160-250	0.045	0.059	0.077	0.099	0.117	0.135	0.153	0.171	0.180
		Hardened and tempered		300	1013	120-190	0.045	0.059	0.077	0.099	0.117	0.135	0.153	0.171	0.180
		Hardened and tempered		400	1361	90-110	0.043	0.056	0.073	0.095	0.112	0.129	0.146	0.163	0.172
	Stainless steels	Ferritic/Martensite,Annealed		200	675	75-100	0.038	0.049	0.064	0.083	0.098	0.113	0.128	0.143	0.150
		Martensite,Heat-treated		330	1114	60-90	0.033	0.042	0.055	0.072	0.085	0.098	0.111	0.124	0.130
M	Stainless steels	Austenitic,hardened		200	675	100-130	0.036	0.050	0.068	0.085	0.100	0.115	0.130	0.150	0.160
		Austenitic,precipitation hardened stainless steel(PH stainless steel)		300	1013	60-90	0.029	0.040	0.054	0.068	0.080	0.092	0.104	0.120	0.128
		Austenitic,ferritic,duplex		230	778	70-100	0.034	0.048	0.065	0.081	0.095	0.109	0.124	0.143	0.152
K	Malleable cast iron	Ferritic		200	400	200-280	0.055	0.080	0.100	0.130	0.150	0.170	0.190	0.220	0.220
		Pearlitic		260	700	180-250	0.047	0.068	0.085	0.111	0.128	0.145	0.162	0.187	0.187
	Grey cast iron	Low tensile strength		180	200	200-280	0.055	0.080	0.100	0.130	0.150	0.170	0.190	0.220	0.220
		High tensile strength/Austenitic		245	350	180-240	0.050	0.072	0.090	0.117	0.135	0.153	0.171	0.198	0.198
	Nodular cast iron	Ferritic		155	400	180-240	0.055	0.080	0.100	0.130	0.150	0.170	0.190	0.220	0.220
		Pearlitic		265	700	160-200	0.047	0.068	0.085	0.111	0.128	0.145	0.162	0.187	0.187
	GGV(CGI)			230	400	145-195	0.044	0.064	0.080	0.104	0.120	0.136	0.152	0.176	0.176
N	Wrought aluminum alloy	Non-aging alloy		30	-										
		Aged alloy		100	340										
	Cast aluminum alloy	≤ 12% Si, non-aging alloy		75	260										
		≤ 12% Si, aged alloy		90	310										
		> 12% Si, non-aging alloy		130	450										
	Magnesium alloy			70	250										
	Copper and copper alloy(bronze/ brass)	Unalloyed,electrolytic copper		100	340										
		Brass,bronze,red brass		90	310										
		Cu alloy,short chip		110	380										
		High tensile,Ampco alloy		300	1010										
S	Fe-based alloy	Fe-based	Annealed	200	680	55-70	0.035	0.050	0.070	0.090	0.110	0.130	0.150	0.160	0.160
			Aged	280	940	40-60	0.028	0.040	0.056	0.072	0.088	0.104	0.120	0.128	0.128
		Ni or Co based	Annealed	250	840	60-80	0.035	0.050	0.070	0.090	0.110	0.130	0.150	0.160	0.160
			Aged	350	1180	30-50	0.028	0.040	0.056	0.072	0.088	0.104	0.120	0.128	0.128
			Cast	320	1080	30-50	0.028	0.040	0.056	0.072	0.088	0.104	0.120	0.128	0.128
	Titanium alloy	Pure Titanium		200	680	40-55	0.039	0.055	0.077	0.099	0.121	0.143	0.165	0.176	0.176
		α and β alloy, aged		375	1260	50-70	0.039	0.055	0.077	0.099	0.121	0.143	0.165	0.176	0.176
		β alloy		410	1400	35-50	0.026	0.038	0.053	0.068	0.083	0.098	0.113	0.120	0.120
	Tungsten alloy			300	1010	60-85	0.042	0.060	0.084	0.108	0.132	0.156	0.180	0.192	0.192
	Molybdenum alloy			300	1010	70-95	0.042	0.060	0.084	0.108	0.132	0.156	0.180	0.192	0.192
H	Hardened steel	Hardened and tempered		50HRC	-										
		Hardened and tempered		55HRC	-										
		Hardened and tempered		60HRC	-										
	Chilled cast iron	Hardened and tempered		55HRC	-										

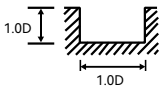
The cutting data are average recommended values. For special applications, adjustment is needed.

Solid Carbide End Mill M210 Cutting Data Recommendation

Materials						M210-4CS / M210-4RS Square shoulder milling (Finsih milling) 1.5D 0.03D								
ISO	Workpiece Materials			Brinell Hardness(HB)	Tensile strength (N/mm^2)	Cutting speed Vc(m/min)	fz [mm/Tooth] Mill diameter [mm] 4	6	8	10	12	14	16	18	20
P	Unalloyed steel	C ≤ 0.25%	Annealed	125	428	160-280	0.063	0.090	0.117	0.144	0.171	0.198	0.234	0.261	0.288
		0.25 < C ≤ 0.55%	Annealed	190	639	220-340	0.070	0.100	0.130	0.160	0.190	0.220	0.260	0.290	0.320
		0.25 < C ≤ 0.55%	Heat-treated	210	708	220-340	0.070	0.100	0.130	0.160	0.190	0.220	0.260	0.290	0.320
		C > 0.55%	Annealed	190	639	200-320	0.067	0.095	0.124	0.152	0.181	0.209	0.247	0.276	0.304
		C > 0.55%	Heat-treated	300	1013	150-270	0.063	0.090	0.117	0.144	0.171	0.198	0.234	0.261	0.288
		Free cutting steel	Annealed	220	745	200-320	0.067	0.095	0.124	0.152	0.181	0.209	0.247	0.276	0.304
	Low-alloyed steel	Annealed		175	591	200-320	0.067	0.095	0.124	0.152	0.181	0.209	0.247	0.276	0.304
		Heat-treated		300	1013	150-270	0.063	0.090	0.117	0.144	0.171	0.198	0.234	0.261	0.288
		Heat-treated		380	1282	120-240	0.060	0.086	0.112	0.138	0.163	0.189	0.224	0.249	0.275
		Heat-treated		430	1477	100-210	0.057	0.082	0.107	0.131	0.156	0.180	0.213	0.238	0.262
	High-alloyed steel and highalloyed tool steel	Annealed		200	675	150-270	0.063	0.090	0.117	0.144	0.171	0.198	0.234	0.261	0.288
		Hardened and tempered		300	1013	150-270	0.063	0.090	0.117	0.144	0.171	0.198	0.234	0.261	0.288
		Hardened and tempered		400	1361	120-240	0.060	0.086	0.112	0.138	0.163	0.189	0.224	0.249	0.275
	Stainless steels	Ferritic/Martensite,Annealed		200	675	80-160	0.053	0.075	0.098	0.120	0.143	0.165	0.195	0.218	0.240
		Martensite,Heat-treated		330	1114	60-120	0.046	0.065	0.085	0.104	0.124	0.143	0.169	0.189	0.208
M	Stainless steels	Austenitic,hardened		200	675	100-160	0.056	0.077	0.099	0.120	0.144	0.168	0.192	0.216	0.240
		Austenitic,precipitation hardened stainless steel(PH stainless steel)		300	1013	70-120	0.045	0.062	0.079	0.096	0.115	0.134	0.154	0.173	0.192
		Austenitic,ferritic,duplex		230	778	80-140	0.042	0.058	0.074	0.090	0.108	0.126	0.144	0.162	0.180
K	Malleable cast iron	Ferritic		200	400	210-310	0.080	0.110	0.140	0.170	0.208	0.246	0.284	0.322	0.360
		Pearlitic		260	700	180-280	0.068	0.094	0.119	0.145	0.177	0.209	0.241	0.274	0.306
	Grey cast iron	Low tensile strength		180	200	210-310	0.080	0.110	0.140	0.170	0.208	0.246	0.284	0.322	0.360
		High tensile strength/Austenitic		245	350	180-270	0.072	0.099	0.126	0.153	0.187	0.221	0.256	0.290	0.324
	Nodular cast iron	Ferritic		155	400	210-310	0.080	0.110	0.140	0.170	0.208	0.246	0.284	0.322	0.360
		Pearlitic		265	700	180-280	0.068	0.094	0.119	0.145	0.177	0.209	0.241	0.274	0.306
	GGV(CGI)			230	400	150-210	0.064	0.088	0.112	0.136	0.166	0.197	0.227	0.258	0.288
N	Wrought aluminum alloy	Non-aging alloy		30	-										
		Aged alloy		100	340										
	Cast aluminum alloy	≤ 12% Si, non-aging alloy		75	260										
		≤ 12% Si, aged alloy		90	310										
		> 12% Si, non-aging alloy		130	450										
	Magnesium alloy			70	250										
	Copper and copper alloy(bronze/ brass)	Unalloyed,electrolytic copper		100	340										
		Brass,bronze,red brass		90	310										
		Cu alloy,short chip		110	380										
		High tensile,Ampco alloy		300	1010										
S	Fe-based alloy	Fe-based	Annealed	200	680	55-75	0.040	0.060	0.080	0.100	0.116	0.132	0.148	0.164	0.180
			Aged	280	940	40-60	0.032	0.048	0.064	0.080	0.093	0.106	0.118	0.131	0.144
		Ni or Co based	Annealed	250	840	55-75	0.040	0.060	0.080	0.100	0.116	0.132	0.148	0.164	0.180
			Aged	350	1180	40-60	0.032	0.048	0.064	0.080	0.093	0.106	0.118	0.131	0.144
			Cast	320	1080	40-60	0.032	0.048	0.064	0.080	0.093	0.106	0.118	0.131	0.144
	Titanium alloy	Pure Titanium		200	680	40-60	0.044	0.066	0.088	0.110	0.128	0.145	0.163	0.180	0.198
		α and β alloy, aged		375	1260	40-60	0.044	0.066	0.088	0.110	0.128	0.145	0.163	0.180	0.198
		β alloy		410	1400	35-55	0.030	0.045	0.060	0.075	0.087	0.099	0.111	0.123	0.135
	Tungsten alloy			300	1010	60-90	0.048	0.072	0.096	0.120	0.139	0.158	0.178	0.197	0.216
	Molybdenum alloy			300	1010	60-90	0.048	0.072	0.096	0.120	0.139	0.158	0.178	0.197	0.216
H	Hardened steel	Hardened and tempered		50HRC	-										
		Hardened and tempered		55HRC	-										
		Hardened and tempered		60HRC	-										
	Chilled cast iron	Hardened and tempered		55HRC	-										

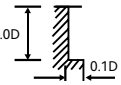
The cutting data are average recommended values. For special applications, adjustment is needed.

Solid Carbide End Mill M216 Cutting Data Recommendation

Materials						M216-4PS M216-5PS M216-6PS	Slot milling 					
ISO	Workpiece Materials			Brinell Hardness(HB)	Tensile strength (N/mm^2)	Cutting speed Vc(m/min)	fz [mm/Tooth]					
							Mill diameter [mm]					
							6	8	10	12	16	20
P	Unalloyed steel	C ≤ 0.25%	Annealed	125	428	95-145	0.024	0.032	0.039	0.047	0.063	0.080
		0.25 < C ≤ 0.55%	Annealed	190	639	155-220	0.027	0.035	0.043	0.052	0.070	0.089
		0.25 < C ≤ 0.55%	Heat-treated	210	708	155-220	0.027	0.035	0.043	0.052	0.070	0.089
		C > 0.55%	Annealed	190	639	130-190	0.026	0.033	0.041	0.049	0.067	0.085
		C > 0.55%	Heat-treated	300	1013	95-145	0.024	0.032	0.039	0.047	0.063	0.080
		Free cutting steel	Annealed	220	745	130-190	0.026	0.033	0.041	0.049	0.067	0.085
	Low-alloyed steel	Annealed		175	591	130-190	0.026	0.033	0.041	0.049	0.067	0.085
		Heat-treated		300	1013	95-145	0.024	0.032	0.039	0.047	0.063	0.080
		Heat-treated		380	1282	75-110	0.023	0.030	0.037	0.045	0.060	0.077
		Heat-treated		430	1477	65-95	0.022	0.029	0.035	0.043	0.057	0.073
	High-alloyed steel and highalloyed tool steel	Annealed		200	675	95-145	0.024	0.032	0.039	0.047	0.063	0.080
		Hardened and tempered		300	1013	95-145	0.024	0.032	0.039	0.047	0.063	0.080
		Hardened and tempered		400	1361	75-110	0.023	0.030	0.037	0.045	0.060	0.077
	Stainless steels	Ferritic/Martensite,Annealed		200	675	45-70	0.020	0.026	0.032	0.039	0.053	0.067
		Martensite,Heat-treated		330	1114	32-50	0.018	0.023	0.028	0.034	0.046	0.058
M	Stainless steels	Austenitic,hardened		200	675	45-65	0.020	0.026	0.032	0.038	0.050	0.062
		Austenitic,precipitation hardened stainless steel(PH stainless steel)		300	1013	28-42	0.016	0.021	0.026	0.030	0.040	0.050
		Austenitic,ferritic,duplex		230	778	38-58	0.019	0.025	0.030	0.036	0.048	0.059
K	Malleable cast iron	Ferritic		200	400	120-180	0.026	0.036	0.047	0.057	0.076	0.098
		Pearlitic		260	700	95-145	0.022	0.031	0.040	0.048	0.065	0.083
	Grey cast iron	Low tensile strength		180	200	120-180	0.026	0.036	0.047	0.057	0.076	0.098
		High tensile strength/Austenitic		245	350	100-150	0.023	0.032	0.042	0.051	0.068	0.088
	Nodular cast iron	Ferritic		155	400	120-180	0.026	0.036	0.047	0.057	0.076	0.098
		Pearlitic		265	700	95-145	0.022	0.031	0.040	0.048	0.065	0.083
	GGV(CGI)			230	400	80-120	0.021	0.029	0.038	0.046	0.061	0.078
N	Wrought aluminum alloy	Non-aging alloy		30	-							
		Aged alloy		100	340							
	Cast aluminum alloy	≤ 12% Si, non-aging alloy		75	260							
		≤ 12% Si, aged alloy		90	310							
		> 12% Si, non-aging alloy		130	450							
	Magnesium alloy			70	250							
	Copper and copper alloy(bronze/brass)	Unalloyed,electrolytic copper		100	340							
		Brass,bronze,red brass		90	310							
		Cu alloy,short chip		110	380							
		High tensile,Ampco alloy		300	1010							
S	Fe-based alloy	Fe-based	Annealed	200	680	30-48	0.018	0.025	0.032	0.038	0.052	0.066
			Aged	280	940	20-30	0.014	0.020	0.026	0.030	0.042	0.053
		Ni or Co based	Annealed	250	840	30-48	0.018	0.025	0.032	0.038	0.052	0.066
			Aged	350	1180	20-30	0.014	0.020	0.026	0.030	0.042	0.053
			Cast	320	1080	20-30	0.014	0.020	0.026	0.030	0.042	0.053
	Titanium alloy	Pure Titanium		200	680	30-50	0.020	0.028	0.035	0.042	0.057	0.073
		α and β alloy, aged		375	1260	30-50	0.020	0.028	0.035	0.042	0.057	0.073
		β alloy		410	1400	16-28	0.014	0.019	0.024	0.029	0.039	0.050
	Tungsten alloy			300	1010	42-65	0.022	0.030	0.038	0.046	0.062	0.079
	Molybdenum alloy			300	1010	42-65	0.022	0.030	0.038	0.046	0.062	0.079
H	Hardened steel	Hardened and tempered		50HRC	-							
		Hardened and tempered		55HRC	-							
		Hardened and tempered		60HRC	-							
	Chilled cast iron	Hardened and tempered		55HRC	-							

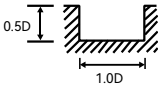
The cutting data are average recommended values. For special applications, adjustment is needed.

Solid Carbide End Mill M216 Cutting Data Recommendation

Materials						M216-4PS M216-5PS M216-6PS	Square shoulder milling (Rough milling) 					
ISO	Workpiece Materials			Brinell Hardness(HB)	Tensile strength (N/mm^2)	Cutting speed Vc(m/min)	fz [mm/Tooth]					
							Mill diameter [mm]					
							6	8	10	12	16	20
P	Unalloyed steel	C ≤ 0.25%	Annealed	125	428	170-260	0.050	0.065	0.079	0.095	0.131	0.164
		0.25 < C ≤ 0.55%	Annealed	190	639	280-400	0.055	0.072	0.088	0.105	0.145	0.182
		0.25 < C ≤ 0.55%	Heat-treated	210	708	280-400	0.055	0.072	0.088	0.105	0.145	0.182
		C > 0.55%	Annealed	190	639	240-340	0.052	0.068	0.084	0.100	0.138	0.173
		C > 0.55%	Heat-treated	300	1013	168-248	0.050	0.065	0.079	0.095	0.131	0.164
		Free cutting steel	Annealed	220	745	240-340	0.052	0.068	0.084	0.100	0.138	0.173
	Low-alloyed steel	Annealed		175	591	240-340	0.052	0.068	0.084	0.100	0.138	0.173
		Heat-treated		300	1013	168-248	0.050	0.065	0.079	0.095	0.131	0.164
		Heat-treated		380	1282	140-200	0.047	0.062	0.076	0.090	0.125	0.157
		Heat-treated		430	1477	118-168	0.045	0.059	0.072	0.086	0.119	0.149
	High-alloyed steel and highalloyed tool steel	Annealed		200	675	168-248	0.050	0.065	0.079	0.095	0.131	0.164
		Hardened and tempered		300	1013	168-248	0.050	0.065	0.079	0.095	0.131	0.164
		Hardened and tempered		400	1361	140-200	0.047	0.062	0.076	0.090	0.125	0.157
	Stainless steels	Ferritic/Martensite,Annealed		200	675	85-125	0.041	0.054	0.066	0.079	0.109	0.137
		Martensite,Heat-treated		330	1114	55-85	0.036	0.047	0.057	0.068	0.094	0.118
M	Stainless steels	Austenitic,hardened		200	675	85-125	0.041	0.054	0.066	0.079	0.108	0.136
		Austenitic,precipitation hardened stainless steel(PH stainless steel)		300	1013	50-80	0.033	0.043	0.053	0.063	0.086	0.109
		Austenitic,ferritic,duplex		230	778	70-110	0.039	0.051	0.063	0.075	0.103	0.129
K	Malleable cast iron	Ferritic		200	400	220-320	0.061	0.078	0.095	0.112	0.158	0.201
		Pearlitic		260	700	175-255	0.052	0.066	0.081	0.095	0.134	0.171
	Grey cast iron	Low tensile strength		180	200	220-320	0.061	0.078	0.095	0.112	0.158	0.201
		High tensile strength/Austenitic		245	350	190-270	0.055	0.070	0.086	0.101	0.142	0.181
	Nodular cast iron	Ferritic		155	400	220-320	0.061	0.078	0.095	0.112	0.158	0.201
		Pearlitic		265	700	175-255	0.052	0.066	0.081	0.095	0.134	0.171
	GGV(CGI)			230	400	150-210	0.049	0.062	0.076	0.090	0.126	0.161
N	Wrought aluminum alloy	Non-aging alloy		30	-							
		Aged alloy		100	340							
	Cast aluminum alloy	≤ 12% Si, non-aging alloy		75	260							
		≤ 12% Si, aged alloy		90	310							
		> 12% Si, non-aging alloy		130	450							
	Magnesium alloy			70	250							
	Copper and copper alloy(bronze/ brass)	Unalloyed,electrolytic copper		100	340							
		Brass,bronze,red brass		90	310							
		Cu alloy,short chip		110	380							
		High tensile,Ampco alloy		300	1010							
S	Fe-based alloy	Fe-based	Annealed	200	680	55-80	0.041	0.054	0.066	0.079	0.108	0.136
			Aged	280	940	34-50	0.033	0.043	0.053	0.063	0.086	0.109
		Ni or Co based	Annealed	250	840	55-80	0.041	0.054	0.066	0.079	0.108	0.136
			Aged	350	1180	34-50	0.033	0.043	0.053	0.063	0.086	0.109
			Cast	320	1080	34-50	0.033	0.043	0.053	0.063	0.086	0.109
	Titanium alloy	Pure Titanium		200	680	60-90	0.045	0.059	0.073	0.087	0.119	0.150
		α and β alloy, aged		375	1260	60-90	0.045	0.059	0.073	0.087	0.119	0.150
		β alloy		410	1400	30-45	0.031	0.041	0.050	0.059	0.081	0.102
	Tungsten alloy			300	1010	75-115	0.049	0.065	0.079	0.095	0.130	0.163
	Molybdenum alloy			300	1010	75-115	0.049	0.065	0.079	0.095	0.130	0.163
H	Hardened steel	Hardened and tempered		50HRC	-							
		Hardened and tempered		55HRC	-							
		Hardened and tempered		60HRC	-							
	Chilled cast iron	Hardened and tempered		55HRC	-							

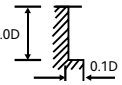
The cutting data are average recommended values. For special applications, adjustment is needed.

Solid Carbide End Mill M150 Cutting Data Recommendation

Materials						M150-4ES M150-4EL M150-4RS	Slot milling 							
ISO	Workpiece Materials			Brinell Hardness(HB)	Tensile strength (N/mm^2)	Cutting speed Vc(m/min)	fz [mm/Tooth]							
							Mill diameter [mm]							
							2	4	6	8	10	12	16	20
P	Unalloyed steel	C ≤ 0.25%	Annealed	125	428	90-140	0.014	0.022	0.031	0.039	0.047	0.056	0.075	0.095
		0.25 < C ≤ 0.55%	Annealed	190	639	135-200	0.015	0.024	0.034	0.043	0.052	0.062	0.083	0.106
		0.25 < C ≤ 0.55%	Heat-treated	210	708	135-200	0.015	0.024	0.034	0.043	0.052	0.062	0.083	0.106
		C > 0.55%	Annealed	190	639	115-175	0.014	0.023	0.032	0.041	0.049	0.059	0.079	0.101
		C > 0.55%	Heat-treated	300	1013	90-140	0.014	0.022	0.031	0.039	0.047	0.056	0.075	0.095
		Free cutting steel	Annealed	220	745	115-175	0.014	0.023	0.032	0.041	0.049	0.059	0.079	0.101
	Low-alloyed steel	Annealed		175	591	115-175	0.014	0.023	0.032	0.041	0.049	0.059	0.079	0.101
		Heat-treated		300	1013	90-140	0.014	0.022	0.031	0.039	0.047	0.056	0.075	0.095
		Heat-treated		380	1282	75-115	0.013	0.021	0.029	0.037	0.045	0.053	0.071	0.091
		Heat-treated		430	1477	65-95	0.012	0.020	0.028	0.035	0.043	0.051	0.068	0.087
	High-alloyed steel and highalloyed tool steel	Annealed		200	675	90-140	0.014	0.022	0.031	0.039	0.047	0.056	0.075	0.095
		Hardened and tempered		300	1013	90-140	0.014	0.022	0.031	0.039	0.047	0.056	0.075	0.095
		Hardened and tempered		400	1361	75-115	0.013	0.021	0.029	0.037	0.045	0.053	0.071	0.091
	Stainless steels	Ferritic/Martensite,Annealed		200	675	60-90	0.011	0.018	0.026	0.032	0.039	0.047	0.062	0.080
		Martensite,Heat-treated		330	1114	50-70	0.010	0.016	0.022	0.028	0.034	0.040	0.054	0.069
M	Stainless steels	Austenitic,hardened		200	675	60-90	0.011	0.018	0.025	0.033	0.039	0.047	0.063	0.080
		Austenitic,precipitation hardened stainless steel(PH stainless steel)		300	1013	45-65	0.009	0.014	0.020	0.026	0.031	0.038	0.050	0.064
		Austenitic,ferritic,duplex		230	778	55-80	0.010	0.017	0.024	0.031	0.037	0.045	0.060	0.076
K	Malleable cast iron	Ferritic		200	400									
		Pearlitic		260	700									
	Grey cast iron	Low tensile strength		180	200									
		High tensile strength/Austenitic		245	350									
	Nodular cast iron	Ferritic		155	400									
		Pearlitic		265	700									
	GGV(CGI)			230	400									
N	Wrought aluminum alloy	Non-aging alloy		30	-									
		Aged alloy		100	340									
	Cast aluminum alloy	≤ 12% Si, non-aging alloy		75	260									
		≤ 12% Si, aged alloy		90	310									
		> 12% Si, non-aging alloy		130	450									
	Magnesium alloy			70	250									
	Copper and copper alloy(bronze/ brass)	Unalloyed,electrolytic copper		100	340									
		Brass,bronze,red brass		90	310									
		Cu alloy,short chip		110	380									
		High tensile,Ampco alloy		300	1010									
S	Fe-based alloy	Fe-based	Annealed	200	680	45-65	0.011	0.018	0.025	0.033	0.039	0.047	0.063	0.080
			Aged	280	940	35-50	0.009	0.014	0.020	0.026	0.031	0.038	0.050	0.064
		Ni or Co based	Annealed	250	840	45-65	0.011	0.018	0.025	0.033	0.039	0.047	0.063	0.080
			Aged	350	1180	35-50	0.009	0.014	0.020	0.026	0.031	0.038	0.050	0.064
			Cast	320	1080	35-50	0.009	0.014	0.020	0.026	0.031	0.038	0.050	0.064
	Titanium alloy	Pure Titanium		200	680	55-75	0.012	0.020	0.028	0.036	0.043	0.052	0.069	0.088
		α and β alloy, aged		375	1260	55-75	0.012	0.020	0.028	0.036	0.043	0.052	0.069	0.088
		β alloy		410	1400	33-48	0.008	0.014	0.019	0.025	0.029	0.035	0.047	0.060
	Tungsten alloy			300	1010	70-90	0.013	0.022	0.030	0.040	0.047	0.056	0.076	0.096
	Molybdenum alloy			300	1010	70-90	0.013	0.022	0.030	0.040	0.047	0.056	0.076	0.096
H	Hardened steel	Hardened and tempered		50HRC	-									
		Hardened and tempered		55HRC	-									
		Hardened and tempered		60HRC	-									
	Chilled cast iron	Hardened and tempered		55HRC	-									

The cutting data are average recommended values. For special applications, adjustment is needed.

Solid Carbide End Mill M150 Cutting Data Recommendation

Materials						M150-4ES M150-4EL M150-4RS Square shoulder milling (Rough milling) 							
ISO	Workpiece Materials			Brinell Hardness(HB)	Tensile strength (N/mm^2)	Cutting speed Vc(m/min)	fz [mm/Tooth] Mill diameter [mm]							
							2	4	6	8	10	12	16	20
P	Unalloyed steel	C ≤ 0.25%	Annealed	125	428	120-220	0.031	0.050	0.068	0.086	0.106	0.125	0.162	0.201
		0.25 < C ≤ 0.55%	Annealed	190	639	220-320	0.034	0.055	0.076	0.096	0.118	0.139	0.180	0.223
		0.25 < C ≤ 0.55%	Heat-treated	210	708	220-320	0.034	0.055	0.076	0.096	0.118	0.139	0.180	0.223
		C > 0.55%	Annealed	190	639	180-280	0.032	0.052	0.072	0.091	0.112	0.132	0.171	0.212
		C > 0.55%	Heat-treated	300	1013	110-210	0.031	0.050	0.068	0.086	0.106	0.125	0.162	0.201
		Free cutting steel	Annealed	220	745	180-280	0.032	0.052	0.072	0.091	0.112	0.132	0.171	0.212
	Low-alloyed steel	Annealed		175	591	180-280	0.032	0.052	0.072	0.091	0.112	0.132	0.171	0.212
		Heat-treated		300	1013	110-210	0.031	0.050	0.068	0.086	0.106	0.125	0.162	0.201
		Heat-treated		380	1282	85-165	0.029	0.047	0.065	0.083	0.101	0.119	0.155	0.192
		Heat-treated		430	1477	65-135	0.028	0.045	0.062	0.079	0.097	0.114	0.147	0.183
	High-alloyed steel and highalloyed tool steel	Annealed		200	675	110-210	0.031	0.050	0.068	0.086	0.106	0.125	0.162	0.201
		Hardened and tempered		300	1013	110-210	0.031	0.050	0.068	0.086	0.106	0.125	0.162	0.201
		Hardened and tempered		400	1361	85-165	0.029	0.047	0.065	0.083	0.101	0.119	0.155	0.192
	Stainless steels	Ferritic/Martensite,Annealed		200	675	70-130	0.026	0.041	0.057	0.072	0.088	0.104	0.135	0.167
		Martensite,Heat-treated		330	1114	40-80	0.022	0.036	0.049	0.062	0.077	0.090	0.117	0.145
M	Stainless steels	Austenitic,hardened		200	675	70-130	0.023	0.037	0.051	0.065	0.078	0.092	0.121	0.158
		Austenitic,precipitation hardened stainless steel(PH stainless steel)		300	1013	45-75	0.018	0.029	0.041	0.052	0.062	0.074	0.097	0.127
		Austenitic,ferritic,duplex		230	778	70-110	0.022	0.035	0.049	0.062	0.074	0.088	0.115	0.150
K	Malleable cast iron	Ferritic		200	400									
		Pearlitic		260	700									
	Grey cast iron	Low tensile strength		180	200									
		High tensile strength/Austenitic		245	350									
	Nodular cast iron	Ferritic		155	400									
		Pearlitic		265	700									
	GGV(CGI)			230	400									
N	Wrought aluminum alloy	Non-aging alloy		30	-									
		Aged alloy		100	340									
	Cast aluminum alloy	≤ 12% Si, non-aging alloy		75	260									
		≤ 12% Si, aged alloy		90	310									
		> 12% Si, non-aging alloy		130	450									
	Magnesium alloy			70	250									
	Copper and copper alloy(bronze/ brass)	Unalloyed,electrolytic copper		100	340									
		Brass,bronze,red brass		90	310									
		Cu alloy,short chip		110	380									
		High tensile,Ampco alloy		300	1010									
S	Fe-based alloy	Fe-based	Annealed	200	680	40-80	0.025	0.040	0.055	0.088	0.085	0.099	0.126	0.151
			Aged	280	940	20-45	0.020	0.032	0.044	0.071	0.068	0.079	0.101	0.121
		Ni or Co based	Annealed	250	840	40-80	0.025	0.040	0.055	0.088	0.085	0.099	0.126	0.151
			Aged	350	1180	20-45	0.020	0.032	0.044	0.071	0.068	0.079	0.101	0.121
			Cast	320	1080	20-45	0.020	0.032	0.044	0.071	0.068	0.079	0.101	0.121
	Titanium alloy	Pure Titanium		200	680	55-85	0.028	0.044	0.061	0.097	0.094	0.109	0.139	0.166
		α and β alloy, aged		375	1260	55-85	0.028	0.044	0.061	0.097	0.094	0.109	0.139	0.166
		β alloy		410	1400	18-40	0.019	0.030	0.041	0.066	0.064	0.074	0.095	0.113
	Tungsten alloy			300	1010	80-120	0.030	0.048	0.066	0.106	0.102	0.119	0.151	0.181
	Molybdenum alloy			300	1010	80-120	0.030	0.048	0.066	0.106	0.102	0.119	0.151	0.181
H	Hardened steel	Hardened and tempered		50HRC	-									
		Hardened and tempered		55HRC	-									
		Hardened and tempered		60HRC	-									
	Chilled cast iron	Hardened and tempered		55HRC	-									

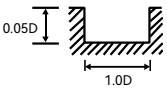
The cutting data are average recommended values. For special applications, adjustment is needed.

Solid Carbide End Mill M150 Cutting Data Recommendation

Materials						M150-4ES M150-4EL M150-4RS Square shoulder milling (Finsih milling) 1.5D 0.03D								
ISO	Workpiece Materials			Brinell Hardness(HB)	Tensile strength (N/mm^2)	Cutting speed Vc(m/min)	fz [mm/Tooth] Mill diameter [mm]							
							2	4	6	8	10	12	16	20
P	Unalloyed steel	C ≤ 0.25%	Annealed	125	428	160-260	0.050	0.080	0.110	0.140	0.171	0.202	0.261	0.324
		0.25 < C ≤ 0.55%	Annealed	190	639	260-360	0.055	0.089	0.122	0.155	0.190	0.224	0.290	0.360
		0.25 < C ≤ 0.55%	Heat-treated	210	708	260-360	0.055	0.089	0.122	0.155	0.190	0.224	0.290	0.360
		C > 0.55%	Annealed	190	639	220-320	0.052	0.085	0.116	0.147	0.181	0.213	0.276	0.342
		C > 0.55%	Heat-treated	300	1013	150-250	0.050	0.080	0.110	0.140	0.171	0.202	0.261	0.324
		Free cutting steel	Annealed	220	745	220-320	0.052	0.085	0.116	0.147	0.181	0.213	0.276	0.342
	Low-alloyed steel	Annealed		175	591	220-320	0.052	0.085	0.116	0.147	0.181	0.213	0.276	0.342
		Heat-treated		300	1013	150-250	0.050	0.080	0.110	0.140	0.171	0.202	0.261	0.324
		Heat-treated		380	1282	125-205	0.047	0.077	0.105	0.133	0.163	0.193	0.249	0.310
		Heat-treated		430	1477	105-175	0.045	0.073	0.100	0.127	0.156	0.184	0.238	0.295
	High-alloyed steel and highalloyed tool steel	Annealed		200	675	150-250	0.050	0.080	0.110	0.140	0.171	0.202	0.261	0.324
		Hardened and tempered		300	1013	150-250	0.050	0.080	0.110	0.140	0.171	0.202	0.261	0.324
		Hardened and tempered		400	1361	125-205	0.047	0.077	0.105	0.133	0.163	0.193	0.249	0.310
	Stainless steels	Ferritic/Martensite,Annealed		200	675	90-150	0.041	0.067	0.092	0.116	0.143	0.168	0.218	0.270
		Martensite,Heat-treated		330	1114	60-100	0.036	0.058	0.079	0.101	0.124	0.146	0.189	0.234
M	Stainless steels	Austenitic,hardened		200	675	90-150	0.042	0.067	0.093	0.118	0.142	0.168	0.220	0.288
		Austenitic,precipitation hardened stainless steel(PH stainless steel)		300	1013	65-95	0.034	0.054	0.074	0.094	0.114	0.134	0.176	0.230
		Austenitic,ferritic,duplex		230	778	90-130	0.040	0.064	0.088	0.112	0.135	0.160	0.209	0.274
K	Malleable cast iron	Ferritic		200	400									
		Pearlitic		260	700									
	Grey cast iron	Low tensile strength		180	200									
		High tensile strength/Austenitic		245	350									
	Nodular cast iron	Ferritic		155	400									
		Pearlitic		265	700									
	GGV(CGI)			230	400									
N	Wrought aluminum alloy	Non-aging alloy		30	-									
		Aged alloy		100	340									
	Cast aluminum alloy	≤ 12% Si, non-aging alloy		75	260									
		≤ 12% Si, aged alloy		90	310									
		> 12% Si, non-aging alloy		130	450									
	Magnesium alloy			70	250									
	Copper and copper alloy(bronze/ brass)	Unalloyed,electrolytic copper		100	340									
		Brass,bronze,red brass		90	310									
		Cu alloy,short chip		110	380									
		High tensile,Ampco alloy		300	1010									
S	Fe-based alloy	Fe-based	Annealed	200	680	55-95	0.042	0.067	0.092	0.147	0.142	0.165	0.210	0.252
			Aged	280	940	35-60	0.034	0.054	0.074	0.118	0.114	0.132	0.168	0.202
		Ni or Co based	Annealed	250	840	55-95	0.042	0.067	0.092	0.147	0.142	0.165	0.210	0.252
			Aged	350	1180	35-60	0.034	0.054	0.074	0.118	0.114	0.132	0.168	0.202
			Cast	320	1080	35-60	0.034	0.054	0.074	0.118	0.114	0.132	0.168	0.202
	Titanium alloy	Pure Titanium		200	680	70-100	0.046	0.074	0.101	0.162	0.156	0.182	0.231	0.277
		α and β alloy, aged		375	1260	70-100	0.046	0.074	0.101	0.162	0.156	0.182	0.231	0.277
		β alloy		410	1400	30-55	0.032	0.050	0.069	0.110	0.107	0.124	0.158	0.189
	Tungsten alloy			300	1010	100-140	0.050	0.080	0.110	0.176	0.170	0.198	0.252	0.302
	Molybdenum alloy			300	1010	100-140	0.050	0.080	0.110	0.176	0.170	0.198	0.252	0.302
H	Hardened steel	Hardened and tempered		50HRC	-									
		Hardened and tempered		55HRC	-									
		Hardened and tempered		60HRC	-									
	Chilled cast iron	Hardened and tempered		55HRC	-									

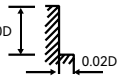
The cutting data are average recommended values. For special applications, adjustment is needed.

Solid Carbide End Mill M170 Cutting Data Recommendation

Materials						M170-4ES M170-4RS Slot milling 						
ISO	Workpiece Materials			Brinell Hardness(HB)	Tensile strength (N/mm^2)	Cutting speed Vc(m/min)	fz [mm/Tooth] Mill diameter [mm]					
							4	6	8	10	12	16
P	Unalloyed steel	C ≤ 0.25%	Annealed	125	428							
		0.25 < C ≤ 0.55%	Annealed	190	639							
		0.25 < C ≤ 0.55%	Heat-treated	210	708							
		C > 0.55%	Annealed	190	639							
		C > 0.55%	Heat-treated	300	1013	140-200	0.019	0.041	0.064	0.087	0.106	0.128
		Free cutting steel	Annealed	220	745							
	Low-alloyed steel	Annealed		175	591							
		Heat-treated		300	1013	140-200	0.019	0.041	0.064	0.087	0.106	0.128
		Heat-treated		380	1282	120-170	0.018	0.037	0.058	0.079	0.097	0.116
		Heat-treated		430	1477	110-150	0.016	0.034	0.053	0.072	0.088	0.106
	High-alloyed steel and highalloyed tool steel	Annealed		200	675							
		Hardened and tempered		300	1013	140-200	0.019	0.041	0.064	0.087	0.106	0.128
		Hardened and tempered		400	1361	120-170	0.018	0.037	0.058	0.079	0.097	0.116
	Stainless steels	Ferritic/Martensite,Annealed		200	675							
		Martensite,Heat-treated		330	1114							
M	Stainless steels	Austenitic,hardened		200	675							
		Austenitic,precipitation hardened stainless steel(PH stainless steel)		300	1013							
		Austenitic,ferritic,duplex		230	778							
K	Malleable cast iron	Ferritic		200	400	200-300	0.026	0.052	0.076	0.105	0.125	0.150
		Pearlitic		260	700	180-260	0.022	0.044	0.065	0.089	0.106	0.128
	Grey cast iron	Low tensile strength		180	200	200-300	0.026	0.052	0.076	0.105	0.125	0.150
		High tensile strength/Austenitic		245	350	190-280	0.023	0.047	0.068	0.095	0.113	0.135
	Nodular cast iron	Ferritic		155	400	200-300	0.026	0.052	0.076	0.105	0.125	0.150
		Pearlitic		265	700	180-260	0.022	0.044	0.065	0.089	0.106	0.128
	GGV(CGI)			230	400	160-240	0.021	0.042	0.061	0.084	0.100	0.120
N	Wrought aluminum alloy	Non-aging alloy		30	-							
		Aged alloy		100	340							
	Cast aluminum alloy	≤ 12% Si, non-aging alloy		75	260							
		≤ 12% Si, aged alloy		90	310							
		> 12% Si, non-aging alloy		130	450							
	Magnesium alloy			70	250							
	Copper and copper alloy(bronze/ brass)	Unalloyed,electrolytic copper		100	340							
		Brass,bronze,red brass		90	310							
		Cu alloy,short chip		110	380							
		High tensile,Ampco alloy		300	1010							
S	Fe-based alloy	Fe-based	Annealed	200	680							
			Aged	280	940							
		Ni or Co based	Annealed	250	840							
			Aged	350	1180							
			Cast	320	1080							
	Titanium alloy	Pure Titanium		200	680							
		α and β alloy, aged		375	1260							
		β alloy		410	1400							
	Tungsten alloy			300	1010							
	Molybdenum alloy			300	1010							
H	Hardened steel	Hardened and tempered		50HRC	-	90-130	0.010	0.021	0.033	0.045	0.055	0.066
		Hardened and tempered		55HRC	-	35-80	0.007	0.015	0.023	0.032	0.039	0.046
		Hardened and tempered		60HRC	-	30-75	0.006	0.013	0.020	0.027	0.033	0.040
	Chilled cast iron	Hardened and tempered		55HRC	-	80-120	0.009	0.019	0.030	0.041	0.050	0.059

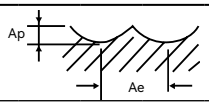
The cutting data are average recommended values. For special applications, adjustment is needed.

Solid Carbide End Mill M170 Cutting Data Recommendation

Materials						M170-4ES M170-4RS M170-6ES	Square shoulder milling (Finsih milling) 					
ISO	Workpiece Materials			Brinell Hardness(HB)	Tensile strength (N/mm^2)	Cutting speed Vc(m/min)	fz [mm/Tooth]					
							Mill diameter [mm]					
							4	6	8	10	12	16
P	Unalloyed steel	C ≤ 0.25%	Annealed	125	428							
		0.25 < C ≤ 0.55%	Annealed	190	639							
		0.25 < C ≤ 0.55%	Heat-treated	210	708							
		C > 0.55%	Annealed	190	639							
		C > 0.55%	Heat-treated	300	1013	200-300	0.080	0.126	0.170	0.216	0.237	0.266
		Free cutting steel	Annealed	220	745							
	Low-alloyed steel	Annealed		175	591							
		Heat-treated		300	1013	200-300	0.080	0.126	0.170	0.216	0.237	0.266
		Heat-treated		380	1282	180-260	0.076	0.120	0.162	0.206	0.226	0.254
		Heat-treated		430	1477	170-260	0.073	0.115	0.155	0.197	0.216	0.242
	High-alloyed steel and highalloyed tool steel	Annealed		200	675							
		Hardened and tempered		300	1013	200-300	0.080	0.126	0.170	0.216	0.237	0.266
		Hardened and tempered		400	1361	180-260	0.076	0.120	0.162	0.206	0.226	0.254
	Stainless steels	Ferritic/Martensite,Annealed		200	675							
		Martensite,Heat-treated		330	1114							
M	Stainless steels	Austenitic,hardened		200	675							
		Austenitic,precipitation hardened stainless steel(PH stainless steel)		300	1013							
		Austenitic,ferritic,duplex		230	778							
K	Malleable cast iron	Ferritic		200	400	230-340	0.090	0.140	0.190	0.240	0.164	0.296
		Pearlitic		260	700	220-310	0.077	0.119	0.162	0.204	0.139	0.252
	Grey cast iron	Low tensile strength		180	200	230-340	0.090	0.140	0.190	0.240	0.164	0.296
		High tensile strength/Austenitic		245	350	230-320	0.081	0.126	0.171	0.216	0.148	0.266
	Nodular cast iron	Ferritic		155	400	230-340	0.090	0.140	0.190	0.240	0.164	0.296
		Pearlitic		265	700	220-310	0.077	0.119	0.162	0.204	0.139	0.252
	GGV(CGI)			230	400	210-310	0.072	0.112	0.152	0.192	0.131	0.237
N	Wrought aluminum alloy	Non-aging alloy		30	-							
		Aged alloy		100	340							
	Cast aluminum alloy	≤ 12% Si, non-aging alloy		75	260							
		≤ 12% Si, aged alloy		90	310							
		> 12% Si, non-aging alloy		130	450							
	Magnesium alloy			70	250							
	Copper and copper alloy(bronze/ brass)	Unalloyed,electrolytic copper		100	340							
		Brass,bronze,red brass		90	310							
		Cu alloy,short chip		110	380							
		High tensile,Ampco alloy		300	1010							
S	Fe-based alloy	Fe-based	Annealed	200	680							
			Aged	280	940							
		Ni or Co based	Annealed	250	840							
			Aged	350	1180							
			Cast	320	1080							
	Titanium alloy	Pure Titanium		200	680							
		α and β alloy, aged		375	1260							
		β alloy		410	1400							
	Tungsten alloy			300	1010							
	Molybdenum alloy			300	1010							
H	Hardened steel	Hardened and tempered		50HRC	-	190-280	0.045	0.070	0.095	0.120	0.132	0.148
		Hardened and tempered		55HRC	-	110-160	0.032	0.049	0.067	0.084	0.092	0.104
		Hardened and tempered		60HRC	-	80-140	0.027	0.042	0.057	0.072	0.079	0.089
	Chilled cast iron	Hardened and tempered		55HRC	-	170-260	0.041	0.063	0.086	0.108	0.119	0.133

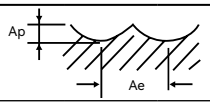
The cutting data are average recommended values. For special applications, adjustment is needed.

Solid Carbide End Mill M200 Cutting Data Recommendation

Materials						M200-2BS M200-2BL M200-2BX	Profifile milling (Finsih milling) Ap = 0.2 D Ae = 0.3 D 								
ISO	Workpiece Materials			Brinell Hardness(HB)	Tensile strength (N/mm^2)	Cutting speed Vc(m/min)	fz [mm/Tooth]								
							Mill diameter [mm]								
							2	4	6	8	10	12	14	16	20
P	Unalloyed steel	C ≤ 0.25%	Annealed	125	428	140-240	0.018	0.047	0.076	0.104	0.135	0.149	0.162	0.176	0.189
		0.25 < C ≤ 0.55%	Annealed	190	639	230-330	0.020	0.052	0.084	0.116	0.150	0.165	0.180	0.195	0.210
		0.25 < C ≤ 0.55%	Heat-treated	210	708	230-330	0.020	0.052	0.084	0.116	0.150	0.165	0.180	0.195	0.210
		C > 0.55%	Annealed	190	639	190-310	0.019	0.049	0.080	0.110	0.143	0.157	0.171	0.185	0.200
		C > 0.55%	Heat-treated	300	1013	140-240	0.018	0.047	0.076	0.104	0.135	0.149	0.162	0.176	0.189
		Free cutting steel	Annealed	220	745	190-310	0.019	0.049	0.080	0.110	0.143	0.157	0.171	0.185	0.200
	Low-alloyed steel	Annealed		175	591	190-310	0.019	0.049	0.080	0.110	0.143	0.157	0.171	0.185	0.200
		Heat-treated		300	1013	140-240	0.018	0.047	0.076	0.104	0.135	0.149	0.162	0.176	0.189
		Heat-treated		380	1282	110-210	0.017	0.045	0.072	0.100	0.129	0.142	0.155	0.168	0.181
		Heat-treated		430	1477	90-190	0.016	0.043	0.069	0.095	0.123	0.135	0.148	0.160	0.172
	High-alloyed steel and highalloyed tool steel	Annealed		200	675	140-240	0.018	0.047	0.076	0.104	0.135	0.149	0.162	0.176	0.189
		Hardened and tempered		300	1013	140-240	0.018	0.047	0.076	0.104	0.135	0.149	0.162	0.176	0.189
		Hardened and tempered		400	1361	110-210	0.017	0.045	0.072	0.100	0.129	0.142	0.155	0.168	0.181
	Stainless steels	Ferritic/Martensite,Annealed		200	675	65-135	0.015	0.039	0.063	0.087	0.113	0.124	0.135	0.146	0.158
		Martensite,Heat-treated		330	1114	48-108	0.013	0.034	0.055	0.075	0.098	0.107	0.117	0.127	0.137
M	Stainless steels	Austenitic,hardened		200	675	85-145	0.014	0.040	0.065	0.090	0.120	0.145	0.168	0.190	0.210
		Austenitic,precipitation hardened stainless steel(PH stainless steel)		300	1013	40-100	0.011	0.032	0.052	0.072	0.096	0.116	0.134	0.152	0.168
		Austenitic,ferritic,duplex		230	778	55-125	0.013	0.038	0.062	0.086	0.114	0.138	0.160	0.181	0.200
K	Malleable cast iron	Ferritic		200	400	190-310	0.020	0.050	0.080	0.110	0.145	0.160	0.178	0.190	0.212
		Pearlitic		260	700	150-260	0.017	0.043	0.068	0.094	0.123	0.136	0.151	0.162	0.180
	Grey cast iron	Low tensile strength		180	200	190-310	0.020	0.050	0.080	0.110	0.145	0.160	0.178	0.190	0.212
		High tensile strength/Austenitic		245	350	160-270	0.018	0.045	0.072	0.099	0.131	0.144	0.160	0.171	0.191
	Nodular cast iron	Ferritic		155	400	190-310	0.020	0.050	0.080	0.110	0.145	0.160	0.178	0.190	0.212
		Pearlitic		265	700	150-260	0.017	0.043	0.068	0.094	0.123	0.136	0.151	0.162	0.180
	GGV(CGI)			230	400	120-230	0.016	0.040	0.064	0.088	0.116	0.128	0.142	0.152	0.170
N	Wrought aluminum alloy	Non-aging alloy		30	-										
		Aged alloy		100	340										
	Cast aluminum alloy	≤ 12% Si, non-aging alloy		75	260										
		≤ 12% Si, aged alloy		90	310										
		> 12% Si, non-aging alloy		130	450										
	Magnesium alloy			70	250										
	Copper and copper alloy(bronze/ brass)	Unalloyed,electrolytic copper		100	340										
		Brass,bronze,red brass		90	310										
		Cu alloy,short chip		110	380										
		High tensile,Ampco alloy		300	1010										
S	Fe-based alloy	Fe-based	Annealed	200	680										
			Aged	280	940										
		Ni or Co based	Annealed	250	840										
			Aged	350	1180										
			Cast	320	1080										
	Titanium alloy	Pure Titanium		200	680										
		α and β alloy, aged		375	1260										
		β alloy		410	1400										
	Tungsten alloy			300	1010										
	Molybdenum alloy			300	1010										
H	Hardened steel	Hardened and tempered		50HRC	-										
		Hardened and tempered		55HRC	-										
		Hardened and tempered		60HRC	-										
	Chilled cast iron	Hardened and tempered		55HRC	-										

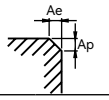
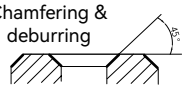
The cutting data are average recommended values. For special applications, adjustment is needed.

Solid Carbide End Mill M170 Cutting Data Recommendation

Materials						M170-2BS	Profifile milling (Finsih milling) Ap = 0.1 D Ae = 0.02 D 					
ISO	Workpiece Materials			Brinell Hardness(HB)	Tensile strength (N/mm^2)	Cutting speed Vc(m/min)	fz [mm/Tooth]					
							Mill diameter [mm]					
							4	6	8	10	12	16
P	Unalloyed steel	C ≤ 0.25%	Annealed	125	428							
		0.25 < C ≤ 0.55%	Annealed	190	639							
		0.25 < C ≤ 0.55%	Heat-treated	210	708							
		C > 0.55%	Annealed	190	639							
		C > 0.55%	Heat-treated	300	1013	180-250	0.064	0.096	0.128	0.150	0.165	0.190
		Free cutting steel	Annealed	220	745							
	Low-alloyed steel	Annealed		175	591							
		Heat-treated		300	1013	180-250	0.064	0.096	0.128	0.150	0.165	0.190
		Heat-treated		380	1282	150-220	0.061	0.092	0.122	0.143	0.158	0.182
		Heat-treated		430	1477	140-210	0.058	0.087	0.117	0.137	0.150	0.173
	High-alloyed steel and highalloyed tool steel	Annealed		200	675							
		Hardened and tempered		300	1013	180-250	0.064	0.096	0.128	0.150	0.165	0.190
		Hardened and tempered		400	1361	150-220	0.061	0.092	0.122	0.143	0.158	0.182
	Stainless steels	Ferritic/Martensite,Annealed		200	675							
		Martensite,Heat-treated		330	1114							
M	Stainless steels	Austenitic,hardened		200	675							
		Austenitic,precipitation hardened stainless steel(PH stainless steel)		300	1013							
		Austenitic,ferritic,duplex		230	778							
K	Malleable cast iron	Ferritic		200	400	220-300	0.120	0.160	0.200	0.250	0.270	0.310
		Pearlitic		260	700	210-290	0.102	0.136	0.170	0.213	0.230	0.264
	Grey cast iron	Low tensile strength		180	200	220-300	0.120	0.160	0.200	0.250	0.270	0.310
		High tensile strength/Austenitic		245	350	215-285	0.108	0.144	0.180	0.225	0.243	0.279
	Nodular cast iron	Ferritic		155	400	220-300	0.120	0.160	0.200	0.250	0.270	0.310
		Pearlitic		265	700	210-290	0.102	0.136	0.170	0.213	0.230	0.264
	GGV(CGI)			230	400	200-280	0.096	0.128	0.160	0.200	0.216	0.248
N	Wrought aluminum alloy	Non-aging alloy		30	-							
		Aged alloy		100	340							
	Cast aluminum alloy	≤ 12% Si, non-aging alloy		75	260							
		≤ 12% Si, aged alloy		90	310							
		> 12% Si, non-aging alloy		130	450							
	Magnesium alloy			70	250							
	Copper and copper alloy(bronze/ brass)	Unalloyed,electrolytic copper		100	340							
		Brass,bronze,red brass		90	310							
		Cu alloy,short chip		110	380							
		High tensile,Ampco alloy		300	1010							
S	Fe-based alloy	Fe-based	Annealed	200	680							
			Aged	280	940							
		Ni or Co based	Annealed	250	840							
			Aged	350	1180							
			Cast	320	1080							
	Titanium alloy	Pure Titanium		200	680							
		α and β alloy, aged		375	1260							
		β alloy		410	1400							
	Tungsten alloy			300	1010							
	Molybdenum alloy			300	1010							
H	Hardened steel	Hardened and tempered		50HRC	-	180-250	0.064	0.096	0.128	0.150	0.165	0.190
		Hardened and tempered		55HRC	-	140-210	0.045	0.067	0.090	0.105	0.116	0.133
		Hardened and tempered		60HRC	-	70-140	0.038	0.058	0.077	0.090	0.099	0.114
	Chilled cast iron	Hardened and tempered		55HRC	-	150-220	0.058	0.086	0.115	0.135	0.149	0.171

The cutting data are average recommended values. For special applications, adjustment is needed.

Solid Carbide End Mill M180 Cutting Data Recommendation

Materials						M180-4WS Chamfer Ap = 0.3 D Ae = 0.3 D  Chamfering & deburring 				
ISO	Workpiece Materials			Brinell Hardness(HB)	Tensile strength (N/mm^2)	Cutting speed Vc(m/min)	fz [mm/Tooth] Mill diameter [mm]				
							6	8	10	12	16
P	Unalloyed steel	C ≤ 0.25%	Annealed	125	428	320-380	0.040	0.070	0.100	0.100	0.120
		0.25 < C ≤ 0.55%	Annealed	190	639	320-380	0.040	0.070	0.100	0.100	0.120
		0.25 < C ≤ 0.55%	Heat-treated	210	708	260-320	0.040	0.070	0.100	0.100	0.120
		C > 0.55%	Annealed	190	639	260-300	0.040	0.070	0.100	0.100	0.120
		C > 0.55%	Heat-treated	300	1013	180-230	0.040	0.070	0.100	0.100	0.120
		Free cutting steel	Annealed	220	745	260-320	0.040	0.070	0.100	0.100	0.120
	Low-alloyed steel	Annealed		175	591	260-320	0.040	0.070	0.100	0.100	0.120
		Heat-treated		300	1013	180-230	0.040	0.070	0.100	0.100	0.120
		Heat-treated		380	1282	150-170	0.040	0.070	0.100	0.100	0.120
		Heat-treated		430	1477	130-160	0.040	0.070	0.100	0.100	0.120
	High-alloyed steel and highalloyed tool steel	Annealed		200	675	260-320	0.040	0.070	0.100	0.100	0.120
		Hardened and tempered		300	1013	180-230	0.040	0.070	0.100	0.100	0.120
		Hardened and tempered		400	1361	130-160	0.040	0.070	0.100	0.100	0.120
	Stainless steels	Ferritic/Martensite,Annealed		200	675	90-110	0.040	0.070	0.100	0.100	0.120
		Martensite,Heat-treated		330	1114	70-90	0.040	0.070	0.100	0.100	0.120
M	Stainless steels	Austenitic,hardened		200	675	110-130	0.040	0.060	0.080	0.080	0.100
		Austenitic,precipitation hardened stainless steel(PH stainless steel)		300	1013	70-90	0.040	0.060	0.080	0.080	0.100
		Austenitic,ferritic,duplex		230	778	90-110	0.040	0.060	0.080	0.080	0.100
K	Malleable cast iron	Ferritic		200	400	240-300	0.040	0.070	0.100	0.100	0.120
		Pearlitic		260	700	190-230	0.040	0.070	0.100	0.100	0.120
	Grey cast iron	Low tensile strength		180	200	240-300	0.040	0.070	0.100	0.100	0.120
		High tensile strength/Austenitic		245	350	240-300	0.040	0.070	0.100	0.100	0.120
	Nodular cast iron	Ferritic		155	400	240-300	0.040	0.070	0.100	0.100	0.120
		Pearlitic		265	700	190-230	0.040	0.070	0.100	0.100	0.120
	GGV(CGI)			230	400	160-200	0.040	0.070	0.100	0.100	0.120
N	Wrought aluminum alloy	Non-aging alloy		30	-	400-500	0.100	0.150	0.220	0.220	0.260
		Aged alloy		100	340	400-500	0.100	0.150	0.220	0.220	0.260
	Cast aluminum alloy	≤ 12% Si, non-aging alloy		75	260	370-450	0.100	0.150	0.220	0.220	0.260
		≤ 12% Si, aged alloy		90	310	370-450	0.100	0.150	0.220	0.220	0.260
		> 12% Si, non-aging alloy		130	450	240-300	0.100	0.150	0.220	0.220	0.260
	Magnesium alloy			70	250	380-450	0.100	0.150	0.220	0.220	0.260
	Copper and copper alloy(bronze/ brass)	Unalloyed,electrolytic copper		100	340	340-420	0.100	0.150	0.220	0.220	0.260
		Brass,bronze,red brass		90	310	340-420	0.100	0.150	0.220	0.220	0.260
		Cu alloy,short chip		110	380	340-420	0.100	0.150	0.220	0.220	0.260
		High tensile,Ampco alloy		300	1010	100-120	0.100	0.150	0.220	0.220	0.260
S	Fe-based alloy	Fe-based	Annealed	200	680	90-110	0.040	0.060	0.080	0.080	0.100
			Aged	280	940	50-70	0.040	0.060	0.080	0.080	0.100
		Ni or Co based	Annealed	250	840	90-110	0.040	0.060	0.080	0.080	0.100
			Aged	350	1180	50-70	0.040	0.060	0.080	0.080	0.100
			Cast	320	1080	50-70	0.040	0.060	0.080	0.080	0.100
	Titanium alloy	Pure Titanium		200	680	290-370	0.040	0.060	0.080	0.080	0.100
		α and β alloy, aged		375	1260	90-120	0.040	0.060	0.080	0.080	0.100
		β alloy		410	1400	90-120	0.040	0.060	0.080	0.080	0.100
	Tungsten alloy			300	1010	100-120	0.040	0.060	0.080	0.080	0.100
	Molybdenum alloy			300	1010	100-120	0.040	0.060	0.080	0.080	0.100
H	Hardened steel	Hardened and tempered		50HRC	-						
		Hardened and tempered		55HRC	-						
		Hardened and tempered		60HRC	-						
	Chilled cast iron	Hardened and tempered		55HRC	-						

The cutting data are average recommended values. For special applications, adjustment is needed.



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CUTTING TOOL CATALOGUE

Drilling 476

Indexable Drilling Holder Denomination System 478
HP Series Drilling Holder 480
HY Series Drilling Holder 492

Drilling Insert 489

SPMT-DP Drilling Insert 489
WCMT-DU Drilling Insert 489
HP Series Drilling Parameter Recommendation 490
XONT-DM/DL Drilling Insert 501
SPET-DM/DL Drilling Insert 501
HY Series Drilling Parameter Recommendation 502
BTA Ejector Drilling Tools 505
Ejector Drilling Inserts 506
Ejector Drilling Parameter Recommendation 509

Drilling Holder Denomination System

HP	-	2D	-	255	-	S32	-	S07
1		2		3		4		5

1- Drilling Holder Series

HP Series
HY Series

2- Aspectratio

Lu/Dc=2
Lu/Dc=3
Lu/Dc=4
Lu/Dc=5

3- Nominal Diameter of Drilling Holder

255-- Drill Dia. Dc 25.5mm

4- Shank Dia.

S32--- Fully flattened side
Side lock, Shank Dia. 32mm

4- Insert

S07-- Suitable for SPMT07 insert
SP03-- Suitable for N0.03 insert

Drilling Holder Tolerance and Hole Tolerance---HPseries

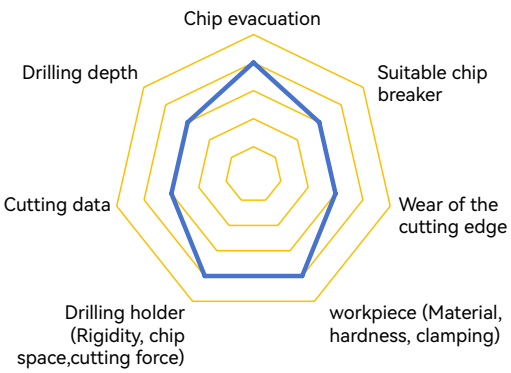
HP Series		Ø13 - Ø21.5mm	Ø22 - Ø50mm
2*DC	Holder tolerance	0,-0.1	0,-0.1
	Hole tolerance	-0.1 ~ +0.15	-0.1 ~ +0.15
3*DC	Holder tolerance	0,-0.1	0,-0.1
	Hole tolerance	-0.1 ~ +0.18	-0.12 ~ +0.2
4*DC	Holder tolerance	0,-0.1	0,-0.1
	Hole tolerance	-0.15 ~ +0.20	-0.15 ~ +0.25

Drilling Holder Tolerance and Hole Tolerance---HYseries

HY Series		Ø13 - Ø21.5mm	Ø22 - Ø50mm
2*DC	Holder tolerance	0,+0.1	0,+0.1
	Hole tolerance	-0.1 ~ +0.15	-0.1 ~ +0.15
3*DC	Holder tolerance	0,+0.1	0,+0.1
	Hole tolerance	-0.1 ~ +0.18	-0.12 ~ +0.2
4*DC	Holder tolerance	0,+0.1	0,+0.1
	Hole tolerance	-0.15 ~ +0.20	-0.15 ~ +0.25

HY series drilling holder is easier to obtain positive tolerance hole diameters, but machining strategies need to be adjusted by the influence factors of drilling diameter.

Influence factors of drilling diameter



Grade Introduction

P Carbon steel, alloy steel, cast steel/forged steel

Basic grade

AP301U P25(P15-P35)
PVD coated carbide grade, suitable for drilling of steels, stainless steel. High strength and wear resistance ultra fine carbide substrate with nanostructured PVD coating in controllable layers, high coating adhesion, wear-resistance and strength.

AP351U P35(P30-P45)
PVD coated carbide grade for drilling of steels, stainless steel, heat-resistant alloys under unstable working conditions. Composite nanostructured coatings are deposited on the high toughness carbide substrate, offering better wear resistance and impact resistance.

AP351M P30(P25-P40)
PVD coated carbide grade. Suitable for drilling of steels, stainless steel, heat-resistant alloys in general working conditions. Good toughness and wear resistance ultrafine crystalline substrate combined with nanostructure PVD coating. Good thermal cracking resistance, wear resistance and coating strength.

M Austenitic/artensitic stainless steel

Basic grade

AP351M M30(M20-M35)
PVD coated carbide grade. Suitable for drilling and machining of steels, stainless steel, heat-resistant alloys under general working conditions. Nanostructured coatings are deposited on the high strength, high wear resistance ultra-fine grain structure carbide substrate. Good thermal cracking resistance, wear resistance and coating strength.

S Heat-resistant alloys (Ni-based), titanium alloys

Basic grade

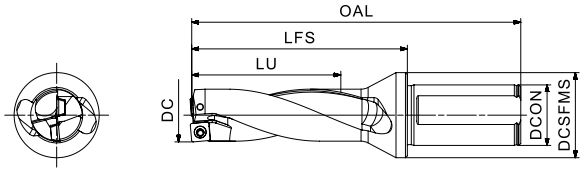
AP351M S30(S20-S35)
PVD coated carbide grade. Suitable for drilling and machining of steels, stainless steel, heat-resistant alloys under general working conditions. Nanostructured coatings are deposited on the high strength, high wear resistance ultra-fine grain structure carbide substrate. Good thermal cracking resistance, wear resistance and coating strength.

AP351U S35(S25-S40)
PVD coated carbide grade for drilling of steels, stainless steel, heat-resistant alloys under unstable working conditions. Composite nanostructured coatings are deposited on the high toughness carbide substrate, offering better wear resistance and impact resistance.

HP Series Drilling Holder

LU/DC=2



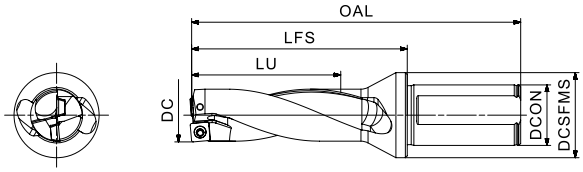


Product code	Dimension (mm)						Weight (kg)	Insert	Insert Screw	Wrench
	DC	LU	OAL	DCON	LFS	DCSFMS				
HP-2D130-S20-S05	13.0	29	99	20	49	25	0.15	SPMT 050204E-DP	ST020043	FT-T06
HP-2D135-S20-S05	13.5	30	100	20	50	25	0.15			
HP-2D140-S20-S05	14.0	31	101	20	51	25	0.15			
HP-2D145-S20-S05	14.5	32	102	20	52	25	0.16			
HP-2D150-S20-S05	15.0	33	103	20	53	25	0.16			
HP-2D155-S25-S06	15.5	34	115	25	59	32	0.25	SPMT 060204E-DP	ST022055	FT-T06
HP-2D160-S25-S06	16.0	35	116	25	60	32	0.25			
HP-2D165-S25-S06	16.5	36	117	25	61	32	0.25			
HP-2D170-S25-S06	17.0	37	118	25	62	32	0.28			
HP-2D175-S25-S06	17.5	38	119	25	63	32	0.28			
HP-2D180-S25-S06	18.0	39	120	25	64	32	0.29			
HP-2D185-S25-S06	18.5	40	121	25	65	32	0.29			
HP-2D190-S25-S06	19.0	41	122	25	66	32	0.30			
HP-2D195-S25-S06	19.5	42	123	25	67	32	0.30			
HP-2D200-S25-S06	20.0	43	124	25	68	32	0.31			
HP-2D205-S25-S06	20.5	44	125	25	69	32	0.32			
HP-2D210-S25-S06	21.0	45	126	25	70	32	0.32			
HP-2D215-S25-S06	21.5	46	127	25	71	32	0.32			
HP-2D220-S32-S07	22.0	47	137	32	77	40	0.52	SPMT 07T308E-DP	ST025065	FT-T08
HP-2D225-S32-S07	22.5	48	138	32	78	40	0.52			
HP-2D230-S32-S07	23.0	49	139	32	79	40	0.54			
HP-2D235-S32-S07	23.5	50	140	32	80	40	0.54			
HP-2D240-S32-S07	24.0	51	141	32	81	40	0.55			
HP-2D245-S32-S07	24.5	52	142	32	82	40	0.55			
HP-2D250-S32-S07	25.0	53	143	32	83	40	0.56			
HP-2D255-S32-S07	25.5	54	144	32	84	40	0.56			
HP-2D260-S32-S07	26.0	55	145	32	85	40	0.58			
HP-2D265-S32-S07	26.5	56	146	32	86	40	0.58			
HP-2D270-S32-S07	27.0	57	147	32	87	40	0.60			
HP-2D275-S32-S07	27.5	58	148	32	88	40	0.60			

HP Series Drilling Holder

LU/DC=2



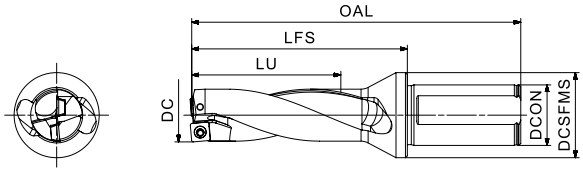


Product code	Dimension (mm)						Weight (kg)	Insert	Insert Screw	Wrench
	DC	LU	OAL	DCON	LFS	DCSFMS				
HP-2D280-S32-S09	28.0	59	149	32	89	40	0.63	SPMT 090408E-DP	ST035084X	FT-T15
HP-2D285-S32-S09	28.5	60	150	32	90	40	0.63			
HP-2D290-S32-S09	29.0	61	151	32	91	40	0.65			
HP-2D295-S32-S09	29.5	63	153	32	93	40	0.65			
HP-2D300-S32-S09	30.0	65	155	32	95	40	0.65			
HP-2D310-S32-S09	31.0	67	157	32	97	40	0.68			
HP-2D320-S32-S09	32.0	69	159	32	99	40	0.70			
HP-2D330-S32-S09	33.0	71	161	32	101	40	0.70			
HP-2D340-S40-S11	34.0	73	178	40	108	50	1.00	SPMT 110408E-DP	ST040100H	FT-T15
HP-2D350-S40-S11	35.0	75	180	40	110	50	1.10			
HP-2D360-S40-S11	36.0	77	182	40	112	50	1.10			
HP-2D370-S40-S11	37.0	79	184	40	114	50	1.15			
HP-2D380-S40-S11	38.0	81	186	40	116	50	1.20			
HP-2D390-S40-S11	39.0	83	188	40	118	50	1.20			
HP-2D400-S40-S11	40.0	85	190	40	120	50	1.30			
HP-2D410-S40-S11	41.0	87	192	40	122	50	1.40			
HP-2D420-S40-S14	42.0	89	194	40	124	50	1.40	SPMT 140512E-DP	ST050126	FT-T20
HP-2D430-S40-S14	43.0	91	196	40	126	50	1.60			
HP-2D440-S40-S14	44.0	93	198	40	128	50	1.60			
HP-2D450-S40-S14	45.0	95	200	40	130	50	1.70			
HP-2D460-S40-S14	46.0	97	202	40	132	50	1.70			
HP-2D470-S40-S14	47.0	99	204	40	134	50	1.75			
HP-2D480-S40-S14	48.0	101	206	40	136	50	1.80			
HP-2D490-S40-S14	49.0	103	208	40	138	50	1.85			
HP-2D500-S40-S14	50.0	105	210	40	140	50	1.90			

HP Series Drilling Holder

LU/DC=3



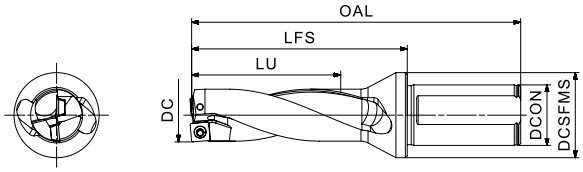


Product code	Dimension (mm)						Weight (kg)	Insert	Insert Screw	Wrench
	DC	LU	OAL	DCON	LFS	DCSFMS				
HP-3D130-S20-S05	13.0	42	112	20	62	25	0.16	SPMT 050204E-DP	ST020043	FT-T06
HP-3D135-S20-S05	13.5	44	114	20	64	25	0.16			
HP-3D140-S20-S05	14.0	45	115	20	65	25	0.16			
HP-3D145-S20-S05	14.5	47	117	20	67	25	0.16			
HP-3D150-S20-S05	15.0	48	118	20	68	25	0.17			
HP-3D155-S25-S06	15.5	50	131	25	75	32	0.27	SPMT 060204E-DP	ST022055	FT-T06
HP-3D160-S25-S06	16.0	51	132	25	76	32	0.27			
HP-3D165-S25-S06	16.5	53	134	25	78	32	0.27			
HP-3D170-S25-S06	17.0	54	135	25	79	32	0.29			
HP-3D175-S25-S06	17.5	56	137	25	81	32	0.29			
HP-3D180-S25-S06	18.0	57	138	25	82	32	0.30			
HP-3D185-S25-S06	18.5	59	140	25	84	32	0.30			
HP-3D190-S25-S06	19.0	60	141	25	85	32	0.31			
HP-3D195-S25-S06	19.5	62	143	25	87	32	0.31			
HP-3D200-S25-S06	20.0	63	144	25	88	32	0.31			
HP-3D205-S25-S06	20.5	65	146	25	90	32	0.33			
HP-3D210-S25-S06	21.0	66	147	25	91	32	0.33			
HP-3D215-S25-S06	21.5	68	149	25	93	32	0.33			
HP-3D220-S32-S07	22.0	69	159	32	99	40	0.57	SPMT 07T308E-DP	ST025065	FT-T08
HP-3D225-S32-S07	22.5	71	161	32	101	40	0.57			
HP-3D230-S32-S07	23.0	72	162	32	102	40	0.60			
HP-3D235-S32-S07	23.5	74	164	32	104	40	0.60			
HP-3D240-S32-S07	24.0	75	165	32	105	40	0.62			
HP-3D245-S32-S07	24.5	77	167	32	107	40	0.62			
HP-3D250-S32-S07	25.0	78	168	32	108	40	0.63			
HP-3D255-S32-S07	25.5	80	170	32	110	40	0.63			
HP-3D260-S32-S07	26.0	81	171	32	111	40	0.63			
HP-3D265-S32-S07	26.5	83	173	32	113	40	0.64			
HP-3D270-S32-S07	27.0	84	174	32	114	40	0.65			
HP-3D275-S32-S07	27.5	86	176	32	116	40	0.67			

HP Series Drilling Holder

LU/DC=3



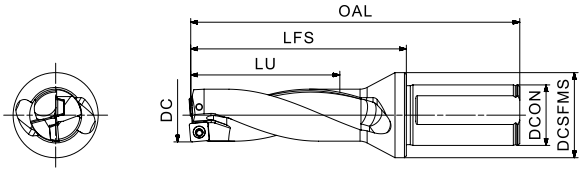


Product code	Dimension (mm)						Weight (kg)	Insert	Insert Screw	Wrench
	DC	LU	OAL	DCON	LFS	DCSFMS				
HP-3D280-S32-S09	28.0	87	177	32	117	40	0.67	SPMT 090408E-DP	ST035084X	FT-T15
HP-3D285-S32-S09	28.5	89	179	32	119	40	0.69			
HP-3D290-S32-S09	29.0	90	180	32	120	40	0.70			
HP-3D295-S32-S09	29.5	93	183	32	123	40	0.72			
HP-3D300-S32-S09	30.0	95	185	32	125	40	0.71			
HP-3D310-S32-S09	31.0	98	188	32	128	40	0.75			
HP-3D320-S32-S09	32.0	101	191	32	131	40	0.80			
HP-3D330-S32-S09	33.0	104	194	32	134	40	0.85			
HP-3D340-S40-S11	34.0	107	212	40	142	50	1.20	SPMT 110408E-DP	ST040100H	FT-T15
HP-3D350-S40-S11	35.0	110	215	40	145	50	1.20			
HP-3D360-S40-S11	36.0	113	218	40	148	50	1.20			
HP-3D370-S40-S11	37.0	116	221	40	151	50	1.30			
HP-3D380-S40-S11	38.0	119	224	40	154	50	1.35			
HP-3D390-S40-S11	39.0	122	227	40	157	50	1.40			
HP-3D400-S40-S11	40.0	125	230	40	160	50	1.45			
HP-3D410-S40-S11	41.0	128	233	40	163	50	1.60			
HP-3D420-S40-S14	42.0	131	236	40	166	50	1.65	SPMT 140512E-DP	ST050126	FT-T20
HP-3D430-S40-S14	43.0	134	239	40	169	50	1.70			
HP-3D440-S40-S14	44.0	137	242	40	172	50	1.75			
HP-3D450-S40-S14	45.0	140	245	40	175	50	1.90			
HP-3D460-S40-S14	46.0	143	248	40	178	50	1.95			
HP-3D470-S40-S14	47.0	146	251	40	181	50	2.10			
HP-3D480-S40-S14	48.0	149	254	40	184	50	2.30			
HP-3D490-S40-S14	49.0	152	257	40	187	50	2.30			
HP-3D500-S40-S14	50.0	155	260	40	190	50	2.35			

HP Series Drilling Holder

LU/DC=4



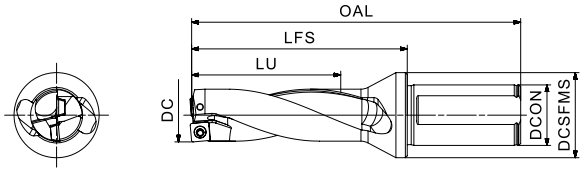


Product code	Dimension (mm)						Weight (kg)	Insert	Insert Screw	Wrench
	DC	LU	OAL	DCON	LFS	DCSFMS				
HP-4D130-S20-S05	13.0	55	125	20	75	25	0.17	SPMT 050204E-DP	ST020043	FT-T06
HP-4D135-S20-S05	13.5	57	127	20	77	25	0.17			
HP-4D140-S20-S05	14.0	59	129	20	79	25	0.17			
HP-4D145-S20-S05	14.5	61	131	20	81	25	0.17			
HP-4D150-S20-S05	15.0	63	133	20	83	25	0.18			
HP-4D155-S25-S06	15.5	65	146	25	90	32	0.28	SPMT 060204E-DP	ST022055	FT-T06
HP-4D160-S25-S06	16.0	67	148	25	92	32	0.28			
HP-4D165-S25-S06	16.5	69	150	25	94	32	0.30			
HP-4D170-S25-S06	17.0	71	152	25	96	32	0.30			
HP-4D175-S25-S06	17.5	73	154	25	98	32	0.31			
HP-4D180-S25-S06	18.0	75	156	25	100	32	0.32			
HP-4D185-S25-S06	18.5	77	158	25	102	32	0.33			
HP-4D190-S25-S06	19.0	79	160	25	104	32	0.34			
HP-4D195-S25-S06	19.5	81	162	25	106	32	0.35			
HP-4D200-S25-S06	20.0	83	164	25	108	32	0.36			
HP-4D205-S25-S06	20.5	85	166	25	110	32	0.37			
HP-4D210-S25-S06	21.0	87	168	25	112	32	0.37			
HP-4D215-S25-S06	21.5	89	170	25	114	32	0.38			
HP-4D220-S32-S07	22.0	91	181	32	121	40	0.57	SPMT 07T308E-DP	ST025065	FT-T08
HP-4D225-S32-S07	22.5	93	183	32	123	40	0.57			
HP-4D230-S32-S07	23.0	95	185	32	125	40	0.62			
HP-4D235-S32-S07	23.5	97	187	32	127	40	0.62			
HP-4D240-S32-S07	24.0	99	189	32	129	40	0.65			
HP-4D245-S32-S07	24.5	101	191	32	131	40	0.65			
HP-4D250-S32-S07	25.0	103	193	32	133	40	0.65			
HP-4D255-S32-S07	25.5	105	195	32	135	40	0.65			
HP-4D260-S32-S07	26.0	107	197	32	137	40	0.68			
HP-4D265-S32-S07	26.5	109	199	32	139	40	0.70			
HP-4D270-S32-S07	27.0	111	201	32	141	40	0.71			
HP-4D275-S32-S07	27.5	113	203	32	143	40	0.72			

HP Series Drilling Holder

LU/DC=4





Product code	Dimension (mm)						Weight (kg)	Insert	Insert Screw	Wrench
	DC	LU	OAL	DCON	LFS	DCSFMS				
HP-4D280-S32-S09	28.0	115	205	32	145	40	0.74	SPMT 090408E-DP	ST035084X	FT-T15
HP-4D285-S32-S09	28.5	117	207	32	147	40	0.76			
HP-4D290-S32-S09	29.0	120	210	32	150	40	0.78			
HP-4D295-S32-S09	29.5	123	213	32	153	40	0.80			
HP-4D300-S32-S09	30.0	125	215	32	155	40	0.80			
HP-4D310-S32-S09	31.0	129	219	32	159	40	0.85			
HP-4D320-S32-S09	32.0	133	223	32	163	40	0.90			
HP-4D330-S32-S09	33.0	137	227	32	167	40	0.95			
HP-4D340-S40-S11	34.0	141	246	40	176	50	1.30	SPMT 110408E-DP	ST040100H	FT-T15
HP-4D350-S40-S11	35.0	145	250	40	180	50	1.36			
HP-4D360-S40-S11	36.0	149	254	40	184	50	1.43			
HP-4D370-S40-S11	37.0	153	258	40	188	50	1.48			
HP-4D380-S40-S11	38.0	157	262	40	192	50	1.54			
HP-4D390-S40-S11	39.0	161	266	40	196	50	1.62			
HP-4D400-S40-S11	40.0	165	270	40	200	50	1.77			
HP-4D410-S40-S11	41.0	169	274	40	204	50	1.86			
HP-4D420-S40-S14	42.0	173	278	40	208	50	1.98	SPMT 140512E-DP	ST050126	FT-T20
HP-4D430-S40-S14	43.0	177	282	40	212	50	2.01			
HP-4D440-S40-S14	44.0	181	286	40	216	50	2.18			
HP-4D450-S40-S14	45.0	185	290	40	220	50	2.22			
HP-4D460-S40-S14	46.0	189	294	40	224	50	2.60			
HP-4D470-S40-S14	47.0	193	298	40	228	50	2.60			
HP-4D480-S40-S14	48.0	197	302	40	232	50	2.90			
HP-4D490-S40-S14	49.0	201	306	40	236	50	2.90			
HP-4D500-S40-S14	50.0	205	310	40	240	50	3.09			

Drilling Insert Denomination System

S	P	M	T
1	2	3	4

1- Shape/Code

S



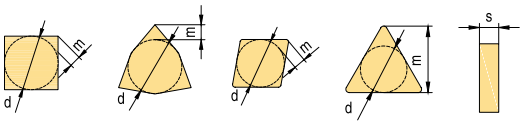
W



2- Clearance Angle

A	B	C	D	E
				
F	**G**	**N**	**P**	**O**
				Other clearance angle

3- Tolerance



Class	Unit	In.Circle dimension d	Nose height m	Thicknessss
A	mm	± 0,025	± 0,005	± 0,025
C	mm	± 0,025	± 0,013	± 0,025
E	mm	± 0,025	± 0,025	± 0,025
F	mm	± 0,013	± 0,005	± 0,025
G	mm	± 0,025	± 0,025	± 0,13
H	mm	± 0,013	± 0,013	± 0,025
J	mm	*	± 0,005	± 0,025
K	mm	*	± 0,013	± 0,025
L	mm	*	± 0,025	± 0,025
M	mm	*	*	± 0,127
U	mm	*	*	± 0,127
N	mm	*	*	± 0,025

* For details refer to right and below tables

Shape: C, E, H, M, O, P, S, T, R, W				
IC	d		m	
	J,K,L,M,N	U	M, N	U
4.76	± 0,05	± 0,08	± 0,08	± 0,13
5.56	± 0,05	± 0,08	± 0,08	± 0,13
6	± 0,05	± 0,08	± 0,08	± 0,13
6.35	± 0,05	± 0,08	± 0,08	± 0,13
7.94	± 0,05	± 0,08	± 0,08	± 0,13
8	± 0,05	± 0,08	± 0,08	± 0,13
9.525	± 0,05	± 0,08	± 0,08	± 0,13
10	± 0,05	± 0,08	± 0,08	± 0,13
12	± 0,08	± 0,13	± 0,13	± 0,2
12.7	± 0,08	± 0,13	± 0,13	± 0,2
15.875	± 0,1	± 0,18	± 0,15	± 0,27
16	± 0,1	± 0,18	± 0,15	± 0,27
19.05	± 0,1	± 0,18	± 0,15	± 0,27
20	± 0,1	± 0,18	± 0,15	± 0,27
25	± 0,13	± 0,25	± 0,18	± 0,38
25.4	± 0,13	± 0,25	± 0,18	± 0,38
31.75	± 0,15	± 0,25	± 0,2	± 0,38
32	± 0,15	± 0,25	± 0,2	± 0,38

M&N shape	D shape		V shape	
IC	d	m	d	m
5.56	± 0,05	± 0,11		
6.35	± 0,05	± 0,11	± 0,05	± 0,16
7.94	± 0,05	± 0,11	± 0,05	± 0,16
9.525	± 0,05	± 0,11	± 0,05	± 0,16
12.7	± 0,08	± 0,15	± 0,08	± 0,2
15.875	± 0,10	± 0,18	± 0,10	± 0,27
19.05	± 0,10	± 0,18	± 0,10	± 0,27

4- Clamping Type

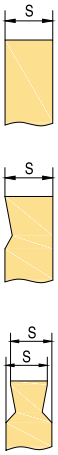
A	B	C	F	G
				
H	**J**	**M**	**N**	**Q**
				
R	**T**	**U**	**W**	**Z**
				

06	02	04	E	-	DP
5	6	7	8	-	9

5- Cutting Edge Length

In.Circle Dimension (mm)	S Code	S Length	W Code	W Length
5.56			03	3.8
6.35	06	6.35	04	4.3
7.94			05	5.4
8.0	08	8.0		
9.525	09	9.525	06	6.5
12.7	12	12.7	08	8.7

6- Insert Thickness

Thickness description	Thickness mark	Example		
Insert thickness "S" refers to the distance between cutting edge nose and bottom		00	=	0.79
		T0	=	0.99
		01	=	1.59
		T1	=	1.98
		02	=	2.38
		T2	=	2.58
		03	=	3.18
		T3	=	3.97
		04	=	4.76
		T4	=	4.96
		05	=	5.56
		T5	=	5.95
		06	=	6.35
		07	=	7.94
		09	=	9.53
		11	=	11.11
		12	=	12.70
		14	=	14.29
		15	=	15.88

7- Corner Radius

Example		
04	=	0.4
08	=	0.8
12	=	1.2

8- Cutting Edge Shape

Example	Description
E	Honed cutting edge
F	Sharp cutting edge
T	Negative land

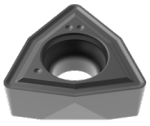
9- Geometry Code

DP



1. DP geometry has high efficiency. Suitable for short hole high speed drilling.
2. Strong square insert with reinforced geometry offers excellent hole straightness.
3. Drilling holder with helical flute provides excellent chip evacuation and high hole precision.

DU

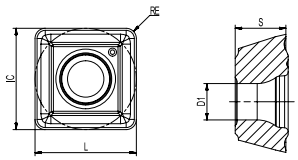


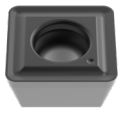
1. Suitable cutting angle makes perfect balance for the cutting force.
2. General purpose geometry combined with two grades are suitable for P, M, K, S materials, especially good for the chip control in soft materials.
3. Obtains good surface finish.
4. Good versatility. It's suitable for rotating and non-rotating machining.

Drilling Grade Application Guide

Drilling insert grade ISO group												
Material Group	Materials	ISO	Coated									Uncoated
			PVD	PVD	PVD	PVD	PVD	PVD	PVD	PVD	CVD	CVD	
P	Unalloy steels / Alloyed steels	P01	AP301U										
		P05											
		P10											
		P15											
		P20		AP351M	AP351U								
		P25											
		P30											
		P35											
		P40											
		P45											
		P50											
M	Stainless steels	M01											
		M05											
		M10											
		M15											
		M20											
		M25		AP351M	AP351U								
		M30											
		M35											
		M40											
		M45											
K	Cast iron	K01											
		K05											
		K10											
		K15											
		K20											
		K25											
		K30											
		K35											
		K40											
		K45											
		K50											
N	Aluminum/ Aluminum alloys	N01											
		N05											
		N10											
		N15											
		N20											
		N25											
		N30											
S	Heat resistant alloys	S01											
		S05											
		S10											
		S15											
		S20											
		S25		AP351M	AP351U								
		S30											
		S35											
		S40											
		S45											

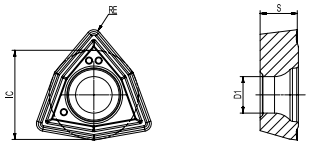
SPMT-DP Drilling Insert

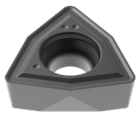


Inserts	Product code	Machining conditions					● Good Conditions ⊕ General Conditions ✱ Bad Conditions					
							●	✱	⊕	●	●	
		Dimension (mm)					P			M	K	N
		L	IC	S	RE	D1	AP301U	AP351U	AC301P	AP351M	AP301U	AW100K
	**SPMT 050204E-DP**	5	5	2.38	0.4	2.25	●	●	●	●	●	
	SPMT 060204E-DP	6	6	2.38	0.4	2.61	●	●	●	●	●	
	SPMT 07T308E-DP	7.94	7.94	3.97	0.8	2.85	●	●	●	●	●	
	SPMT 090408E-DP	9.8	9.8	4.3	0.8	4.05	●	●	●	●	●	
	SPMT 110408E-DP	11.5	11.5	4.8	0.8	4.45	●	●	●	●	●	
	SPMT 140512E-DP	14.3	14.3	5.2	1.2	5.75	●	●	●	●	●	

● : Standard stock ○ : Made-to-Order

WCMT-DU Drilling Insert



Inserts	Product code	Machining conditions				● Good Conditions ⊕ General Conditions ✱ Bad Conditions					
						●	✱	⊕	●	●	
		Dimension (mm)				P			M	K	N
		IC	S	RE	D1	AP301U	AP351U	AC301P	AP351M	AP301U	AW100K
	**WCMT 030208E-DU**	5.56	2.38	0.8	2.8	●	●				
	WCMT 040208E-DU	6.35	2.38	0.8	3.0	●	●				
	WCMT 050308E-DU	7.94	3.18	0.8	3.4	●	●				
	WCMT 06T308E-DU	9.53	3.97	0.8	3.9	●	●				
	WCMT 080412E-DU	12.7	4.76	1.2	4.4	●	●				

Remark: DU series are universal inserts, drilling holders are not provided.

● : Standard stock ○ : Made-to-Order

Cutting Data Recommendation

Materials				SP drilling insert series grade application range & cutting parameter recommendation																	
ISO	Material classification	Tensile strength (N/mm^2)	Brinell hardness (HB)	Grade												Feed (mm/rev)					
				AP301U			AP351U			AP351M			AC301P								
				P15-35			P30-45			P20-35			P25-40								
				M15-35			M30-45			M20-35			-								
				-			-			-			-								
				-			S 30-45			S20-35			-								
				-			-			-			-								
				-			-			-											
				Feed (mm/rev)																	
				Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	∅13mm ~ ∅15mm	∅15.5mm ~ ∅21.5mm	∅22mm ~ ∅27.5mm	∅28mm ~ ∅33mm	∅34mm ~ ∅41mm	∅42mm ~ ∅50mm
				Cutting speed (m/min)												SPMT 050204E-DP	SPMT 060204E-DP	SPMT 07T308E-DP	SPMT 090408E-DP	SPMT 110408E-DP	SPMT 140512E-DP
P	Non-alloyed steel	<600	<180	260	240	224	220	185	150	240	220	200	200	175	150	0.05-0.08	0.06-0.10	0.06-0.12	0.07-0.13	0.08-0.15	0.08-0.16
		<950	<280	250	210	170	200	170	140	230	190	160	190	160	135	0.06-0.12	0.08-0.15	0.10-0.18	0.12-0.22	0.12-0.24	0.13-0.25
	Alloyed steel	700-950	200-280	240	200	160	190	160	130	220	180	150	180	150	120	0.06-0.10	0.08-0.14	0.10-0.18	0.12-0.22	0.12-0.23	0.13-0.24
		950-1200	280-355	210	170	130	170	130	90	190	150	110	160	130	100	0.06-0.12	0.08-0.15	0.10-0.18	0.12-0.22	0.12-0.24	0.13-0.25
		1200-1400	355-415	170	140	110	160	120	80	150	120	90	140	110	80	0.06-0.10	0.08-0.14	0.10-0.18	0.12-0.22	0.12-0.23	0.13-0.24
M	Duplex stainless steel	778	230	260	200	140	180	135	90	240	180	120	-	-	-	0.05-0.10	0.06-0.12	0.08-0.15	0.09-0.16	0.10-0.17	0.11-0.18
	AusteniticStainless steel	675	200	220	170	120	120	65	60	200	150	100	-	-	-	0.05-0.10	0.06-0.12	0.08-0.15	0.09-0.16	0.10-0.17	0.11-0.18
	Precipitation-hardening stainless steel	1013	300	180	140	100	90	65	40	160	120	80	-	-	-	-	-	-	-	-	-
K	Grey cast iron	700	220	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Nodular cast iron	880	260	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Malleable cast iron	800	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N	Aluminum	260	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Aluminum alloy	447	130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S	Fe-based alloy	943	280	-	-	-	40	30	20	45	35	25	-	-	-	-	-	-	-	-	-
	Co-based alloy	1076	320	-	-	-	35	25	15	40	30	20	-	-	-	-	-	-	-	-	-
	Ni-based alloy	1177	350	-	-	-	35	25	15	40	30	20	-	-	-	-	-	-	-	-	-
	Titanium alloys	1262	370	-	-	-	40	30	20	45	35	25	-	-	-	0.05-0.10	0.06-0.14	0.08-0.18	0.10-0.22	0.14-0.23	0.15-0.24
H	Hardened steel	-	50-60HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chilled cast iron	-	55HRC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant.

Cutting Data Recommendation

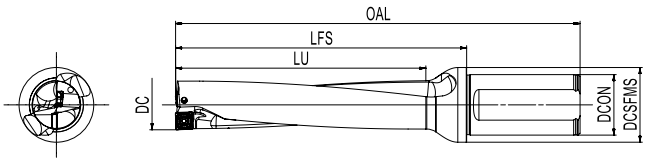
Materials				WC drilling insert series grade application range & cutting parameter recommendation										
ISO	Material classification	Tensile strength (N/mm^2)	Brinell hardness (HB)	Grade						Feed (mm/rev)				
				AP301U			AP351U							
				PVD Coated			PVD Coated							
				P15-35			P30-45							
				M15-35			M30-45							
				-			-							
				-			S 30-45							
				-			-							
				-			-							
				Feed (mm/rev)										
				Max	Med	Min	Max	Med	Min	∅16mm ~ ∅20 mm	∅20.5mm ~ ∅25mm	∅25.5mm ~ ∅30 mm	∅31mm ~ ∅41 mm	∅41mm ~ ∅58 mm
				Cutting speed (m/min)						WCMT 030204E-DU	WCMT 040204E-DU	WCMT 050308E-DU	WCMT 06T308E-DU	WCMT 080408E-DU
P	Non-alloyed steel	<600	<180	260	240	224	220	185	150	0.04-0.065	0.07-0.09	0.07-0.10	0.08-0.11	0.09-0.13
		<950	<280	250	210	170	200	170	140	0.05-0.07	0.09-0.09	0.07-0.10	0.08-0.11	0.09-0.13
	Alloyed steel	700-950	200-280	240	200	160	190	160	130	0.05-0.09	0.065-0.14	0.08-0.16	0.10-0.18	0.10-0.20
		950-1200	280-355	210	170	130	170	130	90	0.04-0.07	0.065-0.11	0.07-0.14	0.09-0.15	0.10-0.18
		1200-1400	355-415	170	140	110	160	120	80	0.04-0.065	0.05-0.9	0.07-0.10	0.08-0.12	0.09-0.13
M	Duplex stainless steel	778	230	260	200	140	180	135	90	0.04-0.07	0.065-0.11	0.08-0.14	0.08-0.11	0.09-0.13
	Austenitic stainless steel	675	200	220	170	120	120	65	60	0.04-0.065	0.065-0.10	0.08-0.12	0.08-0.10	0.08-0.11
	Precipitation-hardening stainless steel	1013	300	180	140	100	90	65	40	-	-	-	-	-
K	Grey cast iron	700	220	-	-	-	-	-	-	-	-	-	-	-
	Nodular cast iron	880	260	-	-	-	-	-	-	-	-	-	-	-
	Malleable cast iron	800	250	-	-	-	-	-	-	-	-	-	-	-
N	Aluminum	260	75	-	-	-	-	-	-	-	-	-	-	-
	Aluminum alloy	447	130	-	-	-	-	-	-	-	-	-	-	-
S	Fe-based alloy	943	280	-	-	-	40	30	20	-	-	-	-	-
	Co-based alloy	1076	320	-	-	-	35	25	15	-	-	-	-	-
	Ni-based alloy	1177	350	-	-	-	35	25	15	-	-	-	-	-
	Titanium alloys	1262	370	-	-	-	40	30	20	0.05-0.10	0.06-0.11	0.07-0.12	0.08-0.13	0.08-0.14
H	Hardened steel	-	50-60HRC	-	-	-	-	-	-	-	-	-	-	-
	Chilled cast iron	-	55HRC	-	-	-	-	-	-	-	-	-	-	-

* The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant.

HY Series Drilling Holder

LU/DC=2



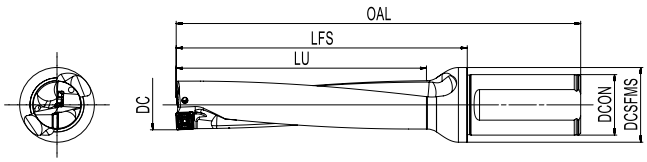


Product code	Dimension (mm)						Weight (kg)	Insert	Insert Screw	Wrench
	DC	LU	OAL	DCON	LFS	DCSFMS				
HY-2D140-S20-SP02	14.0	31	94	20	44	25	0.16	XONT 020204E SPET 020204E	SP020045	FT-TP06
HY-2D145-S20-SP02	14.5	33	96	20	46	25	0.16			
HY-2D150-S20-SP02	15.0	34	97	20	47	25	0.16			
HY-2D155-S20-SP02	15.5	36	99	20	49	25	0.17			
HY-2D160-S20-SP02	16.0	36	101	20	51	25	0.17			
HY-2D165-S20-SP03	16.5	37	102	20	52	25	0.17	XONT 030305E SPET 030305E	SP022049	FT-TP07
HY-2D170-S25-SP03	17.0	38	109	25	53	32	0.28			
HY-2D175-S25-SP03	17.5	40	111	25	55	32	0.29			
HY-2D180-S25-SP03	18.0	40	112	25	56	32	0.29			
HY-2D185-S25-SP03	18.5	40	112	25	56	32	0.29			
HY-2D188-S25-SP03	18.8	40	112	25	56	32	0.29			
HY-2D190-S25-SP03	19.0	42	114	25	58	32	0.30			
HY-2D195-S25-SP03	19.5	44	116	25	60	32	0.31			
HY-2D200-S25-SP04	20.0	44	117	25	61	32	0.32	XONT 040305E SPET 040305E	SP025072	FT-TP08
HY-2D205-S25-SP04	20.5	46	120	25	64	32	0.32			
HY-2D210-S25-SP04	21.0	46	120	25	64	32	0.32			
HY-2D215-S25-SP04	21.5	47	121	25	65	32	0.32			
HY-2D220-S25-SP04	22.0	48	122	25	66	32	0.34			
HY-2D230-S25-SP04	23.0	51	125	25	69	32	0.35			
HY-2D240-S25-SP05	24.0	53	127	25	71	32	0.35	XONT 050305E SPET 050305E	SP030082	FT-TP09
HY-2D250-S25-SP05	25.0	56	130	25	74	32	0.37			
HY-2D260-S32-SP05	26.0	56	137	32	77	40	0.58			
HY-2D270-S32-SP05	27.0	59	139	32	79	40	0.60			
HY-2D280-S32-SP05	28.0	60	142	32	82	40	0.63			
HY-2D290-S32-SP05	29.0	62	144	32	84	40	0.65			
HY-2D300-S32-SP06	30.0	65	147	32	87	40	0.65	XONT 060406E SPET 060406E	SP035094	FT-TP10
HY-2D310-S40-SP06	31.0	66	160	40	90	48	1.02			
HY-2D320-S40-SP06	32.0	68	162	40	92	48	1.04			
HY-2D330-S40-SP06	33.0	70	165	40	95	48	1.07			
HY-2D340-S40-SP06	34.0	73	168	40	98	48	1.10			
HY-2D350-S40-SP06	35.0	76	171	40	101	48	1.14			

HY Series Drilling Holder

LU/DC=2



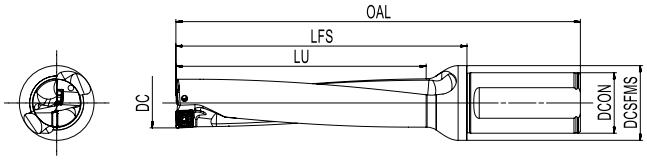


Product code	Dimension (mm)						Weight (kg)	Insert	Insert Screw	Wrench
	DC	LU	OAL	DCON	LFS	DCSFMS				
HY-2D360-S40-SP07	36.0	77	174	40	104	48	1.16	XONT 070406E SPET 070406E	SP035094	FT-TP10
HY-2D370-S40-SP07	37.0	79	175	40	105	48	1.19			
HY-2D380-S40-SP07	38.0	80	178	40	108	48	1.24			
HY-2D390-S40-SP07	39.0	82	180	40	110	48	1.29			
HY-2D400-S40-SP07	40.0	85	183	40	113	48	1.32			
HY-2D410-S40-SP07	41.0	90	187	40	117	48	1.38			
HY-2D420-S40-SP07	42.0	91	189	40	119	48	1.42			
HY-2D430-S40-SP07	43.0	91	192	40	122	50	1.47			
HY-2D440-S40-SP08	44.0	93	194	40	124	63	1.65	XONT 080508E SPET 080508E	SP040110	FT-TP15
HY-2D450-S40-SP08	45.0	95	197	40	127	63	1.71			
HY-2D460-S40-SP08	46.0	98	200	40	130	63	1.75			
HY-2D470-S40-SP08	47.0	101	202	40	132	63	1.80			
HY-2D480-S40-SP08	48.0	104	205	40	135	63	1.86			
HY-2D490-S40-SP08	49.0	105	207	40	137	63	1.92			
HY-2D500-S40-SP08	50.0	105	174	40	104	63	1.99			
HY-2D510-S40-SP08	51.0	108	214	40	144	63	2.11			
HY-2D520-S40-SP08	52.0	110	216	40	146	63	2.17			
HY-2D530-S40-SP09	53.0	113	219	40	149	63	2.15	XONT 090608E SPET 090608E	SP040110	FT-TP15
HY-2D540-S40-SP09	54.0	114	221	40	151	63	2.22			
HY-2D550-S40-SP09	55.0	116	224	40	154	63	2.31			
HY-2D560-S40-SP09	56.0	118	227	40	157	63	2.40			
HY-2D570-S40-SP09	57.0	120	229	40	159	63	2.48			
HY-2D580-S40-SP09	58.0	122	232	40	162	63	2.57			
HY-2D590-S40-SP09	59.0	124	234	40	164	63	2.61			
HY-2D600-S40-SP09	60.0	126	237	40	167	63	2.77			
HY-2D610-S40-SP09	61.0	129	241	40	171	63	2.89			
HY-2D620-S40-SP09	62.0	131	243	40	173	63	2.95			
HY-2D630-S40-SP09	63.0	133	246	40	176	63	3.06			

HY Series Drilling Holder

LU/DC=3



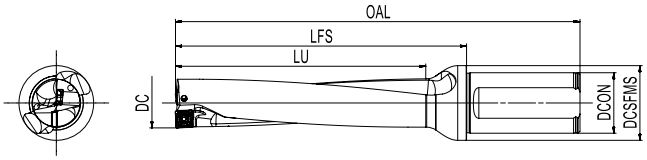


Product code	Dimension (mm)						Weight (kg)	Insert	Insert Screw	Wrench
	DC	LU	OAL	DCON	LFS	DCSFMS				
HY-3D140-S20-SP02	14.0	44	108	20	58	25	0.16	XONT 020204E SPET 020204E	SP020045	FT-TP06
HY-3D145-S20-SP02	14.5	47	110	20	60	25	0.16			
HY-3D150-S20-SP02	15.0	49	112	20	62	25	0.17			
HY-3D155-S20-SP02	15.5	51	114	20	64	25	0.17			
HY-3D160-S20-SP02	16.0	51	116	20	66	25	0.18			
HY-3D165-S20-SP03	16.5	53	118	20	68	25	0.18	XONT 030305E SPET 030305E	SP022049	FT-TP07
HY-3D170-S25-SP03	17.0	54	119	25	69	32	0.29			
HY-3D175-S25-SP03	17.5	57	122	25	72	32	0.30			
HY-3D180-S25-SP03	18.0	57	123	25	73	32	0.31			
HY-3D185-S25-SP03	18.5	59	125	25	75	32	0.31			
HY-3D190-S25-SP03	19.0	60	132	25	76	32	0.32			
HY-3D193-S25-SP03	19.3	63	135	25	79	32	0.32			
HY-3D195-S25-SP03	19.5	63	135	25	79	32	0.32			
HY-3D200-S25-SP04	20.0	63	137	25	81	32	0.34	XONT 040305E SPET 040305E	SP025072	FT-TP08
HY-3D205-S25-SP04	20.5	64	138	25	82	32	0.34			
HY-3D210-S25-SP04	21.0	66	140	25	84	32	0.34			
HY-3D215-S25-SP04	21.5	68	142	25	86	32	0.35			
HY-3D220-S25-SP04	22.0	69	143	25	87	32	0.36			
HY-3D225-S25-SP04	22.5	72	146	25	90	32	0.37			
HY-3D230-S25-SP04	23.0	73	147	25	91	32	0.38			
HY-3D235-S25-SP04	23.5	75	149	25	93	32	0.39			

HY Series Drilling Holder

LU/DC=3



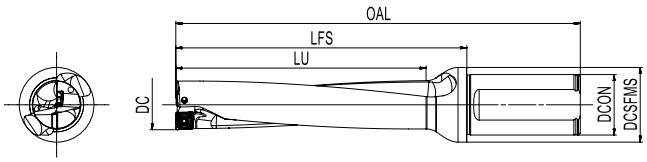


Product code	Dimension (mm)						Weight (kg)	Insert	Insert Screw	Wrench
	DC	LU	OAL	DCON	LFS	DCSFMS				
HY-3D240-S25-SP05	24.0	77	151	25	95	32	0.39	XONT 050305E SPET 050305E	SP030082	FT-TP09
HY-3D245-S25-SP05	24.5	79	153	25	97	32	0.39			
HY-3D250-S25-SP05	25.0	81	155	25	99	32	0.41			
HY-3D253-S25-SP05	25.3	81	155	25	99	32	0.41			
HY-3D255-S25-SP05	25.5	81	156	25	100	32	0.42			
HY-3D260-S32-SP05	26.0	81	162	32	102	40	0.63			
HY-3D265-S32-SP05	26.5	83	164	32	104	40	0.64			
HY-3D270-S32-SP05	27.0	85	165	32	105	40	0.65			
HY-3D275-S32-SP05	27.5	88	168	32	108	40	0.67			
HY-3D280-S32-SP05	28.0	88	169	32	109	40	0.68			
HY-3D285-S32-SP05	28.5	88	171	32	111	40	0.69			
HY-3D290-S32-SP05	29.0	90	172	32	112	40	0.71			
HY-3D295-S32-SP05	29.5	93	175	32	115	40	0.72			
HY-3D300-S32-SP06	30.0	95	177	32	117	40	0.72	XONT 060406E SPET 060406E	SP035094	FT-TP10
HY-3D305-S32-SP06	30.5	96	178	32	118	40	0.72			
HY-3D310-S40-SP06	31.0	97	191	40	121	48	1.09			
HY-3D315-S40-SP06	31.5	98	192	40	122	48	1.1			
HY-3D320-S40-SP06	32.0	100	194	40	124	48	1.12			
HY-3D325-S40-SP06	32.5	102	196	40	126	48	1.14			
HY-3D330-S40-SP06	33.0	103	198	40	128	48	1.15			
HY-3D335-S40-SP06	33.5	105	200	40	130	48	1.17			
HY-3D340-S40-SP06	34.0	106	201	40	131	48	1.19			
HY-3D345-S40-SP06	34.5	109	204	40	134	48	1.22			
HY-3D350-S40-SP06	35.0	110	205	40	135	48	1.24			
HY-3D355-S40-SP06	35.5	112	207	40	137	48	1.26			

HY Series Drilling Holder

LU/DC=3



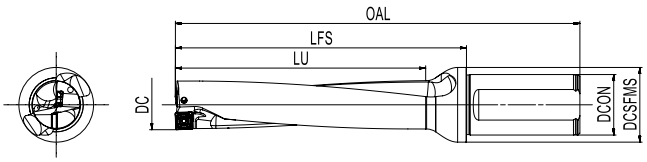


Product code	Dimension (mm)						Weight (kg)	Insert	Insert Screw	Wrench
	DC	LU	OAL	DCON	LFS	DCSFMS				
HY-3D360-S40-SP07	36.0	112	209	40	139	48	1.28	XONT 070406E SPET 070406E	SP035094	FT-TP10
HY-3D370-S40-SP07	37.0	115	212	40	142	48	1.33			
HY-3D380-S40-SP07	38.0	118	216	40	146	48	1.39			
HY-3D383-S40-SP07	38.3	119	217	40	147	48	1.41			
HY-3D385-S40-SP07	38.5	119	217	40	147	48	1.42			
HY-3D390-S40-SP07	39.0	121	219	40	149	48	1.44			
HY-3D395-S40-SP07	39.5	123	221	40	151	48	1.44			
HY-3D400-S40-SP07	40.0	125	223	40	153	48	1.47			
HY-3D405-S40-SP07	40.5	127	223	40	153	48	1.57			
HY-3D410-S40-SP07	41.0	127	227	40	157	48	1.62			
HY-3D420-S40-SP07	42.0	130	230	40	160	48	1.68			
HY-3D430-S40-SP07	43.0	133	234	40	164	50	1.77			
HY-3D440-S40-SP08	44.0	136	237	40	167	50	1.81	XONT 080508E SPET 080508E	SP040110	FT-TP15
HY-3D450-S40-SP08	45.0	104	242	40	172	50	1.90			
HY-3D460-S40-SP08	46.0	144	246	40	176	50	1.98			
HY-3D470-S40-SP08	47.0	146	249	40	179	63	2.12			
HY-3D480-S40-SP08	48.0	149	253	40	183	63	2.30			
HY-3D490-S40-SP08	49.0	152	256	40	186	63	2.39			
HY-3D495-S40-SP08	49.5	153	258	40	188	63	2.31			
HY-3D500-S40-SP08	50.0	155	260	40	190	63	2.37			
HY-3D510-S40-SP08	51.0	158	264	40	194	63	2.58			
HY-3D520-S40-SP08	52.0	161	267	40	197	63	2.69			
HY-3D530-S40-SP09	53.0	164	271	40	201	63	2.71	XONT 090608E SPET 090608E	SP040110	FT-TP15
HY-3D540-S40-SP09	54.0	167	274	40	204	63	2.81			
HY-3D550-S40-SP09	55.0	171	279	40	209	63	2.94			
HY-3D560-S40-SP09	56.0	174	283	40	213	63	3.07			
HY-3D570-S40-SP09	57.0	177	286	40	216	63	3.19			
HY-3D580-S40-SP09	58.0	180	290	40	220	63	3.32			
HY-3D590-S40-SP09	59.0	183	293	40	223	63	3.41			
HY-3D600-S40-SP09	60.0	186	297	40	227	63	3.55			
HY-3D610-S40-SP09	61.0	190	302	40	232	63	3.71			
HY-3D620-S40-SP09	62.0	193	305	40	235	63	3.94			
HY-3D630-S40-SP09	63.0	196	309	40	239	63	4.10			

HY Series Drilling Holder

LU/DC=4



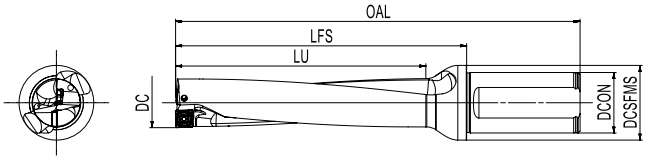


Product code	Dimension (mm)						Weight (kg)	Insert	Insert Screw	Wrench
	DC	LU	OAL	DCON	LFS	DCSFMS				
HY-4D140-S20-SP02	14.0	59	122	20	72	25	0.17	XONT 020204E SPET 020204E	SP020045	FT-TP06
HY-4D145-S20-SP02	14.5	62	125	20	75	25	0.17			
HY-4D150-S20-SP02	15.0	64	127	20	77	25	0.17			
HY-4D155-S20-SP02	15.5	66	129	20	79	25	0.18			
HY-4D160-S20-SP02	16.0	67	132	20	82	25	0.19			
HY-4D165-S20-SP03	16.5	69	134	20	84	25	0.19	XONT 030305E SPET 030305E	SP022049	FT-TP07
HY-4D170-S25-SP03	17.0	71	142	25	86	32	0.30			
HY-4D175-S25-SP03	17.5	73	145	25	89	32	0.31			
HY-4D180-S25-SP03	18.0	75	147	25	91	32	0.32			
HY-4D185-S25-SP03	18.5	77	149	25	93	32	0.33			
HY-4D190-S25-SP03	19.0	79	151	25	95	32	0.34			
HY-4D193-S25-SP03	19.3	83	155	25	99	32	0.34			
HY-4D195-S25-SP03	19.5	83	155	25	99	32	0.34			
HY-4D200-S25-SP04	20.0	83	157	25	101	32	0.36	XONT 040305E SPET 040305E	SP025072	FT-TP08
HY-4D205-S25-SP04	20.5	86	160	25	104	32	0.37			
HY-4D210-S25-SP04	21.0	89	161	25	105	32	0.37			
HY-4D215-S25-SP04	21.5	89	163	25	107	32	0.38			
HY-4D220-S25-SP04	22.0	91	165	25	109	32	0.39			
HY-4D225-S25-SP04	22.5	93	168	25	112	32	0.40			
HY-4D230-S25-SP04	23.0	95	170	25	114	32	0.41			
HY-4D240-S25-SP05	24.0	101	175	25	119	32	0.42	XONT 050305E SPET 050305E	SP030082	FT-TP09
HY-4D245-S25-SP05	24.5	102	177	25	121	32	0.44			
HY-4D250-S25-SP05	25.0	107	180	25	124	32	0.45			
HY-4D253-S25-SP05	25.3	107	180	25	124	32	0.46			
HY-4D260-S32-SP05	26.0	107	188	32	128	40	0.68			
HY-4D265-S32-SP05	26.5	109	190	32	130	40	0.70			
HY-4D270-S32-SP05	27.0	112	192	32	132	40	0.71			
HY-4D280-S32-SP05	28.0	115	197	32	137	40	0.74			
HY-4D290-S32-SP05	29.0	120	201	32	141	40	0.78			
HY-4D295-S32-SP05	29.5	123	204	32	144	40	0.80			
HY-4D300-S32-SP06	30.0	125	207	32	147	40	0.80	XONT 060406E SPET 060406E	SP035094	FT-TP10
HY-4D310-S40-SP06	31.0	128	222	40	152	48	1.18			
HY-4D320-S40-SP06	32.0	131	226	40	156	48	1.21			
HY-4D330-S40-SP06	33.0	136	231	40	161	48	1.26			
HY-4D340-S40-SP06	34.0	140	235	40	165	48	1.31			
HY-4D350-S40-SP06	35.0	145	240	40	170	48	1.36			

HY Series Drilling Holder

LU/DC=4



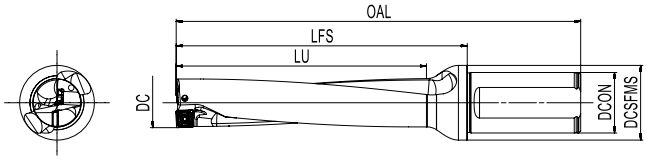


Product code	Dimension (mm)						Weight (kg)	Insert	Insert Screw	Wrench
	DC	LU	OAL	DCON	LFS	DCSFMS				
HY-4D360-S40-SP07	36.0	148	245	40	175	48	1.43	XONT 070406E SPET 070406E	SP035094	FT-TP10
HY-4D370-S40-SP07	37.0	151	249	40	179	48	1.48			
HY-4D380-S40-SP07	38.0	157	254	40	184	48	1.54			
HY-4D390-S40-SP07	39.0	161	258	40	188	48	1.62			
HY-4D400-S40-SP07	40.0	167	263	40	193	48	1.77			
HY-4D410-S40-SP07	41.0	168	268	40	198	48	1.86			
HY-4D420-S50-SP07	42.0	172	282	50	202	63	2.64			
HY-4D430-S50-SP07	43.0	176	287	50	207	63	2.74			
HY-4D440-S50-SP08	44.0	180	291	50	211	63	2.83	XONT 080508E SPET 080508E	SP040110	FT-TP15
HY-4D450-S50-SP08	45.0	185	297	50	217	63	2.95			
HY-4D460-S50-SP08	46.0	188	302	50	222	63	3.05			
HY-4D470-S50-SP08	47.0	193	306	50	226	63	3.12			
HY-4D480-S50-SP08	48.0	197	311	50	231	63	3.25			
HY-4D490-S50-SP08	49.0	201	315	50	235	63	3.36			
HY-4D500-S50-SP08	50.0	204	320	50	240	63	3.51			
HY-4D505-S50-SP08	50.5	208	322	50	242	63	3.56			
HY-4D510-S50-SP08	51.0	209	325	50	245	63	3.61			
HY-4D520-S50-SP08	52.0	213	329	50	249	63	3.75			
HY-4D530-S50-SP09	53.0	218	333	50	253	63	3.83	XONT 090608E SPET 090608E	SP040110	FT-TP15
HY-4D540-S50-SP09	54.0	221	338	50	258	63	3.92			
HY-4D550-S50-SP09	55.0	226	343	50	263	63	4.12			
HY-4D560-S50-SP09	56.0	230	349	50	269	63	4.32			
HY-4D570-S50-SP09	57.0	234	353	50	273	63	4.45			
HY-4D580-S50-SP09	58.0	238	357	50	277	63	4.63			
HY-4D590-S50-SP09	59.0	242	362	50	282	63	4.92			
HY-4D600-S50-SP09	60.0	246	367	50	287	63	5.23			
HY-4D610-S50-SP09	61.0	250	372	50	292	63	5.55			
HY-4D620-S50-SP09	62.0	254	376	50	296	63	5.87			
HY-4D630-S50-SP09	63.0	258	381	50	301	63	6.18			

HY Series Drilling Holder

LU/DC=5



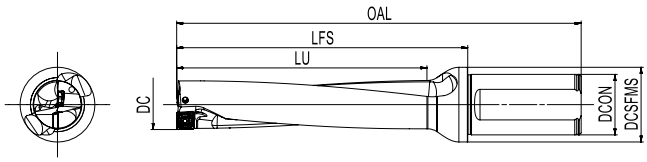


Product code	Dimension (mm)						Weight (kg)	Insert	Insert Screw	Wrench
	DC	LU	OAL	DCON	LFS	DCSFMS				
HY-5D140-S20-SP02	14.0	73	136	20	86	25	0.18	XONT 020204E SPET 020204E	SP020045	FT-TP06
HY-5D145-S20-SP02	14.5	76	139	20	89	25	0.18			
HY-5D150-S20-SP02	15.0	79	142	20	92	25	0.18			
HY-5D155-S20-SP02	15.5	82	145	20	95	25	0.19			
HY-5D160-S20-SP02	16.0	83	148	20	98	25	0.20			
HY-5D165-S20-SP03	16.5	86	151	20	101	25	0.20	XONT 030305E SPET 030305E	SP022049	FT-TP07
HY-5D170-S25-SP03	17.0	88	159	25	103	32	0.31			
HY-5D175-S25-SP03	17.5	91	163	25	107	32	0.33			
HY-5D180-S25-SP03	18.0	93	165	25	109	32	0.33			
HY-5D185-S25-SP03	18.5	96	168	25	112	32	0.34			
HY-5D190-S25-SP03	19.0	98	170	25	114	32	0.35			
HY-5D193-S25-SP03	19.3	102	174	25	118	32	0.36			
HY-5D195-S25-SP03	19.5	102	174	25	118	32	0.36			
HY-5D200-S25-SP04	20.0	103	177	25	121	32	0.38	XONT 040305E SPET 040305E	SP025072	FT-TP08
HY-5D205-S25-SP04	20.5	105	179	25	123	32	0.39			
HY-5D210-S25-SP04	21.0	108	182	25	126	32	0.40			
HY-5D215-S25-SP04	21.5	111	184	25	128	32	0.41			
HY-5D220-S25-SP04	22.0	113	187	25	131	32	0.42			
HY-5D230-S25-SP04	23.0	119	194	25	138	32	0.45			
HY-5D240-S25-SP05	24.0	125	199	25	143	32	0.47	XONT 050305E SPET 050305E	SP030082	FT-TP09
HY-5D250-S25-SP05	25.0	132	205	25	149	32	0.50			
HY-5D253-S25-SP05	25.3	132	205	25	149	32	0.50			
HY-5D260-S32-SP05	26.0	133	214	32	154	40	0.73			
HY-5D265-S32-SP05	26.5	136	216	32	156	40	0.75			
HY-5D270-S32-SP05	27.0	139	219	32	159	40	0.77			
HY-5D280-S32-SP05	28.0	143	225	32	165	40	0.81			
HY-5D290-S32-SP05	29.0	149	231	32	171	40	0.85			

HY Series Drilling Holder

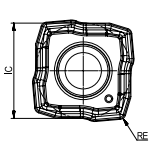
LU/DC=5

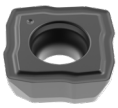
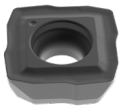




Product code	Dimension (mm)						Weight (kg)	Insert	Insert Screw	Wrench
	DC	LU	OAL	DCON	LFS	DCSFMS				
HY-5D300-S32-SP06	30.0	155	237	32	177	40	0.88	XONT 060406E SPET 060406E	SP035094	FT-TP10
HY-5D310-S40-SP06	31.0	159	253	40	183	48	1.26			
HY-5D320-S40-SP06	32.0	164	258	40	188	48	1.31			
HY-5D330-S40-SP06	33.0	169	264	40	194	48	1.36			
HY-5D340-S40-SP06	34.0	175	270	40	200	48	1.42			
HY-5D350-S40-SP06	35.0	181	276	40	206	48	1.49			
HY-5D360-S40-SP07	36.0	186	282	40	212	48	1.57	XONT 070406E SPET 070406E	SP035094	FT-TP10
HY-5D370-S40-SP07	37.0	189	286	40	216	48	1.64			
HY-5D380-S40-SP07	38.0	195	292	40	222	48	1.72			
HY-5D390-S40-SP07	39.0	201	298	40	228	48	1.79			
HY-5D400-S40-SP07	40.0	208	304	40	234	48	1.84			
HY-5D410-S40-SP07	41.0	215	310	40	240	48	2.11			
HY-5D420-S50-SP07	42.0	219	325	50	245	63	2.85			
HY-5D430-S50-SP07	43.0	223	331	50	251	63	2.96			
HY-5D440-S50-SP08	44.0	226	335	50	255	63	3.15	XONT 080508E SPET 080508E	SP040110	FT-TP15
HY-5D450-S50-SP08	45.0	230	342	50	262	63	3.28			
HY-5D460-S50-SP08	46.0	234	348	50	268	63	3.41			
HY-5D470-S50-SP08	47.0	240	353	50	273	63	3.52			
HY-5D480-S50-SP08	48.0	245	359	50	279	63	3.67			
HY-5D490-S50-SP08	49.0	250	364	50	284	63	3.82			
HY-5D500-S50-SP08	50.0	254	370	50	290	63	3.99			
HY-5D510-S50-SP08	51.0	259	376	50	296	63	4.13			
HY-5D520-S50-SP08	52.0	265	381	50	301	63	4.30			

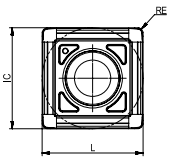
XONT---Central inserts



Center insert	Product code	Machining conditions: Dimension (mm) IC	S	RE	D1	● Good Conditions ◐ General Conditions ✱ Bad Conditions ● P AP301U	● M AP273U	● K AP301U
 DM general geometry	**XONT 020204E-DM**	4.9	2.4	0.4	2.2	●		●
	XONT 030305E-DM	5.7	2.6	0.5	2.5	●		●
	XONT 030305E-DL	5.7	2.6	0.5	2.5		●	
	XONT 040305E-DM	6.8	2.8	0.5	2.8	●		●
	XONT 040305E-DL	6.8	2.8	0.5	2.8		●	
	XONT 050305E-DM	8.4	3.0	0.5	3.2	●		●
	XONT 050305E-DL	8.4	3.0	0.5	3.2		●	
 DL sharp geometry	**XONT 060406E-DM**	10.2	3.5	0.6	4.0	●		●
	XONT 060406E-DL	10.2	3.5	0.6	4.0		●	
	XONT 070406E-DM	12.35	4.0	0.6	4.0	●		●
	XONT 070406E-DL	12.35	4.0	0.6	4.0		●	
	XONT 080508E-DM	14.9	4.5	0.8	4.7	●		●
	XONT 080508E-DL	14.9	4.5	0.8	4.7		●	
	XONT 090608E-DM	17.9	5.5	0.8	4.75	●		●
	XONT 090608E-DL	17.9	5.5	0.8	4.75			

● : Standard stock ○ : Made-to-Order

SPET--- Peripheral inserts



Peripheral Inserts	Product code	Machining conditions: Dimension (mm) IC	S	RE	D1	● Good Conditions ◐ General Conditions ✱ Bad Conditions ● ◐ P AP273U	● ◐ P AC371P	● M AP371M	● K AC271P	● S AP471S
 DM general geometry	**SPET 020204E-DM**	5.1	2.4	0.4	2.2	●				
	SPET 020205E-DL	5.1	2.4	0.5	2.2	●		●		○
	SPET 030305E-DM	6.0	2.6	0.5	2.5	●	●		●	
	SPET 030306E-DL	6.0	2.6	0.6	2.5		●	●		○
	SPET 040305E-DM	7.4	2.8	0.5	2.8	●	●		●	
	SPET 040307E-DL	7.4	2.8	0.7	2.8		●	●		○
	SPET 050305E-DM	8.9	3.0	0.5	3.2	●	●		●	
	SPET 050308E-DL	8.9	3.0	0.8	3.2		●	●		○
 DL sharp geometry	**SPET 060406E-DM**	10.65	3.5	0.6	4.2	●	●		●	
	SPET 060408E-DL	10.65	3.5	0.8	4.2		●	●		○
	SPET 070406E-DM	12.65	4.0	0.6	4.0	●	●		●	
	SPET 070410E-DL	12.65	4.0	1.0	4.0					
	SPET 080508E-DM	15.45	4.5	0.8	4.7	●	●		●	
	SPET 080510E-DL	15.45	4.5	1.0	4.7					
	SPET 090608E-DM	18.6	5.5	0.8	4.75	●			●	
	SPET 090610E-DL	18.6	5.5	1.0	4.75					

● : Standard stock ○ : Made-to-Order

Cutting Data Recommendation for HY series

Materials				Brinell hardness (HB)	Tensile strength (N/mm²)	Recommendation for HY series								
						AP273U			AC371P			AP371M		
ISO	Material classification					Vc (m/min)			Vc (m/min)			Vc (m/min)		
						●	◆	✱	●	◆	✱	●	◆	✱
P	Non-alloyed steel	C ≤ 0.25%	Annealed	125	428	200	150	130	240	180	160	-	-	-
		0.25 < C ≤ 0.55%	Annealed	190	639	190	150	120	200	160	120	-	-	-
		0.25 < C ≤ 0.55%	Heat-treated	210	708	180	140	100	190	150	120	-	-	-
		C > 0.55%	Annealed	190	639	180	140	100	190	150	120	-	-	-
		C > 0.55%	Heat-treated	300	1013	150	110	75	160	120	90	-	-	-
		Free cutting steel (short chip)	Annealed	220	745	180	140	100	190	150	120	-	-	-
	Low-alloyed steel	Annealed		175	591	160	130	100	180	140	100	-	-	-
		Heat-treated		300	1013	150	110	75	160	120	90	-	-	-
		Heat-treated		380	1282	-	-	-	-	-	-	-	-	-
		Heat-treated		430	1477	-	-	-	-	-	-	-	-	-
	High-alloyed steel and highalloyed tool steel	Annealed		200	675	180	140	100	190	150	120	-	-	-
		Hardened and tempered		300	1013	150	110	75	160	120	90	-	-	-
		Hardened and tempered		400	1361	-	-	-	-	-	-	-	-	-
	Stainless steel	Ferritic/Martensite, Annealed		200	675	180	140	100	190	150	120	-	-	-
		Martensite,Heat-treated		330	1114	-	-	-	-	-	-	-	-	-
M	Stainless steel	Austenitic, hardened		200	675	150	120	90	-	-	-	140	120	90
		Austenitic,precipitation hardened stainless steel (PH stainless steel)		300	1013	130	100	80	-	-	-	130	100	80
		Austenitic, ferritic,duplex		230	778	130	100	80	-	-	-	130	100	80
K	Malleable cast iron	Ferritic		200	400	150	120	85	200	150	110	-	-	-
		Pearlitic		260	700	110	90	65	150	120	80	-	-	-
	Grey cast iron	Low tensile strength		180	200	200	150	130	240	180	160	-	-	-
		High tensile strength/Austenitic		245	350	150	110	75	160	120	90	-	-	-
	Nodular cast iron	Ferritic		155	400	140	110	80	180	140	100	-	-	-
		Pearlitic		265	700	130	100	70	160	120	90	-	-	-
	GGV(CGI)			230	400	-	-	-	130	100	70	-	-	-
N	Wrought aluminium alloys	non-aging		30	-	-	-	-	-	-	-	-	-	-
		aged		100	340	-	-	-	-	-	-	-	-	-
	Cast aluminium alloys	≤ 12% Si, non-aging		75	260	-	-	-	-	-	-	-	-	-
		≤ 12% Si, aged		90	310	-	-	-	-	-	-	-	-	-
		> 12% Si, non-aging		130	450	-	-	-	-	-	-	-	-	-
	Magnesium alloy			70	250	-	-	-	-	-	-	-	-	-
	Copper and copper alloy (bronze/brass)	Non-alloyed steel, electrolytic copper		100	340	-	-	-	-	-	-	-	-	-
		Brass, bronze, red brass		90	310	-	-	-	-	-	-	-	-	-
		Cu alloy, short chip		110	380	-	-	-	-	-	-	-	-	-
		High tensile, Ampco alloy		300	1010	-	-	-	-	-	-	-	-	-
S	Heat-resistant alloy	Fe-based	Annealed	200	680	-	-	-	-	-	-	90	60	40
			Aged	280	940	-	-	-	-	-	-	70	50	30
		Ni or Co based	Annealed	250	840	-	-	-	-	-	-	70	50	30
			Aged	350	1180	-	-	-	-	-	-	50	40	30
			Cast	320	1080	-	-	-	-	-	-	50	40	30
	Titanium alloys	Pure Titanium		200	680	-	-	-	-	-	-	120	90	60
		α and β alloy, aged		375	1260	-	-	-	-	-	-	90	70	50
		β alloy		410	1400	-	-	-	-	-	-	-	-	-
	Tungsten alloy			300	1010	-	-	-	-	-	-	-	-	-
	Molybdenum alloy			300	1010	-	-	-	-	-	-	-	-	-
H	Hardened steel	Hardened and tempered		50HRC		-	-	-	-	-	-	-	-	-
		Hardened and tempered		55HRC		-	-	-	-	-	-	-	-	-
		Hardened and tempered		60HRC		-	-	-	-	-	-	-	-	-
	Chilled cast iron	Hardened and tempered		55HRC		-	-	-	-	-	-	-	-	-

*This table shows the general cutting conditions, and the actual selection should be adjusted according to factors such as equipment rigidity, drilling depth, workpiece clamping and cooling pressure.

	f（mm/rev）															
	⌀14mm-16mm		⌀16.5mm-19.5mm		⌀20mm-23.5mm		⌀24mm-29.5mm		⌀30mm-35mm		⌀36mm-43mm		⌀44mm-52mm		⌀53mm-63mm	
	XONT 02/SPET 02		XONT 03/SPET 03		XONT 04/SPET 04		XONT 05/SPET 05		XONT 06/SPET 06		XONT 07/SPET 07		XONT 08/SPET 08		XONT 09/SPET 09	
	-DM	-DL	-DM	-DL	-DM	-DL	-DM	-DL	-DM	-DL	-DM	-DL	-DM	-DL	-DM	-DL
	0.04-0.06	0.04-0.08	0.04-0.06	0.04-0.09	0.04-0.10	0.04-0.12	0.04-0.10	0.04-0.12	0.06-0.12	0.06-0.14	0.06-0.12	0.06-0.14	0.08-0.12	0.08-0.14	0.08-0.12	0.08-0.14
	0.04-0.08	0.04-0.08	0.06-0.11	0.06-0.11	0.06-0.14	0.06-0.14	0.08-0.14	0.08-0.14	0.08-0.20	0.08-0.20	0.08-0.20	0.08-0.20	0.10-0.20	0.10-0.20	0.10-0.20	0.10-0.20
	0.04-0.08	0.04-0.08	0.06-0.11	0.06-0.11	0.06-0.14	0.06-0.14	0.08-0.14	0.08-0.14	0.08-0.20	0.08-0.20	0.08-0.20	0.08-0.20	0.10-0.20	0.10-0.20	0.10-0.20	0.10-0.20
	0.04-0.08	0.04-0.08	0.06-0.11	0.06-0.11	0.06-0.14	0.06-0.14	0.08-0.14	0.08-0.14	0.08-0.20	0.08-0.20	0.08-0.20	0.08-0.20	0.10-0.20	0.10-0.20	0.10-0.20	0.10-0.20
	0.04-0.06	0.04-0.06	0.06-0.09	0.06-0.08	0.06-0.11	0.06-0.08	0.08-0.11	0.06-0.08	0.08-0.16	0.08-0.13	0.08-0.16	0.08-0.13	0.10-0.16	0.08-0.16	0.10-0.16	0.08-0.16
	0.04-0.08	0.04-0.08	0.06-0.11	0.06-0.11	0.06-0.14	0.06-0.14	0.08-0.14	0.08-0.14	0.08-0.20	0.08-0.20	0.08-0.20	0.08-0.20	0.10-0.20	0.10-0.20	0.10-0.20	0.10-0.20
	0.04-0.08	0.04-0.08	0.06-0.11	0.06-0.11	0.06-0.14	0.06-0.14	0.08-0.14	0.08-0.14	0.08-0.20	0.08-0.20	0.08-0.20	0.08-0.20	0.10-0.20	0.10-0.20	0.10-0.20	0.10-0.20
	0.04-0.06	0.04-0.06	0.06-0.09	0.06-0.08	0.06-0.11	0.06-0.08	0.08-0.11	0.06-0.08	0.08-0.16	0.08-0.13	0.08-0.16	0.08-0.13	0.10-0.16	0.08-0.16	0.10-0.16	0.08-0.16
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	0.04-0.08	0.04-0.08	0.06-0.11	0.06-0.11	0.06-0.14	0.06-0.14	0.08-0.14	0.08-0.14	0.08-0.20	0.08-0.20	0.08-0.20	0.08-0.20	0.10-0.20	0.10-0.20	0.10-0.20	0.10-0.20
	0.04-0.06	0.04-0.06	0.06-0.09	0.06-0.08	0.06-0.11	0.06-0.08	0.08-0.11	0.06-0.08	0.08-0.16	0.08-0.13	0.08-0.16	0.08-0.13	0.10-0.16	0.08-0.16	0.10-0.16	0.08-0.16
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	0.04-0.08	0.04-0.08	0.06-0.11	0.06-0.11	0.06-0.14	0.06-0.14	0.08-0.14	0.08-0.14	0.08-0.20	0.08-0.20	0.08-0.20	0.08-0.20	0.10-0.20	0.10-0.20	0.10-0.20	0.10-0.20
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	0.04-0.06	0.04-0.08	0.06-0.08	0.04-0.09	0.04-0.10	0.04-0.12	0.06-0.10	0.06-0.12	0.08-0.13	0.08-0.16	0.08-0.13	0.08-0.16	0.08-0.16	0.10-0.16	0.08-0.16	0.10-0.16
	0.04-0.06	0.04-0.06	0.04-0.06	0.06-0.08	0.06-0.11	0.06-0.08	0.08-0.11	0.06-0.08	0.06-0.14	0.06-0.12	0.06-0.14	0.06-0.12	0.08-0.14	0.08-0.12	0.08-0.14	0.08-0.12
	0.04-0.06	0.04-0.08	0.06-0.08	0.04-0.09	0.04-0.10	0.04-0.12	0.06-0.10	0.06-0.12	0.08-0.13	0.08-0.16	0.08-0.13	0.08-0.16	0.08-0.16	0.10-0.16	0.08-0.16	0.10-0.16
	0.06-0.12	0.06-0.10	0.08-0.12	0.08-0.10	0.10-0.16	0.10-0.12	0.10-0.16	0.10-0.12	0.10-0.20	0.10-0.15	0.10-0.20	0.10-0.15	0.12-0.20	0.12-0.15	0.12-0.20	0.12-0.15
	0.06-0.10	0.06-0.08	0.06-0.10	0.06-0.08	0.08-0.14	0.08-0.10	0.08-0.14	0.08-0.10	0.08-0.18	0.08-0.12	0.08-0.18	0.08-0.12	0.10-0.08	0.10-0.12	0.10-0.08	0.10-0.12
	0.06-0.12	0.06-0.10	0.08-0.12	0.08-0.10	0.10-0.16	0.10-0.12	0.10-0.16	0.10-0.12	0.10-0.20	0.10-0.15	0.10-0.20	0.10-0.15	0.12-0.20	0.12-0.15	0.12-0.20	0.12-0.15
	0.06-0.10	-	0.06-0.10	-	0.08-0.14	-	0.08-0.14	-	0.08-0.18	-	0.08-0.18	-	0.10-0.08	-	0.10-0.08	-
	0.06-0.12	0.06-0.10	0.08-0.12	0.08-0.10	0.10-0.16	0.10-0.12	0.10-0.16	0.10-0.12	0.10-0.20	0.10-0.15	0.10-0.20	0.10-0.15	0.12-0.20	0.12-0.15	0.12-0.20	0.12-0.15
	0.06-0.10	0.06-0.08	0.06-0.10	0.06-0.08	0.08-0.14	0.08-0.10	0.08-0.14	0.08-0.10	0.08-0.18	0.08-0.12	0.08-0.18	0.08-0.12	0.10-0.18	0.10-0.12	0.10-0.18	0.10-0.12
	0.06-0.10	-	0.06-0.10	-	0.08-0.14	-	0.08-0.14	-	0.08-0.18	-	0.08-0.18	-	0.10-0.08	-	0.10-0.08	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	0.04-0.06	0.04-0.08	0.06-0.08	0.04-0.09	0.04-0.10	0.04-0.12	0.06-0.10	0.06-0.12	0.08-0.13	0.08-0.16	0.08-0.13	0.08-0.16	0.08-0.16	0.10-0.16	0.08-0.16	0.10-0.16
	0.04-0.06	0.04-0.08	0.06-0.08	0.04-0.09	0.04-0.10	0.04-0.12	0.06-0.10	0.06-0.12	0.08-0.13	0.08-0.16	0.08-0.13	0.08-0.16	0.08-0.16	0.10-0.16	0.08-0.16	0.10-0.16
	0.04-0.06	0.04-0.08	0.06-0.08	0.04-0.09	0.04-0.10	0.04-0.12	0.06-0.10	0.06-0.12	0.08-0.13	0.08-0.16	0.08-0.13	0.08-0.16	0.08-0.16	0.10-0.16	0.08-0.16	0.10-0.16
	0.04-0.06	0.04-0.06	0.04-0.06	0.06-0.08	0.06-0.11	0.06-0.08	0.08-0.11	0.06-0.08	0.06-0.14	0.06-0.12	0.06-0.14	0.06-0.12	0.08-0.14	0.08-0.12	0.08-0.14	0.08-0.12
	0.04-0.06	0.04-0.06	0.04-0.06	0.06-0.08	0.06-0.11	0.06-0.08	0.08-0.11	0.06-0.08	0.06-0.14	0.06-0.12	0.06-0.14	0.06-0.12	0.08-0.14	0.08-0.12	0.08-0.14	0.08-0.12
	0.04-0.06	0.04-0.08	0.06-0.08	0.04-0.09	0.04-0.10	0.04-0.12	0.06-0.10	0.06-0.12	0.08-0.13	0.08-0.16	0.08-0.13	0.08-0.16	0.08-0.16	0.10-0.16	0.08-0.16	0.10-0.16
	0.04-0.06	0.04-0.06	0.04-0.06	0.06-0.08	0.06-0.11	0.06-0.08	0.08-0.11	0.06-0.08	0.06-0.14	0.06-0.12	0.06-0.14	0.06-0.12	0.08-0.14	0.08-0.12	0.08-0.14	0.08-0.12
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Ejector Drilling Product Introduction

Achteck has general-purpose deep-hole drilling inserts, which offer high productivity for many industries: energy, engineering machinery, injection molding, aircraft, shipbuilding, military, etc. It can achieve good hole straightness in deep hole drilling and good surface finish. Existing geometries and grades cover steel, stainless steel and heat resistant alloy drilling.

Product application and features

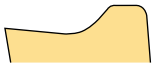
- The inserts can be mounted on the deep-hole drilling head.
- AP301U(N) is the first choice for drilling steel and stainless steel
- All geometries offer good chip-breaking result
- Increased efficiency due to high feed rate
- Reduces the cost per hole

Grade	Coating	Workpiece material					
		P	M	K	N	S	H
AP301U(N)	PVD	●	●			○	

● Marked: 1st Choice ○ Marked: Supplemental application

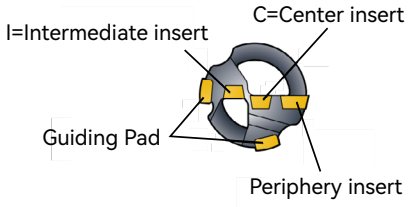
ISO P: (P15-P35) General-purpose PVD coating with excellent wear-resistance and toughness.
ISO M: (M15-M35) General-purpose grade for ISO-M applications, PVD coating with excellent toughness and resistance to built-up edges.

Geometry Types and Features

Geometry	Edge shape	Application
DH		• For general purpose. • Suitable for high cutting speed and feed. • Good chip control in most of materials.
DL		• Suitable for long chip materials (such as low carbon alloyed steel and duplex stainless steel). • Obtain a reliable production process in drilling materials where chip jamming can be a problem.
LH		• With open geometry; • Suitable for high cutting speed and feed.

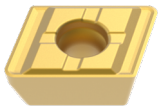
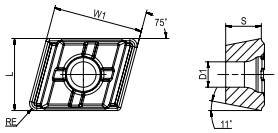
Ejector Drill Matching Table

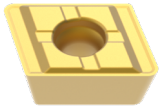
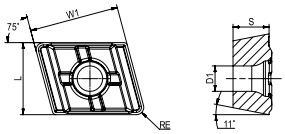
Hole diameter range 26-65mm

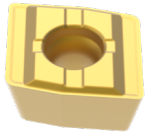
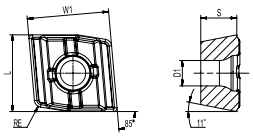


Hole diameter range (mm)	Center insert	Hole diameter range (mm)	Intermediate insert	Hole diameter range (mm)	Peripheral insert	Hole diameter range (mm)	Guiding pad
26.00-28.70	EPMT 050308C	26.00-31.00	EPMT 050308I	26.00-31.00	APHT 060308P	26.00-31.00	GPAD-06A
28.71-33.99	EPMT 06T308C	31.01-34.99	EPMT 06T308I	31.01-38.99	APHT 08T308P	31.01-39.60	GPAD-07A
34.00-43.00	EPMT 08T308C	35.00-54.99	EPMT 08T308I	39.00-49.99	APHT 09T308P	39.61-47.00	GPAD-08A
43.01-47.00	EPMT 10T308C	55.00-65.00	EPMT 12T308I	50.00-65.00	APHT 11T308P	47.01-54.99	GPAD-10A
47.01-49.99	EPMT 12T308C	-	-	-	-	55.00-65.00	GPAD-12A
50.00-57.99	EPMT 10T308C	-	-	-	-	-	-
58.00-65.00	EPMT 12T308C	-	-	-	-	-	-

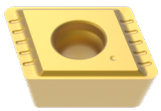
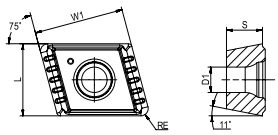
Ejector Drilling Insert
DH geometry

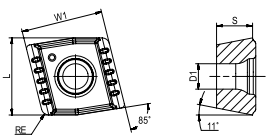
Center Insert		Product code	Dimensions (mm)				
			L	W1	S	RE	D1
		**EPMT 050308C-DH AP301U(N)**	5.56	8	3.18	0.8	2.5
		EPMT 06T308C-DH AP301U(N)	6.35	9.87	3.97	0.8	2.8
		EPMT 08T308C-DH AP301U(N)	7.94	9.87	3.97	0.8	2.8
		EPMT 10T308C-DH AP301U(N)	9.53	9.87	3.97	0.8	2.8
		EPMT 12T308C-DH AP301U(N)	12.7	9.87	3.97	0.8	2.8

Intermediate insert		Product code	Dimensions (mm)				
			L	W1	S	RE	D1
		**EPMT 050308I-DH AP301U(N)**	5.56	8	3.18	0.8	2.5
		EPMT 06T308I-DH AP301U(N)	6.35	9.87	3.97	0.8	2.8
		EPMT 08T308I-DH AP301U(N)	7.94	9.87	3.97	0.8	2.8
		EPMT 12T308I-DH AP301U(N)	12.7	9.87	3.97	0.8	2.8

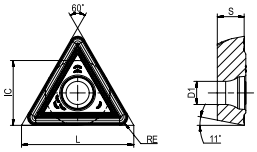
Periphery Insert		Product code	Dimensions (mm)				
			L	W1	S	RE	D1
		**APHT 060308P-DH AP301U(N)**	6.5	8	3.18	0.8	2.5
		APHT 08T308P-DH AP301U(N)	8.5	9	3.97	0.8	2.8
		APHT 09T308P-DH AP301U(N)	9.66	9	3.97	0.8	2.8
		APHT 11T308P-DH AP301U(N)	12.75	9	3.97	0.8	2.8

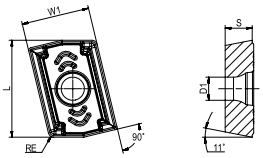
Ejector Drilling Insert
DL geometry

Intermediate Insert		Product code	Dimensions (mm)				
			L	W1	S	RE	D1
		**EPMT 050308I-DL AP301U(N)**	5.56	8	3.18	0.8	2.5
		EPMT 06T308I-DL AP301U(N)	6.35	9.87	3.97	0.8	2.8
		EPMT 08T308I-DL AP301U(N)	7.94	9.87	3.97	0.8	2.8
		EPMT 12T308I-DL AP301U(N)	12.7	9.87	3.97	0.8	2.8

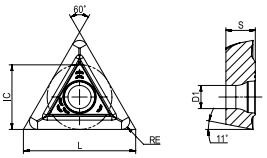
Periphery Insert		Product code	Dimensions (mm)				
			L	W1	S	RE	D1
		**APHT 060308P-DL AP301U(N)**	6.5	8	3.18	0.8	2.5
		APHT 08T308P-DL AP301U(N)	8.5	9	3.97	0.8	2.8
		APHT 09T308P-DL AP301U(N)	9.66	9	3.97	0.8	2.8
		APHT 11T308P-DL AP301U(N)	12.75	9	3.97	0.8	2.8

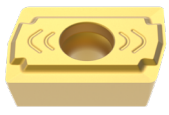
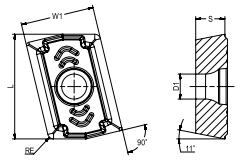
Ejector Drilling Insert
DH geometry

Center/Intermediate insert		Product code	Dimensions (mm)				
			L	IC	S	RE	D1
		**TPMT 16T312R-DH AP301U(N)**	16.5	9.53	3.97	1.2	3.4
		TPMT 220612R-DH AP301U(N)	22	12.7	6.35	1.2	4.4

Periphery insert		Product code	Dimensions (mm)				
			L	W1	S	RE	D1
		**APMT 13T308-DH AP301U(N)**	14.6	10	3.97	0.8	3.4
		APMT 180608-DH AP301U(N)	20.6	11.5	6.35	0.8	4.4

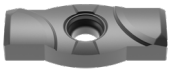
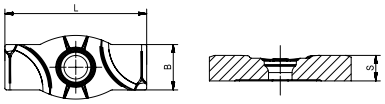
Ejector Drilling Insert
LH geometry

Center/Intermediate insert		Product code	Dimensions (mm)				
			L	IC	S	RE	D1
		**TPMT 16T312R-LH AP301U(N)**	16.5	9.525	3.97	1.2	3.4
		TPMT 220612R-LH AP301U(N)	22	12.7	6.35	1.2	4.4

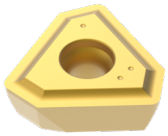
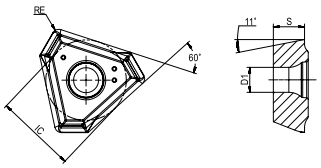
Periphery insert		Product code	Dimensions (mm)				
			L	W1	S	RE	D1
		**APMT 13T308-LH AP301U(N)**	14.6	10	3.97	0.8	3.4
		APMT 180608-LH AP301U(N)	20.6	11.5	6.35	0.8	4.4

Ejector Drilling Insert

Guiding pad

Guiding pad		Product code	Dimensions (mm)			
			B	L	S	R
		**GPAD-06A AC301K**	6.00	18.00	3.00	12.50
		GPAD-07A AC301K	6.90	20.00	3.50	13.40
		GPAD-08A AC301K	8.00	25.00	4.50	17.00
		GPAD-10A AC301K	10.00	30.00	4.50	20.30
		GPAD-12A AC301K	12.00	35.00	5.50	24.50

TPMX Series

Sharp		Product code	Dimensions (mm)			
			S	IC	RE	D1
		**TPMX 1403R-DH AP301U(N)**	3.50	8.45	0.80	2.87
		TPMX 1704R-DH AP301U(N)	4.00	10.30	0.80	3.90
		TPMX 2405R-DH AP301U(N)	5.50	14.20	1.20	4.40
		TPMX 2405L-DH AP301U(N)	5.50	14.20	1.20	4.40
		TPMX 2807R-DH AP301U(N)	7.50	17.00	1.60	5.50

Cutting Data Recommendation for BTA Ejector Drill (Dia 25.00-65.00mm)

Workpiece material			Brinell hardness (HB)	Grade			Cutting speed Vc m/min	Feed fn mm/r	
				Insert				Drilling dia mm	
				P	I	C		25.00-43.00	43.01-65.00
P	Unalloyed steel	C=0.05-0.10%	125	AP301U(N)			70-130	0.11-0.41	0.14-0.45
		C=0.10-0.25%	125				70-130	0.11-0.41	0.14-0.45
		C=0.25-0.55%	150				70-130	0.11-0.41	0.14-0.45
		C=0.55-0.80%	170				70-130	0.11-0.41	0.14-0.45
	High carbon steel	Carbon tool steel	210	AP301U(N)			70-120	0.11-0.41	0.20-0.45
	Low-alloyed steel	Non-Hardened	180	AP301U(N)			55-110	0.11-0.41	0.20-0.45
		Tempered	275				70-120	0.11-0.41	0.20-0.45
		Tempered	350				70-120	0.11-0.41	0.20-0.45
	High-alloyed steel	Annealed	200	AP301U(N)			55-110	0.11-0.38	0.20-0.40
		Hardened tool steel	325				55-110	0.20-0.38	0.20-0.40
	Cast steel	Non-alloyed steel	180	AP301U(N)			55-110	0.11-0.41	0.20-0.45
		Low-alloy (alloy<5%)	200				55-110	0.11-0.41	0.20-0.45
M	Stainless steel	Non-Hardened/Ferritic/martensitic	200	AP301U(N)			40-110	0.11-0.41	0.20-0.45
		Austenitic	200				40-110	0.11-0.41	0.20-0.45
		Austenitic, precipitation hardened (PH)	300				40-110	0.11-0.33	0.20-0.35
		Austenitic/ferritic, duplex	230				40-80	0.11-0.33	0.20-0.35
K	Malleable cast iron	Ferritic	200	AP301U(N)			80-120	0.11-0.38	0.24-0.41
		Pearlitic	260				80-120	0.11-0.38	0.24-0.41
	Grey cast iron	Low tensile strength	180	AP301U(N)			60-110	0.11-0.38	0.24-0.41
		High tensile strength	245				60-110	0.11-0.38	0.24-0.41
	Nodular cast iron	Ferritic	160	AP301U(N)			50-110	0.11-0.38	0.24-0.41
		Pearlitic	250				50-110	0.11-0.38	0.24-0.41
	GGV (CGI)		230						
N	Wrought aluminium alloys	non-aging	30	AP301U(N)			65-150	0.09-0.33	0.20-0.33
		aged	100				65-150	0.09-0.33	0.20-0.33
	Cast aluminium alloys	≤ 12% Si, non-aging	75	AP301U(N)			65-150	0.09-0.33	0.20-0.33
		≤ 12% Si, aged	90				65-150	0.09-0.33	0.20-0.33
		12% Si, non-aging	130				65-150	0.09-0.33	0.20-0.33
	Magnesium alloy		70						
	Copper and copper alloys	Unalloyed, electrolytic copper	100	AP301U(N)			65-150	0.09-0.33	0.20-0.33
	(bronze/brass)	Brass, bronze, red brass	90	AP301U(N)			65-150	0.09-0.33	0.20-0.33
		Cu alloys, short-chip	110				65-150	0.09-0.33	0.20-0.33
		High tensile, Ampco alloy	300				65-150	0.09-0.33	0.20-0.33
S	Heat-resistant alloys	Fe-based annealed	200	AP301U(N)			10-55	0.09-0.30	0.20-0.33
		Fe-based hardened	280				10-55	0.09-0.30	0.20-0.33
		Ni or Co-based annealed	250				10-55	0.09-0.30	0.20-0.33
		Ni or Co-based hardened	350				10-55	0.09-0.30	0.20-0.33
		Ni or Co-based cast	320				10-55	0.09-0.30	0.20-0.33
	Titanium alloys	Pure titanium	200	AP301U(N)			30-60	0.09-0.30	0.20-0.33
		α alloys	375				30-60	0.09-0.30	0.20-0.33
		α and β alloys	375				30-60	0.09-0.30	0.20-0.33
		β alloys	410				30-60	0.09-0.30	0.20-0.33
H	Hardened steel	Hardened and tempered	43-47 HRC						
	Chilled cast iron		47-60 HRC						

*) Insert position-P , I , C
P=peripheral insert , I=intermediate insert, C=center insert

Cutting Data Recommendation for BTA Ejector Drill (Dia ≥ 63.50mm)

Workpiece material			Brinell hardness (HB)	Grade			Cutting speed Vc m/min	Feed fn mm/r
				Insert				Drilling dia mm
				P	I	C		≥ 63.50
P	Unalloyed steel	C=0.05-0.10%	125	AP301U(N)			80-100	0.18-0.35
		C=0.10-0.25%	125				80-100	0.18-0.35
		C=0.25-0.55%	150				80-100	0.18-0.35
		C=0.55-0.80%	170				80-100	0.18-0.35
	High carbon steel	Carbon tool steel	210	AP301U(N)			70-100	0.18-0.35
	Low-alloyed steel	Non-Hardened	180	AP301U(N)			60-100	0.16-0.35
		Tempered	275				70-100	0.18-0.30
		Tempered	350				70-100	0.18-0.30
	High-alloyed steel	Annealed	200	AP301U(N)			60-100	0.16-0.30
		Hardened tool steel	325				60-100	0.16-0.30
	Cast steel	Non-alloyed steel	180	AP301U(N)			50-100	0.15-0.30
		Low-alloy (alloy<5%)	200				50-100	0.15-0.30
M	Stainless steel	Non-Hardened/Ferritic/martensitic	200	AP301U(N)			50-90	0.16-0.35
		Austenitic	200				50-90	0.16-0.35
		Austenitic, precipitation hardened (PH)	300					
		Austenitic/ferritic, duplex	230					
K	Malleable cast iron	Ferritic	200	AP301U(N)				
		Pearlitic	260					
	Grey cast iron	Low tensile strength	180	AP301U(N)				
		High tensile strength	245					
	Nodular cast iron	Ferritic	160	AP301U(N)				
		Pearlitic	250					
	GGV (CGI)		230					
N	Wrought aluminium alloys	non-aging	30	AP301U(N)			65-130	0.10-0.30
		aged	100				65-130	0.10-0.30
	Cast aluminium alloys	≤ 12% Si, non-aging	75	AP301U(N)			65-130	0.10-0.30
		≤ 12% Si, aged	90				65-130	0.10-0.30
		12% Si, non-aging	130				65-130	0.10-0.30
	Magnesium alloy		70					
	Copper and copper alloys	Unalloyed, electrolytic copper	100	AP301U(N)			65-130	0.10-0.30
	(bronze/brass)	Brass, bronze, red brass	90	AP301U(N)			65-130	0.10-0.30
		Cu alloys, short-chip	110				65-130	0.10-0.30
		High tensile, Ampco alloy	300				65-130	0.10-0.30
S	Heat-resistant alloys	Fe-based annealed	200	AP301U(N)			20-65	0.15-0.30
		Fe-based hardened	280				20-65	0.15-0.30
		Ni or Co-based annealed	250				20-65	0.15-0.30
		Ni or Co-based hardened	350				20-65	0.15-0.30
		Ni or Co-based cast	320					
	Titanium alloys	Pure titanium	200	AP301U(N)			30-100	0.15-0.30
		α alloys	375				30-100	0.15-0.30
		α and β alloys	375				30-100	0.15-0.30
		β alloys	410				30-100	0.15-0.30
H	Hardened steel	Hardened and tempered	43-47 HRC					
	Chilled cast iron		47-60 HRC					

*) Insert position-P , I , C
P=peripheral insert , I=intermediate insert, C=center insert

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Boring Tools

Boring

CUTTING TOOL CATALOGUE

Boring Tools 511

ARB Twin-Edge Rough Boring/Back-boring 516
ARS Step Rough Boring 517
MLR Rough boring tool for large diameter/Back-boring 518
AFB Single-Edge Fine Boring/Back-boring 520
Fine Boring Cartridges 521
MLF Fine boring tool for large diameter 522
DFB Integral Damping Fine Boring 523
Damping Boring Shank 524
Damping Boring Bars 525
DTB Damping Turning Bars 526
DTH Damping Turning Heads 527
Operator's Manual of DTB Series Damping Tools 529
SFB Small Dia. Fine Boring Heads/Bars 530
EFB External Boring 531
BT Boring Shank 532
HSK Boring Shank 533
Bridge Boring Shank 534
SK Boring Shank 535
Extended/Reducing Rods 536
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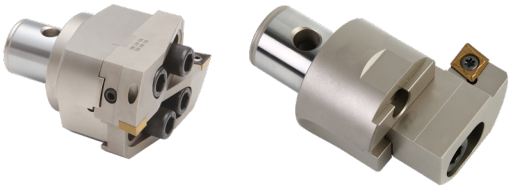
Fine Adjustment Cartridge 542
Rough/Fine Boring Operator's Manual 547

Boring Inserts 546

Overview of Boring Inserts 546

Overview of Boring Tools

ARB Twin-edge rough boring tool
- Twin-Edge rough boring tools - for blind hole
- Twin-Edge rough boring tools - for through hole
- (Back-boring) Rough boring
- Step rough boring



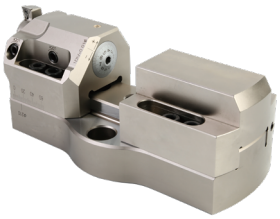
MLR Rough boring tool for large diameter
- Standard rough boring
- Lightweight rough boring
- (Back-boring) large diameter



AFB fine boring tool
- Fine boring with cartridge A
- Fine boring with cartridge B
- Fine boring with cartridge C
- (Back-boring) Fine boring



MLF Fine boring tool for large diameter
- Standard fine boring
- Lightweight fine boring



Damping Boring Tool
- DFB series fine boring tool
- Damping boring shank
- Damping boring bar
- DTB series damping Boring Bars

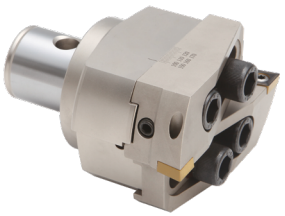


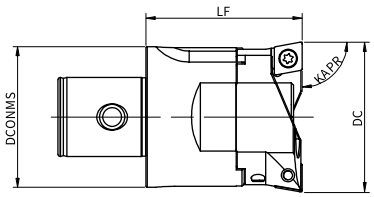
EFB external fine boring tool
- Large diameter --external fine boring
- Small diameter --external fine boring



Twin-Edge Rough Boring Tool

Diameter range ⌀20mm- ⌀153mm.
Cover wide applications.
High precision, high rigidity, flexible on tool combination.
Adjusting scale marked on tool body, easy to operate.





Boring tool denomination

ARB-_ _ _-_ _ _-AK_-W
1 2 3 4 5

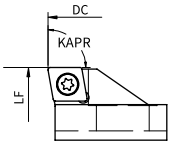
"1" Series name
"2" Minimum boring diameter
"3" Maximum boring diameter
"4" Coupling size:
AK1/AK2/AK3/AK4/AK5/AK6/AK7
"5" W means without cartridge,
L means larger diameter

Dia range DC (mm)	Product code	Coupling	DCONMS (mm)	LF (mm)	Cartridge (●Standard ○Option)	Screw for cartridge	Weight (kg)
20-26	**ARB-020-026-AK1**	AK1	19	32.5	RC-020-CC06 ●	SH040160	0.07
					RC-020-SC06 ○		
25-33	**ARB-025-033-AK2**	AK2	24	35.5	RC-025-CC06 ●	SH050200	0.12
					RC-025-SC06 ○		
32-42	**ARB-032-042-AK3**	AK3	31	40	RC-032-CC09 ●	SH060200	0.2
					RC-032-SC09 ○		
41-54	**ARB-041-054-AK4**	AK4	39	47	RC-041-CC09 ●	SH080250	0.38
					RC-041-SC09 ○		
53-70	**ARB-053-070-AK5**	AK5	50	57	RC-041-CC12 ●	SH100300	0.75
					RC-041-SC12 ○		
68-90	**ARB-068-110-AK6**	AK6	64	71	RC-068-CC12 ●	SH100350	1.6
					RC-068-SC12 ○		
88-110	**ARB-068-110-AK6-L**	AK6	64	71	RC-088-CC12 ●		1.8
					RC-088-SC12 ○		
98-126	**ARB-098-153-AK6**	AK6	93	71	RC-098-CC12 ●	SH120400	2.3
					RC-098-SC12 ○		
125-153	**ARB-098-153-AK6-L**	AK6	93	71	RC-125-CC12 ●		2.6
					RC-125-SC12 ○		
98-126	**ARB-098-153-AK7**	AK7	93	87	RC-098-CC12 ●		3.9
					RC-098-SC12 ○		
125-153	**ARB-098-153-AK7-L**	AK7	93	87	RC-125-CC12 ●		4.1
					RC-125-SC12 ○		

- Tool body is assembled with blind hole boring cartridges as standard package. For through hole, the tool body without cartridge need to be ordered separately. Example: ARB-148-203-AK6/W&RC-098-SC12.
- Tool body without cartridge also can be ordered. Example: ARB-020-026-AK1-W.
- Spare parts including: Screw set (with washers), L-type wrench. The inserts need to be ordered separately.
- The full series boring tool is provided with internal coolant.
- Ensure complete tightening, and use feeler gauges during installation to check the gap between mating surfaces.
- For the ideal axial runout, the inserts need to be indexed at the same time.

ARB Twin-Edge Rough Boring Tool Series

Rough boring cartridge for blind-hole



Boring tool denomination

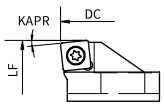
RC-_ _ _-CC_ _-B
1 2 3 4

"1" Series name
"2" Minimum boring diameter
"3" Insert
"4" B means back boring

Product code	Tool body	Insert (Option)	Screw	Wrench
RC-020-CC06	ARB-020-026-AK1-W	CC__ 0602__	ST025060	FT-T8
RC-025-CC06	ARB-025-033-AK2-W			
RC-032-CC09	ARB-032-042-AK3-W	CC__ 09T3__	ST040100	FT-T15
RC-041-CC09	ARB-041-054-AK4-W			
RC-053-CC12	ARB-053-070-AK5-W	CC__ 1204__	ST050120	FT-T20
RC-068-CC12	ARB-068-110-AK6-W			
RC-088-CC12				
RC-098-CC12	ARB-098-153-AK6-W			
	ARB-098-153-AK7-W			
RC-125-CC12	ARB-098-153-AK6-W			
	ARB-098-153-AK7-W			

ARB Twin-Edge Rough Boring Tool

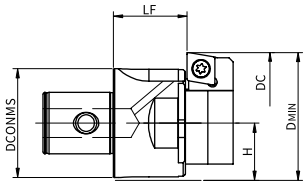
Rough boring cartridge for through hole



Product code	Tool body	Insert (Option)	Screw	Wrench
RC-020-SC06	ARB-020-026-AK1-W	SC__ 0602__	ST025060	FT-T8
RC-025-SC06	ARB-025-033-AK2-W			
RC-032-SC09	ARB-032-042-AK3-W	SC__ 09T3__	ST040100	FT-T15
RC-041-SC09	ARB-041-054-AK4-W			
RC-053-SC12	ARB-053-070-AK5-W	SC__ 1204__	ST050120	FT-T20
RC-068-SC12	ARB-068-110-AK6-W			
RC-088-SC12				
RC-098-SC12	ARB-098-153-AK6-W			
	ARB-098-153-AK7-W			
RC-125-SC12	ARB-098-153-AK6-W			
	ARB-098-153-AK7-W			

Back Boring



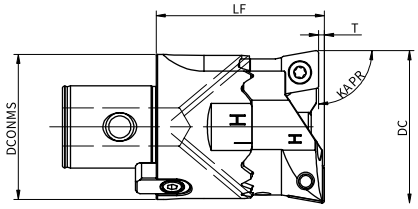


Min. through hole diameter DMIN = H+(Back-boring diameter DC/2)

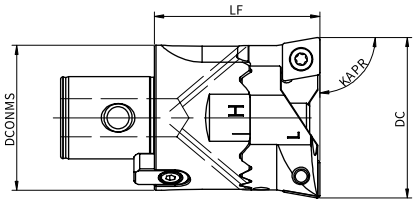
Dia range DC (mm)	Tool body	Coupling	Back-boring Cartridge (Optional)	DC0NMS (mm)	LF (mm)	Screw for cartridge	H (mm)	Weight (kg)	Insert (Optional)	Screw/ Wrench
25-31	**ARB-020-026-AK1-W**	AK1	RC-025-CC06-B	19	21.5	SH040160	10	0.06	CC_ _ 0602	ST025060 FT-T8
30-35			RC-030-CC06-B					0.06		
32-40	**ARB-025-033-AK2-W**	AK2	RC-032-CC06-B	24	23.5	SH050200	12.5	0.11		
39-47			RC-039-CC06-B					0.11		
41-51	**ARB-032-042-AK3-W**	AK3	RC-041-CC09-B	31	23.5	SH060200	16	0.18	CC_ _ 09T3	ST040100 FT-T15
50-60			RC-05060-CC09-B					0.19		
50-63	**ARB-041-054-AK4-W**	AK4	RC-05063-CC09-B	39	28.5	SH080250	20	0.36		
61-74			RC-061-CC09-B					0.38		
65-82	**ARB-053-070-AK5-W**	AK5	RC-065-CC12-B	50	33.5	SH100300	25.5	0.7	CC_ _ 1204	ST050120 FT-T20
78-95			RC-078-CC12-B					0.75		
80-102	**ARB-068-110-AK6-W**	AK6	RC-080-CC12-B	64	45.5	SH100350	32.5	1.5		
100-122			RC-100-CC12-B					1.6		
98-126	**ARB-098-153-AK6-W**	AK6	RC-098-CC12-B	93	45.5	SH120400	47	2.25		
125-153			RC-125-CC12-B					2.45		

- Back-boring tool: please order tool body and choose a cartridge, e.g. ARB-020-026-AK1-W & RC-025-CC06-B.
- Example of tool selection: back-boring ∅26, find the corresponding tool body and boring cartridge ARB-020-026-AK1-W & RC-025-CC06-B; Min. through hole diameter is = 10+26/2 which is 23mm.

ARS Step Rough Boring



Step boring (HHLL)



Twin-Edge Boring

Boring tool denomination

ARS-_ _ _-_ _ _-AK-L
1 2 3 4 5

"1" Series name
"2" Minimum boring diameter
"3" Maximum boring diameter
"4" Coupling size, and its specifications are listed in below:
AK1/AK2/AK3/AK4/AK5/AK6
"5"L means larger diameter

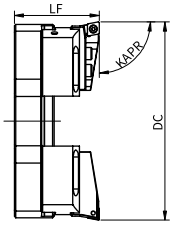
Dia range DC (mm)	Product code	Coupling	DCONMS (mm)	LF (mm)	Axial Step T (mm)	Cartridge (Standard)	Screw	Insert (Optional)	Weight (kg)
20-26	**ARS-020-026-AK1**	AK1	19	32.5	0.2	RC-020-CC06-HL	SH040160	CC_ _ 0602	0.08
25-33	**ARS-025-033-AK2**	AK2	24	35.5	0.2	RC-025-CC06-HL	SH050200	CC_ _ 0602	0.12
32-42	**ARS-032-042-AK3**	AK3	31	40	0.2	RC-032-CC09-HL	SH060200	CC_ _ 09T3	0.22
41-54	**ARS-041-054-AK4**	AK4	39	47	0.4	RC-041-CC09-HL	SH080250	CC_ _ 09T3	0.42
53-70	**ARS-053-070-AK5**	AK5	50	57	0.4	RC-053-CC12-HL	SH100300	CC_ _ 1204	0.80
68-90	**ARS-068-110-AK6**	AK6	64	71	0.4	RC-068-CC12-HL	SH080300	CC_ _ 1204	1.75
88-110	**ARS-068-110-AK6-L**	AK6	64	71	0.4	RC-088-CC12-HL	SH080300	CC_ _ 1204	1.85
98-126	**ARS-098-153-AK6**	AK6	93	71	0.4	RC-098-CC12-HL	SH120400	CC_ _ 1204	2.90
125-153	**ARS-098-153-AK6-L**	AK6	93	71	0.4	RC-125-CC12-HL	SH120400	CC_ _ 1204	3.15

- Standard configuration includes 1 set (1 piece on each side) cartridge, through the special design of tool body and interchangeable cartridge positions (refer to the corresponding letters in the top-right diagram), enables quick switching between single-edge axial step boring and twin-edge boring operations.
- Each model is equipped with a set of tool holder lock screws and one L-shaped wrench; the insert need to be ordered separately.
- The ARS step boring series is equipped with internal coolant.
- Before use, ensure that the tool is securely clamped and there are no gaps between the mating surfaces. It is recommended to verify this using a feeler gauge or the light transmission method.
- When using the ARS step boring tools, radial adjustments can be made to effectively reduce issues such as bad chips and vibration during more material cutting.

Rough Boring Tool For Large Diameter

Dia. range ⌀150mm- ⌀850mm。
Modular design and flexible assembly for faster operation.
Lightweight bridge can reduce the tool's weight.





Boring tool denomination

MLR-_ _ _-_ _ _-LD
1 2 3 4

"1" Series name
"2" Minimum boring diameter
"3" Maximum boring diameter
"4" LD means light weight, without LD means standard

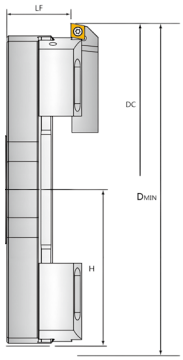
Dia range DC (mm)	Product code	Weight (kg)	Coupling	LF (mm)	Steel Bridge	Slider	Cartridge	Insert (Optional)
150-210	**MLR-150-210**	5.5	/	90	BS-150-210	RB-150	RC-150	CC_ _1204
210-290	**MLR-210-290**	6.7			BS-210-290			
290-370	**MLR-290-370**	8.1			BS-290-370			
370-450	**MLR-370-450**	9.8			BS-370-450			
450-530	**MLR-450-530**	11.4			BS-450-530			

Lightweight Bridge Rough Boring Tools

Dia range DC (mm)	Product code	Weight (kg)	Coupling	LF (mm)	Aluminium Bridge	Slider	Cartridge	Insert (Optional)
150-210	**MLR-150-210-LD**	3.9	/	90	BS-150-210-LD	RB-150	RC-150	CC_ _1204
210-290	**MLR-210-290-LD**	4.3			BS-210-290-LD			
290-370	**MLR-290-370-LD**	5.0			BS-290-370-LD			
370-450	**MLR-370-450-LD**	5.5			BS-370-450-LD			
450-530	**MLR-450-530-LD**	6.0			BS-450-530-LD			

- Rough boring tool assembled with cartridges as standard package, include bridge, slider, cartridge, some models (include coupling), the inserts not are included.
- For the ideal axial runout, the inserts need to be indexed at the same time.

Back-Boring For Large Diameter



Min. through hole diameter DMIN = H+(Back-boring diameter/2)

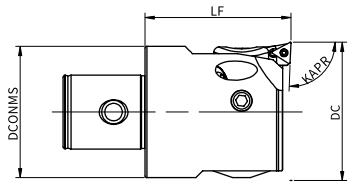
Dia range DC (mm)	Steel Bridge	Slider	Back-boring Cartridge	Insert	H (mm)	LF (mm)	Weight (kg)
165-205	**BS-150-210**	RB-150	RC-150-B	CC__ 1204	75	59	5.00
225-265	**BS-210-290**				105		6.20
305-345	**BS-290-450**				145		7.55
385-425	**BS-370-450**				185		9.30
465-505	**BS-450-530**				225		10.90

- Shared base components with MLR series. Simply replace the back-boring cartridge (optional) to enable back-boring operations.
- Calculate the minimum through-hole diameter, e.g. back-boring ∅320mm, minimum through-hole diameter = 145+320/2, i.e. 305mm.

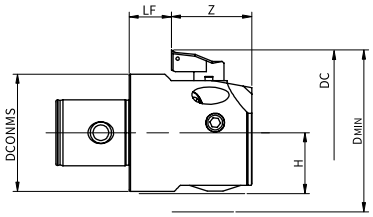
AFB Single-Edge Fine Boring Tool

Interchangeable cartridges enable multi-type fine boring operations.
Dia. range ∅20mm- ∅203mm。
The precision screw is located inside the tool body, avoiding the impact of chips, corrosion and rust, extend the tool's life.





Front boring



Min. through hole diameter DMIN = H+(Back-boring diameter/2)

Boring tool denomination

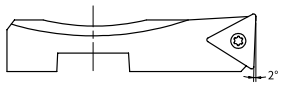
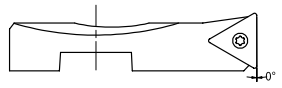
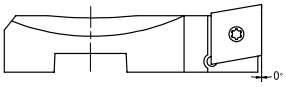
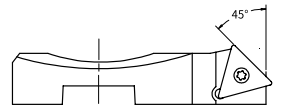
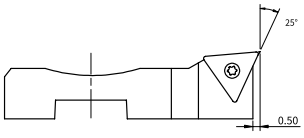
AFB-_ _ _-_ _ _-AK_-W
1 2 3 4 5

"1" Series name
"2" Minimum boring diameter
"3" Maximum boring diameter
"4" Coupling size
"5" "W" means without cartridge, which is optional

Product code	Coupling	Cartridge (Standard ● Option ○)	Front boring			Back-boring				Weight (kg)	Insert optional
			Dia. range DC (mm)	LF (mm)	DCONMS (mm)	Dia. range DC (mm)	LF (mm)	Z (mm)	H (mm)		
AFB-020-036-AK1	AK1	FCT-10A ●	20-26	32.5	19	-	10.5	20	10	0.07	TP0802
		FCT-10B ○	25-31			30-31					
		FCT-10C ○	30-36			30-36					
AFB-025-047-AK2	AK2	FCT-20A ●	25-33	35.5	24	-	11.5	21.5	12.5	0.12	
		FCT-20B ○	32-40			36-40					
		FCT-20C ○	39-47			39-47					
AFB-032-060-AK3	AK3	FCT-30A ●	32-42	40	31	-	10	27	16	0.22	
		FCT-30B ○	41-51			46-51					
		FCT-30C ○	50-60			50-60					
AFB-041-074-AK4	AK4	FCT-40A ●	41-54	47	39	-	12	31	20	0.42	TC1102
		FCT-40B ○	50-63			53-63					
		FCT-40C ○	61-74			61-74					
AFB-053-095-AK5	AK5	FCT-50A ●	53-70	57	50	62-70	15	37	25.5	0.85	TC1102
		FCT-50B ○	65-82			65-82					
		FCT-50C ○	78-95			78-95					
AFB-068-150-AK6	AK6	FCT-60A ●	68-100	71	64	80-100	23	44	32.5	1.85	
		FCT-60B ○	94-126			94-126					
		FCT-60C ○	118-150			118-150					
AFB-100-203-AK7	AK7	FCT-60A ●	100-153	87	90	112-153	39	44	46.5	4.05	
		FCT-60B ○	126-179			126-179					
		FCT-60C ○	150-203			150-203					

- When used with a scale, the minimum adjustment accuracy of the bore diameter can reach ∅0.002mm.
- Standard configuration includes the A-type base cartridge; when ordering an optional tool holder, please refer to the example: AFB-020-026-AK1-W, FCT-10B.
- The assembled fine boring tool does not include inserts; for front boring, left-hand inserts should be selected, while for back-boring, right-hand inserts and spindle reversal are required.
- All AFB boring tool is with internal coolant.
- It is recommended to regularly lubricate the internal parts of the tool with grease to extend the service life of the AFB single-edge fine boring tool.

AFB Single-Edge Fine Boring Tool

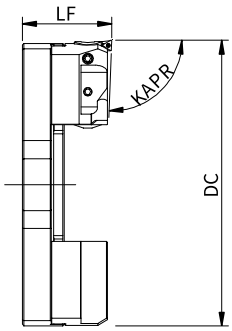
Picture	Product code	Adaptive boring head	Dia. range DC (mm)	Insert (Optional)	Screw/Wrench
	**FCT-10A**	AFB-020-036-AK1	20-26	TP_ _ 0802	ST020040 FT-T6
	FCT-10B		25-31		
	FCT-10C		30-36		
	FCT-20A	AFB-025-047-AK2	25-33		
	FCT-20B		35-40		
	FCT-20C		39-47		
	FCT-30A	AFB-032-060-AK3	32-42		
	FCT-30B		41-51		
	FCT-30C		50-60		
	FCT-40A	AFB-041-074-AK4	41-54	TC_ _ 1102	ST025060 FT-T8
	FCT-40B		50-63		
	FCT-40C		61-74		
	FCT-50A	AFB-053-095-AK5	53-70		
	FCT-50B		65-82		
	FCT-50C		78-95		
	FCT-60A	AFB-068-150-AK6	68-153		
	FCT-60B	AFB-100-203-AK6	94-179		
	FCT-60C	AFB-100-203-AK7	118-203		
	**FCT-40A00**	AFB-041-074-AK4	41-54	TC_ _ 1102	ST025060 FT-T8
	FCT-50A00	AFB-053-095-AK5	53-70		
	FCT-60A00	AFB-068-150-AK6	68-100		
		AFB-100-203-AK6	100-153		
		AFB-100-203-AK7	100-153		
	**FCC-40A00**	AFB-041-074-AK4	41-54	CC_ _ 0602	
	FCC-50A00	AFB-053-095-AK5	53-70		
	FCC-60A00	AFB-068-150-AK6	68-100	CC_ _ 09T3	ST040100 FT-T15
		AFB-100-203-AK6	100-153		
		AFB-100-203-AK7	100-153		
	**FCT-40A45**	AFB-041-074-AK4	41-54	TC_ _ 1102	ST025060 FT-T8
	FCT-50A45	AFB-053-095-AK5	53-70		
	FCT-60A45	AFB-068-150-AK6	68-100		
		AFB-100-203-AK6	100-153		
		AFB-100-203-AK7	100-153		
	**FCT-30A25**	AFB-032-060-AK3	32-42	TP_ _ 0802	ST020040 FT-T6
	FCT-40A25	AFB-041-074-AK4	41-54		
	FCT-50A25	AFB-053-095-AK5	53-70		
	FCT-60A25	AFB-068-150-AK6	68-100	TC_ _ 1102	ST025060 FT-T8
		AFB-100-203-AK6	100-153		
		AFB-100-203-AK7	100-153		

- Cartridge do not include inserts and the inserts need to be ordered separately.
- Non-standard cartridge can be custom-made (another insert for boring, flat-bottom).

MLF Fine Boring Tool For Large Diameter

Dia. range ⌀150mm- ⌀530mm.
Modular design, for both tool body balancing and machining precision.
Flexible on tool combination. Easy to use.
Including steel and aluminium bridge.





Boring tool denomination

MLF-_ _ _-_ _ _-LD
1 2 3 4

"1" Series name
"2" Minimum boring diameter
"3" Maximum boring diameter
"4" "LD"means light weight,
without "LD" means standard

Steel Bridge

Dia range DC (mm)	Product code	Weight (kg)	Coupling	LF (mm)	Steel Bridge	Fine Adjustment Slider	Balance Block	Cartridge (Option)	Insert (Option)
150-210	**MLF-150-210**	6.2	/	90	BS-150-210	FB-150	BB-150	FCT-60A (Standard) FCT-60B FCT-60C	TC_ _ 1102
210-290	**MLF-210-290**	7.5			BS-210-290		BB-200		
290-370	**MLF-290-370**	8.5			BS-290-370				
370-450	**MLF-370-450**	10.2			BS-370-450				
450-530	**MLF-450-530**	11.6			BS-450-530				

Aluminium Bridge

Dia range DC (mm)	Product code	Weight (kg)	Coupling	LF (mm)	Aluminium Bridge	Fine Adjustment Slider	Balance Block	Cartridge (Option)	Insert (Option)
150-210	**MLF-150-210-LD**	4.6	/	90	BS-150-210-LD	FB-150	BB-150	FCT-60A (Standard) FCT-60B FCT-60C	TC_ _ 1102
210-290	**MLF-210-290-LD**	5.1			BS-210-290-LD		BB-200		
290-370	**MLF-290-370-LD**	5.5			BS-290-370-LD				
370-450	**MLF-370-450-LD**	5.9			BS-370-450-LD				
450-530	**MLF-450-530-LD**	6.2			BS-450-530-LD				

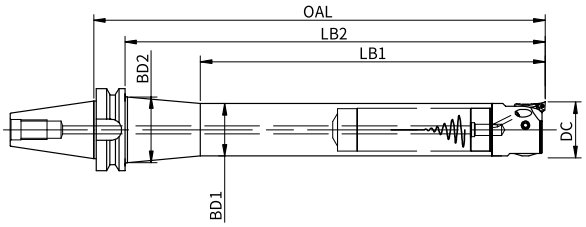
More Diameter Combinations

Cartridge	Tool body (without cartridge)	Dia.
FCT-60A	**MLF-150-210-W**	150-210
FCT-60B		176-236
FCT-60C		200-260
FCT-60A	**MLF-210-290-W**	210-290
FCT-60B		236-315
FCT-60C		260-340
FCT-60A	**MLF-290-370-W**	290-370
FCT-60B		316-396
FCT-60C		340-420

Cartridge	Tool body (without cartridge)	Dia.
FCT-60A	**MLF-370-450-W**	370-450
FCT-60B		396-476
FCT-60C		420-500
FCT-60A	**MLF-450-530-W**	450-530
FCT-60B		476-556
FCT-60C		500-580

DFB Integral Damping Fine Boring Tool





Boring tool denomination

DFB-_ _ _-_ _ _-BBT50-L_ _ _
1 2 3 4 5

"1" Series name
"2" Minimum boring diameter
"3" Maximum boring diameter
"4" Type of machine spindle
"5" Effective boring depth

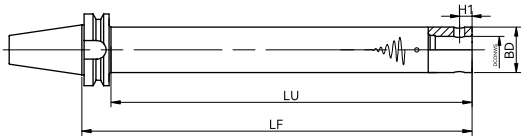
Product code	Cartridge (Optional)	Dia range DC (mm)	Dimensions (mm)					Weight (kg)	Insert (Optional)
			LB1	LB2	OAL	BD1	BD2		
DFB-041-074-BBT50-L280	FCT-40A	41-54	280	320	358	40	55	7.4	TC_ _ 1102
	FCT-40B	50-63							
	FCT-40C	61-71							
DFB-053-095-BBT50-L350	FCT-50A	53-70	350	400	438	50	56	11	
	FCT-50B	65-82							
	FCT-50C	78-95							
DFB-068-150-BBT50-L450	FCT-60A	68-100	450	512	550	64	80	18.9	
	FCT-60B	94-126							
	FCT-60C	118-150							
DFB-100-203-BBT50-L525	FCT-60A	100-153	525	525	563	70	85	23.5	
	FCT-60B	126-179							
	FCT-60C	150-203							

- Product code does not include cartridge, order example: DFB-041-074-BBT50-L280 & FCT-40A.
- Inserts need to be ordered separately.

Note: Limited stock, please contact our sales engineer for details on stock availability.

Damping Boring Shank



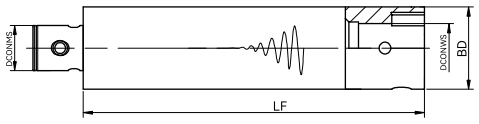


Product code	Dimensions (mm)					Weight (kg)
	BD	DCONWS	H1	LU	LF	
BT40-AKB2-145-D	24	14	6.45	110	145	1.44
BT40-AKB2-170-D	24	14	6.45	135	170	1.54
BT40-AKB2-195-D	24	14	6.45	160	195	1.64
BT40-AKB3-195-D	31	18	7.9	160	195	2.15
BT40-AKB3-225-D	31	18	7.9	190	225	2.37
BT40-AKB3-255-D	31	18	7.9	220	255	2.59
BT40-AKB4-240-D	39	22	10	205	240	3.07
BT40-AKB4-280-D	39	22	10	245	280	3.5
BT40-AKB4-320-D	39	22	10	285	320	3.93
BT40-AKB5-315-D	50	28	13	283	315	5.65
BT50-AKB2-165-D	24	14	6.45	117	165	4.12
BT50-AKB2-190-D	24	14	6.45	142	190	4.22
BT50-AKB2-215-D	24	14	6.45	167	215	4.32
BT50-AKB3-205-D	31	18	7.9	160	205	4.8
BT50-AKB3-235-D	31	18	7.9	190	235	5.02
BT50-AKB3-265-D	31	18	7.9	220	265	5.24
BT50-AKB4-255-D	39	22	10	210	255	5.89
BT50-AKB4-295-D	39	22	10	250	295	6.27
BT50-AKB4-335-D	39	22	10	290	335	6.65
BT50-AKB5-315-D	50	28	13	270	315	8.51
BT50-AKB5-360-D	50	28	13	315	360	9.3
BT50-AKB5-405-D	50	28	13	360	405	10.09
BT50-AKB6-380-D	64	36	16	335	380	12.56
BT50-AKB6-445-D	64	36	16	400	445	14.24
BT50-AKB6-510-D	64	36	16	465	510	15.93

The AKB coupling type has pin and 2 screws (180° distribution) with eccentric locking. AK coupling don't have pin.

Damping Extension Bar





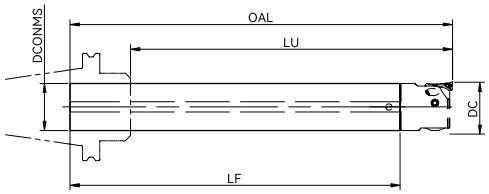
Product code	Dimensions (mm)				Weight (kg)
	BD	DCONMS	DCONWS	LF	
AKB22-90-D	24	14	14	90	0.33
AKB33-115-D	31	18	18	115	0.75
AKB44-125-D	39	22	22	125	1.14
AKB55-155-D	50	28	28	155	2.39
AKB66-185-D	64	36	36	185	5.11

The AKB coupling type has pin and 2 screws (180° distribution) with eccentric locking. AK coupling don't have pin.

Carbide Anti-Vibration Boring Bar

- Boring depth in the range of 5-7*Dc, carbide boring bars are recommended;
  If necessary, the damping boring bar can be selected to reduce vibration.
- The boring bars are made through high-temperature sintering of tungsten carbide with cobalt, nickel, and other bonding metals, tungsten carbide content ranging from 85%-88%, providing a high elastic modulus.
- To improve the clamping rigidity of the tool, it is recommended that the clamping length of the boring bar more than 4*DCONMS.
- For optimal tool rigidity, A-type cartridge is preferred; C-type cartridge is not recommended.

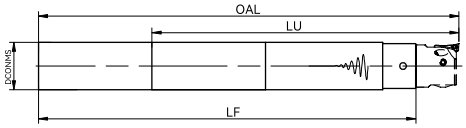




Product code	Dimensions (mm)				Weight (kg)	Tool body (Option)	Cartridge (Option)	Dia. range DC (mm)	Power collet	Compatible shank
	DCONMS	OAL	LF	LU						
C19C-AK1-150	19	182.5	150	130	0.46	AFB-020-036-AK1-W	FCT-10A	20-26	C32-19 C42-19	power chuck
C19C-AK1-200	19	232.5	200	170	0.68		FCT-10B	25-31		
C24C-AK2-200	24	235.5	200	170	1.07	AFB-025-047-AK2-W	FCT-20A	25-33	C32-24 C42-24	power chuck
C24C-AK2-250	24	285.5	250	210	1.42		FCT-20B	32-40		
C32C-AK3-250	32	290	250	180	2.33	AFB-032-060-AK3-W	FCT-30A	32-42	C42-32	power chuck
C32C-AK3-300	32	340	300	230	3.50		FCT-30B	41-51		

Damping Boring Bar

- Boring depth in the range of 6-9*Dc, damping boring bars are preferred.
- These bars use a Inlaid structure with tungsten carbide rods and damping devices, reducing vibration.
- To improve the clamping rigidity of the tool, it is recommended that the clamping length of the boring bar more than 4*DCONMS.
- For optimal tool rigidity, A-type cartridge is preferred; C-type cartridge is not recommended.



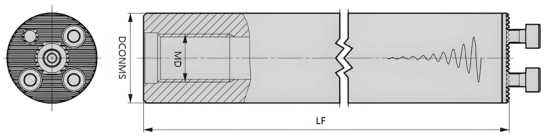
Product code	Dimensions (mm)				Weight (kg)	Boring head (Option)	Cartridge (Option)	Dia. range DC (mm)	Power collet	Compatible shank
	DCONMS	LU	LF	OAL						
C19C-AKB1-190-D	19	133	190	222	0.43	AFB-020-036-AKB1	FCT1-1	20-26	C32-19 C42-19	power chuck
C19C-AKB1-240-D	19	190	240	272	0.77		FCT1-2	25-31		
C24C-AKB2-220-D	24	168	220	255	0.79	AFB-025-047-AKB2	FCT2-1	25-33	C32-24 C42-24	power chuck
C24C-AKB2-280-D	24	240	280	315	1.43		FCT2-2	32-40		
C32C-AKB3-280-D	32	224	280	320	1.78	AFB-032-060-AKB3	FCT3-1	32-42	C42-32	power chuck
C32C-AKB3-350-D	32	320	350	390	3.24		FCT3-2	41-51		

The AKB coupling type has pin and 2 screws (180° distribution) with eccentric locking. AK coupling don't have pin.

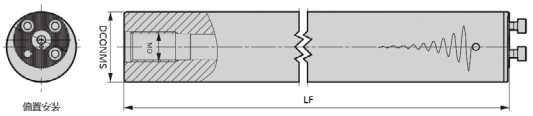
DTB Damping Turning Bars



Style 1



Style 2

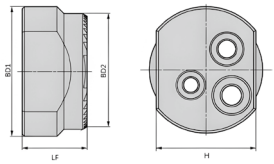


Product code	Dimensions (mm)			Interchangeable head (optional)	Weight (kg)	Style
	DCONMS	LF	MD			
DTB16-C16-156	16	156	G1/8″	DTH16-…	0.24	1
DTB16-C16-204	16	204	/	DTH16-…	0.32	1
DTB20-C20-200	20	200	G1/4″	DTH20-…	0.46	1
DTB20-C20-260	20	260	/	DTH20-…	0.62	1
DTB25-C25-255	25	255	G1/4″	DTH25-…	0.97	1
DTB25-C25-330	25	330	G1/4″	DTH25-…	1.29	1
DTB32-C32-320	32	320	G3/8″	DTH32-…	1.87	1
DTB32-C32-416	32	416	G3/8″	DTH32-…	2.64	1
DTB40-C40-408	40	408	G1/2″	DTH40-…	3.88	1
DTB40-C40-528	40	528	G1/2″	DTH40-…	5.16	1
DTB40-C50-518	50	518	G1/2″	DTH40-…	7.77	2
DTB40-C50-668	50	668	G1/2″	DTH40-…	10.28	2
DTB40-C60-628	60	628	G3/4″	DTH40-…	12.43	2
DTB40-C60-808	60	808	G3/4″	DTH40-…	16.14	2

- It is recommended to use a C-type clamping sleeve for increased tool clamping rigidity, with a clamping length more than 4*DCONMS.
- When using longer and heavier damping boring bars on horizontal lathes, it is advised to use a center support to reduce vibration and improve machining precision and stability.
- The boring bars are equipped with internal cooling channels. It is recommended to use external or internal cooling methods to cool the damping area, which helps prevent the aging of internal sealing components and extends tool life.
- When using a boring bar for the first time, use a calibration tool to adjust the boring bar to a horizontal position (parallel to the X-axis of the machine tool) to ensure the correct center height; otherwise, the insert may break unexpectedly.
- For better performance in parts processing, please consult the regional sales consultant before purchasing to evaluate the working conditions and provide a suitable matching solution.

Center Height Calibration Block

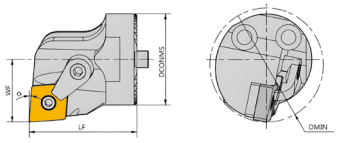




Product code	Dimensions (mm)				Compatible holders
	BD1	BD2	H	LF	
DTB 16-25-M	28	25	22	14	DTB16/DTB20/DTB25
DTB 32-60-M	62	60	52	25	DTB32/DTB40

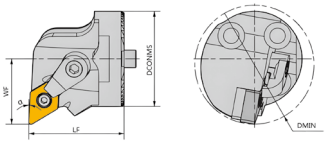
DTH Damping Turning Heads





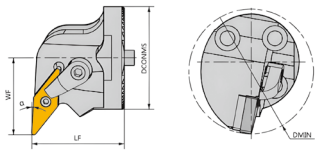
Product code	Dimensions (mm)					Insert	Shim	Insert screw	Clamp	Clamp screw
	DCONMS	DMIN	WF	LF	α°					
DTH32-MCLNR/L-12	32	40	22	38	5°	CN__120408	S-MCN12032	SS060170	CL182114	SD060250
DTH40-MCLNR/L-12	40	50	27	38	5°	CN__120408	S-MCN12032	SS060170	CL182114	SD060250





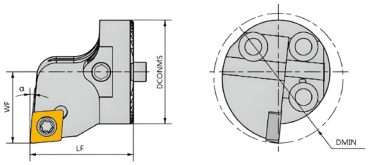
Product code	Dimensions (mm)					Insert	Shim	Insert screw	Clamp	Clamp screw
	DCONMS	DMIN	WF	LF	α°					
DTH32-MDUNR/L-11	32	40	22	32	3°	DN__110408	S-MDN11032	SS050130	CL182114	SD060250
DTH40-MDUNR/L-15	40	50	27	38	3°	DN__150608	S-MDN15047	SS060190	CL215132	SD060250





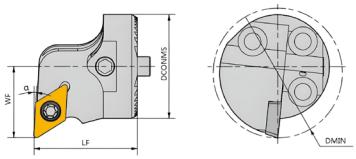
Product code	Dimensions (mm)					Insert	Shim	Insert screw	Clamp	Clamp screw
	DCONMS	DMIN	WF	LF	α°					
DTH40-MVUNR/L-16	40	52	30	36	3°	VN__160408	S-MVN16032	SS050130	CL215132	SD060250





Product code	Dimensions (mm)					Insert	Insert screw
	DCONMS	DMIN	WF	LF	α°		
DTH16-SCLCR/L-06	16	20	11	20	5°	CC__060204	ST025060
DTH20-SCLCR/L-09	20	25	13	20	5°	CC__09T308	ST040080
DTH25-SCLCR/L-09	25	32	17	22	5°	CC__09T308	ST040080
DTH32-SCLCR/L-09	32	40	22	32	5°	CC__09T308	ST040100
DTH40-SCLCR/L-12	40	50	27	38	5°	CC__120408	ST050110

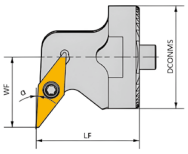




Product code	Dimensions (mm)					Insert	Insert screw
	DCONMS	DMIN	WF	LF	α°		
DTH16-SDUCR/L-07	16	20	11	20	3°	DC__070204	ST025050
DTH20-SDUCR/L-11	20	25	13	20	3°	DC__11T308	ST040100
DTH25-SDUCR/L-11	25	32	17	22	3°	DC__11T308	ST040100
DTH32-SDUCR/L-11	32	40	22	32	3°	DC__11T308	ST040100
DTH40-SDUCR/L-11	40	50	27	38	3°	DC__11T308	ST040100

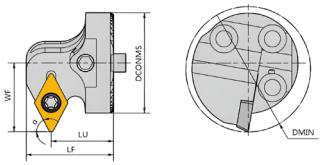
DTH Damping Turning Heads





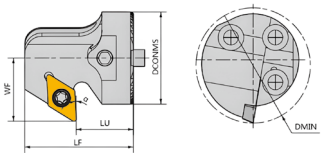
Product code	Dimensions (mm)					Insert	Insert screw
	DCONMS	DMIN	WF	LF	α°		
DTH20-SVUCR/L-11	20	27	16	20	3°	VC__110304	ST025070
DTH25-SVUCR/L-11	25	31	17	25	3°	VC__110304	ST025070
DTH32-SVLCR/L-16	32	40	22	32	5°	VC__160408	ST040100
DTH40-SVLCR/L-16	40	50	27	32	5°	VC__160408	ST040100





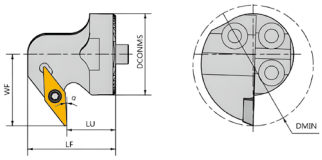
Product code	Dimensions (mm)						Insert	Insert screw
	DCONMS	DMIN	WF	LU	LF	α°		
DTH16-SDPCR/L-07	16	22	13	15	19	62.5°	DC__070204	ST025050
DTH20-SDPCR/L-07	20	27	15	15	19	62.5°	DC__070204	ST025050
DTH25-SDPCR/L-07	25	33	18	15	19	62.5°	DC__070204	ST025050
DTH32-SDPCR/L-11	32	40	22	20	28	62.5°	DC__11T308	ST040100
DTH40-SDPCR/L-11	40	50	27	20	28	62.5°	DC__11T308	ST040100





Product code	Dimensions (mm)						Insert	Insert screw
	DCONMS	DMIN	WF	LU	LF	α°		
DTH16-SDZCR/L-07	16	22	13	15	27	3°	DC__070204	ST025050
DTH20-SDZCR/L-07	20	27	15	15	27	3°	DC__070204	ST025050
DTH25-SDZCR/L-07	25	33	18	15	27	3°	DC__070204	ST025050
DTH32-SDZCR/L-11	32	40	22	20	38	3°	DC__11T308	ST040100
DTH40-SDZCR/L-11	40	50	27	20	38	3°	DC__11T308	ST040100

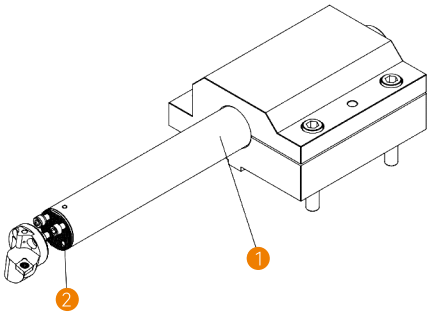




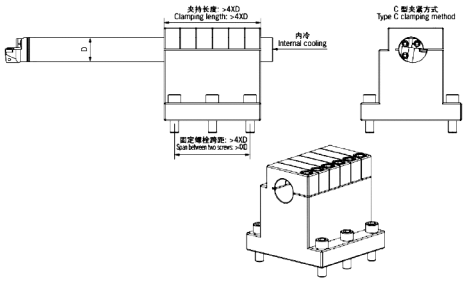
Product code	Dimensions (mm)						Insert	Insert screw
	DCONMS	DMIN	WF	LU	LF	α°		
DTH20-SVZCR/L-11	20	32	20	15	27	3°	VC__110304	ST025070
DTH25-SVZCR/L-11	25	37	22	15	27	3°	VC__110304	ST025070

Operation Manual of DTB

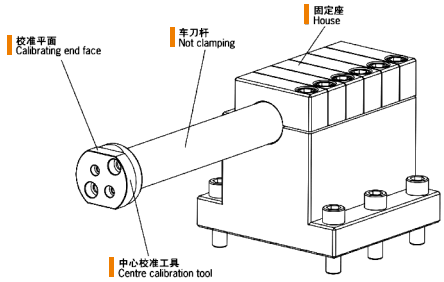
1.Wipe the assembly areas, such as the outer cylindrical part of the anti-vibration holder and the inner hole of the mounting seat, as well as the V-shaped positioning grooves of the damping bar and head.



2.The clamping length of the anti-vibration holder must be more than 4*D. Use clamping methods such as open clamping sleeves, and avoid using unstable locking methods like direct screw compression. When used for a long time, internal cooling must be applied to ensure that the damping device dissipates heat effectively, extending the tool's life and damping performance.



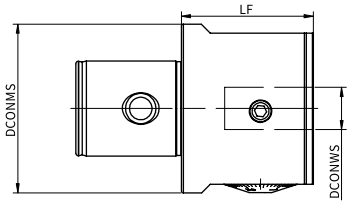
3.Adjust the center height — during the initial installation, use a center calibration block. Move the tool holder along the machine's X-axis on the calibration plane, to ensure that the height difference of the reference surface is controlled within 0.01mm.



4.Select the required tool head and compatible insert based on processing needs and complete the installation and calibration of the tool.

SFB Small Dia. Fine Boring Tool





Boring tool denomination

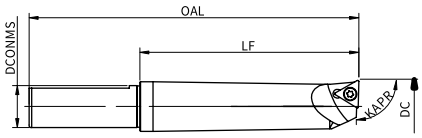
SFB-016-AK6
1 2 3

"1" Series name
"2" means the maximum boring bar diameter is 16mm
"3" Coupling size. The coupling size is AK6

Product code	Coupling	DCONMS	DCONWS	LF	Weight (kg)
SFB-016-AK6	AK6	64	16	50	1.25

Steel Boring Bar for Small Dia. Fine Boring Head





Boring tool denomination

BAR-16 __-__
1 2 3 4

"1" Series name
"2" Boring bar shank diameter
"3" Minimum machining diameter
"4" Maximum permissible machining depth

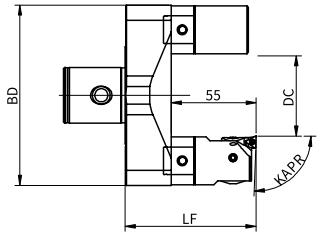
Product code	Dia. range DC (mm)	DCONMS	LF	OAL	Insert (Optional)	Screw/Wrench	Weight (kg)
BAR1608-32	8-11	16	32	76	TBET 0601	ST020040 FT-T6	0.08
BAR1610-40	10-13	16	40	77			0.08
BAR1612-53	12-17	16	53	90	TPEH 0902	ST025060 FT-T8	0.11
BAR1616-68	16-21	16	68	102			0.14
BAR1620-83	20-26	16	83	120	TPEH 1103	ST030070 FT-T10	0.21

Note: When using TP_ _ 0902 carbide inserts, the screw hole diameter of the insert must be more than 2.8mm.

EFB External Fine Boring Tool

Modular interchangeable design; Rotating the boring head enables the switching between inner hole boring and external sleeve boring.
Dia. range: ∅25mm - ∅400mm。
For external sleeve boring, the spindle must rotate in reverse.



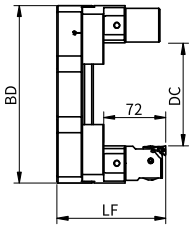


Dia range DC (mm)	Components			Cartridge (Option)	Interference Range BD(mm)	Tool Body Length LF (mm)	Max. Sleeve Boring Depth	Weight (kg)	Insert
	Steel Bridge	Fine Boring Head	Balance Block						
25-34	**EFB-025-052-AK6**	AFB-032-060-AK3	EB-AK3	FCT-30C	118	85	55	1.94	TP_ _ 0802
34-43				FCT-30B					
43-52				FCT-30A					
50-59	**EFB-050-077-AK6**			FCT-30C	143			2.24	
59-68				FCT-30B					
68-77				FCT-30A					
75-84	**EFB-075-102-AK6**			FCT-30C	168			2.34	
84-93				FCT-30B					
93-102				FCT-30A					

- Order Example:
  For bore diameters 25-34mm, order with tools: EFB-025-052-AK6 & AFB-032-060-AK3 & EB-AK3.
  For bore diameters 34-43mm, order with tools: EFB-025-052-AK6 & AFB-032-060-AK3-W & FCT-30B & EB-AK3.
- Complete sleeve boring tools do not come with internal coolant. The maximum sleeve boring depth can be adjusted by symmetrically adding extended bars.

Large Diameter --External Fine Boring





Dia range DC (mm)	Components				Interference Range BD(mm)	Tool Body Length LF(mm)	Max. Sleeve Boring Depth	Weight (kg)	Insert
	Steel Bridge	Fine Boring Head	Balance Block	Slider					
41-96	**BS-150-210**	AFB-041-074-AK4	EB-150-AK4	EB-AK4	150	126	72	4.86	TC_ _ 1102
80-160	**BS-210-290**				210			6.06	
160-240	**BS-290-370**				290			7.36	
240-320	**BS-370-450**				370			9.16	
320-400	**BS-450-530**				450			10.86	

- All components are freely configurable, and compared with smaller diameter sleeve boring tools, two additional sliders are required.
- For tools requiring weight reduction, the aluminum bridge option can be selected. For example, BS-150-210-LD.

BT Basic Boring Shank



Fig.1

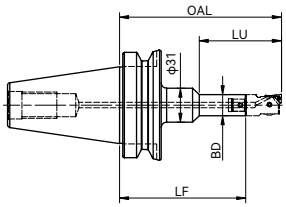
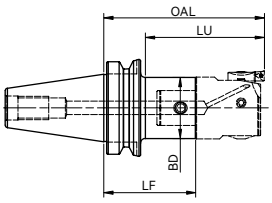


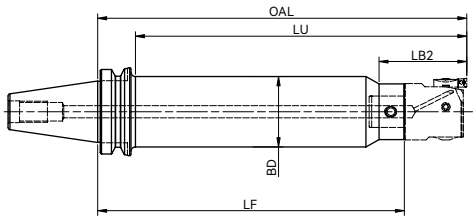
Fig.2



Product code	Coupling	Dimensions (mm)				Weight (kg)	Style
		BD	LF	OAL	LU		
BT30-AK1-70	AK1	19	70	102	80	0.5	2
BT30-AK2-80	AK2	24	80	115	93	0.6	2
BT30-AK3-80	AK3	31	80	120	98	0.7	2
BT30-AK4-70	AK4	39	70	117	95	0.8	2
BT30-AK5-70	AK5	50	70	127	105	0.8	2
BT30-AK6-70	AK6	64	70	141	119	1.2	2
BT40-AK1-75	AK1	19	75	107	80	1.0	2
BT40-AK1-105	AK1	19	105	137	110	1.2	2
BT40-AK2-85	AK2	24	85	120	93	1.1	2
BT40-AK2-115	AK2	24	115	150	123	1.4	2
BT40-AK3-95	AK3	31	95	135	108	1.2	2
BT40-AK3-125	AK3	31	125	165	138	1.5	2
BT40-AK4-85	AK4	39	85	132	105	1.3	2
BT40-AK4-130	AK4	39	130	177	150	1.9	2
BT40-AK4-175	AK4	39	175	222	195	2.2	2
BT40-AK5-50	AK5	50	50	107	80	1.2	2
BT40-AK5-75	AK5	50	75	132	105	1.3	2
BT40-AK5-125	AK5	50	125	182	155	2.4	2
BT40-AK5-175	AK5	50	175	232	205	3.0	2
BT40-AK6-65	AK6	50	65	136	109	1.3	2
BT40-AK6-115	AK6	64	115	186	159	2.7	2
BT40-AK6-165	AK6	64	165	236	209	3.9	2
BT50-AK1-115	AK1	19	115	147	75	4.0	**1**
BT50-AK2-85	AK2	24	85	120	82	3.8	2
BT50-AK2-110	AK2	24	110	145	107	3.9	2
BT50-AK3-90	AK3	31	90	130	92	3.9	2
BT50-AK3-125	AK3	31	125	165	127	4.1	2
BT50-AK4-115	AK4	39	115	162	124	4.3	2
BT50-AK4-145	AK4	39	145	192	154	4.5	2
BT50-AK4-175	AK4	39	175	222	184	4.8	2
BT50-AK5-65	AK5	50	65	122	84	3.9	2
BT50-AK5-105	AK5	50	105	162	124	4.5	2
BT50-AK5-150	AK5	50	150	207	169	5.1	2
BT50-AK5-180	AK5	50	180	237	199	5.5	2
BT50-AK5-240	AK5	50	240	297	259	6.2	2
BT50-AK6-95	AK6	64	95	166	128	4.5	2
BT50-AK6-170	AK6	64	170	241	203	6.3	2
BT50-AK6-230	AK6	64	230	301	263	7.7	2
BT50-AK6-290	AK6	64	290	361	323	9.0	2
BT50-AK7-170	AK7	90	170	257	219	6.1	2
BT50-AK7-230	AK7	90	230	317	279	11.8	2
BT50-AK7-290	AK7	90	290	377	339	14.6	2
BT50-AK7-350	AK7	90	350	437	399	17.4	2

BT Series Reinforced Boring Shank



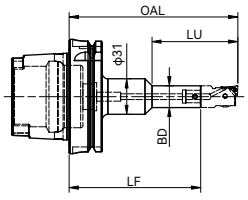


Product code	Coupling	Dimensions (mm)					Weight (kg)
		BD	LF	OAL	LU	LB2	
BT50-AK4-190-P46	AK4	46	190	237	194	65	5.6
BT50-AK4-235-P46	AK4	46	235	282	239	65	6.2
BT50-AK5-240-P61	AK5	61	240	297	254	80	8.2
BT50-AK5-300-P61	AK5	61	300	357	314	80	9.6
BT50-AK6-260-P72	AK6	72	260	332	289	100	10.3
BT50-AK6-315-P72	AK6	72	315	386	343	100	12.2
BT50-AK6-290-P80	AK6	80	290	361	318	100	13.2
BT50-AK6-350-P80	AK6	80	350	421	378	100	15.2

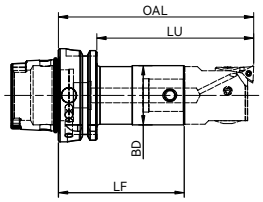
HSK-A Boring Shank



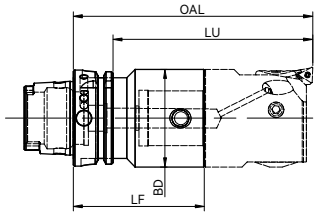
Style 1



Style 2



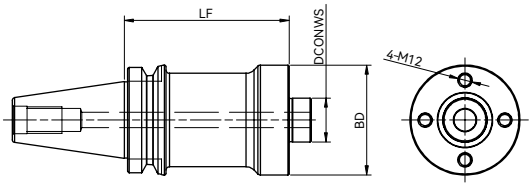
Style 3



Product code	Coupling	Dimensions (mm)				Weight (kg)	Style
		BD	LF	OAL	LU		
HSK-A63-AK1-75	AK1	19	75	107	81	0.9	2
HSK-A63-AK1-100	AK1	19	100	132	106	1.3	2
HSK-A63-AK2-85	AK2	24	85	120	94	1.7	2
HSK-A63-AK2-100	AK2	24	100	135	109	2.2	2
HSK-A63-AK3-95	AK3	31	95	135	109	2.3	2
HSK-A63-AK3-125	AK3	31	125	165	139	2.6	2
HSK-A63-AK4-85	AK4	39	85	132	106	2.1	2
HSK-A63-AK4-130	AK4	39	130	177	151	2.7	2
HSK-A63-AK5-75	AK5	50	75	132	106	2.3	2
HSK-A63-AK5-135	AK5	50	135	192	166	2.8	2
HSK-A63-AK6-75	AK6	64	75	146	120	2.3	3
HSK-A63-AK6-115	AK6	64	115	186	160	2.8	3
HSK-A63-AK6-165	AK6	64	165	236	210	3.1	3
HSK-A100-AK1-105	AK1	19	105	137	75	2.6	1
HSK-A100-AK2-115	AK2	24	115	150	121	2.7	2
HSK-A100-AK3-125	AK3	31	125	165	136	2.9	2
HSK-A100-AK4-120	AK4	39	120	167	138	3.1	2
HSK-A100-AK4-180	AK4	39	180	227	198	3.7	2
HSK-A100-AK5-110	AK5	50	110	167	138	3.5	2
HSK-A100-AK5-185	AK5	50	185	242	213	4.6	2
HSK-A100-AK6-95	AK6	64	95	166	137	3.6	2
HSK-A100-AK6-170	AK6	64	170	241	212	5.5	2
HSK-A100-AK6-230	AK6	64	230	301	272	7.1	2

Bridge Boring Shank

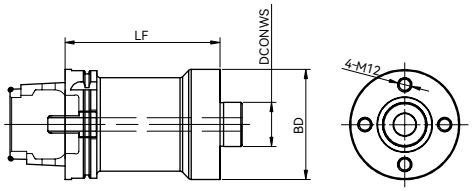




Product code	Coupling	Dimensions (mm)			Fastening Screw	Weight (kg)
		BD	DCONWS	LF		
BT40-BA40-70	BA40	100	40	70	SH120350	2.8
BT50-BA40-100	BA40	100	40	100		6.1
BT50-BA40-150	BA40	100	40	150		7.9
BT50-BA40-200	BA40	100	40	200		9.7
BT50-BA40-250	BA40	100	40	250		10.9
BT50-BA40-300	BA40	100	40	300		12.5
BT50-BA40-350	BA40	100	40	350		13.9

HSK-A100 Bridge Boring Shank



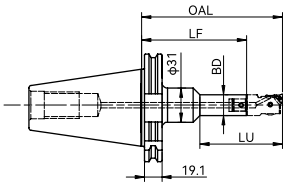


Product code	Coupling	Dimensions (mm)			Fastening Screw	Weight (kg)
		BD	DCONWS	LF		
HSK-A100-BA40-80	BA40	100	40	80	SH120350	5.1
HSK-A100-BA40-150	BA40	100	40	150		7.3

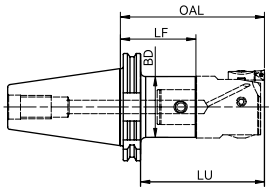
SK Series Boring Shank (DIN69871)



Style 1



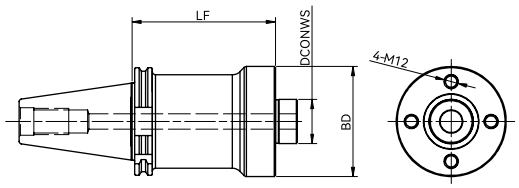
Style 2



Product code	Coupling	Dimensions (mm)				Weight (kg)	Style
		BD	LF	OAL	LU		
SK40-AK1-75	AK1	19	75	107	88	0.8	2
SK40-AK2-85	AK2	24	85	120	101	1.0	2
SK40-AK3-95	AK3	31	95	135	115	1.0	2
SK40-AK3-125	AK3	31	125	165	145	1.3	2
SK40-AK4-85	AK4	39	85	132	112	1.2	2
SK40-AK4-130	AK4	39	130	177	157	1.8	2
SK40-AK5-75	AK5	50	75	132	112	1.2	2
SK40-AK5-125	AK5	50	125	182	162	2.3	2
SK40-AK6-65	AK6	64	65	136	116	1.2	2
SK40-AK6-115	AK6	64	115	186	166	2.6	2
SK40-AK6-165	AK6	64	165	236	216	3.8	2
SK50-AK1-115	AK1	19	115	147	75	3.2	1
SK50-AK2-110	AK2	24	110	145	125	3.1	2
SK50-AK3-90	AK3	31	90	130	110	3.2	2
SK50-AK3-125	AK3	31	125	165	145	3.4	2
SK50-AK4-115	AK4	39	115	162	142	3.8	2
SK50-AK4-145	AK4	39	145	192	172	4.0	2
SK50-AK5-105	AK5	50	105	162	142	3.9	2
SK50-AK5-150	AK5	50	150	207	187	4.5	2
SK50-AK6-95	AK6	64	95	166	146	4.0	2
SK50-AK6-170	AK6	64	170	241	221	5.8	2
SK50-AK6-230	AK6	64	230	301	281	7.2	2

SK Bridge Boring Shank

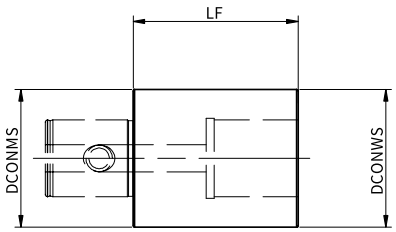




Product code	Coupling	Dimensions (mm)			Fastening Screw	Weight (kg)
		BD	DCONWS	LF		
SK40-BA40-70	BA40	100	40	70	SH120350	2.8
SK50-BA40-80	BA40	100	40	80		5.1
SK50-BA40-150	BA40	100	40	150		7.3
SK50-BA40-200	BA40	100	40	200		9.4
SK50-BA40-250	BA40	100	40	250		10.5

Extended Bars

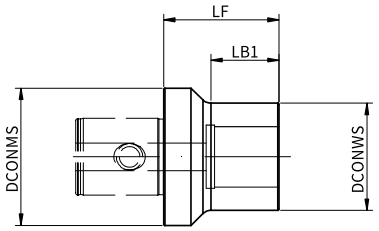




Product code	Dimensions (mm)			Weight (kg)
	DCONMS	DCONWS	LF	
AK11-30	19	19	30	0.07
AK22-30	24	24	30	0.1
AK33-30	31	31	30	0.15
AK44-45	39	39	45	0.4
AK44-60	39	39	60	0.53
AK55-60	50	50	60	0.8
AK55-90	50	50	90	1.25
AK66-60	64	64	60	1.4
AK66-100	64	64	100	2.33

Reducing Bars





Product code	Dimensions (mm)				Weight (kg)
	DCONMS	DCONWS	LF	LB1	
AK21-36	24	19	36	30	0.1
AK31-41	31	19	41	30	0.15
AK32-37	31	24	37	25	0.15
AK41-58	39	19	58	40	0.3
AK42-50	39	24	50	36	0.3
AK43-50	39	31	50	37	0.35
AK51-60	50	19	60	40	0.45
AK52-54	50	24	54	35	0.45
AK52-75	50	24	75	55	0.47
AK53-47	50	31	47	29	0.5
AK53-75	50	31	75	55	0.57
AK54-42	50	39	42	25	0.5
AK54-75	50	39	75	55	0.66
AK61-70	64	19	70	40	0.9
AK62-63	64	24	63	45	0.7
AK62-90	64	24	90	72	0.72
AK63-56	64	31	56	39	0.75
AK63-90	64	31	90	73	0.88
AK64-51	64	39	51	35	0.85
AK64-90	64	39	90	75	1.08
AK65-41	64	50	41	25	0.85
AK65-90	64	50	90	74	1.45

ISO Cartridges Denomination System

S	C	L	P	R	08	CA	-	06
1	2	3	4	5	6	7	-	8

1-Insert Clamping

S: Screw clamping
M: Top and pin hole clamping

2-Insert Shape

C: 

3-Cartridge Type

L 

F 

G 



U 

J 

R 

T 

S 

4-Insert Clearance Angle

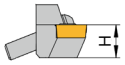
C: 

P: 

5-Cartridge Direction

R: Right-hand
L: Left-hand

6-Cartridge Height



10=10mm

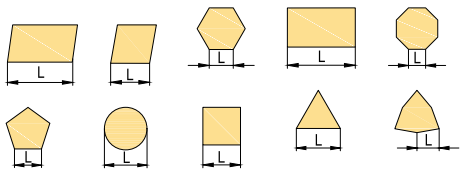
12=12mm

7-Cartridge Series Code

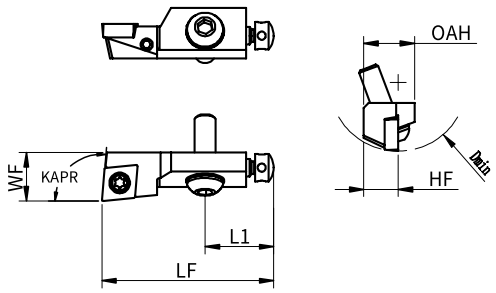
CA---Cartridge

8-Cutting Edge Length

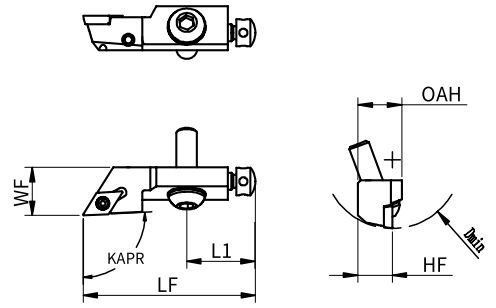
Incircle Dia. (mm)	Insert Shape C	D	R	S	T	V	W	K
3.97					06		02	
5.0			05					
5.56					09			
6.0		06						
6.35	06	07			11	11	04	
8.0			08					
9.525	09	11	09	09	16	16	06	16
10.0			10					
12.0			12					
12.7	12	15	12	12	22	22	08	
15.875	16		15	15	27			
16.0			16					



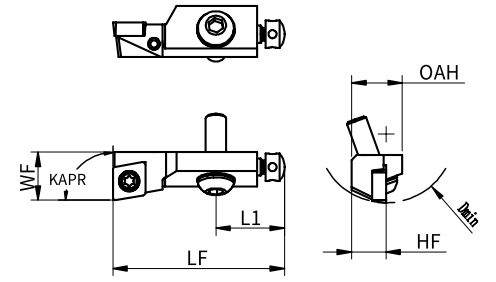
ISO Screw Clamping Cartridge



Right-hand Cartridge	Left-hand Cartridge	Dimensions (mm)						Approach Angle KAPR	Insert (Option)
		HF	WF	LF	OAH	L1	Dmin		
SCLCR08CA-06	**SCLCL08CA-06**	8	10	32	10	17	25	95°	CC__ 0602__
SCLCR10CA-09	**SCLCL10CA-09**	10	14	50	15	20	40		CC__ 09T3__
SCLCR12CA-12	**SCLCL12CA-12**	12	20	55	20	20	50		CC__ 1204__
SCLCR16CA-12	**SCLCL16CA-12**	16	25	63	21	25	60		CC__ 1204__

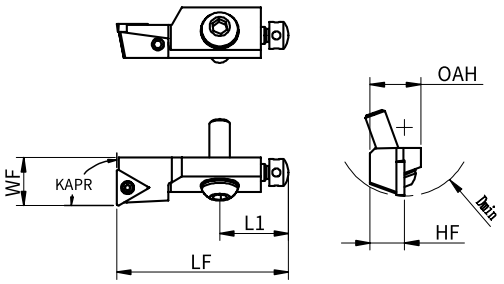


Right-hand Cartridge	Left-hand Cartridge	Dimensions (mm)						Approach Angle KAPR	Insert (Option)
		HF	WF	LF	OAH	L1	Dmin		
SDJCR08CA-07	**SDJCL08CA-07**	8	14	50	15	20	25	93°	DC__ 0702__
SDJCR10CA-07	**SDJCL10CA-07**	10	14	50	15	20	40		DC__ 0702__
SDJCR10CA-11	**SDJCL10CA-11**	10	14	50	15	20	40		DC__ 11T3__
SDJCR12CA-11	**SDJCL12CA-11**	12	20	55	20	20	50		DC__ 11T3__

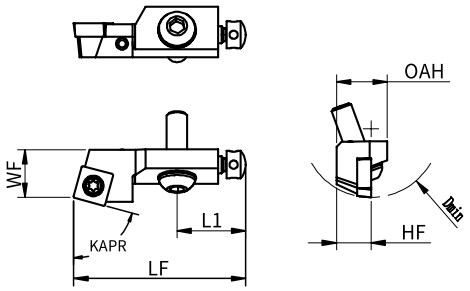


Right-hand Cartridge	Left-hand Cartridge	Dimensions (mm)						Approach Angle KAPR	Insert (Option)
		HF	WF	LF	OAH	L1	Dmin		
SCFCR08CA-06	**SCFCL08CA-06**	8	10	32	10	17	25	90°	CC__ 0602__
SCFCR10CA-06	**SCFCL10CA-06**	10	14	50	15	20	40		CC__ 0602__
SCFCR10CA-09	**SCFCL10CA-09**	10	14	50	15	20	40		CC__ 09T3__
SCFCR12CA-09	**SCFCL12CA-09**	12	20	55	20	20	50		CC__ 09T3__
SCFCR12CA-12	**SCFCL12CA-12**	12	20	55	20	20	50		CC__ 1204__
SCFCR16CA-12	**SCFCL16CA-12**	16	25	63	20	25	60		CC__ 1204__

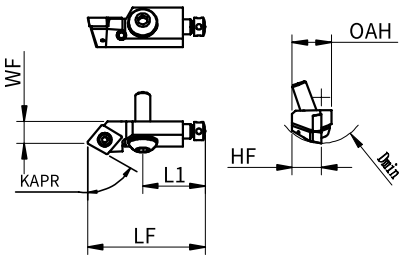
ISO Screw Clamping Cartridge



Right-hand Cartridge	Left-hand Cartridge	Dimensions (mm)						Approach Angle KAPR	Insert (Option)
		HF	WF	LF	OAH	L1	Dmin		
STFCR08CA-09	**STFCL08CA-09**	8	10	32	10	17	25	90°	TC__ 0902__
STFCR10CA-11	**STFCL10CA-11**	10	14	50	15	20	40		TC__ 1102__
STFCR12CA-16	**STFCL12CA-16**	12	20	55	20	20	50		TC__ 16T3__
STFCR16CA-16	**STFCL16CA-16**	16	25	63	21	25	60		TC__ 16T3__

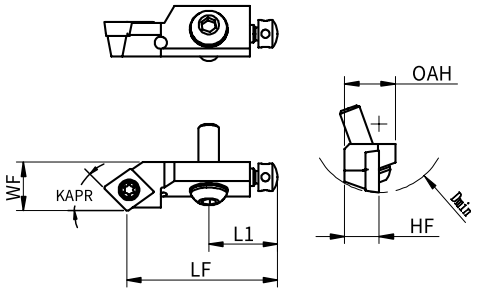


Right-hand Cartridge	Left-hand Cartridge	Dimensions (mm)						Approach Angle KAPR	Insert (Option)
		HF	WF	LF	OAH	L1	Dmin		
SSRCR10CA-09	**SSRCL10CA-09**	10	14	50	15	20	40	75°	SC__ 09T3__
SSRCR12CA-09	**SSRCL12CA-09**	12	20	55	20	20	50		SC__ 09T3__
SSRCR12CA-12	**SSRCL12CA-12**	12	20	55	20	20	50		SC__ 1204__
SSRCR16CA-12	**SSRCL16CA-12**	16	25	63	21	25	55		SC__ 1204__

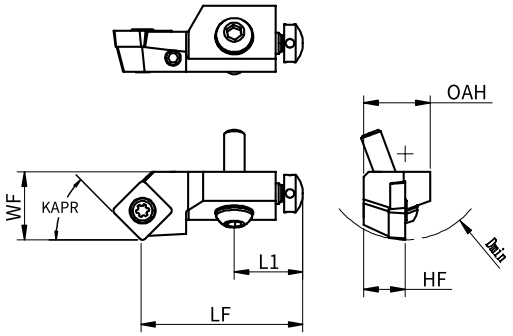


Right-hand Cartridge	Left-hand Cartridge	Dimensions (mm)						Approach Angle KAPR	Insert (Option)
		HF	WF	LF	OAH	L1	Dmin		
SCTCR08CA-06	**SCTCL08CA-06**	8	6	32	10	17	25	60°	CC__ 0602__
SCTCR10CA-09	**SCTCL10CA-09**	10	9	50	15	20	40		CC__ 09T3__

ISO Screw Clamping Cartridge



Right-hand Cartridge	Left-hand Cartridge	Dimensions (mm)						Approach Angle KAPR	Insert (Option)
		HF	WF	LF	OAH	L1	Dmin		
SCSCR08CA-06	**SCSCL08CA-06**	8	10	28	10	17	25	45°	CC__ 0602__
SCSCR10CA-09	**SCSCL10CA-09**	10	14	44	44	20	40		CC__ 09T3__



Right-hand Cartridge	Left-hand Cartridge	Dimensions (mm)						Approach Angle KAPR	Insert (Option)
		HF	WF	LF	OAH	L1	Dmin		
SSSCR10CA-09	**SSSCL10CA-09**	10	14	44	15	20	40	45°	SC__ 09T3__
SSSCR12CA-09	**SSSCL12CA-09**	12	20	47	20	20	50		SC__ 09T3__
SSSCR12CA-12	**SSSCL12CA-12**	12	20	47	20	20	50		SC__ 1204__
SSSCR16CA-12	**SSSCL16CA-12**	16	25	53	21	25	60		SC__ 1204__

Fine Adjustment Cartridge Denomination System

AFB	-	C	90	16	-	C	C	06	R
1	-	2	3	4	-	5	6	7	8

1-Fine Boring Code

AFB--Series name
Achteck Fine Boring

3-Approach Angle Kr

90---Approach angle 90°
95---Approach angle 95°
120--Approach angle 120°

5-Insert Shape

C: 

6-Insert Clearance Angle

C: 

P: 

8-Cartridge Direction

R: Right-hand
L: Left-hand

2-Fine Adjustment Cartridge Type

Type A:
With an angle installation



Type B:
perpendicular installation

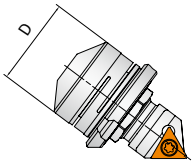


Type C:

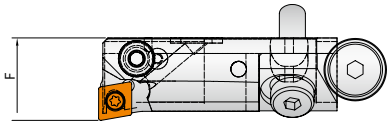


4-Cartridge Dimension

D = 16mm

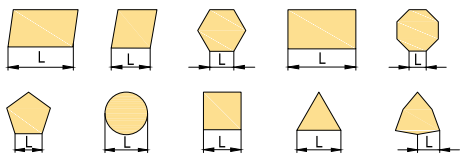


F= 16mm



7-Length of Cutting Edge

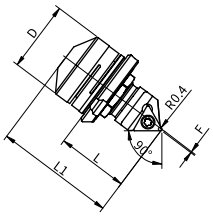
Incircle Dia. (mm)	Insert Shape C	D	R	S	T	V	W	K
3.97					06		02	
5.0			05					
5.56					09			
6.0		06						
6.35	06	07			11	11	04	
8.0			08					
9.525	09	11	09	09	16	16	06	16
10.0			10					
12.0			12					
12.7	12	15	12	12	22	22	08	
15.875	16		15	15	27			
16.0			16					



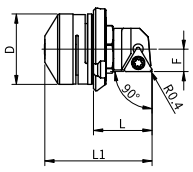
A/B Type Fine Adjustment Cartridge



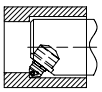
A-type Fine Adjustment Cartridge

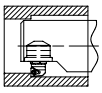


A-type Fine Adjustment Cartridge--installation with an angle



B-Type Fine Adjustment Cartridge---perpendicular installation

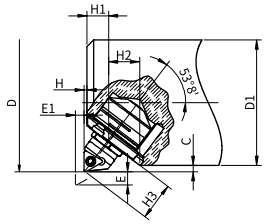
Installation method	Right-hand	Left-hand	Approach Angle	Dmin	D	L1	L	F	Insert	Screw & Wrench
 Installation with an angle	**AFB-A9016-CC06R**	**AFB-A9016-CC06L**	90°	25.5	16	25.15	14.3	0.45	CC__ 0602__	ST025060 FT-T8
	AFB-A9016-TB06R	**AFB-A9016-TB06L**		24.8	16	25.0	14.3	0.49	TB__ 0601__	ST020040 FT-T6
	AFB-A9020-TC09R	**AFB-A9020-TC09L**		32.5	20	33.7	19.1	0.9	TC__ 0902__	ST022055 FT-T6
	AFB-A9020-TP09R	**AFB-A9020-TP09L**			20	33.7	19.1	0.9	TP__ 0902__	ST025060 FT-T8
	AFB-A9022-TC11R	**AFB-A9022-TC11L**		42.0	22	45.3	23.0	1.1	TC__ 1102__	ST025060 FT-T8
	AFB-A9022-TP11R	**AFB-A9022-TP11L**			22	45.3	23.0	1.1	TP__ 1103__	ST030070 FT-T10
	AFB-A9032-TC16R	**AFB-A9032-TC16L**		59.5	32	62.3	33.3	1.2	TC__ 16T3__	ST040100 FT-T15

Installation method	Right-hand	Left-hand	Approach Angle	Dmin	D	L1	L	F	Insert	Screw & Wrench
 Perpendicular installation	**AFB-B9016-CC06R**	**AFB-B9016-CC06L**	90°	27.0	16	24.2	13.3	5.1	CC__ 0602__	ST025060 FT-T8
	AFB-B9016-TB06R	**AFB-B9016-TB06L**		27.0	16	24.2	13.3	5.1	TB__ 0601__	ST020040 FT-T6
	AFB-B9020-TC09R	**AFB-B9020-TC09L**		36.5	20	32.9	18.3	6.3	TC__ 0902__	ST022055 FT-T6
	AFB-B9020-TP09R	**AFB-B9020-TP09L**			20	32.9	18.3	6.3	TP__ 0902__	ST025060 FT-T8
	AFB-B9022-TC11R	**AFB-B9022-TC11L**		48.5	22	44.3	22.1	7.2	TC__ 1102__	ST025060 FT-T8
	AFB-B9022-TP11R	**AFB-B9022-TP11L**			22	44.3	22.1	7.2	TP__ 1103__	ST030070 FT-T10
	AFB-B9032-TC16R	**AFB-B9032-TC16L**		68.4	32	62.7	32.0	10.3	TC__ 16T3__	ST040100 FT-T15

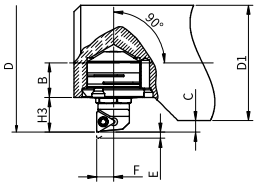
- For cartridge installed in an angle, axial movement = radial movement/tan53° 8′ .
- Never loosen the cartridge beyond the adjustment range indicated by the adjustment wrench, as exceeding the adjustment range may result in damage to the unit.
- Type A/B cartridge is self-locking, so there is no need to unlock it before size adjustment and no need to lock it after adjustment.
- The fine adjustment cartridge has a dial, and the radial adjustment size is ∅0.02mm per minute scale.

Fine Adjustment Cartridge Instruction

Type A/B fine adjustment cartridge dimension



A-type Fine Adjustment Cartridge---
Installation with an angle



B-type Fine Adjustment Cartridge---
Perpendicular installation

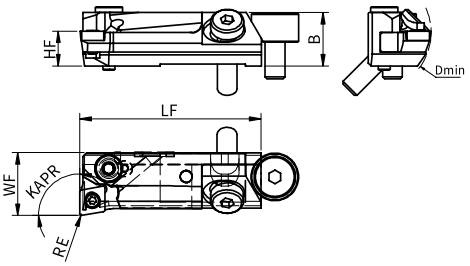
Installation Method	Insert		D1	D	C	E	E1	H3	H	H1	H2	F
	Model	RE	min	min	min	max	max	min				
Installation with an angle	CC__ 06	0.2	22.0	26.2	1.70	2.0	1.5	11.0	0.5	6.6	9.55	0.40
		0.4		25.9	1.65			10.7				0.40
		0.8		25.3	1.60			10.1				0.45
	TB__ 06	0.2		25.7	1.50			10.9				0.40
		0.4		25.4	1.45			10.6				0.40
		0.8		24.8	1.40			10.0				0.45
	T__ 09	0.2	28.5	33.4	2.45	2.8	2.1	14.9		9.4	12.15	0.95
		0.4		33.1	2.30			14.5				1.00
		0.8		32.5	2.00			13.7				1.10
	T__ 11	0.2	38.0	42.9	2.45	4.8	3.6	17.6		11.2	14.85	1.15
		0.4		42.6	2.30			17.2				1.20
		0.8		42.0	2.00			16.4				1.30
	TC__ 16	0.2	55.0	60.6	2.80	8.0	6.0	26.2		16.65	12.70	1.30
		0.4		60.0	2.50			25.4				1.40
		0.8		59.4	2.20			24.6				1.50

Installation Method	Insert		D1	D	C	E	B	H3	F
	Model	RE	min	min	min	max	min	min	
Perpendicular installation	CC__ 06	0.2	26.0	27.9	0.60	2.5	3.6	9.80	5.1
		0.4		27.6	0.55			9.60	
		0.8		27.0	0.50			9.10	
	TB__ 06	0.2	24.0	25.9	0.60			8.80	
		0.4		25.6	0.55			8.60	
		0.8		25.0	0.50			8.10	
	T__ 09	0.2	34.5	37.4	1.45	3.5	4.55	13.95	6.3
		0.4		37.1	1.30			13.60	
		0.8		36.5	1.00			12.90	
	T__ 11	0.2	46.5	49.7	1.45	6.0	7.75	16.75	7.2
		0.4		49.1	1.30			16.40	
		0.8		48.5	1.00			15.70	
	TC__ 16	0.2	67.0	69.6	1.30	10.0	9.4	25.00	10.3
		0.4		69.0	1.00			24.30	
		0.8		68.4	0.70			23.60	

C-Type Fine Adjustment Cartridge

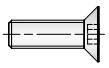


Right hand cartridge



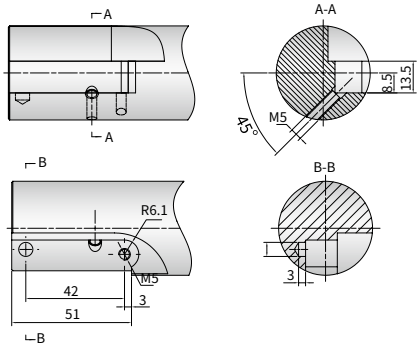
Right-hand Cartridge	Left-hand Cartridge	Dimensions (mm)					Approach angle KAPR	Insert	Screw & Wrench
		Dmin	LF	WF	B	HF			
AFB-C9016-CC06R	**AFB-C9016-CC06L**	28	45.8	16	13.5	8.5	90°	CC__ 060204	ST025060 FT-T8
AFB-C9516-CC06R	**AFB-C9516-CC06L**						95°	CC__ 060204	
AFB-C9016-TP09R	**AFB-C9016-TP09L**						90°	TP__ 090204	
AFB-C9516-TP09R	**AFB-C9516-TP09L**						95°	TP__ 090204	
AFB-C12016-DC07R	**AFB-C12016-DC07L**	28	47.5	16			120°	DC__ 070204	
AFB-C9020-TC11R	**AFB-C9020-TC11L**	36	45.8	20			90°	TC__ 110204	
AFB-C9520-TC11R	**AFB-C9520-TC11L**						95°	TC__ 110204	
AFB-C9020-TP11R	**AFB-C9020-TP11L**						90°	TP__ 110304	ST030070 FT-T10
AFB-C9520-TP11R	**AFB-C9520-TP11L**						95°	TP__ 110304	

- Please read the Type C adjustment instruction before making adjustments to avoid damage to the parts.
- When TP_ _ 0902 carbide insert is selected, the hole diameter of the insert screw must be larger than 2.8.
- Fine adjustment accuracy is ⌀0.01mm in diameter.
- Axial adjustment movement is 0-1mm; radial adjustment movement is 0- ⌀0.6mm.

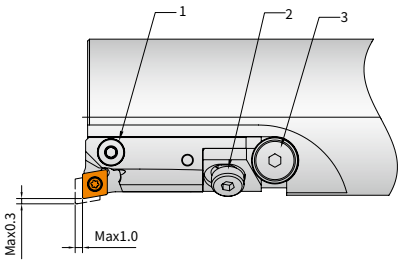
Axial adjustment block	Axial adjustment screw	Lock screw	Cartridge locking wrench	Radial adjustment wrench	Axial adjustment wrench
					
ASV-12H	AH050200	SH050200	LT-H4	LT-H2.5	LT-H3

Fine Adjustment Cartridge Instruction

Detailed dimensions



The method of adjustment



1. Radial adjustmen
2. Cartridge set screw
3. Axial adjusting screw

Axial adjustment.

- Slightly loosen the cartridge locking screw (position 2 shown)
- Turn the axial adjustment screw clockwise (position 3 shown); move the cartridge forward to the requested size
- Lock the cartridge screw (position 2 shown)

Note: If the cartridge needs to be adjusted backward in axial, loosen the cartridge locking screw and move the cartridge to the last position, then adjust the position 3 shown to the requested size

Radial adjustment.

- Turn the radial adjustment screw clockwise (position 1 shown); the tool diameter becomes larger (⌀0.01mm per scale)
- Turn the radial adjustment screw counterclockwise (position 1 shown); the tool diameter becomes smaller (⌀0.01mm per scale)

Boring Insert

	S/N	Insert	Workpiece material	Insert grade	Description	Stock
CC_ _ 0602_ _	1	**CCMT 060204E-PC2**	Steel	AC152P	Coated carbide insert (P05-P15)	●
	2	**CCMT 060204E-PC2**		AC252P	Coated carbide insert (P20-P35)	●
	3	**CCMT 060204E-PC2**	Low alloyed steel/ stainless steel	AP301M	Coated carbide insert (M15-M35)	●
	4	**CCMT 060204E-KC2**	Cast iron	AC102K	Coated carbide insert (K05-K15)	●
	5	**CCMT 060204E-KC2**		AC202K	Coated carbide insert (K10-K30)	●
	6	**CCGW 060204-S01020-SL-2**		PB90	CBN Insert (K01-K20)	○
	7	**CCGT 060204F-NC2**	Aluminium	AW100K	Carbide insert	●
	8	**CCGW 060204-1-NL-05**		PD20	Standard PCD insert	○

	S/N	Insert	Workpiece material	Insert grade	Description	Stock
CC_ _ 09T3_ _	1	**CCMT 09T308-M2T**	Steel	AT202	Cermet (P10-P20)	●
	2	**CCMT 09T308E-PC2**		AC152P	Coated carbide insert (P05-P15)	●
	3	**CCMT 09T308E-PC2**		AC252P	Coated carbide insert (P20-P35)	●
	4	**CCMT 09T308E-PC2**	Low alloyed steel/ stainless steel	AP301M	Coated carbide insert (M15-M35)	●
	5	**CCMT 09T308E-KC2**	Cast iron	AC102K	Coated carbide insert (K05-K15)	●
	6	**CCMT 09T308E-KC2**		AC202K	Coated carbide insert (K10-K30)	●
	7	**CCGW 09T308-S01020-SL-2**		PB90	CBN (K01-K20)	○
	8	**CCGT 09T308F-NC2**	Aluminium	AW100K	Carbide insert	●
	9	**CCGW 09T308-1-NL-05**		PD20	Standard PCD insert	○
	10	**CCGW 09T308-1-LL-05**		PD20	Straight-edge PCD insert	○

	S/N	Insert	Workpiece material	Insert grade	Description	Stock
CC_ _ 1204_ _	1	**CCMT 120408E-PC2**	Steel	AT202	Cermet (P10-P20)	●
	2	**CCMT 120408E-PC2**		AC152P	Coated carbide insert (P05-P15)	●
	3	**CCMT 120408E-PC2**		AC252P	Coated carbide insert (P20-P35)	●
	4	**CCMT 120408E-PC2**	Low alloyed steel/ stainless steel	AP301M	Coated carbide insert (M15-M35)	●
	5	**CCMT 120408E-KC2**	Cast iron	AC102K	Coated carbide insert (K05-K15)	●
	6	**CCMT 120408E-KC2**		AC202K	Coated carbide insert (K10-K30)	●
	7	**CCGW 120408-S01020-SL-2**		PB90	CBN (K01-K20)	○
	8	**CCGT 120408F-NC2**	Aluminium	AW100K	Carbide insert	●
	9	**CCGW 120408-1-NL-05**		PD20	Standard PCD insert	○

	S/N	Insert	Workpiece material	Insert grade	Description	Stock
TP_ _ 0802_ _	1	**TPGT 080204FL-F**	Steel	AT200	Cermet (P10-P20)	●
	2	**TPEH 080204FL-F**	Low alloyed steel/ stainless steel	AP301M	Coated carbide insert (M15-M35)	●
	3	**TPGW 080202-1-NL-05**	Aluminium	PD20	Standard PCD insert	○
	4	**TPGW 080204-1-NL-05**		PD20	Standard PCD insert	○

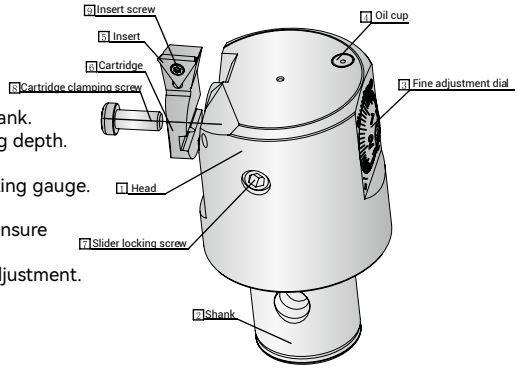
	S/N	Insert	Workpiece material	Insert grade	Description	Stock
TC_ _ 1102_ _	1	**TCMT 110204-M2T**	Steel	AT202	Cermet (P10-P20)	●
	2	**TCGT 110204FL-F**		AT200	Cermet (P10-P20)	●
	3	**TCMT 110202E-PB1**		AC250P	Coated carbide insert (P20-P35)	●
	4	**TCMT 110204E-PB1**		AC250P	Coated carbide insert (P20-P35)	●
	5	**TCGT 110204F-UF**	Low alloyed steel/ stainless steel	AP301M	Coated carbide insert (M15-M35)	●
	6	**TCGT 110204E-UF**		AP301M	Coated carbide insert (M15-M35)	●
	7	**TCMT 110204E-KC2**	Cast iron	AC202K	Coated carbide insert (K10-K30)	●
	8	**TCGT 110204F-NC2**	Aluminium	AW100K	Carbide insert	●
	9	**TCGW 110202-1-NL-05**		PD20	Standard PCD insert	○
	10	**TCGW 110204-1-NL-05**		PD20	Standard PCD insert	○

● : Standard stock ○ : Made-to-Order

AFB Series Fine Boring Head Operator's Manual

Procedures of Use

Main Components of Fine Boring Head



Preparation:
1. Verify that the adjustment range of the fine boring head meets the requirement of the bore diameter to be machined.
2. Check (right figure) that all parts are in order; that the cartridge and insert locking screws are locked tight.
3. Clean and wipe the shank mounting hole and tighten the boring head mounting screw on the shank.
4. Confirm that the assembled boring tool meets the requirement of boring diameter and machining depth.

Step 1: Loosen the fine adjustment cartridge locking screw ⑦ on the tool change chuck or tool setting gauge.
Step 2: Rotate the fine adjustment dial ③ to preset to the size needed as indicated .
Step 3: When preset to the size needed, please make the fine adjustment in the same direction to ensure the fine adjustment accuracy.
Step 4: Tighten the fine adjustment cartridge locking screw ⑦ with proper force to complete the adjustment.

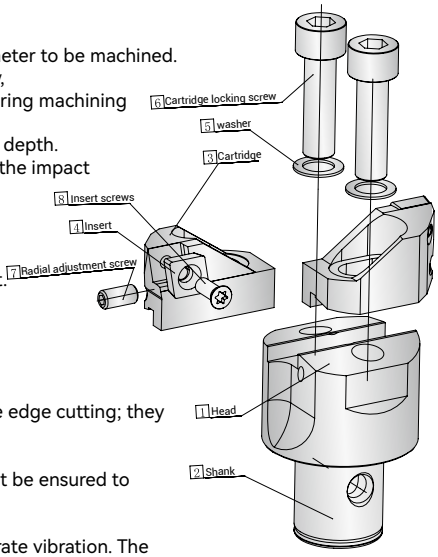
Attention

1. Before machining, make sure all parts are locked properly to avoid damage to the boring head during machining.
2. The AFB series fine boring head rotated its internal precision screw to achieve radial movement of the cartridge. In case of excessive resistance or unable to turn the adjustment dial, stop the operation and check immediately (whether the adjustment cartridge screw is loose or it is out of the adjustment range of the boring head diameter).
3. For back-boring, use the right-hand insert and reverse rotate the machine spindle, paying attention to the interference range during the movement.
4. For long overhang (> 4 x coupling diameter), it is recommended to use anti-vibration boring tools.
5. Large insert nose radius will help to improve machining safety and surface quality, but may generate vibration. An insert nose radius bigger than 0.4 mm should not be used for finish boring.

ARB Series Rough Boring Head Operator's Manual

Procedures of Use

Main Components of Rough Boring Head



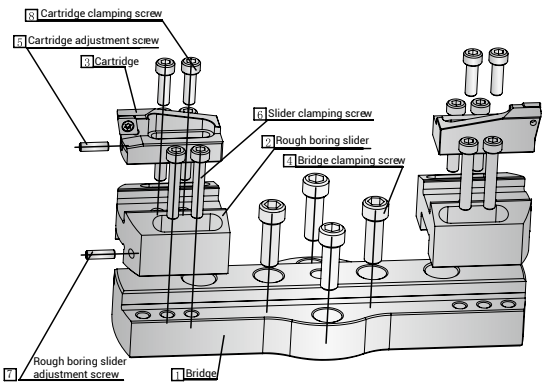
Preparation:
1.Verify that the adjustment range of the rough boring head meets the requirement of the bore diameter to be machined.
2.Check (as shown on the right) that all parts are in order; and the cartridge, radial adjustment screw, and insert locking screw are locked to prevent damage to the tool or to avoid cartridge flying out during machining and causing accidents.
3.Confirm that the assembled boring tool meets the requirement for boring diameter and machining depth.
Pay attention to the chip removal, cooling, cutting depth and other conditions, and pay attention to the impact of chips to the vibration control.

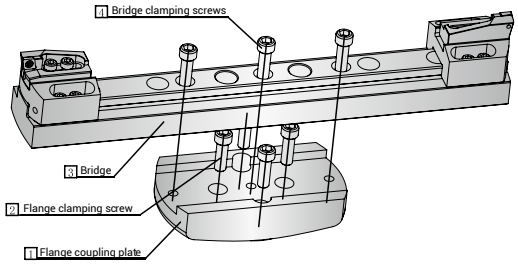
Step 1: On the tool change chuck or tool setting gauge, loosen the cartridge screw ⑥ .
Step 2: Turn the radial adjustment screw ⑦ to reach the required size of the tool.
Step 3: After adjusting to the size of the tool, lock the cartridge screw ⑥ to complete the adjustment.

Attention

1. Before machining, ensure that all parts are properly locked to avoid damage to the boring head or prevent the cartridge flying out during machining, which may cause accidents.
2. ARB series rough boring heads are designed for equal radius and balanced machining with double edge cutting; they are used for rough boring with tolerances greater than or equal to IT9 when metal removal rate is a priority.
3. For rough boring with large depth of cut, adequate chip space and chip evacuation condition must be ensured to reduce tool vibration caused by chip jam.
4. For long overhang (> 4 x coupling diameter), it is recommended to use anti-vibration boring tools.
5. A large insert nose radius will help to improve machining safety and surface quality, but may generate vibration. The recommended starting tip nose radius is 0.8 mm.

Bridge boring main parts name





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Solid Carbide Drill

Solid Carbide Drill

CUTTING TOOL CATALOGUE

Solid Carbide Drill 548

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Solid Carbide Drill Denomination System

D	1	05	-	03	-	12700	A	1
1	2	3	-	4	-	5	6	7

1-Tool Group	
D	Drilling

2-Generation
1

3-Tool Type	
00-09	General-purpose drills
10-19	Micro-diameter drills
20-29	High-performance drills
30-39	Steel-specific drills
40-49	Aluminum-specific drills
50-59	S.S.-specific drills
60-69	Hard-to-cut material drills
70-79	Hard material drills
80-99	Others

4-Drilling Depth	
03	~3xDc in accordance with DIN 6537K
05	~5xDc in accordance with DIN 6537L
08	~8xDc in accordance with Achteck standard

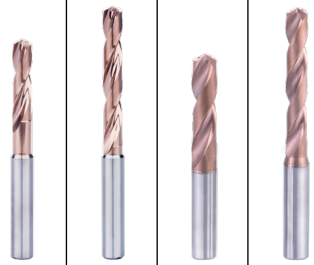
5-Cutting Diameter	
03000	3.0mm
12100	12.1mm

6-Shank Type	
A	DIN 6535 HA cylindrical shank

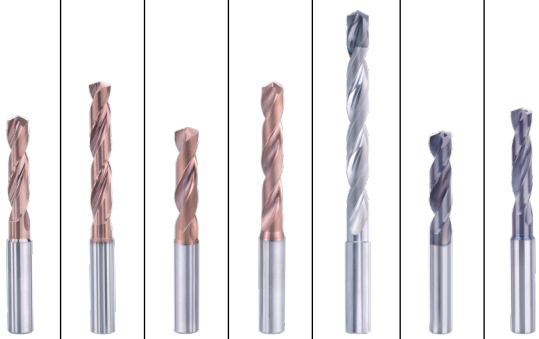
7-Coolant	
0	External coolant
1	Internal coolant

Product Overview

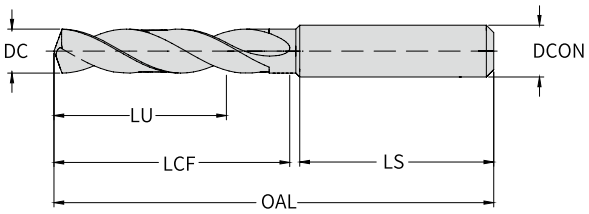
External coolant

Machining application	① Through hole		② Blind hole	
Drilling depth	3xDc	5xDc	3xDc	5xDc
Product line	ECO	ECO	PRO	PRO
Series	D105	D105	D106	D106
Illustration				
Standard	DIN 6537 K	DIN 6537 L	DIN 6537 K	DIN 6537 L
Dia. Range(mm)	3~20	3~20	3~20	3~20
Cutting edge	h7	h7	m7	m7
Page	P551	P555	P567	P571
P steel	●●	●●	●●	●●
M stainless steel				
K cast iron	●●	●●	●●	●●
N non-ferrous	●	●	●●	●●
S Super Alloy				
H hard materials	●	●		

Internal coolant

Machining application	① Through hole		② Blind hole				
Drilling depth	3xDc	5xDc	3xDc	5xDc	8xDc	3xDc	5xDc
Product line	ECO	ECO	PRO	PRO	PRO	PRO	PRO
Series	D105	D105	D106	D106	D108	D151	D151
Illustration							
Standard	DIN 6537 K	DIN 6537 L	DIN 6537 K	DIN 6537 L	Achteck	DIN 6537 K	DIN 6537 L
Dia. Range(mm)	3~20	3~20	3~16	3~16	3~16	3~16	3~16
Cutting edge	h7	h7	m7	m7	m7	m7	m7
Page	P559	P563	P575	P579	P583	P586	P589
P steel	●●	●●	●●	●●	●●	●	●
M stainless steel	●	●	●	●	●	●●	●●
K cast iron	●●	●●	●●	●●	●●	●	●
N non-ferrous	●●	●●	●●	●●	●●	●●	●●
S Super Alloy	●	●	●	●	●	●●	●●
H hard materials	●	●	●	●	●		

Solid Carbide External Coolant Drill D105 3xDc



P	M	K	N	S	H
••		••	•		•

•• 1st choice • 2nd choice

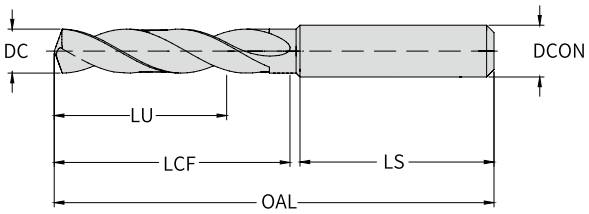


Product code	DC(h7) mm	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D105-03-03000A0	3.0	14	62	20	36	4	●
D105-03-03100A0	3.1	14	62	20	36	4	●
D105-03-03200A0	3.2	14	62	20	36	4	●
D105-03-03300A0	3.3	14	62	20	36	4	●
D105-03-03400A0	3.4	14	62	20	36	4	●
D105-03-03500A0	3.5	14	62	20	36	4	●
D105-03-03600A0	3.6	14	62	20	36	4	●
D105-03-03700A0	3.7	14	62	20	36	4	●
D105-03-03800A0	3.8	17	66	24	36	4	●
D105-03-03900A0	3.9	17	66	24	36	4	○
D105-03-04000A0	4.0	17	66	24	36	4	●
D105-03-04100A0	4.1	17	66	24	36	6	●
D105-03-04200A0	4.2	17	66	24	36	6	●
D105-03-04300A0	4.3	17	66	24	36	6	●
D105-03-04400A0	4.4	17	66	24	36	6	●
D105-03-04500A0	4.5	17	66	24	36	6	●
D105-03-04600A0	4.6	17	66	24	36	6	●
D105-03-04700A0	4.7	17	66	24	36	6	●
D105-03-04800A0	4.8	20	66	28	36	6	●
D105-03-04900A0	4.9	20	66	28	36	6	○
D105-03-05000A0	5.0	20	66	28	36	6	●
D105-03-05100A0	5.1	20	66	28	36	6	●
D105-03-05200A0	5.2	20	66	28	36	6	●
D105-03-05300A0	5.3	20	66	28	36	6	●
D105-03-05400A0	5.4	20	66	28	36	6	●
D105-03-05500A0	5.5	20	66	28	36	6	●
D105-03-05600A0	5.6	20	66	28	36	6	○
D105-03-05700A0	5.7	20	66	28	36	6	○
D105-03-05800A0	5.8	20	66	28	36	6	●
D105-03-05900A0	5.9	20	66	28	36	6	○
D105-03-06000A0	6.0	20	66	28	36	6	●
D105-03-06100A0	6.1	24	79	34	36	8	●
D105-03-06200A0	6.2	24	79	34	36	8	○
D105-03-06300A0	6.3	24	79	34	36	8	●
D105-03-06400A0	6.4	24	79	34	36	8	○
D105-03-06500A0	6.5	24	79	34	36	8	●
D105-03-06600A0	6.6	24	79	34	36	8	●
D105-03-06700A0	6.7	24	79	34	36	8	●
D105-03-06800A0	6.8	24	79	34	36	8	●
D105-03-06900A0	6.9	24	79	34	36	8	●
D105-03-07000A0	7.0	24	79	34	36	8	●
D105-03-07100A0	7.1	29	79	41	36	8	●
D105-03-07200A0	7.2	29	79	41	36	8	●
D105-03-07300A0	7.3	29	79	41	36	8	○

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide External Coolant Drill D105 3xDc



P	M	K	N	S	H
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•• 1st choice • 2nd choice

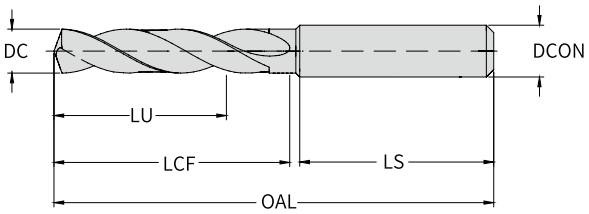


Product code	DC(h7) mm	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D105-03-07400A0	7.4	29	79	41	36	8	○
D105-03-07500A0	7.5	29	79	41	36	8	●
D105-03-07600A0	7.6	29	79	41	36	8	○
D105-03-07700A0	7.7	29	79	41	36	8	○
D105-03-07800A0	7.8	29	79	41	36	8	●
D105-03-07900A0	7.9	29	79	41	36	8	●
D105-03-08000A0	8.0	29	79	41	36	8	●
D105-03-08100A0	8.1	35	89	47	40	10	●
D105-03-08200A0	8.2	35	89	47	40	10	●
D105-03-08300A0	8.3	35	89	47	40	10	○
D105-03-08400A0	8.4	35	89	47	40	10	○
D105-03-08500A0	8.5	35	89	47	40	10	●
D105-03-08600A0	8.6	35	89	47	40	10	●
D105-03-08700A0	8.7	35	89	47	40	10	●
D105-03-08800A0	8.8	35	89	47	40	10	●
D105-03-08900A0	8.9	35	89	47	40	10	○
D105-03-09000A0	9.0	35	89	47	40	10	●
D105-03-09100A0	9.1	35	89	47	40	10	●
D105-03-09200A0	9.2	35	89	47	40	10	●
D105-03-09300A0	9.3	35	89	47	40	10	●
D105-03-09400A0	9.4	35	89	47	40	10	●
D105-03-09500A0	9.5	35	89	47	40	10	●
D105-03-09600A0	9.6	35	89	47	40	10	●
D105-03-09700A0	9.7	35	89	47	40	10	●
D105-03-09800A0	9.8	35	89	47	40	10	●
D105-03-09900A0	9.9	35	89	47	40	10	○
D105-03-10000A0	10.0	35	89	47	40	10	●
D105-03-10100A0	10.1	40	102	55	45	12	○
D105-03-10200A0	10.2	40	102	55	45	12	●
D105-03-10300A0	10.3	40	102	55	45	12	●
D105-03-10400A0	10.4	40	102	55	45	12	●
D105-03-10500A0	10.5	40	102	55	45	12	●
D105-03-10600A0	10.6	40	102	55	45	12	○
D105-03-10700A0	10.7	40	102	55	45	12	○
D105-03-10800A0	10.8	40	102	55	45	12	●
D105-03-10900A0	10.9	40	102	55	45	12	○
D105-03-11000A0	11.0	40	102	55	45	12	●
D105-03-11100A0	11.1	40	102	55	45	12	○
D105-03-11200A0	11.2	40	102	55	45	12	○
D105-03-11300A0	11.3	40	102	55	45	12	○
D105-03-11400A0	11.4	40	102	55	45	12	○
D105-03-11500A0	11.5	40	102	55	45	12	●
D105-03-11600A0	11.6	40	102	55	45	12	○
D105-03-11700A0	11.7	40	102	55	45	12	○

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide External Coolant Drill D105 3xDc



P	M	K	N	S	H
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•• 1st choice • 2nd choice



Product code	DC(h7) mm	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D105-03-11800A0	11.8	40	102	55	45	12	○
D105-03-11900A0	11.9	40	102	55	45	12	○
D105-03-12000A0	12.0	40	102	55	45	12	●
D105-03-12100A0	12.1	43	107	60	45	14	○
D105-03-12200A0	12.2	43	107	60	45	14	○
D105-03-12300A0	12.3	43	107	60	45	14	○
D105-03-12400A0	12.4	43	107	60	45	14	○
D105-03-12500A0	12.5	43	107	60	45	14	○
D105-03-12600A0	12.6	43	107	60	45	14	●
D105-03-12700A0	12.7	43	107	60	45	14	●
D105-03-12800A0	12.8	43	107	60	45	14	●
D105-03-12900A0	12.9	43	107	60	45	14	○
D105-03-13000A0	13.0	43	107	60	45	14	●
D105-03-13100A0	13.1	43	107	60	45	14	○
D105-03-13200A0	13.2	43	107	60	45	14	●
D105-03-13300A0	13.3	43	107	60	45	14	●
D105-03-13400A0	13.4	43	107	60	45	14	○
D105-03-13500A0	13.5	43	107	60	45	14	●
D105-03-13600A0	13.6	43	107	60	45	14	○
D105-03-13700A0	13.7	43	107	60	45	14	○
D105-03-13800A0	13.8	43	107	60	45	14	○
D105-03-13900A0	13.9	43	107	60	45	14	○
D105-03-14000A0	14.0	43	107	60	45	14	●
D105-03-14100A0	14.1	45	115	65	48	16	○
D105-03-14200A0	14.2	45	115	65	48	16	●
D105-03-14300A0	14.3	45	115	65	48	16	○
D105-03-14400A0	14.4	45	115	65	48	16	○
D105-03-14500A0	14.5	45	115	65	48	16	●
D105-03-14600A0	14.6	45	115	65	48	16	○
D105-03-14700A0	14.7	45	115	65	48	16	●
D105-03-14800A0	14.8	45	115	65	48	16	○
D105-03-14900A0	14.9	45	115	65	48	16	○
D105-03-15000A0	15.0	45	115	65	48	16	●
D105-03-15100A0	15.1	45	115	65	48	16	○
D105-03-15200A0	15.2	45	115	65	48	16	○
D105-03-15300A0	15.3	45	115	65	48	16	○
D105-03-15400A0	15.4	45	115	65	48	16	○
D105-03-15500A0	15.5	45	115	65	48	16	●
D105-03-15600A0	15.6	45	115	65	48	16	○
D105-03-15700A0	15.7	45	115	65	48	16	○
D105-03-15800A0	15.8	45	115	65	48	16	○
D105-03-15900A0	15.9	45	115	65	48	16	○
D105-03-16000A0	16.0	45	115	65	48	16	●
D105-03-16100A0	16.1	51	123	73	48	18	○

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide External Coolant Drill D105 3xDc

P	M	K	N	S	H
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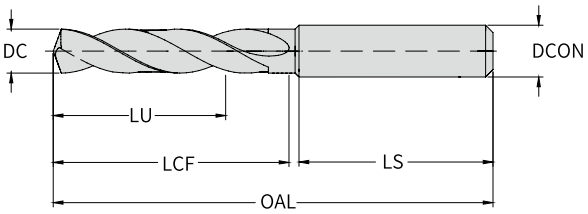
•• 1st choice • 2nd choice



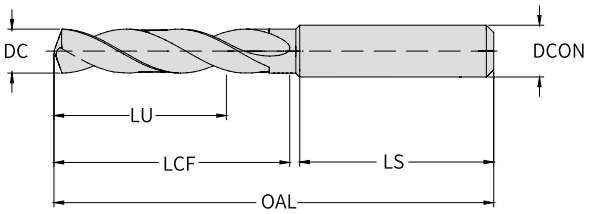


Product code	DC(h7) mm	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D105-03-16200A0	16.2	51	123	73	48	18	○
D105-03-16300A0	16.3	51	123	73	48	18	○
D105-03-16400A0	16.4	51	123	73	48	18	○
D105-03-16500A0	16.5	51	123	73	48	18	●
D105-03-16600A0	16.6	51	123	73	48	18	○
D105-03-16700A0	16.7	51	123	73	48	18	○
D105-03-16800A0	16.8	51	123	73	48	18	○
D105-03-16900A0	16.9	51	123	73	48	18	○
D105-03-17000A0	17.0	51	123	73	48	18	●
D105-03-17100A0	17.1	51	123	73	48	18	○
D105-03-17200A0	17.2	51	123	73	48	18	○
D105-03-17300A0	17.3	51	123	73	48	18	○
D105-03-17400A0	17.4	51	123	73	48	18	○
D105-03-17500A0	17.5	51	123	73	48	18	●
D105-03-17600A0	17.6	51	123	73	48	18	○
D105-03-17700A0	17.7	51	123	73	48	18	○
D105-03-17800A0	17.8	51	123	73	48	18	○
D105-03-17900A0	17.9	51	123	73	48	18	○
D105-03-18000A0	18.0	51	123	73	48	18	●
D105-03-18100A0	18.1	55	131	79	50	20	○
D105-03-18200A0	18.2	55	131	79	50	20	○
D105-03-18300A0	18.3	55	131	79	50	20	○
D105-03-18400A0	18.4	55	131	79	50	20	○
D105-03-18500A0	18.5	55	131	79	50	20	●
D105-03-18600A0	18.6	55	131	79	50	20	○
D105-03-18700A0	18.7	55	131	79	50	20	○
D105-03-18800A0	18.8	55	131	79	50	20	○
D105-03-18900A0	18.9	55	131	79	50	20	○
D105-03-19000A0	19.0	55	131	79	50	20	●
D105-03-19100A0	19.1	55	131	79	50	20	○
D105-03-19200A0	19.2	55	131	79	50	20	○
D105-03-19300A0	19.3	55	131	79	50	20	○
D105-03-19400A0	19.4	55	131	79	50	20	○
D105-03-19500A0	19.5	55	131	79	50	20	●
D105-03-19600A0	19.6	55	131	79	50	20	○
D105-03-19700A0	19.7	55	131	79	50	20	○
D105-03-19800A0	19.8	55	131	79	50	20	○
D105-03-19900A0	19.9	55	131	79	50	20	○
D105-03-20000A0	20.0	55	131	79	50	20	○

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide External Coolant Drill D105 5xDc



P	M	K	N	S	H
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•• 1st choice • 2nd choice

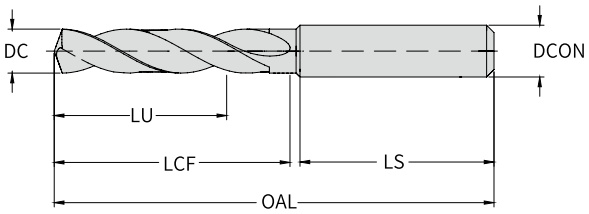


Product code	DC(h7) mm	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D105-05-03000A0	3.0	23	66	28	36	4	●
D105-05-03100A0	3.1	23	66	28	36	4	●
D105-05-03200A0	3.2	23	66	28	36	4	●
D105-05-03300A0	3.3	23	66	28	36	4	●
D105-05-03400A0	3.4	23	66	28	36	4	●
D105-05-03500A0	3.5	23	66	28	36	4	●
D105-05-03600A0	3.6	23	66	28	36	4	●
D105-05-03700A0	3.7	23	66	28	36	4	●
D105-05-03800A0	3.8	29	74	36	36	4	●
D105-05-03900A0	3.9	29	74	36	36	4	●
D105-05-04000A0	4.0	29	74	36	36	4	●
D105-05-04100A0	4.1	29	74	36	36	6	○
D105-05-04200A0	4.2	29	74	36	36	6	●
D105-05-04300A0	4.3	29	74	36	36	6	●
D105-05-04400A0	4.4	29	74	36	36	6	○
D105-05-04500A0	4.5	29	74	36	36	6	●
D105-05-04600A0	4.6	29	74	36	36	6	●
D105-05-04700A0	4.7	29	74	36	36	6	●
D105-05-04800A0	4.8	35	82	44	36	6	●
D105-05-04900A0	4.9	35	82	44	36	6	●
D105-05-05000A0	5.0	35	82	44	36	6	●
D105-05-05100A0	5.1	35	82	44	36	6	●
D105-05-05200A0	5.2	35	82	44	36	6	●
D105-05-05300A0	5.3	35	82	44	36	6	●
D105-05-05400A0	5.4	35	82	44	36	6	●
D105-05-05500A0	5.5	35	82	44	36	6	●
D105-05-05600A0	5.6	35	82	44	36	6	●
D105-05-05700A0	5.7	35	82	44	36	6	●
D105-05-05800A0	5.8	35	82	44	36	6	●
D105-05-05900A0	5.9	35	82	44	36	6	●
D105-05-06000A0	6.0	35	82	44	36	6	●
D105-05-06100A0	6.1	43	91	53	36	8	●
D105-05-06200A0	6.2	43	91	53	36	8	●
D105-05-06300A0	6.3	43	91	53	36	8	●
D105-05-06400A0	6.4	43	91	53	36	8	●
D105-05-06500A0	6.5	43	91	53	36	8	●
D105-05-06600A0	6.6	43	91	53	36	8	●
D105-05-06700A0	6.7	43	91	53	36	8	●
D105-05-06800A0	6.8	43	91	53	36	8	●
D105-05-06900A0	6.9	43	91	53	36	8	●
D105-05-07000A0	7.0	43	91	53	36	8	●
D105-05-07100A0	7.1	43	91	53	36	8	○
D105-05-07200A0	7.2	43	91	53	36	8	○
D105-05-07300A0	7.3	43	91	53	36	8	○

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide External Coolant Drill D105 5xDc



P	M	K	N	S	H
••		••	•		•

•• 1st choice • 2nd choice

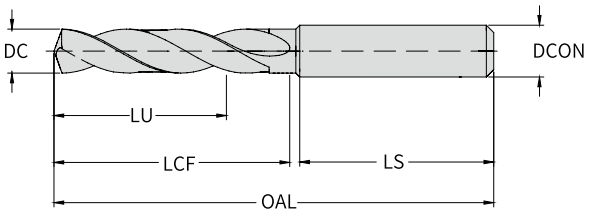


Product code	DC(h7) mm	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D105-05-07400A0	7.4	43	91	53	36	8	●
D105-05-07500A0	7.5	43	91	53	36	8	●
D105-05-07600A0	7.6	43	91	53	36	8	○
D105-05-07700A0	7.7	43	91	53	36	8	○
D105-05-07800A0	7.8	43	91	53	36	8	●
D105-05-07900A0	7.9	43	91	53	36	8	○
D105-05-08000A0	8.0	43	91	53	36	8	●
D105-05-08100A0	8.1	49	103	61	40	10	●
D105-05-08200A0	8.2	49	103	61	40	10	●
D105-05-08300A0	8.3	49	103	61	40	10	●
D105-05-08400A0	8.4	49	103	61	40	10	●
D105-05-08500A0	8.5	49	103	61	40	10	●
D105-05-08600A0	8.6	49	103	61	40	10	●
D105-05-08700A0	8.7	49	103	61	40	10	●
D105-05-08800A0	8.8	49	103	61	40	10	●
D105-05-08900A0	8.9	49	103	61	40	10	●
D105-05-09000A0	9.0	49	103	61	40	10	●
D105-05-09100A0	9.1	49	103	61	40	10	●
D105-05-09200A0	9.2	49	103	61	40	10	●
D105-05-09300A0	9.3	49	103	61	40	10	○
D105-05-09400A0	9.4	49	103	61	40	10	●
D105-05-09500A0	9.5	49	103	61	40	10	●
D105-05-09600A0	9.6	49	103	61	40	10	○
D105-05-09700A0	9.7	49	103	61	40	10	○
D105-05-09800A0	9.8	49	103	61	40	10	●
D105-05-09900A0	9.9	49	103	61	40	10	○
D105-05-10000A0	10.0	49	103	61	40	10	●
D105-05-10100A0	10.1	56	118	71	45	12	○
D105-05-10200A0	10.2	56	118	71	45	12	●
D105-05-10300A0	10.3	56	118	71	45	12	●
D105-05-10400A0	10.4	56	118	71	45	12	●
D105-05-10500A0	10.5	56	118	71	45	12	●
D105-05-10600A0	10.6	56	118	71	45	12	○
D105-05-10700A0	10.7	56	118	71	45	12	○
D105-05-10800A0	10.8	56	118	71	45	12	●
D105-05-10900A0	10.9	56	118	71	45	12	○
D105-05-11000A0	11.0	56	118	71	45	12	●
D105-05-11100A0	11.1	56	118	71	45	12	○
D105-05-11200A0	11.2	56	118	71	45	12	●
D105-05-11300A0	11.3	56	118	71	45	12	○
D105-05-11400A0	11.4	56	118	71	45	12	○
D105-05-11500A0	11.5	56	118	71	45	12	●
D105-05-11600A0	11.6	56	118	71	45	12	○
D105-05-11700A0	11.7	56	118	71	45	12	○

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide External Coolant Drill D105 5xDc



P	M	K	N	S	H
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•• 1st choice • 2nd choice

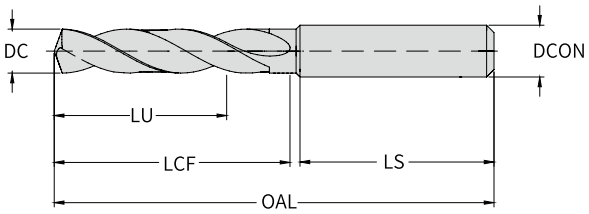


Product code	DC(h7) mm	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D105-05-11800A0	11.8	56	118	71	45	12	●
D105-05-11900A0	11.9	56	118	71	45	12	○
D105-05-12000A0	12.0	56	118	71	45	12	●
D105-05-12100A0	12.1	60	124	77	45	14	○
D105-05-12200A0	12.2	60	124	77	45	14	●
D105-05-12300A0	12.3	60	124	77	45	14	○
D105-05-12400A0	12.4	60	124	77	45	14	○
D105-05-12500A0	12.5	60	124	77	45	14	●
D105-05-12600A0	12.6	60	124	77	45	14	○
D105-05-12700A0	12.7	60	124	77	45	14	○
D105-05-12800A0	12.8	60	124	77	45	14	○
D105-05-12900A0	12.9	60	124	77	45	14	○
D105-05-13000A0	13.0	60	124	77	45	14	●
D105-05-13100A0	13.1	60	124	77	45	14	○
D105-05-13200A0	13.2	60	124	77	45	14	○
D105-05-13300A0	13.3	60	124	77	45	14	○
D105-05-13400A0	13.4	60	124	77	45	14	○
D105-05-13500A0	13.5	60	124	77	45	14	●
D105-05-13600A0	13.6	60	124	77	45	14	○
D105-05-13700A0	13.7	60	124	77	45	14	○
D105-05-13800A0	13.8	60	124	77	45	14	○
D105-05-13900A0	13.9	60	124	77	45	14	○
D105-05-14000A0	14.0	60	124	77	45	14	●
D105-05-14100A0	14.1	63	133	83	48	16	○
D105-05-14200A0	14.2	63	133	83	48	16	○
D105-05-14300A0	14.3	63	133	83	48	16	○
D105-05-14400A0	14.4	63	133	83	48	16	○
D105-05-14500A0	14.5	63	133	83	48	16	●
D105-05-14600A0	14.6	63	133	83	48	16	○
D105-05-14700A0	14.7	63	133	83	48	16	○
D105-05-14800A0	14.8	63	133	83	48	16	○
D105-05-14900A0	14.9	63	133	83	48	16	○
D105-05-15000A0	15.0	63	133	83	48	16	●
D105-05-15100A0	15.1	63	133	83	48	16	○
D105-05-15200A0	15.2	63	133	83	48	16	○
D105-05-15300A0	15.3	63	133	83	48	16	○
D105-05-15400A0	15.4	63	133	83	48	16	○
D105-05-15500A0	15.5	63	133	83	48	16	●
D105-05-15600A0	15.6	63	133	83	48	16	○
D105-05-15700A0	15.7	63	133	83	48	16	○
D105-05-15800A0	15.8	63	133	83	48	16	○
D105-05-15900A0	15.9	63	133	83	48	16	○
D105-05-16000A0	16.0	63	133	83	48	16	●
D105-05-16100A0	16.1	71	143	93	48	18	○

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide External Coolant Drill D105 5xDc



P	M	K	N	S	H
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•• 1st choice • 2nd choice

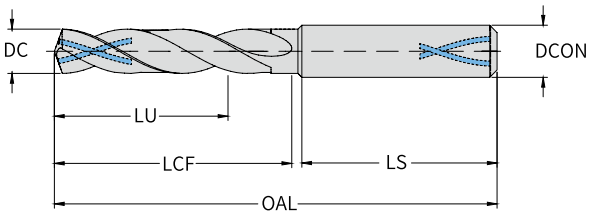


Product code	DC(h7) mm	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D105-05-16200A0	16.2	71	143	93	48	18	○
D105-05-16300A0	16.3	71	143	93	48	18	○
D105-05-16400A0	16.4	71	143	93	48	18	○
D105-05-16500A0	16.5	71	143	93	48	18	●
D105-05-16600A0	16.6	71	143	93	48	18	○
D105-05-16700A0	16.7	71	143	93	48	18	○
D105-05-16800A0	16.8	71	143	93	48	18	○
D105-05-16900A0	16.9	71	143	93	48	18	○
D105-05-17000A0	17.0	71	143	93	48	18	●
D105-05-17100A0	17.1	71	143	93	48	18	○
D105-05-17200A0	17.2	71	143	93	48	18	○
D105-05-17300A0	17.3	71	143	93	48	18	○
D105-05-17400A0	17.4	71	143	93	48	18	○
D105-05-17500A0	17.5	71	143	93	48	18	●
D105-05-17600A0	17.6	71	143	93	48	18	○
D105-05-17700A0	17.7	71	143	93	48	18	○
D105-05-17800A0	17.8	71	143	93	48	18	○
D105-05-17900A0	17.9	71	143	93	48	18	○
D105-05-18000A0	18.0	71	143	93	48	18	●
D105-05-18100A0	18.1	77	153	101	50	20	○
D105-05-18200A0	18.2	77	153	101	50	20	○
D105-05-18300A0	18.3	77	153	101	50	20	○
D105-05-18400A0	18.4	77	153	101	50	20	○
D105-05-18500A0	18.5	77	153	101	50	20	●
D105-05-18600A0	18.6	77	153	101	50	20	○
D105-05-18700A0	18.7	77	153	101	50	20	○
D105-05-18800A0	18.8	77	153	101	50	20	○
D105-05-18900A0	18.9	77	153	101	50	20	○
D105-05-19000A0	19.0	77	153	101	50	20	●
D105-05-19100A0	19.1	77	153	101	50	20	○
D105-05-19200A0	19.2	77	153	101	50	20	○
D105-05-19300A0	19.3	77	153	101	50	20	○
D105-05-19400A0	19.4	77	153	101	50	20	○
D105-05-19500A0	19.5	77	153	101	50	20	●
D105-05-19600A0	19.6	77	153	101	50	20	○
D105-05-19700A0	19.7	77	153	101	50	20	○
D105-05-19800A0	19.8	77	153	101	50	20	○
D105-05-19900A0	19.9	77	153	101	50	20	○
D105-05-20000A0	20.0	77	153	101	50	20	○

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide Internal Coolant Drill D105 3xDc



P	M	K	N	S	H
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•• 1st choice • 2nd choice

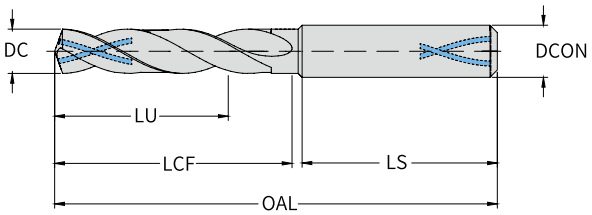


Product code	DC(h7) mm	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D105-03-03000A1	3.0	14	62	20	36	4	●
D105-03-03100A1	3.1	14	62	20	36	4	●
D105-03-03200A1	3.2	14	62	20	36	4	●
D105-03-03300A1	3.3	14	62	20	36	4	●
D105-03-03400A1	3.4	14	62	20	36	4	●
D105-03-03500A1	3.5	14	62	20	36	4	●
D105-03-03600A1	3.6	14	62	20	36	4	●
D105-03-03700A1	3.7	14	62	20	36	4	●
D105-03-03800A1	3.8	17	66	24	36	4	●
D105-03-03900A1	3.9	17	66	24	36	4	○
D105-03-04000A1	4.0	17	66	24	36	4	●
D105-03-04100A1	4.1	17	66	24	36	6	●
D105-03-04200A1	4.2	17	66	24	36	6	●
D105-03-04300A1	4.3	17	66	24	36	6	●
D105-03-04400A1	4.4	17	66	24	36	6	●
D105-03-04500A1	4.5	17	66	24	36	6	●
D105-03-04600A1	4.6	17	66	24	36	6	●
D105-03-04700A1	4.7	17	66	24	36	6	●
D105-03-04800A1	4.8	20	66	28	36	6	●
D105-03-04900A1	4.9	20	66	28	36	6	○
D105-03-05000A1	5.0	20	66	28	36	6	●
D105-03-05100A1	5.1	20	66	28	36	6	●
D105-03-05200A1	5.2	20	66	28	36	6	●
D105-03-05300A1	5.3	20	66	28	36	6	●
D105-03-05400A1	5.4	20	66	28	36	6	●
D105-03-05500A1	5.5	20	66	28	36	6	●
D105-03-05600A1	5.6	20	66	28	36	6	○
D105-03-05700A1	5.7	20	66	28	36	6	○
D105-03-05800A1	5.8	20	66	28	36	6	●
D105-03-05900A1	5.9	20	66	28	36	6	○
D105-03-06000A1	6.0	20	66	28	36	6	●
D105-03-06100A1	6.1	24	79	34	36	8	●
D105-03-06200A1	6.2	24	79	34	36	8	○
D105-03-06300A1	6.3	24	79	34	36	8	●
D105-03-06400A1	6.4	24	79	34	36	8	○
D105-03-06500A1	6.5	24	79	34	36	8	●
D105-03-06600A1	6.6	24	79	34	36	8	●
D105-03-06700A1	6.7	24	79	34	36	8	●
D105-03-06800A1	6.8	24	79	34	36	8	●
D105-03-06900A1	6.9	24	79	34	36	8	●
D105-03-07000A1	7.0	24	79	34	36	8	●
D105-03-07100A1	7.1	29	79	41	36	8	●
D105-03-07200A1	7.2	29	79	41	36	8	●
D105-03-07300A1	7.3	29	79	41	36	8	○

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide Internal Coolant Drill D105 3xDc



P	M	K	N	S	H
••	•	••	••	•	•

•• 1st choice • 2nd choice

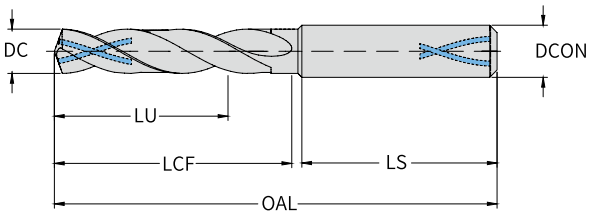


Product code	DC(h7) mm	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D105-03-07400A1	7.4	29	79	41	36	8	○
D105-03-07500A1	7.5	29	79	41	36	8	●
D105-03-07600A1	7.6	29	79	41	36	8	○
D105-03-07700A1	7.7	29	79	41	36	8	○
D105-03-07800A1	7.8	29	79	41	36	8	●
D105-03-07900A1	7.9	29	79	41	36	8	●
D105-03-08000A1	8.0	29	79	41	36	8	●
D105-03-08100A1	8.1	35	89	47	40	10	●
D105-03-08200A1	8.2	35	89	47	40	10	●
D105-03-08300A1	8.3	35	89	47	40	10	○
D105-03-08400A1	8.4	35	89	47	40	10	○
D105-03-08500A1	8.5	35	89	47	40	10	●
D105-03-08600A1	8.6	35	89	47	40	10	●
D105-03-08700A1	8.7	35	89	47	40	10	●
D105-03-08800A1	8.8	35	89	47	40	10	●
D105-03-08900A1	8.9	35	89	47	40	10	○
D105-03-09000A1	9.0	35	89	47	40	10	●
D105-03-09100A1	9.1	35	89	47	40	10	●
D105-03-09200A1	9.2	35	89	47	40	10	●
D105-03-09300A1	9.3	35	89	47	40	10	●
D105-03-09400A1	9.4	35	89	47	40	10	●
D105-03-09500A1	9.5	35	89	47	40	10	●
D105-03-09600A1	9.6	35	89	47	40	10	●
D105-03-09700A1	9.7	35	89	47	40	10	●
D105-03-09800A1	9.8	35	89	47	40	10	●
D105-03-09900A1	9.9	35	89	47	40	10	○
D105-03-10000A1	10.0	35	89	47	40	10	●
D105-03-10100A1	10.1	40	102	55	45	12	○
D105-03-10200A1	10.2	40	102	55	45	12	●
D105-03-10300A1	10.3	40	102	55	45	12	●
D105-03-10400A1	10.4	40	102	55	45	12	●
D105-03-10500A1	10.5	40	102	55	45	12	●
D105-03-10600A1	10.6	40	102	55	45	12	○
D105-03-10700A1	10.7	40	102	55	45	12	○
D105-03-10800A1	10.8	40	102	55	45	12	●
D105-03-10900A1	10.9	40	102	55	45	12	○
D105-03-11000A1	11.0	40	102	55	45	12	●
D105-03-11100A1	11.1	40	102	55	45	12	○
D105-03-11200A1	11.2	40	102	55	45	12	○
D105-03-11300A1	11.3	40	102	55	45	12	○
D105-03-11400A1	11.4	40	102	55	45	12	○
D105-03-11500A1	11.5	40	102	55	45	12	●
D105-03-11600A1	11.6	40	102	55	45	12	○
D105-03-11700A1	11.7	40	102	55	45	12	○

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide Internal Coolant Drill D105 3xDc



P	M	K	N	S	H
••	•	••	••	•	•

•• 1st choice • 2nd choice

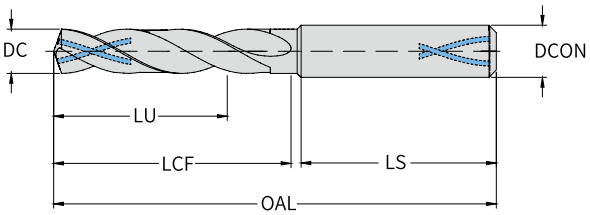


Product code	DC(h7) mm	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D105-03-11800A1	11.8	40	102	55	45	12	○
D105-03-11900A1	11.9	40	102	55	45	12	○
D105-03-12000A1	12.0	40	102	55	45	12	●
D105-03-12100A1	12.1	43	107	60	45	14	○
D105-03-12200A1	12.2	43	107	60	45	14	○
D105-03-12300A1	12.3	43	107	60	45	14	○
D105-03-12400A1	12.4	43	107	60	45	14	○
D105-03-12500A1	12.5	43	107	60	45	14	○
D105-03-12600A1	12.6	43	107	60	45	14	●
D105-03-12700A1	12.7	43	107	60	45	14	●
D105-03-12800A1	12.8	43	107	60	45	14	●
D105-03-12900A1	12.9	43	107	60	45	14	○
D105-03-13000A1	13.0	43	107	60	45	14	●
D105-03-13100A1	13.1	43	107	60	45	14	○
D105-03-13200A1	13.2	43	107	60	45	14	●
D105-03-13300A1	13.3	43	107	60	45	14	●
D105-03-13400A1	13.4	43	107	60	45	14	○
D105-03-13500A1	13.5	43	107	60	45	14	●
D105-03-13600A1	13.6	43	107	60	45	14	○
D105-03-13700A1	13.7	43	107	60	45	14	○
D105-03-13800A1	13.8	43	107	60	45	14	○
D105-03-13900A1	13.9	43	107	60	45	14	○
D105-03-14000A1	14.0	43	107	60	45	14	●
D105-03-14100A1	14.1	45	115	65	48	16	○
D105-03-14200A1	14.2	45	115	65	48	16	●
D105-03-14300A1	14.3	45	115	65	48	16	○
D105-03-14400A1	14.4	45	115	65	48	16	○
D105-03-14500A1	14.5	45	115	65	48	16	●
D105-03-14600A1	14.6	45	115	65	48	16	○
D105-03-14700A1	14.7	45	115	65	48	16	●
D105-03-14800A1	14.8	45	115	65	48	16	○
D105-03-14900A1	14.9	45	115	65	48	16	○
D105-03-15000A1	15.0	45	115	65	48	16	●
D105-03-15100A1	15.1	45	115	65	48	16	○
D105-03-15200A1	15.2	45	115	65	48	16	○
D105-03-15300A1	15.3	45	115	65	48	16	○
D105-03-15400A1	15.4	45	115	65	48	16	○
D105-03-15500A1	15.5	45	115	65	48	16	●
D105-03-15600A1	15.6	45	115	65	48	16	○
D105-03-15700A1	15.7	45	115	65	48	16	○
D105-03-15800A1	15.8	45	115	65	48	16	○
D105-03-15900A1	15.9	45	115	65	48	16	○
D105-03-16000A1	16.0	45	115	65	48	16	●
D105-03-16100A1	16.1	51	123	73	48	18	○

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide Internal Coolant Drill D105 3xDc



P	M	K	N	S	H
••	•	••	••	•	•

•• 1st choice • 2nd choice

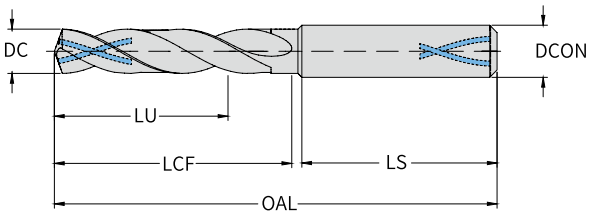


Product code	DC(h7) mm	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D105-03-16200A1	16.2	51	123	73	48	18	○
D105-03-16300A1	16.3	51	123	73	48	18	○
D105-03-16400A1	16.4	51	123	73	48	18	○
D105-03-16500A1	16.5	51	123	73	48	18	●
D105-03-16600A1	16.6	51	123	73	48	18	○
D105-03-16700A1	16.7	51	123	73	48	18	○
D105-03-16800A1	16.8	51	123	73	48	18	○
D105-03-16900A1	16.9	51	123	73	48	18	○
D105-03-17000A1	17.0	51	123	73	48	18	●
D105-03-17100A1	17.1	51	123	73	48	18	○
D105-03-17200A1	17.2	51	123	73	48	18	○
D105-03-17300A1	17.3	51	123	73	48	18	○
D105-03-17400A1	17.4	51	123	73	48	18	○
D105-03-17500A1	17.5	51	123	73	48	18	●
D105-03-17600A1	17.6	51	123	73	48	18	○
D105-03-17700A1	17.7	51	123	73	48	18	○
D105-03-17800A1	17.8	51	123	73	48	18	○
D105-03-17900A1	17.9	51	123	73	48	18	○
D105-03-18000A1	18.0	51	123	73	48	18	●
D105-03-18100A1	18.1	55	131	79	50	20	○
D105-03-18200A1	18.2	55	131	79	50	20	○
D105-03-18300A1	18.3	55	131	79	50	20	○
D105-03-18400A1	18.4	55	131	79	50	20	○
D105-03-18500A1	18.5	55	131	79	50	20	●
D105-03-18600A1	18.6	55	131	79	50	20	○
D105-03-18700A1	18.7	55	131	79	50	20	○
D105-03-18800A1	18.8	55	131	79	50	20	○
D105-03-18900A1	18.9	55	131	79	50	20	○
D105-03-19000A1	19.0	55	131	79	50	20	●
D105-03-19100A1	19.1	55	131	79	50	20	○
D105-03-19200A1	19.2	55	131	79	50	20	○
D105-03-19300A1	19.3	55	131	79	50	20	○
D105-03-19400A1	19.4	55	131	79	50	20	○
D105-03-19500A1	19.5	55	131	79	50	20	●
D105-03-19600A1	19.6	55	131	79	50	20	○
D105-03-19700A1	19.7	55	131	79	50	20	○
D105-03-19800A1	19.8	55	131	79	50	20	○
D105-03-19900A1	19.9	55	131	79	50	20	○
D105-03-20000A1	20.0	55	131	79	50	20	○

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide Internal Coolant Drill D105 5xDc



P	M	K	N	S	H
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●● 1st choice ● 2nd choice

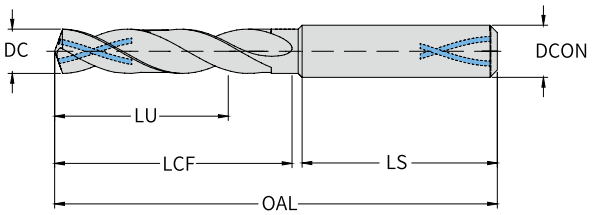


Product code	DC(h7) mm	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D105-05-03000A1	3.0	23	66	28	36	4	●
D105-05-03100A1	3.1	23	66	28	36	4	●
D105-05-03200A1	3.2	23	66	28	36	4	●
D105-05-03300A1	3.3	23	66	28	36	4	●
D105-05-03400A1	3.4	23	66	28	36	4	●
D105-05-03500A1	3.5	23	66	28	36	4	●
D105-05-03600A1	3.6	23	66	28	36	4	●
D105-05-03700A1	3.7	23	66	28	36	4	●
D105-05-03800A1	3.8	29	74	36	36	4	●
D105-05-03900A1	3.9	29	74	36	36	4	●
D105-05-04000A1	4.0	29	74	36	36	4	●
D105-05-04100A1	4.1	29	74	36	36	6	○
D105-05-04200A1	4.2	29	74	36	36	6	●
D105-05-04300A1	4.3	29	74	36	36	6	●
D105-05-04400A1	4.4	29	74	36	36	6	○
D105-05-04500A1	4.5	29	74	36	36	6	●
D105-05-04600A1	4.6	29	74	36	36	6	●
D105-05-04700A1	4.7	29	74	36	36	6	●
D105-05-04800A1	4.8	35	82	44	36	6	●
D105-05-04900A1	4.9	35	82	44	36	6	●
D105-05-05000A1	5.0	35	82	44	36	6	●
D105-05-05100A1	5.1	35	82	44	36	6	●
D105-05-05200A1	5.2	35	82	44	36	6	●
D105-05-05300A1	5.3	35	82	44	36	6	●
D105-05-05400A1	5.4	35	82	44	36	6	●
D105-05-05500A1	5.5	35	82	44	36	6	●
D105-05-05600A1	5.6	35	82	44	36	6	●
D105-05-05700A1	5.7	35	82	44	36	6	●
D105-05-05800A1	5.8	35	82	44	36	6	●
D105-05-05900A1	5.9	35	82	44	36	6	●
D105-05-06000A1	6.0	35	82	44	36	6	●
D105-05-06100A1	6.1	43	91	53	36	8	●
D105-05-06200A1	6.2	43	91	53	36	8	●
D105-05-06300A1	6.3	43	91	53	36	8	●
D105-05-06400A1	6.4	43	91	53	36	8	●
D105-05-06500A1	6.5	43	91	53	36	8	●
D105-05-06600A1	6.6	43	91	53	36	8	●
D105-05-06700A1	6.7	43	91	53	36	8	●
D105-05-06800A1	6.8	43	91	53	36	8	●
D105-05-06900A1	6.9	43	91	53	36	8	●
D105-05-07000A1	7.0	43	91	53	36	8	●
D105-05-07100A1	7.1	43	91	53	36	8	○
D105-05-07200A1	7.2	43	91	53	36	8	○
D105-05-07300A1	7.3	43	91	53	36	8	○

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide Internal Coolant Drill D105 5xDc



P	M	K	N	S	H
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•• 1st choice • 2nd choice

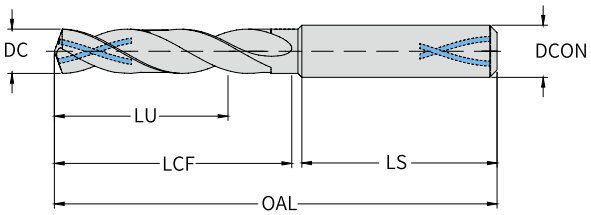


Product code	DC(h7) mm	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D105-05-07400A1	7.4	43	91	53	36	8	●
D105-05-07500A1	7.5	43	91	53	36	8	●
D105-05-07600A1	7.6	43	91	53	36	8	○
D105-05-07700A1	7.7	43	91	53	36	8	○
D105-05-07800A1	7.8	43	91	53	36	8	●
D105-05-07900A1	7.9	43	91	53	36	8	○
D105-05-08000A1	8.0	43	91	53	36	8	●
D105-05-08100A1	8.1	49	103	61	40	10	●
D105-05-08200A1	8.2	49	103	61	40	10	●
D105-05-08300A1	8.3	49	103	61	40	10	●
D105-05-08400A1	8.4	49	103	61	40	10	●
D105-05-08500A1	8.5	49	103	61	40	10	●
D105-05-08600A1	8.6	49	103	61	40	10	●
D105-05-08700A1	8.7	49	103	61	40	10	●
D105-05-08800A1	8.8	49	103	61	40	10	●
D105-05-08900A1	8.9	49	103	61	40	10	●
D105-05-09000A1	9.0	49	103	61	40	10	●
D105-05-09100A1	9.1	49	103	61	40	10	●
D105-05-09200A1	9.2	49	103	61	40	10	●
D105-05-09300A1	9.3	49	103	61	40	10	○
D105-05-09400A1	9.4	49	103	61	40	10	●
D105-05-09500A1	9.5	49	103	61	40	10	●
D105-05-09600A1	9.6	49	103	61	40	10	○
D105-05-09700A1	9.7	49	103	61	40	10	○
D105-05-09800A1	9.8	49	103	61	40	10	●
D105-05-09900A1	9.9	49	103	61	40	10	○
D105-05-10000A1	10.0	49	103	61	40	10	●
D105-05-10100A1	10.1	56	118	71	45	12	○
D105-05-10200A1	10.2	56	118	71	45	12	●
D105-05-10300A1	10.3	56	118	71	45	12	●
D105-05-10400A1	10.4	56	118	71	45	12	●
D105-05-10500A1	10.5	56	118	71	45	12	●
D105-05-10600A1	10.6	56	118	71	45	12	○
D105-05-10700A1	10.7	56	118	71	45	12	○
D105-05-10800A1	10.8	56	118	71	45	12	●
D105-05-10900A1	10.9	56	118	71	45	12	○
D105-05-11000A1	11.0	56	118	71	45	12	●
D105-05-11100A1	11.1	56	118	71	45	12	○
D105-05-11200A1	11.2	56	118	71	45	12	●
D105-05-11300A1	11.3	56	118	71	45	12	○
D105-05-11400A1	11.4	56	118	71	45	12	○
D105-05-11500A1	11.5	56	118	71	45	12	●
D105-05-11600A1	11.6	56	118	71	45	12	○
D105-05-11700A1	11.7	56	118	71	45	12	○

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide Internal Coolant Drill D105 5xDc



P	M	K	N	S	H
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•• 1st choice • 2nd choice

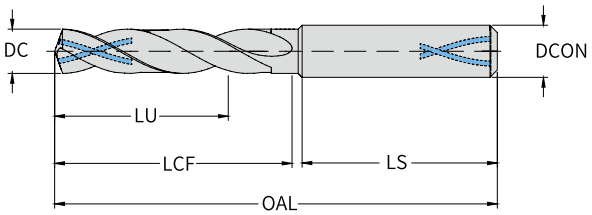


Product code	DC(h7) mm	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D105-05-11800A1	11.8	56	118	71	45	12	●
D105-05-11900A1	11.9	56	118	71	45	12	○
D105-05-12000A1	12.0	56	118	71	45	12	●
D105-05-12100A1	12.1	60	124	77	45	14	○
D105-05-12200A1	12.2	60	124	77	45	14	●
D105-05-12300A1	12.3	60	124	77	45	14	○
D105-05-12400A1	12.4	60	124	77	45	14	○
D105-05-12500A1	12.5	60	124	77	45	14	●
D105-05-12600A1	12.6	60	124	77	45	14	○
D105-05-12700A1	12.7	60	124	77	45	14	○
D105-05-12800A1	12.8	60	124	77	45	14	○
D105-05-12900A1	12.9	60	124	77	45	14	○
D105-05-13000A1	13.0	60	124	77	45	14	●
D105-05-13100A1	13.1	60	124	77	45	14	○
D105-05-13200A1	13.2	60	124	77	45	14	○
D105-05-13300A1	13.3	60	124	77	45	14	○
D105-05-13400A1	13.4	60	124	77	45	14	○
D105-05-13500A1	13.5	60	124	77	45	14	●
D105-05-13600A1	13.6	60	124	77	45	14	○
D105-05-13700A1	13.7	60	124	77	45	14	○
D105-05-13800A1	13.8	60	124	77	45	14	○
D105-05-13900A1	13.9	60	124	77	45	14	○
D105-05-14000A1	14.0	60	124	77	45	14	●
D105-05-14100A1	14.1	63	133	83	48	16	○
D105-05-14200A1	14.2	63	133	83	48	16	○
D105-05-14300A1	14.3	63	133	83	48	16	○
D105-05-14400A1	14.4	63	133	83	48	16	○
D105-05-14500A1	14.5	63	133	83	48	16	●
D105-05-14600A1	14.6	63	133	83	48	16	○
D105-05-14700A1	14.7	63	133	83	48	16	○
D105-05-14800A1	14.8	63	133	83	48	16	○
D105-05-14900A1	14.9	63	133	83	48	16	○
D105-05-15000A1	15.0	63	133	83	48	16	●
D105-05-15100A1	15.1	63	133	83	48	16	○
D105-05-15200A1	15.2	63	133	83	48	16	○
D105-05-15300A1	15.3	63	133	83	48	16	○
D105-05-15400A1	15.4	63	133	83	48	16	○
D105-05-15500A1	15.5	63	133	83	48	16	●
D105-05-15600A1	15.6	63	133	83	48	16	○
D105-05-15700A1	15.7	63	133	83	48	16	○
D105-05-15800A1	15.8	63	133	83	48	16	○
D105-05-15900A1	15.9	63	133	83	48	16	○
D105-05-16000A1	16.0	63	133	83	48	16	●
D105-05-16100A1	16.1	71	143	93	48	18	○

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide Internal Coolant Drill D105 5xDc



P	M	K	N	S	H
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•• 1st choice • 2nd choice

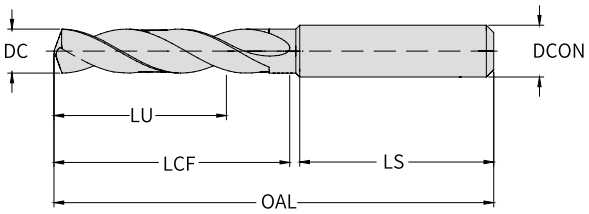


Product code	DC(h7) mm	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D105-05-16200A1	16.2	71	143	93	48	18	○
D105-05-16300A1	16.3	71	143	93	48	18	○
D105-05-16400A1	16.4	71	143	93	48	18	○
D105-05-16500A1	16.5	71	143	93	48	18	●
D105-05-16600A1	16.6	71	143	93	48	18	○
D105-05-16700A1	16.7	71	143	93	48	18	○
D105-05-16800A1	16.8	71	143	93	48	18	○
D105-05-16900A1	16.9	71	143	93	48	18	○
D105-05-17000A1	17.0	71	143	93	48	18	●
D105-05-17100A1	17.1	71	143	93	48	18	○
D105-05-17200A1	17.2	71	143	93	48	18	○
D105-05-17300A1	17.3	71	143	93	48	18	○
D105-05-17400A1	17.4	71	143	93	48	18	○
D105-05-17500A1	17.5	71	143	93	48	18	●
D105-05-17600A1	17.6	71	143	93	48	18	○
D105-05-17700A1	17.7	71	143	93	48	18	○
D105-05-17800A1	17.8	71	143	93	48	18	○
D105-05-17900A1	17.9	71	143	93	48	18	○
D105-05-18000A1	18.0	71	143	93	48	18	●
D105-05-18100A1	18.1	77	153	101	50	20	○
D105-05-18200A1	18.2	77	153	101	50	20	○
D105-05-18300A1	18.3	77	153	101	50	20	○
D105-05-18400A1	18.4	77	153	101	50	20	○
D105-05-18500A1	18.5	77	153	101	50	20	●
D105-05-18600A1	18.6	77	153	101	50	20	○
D105-05-18700A1	18.7	77	153	101	50	20	○
D105-05-18800A1	18.8	77	153	101	50	20	○
D105-05-18900A1	18.9	77	153	101	50	20	○
D105-05-19000A1	19.0	77	153	101	50	20	●
D105-05-19100A1	19.1	77	153	101	50	20	○
D105-05-19200A1	19.2	77	153	101	50	20	○
D105-05-19300A1	19.3	77	153	101	50	20	○
D105-05-19400A1	19.4	77	153	101	50	20	○
D105-05-19500A1	19.5	77	153	101	50	20	●
D105-05-19600A1	19.6	77	153	101	50	20	○
D105-05-19700A1	19.7	77	153	101	50	20	○
D105-05-19800A1	19.8	77	153	101	50	20	○
D105-05-19900A1	19.9	77	153	101	50	20	○
D105-05-20000A1	20.0	77	153	101	50	20	○

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide External Coolant Drill D106 3xDc



P	M	K	N	S	H
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•• 1st choice • 2nd choice

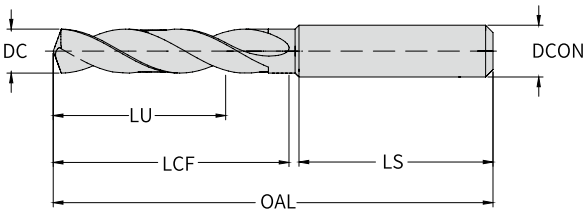


Product code	DC(m7) mm	DC inch/No.	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D106-03-03000A0 AP30P1U	3.0		14	62	20	36	4	●
D106-03-03100A0 AP30P1U	3.1		14	62	20	36	4	●
D106-03-03175A0 AP30P1U	3.175	1/8"	14	62	20	36	4	○
D106-03-03200A0 AP30P1U	3.2		14	62	20	36	4	●
D106-03-03250A0 AP30P1U	3.25		14	62	20	36	4	○
D106-03-03300A0 AP30P1U	3.3		14	62	20	36	4	●
D106-03-03400A0 AP30P1U	3.4		14	62	20	36	4	○
D106-03-03500A0 AP30P1U	3.5		14	62	20	36	4	●
D106-03-03572A0 AP30P1U	3.572	9/64"	14	62	20	36	4	○
D106-03-03600A0 AP30P1U	3.6		14	62	20	36	4	●
D106-03-03650A0 AP30P1U	3.65		14	62	20	36	4	○
D106-03-03700A0 AP30P1U	3.7		14	62	20	36	4	●
D106-03-03800A0 AP30P1U	3.8		17	66	24	36	4	○
D106-03-03900A0 AP30P1U	3.9		17	66	24	36	4	●
D106-03-03969A0 AP30P1U	3.969	5/32"	17	66	24	36	4	○
D106-03-04000A0 AP30P1U	4.0		17	66	24	36	4	●
D106-03-04100A0 AP30P1U	4.1		17	66	24	36	6	○
D106-03-04200A0 AP30P1U	4.2		17	66	24	36	6	●
D106-03-04300A0 AP30P1U	4.3		17	66	24	36	6	○
D106-03-04366A0 AP30P1U	4.366	11/64"	17	66	24	36	6	○
D106-03-04400A0 AP30P1U	4.4		17	66	24	36	6	○
D106-03-04500A0 AP30P1U	4.5		17	66	24	36	6	●
D106-03-04600A0 AP30P1U	4.6		17	66	24	36	6	○
D106-03-04650A0 AP30P1U	4.65		17	66	24	36	6	○
D106-03-04700A0 AP30P1U	4.7		17	66	24	36	6	○
D106-03-04763A0 AP30P1U	4.763	3/16"	20	66	28	36	6	○
D106-03-04800A0 AP30P1U	4.8		20	66	28	36	6	●
D106-03-04900A0 AP30P1U	4.9		20	66	28	36	6	●
D106-03-05000A0 AP30P1U	5.0		20	66	28	36	6	●
D106-03-05100A0 AP30P1U	5.1		20	66	28	36	6	●
D106-03-05159A0 AP30P1U	5.159	13/64"	20	66	28	36	6	○
D106-03-05200A0 AP30P1U	5.2		20	66	28	36	6	●
D106-03-05300A0 AP30P1U	5.3		20	66	28	36	6	○
D106-03-05400A0 AP30P1U	5.4		20	66	28	36	6	○
D106-03-05500A0 AP30P1U	5.5		20	66	28	36	6	●
D106-03-05550A0 AP30P1U	5.55		20	66	28	36	6	○
D106-03-05556A0 AP30P1U	5.556	7/32"	20	66	28	36	6	○
D106-03-05600A0 AP30P1U	5.6		20	66	28	36	6	○
D106-03-05700A0 AP30P1U	5.7		20	66	28	36	6	○
D106-03-05750A0 AP30P1U	5.75		20	66	28	36	6	○
D106-03-05800A0 AP30P1U	5.8		20	66	28	36	6	●
D106-03-05900A0 AP30P1U	5.9		20	66	28	36	6	●
D106-03-05953A0 AP30P1U	5.953	15/64"	20	66	28	36	6	○
D106-03-06000A0 AP30P1U	6.0		20	66	28	36	6	●

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide External Coolant Drill D106 3xDc



P	M	K	N	S	H
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•• 1st choice • 2nd choice

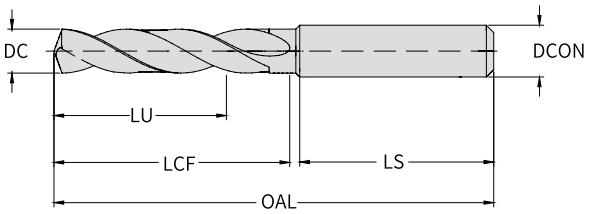


Product code	DC(m7) mm	DC inch/No.	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D106-03-06100A0 AP30P1U	6.1		24	79	41	36	8	○
D106-03-06200A0 AP30P1U	6.2		24	79	41	36	8	○
D106-03-06300A0 AP30P1U	6.3		24	79	41	36	8	○
D106-03-06350A0 AP30P1U	6.35	1/4"	24	79	41	36	8	○
D106-03-06400A0 AP30P1U	6.4		24	79	41	36	8	○
D106-03-06500A0 AP30P1U	6.5		24	79	41	36	8	●
D106-03-06600A0 AP30P1U	6.6		24	79	41	36	8	○
D106-03-06700A0 AP30P1U	6.7		24	79	41	36	8	○
D106-03-06747A0 AP30P1U	6.747	17/64"	24	79	41	36	8	○
D106-03-06800A0 AP30P1U	6.8		24	79	41	36	8	●
D106-03-06900A0 AP30P1U	6.9		24	79	41	36	8	●
D106-03-07000A0 AP30P1U	7.0		24	79	41	36	8	●
D106-03-07100A0 AP30P1U	7.1		29	79	41	36	8	○
D106-03-07144A0 AP30P1U	7.144	9/32"	29	79	41	36	8	○
D106-03-07200A0 AP30P1U	7.2		29	79	41	36	8	○
D106-03-07250A0 AP30P1U	7.25		29	79	41	36	8	○
D106-03-07300A0 AP30P1U	7.3		29	79	41	36	8	○
D106-03-07400A0 AP30P1U	7.4		29	79	41	36	8	●
D106-03-07450A0 AP30P1U	7.45		29	79	41	36	8	○
D106-03-07500A0 AP30P1U	7.5		29	79	41	36	8	●
D106-03-07541A0 AP30P1U	7.541	19/64"	29	79	41	36	8	○
D106-03-07550A0 AP30P1U	7.55		29	79	41	36	8	○
D106-03-07600A0 AP30P1U	7.6		29	79	41	36	8	○
D106-03-07700A0 AP30P1U	7.7		29	79	41	36	8	○
D106-03-07800A0 AP30P1U	7.8		29	79	41	36	8	●
D106-03-07900A0 AP30P1U	7.9		29	79	41	36	8	●
D106-03-07938A0 AP30P1U	7.938	5/16"	29	79	41	36	8	○
D106-03-08000A0 AP30P1U	8.0		29	79	41	36	8	●
D106-03-08100A0 AP30P1U	8.1		35	89	47	40	10	○
D106-03-08200A0 AP30P1U	8.2		35	89	47	40	10	○
D106-03-08300A0 AP30P1U	8.3		35	89	47	40	10	○
D106-03-08334A0 AP30P1U	8.334	21/64"	35	89	47	40	10	○
D106-03-08400A0 AP30P1U	8.4		35	89	47	40	10	○
D106-03-08500A0 AP30P1U	8.5		35	89	47	40	10	●
D106-03-08600A0 AP30P1U	8.6		35	89	47	40	10	●
D106-03-08700A0 AP30P1U	8.7		35	89	47	40	10	○
D106-03-08731A0 AP30P1U	8.731	11/32"	35	89	47	40	10	○
D106-03-08750A0 AP30P1U	8.75		35	89	47	40	10	○
D106-03-08800A0 AP30P1U	8.8		35	89	47	40	10	●
D106-03-08900A0 AP30P1U	8.9		35	89	47	40	10	●

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide External Coolant Drill D106 3xDc



P	M	K	N	S	H
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•• 1st choice • 2nd choice

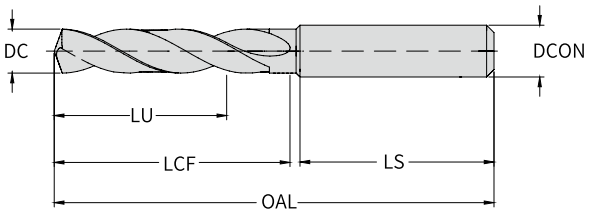


Product code	DC(m7) mm	DC inch/No.	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D106-03-09000A0 AP30P1U	9.0		35	89	47	40	10	●
D106-03-09100A0 AP30P1U	9.1		35	89	47	40	10	○
D106-03-09128A0 AP30P1U	9.128	23/64"	35	89	47	40	10	○
D106-03-09200A0 AP30P1U	9.2		35	89	47	40	10	○
D106-03-09300A0 AP30P1U	9.3		35	89	47	40	10	●
D106-03-09400A0 AP30P1U	9.4		35	89	47	40	10	○
D106-03-09500A0 AP30P1U	9.5		35	89	47	40	10	○
D106-03-09525A0 AP30P1U	9.525	3/8"	35	89	47	40	10	○
D106-03-09550A0 AP30P1U	9.55		35	89	47	40	10	○
D106-03-09600A0 AP30P1U	9.6		35	89	47	40	10	○
D106-03-09700A0 AP30P1U	9.7		35	89	47	40	10	○
D106-03-09800A0 AP30P1U	9.8		35	89	47	40	10	●
D106-03-09900A0 AP30P1U	9.9		35	89	47	40	10	●
D106-03-09922A0 AP30P1U	9.922	25/64"	35	89	47	40	10	○
D106-03-10000A0 AP30P1U	10.0		35	89	47	40	10	●
D106-03-10100A0 AP30P1U	10.1		40	102	55	45	12	●
D106-03-10200A0 AP30P1U	10.2		40	102	55	45	12	●
D106-03-10300A0 AP30P1U	10.3		40	102	55	45	12	●
D106-03-10319A0 AP30P1U	10.319	13/32"	40	102	55	45	12	○
D106-03-10400A0 AP30P1U	10.4		40	102	55	45	12	○
D106-03-10500A0 AP30P1U	10.5		40	102	55	45	12	●
D106-03-10600A0 AP30P1U	10.6		40	102	55	45	12	●
D106-03-10700A0 AP30P1U	10.7		40	102	55	45	12	○
D106-03-10716A0 AP30P1U	10.716	27/64"	40	102	55	45	12	○
D106-03-10800A0 AP30P1U	10.8		40	102	55	45	12	●
D106-03-10900A0 AP30P1U	10.9		40	102	55	45	12	○
D106-03-11000A0 AP30P1U	11.0		40	102	55	45	12	●
D106-03-11100A0 AP30P1U	11.1		40	102	55	45	12	○
D106-03-11113A0 AP30P1U	11.113	7/16"	40	102	55	45	12	○
D106-03-11200A0 AP30P1U	11.2		40	102	55	45	12	○
D106-03-11300A0 AP30P1U	11.3		40	102	55	45	12	○
D106-03-11400A0 AP30P1U	11.4		40	102	55	45	12	○
D106-03-11500A0 AP30P1U	11.5		40	102	55	45	12	○
D106-03-11509A0 AP30P1U	11.509	29/64"	40	102	55	45	12	○
D106-03-11550A0 AP30P1U	11.55		40	102	55	45	12	○
D106-03-11600A0 AP30P1U	11.6		40	102	55	45	12	○
D106-03-11700A0 AP30P1U	11.7		40	102	55	45	12	○
D106-03-11800A0 AP30P1U	11.8		40	102	55	45	12	●
D106-03-11900A0 AP30P1U	11.9		40	102	55	45	12	○
D106-03-11906A0 AP30P1U	11.906	15/32"	40	102	55	45	12	○
D106-03-12000A0 AP30P1U	12.0		40	102	55	45	12	●
D106-03-12100A0 AP30P1U	12.1		43	107	60	45	14	○
D106-03-12200A0 AP30P1U	12.2		43	107	60	45	14	○
D106-03-12250A0 AP30P1U	12.25		43	107	60	45	14	○

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide External Coolant Drill D106 3xDc



P	M	K	N	S	H
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•• 1st choice • 2nd choice

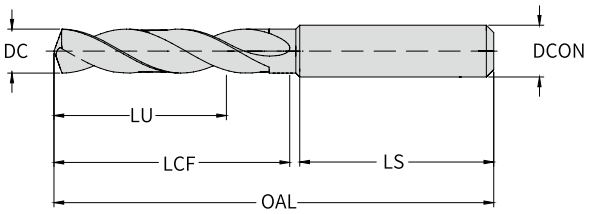


Product code	DC(m7) mm	DC inch/No.	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D106-03-12400A0 AP30P1U	12.4		43	107	60	45	14	○
D106-03-12500A0 AP30P1U	12.5		43	107	60	45	14	●
D106-03-12600A0 AP30P1U	12.6		43	107	60	45	14	○
D106-03-12700A0 AP30P1U	12.7	1/2"	43	107	60	45	14	○
D106-03-12750A0 AP30P1U	12.75		43	107	60	45	14	○
D106-03-12800A0 AP30P1U	12.8		43	107	60	45	14	○
D106-03-12900A0 AP30P1U	12.9		43	107	60	45	14	○
D106-03-13000A0 AP30P1U	13.0		43	107	60	45	14	●
D106-03-13100A0 AP30P1U	13.1		43	107	60	45	14	○
D106-03-13200A0 AP30P1U	13.2		43	107	60	45	14	●
D106-03-13300A0 AP30P1U	13.3		43	107	60	45	14	○
D106-03-13400A0 AP30P1U	13.4		43	107	60	45	14	○
D106-03-13494A0 AP30P1U	13.494	17/32"	43	107	60	45	14	○
D106-03-13500A0 AP30P1U	13.5		43	107	60	45	14	○
D106-03-13600A0 AP30P1U	13.6		43	107	60	45	14	○
D106-03-13700A0 AP30P1U	13.7		43	107	60	45	14	○
D106-03-13800A0 AP30P1U	13.8		43	107	60	45	14	○
D106-03-13900A0 AP30P1U	13.9		43	107	60	45	14	○
D106-03-14000A0 AP30P1U	14.0		43	107	60	45	14	●
D106-03-14100A0 AP30P1U	14.1		45	115	65	48	16	●
D106-03-14200A0 AP30P1U	14.2		45	115	65	48	16	●
D106-03-14288A0 AP30P1U	14.288	9/16"	45	115	65	48	16	○
D106-03-14300A0 AP30P1U	14.3		45	115	65	48	16	○
D106-03-14400A0 AP30P1U	14.4		45	115	65	48	16	○
D106-03-14500A0 AP30P1U	14.5		45	115	65	48	16	●
D106-03-14600A0 AP30P1U	14.6		45	115	65	48	16	●
D106-03-14700A0 AP30P1U	14.7		45	115	65	48	16	●
D106-03-14750A0 AP30P1U	14.75		45	115	65	48	16	○
D106-03-14800A0 AP30P1U	14.8		45	115	65	48	16	○
D106-03-15000A0 AP30P1U	15.0		45	115	65	48	16	●
D106-03-15100A0 AP30P1U	15.1		45	115	65	48	16	○
D106-03-15200A0 AP30P1U	15.2		45	115	65	48	16	○
D106-03-15300A0 AP30P1U	15.3		45	115	65	48	16	○
D106-03-15500A0 AP30P1U	15.5		45	115	65	48	16	●
D106-03-15600A0 AP30P1U	15.6		45	115	65	48	16	○
D106-03-15700A0 AP30P1U	15.7		45	115	65	48	16	●
D106-03-15800A0 AP30P1U	15.8		45	115	65	48	16	●
D106-03-15875A0 AP30P1U	15.875	5/8"	45	115	65	48	16	○
D106-03-15900A0 AP30P1U	15.9		45	115	65	48	16	○
D106-03-16000A0 AP30P1U	16.0		45	115	65	48	16	●
D106-03-16500A0 AP30P1U	16.5		51	123	73	48	18	●
D106-03-17000A0 AP30P1U	17.0		51	123	73	48	18	●
D106-03-17500A0 AP30P1U	17.5		51	123	73	48	18	●
D106-03-18000A0 AP30P1U	18.0		51	123	73	48	18	●
D106-03-18500A0 AP30P1U	18.5		55	131	79	50	20	●
D106-03-19000A0 AP30P1U	19.0		55	131	79	50	20	●
D106-03-20000A0 AP30P1U	20.0		55	131	79	50	20	●

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide External Coolant Drill D106 5xDc



P	M	K	N	S	H
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•• 1st choice • 2nd choice

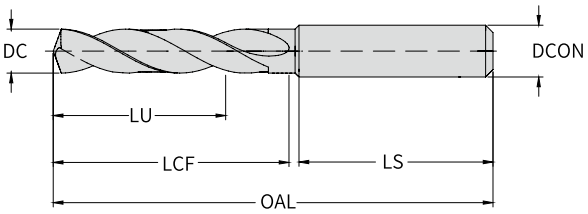


Product code	DC(m7) mm	DC inch/No.	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D106-05-03000A0 AP30P1U	3.0		23	66	28	36	4	●
D106-05-03100A0 AP30P1U	3.1		23	66	28	36	4	●
D106-05-03175A0 AP30P1U	3.175	1/8"	23	66	28	36	4	○
D106-05-03200A0 AP30P1U	3.2		23	66	28	36	4	●
D106-05-03250A0 AP30P1U	3.25		23	66	28	36	4	○
D106-05-03300A0 AP30P1U	3.3		23	66	28	36	4	●
D106-05-03400A0 AP30P1U	3.4		23	66	28	36	4	○
D106-05-03500A0 AP30P1U	3.5		23	66	28	36	4	●
D106-05-03572A0 AP30P1U	3.572	9/64"	23	66	28	36	4	○
D106-05-03600A0 AP30P1U	3.6		23	66	28	36	4	●
D106-05-03650A0 AP30P1U	3.65		23	66	28	36	4	○
D106-05-03700A0 AP30P1U	3.7		23	66	28	36	4	●
D106-05-03800A0 AP30P1U	3.8		29	74	36	36	4	○
D106-05-03900A0 AP30P1U	3.9		29	74	36	36	4	●
D106-05-03969A0 AP30P1U	3.969	5/32"	29	74	36	36	4	○
D106-05-04000A0 AP30P1U	4.0		29	74	36	36	4	●
D106-05-04100A0 AP30P1U	4.1		29	74	36	36	6	○
D106-05-04200A0 AP30P1U	4.2		29	74	36	36	6	●
D106-05-04300A0 AP30P1U	4.3		29	74	36	36	6	○
D106-05-04366A0 AP30P1U	4.366	11/64"	29	74	36	36	6	○
D106-05-04400A0 AP30P1U	4.4		29	74	36	36	6	○
D106-05-04500A0 AP30P1U	4.5		29	74	36	36	6	●
D106-05-04600A0 AP30P1U	4.6		29	74	36	36	6	○
D106-05-04650A0 AP30P1U	4.65		29	74	36	36	6	○
D106-05-04700A0 AP30P1U	4.7		29	74	36	36	6	○
D106-05-04763A0 AP30P1U	4.763	3/16"	35	82	44	36	6	○
D106-05-04800A0 AP30P1U	4.8		35	82	44	36	6	●
D106-05-04900A0 AP30P1U	4.9		35	82	44	36	6	●
D106-05-05000A0 AP30P1U	5.0		35	82	44	36	6	●
D106-05-05100A0 AP30P1U	5.1		35	82	44	36	6	●
D106-05-05159A0 AP30P1U	5.159	13/64"	35	82	44	36	6	○
D106-05-05200A0 AP30P1U	5.2		35	82	44	36	6	●
D106-05-05300A0 AP30P1U	5.3		35	82	44	36	6	○
D106-05-05400A0 AP30P1U	5.4		35	82	44	36	6	○
D106-05-05500A0 AP30P1U	5.5		35	82	44	36	6	●
D106-05-05550A0 AP30P1U	5.55		35	82	44	36	6	○
D106-05-05556A0 AP30P1U	5.556	7/32"	35	82	44	36	6	○
D106-05-05600A0 AP30P1U	5.6		35	82	44	36	6	○
D106-05-05700A0 AP30P1U	5.7		35	82	44	36	6	○
D106-05-05800A0 AP30P1U	5.8		35	82	44	36	6	●
D106-05-05900A0 AP30P1U	5.9		35	82	44	36	6	●
D106-05-05953A0 AP30P1U	5.953	15/64"	35	82	44	36	6	○
D106-05-06000A0 AP30P1U	6.0		35	82	44	36	6	●
D106-05-06100A0 AP30P1U	6.1		43	91	53	36	8	○

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide External Coolant Drill D106 5xDc



P	M	K	N	S	H
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•• 1st choice • 2nd choice

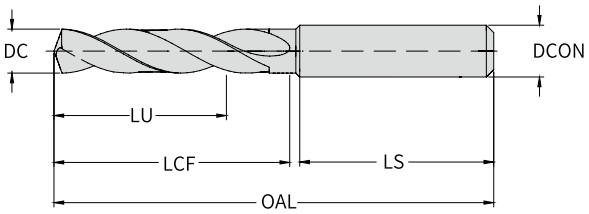


Product code	DC(m7) mm	DC inch/No.	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D106-05-06200A0 AP30P1U	6.2		43	91	53	36	8	○
D106-05-06300A0 AP30P1U	6.3		43	91	53	36	8	○
D106-05-06350A0 AP30P1U	6.35	1/4"	43	91	53	36	8	○
D106-05-06400A0 AP30P1U	6.4		43	91	53	36	8	○
D106-05-06500A0 AP30P1U	6.5		43	91	53	36	8	●
D106-05-06600A0 AP30P1U	6.6		43	91	53	36	8	○
D106-05-06700A0 AP30P1U	6.7		43	91	53	36	8	○
D106-05-06747A0 AP30P1U	6.747	17/64"	43	91	53	36	8	○
D106-05-06800A0 AP30P1U	6.8		43	91	53	36	8	●
D106-05-06900A0 AP30P1U	6.9		43	91	53	36	8	●
D106-05-07000A0 AP30P1U	7.0		43	91	53	36	8	●
D106-05-07100A0 AP30P1U	7.1		43	91	53	36	8	○
D106-05-07144A0 AP30P1U	7.144	9/32"	43	91	53	36	8	○
D106-05-07200A0 AP30P1U	7.2		43	91	53	36	8	○
D106-05-07300A0 AP30P1U	7.3		43	91	53	36	8	○
D106-05-07400A0 AP30P1U	7.4		43	91	53	36	8	●
D106-05-07500A0 AP30P1U	7.5		43	91	53	36	8	●
D106-05-07541A0 AP30P1U	7.541	19/64"	43	91	53	36	8	○
D106-05-07550A0 AP30P1U	7.55		43	91	53	36	8	○
D106-05-07600A0 AP30P1U	7.6		43	91	53	36	8	○
D106-05-07700A0 AP30P1U	7.7		43	91	53	36	8	○
D106-05-07800A0 AP30P1U	7.8		43	91	53	36	8	●
D106-05-07900A0 AP30P1U	7.9		43	91	53	36	8	●
D106-05-07938A0 AP30P1U	7.938	5/16"	43	91	53	36	8	○
D106-05-08000A0 AP30P1U	8.0		43	91	53	36	8	●
D106-05-08100A0 AP30P1U	8.1		49	103	61	40	10	○
D106-05-08200A0 AP30P1U	8.2		49	103	61	40	10	○
D106-05-08300A0 AP30P1U	8.3		49	103	61	40	10	○
D106-05-08334A0 AP30P1U	8.334	21/64"	49	103	61	40	10	○
D106-05-08400A0 AP30P1U	8.4		49	103	61	40	10	○
D106-05-08500A0 AP30P1U	8.5		49	103	61	40	10	●
D106-05-08600A0 AP30P1U	8.6		49	103	61	40	10	●
D106-05-08700A0 AP30P1U	8.7		49	103	61	40	10	○
D106-05-08731A0 AP30P1U	8.731	11/32"	49	103	61	40	10	○
D106-05-08800A0 AP30P1U	8.8		49	103	61	40	10	●
D106-05-08900A0 AP30P1U	8.9		49	103	61	40	10	●
D106-05-09000A0 AP30P1U	9.0		49	103	61	40	10	●
D106-05-09100A0 AP30P1U	9.1		49	103	61	40	10	○
D106-05-09128A0 AP30P1U	9.128	23/64"	49	103	61	40	10	○
D106-05-09200A0 AP30P1U	9.2		49	103	61	40	10	○
D106-05-09300A0 AP30P1U	9.3		49	103	61	40	10	●
D106-05-09400A0 AP30P1U	9.4		49	103	61	40	10	○
D106-05-09500A0 AP30P1U	9.5		49	103	61	40	10	○
D106-05-09525A0 AP30P1U	9.525	3/8"	49	103	61	40	10	○

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide External Coolant Drill D106 5xDc



P	M	K	N	S	H
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•• 1st choice • 2nd choice

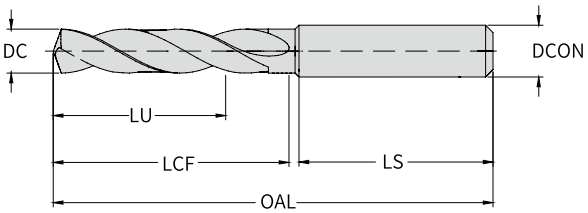


Product code	DC(m7) mm	DC inch/No.	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D106-05-09550A0 AP30P1U	9.55		49	103	61	40	10	○
D106-05-09600A0 AP30P1U	9.6		49	103	61	40	10	○
D106-05-09700A0 AP30P1U	9.7		49	103	61	40	10	○
D106-05-09800A0 AP30P1U	9.8		49	103	61	40	10	●
D106-05-09900A0 AP30P1U	9.9		49	103	61	40	10	●
D106-05-09922A0 AP30P1U	9.922	25/64"	49	103	61	40	10	○
D106-05-10000A0 AP30P1U	10.0		49	103	61	40	10	●
D106-05-10100A0 AP30P1U	10.1		56	118	71	45	12	●
D106-05-10200A0 AP30P1U	10.2		56	118	71	45	12	●
D106-05-10300A0 AP30P1U	10.3		56	118	71	45	12	●
D106-05-10319A0 AP30P1U	10.319	13/32"	56	118	71	45	12	○
D106-05-10400A0 AP30P1U	10.4		56	118	71	45	12	○
D106-05-10500A0 AP30P1U	10.5		56	118	71	45	12	●
D106-05-10600A0 AP30P1U	10.6		56	118	71	45	12	●
D106-05-10700A0 AP30P1U	10.7		56	118	71	45	12	○
D106-05-10716A0 AP30P1U	10.716	27/64"	56	118	71	45	12	○
D106-05-10800A0 AP30P1U	10.8		56	118	71	45	12	●
D106-05-10900A0 AP30P1U	10.9		56	118	71	45	12	○
D106-05-11000A0 AP30P1U	11.0		56	118	71	45	12	●
D106-05-11100A0 AP30P1U	11.1		56	118	71	45	12	○
D106-05-11113A0 AP30P1U	11.113	7/16"	56	118	71	45	12	○
D106-05-11200A0 AP30P1U	11.2		56	118	71	45	12	○
D106-05-11300A0 AP30P1U	11.3		56	118	71	45	12	○
D106-05-11400A0 AP30P1U	11.4		56	118	71	45	12	○
D106-05-11500A0 AP30P1U	11.5		56	118	71	45	12	○
D106-05-11509A0 AP30P1U	11.509	29/64"	56	118	71	45	12	○
D106-05-11550A0 AP30P1U	11.55		56	118	71	45	12	○
D106-05-11600A0 AP30P1U	11.6		56	118	71	45	12	○
D106-05-11700A0 AP30P1U	11.7		56	118	71	45	12	○
D106-05-11800A0 AP30P1U	11.8		56	118	71	45	12	●
D106-05-11900A0 AP30P1U	11.9		56	118	71	45	12	○
D106-05-11906A0 AP30P1U	11.906	15/32"	56	118	71	45	12	○
D106-05-12000A0 AP30P1U	12.0		56	118	71	45	12	●
D106-05-12100A0 AP30P1U	12.1		60	124	77	45	14	○
D106-05-12200A0 AP30P1U	12.2		60	124	77	45	14	○
D106-05-12250A0 AP30P1U	12.25		60	124	77	45	14	○
D106-05-12300A0 AP30P1U	12.3		60	124	77	45	14	○
D106-05-12303A0 AP30P1U	12.303	31/64"	60	124	77	45	14	○
D106-05-12400A0 AP30P1U	12.4		60	124	77	45	14	○
D106-05-12500A0 AP30P1U	12.5		60	124	77	45	14	●
D106-05-12600A0 AP30P1U	12.6		60	124	77	45	14	○
D106-05-12700A0 AP30P1U	12.7	1/2"	60	124	77	45	14	○
D106-05-12750A0 AP30P1U	12.75		60	124	77	45	14	○
D106-05-12800A0 AP30P1U	12.8		60	124	77	45	14	○

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide External Coolant Drill D106 5xDc



P	M	K	N	S	H
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•• 1st choice • 2nd choice

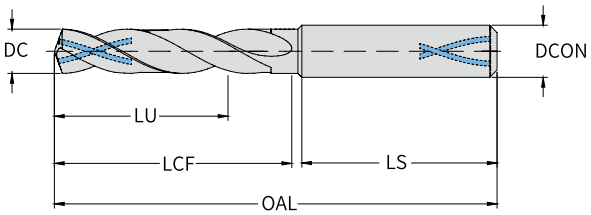


Product code	DC(m7) mm	DC inch/No.	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D106-05-12900A0 AP30P1U	12.9		60	124	77	45	14	○
D106-05-13000A0 AP30P1U	13.0		60	124	77	45	14	●
D106-05-13100A0 AP30P1U	13.1		60	124	77	45	14	○
D106-05-13200A0 AP30P1U	13.2		60	124	77	45	14	●
D106-05-13300A0 AP30P1U	13.3		60	124	77	45	14	○
D106-05-13400A0 AP30P1U	13.4		60	124	77	45	14	○
D106-05-13494A0 AP30P1U	13.494	17/32"	60	124	77	45	14	○
D106-05-13500A0 AP30P1U	13.5		60	124	77	45	14	○
D106-05-13600A0 AP30P1U	13.6		60	124	77	45	14	○
D106-05-13700A0 AP30P1U	13.7		60	124	77	45	14	●
D106-05-13800A0 AP30P1U	13.8		60	124	77	45	14	○
D106-05-13900A0 AP30P1U	13.9		60	124	77	45	14	○
D106-05-14000A0 AP30P1U	14.0		60	124	77	45	14	●
D106-05-14100A0 AP30P1U	14.1		63	133	83	48	16	●
D106-05-14200A0 AP30P1U	14.2		63	133	83	48	16	●
D106-05-14288A0 AP30P1U	14.288	9/16"	63	133	83	48	16	○
D106-05-14300A0 AP30P1U	14.3		63	133	83	48	16	○
D106-05-14400A0 AP30P1U	14.4		63	133	83	48	16	○
D106-05-14500A0 AP30P1U	14.5		63	133	83	48	16	●
D106-05-14600A0 AP30P1U	14.6		63	133	83	48	16	●
D106-05-14700A0 AP30P1U	14.7		63	133	83	48	16	●
D106-05-14750A0 AP30P1U	14.75		63	133	83	48	16	○
D106-05-14800A0 AP30P1U	14.8		63	133	83	48	16	○
D106-05-15000A0 AP30P1U	15.0		63	133	83	48	16	●
D106-05-15100A0 AP30P1U	15.1		63	133	83	48	16	○
D106-05-15200A0 AP30P1U	15.2		63	133	83	48	16	○
D106-05-15300A0 AP30P1U	15.3		63	133	83	48	16	○
D106-05-15500A0 AP30P1U	15.5		63	133	83	48	16	●
D106-05-15600A0 AP30P1U	15.6		63	133	83	48	16	○
D106-05-15700A0 AP30P1U	15.7		63	133	83	48	16	●
D106-05-15800A0 AP30P1U	15.8		63	133	83	48	16	●
D106-05-15875A0 AP30P1U	15.875	5/8"	63	133	83	48	16	○
D106-05-15900A0 AP30P1U	15.9		63	133	83	48	16	○
D106-05-16000A0 AP30P1U	16.0		63	133	83	48	16	●
D106-05-16500A0 AP30P1U	16.5		71	143	93	48	18	●
D106-05-17000A0 AP30P1U	17.0		71	143	93	48	18	●
D106-05-17500A0 AP30P1U	17.5		71	143	93	48	18	●
D106-05-18000A0 AP30P1U	18.0		71	143	93	48	18	●
D106-05-18500A0 AP30P1U	18.5		77	153	101	50	20	●
D106-05-19000A0 AP30P1U	19.0		77	153	101	50	20	●
D106-05-20000A0 AP30P1U	20.0		77	153	101	50	20	●

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide Internal Coolant Drill D106 3xDc



P	M	K	N	S	H
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•• 1st choice • 2nd choice

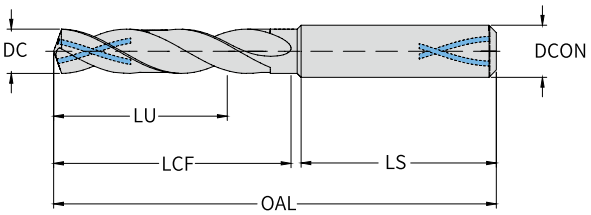


Product code	DC(m7) mm	DC inch/No.	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D106-03-03000A1 AP30P1U	3.0		14	62	20	36	4	●
D106-03-03100A1 AP30P1U	3.1		14	62	20	36	4	●
D106-03-03175A1 AP30P1U	3.175	1/8"	14	62	20	36	4	○
D106-03-03200A1 AP30P1U	3.2		14	62	20	36	4	●
D106-03-03250A1 AP30P1U	3.25		14	62	20	36	4	○
D106-03-03300A1 AP30P1U	3.3		14	62	20	36	4	●
D106-03-03400A1 AP30P1U	3.4		14	62	20	36	4	○
D106-03-03500A1 AP30P1U	3.5		14	62	20	36	4	●
D106-03-03572A1 AP30P1U	3.572	9/64"	14	62	20	36	4	○
D106-03-03600A1 AP30P1U	3.6		14	62	20	36	4	●
D106-03-03650A1 AP30P1U	3.65		14	62	20	36	4	○
D106-03-03700A1 AP30P1U	3.7		14	62	20	36	4	●
D106-03-03800A1 AP30P1U	3.8		17	66	24	36	4	○
D106-03-03900A1 AP30P1U	3.9		17	66	24	36	4	●
D106-03-03969A1 AP30P1U	3.969	5/32"	17	66	24	36	4	○
D106-03-04000A1 AP30P1U	4.0		17	66	24	36	4	●
D106-03-04100A1 AP30P1U	4.1		17	66	24	36	6	○
D106-03-04200A1 AP30P1U	4.2		17	66	24	36	6	●
D106-03-04300A1 AP30P1U	4.3		17	66	24	36	6	○
D106-03-04366A1 AP30P1U	4.366	11/64"	17	66	24	36	6	○
D106-03-04400A1 AP30P1U	4.4		17	66	24	36	6	○
D106-03-04500A1 AP30P1U	4.5		17	66	24	36	6	●
D106-03-04600A1 AP30P1U	4.6		17	66	24	36	6	○
D106-03-04650A1 AP30P1U	4.65		17	66	24	36	6	○
D106-03-04700A1 AP30P1U	4.7		17	66	24	36	6	○
D106-03-04763A1 AP30P1U	4.763	3/16"	20	66	28	36	6	○
D106-03-04800A1 AP30P1U	4.8		20	66	28	36	6	●
D106-03-04900A1 AP30P1U	4.9		20	66	28	36	6	●
D106-03-05000A1 AP30P1U	5.0		20	66	28	36	6	●
D106-03-05100A1 AP30P1U	5.1		20	66	28	36	6	●
D106-03-05159A1 AP30P1U	5.159	13/64"	20	66	28	36	6	○
D106-03-05200A1 AP30P1U	5.2		20	66	28	36	6	●
D106-03-05300A1 AP30P1U	5.3		20	66	28	36	6	○
D106-03-05400A1 AP30P1U	5.4		20	66	28	36	6	○
D106-03-05500A1 AP30P1U	5.5		20	66	28	36	6	●
D106-03-05550A1 AP30P1U	5.55		20	66	28	36	6	○

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide Internal Coolant Drill D106 3xDc



P	M	K	N	S	H
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•• 1st choice • 2nd choice

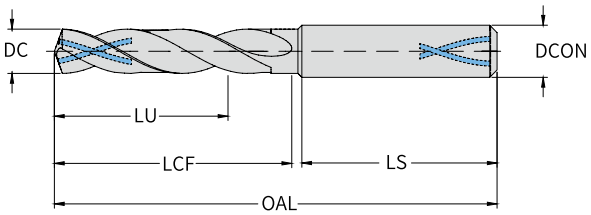


Product code	DC(m7) mm	DC inch/No.	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D106-03-05556A1 AP30P1U	5.556	7/32"	20	66	28	36	6	○
D106-03-05600A1 AP30P1U	5.6		20	66	28	36	6	○
D106-03-05700A1 AP30P1U	5.7		20	66	28	36	6	○
D106-03-05750A1 AP30P1U	5.75		20	66	28	36	6	○
D106-03-05800A1 AP30P1U	5.8		20	66	28	36	6	●
D106-03-05900A1 AP30P1U	5.9		20	66	28	36	6	●
D106-03-05953A1 AP30P1U	5.953	15/64"	20	66	28	36	6	○
D106-03-06000A1 AP30P1U	6.0		20	66	28	36	6	●
D106-03-06100A1 AP30P1U	6.1		24	79	41	36	8	○
D106-03-06200A1 AP30P1U	6.2		24	79	41	36	8	○
D106-03-06300A1 AP30P1U	6.3		24	79	41	36	8	○
D106-03-06350A1 AP30P1U	6.35	1/4"	24	79	41	36	8	○
D106-03-06400A1 AP30P1U	6.4		24	79	41	36	8	○
D106-03-06500A1 AP30P1U	6.5		24	79	41	36	8	●
D106-03-06600A1 AP30P1U	6.6		24	79	41	36	8	○
D106-03-06700A1 AP30P1U	6.7		24	79	41	36	8	○
D106-03-06747A1 AP30P1U	6.747	17/64"	24	79	41	36	8	○
D106-03-06800A1 AP30P1U	6.8		24	79	41	36	8	●
D106-03-06900A1 AP30P1U	6.9		24	79	41	36	8	●
D106-03-07000A1 AP30P1U	7.0		24	79	41	36	8	●
D106-03-07100A1 AP30P1U	7.1		29	79	41	36	8	○
D106-03-07144A1 AP30P1U	7.144	9/32"	29	79	41	36	8	○
D106-03-07200A1 AP30P1U	7.2		29	79	41	36	8	○
D106-03-07250A1 AP30P1U	7.25		29	79	41	36	8	○
D106-03-07300A1 AP30P1U	7.3		29	79	41	36	8	○
D106-03-07400A1 AP30P1U	7.4		29	79	41	36	8	●
D106-03-07450A1 AP30P1U	7.45		29	79	41	36	8	○
D106-03-07500A1 AP30P1U	7.5		29	79	41	36	8	●
D106-03-07541A1 AP30P1U	7.541	19/64"	29	79	41	36	8	○
D106-03-07550A1 AP30P1U	7.55		29	79	41	36	8	○
D106-03-07600A1 AP30P1U	7.6		29	79	41	36	8	○
D106-03-07700A1 AP30P1U	7.7		29	79	41	36	8	○
D106-03-07800A1 AP30P1U	7.8		29	79	41	36	8	●
D106-03-07900A1 AP30P1U	7.9		29	79	41	36	8	●
D106-03-07938A1 AP30P1U	7.938	5/16"	29	79	41	36	8	○
D106-03-08000A1 AP30P1U	8.0		29	79	41	36	8	●
D106-03-08100A1 AP30P1U	8.1		35	89	47	40	10	○
D106-03-08200A1 AP30P1U	8.2		35	89	47	40	10	○
D106-03-08300A1 AP30P1U	8.3		35	89	47	40	10	○
D106-03-08334A1 AP30P1U	8.334	21/64"	35	89	47	40	10	○
D106-03-08400A1 AP30P1U	8.4		35	89	47	40	10	○
D106-03-08500A1 AP30P1U	8.5		35	89	47	40	10	●
D106-03-08600A1 AP30P1U	8.6		35	89	47	40	10	●
D106-03-08700A1 AP30P1U	8.7		35	89	47	40	10	○
D106-03-08731A1 AP30P1U	8.731	11/32"	35	89	47	40	10	○
D106-03-08750A1 AP30P1U	8.75		35	89	47	40	10	○
D106-03-08800A1 AP30P1U	8.8		35	89	47	40	10	●
D106-03-08900A1 AP30P1U	8.9		35	89	47	40	10	●

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide Internal Coolant Drill D106 3xDc



P	M	K	N	S	H
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•• 1st choice • 2nd choice

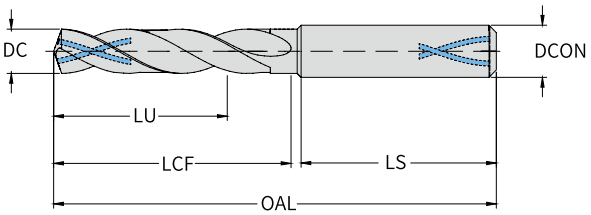


Product code	DC(m7) mm	DC inch/No.	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D106-03-09000A1 AP30P1U	9.0		35	89	47	40	10	●
D106-03-09100A1 AP30P1U	9.1		35	89	47	40	10	○
D106-03-09128A1 AP30P1U	9.128	23/64"	35	89	47	40	10	○
D106-03-09200A1 AP30P1U	9.2		35	89	47	40	10	○
D106-03-09300A1 AP30P1U	9.3		35	89	47	40	10	●
D106-03-09400A1 AP30P1U	9.4		35	89	47	40	10	○
D106-03-09500A1 AP30P1U	9.5		35	89	47	40	10	○
D106-03-09525A1 AP30P1U	9.525	3/8"	35	89	47	40	10	○
D106-03-09550A1 AP30P1U	9.55		35	89	47	40	10	○
D106-03-09600A1 AP30P1U	9.6		35	89	47	40	10	○
D106-03-09700A1 AP30P1U	9.7		35	89	47	40	10	○
D106-03-09800A1 AP30P1U	9.8		35	89	47	40	10	●
D106-03-09900A1 AP30P1U	9.9		35	89	47	40	10	●
D106-03-09922A1 AP30P1U	9.922	25/64"	35	89	47	40	10	○
D106-03-10000A1 AP30P1U	10.0		35	89	47	40	10	●
D106-03-10100A1 AP30P1U	10.1		40	102	55	45	12	●
D106-03-10200A1 AP30P1U	10.2		40	102	55	45	12	●
D106-03-10300A1 AP30P1U	10.3		40	102	55	45	12	●
D106-03-10319A1 AP30P1U	10.319	13/32"	40	102	55	45	12	○
D106-03-10400A1 AP30P1U	10.4		40	102	55	45	12	○
D106-03-10500A1 AP30P1U	10.5		40	102	55	45	12	●
D106-03-10600A1 AP30P1U	10.6		40	102	55	45	12	●
D106-03-10700A1 AP30P1U	10.7		40	102	55	45	12	○
D106-03-10716A1 AP30P1U	10.716	27/64"	40	102	55	45	12	○
D106-03-10800A1 AP30P1U	10.8		40	102	55	45	12	●
D106-03-10900A1 AP30P1U	10.9		40	102	55	45	12	○
D106-03-11000A1 AP30P1U	11.0		40	102	55	45	12	●
D106-03-11100A1 AP30P1U	11.1		40	102	55	45	12	○
D106-03-11113A1 AP30P1U	11.113	7/16"	40	102	55	45	12	○
D106-03-11200A1 AP30P1U	11.2		40	102	55	45	12	○
D106-03-11300A1 AP30P1U	11.3		40	102	55	45	12	○
D106-03-11400A1 AP30P1U	11.4		40	102	55	45	12	○
D106-03-11500A1 AP30P1U	11.5		40	102	55	45	12	○
D106-03-11509A1 AP30P1U	11.509	29/64"	40	102	55	45	12	○
D106-03-11550A1 AP30P1U	11.55		40	102	55	45	12	○
D106-03-11600A1 AP30P1U	11.6		40	102	55	45	12	○
D106-03-11700A1 AP30P1U	11.7		40	102	55	45	12	○
D106-03-11800A1 AP30P1U	11.8		40	102	55	45	12	●
D106-03-11900A1 AP30P1U	11.9		40	102	55	45	12	○
D106-03-11906A1 AP30P1U	11.906	15/32"	40	102	55	45	12	○
D106-03-12000A1 AP30P1U	12.0		40	102	55	45	12	●
D106-03-12100A1 AP30P1U	12.1		43	107	60	45	14	○
D106-03-12200A1 AP30P1U	12.2		43	107	60	45	14	○
D106-03-12250A1 AP30P1U	12.25		43	107	60	45	14	○

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide Internal Coolant Drill D106 3xDc



P	M	K	N	S	H
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•• 1st choice • 2nd choice

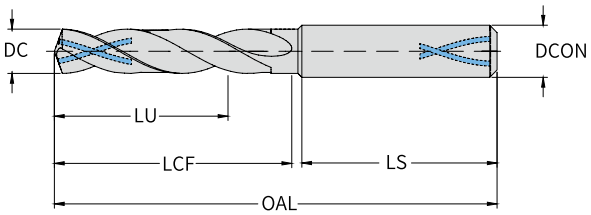


Product code	DC(m7) mm	DC inch/No.	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D106-03-12300A1 AP30P1U	12.3		43	107	60	45	14	○
D106-03-12303A1 AP30P1U	12.303	31/64"	43	107	60	45	14	○
D106-03-12400A1 AP30P1U	12.4		43	107	60	45	14	○
D106-03-12500A1 AP30P1U	12.5		43	107	60	45	14	●
D106-03-12600A1 AP30P1U	12.6		43	107	60	45	14	○
D106-03-12700A1 AP30P1U	12.7	1/2"	43	107	60	45	14	○
D106-03-12750A1 AP30P1U	12.75		43	107	60	45	14	○
D106-03-12800A1 AP30P1U	12.8		43	107	60	45	14	○
D106-03-12900A1 AP30P1U	12.9		43	107	60	45	14	○
D106-03-13000A1 AP30P1U	13.0		43	107	60	45	14	●
D106-03-13100A1 AP30P1U	13.1		43	107	60	45	14	○
D106-03-13200A1 AP30P1U	13.2		43	107	60	45	14	●
D106-03-13300A1 AP30P1U	13.3		43	107	60	45	14	○
D106-03-13400A1 AP30P1U	13.4		43	107	60	45	14	○
D106-03-13494A1 AP30P1U	13.494	17/32"	43	107	60	45	14	○
D106-03-13500A1 AP30P1U	13.5		43	107	60	45	14	○
D106-03-13600A1 AP30P1U	13.6		43	107	60	45	14	○
D106-03-13700A1 AP30P1U	13.7		43	107	60	45	14	○
D106-03-13800A1 AP30P1U	13.8		43	107	60	45	14	○
D106-03-13900A1 AP30P1U	13.9		43	107	60	45	14	○
D106-03-14000A1 AP30P1U	14.0		43	107	60	45	14	●
D106-03-14100A1 AP30P1U	14.1		45	115	65	48	16	●
D106-03-14200A1 AP30P1U	14.2		45	115	65	48	16	●
D106-03-14288A1 AP30P1U	14.288	9/16"	45	115	65	48	16	○
D106-03-14300A1 AP30P1U	14.3		45	115	65	48	16	○
D106-03-14400A1 AP30P1U	14.4		45	115	65	48	16	○
D106-03-14500A1 AP30P1U	14.5		45	115	65	48	16	●
D106-03-14600A1 AP30P1U	14.6		45	115	65	48	16	●
D106-03-14700A1 AP30P1U	14.7		45	115	65	48	16	●
D106-03-14750A1 AP30P1U	14.75		45	115	65	48	16	○
D106-03-14800A1 AP30P1U	14.8		45	115	65	48	16	○
D106-03-15000A1 AP30P1U	15.0		45	115	65	48	16	●
D106-03-15100A1 AP30P1U	15.1		45	115	65	48	16	○
D106-03-15200A1 AP30P1U	15.2		45	115	65	48	16	○
D106-03-15300A1 AP30P1U	15.3		45	115	65	48	16	○
D106-03-15500A1 AP30P1U	15.5		45	115	65	48	16	●
D106-03-15600A1 AP30P1U	15.6		45	115	65	48	16	○
D106-03-15700A1 AP30P1U	15.7		45	115	65	48	16	●
D106-03-15800A1 AP30P1U	15.8		45	115	65	48	16	●
D106-03-15875A1 AP30P1U	15.875	5/8"	45	115	65	48	16	○
D106-03-15900A1 AP30P1U	15.9		45	115	65	48	16	○
D106-03-16000A1 AP30P1U	16.0		45	115	65	48	16	●

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide Internal Coolant Drill D106 5xDc



P	M	K	N	S	H
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•• 1st choice • 2nd choice

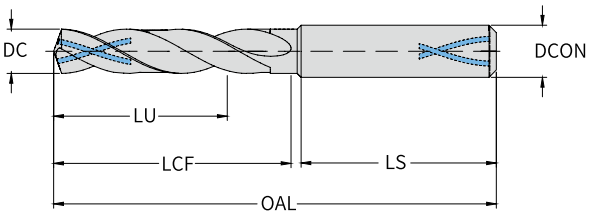


Product code	DC(m7) mm	DC inch/No.	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D106-05-03000A1 AP30P1U	3.0		23	66	28	36	4	●
D106-05-03100A1 AP30P1U	3.1		23	66	28	36	4	●
D106-05-03175A1 AP30P1U	3.175	1/8"	23	66	28	36	4	○
D106-05-03200A1 AP30P1U	3.2		23	66	28	36	4	●
D106-05-03250A1 AP30P1U	3.25		23	66	28	36	4	○
D106-05-03300A1 AP30P1U	3.3		23	66	28	36	4	●
D106-05-03400A1 AP30P1U	3.4		23	66	28	36	4	○
D106-05-03500A1 AP30P1U	3.5		23	66	28	36	4	●
D106-05-03572A1 AP30P1U	3.572	9/64"	23	66	28	36	4	○
D106-05-03600A1 AP30P1U	3.6		23	66	28	36	4	●
D106-05-03650A1 AP30P1U	3.65		23	66	28	36	4	○
D106-05-03700A1 AP30P1U	3.7		23	66	28	36	4	●
D106-05-03800A1 AP30P1U	3.8		29	74	36	36	4	○
D106-05-03900A1 AP30P1U	3.9		29	74	36	36	4	●
D106-05-03969A1 AP30P1U	3.969	5/32"	29	74	36	36	4	○
D106-05-04000A1 AP30P1U	4.0		29	74	36	36	4	●
D106-05-04100A1 AP30P1U	4.1		29	74	36	36	6	○
D106-05-04200A1 AP30P1U	4.2		29	74	36	36	6	●
D106-05-04300A1 AP30P1U	4.3		29	74	36	36	6	○
D106-05-04366A1 AP30P1U	4.366	11/64"	29	74	36	36	6	○
D106-05-04400A1 AP30P1U	4.4		29	74	36	36	6	○
D106-05-04500A1 AP30P1U	4.5		29	74	36	36	6	●
D106-05-04600A1 AP30P1U	4.6		29	74	36	36	6	○
D106-05-04650A1 AP30P1U	4.65		29	74	36	36	6	○
D106-05-04700A1 AP30P1U	4.7		29	74	36	36	6	○
D106-05-04763A1 AP30P1U	4.763	3/16"	35	82	44	36	6	○
D106-05-04800A1 AP30P1U	4.8		35	82	44	36	6	●
D106-05-04900A1 AP30P1U	4.9		35	82	44	36	6	●
D106-05-05000A1 AP30P1U	5.0		35	82	44	36	6	●
D106-05-05100A1 AP30P1U	5.1		35	82	44	36	6	●
D106-05-05159A1 AP30P1U	5.159	13/64"	35	82	44	36	6	○
D106-05-05200A1 AP30P1U	5.2		35	82	44	36	6	●
D106-05-05300A1 AP30P1U	5.3		35	82	44	36	6	○
D106-05-05400A1 AP30P1U	5.4		35	82	44	36	6	○
D106-05-05500A1 AP30P1U	5.5		35	82	44	36	6	●
D106-05-05550A1 AP30P1U	5.55		35	82	44	36	6	○

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide Internal Coolant Drill D106 5xDc



P	M	K	N	S	H
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•• 1st choice • 2nd choice

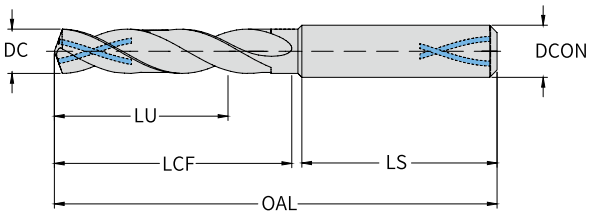


Product code	DC(m7) mm	DC inch/No.	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D106-05-05556A1 AP30P1U	5.556	7/32"	35	82	44	36	6	○
D106-05-05600A1 AP30P1U	5.6		35	82	44	36	6	○
D106-05-05700A1 AP30P1U	5.7		35	82	44	36	6	○
D106-05-05750A1 AP30P1U	5.75		35	82	44	36	6	○
D106-05-05800A1 AP30P1U	5.8		35	82	44	36	6	●
D106-05-05900A1 AP30P1U	5.9		35	82	44	36	6	●
D106-05-05953A1 AP30P1U	5.953	15/64"	35	82	44	36	6	○
D106-05-06000A1 AP30P1U	6.0		35	82	44	36	6	●
D106-05-06100A1 AP30P1U	6.1		43	91	53	36	8	○
D106-05-06200A1 AP30P1U	6.2		43	91	53	36	8	○
D106-05-06300A1 AP30P1U	6.3		43	91	53	36	8	○
D106-05-06350A1 AP30P1U	6.35	1/4"	43	91	53	36	8	○
D106-05-06400A1 AP30P1U	6.4		43	91	53	36	8	○
D106-05-06500A1 AP30P1U	6.5		43	91	53	36	8	●
D106-05-06600A1 AP30P1U	6.6		43	91	53	36	8	○
D106-05-06700A1 AP30P1U	6.7		43	91	53	36	8	○
D106-05-06747A1 AP30P1U	6.747	17/64"	43	91	53	36	8	○
D106-05-06800A1 AP30P1U	6.8		43	91	53	36	8	●
D106-05-06900A1 AP30P1U	6.9		43	91	53	36	8	●
D106-05-07000A1 AP30P1U	7.0		43	91	53	36	8	●
D106-05-07100A1 AP30P1U	7.1		43	91	53	36	8	○
D106-05-07144A1 AP30P1U	7.144	9/32"	43	91	53	36	8	○
D106-05-07200A1 AP30P1U	7.2		43	91	53	36	8	○
D106-05-07250A1 AP30P1U	7.25		43	91	53	36	8	○
D106-05-07300A1 AP30P1U	7.3		43	91	53	36	8	○
D106-05-07400A1 AP30P1U	7.4		43	91	53	36	8	●
D106-05-07450A1 AP30P1U	7.45		43	91	53	36	8	○
D106-05-07500A1 AP30P1U	7.5		43	91	53	36	8	●
D106-05-07541A1 AP30P1U	7.541	19/64"	43	91	53	36	8	○
D106-05-07550A1 AP30P1U	7.55		43	91	53	36	8	○
D106-05-07600A1 AP30P1U	7.6		43	91	53	36	8	○
D106-05-07700A1 AP30P1U	7.7		43	91	53	36	8	○
D106-05-07800A1 AP30P1U	7.8		43	91	53	36	8	●
D106-05-07900A1 AP30P1U	7.9		43	91	53	36	8	●
D106-05-07938A1 AP30P1U	7.938	5/16"	43	91	53	36	8	○
D106-05-08000A1 AP30P1U	8.0		43	91	53	36	8	●
D106-05-08100A1 AP30P1U	8.1		49	103	61	40	10	○
D106-05-08200A1 AP30P1U	8.2		49	103	61	40	10	○
D106-05-08300A1 AP30P1U	8.3		49	103	61	40	10	○
D106-05-08334A1 AP30P1U	8.334	21/64"	49	103	61	40	10	○
D106-05-08400A1 AP30P1U	8.4		49	103	61	40	10	○
D106-05-08500A1 AP30P1U	8.5		49	103	61	40	10	●
D106-05-08600A1 AP30P1U	8.6		49	103	61	40	10	●
D106-05-08700A1 AP30P1U	8.7		49	103	61	40	10	○
D106-05-08731A1 AP30P1U	8.731	11/32"	49	103	61	40	10	○
D106-05-08750A1 AP30P1U	8.75		49	103	61	40	10	○
D106-05-08800A1 AP30P1U	8.8		49	103	61	40	10	●
D106-05-08900A1 AP30P1U	8.9		49	103	61	40	10	●

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide Internal Coolant Drill D106 5xDc



P	M	K	N	S	H
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•• 1st choice • 2nd choice

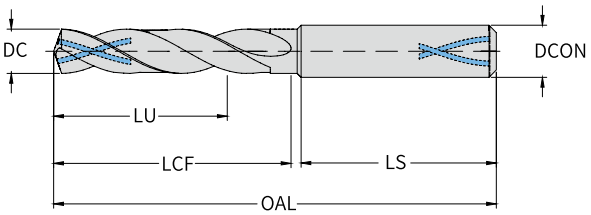


Product code	DC(m7) mm	DC inch/No.	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D106-05-09000A1 AP30P1U	9.0		49	103	61	40	10	●
D106-05-09100A1 AP30P1U	9.1		49	103	61	40	10	○
D106-05-09128A1 AP30P1U	9.128	23/64"	49	103	61	40	10	○
D106-05-09200A1 AP30P1U	9.2		49	103	61	40	10	○
D106-05-09300A1 AP30P1U	9.3		49	103	61	40	10	●
D106-05-09400A1 AP30P1U	9.4		49	103	61	40	10	○
D106-05-09500A1 AP30P1U	9.5		49	103	61	40	10	○
D106-05-09525A1 AP30P1U	9.525	3/8"	49	103	61	40	10	○
D106-05-09550A1 AP30P1U	9.55		49	103	61	40	10	○
D106-05-09600A1 AP30P1U	9.6		49	103	61	40	10	○
D106-05-09700A1 AP30P1U	9.7		49	103	61	40	10	○
D106-05-09800A1 AP30P1U	9.8		49	103	61	40	10	●
D106-05-09900A1 AP30P1U	9.9		49	103	61	40	10	●
D106-05-09922A1 AP30P1U	9.922	25/64"	49	103	61	40	10	○
D106-05-10000A1 AP30P1U	10.0		49	103	61	40	10	●
D106-05-10100A1 AP30P1U	10.1		56	118	71	45	12	●
D106-05-10200A1 AP30P1U	10.2		56	118	71	45	12	●
D106-05-10300A1 AP30P1U	10.3		56	118	71	45	12	●
D106-05-10319A1 AP30P1U	10.319	13/32"	56	118	71	45	12	○
D106-05-10400A1 AP30P1U	10.4		56	118	71	45	12	○
D106-05-10500A1 AP30P1U	10.5		56	118	71	45	12	●
D106-05-10600A1 AP30P1U	10.6		56	118	71	45	12	●
D106-05-10700A1 AP30P1U	10.7		56	118	71	45	12	○
D106-05-10716A1 AP30P1U	10.716	27/64"	56	118	71	45	12	○
D106-05-10800A1 AP30P1U	10.8		56	118	71	45	12	●
D106-05-10900A1 AP30P1U	10.9		56	118	71	45	12	○
D106-05-11000A1 AP30P1U	11.0		56	118	71	45	12	●
D106-05-11100A1 AP30P1U	11.1		56	118	71	45	12	○
D106-05-11113A1 AP30P1U	11.113	7/16"	56	118	71	45	12	○
D106-05-11200A1 AP30P1U	11.2		56	118	71	45	12	○
D106-05-11300A1 AP30P1U	11.3		56	118	71	45	12	○
D106-05-11400A1 AP30P1U	11.4		56	118	71	45	12	○
D106-05-11500A1 AP30P1U	11.5		56	118	71	45	12	○
D106-05-11509A1 AP30P1U	11.509	29/64"	56	118	71	45	12	○
D106-05-11550A1 AP30P1U	11.55		56	118	71	45	12	○
D106-05-11600A1 AP30P1U	11.6		56	118	71	45	12	○
D106-05-11700A1 AP30P1U	11.7		56	118	71	45	12	○
D106-05-11800A1 AP30P1U	11.8		56	118	71	45	12	●
D106-05-11900A1 AP30P1U	11.9		56	118	71	45	12	○
D106-05-11906A1 AP30P1U	11.906	15/32"	56	118	71	45	12	○
D106-05-12000A1 AP30P1U	12.0		56	118	71	45	12	●
D106-05-12100A1 AP30P1U	12.1		60	124	77	45	14	○
D106-05-12200A1 AP30P1U	12.2		60	124	77	45	14	○
D106-05-12250A1 AP30P1U	12.25		60	124	77	45	14	○

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide Internal Coolant Drill D106 5xDc



P	M	K	N	S	H
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•• 1st choice • 2nd choice

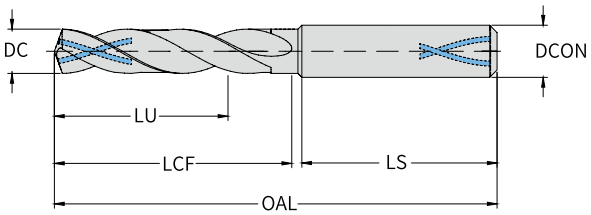


Product code	DC(m7) mm	DC inch/No.	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D106-05-12300A1 AP30P1U	12.3		60	124	77	45	14	○
D106-05-12303A1 AP30P1U	12.303	31/64"	60	124	77	45	14	○
D106-05-12400A1 AP30P1U	12.4		60	124	77	45	14	○
D106-05-12500A1 AP30P1U	12.5		60	124	77	45	14	●
D106-05-12600A1 AP30P1U	12.6		60	124	77	45	14	○
D106-05-12700A1 AP30P1U	12.7	1/2"	60	124	77	45	14	○
D106-05-12750A1 AP30P1U	12.75		60	124	77	45	14	○
D106-05-12800A1 AP30P1U	12.8		60	124	77	45	14	○
D106-05-12900A1 AP30P1U	12.9		60	124	77	45	14	○
D106-05-13000A1 AP30P1U	13.0		60	124	77	45	14	●
D106-05-13100A1 AP30P1U	13.1		60	124	77	45	14	○
D106-05-13200A1 AP30P1U	13.2		60	124	77	45	14	●
D106-05-13300A1 AP30P1U	13.3		60	124	77	45	14	○
D106-05-13400A1 AP30P1U	13.4		60	124	77	45	14	○
D106-05-13494A1 AP30P1U	13.494	17/32"	60	124	77	45	14	○
D106-05-13500A1 AP30P1U	13.5		60	124	77	45	14	○
D106-05-13600A1 AP30P1U	13.6		60	124	77	45	14	○
D106-05-13700A1 AP30P1U	13.7		60	124	77	45	14	●
D106-05-13800A1 AP30P1U	13.8		60	124	77	45	14	○
D106-05-13900A1 AP30P1U	13.9		60	124	77	45	14	○
D106-05-14000A1 AP30P1U	14.0		60	124	77	45	14	●
D106-05-14100A1 AP30P1U	14.1		63	133	83	48	16	●
D106-05-14200A1 AP30P1U	14.2		63	133	83	48	16	●
D106-05-14288A1 AP30P1U	14.288	9/16"	63	133	83	48	16	○
D106-05-14300A1 AP30P1U	14.3		63	133	83	48	16	○
D106-05-14400A1 AP30P1U	14.4		63	133	83	48	16	○
D106-05-14500A1 AP30P1U	14.5		63	133	83	48	16	●
D106-05-14600A1 AP30P1U	14.6		63	133	83	48	16	●
D106-05-14700A1 AP30P1U	14.7		63	133	83	48	16	●
D106-05-14750A1 AP30P1U	14.75		63	133	83	48	16	○
D106-05-14800A1 AP30P1U	14.8		63	133	83	48	16	○
D106-05-15000A1 AP30P1U	15.0		63	133	83	48	16	●
D106-05-15100A1 AP30P1U	15.1		63	133	83	48	16	○
D106-05-15200A1 AP30P1U	15.2		63	133	83	48	16	○
D106-05-15300A1 AP30P1U	15.3		63	133	83	48	16	○
D106-05-15500A1 AP30P1U	15.5		63	133	83	48	16	●
D106-05-15600A1 AP30P1U	15.6		63	133	83	48	16	○
D106-05-15700A1 AP30P1U	15.7		63	133	83	48	16	●
D106-05-15800A1 AP30P1U	15.8		63	133	83	48	16	●
D106-05-15875A1 AP30P1U	15.875	5/8"	63	133	83	48	16	○
D106-05-15900A1 AP30P1U	15.9		63	133	83	48	16	○
D106-05-16000A1 AP30P1U	16.0		63	133	83	48	16	●

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide Internal Coolant Drill D108 8xDc



P	M	K	N	S	H
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•• 1st choice • 2nd choice

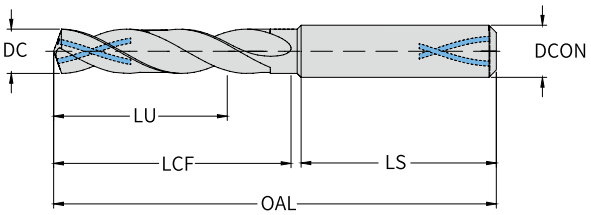


Product code	DC(m7) mm	DC inch/No.	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D108-08-03000A1	3.0		28	74	34	36	4	●
D108-08-03100A1	3.1		28	74	34	36	4	●
D108-08-03175A1	3.175	1/8"	28	74	34	36	4	○
D108-08-03200A1	3.2		28	74	34	36	4	●
D108-08-03300A1	3.3		28	74	34	36	4	●
D108-08-03400A1	3.4		28	74	34	36	4	●
D108-08-03500A1	3.5		28	74	34	36	4	●
D108-08-03572A1	3.572	9/64"	28	74	34	36	4	○
D108-08-03600A1	3.6		28	74	34	36	4	●
D108-08-03700A1	3.7		28	74	34	36	4	●
D108-08-03800A1	3.8		35	81	42	36	4	●
D108-08-03900A1	3.9		35	81	42	36	4	●
D108-08-03969A1	3.969	5/32"	35	81	42	36	4	○
D108-08-04000A1	4.0		35	81	42	36	4	●
D108-08-04100A1	4.1		35	81	42	36	6	●
D108-08-04200A1	4.2		35	81	42	36	6	●
D108-08-04300A1	4.3		37	81	44	36	6	●
D108-08-04366A1	4.366	11/64"	37	81	44	36	6	○
D108-08-04400A1	4.4		37	81	44	36	6	●
D108-08-04500A1	4.5		37	81	44	36	6	●
D108-08-04600A1	4.6		37	81	44	36	6	●
D108-08-04700A1	4.7		37	81	44	36	6	●
D108-08-04763A1	4.763	3/16"	43	97	52	36	6	○
D108-08-04800A1	4.8		43	97	52	36	6	●
D108-08-04900A1	4.9		43	97	52	36	6	●
D108-08-05000A1	5.0		45	97	55	36	6	●
D108-08-05100A1	5.1		45	97	55	36	6	●
D108-08-05159A1	5.159	13/64"	45	97	55	36	6	○
D108-08-05200A1	5.2		45	97	55	36	6	●
D108-08-05300A1	5.3		45	97	55	36	6	●
D108-08-05400A1	5.4		48	97	57	36	6	●
D108-08-05500A1	5.5		48	97	57	36	6	●
D108-08-05556A1	5.556	7/32"	48	97	57	36	6	●
D108-08-05600A1	5.6		48	97	57	36	6	●
D108-08-05700A1	5.7		48	97	57	36	6	●
D108-08-05800A1	5.8		48	97	57	36	6	●
D108-08-05900A1	5.9		48	97	57	36	6	●
D108-08-05953A1	5.953	15/64"	48	97	57	36	6	○
D108-08-06000A1	6.0		48	97	57	36	6	●
D108-08-06100A1	6.1		53	106	64	36	8	●
D108-08-06200A1	6.2		53	106	64	36	8	●

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide Internal Coolant Drill D108 8xDc



P	M	K	N	S	H
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•• 1st choice • 2nd choice

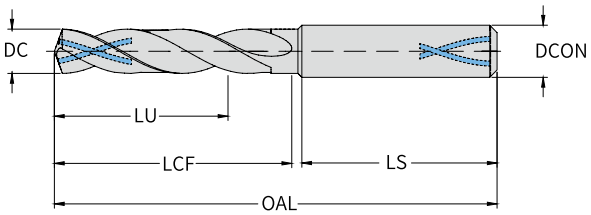


Product code	DC(m7) mm	DC inch/No.	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D108-08-06300A1	6.3		53	106	64	36	8	●
D108-08-06350A1	6.35	1/4"	54	106	66	36	8	●
D108-08-06400A1	6.4		54	106	66	36	8	●
D108-08-06500A1	6.5		55	106	66	36	8	●
D108-08-06600A1	6.6		55	106	66	36	8	●
D108-08-06700A1	6.7		55	106	66	36	8	●
D108-08-06747A1	6.747	17/64"	55	106	66	36	8	○
D108-08-06800A1	6.8		55	106	66	36	8	●
D108-08-06900A1	6.9		55	106	66	36	8	●
D108-08-07000A1	7.0		55	106	66	36	8	●
D108-08-07100A1	7.1		60	116	74	36	8	●
D108-08-07144A1	7.144	9/32"	60	116	74	36	8	○
D108-08-07200A1	7.2		62	116	74	36	8	●
D108-08-07300A1	7.3		62	116	74	36	8	●
D108-08-07400A1	7.4		62	116	74	36	8	●
D108-08-07500A1	7.5		64	116	76	36	8	●
D108-08-07541A1	7.541	19/64"	64	116	76	36	8	○
D108-08-07600A1	7.6		64	116	76	36	8	●
D108-08-07700A1	7.7		64	116	76	36	8	●
D108-08-07800A1	7.8		64	116	76	36	8	●
D108-08-07900A1	7.9		64	116	76	36	8	●
D108-08-07938A1	7.938	5/16"	64	116	76	36	8	○
D108-08-08000A1	8.0		64	116	76	36	8	●
D108-08-08100A1	8.1		70	139	88	40	10	●
D108-08-08200A1	8.2		70	139	88	40	10	●
D108-08-08300A1	8.3		72	139	88	40	10	●
D108-08-08334A1	8.334	21/64”	72	139	88	40	10	○
D108-08-08400A1	8.4		72	139	88	40	10	●
D108-08-08500A1	8.5		72	139	88	40	10	●
D108-08-08600A1	8.6		72	139	88	40	10	●
D108-08-08700A1	8.7		74	139	90	40	10	●
D108-08-08731A1	8.731	11/32"	74	139	90	40	10	○
D108-08-08800A1	8.8		74	139	90	40	10	●
D108-08-08900A1	8.9		76	139	92	40	10	●
D108-08-09000A1	9.0		76	139	92	40	10	●
D108-08-09100A1	9.1		78	139	95	40	10	●
D108-08-09128A1	9.128	23/64"	78	139	95	40	10	○
D108-08-09200A1	9.2		80	139	95	40	10	●
D108-08-09300A1	9.3		80	139	95	40	10	●

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide Internal Coolant Drill D108 8xDc



P	M	K	N	S	H
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•• 1st choice • 2nd choice

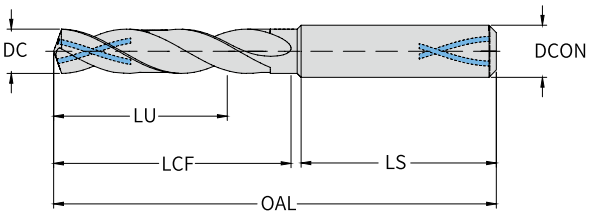


Product code	DC(m7) mm	DC inch/No.	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D108-08-09400A1	9.4		80	139	95	40	10	●
D108-08-09500A1	9.5		80	139	95	40	10	●
D108-08-09525A1	9.525	3/8"	80	139	95	40	10	●
D108-08-09600A1	9.6		80	139	95	40	10	●
D108-08-09700A1	9.7		80	139	95	40	10	●
D108-08-09800A1	9.8		80	139	95	40	10	●
D108-08-09900A1	9.9		80	139	95	40	10	●
D108-08-09922A1	9.922	25/64"	80	139	95	40	10	○
D108-08-10000A1	10.0		80	139	95	40	10	●
D108-08-10100A1	10.1		88	163	108	45	12	●
D108-08-10200A1	10.2		88	163	108	45	12	●
D108-08-10300A1	10.3		88	163	108	45	12	●
D108-08-10319A1	10.319	13/32"	88	163	108	45	12	○
D108-08-10400A1	10.4		90	163	110	45	12	●
D108-08-10500A1	10.5		90	163	110	45	12	●
D108-08-10700A1	10.7		90	163	110	45	12	●
D108-08-10716A1	10.716	27/64"	92	163	110	45	12	○
D108-08-10800A1	10.8		92	163	110	45	12	●
D108-08-10900A1	10.9		94	163	112	45	12	●
D108-08-11000A1	11.0		94	163	112	45	12	●
D108-08-11100A1	11.1		94	163	112	45	12	●
D108-08-11113A1	11.113	7/16"	94	163	112	45	12	○
D108-08-11200A1	11.2		96	163	114	45	12	●
D108-08-11300A1	11.3		96	163	114	45	12	●
D108-08-11500A1	11.5		96	163	114	45	12	●
D108-08-11600A1	11.6		96	163	114	45	12	●
D108-08-11700A1	11.7		96	163	114	45	12	●
D108-08-11800A1	11.8		96	163	114	45	12	●
D108-08-11900A1	11.9		96	163	114	45	12	●
D108-08-11906A1	11.906	15/32”	96	163	114	45	12	○
D108-08-12000A1	12.0		96	163	114	45	12	●
D108-08-12303A1	12.303	31/64"	106	182	125	45	14	○
D108-08-12500A1	12.5		106	182	125	45	14	●
D108-08-12700A1	12.7	1/2”	106	182	125	45	14	○
D108-08-13000A1	13.0		110	182	130	45	14	●
D108-08-13494A1	13.494	17/32"	115	182	133	45	14	○
D108-08-13500A1	13.5		115	182	133	45	14	●
D108-08-14000A1	14.0		119	182	133	45	14	●
D108-08-14288A1	14.288	9/16”	122	204	140	48	16	○
D108-08-14500A1	14.5		124	204	140	48	16	●
D108-08-15000A1	15.0		128	204	143	48	16	●
D108-08-15500A1	15.5		132	204	150	48	16	●
D108-08-15875A1	15.875	5/8"	134	204	150	48	16	○
D108-08-16000A1	16.0		136	204	152	48	16	●

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide Internal Coolant Drill D151 3xDc



P	M	K	N	S	H
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•• 1st choice • 2nd choice

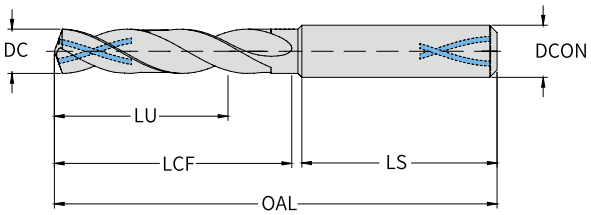


Product code	DC(m7) mm	DC inch/No.	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D151-03-03000A1	3.0		14	62	20	36	4	●
D151-03-03100A1	3.1		14	62	20	36	4	○
D151-03-03175A1	3.175	1/8"	14	62	20	36	4	○
D151-03-03200A1	3.2		14	62	20	36	4	●
D151-03-03250A1	3.25		14	62	20	36	4	○
D151-03-03300A1	3.3		14	62	20	36	4	●
D151-03-03400A1	3.4		14	62	20	36	4	○
D151-03-03500A1	3.5		14	62	20	36	4	●
D151-03-03572A1	3.572	9/64"	14	62	20	36	4	○
D151-03-03600A1	3.6		14	62	20	36	4	○
D151-03-03700A1	3.7		14	62	20	36	4	●
D151-03-03800A1	3.8		17	66	24	36	4	○
D151-03-03900A1	3.9		17	66	24	36	4	○
D151-03-03969A1	3.969	5/32"	17	66	24	36	4	○
D151-03-04000A1	4.0		17	66	24	36	4	●
D151-03-04100A1	4.1		17	66	24	36	6	○
D151-03-04200A1	4.2		17	66	24	36	6	●
D151-03-04300A1	4.3		17	66	24	36	6	○
D151-03-04366A1	4.366	11/64"	17	66	24	36	6	○
D151-03-04400A1	4.4		17	66	24	36	6	○
D151-03-04500A1	4.5		17	66	24	36	6	●
D151-03-04600A1	4.6		17	66	24	36	6	○
D151-03-04650A1	4.65		17	66	24	36	6	○
D151-03-04700A1	4.7		17	66	24	36	6	○
D151-03-04763A1	4.763	3/16"	20	66	28	36	6	○
D151-03-04800A1	4.8		20	66	28	36	6	○
D151-03-04900A1	4.9		20	66	28	36	6	●
D151-03-05000A1	5.0		20	66	28	36	6	●
D151-03-05100A1	5.1		20	66	28	36	6	○
D151-03-05159A1	5.159	13/64"	20	66	28	36	6	○
D151-03-05200A1	5.2		20	66	28	36	6	○
D151-03-05300A1	5.3		20	66	28	36	6	○
D151-03-05400A1	5.4		20	66	28	36	6	○
D151-03-05500A1	5.5		20	66	28	36	6	●
D151-03-05550A1	5.55		20	66	28	36	6	○
D151-03-05556A1	5.556	7/32"	20	66	28	36	6	○
D151-03-05600A1	5.6		20	66	28	36	6	○
D151-03-05700A1	5.7		20	66	28	36	6	○
D151-03-05800A1	5.8		20	66	28	36	6	○
D151-03-05900A1	5.9		20	66	28	36	6	○
D151-03-05953A1	5.953	15/64"	20	66	28	36	6	○
D151-03-06000A1	6.0		20	66	28	36	6	●
D151-03-06100A1	6.1		24	79	34	36	8	○
D151-03-06200A1	6.2		24	79	34	36	8	○
D151-03-06300A1	6.3		24	79	34	36	8	○
D151-03-06350A1	6.35	1/4"	24	79	34	36	8	○
D151-03-06400A1	6.4		24	79	34	36	8	○
D151-03-06500A1	6.5		24	79	34	36	8	●

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide Internal Coolant Drill D151 3xDc



P	M	K	N	S	H
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●● 1st choice ● 2nd choice

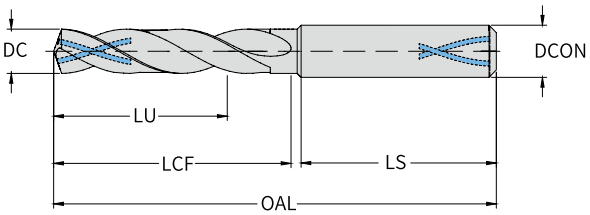


Product code	DC(m7) mm	DC inch/No.	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D151-03-06600A1	6.6		24	79	34	36	8	○
D151-03-06700A1	6.7		24	79	34	36	8	○
D151-03-06747A1	6.747	17/64"	24	79	34	36	8	○
D151-03-06800A1	6.8		24	79	34	36	8	●
D151-03-06900A1	6.9		24	79	34	36	8	○
D151-03-07000A1	7.0		24	79	34	36	8	●
D151-03-07100A1	7.1		29	79	41	36	8	○
D151-03-07144A1	7.144	9/32"	29	79	41	36	8	○
D151-03-07200A1	7.2		29	79	41	36	8	○
D151-03-07300A1	7.3		29	79	41	36	8	○
D151-03-07400A1	7.4		29	79	41	36	8	○
D151-03-07500A1	7.5		29	79	41	36	8	●
D151-03-07541A1	7.541	19/64"	29	79	41	36	8	○
D151-03-07600A1	7.6		29	79	41	36	8	○
D151-03-07700A1	7.7		29	79	41	36	8	○
D151-03-07800A1	7.8		29	79	41	36	8	●
D151-03-07900A1	7.9		29	79	41	36	8	○
D151-03-07938A1	7.938	5/16"	29	79	41	36	8	○
D151-03-08000A1	8.0		29	79	41	36	8	●
D151-03-08100A1	8.1		35	89	47	40	10	○
D151-03-08200A1	8.2		35	89	47	40	10	○
D151-03-08300A1	8.3		35	89	47	40	10	○
D151-03-08334A1	8.334	21/64"	35	89	47	40	10	○
D151-03-08400A1	8.4		35	89	47	40	10	○
D151-03-08500A1	8.5		35	89	47	40	10	●
D151-03-08600A1	8.6		35	89	47	40	10	○
D151-03-08700A1	8.7		35	89	47	40	10	○
D151-03-08731A1	8.731	11/32"	35	89	47	40	10	○
D151-03-08800A1	8.8		35	89	47	40	10	○
D151-03-08900A1	8.9		35	89	47	40	10	○
D151-03-09000A1	9.0		35	89	47	40	10	●
D151-03-09100A1	9.1		35	89	47	40	10	○
D151-03-09128A1	9.128	23/64"	35	89	47	40	10	○
D151-03-09200A1	9.2		35	89	47	40	10	○
D151-03-09300A1	9.3		35	89	47	40	10	○
D151-03-09400A1	9.4		35	89	47	40	10	○
D151-03-09500A1	9.5		35	89	47	40	10	●
D151-03-09525A1	9.525	3/8"	35	89	47	40	10	○
D151-03-09600A1	9.6		35	89	47	40	10	○
D151-03-09700A1	9.7		35	89	47	40	10	○
D151-03-09800A1	9.8		35	89	47	40	10	○
D151-03-09900A1	9.9		35	89	47	40	10	○
D151-03-09922A1	9.922	25/64"	35	89	47	40	10	○
D151-03-10000A1	10.0		35	89	47	40	10	●
D151-03-10100A1	10.1		40	102	55	45	12	○
D151-03-10200A1	10.2		40	102	55	45	12	●
D151-03-10300A1	10.3		40	102	55	45	12	○

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide Internal Coolant Drill D151 3xDc



P	M	K	N	S	H
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●● 1st choice ● 2nd choice

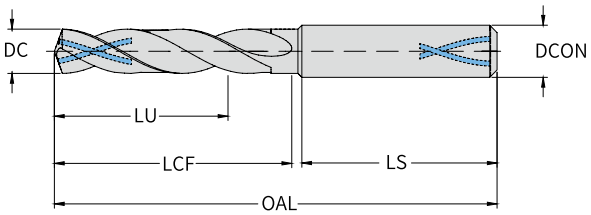


Product code	DC(m7) mm	DC inch/No.	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D151-03-10319A1	10.319	13/32"	40	102	55	45	12	○
D151-03-10400A1	10.4		40	102	55	45	12	○
D151-03-10500A1	10.5		40	102	55	45	12	●
D151-03-10600A1	10.6		40	102	55	45	12	○
D151-03-10700A1	10.7		40	102	55	45	12	○
D151-03-10716A1	10.716	27/64"	40	102	55	45	12	○
D151-03-10800A1	10.8		40	102	55	45	12	●
D151-03-10900A1	10.9		40	102	55	45	12	○
D151-03-11000A1	11.0		40	102	55	45	12	●
D151-03-11100A1	11.1		40	102	55	45	12	○
D151-03-11113A1	11.113		40	102	55	45	12	○
D151-03-11200A1	11.2		40	102	55	45	12	○
D151-03-11300A1	11.3		40	102	55	45	12	○
D151-03-11400A1	11.4		40	102	55	45	12	○
D151-03-11500A1	11.5		40	102	55	45	12	●
D151-03-11509A1	11.509	29/64"	40	102	55	45	12	○
D151-03-11600A1	11.6		40	102	55	45	12	○
D151-03-11700A1	11.7		40	102	55	45	12	○
D151-03-11800A1	11.8		40	102	55	45	12	○
D151-03-11900A1	11.9		40	102	55	45	12	○
D151-03-12000A1	12.0		40	102	55	45	12	●
D151-03-12100A1	12.1		43	107	60	45	14	○
D151-03-12200A1	12.2		43	107	60	45	14	○
D151-03-12300A1	12.3		43	107	60	45	14	○
D151-03-12303A1	12.303	31/64"	43	107	60	45	14	○
D151-03-12500A1	12.5		43	107	60	45	14	●
D151-03-12600A1	12.6		43	107	60	45	14	○
D151-03-12700A1	12.7	1/2"	43	107	60	45	14	○
D151-03-12900A1	12.9		43	107	60	45	14	○
D151-03-13000A1	13.0		43	107	60	45	14	●
D151-03-13100A1	13.1		43	107	60	45	14	○
D151-03-13300A1	13.3		43	107	60	45	14	○
D151-03-13494A1	13.494	17/32"	43	107	60	45	14	○
D151-03-13500A1	13.5		43	107	60	45	14	●
D151-03-13800A1	13.8		43	107	60	45	14	○
D151-03-14000A1	14.0		43	107	60	45	14	●
D151-03-14200A1	14.2		45	115	65	48	16	○
D151-03-14288A1	14.288	9/16"	45	115	65	48	16	○
D151-03-14500A1	14.5		45	115	65	48	16	○
D151-03-14750A1	14.75		45	115	65	48	16	○
D151-03-15000A1	15.0		45	115	65	48	16	○
D151-03-15100A1	15.1		45	115	65	48	16	○
D151-03-15200A1	15.2		45	115	65	48	16	○
D151-03-15300A1	15.3		45	115	65	48	16	○
D151-03-15500A1	15.5		45	115	65	48	16	○
D151-03-15800A1	15.8		45	115	65	48	16	○
D151-03-16000A1	16.0		45	115	65	48	16	○

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide Internal Coolant Drill D151 5xDc



P	M	K	N	S	H
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●● 1st choice ● 2nd choice

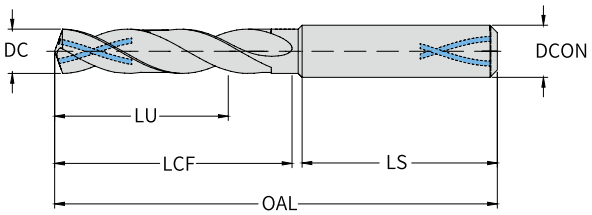


Product code	DC(m7) mm	DC inch/No.	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D151-05-03000A1	3.0		19	66	24	36	4	●
D151-05-03100A1	3.1		19	66	24	36	4	○
D151-05-03175A1	3.175	1/8"	19	66	24	36	4	○
D151-05-03200A1	3.2		19	66	24	36	4	○
D151-05-03250A1	3.25		19	66	24	36	4	○
D151-05-03300A1	3.3		19	66	24	36	4	●
D151-05-03400A1	3.4		19	66	24	36	4	○
D151-05-03500A1	3.5		19	66	24	36	4	●
D151-05-03572A1	3.572	9/64"	19	66	24	36	4	○
D151-05-03600A1	3.6		19	66	24	36	4	○
D151-05-03700A1	3.7		19	66	24	36	4	●
D151-05-03800A1	3.8		29	74	36	36	4	○
D151-05-03900A1	3.9		29	74	36	36	4	○
D151-05-03969A1	3.969	5/32"	29	74	36	36	4	○
D151-05-04000A1	4.0		29	74	36	36	4	●
D151-05-04100A1	4.1		29	74	36	36	6	○
D151-05-04200A1	4.2		29	74	36	36	6	●
D151-05-04300A1	4.3		29	74	36	36	6	○
D151-05-04366A1	4.366	11/64"	29	74	36	36	6	○
D151-05-04400A1	4.4		29	74	36	36	6	○
D151-05-04500A1	4.5		29	74	36	36	6	●
D151-05-04600A1	4.6		29	74	36	36	6	○
D151-05-04650A1	4.65		29	74	36	36	6	○
D151-05-04700A1	4.7		29	74	36	36	6	○
D151-05-04763A1	4.763	3/16"	35	82	44	36	6	○
D151-05-04800A1	4.8		35	82	44	36	6	○
D151-05-04900A1	4.9		35	82	44	36	6	●
D151-05-05000A1	5.0		35	82	44	36	6	●
D151-05-05100A1	5.1		35	82	44	36	6	○
D151-05-05159A1	5.159	13/64"	35	82	44	36	6	○
D151-05-05200A1	5.2		35	82	44	36	6	○
D151-05-05300A1	5.3		35	82	44	36	6	○
D151-05-05400A1	5.4		35	82	44	36	6	○
D151-05-05500A1	5.5		35	82	44	36	6	●
D151-05-05550A1	5.55		35	82	44	36	6	○
D151-05-05556A1	5.556	7/32"	35	82	44	36	6	○
D151-05-05600A1	5.6		35	82	44	36	6	○
D151-05-05700A1	5.7		35	82	44	36	6	○
D151-05-05800A1	5.8		35	82	44	36	6	○
D151-05-05900A1	5.9		35	82	44	36	6	○
D151-05-05953A1	5.953	15/64"	35	82	44	36	6	○
D151-05-06000A1	6.0		35	82	44	36	6	●
D151-05-06100A1	6.1		43	91	53	36	8	○
D151-05-06200A1	6.2		43	91	53	36	8	○
D151-05-06300A1	6.3		43	91	53	36	8	○
D151-05-06350A1	6.35	1/4"	43	91	53	36	8	○
D151-05-06400A1	6.4		43	91	53	36	8	○
D151-05-06500A1	6.5		43	91	53	36	8	●

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide Internal Coolant Drill D151 5xDc



P	M	K	N	S	H
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●● 1st choice ● 2nd choice

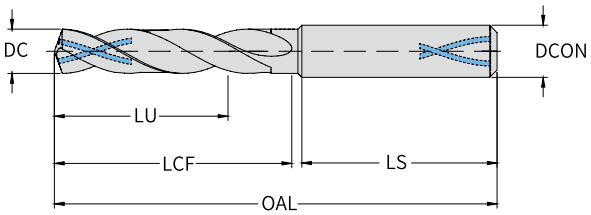


Product code	DC(m7) mm	DC inch/No.	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D151-05-06600A1	6.6		43	91	53	36	8	●
D151-05-06700A1	6.7		43	91	53	36	8	○
D151-05-06747A1	6.747	17/64"	43	91	53	36	8	○
D151-05-06800A1	6.8		43	91	53	36	8	●
D151-05-06900A1	6.9		43	91	53	36	8	○
D151-05-07000A1	7.0		43	91	53	36	8	●
D151-05-07100A1	7.1		43	91	53	36	8	○
D151-05-07144A1	7.144	9/32"	43	91	53	36	8	○
D151-05-07200A1	7.2		43	91	53	36	8	○
D151-05-07300A1	7.3		43	91	53	36	8	○
D151-05-07400A1	7.4		43	91	53	36	8	○
D151-05-07500A1	7.5		43	91	53	36	8	●
D151-05-07541A1	7.541	19/64"	43	91	53	36	8	○
D151-05-07600A1	7.6		43	91	53	36	8	○
D151-05-07700A1	7.7		43	91	53	36	8	○
D151-05-07800A1	7.8		43	91	53	36	8	●
D151-05-07900A1	7.9		43	91	53	36	8	○
D151-05-07938A1	7.938	5/16"	43	91	53	36	8	○
D151-05-08000A1	8.0		43	91	53	36	8	●
D151-05-08100A1	8.1		49	103	61	40	10	○
D151-05-08200A1	8.2		49	103	61	40	10	○
D151-05-08300A1	8.3		49	103	61	40	10	○
D151-05-08334A1	8.334	21/64"	49	103	61	40	10	○
D151-05-08400A1	8.4		49	103	61	40	10	○
D151-05-08500A1	8.5		49	103	61	40	10	●
D151-05-08600A1	8.6		49	103	61	40	10	○
D151-05-08700A1	8.7		49	103	61	40	10	○
D151-05-08731A1	8.731	11/32"	49	103	61	40	10	○
D151-05-08800A1	8.8		49	103	61	40	10	○
D151-05-08900A1	8.9		49	103	61	40	10	○
D151-05-09000A1	9.0		49	103	61	40	10	●
D151-05-09100A1	9.1		49	103	61	40	10	○
D151-05-09128A1	9.128	23/64"	49	103	61	40	10	○
D151-05-09200A1	9.2		49	103	61	40	10	○
D151-05-09300A1	9.3		49	103	61	40	10	●
D151-05-09400A1	9.4		49	103	61	40	10	○
D151-05-09500A1	9.5		49	103	61	40	10	●
D151-05-09525A1	9.525	3/8"	49	103	61	40	10	○
D151-05-09600A1	9.6		49	103	61	40	10	○
D151-05-09700A1	9.7		49	103	61	40	10	○
D151-05-09800A1	9.8		49	103	61	40	10	○
D151-05-09900A1	9.9		49	103	61	40	10	○
D151-05-09922A1	9.922	25/64"	49	103	61	40	10	○
D151-05-10000A1	10.0		49	103	61	40	10	●
D151-05-10100A1	10.1		56	118	71	45	12	○
D151-05-10200A1	10.2		56	118	71	45	12	●
D151-05-10300A1	10.3		56	118	71	45	12	○

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Solid Carbide Internal Coolant Drill D151 5xDc



P	M	K	N	S	H
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●● 1st choice ● 2nd choice



Product code	DC(m7) mm	DC inch/No.	LU mm	OAL mm	LCF mm	LS mm	DCON(h6) mm	Stock
D151-05-10319A1	10.319	13/32"	56	118	71	45	12	○
D151-05-10400A1	10.4		56	118	71	45	12	○
D151-05-10500A1	10.5		56	118	71	45	12	●
D151-05-10600A1	10.6		56	118	71	45	12	●
D151-05-10700A1	10.7		56	118	71	45	12	○
D151-05-10716A1	10.716	27/64"	56	118	71	45	12	○
D151-05-10800A1	10.8		56	118	71	45	12	○
D151-05-10900A1	10.9		56	118	71	45	12	○
D151-05-11000A1	11.0		56	118	71	45	12	●
D151-05-11100A1	11.1		56	118	71	45	12	○
D151-05-11113A1	11.113	7/16"	56	118	71	45	12	○
D151-05-11200A1	11.2		56	118	71	45	12	○
D151-05-11300A1	11.3		56	118	71	45	12	○
D151-05-11400A1	11.4		56	118	71	45	12	○
D151-05-11500A1	11.5		56	118	71	45	12	●
D151-05-11509A1	11.509	29/64"	56	118	71	45	12	○
D151-05-11600A1	11.6		56	118	71	45	12	○
D151-05-11700A1	11.7		56	118	71	45	12	○
D151-05-11800A1	11.8		56	118	71	45	12	○
D151-05-11900A1	11.9		56	118	71	45	12	○
D151-05-12000A1	12.0		56	118	71	45	12	●
D151-05-12100A1	12.1		60	124	77	45	14	○
D151-05-12200A1	12.2		60	124	77	45	14	○
D151-05-12300A1	12.3		60	124	77	45	14	○
D151-05-12303A1	12.303	31/64"	60	124	77	45	14	○
D151-05-12500A1	12.5		60	124	77	45	14	●
D151-05-12600A1	12.6		60	124	77	45	14	○
D151-05-12700A1	12.7	1/2"	60	124	77	45	14	○
D151-05-12800A1	12.8		60	124	77	45	14	○
D151-05-13000A1	13.0		60	124	77	45	14	●
D151-05-13100A1	13.1		60	124	77	45	14	○
D151-05-13300A1	13.3		60	124	77	45	14	○
D151-05-13494A1	13.494	17/32"	60	124	77	45	14	○
D151-05-13500A1	13.5		60	124	77	45	14	●
D151-05-13800A1	13.8		60	124	77	45	14	○
D151-05-14000A1	14.0		60	124	77	45	14	●
D151-05-14200A1	14.2		62	133	83	48	16	○
D151-05-14288A1	14.288	9/16"	62	133	83	48	16	○
D151-05-14400A1	14.4		62	133	83	48	16	○
D151-05-14500A1	14.5		62	133	83	48	16	○
D151-05-14800A1	14.8		62	133	83	48	16	○
D151-05-15000A1	15.0		62	133	83	48	16	○
D151-05-15100A1	15.1		62	133	83	48	16	○
D151-05-15300A1	15.3		62	133	83	48	16	○
D151-05-15500A1	15.5		62	133	83	48	16	○
D151-05-15800A1	15.8		62	133	83	48	16	○
D151-05-16000A1	16.0		62	133	83	48	16	○

Special product can be ordered

● : Standard stock ○ : Made-to-Order

Cutting Data for Solid Carbide Drill Family

Vc=Cutting speed (m/min) Feed code = feed reference table see page 594				Drilling depth		3xDc									
															
				Product family		D105		D105		D106		D106		D151	
				Dia. Range (mm)		3.00-20.00		3.00-20.00		3.00-20.00		3.00-16.00		3.00-16.00	
				Coolant		External coolant		Internal coolant		External coolant		Internal coolant		Internal coolant	
Workpiece material				Brinell hardness (HB)	Tensile strength (N/mm²)	Vc	Feed code	Vc	Feed code	Vc	Feed code	Vc	Feed code	Vc	Feed code
P	Unalloyed steel	C ≤ 0.25%	Annealed	125	430	100-110	F	110-120	F	100-110	F	110-120	F	110-120	F
		C>0.25... ≤ 0.55%	Annealed	190	640	80-100	E	100-110	E	80-100	E	100-110	E	100-120	E
		C>0.25... ≤ 0.55%	Heat-treated	210	710	80-100	E	100-110	E	80-100	E	100-110	E	100-110	E
		C>0.55%	Annealed	190	640	90-100	E	100-110	E	90-100	E	100-110	E	100-120	E
		C>0.55%	Heat-treated	300	1010	70-80	D	80-90	D	70-80	D	80-90	D	80-90	D
		Free cutting steel (short-chipping)	Annealed	220	750	100-120	F	110-120	F	100-120	F	110-120	F	110-120	F
	Low-alloyed steel	Annealed		175	590	80-100	E	80-110	E	80-100	E	80-110	E	70-100	E
		Heat-treated		285	960	70-90	D	70-90	D	70-90	D	70-90	D	70-90	D
		Heat-treated		380	1280	40-50	C	40-50	C	40-50	C	40-50	C		
		Heat-treated		430	1480	35-45	B	35-45	B	35-45	B	35-45	B		
	High-alloyed steel and high-alloyed tool steel	Annealed		200	680	75-85	D	75-85	D	75-85	D	75-85	D	75-85	D
		Hardened and tempered		300	1010	60-70	C	60-70	C	60-70	C	60-70	C	60-70	C
		Hardened and tempered		380	1280	50-60	C	50-60	C	50-60	C	50-60	C		
	Stainless steel	Ferritic/martensitic, annealed		200	680	70-80	D	80-90	D	70-80	D	80-90	D	70-100	D
		Martensitic, heat-treated		330	1110			45-60	C	40-50	C	45-60	C	50-60	C
M	Stainless steel	Austenitic, quench hardened		200	680			40-50	C	35-45	C	40-50	C	50-60	C
		Austenitic, precipitation hardened (PH)		300	1010			40-50	C	35-45	C	40-50	C	50-60	C
		Austenitic/ferritic, duplex		230	780			30-40	B			30-40	B	30-40	B
K	Malleable cast iron	Ferritic		200	400	110-130	G	120-130	G	110-130	G	120-130	G	120-130	G
		Pearlitic		260	700	85-100	G	90-110	G	85-100	G	90-110	G	90-110	G
	Grey cast iron	Low tensile strength		180	200	110-120	H	120-130	H	110-120	H	120-130	H	120-130	H
		High tensile strength/austenitic		245	350	80-100	G	90-110	G	80-100	G	90-110	G	90-110	G
	Cast iron with spheroidal graphite	Ferritic		155	400	110-120	G	120-130	H	110-120	G	120-130	H	120-130	H
		Pearlitic		245	700	60-80	F	60-80	F	60-80	F	60-80	F	60-80	F
	GGV(CGI)			230	400	60-80	F	60-80	F	60-80	F	60-80	F	60-80	F
N	Wrought aluminium alloys	non-aging		30	-	200-300	G	300-400	G	200-300	G	300-400	G	300-400	G
		aged		100	340	200-300	G	300-400	G	200-300	G	300-400	G	300-400	G
	Cast aluminium alloys	≤ 12% Si, non-aging		75	260	160-220	H	180-240	H	160-220	H	180-240	H	180-240	H
		≤ 12% Si, aged		90	310	160-200	H	180-200	H	160-200	H	180-200	H	180-200	H
		12% Si, non-aging		130	450	130-160	G	140-180	G	130-160	G	140-180	G	140-180	G
	Magnesium alloys			70	250										
	Copper and copper alloys (bronze/brass)	Unalloyed, electrolytic copper		100	340	120-160	C	140-170	D	120-160	C	140-170	D	140-170	D
		Brass, bronze, red brass		90	310	110-140	E	120-140	E	110-140	E	120-140	E		
		Cu alloys, short-chip		110	380	120-150	F	140-180	F	120-150	F	140-180	F	140-180	F
		High tensile, Ampco alloy		300	1010	45-60	B	45-60	B	45-60	B	45-60	B	35-50	B
S	Heat-resistant alloys	Fe-based	Annealed	200	680			30-40	B			30-40	B	30-40	B
			Hardened	280	940			20-25	A			20-25	A	20-30	A
		Ni or Co based	Annealed	250	840			20-30	B			20-30	B	20-30	B
			Hardened	350	1180			10-15	A			10-15	A	10-20	A
			Cast	320	1080			15-25	A			15-25	A	20-30	A
	Titanium alloys	Pure titanium		200	680	30-40	B	40-50	C	30-40	B	40-50	C	40-50	C
		α and β alloys, hardened		375	1260	20-30	A	25-35	B	20-30	A	25-35	B	20-40	B
		β alloys		410	1400			10-15	A			10-15	A	15-25	A
	Tungsten alloys			300	1010									15-25	A
	Molybdenum alloys			300	1010									15-25	A
H	Hardened steel	Hardened and tempered		50HRC	-	20-35	A	20-35	A	20-35	A	20-35	A		
		Hardened and tempered		55HRC	-										
		Hardened and tempered		60HRC	-										
	Chilled cast iron	Hardened and tempered		55HRC	-										

The cutting data are average recommended values. For special applications, adjustment is needed.

	5xDc										8xDc	
												
	D105		D105		D106		D106		D151		D108	
	3.00-20.00		3.00-20.00		3.00-20.00		3.00-16.00		3.00-16.00		3.00-16.00	
	External coolant		Internal coolant		External coolant		Internal coolant		Internal coolant		Internal coolant	
	Vc	Feed code	Vc	Feed code	Vc	Feed code	Vc	Feed code	Vc	Feed code	Vc	Feed code
	100-110	F	110-120	F	110-120	F	90-115	F	110-120	F	110-120	F
	80-100	E	100-110	E	100-110	E	80-100	E	100-120	E	80-100	E
	80-100	E	100-110	E	100-110	E	80-100	E	100-110	E	80-100	E
	90-100	E	100-110	E	100-110	E	80-100	E	100-120	E	80-100	E
	70-80	D	80-90	D	80-90	D	50-70	D	80-90	D	70-80	D
	100-120	F	110-120	F	110-120	F	90-115	F	110-120	F	100-115	F
	80-100	E	80-110	E	80-110	E	80-110	E	70-100	E	80-110	E
	70-90	D	70-90	D	70-90	D	60-70	D	70-90	D	70-90	D
	40-50	C	40-50	C	40-50	C	40-50	C			40-50	C
	35-45	B	35-45	B	35-45	B	30-40	B			35-45	B
	75-85	D	75-85	D	75-85	D	60-80	D	75-85	D	75-85	D
	60-70	C	60-70	C	60-70	C	40-60	C	60-70	C	60-70	C
	50-60	C	50-60	C	50-60	C	45-50	C			50-60	C
	70-80	D	80-90	D	80-90	D	60-80	D	70-100	D	70-80	D
			45-60	C	45-60	C	40-50	C	50-60	C	40-50	C
			40-50		40-50		40-50	C	50-60	C	40-50	C
			40-50	C	40-50	C	40-50	C	50-60	C	40-50	C
			30-40		30-40		25-35	B	30-40	B	30-40	B
	110-130	G	120-130	G	120-130	G	70-90	G	120-130	G	100-120	G
	85-100	G	90-110	G	90-110	G	60-80	G	90-110	G	90-110	G
	110-120	H	120-130	H	120-130	H	80-110	H	120-130	H	110-120	H
	80-100	G	90-110	G	90-110	G	70-90	G	90-110	G	80-100	G
	110-120	G	120-130	G	120-130	G	80-110	H	120-130	H	110-120	H
	60-80	F	60-80	F	60-80	F	60-80	F	60-80	F	60-80	F
	60-80	F	60-80	F	60-80	F	60-80	F	60-80	F	60-80	F
	200-300	G	300-400	G	300-400	G	300-400	G	300-400	G	300-400	G
	200-300	G	300-400	G	300-400	G	300-400	G	300-400	G	300-400	G
	160-220	H	180-240	H	180-240	H	180-240	H	180-240	H	180-240	H
	160-200	H	180-200	H	180-200	H	180-200	H	180-200	H	180-200	H
	130-160	G	140-180	G	140-180	G	140-180	G	140-180	G	140-180	G
	120-160	C	120-160	C	120-160	C	140-170	D	120-150	D	140-170	D
	110-140	E	110-140	E	110-140	E	120-140	E			120-140	E
	120-150	F	120-150	F	120-150	F	140-180	F	140-180	F	140-180	F
	45-60	B	45-60	B	45-60	B	45-60	B	35-50	B	45-60	B
							30-40	B	30-40	B	30-40	B
							20-25	A	20-25	A	20-25	A
							20-30	B	20-30	B	20-30	B
							10-15	A	10-20	A	10-15	A
							15-25	A	15-25	A	15-25	A
	30-40	B	30-40	B	30-40	B	40-50	C	40-50	C	40-50	C
	20-30	A	20-30	A	20-30	A	25-35	B	25-35	B	25-35	B
							10-15	A	15-25	A	10-15	A
									15-25	A		
									15-25	A		
	20-35	A	20-35	A	20-35	A	20-35	A			20-35	A

Feed Reference Table

Feed rate f（mm/rev）									
Dia. mm		A	B	C	D	E	F	G	H
	3.0	0.03	0.04	0.05	0.06	0.08	0.10	0.12	0.14
	4.0	0.04	0.05	0.06	0.08	0.10	0.12	0.14	0.16
	5.0	0.05	0.06	0.07	0.09	0.10	0.12	0.16	0.18
	6.0	0.05	0.07	0.08	0.10	0.12	0.15	0.18	0.20
	8.0	0.06	0.08	0.10	0.12	0.15	0.18	0.20	0.23
	10.0	0.08	0.10	0.12	0.14	0.18	0.20	0.24	0.28
	12.0	0.10	0.12	0.14	0.18	0.20	0.24	0.28	0.32
	14.0	0.10	0.14	0.18	0.20	0.24	0.28	0.32	0.34
	16.0	0.12	0.15	0.18	0.20	0.25	0.30	0.34	0.36
	20.0	0.15	0.16	0.20	0.25	0.30	0.34	0.37	0.40

Thread Pilot Hole Diameters Before Tapping

M	Metric ISO coarse pitch thread DIN 13 and DIN ISO 965-1		
D	D1		
Diameter	Min (mm)	Max (mm) 5H/6H	Diameter
M4	3.242	3.422	3.30
M4.5	3.688	3.878	3.70
M5	4.134	4.334	4.20
M6	4.917	5.153	5.00
M7	5.917	6.153	6.00
M8	6.647	6.912	6.80
M9	7.647	7.912	7.80
M10	8.376	8.676	8.50
M11	9.376	9.676	9.50
M12	10.106	10.441	10.20
M14	11.835	12.210	12.00
M16	13.835	14.210	14.00
M18	15.294	15.744	15.50
M20	17.294	17.744	17.50
M22	19.294	19.744	19.50

UNC	Coarse thread ASME B1.1 standard		
D	D1		
Diameter P Gg/1"	Min (mm) 2B/3B	Max (mm) 2B	Diameter
8-32 UNC	3.302	3.531	3.50
10-24 UNC	3.683	3.962	3.90
12-24 UNC	4.343	4.597	4.50
1/4-20 UNC	4.976	5.268	5.10
5/16-18 UNC	6.411	6.734	6.60
3/8-16 UNC	7.805	8.164	8.00
7/16-14 UNC	9.149	9.550	9.40
1/2-13 UNC	10.584	11.013	10.28
9/16-12 UNC	11.996	12.456	12.20
5/8-11 UNC	13.376	13.868	13.50
3/4-10 UNC	16.299	16.833	16.50
7/8-9 UNC	19.169	19.748	19.50

UNF	Fine thread ASME B1.1 standard		
D	D1		
Diameter P Gg/1"	Min (mm) 2B/3B	Max (mm) 2B	Diameter
8-36 UNF	3.404	3.607	3.50
10-32 UNF	3.962	4.166	4.10
12-28 UNF	4.496	4.724	4.60
1/4-28 UNF	5.367	5.580	5.50
5/16-24 UNF	6.792	7.038	6.90
3/8-24 UNF	8.379	8.626	8.50
7/16-20 UNF	9.738	10.030	9.90
1/2-20 UNF	11.326	11.618	11.50
9/16-18 UNF	12.761	13.084	12.90
5/8-18 UNF	14.348	14.671	14.50
3/4-16 UNF	17.330	17.689	17.50

MF	Metric ISO fine pitch thread DIN 13 and DIN ISO 965-1	
D	D1	
Diameter x P	Max (mm) 5H/6H	Diameter
M3.5x0.35	3.221	3.15
M4x0.35	3.721	3.65
M4x0.5	3.599	3.50
M4.5x0.5	4.099	4.00
M5x0.35	4.721	4.65
M5x0.5	4.599	4.50
M5x0.75	4.378	4.20
M5x0.5	5.599	5.50
M6x0.75	5.378	5.25
M7x0.5	6.599	6.50
M7x0.75	6.378	6.25
M8x0.5	7.599	7.50
M8x0.75	7.378	7.25
M8x1	7.153	7.00
M9x0.75	8.378	8.25
M9x1	8.153	8.00
M10x0.5	9.599	9.50
M10x0.75	9.378	9.25
M10x1	9.153	9.00
M10x1.25	8.912	8.75
M11x1	10.153	10.00
M12x0.5	11.599	11.50
M12x1	11.153	11.00
M12x1.25	10.912	10.75
M12x1.5	10.676	10.50
M13x1	12.153	12.00
M14x0.75	13.378	13.20
M14x1	13.153	13.00
M14x1.25	12.912	12.75
M14x1.5	12.676	12.50
M15x1	14.153	14.00
M15x1.5	13.676	13.50
M16x0.75	15.378	15.20
M16x1	15.153	15.00
M16x1.25	14.912	14.80
M16x1.5	14.676	14.50
M17x1	16.153	16.00
M18x1	17.153	17.00
M18x1.5	16.676	16.50
M18x2	16.21	16.00
M20x1	19.153	19.00
M20x1.5	18.676	18.50
M20x2	18.21	18.00

Thread Pilot Hole Diameters Before Forming

M	Metric ISO coarse pitch thread DIN 13 and DIN ISO 965-1
D	
Diameter	Diameter
M3.5	3.25
M4	3.70
M5	4.65
M6	5.55
M8	7.40
M10	9.30
M12	11.20
M14	13.10
M16	15.10
M18	16.90
M20	18.90

MF	Metric ISO fine pitch thread DIN 13 and DIN ISO 965-1
D	
Diameter x P	Diameter
M4x0.5	3.80
M5x0.5	4.80
M6x0.5	5.80
M6x0.75	5.65
M7x0.75	6.65
M8x0.75	7.65
M8x1	7.55
M10x0.75	9.65
M10x1	9.55
M10x1.25	9.40
M12x1	11.55
M12x1.25	11.40
M12x1.5	11.30
M14x1	13.55
M14x1.5	13.30
M16x1	15.55
M16x1.5	15.30
M18x1	17.55
M18x1.5	17.30
M20x1.5	19.30
M20x2	19.10
M22x1.5	21.30

UNC	Coarse thread ASME B1.1 standard
D	
Diameter	Diameter
6-32 UNC	3.15
8-32 UNC	3.80
10-24 UNC	4.30
12-24 UNC	5.00
1/4-20 UNC	5.75
5/16-18 UNC	7.25
3/8-16 UNC	8.75
7/16-14 UNC	10.30
1/2-13 UNC	11.80
9/16-12 UNC	13.30
5/8-11 UNC	14.80
3/4-10 UNC	17.90

UNF	Fine thread ASME B1.1 standard
D	
Diameter	Diameter
6-40 UNF	3.20
8-36 UNF	3.85
10-32 UNF	4.45
12-28 UNF	5.05
1/4-28 UNF	5.90
5/16-24 UNF	7.45
3/8-24 UNF	9.00
7/16-20 UNF	10.50
1/2-20 UNF	12.10
9/16-18 UNF	13.70
5/8-18 UNF	15.25
3/4-16 UNF	18.40

CUTTING TOOL CATALOGUE

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UNJ Aviation Thread 612
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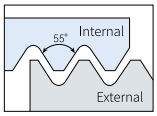
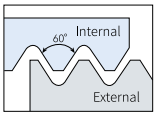
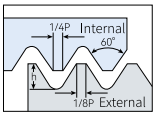
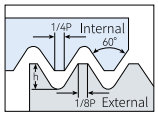
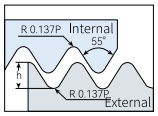
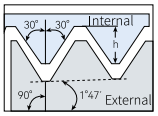
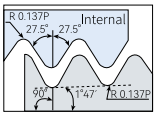
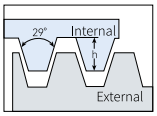
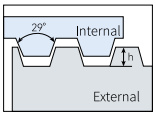
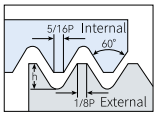
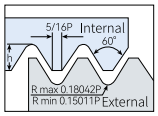
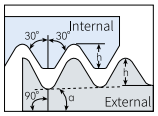
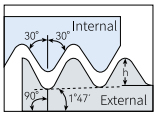
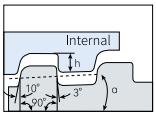
Thread Profile Overview

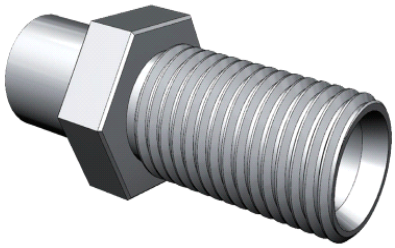
Industry	General Machinery						
Thread Profile	Partial Profile 55°	Partial Profile 60°	ISO Metric	American UN	Whitworth	NPT Taper Pipe Thread	British BSPT
							
Pitch TPI	Pitch: mm / TPI (Threads Per Inch)						
	0.50-1.5 0.50-3.0 1.75-3.0 3.50-5.0	0.50-1.5 0.50-3.0 1.75-3.0 3.50-5.0	0.50 2.0 0.75 2.5 1.00 3.0 1.25 1.50	48 16 44 14 40 13 36 12 32 11.5 28 11 24 10 20 9 18 8	36 14 32 12 28 11 26 10 10 9 19 8	27 18 14 11.5 8	28 19 14 11

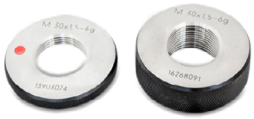
Industry	General Machinery		Aerospace		Petroleum		
Thread Profile	ACME	Stub ACME	MJ ISO 5855	UNJ	API	API Round	BUT Buttress casing thread
							
Pitch TPI	Pitch: mm / TPI (Threads Per Inch)						
	16 8 14 6 12 5 10	16 8 14 6 12 5 10 4	0.75 2.0 1.00 2.5 1.25 3.0 1.50	48 16 44 14 40 13 36 12 32 11 28 10 24 9 20 8 18	4 (V-0.038R) 4 (V-0.050) 5 (V-0.040) 6 (V-0.055)	10 8	5

* A wide range of thread types, including thread turning for general machinery, aerospace and petroleum industries
* All ground inserts, better control of thread profile dimensional accuracy and consistency after insert indexing
* Uniform edge honing and sharp cutting edges, more suitable for thread turning characteristics, resulting in superior thread surface quality

Test Cases

Material	4140
Insert	16ER 150ISO AP220E
Machining type	External Thread Turning
Cutting Data	Vc=140m/min fn=1.5mm/rev; ap=0.22/0.2/0.17/0.16/0.12/0.08
	Wet cutting, Radial infeed

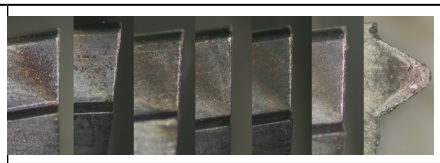
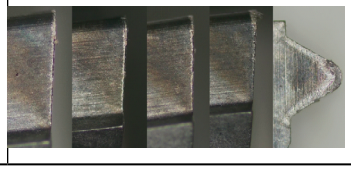


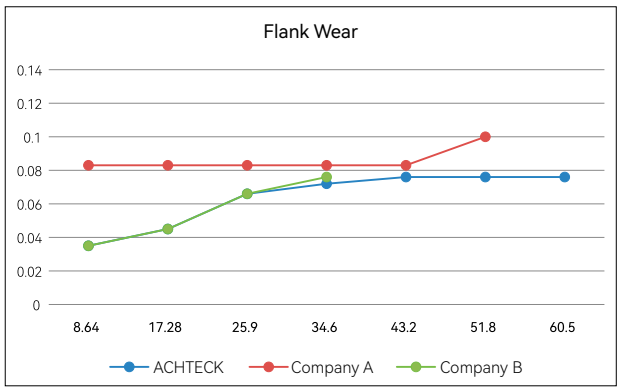


* When workpiece materials with high elastic modulus (e.g., stainless steel, heat-resistant stainless steel, high-temperature alloys), it is necessary to increase the number of passes appropriately, with each depth of cut more than 0.08mm, to achieve better thread accuracy and insert life.
* To prevent tip chipping during the first cut, a pre-chamfering of C0.3-C0.5 can be applied to the workpiece.
* To ensure correct tool alignment and precise thread dimensions during thread machining, perform a preliminary transverse cut with a depth of approximately 0.1mm to confirm tool alignment before starting thread turning.

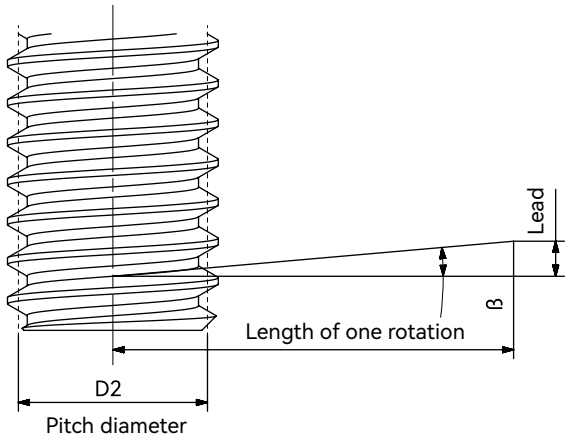
Thread Machining Life Test

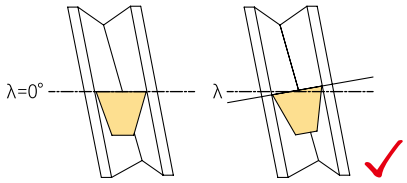
Material	SUS316L
Insert	16ER 150ISO AP220E
Machining type	External Thread Turning
Cutting Data	Vc=120m/min fn=1.5mm/rev; ap=0.16/0.15/0.14/0.12/0.1/0.1/0.1/0.08
	Wet cutting, Radial infeed

ACHTECK	
Company A	
Company B	



Calculation Method for Helix Angle





$$ß=\arctan\frac{PxN}{\Pi xD2}$$

ß ··· Helix angle
P ··· Pitch
D2 ··· Pitch diameter
N ··· Number of threading starts

* When λ approaches β, it can effectively improve the precision of threading and prevent cutting edge breakage. Through calculation, it is very important to choose the appropriate Angle of the shim.

Recommended Cutting Parameters

Materials		Brinell Hardness (HB)	Cutting speed (m/min)			
			AP220E	AP220U	AP020H	AP120S
P	Unalloyed steel	120-170	60-200	60-200		
	Low-alloyed steel	180-350	60-160	60-160		
	High-alloyed steel	200-325	50-120	50-120		
M	Ferritic, Stainless steel	200-325	60-130	60-130		
	Austenitic, Stainless steel	180-200	40-140	40-140		
K	Malleable cast iron	130-230	60-150	60-150		
	Grey cast iron	180-260	70-130	70-130		
	Nodular cast iron	160-250	90-160	90-160		
S	Titanium alloy	200-375				50-70
	Heat resistant alloys	200-350				15-50
H	Hardened steels	45-55HRC			40-50	

Infeed & Depth of Cutting

ISO- Metric External Threads

Ph	6	5.5	5	4.5	4	3.5	3	2.5	2	1.75	1.5	1.25	1	0.8	0.75	0.5
a p	3,82	3,52	3,19	2,87	2,53	2,23	1,92	1,60	1,25	1,13	0,93	0,81	0,65	0,52	0,48	0,33
1	0,46	0,43	0,41	0,37	0,34	0,34	0,28	0,27	0,24	0,22	0,22	0,21	0,18	0,17	0,16	0,11
2	0,43	0,40	0,39	0,34	0,32	0,31	0,26	0,24	0,22	0,20	0,20	0,17	0,16	0,15	0,14	0,09
3	0,35	0,32	0,32	0,28	0,25	0,25	0,21	0,20	0,18	0,17	0,17	0,14	0,12	0,12	0,11	0,07
4	0,30	0,28	0,27	0,24	0,22	0,21	0,18	0,17	0,16	0,14	0,14	0,11	0,11	0,08	0,07	0,06
5	0,29	0,26	0,24	0,22	0,20	0,18	0,16	0,15	0,14	0,12	0,12	0,10	0,08	–	–	–
6	0,26	0,24	0,24	0,22	0,18	0,18	0,15	0,15	0,12	0,10	0,08	0,08	–	–	–	–
7	0,24	0,21	0,22	0,20	0,17	0,16	0,14	0,12	0,11	0,10	–	–	–	–	–	–
8	0,23	0,20	0,20	0,18	0,15	0,15	0,13	0,11	0,08	0,08	–	–	–	–	–	–
9	0,22	0,19	0,19	0,17	0,14	0,14	0,12	0,11	–	–	–	–	–	–	–	–
10	0,19	0,18	0,18	0,16	0,13	0,12	0,11	0,08	–	–	–	–	–	–	–	–
11	0,18	0,17	0,16	0,14	0,12	0,11	0,10	–	–	–	–	–	–	–	–	–
12	0,16	0,15	0,15	0,13	0,12	0,08	0,08	–	–	–	–	–	–	–	–	–
13	0,15	0,14	0,12	0,12	0,11	–	–	–	–	–	–	–	–	–	–	–
14	0,13	0,13	0,10	0,10	0,08	–	–	–	–	–	–	–	–	–	–	–
15	0,13	0,12	–	–	–	–	–	–	–	–	–	–	–	–	–	–
16	0,10	0,10	–	–	–	–	–	–	–	–	–	–	–	–	–	–

ISO- Metric Internal Threads

Ph	6	5.5	5	4.5	4	3.5	3	2.5	2	1.75	1.5	1.25	1	0.8	0.75	0.5
a p	3,54	3,25	2,96	2,65	2,33	2,05	1,78	1,48	1,17	1,05	0,85	0,75	0,60	0,49	0,46	0,31
1	0,46	0,43	0,42	0,37	0,34	0,32	0,28	0,26	0,23	0,22	0,20	0,17	0,17	0,17	0,16	0,10
2	0,43	0,40	0,40	0,34	0,31	0,30	0,26	0,25	0,21	0,20	0,18	0,17	0,15	0,14	0,13	0,08
3	0,35	0,33	0,32	0,28	0,24	0,24	0,21	0,18	0,17	0,15	0,15	0,14	0,11	0,11	0,10	0,07
4	0,30	0,26	0,26	0,23	0,21	0,19	0,16	0,15	0,15	0,13	0,13	0,10	0,09	0,07	0,07	0,06
5	0,26	0,22	0,22	0,21	0,18	0,17	0,14	0,13	0,12	0,10	0,11	0,09	0,08	-	-	-
6	0,22	0,20	0,20	0,19	0,15	0,15	0,13	0,12	0,11	0,09	0,08	0,08	-	-	-	-
7	0,20	0,18	0,17	0,16	0,14	0,14	0,12	0,11	0,10	0,08	-	-	-	-	-	-
8	0,19	0,17	0,16	0,15	0,13	0,13	0,11	0,10	0,08	0,08	-	-	-	-	-	-
9	0,18	0,16	0,16	0,14	0,12	0,12	0,10	0,10	-	-	-	-	-	-	-	-
10	0,16	0,15	0,15	0,13	0,12	0,11	0,10	0,08	-	-	-	-	-	-	-	-
11	0,15	0,14	0,14	0,12	0,11	0,10	0,09	-	-	-	-	-	-	-	-	-
12	0,15	0,14	0,14	0,12	0,10	0,08	0,08	-	-	-	-	-	-	-	-	-
13	0,14	0,13	0,12	0,11	0,10	-	-	-	-	-	-	-	-	-	-	-
14	0,13	0,12	0,10	0,10	0,08	-	-	-	-	-	-	-	-	-	-	
15	0,12	0,12	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	0,10	0,10	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Whitworth External/Internal Threads

TPI	4	4.5	5	6	7	8	9	10	11	12	14	16	18	19	20	26	28
a p	4,29	3,82	3,44	2,90	2,50	2,17	1,93	1,76	1,58	1,45	1,20	1,13	1,01	0,96	0,92	0,72	0,69
1	0,49	0,46	0,45	0,38	0,37	0,32	0,30	0,29	0,28	0,28	0,24	0,24	0,23	0,22	0,21	0,19	0,18
2	0,46	0,43	0,43	0,36	0,35	0,30	0,28	0,27	0,26	0,26	0,22	0,22	0,22	0,22	0,21	0,18	0,17
3	0,38	0,38	0,38	0,30	0,29	0,24	0,23	0,22	0,22	0,22	0,18	0,19	0,19	0,18	0,17	0,15	0,14
4	0,36	0,33	0,32	0,26	0,25	0,21	0,20	0,19	0,19	0,18	0,15	0,16	0,16	0,14	0,14	0,12	0,12
5	0,34	0,29	0,28	0,22	0,22	0,19	0,18	0,17	0,16	0,16	0,13	0,13	0,13	0,12	0,11	0,08	0,08
6	0,31	0,25	0,25	0,21	0,19	0,17	0,15	0,15	0,14	0,14	0,11	0,11	0,08	0,08	0,08	-	-
7	0,29	0,24	0,22	0,19	0,18	0,15	0,14	0,14	0,13	0,13	0,09	0,08	-	-	-	-	-
8	0,27	0,22	0,20	0,17	0,16	0,14	0,13	0,13	0,12	0,08	0,08	-	-	-	-	-	-
9	0,24	0,20	0,19	0,16	0,15	0,13	0,12	0,12	0,08	-	-	-	-	-	-	-	-
10	0,22	0,18	0,18	0,15	0,14	0,12	0,12	0,08	-	-	-	-	-	-	-	-	-
11	0,20	0,17	0,17	0,14	0,12	0,12	0,08	-	-	-	-	-	-	-	-	-	-
12	0,19	0,16	0,15	0,14	0,08	0,08	-	-	-	-	-	-	-	-	-	-	-
13	0,17	0,15	0,12	0,12	-	-	-	-	-	-	-	-	-	-	-	-	-
14	0,15	0,14	0,10	0,10	-	-	-	-	-	-	-	-	-	-	-	-	-
15	0,12	0,12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	0,10	0,10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* Ph = Lead (mm)
* ap = Total depth of cutting (mm)
* TPI = Threads Per Inch
* The above recommended values are used for steel with hardness < 300 HB, if the insert breakage, it is recommended to increase the number of infeed.

Infeed & Depth of Cutting

UN External Threads

TPI	4	4.5	5	6	7	8	9	10	11	12	13	14	16	18	20	24	28	32
a p	4,07	3,62	3,29	2,71	2,33	2,08	1,84	1,66	1,52	1,39	1,29	1,19	1,05	0,94	0,84	0,70	0,60	0,53
1	0,47	0,45	0,43	0,36	0,35	0,30	0,28	0,27	0,27	0,27	0,25	0,23	0,22	0,23	0,20	0,19	0,17	0,17
2	0,44	0,41	0,40	0,34	0,33	0,28	0,26	0,26	0,25	0,26	0,24	0,22	0,21	0,21	0,19	0,17	0,15	0,15
3	0,40	0,39	0,36	0,27	0,26	0,25	0,21	0,20	0,20	0,20	0,18	0,17	0,16	0,16	0,15	0,14	0,11	0,13
4	0,36	0,31	0,31	0,23	0,22	0,21	0,20	0,17	0,19	0,18	0,17	0,15	0,14	0,14	0,12	0,12	0,09	0,08
5	0,32	0,26	0,26	0,22	0,21	0,18	0,17	0,16	0,16	0,15	0,14	0,13	0,13	0,12	0,10	0,08	0,08	-
6	0,27	0,23	0,23	0,20	0,19	0,16	0,15	0,15	0,14	0,13	0,12	0,11	0,11	0,08	0,08	-	-	-
7	0,25	0,21	0,20	0,18	0,17	0,14	0,14	0,14	0,12	0,12	0,11	0,10	0,08	-	-	-	-	-
8	0,23	0,20	0,19	0,16	0,15	0,13	0,12	0,12	0,11	0,08	0,08	0,08	-	-	-	-	-	-
9	0,22	0,18	0,19	0,15	0,14	0,12	0,12	0,11	0,08	-	-	-	-	-	-	-	-	-
10	0,21	0,17	0,18	0,14	0,12	0,12	0,11	0,08	-	-	-	-	-	-	-	-	-	-
11	0,19	0,16	0,17	0,13	0,11	0,11	0,08	-	-	-	-	-	-	-	-	-	-	-
12	0,18	0,15	0,15	0,12	0,08	0,08	-	-	-	-	-	-	-	-	-	-	-	-
13	0,16	0,14	0,12	0,11	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	0,15	0,14	0,10	0,10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	0,12	0,12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	0,10	0,10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

UN Internal Threads

TPI	4	4.5	5	6	7	8	9	10	11	12	13	14	16	18	20	24	28	32
a p	3,74	3,32	2,99	2,46	2,13	1,88	1,66	1,49	1,36	1,25	1,14	1,06	0,93	0,84	0,76	0,64	0,56	0,49
1	0,44	0,41	0,42	0,35	0,34	0,30	0,28	0,27	0,27	0,27	0,25	0,23	0,22	0,23	0,20	0,18	0,17	0,17
2	0,41	0,38	0,38	0,33	0,32	0,28	0,26	0,25	0,23	0,23	0,20	0,18	0,18	0,17	0,16	0,15	0,14	0,14
3	0,39	0,34	0,33	0,25	0,24	0,22	0,19	0,18	0,18	0,18	0,15	0,14	0,14	0,14	0,13	0,13	0,09	0,10
4	0,33	0,28	0,27	0,21	0,21	0,18	0,16	0,15	0,15	0,15	0,13	0,13	0,12	0,12	0,10	0,10	0,08	0,08
5	0,28	0,23	0,23	0,18	0,17	0,15	0,14	0,13	0,13	0,13	0,12	0,11	0,10	0,10	0,09	0,08	0,08	-
6	0,24	0,20	0,20	0,16	0,15	0,13	0,13	0,12	0,11	0,11	0,11	0,10	0,09	0,08	0,08	-	-	-
7	0,22	0,19	0,18	0,15	0,14	0,12	0,12	0,11	0,11	0,10	0,10	0,09	0,08	-	-	-	-	-
8	0,21	0,18	0,17	0,14	0,13	0,11	0,11	0,10	0,10	0,08	0,08	0,08	-	-	-	-	-	-
9	0,20	0,17	0,16	0,13	0,12	0,11	0,10	0,10	0,08	-	-	-	-	-	-	-	-	-
10	0,18	0,16	0,15	0,12	0,12	0,10	0,09	0,08	-	-	-	-	-	-	-	-	-	-
11	0,17	0,15	0,14	0,12	0,11	0,10	0,08	-	-	-	-	-	-	-	-	-	-	-
12	0,16	0,14	0,14	0,11	0,08	0,08	-	-	-	-	-	-	-	-	-	-	-	-
13	0,15	0,14	0,12	0,11	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	0,14	0,13	0,10	0,10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	0,12	0,12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	0,10	0,10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

NPT Internal/ External Threads

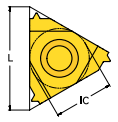
TPI	8	11,5	14	18	27
a p	2,54	1,76	1,45	1,12	0,75
1	0,28	0,25	0,24	0,22	0,19
2	0,25	0,22	0,22	0,18	0,15
3	0,22	0,18	0,17	0,15	0,13
4	0,19	0,16	0,15	0,14	0,11
5	0,18	0,16	0,14	0,13	0,09
6	0,18	0,14	0,13	0,12	0,08
7	0,17	0,14	0,12	0,10	-
8	0,17	0,12	0,10	0,08	-
9	0,16	0,12	0,10	-	-
10	0,16	0,10	0,08	-	-
11	0,14	0,09	-	-	-
12	0,13	0,08	-	-	-
13	0,12	-	-	-	-
14	0,11	-	-	-	-
15	0,08	-	-	-	-

* Ph = Lead (mm)
* ap = Total depth of cutting (mm)
* TPI = Threads Per Inch
* The above recommended values are used for steel with hardness < 300 HB, if the insert breakage, it is recommended to increase the number of infeed.

Threading Insert Denomination System

16	E	R	200	ISO	-		AP220U
1	2	3	4	5		6	7

1- Insert Size



L (mm)	IC (mm)
08	4.76
11	6.35
16	9.525
22	12.7
27	15.875

2- Insert Type

E: Laydown External Thread
I: Laydown Internal Thread
VE: Vertical External Thread
VI: Vertical Internal Thread
UE: U-Type External Thread
UI: U-Type Internal Thread

3-Hand of Insert

R: Right hand
L: Left hand

4- Pitch & TPI

Pitch	
100	1mm
150	1.5mm
TPI	
24	24 threads per inch
20	20 threads per inch

5- Thread Type

55	Partial profile 55°
60	Partial profile 60°
ISO	ISO Metric (Full Profile)
UN	American UN (Full Profile)
W	Whitworth (Full Profile)
NPT	NPT(National Pipe Thread)
BSPT	British Standard Pipe thread
ACME	American ACME
ST ACME	Stub ACME
MJ	MJ ISO5855
UNJ	UNJ
API	API

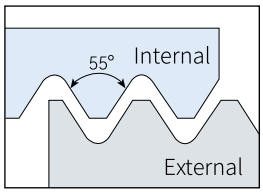
6- Number of Teeth & Chip Breaker

"None"---- Standard
TQ---- With TQ chip breaker
2M---- Two teeth per corner

7- Insert Grades

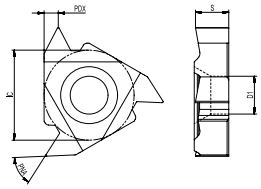
AP220E	Economical, Combining pressing and grinding	P/M
AP220U	All Ground, High-Precision General grade	P/M/S
AP120S	All Ground, High-Temperature Alloy grade	M/S
AP020H	All Ground, Hardened Steel grade	H

Partial profile 55° --External



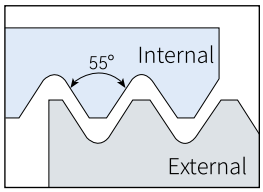
(mm)

Product code	IC	S	D1	PNA
11..	6.35	3.0	3.2	55°
16..	9.525	3.52	4.0	
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Pitch & TPI		Dimension (mm)	Insert Grades		
	Right hand	Left hand	mm	TPI	PDX	AP220E	AP220U	AP020H
	**11ER A55**	**11EL A55**	0.5-1.5	48-16	0.9		●	○
	16ER A55	**16EL A55**	0.5-1.5	48-16	0.9	●	●	○
	16ER AG55	**16EL AG55**	0.5-3.0	48-8	1.7	●	●	○
	16ER G55	**16EL G55**	1.75-3.0	14-8	1.7	●	●	○
	22ER N55	**22EL N55**	3.5-5.0	7-5	2.5		●	○

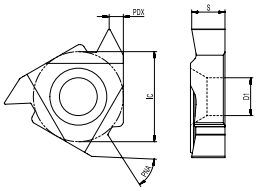
● : Standard stock ○ : Made-to-Order

Partial profile 55° --Internal



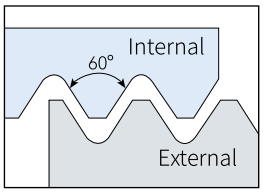
(mm)

Product code	IC	S	D1	PNA
08..	4.76	2.25	2.6	55°
11..	6.35	3.0	3.2	
16..	9.525	3.52	4.0	
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Pitch & TPI		Dimension (mm)	Insert Grades		
	Right hand	Left hand	mm	TPI	PDX	AP220E	AP220U	AP020H
	**08IR A55**	**08IL A55**	0.5-1.5	48-16	0.7		○	○
	11IR A55	**11IL A55**	0.5-1.5	48-16	0.9		●	○
	16IR A55	**16IL A55**	0.5-1.5	48-16	0.9	●	●	○
	16IR AG55	**16IL AG55**	0.5-3.0	48-8	1.7	●	●	○
	16IR G55	**16IL G55**	1.75-3.0	14-8	1.7	●	●	○
	22IR N55	**22IL N55**	3.5-5.0	7-5	2.5		●	○

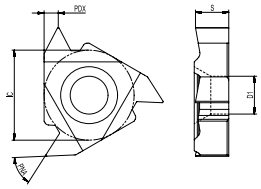
● : Standard stock ○ : Made-to-Order

Partial profile 60° --External



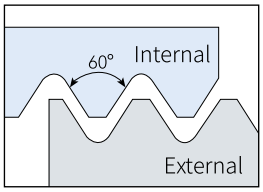
(mm)

Product code	IC	S	D1	PNA
11..	6.35	3.0	3.2	60°
16..	9.525	3.52	4.0	
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Pitch & TPI		Dimension (mm)	Insert Grades			
	Right hand	Left hand	mm	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	**11ER A60**	**11EL A60**	0.5-1.5	48-16	0.9		●	○	○
	16ER A60	**16EL A60**	0.5-1.5	48-16	0.9	●	●	○	○
	16ER AG60	**16EL AG60**	0.5-3.0	48-8	1.7	●	●	○	○
	16ER G60	**16EL G60**	1.75-3.0	14-8	1.7	●	●	○	○
	22ER N60	**22EL N60**	3.5-5.0	7-5	2.5		●	○	○

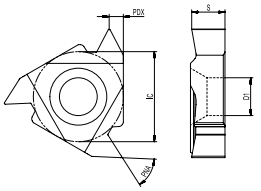
● : Standard stock ○ : Made-to-Order

Partial profile 60° --Internal



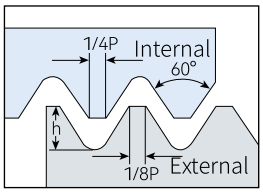
(mm)

Product code	IC	S	D1	PNA
08..	4.76	2.25	2.6	60°
11..	6.35	3.0	3.2	
16..	9.525	3.52	4.0	
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Pitch & TPI		Dimension (mm)	Insert Grades			
	Right hand	Left hand	mm	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	**08IR A60**	**08IL A60**	0.5-1.5	48-16	0.6		○	○	○
	11IR A60	**11IL A60**	0.5-1.5	48-16	0.9		●	○	○
	16IR A60	**16IL A60**	0.5-1.5	48-16	0.9	●	●	○	○
	16IR AG60	**16IL AG60**	0.5-3.0	48-8	1.7	●	●	○	○
	16IR G60	**16IL G60**	1.75-3.0	14-8	1.7	●	●	○	○
	22IR N60	**22IL N60**	3.5-5.0	7-5	2.4		●	○	○

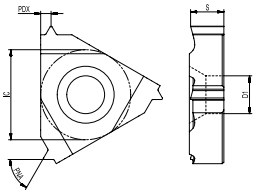
● : Standard stock ○ : Made-to-Order

ISO Metric (Full Profile)--External



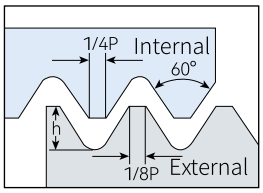
(mm)

Product code	IC	S	D1	PNA
11..	6.35	3.0	3.2	60°
16..	9.525	3.52	4.0	
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Pitch (mm)	Dimension (mm)	Insert Grades			
	Right hand	Left hand		PDX	AP220E	AP220U	AP020H	AP120S
	**11ER 050ISO**	**11EL 050ISO**	0.50	0.4		●	○	○
	11ER 075ISO	**11EL 075ISO**	0.75	0.6		●	○	○
	11ER 080ISO	**11EL 080ISO**	0.80	0.6		●	○	○
	11ER 100ISO	**11EL 100ISO**	1.00	0.7		●	○	○
	11ER 125ISO	**11EL 125ISO**	1.25	0.9		●	○	○
	11ER 150ISO	**11EL 150ISO**	1.50	1.0		●	○	○
	16ER 050ISO	**16EL 050ISO**	0.50	0.6	●	●	○	○
	16ER 075ISO	**16EL 075ISO**	0.75	0.6	●	●	○	○
	16ER 100ISO	**16EL 100ISO**	1.00	0.7	●	●	○	○
	16ER 125ISO	**16EL 125ISO**	1.25	0.9	●	●	○	○
	16ER 150ISO	**16EL 150ISO**	1.50	1.0	●	●	○	○
	16ER 175ISO	**16EL 175ISO**	1.75	1.2	●	●	○	○
	16ER 200ISO	**16EL 200ISO**	2.00	1.3	●	●	○	○
	16ER 250ISO	**16EL 250ISO**	2.50	1.5	●	●	○	○
	16ER 300ISO	**16EL 300ISO**	3.00	1.6	●	●	○	○
	22ER 350ISO	**22EL 350ISO**	3.50	2.3		●	○	○
	22ER 400ISO	**22EL 400ISO**	4.00	2.3		●	○	○
	22ER 450ISO	**22EL 450ISO**	4.50	2.4		●	○	○
	22ER 500ISO	**22EL 500ISO**	5.00	2.5		●	○	○

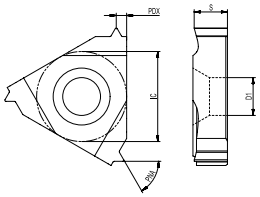
● : Standard stock ○ : Made-to-Order

ISO Metric (Full Profile)--Internal



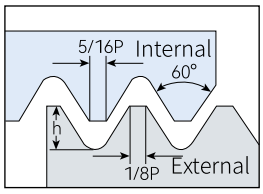
(mm)

Product code	IC	S	D1	PNA
11..	6.35	3.0	3.2	60°
16..	9.525	3.52	4.0	
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Pitch (mm)	Dimension (mm)	Insert Grades			
	Right hand	Left hand		PDX	AP220E	AP220U	AP020H	AP120S
	**11IR 050ISO**	**11IL 050ISO**	0.50	0.6		●	○	○
	11IR 075ISO	**11IL 075ISO**	0.75	0.6		●	○	○
	11IR 100ISO	**11IL 100ISO**	1.00	0.6		●	○	○
	11IR 125ISO	**11IL 125ISO**	1.25	0.7		●	○	○
	11IR 150ISO	**11IL 150ISO**	1.50	0.9		●	○	○
	11IR 175ISO	**11IL 175ISO**	1.75	1.0		●	○	○
	11IR 200ISO	**11IL 200ISO**	2.00	1.2		●	○	○
	16IR 050ISO	**16IL 050ISO**	0.50	1.3	●	●	○	○
	16IR 075ISO	**16IL 075ISO**	0.75	0.6	●	●	○	○
	16IR 100ISO	**16IL 100ISO**	1.00	0.7	●	●	○	○
	16IR 125ISO	**16IL 125ISO**	1.25	0.9	●	●	○	○
	16IR 150ISO	**16IL 150ISO**	1.50	1.0	●	●	○	○
	16IR 175ISO	**16IL 175ISO**	1.75	1.2	●	●	○	○
	16IR 200ISO	**16IL 200ISO**	2.00	1.3	●	●	○	○
	16IR 250ISO	**16IL 250ISO**	2.50	1.5	●	●	○	○
	16IR 300ISO	**16IL 300ISO**	3.00	1.5	●	●	○	○
	22IR 350ISO	**22IL 350ISO**	3.50	2.3		●	○	○
	22IR 400ISO	**22IL 400ISO**	4.00	2.3		●	○	○
	22IR 450ISO	**22IL 450ISO**	4.50	2.4		●	○	○
	22IR 500ISO	**22IL 500ISO**	5.00	2.5		●	○	○

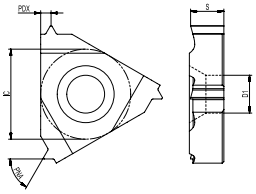
● : Standard stock ○ : Made-to-Order

MJ ISO 5855--External



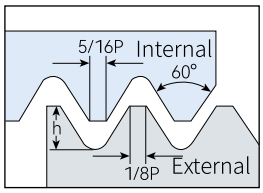
(mm)

Product code	IC	S	D1	PNA
11..	9.525	3.52	4.0	60°
16..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Pitch (mm)	Dimension (mm)	Insert Grades			
	Right hand	Left hand		PDX	AP220E	AP220U	AP020H	AP120S
	**11ER 100MJ**	**11EL 100MJ**	1.00	0.7		●		●
	11ER 125MJ	**11EL 125MJ**	1.25	0.9		●		●
	11ER 150MJ	**11EL 150MJ**	1.50	1.0		●		●
	11ER 200MJ	**11EL 200MJ**	2.00	1.0		●		●
	16ER 075MJ	**16EL 075MJ**	0.75	0.6		●		●
	16ER 100MJ	**16EL 100MJ**	1.00	0.7		●		●
	16ER 125MJ	**16EL 125MJ**	1.25	0.9		●		●
	16ER 150MJ	**16EL 150MJ**	1.50	1.0		●		●
	16ER 200MJ	**16EL 200MJ**	2.00	1.3		●		●
	16ER 250MJ	**16EL 250MJ**	2.50	1.5		●		●
	16ER 300MJ	**16EL 300MJ**	3.00	1.6		●		●

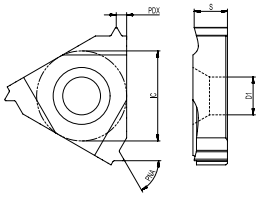
● : Standard stock ○ : Made-to-Order

MJ ISO 5855--Internal



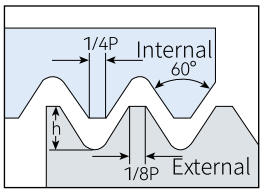
(mm)

Product code	IC	S	D1	PNA
11..	9.525	3.52	4.0	60°
16..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Pitch (mm)	Dimension (mm)	Insert Grades			
	Right hand	Left hand		PDX	AP220E	AP220U	AP020H	AP120S
	**11IR 100MJ**	**11IL 100MJ**	1.00	0.7		●		●
	11IR 125MJ	**11IL 125MJ**	1.25	0.9		●		●
	11IR 150MJ	**11IL 150MJ**	1.50	1.0		●		●
	11IR 200MJ	**11IL 200MJ**	2.00	1.0		●		●
	16IR 075MJ	**16IL 075MJ**	0.75	0.6		●		●
	16IR 100MJ	**16IL 100MJ**	1.00	0.7		●		●
	16IR 125MJ	**16IL 125MJ**	1.25	0.9		●		●
	16IR 150MJ	**16IL 150MJ**	1.50	1.0		●		●
	16IR 200MJ	**16IL 200MJ**	2.00	1.3		●		●
	16IR 250MJ	**16IL 250MJ**	2.50	1.5		●		●
	16IR 300MJ	**16IL 300MJ**	3.00	1.6		●		●

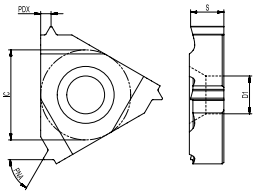
● : Standard stock ○ : Made-to-Order

American UN (Full Profile)--External



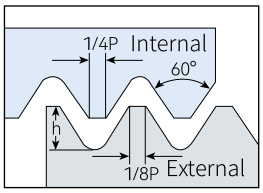
(mm)

Product code	IC	S	D1	PNA
11..	6.35	3.0	3.2	60°
16..	9.525	3.52	4.0	
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Threads Per Inch	Dimension (mm)	Insert Grades			
	Right hand	Left hand	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	**11ER 48UN**	**11EL 48UN**	48	0.6		●	○	○
	11ER 44UN	**11EL 44UN**	44	0.6		●	○	○
	11ER 40UN	**11EL 40UN**	40	0.6		●	○	○
	11ER 36UN	**11EL 36UN**	36	0.6		●	○	○
	11ER 32UN	**11EL 32UN**	32	0.6		●	○	○
	11ER 28UN	**11EL 28UN**	28	0.7		●	○	○
	11ER 24UN	**11EL 24UN**	24	0.8		●	○	○
	11ER 20UN	**11EL 20UN**	20	0.9		●	○	○
	11ER 18UN	**11EL 18UN**	18	1.0		●	○	○
	11ER 16UN	**11EL 16UN**	16	1.1		●	○	○
	16ER 48UN	**16EL 48UN**	48	0.6	●	●	○	○
	16ER 44UN	**16EL 44UN**	44	0.6	●	●	○	○
	16ER 40UN	**16EL 40UN**	40	0.6	●	●	○	○
	16ER 36UN	**16EL 36UN**	36	0.6	●	●	○	○
	16ER 32UN	**16EL 32UN**	32	0.6	●	●	○	○
	16ER 28UN	**16EL 28UN**	28	0.7	●	●	○	○
	16ER 24UN	**16EL 24UN**	24	0.8	●	●	○	○
	16ER 20UN	**16EL 20UN**	20	0.9	●	●	○	○
	16ER 18UN	**16EL 18UN**	18	1.0	●	●	○	○
	16ER 16UN	**16EL 16UN**	16	1.1	●	●	○	○
	16ER 14UN	**16EL 14UN**	14	1.2	●	●	○	○
	16ER 13UN	**16EL 13UN**	13	1.3	●	●	○	○
	16ER 12UN	**16EL 12UN**	12	1.4	●	●	○	○
	16ER 11.5UN	**16EL 11.5UN**	11.5	1.4	●	●	○	○
	16ER 11UN	**16EL 11UN**	11	1.5	●	●	○	○
	16ER 10UN	**16EL 10UN**	10	1.5	●	●	○	○
	16ER 9UN	**16EL 9UN**	9	1.7	●	●	○	○
	16ER 8UN	**16EL 8UN**	8	2.0	●	●	○	○
	22ER 7UN	**22EL 7UN**	7	2.3		●	○	○
	22ER 6UN	**22EL 6UN**	6	2.3		●	○	○
	22ER 5UN	**22EL 5UN**	5	2.5		●	○	○

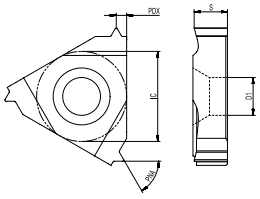
● : Standard stock ○ : Made-to-Order

American UN (Full Profile)--Internal



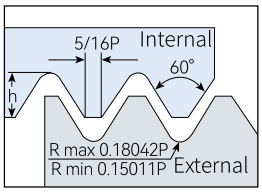
(mm)

Product code	IC	S	D1	PNA
08..	4.76	2.25	2.6	60°
11..	6.35	3.0	3.2	
16..	9.525	3.52	4.0	
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Threads Per Inch	Dimension (mm)	Insert Grades			
	Right hand	Left hand	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	**08IR 48UN**	**08IL 48UN**	48	0.6		○	○	○
	08IR 44UN	**08IL 44UN**	44	0.6		○	○	○
	08IR 40UN	**08IL 40UN**	40	0.6		○	○	○
	08IR 36UN	**08IL 36UN**	36	0.6		○	○	○
	08IR 32UN	**08IL 32UN**	32	0.5		○	○	○
	08IR 28UN	**08IL 28UN**	28	0.6		○	○	○
	08IR 24UN	**08IL 24UN**	24	0.6		○	○	○
	08IR 20UN	**08IL 20UN**	20	0.7		○	○	○
	08IR 18UN	**08IL 18UN**	18	0.7		○	○	○
	08IR 16UN	**08IL 16UN**	16	0.7		○	○	○
	11IR 48UN	**11IL 48UN**	48	0.6		●	○	○
	11IR 44UN	**11IL 44UN**	44	0.6		●	○	○
	11IR 40UN	**11IL 40UN**	40	0.6		●	○	○
	11IR 36UN	**11IL 36UN**	36	0.6		●	○	○
	11IR 32UN	**11IL 32UN**	32	0.6		●	○	○
	11IR 28UN	**11IL 28UN**	28	0.7		●	○	○
	11IR 24UN	**11IL 24UN**	24	0.8		●	○	○
	11IR 20UN	**11IL 20UN**	20	0.9		●	○	○
	11IR 18UN	**11IL 18UN**	18	1.0		●	○	○
	11IR 16UN	**11IL 16UN**	16	1.1		●	○	○
	16IR 48UN	**16IL 48UN**	48	0.6		●	○	○
	16IR 44UN	**16IL 44UN**	44	0.6		●	○	○
	16IR 40UN	**16IL 40UN**	40	0.6		●	○	○
	16IR 36UN	**16IL 36UN**	36	0.6		●	○	○
	16IR 32UN	**16IL 32UN**	32	0.6	●	●	○	○
	16IR 28UN	**16IL 28UN**	28	0.7	●	●	○	○
	16IR 24UN	**16IL 24UN**	24	0.8	●	●	○	○
	16IR 20UN	**16IL 20UN**	20	0.9	●	●	○	○
	16IR 18UN	**16IL 18UN**	18	1.0	●	●	○	○
	16IR 16UN	**16IL 16UN**	16	1.1	●	●	○	○
	16IR 14UN	**16IL 14UN**	14	1.2	●	●	○	○
	16IR 12UN	**16IL 12UN**	12	1.4	●	●	○	○
	16IR 11UN	**16IL 11UN**	11	1.5	●	●	○	○
	16IR 10UN	**16IL 10UN**	10	1.5	●	●	○	○
	16IR 9UN	**16IL 9UN**	9	1.7	●	●	○	○
	16IR 8UN	**16IL 8UN**	8	1.5	●	●	○	○
	22IR 7UN	**22IL 7UN**	7	2.3		●	○	○
	22IR 6UN	**22IL 6UN**	6	2.3		●	○	○
	22IR 5UN	**22IL 5UN**	5	2.3		●	○	○

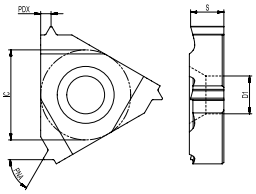
● : Standard stock ○ : Made-to-Order

UNJ--External



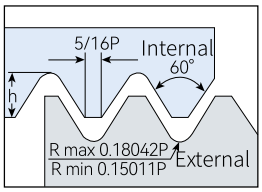
(mm)

Product code	IC	S	D1	PNA
11..	6.35	3.0	3.2	60°
16..	9.525	3.52	4.0	
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Threads Per Inch	Dimension (mm)	Insert Grades			
	Right hand	Left hand	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	**11ER 48UNJ**	**11EL 48UNJ**	48	0.5		●		●
	11ER 44UNJ	**11EL 44UNJ**	44	0.6		●		●
	11ER 40UNJ	**11EL 40UNJ**	40	0.6		●		●
	11ER 36UNJ	**11EL 36UNJ**	36	0.6		●		●
	11ER 32UNJ	**11EL 32UNJ**	32	0.7		●		●
	11ER 28UNJ	**11EL 28UNJ**	28	0.7		●		●
	11ER 24UNJ	**11EL 24UNJ**	24	0.8		●		●
	11ER 20UNJ	**11EL 20UNJ**	20	0.9		●		●
	11ER 18UNJ	**11EL 18UNJ**	18	1.0		●		●
	11ER 16UNJ	**11EL 16UNJ**	16	1.0		●		●
	11ER 14UNJ	**11EL 14UNJ**	14	1.2		●		●
	16ER 48UNJ	**16EL 48UNJ**	48	0.5		●		●
	16ER 44UNJ	**16EL 44UNJ**	44	0.6		●		●
	16ER 40UNJ	**16EL 40UNJ**	40	0.6		●		●
	16ER 36UNJ	**16EL 36UNJ**	36	0.6		●		●
	16ER 32UNJ	**16EL 32UNJ**	32	0.7		●		●
	16ER 28UNJ	**16EL 28UNJ**	28	0.7		●		●
	16ER 24UNJ	**16EL 24UNJ**	24	0.8		●		●
	16ER 20UNJ	**16EL 20UNJ**	20	0.9		●		●
	16ER 18UNJ	**16EL 18UNJ**	18	1.0		●		●
	16ER 16UNJ	**16EL 16UNJ**	16	1.0		●		●
	16ER 14UNJ	**16EL 14UNJ**	14	1.2		●		●
	16ER 13UNJ	**16EL 13UNJ**	13	1.3		●		●
	16ER 12UNJ	**16EL 12UNJ**	12	1.3		●		●
	16ER 11UNJ	**16EL 11UNJ**	11	1.5		●		●
	16ER 10UNJ	**16EL 10UNJ**	10	1.5		●		●
	16ER 9UNJ	**16EL 9UNJ**	9	1.7		●		●
	16ER 8UNJ	**16EL 8UNJ**	8	1.6		●		●
	22ER 7UNJ	**22EL 7UNJ**	7	2.3		●		●
	22ER 6UNJ	**22EL 6UNJ**	6	2.3		●		●
	22ER 5UNJ	**22EL 5UNJ**	5	2.5		●		●

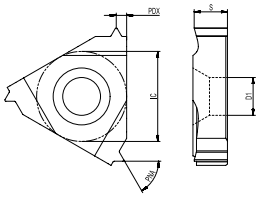
● : Standard stock ○ : Made-to-Order

UNJ--Internal



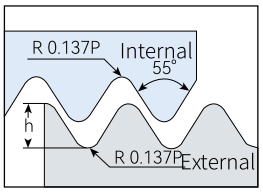
(mm)

Product code	IC	S	D1	PNA
11..	6.35	3.0	3.2	60°
16..	9.525	3.52	4.0	
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Threads Per Inch	Dimension (mm)	Insert Grades			
	Right hand	Left hand	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	**11IR 48UNJ**	**11IL 48UNJ**	48	0.5		●		●
	11IR 44UNJ	**11IL 44UNJ**	44	0.6		●		●
	11IR 40UNJ	**11IL 40UNJ**	40	0.6		●		●
	11IR 36UNJ	**11IL 36UNJ**	36	0.6		●		●
	11IR 32UNJ	**11IL 32UNJ**	32	0.7		●		●
	11IR 28UNJ	**11IL 28UNJ**	28	0.7		●		●
	11IR 24UNJ	**11IL 24UNJ**	24	0.8		●		●
	11IR 20UNJ	**11IL 20UNJ**	20	0.9		●		●
	11IR 18UNJ	**11IL 18UNJ**	18	1.0		●		●
	11IR 16UNJ	**11IL 16UNJ**	16	1.0		●		●
	11IR 14UNJ	**11IL 14UNJ**	14	1.2		●		●
	16IR 48UNJ	**16IL 48UNJ**	48	0.5		●		●
	16IR 44UNJ	**16IL 44UNJ**	44	0.6		●		●
	16IR 40UNJ	**16IL 40UNJ**	40	0.6		●		●
	16IR 36UNJ	**16IL 36UNJ**	36	0.6		●		●
	16IR 32UNJ	**16IL 32UNJ**	32	0.7		●		●
	16IR 28UNJ	**16IL 28UNJ**	28	0.7		●		●
	16IR 24UNJ	**16IL 24UNJ**	24	0.8		●		●
	16IR 20UNJ	**16IL 20UNJ**	20	0.9		●		●
	16IR 18UNJ	**16IL 18UNJ**	18	1.0		●		●
	16IR 16UNJ	**16IL 16UNJ**	16	1.0		●		●
	16IR 14UNJ	**16IL 14UNJ**	14	1.2		●		●
	16IR 13UNJ	**16IL 13UNJ**	13	1.3		●		●
	16IR 12UNJ	**16IL 12UNJ**	12	1.3		●		●
	16IR 11UNJ	**16IL 11UNJ**	11	1.5		●		●
	16IR 10UNJ	**16IL 10UNJ**	10	1.5		●		●
	16IR 9UNJ	**16IL 9UNJ**	9	1.7		●		●
	16IR 8UNJ	**16IL 8UNJ**	8	1.6		●		●
	22IR 7UNJ	**22IL 7UNJ**	7	2.3		●		●
	22IR 6UNJ	**22IL 6UNJ**	6	2.3		●		●
	22IR 5UNJ	**22IL 5UNJ**	5	2.5		●		●

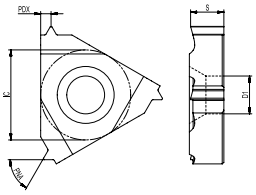
● : Standard stock ○ : Made-to-Order

Whitworth (Full Profile)--External



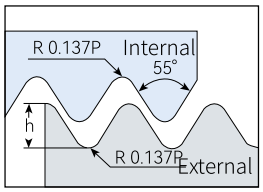
(mm)

Product code	IC	S	D1	PNA
11..	6.35	3.0	3.2	55°
16..	9.525	3.52	4.0	
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Threads Per Inch	Dimension (mm)	Insert Grades			
	Right hand	Left hand	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	**11ER 36W**	**11EL 36W**	36	0.6		●	○	○
	11ER 32W	**11EL 32W**	32	0.6		●	○	○
	11ER 28W	**11EL 28W**	28	0.6		●	○	○
	11ER 26W	**11EL 26W**	26	0.7		●	○	○
	11ER 20W	**11EL 20W**	20	0.8		●	○	○
	11ER 19W	**11EL 19W**	19	0.9		●	○	○
	11ER 16W	**11EL 16W**	16	1.1		●	○	○
	11ER 14W	**11EL 14W**	14	0.6		●	○	○
	16ER 36W	**16EL 36W**	36	0.6	●	●	○	○
	16ER 32W	**16EL 32W**	32	0.6	●	●	○	○
	16ER 28W	**16EL 28W**	28	0.7	●	●	○	○
	16ER 26W	**16EL 26W**	26	0.8	●	●	○	○
	16ER 20W	**16EL 20W**	20	0.9	●	●	○	○
	16ER 19W	**16EL 19W**	19	1.0	●	●	○	○
	16ER 14W	**16EL 14W**	14	1.2	●	●	○	○
	16ER 12W	**16EL 12W**	12	1.4	●	●	○	○
	16ER 11W	**16EL 11W**	11	1.5	●	●	○	○
	16ER 10W	**16EL 10W**	10	1.5	●	●	○	○
	16ER 9W	**16EL 9W**	9	1.7	●	●	○	○
	16ER 8W	**16EL 8W**	8	2.0	●	●	○	○
	22ER 7W	**22EL 7W**	7	2.3		●	○	○
	22ER 6W	**22EL 6W**	6	2.3		●	○	○
	22ER 5W	**22EL 5W**	5	2.5		●	○	○

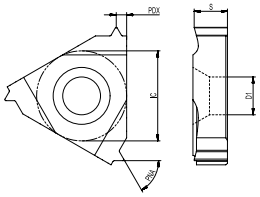
● : Standard stock ○ : Made-to-Order

Whitworth (Full Profile)--Internal



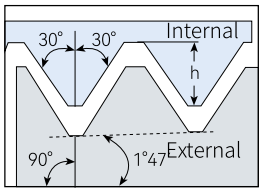
(mm)

Product code	IC	S	D1	PNA
08..	4.76	2.25	2.6	55°
11..	6.35	3.0	3.2	
16..	9.525	3.52	4.0	
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Threads Per Inch	Dimension (mm)	Insert Grades			
	Right hand	Left hand	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	**08IR 36W**	**08IL 36W**	36	0.6		○	○	○
	08IR 32W	**08IL 32W**	32	0.6		○	○	○
	08IR 28W	**08IL 28W**	28	0.6		○	○	○
	08IR 26W	**08IL 26W**	26	0.6		○	○	○
	08IR 24W	**08IL 24W**	24	0.7		○	○	○
	08IR 20W	**08IL 20W**	20	0.7		○	○	○
	08IR 19W	**08IL 19W**	19	0.7		○	○	○
	08IR 16W	**08IL 16W**	16	0.7		○	○	○
	11IR 36W	**11IL 36W**	36	0.6		●	○	○
	11IR 32W	**11IL 32W**	32	0.6		●	○	○
	11IR 28W	**11IL 28W**	28	0.6		●	○	○
	11IR 26W	**11IL 26W**	26	0.7		●	○	○
	11IR 20W	**11IL 20W**	20	0.8		●	○	○
	11IR 19W	**11IL 19W**	19	0.9		●	○	○
	11IR 16W	**11IL 16W**	16	1.1		●	○	○
	11IR 14W	**11IL 14W**	14	0.6		●	○	○
	16IR 36W	**16IL 36W**	36	0.6	●	●	○	○
	16IR 32W	**16IL 32W**	32	0.6	●	●	○	○
	16IR 28W	**16IL 28W**	28	0.7	●	●	○	○
	16IR 26W	**16IL 26W**	26	0.8	●	●	○	○
	16IR 20W	**16IL 20W**	20	0.9	●	●	○	○
	16IR 19W	**16IL 19W**	19	1.0	●	●	○	○
	16IR 14W	**16IL 14W**	14	1.2	●	●	○	○
	16IR 12W	**16IL 12W**	12	1.4	●	●	○	○
	16IR 11W	**16IL 11W**	11	1.5	●	●	○	○
	16IR 10W	**16IL 10W**	10	1.5	●	●	○	○
	16IR 9W	**16IL 9W**	9	1.7	●	●	○	○
	16IR 8W	**16IL 8W**	8	2.0	●	●	○	○
	22IR 7W	**22IL 7W**	7	2.3		●	○	○
	22IR 6W	**22IL 6W**	6	2.3		●	○	○
	22IR 5W	**22IL 5W**	5	2.5		●	○	○

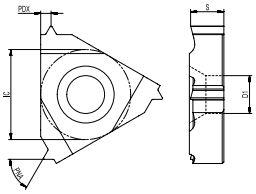
● : Standard stock ○ : Made-to-Order

NPT (National Pipe Thread)--External



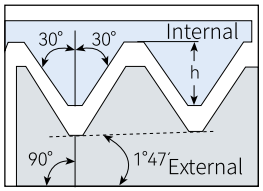
(mm)

Product code	IC	S	D1	PNA
11..	6.35	3.0	3.2	60°
16..	9.525	3.52	4.0	

Insert Below shows is right hand	Product code		Threads Per Inch	Dimension (mm)	Insert Grades			
	Right hand	Left hand	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	**11ER 27NPT**	**11EL 27NPT**	27	0.8		●	○	○
	11ER 18NPT	**11EL 18NPT**	18	1.0		●	○	○
	11ER 14NPT	**11EL 14NPT**	14	1.0		●	○	○
	16ER 27NPT	**16EL 27NPT**	27	0.8	●	●	○	○
	16ER 18NPT	**16EL 18NPT**	18	1.0	●	●	○	○
	16ER 14NPT	**16EL 14NPT**	14	1.2	●	●	○	○
	16ER 11.5NPT	**16EL 11.5NPT**	11.5	1.5	●	●	○	○
	16ER 8NPT	**16EL 8NPT**	8	1.8	●	●	○	○

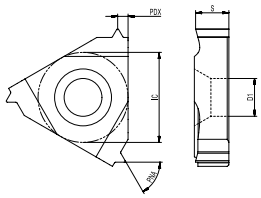
● : Standard stock ○ : Made-to-Order

NPT (National Pipe Thread)--Internal



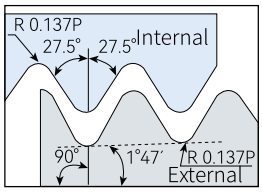
(mm)

Product code	IC	S	D1	PNA
08..	4.76	2.25	2.6	60°
11..	6.35	3.0	3.2	
16..	9.525	3.52	4.0	

Insert Below shows is right hand	Product code		Threads Per Inch	Dimension (mm)	Insert Grades			
	Right hand	Left hand	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	**08IR 27NPT**	**08IL 27NPT**	27	0.6		○	○	○
	08IR 18NPT	**08IL 18NPT**	18	0.6		○	○	○
	11IR 27NPT	**11IL 27NPT**	27	0.8		●	○	○
	11IR 18NPT	**11IL 18NPT**	18	1.0		●	○	○
	11IR 14NPT	**11IL 14NPT**	14	1.0		●	○	○
	16IR 27NPT	**16IL 27NPT**	27	0.8	●	●	○	○
	16IR 18NPT	**16IL 18NPT**	18	1.0	●	●	○	○
	16IR 14NPT	**16IL 14NPT**	14	1.2	●	●	○	○
	16IR 11.5NPT	**16IL 11.5NPT**	11.5	1.5	●	●	○	○
	16IR 8NPT	**16IL 8NPT**	8	1.8	●	●	○	○

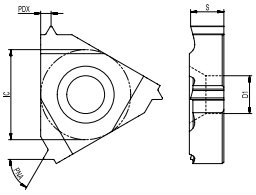
● : Standard stock ○ : Made-to-Order

British Standard Pipe Thread--External



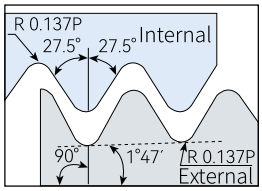
(mm)

Product code	IC	S	D1	PNA
11..	6.35	3.0	3.2	55°
16..	9.525	3.52	4.0	

Insert Below shows is right hand	Product code		Threads Per Inch	Dimension (mm)	Insert Grades			
	Right hand	Left hand	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	**11ER 28BSPT**	**11EL 28BSPT**	28	0.6		●	○	○
	11ER 19BSPT	**11EL 19BSPT**	19	0.9		●	○	○
	11ER 14BSPT	**11EL 14BSPT**	14	1.0		●	○	○
	16ER 28BSPT	**16EL 28BSPT**	28	0.6	●	●	○	○
	16ER 19BSPT	**16EL 19BSPT**	19	0.9	●	●	○	○
	16ER 14BSPT	**16EL 14BSPT**	14	1.2	●	●	○	○
	16ER 11BSPT	**16EL 11BSPT**	11	1.5	●	●	○	○

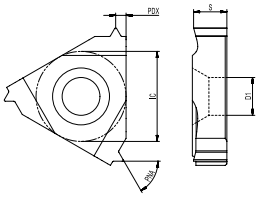
● : Standard stock ○ : Made-to-Order

British Standard Pipe Thread--Internal



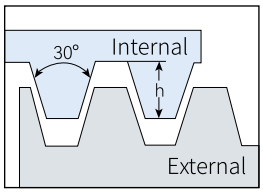
(mm)

Product code	IC	S	D1	PNA
08..	4.76	2.25	2.6	55°
11..	6.35	3.0	3.2	
16..	9.525	3.52	4.0	

Insert Below shows is right hand	Product code		Threads Per Inch	Dimension (mm)	Insert Grades			
	Right hand	Left hand	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	**08IR 28BSPT**	**08IL 28BSPT**	28	0.6		○	○	○
	08IR 19BSPT	**08IL 19BSPT**	19	0.6		○	○	○
	11IR 28BSPT	**11IL 28BSPT**	28	0.6		●	○	○
	11IR 19BSPT	**11IL 19BSPT**	19	0.9		●	○	○
	11IR 14BSPT	**11IL 14BSPT**	14	1.0		●	○	○
	16IR 28BSPT	**16IL 28BSPT**	28	0.6	●	●	○	○
	16IR 19BSPT	**16IL 19BSPT**	19	0.9	●	●	○	○
	16IR 14BSPT	**16IL 14BSPT**	14	1.2	●	●	○	○
	16IR 11BSPT	**16IL 11BSPT**	11	1.5	●	●	○	○

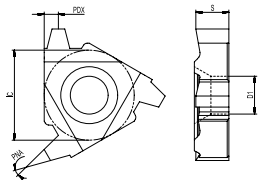
● : Standard stock ○ : Made-to-Order

Trapez DIN 103--External



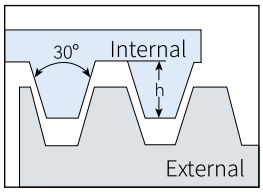
(mm)

Product code	IC	S	D1	PNA
11..	6.35	3.0	3.2	30°
16..	9.525	3.52	4.0	
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Pitch (mm)	Dimension (mm)	Insert Grades			
	Right hand	Left hand		PDX	AP220E	AP220U	AP020H	AP120S
	**11ER 150TR**	**11EL 150TR**	1.50	0.9		●	●	○
	16ER 150TR	**16EL 150TR**	1.50	1.1	●	○	●	○
	16ER 200TR	**16EL 200TR**	2.00	1.3	●	○	●	○
	16ER 250TR	**16EL 250TR**	2.50	1.4	●	○	●	○
	16ER 300TR	**16EL 300TR**	3.00	1.5	●	○	●	○
	22ER 400TR	**22EL 400TR**	4.00	1.9		●	●	○
	22ER 500TR	**22EL 500TR**	5.00	2.5		●	●	○
	22ER 600TR	**22EL 600TR**	6.00	2.7		●	●	○

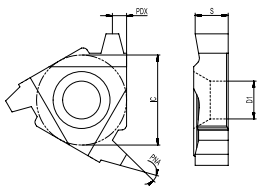
● : Standard stock ○ : Made-to-Order

Trapez DIN 103--Internal



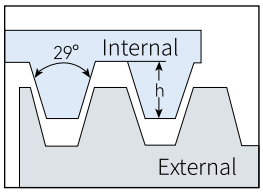
(mm)

Product code	IC	S	D1	PNA
11..	6.35	3.0	3.2	30°
16..	9.525	3.52	4.0	
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Pitch (mm)	Dimension (mm)	Insert Grades			
	Right hand	Left hand		PDX	AP220E	AP220U	AP020H	AP120S
	**11IR 150TR**	**11IL 150TR**	1.50	0.9		●	●	○
	16IR 150TR	**16IL 150TR**	1.50	1.1	●	○	●	○
	16IR 200TR	**16IL 200TR**	2.00	1.3	●	○	●	○
	16IR 250TR	**16IL 250TR**	2.50	1.4	●	○	●	○
	16IR 300TR	**16IL 300TR**	3.00	1.5	●	○	●	○
	22IR 400TR	**22IL 400TR**	4.00	1.9		●	●	○
	22IR 500TR	**22IL 500TR**	5.00	2.5		●	●	○
	22IR 600TR	**22IL 600TR**	6.00	2.7		●	●	○

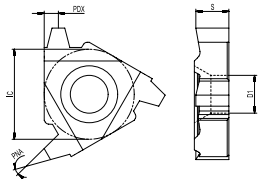
● : Standard stock ○ : Made-to-Order

American ACME--External



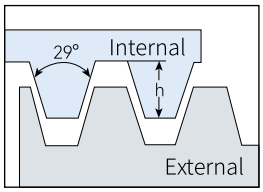
(mm)

Product code	IC	S	D1	PNA
16..	9.525	3.52	4.0	29°
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Threads Per Inch	Dimension (mm)	Insert Grades			
	Right hand	Left hand	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	**16ER 16ACME**	**16EL 16ACME**	16	1.1		●	●	
	16ER 14ACME	**16EL 14ACME**	14	1.2		●	●	
	16ER 12ACME	**16EL 12ACME**	12	1.2		●	●	
	16ER 10ACME	**16EL 10ACME**	10	1.4		●	●	
	16ER 8ACME	**16EL 8ACME**	8	1.5		●	●	
	22ER 6ACME	**22EL 6ACME**	6	1.9		●	●	
	22ER 5ACME	**22EL 5ACME**	5	2.1		●	●	

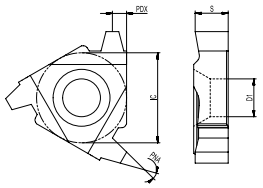
● : Standard stock ○ : Made-to-Order

American ACME--Internal



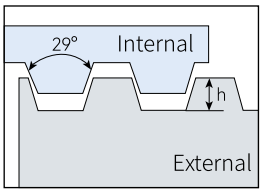
(mm)

Product code	IC	S	D1	PNA
16..	9.525	3.52	4.0	29°
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Threads Per Inch	Dimension (mm)	Insert Grades			
	Right hand	Left hand	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	**16IR 16ACME**	**16IL 16ACME**	16	1.1		●	●	
	16IR 14ACME	**16IL 14ACME**	14	1.2		●	●	
	16IR 12ACME	**16IL 12ACME**	12	1.2		●	●	
	16IR 10ACME	**16IL 10ACME**	10	1.4		●	●	
	16IR 8ACME	**16IL 8ACME**	8	1.5		●	●	
	22IR 6ACME	**22IL 6ACME**	6	1.9		●	●	
	22IR 5ACME	**22IL 5ACME**	5	2.1		●	●	

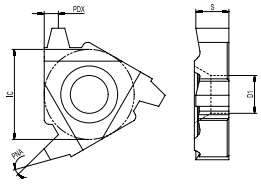
● : Standard stock ○ : Made-to-Order

Stub ACME--External



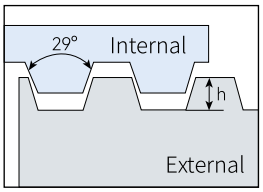
(mm)

Product code	IC	S	D1	PNA
11..	6.35	3.0	3.2	29°
16..	9.525	3.52	4.0	
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Threads Per Inch	Dimension (mm)	Insert Grades			
	Right hand	Left hand	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	**11ER 16STACME**	**11EL 16STACME**	16	1.0		●	●	●
	16ER 16STACME	**16EL 16STACME**	16	1.0		●	●	●
	16ER 14STACME	**16EL 14STACME**	14	1.1		●	●	●
	16ER 12STACME	**16EL 12STACME**	12	1.2		●	●	●
	16ER 10STACME	**16EL 10STACME**	10	1.3		●	●	●
	16ER 8STACME	**16EL 8STACME**	8	1.5		●	●	●
	16ER 6STACME	**16EL 6STACME**	6	1.8		●	●	●
	22ER 6STACME	**22EL 6STACME**	6	1.8		●	●	●
	22ER 5STACME	**22EL 5STACME**	5	2.3		●	●	●
	22ER 4STACME	**22EL 4STACME**	4	2.3		●	●	●

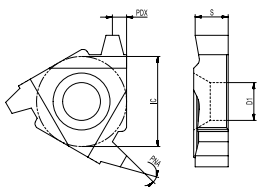
● : Standard stock ○ : Made-to-Order

Stub ACME--Internal



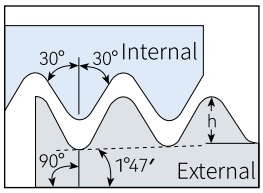
(mm)

Product code	IC	S	D1	PNA
11..	6.35	3.0	3.2	29°
16..	9.525	3.52	4.0	
22..	12.7	4.72	5.1	

Insert Below shows is right hand	Product code		Threads Per Inch	Dimension (mm)	Insert Grades			
	Right hand	Left hand	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	**11IR 16STACME**	**11IL 16STACME**	16	1.0		●	●	●
	16IR 16STACME	**16IL 16STACME**	16	1.0		●	●	●
	16IR 14STACME	**16IL 14STACME**	14	1.1		●	●	●
	16IR 12STACME	**16IL 12STACME**	12	1.2		●	●	●
	16IR 10STACME	**16IL 10STACME**	10	1.3		●	●	●
	16IR 8STACME	**16IL 8STACME**	8	1.5		●	●	●
	16IR 6STACME	**16IL 6STACME**	6	1.8		●	●	●
	22IR 6STACME	**22IL 6STACME**	6	1.8		●	●	●
	22IR 5STACME	**22IL 5STACME**	5	2.3		●	●	●
	22IR 4STACME	**22IL 4STACME**	4	2.3		●	●	●

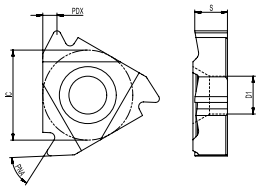
● : Standard stock ○ : Made-to-Order

APIRD Round Casing & Tubing--External



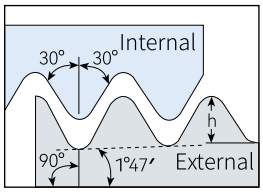
(mm)

Product code	IC	S	D1	PNA
16..	9.525	3.52	4.0	60°

Insert Below shows is right hand	Product code	Threads Per Inch	Dimension (mm)	Insert Grades			
	Right hand	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	**16ER 10API RD**	**10**	1.4	○	●	○	
	16ER 8API RD	**8**	1.5	○	●	○	

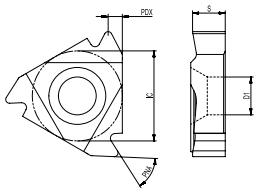
● : Standard stock ○ : Made-to-Order

APIRD Round Casing & Tubing--Internal



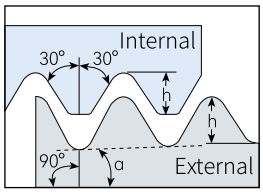
(mm)

Product code	IC	S	D1	PNA
16..	9.525	3.52	4.0	60°

Insert Below shows is right hand	Product code	Threads Per Inch	Dimension (mm)	Insert Grades			
	Right hand	TPI	PDX	AP220E	AP220U	AP020H	AP120S
	**16IR 10API RD**	**10**	1.4	○	●	○	
	16IR 8API RD	**8**	1.5	○	●	○	

● : Standard stock ○ : Made-to-Order

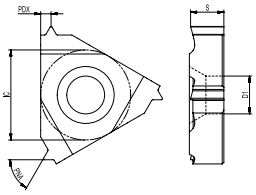
API--External



α=arctan(IPF/24)

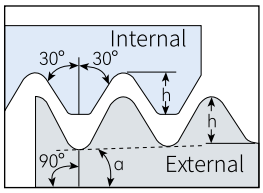
(mm)

Product code	IC	S	D1	PNA
22..	12.7	4.72	5.1	60°

Insert Below shows is right hand	Product code	Threads Per Inch	Taper	API Code	Dimension (mm)	Insert Grades			
	Right hand	TPI	IPF		PDX	AP220E	AP220U	AP020H	AP120S
	**22ER 4API384**	**4**	**3**	V-0.038R	2.8		○	●	●
	22ER 4API384-1/8	**4**	**1.5**	V-0.038R	2.8		○	○	○
	22ER 4API386	**4**	**2**	V-0.038R	2.8		○	●	●
	22ER 4API386-1/12	**4**	**1**	V-0.038R	2.8		○	○	○
	22ER 4API504	**4**	**3**	V-0.050	2.9		○	●	●
	22ER 4API504-1/8	**4**	**1.5**	V-0.050	2.9		○	○	○
	22ER 4API506	**4**	**2**	V-0.050	2.9		○	●	●
	22ER 4API506-1/12	**4**	**1**	V-0.050	2.9		○	○	○
	22ER 5API404	**5**	**3**	V-0.040	2.6		○	○	○
	22ER 5API404-1/8	**5**	**1.5**	V-0.040	2.6		○	○	○
	22ER 6API558	**6**	**1.5**	V-0.055	2.0		○	○	○
	22ER 6API558-1/16	**6**	**0.75**	V-0.055	2.0		○	○	○

● : Standard stock ○ : Made-to-Order

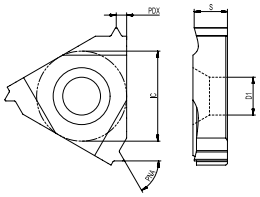
API--Internal



α=arctan(IPF/24)

(mm)

Product code	IC	S	D1	PNA
22..	12.7	4.72	5.1	60°

Insert Below shows is right hand	Product code	Threads Per Inch	Taper	API Code	Dimension (mm)	Insert Grades			
	Right hand	TPI	IPF		PDX	AP220E	AP220U	AP020H	AP120S
	**22IR 4API384**	**4**	**3**	V-0.038R	2.8		○	●	●
	22IR 4API384-1/8	**4**	**1.5**	V-0.038R	2.8		○	○	○
	22IR 4API386	**4**	**2**	V-0.038R	2.8		○	●	●
	22IR 4API386-1/12	**4**	**1**	V-0.038R	2.8		○	○	○
	22IR 4API504	**4**	**3**	V-0.050	2.9		○	●	●
	22IR 4API504-1/8	**4**	**1.5**	V-0.050	2.9		○	○	○
	22IR 4API506	**4**	**2**	V-0.050	2.9		○	●	●
	22IR 4API506-1/12	**4**	**1**	V-0.050	2.9		○	○	○
	22IR 5API404	**5**	**3**	V-0.040	2.6		○	○	○
	22IR 5API404-1/8	**5**	**1.5**	V-0.040	2.6		○	○	○
	22IR 6API558	**6**	**1.5**	V-0.055	2.0		○	○	○
	22IR 6API558-1/16	**6**	**0.75**	V-0.055	2.0		○	○	○

● : Standard stock ○ : Made-to-Order

Threading Holder Denomination System

ATT	E	R	25	25	M	-	16	C
1	2	3	4	5	6		7	8

1- Serial Code

Thread Turning holder

2- Holder Type

E-- For External

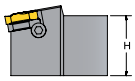
N-- For Internal

3- Holder

R-- Right hand

L-- Left hand

4- Height of Holder



25=25mm
00-- Roundrod

5- Breadth of Holder Or Dcon



25=25mm

6- Length of Holder (mm)

H=100mm

K=125mm

L=140mm

M=150mm

P=170mm

Q=180mm

R=200mm

S=250mm

T=300mm

U=350mm

V=400mm

7- Insert Size

16-- L=16mm / IC=9.525mm

8-Clmaping System

None -- Steel with screw lock

E -- Carbide with screw lock

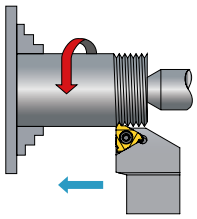
C -- Steel with Clamp

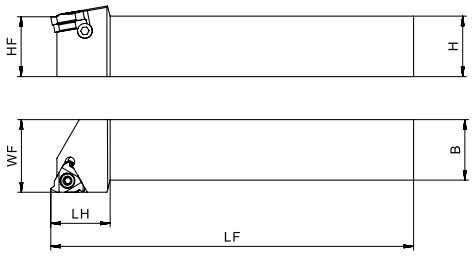
J -- Cooling channel & Steel with screw lock

JE -- Cooling channel & Carbide with screw lock

CS -- Steel with Clamp & Deflection 90°

External Thread Holders



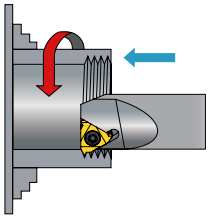


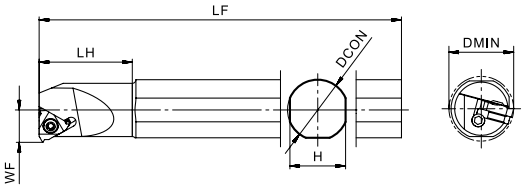
Product code	Right hand	Left hand	Dimension (mm)					Insert	Screw	Shim	Screw of shim	Wrench
			H*B	HF	WF	LF	LH					
ATTER/L-1212H-11	●	●	12*12	12	16	100	15	11ER/L ..	ST025080	-	-	FT-T08
ATTER/L-1212F-16	●	-	12*12	12	16	80	22	16ER/L ..	ST035090			FT-T15
ATTER/L-1616H-16	○	○	16*16	16	20	100	22		ST035120	S-MTN16	SH030080	
ATTER/L-2020K-16	●	●	20*20	20	25	125	27					
ATTER/L-2525M-16	●	●	25*25	25	32	150	30					
ATTER/L-3225P-16	●	-	32*25	32	32	170	32					
ATTER/L-3232P-16	●	●	32*32	32	40	170	32					
ATTER/L-2525M-22	○	○	25*25	25	32	150	31	22ER/L ..	ST040160	S-MTN22	SH040080	FT-T20
ATTER/L-3225P-22	○	-	32*25	32	32	170	31					
ATTER/L-3232P-22	○	○	32*32	32	40	170	31					
ATTER/L-4040R-22	○	-	40*40	40	50	200	31					
ATTER/L-3232P-27	○	○	32*32	32	40	170	34	27ER/L ..	ST050200	S-MTN27		
ATTER/L-4040S-27	○	-	40*40	40	50	250	34					

● : Standard stock ○ : Made-to-Order

*Threading holders equipped with 0° shim, screw and wrench ; Insert need to be ordered.

Internal Thread Holders





Product code	Right hand	Left hand	Dimension (mm)						Insert	Screw	Shim	Screw of shim	Wrench
			DMIN	DCON	H	WF	LF	LH					
ATTIR/L-0008K-08	○	-	9.9	8	7	5.5	125	20	08IR/L ..	ST022050	-	-	FT-T06
ATTIR/L-0010K-11	○	○	13	10	9	7.3	125	25	11IR/L ..	ST025060			FT-T08
ATTIR/L-0012K-11	○	○	15	12	11	8.2	125	28					
ATTIR/L-0013M-16	○	○	17	16	15	9.4	150	32	16IR/L ..	ST035090			FT-T15
ATTIR/L-0016Q-16	●	●	20	16	15	11.7	180	40					
ATTIR/L-0020Q-16	●	●	24	20	18	13.7	180	40		ST035120	S-STN16	SH030080	
ATTIR/L-0025R-16	●	●	29	25	23	16.2	200	45					
ATTIR/L-0032S-16	●	●	36	32	30	19.7	250	50					
ATTIR/L-0040T-16	○	○	44	40	38	23.1	300	55					
ATTIR/L-0050U-16	○	○	56	50	48	28.7	350	60					
ATTIR/L-0025R-22	○	○	32	25	23	18.1	200	45	22IR/L ..	ST040160	S-STN22	SH040080	FT-T20
ATTIR/L-0032S-22	○	○	39	32	30	21.5	250	50					
ATTIR/L-0040T-22	○	○	47	40	38	25.6	300	55					
ATTIR/L-0050U-22	○	○	57	50	48	30.6	350	70					
ATTIR/L-0032S-27	○	○	40	32	30	22.4	250	60	27IR/L ..		S-STN27		
ATTIR/L-0040T-27	○	○	48	40	38	26.4	300	60					
ATTIR/L-0050U-27	○	-	58	50	48	32.2	350	70					

● : Standard stock ○ : Made-to-Order

*Threading holders equipped with 0° shim, screw and wrench ; Insert need to be ordered.

Note

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CUTTING TOOL CATALOGUE

Thread Milling 628

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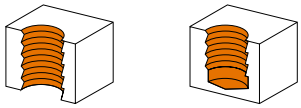
Thread Milling Product Range Overview

Tools	Series	ATM60
	Thread depth	2.5XDN
	Designation	Single/multi-row tooth thread milling cutters with indexable inserts
	Insert grade	AP320U
	Insert code	TM60、TM55
	Coolant supply	External/Internal
	Milling thread type	M ； MF ； MJ ； UNC ； UNF ； UNEF； UN ； UNJ ； G；
	Hole with thread	

Indexable Thread Milling Cutter Denomination System - Tool Holder

A	TM	60	-	024	-	Z01	-	068	-	W	25	R	-	09	-	007
1	2	3	-	4	-	5	-	6	-	7	8	9	-	10	-	11

1-Company Name
ACHTECK

2-Product Group
Thread milling

3-Insert Shape
T-Type

4-Cutter Diameter
16
19
24
30
35
.....

5-Number of Teeth
01
03
04

6-Effective Length of Holder
52
55
80
90
.....

7:8-Shank Type and Size
W16 Weldon 16
W20 Weldon 20
W25 Weldon 25
W32 Weldon 32
W40 Weldon 40

9-Tool Rotation Direction
R: Right

10-Insert Size
06
09
11
14

11-Axial Distance Between Rows
006
007
012
.....
Without mark means single row

Indexable Thread Milling Cutter Denomination System - Inserts

TM	60	G	-	09	02	02	E	-	MU1	AP320U
1	2	3	-	4	5	6	7	-	8	9

1-Category
Thread milling inserts

2-Insert Code
60 Positive triangle insert 60° thread angle
55 Positive triangle insert 55° thread angle
.....

3-Process
G Ground insert
M Pressed insert

4-Dimensions
06
09
11
14

5-Thickness
T1=1.98
02=2.38
03=3.18

6-Corner Radius
01
02
04

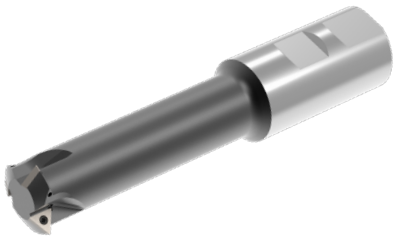
7-Edge Type
E-type

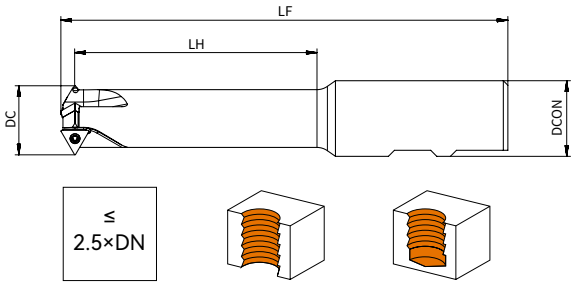
8-Chip Breaker
MU1 Universal

9-Grade
AP320U

Indexable Thread Milling Holder ATM60

Single-Row Tooth Holder





Product code	Dimension (mm)						Z	Coolant	No. of inserts	Insert code
	DN	Pmax mm	DC mm	LH mm	LF mm	DCON mm				
ATM60-016-Z03-052-W16R-06	M20	2.5	16	52	108	16	3		3	TM-06
ATM60-019-Z03-055-W20R-06	M24	3	19	55	115	20	3		3	TM-06
ATM60-024-Z03-080-W25R-09	M30	3.5	24	80	148	25	3		3	TM-09
ATM60-030-Z03-090-W32R-09	M36	4	30	90	162	32	3		3	TM-09
ATM60-035-Z03-110-W32R-11	M42	4.5	35	110	180	32	3		3	TM-11
ATM60-040-Z03-125-W40R-14	M48	5	40	125	208	40	3		3	TM-14
ATM60-044-Z03-150-W40R-14	M56	5.5	44	150	232	40	3		3	TM-14
ATM60-052-Z04-165-W40R-14	M64	6	52	165	248	40	4		4	TM-14

Note: With internal coolant

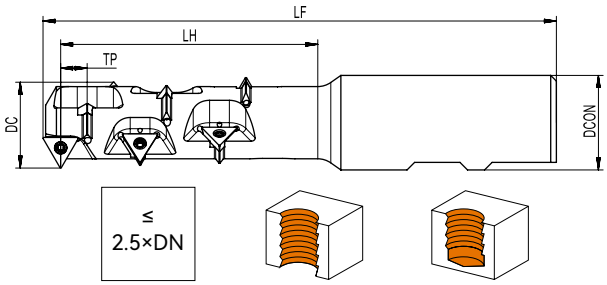
Without internal coolant

Dimension (mm)	Spare parts		
D mm	Screw	Wrench	Locking torque
16-19	SP020043	DT-TP06	0.6Nm
24-30	SP022049H	DT-TP07	0.9Nm
35	SP025066	DT-TP07	0.9Nm
40-52	SP030077	DT-TP09	2.0Nm

Indexable Thread Milling Holder ATM60

Multi-Row Tooth Holder



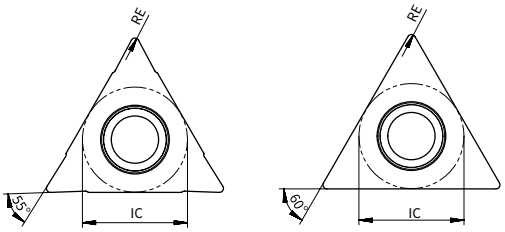


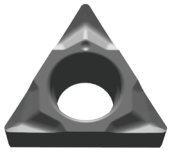
Product code	Dimension (mm)							Z	Coolant	No. of inserts	Insert code
	DN	Pitch P mm	DC mm	LH mm	TP mm	LF mm	DCON mm				
ATM60-013-Z01-035-W12R-06-010	M16/M18	2.5/2	13	35	10	86	12	1		3	TM-06
ATM60-013-Z01-038-W12R-06-009	M16/M18	1.5	13	38	9	88	12	1		4	TM-06
ATM60-017-Z01-047-W16R-06-007.5	M20/M22	2.5/1.5	16.5	47	7.5	103	16	1		6	TM-06
ATM60-017-Z01-053-W16R-06-010	M20/M22	2.5/2	16.5	53	10	109	16	1		5	TM-06
ATM60-019-Z01-054-W20R-06-009	M24/M27	3/1.5	19	54	9	114	20	1		6	TM-06
ATM60-019-Z01-063-W20R-06-012	M24/M27	3/2	19	63	12	123	20	1		5	TM-06
ATM60-024-Z01-064-W25R-09-010.5	M30/M33	3.5/1.5	24	64	10.5	131	25	1		6	TM-06
ATM60-024-Z01-079-W25R-09-014	M30/M33	3.5/2	24	79	14	146	25	1		6	TM-09
ATM60-030-Z01-076-W32R-09-008	M36/M39	4/2	30	76	8	147	32	1		9	TM-09
ATM60-030-Z01-095-W32R-09-012	M36/M39	4/3/2/1.5	30	95	12	166	32	1		8	TM-09
ATM60-035-Z01-089-W32R-11-009	M42/M45	4.5/3/1.5	35	89	9	159	32	1		9	TM-11
ATM60-035-Z01-110-W32R-11-009	M42/M45	4.5/3/1.5	35	110	9	180	32	1		10	TM-11
ATM60-040-Z01-102-W40R-14-010	M48/M52	5/2	40	102	10	186	40	1		10	TM-14
ATM60-040-Z01-122-W40R-14-015	M48/M52	5/3/1.5	40	122	15	206	40	1		8	TM-14
ATM60-044-Z01-119-W40R-14-011	M56/M60	5.5	44	119	11	201	40	1		10	TM-14
ATM60-044-Z01-146-W40R-14-011	M56/M60	5.5	44	146	11	228	40	1		10	TM-14
ATM60-052-Z01-135-W40R-14-012	M64/M68	6/3/2	52	135	12	218	40	1		11	TM-14

Note: With internal coolant
Without internal coolant

Dimension (mm)	Spare parts		
D mm	Screw	Wrench	Locking torque
13-19	SP020043	DT-TP06	0.6Nm
24-30	SP022049H	DT-TP07	0.9Nm
35	SP025066	DT-TP07	0.9Nm
40-52	SP030077	DT-TP09	2.0Nm

Thread Milling Insert TM60G、TM55G



Inserts	Product code	RE mm	Pitch P mm	Pitch P inch	Grade AP320U
	**TM60G-06T101E-MU1**	0.1	1.5-2.9	18-9	●
	TM60G-06T102E-MU1	0.2	3	8	●
	TM60G-090201E-MU1	0.1	1.5-2.9	18-9	●
	TM60G-090202E-MU1	0.2	3.0-4.0	8-6	●
	TM60G-110201E-MU1	0.1	1.5-2.9	18-9	●
	TM60G-110202E-MU1	0.2	3.0-4.5	8-6	●
	TM60G-140301E-MU1	0.1	1.5-2.9	18-9	●
	TM60G-140302E-MU1	0.2	3.0-5.0	8-5	●
	TM60G-140304E-MU1	0.4	5.0-6.0	5-4	●
	TM55G-090202E-MU1	0.2		11	●
	TM55G-140302E-MU1	0.2		11	●

● : Standard stock ○ : Made-to-Order

Tool Selection - Single-Row Teeth

Metric thread

Tool holder code	D mm	Inserts	Coarse pitch	Fine pitch
ATM60-016-Z03-052-W16R-06	16	TM60G-06T101	M20;M22;	M20x1.5;M20x2;
ATM60-019-Z03-055-W20R-06	19	TM60G-06T101		M22x1.5;M22x2;M24x1.5;M24x2;M25x1.5; M26x1.5;
		TM60G-06T102	M24;M27;	
ATM60-024-Z03-080-W25R-09	24	TM60G-090201		M27x1.5;M27x2;M28x1.5;M28x2;M30x1.5; M30x2;M32Xx1.5;M32x2;M33x1.5;M33x2;
		TM60G-090202	M30;M33;	
ATM60-030-Z03-090-W32R-09	30	TM60G-090201		M34x1.5;M35x1.5;M36x1.5;M36x2;M38x1.5; M39x1.5;M39x2;
		TM60G-090202	M36;M39;	M36x3;M39x3;
ATM60-035-Z03-110-W32R-11	35	TM60G-110201		M39x1.5;M39x2;M40x1.5;M40x2;M42x1.5; M42x2;
		TM60G-110202	M42;M45;	M40x3;M42x3;
ATM60-040-Z03-125-W40R-14	40	TM60G-140301		M45x1.5;M45x2;M48x2;
		TM60G-140302	M48;M52;	M45x3;M48x3;
ATM60-044-Z03-150-W40R-14	44	TM60G-140301		M50x1.5;M50x2;M52x1.5;M52x2;M56x1.5; M56x2;M58x1.5;M60x1.5;M60x2;
		TM60G-140302		M50x3;M52x3;M56x3;M60x3;M64x3;M68x3;
		TM60G-140304	M56;M60;M64;M68;	
ATM60-052-Z04-165-W40R-14	52	TM60G-140301		M62x1.5;M62x2;M64x2;M68x1.5;M68x2;
		TM60G-140302		M62x3;M62x4;M64x3;M64x4;M68x3;M68x4;
		TM60G-140304	M64;M68;	M70x6;M72x6;

Tool Selection - Multi-Row Teeth

Metric thread

Tool holder code	Pitch P	D mm	Insert	Coarse pitch	Fine pitch
ATM60-013-Z01-035-W12R-06-010	2.5/2	13	TM60G-06T101	M16;M17;M18;	M18x2;M17x2;
ATM60-013-Z01-038-W12R-06-009	1.5	13	TM60G-06T101		M16x1.5;M17x1.5;M18x1.5;
ATM60-017-Z01-047-W16R-06-007.5	2.5/1.5	16.5	TM60G-06T101	M20;M22;	M20x1.5;M22x1.5;
ATM60-017-Z01-053-W16R-06-010	2.5/2	16.5	TM60G-06T101	M20;M22;	M20x2;M22x2;
ATM60-019-Z01-054-W20R-06-009	3/1.5	19	TM60G-06T101		M22x1.5;M24x1.5;M25x1.5;M26x1.5;M27x1.5;
			TM60G-06T102	M24;M27;	
ATM60-019-Z01-063-W20R-06-012	3/2	19	TM60G-06T101		M24x2;M25x2;M27x2;
			TM60G-06T102	M24;M27;	
ATM60-024-Z01-064-W25R-09-010.5	3.5/1.5	24	TM60G-090201		M27x1.5;M28x1.5;M30x1.5;M32x1.5;M33x1.5;
			TM60G-090202	M30;M33;	
ATM60-024-Z01-079-W25-09-014	3.5/2	24	TM60G-090201		M28x2;M30x2;M32x2;M33x2;
			TM60G-090202	M30;M33;	
ATM60-030-Z01-076-W32R-09-008	4/2	30	TM60G-090201		M36x2;M39x2;M40x2;M42x2;
			TM60G-090202	M36;M39;	
ATM60-030-Z01-095-W32R-09-012	4/3/2/1.5	30	TM60G-090201		M35x1.5;M36x1.5;M38x1.5;M39x1.5; M36x2;M39x2;M40x2;M42x2;
			TM60G-090202	M36;M39;	M36x3;M39x3;M40x3;
ATM60-035-Z01-089-W32R-11-009	4.5/3/1.5	35	TM60G-110201		M39x1.5;M40x1.5;M42x1.5;M45x1.5;
			TM60G-110202	M42;M45;	M42x3;M45x3;
ATM60-035-Z01-110-W32R-11-009	4.5/3/1.5	35	TM60G-110201		M39x1.5;M40x1.5;M42x1.5;M45x1.5;
			TM60G-110202	M42;M45;	M42x3;M45x3;
ATM60-040-Z01-102-W40R-14-010	5/2	40	TM60G-140301		M45x2;M48x2;M50x2;M52x2;M55x2;M56x2;
			TM60G-140302	M48;M52;	
ATM60-040-Z01-122-W40R-14-015	5/3/1.5	40	TM60G-140301		M45x1.5;M48x1.5;M50x1.5;M52x1.5;M55x1.5; M56x1.5;M58x1.5;M60x1.5;M62x1.5;M64x1.5;
			TM60G-140302	M48;M52;	M48x3;M50x3;M52x3;M55x3;M56x3;
ATM60-044-Z01-119-W40R-14-011	5.5	44	TM60G-140304	M56;M60;	
ATM60-044-Z01-146-W40R-14-011	5.5	44	TM60G-140304	M56;M60;	
ATM60-052-Z01-135-W40R-14-012	6/3/2	52	TM60G-140301		M58x2;M60x2;M62x2;M64x2;M65x2;M68x2; M70x2;M72x2;
			TM60G-140302		M58x3;M60x3;M62x3;M64x3;M65x3;M68x3; M70x3;M72x3;
			TM60G-140304	M64;M68;	M70x6;M72x6;

Tool Selection - Single-Row Teeth

ANSI UN thread

Tool holder code	D mm	Insert	UNC	UNF	UNEF	UN
ATM60-016-Z03-052-W16R-06	16	TM60G-06T101	7/8-9;	3/4-16;7/8-14; 1-12;		7/8-12;7/8-16;
		TM60G-06T102				
ATM60-019-Z03-055-W20R-06	19	TM60G-06T101		1-12;1 1/8-12; 1 1/4-12;	1 1/16-18;	1-16;
		TM60G-06T102	1-8;			1 1/16-8;
ATM60-024-Z03-080-W25R-09	24	TM60G-090201		1 1/8-12; 1 1/4-12;	1 1/8-18; 1 1/4-18;	1 1/8-16;1 1/4-16;
		TM60G-090202	1 1/8-7;1 1/4-7; 1 3/8-6;			1 1/8-8;1 1/4-8;
ATM60-030-Z03-090-W32R-09	30	TM60G-090201		1 3/8-12; 1 1/2-12;	1 3/8-18; 1 1/2-18;	1 3/8-16;1 1/2-16;
		TM60G-090202	1 1/2-6;			1 3/8-8;1 1/2-8;
ATM60-035-Z03-110-W32R-11	35	TM60G-110201			1 5/8-18;	1 5/8-12;1 5/8-16;
		TM60G-110202				1 5/8-6;1 5/8-8;1 3/4-6;1 3/4-8;
ATM60-040-Z03-125-W40R-14	40	TM60G-140301				1 3/4-12;1 3/4-16;1 7/8-12; 1 7/8-16;
		TM60G-140302				1 7/8-6;1 7/8-8;
ATM60-044-Z03-150-W40R-14	44	TM60G-140301				2-12;2-16;2 1/8-12;2 1/8-16; 2 1/4-12;2 1/4-16;2 1/2-12; 2 1/2-16;
		TM60G-140302				2-6;2-8;2 1/8-6;2 1/8-8;2 1/4-6; 2 1/4-8;2 1/2-6;2 1/2-8;
		TM60G-140304	2-4.5;2 1/4-4.5; 2 1/2-4;			
ATM60-052-Z04-165-W40R-14	52	TM60G-140301				2 1/2-12;2 1/2-16;2 3/4-12; 2 3/4-16;3-12;3-16;3 1/4-12; 3 1/4-16;3 1/2-12;3 1/2-16;
		TM60G-140302				2 1/2-6;2 1/2-8;2 3/4-6;2 3/4-8; 3-6;3-8;3 1/4-6;3 1/4-8;3 1/2-6; 3 1/2-8;
		TM60G-140304	2 3/4-4;3-4; 3 1/4-4;3 1/2-4;			

Tool Selection - Single-Row Teeth

G-Thread (BSP)

Tool holder code	D mm	Insert	G
ATM60-024-Z03-080-W25R-09	24	TM55G-090202	G1-11;G1 1/8-11;G1 1/4-11;
ATM60-030-Z03-090-W32R-09	30	TM55G-090202	G1 1/8-11;G1 1/4-11;G1 3/8-11;G1 1/2-11;
ATM60-040-Z03-125-W40R-14	40	TM55G-140302	G1 1/2-11;G1 3/4-11;G2-11;
ATM60-044-Z03-150-W40R-14	44	TM55G-140302	G1 3/4-11;G2-11;G2 1/4-11;G2 1/2-11;G3-11;

Indexable Thread Milling Cutting Data Recommendation

Materials						ATM60			
ISO	Workpiece Materials			Brinell Hardness (HB/HRC)	Tensile strength Rm (N/mm²)	Cutting speed Vc (m/min)	fz(mm) Insert dimension		
							06	09	11/14
P	Unalloyed steel	C ≤ 0.25%	Annealed	125	428	180	0.3	0.35	0.4
		0.25 < C ≤ 0.55%	Annealed	190	639	180	0.3	0.35	0.4
		0.25 < C ≤ 0.55%	Heat-treated	210	708	180	0.3	0.35	0.4
		C > 0.55%	Annealed	190	639	180	0.3	0.35	0.4
		C > 0.55%	Heat-treated	300	1013	180	0.25	0.3	0.35
		Free cutting steel (short chip)	Annealed	220	745	180	0.3	0.35	0.4
	Low-alloyed steel	Annealed		175	591	180	0.3	0.35	0.4
		Heat-treated		300	1013	180	0.3	0.35	0.4
		Heat-treated		380	1282	130	0.2	0.3	0.35
		Heat-treated		430	1477	80	0.15	0.2	0.3
	High-alloyed steel and highalloyed tool steel	Annealed		200	675	180	0.25	0.35	0.4
		Hardened and tempered		300	1013	180	0.25	0.35	0.4
		Hardened and tempered		400	1361	130	0.25	0.3	0.35
	Stainless steel	Ferritic/Martensite, Annealed		200	675	180	0.25	0.3	0.35
		Martensite,Heat-treated		330	1114	130	0.25	0.3	0.35
M	Stainless steel	Austenitic,hardened		200	675	180	0.2	0.3	0.35
		Austenitic,precipitation hardened stainless steel (PH stainless steel)		300	1013	130	0.2	0.3	0.35
		Austenitic, ferritic, duplex		230	778	80	0.2	0.3	0.35
K	Malleable cast iron	Ferritic		200	400	180	0.3	0.35	0.4
		Pearlitic		260	700	180	0.3	0.35	0.4
	Grey cast iron	Low tensile strength		180	200	250	0.3	0.35	0.4
		High tensile strength/Austenitic		245	350	180	0.3	0.35	0.4
	Nodular cast iron	Ferritic		155	400	180	0.3	0.35	0.4
		Pearlitic		265	700	180	0.3	0.35	0.4
	GGV(CGI)			230	400	180	0.3	0.35	0.4
N	Wrought aluminum alloy	Non-aging alloy		30	-				
		Aged alloy		100	340				
	Cast aluminum alloy	≤ 12% Si, non-aging alloy		75	260				
		≤ 12% Si, aged alloy		90	310	200	0.3	0.35	0.4
		> 12% Si, non-aging alloy		130	450	240	0.3	0.35	0.4
	Magnesium alloy			70	250				
	Copper and copper alloy (bronze/brass)	Unalloyed, electrolytic copper		100	340				
		Brass, bronze, red brass		90	310				
		Cu alloy, short chip		110	380				
		High tensile, Ampco alloy		300	1010				
S	Heat-resistant alloy	Fe-based	Annealed	200	680	35	0.2	0.2	0.2
			Aged	280	940	20	0.1	0.1	0.1
		Ni or Co based	Annealed	250	840	35	0.2	0.2	0.2
			Aged	350	1180	20	0.1	0.1	0.1
			Cast	320	1080	30	0.2	0.2	0.2
	Titanium alloy	Pure Titanium		200	680	35	0.2	0.2	0.2
		α and β alloy,aged		375	1260	35	0.2	0.2	0.2
		β alloy		410	1400	25	0.2	0.2	0.2
	Tungsten alloy			300	1010	35	0.2	0.2	0.2
	Molybdenum alloy			300	1010	35	0.2	0.2	0.2
H	Hardened steel	Hardened and tempered		50HRC		40	0.15	0.2	0.2
		Hardened and tempered		55HRC					
		Hardened and tempered		60HRC					
	Chilled cast iron	Hardened and tempered		55HRC		40	0.15	0.2	0.2

The cutting data are average recommended values. For special applications, adjustment is needed.

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CUTTING TOOL CATALOGUE

Chuck 640

Overview of Rotary Chucks 643
BT Power Chuck 644
BT Collet Chuck 645
BT Milling Cutter Chuck 647
BT Anti-vibration Milling Cutter Chuck 650
BT Side Lock Chuck 650
BT Hydraulic Chuck 651
BT Shrink Fit Chuck 652
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Steel--Threaded Locking Extension Rods 673
Carbide--Threaded Locking Extension Rods 674
M-type ER Collet Extension Rods 676

Tooling System Denomination System

HSK-A63	-	FM	-	A	-	22	-	60	-	C
1		2		3		4		5		6

1-Spindle

HSK-A63
HSK-A100
BT40
BT50

2-Type of Chuck

Code	Description
HC	Hydraulic Chuck
SF	Shrink Fit Chuck
ER	ER Collet Chuck
SL	Side Lock Chuck
PC	Power Milling Chuck
FM	Face Milling Arbor

3-Distinguishing Code

Shrink Fit Chuck/ Hydraulic Chuck/Power Chuck	A---------- Standard S---------- Mini P---------- Power X---------- Adjustable
Side Lock Chuck	B---------- Side lock E---------- 2° angled side lock
Face Milling Arbor	A---------- Common clampling screw B---------- Clamping with shim screw C---------- Periphery clampling screw D---------- Anti-vibration type
ER Collet Chuck	None---------- Standard V---------- For Tapping G---------- High speed type

4- Clamping Diameter

DCONWS=22mm

5-Length (LF)

LF=60mm

6- Other Information

C	Coolant through end face

Product Overview

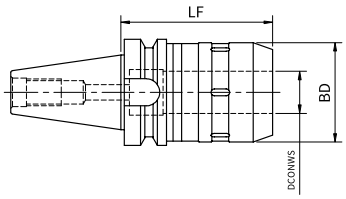
Series	Power chuck	Collet chuck holder	Face milling cutter arbor	Side lock chuck	Hydraulic chuck	Shrink Fit Chuck
						
Enforce standards	JIS B6339	JIS B6339	JIS B6339	JIS B6339	JIS B6339	JIS B6339
Finishing	◐	●	●		●	●
High-speed cutting		◐			●	●
Roughing	●	●	●	●		
Holding range	6-32	4-25	22-60	20-40	6-32	3-32
Attention	Collet chuck check/cleaning	Collet chuck check/cleaning	Screw tightened	Screw tightened	Clamping end cavity check/cleaning	Clamping end cavity check/cleaning
Spindle	BT40、BT50	BT40、BT50	BT40、BT50	BT40、BT50	BT40、BT50	BT40、BT50
Tool clamping	PC 20/25/32	ER 16/20/25/32/40	FM_ 22/27/32/40/60	SLB 20/25/32/40	HCA 6/8/10/12/14/ 16/20/25/32	SF 3/4/5/6/8/10/12/ 14/16/18/20/25/32

Series	Power chuck	Collet chuck holder	Face milling cutter arbor	Side lock chuck	Hydraulic chuck	Shrink Fit Chuck
						
Enforce standards	DIN69893	DIN69893	DIN69893	DIN69893	DIN69893	DIN69893
Finishing	◐	●		●	●	●
High-speed cutting		◐			●	●
Roughing	●	●	●	●		
Holding range	6-42	4-25	22-60	16-40	6-32	3-32
Attention	Collet chuck check/cleaning	Collet chuck check/cleaning	Screw tightened	Screw tightened	Clamping end cavity check/cleaning	Clamping end cavity check/cleaning
Spindle	HSK-A63 HSK-A100	HSK-A63 HSK-A100	HSK-A63 HSK-A100	HSK-A63 HSK-A100	HSK-A63 HSK-A100	HSK-A63 HSK-A100
Tool clamping	PC 20/25/32/42	ER 16/20/25/32/40	FM_ 22/27/32/40/60	SLB 16/20/25/32/40	HCA 6/8/10/12/14/ 16/20/25/32	SF 3/4/5/6/8/10/12/ 14/16/18/20/25/32

Power Chuck

JIS B6339





Product Code	Spindle	Dimensions (mm)			Wrench (optional)
		DCONWS	BD	LF	
BT40-PC20-80	BT40	20	53	80	W-C20
BT40-PC25-90	BT40	25	58	90	W-C25
BT40-PC32-105	BT40	32	68	105	W-C32
BT50-PC25-90	BT50	25	58	90	W-C25
BT50-PC32-105	BT50	32	68	105	W-C32

Note: Wrench and the power collet needs to be ordered separately.

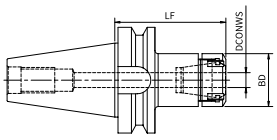
Tooling assembly



ER Collet Chuck

JIS B6339

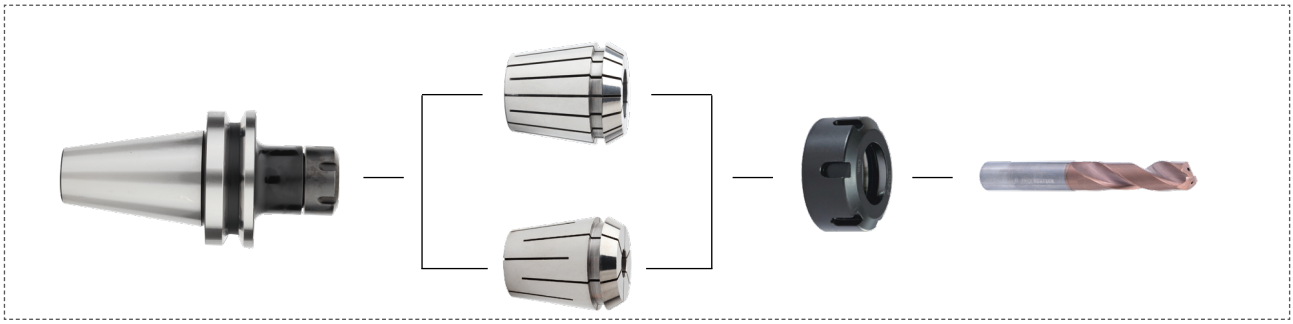




Product Code	Spindle	Dimensions (mm)			Nut	Collet (optional)
		DCONWS	BD	LF		
BT40-ER16-70	BT40	4-10	28	70	ER16-A	ER16
BT40-ER16-100	BT40	4-10	28	100	ER16-A	ER16
BT40-ER16-150	BT40	4-10	28	150	ER16-A	ER16
BT40-ER20-70	BT40	4-12	34	70	ER20-A	ER20
BT40-ER20-100	BT40	4-12	34	100	ER20-A	ER20
BT40-ER20-150	BT40	4-12	34	150	ER20-A	ER20
BT40-ER25-70	BT40	4-16	42	70	ER25-UM	ER25
BT40-ER25-100	BT40	4-16	42	100	ER25-UM	ER25
BT40-ER25-150	BT40	4-16	42	150	ER25-UM	ER25
BT40-ER32-70	BT40	4-20	50	70	ER32-UM	ER32
BT40-ER32-100	BT40	4-20	50	100	ER32-UM	ER32
BT40-ER32-150	BT40	4-20	50	150	ER32-UM	ER32

Note: Wrench, axial limit screw and collet needs to be ordered separately.

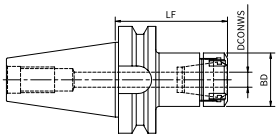
Tooling assembly



ER Collet Chuck

JIS B6339

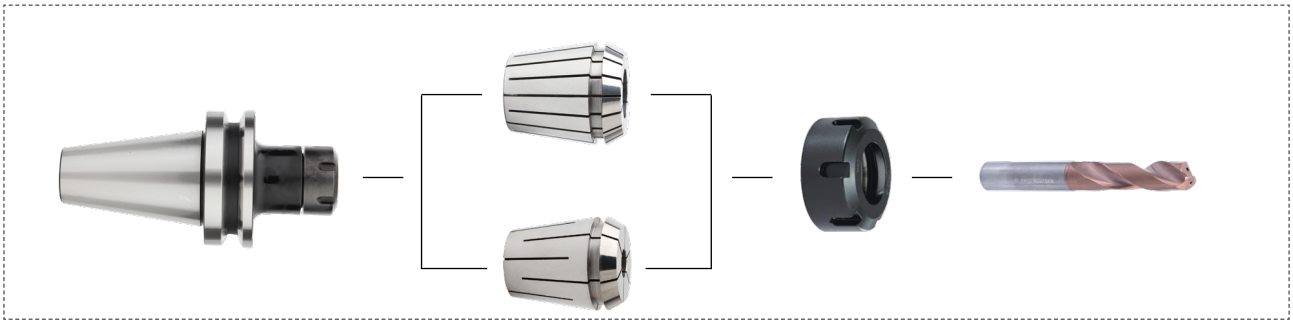




Product Code	Spindle	Dimensions (mm)			Nut	Collet (optional)
		DCONWS	BD	LF		
BT50-ER16-70	BT50	4-10	28	70	ER16-A	ER16
BT50-ER16-100	BT50	4-10	28	100	ER16-A	ER16
BT50-ER16-150	BT50	4-10	28	150	ER16-A	ER16
BT50-ER20-70	BT50	4-12	34	70	ER20-A	ER20
BT50-ER20-100	BT50	4-12	34	100	ER20-A	ER20
BT50-ER20-150	BT50	4-12	34	150	ER20-A	ER20
BT50-ER25-100	BT50	4-16	42	100	ER25-UM	ER25
BT50-ER25-150	BT50	4-16	42	150	ER25-UM	ER25
BT50-ER32-100	BT50	4-20	50	100	ER32-UM	ER32
BT50-ER32-150	BT50	4-20	50	150	ER32-UM	ER32
BT50-ER40-100	BT50	4-26	63	100	ER40-UM	ER40
BT50-ER40-150	BT50	4-26	63	150	ER40-UM	ER40
BT50-ER40-200	BT50	4-26	63	200	ER40-UM	ER40

Note: Wrench, axial limit screw and collet needs to be ordered separately.

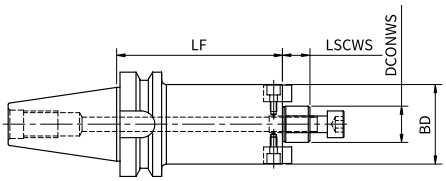
Tooling assembly



Face Milling Arbor

JIS B6339



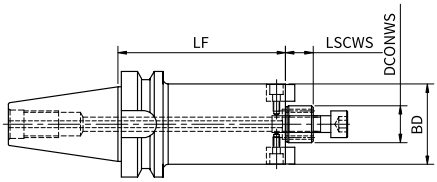


Product Code	Spindle	Dimensions (mm)				Clamping screw
		DCONWS	BD	LF	LSCWS	
BT40-FMA22-45	BT40	22	48	45	16.5	M10*30
BT40-FMA22-60	BT40	22	48	60	16.5	
BT40-FMA22-100	BT40	22	48	100	16.5	
BT40-FMA22-150	BT40	22	48	150	16.5	
BT40-FMA27-45	BT40	27	60	45	18.5	M12*30
BT40-FMA27-60	BT40	27	60	60	18.5	
BT40-FMA27-100	BT40	27	60	100	18.5	
BT40-FMA27-150	BT40	27	60	150	18.5	
BT40-FMA27-200	BT40	27	60	200	18.5	
BT40-FMB32-60	BT40	32	62	60	22	M16*35
BT40-FMB32-100	BT40	32	62	100	22	
BT40-FMB32-150	BT40	32	62	150	22	
BT40-FMB32-200	BT40	32	62	200	22	
BT40-FMB40-60	BT40	40	80	60	23	M20*35
BT40-FMB40-100	BT40	40	80	100	23	
BT40-FMB40-150	BT40	40	80	150	23	
BT40-FMB40-200	BT40	40	80	200	23	

Face Milling Arbor With Internal Coolant

JIS B6339



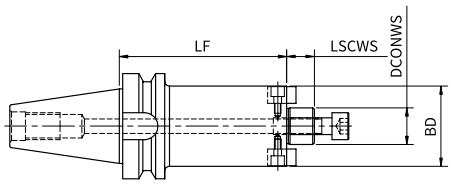


Product Code	Spindle	Dimensions (mm)				Internal coolant	Clamping screw
		DCONWS	BD	LF	LSCWS		
BT40-FMA22-60-C	BT40	22	48	60	16.5		M10*30
BT40-FMA22-100-C	BT40	22	48	100	16.5		
BT40-FMA27-60-C	BT40	27	60	60	18.5		M12*30
BT40-FMA27-100-C	BT40	27	60	100	18.5		
BT40-FMB32-60-C	BT40	32	62	60	22		M16*35
BT40-FMB32-100-C	BT40	32	62	100	22		
BT40-FMB40-60-C	BT40	40	80	60	23		M20*35

Face Milling Arbor

JIS B6339



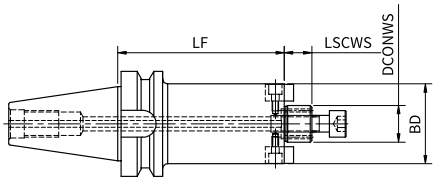


Product Code	Spindle	Dimensions (mm)				Clamping screw
		DCONWS	BD	LF	LSCWS	
BT50-FMA22-60	BT50	22	48	60	16.5	M10*30
BT50-FMA22-100	BT50	22	48	100	16.5	
BT50-FMA22-150	BT50	22	48	150	16.5	
BT50-FMA22-200	BT50	22	48	200	16.5	
BT50-FMA27-60	BT50	27	60	60	18.5	M12*30
BT50-FMA27-100	BT50	27	60	100	18.5	
BT50-FMA27-150	BT50	27	60	150	18.5	
BT50-FMA27-200	BT50	27	60	200	18.5	
BT50-FMB32-60	BT50	32	73	60	22	M16*35
BT50-FMB32-100	BT50	32	73	100	22	
BT50-FMB32-150	BT50	32	73	150	22	
BT50-FMB32-200	BT50	32	73	200	22	
BT50-FMB40-60	BT50	40	80	60	23	M20*35
BT50-FMB40-100	BT50	40	80	100	23	
BT50-FMB40-150	BT50	40	80	150	23	
BT50-FMB40-200	BT50	40	80	200	23	

Face Milling Arbor With Internal Coolant

JIS B6339



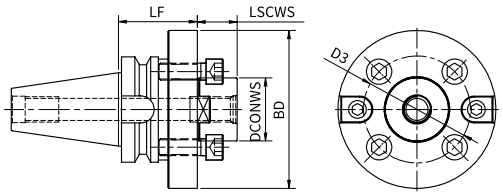


Product Code	Spindle	Dimensions (mm)				Internal coolant	Clamping screw
		DCONWS	BD	LF	LSCWS		
BT50-FMA22-60-C	BT50	22	48	60	16.5		M10*30
BT50-FMA22-100-C	BT50	22	48	100	16.5		
BT50-FMA27-60-C	BT50	27	60	60	18.5		M12*30
BT50-FMA27-100-C	BT50	27	60	90	18.5		
BT50-FMB32-60-C	BT50	32	73	60	22		M16*35
BT50-FMB32-100-C	BT50	32	73	100	22		
BT50-FMB40-60-C	BT50	40	80	60	23		M20*35
BT50-FMB40-100-C	BT50	40	80	100	23		

Face Milling Arbor for Large Diameter Cutting Tools

JIS B6339

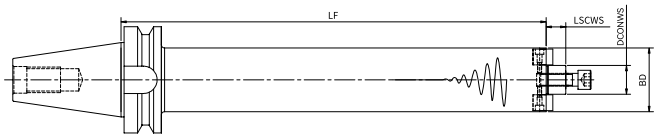




Product Code	Spindle	Dimensions (mm)					Clamping screw
		DCONWS	BD	D3	LF	LSCWS	
BT50-FMC40-60	BT50	40	98	66.7	60	23	M12*45
BT50-FMC40-100	BT50	40	98	66.7	100	23	
BT50-FMC40-150	BT50	40	98	66.7	150	23	
BT50-FMC60-75	BT50	60	140	101.6	75	25	M16*50

Anti-Vibration Face Milling Arbor

JIS B6339



Product Code	Spindle	Dimensions (mm)				Weight (Kg)
		DCONWS	BD	LF	LSCWS	
BT50-FMD22-300-D48	BT50	22	48	300	18	7.9
BT50-FMD22-400-D48	BT50	22	48	400	18	9.3
BT50-FMD22-400-D58	BT50	22	58	400	18	12.5
BT50-FMD22-500-D58	BT50	22	58	500	18	14.9
BT50-FMD27-400-D58	BT50	27	58	400	20	13.7
BT50-FMD27-500-D58	BT50	27	58	500	20	15.1
BT50-FMD27-500-D74	BT50	27	74	500	20	21.2
BT50-FMD32-500-D74	BT50	32	74	500	21	21.4

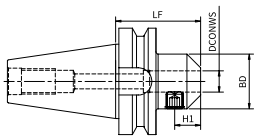
Note: Made-to-order.

Side Lock Chuck

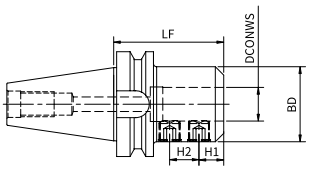
JIS B6339



Style1



Style2



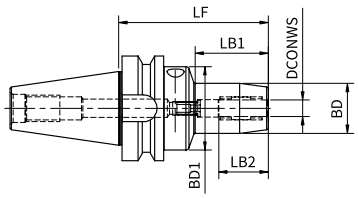
Product Code	Spindle	Dimensions (mm)					Style
		DCONWS	BD	H1	H2	LF	
BT40-SLB20-63	BT40	20	52	25	-	63	1
BT40-SLB25-100	BT40	25	65	24	25	100	2
BT40-SLB32-100	BT40	32	72	24	28	100	2
BT50-SLB20-80	BT50	20	52	25	-	80	1
BT50-SLB25-100	BT50	25	65	24	25	100	2
BT50-SLB32-105	BT50	32	72	24	28	105	2
BT50-SLB40-115	BT50	40	80	30	32	115	2

Hydraulic Chuck

JIS B6339



Style1



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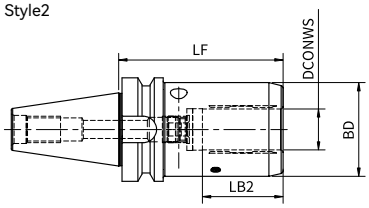


Product Code	Spindle	Dimensions (mm)						HC Collet	Style
		DCONWS	BD	BD1	LF	Step Length LB1	Min. Clamping Depth LB2		
BT40-HCA06-90	BT40	6	28	50	90	44	27.5	-	1
BT40-HCA08-90	BT40	8	30	50	90	39	27.5	-	1
BT40-HCA10-90	BT40	10	32	50	90	44	32.5	-	1
BT40-HCA12-90	BT40	12	34	50	90	44	37.5	HC12-..	1
BT40-HCA14-90	BT40	14	36	50	90	44	37.5	-	1
BT40-HCA16-90	BT40	16	38	50	90	48	42.5	-	1
BT40-HCA18-90	BT40	18	41	50	90	48	42.5	-	1
BT40-HCA20-90	BT40	20	43	50	90	48	42.5	HC20-..	1
BT40-HCA25-100	BT40	25	57	/	100	/	51	-	2
BT40-HCA32-105	BT40	32	63	/	105	/	55	HC32-..	2

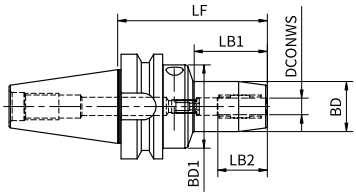
Note: Collet excluded; preset dynamic balance G2.5 20000rpm, runout ≤ 0.003mm at 3xD.

Hydraulic Chuck

JIS B6339



Style1



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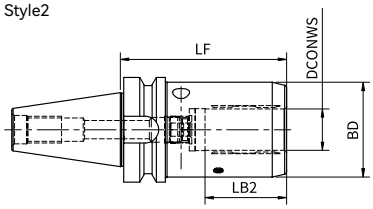


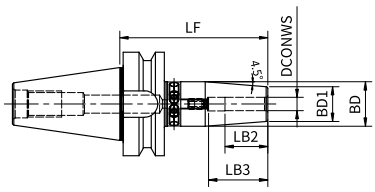
Product Code	Spindle	Dimensions (mm)						HC Collet	Style
		DCONWS	BD	BD1	LF	Step Length LB1	Min. Clamping Depth LB2		
BT50-HCA06-90	BT50	6	28	50	90	32	27.5	-	1
BT50-HCA08-90	BT50	8	30	50	90	32	27.5	-	1
BT50-HCA10-90	BT50	10	32	50	90	32	32.5	-	1
BT50-HCA12-90	BT50	12	34	50	90	32	37.5	HC12-..	1
BT50-HCA14-90	BT50	14	36	50	90	32	37.5	-	1
BT50-HCA16-90	BT50	16	38	50	90	32	42.5	-	1
BT50-HCA18-90	BT50	18	41	50	90	32	42.5	-	1
BT50-HCA20-90	BT50	20	43	50	90	32	42.5	HC20-..	1
BT50-HCA25-105	BT50	25	57	/	105	/	51	-	2
BT50-HCA32-115	BT50	32	63	/	115	/	55	HC32-..	2

Note: Collet excluded; preset dynamic balance G2.5 20000rpm, runout ≤ 0.003mm at 3xD.

Shrink Fit Chuck

JIS B6339





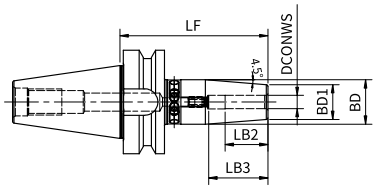
Product Code	Spindle	Dimensions (mm)					
		DCONWS	BD1	BD	LF	Max. Clamping Depth LB3	Min. Clamping Depth LB2
BT40-SF03-90	BT40	3	10	16	90	-	9
BT40-SF04-90	BT40	4	10	16	90	-	12
BT40-SF05-90	BT40	5	10	16	90	-	15
BT40-SF06-90	BT40	6	21	27	90	36	26
BT40-SF06-130	BT40	6	21	27	130	36	26
BT40-SF06-160	BT40	6	21	27	160	36	26
BT40-SF08-90	BT40	8	21	27	90	36	26
BT40-SF08-130	BT40	8	21	27	130	36	26
BT40-SF08-160	BT40	8	21	27	160	36	26
BT40-SF10-90	BT40	10	24	32	90	42	32
BT40-SF10-130	BT40	10	24	32	130	42	32
BT40-SF10-160	BT40	10	24	32	160	42	32
BT40-SF12-90	BT40	12	80	32	90	47	37
BT40-SF12-130	BT40	12	80	32	130	47	37
BT40-SF12-160	BT40	12	80	32	160	47	37
BT40-SF14-90	BT40	14	80	34	90	47	37
BT40-SF14-130	BT40	14	27	34	130	47	37
BT40-SF14-160	BT40	14	27	34	160	47	37
BT40-SF16-90	BT40	16	27	34	90	50	40
BT40-SF16-130	BT40	16	27	34	130	50	40
BT40-SF16-160	BT40	16	27	34	160	50	40
BT40-SF18-90	BT40	18	33	42	90	50	40
BT40-SF18-130	BT40	18	33	42	130	50	40
BT40-SF18-160	BT40	18	33	42	160	50	40
BT40-SF20-90	BT40	20	33	42	90	52	42
BT40-SF20-130	BT40	20	33	42	130	52	42
BT40-SF20-160	BT40	20	33	42	160	52	42
BT40-SF25-100	BT40	25	44	53	100	58	48
BT40-SF25-130	BT40	25	44	53	130	58	48
BT40-SF25-160	BT40	25	44	53	160	58	48
BT40-SF32-100	BT40	32	44	53	100	58	48
BT40-SF32-130	BT40	32	44	53	130	58	48
BT40-SF32-160	BT40	32	44	53	160	58	48

Note: Chuck comes standard with an axial adjusting screw, including a hole for a balancing screw, preset dynamic balance G2.5 20000rpm, and runout ≤ 0.003mm at 3xD.

Shrink Fit Chuck

JIS B6339





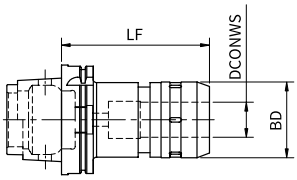
Product Code	Spindle	Dimensions (mm)					
		DCONWS	BD1	BD	LF	Max. Clamping Depth LB3	Min. Clamping Depth LB2
BT50-SF06-100	BT50	6	21	27	100	36	26
BT50-SF06-130	BT50	6	21	27	130	36	26
BT50-SF06-160	BT50	6	21	27	160	36	26
BT50-SF08-100	BT50	8	21	27	100	36	26
BT50-SF08-130	BT50	8	21	27	130	36	26
BT50-SF08-160	BT50	8	21	32	160	36	26
BT50-SF10-100	BT50	10	24	32	100	42	32
BT50-SF10-130	BT50	10	24	32	130	42	32
BT50-SF10-160	BT50	10	24	32	160	42	32
BT50-SF12-100	BT50	12	24	32	100	47	37
BT50-SF12-130	BT50	12	24	32	130	47	37
BT50-SF12-160	BT50	12	24	32	160	47	37
BT50-SF14-100	BT50	14	80	34	100	47	37
BT50-SF14-130	BT50	14	80	34	130	47	37
BT50-SF14-160	BT50	14	80	34	160	47	37
BT50-SF16-100	BT50	16	80	34	100	50	40
BT50-SF16-130	BT50	16	27	34	130	50	40
BT50-SF16-160	BT50	16	27	34	160	50	40
BT50-SF18-100	BT50	18	33	42	100	50	40
BT50-SF18-130	BT50	18	33	42	130	50	40
BT50-SF18-160	BT50	18	33	42	160	50	40
BT50-SF20-100	BT50	20	33	42	100	52	42
BT50-SF20-130	BT50	20	33	42	130	52	42
BT50-SF20-160	BT50	20	33	42	160	52	42
BT50-SF25-100	BT50	25	44	53	100	58	48
BT50-SF25-130	BT50	25	44	53	130	58	48
BT50-SF25-160	BT50	25	44	53	160	58	48
BT50-SF32-100	BT50	32	44	53	100	58	48
BT50-SF32-130	BT50	32	44	53	130	58	48
BT50-SF32-160	BT50	32	44	53	160	58	48

Note: Chuck comes standard with an axial adjusting screw, including a hole for a balancing screw, preset dynamic balance G2.5 20000rpm, and runout ≤ 0.003mm at 3xD.

High-Speed Power Chuck

DIN 69893





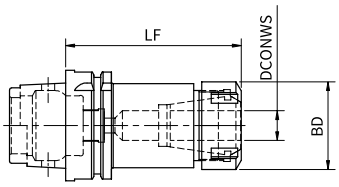
Product Code	Spindle	Dimensions (mm)			Wrench
		DCONWS	BD	LF	
HSK-A63-PC20-110	HSK-A63	20	52	110	W-C20
HSK-A63-PC25-110	HSK-A63	25	61	110	W-C25
HSK-A63-PC32-110	HSK-A63	32	71	110	W-C32
HSK-A100-PC20-105	HSK-A100	20	52	105	W-C20
HSK-A100-PC25-115	HSK-A100	25	61	115	W-C25
HSK-A100-PC32-135	HSK-A100	32	71	135	W-C32
HSK-A100-PC42-115	HSK-A100	42	86	115	W-C42

Note: Provided with wrench as standard; excluding collet and internal coolant tube, Preset to dynamic balance G6.3 15000rpm. runout ≤ 0.003mm at 3xD.

ER Collet Chuck

DIN 69893





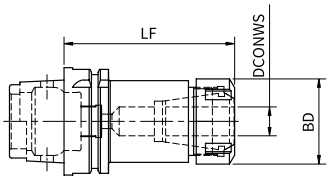
Product Code	Spindle	Dimensions (mm)			Nut	Collet (optional)
		DCONWS	BD	LF		
HSK-A63-ER16-75	HSK-A63	4-10	28	75	ER16-A	ER16
HSK-A63-ER16-100	HSK-A63	4-10	28	100	ER16-A	ER16
HSK-A63-ER16-160	HSK-A63	4-10	28	160	ER16-A	ER16
HSK-A63-ER20-80	HSK-A63	4-12	34	80	ER20-A	ER20
HSK-A63-ER20-100	HSK-A63	4-12	34	100	ER20-A	ER20
HSK-A63-ER20-160	HSK-A63	4-12	34	160	ER20-A	ER20
HSK-A63-ER25-80	HSK-A63	4-16	42	80	ER25-UM	ER25
HSK-A63-ER25-100	HSK-A63	4-16	42	100	ER25-UM	ER25
HSK-A63-ER25-150	HSK-A63	4-16	42	150	ER25-UM	ER25
HSK-A63-ER32-100	HSK-A63	4-20	50	100	ER32-UM	ER32
HSK-A63-ER32-160	HSK-A63	4-20	50	160	ER32-UM	ER32

Note: Wrench, axis limit screw, and collet needs to be ordered separately. Preset to dynamic balance G6.3 15000rpm.

ER Collet Chuck

DIN 69893





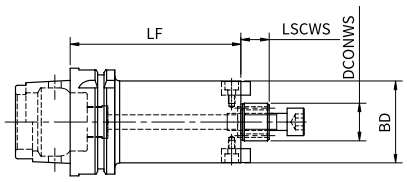
Product Code	Spindle	Dimensions (mm)			Nut	Collet (optional)
		DCONWS	BD	LF		
HSK-A100-ER16-100	HSK-A100	4-10	28	100	ER16-A	ER16
HSK-A100-ER16-160	HSK-A100	4-10	28	160	ER16-A	ER16
HSK-A100-ER20-100	HSK-A100	4-12	34	100	ER20-A	ER20
HSK-A100-ER20-160	HSK-A100	4-12	34	160	ER20-A	ER20
HSK-A100-ER25-100	HSK-A100	4-16	42	100	ER25-UM	ER25
HSK-A100-ER25-160	HSK-A100	4-16	42	160	ER25-UM	ER25
HSK-A100-ER32-100	HSK-A100	4-20	50	100	ER32-UM	ER32
HSK-A100-ER32-160	HSK-A100	4-20	50	160	ER32-UM	ER32
HSK-A100-ER40-100	HSK-A100	4-25	63	100	ER40-UM	ER40
HSK-A100-ER40-160	HSK-A100	4-25	63	160	ER40-UM	ER40

Note: Wrench, axis limit screw, and collet needs to be ordered separately. Preset to dynamic balance G6.3 15000rpm.

Face Milling Arbor

DIN 69893



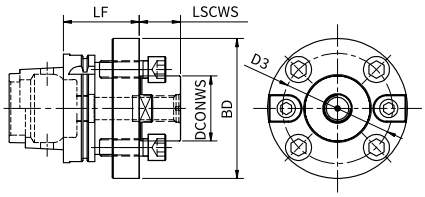


Product Code	Spindle	Dimensions (mm)				Internal coolant	Clamping screw
		DCONWS	BD	LF	LSCWS		
HSK-A63-FMA16-100-C	HSK-A63	16	38	100	16		M8*30
HSK-A63-FMA22-50-C	HSK-A63	22	48	50	18		M10*30
HSK-A63-FMA22-100-C	HSK-A63	22	48	100	18		
HSK-A63-FMA27-60-C	HSK-A63	27	60	60	20		M12*30
HSK-A63-FMA27-100-C	HSK-A63	27	60	100	20		
HSK-A63-FMB32-60-C	HSK-A63	32	78	60	22		M16*35
HSK-A100-FMA22-50-C	HSK-A100	22	48	50	18		M10*30
HSK-A100-FMA22-100-C	HSK-A100	22	48	100	18		
HSK-A100-FMA27-50-C	HSK-A100	27	60	50	20		M12*30
HSK-A100-FMA27-100-C	HSK-A100	27	60	100	20		
HSK-A100-FMB32-50-C	HSK-A100	32	78	50	22		M16*35
HSK-A100-FMB32-100-C	HSK-A100	32	78	100	22		
HSK-A100-FMB40-60-C	HSK-A100	40	85	60	25		M20*35

Face Milling Arbor

DIN 69893





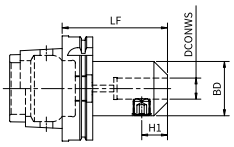
Product Code	Spindle	Dimensions (mm)					Clamping screw
		DCONWS	BD	LSCWS	LF	D3	
HSK-A100-FMC40-75	HSK-A100	40	89	25	75	66.7	M12*45
HSK-A100-FMC60-70	HSK-A100	60	129	32	70	101.6	M16*50

Side Lock Chuck

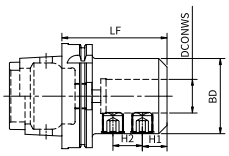
DIN 69893



Style1



Style2



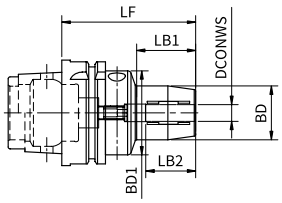
Product Code	Spindle	Dimensions (mm)					Style
		DCONWS	BD	H1	H2	LF	
HSK-A63-SLB16-80	HSK-A63	16	48	24	-	80	1
HSK-A63-SLB20-80	HSK-A63	20	52	25	-	80	1
HSK-A63-SLB25-110	HSK-A63	25	65	24	25	110	2
HSK-A63-SLB32-110	HSK-A63	32	72	24	28	110	2
HSK-A100-SLB16-100	HSK-A100	16	48	24	-	100	1
HSK-A100-SLB20-100	HSK-A100	20	52	25	-	100	1
HSK-A100-SLB25-100	HSK-A100	25	65	24	25	100	2
HSK-A100-SLB32-100	HSK-A100	32	72	24	28	100	2
HSK-A100-SLB40-120	HSK-A100	40	80	30	32	120	2

Hydraulic Chuck

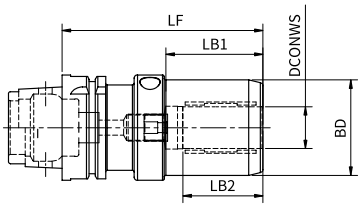
DIN 69893



Style1



Style2



Product Code	Spindle	Dimensions (mm)						HC Collet	Style
		DCONWS	BD	BD1	LF	Step Length LB1	Min. Clamping Depth LB2		
HSK-A63-HCA06-70	HSK-A63	6	28	50	70	24	27.5	-	1
HSK-A63-HCA08-70	HSK-A63	8	30	50	70	24	27.5	-	1
HSK-A63-HCA10-80	HSK-A63	10	32	50	80	35	32.5	-	1
HSK-A63-HCA12-85	HSK-A63	12	34	50	85	40	37.5	HC12-..	1
HSK-A63-HCA14-85	HSK-A63	14	36	50	85	40	37.5	-	1
HSK-A63-HCA16-90	HSK-A63	16	38	50	90	46	42.5	-	1
HSK-A63-HCA18-90	HSK-A63	18	41	50	90	47	42.5	-	1
HSK-A63-HCA20-90	HSK-A63	20	43	50	90	48	42.5	HC20-..	1
HSK-A63-HCA25-120	HSK-A63	25	57	63	120	59	51	-	2
HSK-A63-HCA32-125	HSK-A63	32	63	75	125	/	55	HC32-..	2

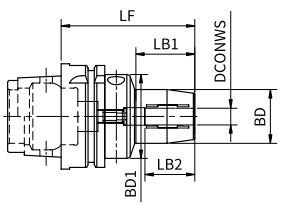
Note: Collet need to be ordered separately, pre-set to dynamic balance G2.5 20000rpm, runout ≤ 0.003mm at 3xD.

Hydraulic Chuck

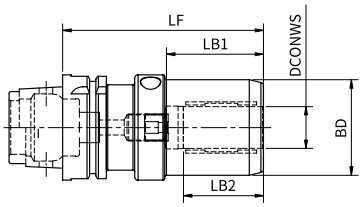
DIN 69893



Style1



Style2

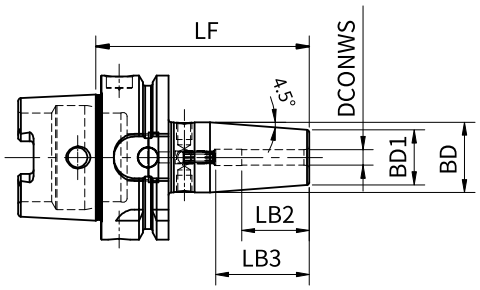


Product Code	Spindle	Dimensions (mm)						HC Collet	Style
		DCONWS	BD	BD1	LF	Step Length LB1	Min. Clamping Depth LB2		
HSK-A100-HCA06-75	HSK-A100	6	28	50	75	26	27.5	-	1
HSK-A100-HCA08-75	HSK-A100	8	30	50	75	26	27.5	-	1
HSK-A100-HCA10-90	HSK-A100	10	32	50	90	42	32.5	-	1
HSK-A100-HCA12-95	HSK-A100	12	34	50	95	47	37.5	HC12-..	1
HSK-A100-HCA14-95	HSK-A100	14	36	50	95	47	37.5	-	1
HSK-A100-HCA16-100	HSK-A100	16	38	50	100	53	42.5	-	1
HSK-A100-HCA18-100	HSK-A100	18	41	50	100	53	42.5	-	1
HSK-A100-HCA20-105	HSK-A100	20	43	50	105	59	42.5	HC20-..	1
HSK-A100-HCA25-110	HSK-A100	25	57	63	110	62	51	-	1
HSK-A100-HCA32-110	HSK-A100	32	63	75	110	62	55	HC32-..	1

Note: Collet need to be ordered separately, pre-set to dynamic balance G2.5 20000rpm, runout ≤ 0.003mm at 3xD.

Shrink Fit Chuck

DIN 69893

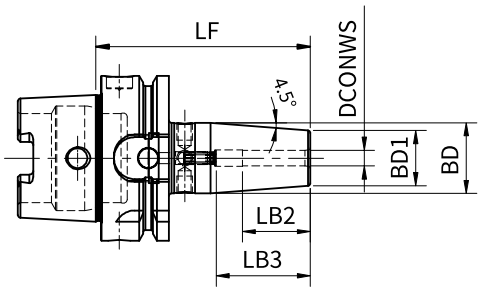


Product Code	Spindle	Dimensions (mm)					
		DCONWS	BD1	BD	LF	Max. Clamping Depth LB3	Min. Clamping Depth LB2
HSK-A63-SF03-80	HSK-A63	3	10	16	80	-	9
HSK-A63-SF04-80	HSK-A63	4	10	16	80	-	12
HSK-A63-SF05-80	HSK-A63	5	10	16	80	-	15
HSK-A63-SF06-80	HSK-A63	6	21	27	80	36	26
HSK-A63-SF06-130	HSK-A63	6	21	27	130	36	26
HSK-A63-SF06-160	HSK-A63	6	21	27	160	36	26
HSK-A63-SF08-80	HSK-A63	8	21	27	80	36	26
HSK-A63-SF08-130	HSK-A63	8	21	27	130	36	26
HSK-A63-SF08-160	HSK-A63	8	21	27	160	36	26
HSK-A63-SF10-85	HSK-A63	10	24	32	85	42	32
HSK-A63-SF10-130	HSK-A63	10	24	32	130	42	32
HSK-A63-SF10-160	HSK-A63	10	24	32	160	42	32
HSK-A63-SF12-90	HSK-A63	12	80	32	90	47	37
HSK-A63-SF12-130	HSK-A63	12	80	32	130	47	37
HSK-A63-SF12-160	HSK-A63	12	80	32	160	47	37
HSK-A63-SF14-90	HSK-A63	14	80	34	90	47	37
HSK-A63-SF14-130	HSK-A63	14	27	34	130	47	37
HSK-A63-SF14-160	HSK-A63	14	27	34	160	47	37
HSK-A63-SF16-95	HSK-A63	16	27	34	95	50	40
HSK-A63-SF16-130	HSK-A63	16	27	34	130	50	40
HSK-A63-SF16-160	HSK-A63	16	27	34	160	50	40
HSK-A63-SF18-95	HSK-A63	18	33	42	95	50	40
HSK-A63-SF18-130	HSK-A63	18	33	42	130	50	40
HSK-A63-SF18-160	HSK-A63	18	33	42	160	50	40
HSK-A63-SF20-100	HSK-A63	20	33	42	100	52	42
HSK-A63-SF20-130	HSK-A63	20	33	42	130	52	42
HSK-A63-SF20-160	HSK-A63	20	33	42	160	52	42
HSK-A63-SF25-115	HSK-A63	25	44	53	115	58	48
HSK-A63-SF25-130	HSK-A63	25	44	53	130	58	48
HSK-A63-SF25-160	HSK-A63	25	44	53	160	58	48
HSK-A63-SF32-120	HSK-A63	32	44	53	120	58	48
HSK-A63-SF32-160	HSK-A63	32	44	53	160	58	48

Note: Chuck comes standard with an axial adjusting screw, including a hole for a balancing screw, preset dynamic balance G2.5 20000rpm, runout ≤ 0.003mm at 3xD.

Shrink Fit Chuck

DIN 69893



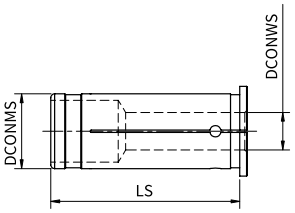
Product Code	Spindle	Dimensions (mm)					
		DCONWS	BD1	BD	LF	Max. Clamping Depth LB3	Min. Clamping Depth LB2
HSK-A100-SF06-85	HSK-A100	6	21	27	85	36	26
HSK-A100-SF06-130	HSK-A100	6	21	27	130	36	26
HSK-A100-SF06-160	HSK-A100	6	21	27	160	36	26
HSK-A100-SF08-85	HSK-A100	8	21	27	85	36	26
HSK-A100-SF08-130	HSK-A100	8	21	27	130	36	26
HSK-A100-SF08-160	HSK-A100	8	21	27	160	36	26
HSK-A100-SF10-90	HSK-A100	10	24	32	90	42	32
HSK-A100-SF10-130	HSK-A100	10	24	32	130	42	32
HSK-A100-SF10-160	HSK-A100	10	24	32	160	42	32
HSK-A100-SF12-95	HSK-A100	12	24	32	95	47	37
HSK-A100-SF12-130	HSK-A100	12	24	32	130	47	37
HSK-A100-SF12-160	HSK-A100	12	24	32	160	47	37
HSK-A100-SF14-95	HSK-A100	14	80	34	95	47	37
HSK-A100-SF14-130	HSK-A100	14	80	34	130	47	37
HSK-A100-SF14-160	HSK-A100	14	80	34	160	47	37
HSK-A100-SF16-100	HSK-A100	16	80	34	100	50	40
HSK-A100-SF16-130	HSK-A100	16	27	34	130	50	40
HSK-A100-SF16-160	HSK-A100	16	27	34	160	50	40
HSK-A100-SF18-100	HSK-A100	18	33	42	100	50	40
HSK-A100-SF18-130	HSK-A100	18	33	42	130	50	40
HSK-A100-SF18-160	HSK-A100	18	33	42	160	50	40
HSK-A100-SF20-105	HSK-A100	20	33	42	105	52	42
HSK-A100-SF20-130	HSK-A100	20	33	42	130	52	42
HSK-A100-SF20-160	HSK-A100	20	33	42	160	52	42
HSK-A100-SF25-115	HSK-A100	25	44	53	115	58	48
HSK-A100-SF25-130	HSK-A100	25	44	53	130	58	48
HSK-A100-SF25-160	HSK-A100	25	44	53	160	58	48
HSK-A100-SF32-120	HSK-A100	32	44	53	120	58	48
HSK-A100-SF32-160	HSK-A100	32	44	53	160	58	48

Note: Chuck comes standard with an axial adjusting screw, including a hole for a balancing screw, preset dynamic balance G2.5 20000rpm, runout ≤ 0.003mm at 3xD.

Hydraulic Collet -- Flange Cooling

Clamping accuracy within 0.003mm



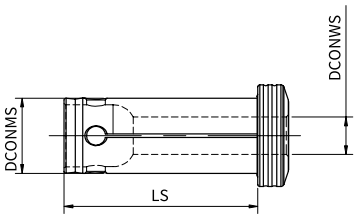


Product Code	Dimensions (mm)		
	DCONWS	DCONMS	LS
HC12-6A	6	12	45
HC12-8A	8		
HC20-6A	6	20	50.5
HC20-8A	8		
HC20-10A	10		
HC20-12A	12		
HC20-14A	14		
HC20-16A	16		
HC32-6A	6	32	60.5
HC32-8A	8		
HC32-10A	10		
HC32-12A	12		
HC32-14A	14		
HC32-16A	16		
HC32-18A	18		
HC32-20A	20		
HC32-25A	25		

Hydraulic Collet -- Internal Cooling

Clamping accuracy within 0.003mm



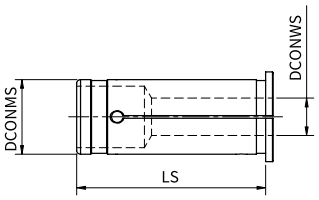


Product Code	Dimensions (mm)		
	DONWS	DONWS	LS
HC12-6CA	6	12	45
HC12-8CA	8		
HC20-6CA	6	20	51
HC20-8CA	8		
HC20-10CA	10		
HC20-12CA	12		
HC20-14CA	14		
HC20-16CA	16		
HC32-6CA	6	32	54
HC32-8CA	8		
HC32-10CA	10		
HC32-12CA	12		
HC32-14CA	14		
HC32-16CA	16		
HC32-18CA	18		
HC32-20CA	20		
HC32-25CA	25		

Power Collet

Clamping accuracy within 0.01mm





Product Code	Dimensions (mm)		
	DCONWS	DCONMS	LS
C25-6	6	25	63
C25-8	8	25	63
C25-10	10	25	63
C25-12	12	25	63
C25-16	16	25	63
C25-20	20	25	63
C32-6	6	32	70
C32-8	8	32	70
C32-10	10	32	70
C32-12	12	32	70
C32-14	14	32	70
C32-16	16	32	70
C32-18	18	32	70
C32-20	20	32	70
C32-25	25	32	70

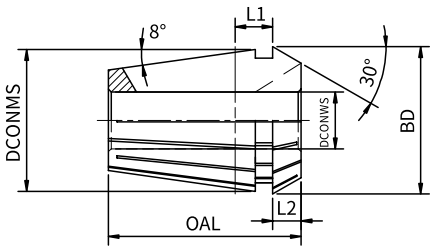
ER Collet

ER collet chuck features: High precision

- Material: JIS-SUJ2
- Hardness: HRC46-50
- The inner hole of the ER collet adopts a fine grinding process to achieve better clamping accuracy
- Ground internal dia., external dia. and end face to achieve high assembly accuracy



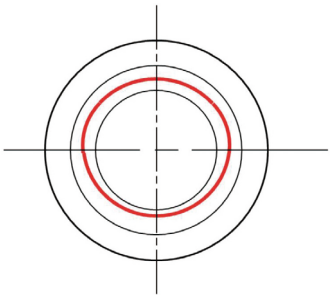




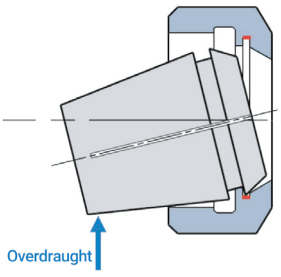
Type	Dimensions (mm)					
	DCONWS	DCONMS	BD	OAL	L1	L2
ER16	4-10	16	17	27.5	6.26	4.0
ER20	4-13	20	21	31.5	6.36	4.8
ER25	4-16	25	26	34.0	6.66	5.0
ER32	4-20	32	33	40.0	7.16	5.5
ER40	4-26	40	41	46.0	7.66	7.0

Assembly of ER collet

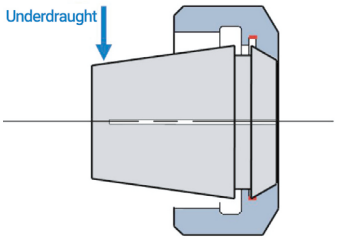
ER nut



Assembling Instruction



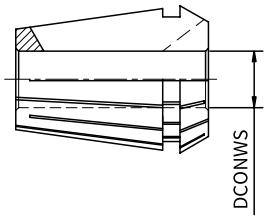
Disassembling Instruction



Regular ER Collet

Clamping accuracy within 0.008mm





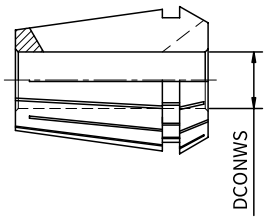
ER16		ER20		ER25		ER32		ER40	
Product Code	DCONWS	Product Code	DCONWS	Product Code	DCONWS	Product Code	DCONWS	Product Code	DCONWS
ER16-4	4-3	**ER20-4**	4-3	**ER25-4**	4-3	**ER32-4**	4-3	**ER40-4**	4-3
ER16-6	6-5	**ER20-6**	6-5	**ER25-6**	6-5	**ER32-6**	6-5	**ER40-6**	6-5
ER16-8	8-7	**ER20-8**	8-7	**ER25-8**	8-7	**ER32-8**	8-7	**ER40-8**	8-7
ER16-10	10-9	**ER20-10**	10-9	**ER25-10**	10-9	**ER32-10**	10-9	**ER40-10**	10-9
		ER20-12	12-11	**ER25-12**	12-11	**ER32-12**	12-11	**ER40-12**	12-11
				ER25-14	14-13	**ER32-14**	14-13	**ER40-14**	14-13
				ER25-16	16-15	**ER32-16**	16-15	**ER40-16**	16-15
						ER32-18	18-17	**ER40-18**	18-17
						ER32-20	20-19	**ER40-20**	20-19
								ER40-25	25-24

Note: Used in ER collet chuck.

High Precision ER Collet

Clamping accuracy within 0.005mm





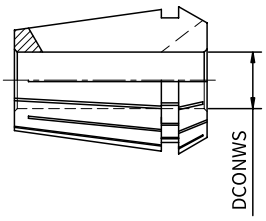
ER16		ER20		ER25		ER32	
Product Code	DCONWS	Product Code	DCONWS	Product Code	DCONWS	Product Code	DCONWS
ER16-4A	4-3	**ER20-4A**	4-3	**ER25-4A**	4-3	**ER32-4A**	4-3
ER16-6A	6-5	**ER20-6A**	6-5	**ER25-6A**	6-5	**ER32-6A**	6-5
ER16-8A	8-7	**ER20-8A**	8-7	**ER25-8A**	8-7	**ER32-8A**	8-7
ER16-10A	10-9	**ER20-10A**	10-9	**ER25-10A**	10-9	**ER32-10A**	10-9
		ER20-12A	12-11	**ER25-12A**	12-11	**ER32-12A**	12-11
				ER25-14A	14-13	**ER32-14A**	14-13
				ER25-16A	16-15	**ER32-16A**	16-15
						ER32-18A	18-17
						ER32-20A	20-19

Note: Used in ER collet chuck.

ER Sealing Collet

Clamping accuracy within 0.008mm





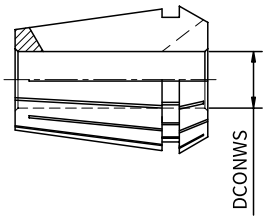
ER16		ER20		ER25		ER32	
Product Code	DCONWS	Product Code	DCONWS	Product Code	DCONWS	Product Code	DCONWS
ER16-4C	4-3.9	**ER20-4C**	4-3.9	**ER25-4C**	4-3.9	**ER32-4C**	4-3.9
ER16-6C	6-5.5	**ER20-6C**	6-5.5	**ER25-6C**	6-5.5	**ER32-6C**	6-5.5
ER16-8C	8-7.5	**ER20-8C**	8-7.5	**ER25-8C**	8-7.5	**ER32-8C**	8-7.5
ER16-10C	10-9.5	**ER20-10C**	10-9.5	**ER25-10C**	10-9.5	**ER32-10C**	10-9.5
		ER20-12C	12-11.5	**ER25-12C**	12-11.5	**ER32-12C**	12-11.5
				ER25-14C	14-13.5	**ER32-14C**	14-13.5
				ER25-16C	16-15.5	**ER32-16C**	16-15.5
						ER32-18C	18-17.5
						ER32-20C	20-19.5

Note: Used in ER collet chuck.

High Precision ER Sealing Collet

Clamping accuracy within 0.005mm





ER16		ER20		ER25		ER32	
Product Code	DCONWS	Product Code	DCONWS	Product Code	DCONWS	Product Code	DCONWS
ER16-4CA	4-3.9	**ER20-4CA**	4-3.9	**ER25-4CA**	4-3.9	**ER32-4CA**	4-3.9
ER16-6CA	6-5.5	**ER20-6CA**	6-5.5	**ER25-6CA**	6-5.5	**ER32-6CA**	6-5.5
ER16-8CA	8-7.5	**ER20-8CA**	8-7.5	**ER25-8CA**	8-7.5	**ER32-8CA**	8-7.5
ER16-10CA	10-9.5	**ER20-10CA**	10-9.5	**ER25-10CA**	10-9.5	**ER32-10CA**	10-9.5
		ER20-12CA	12-11.5	**ER25-12CA**	12-11.5	**ER32-12CA**	12-11.5
				ER25-14CA	14-13.5	**ER32-14CA**	14-13.5
				ER25-16CA	16-15.5	**ER32-16CA**	16-15.5
						ER32-18CA	18-17.5
						ER32-20CA	20-19.5

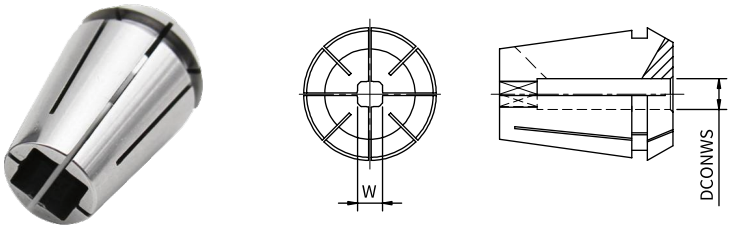
Note: Used in ER collet chuck.

ER Collets Set

Picture	Product code	Collet type	PCS/SET	Collet Accuracy (3D)
Regular collets set 	ER16-8PCS	3,4,5,6,7,8,9,10	8PCS/SET	≤ 0.008mm
	ER20-11PCS	3,4,5,6,7,8,9,10,11,12,13	11PCS/SET	
	ER25-14PCS	3,4,5,6,7,8,9,10,11,12,13,14,15,16	14PCS/SET	
	ER32-18PCS	3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20	18PCS/SET	
	ER40-8PCS	4,6,8,10,12,16,20,25	8PCS/SET	
High precision collet set 	ER16A-8PCS	3,4,5,6,7,8,9,10	8PCS/SET	≤ 0.005mm
	ER20A-11PCS	3,4,5,6,7,8,9,10,11,12,13	11PCS/SET	
	ER25A-14PCS	3,4,5,6,7,8,9,10,11,12,13,14,15,16	14PCS/SET	
	ER32A-18PCS	3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20	18PCS/SET	
Regular sealing collets set 	ER16C-8PCS	3,4,5,6,7,8,9,10	8PCS/SET	≤ 0.008mm
	ER20C-11PCS	3,4,5,6,7,8,9,10,11,12,13	11PCS/SET	
	ER25C-14PCS	3,4,5,6,7,8,9,10,11,12,13,14,15,16	14PCS/SET	
	ER32C-18PCS	3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20	18PCS/SET	
High precision sealing collet set 	ER16CA-8PCS	3,4,5,6,7,8,9,10	8PCS/SET	≤ 0.005mm
	ER20CA-11PCS	3,4,5,6,7,8,9,10,11,12,13	11PCS/SET	
	ER25CA-14PCS	3,4,5,6,7,8,9,10,11,12,13,14,15,16	14PCS/SET	
	ER32CA-18PCS	3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20	18PCS/SET	

Tapping Collet

Eight grooves, clamping precision within 0.02mm

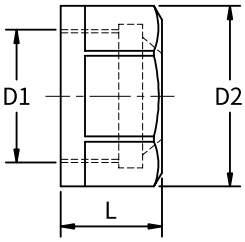


Product Code			DCONWS	W □	Thread specification	Enforce standard
ER20	ER25	ER32				
ER20G-4.5W34	ER25G-4.5W34		4.5	3.4	M4	DIN371
					M6	DIN376
ER20G-6W49	ER25G-6W49	ER32G-6W49	6	4.9	M5/M6	DIN371
					M8	DIN376
ER20G-7W55	ER25G-7W55	ER25G-7W55	7	5.5	M10	DIN376
ER20G-8W62	ER25G-8W62	ER32G-8W62	8	6.2	M8	DIN371
ER20G-9W70	ER25G-9W70	ER32G-9W70	9	7	M12	DIN376
ER20G-10W80	ER25G-10W80	ER32G-10W80	10	8	M10	DIN371
	ER25G-11W90	ER32G-11W90	11	9	M14	DIN376
	ER25G-12W90	ER32G-12W90	12	9	M16	DIN376
		ER32G-14W110	14	11	M18	DIN376
		ER32G-16W120	16	12	M20	DIN376
		ER32G-18W145	18	14.5	M22	DIN376
					M24	DIN376

Note: Used in ER collet chuck.

ER Nut





Product Code	Dimensions (mm)			Style	Compatible Collet	Compatible Wrench	Compatible Chuck
	D1	D2	L				
ER16-A	M22*1.5P	28	18	1	ER16	W-ER16A	ER Collet Chuck
ER20-A	M25*1.5P	34	19	1	ER20	W-ER20A	
ER25-UM	M32*1.5P	42	20	2	ER25	W-ER25UM	
ER32-UM	M40*1.5P	50	23	2	ER32	W-ER32UM	
ER40-UM	M50X1.5P	63	26	2	ER40	W-ER40UM	
ER11-M	M13*0.75P	16	12	3	ER11	W-ER11M	ER Straight Chuck Extension
ER16-M	M19*1.0P	22	18	3	ER16	W-ER16M	
ER20-M	M24*1.0P	28	19	3	ER20	W-ER20M	
ER25-M	M30*1.0P	35	20	3	ER25	W-ER25M	
GSK10	M21.5*1.0P	27	24	4	SK10	W-GSK10	GSK High-Speed Collet Chuck
GSK16	M32*1.5P	40	31	4	SK16	W-GSK16	
GSK20	M40*1.0P	48.5	33	4	SK20	W-GSK20	
GSK25	M45*1.5P	55	37	4	SK25	W-GSK25	

Note: The Nut thread specification varies depending on the nut external dimensions and the adapted collet, and is not interchangeable with the same model.

Chuck Wrench

Style1 Style2 Style3 Style4 Style5

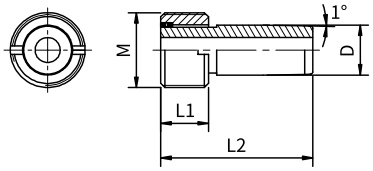


Product Code	Compatible ER Nut	Style	Compatible Chuck& Accessories
W-ER16A	ER16-A	1	ER Collet Chuck
W-ER20A	ER20-A	1	
W-ER25UM	ER25-UM	3	
W-ER32UM	ER32-UM	3	
W-ER40UM	ER40-UM	3	
W-ER11M	ER11-M	2	ER Straight Chuck Extension
W-ER16M	ER16-M	2	
W-ER20M	ER20-M	2	
W-ER25M	ER25-M	2	
W-GSK10	GSK10	4	GSK High-Speed Collet Chuck
W-GSK16	GSK16	4	
W-GSK20	GSK20	4	
W-GSK25	GSK25	4	
W-C20	-	5	Power Chuck
W-C25	-	5	
W-C32	-	5	

Note: Special chuck wrenches need to be ordered for mechanical clamping chucks.

HSK Cooling Tube

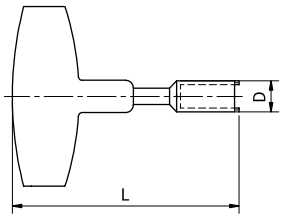




Product Code	Compatible Spindle	Dimensions (mm)			
		M	D	L1	L2
CT-HSK63	HSK-A63	M18×1	12	11.5	36.6
CT-HSK100	HSK-A100	M24×1.5	16	15.5	44.2

Wrench For HSK Cooling Tube

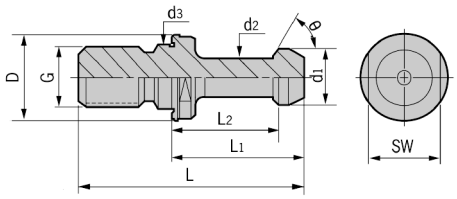




Product Code	Cooling Tube	L (mm)	D (mm)
W-HSK63	CT-HSK63	100	16.5
W-HSK100	CT-HSK100	125	22

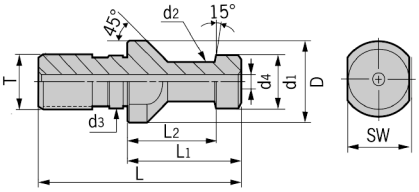
Pull Stud

BT Series



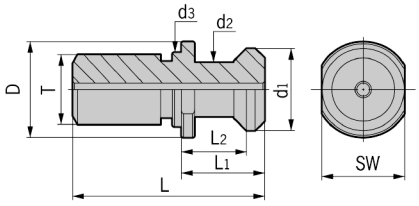
Product Code	Dimensions (mm)										
	D	d1	d2	d3	L1	L2	L	G	SW	θ	Internal coolant dia.
P30T-45	16.5	11	7	12.5	23	18	43	M12	13	45°	-
P30T-60										60°	-
P40T-45	23	15	10	17	35	28	60	M16	19	45°	-
P40T-60										60°	-
P40T-90										90°	-
P40T-45C										45°	4
P40T-60C										60°	4
P40T-90C										90°	4
P50T-45	38	23	17	25	45	35	85	M24	30	45°	-
P50T-60										60°	-
P50T-90										90°	-
P50T-45C										45°	8.5
P50T-60C										60°	8.5
P50T-90C										90°	8.5

SK Series(DIN69871)



Product Code	Dimensions (mm)										
	D	d1	d2	d3	L1	L2	L	T	SW	θ	Internal coolant dia.
PSK30-75	17	13	9	13	24	19	44	M12	14	75°	-
PSK40-75C	23	19	14	17	26	20	54	M16	19	75°	7
PSK50-75C	36	28	21	25	34	25	74	M24	30	75°	11.5

MAZAK Series



Model	Dimensions (mm)										
	D	d1	d2	d3	L1	L2	L	T	SW	θ	Internal coolant dia.
BT40-MAZAK	22	18.8	12.45	17	19.1	14.02	44.1	M16	19	45°	-
BT40C-MAZAK										45°	7
BT50-MAZAK	37	29	20.83	25	25.2	17.58	65.2	M24	30	45°	-
BT50C-MAZAK										45°	10

Entension Rods Denomination System

C20	C	-	M10	-	200	-	T
1	2		3		4		5

1-Shank diameter
C20--- ⌀20mm cylindrical shank

2-Material
S--- Special alloy steel
C--- Carbide
None--- Ordinary alloyed steel

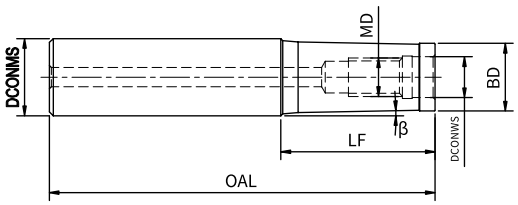
3-Clamping type
M10--- Threaded connection for M10
AK2--- Eccentric screw locking, suitable for boring tool AK2
ER16M--- M-type ER collet connection, suitable for ER16 collets
SF6--- Shrink fit clamping, suitable for ⌀6h6 shank

4-Length
200--- Total length 200mm

5-Extension rods type
T---Taper rod
R---Step rod
None---Straight rod

Steel--Threaded Locking Extension Rods

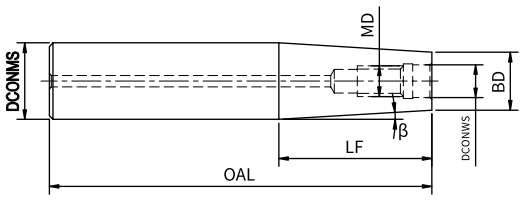
Taper Rod



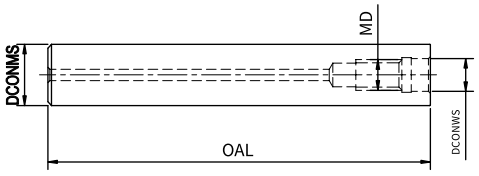
Product Code	Shank diameter	Dimensions (mm)						
		DCONMS	BD	MD	DCONWS	OAL	LF	β
C16S-M08-80-T	∅16 cylindrical shank	16	14.5	M08*1.25	8.5	80	20	3° 12'
C16S-M08-100-T	∅16 cylindrical shank	16	14.5	M08*1.25	8.5	100	40	1° 4'
C20S-M10-100-T	∅20 cylindrical shank	20	18	M10*1.5	10.5	100	30	1° 53'
C20S-M10-120-T	∅20 cylindrical shank	20	18	M10*1.5	10.5	120	50	1°
C25S-M12-110-T	∅25 cylindrical shank	25	22.5	M12*1.75	12.5	110	30	2° 36'
C25S-M12-130-T	∅25 cylindrical shank	25	22.5	M12*1.75	12.5	130	50	1° 18'
C32S-M16-125-T	∅32 cylindrical shank	32	28.5	M16*2.0	17.0	125	35	3° 15'
C32S-M16-145-T	∅32 cylindrical shank	32	28.5	M16*2.0	17.0	145	55	1° 48'

Carbide--Threaded Locking Extension Rods

Taper & Straight Rod



StyleA



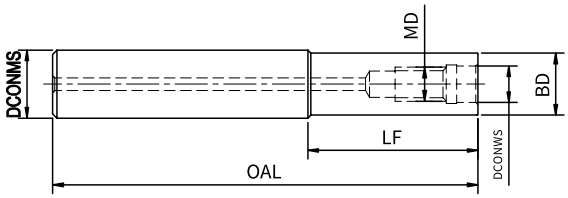
Style B

Product Code	Shank diameter	Dimensions (mm)							Style
		DCONMS	BD	MD	DCONWS	OAL	LF	β	
C16C-M08-200-T	∅16 cylindrical shank	16	15.5	M08*1.25	8.5	200	150	43'	A
C20C-M08-100-T	∅20 cylindrical shank	20	14.5	M08*1.25	8.5	100	40	3° 30'	A
C20C-M08-150-T	∅20 cylindrical shank	20	14.5	M08*1.25	8.5	150	77	1° 45'	A
C20C-M10-100-T	∅20 cylindrical shank	20	18.5	M10*1.5	10.5	100	40	43'	A
C25C-M10-150-T	∅25 cylindrical shank	25	18.5	M10*1.5	10.5	150	70	1° 43'	A
C20C-M10-150-T	∅20 cylindrical shank	20	18.5	M10*1.5	10.5	150	90	19'	A
C20C-M10-200-T	∅20 cylindrical shank	20	18.5	M10*1.5	10.5	200	140	12'	A
C32C-M12-200-T	∅32 cylindrical shank	32	23.5	M12*1.75	12.5	200	120	1° 45'	A
C32C-M16-200-T	∅32 cylindrical shank	32	29	M16*2.0	17.0	200	120	30'	A
C32C-M16-250-T	∅32 cylindrical shank	32	29	M16*2.0	17.0	250	170	28'	A
C32C-M16-300-T	∅32 cylindrical shank	32	29	M16*2.0	17.0	300	200	28'	A
C16C-M08-100	∅16 cylindrical shank	16	-	M08*1.25	8.5	100	-	-	B
C16C-M08-150	∅16 cylindrical shank	16	-	M08*1.25	8.5	150	-	-	B
C16C-M08-200	∅16 cylindrical shank	16	-	M08*1.25	8.5	200	-	-	B
C20C-M10-100	∅20 cylindrical shank	20	-	M10*1.5	10.5	100	-	-	B
C20C-M10-150	∅20 cylindrical shank	20	-	M10*1.5	10.5	150	-	-	B
C20C-M10-200	∅20 cylindrical shank	20	-	M10*1.5	10.5	200	-	-	B
C20C-M10-250	∅20 cylindrical shank	20	-	M10*1.5	10.5	250	-	-	B
C25C-M12-100	∅25 cylindrical shank	25	-	M12*1.75	12.5	100	-	-	B
C25C-M12-150	∅25 cylindrical shank	25	-	M12*1.75	12.5	150	-	-	B
C25C-M12-200	∅25 cylindrical shank	25	-	M12*1.75	12.5	200	-	-	B
C25C-M12-250	∅25 cylindrical shank	25	-	M12*1.75	12.5	250	-	-	B
C25C-M12-300	∅25 cylindrical shank	25	-	M12*1.75	12.5	300	-	-	B
C32C-M16-150	∅32 cylindrical shank	32	-	M16*2.0	17.0	150	-	-	B
C32C-M16-200	∅32 cylindrical shank	32	-	M16*2.0	17.0	200	-	-	B
C32C-M16-250	∅32 cylindrical shank	32	-	M16*2.0	17.0	250	-	-	B
C32C-M16-300	∅32 cylindrical shank	32	-	M16*2.0	17.0	300	-	-	B

Priority recommendation for vertical machine。In order to achieve good application effects, please make a comprehensive valuation and selection based on the rigidity of machine , tool overhang, cutting data, etc.

Carbide--Threaded Locking Extension Rods

Step Rod

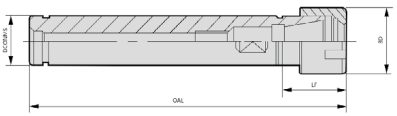


Product Code	Shank diameter	Dimensions (mm)							Style
		DCONMS	BD	MD	DCONWS	OAL	LF	β	
C16C-M08-100-R	∅16 cylindrical shank	16	15.5	M08*1.25	8.5	100	40	-	C
C16C-M08-150-R	∅16 cylindrical shank	16	15.5	M08*1.25	8.5	150	90	-	C
C16C-M08-200-R	∅16 cylindrical shank	16	15.5	M08*1.25	8.5	200	120	-	C
C20C-M10-100-R	∅20 cylindrical shank	20	19.5	M10*1.5	10.5	100	40	-	C
C20C-M10-150-R	∅20 cylindrical shank	20	19.5	M10*1.5	10.5	150	90	-	C
C20C-M10-200-R	∅20 cylindrical shank	20	19.5	M10*1.5	10.5	200	140	-	C
C20C-M10-250-R	∅20 cylindrical shank	20	19.5	M10*1.5	10.5	250	180	-	C
C25C-M12-100-R	∅25 cylindrical shank	25	24	M12*1.75	12.5	100	25	-	C
C25C-M12-150-R	∅25 cylindrical shank	25	24	M12*1.75	12.5	150	70	-	C
C25C-M12-200-R	∅25 cylindrical shank	25	24	M12*1.75	12.5	200	120	-	C
C25C-M12-250-R	∅25 cylindrical shank	25	24	M12*1.75	12.5	250	180	-	C
C25C-M12-300-R	∅25 cylindrical shank	25	24	M12*1.75	12.5	300	220	-	C
C32C-M16-100-R	∅32 cylindrical shank	32	29	M16*2.0	17.0	100	30	-	C
C32C-M16-150-R	∅32 cylindrical shank	32	29	M16*2.0	17.0	150	70	-	C
C32C-M16-200-R	∅32 cylindrical shank	32	29	M16*2.0	17.0	200	120	-	C
C32C-M16-250-R	∅32 cylindrical shank	32	29	M16*2.0	17.0	250	170	-	C
C32C-M16-300-R	∅32 cylindrical shank	32	29	M16*2.0	17.0	300	220	-	C

Priority recommendation for vertical machine。In order to achieve good application effects，please make a comprehensive valuation and selection based on the rigidity of machine , tool overhang, cutting data, etc.

M-Type ER Collet Extension Rods





Product Code	Dimensions (mm)				ER Nut	Collet (optional)	Wrench (optional)
	DCONMS	BD	OAL	LF			
C12-ER11M-80	12	16	114	34	ER11-M	ER11	W-ER11M
C12-ER11M-100	12	16	134	34			
C12-ER11M-150	12	16	184	34			
C16-ER11M-50	16	16	84	34			
C16-ER11M-100	16	16	134	34			
C16-ER11M-140	16	16	174	34			
C16-ER16M-50	16	22	90	40	ER16-M	ER16	W-ER16M
C16-ER16M-60	16	22	100	40			
C16-ER16M-80	16	22	120	40			
C16-ER16M-150	16	22	190	40			
C20-ER16M-50	20	22	87	37			
C20-ER16M-100	20	22	137	37			
C20-ER16M-120	20	22	157	37			
C20-ER16M-140	20	22	177	37			
C20-ER16M-150	20	22	187	37			
C20-ER16M-160	20	22	197	37			
C20-ER16M-180	20	22	217	37			
C20-ER16M-200	20	22	237	37			
C20-ER20M-60	20	28	110	50	ER20-M	ER20	W-ER20M
C20-ER20M-100	20	28	150	50			
C20-ER20M-150	20	28	200	50			
C20-ER20M-180	20	28	230	50			
C20-ER20M-200	20	28	250	50			
C20-ER20M-250	20	28	300	50			
C25-ER20M-140	25	28	180	40			

Note

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D-400 Series Products

D-400A Main Cabinet



Compatible with: D-400E, L-100E, D-600E

Hardware Configuration		System Functions	
Dimensions (L*W*H)	1310*670*1850 mm	Trade-in program	★
Weight (KG)	600KG	Production planning	★
Power supply	AC 220V/10A50HZ	Machine drawing association	★
Operating voltage	12V/24V	Tool life management	★
Storage channels	Customizable options	ERP interface provided	★
Channel spacing parameters:		Return & repair tracking	★
Spacing mm	30/65/100/135/205/420	Remote ad management	★
Divider count	12/6/4/3/2/1	Inventory alerts	★
Operating system	Windows/Android	Material recycling	★
Data protection	UPS	Material replenishment	★
Recognition system	Card reader/facial recognition	Electronic sample positioning	★
Data transmission	Wi-Fi/USB/MG Interface	Cloud module	★
		Usage query	★
		Data analytics	★
		Usage statistics	★
		WeChat report push	★

★ The function is provided

Product Features:
The D-400 series consists of independent channel-segregated drawer cabinets, part of the high-end multifunctional D-series product line. It enables fine material management, supporting material distribution and recycling, with customizable channel usage and permission allocation. Suitable for material classification and recycling scenarios like tool sharpening, or for different supplier permission management scenarios.

D-400E Expansion Cabinet



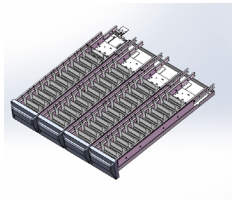
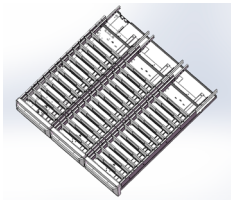
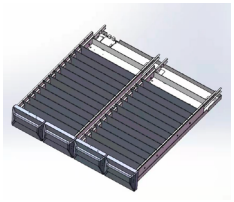
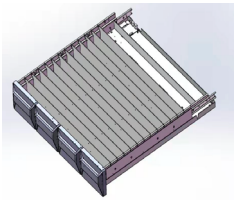
Compatible with: D-400 Main Cabinet

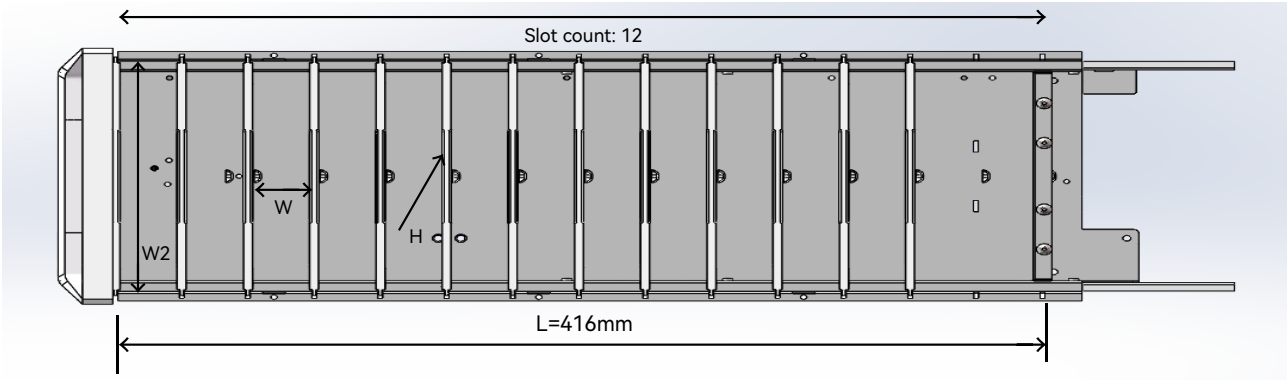
Hardware Configuration		System Functions	
Dimensions (L*W*H)	1310*670*1850 mm	Trade-in program	/
Weight (KG)	600KG	Production planning	/
Power supply	AC 220V/10A50HZ	Machine drawing association	/
Operating voltage	12V/24V	Tool life management	/
Storage channels	Customizable options	ERP interface provided	/
Channel spacing parameters:		Return & repair tracking	/
Spacing mm	30/65/100/135/205/420	Remote ad management	/
Divider count	12/6/4/3/2/1	Inventory alerts	/
Operating system	/	Material recycling	/
Data protection	/	Material replenishment	/
Recognition system	/	Electronic sample positioning	/
Data transmission	/	Cloud module	/
		Usage query	/
		Data analytics	/
		Usage statistics	/
		WeChat report push	/

/The function is not provided

Product Features:
The D-400E Expansion Cabinet is connected to the main cabinet for expanding storage positions. Its hardware characteristics are consistent with the D-400 main cabinet, and the system functions follow the connected main cabinet. It can store over 80 types of tools and can be infinitely expanded with adders.

D-400 Series Channel Specifications

Slot type				
Slot model	CT-120F-1#	CT-120F-2#	CT-120F-3#	CT-120F-4#
Slot dimensions	99*30*48mm	158*30*48mm	256*30*48mm	512*30*48mm
Main Cabinet	84pcs	63pcs	42pcs	21pcs
Expansion Cabinet	120pcs	90pcs	60pcs	30pcs



S/N	Model	W1	W2	H	L	Slot Count
1	CT-120F-1#	30	99	48	416	12
2	CT-120F-2#	30	158	48	416	12
3	CT-120F-3#	30	256	48	416	12
4	CT-120F-4#	30	512	48	416	12

D-730 Series Products

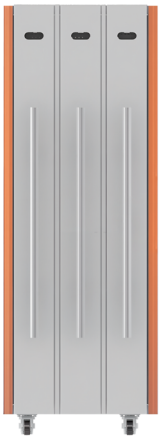
D-730A Main Cabinet





Hardware Configuration	
Dimensions (L*W*H)	656*1000*1870mm
Weight (KG)	350KG±20
Power supply	AC 220V/10A50HZ
Operating voltage	12V/24V
Storage channels	Customizable
Operating system	Android
Data protection	UPS
Recognition system	Card reader
Data transmission	WLAN

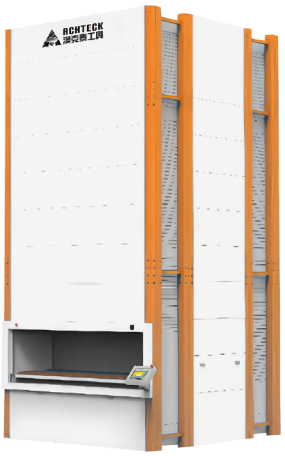
D-730F Expansion Cabinet





Hardware Configuration	
Dimensions (L*W*H)	656*1000*1870mm
Weight (KG)	350KG±20
Power supply	AC 220V/10A50HZ
Operating voltage	12V/24V
Storage channels	BT30 flange lock, 84 pcs
Operating system	Inherits main cabinet
Data protection	Inherits main cabinet
Recognition system	Inherits main cabinet
Data transmission	Inherits main cabinet

Vertical Lift



The Vertical Lift Storage system is a new generation of automated warehouse equipment, using pallets as storage units. The lifting and grabbing motion of the extractor swiftly brings the stored pallets to the operator or places them in the appropriate slot. Height sensors on both sides of the access ports detect the height of incoming materials, and the system automatically selects the best storage position for each pallet. It can accommodate materials of various heights.
Users can utilize warehouse space effectively, flexibly, and efficiently. The system requires minimal ground area while fully leveraging the vertical height of the warehouse, offering easy, labor-saving, and fast access.
Vertical Lift Storage supports multiple operational modes, including single-unit control and networked control. The management and monitoring system adopts a networked structure and can connect with ERP to enable digital material management.

Product Features

1. Space saving
Vertical lift storage can reach heights up to 18m, which fully utilizes vertical space and significantly reduces floor space requirements. Up to 85% of storage area can be saved.



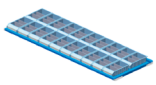


Traditional shelves, w/ large floor space

VS







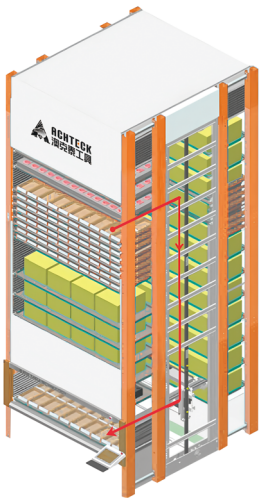
Vertical lift storage, height up to 18m

2. Automated storage and retrieval
Materials are automatically delivered to the operator, to greatly reduce non-productive operating and searching time.



Traditional shelves, requiring access by climbing

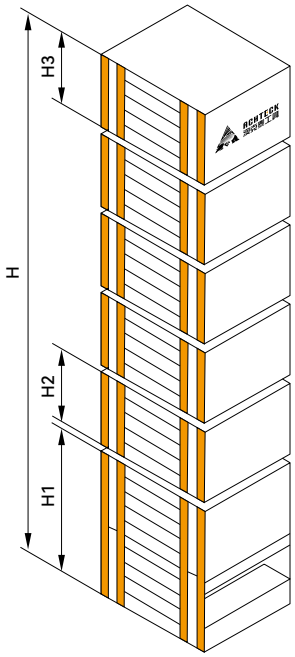
VS



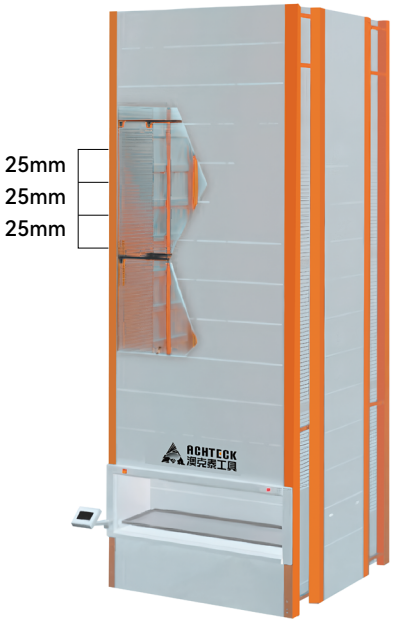
Auto delivery to access port

Vertical Lift

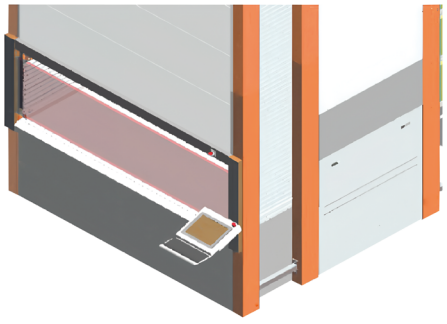
Product Features



3. Modular structure design
The elevation module can be easily increased or decreased to maximize the utilization of the factory space according to the changes in the building height.



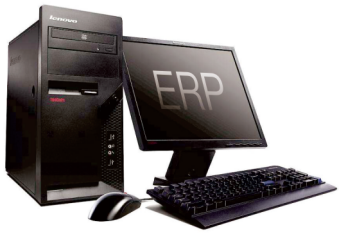
4. Tray adjusting distance
Unit height increment: 25mm
Tray width: 1,460-4,000mm
Tray depth: 618/810/1000/1190
Max. storage material height: 680mm
Net tray load: 100-1000kg



5. Safety
The access port is equipped with a safety light curtain and a built-in automatic safety door located between the access port and the lifting channel. The automatic door remains closed during the operation of the extractor lifting mechanism;



6.Auto pallet weight detection to prevent overloading



7.Integration with enterprise ERP software for enhanced inventory management
Lightweight storage system applications: Suitable for electronic components, pharmaceuticals, small tools, etc.
Heavyweight storage system applications: Suitable for tool storage, medium-to-heavy components, accessories, molds, etc.

Vertical Lift

Parameters of Vertical Lift Storage System							
Spec./Model	Pallet Clearance Dimensions (mm)			External Dimensions of Storage Unit (mm)			Pallet Rated Load (kg)
	Length (L)	Depth (D)	Height (H)	Length (L)	Depth (D)	Height (H)	
J □ - □ x □ - □ (J Pallet Rated Load - Pallet Net Length × Pallet Net Depth - Storage Unit Height)	2460	618	50	2790	2470	6000	300
		810			3040		
		1000			3612		
		1190			4184		
Optional Range	1460-4000		50/70/100/120	1790-4330		3500-18000	100-1000

Selection Examples of Common Specifications

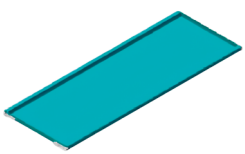
J2-1860×618-8000	1860	618	50	2190	2470	8000	200
J3-2460×810-8000	2460	810	50	2790	3040	8000	300
J5-2060×810-8000	2060	810	50	2390	3040	8000	500
J5-2860×618-8000	2860	618	50	3190	2470	8000	500

1.The height of a standalone storage unit is not recommended to exceed 10,000mm.
2.The maximum load capacity of complete system is 60t.

Pallet Configuration Table						
Parts Box / Tool Holder	Tray Specification / Tray Capacity					
	2060×618	2460×618	2860×618	2060×810	2460×810	2860×810
Parts box 134W×380D×90H				30pcs	36pcs	42pcs
Parts box 200Wx380D×90H				20pcs	24pcs	28pcs
Parts box 117W×300D×90H	34pcs	42pcs	48pcs			
Parts box 234W×300D×90H	16pcs	20pcs	24pcs			
Parts box 117W×400D×90H				34pcs	42pcs	48pcs
Parts box 234W×400D×90H				16pcs	20pcs	24pcs
HHKS63 tool holder	75pcs	90pcs				
HKS100 tool holder	45pcs	54pcs				
BT40 tool holder	75pcs	90pcs				
BT50 tool holder	60pcs	72pcs				

Note: The above are common configurations.

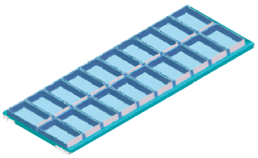
T1 Standard Pallet is used for storing large items such as packaging boxes, tooling molds, parts, etc.



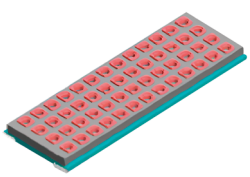
T3 Tote Box Pallet is equipped with tote boxes for storing parts, spare parts, gauges, tools, etc.



T2 Parts Box Pallet is equipped with parts boxes and dividers for storing standard parts, aerospace components, electronic components, inserts, cutting tools, etc.



T4 Shank Pallet is equipped with Shank racks and boxes for vertical storage of BT30/ BT40 /BT50/HSK63/HSK100/ Morse tool holders, etc.



Vertical Rotator

A3C3 Series, A3C4 Series
A6C4 Series, A6C5 Series



Optimized space utilization:
1.Shortens access time.
2.The storage height of items is ergonomically designed.
3.Flexible and customizable with multiple access points on different levels as needed.
4.Optional configurations include temperature and humidity control, and anti-static features.

Parameters of A3C3 Series Vertical Rotator Storage

Model	Number of Bins	Bin Clearance Dimensions (mm)			Storage Unit Dimensions (mm)			Rated Load Capacity of Bin (kg)
		Length (L)	Depth (D)	Height (H)	Length (L)	Depth (D)/ Including Workbench	Height (H)	
A3C3-12	12	2460	367	275	3120	1350/1620	2537	100-200
A3C3-14	14	2460	367	275	3120	1350/1620	2842	100-200
A3C3-16	16	2460	367	275	3120	1350/1620	3147	100-200
A3C3-18	18	2460	367	275	3120	1350/1620	3452	100-200
A3C3-20	20	2460	367	275	3120	1350/1620	3756	100-200
A3C3-22	22	2460	367	275	3120	1350/1620	4061	100-200
A3C3-24	24	2460	367	275	3120	1350/1620	4366	100-200
A3C3-26	26	2460	367	275	3120	1350/1620	4671	100-200
A3C3-28	28	2460	367	275	3120	1350/1620	4976	100-200
A3C3-30	30	2460	367	275	3120	1350/1620	5280	100-200
A3CB-32	32	2460	3.67	275	3120	1350/1620	5585	100 200
A3C3-34	34	2460	367	275	3120	1350/1620	5890	100 200
A3C3-36	36	2460	367	275	3120	1350/1620	6195	100 200
A3C3 38	38	2460	367	275	3120	1350/1620	6500	100-200
A3C3-40	40	2460	367	275	3120	1350/1620	6804	100-200
Optional range		1460-2860			2120-3520			
Selection example	A3C3-20-2060(200kg)–Select this series of Rotator storage system with 20 box hoppers, each with a net length of 2060mm. The maximum load per box hopper is ≤ 200kg.							

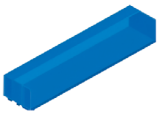
Parameters of A3C4 Series Vertical Rotator Storage								
Model	Number of Bins	Bin Clearance Dimensions (mm)			Storage Unit Dimensions (mm)			Rated Load Capacity of Bin (kg)
		Length (L)	Depth (D)	Height (H)	Length (L)	Depth (D)/Including Workbench	Height (H)	
A3C4-8	8	2460	505	365	3200	1710/1980	2445	100-200
A3C4-10	10	2460	505	365	3200	1710/1980	2864	100 200
A3C4-12	12	2460	505	365	3200	1710/1980	3283	100 200
A3C4-14	14	2460	505	365	3200	1710/1980	3702	100 200
A3C4-16	16	2460	505	365	3200	1710/1980	4121	100 200
A3C4-18	18	2460	505	365	3200	1710/1980	4540	100-200
A3C4-20	20	2460	505	365	3200	1710/1980	4959	100 -200
A3C4-22	22	24G0	505	365	3200	1710/1980	5379	100-200
A3C4-24	24	2460	505	365	3200	1710/1980	5798	100-200
A3C4-26	26	2460	505	365	3200	1710/1980	6217	100-200
A3C4-28	28	2460	505	365	3200	1710/1980	6636	100-200
A3C4-30	30	2460	505	365	3200	1710/1980	7055	100 -200
A3C4-32	32	2460	505	365	3200	1710/1980	7474	100-200
A3C4-34	34	2460	505	365	3200	1710/1980	7893	100-200
A3C4-36	36	2460	505	365	3200	1710/1980	8312	100-200
Optional range		1460-2860			2200-3600			
Selection example	A3C4-20-2260(100kg)-- Select this series of Rotator storage system with 20 box hoppers, each with a net length of 2,260mm. The maximum load per box hopper is ≤ 100kg.							

Parameters of A6C4 Series Vertical Rotator Storage								
Model	Number of Bins	Bin Clearance Dimensions (mm)			Storage Unit Dimensions (mm)			Rated Load Capacity of Bin (kg)
		Length (L)	Depth (D)	Height (H)	Length (L)	Depth (D)/Including Workbench	Height (H)	
A6C4-8	8	2460	505	365	3200	1710/1980	2503	300-500
A6C4-10	10	2460	505	365	3200	1710/1980	2909	300-500
A6C4-12	12	2460	505	365	3200	1710/1980	3315	300-500
A6C4-14	14	2460	505	365	3200	1710/1980	3722	300-500
A6C4-16	16	2460	505	365	3200	1710/1980	4128	300-500
A6C4-18	18	2460	505	365	3200	1710/1980	4535	300-500
A6C4-20	20	2460	505	365	3200	1710/1980	4941	300-500
A6C4-22	22	2460	505	365	3200	1710/1980	5347	300-500
A6C4-24	24	2460	505	365	3200	1710/1980	5754	300-500
A6C4-26	26	2460	505	365	3200	1710/1980	6160	300-500
A6C4-28	28	2460	505	365	3200	1710/1980	6567	300-500
A6C4-30	30	2460	505	365	3200	1710/1980	6973	300-500
A6C4-32	32	2460	505	365	3200	1710/1980	7379	300-500
A6C4-34	34	2460	505	365	3200	1710/1980	7786	300-500
Optional range		1460-2860			2200-3600			
Selection example	A6C4-30-2460(500kg)--Select this series of Rotator storage system with 30 box hoppers, each with a net length of 2460mm. The maximum load per box hopper is ≤ 500kg.							

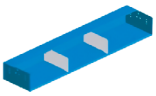
Parameters of A6C5 Series Vertical Rotator Storage								
Model	Number of Bins	Bin Clearance Dimensions (mm)			Storage Unit Dimensions (mm)			Rated Load Capacity of Bin (kg)
		Length (L)	Depth (D)	Height (H)	Length (L)	Depth (D)/Including Workbench	Height (H)	
A6C5 -8	8	2460	505	450	3420	1890/2160	2965	300-500
A6C5 -10	10	2460	505	450	3420	1890/2160	3473	300-500
A6C5 -12	12	2460	505	450	3420	1890/2160	3981	300-500
A6C5 -14	14	2460	505	450	3420	1890/2160	4489	300-500
A6C5 -16	16	2460	505	450	3420	1890/2160	4997	300-500
A6C5 -18	18	2460	505	450	3420	1890/2160	5505	300-500
A6C5 -20	20	2460	505	450	3420	1890/2160	6013	300-500
A6C5 -22	22	2460	505	450	3420	1890/2160	6521	300-500
A6C5 -24	24	2460	505	450	3420	1890/2160	7029	300-500
A6C5 -26	26	2460	505	450	3420	1890/2160	7537	300-500
A6C5 -28	28	2460	505	450	3420	1890/2160	8045	300-500
A6C5 -30	30	2460	505	450	3420	1890/2160	8553	300-500
Optional range		1460-2860			2420-3820			
Selection example	A6C5 -16-1860(400kg) -- Select this series of Rotator storage system with 16 Hoppers, each with a net length of 1,860mm. The maximum load per Hopper is ≤ 400kg.							

Hopper Configuration					
Parts Box / Shank	Hopper Capacity				
	B3 2060×367×275	C3 2460×367×275	B4 2060×505×365	C4 2460×505×365	D4 2630×505×365
Parts box 134Wx380D×90H	30pcs	36pcs			
Parts box 200Wx380D×90H	20pcs	24pcs			
Parts box 117W×500D×90H			51pcs	60pcs	66pcs
Parts box 234W×500D×90H			24pcs	30pcs	33pcs
Parts box 234W×500D×140H			16pcs	20pcs	22pcs
HKS63 shank			45pcs	75pcs	80pcs
HKS100 shank			39pcs	45pcs	48pcs
BT40 shank			45pcs	75pcs	80pcs
BT50 shank			52pcs	60pcs	64pcs

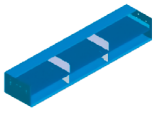
Note: The above are common configurations.



X1 Standard Hopper can be divided into layers, allowing flexible storage of materials of different sizes.



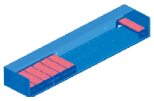
X2 Vertical Partition Hopper is equipped with vertical dividers to partition the bin along its length.



X3 Layered Hopper is equipped with shelves to divide the hopper into 2-3 layers, suitable for storing low-height or elongated materials.



X4 Parts Box Hopper is equipped with parts boxes for storing standard parts, inserts, cutting tools, electronic components, etc.



X5 Tool Holder Hopper is equipped with tool holder carts for vertical storage of BT30/BT40/ BT50/HSK63/HSK100/ Morse tool holders, etc.

Note

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Technical Information

CUTTING TOOL CATALOGUE

Technical Information 690

Troubleshooting

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Grooving Tool Common Failure Mode & Solutions 695

Carbide Milling Cutter Common Failure Mode & Solutions 696

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Application Technology for Milling Threads with Multiple Rows 699

General Formula

Turning Formula 700

Milling Formula 701

Drilling Formula 702

Conversion Tables

Hardness Conversion Table 703

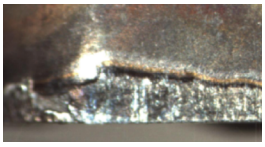
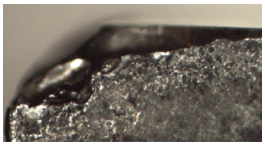
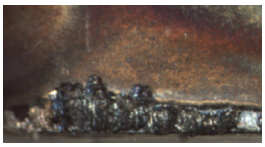
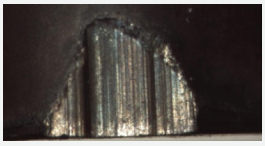
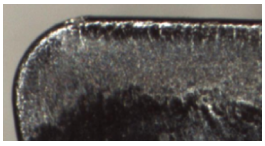
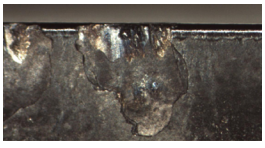
Metal Material Symbol Conversion Table 705

Tool Material Conversion Table 711

Turning Chip Breaking Geometry Conversion Table 716

List of Auto Lathe Manufacturers by Machine Tool 718

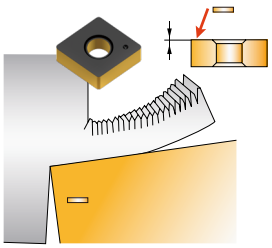
Turning Insert Common Failure Mode & Solutions

Failtures	Picture	Analysis	Solution
Flank wear		• Tool material is too soft • Excessive cutting speed • Too small clearance angle • Too low feed rate • Insufficient cooling	• Choose high wear-resistant insert grade • Reduce cutting speed • Enlarge clearance angle • Increase feed rate
Crater wear		• Tool material is too soft • Excessive cutting speed • Excessive feed rate	• Choose high wear-resistant insert grade • Reduce cutting speed • Reduce feed rate • Increase the flow of coolant
Chipping		• Tool material is too hard • Too low cutting edge strength	• Choose tougher grade • Enhance cutting edge strength
Plastic deformation		• Tool material is too soft • Too fast cutting speed • Excessive cutting depth & feed rate • Insufficient cooling	• Choose high wear-resistant insert grade • Reduce cutting speed • Reduce cutting depth & feed rate • Choose good thermal conductivity grade • Increase the flow of coolant
Built-up edge		• Too low cutting speed • Cutting edge not sharp • Unsuitable grade • Insufficient cooling	• Increase cutting speed • Choose sharp geometry • Choose less adhesion grade • Increase the flow of coolant
Mechanical wear		• Excessive feed rate and cutting depth • Vibration	• Choose tougher grade • Choose a smaller approach angle • Choose bigger corner radius • Change to high rigidity holder
Thermal cracking		• Excessive cutting heat change on edge	• Choose dry cutting or adequate cooling • Choose tougher grade
Notch wear		• Excessive feed rate & cutting speed • Tool material is too soft	• Choose high wear-resistane grade • Select a small entering angle • Reduce cutting speed
Coating peeling		• Sticky chip on the cutting edge • Chip evacuation failure	• Enlarge rake angle for a sharp edge • Use chip breaker with bigger chip space

Negative and Positive Insert Comparison

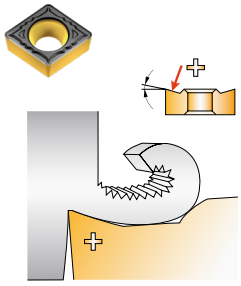
Negative insert

- Double/single sided
- High strength edge
- Zero clearance angle
- First choice for external turning
- For heavy cutting conditions



Positive insert

- Single sided
- Low cutting forces
- With clearance angle
- 1st choice for boring and turning on slender parts

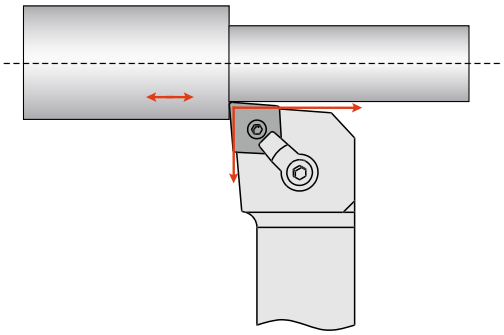


Effects of Approach Angle

Approach angle Kr is the angle between cutting edge and feed direction. It's an important angle in turning that will affect:

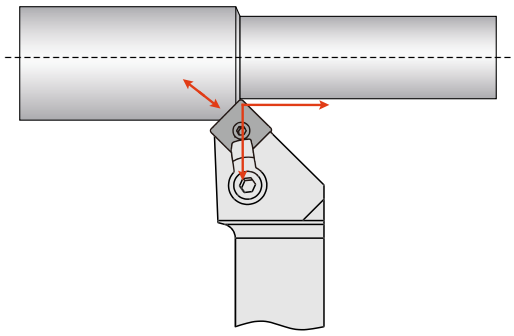
- Chip formation
- Cutting force direction
- Cutting edge length

Large Approach Angle



- Cutting forces along with axis, less tendency for vibration.
- Can turn against the shoulder
- Higher cutting forces at the entrance and exit of cut
- It is easy to get notching wear in heat resistant alloy and hard materials

Small Approach Angle



- Reduced the load on the cutting edge.
- Produced a thinner chip, higher feed rate can be used
- Reduced notch wear
- Cannot turn against a shoulder.
- Forces are directed to both axial and radial-vibration tendencies.

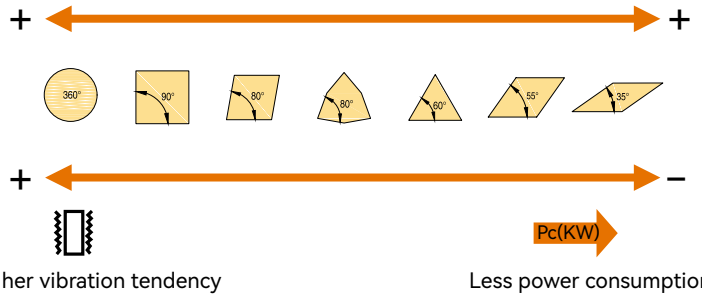
Technical Information

Insert Shape

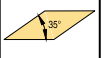
Insert shape should be selected according to the approach angle accessibility of the tool. The largest point angle should be applied to get insert strength and reliability.

Larger point angle and higher cutting edge strength to the left.

Higher edge accessibility and operational versatility to the right.

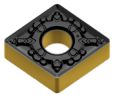


Factors affecting insert shape selection

Insert shape	R	S 90°	C 80°	W 80°	T 60°	D 55°	V 35°
							
Roughing (strength)	●	●	●	▲	▲		
Light roughing/semi finishing (number of cutting edges)		▲	●	●	●	●	
Finishing (number of cutting edges)			▲	▲	●	●	●
Vibration tendency				▲	●	●	●
Longitudinal turning (feed direction)			●	▲	▲	●	●
Profiling (accessibility)			▲	▲	▲	●	●
Facing (feed direction)	▲	●	●	●	▲	▲	
Operational versatility	▲		●	▲	▲	●	▲
Limited machine power			▲	▲	●	●	●
Hard material	●	●					
Interrupted machining	●	●	▲	▲	▲		
Large approach angle			●	●	●	●	
Small approach angle	●	●		●	●		

Marked: ● Most suitable ▲ Suitable

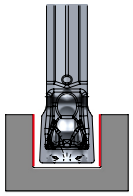
C-style 80° inserts are frequently used as it's suitable for the most applications.



Application Tips for Parting off and Grooving

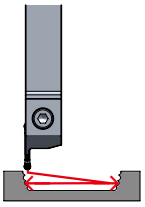
Single grooving

- Single grooving is the most economical and productive method for machining grooves.
- GS chip breaker has width tolerance of +/- 0.02mm, and works well at low feed.



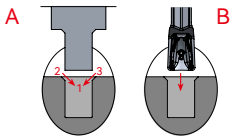
Ramping style grooving

- Ramping style grooving avoids vibration and minimizes radial force. This method can achieve best chip control and reduce notch wear during machining heat resistant alloys
- Higher feed rate can be applied to profiling RM or RA geometry to achieve higher stability and productivity.
- Note: Ramping style grooving doubled the number of passes



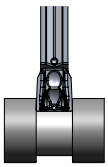
Chamfered corners

- In case of producing high quality grooves, usually the corners on the insert can be used for chamfering. For example, a finish grooving insert is used to chamfer; as per illustration A
- A better way to make grooves with chamfer in mass production is to order a Tailor Made insert with the exact chamfer form as per illustration B.



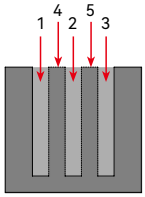
flatness of the groove bottom

- In case of machining radial grooves, sometimes the flatness of the groove bottom is required.
- Generally, GS, TM, G chip breakers are used to machine completely flat bottom grooves.



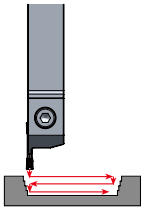
Multiple grooving

- It's the best method for rough grooving when groove depth is bigger than groove width.
- Multiple grooving will improve chip flow and increase tool life.
- Ring's width is generally 0.6-0.8 times insert's width.

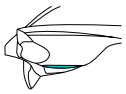
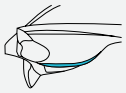
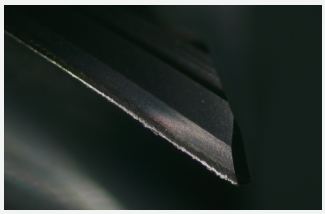
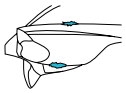
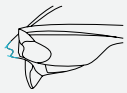
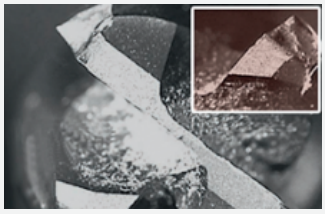
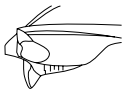
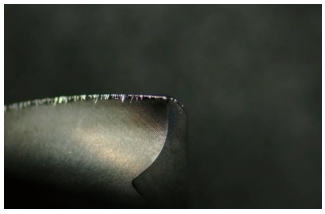
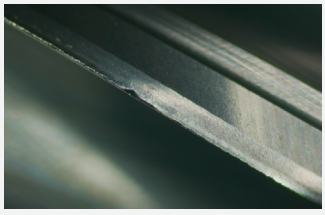


Plunge turning

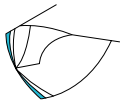
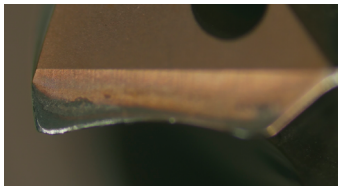
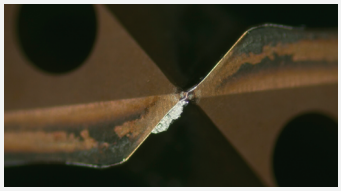
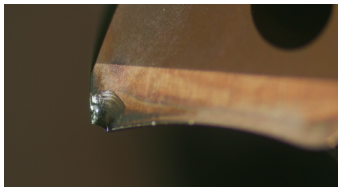
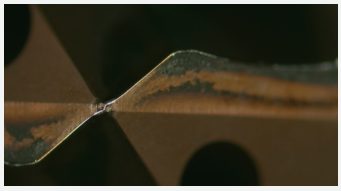
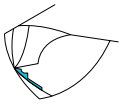
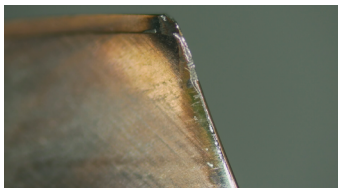
- TS and TM chip breaker can be used for plunge turning and ramping, as the insert design is suitable for axial and radial feed.
- n case of turning axially, depth should not exceed 0.75 x insert width.



Solid Carbide Endmill Failure Mode and Solutions

Failure	Picture	Analysis	Solution
Flank wear 		• Abrasion between the work piece and the flank surface leads to flank wear.	• Reduce cutting speed • Use a more wear-resistant cutting tool material • Increase feed • Raise coolant flow (e.g. raise coolant pressure)
Built-up edge  Material bonding on the front face along the cutting edge		• The work piece material stick on the cutting edge leads to built-up edge.	• Raise cutting speed • Use more positive geometry, use a tool with a sharper cutting edge/use a sharper indexable insert • Reduce the feed rate • Increase the amount of grease in the coolant (e.g. 8% oil content in coolant) • Use uncoated grade with polished geometry (e.g. for non-ferrous metals)
Fractures  Chipping along the cutting edge		• Perpendicular cracks along the edge lead to fractures. • Vibration causes fractures.	• Use a tougher cutting tool material • Reduce cutting speed • Change to dry machining • Adjust feed rate
Plastic deformation  Edge deformation (notably at the nose radius)		• High heat and mechanical stress cause plastic deformation.	• Reduce cutting speed • Reduce feed rate • Use a more wear-resistant cutting tool material • Use a less sharp tool • Optimize the coolant towards to the cutting edge
Thermal cracks  Perpendicular cracks to the cutting edge		• Fluctuating temperature (thermal shock) causes thermal cracks.	• Reduce cutting speed • Reduce feed rate • Dry machining or use adequate coolant • Use a PVD-coated (tougher) indexable insert grade
Notch wear  Notching at maximum depth of cut		• Notch wear often occurs during machining work pieces with a hard surface (forged, casted or cold work hardened).	• Change depth of cut • Use a tougher cutting tool material • Use a smaller approach angle • Use a stronger geometry (with chamfer)

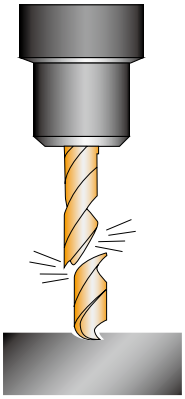
Solid Carbide Drill Failure Mode and Solutions

Failures	Picture	Analysis	Solution
Flank wear 		• Abrasion between the work piece and the flank surface leads to flank wear.	• Reduce cutting speed • Raise feed rate • Raise coolant flow (e.g. raise coolant pressure)
Built-up edge  Material bonding on the front face along the cutting edge		• The work piece material stick on the cutting edge leads to built-up edge.	• Raise cutting speed • Raise coolant flow (e.g. raise coolant pressure)
Fracture  Chipping along the cutting edge		• Perpendicular cracks along the edges, chip eroding, vibration and extremely high wear resistance lead to fractures.	• Replace and recondition the tool sooner • Improve stability (work piece/tool)
Plastic deformation  Deformation of the cutting edge (especially on the cross edge and the radius of the nose)		• High heat and mechanical stress cause plastic deformation.	• Reduce cutting speed • Raise coolant flow (e.g. raise coolant pressure)
Crater wear 		• Tool Material is too soft. • Too high cutting speed. • Too high feed rate.	• Choose more wear resistant grade • Reduce cutting speed • Reduce feed • Raise coolant pressure

Technical Information

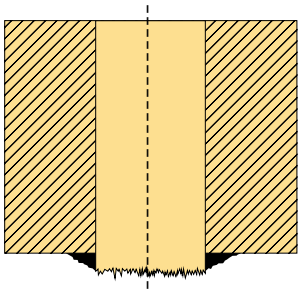
Drill Breakage Analysis

1. Check the tip geometry
2. Check the flute lengths is at least longer than drilling depth +1.5XD
3. Recondition promptly
4. Add pilot hole drilling
5. Improve system rigidity (Work piece / tool)



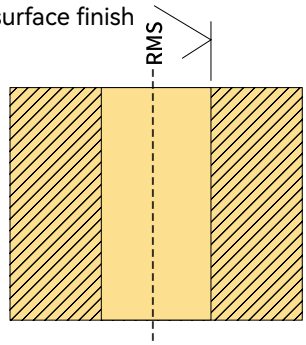
Drilling Wear and Trouble Shooting

Burr on the hole exit



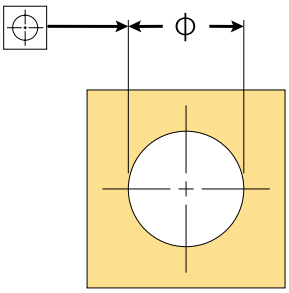
- Blunt cutting edge
- Drill tip outer corner chipped or worn

Bad surface finish



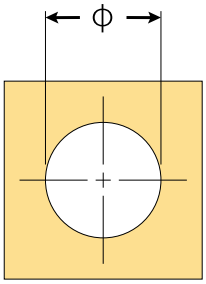
- Check edge wear
- Overcoated

Entry position out of tolerance



- Check edge geometry
- Check tool's cutting edge & chisel edge

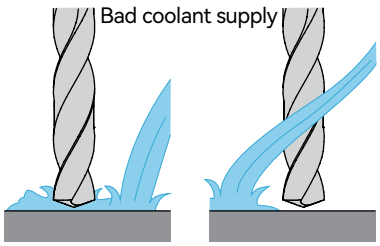
Oversized holes



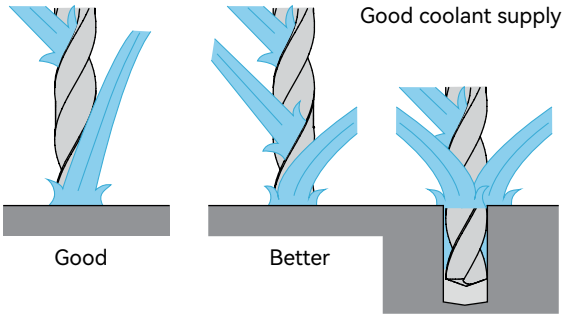
- Check edge geometry
- Overcoated
- Check tool's chisel edge

Check Coolant Supply

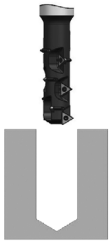
For solid carbide drills, internal coolant is always recommended. When the drill length is over 5xDc, internal coolant is essential. Ensure the coolant is with sufficient pressure and aiming to the correct position.



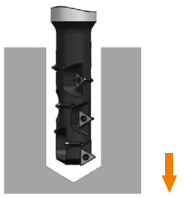
Three coolant pipes should be directly towards the drill tip when it's possible.



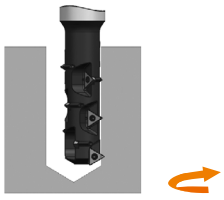
Guideline for ATM 60 Series Thread Milling Holder



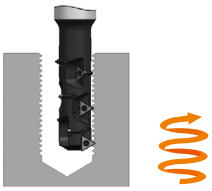
1. Positioning the milling cutter above core hole, check and adjust the length.



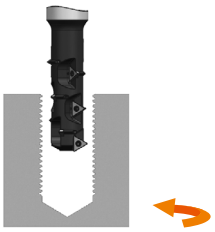
2. Get down to the request depth and check the radius.



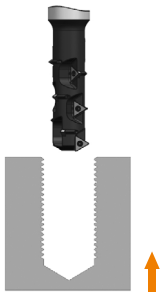
3. Circular interpolate cutting.



4.Milling the thread by using circular interpolation until the pitch is fully machined.



5. Circular interpolate cutting and retracting.

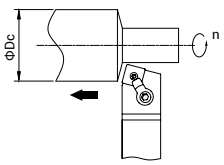


6. Back to start position.

Technical Information

Turning Machining Formula

- Cutting speed



$$Vc = \frac{\pi * Dc * n}{1000} \text{ (m/min)}$$

Vc:Cutting speed(m/min) π: ≈ 3.14
Dc:Workpiece diameter(mm) n:Spindle speed(rev/min)

- Feed speed

$$Vf = f * n \text{ (mm/min)}$$

Vf:Cutting speed(mm/min) f:Feed rate(mm/rev)
n:Spindle speed(rev/min)

- Chip thickness

$$h = f * sinkr \text{ (mm)}$$

h:Chip thickness(mm) f:Feed rate(mm/rev)

- Chip width

$$b = \frac{ap}{sinkr} \text{ (m/min)}$$

b:Chip width(mm) ap:Axial depth of cut (mm)

- Chip area

$$A = h * b = ap * f \text{ (mm}^2\text{)}$$

A:Chip area(mm^2) ap:Axial depth of cut (mm)
f:Feed rate(mm/rev)

- Cutting force

$$Fc = Kc * ap * f \text{ (N)}$$

Fc:Cutting force(N) Kc:Unit cutting force(N/mm^2)
ap:Axial depth of cut (mm) f:Feed rate(mm/rev)

- Cutting power

$$Pmot = \frac{Kc * Vc * ap * f}{60000 * \eta} \text{ (KW)}$$

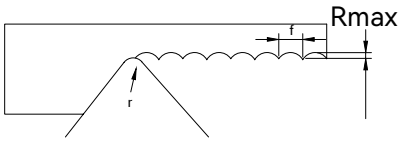
Pmot:Cutting power(KW) Kc:Unit cutting force(N/mm^2)
Vc:Cutting speed(m/min) ap:Axial depth of cut (mm)
f:Feed rate(mm/rev) η:Mechanical efficiency

- Chip removal rate

$$Q = ap * f * Vc \text{ (cm}^3\text{/min)}$$

Q:Chip removal(cm^3/min) ap:Axial depth of cut (mm)
f:Feed rate(mm/rev) Vc:Cutting speed(m/min)

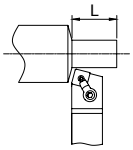
- Theoretic surface roughness



$$Rmax = \frac{f^2}{8 * r} * 1000 \text{ (um)}$$

Rmax:Theoretic surface roughness (um)
f:Feed rate(mm/rev) r:Corner radius (mm)

- Machining time



$$Tc = \frac{L}{f * n} \text{ (min)}$$

Tc:Work time f:Feed rate(mm/rev)
n:Spindle speed(rev/min) L: Working length(mm)

Milling General Formula

- Cutting speed

$$Vc = \frac{\pi * Dc * n}{1000} \ (m/min)$$

Vc:Cutting speed(m/min) π: ≈ 3.14
Dc:Cutter diameter(mm) n:Spindle speed(rev/min)

- Spindle speed

$$n = \frac{1000 * Vc}{\pi * Dc} \ (rev/min)$$

Vc:Cutting speed(m/min) π: ≈ 3.14
Dc:Cutter diameter(mm) n:Spindle speed(rev/min)

- Feed speed

$$Vf = fz * n * Z \ (mm/min)$$

Vf:Feed speed(mm/min) fz:Feed per tooth(mm/z)
n:Spindle speed(rev/min) Z:Number of teeth

- Feed rate per tooth

$$fz = \frac{Vf}{n * Z} \ (mm/z)$$

fz:Feed rate per rev.(mm/z) Vf:Feed speed(mm/min)
n:Spindle speed(rev/min) Z:Number of teeth

- Feed rate per rev.

$$f = \frac{Vf}{n} \ (mm/rev)$$

f:Feed rate per rev.(mm/rev) Vf:Feed speed(mm/min)
n:Spindle speed(rev/min)

- Machining time

$$Tc = \frac{L}{Vf} \ (min)$$

Tc:Time of cut(min) L:Length of feed(mm)
Vf:Feed speed(mm/min)

- Horse power

$$Hp = \frac{Pmot}{0.75}$$

Hp:Horse power Pmot:Cutting power(KW)

- Power demand

$$Pmot = \frac{ap * ae * Vf * Kc}{6 * 10^7 * \eta} \ (KW)$$

Pmot:Cutting power(KW) ap:Cutting depth ae:Cutting width
Kc:Unit cutting force(N/mm²) η:Machine efficiency coefficient(0.7-0.95)

- Average chip thickness

$$hm = \frac{114.7 * fz * sink * (ae/Dc)}{\psi s} \ (mm)$$

hm:Average chip thickness fz:Feed per tooth(mm/z)
ae:Cutting width Dc:Cutter diameter(mm) ψs:Pressure angle

- Feed force

Cutter in the center site

$$\psi s = 2 * \arcsin\left(\frac{ae}{Dc}\right) \ [^\circ]$$

Cutter in excentric site

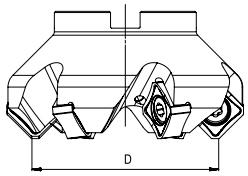
$$\psi s = 90^\circ + \arcsin\frac{ae-(Dc/2)}{(Dc/2)} \ [^\circ]$$

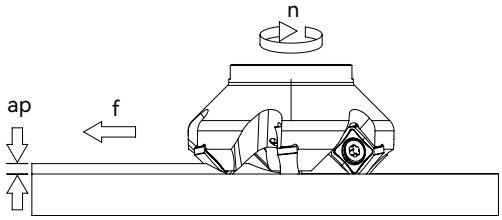
ψs:Pressure angle ae:Cutting width
Dc:Cutter diameter(mm)

- Chip removal rate

$$Q = \frac{ap * ae * Vf}{1000} \ (cm^3/min)$$

Q:Chip removal(cm^3/min) ap:Cutting depth
ae:Cutting width Vf:Feed speed(mm/min)





Technical Information

Drilling General Recommendation

- Cutting speed

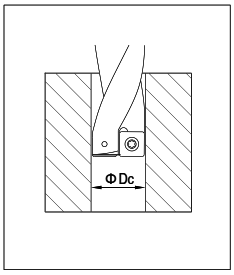
$$Vc = \frac{\pi * Dc * n}{1000} \quad (m/min)$$

Vc:Cutting speed(m/min) π: ≈ 3.14
Dc:Drill diameter(mm) n:Spindle speed(rev/min)

- Spindle speed

$$n = \frac{1000 * Vc}{\pi * Dc} \quad (rev/min)$$

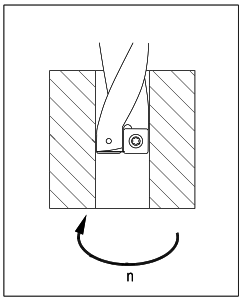
Vc:Cutting speed(m/min) π: ≈ 3.14
Dc:Drill diameter(mm) n:Spindle speed(rev/min)



- Feed speed

$$Vf = fz * n * Z \ (mm/min)$$

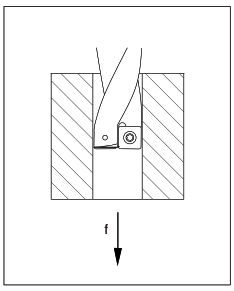
Vf:Feed speed(mm/min) fz:Feed per tooth(mm/z)
n:Spindle speed(rev/min) Z:Number of teeth



- Feed rate per tooth

$$fz = \frac{Vf}{n * Z} \quad (mm/z)$$

fz:Feed per tooth(mm/z) Vf:Feed speed(mm/min)
n:Spindle speed(rev/min) Z:Number of teeth



- Feed rate per rev.

$$f = \frac{Vf}{n} \quad (mm/rev)$$

f:Feed rate per rev.(mm/rev) Vf:Feed speed(mm/min)n:Spindle speed(rev/min)

- Chip removal rate

$$Q = \frac{Vf * \pi * Dc^2}{4 * 1000} \quad (cm^3/min)$$

Q:Chip removal(cm^3/min) Vf:Feed speed(mm/min)
π: ≈ 3.14 Dc:Drill diameter(mm)

- Horse power

$$Hp = \frac{Pmot}{0.75}$$

Hp:Horsepowe Pmot:Cutting power(KW)

- Power demand

$$Pmot = \frac{Q * Kc}{60000 * \eta} \quad (KW)$$

Pmot:Cutting power(KW) Q:Chip removal(cm^3/min)
Kc:Unit cutting force(N/mm^2)
η:Machine efficiency coefficient (0.7-0.95)

- Torque

$$Mc = \frac{Dc^2 * Kc * f}{8000} \quad (N*m)$$

Mc:Torque Dc:Drill diameter(mm)
Kc:Unit cutting force(N/mm^2) f:Feed rate per rev.(mm/rev)

- Feed force

$$Ff = 0.63 * \frac{f * Dc * Kc}{2} \quad (N)$$

Ff:Feed force f:Feed rate per rev.(mm/rev)
Dc:Drill diameter(mm) Kc:Unit cutting force(N/mm^2)

- Chip thickness

$$h = fz * sink \ (mm)$$

h:Cutting thickness(mm) fz:Feed rate(mm/rev)

Hardness Conversion Table

Brinell Hardness 10 ball load 3000Kg		Micro Vickers Hardness HV	Rockwell Hardness				Shore's Hardness	Tensile Strength (approximate) kgf/mm
Master ball	WC ball HB		A scale 60kgf diamond brale HRA	B scale 100kgf 1/16in ball HRB	C scale 150kgf diamond brale HRC	D scale 100kgf diamond brale HRD		
–	–	1865	92.0	–	80	–	–	–
–	–	1787	91.5	–	79	–	–	–
–	–	1710	91.0	–	78	–	–	–
–	–	1633	90.5	–	77	–	–	–
–	–	1556	90.0	–	76	–	–	–
–	–	1478	89.5	–	75	–	–	–
–	–	1400	89.0	–	74	–	–	–
–	–	1323	88.5	–	73	–	–	–
–	–	1245	88.0	–	72	–	–	–
–	–	1160	87.0	–	71	–	–	–
–	–	1076	86.5	–	70	–	–	–
–	–	1004	86.0	–	69	–	–	–
–	–	940	85.6	–	68.0	76.9	97	–
–	–	920	85.3	–	67.5	76.5	96	–
–	–	900	85.0	–	67.0	76.1	95	–
–	767	880	84.7	–	66.4	75.7	93	–
–	757	860	84.4	–	65.9	75.3	92	–
–	745	840	84.1	–	65.3	74.8	91	–
–	733	820	83.8	–	64.7	74.3	90	–
–	722	800	93.4	–	64.0	73.8	88	–
–	712	–	–	–	–	–	–	–
–	710	780	83.0	–	63.3	73.3	87	–
–	698	760	82.6	–	62.5	72.6	86	–
–	684	740	82.2	–	61.8	72.1	–	–
–	682	737	82.2	–	61.7	72.0	84	–
–	670	720	81.8	–	61.0	71.5	83	–
–	656	700	81.3	–	60.1	70.8	–	–
–	653	697	81.2	–	60.0	70.7	81	–
–	647	690	81.1	–	59.7	70.5	–	–
–	638	680	80.8	–	59.2	70.1	80	–
–	630	670	80.6	–	58.8	69.8	–	–
–	627	667	80.5	–	58.7	69.7	79	–
–	601	640	79.8	–	57.3	68.7	77	–
–	578	615	79.1	–	56.0	67.7	75	–
–	555	591	78.4	–	54.7	66.7	73	210
–	534	569	77.8	–	53.5	65.8	71	202
–	514	547	76.9	–	52.1	64.7	70	193
	495	528	76.3		51.0	63.8	68	186
–	477	508	75.6	–	49.6	62.7	66	177
–	461	491	74.9	–	48.5	61.7	65	170
–	444	472	74.2	–	47.1	60.8	63	162
429	429	455	73.4	–	45.7	59.7	61	154
415	415	440	72.8	–	44.5	58.8	59	149
401	401	425	72.0	–	43.1	57.8	58	142
388	388	410	71.4	–	41.8	56.8	56	136
375	375	396	70.6	–	40.4	55.7	54	129
363	363	383	70.0	–	39.1	54.6	52	124
352	352	372	69.3	(110.0)	37.9	53.8	51	120
341	341	360	68.7	(109.0)	36.6	52.8	50	115
331	331	350	68.1	(108.5)	36.6	51.9	48	112
321	321	339	67.5	(108.0)	34.3	51.0	47	108
311	311	328	66.9	(107.5)	33.1	50.0	46	105
302	302	319	66.3	(107.0)	32.1	49.3	45	103
293	293	309	65.7	(106.0)	30.9	48.3	43	99
285	285	301	65.3	(105.5)	29.9	47.6	–	97
277	277	292	64.6	(104.5)	28.8	46.7	41	94

Technical Information

Hardness Conversion Table

Brinell Hardness 10 ball load 3000Kg		Micro Vickers Hardness HV	Rockwell Hardness				Shore's Hardness	Tensile Strength (approximate) kgf/mm
Master ball	WC ball HB		A scale 60kgf diamond brale HRA	B scale 100kgf 1/16in ball HRB	C scale 150kgf diamond brale HRC	D scale 100kgf diamond brale HRD		
269	269	284	64.1	(104.0)	28	45.9	40	91
262	262	276	63.6	(103.0)	27	45.0	39	89
255	255	269	63.0	(102.0)	25	44.2	38	86
248	248	261	62.5	(101.0)	24	43.2	37	84
241	241	253	61.8	100	23	42.0	36	82
235	235	247	61.4	99	22	41.4	35	80
229	229	241	60.8	98.2	21	40.5	34	78
223	223	234	-	97.3	(18.8)	-	-	
217	217	228	-	96.4	(17.5)	-	33	74
212	212	222	-	95.5	(16.0)	-	-	72
207	207	218	-	94.6	(15.2)	-	32	70
201	201	212	-	93.8	(13.8)	-	31	69
197	197	207	-	92.8	(12.7)	-	30	67
192	192	202	-	91.9	(11.5)	-	29	65
187	187	196	-	90.7	(10.0)	-	-	63
183	183	192	-	90	(9.0)	-	28	63
179	179	188	-	89	(8.0)	-	27	61
174	174	182	-	87.8	(6.4)	-	-	60
170	170	178	-	86.8	(5.4)	-	26	58
167	167	175	-	86	(4.4)	-		57
163	163	171	-	85	(3.3)	-	25	56
156	156	163	-	82.9	(0.9)		-	53
149	149	156	-	80.8		-	23	51
143	143	150	-	78.7		-	22	50
137	137	143	-	76.4		-	21	47
131	131	137	-	74		-	-	46
126	126	132	-	72		-	20	44
121	121	127	-	69.8		-	19	42
116	116	122	-	67.6		-	18	41
111	111	117	-	65.7		-	17	39

Material Conversion Table

ISO	Country and standard										
	China	International	Germany	U.S.A.	U.K.		France	Sweden	Italy	Spain	Japan
	GB	DIN	W.-nr	AISI/SAE	BS	EN	AFNOR	SS	UNI	UNE	JIS
P	Structural steel										
	15	C15	1.0401	1015	080M15	-	CC12	1350	C15C16	F.111	-
	20	C22	1.0402	1020	050A20	2C	CC20	1450	C20C21	F.112	-
	35	C35	1.0501	1035	060A35	-	CC35	1550	C35	F.113	-
	45	C45	1.0503	1045	080M40	-	CC45	1650	C45	F.114	-
	55	C55	1.0535	1055	070M55	-	-	1655	C55	-	-
	60	C60	1.0601	1060	080A62	43D	CC55	-	C60	-	-
	Y15	9SMn28	1.0715	1213	230M07	-	S250	1912	CF9SMn28	11SMn28	SUM22
	-	9SMnPb28	1.0718	12L13	-	-	S250Pb	1914	CF9MnPb28	11SMnPb28	SUM22L
	-	10SPb20	1.0722	-	-	-	10PbF2	-	CF10Pb20	10SPb20	-
	-	35S20	1.0726	1140	212M36	8M	35MF4	1957	-	F210G	-
	Y13	9SMn36	1.0736	1215	240M07	1B	S300	-	CF9SMn36	12SMn35	-
	-	9SMnPb36	1.0737	12L14	-	-	S300Pb	1926	CF9SMnPb36	12SMnP35	-
	55Si2Mn	55Si9	1.0904	9255	250A53	45	55S7	2085	55Si8	56Si7	-
	-	60SiCr7	1.0961	9262	-	-	60SC7	-	60SiCr8	60SiCr8	-
	15	Ck15	1.1141	1015	080M15	32C	XC12	1370	C16	C15K	S15C
	40Mn	40Mn4	1.1157	1039	150M36	15	35M5	-	-	-	-
	25	Ck25	1.1158	1025	-	-	-	-	-	-	S25C
	35Mn2	36Mn5	1.1167	1335	-	-	40Mn5	2120	-	36Mn5	SMn438(H)
	30Mn	28Mn6	1.117	1330	150M28	14A	20M5	-	C28Mn	-	SCMn1
	35Mn	Cf35	1.1183	1035	060A35	-	XS38TS	1572	C36	-	S35C
	Ck45	45	1.1191	1045	080M46	-	XC42	1672	C45	C45K	S45C
	55	Ck55	1.1203	1055	070M55	-	XC45	-	C50	C55K	S55C
	50	Cf53	1.1213	1050	060A52	-	XC48TS	1674	C53	-	S50C
	60Mn	Ck60	1.1221	1060	080A62	43D	XC60	1678	C60	-	S58C
	-	Ck101	1.1274	1095	060A96	-	-	1870	-	-	SUP4
	-	X120Mn12	1.3401	-	Z120M12	-	X120M12	-	XG120Mn12	X120Mn12	SCMnH/1
	GCr15	100Cr6	1.3505	52100	534A99	31	100C6	2258	100Cr6	F.131	SUJ2
	-	15Mo3	1.5415	ASTM A204Gr.A	1501-240	-	15D3	2912	16Mo3KW	16Mo3	-
	-	16Mo5	1.5426	4520	1503-245-420	-	-	-	16Mo5	16Mo5	-
	-	14Ni6	1.5622	ASTM A350LF5	-	-	16N6	-	14Ni6	15Ni6	-
	-	X8Ni9	1.5662	ASTM A353	1501-509; 510	-	-	-	X10Ni9	XBNi09	-

Technical Information

Material Conversion Table

ISO	Country and standard										
	China	International	Germany	U.S.A.	U.K.		France	Sweden	Italy	Spain	Japan
	GB	DIN	W.-nr	AISI/SAE	BS	EN	AFNOR	SS	UNI	UNE	JIS
P	Structural steel										
	-	12Ni19	1.5680	2515	-	-	Z18N5	-	-	-	-
	-	36NiCr6	1.5710	3135	640A35	111A	35NC6	-	-	-	SNC236
	-	14NiCr10	1.5732	3415	-	-	14NC11	-	16NiCr11	15NiCr11	SNC415 (H)
	-	14NiCr14	1.5752	34153310	655M13655A12	36A	12NC15	-	-	-	SNC815 (H)
	-	36CrNiMo4	1.6511	9840	816M40	110	40NCD3	-	38CrNiMo4 (KB)	35CrNiMo4	-
	-	21NiCrMo2	1.6523	8620	850M20	362	20NCD2	2503	20NiCrMo2	20NiCrMo2	SNCCM220 (H)
	-	40NiCrMo2	1.6546	8740	311-Type7	-	-	-	40NiCrMo2 (KB)	40NiCrMo2	SNC240
	40CrNiMoA	34CrNiMo6	1.6582	4340	817M40	24	35NCD6	2541	35CrNiMo6 (KB)	-	-
	-	17CrNiMo6	1.6587	-	820A16	-	18NCD6	-	-	14CrNiMo1	-
	15Cr	15Cr3	1.7015	5015	523M15	-	12C3	-	-	-	SCr415(H)
	35Cr	34Cr4	1.7033	5132	530A32	18B	32C4	-	34Cr4(KB)	35Cr4	SCr430(H)
	40Cr	41Cr4	1.7035	5140	530M40	18	42C4	-	41Cr4	42Cr4	SCr440(H)
	40Cr	42Cr4	1.7045	5140	-	-	-	2245	-	42Cr4	SCr440
	18CrMn	16MnCr15	1.7131	5115	(527M20)	-	16MC5	2511	16MnCr15	16MnCr15	-
	20CrMn	55Cr3	1.7176	5155	527A60	48	55C3	-	-	-	SUP9(A)
	30CrMo	25CrMo4	1.7218	4130	1717CDS110	-	25CD4	2225	25CrMo4 (KB)	55Cr3	SCM420 SCM430
	35CrMo	34CrMo4	1.7220	4137;4135	708A37	19B	35CD4	2234	35CrMo4	34CrMo4	SCM432 SCRRM3
	40CrMoA	41CrMo4	1.7223	4140;4142	708M40	19A	42CD4TS	2244	41CrMo4	41CrMo4	SCM440
	42CrMo 42CrMnMo	42CrMo4	1.7225	4140	708M40	19A	42CD4	2244	42CrMo4	42CrMo4	SCM440(H)
	-	15CrMo5	1.7262	-	-	-	12CD4	2216	-	12CrMo4	SCM415(H)
	-	13CrMo44	1.7335	ASTMA182F11 F12	1501-620Gr.27	-	15CD3.5 15CD4.5	-	14CrMo44	14CrMo45	-
	-	32CrMo12	1.7361	-	722M24	40B	30CD12	2240	32CrMo12	F.124.A	-
	-	10CrMo910	1.7380	ASTMA182F.22	1501-622Gr.31;45	-	12CD9;10	2218	12CrMo9,10	TU.H	-
	-	14MoV63	1.7715	-	1503-660-440	-	-	-	-	13MoCrV6	-
	50CrVA	50CrV4	1.8159	6150	735A50	47	50CV4	2230	50CrV4	51CrV4	SUP10
	-	41CrAlMo7	1.8509	-	905M39	41B	40CAD6,12	2940	41CrAlMo7	41CrAlMo7	-
	-	39CrMoV139	1.8523	-	897M39	40C	-	-	36CrMoV12	-	-

Material Conversion Table

ISO	Country and standard										
	China	International	Germany	U.S.A.	U.K.		France	Sweden	Italy	Spain	Japan
	GB	DIN	W.-nr	AISI/SAE	BS	EN	AFNOR	SS	UNI	UNE	JIS
P	Tool steel										
	T10	C105W1	1.1545	W.110	-	-	Y1105	1880	C98KU C100KU	F.515 F.516	-
	T12A	C125W	1.1663	W.112	-	-	Y2120	-	C120KU	(C120)	SK20
	GCr15	100Cr6	1.2067	L3	BL3	-	Y100C6	-	-	100Cr6	-
	Cr12	X210Cr12	1.2080	D3	BD3	-	Z200Cr12	-	X210Cr13KU X250Cr12KU	X210Cr12	SKD1
	4Cr5MoVSi	X40CrMoV5 1	1.2344	H13	BH13	-	Z40CDV5	2242	X35CrMoV05KU X40CrMoV51KU	X40CrMoV5	SKD61
	Cr6WV	X100CrMoV5 1	1.2363	A2	BA2	-	Z100CDV5	2260	X100CrMoV51KU	X100CrMoV5	SKD12
	CrWMo	105WCr6	1.2419	-	-	-	105WC13	2140	10WCr6 107WCr5KU	105WCr5	SKS31 SKS2 SKS3
	Cr12W	X210CrW12	1.2436	-	-	-	-	2312	X215CrW12 1KU	X210CrW12	SKD2
	5CrNiMo	45WCrV7	1.2542	S1	BS1	-	-	2710	45WCrV8KU	45WCrSi8	-
	3Cr2W8V	X30WCrV93 X30WCrV93KU	1.2581	H21	BH21	-	Z30WCV9	-	X28W09KU X30WCrV9 3KU	X30WCrV9	SKD5
	Cr12MoV	X165CrMoV 12	1.2601	-	-	-	-	2310	X165CrMoW12KU	X160CrMoV12	SKD11
	5CrNiMo	55NiCrMoV6	1.2713	L6	-	-	55NCDV7	-	-	F.250.S	SKT4
	V	100V1	1.2833	W210	BW2	-	Y1105V	-	-	-	SKS43
	W6Mo5Cr4V2Co5	S6-5-2-5	1.3243	-	-	-	Z85WDKCV	2723	HS6-5-2-5	HS6-5-2-5	SKH55
	W18Cr4VCo5	S18-1-2-5	1.3255	T4	BT4	-	Z80WKCV 10-05-04-01	-	X78WCo1805KU	HS18-1-1-5	SKH3
	W6Mo5Cr4V2	S6-5-2	1.3343	M2	BM2	-	Z85WDCV 06-05-04-02	2722	X82WMo0605KU	HS6-5-2	SKH9
	-	S2-9-2	1.3348	M7	-	- Z -	Z100WCWV 09-02-04-02	2782	HS2-9-2	HS2-9-2	-
	W18Cr4V	S18-0-1	1.3355	T1	BT1	-	Z80WCV 18-04-01	-	X75W18KU	HS18-0-1	SKH2
	W6Mo5Cr4V3	S6-5-3	-	M3	-	-	-	-	-	-	SKH52
	-	-	-	M42	BM42	-	-	-	-	-	SKH59

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Material Conversion Table

ISO	Country and standard										
	China	International	Germany	U.S.A.	U.K.		France	Sweden	Italy	Spain	Japan
	GB	DIN	W.-nr	AISI/SAE	BS	EN	AFNOR	SS	UNI	UNE	JIS
M	Stainless steel										
	0Cr13; 1Cr12	403	1.4000	403	403S17	-	Z6C13	2301	X6Cr13	F.3110	SUS403
	-	-	1.4001	-	-	-	-	-	-	F.8401	-
	1Cr13	410	1.4006	410	410S21	56A	X12Cr13	2302	X12Cr13	F.3401	SUS410
	1Cr17	430	1.4016	430	430S15	60	X8Cr17	220	X8Cr17	F.3113	SUS430
	2Cr13	410	1.4021	40	S62	56B;56C	X20C13	-	X20C13	F.3401	SUS410
	-	-	1.4027	-	420C29	56B	-	-	-	-	SCS2
	4Cr13	-	1.4034	-	420S45	56D	X40Cr14	2304	X40Cr14	F.3405	SUS420J2
	1Cr17Ni2	431	1.4057	431	431S29	57	X16CNi16	2321	X16CNi16	F.3427	SUS431
	Y1Cr17	430F	1.4104	430F	-	-	X10CrS17	2383	X10CrS17	F.3117	SUS430F
	1Cr17Mo	434	1.4113	434	434S17	-	X8CrMo17	2325	X8CrMo17	-	SUS434
	-	-	1.4313	-	425C11	-	-	-	-	-	SCS5
	-	-	1.4408	-	316C16	-	-	-	-	F.8414	SCS14
	4Cr9Si2	HW3	1.4718	HW3	401S45	52	X45CrSi8	-	X45CrSi8	F.322	SUH1
	0Cr13Al	405	1.4724	405	403S17	-	X10CrAl12	-	X10CrAl12	F.311	SUS405
	Cr17	430	1.4742	430	430S15	60	X8Cr17	-	X8Cr17	F.3113	SUS430
	8Cr20Si2Ni	HNV6	1.4757	HNV6	443S65	59	X80CrSiNi20	-	X80CrSiNi20	F.320V	SUH4
	2Cr25N	446	1.4762	446	-	-	X16Cr26	2322	X16Cr26	-	SUH446
	Austenitic stainless steel										
	0Cr18Ni9	X5CrNi1810	1.4301	304	304S15	58E	Z6CN18.09	2332	X5CrNi1810	F.3551 F.3541 F.3504	SUS304
	1Cr18Ni9MoZr	X10CrNiS189	1.4305	303	303S21	58M	Z10CNF18.09	2346	X10CrNiS18.09	F.3508	SUS303
	0Cr19Ni10	X2CrNi1911	1.4306	304L	304S12	-	Z2CN18.10	2352	X2CrNi18.11	F.3503	SCS19
	-	G-X6CrNi189	1.4308	-	304C15	-	Z6CN18.10M	-	-	-	SCS13
	Cr17Ni17	X12CrNi177	1.4310	301	-	-	Z12CN17.07	2331	X12CrNi1707	F.3517	SUS301
	-	X2CrNiN1810	1.4311	304LN	304S62	-	Z2CN18.10	2371	-	-	SUS304LN
	0Cr19Ni9	X5CrNi189	1.4350	304	304S31	58E	Z6CN18.09	-	X5CrNi1810	-	SUS304
	0Cr17Ni11Mo2	X5CrNi Mo1712	1.4401	316	316S16	Z6CND 17.11	1.4401	2347	X5CrNiMo1712	F.3543	SUS316
	00Cr17Ni13Mo2	X2CrNi MoN17133	1.4429	316LN	-	-	Z2CND17.13	2375	-	-	SUS316LN
	0Cr27Ni12Mo3	X2CrNi Mo18143	1.4435	316L	316S12	-	Z2CDN17.13	2353	X2CrNiMo1713	-	SCS16
	00Cr19Ni13Mo3	X2CrNi Mo17133	1.4438	317L	317S12	-	Z2CND19.15	2367	X2CrNiMo18.16	-	SUS317L
	-	X8CrNiMo275	1.4460	329L	-	-	-	2324	-	-	SUS329L SCH11 SCS11

Material Conversion Table

ISO	Country and standard										
	China	International	Germany	U.S.A.	U.K.		France	Sweden	Italy	Spain	Japan
	GB	DIN	W.-nr	AISI/SAE	BS	EN	AFNOR	SS	UNI	UNE	JIS
M	Austenitic stainless steel										
	1Cr18Ni9Ti	X6CrNi Ti1810	1.4541	321	2337	321S12	Z6CNT18.10	58B	X6CrNiTi1811	F.3553	SUS321
	1Cr18Ni11Nb	X6CrNi Nb1810	1.4550	347	347S17	58F	Z6CNNb18.1	2338	X6CrNiTi1811	F.3552	SUS347
	Cr18Ni12Mo2Ti	X6CrNi MoTi17122	1.4571	316Ti	320S17	58J	Z6NDT17.12	2350	X6CrNiMoTi17	F.3535	-
	-	G-X5CrNi MoNb1810	1.4581	-	318C7	-	Z4CNDNb1812M	-	XG8CrNiMo18	-	SCS22
	Cr17Ni12Mo3Nb	X10CrNi MoNb1812	1.4583	318	-	-	Z6CNDNb1713B	-	X6CrNiMoTiNb17	-	-
	1Cr23Ni13	X15CrNi Si2012	1.4828	309	309S24	-	Z15CNS20.1	-	-	-	SUH309
	0Cr25Ni20	X12CrNi2521	1.4845	310S	310S24	-	Z12CN2520	2361	X6CrNi2520	F.331	SUH310
	Cr15Ni36W3Ti	X12NiCr Si3616	1.4864	330	-	-	Z12CNS35.1	-	-	-	SUH330
	-	G-X40NiCr Si3818	1.4865	-	330C11	-	-	-	XG50NiCr3919	-	SCH15
	5Cr2Mn9Ni4N	X53CrMn NiN219	1.4871	EV8	349S54 321S12	- 58B	Z52CMN21.0	-	X53CrMnNiN219	-	SUH35
	1Cr18Ni9Ti	X12CrNi Ti189	1.4878	321	321S320	58C	Z6CNT18.12	-	X6CrNiTi1811	F.3523	SU321

ISO	Country and standard								
	China	Germany	U.S.A.	U.K.	France	Sweden	Italy	Spain	Japan
	GB	W.-nr	AISI/SAE	EN	AFNOR	SS	UNI	UNE	JIS
K	Nodular cast iron								
	QT400-18	GGG40	60-40-18	400/17	FGS370-17	0717-02	GS370-17	FGE38-17	FCD400
	QT450-10	-	65-45-12	420/12	FGS400-12	-	GS400-12	FGE42-12	FCD450
	QT500-7	GGG50	70-50-05	500/7	FGS500-7	0727-02	GS500-7	FGE50-7	FCD500
	QT600-3	GGG60	80-60-03	600/7	FGS600-2	0732-03	GS600-2	FGE60-2	FCD600
	QT700-2	GGG70	100-70-03	700/2	FGS700-2	0737-01	GS700-2	FGE70-2	FCD700
	QT800-2	GGG80	120-90-02	800/2	FGS800-2	0864-03	GS800-2	FGE80-2	FCD800
	QT900-2	-	-	900/2	-	-	-	-	-
	Grey cast iron								
	-	GG40	NO.60	-	FGL400	0140	-	-	-
	HT350	GG35	NO.50	350	FGL350	0135	G35	FG35	FC350
	HT300	GG30	NO.45	300	FGL300	0130	G30	FG30	FC300
	HT250	GG25	NO.35	250	FGL250	0125	G25	FG25	FC250
	HT200	GG20	NO.30	200	FGL200	0120	G20	FG20	FC200
	HT150	GG15	NO.20	150	FGL150	0115	G15	FG15	FC150
	HT100	-	-	100	-	0110	G10	-	FC100

Technical Information

Material Conversion Table

ISO	Country and standard									
	China	International	Germany	U.S.A.	U.K.	France	Sweden	Italy	Spain	Japan
	GB	DIN	W.-nr	AISI/SAE	BS	AFNOR	SS	UNI	UNE	JIS
N	Al-based alloy									
	ZAlSi7Mg	Al-Si7Mg(Fe)	~AlSi7Mg	356	LM25	A-S7G	4244	3599	-	AC4C
	ZAlSi7MgA	Al-Si7Mg	AlSi7Mg	A356.0	2L99	A-S7G03	-	8024	-	AC4C
	ZAlSi12	Al-Si12	AlSi12	413;B413.0	LM6	A-S13	4261	4514	-	AC3A
	ZAlSi9Mg	~Al-Si10Mg	AlSi9Mg	360	LM9	A-S9G;A-S10G	4253	3051	-	AC4A
	-	Al-Si5	AlSi5Mg	A 443.0	-	-	-	5077	-	-
	-	Al-Si5Fe	-	B443.0	-	-	-	GD-AlSi5Fe	-	-
	-	(AlSi7Fe)	-	A444.0	-	-	-	-	-	-
	-	Al-Si12Fe	-	413	LM20	~A-S12	4260	5079	-	ADC1

ISO	Country and standard									
	China	International	Germany	U.S.A.	U.K.	France	Sweden	Italy	Spain	Japan
	GB	DIN	W.-nr	AISI/SAE	BS	AFNOR	SS	UNI	UNE	JIS
S	Ni-based alloy									
	-	S-NiCr13A16MoNb	LW2 4670	5391	mar - 46	NC12AD	-	-	-	-
	-	NiCo15Cr10MoAlTi	LW2 4674	AMS 5397	-	-	-	-	-	-
	-	NiFe35Cr14MoTi	LW2.4662	5660	-	ZSNCDT42	-	-	-	-
	-	NiCr19Fe19NbMo	LW2.4668	5383	HR8	NC19eNB	-	-	-	-
	-	NiCr20TiAk	2.4631	-	Hr401.601	NC20TA	-	-	-	-
	-	NiCr19Co11MoTi	2.4973	AMS 5399	-	NC19KDT	-	-	-	-
	-	NiCr19Fe19NbMo	LW2.4668	AMS 5544	-	NC20K14	-	-	-	-
	-	-	2.4603	5390A	-	NC22FeD	-	-	-	-
	-	NiCr22Mo9Nb	2.4856	5666	-	NC22FeDNB	-	-	-	-
	-	NiCr20Ti	2.4630	-	HR5.203-4	NC20T	-	-	-	-
	-	NiCu30AL3Ti	2.4375	4676	3072-76	-	-	-	-	-
	Co-based alloy									
	-	CoCr20W15Ni	-	5537C,AMS	-	KC20WN	-	-	-	-
	-	CoCr22W14Ni	LW2.4964	5772	-	KC22WN	-	-	-	-
	Ti-alloy									
	-	TiAl5Sn2.5	3.7115.1	UNS R54520	TA14/17	T-A5E	-	-	-	-
	-	-	-	-	-	UNS R56400	-	-	-	-
	-	TiAl6V4	3.7165.1	-	TA10-13/ TA28	UNS R56401	-	T-A6V	-	-
	-	TiAl5V5Mo5Cr3	-	-	-	-	-	-	-	-
	-	TiAl4Mo4Sn4Si0.5	3.7185	-	-	-	-	-	-	-

Grade Comparison Table for Turning

CVD coating grade

Classification		Achteck	SANDVIK	KENNAMETAL	SECO	WALTER	ISCAR	TAEGUTEC	MITSUBISHI	TUNGALOY	SUMITOMO	KYOCERA	KORLOY	ZCC.CT	PRAMET	GESAC
P	P01	AC052P	GC4305 GC4205	KCP05B KCP05 KC9105	TP0501 TP0500	WPP05S WPP05	IC8005 IC428	TT8105	UE6005 UE6105	T9005 T9105	AC810P	CA510 CA5505	NC3010		T9310	GP1105
	P10	AC152P	GC4415 GC4315	KCP10B KCP10 KC9110	TP1501 TP1500	WPP10S WPP10	IC9150 IC9015 IC8150	TT8115	UE6110 MC6015 MY5015	T9115 T9215	AC810P AC700G	CA515 CA5515	NC3215	YBC152 YBC151	T9315	GP1115
	P20	AC252P	GC4425 GC4325	KCP25B KC9125	TP2501 TP2500	WPP20S WPP20	IC8250 IC9025 IC9250	TT8125 TT5100	UE6020 MC6025	T9225 T9125	AC8025P AC820P AC2000	CA025P CA525 CA5525	NC3220 NC3225 NC3120	YBC251 YBC252	T9325	GP1125
	P30	AC350P	GC4335	KCP40B KCP40 KC9240	TP300 TP3500	WPP30S WPP30	IC8350 IC9350	TT8135 TT7100	MC6035 UE6035 UH6400	T9135 T9035	AC830P AC630M	CA530 CA5535	NC3030 NC500H NC5330	YBC351 YBC352	T9335	GP1135
M	M10	AC100M	GC2015 GC1515	KCM15 KCM15M			IC6015	TT9215	MC7015 US7020	T6120 T6020	AC610M AC6020M	CA6515	NC9020	YBM151 YBM153		GM1115
	M20	AC200M	GC2025	KCM25	TM2000	WMP20S	IC6025	TT9225	MC7025	T6130	AC630M AC6020M	CA6525	NC9025	YBM251 YBM253	T7325	GM1125
	M30			KCM35 KC9045 KC9245	TM4000			TT9235	MC7035 US735					YBM253		
K	K05	AC100K AC102K	GC3205 GC3210	KCK05 KCK05B	TK0501 TK1001 TK1000	WKK10S WAK10	IC5005 IC9007	TT7005	MC5005 UC5105	T505 T5105	AC405K AC410K	CA4505 CA4010 CA310	NC6205	YBD052 YBD102	T5305	GK1115
	K20	AC202K ACK15A	GC3215	KCK15 KCK20 KC9315 KC9320	TK2001 TK2000	WKK20S WAK20	IC5010	TT7310 TT7015	MC5015 UC5115	T515 T5115 T5125	AC415K AC420K AC700G	CA315 CA4515 CA4115 CA4120	NC6210 NC6215	YBD152C YBD152	T5315	GK1120 GK1125

Technical Information

Grade Comparison Table for Turning

PVD coating grade

Classification		Achteck	SANDVIK	KENNAMETAL	SECO	WALTER	ISCAR	TAEGUTEC	MITSUBISHI	TUNGALOY	SUMITOMO	KYOCERA	KORLOY	ZCC.CT	PRAMET	GESAC
P	P05	AP010S		KC5510							ACZ150	PR1705				
	P10	AP100U AP100S	GC1025	KC5010 KC5510 KU10T	CP200	WSM10S WSM10	IC507 IC807 IC907		MS6015 VP10MF	AH710	ACZ150 ACZ310	PR930 PR1115 PR1215	PC8110 PC230	YBG102	T6130 T8310 T8315	
	P20	AP200U AP301U AP301M	GC1020 GC1025 GC1125 GC4125	KC5025 KC5525 KC7215 KC7315 KU25T	CP250	WSM20S WSM20	IC507 IC807 IC907	TT5030	VP15TF VP20MF VP20RT UP20M	AH7025 AH725 SH725	ACZ330 AC520U	PR1225 PR1625 PR1725	PC8115 PC5300	YBG202	6630	GA4230
	P30		GC1145 GC2145	KC7235 KC7140 KC7040	CP500	WSM30S WSM30	IC328 IC928 IC3028		VP15TF VP20MF UP20M	GH330 AH740 AH9030	AC530U ACZ350	PR1535	PC3545		6640 T8330 T8030	
M	M10	AP010S AP100S	GC1105 GC1115 GC15	KC5510 KC5010	TS2000 TH1000 CP200	WSM10 WSM10S	IC520 IC907 IC808	TT5080	VP10RT VP10MF	AH710	AC510U ACZ150	PR1215 PR1225	PC8110		T6310 T8310 T8315	GS3115
	M20	AP200U AP200M AP301M	GC1125 GC4125 GC1025 GC30	KC5025 KC5525 KCU25	CP500	WSM20 WSM20S	IC308 IC908 IC3028 IC830	TT9080	VP15TF VP20RT VP20MF	AH725 AH630 GH330 GH730 SH725 SH730	AC520U ACZ310 AC1030U	PR930 PR1215 RP1225 PR1725 PR1525	PC8115 PC5300	YBG202 YBG205	T8330	GS3125
	M30		GC2035 GC2030	KC7030 KC7225	CP600	WSM30 WSM30S	IC228 IC328 IC928	TT9020 TT8020	MP7035	AH130* AH645*	AC6040 AC530U ACZ330 ACZ350	PR1535	PC9030 PC5400		T8345	GM3225
K	K10		GC1010	KC5010 KC7210	TS2000 CP200		IC807 IC910 IC507 IC908		VP05RT	GH110 AH110	EH10Z EH510Z AC510U	PR905 PR1215			T8310	
	K20		GC1020 GC1120	KC5025 KC5525 KC7215 KC7315	TS2500 CP200 CP250		IC508 IC908	TT5030	VP10RT VP15TF VP20RT	AH120 AH725	ACZ310 AC520U AC530U AC1030U	PR905 PR1215	PC5300		T8315	GA4230
	K30		GC1030	KC7225	CP500		IC508 IC908		VP15TF VP20RT		ACZ310				T8330	
S	S10	AP010S AP100S	GC1105 GC1115	KC5510 KC5010	CP200 TH1000 TS2000	WSM01 WSM10S	IC808 IC807 IC907	TT5080	VP05RT VP10RT MP9005	AH110 AH905 AH8005	AC510U AC5015S	PR005S PR1305 PR1310	PC8105	YBG102	T6310	GS3115
	S20	AP200U AP301M AP200M	GC1025 GC1125	KC5525 KC5025	CP500 TS2500	WSM20 WSM20S	IC808 IC908	TT9080	VP15TF VP20RT MP9015	AH120 AH8015 AH725	AC520U AC5025S	PR015S PR1325 PR1535	PC8115	YBG105 YBG202	6630	GS3125
	S30		GC1125			WSM30 WSM30S	IC328	TT9080 TT8020	MP9025	AH725	AC520U	PR1535	PC5400	YBG212	6640	

Grade Comparison Table for Turning

Uncoated grade

Classification		Achteck	SANDVIK	KENNAMETAL	SECO	WALTER	ISCAR	TAEGUTEC	MITSUBISHI	TUNGALOY	SUMITOMO	KYOCERA	KORLOY	ZCC.CT	PRAMET	GESAC
N	N10	AW100K	H10	K313	H15	WK1	IC20	K10	HTI10	TH10	EH10	KW10 GW05	H01	YD101		GN9115

Cermet

Classification		Achteck	SANDVIK	KENNAMETAL	SECO	WALTER	ISCAR	TAEGUTEC	MITSUBISHI	TUNGALOY	SUMITOMO	KYOCERA	KORLOY	ZCC.CT	PRAMET	GESAC
P	P10	AT202 AT210A	CT5015 CT525 GC1525* CT530	KT175 HT2 KT5020 PS5	TP1020 CM CMP	WTA43* WTA41*	IC20N IC520N IC530N IC75T IC30N	CT3000 PV3010*	NX2525 NX3025 AP25N VP25N MP3025	NS9530 NS520 GT9530* GT530* GT530/730 AT9530	T1200A T1500Z*	TN60 TN620 TN6020 PV720*	CN2000 CN30 CC1500 CN1500*	YNG151 YNG151C*		GP91TM GT31TM*
K	K10	AT202	CT5015	HTX KT315* KTP10*				CT3000	NX2525 AP25N* VP25N*	NS530 GT530*	T1200A T2000Z*	TN610 PV710* PV7005*	CN1500*	YNG151 YNG151C*		GP91TM GT31TM*

Remarks: * for PVD coated cermet material

Technical Information

Grade Comparison Table for Turning

CBN

Classification		Achteck	SANDVIK	KENNAMETAL	SECO	WALTER	ISCAR	TAEGUTEC	MITSUBISHI	TUNGALOY	SUMITOMO	KYOCERA	KORLOY	ZCC.CT	PRAMET	GESAC
K	K20	PB90			CBN20 CBN600				MB4120 MBS140	BX950 BX90S	BN7000 BNS800		DBN350			
H	H10	PB30	CB7105 CB7050	KBH10 KB1615 KB5610	CBN150 CBN060K CBN200	WCB30	IB50	TB610	MB8025 MB825	BXA40 BC330 BX360						
	H20	PB60	CB7025 CB7525	KBH20 KB1340	CBN350 CBN500	WCB50	IB55	TB650	MB8025	BX380						
	H30	PB90	CB7525	KB5630			IB55	TB670	MB835	BX380						

PCD

Classification		Achteck	SANDVIK	KENNAMETAL	SECO	WALTER	ISCAR	TAEGUTEC	MITSUBISHI	TUNGALOY	SUMITOMO	KYOCERA	KORLOY	ZCC.CT	PRAMET	GESAC
N	N20	PD20		KD1425	PCD30 PCD30M	WDN10			MD230	DX110 DX120	DA1000 DA2200	KPD001 KPD010 KPD230 KPD250				DNN130P

Grade Comparison for Milling Grade

Classification		Achteck	Kyocera	Djtol	ZCC.CT	Mitsubishi	Sandvik	Seco Tools	Sumitomo	Tungaloy	Kennametal	Iscar	Walter AG
P	P10		PR1825 PR1835 PR1225	JC5003 JC5030 JC8003 DH103	YBG252	F7010	GC1025 GC1010	MP1500	ACP100		KC715M	IC1500	WKP25
	P20	AP301U AP251U	PR1825 PR1835 PR1525 PR1225 PR1230 CA520D	DH108 DH111 DH110 DH115 JC8015 JC8118	YBC301 YBM251 YBG205 YBG202 YBG9320 YBG252	MC7020 MP6120 F7030 UP20M MV1020	GC1130 GC1030 GC4220 GC4020 GC4030 GC4334	MP1500 T250M T25M T20M	ACP2000 ACP200 ACP2000 ACU2500	AH3225 T313W AH725	KC522M KC525M KCPM20	IC330 IC250 IC520M IC950 IC5400 IC1008 IC5500	WKP25S
	P30	AP351U AP351M AC251P AC301P	PR1825 PR1835 PR1230 PR1535	JC6235 JC5015 JC5040 JC5240 JC8050 JC7550	YBM351 YBG302	MP6130 F7030 VP15TF VP30RT	GC1130 GC4040 GC4230 GC4330	MP2500 T250M T25M F25M F30M	AC230 ACP300 ACP3000	T3130 GH330 AH120 AH330 AH730 AH3135 AH9130	KC994M KC725M KC792M KC530M KCPK30 KCPM40	IC330 IC328 IC635 IC830 IC908 IC928	WSM35S WSM36 WKP35S WKP35G
	P40	AP403M		JC7550 JC5040 JC7560	YBC302 YBG302	VP30RT	GC4040 GC4240 GC4340	MP3000 T350M T60M T25M	AC230 ACZ330 ACZ350	AH140	KC735M	IC635 IC928 IC4050	WSP45S WSP46
M	M10		PR1835 PR1225	DH111 DH108	YBG252	F7010	GC1025 GC1030		ACM100 ACM200 EH10Z		KC522M		
	M20	AP251U	PR1835 PR1525 PR1225	JC730U JC835S JC8118 JC5015 JC5030 JC5040	YBM251 YBM253 YBG205 YBG202 YBG9320 YBG252	MC7020 MV1020 MH515 F7030 VP15TF VP20RT MP7030 MP7130	GC2030 S30T GC2334 GC2044	MS2050 MP2500 T250M T25M F20M F25M F30M	XCU2500 ACM200 ACP200 EH20Z ACU2500	GH330 AH330 AH120 AH130 AH725 AH3135	KC730M KC525M	IC882 IC380 IC908 IC928	WXM15
	M30	AP351U AP351M	PR1835 CA6535 PR1535	JC835S JC8015 JC5015 JC5118 JC8050	YBC302 YBG302	F7030 VP30RT MP7140	GC1040 GC2040 S40T	T350M T250M F40M	ACM300 ACP300 ACZ350	AH9130 T3130 AH130	KC994M KC725M KCPK30	IC380 IC328 IC330	WSM35S WSM36
	M40	AP403M		JC7560	YBM351 YBG302	VP30RT		MM4500	ACZ350	AH140		IC830	WSP45S WSP46
K	K01			DH202 DH102				MH1000	ACK100	AH110		IC5100 IC4100	
	K10		PR1810 PR1510 PR905 PR1210	DH103 JC8015 JC610 JC605W JC8118	YBD152 YBG102 YBG252	MP8010 MC5020 VP10RT MV1020	GC1010 GC3220 K15W	MK1500 T150M F15M	XCK2000 ACK2000 ACK200 AC211 ACU2500	T1015 T1115 AH110 T1215	KCK15 KC915M KCKP10	IC5100 IC4010 IC910 DT7150 IC810	WXM15 WAK15 WSN10
	K20	AP251K AC301K AC151K	PR1810 CA420M PR905 PR1210 CA415D	JC605X JC610 JC5015 JC8015 JC8118	YBD203 YBD252 YBG152	VP15TF VP20RT	GC1020 GC3020 K20W/ K20D GC3330 GC3334	MP1500 T150M T250M MK2000 MK2050	EH20Z ACZ310 ACK300 ACK3000	AH120 AH725 T1215	KCK20B KC520M KC920M KC925M KC992M	IC810 IC910 IC928	WKP25S WKK25S
	K30			JC5080 JC6235	YBD252		GC3040 GC4040	MK3000 T250M		GH130 AH9130	KC930M	IC928	WKP35S
S	S10		CA6535 PR1535 PR1210	DH202 DH102 DH103 JC7518	YBG202	MP9120 VP15TF	GC1030 GC1025 GC1010	MS2050	ACM100 ACM200 ACK300	AH8015	KC510M	IC903 IC807 IC808 IC908	
	S20		CA6535 PR1535 PR1210	JC8118 DH111 IC5015 JC8050 JC7560 JC7550	YBG212 YBS303	MP9120 VP15TF MP9130 MP9030	GC1030 GC2030 S30T GC1130 GC4344	MP2050	ACU2500 ACM200		KC525M KC522M KCSM30	IC903 IC807 IC808 IC908 IC830 IC928	WSM35S WSM36
	S30	AP403S	PR1535	JC8050 JC7560		MP9140	GC2040 S40T	F40M	ACM300		KC725M KCSM40	IC328 IC330	WSP45S WSP46 WSM45X WMP45G

Technical Information

Chip Breaker Comparison Table for Negative Turning Insert

ISO Classification	Application	Achteck	SANDVIK	KENNAMETAL	SECO	WALTER	ISCAR	TAEGUTEC	MITSUBISHI	TUNGALOY	SUMITOMO	KYOCERA	KORLOY	ZCC.CT
P	Finishing	PB1 BS PA1	QF XF	FF,FS UF,LF	FF1 MF2 FF2	NF3 NF4 FP5	SF PF F3P	SF,FA FLP,FG FC	FP,FH,F FY,FS,PK	TF,01 AS,TSF	FA,FB SP,FL SU,FP,LU	GP,PP XP,XF VF	VB,VL VF	SF DF
	Semi finishing	PB3 PC3	PF LC	FN	MF5	NS6	NF	MLP	C,SA SH	TSF	LU,SX NSE	CQ,XQ HQ,PQ CJ,VC	VC,HC	NM
	Medium	PL5	K		UX			VF FS	ES 2G	S	GX HM	LD ST	SH	
		PD3 UC4	PM,PMC QM,SM SMC,XM	MN CT	M3 MF3	NM4 MP5	M3P,TF PP	MT,MC MP,MGP	MA,MP MV,MH	TM,ZM AM,NM	GU,UX UG,UP,GE	GS,PS, PMG,PG PT,GT,XS	VM,LP MP	PM DM
		PC4			M4			MG-	Standard	Standard	UZ	Standard	B25	
	Roughing	PD5	PR	RN RP,RW	M5,M6 MR7	NM6,NM9 RP5,RP7	NR, R3P	RT RGP	RP GH	TH	MU, MX	PH	HR, GR	DR ER
	Heavy roughing	PD8 PC8	PR QR	RM	R4 R5	NR6 NRF	MH	RX RH	HZ HL	TRS	HG MP	PX	GH	DR
		PC9	HR	RP	R7 R8	NR8		HT HD	HX HR	TU TUS	HF		VT	HDR
		PD9		RH	RR9	NRR	HR	HY HZ	HV		HU HW		VH	HPR
M	Finishing	SC1 MB2	MF	FF,LF FP	MF2	NF,NF4 FM5	NF,F3M	FG,EA SF	LS,FS SA	SS,TF SF,HRF	SU EF	MQ	VP1	EF
	Semi finishing	SL3		MS	MF1	MS3	PP	ML	MJ	28	UP	TK	HA	
		MC3 UC4	MM MMC	MP UP	MF4 MF3	NM NM4	M3M	EM MP	MS,GM MM,MA	HRM SM,SA	EX GU	MS,MU SU	HS	EM
	Roughing	MC4	MR MMR	RP	M5 MR7	NR4 RM5	R3M MR	ET	RM,GH	TU,SH	MU	HU	VM	ER
K	Medium	PC4	KM	UN CT	M4	MK5,NM5 NM6	NR	MG-	MK,GK Standard	CM Standard	UZ MU	KG Standard	B25	Standard
	Roughing	KC4 KD5	KR	RP -NMA	MR7 -NMA	RK5,RK7 -NMA	-NMA	KT,RT -NMA	GH, RK -NMA	CH -NMA	GZ	ZS, GC KH,PH -NMA	GR,VR VK,-NMA	DR
N	Semi finishing		QM, 23	MS, MP			PP	ML	MJ	P	UP, GX, AG	A3, AH	HA	
S	Finishing	SC1 MB2	MF SF	FS	MF2	NF4	NF	EA SF	FS LS	TF	SU	MQ SQ	VP1	EF
	Medium	SL3		MS	MF1	MS3	PP	ML	MJ	28	UP	TK	HA	
		SC3	SM SMC	UP	MR3	NMS,NMT	TF	MP, SU, MK	MS	HMM, SA HRM	EG,EX	MS, MU	VP3	NM
	Roughing	MC4	SR SMR	RP	MR4	NRS,NRT	NR		GJ,RS		MU	SG	VM	SNR

Chip Breaker Comparison Table for Positive Turning Insert

ISO Classification	Application	Achteck	SANDVIK	KENNAMETAL	SECO	WALTER	ISCAR	TAEGUTEC	MITSUBISHI	TUNGALOY	SUMITOMO	KYOCERA	KORLOY	ZCC.CT
P	Finishing	LF										CK		
		UF,PB1 BS	UF PF	11 UF	FF1 MF2	PF4 FP4	PF	FA,FG FX	FV FP	PF	FP LU	GP VF	VL	HF
	Semi finishing	PC2	PM UM	LF MF	F2 M5	FP6,PS5 MP4	SM,14	PC	MP,MV	PM,23 24	SU SC	HQ,XQ GK	HMP	HM
	Roughing	KC2	PR			PM5 RP4	17,19	MT	no code		MU		C25	
M	Finishing	PB1	MF UF	11 UF	FF1 MF2	PF4 FM4	PF	FA FG	FM FV LM	PF	LU	MQ	VL	EF
	Semi finishing	PC2	MM UM	LF MF	F2 M5	PS5 MM4	SM 14	FM	MV MM	PS PM	SC SU	MS	MP	EM
	Roughing	KC2	MR UR			PM5 RM4	17	MT			MU	MU	C25	HR
K	Semi finishing	KC2	KM	MF	F2 M3	MK4	14	MT PMR	MK	CM	MU		C25	HM
	Roughing	KD5	KR		M5	RK4 RK6 -CMW		CMX		-CMW				HR
N	Semi finishing	NC2	AL	HP	AL	PM2	AF, AS	FL	AZ	AL	AW, AG	AH	AK, AR	LH
S	Finishing	UF PB1	MF	HP	F1	PF5 PF4	PF	FA	FJ		LU	MQ	VP1 VL	NF NGF
	Medium	PC2	MM UM	LF	F2	PS5 PM5	SM	FG	MS	PS	SU	HQ	MP	
	Roughing													SNR

Technical Information

CITIZEN

Cincom product series

product	Tool size (Gang-Type)	No	Tool size (Turret-Type)	No	Guide-bushing (D)	Max.Machining Dia.(D)
A12	10×10×100	5			⌀19.05/⌀20	⌀12
A16	10×10×100	5			⌀19.05/⌀20	⌀16
A20	12×12×120	5-7			⌀25.4	⌀20
A25	12×12×120	5-6			⌀25.4	⌀25
A32	16×16×150				⌀25.4	⌀32
B12/B12E	10×10×100	5			⌀19.05/⌀20	⌀12
B16E	10×10×100	5			⌀19.05/⌀20	⌀16
B20	12×12×120	6			⌀19.05/⌀20	⌀20
BL12	10×10×60-120	5			⌀20	⌀12
BL20	12×12×120	7			⌀20	⌀20
BL25	12×12×120	7			⌀20	⌀25
C12	10×10×120	6			⌀19.05	⌀12
C16	10×10×120	6			⌀19.05	⌀16
C32	16×16×130	5			⌀25.4	⌀32
E32			16×16×90	20	⌀25.4	⌀32
F10			10×10×60	10	⌀19.05	⌀10
F12			10×10×60	10	⌀19.05	⌀12
F16			10×10×60	10	⌀19.05	⌀16
F20			16×16×90	10	⌀25.4	⌀20
F25			16×16×90	10	⌀25.4	⌀25
FL25			16×16×90	12	⌀16	⌀25
FL42			16×16×90	12	⌀16	⌀42
G10			10×10×60	8		⌀10
G16			10×10×60	8		⌀16
G32			16×16×90	10		⌀32
K12/K12E	10×10×100	7			⌀20	⌀12
L16/K16E	12×12×120	6			⌀20	⌀16
L10	8×8×100-130	5			⌀15.875	⌀10
L16/L16E	12×12×130	7			⌀19.05	⌀16
L20/L20E	12×12×130	7			⌀19.05	⌀20
L25	16×16×130	5			⌀25.4	⌀25
L32	16×16×130	5			⌀25.4	⌀32
M12	10×10×120	5	10×10×60	10	⌀19.05	⌀12
M16	10×10×120	5	10×10×60	10	⌀19.05	⌀16
M20	12×12×130	5	16×16×90	10	⌀25.4	⌀20
M32	16×16×130	5	16×16×90	10	⌀25.4	⌀32
MSL12	10×10×120		10×10×60	10		⌀12
R04	8×8×120	7			⌀15.875	⌀4
R07	8×8×120	5			⌀15.875	⌀7
RL02	16×16×60-150	6			⌀16/⌀20	⌀25
RL21	10×10×90				⌀19.05	⌀35

CITIZEN

Miyano product series

product	Tool size (Gang-Type)	No	Guide-bushing (D)	Max.Machining Dia.(D)
ABX-51TH3	20×20×100	12+12/12	∅25	∅51
ABX-64TH3	20×20×100	12+12/12	∅25	∅64
ABX-51THY	20×20×100	12+12/12	∅20/∅25/∅40	∅51
ABX-64THY	20×20×100	12+12/12	∅20/∅25/∅40	∅64
ABX-51SYY	20×20×100	12/12	∅20/∅25/∅40	∅51
ABX-64SYY	20×20×100	12/12	∅20/∅25/∅40	∅64
ABX-51SYY	20×20×100	12/12	∅25	∅51
ABX-64SYY	20×20×100	12/12	∅25	∅64
BNA-34C	20×20×100	8(16)/-	∅25	∅34
BNA-42C	20×20×100	8(16)/-	∅25	∅42
BNA-34S	20×20×100	8(16)/-	∅25	∅34
BNA-42S	20×20×100	8(16)/-	∅25	∅42
BNA-34DHY	20×20×100	8(16)/6	∅25	∅34
BNA-42DHY	20×20×100	8(16)/6	∅25	∅42
BNA-34MSY	20×20×100	8(16)/-	∅25	∅34
BNA-42MSY	20×20×100	8(16)/-	∅25	∅42
BNC-34C5	20×20×100	8/-	∅25	∅34
BNC-34S6	20×20×100	8/-	∅25	∅34
BNC-42C5	20×20×100	8/-	∅25	∅42
BNC-42S6	20×20×100	8/-	∅25	∅42
BND-51C/S2/SY2	20×20×100	12/-	∅25	∅51
BNE-34S5/SY5	20×20×100	12/12	∅25	∅34
BNE-42S6/SY6	20×20×100	12/12	∅25	∅42
BNE-51S5/SY5	20×20×100	12/12	∅25	∅51
BNE-51S6/SY6	20×20×100	12/12	∅25	∅51
BNJ-34S3/SY3	20×20×100	12/6	∅25	∅34
BNJ-42S3/SY3	20×20×100	12/6	∅25	∅42
BNJ-51SY3	20×20×100	12/6	∅25	∅51
BNX-42SY	20×20×100	12/-	∅25	∅42
BX-20S	16×16×100	8/-	∅20	∅20
BX-26S	16×16×100	10/-	∅20	∅26
BX-26T	16×16×100	8/-	∅20	∅26

Technical Information

STAR

product	Tool size (Gang-Type)	No	Tool size (Turret-Type)	No	Guide-bushing (D)	Max.Machining Dia.(D)
ECAS-12	10×10×95-150	6			∅22	∅13
ECAS-20	12×12×80-144	6			∅22	∅20
ECAS-20T			12×12×80	8 St.×3	∅22	∅20
ECAS-32T	16×16×80-120	4	16×16×60-78	10 St.×2	∅22/∅32	∅32
JNC-10			8×8×65	6	-	∅10
JNC-16			10×10×80	6	-	∅16
JNC-25/32			16×16×78-120	10 St.	∅22	∅25/∅32
KJR-16B/25B			16×16×78	12 St./6 St.	∅22	∅16/∅25
KNC-16/20			16×16×68	16 St.	∅22	∅16/∅20
KNC-25II/32II			16×16×78	20 St.	∅22/∅32	∅25/∅32
RNC-10/16	10×10×80-120	5			∅22	∅10/∅16
RNC-16II/16BII	10×10×80-120	5			∅22	∅16
SA-16R	10×10×95-120	6			∅22	∅16
SB-12II/16II	12×12×95-130	6			∅22	∅12/∅16
SB-16	12×12×95-130	6			∅22	∅16
SB-20	12×12×95-130	6			∅22	∅20
SR-20J	12×12×100-135	6			∅22	∅20
SC-20	12×12×95-130	6			∅22	∅20
SE-12/16	10×10×95-120	5			∅22	∅13/∅16
SF-25			16×16×73-98	10 St.×2	∅22/∅32	∅25
SG-42			16×16×84-88	10 St.×2	∅22/∅32	∅42
SH-7	8×8×95-120	5			∅22	∅7
SH-12/16	10×10×95-120	5			∅22	∅13/∅16
SI-12/12C	10×10×80-130	6			∅22	∅13
SR-16/20	12×12×95-120	5			∅22	∅16/∅20
SR-32	16×16×100-135	6			∅22	∅32
SR-20R	12×12×100-135	6			∅22	∅20
SR-10J	8×8×67-110	6			∅22	∅10
SR-25J/32J	16×16×95-155	6			∅22/∅32	∅25/∅32
SST-16	12×12×95-115	5			∅22	∅16
ST-38			16×16×85	8 St.×3	∅22/∅32	∅38
SV-12	12×12×95-135	4	12×12×70-78	8 St.×3	∅22	∅13
SV-20	16×16×95-135	5	16×16×65-70	8 St.	∅22	∅20
SV-32	16×16×95-135	4	16×16×80-88	10 St.×2	∅22/∅32	∅32
SV-32J/32JII	16×16×95-135	4	16×16×65-70	8 St.	∅22/Φ32	∅32
SW-7	8×8×80-120	6				∅7
SW-20	12×12×80-144	6			∅22	∅20

TSUGAMI

product	Tool size (Gang-Type)	No	Tool size (Turret-Type)	No	Guide-bushing (D)	Max.Machining Dia.(D)
P013H/P014H	8×8×100-120	6			⌀16	⌀1
P033H/P04H	8×8×100-120	6			⌀16	⌀3
B007-III	7×7×85	8			⌀25	⌀7
B074/B07-V	8×8×85	9			⌀20	⌀7
B0123/B0124/B0125	12×12×85	9			⌀20	⌀12
B012F/B012-V/BE12-V	12×12×85	9			⌀20	⌀12
B016MF	12×12×85	9			⌀20	⌀16
B018-III	12×12×85	9			⌀20	⌀18
B0203/B0204/B0205	12×12×85	9			⌀20	⌀20
B020F/B020-V/BE20-V	12×12×85	9			⌀20	⌀20
B026-V	12×12×85	6			⌀25	⌀26
B0385/B0385L	16×16×125	8			⌀32	⌀38
BA20-III	12×12×85	6			⌀25	⌀20
BA26-III	12×12×85	6			⌀25	⌀26
BC18	12×12×85	10			⌀25	⌀18
BC25	12×12×85	10			⌀10/⌀25	⌀25
BE18	12×12×85	9			⌀20	⌀18
BH20/BH20Z	12×12×85	4	12×12×85	12 St.	⌀25/⌀32	⌀20
BH38	16×16×125	7	20×20×125	12 St.	⌀25/⌀32	⌀38
BM07	8×8×85	9			⌀20	⌀7
BM163/BM164/BM165	12×12×85	9			⌀20	⌀16
BM20-V	12×12×85	9			⌀20	⌀20
BN12-III	12×12×85	7			⌀20	⌀12
BN20-III	12×12×85	7			⌀20	⌀20
BS12-V	12×12×85	8/12			⌀20/⌀25	⌀12
BS18-III	12×12×85	7/10			⌀14/⌀25	⌀18
BS20-V	12×12×85	8/12			⌀20/⌀25	⌀20
BS26(ABC)-V	16×16×100	7/10			⌀16/⌀25	⌀26
BS32C-V	16×16×100	6			⌀16/⌀25	⌀32
BU12	12×12×85	4	12×12×80	8 St.	⌀20	⌀51
BU20	12×12×85	4	12×12×80	8 St.	⌀20	⌀20
BU26	16×16×100	7	20×20×80	8 St.	⌀20/⌀32	⌀26
BU38	16×16×100	7	20×20×80	8 St.	⌀20/⌀32	⌀38
BW07-III	12×12×85	7			⌀20	⌀7
BW12-III	12×12×85	7			⌀20	⌀12
BW20-III	12×12×85	7			⌀20	⌀20
C004-III	13×13×60-100	6-8			⌀10	⌀120
C150	10×10×60-100	4-6			⌀8	⌀80
C180	12×12×60-100	4-6			⌀10	⌀120
C220	13×13×60-100	6-8			⌀10	⌀120
C300-III	16×16×100-130	6-10			⌀14	⌀170

Technical Information

TSUGAMI

product	Tool size (Gang-Type)	No	Tool size (Turret-Type)	No	Guide-bushing (D)	Max.Machining Dia.(D)
CH154	12×12×60-100	16			∅10	∅15
M34J			20×20×125	12 St.	∅20/∅32	∅34
M42J/M42D/M42SD			20×20×125	12 St.	∅25/∅32	∅42
M50SY-III			20×20×100	12 St.	∅32	∅51
M50J			20×20×100	12 St.	∅20/∅32	∅51
MB25			20×20×80	8 St.×2	∅20/∅32	∅25
MB35-III			20×20×80	8 St.×2	∅20/∅32	∅35
MB38-III			20×20×80	8 St.×2	∅20/∅32	∅38
MB50-III			20×20×80	8 St.×2	∅20/∅32	∅50
MU26			20×20×80	8 St.×2	∅20/∅32	∅26
MU38			20×20×80	8 St.×2	∅20/∅32	∅38
NU50-III			20×20×100	12 St.	∅20/∅32	∅51
S205/S206	12×12×100	8			∅20/∅22	∅20
SS20	16×16×100	8			∅20/∅22	∅20
SS207	12×12×100	8			∅20/∅22	∅20
SS26	16×16×100	7			∅20/∅22	∅26
SS32/SS32L	16×16×100	7			∅20/∅22	∅32
TMB2			20×20×125	16 St.	∅32	∅51
TMU1			20×20×125	16 St.	∅32	∅38

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