HALNN
SUPERHARD TOOLS

General Milling Series

Zhengzhou Halnn Superhard Material Co,.Ld

MILLING SERIES

Milling inserts

B001-B014

Milling cutting tools

B015-B087

Thread milling tools

B088-B096

End mills

B100-B176

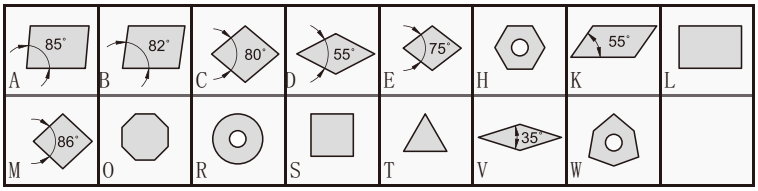
MILLING SERIES

Milling inserts

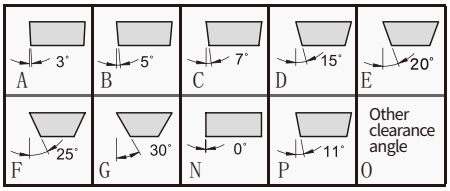
Inserts Model Description

A	P	M	T	16	04	PD	E	R	GM
1	2	3	4	5	6	7	8	9	10

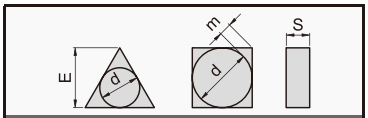
Shape code



2 Clearance angle code



3 Dimension tolerance code

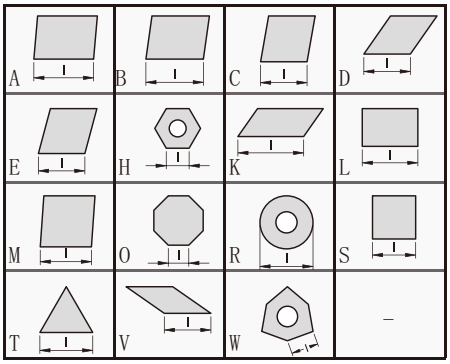


Tolerance	Range of tolerance		
	d±	m ±	s±
A	0.025	0.005	0.025
C	0.025	0.013	0.025
E	0.025	0.025	0.025
F	0.013	0.005	0.025
G	0.025	0.025	0.05~0.13
H	0.013	0.013	0.025
J	0.05~0.15	0.005	0.025
K	0.05~0.15	0.013	0.025
L	0.05~0.15	0.025	0.025
M	0.05~0.15	0.08~0.2	0.05~0.13
N	0.05~0.15	0.08~0.2	0.025
U	0.08~0.25	0.13~0.38	0.13

4 Hole code

A		
C		
F		–
G		=
H		
J		–
M		
N		
Q		–
R		
T		
U		–
W		
X	Specil groove	

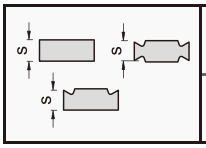
5 Cutting edge length & Inscribed circle code



8 Main cutting edge shape code

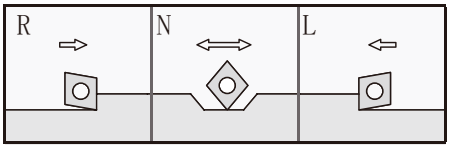
E	F	T	S
Arc edge	Sharp edge	Negative chamfer edge	Composite honing edge

6 Thickness code

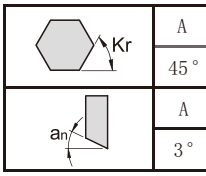


Index	01	T1	02	03	T3	04	05	06	07	09
S(mm)	1.59	1.98	2.38	3.18	3.97	4.76	5.56	6.35	7.94	9.52

9 Cutting direction code



7 Wiper edge lead angle and clearance angle code



A	D	E	F	P	Z				
45°	60°	75°	85°	90°	Other angles				
A	B	C	D	E	F	G	N	P	Z
3°	5°	7°	15°	20°	25°	30°	0°	11°	Other angles

10 Insert groove code

Chip breaker

FM, SM, GM, M

Material Introduction【CVD】

HCP330B:

High toughness and high strength matrix, suitable for medium and high speed processing of low carbon alloy steel and non-alloy steel

HCP340B:

A substrate with good combination of wear resistance and toughness, a general coating grade, used for medium and low speed milling of steel, cast iron and hardened steel.

HCP350B:

The high-toughness substrate, combined with a common coating grade, is suitable for heavy-duty milling of steel and stainless steel, and can also be used for milling under harsh conditions.

HCK115B:

The thick coating (TiCN and A1203) is combined with the damage-resistant cemented carbide substrate. The bonding between the coatings is increased to the limit, and the surface film is not easy to peel off. It is used for medium and high-speed milling of cast iron.

HCK125B:

The (medium-thick A1203 + thick TiCN) coating is combined with a hard substrate, with good combination of wear resistance and toughness. It is suitable for medium and low-speed wet milling of cast iron with toughness requirements (such as ductile iron), and is also suitable for turning under interrput conditions.

HCK225B:

The new thick (TCN and thick A1203) two-color coating combined with a tougher substrate improves the inserts's resistance to chipping and wear, and is used for medium and low speed wet milling of ductile iron.

HCS110B:

TiCN+A1203+TiN CVD coating uses thin film coating to improve the stability of milling processing, exerts high heat resistance and breakage resistance, and is suitable for milling processing of nickel-based heat-resistant alloys and martensitic stainless steel.

Material Introduction【PVD】

HPA025B:

TiAlN PVD new coating combined with ultra-fine particles of high toughness matrix, used for light and medium milling of steel and cast iron, and finishing and semi-finishing of stainless steel and high-temperature alloys.

HPA035B:

The PVD coating is combined with a substrate with excellent toughness and is suitable for roughing and semi-finishing of various materials.

HPA225B:

A1CrN and A1CrSiN PVD new coatings combined with tough cemented carbide substrates are used for medium-load milling and hole processing of steel and cast iron, and finishing and semi-finishing of stainless steel and high-temperature alloys.

HPA113C:

It has a wide range of applications, with balanced wear resistance and impact resistance, and is suitable for semi-finishing and medium-cutting general processing.

HPA123C:

TiAlN series coatings have greatly improved wear resistance and fracture resistance, and are suitable for medium and rough cutting general processing.

HPA213C:

A1-Ti-Cr-N type multi-layer coating, low friction coefficient, excellent adhesion resistance, cemented carbide substrate with high wear resistance, breakage resistance and heat resistance, performance is superior to HPA113C, suitable for medium cutting and medium roughing of various materials.

HPS110B:

The combination of new coating and ultra-fine particle matrix is suitable for finishing of titanium alloy and nickel-based alloy materials.

Material Introduction【Carbide】

HWK001B

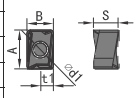
It is suitable for finishing and semi-finishing of cast iron, non-ferrous metals, especially aluminum, and can also process hard materials such as manganese steel and quenched steel.

HWK202B

It is used for semi-finishing of cast iron and heat-resistant alloys, and also for processing non-metallic materials such as plastics, rubber, and wood. It is especially suitable for cutting tools that require sharp edges in the aviation industry. It is suitable to use medium cutting speeds and large feed rates.

Schematic diagram of inserts usage

1 Workpiece material		2	3 Processing form:	10
P	Steel		● Stable cutting ◐ General cutting ✣ Unstable cutting	Corresponding holder and cutter page number
M	Stainless steel			
K	Cast iron			
N	Non-ferrous metals			
S	Titanium alloy, nickel-based alloy			

4 Insert pictures	5 Model	6 Re (mm)	7 CVD coated						PVD coated								Carbide		8 Dimensions (mm)						9 Appearance
			HCP330B	HCP340B HOT	HCP350B	HCK115B	HCK125B HOT	HCK225B	HPA025B HOT	HPA225B	HPA035B	HPA113C	HPA123C	HPA213C	HPS110B HOT	HWK001B HOT	HWK202B		A	B	S	r	d1	t1	
	ANKT090408-M	0.8							○										8.6	6.6	5.2	0.8	4.4	–	
	ANKT120508-M	0.8							○										13.7	10.0	9.15	0.8	5.5	–	
	ANKT170608-M	0.8							●										16.7	11.2	10.4	0.8	6.2	–	

Illustrate

1 [Cutting materials]

2 [Processing Type]

3 [Processing form]

4 [Insert pictures]

5 [Insert model]

6 [Insert R angle]

7 [Insert material]

8 [Insert size]

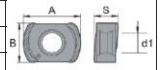
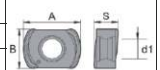
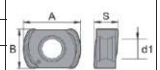
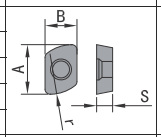
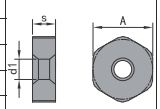
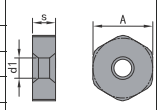
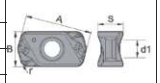
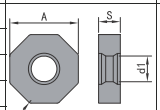
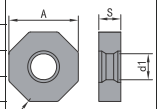
9 [Insert diagram]

10[Holder and cutter page number]

Workpiece material			Processing form:			Corresponding holder and cutter page number
	P	Steel	● Stable cutting	◐ General cutting	✣ Unstable cutting	
	M	Stainless steel				
	K	Cast iron				
	N	Non-ferrous metals				
	S	Titanium alloy, nickel-based alloy				

Insert pictures	Model	Re (mm)	CVD coated						PVD coated										Carbide		Dimensions (mm)						Appearance	Corresponding holder and cutter page number
			HCP330B	HCP340B HOT	HCP350B	HCK115B	HCK125B HOT	HCK225B	HPA025B HOT	HPA225B	HPA035B	HPA025D	HPA113C	HPA123C	HPA213C	HPS110B HOT	CWK001B	HWK101B HOT	A	B	S	r	d1	t1		
	ANKT090408-M	0.8							○										8.6	6.6	5.2	0.8	4.4	–		
	ANKT120508-M	0.8							○										13.7	10	9.15	0.8	5.5	–		
	ANKT170608-M	0.8							●										16.7	11.2	10.4	0.8	6.2	–		B065
	APGT1604PDEL	0.8		●					○										16.5	9.525	4.76	0.8	4.4	–		
	APGT1604PDER	0.8		●					○										16.5	9.525	4.76	0.8	4.4	–		
	APGT160416PDER	0.8							●										16.5	9.525	4.76	0.8	4.4	–		–
	APHW060308	0.8								●									6.35	–	3.18	0.8	3.18	2.8		–
	APKT11T304-GM	0.4							●	●									10.5	6.7	3.5	0.4	2.8	–		
	APKT11T308-GM	0.8							●	●									10.5	6.7	3.5	0.8	2.8	–		–
	APKT150412	1.2		●					●	●									15.88	9.525	4.76	1.2	4.4	–		–
	APKT160402-AF	0.2															●		16.5	9.525	4.76	0.2	4.4	–		
	APKT160408-AL	0.8																○	16.5	9.525	4.76	0.8	4.4	–		–
	APKT160408-GM	0.8		●					●	●									16.5	9.525	4.76	0.8	4.4	–		–
	APMT1135PDER-H2	0.8		●					●	●									11.0	6.25	3.5	0.8	2.8	–		
	APMT1604PDER-H1	0.4					●		○	○									16.5	9.525	4.76	0.4	4.4	–		B035 B063
	APMT1604PDER-H2	0.8		●		●			●	●									16.5	9.525	4.76	0.8	4.4	–		
	APMT1135PDER-M2	0.8				●			●	●									11.0	6.35	3.5	0.8	2.8	–		
	APMT1604PDER-M2	0.8		●		●			●	●									16.5	9.525	4.76	0.8	4.4	–		B035 B063
	APKT1705PDER-EM	0.8										○							17	10.7	5.56	0.8	4.5	–		–

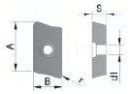
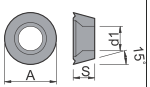
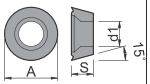
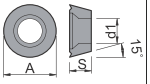
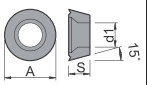
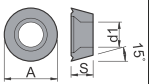
Workpiece material			Processing form:	Corresponding holder and cutter page number
	P	Steel	● Stable cutting ◐ General cutting ✣ Unstable cutting	
	M	Stainless steel		
	K	Cast iron		
	N	Non-ferrous metals		
	S	Titanium alloy, nickel-based alloy		

Insert pictures	Model	Re (mm)	CVD coated							PVD coated							Carbide		Dimensions (mm)						Appearance	Corresponding holder and cutter page number
			HCP330B	HCP340B HOT	HCP350B	HCK115B	HCK125B HOT	HCK225B	HCS110B	HPA025B HOT	HPA225B	HPA035B	HPA113C	HPA123C	HPA213C	HPS210B HOT	HWK001B HOT	HWK202B	A	B	S	r	d1	t1		
	BNMX0603-S	–											●	●	●				9.0	6.38	3.75	–	3.2	–		B057
	BNMX0603-M	–											●	●	●				9.0	6.38	3.75	–	3.2	–		B057
	BNMX0904-M	–											●	●	●				11.9	9.18	4.8	–	4.2	–		
	BNMX0603-R	–											●	●	●				9.0	6.38	3.75	–	3.2	–		B057
	EPNW0603TN-8	–									●								10.0	6.35	3.18	8.0	–	–		–
	EPMT0603TN-8	–																	10.0	6.35	3.18	8.0	–	–		
	HNGX0907ANSN-M	–								●	●								16.5	–	6.35	–	4.9	–		B021
	HNGX0907ANSN-R	–								●	●								16.5	–	6.35	–	4.9	–		B021
	LNMU0303-M	–											●		●				11.59	6.0	4.2	1.5	2.85	–		B050
	ONGU050408-PM	–							●	●						●			12.7	–	4.76	0.8	4.4	–		B019
	ONGU08T508-PM	–									●								20.2	–	5.79	0.8	8.3	–		B019

Workpiece material

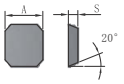
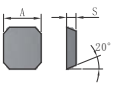
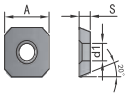
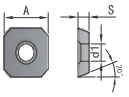
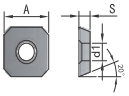
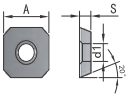
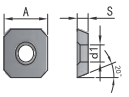
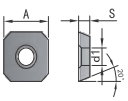
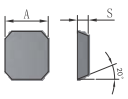
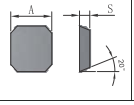
P	Steel	●	◕	✣				◕	◕	✣	◕	✣	◕					
M	Stainless steel							◕	◕	✣	◕	✣	◕					
K	Cast iron				◕	✣	✣	◕	◕	✣	◕	✣	◕		●	◕		
N	Non-ferrous metals														●	✣		
S	Titanium alloy, nickel-based alloy													◕				

Processing form: ● Stable cutting ◕ General cutting ✣ Unstable cutting

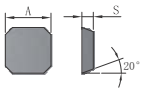
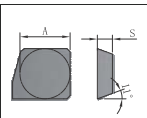
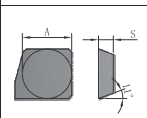
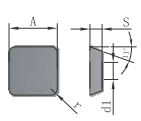
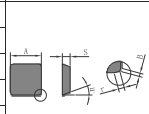
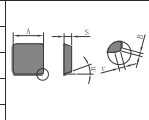
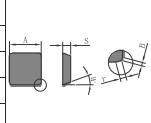
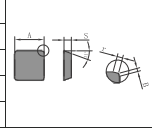
Insert pictures	Model	Re (mm)	CVD coated						PVD coated							Carbide		Dimensions (mm)						Appearance	Corresponding holder and cutter page number
			HCP330B	HCP340B HOT	HCP350B	HCK115B	HCK125B HOT	HCK225B	HPA025B HOT	HPA225B	HPA035B	HPA113C	HPA123C	HPA213C	HPS110B HOT	HWK001B HOT	HWK202B	A	B	S	r	d1	t1		
	R390-11T308-PM	0.8									●							11.0	6.8	3.5	0.8	2.8	–		B065
	PM																								
	RCHT1204M0	–							●	●								12.0	–	4.76	–	4.4	–		–
	RCKT10T3M0	–		○					●									10.0	–	3.97	–	4.4	–		
	RCMT1204M0	–				●			●									12.0	–	4.76	–	4.4	–		–
	RCMT1606M0TN	–		●	●				●	●								16.0	–	6.35	–	5.56	–		–
	RCMT2006M0TN	–		●														20.0	–	6.35	–	6.55	–		
	RDKT1204M0	–							○	●								12.0	–	4.76	–	4.4	–		–
	RDKT1204M0A	–							●	●								12.0	–	4.76	–	4.4	–		–
	RDKT1204M0D	–							●	○								12.0	–	4.76	–	4.4	–		–
	RDKT1204M0T	–								●								12.0	–	4.76	–	4.4	–		–
	RDKT1204M0W	–		●					●	●								12.0	–	4.76	–	4.4	–		–
	RDKT1604M0W	–							●	●								16.0	–	4.76	–	5.5	–		

Workpiece material			Processing form: Stable cutting ● General cutting ◕ Unstable cutting ✣	Insert pictures	Model	Re (mm)	CVD coated						PVD coated								Carbide		Dimensions (mm)						Appearance	Corresponding holder and cutter page number
							HCP330B	HCP340B HOT	HCP350B	HCK115B	HCK125B HOT	HCK225B	HPA025B HOT	HPA225B	HPA035B	HPA113C	HPA123C	HPA213C	HPS110B HOT	HWK001B HOT	HWK202B	A	B	S	r	d1	t1		
P	Steel	●	◕	✣				◕	◕	✣	◕	✣	◕																	
M	Stainless steel							◕	◕	✣	◕	✣	◕																	
K	Cast iron				◕	✣	✣	◕	◕	✣	◕	✣	◕						●	◕									
N	Non-ferrous metals																		●	✣									
S	Titanium alloy, nickel-based alloy													◕															
					RDKW1604M0	–							●	○								16.0	–	4.76	–	5.5	–		–
					RDMT0802M0TN	–							○	●								8.0	–	2.38	–	3.4	–		–
					RDMT10T3M0TN	–		●					●	●								10.0	–	3.97	–	4.4	–		
					RDMT1204M0TN	–							●	●								12.0	–	4.76	–	4.4	–		
					RDMX1003M0T	–							●	●								10.0	–	3.18	–	4.4			–
					RPGT10T3M0	–							●	●								10.0	–	3.97	–	4.4	–		–
					RPMT08T2M0E-JS	–							●	●								8.0	–	2.58	–	3.4	–		–
					RPMT10T3M0E-JS	–							●	●								10.0	–	3.97	–	4.4	–		
					RPMT1204M0E-JS	–		●		●			●	●								12.0	–	4.76	–	4.4	–		
					RPMT1606M0E-JS	–								●								16.0	–	6.35	–	5.5	–		
					RPMT1204M0	–		●					○	○								12.0	–	4.76	–	4.4	–		–
					RPMW0802M0	–							●	●								8.0	–	2.35	–	3.4	–		–
					RPMW08T2M0	–							●	●								8.0	–	2.58	–	3.4	–		
					RPMW10T3M0	–							●	●								10.0	–	3.97	–	4.4	–		
					RPMW1204M0	–		○					●	●								12.0	–	4.76	–	4.4	–		
					RPMW1606M0	–							●	●								16.0	–	6.35	–	5.5	–		
					SDMT120412-SM	h6							●	●								12.7	–	4.76	1.2	5.5	–		–
					SDMT1205ZDTN-R	–							●	●								12.7	–	5.56	15	4.6	–		B065
					SDMT1505ZDTN-R	–							●	●								15.875	–	5.56	15	4.6	–		

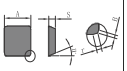
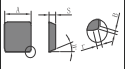
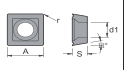
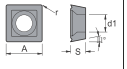
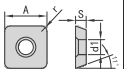
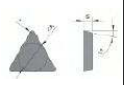
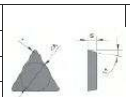
Workpiece material			Processing form:			Corresponding holder and cutter page number
	P	Steel	● Stable cutting	◔ General cutting	✣ Unstable cutting	
	M	Stainless steel				
	K	Cast iron				
	N	Non-ferrous metals				
	S	Titanium alloy, nickel-based alloy				

Insert pictures	Model	Re (mm)	CVD coated						PVD coated							cer-met	Carbide			Dimensions (mm)						Appearance	Corresponding holder and cutter page number
			HCP330B	HCP340B HOT	HCP350B	HCK115B	HCK125B HOT	HCK225B	HPA025B HOT	HPA225B	HPA035B	HPA113C	HPA123C	HPA213C	HN200D	HWK001B HOT	HWK101B	HWK202B	A	B	S	r	d1	t1		
	SEEN1203AFFN	–																●	12.7	–	3.18	–	–	–		–
	SEEN1203AFEN1																●										
	SEEN1203AEFER1																●										
	SEEN1203AFTN	–	●						○										12.7	–	3.18	–	–	–		–
	SEET12T3-FM	–	●						●	○									12.7	–	3.97	–	4.6	–		–
	SEHT12T3-HL	–														●			12.7	–	3.97	–	4.6	–		–
	SEKT1204AFTN	–							●	●									12.7	–	3.97	–	4.6	–		
	SEET12T3-SM	–	○			●			●	●									12.7	–	3.97	–	4.6	–		–
	SEET13T3AGEN														●				13.4	–	3.97	–	4.6	–		
	SEHT1204AFFN	–														●			12.7	–	4.76	–	4.6	–		B031
	SEKT1204AFTN	–				●			●	●									12.7	–	4.76	–	4.6	–		B031
	SEKN1203AFN-D	–							●	○									12.7	–	3.18	–	–	–		B034
	SEKN1504AFN	–							○	○									15.875	–	4.76	–	–	–		
	SEKN1203AFTN	–		○	○				○	○									12.7	–	3.18	–	–	–		B034
	SEKN1204AFTN	–	●																12.7	–	4.76	–	–	–		
	SEKN1504AFTN	–	○	●					○	○									15.875	–	4.76	–	–	–		

Workpiece material			Processing form: ● Stable cutting ◐ General cutting ✣ Unstable cutting	Corresponding holder and cutter page number
	P	Steel		
	M	Stainless steel		
	K	Cast iron		
	N	Non-ferrous metals		
	S	Titanium alloy, nickel-based alloy		

Insert pictures	Model	Re (mm)	CVD coated						PVD coated							Carbide		Dimensions (mm)						Appearance	Corresponding holder and cutter page number
			HCP330B	HCP340B HOT	HCP350B	HCK115B	HCK125B HOT	HCK225B	HPA025B HOT	HPA225B	HPA035B	HPA113C	HPA123C	HPA213C	HPS110B HOT	HWK001B HOT	HWK202B	A	B	S	r	d1	t1		
	SENN1203AFN	–		●														12.7	–	3.18	–	–	–		–
	SNMX1205ATN	–	●			●			●	●								12.7	–	5.56	–	–	–		B023 B025
	SNMX120412	1.2	○			○			●	●								12.7	–	5.56	–	–	–		
	SPEX1504EDL	–															●	15.875	–	4.76	–	–	–		–
	SPEX1504EDR	–															●	15.875	–	4.76	–	–	–		–
	SPGN120308	0.8		○	○	●			○	○								12.7	–	3.18	0.8	–	–		B036
	SPGN120408	0.8		○	○				○	○								12.7	–	4.76	0.8	–	–		
	SPKN1203EDFR	–							○	○							●	12.7	1.0	3.18	1.4	–	–		B036
	SPKN1203EDSKR	–	●						○	○								12.7	1.0	3.18	1.4	–	–		B036
	SPKN1504EDSKR	–	●						○	○							○	15.875	1.0	4.76	1.4	–	–		
	SPKN1203EDTR	–				●												12.7	1.0	3.18	1.4	–	–		B036
	SPKN1504EDTR	–							○	○								15.875	1.0	4.76	1.4	–	–		
	SPKN1504EDFL	–															●	15.875	1.0	4.76	1.4	–	–		B036

Workpiece material			Processing form: Stable cutting ● General cutting ◕ Unstable cutting
	P	Steel	
	M	Stainless steel	
	K	Cast iron	
	N	Non-ferrous metals	
	S	Titanium alloy, nickel-based alloy	

Insert pictures	Model	Re (mm)	CVD coated							PVD coated								Carbide		Dimensions (mm)						Appearance	Corresponding holder and cutter page number
			HPP125B	HCP330B	HCP340B HOT	HCP350B	HCK115B	HCK125B HOT	HCK225B	HPA025B HOT	HPA225B	HPA035B	HPA113C	HPA123C	HPA213C	HPS110B HOT	HWK001B HOT	HWK202B	A	B	S	r	d1	t1		
	SPKN1504EDFR	–								○	○							○	15.875	1.0	4.76	1.4	–	–		B036
	SPKN1504EDR	–								○	○							●	15.875	1.0	4.76	1.4	–	–		B036
	SPKN1504EDTKR-D	–								●									15.875	1.0	4.76	1.4	–	–		B036
	SPMT120408-HM	0.8						●		●	●								12.7	–	4.76	0.8	4.6	–		–
	SPMT120408	0.8	●		●	○	●		●	●	●								12.7	–	4.76	0.8	4.6	–		–
	SPMT120412	1.2	●				●	○											12.7	–	4.76	1.2	4.6	–		
	SPMT120416	1.6	●				●				●								12.7	–	4.76	1.6	4.6	–		
	SPMT120420	2.0	●				●												12.7	–	4.76	2	4.6	–		
	SPMT120430	3.0	●				●			○									12.7	–	4.76	3	4.6	–		
	SPMG050204-UM	0.4								●	●								5.00	–	2.38	0.4	2.25	–		B039
	SPMG060204-UM	0.4								●	●								6.00	–	2.38	0.4	2.61	–		
	SPMG07T308-UM	0.8								●	●								7.94	–	3.97	0.8	2.85	–		
	SPMG090408-UM	0.8								●	●								9.80	–	4.30	0.8	4.05	–		
	SPMG110408-UM	0.8								●	●								11.5	–	4.80	0.8	4.45	–		
	SPMG140512-UM	1.2								●	●								14.3	–	5.2	1.2	5.75	–		
	TPKN2204PDTR-D	–					●			●	●								12.7	1.4	4.76	0.7	–	–		B039
	TPMR160304	0.4		○	○	○				○	○								16.5	–	3.18	0.4	–	–		B039
	TPMR160308	0.8		○	○	○				○	○								16.5	–	3.18	0.8	–	–		
	TPUN160304	0.4		○	○					○	○								9.525	–	3.18	0.4	–	–		B027
	TPUN160308-D	0.8		○	○					○	○								9.525	–	3.18	0.8	–	–		
	TPUN220408-D	0.8		○	○					○	○								12.7	1.4	4.76	0.8	–	–		
	WNGU080608N-GM	0.8						●		●	●								14.03	–	8.28	0.8	6.17	–		B059

Workpiece material			Insert pictures	Model	Re (mm)	CVD coated						PVD coated							Carbide		Dimensions (mm)						Appearance	Corresponding holder and cutter page number
						HCP330B	HCP340B HOT	HCP350B	HCK115B	HCK125B HOT	HCK225B	HPA025B HOT	HPA225B	HPA035B	HPA113C	HPA123C	HPA213C	HPS110B HOT	HWK001B HOT	HWK202B	A	B	S	r	d1	t1		
P	Steel	Processing form:		WNMX09T316-M	1.6										●	●	●				9.525	–	3.97	1.6	–	–		
M	Stainless steel	● Stable cutting		WNMX130516-M	1.6										●	●	●				12.7	–	6.0	1.6	–	–		B059
K	Cast iron	◕ General cutting																									
N	Non-ferrous metals	✣ Unstable cutting		WNMX09T316-R	1.6										●	●	●				9.525	–	3.97	1.6	–	–		–
S	Titanium alloy, nickel-based alloy																											
				WNMX09T316-M	1.6										●	●	●				9.525	–	3.97	1.6	–	–		
				WNMX130516-M	1.6										●	●	●				12.7	–	6.0	1.6	–	–		–
				WCMX06T308R-UM	0.8							●	●								9.53	–	3.97	0.8	–	–		
				WCMX080412R-UM	1.2							●	●								12.7	–	4.76	1.2	–	–		–
				WCMX06T308R-UM	0.8							●	●								9.53	–	3.97	0.8	–	–		
				WCMX080412R-UM	1.2							●	●								12.7	–	4.76	1.2	–	–		–
				WPGT080615-ZSR	1.5							●	●								12.5	–	6.35	–	–	–		
				XNMX040308-M	0.8										●		●				6.7	–	3.285	0.8	3.15	–		
				XNMX080608-M	0.8										●		●				12.53	–	6.5	0.4	4.5	–		
				XNMX040308-R	0.8										●		●				6.7	–	3.285	0.8	3.15	–		
				XNMX080608-R	0.8										●		●				12.53	–	6.5	0.4	4.5	–		

MILLING SERIES

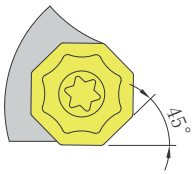
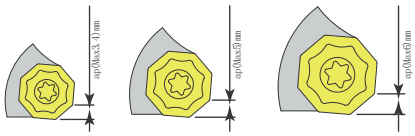
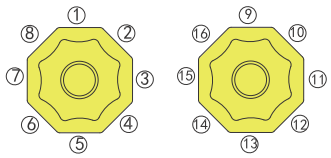
Milling cutting tools

For surface milling

ON

surface milling tools

Products features

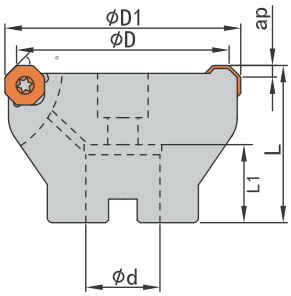
0N series lead angle is 45° One option	3.4mm//5mm/6mm Maximum cutting depth Three options	Economical 16-cutting-edge double sided inserts
	 ON05 inserts ON08 inserts ON09 inserts	 Front inserts Reverse inserts

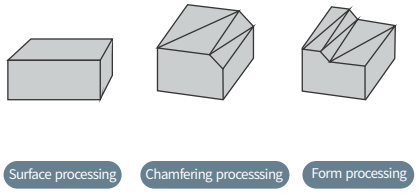
inserts shape	inserts model	ap max (mm)
	ONGU050408-PM	3. 4mm
	ONGU08T508-PM	5mm
	ONGU090520-PM	6mm

ON series
inserts groove introduction

Inserts	Chip breaker	Features
ONGU050408-PM ONGU08T508-PM ONGU090520-PM		High-strength positive rake edge design, suitable for general cutting of steel, stainless steel, cast iron and high-temperature alloys

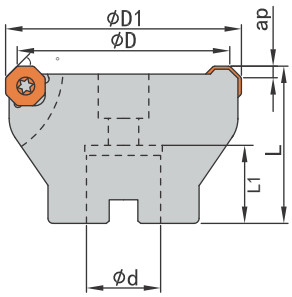
ON05 Cutter specification

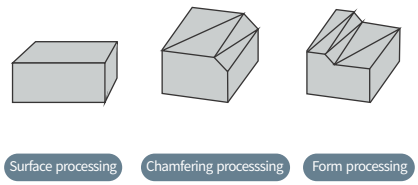




Model	Size							Insert	Screws	Wrench	Stock
	D	d	D1	L	L1	T	ap (max)				
ON45T-050R040N05-A22C *	50	22	62	40	20	4	3.4	ONGU05 0408-PM	S4012-1	T15	○
ON45T-063R050N05-A22C	63	22	75	40	20	5					○
ON45T-080R060N05-A27C	80	27	92	50	22	6					●
ON45T-100R080N05-B32C	100	32	112	63	25	8					●
ON45T-125R080N05-B40C	125	40	136	63	28	8					●
ON45T-160R100N05-C40C	160	40	172	63	28	10					●

ON08 Cutter Specifications



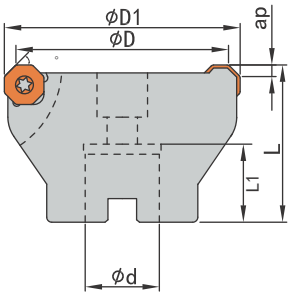


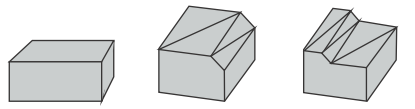
Model	Size							Insert	Screws	Wrench	Stock
	D	d	D1	L	L1	T	ap (max)				
ON45-063R050N08-A22	63	22	78	40	20	5	5	ONGU08 T508-PM	S5012-A55-1	T20	○
ON45-080R060N08-B27	80	27	95	50	22	6					○
ON45-100R070N08-B32	100	32	115	63	25	7					○
ON45-125R080N08-B40	125	40	140	63	28	8					●
ON45-160R100N08-C40	160	40	175	63	28	10					●
ON45-200R120N08-C60 *	200	60	215	63	32	12					○
ON45-250R140N08-C60 *	250	60	265	63	32	14					○
ON45-315R160N08-D60 *	315	60	330	80	32	16					○

Remark: ● In stcok ○ Reservations

Remark: Take 0N45T-050R040N05-A22C* as an example,"T" stands for unequal pitch, "C" stands for internal cooling, and "*" stands for non-standard customized products

ON09 Cutter specification



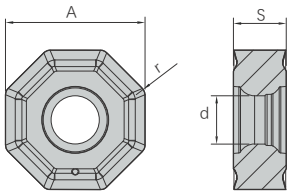


Surface processing | Chamfering processsing | Form processing

Model	Size							Insert	Screws	Wrench	Stock
	D	d	D1	L	L1	T	ap (max)				
ON45-063R050N09-A22 *	63	22	78	40	20	5	6	ONGU09 0520-PM	S5012-A55-1	T20	○
ON45-080R060N09-B27	80	27	95	50	22	6					●
ON45-100R070N09-B32	100	32	115	63	25	7					●
ON45-125R080N09-B40	125	40	140	63	28	8					●
ON45-160R100N09-C40	160	40	175	63	28	10					●
ON45-200R120N09-C60 *	200	60	215	63	32	12					○
ON45-250R140N09-C60 *	250	60	265	63	32	14					○
ON45-315R160N09-D60 *	315	60	330	80	32	16					○

Model	Size							Insert	Screws	Wrench	Stock
	D	d	D1	L	L1	T	ap (max)				
ON45-063R050N09S-A22 *	63	22	78	40	20	5	6	ONGU09 0520-PM Special for heat resistant alloy	S5012-A55-1	T20	○
ON45-080R060N09S-A27	80	27	95	50	22	6					●
ON45-100R070N09S-B32	100	32	115	63	25	7					●
ON45-125R080N09S-B40	125	40	140	63	28	8					●

Inserts specifications



Model	Material				Size			
	PVD			CVD	A	s	r	d
	HPS115B	HPA025B	HPA225B	HCK115B				
ONGU050408-PM	●	●	●		12.7	6.2	0.8	4.4
ONGU08T508-PM		●	●	●	20.2	5.79	0.8	5.3
ONGU090520-PM	●		●	●	22	5.8	0.8	5.3

Remark: The items marked with "*" are non-standard customized products
Remark: ● In stcok ○ Reservations

Recommended cutting parameters

	Workpieces material	Hardness	Insert matreial	Vc(m/min)	fz(mm/t)
P	Mild Steel(SS400、S10C etc.)	≤HB180	HPA025B	180(100-250)	0.2(0.15-0.25)
	Carbon steel, alloy steel (S50C, SCM440, etc.)	HB180-350	HPA025B	180(100-250)	0.2(0.15-0.25)
	Pre-hardened steel (NAK55, etc.)	HRC35-45	HPA025B	120(80-160)	0.15(0.1-0.2)
	High alloy steel (SKD, SK, etc.)	≤HB300	HPA025B	120(80-160)	0.15(0.1-0.2)
M	Stainless steel (SUS304, SUS316, etc.)	≤HB200	HPA225B	125(100-150)	0.1(0.05-0.15)
			HPA025B	125(100-150)	0.1(0.05-0.15)
			HPS115B	125(100-150)	0.1(0.05-0.15)
	Stainless steel (SUS304LN, SUS316LN, etc.)	≥HB200	HPA225B	100(75-125)	0.1(0.05-0.15)
			HPA025B	100(75-125)	0.1(0.05-0.15)
			HPS115B	100(75-125)	0.1(0.05-0.15)
K	Grey cast iron (FC250, etc.)	Tensile strength≤350MPa	HCK115B	220(150-300)	0.3(0.2-0.4)
	Ductile iron (FCD450, etc.)	Tensile strength 360-500MPa	HCK115B	200(150-250)	0.2(0.1-0.3)
	Ductile iron (FCD500, etc.)	Tensile strength 500-800MPa	HCK115B	170(150-200)	0.2(0.1-0.3)
S	Titanium alloy (Ti-6A-4V, etc.)	-	HPS115B	40(20-50)	0.15(0.1-0.25)
			HPA225B	40(20-50)	0.15(0.1-0.25)
	Heat-resistant alloys	-	HPS115B	30(10-40)	0.15(0.05-0.15)
			HPA225B	30(10-40)	

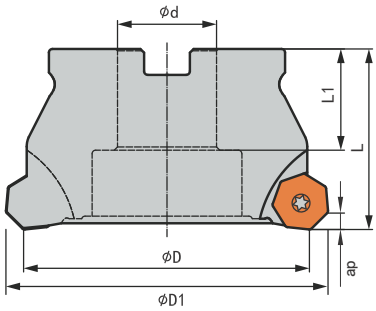
XNF45

Face milling cutter

Prodcuts features

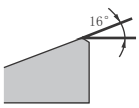
- 14-cutting-edge double sided inserts,more economical processing
- Lead angle : 45°
- Thickened inserts design, strong resistance to breakage
- Max cutting depth: 4.5mm
- The insert edge setting M type meets the customer's general processing requirements

Cutter specifications



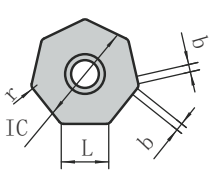
Model	Size							Insert	Screws	Wrench	Stock
	D	d	D1	L	L1	T	ap (max)				
XNF45-050R04XN07-A22	50	22	60.38	40	20	4	4.5	XNHF0705	TS3510	T15	●
XNF45-063R05XN07-A22	63	22	73.38	50	20	5					●
XNF45-080R06XN07-A27	80	27	90.38	50	22	6					●
XNF45-100R07XN07-B32	100	32	110.38	50	25	7					●
XNF45-125R08XN07-B40	125	40	135.38	63	28	8					●
XNF45-160R10XN07-B40	160	40	170.38	63	28	10					●

Insert grooving introduction

Groove type	Graphics	Feature
M-groove		General type, suitable for semi-finishing to medium processing conditions, suitable for most materials

Remark: ● In stcok ○ Reservations

Inserts specifications



Model	Material						Size				
	PVD				CVD		IC	s	r	b/d	L
	HPA025B	HPA225B	HPS325B	HPS120D	HCK115B	HCK215B					
XNHF0705ANN-M	●	●	●		●	●	14.5	4.6	0.8	1.1	6.98
XNMU070508-S				●			14.5	4.6	0.8	1.1	6.98

Remark: ● In stcok ○ Reservations

Recommended cutting parameters

	Workpieces material	Hardness	Insert matreial	Vc(m/min)	fz(mm/t)
P	Mild Steel(SS400、S10C etc.)	≤HB180	HPA025B	180(100-250)	0.2(0.15-0.25)
	Carbon steel, alloy steel (S50C, SCM440, etc.)	HB180-350	HPA025B	180(100-250)	0.2(0.15-0.25)
	Pre-hardened steel (NAK55, etc.)	HRC35-45	HPA025B	120(80-160)	0.15(0.1-0.2)
	High alloy steel (SKD, SK, etc.)	≤HB300	HPA025B	120(80-160)	0.15(0.1-0.2)
M	Stainless steel (SUS304, SUS316, etc.)	≤HB200	HPA225B	125(100-150)	0.1(0.05-0.15)
			HPA025B	125(100-150)	0.1(0.05-0.15)
	Stainless steel (SUS304LN, SUS316LN, etc.)	≥HB200	HPA225B	100(75-125)	0.1(0.05-0.15)
			HPA025B	100(75-125)	0.1(0.05-0.15)
K	Grey cast iron (FC250, etc.)	Tensile strength≤350MPa	HCK115B	160(100-200)	0.25(0.2-0.3)
			HCK215B	160(100-200)	0.25(0.2-0.3)
	Ductile iron (FCD450, etc.)	Tensile strength 360-500MPa	HCK115B	160(100-220)	0.2(0.15-0.25)
			HCK215B	160(100-200)	0.2(0.15-0.25)
	Ductile iron (FCD500, etc.)	Tensile strength 500-800MPa	HCK115B	140(90-190)	0.2(0.15-0.25)
			HCK215B	140(90-190)	0.2(0.15-0.25)
S	Titanium alloy (Ti-6A-4V, etc.)	-	HPS325B	60(40-80)	0.15(0.1-0.25)
	Heat-resistant alloys	-	HPS325B	30(10-40)	0.15(0.05-0.15)

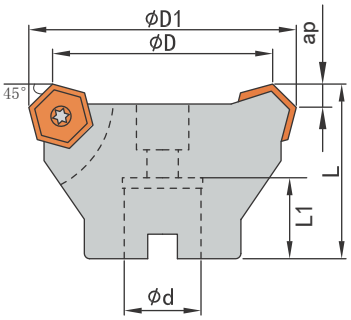
HN45

face milling cutter

Prodcuts features

- ·Achieve high feed processing
- ·Low cutting resistance
- ·High collapse resistance
- ·Super versatility
- ·12-cutting-edge double sided inserts
- ·Cutter interface: Metric interface
- ·Lead angle:45°
- ·Max cutting depth: 5mm
- ·Diameter range: Φ50-Φ315mm

Cutter specifications

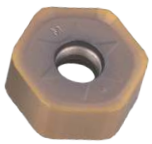


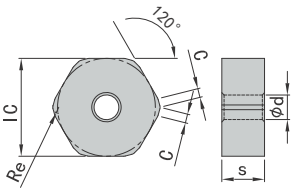
Model	Size							Insert	Screws	Wrench	Stock
	D	d	D1	L	L1	T	ap (max)				
HN45-50R04H09-A22	50	22	61.7	40	20	4	5	HNGX09 07ANSN	SC45 1260-F	T20	●
HN45-63R06H09-A22	63	22	74.7	40	20	6					●
HN45-80R06H09-A27	80	27	91.7	50	22	6					●
HN45-80R08H09-A27	80	27	91.7	50	22	8					●
HN45-100R06H09-B32	100	32	111.7	50	25	6					●
HN45-125R06H09-B40	125	40	136.7	63	28	6					●
HN45-125R08H09-B40	125	40	136.7	63	28	8					●
HN45-125R10H09-B40	125	40	136.7	63	28	10					●
HN45-160R08H09-C40	160	40	171.7	63	28	8					●
HN45-160R10H09-C40	160	40	171.7	63	28	10					●
HN45-160R12H09-C40	160	40	171.7	63	28	12					●
HN45-200R12H09-D60 *	200	60	211.7	63	32	12					○
HN45-315R16H09-D60 *	315	60	326.7	80	32	16					○

Remark:The items marked with "*" are non-standard customized products

Remark: ● In stcok ○ Reservations

Inserts specifications





Model	Material			Size				
	PVD		CVD	IC	S	Re	C	d
	HPA225B	HPA025B	HCK115B					
HNGX0907ANSN-M	●	●	○	16.5	7.13	1	1.5	4.86
HNGX0907ANSN-R	●	●	●	16.5	7.13	1	1.5	4.86

Remark: ● In stcok ○ Reservations

Recommended cutting parameters

	Workpieces material	Hardness	Insert matreial	Vc(m/min)	fz(mm/t)
P	Mild Steel(SS400、S10C etc.)	≤HB180	HPA025B	250(200-300)	0.3(0.2-0.4)
P	alloy steel(SCM*** etc.)	HB180-280	HPA025B	180(100-250)	0.2(0.15-0.25)
P	alloy steel (SNCM439 etc.)	HB280-350	HPA025B	140(100-180)	0.3(0.2-0.4)
M	Stainless steel (SUS304, SUS316,etc.)	≤HB200	HPA225B	150(100-200)	0.2(0.1-0.3)
K	Grey cast iron (FC300,etc.)	Tensile strength≤ 350MPa	HCK115B	220(150-300)	0.3(0.2-0.4)
			HPA225B	180(130-230)	0.3(0.2-0.4)
K	Ductile iron (FCD450,etc.)	Tensile strength≤ 450MPa	HCK115B	200(150-250)	0.2(0.1-0.3)
			HPA225B	170(120-220)	0.2(0.1-0.3)
K	Ductile iron (FCD700,etc.)	Tensile strength≤800MPa	HCK115B	170(150-200)	0.2(0.1-0.3)
			HPA225B	150(125-170)	0.2(0.1-0.3)
H	High hardness steel (SKD61 etc.)	HRC40-50	HPA025B	80(60-100)	0.15(0.1-0.2)

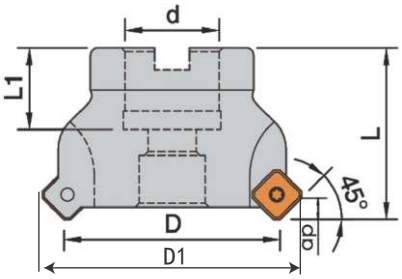
4033

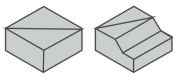
Face Milling Cutter

Prodcuts features

- Unique "Z" design and special cutting edge ensure
- Reduce loads and extend tool life
- 8-edge angles, good economy
- Low cutting resistance
- Excellent cutting process
- Lead angle:45°
- Max cutting depth: 5mm
- Diameter range: Φ50-Φ315mm

Cutter specifications



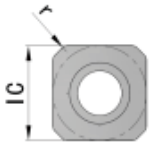


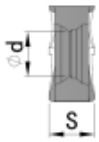
Model	Size							Insert	Screws	Wrench	Stock
	D	d	D1	L	L1	T	ap (max)				
4033. A. 050. Z04. SN12-22 *	50	22	64. 5	40	20	4	5	SNMX1 205ATN	TS4015	T15	○
4033. A. 063. Z05. SN12-22	63	22	77. 5	40	20	5					●
4033. A. 080. Z07. SN12-27	80	27	94. 5	50	22	7					●
4033. B. 100. Z08. SN12-32	100	32	114. 5	50	28	8					●
4033. B. 125. Z10. SN12-40	125	40	139. 5	63	35	10					●
4033. B. 160. Z12. SN12-40 *	160	40	174. 5	63	35	12					○
4033. C. 200. Z14. SN12-60 *	200	60	214. 5	63	42	14					○
4033. C. 250. Z16. SN12-60 *	250	60	264. 5	63	42	16					○
4033. D. 315. Z20. SN12-60 *	315	60	329. 5	63	57	20					○

Remark:The items marked with "*" are non-standard customized products

Remark: ● In stcok ○ Reservations

Inserts specifications





Model	Material				Size			
	CVD		PVD		IC	s	r	d
	HCP330B	HCK115B	HPA025B	HPA225B				
SNMX1205ATN	●	●	●	●	12.7	6.2	0.8	6

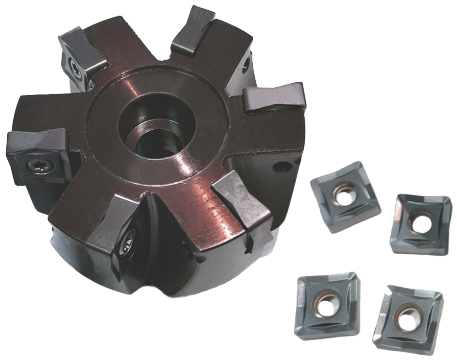
Remark: ● In stcok ○ Reservations

Recommended cutting parameters

	Workpieces material	Hardness	Insert matreial	Vc(m/min)	fz(mm/t)
P	Carbon steel, alloy steel (S45C、SCM440 etc.)	HB180-350	HPP330B	200(150-250)	0.2(0.15-0.25)
			HPA025B	120(80-160)	0.2(0.15-0.25)
M	Austenitic stainless steel (SUS304、SUS316 etc.)	≤HB200	HPA225B	120(70-160)	0.18(0.13-0.22)
	Austenitic stainless steel (SUS304LN、SUS316LN etc.)	＞HB200	HPA225B	100(60-140)	0.18(0.13-0.22)
K	Grey cast iron (FC300,etc.)	≤350MPa	HCK115B	220(200-270)	0.2(0.15-0.25)
			HPA225B	180(130-250)	0.2(0.15-0.25)
	Ductile iron (FCD700,etc.)	≤800MPa	HCK115B	200(150-250)	0.2(0.15-0.25)
			HPA225B	180(130-250)	0.2(0.15-0.25)
H	High hardness steel(SKD61、SKT4 etc.)	HRC40-50	HPA025B	50(30-70)	0.08(0.05-0.12)

4047

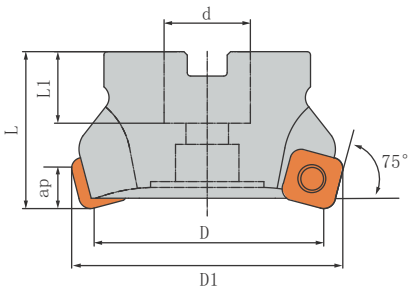
Face Milling Cutter



Product Features

- 8-cutting-edge indexable inserts, suitable for different lead angles
- Lead angle:75°
- Design effectively ensures product strength
- Max cutting depth:13.5mm
- The insert is larger and thicker, and the cutting edge is strengthened
- Positive rake angle geometry combined with stable indexable inserts ensures maximum productivity

Cutter specifications

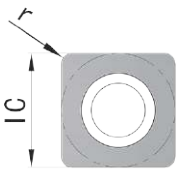


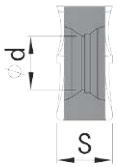
Model	Size							Insert	Screws	Wrench	Stock
	D	d	D1	L	L1	T	ap (max)				
4047.A.063.Z05.08-22 *	63	22	72.5	40	20	5	13.5	SNGX16	S5012-A55-1	T20	●
4047.A.080.Z05.08-27 *	80	27	89.5	50	22	5					○
4047.B.100.Z08.08-32 *	100	32	109.5	50	25	8					●
4047.B.125.Z10.08-40 *	125	40	134.5	63	28	10					●
4047.B.160.Z10.08-40 *	160	40	169.5	63	28	10					○
4047.C.160.Z12.08-40 *	160	40	169.5	63	28	12					○
4047.C.200.Z14.08-60 *	200	60	209.5	63	32	14					●
4047.C.250.Z16.08-60 *	250	60	259.5	63	32	16					○

Remark:The items marked with "*" are non-standard customized products

Remark: ● In stcok ○ Reservations

Inserts specifications





Model	Material						Size			
	CVD		PVD				IC	s	r	d
	HCK115B	HCP340B	HPA025B	HPA220B	HPA225B	HPH125B				
SNGX160612EN-M	●	●	●	●	●	○	16	7.7	1.2	6

Remark: ● In stcok ○ Reservations

Recommended cutting parameters

	Workpieces material	Hardness	Insert matreial	Vc(m/min)	fz(mm/t)
P	Carbon steel, alloy steel (S45C、SCM440 etc.)	HB180-350	HPA025B	120(80-160)	0.20(0.15-0.25)
M	Austenitic stainless steel (SUS304、SUS316 etc.)	≤HB200	HPA025B	120(70-160)	0.18(0.13-0.22)
M	Austenitic stainless steel (SUS304LN、SUS316LN etc.)	>HB200	HPA025B	100(60-140)	0.18(0.13-0.22)
K	Grey cast iron (FC300,etc.)	≤350MPa	HCK115B	220(200-270)	0.20(0.15-0.25)
K	Ductile iron (FCD700,etc.)	≤800MPa	HCK115B	200(150-250)	0.20(0.15-0.25)
H	High hardness steel (SKD61、SKT4 etc.)	HRC40-50	HPA025B	50(30-70)	0.08(0.05-0.12)

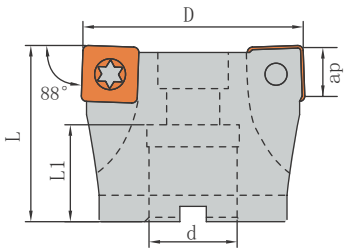
4048

Face Milling Cutter

Product Features

- 8-cutting-edge indexable inserts, suitable for different lead angles
- Lead angles:88°
- Max cutting depth:11mm,14.5mm
- Design effectively ensures product strength
- The insert is larger and thicker, and the cutting edge is strengthened
- Rake angle slot combined with stable indexable inserts ensures maximum productivity

Cutter specifications

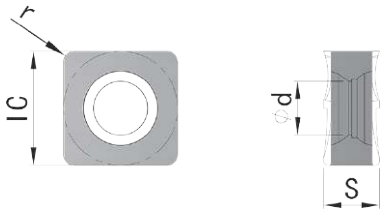


型号	尺寸						刀片	螺钉	扳手	库存
	D	d	L	L1	T	ap (max)				
4048.B.050.Z04.06-22	50	22	40	21	4	11	SNMX1205	TS4015	T15	●
4048.B.063.Z05.06-22	63	22	40	21	5					●
4048.B.063.Z05.06-25.4	63	25.4	40	21	5					○
4048.B.080.Z06.06-25.4	80	25.4	50	25	6					○
4048.B.080.Z06.06-27	80	27	50	25	6					●
4048.B.100.Z07.06-31.75	100	31.75	50	25	7					●
4048.B.100.Z07.06-31.75	100	31.75	50	25	11					●
4048.B.125.Z08.06-38.1	125	38.1	63	38	8					○
4048.B.125.Z08.06-40	125	40	63	38	8					●
4048.A.063.Z04.08-22 *	63	22	40	20	4	14.5	SNGX1606	S5012-A55-1	T20	○
4048.A.063.Z05.08-22 *	63	22	40	20	5					○
4048.A.080.Z05.08-27 *	80	27	50	22	5					○
4048.A.080.Z06.08-27 *	80	27	50	22	6					○
4048.B.100.Z06.08-32 *	100	32	50	25	6					○
4048.B.100.Z08.08-32 *	100	32	50	25	8					○
4048.B.125.Z08.06-40 *	125	40	63	28	8					○
4048.C.200.Z12.08-60 *	200	60	63	32	12					○
4048.C.250.Z14.08-60 *	250	60	63	32	14					○

Remark:The items marked with "*" are non-standard customized products

Remark: ● In stcok ○ Reservations

Inserts specifications



Model	Material					Size			
	CVD			PVD		IC	s	r	d
	HCP125B	HCP330B	HCK115B	HPA025B	HPA225B				
SNMX120512-M	○	○	○	●	○	12.7	6.2	1.2	6
SNEU1206ZNN-M	●	○	●	●	●	12.7	6.2	0.8	6
SNGX160612EN-M			●	●		16	7.7	1.2	6

Remark: ● In stcok ○ Reservations

Remark:SNEU1206ZNN-M with wiper

Recommended cutting parameters

	Workpieces material	Hardness	Insert matreial	Vc(m/min)	fz(mm/t)
P	Carbon steel, alloy steel (S45C、SCM440 etc.)	HB180-350	HCP330B	200(150-250)	0.20(0.15-0.25)
			HPA025B	120(80-160)	0.20(0.15-0.25)
M	Austenitic stainless steel (SUS304、SUS316 etc.)	≤HB200	HPA225B	120(70-160)	0.18(0.13-0.22)
	Austenitic stainless steel (SUS304LN、SUS316LN etc.)	>HB200	HPA225B	100(60-140)	0.18(0.13-0.22)
K	Grey cast iron (FC300,etc.)	≤350MPa	HCK115B	220(200-270)	0.20(0.15-0.25)
			HPA225B	180(130-250)	0.20(0. 15-0.25)
	Ductile iron (FCD700,etc.)	≤800MPa	HCK115B	200(150-250)	0.20(0.15-0.25)
			HPA225B	180(130-250)	0.20(0.15-0.25)
H	High hardness steel (SKD61、SKT4 etc.)	HRC40-50	HPA025B	50(30-70)	0.08(0.05-0.12)

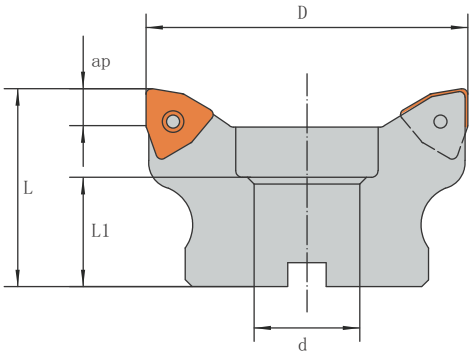
CMF

Face Milling Cutter

Product Features

- The insert edge is specially designed with a large rake angle for easy cutting
- G-grade insert precision, universal insert for left and right
- 6-cutting-edge inserts,highly economical
- The insert positioning surface has a large contact area , increased thickness improves the anti-break strength
- Lead angle:90°
- Max cutting depth:8mm
- Diameter range: Φ63-Φ250mm
- Cutter interface: Metric interface

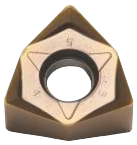
Cutter specifications

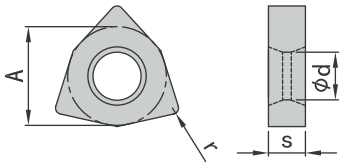


Model	Size						Insert	Screws	Wrench	Stock
	D	d	L	L1	T	ap (max)				
CMFWN90063R-4T	63	22	40	21	4	8	WNGU080608N-GM	S5012-A55-1	T20	●
CMFWN90063R-5T	63	22	40	21	5					●
CMFWN90080R-5T	80	27	50	26.5	5					●
CMFWN90080R-7T	80	27	50	26.5	7					●
CMFWN90100R-7T	100	32	50	30	7					●
CMFWN90125R-8T	125	40	63	33	8					●
CMFWN90160R-10T	160	40	63	32	10					●
CMFWN90200R-12T	200	60	63	40	12					●
CMFWN90250R-14T	250	60	63	40	14					○

Remark: ● In stcok ○ Reservations

Inserts specifications





Model	Material			Size			
	PVD		CVD	A	s	r	d
	HPA025B	HPA225B	HCK125B				
WNGU080608N-GM	●	●	●	14.03	8.28	0.8	6.17

Remark: ● In stcok ○ Reservations

Recommended cutting parameters

	Workpieces material	Hardness	Insert matreial	Vc(m/min)	fz(mm/t)
P	Mild Steel(SS400、S10C etc.)	HB200-300	HPA025B	180(120-250)	0.2(0.1-0.3)
P	alloy steel(SCM etc.)	HB150-300	HPA025B	180(100-220)	0.2(0.1-0.3)
P	Mold Steel(SKD、NAK etc.)	≤HB300	HPA025B	140(80-180)	0.15(0.1-0.25)
M	Stainless steel(SUS304, SUS316,etc.)	-	HPA225B	150(100-200)	0.15(0.1-0.25)
K	Grey cast iron(FC300,etc.)	Tensile strength ≤350MPa	HCK125B	220(200-270)	0.2(0.15-0.25)
K			HPA225B	180(120-250)	0.2(0.1-0.3)
K	Ductile iron(FCD450,etc.)	Tensile strength ≤450MPa	HCK125B	220(150-250)	0.2(0.15-0.25)
K			HPA225B	150(100-200)	0.15(0.1-0.25)

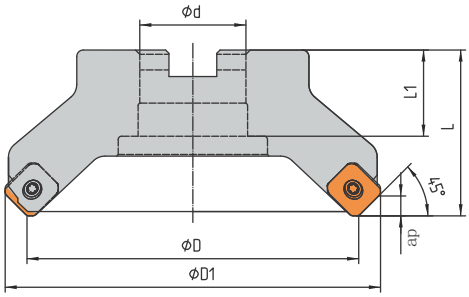
ASX445

Face Milling Cutter

Product Features

- High-precision grinding inserts with high positioning accuracy
- Large radial and axial rake angles, easy cutting
- Quickly replace the insert, simple and convenient
- Carbide insert pads are used to protect the cutter
- Distance diameter range: Φ50-Φ315mm
- Cutter interface: Metric interface
- Lead angle:45°
- Max cutting depth:8mm
- Suitable for processing thin-walled parts, box parts and steel parts, stainless steel and castings with poor rigidity in process systems

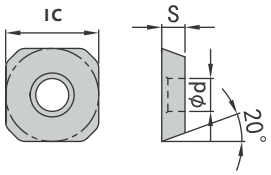
Cutter specifications

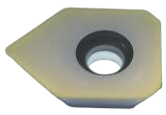


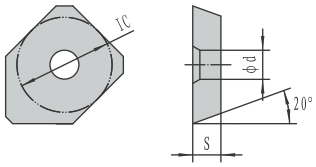
Model	Size							Insert	Shim	Shim screw	Inserts crew	Screw wrench	Wrench	Stock
	D	d	D1	L	L1	T	ap (max)							
ASX445L050-22-4T	50	22	62.4	40	20	4	6	SEET12T3 XEGT12T3	STASX445 N547	SM0508	TS3510	L3.5	T15	○
ASX445L063-22-5T	63	22	75.4	40	20	5								○
ASX445R050-22-4T	50	22	62.4	40	20	4								○
ASX445R063-22-5T	63	22	75.4	40	20	5								●
ASX445R080-27-6T	80	27	92.4	50	22	6								●
ASX445R100-32-7T	100	32	112.4	50	25	7								●
ASX445R125-40-8T	125	40	137.4	63	28	8								●
ASX445R160-40-10T	160	40	172.4	63	28	10								●
ASX445R200-60-12T	200	60	212.4	63	32	12								●
ASX445R250-60-14T	250	60	262.4	63	32	14								○
ASX445R315-60-18T	315	60	327.4	80	32	18								○

Remark: ● In stcok ○ Reservations

Inserts specifications







Model	Material						Size		
	CVD		PVD		Cermet	Carbide	IC	s	d
	HCP330B	HCK115B	HPA025B	HPA225B	HN200D	HWK001B			
SEET12T3-HL						●	13.4	3.97	4.1
SEET12T3-FM	●		●	●			13.4	3.97	4.1
SEET12T3-SM	●	●	●	●		○	13.4	3.97	4.1
SEET12T3AGEN					●		13.4	3.97	4.1
XEGT12T3-W			○	●			13.4	3.97	4.1

Remark: ● In stcok ○ Reservations

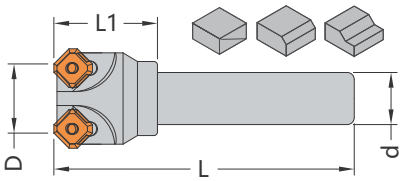
Recommended cutting parameters

Workpieces material		Hardness	Insert matreial	Vc(m/min)	Finishing-light cutting		Medium cutting	
					fz(mm/t)	Corresponding chip breaker	fz(mm/t)	Corresponding chip breaker
P	Mild Steel (SS400、S10C etc.)	≤HB180	HCP330B	260 (210-350)	0.15 (0.1-0.2)	FM	0.2(0.1-0.3)	SM
			HPA025B	180 (130-230)	0.15 (0.1-0.2)		0.2(0.1-0.3)	
	Carbon steel, alloy steel (S45C, SCM440, etc.)	HB180-280	HCP330B	240 (210-300)	0.15 (0.1-0.2)	FM	0.2(0.1-0.3)	SM
			HPA025B	160 (130-230)	0.15 (0.1-0.2)		0.2(0.1-0.3)	
		HB280-350	HCP330B	180 (130-230)	0.15 (0.1-0.2)		0.2(0.1-0.3)	
			HPA025B	140 (100-180)	0.15 (0.1-0.2)		0.2(0.1-0.3)	
M	Stainless steel(SUS304 etc.)	≤HB270	HPA225B	200 (150-250)	0.15 (0.1-0.2)	FM	0.2(0.1-0.3)	SM
K	cast iron、Ductile iron (FC250/FCD400, etc.)	Tensile strength≤ 450MPa	HCK115B	180 (150-230)	0.15 (0.1-0.2)	FM	0.2(0.1-0.3)	SM
			HPA225B	160 (130-200)	0.15 (0.1-0.2)		0.2(0.1-0.3)	
		Tensile strength≥ 450MPa	HCK115B	180 (150-230)	0.15 (0.1-0.2)		0.2(0.1-0.3)	
			HPA225B	120 (100-180)	0.15 (0.1-0.2)		0.2(0.1-0.3)	
N	Non-ferrous metals	-	HWK001B	300(200-500)	0.05-0.2	HL	0.05-0.2	HL

SE445

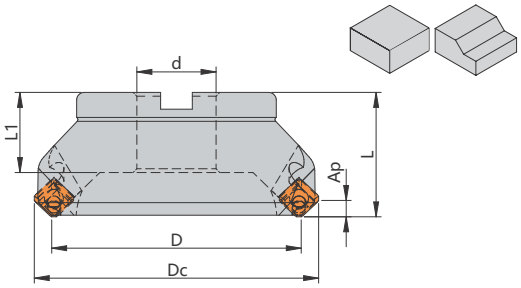
Face Milling Cutter

Cutter specifications



Model	Size					Insert	Screws	Wrench
	D	d	L	L1	T			
SE445R232S20	32	20	110	45	2	SE*1204AFER	TS5006	TK20
SE445R340S20	40	20	110	45	3			
SE445R450S20	50	20	120	45	4			
SE445R450S25	50	25	120	45	4			
SE445R563S25	63	25	120	45	5			
SE445R563S32	63	25	120	45	5			

Cutter specifications



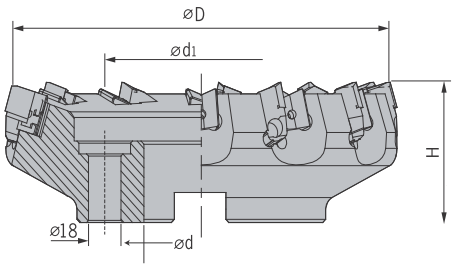
Model	Size							Insert	Screws	Wrench
	D	Dc	d	L	L1	T	Ap			
SE445R050-22-4T	50	64	22	40	20	4	4	SE**1204*	TS5006	TK20
SE445R063-22-5T	63	77	22	45	21	5				
SE445R063-25.4-5T	63	77	25.4	45	21	5				
SE445R080-27-6T	80	94	27	50	26	6				
SE445R080-31.75-6T	80	94	31.75	50	26	6				
SE445R100-32-6T	100	114	32	50	32	6				
SE445R100-31.75-6T	100	114	31.75	50	32	6				
SE445R125-40-8T	125	139	40	63	38	8				
SE445R125-38.1-8T	125	139	38.1	63	38	8				
SE445R160-40-10T	160	174	40	63	38	10				
SE445R160-50.8-10T	160	174	50.8	63	38	10				
SE445R200-47.625-12T	200	214	47.625	63	38	12				
SE445R250-47.625-14T	200	264	47.625	63	38	14				

Model	Size							Insert	Screws	Wrench
	D	Dc	d	L	L1	T	Ap			
SE445L050-22-4T	50	64	22	40	20	4	4	SE**1204*	TS5006	TK20
SE445L063-22-5T	63	77	22	45	21	5				
SE445L063-25.4-5T	63	77	25.4	45	21	5				
SE445L080-27-6T	80	94	27	50	26	6				
SE445L080-31.75-6T	80	94	31.75	50	26	6				
SE445L100-32-6T	100	114	32	50	32	6				
SE445L100-31.75-6T	100	114	31.75	50	32	6				
SE445L125-40-8T	125	139	40	63	38	8				
SE445L125-38.1-8T	125	139	38.1	63	38	8				
SE445L160-40-10T	160	174	40	63	38	10				
SE445L160-50.8-10T	160	174	50.8	63	38	10				
SE445L200-47.625-12T	200	214	47.625	63	38	12				
SE445L250-47.625-14T	200	264	47.625	63	38	14				

FP45

Face Milling Cutter

Cutter specifications

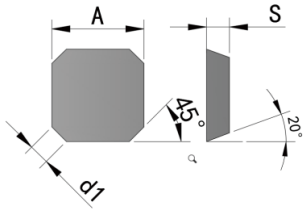


Model	Size						Insert	Screws	Wrench	Milling Fixture	Wedge
	D	d	d1	H	ap	T					
FP45PTR0805A25.4	80	25.4	-	50	5.5/5.7	5	SE**1204*	TS5006	TK20	FC2250-SE1203-45 FC2250-SE1504-45	SV-128170-15-45
FP45PTR1005A31.75	100	31.75	-	50	5.5/5.7	5					
FP45PTR1256A38.1	125	38.1	-	63	5.5/5.7	6					
FP45PTR1608A50.8	160	50.8	-	63	5.5/5.7	8					
FP45PTR20010A47.625	200	47.625	101.6	63	5.5/5.7	10					
FP45PTR25012A47.625	250	47.625	101.6	63	5.5/5.7	12					
FP45PTR30014A47.625	300	47.625	101.6	63	5.5/5.7	14					
FP45PTR0805B27	80	27	-	50	5.5/5.7	5					
FP45PTR1005B32	100	32	-	50	5.5/5.7	5					
FP45PTR1256B40	125	40	-	63	5.5/5.7	6					
FP45PTR1608B40	160	40	-	63	5.5/5.7	8					
FP45PTR20010B60	200	60	101.6	63	5.5/5.7	10					
FP45PTR25012B60	250	60	101.6	63	5.5/5.7	12					
FP45PTR30014B60	300	60	101.6	63	5.5/5.7	14					

Remark:

1. The main thing is to replace the insert seat. The same FP specification cutter head can use two types of blades, SEKN1203 and SEKN1504.
2. Order model example: The blade used is SEKN1203, FP45PTRO805A25.4-SE1203.

Inserts specifications



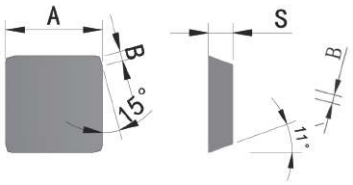
Model	Material						Size				
	CVD				PVD		A	B	S	d1	d1
	HCP330B	HCP340B	HCP350B	HCK115B	HPA025B	HPA225B					
SEKN1203AFN-D	○	○	○	○	●	○	12.7	1	3.18	1.4	-
SEKN1203AFTN	●	○	●	●	●	●	12.7	1	3.18	1.4	-
SEKN1504AFN			●	●	●		15.875	1	4.76	1.4	-
SEKN1504AFTN							15.875	1	4.76	1.4	-

Remark: ● In stcok ○ Reservations

Recommended cutting parameters

	Workpieces material	Hardness	Insert matreial	Vc(m/min)	fz(mm/t)
P	Mild Steel(SS400、S10C etc.)	≤HB180	HCP330B	200(160-250)	0.2(0.1-0.3)
			HCP340B	200(160-250)	0.2(0.1-0.3)
			HCP350B	200(160-250)	0.2(0.1-0.3)
			HPA025B	140(80-250)	0.2(0.1-0.3)
	Carbon steel, alloy steel (S45C, SCM440, etc.)	HB180-280	HCP330B	180(140-230)	0.2(0.1-0.3)
			HCP340B	180(140-230)	0.2(0.1-0.3)
			HCP350B	180(140-230)	0.2(0.1-0.3)
			HPA025B	180(140-230)	0.2(0.1-0.3)
		HB280-350	HCP330B	140(100-220)	0.15(0.1-0.2)
			HCP340B	140(100-220)	0.15(0.1-0.2)
			HCP350B	180(140-200)	0.15(0.1-0.2)
			HPA025B	120(80-160)	0.15(0.1-0.2)
M	Stainless steel(SUS304,etc.)	≤HB200	HPA225B	150(100-200)	0.2(0.1-0.3)
K	cast iron (FC300,FC400 etc.)	Tensile strength≤ 450MPa	HCK115B	160(100-220)	0.2(0.1-0.3)
			HPA025B	160(100-220)	0.2(0.1-0.3)

Inserts specifications



Model	Material							Size		
	CVD				PVD		Carbide	A	B	S
	HCP330B	HCP340B	HCP350B	HCK115B	HPA025B	HPA225B	HWK202B			
SPGN120308		○	○	●	○	○		9.525	-	3.18
SPKN1203EDFR	●				○	○	●	12.7	1.4	3.18
SPKN1203EDSKR					○	○		12.7	1.4	3.18
SPKN1203EDTR	●			●	○	○		12.7	1.4	3.18
SPKN1504EDFL	○				○	○	●	15.875	1.4	4.76
SPKN1504EDFR					○	○	○	15.875	1.4	4.76
SPKN1504EDR					○	○	●	15.875	1.4	4.76
SPKN1504EDSKR	●				○	○	○	15.875	1.4	4.76
SPKN1504EDTR					○	○		15.875	1.4	4.76

Remark: ● In stcok ○ Reservations

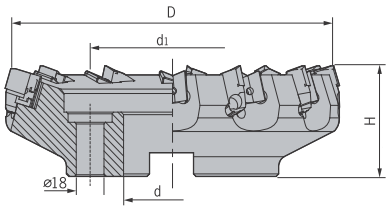
Recommended cutting parameters

Workpieces material		Hardness	Insert matreial	Vc(m/min)	fz(mm/t)
P	Mild Steel(SS400、S10C etc.)	≤HB180	HCP330B	200(160-250)	0.2(0.1-0.3)
			HCP340B	200(160-250)	0.2(0.1-0.3)
			HCP350B	200(160-250)	0.2(0.1-0.3)
			HPA025B	180(100-250)	0.2(0.1-0.3)
	Carbon steel, alloy steel (S45C, SCM440, etc.)	HB180-280	HCP330B	200(160-250)	0.2(0.1-0.3)
			HCP340B	200(160-250)	0.2(0.1-0.3)
			HCP350B	200(160-250)	0.2(0.1-0.3)
			HPA025B	180(100-250)	0.2(0.1-0.3)
		HB280-350	HCP330B	180(140-200)	0.15(0.1-0.2)
			HCP340B	180(140-200)	0.15(0.1-0.2)
			HCP350B	180(140-200)	0.15(0.1-0.2)
			HPA025B	120(80-160)	0.15(0.1-0.2)
M	Stainless steel(SUS304 etc.)	≤HB200	HPA225B	150(100-200)	0.2(0.1-0.3)
K	cast iron (FC300,FC400 etc.)	Tensile strength ≤450MPa	HCK115B	175(100-250)	0.2(0.1-0.3)
			HPA025B	160(100-220)	0.2(0.1-0.3)
N	Aluminum alloy	-	HWK202B	1000(200-1500)	0.15(0.05-0.25)
H	High hardness steel	HRC40-55	HPA025B	80(60-100)	0.15(0.05-0.25)

FP75

Face Milling Cutter

Cutter specifications



Model	Size						Insert	Screws	Wrench	Milling Fixture	Wedge
	D	d	d1	H	ap	T					
FP75PTR0805A25.4	80	25.4	-	50	6/8	5	SPKN120308 SPKN1504	H516	T04	FC2250-SP1203-75 FC2250-SP1504-75	SV-128170-15-75
FP75PTR1006A31.75	100	31.75	-	50	6/8	6					
FP75PTR1258A38.1	125	38.1	-	50	6/8	8					
FP75PTR16010A50.8	160	50.8	-	50	6/8	10					
FP75PTR20014A47.625	200	47.625	101.6	50	6/8	14					
FP75PTR25016A47.625	250	47.625	101.6	50	6/8	16					
FP75PTR30014A47.625	300	47.625	101.6	50	6/8	14					
FP75PTR0804B27	80	27	-	50	6/8	4					
FP75PTR1006B32	100	32	-	50	6/8	6					
FP75PTR1258B40	125	40	-	50	6/8	8					
FP75PTR16010B40	160	40	-	50	6/8	10					
FP75PTR20012B60	200	60	101.6	50	6/8	12					
FP75PTR25014B60	250	60	101.6	50	6/8	14					
FP75PTR30016B60	300	60	101.6	50	6/8	16					

Remark:The main thing is to replace the insert seat. The same FP specification cutter head can use two types of blades, SPKN120308 and SPKN1504ED.

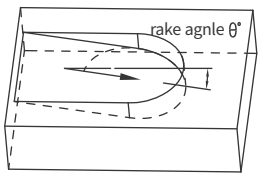
For High-sped milling

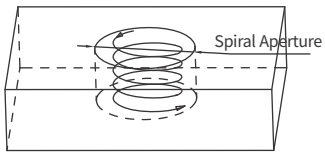
ASRF

high-speed milling cutter

Product Features

- Efficient, high-feed processing
- Economical square insterts
- Unique insert arc design
- High metal removal rate
- Effective cutting depth: 2mmMax
- Cutter interface: Metric interface
- Tool holder diameter range
- Cutter diameter range:Φ50-Φ63mm
- The insert is specially designed to enhance the resistance to breakage.

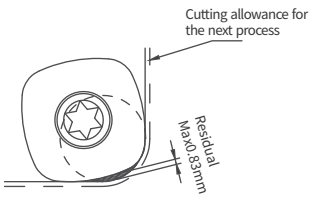




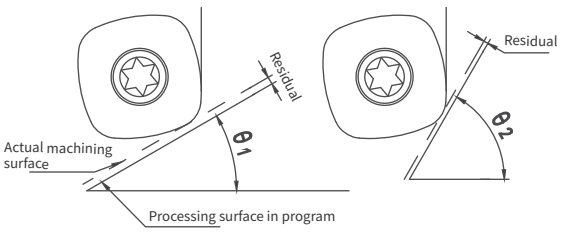
Dc	Φ32	Φ40	Φ50	Φ63	Φ80	Φ100
Max rake angle	7°	4.5°	3°	1.7°	1°	1°
Spiral aperture	Φ44-61	Φ61-76	Φ80-96	Φ107-122	Φ142-156	Φ179-195

Note: 1. The rake angle should not exceed the above range. It is recommended to use it below 1°.
2. If the hole diameter exceeds the above range, please drill a pilot hole before processing.

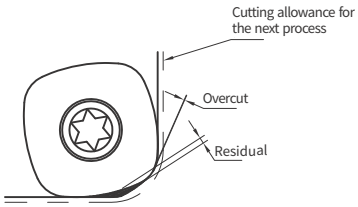
When the corner radius R is set to R4.5



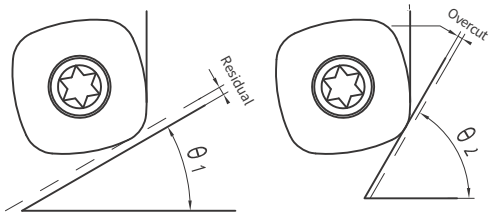
In general, please use the approximate input radius R4.5 to compile the program. No overcutting occurs when the input radius R4.5 is close to



When the radius R is set to a larger value



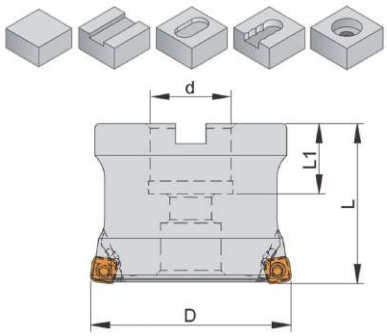
When the approximate R is set to a large value, overcutting will occur. However, if the overcutting amount is within the actual cutting amount of the next process, it will not affect the processed shape and the cutting allowance can be controlled.



Approximate input radius R	R4.5	R4.5	R4.5	R4.5	R4.5
Residual	Below 0.83 (θ1=22.1°)	Below 0.69 (θ1=20.6°)	Below 0.55 (θ1=19°)	Below 0.42 (θ1=17.1°)	Below 0.3 (θ1=14.9°)
Overcut	NO	Below 0.07 (θ2=75.3°)	Below 0.2 (θ2=67.7°)	Below 0.37 (θ2=63.1°)	Below 0.55 (θ2=60°)

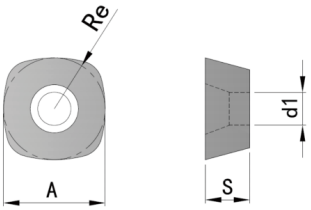
Note: 1. Overcut and residual amount vary with different machining shapes. The above table lists the respective maximum values.
2. The θ value indicates the inclination angle of the machined surface when the overcut and cutting allowance are respectively the largest.

Cutter specifications



Model	Size					Insert	Screws	Wrench	Clamp
	D	d	L	L1	T				
ASRF12-50-22-4T	50	22	50	20	4	SDMT1205ZDTN	S4009	TK15	ASRF-12
ASRF12-63-22-4T	63	22	50	20	4				
ASRF15-50-22-3T	50	22	50	20	3	SDMT1505ZDTN	S5012	TK20	ASRF-15
ASRF15-63-22-4T	63	22	50	20	4				
ASRF15-63-25.4-4T	63	25.4	50	20	4				

Inserts specifications



Model	Material		Size			
	PVD		A	s	Re	d1
	HPA025B	HPA225B				
SDMT1205ZDTN-R	●	●	12.7	5.56	15	4.4
SDMT1505ZDTN-R	●	●	15.875	5.56	15	4.4

Remark: ● In stcok ○ Reservations

Recommended cutting parameters

Workpieces material		Hardness	Insert matreial	Vc(m/min)	Φ32 diameter			
					Tool overhang depth	ap(mm)	fz(mm/t)	ae(mm)
P	Mild Steel (SS400、S10C etc.)	≤HB200	HPA025B	150(100-180)	<3Dc	1.0	1.5	26
					3Dc-5Dc	0.7	1.5	26
					>5Dc	0.5	1.5	26
	Carbon steel, alloy steel (S45C, SCM440, etc.)	HB180-280	HPA025B	150(100-200)	<3Dc	1.0	1.0	26
					3Dc-5Dc	0.7	1.0	26
					>5Dc	0.5	1.0	26
	Carbon steel, alloy steel (SNCM439 etc.)	HB280-350	HPA025B	150(100-200)	<3Dc	1.0	1.0	26
					3Dc-5Dc	0.7	1.0	26
					>5Dc	0.5	1.0	26
	alloy tool steel (SKD、SKT etc.)	≤HB350	HPA025B	150(100-200)	<3Dc	1.0	1.0	26
					3Dc-5Dc	0.7	1.0	26
					>5Dc	0.5	1.0	26
	Pre-hardened steel (NAK80 etc.)	HRC35-45	HPA025B	120(90-150)	<3Dc	1.0	0.8	26
					3Dc-5Dc	0.7	0.8	26
					>5Dc	0.5	0.8	26
M	Austenitic stainless steel (SUS304 ,etc.)	≤HB270	HPA225B	120(80-160)	<3Dc	1.2	0.8	26
					3Dc-5Dc	0.8	0.8	26
					>5Dc	0.6	0.8	26
K	Grey cast iron (FC300, etc.)	Tensile strength ≤350MPa	HPA025B	150(130-180)	<3Dc	1.5	1.5	26
					3Dc-5Dc	1.1	1.5	26
					>5Dc	0.8	1.5	26
			HPA225B	180(150-200)	<3Dc	1.5	1.5	26
					3Dc-5Dc	1.1	1.5	26
					>5Dc	0.8	1.5	26
	Ductile iron (FCD700, etc.)	Tensile strength ≤800MPa	HPA025B	140(120-180)	<3Dc	1.5	1.5	26
					3Dc-5Dc	1.1	1.5	26
					>5Dc	0.8	1.5	26
H	High hardness steel (SKD61、SKT4 etc.)	HRC40-50	HPA025B	100(90-120)	<3Dc	1.0	0.2	26
					3Dc-5Dc	0.7	0.2	26
					>5Dc	0.5	0.2	26

Recommended cutting parameters

Workpieces material		Hardness	Insert matreial	Vc(m/min)	Φ40 diameter			
					Tool overhang depth	ap(mm)	fz(mm/t)	ae(mm)
P	Mild Steel (SS400、S10C etc.)	≤HB200	HPA025B	150(100-180)	<3Dc	1.0	1.5	32
					3Dc-5Dc	0.7	1.5	32
					>5Dc	0.5	1.5	32
	Carbon steel, alloy steel (S45C, SCM440, etc.)	HB180-280	HPA025B	150(100-200)	<3Dc	1.0	1.0	32
					3Dc-5Dc	0.7	1.0	32
					>5Dc	0.5	1.0	32
	Carbon steel, alloy steel (SNCM439 etc.)	HB280-350	HPA025B	150(100-200)	<3Dc	1.0	1.0	32
					3Dc-5Dc	0.7	1.0	32
					>5Dc	0.5	1.0	32
	alloy tool steel (SKD、SKT etc.)	≤HB350	HPA025B	150(100-200)	<3Dc	1.0	1.0	32
					3Dc-5Dc	0.7	1.0	32
					>5Dc	0.5	1.0	32
	Pre-hardened steel (NAK80 etc.)	HRC35-45	HPA025B	120(90-150)	<3Dc	1.0	0.8	32
					3Dc-5Dc	0.7	0.8	32
					>5Dc	0.5	0.8	32
M	Austenitic stainless steel (SUS304 ,etc.)	≤HB270	HPA225B	120(80-160)	<3Dc	1.2	0.8	32
					3Dc-5Dc	0.8	0.8	32
					>5Dc	0.6	0.8	32
K	Grey cast iron (FC300, etc.)	Tensile strength ≤350MPa	HPA025B	150(130-180)	<3Dc	1.5	1.5	32
					3Dc-5Dc	1.1	1.5	32
					>5Dc	0.8	1.5	32
			HPA225B	180(150-200)	<3Dc	1.5	1.5	32
					3Dc-5Dc	1.1	1.5	32
					>5Dc	0.8	1.5	32
	Ductile iron (FCD700, etc.)	Tensile strength ≤800MPa	HPA025B	140(120-180)	<3Dc	1.5	1.5	32
					3Dc-5Dc	1.1	1.5	32
					>5Dc	0.8	1.5	32
H	High hardness steel (SKD61、SKT4 etc.)	HRC40-50	HPA025B	100(90-120)	<3Dc	1.0	0.2	32
					3Dc-5Dc	0.7	0.2	32
					>5Dc	0.5	0.2	32

Recommended cutting parameters

Workpieces material		Hardness	Insert matreial	Vc(m/min)	Φ50 diameter			
					Tool overhang depth	ap(mm)	fz(mm/t)	ae(mm)
P	Mild Steel (SS400、S10C etc.)	≤HB200	HPA025B	150(100-180)	<3Dc	1.5	1.5	40
					3Dc-5Dc	1.1	1.5	40
					>5Dc	0.8	1.5	40
	Carbon steel, alloy steel (S45C, SCM440, etc.)	HB180-280	HPA025B	150(100-200)	<3Dc	1.5	1.5	40
					3Dc-5Dc	1.1	1.5	40
					>5Dc	0.8	1.5	40
	Carbon steel, alloy steel (SNCM439 etc.)	HB280-350	HPA025B	150(100-200)	<3Dc	1.5	1.5	40
					3Dc-5Dc	1.1	1.5	40
					>5Dc	0.8	1.5	40
	alloy tool steel (SKD、SKT etc.)	≤HB350	HPA025B	150(100-200)	<3Dc	1.5	1.5	40
					3Dc-5Dc	1.1	1.5	40
					>5Dc	0.8	1.5	40
	Pre-hardened steel (NAK80 etc.)	HRC35-45	HPA025B	120(90-150)	<3Dc	1.5	1.5	40
					3Dc-5Dc	1.1	1.1	40
					>5Dc	0.8	0.8	40
M	Austenitic stainless steel (SUS304 ,etc.)	≤HB270	HPA225B	120(80-160)	<3Dc	1.5	0.8	40
					3Dc-5Dc	1.1	0.8	40
					>5Dc	0.8	0.8	40
K	Grey cast iron (FC300, etc.)	Tensile strength ≤350MPa	HPA025B	150(130-180)	<3Dc	2.0	2.0	40
					3Dc-5Dc	1.4	2.0	40
					>5Dc	1.0	2.0	40
			HPA225B	180(150-200)	<3Dc	2.0	2.0	40
					3Dc-5Dc	1.4	2.0	40
					>5Dc	1.0	2.0	40
	Ductile iron (FCD700, etc.)	Tensile strength ≤800MPa	HPA025B	140(120-180)	<3Dc	2.0	2.0	40
					3Dc-5Dc	1.4	2.0	40
					>5Dc	1.0	2.0	40
H	High hardness steel (SKD61、SKT4 etc.)	HRC40-50	HPA025B	100(90-120)	<3Dc	1.0	0.2	40
					3Dc-5Dc	0.7	0.2	40
					>5Dc	0.5	0.2	40

Recommended cutting parameters

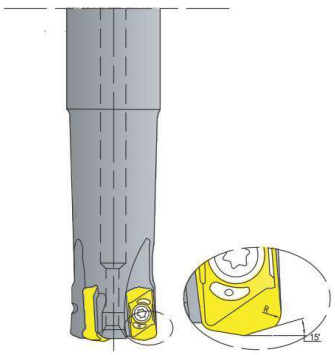
Workpieces material		Hardness	Insert matreial	Vc(m/min)	Φ63 diameter			
					Tool overhang depth	ap(mm)	fz(mm/t)	ae(mm)
P	Mild Steel (SS400、S10C etc.)	≤HB200	HPA025B	150(100-180)	<3Dc	1.5	1.5	50
					3Dc-5Dc	1.1	1.5	50
					>5Dc	0.8	1.5	50
	Carbon steel, alloy steel (S45C, SCM440, etc.)	HB180-280	HPA025B	150(100-200)	<3Dc	1.5	1.5	50
					3Dc-5Dc	1.1	1.5	50
					>5Dc	0.8	1.5	50
	Carbon steel, alloy steel (SNCM439 etc.)	HB280-350	HPA025B	150(100-200)	<3Dc	1.5	1.5	50
					3Dc-5Dc	1.1	1.5	50
					>5Dc	0.8	1.5	50
	alloy tool steel (SKD、SKT etc.)	≤HB350	HPA025B	150(100-200)	<3Dc	1.5	1.5	50
					3Dc-5Dc	1.1	1.5	50
					>5Dc	0.8	1.5	50
	Pre-hardened steel (NAK80 etc.)	HRC35-45	HPA025B	120(90-150)	<3Dc	1.5	1.5	50
					3Dc-5Dc	1.1	1.1	50
					>5Dc	0.8	0.8	50
M	Austenitic stainless steel (SUS304 ,etc.)	≤HB270	HPA225B	120(80-160)	<3Dc	1.5	0.8	50
					3Dc-5Dc	1.1	0.8	50
					>5Dc	0.8	0.8	50
K	Grey cast iron (FC300, etc.)	Tensile strength ≤350MPa	HPA025B	150(130-180)	<3Dc	2.0	2.0	50
					3Dc-5Dc	1.4	2.0	50
					>5Dc	1.0	2.0	50
			HPA225B	180(150-200)	<3Dc	2.0	2.0	50
					3Dc-5Dc	1.4	2.0	50
					>5Dc	1.0	2.0	50
	Ductile iron (FCD700, etc.)	Tensile strength ≤800MPa	HPA025B	140(120-180)	<3Dc	2.0	2.0	50
					3Dc-5Dc	1.4	2.0	50
					>5Dc	1.0	2.0	50
H	High hardness steel (SKD61、SKT4 etc.)	HRC40-50	HPA025B	100(90-120)	<3Dc	1.0	0.2	50
					3Dc-5Dc	0.7	0.2	50
					>5Dc	0.5	0.2	50

LN

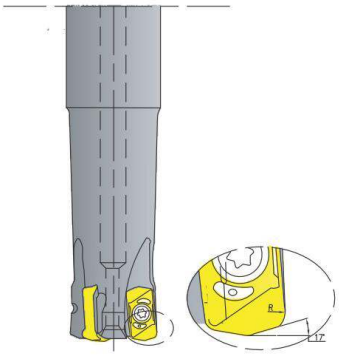
high-speed milling cutter

Product Features

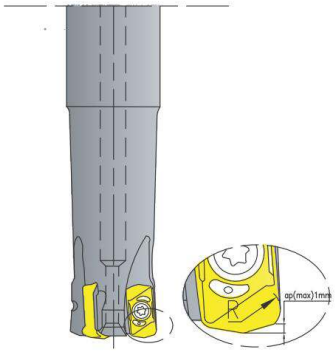
- High feed light load
- Double-sided insert, 4 cutting edge
- Max cutting depth up to 1mm
- Suitable for small machines with lower power
- Provide end millling holder, face milling cutter
- Cutting edge design with low cutting resistance
- LN series is designed with 15° and 17" leand angles according to the diameter range
- It can achieve stable and efficient cutting.



Diameter ⩽ Φ16 Cutting angle of tool holder 15°

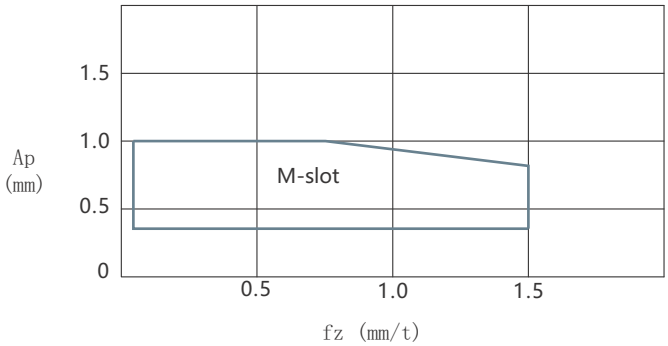


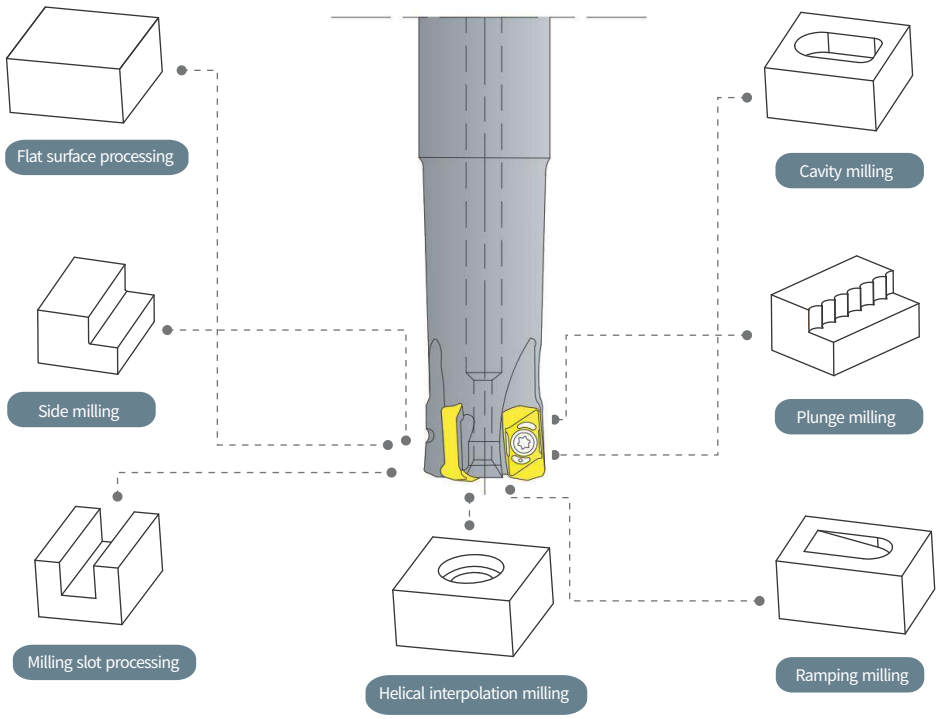
Diameter > Φ16 Cutting angle of tool holder 17°



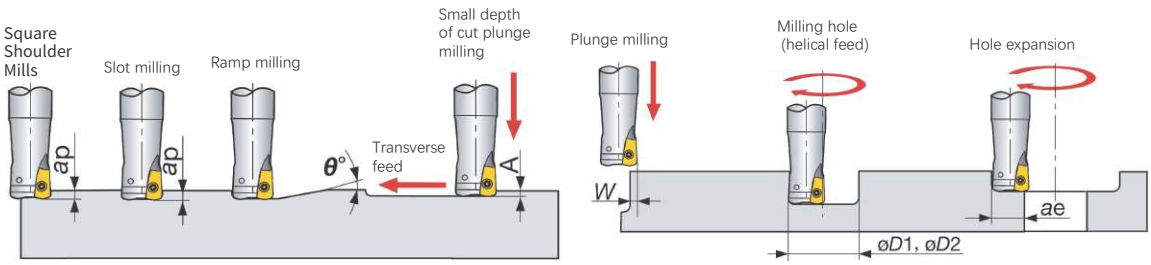
4-tip double-sided inserts, max cutting depth up to 1mm

LN cutting depth and feed rate diagram ▶





Application



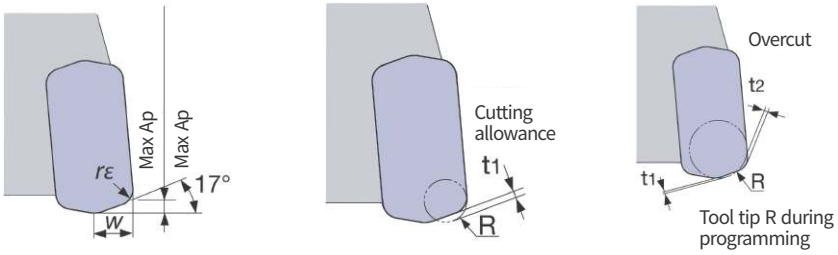
Model	Dc	ap(max)	θ °	A	W	D1	D2	ae
LNE03-16R02D16L150C	16	1	2.1	0.3	3.5	22	30	12.5
LNE03-17R02D16L160C	17	1	1.7	0.3	3.5	24	32	13.5
LNE03-20R03D20L150C	20	1	1.4	0.3	3.5	32	40	17.5
LNE03-21R03D20L160C	21	1	1.2	0.3	3.5	34	42	18.5
LNE03-25R04D25L150C	25	1	1.0	0.3	3.5	42	50	22.5
LNE03-32R05D32L160C	32	1	0.7	0.3	3.5	54	62	28.5
LNE03-33R05D32L150C	33	1	0.7	0.3	3.5	56	64	29.5
LNE03-33R05D32L200C	33	1	0.7	0.3	3.5	56	64	29.5

Note: "C" after the model number indicates cooling.

Programming Applications

■ Use of standard toolholders and long toolholders

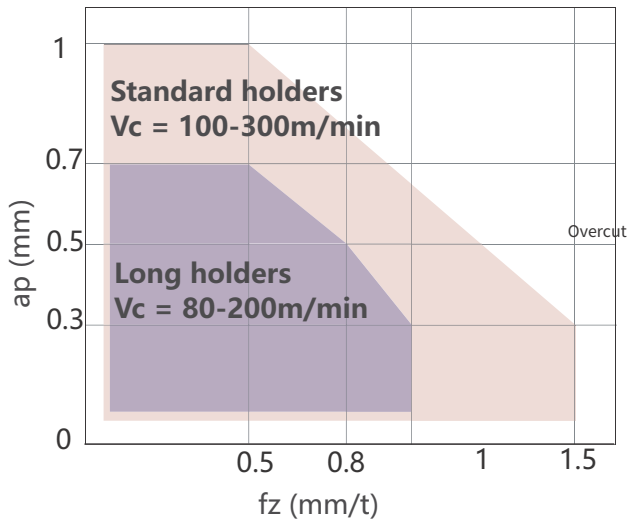
When programming with CAM, the tool should be considered as a radius milling cutter. In general, the tool tip radius should be set to R = 1.5mm. If a larger radius is used, overcutting will occur. The following table shows the cutting all owance (t1) and overcut (t2).



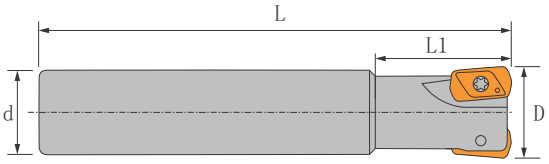
ap(max)	Re	W	R	t1	t2
1	1.2	3	1	0.6	-
1	1.2	3	1.5	0.5	-
1	1.2	3	2	0.25	0.08
1	1.2	3	2.5	0.14	0.26

■ Use of standard toolholders and long toolholders

When using a long holder, reduce the cutting conditions (Vc, fz, ap) to 70% of the maximum conditions for a standard holder.



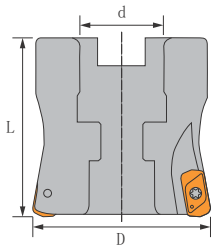
Tool specifications



Model	Size					Insert	Screws	Wrench
	D	L1	L	d	T			
LNE03-16R02D16L150C	16	30	150	16	2	LNEG1103	TS2535	TK07
LNE03-17R02D16L150C	17	30	150	16	2			
LNE03-20R03D20L150C	20	50	150	20	3			
LNE03-21R03D20L150C	21	50	150	20	3			
LNE03-25R04D25L150C	25	60	150	25	4			
LNE03-26R04D25L150C	26	60	150	25	4			
LNE03-32R05D32L160C	32	70	160	32	5			
LNE03-32R05D32L200C	32	70	200	32	5			
LNE03-33R05D32L200C	33	70	200	32	5			

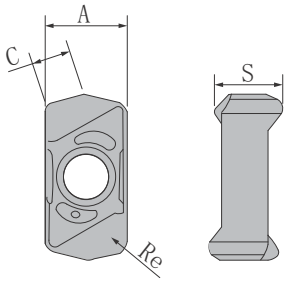
Note: "C" after the model number indicates cooling.

Cutter specifications



Model	Size				Insert	Screws	Wrench
	D	L	d	T			
LNF-50R08A22	50	50	22	5	LNEG1103	TS2535	TK07

Inserts specifications



Model	Material	Size			
	PVD HPA213C	A	S	Re	C
LNEG1103R-S	●	6	4.3	1.2	3.2
LNEG1103R-M	●	6	4.3	1.2	3.2

Remark: ● In stcok ○ Reservations

Recommended cutting parameters

Workpieces material		Hardness	Chip breaker	Insert matreial	Vc(m/min)	fz(mm/t)			ap=1.0mm							
						D		Plunge Mills	Φ6,z=2		Φ17,z=2		Φ20,z=3		Φ21,z=3	
						Φ16-Φ22	Φ25-Φ50		n	vf	n	vf	n	vf	n	vf
P	Carbon steel (S45C, S55C etc.)	≤HB300	M	HPA113C	100-300	0.5-1.2	0.5-1.5	0.1	3980	6370	3540	5660	3180	7632	2890	6936
									Vc=200m/min fz=0.8mm/t							
				HPA213C	100-300	0.5-1.2	0.5-1.5	0.1	3980	6370	3540	5660	3180	7635	2890	6936
									Vc=200m/min fz=0.8mm/t							
	alloy steel (SCr415、SCM440 etc.)	≤HB300	M	HPA113C	100-200	0.5-1.2	0.5-1.5	0.1	2980	4770	2650	4240	2390	5737	2170	5206
									Vc=200m/min fz=0.8mm/t							
				HPA213C	100-200	0.5-1.2	0.5-1.5	0.1	2980	4770	2650	4240	2390	5737	2170	5206
									Vc=200m/min fz=0.8mm/t							
	Pre-hardened steel (NAK55 etc.)	HRC 30-40	M	HPA113C	100-200	0.5-0.7	0.5-1	0.1	2980	3580	2650	3180	2390	4305	2170	3908
									Vc=150m/min fz=0.6mm/t							
				HPA213C	100-200	0.5-0.7	0.5-1	0.1	2980	3580	2650	3180	2390	4305	2170	3908
									Vc=150m/min fz=0.6mm/t							
M	Stainless steel (SUS304、SUS316 etc.)	≤HB200	M	HPA113C	100-150	0.5-0.5	0.3-0.7	0.08	2390	1910	2120	1700	1910	2295	1740	2085
									Vc=120m/min fz=0.4mm/t							
				HPA213C	100-150	0.5-0.5	0.3-0.7	0.08	2390	1910	2120	1700	1910	2295	1740	2085
									Vc=120m/min fz=0.4mm/t							
K	Grey cast iron (FC250、FC300 etc.)	HB 150-250	M	HPA113C	100-300	0.5-1.2	0.5-1.5	0.1	3980	6370	3540	5660	3180	7635	2890	5206
									Vc=200m/min fz=0.8mm/t							
				HPA213C	100-300	0.5-1.2	0.5-1.5	0.1	3980	6370	3540	5660	3180	7635	2890	5206
									Vc=200m/min fz=0.8mm/t							
	Ductile iron (FCD400 etc.)	HB 150-250	M	HPA113C	80-200	0.5-1.2	0.5-1.5	0.1	2980	4770	2650	4240	2390	5737	2170	5206
									Vc=150m/min fz=0.8mm/t							
				HPA213C	80-200	0.5-1.2	0.5-1.5	0.1	2980	4770	2650	4240	2390	5737	2170	5206
									Vc=150m/min fz=0.8mm/t							
S	Titanium alloy (Ti-6A-4V etc.)	–	–	HPA113C	30-60	0.3-0.5	0.3-0.7	0.08	800	640	710	570	640	765	580	697
									Vc=40m/min fz=0.4mm/t							
				HPA213C	30-60	0.3-0.5	0.3-0.7	0.08	800	640	710	570	640	765	580	697
									Vc=40m/min fz=0.4mm/t							
	Heat-resistant alloys Inconel Nickel-based alloys, etc.	–	–	HPA113C	20-50	0.1-0.2	0.1-0.3	0.05	600	180	530	160	480	217.5	430	195
									Vc=30m/min fz=0.15mm/t							
				HPA213C	20-50	0.1-0.2	0.1-0.3	0.05	600	180	530	160	480	217.5	430	195
									Vc=30m/min fz=0.15mm/t							
H	Hardened Steel SKD61 etc.	HRC 40-50	M	HPA113C	80-130	0.1-0.2	0.1-0.3	0.05	1990	600	1770	530	1590	712.5	1450	652
									Vc=100m/min fz=0.15mm/t							
				HPA213C	80-130	0.1-0.2	0.1-0.3	0.05	1990	600	1770	530	1590	712.5	1450	652
									Vc=100m/min fz=0.15mm/t							
	Hardened Steel SKD11 etc.	HRC 50-60	M	HPA113C	50-70	0.03-0.05	0.03-0.07	0.03	1194	95	1124	89	955	76	909	72
									Vc=60m/min fz=0.04mm/t							
				HPA213C	50-70	0.03-0.05	0.03-0.07	0.03	1194	95	1424	89	955	76	909	72
									Vc=60m/min fz=0.04mm/t							

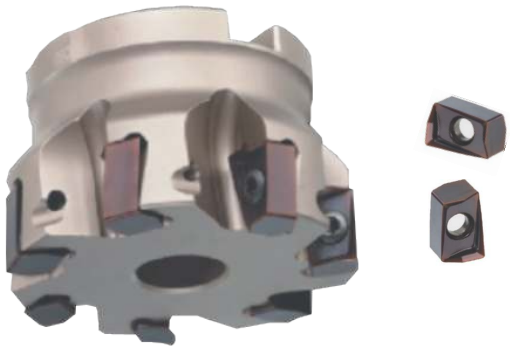
Recommended cutting parameters

Workpieces material		Hardness	Chip breaker	Insert matreial	Vc(m/min)	fz(mm/t)			ap=1.0mm					
						D		Plunge Mills	Φ25-Φ26,z=4		Φ32-Φ33,z=5		Φ50,z=5	
						Φ16-Φ22	Φ25-Φ50		n	vf	n	vf	n	vf
P	Carbon steel (S45C, S55C etc.)	≤HB300	M	HPA113C	100-300	0.5-1.2	0.5-1.5	0.1	2550	10200	1990	9950	1273	6365
									Vc=200m/min fz=1mm/t					
				HPA213C	100-300	0.5-1.2	0.5-1.5	0.1	2550	10200	1990	9950	1273	6365
									Vc=200m/min fz=1mm/t					
	alloy steel (SCr415、SCM440 etc.)	≤HB300	M	HPA113C	100-200	0.5-1.2	0.5-1.5	0.1	1910	7640	1490	7450	955	4777
									Vc=150m/min fz=1mm/t					
				HPA213C	100-200	0.5-1.2	0.5-1.5	0.1	1910	7640	1490	7450	955	4777
									Vc=150m/min fz=1mm/t					
	Pre-hardened steel (NAK55 etc.)	HRC 30-40	M	HPA113C	100-200	0.5-0.7	0.5-1	0.1	1910	6110	1490	5958	955	3820
									Vc=150m/min fz=0.8mm/t					
				HPA213C	100-200	0.5-0.7	0.5-1	0.1	1910	6110	1490	5958	955	3820
									Vc=150m/min fz=0.8mm/t					
M	Stainless steel (SUS304、SUS316 etc.)	≤HB200	M	HPA113C	100-150	0.5-0.5	0.3-0.7	0.08	1530	3060	1190	2975	764	1910
									Vc=120m/min fz=0.5mm/t					
				HPA213C	100-150	0.5-0.5	0.3-0.7	0.08	1530	3060	1190	2975	764	1910
									Vc=120m/min fz=0.5mm/t					
K	Grey cast iron (FC250、FC300 etc.)	HB 150-250	M	HPA113C	100-300	0.5-1.2	0.5-1.5	0.1	2550	10200	1990	9950	1273	6365
									Vc=200m/min fz=1mm/t					
				HPA213C	100-300	0.5-1.2	0.5-1.5	0.1	2550	10200	1990	9950	1273	6365
									Vc=200m/min fz=1mm/t					
	Ductile iron (FCD400 etc.)	HB 150-250	M	HPA113C	80-200	0.5-1.2	0.5-1.5	0.1	1910	7640	1490	7450	955	4777
									Vc=150m/min fz=1mm/t					
				HPA213C	80-200	0.5-1.2	0.5-1.5	0.1	1910	7640	1490	7450	955	4777
									Vc=150m/min fz=1mm/t					
S	Titanium alloy (Ti-6A-4V etc.)	–	–	HPA113C	30-60	0.3-0.5	0.3-0.7	0.08	510	1020	400	1000	254	636
									Vc=40m/min fz=0.5mm/t					
				HPA213C	30-60	0.3-0.5	0.3-0.7	0.08	510	1020	400	1000	254	636
									Vc=40m/min fz=0.5mm/t					
	Heat-resistant alloys Inconel Nickel-based alloys, etc.	–	–	HPA113C	20-50	0.1-0.2	0.1-0.3	0.05	380	300	300	225	191	191
									Vc=30m/min fz=0.2mm/t					
				HPA213C	20-50	0.1-0.2	0.1-0.3	0.05	380	300	300	225	191	191
									Vc=30m/min fz=0.2mm/t					
H	Hardened Steel SKD61 etc.	HRC 40-50	M	HPA113C	80-130	0.1-0.2	0.1-0.3	0.05	1270	1020	990	991	636	636
									Vc=100m/min fz=0.2mm/t					
				HPA213C	80-130	0.1-0.2	0.1-0.3	0.05	1270	1020	990	991	636	636
									Vc=100m/min fz=0.2mm/t					
	Hardened Steel SKD11 etc.	HRC 50-60	M	HPA113C	50-70	0.03-0.05	0.03-0.07	0.03	760	150	600	150	382	95
									Vc=60m/min fz=0.05mm/t					
				HPA213C	50-70	0.03-0.05	0.03-0.07	0.03	760	150	600	150	382	95
									Vc=60m/min fz=0.05mm/t					

For face step process

AN90

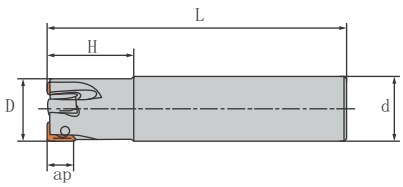
Face Milling Cutter



Cutter Product Features

- Double-sided helical edge 90 degree square shoulder milling cutter, suitable for plane, step and slotting processing of various sizes.
- The insert is thickened and strong, which can meet the milling needs of high feed and large cutting depth.
- The design of dovetail groove of the insert combined with the wiper edge of the insert can meet the milling requirements of high-precision surface.
- Right-angle screw locking, the contact surface is larger and more stable, thus ensuring higher clamping rigidity and precision.
- The dense tooth design, combined with the blade's low cutting resistance edge design, results in extremely high processing efficiency.
- The insert is a double-sided four-edged design, high precision, high efficiency and economical.
- Holder Diameter:ϕ16-40mm
- Cutter Diameter:ϕ40-250mm

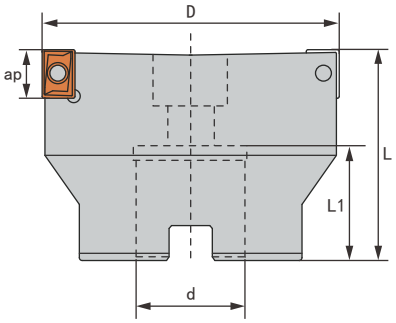
Inserts specifications



Model	Size						Insert	Screws	Wrench	Stock
	D	d	T	H	L	ap (max)				
ANE9016R02D16AN09L125	16	16	2	26	125	7.5	ANKT090408	S3007-SA	T8	○
ANE9020R03D20AN09L125	20	20	3	26	125					○
ANE9025R04D25AN09L125	25	25	4	26	125					○
ANE9025R02D25AN12L125	25	25	2	26	125	12.5	ANKT120508	S4012-SA	T15	○
ANE9032R03D32AN12L160	32	32	3	26	160					○
ANE9040R04D40AN12L200	40	40	4	26	200					○

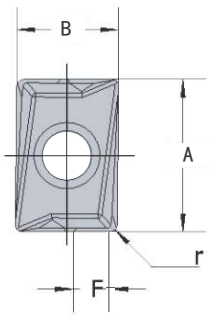
Remark: ● In stcok ○ Reservations

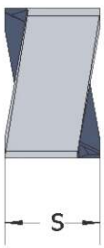
Cutter specifications



Model	Size						Insert	Screws	Wrench	Stock
	D	d	L	L1	T	ap (max)				
ANF90-40R04AN12A16	40	16	40	15	4	12.5	ANKT120508	S4012-SA	T15	●
ANF90-50R05AN12A22	50	22	50	20	5					●
ANF90-63R06AN12A27	63	27	50	22	6					●
ANF90-80R07AN12A27	80	27	50	22	7					●
ANF90-100R09AN12B32	100	32	50	25	9					●
ANF90-200R10AN12C60	200	60	63	28	10					●
ANF90-40R03AN17A16	40	16	40	15	3	15.5	ANKT170608	S6016-SA	T20	○
ANF90-50R04AN17A22	50	22	50	20	4					○
ANF90-63R06AN17A27	63	27	50	22	6					○
ANF90-80R07AN17A27	80	27	50	22	7					○
ANF90-100R08AN17B32	100	32	50	25	8					○
ANF90-125R10AN17B40	125	40	63	28	10					○
ANF90-160R12AN17B40	160	40	63	28	12					○
ANF90-200R10AN17C60	200	60	63	32	10					○
ANF90-250R12AN17C60	250	60	63	32	12					○

Inserts specifications





Model	Material	Size				
	PVD	A	B	F	r	s
	HPA025B					
ANKT090408-M	●	8.6	6.6	2.5	0.8	5.2
ANKT120508-M	●	13.7	10	3.8	0.8	9.15
ANKT170608-M	●	16.7	11.2	4.7	0.8	10.4

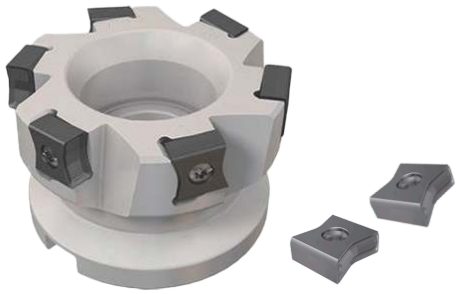
Remark: ● In stcok ○ Reservations

Recommended cutting parameters

Workpieces material		Hardness	Insert matreial	Vc(m/min)	fz(mm/t)
P	Low carbon steel(S15C/C15C etc.)	≤HB180	HPA025B	160(120-180)	0.1(0.05-0.15)
	High carbon steel(S45C/C45/S55C etc.)	HB200-300	HPA025B	120(100-160)	0.08(0.05-0.1)
	Alloy steel(SCM440/42CrMo4 etc.)	HB150-300	HPA025B	100(80-120)	0.08(0.05-0.1)
	Die steel(SKD11 etc.)	≤HB300	HPA025B	90(80-110)	0.08(0.05-0.1)
	Stainless steel(SUS304/X5CrMoV12 etc.)	-	HPA025B	100(80-120)	0.15(0.1-0.25)
K	Grey cast iron (FC250,etc.)	Tensile strength ≤350MPa	HPA025B	180(150-200)	0.15(0.1-0.2)
	Ductile iron (FCD450,etc.)	Tensile strength ≤450MPa	HPA025B	160(120-180)	0.15(0.1-0.2)
	Ductile iron (FCD500,etc.)	Tensile strength 500-800Mpa	HPA025B	140(130-150)	0.1(0.05-0.15)

LNF

Face Milling Cutter



Product Features

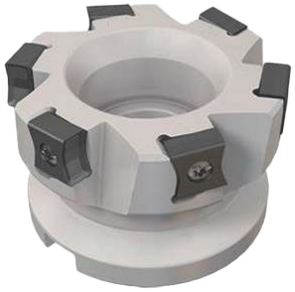
· The inserts has a variety of edge shapes to choose from, suitable for processing different materials and working conditions

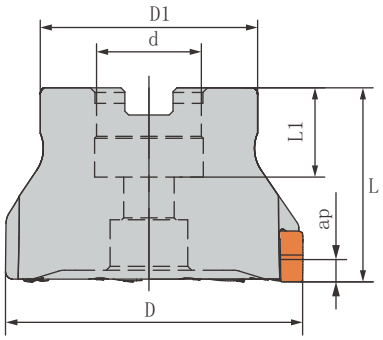
· The tool adopts a vertical structure to achieve large cutting depth and high metal removal rate.

· Widely used in automobile, machine tool, shipbuilding and other industries.

· Diameter range:Φ40-Φ250mm · Lead angle:90° · Max Ap:5mm(LN11);7mm(LN15)

Cutter specifications





Model	Size						Insert	Screws	Wrench	Stock
	D	D1	d	L	T	ap (max)				
LNFA90-040R04LN11-A16	40	38.4	16	40	4	5	LN11	TS3508	T10	○
LNFA90-040R06LN11-A16	40	38.4	16	40	6					○
LNFA90-050R05LN11-A22	50	47	22	40	5					○
LNFA90-050R07LN11-A22	50	47	22	40	7					○
LNFA90-063R06LN11-A22	63	59.2	22	40	6					○
LNFA90-063R09LN11-A22	63	59.2	22	40	9					○
LNFA90-080R08LN11-B27	80	70	27	50	8					○
LNFA90-080R11LN11-B27	80	70	27	50	11					○
LNFA90-100R09LN11-B32	100	77	32	50	9					○
LNFA90-100R14LN11-B32	100	77	32	50	14					○
LNFA90-125R10LN11-B40	125	95	40	63	10					○
LNFA90-125R18LN11-B40	125	95	40	63	18					○
LNFA90-160R12LN11-C40	160	120	40	63	12					○
LNFA90-200R15LN11-C60	200	135	60	63	15					○
LNFA90-250R20LN11-C60	250	150	60	63	20					○

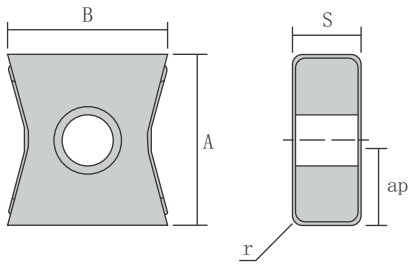
Remark: ● In stcok ○ Reservations

Cutter specifications

Model	Size						Insert	Screws	Wrench	Stock
	D	D1	d	L	T	ap (max)				
LNFA90-050R05LN15-A22	50	47	22	40	5	7	LN15	TS4010	T15	○
LNFA90-063R05LN15-A22	63	59.2	22	40	5					○
LNFA90-063R08LN15-A22	63	59.2	22	40	8					○
LNFA90-080R07LN15-B27	80	70	27	50	7					○
LNFA90-080R10LN15-B27	80	70	27	50	10					○
LNFA90-100R08LN15-B32	100	78	32	50	8					○
LNFA90-100R12LN15-B32	100	78	32	50	12					○
LNFA90-125R09LN15-B40	125	95	40	63	9					○
LNFA90-125R15LN15-B40	125	95	40	63	15					○
LNFA90-160R10LN15-C40	160	120	40	63	10					○
LNFA90-160R20LN15-C40	160	120	40	63	20					○
LNFA90-200R12LN15-C60	200	135	60	63	12					○
LNFA90-200R20LN15-C60	200	135	60	63	20					○
LNFA90-250R15LN15-C60	250	150	60	63	15					○
LNFA90-250R30LN15-C60	250	150	60	63	30					○

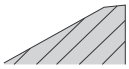
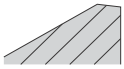
Remark: ● In stcok ○ Reservations

Inserts specifications



Model	Material	Size				
	PVD HPA325B	A	B	S	r	ap
LNMT1106PNTR-M	●	11.16	11	6	0.8	5
LNKX1506PN-M	●	15	13.88	6	0.8	7

Remark: ● In stcok ○ Reservations

Cutting edge description	
	
PNFN-M	PNTR-M

Recommended cutting parameters

Workpieces material		Hardness	Insert matreial	Vc(m/min)	fz(mm/t)
P	Low carbon steel	≤HB180	HPA325B	220(180-230)	0.25(0.1-0.4)
	Carbon steel	HB180-280	HPA325B	180(160-210)	0.25(0.1-0.4)
	Alloy steel	HB280-350	HPA325B	150(120-180)	0.25(0.1-0.4)
M	Stainless steel	≤HB275	HPA325B	120(100-150)	0.15(0.1-0.3)
K	Grey cast iron	≤HB350	HPA325B	130(90-170)	0.25(0.1-0.4)
	Ductile iron	≤HB350	HPA325B	180(140-250)	0.25(0.1-0.4)
S	High-temperature alloys, Titanium alloy	HRC25-35	HPA325B	40(30-60)	0.2(0.1-0.3)

Multi-functional milling cutter

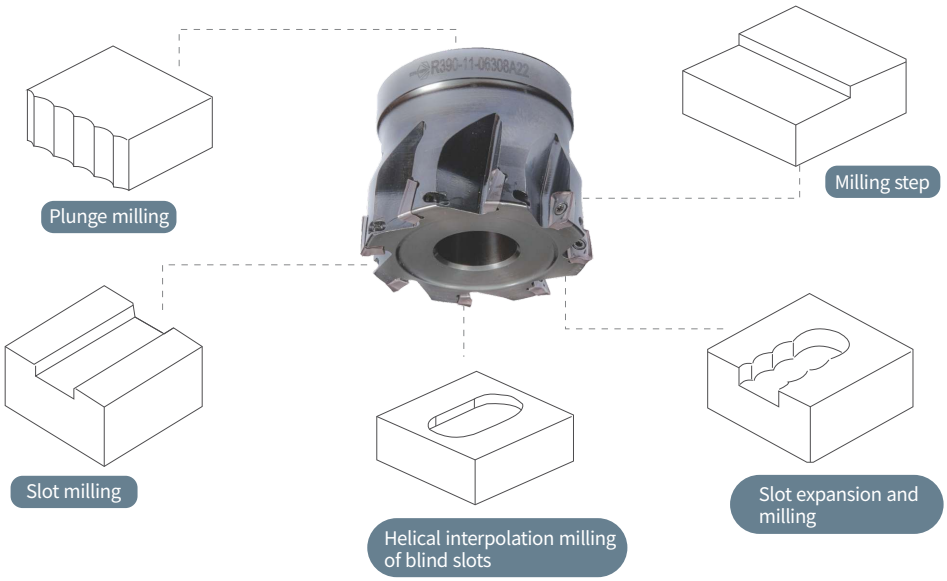
R390

Multi-functional milling cutter

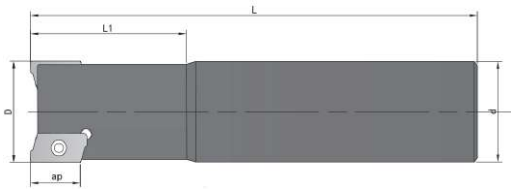
Application

- TWO cutting edges
- High surface quality
- Large cutting angle type reduces cutting resistance
- Smooth chip removal during deep groove machining
- Stable cutting is possible even on low-rigidity machine tools
- Improve the cutting edge strength by designing the cutting edge with three-dimensional curved surface

R390 insert square shoulder milling cutting type

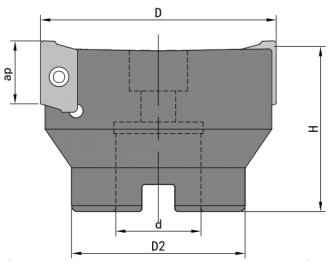


Tool specifications



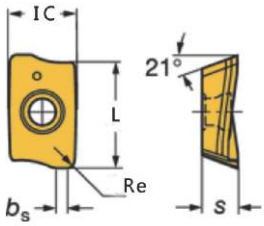
Model	Size					Interface	T
	D	d	L	L1	ap		
R390-11-01602Z16L100	16	16	100	20	10	Z	2
R390-11-02002Z20L110	20	20	110	25	10	Z	2
R390-11-02503Z25L120	25	25	120	32	10	Z	3
R390-11-03203Z32L130	32	32	130	40	10	Z	3
R390-11-04004Z32L170	40	32	170	40	10	Z	4
R390-11-01602W16L73	16	16	73	25	10	W	2
R390-11-02002W20L81	20	20	81	25	10	W	2
R390-11-02503W25L88	25	25	88	32	10	W	3
R390-11-03203W32L100	32	32	100	40	10	W	3
R390-11-04004W32L110	40	32	110	40	10	W	4
R390-17-02502Z25L120	25	25	120	32	15.7	Z	2
R390-17-03203Z32L130	32	32	130	40	15.7	Z	3
R390-17-04004Z32L170	40	32	170	40	15.7	Z	4
R390-17-02502W25L88	25	25	88	32	15.7	W	2
R390-17-03203W32L100	32	32	100	40	15.7	W	3
R390-17-04004W32L110	40	32	110	40	15.7	W	4

Cutter specifications



Model	Size					Interface	T
	D	d	D2	H	ap		
R390-11-040R04-A16	40	16	35	40	10	A	4
R390-11-050R05-A22	50	22	40	40	10	A	5
R390-11-063R06-A22	63	22	50	40	10	A	6
R390-11-080R07-A27	80	27	60	50	10	A	7
R390-17-040R03-A16	40	16	35	40	15.7	A	3
R390-17-050R04-A22	50	22	40	40	15.7	A	4
R390-17-063R05-A22	63	22	50	40	15.7	A	5
R390-17-080R06-A27	80	27	60	50	15.7	A	6
R390-17-100R07-B32	100	32	70	50	15.7	B	7
R390-17-125R08-B40	125	40	80	63	15.7	B	8

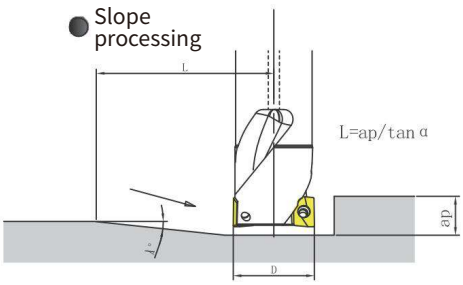
Inserts specifications

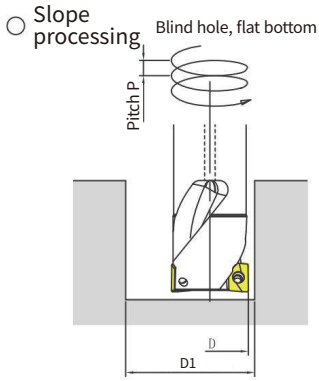


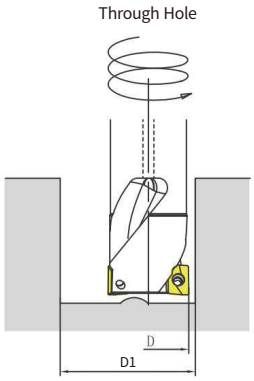
Model	Material	Size					
	PVD	A	L	S	Re	bs	d
	HPA035B						
R390-11T308-PM	●	6.8	11	3.5	0.8	1.5	2.8
R390-170408-PM	●	9.6	17	4.76	0.8	1.5	4.3

Remark: ● In stcok ○ Reservations

Slope processing and helical processing conditions







Tool diameter D	Slope processing		Helical processing of blind holes and flat bottoms				Helical machining of through holes	
	Max machining bevel angle A°	Min distance L	Max processing diameter D1 (max)	Max pitch P(max)	Min processing diameter D1(min)	Max pitch P(max)	Min processing diameter D1(min)	Max pitch P(max)
12	6°	95	22	2.5	20.5	2	14	0.5
14	6°	95	26	2.5	24.5	2	18	1
16	11.3°	50	30	9	28	7	21	2
18	8.6°	66	34	5	32	4.5	25	2
20	6.9°	83	38	5	36	4.5	29	2
22	5.7°	100	42	5	40	4.5	33	2
25	4.6°	14	48	6	46	5	39	3
28	3.8°	151	54	4.5	52	4	45	2
30	3.4°	138	58	4.5	6	4	49	2
32	3.1°	185	62	4.5	60	4	53	2
35	2.7°	212	68	4	66	3.5	59	2
40	2.2°	260	78	4	76	3.5	69	2
50	1.7°	337	98	2	96	2	89	2
63	1.3°	441	124	2	122	2	115	2
80	1°	573	158	2	156	2	149	2
100	0.8°	716	198	1	196	1	189	1

Recommended cutting parameters

Workpieces material		Hardness	Insert matreial	chip breaker	Cutting width ae(mm)			
					≤0.25DC	0.25-0.5DC	0.5-0.75DC	DC Slot
					Vc(m/min)			
P	Carbon steel	≤HB180	HPA035B	PM	200(150-240)	190 (140-230)	150(110-180)	150(110-180)
	Carbon steel, alloy steel (S45C, SCM440, etc.)	HB180-350	HPA035B	PM	150(110-180)	140(100-170)	110(80-130)	110(80-130)
M	Stainless steel (SUS304, SUS316, etc.)	≤HB270	HPA035B	PM	180(140-210)	170(130-200)	140(110-160)	140(110-160)
K	Grey cast iron (FC300, etc.)	≤350MPa	HPA035B	PM	210(200-260)	200(180-250)	190(160-240)	140(110-160)
	Ductile iron (FCD700, etc.)	≤800MPa	HPA035B	PM	130(100-150)	120(90-140)	100(80-120)	100(80-120)
S	Titanium alloy	≤HB350	HPA035B	PM	40(30-60)	40(30-60)	40(30-60)	40(30-60)
	Superalloy	-	HPA035B	PM	30(20-40)	30(20-40)	30(20-40)	30(20-40)
H	High hardness steel (SKD61, SKT4 etc.)	HRC40-55	HPA035B	PM	90(70-100)	85(60-100)	70(50-80)	70(50-80)

Recommended cutting parameters

Workpieces material		Hardness	Cutting width ae(mm)	Milling cutter diameter(mm)					
				Φ12-Φ16		Φ18-Φ25		Φ28-Φ100	
				ap(mm)	fz(mm/t)	ap(mm)	fz(mm/t)	ap(mm)	fz(mm/t)
P	Mild Steel (SS400、S10C etc.) Carbon steel, alloy steel (S45C, SCM440, etc.)	≤HB180 HB180-350	≤0.25DC	≤4	0.15	≤5	0.25	≤5	0.2
				4-7	0.1	5-7	0.2	5-7	0.15
				-	-	7-8.5	0.15	7-8.5	0.1
				-	-	8.5-10	0.1	8.5-10	0.07
			0.25-0.5DC	≤2	0.15	≤3	0.25	≤3	0.2
				2-5	0.1	3-5.5	0.2	3-5.5	0.15
				-	-	5.5-8	0.15	5.5-8	0.1
				-	-	8-10	0.1	8-10	0.07
			0.5-0.75DC	≤4	0.1	≤4	0.15	≤3	0.1
				-	-	4-10	0.1	3-7	0.07
			DC Slot	≤3	0.1	≤4	0.1	≤3	0.1
				≤3	0.1	4-7	0.07	3-5	0.07
M	Stainless steel (SUS304, SUS316, etc.)	≤HB270	≤0.25DC	≤4	0.15	≤5	0.2	≤5	0.2
				4-7	0.1	5-7	0.15	5-7	0.15
				-	-	7-8.5	0.1	7-8.5	0.1
				-	-	8.5-10	0.07	8.5-10	0.07
			0.25-0.5DC	≤2	0.15	≤3	0.2	≤3	0.2
				2-5	0.1	3-5.5	0.15	3-5.5	0.15
				-	-	5.5-8	0.1	5.5-8	0.1
				-	-	8-10	0.07	8-10	0.07
			0.5-0.75DC	≤4	0.1	≤4	0.1	≤3	0.1
				-	-	4-10	0.07	3-7	0.07
			DC Slot	≤3	0.1	≤4	0.1	≤3	0.1
				≤3	0.1	4-7	0.07	3-5	0.07

Recommended cutting parameters

Workpieces material		Hardness	Cutting width ae(mm)	Milling cutter diameter(mm)					
				Φ12-Φ16		Φ18-Φ25		Φ28-Φ100	
				ap(mm)	fz(mm/t)	ap(mm)	fz(mm/t)	ap(mm)	fz(mm/t)
K	Grey cast iron (FC300, etc.)	Tensile strength ≤350MPa	≤0.25DC	≤4	0.15	≤5	0.2	≤5	0.2
				4-7	0.1	5-7	0.15	5-7	0.15
				–	–	7-8.5	0.1	7-8.5	0.1
				–	–	8.5-10	0.07	8.5-10	0.07
			0.25-0.5DC	≤2	0.15	≤3	0.2	≤3	0.2
				2-5	0.1	3-5.5	0.15	3-5.5	0.15
				–	–	5.5-8	0.1	5.5-8	0.1
				–	–	8-10	0.07	8-10	0.07
			0.5-0.75DC	≤4	0.1	≤4	0.1	≤3	0.1
				–	–	4-10	0.07	3-7	0.07
			DC Slot	≤3	0.1	≤4	0.1	≤3	0.1
				≤3	–	4-7	0.07	3-5	0.07
	Ductile iron (FCD700, etc.)	Tensile strength ≤800MPa	≤0.25DC	≤4	0.1	≤5	0.2	≤5	0.2
				4-7	0.07	5-7	0.15	5-7	0.15
				–	–	7-8.5	0.1	7-8.5	0.1
				–	–	8.5-10	0.07	8.5-10	0.07
			0.25-0.5DC	≤2	0.1	≤3	0.2	≤3	0.2
				2-5	0.07	3-5.5	0.15	3-5.5	0.15
				–	–	5.5-8	0.1	5.5-8	0.1
				–	–	8-10	0.07	8-10	0.07
			0.5-0.75DC	≤4	0.07	≤4	0.1	≤3	0.1
				–	–	4-10	0.07	3-7	0.07
			DC Slot	≤3	0.07	≤4	0.1	≤3	0.1
				≤3	0.07	4-7	0.07	3-5	0.07
S	Titanium alloy	≤HB350	≤0.25DC	≤4	0.15	≤4	0.15	≤4	0.1
				4-7	0.1	4-7	0.1	4-7	0.07
			0.25-0.5DC	≤3	0.05	≤3	0.05	≤3	0.05
	Superalloy	–	0.5-0.75DC	≤2	0.1	≤2	0.05	≤2	0.05
			DC Slot	≤1	0.05	≤1	0.05	≤1	0.05
H	High hardness steel (SKD61, SKT4 etc.)	HRC40-55	≤0.25DC	≤4	0.1	≤5	0.15	≤5	0.15
				4-7	0.07	5-7	0.1	5-7	0.1
				–	–	7-8.5	0.07	–	–
			0.25-0.5DC	≤2	0.1	≤3	0.15	≤3	0.15
				2-5	0.07	3-5.5	0.1	–	–
			0.5-0.75DC	≤4	0.07	≤4	0.07	≤3	0.07
			DC Slot	≤3	0.07	≤4	0.07	≤3	0.07

XN

Multi-functional milling cutter

Product Features

· Large chip groove design

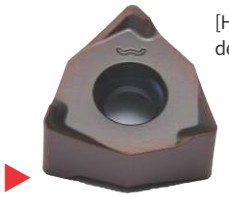
· Holder diameter range:ϕ20-ϕ32mm;Cutter diameter:ϕ50-ϕ125mm

· Pure 90° main deflection angle design, high side wall processing accuracy

· Economical double-sided blade with 6 cutting edges

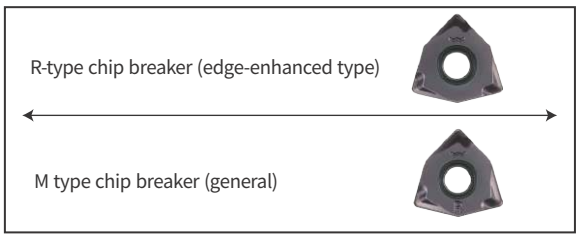
· The max cutting depth of the XN04 inserts is 4mm; the max cutting depth of the XN08 blade is 6mm

General (M-type chip breaker), adge reinforcement (R-type chip breaker)

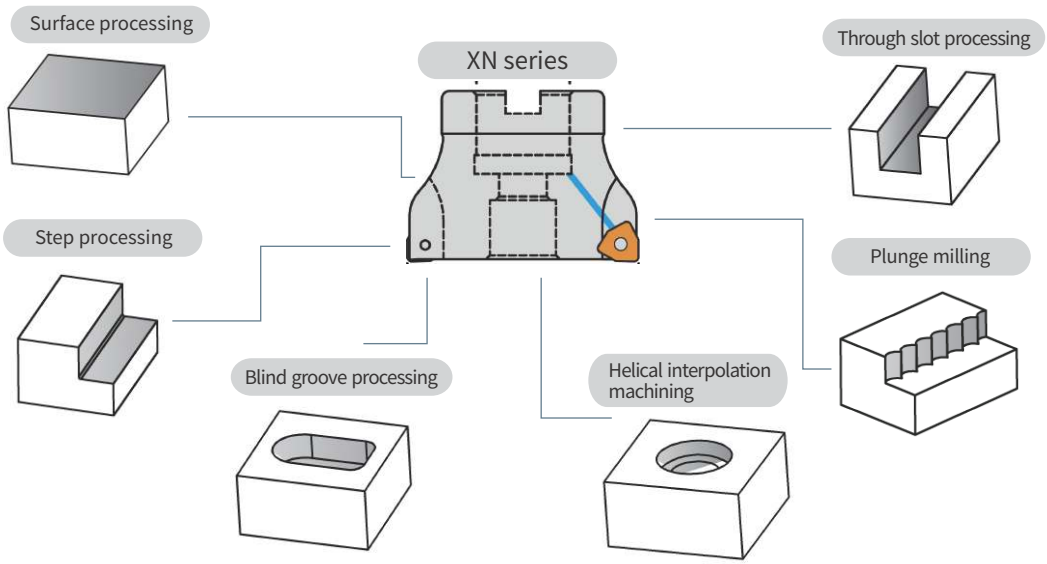


[High chipping resistance, special design of first and second edge widths]

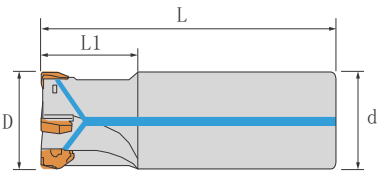
[Large chip groove, suitable for high feed machining]



Processing Type



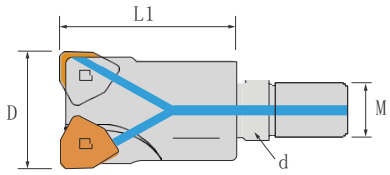
Tool specifications



Model	Size						Insert	Screws	Wrench
	D	L1	L	d	T	ap(max)			
XNE04-20R03D20L110C	20	28	110	20	3	4	XNMX0403	TS2512	TK08
XNE04-21R02D20L150	21	29	150	20	2				
XNE04-21R03D20L150	21	29	150	20	3				
XNE04-25R04D25L120C	25	28	120	25	4				
XNE04-26R04D25L170	26	29	170	25	4				
XNE04-32R05D30L130C	32	30	130	30	5				
XNE04-33R05D32L200	33	31	200	32	5				
XNE04-35R05D32L130	35	30	130	32	5				

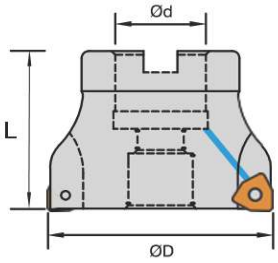
Note: "C" after the model number indicates cooling.

Modular milling cutter specifications



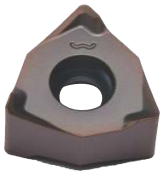
Model	Size						Insert	Screws	Wrench
	D	L1	d	M	T	ap(max)			
XNM04-17R02-M8	17	26	8.5	M08	2	4	XNMX0403	TS2512	TK08
XNM04-21R03-M10	21	32	10.5	M10	3				
XNM04-26R04-M12	26	38	12.5	M12	4				
XNM04-32R04-M16	32	41	17	M16	4				

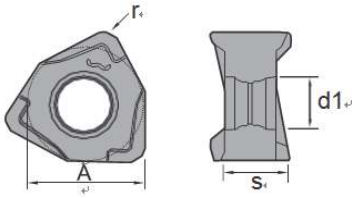
Cutter specifications



Model	Size					Insert	Screws	Wrench
	D	L	d	T	ap(max)			
XNF08-050R05A22	50	40	22	5	6	XNMX0806	TS4006	TK15
XNF08-063R06A22	63	40	22	6				
XNF08-080R07A27	80	50	27	7				
XNF08-100R11A32	100	50	32	11				
XNF08-125R11B40	125	63	40	11				

Inserts specifications





Model	Material		Size			
	PVD		A	S	r	d1
	HPA025B	HPA225B				
XNMX080608-M			12.53	6.5	0.8	4.5
XNEX080612TR-M	●	●	12.53	6.5	0.8	4.5
XNMX080608-R			12.53	6.5	0.8	4.5

Remark: ● In stcok ○ Reservations

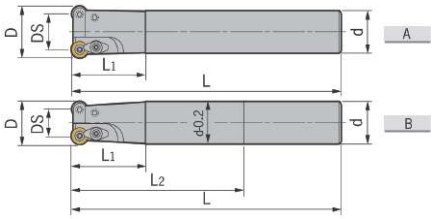
Recommended cutting parameters

Workpieces material		Hardness	Insert matreial	Vc(m/min)	fz(mm/t)
P	Mild Steel (SS400、S10C etc.)	≤HB180	HPA025B	180(100-230)	0.2(0.15-0.25)
			HPA225B	190(100-250)	0.2(0.15-0.25)
	Carbon steel, alloy steel (S50C, SCM440, etc.)	HB180-280	HPA025B	180(100-230)	0.2(0.15-0.25)
			HPA225B	190(100-250)	0.2(0.15-0.25)
		HB280-380	HPA025B	180(80-160)	0.2(0.15-0.25)
			HPA225B	190(100-250)	0.2(0.15-0.25)
	Pre-hardened steel (NAK55, etc.)	HRC35-45	HPA025B	120(80-160)	0.15(0.1-0.2)
			HPA225B	130(80-180)	0.15(0.1-0.2)
	High alloy steel (SKD, SK, etc.)	≤HB300	HPA025B	120(80-160)	0.15(0.1-0.2)
			HPA225B	130(80-180)	0.15(0.1-0.2)
M	Stainless steel (SU420J2, etc.)	≤HB270	HPA025B	120(100-160)	0.1(0.05-0.15)
			HPA225B	130(100-180)	0.1(0.05-0.15)
K	Grey cast iron (FC250, etc.)	Tensile strength ≤350MPa	HPA025B	140(100-200)	0.15(0.1-0.2)
			HPA225B	160(100-220)	0.15(0.1-0.2)
	Ductile iron (FCD450, etc.)	Tensile strength ≤360- 500MPa	HPA025B	140(100-200)	0.15(0.1-0.2)
			HPA225B	160(100-220)	0.15(0.1-0.2)
	Ductile iron (FCD500, etc.)	Tensile strength ≤500- 800MPa	HPA025B	130(80-180)	0.15(0.1-0.2)
			HPA225B	140(90-190)	0.15(0.1-0.2)
H	High hardness steel (SKD/SKT etc.)	HRC45-60	HPA025B	70(40-90)	0.1(0.05-0.15)
			HPA225B	80(50-100)	0.1(0.05-0.15)

RDE

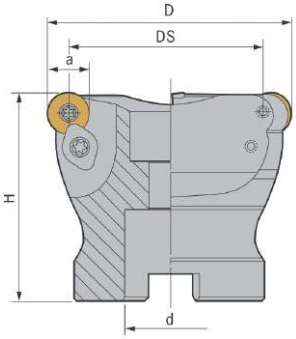
Multi-functional milling cutter

Tool specifications



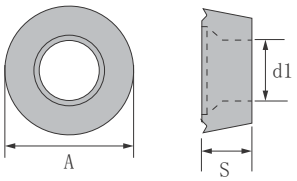
Model	teeth No.	Mark	Size						Insert	Inserts Screw	Clamp	Clamp Screw	Spanner	Weight
			D	DS	d	L1	L2	L						
RDE4PR12S121L130	1	A	12	4	12	35	–	130	RDMT0802	Y3060	–	–	TIP8	0.1
RDE4PR16S162L160	2	A	16	8	16	50	–	160	RDMT0802	Y30701	CS34	Y30701	TIP8	0.23
RDE4PR16S162L200	2	B	16	8	16	50	100	200						0.29
RDE4PR20S202L160	2	A	20	12	20	60	–	160						0.35
RDE4PR20S202L200	2	B	20	12	20	70	100	200						0.34
RDE5PR20S202L160	2	A	20	10	20	60	–	160	RDMT10T3	R40802	CS39	T3585	TIP15	0.35
RDE5PR20S202L200	2	B	20	10	20	70	100	200						0.44
RDE5PR20S252L160	2	A	25	15	20	40	–	160	RDMT10T3	R40802	CS43	S401001	TIP15	0.26
RDE5PR20S252L200	2	A	25	15	20	40	–	200						0.46
RDE5PR25S252L160	2	A	25	15	25	60	–	160						0.54
RDE5PR25S252L200	2	B	25	15	25	70	100	200						0.69
RDE5PR25S252L250	2	B	25	15	25	80	150	250						0.87
RDE5PR25S302L160	2	A	30	20	25	40	–	160						0.57
RDE5PR25S302L200	2	A	30	20	25	40	–	200						0.72
RDE5PR25S302L250	2	A	30	20	25	40	–	250						0.91
RDE5PR32S322L200	2	A	32	22	32	48	–	200	RDMT10T3	R4090	CS43	S40120	TIP15	1.22
RDE5PR32S322L250	2	A	32	22	32	48	–	250						1.55
RDE5PR32S353L160	3	A	35	25	32	48	–	160						0.91
RDE5PR32S353L200	3	A	35	25	32	48	–	200						1.16
RDE5PR32S353L250	3	A	35	25	32	48	–	250						1.48
RDE5PR32S353L300	3	A	35	25	32	48	–	300						1.79
RDE5PR32S353L350	3	A	35	25	32	48	–	350						2.1
RDE6PR25S322L160	2	A	32	20	25	48	–	160	RDMT1204	R401002	CS43	S40120	TIP15	0.94
RDE6PR25S322L200	2	A	32	20	25	48	–	200						1.19
RDE6PR25S322L250	2	A	32	20	25	48	–	250						1.5
RDE6PR32S322L160	2	A	32	20	32	48	–	160						0.96
RDE6PR32S322L200	2	A	32	20	32	48	–	200						1.22
RDE6PR32S322L250	2	A	32	20	32	48	–	250						1.55
RDE6PR32S322L300	2	A	32	20	32	48	–	300						1.91
RDE6PR32S403L160	3	A	40	28	32	48	–	160						0.88
RDE6PR32S403L200	3	A	40	28	32	48	–	200						1.19
RDE6PR32S403L250	3	A	40	28	32	48	–	250						1.49

Cutter specifications



Model	teeth No.	Size				Insert	Inserts Screw	Clamp	Clamp Screw	Spanner	Weight
		D	DS	d	H						
RDF5PR0504B22	4	50	40	22	50	RDMT10T3	R4090	CS43	S40120	TIP15	0.35
RDF5PR0504A25.4	4	50	40	25.4	50						0.35
RDF5PR0635B22	5	63	53	22	50						0.55
RDF5PR0634A25.4	4	63	53	25.4	50						0.55
RDF5PR0635A25.4	5	63	53	25.4	50						0.55
RDF6PR0504B22	4	50	38	22	50	RDMT1204	R401002	CS43	S40120	TIP15	0.35
RDF6PR0504A25.4	4	50	38	25.4	50						0.35
RDF6PR0634B22	4	63	51	22	50						0.5
RDF6PR0635B22	5	63	51	22	50						0.5
RDF6PR0634A25.4	4	63	51	25.4	50						0.51
RDF6PR0635A25.4	5	63	51	25.4	50						0.51
RDF6PR0806B27	6	80	68	27	50						0.9
RDF6PR1006B32	6	100	88	32	50						1.2
RDF8PR0634B22	4	63	47	22	50	RDMX1604	Y501101	YS-52	Y501102	TIP20	0.5
RDF8PR0635B22	5	63	47	22	50						0.5
RDF8PR0634A25.4	4	63	47	25.4	50						0.5
RDF8PR0804A25.4	4	80	64	25.4	50						1.15
RDF8PR0804B27	4	80	64	27	50						0.85
RDF8PR0805B27	5	80	64	27	50						0.85
RDF8PR1005A31.75	5	100	84	31.75	50						1.2
RDF8PR1004B32	4	100	84	32	50						1.25
RDF8PR1005B32	5	100	84	32	50						1.25
RDF8PR1006B32	6	100	84	32	50						1.25

Inserts specifications



Inserts	Model	Material				Size					
		CVD		PVD		A	B	S	r	d1	t1
		HCP340B	HCK115B	HPA025B	HPA225B						
	RDMT0802M0TN			○	●	8	-	2.38	-	3.4	-
	RDMT10T3M0TN	●		●	●	10	-	3.97	-	4.4	-
	RDMT1204M0TN			●	●	12	-	4.76	-	4.4	-
	RDKT1204M0			○	●	12	-	4.76	-	4.4	-
	RDKT1204M0A			●	●	12	-	4.76	-	4.4	-
	RDKT1204M0D			●	○	12	-	4.76	-	4.4	-
	RDKT1204M0T			●	●	12	-	4.76	-	4.4	-
	RDKT1204M0W	●		●	●	12	-	4.76	-	4.4	-

Remark: ● In stcok ○ Reservations

Recommended cutting parameters

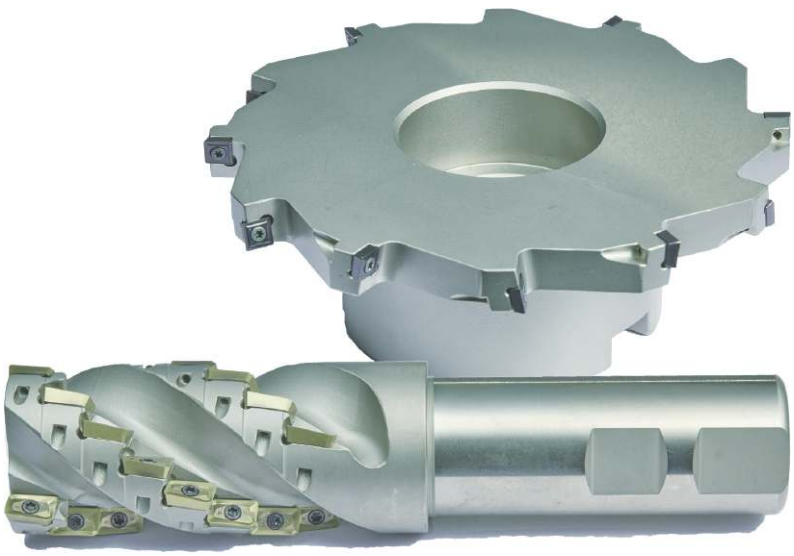
Workpieces material		Hardness	Insert matreial	Vc(m/min)	fz(mm/t) R**08 type(ap2mm);R**10 type(ap2.5mm) R**12(ap3mm);R**16(ap3.5mm)
P	Carbon steel	≤HB180	HCP340B	180-280	0.1-0.3
			HPA025B	100-220	0.1-0.3
	Alloy steel	HB180-280	HCP340B	180-280	0.1-0.25
			HPA025B	100-220	0.1-0.25
	Die steel	HB280-350	HCP340B	80-180	0.08-0.2
			HPA025B	80-180	0.08-0.2
M	Austenitic stainless steel	≤HB200	HPA225B	100-200	0.1-0.2
	Martensitic stainless steel	≤HB270	HPA225B	100-200	0.1-0.2
K	Grey cast iron	HB180-220	HCK115B	120-250	0.1-0.3
			HPA025B	100-200	0.1-0.3
	Ductile iron	HB240-280	HCK115B	120-230	0.1-0.25
			HPA025B	120-180	0.1-0.25

For large cutting depth

For Chamfering

For T-Slot milling

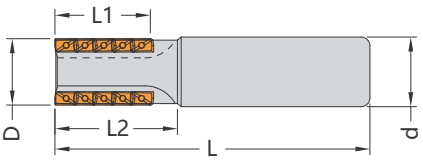
For slot milling



BAP

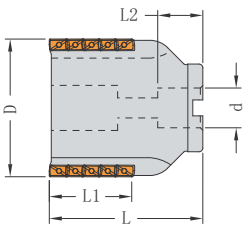
Helical Milling Cutter

Tool specifications



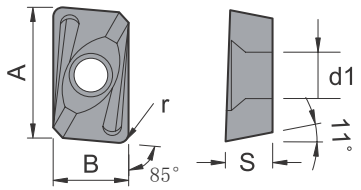
Model	Size						Insert	Screws	Wrench
	D	d	L1	L2	L	T			
BAP300R2005S20-028L	20	20	28	42	107	1x5	APMT1135PDER	TS2515	TK08
BAP300R2508S25-035L	25	25	35	50	125	2x4			
BAP300R3215S32-044L	32	32	44	60	135	3x5			
BAP300R4024S32-072L	40	32	75	94	175	3x8			
BAP400R3206S32-042L	32	32	42	55	135	2x3	APMT1604PDER	TS4023	TK15
BAP400R4010S32-068L	40	32	68	94	175	2x5			
BAP400R4015S32-068L	40	32	68	94	175	3x5			
BAP400R5024S50.8-100L	50	50.8	100	128	224	3x8			
BAP400R5036S50.8-158L	50	50.8	158	188	284	3x12			

Cutter specifications



Model	Size						Insert	Screws	Wrench
	D	d	L1	L2	L	T			
BAP400R05009-42-22.0	50	22	42	21	69	3x3	APMT1604PDER	TS4023	TK15
BAP400R06312-42-25.4	63	25.4	42	38	69	4x3			
BAP400R06320-68-25.4	63	25.4	68	38	97	4x5			

Inserts specifications



Model	Material					Size				
	CVD			PVD		A	B	r	d1	t1
	HCP340B	HCK115B	HCK125B	HPA025B	HPA225B					
APMT1135PDER-H2	●			●	●	11	6.35	0.8	3.15	-
APMT1135PDER-M2	●	●		●	●	11	6.35	0.8	3.15	-
APMT1604PDER-H1			●			16.5	9.525	0.4	4.5	-
APMT1604PDER-H2	●	●		●	●	16.5	9.525	0.8	4.5	-
APMT1604PDER-M2	●	●		●	●	16.5	9.525	0.8	4.5	-

Remark: ● In stcok ○ Reservations

Recommended cutting parameters

	Workpieces material	Hardness	Insert matreial	Cutting width ae(mm)		
				≤0.15DC	0.15-0.3DC	DC Slot
				Vc(m/min)		
P	Mild Steel(S45C、S10C etc.)	≤HB180	HPA340B	200（180-230）	160（120-200）	140（120-160）
			HPA025B	160（140-180）	130（90-170）	110（90-130）
	Carbon steel, alloy steel (S45C, SCM440, etc.)	HB180-350	HPA340B	180（150-230）	120（100-140）	100（80-120）
			HPA025B	150（120-180）	90（70-110）	70（50-90）
M	Stainless steel (SUS304, SUS316, etc.)	≤HB200	HPA225B	160（120-200）	120（100-140）	100（80-120）
K	Grey cast iron (FC250, etc.)	Tensile strength ≤350MPa	HCK115B	200（150-250）	190（140-240）	190（140-240）
			HCK225B	180（120-230）	170（110-220）	170（110-220）
			HPA025B	160（120-180）	150（110-170）	150（110-170）
	Ductile iron (FCD450)	Tensile strength ≤450MPa	HCK115B	200（150-250）	190（140-240）	190（140-240）
			HCK225B	180（130-230）	170（120-220）	170（120-220）
			HPA025B	150（120-180）	140（110-170）	140（110-170）
	Ductile iron (FCD700)	Tensile strength ≤800MPa	HCK115B	200（150-250）	190（140-230）	190（140-230）
			HCK225B	180（130-230）	170（120-220）	170（120-220）
			HPA025B	150（120-180）	140（110-170）	140（110-170）

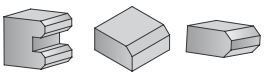
Recommended cutting parameters

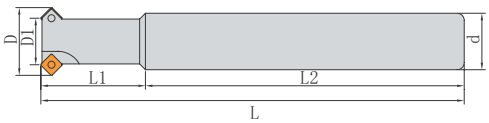
Workpieces material		Hardness	ae(mm)	ap(mm)	fz(mm/t) Milling cutter diameter Φ20-Φ40 Edge length ≤94mm	fz(mm/t) Milling cutter diameter Φ40-Φ63 Edge length ≤158mm
P	Mild Steel (S45C、S10C etc.)	≤HB180	≤0.3DC	≤20	0.25	0.2
				20-50	0.2	0.15
				50-80	0.1	0.1
			DC Slot	≤20	0.2	0.15
				20-50	0.15	0.1
	Carbon steel, alloy steel (S45C, SCM440, etc.)	HB180-350	≤0.3DC	≤20	0.25	0.2
				20-50	0.2	0.15
				50-80	0.1	0.1
			DC Slot	≤20	0.15	0.1
				20-50	0.1	0.08
M	Stainless steel (SUS304, SUS316, etc.)	≤HB200	≤0.3DC	≤20	0.25	0.2
				20-50	0.2	0.15
				50-80	0.1	0.1
			DC Slot	≤10	0.1	0.07
K	Grey cast iron (FC250, etc.)	Tensile strength ≤350MPa	≤0.15DC	≤10	0.3	0.25
				10-50	0.25	0.2
				50-80	0.15	0.15
			≤0.15-0.3DC	≤10	0.25	0.2
				10-50	0.2	0.15
				50-80	0.1	0.1
			DC Slot	≤10	0.25	0.2
				10-50	0.2	0.15
	Ductile iron (FCD450)	Tensile strength ≤450MPa	≤0.15DC	≤20	0.25	0.2
				20-50	0.2	0.15
				50-80	0.1	0.1
			≤0.15-0.3DC	≤20	0.2	0.15
				20-50	0.15	0.1
				50-80	0.07	0.07
			DC Slot	≤10	0.15	0.1
				10-50	0.1	0.07
	Ductile iron (FCD700)	Tensile strength ≤800MPa	≤0.15DC	≤20	0.25	0.2
				20-50	0.2	0.15
				50-80	0.1	0.1
			≤0.15-0.3DC	≤20	0.2	0.15
				20-50	0.15	0.1
				50-80	0.07	0.07
			DC Slot	≤10	0.15	0.1
				10-50	0.1	0.07

CDR

High Speed Chamfering Cutter

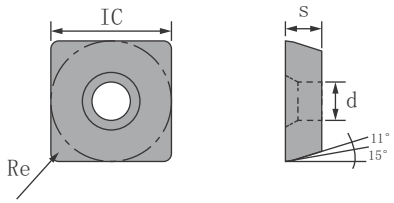
Tool specifications





Model	Size						Insert	Screws	Wrench
	D	D1	d	L1	L2	L			
CDR1106C10-1T	11	6	10	17	83	100	SPMG050204	TS2003	TK06
CDR1510C12-2T	15	10	12	20	100	120			
CDR1711C16-3T	17	11	16	25	125	150			
CDR1913C16-3T	19	13	16	30	120	150			
CDR2418C20-4T	24	18	20	35	115	150			
CDR2216C16-3T	22	16	16	30	80	120	SPMG060204	TS20205	TK08
CDR2717C20-3T	27	17	20	30	80	120	SPMG07T308	TS2511	TK08
CDR3019C20-2T	30	19	20	40	110	150	SPMG090408	TS3504	TK15
CDR4029C25-3T	40	29	25	40	110	150			
CDR5039C25-4T	50	39	25	40	110	150			
CDR2712C20-1T	27	12	20	40	110	150	SPMG140408	TS5002	TK20
CDR4025C25-2T	40	25	25	40	140	180			
CDR4732C32-3T	47	32	32	40	160	200			
CDR3525C20-2T	35	25	20	28	122	150	SPMG090304	TS4004	TK15
CDR4230C20-2T	42	30	20	30	120	150			

Inserts specifications



Model	Material		Size			
	PVD		IC	S	Re	d
	HPA025B	HPA225B				
SPMG050204-UM	●	●	5	2.38	0.4	2.25
SPMG060204-UM	●	●	6	2.38	0.4	2.61
SPMG07T308-UM	●	●	7.94	3.97	0.8	2.85
SPMG090408-UM	●	●	9.8	4.3	0.8	4.05
SPMG140512-UM	●	●	14.3	5.2	1.2	5.75

Remark: ● In stcok ○ Reservations

Recommended cutting parameters

Workpieces material		Hardness	Insert matreial	Vc(m/min)	fz(mm/t)
P	Low carbon steel, Mild Steel	≤HB180	HPA025B	150(100-200)	0.05-0.25
	high-carbon steel,alloy steel	HB180-280	HPA025B	130(100-180)	0.05-0.25
	Alloy tool steel	HB280-350	HPA025B	100(80-150)	0.05-0.25
M	Stainless steel	≤HB270	HPA225B	100(80-150)	0.05-0.2
K	Cast iron	HB180-250	HPA025B	130(100-180)	0.13-0.3

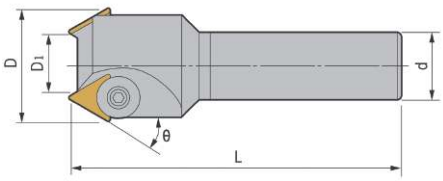
TP

Chamfering Tool

Product Features

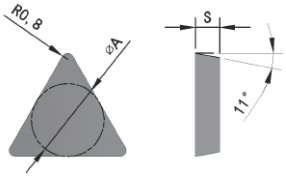
· This tool can use to cutting at 30°, 45°, 65°, and chamfering
· Suitable for general milling machine, integrated cutting machining center machine

TP30/45/65°5 Straight shank chamfering tool



Model	teeth No.	Size					Insert	Clamp	Wrench	Weight
		D	D1	d	L	θ				
TP3016R25S402L120	2	39	26	25	120	30°	TP**1603*	TP68	L04D	0.53
TP3022R32S553L160	3	54.5	36	32	160	30°	TP**2204*	TP812	L05D	0.98
TP4516R20S201L120	1	20.4	4	20	120	45°	TP**1603*	TP68	L04D	0.27
TP4516R20S322L120	2	30.2	12	20	120	45°	TP**1603*	TP68	L04D	0.32
TP4522R25S503L160	3	49	24	25	160	45°	TP**2204*	TP812	L05D	0.65
TP6016R25S402L120	2	37.7	15.8	25	120	60°	TP**1603*	TP68	L04D	0.55

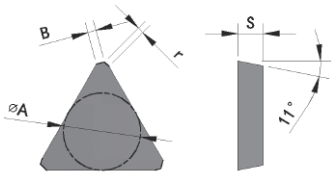
Inserts specifications



Model	Material					Size					
	CVD			PVD		A	B	S	r	d1	t1
	HCP330B	HCP340B	HCP025B	HPA025B	HPA225B						
TPMR160304	○	○		○	○	9.525	-	3.18	0.4	-	-
TPMR160308-D	○	○		○	●	9.525	-	3.18	0.8	-	-
TPUN160304	○	○		○	○	9.525	-	3.18	0.4	-	-
TPUN160308-D	○	○		○	●	9.525	-	3.18	0.8	-	-
TPUN220408-D	○	○		●	●	12.7	-	4.76	0.8	-	-
TTPMN160308			●			9.525	-	3.18	0.8	-	-

Remark: ● In stcok ○ Reservations

Inserts specifications



Model	Material					Size					
	CVD			PVD		A	B	S	r	d1	t1
	HCP330B	HCP340B	HCP025B	HPA025B	HPA225B						
TPKN2204PDTR-D			●	●	●	22	1.4	4.76	0.7	-	

Remark: ● In stcok ○ Reservations

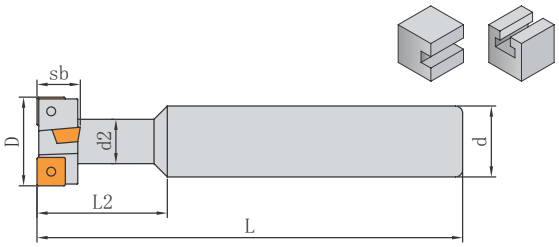
Recommended cutting parameters

	Workpieces material	Hardness	Insert matreial	Vc(m/min)	fz(mm/t)
P	Low carbon steel, Mild Steel	≤HB180	HCP340B	120-250	0.05-0.25
			HCP350B	110-240	0.05-0.25
			HPA025B	100-180	0.05-0.25
	high-carbon steel,alloy steel	HB180-280	HCP340B	110-240	0.05-0.25
			HCP350B	100-230	0.05-0.25
			HPA025B	90-180	0.05-0.25
	Alloy tool steel	HB280-350	HCP340B	100-240	0.05-0.25
			HCP350B	90-230	0.05-0.25
			HPA025B	80-180	0.05-0.25
M	Stainless steel	≤HB270	HPA225B	100-180	0.05-0.2
K	Cast iron	HB180-250	HCK115B	120-250	0.1-0.3
			HPA025B	120-180	0.1-0.3

STM

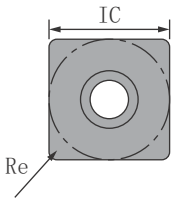
T-Type Slot Milling Cutter

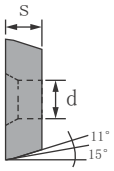
Tool specifications



Model	Size						Insert	Screws	Wrench
	D	sb	d2	L2	L	d			
STM1908-095L-4T	19	8	9.5	25	95	16	SPMG050204	TS2003	TK06
STM2109-100L-4T	21	9	11	27	100	16	SPMG060204	TS2205	TK06
STM2206-090-4T	22	6.3	15	15	90	20	SPMG050204	TS2003	TK06
STM2511-110L-4T	25	11	12	31	110	20	SPMG07T308	TS2511	TK08
STM3210-100-4T	32.6	10.5	23	30	100	25	SPMG07T308	TS2511	TK08
STM3214-110L-4T	32	14	17	39	110	25	SPMG090408	TS3504	TK15
STM4018-125L-4T	40	18	21	49	125	25	SPMG110408	TS4006	TK15
STM5022-130L-4T	50	22	27	61	130	32	SPMG140512	TS5009	TK20
STM5925-165-4T	58.7	25.1	32	55	165	32	SPMG140512	TS5009	TK20
STM6015-160L-6T	60	15	25	40	160	25	SPMG090408	TS3504	TK15
STM9510-160-10T	95	10	25	40	160	25	SPMG060204	TS2205	TK06

Inserts specifications





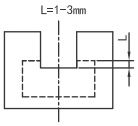
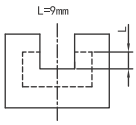
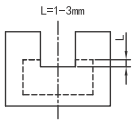
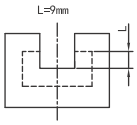
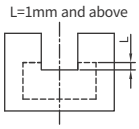
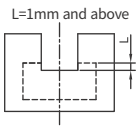
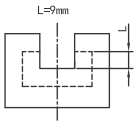
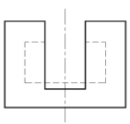
Model	Material		Size			
	PVD		IC	S	Re	d
	HPA025B	HPA225B				
SPMG050204-UM	●	●	5	2.38	0.4	2.25
SPMG060204-UM	●	●	6	2.38	0.4	2.61
SPMG07T308-UM	●	●	7.94	3.97	0.8	2.85
SPMG090408-UM	●	●	9.8	4.3	0.8	4.05
SPMG140512-UM	●	●	14.3	5.2	1.2	5.75

Remark: ● In stcok ○ Reservations

Recommended cutting parameters

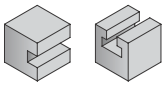
Workpieces material		Hardness	Insert matreial	Vc(m/min)	fz(mm/t)
P	Carbon steel(S50C, etc.)	HB180-280	HPA025B	80-150	0.1-0.15
	alloy steel (SCM440, etc.)	HB280-380	HPA025B	60-130	0.08-0.12
	Die steel(SKD/NAK55, etc.)	HRC35-45	HPA025B	60-100	0.05-0.1
M	Stainless steel(SUS304,etc.)	≤HB270	HPA225B	60-120	0.05-0.1
K	Cast iron (FC/FCD etc.)	Tensile strength≤350-800MPa	HPA025B	80-150	0.1-0.15

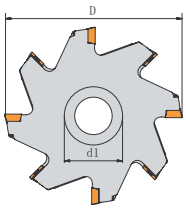
Cutting Type Examples

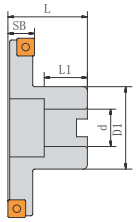
	Recommended shape for grooving in the previous process	Recommended Parameters	Vibration Suppression Method
P		Vc=120m/min fz=0.1mm/t	Vc=60m/min fz=0.15mm/t
		Vc=80m/min fz=0.15mm/t	Vc=60m/min fz=0.15mm/t
M		Vc=100m/min fz=0.06mm/t	Vc=50m/min fz=0.1mm/t
		Vc=70m/min fz=0.06mm/t	Vc=55m/min fz=0.1mm/t
K		Vc=120m/min fz=0.12mm/t	Vc=80m/min fz=0.15mm/t
		Vc=120m/min fz=0.12mm/t	Vc=80m/min fz=0.15mm/t
		Vc=120m/min fz=0.15mm/t	Vc=80m/min fz=0.15mm/t
		Vc=120m/min fz=0.15mm/t	Vc=80m/min fz=0.15mm/t

DFC

Slot Milling Cutter



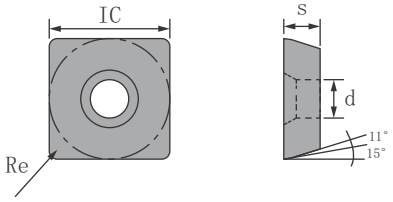




High speed three-edge milling cutter specifications

Model	Size								Insert	Screws	Wrench
	D	L	L1	D1	d1	d	T	SB			
DFC. B. 080. Z08. 06-22	80	40	22	42	32	22	2×4	6	SPMG050204	TS2003	TK06
DFC. B. 080. Z08. 07-22								7	SPMG050204	TS2003	TK06
DFC. B. 080. Z08. 08-22								8	SPMG060204	TS2205	TK06
DFC. B. 080. Z08. 09-22								9	SPMG060204	TS2205	TK06
DFC. B. 080. Z08. 10-22								10	SPMG060204	TS2205	TK06
DFC. B. 080. Z08. 11-22								11	SPMG07T308	TS2511	TK08
DFC. B. 080. Z08. 12-22								12	SPMG07T308	TS2511	TK08
DFC. B. 100. Z10. 06-27	100	40	22	50	32	27	2×5	6	SPMG050204	TS2003	TK06
DFC. B. 100. Z10. 07-27								7	SPMG050204	TS2003	TK06
DFC. B. 100. Z10. 08-27								8	SPMG060204	TS2205	TK08
DFC. B. 100. Z10. 09-27								9	SPMG060204	TS2205	TK08
DFC. B. 100. Z10. 10-27								10	SPMG060204	TS2205	TK08
DFC. B. 100. Z10. 11-27								11	SPMG07T308	TS2511	TK08
DFC. B. 100. Z10. 12-27								12	SPMG07T308	TS2511	TK08
DFC. B. 100. Z10. 14-27								14	SPMG090408	TS3504	TK15
DFC. B. 100. Z10. 16-27								16	SPMG090408	TS3504	TK15
DFC. B. 125. Z12. 06-32	125	45	25	70	46	32	2×6	6	SPMG050204	TS2003	TK06
DFC. B. 125. Z12. 07-32								7	SPMG050204	TS2003	TK06
DFC. B. 125. Z12. 08-32								8	SPMG060204	TS2205	TK06
DFC. B. 125. Z12. 10-32								10	SPMG060204	TS2205	TK06
DFC. B. 125. Z12. 11-32								11	SPMG07T308	TS2511	TK08
DFC. B. 125. Z12. 12-32								12	SPMG07T308	TS2511	TK08
DFC. B. 125. Z12. 14-32								14	SPMG090408	TS3504	TK15
DFC. B. 125. Z12. 16-32								16	SPMG090408	TS3504	TK15
DFC. B. 125. Z10. 18-32	125	45	25	70	46	32	2×5	18	SPMG110408	TS4006	TK15
DFC. B. 125. Z10. 20-32								20	SPMG110408	TS4006	TK15
DFC. B. 125. Z10. 25-32								25	SPMG140512	TS5009	TK20
DFC. B. 160. Z16. 11-40	160	50	28	80	52	40	2×8	11	SPMG07T308	TS2511	TK08
DFC. B. 160. Z16. 12-40								12	SPMG07T308	TS2511	TK08
DFC. B. 160. Z16. 14-40								14	SPMG090408	TS3504	TK15
DFC. B. 160. Z16. 16-40								16	SPMG090408	TS3504	TK15
DFC. B. 160. Z12. 18-40	160	50	28	80	52	40	2×6	18	SPMG110408	TS4006	TK15
DFC. B. 160. Z12. 20-40								20	SPMG110408	TS4006	TK15
DFC. B. 160. Z12. 25-40								25	SPMG140512	TS5009	TK20
DFC. B. 200. Z18. 14-40	200	50	28	90	52	40	2×9	14	SPMG090408	TS3504	TK15
DFC. B. 200. Z18. 16-40								16	SPMG090408	TS3504	TK15
DFC. B. 200. Z14. 18-40	200	50	28	90	52	40	2×7	18	SPMG110408	TS4006	TK15
DFC. B. 200. Z14. 20-40								20	SPMG110408	TS4006	TK15
DFC. B. 200. Z14. 25-40								25	SPMG140512	TS5009	TK20

Inserts specifications



Model	Material		Size			
	PVD		IC	S	Re	d
	HPA025B	HPA225B				
SPMG050204-UM	●	●	5	2.38	0.4	2.25
SPMG060204-UM	●	●	6	2.38	0.4	2.61
SPMG07T308-UM	●	●	7.94	3.97	0.8	2.85
SPMG090408-UM	●	●	9.8	4.3	0.8	4.05
SPMG140512-UM	●	●	14.3	5.2	1.2	5.75

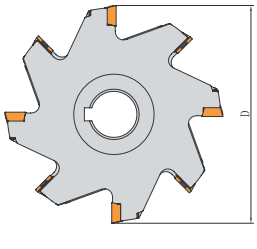
Remark: ● In stcok ○ Reservations

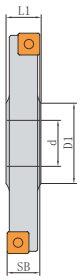
Recommended cutting parameters

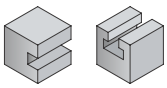
	Workpieces material	Hardness	Insert matreial	Vc(m/min)	fz(mm/t)
P	Low carbon steel	HB125	HPA025B	170-210	0.1-0.22
	Carbon steel (annealing)	HB190	HPA025B	100-140	0.1-0.22
	Carbon steel (hot refining)	HB250	HPA025B	90-120	0.1-0.22
	Alloy steel (annealing)	HB180	HPA025B	90-120	0.1-0.22
	Alloy steel (hot refining)	HB275	HPA025B	80-110	0.08-0.2
	High carbon alloy steel	HB280	HPA025B	70-90	0.08-0.2
M	Austenitic stainless steel	HB220	HPA225B	110-140	0.08-0.2
	Martensitic stainless steel	HB300	HPA225B	100-120	0.08-0.2
K	Gray cast iron (FC, etc.)	HB260	HPA025B	110-130	0.10-0.25
	Ductile cast iron (FCD, etc.)	HB160	HPA025B	80-100	0.10-0.25
		HB250	HPA025B	70-90	0.10-0.25
S	Titanium alloy	-	HPA025B	20-50	0.08-0.2
	Superalloy	-	HPA025B	15-30	0.08-0.2

DFW

Slot Milling Cutter



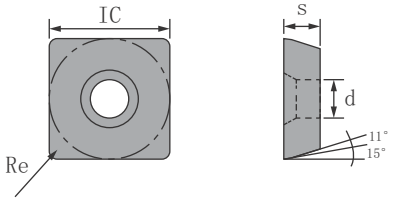




High speed three-edge milling cutter specifications

Model	Size						Insert	Screws	Wrench
	L1	SB	D	D1	d	T			
DFW. B. 080. Z08. 06 -22	12	6	80	44	22	2×4	SPMG050204	TS2003	TK06
DFW. B. 080. Z08. 07 -22	12	7					SPMG050204	TS2003	TK06
DFW. B. 080. Z08. 08 -22	12	8					SPMG060204	TS2205	TK06
DFW. B. 080. Z08. 09 -22	12	9					SPMG060204	TS2205	TK06
DFW. B. 080. Z08. 10 -22	12	10					SPMG060204	TS2205	TK06
DFW. B. 080. Z08. 11 -22	12	11					SPMG07T308	TS2511	TK08
DFW. B. 080. Z08. 12 -22	12	12					SPMG07T308	TS2511	TK08
DFW. B. 100. Z10. 06 -27	16	6	100	50	27	2×5	SPMG050204	TS2003	TK06
DFW. B. 100. Z10. 07 -27	16	7					SPMG050204	TS2003	TK06
DFW. B. 100. Z10. 08 -25. 4	16	8	100	50	25. 4	2×5	SPMG060204	TS2205	TK08
DFW. B. 100. Z10. 09 -27	16	9	100	50	27	2×5	SPMG060204	TS2205	TK08
DFW. B. 100. Z10. 10 -27	16	10					SPMG07T308	TS2511	TK08
DFW. B. 100. Z10. 11 -27	16	11					SPMG07T308	TS2511	TK08
DFW. B. 100. Z10. 12 -27	16	12					SPMG07T308	TS2511	TK08
DFW. B. 100. Z10. 14 -27	16	14					SPMG090408	TS3504	TK15
DFW. B. 100. Z10. 16 -27	16	16					SPMG090408	TS3504	TK15
DFW. B. 125. Z12. 06 -32	12	6	125	65	32	2×6	SPMG050204	TS2003	TK06
DFW. B. 125. Z12. 07 -32	12	7					SPMG050204	TS2003	TK06
DFW. B. 125. Z12. 08 -32	12	8					SPMG060204	TS2205	TK06
DFW. B. 125. Z12. 10 -32	12	10					SPMG060204	TS2205	TK06
DFW. B. 125. Z12. 11 -32	12	11					SPMG07T308	TS2511	TK08
DFW. B. 125. Z12. 12 -32	12	12					SPMG07T308	TS2511	TK08
DFW. B. 125. Z12. 14 -32	16	14					SPMG090408	TS3504	TK15
DFW. B. 125. Z12. 16 -32	16	16					SPMG090408	TS3504	TK15
DFW. B. 125. Z10. 18 -32	20	18	125	65	32	2×5	SPMG110408	TS4006	TK15
DFW. B. 125. Z10. 20 -32	20	20					SPMG110408	TS4006	TK15
DFW. B. 125. Z10. 25 -32	25	25					SPMG140512	TS5009	TK20
DFW. B. 160. Z16. 11 -40	12	11	160	75	40	2×8	SPMG07T308	TS2511	TK08
DFW. B. 160. Z16. 12 -40	12	12					SPMG07T308	TS2511	TK08
DFW. B. 160. Z16. 14 -40	16	14					SPMG090408	TS3504	TK15
DFW. B. 160. Z16. 16 -40	16	16					SPMG090408	TS3504	TK15
DFW. B. 160. Z12. 18 -40	20	18	160	75	40	2×6	SPMG110408	TS4006	TK15
DFW. B. 160. Z12. 20 -40	20	20					SPMG110408	TS4006	TK15
DFW. B. 160. Z12. 25 -40	25	25					SPMG140512	TS5009	TK20
DFW. B. 200. Z18. 14 -40	16	14	200	80	40	2×9	SPMG090408	TS3504	TK15
DFW. B. 200. Z18. 16 -40	16	16					SPMG090408	TS3504	TK15
DFW. B. 200. Z14. 18 -40	20	18	200	80	40	2×7	SPMG110408	TS4006	TK15
DFW. B. 200. Z14. 20 -40	20	20					SPMG110408	TS4006	TK15
DFW. B. 200. Z14. 25 -40	25	25					SPMG140512	TS5009	TK20

Inserts specifications



Model	Material		Size			
	PVD		IC	S	Re	d
	HPA025B	HPA225B				
SPMG050204-UM	●	●	5	2.38	0.4	2.25
SPMG060204-UM	●	●	6	2.38	0.4	2.61
SPMG07T308-UM	●	●	7.94	3.97	0.8	2.85
SPMG090408-UM	●	●	9.8	4.3	0.8	4.05
SPMG140512-UM	●	●	14.3	5.2	1.2	5.75

Remark: ● In stcok ○ Reservations

Recommended cutting parameters

	Workpieces material	Hardness	Insert matreial	Vc(m/min)	fz(mm/t)
P	Low carbon steel	HB125	HPA025B	170-210	0.1-0.22
	Carbon steel (annealing)	HB190	HPA025B	100-140	0.1-0.22
	Carbon steel (hot refining)	HB250	HPA025B	90-120	0.1-0.22
	Alloy steel (annealing)	HB180	HPA025B	90-120	0.1-0.22
	Alloy steel (hot refining)	HB275	HPA025B	80-110	0.08-0.2
	High carbon alloy steel	HB280	HPA025B	70-90	0.08-0.2
M	Austenitic stainless steel	HB220	HPA225B	110-140	0.08-0.2
	Martensitic stainless steel	HB300	HPA225B	100-120	0.08-0.2
K	Gray cast iron (FC, etc.)	HB260	HPA025B	110-130	0.10-0.25
	Ductile cast iron (FCD, etc.)	HB160	HPA025B	80-100	0.10-0.25
		HB250	HPA025B	70-90	0.10-0.25
S	Titanium alloy	-	HPA025B	20-50	0.08-0.2
	Superalloy	-	HPA025B	15-30	0.08-0.2

MILLING SERISE

Thread milling tools

Inserts model description

12 n - 0.5 ISO

12-Inserts Size

12:12mm

TM2:11mm

TM3:16mm

N-Inserts Type

N: Internal thread

E: External thread

0.5-Full Type

mm	TPI
0.5-6	48-4

Local truncated top Type

mm	TPI
0.5-1.5	48-16
0.5-3.0	48-8
1.75-3.0	14-8
3.5-5.0	7-5
5.5-6.0	4.5-4
6.0-10	4-2.5

ISO-Thead Standard

60° -60° universal thread

55° -55° universal thread

ISO-ISO standard thread ISO

UN-60° American aerospace thread

W-55° British Whitworth thread

NPT-60° American standard taper pipe thread NPT

NPTF-60° American dry seal thread NPTF

BSPT-55° British standard taper pipe thread

ACME-American 29° trapezoidal thread

STACME-American 29° short teeth trapezoidal thread

TR30° -standard trapezoidal thread

ABUT-American sawteeth thread

RD-Fire and food machinery round thread

RD20400-Fire and food machinery round thread

APIRD-API round thread

BUT-API partial ladder thread

Holder model description

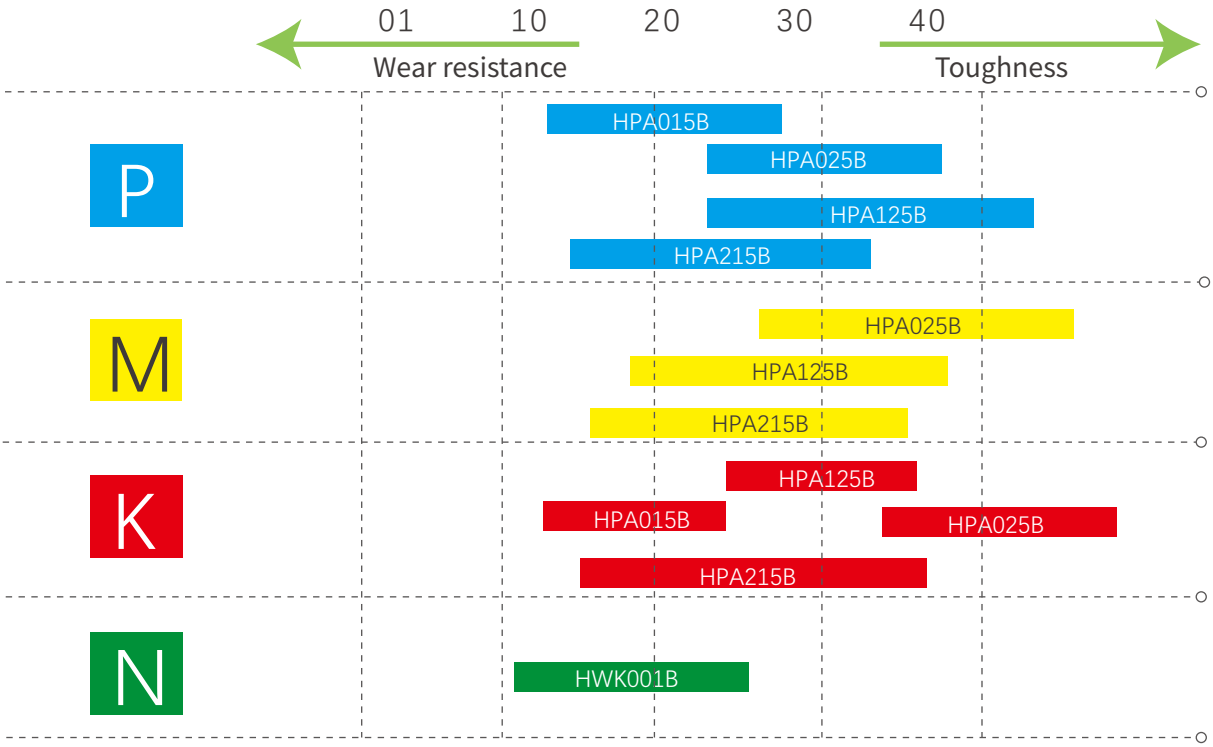
MSR 0010 D16 H12 - 1T

MSR-	0010-	D16-	H12-	1T-
Inserts Type	Minimum cutting diameter	Shank size	Inserts size	Teeth No.

Thread milling comb Inserts catalog

Thread milling comb Inserts

Inserts material description



HPA015B HPA015B (P15, K15)

HPA015B A common material for process steel and cast iron, with good toughness! Recommended Vc: 90-180m/min

HPA025B HPA025B (P15, K15)

HPA025B A common material for process normal steel and stainless steel. Due to the improved high temperature resistance and is suitable for processing at higher speeds. For process stainless steel, Recommended Vc: 80-140m/min. For process Normal steel, Recommended Vc: 120-180m/min.

HPA125B HPA125B (M25, P25)

HPA125B The first choice for processing stainless steel, and it also performs well in medium and high speed processing of steel! It can also process cast iron! For process stainless steel, recommended Vc: 60-120m/min. For process steel, recommended Vc: 100-180m/min.

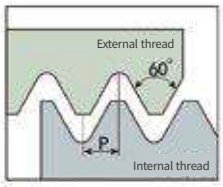
HWK001B HWK001B (K15) particle size: 0.6um hardness: HV1670

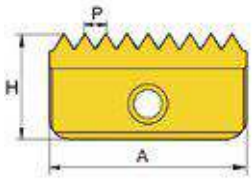
HWK001B The first choice for process non-ferrous metal material , such as aluminum alloy! Recommended Vc: 100-300m/min

HPA215B HPA215B Steel, stainless steel cast iron and other common materials (P10-P30M10-M30K10-K30 (Balzers)

A B C D E

IS0 standard thread Inserts

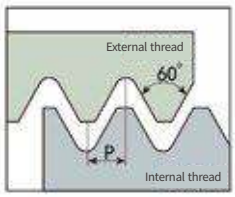


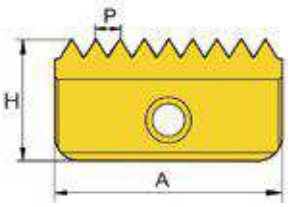


Double-sided use

H		6	7.5	12	16	20
T		2.38	3.1	4.7	5.5	6.3
Processing pitch		Dimensions(mm)=A				
mm		12	14	21	30	40
0.50	Ext.					
0.50	Int.	*12N-0.5 ISO	14N-0.5 ISO			
0.75	Ext.		14E-0.75ISO			
0.75	Int.	*12N-0.75 ISO	14N-0.75 ISO			
1.00	Ext.		14E-1.0 ISO	21E-1.0 ISO		
1.00	Int.	*12N-1.0 ISO	14N-1.0 ISO	21N-1.0 ISO		
1.25	Ext.		14E-1.25 ISO			
1.25	Int.	*12N-1.25 ISO	14N-1.25 ISO			
1.50	Ext.		14E-1.5 ISO	21E-1.5 ISO	30E-1.5 ISO	40E-1.5 ISO
1.50	Int.	*12N-1.5 ISO	14N-1.5 ISO	21N-1.5 ISO	30N-1.5 ISO	40N-1.5 ISO
1.75	Ext.		14E-1.75 ISO			
1.75	Int.		14N-1.75 ISO	21N-1.75 ISO		
2.00	Ext.		14E-2.0 ISO	21E-2.0 ISO	30E-2.0 ISO	40E-2.0 ISO
2.00	Int.		14N-2.0 ISO	21N-2.0 ISO	30N-2.0 ISO	40N-2.0 ISO
2.50	Ext.		14E-2.5 ISO	21E-2.5 ISO		
2.50	Int.		14N-2.5 ISO	21N-2.5 ISO		
3.00	Ext.			21E-3.0 ISO	30E-3.0 ISO	40E-3.0 ISO
3.00	Int.			21N-3.0 ISO	30N-3.0 ISO	40N-3.0 ISO
3.50	Ext.				30E-3.5 ISO	
3.50	Int.			21N-3.5 ISO	30N-3.5 ISO	40N-3.5 ISO
4.00	Ext.				30E-4.0 ISO	40E-4.0 ISO
4.00	Int.				30N-4.0 ISO	40N-4.0 ISO
4.50	Ext.					
4.50	Int.				30N-4.5 ISO	40N-4.5 ISO
5.00	Ext.					40E-5.0 ISO
5.00	Int.				30N-5.0 ISO	40N-5.0 ISO
5.50	Ext.					
5.50	Int.					40N-5.5 ISO
6.00	Ext.					40E-6.0 ISO
6.00	Int.					
Order example: 14E-2.5 ISO HPA215B 10 pieces						
* Meansthe inserts can only use one side						

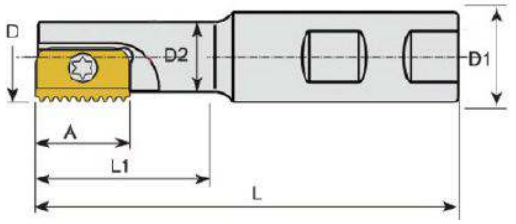
UN-60°American unified standard thread Inserts





H		6	7.5	12	16	20
T		2.38	3.1	4.7	5.5	6.3
Processing pitch		Dimensions(mm)=A				
tpi		12	14	21	30	40
32	Ext.		14E-32 UN			
32	Int.	*12N-32 UN	14N-32 UN			
28	Ext.		14E-28 UN			
28	Int.	*12N-28 UN	14N-28 UN			
27	Ext.					
27	Int.		14N-27 UN			
24	Ext.		14E-24 UN	21E-24 UN		
24	Int.	*12N-24 UN	14N-24 UN	21N-24 UN		
20	Ext.		14E-20 UN	21E-20 UN	30E-20 UN	
20	Int.	*12N-20 UN	14N-20 UN	21N-20 UN	30N-20 UN	
18	Ext.		14E-18 UN	21E-18 UN	30E-18 UN	
18	Int.	*12N-18 UN	14N-18 UN	21N-18 UN	30N-18 UN	
16	Ext.		14E-16 UN	21E-16 UN	30E-16 UN	40E-16 UN
16	Int.	*12N-16 UN	14N-16 UN	21N-16 UN	30N-16 UN	40N-16 UN
14	Ext.		14E-14 UN	21E-21 UN	30E-14 UN	40E-14 UN
14	Int.		14N-14 UN	21N-21 UN	30N-14 UN	40N-14 UN
12	Ext.		14E-12 UN	21E-12 UN	30E-12 UN	40E-12 UN
12	Int.		14N-12 UN	21N-12 UN	30N-12 UN	40N-12 UN
11	Ext.					
11	Int.		14N-11 UN			
10	Ext.			21E-10 UN	30E-10 UN	40E-10 UN
10	Int.		14N-10 UN	21N-10 UN	30N-10 UN	40N-10 UN
8	Ext.				30E-8 UN	40E-8 UN
8	Int.			21N-8 UN	30N-8 UN	40N-8 UN
7	Ext.					
7	Int.			21N-7 UN		
6	Ext.				30E-6 UN	40E-6 UN
6	Int.				30N-6 UN	40N-6 UN
5	Ext.					
5	Int.				30N-5 UN	
4.5	Ext.					
4.5	Int.					40N-4.5 UN
4	Ext.					
4	Int.					40N-4 UN
Order example: 14E-10UN ISO HPA215B 10 pieces						
* Meansthe inserts can only use one side						

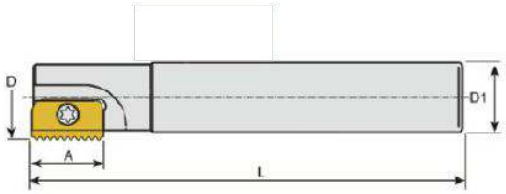
Single-edge thread milling cutter bar



※ Holder with internal coolant hole needs to be customized

Model	Dimensions(mm)						Insert	Screws	Wrench
	A	D	D1	D2	L	L1			
MSR0010D16H12	12	9.5	16	7.6	85	29	12****	L60M2.5X7	T8
MSR0012D20F14	14	12.0	20	8.9	80	30	14****	L60M3X8	T10
MSR0014D20H14	14	14.5	20	11.2	85	33	14****	L60M3X8	T10
MSR0017D20H14	14	17.0	20	13.4	85	35	14****	L60M3X8	T10
*MSR0018D20H21	21	18.0	20	13.8	85	35	21****	L60M3.5X8	T15
MSR0021D20H21	21	21.0	20	15.5	94	44	21****	L60M3.5X10	T15
MSR0029D25J30	30	29.0	25	22	110	52	30****	L60M4X0.5X11.5D	T15
MSR0048D40M40	40	48.0	40	35.0	153	83	40****	L60M5X0.8X14D	T20
* This holder can't match: 21E/N3.5ISO 、21E/N7UN 、21E/N8UN 、21-11BSPT 、21-11.5NPT 、21-11.5NPTF									

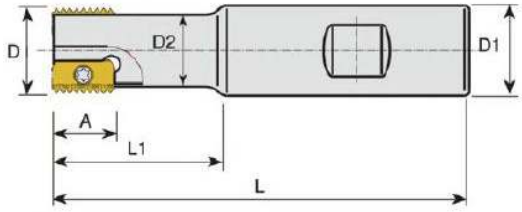
Single-edge thread milling cutter bar【extended】



※ Holder with internal coolant hole needs to be customized

Model	Dimensions(mm)				Insert	Screws	Wrench
	A	D	D1	L			
MSR0025D20K21	21	25	20	125	21****	L60M3.5X10	T15
MSR0031D25M30	30	31	25	150	30****	L60M4X0.5X11.5D	T15
MSR0038D32M30	30	38	32	150	30****	L60M4X0.5X11.5D	T15
MSR0038D32Q40	40	38	32	180	40****	L60M5X0.8X14D	T20
MSR0048D40R40	40	48	40	210	40****	L60M5X0.8X14D	T20

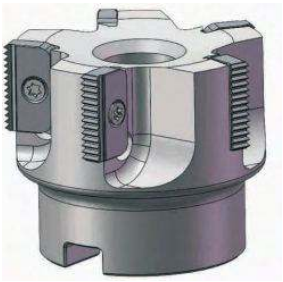
Double-edge thread milling cutter bar

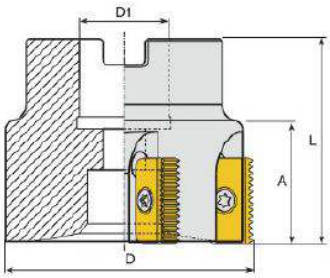


※ Holder with internal coolant hole needs to be customized

Model	Dimensions(mm)						Insert	Teeth No.	Screws	Wrench
	A	D	D1	D2	L	L1				
MSR0020D20G14-2T	14	20	20	16	93	37	14****	2	L60M3X7	T10
MSR0020D20J14-2T	14	20	20	16	113	57	14****	2	L60M3X7	T10
MSR0030D25J21-2T	21	30	25	24	114	52	21****	2	L60M3.5X10	T15
MSR0030D25L21-2T	21	30	25	24	140	80	21****	2	L60M3.5X10	T15
MSR0040D32L30-2T	30	40	32	30	135	70	30****	2	L60M4X0.5X11.5D	T15
MSR0040D32P30-2T	30	40	32	30	170	103	30****	2	L60M4X0.5X11.5D	T15
MSR0050D40M40-2T	40	50	40	38	153	80	40****	2	L60M5X0.8X14D	T20

Thread milling cutter disc【multi-edge】





※ Holder with internal coolant hole needs to be customized

Model	Dimensions(mm)				Insert	Teeth No.	Screws	Wrench
	A	D	D1	L				
MSR0063D22C21-5T	21	63	22	50	21****	5	L60M3.5X10	T15
MSR0063D22C30-4T	30	63	22	50	30****	4	L60M4X0.5X10D	T15
MSR0080D27D30-4T	30	80	27	55	30****	4	L60M4X0.5X10D	T15
MSR0100D32D30-4T	30	100	32	60	30****	4	L60M4X0.5X10D	T15
MSR0080D27D40-4T	40	80	27	65	40****	4	L60M5X0.8X14D	T20
MSR0100D32E40-4T	40	100	32	70	40****	4	L60M5X0.8X14D	T20

Application Information

About Thread Milling

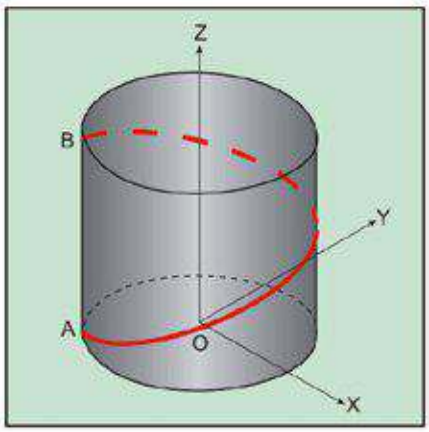
In order to realize thread milling, the machine must have the function of three-axis linkage. Spiral interpolation is a function of CNC machine, use the machine controls the tool to realize the spiral trajectory. Spiral interpolation is formed by the linkage of plane arc interpolation and linear motion perpendicular to the plane.

For most CNC systems, this function can be achieved through the following two different instructions

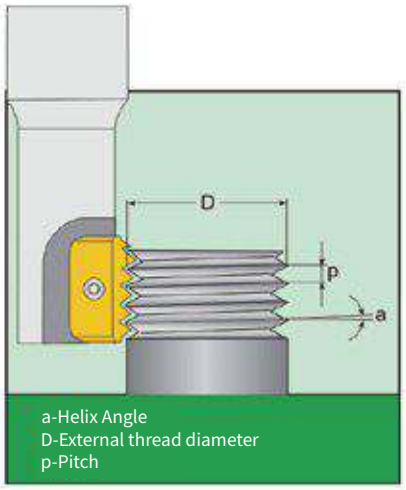
G02: Clockwise arc interpolation command

G03: Counterclockwise circular interpolation command

【Picture 1】



【Picture 2】



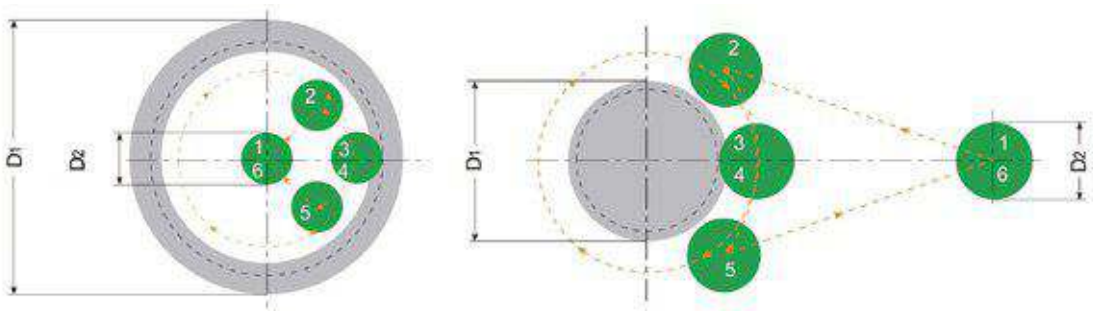
The thread milling motion [Picture 2] is formed by the rotation of the tool itself and the helical interpolation motion of the machine. In a circular interpolation process, the geometric form of the tool is used, and the tool moves along the Z axis for a pitch to produce the required thread. Thread milling can adopt the following three cutting methods.

1. Arc cutting method
2. Radial cutting method
3. Tangential cutting method

1. Arc cutting method

This method allows the tool to cut in smoothly, leaving no cutting marks and no vibration, even when machining hard materials. The programming of this method is more complicated than the radial cutting method. It is recommended to use this method when machining precision threads.

【Internal thread】 【External thread】



1-2: Rapid positioning

2-3: The tool feeds along the arc and cuts in tangentially, while interpolating along the Z axis

3-4: 360-degree full circle helical interpolation movement, axial movement of one lead

4-5: The tool feeds along the arc and cuts out tangentially, while interpolating along the Z axis

5-6: Rapid return

2. Radial cutting method

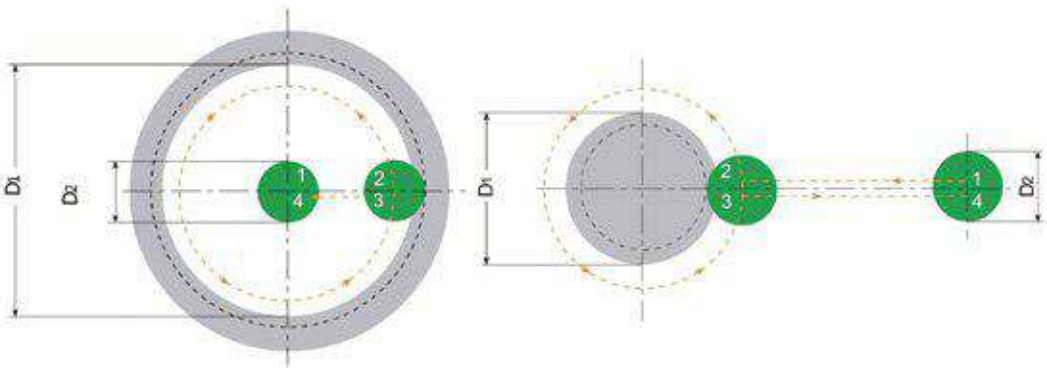
This method is the simplest, but sometimes the following two situations may occur:

1. Small vertical marks will be left at the cutting-in and cutting-out points, but it will not affect the quality of the thread.

2. When processing very hard materials, when the cutting-in is close to the full teeth profile, due to the increase in the contact area between the tool and the workpiece, vibration may occur.

In order to avoid vibration when the cutting-in is close to the full teeth profile, the feed rate should be reduced to 1/3 of the spiral interpolation feed as much as possible.

【Internal thread】 【External thread】



1-2: Rapid positioning

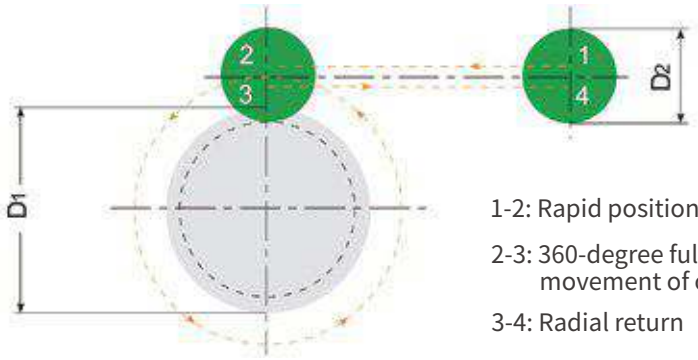
2-3: 360-degree full circle helical interpolation movement, axial movement of one lead

3-4: Radial return

Application Information

3. Tangential cutting method

This method is very simple and has the advantages of arc cutting method, but it is only suitable for milling of external threads.



1-2: Rapid positioning

2-3: 360-degree full circle helical interpolation movement, axial movement of one lead

3-4: Radial return

Thread milling data calculation

■ 1.Calculate the feed speed and feed rate of the tool

$$n=\frac{1000\times VC}{\pi \times D_2}$$

$$F1=f\times n\times Z$$

Vc-cutting linear speed (m/min)
n-tool speed (R.P.M)
Dz-tool cutting diameter (mm)
F1-tool cutting edge feed speed (mm)
Z-tool teeth number
f-feed rate per teeth per revolution (mm/rev)

Example of thread milling data calculation

1.Example of thread milling data calculation

Vc=(π*Dz*n)/1000

Vc: Linear speed (m/min) π: (Pi 3.14159) D2: Tool diameter (mm) n: Speed (rpm)

Example: Using a milling cutter with a diameter of 25, where Vc is (m/min) 100, calculate n=?rpm

$Vc=\pi D_2 n/1000$

100=π*25*n/1000

n=1000*100/π*25

n=1280rpm

▶ ▶ ▶ ▶ ▶

2.Calculation of feed rate (F value)

Fl=n*Z*f

F1: feed rate (mm/min)n: speed (rpm)2: number of Edges f: (actual feed per Edge)

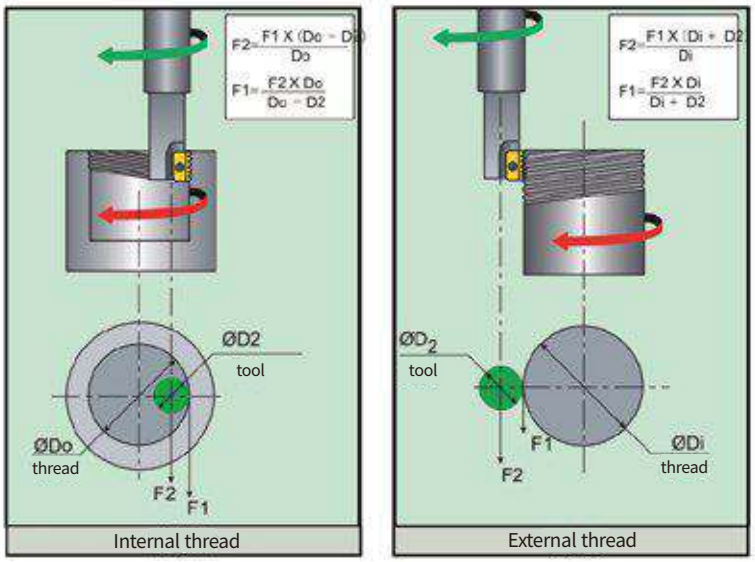
Example: A standard 2-Edge end mill cuts a workpiece at a speed of 2000rpm. What is the feed rate (F value)?

F1=n*f*z

F1=2000*2*0.25

F1=1000(mm/min)

■ 2.Calculate the tools center feed



Most CNC machine require tool center feed programming when programming. The tool feed rate is determined by the size of the tool center feed rate. The tool center feed rate is not directly given, but can be calculated from the relationship equation between the tool feed rate and the tool center feed rate.

"G" code for CNC program (ISO)

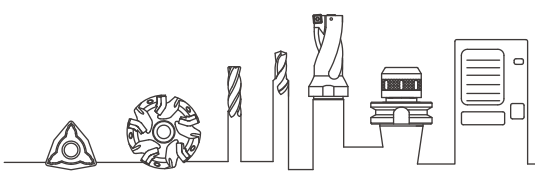
Code	Function
%	Identification code (ISO or EIA), end of ten tapes
G00	Rapid movement command
G01	Linear interpolation command
G02	Clockwise arc/helical interpolation command Cw
G03	Counterclockwise arc/helical interpolation command CCW
G40	Tool radius compensation cancel command
G41	Left tool radius compensation command
G42	Right tool radius compensation command
G43	Tool length compensation command
G49	Tool length compensation cancel command
G57	Working coordinate system selection
G90	Absolute coordinates - given relative to the origin of the workpiece coordinate system
G91	Incremental coordinates - given relative to the tool position
F	Feed rate mm/min
S	Spindle speed RPM

Code	Function
H	Tool length compensation number
D	Tool radius compensation number
XX	Axis coordinates
YY	Axis coordinates
ZZ	Axis coordinates
R	Circular interpolation radius
I	X-axis incremental dimension of arc start point relative to circle center
J	Y-axis incremental dimension of arc start point relative to circle center
M3	Spindle forward
M5	Spindle stop
M30	Main program end/reset
O	Program number
N	Program segment number
(	Comment start
)	Comment end

KHALNN
SUPERHARD TOOLS

MILLING SERIES

end mills



End mill naming rules

H S E 4

【1】

Zhengzhou Halnn Superhard Material Co., Ltd.

【2】

M - Micro diameter end mill

S - Common type, suitable for processing all kinds of materials

L - Long-shank end mill

A - Aluminum alloy end mill

R - Rough milling Tools, corrugated milling Tools

LN - Long-neck end mill (deep groove cutter)

HH - High performance, high spiral milling cutters

SUS - Stainless steel end mill

GH - High hardness steel/stainless steel end mill

【3】

E - End mill

B - Ball end mill

R - Arc end mill

LF - Long edge end mill

SF - Short edge end mill

SB - Short edge ball end mill

SR - Short edge arc end mill

PS - Single edge aluminum milling Tools

EP - High gloss aluminum milling Tools

【4】 Cutting edge

2·3·4·6

End mill naming rules

08	D	0080	R02	L075	-	30
【5】		【6】	【7】	【8】		【9】

【5】 · Shank diameter

【6】 · Edge diameter

· 0080：Means8mm

【7】 · R02 corner radius 0.2

· R05 corner radius 0.5

【8】 · For long-shank end mills, it indicates the total length, 3 digits.

· For long-edge end mills, it indicates the edge length, 2 digits.

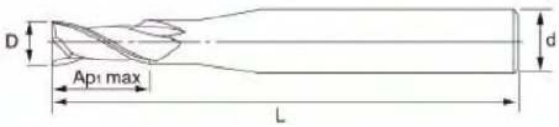
【9】 · Type 10 - general processing

· Type 30 - first choice for general processing

· Type 50 - high-speed, efficient processing

· Type 70 - highest performance processing

Micro diameter 2/4 edge end mill



For general cutting

30 series

MG | 0.5μm | HRC 55 | AITIN

For high-speed machine cutting

50 series

MG | 0.4μm | HRC 60 | AITIN

Cutting material

50 series / 30 series				70 series	
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ0.2~ ϕ0.95	0~ -0.02	H

Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory	
					30 series	50 series
HME2-04D0002	0.2	4	0.4	50	●	●
HME2-04D0003	0.3	4	0.6	50	●	●
HME2-04D0004	0.4	4	0.8	50	●	●
HME2-04D0005	0.5	4	1.0	50	●	●
HME2-04D0006	0.6	4	1.2	50	●	●
HME2-04D0007	0.7	4	1.4	50	●	●
HME2-04D0008	0.8	4	1.6	50	●	●
HME2-04D0009	0.9	4	1.8	50	●	●

MOQ for all above is 5 Pcs

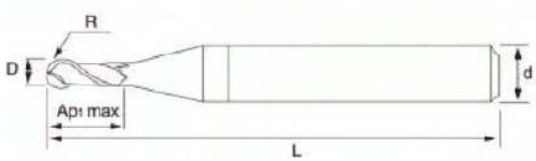
※ Please select the minimum required tool overhang. Long overhangs are prone to vibration, so reduce the number of revolutions and feed rate.

※ Please adjust the number of revolutions and feed rate reasonably according to the cutting depth, machine tool rigidity, etc.

※ The use of heat-resistant coating allows high-speed processing.

※ Widely used in processing from ordinary steel to high-hardness materials with a hardness of HRC50 or above.

Small diameter 2-edge ball end mill



For general cutting

30 series

MG | 0.5μm | HRC 55 | AITIN

For high-speed machine cutting

50 series

MG | 0.4μm | HRC 60 | AITIN

Cutting material

50 series / 30 series				70 series	
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ0.3~ ϕ0.9	0~ -0.02	H6

Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory	
					30 series	50 series
HMB2-04D0003	R0.15	4	0.6	50	●	●
HMB2-04D0004	R0.20	4	0.8	50	●	●
HMB2-04D0005	R0.25	4	1.0	50	●	●
HMB2-04D0006	R0.30	4	1.2	50	●	●
HMB2-04D0007	R0.35	4	1.4	50	●	●
HMB2-04D0008	R0.40	4	1.6	50	●	●
HMB2-04D0009	R0.45	4	1.8	50	●	●

MOQ for all above is 5 Pcs

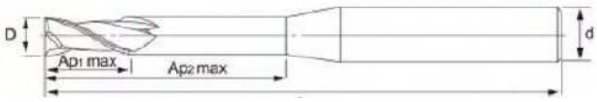
※ It can be used for tool steel, alloy steel, pre-hardened die steel, and other high-hardness machining.

※ General type 2-edge ball-end mill, widely used for profiling and other purposes.

※ The Good surface roughness after process.

※ The coating with high heat resistance allows high-speed machining.

Long neck short blade 2-edge end mill (deep groove cutter)



For general cutting

30 series

MG | 0.5μm | HRC 55 | AITIN

For high-speed machine cutting

50 series

UMG | 0.4μm | HRC60 | AITIN

70 series

UMG | 0.2μm | HRC65-68 | AITIN

Cutting material

50 series / 30 series				70 series	
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

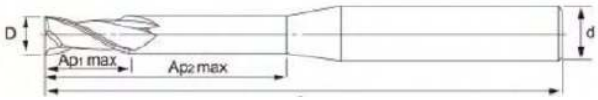
Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ0.4~ ϕ4.0	0~ -0.02	h6

Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Effective length (Ap2 max)	Total length (L)	Inventory		
						30 series	50 series	70 series
HLNSF2-04D0004L02	0. 4	4	0. 6	2	50	●	●	●
HLNSF2-04D0004L04	0. 4	4	0. 6	4	50	●	●	●
HLNSF2-04D0005L02	0. 5	4	0. 8	2	50	●	●	●
HLNSF2-04D0005L04	0. 5	4	0. 8	4	50	●	●	●
HLNSF2-04D0005L06	0. 5	4	0. 8	6	50	●	●	●
HLNSF2-04D0006L02	0. 6	4	1. 0	2	50	●	●	●
HLNSF2-04D0006L04	0. 6	4	1. 0	4	50	●	●	●
HLNSF2-04D0006L06	0. 6	4	1. 0	6	50	●	●	●
HLNSF2-04D0006L08	0. 6	4	1. 0	8	50	●	●	●
HLNSF2-04D0008L03	0. 8	4	1. 2	3	50	●	●	●
HLNSF2-04D0008L04	0. 8	4	1. 2	4	50	●	●	●
HLNSF2-04D0008L06	0. 8	4	1. 2	6	50	●	●	●
HLNSF2-04D0008L08	0. 8	4	1. 2	8	50	●	●	●
HLNSF2-04D0008L10	0. 8	4	1. 2	10	50	●	●	●
HLNSF2-04D0010L04	1. 0	4	1. 2	4	50	●	●	●
HLNSF2-04D0010L06	1. 0	4	1. 2	6	50	●	●	●
HLNSF2-04D0010L08	1. 0	4	1. 2	8	50	●	●	●
HLNSF2-04D0010L10	1. 0	4	1. 2	10	50	●	●	●
HLNSF2-04D0010L12	1. 0	4	1. 2	12	50	●	●	●
HLNSF2-04D0015L04	1. 5	4	1. 7	4	50	●	●	●
HLNSF2-04D0015L06	1. 5	4	1. 7	6	50	●	●	●
HLNSF2-04D0015L08	1. 5	4	1. 7	8	50	●	●	●
HLNSF2-04D0015L10	1. 5	4	1. 7	10	50	●	●	●
HLNSF2-04D0015L12	1. 5	4	1. 7	12	50	●	●	●
HLNSF2-04D0020L06	2. 0	4	2. 2	6	50	●	●	●
HLNSF2-04D0020L08	2. 0	4	2. 2	8	50	●	●	●
HLNSF2-04D0020L10	2. 0	4	2. 2	10	50	●	●	●
HLNSF2-04D0020L12	2. 0	4	2. 2	12	50	●	●	●
HLNSF2-04D0020L14	2. 0	4	2. 2	14	50	●	●	●

MOQ for all above is 5 Pcs

Long neck short blade 2-edge end mill (deep groove cutter)



For general cutting

30 series

MG | 0.5μm | HRC 55 | AITIN

For high-speed machine cutting

50 series

UMG | 0.4μm | HRC60 | AITIN

70 series

UMG | 0.2μm | HRC65-68 | AITIN

Cutting material

50 series / 30 series				70 series	
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ0.4~ ϕ4.0	0~ -0.02	h6

Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Effective length (Ap2 max)	Total length (L)	Inventory		
						30 series	50 series	70 series
HLNSF2-04D0020L16	2.0	4	2.2	16	50	●	●	●
HLNSF2-04D0030L08	3.0	4	3.2	8	50	●	●	●
HLNSF2-04D0030L10	3.0	4	3.2	10	50	●	●	●
HLNSF2-04D0030L12	3.0	4	3.2	12	50	●	●	●
HLNSF2-04D0030L14	3.0	4	3.2	14	50	●	●	●
HLNSF2-04D0030L16	3.0	4	3.2	16	75	●	●	●
HLNSF2-06D0030L18	3.0	6	3.2	18	75	●	●	●
HLNSF2-06D0040L12	4.0	6	4.2	12	75	●	●	●
HLNSF2-06D0040L14	4.0	6	4.2	14	75	●	●	●
HLNSF2-06D0040L16	4.0	6	4.2	16	75	●	●	●
HLNSF2-06D0040L20	4.0	6	4.2	20	75	●	●	●
HLNSF2-06D0040L25	4.0	6	4.2	25	75	●	●	●

MOQ for all above is 5 Pcs

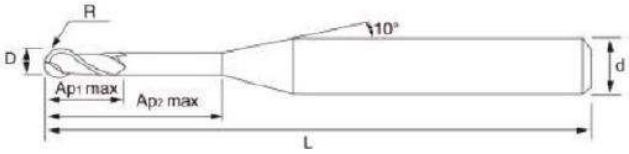
※ The milling tools neck adopts a long neck, which is more suitable for deep groove processing.

※ The surface roughness of the workpiece after processing is good.

※ With a coating with excellent heat resistance, high-speed processing is possible.

※ Best suited for rib groove processing of plastic molds.

Long neck short blade 2-edge ball end mill (deep groove cutter)



For general cutting

30 series

MG | 0.5μm | HRC 55 | AITIN

For high-speed machine cutting

50 series

UMG | 0.4μm | HRC60 | AITIN

70 series

UMG | 0.2μm | HRC65-68 | AITIN

Cutting material

50 series / 30 series				70 series	
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

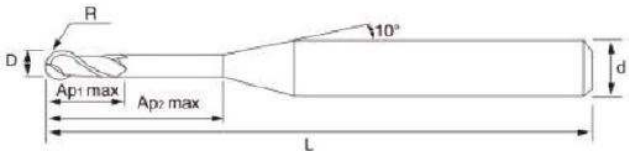
Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ0.4~ ϕ4.0	0~ -0.02	h6

Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Effective length (Ap2 max)	Total length (L)	Inventory		
						30 series	50 series	70 series
HLNSB2-04D0004L02	R0. 20	4	0. 6	2	50	●	●	●
HLNSB2-04D0004L04	R0. 20	4	0. 6	4	50	●	●	●
HLNSB2-04D0005L02	R0. 25	4	0. 8	2	50	●	●	●
HLNSB2-04D0005L04	R0. 25	4	0. 8	4	50	●	●	●
HLNSB2-04D0005L06	R0. 25	4	0. 8	6	50	●	●	●
HLNSB2-04D0006L02	R0. 30	4	1. 0	2	50	●	●	●
HLNSB2-04D0006L04	R0. 30	4	1. 0	4	50	●	●	●
HLNSB2-04D0006L06	R0. 30	4	1. 0	6	50	●	●	●
HLNSB2-04D0006L08	R0. 30	4	1. 0	8	50	●	●	●
HLNSB2-04D0008L03	R0. 40	4	1. 2	3	50	●	●	●
HLNSB2-04D0008L04	R0. 40	4	1. 2	4	50	●	●	●
HLNSB2-04D0008L06	R0. 40	4	1. 2	6	50	●	●	●
HLNSB2-04D0008L08	R0. 40	4	1. 2	8	50	●	●	●
HLNSB2-04D0008L10	R0. 40	4	1. 2	10	50	●	●	●
HLNSB2-04D0010L04	R0. 50	4	1. 2	4	50	●	●	●
HLNSB2-04D0010L06	R0. 50	4	1. 2	6	50	●	●	●
HLNSB2-04D0010L08	R0. 50	4	1. 2	8	50	●	●	●
HLNSB2-04D0010L10	R0. 50	4	1. 2	10	50	●	●	●
HLNSB2-04D0010L12	R0. 50	4	1. 2	12	50	●	●	●
HLNSB2-04D0015L04	R0. 75	4	1. 7	4	50	●	●	●
HLNSB2-04D0015L06	R0. 75	4	1. 7	6	50	●	●	●
HLNSB2-04D0015L08	R0. 75	4	1. 7	8	50	●	●	●
HLNSB2-04D0015L10	R0. 75	4	1. 7	10	50	●	●	●
HLNSB2-04D0015L12	R0. 75	4	1. 7	12	50	●	●	●
HLNSB2-04D0020L06	R1. 00	4	2. 2	6	50	●	●	●
HLNSB2-04D0020L08	R1. 00	4	2. 2	8	50	●	●	●
HLNSB2-04D0020L10	R1. 00	4	2. 2	10	50	●	●	●
HLNSB2-04D0020L12	R1. 00	4	2. 2	12	50	●	●	●
HLNSB2-04D0020L14	R1. 00	4	2. 2	14	50	●	●	●

MOQ for all above is 10 Pcs

Long neck short blade 2-edge ball end mill (deep groove cutter)



For general cutting

30 series

MG | 0.5μm | HRC 55 | AITIN

For high-speed machine cutting

50 series

UMG | 0.4μm | HRC60 | AITIN

70 series

UMG | 0.2μm | HRC65-68 | AITIN

Cutting material

50 series / 30 series				70 series	
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ0.4~ ϕ4.0	0~ -0.02	h6

Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Effective length (Ap2 max)	Total length (L)	Inventory		
						30 series	50 series	70 series
HLNSB2-04D0020L16	R1.00	4	2.2	16	50	●	●	●
HLNSB2-04D0030L08	R1.50	4	3.2	8	50	●	●	●
HLNSB2-04D0030L10	R1.50	4	3.2	10	50	●	●	●
HLNSB2-04D0030L12	R1.50	4	3.2	12	50	●	●	●
HLNSB2-04D0030L14	R1.50	4	3.2	14	50	●	●	●
HLNSB2-04D0030L16	R1.50	4	3.2	16	75	●	●	●
HLNSB2-06D0030L18	R1.50	6	3.2	18	75	●	●	●
HLNSB2-06D0040L12	R2.00	6	4.2	12	75	●	●	●
HLNSB2-06D0040L14	R2.00	6	4.2	14	75	●	●	●
HLNSB2-06D0040L16	R2.00	6	4.2	16	75	●	●	●
HLNSB2-06D0040L20	R2.00	6	4.2	20	75	●	●	●
HLNSB2-06D0040L25	R2.00	6	4.2	25	75	●	●	●

MOQ for all above is 10 Pcs

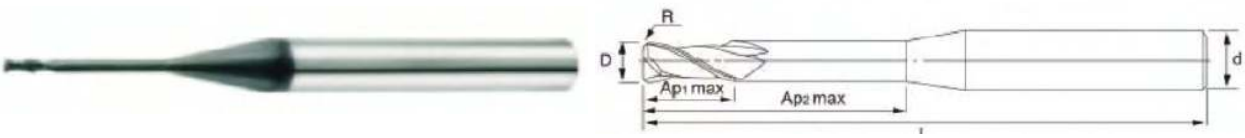
※ Best suited for rib groove processing of plastic molds.

※ The long neck structure can avoid interference of the tool during deep groove processing.

※ The surface roughness of the workpiece after processing is good.

※ With a coating with excellent heat resistance, high-speed processing is possible.

Long neck short blade arc head 2-edge end mill (deep groove cutter)



For general cutting

30 series

MG | 0.5μm | HRC 55 | AITIN

For high-speed machine cutting

50 series

UMG | 0.4μm | HRC60 | AITIN

70 series

UMG | 0.2μm | HRC65-68 | AITIN-AS

Cutting material

50 series / 30 series				70 series	
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

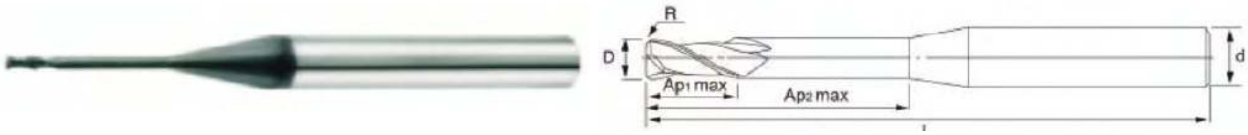
Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ0.4~ϕ4.0	0~-0.02	h6
ϕ3.0~ϕ4.0	-0.01~-0.03	h6

Item Code	Edge diameter (D)	R diameter (R)	Handle diameter (d)	Edge length (Ap1 max)	Effective length (Ap2 max)	Total length (L)	Inventory		
							30 series	50 series	70 series
HLNSR2-04D0010R02L04	1.0	0.2	4	1.2	4	50	●	●	●
HLNSR2-04D0010R02L06	1.0	0.2	4	1.2	6	50	●	●	●
HLNSR2-04D0010R02L08	1.0	0.2	4	1.2	8	50	●	●	●
HLNSR2-04D0010R02L10	1.0	0.2	4	1.2	10	50	●	●	●
HLNSR2-04D0010R02L12	1.0	0.2	4	1.2	12	50	●	●	●
HLNSR2-04D0015R02L04	1.5	0.2	4	1.7	4	50	●	●	●
HLNSR2-04D0015R02L06	1.5	0.2	4	1.7	6	50	●	●	●
HLNSR2-04D0015R02L08	1.5	0.2	4	1.7	8	50	●	●	●
HLNSR2-04D0015R02L10	1.5	0.2	4	1.7	10	50	●	●	●
HLNSR2-04D0015R02L12	1.5	0.2	4	1.7	12	50	●	●	●
HLNSR2-04D0015R05L04	1.5	0.5	4	1.7	4	50	●	●	●
HLNSR2-04D0015R05L06	1.5	0.5	4	1.7	6	50	●	●	●
HLNSR2-04D0015R05L08	1.5	0.5	4	1.7	8	50	●	●	●
HLNSR2-04D0015R05L10	1.5	0.5	4	1.7	10	50	●	●	●
HLNSR2-04D0015R05L12	1.5	0.5	4	1.7	12	50	●	●	●
HLNSR2-04D0020R02L06	2.0	0.2	4	2.2	6	50	●	●	●
HLNSR2-04D0020R02L08	2.0	0.2	4	2.2	8	50	●	●	●
HLNSR2-04D0020R02L10	2.0	0.2	4	2.2	10	50	●	●	●
HLNSR2-04D0020R02L12	2.0	0.2	4	2.2	12	50	●	●	●
HLNSR2-04D0020R02L14	2.0	0.2	4	2.2	14	50	●	●	●
HLNSR2-04D0020R02L16	2.0	0.2	4	2.2	16	75	●	●	●
HLNSR2-04D0020R05L06	2.0	0.5	4	2.2	6	50	●	●	●
HLNSR2-04D0020R05L08	2.0	0.5	4	2.2	8	50	●	●	●
HLNSR2-04D0020R05L10	2.0	0.5	4	2.2	10	50	●	●	●
HLNSR2-04D0020R05L12	2.0	0.5	4	2.2	12	50	●	●	●
HLNSR2-04D0020R05L14	2.0	0.5	4	2.2	14	50	●	●	●

※ MOQ for all above is 10 Pcs

Long neck short blade arc head 2-edge end mill (deep groove cutter)



For general cutting

30 series

MG | 0.5μm | HRC 55 | AITIN

For high-speed machine cutting

50 series

UMG | 0.4μm | HRC60 | AITIN

70 series

UMG | 0.2μm | HRC65-68 | AITIN-AS

Cutting material

50 series / 30 series				70 series	
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ0.4~ϕ4.0	0~-0.02	h6
ϕ3.0~ϕ4.0	-0.01~-0.03	h6

Item Code	Edge diameter (D)	R diameter (R)	Handle diameter (d)	Edge length (Ap1 max)	Effective length (Ap2 max)	Total length (L)	Inventory		
							30 series	50 series	70 series
HLNSR2-04D0020R05L16	2.0	0.5	4	2.2	16	75	●	●	●
HLNSR2-04D0030R05L08	3.0	0.5	4	3.2	8	50	●	●	●
HLNSR2-04D0030R05L10	3.0	0.5	4	3.2	10	50	●	●	●
HLNSR2-04D0030R05L12	3.0	0.5	4	3.2	12	50	●	●	●
HLNSR2-04D0030R05L14	3.0	0.5	4	3.2	14	50	●	●	●
HLNSR2-04D0030R05L16	3.0	0.5	4	3.2	16	75	●	●	●
HLNSR2-04D0030R05L20	3.0	0.5	4	3.2	20	75	●	●	●
HLNSR2-06D0040R05L12	4.0	0.5	6	4.2	12	50	●	●	●
HLNSR2-06D0040R05L14	4.0	0.5	6	4.2	14	50	●	●	●
HLNSR2-06D0040R05L16	4.0	0.5	6	4.2	16	75	●	●	●
HLNSR2-06D0040R05L20	4.0	0.5	6	4.2	20	75	●	●	●
HLNSR2-06D0040R05L25	4.0	0.5	6	4.2	25	75	●	●	●

※ Special specifications can be customized.

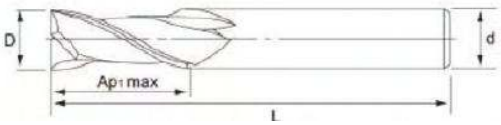
※ The milling tools neck adopts a long neck, which is more suitable for deep groove processing.

※ The arc angle edge tip design can prevent chipping.

※ MOQ for all above is 10 Pcs.

A B C D E

2-flute end mill



For general cutting

10 series
MG | 0.6μm | HRC 45 | AITIN

30 series
MG | 0.5μm | HRC 55 | AITIN

For high-speed machine cutting

50 series
MG | 0.4μm | HRC 60 | AITIN

70 series
MG | 0.2μm | HRC65-68 | AITIN-AS

Cutting material

50 series				70 series	
10 series	30 series				
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

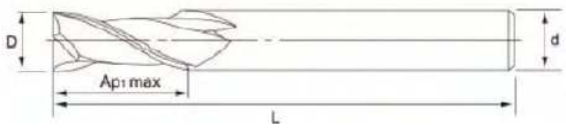
Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ1.0~ ϕ2.9	0~ -0.02	h6
ϕ3.0~ ϕ6.0	-0.01~ -0.03	h6
ϕ6.5~ ϕ10.5	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.0	-0.01~ -0.04	h6
ϕ17.0~ ϕ20	-0.015~ -0.045	h6

Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory			
					10 series	30 series	50 series	70 series
HSE2-04D0010	1.0	4	3	50	●	●	●	●
HSE2-04D0015	1.5	4	4	50	●	●	●	●
HSE2-04D0020	2.0	4	6	50	●	●	●	●
HSE2-04D0025	2.5	4	8	50	●	●	●	●
HSE2-03D0030	3.0	3	8	50	●	●	●	●
HSE2-04D0030	3.0	4	8	50	●	●	●	●
HSE2-04D0035	3.5	4	11	50	●	●	●	●
HSE2-04D0040	4.0	4	11	50	●	●	●	●
HSE2-06D0010	1.0	6	3	50	●	●	●	●
HSE2-06D0015	1.5	6	4	50	●	●	●	●
HSE2-06D0020	2.0	6	6	50	●	●	●	●
HSE2-06D0025	2.5	6	8	50	●	●	●	●
HSE2-06D0030	3.0	6	8	50	●	●	●	●
HSE2-06D0035	3.5	6	11	50	●	●	●	●
HSE2-06D0040	4.0	6	11	50	●	●	●	●
HSE2-06D0045	4.5	6	13	50	●	●	●	●
HSE2-05D0050	5.0	5	13	50	●	●	●	●
HSE2-06D0050	5.0	6	13	50	●	●	●	●
HSE2-06D0060	6.0	6	15	50	●	●	●	●
HSE2-08D0070	7.0	8	20	60	●	●	●	●
HSE2-08D0080	8.0	8	20	60	●	●	●	●
HSE2-10D0090	9.0	10	25	75	●	●	●	●
HSE2-10D0100	10.0	10	25	75	●	●	●	●
HSE2-12D0120	12.0	12	30	75	●	●	●	●
HSE2-14D0140	14.0	14	45	100	●	●	●	●
HSE2-16D0160	16.0	16	45	100	●	●	●	●
HSE2-18D0180	18.0	18	45	100	●	●	●	●
HSE2-20D0200	20.0	20	45	100	●	●	●	●

※ (50/70 series) Minimum order of 5 pieces

2-flute long-shank end mill



For general cutting

10 series

MG | 0.6μm | HRC 45 | AITIN

30 series

MG | 0.5μm | HRC 55 | AITIN

For high-speed machine cutting

50 series

MG | 0.4μm | HRC 60 | AITIN

70 series

MG | 0.2μm | HRC65-68 | AITIN-AS

Cutting material

50 series				70 series	
10 series	30 series				
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

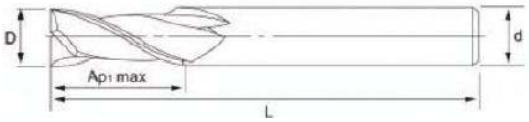
Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ1.0~ ϕ2.9	0~ -0.02	h6
ϕ3.0~ ϕ6.0	-0.01~ -0.03	h6
ϕ6.5~ ϕ10.5	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.0	-0.01~ -0.04	h6
ϕ17.0~ ϕ20	-0.015~ -0.045	h6

Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory			
					10 series	30 series	50 series	70 series
HLE2-04D0040L075	4.0	4	11	75	●	●	●	●
HLE2-04D0040L100	4.0	4	11	100	●	●	●	●
HLE2-06D0050L075	5.0	6	13	75	●	●	●	●
HLE2-06D0060L075	6.0	6	15	75	●	●	●	●
HLE2-06D0060L100	6.0	6	15	100	●	●	●	●
HLE2-06D0060L150	6.0	6	40	150	●	●	●	●
HLE2-08D0080L075	8.0	8	20	75	●	●	●	●
HLE2-08D0080L100	8.0	8	20	100	●	●	●	●
HLE2-08D0080L150	8.0	8	40	150	●	●	●	●
HLE2-10D0100L100	10.0	10	25	100	●	●	●	●
HLE2-10D0100L150	10.0	10	50	150	●	●	●	●
HLE2-12D0120L100	12.0	12	30	100	●	●	●	●
HLE2-12D0120L150	12.0	12	50	150	●	●	●	●
HLE2-14D0140L150	14.0	14	50	150	●	●	●	●
HLE2-16D0160L150	16.0	16	50	150	●	●	●	●
HLE2-18D0180L150	18.0	18	50	150	●	●	●	●
HLE2-20D0200L150	20.0	20	50	150	●	●	●	●

※ (50/70 series) Minimum order of 5 pieces

2-flute long Edge end mill



For general cutting

10 series

MG	0.6μm	HRC 45	AITIN

30 series

MG	0.5μm	HRC 55	AITIN

For high-speed machine cutting

50 series

MG	0.4μm	HRC 60	AITIN

70 series

MG	0.2μm	HRC65-68	AITIN-AS

Cutting material

50 series				70 series	
10 series	30 series				
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

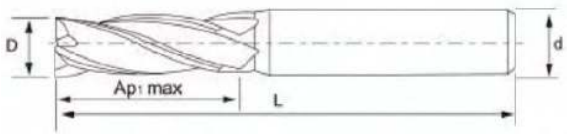
Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ1.0~ ϕ2.9	0~ -0.02	h6
ϕ3.0~ ϕ6.0	-0.01~ -0.03	h6
ϕ6.5~ ϕ10.5	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.0	-0.01~ -0.04	h6
ϕ17.0~ ϕ20	-0.015~ -0.045	h6

Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory			
					10 series	30 series	50 series	70 series
HSLF2-04D0010L05	1.0	4	5	75	●	●	●	●
HSLF2-04D0015L06	1.5	4	6	75	●	●	●	●
HSLF2-04D0020L09	2.0	4	9	75	●	●	●	●
HSLF2-04D0025L10	2.5	4	10	75	●	●	●	●
HSLF2-04D0030L15	3.0	4	15	75	●	●	●	●
HSLF2-04D0035L15	3.5	4	15	75	●	●	●	●
HSLF2-04D0040L20	4.0	4	20	75	●	●	●	●
HSLF2-06D0045L20	4.5	6	20	75	●	●	●	●
HSLF2-06D0050L25	5.0	6	25	75	●	●	●	●
HSLF2-06D0055L25	5.5	6	25	75	●	●	●	●
HSLF2-06D0060L25	6.0	6	25	75	●	●	●	●
HSLF2-08D0065L30	6.5	8	30	75	●	●	●	●
HSLF2-08D0070L30	7.0	8	30	75	●	●	●	●
HSLF2-08D0075L30	7.5	8	30	75	●	●	●	●
HSLF2-08D0080L30	8.0	8	30	75	●	●	●	●
HSLF2-06D0030L20	3.0	6	20	100	●	●	●	●
HSLF2-06D0040L20	4.0	6	20	100	●	●	●	●
HSLF2-06D0050L40	5.0	6	40	100	●	●	●	●
HSLF2-06D0060L40	6.0	6	40	100	●	●	●	●
HSLF2-08D0070L50	7.0	8	50	100	●	●	●	●
HSLF2-08D0080L50	8.0	8	50	100	●	●	●	●
HSLF2-10D0090L50	9.0	10	50	100	●	●	●	●
HSLF2-10D0100L50	10.0	10	50	100	●	●	●	●
HSLF2-12D0110L50	11.0	12	50	100	●	●	●	●
HSLF2-12D0120L50	12.0	12	50	100	●	●	●	●
HSLF2-10D0100L70	10.0	10	70	150	●	●	●	●
HSLF2-12D0120L70	12.0	12	70	150	●	●	●	●
HSLF2-16D0160L75	16.0	16	75	150	●	●	●	●
HSLF2-20D0180L80	18.0	20	80	150	●	●	●	●
HSLF2-20D0200L80	20.0	20	80	150	●	●	●	●

(50/70 series) minimum order quantity>5 Pcs

4-flute end mill



For general cutting

10 series
MG | 0.6μm | HRC 45 | AITIN

30 series
MG | 0.5μm | HRC 55 | AITIN

For high-speed machine cutting

50 series
MG | 0.4μm | HRC 60 | AITIN

70 series
MG | 0.2μm | HRC65-68 | AITIN-AS

Cutting material

50 series				70 series	
10 series	30 series				
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ1.0~ ϕ2.9	0~ -0.02	h6
ϕ3.0~ ϕ6.4	-0.01~ -0.03	h6
ϕ6.5~ ϕ10.9	-0.01~ -0.035	h6
ϕ17.0~ ϕ20	-0.01~ -0.045	h6

Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory			
					10 series	30 series	50 series	70 series
HSE4-04D0010	1.0	4	3	50	●	●	●	●
HSE4-04D0015	1.5	4	4	50	●	●	●	●
HSE4-04D0020	2.0	4	6	50	●	●	●	●
HSE4-04D0025	2.5	4	8	50	●	●	●	●
HSE4-03D0030	3.0	3	8	50	●	●	●	●
HSE4-04D0030	3.0	4	8	50	●	●	●	●
HSE4-04D0035	3.5	4	11	50	●	●	●	●
HSE4-04D0040	4.0	4	11	50	●	●	●	●
HSE4-06D0010	1.0	6	3	50	●	●	●	●
HSE4-06D0015	1.5	6	4	50	●	●	●	●
HSE4-06D0020	2.0	6	6	50	●	●	●	●
HSE4-06D0025	2.5	6	8	50	●	●	●	●
HSE4-06D0030	3.0	6	8	50	●	●	●	●
HSE4-06D0035	3.5	6	11	50	●	●	●	●
HSE4-06D0040	4.0	6	11	50	●	●	●	●
HSE4-06D0045	4.5	6	13	50	●	●	●	●
HSE4-05D0050	5.0	5	13	50	●	●	●	●
HSE4-06D0050	5.0	6	13	50	●	●	●	●
HSE4-06D0060	6.0	6	15	50	●	●	●	●
HSE4-08D0070	7.0	8	20	60	●	●	●	●
HSE4-08D0080	8.0	8	20	60	●	●	●	●
HSE4-10D0090	9.0	10	25	75	●	●	●	●
HSE4-10D0100	10.0	10	25	75	●	●	●	●
HSE4-12D0120	12.0	12	30	75	●	●	●	●
HSE4-14D0140	14.0	14	45	100	●	●	●	●
HSE4-16D0160	16.0	16	45	100	●	●	●	●
HSE4-18D0180	18.0	18	45	100	●	●	●	●
HSE4-20D0200	20.0	20	45	100	●	●	●	●

(50/70 series) minimum order quantity>5 Pcs

※ Please select the minimum required tool overhang. Long overhangs are prone to vibration, so reduce the number of revolutions and feed rate.

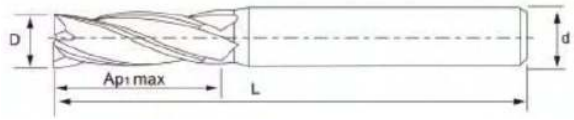
※ Please adjust the revolutions and feed rate reasonably according to the cutting depth, machine tool rigidity, etc.

※ The use of a coating with excellent heat resistance allows high-speed processing.

※ It is widely used in processing from ordinary steel to high hardness materials with hardness above HRC50.

4-Flute long shank end mill

CLE4



For general cutting

10 series
MG | 0.6μm | HRC 45 | AITIN

30 series
MG | 0.5μm | HRC 55 | AITIN

For high-speed machine cutting

50 series
MG | 0.4μm | HRC 60 | AITIN

70 series
MG | 0.2μm | HRC65-68 | AITIN-AS

Cutting material

50 series				70 series	
10 series	30 series				
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ1.0~ ϕ2.9	0~ -0.02	h6
ϕ3.0~ ϕ6.0	-0.01~ -0.03	h6
ϕ6.5~ ϕ10.5	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.0	-0.01~ -0.04	h6
ϕ17.0~ ϕ20	-0.015~ -0.045	h6

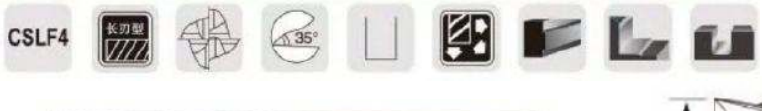
Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory			
					10 series	30 series	50 series	70 series
HLE4-04D0040L075	4.0	4	11	75	●	●	●	●
HLE4-04D0040L100	4.0	4	11	100	●	●	●	●
HLE4-06D0050L075	5.0	6	13	75	●	●	●	●
HLE4-06D0060L075	6.0	6	15	75	●	●	●	●
HLE4-06D0060L100	6.0	6	15	100	●	●	●	●
HLE4-06D0060L150	6.0	6	40	150	●	●	●	●
HLE4-08D0080L075	8.0	8	20	75	●	●	●	●
HLE4-08D0080L100	8.0	8	20	100	●	●	●	●
HLE4-08D0080L150	8.0	8	40	150	●	●	●	●
HLE4-10D0100L100	10.0	10	25	100	●	●	●	●
HLE4-10D0100L150	10.0	10	50	150	●	●	●	●
HLE4-12D0120L100	12.0	12	30	100	●	●	●	●
HLE4-12D0120L150	12.0	12	50	150	●	●	●	●
HLE4-14D0140L150	14.0	14	50	150	●	●	●	●
HLE4-16D0160L150	16.0	16	50	150	●	●	●	●
HLE4-18D0180L150	18.0	18	50	150	●	●	●	●
HLE4-20D0200L150	20.0	20	50	150	●	●	●	●

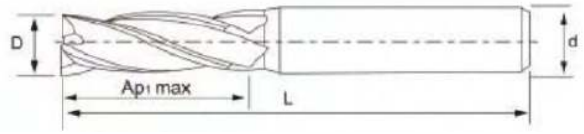
※ Please select the minimum required tool overhang. Long overhangs are prone to vibration, so reduce the speed and feed rate.

※ Please adjust the speed and feed rate reasonably according to the cutting depth, machine rigidity, etc.

※ (50/70 series) Minimum order of 5 pieces

4-flute long-edge end mill





For general cutting

10 series

MG | 0.6μm | HRC 45 | AITIN

30 series

MG | 0.5μm | HRC 55 | AITIN

For high-speed machine cutting

50 series

MG | 0.4μm | HRC 60 | AITIN

70 series

MG | 0.2μm | HRC65-68 | AITIN-AS

Cutting material

50 series				70 series	
10 series	30 series				
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ1.0~ ϕ2.9	0~ -0.02	h6
ϕ3.0~ ϕ6.0	-0.01~ -0.03	h6
ϕ6.5~ ϕ10.5	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.0	-0.01~ -0.04	h6
ϕ17.0~ ϕ20	-0.015~ -0.045	h6

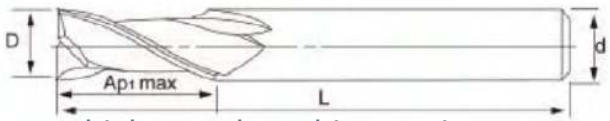
Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory			
					10 series	30 series	50 series	70 series
HSLF4-04D0010L05	1.0	4	5	75	●	●	●	●
HSLF4-04D0015L06	1.5	4	6	75	●	●	●	●
HSLF4-04D0020L09	2.0	4	9	75	●	●	●	●
HSLF4-04D0025L10	2.5	4	10	75	●	●	●	●
HSLF4-04D0030L15	3.0	4	15	75	●	●	●	●
HSLF4-04D0035L15	3.5	4	15	75	●	●	●	●
HSLF4-04D0040L20	4.0	4	20	75	●	●	●	●
HSLF4-06D0045L20	4.5	6	20	75	●	●	●	●
HSLF4-06D0050L25	5.0	6	25	75	●	●	●	●
HSLF4-06D0055L25	5.5	6	25	75	●	●	●	●
HSLF4-06D0060L25	6.0	6	25	75	●	●	●	●
HSLF4-08D0065L30	6.5	8	30	75	●	●	●	●
HSLF4-08D0070L30	7.0	8	30	75	●	●	●	●
HSLF4-08D0075L30	7.5	8	30	75	●	●	●	●
HSLF4-08D0080L30	8.0	8	30	75	●	●	●	●
HSLF4-06D0030L20	3.0	6	20	100	●	●	●	●
HSLF4-06D0040L20	4.0	6	20	100	●	●	●	●
HSLF4-06D0050L40	5.0	6	40	100	●	●	●	●
HSLF4-06D0060L40	6.0	6	40	100	●	●	●	●
HSLF4-08D0070L50	7.0	8	50	100	●	●	●	●
HSLF4-08D0080L50	8.0	8	50	100	●	●	●	●
HSLF4-10D0090L50	9.0	10	50	100	●	●	●	●
HSLF4-10D0100L50	10.0	10	50	100	●	●	●	●
HSLF4-12D0110L50	11.0	12	50	100	●	●	●	●
HSLF4-12D0120L50	12.0	12	50	100	●	●	●	●
HSLF4-10D0100L70	10.0	10	70	150	●	●	●	●
HSLF4-12D0120L70	12.0	12	70	150	●	●	●	●
HSLF4-16D0160L75	16.0	16	75	150	●	●	●	●
HSLF4-20D0180L80	18.0	20	80	150	●	●	●	●
HSLF4-20D0200L80	20.0	20	80	150	●	●	●	●

※ (50/70 series) Minimum order of 5 pieces

A B C D E

3-flute end mill

CSE3



For general cutting

10 series
MG 0.6μm HRC 45 AITIN

30 series
MG 0.5μm HRC 55 AITIN

For high-speed machine cutting

50 series
MG 0.4μm HRC 60 AITIN

70 series
MG 0.2μm HRC65-68 AITIN-AS

Cutting material

50 series				70 series	
10 series	30 series				
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

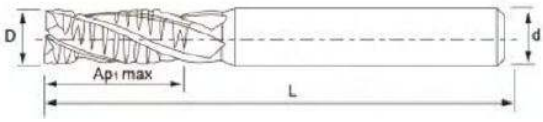
Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ1.0~ ϕ2.9	0~ -0.02	h6
ϕ3.0~ ϕ6.0	-0.01~ -0.03	h6
ϕ6.5~ ϕ10.5	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.0	-0.01~ -0.04	h6
ϕ17.0~ ϕ20	-0.015~ -0.045	h6

Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory			
					10 series	30 series	50 series	70 series
HSE3-04D0010	1.0	4	3	50	●	●	●	●
HSE3-04D0015	1.5	4	4	50	●	●	●	●
HSE3-04D0020	2.0	4	6	50	●	●	●	●
HSE3-04D0025	2.5	4	8	50	●	●	●	●
HSE3-03D0030	3.0	3	8	50	●	●	●	●
HSE3-04D0030	3.0	4	8	50	●	●	●	●
HSE3-04D0035	3.5	4	11	50	●	●	●	●
HSE3-04D0040	4.0	4	11	50	●	●	●	●
HSE3-06D0010	1.0	6	3	50	●	●	●	●
HSE3-06D0015	1.5	6	4	50	●	●	●	●
HSE3-06D0020	2.0	6	6	50	●	●	●	●
HSE3-06D0025	2.5	6	8	50	●	●	●	●
HSE3-06D0030	3.0	6	8	50	●	●	●	●
HSE3-06D0035	3.5	6	11	50	●	●	●	●
HSE3-06D0040	4.0	6	11	50	●	●	●	●
HSE3-06D0045	4.5	6	13	50	●	●	●	●
HSE3-05D0050	5.0	5	13	50	●	●	●	●
HSE3-06D0050	5.0	6	13	50	●	●	●	●
HSE3-06D0060	6.0	6	15	50	●	●	●	●
HSE3-08D0070	7.0	8	20	60	●	●	●	●
HSE3-08D0080	8.0	8	20	60	●	●	●	●
HSE3-10D0090	9.0	10	25	75	●	●	●	●
HSE3-10D0100	10.0	10	25	75	●	●	●	●
HSE3-12D0120	12.0	12	30	75	●	●	●	●
HSE3-14D0140	14.0	14	45	100	●	●	●	●
HSE3-16D0160	16.0	16	45	100	●	●	●	●
HSE3-18D0180	18.0	18	45	100	●	●	●	●
HSE3-20D0200	20.0	20	45	100	●	●	●	●

※ Please select the minimum required tool overhang. Long overhangs are prone to vibration, so reduce the speed and feed rate.
※ Please adjust the speed and feed rate reasonably according to the cutting depth, machine rigidity, etc.
※ MOQ for all above is 10 Pcs.

3-flute rough milling end mill



For general cutting

10 series

MG	0.6μm	HRC 45	AITIN

30 series

MG	0.5μm	HRC 55	AITIN

50 series

MG	0.4μm	HRC 60	AITIN

Cutting material

50 series				70 series	
10 series	30 series				
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ6.0	-0.01~ -0.03	h6
ϕ7 .0~ ϕ10.0	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.0	-0.01~ -0.04	h6
ϕ17.0~ ϕ20	-0.015~ -0.045	h6

Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory		
					10 series	30 series	50 series
HRE3-06D0060	6. 0	6	15	50	●	●	●
HRE3-08D0080	8. 0	8	20	60	●	●	●
HRE3-10D0100	10. 0	10	25	75	●	●	●
HRE3-12D0120	12. 0	12	30	75	●	●	●
HRE3-14D0140	14. 0	14	45	100	●	●	●
HRE3-16D0160	16. 0	16	45	100	●	●	●
HRE3-18D0180	18. 0	18	45	100	●	●	●
HRE3-20D0200	20. 0	20	45	100	●	●	●

※ It can be used for tool steel, alloy steel, pre-hardened die steel, and other high-hardness processing.

※ It has good chip removal and is most suitable for high-speed cutting and groove processing.

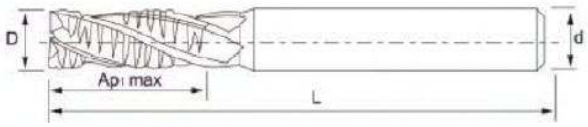
※ It adopts coarse teeth groove design, and the surface roughness of the workpiece after processing is good.

※ The long handle design is most suitable for deep cavity processing.

※ (30/50 series) Minimum order of 5 pieces.

A B C D E

4 Flute roughing end mill



For general cutting

10 series
MG | 0.6μm | HRC 45 | AITIN

30 series
MG | 0.5μm | HRC 55 | AITIN

50 series
MG | 0.4μm | HRC 60 | AITIN

Cutting material

50 series				70 series	
10 series 30 series					
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

Tolerances

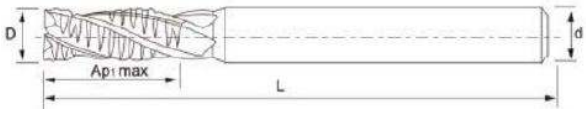
Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ6.0	-0.01~ -0.03	h6
ϕ7.0~ ϕ10.0	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.0	-0.01~ -0.04	h6
ϕ17.0~ ϕ20	-0.015~ -0.045	h6

Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory		
					10 series	30 series	50 series
HRE4-06D0060	6.0	6	15	50	●	●	●
HRE4-08D0080	8.0	8	20	60	●	●	●
HRE4-10D0100	10.0	10	25	75	●	●	●
HRE4-12D0120	12.0	12	30	75	●	●	●
HRE4-14D0140	14.0	14	45	100	●	●	●
HRE4-16D0160	16.0	16	45	100	●	●	●
HRE4-18D0180	18.0	18	45	100	●	●	●
HRE4-20D0200	20.0	20	45	100	●	●	●

(50 series) Minimum order of 5 pieces.

※ It can be used for tool steel, alloy steel, pre-hardened die steel, and other high-hardness processing.
※ It has good chip removal and is most suitable for high-speed cutting and groove processing.
※ It adopts coarse teeth groove design, and the surface roughness of the workpiece after processing is good.
※ The long handle design is most suitable for deep cavity processing.

Long shank 3-Flute roughing end mill



For general cutting

10 series
MG | 0.6μm | HRC 45 | AITIN

30 series
MG | 0.5μm | HRC 55 | AITIN

50 series
MG | 0.4μm | HRC 60 | AITIN

Cutting material

50 series				70 series	
10 series	30 series				
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

Tolerances

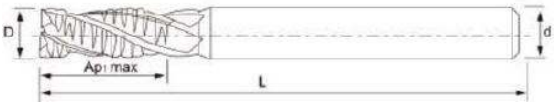
Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ6.0	-0.01~ -0.03	h6
ϕ7.0~ ϕ10.0	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.0	-0.01~ -0.04	h6
ϕ17.0~ ϕ20	-0.015~ -0.045	h6

Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory		
					10 series	30 series	50 series
HRL3-06D0060L075	6.0	6	15	75	●	●	●
HRL3-06D0060L100	6.0	6	15	100	●	●	●
HRL3-06D0060L150	6.0	6	15	150	●	●	●
HRL3-08D0080L075	8.0	8	20	75	●	●	●
HRL3-08D0080L100	8.0	8	20	100	●	●	●
HRL3-08D0080L150	8.0	8	20	150	●	●	●
HRL3-10D0100L100	10.0	10	25	100	●	●	●
HRL3-10D0100L150	10.0	10	25	150	●	●	●
HRL3-12D0120L100	12.0	12	30	100	●	●	●
HRL3-12D0120L150	12.0	12	30	150	●	●	●
HRL3-14D0140L150	14.0	14	45	150	●	●	●
HRL3-16D0160L150	16.0	16	50	150	●	●	●
HRL3-18D0180L150	18.0	18	55	150	●	●	●
HRL3-20D0200L150	20.0	20	60	150	●	●	●

MOQ for all above is 10 Pcs

※ It can be used for tool steel, alloy steel, pre-hardened die steel, and other high-hardness processing.
※ It has good chip removal and is most suitable for high-speed cutting and groove processing.
※ It adopts coarse teeth groove design, and the surface roughness of the workpiece after processing is good.
※ The long handle design is most suitable for deep cavity processing.

Long shank 4-Flute roughing end mill



For general cutting

10 series
MG | 0.6μm | HRC 45 | AITIN

30 series
MG | 0.5μm | HRC 55 | AITIN

50 series
MG | 0.4μm | HRC 60 | AITIN

Cutting material

50 series				70 series	
10 series	30 series				
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ6.0	-0.01~ -0.03	h6
ϕ7.0~ ϕ10.0	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.0	-0.01~ -0.04	h6
ϕ17.0~ ϕ20	-0.015~ -0.045	h6

Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory		
					10 series	30 series	50 series
HRL4-06D0060L075	6.0	6	15	75	●	●	●
HRL4-06D0060L100	6.0	6	15	100	●	●	●
HRL4-06D0060L150	6.0	6	15	150	●	●	●
HRL4-08D0080L075	8.0	8	20	75	●	●	●
HRL4-08D0080L100	8.0	8	20	100	●	●	●
HRL4-08D0080L150	8.0	8	20	150	●	●	●
HRL4-10D0100L100	10.0	10	25	100	●	●	●
HRL4-10D0100L150	10.0	10	25	150	●	●	●
HRL4-12D0120L100	12.0	12	30	100	●	●	●
HRL4-12D0120L150	12.0	12	30	150	●	●	●
HRL4-14D0140L150	14.0	14	45	150	●	●	●
HRL4-16D0160L150	16.0	16	50	150	●	●	●
HRL4-18D0180L150	18.0	18	55	150	●	●	●
HRL4-20D0200L150	20.0	20	60	150	●	●	●

※ It can be used for tool steel, alloy steel, pre-hardened die steel, and other high-hardness processing.

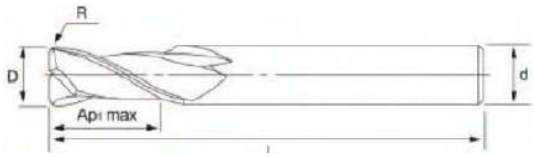
※ It has good chip removal and is most suitable for high-speed cutting and groove processing.

※ It adopts coarse teeth groove design, and the surface roughness of the workpiece after processing is good.

※ The long handle design is most suitable for deep cavity processing.

※ (D) Edge Diameter ＜10 MOQ is 10 pcs, the MOQ is 5 pcs.

2 Flute arc head end mill



For general cutting

10 series

MG	0.6μm	HRC 45	AITIN

30 series

MG	0.5μm	HRC 55	AITIN

For high-speed machine cutting

50 series

MG	0.4μm	HRC 60	AITIN

70 series

MG	0.2μm	HRC65-68	AITIN-AS

Cutting material

50 series				70 series	
10 series	30 series				
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

Tolerances

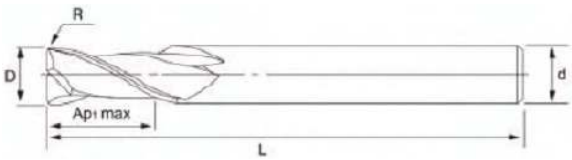
Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ1.0~ ϕ2.9	0~ -0.02	h6
ϕ3.0~ ϕ6.0	-0.01~ -0.03	h6
ϕ6.5~ ϕ10.5	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.0	-0.01~ -0.04	h6

Item Code	Edge diameter (D)	R	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory			
						10 series	30 series	50 series	70 series
HSR2-04 D0020R05	2.0	R0.5	4	4	50	●	●	●	●
HSR2-04 D0030R05	3.0	R0.5	4	5	50	●	●	●	●
HSR2-04 D0040R05	4.0	R0.5	4	8	50	●	●	●	●
HSR2-04 D0040R10	4.0	R1	4	8	50	●	●	●	●
HSR2-06 D0060R05	6.0	R0.5	6	12	50	●	●	●	●
HSR2-06 D0060R10	6.0	R1	6	12	50	●	●	●	●
HSR2-08 D0080R05	8.0	R0.5	8	16	60	●	●	●	●
HSR2-08 D0080R10	8.0	R1	8	16	60	●	●	●	●
HSR2-08 D0080R15	8.0	R1.5	8	16	60	●	●	●	●
HSR2-10 D0100R05	10.0	R0.5	10	20	75	●	●	●	●
HSR2-10 D0100R10	10.0	R1	10	20	75	●	●	●	●
HSR2-10 D0100R15	10.0	R1.5	10	20	75	●	●	●	●
HSR2-12 D0120R05	12.0	R0.5	12	24	75	●	●	●	●
HSR2-12 D0120R10	12.0	R1	12	24	75	●	●	●	●
HSR2-12 D0120R15	12.0	R1.5	12	24	75	●	●	●	●
HSR2-12 D0120R20	12.0	R2	12	24	75	●	●	●	●

※ The arc angle cutting edge design can prevent chipping.

※ The above are all ordered in 10 pieces

2 Flute long-shank arc-head end mill



For general cutting

10 series

MG | 0.6μm | HRC 45 | AITIN

30 series

MG | 0.5μm | HRC 55 | AITIN

For high-speed machine cutting

50 series

MG | 0.4μm | HRC 60 | AITIN

70 series

MG | 0.2μm | HRC65-68 | AITIN-AS

Cutting material

50 series				70 series	
10 series	30 series				
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

Tolerances

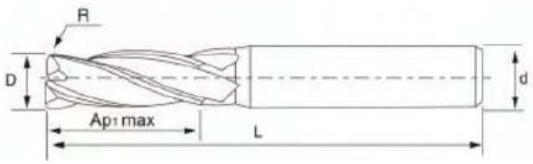
Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ1.0~ ϕ2.9	0~ -0.02	h6
ϕ3.0~ ϕ6.0	-0.01~ -0.03	h6
ϕ6.5~ ϕ10.5	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.0	-0.01~ -0.04	h6

Item Code	Edge diameter (D)	R	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory			
						10 series	30 series	50 series	70 series
HLR2-04D0020R05L075	2.0	R0.5	4	4	75	●	●	●	●
HLR2-04D0030R05L075	3.0	R0.5	4	5	75	●	●	●	●
HLR2-04D0040R05L075	4.0	R0.5	4	8	75	●	●	●	●
HLR2-04D0040R10L075	4.0	R1	4	8	75	●	●	●	●
HLR2-04D0040R05L100	4.0	R0.5	4	8	100	●	●	●	●
HLR2-04D0040R10L100	4.0	R1	4	8	100	●	●	●	●
HLR2-06D0060R05L075	6.0	R0.5	6	12	75	●	●	●	●
HLR2-06D0060R10L075	6.0	R1	6	12	75	●	●	●	●
HLR2-06D0060R05L100	6.0	R0.5	6	12	100	●	●	●	●
HLR2-06D0060R10L100	6.0	R1	6	12	100	●	●	●	●
HLR2-08D0080R05L075	8.0	R0.5	8	16	75	●	●	●	●
HLR2-08D0080R10L075	8.0	R1	8	16	75	●	●	●	●
HLR2-08D0080R15L075	8.0	R1.5	8	16	75	●	●	●	●
HLR2-10D0100R05L100	10.0	R0.5	10	20	100	●	●	●	●
HLR2-10D0100R10L100	10.0	R1	10	20	100	●	●	●	●
HLR2-10D0100R15L100	10.0	R1.5	10	20	100	●	●	●	●
HLR2-12D0120R05L100	12.0	R0.5	12	24	100	●	●	●	●
HLR2-12D0120R10L100	12.0	R1	12	24	100	●	●	●	●
HLR2-12D0120R15L100	12.0	R1.5	12	24	100	●	●	●	●
HLR2-12D0120R20L100	12.0	R2	12	24	100	●	●	●	●

※ Special specifications can be customized.

※ The above are all ordered in 10 pieces.

4 Flute arc head end mil



For general cutting

10 series

MG | 0.6μm | HRC 45 | AITIN

30 series

MG | 0.5μm | HRC 55 | AITIN

For high-speed machine cutting

50 series

MG | 0.4μm | HRC 60 | AITIN

70 series

MG | 0.2μm | HRC65-68 | AITIN-AS

Cutting material

50 series				70 series	
10 series	30 series				
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ1.0~ ϕ2.9	0~ -0.02	h6
ϕ3.0~ ϕ6.0	-0.01~ -0.03	h6
ϕ6.5~ ϕ10.5	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.0	-0.01~ -0.04	h6

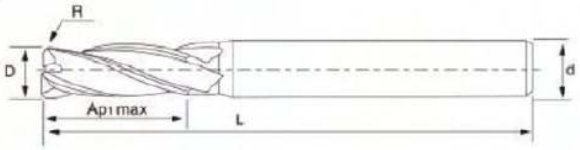
Item Code	Edge diameter (D)	R	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory			
						10 series	30 series	50 series	70 series
HSR4-04D0020R05	2.0	R0.5	4	4	50	●	●	●	●
HSR4-04D0030R05	3.0	R0.5	4	5	50	●	●	●	●
HSR4-04D0040R05	4.0	R0.5	4	8	50	●	●	●	●
HSR4-04D0040R10	4.0	R1	4	8	50	●	●	●	●
HSR4-06D0060R05	6.0	R0.5	6	12	50	●	●	●	●
HSR4-06D0060R10	6.0	R1	6	12	50	●	●	●	●
HSR4-08D0080R05	8.0	R0.5	8	16	60	●	●	●	●
HSR4-08D0080R10	8.0	R1	8	16	60	●	●	●	●
HSR4-08D0080R15	8.0	R1.5	8	16	60	●	●	●	●
HSR4-10D0100R05	10.0	R0.5	10	20	75	●	●	●	●
HSR4-10D0100R10	10.0	R1	10	20	75	●	●	●	●
HSR4-10D0100R15	10.0	R1.5	10	20	75	●	●	●	●
HSR4-12D0120R05	12.0	R0.5	12	24	75	●	●	●	●
HSR4-12D0120R10	12.0	R1	12	24	75	●	●	●	●
HSR4-12D0120R15	12.0	R1.5	12	24	75	●	●	●	●
HSR4-12D0120R20	12.0	R2	12	24	75	●	●	●	●

The above are all ordered in 5 pieces

※ The arc angle cutting edge design can prevent chipping.

4 Flute long-shank arc head end mill

CLR4



For general cutting

10 series

MG | 0.6μm | HRC 45 | AITIN

30 series

MG | 0.5μm | HRC 55 | AITIN

For high-speed machine cutting

50 series

MG | 0.4μm | HRC 60 | AITIN

70 series

MG | 0.2μm | HRC65-68 | AITIN-AS

Cutting material

50 series				70 series	
10 series 30 series					
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ1.0~ ϕ2.9	0~ -0.02	h6
ϕ3.0~ ϕ6.0	-0.01~ -0.03	h6
ϕ6.5~ ϕ10.5	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.0	-0.01~ -0.04	h6

Item Code	Edge diameter (D)	R	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory			
						10 series	30 series	50 series	70 series
HLR4-04D0020R05L075	2.0	R0.5	4	4	75	●	●	●	●
HLR4-04D0030R05L075	3.0	R0.5	4	5	75	●	●	●	●
HLR4-04D0040R05L075	4.0	R0.5	4	8	75	●	●	●	●
HLR4-04D0040R10L075	4.0	R1	4	8	75	●	●	●	●
HLR4-04D0040R05L100	4.0	R0.5	4	8	100	●	●	●	●
HLR4-04D0040R10L100	4.0	R1	4	8	100	●	●	●	●
HLR4-06D0060R05L075	6.0	R0.5	6	12	75	●	●	●	●
HLR4-06D0060R10L075	6.0	R0.5	6	12	75	●	●	●	●
HLR4-06D0060R05L100	6.0	R1	6	12	100	●	●	●	●
HLR4-06D0060R10L100	6.0	R1	6	12	100	●	●	●	●
HLR4-08D0080R05L075	8.0	R0.5	8	16	75	●	●	●	●
HLR4-08D0080R10L075	8.0	R1	8	16	75	●	●	●	●
HLR4-08D0080R15L075	8.0	R1.5	8	16	75	●	●	●	●
HLR4-10D0100R05L100	10.0	R0.5	10	20	100	●	●	●	●
HLR4-10D0100R10L100	10.0	R1	10	20	100	●	●	●	●
HLR4-10D0100R15L100	10.0	R1.5	10	20	100	●	●	●	●
HLR4-12D0120R05L100	12.0	R0.5	12	24	100	●	●	●	●
HLR4-12D0120R10L100	12.0	R1	12	24	100	●	●	●	●
HLR4-12D0120R15L100	12.0	R1.5	12	24	100	●	●	●	●
HLR4-12D0120R20L100	12.0	R2	12	24	100	●	●	●	●

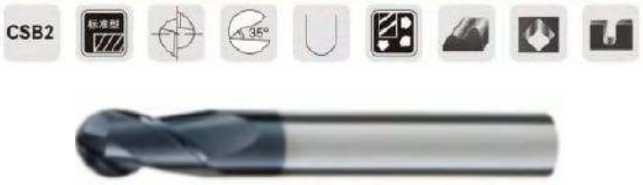
The above are all ordered in 10 pieces

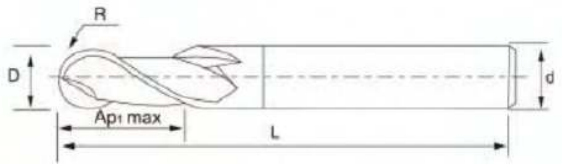
※ Special specifications can be customized.

※ Please use the minimum required tool overhang. Long overhangs are prone to vibration, so the speed and feed rate should be reduced.

※ Please adjust the speed and feed rate reasonably according to the cutting depth, machine rigidity, etc.

2 Flute ball-end mill





For general cutting

10 series

MG	0.6μm	HRC 45	AITIN

30 series

MG	0.5μm	HRC 55	AITIN

For high-speed machine cutting

50 series

UMG	0.4μm	HRC 60	AITIN

70 series

UMG	0.2μm	HRC65-68	AITIN-AS

Cutting material

50 series				70 series	
10 series	30 series				
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ1.0~ ϕ2.9	0~ -0.02	h6
ϕ3.0~ ϕ6.4	-0.01~ -0.03	h6
ϕ6.5~ ϕ10.9	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.5	-0.01~ -0.04	h6
ϕ17.0~ ϕ20	-0.015~ -0.045	h6

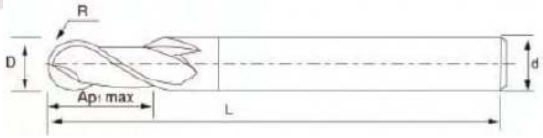
Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory			
					10 series	30 series	50 series	70 series
HSB2-04D0010	R0. 5	4	2	50	●	●	●	●
HSB2-04D0015	R0. 75	4	3	50	●	●	●	●
HSB2-04D0020	R1	4	4	50	●	●	●	●
HSB2-04D0025	R1. 25	4	5	50	●	●	●	●
HSB2-03D0030	R1. 5	3	6	50	●	●	●	●
HSB2-04D0030	R1. 5	4	6	50	●	●	●	●
HSB2-04D0040	R2	4	8	50	●	●	●	●
HSB2-06D0010	R0. 5	6	2	50	●	●	●	●
HSB2-06D0015	R0. 75	6	3	50	●	●	●	●
HSB2-06D0020	R1	6	4	50	●	●	●	●
HSB2-06D0025	R1. 25	6	5	50	●	●	●	●
HSB2-06D0030	R1. 5	6	6	50	●	●	●	●
HSB2-06D0040	R2	6	8	50	●	●	●	●
HSB2-05D0050	R2. 5	5	10	50	●	●	●	●
HSB2-06D0050	R2. 5	6	10	50	●	●	●	●
HSB2-06D0060	R3	6	12	50	●	●	●	●
HSB2-08D0080	R4	8	16	60	●	●	●	●
HSB2-10D0100	R5	10	20	75	●	●	●	●
HSB2-12D0120	R6	12	25	75	●	●	●	●
HSB2-16D0160	R8	16	30	100	●	●	●	●
HSB2-20D0200	R10	20	30	100	●	●	●	●

※ Can be used for processing tool steel, alloy steel, pre-hardened die steel, and other high-hardness materials.
※ Universal 2 Flute ball-end mill, widely used for profiling and other purposes.
※ The surface roughness of the workpiece after processing is good.
※ Highly heat-resistant coating, high-speed processing is possible.
※ (50/70) Series MOQ is 10 Pcs

A B C D E

2-flute long-shank ball end mill

CLB2



For general cutting

10 series

MG | 0.6μm | HRC 45 | AITIN

30 series

MG | 0.5μm | HRC 55 | AITIN

For high-speed machine cutting

50 series

UMG | 0.4μm | HRC 60 | AITIN

70 series

UMG | 0.2μm | HRC65-68 | AITIN-AS

Cutting material

50 series				70 series	
10 series	30 series				
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ1.0~ ϕ2.9	0~ -0.02	h6
ϕ3.0~ ϕ6.4	-0.01~ -0.03	h6
ϕ6.5~ ϕ10.9	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.5	-0.01~ -0.04	h6
ϕ17.0~ ϕ20	-0.015~ -0.045	h6

Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory			
					10 series	30 series	50 series	70 series
HLB2-04D0040L075	R2	4	8	75	●	●	●	●
HLB2-04D0040L100	R2	4	8	100	●	●	●	●
HLB2-06D0050L075	R2. 5	6	10	75	●	●	●	●
HLB2-06D0060L075	R3	6	12	75	●	●	●	●
HLB2-06D0060L100	R3	6	12	100	●	●	●	●
HLB2-06D0060L150	R3	6	30	150	●	●	●	●
HLB2-08D0080L075	R4	8	16	75	●	●	●	●
HLB2-08D0080L100	R4	8	16	100	●	●	●	●
HLB2-08D0080L150	R4	8	30	150	●	●	●	●
HLB2-10D0100L100	R5	10	20	100	●	●	●	●
HLB2-10D0100L150	R5	10	40	150	●	●	●	●
HLB2-12D0120L100	R6	12	25	100	●	●	●	●
HLB2-12D0120L150	R6	12	40	150	●	●	●	●
HLB2-14D0140L150	R7	14	40	150	●	●	●	●
HLB2-16D0160L150	R8	16	40	150	●	●	●	●
HLB2-18D0180L150	R9	18	40	150	●	●	●	●
HLB2-20D0200L150	R10	20	40	150	●	●	●	●

※ The tool has good rigidity and chip discharge, and is most suitable for high-precision three-dimensional processing of molds.

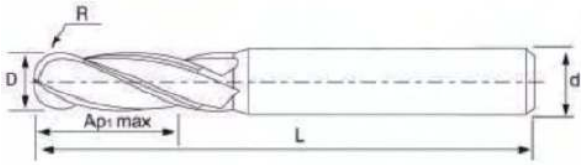
※ Special tool shape design, can be used for tool steel, alloy steel, pre-hardened mold steel, and other high-hardness processing.

※ Highly heat-resistant coating, can be processed at high speed.

※ Long-shank design, most suitable for deep cavity processing.

※ The above MOQ is 10 Pcs.

4-flute ball-end mill



For general cutting

10 series

MG	0.6μm	HRC 45	AITIN

30 series

MG	0.5μm	HRC 55	AITIN

For high-speed machine cutting

50 series

UMG	0.4μm	HRC 60	AITIN

70 series

UMG	0.2μm	HRC65-68	AITIN-AS

Cutting material

50 series				70 series	
10 series	30 series				
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

Tolerances

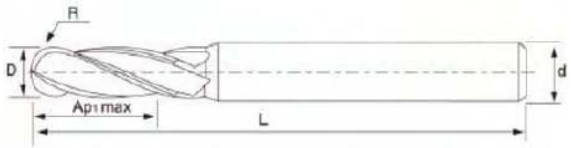
Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ1.0~ ϕ2.9	0~ -0.02	h6
ϕ3.0~ ϕ6.4	-0.01~ -0.03	h6
ϕ6.5~ ϕ10.9	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.5	-0.01~ -0.04	h6
ϕ17.0~ ϕ20	-0.015~ -0.045	h6

Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory			
					10 series	30 series	50 series	70 series
HSB4-04D0010	R0. 5	4	2	50	●	●	●	●
HSB4-04D0015	R0. 75	4	3	50	●	●	●	●
HSB4-04D0020	R1	4	4	50	●	●	●	●
HSB4-04D0025	R1. 25	4	5	50	●	●	●	●
HSB4-03D0030	R1. 5	3	6	50	●	●	●	●
HSB4-04D0030	R1. 5	4	6	50	●	●	●	●
HSB4-04D0040	R2	4	8	50	●	●	●	●
HSB4-06D0010	R0. 5	6	2	50	●	●	●	●
HSB4-06D0015	R0. 75	6	3	50	●	●	●	●
HSB4-06D0020	R1	6	4	50	●	●	●	●
HSB4-06D0025	R1. 25	6	5	50	●	●	●	●
HSB4-06D0030	R1. 5	6	6	50	●	●	●	●
HSB4-06D0040	R2	6	8	50	●	●	●	●
HSB4-05D0050	R2. 5	5	10	50	●	●	●	●
HSB4-06D0050	R2. 5	6	10	50	●	●	●	●
HSB4-06D0060	R3	6	12	50	●	●	●	●
HSB4-08D0080	R4	8	16	60	●	●	●	●
HSB4-10D0100	R5	10	20	75	●	●	●	●
HSB4-12D0120	R6	12	25	75	●	●	●	●
HSB4-16D0160	R8	16	30	100	●	●	●	●
HSB4-20D0200	R10	20	30	100	●	●	●	●

※ Can be used for processing tool steel, alloy steel, pre-hardened die steel, and other high-hardness materials.
※ 4-flute ball-end mill can be widely used for profiling and other purposes.
※ The surface roughness of the workpiece after processing is good.
※ The coating with high heat resistance can be processed at high speed.
※ The above MOQ is 10 Pcs.

4-flute long-shank ball end mill

CLB4



For general cutting

10 series

MG	0.6μm	HRC 45	AITIN

30 series

MG	0.5μm	HRC 55	AITIN

For high-speed machine cutting

50 series

UMG	0.4μm	HRC 60	AITIN

70 series

UMG	0.2μm	HRC65-68	AITIN-AS

Cutting material

50 series				70 series	
10 series		30 series			
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

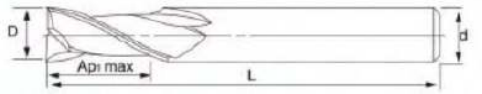
Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ1.0~ ϕ2.9	0~ -0.02	h6
ϕ3.0~ ϕ6.4	-0.01~ -0.03	h6
ϕ6.5~ ϕ10.9	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.5	-0.01~ -0.04	h6
ϕ17.0~ ϕ20	-0.015~ -0.045	h6

Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory			
					10 series	30 series	50 series	70 series
HLB4-04D0040L075	R2	4	8	75	●	●	●	●
HLB4-04D0040L100	R2	4	8	100	●	●	●	●
HLB4-06D0050L075	R2. 5	6	10	75	●	●	●	●
HLB4-06D0060L075	R3	6	12	75	●	●	●	●
HLB4-06D0060L100	R3	6	12	100	●	●	●	●
HLB4-06D0060L150	R3	6	30	150	●	●	●	●
HLB4-08D0080L075	R4	8	16	75	●	●	●	●
HLB4-08D0080L100	R4	8	16	100	●	●	●	●
HLB4-08D0080L150	R4	8	30	150	●	●	●	●
HLB4-10D0100L100	R5	10	20	100	●	●	●	●
HLB4-10D0100L150	R5	10	40	150	●	●	●	●
HLB4-12D0120L100	R6	12	25	100	●	●	●	●
HLB4-12D0120L150	R6	12	40	150	●	●	●	●
HLB4-14D0140L150	R7	14	40	150	●	●	●	●
HLB4-16D0160L150	R8	16	40	150	●	●	●	●
HLB4-18D0180L150	R9	18	40	150	●	●	●	●
HLB4-20D0200L150	R10	20	40	150	●	●	●	●

※ Can be used for processing tool steel, alloy steel, pre-hardened die steel, and other high-hardness materials.
※ 4-flute ball-end mill can be widely used for profiling and other purposes.
※ The surface roughness of the workpiece after processing is good.
※ The coating with high heat resistance can be processed at high speed.
※ The above MOQ is 10 Pcs.

3-flute end mill for stainless steel



For general cutting

30 series

MG | 0.5μm | HRC 55 | AITIN

For high-speed machine cutting

50 series

UMG | 0.4μm | HRC 60 | AITIN

70 series

UMG | 0.2μm | HRC65-68 | AITIN-AS

Cutting material

50 series				70 series	
30 series					
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
					●

Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ1.0~ ϕ2.9	0~ -0.02	h6
ϕ3.0~ ϕ6.4	-0.01~ -0.03	h6
ϕ6.5~ ϕ10.9	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.5	-0.01~ -0.04	h6
ϕ17.0~ ϕ20	-0.015~ -0.045	h6

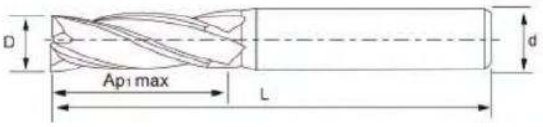
Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory		
					30 series	50 series	70 series
HSUSE3-04D0010	1.0	4	3	50	●	●	●
HSUSE3-04D0015	1.5	4	4	50	●	●	●
HSUSE3-04D0020	2.0	4	6	50	●	●	●
HSUSE3-04D0025	2.5	4	7	50	●	●	●
HSUSE3-04D0030	3.0	4	8	50	●	●	●
HSUSE3-04D0035	3.5	4	10	50			
HSUSE3-04D0040	4.0	4	11	50	●	●	●
HSUSE3-06D0045	4.5	6	13	50			
HSUSE3-06D0050	5.0	6	13	50	●	●	●
HSUSE3-06D0055	5.5	6	13	50			
HSUSE3-06D0060	6.0	6	15	50	●	●	●
HSUSE3-08D0065	6.5	8	17	60			
HSUSE3-08D0070	7.0	8	17	60			
HSUSE3-08D0075	7.5	8	17	60			
HSUSE3-08D0080	8.0	8	20	60	●	●	●
HSUSE3-10D0085	8.5	10	23	75			
HSUSE3-10D0090	9.0	10	23	75			
HSUSE3-10D0095	9.5	10	25	75			
HSUSE3-10D0100	10.0	10	25	75	●	●	●
HSUSE3-12D0105	10.5	12	25	75			
HSUSE3-12D0110	11.0	12	28	75			
HSUSE3-12D0115	11.5	12	28	75			
HSUSE3-12D0120	12.0	12	30	75	●	●	●
HSUSE3-16D0130	13.0	16	33	100			
HSUSE3-16D0140	14.0	16	35	100			
HSUSE3-16D0150	15.0	16	38	100			
HSUSE3-16D0160	16.0	16	40	100	●	●	●
HSUSE3-18D0170	17.0	18	40	100			
HSUSE3-18D0180	18.0	18	40	100			
HSUSE3-20D0190	19.0	20	40	100			
HSUSE3-20D0200	20.0	20	40	100	●	●	●

The above MOQ is 10 Pcs.

※ Please select the minimum required tool overhang. Long overhangs are prone to vibration, so the speed and feed rate should be reduced.

※ Please adjust the speed and feed rate reasonably according to the cutting depth, machine rigidity, etc.

4-flute end mill for stainless steel



For general cutting

30 series

MG | 0.5μm | HRC 55 | AITIN

For high-speed machine cutting

50 series

UMG | 0.4μm | HRC 60 | AITIN

70 series

UMG | 0.2μm | HRC65-68 | AITIN-AS

Cutting material

50 series / 30 series				70 series	
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
					●

Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ1.0~ ϕ2.9	0~ -0.02	h6
ϕ3.0~ ϕ6.4	-0.01~ -0.03	h6
ϕ6.5~ ϕ10.9	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.5	-0.01~ -0.04	h6
ϕ17.0~ ϕ20	-0.015~ -0.045	h6

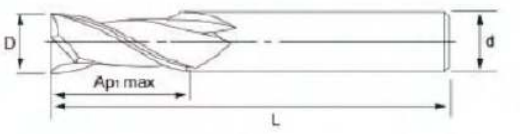
Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory		
					30 series	50 series	70 series
HSUSE4-04D0010	1.0	4	3	50	●	●	●
HSUSE4-04D0015	1.5	4	4	50	●	●	●
HSUSE4-04D0020	2.0	4	6	50	●	●	●
HSUSE4-04D0025	2.5	4	7	50	●	●	●
HSUSE4-04D0030	3.0	4	8	50	●		●
HSUSE4-04D0035	3.5	4	10	50			
HSUSE4-04D0040	4.0	4	11	50	●	●	●
HSUSE4-06D0045	4.5	6	13	50			
HSUSE4-06D0050	5.0	6	13	50	●	●	●
HSUSE4-06D0055	5.5	6	13	50			
HSUSE4-06D0060	6.0	6	15	50	●	●	●
HSUSE4-08D0065	6.5	8	17	60			
HSUSE4-08D0070	7.0	8	17	60			
HSUSE4-08D0075	7.5	8	17	60			
HSUSE4-08D0080	8.0	8	20	60	●	●	●
HSUSE4-10D0085	8.5	10	23	75			
HSUSE4-10D0090	9.0	10	23	75			
HSUSE4-10D0095	9.5	10	25	75			
HSUSE4-10D0100	10.0	10	25	75	●	●	●
HSUSE4-12D0105	10.5	12	25	75			
HSUSE4-12D0110	11.0	12	28	75			
HSUSE4-12D0115	11.5	12	28	75			
HSUSE4-12D0120	12.0	12	30	75	●	●	●
HSUSE4-16D0130	13.0	16	33	100			
HSUSE4-16D0140	14.0	16	35	100			
HSUSE4-16D0150	15.0	16	38	100			
HSUSE4-16D0160	16.0	16	40	100	●	●	●
HSUSE4-20D0170	17.0	20	40	100			
HSUSE4-20D0180	18.0	20	40	100			
HSUSE4-20D0190	19.0	20	40	100			
HSUSE4-20D0200	20.0	20	40	100	●	●	●

The above MOQ is 5 Pcs.

※ Please select the minimum required tool overhang. Long overhangs are prone to vibration, so the speed and feed rate should be reduced.

※ Please adjust the speed and feed rate reasonably according to the cutting depth, machine rigidity, etc.

2-flute end mill for aluminum



For general cutting

10 series

For high-speed machine cutting

30 series

Cutting material

Aluminum alloy	●

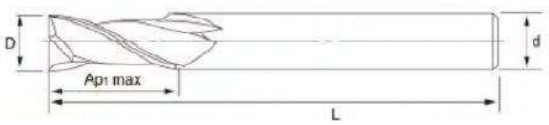
Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ1.0~ ϕ2.9	0~ -0.02	h6
ϕ3.0~ ϕ6.4	-0.01~ -0.03	h6
ϕ6.5~ ϕ10.9	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.5	-0.01~ -0.04	h6
ϕ17.0~ ϕ20	-0.015~ -0.045	h6

Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory		
					10 series	30 series	50 series
HAE2-04D0010	1.0	4	3	50	●	●	●
HAE2-04D0015	1.5	4	4	50	●	●	●
HAE2-04D0020	2.0	4	6	50	●	●	●
HAE2-04D0025	2.5	4	8	50	●	●	●
HAE2-04D0030	3.0	4	8	50	●	●	●
HAE2-04D0040	4.0	4	11	50	●	●	●
HAE2-06D0050	5.0	6	13	50	●	●	●
HAE2-06D0060	6.0	6	15	50	●	●	●
HAE2-08D0080	8.0	8	20	60	●	●	●
HAE2-10D0100	10.0	10	25	75	●	●	●
HAE2-12D0120	12.0	12	30	75	●	●	●
HAE2-14D0140	14.0	14	45	100	●	●	●
HAE2-16D0160	16.0	16	45	100	●	●	●
HAE2-18D0180	18.0	18	45	100	●	●	●
HAE2-20D0200	20.0	20	45	100	●	●	●

※ Please select the minimum required tool overhang. Long overhangs are prone to vibration, so the speed and feed rate should be reduced.
※ Please adjust the speed and feed rate reasonably according to the cutting depth, machine rigidity, etc.
※ The above MOQ is 10 Pcs.

2-flute extended end mill for aluminum



For general cutting

10 series

For high-speed machine cutting

30 series

Cutting material

Aluminum alloy	●

Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ1.0~ ϕ2.9	0~ -0.02	h6
ϕ3.0~ ϕ6.4	-0.01~ -0.03	h6
ϕ6.5~ ϕ10.9	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.5	-0.01~ -0.04	h6
ϕ17.0~ ϕ20	-0.015~ -0.045	h6

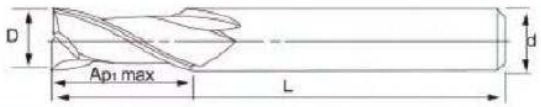
Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory		
					10 series	30 series	50 series
HAL2-04D0030L075	3.0	4	11	75	●	●	●
HAL2-04D0040L075	4.0	4	11	75	●	●	●
HAL2-04D0040L100	4.0	4	11	100	●	●	●
HAL2-06D0050L075	5.0	6	13	75	●	●	●
HAL2-06D0060L075	6.0	6	15	75	●	●	●
HAL2-06D0060L100	6.0	6	15	100	●	●	●
HAL2-06D0060L150	6.0	6	15	150	●	●	●
HAL2-08D0080L075	8.0	8	20	75	●	●	●
HAL2-08D0080L100	8.0	8	20	100	●	●	●
HAL2-08D0080L150	8.0	8	40	150	●	●	●
HAL2-10D0100L100	10.0	10	25	100	●	●	●
HAL2-10D0100L150	10.0	10	50	150	●	●	●
HAL2-12D0120L100	12.0	12	30	100	●	●	●
HAL2-12D0120L150	12.0	12	50	150	●	●	●
HAL2-14D0140L150	14.0	14	50	150	●	●	●
HAL2-16D0160L150	16.0	16	50	150	●	●	●
HAL2-18D0180L150	18.0	18	50	150	●	●	●
HAL2-20D0200L150	20.0	20	50	150	●	●	●

※ Please select the minimum required tool overhang. Long overhangs are prone to vibration, so the speed and feed rate should be reduced.

※ Please adjust the speed and feed rate reasonably according to the cutting depth, machine rigidity, etc.

※ The above MOQ is 10 Pcs.

3-flute end mill for aluminum



For general cutting

10 series

For high-speed machine cutting

30 series

Cutting material

Aluminum alloy ●

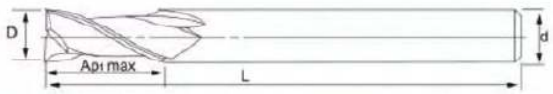
Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ1.0~ ϕ2.9	0~ -0.02	h6
ϕ3.0~ ϕ6.4	-0.01~ -0.03	h6
ϕ6.5~ ϕ10.9	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.5	-0.01~ -0.04	h6
ϕ17.0~ ϕ20	-0.015~ -0.045	h6

Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory		
					10 series	30 series	50 series
HAE3-04D0010	1.0	4	3	50	●	●	●
HAE3-04D0015	1.5	4	4	50	●	●	●
HAE3-04D0020	2.0	4	6	50	●	●	●
HAE3-04D0025	2.5	4	8	50	●	●	●
HAE3-04D0030	3.0	4	8	50	●	●	●
HAE3-04D0040	4.0	4	11	50	●	●	●
HAE3-06D0050	5.0	6	13	50	●	●	●
HAE3-06D0060	6.0	6	15	50	●	●	●
HAE3-08D0080	8.0	8	20	60	●	●	●
HAE3-10D0100	10.0	10	25	75	●	●	●
HAE3-12D0120	12.0	12	30	75	●	●	●
HAE3-14D0140	14.0	14	45	100	●	●	●
HAE3-16D0160	16.0	16	45	100	●	●	●
HAE3-18D0180	18.0	18	45	100	●	●	●
HAE3-20D0200	20.0	20	45	100	●	●	●

※ Please select the minimum required tool overhang. Long overhangs are prone to vibration, so the speed and feed rate should be reduced.
※ Please adjust the speed and feed rate reasonably according to the cutting depth, machine rigidity, etc.
※ The above MOQ is 5 Pcs.

3-flute extended end mill for aluminum



For general cutting

10 series

For high-speed machine cutting

30 series

Cutting material

Aluminum alloy	●

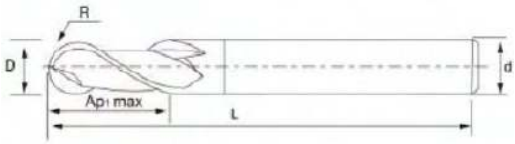
Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ1.0~ ϕ2.9	0~ -0.02	h6
ϕ3.0~ ϕ6.4	-0.01~ -0.03	h6
ϕ6.5~ ϕ10.9	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.5	-0.01~ -0.04	h6
ϕ17.0~ ϕ20	-0.015~ -0.045	h6

Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory		
					10 series	30 series	50 series
HAL3-04D0030L075	3.0	4	11	75	●	●	●
HAL3-04D0040L075	4.0	4	11	75	●	●	●
HAL3-04D0040L100	4.0	4	11	100	●	●	●
HAL3-06D0050L075	5.0	6	13	75	●	●	●
HAL3-06D0060L075	6.0	6	15	75	●	●	●
HAL3-06D0060L100	6.0	6	15	100	●	●	●
HAL3-06D0060L150	6.0	6	15	150	●	●	●
HAL3-08D0080L075	8.0	8	40	75	●	●	●
HAL3-08D0080L100	8.0	8	20	100	●	●	●
HAL3-08D0080L150	8.0	8	40	150	●	●	●
HAL3-10D0100L100	10.0	10	25	100	●	●	●
HAL3-10D0100L150	10.0	10	50	150	●	●	●
HAL3-12D0120L100	12.0	12	30	100	●	●	●
HAL3-12D0120L150	12.0	12	50	150	●	●	●
HAL3-14D0140L150	14.0	14	50	150	●	●	●
HAL3-16D0160L150	16.0	16	50	150	●	●	●
HAL3-18D0180L150	18.0	18	50	150	●	●	●
HAL3-20D0200L150	20.0	20	50	150	●	●	●

※ Please select the minimum required tool overhang. Long overhangs are prone to vibration, so the speed and feed rate should be reduced.
※ Please adjust the speed and feed rate reasonably according to the cutting depth, machine rigidity, etc.
※ (30 series, 50 series) minimum order of 10 pieces.

2-flute ball end mill for aluminum



For general cutting

10 series

For high-speed machine cutting

30 series

Cutting material

Aluminum alloy ●

Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ1.0~ ϕ2.9	0~ -0.02	h6
ϕ3.0~ ϕ6.4	-0.01~ -0.03	h6
ϕ6.5~ ϕ10.9	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.5	-0.01~ -0.04	h6
ϕ17.0~ ϕ20	-0.015~ -0.045	h6

Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory		
					10 series	30 series	50 series
HAB2-04D0010	R0.50	4	2	50	●	●	●
HAB2-04D0015	R0.75	4	3	50	●	●	●
HAB2-04D0020	R1.00	4	4	50	●	●	●
HAB2-04D0025	R1.25	4	5	50	●	●	●
HAB2-04D0030	R1.50	4	6	50	●	●	●
HAB2-04D0035	R1.75	4	7	50	●	●	●
HAB2-04D0040	R2.00	4	8	50	●	●	●
HAB2-06D0050	R2.50	6	10	50	●	●	●
HAB2-06D0060	R3.00	6	12	50	●	●	●
HAB2-08D0080	R4.00	8	16	60	●	●	●
HAB2-10D0100	R5.00	10	20	75	●	●	●
HAB2-12D0120	R6.00	12	24	75	●	●	●
HAB2-16D0160	R8.00	16	30	100	●	●	●
HAB2-20D0200	R10.00	20	30	100	●	●	●

※ Please select the minimum required tool overhang. Long overhangs are prone to vibration, so the speed and feed rate should be reduced.
※ Please adjust the speed and feed rate reasonably according to the cutting depth, machine rigidity, etc.
※ (50 series) minimum order of 10 pieces.

3-flute ball end mill for aluminum

For general cutting

10 series

For high-speed machine cutting

30 series

Cutting material

Aluminum alloy	●

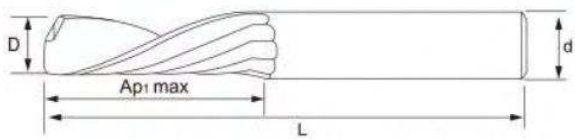
Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ1.0~ ϕ2.9	0~ -0.02	h6
ϕ3.0~ ϕ6.4	-0.01~ -0.03	h6
ϕ6.5~ ϕ10.9	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.5	-0.01~ -0.04	h6
ϕ17.0~ ϕ20	-0.015~ -0.045	h6

Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory	
					10 series	30 series
HAB3-04D0010	R0.50	4	2	50	●	●
HAB3-04D0015	R0.75	4	3	50	●	●
HAB3-04D0020	R1.00	4	4	50	●	●
HAB3-04D0025	R1.25	4	5	50	●	●
HAB3-04D0030	R1.50	4	6	50	●	●
HAB3-04D0035	R1.75	4	7	50	●	●
HAB3-04D0040	R2.00	4	8	50	●	●
HAB3-06D0050	R2.50	6	10	50	●	●
HAB3-06D0060	R3.00	6	12	50	●	●
HAB3-08D0080	R4.00	8	16	60	●	●
HAB3-10D0100	R5.00	10	20	75	●	●
HAB3-12D0120	R6.00	12	24	75	●	●
HAB3-16D0160	R8.00	16	30	100	●	●
HAB3-20D0200	R10.00	20	30	100	●	●

※ Please select the minimum required tool overhang. Long overhangs are prone to vibration, so the speed and feed rate should be reduced.
※ Please adjust the speed and feed rate reasonably according to the cutting depth, machine rigidity, etc.
※ For the non-standard product CAB3-20D0200, the MOQ is 3 Pcs.

Single flute end mill for aluminum



For general cutting

10 series

For high-speed machine cutting

30 series

Cutting material

Aluminum alloy	●

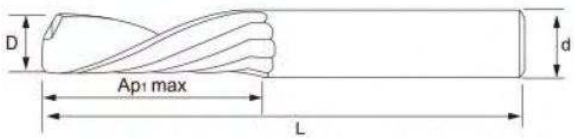
Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ1.0~ ϕ2.9	0~ -0.02	h6
ϕ3.0~ ϕ6.4	-0.01~ -0.03	h6
ϕ6.5~ ϕ10.9	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.5	-0.01~ -0.04	h6
ϕ17.0~ ϕ20	-0.015~ -0.045	h6

Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory		
					10 series	30 series	50 series
HAPS-D0010L03	1	3. 175	3	38. 5	●	●	●
HAPS-D0010L06	1	3. 175	6	38. 5	●	●	●
HAPS-D0012L06	1. 2	3. 175	6	38. 5	●	●	●
HAPS-D0012L10	1. 2	3. 175	10	38. 5	●	●	●
HAPS-D0015L08	1. 5	3. 175	8	38. 5	●	●	●
HAPS-D0015L12	1. 5	3. 175	12	38. 5	●	●	●
HAPS-D0020L08	2	3. 175	8	38. 5	●	●	●
HAPS-D0020L12	2	3. 175	12	38. 5	●	●	●
HAPS-D0020L15	2	3. 175	15	38. 5	●	●	●
HAPS-D0020L17	2	3. 175	17	45	●	●	●
HAPS-D0020L22	2	3. 175	22	45	●	●	●
HAPS-D0025L12	2. 5	3. 175	12	38. 5	●	●	●
HAPS-D0025L15	2. 5	3. 175	15	38. 5	●	●	●
HAPS-D0025L22	2. 5	3. 175	22	45	●	●	●
HAPS-D3175L06	3. 175	3. 175	6	38. 5	●	●	●
HAPS-D3175L08	3. 175	3. 175	8	38. 5	●	●	●
HAPS-D3175L12	3. 175	3. 175	12	38. 5	●	●	●
HAPS-D3175L15	3. 175	3. 175	15	38. 5	●	●	●
HAPS-D3175L17	3. 175	3. 175	17	38. 5	●	●	●
HAPS-D3175L22	3. 175	3. 175	22	45	●	●	●
HAPS-D3175L25	3. 175	3. 175	25	50	●	●	●
HAPS-D3175L28	3. 175	3. 175	28	50	●	●	●
HAPS-D3175L32	3. 175	3. 175	32	60	●	●	●
HAPS-D3175L42	3. 175	3. 175	42	70	●	●	●
HAPS-D0030L12	3	4	12	50	●	●	●
HAPS-D0030L15	3	4	15	50	●	●	●
HAPS-D0030L17	3	4	17	50	●	●	●
HAPS-D0030L22	3	4	22	50	●	●	●
HAPS-D0040L12	4	4	12	40	●	●	●
HAPS-D0040L15	4	4	15	40	●	●	●

※ (30/50) Series MOQ is 5 Pcs

Single flute end mill for aluminum



For general cutting

10 series

For high-speed machine cutting

30 series

Cutting material

Aluminum alloy	●

Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ1.0~ ϕ2.9	0~ -0.02	h6
ϕ3.0~ ϕ6.4	-0.01~ -0.03	h6
ϕ6.5~ ϕ10.9	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.5	-0.01~ -0.04	h6
ϕ17.0~ ϕ20	-0.015~ -0.045	h6

Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory	
					10 series	30 series
HAPS-D0040L15	4	4	15	40	●	●
HAPS-D0040L17	4	4	17	40	●	●
HAPS-D0040L22	4	4	22	45	●	●
HAPS-D0040L25	4	4	25	50	●	●
HAPS-D0040L28	4	4	28	50	●	●
HAPS-D0040L32	4	4	32	60	●	●
HAPS-D0040L42	4	4	42	70	●	●
HAPS-D0040L52	4	4	52	80	●	●
HAPS-D0050L17	5	5	17	50	●	●
HAPS-D0050L22	5	5	22	50	●	●
HAPS-D0050L32	5	5	32	60	●	●
HAPS-D0030L12	3	6	12	50	●	●
HAPS-D0030L17	3	6	17	50	●	●
HAPS-D0050L22	5	6	22	50	●	●
HAPS-D0050L25	5	6	25	55	●	●
HAPS-D0060L17	6	6	17	50	●	●
HAPS-D0060L22	6	6	22	50	●	●
HAPS-D0060L25	6	6	25	50	●	●
HAPS-D0060L32	6	6	32	60	●	●
HAPS-D0060L42	6	6	42	70	●	●
HAPS-D0060L52	6	6	52	80	●	●
HAPS-D0080L32	8	8	32	80	●	●
HAPS-D0100L32	10	10	32	80	●	●
HAPS-D0120L32	12	12	32	80	●	●
HAPS-D0140L32	14	14	32	100	●	●
HAPS-D0140L42	14	14	42	100	●	●

※ (30/50) Series MOQ is 5 Pcs

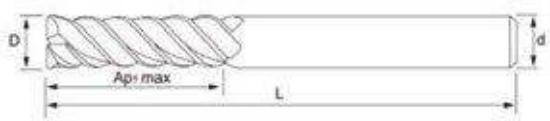
Single-flute milling Tools for aluminum

1
Efficient chip removal
Large chip removal groove, efficient chip removal

2
High-quality surface
Ultra-precision mirror-finished cutting edges and chip grooves, no chips left during processing

3
45 degree spiral design helps to evacuate chips and produce excellent surface finish

4
Bending strength
High quality tungsten carbide material, high bending strength



For general cutting

30 series

For high-speed machine cutting

50 series

70 series

Cutting material

50 series				70 series	
30 series					
Carbon steel	Alloy steel	Cast iron	Aluminum alloy	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	AL	SKD	SUS
			●		

Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ3.0~ϕ6.0	-0.01~-0.03	h6
ϕ6.5~ϕ10.5	-0.01~-0.035	h6
ϕ11.0~ϕ16.0	-0.01~-0.04	h6
ϕ17.0~ϕ20.0	-0.015~-0.045	h6

Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory		
					30 series	50 series	70 series
HAEP3-04D0030L050	3	4	8	50	●	●	●
HAEP3-04D0040L050	4	4	11	50	●	●	●
HAEP3-06D0050L050	5	6	13	50	●	●	●
HAEP3-06D0060L050	6	6	15	50	●	●	●
HAEP3-08D0080L060	8	8	20	60	●	●	●
HAEP3-10D0100L075	10	10	25	75	●	●	●
HAEP3-12D0120L075	12	12	30	75	●	●	●
HAEP3-16D0160L100	16	16	45	100	●	●	●
HAEP3-20D0200L100	20	20	45	100	●	●	●

The above MOQ is 10 Pcs.

CGP Diamond Coated End Mills

1 Coating: Ultra-large grain CVD diamond coating

2 Material: Diamond coated special super hard alloy

3 Helix angle: 30°

Cutting material

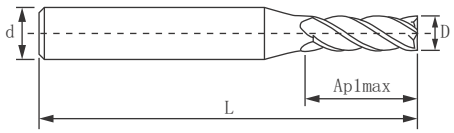
Carbon steel Alloy steel (<35HRC)	Alloy steel (35-48HRC)	Stainless steel	Gray cast iron Ductile cast iron (<32HRC)	Cast aluminum alloy (Si>12%)	Graphite	Carbon fiber
				△	▲	△

Note: ▲ indicates recommended, △ indicates optional.

Tolerances

Edge diameter D	Edge diameter tolerance D	Handle diameter tolerance d
<Φ1.0	0~-0.01	h6
Φ1.0~Φ3.0	0~-0.015	h6
Φ3.0~Φ6.0	-0.01~-0.03	h6
Φ6.5~Φ10.5	-0.01~-0.035	h6
Φ11.0~Φ16.0	-0.01~-0.04	h6
Φ17.0~Φ20.0	-0.015~-0.045	h6

Flat end mill

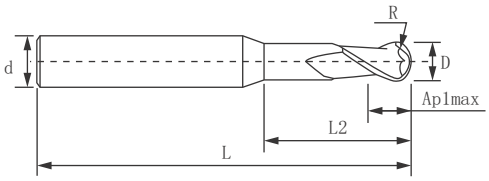


Model	Size				Inventory
	D	d	L	Ap1max	
HGPM02-0010L0030D04	0.1	4	45	0.3	●
HGPM02-0020L0050D04	0.2	4	45	0.5	●
HGPM02-0030L0050D04	0.3	4	45	0.5	●
HGPM02-0050L0150D04	0.5	4	45	1.5	●
HGPM02-0100L0300D04	1	4	45	3	●
HGPM04-0200L0800D04	2	4	45	6	●
HGPM04-0300L0900D04	3	4	45	9	●
HGPM04-0400L1200D04	4	4	45	12	●
HGPM04-0600L1600D06	6	6	50	16	●
HGPM04-0600L2500D06	6	6	50	25	●
HGPM04-1000L2500D10	10	10	75	25	●

Remark: ●In stcok, ○Reservations

CGP Diamond Coated End Mills

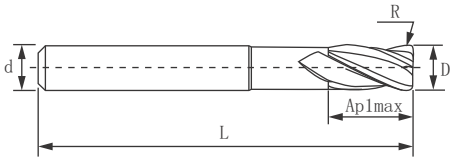
Ball end mill



Model	Size						Inventory
	D	d	L	Ap1max	L2	R	
HGPB02-0040L0150R02D04	0.4	4	45	0.5	-	0.2	●
HGPB02-0060L0150R03D04	0.6	4	45	1.8	-	0.3	●
HGPB02-0100L0400R05D04	1	4	45	3	4	0.5	●
HGPB02-0100L0800R05D04	1	4	45	3	8	0.5	●
HGPB02-0100L1000R05D04	1	4	45	3	10	0.5	●
HGPB02-0100L1500R05D04	1	4	50	3	15	0.5	●
HGPB02-0100L2000R05D04	1	4	55	3	20	0.5	●
HGPB02-0200L1000R10D04	2	4	45	3	10	1	●
HGPB02-0300L1500R15D04	3	4	50	3	15	1.5	●
HGPB02-0400L1200R20D04	4	4	50	3	12	2	●
HGPB02-0600L3000R30D06	6	6	65	4	30	3	●

Remark: ●In stcok, ○Reservations

Circular end millill



Model	Size					Inventory
	D	d	L	Ap1max	R	
HGPR04-0300L1200R02D04	3	4	45	12	0.2	●
HGPR04-0400L1200R02D04	4	4	45	12	0.2	●
HGPR04-0400L1200R05D04	4	4	45	12	0.5	●
HGPR04-0400L0600R10D04	4	4	45	6	1	●
HGPR04-0600L1500R05D06	6	6	50	15	0.5	●
HGPR04-1000L1500R05D10	10	10	75	15	0.5	●

Remark: ●In stcok, ○Reservations

CGHE high hardness die steel/stainless steel series carbide end mills

1

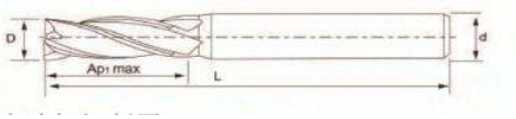
Not easy to break, heat-resistant and impact-resistant
Made of ultra-fine raw materials imported from Germany, which improves heat resistance and impact resistance

2

Chip removal effect
Large-capacity cutting grooves for efficient chip removal during high-speed cutting

3

Special cutting edge design reduces cutting resistance



For high-speed machine cutting

50 series

MG	0.4μm	HRC 60	AITIN

70 series

MG	0.2μm	HRC 65-68	AITIN-AS

Cutting material

50 series				70 series	
10 series	30 series				
Carbon steel	Alloy steel	Cast iron	Aluminum alloy	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	AL	SKD	SUS
				●	●

Tolerances

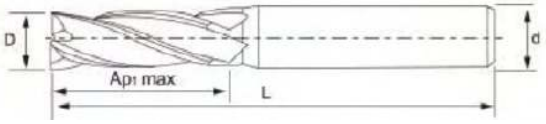
Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ3.0~ϕ6.0	-0.01~-0.03	h6
ϕ6.5~ϕ10.5	-0.01~-0.035	h6
ϕ11.0~ϕ16.0	-0.01~-0.04	h6
ϕ17.0~ϕ20.0	-0.015~-0.045	h6

Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory	
					50 series	70 series
HGHE4-04D0030L050	3	4	8	50	●	●
HGHE4-04D0040L050	4	4	11	50	●	●
HGHE4-06D0050L050	5	6	13	50	●	●
HGHE4-06D0060L050	6	6	15	50	●	●
HGHE4-08D0080L060	8	8	20	60	●	●
HGHE4-10D0100L075	10	10	25	75	●	●
HGHE4-12D0120L075	12	12	30	75	●	●
HGHE4-16D0160L100	16	16	45	100	●	●
HGHE4-20D0200L100	20	20	45	100	●	●

The above MOQ is 10 Pcs.

High helix 4-edge end mill

CHHE4



For general cutting

30 series

MG | 0.5μm | HRC 55 | AITIN

For high-speed machine cutting

50 series

UMG | 0.4μm | HRC 60 | AITIN

70 series

UMG | 0.2μm | HRC65-68 | AITIN-AS

Cutting material

50 series / 30 series				70 series	
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ1.0~ ϕ2.9	0~-0.02	h6
ϕ3.0~ ϕ6.4	-0.01~ -0.03	h6
ϕ6.5~ ϕ10.9	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.5	-0.01~ -0.04	h6
ϕ17.0~ ϕ20	-0.015~ -0.045	h6
ϕ20.5~ ϕ25.0	-0.015~-0.05	h6

Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory		
					30 series	50 series	70 series
HHHE4-04D0010	1.0	4	3	50	●	●	●
HHHE4-04D0015	1.5	4	4	50	●	●	●
HHHE4-04D0020	2.0	4	6	50	●	●	●
HHHE4-04D0025	2.5	4	7	50	●	●	●
HHHE4-04D0030	3.0	4	8	50	●	●	●
HHHE4-04D0035	3.5	4	10	50	●	●	●
HHHE4-04D0040	4.0	4	11	50	●	●	●
HHHE4-06D0045	4.5	6	13	50	●	●	●
HHHE4-06D0050	5.0	6	13	50	●	●	●
HHHE4-06D0055	5.5	6	13	50	●	●	●
HHHE4-06D0060	6.0	6	15	50	●	●	●
HHHE4-08D0065	6.5	8	17	60	●	●	●
HHHE4-08D0070	7.0	8	17	60	●	●	●
HHHE4-08D0075	7.5	8	17	60	●	●	●
HHHE4-08D0080	8.0	8	20	60	●	●	●
HHHE4-10D0085	8.5	10	23	75	●	●	●
HHHE4-10D0090	9.0	10	23	75	●	●	●
HHHE4-10D0095	9.5	10	25	75	●	●	●
HHHE4-10D0100	10.0	10	25	75	●	●	●
HHHE4-12D0105	10.5	12	25	75	●	●	●
HHHE4-12D0110	11.0	12	28	75	●	●	●
HHHE4-12D0115	11.5	12	28	75	●	●	●
HHHE4-12D0120	12.0	12	30	75	●	●	●
HHHE4-14D0130	13.0	14	33	100	●	●	●
HHHE4-14D0140	14.0	14	35	100	●	●	●
HHHE4-16D0150	15.0	16	38	100	●	●	●
HHHE4-16D0160	16.0	16	40	100	●	●	●
HHHE4-18D0170	17.0	18	40	100	●	●	●
HHHE4-18D0180	18.0	18	40	100	●	●	●
HHHE4-20D0190	19.0	20	40	100	●	●	●
HHHE4-20D0200	20.0	20	40	100	●	●	●
HHHE4-25D0220	22.0	25	40	100	●	●	●
HHHE4-25D0250	25.0	25	40	100	●	●	●

The above MOQ is 5 Pcs.

※ Please select the minimum required tool overhang. Long overhangs are prone to vibration, so reduce the number of revolutions and feed rate.

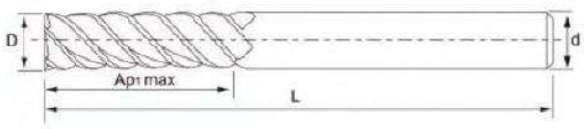
※ Please adjust the number of revolutions and feed rate reasonably according to the cutting depth, machine rigidity, etc.

※ The use of heat-resistant coating allows high-speed processing.

※ Widely used in processing from ordinary steel to high-hardness materials with a hardness of HRC50 or above.

A
B
C
D
E

6 Flute end mill



For general cutting

30 series

MG | 0.5μm | HRC 55 | AITIN

For high-speed machine cutting

50 series

UMG | 0.4μm | HRC 60 | AITIN

70 series

UMG | 0.2μm | HRC65-68 | AITIN-AS

Cutting material

50 series / 30 series				70 series	
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ4.0~ ϕ6.4	-0.01~ -0.03	h6
ϕ6.5~ ϕ10.9	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.5	-0.01~ -0.04	h6
ϕ17.0~ ϕ20	-0.015~ -0.045	h6
ϕ20.5~ ϕ25	-0.015~ -0.05	h6

Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)			
					30系列	50系列	70系列
HHHE6-06D0040	4.0	6	11	50	●	●	●
HHHE6-06D0050	5.0	6	13	50	●	●	●
HHHE6-06D0060	6.0	6	15	50	●	●	●
HHHE6-08D0080	8.0	8	20	60	●	●	●
HHHE6-10D0100	10.0	10	25	75	●	●	●
HHHE6-12D0120	12.0	12	30	75	●	●	●
HHHE6-16D0160	16.0	16	40	100	●	●	●
HHHE6-20D0200	20.0	20	40	100	●	●	●
HHHE6-25D0250	25.0	25	45	100	●	●	●

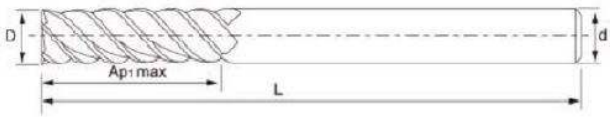
The above MOQ is 5 Pcs.

※ Good rigidity, suitable for machining hardened steel.

※ Capable of high-speed, high-feed cutting and can achieve good surface roughness.

※ Adopts a coating with excellent heat resistance, and can be used for dry machining.

Longer 6-flute end mill



For general cutting

30 series

MG | 0.5μm | HRC 55 | AITIN

For high-speed machine cutting

50 series

UMG | 0.4μm | HRC 60 | AITIN

70 series

UMG | 0.2μm | HRC65-68 | AITIN-AS

Cutting material

50 series / 30 series				70 series	
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

Tolerances

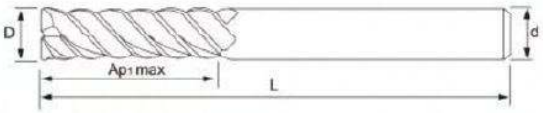
Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ4.0~ ϕ6.4	-0.01~ -0.03	h6
ϕ6.5~ ϕ10.9	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.5	-0.01~ -0.04	h6
ϕ17.0~ ϕ20.0	-0.015~ -0.045	h6
ϕ20.5~ ϕ25.0	-0.015~ -0.05	h6

Item Code	Edge diameter (D)	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory		
					30 series	50 series	70 series
HHHLF6-06D0040L16	4.0	6	16	75	●	●	●
HHHLF6-06D0050L20	5.0	6	20	75	●	●	●
HHHLF6-06D0060L25	6.0	6	25	75	●	●	●
HHHLF6-06D0040L20	4.0	6	20	100	●	●	●
HHHLF6-06D0050L25	5.0	6	25	100	●	●	●
HHHLF6-06D0060L30	6.0	6	30	100	●	●	●
HHHLF6-08D0080L30	8.0	8	30	75	●	●	●
HHHLF6-08D0080L35	8.0	8	35	100	●	●	●
HHHLF6-08D0080L50	8.0	8	50	150	●	●	●
HHHLF6-10D0100L40	10.0	10	40	100	●	●	●
HHHLF6-12D0120L45	12.0	12	45	100	●	●	●
HHHLF6-10D0100L50	10.0	10	50	150	●	●	●
HHHLF6-12D0120L45	12.0	12	45	100	●	●	●
HHHLF6-12D0120L50	12.0	12	50	150	●	●	●
HHHLF6-16D0160L70	16.0	16	70	150	●	●	●
HHHLF6-20D0200L80	20.0	20	80	150	●	●	●
HHHLF6-25D0250L80	25.0	25	80	150	●	●	●

The above MOQ is 5 Pcs.

※ Good rigidity, suitable for machining hardened steel.
※ Capable of high-speed, high-feed cutting and can achieve good surface roughness.
※ Adopts a coating with excellent heat resistance, and can be used for dry machining.

6 flute arc head end mill



For general cutting

30 series

MG | 0.5μm | HRC 55 | AITIN

For high-speed machine cutting

50 series

UMG | 0.4μm | HRC 60 | AITIN

70 series

UMG | 0.2μm | HRC65-68 | AITIN-AS

Cutting material

50 series / 30 series				70 series	
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

Tolerances

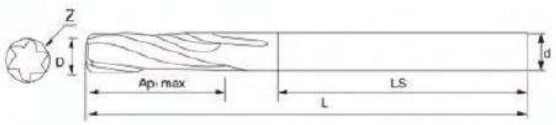
Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ6.0	-0.01~-0.03	h6
ϕ6.5~ ϕ10.5	-0.01~-0.035	h6
ϕ11.0~ ϕ16.0	-0.01~-0.04	h6

Item Code	Edge diameter (D)	R	Handle diameter (d)	Edge length (Ap1 max)	Total length (L)	Inventory		
						30 series	50 series	70 series
HHHR6-06D0060R02	6	0.2	6	15	50	●	●	●
HHHR6-06D0060R05	6	0.5	6	15	50	●	●	●
HHHR6-06D0060R10	6	1.0	6	15	50	●	●	●
HHHR6-08D0080R02	8	0.2	8	20	60	●	●	●
HHHR6-08D0080R05	8	0.5	8	20	60	●	●	●
HHHR6-08D0080R10	8	1.0	8	20	60	●	●	●
HHHR6-10D0100R05	10	0.5	10	25	75	●	●	●
HHHR6-10D0100R10	10	1.0	10	25	75	●	●	●
HHHR6-12D0120R05	12	0.5	12	30	75	●	●	●
HHHR6-12D0120R10	12	1.0	12	30	75	●	●	●
HHHR6-16D0160R05	16	0.5	16	40	100	●	●	●
HHHR6-16D0160R10	16	1.0	16	40	100	●	●	●

The above MOQ is 5 Pcs.

※ The tool has good rigidity and can minimize the amount of tool deflection during side cutting.
※ The use of a 45° strong helix angle and a high heat-resistant coating reduces cutting resistance and extends tool life.
※ Most suitable for 40HRC~60HRC hardened steel processing.
※ The arc angle blade tip design prevents chipping.

High precision mechanical reamer



For general cutting

30 series

50 series

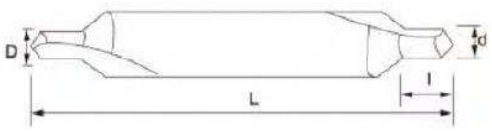
Cutting material

50 series				
30 series				
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel
P20 S45C	SCM SK	FC FCD	CU	SKD
●	●	●	●	○

Item Code	Edge diameter (D)	Handle diameter (d)	Number of teeth (Z)	Edge length (Ap1 max)	Handle length (LS)	Total length (L)	Inventory	
							30 series	50 series
HPMR4-04D0040	4.0	4	4	20	30	75	●	●
HPMR4-05D0045	4.5	5	4	20	30	75	●	●
HPMR6-05D0050	5.0	5	6	30	40	100	●	●
HPMR6-06D0055	5.5	6	6	30	40	100	●	●
HPMR6-06D0060	6.0	6	6	30	40	100	●	●
HPMR6-08D0065	6.5	8	6	30	40	100	●	●
HPMR6-08D0070	7.0	8	6	30	40	100	●	●
HPMR6-08D0080	8.0	8	6	30	40	100	●	●
HPMR6-10D0090	9.0	10	6	30	40	100	●	●
HPMR6-10D0100	10.0	10	6	30	40	100	●	●
HPMR6-12D0110	11.0	12	6	50	50	150	●	●
HPMR6-12D0120	12.0	12	6	50	50	150	●	●
HPMR6-14D0130	13.0	14	6	50	50	150	●	●
HPMR8-14D0140	14.0	14	8	50	50	150	●	●
HPMR8-16D0150	15.0	16	8	50	50	150	●	●
HPMR8-16D0160	16.0	16	8	50	50	150	●	●
HPMR8-18D0170	17.0	18	8	50	50	150	●	●
HPMR8-18D0180	18.0	18	8	60	60	200	●	●
HPMR8-20D0190	19.0	20	8	60	60	200	●	●
HPMR8-20D0200	20.0	20	8	60	60	200	●	●

※ The above MOQ is 5 Pcs.

Center drill



For general cutting

10 series

30 series

For high-speed machine cutting

50 series

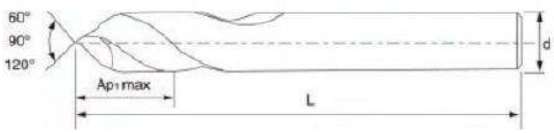
Cutting material

50 series				70 series
10 series	30 series			
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel
P20 S45C	SCM SK	FC FCD	CU	SKD
●	●	●	●	○

Item Code	Edge diameter (D)	Outer diameter (d)	Edge length (l)	Total length (L)	Inventory		
					10 series	30 series	50 series
HCD-04D0010	1.0	4	1.0	34	●	●	●
HCD-05D0015	1.5	5	1.5	40	●	●	●
HCD-06D0020	2.0	6	2.0	45	●	●	●
HCD-07D0025	2.5	7	2.5	50	●	●	●
HCD-08D0030	3.0	8	3.0	50	●	●	●
HCD-10D0040	4.0	10	4.5	60	●	●	●
HCD-11D0050	5.0	11	5.5	70	●	●	●

※ The above MOQ is 5 Pcs.

60/90/120 degree 2 flute positioning drill



For general cutting

30 series

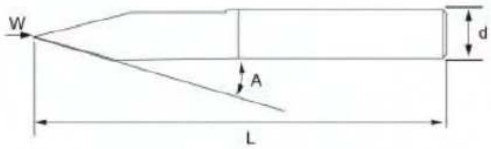
Cutting material

50 series				70 series
30 series				
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel
P20 S45C	SCM SK	FC FCD	CU	SKD
●	●	●	●	

Item Code	Edge diameter (D)	Outer diameter (d)	Edge length (l)	Total length (L)	Inventory
					30 series
HSD60/90/120-02D0020L050	2	2	4	50	●
HSD60/90/120-03D0030L050	3	3	6	50	●
HSD60/90/120-04D0040L050	4	4	8	50	●
HSD60/90/120-05D0050L050	5	5	10	50	●
HSD60/90/120-06D0060L050	6	6	12	50	●
HSD60/90/120-08D0080L060	8	8	16	60	●
HSD60/90/120-10D0100L075	10	10	20	75	●
HSD60/90/120-12D0120L075	12	12	20	75	●
HSD60/90/120-16D0160L100	16	16	25	100	●
HSD60/90/120-20D0200L100	20	20	25	100	●
HSD60/90/120-04D0040L100	4	4	8	100	●
HSD60/90/120-05D0050L100	5	5	10	100	●
HSD60/90/120-06D0060L100	6	6	12	100	●
HSD60/90/120-08D0080L100	8	8	16	100	●
HSD60/90/120-10D0100L100	10	10	20	100	●
HSD60/90/120-12D0120L100	12	12	20	100	●

※ The above MOQ is 5 Pcs.

Single edge tapered Engraving Tools



For general cutting

30 series

For high-speed machine cutting

50 series

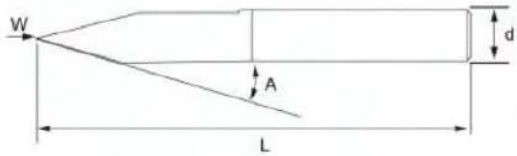
Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ1.0~ ϕ2.9	0~ -0.02	h6
ϕ3.0~ ϕ6.0	-0.01~ -0.03	h6
ϕ6.5~ ϕ10.5	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.0	-0.01~ -0.04	h6
ϕ17.0~ ϕ20.0	-0.015~ -0.045	h6

Item Code	Tip (W)	Angle (A)	Handle diameter (d)	Total length (L)	Inventory	
					30 series	50 series
HEB-030001A10	0. 1	10	3. 175	38. 5	●	●
HEB-030002A10	0. 2	10	3. 175	38. 5	●	●
HEB-030003A10	0. 3	10	3. 175	38. 5	●	●
HEB-030001A15	0. 1	15	3. 175	38. 5	●	●
HEB-030002A15	0. 2	15	3. 175	38. 5	●	●
HEB-030003A15	0. 3	15	3. 175	38. 5	●	●
HEB-030001A20	0. 1	20	3. 175	38. 5	●	●
HEB-030002A20	0. 2	20	3. 175	38. 5	●	●
HEB-030003A20	0. 3	20	3. 175	38. 5	●	●
HEB-030001A30	0. 1	30	3. 175	38. 5	●	●
HEB-030002A30	0. 2	30	3. 175	38. 5	●	●
HEB-030003A30	0. 3	30	3. 175	38. 5	●	●
HEB-030004A30	0. 4	30	3. 175	38. 5	●	●
HEB-030005A30	0. 5	30	3. 175	38. 5	●	●
HEB-030006A30	0. 6	30	3. 175	38. 5	●	●
HEB-030008A30	0. 8	30	3. 175	38. 5	●	●
HEB-030010A30	1	30	3. 175	38. 5	●	●
HEB-030015A30	1	30	3. 175	38. 5	●	●
HEB-030020A30	2	30	3. 175	38. 5	●	●
HEB-030001A45	0. 1	45	3. 175	38. 5	●	●
HEB-030002A45	0. 2	45	3. 175	38. 5	●	●
HEB-030003A45	0. 3	45	3. 175	38. 5	●	●
HEB-030005A45	0. 5	45	3. 175	38. 5	●	●
HEB-030001A60	0. 1	60	3. 175	38. 5	●	●
HEB-030002A60	0. 2	60	3. 175	38. 5	●	●
HEB-030003A60	0. 3	60	3. 175	38. 5	●	●
HEB-030004A60	0. 4	60	3. 175	38. 5	●	●
HEB-030005A60	0. 5	60	3. 175	38. 5	●	●
HEB-030001A90	0. 1	90	3. 175	38. 5	●	●
HEB-030002A90	0. 2	90	3. 175	38. 5	●	●
HEB-030003A90	0. 3	90	3. 175	38. 5	●	●
HEB-040001A20	0. 1	20	4	45	●	●
HEB-040002A20	0. 2	20	4	45	●	●
HEB-040003A20	0. 3	20	4	45	●	●

The above MOQ is 10 Pcs.

Single edge tapered Engraving Tools



For general cutting

30 series

For high-speed machine cutting

50 series

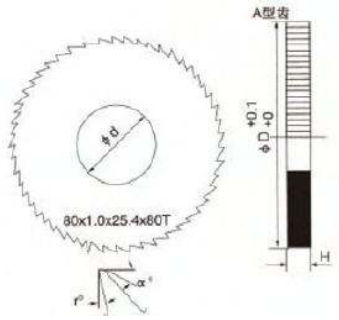
Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ1.0~ ϕ2.9	0~ -0.02	h6
ϕ3.0~ ϕ6.0	-0.01~ -0.03	h6
ϕ6.5~ ϕ10.5	-0.01~ -0.035	h6
ϕ11.0~ ϕ16.0	-0.01~ -0.04	h6
ϕ17.0~ ϕ20.0	-0.015~ -0.045	h6

Item Code	Tip (W)	Angle (A)	Handle diameter (d)	Total length (L)	Inventory	
					30 series	50 series
HEB-0001A30	0.1	30	4	40	●	●
HEB-0002A30	0.2	30	4	40	●	●
HEB-0003A30	0.3	30	4	40	●	●
HEB-0004A30	0.4	30	4	40	●	●
HEB-0005A30	0.5	30	4	40	●	●
HEB-0006A30	0.6	30	4	40	●	●
HEB-0008A30	0.8	30	4	40	●	●
HEB-0001A45	0.1	45	4	40	●	●
HEB-0002A45	0.2	45	4	40	●	●
HEB-0003A45	0.3	45	4	40	●	●
HEB-0004A45	0.4	45	4	40	●	●
HEB-0005A45	0.5	45	4	40	●	●
HEB-0006A45	0.6	45	4	40	●	●
HEB-0001A60	0.1	60	4	40	●	●
HEB-0002A60	0.2	60	4	40	●	●
HEB-0003A60	0.3	60	4	40	●	●
HEB-0004A60	0.4	60	4	40	●	●
HEB-0001A90	0.1	90	4	40	●	●
HEB-0002A90	0.2	90	4	40	●	●
HEB-0003A90	0.3	90	4	40	●	●
HEB-0001A20	0.1	20	6	50	●	●
HEB-0002A20	0.2	20	6	50	●	●
HEB-0003A20	0.3	20	6	50	●	●
HEB-0001A30	0.1	30	6	45	●	●
HEB-0002A30	0.2	30	6	45	●	●
HEB-0003A30	0.3	30	6	45	●	●
HEB-0001A45	0.1	45	6	45	●	●
HEB-0002A45	0.2	45	6	45	●	●
HEB-0003A45	0.3	45	6	45	●	●
HEB-0001A60	0.1	60	6	45	●	●
HEB-0002A60	0.2	60	6	45	●	●
HEB-0003A60	0.3	60	6	45	●	●
HEB-0001A90	0.1	90	6	45	●	●
HEB-0002A90	0.2	90	6	45	●	●
HEB-0003A90	0.3	90	6	45	●	●
HEB-0001A120	0.1	120	6	45	●	●
HEB-0002A120	0.2	120	6	45	●	●
HEB-0001A90	0.1	90	8	50	●	●
HEB-0002A90	0.2	90	8	50	●	●
HEB-0002A90	0.2	90	10	50	●	●
HEB-0001A90	0.1	90	12	50	●	●
HEB-0002A90	0.2	90	12	50	●	●
HEB-0001A90	0.1	90	14	50	●	●
HEB-0002A90	0.2	90	14	50	●	●

※ Note: All the above products are made to your requirement, please inquire for minimum order quantity.

Saw blade milling inserts



For general cutting

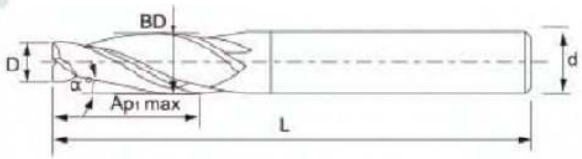
30 series

Cutting material

30 series				
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel
P20 S45C	SCM SK	FC FCD	CU	SKD
●	●	●	●	

Item Code	Outer diameter (D)	Thickness (H)	Inner diameter (d)	Number of teeth (T)	Inventory
					30 series
D x H x d x T	8	0.15~4.0	3,4	4~20	○
	10	0.15~4.0	4,5	6~24	○
	12	0.15~4.0	4,5,6	6~30	○
	16	0.15~4.0	5,6,8	6~40	○
	20	0.15~4.0	5,6,8	6~45	○
	22	0.2~5.0	5,6,8	8~50	○
	25	0.2~5.0	6,8,10	10~56	○
	30	0.2~5.0	6,8,10	10~60	○
	32	0.2~6.0	6,8,10,12.7	10~60	○
	35	0.2~6.0	8,10,12.7	10~60	○
	40	0.2~6.0	8,10,12.7	10~80	○
	45	0.2~8.0	10,12.7,16	10~80	○
	50	0.2~8.0	10,12.7,16	10~100	○
	55	0.2~8.0	12.7,16	24~120	○
	60	0.2~8.0	12.7,13,16	24~120	○
	63	0.2~8.0	12.7,13,16	24~120	○
	70	0.3~8.0	16,22,25.4	28~120	○
	75	0.5~8.0	16,22,25.4	30~120	○
	80	0.5~8.0	22,25.4	30~128	○
	85	0.5~8.0	22,25.4	30~128	○
	90	0.5~8.0	22,25.4	30~160	○
	95	0.5~8.0	22,25.4	30~160	○
	100	0.5~8.0	22,25.4,27	30~160	○
	105	0.8~8.0	22,25.4,27	30~160	○
	110	0.8~8.0	22,25.4,27,32	30~180	○
	115	0.8~8.0	22,25.4,27,32	30~180	○
	120	1.0~10.0	22,25.4,27,32	30~240	○
	125	1.0~10.0	22,25.4,27	30~240	○
	130	1.0~10.0	22,25.4,27,32	30~240	○
	150	1.0~10.0	22,25.4,27,32	40~240	○
	160	1.0~10.0	22,25.4,27,32	40~240	○
	180	1.5~12	25.4,27,32,40	60~280	○
	200	1.5~12	25.4,27,32,40	60~280	○

2 edge beveled end mill



For general cutting

30 series | MG | 0.6μm | HRC 50 | AITIN

For high-speed machine cutting

50 series | UMG | 0.4μm | HRC 60 | AITIN

Cutting material

50 series / 30 series				70 series	
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

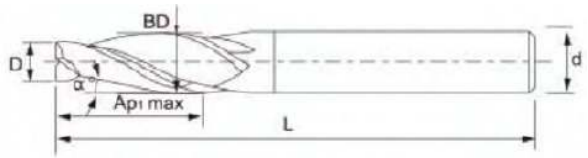
Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ3.0~ϕ10.0	0~-0.05	h6

Item Code	Tip diameter (D)	Handle diameter (d)	Inclination (α°)	Broad end diameter (BD)	Edge length (Ap1 max)	Overall length (L)	Inventory	
							30 series	50 series
HTE2-04D0030T005	3.0	4	0.5°	3.17	10	50	○	○
HTE2-04D0030T010	3.0	4	1.0°	3.35	10	50	○	○
HTE2-04D0030T015	3.0	4	1.5°	3.52	10	50	○	○
HTE2-04D0030T020	3.0	4	2.0°	3.07	10	50	○	○
HTE2-04D0030T030	3.0	4	3.0°	4.05	10	50	○	○
HTE2-04D0030T040	3.0	4	4.0°	4.05	10	50	○	○
HTE2-04D0030T050	3.0	4	5.0°	4.75	10	50	○	○
HTE2-06D0040T005	4.0	6	0.5°	4.26	15	50	○	○
HTE2-06D0040T010	4.0	6	1.0°	4.52	15	50	○	○
HTE2-06D0040T015	4.0	6	1.5°	4.79	15	50	○	○
HTE2-06D0040T020	4.0	6	2.0°	5.05	15	50	○	○
HTE2-06D0040T030	4.0	6	3.0°	5.57	15	50	○	○
HTE2-08D0040T040	4.0	8	4.0°	5.57	15	60	○	○
HTE2-08D0040T050	4.0	8	5.0°	6.62	15	60	○	○
HTE2-06D0050T005	5.0	6	0.5°	5.35	20	60	○	○
HTE2-06D0050T010	5.0	6	1.0°	5.70	20	60	○	○
HTE2-08D0050T015	5.0	8	1.5°	6.05	20	60	○	○
HTE2-08D0050T020	5.0	8	2.0°	6.40	20	60	○	○
HTE2-08D0050T030	5.0	8	3.0°	7.10	20	60	○	○
HTE2-10D0050T040	5.0	10	4.0°	7.10	20	60	○	○
HTE2-10D0050T050	5.0	10	5.0°	8.50	20	60	○	○
HTE2-08D0060T005	6.0	8	0.5°	6.35	20	60	○	○
HTE2-08D0060T010	6.0	8	1.0°	6.70	20	60	○	○
HTE2-08D0060T015	6.0	8	1.5°	7.05	20	60	○	○
HTE2-08D0060T020	6.0	8	2.0°	7.40	20	60	○	○
HTE2-10D0060T030	6.0	10	3.0°	8.10	20	75	○	○
HTE2-10D0060T040	6.0	10	4.0°	8.10	20	75	○	○
HTE2-10D0060T050	6.0	10	5.0°	9.50	20	75	○	○
HTE2-10D0080T005	8.0	10	0.5°	8.44	25	75	○	○
HTE2-10D0080T010	8.0	10	1.0°	8.87	25	75	○	○

※ Note: This is non-standard Product

2 edge beveled end mill



For general cutting

30 series | MG | 0.6μm | HRC 50 | AITIN

For high-speed machine cutting

50 series | UMG | 0.4μm | HRC 60 | AITIN

Cutting material

50 series / 30 series				70 series	
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

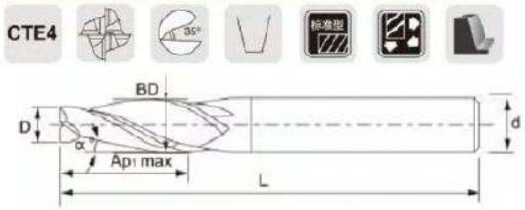
Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ3.0~ϕ10.0	0~-0.05	h6

Item Code	Tip diameter (D)	Handle diameter (d)	Inclination (α°)	Broad end diameter (BD)	Edge length (Ap1 max)	Overall length (L)	Inventory	
							30 series	50 series
HTE2-10D0080T015	8.0	10	1.5°	9.31	25	75	○	○
HTE2-10D0080T020	8.0	10	2.0°	9.75	25	75	○	○
HTE2-12D0080T030	8.0	12	3.0°	10.62	25	75	○	○
HTE2-12D0080T040	8.0	12	4.0°	10.62	25	75	○	○
HTE2-12D0080T050	8.0	12	5.0°	12.37	25	75	○	○
HTE2-12D0100T005	10.0	12	0.5°	10.61	25	100	○	○
HTE2-12D0100T010	10.0	12	1.0°	11.22	35	100	○	○
HTE2-12D0100T015	10.0	12	1.5°	11.83	35	100	○	○
HTE2-12D0100T020	10.0	12	2.0°	12.44	35	100	○	○
HTE2-12D0100T030	10.0	12	3.0°	13.67	35	100	○	○
HTE2-16D0100T040	10.0	16	4.0°	13.67	35	100	○	○
HTE2-16D0100T050	10.0	16	5.0°	16.00	34.2	100	○	○

※ Note: This is non-standard Product

4 edge beveled end mill



For general cutting

30 series | MG | 0.6μm | HRC 50 | AITIN

For high-speed machine cutting

50 series | UMG | 0.4μm | HRC 60 | AITIN

Cutting material

50 series				70 series	
30 series					
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
φ3.0~φ10.0	0~-0.05	h6

Item Code	Tip diameter (D)	Handle diameter (d)	Inclination (α°)	Broad end diameter (BD)	Edge length (Ap1 max)	Overall length (L)	Inventory	
							30 series	50 series
HTE4-04D0030T005	3.0	4	0.5°	3.17	10	50	○	○
HTE4-04D0030T010	3.0	4	1.0°	3.35	10	50	○	○
HTE4-04D0030T015	3.0	4	1.5°	3.52	10	50	○	○
HTE4-04D0030T020	3.0	4	2.0°	3.07	10	50	○	○
HTE4-04D0030T030	3.0	4	3.0°	4.05	10	50	○	○
HTE4-04D0030T040	3.0	4	4.0°	4.05	10	50	○	○
HTE4-04D0030T050	3.0	4	5.0°	4.75	10	50	○	○
HTE4-06D0040T005	4.0	6	0.5°	4.26	15	50	○	○
HTE4-06D0040T010	4.0	6	1.0°	4.52	15	50	○	○
HTE4-06D0040T015	4.0	6	1.5°	4.79	15	50	○	○
HTE4-06D0040T020	4.0	6	2.0°	5.05	15	50	○	○
HTE4-06D0040T030	4.0	6	3.0°	5.57	15	50	○	○
HTE4-08D0040T040	4.0	8	4.0°	5.57	15	60	○	○
HTE4-08D0040T050	4.0	8	5.0°	6.62	15	60	○	○
HTE4-06D0050T005	5.0	6	0.5°	5.35	20	60	○	○
HTE4-06D0050T010	5.0	6	1.0°	5.70	20	60	○	○
HTE4-08D0050T015	5.0	8	1.5°	6.05	20	60	○	○
HTE4-08D0050T020	5.0	8	2.0°	6.40	20	60	○	○
HTE4-08D0050T030	5.0	8	3.0°	7.10	20	60	○	○
HTE4-10D0050T040	5.0	10	4.0°	7.10	20	60	○	○
HTE4-10D0050T050	5.0	10	5.0°	8.50	20	60	○	○
HTE4-08D0060T005	6.0	8	0.5°	6.35	20	60	○	○
HTE4-08D0060T010	6.0	8	1.0°	6.70	20	60	○	○
HTE4-08D0060T015	6.0	8	1.5°	7.05	20	60	○	○
HTE4-08D0060T020	6.0	8	2.0°	7.40	20	60	○	○
HTE4-10D0060T030	6.0	10	3.0°	8.10	20	75	○	○
HTE4-10D0060T040	6.0	10	4.0°	8.10	20	75	○	○
HTE4-10D0060T050	6.0	10	5.0°	9.50	20	75	○	○
HTE4-10D0080T005	8.0	10	0.5°	8.44	25	75	○	○
HTE4-10D0080T010	8.0	10	1.0°	8.87	25	75	○	○
HTE4-10D0080T015	8.0	10	1.5°	9.31	25	75	○	○
HTE4-10D0080T020	8.0	10	2.0°	9.75	25	75	○	○
HTE4-12D0080T030	8.0	12	3.0°	10.62	25	75	○	○
HTE4-12D0080T040	8.0	12	4.0°	10.62	25	75	○	○
HTE4-12D0080T050	8.0	12	5.0°	12.37	25	75	○	○
HTE4-12D0100T005	10.0	12	0.5°	10.61	25	100	○	○
HTE4-12D0100T010	10.0	12	1.0°	11.22	35	100	○	○
HTE4-12D0100T015	10.0	12	1.5°	11.83	35	100	○	○
HTE4-12D0100T020	10.0	12	2.0°	12.44	35	100	○	○
HTE4-12D0100T030	10.0	12	3.0°	13.67	35	100	○	○
HTE4-16D0100T040	10.0	16	4.0°	13.67	35	100	○	○
HTE4-16D0100T050	10.0	16	5.0°	16.00	34.2	100	○	○

Note: This type of tool is a non-standard product.

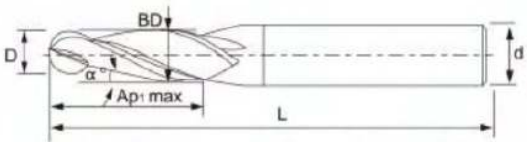
※ It can be used for processing tool steel, alloy steel, pre-hardened die steel, and other high-hardness materials.

※ The surface roughness of the workpiece after processing is good. ※ The coating with high heat resistance can be processed at high speed.

A B C D E

2-edge bevel ball end mill

CTB2



For general cutting

30 series | MG | 0.6μm | HRC 50 | AITIN

For high-speed machine cutting

50 series | UMG | 0.4μm | HRC 60 | AITIN

Cutting material

50 series / 30 series				70 series	
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

Tolerances

Edge diameter	Edge diameter tolerance	Handle diameter tolerance
D size range	D tolerance	d tolerance
ϕ3.0~ϕ10.0	0~-0.05	h6

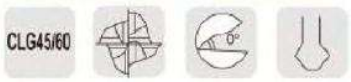
Item Code	Tip diameter (D)	Handle diameter (d)	Inclination (α°)	Broad end diameter (BD)	Edge length (Ap1 max)	Overall length (L)	Inventory	
							30 series	50 series
HTB2-04D0030T05	R1.5	4	0.5°	3.32	20	60	○	○
HTB2-04D0030T10	R1.5	4	1.0°	3.65	20	60	○	○
HTB2-04D0030T15	R1.5	4	1.5°	3.97	20	60	○	○
HTB2-04D0030T20	R1.5	4	2.0°	4.29	20	60	○	○
HTB2-06D0030T30	R1.5	6	3.0°	4.94	20	60	○	○
HTB2-06D0030T40	R1.5	6	4.0°	5.60	20	60	○	○
HTB2-06D0030T50	R1.5	6	5.0°	6.25	20	60	○	○
HTB2-06D0040T05	R2.0	6	0.5°	4.40	25	75	○	○
HTB2-06D0040T10	R2.0	6	1.0°	4.80	25	75	○	○
HTB2-06D0040T15	R2.0	6	1.5°	5.21	25	75	○	○
HTB2-06D0040T20	R2.0	6	2.0°	5.61	25	75	○	○
HTB2-06D0040T30	R2.0	6	3.0°	6.42	25	75	○	○
HTB2-08D0040T40	R2.0	8	4.0°	7.23	25	75	○	○
HTB2-08D0040T50	R2.0	8	5.0°	8.04	25	75	○	○
HTB2-06D0050T05	R2.5	6	0.5°	5.48	30	75	○	○
HTB2-06D0050T10	R2.5	6	1.0°	5.96	30	75	○	○
HTB2-08D0050T15	R2.5	8	1.5°	6.44	30	75	○	○
HTB2-08D0050T20	R2.5	8	2.0°	6.92	30	75	○	○
HTB2-08D0050T30	R2.5	8	3.0°	7.89	30	75	○	○
HTB2-10D0050T40	R2.5	10	4.0°	8.86	30	75	○	○
HTB2-10D0050T50	R2.5	10	5.0°	9.83	30	75	○	○
HTB2-08D0060T05	R3.0	8	0.5°	6.56	35	100	○	○
HTB2-08D0060T10	R3.0	8	1.0°	7.12	35	100	○	○
HTB2-08D0060T15	R3.0	8	1.5°	7.68	35	100	○	○
HTB2-08D0060T20	R3.0	8	2.0°	8.24	35	100	○	○
HTB2-10D0060T30	R3.0	10	3.0°	9.36	35	100	○	○
HTB2-12D0060T40	R3.0	12	4.0°	10.49	35	100	○	○
HTB2-12D0060T50	R3.0	12	5.0°	11.62	35	100	○	○
HTB2-10D0080T05	R4.0	10	0.5°	8.63	40	100	○	○
HTB2-10D0080T10	R4.0	10	1.0°	9.26	40	100	○	○
HTB2-10D0080T15	R4.0	10	1.5°	9.89	40	100	○	○
HTB2-12D0080T20	R4.0	12	2.0°	10.52	40	100	○	○
HTB2-12D0080T30	R4.0	12	3.0°	11.78	40	100	○	○
HTB2-16D0080T40	R4.0	16	4.0°	13.05	40	100	○	○
HTB2-16D0080T50	R4.0	16	5.0°	14.33	40	100	○	○
HTB2-12D0100T05	R5.0	12	0.5°	10.70	45	100	○	○
HTB2-12D0100T10	R5.0	12	1.0°	11.40	45	100	○	○
HTB2-12D0100T15	R5.0	12	1.5°	12.10	45	100	○	○
HTB2-16D0100T20	R5.0	16	2.0°	12.80	45	100	○	○
HTB2-16D0100T30	R5.0	16	3.0°	14.20	45	100	○	○
HTB2-16D0100T40	R5.0	16	4.0°	15.62	45	100	○	○
HTB2-20D0100T50	R5.0	20	5.0°	17.04	45	100	○	○

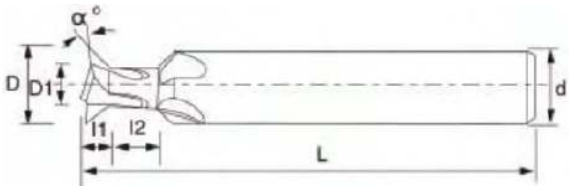
Note: This type of tool is a non-standard product.

※ It can be used for processing tool steel, alloy steel, pre-hardened die steel, and other high-hardness materials.

※ The surface roughness of the workpiece after processing is good. ※ The coating with high heat resistance can be processed at high speed.

45/60 degree L-shaped slot milling Tools





For general cutting

30 series

MG | 0.6μm | HRC 50 | AITIN

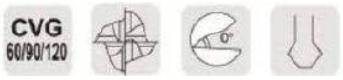
Cutting material

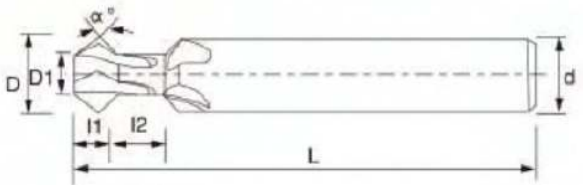
30 series				
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel
P20 S45C	SCM SK	FC FCD	CU	SKD
●	●	●	●	

Item Code	Edge diameter (D)	Handle diameter (d)	Inclination (α°)	Tip diameter (D1)	shoulder length (L2)	Edge length (L1)	Total length (L)	Inventory
								30 series
HLG45-06D0050	5	6	45	2.5	4	1.2	60	○
HLG45-06D0060	6	6	45	3.0	4	1.4	60	○
HLG45-08D0080	8	8	45	4.0	5	1.9	60	○
HLG45-10D0100	10	10	45	5.0	6	2.4	75	○
HLG45-12D0120	12	12	45	6.0	7	2.9	75	○
HLG60-06D0050	5	6	60	2.5	4	2.2	60	○
HLG60-06D0060	6	6	60	3.0	4	2.7	60	○
HLG60-08D0080	8	8	60	4.0	5	3.7	60	○
HLG60-10D0100	10	10	60	5.0	6	4.6	75	○
HLG60-12D0120	12	12	60	6.0	7	5.6	75	○

Note: This type of tool is a non-standard product.

60/90/120 degree L-shaped slot milling Tools





For general cutting

30 series

MG | 0.6μm | HRC 50 | AITIN

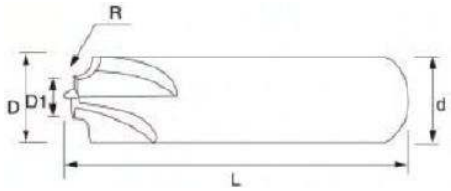
Cutting material

30 series				
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel
P20 S45C	SCM SK	FC FCD	CU	SKD
●	●	●	●	

Item Code	Edge diameter (D)	Handle diameter (d)	Inclination (α°)	Tip diameter (D1)	shoulder length (L2)	Edge length (L1)	Total length (L)	Inventory 30 series
HVG60-06D0050	5	6	60	2.3	4	1.5	60	○
HVG60-06D0060	6	6	60	2.7	4	1.8	60	○
HVG60-08D0080	8	8	60	3.6	5	2.4	60	○
HVG60-10D0100	10	10	60	4.5	6	3.1	75	○
HVG60-12D0120	12	12	60	5.4	7	3.7	75	○
HVG90-06D0050	5	6	90	2.3	4	2.4	60	○
HVG90-06D0060	6	6	90	2.7	4	2.8	60	○
HVG90-08D0080	8	8	90	3.6	5	3.8	60	○
HVG90-10D0100	10	10	90	4.5	6	4.8	75	○
HVG90-12D0120	12	12	90	5.4	7	5.8	75	○
HVG120-06D0050	5	6	120	2.3	4	4.4	60	○
HVG120-06D0060	6	6	120	2.7	4	5.4	60	○
HVG120-08D0080	8	8	120	3.6	5	7.7	60	○
HVG120-10D0100	10	10	120	4.5	6	9.3	75	○
HVG120-12D0120	12	12	120	5.4	7	11.2	75	○

Note: This type of tool is a non-standard product.

Internal angle R 2/3/4 edge end mill



For general cutting

30 series | MG | 0.5μm | HRC 55 | AITIN

For high-speed machine cutting

50 series | UMG | 0.4μm | HRC 60 | AITIN

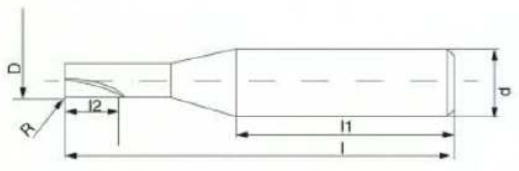
Cutting material

50 series / 30 series					
Carbon steel	Alloy steel	Cast iron	Copper all	Quenched steel	Stainless steel
P20 S45C	SCM SK	FC FCD	CU	SKD	SUS
●	●	●	●	●	●

Item Code	R	Handle diameter (d)	Tip diameter (D1)	Outer diameter (D)	Overall length (L)	Inventory	
						30 series	50 series
HCR2/3/4-04R050	0.50	4	1.5	2.7	50	○	○
HCR2/3/4-04R075	0.75	4	1.5	3.2	50	○	○
HCR2/3/4-04R100	1.00	4	1.5	3.7	50	○	○
HCR2/3/4-06R125	1.25	6	1.5	4.2	50	○	○
HCR2/3/4-06R150	1.50	6	1.5	4.7	50	○	○
HCR2/3/4-06R175	1.75	6	1.5	5.2	50	○	○
HCR2/3/4-06R200	2.00	6	1.5	5.7	50	○	○
HCR2/3/4-08R250	2.50	8	1.5	6.7	50	○	○
HCR2/3/4-08R300	3.00	8	1.5	7.7	50	○	○
HCR2/3/4-12R400	4.00	12	2.0	10.2	60	○	○
HCR2/3/4-16R500	5.00	16	3.0	13.2	75	○	○
HCR2/3/4-16R600	6.00	16	3.0	15.2	75	○	○

Note: This type of tool is a non-standard product. If (D) ＜10 mm, the MOQ is 10 pieces, the other MOQ is 5 pieces.

Superhard end mill-PCD single-edge milling Tools



Item Code	Dimension(mm)						Material
	D	d	L1	L	12	R	
HDE1-06D030R01	3	6	36	60	5	0.1	PCD
HDE1-06D030R02	3	6	36	60	5	0.2	PCD
HDE1-06D030R03	3	6	36	60	5	0.3	PCD
HDE1-06D040R01	4	6	36	60	5	0.1	PCD
HDE1-06D040R02	4	6	36	60	5	0.2	PCD
HDE1-06D040R03	4	6	36	60	5	0.3	PCD
HDE1-06D045R01	4.5	6	36	60	5	0.1	PCD
HDE1-06D045R02	4.5	6	36	60	5	0.2	PCD
HDE1-06D045R03	4.5	6	36	60	5	0.3	PCD

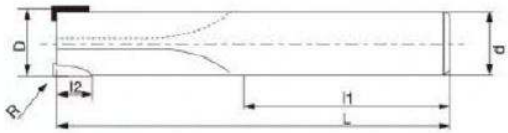
Application

Groove

Side

Support non-standard customization

Superhard end mill-PCD multi-edge milling Tools



Item Code	Dimension(mm)						Material
	D	d	L1	L	12	R	
HDE2-06D050R01	5	6	36	60	5	0.1	PCD
HDE2-06D050R02	5	6	36	60	5	0.2	PCD
HDE2-06D050R03	5	6	36	60	5	0.3	PCD
HDE2-06D060R01	6	6	36	60	5	0.1	PCD
HDE2-06D060R02	6	6	36	60	5	0.2	PCD
HDE2-06D060R03	6	6	36	60	5	0.3	PCD
HDE2-08D080R01	8	8	40	80	7	0.1	PCD
HDE2-08D080R02	8	8	40	80	7	0.2	PCD
HDE2-08D080R03	8	8	40	80	7	0.3	PCD
HDE2-10D010R01	10	10	40	80	7	0.1	PCD
HDE2-10D010R02	10	10	40	80	7	0.2	PCD
HDE2-10D010R03	10	10	40	80	7	0.3	PCD
HDE4-12D012R01	12	12	40	80	10	0.1	PCD
HDE4-12D012R02	12	12	40	80	10	0.2	PCD
HDE4-12D012R03	12	12	40	80	10	0.3	PCD

Support non-standard customization

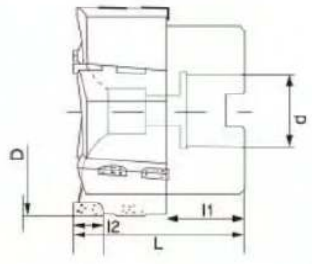
Application

Groove

Side

Surface

Superhard face mill-PCD face milling cutter

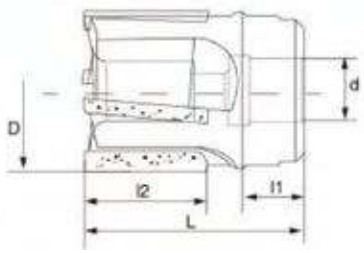


Item Code	Dimension(mm)						Material
	D	d	L	11	12	R	
HDSM4-22D040	40	22	50	20	6	4	PCD
HDSM4-22D045	45	22	50	20	6	4	PCD
HDSM4-27D050	50	27	50	20	6	4	PCD
HDSM6-27D050	50	27	50	20	6	6	PCD
HDSM4-27D063	63	27	60	20	6	4	PCD
HDSM5-27D063	63	27	60	20	6	5	PCD
HDSM6-27D063	63	27	60	20	6	6	PCD
HDSM5-27D080	80	27	60	20	6	5	PCD
HDSM6-27D080	80	27	60	20	6	6	PCD
HDSM8-27D080	80	27	60	20	6	8	PCD
HDSM8-32D100	100	32	60	20	6	8	PCD
HDSM10-32D100	100	32	60	20	6	10	PCD
HDSM12-32D100	100	32	60	20	6	12	PCD

Support non-standard customization

Application

Superhard face mill-PCBN face milling cutter



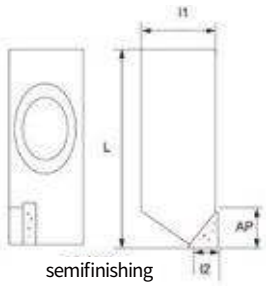
Item Code	Dimension(mm)						Material
	D	d(H6)	L	11	12	Z	
HDSM4-22D040	40	22	50	20	15	4	PCBN
HDSM4-22D045	45	22	50	20	15	4	PCBN
HDSM4-27D050	50	27	50	20	15	4	PCBN
HDSM6-27D050	50	27	50	20	15	6	PCBN
HDSM4-27D063	63	27	60	20	15	4	PCBN
HDSM5-27D063	63	27	60	20	15	5	PCBN
HDSM6-27D063	63	27	60	20	15	6	PCBN
HDSM5-27D080	80	27	60	20	15	5	PCBN
HDSM6-27D080	80	27	60	20	15	6	PCBN
HDSM8-27D080	80	27	60	20	15	8	PCBN
HDSM8-32D100	100	32	60	20	15	8	PCBN
HDSM10-32D100	100	32	60	20	15	10	PCBN
HDSM12-32D100	100	32	60	20	15	12	PCBN

Support non-standard customization

Application

PCD Milling Tools

finishing

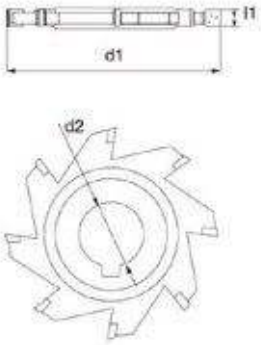


semifinishing

rough finish

Item Code		Dimension(mm)				Material
		L	l1	AP(max)	l2	
HDI-301212F	finishing	30.5	12	6	1.5	PCD
HDI-301212H	semifinishing	30.5	12	6	2	PCD
HDI-301212R	rough finish	30.5	12	6	4	PCD

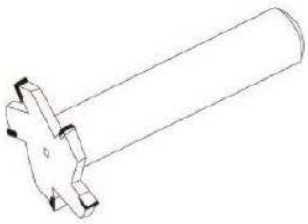
PCD 3 face milling cutter

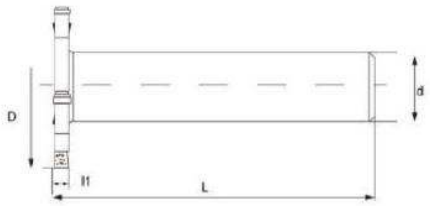


Item Code	Dimension(mm)			Material
	d1	d2	l1	
HDSFM4-12D030	30	12	4	PCD
HDSFM5-12D040	40	12	5	PCD
HDSFM6-16D050	50	16	6	PCD
HDSFM6-22D050	50	22	7	PCD
HDSFM6-22D060	60	22	8	PCD
HDSFM6-27D060	60	27	9	PCD

Support non-standard customization

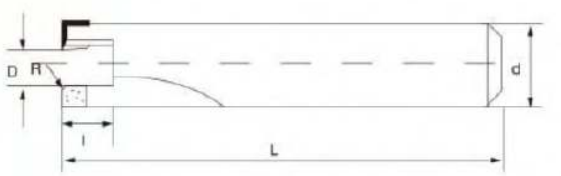
PCD T-type Milling Cutter





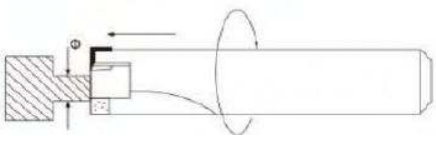
Item Code	Dimension(mm)				Material
	D	d(H6)	L	l1	
HDTM3-08D014	14	8	80	4	PCD
HDTM3-10D016	16	10	80	4	PCD
HDTM4-10D018	18	10	80	4	PCD
HDTM4-12D018	18	12	80	4	PCD
HDTM4-12D020	20	12	80	4	PCD
HDTM4-16D022	22	16	80	4	PCD
HDTM4-16D025	25	16	80	4	PCD
HDTM4-20D030	30	20	80	4	PCD
HDTM4-20D035	35	20	80	4	PCD

PCD Set Turning Tools



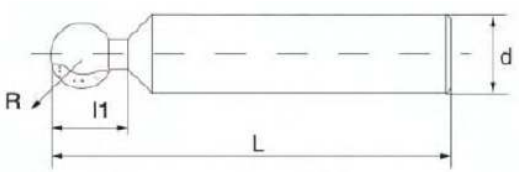
Item Code	Dimension(mm)					Material
	D	d(H6)	L	l1	R	
HDCT2-12D004	4	12	80	6	0.2	PCD
HDCT2-12D005	5	12	80	6	0.2	PCD
HDCT2-14D006	6	14	80	6	0.3	PCD
HDCT2-14D007	7	14	80	6	0.3	PCD
HDCT2-16D008	8	16	80	9	0.4	PCD
HDCT2-16D009	9	16	80	9	0.4	PCD
HDCT2-20D010	10	20	80	9	0.4	PCD

Application p: Rapid processing of cast aluminum cylinder forming



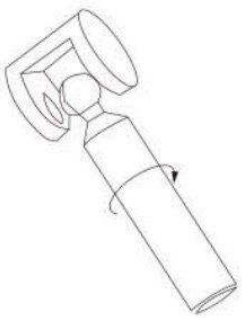
Support non-standard customization

PCD ball end Mill



Item Code	Dimension(mm)				Material
	R (Customized)	d	L1	L	
HDB-20R6.XX	6.XX	20	20	100	PCD
HDB-20R7.XX	7.XX	20	20	100	PCD
HDB-20R8.XX	8.XX	20	20	100	PCD
HDB-20R9.XX	9.XX	20	20	100	PCD

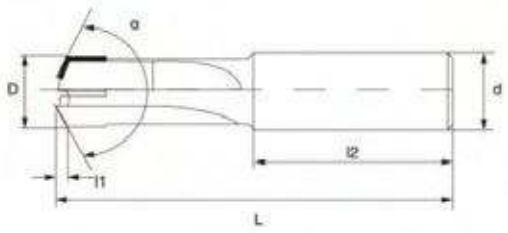
Application



If you have other specifications requirement, please feel free contact us.

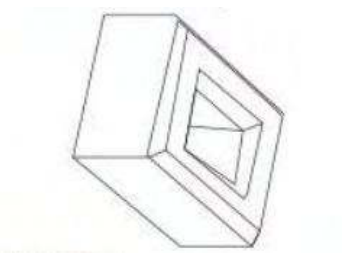
Support non-standard customization

PCD Chamfering Tool



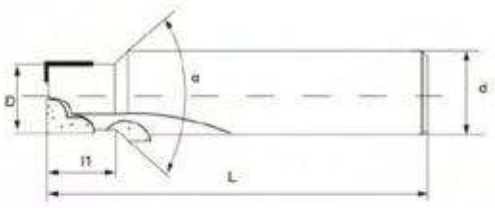
Item Code	Dimension(mm)						Material
	D	d(H6)	L	l1	l2	α	
HDCD90-06D005	5	6	60	36	1.5	90°	PCD
HDCD120-06D005	5	6	60	36	1.5	120°	PCD
HDCD90-06D006	6	6	60	36	2	90°	PCD
HDCD120-06D006	6	6	60	36	2	120°	PCD
HDCD90-08D008	8	8	80	40	3	90°	PCD
HDCD120-08D008	8	8	80	40	3	120°	PCD
HDCD90-10D010	10	10	80	45	4	90°	PCD
HDCD120-10D010	10	10	80	45	4	120°	PCD
HDCD90-12D012	12	12	80	45	4	90°	PCD
HDCD120-12D012	12	12	80	45	4	120°	PCD
HDCD90-16D016	16	16	100	45	5	90°	PCD
HDCD120-16D016	16	16	100	45	5	120°	PCD
HDCD90-20D022	22	20	100	45	4	90°	PCD
HDCD120-20D022	22	20	100	45	4	120°	PCD

Application: Chamfering for aluminum alloy parts



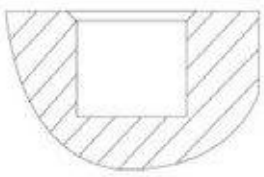
Support non-standard customization

PCD milling and chamfering Milling Tools



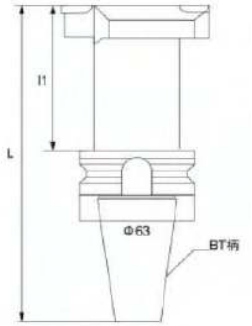
Item Code	Dimension(mm)					Material
	D	d (H6)	L	l1	α	
HDCM90-06D005	5	6	60	10	90°	PCD
HDCM120-06D005	5	6	60	10	120°	PCD
HDCM90-06D006	6	6	60	10	90°	PCD
HDCM120-06D006	6	6	60	10	120°	PCD
HDCM90-08D008	8	8	80	10	90°	PCD
HDCM120-08D008	8	8	80	10	120°	PCD
HDCM90-10D010	10	10	80	10	90°	PCD
HDCM120-10D010	10	10	80	10	120°	PCD
HDCM90-12D012	12	12	80	10	90°	PCD
HDCM120-12D012	12	12	80	10	120°	PCD
HDCM90-16D016	16	16	100	10	90°	PCD
HDCM120-16D016	16	16	100	10	120°	PCD
HDCM90-20D022	22	20	100	10	90°	PCD
HDCM120-20D022	22	20	100	10	120°	PCD

Application



Support non-standard customization

PCD BT Series profile Tools



Item Code		Material
	L1max	
HDBT30-FH-001	200	PCD
HDBT40-FH-001	200	PCD
HDBT50-FH-002	200	PCD

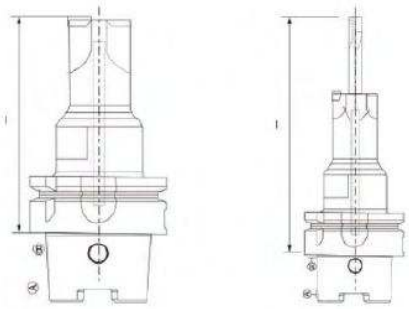
Advantages:

※ Better system rigidity and higher cutting speed.

※ Better dynamic balance.

※ Lower tool runout and higher precision machining.

PCD HSK series profile Tools



Item Code	Dimension(mm)	Material
	L1max	
HDHSK63A-FH-001	200	PCD

Advantages:

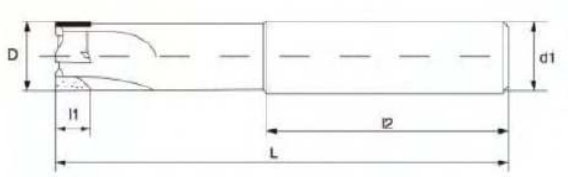
※ Better system rigidity and higher cutting speed.

※ Better dynamic balance.

※ Lower tool runout and higher precision machining.

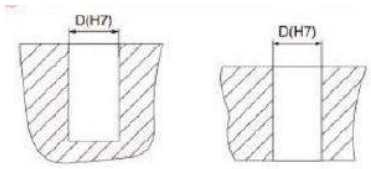
Support non-standard customization

PCD straight shank reamer



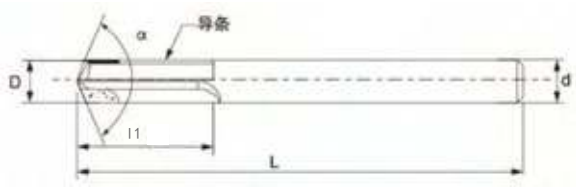
Item Code	Dimension(mm)					Material
	D	d (H6)	L	L1	L2	
HDSR2-06D004	4	6	80	6	40	PCD
HDSR2-06D005	5	6	80	6	40	PCD
HDSR2-06D006	6	6	80	6	40	PCD
HDSR2-08D007	7	8	80	6	40	PCD
HDSR2-08D008	8	8	80	6	40	PCD
HDSR2-08D009	9	10	80	6	40	PCD
HDSR2-10D010	10	10	80	6	40	PCD
HDSR2-12D012	12	12	80	6	40	PCD
HDSR2-14D014	14	14	80	6	40	PCD
HDSR2-16D015	15	16	80	6	40	PCD
HDSR2-20D020	20	20	80	6	40	PCD
HDSR2-25D026	26	25	80	6	40	PCD
HDSR2-32D030	30	32	80	6	40	PCD

Application



Support non-standard customization

PCD straight shank drill reamer



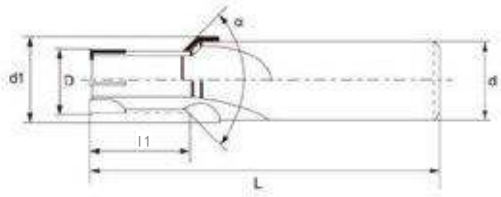
Item Code	Dimension(mm)					Material
	D	d (H6)	l1	L	α	
HDDR2-06D004	4	6	40	80	130°	PCD
HDDR2-06D005	5	6	40	80	130°	PCD
HDDR2-06D006	6	6	40	80	130°	PCD
HDDR2-08D007	7	8	40	80	130°	PCD
HDDR2-08D008	8	8	40	80	130°	PCD
HDDR2-10D009	9	10	40	80	130°	PCD
HDDR2-10D010	10	10	40	80	130°	PCD
HDDR2-12D012	12	12	40	80	130°	PCD
HDDR2-14D014	14	14	40	80	130°	PCD
HDDR2-16D015	15	16	40	80	130°	PCD

Application

Processing cross hole

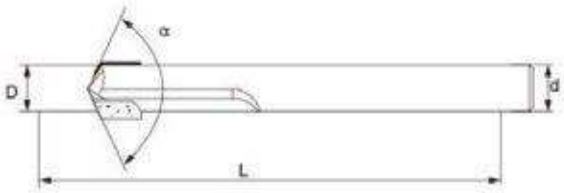
Support non-standard customization

PCD reamer chamfer Profile Tools



Item Code	Dimension(mm)					Material
	D	d(H6)	l1	L	α	
HDCR2-06D004	4	6	12	80	90°	PCD
HDCR2-06D005	5	6	12	80	90°	PCD
HDCR2-06D006	6	6	12	80	90°	PCD
HDCR2-08D007	7	8	12	80	90°	PCD
HDCR2-08D008	8	8	12	80	90°	PCD
HDCR2-10D009	9	10	12	80	90°	PCD
HDCR2-10D010	10	10	12	80	90°	PCD
HDCR2-12D012	12	12	12	80	90°	PCD
HDCR2-14D014	14	14	12	80	90°	PCD
HDCR2-16D015	15	16	12	80	90°	PCD

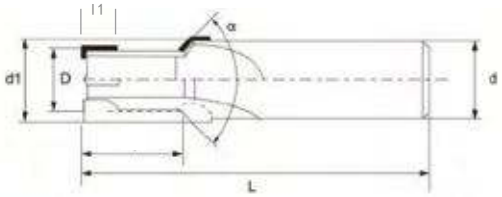
PCD straight slot drill



Item Code	Dimension(mm)				Material
	D	d(H6)	L	α	
HDSD2-06 D005α 90	5	6	60	90°	PCD
HDSD2-06 D005α 130	5	6	60	130°	PCD
HDSD2-06 D006α 90	6	6	60	90°	PCD
HDSD2-06 D006α 130	6	6	60	130°	PCD
HDSD2-08 D008α 90	8	8	80	90°	PCD
HDSD2-08 D008α 130	8	8	80	130°	PCD
HDSD2-10 D010α 90	10	10	80	90°	PCD
HDSD2-10 D010α 130	10	10	80	130°	PCD
HDSD2-12 D012α 90	12	12	80	90°	PCD
HDSD2-12 D012α 130	12	12	80	130°	PCD
HDSD2-16 D016α 90	16	16	100	90°	PCD
HDSD2-16 D016α 130	16	16	100	130°	PCD

Support non-standard customization

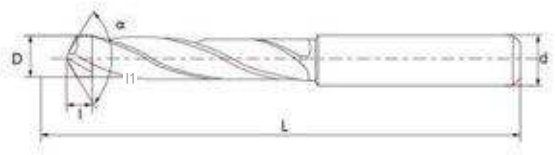
PCD reamer drill



Item Code	Dimension(mm)						Material
	D	d(H6)	d1	L	l1	α	
HDCBD-06D005α60	5	6	7	60	6	60°	PCD
HDCBD-06D005α90	5	6	7	60	6	90°	PCD
HDCBD-06D005α180	5	6	7	60	6	180°	PCD
HDCBD-06D006α60	6	6	7	60	6	60°	PCD
HDCBD-06D006α90	6	6	7	60	6	90°	PCD
HDCBD-06D006α180	6	6	7	60	6	180°	PCD
HDCBD-08D008α60	8	8	9	80	9	60°	PCD
HDCBD-08D008α90	8	8	9	80	9	90°	PCD
HDCBD-08D008α180	8	8	9	80	9	180°	PCD
HDCBD-10D010α60	10	10	11	80	9	60°	PCD
HDCBD-10D010α90	10	10	11	80	9	90°	PCD
HDCBD-10D010α180	10	10	11	80	9	180°	PCD
HDCBD-12D012α60	12	12	13.5	80	9	60°	PCD
HDCBD-12D012α90	12	12	13.5	80	9	90°	PCD
HDCBD-12D012α180	12	12	13.5	80	9	180°	PCD
HDCBD-16D016α60	16	16	17	100	9	60°	PCD
HDCBD-16D016α90	16	16	17	100	9	90°	PCD
HDCBD-16D016α180	16	16	17	100	9	180°	PCD
HDCBD-20D022α60	22	20	25	100	9	60°	PCD
HDCBD-20D022α90	22	20	25	100	9	90°	PCD
HDCBD-20D022α180	22	20	25	100	9	180°	PCD

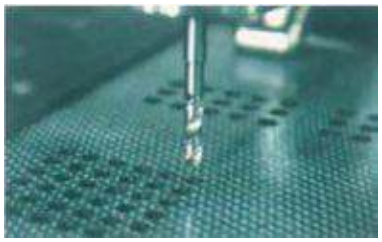
Support non-standard customization

PCD twist drill



Item Code	Dimension(mm)					Material
	D	d(H6)	l1	L	α	
HDTD-06D005 α 90	5	6	60	60	90°	PCD
HDTD-06D005 α 130	5	6	60	60	130°	PCD
HDTD-06D006 α 90	6	6	60	60	90°	PCD
HDTD-06D006 α 130	6	6	60	60	130°	PCD
HDTD-08D008 α 90	8	8	80	80	90°	PCD
HDTD-08D008 α 130	8	8	80	80	130°	PCD
HDTD-10D010 α 90	10	10	80	80	90°	PCD
HDTD-10D010 α 130	10	10	80	80	130°	PCD

Application: Carbon fiber composite hole processing



Support non-standard customization

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