TOTIME

Catalog of Milling Solution 2023/2024

B

B

Directory

Part 1

END MILLS

DIRECTORY

Part 1

END MILLS

DIRECTORY

Guide of Icons

1 Tool Materials

MG HM	Tungsten Carbide
CBN	Cubic Boron Nitride

2 Surface Treatment

GS — GS Coating	AlCrSiN — AlCrSiN Coating	X6H — X6H Coating
ALDUA — ALDUA Coating	TiAlN — TiAlN Coating	X3H — X3H Coating
TAC — TAC Coating	Diamond — Diamond Coating	AP — AP Coating

3 Helix Angle

0° — Helix Angle 0°	30° — Helix Angle 30°
35° — Helix Angle 35°	35°/38° — Helix Angle 35°/38°
40° — Helix Angle 40°	30° — Helix Angle 30°

4 Shape

Square	Square
Corner-R	Corner Radius
Ball Nose	Ball Nose

5 Type of Milling

	Side Milling
	Slotting
	Profiling Milling

6 Number of Flutes

2 3 4 6

7 Tolerance of Ball-End Radius

R ±0.005	R ±0.005	R ±0.010	D≤6 R ±0.005	D>6 R ±0.010

TOTIME48 SERIES

P K

General Type[B1~B10]

- High-performance AlCrSiN coating, high temperature resistance and wear resistance.
- Excellent machining performance for general steel (≤HRC48)and cast iron.
- A great variety of goods, high cost performance.

TOTIME3638 SERIES

M

Variable Lead Type[B12]

- High-performance variable lead, variable helix angle design, with excellent shock resistance.
- Suitable for stainless steel cutting.
- The special cutting edge design effectively solves the problem of chip sticking on the cutting edge and improves the tool life.

TOTIME3538 SERIES

P K

Variable Lead Type[B11]

- High-performance variable lead, variable helix angle design, with excellent shock resistance.
- Excellent machining performance for general steel and cast iron.
- Suitable for large depth and width of cutting.

TOTIME3538-MS SERIES

M S

Variable Lead Type[B13~B21]

- The high-performance variable lead and variable helix angle design can suppress vibration more effectively and achieve higher surface processing quality for superalloys.
- The machining performance is superior for titanium alloys, high-temperature alloys, and stainless steel.
- The cutting edge is designed with high strength to achieve stable cutting.

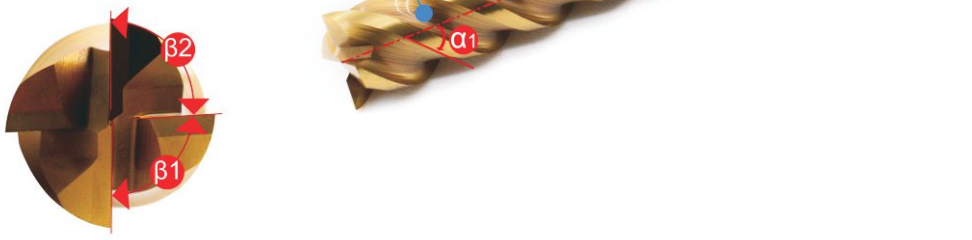
TU45 SERIES

P K

Variable Lead U-shaped Groove Type[B22]

α1=45° β1≠β2
The high-performance variable lead design can effectively suppress vibration and achieve higher surface processing quality for steel and cast iron.

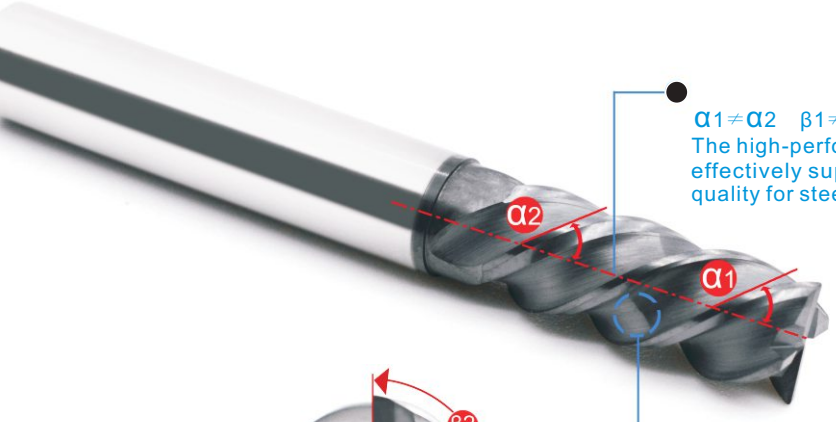
Precise U-shaped groove design ensures smooth chip evacuation in high-speed cutting.



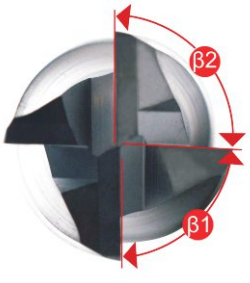
TD3941 SERIES

P K

Variable Lead Double-core Type[B23]



α1≠α2 β1≠β2
The high-performance variable lead and variable helix angle design can effectively suppress vibration and achieve higher surface processing quality for steel and cast iron.



The double-core designed ensures smooth chip removal and high rigidity and high stability of the product during roughing and heavy cutting.
Nanocomposite coating ensures stable machining life even under high temperature machining conditions.

TOTIME48S/L-HA/HB SERIES

P K

Efficient and Powerful Variable Lead Type[B24]

TOTIME48-E SERIES[Inch]

P K

Efficient and Powerful Variable Lead Type[B25~B28]

- Increased process reliability due to stable cutting edges.
- Multifunctional – roughing and finishing with the same tool.
- Well-finished surface on the workpiece.
- Safe chip removal for all cutting edges.
- Low vibration.
- High-Feed.

TCM45 SERIES

P K

Cermet Type[B29~B31]

- Cermet has low density, high wear resistance, excellent chemical stability, good high temperature performance and toughness, suitable for high-speed finishing and semi-finishing cutting.
- In particular, the affinity and friction coefficient between the material and the workpiece material are extremely low, and it is not easy to stick the tools and have built-upedge, making the machined surface more smooth.

TOTIME65 SERIES

H

High Speed and High Hardness Type[B32~B37]

- The special cutter design achieves finishing and semi -finishing cutting of HRC48-65 high hardness materials.
- High-strength, high-toughness ultra-fine-grained base material and ALDUA self-developed coating can eff-ectively improve tool life.

TOTIME48-AL SERIES

N

Non-ferrous Metal Type[B38~B41]

- End mill for aluminum alloy, copper alloy.
- Unique geometry design and unique treatment of rake face enhanced chip evacuation.
- The special edge design prevent the problem of sticking chips on the edge of the tool effectively,to achieve excellent surface processing quality.
- At the same time,TAC coating greatly improves the tool life.

TOTIME3839 SERIES

P K

Variable Lead Roughing Type[B42]

- Suitable for rough machining of ordinary steel and cast iron materials (≤48HRC) with large cutting depth and large cutting width, with high metal removal rate.
- The design of dense teeth and wave teeth with unequal helix angle produces ultra-fine short chips during processing, acheives excellent chip removal performance, low cutting resistance and low machine load.
- Special edge treatment, effectively improve chipping resistance and wear resistance in the roughing process.

TDIA SERIES

N

Diamond Coating for Graphite Type[B43~B46]

- Adopt diamond coating, strengthen bonding between coating and substrate, with high adhesion and high tool toughness.
- High- purity diamond coating film has good wear resistance and ensures long processing life.
- Suitable for semi-finishing and finishing of graphite workpieces such as graphite electrodes and graphite products.

Micro Diameter SERIES

P M K N H

[B47~B55]

TMU SERIES P M K

TMAL SERIES N

TMH SERIES H

- TMU series - high precision universal micro diameter end mill.
- TMAL series - micro diameter end mill for high-precision insert molds, mold electrodes, and precision parts.
- TMH series - micro diameter end mill for processing high hardness and high precision molds.

ZSTNB/ZSTNR SERIES

P H

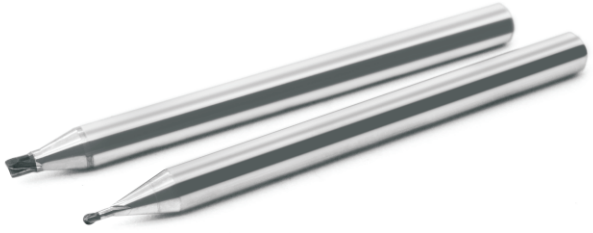
Taper Neck Back Draft Type[B56~B62]

- Suitable for deep groove finishing processing of carbon steel, alloy steel and hardened steel material (hardness ≤HRC65) in precision mold industry.
- High precision in cutting diameter, ball nose profile, R-arc profile and shank.
- Using high-performance TiAlN nano-coating, with high temperature resistance and wear resistance.
- Special angle and long avoidance design.

CBN SERIES

H

Maching high hardness materials HRC50 to HRC70[B63~B80]



- Maching high hardness materials HRC50 to HRC70 into finish process for long times.
- High speed cutting with 20,000rpm and over 20,000rpm of tool and supplying air mist recommended.
- Good cutting ability due to negative rake angle.

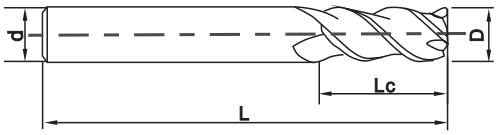
TOTIME Carbide End Mill Cutter
For Steels,Cast Iron

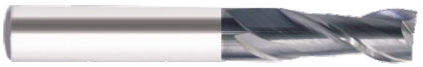
P K

Square End Mill (HRC48)

MG HM | 2 | AlCrSiN | 35° | Square

2 FLUTES SQUARE





2 Flutes	Cobalt 12%	HRC 48	AlCrSiN Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME48-005S-50-2F	0.5	4	1	50	2	▲
TOTIME48-008S-50-2F	0.8	4	2	50	2	▲
TOTIME48-010S-50-2F	1.0	4	3	50	2	▲
TOTIME48-015S-50-2F	1.5	4	5	50	2	▲
TOTIME48-020S-50-1-2F	2.0	4	3	50	2	▲
TOTIME48-020S-50-2-2F	2.0	4	6	50	2	▲
TOTIME48-020S-75-2F	2.0	4	15	75	2	▲
TOTIME48-025S-50-1-2F	2.5	4	6	50	2	▲
TOTIME48-025S-50-2-2F	2.5	4	8	50	2	▲
TOTIME48-030S-04-50-2F	3.0	4	9	50	2	▲
TOTIME48-030S-06-50-2F	3.0	6	9	50	2	▲
TOTIME48-030S-06-75-2F	3.0	6	12	75	2	▲
TOTIME48-040S-04-50-2F	4.0	4	11	50	2	▲
TOTIME48-040S-06-50-2F	4.0	6	11	50	2	▲
TOTIME48-045S-50-1-2F	4.5	6	11	50	2	▲
TOTIME48-045S-50-2-2F	4.5	6	13	50	2	△
TOTIME48-050S-50-2F	5.0	6	13	50	2	▲
TOTIME48-055S-50-2F	5.5	6	16	50	2	▲
TOTIME48-060S-50-2F	6.0	6	16	50	2	▲
TOTIME48-060S-100-2F	6.0	6	20	100	2	▲
TOTIME48-065S-60-2F	6.5	8	16	60	2	▲
TOTIME48-070S-60-2F	7.0	8	20	60	2	▲
TOTIME48-075S-60-2F	7.5	8	20	60	2	△
TOTIME48-080S-60-2F	8.0	8	20	60	2	▲
TOTIME48-080S-100-2F	8.0	8	25	100	2	△
TOTIME48-085S-75-2F	8.5	10	23	75	2	△
TOTIME48-090S-75-2F	9.0	10	23	75	2	▲
TOTIME48-100S-75-2F	10.0	10	25	75	2	▲
TOTIME48-100S-100-2F	10.0	10	30	100	2	▲
TOTIME48-120S-75-2F	12.0	12	30	75	2	▲
TOTIME48-120S-100-2F	12.0	12	35	100	2	▲
TOTIME48-160S-150-2F	16.0	16	36	150	2	▲
TOTIME48-200S-150-2F	20.0	20	45	150	2	△

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B81

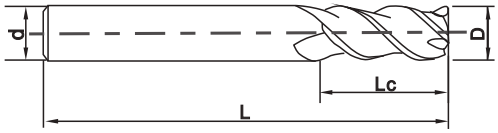
TOTIME Carbide End Mill Cutter
For Steels,Cast Iron

P K

Square End Mill (HRC48)

MG HM | 4 | AlCrSiN | 35° | Square | L

4 FLUTES SQUARE



4Flutes	Cobalt 12%	HRC 48	AlCrSiN Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME48-010S-50-4F	1.0	4	3	50	4	▲
TOTIME48-015S-04-50-4F	1.5	4	5	50	4	▲
TOTIME48-015S-06-50-4F	1.5	6	5	50	4	▲
TOTIME48-020S-04-50-4F	2.0	4	6	50	4	▲
TOTIME48-020S-06-50-4F	2.0	6	6	50	4	▲
TOTIME48-025S-04-50-4F	2.5	4	8	50	4	▲
TOTIME48-025S-06-50-4F	2.5	6	8	50	4	▲
TOTIME48-030S-03-50-4F	3.0	3	9	50	4	▲
TOTIME48-030S-04-50-4F	3.0	4	9	50	4	▲
TOTIME48-030S-06-50-1-4F	3.0	6	6	50	4	▲
TOTIME48-030S-06-50-2-4F	3.0	6	9	50	4	▲
TOTIME48-030S-75-4F	3.0	4	12	75	4	▲
TOTIME48-031S-50-4F	3.1	4	9	50	4	▲
TOTIME48-035S-50-4F	3.5	4	11	50	4	▲
TOTIME48-040S-04-50-4F	4.0	4	11	50	4	▲
TOTIME48-040S-06-50-4F	4.0	6	11	50	4	▲
TOTIME48-040S-75-4F	4.0	4	15	75	4	▲
TOTIME48-045S-50-4F	4.5	6	11	50	4	▲
TOTIME48-050S-05-50-4F	5.0	5	13	50	4	▲
TOTIME48-050S-06-50-1-4F	5.0	6	8	50	4	▲
TOTIME48-050S-06-50-2-4F	5.0	6	13	50	4	▲
TOTIME48-050S-75-4F	5.0	6	20	75	4	▲
TOTIME48-055S-50-4F	5.5	6	16	50	4	▲
TOTIME48-060S-50-1-4F	6.0	6	16	50	4	▲
TOTIME48-060S-50-2-4F	6.0	6	18	50	4	▲
TOTIME48-060S-75-4F	6.0	6	20	75	4	▲
TOTIME48-060S-75-2-4F	6.0	6	30	75	4	▲
TOTIME48-065S-60-4F	6.5	8	16	60	4	△
TOTIME48-070S-60-4F	7.0	8	20	60	4	▲
TOTIME48-075S-60-4F	7.5	8	20	60	4	△
TOTIME48-080S-60-1-4F	8.0	8	20	60	4	▲
TOTIME48-080S-60-2-4F	8.0	8	24	60	4	△
TOTIME48-080S-100-4F	8.0	8	25	100	4	▲

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B82

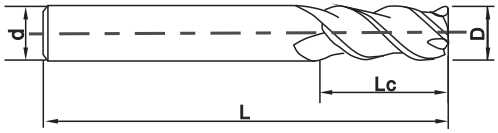
TOTIME Carbide End Mill Cutter
For Steels,Cast Iron

P K

Square End Mill (HRC48)

MG HM | 4 | 6 | AlCrSiN | 35° | Square | L

4/6 FLUTES SQUARE



4Flutes 6Flutes	Cobalt 12%	HRC 48	AlCrSiN Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME48-085S-75-4F	8.5	10	23	75	4	▲
TOTIME48-090S-75-4F	9.0	10	23	75	4	▲
TOTIME48-095S-75-4F	9.5	10	25	75	4	▲
TOTIME48-100S-75-4F	10.0	10	25	75	4	▲
TOTIME48-100S-100-4F	10.0	10	30	100	4	▲
TOTIME48-110S-75-4F	11.0	12	28	75	4	▲
TOTIME48-120S-75-4F	12.0	12	30	75	4	▲
TOTIME48-120S-100-4F	12.0	12	35	100	4	▲
TOTIME48-130S-100-4F	13.0	14	32	100	4	△
TOTIME48-140S-75-4F	14.0	14	32	75	4	▲
TOTIME48-140S-100-4F	14.0	14	34	100	4	△
TOTIME48-150S-100-4F	15.0	16	36	100	4	▲
TOTIME48-160S-100-4F	16.0	16	36	100	4	▲
TOTIME48-180S-100-4F	18.0	18	45	100	4	▲
TOTIME48-180S-150-4F	18.0	18	70	150	4	▲
TOTIME48-200S-100-4F	20.0	20	45	100	4	▲
TOTIME48-200S-150-4F	20.0	20	70	150	4	△
TOTIME48-060S-50-6F	6.0	6	15	50	6	▲
TOTIME48-080S-60-6F	8.0	8	20	60	6	▲
TOTIME48-100S-75-6F	10.0	10	25	75	6	▲
TOTIME48-120S-75-6F	12.0	12	30	75	6	▲
TOTIME48-160S-100-6F	16.0	16	36	100	6	▲
TOTIME48-200S-100-6F	20.0	20	45	100	6	▲

Tolerance:D≤12 -0. 02~0 D＞12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B82

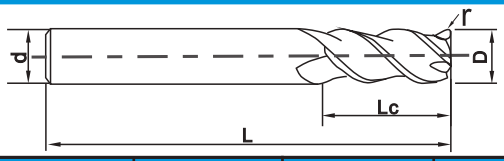
TOTIME Carbide End Mill Cutter
For Steels,Cast Iron

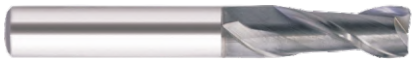
P K

Corner Radius End Mill (HRC48)

MG HM | 2 | AlCrSiN | 35° | Corner-R

2 FLUTES CORNER RADIUS





2Flutes	Cobalt 12%	HRC 48	AlCrSiN Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Stock
TOTIME48-010CR002-50-2F	1.0	0.2	4	3	50	▲
TOTIME48-015CR002-50-2F	1.5	0.2	4	5	50	▲
TOTIME48-020CR002-50-2F	2.0	0.2	4	6	50	▲
TOTIME48-030CR002-04-50-2F	3.0	0.2	4	9	50	△
TOTIME48-030CR002-06-50-2F	3.0	0.2	6	9	50	▲
TOTIME48-030CR003-04-50-2F	3.0	0.3	4	9	50	△
TOTIME48-030CR003-06-50-2F	3.0	0.3	6	9	50	▲
TOTIME48-030CR005-04-50-2F	3.0	0.5	4	9	50	△
TOTIME48-030CR005-06-50-2F	3.0	0.5	6	9	50	△
TOTIME48-040CR002-04-50-2F	4.0	0.2	4	11	50	△
TOTIME48-040CR002-06-50-2F	4.0	0.2	6	11	50	▲
TOTIME48-040CR003-04-50-2F	4.0	0.3	4	11	50	△
TOTIME48-040CR003-06-50-2F	4.0	0.3	6	11	50	▲
TOTIME48-040CR005-04-50-2F	4.0	0.5	4	11	50	△
TOTIME48-040CR005-06-50-2F	4.0	0.5	6	11	50	▲
TOTIME48-040CR010-50-2F	4.0	1.0	4	11	50	▲
TOTIME48-050CR002-50-2F	5.0	0.2	6	13	50	▲
TOTIME48-050CR003-50-2F	5.0	0.3	6	13	50	△
TOTIME48-050CR005-50-2F	5.0	0.5	6	13	50	△
TOTIME48-050CR010-50-2F	5.0	1.0	6	13	50	▲
TOTIME48-060CR005-50 -2F	6.0	0.5	6	16	50	▲
TOTIME48-060CR010-50-2F	6.0	1.0	6	16	50	△
TOTIME48-060CR015-50-2F	6.0	1.5	6	16	50	△
TOTIME48-060CR020-50-2F	6.0	2.0	6	16	50	△
TOTIME48-060CR010-75-2F	6.0	1.0	6	16	75	▲
TOTIME48-060CR015-75-2F	6.0	1.5	6	16	75	△
TOTIME48-080CR003-60-2F	8.0	0.3	8	20	60	△
TOTIME48-080CR010-60-2F	8.0	1.0	8	20	60	▲
TOTIME48-080CR015-60-2F	8.0	1.5	8	20	60	△
TOTIME48-080CR020-60-2F	8.0	2.0	8	20	60	△
TOTIME48-080CR005-75-2F	8.0	0.5	8	20	75	▲
TOTIME48-080CR010-75-2F	8.0	1.0	8	20	75	▲
TOTIME48-080CR002-100-2F	8.0	0.2	8	20	100	▲
TOTIME48-080CR005-100-2F	8.0	0.5	8	20	100	△
TOTIME48-100CR003-75-2F	10.0	0.3	10	25	75	▲

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B81

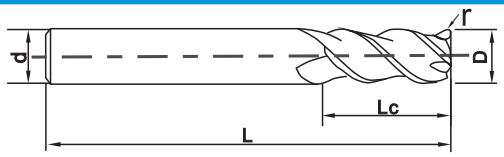
TOTIME Carbide End Mill Cutter
For Steels,Cast Iron

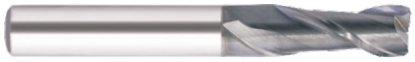
P K

Corner Radius End Mill (HRC48)

MG HM | 2 | AlCrSiN | 35° | Corner-R

2 FLUTES CORNER RADIUS





2Flutes	Cobalt 12%	HRC 48	AlCrSiN Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Stock
TOTIME48-100CR005-75-2F	10	0.5	10	25	75	△
TOTIME48-100CR010-75-2F	10	1.0	10	25	75	▲
TOTIME48-100CR015-75-2F	10	1.5	10	25	75	△
TOTIME48-100CR020-75-2F	10	2.0	10	25	75	△
TOTIME48-100CR030-75-2F	10	3.0	10	25	75	△
TOTIME48-100CR010-100-2F	10	1.0	10	25	100	▲
TOTIME48-120CR005-75-2F	12	0.5	12	30	75	▲
TOTIME48-120CR010-75-2F	12	1.0	12	30	75	△
TOTIME48-120CR015-75-2F	12	1.5	12	30	75	△
TOTIME48-120CR020-75-2F	12	2.0	12	30	75	▲
TOTIME48-120CR030-75-2F	12	3.0	12	30	75	▲
TOTIME48-160CR005-100-2F	16	0.5	16	36	100	△
TOTIME48-160CR010-100-2F	16	1.0	16	36	100	▲
TOTIME48-160CR020-100-2F	16	2.0	16	36	100	△
TOTIME48-160CR030-100-2F	16	3.0	16	36	100	△
TOTIME48-160CR020-150-2F	16	2.0	16	36	150	△

Tolerance:D≤12 -0. 02~0 D＞12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B81

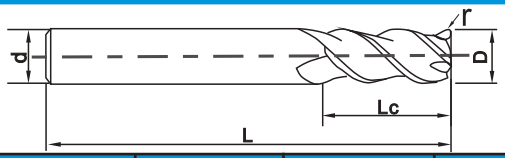
TOTIME Carbide End Mill Cutter
For Steels,Cast Iron

P K

Corner Radius End Mill (HRC48)

MG HM | 4 | AlCrSiN | 35° | Corner-R | L

4 FLUTES CORNER RADIUS



4Flutes	Cobalt 12%	HRC 48	AlCrSiN Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Stock
TOTIME48-010CR002-50-4F	1.0	0.2	4	3	50	▲
TOTIME48-015CR002-50-4F	1.5	0.2	4	5	50	▲
TOTIME48-020CR002-50-4F	2.0	0.2	4	6	50	▲
TOTIME48-030CR002-50-1-4F	3.0	0.2	4	6	50	▲
TOTIME48-030CR002-50-2-4F	3.0	0.2	4	9	50	△
TOTIME48-030CR003-50-4F	3.0	0.3	4	9	50	△
TOTIME48-030CR005-50-4F	3.0	0.5	4	9	50	▲
TOTIME48-030CR005-75-4F	3.0	0.5	4	9	75	▲
TOTIME48-040CR002-50-1-4F	4.0	0.2	4	6	50	▲
TOTIME48-040CR002-50-2-4F	4.0	0.2	4	11	50	▲
TOTIME48-040CR003-50-4F	4.0	0.3	4	11	50	▲
TOTIME48-040CR005-50-4F	4.0	0.5	4	11	50	▲
TOTIME48-040CR005-75-4F	4.0	0.5	4	11	75	▲
TOTIME48-040CR010-50-4F	4.0	1.0	4	11	50	△
TOTIME48-045CR010-50-4F	4.5	1.0	6	12	50	▲
TOTIME48-050CR002-06-50-4F	5.0	0.2	6	13	50	▲
TOTIME48-050CR005-05-50-4F	5.0	0.5	5	13	50	▲
TOTIME48-050CR005-06-50-4F	5.0	0.5	6	13	50	△
TOTIME48-050CR010-05-50-4F	5.0	1.0	5	13	50	△
TOTIME48-050CR010-06-50-4F	5.0	1.0	6	13	50	△
TOTIME48-050CR015-50-4F	5.0	1.5	6	13	50	△
TOTIME48-060CR002-50-4F	6.0	0.2	6	16	50	▲
TOTIME48-060CR005-50-1-4F	6.0	0.5	6	9	50	▲
TOTIME48-060CR005-50-2-4F	6.0	0.5	6	16	50	▲
TOTIME48-060CR010-50-4F	6.0	1.0	6	16	50	▲
TOTIME48-060CR015-50-4F	6.0	1.5	6	16	50	△
TOTIME48-060CR005-75-4F	6.0	0.5	6	16	75	▲
TOTIME48-060CR010-75-4F	6.0	1.0	6	16	75	▲
TOTIME48-060CR015-75-4F	6.0	1.5	6	16	75	△
TOTIME48-080CR003-60-4F	8.0	0.3	8	20	60	▲
TOTIME48-080CR005-60-4F	8.0	0.5	8	20	60	△
TOTIME48-080CR010-60-4F	8.0	1.0	8	20	60	▲
TOTIME48-080CR015-60-4F	8.0	1.5	8	20	60	△
TOTIME48-080CR020-60-4F	8.0	2.0	8	20	60	▲
TOTIME48-080CR005-75-4F	8.0	0.5	8	20	75	△

Tolerance:D≤12 -0. 02~0 D＞12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B82

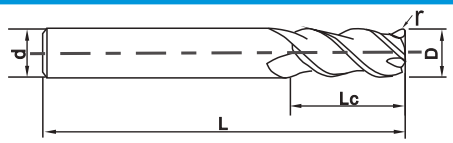
TOTIME Carbide End Mill Cutter
For Steels,Cast Iron

P K

Corner Radius End Mill (HRC48)

MG HM | 4 | AlCrSiN | 35° | Corner-R | L

4 FLUTES CORNER RADIUS



4Flutes	Cobalt 12%	HRC 48	AlCrSiN Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Stock
TOTIME48-080CR010-75-4F	8	1.0	8	20	75	▲
TOTIME48-080CR005-100-4F	8	0.5	8	20	100	▲
TOTIME48-080CR010-100-4F	8	1.0	8	20	100	△
TOTIME48-080CR015-100-4F	8	1.5	8	20	100	△
TOTIME48-080CR020-100-4F	8	2.0	8	20	100	△
TOTIME48-100CR002-75-4F	10	0.2	10	25	75	△
TOTIME48-100CR003-75-4F	10	0.3	10	25	75	△
TOTIME48-100CR005-75-4F	10	0.5	10	25	75	▲
TOTIME48-100CR010-75-4F	10	1.0	10	25	75	▲
TOTIME48-100CR015-75-4F	10	1.5	10	25	75	△
TOTIME48-100CR020-75-4F	10	2.0	10	25	75	▲
TOTIME48-100CR025-75-4F	10	2.5	10	25	75	▲
TOTIME48-100CR030-75-4F	10	3.0	10	25	75	△
TOTIME48-100CR005-100-4F	10	0.5	10	25	100	▲
TOTIME48-100CR010-100-4F	10	1.0	10	25	100	▲
TOTIME48-100CR015-100-4F	10	1.5	10	25	100	△
TOTIME48-100CR020-100-4F	10	2.0	10	25	100	△
TOTIME48-120CR005-75-4F	12	0.5	12	30	75	▲
TOTIME48-120CR010-75-4F	12	1.0	12	30	75	▲
TOTIME48-120CR015-75-4F	12	1.5	12	30	75	▲
TOTIME48-120CR020-75-4F	12	2.0	12	30	75	▲
TOTIME48-120CR025-75-4F	12	2.5	12	30	75	▲
TOTIME48-120CR030-75-4F	12	3.0	12	30	75	▲
TOTIME48-120CR005-100-4F	12	0.5	12	30	100	△
TOTIME48-120CR010-100-4F	12	1.0	12	30	100	▲
TOTIME48-120CR015-100-4F	12	1.5	12	30	100	△
TOTIME48-120CR020-100-4F	12	2.0	12	30	100	▲
TOTIME48-120CR030-100-4F	12	3.0	12	30	100	△
TOTIME48-160CR005-100-4F	16	0.5	16	36	100	△
TOTIME48-160CR010-100-4F	16	1.0	16	36	100	▲
TOTIME48-160CR020-100-4F	16	2.0	16	36	100	△
TOTIME48-160CR030-100-4F	16	3.0	16	36	100	△
TOTIME48-160CR005-150-4F	16	0.5	16	36	150	△
TOTIME48-160CR010-150-4F	16	1.0	16	36	150	▲
TOTIME48-160CR015-150-4F	16	1.5	16	36	150	△
TOTIME48-160CR020-150-4F	16	2.0	16	36	150	△
TOTIME48-160CR030-150-4F	16	3.0	16	36	150	△

Tolerance:D≤12 -0. 02~0 D＞12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B82

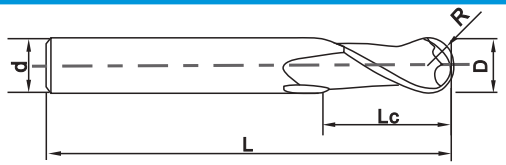
TOTIME Carbide End Mill Cutter
For Steels,Cast Iron

P K

Ball Nose End Mill (HRC48)

MG HM | 2 | AlCrSiN | 30° | Ball Nose

2 FLUTES BALL NOSE



2Flutes	Cobalt 12%	HRC 48	AlCrSiN Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Stock
TOTIME48-008B-50-2F	0.8	0.40	4	1.6	50	▲
TOTIME48-009B-50-2F	0.9	0.45	4	1.8	50	▲
TOTIME48-010B-50-2F	1.0	0.50	4	2.0	50	▲
TOTIME48-015B-50-2F	1.5	0.75	4	3.0	50	▲
TOTIME48-020B-04-50-2F	2.0	1.00	4	4.0	50	▲
TOTIME48-020B-06-50-2F	2.0	1.00	6	4.0	50	△
TOTIME48-020B-04-75-2F	2.0	1.00	4	4.0	75	▲
TOTIME48-020B-06-75-2F	2.0	1.00	6	4.0	75	▲
TOTIME48-025B-50-2F	2.5	1.25	4	5.0	50	△
TOTIME48-030B-04-50-2F	3.0	1.50	4	6.0	50	▲
TOTIME48-030B-06-50-2F	3.0	1.50	6	6.0	50	▲
TOTIME48-030B-04-75-2F	3.0	1.50	4	6.0	75	▲
TOTIME48-030B-06-75-2F	3.0	1.50	6	6.0	75	▲
TOTIME48-040B-04-50-2F	4.0	2.00	4	8.0	50	▲
TOTIME48-040B-06-50-2F	4.0	2.00	6	8.0	50	▲
TOTIME48-040B-04-75-2F	4.0	2.00	4	8.0	75	▲
TOTIME48-040B-06-75-2F	4.0	2.00	6	8.0	75	▲
TOTIME48-050B-50-2F	5.0	2.50	6	10.0	50	▲
TOTIME48-050B-75-2F	5.0	2.50	6	10.0	75	▲
TOTIME48-060B-50-2F	6.0	3.00	6	12.0	50	▲
TOTIME48-060B-75-2F	6.0	3.00	6	12.0	75	▲
TOTIME48-070B-60-2F	7.0	3.50	8	14.0	60	▲
TOTIME48-070B-100-2F	7.0	3.50	8	14.0	100	▲

Tolerance:R≤1. 5 -0. 01~0 1. 5<R<3 -0. 015~0 R≥3 -0. 02~0

▲Stock △Non-Stock
Recommended Cutting Conditions B83

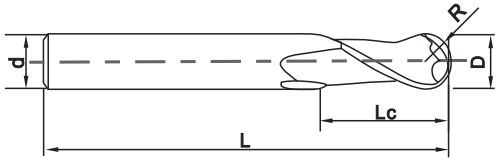
TOTIME Carbide End Mill Cutter
For Steels,Cast Iron

P K

Ball Nose End Mill (HRC48)

MG HM | 2 | AlCrSiN | 30° | Ball Nose

2 FLUTES BALL NOSE



2Flutes	Cobalt 12%	HRC 48	AlCrSiN Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Stock
TOTIME48-080B-60-2F	8	4.0	8	14	60	▲
TOTIME48-080B-75-2F	8	4.0	8	14	75	▲
TOTIME48-080B-100-2F	8	4.0	8	14	100	▲
TOTIME48-090B-75-2F	9	4.5	10	16	75	▲
TOTIME48-090B-100-2F	9	4.5	10	16	100	▲
TOTIME48-100B-75-2F	10	5.0	10	18	75	▲
TOTIME48-100B-100-2F	10	5.0	10	18	100	▲
TOTIME48-110B-75-2F	11	5.5	12	20	75	▲
TOTIME48-110B-100-2F	11	5.5	12	20	100	▲
TOTIME48-120B-75-2F	12	6.0	12	22	75	▲
TOTIME48-120B-100-2F	12	6.0	12	22	100	▲
TOTIME48-130B-100-2F	13	6.5	14	26	100	▲
TOTIME48-140B-100-2F	14	7.0	14	26	100	▲
TOTIME48-150B-100-2F	15	7.5	16	30	100	▲
TOTIME48-160B-100-2F	16	8.0	16	30	100	▲
TOTIME48-200B-100-2F	20	10.0	20	38	100	▲

Tolerance:R≤1. 5 -0. 01~0 1. 5＜R＜3 -0. 015~0 R≥3 -0. 02~0

▲Stock △Non-Stock

Recommended Cutting Conditions B83

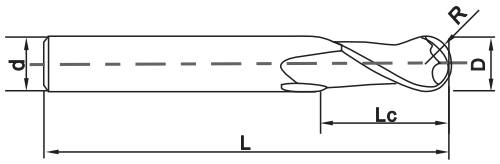
TOTIME Carbide End Mill Cutter
For Steels,Cast Iron

P K

Ball Nose End Mill (HRC48)

MG HM | 4 | AlCrSiN | 30° | Ball Nose

4 FLUTES BALL NOSE



4Flutes	Cobalt 12%	HRC 48	AlCrSiN Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Stock
TOTIME48-020B-04-50-4F	2.0	1.00	4	4	50	▲
TOTIME48-025B-50-4F	2.5	1.25	4	5	50	▲
TOTIME48-030B-03-50-4F	3.0	1.50	3	6	50	▲
TOTIME48-030B-04-50-4F	3.0	1.50	4	6	50	△
TOTIME48-030B-06-50-4F	3.0	1.50	6	6	50	▲
TOTIME48-040B-04-50-4F	4.0	2.00	4	8	50	▲
TOTIME48-040B-06-50-4F	4.0	2.00	6	8	50	▲
TOTIME48-050B-05-50-4F	5.0	2.50	5	10	50	△
TOTIME48-050B-06-50-4F	5.0	2.50	6	10	50	▲
TOTIME48-060B-50-4F	6.0	3.00	6	12	50	▲
TOTIME48-060B-100-4F	6.0	3.00	6	12	100	▲
TOTIME48-060B-150-4F	6.0	3.00	6	12	150	▲
TOTIME48-070B-60-4F	7.0	3.50	8	14	60	▲
TOTIME48-080B-60-4F	8.0	4.00	8	14	60	▲
TOTIME48-080B-100-4F	8.0	4.00	8	14	100	▲
TOTIME48-090B-75-4F	9.0	4.50	10	16	75	▲
TOTIME48-100B-75-4F	10.0	5.00	10	18	75	▲
TOTIME48-110B-75-4F	11.0	5.50	12	20	75	▲
TOTIME48-120B-75-4F	12.0	6.00	12	22	75	▲
TOTIME48-120B-100-4F	12.0	6.00	12	22	100	▲
TOTIME48-120B-150-4F	12.0	6.00	12	22	150	▲
TOTIME48-140B-75-4F	14.0	7.00	14	24	75	▲
TOTIME48-160B-100-4F	16.0	8.00	16	30	100	▲
TOTIME48-200B-100-4F	20.0	10.00	20	38	100	▲

Tolerance:R≤1. 5 -0. 01~0 1. 5＜R＜3 -0. 015~0 R≥3 -0. 02~0

▲Stock △Non-Stock

Recommended Cutting Conditions B83

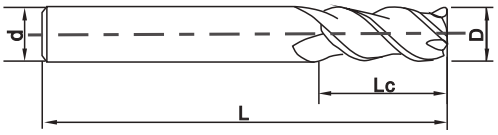
TOTIME Carbide End Mill Cutter
For Steels,Cast Iron

P K

Variable Helix Square End Mill(HRC48)

MG HM | 4 | AlCrSiN | 35°/38° | Square | L

4 FLUTES SQUARE



4Flutes	Cobalt 12%	HRC 48	AlCrSiN Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●				○	

Order No.	D（mm）	d（mm）	Lc（mm）	L(mm）	Flutes	Stock
TOTIME3538-020S-50-4F	2.0	4	6	50	4	▲
TOTIME3538-030S-50-4F	3.0	4	9	50	4	▲
TOTIME3538-040S-50-4F	4.0	4	11	50	4	▲
TOTIME3538-040S-06-50-4F	4.0	6	11	50	4	▲
TOTIME3538-040S-75-4F	4.0	6	15	75	4	▲
TOTIME3538-050S-50-4F	5.0	6	13	50	4	▲
TOTIME3538-050S-75-4F	5.0	6	20	75	4	▲
TOTIME3538-055S-50-4F	5.5	6	16	50	4	▲
TOTIME3538-060S-50-4F	6.0	6	16	50	4	▲
TOTIME3538-060S-75-4F	6.0	6	20	75	4	▲
TOTIME3538-070S-60-4F	7.0	8	20	60	4	▲
TOTIME3538-080S-60-4F	8.0	8	16	60	4	▲
TOTIME3538-080S-60-1-4F	8.0	8	20	60	4	▲
TOTIME3538-080S-60-2-4F	8.0	8	25	60	4	▲
TOTIME3538-080S-75-4F	8.0	8	25	75	4	▲
TOTIME3538-080S-100-4F	8.0	8	25	100	4	▲
TOTIME3538-100S-75-4F	10.0	10	25	75	4	▲
TOTIME3538-100S-75-1-4F	10.0	10	20	75	4	▲
TOTIME3538-100S-75-2-4F	10.0	10	30	75	4	▲
TOTIME3538-100S-100-4F	10.0	10	30	100	4	▲
TOTIME3538-120S-75-4F	12.0	12	30	75	4	▲
TOTIME3538-120S-75-1-4F	12.0	12	24	75	4	▲
TOTIME3538-120S-100-4F	12.0	12	35	100	4	▲
TOTIME3538-140S-75-4F	14.0	14	32	75	4	▲
TOTIME3538-140S-100-4F	14.0	14	40	100	4	▲
TOTIME3538-160S-100-4F	16.0	16	36	100	4	▲
TOTIME3538-160S-150-4F	16.0	16	50	150	4	▲
TOTIME3538-180S-100-4F	18.0	18	45	100	4	▲
TOTIME3538-180S-150-4F	18.0	18	50	150	4	▲
TOTIME3538-200S-100-4F	20.0	20	45	100	4	▲
TOTIME3538-200S-150-4F	20.0	20	50	150	4	▲

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B84

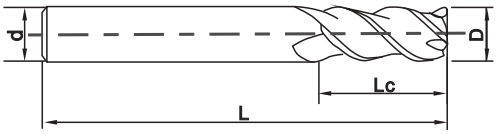
TOTIME Carbide End Mill Cutter
For Stainless Steels

M

Variable Helix Square End Mill(HRC48)

MG HM | 4 | TiSiAlN | 36°/38° | Square | L

4 FLUTES SQUARE



4Flutes	Cobalt 12%	HRC 48	TiSiAlN Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
				●		

Order No.	D（mm）	d（mm）	Lc（mm）	L(mm)	Flutes	Stock
TOTIME3638-020S-50-4F	2.0	4	6	50	4	▲
TOTIME3638-030S-50-4F	3.0	4	9	50	4	▲
TOTIME3638-040S-50-4F	4.0	4	12	50	4	▲
TOTIME3638-040S-06-50-4F	4.0	6	12	50	4	▲
TOTIME3638-040S-75-4F	4.0	6	12	75	4	▲
TOTIME3638-050S-50-4F	5.0	6	13	50	4	▲
TOTIME3638-050S-75-4F	5.0	6	20	75	4	▲
TOTIME3638-055S-50-4F	5.5	6	16	50	4	▲
TOTIME3638-060S-50-4F	6.0	6	18	50	4	▲
TOTIME3638-060S-75-4F	6.0	6	18	75	4	▲
TOTIME3638-070S-60-4F	7.0	8	20	60	4	▲
TOTIME3638-080S-60-4F	8.0	8	16	60	4	▲
TOTIME3638-080S-60-1-4F	8.0	8	20	60	4	▲
TOTIME3638-080S-60-2-4F	8.0	8	24	60	4	▲
TOTIME3638-080S-75-4F	8.0	8	24	75	4	▲
TOTIME3638-080S-100-4F	8.0	8	32	100	4	▲
TOTIME3638-100S-75-4F	10.0	10	25	75	4	▲
TOTIME3638-100S-75-1-4F	10.0	10	20	75	4	▲
TOTIME3638-100S-75-2-4F	10.0	10	30	75	4	▲
TOTIME3638-100S-100-4F	10.0	10	40	100	4	▲
TOTIME3638-120S-75-4F	12.0	12	36	75	4	▲
TOTIME3638-120S-75-1-4F	12.0	12	24	75	4	▲
TOTIME3638-120S-100-4F	12.0	12	40	100	4	▲
TOTIME3638-140S-75-4F	14.0	14	32	75	4	▲
TOTIME3638-140S-100-4F	14.0	14	40	100	4	▲
TOTIME3638-160S-100-4F	16.0	16	36	100	4	▲
TOTIME3638-160S-150-4F	16.0	16	50	150	4	▲
TOTIME3638-180S-100-4F	18.0	18	45	100	4	▲
TOTIME3638-180S-150-4F	18.0	18	50	150	4	▲
TOTIME3638-200S-100-4F	20.0	20	45	100	4	▲
TOTIME3638-200S-150-4F	20.0	20	50	150	4	▲

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B96

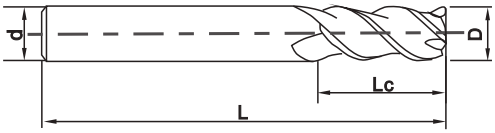
TOTIME Carbide End Mill Cutter
For Stainless Steels,Heat Resistant Material,Titanium Alloys

M S

Variable Lead Square End Mill(HRC48)

MG HM | 2 | GS | 35°/38° | Square

2 FLUTES SQUARE [1.5D]



2 Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME3538-MS010S-50-2F-1.5D	1.0	4	1.5	50	2	△
TOTIME3538-MS015S-50-2F-1.5D	1.5	4	2.3	50	2	△
TOTIME3538-MS020S-50-2F-1.5D	2.0	4	3.0	50	2	▲
TOTIME3538-MS030S-50-2F-1.5D	3.0	4	4.5	50	2	▲
TOTIME3538-MS040S-50-2F-1.5D	4.0	4	6.0	50	2	△
TOTIME3538-MS040S-75-2F-1.5D	4.0	4	6.0	75	2	▲
TOTIME3538-MS050S-50-2F-1.5D	5.0	6	7.5	50	2	△
TOTIME3538-MS060S-50-2F-1.5D	6.0	6	9.0	50	2	△
TOTIME3538-MS060S-75-2F-1.5D	6.0	6	9.0	75	2	▲
TOTIME3538-MS060S-100-2F-1.5D	6.0	6	9.0	100	2	△
TOTIME3538-MS080S-60-2F-1.5D	8.0	8	12.0	60	2	△
TOTIME3538-MS080S-75-2F-1.5D	8.0	8	12.0	75	2	△
TOTIME3538-MS080S-100-2F-1.5D	8.0	8	12.0	100	2	▲
TOTIME3538-MS100S-75-2F-1.5D	10.0	10	15.0	75	2	△
TOTIME3538-MS100S-100-2F-1.5D	10.0	10	15.0	100	2	▲
TOTIME3538-MS120S-75-2F-1.5D	12.0	12	18.0	75	2	△
TOTIME3538-MS120S-100-2F-1.5D	12.0	12	18.0	100	2	▲
TOTIME3538-MS160S-100-2F-1.5D	16.0	16	24.0	100	2	△
TOTIME3538-MS160S-150-2F-1.5D	16.0	16	24.0	150	2	△
TOTIME3538-MS200S-100-2F-1.5D	20.0	20	30.0	100	2	△
TOTIME3538-MS200S-150-2F-1.5D	20.0	20	30.0	150	2	△

Tolerance:D≤12 -0. 02~0 D＞12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B85~B86

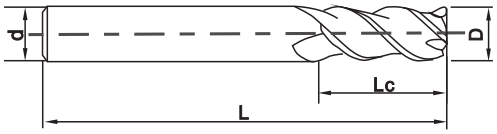
TOTIME Carbide End Mill Cutter
For Stainless Steels,Heat Resistant Material,Titanium Alloys

M S

Variable Lead Square End Mill(HRC48)

MG HM | 2 | GS | 35°/38° | Square

2 FLUTES SQUARE [3D]



2 Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME3538-MS010S-50-2F-3D	1.0	4	3.0	50	2	△
TOTIME3538-MS015S-50-2F-3D	1.5	4	4.5	50	2	△
TOTIME3538-MS020S-50-2F-3D	2.0	4	6.0	50	2	△
TOTIME3538-MS030S-50-2F-3D	3.0	4	9.0	50	2	△
TOTIME3538-MS040S-50-2F-3D	4.0	4	12.0	50	2	△
TOTIME3538-MS040S-75-2F-3D	4.0	4	12.0	75	2	▲
TOTIME3538-MS050S-50-2F-3D	5.0	6	15.0	50	2	△
TOTIME3538-MS060S-50-2F-3D	6.0	6	18.0	50	2	△
TOTIME3538-MS060S-75-2F-3D	6.0	6	18.0	75	2	▲
TOTIME3538-MS060S-100-2F-3D	6.0	6	18.0	100	2	△
TOTIME3538-MS080S-60-2F-3D	8.0	8	24.0	60	2	△
TOTIME3538-MS080S-75-2F-3D	8.0	8	24.0	75	2	△
TOTIME3538-MS080S-100-2F-3D	8.0	8	24.0	100	2	▲
TOTIME3538-MS100S-75-2F-3D	10.0	10	30.0	75	2	△
TOTIME3538-MS100S-100-2F-3D	10.0	10	30.0	100	2	▲
TOTIME3538-MS120S-75-2F-3D	12.0	12	36.0	75	2	△
TOTIME3538-MS120S-100-2F-3D	12.0	12	36.0	100	2	▲
TOTIME3538-MS160S-100-2F-3D	16.0	16	48.0	100	2	▲
TOTIME3538-MS160S-150-2F-3D	16.0	16	48.0	150	2	△
TOTIME3538-MS200S-100-2F-3D	20.0	20	60.0	100	2	△
TOTIME3538-MS200S-150-2F-3D	20.0	20	60.0	150	2	△

Tolerance:D≤12 -0. 02~0 D＞12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B85~B86

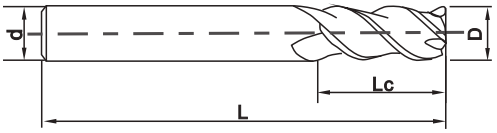
TOTIME Carbide End Mill Cutter
For Stainless Steels,Heat Resistant Material,Titanium Alloys

M S

Variable Lead Square End Mill(HRC48)

MG HM | 4 | GS | 35°/38° | Square | L

4 FLUTES SQUARE [2.5D]



4Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME3538-MS010S-50-4F-2.5D	1.0	4	2.5	50	4	▲
TOTIME3538-MS015S-50-4F-2.5D	1.5	4	3.8	50	4	▲
TOTIME3538-MS020S-50-4F-2.5D	2.0	4	5.0	50	4	▲
TOTIME3538-MS030S-50-4F-2.5D	3.0	4	8.0	50	4	▲
TOTIME3538-MS040S-50-4F-2.5D	4.0	4	10.0	50	4	▲
TOTIME3538-MS040S-75-4F-2.5D	4.0	4	10.0	75	4	△
TOTIME3538-MS050S-50-4F-2.5D	5.0	6	12.0	50	4	▲
TOTIME3538-MS060S-50-4F-2.5D	6.0	6	15.0	50	4	▲
TOTIME3538-MS060S-75-4F-2.5D	6.0	6	15.0	75	4	▲
TOTIME3538-MS060S-100-4F-2.5D	6.0	6	15.0	100	4	△
TOTIME3538-MS080S-60-4F-2.5D	8.0	8	20.0	60	4	▲
TOTIME3538-MS080S-75-4F-2.5D	8.0	8	20.0	75	4	△
TOTIME3538-MS080S-100-4F-2.5D	8.0	8	20.0	100	4	△
TOTIME3538-MS100S-75-4F-2.5D	10.0	10	25.0	75	4	▲
TOTIME3538-MS100S-100-4F-2.5D	10.0	10	25.0	100	4	△
TOTIME3538-MS120S-75-4F-2.5D	12.0	12	30.0	75	4	▲
TOTIME3538-MS120S-100-4F-2.5D	12.0	12	30.0	100	4	△
TOTIME3538-MS160S-100-4F-2.5D	16.0	16	40.0	100	4	▲
TOTIME3538-MS160S-150-4F-2.5D	16.0	16	40.0	150	4	△
TOTIME3538-MS200S-100-4F-2.5D	20.0	20	50.0	100	4	△
TOTIME3538-MS200S-150-4F-2.5D	20.0	20	50.0	150	4	△

Tolerance:D≤12 -0. 02~0 D＞12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B85

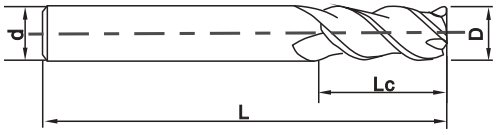
TOTIME Carbide End Mill Cutter
For Stainless Steels,Heat Resistant Material,Titanium Alloys

M S

Variable Lead Square End Mill(HRC48)

MG HM | 4 | GS | 35°/38° | Square | L

4 FLUTES SQUARE [3D]



4Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME3538-MS010S-50-4F-3D	1.0	4	3.0	50	4	▲
TOTIME3538-MS015S-50-4F-3D	1.5	4	4.5	50	4	△
TOTIME3538-MS020S-50-4F-3D	2.0	4	6.0	50	4	△
TOTIME3538-MS030S-50-4F-3D	3.0	4	9.0	50	4	▲
TOTIME3538-MS040S-50-4F-3D	4.0	4	12.0	50	4	△
TOTIME3538-MS040S-75-4F-3D	4.0	4	12.0	75	4	△
TOTIME3538-MS050S-50-4F-3D	5.0	6	15.0	50	4	▲
TOTIME3538-MS060S-50-4F-3D	6.0	6	18.0	50	4	△
TOTIME3538-MS060S-75-4F-3D	6.0	6	18.0	75	4	△
TOTIME3538-MS060S-100-4F-3D	6.0	6	18.0	100	4	△
TOTIME3538-MS080S-60-4F-3D	8.0	8	24.0	60	4	△
TOTIME3538-MS080S-75-4F-3D	8.0	8	24.0	75	4	▲
TOTIME3538-MS080S-100-4F-3D	8.0	8	24.0	100	4	△
TOTIME3538-MS100S-75-4F-3D	10.0	10	30.0	75	4	△
TOTIME3538-MS100S-100-4F-3D	10.0	10	30.0	100	4	▲
TOTIME3538-MS120S-75-4F-3D	12.0	12	36.0	75	4	△
TOTIME3538-MS120S-100-4F-3D	12.0	12	36.0	100	4	▲
TOTIME3538-MS160S-100-4F-3D	16.0	16	48.0	100	4	△
TOTIME3538-MS160S-150-4F-3D	16.0	16	48.0	150	4	△
TOTIME3538-MS200S-100-4F-3D	20.0	20	60.0	100	4	△
TOTIME3538-MS200S-150-4F-3D	20.0	20	60.0	150	4	△

Tolerance:D≤12 -0. 02~0 D＞12 -0.03~0

▲Stock △Non-Stock
Recommended Cutting Conditions B85

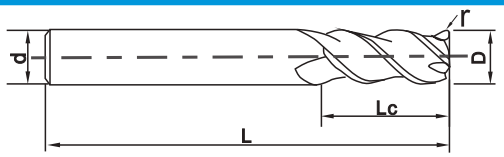
TOTIME Carbide End Mill Cutter
For Stainless Steels,Heat Resistant Material,Titanium Alloys

M S

Variable Lead Corner Radius End Mill(HRC48)

MG HM | 4 | GS | 35°/38° | Corner-R | L

4 FLUTES CORNER RADIUS [2.5D]



4Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME3538-MS010CR001-50-4F-2.5D	1.0	0.1	4	2.5	50	4	△
TOTIME3538-MS010CR002-50-4F-2.5D	1.0	0.2	4	2.5	50	4	▲
TOTIME3538-MS015CR001-50-4F-2.5D	1.5	0.1	4	3.8	50	4	▲
TOTIME3538-MS015CR002-50-4F-2.5D	1.5	0.2	4	3.8	50	4	▲
TOTIME3538-MS020CR001-50-4F-2.5D	2.0	0.1	4	5.0	50	4	▲
TOTIME3538-MS020CR002-50-4F-2.5D	2.0	0.2	4	5.0	50	4	▲
TOTIME3538-MS020CR005-50-4F-2.5D	2.0	0.5	4	5.0	50	4	△
TOTIME3538-MS030CR001-50-4F-2.5D	3.0	0.1	4	8.0	50	4	▲
TOTIME3538-MS030CR002-50-4F-2.5D	3.0	0.2	4	8.0	50	4	△
TOTIME3538-MS030CR003-50-4F-2.5D	3.0	0.3	4	8.0	50	4	△
TOTIME3538-MS030CR005-50-4F-2.5D	3.0	0.5	4	8.0	50	4	△
TOTIME3538-MS040CR002-50-4F-2.5D	4.0	0.2	4	10.0	50	4	△
TOTIME3538-MS040CR003-50-4F-2.5D	4.0	0.3	4	10.0	50	4	△
TOTIME3538-MS040CR005-50-4F-2.5D	4.0	0.5	4	10.0	50	4	▲
TOTIME3538-MS040CR010-50-4F-2.5D	4.0	1.0	4	10.0	50	4	△
TOTIME3538-MS050CR002-50-4F-2.5D	5.0	0.2	6	12.0	50	4	▲
TOTIME3538-MS050CR003-50-4F-2.5D	5.0	0.3	6	12.0	50	4	△
TOTIME3538-MS050CR005-50-4F-2.5D	5.0	0.5	6	12.0	50	4	△
TOTIME3538-MS050CR010-50-4F-2.5D	5.0	1.0	6	12.0	50	4	△
TOTIME3538-MS060CR002-50-4F-2.5D	6.0	0.2	6	15.0	50	4	▲
TOTIME3538-MS060CR003-50-4F-2.5D	6.0	0.3	6	15.0	50	4	△
TOTIME3538-MS060CR005-50-4F-2.5D	6.0	0.5	6	15.0	50	4	▲
TOTIME3538-MS060CR010-50-4F-2.5D	6.0	1.0	6	15.0	50	4	▲
TOTIME3538-MS060CR015-50-4F-2.5D	6.0	1.5	6	15.0	50	4	△
TOTIME3538-MS060CR002-75-4F-2.5D	6.0	0.2	6	15.0	75	4	△
TOTIME3538-MS060CR003-75-4F-2.5D	6.0	0.3	6	15.0	75	4	△
TOTIME3538-MS060CR005-75-4F-2.5D	6.0	0.5	6	15.0	75	4	▲
TOTIME3538-MS060CR010-75-4F-2.5D	6.0	1.0	6	15.0	75	4	△
TOTIME3538-MS060CR015-75-4F-2.5D	6.0	1.5	6	15.0	75	4	△

Tolerance:D≤12 -0. 02~0 D＞12 -0.03~0

▲Stock △Non-Stock
Recommended Cutting Conditions B85

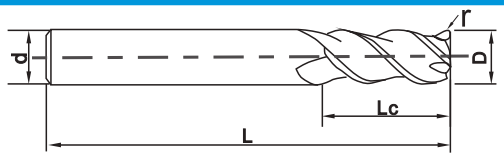
TOTIME Carbide End Mill Cutter
For Stainless Steels,Heat Resistant Material,Titanium Alloys

M S

Variable Lead Corner Radius End Mill(HRC48)

MG HM | 4 | GS | 35°/38° | Corner-R | L

4 FLUTES CORNER RADIUS [2.5D]



4Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME3538-MS080CR003-60-4F-2.5D	8	0.3	8	20	60	4	△
TOTIME3538-MS080CR005-60-4F-2.5D	8	0.5	8	20	60	4	▲
TOTIME3538-MS080CR010-60-4F-2.5D	8	1.0	8	20	60	4	▲
TOTIME3538-MS080CR015-60-4F-2.5D	8	1.5	8	20	60	4	△
TOTIME3538-MS080CR020-60-4F-2.5D	8	2.0	8	20	60	4	▲
TOTIME3538-MS080CR003-75-4F-2.5D	8	0.3	8	20	75	4	△
TOTIME3538-MS080CR005-75-4F-2.5D	8	0.5	8	20	75	4	△
TOTIME3538-MS080CR010-75-4F-2.5D	8	1.0	8	20	75	4	△
TOTIME3538-MS080CR015-75-4F-2.5D	8	1.5	8	20	75	4	△
TOTIME3538-MS080CR020-75-4F-2.5D	8	2.0	8	20	75	4	△
TOTIME3538-MS100CR002-75-4F-2.5D	10	0.2	10	25	75	4	△
TOTIME3538-MS100CR003-75-4F-2.5D	10	0.3	10	25	75	4	△
TOTIME3538-MS100CR005-75-4F-2.5D	10	0.5	10	25	75	4	▲
TOTIME3538-MS100CR010-75-4F-2.5D	10	1.0	10	25	75	4	▲
TOTIME3538-MS100CR015-75-4F-2.5D	10	1.5	10	25	75	4	▲
TOTIME3538-MS100CR020-75-4F-2.5D	10	2.0	10	25	75	4	▲
TOTIME3538-MS100CR025-75-4F-2.5D	10	2.5	10	25	75	4	△
TOTIME3538-MS100CR030-75-4F-2.5D	10	3.0	10	25	75	4	▲
TOTIME3538-MS100CR002-100-4F-2.5D	10	0.2	10	25	100	4	△
TOTIME3538-MS100CR003-100-4F-2.5D	10	0.3	10	25	100	4	△
TOTIME3538-MS100CR005-100-4F-2.5D	10	0.5	10	25	100	4	△
TOTIME3538-MS100CR010-100-4F-2.5D	10	1.0	10	25	100	4	△
TOTIME3538-MS100CR015-100-4F-2.5D	10	1.5	10	25	100	4	△
TOTIME3538-MS100CR020-100-4F-2.5D	10	2.0	10	25	100	4	△
TOTIME3538-MS100CR025-100-4F-2.5D	10	2.5	10	25	100	4	△
TOTIME3538-MS100CR030-100-4F-2.5D	10	3.0	10	25	100	4	△
TOTIME3538-MS120CR005-75-4F-2.5D	12	0.5	12	30	75	4	▲
TOTIME3538-MS120CR010-75-4F-2.5D	12	1.0	12	30	75	4	▲
TOTIME3538-MS120CR015-75-4F-2.5D	12	1.5	12	30	75	4	▲
TOTIME3538-MS120CR020-75-4F-2.5D	12	2.0	12	30	75	4	▲
TOTIME3538-MS120CR025-75-4F-2.5D	12	2.5	12	30	75	4	△

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B85

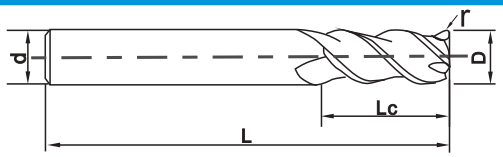
TOTIME Carbide End Mill Cutter
For Stainless Steels,Heat Resistant Material,Titanium Alloys

M S

Variable Lead Corner Radius End Mill(HRC48)

MG HM | 4 | GS | 35°/38° | Corner-R | L

4 FLUTES CORNER RADIUS [2.5D]



4Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME3538-MS120CR030-75-4F-2.5D	12	3.0	12	30	75	4	▲
TOTIME3538-MS120CR005-100-4F-2.5D	12	0.5	12	30	100	4	△
TOTIME3538-MS120CR010-100-4F-2.5D	12	1.0	12	30	100	4	△
TOTIME3538-MS120CR015-100-4F-2.5D	12	1.5	12	30	100	4	△
TOTIME3538-MS120CR020-100-4F-2.5D	12	2.0	12	30	100	4	△
TOTIME3538-MS120CR025-100-4F-2.5D	12	2.5	12	30	100	4	△
TOTIME3538-MS120CR030-100-4F-2.5D	12	3.0	12	30	100	4	△
TOTIME3538-MS160CR005-100-4F-2.5D	16	0.5	16	40	100	4	△
TOTIME3538-MS160CR010-100-4F-2.5D	16	1.0	16	40	100	4	▲
TOTIME3538-MS160CR015-100-4F-2.5D	16	1.5	16	40	100	4	△
TOTIME3538-MS160CR020-100-4F-2.5D	16	2.0	16	40	100	4	△
TOTIME3538-MS160CR025-100-4F-2.5D	16	2.5	16	40	100	4	△
TOTIME3538-MS160CR030-100-4F-2.5D	16	3.0	16	40	100	4	△
TOTIME3538-MS160CR005-150-4F-2.5D	16	0.5	16	40	150	4	△
TOTIME3538-MS160CR010-150-4F-2.5D	16	1.0	16	40	150	4	△
TOTIME3538-MS160CR015-150-4F-2.5D	16	1.5	16	40	150	4	△
TOTIME3538-MS160CR020-150-4F-2.5D	16	2.0	16	40	150	4	△
TOTIME3538-MS160CR025-150-4F-2.5D	16	2.5	16	40	150	4	△
TOTIME3538-MS160CR030-150-4F-2.5D	16	3.0	16	40	150	4	△

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B85

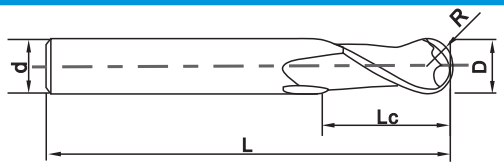
TOTIME Carbide End Mill Cutter
For Stainless Steels,Heat Resistant Material,Titanium Alloys

M S

Variable Lead Ball Nose End Mill(HRC48)

MG HM | 2 | GS | 30° | Ball Nose

2 FLUTES BALL NOSE [2D]



2Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME3538-MS020B-50-2F-2D	2	1.0	4	4	50	2	▲
TOTIME3538-MS020B-75-2F-2D	2	1.0	4	4	75	2	△
TOTIME3538-MS030B-50-2F-2D	3	1.5	4	6	50	2	▲
TOTIME3538-MS030B-75-2F-2D	3	1.5	4	6	75	2	△
TOTIME3538-MS040B-50-2F-2D	4	2.0	4	8	50	2	▲
TOTIME3538-MS040B-75-2F-2D	4	2.0	4	8	75	2	△
TOTIME3538-MS050B-50-2F-2D	5	2.5	6	10	50	2	▲
TOTIME3538-MS050B-75-2F-2D	5	2.5	6	10	75	2	△
TOTIME3538-MS050B-100-2F-2D	5	2.5	6	10	100	2	△
TOTIME3538-MS060B-50-2F-2D	6	3.0	6	12	50	2	▲
TOTIME3538-MS060B-75-2F-2D	6	3.0	6	12	75	2	▲
TOTIME3538-MS060B-100-2F-2D	6	3.0	6	12	100	2	△
TOTIME3538-MS080B-60-2F-2D	8	4.0	8	16	60	2	▲
TOTIME3538-MS080B-75-2F-2D	8	4.0	8	16	75	2	△
TOTIME3538-MS080B-100-2F-2D	8	4.0	8	16	100	2	▲
TOTIME3538-MS100B-75-2F-2D	10	5.0	10	20	75	2	▲
TOTIME3538-MS100B-100-2F-2D	10	5.0	10	20	100	2	▲
TOTIME3538-MS120B-75-2F-2D	12	6.0	12	24	75	2	▲
TOTIME3538-MS120B-100-2F-2D	12	6.0	12	24	100	2	△
TOTIME3538-MS160B-100-2F-2D	16	8.0	16	32	100	2	△
TOTIME3538-MS160B-150-2F-2D	16	8.0	16	32	150	2	△
TOTIME3538-MS200B-100-2F-2D	20	10.0	20	40	100	2	△
TOTIME3538-MS200B-150-2F-2D	20	10.0	20	40	150	2	△

Tolerance:R≤1. 5 -0. 01~0　1. 5＜R＜3 -0. 015~0　R≥3 -0. 02~0

▲Stock △Non-Stock
Recommended Cutting Conditions B86

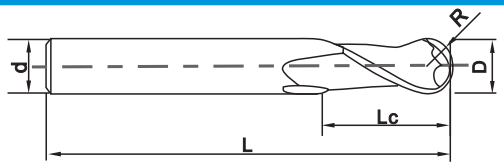
TOTIME Carbide End Mill Cutter
For Stainless Steels,Heat Resistant Material,Titanium Alloys

M S

Variable Lead Ball Nose End Mill(HRC48)

MG HM | 4 | GS | 30° | Ball Nose

4 FLUTES BALL NOSE [1.5D]



4Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME3538-MS040B-50-4F-1.5D	4	2.0	4	6.0	50	4	▲
TOTIME3538-MS040B-75-4F-1.5D	4	2.0	4	6.0	75	4	△
TOTIME3538-MS050B-50-4F-1.5D	5	2.5	6	7.5	50	4	▲
TOTIME3538-MS050B-75-4F-1.5D	5	2.5	6	7.5	75	4	△
TOTIME3538-MS050B-100-4F-1.5D	5	2.5	6	7.5	100	4	△
TOTIME3538-MS060B-50-4F-1.5D	6	3.0	6	9.0	50	4	▲
TOTIME3538-MS060B-75-4F-1.5D	6	3.0	6	9.0	75	4	△
TOTIME3538-MS060B-100-4F-1.5D	6	3.0	6	9.0	100	4	△
TOTIME3538-MS080B-60-4F-1.5D	8	4.0	8	12.0	60	4	▲
TOTIME3538-MS080B-75-4F-1.5D	8	4.0	8	12.0	75	4	△
TOTIME3538-MS080B-100-4F-1.5D	8	4.0	8	12.0	100	4	△
TOTIME3538-MS100B-75-4F-1.5D	10	5.0	10	15.0	75	4	▲
TOTIME3538-MS100B-100-4F-1.5D	10	5.0	10	15.0	100	4	△
TOTIME3538-MS120B-75-4F-1.5D	12	6.0	12	18.0	75	4	▲
TOTIME3538-MS120B-100-4F-1.5D	12	6.0	12	18.0	100	4	△
TOTIME3538-MS160B-100-4F-1.5D	16	8.0	16	24.0	100	4	△
TOTIME3538-MS160B-150-4F-1.5D	16	8.0	16	24.0	150	4	△
TOTIME3538-MS200B-100-4F-1.5D	20	10.0	20	30.0	100	4	△
TOTIME3538-MS200B-150-4F-1.5D	20	10.0	20	30.0	150	4	△

Tolerance:R≤1. 5 -0. 01~0 1. 5<R<3 -0. 015~0 R≥3 -0. 02~0

▲Stock △Non-Stock

Recommended Cutting Conditions B87

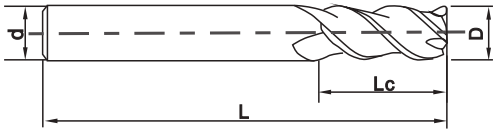
TOTIME Carbide End Mill Cutter
For Carbon Steel,Alloy Steel,Cast Iron

P K

Variable Lead U-shaped Groove Square End Mill(HRC48)

MG HM | 4 | TiSiN | 45° | Square | L

4 FLUTES SQUARE



4Flutes	Cobalt 10%	HRC 48	TiSiN Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D（mm）	d（mm）	Lc（mm）	L(mm)	Flutes	Stock
TU45-010S-50-4F	1.0	4	3.0	50	4	▲
TU45-015S-50-4F	1.5	4	4.5	50	4	▲
TU45-020S-50-4F	2.0	4	6.0	50	4	▲
TU45-025S-50-4F	2.5	4	7.5	50	4	▲
TU45-030S-03-50-4F	3.0	3	9.0	50	4	▲
TU45-030S-04-50-4F	3.0	4	9.0	50	4	▲
TU45-030S-06-50-4F	3.0	6	9.0	50	4	▲
TU45-035S-50-4F	3.5	4	10.5	50	4	▲
TU45-040S-04-50-4F	4.0	4	12.0	50	4	▲
TU45-040S-06-50-4F	4.0	6	12.0	50	4	▲
TU45-040S-75-4F	4.0	4	12.0	75	4	▲
TU45-040S-100-4F	4.0	4	12.0	100	4	▲
TU45-050S-50-4F	5.0	6	15.0	50	4	▲
TU45-060S-50-4F	6.0	6	18.0	50	4	▲
TU45-060S-75-4F	6.0	6	18.0	75	4	▲
TU45-060S-100-4F	6.0	6	18.0	100	4	▲
TU45-080S-60-4F	8.0	8	24.0	60	4	▲
TU45-080S-75-4F	8.0	8	24.0	75	4	▲
TU45-080S-100-4F	8.0	8	24.0	100	4	▲
TU45-080S-150-4F	8.0	8	24.0	150	4	▲
TU45-100S-75-4F	10.0	10	30.0	75	4	▲
TU45-100S-100-4F	10.0	10	30.0	100	4	▲
TU45-100S-150-4F	10.0	10	30.0	150	4	▲
TU45-120S-75-4F	12.0	12	30.0	75	4	▲
TU45-120S-100-4F	12.0	12	30.0	100	4	▲
TU45-120S-150-4F	12.0	12	30.0	150	4	▲
TU45-160S-100-4F	16.0	16	48.0	100	4	▲

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B96

TOTIME Carbide End Mill Cutter

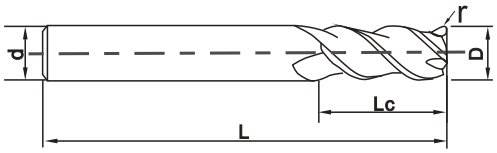
For Carbon Steel,Alloy Steel, Cast Iron

P K

Variable Lead Double-core End Mill(HRC48)

MG HM | 4 | AlTiN | 39°/41° | Corner-R | L

4 FLUTES CORNER RADIUS



4Flutes	Cobalt 10%	HRC 48	AlTiN Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D（mm）	r（mm）	d（mm）	Lc（mm）	L(mm)	Flutes	Stock
TD3941-040CR002-50-4F	4	0. 2	4	10	50	4	▲
TD3941-060CR002-50-4F	6	0. 2	6	15	50	4	▲
TD3941-080CR002-60-4F	8	0. 2	8	20	60	4	▲
TD3941-100CR002-75-4F	10	0. 2	10	25	75	4	▲
TD3941-120CR002-75-4F	12	0. 2	12	30	75	4	▲

Tolerance:D≤12 -0. 02~0 D＞12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B99

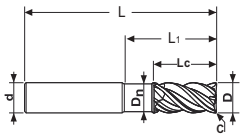
TOTIME Efficient and Powerful Variable Lead End Mill
For Steel,Alloy Steel,Cast Iron

P K

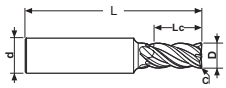
Variable Lead Square End Mill(HRC48)

MG HM | 4 | AlCrN | 35°/38° | Square | Form HB | Form HA

4 FLUTES SQUARE



Type E



Type F

Form HB

Form HA

4Flutes	Cobalt 10%	HRC 48	AlCrN Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	DIN6535 HA/HB	D(mm)	d(mm)	Dn(mm)	Lc(mm)	L1(mm)	L(mm)	CX45° (mm)	Flutes	Type
TOTIME48S-010SC-40-4F-HA	HA	1	4	-	1.5	-	40	0.025	4	F
TOTIME48L-010SC-40-4F-HA	HA	1	4	-	2.5	-	40	0.025	4	F
TOTIME48S-020SC-04-40-4F-HA	HA	2	4	-	3	-	40	0.050	4	F
TOTIME48L-020SC-04-40-4F-HA	HA	2	4	-	4	-	40	0.050	4	F
TOTIME48L-020SC-06-50-4F-HA	HA	2	6	-	4	-	50	0.050	4	F
TOTIME48S-030SC-04-40-4F-HA	HA	3	4	2.8	4	6	40	0.075	4	E
TOTIME48L-030SC-04-40-4F-HA	HA	3	4	2.8	6	9	40	0.075	4	E
TOTIME48L-030SC-06-50-4F-HA	HA	3	6	2.8	6	9	50	0.075	4	E
TOTIME48S-040SC-50-4F-HA/HB	HA/HB	4	6	3.8	5	8	50	0.100	4	E
TOTIME48L-040SC-50-4F-HA/HB	HA/HB	4	6	-	8	-	50	0.100	4	F
TOTIME48L-040SC-54-4F-HA/HB	HA/HB	4	6	3.8	8	12	54	0.100	4	E
TOTIME48S-050SC-50-4F-HA/HB	HA/HB	5	6	4.8	6	10	50	0.150	4	E
TOTIME48L-050SC-54-4F-HA/HB	HA/HB	5	6	4.8	10	15	54	0.150	4	E
TOTIME48S-060SC-54-4F-HA/HB	HA/HB	6	6	5.7	7	16	54	0.200	4	E
TOTIME48L-060SC-54-4F-HA/HB	HA/HB	6	6	5.7	13	19	54	0.200	4	E
TOTIME48S-080SC-58-4F-HA/HB	HA/HB	8	8	7.7	9	20	58	0.200	4	E
TOTIME48L-080SC-63-4F-HA/HB	HA/HB	8	8	7.7	19	27	63	0.200	4	E
TOTIME48S-100SC-65-4F-HA/HB	HA/HB	10	10	9.7	11	24	65	0.200	4	E
TOTIME48L-100SC-72-4F-HA/HB	HA/HB	10	10	9.7	22	32	72	0.200	4	E
TOTIME48S-120SC-73-4F-HA/HB	HA/HB	12	12	11.7	12	26	73	0.200	4	E
TOTIME48L-120SC-82-4F-HA/HB	HA/HB	12	12	11.7	26	38	82	0.200	4	E
TOTIME48S-140SC-75-4F-HA/HB	HA/HB	14	14	13.7	14	28	75	0.300	4	E
TOTIME48L-140SC-82-4F-HA/HB	HA/HB	14	14	13.7	26	38	82	0.300	4	E
TOTIME48S-160SC-82-4F-HA/HB	HA/HB	16	16	15.7	16	32	82	0.300	4	E
TOTIME48L-160SC-92-4F-HA/HB	HA/HB	16	16	15.7	32	44	92	0.300	4	E
TOTIME48S-180SC-82-4F-HA/HB	HA/HB	18	18	17.7	18	32	82	0.300	4	E
TOTIME48L-180SC-92-4F-HA/HB	HA/HB	18	18	17.7	32	44	92	0.300	4	E
TOTIME48S-200SC-92-4F-HA/HB	HA/HB	20	20	19.7	20	40	92	0.300	4	E
TOTIME48L-200SC-104-4F-HA/HB	HA/HB	20	20	19.7	38	50	104	0.300	4	E

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0
Customized Non-standard End Mill Size is Available.

Recommended Cutting Conditions B97

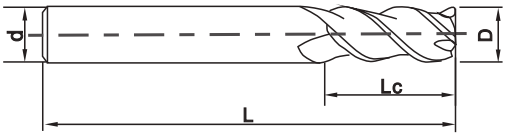
TOTIME Efficient and Powerful Variable Lead End Mill
For Steel,Alloy Steel,Cast Iron

P K

Variable Lead Square End Mill(HRC48)

MG HM | 4 | AlCrN | 35°/38° | Square | L

4 FLUTES SQUARE [Inch]



4Flutes	Cobalt 10%	HRC 48	AlCrN Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(in)		d(in)	Lc(in)	L(in)	Flutes	Stock
TOTIME48-E0125S-015-4F	1/8	0. 125	0. 125	0. 313	1. 500	4	▲
TOTIME48-E0187S-020-4F	3/16	0. 187	0. 187	0. 469	2. 000	4	▲
TOTIME48-E0250S-025-4F	1/4	0. 250	0. 250	0. 531	2. 500	4	▲
TOTIME48-E0375S-030-4F	3/8	0. 375	0. 375	0. 844	3. 000	4	▲
TOTIME48-E0500S-035-4F	1/2	0. 500	0. 500	1. 094	3. 500	4	▲
TOTIME48-E0625S-040-4F	5/8	0. 625	0. 625	1. 313	4. 000	4	▲
TOTIME48-E0750S-040-4F	3/4	0. 750	0. 750	1. 563	4. 000	4	▲
TOTIME48-E1000S-050-4F	1	1. 000	1. 000	2. 094	5. 000	4	▲

Tolerance:D≤12 -0. 02~0 D＞12 -0.03~0
Customized Non-standard End Mill Size is Available.

▲Stock △Non-Stock
Recommended Cutting Conditions B97

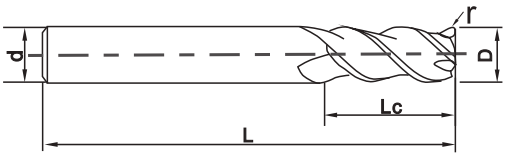
TOTIME Efficient and Powerful Variable Lead End Mill
For Steel,Alloy Steel,Cast Iron

P K

Variable Lead Corner Radius End Mill(HRC48)

MG HM | 4 | AlCrN | 35°/38° | Corner-R | L

4 FLUTES CORNER RADIUS [Inch]



4Flutes	Cobalt 10%	HRC 48	AlCrN Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(in)		r(in)	d(in)	Lc(in)	L(in)	Flutes	Stock
TOTIME48-E0125CR015-015-4F	1/8	0.125	0.015	0.125	0.313	1.500	4	▲
TOTIME48-E0187CR015-020-4F	3/16	0.187	0.015	0.187	0.438	2.000	4	▲
TOTIME48-E0250CR015-025-4F	1/4	0.250	0.015	0.250	0.625	2.500	4	▲
TOTIME48-E0250CR030-025-4F	1/4	0.250	0.030	0.250	0.625	2.500	4	▲
TOTIME48-E0375CR015-025-4F	3/8	0.375	0.015	0.375	0.875	2.500	4	▲
TOTIME48-E0375CR030-025-4F	3/8	0.375	0.030	0.375	0.875	2.500	4	▲
TOTIME48-E0500CR015-030-4F	1/2	0.500	0.015	0.500	1.125	3.000	4	▲
TOTIME48-E0500CR030-030-4F	1/2	0.500	0.030	0.500	1.125	3.000	4	▲
TOTIME48-E0500CR060-030-4F	1/2	0.500	0.060	0.500	1.125	3.000	4	▲
TOTIME48-E0625CR030-035-4F	5/8	0.625	0.030	0.625	1.313	3.500	4	▲
TOTIME48-E0625CR060-035-4F	5/8	0.625	0.060	0.625	1.313	3.500	4	▲
TOTIME48-E0750CR030-040-4F	3/4	0.750	0.030	0.750	1.625	4.000	4	▲
TOTIME48-E0750CR060-040-4F	3/4	0.750	0.060	0.750	1.625	4.000	4	▲

Tolerance:D≤12 -0.02~0 D>12 -0.03~0
Customized Non-standard End Mill Size is Available.

▲Stock △Non-Stock
Recommended Cutting Conditions B97

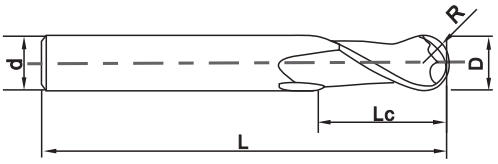
TOTIME Efficient and Powerful End Mill
For Steel,Alloy Steel,Cast Iron

P K

Ball Nose End Mill(HRC48)

MG HM | 2 | AlCrN | 30° | Ball Nose

2 FLUTES BALL NOSE [Inch]



2 Flutes	Cobalt 10%	HRC 48	AlCrN Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(in)		r(in)	d(in)	Lc(in)	L(in)	Flutes	Stock
TOTIME48-E0063B-020-2F	1/16	0.063	0.031	0.250	0.125	2.000	2	▲
TOTIME48-E0094B-020-2F	3/32	0.094	0.047	0.250	0.188	2.000	2	▲
TOTIME48-E0125B-020-2F	1/8	0.125	0.063	0.250	0.250	2.000	2	▲
TOTIME48-E0187B-020-2F	3/16	0.187	0.094	0.250	0.375	2.000	2	▲
TOTIME48-E0250B-020-2F	1/4	0.250	0.125	0.250	0.500	2.000	2	▲
TOTIME48-E0375B-025-2F	3/8	0.375	0.187	0.375	0.750	2.500	2	▲
TOTIME48-E0500B-030-2F	1/2	0.500	0.250	0.500	1.000	3.000	2	▲
TOTIME48-E0625B-035-2F	5/8	0.625	0.313	0.625	1.250	3.500	2	▲
TOTIME48-E0750B-040-2F	3/4	0.750	0.375	0.750	1.500	4.000	2	▲

Tolerance:R≤1.5 -0.01~0 1.5<R<3 -0.015~0 R≥3 -0.02~0
Customized Non-standard End Mill Size is Available.

▲Stock △Non-Stock
Recommended Cutting Conditions B94

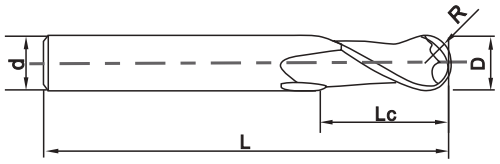
TOTIME Efficient and Powerful End Mill
For Steel,Alloy Steel,Cast Iron

P K

Ball Nose End Mill(HRC48)

MG HM | 4 | AlCrN | 30° | Ball Nose

4 FLUTES BALL NOSE [Inch]



4Flutes	Cobalt 10%	HRC 48	AlCrN Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(in)		r(in)	d(in)	Lc(in)	L(in)	Flutes	Stock
TOTIME48-E0063B-020-4F	1/16	0.063	0.031	0.250	0.125	2.000	4	▲
TOTIME48-E0094B-020-4F	3/32	0.094	0.047	0.250	0.188	2.000	4	▲
TOTIME48-E0125B-020-4F	1/8	0.125	0.063	0.250	0.250	2.000	4	▲
TOTIME48-E0187B-020-4F	3/16	0.187	0.094	0.250	0.375	2.000	4	▲
TOTIME48-E0250B-020-4F	1/4	0.250	0.125	0.250	0.500	2.000	4	▲
TOTIME48-E0375B-025-4F	3/8	0.375	0.187	0.375	0.750	2.500	4	▲
TOTIME48-E0500B-030-4F	1/2	0.500	0.250	0.500	1.000	3.000	4	▲
TOTIME48-E0625B-035-4F	5/8	0.625	0.313	0.625	1.250	3.500	4	▲
TOTIME48-E0750B-040-4F	3/4	0.750	0.375	0.750	1.500	4.000	4	▲

Tolerance:R≤1.5 -0.01~0 1.5＜R＜3 -0.015~0 R≥3 -0.02~0
Customized Non-standard End Mill Size is Available.

▲Stock △Non-Stock
Recommended Cutting Conditions B100

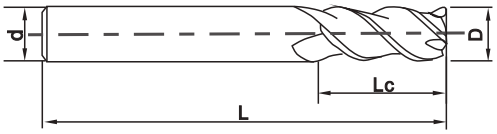
TOTIME Cermet End Mill
For Steel,Alloy Steel,Cast Iron

P K

Cermet Square End Mill(HRC48)

Cermet 4 45° Square L

4 FLUTES SQUARE



4Flutes	Cobalt 0%	HRC 48	No Coating	UMG	Materials Cermet	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●				●	

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TCM45-040S-50-4F	4	4	10	50	4	▲
TCM45-040S-75-4F	4	4	12	75	4	▲
TCM45-050S-50-4F	5	5	12.5	50	4	▲
TCM45-060S-50-4F	6	6	15	50	4	▲
TCM45-060S-75-4F	6	6	18	75	4	▲
TCM45-080S-60-4F	8	8	20	60	4	▲
TCM45-080S-75-4F	8	8	24	75	4	▲
TCM45-080S-100-4F	8	8	24	100	4	▲
TCM45-100S-75-4F	10	10	25	75	4	▲
TCM45-100S-100-4F	10	10	30	100	4	▲
TCM45-120S-75-4F	12	12	30	75	4	▲
TCM45-120S-100-4F	12	12	30	100	4	▲
TCM45-160S-100-4F	16	16	50	100	4	▲

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B98

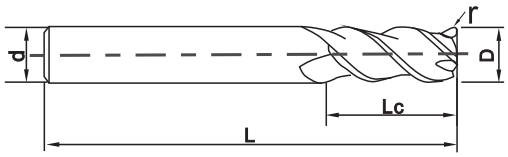
TOTIME Cermet End Mill
For Steel,Alloy Steel,Cast Iron

P K

Cermet Corner Radius End Mill(HRC48)

Cermet 4 45° Corner-R

4 FLUTES CORNER RADIUS



4Flutes	Cobalt 0%	HRC 48	No Coating	UMG	Materials Cermet

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●				●	

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TCM45-040CR002-50-4F	4	0.2	4	10	50	4	▲
TCM45-040CR005-50-4F	4	0.5	4	10	50	4	▲
TCM45-040CR010-50-4F	4	1.0	4	10	50	4	▲
TCM45-050CR002-50-4F	5	0.2	5	12.5	50	4	▲
TCM45-050CR005-50-4F	5	0.5	5	12.5	50	4	▲
TCM45-060CR002-50-4F	6	0.2	6	15	50	4	▲
TCM45-060CR005-50-4F	6	0.5	6	15	50	4	▲
TCM45-060CR010-50-4F	6	1.0	6	15	50	4	▲
TCM45-060CR002-75-4F	6	0.2	6	18	75	4	▲
TCM45-060CR005-75-4F	6	0.5	6	18	75	4	▲
TCM45-060CR010-75-4F	6	1.0	6	18	75	4	▲
TCM45-080CR002-60-4F	8	0.2	8	20	60	4	▲
TCM45-080CR005-60-4F	8	0.5	8	20	60	4	▲
TCM45-080CR010-60-4F	8	1.0	8	20	60	4	▲
TCM45-080CR002-75-4F	8	0.2	8	24	75	4	▲
TCM45-080CR005-75-4F	8	0.5	8	24	75	4	▲
TCM45-080CR010-75-4F	8	1.0	8	24	75	4	▲
TCM45-080CR002-100-4F	8	0.2	8	24	100	4	▲
TCM45-080CR005-100-4F	8	0.5	8	24	100	4	▲
TCM45-080CR010-100-4F	8	1.0	8	24	100	4	▲
TCM45-100CR002-75-4F	10	0.2	10	25	75	4	▲
TCM45-100CR005-75-4F	10	0.5	10	25	75	4	▲
TCM45-100CR010-75-4F	10	1.0	10	25	75	4	▲
TCM45-100CR005-100-4F	10	0.5	10	30	100	4	▲
TCM45-100CR010-100-4F	10	1.0	10	30	100	4	▲
TCM45-120CR005-75-4F	12	0.5	12	30	75	4	▲
TCM45-120CR010-75-4F	12	1.0	12	30	75	4	▲
TCM45-120CR005-100-4F	12	0.5	12	30	100	4	▲
TCM45-120CR010-100-4F	12	1.0	12	30	100	4	▲

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock
Recommended Cutting Conditions B98

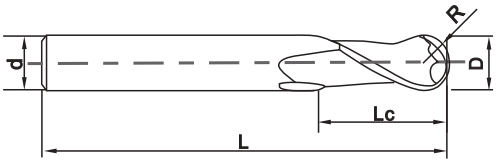
TOTIME Cermet End Mill
For Steel,Alloy Steel,Cast Iron

P K

Cermet Ball Nose End Mill(HRC48)

Cermet | 2 | 30° | Ball Nose

2 FLUTES BALL NOSE



2 Flutes	Cobalt 0%	HRC 48	No Coating	UMG	Materials Cermet	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
●	●				●	

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TCM45-040B-50-2F	4	2.0	4	8	50	2	▲
TCM45-050B-50-2F	5	2.5	5	10	50	2	▲
TCM45-060B-50-2F	6	3.0	6	12	50	2	▲
TCM45-060B-75-2F	6	3.0	6	12	75	2	▲
TCM45-080B-60-2F	8	4.0	8	16	60	2	▲
TCM45-080B-75-2F	8	4.0	8	16	75	2	▲
TCM45-100B-75-2F	10	5.0	10	20	75	2	▲
TCM45-100B-100-2F	10	5.0	10	20	100	2	▲
TCM45-120B-75-2F	12	6.0	12	24	75	2	▲
TCM45-120B-100-2F	12	6.0	12	24	100	2	▲

Tolerance:R≤1. 5 -0. 01~0 1. 5＜R＜3 -0. 015~0 R≥3 -0. 02~0

▲Stock △Non-Stock
Recommended Cutting Conditions B99

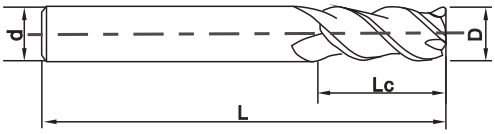
TOTIME Carbide End Mill Cutter
For Die Steel, Hardened Steel

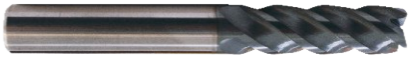
H

High Speed and High Hardness Square End Mill(HRC65)

MG HM | 4 | ALDUA | 35° | Square | L

4 FLUTES SQUARE [2.5D]





4Flutes	Cobalt 10%	HRC 65	ALDUA Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Die Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
<HRC35	HRC32-48	HRC48-55	HRC55-65			
	●	●	●			

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME65-H010S-50-4F-2.5D	1.0	4	2.5	50	4	▲
TOTIME65-H015S-50-4F-2.5D	1.5	4	3.8	50	4	▲
TOTIME65-H020S-50-4F-2.5D	2.0	4	5.0	50	4	▲
TOTIME65-H030S-50-4F-2.5D	3.0	4	8.0	50	4	▲
TOTIME65-H040S-50-4F-2.5D	4.0	4	10.0	50	4	▲
TOTIME65-H040S-75-4F-2.5D	4.0	4	10.0	75	4	▲
TOTIME65-H050S-50-4F-2.5D	5.0	6	12.0	50	4	▲
TOTIME65-H060S-50-4F-2.5D	6.0	6	15.0	50	4	▲
TOTIME65-H060S-75-4F-2.5D	6.0	6	15.0	75	4	▲
TOTIME65-H060S-100-4F-2.5D	6.0	6	15.0	100	4	▲
TOTIME65-H080S-60-4F-2.5D	8.0	8	20.0	60	4	▲
TOTIME65-H080S-75-4F-2.5D	8.0	8	20.0	75	4	▲
TOTIME65-H080S-100-4F-2.5D	8.0	8	20.0	100	4	△
TOTIME65-H100S-75-4F-2.5D	10.0	10	25.0	75	4	▲
TOTIME65-H100S-100-4F-2.5D	10.0	10	25.0	100	4	▲
TOTIME65-H120S-75-4F-2.5D	12.0	12	30.0	75	4	▲
TOTIME65-H120S-100-4F-2.5D	12.0	12	30.0	100	4	▲
TOTIME65-H160S-100-4F-2.5D	16.0	16	40.0	100	4	△
TOTIME65-H160S-150-4F-2.5D	16.0	16	40.0	150	4	△
TOTIME65-H200S-100-4F-2.5D	20.0	20	50.0	100	4	△
TOTIME65-H200S-150-4F-2.5D	20.0	20	50.0	150	4	△

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

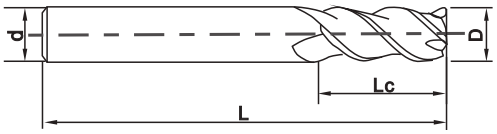
▲Stock △Non-Stock
Recommended Cutting Conditions B90

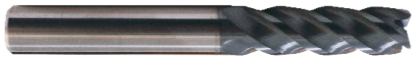
TOTIME Carbide End Mill Cutter
For Die Steel, Hardened Steel

High Speed and High Hardness Square End Mill(HRC65)

MG HM | 4 | ALDUA | 45° | Square

4 FLUTES SQUARE [3D]





4Flutes	Cobalt 10%	HRC 65	ALDUA Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Die Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
<HRC35	HRC32-48	HRC48-55	HRC55-65			
	●	●	●			

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME65-H010S-50-4F-3D	1.0	4	3.0	50	4	△
TOTIME65-H015S-50-4F-3D	1.5	4	4.5	50	4	△
TOTIME65-H020S-50-4F-3D	2.0	4	6.0	50	4	△
TOTIME65-H030S-50-4F-3D	3.0	4	9.0	50	4	△
TOTIME65-H040S-50-4F-3D	4.0	4	12.0	50	4	▲
TOTIME65-H040S-75-4F-3D	4.0	4	12.0	75	4	△
TOTIME65-H050S-50-4F-3D	5.0	6	15.0	50	4	▲
TOTIME65-H060S-50-4F-3D	6.0	6	18.0	50	4	▲
TOTIME65-H060S-75-4F-3D	6.0	6	18.0	75	4	△
TOTIME65-H060S-100-4F-3D	6.0	6	18.0	100	4	△
TOTIME65-H080S-60-4F-3D	8.0	8	24.0	60	4	△
TOTIME65-H080S-75-4F-3D	8.0	8	24.0	75	4	▲
TOTIME65-H080S-100-4F-3D	8.0	8	24.0	100	4	△
TOTIME65-H100S-75-4F-3D	10.0	10	30.0	75	4	▲
TOTIME65-H100S-100-4F-3D	10.0	10	30.0	100	4	△
TOTIME65-H120S-75-4F-3D	12.0	12	36.0	75	4	△
TOTIME65-H120S-100-4F-3D	12.0	12	36.0	100	4	△
TOTIME65-H160S-100-4F-3D	16.0	16	48.0	100	4	△
TOTIME65-H160S-150-4F-3D	16.0	16	48.0	150	4	△
TOTIME65-H200S-100-4F-3D	20.0	20	60.0	100	4	△
TOTIME65-H200S-150-4F-3D	20.0	20	60.0	150	4	△

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock
Recommended Cutting Conditions B90

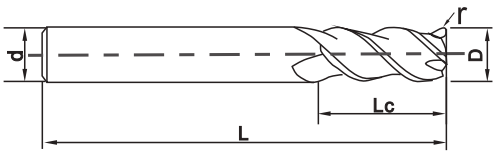
TOTIME Carbide End Mill Cutter
For Die Steel, Hardened Steel

H

High Speed and High Hardness Corner Radius End Mill(HRC65)

MG HM | 4 | ALDUA | 45° | Corner-R | L

4 FLUTES CORNER RADIUS [2D]



4Flutes	Cobalt 10%	HRC 65	ALDUA Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Die Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
＜HRC35	HRC32-48	HRC48-55	HRC55-65			
	●	●	●			

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME65-H010CR001-50-4F-2D	1.0	0.1	4	2	50	4	▲
TOTIME65-H010CR002-50-4F-2D	1.0	0.2	4	2	50	4	▲
TOTIME65-H015CR001-50-4F-2D	1.5	0.1	4	3	50	4	▲
TOTIME65-H015CR002-50-4F-2D	1.5	0.2	4	3	50	4	▲
TOTIME65-H020CR001-50-4F-2D	2.0	0.1	4	4	50	4	▲
TOTIME65-H020CR002-50-4F-2D	2.0	0.2	4	4	50	4	▲
TOTIME65-H020CR005-50-4F-2D	2.0	0.5	4	4	50	4	▲
TOTIME65-H030CR001-50-4F-2D	3.0	0.1	4	6	50	4	△
TOTIME65-H030CR002-50-4F-2D	3.0	0.2	4	6	50	4	▲
TOTIME65-H030CR003-50-4F-2D	3.0	0.3	4	6	50	4	△
TOTIME65-H030CR005-50-4F-2D	3.0	0.5	4	6	50	4	▲
TOTIME65-H040CR002-50-4F-2D	4.0	0.2	4	8	50	4	▲
TOTIME65-H040CR003-50-4F-2D	4.0	0.3	4	8	50	4	▲
TOTIME65-H040CR005-50-4F-2D	4.0	0.5	4	8	50	4	▲
TOTIME65-H040CR010-50-4F-2D	4.0	1.0	4	8	50	4	△
TOTIME65-H050CR002-50-4F-2D	5.0	0.2	6	10	50	4	△
TOTIME65-H050CR003-50-4F-2D	5.0	0.3	6	10	50	4	△
TOTIME65-H050CR005-50-4F-2D	5.0	0.5	6	10	50	4	▲
TOTIME65-H050CR010-50-4F-2D	5.0	1.0	6	10	50	4	△
TOTIME65-H060CR002-50-4F-2D	6.0	0.2	6	12	50	4	▲
TOTIME65-H060CR003-50-4F-2D	6.0	0.3	6	12	50	4	▲
TOTIME65-H060CR005-50-4F-2D	6.0	0.5	6	12	50	4	▲
TOTIME65-H060CR010-50-4F-2D	6.0	1.0	6	12	50	4	▲
TOTIME65-H060CR015-50-4F-2D	6.0	1.5	6	12	50	4	△
TOTIME65-H060CR002-75-4F-2D	6.0	0.2	6	12	75	4	▲
TOTIME65-H060CR003-75-4F-2D	6.0	0.3	6	12	75	4	△
TOTIME65-H060CR005-75-4F-2D	6.0	0.5	6	12	75	4	▲
TOTIME65-H060CR010-75-4F-2D	6.0	1.0	6	12	75	4	▲
TOTIME65-H060CR015-75-4F-2D	6.0	1.5	6	12	75	4	△
TOTIME65-H080CR003-60-4F-2D	8.0	0.3	8	16	60	4	△

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B90

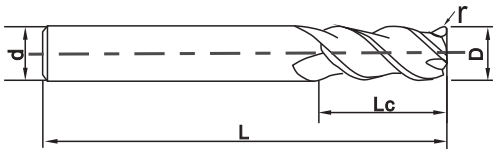
TOTIME Carbide End Mill Cutter
For Die Steel, Hardened Steel

H

High Speed and High Hardness Corner Radius End Mill(HRC65)

MG HM | 4 | ALDUA | 45° | Corner-R | L

4 FLUTES CORNER RADIUS [2D]



4Flutes	Cobalt 10%	HRC 65	ALDUA Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Die Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
<HRC35	HRC32-48	HRC48-55	HRC55-65			
	●	●	●			

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME65-H080CR005-60-4F-2D	8	0.5	8	16	60	4	▲
TOTIME65-H080CR010-60-4F-2D	8	1.0	8	16	60	4	▲
TOTIME65-H080CR015-60-4F-2D	8	1.5	8	16	60	4	△
TOTIME65-H080CR020-60-4F-2D	8	2.0	8	16	60	4	△
TOTIME65-H080CR003-75-4F-2D	8	0.3	8	16	75	4	△
TOTIME65-H080CR005-75-4F-2D	8	0.5	8	16	75	4	▲
TOTIME65-H080CR010-75-4F-2D	8	1.0	8	16	75	4	▲
TOTIME65-H080CR015-75-4F-2D	8	1.5	8	16	75	4	△
TOTIME65-H080CR020-75-4F-2D	8	2.0	8	16	75	4	△
TOTIME65-H100CR002-75-4F-2D	10	0.2	10	20	75	4	△
TOTIME65-H100CR003-75-4F-2D	10	0.3	10	20	75	4	△
TOTIME65-H100CR005-75-4F-2D	10	0.5	10	20	75	4	▲
TOTIME65-H100CR010-75-4F-2D	10	1.0	10	20	75	4	▲
TOTIME65-H100CR015-75-4F-2D	10	1.5	10	20	75	4	△
TOTIME65-H100CR020-75-4F-2D	10	2.0	10	20	75	4	△
TOTIME65-H100CR025-75-4F-2D	10	2.5	10	20	75	4	△
TOTIME65-H100CR030-75-4F-2D	10	3.0	10	20	75	4	△
TOTIME65-H100CR002-100-4F-2D	10	0.2	10	20	100	4	△
TOTIME65-H100CR003-100-4F-2D	10	0.3	10	20	100	4	△
TOTIME65-H100CR005-100-4F-2D	10	0.5	10	20	100	4	▲
TOTIME65-H100CR010-100-4F-2D	10	1.0	10	20	100	4	▲
TOTIME65-H100CR015-100-4F-2D	10	1.5	10	20	100	4	△
TOTIME65-H100CR020-100-4F-2D	10	2.0	10	20	100	4	△
TOTIME65-H100CR025-100-4F-2D	10	2.5	10	20	100	4	△
TOTIME65-H100CR030-100-4F-2D	10	3.0	10	20	100	4	△
TOTIME65-H120CR005-75-4F-2D	12	0.5	12	24	75	4	▲
TOTIME65-H120CR010-75-4F-2D	12	1.0	12	24	75	4	▲
TOTIME65-H120CR015-75-4F-2D	12	1.5	12	24	75	4	△
TOTIME65-H120CR020-75-4F-2D	12	2.0	12	24	75	4	△
TOTIME65-H120CR025-75-4F-2D	12	2.5	12	24	75	4	△
TOTIME65-H120CR030-75-4F-2D	12	3.0	12	24	75	4	△

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B90

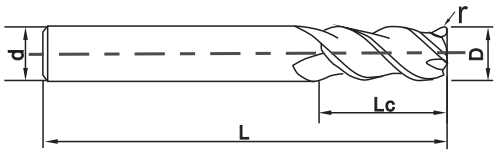
TOTIME Carbide End Mill Cutter
For Die Steel, Hardened Steel

H

High Speed and High Hardness Corner Radius End Mill(HRC65)

MG HM | 4 | ALDUA | 45° | Corner-R | L

4 FLUTES CORNER RADIUS [2D]



4Flutes	Cobalt 10%	HRC 65	ALDUA Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Die Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
＜HRC35	HRC32-48	HRC48-55	HRC55-65			
	●	●	●			

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME65-H120CR005-100-4F-2D	12	0.5	12	24	100	4	▲
TOTIME65-H120CR010-100-4F-2D	12	1.0	12	24	100	4	▲
TOTIME65-H120CR015-100-4F-2D	12	1.5	12	24	100	4	△
TOTIME65-H120CR020-100-4F-2D	12	2.0	12	24	100	4	△
TOTIME65-H120CR025-100-4F-2D	12	2.5	12	24	100	4	△
TOTIME65-H120CR030-100-4F-2D	12	3.0	12	24	100	4	△
TOTIME65-H160CR005-100-4F-2D	16	0.5	16	32	100	4	△
TOTIME65-H160CR010-100-4F-2D	16	1.0	16	32	100	4	△
TOTIME65-H160CR015-100-4F-2D	16	1.5	16	32	100	4	△
TOTIME65-H160CR020-100-4F-2D	16	2.0	16	32	100	4	△
TOTIME65-H160CR025-100-4F-2D	16	2.5	16	32	100	4	△
TOTIME65-H160CR030-100-4F-2D	16	3.0	16	32	100	4	△
TOTIME65-H160CR005-150-4F-2D	16	0.5	16	32	150	4	△
TOTIME65-H160CR010-150-4F-2D	16	1.0	16	32	150	4	△
TOTIME65-H160CR015-150-4F-2D	16	1.5	16	32	150	4	△
TOTIME65-H160CR020-150-4F-2D	16	2.0	16	32	150	4	△
TOTIME65-H160CR025-150-4F-2D	16	2.5	16	32	150	4	△
TOTIME65-H160CR030-150-4F-2D	16	3.0	16	32	150	4	△

Tolerance:D≤12 -0. 02~0 D＞12 -0.03~0

▲Stock △Non-Stock
Recommended Cutting Conditions B90

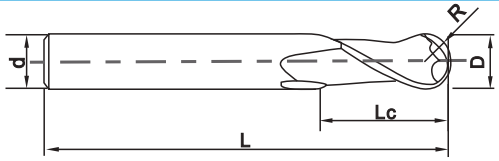
TOTIME Carbide End Mill Cutter
For Die Steel, Hardened Steel

H

High Speed and High Hardness Ball Nose End Mill(HRC65)

MG HM | 2 | ALDUA | 30° | Ball Nose

2 FLUTES BALL NOSE [1.5D]



2Flutes	Cobalt 10%	HRC 65	ALDUA Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Die Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
＜HRC35	HRC32-48	HRC48-55	HRC55-65			
	●	●	●			

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME65-H020B-50-2F-1.5D	2	1.0	4	3.0	50	2	▲
TOTIME65-H020B-75-2F-1.5D	2	1.0	4	3.0	75	2	△
TOTIME65-H030B-50-2F-1.5D	3	1.5	4	4.5	50	2	▲
TOTIME65-H030B-75-2F-1.5D	3	1.5	4	4.5	75	2	△
TOTIME65-H040B-50-2F-1.5D	4	2.0	4	6.0	50	2	▲
TOTIME65-H040B-75-2F-1.5D	4	2.0	4	6.0	75	2	△
TOTIME65-H050B-50-2F-1.5D	5	2.5	6	7.5	50	2	▲
TOTIME65-H050B-75-2F-1.5D	5	2.5	6	7.5	75	2	△
TOTIME65-H050B-100-2F-1.5D	5	2.5	6	7.5	100	2	△
TOTIME65-H060B-50-2F-1.5D	6	3.0	6	9.0	50	2	▲
TOTIME65-H060B-75-2F-1.5D	6	3.0	6	9.0	75	2	▲
TOTIME65-H060B-100-2F-1.5D	6	3.0	6	9.0	100	2	△
TOTIME65-H080B-60-2F-1.5D	8	4.0	8	12.0	60	2	▲
TOTIME65-H080B-75-2F-1.5D	8	4.0	8	12.0	75	2	▲
TOTIME65-H080B-100-2F-1.5D	8	4.0	8	12.0	100	2	▲
TOTIME65-H100B-75-2F-1.5D	10	5.0	10	15.0	75	2	▲
TOTIME65-H100B-100-2F-1.5D	10	5.0	10	15.0	100	2	▲
TOTIME65-H120B-75-2F-1.5D	12	6.0	12	18.0	75	2	▲
TOTIME65-H120B-100-2F-1.5D	12	6.0	12	18.0	100	2	▲
TOTIME65-H160B-100-2F-1.5D	16	8.0	16	24.0	100	2	△
TOTIME65-H160B-150-2F-1.5D	16	8.0	16	24.0	150	2	△
TOTIME65-H200B-100-2F-1.5D	20	10.0	20	30.0	100	2	△
TOTIME65-H200B-150-2F-1.5D	20	10.0	20	30.0	150	2	△

Tolerance:R≤1. 5 -0. 01~0 1. 5＜R＜3 -0. 015~0 R≥3 -0. 02~0

▲Stock △Non-Stock

Recommended Cutting Conditions B90

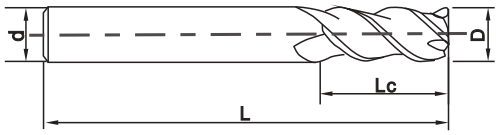
TOTIME Carbide End Mill Cutter
For Aluminium Alloys

N

Square End Mill(HRC48)

MG HM | 3 | 40° | Square

3 FLUTES SQUARE



3Flutes	Cobalt 10%	HRC 48	No Coating	MG 0.8μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Aluminium Alloys	Copper Alloys
＜HRC35	＜HRC48	HRC46-55	HRC55-60			
					●	○

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME48-020AL-50-3F	2	4	6	50	3	▲
TOTIME48-030AL-50-3F	3	4	9	50	3	▲
TOTIME48-040AL-50-3F	4	4	11	50	3	▲
TOTIME48-050AL-50-3F	5	6	13	50	3	▲
TOTIME48-060AL-50-3F	6	6	16	50	3	▲
TOTIME48-080AL-60-3F	8	8	20	60	3	▲
TOTIME48-100AL-75-3F	10	10	25	75	3	▲
TOTIME48-120AL-75-3F	12	12	30	75	3	▲

Tolerance:D≤12 -0. 02~0 D＞12 -0.03~0

▲Stock △Non-Stock
Recommended Cutting Conditions B88

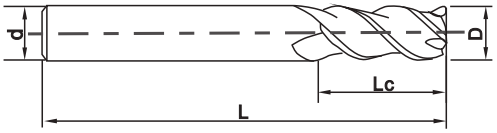
TOTIME Carbide End Mill Cutter
For Aluminium Alloys,Copper Alloys

N

Square End Mill(HRC48)

MG HM | 3 | 40° | Square | TAC

3 FLUTES TAC COATING SQUARE [3D]



3Flutes	Cobalt 10%	HRC 48	TAC Coating	MG 0.8μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Aluminium Alloys	Copper Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
					●	●

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME48-C010AL-50-3F-3D	1.0	4	3.0	50	3	▲
TOTIME48-C015AL-50-3F-3D	1.5	4	4.5	50	3	▲
TOTIME48-C020AL-50-3F-3D	2.0	4	6.0	50	3	▲
TOTIME48-C030AL-50-3F-3D	3.0	4	9.0	50	3	▲
TOTIME48-C040AL-50-3F-3D	4.0	4	12.0	50	3	▲
TOTIME48-C040AL-75-3F-3D	4.0	4	12.0	75	3	▲
TOTIME48-C050AL-50-3F-3D	5.0	6	15.0	50	3	▲
TOTIME48-C060AL-50-3F-3D	6.0	6	18.0	50	3	▲
TOTIME48-C060AL-75-3F-3D	6.0	6	18.0	75	3	△
TOTIME48-C060AL-100-3F-3D	6.0	6	18.0	100	3	▲
TOTIME48-C080AL-60-3F-3D	8.0	8	24.0	60	3	▲
TOTIME48-C080AL-75-3F-3D	8.0	8	24.0	75	3	△
TOTIME48-C080AL-100-3F-3D	8.0	8	24.0	100	3	△
TOTIME48-C100AL-75-3F-3D	10.0	10	30.0	75	3	▲
TOTIME48-C100AL-100-3F-3D	10.0	10	30.0	100	3	△
TOTIME48-C120AL-75-3F-3D	12.0	12	36.0	75	3	▲
TOTIME48-C120AL-100-3F-3D	12.0	12	36.0	100	3	▲
TOTIME48-C160AL-100-3F-3D	16.0	16	48.0	100	3	△
TOTIME48-C160AL-150-3F-3D	16.0	16	48.0	150	3	△
TOTIME48-C200AL-100-3F-3D	20.0	20	60.0	100	3	△
TOTIME48-C200AL-150-3F-3D	20.0	20	60.0	150	3	△

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B89

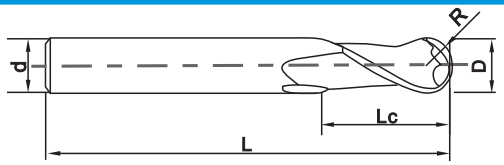
TOTIME Carbide End Mill Cutter
For Aluminium Alloys,Copper Alloys

N

Ball Nose End Mill(HRC48)

MG HM | 2 | 30° | Ball Nose

2 FLUTES BALL NOSE [1.5D]



2Flutes	Cobalt 10%	HRC 48	No Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Aluminium Alloys	Copper Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
					●	●

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME48-010ALB-50-2F-1.5D	1.0	0.50	4	1.5	50	2	△
TOTIME48-015ALB-50-2F-1.5D	1.5	0.75	4	2.3	50	2	△
TOTIME48-020ALB-50-2F-1.5D	2.0	1.00	4	3.0	50	2	▲
TOTIME48-030ALB-50-2F-1.5D	3.0	1.50	4	4.5	50	2	△
TOTIME48-040ALB-50-2F-1.5D	4.0	2.00	4	6.0	50	2	▲
TOTIME48-060ALB-50-2F-1.5D	6.0	3.00	6	9.0	50	2	△
TOTIME48-060ALB-75-2F-1.5D	6.0	3.00	6	9.0	75	2	▲
TOTIME48-080ALB-60-2F-1.5D	8.0	4.00	8	12.0	60	2	△
TOTIME48-080ALB-75-2F-1.5D	8.0	4.00	8	12.0	75	2	▲
TOTIME48-080ALB-100-2F-1.5D	8.0	4.00	8	12.0	100	2	△
TOTIME48-100ALB-75-2F-1.5D	10.0	5.00	10	15.0	75	2	▲
TOTIME48-100ALB-100-2F-1.5D	10.0	5.00	10	15.0	100	2	△
TOTIME48-120ALB-75-2F-1.5D	12.0	6.00	12	18.0	75	2	△
TOTIME48-120ALB-100-2F-1.5D	12.0	6.00	12	18.0	100	2	▲

Tolerance:R≤3 ±0. 015 R>3 ±0. 02

▲Stock △Non-Stock
Recommended Cutting Conditions B88

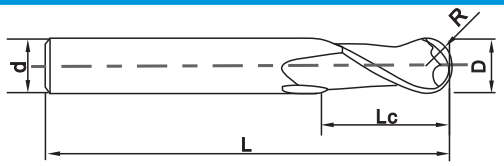
TOTIME Carbide End Mill Cutter
For Aluminium Alloys,Copper Alloys

N

Ball Nose End Mill(HRC48)

MG HM | 2 | 30° | Ball Nose

2 FLUTES BALL NOSE [2D]



2Flutes	Cobalt 10%	HRC 48	No Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Aluminium Alloys	Copper Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
					●	●

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME48-010ALB-50-2F-2D	1.0	0.50	4	2	50	2	▲
TOTIME48-015ALB-50-2F-2D	1.5	0.75	4	3	50	2	▲
TOTIME48-020ALB-50-2F-2D	2.0	1.00	4	4	50	2	▲
TOTIME48-030ALB-50-2F-2D	3.0	1.50	4	6	50	2	▲
TOTIME48-040ALB-50-2F-2D	4.0	2.00	4	8	50	2	▲
TOTIME48-060ALB-50-2F-2D	6.0	3.00	6	12	50	2	▲
TOTIME48-060ALB-75-2F-2D	6.0	3.00	6	12	75	2	△
TOTIME48-080ALB-60-2F-2D	8.0	4.00	8	16	60	2	▲
TOTIME48-080ALB-75-2F-2D	8.0	4.00	8	16	75	2	△
TOTIME48-080ALB-100-2F-2D	8.0	4.00	8	16	100	2	△
TOTIME48-100ALB-75-2F-2D	10.0	5.00	10	20	75	2	▲
TOTIME48-100ALB-100-2F-2D	10.0	5.00	10	20	100	2	△
TOTIME48-120ALB-75-2F-2D	12.0	6.00	12	24	75	2	▲
TOTIME48-120ALB-100-2F-2D	12.0	6.00	12	24	100	2	△

Tolerance:R≤3 ±0. 015 R>3 ±0. 02

▲Stock △Non-Stock

Recommended Cutting Conditions B88

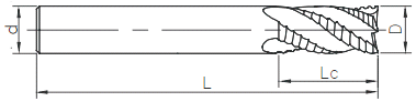
TOTIME Carbide End Mill Cutter
For Alloy Steel,Hardened Steel

P K

Variable Lead Roughing(HRC55)

MG HM | 4 | TiAIN | 38°/39° | Square

4 FLUTES ROUGHING



4Flutes	Cobalt 10%	HRC 55	TiAIN Coating	UMG 0.6μm	Carbide Materials	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-65			
●	●	●				

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME3839-060R-S-4F	6	6	15	50	4	▲
TOTIME3839-080R-S-4F	8	8	20	60	4	▲
TOTIME3839-100R-S-4F	10	10	30	75	4	▲
TOTIME3839-120R-S-4F	12	12	32	75	4	▲
TOTIME3839-160R-S-4F	16	16	45	100	4	▲
TOTIME3839-200R-S-4F	20	20	50	100	4	▲

Tolerance:D≤8 0~0. 01 D>8 0~0. 02

▲Stock △Non-Stock

Recommended Cutting Conditions B91

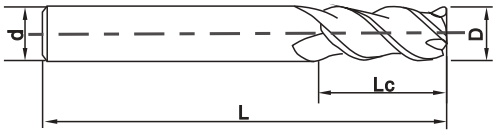
TOTIME Carbide End Mill Cutter
For Graphite

N

Diamond Coating Square End Mill

MG HM | 4 | Diamond | 30° | Square | L

4 FLUTES SQUARE



4Flutes	Cobalt 10%	HRC 48	Diamond Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Die Steel	Hardened Steel	Hardened Steel	Stainless Steel	Graphite	Aluminum
＜HRC35	HRC32-48	HRC48-55	HRC55-65			
					●	○

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TDIA-010S-50-4F	1	4	3	50	4	▲
TDIA-020S-50-4F	2	4	6	50	4	▲
TDIA-030S-50-4F	3	4	9	50	4	▲
TDIA-040S-50-4F	4	4	12	50	4	▲
TDIA-040S-60-4F	4	4	12	60	4	▲
TDIA-040S-75-4F	4	4	12	75	4	▲
TDIA-040S-100-4F	4	4	20	100	4	▲
TDIA-060S-50-4F	6	6	20	50	4	▲
TDIA-060S-60-4F	6	6	20	60	4	▲
TDIA-060S-75-4F	6	6	25	75	4	▲
TDIA-060S-100-4F	6	6	30	100	4	▲
TDIA-060S-150-4F	6	6	40	150	4	▲
TDIA-080S-50-4F	8	8	20	50	4	▲
TDIA-080S-60-4F	8	8	20	60	4	▲
TDIA-080S-75-4F	8	8	30	75	4	▲
TDIA-080S-100-4F	8	8	30	100	4	▲
TDIA-080S-150-4F	8	8	40	150	4	▲
TDIA-100S-60-4F	10	10	25	60	4	▲
TDIA-100S-75-4F	10	10	30	75	4	▲
TDIA-100S-100-4F	10	10	30	100	4	▲
TDIA-100S-150-4F	10	10	40	150	4	▲
TDIA-120S-100-4F	12	12	40	100	4	▲
TDIA-120S-150-4F	12	12	50	150	4	▲
TDIA-120S-180-4F	12	12	50	180	4	▲

Tolerance:D＜6 $^{-0.02}_{-0.05}$ 6≤D≤12 $^{-0.03}_{-0.06}$

▲Stock △Non-Stock
Recommended Cutting Conditions B110

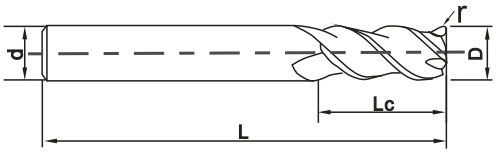
TOTIME Carbide End Mill Cutter
For Graphite

N

Diamond Coating Corner Radius End Mill

MG HM | 4 | Diamond | 30° | Corner-R | L

4 FLUTES CORNER RADIUS



4Flutes	Cobalt 10%	HRC 48	Diamond Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Die Steel	Hardened Steel	Hardened Steel	Stainless Steel	Graphite	Aluminum
＜HRC35	HRC32-48	HRC48-55	HRC55-65			
					●	○

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TDIA-030CR002-60-4F	3	0.2	3	10	60	4	▲
TDIA-030CR002-75-4F	3	0.2	3	10	75	4	▲
TDIA-030CR002-100-4F	3	0.2	3	10	100	4	▲
TDIA-030CR003-60-4F	3	0.3	3	10	60	4	▲
TDIA-030CR005-60-4F	3	0.5	3	10	60	4	▲
TDIA-030CR005-75-4F	3	0.5	3	10	75	4	▲
TDIA-030CR005-100-4F	3	0.5	3	10	100	4	▲
TDIA-040CR001-40-4F	4	0.1	4	6	40	4	▲
TDIA-040CR002-50-4F	4	0.2	4	6	50	4	▲
TDIA-040CR002-60-4F	4	0.2	4	12	60	4	▲
TDIA-040CR002-75-4F	4	0.2	4	20	75	4	▲
TDIA-040CR002-100-4F	4	0.2	4	20	100	4	▲
TDIA-040CR005-50-4F	4	0.5	4	6	50	4	▲
TDIA-040CR005-60-4F	4	0.5	4	12	60	4	▲
TDIA-040CR005-75-4F	4	0.5	4	12	75	4	▲
TDIA-040CR005-100-4F	4	0.5	4	20	100	4	▲
TDIA-060CR003-75-4F	6	0.3	6	20	75	4	▲
TDIA-060CR003-100-4F	6	0.3	6	30	100	4	▲
TDIA-060CR005-60-4F	6	0.5	6	20	60	4	▲
TDIA-060CR005-75-4F	6	0.5	6	20	75	4	▲
TDIA-060CR005-100-4F	6	0.5	6	25	100	4	▲
TDIA-080CR003-75-4F	8	0.3	8	25	75	4	▲
TDIA-080CR003-100-4F	8	0.3	8	30	100	4	▲

Tolerance:D＜6 $^{-0.02}_{-0}$ 6≤D≤12 $^{-0.03}_{-0}$

▲Stock △Non-Stock

Recommended Cutting Conditions B110

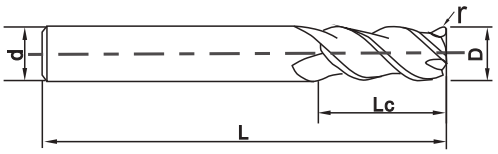
TOTIME Carbide End Mill Cutter
For Graphite

N

Diamond Coating Corner Radius End Mill

MG HM | 4 | Diamond | 30° | Corner-R | L

4 FLUTES CORNER RADIUS



4Flutes	Cobalt 10%	HRC 48	Diamond Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Die Steel	Hardened Steel	Hardened Steel	Stainless Steel	Graphite	Aluminum
＜HRC35	HRC32-48	HRC48-55	HRC55-65			
					●	○

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TDIA-080CR005-75-4F	8	0.5	8	30	75	4	▲
TDIA-080CR005-100-4F	8	0.5	8	30	100	4	▲
TDIA-080CR005-150-4F	8	0.5	8	40	150	4	▲
TDIA-100CR005-75-4F	10	0.5	10	25	75	4	▲
TDIA-100CR005-100-4F	10	0.5	10	30	100	4	▲
TDIA-100CR005-150-4F	10	0.5	10	40	150	4	▲
TDIA-120CR005-100-4F	12	0.5	12	30	100	4	▲
TDIA-120CR005-150-4F	12	0.5	12	40	150	4	▲

Tolerance:D＜6 $^{-0.02}_{-0.05}$ 6≤D≤12 $^{-0.03}_{-0.08}$

▲Stock △Non-Stock

Recommended Cutting Conditions B110

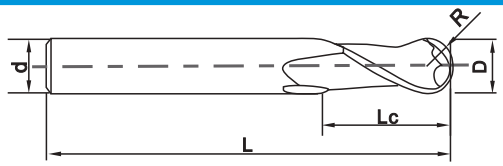
TOTIME Carbide End Mill Cutter
For Graphite

N

Diamond Coating Ball Nose End Mill

MG HM | 2 | Diamond | 30° | Ball Nose

2 FLUTES BALL NOSE



2Flutes	Cobalt 10%	HRC 48	Diamond Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Die Steel	Hardened Steel	Hardened Steel	Stainless Steel	Graphite	Aluminum
＜HRC35	HRC32-48	HRC48-55	HRC55-65			
					●	○

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TDIA-030B-50-2F	3	1.5	3	6	50	2	▲
TDIA-030B-60-2F	3	1.5	3	6	60	2	▲
TDIA-030B-75-2F	3	1.5	3	6	75	2	▲
TDIA-030B-100-2F	3	1.5	3	6	100	2	▲
TDIA-040B-50-2F	4	2.0	4	8	50	2	▲
TDIA-040B-60-2F	4	2.0	4	8	60	2	▲
TDIA-040B-75-2F	4	2.0	4	8	75	2	▲
TDIA-040B-100-2F	4	2.0	4	10	100	2	▲
TDIA-060B-60-2F	6	3.0	6	12	60	2	▲
TDIA-060B-75-2F	6	3.0	6	12	75	2	▲
TDIA-060B-100-2F	6	3.0	6	16	100	2	▲
TDIA-060B-150-2F	6	3.0	6	20	150	2	▲
TDIA-080B-75-2F	8	4.0	8	16	75	2	▲
TDIA-080B-100-2F	8	4.0	8	16	100	2	▲
TDIA-080B-150-2F	8	4.0	8	30	150	2	▲
TDIA-100B-100-2F	10	5.0	10	20	100	2	▲
TDIA-100B-150-2F	10	5.0	10	30	150	2	▲
TDIA-120B-100-2F	12	6.0	12	30	100	2	▲
TDIA-120B-150-2F	12	6.0	12	30	150	2	▲

Tolerance:R＜3 $^{-0.02}_{-0.05}$ 3≤R≤6 $^{-0.03}_{-0.08}$

▲Stock △Non-Stock

Recommended Cutting Conditions B110

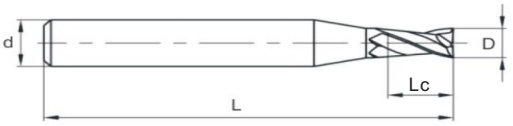
TOTIME Carbide End Mill Cutter
For Aluminium Alloys,Copper Alloys

N

Micro Square End Mill

MG HM | 2 | 30° | Square | X3H

2 FLUTES SQUARE



2Flutes	Cobalt 10%	HRC 48	X3H Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Aluminium Alloys	Copper Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
					●	●

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TMALS010-2F	0.10	4	0.2	50	2	▲
TMALS015-2F	0.15	4	0.3	50	2	▲
TMALS020-2F	0.20	4	0.4	50	2	▲
TMALS025-2F	0.25	4	0.5	50	2	▲
TMALS030-2F	0.30	4	0.6	50	2	▲
TMALS035-2F	0.35	4	0.7	50	2	▲
TMALS040-2F	0.40	4	0.8	50	2	▲
TMALS045-2F	0.45	4	0.9	50	2	▲
TMALS050-2F	0.50	4	1.0	50	2	▲
TMALS060-2F	0.60	4	1.2	50	2	▲
TMALS070-2F	0.70	4	1.4	50	2	▲
TMALS080-2F	0.80	4	1.6	50	2	▲
TMALS090-2F	0.90	4	1.8	50	2	▲

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

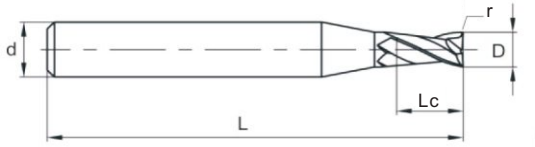
▲Stock △Non-Stock
Recommended Cutting Conditions B93

TOTIME Carbide End Mill Cutter
For Aluminium Alloys,Copper Alloys

Micro Corner Radius End Mill

MG HM | 2 | X3H | 30° | Corner-R

2 FLUTES CORNER RADIUS



2Flutes	Cobalt 10%	HRC 48	X3H Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Aluminium Alloys	Copper Alloys
＜HRC35	<HRC48	HRC48-55	HRC55-60			
					●	●

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TMALCR0202-2F	0.2	0.02	4	0.4	50	2	▲
TMALCR0205-2F	0.2	0.05	4	0.4	50	2	▲
TMALCR0305-2F	0.3	0.05	4	0.6	50	2	▲
TMALCR0310-2F	0.3	0.10	4	0.6	50	2	▲
TMALCR0405-2F	0.4	0.05	4	0.8	50	2	▲
TMALCR0410-2F	0.4	0.10	4	0.8	50	2	▲
TMALCR0505-2F	0.5	0.05	4	1.0	50	2	▲
TMALCR0510-2F	0.5	0.10	4	1.0	50	2	▲
TMALCR0605-2F	0.6	0.05	4	1.2	50	2	▲
TMALCR0610-2F	0.6	0.10	4	1.2	50	2	▲
TMALCR0705-2F	0.7	0.05	4	1.4	50	2	▲
TMALCR0710-2F	0.7	0.10	4	1.4	50	2	▲
TMALCR0805-2F	0.8	0.05	4	1.6	50	2	▲
TMALCR0810-2F	0.8	0.10	4	1.6	50	2	▲

▲Stock △Non-Stock
Recommended Cutting Conditions B93

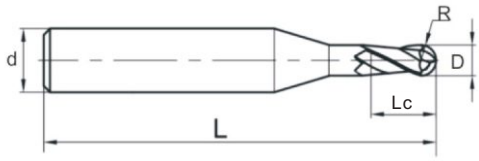
TOTIME Carbide End Mill Cutter
For Aluminium Alloys,Copper Alloys

N

Micro Ball Nose End Mill

MG HM | 2 | X3H | 30° | Ball Nose

2 FLUTES BALL NOSE



2Flutes	Cobalt 10%	HRC 48	X3H Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Aluminium Alloys	Copper Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
					●	●

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TMALB020-2F	0.2	0.10	4	0.4	50	2	▲
TMALB030-2F	0.3	0.15	4	0.6	50	2	▲
TMALB040-2F	0.4	0.20	4	0.8	50	2	▲
TMALB050-2F	0.5	0.25	4	1.0	50	2	▲
TMALB060-2F	0.6	0.30	4	1.2	50	2	▲
TMALB070-2F	0.7	0.35	4	1.4	50	2	▲
TMALB080-2F	0.8	0.40	4	1.6	50	2	▲

▲Stock △Non-Stock

Recommended Cutting Conditions B93

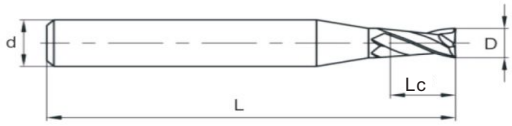
TOTIME Carbide End Mill Cutter
For Carbon Steel,Cast Iron,Alloy Steel,Stainless Steel

P M K

Micro Square End Mill

MG HM | 2 | 30° | Square | AP

2 FLUTES SQUARE



2Flutes	Cobalt 10%	HRC 48	AP Coating	MG 0.8μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Aluminium Alloys	Copper Alloys
＜HRC35	HRC35-45	HRC45-55	HRC55-60			
●	●			●		

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TMUS010-2F	0.10	4	0.2	50	2	▲
TMUS015-2F	0.15	4	0.3	50	2	▲
TMUS020-2F	0.20	4	0.4	50	2	▲
TMUS025-2F	0.25	4	0.5	50	2	▲
TMUS030-2F	0.30	4	0.6	50	2	▲
TMUS035-2F	0.35	4	0.7	50	2	▲
TMUS040-2F	0.40	4	0.8	50	2	▲
TMUS045-2F	0.45	4	0.9	50	2	▲
TMUS050-2F	0.50	4	1.0	50	2	▲
TMUS060-2F	0.60	4	1.2	50	2	▲
TMUS070-2F	0.70	4	1.4	50	2	▲
TMUS080-2F	0.80	4	1.6	50	2	▲
TMUS090-2F	0.90	4	1.8	50	2	▲

▲Stock △Non-Stock

Recommended Cutting Conditions B94

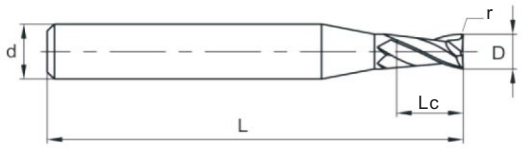
TOTIME Carbide End Mill Cutter
For Carbon Steel,Cast Iron,Alloy Steel,Stainless Steel

P M K

Micro Corner Radius End Mill

MG HM | 2 | AP | 45° | Corner-R

2 FLUTES CORNER RADIUS



2Flutes	Cobalt 10%	HRC 48	AP Coating	MG 0.8μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Aluminium Alloys	Copper Alloys
＜HRC35	HRC35-45	HRC45-55	HRC55-60			
●	●			●		

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TMUCR0202-2F	0.2	0.02	4	0.4	50	2	▲
TMUCR0205-2F	0.2	0.05	4	0.4	50	2	▲
TMUCR0305-2F	0.3	0.05	4	0.6	50	2	▲
TMUCR0310-2F	0.3	0.10	4	0.6	50	2	▲
TMUCR0405-2F	0.4	0.05	4	0.8	50	2	▲
TMUCR0410-2F	0.4	0.10	4	0.8	50	2	▲
TMUCR0505-2F	0.5	0.05	4	1.0	50	2	▲
TMUCR0510-2F	0.5	0.10	4	1.0	50	2	▲
TMUCR0605-2F	0.6	0.05	4	1.2	50	2	▲
TMUCR0610-2F	0.6	0.10	4	1.2	50	2	▲
TMUCR0705-2F	0.7	0.05	4	1.4	50	2	▲
TMUCR0710-2F	0.7	0.10	4	1.4	50	2	▲
TMUCR0805-2F	0.8	0.05	4	1.6	50	2	▲
TMUCR0810-2F	0.8	0.10	4	1.6	50	2	▲

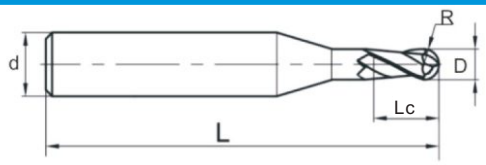
▲Stock △Non-Stock
Recommended Cutting Conditions B94

P M K

Micro Ball Nose End Mill

MG HM | 2 | AP | 30° | Ball Nose

2 FLUTES BALL NOSE



2Flutes	Cobalt 10%	HRC 48	AP Coating	MG 0.8μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Aluminium Alloys	Copper Alloys
＜HRC35	HRC35-45	HRC45-55	HRC55-60			
●	●			●		

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TMUB020-2F	0.2	0.10	4	0.4	50	2	▲
TMUB030-2F	0.3	0.15	4	0.6	50	2	▲
TMUB040-2F	0.4	0.20	4	0.8	50	2	▲
TMUB050-2F	0.5	0.25	4	1.0	50	2	▲
TMUB060-2F	0.6	0.30	4	1.2	50	2	▲
TMUB070-2F	0.7	0.35	4	1.4	50	2	▲
TMUB080-2F	0.8	0.40	4	1.6	50	2	▲

▲Stock △Non-Stock

Recommended Cutting Conditions B94

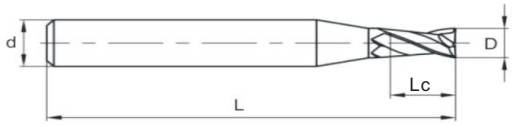
TOTIME Carbide End Mill Cutter
For Hardend Steel

H

Micro Square End Mill

MG HM | 2 | 45° | Square | X6H

2 FLUTES SQUARE



2Flutes	Cobalt 10%	HRC 48	X6H Coating	MG 0.8μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Aluminium Alloys	Copper Alloys
＜HRC35	HRC35-45	HRC48-55	HRC55-60			
		●	●			

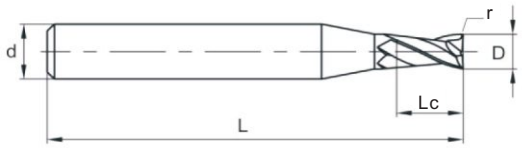
Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TMHS010-2F	0.10	4	0.2	50	2	▲
TMHS015-2F	0.15	4	0.3	50	2	▲
TMHS020-2F	0.20	4	0.4	50	2	▲
TMHS025-2F	0.25	4	0.5	50	2	▲
TMHS030-2F	0.30	4	0.6	50	2	▲
TMHS035-2F	0.35	4	0.7	50	2	▲
TMHS040-2F	0.40	4	0.8	50	2	▲
TMHS045-2F	0.45	4	0.9	50	2	▲
TMHS050-2F	0.50	4	1.0	50	2	▲
TMHS060-2F	0.60	4	1.2	50	2	▲
TMHS070-2F	0.70	4	1.4	50	2	▲
TMHS080-2F	0.80	4	1.6	50	2	▲
TMHS090-2F	0.90	4	1.8	50	2	▲

▲Stock △Non-Stock
Recommended Cutting Conditions B95

Micro Corner Radius End Mill

MG HM | 2 | X6H | 45° | Corner-R

2 FLUTES CORNER RADIUS



2Flutes	Cobalt 10%	HRC 48	X6H Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Aluminium Alloys	Copper Alloys
<HRC35	HRC35-45	HRC48-55	HRC55-60			
		●	●			

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TMHCR0202-2F	0.2	0.02	4	0.4	50	2	▲
TMHCR0205-2F	0.2	0.05	4	0.4	50	2	▲
TMHCR0305-2F	0.3	0.05	4	0.6	50	2	▲
TMHCR0310-2F	0.3	0.10	4	0.6	50	2	▲
TMHCR0405-2F	0.4	0.05	4	0.8	50	2	▲
TMHCR0410-2F	0.4	0.10	4	0.8	50	2	▲
TMHCR0505-2F	0.5	0.05	4	1.0	50	2	▲
TMHCR0510-2F	0.5	0.10	4	1.0	50	2	▲
TMHCR0605-2F	0.6	0.05	4	1.2	50	2	▲
TMHCR0610-2F	0.6	0.10	4	1.2	50	2	▲
TMHCR0705-2F	0.7	0.05	4	1.4	50	2	▲
TMHCR0710-2F	0.7	0.10	4	1.4	50	2	▲
TMHCR0805-2F	0.8	0.05	4	1.6	50	2	▲
TMHCR0810-2F	0.8	0.10	4	1.6	50	2	▲

▲Stock △Non-Stock

Recommended Cutting Conditions B95

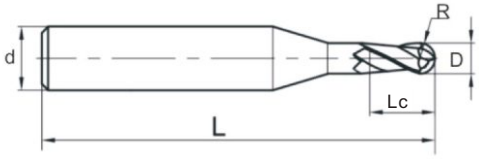
TOTIME Carbide End Mill Cutter
For Hardend Steel

H

Micro Ball Nose End Mill

MG HM | 2 | X6H | 45° | Ball Nose

2 FLUTES BALL NOSE



2Flutes	Cobalt 10%	HRC 48	X6H Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Aluminium Alloys	Copper Alloys
＜HRC35	HRC35-45	HRC48-55	HRC55-60			
		●	●			

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TMHB020-2F	0.2	0.10	4	0.4	50	2	▲
TMHB030-2F	0.3	0.15	4	0.6	50	2	▲
TMHB040-2F	0.4	0.20	4	0.8	50	2	▲
TMHB050-2F	0.5	0.25	4	1.0	50	2	▲
TMHB060-2F	0.6	0.30	4	1.2	50	2	▲
TMHB070-2F	0.7	0.35	4	1.4	50	2	▲
TMHB080-2F	0.8	0.40	4	1.6	50	2	▲

▲Stock △Non-Stock

Recommended Cutting Conditions B95

TOTIME Carbide End Mill Cutter
For High Hardened Steels(≤HRC65)

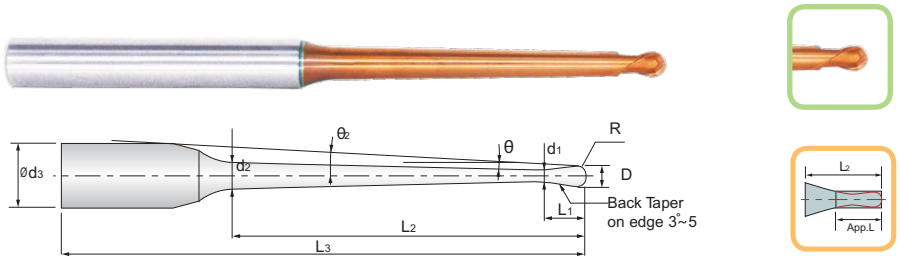
P H

ZSTNB20..-..-. SERIES

MG HM | 2 | TiAlN | 30° | D≤6 R ±0.005 | D>6 R ±0.010

2 FLUTE, TAPER NECK BACK DRAFT TYPE

The effective neck length shown is not an exact value and to avoid contact with the workpiece, we recommend the user control the precise value of this length.



※R2 or higher is not applied to Back draft type.

Order No.	Dimension(mm)											Effective Neck Length					Stock
	R	D	L2	θ	L1	d1	d2	L3	d3	App. L	θ2	0.5°	1°	1.5°	2°	3°	
ZSTNB2002-1-04	0.10	0.20	1.0	0.4	0.15	0.17	0.18	50	4	1.35	10.9	1.5	1.7	1.8	2.0	2.3	▲
ZSTNB2002-1.5-04			1.5	0.4			0.19			1.77	10.4	2.0	2.2	2.4	2.6	2.9	▲
ZSTNB2002-2-09			2.0	0.9			0.23			1.10	10.1	x	2.8	3.1	3.4	3.9	▲
ZSTNB2002-2.5-09			2.5	0.9			0.24			1.10	9.6	x	3.3	3.7	4.0	4.5	▲
ZSTNB2003-2-04	0.15	0.30	2.0	0.4	0.25	0.28	0.29	50	4	2.19	10.0	2.5	2.8	3.0	3.2	3.5	▲
ZSTNB2003-3-09			3.0	0.9			0.36			1.20	9.3	x	3.8	4.2	4.5	5.1	▲
ZSTNB2003-4-09			4.0	0.9			0.39			1.20	8.6	x	4.8	5.3	5.7	6.3	▲
ZSTNB2004-2-04	0.20	0.40	2.0	0.4	0.30	0.37	0.39	50	4	2.20	10.0	2.5	2.8	3.0	3.2	3.5	▲
ZSTNB2004-3-04			3.0	0.4			0.41			2.44	9.1	3.6	3.9	4.1	4.4	4.8	▲
ZSTNB2004-4-04			4.0	0.4			0.42			2.44	8.4	4.7	5.2	5.6	5.9	6.5	▲
ZSTNB2004-4-09			4.0	0.9			0.49			1.25	8.5	x	4.8	5.3	5.7	6.3	▲
ZSTNB2004-5-04			5.0	0.4			0.44			2.44	7.8	5.7	6.3	6.7	7.1	7.7	▲
ZSTNB2004-5-09			5.0	0.9			0.52			1.25	7.9	x	5.9	6.4	6.8	7.5	▲
ZSTNB2005-4-04	0.25	0.50	4.0	0.4	0.35	0.47	0.52	50	4	2.49	8.4	4.6	5.0	5.3	5.5	5.9	▲
ZSTNB2005-8-09			8.0	0.9			0.71			1.30	6.5	x	8.9	9.6	10.1	10.9	▲
ZSTNB2005-12-09			12.0	0.9			0.84			1.30	5.3	x	13.0	13.9	14.5	15.4	▲
ZSTNB20054-2-04	0.27	0.54	2.0	0.4	0.37	0.52	0.54	50	4	1.80	10.0	2.3	2.5	2.7	2.8	3.0	▲
ZSTNB20054-4-04			4.0				0.57			1.80	8.4	4.5	4.9	5.2	5.5	5.9	▲
ZSTNB20054-5-04			5.0				0.59			1.80	7.8	5.5	6.0	6.3	6.6	7.1	▲
ZSTNB20054-6-04			6.0				0.60			1.80	7.2	6.7	7.3	7.8	8.2	8.8	▲
ZSTNB20054-6.5-04			6.5				0.61			1.80	7.0	7.2	7.9	8.3	8.7	9.4	▲
ZSTNB20054-7-04			7.0				0.61			1.80	6.8	7.7	8.4	8.9	9.3	10.0	▲
ZSTNB2006-2-04	0.30	0.60	2.0	0.4	0.40	0.57	0.59	50	4	2.17	10.0	2.4	2.5	2.7	2.8	3.0	▲
ZSTNB2006-4-04			4.0				0.62			2.54	8.4	4.6	5.0	5.2	5.5	5.9	▲
ZSTNB2006-6-04			6.0				0.65			2.54	7.2	6.8	7.4	7.8	8.2	8.8	▲
ZSTNB2006-6-09			6.0	0.9			0.75			1.35	7.3	x	6.9	7.5	7.9	8.6	▲
ZSTNB2006-8-09			8.0				0.81			1.35	6.4	x	8.9	9.6	10.1	10.9	▲
ZSTNB2006-10-04			10.0	0.4			0.70			2.54	5.6	10.8	11.7	12.2	12.7	13.5	▲
ZSTNB2006-10-09			10.0	0.9			0.87			1.35	5.7	x	11.0	11.8	12.3	13.2	▲
ZSTNB2006-12-09			12.0				0.93	55		1.35	5.2	x	13.0	13.9	14.5	15.4	▲
ZSTNB2006-15-04			15.0	0.4			0.77			2.54	4.4	15.9	17.0	17.6	18.2	19.2	▲
ZSTNB2006-15-09			15.0	0.9			1.03			1.35	4.5	x	16.1	17.1	17.7	18.8	▲

X No application
— No interference

※ These tools are manufactured based on order received.

▲Stock △Non-Stock

Recommended Cutting Conditions B101~B104

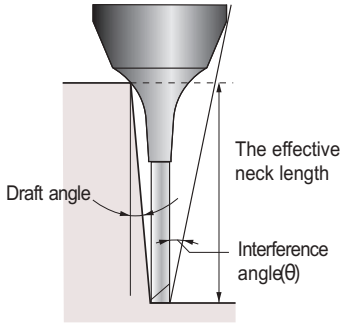
TOTIME Carbide End Mill Cutter
For High Hardened Steels(≤HRC65)

P H

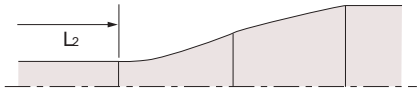
ZSTNB20..-..-. SERIES

MG HM | 2 | TiAlN | 30° | D≤6 R ±0.005 | D>6 R ±0.010

2 FLUTE, TAPER NECK BACK DRAFT TYPE



► If the workpiece has draft angle, the interference length will be longer than the L2.
► Please refer to the effective neck length for the various draft angles
► In addition, the angle at which the tool will interfere with the workpiece is shown as the "interference angle θ2", and should also be referred to



※ The effective neck length shown is not an exact value and to avoid contact with the workpiece, we recommend the user control the precise value of this length.

Order No.	Dimension(mm)											Effective Neck Length					Stock
	R	D	L2	θ	L1	d1	d2	L3	d3	App. L	θ2	0.5°	1°	1.5°	2°	3°	
ZSTNB2008-4-04	0.40	0.8	4	0.4	0.50	0.77	0.82	50	4	2.64	8.3	4.6	4.9	5.2	5.5	5.9	▲
ZSTNB2008-6-04			6				0.85			2.64	7.1	6.6	7.1	7.5	7.7	8.3	▲
ZSTNB2008-8-09			8	0.9			1.01			1.45	6.3	x	8.9	9.6	10.1	10.9	▲
ZSTNB2008-12-09			12				1.13	55		1.45	5.0	x	13.0	13.9	14.5	15.4	▲
ZSTNB2008-16-09			16				1.26			1.45	4.2	x	17.1	18.1	18.8	19.9	▲
ZSTNB2009-4-04	0.45	0.9	4	0.4	0.60	0.86	0.91	50	4	3.46	8.2	4.5	4.7	4.9	5.1	5.4	▲
ZSTNB2009-8-04			8				0.96	55		3.46	6.1	8.7	9.3	9.7	10.0	10.6	▲
ZSTNB2009-12-04			12				1.02			3.46	4.8	12.9	13.8	14.4	14.9	15.7	▲
ZSTNB2009-16-04			16				1.08	60		3.46	4.0	17.0	18.0	18.7	19.3	20.5	▲
ZSTNB2009-18-04			18				1.10	65		3.46	3.7	19.1	20.1	20.9	21.5	23.1	▲
ZSTNB2009-20-04			20				1.13			3.46	3.4	21.1	22.2	23.0	23.6	25.6	▲
ZSTNB2009-22-04			22				1.16			3.46	3.2	23.1	24.3	25.1	25.8	28.2	▲
ZSTNB2009-24-04			24				1.19	70		3.46	3.0	25.2	26.4	27.2	27.9	-	▲
ZSTNB2010-6-04	0.50	1	6	0.4	0.80	0.94	1.01	50	6	5.09	8.3	6.8	7.2	7.5	7.8	8.3	▲
ZSTNB2010-8-04			8				1.04	55		5.09	7.5	8.8	9.3	9.7	10.0	10.6	▲
ZSTNB2010-10-04			10				1.07			5.09	6.8	11.0	11.7	12.3	12.7	13.5	▲
ZSTNB2010-10-09			10	0.9			1.23			2.70	6.9	x	11.2	11.9	12.4	13.2	▲
ZSTNB2010-15-09			15				1.39	60		2.70	5.7	x	16.2	17.1	17.8	18.8	▲
ZSTNB2010-20-04			20	0.4			1.21	65		5.09	4.7	21.2	22.3	23.0	23.6	25.7	▲
ZSTNB2010-20-09			20	0.9			1.54			2.70	4.8	x	21.3	22.4	23.1	24.6	▲
ZSTNB2010-25-09			25				1.70	70		2.70	4.2	x	26.4	27.6	28.4	30.8	▲
ZSTNB2010-30-04			30	0.4			1.35	75		5.09	3.6	31.3	32.7	33.6	34.8	38.5	▲
ZSTNB2010-30-09			30	0.9			1.86			2.70	3.7	x	31.4	32.8	33.7	36.9	▲
ZSTNB2010-35-09			35				2.02	80		2.70	3.3	x	36.5	38.0	39.0	43.1	▲
ZSTNB2010-40-09			40				2.17	85		2.70	3.0	x	41.6	43.2	44.4	-	▲
ZSTNB2010-50-09			50				2.49	95		2.70	2.5	x	51.7	53.5	55.5	-	▲
ZSTNB2010-60-09			60				2.80	105		2.70	2.2	x	61.8	63.8	66.6	-	▲
ZSTNB2010-70-09			70				3.11	115		2.70	1.9	x	71.9	74.0	-	-	▲
ZSTNB2015-8-04	0.75	1.5	8	0.4	1.35	1.42	1.51	55	6	7.07	7.3	8.9	9.4	9.7	10.0	10.6	▲
ZSTNB2015-10-04			10				1.54			7.07	6.6	10.9	11.5	11.9	12.2	12.9	▲

X No application
— No interference

※ These tools are manufactured based on order received.

▲Stock △Non-Stock

Recommended Cutting Conditions B101~B104

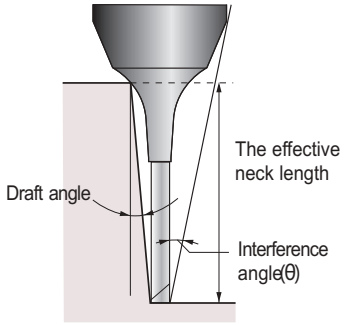
TOTIME Carbide End Mill Cutter
For High Hardened Steels(≤HRC65)

P H

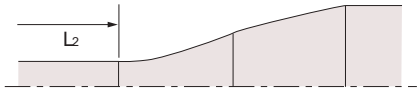
ZSTNB20..-..-. SERIES

MG HM | 2 | TiAlN | 30° | D≤6 R ±0.005 | D>6 R ±0.010

2 FLUTE, TAPER NECK BACK DRAFT TYPE



► If the workpiece has draft angle, the interference length will be longer than the L2.
► Please refer to the effective neck length for the various draft angles
► In addition, the angle at which the tool will interfere with the workpiece is shown as the "interference angle θ2", and should also be referred to



※ The effective neck length shown is not an exact value and to avoid contact with the workpiece, we recommend the user control the precise value of this length.

Order No.	Dimension(mm)											Effective Neck Length					Stock
	R	D	L2	θ	L1	d1	d2	L3	d3	App. L	θ2	0.5°	1°	1.5°	2°	3°	
ZSTNB2015-12-04	0.75	1.5	12	0.4	1.35	1.42	1.57	55	6	7.07	6.0	13.0	13.6	14.0	14.4	15.4	▲
ZSTNB2015-15-09			15	0.9			1.85	60		3.89	5.4	x	16.4	17.2	17.8	18.8	▲
ZSTNB2015-20-09			20				2.01	65		3.89	4.5	x	21.4	22.4	23.2	24.7	▲
ZSTNB2015-30-09			30				2.32	75		3.89	3.4	x	31.5	32.9	33.7	37.0	▲
ZSTNB2018-4-04	0.9	1.8	4	0.4	1.6	1.73	1.76	50	6	4.38	9.2	4.6	4.8	4.9	5.1	5.4	▲
ZSTNB2018-8-04			8				1.82			6.61	7.1	8.6	9.0	9.2	9.4	10.2	▲
ZSTNB2018-12-04			12				1.88	55		6.61	5.8	12.9	13.5	14.0	14.4	15.4	▲
ZSTNB2018-16-04			16				1.93	60		6.61	4.9	17.0	17.7	18.3	18.7	20.5	▲
ZSTNB2018-20-04			20				1.99	65		6.61	4.3	21.2	22.3	23.0	23.6	25.6	▲
ZSTNB2018-24-04			24				2.04			6.61	3.8	25.3	26.5	27.3	27.9	30.8	▲
ZSTNB2018-28-04			28				2.10	70		6.61	3.4	29.4	30.6	31.5	32.4	35.9	▲
ZSTNB2018-32-04			32				2.15			6.61	3.0	33.4	34.8	35.7	37.1	-	▲
ZSTNB2018-36-04			36				2.21	75		6.61	2.8	37.5	38.9	39.9	41.7	-	▲
ZSTNB2018-38-04			38				2.24	80		6.61	2.7	39.5	41.0	42.0	44.0	-	▲
ZSTNB2018-40-04			40				2.27			6.61	2.6	41.5	43.1	44.2	46.3	-	▲
ZSTNB2020-8-04	1.0	2.0	8	0.4	1.7	1.92	2.01	50	6	7.42	7.0	8.7	9.0	9.2	9.5	10.2	▲
ZSTNB2020-12-04			12				2.06	55		7.42	5.7	13.0	13.6	14.0	14.4	15.4	▲
ZSTNB2020-16-04			16				2.12	60		7.42	4.8	17.0	17.7	18.3	18.7	20.5	▲
ZSTNB2020-20-04			20				2.18	65		7.42	4.1	21.3	22.3	23.0	23.6	25.6	▲
ZSTNB2020-20-09			20	0.9			2.50			4.24	4.2	x	21.4	22.4	23.2	24.6	▲
ZSTNB2020-25-09			25				2.65			4.24	3.6	x	26.5	27.7	28.5	30.8	▲
ZSTNB2020-30-04			30	0.4			2.32	70		7.42	3.1	31.4	32.7	33.6	34.8	38.5	▲
ZSTNB2020-30-09			30	0.9			2.81			4.24	3.2	x	31.6	32.9	33.7	36.9	▲
ZSTNB2020-35-09			35				2.97	75		4.24	2.8	x	36.6	38.0	39.0	-	▲
ZSTNB2020-40-04			40	0.4			2.46	80		7.42	2.5	41.5	43.1	44.2	46.3	-	▲
ZSTNB2020-40-09			40	0.9			3.12			4.24	2.6	x	41.7	43.2	44.5	-	▲
ZSTNB2020-50-09			50				3.44	90		4.24	2.1	x	51.8	53.5	55.5	-	▲
ZSTNB2020-60-09			60				3.75	100		4.24	1.8	x	61.9	63.8	-	-	▲
ZSTNB2020-70-09			70				4.07	110		4.24	1.6	x	72.0	74.1	-	-	▲
ZSTNB2030-8-04	1.5	3.0	8	0.4	2.5	2.86	2.94	50	6	8.50	6.3	8.8	9.1	9.3	9.5	10.3	▲
ZSTNB2030-16-04			16				3.05	55		12.52	4.1	17.2	17.8	18.3	18.7	20.6	▲

X No application
— No interference

▲Stock △Non-Stock

※ These tools are manufactured based on order received.

Recommended Cutting Conditions B101~B104

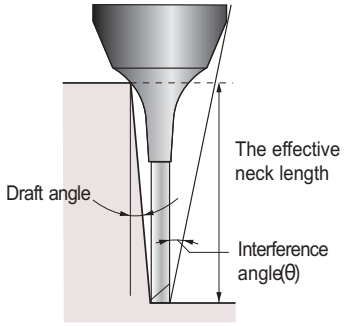
TOTIME Carbide End Mill Cutter
For High Hardened Steels(≤HRC65)

P H

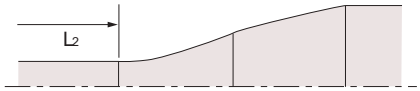
ZSTNB20..-..-. SERIES

MG HM | 2 | TiAlN | 30° | D≤6 R ±0.005 | D>6 R ±0.010

2 FLUTE, TAPER NECK BACK DRAFT TYPE



► If the workpiece has draft angle, the interference length will be longer than the L2.
► Please refer to the effective neck length for the various draft angles
► In addition, the angle at which the tool will interfere with the workpiece is shown as the "interference angle θ2", and should also be referred to



※ The effective neck length shown is not an exact value and to avoid contact with the workpiece, we recommend the user control the precise value of this length.

Order No.	Dimension(mm)											Effective Neck Length					Stock
	R	D	L2	θ	L1	d1	d2	L3	d3	App. L	θ2	0.5°	1°	1.5°	2°	3°	
ZSTNB2030-20-04	1.5	3	20	0.4	2.5	2.86	3.10	60	6	12.52	3.4	21.2	22.0	22.6	23.3	25.7	▲
ZSTNB2030-30-04			30				3.24	70		12.52	2.5	31.6	32.8	33.7	34.9	-	▲
ZSTNB2030-30-09			30	0.9			3.72			6.95	2.6	x	31.8	33.0	33.8	-	▲
ZSTNB2030-40-04			40	0.4			3.38	80		12.52	2.0	41.7	43.2	44.3	-	-	▲
ZSTNB2030-40-09			40	0.9			4.04			6.95	2.0	x	41.9	43.3	-	-	▲
ZSTNB2030-50-09			50				4.35	90		6.95	1.7	x	52.0	53.6	-	-	▲
ZSTNB2030-60-09			60				4.67	100		6.95	1.4	x	62.1	-	-	-	▲
ZSTNB2030-70-09			70				4.98	110		6.95	1.2	x	72.1	-	-	-	▲
ZSTNB2040-20-10	2.0	4	20	1.0	8.0	3.86	4.28	70	8	12.01	5.0	20.5	21.6	22.3	22.8	23.5	▲
ZSTNB2040-30-10			30				4.63	80		12.01	3.51	22.0	31.6	32.5	33.2	34.16	▲
ZSTNB2040-40-10			40				4.98	90		12.01	2.7	22.0	42.0	43.4	44.3	-	▲
ZSTNB2040-50-10			50				5.33	100		12.01	2.2	22.0	52.0	53.6	54.7	-	▲
ZSTNB2040-60-10			60				5.68	110		12.01	1.9	22.0	62.0	63.8	-	-	▲
ZSTNB2050-30-10	2.5	5	30	1.0	10.0	4.86	5.56	80	8	14.01	2.8	25.5	31.7	32.6	33.2	-	▲
ZSTNB2050-40-10			40				5.91	90		14.01	2.1	25.5	41.7	42.8	43.5	-	▲
ZSTNB2050-60-10			60				6.61	110		14.01	1.5	25.5	62.1	-	-	-	▲
ZSTNB2060-30-10	3.0	6	30	1.0	12.0	5.86	6.49	80	8	16.01	1.9	29.0	31.8	32.6	-	-	▲
ZSTNB2060-40-10			40				6.84	90		16.01	1.5	29.0	41.8	-	-	-	▲
ZSTNB2060-50-10			50				7.19	100		16.01	1.2	29.0	51.8	-	-	-	▲
ZSTNB2060-60-10			60				7.54	110	10	16.01	1.9	29.0	62.2	63.9	-	-	▲
ZSTNB2060-70-10			70				7.89	120		16.01	1.7	29.0	72.2	74.1	-	-	▲
ZSTNB2060-80-10			80				8.23	130		16.01	1.5	29.0	82.2	-	-	-	▲
ZSTNB2080-50-10	4.0	8	50	1.0	14.0	7.86	9.12	110	10	18.01	1.2	32.0	51.9	-	-	-	▲
ZSTNB2080-60-10			60				9.47	120		18.01	1.0	32.0	-	-	-	-	▲
ZSTNB2080-70-10			70				9.82	130		18.01	0.9	32.0	-	-	-	-	▲
ZSTNB2080-80-10			80				10.16	140	12	18.01	1.5	32.0	82.3	-	-	-	▲
ZSTNB2100-60-10	5.0	10	60	1.0	18.0	9.86	11.33	130	12	22.01	1.1	39.0	62.1	-	-	-	▲
ZSTNB2100-75-10			75				11.85	140		22.01	0.9	39.0	-	-	-	-	▲

X No application
– No interference

※ These tools are manufactured based on order received.

▲ Stock △ Non-Stock
Recommended Cutting Conditions B101~B104

■ Applicable Working Material

Carbon Steels (S45C, S55C...) ~ HB225	Alloy Steels (SCM, SK...) HB225~325	Prehardened Steels(NAK...) HRc30~50	Hardened Steels		Copper	Graphite	Cast Iron FCD400. 500~	Aluminum	Stainless Sheets
			~Hrc55 SKD61	~Hrc55 SKD11					
	○	○	◎	◎	○				

○: General Application ◎: The most suitable Application

■ Tolerance

Diameter	Radius	Shank Dia.
up to 6	±0.005	h6
over 6	±0.01	

※Items can be changed for quality improvement without notice.

TOTIME Carbide End Mill Cutter
For High Hardened Steels(≤HRC65)

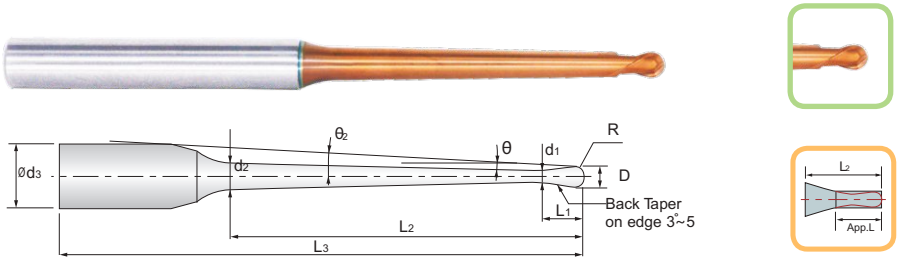
P H

ZSTNB30..-..-. SERIES

MG HM | 3 | TiAlN | 30° | D≤6 R ±0.005 | D>6 R ±0.010

3 FLUTE, TAPER NECK BACK DRAFT TYPE

The effective neck length shown is not an exact value and to avoid contact with the workpiece, we recommend the user control the precise value of this length.



※R2 or higher is not applied to Back draft type.

Order No.	Dimension(mm)											Effective Neck Length					Stock
	R	D	L2	θ	L1	d1	d2	L3	d3	App. L	θ2	0.5°	1°	1.5°	2°	3°	
ZSTNB3020-8-04	1.0	2	8	0.4	1.7	1.92	2.01	50	6	7.42	7.0	8.7	9.0	9.2	9.5	10.2	▲
ZSTNB3020-12-04			12				2.06	55		7.42	5.7	13.0	13.6	14.0	14.4	15.4	▲
ZSTNB3020-16-04			16				2.12	60		7.42	4.8	17.0	17.7	18.3	18.7	20.5	▲
ZSTNB3020-20-04			20				2.18			7.42	4.1	21.3	22.3	23.0	23.6	25.6	▲
ZSTNB3020-20-09			20	0.9			2.50	65		4.24	4.2	x	21.4	22.4	23.2	24.6	▲
ZSTNB3020-25-09			25				2.65			4.24	3.6	x	26.5	27.7	28.5	30.8	▲
ZSTNB3020-30-04			30	0.4			2.32	70		7.42	3.1	31.4	32.7	33.6	34.8	38.5	▲
ZSTNB3020-30-09			30	0.9			2.81			4.24	3.2	x	31.6	32.9	33.7	36.9	▲
ZSTNB3020-35-09			35				2.97	75		4.24	2.8	x	36.6	38.0	39.0	-	▲
ZSTNB3020-40-04			40	0.4			2.46	80		7.42	2.5	41.5	43.1	44.2	46.3	-	▲
ZSTNB3020-40-09			40	0.9			3.12	80		4.24	2.6	x	41.7	43.2	44.5	-	▲
ZSTNB3020-50-09			50				3.44	90		4.24	2.1	x	51.8	53.5	55.5	-	▲
ZSTNB3020-60-09			60				3.75	100		4.24	1.8	x	61.9	63.8	-	-	▲
ZSTNB3020-70-09			70				4.07	110		4.24	1.6	x	72.0	74.1	-	-	▲
ZSTNB3030-8-04	1.5	3	8	0.4	2.5	2.86	2.94	50	6	8.50	6.3	8.8	9.1	9.3	9.5	10.3	▲
ZSTNB3030-16-04			16				3.05	55		12.52	4.1	17.2	17.8	18.3	18.7	20.6	▲
ZSTNB3030-20-04			20				3.10	60		12.52	3.4	21.2	22.0	22.6	23.3	25.7	▲
ZSTNB3030-30-04			30				3.24	70		12.52	2.5	31.6	32.8	33.7	34.9	-	▲
ZSTNB3030-30-09			30	0.9			3.72			6.95	2.6	x	31.8	33.0	33.8	-	▲
ZSTNB3030-40-04			40	0.4			3.38	80		12.52	2.0	41.7	43.2	44.3	-	-	▲
ZSTNB3030-40-09			40	0.9			4.04			6.95	2.0	x	41.9	43.3	-	-	▲
ZSTNB3030-50-09			50				4.35	90		6.95	1.7	x	52.0	53.6	-	-	▲
ZSTNB3030-60-09			60				4.67	100		6.95	1.4	x	62.1	-	-	-	▲
ZSTNB3030-70-09			70				4.98	110		6.95	1.2	x	72.1	-	-	-	▲
ZSTNB3040-20-10	2.0	4	20	1.0	8.0	3.86	4.28	70	8	12.01	5.0	20.5	21.6	22.3	22.8	23.5	▲
ZSTNB3040-30-10			30				4.63	80		12.01	3.6	22.0	31.6	32.5	33.2	34.1	▲
ZSTNB3040-40-10			40				4.98	90		12.01	2.7	22.0	42.0	43.4	44.3	-	▲
ZSTNB3040-50-10			50				5.33	100		12.01	2.2	22.0	52.0	53.6	54.7	-	▲
ZSTNB3040-60-10			60				5.68	110		12.01	1.9	22.0	62.0	63.8	-	-	▲
ZSTNB3050-30-10	2.5	5	30	1.0	10.0	4.86	5.56	80	8	14.01	2.8	25.5	31.7	32.6	33.2	-	▲
ZSTNB3050-40-10			40				5.91	90		14.01	2.1	25.5	41.7	42.8	43.5	-	▲
ZSTNB3050-60-10			60				6.61	110		12.52	1.5	25.5	62.1	-	-	-	▲

X No application
– No interference

※ These tools are manufactured based on order received.

▲Stock △Non-Stock

Recommended Cutting Conditions B101~B104

TOTIME Carbide End Mill Cutter
For High Hardened Steels(≤HRC65)

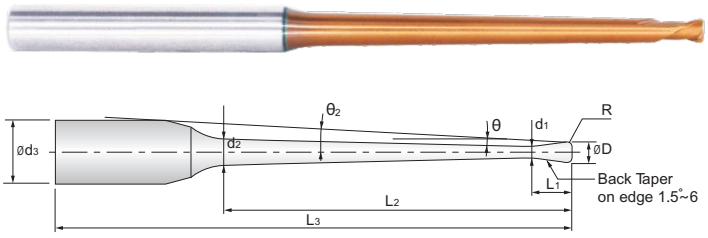
P H

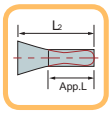
ZSTNR..-..-. SERIES

MG HM | 2 | TiAlN | 30° | D≤6 R ±0.005 | D>6 R ±0.010

2 FLUTE, TAPER NECK BACK DRAFT TYPE

The effective neck length shown is not an exact value and to avoid contact with the workpiece, we recommend the user control the precise value of this length.





※R2 or higher is not applied to Back draft type.

Order No.	Dimension(mm)											Effective Neck Length					Stock
	D	R	L2	θ	L1	d1	d2	L3	d3	App. L	θ2	0.5°	1°	1.5°	2°	3°	
ZSTNR2002-2-09005	0.2	0.05	2	0.9	0.15	0.17	0.23	50	4	1.10	10.0	x	2.8	3.1	3.4	3.9	▲
ZSTNR2004-4-09005	0.4	0.05	4	0.9	0.30	0.37	0.49	50	4	1.25	8.4	x	4.9	5.3	5.7	6.3	▲
ZSTNR2004-5-09005			5	0.9			0.52			1.25	7.8	x	5.9	6.4	6.8	7.5	▲
ZSTNR2004-4-0901		0.10	4	0.9			0.49			1.25	8.5	x	4.9	5.3	5.7	6.3	▲
ZSTNR2004-5-0901			5	0.9			0.52			1.25	7.9	x	5.9	6.4	6.8	7.5	▲
ZSTNR2005-5-0901	0.5	0.10	5	0.9	0.35	0.47	0.62	50	4	1.30	7.8	x	5.9	6.4	6.8	7.5	▲
ZSTNR2005-8-0901			8	0.9			0.71			1.30	6.4	x	9.0	9.7	10.2	11.0	▲
ZSTNR2005-10-0901			10	0.9			0.77	55		1.30	5.8	x	11.0	11.8	12.4	13.2	▲
ZSTNR2006-12-0901	0.6	0.10	12	0.9	0.40	0.57	0.93	55	4	1.35	5.1	x	13.0	13.9	14.5	15.5	▲
ZSTNR2006-15-0901			15	0.9			1.03			1.35	4.5	x	16.1	17.1	17.8	18.8	▲
ZSTNR2008-6-0402	0.8	0.20	6	0.4	0.50	0.77	0.85	50	4	2.64	7.0	6.6	7.1	7.5	7.8	8.3	▲
ZSTNR2008-12-0902			12	0.9			1.13	55		1.45	5.0	x	13.0	13.9	14.5	15.5	▲
ZSTNR2010-8-0402	1.0	0.20	8	0.4	0.80	0.94	1.04	55	6	5.09	7.4	8.8	9.3	9.7	10.1	10.6	▲
ZSTNR2010-10-0902			10	0.9			1.23			5.09	6.8	x	11.2	11.9	12.4	13.3	▲
ZSTNR2010-15-0902			15	0.9			1.39	60		2.70	5.6	x	16.3	17.2	17.8	18.8	▲
ZSTNR2010-20-0902			20	0.9			1.54	65		2.70	4.8	x	21.3	22.4	23.2	24.7	▲
ZSTNR2010-25-0902			25	0.9			1.70	70		2.70	4.1	x	26.4	27.6	28.5	30.9	▲
ZSTNR2010-30-0902			30	0.9			1.86	75		2.70	3.7	x	31.5	32.8	33.7	37.0	▲
ZSTNR2010-35-0902			35	0.9			2.02	80		2.70	3.3	x	36.5	38.0	39.0	43.2	▲
ZSTNR2010-8-0403		0.30	8	0.4			1.04	55		2.70	7.4	8.8	9.3	9.7	10.0	10.6	▲
ZSTNR2010-15-0903			15	0.9			1.39	60		2.70	5.6	x	16.3	17.2	17.8	18.8	▲
ZSTNR2010-25-0903			25	0.9			1.70	70		2.70	4.2	x	26.4	27.6	28.5	30.8	▲
ZSTNR2010-30-0903			30	0.9			1.86	75		2.70	3.7	x	31.5	32.8	33.7	37.0	▲
ZSTNR2015-10-0402	1.5	0.20	10	0.4	1.35	1.42	1.54	55	6	7.07	6.4	11.0	11.5	11.9	12.3	13.0	▲
ZSTNR2015-15-0902			15	0.9			1.85	60		7.07	5.3	x	16.4	17.3	17.9	18.9	▲
ZSTNR2015-20-0902			20	0.9			2.01	65		3.89	4.5	x	21.5	22.5	23.2	24.9	▲
ZSTNR2015-25-0902			25	0.9			2.16	70		3.89	3.9	x	26.6	27.7	28.5	31.0	▲
ZSTNR2015-30-0902			30	0.9			2.32	75		3.89	3.4	x	31.6	32.9	33.8	37.1	▲
ZSTNR2015-10-0403		0.30	10	0.4			1.54	55		3.89	6.4	11.0	11.5	11.9	12.3	13.0	▲

X No application
— No interference

※ These tools are manufactured based on order received.

▲ Stock △ Non-Stock

Recommended Cutting Conditions B105~B106

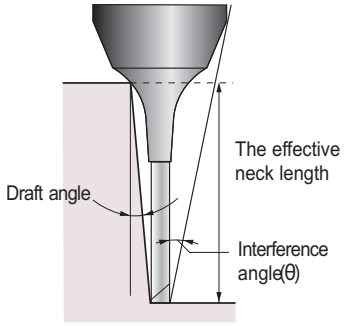
TOTIME Carbide End Mill Cutter
For High Hardened Steels(≤HRC65)

P H

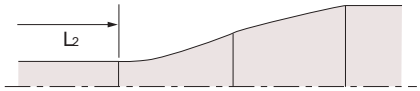
ZSTNR..-..-. SERIES

MG HM | 2 | TiAlN | 30° | D≤6 R ±0.005 | D>6 R ±0.010

2 FLUTE, TAPER NECK BACK DRAFT TYPE



► If the workpiece has draft angle, the interference length will be longer than the L2.
► Please refer to the effective neck length for the various draft angles
► In addition, the angle at which the tool will interfere with the workpiece is shown as the "interference angle θ2", and should also be referred to



※ The effective neck length shown is not an exact value and to avoid contact with the workpiece, we recommend the user control the precise value of this length.

Order No.	Dimension(mm)											Effective Neck Length					Stock
	D	R	L2	θ	L1	d1	d2	L3	d3	App. L	θ2	0.5°	1°	1.5°	2°	3°	
ZSTNR2015-20-0903	1.5	0.3	20	0.9	1.35	1.42	2.01	65	6	3.89	4.5	x	21.5	22.5	23.2	24.8	▲
ZSTNR2015-25-0903			25				2.16	70			3.9	x	26.5	27.7	28.5	31.0	▲
ZSTNR2015-30-0903			30				2.32	75			3.4	x	31.6	32.9	33.8	37.1	▲
ZSTNR2020-30-0902	2.0	0.2	30	0.9	1.70	1.92	2.81	70	6	7.42	3.1	x	31.6	32.9	33.8	37.2	▲
ZSTNR2020-40-0902			40				3.12	80			2.5	x	41.8	43.3	44.6	-	▲
ZSTNR2020-50-0902			50				3.44	90			2.1	x	51.9	53.6	55.7	-	▲
ZSTNR2020-12-0403		0.3	12	0.4			2.06	55		4.24	5.5	13.0	13.6	14.1	14.5	15.6	▲
ZSTNR2020-20-0903			20	0.9			2.50	65			4.1	x	21.5	22.5	23.2	24.9	▲
ZSTNR2020-30-0903			30				2.81	70			3.1	x	31.6	32.9	33.8	37.1	▲
ZSTNR2020-40-0903			40				3.12	80			2.5	x	41.7	43.3	44.6	-	▲
ZSTNR2020-50-0903			50				3.44	90			2.1	x	51.8	53.6	55.7	-	▲
ZSTNR2020-8-0405		0.5	8	0.4			2.01	50			6.8	8.7	9.0	9.3	9.5	10.4	▲
ZSTNR2020-12-0405			12				2.06	55			5.6	13.0	13.6	14.1	14.4	15.5	▲
ZSTNR2020-16-0405			16				2.12	60			4.7	17.0	17.8	18.3	18.7	20.7	▲
ZSTNR2020-20-0905			20	0.9			2.50	65			4.2	x	21.5	22.5	23.2	24.8	▲
ZSTNR2020-25-0905			25				2.65	65			3.6	x	26.6	27.7	28.5	30.9	▲
ZSTNR2020-30-0905			30				2.81	70			3.1	x	31.6	32.9	33.8	37.1	▲
ZSTNR2020-40-0905			40				3.12	80			2.5	x	41.7	43.2	44.6	-	▲
ZSTNR2020-50-0905			50				3.44	90			2.1	x	51.8	53.6	55.6	-	▲
ZSTNR2030-40-0902	3.0	0.2	40	0.9	2.50	2.86	4.04	80	6	6.95	2.0	x	42.0	43.4	-	-	▲
ZSTNR2030-50-0902			50				4.35	90			1.6	x	52.1	53.7	-	-	▲
ZSTNR2030-60-0902			60				4.67	100			1.4	x	62.2	-	-	-	▲
ZSTNR2030-40-0903		0.3	40				4.04	80			2.0	x	42.0	43.4	-	-	▲
ZSTNR2030-50-0903			50				4.35	90			1.7	x	52.1	53.7	-	-	▲
ZSTNR2030-60-0903			60				4.67	100			1.4	x	62.2	-	-	-	▲
ZSTNR2030-40-0905		0.5	40				4.04	80			2.0	x	42.0	43.4	-	-	▲
ZSTNR2030-50-0905			50				4.35	90			1.7	x	52.1	53.7	-	-	▲
ZSTNR2030-60-0905			60				4.67	100			1.4	x	62.1	-	-	-	▲

X No application
– No interference

▲ Stock △ Non-Stock

※ These tools are manufactured based on order received.

Recommended Cutting Conditions B105~B106

■ Applicable Working Material

Carbon Steels (S45C, S55C...) ~ HB225	Alloy Steels (SCM, SK...) HB225~325	Prehardened Steels(NAK...) HRc30~50	Hardened Steels		Copper	Graphite	Cast Iron FCD400. 500~	Aluminum	Stainless Sheets
			~Hrc55 SKD61	~Hrc55 SKD11					
	○	○	◎	◎	○				

○: General Application ◎: The most suitable Application

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0.015	h6

※Items can be changed for quality improvement without notice.

TOTIME CBN End Mill(HRC≤70)
For High-Hardened Steels up to HRC70

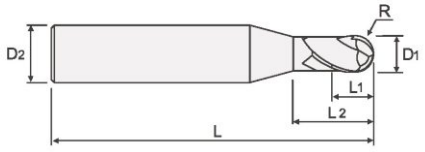
H

CN2BE SERIES

CBN 2 30° R ±0.005

CBN 2 FLUTE BALL NOSE

- ► Machining high hardness materials HRC50 to HRC70 into finish process for long time.
- ► High speed cutting with 20,000rpm and over 20,000rpm of tool and supplying air mist recommended
- ► Good cutting ability due to negative rake angle.



Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.010	h6

(mm)unit:mm

Order No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Stock
	R	D1	D2	L1	L2	L	
CN2BE002000 KKK	R0.10	0.2	4	0.2	-	40	▲
CN2BE002005 KKK	R0.10	0.2	4	0.2	0.5	40	▲
CN2BE002010 KKK	R0.10	0.2	4	0.2	1.0	40	▲
CNSBE003000 KKK	R0.15	0.3	4	0.3	-	40	▲
CN2BE003010 KKK	R0.15	0.3	4	0.3	1.0	40	▲
CN2BE003015 KKK	R0.15	0.3	4	0.3	1.5	40	▲
CN2BE003020 KKK	R0.15	0.3	4	0.3	2.0	40	▲
CN2BE004000 KKK	R0.20	0.4	4	0.4	-	40	▲
CN2BE004010 KKK	R0.20	0.4	4	0.4	1.0	40	▲
CN2BE004015 KKK	R0.20	0.4	4	0.4	1.5	40	▲
CN2BE004020 KKK	R0.20	0.4	4	0.4	2.0	40	▲
CN2BE004030 KKK	R0.20	0.4	4	0.4	3.0	40	▲
CN2BE005000 KKK	R0.25	0.5	4	0.5	-	45	▲
CN2BE005010 KKK	R0.25	0.5	4	0.5	1.0	45	▲
CN2BE005020 KKK	R0.25	0.5	4	0.5	2.0	45	▲
CN2BE005030 KKK	R0.25	0.5	4	0.5	3.0	45	▲
CN2BE005040 KKK	R0.25	0.5	4	0.5	4.0	45	▲
CN2BE006000 KKK	R0.30	0.6	4	0.6	-	45	▲
CN2BE006020 KKK	R0.30	0.6	4	0.6	2.0	45	▲
CN2BE006030 KKK	R0.30	0.6	4	0.6	3.0	45	▲
CN2BE006040 KKK	R0.30	0.6	4	0.6	4.0	45	▲
CN2BE006060 KKK	R0.30	0.6	4	0.6	6.0	45	▲
CN2BE008000 KKK	R0.40	0.8	4	0.8	-	45	▲
CN2BE008020 KKK	R0.40	0.8	4	0.8	2.0	45	▲
CN2BE008040 KKK	R0.40	0.8	4	0.8	4.0	45	▲
CN2BE008060 KKK	R0.40	0.8	4	0.8	6.0	45	▲
CN2BE008080 KKK	R0.40	0.8	4	0.8	8.0	45	▲

▲Stock △Non-Stock

Recommended Cutting Conditions B107~B108

● Recommend ○ Suit

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened steels			Cast Iron	Aluminum	Copper Alloy	Stainless Steels	Titanium	Graphite	CFRP
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
				●	●							

TOTIME CBN End Mill(HRC≤70)
For High-Hardened Steels up to HRC70

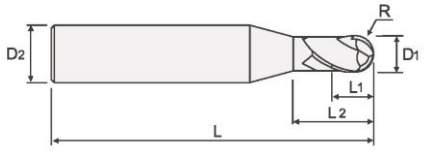
H

CN2BE SERIES

CBN 2 30° R ±0.005

CBN 2 FLUTE BALL NOSE

- ► Machining high hardness materials HRC50 to HRC70 into finish process for long time.
- ► High speed cutting with 20,000rpm and over 20,000rpm of tool and supplying air mist recommended
- ► Good cutting ability due to negative rake angle.



Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.010	h6

(mm)unit:mm

Order No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Stock
	R	D1	D2	L1	L2	L	
CN2BE010000 KKK	R0.50	1.0	4	1.0	-	50	▲
CN2BE010025 KKK	R0.50	1.0	4	1.0	2.5	50	▲
CN2BE010040 KKK	R0.50	1.0	4	1.0	4.0	50	▲
CN2BE010060 KKK	R0.50	1.0	4	1.0	6.0	50	▲
CN2BE010080 KKK	R0.50	1.0	4	1.0	8.0	50	▲
CN2BE012000 KKK	R0.60	1.2	4	1.2	-	50	▲
CN2BE012030 KKK	R0.60	1.2	4	1.2	3.0	50	▲
CN2BE012040 KKK	R0.60	1.2	4	1.2	4.0	50	▲
CN2BE012060 KKK	R0.60	1.2	4	1.2	6.0	50	▲
CN2BE012080 KKK	R0.60	1.2	4	1.2	8.0	50	▲
CN2BE015000 KKK	R0.75	1.5	4	1.5	-	50	▲
CN2BE015040 KKK	R0.75	1.5	4	1.5	4.0	50	▲
CN2BE015060 KKK	R0.75	1.5	4	1.5	6.0	50	▲
CN2BE015080 KKK	R0.75	1.5	4	1.5	8.0	50	▲
CN2BE015100 KKK	R0.75	1.5	4	1.5	10.0	50	▲
CN2BE020000 KKK	R1.00	2.0	4	2.0	-	50	▲
CN2BE020060 KKK	R1.00	2.0	4	2.0	6.0	50	▲
CN2BE020080 KKK	R1.00	2.0	4	2.0	8.0	50	▲
CN2BE020100 KKK	R1.00	2.0	4	2.0	10.0	50	▲
CN2BE030000 KKK	R1.50	3.0	4	2.5	-	50	▲
CN2BE030080 KKK	R1.50	3.0	4	2.5	8.0	50	▲
CN2BE030100 KKK	R1.50	3.0	4	2.5	10.0	50	▲
CN2BE030120 KKK	R1.50	3.0	4	2.5	12.0	50	▲
CN2BE030160 KKK	R1.50	3.0	4	2.5	16.0	60	▲
CN2BE030200 KKK	R1.50	3.0	4	2.5	20.0	60	▲

▲Stock △Non-Stock

Recommended Cutting Conditions B107~B108

● Recommend ○ Suit

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened steels			Cast Iron	Aluminum	Copper Alloy	Stainless Steels	Titanium	Graphite	CFRP
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
				●	●							

TOTIME CBN End Mill(HRC≤70)

For High-Hardened Steels up to HRC70

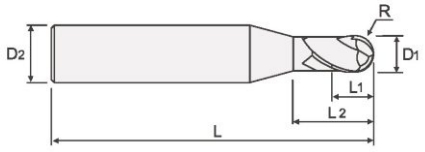
H

CP2BE SERIES

CBN 2 30° R ±0.005

CBN 2 FLUTE BALL NOSE

- ► Machining high hardness materials HRC50 to HRC70 into finish process for long time.
- ► High speed cutting with 20,000rpm and over 20,000rpm of tool and supplying air mist recommended
- ► Good cutting ability due to negative rake angle.



Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.010	h6

(mm)unit:mm

Order No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Stock
	R	D1	D2	L1	L2	L	
CP2BE002000 KKK	R0.10	0.2	4	0.2	-	40	▲
CP2BE002005 KKK	R0.10	0.2	4	0.2	0.5	40	▲
CP2BE002010 KKK	R0.01	0.2	4	0.2	1.0	40	▲
CP2BE003000 KKK	R0.15	0.3	4	0.3	-	40	▲
CP2BE003010 KKK	R0.15	0.3	4	0.3	1.0	40	▲
CP2BE003015 KKK	R0.15	0.3	4	0.3	1.5	40	▲
CP2BE003020 KKK	R0.15	0.3	4	0.3	2.0	40	▲
CP2BE004000 KKK	R0.20	0.4	4	0.4	-	40	▲
CP2BE004010 KKK	R0.20	0.4	4	0.4	1.0	40	▲
CP2BE004015 KKK	R0.20	0.4	4	0.4	1.5	40	▲
CP2BE004020 KKK	R0.20	0.4	4	0.4	2.0	40	▲
CP2BE004030 KKK	R0.20	0.4	4	0.4	3.0	40	▲
CP2BE005000 KKK	R0.25	0.5	4	0.5	-	45	▲
CP2BE005010 KKK	R0.25	0.5	4	0.5	1.0	45	▲
CP2BE005020 KKK	R0.25	0.5	4	0.5	2.0	45	▲
CP2BE005030 KKK	R0.25	0.5	4	0.5	3.0	45	▲
CP2BE005040 KKK	R0.25	0.5	4	0.5	4.0	45	▲
CP2BE006000 KKK	R0.30	0.6	4	0.6	-	45	▲
CP2BE006020 KKK	R0.30	0.6	4	0.6	2.0	45	▲
CP2BE006030 KKK	R0.30	0.6	4	0.6	3.0	45	▲
CP2BE006040 KKK	R0.30	0.6	4	0.6	4.0	45	▲
CP2BE006060 KKK	R0.30	0.6	4	0.6	6.0	45	▲
CP2BE008000 KKK	R0.40	0.8	4	0.8	-	45	▲
CP2BE008020 KKK	R0.40	0.8	4	0.8	2.0	45	▲
CP2BE008040 KKK	R0.40	0.8	4	0.8	4.0	45	▲
CP2BE008060 KKK	R0.40	0.8	4	0.8	6.0	45	▲
CP2BE008080 KKK	R0.40	0.8	4	0.8	8.0	45	▲

▲Stock △Non-Stock

Recommended Cutting Conditions B107~B108

● Recommend ○ Suit

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened steels			Cast Iron	Aluminum	Copper Alloy	Stainless Steels	Titanium	Graphite	CFRP
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
				●	●							

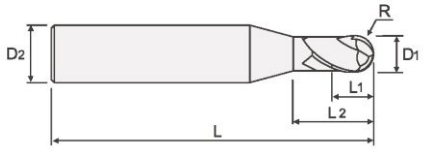
TOTIME CBN End Mill(HRC≤70)
For High-Hardened Steels up to HRC70

CP2BE SERIES

CBN 2 30° R ±0.005

CBN 2 FLUTE BALL NOSE

- ► Machining high hardness materials HRC50 to HRC70 into finish process for long time.
- ► High speed cutting with 20,000rpm and over 20,000rpm of tool and supplying air mist recommended
- ► Good cutting ability due to negative rake angle.



Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.010	h6

(mm)unit:mm

Order No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Stock
	R	D1	D2	L1	L2	L	
CP2BE010000 KKK	R0.50	1.0	4	1.2	-	50	▲
CP2BE010025 KKK	R0.50	1.0	4	1.2	2.5	50	▲
CP2BE010040 KKK	R0.50	1.0	4	1.2	4.0	50	▲
CP2BE010060 KKK	R0.50	1.0	4	1.2	6.0	50	▲
CP2BE010080 KKK	R0.05	1.0	4	1.2	8.0	50	▲
CP2BE012000 KKK	R0.60	1.2	4	1.2	-	50	▲
CP2BE012030 KKK	R0.60	1.2	4	1.2	3.0	50	▲
CP2BE012040 KKK	R0.60	1.2	4	1.2	4.0	50	▲
CP2BE012060 KKK	R0.60	1.2	4	1.2	6.0	50	▲
CP2BE012080 KKK	R0.60	1.2	4	1.2	8.0	50	▲
CP2BE015000 KKK	R0.75	1.5	4	1.5	-	50	▲
CP2BE015040 KKK	R0.75	1.5	4	1.5	4.0	50	▲
CP2BE015060 KKK	R0.75	1.5	4	1.5	6.0	50	▲
CP2BE015080 KKK	R0.75	1.5	4	1.5	8.0	50	▲
CP2BE015100 KKK	R0.75	1.5	4	1.5	10.0	50	▲
CP2BE020000 KKK	R1.00	2.0	4	2.0	-	50	▲
CP2BE020060 KKK	R1.00	2.0	4	2.0	6.0	50	▲
CP2BE020080 KKK	R1.00	2.0	4	2.0	8.0	50	▲
CP2BE020100 KKK	R1.00	2.0	4	2.0	10.0	50	▲
CP2BE030000 KKK	R1.50	3.0	4	2.5	-	50	▲
CP2BE030080 KKK	R1.50	3.0	4	2.5	8.0	50	▲
CP2BE030100 KKK	R1.50	3.0	4	2.5	10.0	50	▲
CP2BE030120 KKK	R1.50	3.0	4	2.5	12.0	50	▲
CP2BE030160 KKK	R1.50	3.0	4	2.5	16.0	60	▲
CP2BE030200 KKK	R1.50	3.0	4	2.5	20.0	60	▲

▲Stock △Non-Stock

Recommended Cutting Conditions B107~B108

● Recommend ○ Suit

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened steels			Cast Iron	Aluminum	Copper Alloy	Stainless Steels	Titanium	Graphite	CFRP
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
				●	●							

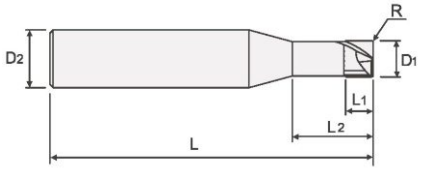
TOTIME CBN End Mill(HRC≤70)
For High-Hardened Steels up to HRC70

CN2CR SERIES

CBN 2 0° R ±0.005

CBN, 2 FLUTE CORNER RADIUS

- ► Machining high hardness materials HRC50 to HRC70 into finish process for long time.
- ► High speed cutting with 20,000rpm and over 20,000rpm of tool and supplying air mist recommended
- ► Good cutting ability due to negative rake angle.



Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.010	h6

(mm)unit:mm

Order No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Stock
	R	D1	D2	L1	L2	L	
CN2CR0020002 KKK	R0.02	0.2	4	0.2	-	40	▲
CN2CR0020052 KKK	R0.02	0.2	4	0.2	0.5	40	▲
CN2CR0020102 KKK	R0.02	0.2	4	0.2	1.0	40	▲
CN2CR0020005 KKK	R0.05	0.2	4	0.2	-	40	▲
CN2CR0020055 KKK	R0.05	0.2	4	0.2	0.5	40	▲
CN2CR0020105 KKK	R0.05	0.2	4	0.2	1.0	40	▲
CN2CR0030002 KKK	R0.02	0.3	4	0.3	-	40	▲
CN2CR0030102 KKK	R0.02	0.3	4	0.3	1.0	40	▲
CN2CR0030152 KKK	R0.02	0.3	4	0.3	1.5	40	▲
CN2CR0030202 KKK	R0.02	0.3	4	0.3	2.0	40	▲
CN2CR0030005 KKK	R0.05	0.3	4	0.3	-	40	▲
CN2CR0030105 KKK	R0.05	0.3	4	0.3	1.0	40	▲
CN2CR0030155 KKK	R0.05	0.3	4	0.3	1.5	40	▲
CN2CR0030205 KKK	R0.05	0.3	4	0.3	2.0	40	▲
CN2CR0040002 KKK	R0.02	0.4	4	0.4	-	40	▲
CN2CR0040102 KKK	R0.02	0.4	4	0.4	1.0	40	▲
CN2CR0040152 KKK	R0.02	0.4	4	0.4	1.5	40	▲
CN2CR0040202 KKK	R0.02	0.4	4	0.4	2.0	40	▲
CN2CR0040302 KKK	R0.02	0.4	4	0.4	3.0	40	▲
CN2CR0040005 KKK	R0.05	0.4	4	0.4	-	40	▲
CN2CR0040105 KKK	R0.05	0.4	4	0.4	1.0	40	▲
CN2CR0040155 KKK	R0.05	0.4	4	0.4	1.5	40	▲
CN2CR0040205 KKK	R0.05	0.4	4	0.4	2.0	40	▲
CN2CR0040305 KKK	R0.05	0.4	4	0.4	3.0	40	▲
CN2CR0040001 KKK	R0.10	0.4	4	0.4	-	40	▲
CN2CR0040101 KKK	R0.10	0.4	4	0.4	1.0	40	▲
CN2CR0040151 KKK	R0.10	0.4	4	0.4	1.5	40	▲

▲Stock △Non-Stock

Recommended Cutting Conditions B109

● Recommend ○ Suit

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened steels			Cast Iron	Aluminum	Copper Alloy	Stainless Steels	Titanium	Graphite	CFRP
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
				●	●							

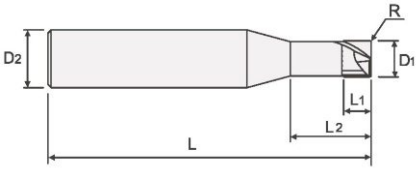
TOTIME CBN End Mill(HRC≤70)
For High-Hardened Steels up to HRC70

CN2CR SERIES

CBN 2 0° R ±0.005

CBN, 2 FLUTE CORNER RADIUS

- ► Machining high hardness materials HRC50 to HRC70 into finish process for long time.
- ► High speed cutting with 20,000rpm and over 20,000rpm of tool and supplying air mist recommended
- ► Good cutting ability due to negative rake angle.



Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.010	h6

(mm)unit:mm

Order No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Stock
	R	D1	D2	L1	L2	L	
CN2CR0040201 KKK	R0.10	0.4	4	0.4	2	40	▲
CN2CR0040301 KKK	R0.10	0.4	4	0.4	3	40	▲
CN2CR0050002 KKK	R0.02	0.5	4	0.5	-	40	▲
CN2CR0050102 KKK	R0.02	0.5	4	0.5	1	40	▲
CN2CR0050202 KKK	R0.02	0.5	4	0.5	2	40	▲
CN2CR0050302 KKK	R0.02	0.5	4	0.5	3	40	▲
CN2CR0050402 KKK	R0.02	0.5	4	0.5	4	40	▲
CN2CR0050005 KKK	R0.05	0.5	4	0.5	-	40	▲
CN2CR0050105 KKK	R0.05	0.5	4	0.5	1	40	▲
CN2CR0050205 KKK	R0.05	0.5	4	0.5	2	40	▲
CN2CR0050305 KKK	R0.05	0.5	4	0.5	3	40	▲
CN2CR0050405 KKK	R0.05	0.5	4	0.5	4	40	▲
CN2CR0050001 KKK	R0.10	0.5	4	0.5	-	40	▲
CN2CR0050101 KKK	R0.10	0.5	4	0.5	1	40	▲
CN2CR0050201 KKK	R0.10	0.5	4	0.5	2	40	▲
CN2CR0050301 KKK	R0.10	0.5	4	0.5	3	40	▲
CN2CR0050401 KKK	R0.10	0.5	4	0.5	4	40	▲
CN2CR0060002 KKK	R0.02	0.6	4	0.6	-	45	▲
CN2CR0060202 KKK	R0.02	0.6	4	0.6	2	45	▲
CN2CR0060302 KKK	R0.02	0.6	4	0.6	3	45	▲
CN2CR0060402 KKK	R0.02	0.6	4	0.6	4	45	▲
CN2CR0060005 KKK	R0.05	0.6	4	0.6	-	45	▲
CN2CR0060205 KKK	R0.05	0.6	4	0.6	2	45	▲
CN2CR0060305 KKK	R0.05	0.6	4	0.6	3	45	▲
CN2CR0060405 KKK	R0.05	0.6	4	0.6	4	45	▲
CN2CR0060001 KKK	R0.10	0.6	4	0.6	-	45	▲
CN2CR0060201 KKK	R0.10	0.6	4	0.6	2	45	▲

▲Stock △Non-Stock

Recommended Cutting Conditions B109

● Recommend ○ Suit

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened steels			Cast Iron	Aluminum	Copper Alloy	Stainless Steels	Titanium	Graphite	CFRP
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
				●	●							

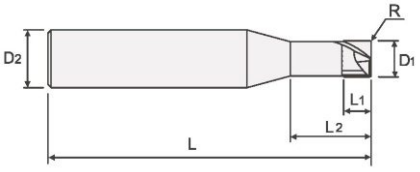
TOTIME CBN End Mill(HRC≤70)
For High-Hardened Steels up to HRC70

CN2CR SERIES

CBN 2 0° R ±0.005

CBN, 2 FLUTE CORNER RADIUS

- ► Machining high hardness materials HRC50 to HRC70 into finish process for long time.
- ► High speed cutting with 20,000rpm and over 20,000rpm of tool and supplying air mist recommended
- ► Good cutting ability due to negative rake angle.



Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.010	h6

(mm)unit:mm

Order No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Stock
	R	D1	D2	L1	L2	L	
CN2CR0060301 KKK	R0.10	0.6	4	0.6	3.0	45	▲
CN2CR0060401 KKK	R0.10	0.6	4	0.6	4.0	45	▲
CN2CR0060020 KKK	R0.20	0.6	4	0.6	-	45	▲
CN2CR0060220 KKK	R0.20	0.6	4	0.6	2.0	45	▲
CN2CR0060320 KKK	R0.20	0.6	4	0.6	3.0	45	▲
CN2CR0060420 KKK	R0.20	0.6	4	0.6	4.0	45	▲
CN2CR0080002 KKK	R0.02	0.8	4	0.8	-	45	▲
CN2CR0080202 KKK	R0.02	0.8	4	0.8	2.0	45	▲
CN2CR0080402 KKK	R0.02	0.8	4	0.8	4.0	45	▲
CN2CR0080602 KKK	R0.02	0.8	4	0.8	6.0	45	▲
CN2CR0080005 KKK	R0.05	0.8	4	0.8	-	45	▲
CN2CR0080205 KKK	R0.05	0.8	4	0.8	2.0	45	▲
CN2CR0080405 KKK	R0.05	0.8	4	0.8	4.0	45	▲
CN2CR0080605 KKK	R0.05	0.8	4	0.8	6.0	45	▲
CN2CR0080001 KKK	R0.10	0.8	4	0.8	-	45	▲
CN2CR0080201 KKK	R0.10	0.8	4	0.8	2.0	45	▲
CN2CR0080401 KKK	R0.10	0.8	4	0.8	4.0	45	▲
CN2CR0080601 KKK	R0.10	0.8	4	0.8	6.0	45	▲
CN2CR008000 KKK	R0.20	0.8	4	0.8	-	45	▲
CN2CR008020 KKK	R0.20	0.8	4	0.8	2.0	45	▲
CN2CR008040 KKK	R0.20	0.8	4	0.8	4.0	45	▲
CN2CR008060 KKK	R0.20	0.8	4	0.8	6.0	45	▲
CN2CR0100002 KKK	R0.02	1.0	4	1	-	50	▲
CN2CR0100252 KKK	R0.02	1.0	4	1	2.5	50	▲
CN2CR0100402 KKK	R0.02	1.0	4	1	4.0	50	▲
CN2CR0100602 KKK	R0.02	1.0	4	1	6.0	50	▲
CN2CR0100005 KKK	R0.05	1.0	4	1	-	50	▲

▲Stock △Non-Stock
Recommended Cutting Conditions B109

● Recommend ○ Suit

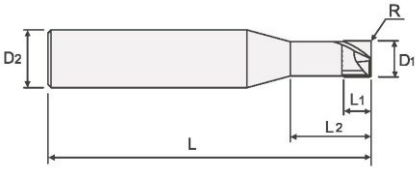
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened steels			Cast Iron	Aluminum	Copper Alloy	Stainless Steels	Titanium	Graphite	CFRP
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
				●	●							

CN2CR SERIES

CBN | 2 | 0° | R ±0.005

CBN, 2 FLUTE CORNER RADIUS

- ► Machining high hardness materials HRC50 to HRC70 into finish process for long time.
- ► High speed cutting with 20,000rpm and over 20,000rpm of tool and supplying air mist recommended
- ► Good cutting ability due to negative rake angle.



Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.010	h6

(mm)unit:mm

Order No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Stock
	R	D1	D2	L1	L2	L	
CN2CR0100255 KKK	R0.05	1.0	4	1.0	2.5	50	▲
CN2CR0100405 KKK	R0.05	1.0	4	1.0	4.0	50	▲
CN2CR0100605 KKK	R0.05	1.0	4	1.0	6.0	50	▲
CN2CR0100001 KKK	R0.10	1.0	4	1.0	-	50	▲
CM2CR0100251 KKK	R0.10	1.0	4	1.0	2.5	50	▲
CN2CR0100401 KKK	R0.10	1.0	4	1.0	4.0	50	▲
CN2CR0100601 KKK	R0.10	1.0	4	1.0	6.0	50	▲
CN2CR01000020 KKK	R0.20	1.0	4	1.0	-	50	▲
CN2CR01002520 KKK	R0.20	1.0	4	1.0	2.5	50	▲
CN2CR01004020 KKK	R0.20	1.0	4	1.0	4.0	50	▲
CN2CR01006020 KKK	R0.20	1.0	4	1.0	6.0	50	▲
CN2CR010000 KKK	R0.30	1.0	4	1.0	-	50	▲
CN2CR010025 KKK	R0.30	1.0	4	1.0	2.5	50	▲
CN2CR010040 KKK	R0.30	1.0	4	1.0	4.0	50	▲
CN2CR010060 KKK	R0.30	1.0	4	1.0	6.0	50	▲
CN2CR0150002 KKK	R0.02	1.5	4	1.5	-	50	▲
CN2CR0150402 KKK	R0.02	1.5	4	1.5	4.0	50	▲
CN2CR0150602 KKK	R0.02	1.5	4	1.5	6.0	50	▲
CN2CR0150802 KKK	R0.02	1.5	4	1.5	8.0	50	▲
CN2CR0151002 KKK	R0.02	1.5	4	1.5	10.0	50	▲
CN2CR0150005 KKK	R0.05	1.5	4	1.5	-	50	▲
CN2CR0150405 KKK	R0.05	1.5	4	1.5	4.0	50	▲
CN2CR0150605 KKK	R0.05	1.5	4	1.5	6.0	50	▲
CN2CR0150805 KKK	R0.05	1.5	4	1.5	8.0	50	▲
CN2CR0151005 KKK	R0.05	1.5	4	1.5	10.0	50	▲
CN2CR0150001 KKK	R0.10	1.5	4	1.5	-	50	▲
CN2CR0150401 KKK	R0.10	1.5	4	1.5	4.0	50	▲

▲Stock △Non-Stock

Recommended Cutting Conditions B109

● Recommend O Suit

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened steels			Cast Iron	Aluminum	Copper Alloy	Stainless Steels	Titanium	Graphite	CFRP
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
				●	●							

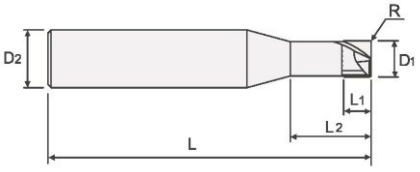
TOTIME CBN End Mill(HRC≤70)
For High-Hardened Steels up to HRC70

CN2CR SERIES

CBN 2 0° R ±0.005

CBN, 2 FLUTE CORNER RADIUS

- ► Machining high hardness materials HRC50 to HRC70 into finish process for long time.
- ► High speed cutting with 20,000rpm and over 20,000rpm of tool and supplying air mist recommended
- ► Good cutting ability due to negative rake angle.



Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.010	h6

(mm)unit:mm

Order No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Stock
	R	D1	D2	L1	L2	L	
CN2CR0150601 KKK	R0.10	1.5	4	1.5	6	50	▲
CN2CR0150801 KKK	R0.10	1.5	4	1.5	8	50	▲
CN2CR0151001 KKK	R0.10	1.5	4	1.5	10	50	▲
CN2CR01500020 KKK	R0.20	1.5	4	1.5	-	50	▲
CN2CR01504020 KKK	R0.20	1.5	4	1.5	4	50	▲
CN2CR01506020 KKK	R0.20	1.5	4	1.5	6	50	▲
CN2CR01508020 KKK	R0.20	1.5	4	1.5	8	50	▲
CN2CR01510020 KKK	R0.20	1.5	4	1.5	10	50	▲
CN2CR0150003 KKK	R0.30	1.5	4	1.5	-	50	▲
CN2CR0150403 KKK	R0.30	1.5	4	1.5	4	50	▲
CN2CR0150603 KKK	R0.30	1.5	4	1.5	6	50	▲
CN2CR0150803 KKK	R0.30	1.5	4	1.5	8	50	▲
CN2CR0151003 KKK	R0.30	1.5	4	1.5	10	50	▲
CN2CR015000 KKK	R0.50	1.5	4	1.5	-	50	▲
CN2CR015040 KKK	R0.50	1.5	4	1.5	4	50	▲
CN2CR015060 KKK	R0.50	1.5	4	1.5	6	50	▲
CN2CR015080 KKK	R0.50	1.5	4	1.5	8	50	▲
CN2CR015100 KKK	R0.50	1.5	4	1.5	10	50	▲
CN2CR0200005 KKK	R0.05	2.0	4	2.0	-	50	▲
CN2CR0200605 KKK	R0.05	2.0	4	2.0	6	50	▲
CN2CR0200805 KKK	R0.05	2.0	4	2.0	8	50	▲
CN2CR0201005 KKK	R0.05	2.0	4	2.0	10	50	▲
CN2CR0200001 KKK	R0.10	2.0	4	2.0	-	50	▲
CN2CR0200601 KKK	R0.10	2.0	4	2.0	6	50	▲
CN2CR0200801 KKK	R0.10	2.0	4	2.0	8	50	▲
CN2CA0201001 KKK	R0.10	2.0	4	2.0	10	50	▲
CN2CR0200002 KKK	R0.20	2.0	4	2.0	-	50	▲

▲Stock △Non-Stock

Recommended Cutting Conditions B109

● Recommend ○ Suit

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened steels			Cast Iron	Aluminum	Copper Alloy	Stainless Steels	Titanium	Graphite	CFRP
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
				●	●							

CN2CR SERIES

CBN | 2 | 0° | R ±0.005

CBN, 2 FLUTE CORNER RADIUS

- ► Machining high hardness materials HRC50 to HRC70 into finish process for long time.
- ► High speed cutting with 20,000rpm and over 20,000rpm of tool and supplying air mist recommended
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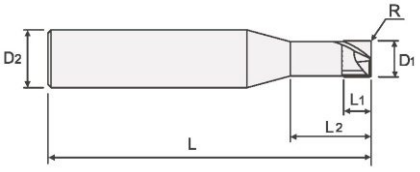


Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.010	h6

(mm)unit:mm

Order No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Stock
	R	D1	D2	L1	L2	L	
CN2CR0200602 KKK	R0.20	2.0	4	2.0	6	50	▲
CN2CR0200802 KKK	R0.20	2.0	4	2.0	8	50	▲
CN2CR0201002 KKK	R0.20	2.0	4	2.0	10	50	▲
CN2CR0200003 KKK	R0.30	2.0	4	2.0	-	50	▲
CN2CR0200603 KKK	R0.30	2.0	4	2.0	6	50	▲
CN2CR0200803 KKK	R0.30	2.0	4	2.0	8	50	▲
CN2CR0201003 KKK	R0.30	2.0	4	2.0	10	50	▲
CN2CR020000 KKK	R0.50	2.0	4	2.0	-	50	▲
CN2CR020060 KKK	R0.50	2.0	4	2.0	6	50	▲
CN2CR020080 KKK	R0.50	2.0	4	2.0	8	50	▲
CN2CR020100 KKK	R0.50	2.0	4	2.0	10	50	▲
CN2CR0300005 KKK	R0.05	3.0	4	2.5	-	50	▲
CN2CR0300805 KKK	R0.05	3.0	4	2.5	8	50	▲
CN2CR0301005 KKK	R0.05	3.0	4	2.5	10	50	▲
CN2CR0301205 KKK	R0.05	3.0	4	2.5	12	50	▲
CN2CR0301605 KKK	R0.05	3.0	4	2.5	16	60	▲
CN2CR0302005 KKK	R0.05	3.0	4	2.5	20	60	▲
CN2CR0300001 KKK	R0.10	3.0	4	2.5	-	50	▲
CN2CR0300801 KKK	R0.10	3.0	4	2.5	8	50	▲
CN2CR0301001 KKK	R0.10	3.0	4	2.5	10	50	▲
CN2CR0301201 KKK	R0.10	3.0	4	2.5	12	50	▲
CN2CR0301601 KKK	R0.10	3.0	4	2.5	16	60	▲
CN2CR0302001 KKK	R0.10	3.0	4	2.5	20	60	▲
CN2CR0300002 KKK	R0.20	3.0	4	2.5	-	50	▲
CN2CR0300802 KKK	R0.20	3.0	4	2.5	8	50	▲
CN2CR0301002 KKK	R0.20	3.0	4	2.5	10	50	▲
CN2CR0301202 KKK	R0.20	3.0	4	2.5	12	50	▲

▲Stock △Non-Stock

Recommended Cutting Conditions B109

● Recommend ○ Suit

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened steels			Cast Iron	Aluminum	Copper Alloy	Stainless Steels	Titanium	Graphite	CFRP
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
				●	●							

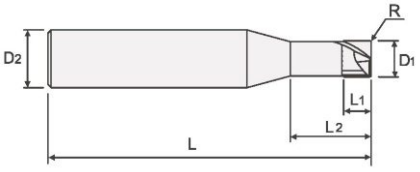
TOTIME CBN End Mill(HRC≤70)
For High-Hardened Steels up to HRC70

CN2CR SERIES

CBN 2 0° R ±0.005

CBN, 2 FLUTE CORNER RADIUS

- ► Machining high hardness materials HRC50 to HRC70 into finish process for long time.
- ► High speed cutting with 20,000rpm and over 20,000rpm of tool and supplying air mist recommended
- ► Good cutting ability due to negative rake angle.



Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.010	h6

(mm)unit:mm

Order No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Stock
	R	D1	D2	L1	L2	L	
CN2CR0301602 KKK	R0.2	3.0	4	2.5	16	60	▲
CN2CR0302002 KKK	R0.2	3.0	4	2.5	20	60	▲
CN2CR0300003 KKK	R0.3	3.0	4	2.5	-	50	▲
CN2CR0300803 KKK	R0.3	3.0	4	2.5	8	50	▲
CN2CR0301003 KKK	R0.3	3.0	4	2.5	10	50	▲
CN2CR0301203 KKK	R0.3	3.0	4	2.5	12	50	▲
CN2CR0301603 KKK	R0.3	3.0	4	2.5	16	60	▲
CN2CR0302003 KKK	R0.3	3.0	4	2.5	20	60	▲
CN2CR030000 KKK	R0.5	3.0	4	2.5	-	50	▲
CN2CR030080 KKK	R0.5	3.0	4	2.5	8	50	▲
CN2CR030100 KKK	R0.5	3.0	4	2.5	10	50	▲
CN2CR030120 KKK	R0.5	3.0	4	2.5	12	50	▲
CN2CR030160 KKK	R0.5	3.0	4	2.5	16	60	▲
CN2CR030200 KKK	R0.5	3.0	4	2.5	20	60	▲

▲Stock △Non-Stock

Recommended Cutting Conditions B109

● Recommend O Suit

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened steels			Cast Iron	Aluminum	Copper Alloy	Stainless Steels	Titanium	Graphite	CFRP
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
				●	●							

TOTIME CBN End Mill(HRC≤70)
For High-Hardened Steels up to HRC70

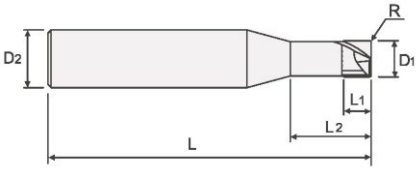
H

CP2CR SERIES

CBN 2 0° R ±0.005

CBN, 2 FLUTE CORNER RADIUS

- ► Machining high hardness materials HRC50 to HRC70 into finish process for long time.
- ► High speed cutting with 20,000rpm and over 20,000rpm of tool and supplying air mist recommended
- ► Good cutting ability due to negative rake angle.



Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.010	h6

(mm)unit:mm

Order No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Stock
	R	D1	D2	L1	L2	L	
CP2CR0020002 KKK	R0.02	0.2	4	0.2	-	40	▲
CP2CR0020052 KKK	R0.02	0.2	4	0.2	0.5	40	▲
CP2CR0020102 KKK	R0.02	0.2	4	0.2	1.0	40	▲
CP2CR0020005 KKK	R0.05	0.2	4	0.2	-	40	▲
CP2CR0020055 KKK	R0.05	0.2	4	0.2	0.5	40	▲
CP2CR0020105 KKK	R0.05	0.2	4	0.2	1.0	40	▲
CP2CR0030002 KKK	R0.02	0.3	4	0.3	-	40	▲
CP2CR0030102 KKK	R0.02	0.3	4	0.3	1.0	40	▲
CP2CR0030152 KKK	R0.02	0.3	4	0.3	1.5	40	▲
CP2CR0030202 KKK	R0.02	0.3	4	0.3	2.0	40	▲
CP2CR0030005 KKK	R0.05	0.3	4	0.3	-	40	▲
CP2CR0030105 KKK	R0.05	0.3	4	0.3	1.0	40	▲
CP2CR0030155 KKK	R0.05	0.3	4	0.3	1.5	40	▲
CP2CR0030205 KKK	R0.05	0.3	4	0.3	2.0	40	▲
CP2CR0040002 KKK	R0.02	0.4	4	0.4	-	40	▲
CP2CR0040102 KKK	R0.02	0.4	4	0.4	1.0	40	▲
CP2CR0040152 KKK	R0.02	0.4	4	0.4	1.5	40	▲
CP2CR0040202 KKK	R0.02	0.4	4	0.4	2.0	40	▲
CP2CR0040302 KKK	R0.02	0.4	4	0.4	3.0	40	▲
CP2CR0040005 KKK	R0.05	0.4	4	0.4	-	40	▲
CP2CR0040105 KKK	R0.05	0.4	4	0.4	1.0	40	▲
CP2CR0040155 KKK	R0.05	0.4	4	0.4	1.5	40	▲
CP2CR0040205 KKK	R0.05	0.4	4	0.4	2.0	40	▲
CP2CR0040305 KKK	R0.05	0.4	4	0.4	3.0	40	▲
CP2CR0040001 KKK	R0.10	0.4	4	0.4	-	40	▲
CP2CR0040101 KKK	R0.10	0.4	4	0.4	1.0	40	▲
CP2CR0040151 KKK	R0.1	0.4	4	0.4	1.5	40	▲

▲Stock △Non-Stock

Recommended Cutting Conditions B109

● Recommend ○ Suit

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened steels			Cast Iron	Aluminum	Copper Alloy	Stainless Steels	Titanium	Graphite	CFRP
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
				●	●							

TOTIME CBN End Mill(HRC≤70)
For High-Hardened Steels up to HRC70

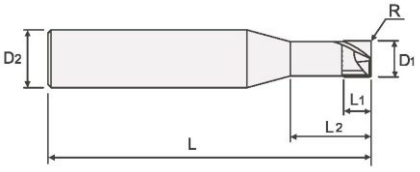
H

CP2CR SERIES

CBN 2 0° R ±0.005

CBN, 2 FLUTE CORNER RADIUS

- ► Machining high hardness materials HRC50 to HRC70 into finish process for long time.
- ► High speed cutting with 20,000rpm and over 20,000rpm of tool and supplying air mist recommended
- ► Good cutting ability due to negative rake angle.



Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.010	h6

(mm)unit:mm

Order No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Stock
	R	D1	D2	L1	L2	L	
CP2CR0040201 KKK	R0.10	0.4	4	0.4	2	40	▲
CP2CR0040301 KKK	R0.10	0.4	4	0.4	3	40	▲
CP2CR0050002 KKK	R0.02	0.5	4	0.5	-	40	▲
CP2CR0050102 KKK	R0.02	0.5	4	0.5	1	40	▲
CP2CR0050202 KKK	R0.02	0.5	4	0.5	2	40	▲
CP2CR0050302 KKK	R0.02	0.5	4	0.5	3	40	▲
CP2CR0050402 KKK	R0.02	0.5	4	0.5	4	40	▲
CP2CR0050005 KKK	R0.05	0.5	4	0.5	-	40	▲
CP2CR0050105 KKK	R0.05	0.5	4	0.5	1	40	▲
CP2CR0050205 KKK	R0.05	0.5	4	0.5	2	40	▲
CP2CR0050305 KKK	R0.05	0.5	4	0.5	3	40	▲
CP2CR0050405 KKK	R0.05	0.5	4	0.5	4	40	▲
CP2CR0050001 KKK	R0.10	0.5	4	0.5	-	40	▲
CP2CR0050101 KKK	R0.10	0.5	4	0.5	1	40	▲
CP2CR0050201 KKK	R0.10	0.5	4	0.5	2	40	▲
CP2CR0050301 KKK	R0.10	0.5	4	0.5	3	40	▲
CP2CR0050401 KKK	R0.10	0.5	4	0.5	4	40	▲
CP2CR0060002 KKK	R0.02	0.6	4	0.6	-	45	▲
CP2CR0060202 KKK	R0.02	0.6	4	0.6	2	45	▲
CP2CR0060302 KKK	R0.02	0.6	4	0.6	3	45	▲
CP2CR0060402 KKK	R0.02	0.6	4	0.6	4	45	▲
CP2CR0060005 KKK	R0.05	0.6	4	0.6	-	45	▲
CP2CR0060205 KKK	R0.05	0.6	4	0.6	2	45	▲
CP2CR0060305 KKK	R0.05	0.6	4	0.6	3	45	▲
CP2CR0060405 KKK	R0.05	0.6	4	0.6	4	45	▲
CP2CR0060001 KKK	R0.10	0.6	4	0.6	-	45	▲
CP2CR0060201 KKK	R0.10	0.6	4	0.6	2	45	▲

▲Stock △Non-Stock

Recommended Cutting Conditions B109

● Recommend ○ Suit

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened steels			Cast Iron	Aluminum	Copper Alloy	Stainless Steels	Titanium	Graphite	CFRP
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
				●	●							

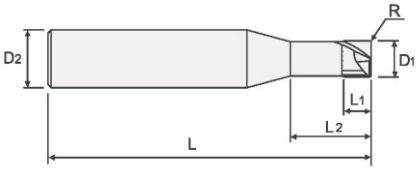
TOTIME CBN End Mill(HRC≤70)
For High-Hardened Steels up to HRC70

CP2CR SERIES

CBN 2 0° R ±0.005

CBN, 2 FLUTE CORNER RADIUS

- ► Machining high hardness materials HRC50 to HRC70 into finish process for long time.
- ► High speed cutting with 20,000rpm and over 20,000rpm of tool and supplying air mist recommended
- ► Good cutting ability due to negative rake angle.



Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.010	h6

(mm)unit:mm

Order No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Stock
	R	D1	D2	L1	L2	L	
CP2CR0060301 KKK	R0.10	0.6	4	0.6	3.0	45	▲
CP2CR0060401 KKK	R0.10	0.6	4	0.6	4.0	45	▲
CP2CR0060020 KKK	R0.20	0.6	4	0.6	-	45	▲
CP2CR0060220 KKK	R0.20	0.6	4	0.6	2.0	45	▲
CP2CR0060320 KKK	R0.20	0.6	4	0.6	3.0	45	▲
CP2CR0060420 KKK	R0.20	0.6	4	0.6	4.0	45	▲
CP2CR0080002 KKK	R0.02	0.8	4	0.8	-	45	▲
CP2CR0080202 KKK	R0.02	0.8	4	0.8	2.0	45	▲
CP2CR0C80402 KKK	R0.02	0.8	4	0.8	4.0	45	▲
CP2CR0080602 KKK	R0.02	0.8	4	0.8	6.0	45	▲
CP2CR0080005 KKK	R0.05	0.8	4	0.8	-	45	▲
CP2CR0080205 KKK	R0.05	0.8	4	0.8	2.0	45	▲
CP2CR0080405 KKK	R0.05	0.8	4	0.8	4.0	45	▲
CP2CR0080605 KKK	R0.05	0.8	4	0.8	6.0	45	▲
CP2CR0080001 KKK	R0.10	0.8	4	0.8	-	45	▲
CP2CR0080201 KKK	R0.10	0.8	4	0.8	2.0	45	▲
CP2CR0080401 KKK	R0.10	0.8	4	0.8	4.0	45	▲
CP2CR0080601 KKK	R0.10	0.8	4	0.8	6.0	45	▲
CP2CR008000 KKK	R0.20	0.8	4	0.8	-	45	▲
CP2CR008020 KKK	R0.20	0.8	4	0.8	2.0	45	▲
CP2CR008040 KKK	R0.20	0.8	4	0.8	4.0	45	▲
CP2CR008060 KKK	R0.20	0.8	4	0.8	6.0	45	▲
CP2CR0100002 KKK	R0.02	1.0	4	1.0	-	50	▲
CP2CR0100252 KKK	R0.02	1.0	4	1.0	2.5	50	▲
CP2CR0100402 KKK	R0.02	1.0	4	1.0	4.0	50	▲
CP2CR0100602 KKK	R0.02	1.0	4	1.0	6.0	50	▲
CP2CR0100005 KKK	R0.05	1.0	4	1.0	-	50	▲

▲Stock △Non-Stock

Recommended Cutting Conditions B109

● Recommend ○ Suit

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened steels			Cast Iron	Aluminum	Copper Alloy	Stainless Steels	Titanium	Graphite	CFRP
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
				●	●							

TOTIME CBN End Mill(HRC≤70)
For High-Hardened Steels up to HRC70

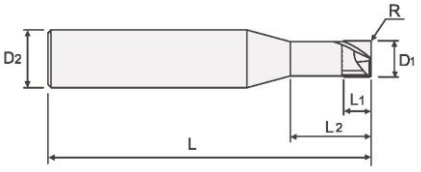
H

CP2CR SERIES

CBN 2 0° R ±0.005

CBN, 2 FLUTE CORNER RADIUS

- ► Machining high hardness materials HRC50 to HRC70 into finish process for long time.
- ► High speed cutting with 20,000rpm and over 20,000rpm of tool and supplying air mist recommended
- ► Good cutting ability due to negative rake angle.



Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.010	h6

(mm)unit:mm

Order No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Stock
	R	D1	D2	L1	L2	L	
CP2CR0100255 KKK	R0.05	1.0	4	1.0	2.5	50	▲
CP2CR0100405 KKK	R0.05	1.0	4	1.0	4.0	50	▲
CP2CR0100605 KKK	R0.05	1.0	4	1.0	6.0	50	▲
CP2CR0100001 KKK	R0.10	1.0	4	1.0	-	50	▲
CP2CR0100251 KKK	R0.10	1.0	4	1.0	2.5	50	▲
CP2CR0100401 KKK	R0.10	1.0	4	1.0	4.0	50	▲
CP2CR0100601 KKK	R0.10	1.0	4	1.0	6.0	50	▲
CP2CR01000020 KKK	R0.20	1.0	4	1.0	-	50	▲
CP2CR01002520 KKK	R0.20	1.0	4	1.0	2.5	50	▲
CP2CR01004020 KKK	R0.20	1.0	4	1.0	4.0	50	▲
CP2CR01006020 KKK	R0.20	1.0	4	1.0	6.0	50	▲
CP2CR010000 KKK	R0.30	1.0	4	1.0	-	50	▲
CP2CR010025 KKK	R0.30	1.0	4	1.0	2.5	50	▲
CP2CR010040 KKK	R0.30	1.0	4	1.0	4.0	50	▲
CP2CR010060 KKK	R0.30	1.0	4	1.0	6.0	50	▲
CP2CR0150002 KKK	R0.02	1.5	4	1.5	-	50	▲
CP2CR0150402 KKK	R0.02	1.5	4	1.5	4.0	50	▲
CP2CR0150602 KKK	R0.02	1.5	4	1.5	6.0	50	▲
CP2CR0150802 KKK	R0.02	1.5	4	1.5	8.0	50	▲
CP2CR0151002 KKK	R0.02	1.5	4	1.5	10.0	50	▲
CP2CR0150005 KKK	R0.05	1.5	4	1.5	-	50	▲
CP2CR0150405 KKK	R0.05	1.5	4	1.5	4.0	50	▲
CP2CR0150605 KKK	R0.05	1.5	4	1.5	6.0	50	▲
CP2CR0150805 KKK	R0.05	1.5	4	1.5	8.0	50	▲
CP2CR0151005 KKK	R0.05	1.5	4	1.5	10.0	50	▲
CP2CR0150001 KKK	R0.10	1.5	4	1.5	-	50	▲
CP2CR0150401 KKK	R0.10	1.5	4	1.5	4.0	50	▲

▲Stock △Non-Stock

Recommended Cutting Conditions B109

● Recommend ○ Suit

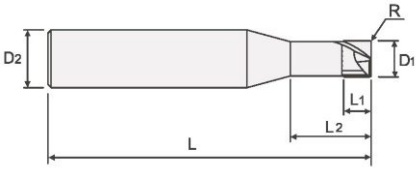
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened steels			Cast Iron	Aluminum	Copper Alloy	Stainless Steels	Titanium	Graphite	CFRP
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
				●	●							

CP2CR SERIES

CBN | 2 | 0° | R ±0.005

CBN, 2 FLUTE CORNER RADIUS

- ► Machining high hardness materials HRC50 to HRC70 into finish process for long time.
- ► High speed cutting with 20,000rpm and over 20,000rpm of tool and supplying air mist recommended
- ► Good cutting ability due to negative rake angle.



Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.010	h6

(mm)unit:mm

Order No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Stock
	R	D1	D2	L1	L2	L	
CP2CR0150601 KKK	R0.10	1.5	4	1.5	6	50	▲
CP2CR0150801 KKK	R0.10	1.5	4	1.5	8	50	▲
CP2CR0151001 KKK	R0.10	1.5	4	1.5	10	50	▲
CP2CR01500020 KKK	R0.20	1.5	4	1.5	-	50	▲
CP2CR01504020 KKK	R0.20	1.5	4	1.5	4	50	▲
CP2CR01506020 KKK	R0.20	1.5	4	1.5	6	50	▲
CP2CR01508020 KKK	R0.20	1.5	4	1.5	8	50	▲
CP2CR01510020 KKK	R0.20	1.5	4	1.5	10	50	▲
CP2CR0150003 KKK	R0.30	1.5	4	1.5	-	50	▲
CP2CR0150403 KKK	R0.30	1.5	4	1.5	4	50	▲
CP2CR0150603 KKK	R0.30	1.5	4	1.5	6	50	▲
CP2CR0150803 KKK	R0.30	1.5	4	1.5	8	50	▲
CP2CR0151003 KKK	R0.30	1.5	4	1.5	10	50	▲
CP2CR015000 KKK	R0.50	1.5	4	1.5	-	50	▲
CP2CR015040 KKK	R0.50	1.5	4	1.5	4	50	▲
CP2CR015060 KKK	R0.50	1.5	4	1.5	6	50	▲
CP2CR015080 KKK	R0.50	1.5	4	1.5	8	50	▲
CP2CR015100 KKK	R0.50	1.5	4	1.5	10	50	▲
CP2CR0200005 KKK	R0.05	2.0	4	2.0	-	50	▲
CP2CR0200605 KKK	R0.05	2.0	4	2.0	6	50	▲
CP2CR0200805 KKK	R0.05	2.0	4	2.0	8	50	▲
CP2CR0201005 KKK	R0.05	2.0	4	2.0	10	50	▲
CP2CR0200001 KKK	R0.10	2.0	4	2.0	-	50	▲
CP2CR0200601 KKK	R0.10	2.0	4	2.0	6	50	▲
CP2CR0200801 KKK	R0.10	2.0	4	2.0	8	50	▲
CP2CR0201001 KKK	R0.10	2.0	4	2.0	10	50	▲
CP2CR0200002 KKK	R0.20	2.0	4	2.0	-	50	▲

▲Stock △Non-Stock

Recommended Cutting Conditions B109

● Recommend ○ Suit

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened steels			Cast Iron	Aluminum	Copper Alloy	Stainless Steels	Titanium	Graphite	CFRP
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
				●	●							

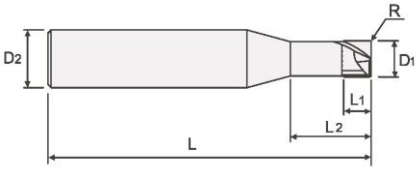
TOTIME CBN End Mill(HRC≤70)
For High-Hardened Steels up to HRC70

CP2CR SERIES

CBN 2 0° R ±0.005

CBN, 2 FLUTE CORNER RADIUS

- ► Machining high hardness materials HRC50 to HRC70 into finish process for long time.
- ► High speed cutting with 20,000rpm and over 20,000rpm of tool and supplying air mist recommended
- ► Good cutting ability due to negative rake angle.



Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.010	h6

(mm)unit:mm

Order No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Stock
	R	D1	D2	L1	L2	L	
CP2CR0200602 KKK	R0.20	2.0	4	2.0	6	50	▲
CP2CR0200802 KKK	R0.20	2.0	4	2.0	8	50	▲
CP2CR0201002 KKK	R0.20	2.0	4	2.0	10	50	▲
CP2CR0200003 KKK	R0.30	2.0	4	2.0	-	50	▲
CP2CR0200603 KKK	R0.30	2.0	4	2.0	6	50	▲
CP2CR0200803 KKK	R0.30	2.0	4	2.0	8	50	▲
CP2CR0201003 KKK	R0.30	2.0	4	2.0	10	50	▲
CP2CR020000 KKK	R0.50	2.0	4	2.0	-	50	▲
CP2CR020060 KKK	R0.50	2.0	4	2.0	6	50	▲
CP2CR020080 KKK	R0.50	2.0	4	2.0	8	50	▲
CP2CR020100 KKK	R0.50	2.0	4	2.0	10	50	▲
CP2CR0300005 KKK	R0.05	3.0	4	2.5	-	50	▲
CP2CR0300805 KKK	R0.05	3.0	4	2.5	8	50	▲
CP2CR0301005 KKK	R0.05	3.0	4	2.5	10	50	▲
CP2CR0301205 KKK	R0.05	3.0	4	2.5	12	50	▲
CP2CR0301605 KKK	R0.05	3.0	4	2.5	16	60	▲
CP2CR0302005 KKK	R0.05	3.0	4	2.5	20	60	▲
CP2CR0300001 KKK	R0.10	3.0	4	2.5	-	50	▲
CP2CR0300801 KKK	R0.10	3.0	4	2.5	8	50	▲
CP2CR0301001 KKK	R0.10	3.0	4	2.5	10	50	▲
CP2CR0301201 KKK	R0.10	3.0	4	2.5	12	50	▲
CP2CR0301601 KKK	R0.10	3.0	4	2.5	16	60	▲
CP2CR0302001 KKK	R0.10	3.0	4	2.5	20	60	▲
CP2CR0300002 KKK	R0.20	3.0	4	2.5	-	50	▲
CP2CR0300802 KKK	R0.20	3.0	4	2.5	8	50	▲
CP2CR0301002 KKK	R0.20	3.0	4	2.5	10	50	▲
CP2CR0301202 KKK	R0.20	3.0	4	2.5	12	50	▲

▲Stock △Non-Stock

Recommended Cutting Conditions B109

● Recommend ○ Suit

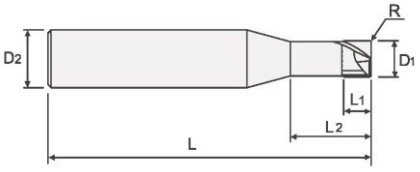
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened steels			Cast Iron	Aluminum	Copper Alloy	Stainless Steels	Titanium	Graphite	CFRP
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
				●	●							

CP2CR SERIES

CBN | 2 | 0° | R ±0.005

CBN, 2 FLUTE CORNER RADIUS

- ► Machining high hardness materials HRC50 to HRC70 into finish process for long time.
- ► High speed cutting with 20,000rpm and over 20,000rpm of tool and supplying air mist recommended
- ► Good cutting ability due to negative rake angle.



Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.010	h6

(mm)unit:mm

Order No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Stock
	R	D1	D2	L1	L2	L	
CP2CR0301602 KKK	R0.2	3.0	4	2.5	16	60	▲
CP2CR0302002 KKK	R0.2	3.0	4	2.5	20	60	▲
CP2CR0300003 KKK	R0.3	3.0	4	2.5	-	50	▲
CP2CR0300803 KKK	R0.3	3.0	4	2.5	8	50	▲
CP2CR0301003 KKK	R0.3	3.0	4	2.5	10	50	▲
CP2CR0301203 KKK	R0.3	3.0	4	2.5	12	50	▲
CP2CR0301603 KKK	R0.3	3.0	4	2.5	16	60	▲
CP2CR0302003 KKK	R0.3	3.0	4	2.5	20	60	▲
CP2CR030000 KKK	R0.5	3.0	4	2.5	-	50	▲
CP2CR030080 KKK	R0.5	3.0	4	2.5	8	50	▲
CP2CR030100 KKK	R0.5	3.0	4	2.5	10	50	▲
CP2CR030120 KKK	R0.5	3.0	4	2.5	12	50	▲
CP2CR030160 KKK	R0.5	3.0	4	2.5	16	60	▲
CP2CR030200 KKK	R0.5	3.0	4	2.5	20	60	▲

▲Stock △Non-Stock

Recommended Cutting Conditions B109

● Recommend ○ Suit

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened steels			Cast Iron	Aluminum	Copper Alloy	Stainless Steels	Titanium	Graphite	CFRP
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~70							
				●	●							

Carbide End Mill Cutter(HRC 48)

2 Flutes Square End Mill / 2 Flutes Corner Radius End Mill For Steels, Cast Iron——Side Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	3	4	6	8	10	12	16	20
P	Carbon Steels/ Alloy Steels (<35HRC)	ap≤1. 5D	180	Rotation Speed (min-1)	19110	14330	9550	7170	5730	4780	3580	2870
		ae≤0.15D		Feed Speed (mm/min)	1070	1030	920	930	920	860	860	860
	Alloy Steels (35-48HRC)	ap≤1D	130	Rotation Speed (min-1)	13800	10350	6900	5180	4140	3450	2590	2070
		ae≤0.12D		Feed Speed (mm/min)	610	580	550	620	560	500	410	370
M	Stainless Steels	ap≤1.5D	130	Rotation Speed (min-1)	13800	10350	6900	5180	4140	3450	2590	2070
		ae≤0.15D		Feed Speed (mm/min)	690	660	590	650	610	590	490	460
K	Grey Cast Irons/ Ductile Cast Irons (<32HRC)	ap≤1.5D	160	Rotation Speed (min-1)	16990	12740	8490	6370	5100	4250	3190	2550
		ae≤0.15D		Feed Speed (mm/min)	850	820	820	750	700	680	610	560
	High Alloy Cast Irons (35-45HRC)	ap≤1D	140	Rotation Speed (min-1)	14860	11150	7430	5570	4460	3720	2790	2230
		ae≤0.12D		Feed Speed (mm/min)	650	670	670	620	580	560	500	460

Carbide End Mill Cutter(HRC 48)

2 Flutes Square End Mill / 2 Flutes Corner Radius End Mill For Steels, Cast Iron——Slotting

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	3	4	6	8	10	12	16	20
P	Carbon Steels/ Alloy Steels (<35HRC)	ap≤0.8D	80	Rotation Speed (min-1)	8490	6370	4250	3190	2550	2120	1590	1270
				Feed Speed (mm/min)	430	540	440	400	370	350	400	410
	Alloy Steels (35-48HRC)	ap≤0.3D	60	Rotation Speed (min-1)	6370	4780	3190	2390	1910	1590	1190	960
				Feed Speed (mm/min)	260	310	270	230	220	220	230	230
M	Stainless Steels	ap≤0.3D	55	Rotation Speed (min-1)	5840	4380	2920	2190	1750	1460	1100	880
				Feed Speed (mm/min)	140	160	200	200	200	190	170	160
K	Grey Cast Irons/ Ductile Cast Irons (<32HRC)	ap≤0.5D	55	Rotation Speed (min-1)	5840	4380	2920	2190	1750	1460	1100	880
				Feed Speed (mm/min)	210	250	250	220	210	200	190	170
	High Alloy Cast Irons (35-45HRC)	ap≤0.3D	50	Rotation Speed (min-1)	5310	3980	2650	1990	1590	1330	1000	800
				Feed Speed (mm/min)	160	180	210	180	180	170	160	140

Carbide End Mill Cutter(HRC 48)

4 Flutes Square End Mill / 4 Flutes Corner Radius End Mill For Steels, Cast Iron——Side Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	3	4	6	8	10	12	16	20
P	Carbon Steels/ Alloy Steels (<35HRC)	ap≤1.5D	180	Rotation Speed (min-1)	19110	14330	9550	7170	5730	4780	3580	2870
		ae≤0.15D		Feed Speed (mm/min)	2140	2060	1830	1860	1830	1720	1720	1720
	Alloy Steels (35-48HRC)	ap≤1D	130	Rotation Speed (min-1)	13800	10350	6900	5180	4140	3450	2590	2070
		ae≤0.12D		Feed Speed (mm/min)	1210	1160	1100	1240	1130	1010	830	750
M	Stainless Steels	ap≤1.5D	130	Rotation Speed (min-1)	13800	10350	6900	5180	4140	3450	2590	2070
		ae≤0.15D		Feed Speed (mm/min)	1380	1330	1190	1300	1230	1170	980	910
K	Grey Cast Irons/ Ductile Cast Irons (<32HRC)	ap≤1.5D	160	Rotation Speed (min-1)	16990	12740	8490	6370	5100	4250	3190	2550
		ae≤0.15D		Feed Speed (mm/min)	1700	1630	1630	1500	1410	1360	1210	1120
	High Alloy Cast Irons (35-45HRC)	ap≤1D	140	Rotation Speed (min-1)	14860	11150	7430	5570	4460	3720	2790	2230
		ae≤0.12D		Feed Speed (mm/min)	1310	1340	1340	1250	1160	1120	1000	910

Carbide End Mill Cutter(HRC 48)

6 Flutes Square End Mill For Steels, Cast Iron——Side Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	3	4	6	8	10	12	16	20
P	Carbon Steels/ Alloy Steels (<35HRC)	ap≤1.5D	180	Rotation Speed (min-1)	19110	14330	9550	7170	5730	4780	3580	2870
		ae≤0.15D		Feed Speed (mm/min)	3210	3100	2750	2800	2750	2580	2580	2580
	Alloy Steels (35-48HRC)	ap≤1D	130	Rotation Speed (min-1)	13800	10350	6900	5180	4140	3450	2590	2070
		ae≤0.12D		Feed Speed (mm/min)	1820	1740	1600	1860	1690	1510	1240	1120
M	Stainless Steels	ap≤1.5D	130	Rotation Speed (min-1)	13800	10350	6900	5180	4140	3450	2590	2070
		ae≤0.15D		Feed Speed (mm/min)	2070	1990	1780	1960	1840	1760	1480	1370
K	Grey Cast Irons/ Ductile Cast Irons (<32HRC)	ap≤1.5D	160	Rotation Speed (min-1)	16990	12740	8490	6370	5100	4250	3190	2550
		ae≤0.15D		Feed Speed (mm/min)	2550	2450	2450	2260	2110	2040	1820	1680
	High Alloy Cast Irons (35-45HRC)	ap≤1D	140	Rotation Speed (min-1)	14860	11150	7430	5570	4460	3720	2790	2230
		ae≤0.12D		Feed Speed (mm/min)	1960	2010	2010	1870	1740	1670	1510	1360

Carbide End Mill Cutter(HRC 48)

2 Flutes Ball Nose End Mill For Steels, Cast Iron——Profiling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	4	5	6	7	8	9	10	11	12
P	Carbon Steels/ Alloy Steels (<35HRC)	ap≤0.2D	160	Rotation Speed (min-1)	12740	10190	8490	7280	6370	5660	5100	4630	4250
		ae≤0.3D		Feed Speed (mm/min)	1020	1020	1020	1020	1020	1020	1020	1020	1020
	Alloy Steels (35-48HRC)	ap≤0.15D	120	Rotation Speed (min-1)	9550	7640	6370	5460	4780	4250	3820	3470	3190
		ae≤0.15D		Feed Speed (mm/min)	610	640	660	630	620	610	610	610	610
M	Stainless Steels	ap≤0.2D	110	Rotation Speed (min-1)	8760	7010	5840	5010	4380	3890	3500	3190	2920
		ae≤0.2D		Feed Speed (mm/min)	610	630	640	630	63	620	630	640	640
K	Grey Cast Irons/ Ductile Cast Irons (<32HRC)	ap≤0.2D	140	Rotation Speed (min-1)	11150	8920	7430	6370	5570	4950	4460	4050	3720
		ae≤0.2D		Feed Speed (mm/min)	780	800	820	800	800	790	800	810	820
	High Alloy Cast Irons (35-45HRC)	ap≤0.1D	120	Rotation Speed (min-1)	9550	7640	6370	5460	4780	4250	3820	3470	3190
		ae≤0.1D		Feed Speed (mm/min)	610	640	660	660	670	650	650	660	670

Carbide End Mill Cutter(HRC 48)

4 Flutes Ball Nose End Mill For Steels, Cast Iron——Profiling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	4	5	6	7	8	9	10	11	12
P	Carbon Steels/ Alloy Steels (<35HRC)	ap≤0.2D	160	Rotation Speed (min-1)	12740	10190	8490	7280	6370	5660	5100	4630	4250
		ae≤0.3D		Feed Speed (mm/min)	2040	2040	2040	2040	2040	2040	2040	2040	2040
	Alloy Steels (35-48HRC)	ap≤0.15D	120	Rotation Speed (min-1)	9550	7640	6370	5460	4780	4250	3820	3470	3190
		ae≤0.15D		Feed Speed (mm/min)	1220	1280	1330	1270	1240	1220	1220	1210	1210
M	Stainless Steels	ap≤0.2D	110	Rotation Speed (min-1)	8760	7010	5840	5010	4380	3890	3500	3190	2920
		ae≤0.2D		Feed Speed (mm/min)	1220	1260	1290	1260	1260	1250	1260	1270	1290
K	Grey Cast Irons/ Ductile Cast Irons (<32HRC)	ap≤0.2D	140	Rotation Speed (min-1)	11150	8920	7430	6370	5570	4950	4460	4050	3720
		ae≤0.2D		Feed Speed (mm/min)	1560	1610	1640	1610	1610	1590	1610	1620	1640
	High Alloy Cast Irons (35-45HRC)	ap≤0.1D	120	Rotation Speed (min-1)	9550	7640	6370	5460	4780	4250	3820	3470	3190
		ae≤0.1D		Feed Speed (mm/min)	1220	1280	1330	1310	1340	1310	1300	1320	1340

Carbide End Mill Cutter(HRC 48)

4 Flute Variable Helix Square End Mill For Steels, Cast Iron——Slotting

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	3	4	6	8	10	12	16	20
P	Carbon Steels/ Alloy Steels (<35HRC)	ap≤1D	80	Rotation Speed (min-1)	8490	6370	4250	3190	2550	2120	1590	1270
				Feed Speed (mm/min)	1050	1220	970	850	790	760	850	870
	Alloy Steels (35-48HRC)	ap≤0.5D	60	Rotation Speed (min-1)	6370	4780	3190	2390	1910	1590	1190	960
				Feed Speed (mm/min)	660	730	600	500	470	480	490	500
M	Stainless Steels	ap≤0. 3D	55	Rotation Speed (min-1)	5840	4380	2920	2190	1750	1460	1100	880
				Feed Speed (mm/min)	420	420	470	450	430	430	380	350
K	Grey Cast Irons/ Ductile Cast Irons (<32HRC)	ap≤0.8D	55	Rotation Speed (min-1)	5840	4380	2920	2190	1750	1460	1100	880
				Feed Speed (mm/min)	560	600	560	480	460	450	410	370
	High Alloy Cast Irons (35-45HRC)	ap≤0.5D	50	Rotation Speed (min-1)	5310	3980	2650	1990	1590	1330	1000	800
				Feed Speed (mm/min)	450	460	480	400	380	380	350	320

TOTIME Carbide End Mill Cutter
Recommended Cutting Conditions

Carbide End Mill Cutter(HRC 48)

4 Flutes Square End Mill / 4 Flutes Corner Radius End Mill For Stainless Steels, Titanium Alloys ——Side Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12	16	20
M	Stainless Steels	ap ≤ 1. 5D	100	Rotation Speed (min -1)	25000	15900	8000	5300	4000	3200	2600	2000	1600
		ae ≤ 0. 1D		Feed Speed (mm-min)	850	850	960	1000	1000	760	720	620	520
S	Titanium Alloys	ap ≤ 1. 5D	80	Rotation Speed (min -1)	20000	12720	6400	4240	3200	2560	2080	1600	1280
		ae ≤ 0. 1D		Feed Speed (mm-min)	680	680	768	800	800	608	576	496	416

Carbide End Mill Cutter(HRC 48)

2 Flutes Square End Mill For Stainless Steels, Titanium Alloys——Side Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12	16	20
M	Stainless Steels	ap ≤ 1. 5D	100	Rotation Speed (min-1)	25000	15900	8000	5300	4000	3200	2600	2000	1600
		ae ≤ 0. 1D		Feed Speed (mm/min)	425	425	480	500	500	380	360	310	260
S	Titanium Alloys	ap ≤ 1. 5D	80	Rotation Speed (min-1)	20000	12720	6400	4240	3200	2560	2080	1600	1280
		ae ≤ 0. 1D		Feed Speed (mm/min)	340	340	384	400	400	304	288	248	208

Carbide End Mill Cutter(HRC 48)

2 Flutes Square End Mill For Stainless Steels, Titanium Alloys——Slotting Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12	16	20
M	Stainless Steels	ap ≤ 0. 1D	70	Rotation Speed (min-1)	10000	8600	5600	3700	2800	2200	1800	1400	1100
		ae ≤ 1. 0D		Feed Speed (mm/min)	300	300	225	240	240	190	165	150	135
S	Titanium Alloys	ap ≤ 0. 1D	55	Rotation Speed (min-1)	8000	6880	4480	2960	2240	1760	1440	1120	880
		ae ≤ 1. 0D		Feed Speed (mm/min)	240	240	180	192	192	152	132	120	108

Carbide End Mill Cutter(HRC 48)

2 Flutes Ball Nose End Mill For Stainless Steels, Titanium Alloys——Profiling Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12	16	20
M	Stainless Steels	ap ≤ 0. 2D	100	Rotation Speed (min-1)	25000	15900	8000	5300	4000	3200	2600	2000	1600
		ae ≤ 0. 2D		Feed Speed (mm/min)	360	360	408	425	425	323	306	260	221
S	Titanium Alloys	ap ≤ 0. 2D	80	Rotation Speed (min-1)	20000	12720	6400	4240	3200	2560	2080	1600	1280
		ae ≤ 0. 2D		Feed Speed (mm/min)	288	288	320	340	340	260	250	208	180

Carbide End Mill Cutter(HRC 48)

4 Flutes Ball Nose End Mill For Stainless Steels, Titanium Alloys——Profiling Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12	16	20
M	Stainless Steels	ap ≤ 0. 2D	100	Rotation Speed (min-1)	25000	15900	8000	5300	4000	3200	2600	2000	1600
		ae ≤ 0. 2D		Feed Speed (mm/min)	720	720	816	850	850	646	612	520	442
S	Titanium Alloys	ap ≤ 0. 2D	80	Rotation Speed (min-1)	20000	12720	6400	4240	3200	2560	2080	1600	1280
		ae ≤ 0. 2D		Feed Speed (mm/min)	576	576	320	680	680	520	490	416	350

Carbide End Mill Cutter(HRC 48)

3 Flutes Square End Mill For Aluminium Alloys——Side Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	2	4	6	8	10	12
N	Aluminium Alloys (Si<12%)	ap≤1. 5D	150 (60-350)	Rotation Speed (min-1)	16000	12000	10600	10000	9500	9300
		ae≤0.2D		Feed Speed (mm/min)	1150	1570	1650	1800	2300	3100
	Copper Alloys (<Hb200)	ap≤1. 5D	150 (60-350)	Rotation Speed (min-1)	16000	12000	10600	10000	9500	9300
		ae≤0.2D		Feed speed (mm/min)	1030	1420	1490	1610	2060	2800

Carbide End Mill Cutter(HRC 48)

3 Flute Square End Mill For Aluminium Alloys——Slotting

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	2	4	6	8	10	12
N	Aluminium Alloys (Si<12%)	ap≤0. 5D	150 (60-350)	Rotation Speed (min-1)	12800	10000	9300	8750	8000	7450
		ae=1D		Feed Speed (mm/min)	760	1080	1300	1470	1530	1700
	Copper Alloys (<Hb200)	ap≤0.5D	150 (60-350)	Rotation Speed (min-1)	12800	10000	9300	8750	8000	7450
		ae=1D		Feed Speed (mm/min)	890	970	1160	1320	1380	1530

Carbide End Mill Cutter(HRC 48)

2 Flutes Ball Nose End Mill For Aluminium Alloys, Copper Alloys——Profiling Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12
N	Aluminium Alloys	ap ≤ 0. 3D	150 （60－350）	Rotation Speed (min－1)	19000	15900	11900	10600	8000	7950	7950
		ae ≤ 0. 3D		Feed Speed	950	1600	1900	2500	2550	3200	3800
	Copper Alloys	ap ≤ 0. 3D	150 （60－350）	Rotation Speed (min－1)	19000	15900	11900	10600	8000	7950	7950
		ae ≤ 0. 3D		Feed Speed (mm/min)	860	1430	1720	2300	2300	2850	3450

TOTIME Carbide End Mill Cutter
Recommended Cutting Conditions

Carbide End Mill Cutter(HRC 48)

3 Flutes Square End Mill For Aluminium Alloys, Copper Alloys——Side Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12	16	20
N	Aluminium Alloys	ap ≤ 1. 5D	150 （50－350）	Rotation Speed (min－1)	18000	16000	15000	12000	12000	10000	8000	6000	5000
		ae=0. 1mm		Feed Speed (mm/min)	1000	1000	1000	1000	1000	1000	1000	1000	1000
	Copper Alloys	ap ≤ 1. 5D	150 （50－350）	Rotation Speed (min－1)	14400	12800	12000	9600	9600	8000	6400	4800	4000
		ae=0. 1mm		Feed Speed (mm/min)	900	900	900	900	900	900	900	900	900

Carbide End Mill Cutter(HRC 48)

3 Flutes Square End Mill For Aluminium Alloys, Copper Alloys——Slotting Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12	16	20
N	Aluminium Alloys	ap ≤ 1. 5D	150 （50－350）	Rotation Speed (min－1)	12600	11200	10500	8400	8400	7000	5600	4200	3500
				Feed Speed (mm/min)	2000	2000	2000	2000	2000	2000	2000	2000	2000
	Copper Alloys	ap ≤ 1. 5D	150 （50－350）	Rotation Speed (min－1)	10080	8960	8400	6720	6720	5600	4480	3360	2800
				Feed Speed (mm/min)	1800	1800	1800	1800	1800	1800	1800	1800	1800

Carbide End Mill Cutter(HRC 65)

4 Flutes Square End Mill / 4 Flutes Corner Radius End Mill For Die Steel, Hardened Steel ——Side Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	2	4	6	8	10	12	16	20
H	Die Steels Hardened Steels (HRC≤ 48)	ap≤ 1. 0D	150	Rotation Speed (min-1)	23000	11750	7800	5800	4700	3900	2900	2350
		ae≤ 0. 04D		Feed Speed (mm/min)	1150	1350	1500	1300	1100	900	750	600
	Hardened Steels (48 -55HRC)	ap≤ 1. 0D	120	Rotation Speed (min-1)	18400	9400	6240	4640	3760	3120	2320	1880
		ae≤ 0. 04D		Feed Speed (mm/min)	920	1080	1200	1040	880	720	600	480
	Hardened Steels (55 -65HRC)	ap≤ 1. 0D	100	Rotation Speed (min-1)	14720	7520	4992	3712	3008	2496	1856	1504
		ae≤ 0. 04D		Feed Speed (mm/min)	736	864	960	832	704	576	480	384

Carbide End Mill Cutter(HRC 65)

2 Flutes Ball Nose End Mill For Die Steel, Hardened Steel——Profiling Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	2	4	6	8	10	12	16	20
H	Die Steels Hardened Steels (HRC≤ 48)	0. 05≤ap≤ 0. 1D	150	Rotation Speed (min-1)	23000	11750	7800	5800	4700	3900	2900	2350
		ae≤ 0. 02D		Feed Speed (mm/min)	920	1080	1200	1040	880	720	600	480
	Hardened Steels (48 -55HRC)	0. 05≤ap≤ 0. 1D	120	Rotation Speed (min-1)	18400	9400	6240	4640	3760	3120	2320	1880
		ae≤ 0. 02D		Feed Speed (mm/min)	736	864	960	832	704	576	480	384
	Hardened Steels (55 -65HRC)	0. 05≤ap≤ 0. 1D	100	Rotation Speed (min-1)	14720	7520	4992	3712	3008	2496	1856	1504
		ae≤ 0. 02D		Feed Speed (mm/min)	590	690	768	670	560	460	384	300

Carbide End Mill Cutter(HRC 35-55)

4 Flutes Square End Mill / 4 Flutes Corner Radius End Mill For Carbon Steels, Alloy Steels, Stainless Steels——Side Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	6	8	10	12	16	20
P	Carbon Steels Alloy Steels (HRC≤ 35)	ap ≤ 1. 5D	90	Rotation Speed (min-1)	4770	3580	2860	2390	1790	1430
		ae ≤ 0. 3D		Feed Speed (mm/min)	400	610	620	560	540	500
	Alloy Steels Hardened Steels (35 -48HRC)	ap ≤ 1. 5D	80	Rotation Speed (min-1)	4240	3180	2550	2120	1590	1270
		ae ≤ 0. 3D		Feed Speed (mm/min)	330	510	510	460	450	420
	Hardened Steels (48 -55HRC)	ap ≤ 1. 5D	65	Rotation Speed (min-1)	3445	2580	2070	1720	1290	1160
		ae ≤ 0. 3D		Feed Speed (mm/min)	264	408	408	368	360	336
M	Stainless Steels	ap ≤ 1. 5D	70	Rotation Speed (min-1)	3710	2790	2230	1860	1390	1110
		ae ≤ 0. 3D		Feed Speed (mm/min)	290	450	450	410	390	360

Carbide End Mill Cutter(HRC 35-55)

4 Flutes Square End Mill / 4 Flutes Corner Radius End Mill For Carbon Steels, Alloy Steels, Stainless Steels——Side Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	6	8	10	12	16	20
P	Carbon Steels Alloy Steels (HRC≤ 35)	ap ≤ 1.0D	90	Rotation Speed (min-1)	4240	3180	2550	2120	1590	1270
		ap max=12mm		Feed Speed (mm/min)	320	350	380	350	340	330
	Alloy Steels Hardened Steels (35 -48HRC)	ap ≤ 1.0D	80	Rotation Speed (min-1)	3710	2790	2230	1860	1390	1110
		ap max=12mm		Feed Speed (mm/min)	260	290	310	290	280	270
	Hardened Steels (48 -55HRC)	ap ≤ 1.0D	65	Rotation Speed (min-1)	3000	2200	1800	1500	1100	900
		ap max=12mm		Feed Speed (mm/min)	208	232	248	232	224	216
M	Stainless Steels	ap ≤ 1.0D	70	Rotation Speed (min-1)	3180	2390	1910	1590	1190	950
		ap max=12mm		Feed Speed (mm/min)	220	250	270	240	240	230

Carbide End Mill Cutter(HRC 48)

2 Flutes Square End Mill / 2 Flutes Corner Radius End Mill For Aluminium Alloys, Copper Alloys ——Side Milling / Slotting Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
N	Aluminium Alloys	ap≤ 0.05D	65 (30-110)	Rotation Speed (min-1)	40000	40000	40000	40000	40000	40000	40000	40000	40000
		ae≤1.0D		Feed Speed (mm/min)	200	300	500	1400	2000	2800	3150	3500	3750
	Copper Alloys	ap≤ 0.05D	65 (30-110)	Rotation Speed (min-1)	40000	40000	40000	40000	40000	40000	40000	40000	40000
		ae≤1.0D		Feed Speed (mm/min)	180	270	450	1260	1800	2520	2835	3150	3375

Carbide End Mill Cutter(HRC 48)

2 Flutes Ball Nose End Mill For Aluminium Alloys, Copper Alloys——Profiling Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	0.2	0.3	0.4	0.5	0.6	0.7	0.8
N	Aluminium Alloys	ap≤0.05D	65 (30-110)	Rotation Speed (min-1)	40000	40000	40000	40000	40000	40000	40000
		ae≤1.0D		Feed Speed (mm-min)	255	425	1190	1700	2380	2700	2975
	Copper Alloys	ap≤0.05D	65 (30-110)	Rotation Speed (min-1)	40000	40000	40000	40000	40000	40000	40000
		ae≤1.0D		Feed Speed (mm-min)	229.5	380	1070	1530	2142	2400	2680

Carbide End Mill Cutter(HRC 48)

2 Flutes Square End Mill / 2 Flutes Corner Radius End Mill For Carbon Steels, Alloy Steels, Stainless Steels——Side Milling / Slotting Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
P	Carbon Steels Alloy Steels	ap≤0.05D	65 (30-110)	Rotation Speed (min-1)	40000	40000	40000	40000	40000	40000	40000	40000	40000
		ae≤1.0D		Feed Speed (mm/min)	180	270	450	1260	1800	2520	2835	3150	3375
M	Stainless Steels	ap≤0.05D	65 (30-110)	Rotation Speed (min-1)	40000	40000	40000	40000	40000	40000	40000	40000	40000
		ae≤1.0D		Feed Speed (mm/min)	162	243	405	1134	1620	2268	2500	2835	3000

Carbide End Mill Cutter(HRC 48)

2 Flutes Ball Nose End Mill For Carbon Steels Alloy Steels, Stainless Steels——Profiling Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	0.2	0.3	0.4	0.5	0.6	0.7	0.8
P	Carbon Steels Alloy Steels	ap≤0.05D	65 (30-110)	Rotation Speed (min-1)	40000	40000	40000	40000	40000	40000	40000
		ae≤1.0D		Feed Speed (mm/min)	230	380	1100	1530	2142	2430	2700
M	Stainless Steels	ap≤0.05D	65 (30-110)	Rotation Speed (min-1)	40000	40000	40000	40000	40000	40000	40000
		ae≤1.0D		Feed Speed (mm/min)	207	342	990	1377	1900	2187	2430

TOTIME Carbide End Mill Cutter
Recommended Cutting Conditions

Carbide End Mill Cutter(HRC 48~60)

2 Flutes Square End Mill / 2 Flutes Corner Radius End Mill For Carbon Steels, Alloy Steels, Stainless Steels——Side Milling / Slotting Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
H	Alloy Steels Hardened Steels (< HRC50)	ap≤0.03D	65 (30-110)	Rotation Speed (min-1)	40000	40000	40000	40000	40000	40000	40000	40000	40000
		ae≤1.0D		Feed Speed (mm/min)	180	270	450	1260	1800	2520	2835	3150	3375
	Hardened Steels (50-60HRC)	ap≤0.03D	65 (30-110)	Rotation Speed (min-1)	40000	40000	40000	40000	40000	40000	40000	40000	40000
		ae≤1.0D		Feed Speed (mm/min)	162	243	405	1134	1620	2268	2500	2835	3000

Carbide End Mill Cutter(HRC 48~60)

2 Flutes Ball Nose End Mill For Die Steels, Hardened Steels——Profiling Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	0.2	0.3	0.4	0.5	0.6	0.7	0.8
H	Alloy Steels Hardened Steels (< HRC50)	ap≤0.03D	65 (30-110)	Rotation Speed (min-1)	40000	40000	40000	40000	40000	40000	40000
		ae≤1.0D		Feed Speed (mm/min)	230	380	1100	1530	2142	2430	2700
	Hardened Steels (50-60HRC)	ap≤0.03D	65 (30-110)	Rotation Speed (min-1)	40000	40000	40000	40000	40000	40000	40000
		ae≤1.0D		Feed Speed (mm/min)	207	342	990	1377	1900	2187	2430

Carbide End Mill Cutter(HRC 48)

4 Flutes Square End Mill For Carbon Steels, Alloy Steels, Cast Iron——Slotting Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	3	4	6	8	10	12	16	20
P	Carbon Steels Alloy Steels (HRC ≤35)	ap ≤1.0D	80	Rotation Speed (min-1)	8490	6370	4250	3190	2550	2120	1590	1270
				Feed Speed (mm/min)	1050	1220	970	850	790	760	850	870
	Alloy Steels Hardened Steels (35-48HRC)	ap ≤0.5D	60	Rotation Speed (min-1)	6370	4780	3190	2390	1910	1590	1190	960
				Feed Speed (mm/min)	660	730	600	500	470	480	490	500
K	Grey Cast Irons Ductile Cast Irons	ap ≤0.8/D	55	Rotation Speed (min-1)	5840	4380	2920	2190	1750	1460	1100	880
				Feed Speed (mm/min)	560	600	560	480	460	450	410	370

Carbide End Mill Cutter(HRC 48)

4 Flutes Square End Mill For Stainless Steels——Side Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	3	4	6	8	10	12	16	20
M	Stainless Steels	ap ≤1.0D	100	Rotation Speed (min-1)	10600	7960	5300	3980	3180	2650	1990	1590
		ae ≤0.1D		Feed Speed (mm/min)	650	700	680	730	660	600	490	460

Carbide End Mill Cutter(HRC 48)

4 Flutes Square End Mill For Stainless Steels——Slotting Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	3	4	6	8	10	12	16	20
M	Stainless Steels	ap ≤0.1D	45	Rotation Speed (min-1)	4770	3580	2390	1790	1430	1195	895	715
		ae ≤1D		Feed Speed (mm/min)	280	240	210	310	310	310	270	240

Carbide End Mill Cutter(HRC 48)

4 Flutes Square End Mill / 4 Flutes Corner Radius End Mill For Steels, Cast Iron——Side Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	3	4	6	8	10	12	16	20
P	Carbon Steels Alloy Steels (HRC≤35)	ap≤1.5D	200	Rotation Speed (min-1)	21230	15920	10620	7960	6370	5310	3980	3190
		ae≤0.4D		Feed Speed (mm/min)	1910	2545	2545	2545	2550	2550	3185	3180
	Alloy Steels Hardened Steels (35-48HRC)	ap≤1.5D	190	Rotation Speed (min-1)	20160	15120	10080	7560	6050	5040	3780	3020
		ae≤0.4D		Feed Speed (mm/min)	1815	2420	2420	2420	2420	2420	3025	3020
K	Grey Cast Irons Ductile Cast Irons	ap≤1.5D	180	Rotation Speed (min-1)	19100	14320	9550	7160	6730	4770	3580	2860
		ae≤0.4D		Feed Speed (mm/min)	1375	1835	1835	1835	1835	1835	2290	2290

Carbide End Mill Cutter(HRC 48)

4 Flutes Square End Mill / 4 Flutes Corner Radius End Mill For Steels, Cast Iron——Slotting Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	3	4	6	8	10	12	16	20
P	Carbon Steels Alloy Steels (HRC≤35)	ap≤1.5D	160	Rotation Speed (min-1)	16980	12730	10620	7960	6370	5310	3980	3190
				Feed Speed (mm/min)	1225	1630	2545	2545	2550	2550	3185	3180
	Alloy Steels Hardened Steels (35-48HRC)	ap≤1.5D	140	Rotation Speed (min-1)	14850	11140	10080	7560	6050	5040	3780	3020
				Feed Speed (mm/min)	1070	1425	2420	2420	2420	2420	3025	3020
K	Grey Cast Irons Ductile Cast Irons	ap≤1.5D	160	Rotation Speed (min-1)	16980	12730	8490	6370	5090	4240	3180	2550
				Feed Speed (mm/min)	1070	1425	1425	1425	1425	1425	1780	1785

Carbide End Mill Cutter(HRC 48)

4 Flutes Square End Mill / 4 Flutes Corner Radius End Mill For Carbon Steels, Alloy Steels, Cast Iron——Side Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	4	5	6	8	10	12	16	20
P	Carbon Steels Alloy Steels (HRC≤35)	ap≤1.0D	108	Rotation Speed (min-1)	8600	6500	5600	4200	3300	2800	2000	1600
		ae≤0.1D		Feed Speed (mm/min)	516	520	560	588	528	560	528	512
	Alloy Steels Hardened Steels (35-45HRC)	ap≤1.0D	108	Rotation Speed (min-1)	8600	5600	4200	3300	2800	5310	2000	1600
		ae≤0.1D		Feed Speed (mm/min)	516	520	560	588	528	560	528	512
K	Grey Cast Irons Ductile Cast Irons	ap≤1.0D	108	Rotation Speed (min-1)	8600	5600	4200	3300	2800	5310	2000	1600
		ae≤0.1D		Feed Speed (mm/min)	516	520	560	588	528	560	528	512

Carbide End Mill Cutter(HRC 48)

4 Flutes Square End Mill / 4 Flutes Corner Radius End Mill For Carbon Steels, Alloy Steels, Cast Iron——Slotting Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	4	5	6	8	10	12	16	20
P	Carbon Steels Alloy Steels (HRC ≤35)	ap ≤1.0D	80	Rotation Speed (min-1)	6880	5200	4480	3360	2640	2240	1600	1280
		ae ≤0.1D		Feed Speed (mm/min)	310	312	336	353	317	336	317	308
	Alloy Steels Hardened Steels (35-45HRC)	ap ≤1.0D	80	Rotation Speed (min-1)	6880	4480	3360	2640	2240	4248	1600	1280
		ae ≤0.1D		Feed Speed (mm/min)	310	312	336	353	317	336	317	308
K	Grey Cast Irons Ductile Cast Irons	ap ≤1.0D	80	Rotation Speed (min-1)	6880	4480	3360	2640	2240	4248	1600	1280
		ae ≤0.1D		Feed Speed (mm/min)	310	312	336	353	317	336	317	308

Carbide End Mill Cutter(HRC 48)

2 Flutes Ball Nose End Mill For Carbon Steels, Alloy Steels, Cast Iron——Profilling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	4	5	6	8	10	12	16	20
P	Carbon Steels Alloy Steels (HRC ≤35)	ap ≤0.2D	108	Rotation Speed (min-1)	8600	6500	5600	4200	3300	2800	2000	1600
		ae ≤0.2D		Feed Speed (mm/min)	516	520	560	588	528	560	528	512
	Alloy Steels Hardened Steels (35-45HRC)	ap ≤0.2D	108	Rotation Speed (min-1)	8600	5600	4200	3300	2800	5310	2000	1600
		ae ≤0.2D		Feed Speed (mm/min)	516	520	560	588	528	560	528	512
K	Grey Cast Irons Ductile Cast Irons	ap ≤0.2D	108	Rotation Speed (min-1)	8600	5600	4200	3300	2800	5310	2000	1600
		ae ≤0.2D		Feed Speed (mm/min)	516	520	560	588	528	560	528	512

Carbide End Mill Cutter(HRC 48)

4 Flutes Corner Radius For Carbon Steels, Alloy Steels——Side Milling

Workpiece Material		Cutting Depth (mm)	Tool Diameter (mm)	4	6	8	10	12	16	20
P	Carbon Steels Alloy Steels (HRC≤30)	ap≤1.0D	Cutting Speed (m/min)	126	160	163	160	160	160	160
		ae≤0.5D	Feed Speed (mm/min)	1000	890	780	612	516	384	306
	Alloy Steels Hardened Steels (HRC≤30)	ap≤1.0D	Cutting Speed (m/min)	126	160	163	160	160	160	160
		ae≤0.5D	Feed Speed (mm/min)	1000	890	780	612	516	384	306

Carbide End Mill Cutter(HRC 48)

4 Flutes Corner Radius For Carbon Steels, Alloy Steels——Slotting Milling

Workpiece Material		Cutting Depth (mm)	Tool Diameter (mm)	4	6	8	10	12	16	20
P	Carbon Steels Alloy Steels (HRC≤30)	ap≤1.0D	Cutting Speed (m/min)	100	150	151	151	151	151	151
			Feed Speed (mm/min)	600	850	700	580	480	360	288
	Alloy Steels Hardened Steels (HRC≤30)	ap≤1.0D	Cutting Speed (m/min)	100	150	151	151	151	151	151
			Feed Speed (mm/min)	600	850	700	580	480	360	288

Carbide End Mill Cutter(HRC 48)

4 Flutes Ball Nose End Mill For Carbon Steels, Alloy Steels, Stainless Steels——Profiling Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	0.2	0.3	0.4	0.5	0.6	0.7	0.8
P	Carbon Steels Alloy Steels	ap ⩽ 0.05D	65 (30-110)	Rotation Speed (min-1)	40000	40000	40000	40000	40000	40000	40000
		ae ⩽ 1.0D		Feed Speed (mm/min)	460	760	2200	3060	4284	4860	5400
M	Stainless Steels	ap ⩽ 0.05D	65 (30-110)	Rotation Speed (min-1)	40000	40000	40000	40000	40000	40000	40000
		ae ⩽ 1.0D		Feed Speed (mm/min)	414	684	1980	2754	3800	4374	4860

TOTIME Carbide End Mill Cutter
Recommended Cutting Conditions

ZSTNB series

2/3 FLUTES, TAPER NECK BACK DRAFT TYPE

Workpiece Material					Carbon Steels Alloy Steels (180~250HB)"		Pre-harden Steels (35~45HRC)		Hardened Steels (45~55HRC)		Hardened Steels (55~65HRC)	
Ratio to standard depth of cut					Depth of Cut X 100%		Depth of Cut X 80%		Depth of Cut X 65%		Depth of Cut X 60%	
R (mm)	Mill Dia (mm)	Neck Length (mm)	Neck Angle (mm)	Depth of Cut (mm)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)
0.10	0.20	1.0	0.4	0.017	40000	800	28000	504	26000	416	26000	364
		1.5	0.4	0.009	40000	800	28000	504	26000	416	26000	364
		2.0	0.9	0.007	32000	461	22400	323	20800	266	20800	233
		2.5	0.9	0.004	26000	333	18200	204	16900	189	16900	162
0.15	0.30	2.0	0.4	0.025	40000	1200	28000	756	26000	624	26000	546
		3.0	0.9	0.013	32000	691	22400	484	20800	399	20800	349
		4.0	0.9	0.010	26000	499	18200	306	16900	284	16900	243
0.20	0.40	2.0	0.4	0.035	40000	1600	28000	1008	26000	832	26000	728
		3.0	0.4	0.020	40000	1600	28000	1008	26000	832	26000	728
		4.0	0.4	0.007	32000	922	22400	645	20800	532	20800	466
		4.0	0.9	0.009	32000	922	22400	645	20800	532	20800	466
		5.0	0.4	0.006	26000	666	18200	408	16900	379	16900	324
		5.0	0.9	0.007	26000	666	18200	408	16900	379	16900	324
0.25	0.50	4.0	0.4	0.040	40000	2000	28000	1260	26000	1040	26000	910
		8.0	0.9	0.010	26000	728	18200	446	16900	414	16900	355
		12.0	0.9	0.005	22400	627	15680	384	14560	357	14560	306
0.27	0.54	2.0	0.4	0.050	40000	2160	28000	1361	26000	1123	26000	983
		4.0	0.4	0.037	40000	2160	28000	1361	26000	1123	26000	983
		5.0	0.4	0.031	40000	1512	28000	1176	26000	1040	26000	832
		6.0	0.4	0.025	26000	1244	18200	871	16900	676	16900	629
		6.5	0.4	0.020	26000	1011	18200	619	16900	575	16900	493
		7.0	0.4	0.015	26000	899	18200	585	16900	543	16900	465
0.30	0.60	2.0	0.4	0.055	40000	2400	28000	1512	26000	1248	26000	1092
		4.0	0.4	0.035	40000	2400	28000	1512	26000	1248	26000	1092
		6.0	0.4	0.018	32000	1382	22400	968	20800	799	20800	699
		6.0	0.9	0.020	32000	1382	22400	968	20800	799	20800	699
		8.0	0.9	0.020	26000	998	18200	612	16900	568	16900	487
		10.0	0.4	0.013	26000	874	18200	535	16900	497	16900	426
		10.0	0.9	0.015	26000	874	18200	535	16900	497	16900	426
		12.0	0.9	0.010	26000	874	18200	535	16900	497	16900	426
		15.0	0.4	0.005	22400	753	15680	461	14560	367	14560	367
		15.0	0.9	0.006	22400	753	15680	461	14560	367	14560	367

ZSTNB series

2/3 FLUTES, TAPER NECK BACK DRAFT TYPE

Workpiece Material					Carbon Steels Alloy Steels (180~250HB)"		Pre-harden Steels (35~45HRC)		Hardened Steels (45~55HRC)		Hardened Steels (55~65HRC)	
Ratio to standard depth of cut					Depth of Cut X 100%		Depth of Cut X 80%		Depth of Cut X 65%		Depth of Cut X 60%	
R (mm)	Mill Dia (mm)	Neck Length (mm)	Neck Angle (mm)	Depth of Cut (mm)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)
0.4	0.8	4	0.4	0.062	32000	2560	22400	1613	20800	1331	20800	1165
		6	0.4	0.045	32000	2560	22400	1613	20800	1331	20800	1165
		8	0.9	0.026	25600	1475	17920	1032	16640	852	16640	745
		12	0.9	0.020	20800	1065	14560	699	13520	606	13520	519
		16	0.9	0.018	20800	932	14560	612	13520	530	13520	454
0.45	0.9	4	0.4	0.063	28300	2547	19810	1605	18395	1324	18395	1159
		8	0.4	0.050	28300	2547	19810	1605	18395	1324	18395	1159
		12	0.4	0.037	18400	1325	12880	811	11960	753	11960	646
		16	0.4	0.024	18400	1325	12880	811	11960	753	11960	646
		18	0.4	0.018	18400	1325	12880	811	11960	753	11960	646
		20	0.4	0.015	15850	1141	11095	699	10303	649	10303	556
		22	0.4	0.012	15850	1141	11095	699	10303	649	10303	556
		24	0.4	0.009	14150	1019	9905	624	9198	579	9198	497
0.50	1.0	6	0.4	0.055	25600	2560	17920	1613	16640	1331	16640	1165
		8	0.4	0.055	25600	2560	17920	1613	16640	1331	16640	1165
		10	0.4	0.032	20800	1872	14560	1310	13520	1082	13520	946
		10	0.9	0.035	20800	1872	14560	1310	13520	1082	13520	946
		15	0.9	0.028	16640	1331	11648	874	10816	757	10816	649
		20	0.4	0.018	16640	1331	11648	874	10816	757	10816	649
		20	0.9	0.020	16640	1331	11648	874	10816	757	10816	649
		25	0.9	0.017	14560	1165	10192	764	9464	662	9464	568
		30	0.4	0.015	12480	874	8736	568	8112	487	8112	406
		30	0.9	0.017	12480	874	8736	568	8112	487	8112	406
		35	0.9	0.010	10400	728	7280	473	6760	406	6760	338
		40	0.9	0.009	10000	700	7000	455	6500	390	6500	325
		50	0.9	0.007	9500	665	6650	432	6175	371	6175	309
		60	0.9	0.005	9000	630	6300	410	5850	351	5850	293
		70	0.9	0.003	8500	595	5950	387	5525	332	5525	276
0.75	1.5	8	0.4	0.070	16960	2544	11872	1603	11024	1323	11024	1158
		10	0.4	0.070	16960	2544	11872	1603	11024	1323	11024	1158
		12	0.4	0.070	16960	2544	11872	1603	11024	1323	11024	1158
		15	0.9	0.045	13568	1832	9498	1282	8819	1058	8819	926
		20	0.9	0.040	11024	1323	7717	810	7166	752	7166	645
		30	0.9	0.028	11024	1323	7717	810	7166	752	7166	645

TOTIME Carbide End Mill Cutter
Recommended Cutting Conditions

ZSTNB series

2/3 FLUTES, TAPER NECK BACK DRAFT TYPE

Workpiece Material					Carbon Steels Alloy Steels (180~250HB)"		Pre-harden Steels (35~45HRC)		Hardened Steels (45~55HRC)		Hardened Steels (55~65HRC)	
Ratio to standard depth of cut					Depth of Cut X 100%		Depth of Cut X 80%		Depth of Cut X 65%		Depth of Cut X 60%	
R (mm)	Mill Dia (mm)	Neck Length (mm)	Neck Angle (mm)	Depth of Cut (mm)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)
0.9	1.8	4	0.4	0.120	14200	2556	9940	1610	9230	1329	9230	1163
		8	0.4	0.100	14200	2556	9940	1610	9230	1329	9230	1163
		12	0.4	0.080	14200	2556	9940	1610	9230	1329	9230	1163
		16	0.4	0.070	14200	2556	9940	1610	9230	1329	9230	1163
		20	0.4	0.060	9230	1329	6461	814	6000	756	6000	648
		24	0.4	0.050	9230	1329	6461	814	6000	756	6000	648
		28	0.4	0.040	9230	1329	6461	814	6000	756	6000	648
		32	0.4	0.040	9230	1329	6461	814	6000	756	6000	648
		36	0.4	0.030	9230	1329	6461	814	6000	756	6000	648
		38	0.4	0.020	8000	1152	5600	706	5200	655	5200	562
		40	0.4	0.020	8000	1152	5600	706	5200	655	5200	562
1.0	2.0	8	0.4	0.150	15200	3040	10640	1915	9880	1581	9880	1383
		12	0.4	0.090	15200	3040	10640	1915	9880	1581	9880	1383
		16	0.4	0.090	15200	3040	10640	1915	9880	1581	9880	1383
		20	0.4	0.060	12160	2189	8512	1532	7904	1265	7904	1107
		20	0.9	0.070	12160	2189	8512	1532	7904	1265	7904	1107
		25	0.9	0.070	9880	1581	6916	968	6442	899	6422	771
		30	0.4	0.040	9880	1581	6916	968	6442	899	6422	771
		30	0.9	0.050	9880	1581	6916	968	6442	899	6422	771
		35	0.9	0.050	9880	1581	6916	968	6442	899	6422	771
		40	0.4	0.030	9880	1581	6916	968	6442	899	6422	771
		40	0.9	0.040	9880	1581	6916	968	6442	899	6422	771
		50	0.9	0.170	8512	1192	5958	775	5533	664	5533	553
		60	0.9	0.010	7235	1013	5065	658	4703	564	4703	470
		70	0.9	0.010	6150	861	4305	560	3997	480	3997	400
1.5	3.0	8	0.4	0.320	12720	3816	8904	2404	8268	1984	8268	1736
		16	0.4	0.220	12720	3816	8904	2404	8268	1984	8268	1736
		20	0.4	0.150	12720	3434	8904	2137	8268	1736	8268	1488
		30	0.4	0.080	10176	2748	7123	1496	6614	1389	6614	1191
		30	0.9	0.090	10176	2748	7123	1496	6614	1389	6614	1191
		40	0.4	0.060	8268	1984	5788	1215	5374	1129	5374	967
		40	0.9	0.070	8268	1984	5788	1215	5374	1129	5374	967
		50	0.9	0.050	8268	1984	5788	1215	5374	1129	5374	967
		60	0.9	0.030	7123	1710	4986	1047	4630	972	4630	833
		70	0.9	0.020	6233	1496	4363	916	4051	851	4051	729

ZSTNB series

2/3 FLUTES, TAPER NECK BACK DRAFT TYPE

Workpiece Material					Carbon Steels Alloy Steels (180~250HB)"		Pre-harden Steels (35~45HRC)		Hardened Steels (45~55HRC)		Hardened Steels (55~65HRC)	
Ratio to standard depth of cut					Depth of Cut X 100%		Depth of Cut X 80%		Depth of Cut X 65%		Depth of Cut X 60%	
R (mm)	Mill Dia (mm)	Neck Length (mm)	Neck Angle (mm)	Depth of Cut (mm)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)
2.0	4	20	1	0.32	11900	2860	9000	2050	7800	1680	7800	1590
		30	1	0.23	11900	2570	9000	1850	7800	1520	7800	1430
		40	1	0.14	9500	1940	7200	1400	6200	1140	6200	1080
		50	1	0.11	7800	1590	5800	1120	5000	920	5000	870
		60	1	0.07	7800	1590	5800	1120	5000	920	5000	870
2.5	5	30	1	0.34	9500	2140	7200	1540	6200	1260	6200	1190
		40	1	0.25	9500	2140	7200	1540	6200	1260	6200	1190
		60	1	0.15	6200	1320	4700	950	4000	770	4000	720
3.0	6	30	1	0.45	8000	2000	6000	1430	5200	1170	5200	1110
		40	1	0.40	8000	1800	6000	1280	5200	1050	5200	990
		50	1	0.32	8000	1800	6000	1280	5200	1050	5200	990
		60	1	0.22	6400	1360	4800	970	4100	780	4100	740
		70	1	0.18	5200	1110	3900	790	3400	650	3400	610
		80	1	0.14	5200	1110	3900	790	3400	650	3400	610
4.0	8	50	1	0.50	6000	1460	4500	1040	3900	850	3900	810
		60	1	0.43	6000	1460	4500	1040	3900	850	3900	810
		70	1	0.33	6000	1460	4500	1040	3900	850	3900	810
		80	1	0.25	4800	1100	3600	780	3100	640	3100	600
5.0	10	60	1	0.70	4800	1300	3600	920	3100	750	3100	710
		75	1	0.50	4800	1300	3600	920	3100	750	3100	710

- Please adjust the cutting depth index according to the cutting depth factors of above table.
- For Rib or Slotting machining process which are not easy for chip ejection, please reduce the cutting depth by 20~30% from the above cutting condition.

  ex) ZSTNB2040-20-10, HRC 55, Rib processing

  Cutting depth : 0.32(standard cutting depth) X 0.65 X 0.8 = 0.17mm
- In actual machining, the condition should be adjusted according to the machining shape, purpose and the machine type.
- If RPM of the machine is low, the feed rate should be low in the same ratio as RPM.

TOTIME Carbide End Mill Cutter
Recommended Cutting Conditions

ZSTNR series

2 FLUTES, TAPER NECK BACK DRAFT TYPE

Workpiece Material				Carbon Steels Alloy Steels (180~250HB)		Pre-harden Steels (35~45HRC)		Hardened Steels (45~55HRC)		Hardened Steels (55~65HRC)	
Ratio to standard depth of cut				Depth of Cut X 100%		Depth of Cut X 80%		Depth of Cut X 65%		Depth of Cut X 60%	
Mill Dia (mm)	R (mm)	Neck Length (mm)	Depth of Cut (mm)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)
0.2	0.05	2	0.007	39660	887	33660	754	29700	591	27720	483
0.4	0.05	4	0.009	30096	899	25582	764	22572	599	21067	489
		5	0.007	26752	710	22739	528	20064	466	18726	373
	0.10	4	0.009	31680	946	26928	804	23760	631	22176	515
		5	0.007	28160	747	23936	556	21120	490	19712	392
0.5	0.10	5	0.013	30413	1090	25851	753	22810	562	21289	453
		8	0.008	24330	678	20681	468	18248	350	17031	282
		10	0.007	18248	509	15511	351	13686	262	12773	211
0.6	0.10	12	0.010	20377	791	17320	546	15282	408	14264	329
		15	0.006	16727	649	14218	448	12545	335	11709	270
0.8	0.20	6	0.045	31680	1084	26928	921	23760	723	22176	590
		12	0.020	28160	943	23936	695	21120	613	19712	490
1.0	0.20	8	0.040	28512	1463	24235	1244	21384	976	19958	797
		10	0.035	28512	1596	24235	1357	21384	1064	19958	869
		15	0.028	25344	1261	21542	938	19008	828	17741	662
		20	0.020	19008	828	16157	653	14256	532	13306	414
		25	0.017	15840	690	13464	544	11880	443	11088	345
		30	0.017	15840	690	13464	544	11880	443	11088	345
		35	0.010	15840	690	13464	544	11880	443	11088	345
	0.30	8	0.040	28512	1463	24235	1244	21384	976	19958	797
		15	0.028	25344	1261	21542	938	19008	828	17741	662
		25	0.017	15840	690	13464	544	11880	443	11088	345
		30	0.017	15840	690	13464	544	11880	443	11088	345
1.5	0.20	10	0.050	21683	1079	18431	803	16262	708	15178	567
		15	0.045	19712	981	16755	730	14784	644	13798	515
		20	0.042	17347	863	14745	642	13010	567	12143	453
		25	0.032	14784	644	12566	508	11088	414	10349	322
		30	0.028	12320	536	10472	423	9240	345	8624	268
	0.30	10	0.050	21683	1079	18431	803	16262	708	15178	567
		20	0.042	17347	863	14745	642	13010	567	12143	453
		25	0.032	14784	644	12566	508	11088	414	10349	322
		30	0.028	12320	536	10472	423	9240	345	8624	268

ZSTNR series

2 FLUTES, TAPER NECK BACK DRAFT TYPE

Workpiece Material				Carbon Steels Alloy Steels (180~250HB)		Pre-harden Steels (35~45HRC)		Hardened Steels (45~55HRC)		Hardened Steels (55~65HRC)	
Ratio to standard depth of cut				Depth of Cut X 100%		Depth of Cut X 80%		Depth of Cut X 65%		Depth of Cut X 60%	
Mill Dia (mm)	R (mm)	Neck Length (mm)	Depth of Cut (mm)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)
2	0.2	30	0.045	13440	1254	11424	933	10080	823	9408	658
		40	0.035	10080	823	8568	650	7560	529	7056	412
		50	0.017	8400	686	7140	541	6300	441	5880	343
	0.3	12	0.088	22680	1814	19278	1427	17010	1191	15876	1048
		20	0.054	18144	1452	15422	1141	13608	953	12701	838
		30	0.045	13440	1393	11424	1036	10080	914	9408	732
		40	0.035	10080	914	8568	722	7560	588	7056	457
		50	0.017	8400	762	7140	601	6300	490	5880	381
	0.5	8	0.170	22680	1814	19278	1427	17010	1191	15876	1048
		12	0.088	22680	1814	19278	1427	17010	1191	15876	1048
		16	0.088	19278	1542	16386	1213	14459	1012	13495	891
		20	0.054	18114	1452	15422	1141	13608	953	12701	838
		25	0.054	15876	1270	13495	999	11907	833	11113	733
		30	0.045	13440	1393	11424	1036	10080	914	9408	732
		40	0.035	10080	914	8568	722	7560	588	7056	457
		50	0.017	8400	762	7140	601	6300	490	5880	381
3	0.2	40	0.070	10240	956	8704	711	7680	627	7168	502
		50	0.050	7680	627	6528	495	5760	403	5376	314
		60	0.030	6400	523	5440	412	4800	336	4480	261
	0.3	40	0.070	10240	1062	8704	790	7680	697	7168	557
		50	0.050	7680	697	6528	550	5760	448	5376	348
		60	0.030	6400	581	5440	458	4800	373	4480	290
	0.5	40	0.070	10240	1062	8704	790	7680	697	7168	557
		50	0.050	7680	697	6528	550	5760	448	5376	348
		60	0.030	6400	581	5440	458	4800	373	4480	290

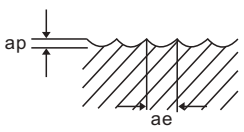
- Please adjust the cutting depth index according to the cutting depth factors of above table.
- In actual machining, the condition should be adjusted according to the machining shape, purpose and machine type.
- If RPM of the machine is low, the feed rate should be low in the same ratio as RPM.

TOTIME CBN End Mill(HRC≤70)
Recommended Cutting Conditions

CN2BE
CP2BE SERIES

CBN 2 FLUTE BALL NOSE

Workpiece Material			Hardened Steels							
STRENGTH			HRC50~HRC60				HRC60~HRC70			
Radius of Ball Nose	DIA.	LBS	RPM	FEED	ap (mm)	ae (mm)	RPM	FEED	ap (mm)	ae (mm)
R0.10	0.2	-	50000	500	0.003	0.003	50000	500	0.003	0.003
R0.10	0.2	0.5	50000	500	0.003	0.003	50000	500	0.003	0.003
R0.10	0.2	1.0	50000	300	0.003	0.003	50000	300	0.003	0.003
R0.15	0.3	-	50000	1000	0.005	0.005	50000	1000	0.005	0.005
R0.15	0.3	1.0	50000	600	0.005	0.005	50000	600	0.005	0.005
R0.15	0.3	1.5	50000	600	0.005	0.005	50000	600	0.005	0.005
R0.15	0.3	2.0	37500	300	0.005	0.003	37500	300	0.005	0.003
R0.20	0.4	-	50000	1200	0.005	0.005	50000	1200	0.005	0.005
R0.20	0.4	1.0	50000	1200	0.005	0.005	50000	1200	0.005	0.005
R0.20	0.4	1.5	50000	720	0.005	0.005	50000	720	0.005	0.005
R0.20	0.4	2.0	50000	720	0.005	0.005	50000	720	0.005	0.005
R0.20	0.4	3.0	37500	360	0.005	0.003	37500	360	0.005	0.003
R0.25	0.5	-	50000	1500	0.005	0.005	50000	1500	0.005	0.005
R0.25	0.5	1.0	50000	1500	0.005	0.005	50000	1500	0.005	0.005
R0.25	0.5	2.0	50000	900	0.005	0.005	50000	900	0.005	0.005
R0.25	0.5	3.0	37500	450	0.005	0.003	37500	450	0.005	0.003
R0.25	0.5	4.0	37500	450	0.005	0.003	37500	450	0.005	0.003
R0.30	0.6	-	50000	2000	0.005	0.005	50000	2000	0.005	0.005
R0.30	0.6	2.0	50000	1200	0.005	0.005	50000	1200	0.005	0.005
R0.30	0.6	3.0	50000	1200	0.005	0.005	50000	1200	0.005	0.005
R0.30	0.6	4.0	37500	600	0.005	0.003	37500	600	0.005	0.003
R0.30	0.6	6.0	37500	450	0.005	0.003	37500	450	0.005	0.003
R0.40	0.8	-	50000	2000	0.005	0.005	50000	2000	0.005	0.005
R0.40	0.8	2.0	50000	2000	0.005	0.005	50000	2000	0.005	0.005
R0.40	0.8	4.0	50000	1200	0.005	0.005	50000	1200	0.005	0.005
R0.40	0.8	6.0	37500	600	0.005	0.003	37500	600	0.005	0.003
R0.40	0.8	8.0	37500	450	0.005	0.003	37500	450	0.005	0.003
R0.50	1.0	-	50000	3000	0.010	0.01	50000	3000	0.01	0.01
R0.50	1.0	2.5	50000	3000	0.010	0.01	50000	3000	0.01	0.01
R0.50	1.0	4.0	40000	2400	0.006	0.01	40000	2400	0.006	0.01
R0.50	1.0	6.0	30000	1800	0.004	0.006	30000	1800	0.004	0.006
R0.50	1.0	8.0	20000	1200	0.004	0.006	20000	1200	0.004	0.006
R0.60	1.2	-	50000	3000	0.010	0.01	50000	3000	0.01	0.01
R0.60	1.2	3.0	50000	3000	0.010	0.01	50000	3000	0.01	0.01
R0.60	1.2	4.0	40000	2400	0.006	0.01	40000	2400	0.006	0.01
R0.60	1.2	6.0	40000	2400	0.006	0.01	40000	2400	0.006	0.01
R0.60	1.2	8.0	20000	1200	0.004	0.006	20000	1200	0.004	0.006
R0.75	1.5	-	50000	3000	0.010	0.01	50000	3000	0.01	0.01
R0.75	1.5	4.0	50000	3000	0.010	0.01	50000	3000	0.01	0.01
R0.75	1.5	6.0	40000	2400	0.006	0.01	40000	2400	0.006	0.01

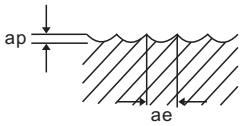


RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/t

CN2BE
CP2BE SERIES

CBN 2 FLUTE BALL NOSE

Workpiece Material			Hardened Steels							
STRENGTH			HRC50~HRC60				HRC60~HRC70			
Radius of Ball Nose	DIA.	LBS	RPM	FEED	ap (mm)	ae (mm)	RPM	FEED	ap (mm)	ae (mm)
R0.75	1.5	8	30000	1800	0.004	0.006	30000	1800	0.004	0.006
R0.75	1.5	10	20000	1200	0.004	0.006	20000	1200	0.004	0.006
R1.00	2.0	-	40000	3200	0.010	0.010	32000	2500	0.010	0.010
R1.00	2.0	6	40000	3200	0.010	0.010	32000	2500	0.010	0.010
R1.00	2.0	8	32000	2560	0.006	0.010	25600	2000	0.006	0.010
R1.00	2.0	10	32000	2560	0.006	0.010	25600	2000	0.006	0.010
R1.50	3.0	-	26500	2100	0.010	0.010	21500	1700	0.010	0.010
R1.50	3.0	8	26500	2100	0.010	0.010	21500	1700	0.010	0.010
R1.50	3.0	10	21200	1680	0.006	0.010	17200	1360	0.006	0.010
R1.50	3.0	12	21200	1680	0.006	0.010	17200	1360	0.006	0.010
R1.50	3.0	16	15900	1260	0.004	0.006	12900	1020	0.004	0.006
R1.50	3.0	20	10600	840	0.004	0.006	8600	680	0.004	0.006



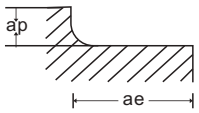
RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz =

TOTIME CBN End Mill(HRC≤70)
Recommended Cutting Conditions

CN2CR
CP2CR SERIES

CBN 2 FLUTE BALL NOSE

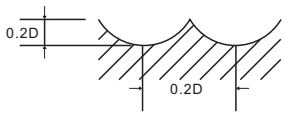
Workpiece Material		Hardened Steels							
STRENGTH		HRC50~HRC60				HRC60~HRC70			
Radius of Ball Nose	DIA.	RPM	FEED	ap (mm)	ae (mm)	RPM	FEED	ap (mm)	ae (mm)
0.2	-	50000	220	0.020	0.003	50000	200	0.010	0.002
0.2	0.5	50000	220	0.020	0.003	50000	200	0.010	0.002
0.2	1.0	50000	130	0.020	0.003	50000	120	0.010	0.002
0.3	-	50000	500	0.030	0.003	50000	400	0.020	0.002
0.3	1.0	50000	300	0.030	0.003	50000	240	0.020	0.002
0.3	1.5	50000	300	0.030	0.003	50000	240	0.020	0.002
0.3	2.0	37500	150	0.015	0.003	37500	120	0.010	0.002
0.4		50000	600	0.050	0.005	50000	480	0.030	0.003
0.4	1.0	50000	600	0.050	0.005	50000	480	0.030	0.003
0.4	1.5	50000	360	0.050	0.005	50000	290	0.030	0.003
0.4	2.0	50000	360	0.050	0.005	50000	290	0.030	0.003
0.4	3.0	37500	180	0.025	0.005	37500	145	0.015	0.003
0.5	-	50000	700	0.100	0.010	50000	550	0.060	0.005
0.5	1.0	50000	700	0.100	0.010	50000	550	0.060	0.005
0.5	2.0	50000	420	0.100	0.010	50000	330	0.060	0.005
0.5	3.0	37500	210	0.050	0.010	37500	165	0.030	0.005
0.5	4.0	37500	210	0.050	0.010	37500	165	0.030	0.005
0.6	-	50000	800	0.100	0.010	50000	600	0.060	0.005
0.6	2.0	50000	480	0.100	0.010	50000	360	0.060	0.005
0.6	3.0	50000	480	0.100	0.010	50000	360	0.060	0.005
0.6	4.0	37500	240	0.050	0.010	37500	180	0.030	0.005
0.8	-	50000	800	0.100	0.010	39000	600	0.060	0.005
0.8	2.0	50000	800	0.100	0.010	39000	600	0.060	0.005
0.8	4.0	50000	480	0.100	0.010	39000	360	0.060	0.005
0.8	6.0	37500	240	0.050	0.010	29250	180	0.030	0.005
1.0	-	43000	1000	0.200	0.010	30000	700	0.100	0.010
1.0	2.5	43000	1000	0.200	0.010	30000	700	0.100	0.010
1.0	4.0	34400	800	0.200	0.006	24000	560	0.100	0.006
1.0	6.0	25800	600	0.120	0.004	18000	420	0.060	0.004
1.5	-	30000	1000	0.400	0.020	19000	700	0.200	0.020
1.5	4.0	30000	1000	0.400	0.020	19000	700	0.200	0.020
1.5	6.0	24000	800	0.400	0.012	15200	560	0.200	0.012
1.5	8.0	18000	600	0.240	0.008	11400	420	0.120	0.008
1.5	10.0	12000	400	0.240	0.008	7600	280	0.120	0.008
2.0	-	22000	900	0.600	0.030	14000	800	0.300	0.030
2.0	6.0	22000	900	0.600	0.030	T4000	800	0.300	0.030
2.0	8.0	17600	720	0.600	0.018	11200	640	0.300	0.018
2.0	10.0	17600	720	0.600	0.018	11200	640	0.300	0.018
3.0	-	15000	700	0.800	0.030	10000	550	0.400	0.030
3.0	8.0	15000	700	0.800	0.030	10000	550	0.400	0.030
3.0	10.0	12000	560	0.800	0.018	8000	440	0.400	0.018
3.0	12.0	12000	560	0.800	0.018	8000	440	0.400	0.018
3.0	16.0	9000	420	0.480	0.012	6000	330	0.240	0.012
3.0	20.0	6000	280	0.480	0.012	4000	220	0.240	0.012



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/t

TDIA2B SERIES
DIAMAND, 2 FLUTE BALL NOSE

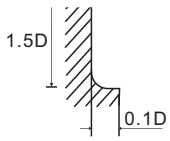
Workpiece Material	Graphite	
DIA.	RPM	FEED
3.0	16000	1450
4.0	16000	2100
6.0	15000	2950
8.0	13000	3000
10.0	11500	3050
12.0	10500	3150



RPM = rev./min.
FEED = mm/min.

TDIA4S SERIES
DIAMAND, 4 FLUTE SQUARE, CORNER RADIUS

Workpiece Material	Graphite	
DIA.	RPM	FEED
1.0	24000	960
2.0	22000	1320
3.0	20000	1600
4.0	18000	1900
6.0	11000	2400
8.0	8000	2800
10.0	6500	2400
12.0	5500	2400



RPM = rev./min.
FEED = mm/min.

Part 2

Indexable Milling Cutter

DIRECTORY

Face Milling-Quick Guide

	MFPN66	THN45	TSON45	TSE45	TSN90
SERIES					
Cutting edge angle	66°	45°	45°	45°	90° /87°
Depth of cut (APMX)	5	5	2.5/4.5	6.5	6.7 /10
Diameter range	D50-D315	D50-D160	D50-D160	D50-D160	D50-D125
Workpiece material	P M K S	P M K	P M K	P M K N	P M K S
Insert No.	PNMU0905	HNMU0906	SNMU1305 ONMU0505	SEKT12T3 SEHT12T3	SNGX1306
No. of corners(insert)	10	12	8/16	4	8
Purpose					
Reference pages	B114	B116	B118	B120	B122

High-Feed Milling-Quick Guide

	MFH	MRH	
SERIES			
Cutting edge angle	12°	10°	10°
Depth of cut (APMX)	0.5	1	2
Diameter range	D8-D14	D16-D32	D50-D160
Workpiece material	P M K S H	P M S	P M S
Insert No.	BPMT0202	LOGU0303	SOMT1405
No. of corners(insert)	2	4	4
Purpose			
Reference pages	B123	B125	B127

Shoulder Milling-Quick Guide

	TTP				
SERIES					
Cutting edge angle	90°	90°	90°	90°	90°
Depth of cut (APMX)	7/11	7/11	40/42	40-78	60/70
Diameter range	D40-D125	D16-D40	D32-D40	D50-D100	D80/D100
Workpiece material	P M K N	P M K N	P M K N	P M K N	P M K N
Insert No.	TPKT1004 TPKT1505	TPKT1004 TPKT1505	TPKT1004 TPKT1505	TPKT1004 TPKT1505	TPKT1505
No. of corners(insert)	3	3	3	3	3
Purpose					
Reference pages	B128	B129	B130	B130	B131

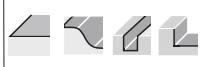
	TAN90		TWN90	TAP90	
SERIES					
Cutting edge angle	90°	90°	90°	90°	90°
Depth of cut (APMX)	8/12	16.3	6.5	9/15	15
Diameter range	D16-D40	D50-D160	D63-D160	D13-D32	D50-D100
Workpiece material	P M K	P M K	P M K	P M K N H	P M K N H
Insert No.	ANKT0904 ANKT1205	ANKT1706	WNMU0806	APKT1003 APKT1604	APKT1604
No. of corners(insert)	4	4	6	2	2
Purpose					
Reference pages	B133	B133	B135	B137	B137

	TLX			EAP	
SERIES					
Cutting edge angle	90°	90°	90°	90°	90°
Depth of cut (APMX)	9.7	9.7	58.5/66.9	9/14	14
Diameter range	D32-D80	D50-D125	D50/D63	D10-D35	D50-D200
Workpiece material	P M K	P M K	P M K	P M K N H	P M K N H
Insert No.	LXGU1107	LXGU1107	LXGU1107	APMT1135 APMT1604	APMT1604
No. of corners(insert)	4	4	4	2	2
Purpose					
Reference pages	B140	B140	B141	B142	B144

Shoulder Milling-Quick Guide

	TAD		TLU
SERIES			
Cutting edge angle	90°	90 °	90°
Depth of cut（APMX）	17	17	4/7
Diameter range	D25-D40	D40-D125	D16-D26
Workpiece material	N	N	P M K
Insert No.	ADET1905	ADET1905	LXMU0803 LXMU10T3 LXMU1204
No. of corners(insert)	2	2	4
Purpose			
Reference pages	B145	B145	B147

Profile Milling-Quick Guide

	TRD		EMR		C-ABPF
SERIES					
Cutting edge angle	—	—	—	—	—
Depth of cut（APMX）	4/5/6	5/6	4/5/6	5/6	0. 05/0. 1
Diameter range	D16-D32	D50-D100	D12-D35	D50-D160	D10-D30
Workpiece material	P M K N H	P M K N H	P M K H	P M K N H	P
Insert No.	RDKT0802 RDKT10T3 RDKT1204	RDKT10T3 RDKT1204	RPMT08T2 RPMW1003 RPMT10T3 RPMT1204	RPMW1003 RPMT10T3 RPMT1204	SP1W SP1Q
Purpose					
Reference pages	B149	B149	B152	B154	B156

Slot Milling-Quick Guide

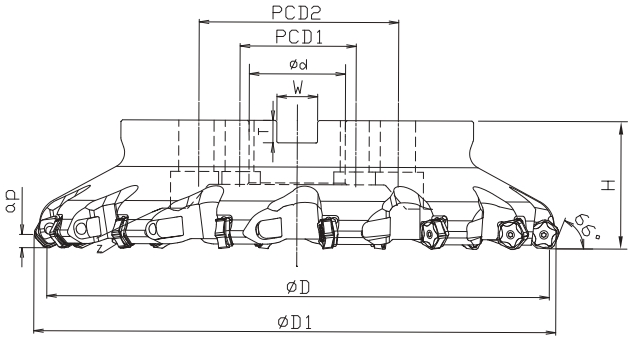
Chamfer Milling-Quick Guide

	TLX		TTPC
SERIES			
Cutting edge angle	—	—	30° /45° /60°
Depth of cut（APMX）	16-25	16-25	3.3-5.9
Diameter range	D100-D200	D100-D200	D2-D20
Workpiece material	P M K S	P M K S	P M K
Insert No.	LXGU1008 LXGU1208 LXGU1509	LXGU1008 LXGU1208 LXGU1509	TPKT1004
Purpose			
Reference pages	B158	B159	B131

MFPN66 SERIES

66° Face Mill with High Economical and 10 Cutting Edge Insert for Higher Productivity

★ Stability and cost efficiency with 10-edge pentagonal inserts.
★ Low cutting forces and reduced chattering with a helical cutting edge design.
★ Tough and reliable dual cutting edge design.



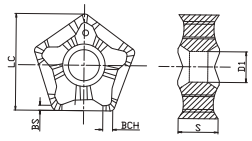
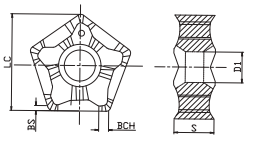
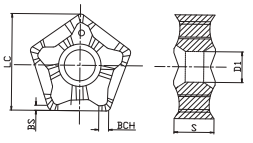
Designation	Size(mm)										Clamping Screw	Wrench
	D	D1	d	H	W	T	Z	PCD 1	PCD 2	Max.ap		
MFPN66050R-4T-M	50	58	22	40	10.4	6.3	4	-	-	5	SB4090	DTPM-15
MFPN66063R-5T-M	63	71	22	40	10.4	6.3	5	-	-	5		
MFPN66080R-6T-M	80	88	27	50	12.4	7.0	6	-	-	5		
MFPN66100R-7T-M	100	108	32	50	12.4	8.0	7	-	-	5		
MFPN66125R-9T-M	125	133	40	63	16.4	9.0	9	-	-	5		
MFPN66160R-11T-M	160	168	40	63	16.4	9.0	11	-	-	5		
MFPN66200R-13T-M	200	208	60	63	25.7	14.0	13	101.6	-	5		
MFPN66250R-15T-M	250	258	60	63	25.7	14.0	15	101.6	-	5		
MFPN66315R-17T-M	315	323	60	63	25.7	14.0	17	101.6	177.8	5		

MFPN66 SERIES

66° Face Mill with High Economical and 10 Cutting Edge Insert for Higher Productivity

Applicable Inserts

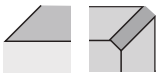
Usage Classification										
★ 1st Choice ☆ 2nd Choice	P	Steel	★		★					
	M	Stainless		★	★					
	K	Cast iron	★		★					
	N	Non-ferrous								
	S	Superalloys		★						
	H	Hard materials								

Insert		Insert No.	Size(mm)					Coated Carbide				Carbide			
			LC	S	D1	BS	BCH	TG4025	TG4035	TY602	TI960	HC200			
		PNMU0905XNER-UG	14.6	5.56	4.7	2	2	●							
		PNMU0905XNER-SG	14.6	5.56	4.7	2	2		●						
		PNMU0905XNER-TG	14.6	5.56	4.7	2	2			●					

Recommended Cutting Conditions

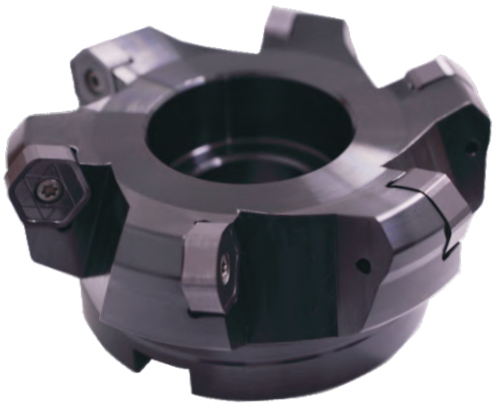
ISO	Workpiece material	Hardness	Grade	Cutting Speed	Feed
				Vc （m/min）	fz （mm/t）
P	Carbon Steel	≤HB300	TG4025/TY602	120-250	0.10-0.30
	Alloy Steel	HB200-300		100-220	0.10-0.30
	Mold Steel	≤HB300		80-180	0.10-0.25
M	Stainless Steel	≤HB200	TG4035/TY602	100-200	0.06-0.20
K	Gray Cast Iron	HB150-250	TY602	120-260	0.06-0.20
	Ductile Cast Iron	HB150-250	TY602	100-200	0.06-0.15

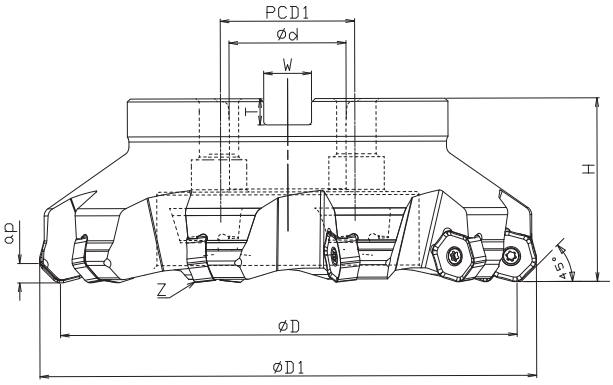
THN45 SERIES



45° Face Mill with High Economical and 12 Cutting Edge Insert for Higher Productivity

★ Enhanced cutting edge for cutting stability and high feed machining.
★ Acute cutter pocket design and inclined screw clamping enables robust clamping.
★ High helical cutting edges for smooth machining double - sided 12 corner insert.





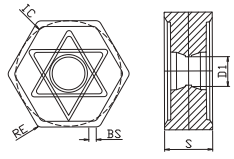
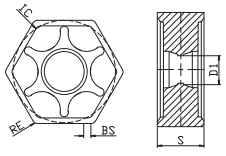
Designation	Size(mm)									Clamping Screw	Wrench
	D	D1	d	H	W	T	Z	PCD1	Max.ap		
THN45-50R04HN09M22	50	61.4	22	40	10.4	6.3	4	-	5	TH3009	THP09
THN45-63R06HN09M22	63	74.4	22	40	10.4	6.3	6	-	5		
THN45-80R06HN09M27	80	91.4	27	50	12.4	7.0	6	-	5		
THN45-100R06HN09M32	100	111.4	32	50	14.4	8.0	6	-	5		
THN45-125R08HN09M40	125	136.4	40	63	16.4	9.0	8	-	5		
THN45-160R10HN09M40	160	171.4	40	63	16.4	9.0	10	66.7	5	TH3009	TTL15P

THN45 SERIES

45° Face Mill with High Economical and 12 Cutting Edge Insert for Higher Productivity

Applicable Inserts

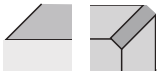
Usage Classification										
★ 1st Choice ☆ 2nd Choice	P	Steel	★							
	M	Stainless	★	★						
	K	Cast iron	★							
	N	Non-ferrous								
	S	Superalloys		☆						
	H	Hard materials								

Insert		Insert No.	Size(mm)					Coated Carbide				Carbide			
			IC	S	D1	BS	RE	TY602	TY615	TY625	TI960	HC200			
		HNMU0906ANSN-GR	16.5	6.36	5	1.5	1.2	●							
		HNMU0906ANSN-TR	16.5	6.36	5	1.5	0.8		●						

Recommended Cutting Conditions

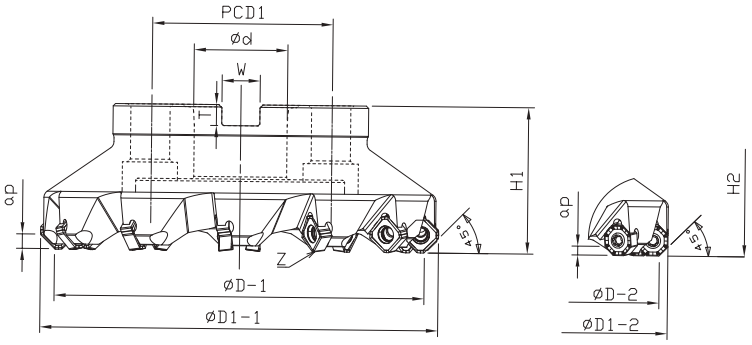
ISO	Workpiece material	Hardness	Grade	Cutting Speed Vc (m/min)	Feed fz (mm/t)
P	Low Carbon Steel	≤HB180	TY602	200-300	0.20-0.40
	High Carbon and Alloy Steel	HB180-280		100-250	0.15-0.25
	Alloy Steel	HB280-350		100-180	0.20-0.40
M	Stainless Steel	≤HB200	TY602/TY615	100-200	0.10-0.30
K	Gray Cast Iron	HB150-250	TY602	130-230	0.20-0.40
	Ductile Cast Iron	HB150-250		120-220	0.10-0.30

TSON45 SERIES



45° Face Mill Offers Advantage of Using Square, Octagonal Inserts in the Same Pocket

★SNMU insert offers double-sided, square inserts with eight cutting edges.
★Most suitable for a large depth of cut and free cutting inserts with excellent chip control.
★ONMU inserts offers double-sided, octagonal insert with 16 cutting edges – high economy inserts.
★Light cutting force due to excellent chip control.
★The optimized cutting edge creates barrel-formed chips for easy removal, allowing an operation at higher feed rate.



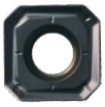
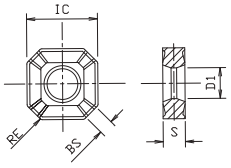
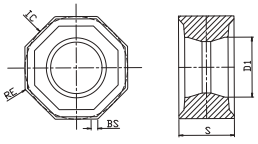
Designation	Size (mm)											Clamping Screw	Wrench
	D -1	D -2	D1 -1	D1 - 2	d	H1	H2	W	T	Z	PCD1		
TSON45-50R04S13O05M22	50	52.3	62.5	62	22	40	38.77	10.4	6.3	4	-	TSO1013	TSOP1305
TSON45-63R06S13O05M22	63	65.3	75.5	75	22	40	38.77	10.4	6.3	6	-		
TSON45-80R06S13O05M27	80	82.3	92.5	92	27	50	48.77	12.4	7.0	6	-		
TSON45-100R08S13O05M32	100	102.3	112.5	112	32	50	48.77	14.4	8.0	8	-		
TSON45-125R10S13O05M40	125	127.3	137.5	137	40	63	61.77	16.4	9.0	10	-		
TSON45-160R12S13O05M40	160	162.3	172.5	172	40	63	61.77	16.4	9.0	12	66.7	TSO1013	TTL20

TSON45 SERIES

45° Face Mill Offers Advantage of Using Square, Octagonal Inserts in the Same Pocket

Applicable Inserts

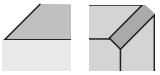
Usage Classification										
★ 1st Choice ☆ 2nd Choice	P	Steel	★							
	M	Stainless	★							
	K	Cast iron	★							
	N	Non-ferrous								
	S	Superalloys								
	H	Hard materials								

Insert		Insert No.	Size(mm)						Coated Carbide				Carbide			
			IC	S	D1	BS	RE	Max.ap	TY602	TY622	TY625	TI960	HC200			
		SNMU1305ANTR-PR	13	5.5	5.6	3	0.8	4.5	●							
		ONMU050505-PR	13	5.5	5.6	5	0.5	2.5	●							

Recommended Cutting Conditions

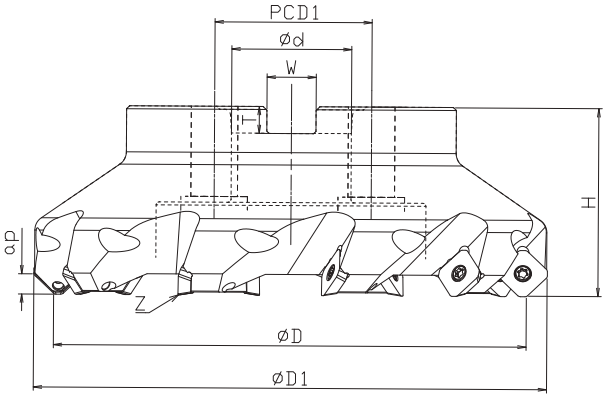
ISO	Workpiece material	Hardness	Grade	Cutting Speed	Feed
				Vc (m/min)	fz (mm/t)
P	Low Carbon Steel	≤HB180	TY602	120-250	0.10-0.50
	High Carbon and Alloy Steel	HB180-280		100-180	0.15-0.40
	Alloy Steel	HB280-350		70-150	0.15-0.40
M	Stainless Steel	≤HB200		100-200	0.10-0.30
K	Gray Cast Iron	HB150-250		100-180	0.10-0.50
	Ductile Cast Iron	HB150-250		100-180	0.10-0.30

TSE45 SERIES



45° Face Mill with High Precision and 4 Cuttig Edge Insert for Higher Productivty

★ 4 cutting edges on one insert for highly economical machining.
★ Optimized relief geometry on the positive insert ensures low cutting force and minimal chattering.
★ Helical cutting edges and optimized positioning on cutter provide high wall accuracy and surface quality.
★ Sharp and tough rake geometry reduces fracture of cutting edges.



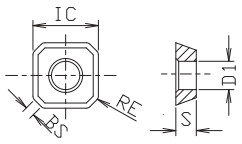
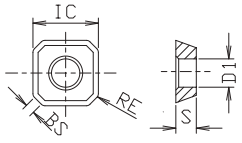
Designation	Size(mm)									Clamping Screw	Wrench
	D	D1	d	H	W	T	Z	PCD1	Max.ap		
TSE45-50R04SE12M22	50	62.9	22	40	10.4	6.3	4	-	6.5	TS2012	TSP12
TSE45-63R05SE12M22	63	75.9	22	40	10.4	6.3	5	-	6.5		
TSE45-80R06SE12M27	80	92.9	27	50	12.4	7.0	6	-	6.5		
TSE45-100R07SE12M32	100	112.9	32	50	14.4	8.0	7	-	6.5		
TSE45-125R08SE12M40	125	137.9	40	63	16.4	9.0	8	-	6.5		
TSE45-160R10SE12M40	160	172.8	40	63	16.4	9.0	10	66.7	6.5	TS3512	TTL15

TSE45 SERIES

45° Face Mill with High Precision and 4 Cuttig Edge Insert for Higher Productivty

Applicable Inserts

Usage Classification										
★ 1st Choice ☆ 2nd Choice	P	Steel	★							
	M	Stainless	★							
	K	Cast iron	★							
	N	Non-ferrous					★			
	S	Superalloys								
	H	Hard materials								

Insert		Insert No.	Size(mm)					Coated Carbide				Carbide			
			IC	S	D1	BS	RE	TY602	TY622	TY625	TI960	HC200			
		SEKT12T3AGTN	13.4	4	5.5	1.3	1.5	●							
		SEHT12T3-HL	13.4	4	5.5	1.3	1.5					●			

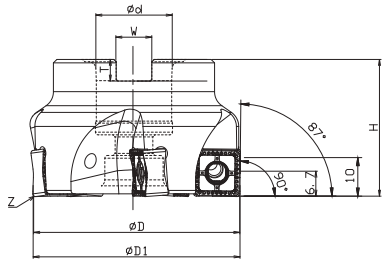
Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Grade	Cutting Speed Vc (m/min)	Feed fz (mm/t)
P	Low Carbon Steel	⩽HB180	TY602	120-220	0.15-0.30
	High Carbon and Alloy Steel	HB180-280		70-150	0.15-0.30
	Alloy Steel	HB280-350		70-150	0.15-0.30
M	Stainless Steel	⩽HB200		120-200	0.15-0.30
K	Gray Cast Iron	HB150-250		140-220	0.15-0.30
	Ductile Cast Iron	HB150-250		150-240	0.15-0.30
N	Aluminum	—	HC200	300-800	0.07-0.55

TSN SERIES

Shoulder Milling Cutter with 8 Double-Sided Cutting Edge and Low Cutting Forces for Reduced Chattering and Superior Fracture Resistance

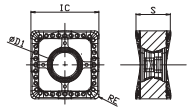
★ The insert is double-sided eight cutting edge type,which is economical.The large front angle of the insert is designed to cut easily.
★ There are M and ML grooves to meet the processing requirements under different working conditions



Designation	Size(mm)								Coolant Hole	Insert	Clamping Screw	Wrench
	D	D1	d	H	W	T	Z	MAX.ap				
TSN90-50R05SN13M22	50	50.84	22	40	10.4	6.3	5	6.7/10	●	SNGX130608	TSN1306	TSNL13
TSN90-63R06SN13M22	63	63.52	22	40	10.4	6.3	6	6.7/10	●			
TSN90-80R07SN13M27	80	80.6	27	50	12.4	7.0	7	6.7/10	●			
TSN90-100R08SN13M32	100	100.58	32	50	14.4	8.0	8	6.7/10	●			
TSN90-125R10SN13M40	125	125.72	40	63	16.4	9.0	10	6.7/10	●			

Applicable Inserts

Usage Classification									
★ 1st Choice ☆ 2nd Choice	P	Steel	★						
	M	Stainless	★						
	K	Cast iron		★					
	N	Non-ferrous							
	S	Superalloys	☆		★				
	H	Hard materials							

	Insert	Insert No.	Size(mm)				Coated Carbide				Carbide			
			IC	S	D1	RE	TE620	TY720	TS320	TI960	HC200			
		SNGX130608-ML	13.5	6.9	5.4	0.8	●	●	●					
		SNGX130608-M	13.5	6.9	5.4	0.8	●	●						

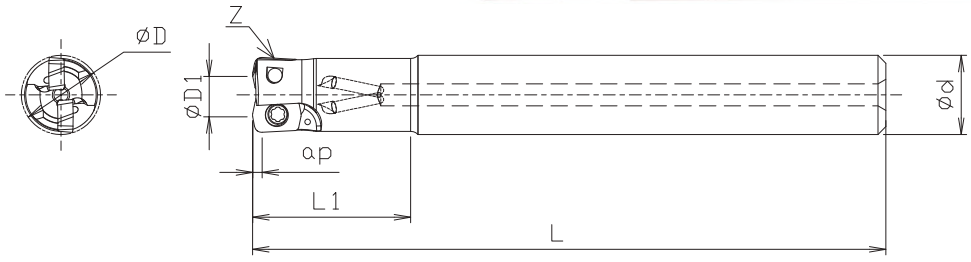
Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Priority		Cutting Speed	Feed
			Chipbreaker	Grade	Vc (m/min)	fz (mm/t)
P	Low Carbon Steel	≤HB180	M	TE620	180-300	0.10-0.20
	High Carbon and Alloy Steel	HB180-280	M		130-210	0.10-0.20
	Alloy Steel	HB280-350	M		100-180	0.10-0.20
M	Stainless Steel	≤HB200	M		120-300	0.10-0.20
K	Gray Cast Iron	HB150-250	M	TY720	100-280	0.13-0.25
	Ductile Cast Iron	HB150-250	M		100-180	0.13-0.25
S	Ni-base Heat Resistant Alloy	—	ML	TS320	30-80	0.10-0.20
	Titanium Alloy	—	ML		35-90	0.10-0.20

MFH SERIES

Micro-Diameter, High-Feed Milling

★Durable Design Aids in Chatter Resistance.
★Stable High Feed Machining on a Wide Range of Applications.
★Controls Chip Biting with Convex Cutting Edge.
★Replaces Solid End Mills to Reduce Machining Costs.



Standard Type

Designation	Size(mm)							Clamping Screw	Wrench
	D	D1	d	L	L1	Z	Max.ap		
MFH08-S10-120-1T	8	4.2	10	120	35	1	0.5	TB1002	TBP02
MFH10-S10-120-2T	10	6.2	10	120	35	2	0.5		
MFH12-S12-120-3T	12	8.2	12	120	35	3	0.5		

Non-interference Type

Designation	Size(mm)							Clamping Screw	Wrench
	D	D1	d	L	L1	Z	Max.ap		
MFH10-S08-120-2T	10	6.2	8	120	35	2	0.5	TB1002	TBP02
MFH12-S10-120-3T	12	8.2	10	120	35	3	0.5		
MFH14-S12-120-3T	14	10.2	12	120	35	3	0.5		

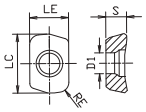
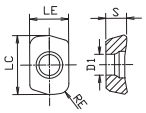
TOTIME Indexable Milling Cutter
High-Feed Milling

MFH SERIES

Micro-Diameter, High-Feed Milling

Applicable Inserts

Usage Classification										
★ 1st Choice ☆ 2nd Choice	P	Steel	★							
	M	Stainless	★							
	K	Cast iron	★							
	N	Non-ferrous								
	S	Superalloys	★							
	H	Hard materials		★						

Insert		Insert No.	Size(mm)					Coated Carbide				Carbide			
			LC	LE	S	D1	RE	TY125	TH105	TY602	TY622	HC200			
		BPMT020210R-UF	6.38	4.19	2.59	2.1	1.0	●							
		BPGT020210R-UH	6.38	4.19	2.59	2.1	1.0		●						

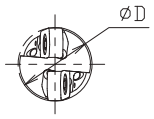
Recommended Cutting Conditions

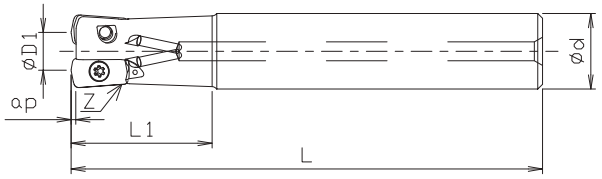
ISO	Workpiece material	Hardness	Grade	Cutting Speed Vc (m/min)	Feed fz (mm/t)
P	Carbon Steel	≤HB300	TY125	100-300	0.2-0.8
	Alloy Steel	HB200-300		100-300	0.2-0.8
	Mold Steel	<HRC40		100-200	0.2-0.5
M	Stainless Steel	≤HB200		100-150	0.2-0.5
K	Gray Cast Iron	HB150-250		100-300	0.2-0.8
	Ductile Cast Iron	HB150-250		80-200	0.2-0.6
S	Ni-base HeatResistant Alloy	<HRC40		20-50	0.1-0.3
	Titanium Alloy	<HRC40		30-60	0.1-0.3
H	Hard Materials	HRC40-50	TH105	80-150	0.1-0.5
		HRC50-60		50-70	0.1-0.3

MRH SERIES

High-Feed Milling

★ High feed milling for small diameters and small machining centers.
★ Economical inserts with 4 cutting edges.
★ Both of standard type and non-interference type are available.





Standard Type

Designation	Size(mm)							Clamping Screw	Wrench
	D	D1	d	L	L1	Z	Max.ap		
MRH16-S16-03-2T	16	8	16	100	30	2	1	M3065-S	FT08
MRH20-S20-03-3T	20	12	20	130	50	3	1		
MRH25-S25-03-3T	25	17	25	140	60	3	1		
MRH32-S32-03-4T	32	24	32	150	70	4	1		

Non-interference Type

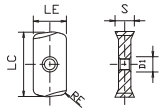
Designation	Size(mm)							Clamping Screw	Wrench
	D	D1	d	L	L1	Z	Max.ap		
MRH17-S16-03-2T	17	9	16	150	25	2	1	M3065-S	FT08
MRH21-S20-03-3T	21	13	20	150	30	3	1		
MRH26-S25-03-3T	26	18	25	150	35	3	1		

MRH SERIES

High-Feed Milling

Applicable Inserts

Usage Classification										
★ 1st Choice ☆ 2nd Choice	P	Steel	★		★					
	M	Stainless	☆	★	★					
	K	Cast iron								
	N	Non-ferrous								
	S	Superalloys		★						
	H	Hard materials								

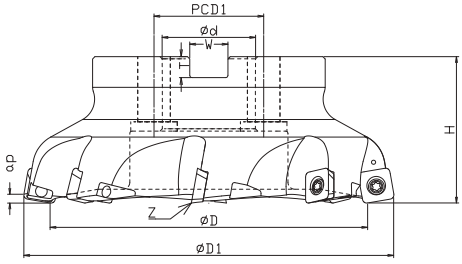
Insert		Insert No.	Size(mm)					Coated Carbide				Carbide			
			LC	LE	S	D1	RE	KX402	KX405	TY602	TY622	HC200			
		LOGU030310ER-GM	11.9	6.2	3.96	3.45	1.0	●	●	●					

Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Grade	Cutting Speed	Feed
				Vc （m/min）	fz （mm/t）
P	Carbon Steel	⩽HB300	KX402/TY602	120-250	0.2-1.2
	Alloy Steel	HB200-300		100-220	0.2-1.2
	Mold Steel	＜HRC40		80-180	0.2-0.9
	Mold Steel	HRC40-50		60-130	0.2-0.5
M	Stainless Steel	⩽HB200	KX405/TY602	100-200	0.2-0.9
S	Ni-base HeatResistant Alloy	—	KX405	20-50	0.2-0.6
	Titanium Alloy	—		40-80	0.2-0.6

MRH SERIES

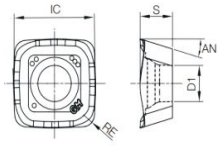
High-Feed Milling



Designation	Size(mm)								Clamping Screw	Wrench
	D	D1	d	H	W	T	Z	Max.ap		
MRH050R-14-3T-22M	27	50	22	50	10.4	6	3	2	M5011-S	WT20
MRH063R-14-4T-22M	40	63	22	50	10.4	6	4	2		
MRH080R-14-5T-M	57	80	27	63	12.4	7	5	2		
MRH100R-14-7T-M	77	100	32	63	14.4	8	7	2		
MRH125R-14-7T-M	102	125	40	63	16.4	9	7	2		
MRH160R-14-8T-M	137	160	40	63	16.4	9	8	2		

Applicable Inserts

Usage Classification										
★ 1st Choice ☆ 2nd Choice	P	Steel	★							
	M	Stainless	☆	★						
	K	Cast iron								
	N	Non-ferrous								
	S	Superalloys		★						
	H	Hard materials								

Insert		Insert No.	Size(mm)					Coated Carbide				Carbide			
			IC	S	D1	RE	AN	KX402	KX405	TY602	TY622	HC200			
		SOMT140520ER-GM	14.1	5.56	5.8	2.0	16°	●	●						

Recommended Cutting Conditions

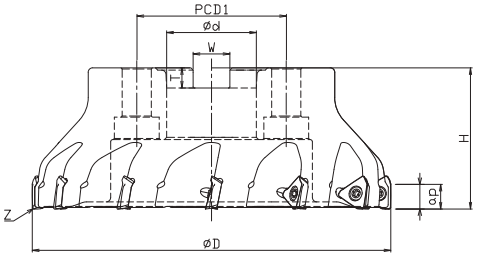
ISO	Workpiece material	Hardness	Grade	Cutting Speed	Feed
				Vc (m/min)	fz (mm/t)
P	Carbon Steel	≤HB300	KX402	120-250	0.5-2.0
	Alloy Steel	HB200-300		100-220	0.5-2.0
	Mold Steel	<HRC40		80-180	0.2-1.8
	Mold Steel	HRC40-50		60-130	0.2-1.0
M	Stainless Steel	≤HB200	KX405	100-200	0.5-1.2
S	Ni-base HeatResistant Alloy	—		20-50	0.2-0.8
	Titanium Alloy	—		40-80	0.2-0.8

TOTIME Indexable Milling Cutter
Shoulder Milling

TTP SERIES

TTP's economical insert with 3 cutting edges and optimized geometry improves efficiency and productivity with the square shoulder milling cutter.

- ★ 3 cutting edges on one insert for highly economical machining.
- ★ Optimized relief geometry on the positive insert ensures low cutting force and minimal chattering.
- ★ Helical cutting edges and optimized positioning on cutter provide high wall accuracy and surface quality.
- ★ Sharp and tough rake geometry reduces fracture of cutting edges.
- ★ Triangular shape of the insert improves clamping rigidity and reliability.
- ★ Insert sizes in 10, 15 mm cover small to large depths of cut.

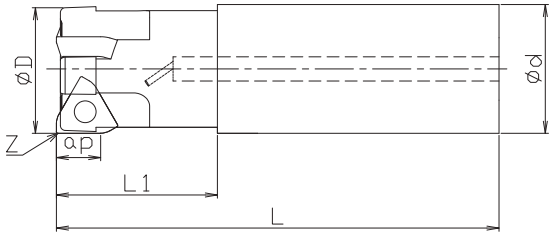


● Milling Cutters

Designation	Size(mm)								Coolant Hole	Insert	Clamping Screw	Wrench
	D	d	H	W	T	Z	PCD 1	Max.ap				
TTPF90-40R06TP10M16	40	16	40	8.4	5.6	6	-	7	●	TPKT1004..R-M	TP1004	TPFP10
TTPF90-50R07TP10M22	50	22	40	10.4	6.3	7	-	7	●			
TTPF90-63R08TP10M22	63	22	40	10.4	6.3	8	-	7	●			
TTPF90-50R05TP15M22	50	22	40	10.4	6.3	5	-	11	●	TPKT1505..R-M	TP1505	TPFP15
TTPF90-63R06TP15M22	63	22	40	10.4	6.3	6	-	11	●			
TTPF90-80R07TP15M27	80	27	50	12.4	7.0	7	-	11	●			
TTPF90-100R08TP15M32	100	32	50	14.4	8.0	8	-	11	●			
TTPF90-125R10TP15M40	125	40	63	16.4	9.0	10	-	11	●			

TTP SERIES

TTP's economical insert with 3 cutting edges and optimized geometry improves efficiency and productivity with the square shoulder milling cutter.

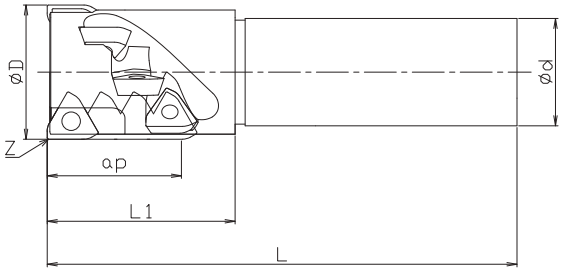


● Endmills

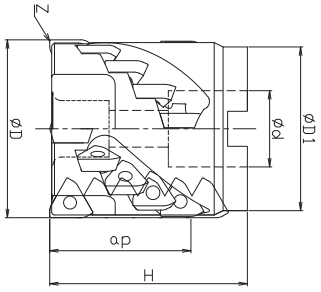
Designation	Size(mm)						Coolant Hole	Insert	Clamping Screw	Wrench
	D	d	L1	L	Z	Max.ap				
TTPE90-16R01D16TP10L90	16	16	20	90	1	7	●	TPKT1004..R-M	TP1004	TPEP10
TTPE90-20R02D20TP10L90	20	20	25	90	2	7	●			
TTPE90-20R02D20TP10L170	20	20	40	170	2	7	●			
TTPE90-21R02D20TP10L200	21	20	30	200	2	7	●			
TTPE90-25R03D20TP10L100	25	20	30	100	3	7	●			
TTPE90-25R03D25TP10L100	25	25	30	100	3	7	●			
TTPE90-25R03D25TP10L210	25	25	40	210	3	7	●			
TTPE90-26R02D25TP10L250	26	25	30	250	2	7	●			
TTPE90-30R03D25TP10L110	30	25	35	110	3	7	●			
TTPE90-32R03D25TP10L110	32	25	35	110	3	7	●			
TTPE90-32R03D32TP10L250	32	32	60	250	3	7	●			
TTPE90-33R03D32TP10L250	33	32	35	250	3	7	●			
TTPE90-40R06D32TP10L115	40	32	40	115	6	7	●			
TTPE90-40R04D32TP10L200	40	32	40	200	4	7	●			
TTPE90-32R03D25TP15L100	32	25	40	100	3	11	●	TPKT1505..R-M	TP1505	TPEP15
TTPE90-32R03D25TP15L155	32	25	35	155	3	11	●			
TTPE90-32R03D32TP15L110	32	32	40	110	3	11	●			
TTPE90-32R03D32TP15L150	32	32	40	150	3	11	●			
TTPE90-32R03D32TP15L250	32	32	60	250	3	11	●			
TTPE90-33R02D32TP15L200	33	32	40	200	2	11	●			
TTPE90-33R02D32TP15L250	33	32	40	250	2	11	●			
TTPE90-35R03D32TP15L110	35	32	40	110	3	11	●			
TTPE90-40R03D32TP15L110	40	32	40	110	3	11	●			
TTPE90-40R03D32TP15L200	40	32	40	200	3	11	●			

TTP SERIES

TTP's economical insert with 3 cutting edges and optimized geometry improves efficiency and productivity with the square shoulder milling cutter for roughing.



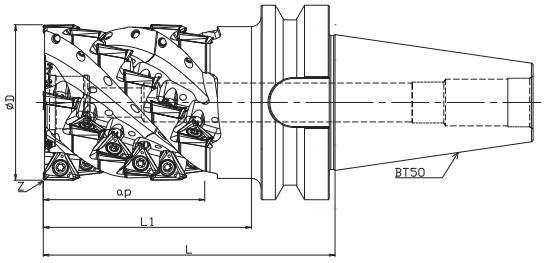
Designation	Size(mm)							Coolant Hole	Insert	Clamping Screw	Wrench
	D	d	L1	L	Z eff	Z	Max.ap				
TTPRE90-32R14D32TP10L120	32	32	56	120	2	14	42	X	TPKT1004..R-M	TP1004	TPRP10
TTPRE90-40R21D32TP10L130	40	32	56	130	3	21	42	X			
TTPRE90-40R08D32TP15L140	40	32	56	140	2	8	40	X	TPKT1505..R-M	TP1505	TPRP15



Designation	Size(mm)							Coolant Hole	Insert	Clamping Screw	Wrench
	D	D1	d	H	Z eff	Z	Max.ap				
TTPRF90-50R32TP10M22	50	45	22	65	4	32	48	X	TPKT1004..R..	TP1004	TPRP10
TTPRF90-63R36TP10M27	63	58	27	75	4	36	54	X			
TTPRF90-50R12TP15M22	50	45	22	65	3	12	40	X	TPKT1505..R..	TP1505	TPFP15
TTPRF90-63R20TP15M27	63	58	27	70	4	20	50	X			
TTPRF90-80R24TP15M32	80	77	32	75	4	24	60	X			
TTPRF90-100R32TP15M40	100	96	40	110	4	32	78	X			

TTP SERIES

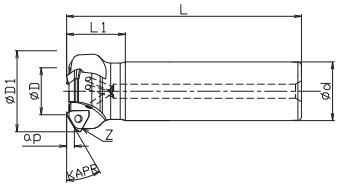
TTP's economical insert with 3 cutting edges and optimized geometry improves efficiency and productivity with the square shoulder milling cutter for roughing.

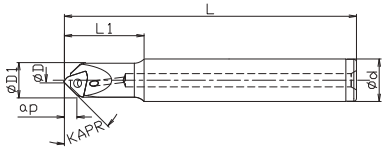


Designation	Size(mm)						Coolant Hole	Insert	Clamping Screw	Wrench
	D	L1	L	Z eff	Z	Max.ap				
TTPRF90-80R24TP15BT50	80	108	150	4	24	60	X	TPKT1505..R..	TP1505	TPRP15
TTPRF90-100R35TP15BT50	100	123	165	5	35	70	X			

TTP SERIES

TTP's economical insert with 3 cutting edges and optimized geometry improves efficiency and productivity with the square shoulder milling cutter chamfering .





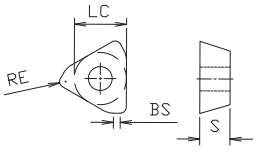
Designation	Size(mm)									Coolant Hole	Insert	Clamping Screw	Wrench
	KAPR	D	D1	d	L1	L	Z	Max.ap	Application Rang				
TTPC30-20R03D25L100	30°	20	34.5	25	25	100	3	3.3	ø21.3-ø31.0	●	TPKT1004..R-M	TP1004	TPEP10
TTPC45-20R03D25L100	45°	20	31.2	25	25	100	3	4.8	ø21.3-ø28.9	●			
TTPC60-20R03D25L100	60°	20	27.3	25	25	100	3	5.9	ø21.3-ø26.2	●			
TTPC45-02R01D16L110	45°	2	13.3	16	30	110	1	4.7	ø3.3-ø10.6	●			

TTP SERIES

TTP's economical insert with 3 cutting edges and optimized geometry improves efficiency and productivity with the square shoulder milling cutter.

Applicable Inserts

Usage Classification										
★ 1st Choice ☆ 2nd Choice	P	Steel	★							
	M	Stainless	★							
	K	Cast iron		★						
	N	Non-ferrous					★			
	S	Superalloys								
	H	Hard materials								

Insert		Insert No.	Size(mm)				Coated Carbide				Carbide			
			LC	S	BS	RE	TE620	TY720	TY625	TI960	HC200			
		TPKT100404R-M	6.9	4	0.5-1.3	0.4	●	●			●			
		TPKT100408R-M	6.9	4		0.8	●	●			●			
		TPKT150508R-M	10.7	5	0.5-2.0	0.8	●	●			●			
		TPKT150516R-M	10.7	5		1.6	●	●						
		TPKT150520R-M	10.7	5		2.0	●	●						

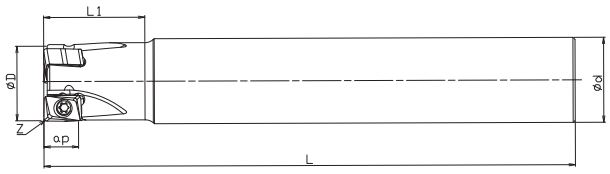
Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Grade	Cutting Speed Vc (m/min)	Feed fz (mm/t)
P	Low Carbon Steel	≤HB180	TE620	180-300	0.05-0.17
	High Carbon and Alloy Steel	HB180-280		130-210	0.05-0.17
	Alloy Steel	HB280-350		100-180	0.05-0.17
M	Stainless Steel	≤HB200		120-300	0.05-0.17
K	Gray Cast Iron	HB150-250	TY720	100-280	0.05-0.17
	Ductile Cast Iron	HB150-250		100-180	0.05-0.17
N	Aluminum Alloy ≤12%Si	—	HC200	650-900	0.10-0.50
	Aluminum Alloy >12%Si	—		250-320	0.10-0.50

TAN90 SERIES

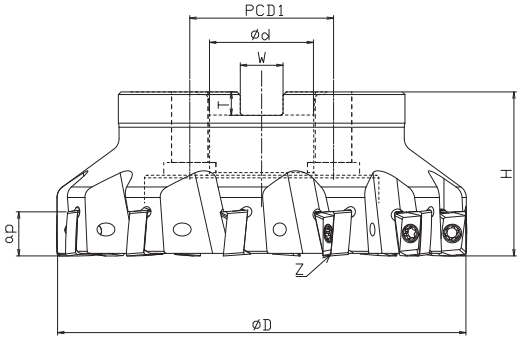
Shoulder Milling with 4 Cutting-Edge Double-Sided Insert for High-Feed Machining

★ Double sided insert with 4 sharp and tough cutting edges.
★ Available in 3 sizes and wiper edge for excellent surface finish.
★ Low cutting force due to large rake angle.
★ Positive rake face for smooth machining and reduced vibration.
★ Highly rigid cutter body.



Endmills

Designation	Size(mm)						Insert	Clamping Screw	Wrench
	D	d	L1	L	Z	Max.ap			
TANE90-16R02D16AN09L125	16	16	26	125	2	8	ANKT090408	TA4009	TEP09
TANE90-20R03D20AN09L125	20	20	26	125	3	8	ANKT090408		
TANE90-25R04D25AN09L125	25	25	26	125	4	8	ANKT090408		
TANE90-32R05D32AN09L160	32	32	26	160	5	8	ANKT090408		
TANE90-25R02D25AN12L125	25	25	26	125	2	12	ANKT120508	TA4012	TEP12
TANE90-32R03D32AN12L160	32	32	26	160	3	12	ANKT120508		
TANE90-40R04D32AN12L200	40	32	26	200	4	12	ANKT120508		



Milling Cutters

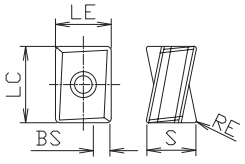
Designation	Size（mm）								Insert	Clamping Screw	Wrench
	D	d	H	W	T	Z	PCD1	Max.ap			
TANF90-50R04AN17M22	50	22	50	10.4	6.3	4	-	16.3	ANKT170608	TA4017	TFP17
TANF90-63R06AN17M22	63	22	50	10.4	6.3	6	-	16.3	ANKT170608		
TANF90-80R07AN17M27	80	27	50	12.4	7.0	7	-	16.3	ANKT170608		
TANF90-100R08AN17M32	100	32	50	14.4	8.0	8	-	16.3	ANKT170608		
TANF90-125R10AN17M40	125	40	63	16.4	9.0	10	-	16.3	ANKT170608		
TANF90-160R12AN17M40	160	40	63	16.4	9.0	12	66.7	16.3	ANKT170608	TA4017	TTL20

TAN90 SERIES

Shoulder Milling with 4 Cutting-Edge Double-Sided Insert for High-Feed Machining

Applicable Inserts

Usage Classification										
★ 1st Choice ☆ 2nd Choice	P	Steel			★					
	M	Stainless			★					
	K	Cast iron			★					
	N	Non-ferrous								
	S	Superalloys								
	H	Hard materials								

Insert		Insert No.	Size(mm)					Coated Carbide				Carbide			
			LC	LE	S	BS	RE	TY602	TY622	TY625	TI960	HC200			
		ANKT090408-MT	8.6	6.6	5.20	2.5	0.8			●					
		ANKT120508-MT	13.7	10.0	9.15	3.8	0.8			●					
		ANKT170608-MT	16.7	11.2	10.40	4.7	0.8			●					

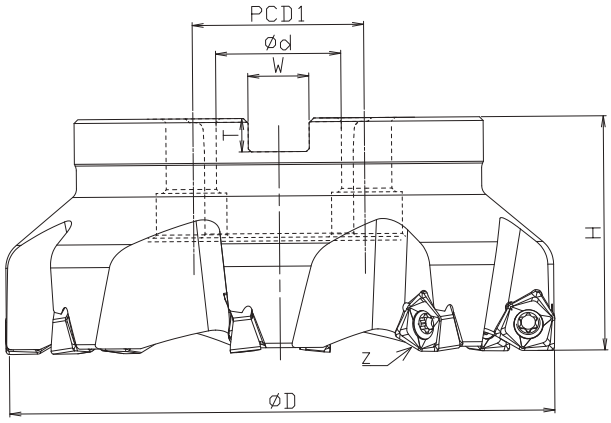
Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Grade	Cutting Speed Vc (m/min)	Feed fz (mm/t)
P	Low Carbon Steel	≤HB180	TY625	120-180	0.05-0.15
	High Carbon and Alloy Steel	HB200-300		100-160	0.05-0.10
	Mold Steel	≤HB300		80-120	0.05-0.10
M	Stainless Steel	≤HB200		80-100	0.10-0.25
K	Gray Cast Iron	HB150-250		150-200	0.10-0.20
	Ductile Cast Iron	HB150-250		120-150	0.05-0.15

TWN90 SERIES

Shoulder Milling Cutter with 6 Double-Sided Cutting Edge and Low Cutting Forces for Reduced Chattering and Superior Fracture Resistance

★Sharp cutting due to lower cutting forces.
★Reduced chattering even with extended milling adapters.
★Superior fracture resistance with thick edge design.



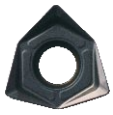
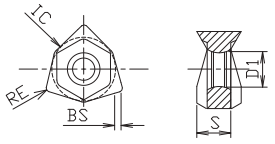
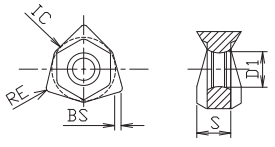
Designation	Size(mm)								Clamping Screw	Wrench
	D	d	H	W	T	Z	PCD1	Max.ap		
TWN90-63R03WN08M22	63	22	40	10.4	6.3	3	-	6.5	TW1008	TWP1008
TWN90-80R04WN08M27	80	27	50	12.4	7.0	4	-	6.5		
TWN90-100R05WN08M32	100	32	50	14.4	8.0	5	-	6.5		
TWN90-125R06WN08M40	125	40	63	16.4	9.0	6	-	6.5		
TWN90-160R08WN08M40	160	40	63	16.4	9.0	8	66.7	6.5	TW1008	TTL20

TWN90 SERIES

Shoulder Milling Cutter with 6 Double-Sided Cutting Edge and Low Cutting Forces for Reduced Chattering and Superior Fracture Resistance

Applicable Inserts

Usage Classification										
★ 1st Choice ☆ 2nd Choice	P	Steel	★	★						
	M	Stainless	★	★						
	K	Cast iron	★		★					
	N	Non-ferrous								
	S	Superalloys								
	H	Hard materials								

Insert			Insert No.	Size(mm)					Coated Carbide				Carbide			
				IC	S	D1	BS	RE	TY602	TY610	TY620	TI960	HC200			
			WNMU080608PTN-CR	14	6.65	6.2	1.3	0.8	●							
			WNMU080608PTN-UR	14	6.65	6.2	1.3	0.8		●	●					

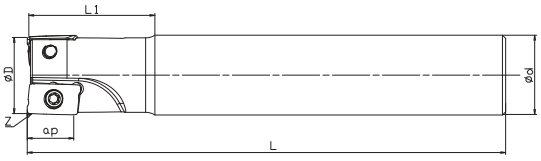
Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Grade	Cutting Speed Vc（m/min）	Feed fz（mm/t）
P	Carbon Steel	≤HB300	TY602/TY610	120-250	0.05-0.15
	Alloy Steel	HB200-300		100-220	0.05-0.10
	Mold Steel	≤HB300		80-180	0.05-0.10
M	Stainless Steel	≤HB200	TY602/TY610	80-150	0.10-0.25
K	Gray Cast Iron	HB150-250	TY620	120-250	0.10-0.20
	Ductile Cast Iron	HB150-250		100-200	0.05-0.15

TAP90 SERIES

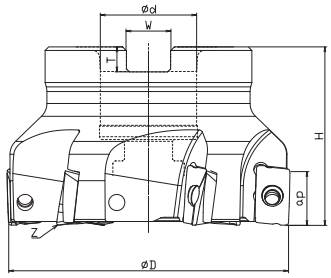
Shoulder Milling with High Precision Cutting Edge and Low Cutting Forces for Reduced Chattering

★Suitable for 11°positive angle insert, applicable to alloy steel , hardened steel and aluminium alloy.
★Sharp cutting due to lower cutting forces.
★Reduced chattering even with extended milling adapters.



Endmills

Designation	Size(mm)						Insert	Clamping Screw	Wrench
	D	d	L1	L	Z	Max.ap			
TAPE90-13R01D12AP10L130	13	12	30	130	1	9	APKT1003..	TK1000	TKP10
TAPE90-16R02D16AP10L150	16	16	28	150	2	9	APKT1003..		
TAPE90-16R02D16AP10L200				200	2	9	APKT1003..		
TAPE90-17R02D16AP10L150	17	16	40	150	2	9	APKT1003..		
TAPE90-17R02D16AP10L200				200	2	9	APKT1003..		
TAPE90-20R02D20AP10L150	20	20	30	150	2	9	APKT1003..		
TAPE90-20R02D20AP10L200				200	2	9	APKT1003..		
TAPE90-21R02D20AP10L150	21	20	50	150	2	9	APKT1003..		
TAPE90-21R02D20AP10L200				200	2	9	APKT1003..		
TAPE90-25R02D25AP16L150	25	25	40	150	2	15	APKT1604..	TK1600	TKP16
TAPE90-25R02D25AP16L200				200	2	15	APKT1604..		
TAPE90-32R03D32AP16L150	32	32	45	150	3	15	APKT1604..		
TAPE90-32R03D32AP16L200				200	3	15	APKT1604..		



Milling Cutters

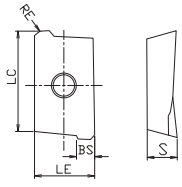
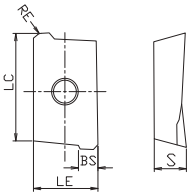
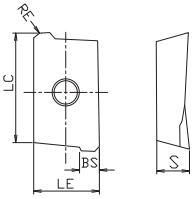
Designation	Size（mm）							Insert	Clamping Screw	Wrench
	D	d	H	W	T	Z	Max.ap			
TAPF90-50R04AP16M22	50	22	50	10.4	6.3	4	15	APKT1604..	TK1600	TKP16
TAPF90-63R05AP16M22	63	22	50	10.4	6.3	5	15	APKT1604..		
TAPF90-80R06AP16M27	80	27	50	12.4	7.0	6	15	APKT1604..		
TAPF90-100R08AP16M32	100	32	50	14.4	8.0	8	15	APKT1604..		

TAP90 SERIES

Shoulder Milling with High Precision Cutting Edge and Low Cutting Forces for Reduced Chattering

Applicable Inserts

Usage Classification										
★1st Choice ☆2nd Choice	P	Steel	★							
	M	Stainless	★							
	K	Cast iron	★							
	N	Non-ferrous					★			
	S	Superalloys								
	H	Hard materials		★						

Insert	Insert No.	Size(mm)					Coated Carbide				Carbide			
		LC	LE	S	BS	RE	TY602	TY622	TY625	TI960	HC200			
 	APKT100305PDTR	9.9	6.7	3.6	0.86	0.5	●							
	APKT100308PDTR	9.9	6.7	3.6	0.9	0.8	●							
	APKT160404PDTR	15.2	9.4	5.3	1.11	0.4	●							
	APKT160408PDTR	15.2	9.4	5.3	1.32	0.8	●							
	APKT160412PDTR	15.2	9.4	5.3	1.13	1.2	●							
	APKT160416PDTR	15.2	9.4	5.3	1.13	1.6	●							
	APKT160424PDTR	15.2	9.4	5.3	—	2.4	●							
 	APKT160404-TR	15.2	9.4	5.3	1.11	0.4		●						
	APKT160408-TR	15.2	9.4	5.3	1.32	0.8		●						
	APKT160412-TR	15.2	9.4	5.3	1.13	1.2		●						
	APKT160416-TR	15.2	9.4	5.3	1.13	1.6		●						
	APKT160424-TR	15.2	9.4	5.3	—	2.4		●						
  	APKT100305	9.9	6.7	3.6	0.86	0.5					●			
	APKT100308	9.9	6.7	3.6	0.9	0.8					●			
	APKT160402PDER-AK	15.2	9.4	5.3	1.11	0.2					●			
	APKT160404PDER-AK	15.2	9.4	5.3	1.11	0.4					●			
	APKT160408PDER-AK	15.2	9.4	5.3	1.32	0.8					●			
	APKT160412PDER-AK	15.2	9.4	5.3	1.13	1.2					●			
	APKT160416PDER-AK	15.2	9.4	5.3	1.13	1.6					●			
	APKT160420PDER-GW	15.2	9.4	5.3	—	2.0					●			

TAP90 SERIES

Shoulder Milling with High Precision Cutting Edge and Low Cutting Forces for Reduced Chattering

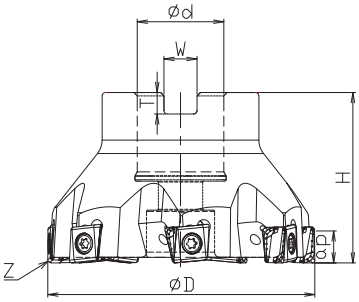
Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Grade	Cutting Speed Vc (m/min)	Feed fz (mm/t)
P	Low Carbon Steel	≤HB180	TY602	120-220	0.15-0.30
	High Carbon and Alloy Steel	HB180-280		70-150	0.15-0.30
	Alloy Steel	HB280-350		70-150	0.15-0.30
M	Stainless Steel	≤HB200		120-200	0.08-0.25
K	Gray Cast Iron	HB150-250		140-220	0.15-0.30
	Ductile Cast Iron	HB150-250		150-240	0.15-0.30
N	Aluminum	—	HC200	300-800	0.07-0.50
H	Hardened Material	≤HRC55	TY622	40-80	0.26-0.40

TLX SERIES

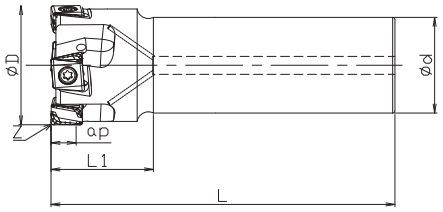
High productivity and stable cutting with large depth of cut in shouldering and finishing.

★ Tangential insert with high stability guarantees exceptional reliability in shouldering and finishing.
★ Economical double sided insert - Large rake and inclination angles reduce cutting forces and provide stable, smooth cutting



Milling Cutters

Designation	Size(mm)							Coolant Hole	Insert	Clamping Screw	Wrench
	D	d	H	W	T	Z	Max.ap				
TLXF90-50R05LX11M22	50	22	40	10.4	6.3	5	9.7	●	LXGU1107. .	TLX1107	TLXMS11
TLXF90-63R06LX11M22	63	22	40	10.4	6.3	6	9.7	●			
TLXF90-80R07LX11M27	80	27	50	12.4	7.0	7	9.7	●			
TLXF90-100R08LX11M32	100	32	50	14.4	8.0	8	9.7	●			
TLXF90-100R11LX11M32	100	32	50	14.4	8.0	11	9.7	●			
TLXF90-125R09LX11M40	125	40	63	16.4	9.0	9	9.7	●			
TLXF90-125R12LX11M40	125	40	63	16.4	9.0	12	9.7	●			

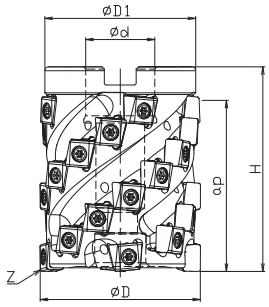


Endmills

Designation	Size(mm)						Coolant Hole	Insert	Clamping Screw	Wrench
	D	d	L1	L	Z	Max.ap				
TLXE90-32R03D32LX11L115	32	32	35	115	3	9.7	●	LXGU1107. .	TLX1107	TLXMS11
TLXE90-40R04D32LX11L115	40	32	35	115	4	9.7	●			
TLXE90-50R04D32LX11L120	50	32	40	120	4	9.7	●			
TLXE90-63R06D32LX11L120	63	32	40	120	6	9.7	●			
TLXE90-80R07D32LX11L120	80	32	40	120	7	9.7	●			

TLX SERIES

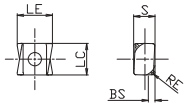
High productivity and stable cutting with large depth of cut in shouldering and roughing.



Designation	Size(mm)							Coolant Hole	Insert	Clamping Screw	Wrench
	D	D1	d	H	Z eff	Z	Max.ap				
TLXR90-50R21TP10M22	50	47	22	70	3	21	58.5	X	LXGU1107. .	TLX1107	TPRP11
TLXR90-63R32TP10M27	63	59	27	80	4	32	66.9	X			

Applicable Inserts

Usage Classification										
★ 1st Choice ☆ 2nd Choice	P	Steel	★							
	M	Stainless	★							
	K	Cast iron		★						
	N	Non-ferrous								
	S	Superalloys			★					
	H	Hard materials								

	Insert	Insert No.	Size(mm)					Coated Carbide				Carbide			
			LC	LE	S	BS	RE	TT650	TY720	TS820	TI960	HC200			
		LXGU110708-MM	10.5	11.7	7.1	2	0.8	●	●	●					
		LXGU110716-MM	10.5	11.7	7.1	1.2	1.6	●	●	●					
		LXGU110724-MM	10.5	11.7	7.1	0.4	2.4	●	●						
		LXGU110732-MM	10.5	11.7	7.1	-	3.2	●	●						

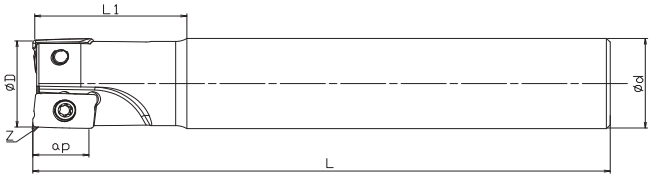
Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Grade	Cutting Speed Vc (m/min)	Feed fz (mm/t)
P	Low Carbon Steel	≤HB180	TT650	100-230	0.10-0.25
	High Carbon and Alloy Steel	HB180-280		100-200	0.10-0.25
	Alloy Steel	HB280-350		100-200	0.10-0.25
M	Stainless Steel	≤HB200		90-180	0.10-0.25
K	Gray Cast Iron	HB150-250	TY720	100-200	0.10-0.25
	Ductile Cast Iron	HB150-250		80-180	0.10-0.25
S	Superalloys	-	TS820	20-40	0.06-0.10

EAP SERIES

EAP Right Angle Shoulder Milling Cutter Bar

★ Suitable for heavy cutting, rotary and feed volume is 3 times than normal cutter.
★ Suitable for economical inserts, high cost performance.



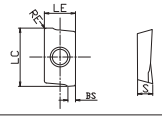
Designation	Size(mm)							Insert	Clamping Screw	Wrench
	D	d	L1	L2	L	Z	Max.a			
EAP300R-C10-10-120L-1T	10	10	30	-	120	1	9	APMT1135	TT1011	TTP11
EAP300R-C10-11-120L-1T	11	10	30	-	120	1	9	APMT1135		
EAP300R-C12-12-130L-1T	12	12	30	-	130	1	9	APMT1135		
EAP300R-C12-13-130L-1T	13	12	30	-	130	1	9	APMT1135		
EAP300R-C16-16-120L-2T	16	16	40	-	120	2	9	APMT1135		
EAP300R-C16-16-150L-2T	16	16	40	-	150	2	9	APMT1135		
EAP300R-C16-16-200L-2T	16	16	40	100	200	2	9	APMT1135		
EAP300R-C15-16-150L-2T	16	15	40	-	150	2	9	APMT1135		
EAP300R-C16-17-150L-2T	17	16	40	-	150	2	9	APMT1135		
EAP300R-C16-17-200L-2T	17	16	40	-	200	2	9	APMT1135		
EAP300R-C20-20-150L-2T	20	20	50	-	150	2	9	APMT1135		
EAP300R-C19-20-150L-2T	20	19	50	-	150	2	9	APMT1135		
EAP300R-C20-20-200L-2T	20	20	50	100	200	2	9	APMT1135		
EAP300R-C19-20-200L-2T	20	19	50	-	200	2	9	APMT1135		
EAP300R-C20-21-150L-2T	21	20	50	-	150	2	9	APMT1135		
EAP300R-C20-21-200L-2T	21	20	50	-	200	2	9	APMT1135		
EAP300R-C25-25-150L-3T	25	25	50	-	150	3	9	APMT1135		
EAP400R-C24-25-150L-2T	25	24	40	-	150	2	14	APMT1604	TT1016	TTP16
EAP400R-C25-25-200L-2T	25	25	75	-	200	2	14	APMT1604		
EAP400R-C24-25-200L-2T	25	24	50	-	200	2	14	APMT1604		
EAP400R-C32-32-150L-3T	32	32	50	-	150	3	14	APMT1604		
EAP400R-C32-32-200L-3T	32	32	80	-	200	3	14	APMT1604		
EAP400R-C32-35-150L-3T	35	32	60	-	150	3	14	APMT1604		
EAP400R-C32-35-200L-3T	35	32	60	-	200	3	14	APMT1604		

EAP SERIES

EAP Right Angle Shoulder Milling Cutter Bar

Applicable Inserts

Usage Classification										
★ 1st Choice ☆ 2nd Choice	P	Steel	★							
	M	Stainless	☆							
	K	Cast iron	★							
	N	Non-ferrous								
	S	Superalloys								
	H	Hard materials		★						

	Insert	Insert No.	Size(mm)					Coated Carbide				Carbide			
			LC	LE	S	BS	RE	TI960	TH910	TY602	TY622	HC200			
		APMT1135PDER-M2	11.0	6.35	3.50	1.5	0.8	●	●						
		APMT1604PDER-M2	16.5	9.53	4.76	1.7	0.8	●	●						

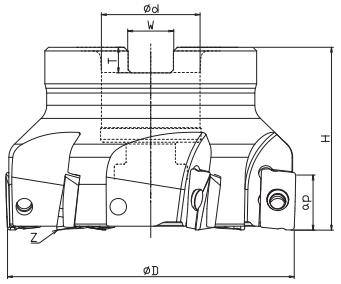
Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Grade	Cutting Speed	Feed
				Vc （m/min）	fz （mm/t）
P	Low Carbon Steel	≤HB180	TI960	120-220	0.15-0.30
	High Carbon and Alloy Steel	HB180-280		70-150	0.15-0.30
	Alloy Steel	HB280-350		70-150	0.15-0.30
M	Stainless Steel	≤HB200		120-200	0.10-0.25
K	Gray Cast Iron	HB150-250		140-220	0.15-0.30
	Ductile Cast Iron	HB150-250		150-240	0.15-0.30
H	Hardened Material	≤HRC50	TH910	40-80	0.10-0.30

EAP SERIES

EAP Right Angle Shoulder Face Mill

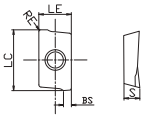
★ Suitable for 11° positive angle insert tip.
★ Suitable for various types of inserts, applicable to aluminum and steel milling.
★ Screw locking,large space for chipping, excellent chip removal performance .
★ Cutting smoothly,low resistance.
★ Customized aluminium milling cutter is available.



Designation	Size(mm)							Insert	Clamping Screw	Wrench
	D	d	H	W	T	Z	Max.ap			
EAP400R-50-22-4T	50	22	50	10.4	6.3	4	14	APMT1604	TT1016	TTP16
EAP400R-63-22-4T	63	22	50	10.4	6.3	4	14	APMT1604		
EAP400R-80-27-6T	80	27	50	12.4	7	6	14	APMT1604		
EAP400R-100-32-6T	100	32	50	14.4	8	6	14	APMT1604		
EAP400R-125-40-7T	125	40	63	16.4	9	7	14	APMT1604		
EAP400R-160-40-8T	160	40	63	16.4	9	8	14	APMT1604		
EAP400R-200-60-10T	200	60	63	25.7	14	10	14	APMT1604		

Applicable Inserts

Usage Classification									
★ 1st Choice ☆ 2nd Choice	P	Steel	★						
	M	Stainless	☆						
	K	Cast iron	★						
	N	Non-ferrous							
	S	Superalloys							
	H	Hard materials		★					

Insert		Insert No.	Size					Coated Carbide				Carbide			
			LC	LE	S	BS	RE	TI960	TH910	TY602	TY622	HC200			
		APMT1604PDER-M2	16.5	9.53	4.76	1.7	0.8	●	●						

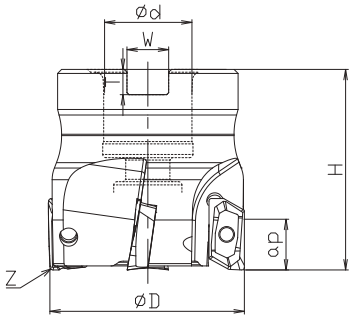
Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Grade	Cutting Speed Vc (m/min)	Feed fz (mm/t)
P	Low Carbon Steel	≤HB180	TI960	120-220	0.15-0.30
	High Carbon and Alloy Steel	HB180-280		70-150	0.15-0.30
	Alloy Steel	HB280-350		70-150	0.15-0.30
M	Stainless Steel	≤HB200		120-200	0.10-0.25
K	Gray Cast Iron	HB150-250		140-220	0.15-0.30
	Ductile Cast Iron	HB150-250		150-240	0.15-0.30
H	Hardened Material	≤HRC50	TH910	40-80	0.10-0.30

TAD SERIES

The Premium High-Speed Milling Tool For Aluminum

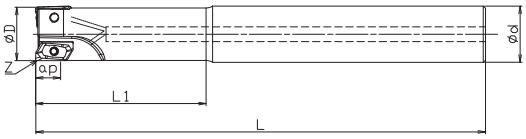
★The New Premium Milling Tool Line for Aluminum Machining
Enhanced Productivity
★Increased productivity due to high speed capability
Improved Surface Finish
★Excellent surface finish and perpendicularity with high-precision products
Excellent Clamping Stability
Satisfactory clamping force of inserts by the use of the key shape



Milling Cutters

Designation	Size(mm)							Coolant Hole	Insert	Clamping Screw	Wrench
	D	d	H	W	T	Z	Max.ap				
TADF90-40R03AD19M16-A/B	40	16	45	8.4	5.6	3	17	●	ADET1905..-AL	TAD1905	TADF19
TADF90-50R04AD19M22-A/B	50	22	50	10.4	6.3	4	17	●			
TADF90-63R05AD19M22-A/B	63	22	50	10.4	6.3	5	17	●			
TADF90-80R05AD19M27-A/B	80	27	50	12.4	7.0	5	17	●			
TADF90-100R06AD19M32-A/B	100	32	63	14.4	8.0	6	17	●			
TADF90-125R07AD19M40-A/B	125	40	63	16.4	9.0	7	17	●			

● Type A uses Insert Nose R 0.4~3.2, and Type B uses Nose R 4.0 ~ 5.0



Endmills

Designation	Size(mm)						Coolant Hole	Insert	Clamping Screw	Wrench
	D	d	L1	L	Z	Max.ap				
TADE90-25R02D25AD19L140-A/B	25	25	60	140	2	17	●	ADET1905..-AL	TAD1905	TADE19
TADE90-32R02D32AD19L150-A/B	32	32	70	150	2	17	●			
TADE90-32R02D32AD19L200-A/B	32	32	70	200	2	17	●			
TADE90-40R03D40AD19L200-A/B	40	40	70	200	3	17	●			

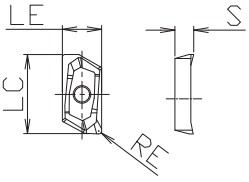
● Type A uses Insert Nose R 0.4~3.2, and Type B uses Nose R 4.0 ~ 5.0

TAD SERIES

The Premium High-Speed Milling Tool for Aluminum

Applicable Inserts

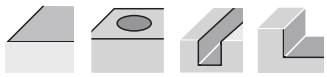
Usage Classification									
	P	Steel							
	M	Stainless							
	K	Cast iron							
★ 1st Choice ☆ 2nd Choice	N	Non-ferrous					★		
	S	Superalloys							
	H	Hard materials							

Insert		Insert No.	Size(mm)				Coated Carbide				Carbide			
			LC	LE	S	RE	TE620	TY720	TY625	TI960	HC200			
		ADET190504-AL	22	11.3	5.04	0.4					●			
		ADET190508-AL	22	11.3	5.00	0.8					●			
		ADET190512-AL	22	11.3	5.00	1.2					●			
		ADET190516-AL	22	11.3	4.99	1.6					●			
		ADET190520-AL	22	11.3	4.97	2.0					●			
		ADET190524-AL	22	11.3	4.95	2.4					●			
		ADET190530-AL	22	11.3	4.95	3.0					●			
		ADET190532-AL	22	11.3	4.92	3.2					●			
		ADET190540-AL	21	11.3	4.85	4.0					●			
		ADET190550-AL	21	11.3	4.81	5.0					●			

Recommended Cutting Conditions

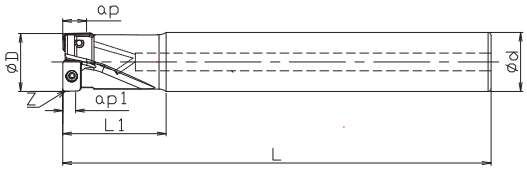
ISO	Workpiece material	Hardness	Grade	Cutting Speed	Feed
				Vc （m/min）	fz （mm/t）
N	Aluminum （Si≤5%）	—	HC200	300-1500	0.10-0.30

TLU SERIES



Multifunctional milling cutter with center cutting edge

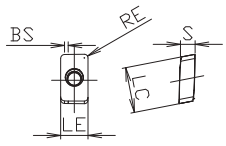
★Innovative four-edged inserts provide ultimate machining flexibility and economy - from flat bottom drilling to profiling
★With center cutting capability, a single cutter can perform a wide array of applications, enabling process and tool integrations for maximum productivity. Dovetail insert clamping ensures for high process security.
★Maximum cost per edge for shoulder cutters with a center cutting edge .
★A single insert can be used either for center edge or peripheral edge and can be used twice in each position - four total cutting edges for highest insert economy.
★Easy to make hole bottoms as flat as possible. Also makes it suitable for counter boring.



Designation	Size(mm)							Coolant Hole	Insert	Clamping Screw	Wrench
	D	d	L1	L	Z	MAX.ap	MAX.ap1				
TLU90-16R02D16LX08L130	16	16	30	130	2	7	4	●	LXMU08..	TLU08	TLUS0803
TLU90-16R02D16LX08L180	16	16	50	180	2	7	4	●			
TLU90-17R02D16LX08L180	17	16	25	180	2	7	4	●			
TLU90-20R02D20LX10L145	20	20	35	145	2	7	4	●	LXMU10..	TLU10	TLUS10T3
TLU90-20R02D20LX10L190	20	20	60	190	2	7	4	●			
TLU90-21R02D20LX10L190	21	20	30	190	2	7	4	●			
TLU90-25R02D25LX12L150	25	25	45	150	2	7	4	●	LXMU12..	TLU12	TLUS1204
TLU90-25R02D25LX12L225	25	25	75	225	2	7	4	●			
TLU90-26R02D25LX12L225	26	25	35	225	2	7	4	●			

Applicable Inserts

Usage Classification										
★ 1st Choice ☆ 2nd Choice	P	Steel	★							
	M	Stainless	★							
	K	Cast iron		★						
	N	Non-ferrous								
	S	Superalloys			★					
	H	Hard materials								

	Insert	Insert No.	Size(mm)					Coated Carbide				Carbide			
			LC	LE	S	BS	RE	TT650	TY720	TS820	TI960	HC200			
		LXMU080304-GM	7.7	5.00	2.8	0.8	0.4	●	●	●					
		LXMU10T308-GM	10.0	6.00	3.2	0.8	0.8	●	●	●					
		LXMU120408-GM	12.2	7.08	4.2	0.8	0.8	●	●	●					

TLU SERIES

Multifunctional milling cutter with center cutting edge

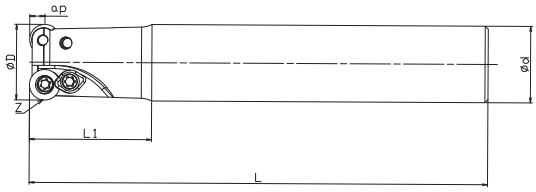
Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Grade	Cutting Speed	Feed fz(mm/t)	
				Vc （m/min）	Drilling	Shouldering
P	Low Carbon Steel	≤HB180	TT650	100-300	0.03-0.08	0.05-0.30
	High Carbon and Alloy Steel	HB180-280		100-250	0.03-0.08	0.05-0.30
	Alloy Steel	HB280-350		100-200	0.03-0.06	0.05-0.25
M	Stainless Steel	≤HB200		80-180	0.03-0.08	0.05-0.20
K	Gray Cast Iron	HB150-250	TY720	100-300	0.03-0.10	0.05-0.30
	Ductile Cast Iron	HB150-250		100-250	0.03-0.08	0.05-0.25
S	Superalloys	-	TS820	20-40	0.03-0.05	0.04-0.15

TRD SERIES

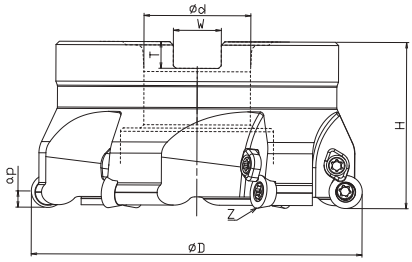
Radius Milling with Lowers Cutting Costs and Increases Effciency

★ Low cutting forces with helical cutting edge design .
★ Suitable for 11°positive angle insert, applicable to alloy steel , hardened steel and aluminium alloy.
★ Reduced chattering even with extended mlling adapters .



Endmills

Designation	Size(mm)						Insert	Clamping Screw	Wrench	Clamping Piece
	D	d	L1	L	Z	Max.ap				
TRDE4R-16R02D16RD08L150	16	16	28	150	2	4	RDKT0802M0	TR1008	TRP08	TRS08
TRDE4R-16R02D16RD08L200				200	2	4	RDKT0802M0			
TRDE4R-20R02D20RD08L150	20	20	30	150	2	4	RDKT0802M0			
TRDE4R-20R02D20RD08L200				200	2	4	RDKT0802M0			
TRDE5R-20R02D20RD10L150	20	20	30	150	2	5	RDKT10T3M0	TR1010	TRP10	TRS10
TRDE5R-20R02D20RD10L200				200	2	5	RDKT10T3M0			
TRDE5R-25R02D25RD10L150	25	25	40	150	2	5	RDKT10T3M0			
TRDE5R-25R02D25RD10L200				200	2	5	RDKT10T3M0			
TRDE6R-32R03D32RD12L150	32	32	45	150	3	6	RDKT1204M0	TR1012	TRP12	TRS12
TRDE6R-32R03D32RD12L200				200	3	6	RDKT1204M0			



Milling Cutters

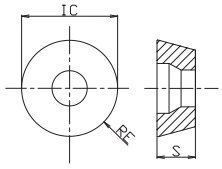
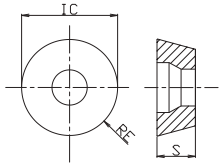
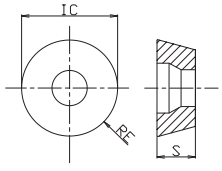
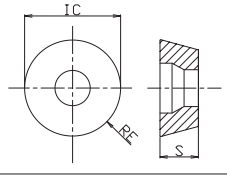
Designation	Size（mm）							Insert	Clamping Screw	Wrench	Clamping Piece
	D	d	H	W	T	Z	Max.ap				
TRDF5R-50R04RD10M22	50	22	50	10.4	6.3	4	5	RDKT10T3M0	TR1010	TRP10	TRS10
TRDF5R-63R04RD10M22	63	22	50	10.4	6.3	4	5	RDKT10T3M0			
TRDF5R-80R06RD10M27	80	27	50	12.4	7.0	6	5	RDKT10T3M0			
TRDF5R-100R06RD10M32	100	32	50	14.4	8.0	6	5	RDKT10T3M0			
TRDF6R-50R04RD12M22	50	22	50	10.4	6.3	4	6	RDKT1204M0	TR1012	TRP12	TRS12
TRDF6R-63R04RD12M22	63	22	50	10.4	6.3	4	6	RDKT1204M0			
TRDF6R-80R06RD12M27	80	27	50	12.4	7.0	6	6	RDKT1204M0			
TRDF6R-100R06RD12M32	100	32	50	14.4	8.0	6	6	RDKT1204M0			

TRD SERIES

Radius Milling with Lowers Cutting Costs and Increases Effciency

Applicable Inserts

Usage Classification											
★1st Choice ☆2nd Choice	P	Steel	★								
	M	Stainless	★								
	K	Cast iron	★								
	N	Non-ferrous					★				
	S	Superalloys									
	H	Hard materials		★							

Insert		Insert No.	Size(mm)			Coated Carbide				Carbide				
			IC	S	RE	TY602	TY622	TY625	TI960	HC200				
 General Chipbreaker		RDKT0802M0	8	2.4	4	●								
		RDKT10T3M0	10	4.0	5	●								
		RDKT1204M0	12	4.8	6	●								
		RDMT0802M0	8	2.4	4	●								
		RDMT10T3M0	10	4.0	5	●								
		RDMT1204M0	12	4.8	6	●								
 Stainless Steel Chipbreaker		RDKT0802M0-ST	8	2.4	4	●								
		RDKT10T3M0-ST	10	4.0	5	●								
		RDKT1204M0-ST	12	4.8	6	●								
		RDKT0802M0-TR	8	2.4	4		●							
		RDKT10T3M0-TR	10	4.0	5		●							
		RDKT1204M0-TR	12	4.8	6		●							
		RDKT0802M0	8	2.4	4					●				
		RDKT10T3M0	10	4.0	5					●				
		RDKT1204M0	12	4.8	6					●				

TRD SERIES

Radius Milling with Lowers Cutting Costs and Increases Effciency

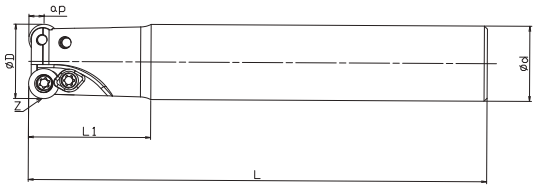
Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Grade	Cutting Speed Vc（m/min）	Feed fz（mm/t）
P	Low Carbon Steel	≤HB180	TY602	120-220	0.15-0.30
	High Carbon and Alloy Steel	HB180-280		70-150	0.15-0.30
	Alloy Steel	HB280-350		70-150	0.15-0.30
M	Stainless Steel	≤HB200		120-200	0.10-0.25
K	Gray Cast Iron	HB150-250		140-220	0.15-0.30
	Ductile Cast Iron	HB150-250		150-240	0.15-0.30
N	Aluminum	—	HC200	300-800	0.07-0.55
H	Hardened Material	≤HRC55	TY622	40-80	0.22-0.40

EMR SERIES

EMR Round Dowel Milling Cutter Bar

★ Suitable for a variety of economical inserts, high cost performance



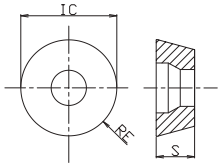
Designation	Size(mm)							Insert	Clamping Screw	Wrench	Clamping Piece
	D	d	L1	L2	L	Z	Max.ap				
EMR-4R-C12-12-130L-1T	12	12	40	-	130	1	4	RPMT08T2	TT1008	TTP08	TTS08
EMR-4R-C12-13-130L-1T	13	12	40	-	130	1	4	RPMT08T2			
EMR-4R-C16-16-150L-2T	16	16	40	-	150	2	4	RPMT08T2			
EMR-4R-C15-16-150L-2T	16	15	40	-	150	2	4	RPMT08T2			
EMR-4R-C16-16-200L-2T	16	16	40	100	200	2	4	RPMT08T2			
EMR-4R-C15-16-200L-2T	16	15	40	-	200	2	4	RPMT08T2			
EMR-4R-C16-17-150L-2T	17	16	40	-	150	2	4	RPMT08T2			
EMR-4R-C16-17-200L-2T	17	16	50	-	200	2	4	RPMT08T2			
EMR-4R-C20-20-150L-2T	20	20	50	-	150	2	4	RPMT08T2			
EMR-4R-C19-20-150L-2T	20	19	50	-	150	2	4	RPMT08T2			
EMR-4R-C20-20-200L-2T	20	20	50	100	200	2	4	RPMT08T2			
EMR-4R-C19-20-200L-2T	20	19	50	-	200	2	4	RPMT08T2			
EMR-4R-C20-21-150L-2T	21	20	50	-	150	2	4	RPMT08T2			
EMR-4R-C20-21-200L-2T	21	20	50	-	200	2	4	RPMT08T2			
EMR-5R-C20-30-110L-2T	30	20	40	-	110	2	5	RPM□10□3	TT1011	TTP10	TTS10
EMR-5R-C20-20-150L-2T	20	20	50	-	150	2	5	RPM□10□3			
EMR-5R-C20-20-200L-2T	20	20	50	100	200	2	5	RPM□10□3			
EMR-5R-C20-21-150L-2T	21	20	50	-	150	2	5	RPM□10□3			
EMR-5R-C20-21-200L-2T	21	20	50	-	200	2	5	RPM□10□3			
EMR-5R-C25-25-150L-2T	25	25	50	-	150	2	5	RPM□10□3			
EMR-5R-C20-25-150L-2T	25	20	50	-	150	2	5	RPM□10□3			
EMR-5R-C24-25-150L-2T	25	24	50	-	150	2	5	RPM□10□3			
EMR-5R-C25-25-200L-2T	25	25	75	-	200	2	5	RPM□10□3			
EMR-5R-C25-25-250L-2T	25	25	60	115	250	2	5	RPM□10□3			
EMR-5R-C20-25-200L-2T	25	20	50	-	200	2	5	RPM□10□3			
EMR-5R-C24-25-200L-2T	25	24	50	-	200	2	5	RPM□10□3			
EMR-5R-C24-25-250L-2T	25	24	50	-	250	2	5	RPM□10□3			
EMR-5R-C25-26-150L-2T	26	25	50	-	150	2	5	RPM□10□3			
EMR-5R-C25-26-200L-2T	26	25	50	-	200	2	5	RPM□10□3			
EMR-5R-C25-26-250L-2T	26	25	50	-	250	2	5	RPM□10□3			
ERP-6R-C32-32-150L-2T	32	32	50	-	150	2	6	RPMT1204	TT1012	TRP12	TRS12
ERP-6R-C32-32-200L-2T	32	32	50	-	200	2	6	RPMT1204			
ERP-6R-C32-35-150L-3T	35	32	50	-	150	3	6	RPMT1204			
ERP-6R-C32-35-200L-3T	35	32	50	-	200	3	6	RPMT1204			

EMR SERIES

EMR Round Dowel Milling Cutter Bar

Applicable Inserts

Usage Classification											
★1st Choice ☆2nd Choice	P	Steel	★								
	M	Stainless	★								
	K	Cast iron	★								
	N	Non-ferrous									
	S	Superalloys									
	H	Hard materials		★							

Insert		Insert No.	Size(mm)			Coated Carbide				Carbide				
			IC	S	RE	TI960	TH910	TY602	TY622	HC200				
		RPMT08T2M0-MT1	8	2.78	4	●								
		RPMW1003MT	10	3.18	5	●	●							
		RPMT10T3MT	10	3.97	5	●	●							
		RPMT1204M0-MT1	12	4.76	6	●	●							

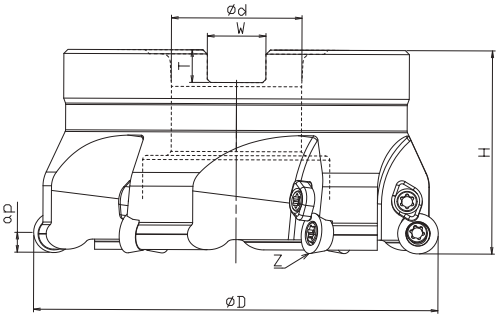
Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Grade	Cutting Speed	Feed
				Vc (m/min)	fz (mm/t)
P	Low Carbon Steel	≤HB180	TI960	120-220	0.15-0.30
	High Carbon and Alloy Steel	HB180-280		70-150	0.15-0.30
	Alloy Steel	HB280-350		70-150	0.15-0.30
M	Stainless Steel	≤HB200		120-200	0.10-0.25
K	Gray Cast Iron	HB150-250		140-220	0.15-0.30
	Ductile Cast Iron	HB150-250		150-240	0.15-0.30
H	Hardened Material	≤HRC50	TH910	40-80	0.22-0.40

EMR SERIES

EMR Round Dowel Mill

★ Suitable for 11° positive angle insert tip
★ Working with very economical insert
★ Large space for chipping, excellent chip removal performance
★ Taper design with high rigidity
★ Customized aluminium milling cutter is available



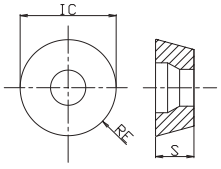
Designation	Size(mm)							Insert	Clamping Screw	Wrench	Clamping Piece
	D	d	H	W	T	Z	Max.ap				
EMR-5R-50-22-4T	50	22	50	10.4	6.3	4	5	RPMW1003 RPMT10T3	TW1010 TT1011	TTP10	TTS10
EMR-5R-63-22-4T	63	22	50	10.4	6.3	4	5				
EMR-5R-80-27-6T	80	27	50	12.4	7	6	5				
EMR-5R-100-32-6T	100	32	50	14.4	7	6	5				
EMR-5R-125-40-7T	125	40	63	16.4	9	7	5				
EMR-5R-160-40-8T	160	40	63	16.4	9	8	5				
ERP-6R-50-22-4T	50	22	50	10.4	6.3	4	6	RPMT1204	TT1012	TRP12	TRS12
ERP-6R-63-22-4T	63	22	50	10.4	6.3	4	6				
ERP-6R-80-27-6T	80	27	50	12.4	7	6	6				
ERP-6R-100-32-6T	100	32	50	14.4	8	6	6				

EMR SERIES

EMR Round Dowel Mill

Applicable Inserts

Usage Classification											
★1st Choice ☆2nd Choice	P	Steel	★								
	M	Stainless	★								
	K	Cast iron	★								
	N	Non-ferrous									
	S	Superalloys									
	H	Hard materials		★							

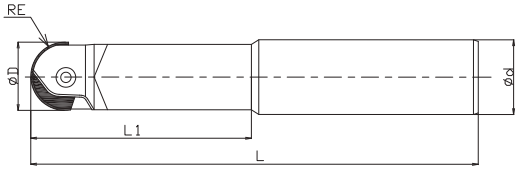
Insert	Insert No.	Size(mm)			Coated Carbide				Carbide				
		IC	S	RE	TI960	TH910	TY602	TY622	HC200				
 	RPMW1003MT	10	3.18	5	●	●							
	RPMT10T3MT	10	3.97	5	●	●							
	RPMT1204M0-MT1	12	4.76	6	●	●							

Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Grade	Cutting Speed Vc (m/min)	Feed fz (mm/t)
P	Low Carbon Steel	≤HB180	TI960	120-220	0.10-0.35
	High Carbon and Alloy Steel	HB180-280		70-150	0.10-0.35
	Alloy Steel	HB280-350		70-150	0.10-0.35
M	Stainless Steel	≤HB200		120-200	0.10-0.30
K	Gray Cast Iron	HB150-250		140-220	0.15-0.30
	Ductile Cast Iron	HB150-250		150-240	0.15-0.30
H	Hardened Material	≤HRC50	TH910	40-80	0.10-0.30

C-ABPF SERIES

Indexable End Mills for High Precision Finish



CARBIDE SHANK TYPE

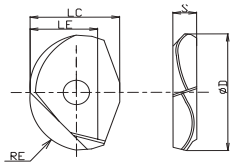
Designation	Size(mm)					Insert	Clamping Screw	Wrench
	D	d	L	L1	RE			
C-ABPF-10S10x30x150L	10	10	150	30	5	SP1W100	TSB-5842	TX10
C-ABPF-10S10x30x180L	10	10	180	30	5	SP1W100		
C-ABPF-12S12x35x165L	12	12	165	35	6	SP1W120	TSB-5843	TX20
C-ABPF-12S12x35x200L	12	12	200	35	6	SP1W120		
C-ABPF-16S16x50x200L	16	16	200	50	8	SP1W160	TSB-5844	
C-ABPF-16S16x50x250L	16	16	250	50	8	SP1W160		
C-ABPF-20S20x70x220L	20	20	220	70	10	SP1W200	TSB-5845	TX25
C-ABPF-20S20x70x250L	20	20	250	70	10	SP1W200		
C-ABPF-20S20x70x300L	20	20	300	70	10	SP1W200		
C-ABPF-25S25x100x200L	25	25	200	100	12.5	SP1W250	TSB-5846	TX30
C-ABPF-25S25x100x250L	25	25	250	100	12.5	SP1W250		
C-ABPF-25S25x100x300L	25	25	300	100	12.5	SP1W250		
C-ABPF-30S32x100x250L	30	32	250	100	15	SP1W300	TSB-5847	
C-ABPF-30S32x100x300L	30	32	300	100	15	SP1W300		

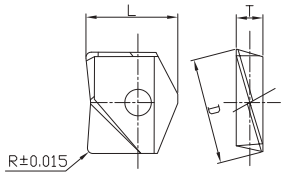
C-ABPF SERIES

Indexable End Mills for High Precision Finish

Applicable Inserts

Usage Classification										
★ 1st Choice ☆ 2nd Choice	P	Steel	★							
	M	Stainless								
	K	Cast iron								
	N	Non-ferrous								
	S	Superalloys								
	H	Hard materials	☆							

Insert		Insert No.	Size(mm)					Coated Carbide				Carbide			
			RE	D	LE	LC	S	TD300	TY622	TY625	TI960	HC200			
		SP1W100	5.0	10	5.6	12.1	2.7	●							
		SP1W120	6.0	12	6.6	14.6	3.2	●							
		SP1W160	8.0	16	9.0	16.6	4.2	●							
		SP1W200	10.0	20	11.5	20.3	5.2	●							
		SP1W250	12.5	25	14.5	24.1	6.2	●							
		SP1W300	15.0	30	18.5	29.2	7.2	●							

Insert		Insert No.	Size(mm)				Coated Carbide					Carbide			
			L	D	T	R	TD300	TY622	TY625	TI960	HC200				
		SP1Q100-R1.0	12.0	10	2.7	1.0	●								
		SP1Q120-R1.0	14.6	12	3.2	1.0	●								
		SP1Q160-R1.0	16.6	16	4.2	1.0	●								
		SP1Q200-R1.0	19.9	20	5.2	1.0	●								
		SP1Q250-R1.0	22.6	25	6.2	1.0	●								
		SP1Q300-R1.0	27.2	30	7.2	1.0	●								

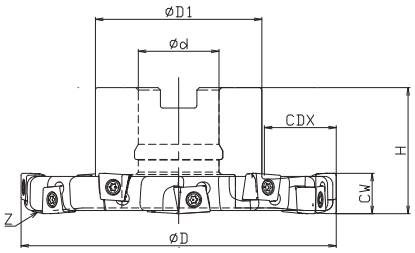
Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Grade	Cutting Speed	Feed
				Vc（m/min）	fz（mm/t）
P	Carbon Steel	≤HB300	TD300	160-200	0.1-0.25
	Alloy Steel	HB200-300		160-200	0.1-0.25
	Mold Steel	HRC≤55		120-160	0.1-0.25

TLXFD SERIES

TLX SlotMill Series is an economical slot milling line for improved surface finish in slotting, face milling, and back-face milling.

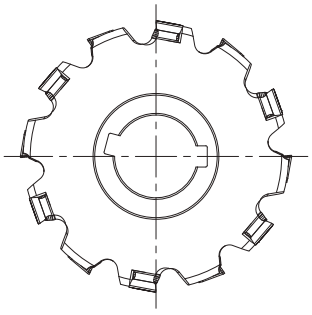
- ★ An economical slot milling solution with stable chip formation allowing deeper slots thus increasing productivity and stability in machining.
- ★ 4 corners available with grade gedge .
- ★ High productivity due to a large number of edge lines small gap between redge and ledge

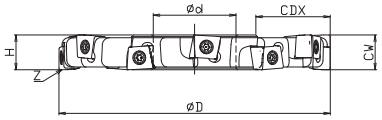


Designation	Size(mm)								Insert	Clamping Screw	Wrench
	D	D1	d	H	Z eff	Z	CDX	CW			
TLXFD9016-100R10LX10M27	100	58	27	50	5	10	20.0	16	LXGU1008. .	TLX1008	TLXS10
TLXFD9016-125R12LX10M32	125	66	32	50	6	12	28.5	16			
TLXFD9016-160R14LX10M40	160	82	40	63	7	14	38.0	16			
TLXFD9019-100R10LX12M27	100	58	27	50	5	10	20.0	19	LXGU1208. .	TLX1208	TLXS12
TLXFD9019-125R12LX12M32	125	66	32	50	6	12	28.5	19			
TLXFD9019-160R14LX12M40	160	82	40	63	7	14	38.0	19			
TLXFD9019-200R16LX12M40	200	95	40	63	8	16	55.0	19			
TLXFD9025-125R10LX15M32	125	66	32	50	5	10	28.5	25	LXGU1509. .	TLX1509	TLXS15
TLXFD9025-160R12LX15M40	160	82	40	63	6	12	38.0	25			
TLXFD9025-200R14LX15M40	200	95	40	63	7	14	55.0	25			

TLXSD SERIES

TLX SlotMill Series is an economical slot milling line for improved surface finish in slotting, face milling, and back-face milling.





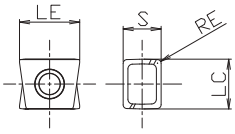
Designation	Size(mm)							Insert	Clamping Screw	Wrench
	D	d	H	Z eff	Z	CDX	CW			
TLXSD9016-100R10LX10M32	100	32	16	5	10	25.5	16	LXGU1008..	TLX1008	TLXS10
TLXSD9016-125R12LX10M40	125	40	16	6	12	34.0	16			
TLXSD9016-160R14LX10M40	160	40	16	7	14	51.5	16			
TLXSD9019-100R10LX12M32	100	32	19	5	10	25.5	19	LXGU1208..	TLX1208	TLXS12
TLXSD9019-125R12LX12M40	125	40	19	6	12	34.0	19			
TLXSD9019-160R14LX12M40	160	40	19	7	14	51.5	19			
TLXSD9019-200R16LX12M50	200	50	19	8	16	64.5	19			
TLXSD9025-125R10LX15M40	125	40	25	5	10	34.0	25	LXGU1509..	TLX1509	TLXS15
TLXSD9025-160R12LX15M40	160	40	25	6	12	51.5	25			
TLXSD9025-200R14LX15M50	200	50	25	7	14	64.5	25			

TLXFD/SD SERIES

TLX SlotMill Series is an economical slot milling line for improved surface finish in slotting, face milling, and back-face milling.

Applicable Inserts

Usage Classification										
★ 1st Choice ☆ 2nd Choice	P	Steel	★							
	M	Stainless	★							
	K	Cast iron		★						
	N	Non-ferrous								
	S	Superalloys			★					
	H	Hard materials								

Insert		Insert No.	Size(mm)				Coated Carbide				Carbide			
			LC	LE	S	RE	TT650	TY720	TS820	TI960	HC200			
		LXGU100808-MM	10.50	12.70	8.0	0.8	●	●	●					
		LXGU100810-MM	10.50	12.70	8.0	1.0	●	●	●					
		LXGU100816-MM	10.50	12.50	8.0	1.6	●	●	●					
		LXGU100820-MM	10.50	12.40	8.0	2.0	●	●	●					
		LXGU100824-MM	10.50	12.40	8.0	2.4	●	●	●					
		LXGU100830-MM	10.50	12.20	8.0	3.0	●	●	●					
		LXGU100832-MM	10.50	12.20	8.0	3.2	●	●	●					
		LXGU120808-MM	12.70	13.60	8.0	0.8	●	●	●					
		LXGU120816-MM	12.70	13.40	8.0	1.6	●	●	●					
		LXGU120820-MM	12.70	13.30	8.0	2.0	●	●	●					
		LXGU120824-MM	12.70	13.20	8.0	2.4	●	●	●					
		LXGU120830-MM	12.70	13.10	8.0	3.0	●	●	●					
		LXGU120832-MM	12.70	13.10	8.0	3.2	●	●	●					
		LXGU150908-MM	15.00	15.60	9.5	0.8	●	●	●					
		LXGU150916-MM	15.00	15.40	9.5	1.6	●	●	●					
		LXGU150920-MM	15.00	15.40	9.5	2.0	●	●	●					
		LXGU150924-MM	15.00	15.30	9.5	2.4	●	●	●					
		LXGU150930-MM	15.00	15.20	9.5	3.0	●	●	●					
		LXGU150932-MM	15.00	15.10	9.5	3.2	●	●	●					
		LXGU150940-MM	15.00	14.90	9.5	4.0	●	●	●					
		LXGU150950-MM	15.00	14.70	9.5	5.0	●	●	●					

LXGU150940-MM and LXGU150950-MM inserts are for special cutter bodies only and do not fit standard versions.

TLXFD/SD SERIES

TLX SlotMill Series is an economical slot milling line for improved surface finish in slotting, face milling, and back-face milling.

Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Grade	Cutting Speed Vc (m/min)	Feed fz (mm/t)
P	Low Carbon Steel	≤HB180	TT650	90-180	0.13-0.40
	High Carbon and Alloy Steel	HB180-280		90-180	0.13-0.40
	Alloy Steel	HB280-350		90-180	0.13-0.40
M	Stainless Steel	≤HB200		90-200	0.13-0.40
K	Gray Cast Iron	HB150-250	TY720	100-200	0.10-0.25
	Ductile Cast Iron	HB150-250		80-150	0.10-0.20
S	Superalloys	-	TS820	20-35	0.07-0.16

Reduces Tool Changeover Times Drastically
Highly Accurate Deep Cavity Die Processing.

Extend the processing depth, improve the surface quality of the processing,realize ultra-long deepcavity processing,and cooperate with the cemented carbide toolholder to ensure excellent rigidity and shock absorption.

Modular Indexable Endmill

TP Series

ABPF Series

BAPM Series

EMRM Series

MFH03 Series

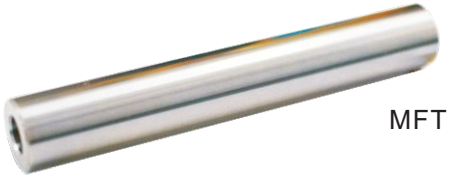
Modular Endmill:

HHD Series

HSB Series

HRTA Series

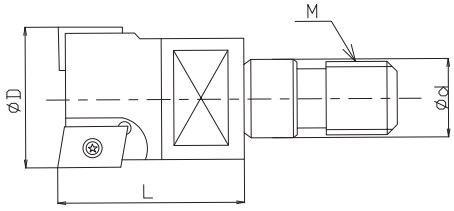
Tungsten Anti-Vibration Milling Holder



MFT Series

MODULAR BAPM SERIES

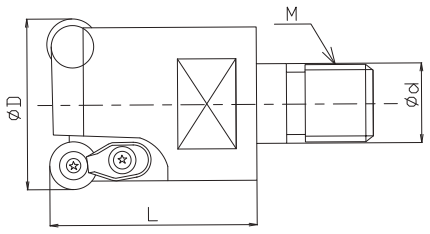
BAPM Square Shoulder Series Screwed End Mill



Designation	Size(mm)					Insert	Clamping Screw	Wrench
	D	L	d	M	Z			
BAPM-16-M8-2T-11	16	25	8.5	M8	2	APMT1135	TT1011	TTP11
BAPM-17-M8-2T-11	17	25	8.5	M8	2	APMT1135		
BAPM-20-M10-2T-11	20	27	10.5	M10	2	APMT1135		
BAPM-21-M10-2T-11	21	27	10.5	M10	2	APMT1135		
BAPM-22-M10-3T-11	22	29	10.5	M10	3	APMT1135		
BAPM-25-M12-3T-11	25	29	12.5	M12	3	APMT1135		
BAPM-26-M12-3T-11	26	29	12.5	M12	3	APMT1135		
BAPM-28-M12-4T-11	28	31.5	12.5	M12	4	APMT1135		
BAPM-30-M16-4T-11	30	30	16.5	M16	4	APMT1135		
BAPM-32-M16-4T-11	32	33	16.5	M16	4	APMT1135		
BAPM-35-M16-4T-11	35	34	16.5	M16	4	APMT1135		
BAPM-40-M16-4T-11	40	37	16.5	M16	4	APMT1135		
BAPM-25-M12-2T-16	25	35	12.5	M12	2	APMT1604	TT1016	TTP16
BAPM-26-M12-2T-16	26	35	12.5	M12	2	APMT1604		
BAPM-30-M16-3T-16	30	39	16.5	M16	3	APMT1604		
BAPM-32-M16-3T-16	32	39	16.5	M16	3	APMT1604		
BAPM-35-M16-3T-16	35	42	16.5	M16	3	APMT1604		
BAPM-40-M16-4T-16	40	43	16.5	M16	4	APMT1604		

MODULAR EMRM SERIES

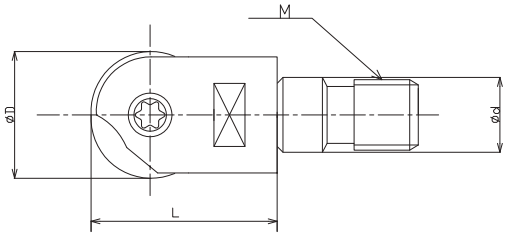
EMRM Round Nose Series Screwed End Mill



Designation	Size(mm)					Insert	Clamping Screw	Wrench
	D	L	d	M	Z			
EMRM-4R16-M8-2T	16	25	8.5	M8	2	RPMT08T2	TT1008	TTP08
EMRM-4R17-M8-2T	17	25	8.5	M8	2	RPMT08T2		
EMRM-4R20-M10-2T	20	27	10.5	M10	2	RPMT08T2		
EMRM-4R21-M10-2T	21	27	10.5	M10	2	RPMT08T2		
EMRM-4R25-M12-3T	25	29	12.5	M12	3	RPMT08T2		
EMRM-4R26-M12-3T	26	29	12.5	M12	3	RPMT08T2		
EMRM-4R30-M16-4T	30	31	16.5	M16	4	RPMT08T2		
EMRM-4R32-M16-4T	32	32	16.5	M16	4	RPMT08T2		
EMRM-4R35-M16-4T	35	34	16.5	M16	4	RPMT08T2		
EMRM-4R40-M16-5T	40	34	16.5	M16	5	RPMT08T2		
EMRM-5R25-M12-2T	25	32	12.5	M12	2	RPMW1003	TT1011	TTP10
EMRM-5R26-M12-2T	26	32	12.5	M12	2	RPMW1003		
EMRM-5R30-M16-2T	30	35	16.5	M16	2	RPMW1003		
EMRM-5R32-M16-3T	32	35	16.5	M16	3	RPMW1003		
EMRM-5R35-M16-3T	35	37	16.5	M16	3	RPMW1003		
EMRM-5R40-M16-4T	40	39	16.5	M16	4	RPMW1003		
EMRM-6R25-M12-2T	25	34	12.5	M12	2	RPMT1204	TT1012	TRP12
EMRM-6R26-M12-2T	26	35	12.5	M12	2	RPMT1204		
EMRM-6R30-M16-2T	30	36	16.5	M16	2	RPMT1204		
EMRM-6R32-M16-2T	32	36	16.5	M16	2	RPMT1204		
EMRM-6R35-M16-3T	35	38	16.5	M16	3	RPMT1204		
EMRM-6R40-M16-3T	40	38	16.5	M16	3	RPMT1204		

MODULAR ABPF SERIES

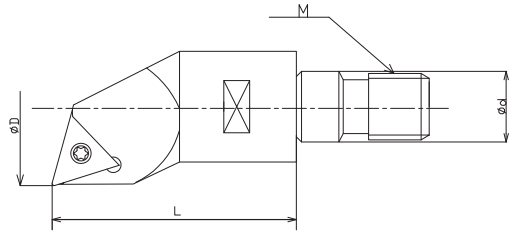
ABPF Ball Precision Series Screwed End Mill



Designation	Size(mm)					Insert	Clamping Screw	Wrench
	D	L	d	M	Z			
ABPF-10-M5	10	20	5.5	M5	1	SP1W100	ABPF-5R	T10
ABPF-12-M6	12	20	6.5	M6	1	SP1W120	ABPF-6R	T20
ABPF-16-M8	16	25	8.5	M8	1	SP1W160	ABPF-8R	T20
ABPF-20-M10	20	30	10.5	M10	1	SP1W200	ABPF-10R	T20
ABPF-25-M12	25	35	12.5	M12	1	SP1W250	ABPF-12.5R	T25
ABPF-30-M16	30	40	17	M16	1	SP1W300	ABPF-15R	T30

MODULAR TP SERIES

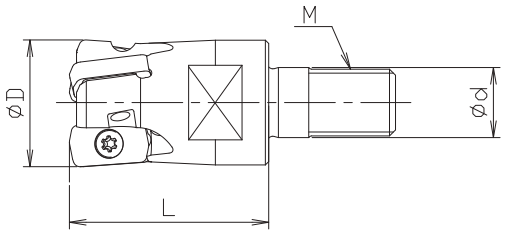
TP Boring Head Series Screwed End Mill



Designation	Size(mm)					Insert	Clamping Screw	Wrench
	D	L	d	M	Z			
TP0802-9-M4	9	15	4.5	M4	1	TP..0802	ST2.2	T6
TP0802-10.5-M4	10.5	15	4.5	M4	1			
TP0802-12-M5	12	20	5.5	M5	1			
TP0802-14-M6	14	20	6.5	M6	1			
TP0802-16-M8	16	25	8.5	M8	1			
TP0802-18-M8	18	25	8.5	M8	1			
TP0802-20-M8	20	25	8.5	M8	1			
TP0802-22-M8	22	25	8.5	M8	1			

MODULAR MFH03 SERIES

MFH03 High-Feed Series Screwed End Mill



Designation	Size(mm)					Insert	Clamping Screw	Wrench
	D	L	d	M	Z			
MFH03-2T16-M08	16	30	8.5	M8	2	LOGU030310	TT0303	TTP03
MFH03-2T17-M08	17	30	8.5	M8	2			
MFH03-3T20-M10	20	30	10.5	M10	3			
MFH03-3T21-M10	21	30	10.5	M10	3			
MFH03-4T25-M12	25	35	12.5	M12	4			
MFH03-4T26-M12	26	35	12.5	M12	4			
MFH03-5T32-M16	32	40	16.5	M16	5			
MFH03-5T33-M16	33	40	16.5	M16	5			
MFH03-5T35-M16	35	40	16.5	M16	5			
MFH03-6T40-M16	40	40	16.5	M16	6			

End Mills with Exchangeable Heads

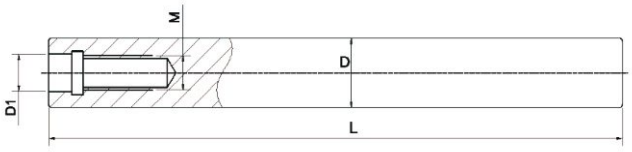
For Alloy Steel,Stainless Steel,Cast Iron,Hardened Steel (≤HRC60)

Square	Designation	Size(mm)				
		Diameter	Flute Length	Neck Diameter	Thread Size	Z
	HHD0804	8	8	7.7	M4	4
	HHD1004	10	10	9.7	M5	4
	HHD1204	12	12	11.7	M6	4
	HHD1604	16	16	15.7	M8	4
	HHD2004	20	20	19.5	M10	4
	HHD2504	25	25	24.5	M12	4

Ball Nose	Designation	Size(mm)				
		Radius	Flute Length	Neck Diameter	Thread Size	Z
	HSB1002	R5.0	10	9.7	M5	2
	HSB1202	R6.0	12	11.7	M6	2
	HSB1602	R8.0	16	15.7	M8	2
	HSB2002	R10.0	20	19.5	M10	2
	HSB2502	R12.5	25	24.5	M12	2
	HSB1004	R5.0	10	9.7	M5	4
	HSB1204	R6.0	12	11.7	M6	4
	HSB1604	R8.0	16	15.7	M8	4
	HSB2004	R10.0	20	19.5	M10	4
	HSB2504	R12.5	25	24.5	M12	4

Corner Radius	Designation	Size(mm)				
		Diameter xCorner R	Flute Length	Neck Diameter	Thread Size	Z
	HRTA080054	8x0.5R	8	7.7	M4	4
	HRTA080104	8x1R	8	7.7	M4	4
	HRTA100054	10x0.5R	10	9.7	M5	4
	HRTA100104	10x1R	10	9.7	M5	4
	HRTA100204	10x2R	10	9.7	M5	4
	HRTA120054	12x0.5R	12	11.7	M6	4
	HRTA120104	12x1R	12	11.7	M6	4
	HRTA120204	12x2R	12	11.7	M6	4
	HRTA160104	16x1R	16	15.7	M8	4
	HRTA160204	16x2R	16	15.7	M8	4
	HRTA200104	20x1R	20	19.5	M10	4
	HRTA200204	20x2R	20	19.5	M10	4
	HRTA250104	25x1R	25	24.5	M12	4
	HRTA250204	25x2R	25	24.5	M12	4

Tungsten Anti-Vibration Milling Arbor



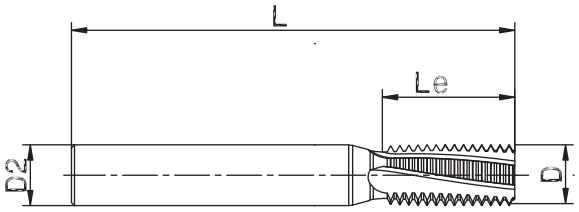
Designation	Size(mm)				
	Model	L	D1	D	M
MFT-08-100-M4	Φ8mm*100L*M4	100	4.5	10	M4
MFT-08-150-M4	Φ8mm*150L*M4	150	4.5	10	M4
MFT-10-100-M5	Φ10mm*100L*M5	100	5.5	10	M5
MFT-10-150-M5	Φ10mm*150L*M5	150	5.5	10	M5
MFT-12-100-M6	Φ12mm*100L*M6	100	6.5	12	M6
MFT-12-150-M6	Φ12mm*150L*M6	150	6.5	12	M6
MFT-12-200-M6	Φ12mm*200L*M6	200	6.5	12	M6
MFT-16-100-M8	Φ16mm*100L*M8	100	8.5	16	M8
MFT-16-150-M8	Φ16mm*150L*M8	150	8.5	16	M8
MFT-16-200-M8	Φ16mm*200L*M8	200	8.5	16	M8
MFT-16-250-M8	Φ16mm*250L*M8	250	8.5	16	M8
MFT-20-100-M10	Φ20mm*100L*M10	100	10.5	20	M10
MFT-20-150-M10	Φ20mm*150L*M10	150	10.5	20	M10
MFT-20-200-M10	Φ20mm*200L*M10	200	10.5	20	M10
MFT-20-250-M10	Φ20mm*250L*M10	250	10.5	20	M10
MFT-20-300-M10	Φ20mm*300L*M10	300	10.5	20	M10
MFT-25-100-M12	Φ25mm*100L*M12	100	12.5	25	M12
MFT-25-150-M12	Φ25mm*150L*M12	150	12.5	25	M12
MFT-25-200-M12	Φ25mm*200L*M12	200	12.5	25	M12
MFT-25-250-M12	Φ25mm*250L*M12	250	12.5	25	M12
MFT-25-300-M12	Φ25mm*300L*M12	300	12.5	25	M12
MFT-32-150-M16	Φ32mm*150L*M16	150	17.0	32	M16
MFT-32-200-M16	Φ32mm*200L*M16	200	17.0	32	M16
MFT-32-250-M16	Φ32mm*250L*M16	250	17.0	32	M16
MFT-32-300-M16	Φ32mm*300L*M16	300	17.0	32	M16
MFT-32-350-M16	Φ32mm*350L*M16	350	17.0	32	M16

Part 3

Thread Tools

DIRECTORY

T Solid Carbide Thread End Mills (ISO Metric Profile)



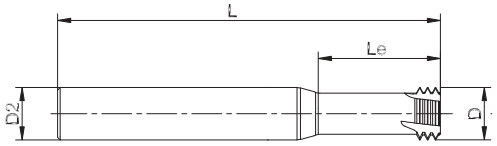
Apmax≤2xDo (Do=Nominal Diameter)

Unit : mm

Order No.	Pitch	Thread Size		Dimension（mm）				Drill Hole Diameter	Flutes
		M	MF	D	Le	L	D2		
D2.3X6XD4X50-FT	0.50	M3X0.5	-	2.3	6	50	4	2.50	4
D4.2X10XD6X50-FT		-	M5X0.5	4.2	10	50	6	4.50	4
D3.1X8XD4X50-FT	0.70	M4X0.7		3.1	8	50	4	3.30	4
D5X12XD6X50-FT	0.75	-	M6X0.75	5.0	12	50	6	5.25	4
D6.5X16XD8X60-FT		-	M8X0.75	6.5	16	60	8	7.25	6
D3.9X10XD6X50-FT	0.80	M5X0.8	-	3.9	10	50	6	4.20	4
D4.6X12XD6X50-FT	1.00	M6X1.0	-	4.6	12	50	6	5.00	4
D6.5X16XD8X60-FT		-	M8X1.0	6.5	16	60	8	7.00	6
D8.5X20XD10X75-FT		-	M10X1.0	8.5	20	75	10	9.00	6
D10X24XD10X75-FT		-	M12X1.0	10.0	24	75	10	11.00	6
D6.5X16XD8X60-FT	1.25	M8X1.25	-	6.5	16	60	8	6.75	6
D8.2X20XD10X75-FT		-	M10X1.25	8.2	20	75	10	10.75	6
D10X24XD10X75-FT		-	M12X1.25	10.0	24	75	10	10.75	6
D8.2X20XD10X75-FT	1.50	M10X1.5		8.2	20	75	10	8.50	6
D10X24XD10X75-FT		-	M12X1.5	10.0	24	75	10	10.50	6
D12X28XD12X50-FT		-	M14X1.5	12.0	28	75	12	12.50	6
D14X32XD14X80-FT		-	M16X1.5	14.0	32	80	14	14.50	6
D9.9X24XD10X75-FT	1.75	M12X1.75	-	9.9	24	75	10	10.20	6
D11.6X28XD12X75-FT	2.00	M14X2.0	-	11.6	28	75	12	12.00	6
D13.6X32XD14X80-FT	2.00	M16X2.0	-	13.6	32	80	14	14.00	6
D16X40XD16X100-FT	2.50	M20X2.5	-	16.0	40	100	16	17.50	6

Ordering Example:D2.3x6xD4x50-FT
M3x0.5-ISO

T 3 Pitch Typed Solid Carbide Thread End Mills (ISO Metric Profile)

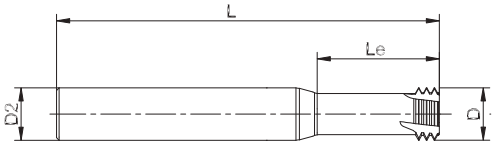


Apmax≤2xDo (Do=Nominal Diameter)

Order No.	Pitch	Thread Size		Dimension (mm)					Drill Hole Diameter	Flutes
		M	MF	D	Le	L1	L	D2		
D0.7X2.2XD4X50-3T	0.25	M1.0X0.25	-	0.70	0.75	2.2	50	4	0.75	3
D0.9X2.6XD4X50-3T		M1.2X0.25	-	0.90	0.75	2.6	50	4	0.95	3
D1.05X3.0XD4X50-3T	0.3	M1.4X0.3	-	1.05	0.90	3.0	50	4	1.10	3
D1.15X3.4XD4X50-3T	0.35	M1.6X0.35	-	1.15	1.05	3.4	50	4	1.25	3
D1.45X4.5XD4X50-3T	0.4	M2X0.4	-	1.45	1.20	4.5	50	4	1.60	4
D1.9X5.5XD4X50-3T	0.45	M2.5X0.45	-	1.90	1.35	5.5	50	4	2.05	4
D2.35X6.5XD4X50-3T	0.5	M3X0.5	-	2.35	1.50	6.5	50	4	2.50	4
D3.15X8.5XD4X50-3T	0.7	M4X0.7	-	3.15	2.10	8.5	50	4	3.30	4
D4.0X10.5XD6X50-3T	0.8	M5X0.8	-	4.00	2.40	10.5	50	6	4.20	4
D4.8X12.5XD6X50-3T	1	M6X1.0	-	4.80	3.00	12.5	50	6	5.00	4
D6.5X16.5XD8X60-3T	1.25	M8X1.25	-	6.50	3.75	16.5	60	8	6.75	6
D8.2X21XD10X75-3T	1.5	M10X1.5	-	8.20	4.50	21.0	75	10	8.50	6
D9.9X25XD10X75-3T	1.75	M12X1.75	-	9.90	5.25	25.0	75	10	10.20	6
D11.6X29XD12X75-3T	2	M14X2.0	-	11.60	6.00	29.0	75	12	12.00	6
D13.6X33XD14X80-3T		M16X2.0	-	13.60	6.00	33.0	80	14	14.00	6
D14X37XD14X80-3T	2.5	M18X2.5	-	14.00	7.50	37.0	80	14	15.50	6
D16X41XD16X100-3T		M20X2.5	-	16.00	7.50	41.0	100	16	17.50	6

Ordering Example:D2.35x6.5xD4x50-3T
M3x0.5-ISO-2D

T 3 Pitch Typed Solid Carbide Thread End Mills (ISO Metric Profile)

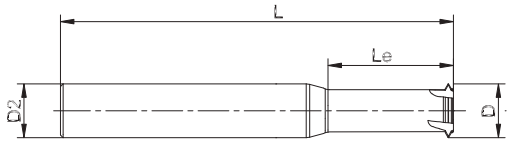


Apmax≤3xDo (Do=Nominal Diameter)

Order No.	Pitch	Thread Size		Dimension（mm）					Drill Hole Diameter	Flutes
		M	MF	D	Le	L1	L	D2		
D0.7X3.0XD4X50-3T	0.25	M1.0X0.25	-	0.70	0.75	3.0	50	4	0.75	3
D0.9X3.6XD4X50-3T		M1.2X0.25	-	0.90	0.75	3.6	50	4	0.95	3
D1.05X4.2XD4X50-3T	0.3	M1.4X0.3	-	1.05	0.90	4.2	50	4	1.10	3
D1.15X4.8XD4X50-3T	0.35	M1.6X0.35	-	1.15	1.05	4.8	50	4	1.25	3
D1.45X6XD4X50-3T	0.4	M2X0.4	-	1.45	1.20	6.0	50	4	1.60	4
D1.9X7.5XD4X50-3T	0.45	M2.5X0.45	-	1.90	1.35	7.5	50	4	2.05	4
D2.35X9XD4X50-3T	0.5	M3X0.5	-	2.35	1.50	9.0	50	4	2.50	4
D3.15X12XD4X50-3T	0.7	M4X0.7	-	3.15	2.10	12.0	50	4	3.30	4
D4.0X15XD6X50-3T	0.8	M5X0.8	-	4.00	2.40	15.0	50	6	4.20	4
D4.8X18XD6X50-3T	1	M6X1.0	-	4.80	3.00	18.0	50	6	5.00	4
D6.5X24XD8X60-3T	1.25	M8X1.25	-	6.50	3.75	24.0	60	8	6.75	6
D8.2X30XD10X75-3T	1.5	M10X1.5	-	8.20	4.50	30.0	75	10	8.50	6
D9.9X36XD10X75-3T	1.75	M12X1.75	-	9.90	5.25	36.0	75	10	10.20	6
D11.6X36XD12X75-3T	2	M14X2.0	-	11.60	6.00	36.0	75	12	12.00	6
D13.6X40XD14X80-3T		M16X2.0	-	13.60	6.00	40.0	80	14	14.00	6
D14X54XD14X100-3T	2.5	M18X2.5	-	14.00	7.50	54.0	100	14	15.50	6
D16X60XD16X100-3T		M20X2.5	-	16.00	7.50	60.0	100	16	17.50	6

Ordering Example:D2.35x9xD4x50-3T
M3x0.5-ISO-3D

T Single Pitch Typed Solid Carbide Thread End Mills (ISO Metric Profile)

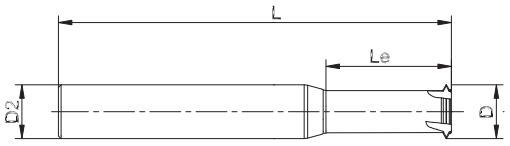


Apmax≤2xDo (Do=Nominal Diameter)

Order No.	Pitch	Thread Size		Dimension（mm）				Drill Hole Diameter	Flutes
		M	MF	D	L1	L	D2		
D0.7X2.2XD4X50-1T	0.25	M1.0X0.25	-	0.70	2.2	50	4	0.75	3
D0.9X2.6XD4X50-1T		M1.2X0.25	-	0.90	2.6	50	4	0.95	3
D1.05X3.0XD4X50-1T	0.3	M1.4X0.3	-	1.05	3.0	50	4	1.10	3
D1.15X3.4XD4X50-1T	0.35	M1.6X0.35	-	1.15	3.4	50	4	1.25	3
D1.45X4.5XD4X50-1T	0.4	M2X0.4	-	1.45	4.5	50	4	1.60	4
D1.9X5.5XD4X50-1T	0.45	M2.5X0.45	-	1.90	5.5	50	4	2.05	4
D2.35X6.5XD4X50-1T	0.5	M3X0.5	-	2.35	6.5	50	4	2.50	4
D3.15X8.5XD4X50-1T	0.7	M4X0.7	-	3.15	8.5	50	4	3.30	4
D4.0X10.5XD6X50-1T	0.8	M5X0.8	-	4.00	10.5	50	6	4.20	4
D4.8X12.5XD6X50-1T	1	M6X1.0	-	4.80	12.5	50	6	5.00	4
D6.5X16.5XD8X60-1T	1.25	M8X 1.25	-	6.50	16.5	60	8	6.75	6
D8.2X21XD10X75-1T	1.5	M10X1.5	-	8.20	21.0	75	10	8.50	6
D9.9X25XD10X75-1T	1.75	M12X1.75	-	9.90	25.0	75	10	10.20	6
D11.6X29XD12X75-1T	2	M14X2.0	-	11.60	29.0	75	12	12.00	6
D13.6X33XD14X80-1T		M16X2.0	-	13.60	33.0	80	14	14.00	6
D14X37XD14X80-1T	2.5	M18X2.5	-	14.00	37.0	80	14	15.50	6
D16X41XD16X100-1T		M20X2.5	-	16.00	41.0	100	16	17.50	6

Ordering Example:D2.35x6.5xD4x50-1T
M3x0.5-ISO-2D

T Single Pitch Typed Solid Carbide Thread End Mills (ISO Metric Profile)

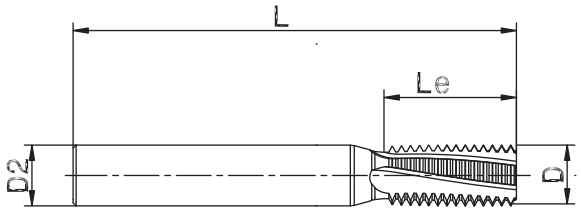


Apmax≤3xDo (Do=Nominal Diameter)

Order No.	Pitch	Thread Size		Dimension（mm）				Drill Hole Diameter	Flutes
		M	MF	D	L1	L	D2		
D0.7X3.0XD4X50-1T	0.25	M1.0X0.25	-	0.70	3.0	50	4	0.75	3
D0.85X3.6XD4X50-1T		M1.2X0.25	-	0.85	3.6	50	4	0.95	3
D1.05X4.2XD4X50-1T	0.3	M1.4X0.3	-	1.05	4.2	50	4	1.10	3
D1.15X4.8XD4X50-1T	0.35	M1.6X0.35	-	1.15	4.8	50	4	1.25	3
D1.45X6XD4X50-1T	0.4	M2X0.4	-	1.45	6.0	50	4	1.60	4
D1.9X7.5XD4X50-1T	0.45	M2.5X0.45	-	1.90	7.5	50	4	2.05	4
D2.35X9XD4X50-1T	0.5	M3X0.5	-	2.35	9.0	50	4	2.50	4
D3.15X12XD4X50-1T	0.7	M4X0.7	-	3.15	12.0	50	4	3.30	4
D4.0X15XD6X50-1T	0.8	M5X0.8	-	4.00	15.0	50	6	4.20	4
D4.8X18XD6X50-1T	1	M6X1.0	-	4.80	18.0	50	6	5.00	4
D6.5X24XD8X60-1T	1.25	M8X1.25	-	6.50	24.0	60	8	6.75	6
D8.2X30XD10X75-1T	1.5	M10X1.5	-	8.20	30.0	75	10	8.50	6
D9.9X36XD10X75-1T	1.75	M12X1.75	-	9.90	36.0	75	10	10.20	6
D11.6X36XD12X75-1T	2	M14X2.0	-	11.60	36.0	75	12	12.00	6
D13.6X40XD14X80-1T		M16X2.0	-	13.60	40.0	80	14	14.00	6
D14X54XD14X100-1T	2.5	M18X2.5	-	14.00	54.0	100	14	15.50	6
D16X60XD16X100-1T		M20X2.5	-	16.00	60.0	100	16	17.50	6

Ordering Example:D2.35x9xD4x50-1T
M3x0.5-ISO-3D

T Solid Carbide Thread End Mills (UN Profile)

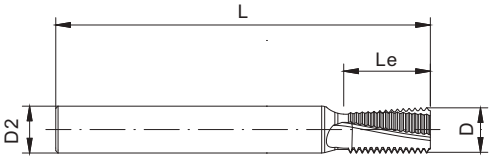


Apmax≤2xDo (Do=Nominal Diameter)

Order No.	Tip	Thread Size		Dimension（mm）				Drill Hole Diameter	Flutes
		UNC	UNF	D	Le	L	D2		
D3.2X8.5XD4X50-FT	36	-	No.8-36	3.2	8.5	50	4	3.5	4
D3.8X11.1XD4X50-FT	32	-	No.10-32	3.8	11.1	50	4	4.0	4
D4.2X11.8XD4X50-FT	28	-	No.12-28	4.2	11.8	50	6	4.6	4
D5.2X12.7XD6X50-FT		-	1/4″ -28	5.2	12.7	50	6	5.5	4
D3.5X10.6XD4X50-FT	24	No.10-24	-	3.5	10.6	50	4	3.8	4
D4.2X11.6XD6X50-FT		No.12-24	-	4.2	11.6	50	6	4.5	4
D6.5X15.9XD8X60-FT		-	5/16″ -24	6.5	15.9	60	8	6.8	6
D8.2X19.1XD10X75-FT		-	3/8″ -24	8.2	19.1	75	10	8.5	6
D4.8X12.7XD6X50-FT	20	1/4″ -20	-	4.8	12.7	50	6	5.2	4
D9.5X22.9XD10X75-FT		-	7/16″ -20	9.5	22.9	75	10	9.8	6
D10X25.4XD10X75-FT		-	1/2″ -20	10.0	25.4	75	10	11.5	6
D6.2X16.9XD8X60-FT	18	5/16″ -18	-	6.2	16.9	60	8	6.5	6
D12X29.6XD12X75-FT		-	9/16″ -18	12.0	29.6	75	12	12.8	6
D14X32.5XD14X80-FT		-	5/8″ -18	14.0	32.5	80	14	14.5	6
D7.7X19.1XD8X60-FT	16	3/8″ -16	-	7.7	19.1	60	8	8.0	6
D9X23.6XD10X75-FT	14	7/16″ -14	-	9.0	23.6	75	10	9.3	6
D10X25.4XD10X75-FT	13	1/2″ -13	-	10.0	25.4	75	10	10.8	6
D12X29.6XD12X75-FT	12	9/16″ -12	-	12.0	29.6	75	12	12.3	6
D12X32.3XD12X75-FT	11	5/8″ -11	-	12.0	32.3	75	12	13.5	6

Ordering Example:D6.5x15.9xD8x60-FT
5/16"-24-UNF

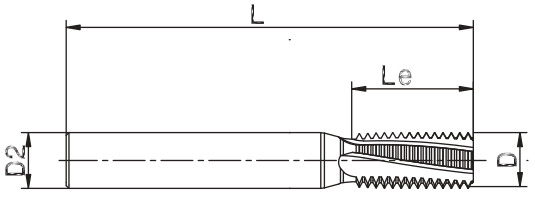
Solid Carbide Thread End Mills (NPT Profile)



Order No.	Tip	Thread Size	Dimension (mm)				Drill Hole Diameter	Flutes
		NPT	D	Le	L	D2		
D5.3X9.4XD6X50-FT	27	1/16″ -27	5.3	9.4	50	6	6.3	4
D7.3X9.4XD8X60-FT		1/8″ -27	7.3	9.4	60	8	8.5	4
D9X14.1XD10X75-FT	18	1/4″ -18	9.0	14.1	75	10	11.1	6
D11X14.1XD12X75-FT		3/8″ -18	11.0	14.1	75	12	14.5	6
D14.3X25.4XD16X100-FT	14	1/2″ -14	14.3	25.4	100	16	17.7	6
		3/4″ -14	14.3	25.4	100	16	23.0	6
D13.9X33.1XD16X100-FT	11.5	1″ -11.5	13.9	33.1	100	16	29.0	6

Ordering Example:D5.3x9.4xD6x50-FT
1/16"-27-NPT

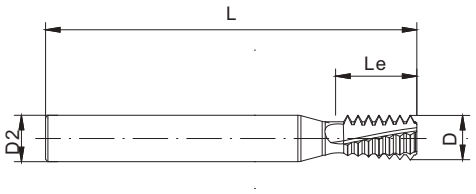
Solid Carbide Thread End Mills (G Profile)



Order.No	Tip	Thread Size	Dimension (mm)				Drill Hole Diameter	Flutes
		G	D2	Le	L	D		
D6X16XD6X50-FT	28	1/16″ -28	6.0	16	50	6	6.7	3～4
D8X20XD8X60-FT		1/8″ -28	8.0	20	60	8	8.7	3～4
D10X26.7XD10X75-FT	19	1/4″ -19	10.0	26.7	75	10	11.8	4～6
D14X33.4XD14X80-FT		3/8″ -19	14.0	33.4	80	14	15.2	4～6
D16X43.5XD16X100-FT	14	1/2″ -14	16.0	43.5	100	16	19.0	4～6
		3/4″ -14	16.0	43.5	100	16	19.0	4～6

Ordering Example:D6x16xD6x50-FT
G1/16"-28

T Solid Carbide Thread End Mills (Rc Profile)



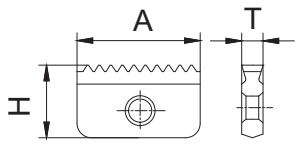
Order No.	Tip	Thread Size	Dimension（mm）				Drill Hole Diameter	Flutes
		Rc	D	Le	L	D2		
D4.9X16.3XD6X50-FT	28	1/16″ -28	4.9	16.3	50	6	6.7	3～4
D6.7X20XD8X60-FT		1/8″ -28	6.7	20	60	8	8.7	3～4
D8.3X26.7XD10X75-FT	19	1/4″ -19	8.3	26.7	75	10	11.8	4～6
D11.9X33.4XD14X80-FT		3/8″ -19	11.9	33.4	80	14	15.2	4～6
D13.2X43.5XD16X100-FT	14	1/2″ -14	13.2	43.5	100	16	19.0	4～6
		3/4″ -14	13.2	43.5	100	16	19.0	4～6

Ordering Example:D4.9x16.3xD6x50-FT
RC1/16-28-BSPT

T Thread Milling Inserts

Model	A (mm)	H (mm)	T (mm)
12N**	12	6	2.38
14**	14	7.5	3.1
21**	21	12	4.7
30**	30	16	5.5
40**	40	20	6.3

Material Recommended	Grade	TG4215
	Steel	P ●
	Stainless	M ●
	Cast Iron	K ●



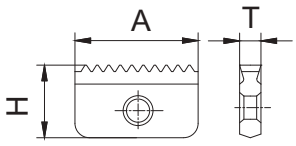
Insert	Internal Insert		External Insert		Pitch	Insert Toolholdre
	Designation	Grade TG4215	Designation	Grade TG4215		
	12N0.5ISO	●			0.50	SR0010H12
	12N0.75ISO	●			0.75	
	12N1.0ISO	●			1.00	
	12N1.25ISO	●			1.25	
	12N1.5ISO	●			1.50	
	14N0.5ISO	●	14E0.5ISO	●	0.50	SR0012F14 SR0014H14 SR0017H14 SR0020G14-2 SR0020J14-2
	14N0.75ISO	●	14E0.75ISO	●	0.75	
	14N1.0ISO	●	14E1.0ISO	●	1.00	
	14N1.25ISO	●	14E1.25ISO	●	1.25	
	14N1.5ISO	●	14E1.5ISO	●	1.50	
	14N2.0ISO	●	14E2.0ISO	●	2.00	
	14N2.5ISO	●	14E2.5ISO	●	2.50	
	21N1.0ISO	●	21E1.0ISO	●	1.00	SR0018H21 SR0021H21 SR0025K21 SR0030J21-2 SR0030L21-2 SR0063C21-5
	21N1.5ISO	●	21E1.5ISO	○	1.50	
	21N1.75ISO	●	21E1.75ISO	●	1.75	
	21N2.0ISO	●	21E2.0ISO	●	2.00	
	21N2.5ISO	●	21E2.5ISO	●	2.50	
	21N3.0ISO	●	21E3.0ISO	●	3.00	
	21N3.5ISO	●			3.50	
	30N1.5ISO	●	30E1.5ISO	●	1.50	SR0029J30 SR0031M30 SR0038M30 SR0040L30-2 SR0040P30-2 SR0063C30-4 SR0080D30-4 SR0100D30-4
	30N2.0ISO	●	30E2.0ISO	●	2.00	
	30N2.5ISO	●	30E2.5ISO	●	2.50	
	30N3.0ISO	●	30E3.0ISO	●	3.00	
	30N3.5ISO	●	30E3.5ISO	○	3.50	
	30N4.0ISO	●	30E4.0ISO	○	4.00	
	30N4.5ISO	●			4.50	
	30N5.0ISO	●			5.00	
	40N1.5ISO	●	40E1.5ISO	○	1.50	SR0048M40 SR0038Q40 SR0048R40 SR0050M40-2 SR0080D40-4 SR0100E40-4
	40N2.0ISO	●	40E2.0ISO	○	2.00	
	40N3.0ISO	●			3.00	
	40N3.5ISO	●			3.50	
	40N4.0ISO	●			4.00	
	40N4.5ISO	●			4.50	
	40N5.0ISO	●			5.00	
	40N5.5ISO	●			5.50	
	40N6.0ISO	●			6.00	

T Thread Milling Inserts

Model	A (mm)	H (mm)	T (mm)
12N**	12	6	2.38
14**	14	7.5	3.1
21**	21	12	4.7
30**	30	16	5.5
40**	40	20	6.3

Material Recommended

Grade	TG4215	
Steel	P	●
Stainless	M	●
Cast Iron	K	●

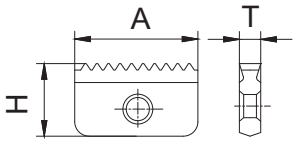


Insert	Internal Insert		External Insert		Tip	Insert Toolholdre
	Designation	Grade TG4215	Designation	Grade TG4215		
	14N32UN	○			32.0	SR0012F14 SR0014H14 SR0017H14 SR0020G14-2 SR0020J14-2
	14N28UN	○			28.0	
	14N27UN	○			27.0	
	14N24UN	●	14E24UN	○	24.0	
	14N20UN	●	14E20UN	○	20.0	
	14N18UN	●	14E18UN	○	18.0	
	14N16UN	●	14E16UN	○	16.0	
	14N14UN	●	14E14UN	○	14.0	
	14N12UN	●	14E12UN	○	12.0	
	14N11UN	○			11.0	
	14N10UN	○			10.0	
	21N24UN	●	21E24UN	○	24.0	SR0018H21 SR0021H21 SR0025K21 SR0030J21-2 SR0030L21-2 SR0063C21-5
	21N20UN	●	21E20UN	○	20.0	
	21N18UN	●	21E18UN	○	18.0	
	21N16UN	●	21E16UN	○	16.0	
	21N14UN	●	21E14UN	○	14.0	
	21N12UN	●	21E12UN	○	12.0	
	21N10UN	●	21E10UN	○	10.0	
	21N8UN	●			8.0	
	21N7UN	●			7.0	
	30N20UN	○	30E20UN	○	20.0	SR0029J30 SR0031M30 SR0038M30 SR0040L30-2 SR0040P30-2 SR0063C30-4 SR0080D30-4 SR0100D30-4
	30N18UN	○	30E18UN	○	18.0	
	30N16UN	○	30E16UN	○	16.0	
	30N14UN	○	30E14UN	○	14.0	
	30N12UN	○	30E12UN	○	12.0	
	30N10UN	○	30E10UN	○	10.0	
	30N8UN	●	30E8UN	○	8.0	
	30N6UN	○	30E6UN	○	6.0	
	30N5UN	○	30E5UN	○	5.0	
	40N16UN	○	40E16UN	○	16.0	SR0048M40 SR0038Q40 SR0048R40 SR0050M40-2 SR0080D40-4 SR0100E40-4
	40N14UN	○	40E14UN	○	14.0	
	40N12UN	○	40E12UN	○	12.0	
	40N10UN	○	40E10UN	○	10.0	
	40N8UN	●	40E8UN	○	8.0	
	40N6UN	○	40E6UN	○	6.0	
	40N4.5UN	○			4.5	
	40N4UN	○			4.0	

T Thread Milling Inserts

Model	A (mm)	H (mm)	T (mm)
12N**	12	6	2.38
14**	14	7.5	3.1
21**	21	12	4.7
30**	30	16	5.5
40**	40	20	6.3

Material Recommended	Grade	TG4215
	Steel	P ●
	Stainless	M ●
	Cast Iron	K ●



Insert	Internal Insert		External Insert		Tip	Insert Toolholdre
	Designation	Grade TG4215	Designation	Grade TG4215		
	14-24W	●	14-24W	●	24	SR00**14 SR0020*14-2
	14-20W	●	14-20W	●	20	
	14-19W	●	14-19W	●	19	
	14-16W	●	14-16W	●	16	
	14-14W	●	14-14W	●	14	
	14-11W	●	14-11W	●	11	
	21-20W	○	21-20W	○	20	SR00**21 SR0030*21-2 SR0063C21-5
	21-19W	●	21-19W	●	19	
	21-16W	●	21-16W	●	16	
	21-14W	●	21-14W	●	14	
	21-11W	●	21-11W	●	11	
	30-16W	○	30-16W	○	16	SR00*30 SR0040*30-2 SR0***30-4
	30-14W	○	30-14W	○	14	
	30-11W	●	30-11W	●	11	

T Threading Holders (Single Insert)

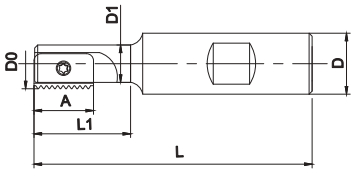


Fig.1

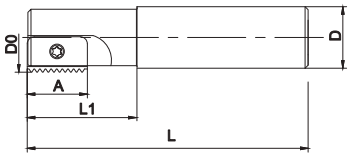
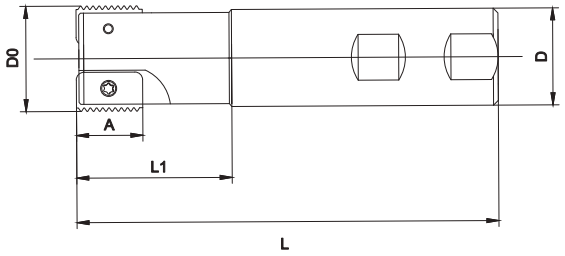


Fig.2

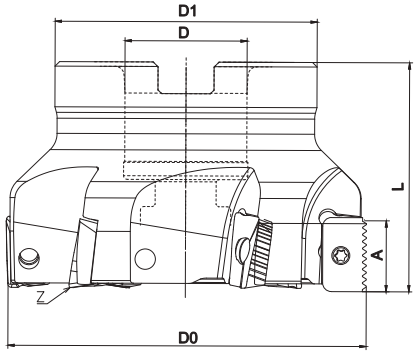
Toolholder Type		Insert Type	Dimensions (mm)						Insert Screw	TorX Key
			D0	L1	D	D1	L	A		
SR0010H12	Fig.1	12N..	9.5	20	16	7.6	85	12	L60M2.5X6	T- 8
SR0012F14	Fig.1	14N/E..	12.0	23	20	8.9	80	14	L60M3X6.5	T- 8
SR0014H14	Fig.1		14.5	26	20	11.2	85	14	L60M3X8	T-10
SR0017H14	Fig.1		17.0	35	20	13.4	85	14	L60M3X8	T-10
SR0018H21	Fig.1	21N/E..	18.0	35	20	13.8	85	21	L60M3.5X8	T-15
SR0021H21	Fig.1		21.0	44	20	15.5	94	21	L60M3.5X10	T-15
SR0025K21	Fig.2		25.0	-	20	-	125	21	L60M3.5X10	T-15
SR0029J30	Fig.1	30N/E..	29.0	52	25	22.0	110	30	L60M4X0.5X11.5D	T-15
SR0031M30	Fig.2		31.0	-	25	-	150	30	L60M4X0.5X11.5D	T-15
SR0038M30	Fig.2		38.0	-	32	-	150	30	L60M4X0.5X11.5D	T-15
SR0048M40	Fig.1	40N/E..	48.0	83	40	35.0	153	40	L60M5X0.8X14D	T-20
SR0038Q40	Fig.2		38.0	-	32	-	180	40	L60M5X0.8X14D	T-20
SR0048R40	Fig.2		48.0	-	40	-	210	40	L60M5X0.8X14D	T-20

T Threading Holders (Double Inserts)



Toolholder Type	Insert Type	Dimensions (mm)						Insert Screw	TorX Key
		D0	L1	D	D1	L	A		
SR0020G14-2	14N/E..	20	37	20	16	93	14	L60M3X7	T-10
SR0020J14-2		20	57	20	16	113	14	L60M3X7	T-10
SR0030J21-2	21N/E..	30	52	25	24	113	21	L60M3.5X10	T-15
SR0030L21-2		30	80	25	24	140	21	L60M3.5X10	T-15
SR0040L30-2	30N/E..	40	70	32	30	135	30	L60M4X0.5X11.5D	T-15
SR0040P30-2		40	103	32	30	170	30	L60M4X0.5X11.5D	T-15
SR0050M40-2	40N/E..	50	80	40	38	153	40	L60M5X0.8X14D	T-20

T Threading Milling Cutter



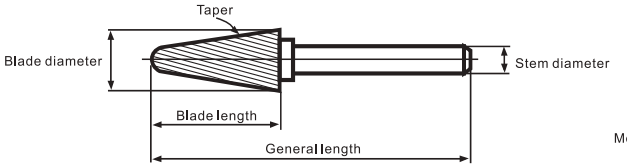
Toolholder Type	Insert Type	Dimensions (mm)						Insert Screw	TorX Key
		D0	D	D1	L	A	Z		
SR0063C21-5	21N/E..	63	22	48	50	21	5	L60M3.5X10	T-15
SR0063C30-4	30N/E..	63	22	48	50	30	4	L60M4X0.5X10D	T-15
SR0080D30-4		80	27	60	55	30	4	L60M4X0.5X10D	T-15
SR0100D30-4		100	32	60	60	30	4	L60M4X0.5X10D	T-15
SR0080D40-4	40N/E..	80	27	78	65	40	4	L60M5X0.8X14D	T-20
SR0100E40-4		100	32	78	70	40	4	L60M5X0.8X14D	T-20

Part 4

Carbide Rotary Burrs

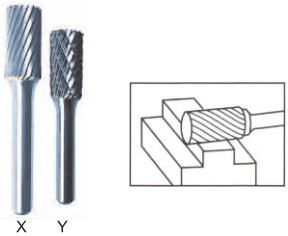
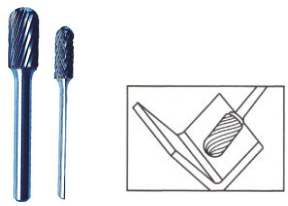
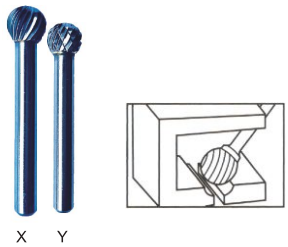
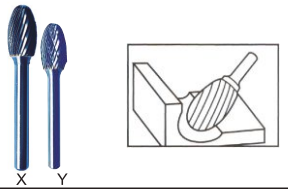
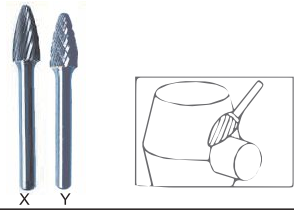
DIRECTORY

Universal Carbide Rotary Burr

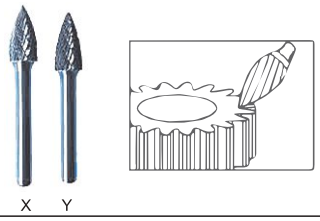
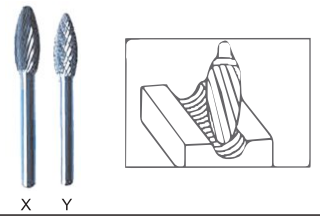
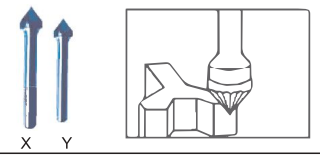
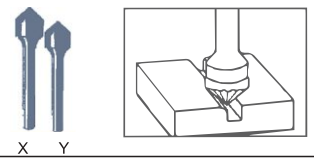
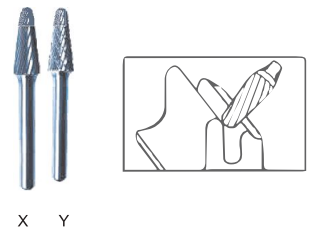
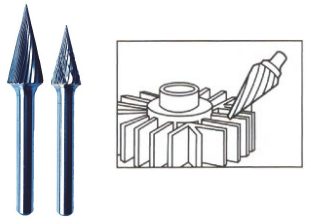
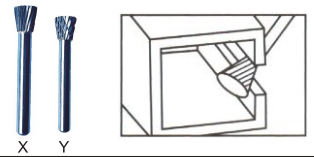


No.Note

S	10	20	M	06	X/Y
Model code	Blade diameter	Blade length	Gear type	Stem diameter	Blade type

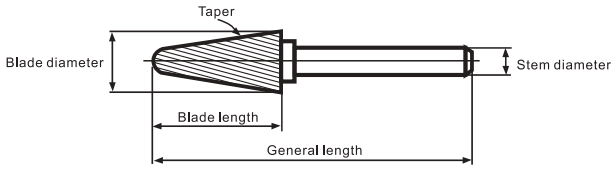
Shape & Code	Legend	Order No.	Size					Stock
			Blade diameter	Blade length	Stem diameter	Total length	Typer	
Cylindrical Code A	 X Y	A0313M03...	3	13	3	50	–	▲
		A0413M04...	4	13	4	50	–	▲
		A0616M06...	6	16	6	56	–	▲
		A0820M06...	8	20	6	60	–	▲
		A1020M06...	10	20	6	60	–	▲
		A1225M06...	12	25	6	65	–	▲
		A1425M06...	14	25	6	65	–	▲
		A1625M06...	16	25	6	65	–	▲
Cylindrical ball nose Code C	 X Y	C0313M03...	3	13	3	50	–	▲
		C0413M04...	4	13	4	50	–	▲
		C0616M06...	6	16	6	56	–	▲
		C0820M06...	8	20	6	60	–	▲
		C1020M06...	10	20	6	60	–	▲
		C1225M06...	12	25	6	65	–	▲
		C1425M06...	14	25	6	65	–	▲
		C1625M06...	16	25	6	65	–	▲
Spherical Code D	 X Y	D0302M03...	3	2.7	3	50	–	▲
		D0403M04...	4	3.6	4	50	–	▲
		D0605M06...	6	5.4	6	55	–	▲
		D0807M06...	8	7.2	6	57	–	▲
		D1009M06...	10	9	6	54	–	▲
		D1210M06...	12	10.8	6	55	–	▲
		D1412M06...	14	12	6	52	–	▲
		D1614M06...	16	14.4	6	54	–	▲
Oval Code E	 X Y	E0610M06...	6	10	6	50	–	▲
		E0813M06...	8	13	6	53	–	▲
		E1016M06...	10	16	6	56	–	▲
		E1220M06...	12	20	6	60	–	▲
		E1422M06...	14	22	6	62	–	▲
		E1625M06...	16	25	6	65	–	▲
Arc round nose Code F	 X Y	F0313M03...	3	13	3	50	–	▲
		F0618M06...	6	18	6	58	–	▲
		F0820M06...	8	20	6	60	–	▲
		F1020M06...	10	20	6	60	–	▲
		F1225M06...	12	25	6	65	–	▲
		F1425M06...	14	25	6	65	–	▲
		F1625M06...	16	25	6	65	–	▲

Universal Carbide Rotary Burr

Shape & Code	Legend	Order No.	Size					Stock
			Blade diameter	Blade length	Stem diameter	Total length	Typer	
Arc pointed nose Code G	 X Y	G0313M03...	3	13	3	50	–	▲
		G0618M06...	6	18	6	58	–	▲
		G0820M06...	8	20	6	60	–	▲
		G1020M06...	10	20	6	60	–	▲
		G1225M06...	12	25	6	65	–	▲
		G1425M06...	14	25	6	65	–	▲
		G1625M06...	16	25	6	65	–	▲
Torch-shaped Code H	 X Y	H0307M03...	3	7	3	50	–	▲
		H0618M06...	6	18	6	58	–	▲
		H0820M06...	8	20	6	60	–	▲
		H1025M06...	10	25	6	65	–	▲
		H1232M06...	12	32	6	72	–	▲
		H1433M06...	14	33	6	73	–	▲
		H1636M06...	16	36	6	76	–	▲
60℃ Conical Code J	 X Y	J0605M06...	6	5.2	6	50	60°	▲
		J0807M06...	8	7	6	52	60°	▲
		J1008M06...	10	8	6	53	60°	▲
		J1210M06...	12	10.4	6	55	60°	▲
		J1613M06...	16	13.8	6	56	60°	▲
90℃ Conical Code K	 X Y	K0603M06...	6	3	6	50	90°	▲
		K0804M06...	8	4	6	50	90°	▲
		K1005M06...	10	5	6	50	90°	▲
		K1206M06...	12	6	6	51	90°	▲
		K1608M06...	16	8	6	53	90°	▲
taper with round top Code L	 X Y	L0313M03...	3	13	3	50	10°	▲
		L0413M04...	4	13	4	50	10°	▲
		L0616M06...	6	16	6	56	14°	▲
		L0822M06...	8	22	6	62	14°	▲
		L1025M06...	10	25	6	65	14°	▲
		L1228M06...	12	28	6	68	14°	▲
		L1428M06...	14	28	6	68	14°	▲
		L1633M06...	16	33	6	73	14°	▲
Conical pointed nos Code M	 X Y	M0313M03...	3	13	3	50	14°	▲
		M0413M04...	4	13	4	50	14°	▲
		M0618M06...	6	18	6	58	14°	▲
		M0820M06...	8	20	6	60	26°	▲
		M1020M06...	10	20	6	60	25°	▲
		M1225M06...	12	25	6	65	25°	▲
		M1425M06...	14	25	6	65	30°	▲
		M1625M06...	16	25	6	65	32°	▲
Inverted conical Code N	 X Y	N1213M06...	12	13	6	53	30°	▲
		N1613M06...	16	13	6	53	30°	▲
		N1005M06...	10	5	6	50	20°	▲
		N1205M06...	12	5	6	50	26°	▲
		N1606M06...	16	6	6	50	26°	▲

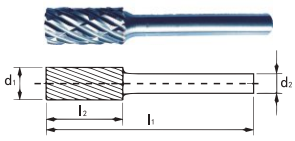
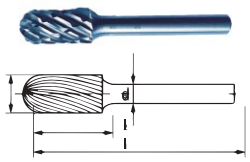
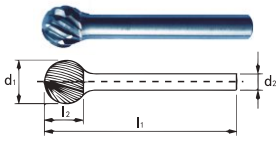
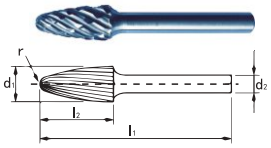
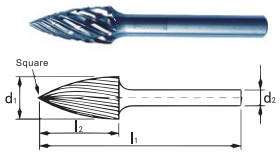
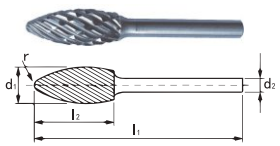
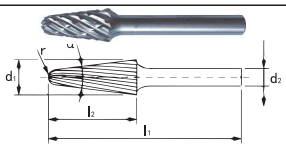
Rotary Burr for Steel and Cast Steel Processing

By the innovation of G-type blade structure, the rotary burr can significantly improve the sharpness and guiding, ensuring safe and precise operation.The extremely high cutting performance of rotary burr can save processing time and achieve high economic benefits.
Advantages: The cutting performance of steel and cast steel is 30%-50% higher than traditional products. The improved blade type can significantly improve the sharpness of the rotary burr, achieve better cutting performance and protect workpieces and tools from damage.



No.Note

S	10	20	G	06
Model code	Blade diameter	Blade length	Gear type	Stem diameter

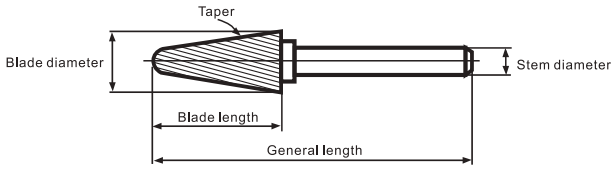
Shape & Code	Legend	Order No.	Size					Stock
			Blade diameter	Blade length	Stem diameter	Total length	Typer	
Cylindrical Code A		A0616G06GZG	6	16	6	56	–	▲
		A0820G06GZG	8	20	6	60	–	▲
		A1020G06GZG	10	20	6	60	–	▲
		A1225G06GZG	12	25	6	65	–	▲
		A1425G06GZG	14	25	6	65	–	▲
		A1625G06GZG	16	25	6	65	–	▲
Cylindrical ball nose Code C		C0616G06GZG	6	16	6	46	–	▲
		C0820G06GZG	8	20	6	60	–	▲
		C1020G06GZG	10	20	6	60	–	▲
		C1225G06GZG	12	25	6	65	–	▲
		C1425G06GZG	14	25	6	65	–	▲
		C1625G06GZG	16	25	6	65	–	▲
Spherical Code D		D0605G06GZG	6	5.4	6	55	–	▲
		D0807G06GZG	8	7.2	6	57	–	▲
		D1009G06GZG	10	9	6	54	–	▲
		D1210G06GZG	12	10.8	6	55	–	▲
		D1412G06GZG	14	12	6	52	–	▲
		D1614G06GZG	16	14.4	6	54	–	▲
Arc round nose Code F		F0618G06GZG	6	18	6	58	–	▲
		F0818G06GZG	8	18	6	58	–	▲
		F1020G06GZG	10	20	6	60	–	▲
		F1225G06GZG	12	25	6	65	–	▲
		F1425G06GZG	14	25	6	65	–	▲
		F1625G06GZG	16	25	6	65	–	▲
Arc pointed nose Code G		G0618G06GZG	6	18	6	58	–	▲
		G0817G06GZG	8	17	6	57	–	▲
		G1020G06GZG	10	20	6	60	–	▲
		G1225G06GZG	12	25	6	65	–	▲
		G1425G06GZG	14	25	6	65	–	▲
		G1625G06GZG	16	25	6	65	–	▲
Torch-shaped Code H		H0820G06GZG	8	20	6	60	–	▲
		H1025G06GZG	10	25	6	65	–	▲
		H1232G06GZG	12	32	6	72	–	▲
		H1430G06GZG	14	30	6	70	–	▲
		H1636G06GZG	16	36	6	76	–	▲
Taper with round top Code L		L0822G06GZG	8	22	6	62	14°	▲
		L1025G06GZG	10	25	6	65	14°	▲
		L1228G06GZG	12	28	6	68	14°	▲
		L1428G06GZG	14	28	6	68	14°	▲
		L1633G06GZG	16	33	6	73	14°	▲

TOTIME Carbide Rotary Burr

Rotary Burr for Stainless Steel,Titanium Alloy,High Temperature Alloy Processing

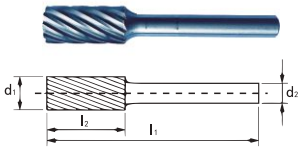
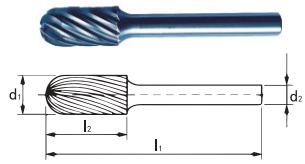
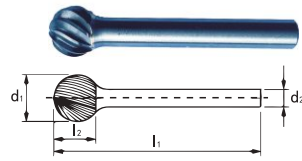
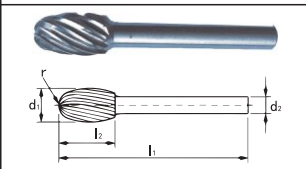
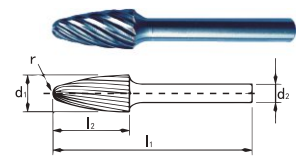
Rotary Burr for Stainless Steel, Titanium Alloy, High Temperature Alloy Processing

The new N-type blade structure provides excellent cutting performance for austenite and rust-resistant and acid-resistant steels, and significantly reduces chattering compared to traditional products.
Advantages:Innovative blade structure could supply better cutting performance and longer working life.

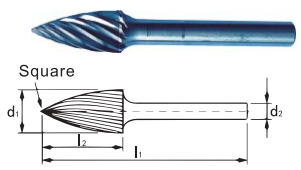
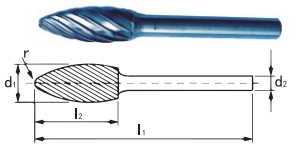
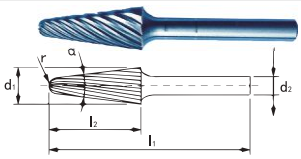


No.Note

S	10	20	N	06
Model code	Blade diameter	Blade length	Gear type	Stem diameter

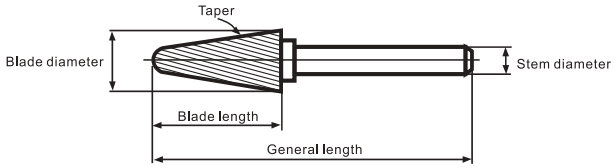
Shape & Code	Legend	Order No.	Size					Stock
			Blade diameter	Blade length	Stem diameter	Total length	Typer	
Cylindrical Code A		A0313N03BXG	3	13	3	50	–	▲
		A0413N04BXG	4	13	4	50	–	▲
		A0616N06BXG	6	16	6	56	–	▲
		A0820N06BXG	8	20	6	60	–	▲
		A1020N06BXG	10	20	6	60	–	▲
		A1225N06BXG	12	25	6	65	–	▲
		A1425N06BXG	14	25	6	65	–	▲
		A1625N06BXG	16	25	6	65	–	▲
Cylindrical ball nose Code C		C0313N03BXG	3	13	3	50	–	▲
		C0413N04BXG	4	13	4	50	–	▲
		C0616N06BXG	6	16	6	46	–	▲
		C0820N06BXG	8	20	6	60	–	▲
		C1020N06BXG	10	20	6	60	–	▲
		C1225N06BXG	12	25	6	65	–	▲
		C1425N06BXG	14	25	6	65	–	▲
		C1625N06BXG	16	25	6	65	–	▲
Spherical Code D		D0605N06BXG	6	5.4	6	55	–	▲
		D0807N06BXG	8	7.2	6	57	–	▲
		D1009N06BXG	10	9	6	54	–	▲
		D1210N06BXG	12	10.8	6	55	–	▲
		D1412N06BXG	14	12	6	52	–	▲
		D1614N06BXG	16	14.4	6	54	–	▲
Arc round nose Code E		E0813N06BXG	8	13	6	58	–	▲
		E1016N06BXG	10	16	6	61	–	▲
		E1220N06BXG	12	20	6	60	–	▲
		E1422N06BXG	14	22	6	62	–	▲
		E1625N06BXG	16	25	6	65	–	▲
Arc round nose Code F		F0618N06BXG	6	18	6	58	–	▲
		F0818N06BXG	8	18	6	58	–	▲
		F1020N06BXG	10	20	6	60	–	▲
		F1225N06BXG	12	25	6	65	–	▲
		F1425N06BXG	14	25	6	65	–	▲
		F1625N06BXG	16	25	6	65	–	▲

Rotary Burr for Stainless Steel, Titanium Alloy, High Temperature Alloy Processing

Shape & Code	Legend	Order No.	Size					Stock
			Blade diameter	Blade length	Stem diameter	Total length	Typer	
Arc pointed nose Code G		G0618N06BXG	6	18	6	58	–	▲
		G0817N06BXG	8	17	6	57	–	▲
		G1020N06BXG	10	20	6	60	–	▲
		G1225N06BXG	12	25	6	65	–	▲
		G1425N06BXG	14	25	6	65	–	▲
		G1625N06BXG	16	25	6	65	–	▲
Torch-shaped Code H		H0820N06BXG	8	20	6	60	–	▲
		H1025N06BXG	10	25	6	65	–	▲
		H1232N06BXG	12	32	6	72	–	▲
		H1430N06BXG	14	30	6	70	–	▲
		H1636N06BXG	16	36	6	76	–	▲
Taper with round top Code L		L0822N06BXG	8	22	6	62	14°	▲
		L1025N06BXG	10	25	6	65	14°	▲
		L1228N06BXG	12	28	6	68	14°	▲
		L1428N06BXG	14	28	6	68	14°	▲
		L1633N06BXG	16	33	6	73	14°	▲

Rotary Burr for Aluminum and Non-ferrous Metal Processing

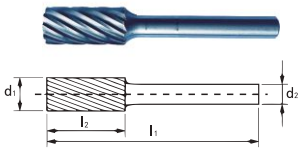
The newly developed Y-type blade structure enables the product to achieve extremely high cutting performance, and the large chip flutes can reduce material bonding. Long working life, smooth operation, cutting speed up to 800-1000M/min. Widely used in the rough processing of non-ferrous metals, brass, copper, plastic and fiber reinforced materials.



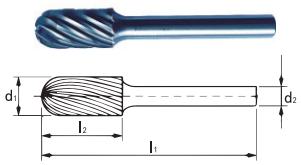
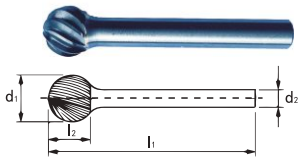
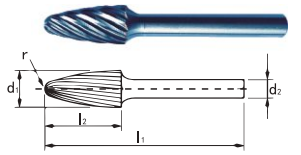
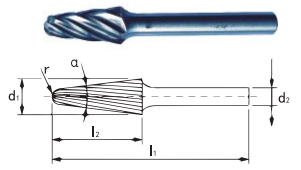
No.Note

S102Y006

S	10	20	Y	06
Model code	Blade diameter	Blade length	Gear type	Stem diameter

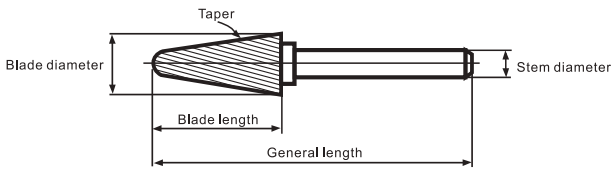
Shape & Code	Legend	Order No.	Size					Stock
			Blade diameter	Blade length	Stem diameter	Total length	Typer	
Cylindrical Code A		A0413Y04LVS	4	13	4	50	–	▲
		A0616Y06LYS	6	16	6	56	–	▲
		A0820Y06LYS	8	20	6	60	–	▲
		A1020Y06LYS	10	20	6	60	–	▲
		A1225Y06LYS	12	25	6	65	–	▲
		A1425Y06LYS	14	25	6	65	–	▲
		A1625Y06LYS	16	25	6	65	–	▲

Rotary Burr for Aluminum and Non-ferrous Metal Processing

Shape & Code	Legend	Order No.	Size					Stock
			Blade diameter	Blade length	Stem diameter	Total length	Typer	
Cylindrical ball nose Code C		C0413Y04LYS	4	13	4	50	–	▲
		C0616Y06LYS	6	16	6	46	–	▲
		C0820Y06LYS	8	20	6	60	–	▲
		C1020Y06LYS	10	20	6	60	–	▲
		C1225Y06LYS	12	25	6	65	–	▲
		C1425Y06LYS	14	25	6	65	–	▲
		C1625Y06LYS	16	25	6	65	–	▲
Spherical Code D		D0605Y06LYS	6	5.4	6	55	–	▲
		D0807Y06LVS	8	7.2	6	57	–	▲
		D1009Y06LYS	10	9	6	54	–	▲
		D1210Y06LYS	12	10.8	6	55	–	▲
		D1412Y06LYS	14	12	6	52	–	▲
		D1614Y06LYS	16	14.4	6	54	–	▲
Arc round nose Code F		F0618Y06LYS	6	18	6	58	–	▲
		F0818Y06LYS	8	18	6	58	–	▲
		F1020Y06LYS	10	20	6	60	–	▲
		F1225Y06LYS	12	25	6	65	–	▲
		F1425Y06LYS	14	25	6	65	–	▲
		F1625Y06LYS	16	25	6	65	–	▲
Taper with round top Code L		L0616Y06LYS	6	16	6	56	14°	▲
		L0822Y06LYS	8	22	6	62	14°	▲
		L1025Y06LYS	10	25	6	65	14°	▲
		L1228Y06LYS	12	28	6	68	14°	▲
		L1428Y06LYS	14	28	6	68	14°	▲
		L1633Y06LVS	16	33	6	73	14°	▲

Rotary Burr for Cast Iron Processing

The innovative Z-type blade structure significantly improves the high cutting performance of cast iron, enabling smooth milling and significantly reducing chatter and noise.

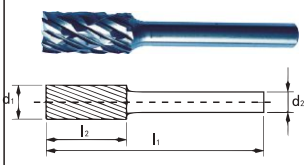
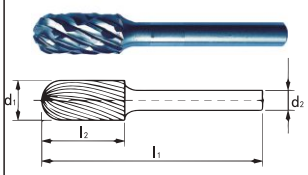
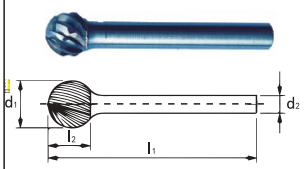
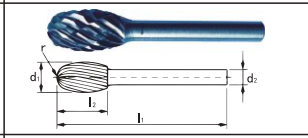
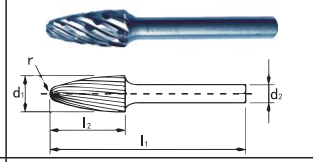
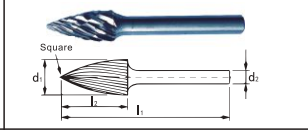
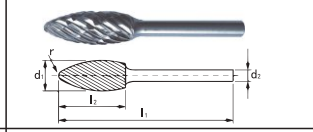
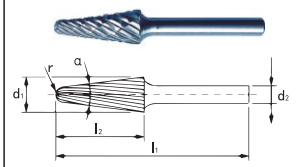
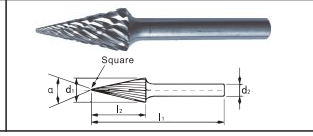


No.Note

S102Z006

S	10	20	Z	06
Model code	Blade diameter	Blade length	Gear type	Stem diameter

Rotary Burr for Cast Iron Processing

Shape & Code	Legend	Order No.	Size					Stock
			Blade diameter	Blade length	Stem diameter	Total length	Typer	
Cylindrical Code A		A0616Z06ZT	6	16	6	56	–	▲
		A0820Z06ZT	8	20	6	60	–	▲
		A1020Z06ZT	10	20	6	60	–	▲
		A1225Z06ZT	12	25	6	65	–	▲
		A1425Z06ZT	14	25	6	65	–	▲
		A1625Z06ZT	16	25	6	65	–	▲
Cylindrical ball nose Code C		C0616Z06ZT	6	16	6	46	–	▲
		C0820Z06ZT	8	20	6	60	–	▲
		C1020Z06ZT	10	20	6	60	–	▲
		C1225Z06ZT	12	25	6	65	–	▲
		C1425Z06ZT	14	25	6	65	–	▲
		C1625Z06ZT	16	25	6	65	–	▲
Spherical Code D		D0605Z06ZT	6	5.4	6	55	–	▲
		D0807Z06ZT	8	7.2	6	57	–	▲
		D1009Z06ZT	10	9	6	54	–	▲
		D1210Z06ZT	12	10.8	6	55	–	▲
		D1412Z06ZT	14	12	6	52	–	▲
		D1614Z06ZT	16	14.4	6	54	–	▲
Oval Code E		E1016Z06ZT	10	16	6	61	–	▲
		E1220Z06ZT	12	20	6	60	–	▲
		E1422Z06ZT	14	22	6	62	–	▲
		E1625Z06ZT	16	25	6	65	–	▲
Arc round nose Code F		F0818Z06ZT	8	18	6	58	–	▲
		F1020Z06ZT	10	20	6	60	–	▲
		F1225Z06ZT	12	25	6	65	–	▲
		F1425Z06ZT	14	25	6	65	–	▲
		F1625Z06ZT	16	25	6	65	–	▲
Arc pointed nose Code G		G1020Z06ZT	10	20	6	60	–	▲
		G1225Z06ZT	12	25	6	65	–	▲
		G1425Z06ZT	14	25	6	65	–	▲
		G1625Z06ZT	16	25	6	65	–	▲
Torch-shaped Code H		H1025Z06ZT	10	25	6	65	–	▲
		H1232Z06ZT	12	32	6	72	–	▲
		H1430Z06ZT	14	30	6	70	–	▲
		H1636Z06ZT	16	36	6	76	–	▲
Taper with round top Code L		L0616Z06ZT	6	16	6	56	14°	▲
		L0822Z06ZT	8	22	6	62	14°	▲
		L1025Z06ZT	10	25	6	65	14°	▲
		L1228Z06ZT	12	28	6	68	14°	▲
		L1428Z06ZT	14	28	6	68	14°	▲
		L1633Z06ZT	16	33	6	73	14°	▲
Conical pointed nos Code M		M1020Z06ZT	10	20	6	60	25°	▲
		M1225Z06ZT	12	25	6	65	25°	▲
		M1425Z06ZT	14	25	6	65	32°	▲
		M1625Z06ZT	16	25	6	65	32°	▲

Cutting speed

●Cutting speed (Calculated from number of revolutions)

vc : Cutting speed (m/min)
øDc: Effective diameter (mm)
n : Number of revolutions (min-1)
π 5 3.14

$$v_c = \frac{\pi \times \varnothing D_c \times n}{1000} \quad (\text{m/min})$$

●Number of revolution (Calculated from cutting speed)

vf : Feed speed (mm/min)
fz : Feed per tooth (mm/t)
z : No. of teeth of the cutter
n : Number of revolutions (min-1)

$$n = \frac{1000 \times v_c}{\pi \times \varnothing D_c} \quad (\text{min}^{-1})$$

●Feed speed and feed per tooth

Feed speed is relative speed of cutter and Workpiece material and in the normal milling machine, it is the table speed.
In milling, the feed per tooth is very important. The recommended cutting condition is expressed by vc and fz and using the above equation calculate n and vf and input in the machine.

$$v_f = f_z \times z \times n \quad (\text{mm/min})$$

●Cutting time on face milling

T : Cutting time (min)
L : Total table feed length.
(R: Workpieces length (mm) + øDc: Effective cutter diameter (mm))
vf : Feed speed (mm/min)

$$T = \frac{L}{v_f} \quad (\text{min})$$

Depth of cut and width of cut

●Depth of cut

Determine by required allowance for machining and capacity of the machine. In case of mill, there are cutting limits according to shape and size of the insert. Please see spec on the catalogue.

ap : Depth of cut (mm)

●Width of cut and engagement angle

There is an appropriate engage angle depending on the cutter diameter, cutting position, Workpiece material, etc., and ordinarily the values in the table below are used as a guide.

øDc: Cutter diameter (mm) E: Engage angle
ae: Width of cut (mm)

Center cutting

Workpiece material	Appropriate E	Cutter dia. and ae
Steel	~42°	**ae≈2/3 øDC**
Cast iron	~53°	**ae≈4/5 øDC**

Shoulder cutting

Workpiece material	Appropriate E	Cutter dia. and ae
Steel	~30°	**ae≈3/5 øDC**
Cast iron	~40°	**ae≈3/4 øDC**

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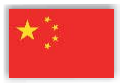

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