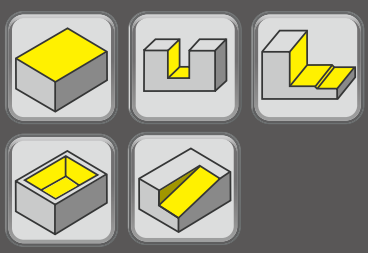
Power Mill

Indexable milling cutter 10mm.
Patented dual relief angle insert!
Higher feed rate. Higher wearing resistance!

Features

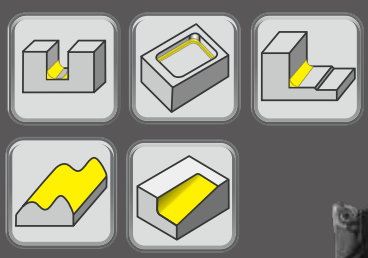
A Series- Shoulder Face Mills

Dia. range: Ø10 ~ Ø25mm



C Series- Torus Radius Mills

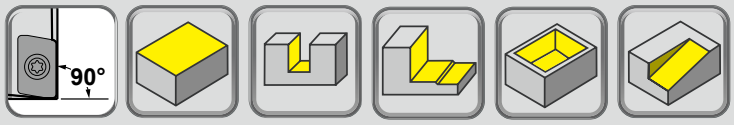
Dia. range: Ø10 ~ Ø26mm



▸ **Integrated ER taper-shank**

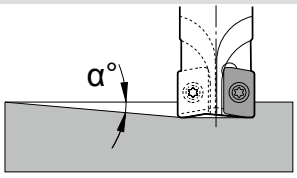
Please see page 2-98.

A Series Shoulder Face Mills

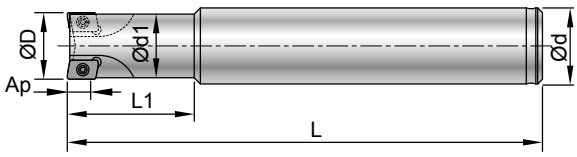


- Strong insert with high positive geometry and helical cutting edges.
- Shoulder mill with good cutting performance and cutting edge strength. which produce perfect 90° shoulders.

Holder

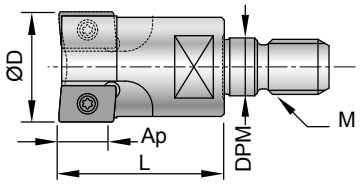


Cylindrical Shank >>



Part No.	Type	ØD	No. of teeth	Ød h6	Ød1	α°	Ap	L1	L	Insert type
00-99802-BC10-10A06	BC10-10A06-100	**10**	2	10	9.8	5.0	5	40	100	A9...0602...
00-99802-BC12-10A06	BC12-10A06-80	**10**	2	12	9.8	5.0	5	20	80	
00-99802-BC12-11A06	BC12-11A06-80	**11**	2	12	10.8	4.5	5	22	80	
00-99802-BC12-12A06	BC12-12A06-80	**12**	2	12	11.4	4.0	5	24	80	
00-99802-BC16-13A06	BC16-13A06-100	**13**	2	16	12.4	3.5	5	26	100	
00-99802-BC16-14A06	BC16-14A06-100	**14**	2	16	13.4	3.0	5	28	100	
00-99802-BC16-15A06	BC16-15A06-100	**15**	3	16	14.4	2.5	5	30	100	
00-99802-BC16-16A06	BC16-16A06-100	**16**	3	16	15.4	2.0	5	32	100	
00-99802-BC16-16A10	BC16-16A10-100	**16**	2	16	14.5	2.5	9	32	100	A9...1035...
00-99802-BC20-20A10	BC20-20A10-120	**20**	3	20	18.5	2.0	9	40	120	
00-99802-BC25-25A10	BC25-25A10-150	**25**	3	25	23.5	1.3	9	50	150	

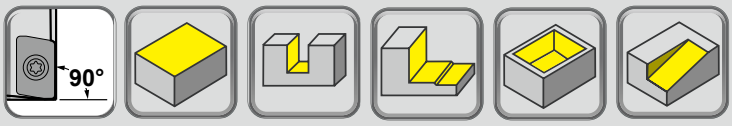
Screw-Fit Type >>



Part No.	Type	ØD	No. of teeth	α°	Ap	L	M	DPM	Insert type
00-99805-M05-10A06	M05-10A06	**10**	2	5.0	5	13	M5xP0.8	5.5	A9...0602...
00-99805-M05-11A06	M05-11A06	**11**	2	4.5	5	13	M5xP0.8	5.5	
00-99805-M06-12A06	M06-12A06	**12**	2	4.0	5	13	M6xP1.0	6.5	
00-99805-M06-13A06	M06-13A06	**13**	2	3.5	5	13	M6xP1.0	6.5	
00-99805-M08-14A06	M08-14A06	**14**	2	3.0	5	13	M8xP1.25	8.5	
00-99805-M08-15A06	M08-15A06	**15**	3	2.5	5	15	M8xP1.25	8.5	
00-99805-M08-16A06	M08-16A06	**16**	3	2.0	5	15	M8xP1.25	8.5	
00-99805-M08-17A06	M08-17A06	**17**	3	1.5	5	15	M8xP1.25	8.5	
00-99802-M08-16A10	M08-16A10	**16**	2	2.5	9	25	M8xP1.25	8.5	A9...1035...
00-99802-M10-20A10	M10-20A10	**20**	3	2.0	9	30	M10xP1.5	10.5	
00-99802-M12-25A10-3T	M12-25A10-3T	**25**	3	1.3	9	35	M12xP1.75	12.5	
00-99805-M12-25A10	M12-25A10	**25**	3	1.3	9	20	M12xP1.75	12.5	

* For Nine9 extension bar, see page 7-159.

A Series Shoulder Face Mills



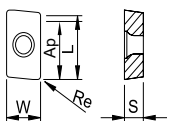
Insert

NC5072 :
- High rigidity, special edge honing, resistance of impact during milling operation.
- Special chip breaker design for high removal rate.
- P40 tougher grade for smooth cutting, good for all kinds of steel.

NC2032 :
- High rigidity, special edge honing, resistance of impact during milling operation.
- For all kinds of steel from < 50 HRC, carbon steel, alloy steel, cast iron, aluminum and non-ferrous metal.

NC2033 :
- Sharp cutting edge and high positive rake angle, good for finishing milling and surface roughness.
- Re 0.5 and Re1.0 for your option.
- Sutiable for all kinds of steel.

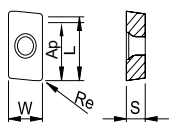
NC9031 :
- Sharp cutting edge and high positive rake angle, low friction coefficient for non-ferrous metal.
- Good for Al, Al-alloy, Copper, Copper alloy and Non-Ferrous metal.

Insert Size	Parts No.		Coating	Grade		Dimensions					Screw / Key
						L	W	S	Re	Ap	
06	A9MT060205	NC5072	TiAlN	P40		6.5	4	2.45	0.5	5	*NS-18037 0.6Nm / NK-T6
	A9GT060201U	NC2032	TiAlN	K20F		6.5	4	2.45	0.1	5	
	A9GT060202U	NC2032	TiAlN	K20F		6.5	4	2.45	0.2	5	
	A9GT060205U	NC2032	TiAlN	K20F		6.5	4	2.45	0.5	5	
	A9GT060201H	NC2033	TiAlN	K20F		6.5	4	2.45	0.1	5	
		NC9031	TiN	K20F							
	A9GT060202H	NC2033	TiAlN	K20F		6.5	4	2.45	0.2	5	
		NC9031	TiN	K20F							
	A9GT060205H	NC2033	TiAlN	K20F		6.5	4	2.45	0.5	5	
		NC9031	TiN	K20F							
	A9GT060210H	NC2033	TiAlN	K20F		6.5	4	2.45	1.0	5	

*Torque screwdriver is recommended.

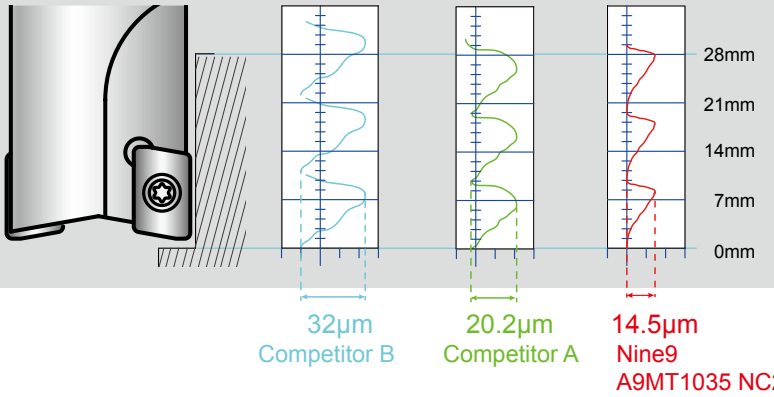
NC2032 :
- High rigidity, special edge honing, resistance of impact during milling operation.
- Special chip breaker design for high removal rate.
- Good for hard cutting carbon steel and alloy steel.

NC9031 :
- Sharp cutting edge and high positive rake angle, low friction coefficient for non-ferrous metal.
- Good for Al, Al-alloy, Copper, Copper alloy and Non-Ferrous metal.

Insert Size	Parts No.		Coating	Grade		Dimensions					Screw / Key
						L	W	S	Re	Ap	
10	A9MT1035	NC2032	TiAlN	K20F		10	6.6	3.5	0.4	9	*NS-25060 0.9Nm
	A9GT103505H	NC9031	TiN	K20F		10	6.6	3.5	0.5	9	NK-T7

*Torque screwdriver is recommended.

A Series Shoulder Face Mills



Surface Roughness Comparison

- Nine9 A series shoulder face mill insert receive a better result of surface finish.

Cutting Data

- Reduce the feed rate 30% from the below table for slotting operation.
- Ramping Angle should be Under α°.

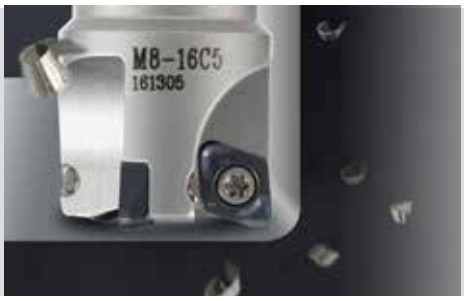
Insert Size: 6.5mm (Holder dia. Ø10~Ø17mm) : >>

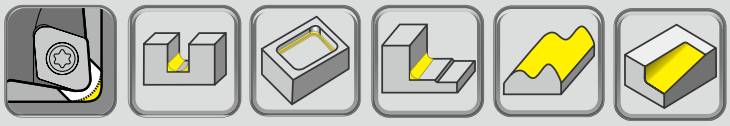
	Work Material	Sample Code (JIS)	Vc (m/min)	fz (mm/tooth)	Ap(mm)	Ap(mm)	Ae(mm)	Grade of Insert
P	Carbon Steel	P5	80~150	0.03~0.07	1.5	4	1.5	NC5072
								NC2033
P	Low-alloy Steel, C ≤ 0.3%	SCM440	80~150	0.03~0.07	1.5	4	1	NC5072
								NC2033
P	High-alloy Steel, C > 0.3%	SKD11	60~120	0.03~0.07	1	2.5	1	NC5072
								NC2033
M	Stainless Steel	SUS304	60~120	0.01~0.05	0.5	2	1	NC5072
								NC2033
K	Casting Iron	FC25	60~120	0.03~0.07	1	2.5	1	NC5072
								NC2033
K	Malleable Cast Iron, Grey Cast Iron		100~150	0.03~0.07	1.5	4	1.5	NC5072
								NC2033
N	Al, Al-alloy	A6061	200~500	0.03~0.07	2	4	2	NC9031

Insert Size: 10mm (Holder Ø16~Ø25mm) : >>

	Work Material	Sample Code (JIS)	Vc (m/min)	fz (mm/tooth)	Ap(mm)	Ap(mm)	Ae(mm)	Grade of Insert
P	Carbon Steel	P5	150~250	0.08~0.15	3	8	3	NC2032
P	Low-alloy Steel, C ≤ 0.3%	SCM440	150~250	0.08~0.15	3	8	2	NC2032
P	High-alloy Steel, C > 0.3%	SKD11	120~200	0.08~0.15	2	4	2	NC2032
M	Stainless Steel	SUS304	80~120	0.04~0.08	1	4	2	NC2032
K	Casting Iron	FC25	120~200	0.08~0.12	2	5	2	NC2032
K	Malleable Cast Iron, Grey Cast Iron		100~150	0.06~0.10	3	8	3	NC2032
N	Al, Al-alloy	A6061	200~500	0.03~0.07	5	8	3	NC9031

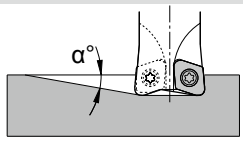
C Series Torus Radius Mills



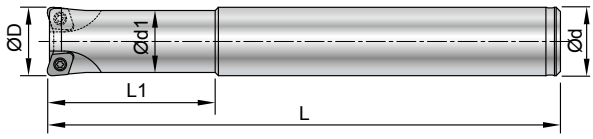


- Good for corner finishing.
- Series C is developed for replacement of the other milling cutters with ram feed.

Holder

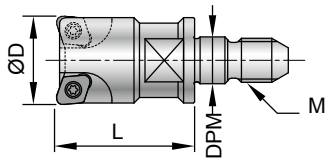


Cylindrical Shank >>



Part No.	Type	ØD	No. of teeth	Ød h6	Ød1	α°	L1	L	Insert type
00-99802-BC12-12C5	BC12-12C5	**12**	2	12	10.5	8.0	30	100	C9MT05T105 C9MT05T110H
00-99802-BC16-16C5	BC16-16C5	**16**	3	16	14.5	5.5	40	120	
00-99802-BC20-20C5	BC20-20C5	**20**	3	20	18	4.0	50	130	
00-99802-BC25-25C5	BC25-25C5	**25**	4	25	23	3.0	60	150	

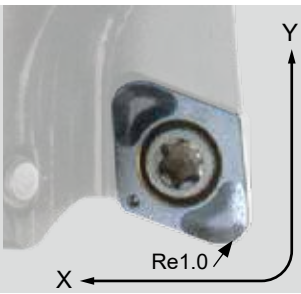
Screw-Fit Type >>



Part No.	Type	ØD	No. of teeth	α°	L	M	DPM	Insert type
00-99802-M05-10C4	M05-10C4	**10**	2	8	15	M5xP0.8	5.5	C9MT040105 C9MT040110
00-99802-M05-11C4	M05-11C4	**11**	2	6	15	M5xP0.8	5.5	
00-99802-M06-12C5	M06-12C5	**12**	2	8	25	M6xP1.0	6.5	C9MT05T105 C9MT05T110H
00-99802-M06-13C5	M06-13C5	**13**	2	7.5	25	M6xP1.0	6.5	
00-99802-M08-16C5	M08-16C5	**16**	3	5.5	25	M8xP1.25	8.5	
00-99802-M08-17C5	M08-17C5	**17**	3	5	25	M8xP1.25	8.5	
00-99802-M10-20C5	M10-20C5	**20**	3	4	30	M10xP1.5	10.5	
00-99802-M10-21C5	M10-21C5	**21**	3	3.5	30	M10xP1.5	10.5	
00-99802-M12-25C5	M12-25C5	**25**	4	3	35	M12xP1.75	12.5	
00-99802-M12-26C5	M12-26C5	**26**	4	2.5	35	M12xP1.75	12.5	
00-99805-M05-11C5	M05-11C5	**11**	2	10	13	M5xP0.8	5.5	C9MT05T105 C9MT05T110H
00-99805-M06-12C5	M06-12C5	**12**	2	8	13	M6xP1.0	6.5	
00-99805-M06-13C5	M06-13C5	**13**	2	7.5	13	M6xP1.0	6.5	
00-99805-M08-16C5	M08-16C5	**16**	3	5.5	15	M8xP1.25	8.5	
00-99805-M08-17C5	M08-17C5	**17**	3	5	15	M8xP1.25	8.5	
00-99805-M10-20C5	M10-20C5	**20**	3	4	15	M10xP1.5	10.5	
00-99805-M10-21C5	M10-21C5	**21**	3	3.5	15	M10xP1.5	10.5	
00-99805-M12-25C5	M12-25C5	**25**	4	3	20	M12xP1.75	12.5	
00-99805-M12-26C5	M12-26C5	**26**	4	2.5	20	M12xP1.75	12.5	

* For Nine9 extension bar, see page 7-159.

C Series Torus Radius Mills



Features:

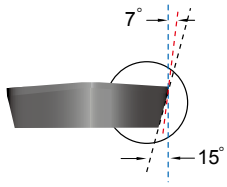
- Submicron carbide inserts are fully ground.
- Special design milling cutter and ground insert for semi-finishing 3D surface milling for mold industry.

Insert

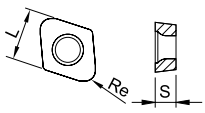
NC30 : • Flat cutting edge design, universal type for all kind of materials.

NC2032 : • High positive angle, special chip breaker design, higher wearing resistance.
• Good for hardened material.

Dual Relief Angle Insert



Higher feed rate!
Higher wearing resistance!

Parts No.	Coating	Grade		Dimensions L	S	Re	Screw	Key
C9MT040105-NC30	AlTiN	K10F		4	1.59	0.5	*NS-18037 0.6Nm	NK-T6
C9MT040110-NC30	AlTiN	K10F		4	1.59	1.0		
C9MT05T105-NC30	AlTiN	K10F		5	2.0	0.5	*NS-20045 0.6Nm	NK-T6
C9MT05T110H-NC2032	AlTiN	K20F		5	2.0	1.0		

*Torque screwdriver is recommended.

Cutting Data

	Work Material	Sample Code (JIS)	Vc (m/min)	fz (mm/tooth)	Cutting Depth Ap(mm)	Grade of Insert
P	Carbon Steel	P5	150~300	0.2~0.5	0.2~0.5	NC30
						NC2032
	Alloy Steel	SCM440	120~250	0.2~0.5	0.2~0.5	NC30
						NC2032
M	Stanless Steel	SUS304	120~200	0.2~0.4	0.2~0.4	NC30
						NC2032
H	Hardened Steel < HRC52	SKD61	100~150	0.1~0.3	0.1~0.3	NC2032

* Recommand Ae below 2.5mm.