MCC Mill >>>

60° & 90° Deburring, 55° & 60° Threading

P M K N H

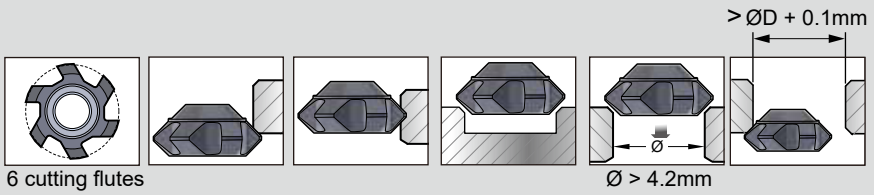
MCC Minimum Consumable Cutting Indicator 5%

- Various MCC inserts can fit on the same holder.
- Ø5(mm)
- 6 Cutting Flutes

Features >>>

- **Thanks for special insert geometry and Nine9 clamping system to provide high precision and accurate position.**
- **Specialized on narrow space below 10mm by indexable inserts.**
  - Min. deburring bore from Ø4.2 ~ Ø10mm.
  - The smallest insert Ø5.0 can do M6xP0.75 internal threading and deburring.
  - For external different threading pitch can be done by NC programing.
    For example: Ø10.0mm insert can do external, threading pitch from P1.25 to P2.0mm, save your tool inventory.

MCC Mill- Deburring

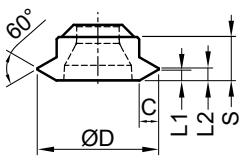


Inserts >>

NC2032: • TiAlN coating provides longer tool life.
• For all kinds of steel < 60 HRC, carbon steel, alloy steel and cast iron.
XP9000: • High positive and sharp edge produces excellent surface finish.
• For non-ferrous material such as aluminum, brass, copper and soft material.

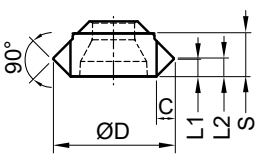
60° deburring

• For front and back deburring.
• Also for threading application.

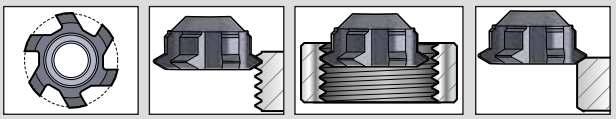
Insert Type	Parts No.	Coating	Grade		ØD ±0.025	L1	L2	S ±.025	C	Plunge 0.1C min. hole	Plunge 0.1C max. hole
CR05	R06005-05010-32	TiAlN	K20F		5.0 (.197")	0.35 (.014")	0.45 (.018")	2.0 (.079")	0.40 (.016")	4.1 (.161")	4.8 (.189")
	R06005-05010-00	Uncoated									
CR07	R06007-06810-32	TiAlN	K20F		6.8 (.268")	0.40 (.016")	0.50 (.020")	2.35 (.093")	0.50 (.020")	5.7 (.224")	6.6 (.260")
	R06007-06810-00	Uncoated									
CR10	R06010-08510-32	TiAlN	K20F		8.5 (.335")	0.49 (.019")	0.59 (.023")	3.60 (.142")	0.65 (.026")	7.1 (.280")	8.3 (.327")
	R06010-08510-00	Uncoated									
	R06010-10010-32	TiAlN			10.0 (.394")	0.90 (.035")	1.00 (.039")	3.60 (.142")	1.20 (.047")	7.1 (.280")	9.8 (.386")
	R06010-10010-00	Uncoated									

90° deburring

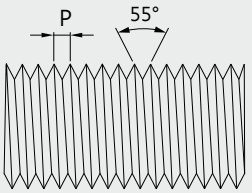
• Front and back deburring in one operation.

Insert Type	Parts No.	Coating	Grade		ØD ±0.025	L1	L2	S ±.025	C	Plunge 0.1C min. hole	Plunge 0.1C max. hole
CR05	R09005-05060-32	TiAlN	K20F		5.0 (.197")	0.60 (.024")	1.20 (.047"	2.0 (.079")	0.40 (.016")	4.1 (.161")	4.8 (.189")
	R09005-05060-00	Uncoated									
CR07	R09007-07020-32	TiAlN	K20F		7.0 (.276"	1.00 (.039")	1.20 (.047")	2.35 (.093")	0.7 (.028")	5.3 (.209")	6.8 (.268")
	R09007-07020-00	Uncoated									
CR10	R09010-10010-32	TiAlN	K20F		10.0 (.394")	1.45 (.057")	1.55 (.061")	3.60 (.142")	1.20 (.047")	7.4 (.291")	9.8 (.386")
	R09010-10010-00	Uncoated									

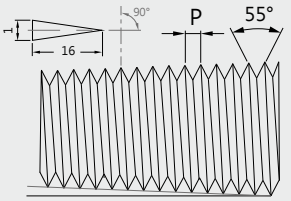
MCC Mill- Threading



6 cutting flutes



55° Parallel thread

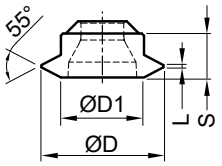


55° Tapered thread

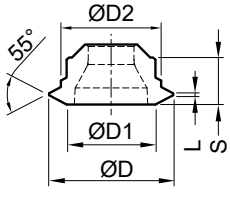
Inserts >>

NC2032: • TiAlN coating provides longer tool life.
• For all kinds of steel < 50 HRC, carbon steel, alloy steel and cast iron.
XP9000: • High positive and sharp edge produces excellent surface finish.
• For non-ferrous material such as aluminum, brass, copper and soft material.

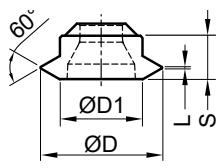
55° Parallel Thread

Insert Type	Parts No.	Coating	Grade		ØD ±0.025	ØD1	L	S ±0.025	Pitch range TPI
CR07	R05507-06512-32	TiAlN	K20F		6.56 (.258")	5.32 (.209")	0.12 (.005")	2.35 (.093")	28
	R05507-06512-00	Uncoated							
CR10	R05510-10018-32	TiAlN	K20F		10.0 (.394")	6.92 (.272")	0.18 (.007")	3.60 (.142")	19 - 14
	R05510-10018-00	Uncoated							

55° PT Threading (Tapered Thread)

Insert Type	Parts No.	Coating	Grade		ØD ±0.025	ØD1	ØD2	L	S ±0.025	Pitch range TPI
CR10	R05510-09516-32	TiAlN	K20F		9.50 (.374")	6.8 (.268")	7.68 (.302")	0.16 (.006")	3.60 (.142")	19
	R05510-09516-00	Uncoated								
	R05510-10025-32	TiAlN	K20F		10.0 (.394")	6.8 (.268")	7.58 (.298")	0.25 (.010")	3.60 (.142")	14
	R05510-10025-00	Uncoated								

60° Parallel Thread

Insert Type	Parts No.	Coating	Grade		ØD ±0.025	ØD1	L	S ±0.025	Pitch range mm	Pitch range TPI
CR05	R06005-05006-32	TiAlN	K20F		5.0 (.197")	3.9 (.154")	0.06 (.002")	2.0 (.079")	0.6 - 0.75	32 - 28
	R06005-05006-00	Uncoated								
	R06005-05010-32	TiAlN			5.0 (.197")	3.9 (.154")	0.10 (.004")	2.0 (.079")	0.8 - 1.0	28 - 24
	R06005-05010-00	Uncoated								
CR07	R06007-06810-32	TiAlN	K20F		6.8 (.268")	5.5 (.217")	0.10 (.004")	2.35 (.093")	0.8 - 1.25	28 - 20
	R06007-06810-00	Uncoated								
CR10	R06010-08510-32	TiAlN	K20F		8.5 (.335")	6.9 (.272")	0.10 (.004")	3.60 (.142")	1.0 - 1.5	24 - 18
	R06010-08510-00	Uncoated								
	R06010-10010-32	TiAlN			10.0 (.394")	6.9 (.272")	0.10 (.004")	3.60 (.142")	1.0 - 2.0	24 - 13
	R06010-10010-00	Uncoated								

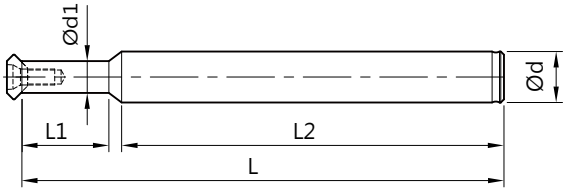
MCC Mill

Feature >>

• Patented pocket design for accurate positioning.

Holder >>

• Various OAL holders for your choice.
• Carbide shank holders good for fine finish.



Insert Type	Parts No.	Type	Shank	Ød	Ød1	L1	L2	L	Screw / Key
CR05	00-99626-CR05-06-039	BC06-CR05-039	Steel	6 (.236")	3.5 (.138")	4 (.157")	33 (1.299")	39 (1.535")	*NS-20045 0.6Nm / NK-T6
	00-99626-CR05-06-045	BC06-CR05-045		6 (.236")	3.5 (.138")	10 (.394")	33 (1.299")	45 (1.772")	
	00-99626-CR05-08-076	BC08-CR05-076		8 (.315")	3.5 (.138")	10 (.394")	60 (2.362")	74 (2.913")	
	00-99626-CR05-05-043	BC05-CR05-043		5 (.197")	3.5 (.138")	16 (.630")	24.25 (0.955")	41 (1.614")	
	00-99626-CR05-06-051	BC06-CR05-051		6 (.236")	3.5 (.138")	16 (.630")	33 (1.299")	51 (2.008")	
	00-99626-CR05-06-051W	BC06-CR05-051W	Carbide	6 (.236")	3.5 (.138")	16 (.630")	33 (1.299")	51 (2.008")	
CR07	00-99626-CR07-06-041	BC06-CR07-041	Steel	6 (.236")	5.0 (.197")	6 (.236")	33 (1.299")	41 (1.614")	*NS-25060 0.9Nm / NK-T7
	00-99626-CR07-08-078	BC08-CR07-078		8 (.315")	5.0 (.197")	13.65 (0.537")	60 (2.362")	75.65 (2.978")	
	00-99626-CR07-06-049	BC06-CR07-049		6 (.236")	5.0 (.197")	14 (.551")	33 (1.299")	49 (1.929")	
	00-99626-CR07-06-052	BC06-CR07-052		6 (.236")	5.0 (.197")	21.65 (0.852")	27.5 (1.083")	49.65 (1.955")	
	00-99626-CR07-06-057	BC06-CR07-057		6 (.236")	5.0 (.197")	22 (.866")	33 (1.299")	57 (2.244")	
	00-99626-CR07-06-057W	BC06-CR07-057W	Carbide	6 (.236")	5.0 (.197")	22 (.866")	33 (1.299")	57 (2.244")	
CR10	00-99626-CR10-08-049	BC08-CR10-049	Steel	8 (.315")	6.8 (.268")	7 (.276")	40 (1.575")	49 (1.929")	NS-35080 2.5Nm / NK-T15
	00-99626-CR10-08-082	BC08-CR10-082		8 (.315")	6.8 (.268")	16.4 (0.646")	60 (2.362")	78.4 (3.087")	
	00-99626-CR10-08-059	BC08-CR10-059		8 (.315")	6.8 (.268")	17 (.669")	40 (1.575")	59 (2.323")	
	00-99626-CR10-08-069	BC08-CR10-069		8 (.315")	6.8 (.268")	27 (1.063")	40 (1.575")	69 (2.717")	
	00-99626-CR10-08-084W	BC08-CR10-084W	Carbide	8 (.315")	6.8 (.268")	27 (1.063")	55 (2.165")	84 (3.307")	

*Torque screwdriver is recommended.

Single Set >>

• Included one holder and one insert is available on request.

Example:

Parts No.	Insert included				Holder included		Content
	Type / grade	ØD ±0.025	C	S ±.025	Shank	L	
00-99626-R106-4101	R09005-05060-32	5.0 (.197")	0.4 (.016")	2.00 (.079")	00-99626-CR05-06-051	51 (2.007")	1 tool holder + 1 inserts + 1 key
00-99626-R306-4301	R09007-07020-32	7.0 (.276")	0.7 (.028")	2.35 (.093")	00-99626-CR07-06-057	57 (2.244")	
00-99626-R606-4601	R09010-10010-32	10.0 (.394")	1.20 (.047")	3.60 (.142")	00-99626-CR10-08-069	49 (1.929")	

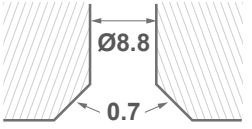
Cutting Data

60° & 90° deburring mill >>

	Workpiece material	SFM	Feed rate (inch / tooth)	Grade of insert
P	Carbon steel	260 ~ 660	0.0002" ~ 0.0047"	NC2032
P	Alloy steel	200 ~ 500	0.0002" ~ 0.0043"	NC2032
M	Stainless steel	130 ~ 390	0.0002" ~ 0.0043"	NC2032
K	Cast iron	200 ~ 500	0.0002" ~ 0.0043"	NC2032
N	Non-ferrous metal	330 ~ 500	0.0002" ~ 0.0059"	XP9000
H	Hardened steel < 60 HRC	100 ~ 260	0.0002" ~ 0.0020"	NC2032

Performance >>

Work Task: 0.7 back chamfering
Material: Stainless Steel
Machine: MECTRON MTS-C420



Tool		 MCC Deburring Mill	 Carbide chamfering cutter
Deburring		0.7 mm	0.7 mm
Dia. of cutter	**mm**	7	8
Teeth of cutter		6	3
Spindle Speed	**r.p.m.**	2500	2500
Feed rate	**mm/min**	300	150
		RESULT	
Tool life		***720*** workpiece **8 times higher**	90 workpiece

Comparison of Surface Quality >>

Material	Deburring	Vc m/min	S r.p.m.	f mm/tooth	F mm/min
SCM415	C0.3	188.5	6000	0.03	1080

Tool: Nine9 MCC Mill
Holder: 00-99626-CR10-08-082 / Insert: R09010-10010-32

Tool: Other brand chamfering cutter

Cutting Data

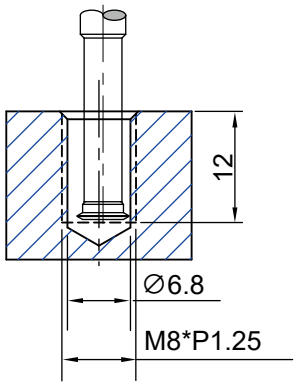
55° & 60° thread milling >>

	Workpiece material	SFM	Feed rate (inch / tooth)	Grade of insert
P	Carbon steel	130 ~ 390	0.00008" ~ 0.0005"	NC2032
P	Alloy steel	100 ~ 300	0.00008" ~ 0.0004"	NC2032
M	Stainless steel	100 ~ 260	0.00008" ~ 0.0004"	NC2032
K	Cast iron	130 ~ 330	0.00008" ~ 0.0004"	NC2032
N	Non-ferrous metal	200 ~ 660	0.00008" ~ 0.0005"	XP9000
H	Hardened steel < 50 HRC	66 ~ 200	0.00008" ~ 0.0003"	NC2032

Sample program of internal thread milling

Workpiece: Carbon steel
Thread: M8xP1.25
Prebore: ø6.8 depth 12 mm
Tool holder: 00-99626-CR07-06-049
Insert: R06007-06810-32

Cutting data:
Vc= 100 m/min. fz= 0.005mm/tooth
S= 4680 rpm F= 140.4 mm/min. (feed rate of tool center)



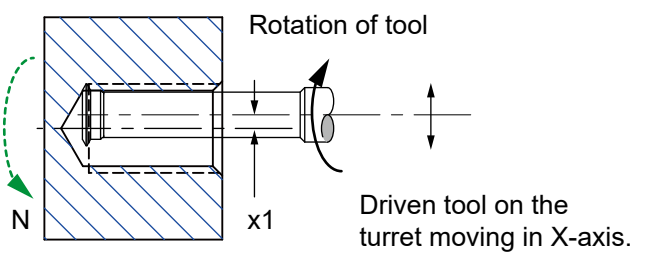

```
%1030
G00G90X0.Y0.
S4680 M03
G43H03Z30. M08
Z5.
G01 Z-12. F200.
G03 X0.65 Y0. R0.8 F46.8
G03 I-0.65 Z0-10.75 F140.4
G03 I-0.65 Z-9.5
G03 I-0.65 Z-8.25
G03 I-0.65 Z-7.
G03 I-0.65 Z-5.75
G03 I-0.65 Z-4.5
G03 I-0.65 Z-3.25
G03 I-0.65 Z-2.
G03 I-0.65 Z-0.75
G03 I-0.65 Z0.5
G00 G90 Z5. M09
G00 G90 Z30. M05
G28 G91 Z0.
M30
%
```

For thread milling on
CNC turning machine without Y-axis.

Ftc=F= S * fz * z

Work spindle speed N:
N = Ftc/2*π * x1

x1 is the depth of thread



Z-axis feed rate= pitch of thread (mm)
Direction of N depends on the left hand or right hand thread.