Supplement

MCC Mill

60° & 90° Front and Back Deburring, 55° & 60° Threading

MCC Minimum Consumable Cutting Indicator 5%

1 holder One holder supports various inserts Economical and flexibility

6 flutes Insert has 6 flutes design, 6 times higher feed rate

10mm below Specialized on narrow space below 10mm by indexable inserts

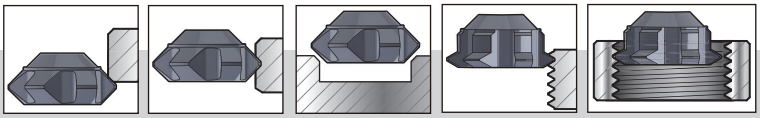
- **Excellent surface finishing.**
- **Patented Nine9 clamping system ensures uniform geometry and accurate position. Fully ground insert geometry for burr free.**

Deburring Mill 60° & 90°

- Front & back deburring in one operation, grooving is also possible.
- The smallest plunge deburring bore from Ø4.2mm.

Threading Mill 55° & 60°

- The smallest insert Ø5.0 can do M6xP0.75 internal threading.
- For external different threading pitch can be done by NC programing.
  For example: Ø10.0mm insert can do external threading pitch from P1.0 to P1.75mm, save your tool inventory.

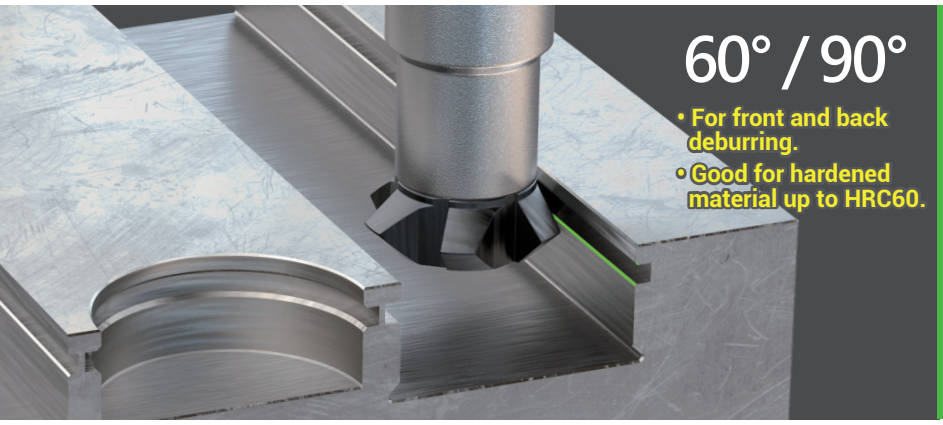


One Insert, Multiple Operation

P M K N H

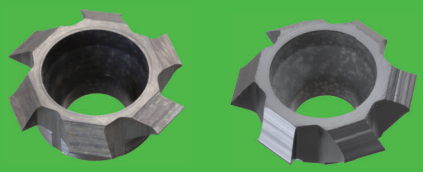
With the integration of the MCC Mill into Nine9's deburring and chamfering tool system, a wide range of machining tasks—front and back deburring, contour chamfering, side grooving, and threading can be performed to high standards across various materials.

The system provides excellent positioning repeatability and is able to adjust pitch, enhancing process stability and delivering consistent precision while also simplifying tool management and reducing inventory.



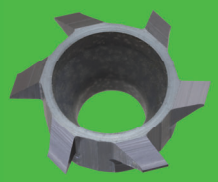
60° / 90°

- For front and back deburring.
- Good for hardened material up to HRC60.

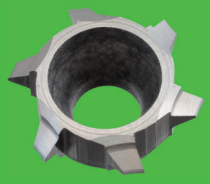


60° Deburring

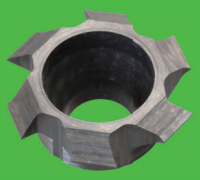
90° Deburring



55° Parallel Pipe Thread



55°, 60° Tapered Pipe Thread



60° Parallel Thread

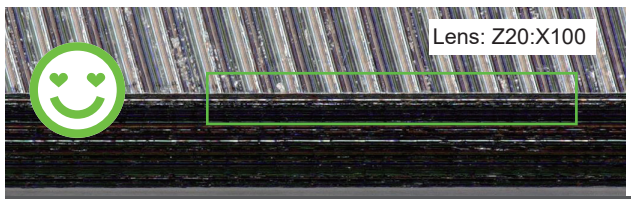
55° / 60°

- Parallel Thread & Tapered Pipe Thread
- Fully ground insert creates excellent surface finishing.

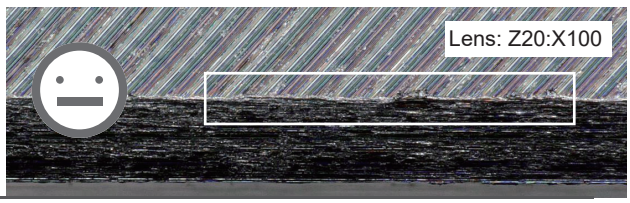
Comparison of Surface Quality >>

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

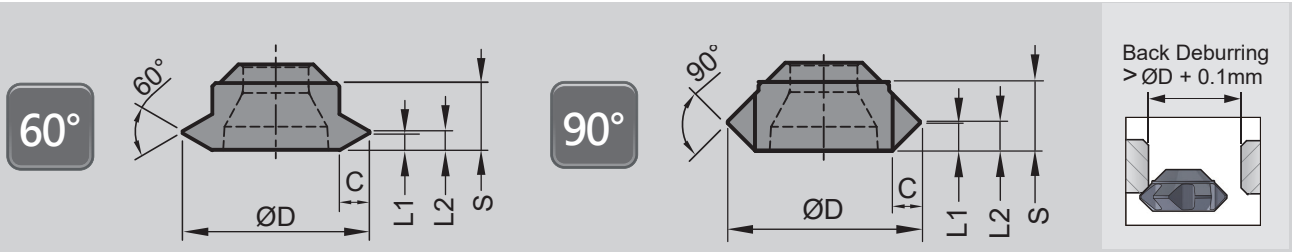
Tool: Nine9 MCC Mill
Holder: 00-99626-CR10-08-082 / Insert: R09010-10010-32



Tool: Other brand chamfering cutter



MCC Mill- Front and Back Deburring



Inserts >>

NC2032: • TiAlN coating provides longer tool life.
• For all kinds of steel < HRC60, 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.

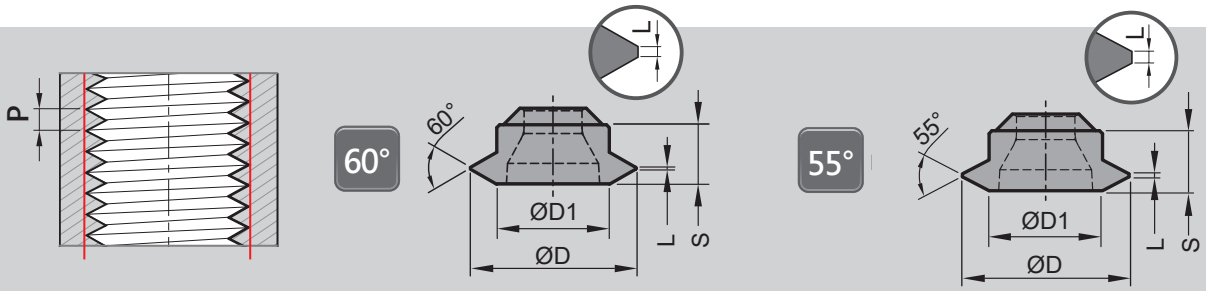
60° deburring

Size	Code	Parts No.	Coating	Grade	ØD ±0.025	L1	L2	S ±0.025	C	Plunge 0.1C	
										min. hole	max. hole
CR05	01R2103	R06005-05010-32	TiAlN	K20F	5.0	0.35	0.45	2.00	0.40	4.2	4.8
	01R2104	R06005-05010-00	Uncoated								
CR07	01R2301	R06007-06810-32	TiAlN	K20F	6.8	0.40	0.50	2.35	0.50	5.8	6.6
	01R2302	R06007-06810-00	Uncoated								
CR10	01R2601	R06010-08510-32	TiAlN	K20F	8.5	0.49	0.59	3.60	0.65	7.2	8.3
	01R2602	R06010-08510-00	Uncoated								
	01R2603	R06010-10010-32	TiAlN		10.0	0.90	1.00	3.60	1.20	7.6	9.8
	01R2604	R06010-10010-00	Uncoated								

90° deburring

Size	Code	Parts No.	Coating	Grade	ØD ±0.025	L1	L2	S ±0.025	C	Plunge 0.1C	
										min. hole	max. hole
CR05	01R4107	R09005-04820-32	TiAlN	K20F	4.8	0.50	0.70	2.00	0.30	4.2	4.6
	01R4108	R09005-04820-00	Uncoated								
	01R4101	R09005-05060-32	TiAlN		5.0	0.60	1.20		0.40	4.2	4.8
	01R4102	R09005-05060-00	Uncoated								
	01R4105	R09005-05320-32	TiAlN		5.3	0.65	0.85		0.45	4.4	5.1
	01R4106	R09005-05320-00	Uncoated								
	01R4103	R09005-05520-32	TiAlN		5.5	0.75	0.95		0.55	4.4	5.3
	01R4104	R09005-05520-00	Uncoated								
CR06	01R4201	R09006-05820-32	TiAlN	K20F	5.8	0.75	0.95	2.40	0.55	4.7	5.6
	01R4202	R09006-05820-00	Uncoated								
	01R4203	R09006-06020-32	TiAlN		6.0	0.85	1.05		0.65	4.7	5.8
	01R4204	R09006-06020-00	Uncoated								
	01R4205	R09006-06320-32	TiAlN		6.3	1.00	1.20		0.80	4.7	6.1
	01R4206	R09006-06320-00	Uncoated								
	01R4207	R09006-06520-32	TiAlN		6.5	1.10	1.30		0.90	4.7	6.3
	01R4208	R09006-06520-00	Uncoated								
CR07	01R4303	R09007-06820-32	TiAlN	K20F	6.8	0.90	1.10	3.0	0.70	5.4	6.6
	01R4304	R09007-06820-00	Uncoated								
	01R4301	R09007-07020-32	TiAlN		7.0	1.00	1.20		0.80	5.4	6.8
	01R4302	R09007-07020-00	Uncoated								
	01R4305	R09007-07320-32	TiAlN		7.3	1.15	1.35		0.95	5.4	7.1
	01R4306	R09007-07320-00	Uncoated								
	01R4307	R09007-07820-32	TiAlN		7.8	1.40	1.60		1.20	5.4	7.6
	01R4308	R09007-07820-00	Uncoated								
CR10	01R4601	R09010-10010-32	TiAlN	K20F	10.0	1.45	1.55	3.60	1.20	7.6	9.8
	01R4602	R09010-10010-00	Uncoated								

MCC Mill- Parallel Thread



Inserts >>

NC2032: • TiAlN coating provides longer tool life.
• For all kinds of steel < HRC50, 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.

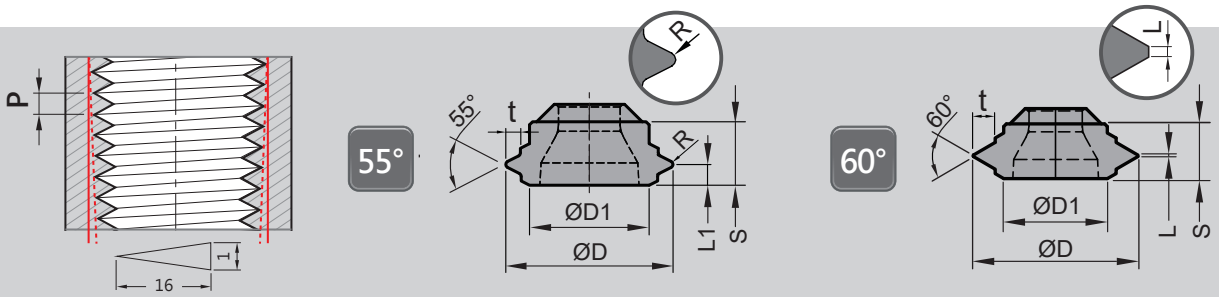
60° Parallel Thread: such as metric thread.

Size	Code	Parts No.	Coating	Grade	ØD ±0.025	ØD1	L	S ±0.025	Pitch range	
										mm
CR05	01R2101	R06005-05006-32	TiAlN	K20F	5.0	3.9	0.06	2.0	Internal	0.6 ~ 0.75
	01R2102	R06005-05006-00	Uncoated						External	0.5 ~ 0.7
	01R2103	R06005-05010-32	TiAlN		5.0	3.9	0.10	2.0	Internal	0.8 ~ 1.0
	01R2104	R06005-05010-00	Uncoated						External	0.6 ~ 0.8
CR07	01R2301	R06007-06810-32	TiAlN	K20F	6.8	5.5	0.10	2.35	Internal	0.8 ~ 1.25
	01R2302	R06007-06810-00	Uncoated						External	0.7 ~ 1.0
CR10	01R2601	R06010-08510-32	TiAlN	K20F	8.5	6.9	0.10	3.60	Internal	1.0 ~ 1.5
	01R2602	R06010-08510-00	Uncoated						External	0.7 ~ 1.0
	01R2603	R06010-10010-32	TiAlN		10.0	6.9	0.10	3.60	Internal	1.0 ~ 2.0
	01R2604	R06010-10010-00	Uncoated						External	1.0 ~ 1.75

55° Parallel Pipe Thread: such as ISO/JIS-G, PF, Rp, PS; BSPP.

Size	Code	Parts No.	Coating	Grade	ØD ±0.025	ØD1	L	S ±0.025	Pitch range
									TPI
CR07	01R1301	R05507-06512-32	TiAlN	K20F	6.56	5.32	0.12	2.35	28
	01R1302	R05507-06512-00	Uncoated						
CR10	01R1601	R05510-10018-32	TiAlN	K20F	10.0	6.92	0.18	3.60	19 & 14
	01R1602	R05510-10018-00	Uncoated						

MCC Mill- Tapered Thread



Inserts >>

NC2032: • TiAlN coating provides longer tool life.
• For all kinds of steel < HRC50, 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° Tapered Pipe Thread: such as ISO/JIS-R, PT, Rc; BSPT.

• Mill a tapered thread directly into a drilled hole without the need to pre-mill the taper.

Size	Code	Parts No.	Coating	Grade	ØD ±0.025	ØD1	t	R	L1	S ±0.025	Pitch range TPI
CR10	01R1603	R05510-09516-32	TiAlN	K20F	9.50	6.8	0.85	0.18	1.18	3.6	19
	01R1604	R05510-09516-00	Uncoated								
	01R1605	R05510-10025-32	TiAlN	K20F	10.0	6.8	1.16	0.25	1.42	3.6	14
	01R1606	R05510-10025-00	Uncoated								

60° Tapered Thread: such as NPT.

Size	Code	Parts No.	Coating	Grade	ØD ±0.025	ØD1	t	L	S ±0.025	Pitch range TPI
CR10	01R2605	R06010-09808-32	TiAlN	K20F	9.80	6.8	1.08	0.08	3.6	18
	01R2606	R06010-09808-00	Uncoated							
	01R2607	R06010-10810-32	TiAlN	K20F	10.8	6.8	1.00	0.10	3.6	14
	01R2608	R06010-10810-00	Uncoated							

Solid carbide deburring cutter
64g weight

Steel holder with carbide insert
23g weight

Carbide insert
1g weight

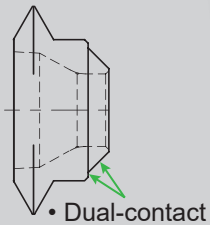
MCC Mill *Indexable type*

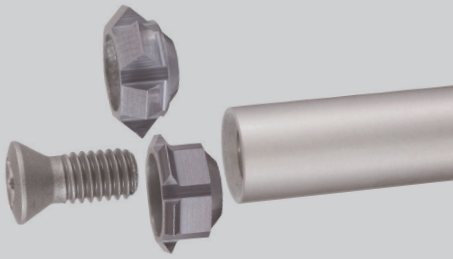
- *Minimum Consumable Cutting Reduces the tungsten carbide raw material, reduces carbon emission.*
- *One holder supports various inserts. Economical and flexibility.*
- *Min. deburring bore from Ø4.2 ~ Ø10mm. The smallest internal threading from M6xP0.75.*

MCC Mill- Holder

Feature >>

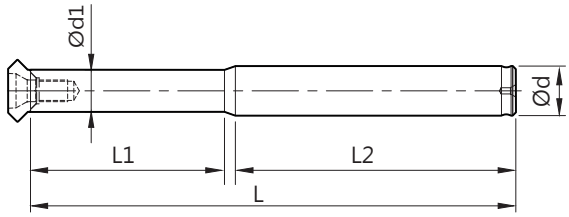
- Patented clamping system for accurate positioning.
- Dual-contact insert pocket, the repeatability is guaranteed.





Cylindrical Shank >>

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



Size	Code	Parts No.	Type	Shank	Ød	Ød1	L1	L2	L	Screw / Key
CR05	70R104	00-99626-CR05-06-039	BC06-CR05-039	Steel	6	3.5	4	33	39	*NS-20045 0.6Nm / NK-T6
	70R105	00-99626-CR05-06-045	BC06-CR05-045		6	3.5	10	33	45	
	70R103	00-99626-CR05-08-076	BC08-CR05-076		8	3.5	10	60	74	
	70R101	00-99626-CR05-05-043	BC05-CR05-043		5	3.5	16	24	41	
	70R106	00-99626-CR05-06-051	BC06-CR05-051		6	3.5	16	33	51	
	70R107	00-99626-CR05-06-051W	BC06-CR05-051W	Carbide	6	3.5	16	33	51	
CR06	70R201	00-99626-CR06-06-041	BC06-CR06-041	Steel	6	4.3	6	33	41	*NS-22062 0.9Nm / NK-T7
	70R202	00-99626-CR06-06-047	BC06-CR06-047		6	4.3	12	33	47	
	70R203	00-99626-CR06-06-053	BC06-CR06-053		6	4.3	18	33	53	
CR07	70R304	00-99626-CR07-06-041	BC06-CR07-041	Steel	6	5.0	6	33	41	*NS-25060 0.9Nm / NK-T7
	70R303	00-99626-CR07-08-078	BC08-CR07-078		8	5.0	13	60	75	
	70R305	00-99626-CR07-06-049	BC06-CR07-049		6	5.0	14	33	49	
	70R301	00-99626-CR07-06-052	BC06-CR07-052		6	5.0	21	27	49	
	70R306	00-99626-CR07-06-057	BC06-CR07-057		6	5.0	22	33	57	
	70R307	00-99626-CR07-06-057W	BC06-CR07-057W	Carbide	6	5.0	22	33	57	
CR10	70R604	00-99626-CR10-08-049	BC08-CR10-049	Steel	8	6.8	7	40	49	NS-35080 2.5Nm / NK-T15
	70R603	00-99626-CR10-08-082	BC08-CR10-082		8	6.8	16	60	78	
	70R605	00-99626-CR10-08-059	BC08-CR10-059		8	6.8	17	40	59	
	70R606	00-99626-CR10-08-069	BC08-CR10-069		8	6.8	27	40	69	
	70R607	00-99626-CR10-08-084W	BC08-CR10-084W	Carbide	8	6.8	27	55	84	

*Torque screwdriver is recommended.

Single Set >>

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

Parts No.	Insert included				Holder included		Content
	Type / grade	ØD ±0.025	C	S ±0.025	Shank	L	
00-99626-R106-4101	R09005-05060-32	5.0	0.4	2.00	00-99626-CR05-06-051	51	1 tool holder + 1 inserts + 1 key
00-99626-R306-4301	R09007-07020-32	7.0	0.7	2.35	00-99626-CR07-06-057	57	
00-99626-R606-4601	R09010-10010-32	10.0	1.2	3.60	00-99626-CR10-08-069	69	

Cutting Data

60° & 90° deburring mill >>

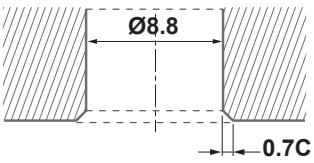
Workpiece material		Vc (m/min)	Feed rate (mm / tooth)	Grade of insert
P	Carbon steel	80 ~ 250	0.005 ~ 0.12	NC2032
	Alloy steel	60 ~ 200	0.005 ~ 0.10	NC2032
M	Stainless steel	40 ~ 120	0.005 ~ 0.10	NC2032
K	Cast iron	60 ~ 180	0.005 ~ 0.10	NC2032
N	Non-ferrous metal	100 ~ 500	0.005 ~ 0.15	XP9000
H	Hardened steel < HRC60	30 ~ 80	0.005 ~ 0.05	NC2032

55° & 60° threading mill >>

Workpiece material		Vc (m/min)	Feed rate (mm / tooth)	Grade of insert
P	Carbon steel	40 ~ 120	0.002 ~ 0.013	NC2032
	Alloy steel	30 ~ 90	0.002 ~ 0.01	NC2032
M	Stainless steel	30 ~ 80	0.002 ~ 0.01	NC2032
K	Cast iron	40 ~ 100	0.002 ~ 0.01	NC2032
N	Non-ferrous metal	60 ~ 200	0.002 ~ 0.013	XP9000
H	Hardened steel < HRC50	20 ~ 60	0.002 ~ 0.008	NC2032

Performance >>

Work Task: C0.7 back chamfering
Material: Stainless Steel
Machine: MECTRON MTS-C420

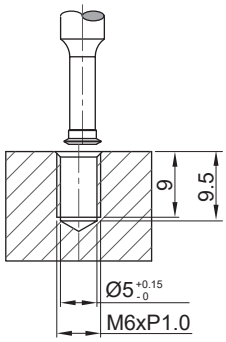


Tool		 MCC Deburring Mill Holder: 00-99626-CR07-049 Insert: R09007-07020-32	 Carbide chamfering cutter
Deburring		0.7 mm	0.7 mm
Dia. of cutter	**mm**	7	8
Teeth of cutter		6	3
Spindle Speed	**r.p.m.**	2500	2500
Feed rate	**mm/min**	300	150
		RESULT	
Tool life		***720*** workpiece **8 times higher**	90 workpiece

Sample program of internal thread milling

Workpiece: S45C
Thread: M6xP1.0
Prebore: ø5 depth 9.5 mm
Tool holder: 00-99626-CR05-06-045
Insert: R06005-05010-32

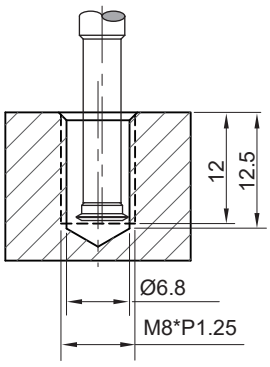
Cutting data:
Vc= 80 m/min.
fz= 0.004mm/tooth
S= 5100 rpm F= 122.4mm/min.
(feed rate of tool center)




```
%
O00001 (M6*P1.0*9L)
G00 G90 X0. Y0.
S5100 M03
G43 H01 Z30. M08
Z5.
G01 Z-9. F150.
G03 X0.52 Y0. R1. F35.
G03 I-0.52 Z-8. F122.4
G03 I-0.52 Z-7.
G03 I-0.52 Z-6.
G03 I-0.52 Z-5.
G03 I-0.52 Z-4.
G03 I-0.52 Z-3.
G03 I-0.52 Z-2.
G03 I-0.52 Z-1.
G03 I-0.52 Z0.
G03 I-0.52 Z1.
G00 G90 Z5. M09
G28 G91 Z0. M05
G28 G91 Y0.
M30
%
```

Workpiece: Carbon steel
Thread: M8xP1.25
Prebore: ø6.8 depth 12.5 mm
Tool holder: 00-99626-CR07-06-049
Insert: R06007-06810-32

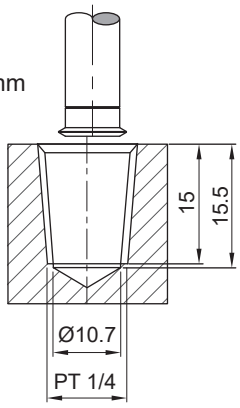
Cutting data:
Vc= 100 m/min.
fz= 0.005mm/tooth
S= 4680 rpm
F= 140.4 mm/min.
(feed rate of tool center)




```
%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
%
```

Workpiece: Carbon steel
Thread: PT 1/4
Prebore: ø10.7 depth 15.5 mm
Tool holder:
00-99626-CR10-08-069
Insert: R05510-09516-32

Cutting data:
Vc= 100 m/min.
fz= 0.007mm/tooth
S= 3183 rpm
F= 135 mm/min.
(feed rate of tool center)




```
(main program);
G65P0419U54.X0.Y45.Z20.R0.T7.V100.F0.007Q15.D0.1;
M05;
M09;
G91G28Z0.;
G91G28Y0.;
M30;
(sub program);
O0419;
IF[#4120EQ#20]GOTO99;
G17G21G40G80;
N99;
#101=13.157+#7;
#102=9.5;
#103=19.;
#100=#101-#102;
#104=10.;
#105=[25.4/#103];
#106=3.1416/180;
#107=[[#22]*1000]/[[#102]*3.1416];
#111=0.;
#112=[#100/2];
#113=0.;
#114=[#105*1.5];
#115=[#112+[[#105*[1/32]]*1.5]];
#112=#115;
S#107M03;
/M8;
G90G#21G00X#24Y#25;
G43Z#26H#4120;
G90G00X[#112+#24]Y[#113+#25]Z[#114+#18]
F[[#4119*#9]*6.];
N1000;
#116=[#116+#104];
#119=[[[-#105]*[#116/360.]]+#114];
#120=[#112-[[#105*[1/32]]*[#116/360.]]];
#117=[[COS[[[#116*#106]/3.1416]*180.]]*#120];
#118=[[SIN[[[#116*#106]/3.1416]*180.]]*[-#120]];
G90G02X[#117+#24]Y[#118+#25]Z[#119+#18]
R[#120]F[[#4119*#9]*6.];
IF[[ABS[#119]]GE#17]GOTO9000;
GOTO1000;
N9000;
G90G01X#24Y#25;
G90G01Z#18F1500.;
G90G00Z#26;
M09;
M99;
```

Friendly reminding: Upward and outward thread milling is recommended for all threads, except 55° PT threading.

JIMMORE International Corp.