Nine9®

Main Catalog
Supplement

E®

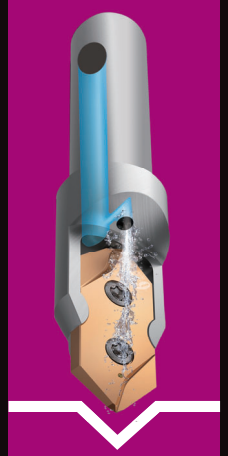
2023

Ergo Long Shank Mill Cutter
P.15

X060 Micro Spot Drill Deburring Tool
P.13

Corner rounding & Spot Drill
P. 11

Deburring Mill
P. 9



ACE Spot Drill
P. 1

ACE Spot Drill >>

Spotting

Countersink

Chamfering

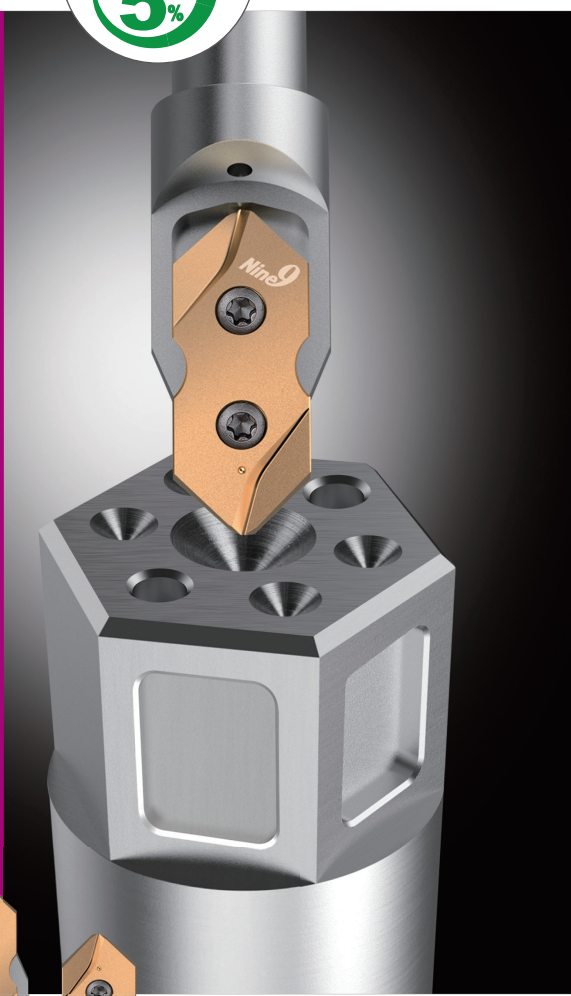
Accuracy! Coolant! Efficiency!

High rigidity, HPC high performance cutting, ultra-long tool life.

MCC Minimum Consumable Cutting Indicator 5%

Features

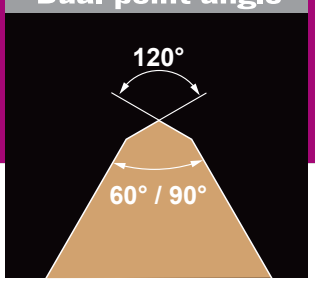
- **3 angles : 60° / 90° / 120°**
- **2-flutes edged is symmetric, it reduces the lateral force.**
  - High rigidity, HPC high performance cutting, ultra-long tool life.
  - Dual clamping screwed design ensures the vibration free during the cutting.
  - Each insert has 2 cutting edges
  - Holder with internal coolant.
  - Ultra long tool life.



2-flutes edged

- It is symmetric.

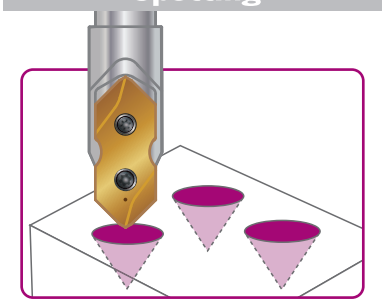
Dual point angle



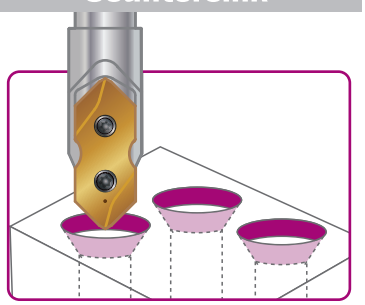
- The double point angles ensure strength at the centre to prevent fracturing.

NEW

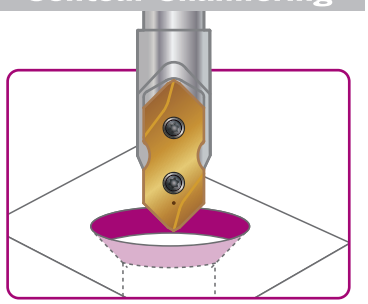
Spotting



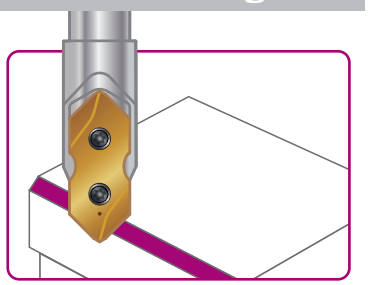
Countersink



Contour Chamfering



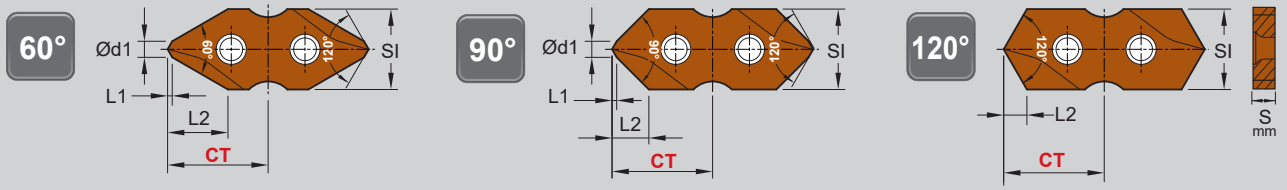
Chamfering



- Can drill with minimum quantity lubrication (MQL).

- Excellent repeatability.
  No need tool length re-setting by insert type.
  Ultra long tool life.

ACE Spot Drill spotting, countersink & chamfering

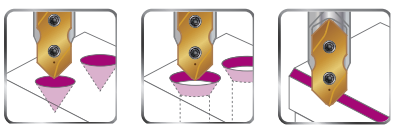


Inserts >>

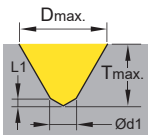
NC2057: • Universal grade for alloy steel and cast iron.
• Each insert has 2 cutting edges.

NC5254: • For stainless steel.
• Each insert has 2 cutting edges.

XP9000: • High positive geometry and sharp edge produces excellent surface finish.
• For non-ferrous material such as aluminum, titanium, brass, copper and long cutting chip metal.
• Each insert has 2 cutting edges.



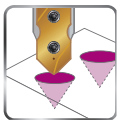
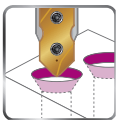
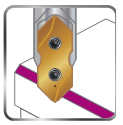
For spotting, countersink & chamfering >>



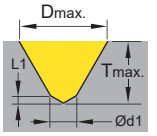
SI	Angle ±0.5	Parts No.		Coating	Grade	Ød1	*L1	L2	Dmax.	Tmax.	S	CT ±0.025 (0.001")
08 (0.315")	60°	S9MT0802-060	NC2057	AL(L)	P35	1.6 (0.063")	0.46 (0.018")	6.0 (0.236")	7.5 (0.295")	5.6 (0.220")	2.4 (0.094")	10 (0.394")
			NC5254	Helica								
			XP9000	Uncoated								
	90°	S9MT0802-090	NC2057	AL(L)		1.6 (0.063")	0.46 (0.018")	3.6 (0.142")	7.5 (0.295")	3.4 (0.134")		
			NC5254	Helica								
			XP9000	Uncoated								
	120°	S9MT0802-120	NC2057	AL(L)		-	-	2.3 (0.090")	7.5 (0.295")	2.2 (0.087")		
			NC5254	Helica								
			XP9000	Uncoated								
10 (0.394")	60°	S9MT1003-060	NC2057	AL(L)	P35	2 (0.079")	0.58 (0.023")	7.5 (0.295")	9.5 (0.374")	7.1 (0.280")	3.0 (0.118")	12.50 (0.492")
			NC5254	Helica								
			XP9000	Uncoated								
	90°	S9MT1003-090	NC2057	AL(L)		2 (0.079")	0.58 (0.023")	4.6 (0.181")	9.5 (0.374")	4.4 (0.173")		
			NC5254	Helica								
			XP9000	Uncoated								
	120°	S9MT1003-120	NC2057	AL(L)		-	-	2.9 (0.114")	9.5 (0.374")	2.7 (0.106")		
			NC5254	Helica								
			XP9000	Uncoated								
12 (0.472")	60°	S9MT1203-060	NC2057	AL(L)	P35	2.4 (0.094")	0.69 (0.027")	9.0 (0.354")	11.5 (0.453")	8.6 (0.339")	3.0 (0.118")	15 (0.059")
			NC5254	Helica								
			XP9000	Uncoated								
	90°	S9MT1203-090	NC2057	AL(L)		2.4 (0.094")	0.69 (0.027")	5.5 (0.217")	11.5 (0.453")	5.3 (0.209")		
			NC5254	Helica								
			XP9000	Uncoated								
	120°	S9MT1203-120	NC2057	AL(L)		-	-	3.5 (0.138")	11.5 (0.453")	3.3 (0.130")		
			NC5254	Helica								
			XP9000	Uncoated								

* Please avoid L1 when chamfering.

ACE Spot Drill spotting, countersink & chamfering

For spotting, countersink & chamfering >>

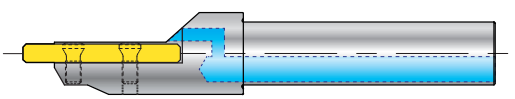


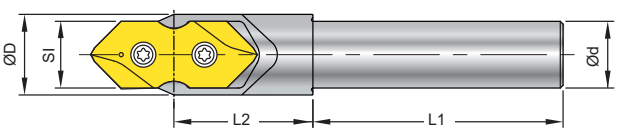
SI	Angle ±0.5	Parts No.		Coating	Grade	Ød1	*L1	L2	Dmax.	Tmax.	S	CT ±0.025 (0.001")
16 (0.630")	60°	S9MT1603-060	NC2057	AL(L)	P35	3.2 (0.126")	0.92 (0.036")	12 (0.472")	15.5 (0.610")	11.6 (0.457")	3.18 (0.125")	16 (0.630")
			NC5254	Helica								
			XP9000	Uncoated								
	90°	S9MT1603-090	NC2057	AL(L)		3.2 (0.126")	0.92 (0.036")	7.3 (0.287")	15.5 (0.610")	7.0 (0.276")		
			NC5254	Helica								
			XP9000	Uncoated								
	120°	S9MT1603-120	NC2057	AL(L)		-	-	4.6 (0.181")	15.5 (0.610")	4.4 (0.173")		
			NC5254	Helica								
			XP9000	Uncoated								
20 (0.787")	60°	S9MT2004-060	NC2057	AL(L)	P35	4.0 (0.157")	1.16 (0.046")	15 (0.591")	19.5 (0.768")	14.6 (0.575")	4.76 (0.187")	20 (0.787")
			NC5254	Helica								
			XP9000	Uncoated								
	90°	S9MT2004-090	NC2057	AL(L)		4.0 (0.157")	1.16 (0.046")	9.2 (0.362")	19.5 (0.768")	8.9 (0.350")		
			NC5254	Helica								
			XP9000	Uncoated								
	120°	S9MT2004-120	NC2057	AL(L)		-	-	5.8 (0.228")	19.5 (0.768")	5.6 (0.220")		
			NC5254	Helica								
			XP9000	Uncoated								

* Please avoid L1 when chamfering.

Cylindrical Shank >>

- Made of hardened high alloy steel, 58 HRC.
- Internal coolant.

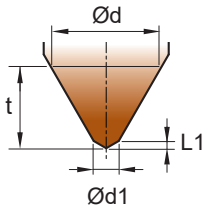
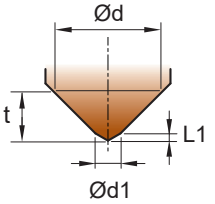
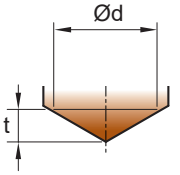




SI	Parts No.	Ød	L1	L2	ØD	Screw	Key
08 (0.315")	99688-SI08-08	8 (0.315")	36 (1.417")	19 (0.748")	10.5 (0.413")	NS-20045 / 0.6Nm	NK-T6
10 (0.394")	99688-SI10-10	10 (0.394")	40 (1.575")	22.5 (0.886")	13 (0.512")	NS-25060 / 0.9Nm	NK-T7
12 (0.472")	99688-SI12-12	12 (0.472")	45 (1.772")	25 (0.984")	15.5 (0.610")	NS-30072 / 2.0Nm	NK-T9
16 (0.630")	99688-SI16-16	16 (0.630")	48 (1.890")	32 (1.260")	21 (0.827")	NS-35080 / 2.5Nm	NK-T15
20 (0.787")	99688-SI20-20	20 (0.787")	50 (1.969")	35 (1.378")	26 (1.024")	NS-50125 / 5.5Nm	NK-T20

Technical Guide

From spot diameter "d" to get drill depth "t".

60°	90°	120°
		
t = (Ød-Ød1) X 0.0341" + L1	t = (Ød-Ød1) X 0.0197" + L1	t = 0.0114" X Ød

* Please avoid **L1** when chamfering.

STEP files

or Search on internet.

Download Nine9

Calculate spindle speed and feed rate

Metric

$$S = \frac{Vc \times 1000}{\pi \times d}$$

$$F = S \times f$$

d =	diameter -mm
S =	Spindle Speed -r.p.m.
Vc =	Cutting Speed -m/min.
f =	mm/rev.
F =	mm/min.

Inch

$$S = \frac{(3.82 \times SFM)}{d}$$

$$SFM = Vc \times 3.28$$

$$F = r.p.m \times IPR$$

d =	diameter-inch
S =	Spindle Speed-r.p.m.
SFM =	Surface Speed-ft./min.
f = IPR =	inch/rev.
F =	inch/min.

Cutting Data

SI08 - S9MT0802

	Workpiece material	SFM	IPR (inch/rev.)			Grade of insert
			60°	90°	120°	
P	Carbon steel C<0.3%	390-820	0.0016~0.0039	0.0039~0.0071	0.0039~0.0079	NC2057
P	Carbon steel C>0.3%	330-720				
P	Low alloy steel C<0.3%	330-660	0.0016~0.0031	0.0039~0.0063	0.0039~0.0071	NC2057
P	High alloy steel C>0.3%	265-590	0.0012~0.0024	0.0031~0.0055	0.0031~0.0063	NC2057
M	Stainless Steel	200-390	0.0008~0.0024	0.0008~0.0040	0.0012~0.0039	NC5254
K	Casting Iron	265-590	0.0012~0.0024	0.0031~0.0055	0.0031~0.0063	NC2057
N	Al, and non-ferrous metal	500-1050	0.0024~0.0047	0.0039~0.0079	0.0039~0.0079	XP9000

SI10 - S9MT1003

	Workpiece material	SFM	IPR (inch/rev.)			Grade of insert
			60°	90°	120°	
P	Carbon steel C<0.3%	390-820	0.0016~0.0039	0.0039~0.0079	0.0039~0.0087	NC2057
P	Carbon steel C>0.3%	330-720				
P	Low alloy steel C<0.3%	330-660	0.0016~0.0031	0.0039~0.0071	0.0039~0.0071	NC2057
P	High alloy steel C>0.3%	265-590	0.0012~0.0024	0.0031~0.0063	0.0031~0.0063	NC2057
M	Stainless Steel	200-390	0.0008~0.0024	0.0008~0.0039	0.0012~0.0040	NC5254
K	Casting Iron	265-590	0.0012~0.0024	0.0031~0.0063	0.0031~0.0063	NC2057
N	Al, and non-ferrous metal	500-1050	0.0024~0.0047	0.0039~0.0079	0.0039~0.0098	XP9000

Cutting Data

SI12 - S9MT1203

	Workpiece material	SFM	IPR (inch/rev.)			Grade of insert
			60°	90°	120°	
P	Carbon steel C<0.3%	390-820	0.0016~0.0039	0.0039~0.0087	0.0039~0.0098	NC2057
P	Carbon steel C>0.3%	330-720				
P	Low alloy steel C<0.3%	330-660	0.0016~0.0031	0.0039~0.0079	0.0039~0.0079	NC2057
P	High alloy steel C>0.3%	265-590	0.0012~0.0024	0.0031~0.0063	0.0031~0.0063	NC2057
M	Stainless Steel	200-390	0.0008~0.0024	0.0008~0.0039	0.0012~0.0047	NC5254
K	Casting Iron	265-590	0.0012~0.0024	0.0031~0.0063	0.0031~0.0063	NC2057
N	Al, and non-ferrous metal	500-1050	0.0024~0.0047	0.0039~0.0087	0.0039~0.0098	XP9000

SI16 - S9MT1603

	Workpiece material	SFM	IPR (inch/rev.)			Grade of insert
			60°	90°	120°	
P	Carbon steel C<0.3%	390-820	0.0016~0.0039	0.0039~0.0087	0.0039~0.0118	NC2057
P	Carbon steel C>0.3%	330-720				
P	Low alloy steel C<0.3%	330-660	0.0016~0.0031	0.0039~0.0079	0.0039~0.0098	NC2057
P	High alloy steel C>0.3%	265-590	0.0012~0.0031	0.0031~0.0063	0.0031~0.0079	NC2057
M	Stainless Steel	200-390	0.0008~0.0031	0.0012~0.0047	0.0012~0.0047	NC5254
K	Casting Iron	265-590	0.0012~0.0031	0.0031~0.0063	0.0031~0.0079	NC2057
N	Al, and non-ferrous metal	500-1050	0.0024~0.0055	0.0039~0.0087	0.0039~0.0098	XP9000

SI20 - S9MT2004

	Workpiece material	SFM	IPR (inch/rev.)			Grade of insert
			60°	90°	120°	
P	Carbon steel C<0.3%	390-820	0.0016~0.0047	0.0039~0.0098	0.0039~0.0118	NC2057
P	Carbon steel C>0.3%	330-720				
P	Low alloy steel C<0.3%	330-660	0.0016~0.0039	0.0039~0.0079	0.0039~0.0098	NC2057
P	High alloy steel C>0.3%	265-590	0.0012~0.0031	0.0031~0.0063	0.0031~0.0079	NC2057
M	Stainless Steel	200-390	0.0008~0.0031	0.0012~0.0047	0.0012~0.0047	NC5254
K	Casting Iron	265-590	0.0012~0.0031	0.0031~0.0063	0.0031~0.0079	NC2057
N	Al, and non-ferrous metal	500-1050	0.0024~0.0063	0.0039~0.0098	0.0039~0.0118	XP9000

Deburring Mill 60° & 90°

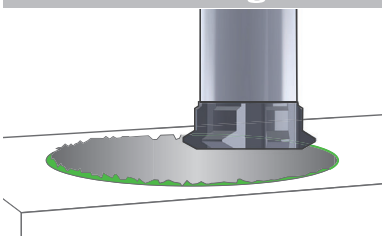
For both front and back deburring.
Specialized on narrow space below 10mm by indexable insert.

Features

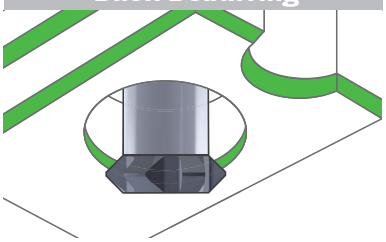
- Thanks to special insert geometry and Nine9 clamping system it provides high precision and accurate position.
- Front & back deburring in one operation.
- Minimum deburring bore from Ø3.9mm to Ø10mm.
- 6 cutting flutes provide higher feed rate, optimized performance and reduced cycle time.

NEW

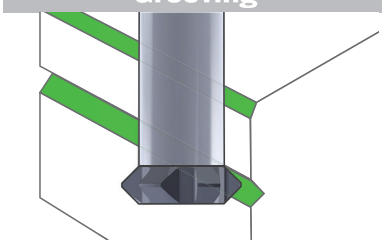
Deburring



Back Deburring

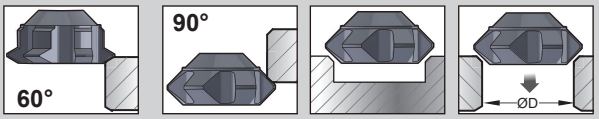


Grooving

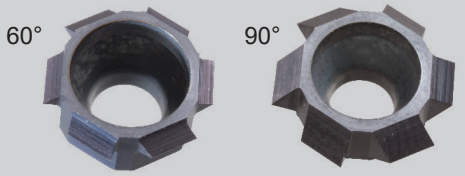


▲ For front and back deburring.
Smallest size from 5mm.

Deburring Mill 60° & 90°



ØD<10mm



6 cutting flutes

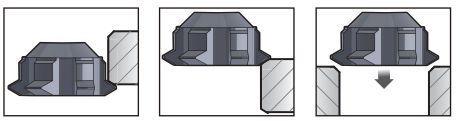
Inserts >>

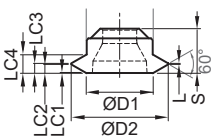
NC2032: • TiAlN coating provides longer tool life.
• For all kinds of steel from < 60 HRC, carbon steel, alloy steel and cast iron.

XP9000: • High positive geometry and sharp edge produces excellent surface finish.
• For non-ferrous material such as aluminum, titanium, brass, copper and long cutting chip metal.

60° deburring mill

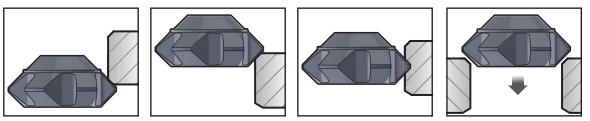
• For front and back deburring.
• Also for threading application.

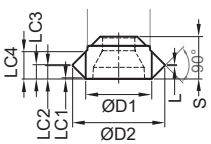


Parts No.	Coating	Grade		ØD1	ØD2	L	LC1	LC2	LC3	LC4	S	Plunge 0.1C		Thread Size	
												min. hole	max. hole	Internal	External
R06005-05006-32	TiAlN	K20F		3.9	5.0	0.06	0.03	0.35	0.41	2.45	2.45	4.1	4.8	M6xP0.75	P0.7
R06005-05006-00	Uncoated														
R06005-05010-32	TiAlN			3.9	5.0	0.1	0.03	0.32	0.42	2.45	2.45	4.1	4.8	M6xP1.0	P0.8
R06005-05010-00	Uncoated														
R06007-06810-32	TiAlN			5.5	6.8	0.1	0.03	0.40	0.50	3.25	3.25	5.7	6.6	M8xP1.0 M8xP1.25	P1.0
R06007-06810-00	Uncoated														
R06010-08510-32	TiAlN			6.9	8.5	0.1	0.03	0.49	0.59	4.60	4.60	7.1	8.3	M10xP1.0 M10xP1.25 M10xP1.5	P1.0
R06010-08510-00	Uncoated														
R06010-10010-32	TiAlN			6.9	10.0	0.1	0.03	0.92	1.02	4.60	4.60	7.1	9.8	M12xP1.75 M14xP2.0 M16xP2.0 -12UNC / UNF	P1.25 P1.5 P1.75 P2.0
R06010-10010-00	Uncoated														

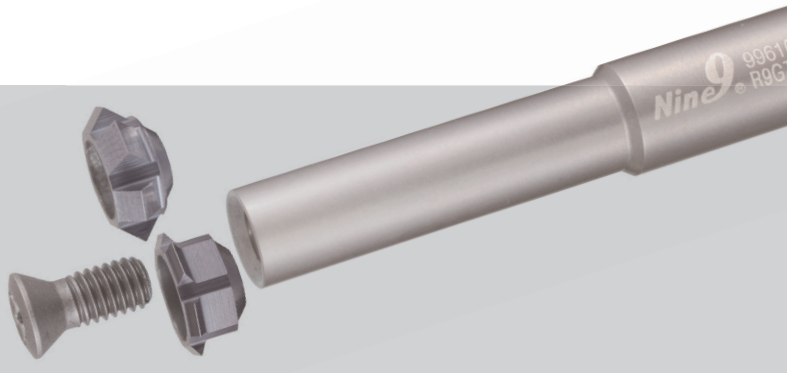
90° deburring mill

• Front & back deburring in one operation.



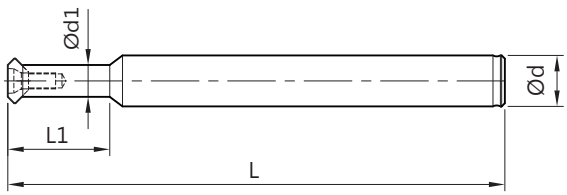
Parts No.	Coating	Grade		ØD1	ØD2	L	LC1	LC2	LC3	LC4	S	Plunge 0.1C	
												min. hole	max. hole
R09005-05060-32	TiAlN	K20F		3.9	5.0	0.6	0.05	0.6	1.2	1.77	2.45	4.1	4.8
R09005-05060-00	Uncoated												
R09007-07020-32	TiAlN			5.1	7.0	0.2	0.05	1.0	1.2	2.17	3.25	5.3	6.8
R09007-07020-00	Uncoated												
R09010-10010-32	TiAlN			7.2	10.0	0.1	0.05	1.45	1.55	2.97	4.60	7.4	9.8
R09010-10010-00	Uncoated												

Deburring Mill 60° & 90°



Holder >>

- Made of hardened high alloy steel.
- For both 60° and 90° deburring inserts.



Parts No.	Type	Ød	Ød1	L1	L	Insert Type	Screw	Key
99626-CR05-05-031	BC05-CR05-031	5	3.5	**6**	31	Rxxx05	NS-20045 0.6Nm	NK-T6
99626-CR05-08-076	BC08-CR05-076	8	3.5	**12**	76			
99626-CR05-05-043	BC05-CR05-043	5	3.5	**18**	43			
99626-CR07-06-036	BC06-CR07-036	6	5.0	**8**	36	Rxxx07	NS-25060 0.9Nm	NK-T7
99626-CR07-08-078	BC08-CR07-078	8	5.0	**16**	78			
99626-CR07-06-052	BC06-CR07-052	6	5.0	**24**	52			
99626-CR10-08-040	BC08-CR10-040	8	6.8	**10**	40	Rxxx10	NS-35080 2.5Nm	NK-T15
99626-CR10-08-082	BC08-CR10-082	8	6.8	**20**	82			
99626-CR10-08-070	BC08-CR10-070	8	6.8	**30**	70			

Cutting Data >>

60° deburring mill

	Workpiece material	SFM	Feed rate (inch / tooth)	Grade of insert
P	Carbon steel	260 ~ 500	0.00008" ~ 0.00051"	NC2032
P	Alloy steel	200 ~ 390	0.00008" ~ 0.00040"	NC2032
M	Stainless steel	165 ~ 330	0.00008" ~ 0.00040"	NC2032
K	Casting iron	165 ~ 330	0.00008" ~ 0.00040"	NC2032
N	Al, and non-ferrous metal	330 ~ 1050	0.00008" ~ 0.00051"	XP9000
H	Hardened steel < 60 HRC	100 ~ 200	0.00008" ~ 0.00031"	NC2032

90° deburring mill

	Workpiece material	SFM	Feed rate (inch / tooth)	Grade of insert
P	Carbon steel	390 ~ 820	0.00020" ~ 0.00472"	NC2032
P	Alloy steel	330 ~ 660	0.00020" ~ 0.00394"	NC2032
M	Stainless steel	200 ~ 500	0.00020" ~ 0.00394"	NC2032
K	Casting iron	260 ~ 590	0.00020" ~ 0.00394"	NC2032
N	Al, and non-ferrous metal	500 ~ 1640	0.00020" ~ 0.00590"	XP9000
H	Hardened steel < 60 HRC	200 ~ 330	0.00020" ~ 0.00197"	NC2032

N9MT2506 Series

Spot Drill 90°, Dmax.32 & Corner Rounding RC7.0~RC10

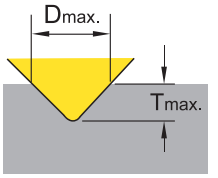
NEW ITEM

All are interchangeable on same holder.

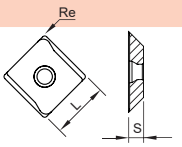
Insert >>

NC2033: • For carbon steel, alloy steel, high alloy steel, cast iron and hardened steel < 50 HRC.
• Each insert has 2 cutting edges.

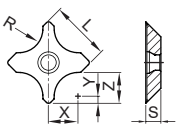
XP9000: • High positive geometry and sharp edge produces excellent surface finish.
• For non-ferrous material such as aluminum, titanium, brass, copper and long cutting chip metal.
• Each insert has 2 cutting edges.



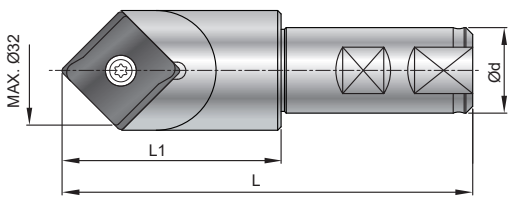
For Spotting >>

Parts No.		Coating	Grade		Dimensions			Dmax.	Tmax.
					L	S	Re		
N9MT2506CT	NC2033	TiAlN	K20F		25 (0.984")	6.35 (0.250")	1.2 (0.047")	32 (1.260")	15.4 (0.606")
	XP9000	Uncoated							

For Corner Rounding >>

Corner radius(R)	Parts No.		Coating	Grade	offset				Dimensions	
					X	Y	Z		L	S
7.0	N9MT2506RC70	NC2033	TiAlN	K20F	9.5 (0.374")	3 (0.118")	10 (0.394")		25 (0.984")	6.35 (0.250")
		XP9000	Uncoated							
8.0	N9MT2506RC80	NC2033	TiAlN	K20F	10.5 (0.413")	3 (0.118")	11 (0.433")			
		XP9000	Uncoated							
9.0	N9MT2506RC90	NC2033	TiAlN	K20F	11.5 (0.453")	3 (0.118")	12 (0.472")			
		XP9000	Uncoated							
10.0	N9MT2506RC100	NC2033	TiAlN	K20F	12.5 (0.492")	3 (0.118")	13 (0.512")			
		XP9000	Uncoated							
5/16	N9MT2506RC5/16	NC2033	TiAlN	K20F	0.411"	0.118"	0.430"			
		XP9000	Uncoated							
3/8	N9MT2506RC3/8	NC2033	TiAlN	K20F	0.474"	0.118"	0.493"			
		XP9000	Uncoated							

Holder >>



Parts No.	Ød	L	L1	Screw	Key
99616-32-25	25 (0.984")	120 (4.724")	64 (2.520")	NS-60180 5.5 Nm	NK-T25
99616-32-1	1"				

Cutting Data

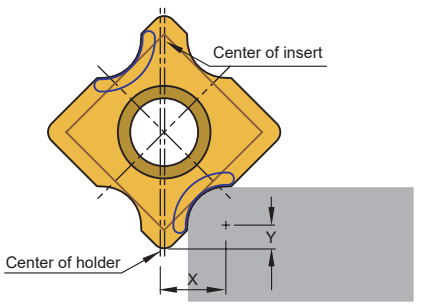
For Insert N9MT2506CT

	Workpiece material	SFM	IPR (inch/rev.) Spotting / Grooving	IPR (inch/rev.) Chamfering	Grade of Insert
P	Carbon Steel C>0.3%	330 ~820	0.0016 ~ 0.0031	0.0031 ~ 0.0079	NC2033
P	High Alloy Steel C>0.3%	200 ~ 590	0.0012 ~ 0.0028	0.0020 ~ 0.0060	NC2033
K	Cast iron	500 ~ 820	0.0020 ~ 0.0040	0.0040 ~ 0.0100	NC2033
N	Non-Ferrous Metal (Al, Cu)	500 ~ 1050	0.0020 ~ 0.0040	0.0040 ~ 0.0100	XP9000
H	Hardened steel HRC 40°~56°	100 ~ 200	0.0012 ~ 0.0031	0.0012 ~ 0.0031	NC2033

* For technical construction reasons, the insert is not located on the center of the holder.

For Insert N9MT2506RC

Corner Rounding



(X, Y ref. to insert's spec)

Calculate spindle speed

$d = 2 \times X$ inch

$S = \frac{SFM \times 3.82}{d}$ r.p.m.

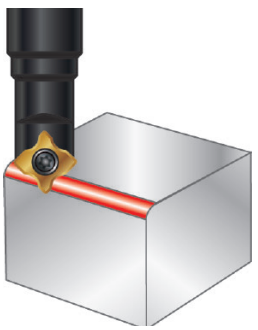
$F = S \times f$ inch

d = diameter of the tool for calculation purpose
X = tool radius offset (ref. page 11 for RC inserts)
SFM = Cutting speed ft/min.
S = Spindle Speed -r.p.m.
F = Feed rate inch
f = IPR= inch/rev.

Calculate tool length offest on machining center

$TL = TL' - Y$,
$H = X$

X = tool radius offset (ref. page 11 for RC inserts)
Y = distance to the center of radius. (ref. page 11 for RC inserts)
TL' = tool length
TL = tool length offset.
H = tool radius offset

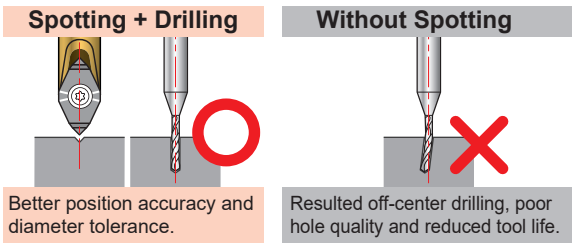
RC Insert		Workpiece material	SFM	IPR (inch/rev.)	Grade of Insert
	P	Carbon steel	500~1050	0.0020~0.0040	NC2033
	P	Alloy steel	330~820	0.0020~0.0040	NC2033
	P	High alloy steel	260~500	0.0016~0.0031	NC2033
	K	Casting iron	500~820	0.0020~0.0040	NC2033
	N	Aluminum, Al-alloy Si < 12%	500~1050	0.0020~0.0040	XP9000
	N	Al-alloy Si >12%	330~1050	0.0020~0.0040	XP9000
	N	Cu	600~820	0.0020~0.0040	XP9000
	N	Brass and Bronze	500~820	0.0020~0.0040	XP9000
	H	Hardened steel < 50 HRC	100~200	0.0012~0.0031	NC2033

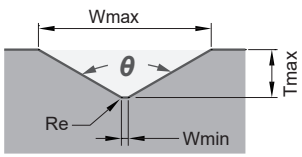
X060 Series
Micro Spot Drill 90°/120°/142°
Deburring Tool 60°/90°

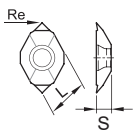
Inserts >>

NC2032: • For all kinds of steel from < 40 HRC, carbon steel, alloy steel,and cast iron.
NC2035: • ALDURA coating, reduces heat and tool wear, for steel with heat treatment up to 56 HRC.
XP9001: • Mirror polished, for non-ferrous metal, aluminum, brass, copper, plastic, acrylic.

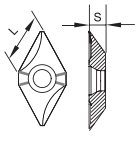
For Spotting

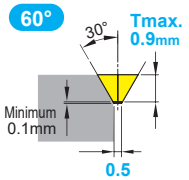
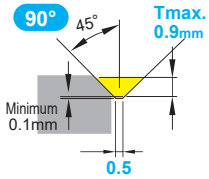
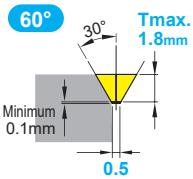
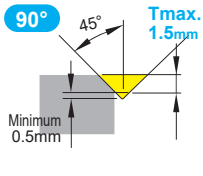


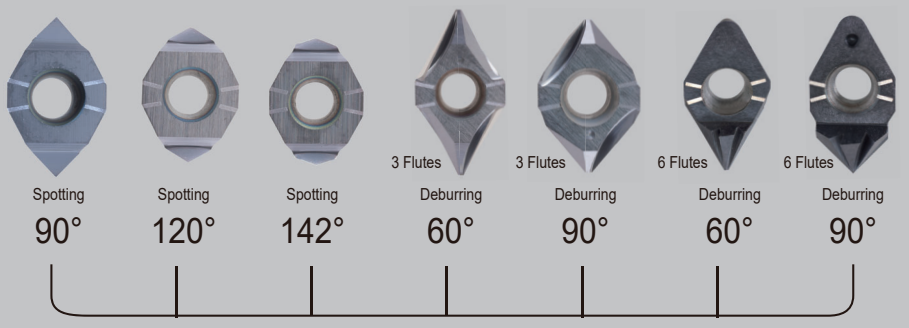


Angle	Parts No.		Coating	Grade		Dimensions L	Dimensions S	Dimensions Re	Wmin.	Wmax.	Tmax.
90°	X060A90W010R	NC2032	TiAlN	K20F		6 (0.236")	2.05 (0.081")	0.02 (0.0008")	0.10 (0.004")	1.1 (0.043")	0.5 (0.020")
		NC2035	ALDURA								
		XP9001	Polished								
90°	*X060A90W020R	NC2032	TiAlN	K20F		6 (0.236")	2.05 (0.081")	0.04 (0.0016")	0.20 (0.008")	2.2 (0.087")	1.0 (0.040")
		NC2035	ALDURA								
		XP9001	Polished								
120°	X060A120W010R	NC2032	TiAlN	K20F		6 (0.236")	2.05 (0.081")	0.02 (0.0008")	0.10 (0.004")	2.53 (0.100")	0.7 (0.028")
142°	X060A142W010R	NC2032	TiAlN	K20F		6 (0.236")	2.05 (0.081")	0.02 (0.0008")	0.10 (0.004")	2.42 (0.095")	0.4 (0.016")

For Deburring



Angle	Part No.	Coating	Grade	Flutes		Dimensions L	Dimensions S	Tmin.	Tmax.
60°	X060A60T3-NC2032	TiAlN	K20F	3	 	6 (0.236")	2.8 (0.110")	0.1 (0.004")	0.9 (0.035")
	X060A60T3-XP9001	Polished							
90°	X060A90T3-NC2032	TiAlN							
	X060A90T3-XP9001	Polished							
60°	X060A60T6-NC2032	TiAlN	K20F	6	 	6 (0.236")	2.0 (0.079")	0.1 (0.004")	1.8 (0.071")
90°	X060A90T6-NC2032							0.5 (0.020")	1.5 (0.060")



NEW ITEM

All are interchangeable on same holder 99619-X060...

Holder >>

Parts No.	Shank	Ød	L	Screw	Key
99619-X060-06	Steel	6 (0.236")	40 (1.575")	NS-22044 0.9Nm	NK-T7
99619-X060-06L	Carbide	6 (0.236")	60 (2.362")		
99619-X060-06LS	Steel	6 (0.236")	60 (2.362")		
99619-X060-06XL	Carbide	6 (0.236")	100 (3.937")		
99619-X060-08	Steel	8 (0.315")	60 (2.362")		

Cutting Data

For Spotting:

X060A90W010R / X060A90W020R

	Workpiece Meterial	S (r.p.m)	IPR (inch / rev.)	Grade of insert
P	Carbon steel C<0.3%	8000 ~ 40000	0.00008" ~ 0.00047"	NC2032
P	Carbon steel C>0.3%		0.00008" ~ 0.00039"	NC2032
P	Alloy steel		0.00008" ~ 0.00039"	NC2032, NC2035
M	Stainless steel		0.00008" ~ 0.00031"	NC2032
K	Casting iron		0.00008" ~ 0.00039"	NC2032
N	Non-ferrous metal (Al, Cu)		0.00008" ~ 0.00059"	XP9001
N	Copper, Brass		0.00008" ~ 0.00059"	XP9001
H	Hardened steel up 56 HRC		0.00008" ~ 0.00024"	NC2035

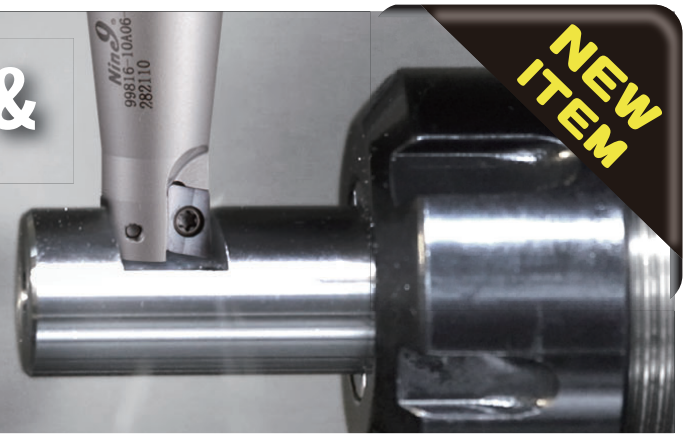
X060A120W010R / X060A142W010R

	Workpiece Material	S (r.p.m)	IPR (inch / rev.)	Grade of insert
P	Carbon steel C<0.3%	8000 ~ 40000	0.00004 ~ 0.00006	NC2032
P	Carbon steel C>0.3%		0.00004 ~ 0.00005	NC2032
P	Alloy steel		0.00004 ~ 0.00040	NC2032
M	Stainless steel		0.00004 ~ 0.00040	NC2032
K	Casting iron		0.00004 ~ 0.00040	NC2032

For Deburring: X060A60T / X060A90T

	Workpiece Material	S (r.p.m)	Feed Rate (inch / tooth)	Grade of insert
P	Carbon Steel C<0.3%	8000 ~ 40000	0.00020 ~ 0.0020	NC2032
P	Alloy steel	6000 ~ 35000	0.00020 ~ 0.0016	
M	Stainless Steel	6000 ~ 25000	0.00020 ~ 0.0012	
K	Cast iron	6000 ~ 35000	0.00020 ~ 0.0012	
N	Aluminum, Non-Ferrous Metal	8000 ~ 40000	0.00020 ~ 0.0020	XP9001

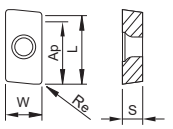
Long Shank Mill Cutter & A9...U Inserts



Inserts >>

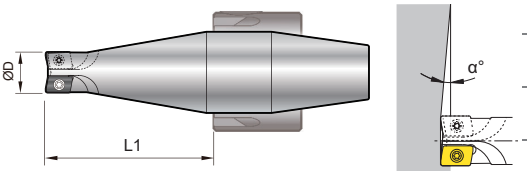
• U type insert is fully ground for reducing the cutting resistance during the cutting, best choice for long shank cutter.

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.

Parts No.		Coating	Grade	Insert	Re	Ap	L	W	S
A9GT060201U	NC2032	TiAlN	K20F		0.1 (0.004")	5 (0.197")	6.5 (0.259")	4 (0.157")	2.45 (0.096")
A9GT060202U	NC2032				0.2 (0.008")				
A9GT060205U	NC2032				0.5 (0.020")				

Basic Holder >>

• G6.3 / 10,000 r.p.m.
• Customized cutter is available on request.

ER Taper	Parts No.	ØD	Basic Holder	L1	No. of teeth	α°	Screw / Key
ER16	99816-10A06-32L	**10** (0.394")		32 (1.260")	2	5	NS-18037 0.6Nm / NK-T6
	99816-10A06-40L	**10** (0.394")		40 (1.575")	2	5	
ER20	99820-10A06-40L	**10** (0.394")		40 (1.575")	2	5	
	99820-12A06-40L	**12** (0.472")		40 (1.575")	2	4	

Cutting Data >>

Workpiece Material		SFM	fz (inch/tooth)	Ap(inch)	Ap(inch)	Ae(inch)	Grade of insert
P	Carbon Steel	260 ~ 500	0.002" ~ 0.003"	0.059"	0.118"	0.039"	NC2032
P	Low-alloy Steel C ≤ 0.3%						
P	High-alloy Steel C > 0.3%	200 ~ 410	0.001" ~ 0.002"	0.039"	0.984"	0.039"	NC2032
N	Al, and non-ferrous metal (Cu)	660 ~ 1640	0.001" ~ 0.003"	0.079"	0.157"	0.079"	NC2032

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