

Nine9® *Always Better!*

CUTTING TOOLS & TOOL HOLDERS





COOPERATIVE BRANDING

CONTENTS

i - Center

P1~6



i - Center

Engraving Tool

P7~9



Engraving Tool

NC Spot Drill

P10~38



NC Spot Drill

Chamfer Mill

P39~42



Chamfer Mill



i-Center indexable center drill (patent pending)
 First Indexable center drill in the world.
 Shortens set up time and center drilling time.
 Increases tool life which reduces tooling cost.
 Special forms are possible.

Indexable Center Drill

- Highly Efficient Tools
- No Re-setting, No Resharpener
- Time Saving
- Long Tool Life
- Improve Your Process Performance



• Coolant supply from center



• Big chip flow area

The “ i-Center ” is a trademark of Nine9, the developer of the first indexable center drill. For the first time, Nine9’s “ i-Center ” patent-pending design provides the benefit of solid carbide cutting parameters while delivering -

• High Speed, High Feed Rate

High performance speed and feed can be reached thanks to the special ground insert and ridged holder design. For example, for drilling $\varnothing 3.15\text{mm}$ hole on alloy steel, running at 6000 r.p.m. and feed rate 600 mm/min. (0.1mm/rev.)



• Application on turning machine. Insert type no need to reset the tool length when changing.

• Easy Tool Length Setting

The axial position accuracy of the insert is 0.05 mm(.002”). It is not necessary to reset the tool length when changing insert or cutting edge.

• Excellent Repeatability

The insert is positioned by two locating pins and clamped by one insert screw at the center. The positioning repeatability of the insert is within 0.02 mm(.0008”) in radial direction, thus ensuring conformity to any National Standard.



• High pressure coolant can be supplied through center directly to tip of center drill insert.

• Extended Tool Life

Coolant can be supplied through the center of the holder to increase performance and extend tool life. Insert geometry, grades and coating process are specifically engineered for centering applications.

• Universal and Easily Fitted with Any Available Shank

The tool holder is made of high alloy steel, hardened and ground to h6 tolerance with a flat. It’s easy for stationary tool and rotating tool.

i-Center Tool holder

Feature:

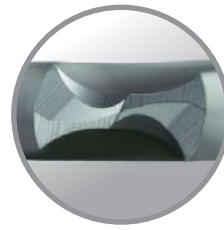
- Made of High alloy steel.
- Shank is ground to h6 tolerance.
- Special holders are available on request.



Code	Order No.	Part No.	IC	Ød	L1	L2	ØD±0.02	Screw	Key
new 802001	00-99616-IC08-10	BC10-IC08	08	10	30	22	12	NS-25060	NK-T7
803001	00-99616-IC12-16	SB16-IC12	12	16	48	36	21	NS-30072	NK-T9
804001	00-99616-IC16-16	SB16-IC16	16	16	48	43	27	NS-35080	NK-T15
805001	00-99616-IC20-20	SB20-IC20	20	20	50	60	32	NS-50125	NK-T20
806001	00-99616-IC25-25	SB25-IC25	25	25	56	65	43	NS-50125	NK-T20

Code	Order No.	Part No.	IC	Ød	L1	L2	ØD±0.02	Screw	Key
new 812001	00-99616-IC08-3/8	BC3/8"-IC08	08	3/8"	30	22	12	NS-25060	NK-T7
813001	00-99616-IC12-5/8	SB5/8"-IC12	12	5/8"	48	36	21	NS-30072	NK-T9
814001	00-99616-IC16-5/8	SB5/8"-IC16	16	5/8"	48	43	27	NS-35080	NK-T15
815001	00-99616-IC20-3/4	SB3/4"-IC20	20	3/4"	50	60	32	NS-50125	NK-T20
816001	00-99616-IC25-1	SB1"-IC25	25	1"	56	65	43	NS-50125	NK-T20

i-Center Indexable center insert



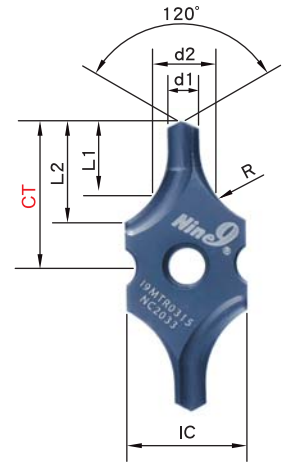
2 cutting flutes

- NC 2033: K20F grade carbide insert and TiAlN coated for carbon steel, alloy steel, high alloy steel, cast iron and Al, Al-alloy, Cu, Cu-alloy.
- 2 cutting edges, high performance for center drilling.
- Metric sizes: DIN 332 A+B, DIN 332 R , Ø1~Ø10 mm
- Inch sizes: ANSI (BS) #2~10

• DIN332 Form R



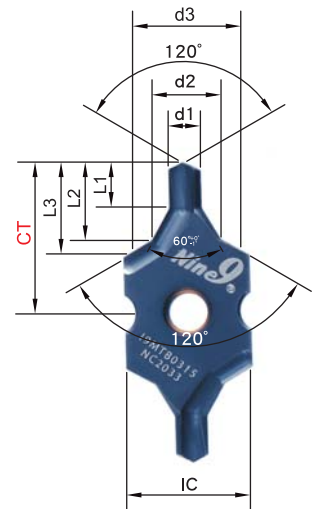
Part No.		d1	d2	L1	L2	R	CT ±0.025	IC	
new	I9MT08T1R0100-NC2033	1.00	+0.14 0	2.12	2.16	4.14	2.8	7.55	08 Mini i-Center
new	I9MT08T1R0125-NC2033	1.25		2.65	2.74	4.64	3.5	7.90	
new	I9MT08T1R0160-NC2033	1.60		3.35	3.45	5.13	4.5	8.4	
new	I9MT08T1R0200-NC2033	2.00		4.25	4.45	6.08	5.65	9.1	
	I9MT12T2R0200-NC2033	2.00	+0.14 0	4.25	4.45	6.64	5.5	11.73	12
	I9MT12T2R0250-NC2033	2.50		5.3	5.59	8.11	7.15	13.0	
	I9MT12T2R0315-NC2033	3.15	+0.18 0	6.7	7.21	9.63	9.0	14.0	16
	I9MT1603R0400-NC2033	4.00		8.5	9.06	12.23	11.0	19.4	
	I9MT1603R0500-NC2033	5.00		10.6	11.45	14.2	14.0	19.4	
	I9MT2004R0630-NC2033	6.30		13.2	14.63	18.2	18.0	28.4	
	I9MT2004R0800-NC2033	8.00	+0.22 0	17.0	18.63	20.44	22.5	28.3	20
	I9MT2506R1000-NC2033	10.00		21.2	23.51	25.8	28.0	34.2	



• DIN332 Form A+B



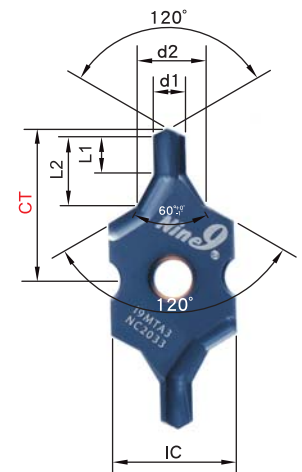
Part No.		d1	d2	d3	L1	L2	L3	CT ±0.025	IC	
new	I9MT08T1B0100-NC2033	1.00	+0.14 0	2.12	3.15	1.3	2.21	2.51	7.55	08 Mini i-Center
new	I9MT08T1B0125-NC2033	1.25		2.65	4.0	1.6	2.75	3.14	7.90	
new	I9MT08T1B0160-NC2033	1.60		3.35	5.0	2.0	3.46	3.93	8.4	
new	I9MT08T1B0200-NC2033	2.00		4.25	6.3	2.5	4.39	4.98	9.1	
	I9MT12T2B0200-NC2033	2.00	+0.14 0	4.25	6.3	2.5	4.39	4.98	11.73	12
	I9MT12T2B0250-NC2033	2.50		5.3	8.0	3.1	5.53	6.28	13.0	
	I9MT12T2B0315-NC2033	3.15	+0.18 0	6.7	10.0	3.9	6.90	7.85	14.0	16
	I9MT1603B0400-NC2033	4.00		8.5	12.5	5.0	8.9	10.03	19.4	
	I9MT1603B0500-NC2033	5.00		10.6	16.0	6.3	11.15	12.68	19.4	
	I9MT2004B0630-NC2033	6.30		13.2	18.0	8.0	13.98	15.33	28.4	
	I9MT2004B0800-NC2033	8.00	+0.22 0	17.0	20	10.1	17.89	18.73	28.3	20
	I9MT2506B1000-NC2033	10.00		21.2	25	12.8	22.5	23.57	34.2	



• ANSI 60°



Parts No.	Size	d1		d2		L1	L2	CT ±0.025	IC	
			mm		mm	mm	mm			
I9MT12T2A2-NC2033	#2	5/64	1.98	+0.14 0	3/16	4.76	5/64	1.98	4.4	12.6
I9MT12T2A3-NC2033	#3	7/64	2.78		1/4	6.35	7/64	2.78	5.9	13.85
I9MT12T2A4-NC2033	#4	1/8	3.18	+0.18 0	5/16	7.94	1/8	3.18	7.3	14.25
I9MT1603A5-NC2033	#5	3/16	4.76		7/16	11.11	3/16	4.76	10.3	20.0
I9MT2004A6-NC2033	#6	7/32	5.56	+0.22 0	1/2	12.7	7/32	5.56	11.8	27.75
I9MT2004A7-NC2033	#7	1/4	6.35		5/8	15.88	1/4	6.35	14.6	28.5
I9MT2004A8-NC2033	#8	5/16	7.94	+0.22 0	3/4	19.05	5/16	7.94	17.6	29.0
I9MT2506A10-NC2033	#10	3/8	9.53		0.98"	25.0	3/8	9.53	22.9	34.9



Cutting data
Attention:

- For $d1 < 4$ mm or size #5, be sure the center misalignment is less than 0.05mm.
- If the misalignment of the turret center of the CNC lathe is above 0.15mm, please use the Center Height Adjusting Sleeve (see page 44).
- For low spindle speed special purpose machines or lathes, lower spindle speed is allowed but the feed rate should be maintained.

• $\varnothing 1 \sim \varnothing 4$ (#2~#5)

Work piece material	Vc (m/min.)	f (mm/rev.)					Cutting fluid
		IC08		IC12			
		$\varnothing 1 \sim 1.25$	$\varnothing 1.6 \sim 2$ (#2)	$\varnothing 2$ (#2)	$\varnothing 2.5$ (#3)	$\varnothing 3.15$ (#4)	
Carbon steel C<0.3%	60-70-80	(S=17825 rpm) 0.02-0.03-0.05	(S=13930 rpm) 0.03-0.05-0.06	(S=11140 rpm) 0.04-0.06-0.08	(S=8912 rpm) 0.06-0.08-0.10	(S=7073 rpm) 0.08-0.10-0.12	emulsion
Carbon steel C>0.3%	50-60-70	(S=17825 rpm) 0.02-0.03-0.05	(S=11940 rpm) 0.03-0.04-0.05	(S=9549 rpm) 0.03-0.04-0.05	(S=7639 rpm) 0.06-0.08-0.10	(S=6063 rpm) 0.08-0.10-0.12	emulsion
Low alloy steel C<0.3%	45-55-65	(S=14005 rpm) 0.01-0.02-0.04	(S=10950 rpm) 0.02-0.03-0.05	(S=8753 rpm) 0.02-0.03-0.05	(S=7002 rpm) 0.04-0.06-0.08	(S=5557 rpm) 0.06-0.08-0.10	emulsion
High alloy steel C>0.3%	40-50-60	(S=12732 rpm) 0.01-0.02	(S=9950 rpm) 0.01-0.02-0.04	(S=7957 rpm) 0.01-0.02-0.04	(S=6366 rpm) 0.02-0.04-0.06	(S=5052 rpm) 0.04-0.06-0.08	emulsion
Stainless Steel	5-10-20	-	-	(S=1592 rpm) 0.01-0.02	(S=1270 rpm) 0.01-0.02-0.03	(S=1010 rpm) 0.02-0.03-0.05	emulsion internal ≥ 5 bar
Casting iron	50-60-70	(S=15278 rpm) 0.01-0.02-0.04	(S=11940 rpm) 0.02-0.04-0.06	(S=9549 rpm) 0.02-0.04-0.06	(S=7639 rpm) 0.04-0.06-0.08	(S=6063 rpm) 0.06-0.08-0.10	dry
Al, and non-ferrous metal	100-150 -200	(S=38197 rpm) 0.01-0.02-0.03	(S=29850 rpm) 0.01-0.02-0.04	(S=23873 rpm) 0.01-0.02-0.04	(S=19098 rpm) 0.02-0.03-0.05	(S=15157 rpm) 0.02-0.04-0.06	emulsion

• $\varnothing 5 \sim \varnothing 10$ (#6~#10)

Work piece material	Vc (m/min.)	f (mm/rev)					Cutting fluid
		IC16		IC20		IC25	
		$\varnothing 4$ (#5)	$\varnothing 5$	#6	$\varnothing 6.3$ (#7)	$\varnothing 8$ (#8)	
Carbon steel C<0.3%	60-70-80	(S=5570 rpm) 0.08-0.12-0.14	(S=4456 rpm) 0.10-0.12-0.16	(S=3536 rpm) 0.10-0.14-0.16	(S=2785 rpm) 0.12-0.15-0.18	(S=2228 rpm) 0.14-0.18-0.20	emulsion
Carbon steel C>0.3%	50-60-70	(S=4774 rpm) 0.08-0.12-0.14	(S=3819 rpm) 0.10-0.12-0.16	(S=3031 rpm) 0.10-0.14-0.16	(S=2387 rpm) 0.12-0.15-0.18	(S=1909 rpm) 0.14-0.18-0.20	emulsion
Low alloy steel C<0.3%	45-55-65	(S=4376 rpm) 0.06-0.08-0.10	(S=3501 rpm) 0.08-0.10-0.12	(S=2778 rpm) 0.08-0.12-0.14	(S=2188 rpm) 0.10-0.14-0.16	(S=1750 rpm) 0.12-0.16-0.20	emulsion
High alloy steel C>0.3%	40-50-60	(S=3978 rpm) 0.04-0.06-0.08	(S=3183 rpm) 0.06-0.08-0.10	(S=2526 rpm) 0.08-0.10-0.12	(S=1989 rpm) 0.10-0.14-0.16	(S=1591 rpm) 0.10-0.14-0.16	emulsion
Stainless Steel	10-15-25	(S=1194 rpm) 0.02-0.04-0.06	(S=955 rpm) 0.02-0.04-0.06	(S=758 rpm) 0.04-0.06-0.08	(S=597 rpm) 0.04-0.06-0.08	(S=477 rpm) 0.05-0.07-0.10	emulsion internal ≥ 5 bar
Casting iron	50-60-70	(S=4774 rpm) 0.06-0.08-0.10	(S=3819 rpm) 0.08-0.10-0.12	(S=3031 rpm) 0.08-0.12-0.14	(S=2387 rpm) 0.10-0.14-0.16	(S=1909 rpm) 0.12-0.16-0.18	dry
Al, and non-ferrous metal	100-150 -200	(S=11936 rpm) 0.02-0.04-0.06	(S=9549 rpm) 0.04-0.06-0.08	(S=7578 rpm) 0.04-0.06-0.08	(S=5968 rpm) 0.06-0.08-0.10	(S=4774 rpm) 0.06-0.08-0.10	emulsion

Disassemble
Step-1
Loosen the screw

Step-2
Hole in the back

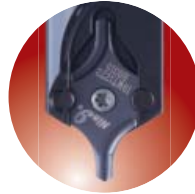
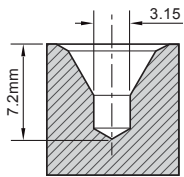
Step-3
Push out insert


Undeniable benefits of i-Center.

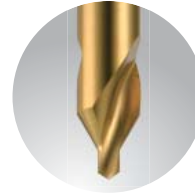
i-Center is the unique solution in the world to upgrade the center drill process into the indexable generation - leaving HSS and solid carbide centering as ancient history.

Example of comparison:

Work piece: Low carbon alloy steel, 850 N/mm²
 Diameter of tool: Ø3.15 mm Depth of drilling: 7.2 mm
 Machine: Vertical Machining Center, BT40 with internal coolant



i-Center



HSS Center Drill (TiN Coating)



Solid Carbide Center Drill

	i-Center	HSS Center Drill (TiN Coating)	Solid Carbide Center Drill
Cutting speed m/min.	65	17	65
Spindle speed r.p.m.	6570	1718	6570
Feed rate f = mm/rev.	0.12	0.02	0.1
Feed rate F= mm/min.	788.4	34.4	657
Coolant Emulsion	External / Internal	External	External
Drilling time sec.	0.55	12.5	0.65
Holes of drilling per edge	7000	700	5000

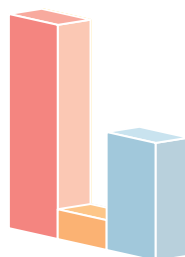
Profit by making the right choice

- High speed and feed rate reduce cutting time.
- The unique design increases tool life and reduces changeover time.
- Together these attributes lower cost and increase your profit!

► Feed rate



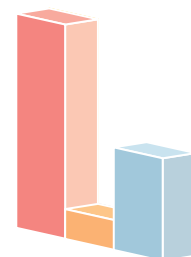
► Tool life per edge



► Tool setting time



► Cost saving



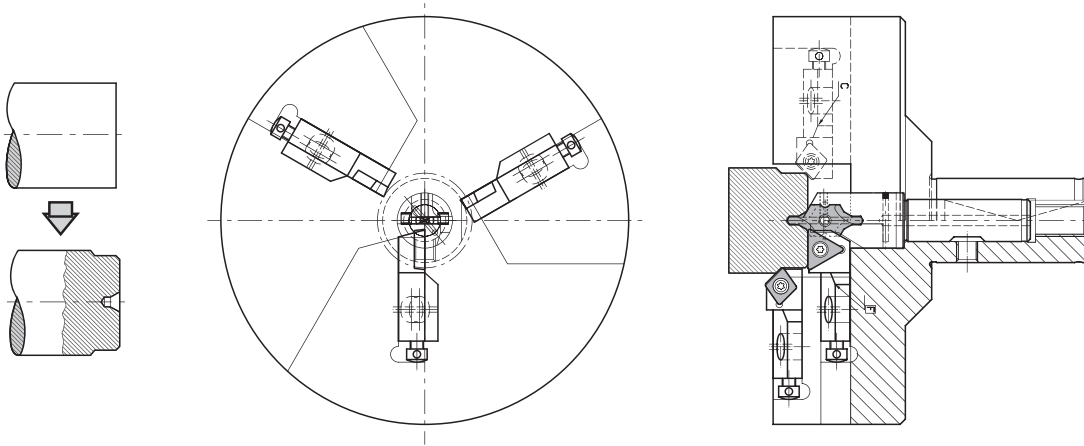
Nine9 i-Center

HSS center drill

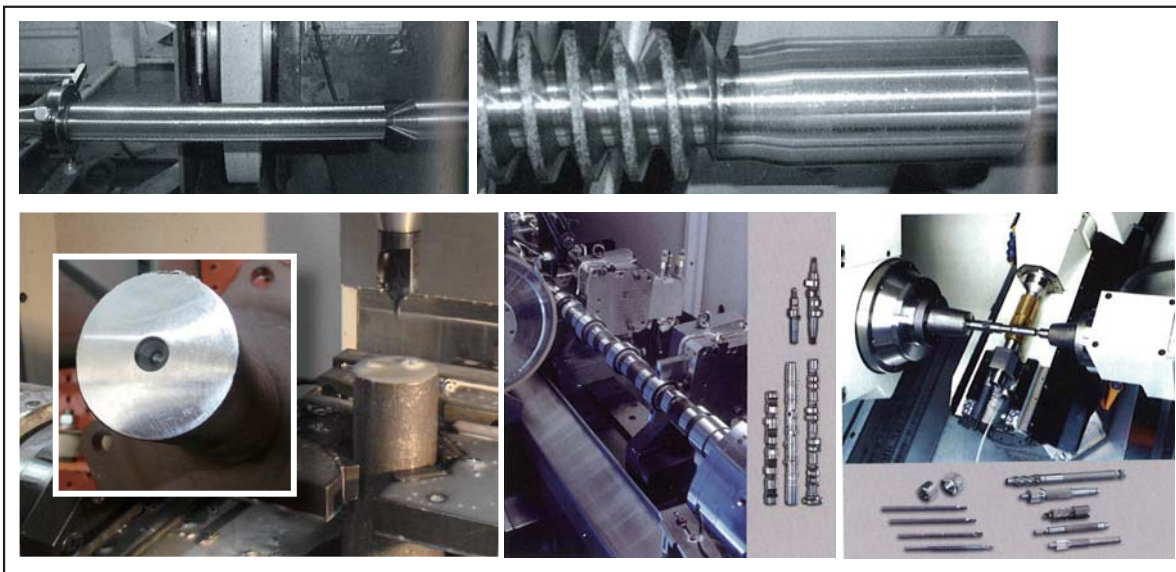
Solid carbide center drill

Application of i-Center.

- For shaft end machining.



- For shaft centering.



Center Height Adjusting Sleeve

Principle:

Designed for adjusting Center Height of center drills, NC spot drills, reamers and taps on the CNC lathes.

Applications:

- Used when the CNC lathes need to adjust the center height.
- This sleeve can be clamped by VDI 40, VDI 50 E2 tool holders, and other type of internal turning tool holders.
- Center height adjusting range: ± 0.15 mm (.006").
- Total axial movement is 6mm (.236").



• Detail information, please see page44

Engraving Tool V045 / V060

Our Claim:

This is a revolutionary new concept of engraving tools with indexable carbide inserts. They offer you the ability to produce **HIGH QUALITY ENGRAVING** in most materials. The latest coated carbide grades help you to obtain higher speed and feed rate, dramatically reducing your cycle time.

Main Features

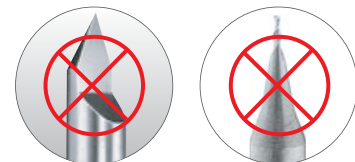
- High Positive Rake Angle**
 Indexable insert.
 Suitable for engraving all types of materials, such as plastic, non-ferrous metal, aluminum, carbon steel and stainless steel.
- Multi-Side Grinding**
 Full peripherally ground insert to ensure efficient repeatability.
 It performs excellently without producing any burrs, especially in aluminum and stainless steel.
- High Speed, High Feed Rate**
 Designed to run at high speed, up to 20000 r.p.m.
 Feed rate 0.08mm (0.003") / rev. apply to aluminum;
 0.05mm (0.002") / rev. apply to stainless steel.
 Reduces engraving cycle time!
- Economical**
 Each indexable insert has 2 cutting edges.
 No resharpener required. Tool length is unchanged.
 No need to reset after changing insert or cutting edge.
 Excellent repeatability!
- Applications**
 Universal for marking number and almost any character.
 45°, 60° engraving inserts which can be used for marking serial numbers ; product codes ; dial scales ; signs ; logo outlines and almost any character which can be created by the NC programming system.

Now & Future



Engraving
45°/60°

Yesterday



▣ Starter Kit >>

Code	Part No.	Shankø	Angle	Insert included	Content
691201-4501	00-99619-V045-03K-71	6	45°	V04506T1W06-NC2071	1 x Holder 1 x T7 Key 3 x inserts
691201-4502	00-99619-V045-03K-32			V04506T1W06-NC2032	
691201-4504	00-99619-V045-03K-31			V04506T1W06-NC9031	
692201-6001	00-99619-V060-03K-71			V06006T1W06-NC2071	
692201-6002	00-99619-V060-03K-32		V06006T1W06-NC2032		
692201-6003	00-99619-V060-03K-35		V06006T1W06-NC2035		
692201-6004	00-99619-V060-03K-31		V06006T1W06-NC9031		



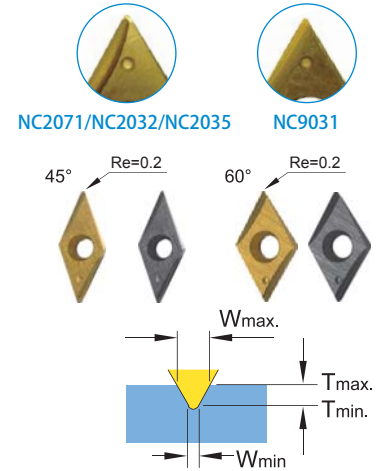
Indexable Engraving Tool



Inserts >>

Feature:

- NC2071:** • TiN coated. Good for low carbon steel, stainless steel, non-ferrous metal, and any kinds of steel $> \text{HRC}30^\circ$.
• Strong edge on chip groove applies for $T_{\text{min.}} \geq 0.2 \text{ mm}$.
- NC9031:** • TiN coated, Good for low carbon steel, stainless steel, non-ferrous metal, soft material and plastic, and any kinds of steel $< \text{HRC}30^\circ$.
• Fully positive ground rake angle, very sharp edge apply for thin engraving.
- NC2032:** • TiAlN coated. Good for medium and high carbon steel, high alloy steel, casting iron, and any kinds of steel $30^\circ < \text{HRC} < 48^\circ$.
- NC2035:** • TiAlN coated. Good for all kinds of hardened steel, chilled casting iron, and any kind of steel $45^\circ < \text{HRC} < 56^\circ$.



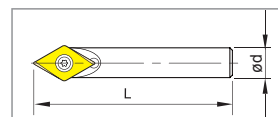
Code	Part No.	Angle	Grade	Coating	Diagram	Dimensions			Wmin.	Wmax.	Tmin.	Tmax.
						L	S	Re				
0104501	V04506T1W06-NC2071	45°	K20F	TiN		6.35	2.0	0.2	0.65	2.1	0.20	2.0
0104502	V04506T1W06-NC2032			TiAlN					0.45		0.05	
0104504	V04506T1W06-NC9031			TiN					0.45		0.05	
0106001	V06006T1W06-NC2071	60°	K20F	TiN		6.35	2.0	0.2	0.65	2.7	0.20	2.0
0106002	V06006T1W06-NC2032			TiAlN	0.45				0.05			
0106003	V06006T1W06-NC2035			TiAlN	0.45				0.05			
0106004	V06006T1W06-NC9031			TiN	0.45				0.05			

• Other sizes also available upon request

Holder >>

• Made of steel

Code	Parts No.	Angle	Ød	L	Screw / Key
691001	00-99619-V045-06	45°	6	40	NS-22044 1.0Nm
692001	00-99619-V060-06	60°			NK-T7



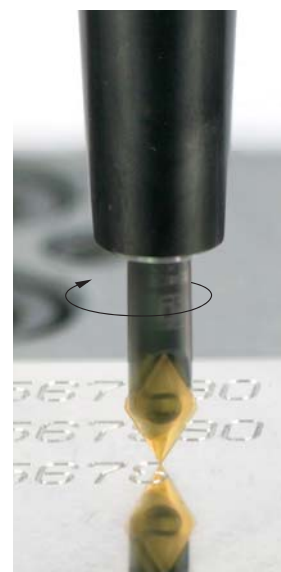
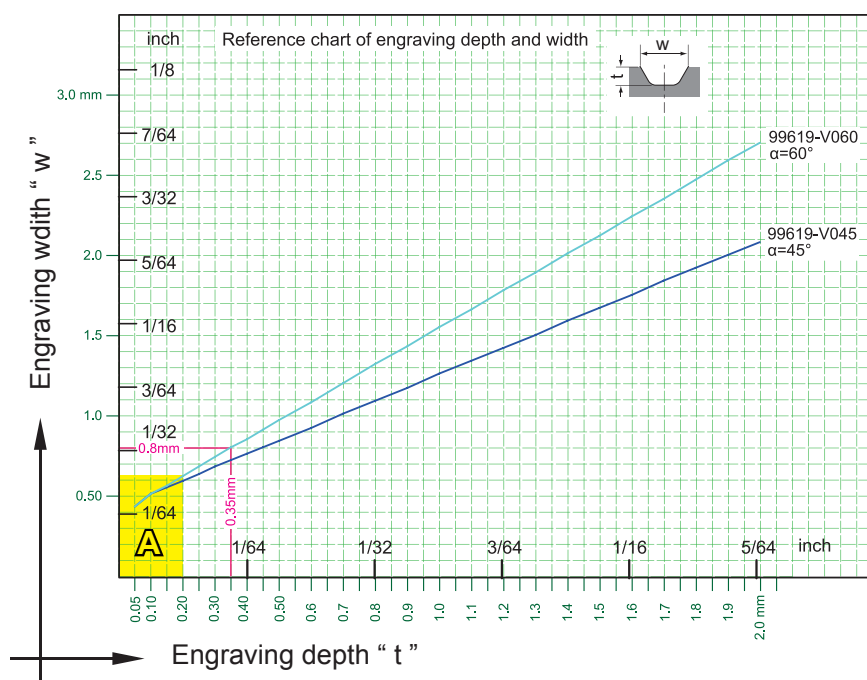
- Made of solid carbide.
- XL (100mm length) is only for Al, Al-alloy cutting.

Code	Parts No.	Angle	Ød	L	Screw / Key
691002	00-99619-V045-06L	45°	6	60	NS-22044 1.0Nm
691003	00-99619-V045-06XL			100	
692002	00-99619-V060-06L	60°	6	60	NK-T7
692003	00-99619-V060-06XL			100	



• DC slim chuck for extended length, see page 43.

Depth / Width Chart Instructions and Cutting Data of Engraving Tool



- To use the engraving chart, select your engraving width (w) on the vertical axis. Select your engraving insert angle (45° or 60°), and follow the horizontal line from the (w) axis to the intersection with the insert angle. Follow the vertical line from this intersection point to the engraving depth (t) axis to determine the engraving depth.
- Grade NC2071 insert is not applicable on area " A ".

■ Cutting Data >>

Work Material	S RPM	f (mm/rev.)	Grade of Insert	
Steel	< 30°HRC	5000~20000	0.02~0.05	NC2071
	30° - 48°HRC	5000~20000	0.01~0.02	NC2032,NC9031
	46° - 56°HRC	5000~20000	0.01~0.02	NC2035
Stainless Steel	5000~20000	0.02~0.05	NC2071,NC9031	
Cast iron	5000~20000	0.01~0.02	NC2032	
Aluminum, Non-Ferrous Metal	5000~20000	0.02~0.08	NC2071,NC9031	
Al, Al-alloy, etc	5000~20000	0.02~0.08	NC9031	

■ Depth of Per Cutting >>

Material	Ap								Fine finishing
	1st	2nd	3rd	4th	5th	6th	~		
Carbon steel C<0.3%	0.6	0.4	0.3	0.2	0.2	0.1	0.1	0.1	
Carbon steel C>0.3%	0.8	0.6	0.3	0.2	0.1	~	~	0.1	
Low alloy steel C<0.3%	0.5	0.4	0.3	0.3	0.2	0.2	0.1	0.1	
High alloy steel C>0.3%	0.3	0.3	0.2	0.2	0.15	0.15	0.1	0.05	
Alloy steel \geq HRC40°	0.2	0.2	0.15	0.15	0.1	0.1	0.1	0.05	
Stainless Steel	0.5	0.4	0.3	0.3	0.2	0.2	0.1	0.05	
Casting iron	0.8	0.6	0.3	0.1	0.1	~	~	0.1	
Non-ferrous metal	1.0	0.8	0.2	~	~	~	~	0.1	

1. Selecting the speed and feed rate:

Select the spindle speed and feed rate according to the selected material's cutting data.

The downward feed rate of the Z-axis should be reduced to **50-70%** of the table feed rate. (NC9031)

2. Cutting fluid and cooling condition:

Elmusion is recommended for engraving on steel, stainless steel, Al and Al-alloy.

Blown cooled air is recommended for engraving on cast iron and plastic.

■ Attention >>

1. Setting-up the tool holder:

The engraving tool shank runout should be below 0.02 mm (0.0008").

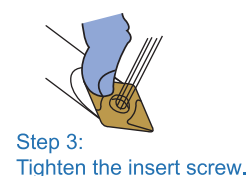
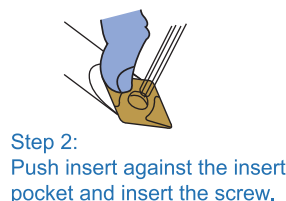
Shrink fit chucks, hydraulic chuck and high precision spring collet chucks are recommended.

Pre-balance the tool holder: G6.3/10,000 R.P.M. is recommended.

2. Clamping the engraving insert:

Place and hold the insert in the insert pocket against the positioning side.

See illustration below:



NO NEED TO CHOOSE NINE9 DOES IT ALL!



NC Spot Drills
Corner Rounding Cutters

NC Spot Drill with Patented indexable carbide insert.

High Efficiency! Low Cost!

CNC Lathes, CNC Turning Centers and Machining Centers.

One tool will perform multiple applications.

- Long tool life.
- Each insert has four cutting edges.
- Suitable for spotting, chamfering, grooving and engraving.
- 45° / 60° / 82° / 90° / 100° / 120° / 142° angle for different applications.
- Increase cutting speed with coated carbide inserts.

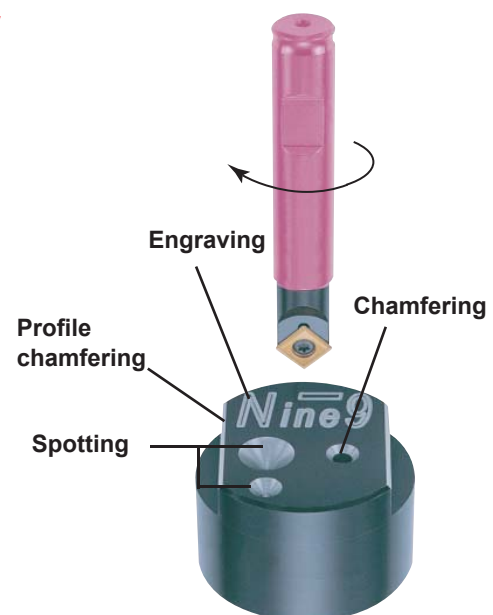
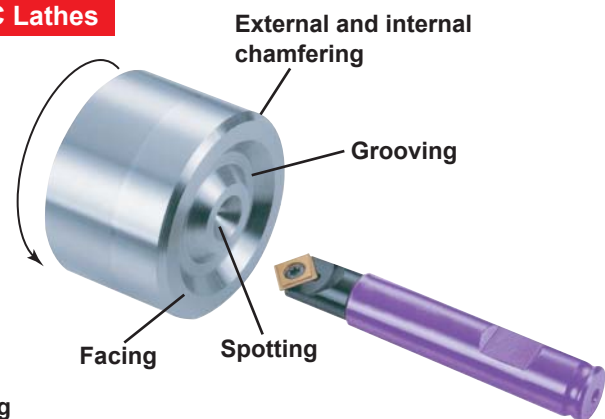
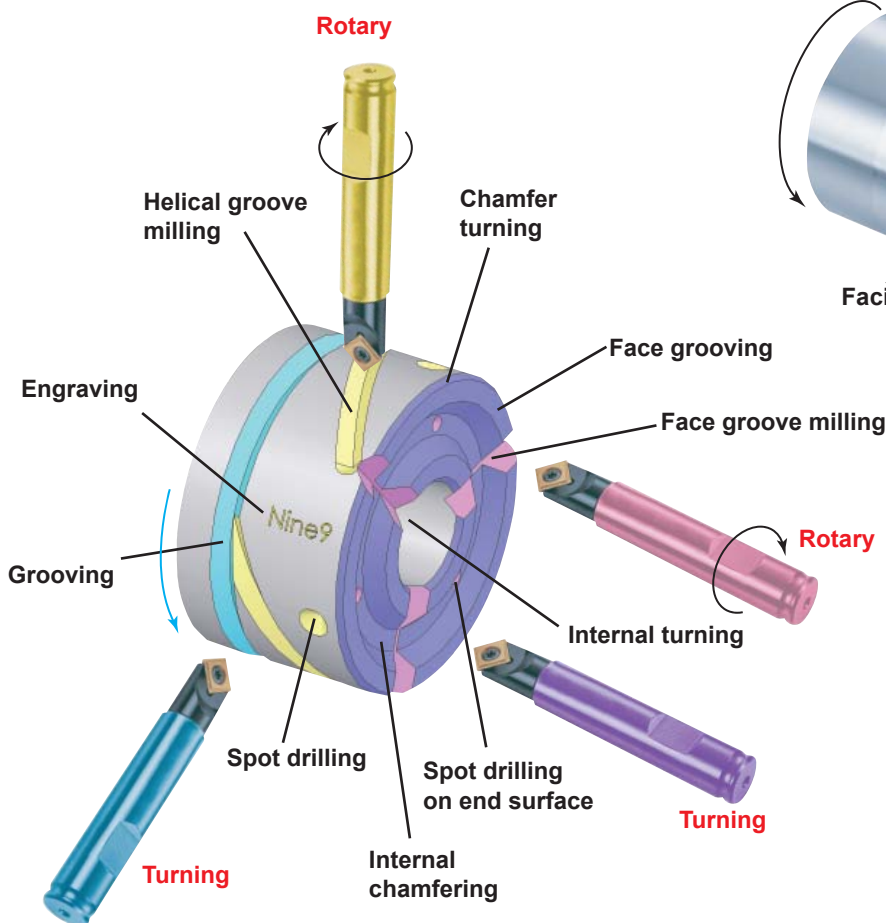


ALL IN ONE !!

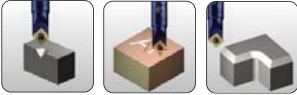
Turning Center Four in one

CNC Lathes

Machining Center



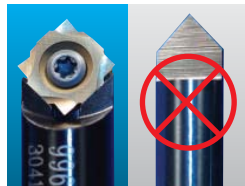
- Available shank diameter-Ø5, Ø6, Ø10, Ø12, Ø16, Ø20mm, Ø3/8", Ø1/2", Ø5/8", Ø3/4", M5, M6, M8
- Inserts are interchangeable.



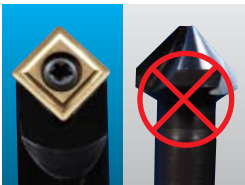
90° Spotting



142° Spotting



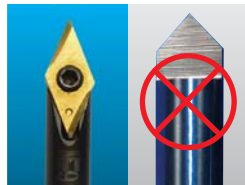
Engraving 60°/ 90°



Spotting, Chamfering Grooving



Chamfering Corner Rounding



Engraving 45°/ 60°

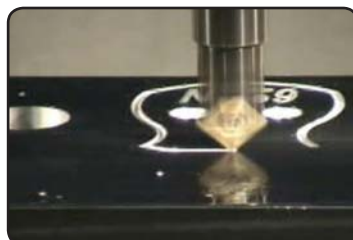


For Centering
 Replace HSS center drill
 with Carbide Insert
 Increase cutting speed by 30 times

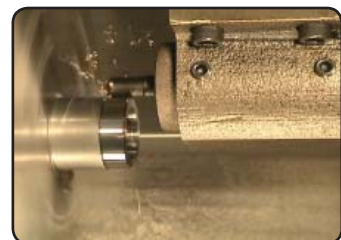
• Application Example



• 45° and 60° Engraving Tools.



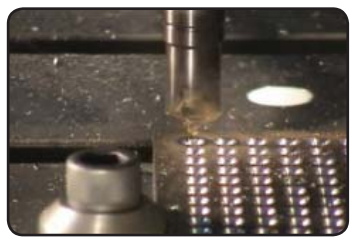
• Spotting, Grooving, Engraving on Machining Center.



• Turning, Chamfering, Facing on CNC Lathes.



• Cut a Serrated Workpiece.
 • Single Pass Each Direction.













• Centering on Machining Center by PR Insert.



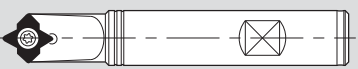





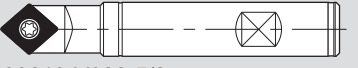







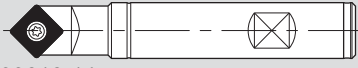





• Contour Chamfering on Machining Center.

Engraving Tools

Angle	Holder	Inserts	D min.	D max.	Spotting	Chamfering	Grooving	Engraving	Drilling	Page
45°	 99619-V045		0.45	2.1	○			●		8
		V04506T1W								
60°	 99619-V060		0.45	2.7	○			●		8
		V06006T1W								
60°	 99616-10...SW		0.25	1.1	○			●		16
		N9MT080201W-60								
90°	 99616-10...SW		0.25	2.0	○			●		16
		N9MT080201W								
90°	 99616-06-6		1	6	●			●		20
		N9MT05T1								

*Open circle = suitable application, Filled circle = preferred application.

NC Spot Drill

60°	 99616-14...P60		2	6.2	●	●		●		17
		N9MT11T3P60								
60°	 99616-13V		2	13	●	●	●	●		18
		V9MT12T3								
82°	 99619-V082-3/8		2 (0.079")	9 (0.354")	●	●	●	●		19
		V0820802								
82°	 99619-V082-5/8		2 (0.079")	14 (0.551")	●	●	●	●		19
		V08212T3								
90°	 99616-06-6		1 (0.039")	6 (0.236")	●	●		●		20
		N9MT05T1								
90°	 99616-10...		2 (0.079")	10 (0.394")	●	●	●	●		21
		N9MT0802								
90°	 99616-10-M5		3 (0.118")	14 (0.551")	●	●	●	●		23
		N9MT11T3								
90°	 99616-14...		3 (0.118")	22 (0.866")	●	●	●			25
		N9MT1704								
90°	 99616-22		4 (0.157")	25 (0.984")	●	●				26
		TCMT2204								
90°	 99616-25-CT28		4 (0.157")	25 (0.984")	●	●				26
		TCMT2204								

NC Spot Drill

Angle	Holder	Inserts	D min.	D max.	Spotting	Chamfering	Grooving	Engraving	Drilling	Page
100°	 99616-20-100		6	16	●	●				28
		N9MT11T3CT2T-H								
120°	 99616-20-120		5	17	●	●				28
		N9MT11T3CT2T-H								
142°	 99616-20-142		3	18	●	●				28
		N9MT11T3CT2T-H								
142°	 99619-V142		2	32	●	●				29
		V1421604								

Corner Rounding

 99616-16-25R		R1.0	R3.0	●					30
	N9MT11T3R (4 cutting edges)								
 99616-14...RC		R1.0 R1/64"	R3.0 R1/8"	●					31
	N9MT11T3RC (2 cutting edges)								
 99616-22...RC		R4.0	R6.0	●					32
	N9MT1704RC (2 cutting edges)								

Large 45° Chamfering

 99616-18		6	18	●					34
	N9MT11T308LA								
 99616-28		16	28	●	*				34
	N9MT11T308LA								

* Side grooving

Center Drilling

 99616-14...PR		2.0	3.15					●	33
	N9MT11T3PR *Similar to DIN 332 Form R								
 99616-IC		1.0	10					●	3
	DIN332 Form R								
 99616-IC		1.0	10					●	3
	DIN332 Form A+B								
 99616-IC		5/64"	3/8"					●	3
	ANSI 60°								

Various Applications of NC Spot Drill

We Focus: • Higher efficiency • Long tool life • Position accuracy • Total cycle time

Multifunctional Cutting Tool

- Universal, Easy handling and Material saving!
- One holder to cover so many different applications!

Now and Future >

Traditional >



A new concept of drilling !

- **0.5xD of spotting.**

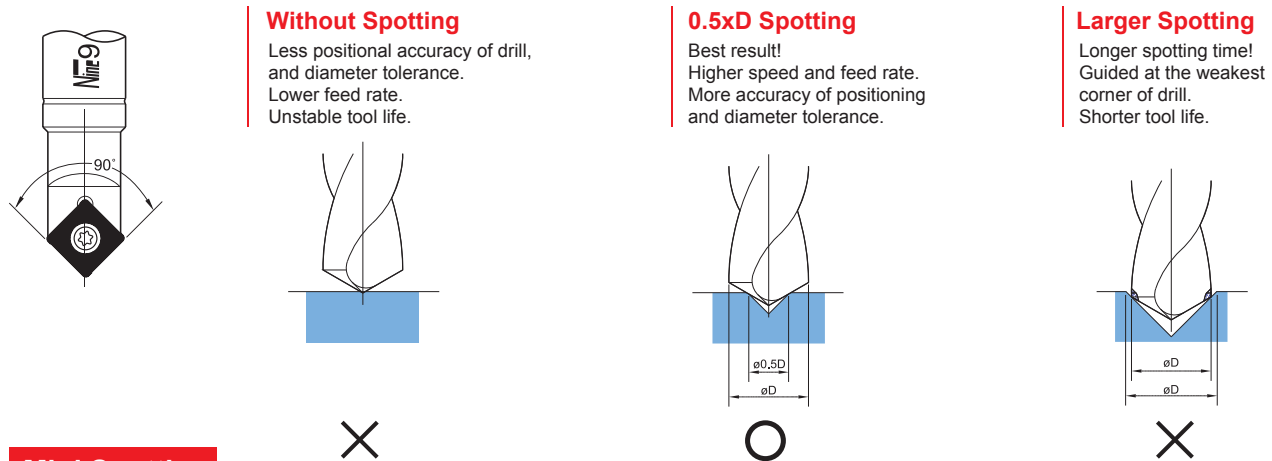
“The high performance solid carbide drill or HSS drill with web thinning do not need any centering!”

“Drilling from solid!” most of the drills manufacturers and suppliers quote that.

However, if you applied NC Spot Drill to drill a spot which is half of the drilling diameter, you can look forward to the following benefits.

• Benefits:

- Higher feed rate of drill!
Why? Because the drill is guided at the strongest part of cutting edge.
- Better center position of drill!
Why? Because the spotting is done by single cutting edge which is out of center, and similar to boring operation.
- Increase the tool life of drill!



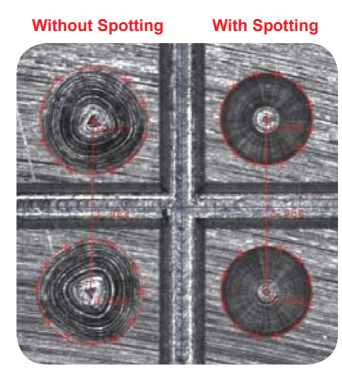
Mini Spotting

• The application of the engraving insert as a spotting drill for the minor size of drill.

- **Benefits:**
- Best positioning accuracy!
- Better surface with spotting by NC Spot Drill in advance.

• **Working example of spotting:**
Spindle speed: 3000-25000 r.p.m.
Feed rate : 0.01-0.02 mm/rev.
Tool : 99616-10
Insert : N9MT080201W-NC40

Better center position !
Longer tool life !



Engraving Tool



Inserts >>

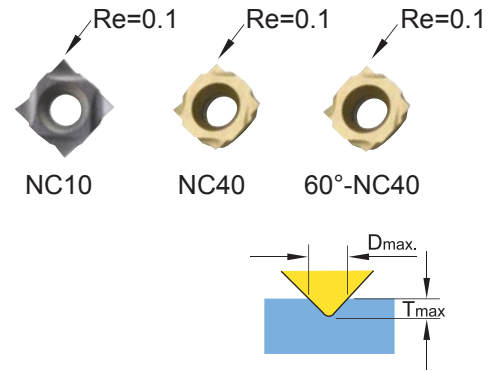
Features:

- 90° Indexable engraving insert with 4 cutting edges.
- No resharping required.
- For marking all types of work pieces.

N9MT080201W-NC10 : • Submicron carbide insert, TiAlN coated, for Al, Al-alloy, hardened steel 40-50°, Stainless steel.

N9MT080201W-NC40 : • Submicron carbide insert, TiN coated, for all unhardened steel and cast iron, general purpose.

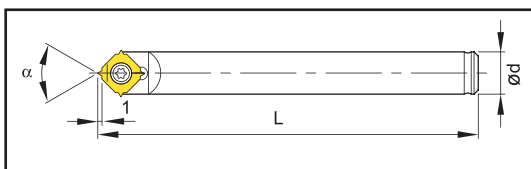
N9MT080201W-60-NC40 : • Submicron carbide insert, TiN coated, very positive angle for 60° engraving for all kind of steel and cast iron.



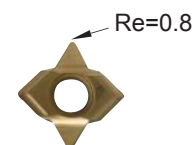
Code	Parts No.	α	Grade	Coating		Dimensions			Dmax.	Tmax.
						L	S	Re		
013404	N9MT080201W-60-NC40	60°	K20F	TiN		8	2.38	0.1	1.1	0.8
013405	N9MT080201W-NC40	90°	K20F	TiN		8	2.38	0.1	2.0	0.9
013406	N9MT080201W-NC10	90°	K20F	TiAlN		8	2.38	0.1	2.0	0.9

Holder >>

Code	Parts No.	ϕd	L	Screw	key
603001	00-99616-10	10	90	NS-30055 2.0 Nm	NK-T8
613001	00-99616-3/8	3/8"	90		



NC Spot Drill - N9MT11T3P60



P60-NC40

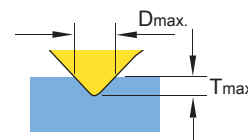
Inserts >>

Feature:

- Fully ground spotting insert, for 60 degree spotting and engraving.

NC40 : • P35 grade, TiN coated

- Each insert has 2 cutting edges.



Code	Parts No.	Grade	Coating		Dimensions			Dmax.	Tmax.
					L	S	Re		
014204	N9MT11T3P60-NC40	P35	TiN		11	3.97	0.8	6.2	4

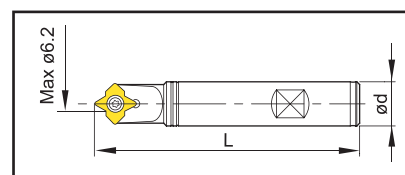
Holder >>

Features:

- 60 degree spotting drill with indexable insert.
- Using standard NC Spot Drill shank.
- A single cutting edge design creates higher precision and position when spotting.

Applications:

- For spotting, engraving, small grooving on milling machines, machining centers.
- For carbon steel, alloy steel and cast iron, general purpose.



Code	Parts No.	ød	L	Screw	key
604002	00-99616-14-12	12	100	NS-35080 2.5 Nm	NK-T15
604004	00-99616-14	16	100		

NC Spot Drill - V9MT12T3



Inserts >>

Feature:

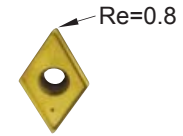
- 60 degree indexable spotting insert, Dmax 13mm.
- Special geometry with supporting edges for using in high speed machining.
- Excellent tool for grooving, save machining time !

NC2071 : • K20F grade, TiN coated, high positive ground cutting edge and relief angle.

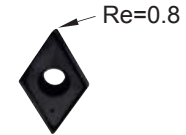
- Universal grade for carbon steel, alloy steel and cast iron.
- Each insert has 2 cutting edges.

NC9076 : • High positive geometry and sharpen edge.

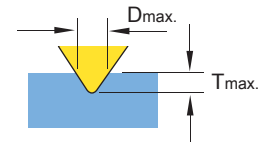
- DLC coated, super good for Al, Al-alloy, copper, brass and bronze.
- Perform excellent surface on non-ferrous metal.
- Each insert has 2 cutting edges.



NC2071



NC9076



Code	Parts No.	Grade	Coating	Diagram	Dimensions			Dmax.	Tmax.
					L	S	Re		
015201	V9MT12T3CT-NC2071	K20F	TiN		12.7	3.97	0.8	13	11.7
015202	V9MT12T3CT-NC9076	K20F	DLC						

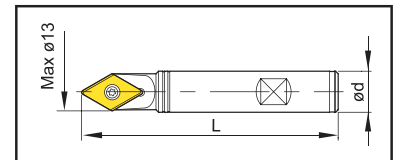
Holder >>

Feature:

- 60° degree spotting drill with indexable insert.
- A single cutting edge creates higher precision and position when spotting.

Applications: • Spotting, engraving, grooving and chamfering on milling machines, machining centers.
• Spotting, facing on CNC Lathes.

Code	Parts No.	ød	L	Screw	Key
605001	00-99616-13V	16	100	NS-35080 2.5 Nm	NK-T15
615001	00-99616-13V-5/8	5/8"	100	NS-35080 2.5 Nm	NK-T15



Single Set >>

- User friendly, each set is fitted with one complimentary insert.

Code	Parts No.	Shank ø	Total Length	Insert fitted	Dmax.	Tmax.
605101-5201	00-99616-13V-02S	16	100	V9MT12T3CT-NC2071	13	11.7
605101-5202	00-99616-13V-02SAL	16	100	V9MT12T3CT-NC9076	13	11.7



NC Spot Drill-V0820802 / V08212T3



Shank
Ø3/8"

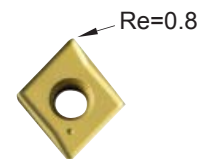
Shank
Ø5/8"

Inserts >>

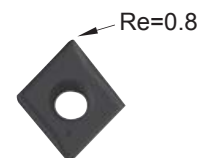
- Feature:**
- 82 degree indexable spotting insert.
 - Match the geometry of **American standard screw hole**.
 - Special geometry with supporting edges for use in high speed machining.

- NC2071 :**
- K20F grade, TiN coated, high positive ground cutting edge and relief angle.
 - Universal grade for carbon steel, alloy steel and cast iron.
 - Each insert has 2 cutting edges.

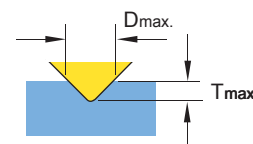
- NC9076 :**
- High positive geometry and sharp edge.
 - DLC coated, super good for Al, Al-alloy, copper, brass and bronze.
 - Produces excellent surface finish on non-ferrous metal.
 - Each insert has 2 cutting edges.



NC2071



NC9076



Code	Parts No.	Grade	Coating		Dimensions			Dmax.	Tmax.
					L	S	Re		
0108201	V0820802-NC2071	K20F	TiN		8	2.38	0.4	9	4.8
0108202	V0820802-NC9076	K20F	DLC		8	2.38	0.4	9	4.8
0108211	V08212T3-NC2071	K20F	TiN		12.7	3.97	0.8	14	7.5
0108212	V08212T3-NC9076	K20F	DLC		12.7	3.97	0.8	14	7.5

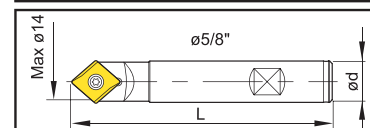
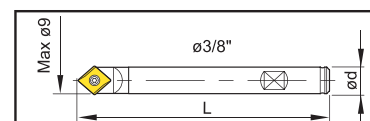
Holder >>

- Features:**
- 82 degree spotting drill with indexable insert.
 - Special cutting edge design gives higher precision and position when spotting

- Applications:**
- Spotting, engraving, grooving and chamfering on milling machines, machining centers.
 - Spotting, facing on CNC Lathes.



Code	Parts No.	Insert type	ød	L	Screw	Key
693001	00-99619-V082-3/8	V0820802	3/8"	90	NS-30055 2.0 Nm	NK-T8
693002	00-99619-V082-5/8	V08212T3	5/8"	100	NS-35080 2.5 Nm	NK-T15



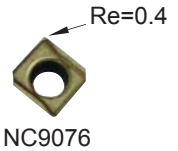
NC Spot Drill - N9MT05T1



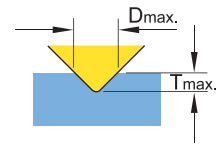
Inserts >>

Features: Mini spotting drill with indexable insert, low cutting power required. Especially good for **Swiss type automatic lathes and CNC lathes.**

- NC2071 :**
- K20F grade, TiN coated, fully ground cutting edge and relief angle.
 - Geometry with supporting edges to stable the cutting condition on low power machine.
 - Each insert has 2 cutting edges, for carbon steel, alloy steel and cast iron.



- NC9076 :**
- High positive geometry and sharp edge.
 - DLC coated, super good for Al, Al-alloy, copper, brass and bronze.
 - Produces an excellent surface finish on non-ferrous metal.
 - Each insert has 2 cutting edges.



Code	Parts No.	Grade	Coating	Diagram	Dimensions			Dmax.	Tmax.
					L	S	Re		
011201	N9MT05T1CT-NC2071	K20F	TiN		5	1.8	0.4	6	3.5
011202	N9MT05T1CT-NC9076	K20F	DLC						

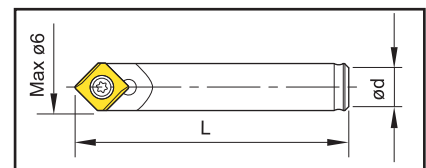
Holder >>

Features:

- Smallest indexable spotting drill holder.
- A single cutting edge creates higher precision and position when spotting.

Applications:

- Spotting, engraving, and chamfering on milling machines, machining centers.
- Spotting, facing on CNC Lathes.



Code	Parts No.	ød	L	Screw	key
601001	00-99616-06-6	6	35	NS-20036 0.8 Nm	NK-T6
601002	00-99616-06-5	5	35		
601003	00-99616-06-6L	6	60		

Note:601003 is carbide shank holder.

NC Spot Drill - N9MT0802

Attention :



Inserts >>

- H-NC40** :
- Best choice for spotting application.
 - Special geometry with supporting edges for use in high speed machining.
 - Sharp edge good for long cutting chip metals, such as low carbon steel, stainless steel and Ti, Ti-alloy.
 - Each insert has 2 cutting edges.

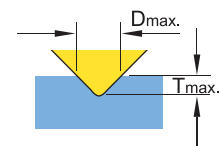
- H-NC9076** :
- High positive geometry and sharp edge.
 - DLC coated, super good for Al, Al-alloy, copper, brass and bronze.
 - Produces excellent surface finish when chamfering non-ferrous metal.
 - Each insert has 2 cutting edges.

- NC40** :
- General purpose, universal grade for all unhardened steel and cast iron.
 - Each insert has 4 cutting edges.

- NC10** :
- High positive angle and fully ground cutting edge and relief angle.
 - Universal grade for Al, Al-alloy, non-ferrous metal and stainless steel.
 - Each insert has 4 cutting edges.



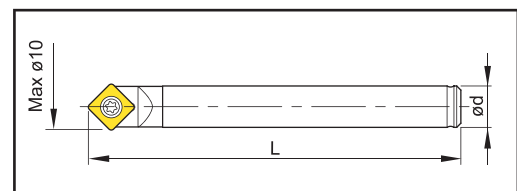
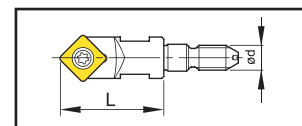
Code	Parts No.	Grade	Coating	Re	Dimensions			Dmax.	Tmax.
					L	S	Re		
013201	N9MT0802CT2T-H-NC40	K20F	TiN		8	2.38	0.8	10	4
013202	N9MT0802CT2T-H-NC9076	K20F	DLC		8	2.38	0.8	10	4
013401	N9MT080208CT-NC40	K20F	TiN		8	2.38	0.8	10	4
013402	N9MT080204CT-NC40	K20F	TiN		8	2.38	0.4	10	4
013403	N9MT080204CT-NC10	K20F	TiAlN		8	2.38	0.4	10	4



Holder >>

- Features:**
- Indexable spotting drill holder.
 - Single cutting edge design gives higher precision when spotting.

- Applications:**
- Spotting, engraving, grooving and chamfering on milling machines, machining centers.
 - Spotting, facing on CNC Lathes.



Code	Parts No.	ød	L	Screw	Key
603001	00-99616-10	10	90	NS-30055 2.0 Nm	NK-T8
603003	00-99616-10-SL10	10	90		
613001	00-99616-10-3/8	3/8"	90		
623001	00-99616-10-M5	M5	25		
623002	00-99616-10-M6	M6	25		

Note: • 603003 with side lock flat on shank.
• Nine9 extension bar for M5,M6 screw fit holder, see page 43.

NC Spot Drill - N9MT0802



Single Set >>



- User friendly, each set is fitted with one complimentary insert.

Code	Parts No.	Shank ø	Total Length	Insert fitted	Dmax.	Tmax.
603101-3401	00-99616-10-02S	10	90	N9MT080208CT-NC40	10	4
603101-3403	00-99616-10-02SAL	10	90	N9MT080204CT-NC10	10	4
603101-3201	00-99616-10-H-02S	10	90	N9MT0802CT2T-H-NC40	10	4
613101-3401	00-99616-10-3/8-02S	3/8"	3.54"	N9MT080208CT-NC40	0.394"	0.157"
613101-3403	00-99616-10-3/8-02SAL	3/8"	3.54"	N9MT080204CT-NC10	0.394"	0.157"

Starter Package >>

- Selected package for starter who wants to try **NC Spot Drill**.
- Included one insert on tool holder and five inserts in the pocket.
- Total 6 inserts are equal to 24 spot drills.



Code	Parts No.	Shank ø	Insert included	Content
603201-3401	00-99616-10-ME6	10	N9MT080208CT-NC40	1 tool holder + 6 inserts + 1 key
603201-3403	00-99616-10-ME6AL	10	N9MT080204CT-NC10	
603201-3201	00-99616-10-H-ME6	10	N9MT0802CT2T-H-NC40	
613201-3401	00-99616-10-IN6	3/8"	N9MT080208CT-NC40	
613201-3403	00-99616-10-IN6AL	3/8"	N9MT080204CT-NC10	

NC Spot Drill - N9MT11T3



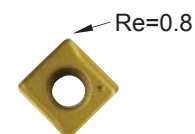
Shank
ø12, ø16,
ø20

Shank
1/2, 5/8

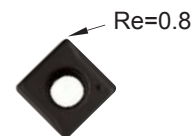
Screw
Fit
M8

▣ Inserts >>

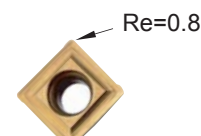
- H-NC40** : • Best choice for spotting application.
• Special geometry with supporting edges for use in high speed machining.
• Sharp edge good for long cutting chip metals, such as low carbon steel, stainless steel and Ti, Ti-alloy.
• Each insert has 2 cutting edges.
- H-NC9076** : • High positive geometry and sharp edge same as grade H-NC40.
DLC coated, super good for Al, Al-alloy, copper, brass and bronze.
• Produces excellent surface finish when chamfering non-ferrous metal.
• Each insert has 2 cutting edges.
- NC40** : • General purpose, universal grade for all unhardened steel and cast iron.
• Each insert has 4 cutting edges.
- NC10** : • High positive angle and fully ground cutting edge and relief angle.
• Universal grade for Al, Al-alloy, non-ferrous metal and stainless steel.
• Each insert has 4 cutting edges.
- NC60** : • Cermet insert, fully ground cutting and relief angle, for hardened steel up to HRC55 .
• Each insert has 4 cutting edges..



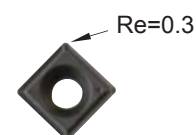
H-NC40



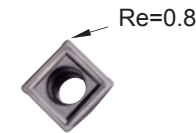
H-NC9076



NC40

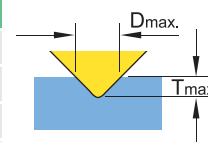


NC10



NC60

Code	Parts No.	Grade	Coating		Dimensions			Dmax.	Tmax.
					L	S	Re		
014202	N9MT11T3CT2T-H-NC40	K20F	TiN		11	3.97	0.8	14	7
014203	N9MT11T3CT2T-H-NC9076	K20F	DLC		11	3.97	0.8	14	7
014401	N9MT11T3CT-NC40	P35	TiN		11	3.97	0.8	14	7
014402	N9MT11T3CT-NC10	K10F	TiAlN		11	3.97	0.3	14	7
014403	N9MT11T3CT-NC60	CERMET			11	3.97	0.8	14	7

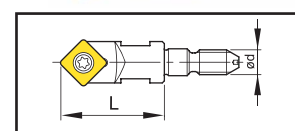


▣ Holders >>

- Features:** • Indexable insert spotting drill holder.
• The most wide range application of spotting drill for milling and turning operation.
• Holders and inserts are interchangeable.
- Applications:** • Spotting, engraving, grooving and chamfering on milling machines, machining centers.
• Spotting, facing, turning on CNC Lathes.



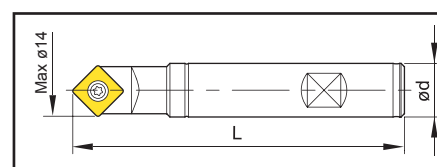
M8



Code	Parts No.	ød	L	Screw	Key
604002	00-99616-14-12	12	100	NS-35080 2.5 Nm	NK-T15
604004	00-99616-14	16	100		
604007	00-99616-14-150L	16	150		
604009	00-99616-14-220L	20	220		
614001	00-99616-14-1/2	1/2"	4"		
614002	00-99616-14-5/8	5/8"	4"		
624001	00-99616-14-M8	M8	30		



Ø16



Note: • Nine9 extension bar for M8 screw fit holder, see page 43.

NC Spot Drill - N9MT11T3



Single Set >>

- User friendly, each set is fitted with one complimentary insert.

Code	Parts No.	Shank ø	Total Length	Insert fitted	Dmax.	Tmax.
604102-4401	00-99616-14-12-02S	12	100	N9MT11T3CT-NC40	14	7
604102-4402	00-99616-14-12-02SAL			N9MT11T3CT-NC10		
604102-4202	00-99616-14-12-H-02S			N9MT11T3CT2T-H-NC40		
604104-4401	00-99616-14-02S	16	100	N9MT11T3CT-NC40	14	7
604104-4402	00-99616-14-02SAL			N9MT11T3CT-NC10		
604104-4202	00-99616-14-H-02S			N9MT11T3CT2T-H-NC40		
614101-4401	00-99616-14-1/2-02S	1/2"	4"	N9MT11T3CT-NC40	0.6"	0.275"
614101-4402	00-99616-14-1/2-02SAL			N9MT11T3CT-NC10		
614102-4401	00-99616-14-5/8-02S	5/8"	4"	N9MT11T3CT-NC40	0.6"	0.275"
614102-4402	00-99616-14-5/8-02SAL			N9MT11T3CT-NC10		



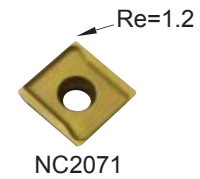
Starter Package >>

- Selected package for starter who wants to try NC Spot Drill.
- Included one insert on tool holder and five inserts in the pocket.
- Total 6 inserts are equal to 24 spot drills.



Code	Parts No.	Shank ø	Insert included	Content
604202-4401	00-99616-14-12-ME6	12	N9MT11T3CT-NC40	1 tool holder + 6 inserts + 1 key
604202-4402	00-99616-14-12-ME6AL		N9MT11T3CT-NC10	
604204-4401	00-99616-14-ME6		N9MT11T3CT2T-H-NC40	
604204-4402	00-99616-14-ME6AL	16	N9MT11T3CT-NC40	
604204-4202	00-99616-14-H-ME6		N9MT11T3CT-NC10	
614202-4401	00-99616-14-IN6		N9MT11T3CT2T-H-NC40	
614202-4402	00-99616-14-IN6AL	5/8"	N9MT11T3CT-NC40	
			N9MT11T3CT-NC10	

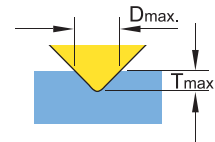
NC Spot Drill - N9MT1704



▣ Inserts >>

Feature: • 90 degree indexable spot drill insert, Dmax 22mm.

- NC2071:**
- K20F grade, TiN coated, high positive geometry, fully ground cutting edge and relief angle.
 - Each insert has 2 cutting edges.
 - Universal grade for all unhardened steel and cast iron.

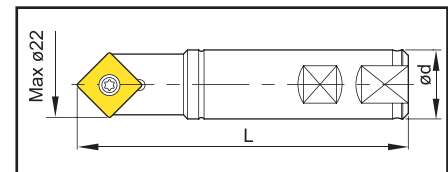


Code	Parts No.	Grade	Coating		Dimensions			Dmax.	Tmax.
					L	S	Re		
016201	N9MT1704CT-NC2071	K20F	TiN		17	4.76	1.2	22	10

▣ Holders >>

- Features:**
- 90 degree spotting drill with indexable insert.
 - A single cutting edge creates higher precision and position when spotting.

- Applications:**
- Spotting, engraving, grooving and chamfering on milling machines, machining centers.
 - Spotting, facing on CNC Lathes.



Code	Parts No.	ød	L	Screw	Key
606001	00-99616-22	20	100	NS-50125 5.5 Nm	NK-T20
606002	00-99616-22-25	25	150		

▣ Single Set >>

- User friendly, each set is fitted with one complimentary insert.

Code	Parts No.	Shank ø	Total Length	Insert fitted	Dmax.	Tmax.
606101-6201	00-99616-22-02S	20	100	N9MT1704CT-NC2071	22	10



NC Spot Drill - N9MT220408



Shank
Ø25

Shank
1"

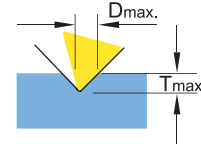


NC40

Inserts >>

- Feature:**
- For spotting diameter up to 25mm.
 - Fully ground cutting edge and relief angle.

- NC40:**
- P35, TiN coated.
 - Universal grade for carbon steel, alloy steel and cast iron.
 - Each insert has 3 cutting edges.

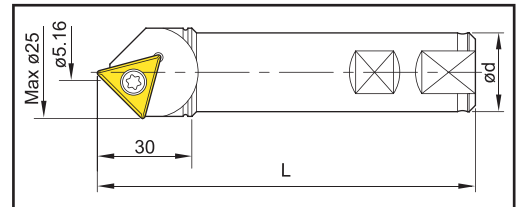


Code	Parts No.	Grade	Coating	Diagram	Dimensions		Dmax.	Tmax.
					L	S		
017301	N9MT220408CT-NC40	P35	TiN		20.83	4.76	25	12.2

Holders >>

- Features:**
- Large spotting diameter with indexable insert.
 - Single cutting edge design gives high precision when spotting.

- Applications:**
- Spotting, and chamfering on milling machine, machining centers.



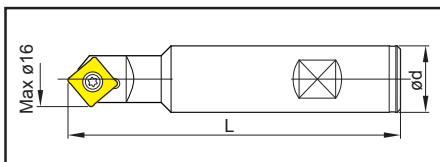
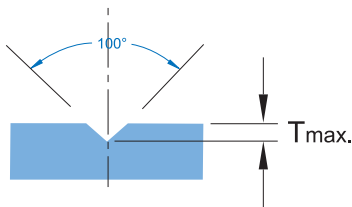
Code	Parts No.	ød	L	Screw	Key
607001	00-99616-25-CT28	25	120	NS-40100 3.8 Nm	NK-T15
617001	00-99616-1-CT28	25.4	120		



NC Spot Drill - N9MT11T3

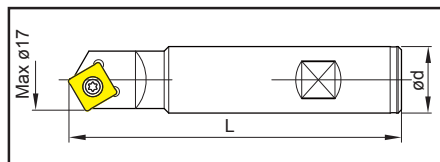
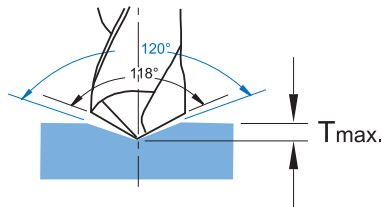


• 100 degree



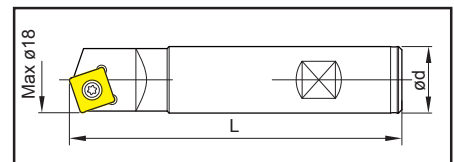
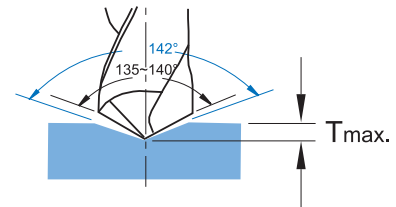
- For aircraft 100° normal rivet hole and screw hole.

• 120 degree



- For spotting before drilling by 118° point angle drill.
- 60° chamfering.

• 142 degree

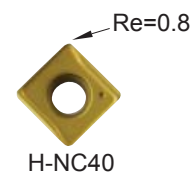


- For spotting before drilling by 135~140° point angle high performance drilling.

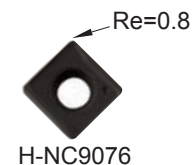
▣ Inserts >>

Feature: • Special geometry with supporting edges to reduce the vibration in high speed machining.

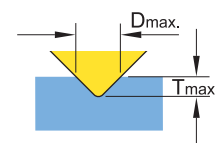
H-NC40 : • K20F grade, TiN coated.
• General purpose for all kinds of steel and cast iron.
• Each insert has 2 cutting edges.



H-NC9076 : • High positive geometry and sharp edge .
• DLC coated, specially developed for Al, Al-alloy, copper, brass and bronze.
• Produces excellent surface finish when chamfering non-ferrous metal.
• Each insert has 2 cutting edges.



Code	Parts No.	Grade	Coating	Image	Dimensions		
					L	S	Re
014202	N9MT11T3CT2T-H-NC40	K20F	TiN		11	3.97	0.8
014203	N9MT11T3CT2T-H-NC9076	K20F	DLC		11	3.97	0.8



NC Spot Drill - N9MT11T3



*Higher feed rate !
Better center position !
Longer tool life !*

▣ **Holders - 100°/120°/142° >>**

- Features:**
- Indexable insert spotting drill holders for 100°/120°/142° spotting.
 - Reduces spotting time, increase tool life and position accuracy of the next drilling operation.

Code	Parts No.	Angle	ød	L	Screw	Key
604011	00-99616-20-100	100°	20	100	NS-35080 2.5 Nm	NK-T15
604013	00-99616-20-120	120°	20			
614003	00-99616-3/4-120		3/4"			
604014	00-99616-20-142	142°	20			
614004	00-99616-3/4-142		3/4"			

Attention :



Note: • ød 3/4" shank 100° NC spot drill is available on request.

▣ **Single Set - 100°/120°/142° >>**

- User friendly, each set is fitted with one complimentary insert.

Code	Parts No.	Angle	Shank ø	Total Length	Insert fitted	Dmax.	Tmax.
604111-4202	00-99616-20-100-H-02S	100°	20	100	N9MT11T3CT2T -H-NC40	16.53	6
604113-4202	00-99616-20-120-H-02S	120°	20	100		17	5
614103-4202	00-99616-3/4-120-H-02S		3/4"	4"		0.67"	0.196"
604114-4202	00-99616-20-142-H-02S	142°	20	100		18.5	3
614104-4202	00-99616-3/4-142-H-02S		3/4"	4"		0.728"	0.118"



▣ **Starter Package - 100°/120°/142° >>**

- Selected package for starter who wants to try **NC Spot Drill**.
- Included one insert on tool holder and five inserts in the pocket.
All kits are packed by blister card.

Code	Parts No.	Angle	Shank ø	Insert included	Content
604211-4202	00-99616-20-100-H-ME6	100°	20	N9MT11T3CT2T-H-NC40	1 tool holder + 6 inserts + 1 key
604213-4202	00-99616-20-120-H-ME6	120°	20		
614203-4202	00-99616-3/4-120-H-IN6		3/4"		
604214-4202	00-99616-20-142-H-ME6	142°	20		
614204-4202	00-99616-3/4-142-H-IN6		3/4"		



NC Spot Drill - V14208 / V14216



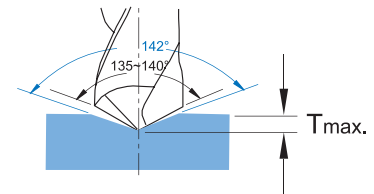
*Save cutting and changing time !
Excellent tool life.*

▣ Inserts >>

Feature:

- For spotting before drilling by 135° - 140° point angle high performance drill.
- 142 degree indexable spotting drills. Maximum diameter up to 32mm.

- NC2071:**
- K20F grade, TiN coated, high positive geometry, fully ground cutting edge and relief angle.
 - Each insert has 2 cutting edges.
 - Universal grade for all unhardened steel and cast iron.



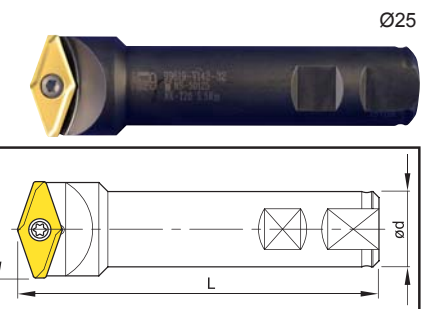
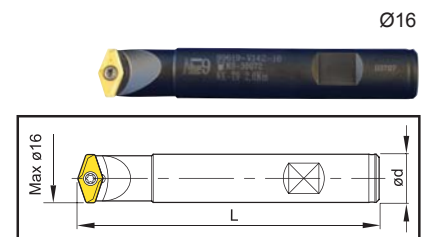
Code	Parts No.	Grade	Coating	Diagram	Dimensions			Dmax.	Tmax.
					L	S	Re		
0114201	V1420803-NC2071	K20F	TiN		8	2.38	0.8	16	2.8
0114211	V1421604-NC2071	K20F	TiN		14	4.76	1.2	32	5.5



▣ Holders >>

Feature:

- Using spotting first may increase higher speed and feed rate of the after drills.
- Saving total machining time !
- Longer tool life of the after drills. Money saving !
- Higher accuracy of positioning and diameter tolerance !



Code	Parts No.	Insert Type	ød	L	Screw	Key
696001	00-99619-V142-16	V1420803-NC2071	16	100	NS-30072	NK-T9
696002	00-99619-V142-32	V1421604-NC2071	25	120	NS-50125	NK-T20

Corner Rounding Cutter (4 cutting edges)



Shank
Ø16

*R1.0~R3.0
All are interchangeable
on same holder.*

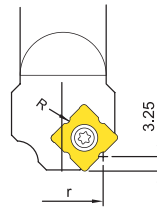
▣ Inserts >>

Features:

- Each insert has four cutting edges.
- Various corner radius inserts can fit on same holder.
- Carbide insert can stand very long tool life.

N9MT11T3RXX-NC40 :

- Carbide insert, P35, TiN coated, for steel and cast iron, general purpose.
- Inserts are CNC ground for precision radius location.



Code	Parts No.	Grade	Coating	Corner radius(R)	Tool radius offset (r)	Dimensions	
						L	S
014404	N9MT11T3R10-NC40	P35	TiN	1.0	9.25	11.11	3.97
014405	N9MT11T3R15-NC40	P35	TiN	1.5	9.5	11.11	3.97
014406	N9MT11T3R20-NC40	P35	TiN	2.0	9.75	11.11	3.97
014407	N9MT11T3R25-NC40	P35	TiN	2.5	10	11.11	3.97
014408	N9MT11T3R30-NC40	P35	TiN	3.0	10.25	11.11	3.97

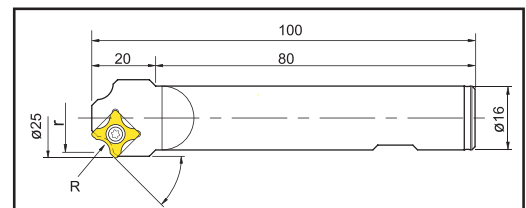
▣ Holders >>

Features:

- Center of radius of each tool is dedicated.
- Tool offset can be set after measuring tool length by tool presetter or Z-Zero Setter.



Code	Parts No.	ød	L	Screw	Key
604015	00-99616-16-25R	16	100	NS-35080 2.5 Nm	NK-T15



Corner Rounding Cutter (2 cutting edges)



Shank
Ø12
Ø16

Shank
Ø1/2"
Ø5/8"

*R1.0~R3.0
All are interchangeable
on same holder.*

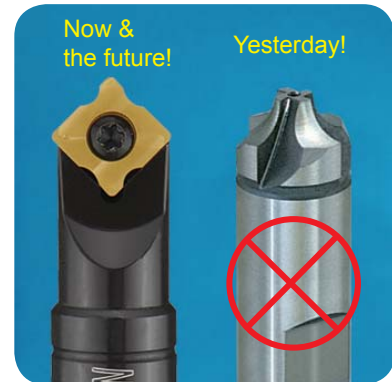
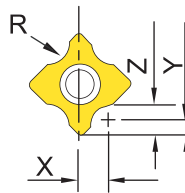
▣ Inserts >>

Features:

- Each insert has two cutting edges.
- Higher cutting speed and feed rate.
- Various corner radius inserts can fit on same holder.
- **Combination corner rounding and 45° chamfering application on same insert.**
- Carbide insert can stand very long tool life.
- Very small X offset, good for contour chamfering.

N9MT11T3RCXX-NC40

- Submicron carbide insert, K20F, TiN coated, universal design for all kinds of material.
- Inserts are CNC ground for precision radius location.



Code	Parts No.	Grade	Coating	Corner radius(R)	offset			Dimensions
					X	Y	Z	
014209	N9MT11T3RC10-NC40	K20F	TiN	1.0	2.75	1.5	2.5	11.11 3.97
014210	N9MT11T3RC15-NC40	K20F	TiN	1.5	3.25	1.5	3	11.11 3.97
014211	N9MT11T3RC20-NC40	K20F	TiN	2.0	3.75	1.5	3.5	11.11 3.97
014212	N9MT11T3RC25-NC40	K20F	TiN	2.5	4.25	1.5	4	11.11 3.97
014213	N9MT11T3RC30-NC40	K20F	TiN	3.0	4.75	1.4	4.4	11.11 3.97
014214	N9MT11T3RC1/64-NC40	K20F	TiN	1/64	0.086"	0.059"	0.0747"	0.437" 0.156"
014215	N9MT11T3RC1/32-NC40	K20F	TiN	1/32	0.101"	0.059"	0.090"	0.437" 0.156"
014216	N9MT11T3RC1/16-NC40	K20F	TiN	1/16	0.133"	0.059"	0.122"	0.437" 0.156"
014217	N9MT11T3RC3/32-NC40	K20F	TiN	3/32	0.164"	0.059"	0.153"	0.437" 0.156"
014218	N9MT11T3RC 1/8-NC40	K20F	TiN	1/8	0.199"	0.055"	0.180"	0.437" 0.156"

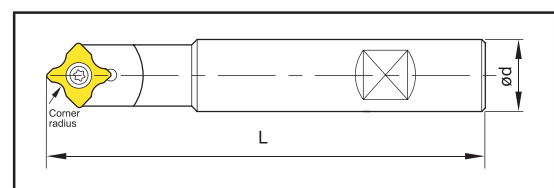
• Other sizes also available upon request.

▣ Holders >>

Features:

- **For corner rounding using NC Spot Drill shank.**
- Good for small work pieces.

Code	Parts No.	ød	L	Screw	Key
604002	00-99616-14-12	12	100	NS-35080 2.5 Nm	NK-T15
604004	00-99616-14	16	100		
614001	00-99616-14-1/2	1/2"	4"		
614002	00-99616-14-5/8	5/8"	4"		



Corner Rounding Cutter (2 cutting edges)



Shank
Ø20

Shank
Ø25

Inserts >>

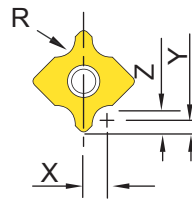
Features:

- Higher cutting speed and feed rate.
- Various corner radius inserts can fit on same holder.
- **Combination corner rounding and 45° chamfering application on same insert.**
- Carbide insert can stand very long tool life.

N9MT1704RCXX-NC2071 :

- Submicron carbide insert, K20F, TiN coated, universal design for all kind of material.
- Inserts are CNC ground for precision radius location.
- Each insert has two cutting edges.

R4.0~R6.0
All are interchangeable on same holder.



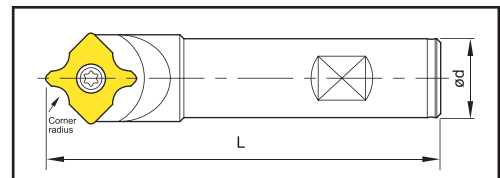
Code	Parts No.	Grade	Coating	Corner radius(R)	offset			Diagram	Dimensions	
					X	Y	Z		L	S
016202	N9MT1704RC40-NC2071	K20F	TiN	4.0	5.95	2	6		17	4.76
016203	N9MT1704RC50-NC2071	K20F	TiN	5.0	6.90	2	7		17	4.76
016204	N9MT1704RC60-NC2071	K20F	TiN	6.0	7.90	2	8		17	4.76

Holders >>

Features:

- **For corner rounding using NC Spot Drill shank.**
- Good for small work pieces, which need large corner rounding.

Code	Parts No.	ød	L	Screw	Key
606001	00-99616-22	20	100	NS-50125 5.5 Nm	NK-T20
606002	00-99616-22-25	25	150		



- Other sizes also available upon request.

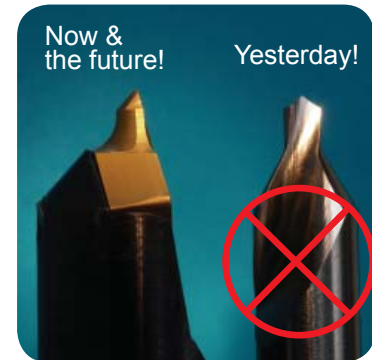
NC Spot Drill - N9MT11T3PR



Inserts >>

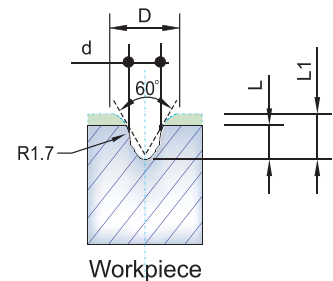
Features:

- Very high cutting speed and feed rate.
- Center drilling with indexable inserts.
- Create center holes similar to DIN 332 Form R, R2.0, 2.5 and 3.15 mm.
- Carbide insert can stand very long tool life.
- Indexable insert saves pre-setting time of tool change.



N9MT11T3PRXX-NC40 :

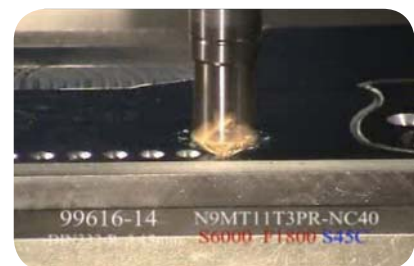
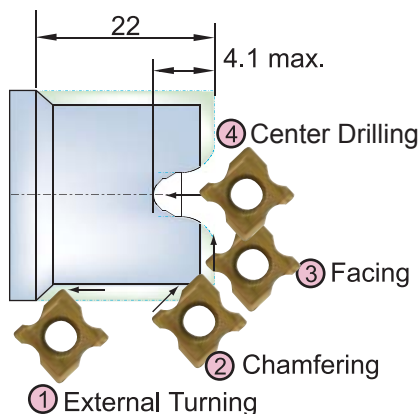
- Carbide insert, P35, TiN coated, for all steel and cast iron, general purpose.
- Each insert has two cutting edges.
- Radius curve eliminates the sharp transition from drill point to countersink angle. The risk of breakage is reduced.



Dimensions of the center hole drilled by PR center drilling inserts.

Code	Parts No.	Grade	Coating	Rotation	Dimensions				
					d	D	L	L1	Re
014205	N9MT11T3PR20-NC40	P35	TiN	CW	2.0	5.4	2.7	3.3	0.8
014206	N9MT11T3PR25-NC40			CW	2.5	5.9	3.0	3.7	0.8
014207	N9MT11T3PR30-NC40			CW	3.15	6.4	3.3	4.0	0.8
014208	N9MT11T3PL30-NC40			CCW	3.15	6.4	3.3	4.0	0.8

Turning and Centering Capacity on CNC Lathes



Center drilling by Nine 9 PR insert, spindle speed: 6000 r.p.m. Feed rate: 1800 mm/min. It is 30 times more than HSS center drill.

HOLDERS >>

Features:

- For center drilling on any type of machine.
- For external turning and facing on lathes as well.

Code	Parts No.	ød	L	Screw	Key
604004PR	00-99616-14-PR	16	100	NS-35080 2.5 Nm	NK-T15

- Especially holder for PR inserts.

45° Chamfering Tool-N9MT11T308LA



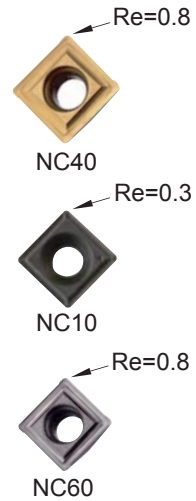
*Higher feed rate.
Excellent tool life.*



▣ Inserts >>

Feature:

- Patented square insert, each insert has 4 cutting-edges.
- N9MT11T308LA -NC40** : • Carbide insert, TiN coated.
Good for all kinds of steel and cast iron.
- N9MT11T308LA -NC10** : • Carbide insert, very positive angle.
Good for Al, Al-alloy and non-ferrous metal.
- N9MT11T308LA -NC60** : • Cermet insert.
Good for hardened steel, up to HRC55°.



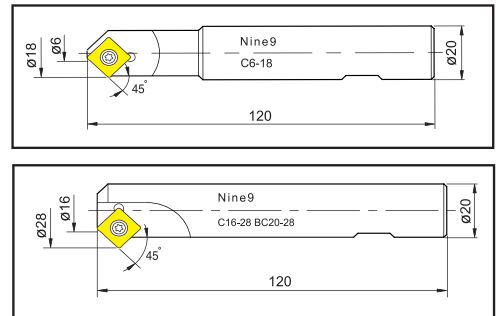
Code	Parts No.	Grade	Coating	Diagram	Dimensions		
					L	S	Re
014409	N9MT11T308LA -NC40	P35	TiN		11.11	3.97	0.8
014410	N9MT11T308LA -NC10	K10F	TiAN		11.11	3.97	0.3
014411	N9MT11T308LA -NC60	Cermet			11.11	3.97	0.8

▣ Holders >>

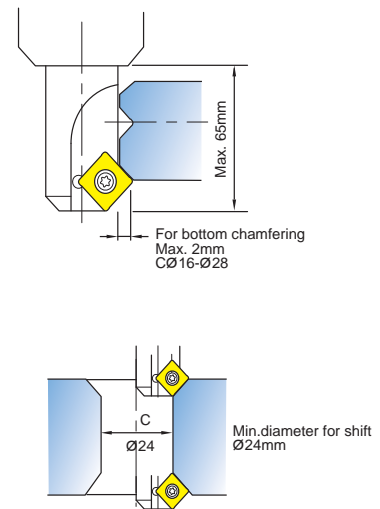
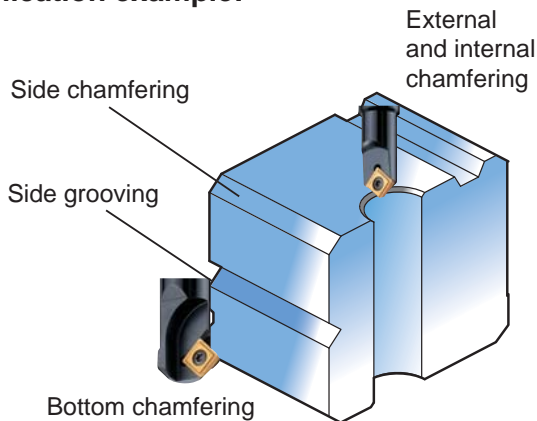
Features:

- 99616-28 can be applied for machining bottom chamfering and side grooving.

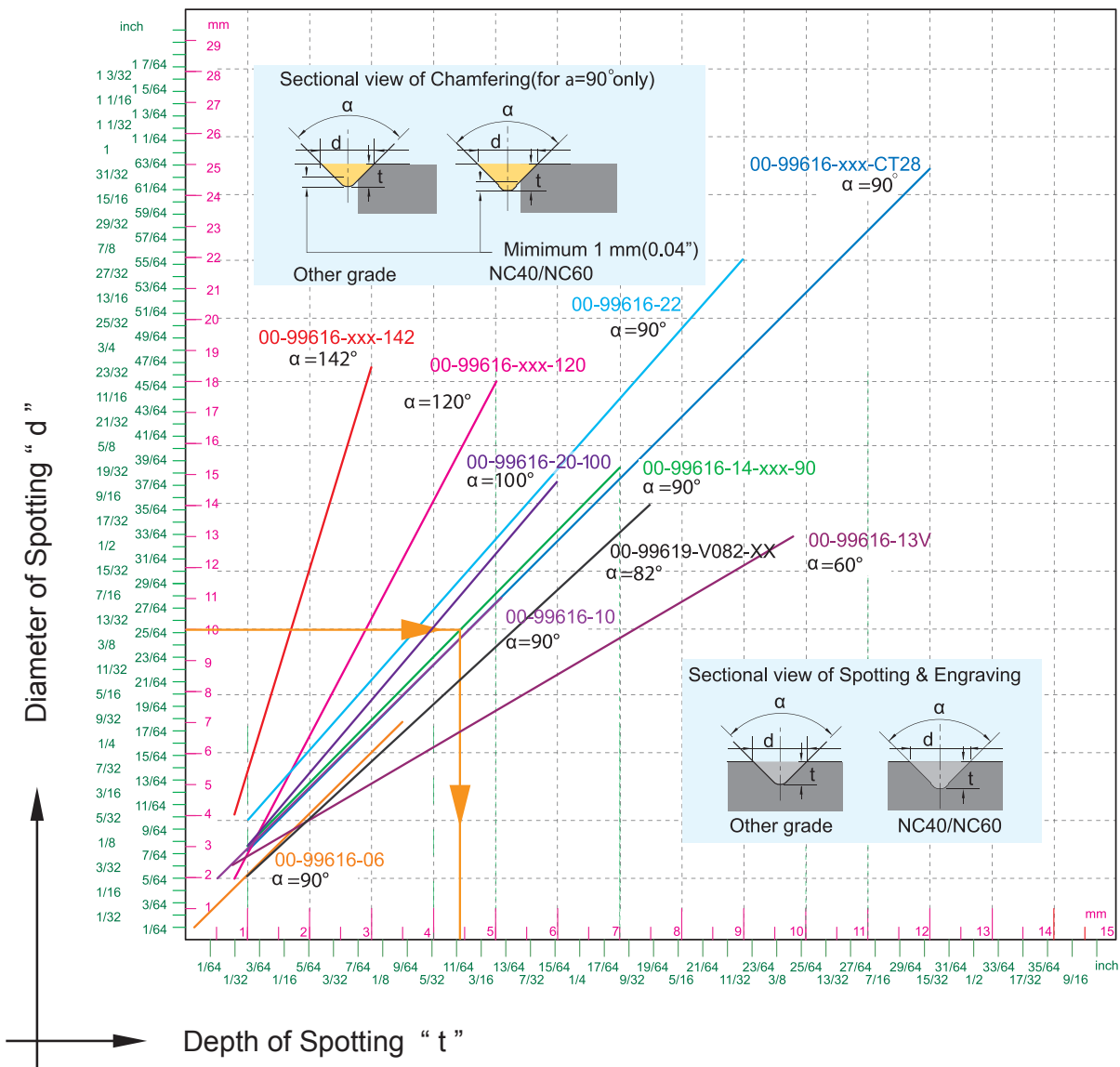
Code	Parts No.	C	ød	L	Screw	Key
604017	00-99616-18	ø6-ø18	20	120	NS-35080 2.5 Nm	
604018	00-99616-28	ø16-ø28				



▣ Application example:



Diameter/Depth Chart and Speed/Feed Rate Calculation of NC Spot Drill



▣ Instruction of Use >>

1. From Spot diameter "d" to get drill depth "t".
2. Point angle " α " is decided by which tool holder you use.
3. From "d" draw a horizontal line to get intersection of the line by point angle " α ".
4. From the intersection draw a vertical line to the bottom to have depth of spotting "t". "t" is the drill depth of the NC program.
5. The sectional view of spotting will depend on the shape of insert, NC40 and other grade of inserts have different sectional view.
6. For chamfering, do not use tip of insert, 1mm(0.04") minimum clearance is required for a smooth surface finish.

▣ Calculate Spindle Speed >>

1. Using your "d" value and cutting speed Vc(SFM) from the data sheet (reference page 36), calculate spindle speed "S"(RPM).
2. Feed rate per minute $F=f \times S = \text{RPM} \times \text{IPR}$

Metric	inch
D= Diameter -mm	D= Diameter(inch)
S= Spindle speed -r.p.m.	S=RPM=Revolutions per Minute(Spindle Speed)
Vc= Cutting Speed -m/min.	SFM= Surface Feet per Minute
f = mm/rev.	SFM=Vc (m/min.)x3.28
F= mm/min.	IPR=f/25.4 - inches Per Revolution
F=fxS	F=IPM= inches Per Minute(Feed)
$S = \frac{Vc \times 1000}{\pi \times D}$	$S = \text{RPM} = (3.82 \times \text{SFM}) / D$
	$F = \text{IPM} = \text{RPM} \times \text{IPR}$

NC Spot Drill Cutting Data

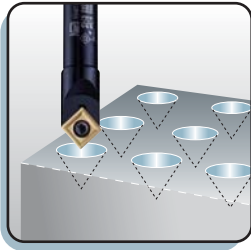
N9MT-CT Insert

Multi-function Insert

Determine spindle speed and feed rate:

- Choose spotting depth to decide spotting diameter according to the Diameter/Depth chart of page 35.
- The spindle speed should be calculated by the maximum diameter of spotting, chamfering and grooving.

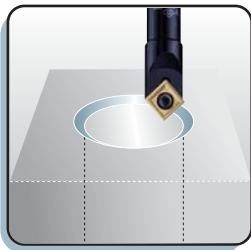
Centering



Work Material	Vc (m/min)	f (mm/rev.)	Grade of Insert
Carbon Steel	150~250	0.05~0.10	NC40, H-NC40, NC2071
Alloy Steel	100~200	0.04~0.06	NC40, H-NC40, NC2071
Stainless Steel	65~125	0.03~0.06	NC10, NC60, H-NC40, NC2071
Cast iron	80~150	0.05~0.10	NC40, NC10, NC2071
Non-Ferrous Metal (Al, copper)	150~300	0.05~0.10	NC10, H-NC9076
Ti, Ti-alloy	60~80	0.03~0.06	NC9076

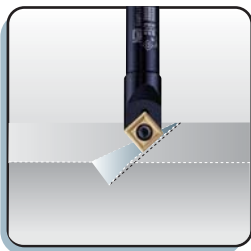
- * For technical construction reasons, the insert is not located on the center of the holder.
- * Inserts with supporting edges can increase feed rate 50%. (ex:NC2071, NC9076, H-NC40 type)

Chamfering



Work Material	Vc (m/min)	f (mm/rev.)	Grade of Insert
Carbon Steel	150~320	0.15~0.24	NC40, H-NC40, NC2071
Alloy Steel	100~250	0.12~0.20	NC40, H-NC40, NC2071
Stainless Steel	65~125	0.1~0.20	NC10, NC60, H-NC40, NC2071
Cast iron	150~250	0.15~0.25	NC40, NC10, NC2071
Non-Ferrous Metal (Al, copper)	150~320	0.15~0.25	NC10, H-NC9076
Ti, Ti-alloy	60~80	0.03~0.06	NC9076

Grooving



- * NC2071, NC9076, H-NC40 type can increase feed rate 20%.

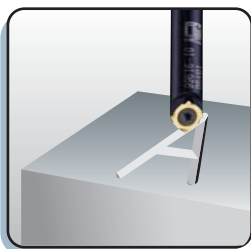
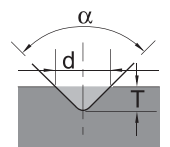
Work Material	Vc (m/min)	f (mm/rev.)	Grade of Insert
Carbon Steel	150~250	0.05~0.08	NC40, H-NC40, NC2071
Alloy Steel	100~200	0.04~0.06	NC40, H-NC40, NC2071
Stainless Steel	65~125	0.03~0.06	NC10, NC60, H-NC40, NC2071
Cast iron	80~150	0.05~0.08	NC40, NC10, NC2071
Non-Ferrous Metal (Al, copper)	150~320	0.05~0.08	NC10, H-NC9076
Ti, Ti-alloy	60~80	0.03~0.06	NC9076

N9MT-W Insert

Engraving Insert

Engraving : Width of engraving=diameter of cutting="d"
Depth of engraving=depth of cutting="T"

- For $\alpha = 90^\circ$ insert, $d=2 \times T$
- For $\alpha = 60^\circ$ insert, $d=1.73 \times T$



Work Material	Vc (m/min)	f (mm/rev.)	Grade of Insert
All Kind of Steel, unhardened, Cast iron	20~80	0.01~0.02	NC40
Non-Ferrous Metal	20~100	0.01~0.02	NC10
Hardened Steel HRC 40-50°	20~80	0.01~0.02	NC10

Attention: The calculated result "d" is only for calculation of spindle speed.

Corner Rounding Tool Cutting Data

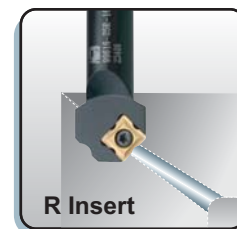
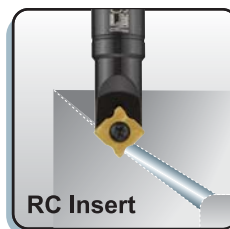
N9MT-R Insert N9MT-RC Insert Corner Rounding Tool

Determine spindle speed and feed:

To decide running speed of the tools and feed rate, please calculate spindle speed and feed rate according to the following formula and cutting data:

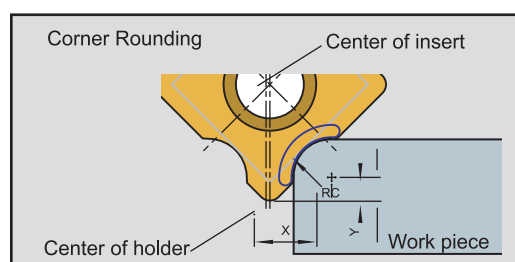
Calculate spindle speed

$d = 2 \times X$	mm	d = diameter of the tool for calculation purpose
$d = 2 \times r$	mm	X = tool radius offset (ref. page 31~32 for RC inserts)
$S = \frac{V_c \times 1000}{d \times \pi}$	r.p.m.	r = tool radius offset (ref. page 30 for R inserts)
$F = S \times f$	mm/min.	V_c = cutting speed m/min.
		S = Spindle speed
		F = Feed rate
		f = feed per rev. mm/rev.



Calculate tool length offset on machining center

$TL = TL' - Y$	X = tool radius offset (ref. page 31~32 for RC inserts)
$H = X$ or r	r = tool radius offset (ref. page 30 for R inserts)
	Y = distance to the center of radius. (page 25~26 for RC inserts)
	TL' = tool length
	TL = tool length offset
	H = tool radius offset



Recommended cutting speed for different materials:

R Insert

Workpiece material	Vc (m/min.)	f (mm/rev.)	Grade of insert
Carbon Steel	150~320	0.05~0.10	NC40
Alloy steel	100~250	0.04~0.08	NC40
High alloy steel	60~80	0.03~0.06	NC40
Stainless steel	65~125	0.03~0.06	NC40
Gray cast iron	150~250	0.05~0.10	NC40
Aluminum, Al-alloy Si < 12%	150~320	0.05~0.10	NC40
Al-alloy Si > 12%	100~300	0.05~0.10	NC40
Copper	200~250	0.05~0.10	NC40
Brass and Bronze	150~250	0.05~0.10	NC40
Hardened steel <HRC40°	60~80	0.03~0.06	NC40

RC Insert

Workpiece material	Vc (m/min.)	f (mm/rev.)	Grade of insert
Carbon Steel	150~320	0.05~0.10	NC2071
Alloy steel	100~250	0.05~0.10	NC2071
High alloy steel	80~150	0.04~0.08	NC2071
Stainless steel	65~125	0.05~0.10	NC2071
Gray cast iron	150~250	0.05~0.10	NC2071
Aluminum, Al-alloy Si < 12%	150~320	0.05~0.10	NC2071
Al-alloy Si > 12%	100~300	0.05~0.10	NC2071
Copper	200~250	0.05~0.10	NC2071
Brass and Bronze	150~250	0.05~0.10	NC2071
Hardened steel <HRC40°	60~80	0.04~0.08	NC2071

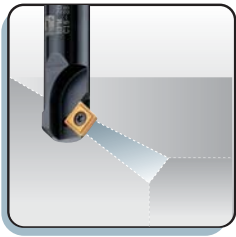
Center Drilling Tool Cutting Data



PR Insert

Workpiece material	Vc (m/min.)	f (mm/rev.)	Grade of insert
Carbon Steel	80-150	0.05-0.20	NC40
Alloy steel	80-150	0.05-0.20	NC40
High alloy steel	80-150	0.05-0.20	NC40
Gray cast iron	80-150	0.05-0.20	NC40
Aluminum, Al-alloy Si < 12%	150-300	0.05-0.20	NC40
Al-alloy Si >12%	150-250	0.05-0.15	NC40
Copper	200-250	0.05-0.20	NC40
Brass and Bronze	150-250	0.05-0.20	NC40

45° Chamfering Tool Cutting Data



$$S = \frac{V_c \times 1000}{d \times \pi} \text{ r.p.m.}$$

$$F = S \times f \text{ mm/min.}$$

α = point angle 90°
 d = effective diameter,
 = 2xr
 V_c = cutting speed
 m/min. or ft./min.
 S = Spindle speed
 f = feed per rev.
 mm/rev.

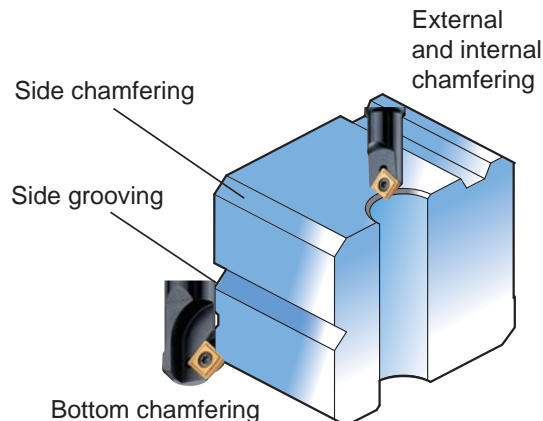
Chamfering (90° only)

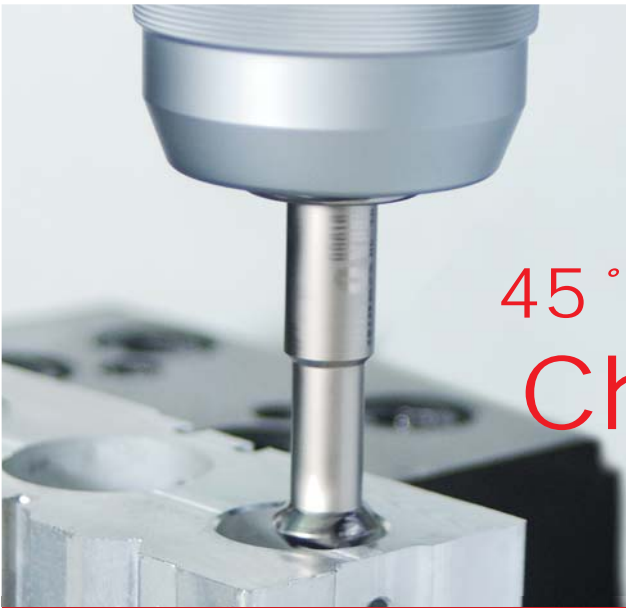
Minimum 1mm (0.04")

LA Insert

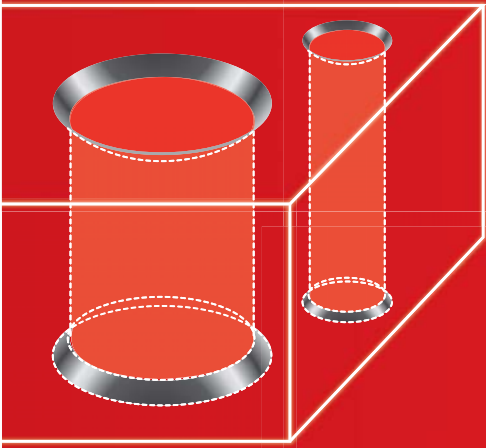
Workpiece material	Vc (m/min)	f (mm/rev.)	Grade of Insert
Carbon Steel	150-320	0.05~0.10	NC40
Alloy Steel	100-250	0.04~0.08	NC40
High alloy steel,	60-80	0.03~0.06	NC40
Stainless steel	65-125	0.03~0.06	NC10
Gray cast iron	150-250	0.05~0.10	NC40
Aluminum, Al-alloy Si < 12%	150-320	0.05~0.10	NC10
Al-alloy Si >12%	100-300	0.05~0.10	NC10
Copper	200-250	0.05~0.10	NC10
Brass and Bronze	150-250	0.05~0.10	NC10
Hardened steel HRC40°-55°	60-80	0.05~0.10	NC40

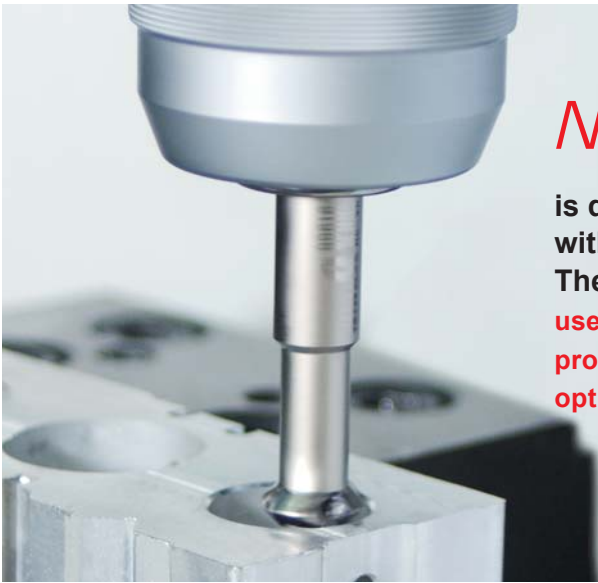
Application example:





45° indexable
Chamfering mill

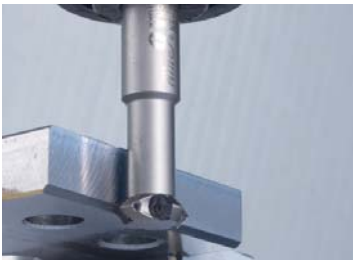




New Nine9 chamfer mill

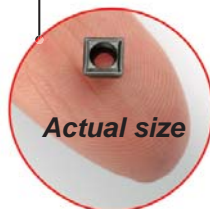
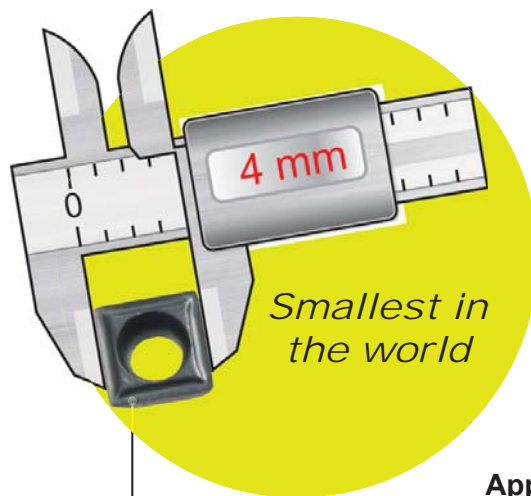
is designed for chamfering and countersinking with an indexable insert.

The insert is a specifically designed for **use in high speed machining ; the multiple flutes provide for increased feed rate, optimizing performance and reducing cutting time.**



Features

- Smallest insert in the world for chamfering mill.
- Smallest indexable counter sink, diameter $\varnothing 7\text{mm}$.
- The insert is dual-relief angle, specially edge honning and optimized coated for high cutting speed.
- Optimized the number of teeth on the holder to achieve higher feed rate.
- For front and back chamering. Eliminates 2nd operation or de-burring time.



Applications

- 90° counter sink and 45° chamfering.
- For counter sink, circular chamfering, contour chamfering and face milling.

- Comparison with other manufacturers chamfer tool with larger insert(Sxxx1204) and Nine9 N9GX04 insert.

	Other makers with Large insert	Nine9 chamfer mills
chamfering	1mm	1mm
Feed rate	0.1	0.1
Dia. of cutter	32mm	11mm
Teeth of cutter	2	4
Vc m/min.	200	300
R.P.M	1990	8685
F mm/min	398	3474



Feed Rate = Feed per Tooth x Spindle Speed x **No. of Flute** mm/min.

$$\text{Spindle Speed} = \frac{\text{Cutting Speed} \times 1000}{\pi \times \text{Cmin.}}$$

▣ Cylindrical Shank Holders >>

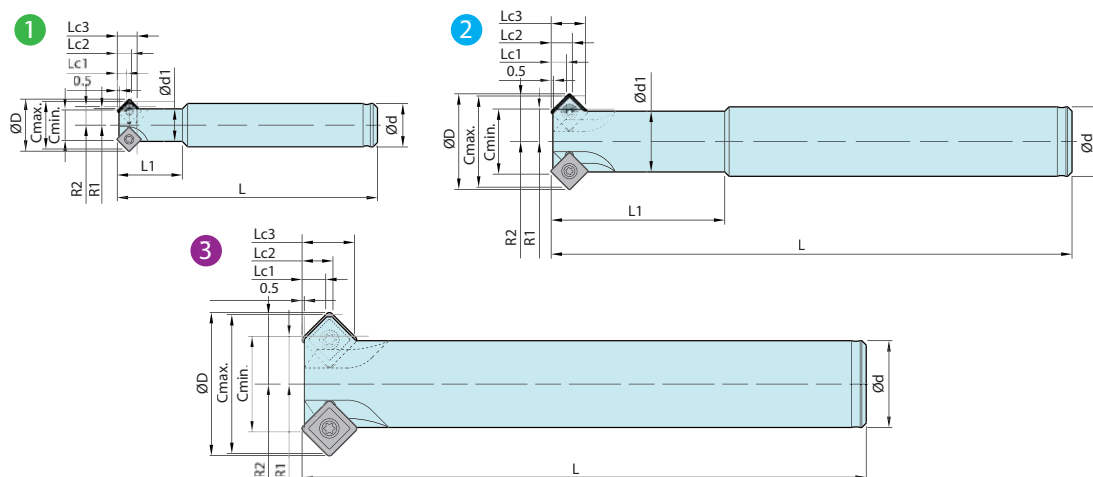


Fig	Part No.	Type	Cminø	Cmaxø		ød1	øD	R1	R2	L	L1	Lc1	Lc2	Lc3	z	insert Screw / Key
1	00-99616-C10	BC10-C07-60	7	11	10	7.5	12	3.8	4.3	60	15	2.2	3.3	4.6	2	N9GX04T002 NS-18037/ NK-T6
2	00-99616-C20	BC12-C11-100	11	16	12	9.6	16.2	5.9	8	100	25	2.6	2.9	5.0	4	N9GX060204 NS-22055/ NK-T7
2	00-99616-C30	BC16-C15-120	15	21	16	14	22	7.5	11.5	120	40	3.5	4.9	7.9	4	N9GX090308 NS-30072 NK-T9
2	00-99616-C40	BC20-C19-130	19	25	20	18	26	9.5	12.5	130	50	3.5	4.9	7.9	4	N9GX090308 NS-30072 NK-T9
3	00-99616-C50	BC20-C22-130	22	32	20	-	33	11	16	130	-	5.5	7.1	12.1	4	N9GX090308 NS-30072 NK-T9
2	00-99616-C52	BC25-C22-180	22	32	25	20	33	11	16	180	80	5.5	7.1	12.1	4	N9GX090308 NS-30072 NK-T9

▣ Kit >>

Fig	Part No.	Insert included	Holder included	Content
1	00-99616-C1020-32	N9GX04T002-NC2032	00-99616-C10	2 x holders + 10 inserts + 1 key
	00-99616-C1020-71	N9GX04T002-NC9072	00-99616-C20	
2	00-99616-C3040-32	N9GX060204-NC2032	00-99616-C30	
	00-99616-C3040-71	N9GX060204-NC9071	00-99616-C40	
3	00-99616-C5052-32	N9GX090308-NC2032	00-99616-C50	
	00-99616-C5052-71	N9GX090308-NC9071	00-99616-C52	

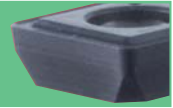


▣ Inserts >>

Features:

- Thanks to the patented specially ground dual-relief insert and optimized coating, higher feed rates and cutting speeds can be achieved on chamfering operations.
- Each insert has 4 cutting edges, reducing cost of inserts.
- Fine edge honning cutting edge, good chip breaking condition and long tool life.

Patented
Dual-relief
angle insert



NC2032: • K20F grade, AlTiN coated. The 1st choice for high carbon, high alloy and hardened steels as well as cast iron.



NC2032

NC9071: • K20F grade, TiN coated, high positive rake angle and honed sharp edge. The best choice for low carbon steel, low carbon alloy steel, stainless steel, Al, Al-alloy, Brass, Bronze and most of the non-ferrous metal.



NC9071

Ordering Code			Dimensions			
Code of insert	Grade		L	S	re	Screw / Key
N9GX04T002	NC2032 NC9071		4.0	1.8	0.2	NS-18037 / NK-T6
N9GX060204			6.35	2.38	0.4	NS-22055 / NK-T7
N9GX090308			9.52	3.18	0.8	NS-30072 / NK-T9

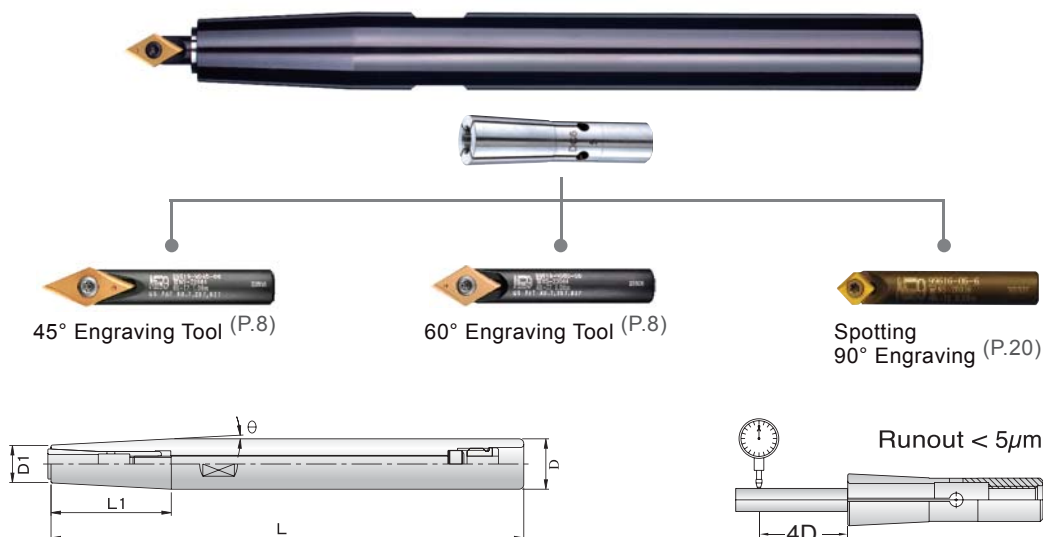
▣ Cutting Data >>

Work piece material		Grade of insert	Cutting Speed Vc m/min. (SFMfeet / min.)	Feed rate mm / tooth (inch / tooth)		
				N9GX04T002	N9GX060204	N9GX090308
Material Group	Sample Code (JIS)			Max. Chamfering 1.5mm	Max. Chamfering 2.5mm	Max. Chamfering 4mm
Carbon steel C<0.3%	SS400	NC9071	150-250-350 (500-820-1150)	0.06~0.12 (0.02"~0.05")	0.10~0.25 (0.04"~0.10")	0.10~0.25 (0.04"~0.10")
Carbon steel C>0.3%	S50C,P5	NC2032	200-300-400 (660-1050-1310)	0.06~0.10 (0.02"~0.04")	0.10~0.20 (0.04"~0.08")	0.10~0.25 (0.04"~0.10")
Low alloy steel C<0.3%	SCM420	NC9071	180-240-260 (590-790-860)	0.06~0.10 (0.02"~0.04")	0.10~0.20 (0.04"~0.08")	0.10~0.20 (0.04"~0.08")
High alloy steel C<0.3%	SKD11	NC2032	120-150-200 (390-500-660)	0.06~0.10 (0.02"~0.04")	0.10~0.15 (0.04"~0.06")	0.10~0.15 (0.04"~0.06")
Stainless steel	SUS304	NC9071	120-150-180 (390-500-590)	0.06~0.10 (0.02"~0.04")	0.06~0.15 (0.02"~0.06")	0.10~0.20 (0.04"~0.08")
Casting iron	GC25	NC2032	120-150-180 (390-500-590)	0.06~0.10 (0.02"~0.04")	0.10~0.15 (0.04"~0.06")	0.10~0.20 (0.04"~0.08")
Al, and non-ferrous metal	A6061	NC9071	200-400-600 (660-1310-1970)	0.06~0.15 (0.02"~0.06")	0.10~0.25 (0.04"~0.10")	0.10~0.25 (0.04"~0.10")
Hardened steel<HRC50°	SKD61	NC2032	80-90-100 (265-300-330)	0.06~0.10 (0.02"~0.04")	0.06~0.12 (0.02"~0.05")	0.10~0.15 (0.04"~0.06")

* Do not recommend to use on hand handling machine and hand holding power tool

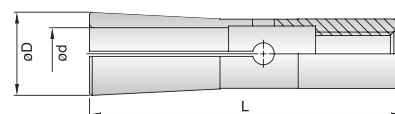
Extension Bar For NC Spot-Drill

DC Slim Chuck >>



Ordering Code	Type of Holder	d	L	L1	ϕD	D1	θ	Collet	Hexagon Key	Back Screw	Stop Screw	Stop Nut
0-329090-212	ST12-DC6-120	2~6	120	40	12	13	--	DC6	0-301940 - 642	M5 * L95	--	TP-M12
-222	ST16-DC6-150	2~6	150	38	16	13	3°	DC6		M5 * L100	OP-M10	--
-232	ST20-DC6-200	2~6	200	70	20	13	3°	DC6		M5 * L100	OP-M10	--
-242	ST25-DC6-250	2~6	250	115	25	13	3°	DC6	0-301940 - 643	M5 * L100	OP-M10	--
0-329090-312	ST20-DC8-150	3~8	150	28	20	19	2°	DC8	0-301940 - 652	M6 * L72	OP-M12	--
-322	ST20-DC8-200	3~8	200	28	20	19	2°	DC8		M6 * L120	OP-M12	--
0-329090-412	ST25-DC10-150		150	28	25	24	2°	DC10	0-301940 - 662	M8 * L80	OP-M16	--
-422	ST25-DC10-200		200	28	25	24	2°	DC10		M8 * L100	OP-M16	--
-432	ST25-DC10-250		250	28	25	24	2°	DC10		M8 * L150	OP-M16	--

DC6-E		DC8-E		DC10-E	
Ordering Code	Size (mm)	Ordering Code	Size (mm)	Ordering Code	Size (mm)
0-300090-203	3.0	0-300090-303	3.0	-	-
0-300090-204	4.0	0-300090-304	4.0	0-300090-404	4.0
0-300090-206	6.0	0-300090-306	6.0	0-300090-406	6.0
		0-300090-308	8.0	0-300090-408	8.0
				0-300090-410	10.0



Type	DC6	DC8	DC10
D	9.6	15	19.1
L	36	45	52

Solid Carbide Extension Bar >>

- TiN coated to identify the efficient length.



NC Spot Drill
99616-10-M6 (P.21)
99616-14-M8 (P.23)

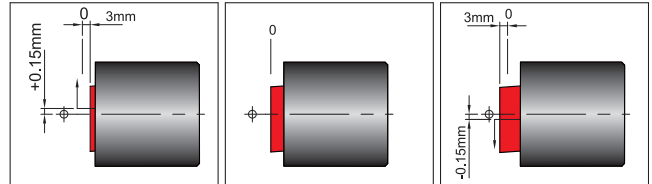
Order No.	Part No.	ϕD	T	L	M
00-99801-12W	BC12-100M06W	12	60	100	M6xP1.0
00-99801-14W	BC14-120M08W	14	70	120	M8xP1.25
00-99801-16W	BC16-150M08W	16	80	150	M8xP1.25

Adjusting sleeve for i-Center

Center Height Adjusting Sleeve with coolant hole >>

Principle

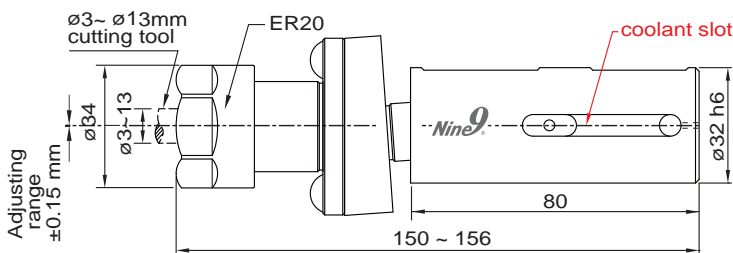
Designed for adjusting **Center Height** of center drills, NC spot drills, reamers and taps on the CNC lathes. The main body is made from two sleeves. The inner sleeve is to hold and lock the cutting tool. Its center is inclined to the outer sleeve.



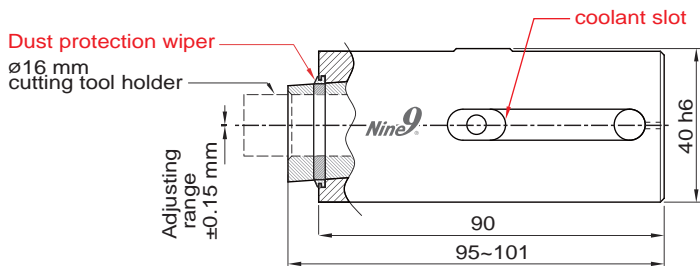
When the inner sleeve is pushed or pulled, the cutting tool's center height is adjusted to lower or higher position.

new

Ordering Code: 00-99600-320H
Part Number: SB32-IDER20



Ordering Code: 00-99600-400H
Part Number: SB40-ID16



Application

- Used when the CNC lathes need to adjust the center height.
- This sleeve can be clamped by VDI 40, VDI 50 E2 tool holders, and other types of internal turning tool holders.
- Center height adjusting range: ± 0.15 mm (.006").
- Total axial movement is 6mm (.236").





JIMMORE INTERNATIONAL CORP.

Distributor: