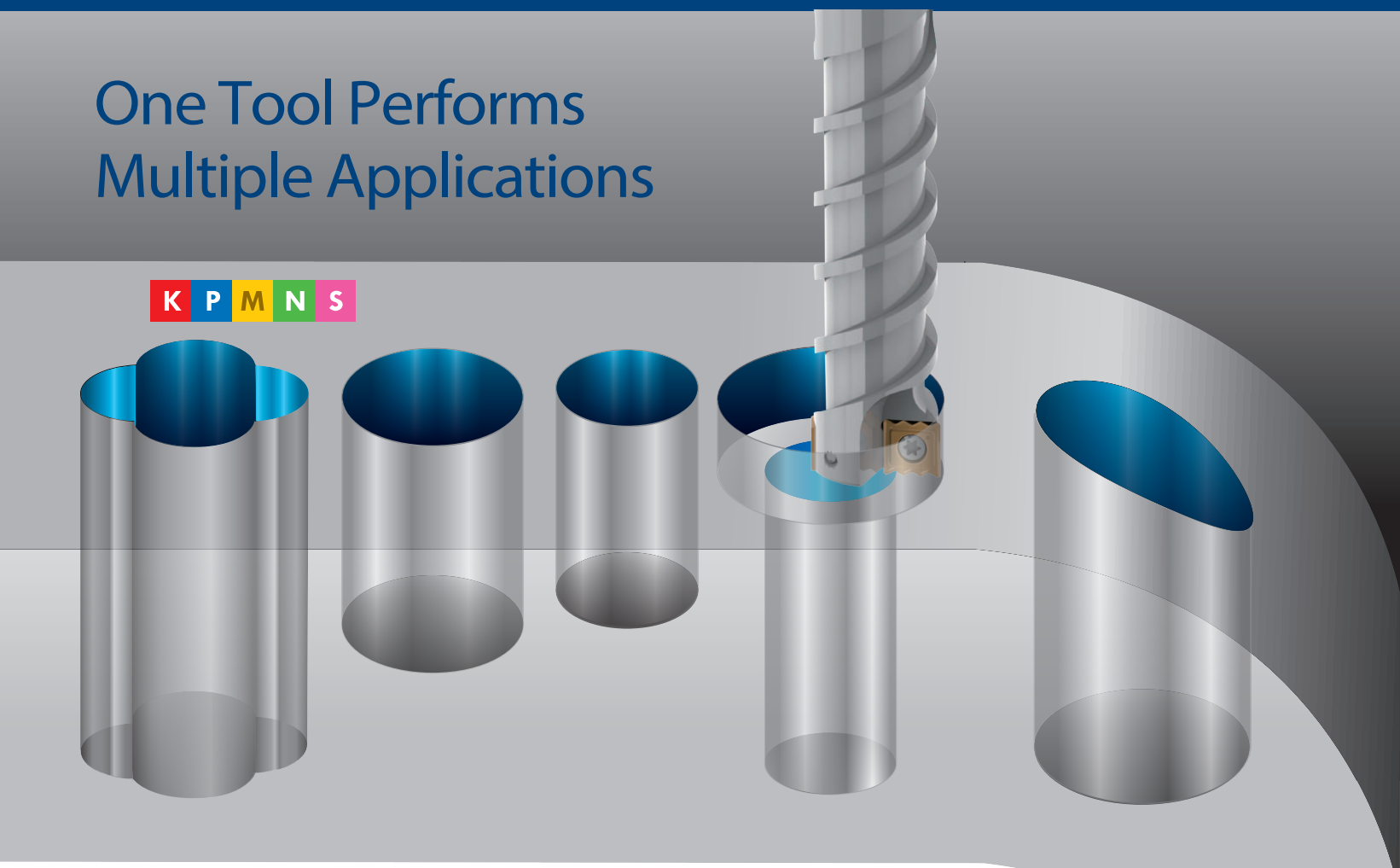
www.everede.net

Nine9®

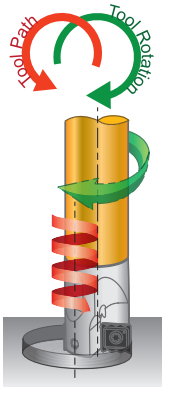
One Tool Performs Multiple Applications



NC Helix Drill

Helical Interpolation

Cat. 04



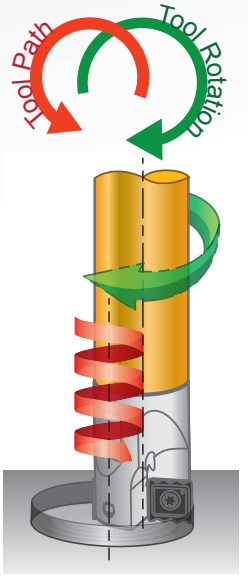
Principle

Nine9®

NC Helix Drill

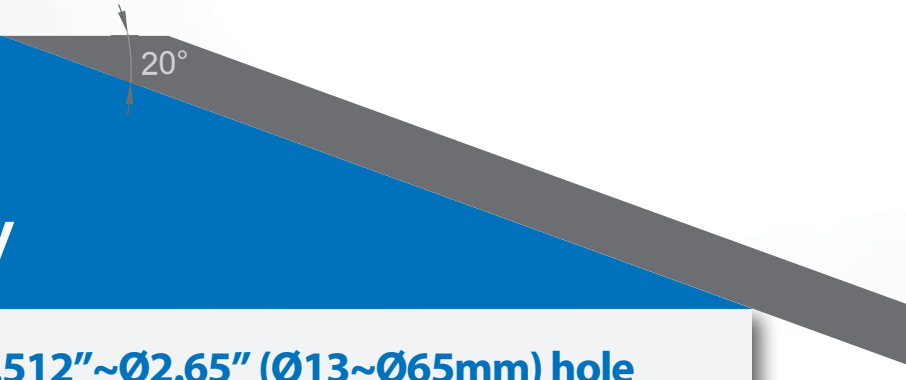
Milling, Drilling & Slotting

Cuts material by helical interpolation;
serrated cutting edge minimizes chip length.
Low spindle power is required, good for drilling
material that generates long, soft chips.



20° Ramping Angle

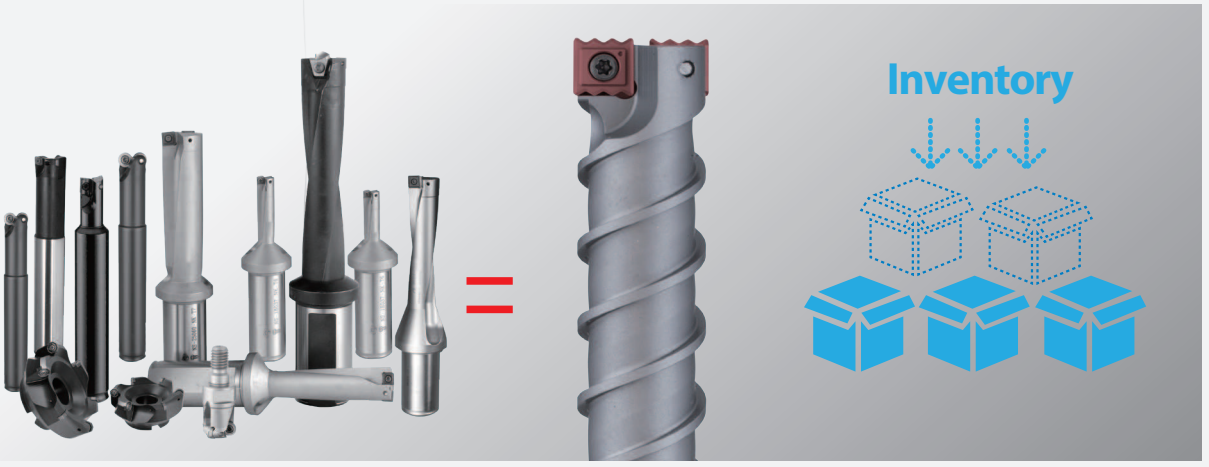
Either linear or circular ramping.



Reduce Your Tool Inventory

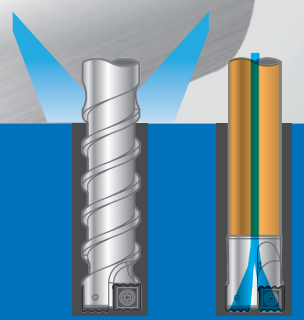
Only six tools for making Ø .512"~Ø2.65" (Ø13~Ø65mm) hole from solid.

Each holder can machine different diameters and hole depths,
saving your tool inventory and cost!
No need to peck drill or dwell in operation,
even without internal coolant.



◀ **Cylindrical shank**
Apply external coolant

Screw fit type ▶
With center coolant hole
Apply internal coolant



Two shank types

Made from hardened high alloy steel

Contents

01 Feature
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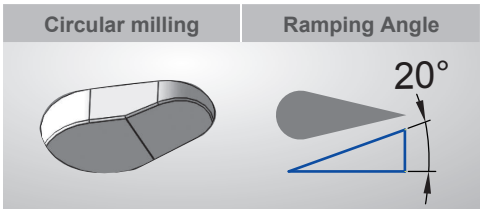
Lower Spindle Power Consumption Easy to cut!

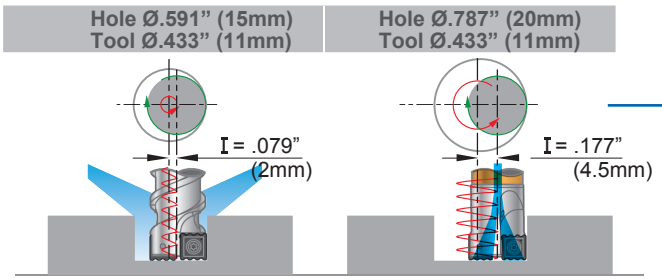


- Thanks to the small cutting load of the serrated cutting edge and helical interpolation, low power consumption of the spindle is required.
- Circular ramping milling, maximum ramping angle is 20°.
  For example: tool HD27 machining Ø1.969" (50 mm) hole, .354" (9 mm) pitch for aluminum, .236" (6 mm) pitch for carbon steel.

02 Feature
<Page 11>

Only six tools for drilling Ø.512"~Ø2.65" (Ø13~65mm)

Example :



- Cuts by helical interpolation.
- Each holder can machine different diameters and hole depths.

03 Feature
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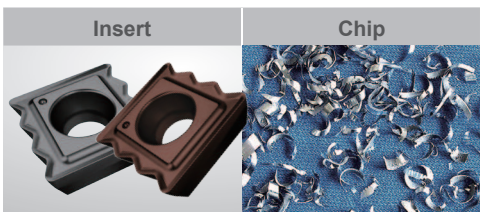
Special insert geometry for cutting different materials



- Serrated cutting edge makes the chips short and small, and easier to evacuate.
- Eliminate swarf and vibration problems while drilling difficult or deep holes.

One tool performs multiple applications

04 Feature
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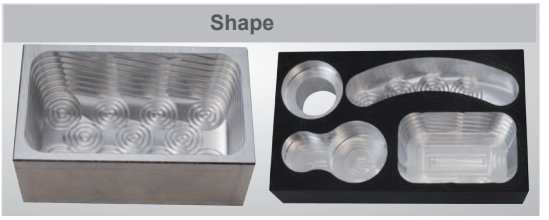
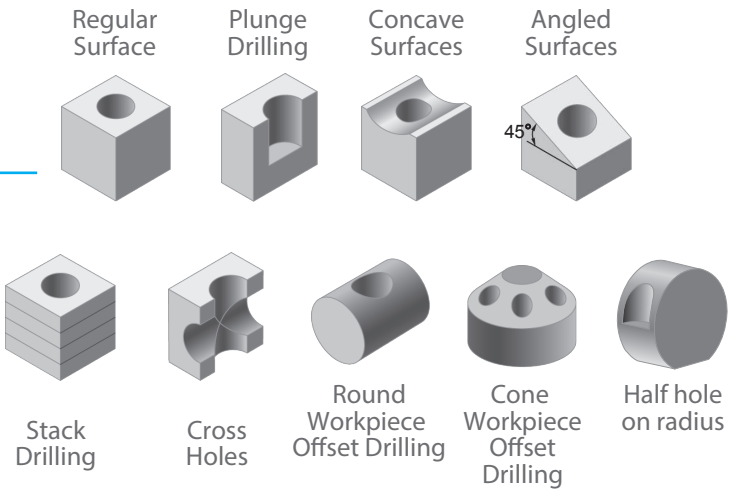


- Not only a drill, but an end mill too.
- Small radius path to cut a hole or step hole, various curved cavity shapes on different materials.

Functions in variable conditions

05 Feature
<Page 10>



Roughness Measuring

Feature 06
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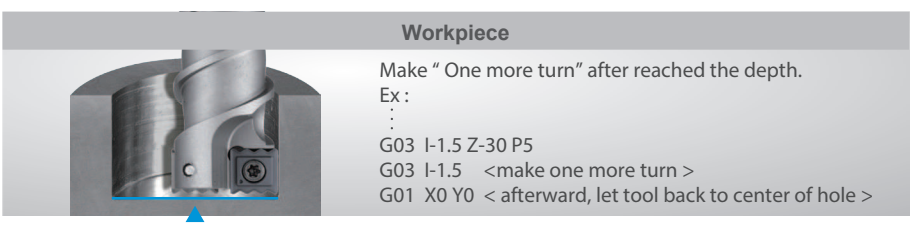
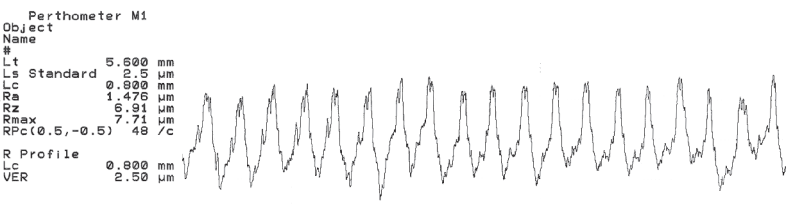
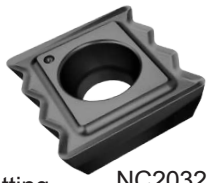


Flatness



Specification

Insert

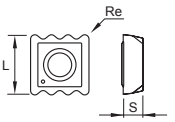

NC2032


NC5074

NC2032 : For general purpose. Suitable for almost any material.
Top recommendation is 2xDc machining, high performance cutting.

NC5074 : For smooth cutting. It resolves the chatter from weak clamping devices or low power machines.
Top recommendation is 3xDc or above. Also prevents chipping.

Ordering code	Grade	Coating		Dimensions L	Dimensions S	Dimensions Re	Screw	Key	* Max. Pitch
N9MX04T002	NC2032	K20F	TiAlN	.187" (4.75)	.071" (1.8)	.008" (0.2)	NS-18037 5.31 in.-lb. (0.6 Nm)	NK-T6	.118" (3.0)
	NC5074	P40	AlCrN						
N9MX05T103	NC2032	K20F	TiAlN	.226" (5.75)	.079" (2.0)	.012" (0.3)	NS-20045 5.31 in.-lb. (0.6 Nm)	NK-T6	.177" (4.5)
	NC5074	P40	AlCrN						
N9MX070204	NC2032	K20F	TiAlN	.295" (7.5)	.094" (2.4)	.016" (0.4)	NS-25045 7.97 in.-lb. (0.9 Nm)	NK-T7	.236" (6.0)
	NC5074	P40	AlCrN						
N9MX100306	NC2032	K20F	TiAlN	.394" (10.0)	.125" (3.18)	.024" (0.6)	NS-30072 17.7 in.-lb. (2.0 Nm)	NK-T9	.295" (7.5)
	NC5074	P40	AlCrN						
N9MX12T308	NC2032	K20F	TiAlN	.492" (12.5)	.156" (3.97)	.031" (0.8)	NS-35080 22.13 in.-lb. (2.5 Nm)	NK-T15	.354" (9.0)
	NC5074	P40	AlCrN						



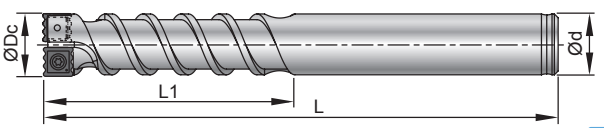
* Maximum pitch refers to maximum ramping angle. Please see page 6.

Holder

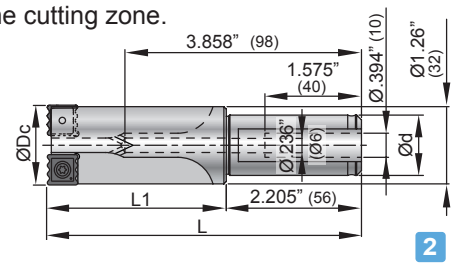
Cylindrical Shank

Helical chip-removing groove >>

- Designed for CNC machines with external coolant
- Unique helical groove design generates chip-removing coolant stream.
- The helical groove is designed for the coolant to remove swarf from the cutting zone.
- For horizontal machining, it is necessary to increase coolant volume.



1



2

Fig.	Ordering Code	Type	Capable of drill dia. mm Dmin.	Capable of drill dia. mm Dmax.	Ød	ØDc	L	L1	Max. Depth	Insert type	* Max. ramping angle
	99321-010-1320	BC10-HD11-1320	.512" (13)	.787" (20)	.394" (10)	.433" (11)	3.150" (80)	1.575" (40)	1.181" (30)	N9MX04T002	20°
	99321-012-1525	BC12-HD13-1525	.591" (15)	.984" (25)	.472" (12)	.512" (13)	3.937" (100)	1.969" (50)	1.417" (36)	N9MX05T103	20°
1	99321-016-2030	BC16-HD17-2030	.787" (20)	1.181" (30)	.630" (16)	.669" (17)	4.331" (110)	2.362" (60)	1.969" (50)	N9MX070204	20°
	99321-020-2540	BC20-HD22-2540	.984" (25)	1.575" (40)	.787" (20)	.866" (22)	4.921" (125)	2.756" (70)	2.362" (60)	N9MX100306	20°
	99321-025-3050	BC25-HD27-3050	1.181" (30)	1.969" (50)	.984" (25)	1.063" (27)	6.496" (165)	3.346" (85)	2.953" (75)	N9MX12T308	20°
2	* 99321-025-4265	SL25-HD33-4265	1.654" (42)	2.559" (65)	.984" (25)	1.299" (33)	5.118" (130)	2.913" (74)	1.969" (50)		9°

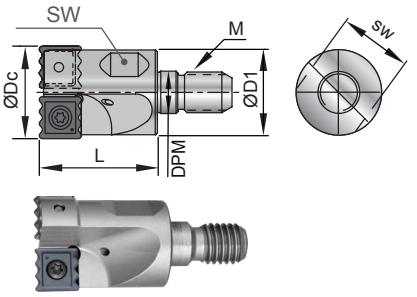
* 99321-025-4265 is Ø0.984" Side Lock Shank with internal coolant. * Maximum ramping angle refers to maximum pitch. Please see page 6.

Screw Fit Cutter

Internal Coolant

- Designed for CNC machines with internal coolant.
- Standard screw-fit body adapts to almost any kind of the screw-fit tool holder or extension bar in the market.
- Use for enlarge hole.

* Use open ended spanner to tighten the cutter.



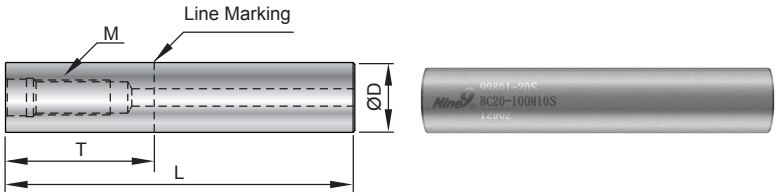
Ordering Code	Type	Capable of drill dia. mm		ØDc	ØD1	L	M	DPM	SW	Insert type	* Max. ramping angle
		Dmin.	Dmax.								
99323-010-1320	M05-HD11-1320	.512" (13)	.787" (20)	.433" (11)	.394" (10)	.787" (20)	M5	.217" (5.5)	.315" (8)	N9MX04T002	20°
99323-012-1525	M06-HD13-1525	.591" (15)	.984" (25)	.512" (13)	.472" (12)	.984" (25)	M6	.256" (6.5)	.394" (10)	N9MX05T103	20°
99323-016-2030	M08-HD17-2030	.787" (20)	1.181" (30)	.669" (17)	.630" (16)	.984" (25)	M8	.335" (8.5)	.551" (14)	N9MX070204	20°
99323-020-2540	M10-HD22-2540	.984" (25)	1.575" (40)	.866" (22)	.787" (20)	1.181" (30)	M10	.413" (10.5)	.709" (18)	N9MX100306	20°
99323-025-3050	M12-HD27-3050	1.181" (30)	1.969" (50)	1.063" (27)	.984" (25)	1.378" (35)	M12	.492" (12.5)	.906" (23)	N9MX12T308	20°

***** Maximum ramping angle refers to maximum pitch. Please see page 6.

Extension Bar

Steel Type

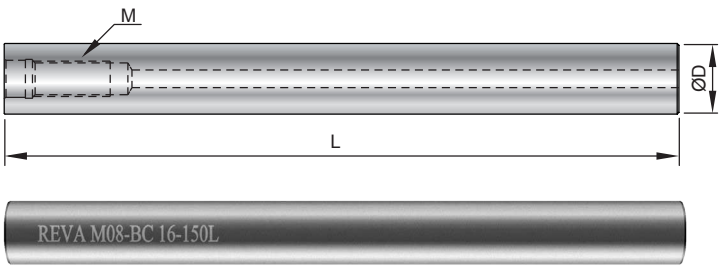
- T is the maximum overhang length.
- With internal coolant hole.



Ordering Code	Type	ØD	T	L	M
99801-10S	BC10-075M05S	.394" (10)	.984" (25)	2.953" (75)	M5
99801-12S	BC12-075M06S	.472" (12)	.984" (25)	2.953" (75)	M6
99801-16S	BC16-090M08S	.630" (16)	1.378" (35)	3.543" (90)	M8
99801-20S	BC20-100M10S	.787" (20)	1.575" (40)	3.937" (100)	M10
99801-25S	BC25-120M12S	.984" (25)	1.969" (50)	4.724" (120)	M12

Solid Carbide Type

- Insert NC5074 is recommended for deep hole cutting.
- With internal coolant hole.



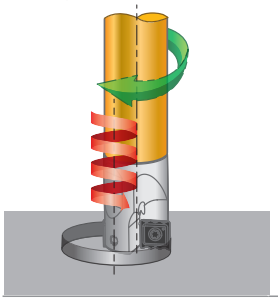
Ordering Code	Type	ØD	L	M
398010-100M05	M05-BC10-100L	.394" (10)	3.937" (100)	M5
398012-100M06	M06-BC12-100L	.472" (12)	3.937" (100)	M6
398016-150M08	M08-BC16-150L	.630" (16)	5.906" (150)	M8
398020-200M10	M10-BC20-200L	.787" (20)	7.874" (200)	M10
398025-200M12	M12-BC25-200L	.984" (25)	7.874" (200)	M12

Technical Guide

※ Before you start, please pay attention the following conditions >>

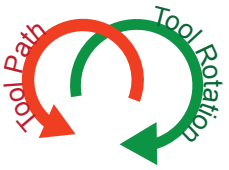
1 Programming

All NC Helix Drills must be programmed using helical interpolation



2 Recommend of Direction

Tool path of moving downward by CCW (G03) ,Tool Rotation by CW direction is recommended.



3 For Start

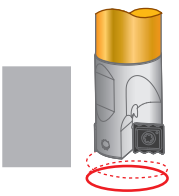
Vc	f	Pitch
Low Value	Middle Value	High Value

Result adjusting

Upgrade condition	Improve condition
Vc adj. 1 ↑	f adj. 1 ↓
f adj. 2 ↑	P adj. 2 ↓

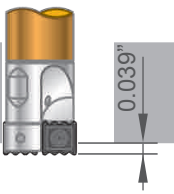
4 Through hole

Reduce Vc 50% at last cycle.

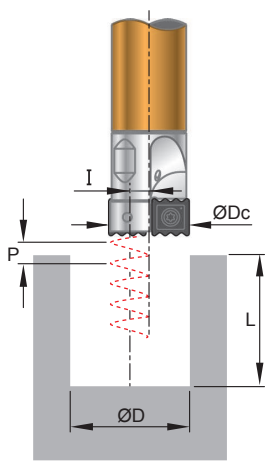


5 Through hole Add 0.039" to the required depth (Z)

Failure to program beyond the through hole may result in insert breakage due to the force from circular interpolation.



- **The NC Helix Drill is programmed using "Helical interpolation" on CNC machine, the CNC controller must have 3-axis simultaneously motion function.**

NC Helix Drill	Cutting Parameters (S & F)	Formula
	$S = \frac{3.82 \times SFM}{Dc}$ r.p.m. F = S x IPR IPM d = D – Dc Inch $I = \frac{(D-Dc)}{2}$ Inch	Dc = Dia. of Drill Inch D = Dia. of Hole Inch L = Depth of Drilling Inch Vc = Cutting Speed SFM S = Spindle Speed r.p.m. I = Circular radius Inch f = Feed rate IPR F = Table feed rate IPM d = Circular diameter (D-Dc) Inch P = Pitch of helical interpolation Inch T = Cutting time sec. Q = Chip removal volume rate Inch³ / min.

Cutting time (T)

$$T = \frac{\pi \times d \times L \times 60}{F \times P} \text{ sec.}$$

Chip removal Volume rate (Q)

$$Q = \frac{\pi \times D^2 \times L \times 60}{4 \times T} \text{ Inch}^3 \text{/min.}$$

Example

Material	S45C (JIS)
Tool	99321-016-BC16-HD17, Dc= Ø0.669"
Insert	N9MX070204-NC2032
D= Ø1.181", L= 0.8"	
S =	(3.82x 393.6) / 0.669" = 2248 r.p.m.
F = S x f	2248 x 0.0102 = 22.93 IPM
P = 0.1575" (refer to cutting data P for Carbon Steel 0.45%C)	
d = D – Dc	1.181"- 0.669" = 0.512"

$$T = \frac{3.14 \times 0.512 \times 0.8 \times 60}{22.93 \times 0.1575} = 21 \text{ sec.}$$

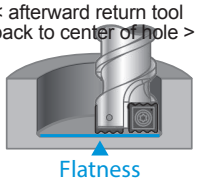
$$Q = \frac{3.14 \times 1.181^2 \times 0.8 \times 60}{4 \times 21} = 2.503 \text{ In.}^3 \text{/min.}$$

Technical Guide

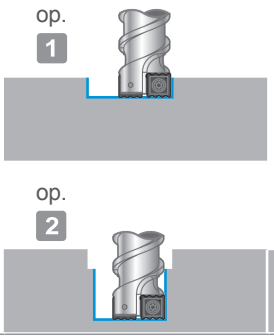
※ Before you start, please pay attention the following conditions >>

⚠ 6 Flatness on blind hole bottom

Make one more turn after reaching depth.
Ex. :
⋮
G03 I-1.5 Z-30 P5
G03 I-1.5
<make one more turn >
G01 X0 Y0
< afterward return tool back to center of hole >

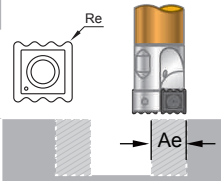


⚠ 7 Step Hole



⚠ 8 Enlarge Hole

Choosing a drill body with internal coolant. Max. Ae=Dc- (Rex2) for enlarging hole.

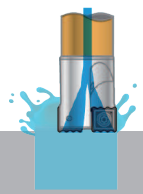


⚠ 9 External coolant

Lower pressure higher volume is recommended. Minimum 73 psi.(5 bar). Aim nozzle toward the tool body, let the coolant effectively enter the hole.

⚠ 10 Internal coolant

High pressure is recommended. Minimum 145 psi. (10 bar).



⚠ Choosing a suitable drill body.

- Required hole diameter is within the recommended range (**blue numbers**).
- Required hole diameters (more than one size), choose the drill can cover more different hole diameters. Example 0.709", 0.787" and 0.866" hole diameter, choose 99323-012-1525.
- Hole tolerance : 0/-0.02 inch.

Drilling diameter	Coolant type	Max. drilling depth	Tool type	Dc	Insert type	Re	Max. pitch	Max. Ae
.512"~ **.590"~ .787"**	Internal	3.150"	99323-010-1320	.433"	N9MX04T002	.008"	.118"	.417"
	External	1.181"	99321-010-1320	.433"				
.590"~ **.787"~ .984"**	Internal	3.346"	99323-012-1525	.512"	N9MX05T103	.012"	.177"	.488"
	External	1.417"	99321-012-1525	.512"				
.787"~ **.984"~ 1.181"**	Internal	4.134"	99323-016-2030	.669"	N9MX070204	.016"	.236"	.638"
	External	1.969"	99321-016-2030	.669"				
.984"~ **1.181"~ 1.575"**	Internal	5.118"	99323-020-2540	.866"	N9MX100306	.024"	.295"	.819"
	External	2.362"	99321-020-2540	.866"				
1.181"~ **1.575"~ 1.969"**	Internal	6.299"	99323-025-3050	1.063"	N9MX12T308	.031"	.354"	1.000"
	External	2.953"	99321-025-3050	1.063"				
1.654"~ **1.969"~ 2.559"**	Internal	1.969"	99321-025-4265	1.299"	N9MX12T308	.031"	.354"	1.236"

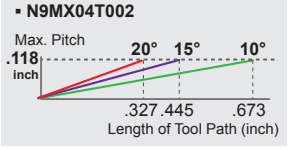
⚠ Choosing a suitable insert grade for hole drilling.


• NC2032 for drill depth below 3xDc.

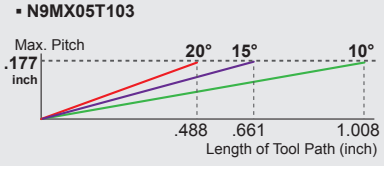

• NC5074 for drill depth 3xDc and above.

⚠ Length of tool path for linear ramping.

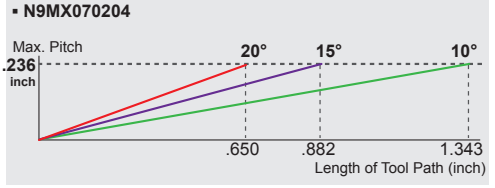
▪ N9MX04T002



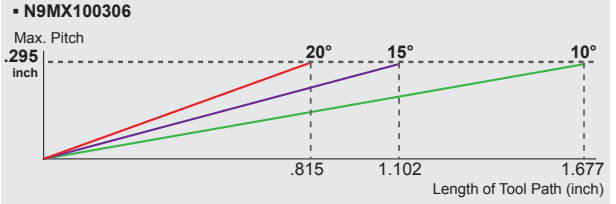
▪ N9MX05T103



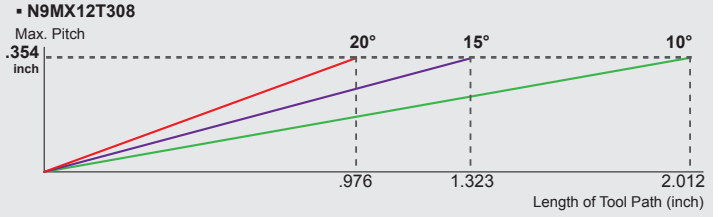
▪ N9MX070204



▪ N9MX100306



▪ N9MX12T308



⚠ **Length of tool path for Circular ramping= (D-Dc) x 3.14**

Cutting Data >> Boldface number is recommended for start.

99321-010-1320 / 99323-010-1320 >>

Workpiece material		SFM 99321	SFM 99323	Ø .512" f IPR	Ø .512" Pitch Inch	Ø .551" f IPR	Ø .551" Pitch Inch	Ø .630" f IPR	Ø .630" Pitch Inch	Ø .709" f IPR	Ø .709" Pitch Inch	Ø .787" f IPR	Ø .787" Pitch Inch
P	Carbon steel 0.25%C	**197**~295~426	**328**~525~722	.0016	.0236	.0024	.0276	.0031	.0354	.0039	.0394	.0047	.0472
				.0020	.0315	**.0031**	.0374	**.0043**	.0472	**.0055**	.0551	**.0063**	.0630
				.0028	**.0394**	.0039	**.0492**	.0055	**.0591**	.0071	**.0689**	.0079	**.0787**
P	Carbon steel 0.45% C	**197**~295~394	**328**~492~656	.0016	.0236	.0024	.0276	.0031	.0354	.0039	.0394	.0047	.0472
				.0020	.0315	**.0031**	.0374	**.0043**	.0472	**.0055**	.0551	**.0063**	.0630
				.0028	**.0394**	.0039	**.0492**	.0055	**.0591**	.0071	**.0689**	.0079	**.0787**
P	Carbon steel 0.60%C	**164**~230~361	**262**~426~590	.0016	.0236	.0024	.0276	.0028	.0315	.0035	.0354	.0039	.0394
				.0020	.0295	**.0028**	.0354	**.0039**	.0433	**.0047**	.0472	**.0055**	.0551
				.0024	**.0354**	.0035	**.0441**	.0047	**.0531**	.0063	**.0618**	.0071	**.0709**
P	Low alloy steel	**131**~230~328	**262**~394~525	.0012	.0197	.0020	.0236	.0028	.0276	.0031	.0315	.0035	.0394
				.0016	.0256	**.0024**	.0315	**.0039**	.0374	**.0043**	.0433	**.0047**	.0512
				.0020	**.0315**	.0031	**.0394**	.0047	**.0472**	.0059	**.0551**	.0063	**.0630**
P	High alloy steel	**131**~197~262	**197**~295~394	.0012	.0197	.0020	.0236	.0028	.0276	.0031	.0315	.0035	.0394
				.0016	.0256	**.0024**	.0315	**.0039**	.0374	**.0043**	.0433	**.0047**	.0512
				.0020	**.0315**	.0031	**.0394**	.0047	**.0472**	.0059	**.0551**	.0063	**.0630**
M	Stainless steel	**131**~197~262	**197**~295~394	.0012	.0197	.0020	.0236	.0028	.0276	.0031	.0315	.0035	.0394
				.0016	.0256	**.0024**	.0315	**.0039**	.0374	**.0043**	.0433	**.0047**	.0512
				.0020	**.0315**	.0031	**.0394**	.0047	**.0472**	.0059	**.0551**	.0063	**.0630**
K	Cast Iron	**131**~230~328	**262**~394~525	.0016	.0236	.0024	.0276	.0031	.0354	.0039	.0394	.0047	.0472
				.0020	.0315	**.0031**	.0374	**.0043**	.0472	**.0055**	.0551	**.0063**	.0630
				.0028	**.0394**	.0039	**.0492**	.0055	**.0591**	.0071	**.0689**	.0079	**.0787**
N	Al	**262**~426~590	**394**~689~984	.0016	.0354	.0024	.0433	.0031	.0512	.0039	.0591	.0047	.0709
				.0020	.0472	**.0031**	.0591	**.0043**	.0709	**.0055**	.0827	**.0063**	.0945
				.0028	**.0591**	.0039	**.0736**	.0055	**.0886**	.0071	**.1031**	.0079	**.1181**
N	Cu	**197**~344~492	**328**~558~787	.0016	.0276	.0024	.0354	.0031	.0394	.0039	.0472	.0047	.0551
				.0020	.0374	**.0031**	.0472	**.0043**	.0551	**.0055**	.0669	**.0063**	.0748
				.0028	**.0472**	.0039	**.0591**	.0055	**.0709**	.0071	**.0827**	.0079	**.0945**
S	Ni- Alloy	**33** ~66~ 98	**49** ~92~ 131	.0004	.0197	.0004	.0236	.0008	.0276	.0012	.0315	.0016	.0354
				.0008	.0256	**.0008**	.0315	**.0012**	.0374	**.0020**	.0433	**.0024**	.0512
				.0012	**.0315**	.0016	**.0394**	.0020	**.0472**	.0028	**.0551**	.0031	**.0630**
S	Titanium	**98**~131~164	**131**~197~262	.0004	.0197	.0004	.0236	.0008	.0276	.0012	.0315	.0016	.0354
				.0008	.0256	**.0008**	.0315	**.0012**	.0374	**.0020**	.0433	**.0024**	.0512
				.0012	**.0315**	.0016	**.0394**	.0020	**.0472**	.0028	**.0551**	.0031	**.0630**

99321-012-1525 / 99323-012-1525 >>

Workpiece material		SFM 99321	SFM 99323	Ø .590" f IPR	Ø .590" Pitch Inch	Ø .669" f IPR	Ø .669" Pitch Inch	Ø .787" f IPR	Ø .787" Pitch Inch	Ø.866" f IPR	Ø.866" Pitch Inch	Ø .984" f IPR	Ø .984" Pitch Inch
P	Carbon steel 0.25%C	**197**~295~426	**328**~525~722	.0020	.0472	.0028	.0512	.0035	.0591	.0047	.0630	.0051	.0709
				.0028	.0630	**.0039**	.0701	**.0051**	.0787	**.0063**	.0858	**.0071**	.0945
				.0035	**.0787**	.0051	**.0886**	.0063	**.0984**	.0079	**.1083**	.0087	**.1181**
P	Carbon steel 0.45% C	**197**~295~394	**328**~492~656	.0020	.0472	.0028	.0512	.0035	.0591	.0047	.0630	.0051	.0709
				.0028	.0630	**.0039**	.0701	**.0051**	.0787	**.0063**	.0858	**.0071**	.0945
				.0035	**.0787**	.0051	**.0886**	.0063	**.0984**	.0079	**.1083**	.0087	**.1181**
P	Carbon steel 0.60%C	**164**~230~361	**262**~426~590	.0020	.0433	.0028	.0472	.0031	.0512	.0039	.0551	.0047	.0630
				.0024	.0591	**.0035**	.0634	**.0047**	.0701	**.0055**	.0764	**.0063**	.0846
				.0031	**.0709**	.0043	**.0795**	.0059	**.0886**	.0071	**.0972**	.0079	**.1063**
P	Low alloy steel	**131**~230~328	**262**~394~525	.0016	.0394	.0024	.0394	.0028	.0472	.0035	.0512	.0039	.0551
				.0020	.0512	**.0031**	.0551	**.0039**	.0630	**.0051**	.0709	**.0055**	.0748
				.0028	**.0630**	.0039	**.0709**	.0051	**.0787**	.0063	**.0866**	.0067	**.0945**
P	High alloy steel	**131**~197~262	**197**~295~394	.0016	.0394	.0024	.0394	.0028	.0472	.0035	.0512	.0039	.0551
				.0020	.0512	**.0031**	.0551	**.0039**	.0630	**.0051**	.0709	**.0055**	.0748
				.0028	**.0630**	.0039	**.0709**	.0051	**.0787**	.0063	**.0866**	.0067	**.0945**
M	Stainless steel	**131**~197~262	**197**~295~394	.0016	.0394	.0024	.0394	.0028	.0472	.0035	.0512	.0039	.0551
				.0020	.0512	**.0031**	.0551	**.0039**	.0630	**.0051**	.0709	**.0055**	.0748
				.0028	**.0630**	.0039	**.0709**	.0051	**.0787**	.0063	**.0866**	.0067	**.0945**
K	Cast Iron	**131**~230~328	**262**~394~525	.0020	.0472	.0028	.0512	.0035	.0512	.0047	.0630	.0051	.0709
				.0028	.0630	**.0039**	.0701	**.0051**	.0748	**.0063**	.0858	**.0071**	.0945
				.0035	**.0787**	.0051	**.0886**	.0063	**.0984**	.0079	**.1083**	.0087	**.1181**
N	Al	**262**~426~590	**394**~689~984	.0020	.0709	.0028	.0787	.0035	.0866	.0047	.0945	.0051	.1063
				.0028	.0945	**.0039**	.1059	**.0051**	.1173	**.0063**	.1283	**.0071**	.1417
				.0035	**.1181**	.0051	**.1327**	.0063	**.1476**	.0079	**.1622**	.0087	**.1772**
N	Cu	**197**~344~492	**328**~558~787	.0020	.0551	.0028	.0630	.0035	.0709	.0047	.0787	.0051	.0827
				.0028	.0748	**.0039**	.0846	**.0051**	.0945	**.0063**	.1043	**.0071**	.1122
				.0035	**.0945**	.0051	**.1063**	.0063	**.1181**	.0079	**.1299**	.0087	**.1417**
S	Ni- Alloy	**33** ~66~ 98	**49** ~92~ 131	.0008	.0394	.0012	.0394	.0012	.0472	.0016	.0512	.0016	.0551
				.0010	.0512	**.0016**	.0551	**.0018**	.0630	**.0024**	.0709	**.0024**	.0748
				.0012	**.0630**	.0020	**.0709**	.0024	**.0787**	.0031	**.0866**	.0031	**.0945**
S	Titanium	**98**~131~164	**131**~197~262	.0008	.0394	.0012	.0394	.0012	.0472	.0016	.0512	.0016	.0551
				.0010	.0512	**.0016**	.0551	**.0018**	.0630	**.0024**	.0709	**.0024**	.0748
				.0012	**.0630**	.0020	**.0709**	.0024	**.0787**	.0031	**.0866**	.0031	**.0945**

Cutting Data >> Boldface number is recommended for start.

99321-016-2030 / 99323-016-2030 >>

Workpiece material		SFM 99321	SFM 99323	Ø .787" f IPR	Ø .787" Pitch Inch	Ø .866" f IPR	Ø .866" Pitch Inch	Ø .984" f IPR	Ø .984" Pitch Inch	Ø1.063" f IPR	Ø1.063" Pitch Inch	Ø1.181" f IPR	Ø1.181" Pitch Inch
P	Carbon steel 0.25%C	**197**~295~426	**328**~525~722	.0024 **.0031** .0039	.0709 .0945 **.1181**	.0035 **.0047** .0059	.0748 .1008 **.1280**	.0047 **.0063** .0079	.0827 .1102 **.1378**	.0055 **.0075** .0094	.0866 .1165 **.1476**	.0059 **.0083** .0102	.0945 .1260 **.1575**
P	Carbon steel 0.45% C	**197**~295~394	**328**~492~656	.0024 **.0031** .0039	.0709 .0945 **.1181**	.0035 **.0047** .0059	.0748 .1008 **.1280**	.0047 **.0063** .0079	.0827 .1102 **.1378**	.0055 **.0075** .0094	.0866 .1165 **.1476**	.0059 **.0083** .0102	.0945 .1260 **.1575**
P	Carbon steel 0.60%C	**164**~230~361	**262**~426~590	.0020 **.0028** .0035	.0630 .0846 **.1063**	.0031 **.0043** .0051	.0669 .0906 **.1142**	.0039 **.0055** .0071	.0748 .1004 **.1260**	.0051 **.0071** .0087	.0787 .1063 **.1339**	.0051 **.0071** .0091	.0827 .1122 **.1417**
P	Low alloy steel	**131**~230~328	**262**~394~525	.0020 **.0024** .0031	.0551 .0748 **.0945**	.0028 **.0039** .0047	.0591 .0807 **.1024**	.0035 **.0051** .0063	.0630 .0866 **.1102**	.0043 **.0059** .0075	.0709 .0945 **.1181**	.0047 **.0063** .0079	.0748 .1004 **.1260**
P	High alloy steel	**131**~197~262	**197**~295~394	.0020 **.0024** .0031	.0551 .0748 **.0945**	.0028 **.0039** .0047	.0591 .0807 **.1024**	.0035 **.0051** .0063	.0630 .0866 **.1102**	.0043 **.0059** .0075	.0709 .0945 **.1181**	.0047 **.0063** .0079	.0748 .1004 **.1260**
M	Stainless steel	**131**~197~262	**197**~295~394	.0020 **.0024** .0031	.0551 .0748 **.0945**	.0028 **.0039** .0047	.0591 .0807 **.1024**	.0035 **.0051** .0063	.0630 .0866 **.1102**	.0043 **.0059** .0075	.0709 .0945 **.1181**	.0047 **.0063** .0079	.0748 .1004 **.1260**
K	Cast Iron	**131**~230~328	**262**~394~525	.0024 **.0031** .0039	.0709 .0945 **.1181**	.0035 **.0047** .0059	.0748 .1016 **.1280**	.0047 **.0063** .0079	.0827 .1102 **.1378**	.0055 **.0075** .0094	.0866 .1173 **.1476**	.0059 **.0083** .0102	.0945 .1260 **.1575**
N	Al	**262**~426~590	**394**~689~984	.0024 **.0031** .0039	.1063 .1417 **.1772**	.0035 **.0047** .0059	.1102 .1512 **.1917**	.0047 **.0063** .0079	.1220 .1594 **.1969**	.0055 **.0075** .0094	.1299 .1752 **.2205**	.0059 **.0083** .0102	.1417 .1890 **.2362**
N	Cu	**197**~344~492	**328**~558~787	.0024 **.0031** .0039	.0827 .1122 **.1417**	.0035 **.0047** .0059	.0906 .1220 **.1535**	.0047 **.0063** .0079	.0984 .1319 **.1654**	.0055 **.0075** .0094	.1063 .1417 **.1772**	.0059 **.0083** .0102	.1102 .1496 **.1890**
S	Ni- Alloy	**33** ~66~ 98	**49** ~92~ 131	.0008 **.0012** .0016	.0551 .0748 **.0945**	.0012 **.0020** .0024	.0591 .0807 **.1024**	.0016 **.0024** .0031	.0630 .0866 **.1102**	.0016 **.0028** .0035	.0709 .0945 **.1181**	.0020 **.0031** .0039	.0748 .1004 **.1260**
S	Titanium	**98**~131~164	**131**~197~262	0.0008 **0.0012** 0.0016	.0551 .0748 **.0945**	.0012 **.0020** .0024	.0591 .0807 **.1024**	.0016 **.0024** .0031	.0630 .0866 **.1102**	.0016 **.0028** .0035	.0709 .0945 **.1181**	.0020 **.0031** .0039	.0748 .1004 **.1260**

99321-020-2540 / 99323-020-2540 >>

Workpiece material		SFM 99321	SFM 99323	Ø .984" f IPR	Ø .984" Pitch Inch	Ø1.102" f IPR	Ø1.102" Pitch Inch	Ø1.260" f IPR	Ø1.260" Pitch Inch	Ø1.417" f IPR	Ø1.417" Pitch Inch	Ø1.575" f IPR	Ø1.575" Pitch Inch
P	Carbon steel 0.25%C	**197**~295~426	**328**~525~722	.0028 **.0039** .0047	.0709 .0945 **.1181**	.0039 **.0055** .0067	.0827 .1102 **.1378**	.0055 **.0075** .0091	.0945 .1260 **.1575**	.0067 **.0091** .0110	.1063 .1417 **.1772**	.0071 **.0094** .0118	.1181 .1575 **.1969**
P	Carbon steel 0.45% C	**197**~295~394	**328**~492~656	.0028 **.0039** .0047	.0709 .0945 **.1181**	.0039 **.0055** .0067	.0827 .1102 **.1378**	.0055 **.0075** .0091	.0945 .1260 **.1575**	.0067 **.0091** .0110	.1063 .1417 **.1772**	.0071 **.0094** .0118	.1181 .1575 **.1969**
P	Carbon steel 0.60%C	**164**~230~361	**262**~426~590	.0024 **.0031** .0039	.0630 .0846 **.1063**	.0035 **.0051** .0063	.0748 .1004 **.1260**	.0047 **.0063** .0079	.0866 .1142 **.1417**	.0059 **.0079** .0098	.0945 .1260 **.1575**	.0063 **.0087** .0106	.1063 .1417 **.1772**
P	Low alloy steel	**131**~230~328	**262**~394~525	.0020 **.0028** .0035	.0551 .0748 **.0945**	.0031 **.0043** .0055	.0669 .0886 **.1102**	.0039 **.0055** .0071	.0748 .1004 **.1260**	.0051 **.0071** .0087	.0866 .1142 **.1417**	.0055 **.0075** .0094	.0945 .1260 **.1575**
P	High alloy steel	**131**~197~262	**197**~295~394	.0020 **.0028** .0035	.0551 .0748 **.0945**	.0031 **.0043** .0055	.0669 .0886 **.1102**	.0039 **.0055** .0071	.0748 .1004 **.1260**	.0051 **.0071** .0087	.0866 .1142 **.1417**	.0055 **.0075** .0094	.0945 .1260 **.1575**
M	Stainless steel	**131**~197~262	**197**~295~394	.0020 **.0028** .0035	.0551 .0748 **.0945**	.0031 **.0043** .0055	.0669 .0886 **.1102**	.0039 **.0055** .0071	.0748 .1004 **.1260**	.0051 **.0071** .0087	.0866 .1142 **.1417**	.0055 **.0075** .0094	.0945 .1260 **.1575**
K	Cast Iron	**131**~230~328	**262**~394~525	.0028 **.0039** .0047	.0709 .0945 **.1181**	.0039 **.0055** .0067	.0827 .1102 **.1378**	.0055 **.0075** .0091	.0945 .1260 **.1575**	.0067 **.0091** .0110	.1063 .1417 **.1772**	.0071 **.0094** .0118	.1181 .1575 **.1969**
N	Al	**262**~426~590	**394**~689~984	.0028 **.0039** .0047	.1063 .1417 **.1772**	.0039 **.0055** .0067	.1220 .1634 **.2047**	.0055 **.0075** .0091	.1417 .1890 **.2362**	.0067 **.0091** .0110	.1575 .2106 **.2638**	.0071 **.0094** .0118	.1772 .2362 **.2953**
N	Cu	**197**~344~492	**328**~558~787	.0028 **.0039** .0047	.0827 .1122 **.1417**	.0039 **.0055** .0067	.0984 .1319 **.1654**	.0055 **.0075** .0091	.1142 .1516 **.1890**	.0067 **.0091** .0110	.1260 .1693 **.2126**	.0071 **.0094** .0118	.1417 .1890 **.2362**
S	Ni- Alloy	**33** ~66~ 98	**49** ~92~ 131	.0008 **.0016** .0020	.0551 .0748 **.0945**	.0012 **.0020** .0028	.0669 .0886 **.1102**	.0016 **.0028** .0035	.0748 .1004 **.1260**	.0020 **.0031** .0039	.0866 .1142 **.1417**	.0024 **.0035** .0047	.0945 .1260 **.1575**
S	Titanium	**98**~131~164	**131**~197~262	.0008 **.0016** .0020	.0551 .0748 **.0945**	.0012 **.0020** .0028	.0669 .0886 **.1102**	.0016 **.0028** .0035	.0748 .1004 **.1260**	.0020 **.0031** .0039	.0866 .1142 **.1417**	.0024 **.0035** .0047	.0945 .1260 **.1575**

Cutting Data >> Boldface number is recommended for start.

▸99321-025-3050 / 99323-025-3050 >>

Workpiece material		SFM 99321	SFM 99323	Ø1.181" f IPR	Ø1.181" Pitch Inch	Ø1.378" f IPR	Ø1.378" Pitch Inch	Ø1.575" f IPR	Ø1.575" Pitch Inch	Ø1.772" f IPR	Ø1.772" Pitch Inch	Ø1.969" f IPR	Ø1.969" Pitch Inch
P	Carbon steel 0.25%C	**197**~295~426	**328**~525~722	.0031 **.0043** .0051	.0945 .1260 **.1575**	.0047 **.0063** .0079	.1063 .1417 **.1772**	.0067 **.0091** .0110	.1181 .1575 **.1969**	.0075 **.0102** .0126	.1299 .1732 **.2165**	.0079 **.0106** .0134	.1417 .1890 **.2362**
P	Carbon steel 0.45% C	**197**~295~394	**328**~492~656	.0031 **.0043** .0051	.0945 .1260 **.1575**	.0047 **.0063** .0079	.1063 .1417 **.1772**	.0067 **.0091** .0110	.1181 .1575 **.1969**	.0075 **.0102** .0126	.1299 .1732 **.2165**	.0079 **.0106** .0134	.1417 .1890 **.2362**
P	Carbon steel 0.60%C	**164**~230~361	**262**~426~590	.0028 **.0039** .0047	.0866 .1142 **.1417**	.0039 **.0055** .0071	.0945 .1260 **.1575**	.0059 **.0079** .0098	.1063 .1417 **.1772**	.0067 **.0091** .0110	.1181 .1575 **.1969**	.0071 **.0094** .0118	.1260 .1693 **.2126**
P	Low alloy steel	**131**~230~328	**262**~394~525	.0024 **.0031** .0039	.0748 .1004 **.1260**	.0035 **.0051** .0063	.0866 .1142 **.1417**	.0051 **.0071** .0087	.0945 .1260 **.1575**	.0059 **.0079** .0098	.1024 .1378 **.1732**	.0063 **.0087** .0106	.1142 .1516 **.1890**
P	High alloy steel	**131**~197~262	**197**~295~394	.0024 **.0031** .0039	.0748 .1004 **.1260**	.0035 **.0051** .0063	.0866 .1142 **.1417**	.0051 **.0071** .0087	.0945 .1260 **.1575**	.0059 **.0079** .0098	.1024 .1378 **.1732**	.0063 **.0087** .0106	.1142 .1516 **.1890**
M	Stainless steel	**131**~197~262	**197**~295~394	.0024 **.0031** .0039	.0748 .1004 **.1260**	.0035 **.0051** .0063	.0866 .1142 **.1417**	.0051 **.0071** .0087	.0945 .1260 **.1575**	.0059 **.0079** .0098	.1024 .1378 **.1732**	.0063 **.0087** .0106	.1142 .1516 **.1890**
K	Cast Iron	**131**~230~328	**262**~394~525	.0031 **.0043** .0051	.0945 .1260 **.1575**	.0047 **.0063** .0079	.1063 .1417 **.1772**	.0067 **.0091** .0110	.1181 .1575 **.1969**	.0075 **.0102** .0126	.1299 .1732 **.2165**	.0079 **.0106** .0134	.1417 .1890 **.2362**
N	Al	**262**~426~590	**394**~689~984	.0031 **.0043** .0051	.1417 .1890 **.2362**	.0047 **.0063** .0079	.1575 .2106 **.2638**	.0067 **.0091** .0110	.1772 .2362 **.2953**	.0075 **.0102** .0126	.1929 .2579 **.3228**	.0079 **.0106** .0134	.2126 .2835 **.3543**
N	Cu	**197**~344~492	**328**~558~787	.0031 **.0043** .0051	.1142 .1516 **.1890**	.0047 **.0063** .0079	.1260 .1693 **.2126**	.0067 **.0091** .0110	.1417 .1890 **.2362**	.0075 **.0102** .0126	.1575 .2087 **.2598**	.0079 **.0106** .0134	.1693 .2264 **.2835**
S	Ni- Alloy	**33** ~66~ 98	**49** ~92~ 131	.0008 **.0016** .0020	.0748 .1004 **.1260**	.0016 **.0024** .0031	.0866 .1142 **.1417**	.0024 **.0035** .0047	.0945 .1260 **.1575**	.0024 **.0035** .0047	.1024 .1378 **.1732**	.0028 **.0043** .0055	.1142 .1516 **.1890**
S	Titanium	**98**~131~164	**131**~197~262	.0008 **.0016** .0020	.0748 .1004 **.1260**	.0016 **.0024** .0031	.0866 .1142 **.1417**	.0024 **.0035** .0047	.0945 .1260 **.1575**	.0024 **.0035** .0047	.1024 .1378 **.1732**	.0028 **.0043** .0055	.1142 .1516 **.1890**

▸99321-025-4265 >>

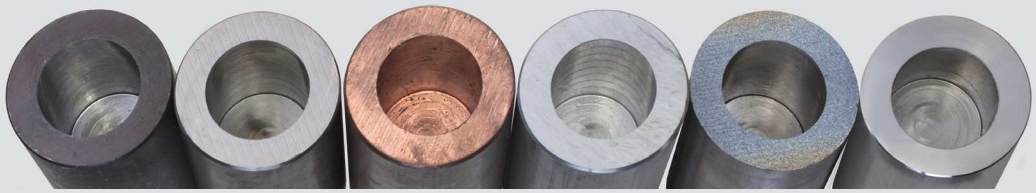
Workpiece material		SFM 99323	Ø1.654" f IPR	Ø1.654" Pitch Inch	Ø1.969" f IPR	Ø1.969" Pitch Inch	Ø2.165" f IPR	Ø2.165" Pitch Inch	Ø2.362" f IPR	Ø2.362" Pitch Inch	Ø2.559" f IPR	Ø2.559" Pitch Inch
P	Carbon steel 0.25%C	**328** ~ 525 ~ 722	.0047 **.0063** .0079	.1181 .1575 **.1969**	.0059 **.0079** .0094	.1220 .1634 **.2047**	.0071 **.0094** .0118	.1299 .1732 **.2165**	.0075 **.0102** .0126	.1339 .1791 **.2244**	.0079 **.0106** .0134	.1417 .1890 **.2362**
P	Carbon steel 0.45% C	**328** ~ 492 ~ 656	.0047 **.0063** .0079	.1181 .1575 **.1969**	.0059 **.0079** .0094	.1220 .1634 **.2047**	.0071 **.0094** .0118	.1299 .1732 **.2165**	.0075 **.0102** .0126	.1339 .1791 **.2244**	.0079 **.0106** .0134	.1417 .1890 **.2362**
P	Carbon steel 0.60%C	**262** ~ 426 ~ 590	.0043 **.0059** .0071	.1063 .1417 **.1772**	.0051 **.0071** .0087	.1102 .1476 **.1850**	.0063 **.0087** .0106	.1181 .1575 **.1969**	.0067 **.0091** .0114	.1181 .1594 **.2008**	.0071 **.0094** .0118	.1260 .1693 **.2126**
P	Low alloy steel	**262** ~ 394 ~ 525	.0039 **.0051** .0063	.0945 .1260 **.1575**	.0043 **.0059** .0075	.0984 .1319 **.1654**	.0055 **.0075** .0094	.1024 .1378 **.1732**	.0059 **.0079** .0098	.1102 .1457 **.1811**	.0063 **.0087** .0106	.1142 .1516 **.1890**
P	High alloy steel	**197** ~ 295 ~ 394	.0039 **.0051** .0063	.0945 .1260 **.1575**	.0043 **.0059** .0075	.0984 .1319 **.1654**	.0055 **.0075** .0094	.1024 .1378 **.1732**	.0059 **.0079** .0098	.1102 .1457 **.1811**	.0063 **.0087** .0106	.1142 .1516 **.1890**
M	Stainless steel	**197** ~ 295 ~ 394	.0039 **.0051** .0063	.0945 .1260 **.1575**	.0043 **.0059** .0075	.0984 .1319 **.1654**	.0055 **.0075** .0094	.1024 .1378 **.1732**	.0059 **.0079** .0098	.1102 .1457 **.1811**	.0063 **.0087** .0106	.1142 .1516 **.1890**
K	Cast Iron	**262** ~ 394 ~ 525	.0047 **.0063** .0079	.1181 .1575 **.1969**	.0059 **.0079** .0094	.1220 .1634 **.2047**	.0071 **.0094** .0118	.1299 .1732 **.2165**	.0075 **.0102** .0126	.1339 .1791 **.2244**	.0079 **.0106** .0134	.1417 .1890 **.2362**
N	Al	**394** ~ 689 ~ 984	.0047 **.0063** .0079	.1772 .2362 **.2953**	.0059 **.0079** .0094	.1850 .2461 **.3071**	.0071 **.0094** .0118	.1929 .2579 **.3228**	.0075 **.0102** .0126	.2047 .2717 **.3386**	.0079 **.0106** .0134	.2126 .2835 **.3543**
N	Cu	**328** ~ 558 ~ 787	.0047 **.0063** .0079	.1417 .1890 **.2362**	.0059 **.0079** .0094	.1496 .1988 **.2480**	.0071 **.0094** .0118	.1575 .2087 **.2598**	.0075 **.0102** .0126	.1614 .2165 **.2717**	.0079 **.0106** .0134	.1693 .2264 **.2835**
S	Ni- Alloy	**49** ~ 92 ~ 131	.0016 **.0024** .0031	.0945 .1260 **.1575**	.0020 **.0031** .0039	.0984 .1319 **.1654**	.0024 **.0035** .0047	.1024 .1378 **.1732**	.0024 **.0039** .0051	.1102 .1457 **.1811**	.0028 **.0043** .0055	.1142 .1516 **.1890**
S	Titanium	**131** ~ 197 ~ 262	.0016 **.0024** .0031	.0945 .1260 **.1575**	.0020 **.0031** .0039	.0984 .1319 **.1654**	.0024 **.0035** .0047	.1024 .1378 **.1732**	.0024 **.0039** .0051	.1102 .1457 **.1811**	.0028 **.0043** .0055	.1142 .1516 **.1890**

Application Example

Special insert geometry for cutting different materials>>

- Serrated cutting edge makes the chips short and small, and easier to evacuate.
- Recommended for almost all material types, good for drilling material that generates long, soft chips.

Example 1



SAE8620 | SUS304 | C1100 | AL6061T6 | TiAl6V4 | Inconel 718

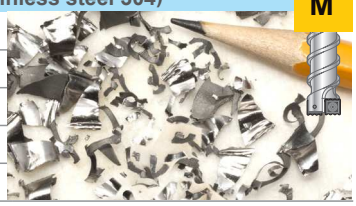
Hole size: Ø 0.984" x 1.969" L / Tool: 99321-016-2030 / Insert: N9MX070204-NC5074

Material: SAE8620 — P

Vc	=	262.4	SFM
S	=	1500	r.p.m.
f	=	.0059	IPR
F	=	8.850	IPM
P	=	.236	Inch

Material: SUS304 (Stainless steel 304) — M

Vc	=	262.4	SFM
S	=	1500	r.p.m.
f	=	.0031	IPR
F	=	4.65	IPM
P	=	.236	Inch



Material: C1100 — N

Vc	=	393.6	SFM
S	=	2250	r.p.m.
f	=	.0039	IPR
F	=	8.775	IPM
P	=	.236	Inch

Material: AL6061T6 — N

Vc	=	590.4	SFM
S	=	3370	r.p.m.
f	=	.0079	IPR
F	=	26.623	IPM
P	=	.236	Inch

Material: TiAl6V4 — S

Vc	=	262.4	SFM
S	=	1500	r.p.m.
f	=	.0031	IPR
F	=	4.65	IPM
P	=	.236	Inch

Material: Inconel 718 (Drill with internal coolant) — S

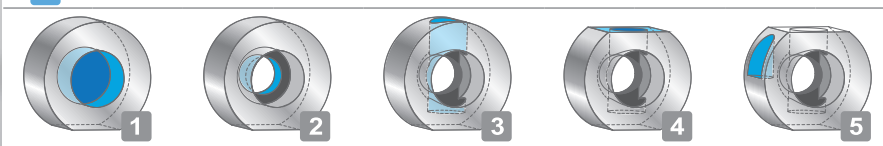
Vc	=	131.2	SFM
S	=	750	r.p.m.
f	=	.0118	IPR
F	=	8.85	IPM
P	=	.079	Inch

To cut Titanium in different conditions >>

Example 2

Material	Ti6Al4V, Titanium
Tool	99323-016-2030 M08-HD17-2030
Insert	N9MX070204-NC2032
Machine	HAAS VM-3, BT40, 22.5KW
Coolant	Internal

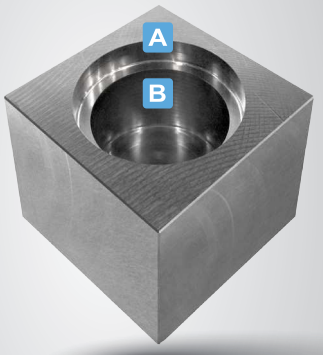
Fig.	Dc Inch	D Inch	L Inch	Vc SFM	S r.p.m	f IPR	F IPM	P Inch	T sec.
1	Ø .669	Ø1.201	.787	196.8	1200	.0020	2.4	.079	423
2		Ø .807	.787	196.8	1200	.0012	1.44	.039	366
3		Ø .787	1.969	196.8	1200	.0012	1.44	.039	785
5		Ø .787	.787	196.8	1200	.0020	2.4	.079	94



Counter sink for M20 bolt | For M20 bolt hole | Cross hole | Surfacing | Half hole on radius

To produce step hole Ø2.106" & Ø1.772" with one tool >>

Example 3

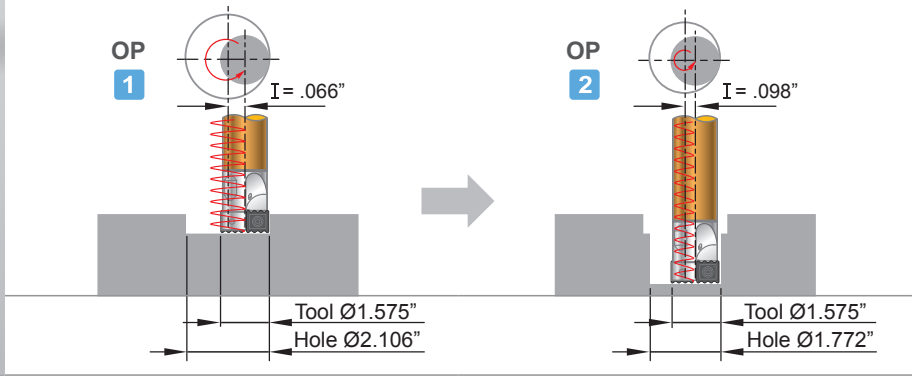


Application

- Hydraulic port for plug-in valve cylinders, counterbore for bolt, and more!

Material	S50C (JIS). High carbon steel
Tool	99323-LS32-HD40 (Non-standard size)
Insert	N9MX12T308-NC2032
Machine	BT40, 22.5 Kw
Coolant	Internal

Hole	Dc Inch	D Inch	L Inch	Vc SFM	S r.p.m	f IPR	F IPM	I Inch	P Inch	T sec.
A	Ø1.575	Ø2.106	.394	984	2400	.0059	14.16	.266	.197	14
B		Ø1.772	1.260	984	2400	.0059	14.16	.098	.079	42



Each holder “NC Helix Drill” can machine different diameters and hole depths.

Producing a Ø2.362" x 1.063" hole with just one tool. Eliminates 2nd operation from the process. Machine load 8%. >>

Example 4

Material	Stainless Steel SUS304
Tool	99321-025-4265 (25mm Side Lock Shank)
Insert	N9MX12T308-NC2032
Machine	BT40
Coolant	External coolant

Dc Inch	D Inch	L Inch	Vc SFM	S r.p.m	f IPR	F IPM	I Inch	P Inch	T sec.	Q In.³ /min.
Ø1.299	Ø2.362	1.063	328	1000	.0079	7.90	.531	.157	172	1.624

Requires low spindle power! BT30 machine, Ø1.181" hole diameter, 3.3xDc drill depth >>

Example 5

Maximum drilling capacity of the 5.5 kw spindle is Ø0.63”

Material	S50C (JIS), High carbon steel
Tool	99321-020-2540 / BC20-HD22-2540
Insert	N9MX100306-NC2032
Machine	BT30, 5.5 Kw
Coolant	External coolant

Dc Inch	D Inch	L Inch	Vc SFM	S r.p.m	f IPR	F IPM	I Inch	P Inch	T sec.
Ø .866	Ø1.181	2.756	656	* 2893	.0079	22.85	.157	.110	62

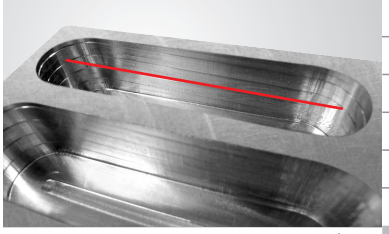
* 3000 r.p.m. is used.

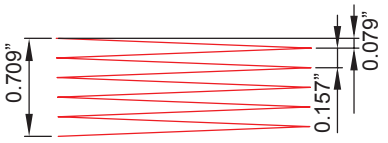
Drill bigger holes using lower power spindles. Increase flexibility and occupy fewer tool positions in CNC machines.

Replace your end mill with an NC helix drill. Make the impossible become possible >>

Example 6

Tool Path : 2.047”





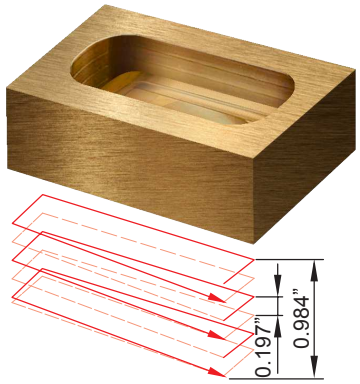
Rough Slotting

Slot Dimension	**W: 0.669” x 0.709” x 2.756”**
Material	S45C (JIS), Medium Carbon Steel
Tool	99323-016-2030 M08-HD17-2030
Insert	N9MX070204-NC2032
Machine	BT40
Coolant	Internal coolant, emulsion

Dc Inch	L Inch	Vc SFM	S r.p.m	f IPR	F IPM	P Inch	T sec.	Q In.³ /min.
Ø .669	2.756	656	3800	.0039	14.82	.157*	91	2.075

* Ramping depth per cut = 0.079”

Notch of Tool Path : 5.039”



Rough Slotting

Slot Dimension	**W: 1.575” x 0.984” x2.756”**
Material	C95400, Aluminium Bronze
Tool	99323-020-2540 M10-HD22-2540
Insert	N9MX100306-NC2032
Machine	HAAS BT40
Coolant	External / Internal coolant

Dc Inch	L Inch	Vc SFM	S r.p.m	f IPR	F IPM	P Inch	T sec.	Q In.³ /min.
Ø .866	.984	1148	5000	.0079	39.50	.197	23	12.937

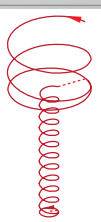
One tool performs multiple patterns. >>

Example 7

Material	AL6061T6
Tool	99323-016-2030 M08-HD17-2030
Insert	N9MX070204-NC5074
Machine	HAAS VM-3, BT40, 22.5KW
Coolant	Internal

Fig.	Dc Inch	Vc SFM	S r.p.m	f IPR	F IPM	P Inch	T sec.
1	Ø .669	656	3800	.0059	22.42	.157	67
2		656	3800	.0059	22.42	.157	80
3		656	3800	.0059	22.42	.157	95
4		656	3800	.0059	22.42	.197	101

Tool Path 1



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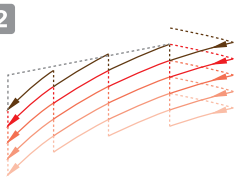

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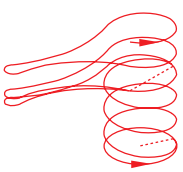

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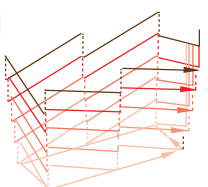
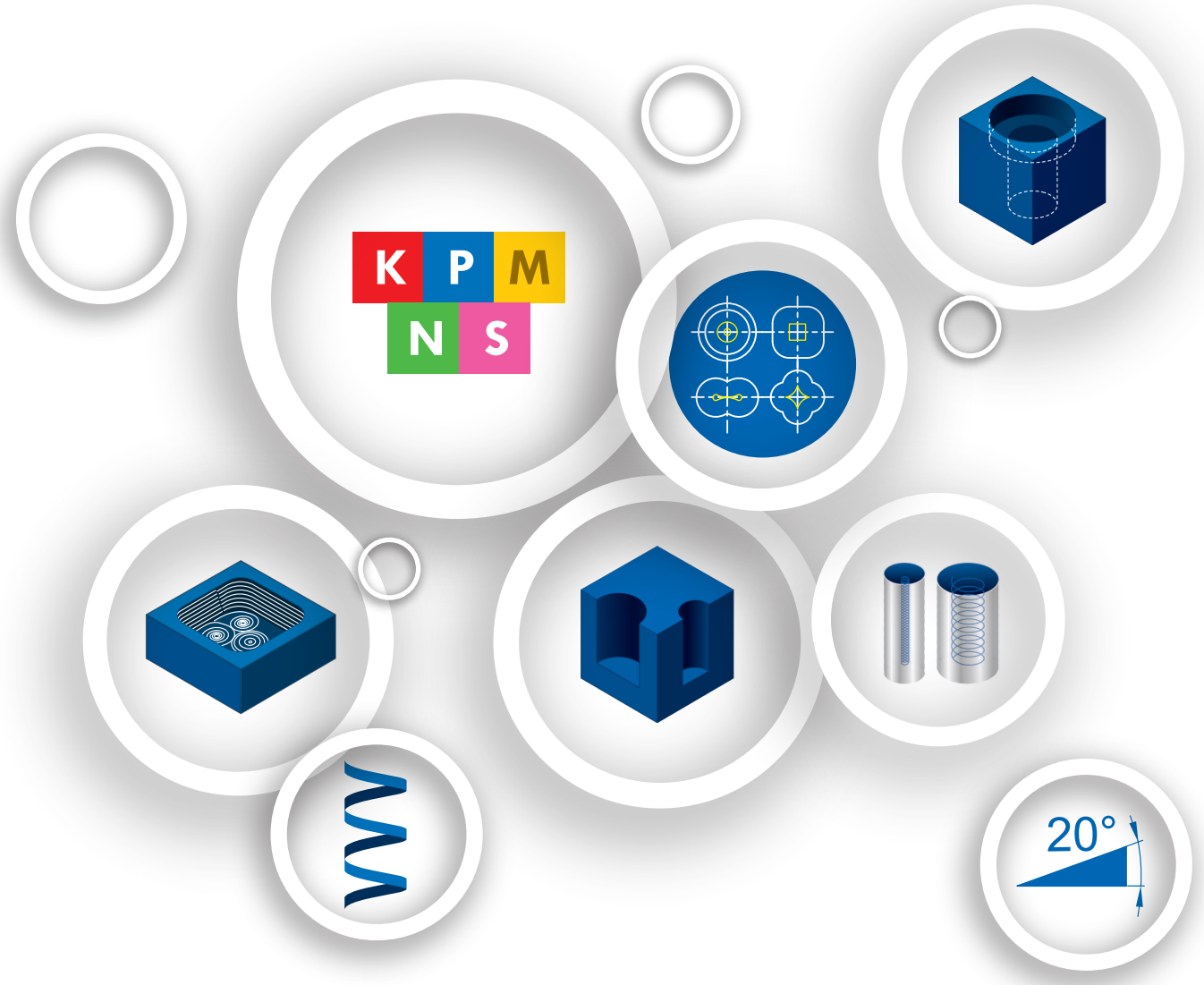


Not only a drill, but an end mill too. Maximum ramping angle is 20°.
Small radius path to cut holes, countersink holes, and create various cavity shapes in different materials.
Less inventory of different sizes of drills and indexable end mills, NC Helix Drill cuts it all !

No Need To Choose
Nine9 Does It All



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