ERgo

Patent Pending

Monoblock System

AHB

TOOLING & MACHINERY

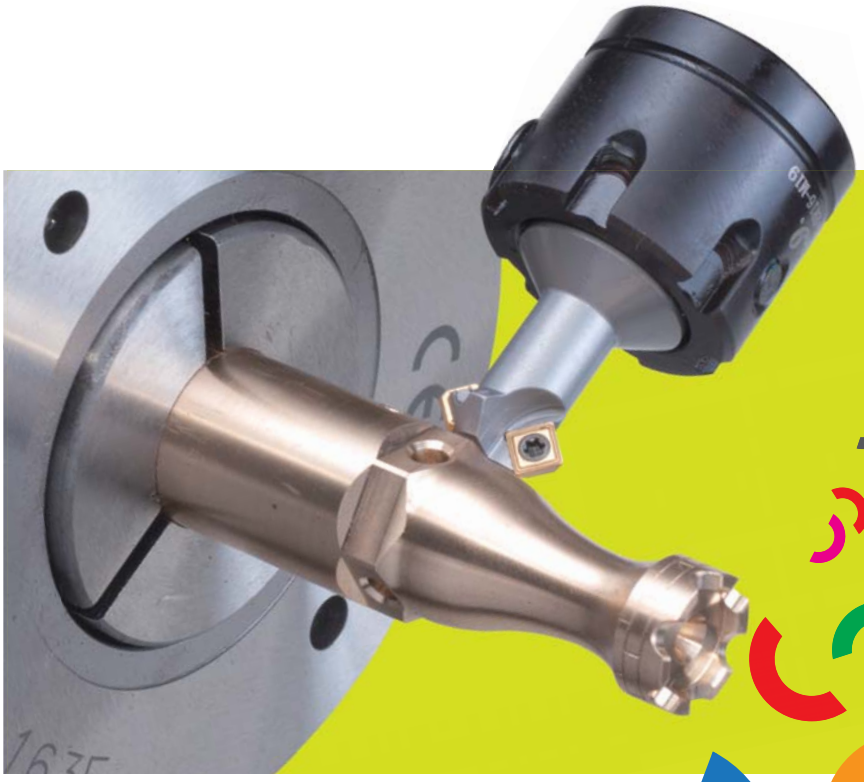
COMPLETE METALWORKING SOLUTIONS

(800) 991-4225
www.ahbinc.com
ISO Certified
customerservice@ahbinc.com

Integrated ER taper-shank cutter

- Better rigidity
- Quick change
- Excellent repeatability
- Tool Length Maintain

Center coolant / Pre-balanced

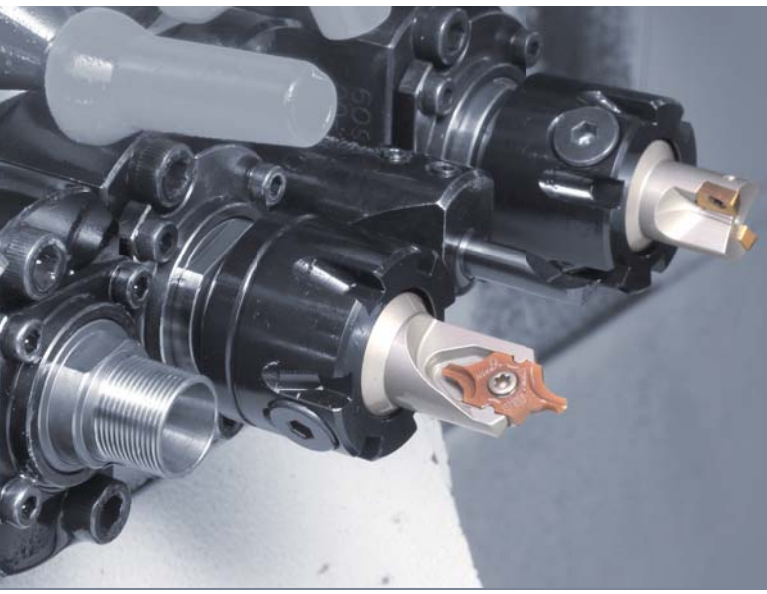


Nine9®

nine9.jic-tools.com.tw

2020 Supplement

ERgo Monoblock System



ERgo *just say "ergo".*

The Ergo is a new trademark of Nine9 for ER style indexable cutter.
Ergo provides quick change and maintain tool length.
Ideal solution for lathes and milling machines.

Concept:

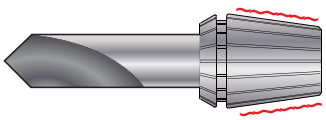
An integrated ER taper- shank cutter, eliminate assembly tolerance.
A clamping force from the 3 parts including **Ergo nut**, **high strength Ergo pin** and **ER taper** when Ergo nut drives the pin to push Ergo holder into ER taper.

" A simple way to maximize clamping force "

Optimized the rigidity

- An integrated ER taper- shank cutter, eliminate assembly tolerance.
- The center coolant directed at the cutting edge.
- Pre-balanced tool, ready for high speed machining.
- Increase tool life.

Integrated design



Cutting tool + Spring collet + Nut

Easy and simple assemble

- Ergo tool provides an assembled set, changing tool takes just few seconds.
- Thanks to ER taper, when change same tool length cutter, the tolerance is ±0.1mm.

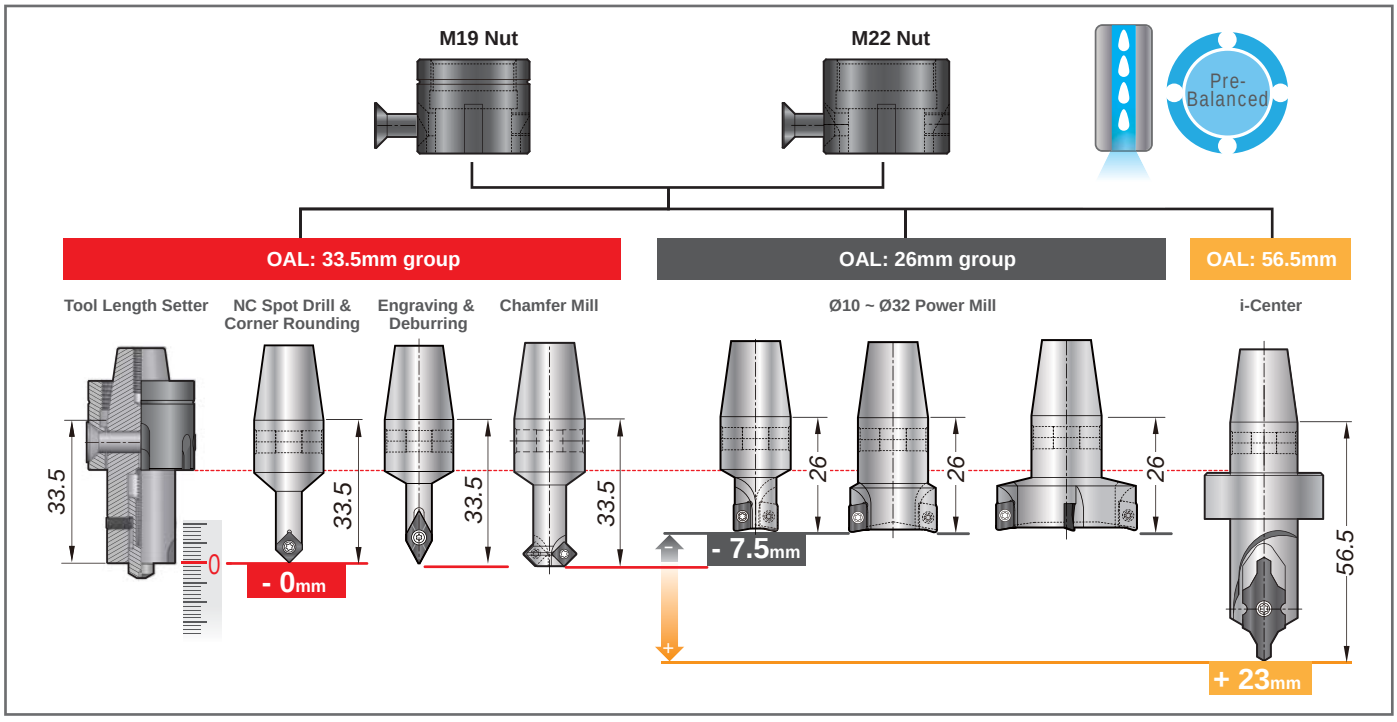
Ergo cutter

Solid carbide cutter

Quick change, saving huge machine downtime.

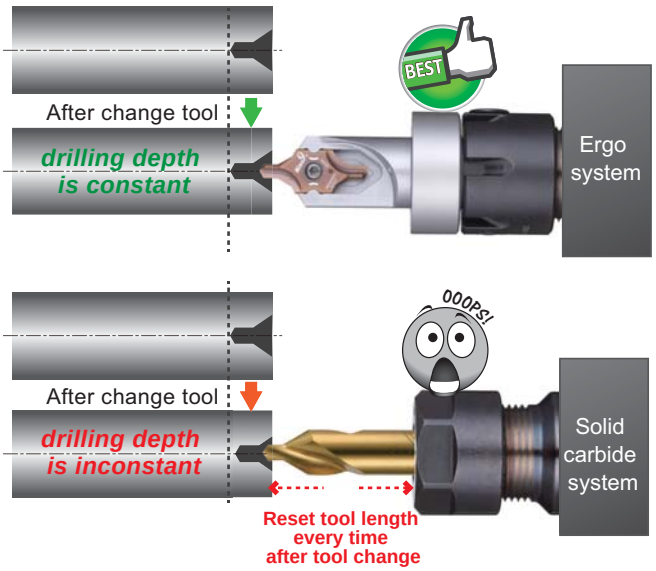
- **3 fixed tool length groups of Ergo tools.**
- **No need to reset tool length while changing tools in the same group.**
- **Different groups, just adjusting the offset value. (Please refer to P11 for details)**

OAL 33.5mm: Tool length setter, NC Spot Drill, Corner Rounding, Engraving Tool, Deburring Tool and Chamfer Mill.
OAL 26 mm: Ø10~ Ø32 mm Power Mill.
OAL 56.5mm: i-Center (indexable center drill)



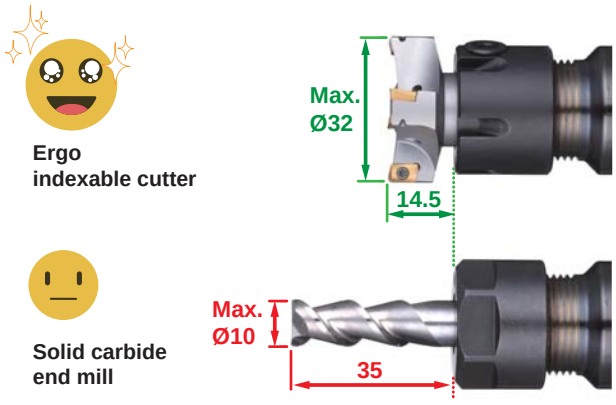
Excellent repeatability, saving set-up time.

- Indexable insert provides the greatest benefit of saving tool changing time and tool length setting time.



Dimension is not limited by the ER16 collet clamping range

- Ergo ER16 tool covers milling cutter range from 10 to 32mm.
- More efficiency and reduce machining time.
- The shorter tool length, the better run-out accuracy.



P. 6

NC Spot Drill / Corner Rounding

G6.3 10000 r.p.m

Spotting | Chamfering | Grooving | 145°+90° Spotting | Corner Rounding

P. 6

Engraving Tool / Deburring Tool

G4.0 20000 r.p.m

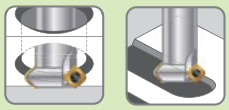
Spotting 45° & 60° | Engraving 30°, 45°& 60° | Deburring 60° & 90° | Chamfering 60° & 90°

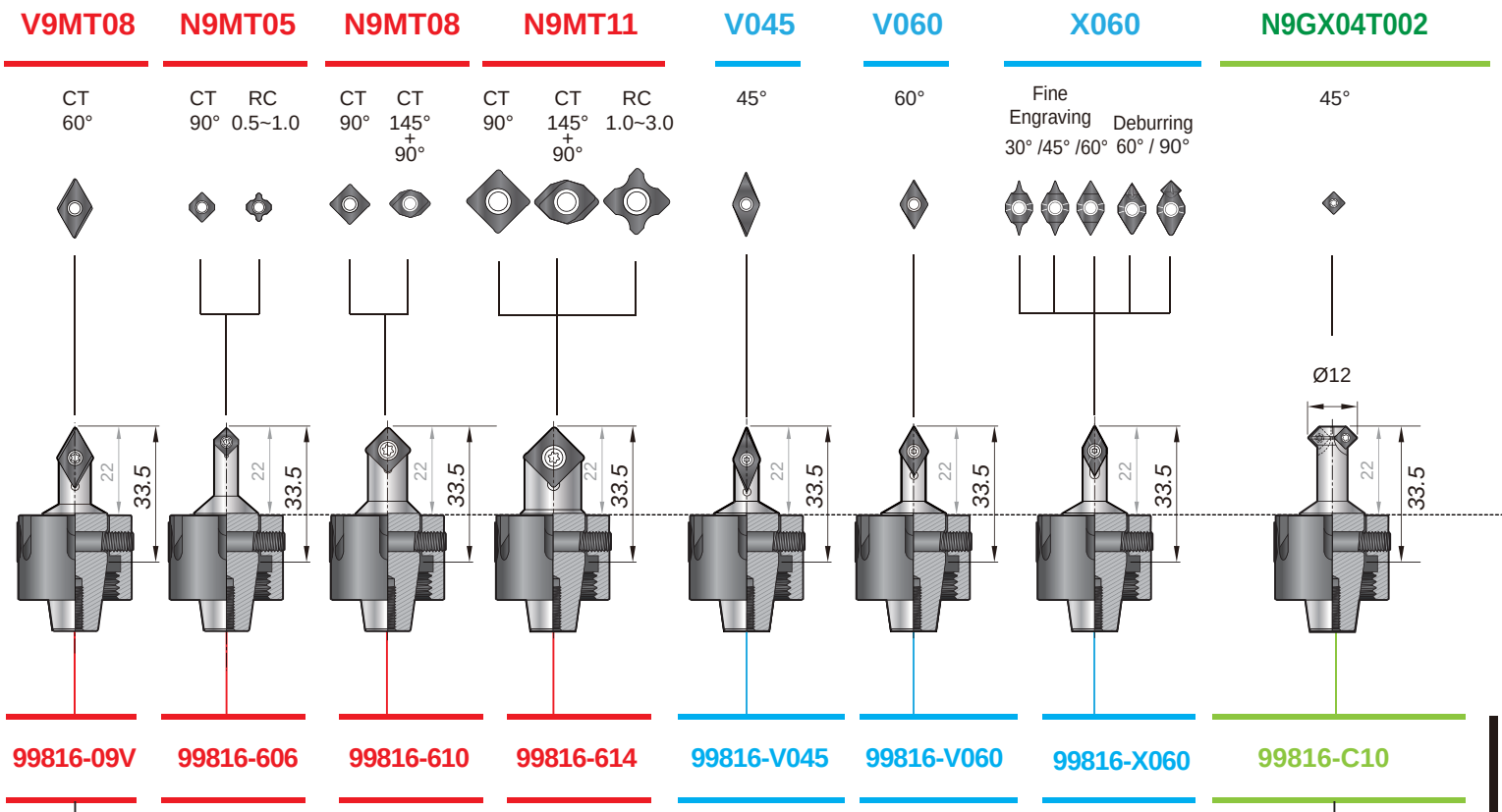
P. 6

Chamfer Mill

G6.3 10000 r.p.m

Front & Back Chamfering | Face Milling





99816-09V	99816-606	99816-610	99816-614	99816-V045	99816-V060	99816-X060	99816-C10

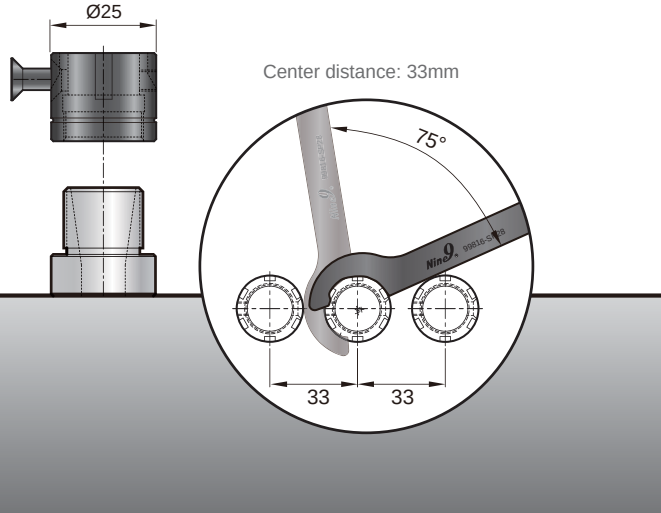
OAL= 33.5mm

Ergo Monoblock System

99816 System

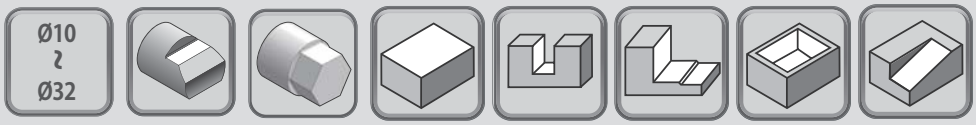
Ergo system can apply on live spindle tool of turning centers and swiss type automatic lathes such as Star, Citizen, Tsugami, Doosan, Tornos, INDEX, EMAG...and so on.
And also good for machining centers.

Ergo ER16 Mini Nut



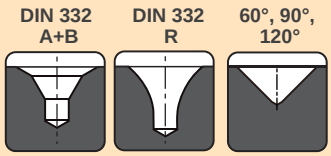
Power Mill

Center Coolant / G6.3 10000 r.p.m



i-Center

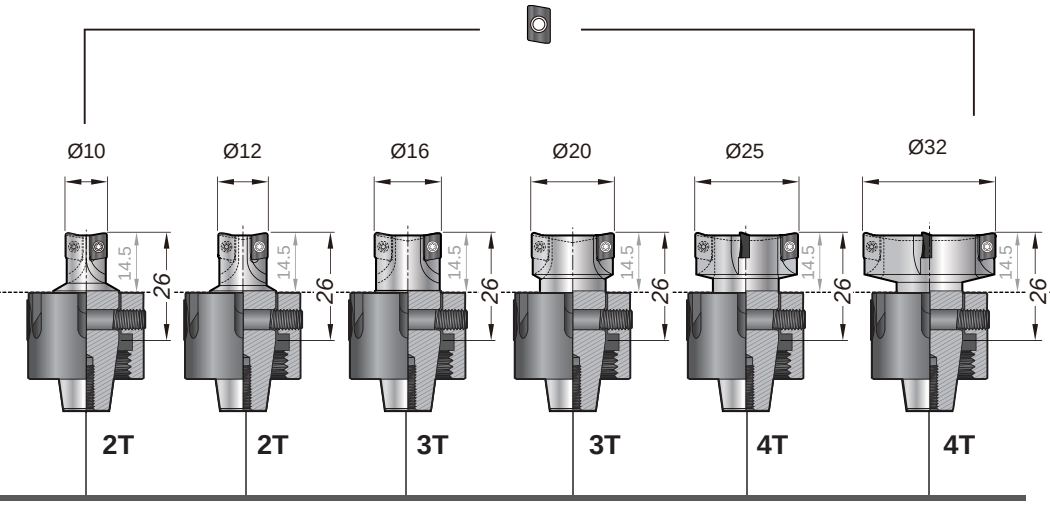
Center Coolant
G6.3 10000 r.p.m



Tool Length Setter

A9GT0602 New

Re 0.1 & 0.5

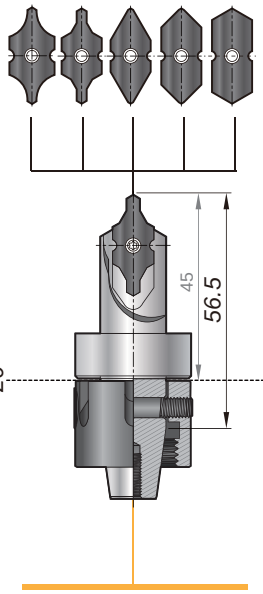


99816-10A06 / 99816-12A06 / 99816-16A06 / 99816-20A06 / 99816-25A06 / 99816-32A06

OAL= 26mm

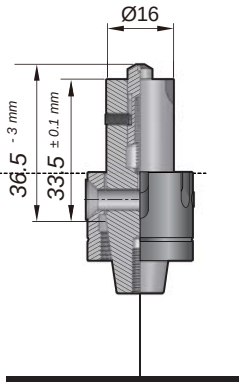
I9MT1003 New

R A+B 60° 90° 120°
Ø1.0 ~ Ø3.15



99816-IC10BH

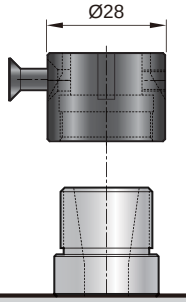
OAL= 56.5mm

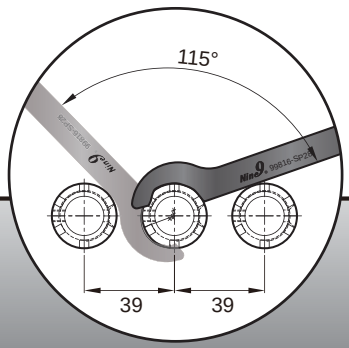


99816-TP

OAL= 33.5mm

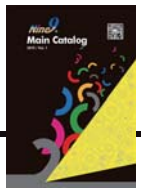
Ergo ER16 Nut





Assembled Parts

- Insert
- Holder
- Nut & Pin
- Starter Kit (See P. 14)



Refer to main catalogue for related inserts and applications.

NC Spot Drill & Corner Rounding

Code	Parts No.	Basic Holder	Angle	Dmax. D min.	Dmax. D max.	Screw / Key	Insert Type	Page
16-609002	00-99816-09V		60°	1	9	NS-25045 0.9Nm / NK-T7	V9MT0802	1-4
16-601004	00-99816-606		90°	1	6	NS-20036 0.6 Nm / NK-T6	N9MT05T1	1-6
			RC	R 0.5	R 1.0		N9MT05T1RC	1-18
16-603004	00-99816-610		90°	2	10	NS-30055 2.0 Nm / NK-T8	N9MT0802	1-7
			90°+ 145°	3.3	8		N9MT08M04~M06	1-15
16-604010	00-99816-614		90°	3	14		N9MT11T3	1-9
			90°+ 145°	6.8	13	NS-35080 2.5 Nm / NK-T15	N9MT11T3M08, M10,1/4, 5/16, 3/8	1-15
			RC	R 1.0	R 3.0		N9MT11T3RC	1-19

Engraving Tools & Deburring Tools

Code	Parts No.	Basic Holder	Angle	T Wmax. Wmin. Wmin.	Wmax.	Tmax.	Screw / Key	Insert Type	Page
16-609002	00-99816-X060		30° 45° 60°	0.2	1.36	1.0	NS-22044 0.9Nm / NK-T7	Radius Angled X060A..W..R	1-42
				R:0.2	1.39	1.0		Radius Form X060A...R	1-43
			Deburring 60°	0.3	2.0	1.75		X060A60T6	1-54
			Deburring 90°	0.5	3.5	1.75		X060A90T6	1-54
16-609002	00-99816-V045		45°	0.45	2.1	2.0	NS-22044 0.9Nm / NK-T7	V04506T1W	1-44
16-601004	00-99816-V060		60°	0.25	2.7	2.0	NS-22044 0.9Nm / NK-T7	V06006T1W	1-45

Front and Back Chamfer Mill

Code	Parts No.	Basic Holder	Angle	Chamfering min.	Chamfering max.	Screw / Key	Insert Type	Page
16-701003	00-99816-C10	 2T	45°	7	11	NS-18037 0.6Nm / NK-T6	N9GX04T002	1-57

Set of Ergo Nut

* Nut, pin & L-key are included.

Code	Parts No.
NN-M19S	00-99816-M19S
NN-M22S	00-99816-M22S

Ergo Nut

Code	Parts No.	Ød
NN-M19	00-99816-M19	25
NN-M22	00-99816-M22	28

High Strength Pin

Code	Parts No.	L
NS-50025	00-NS-50025	25
NS-50028	00-NS-50028	28

L-Key

Code	Parts No.
NK-LW3	00-NK-LW3

25~28mm Ergo Spanner

Code	Parts No.
NK-SP28	00-99816-SP28

Power Mill

Ø10 ~ Ø32mm

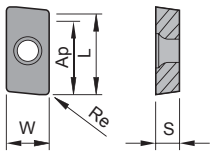
New

Insert

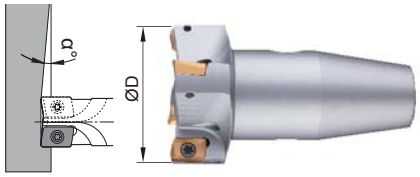
- Small radius Re0.1 can reduce cutting resistance in general.
- Two grades for steel, aluminum, copper and stainless steel cutting.


NC2033


NC9031

Code	Parts No.	Coating	Grade	Insert	Re	Ap	L	W	S
05A122	A9GT0602 01H- NC2033	TiAlN	K20F		0.1	5	6.5	4	2.45
05A123	A9GT0602 01H- NC9031	TiN	K20F						
05A102	A9GT0602 05H- NC2033	TiAlN	K20F		0.5	5	6.5	4	2.45
05A103	A9GT0602 05H- NC9031	TiN	K20F						

Basic Holder& Accessory

Code	Parts No.	Basic Holder	ØD	No. of teeth	α°	Screw	Key
16-51A100	00-99816-10A06		10	2	5	 NS-18037 / 0.6Nm	 NK-T6
16-51A122	00-99816-12A06		12	2	4		
16-51A130	00-99816-16A06		16	3	2		
16-51A140	00-99816-20A06		20	3	2		
16-51A150	00-99816-25A06		25	4	1.3		
16-51A160	00-99816-32A06		32	4	1		

Set of Ergo Nut


* Nut, pin & L-key are included.

Code	Parts No.
NN-M19S	00-99816-M19S
NN-M22S	00-99816-M22S

Ergo Nut

Code	Parts No.	Ød
NN-M19	00-99816-M19	25
NN-M22	00-99816-M22	28

High Strength Pin

Code	Parts No.	L
NS-50025	00-NS-50025	25
NS-50028	00-NS-50028	28

L-Key

Code	Parts No.
NK-LW3	00-NK-LW3

25~28mm Ergo Spanner

Code	Parts No.
NK-SP28	00-99816-SP28

Cutting Data

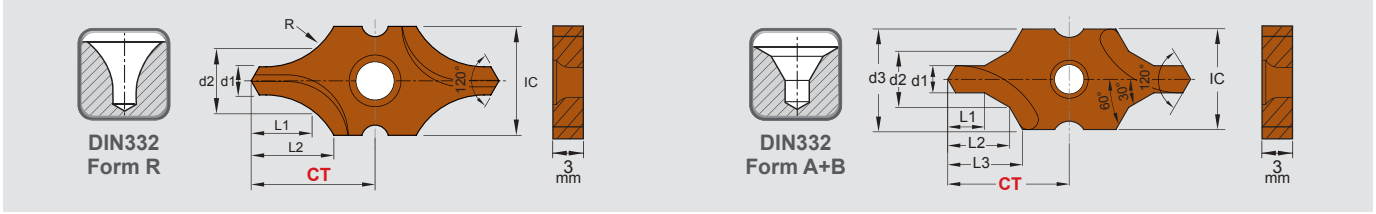
	Work Material	Grade	Vc (m/min)	fz (mm/tooth)	Ap(mm)	Ap(mm)	Ae(mm)
P	Carbon Steel	NC2033	80 ~ 150	0.03 ~ 0.07	1.5	3	1
P	Low-alloy Steel C ≤ 0.3%	NC2033	80 ~ 150	0.03 ~ 0.07	1.5	3	1
P	High-alloy Steel C > 0.3%	NC2033	60 ~ 120	0.02 ~ 0.06	1.0	2.5	1
M	Stainless Steel	NC9031	60 ~ 120	0.01 ~ 0.05	0.5	2.0	1
		NC2033					
N	Al, Al-alloy	NC9031	200 ~ 500	0.02 ~ 0.07	2.0	4.0	2

i-Center Indexable Center Drill

New

Insert

- Double-edged cutting, full-grinding insert for improving machining stability.
- NC2057: possible for drilling without cooling lubricant or when using minimal lubrication (MQL).



• For DIN332 Form R Center Hole

IC	Code	Parts No.	Coating	Grade	d1		d2	L1	L2	R	CT ±0.025
10	031200	I9MT1003R0100- NC2057	AL(L)	P35	1.00	+0.14 0	2.12	2.16	4.72	2.8	12.35
	031201	I9MT1003R0125- NC2057			1.25		2.65	2.74	5.22	3.5	
	031202	I9MT1003R0150- NC2057			1.50		3.60	3.67	6.14	5.0	
	031203	I9MT1003R0160- NC2057			1.60		3.35	3.45	5.32	4.5	
	031204	I9MT1003R0200- NC2057			2.00		4.25	4.45	6.50	5.65	
	031205	I9MT1003R0250- NC2057			2.50		5.30	5.59	7.66	7.15	
	031206	I9MT1003R0300- NC2057			3.00	+0.18 0	5.70	6.92	9.50	10.00	
	031207	I9MT1003R0315- NC2057			3.15		6.70	7.21	8.93	9.00	

• For DIN332 Form A+B Center Hole

IC	Code	Parts No.	Coating	Grade	d1		d2	d3	L1	L2	L3	CT ±0.025
10	031000	I9MT1003B0100- NC2057	AL(L)	P35	1.00	+0.14 0	2.12	3.15	1.3	2.21	2.51	12.35
	031001	I9MT1003B0125- NC2057			1.25		2.65	4.00	1.6	2.75	3.14	
	031002	I9MT1003B0150- NC2057			1.50		3.18	4.50	2.0	3.45	3.84	
	031003	I9MT1003B0160- NC2057			1.60		3.35	5.00	2.0	3.46	3.93	
	031004	I9MT1003B0200- NC2057			2.00		4.25	6.30	2.5	4.39	4.98	
	031005	I9MT1003B0250- NC2057			2.50		5.30	8.00	3.1	5.53	6.28	
	031006	I9MT1003B0300- NC2057			3.00	+0.18 0	6.46	9.00	4.1	7.10	7.83	
	031007	I9MT1003B0315- NC2057			3.15		6.70	10.0	3.9	6.90	7.85	

Basic Holder & Accessory

IC	Code	Parts No.	Basic Holder	Screw	Key
10	16-801003	00-99816-IC10BH		 NS-25060 / 0.9Nm	 NK-T7

Set of Ergo Nut

Code	Parts No.
NN-M19S	00-99816-M19S
NN-M22S	00-99816-M22S

Ergo Nut

Code	Parts No.	Ød
NN-M19	00-99816-M19	25
NN-M22	00-99816-M22	28

High Strength Pin

Code	Parts No.	L
NS-50025	00-NS-50025	25
NS-50028	00-NS-50028	28

L-Key

Code	Parts No.
NK-LW3	00-NK-LW3

25~28mm Ergo Spanner

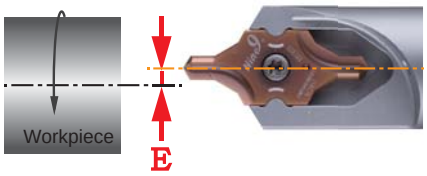
Code	Parts No.
NK-SP28	00-99816-SP28

Before you start, please pay attention the following conditions

1

Center misalignment

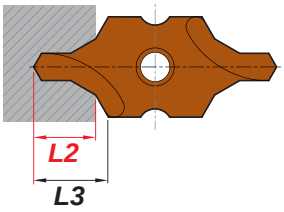
E must be < 0.02mm.



2

DIN 332 Form A+B

Reduce 30% of Spindle speed and keep same feed rate (mm/rev.) while depth L2 is reached.



S r.p.m. Reduce 30%

f mm/rev. Constant

Cutting Data

- Internal coolant is recommended.
- Middle value of feed rate is recommended for start.
- Using your “d1” value and cutting speed Vc from the data sheet, calculate spindle speed “S”(r.p.m).
- “ F” feed rate per minute F = S x f = IPR x r.p.m.

	Workpiece Material	Vc (m/min.)		d1 Ø1	Ø1.25	Ø1.50	Ø1.60	Ø2.0	Ø2.50	Ø3.0	Ø3.15		
P	Carbon steel C<0.3%	< 80	S r.p.m.	2000 ~ 10000	2000 ~ 10000	1800 ~ 9000	1600 ~ 8000	1600 ~ 8000	1400 ~ 7000	1300 ~ 6500	1200 ~ 6000	●	○
			f mm/rev.	0.01 ~ 0.04	0.01 ~ 0.04	0.01 ~ 0.05	0.02 ~ 0.05	0.02 ~ 0.06	0.03 ~ 0.1	0.03 ~ 0.11	0.03 ~ 0.12		
P	Carbon steel C>0.3%	< 70	S r.p.m.	2000 ~ 9000	2000 ~ 9000	1800 ~ 8000	1600 ~ 7200	1600 ~ 7200	1400 ~ 6300	1300 ~ 6000	1200 ~ 5400	●	○
			f mm/rev.	0.01~ 0.04	0.01 ~ 0.04	0.01 ~ 0.05	0.02 ~ 0.05	0.02 ~ 0.06	0.03 ~ 0.1	0.03 ~ 0.11	0.03 ~ 0.12		
P	Low alloy steel C<0.3%	< 65	S r.p.m.	2000 ~ 8000	2000 ~ 8000	1800 ~ 7000	1600 ~ 6400	1600 ~ 6400	1400 ~ 5600	1300 ~ 5200	1200 ~ 4800	●	○
			f mm/rev.	0.01 ~ 0.03	0.01 ~ 0.03	0.01 ~ 0.04	0.01 ~ 0.04	0.01 ~ 0.05	0.02 ~ 0.08	0.02 ~ 0.10	0.03 ~ 0.1		
P	High alloy steel C>0.3%	< 60	S r.p.m.	1000 ~ 6000	1000 ~ 6000	900 ~ 5500	800 ~ 4800	800 ~ 4800	700 ~ 4200	600 ~ 4000	600 ~ 3600	●	○
			f mm/rev.	0.01 ~ 0.02	0.01 ~ 0.02	0.01 ~ 0.03	0.01 ~ 0.03	0.01 ~ 0.04	0.02 ~ 0.06	0.02 ~ 0.08	0.03 ~ 0.08		
M	Stainless steel	< 20	S r.p.m.	1000 ~ 3000	1000 ~ 3000	900 ~ 2700	800 ~ 2400	800 ~ 2400	700 ~ 2100	600 ~ 2000	600 ~ 1800	● ≥ 5 bar	○
			f mm/rev.	0.03 ~ 0.01	0.005 ~ 0.015	0.005 ~ 0.02	0.005 ~ 0.02	0.01 ~ 0.025	0.01 ~ 0.03	0.01 0.04	0.02 ~ 0.05		
N	Al, and non-ferrous metal	< 200	S r.p.m.	6000 ~ 20000	6000 ~ 20000	5000 ~ 18000	4800 ~ 16000	4800 ~ 16000	4200 ~ 14000	4000 ~ 13000	3600 ~ 12000	●	○
			f mm/rev.	0.01 ~ 0.03	0.01 ~ 0.03	0.01 ~ 0.04	0.01 ~ 0.04	0.01 ~ 0.04	0.02 ~ 0.05	0.02 ~ 0.05	0.02 ~ 0.06		

● Best ○ Possible

Metric

$$S = \frac{Vc \times 1000}{\pi \times d1}$$

$$F = S \times f$$

d1 =	diameter -mm
S =	Spindle Speed -r.p.m.
Vc =	Cutting Speed -m/min.
f =	mm/rev.
F =	mm/min.

Inch

$$S = \frac{(3.82 \times SFM)}{d1}$$

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

d1 =	diameter-inch
S =	Spindle Speed-r.p.m.
SFM =	Surface Speed-ft./min. Vc (m/min.) x 3.28
f = IPR =	inch/rev.
F =	inch/min.

i-Center

60°, 90° and 120° centering & countersink

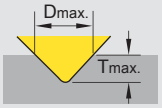
Insert

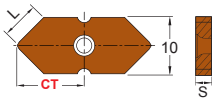
- Double-edged cutting, full-grinding insert for improving machining stability.
- NC2057: possible for drilling without cooling lubricant or when using minimal lubrication (MQL).

60°

90°

120°



Angle	Code	Parts No.	Coating	Grade	Insert	L	S	Dmax.	Tmax.	CT ±0.025
60°	031401	I9MT1003CT060- NC2057	AL(L)	P35		8	3	10	7.5	12.35
90°	031402	I9MT1003CT090- NC2057				5.6	3	10	4.6	
120°	031403	I9MT1003CT120- NC2057				5.7	3	10	2.9	

Basic Holder & Accessory

IC	Code	Parts No.	Basic Holder	Screw	Key
10	16-801003	00-99816-IC10BH		 NS-25060 / 0.9Nm	 NK-T7

Set of Ergo Nut

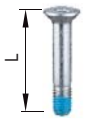
* Nut, pin & L-key are included.

Code	Parts No.
NN-M19S	00-99816-M19S
NN-M22S	00-99816-M22S

Ergo Nut

Code	Parts No.	Ød
NN-M19	00-99816-M19	25
NN-M22	00-99816-M22	28

High Strength Pin



Code	Parts No.	L
NS-50025	00-NS-50025	25
NS-50028	00-NS-50028	28

L-Key

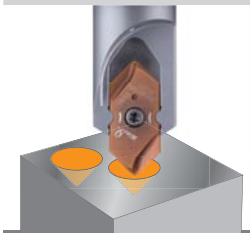
Code	Parts No.
NK-LW3	00-NK-LW3

25~28mm Ergo Spanner

Code	Parts No.
NK-SP28	00-99816-SP28

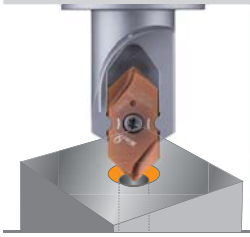
Cutting Data

Spotting



	Workpiece Material	Vc (m/min.)	f (mm/rev.) 60°	f (mm/rev.) 90°	f (mm/rev.) 120°		
P	Carbon steel C<0.3%	120 ~ 250	0.08 ~ 0.20	0.15 ~ 0.25	0.10 ~ 0.30	●	○
P	Carbon steel C>0.3%	100 ~ 220	0.08 ~ 0.20	0.10 ~ 0.05	0.10 ~ 0.30	●	○
P	Low alloy steel C<0.3%	100 ~ 200	0.06 ~ 0.16	0.08 ~ 0.20	0.10 ~ 0.25	●	○
P	High alloy steel C>0.3%	80 ~ 180	0.06 ~ 0.12	0.08 ~ 0.20	0.10 ~ 0.25	●	○
M	Stainless steel	60 ~ 120	0.04 ~ 0.10	0.06 ~ 0.12	0.08 ~ 0.15	● ≥ 5 bar	○
N	Al, and non-ferrous metal	150 ~ 300	0.08 ~ 0.20	0.10 ~ 0.25	0.10 ~ 0.30	●	○

Countersink



	Workpiece Material	Vc (m/min.)	f (mm/rev.)				
P	Carbon steel C<0.3%	120 ~ 250	0.20 ~ 0.50			●	○
P	Carbon steel C>0.3%	100 ~ 220	0.20 ~ 0.40			●	○
P	Low alloy steel C<0.3%	100 ~ 200	0.15 ~ 0.40			●	○
P	High alloy steel C>0.3%	80 ~ 180	0.10 ~ 0.30			●	○
M	Stainless steel	60 ~ 120	0.08 ~ 0.30			● ≥ 5 bar	○
N	Al, and non-ferrous metal	150 ~ 300	0.20 ~ 0.50			●	○

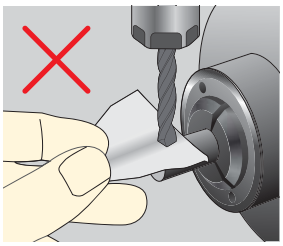
● Best ○ Possible

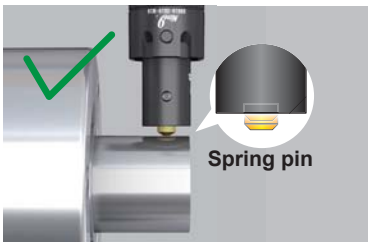
Ergo Setter

Quick and simple tool length setting

Setter & Accessory

- Ergo setter is an easy tool length recorder while setting the tool length either on swiss type automatic lathe or CNC turning centers.
- Reduce machine downtime and prevent insert and workpiece damage.





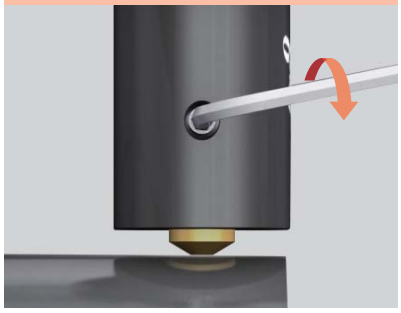
Code	Parts No.	Illustration	L-Key
16-TP0001	00-99816-TP	 *Focusing edge (For Tool Presetter)*	NK-LW15 (2 Nm) 

Set of Ergo Nut		Ergo Nut			High Strength Pin			L-Key		25~28mm Ergo Spanner	
 * Nut, pin & L-key are included.		Ød 			L 						
Code	Parts No.	Code	Parts No.	Ød	Code	Parts No.	L	Code	Parts No.	Code	Parts No.
NN-M19S	00-99816-M19S	NN-M19	00-99816-M19	25	NS-50025	00-NS-50025	25	NK-LW3	00-NK-LW3	NK-SP28	00-99816-SP28
NN-M22S	00-99816-M22S	NN-M22	00-99816-M22	28	NS-50028	00-NS-50028	28				

Setting process

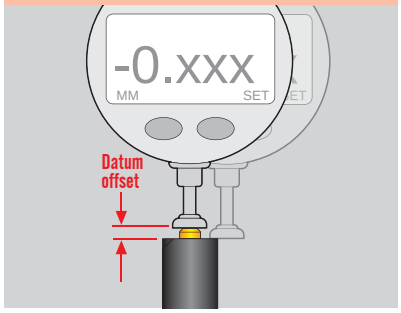
* Mind the cutting depth of Engraving! *If cutting depth is less than 0.1mm,* You must reset tool length when change new insert or cutting edge.

1. Set Temporary Position



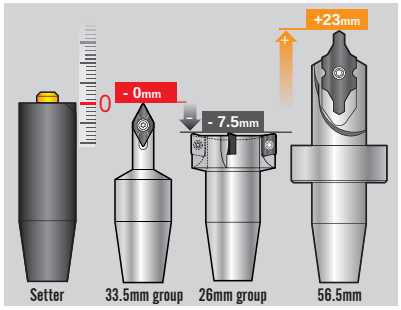
1: Move the setter tip to touch the center-top of workpiece.
2: Press spring pin 1~2 mm.
3: Tighten screw to fix spring pin, and get a temporary length of setter.
4: Input the temporary length value to the CNC controller.

2. Get The Datum Position



1: The offline measures the datum offset of setter by height gauge.
2: Input datum offset to CNC controller.

3. Input Tool Length Offset



1: Choose an Ergo tool to install, and input the offset value to CNC controller directly.

Assembly Steps

Ergo parts:

Tip To keep the machining performance, please make sure Ergo tools are clean while re-assembly or change to other live tool.

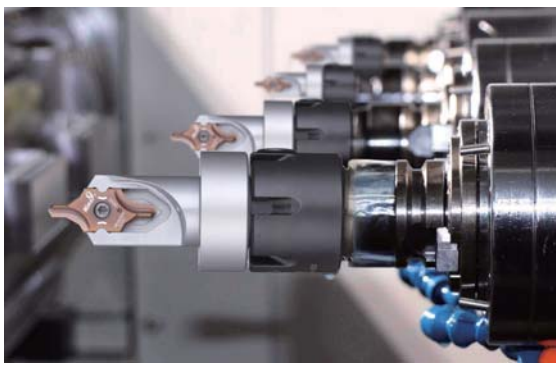
• Place Ergo holder and Ergo pin into Ergo nut.

• Lock Ergo pin screw.
(Torque screwdriver is recommended, 5Nm)

• Tighten Ergo tool on ER16 holder / live tool base. Then lock Ergo nut.
(Torque screwdriver is recommended, 30Nm)

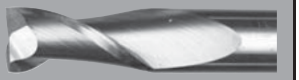
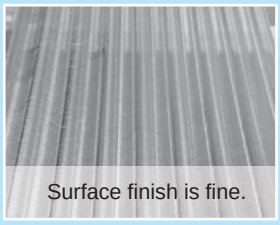
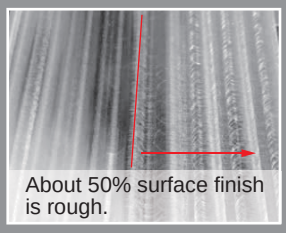
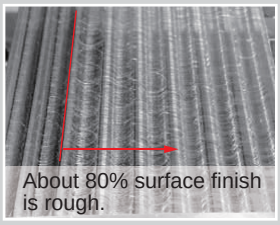
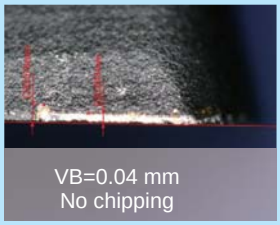
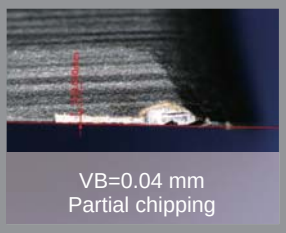
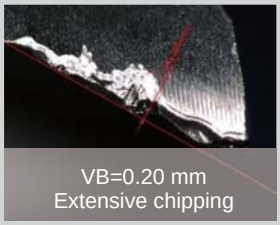
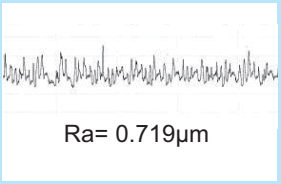
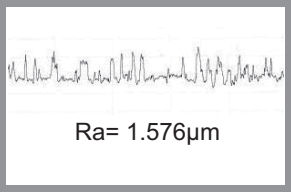
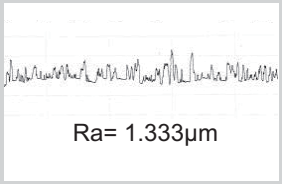
As long as it complies with ER16 standard, you can use Ergo tools in any lathes or milling machines.

- Quick change and ultrashort length
- Good for applications on Swiss Type, tapping center, standard ER16 collect chuck, etc.



Ergo Milling tool compare with indexable cutter and carbide end mill.

Machine: HAAS VM-3					Material: S50C			
Spindle	Vc (m/min.)	S (r.p.m.)	f (mm/z)	F (mm/min.)	Ap (mm)	Ae (mm)	Milling Length (mm)	Tool Overhang (mm)
BT40 / 22.5KW	80	2500	0.03	150	1.0	6.0	2000	172

Cutter / Comparison	 Ergo 99816-10A06	 Indexable cutter Ø10	 Carbide End MILL Ø10
Surface Quality (tool marks) Milling test from Left side to Right side	 Surface finish is fine.	 About 50% surface finish is rough.	 About 80% surface finish is rough.
Tool Wear (VB)	 VB=0.04 mm No chipping	 VB=0.04 mm Partial chipping	 VB=0.20 mm Extensive chipping
Surface Roughness (Ra)	 Ra= 0.719μm	 Ra= 1.576μm	 Ra= 1.333μm
Cutting noise and chatter	Cutting noise very low Low chatter	Cutting noise very low Low chatter	Cutting noise is high And high chatter

Set yourself up for success with our Starter Kits!

Nut	Series	Code	Parts No.	Contents
With ER16 Mini Nut (M19 x 1.0 P)	NC Spot Drills & Corner Rounding	161-609002	00-99816-09V-M19S	Ergo Holder x 1 Ergo ER16 Mini Nut x 1 High Strength Ergo pin x 1 3mm L key x 1 Insert Key x 1  * The insert is not included.
		161-601004	00-99816-606-M19S	
		161-603004	00-99816-610-M19S	
		161-604010	00-99816-614-M19S	
	Engraving Tools & Deburring Tools	161-691004	00-99816-V045-M19S	
		161-692005	00-99816-V060-M19S	
		161-69X004	00-99816-X060-M19S	
	Chamfer Mills	161-701003	00-99816-C10-M19S	
	Power Mills	161-51A100	00-99816-10A06-M19S	
		161-51A122	00-99816-12A06-M19S	
		161-51A130	00-99816-16A06-M19S	
		161-51A140	00-99816-20A06-M19S	
		161-51A150	00-99816-25A06-M19S	
		161-51A160	00-99816-32A06-M19S	
	i-Center	161-801003	00-99816-IC10BH-M19S	
	Tool Length Setter	161-TP0001	00-99816-TP-M19S	
With ER16 Nut (M22 x 1.5 P)	NC Spot Drills & Corner Rounding	162-609002	00-99816-09V-M22S	Ergo Holder x 1 Ergo ER16 Nut x 1 High Strength Ergo pin x 1 3mm L key x 1 Insert Key x 1  * The insert is not included.
		162-601004	00-99816-606-M22S	
		162-603004	00-99816-610-M22S	
		162-604010	00-99816-614-M22S	
	Engraving Tools & Deburring Tools	162-691004	00-99816-V045-M22S	
		162-692005	00-99816-V060-M22S	
		162-69X004	00-99816-X060-M22S	
	Chamfer Mills	162-701003	00-99816-C10-M22S	
	Power Mills	162-51A100	00-99816-10A06-M22S	
		162-51A122	00-99816-12A06-M22S	
		162-51A130	00-99816-16A06-M22S	
		162-51A140	00-99816-20A06-M22S	
		162-51A150	00-99816-25A06-M22S	
		162-51A160	00-99816-32A06-M22S	
	i-Center	162-801003	00-99816-IC10BH-M22S	
	Tool Length Setter	162-TP0001	00-99816-TP-M22S	

Notes

No Need To Choose
Nine9 Does It All

NC Spot Drill & Corner Rounding | Engraving Tool & Deburring Tool | Chamfer Mill | Power Mill | i-Center

Nine9 Ergo
indexable cutter system

Nine9 standard
indexable cutter system

Always Better
JIMMORE
International Corp.

Agent