ER Indexable Cutter >>>

ERgo just say “ergo”.

The Ergo is a new trademark of Nine9 for ER type indexable cutter.
Better rigidity, quick change, excellent repeatability, tool length maintain, and pre-balanced.

P M N

3 Different Sizes Of Integrated ER Taper-Shank Cutter

- ER11 / ER16 / ER20

Concept >>>

An Integrated ER Taper-Shank Cutter, Eliminate Assembly Tolerance.

A Clamping Force Gained From The 3 Parts Including Ergo Nut, High Strength Ergo Pin And ER Taper.

Ergo Nut Drives The Pin To Push Ergo Holder Into ER Taper. It Is “ A simple way to maximize clamping force ”

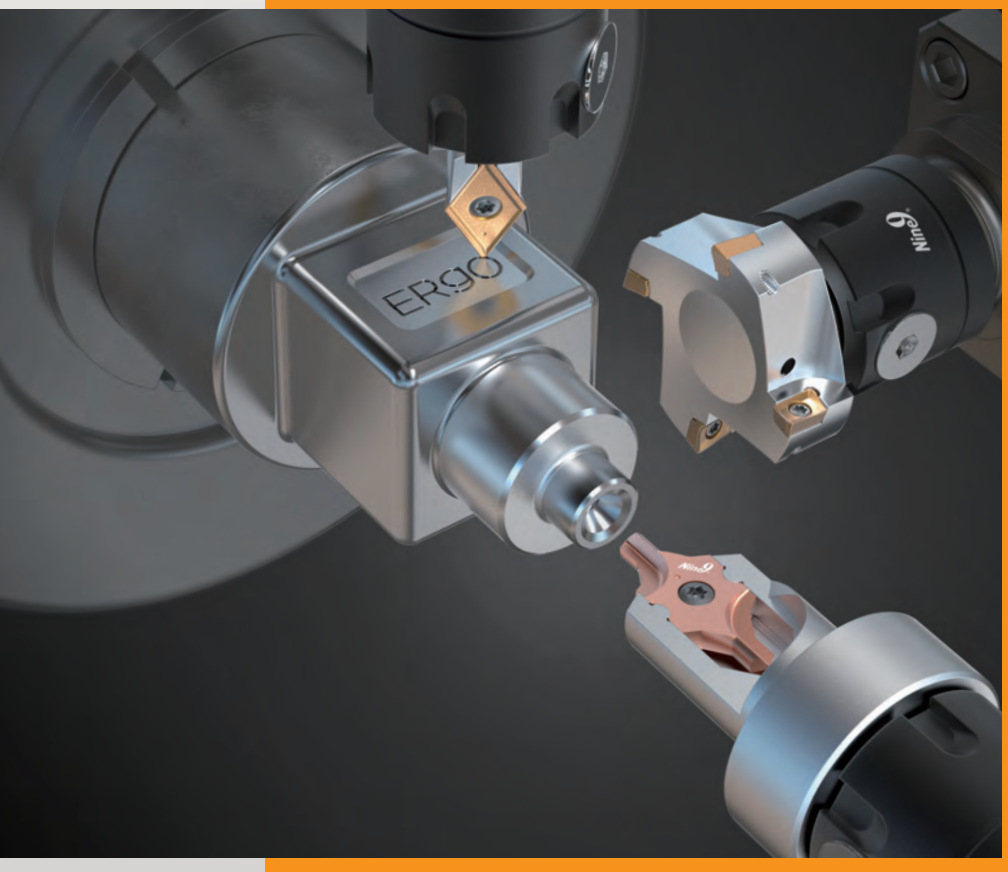
- Short tool length and quick change system for adapting on small working area.
- Ideal solution for BT30, driven tools, tapping and turning center.
- Increase tool life.
- Easy and simple assembly.

Ergo Provide Customized Tooling Service.

Applications

Quick Change, Saving Huge Machine Downtime.

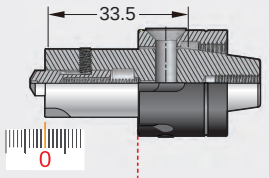
- The simplest way to get tools on the machine.
- 3 fixed tool length groups of Ergo system.
- No need to reset tool length while changing tools in the same group.



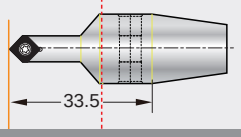
> "The Ergo system includes milling cutter, spot drills, engraving tools, deburring tools, chamfering tools, and center drills."

OAL: 33.5mm Group

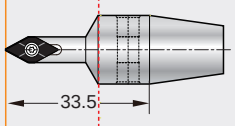
Tool Length Setter



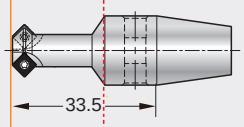
Multi-Functional Tool



Engraving & Deburring

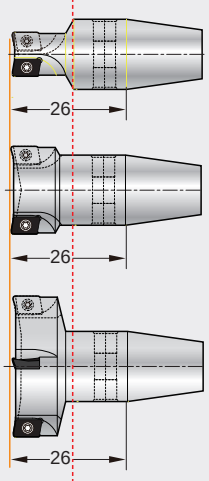


Chamfer Mill



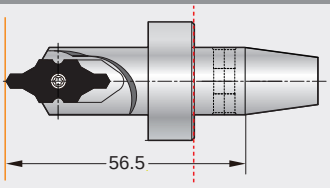
OAL: 26mm Group

Power Mill Ø10 ~ Ø32mm



OAL: 56.5mm

i-Center

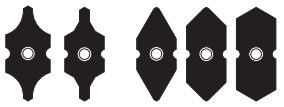


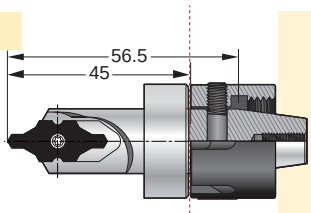
ER16 — i-Center

Internal coolant

G6.3 10,000 r.p.m.

I9MT1003

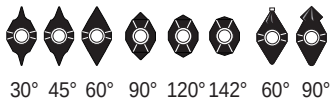


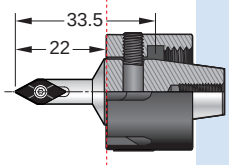


ER16 — X060

G4.0 20,000 r.p.m.

X060

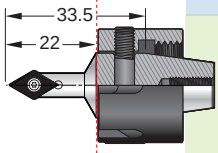




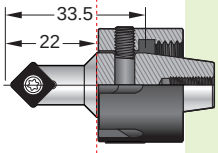
ER16 — Multi-Functional Tool

G6.3 10,000 r.p.m.

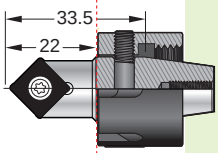
V060



N9MT0802



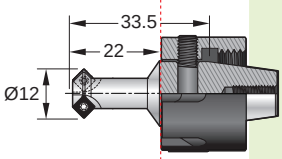
N9MT11T3



ER16 — Chamfer Mill

G6.3 10,000 r.p.m.

N9GX04T002

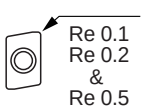


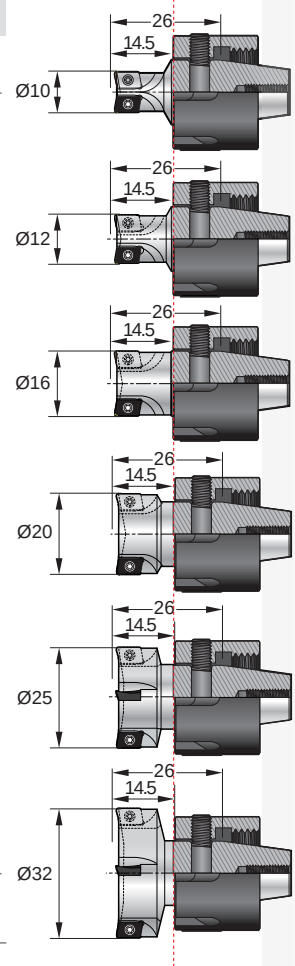
ER11 / ER16 / ER20 — Power Mill

G6.3 10,000 r.p.m.

Smaller, sharper
and more effective teeth.

A9GT0602





99816-IC10BH

99816-X060

99816-V060

99816-610

99816-614

99816-C10

99816-10A06

99816-12A06

99816-16A06

99816-20A06

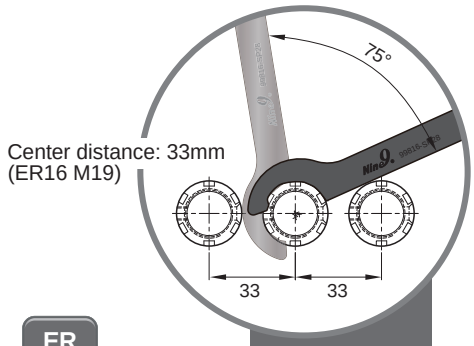
99816-25A06

99816-32A06

OAL = 56.5 mm

OAL = 33.5 mm

OAL = 26 mm



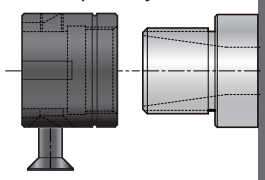
Center distance: 33mm
(ER16 M19)

ER 11

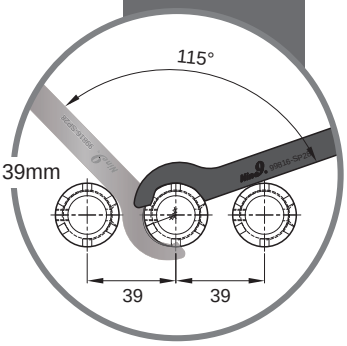
ER 16

ER 20

Pin & Nut
are sold separately.



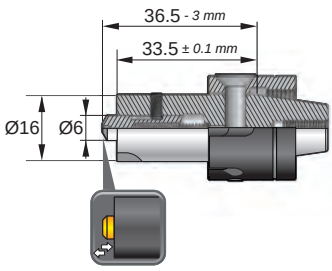
Pre-Balanced



Center distance: 39mm
(ER16 M22)

99811 99816 99820

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



Spring Pin

Ergo Setter TP

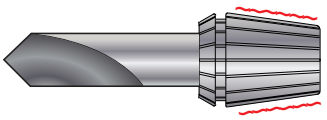
99816-TP

refer to Page 177

Ergo's Features

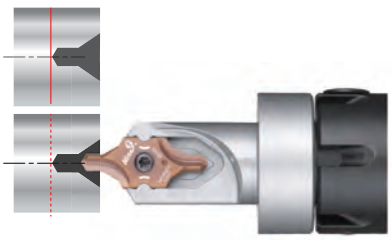
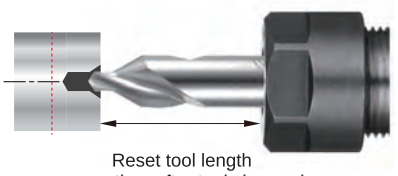
Optimize the rigidity >>

- An integrated ER taper- shank cutter, eliminate assembly tolerance.
- Pre-balanced, ready for high speed machining. Increase tool life.

Ergo Integrated design	Cutting tool + Spring collet
	
• Improve tool concentricity • Increase rigidity	• When tightening ER nut, be cautious of uneven tightening situation. • Chips, rust, or collet deform.

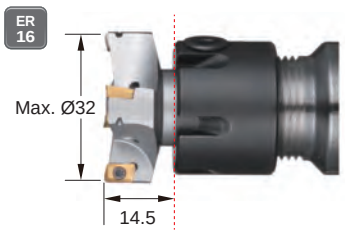
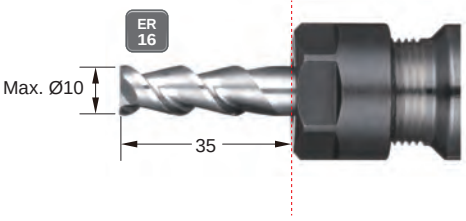
Excellent repeatability, saving set-up time >>

- The greatest benefit is saving the tool changing time and tool length setting time.
- The drilling depth is constant after change the insert or cutting edge.

Ergo indexable cutter	Solid carbide center drill
	

Dimension is not limited by the ER16 collet clamping range >>

- Cover milling cutter range from Ø10 to Ø32mm.
- More efficiency and the possibilities to cut bigger parts.
- The shorter tool length, the better run-out accuracy.

Ergo indexable cutter	Solid carbide end mill
	

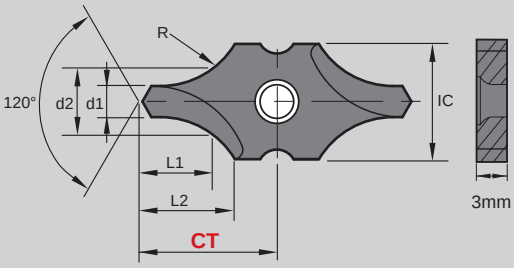
Easy and simple assembly >>

- A simple Ergo cutter has minimal assemble parts, saving 50% your time.
- Thanks to ER taper, the repeatability of assemble tolerance is ±0.1mm while changing same tool length of Ergo holder.

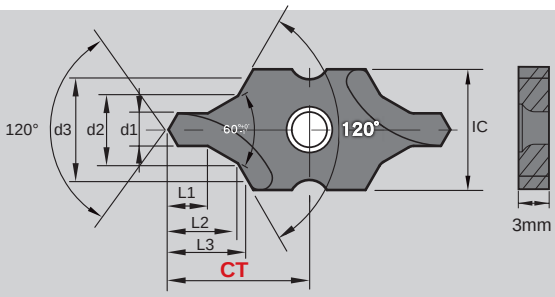
Ergo cutter	Solid carbide cutter

i-Center Indexable Center Drill

DIN332 Form R



DIN332 Form A+B



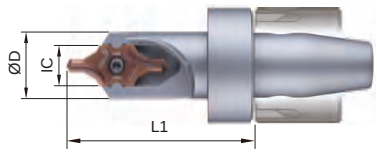
For DIN332 Form R Center Hole >>

IC	Code	Parts No.	Coating	Grade	d1		d2	L1	L2	R	CT ±0.025
10	031200	I9MT1003R0100-NC2057	AlTiN+ TiSiN	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 >>

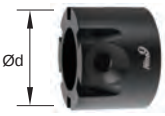
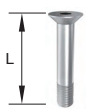
IC	Code	Parts No.	Coating	Grade	d1		d2	d3	L1	L2	L3	CT ±0.025
10	031000	I9MT1003B0100-NC2057	AlTiN+ TiSiN	P35	1.00	+ 0.14 0	2.12	3.15	1.3	2.21	2.51	12.35
	031001	I9MT1003B0125-NC2057			1.25		2.65	4.00	1.6	2.75	3.14	
	031002	I9MT1003B0150-NC2057			1.50		3.18	4.50	2.0	3.45	3.84	
	031003	I9MT1003B0160-NC2057			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 >> • G6.3 / 10,000 r.p.m. • With internal coolant.

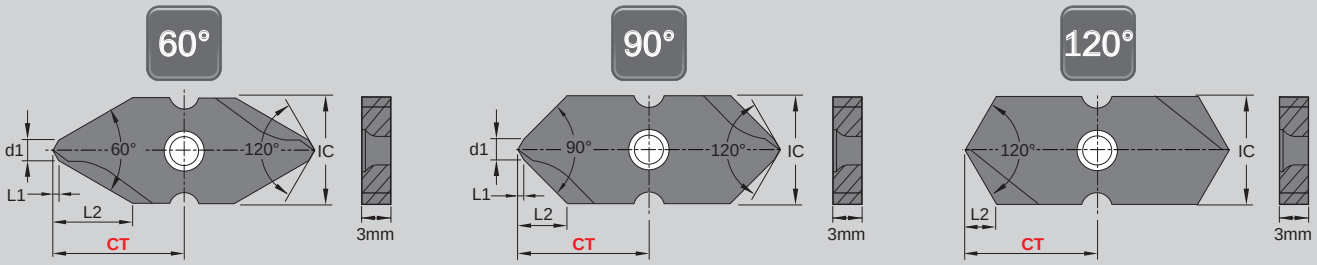
IC	Code	Parts No.	Basic Holder	L1	øD	Screw	Key
10	16-801003	00-99816-IC10BH		45	16	*NS-25060/ 0.9Nm	NK-T7

*Torque screwdriver is recommended.

Accessories - Set & Spare >>

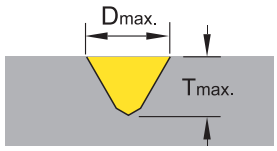
Set		Ergo Nut				High Strength Ergo Pin			L-Key	Ergo Spanner
* Nut, pin & L-key are included.										
ER	Parts No.	Parts No.	Ød	Pitch	Torque	Parts No.	L	Torque	Parts No.	Parts No.
ER16	00-99816-M19S	00-99816-M19	25	M19xP1.0	30 Nm	NS-50025	25	5 Nm	NK-LW3	00-99816-SP28
	00-99816-M22S	00-99816-M22	28	M22xP1.5	30 Nm	NS-50028	28	5 Nm		

i-Center Spotting & Countersink



Insert >>

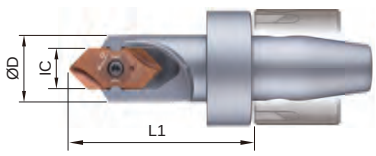
- Double-edged cutting, fully ground insert for improving machining stability.
- NC2057: Universal grade for all kind of steel.
- Each insert has 2 cutting edges.



IC	Angle	Code	Parts No.	Coating	Grade	Dimensions			Dmax.	Tmax.	CT ±0.025
						d1	L1	L2			
10	60°	031401	I9MT1003CT060-NC2057	AlTiN+ TiSiN	P35	2	0.58	7.5	10	7.5	12.35
	90°	031402	I9MT1003CT090-NC2057					4.6	10	4.6	
	120°	031403	I9MT1003CT120-NC2057			-	-	2.9	10	2.9	

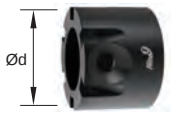
Basic Holder >>

- G6.3 / 10,000 r.p.m.
- With internal coolant.

IC	Code	Parts No.	Basic Holder	L1	øD	Screw	Key
10	16-801003	00-99816-IC10BH		45	16	*NS-25060 / 0.9Nm	NK-T7

*Torque screwdriver is recommended.

Accessories - Set & Spare >>

Set		Ergo Nut				High Strength Ergo Pin			L-Key	Ergo Spanner
* Nut, pin & L-key are included.										
ER	Parts No.	Parts No.	Ød	Pitch	Torque	Parts No.	L	Torque	Parts No.	Parts No.
ER16	00-99816-M19S	00-99816-M19	25	M19xP1.0	30 Nm	NS-50025	25	5 Nm	NK-LW3	00-99816-SP28
	00-99816-M22S	00-99816-M22	28	M22xP1.5	30 Nm	NS-50028	28	5 Nm		

i-Center Cutting Data

- Internal coolant is recommended.
- Middle value of feed rate is recommended for starting.
- 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.

Indexable Center Drill >>

Workpiece Material		Vc (m/min.)		d1 (Pilot Diameter) 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		
	Carbon steel C>0.3%	< 70	S r.p.m.	2000 ~ 9000	2000 ~ 9000	1800 ~ 9000	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		
	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		
	High alloy steel	< 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.	0.003 ~ 0.01	0.005 ~ 0.015	0.005 ~ 0.02	0.005 ~ 0.02	0.01 ~ 0.025	0.01 ~ 0.03	0.01 ~ 0.01	0.02 ~ 0.05		
N	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

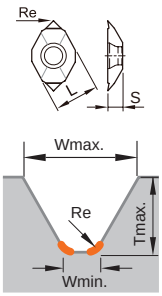
Spotting & Countersink >>

Workpiece Material		Spotting Vc (m/min)	Spotting f (mm/rev.) 60°	Spotting f (mm/rev.) 90°	Spotting f (mm/rev.) 120°	Countersink Vc (m/min)	Countersink f (mm/rev.)
P	Carbon steel C<0.3%	120 ~ 250	0.04 ~ 0.20	0.15 ~ 0.25	0.10 ~ 0.30	120 ~ 250	0.20 ~ 0.50
	Carbon steel C>0.3%	100 ~ 220	0.04 ~ 0.20	0.10 ~ 0.05	0.10 ~ 0.30	100 ~ 220	0.20 ~ 0.40
	Low alloy steel C<0.3%	100 ~ 200	0.03 ~ 0.16	0.08 ~ 0.20	0.10 ~ 0.25	100 ~ 200	0.15 ~ 0.40
	High alloy steel	80 ~ 180	0.03 ~ 0.12	0.08 ~ 0.20	0.10 ~ 0.25	80 ~ 180	0.10 ~ 0.30
M	Stainless steel	60 ~ 120	0.02 ~ 0.10	0.06 ~ 0.12	0.08 ~ 0.15	60 ~ 120	0.08 ~ 0.30
N	Non-ferrous metal	150 ~ 300	0.04 ~ 0.20	0.10 ~ 0.25	0.10 ~ 0.30	150 ~ 300	0.20 ~ 0.50

X060 Micro Spotting & Engraving

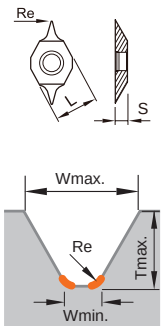
Micro Spotting >>

• Radius Angled Form

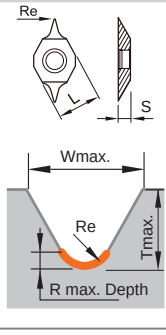
Angle	Code	Parts No.		Coating	Grade		Dimensions L	Dimensions S	Dimensions Re	Wmin.	Wmax.	Tmax.
90°	01X0082	X060A90W010R	NC2032	TiAlN	K20F		6	2.05	0.02	0.10	1.10	0.5
	01X0220		XP9001	Uncoated								
120°	01X0222	X060A120W010R	NC2032	TiAlN	K20F					0.10	2.53	0.7
142	01X0223	X060A142W010R	NC2032	TiAlN	K20F					0.10	2.42	0.4

Engraving >>

• Radius Angled Form

Angle	Code	Parts No.		Coating	Grade		Dimensions L	Dimensions S	Dimensions Re	Wmin.	Wmax.	Tmax.
30°	01X0140	X060A30W020R	NC2032	TiAlN	K20F		6	2.05	0.04	0.20	0.52	0.6
	01X0142		XP9001	Uncoated								
45°	01X0021	X060A45W020R	NC2032	TiAlN	K20F					0.20	0.86	0.8
	01X0154		XP9001	Uncoated								
60°	01X0063	X060A60W020R	NC2032	TiAlN	K20F					0.20	1.36	1.0
	01X0166		XP9001	Uncoated								
90°	01X0207	X060A90W020R	NC2032	TiAlN	K20F					0.20	2.20	1.0
	01X0209		XP9001	Uncoated								

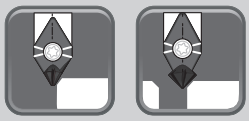
• Radius Form

Angle	Code	Parts No.		Coating	Grade		Dimensions L	Dimensions S	Dimensions Re	R max. Depth	Wmax.	Tmax.
30°	01X0119	X060A30R020	NC2032	TiAlN	K20F		6	2.05	0.2	0.15	0.63	0.6
	01X0134		XP9001	Uncoated								
45°	01X0013	X060A45R020	NC2032	TiAlN	K20F					0.12	0.93	0.8
	01X0150		XP9001	Uncoated								
60°	01X0117	X060A60R020	NC2032	TiAlN	K20F					0.10	1.39	1.0
	01X0159		XP9001	Uncoated								

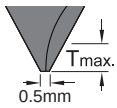
More & Cutting Data >>

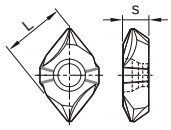
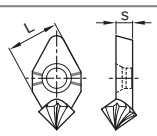
• For more micro spotting insert & cutting data, please refer to page 27.
For more engraving insert & cutting data, please refer from page 83.

X060 Deburring



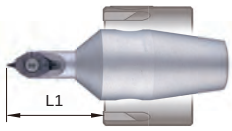
Deburring >>



Angle	Code	Part No.	Coating	Grade	Flutes		Dimensions L	Dimensions S	Tmin.	Tmax.
60°	01X611	X060A60T3-NC2032	TiAlN	K20F	3		6	2.8	0.1	0.9
	01X612	X060A60T3-XP9001	Uncoated							
90°	01X911	X060A90T3-NC2032	TiAlN							
	01X912	X060A90T3-XP9001	Uncoated							
60°	01X601	X060A60T6-NC2032	TiAlN	K20F	6		6	2.0	0.1	1.8
90°	01X901	X060A90T6-NC2032							0.5	1.5

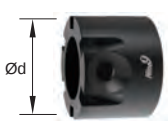
Basic Holder >>

- For entire X060 engraving, spotting and deburring inserts.
- G4.0 / 20,000 r.p.m.

Code	Parts No.	Basic Holder	L1	Screw	Key
16-69X004	00-99816-X060		22	*NS-22044 0.9Nm	NK-T7

*Torque screwdriver is recommended.

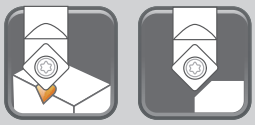
Accessories - Set & Spare >>

Set		Ergo Nut				High Strength Ergo Pin			L-Key	Ergo Spanner
* Nut, pin & L-key are included.										
ER	Parts No.	Parts No.	Ød	Pitch	Torque	Parts No.	L	Torque	Parts No.	Parts No.
ER16	00-99816-M19S	00-99816-M19	25	M19xP1.0	30 Nm	NS-50025	25	5 Nm	NK-LW3	00-99816-SP28
	00-99816-M22S	00-99816-M22	28	M22xP1.5	30 Nm	NS-50028	28	5 Nm		

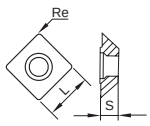
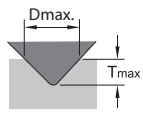
Cutting Data >>

- For Deburring, please refer to page 87.

Multi-Functional Tool Spotting & Chamfering

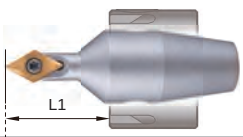


Inserts >>

Angle	Code	Parts No.	Coating	Grade		Dimensions L	Dimensions S	Dimensions Re	Dmax.	Tmax.
60°	0106001	V06006T1W06-NC2071	TiN	K20F		6.35	2.0	0.2	2.7	2.0
	0106002	V06006T1W06-NC2032	TiAlN							
	0106004	V06006T1W06-NC9031	TiN							
90°	013401	N9MT080208CT-NC40	TiN	K20F		8.31	2.38	0.8	10	4.5
	013402	N9MT080204CT-NC40	TiN					0.4	10	4.5
	013403	N9MT080204CT-NC10	TiAlN							
90°	014401	N9MT11T3CT-NC40	TiN	P35		11.11	3.97	0.8	14	7
	014402	N9MT11T3CT-NC10	TiAlN	K10F				0.3		

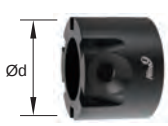
Basic Holder >>

• G6.3 / 10,000 r.p.m.

Code	Parts No.	Basic Holder	Insert Type	L1	Screw	Key
16-692005	00-99816-V060		V060...	22	*NS-22044 0.9Nm	NK-T7
16-603004	00-99816-610		N9MT0802...		NS-30055 2.0 Nm	NK-T8
16-604010	00-99816-614		N9MT11T3...		NS-35080 2.5 Nm	NK-T15

*Torque screwdriver is recommended.

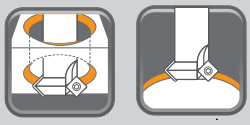
Accessories - Set & Spare >>

Set		Ergo Nut				High Strength Ergo Pin			L-Key	Ergo Spanner
* Nut, pin & L-key are included.										
ER	Parts No.	Parts No.	Ød	Pitch	Torque	Parts No.	L	Torque	Parts No.	Parts No.
ER16	00-99816-M19S	00-99816-M19	25	M19xP1.0	30 Nm	NS-50025	25	5 Nm	NK-LW3	00-99816-SP28
	00-99816-M22S	00-99816-M22	28	M22xP1.5	30 Nm	NS-50028	28	5 Nm		

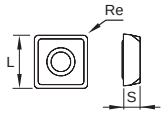
Cutting Data >>

please refer to page 84 for 60° insert, page 53 for 90° insert.

45° Chamfer Mill

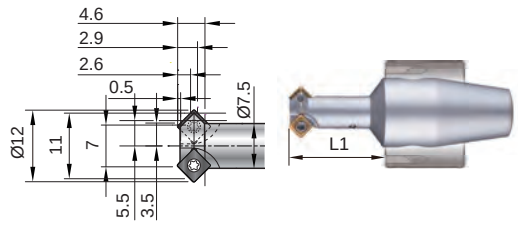


Inserts >>

Code	Parts No.		Coating	Grade		Dimensions		
						L	S	Re
021401	N9GX04T002	NC2032	AlTiN	K20F		4.0	1.8	0.2
021402		NC9071	TiN					

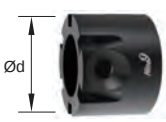
Basic Holder >>

- For front and back chamfering.
- G6.3 / 10,000 r.p.m.

Code	Parts No.	Basic Holder	L1	No. of teeth	Screw	Key
16-701003	00-99816-C10		22	2	*NS-18037 0.6Nm	NK-T6

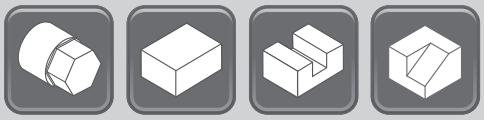
*Torque screwdriver is recommended.

Accessories - Set & Spare >>

Set		Ergo Nut				High Strength Ergo Pin			L-Key	Ergo Spanner
* Nut, pin & L-key are included.										
ER	Parts No.	Parts No.	Ød	Pitch	Torque	Parts No.	L	Torque	Parts No.	Parts No.
ER16	00-99816-M19S	00-99816-M19	25	M19xP1.0	30 Nm	NS-50025	25	5 Nm	NK-LW3	00-99816-SP28
	00-99816-M22S	00-99816-M22	28	M22xP1.5	30 Nm	NS-50028	28	5 Nm		

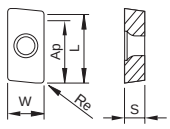
Cutting Data >> please refer to page 93.

Power Mill



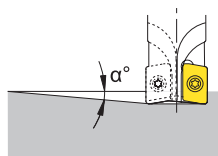
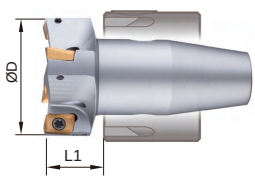
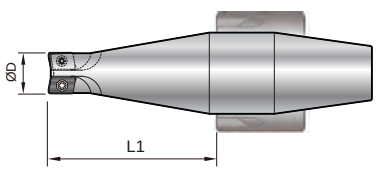
Inserts >>

- U type insert is fully ground for reducing the cutting resistance during the cutting, best choice for long shank cutter.
- H type with high positive rake angle, shape edge.

Code	Parts No.		Coating	Grade	Insert	Dimensions				
						Re	Ap	L	W	S
05A122	A9GT060201H	NC2033	TiAlN	K20F		0.1	5	6.5	4	2.45
05A123		NC9031	TiN							
05A132	A9GT060202H	NC2033	TiAlN	K20F		0.2				
05A133		NC9031	TiN							
05A102	A9GT060205H	NC2033	TiAlN	K20F		0.5				
05A103		NC9031	TiN							
05A142	A9GT060201U	NC2032	TiAlN	K20F		0.1				
05A143	A9GT060202U	NC2032	TiAlN	K20F		0.2				
05A144	A9GT060205U	NC2032	TiAlN	K20F		0.5				

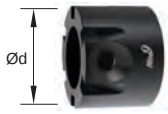
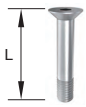
Basic Holder >>

- G6.3 / 10,000 r.p.m.

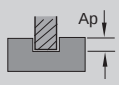
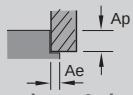
ER Taper	Code	Parts No.	ØD	Basic Holder	L1	No. of teeth	α°	Screw / Key
ER11	11-51A100	00-99811-10A06	10		14	2	5	*NS-18037 0.6Nm / NK-T6
	11-51A122	00-99811-12A06	12			2	4	
ER16 (with internal coolant)	16-51A100	00-99816-10A06	10		14.5	2	5	
	16-51A122	00-99816-12A06	12			2	4	
	16-51A130	00-99816-16A06	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	
ER20	20-51A122	00-99820-12A06	12		26	2	4	
	20-51A130	00-99820-16A06	16			3	2	
	20-51A140	00-99820-20A06	20			3	2	
	20-51A150	00-99820-25A06	25			4	1.3	
ER16	16-51A101	00-99816-10A06-32L	10		32	2	5	
	16-51A102	00-99816-10A06-40L	10		40	2	5	
ER20	20-51A101	00-99820-10A06-40L	10			2	5	
	20-51A124	00-99820-12A06-40L	12			2	4	

*Torque screwdriver is recommended.

Accessories - Set & Spare >>

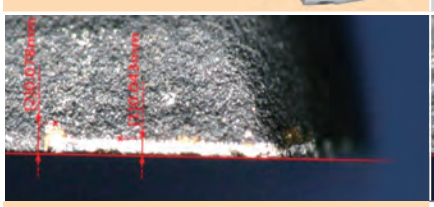
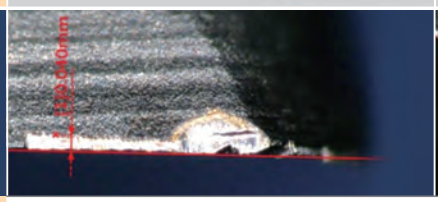
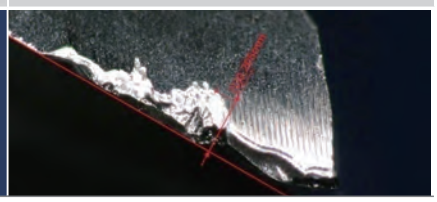
Set		Ergo Nut				High Strength Ergo Pin			L-Key	Ergo Spanner
* Nut, pin & L-key are included.		 Ød				 L				
ER	Parts No.	Parts No.	Ød	Pitch	Torque	Parts No.	L	Torque	Parts No.	Parts No.
ER11	00-99811-M13S	00-99811-M13	19	M13xP0.75	12 Nm	NS-40019	19	3 Nm	NK-LW25	00-99811-SP20
	00-99811-M14S	00-99811-M14	19	M14xP0.75						
ER16	00-99816-M19S	00-99816-M19	25	M19xP1.0	30 Nm	NS-50025	25	5 Nm	NK-LW3	00-99816-SP28
	00-99816-M22S	00-99816-M22	28	M22xP1.5	30 Nm	NS-50028	28	5 Nm		
ER20	00-99820-M24S	00-99820-M24	34	M24xP1.0	45 Nm	NS-60033	33	6 Nm	NK-LW4	00-99820-SP36
	00-99820-M25S	00-99820-M25	34	M25xP1.5	45 Nm	NS-60033	33	6 Nm		

Cutting Data >>

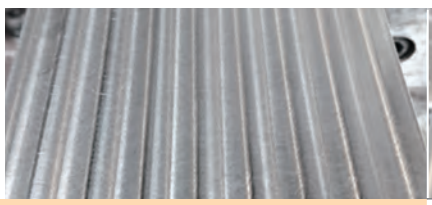
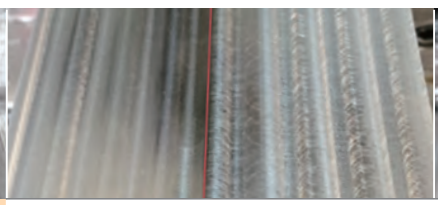
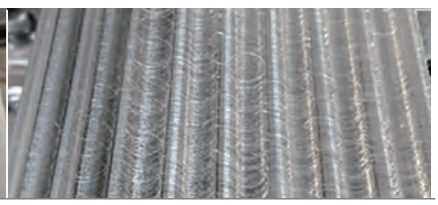
Workpiece Material		Vc (m/min)	fz (mm/tooth)	 Ap(mm)	 Ap(mm)	Ae(mm)	Grade of insert
P	Carbon steel	80 ~ 150	0.03 ~ 0.07	1.5	3	1	NC2033 NC2032
P	Low alloy steel C < 0.3%						
P	High alloy steel	60 ~ 120	0.02 ~ 0.06	1.0	2.5	1	NC2033 NC2032
M	Stainless steel	60 ~ 120	0.01 ~ 0.05	0.5	2.0	1	NC9031 NC2033
N	Non-ferrous metal	200 ~ 500	0.02 ~ 0.07	2.0	4.0	2	NC9031 NC2032

Performance >>

• Result - Surface Quality

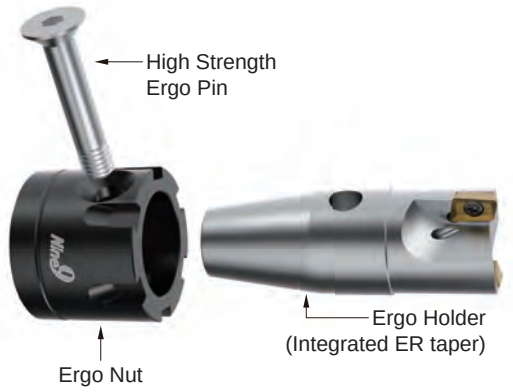
Ergo power mill Ø10	Indexable milling cutter Ø10	Carbide end mill Ø10
		
VB=0.04 mm No chipping	VB=0.04 mm Partial chipping	VB=0.20 mm Extensive chipping

• Measure VB value (tool wearing) and chipping condition

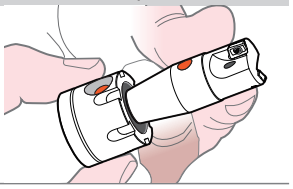
		
Surface finishing is fine	About 50% surface finishing is rough	About 80% surface finishing is rough

Assembly Steps

Make sure all parts are clean while re-assembly or change tool

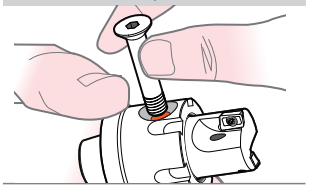


Step-1



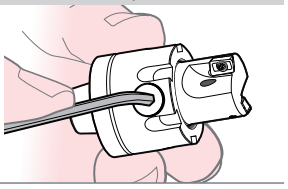
Place Ergo holder into Ergo nut and align to screw hole.

Step-2



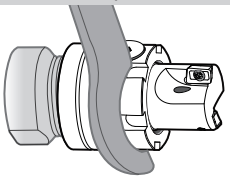
Put Ergo pin into screw hole.

Step-3



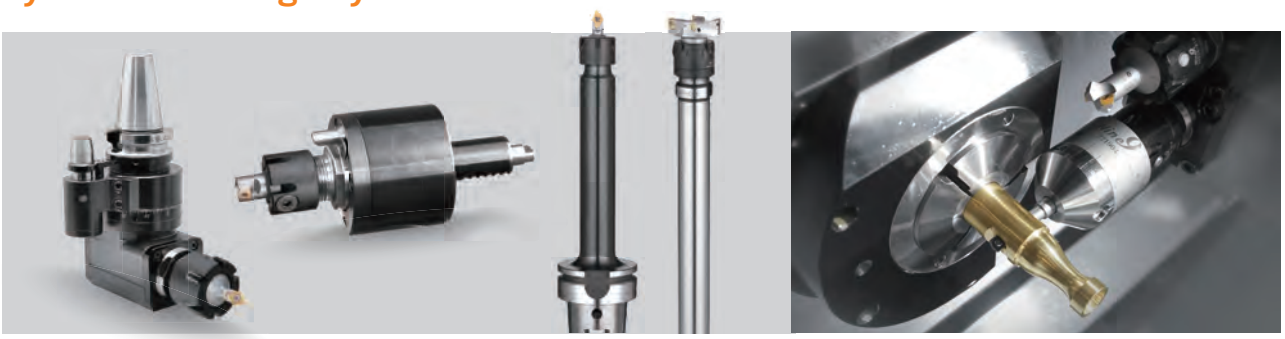
Lock Ergo pin screw.

Step-4



Tighten into ER holder or driven tool spindle.

As long as it complies with ER11, 16, 20 and ER25 standard, you can use Ergo system. >>

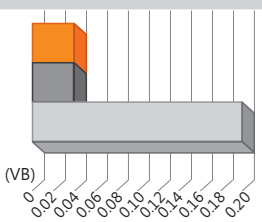


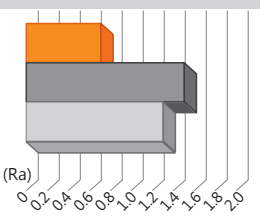
- Quick change and ultrashort over all tool length.
- Apply on any kinds of driven tools and collet chucks.

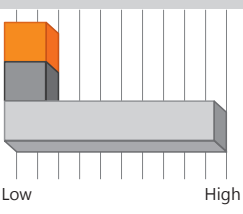
Performance >>

Material	Testing length	Tool overhang	Machine: HAAS VM-3, BT40 / 22.5KW					
			Vc (m/min.)	S (r.p.m.)	f (mm/z)	F (mm/min.)	Ap (mm)	Ae (mm)
S50C (Carbon steel)	2000 mm	172 mm (by ER collet chuck)	80	2500	0.03	150	1.0	6.0

Tool	Tool Wear	Surface Roughness	Cutting Noise
Ergo Power Mill			
Indexable cutter			
Carbide end mill			







Ergo Sets For your first ordering

The insert is not included >>

Nut	Series	Code	Parts No.	Contents
With ER16 Mini Nut (M19 x 1.0 P)	i-Center	161-801003	00-99816-IC10BH-M19S	Ergo Holder x1 Ergo ER16 Mini Nut x1 High Strength Ergo pin x1 3mm L key x1 Insert Key x1 * The insert is not included.
	X060 - Micro Spotting, Engraving & Deburring	161-69X004	00-99816-X060-M19S	
	Multi-Functional Tool - Spotting & Chamfering	161-692005	00-99816-V060-M19S	
		161-603004	00-99816-610-M19S	
		161-604010	00-99816-614-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	
	Tool Length Setter	161-TP0001	00-99816-TP-M19S	
With ER16 Nut (M22 x 1.5 P)	i-Center	162-801003	00-99816-IC10BH-M22S	Ergo Holder x1 Ergo ER16 Nut x1 High Strength Ergo pin x1 3mm L key x1 Insert Key x1 * The insert is not included.
	X060 - Micro Spotting, Engraving & Deburring	162-69X004	00-99816-X060-M22S	
	Multi-Functional Tool - Spotting & Chamfering	162-692005	00-99816-V060-M22S	
		162-603004	00-99816-610-M22S	
		162-604010	00-99816-614-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	
	Tool Length Setter	162-TP0001	00-99816-TP-M22S	