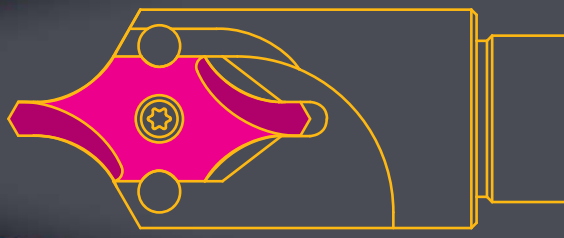
Nine9®

Indexable Center Drill

Ultra high efficient tools

i-Center®

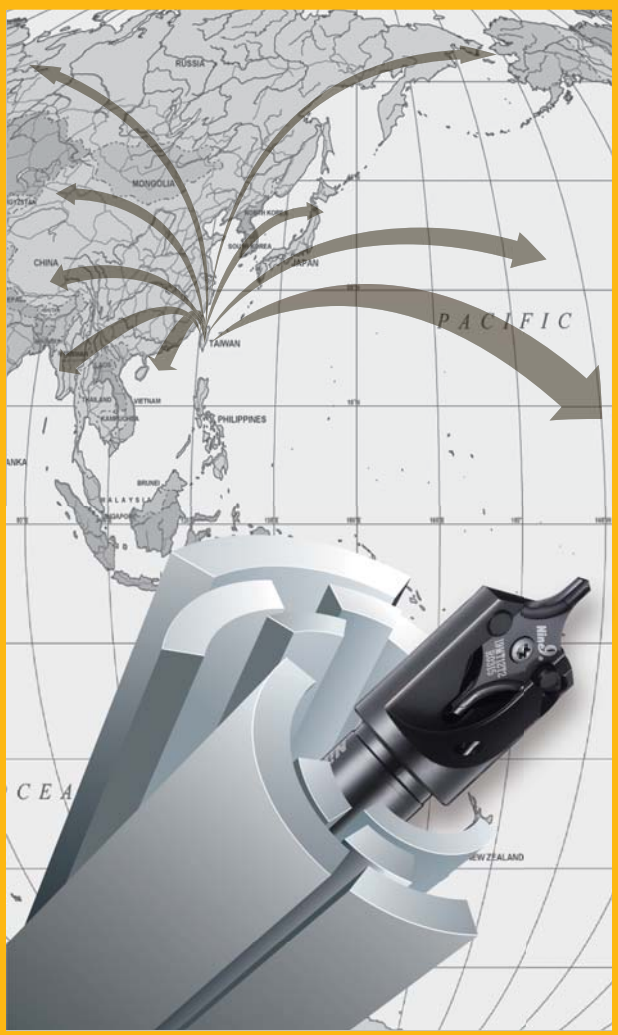


THE ACCURATE &
ADVANTAGED SOLUTION

www.jic-tools.com.tw

2011-05

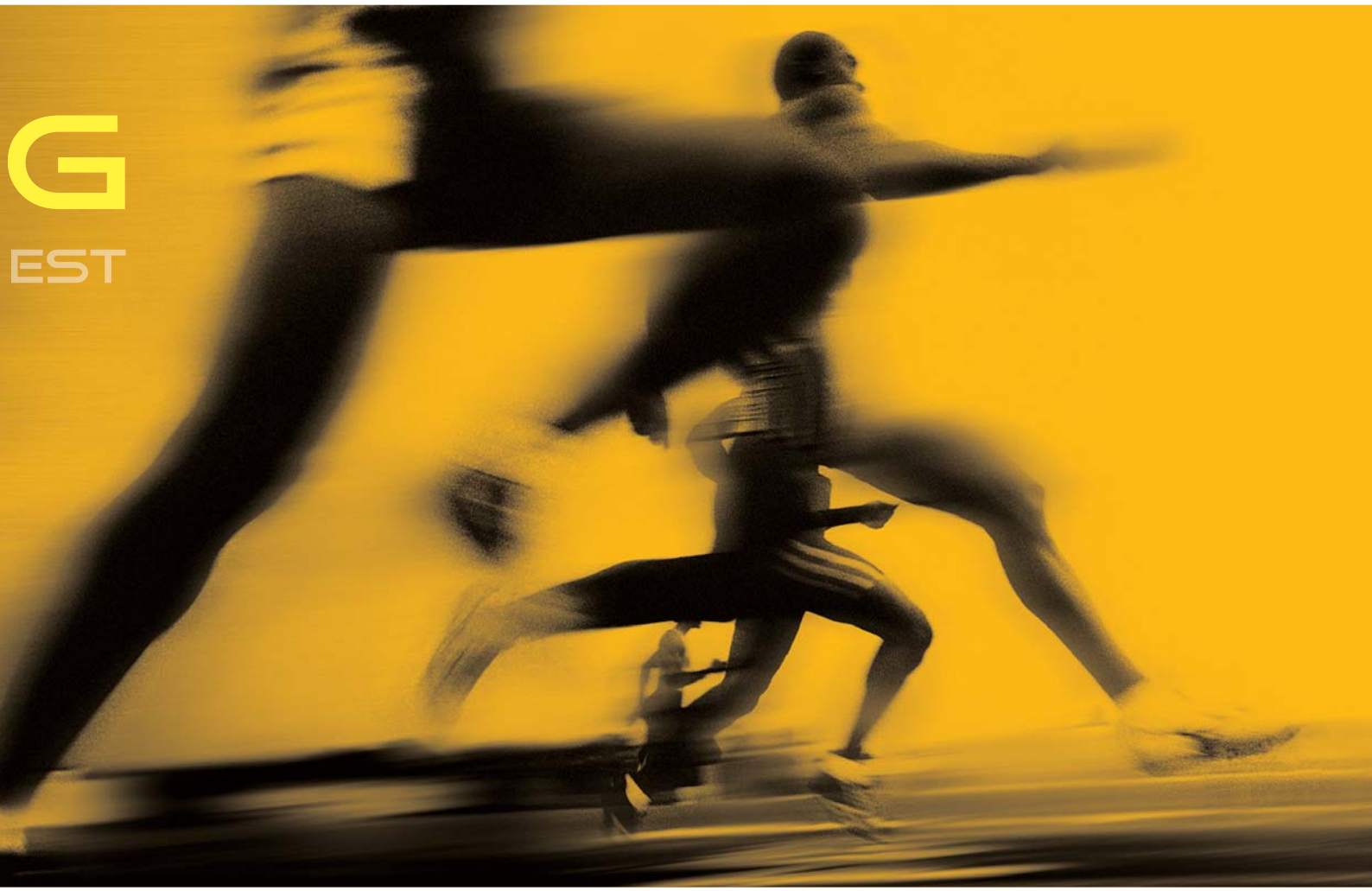
Our innovative tooling design upgrades productivity and competitive capability while reducing production requirements in a range of industries.
The tooling system is designed to benefit users of machining centers and special purpose machines.
Our outstanding R&D capabilities combined with fast delivery provide a strong competitive edge.



Global Marketing

BRAND

WE HAVE INVESTED RESOURCES IN THE DESIGN AND MANUFACTURE OF INSERTED CUTTERS



PATENT

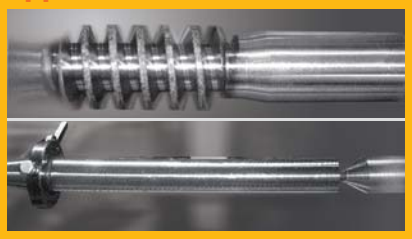
i-Center indexable center drill (patented)
The world's first indexable center drill.
Shortens set up and center drilling time.
Increases tool life, which reduces tooling cost.

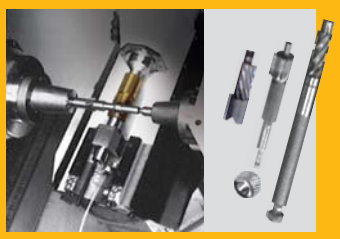
i-Center® Indexable center insert

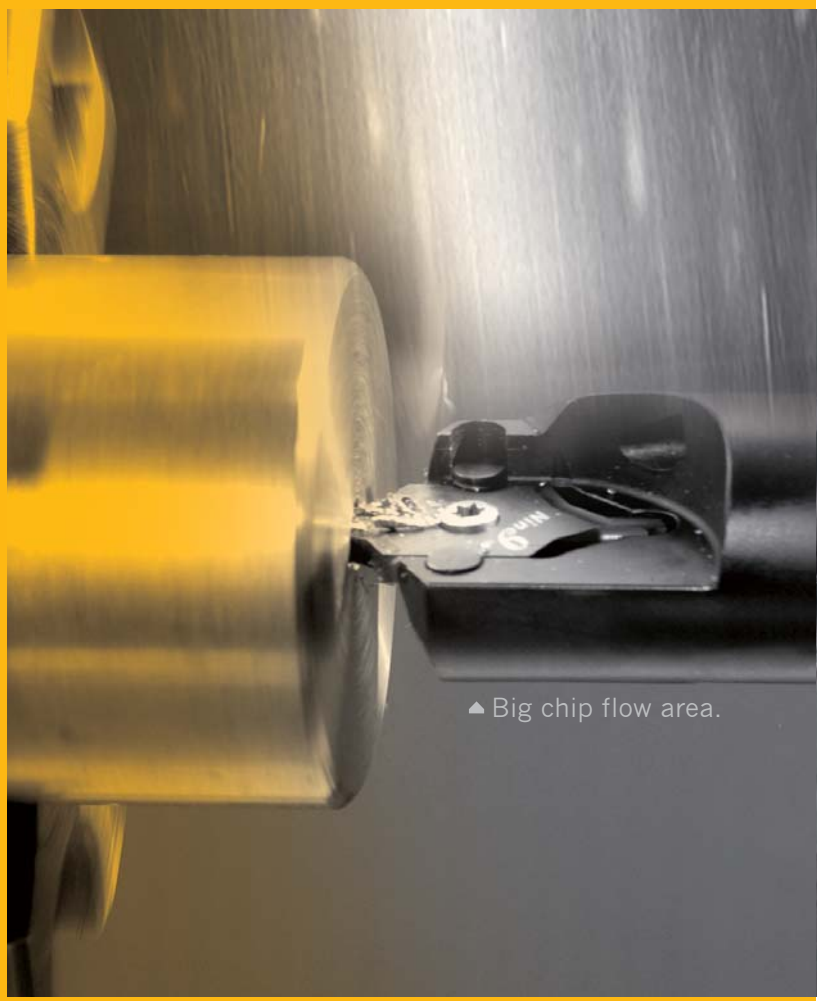
Features

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

Applications







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

FEATURES

The " i-Center " is a trademark of Nine9, the developer of the first indexable center drill.
Offering an indexable insert system for the 1st time, Nine9's " i-Center " patented design provides the benefit of solid carbide cutting parameters while delivering –

- **High Speed, High Feed Rate**
  High Performance speed and feed can be achieved due to the specially ground insert and rigid holder design. For example, for drilling Ø3.15mm hole on alloy steel, running at 6000 r.p.m. and feed rate 600 mm/min. (0.1mm/rev.)

- **Easy Tool Length Setting**
  The axial position accuracy of the insert is 0.05 mm(.002"). It is not necessary to reset the tool length when changing insert or cutting edge.

- **Excellent Repeatability**
  The insert is securely positioned by two locating pins and clamped by one insert screw at the center.
  The positioning repeatability of the insert is within 0.02 mm(.0008") in radial direction, thus ensuring conformity to any national standard

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

- **Universal and Easily Fitted with Any Available Shank**
  The tool holder is made of high alloy steel, hardened and ground to h6 tolerances with a flat. It's easy for both stationary and rotating tools.

▲ 2 cutting flutes

PRECISION

HOLDER

Features

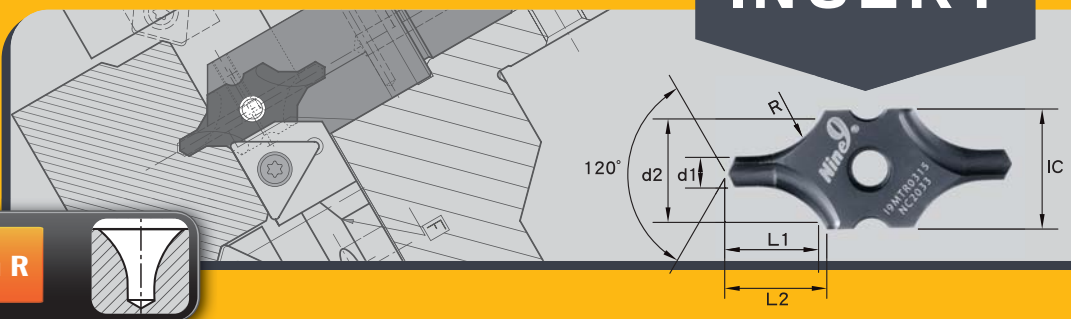
- Made of hardened high alloy steel.
- Shank is ground to h6 tolerance.
- Special holders are available on request.

i-Center® Tool holder

Code	Order No.	Part No.	IC	ød	L1	L2	øD	Screw	Key
802001	00-99616-IC08-10	BC10-IC08	08	10	30	22	12	NS-25060 1.2 Nm	NK-T7
803001	00-99616-IC12-16	SB16-IC12	12	16	48	36	21	NS-30072 2.0 Nm	NK-T9
804001	00-99616-IC16-16	SB16-IC16	16	16	48	43	27	NS-35080 2.5 Nm	NK-T15
805001	00-99616-IC20-20	SB20-IC20	20	20	50	60	32	NS-50125 5.5 Nm	NK-T20
806001	00-99616-IC25-25	SB25-IC25	25	25	56	65	43	NS-50125 5.5 Nm	NK-T20

Code	Order No.	Part No.	IC	ød	L1	L2	øD	Screw	Key
812001	00-99616-IC08-3/8	BC3/8"-IC08	08	3/8"	30	22	12	NS-25060 1.2 Nm	NK-T7
813001	00-99616-IC12-5/8	SB5/8"-IC12	12	5/8"	48	36	21	NS-30072 2.0 Nm	NK-T9
814001	00-99616-IC16-5/8	SB5/8"-IC16	16	5/8"	48	43	27	NS-35080 2.5 Nm	NK-T15
815001	00-99616-IC20-3/4	SB3/4"-IC20	20	3/4"	50	60	32	NS-50125 5.5 Nm	NK-T20
816001	00-99616-IC25-1	SB 1"-IC25	25	1"	56	65	43	NS-50125 5.5 Nm	NK-T20

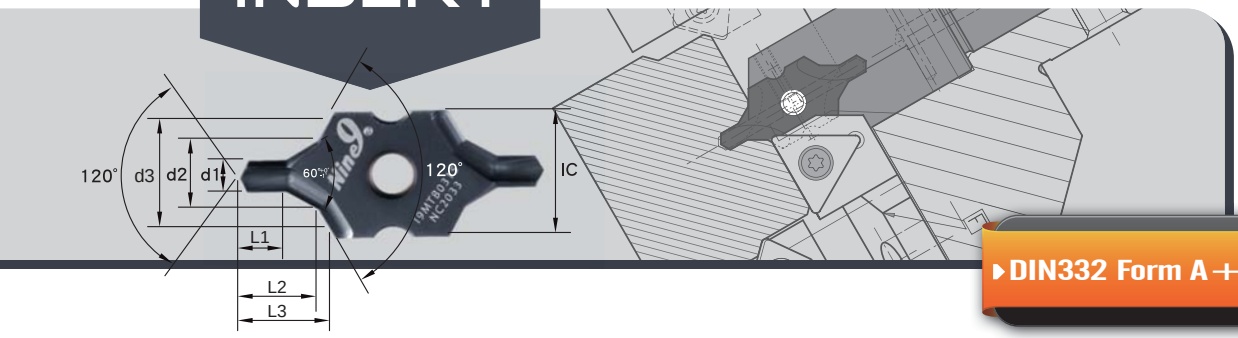
INSERT



DIN332 Form R

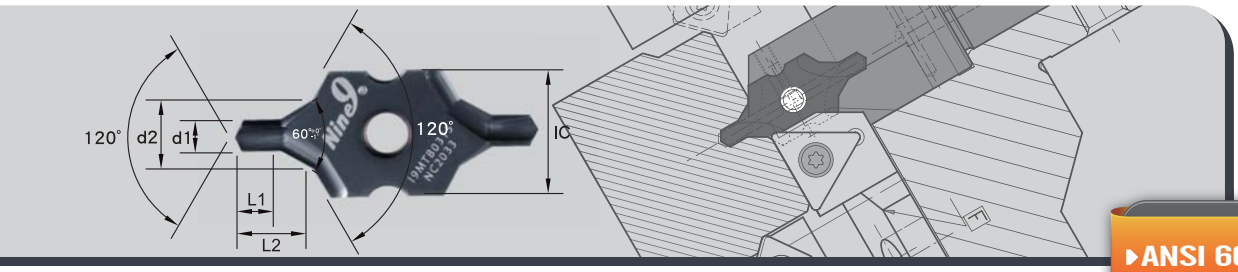
Code	Parts No.	d1		d2	L1	L2	R min.	R max.	IC
032201	I9MT08T1R0100-NC2033	1.00	+0.14 0	3.15	3.0	4.44	2.5	3.15	08
032202	I9MT08T1R0125-NC2033	1.25		3.15	3.35	4.94	3.15	4.0	
032203	I9MT08T1R0160-NC2033	1.60		4.0	4.25	5.53	4.0	5.0	
032204	I9MT08T1R0200-NC2033	2.00		5.0	5.3	6.48	5.0	6.3	
033201	I9MT12T2R0200-NC2033	2.00	+0.14 0	5.0	5.3	6.72	5.0	6.3	12
033202	I9MT12T2R0250-NC2033	2.50		6.3	6.7	8.29	6.3	8.0	
033203	I9MT12T2R0315-NC2033	3.15	+0.18 0	8.0	8.5	9.94	8.0	10.0	
034201	I9MT1603R0400-NC2033	4.00		10.0	10.6	12.84	10.0	12.5	16
034202	I9MT1603R0500-NC2033	5.00		12.5	13.2	14.78	12.5	16.0	
035201	I9MT2004R0630-NC2033	6.30	+0.22 0	16.0	17.0	18.83	16.0	20.0	20
035202	I9MT2004R0800-NC2033	8.00		20.0	21.2	21.2	20.0	25.0	
036201	I9MT2506R1000-NC2033	10.00		25.0	26.5	26.5	25.0	31.5	25

INSERT



DIN332 Form A + B

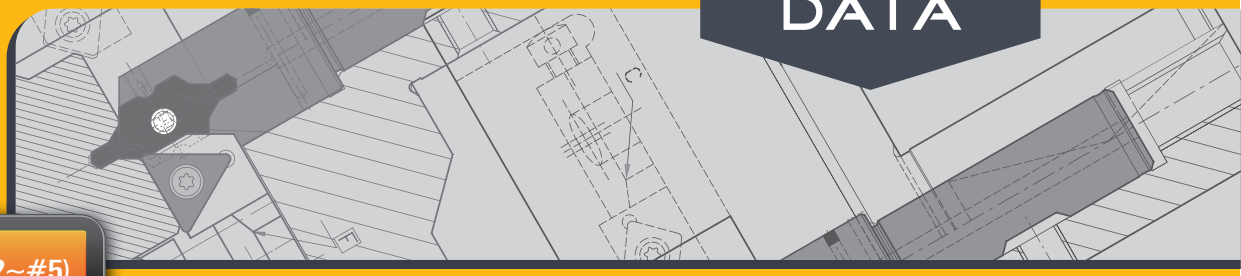
Code	Parts No.	d1		d2	d3	L1		L2	L3	IC
032001	I9MT08T1B0100-NC2033	1.00	+0.14 0	2.12	8.0	1.3	+0.6 0	2.51	4.21	08
032002	I9MT08T1B0125-NC2033	1.25		2.65	8.0	1.6		3.05	4.60	
032003	I9MT08T1B0160-NC2033	1.60		3.35	8.0	2.0	+0.8 0	3.86	5.20	
032004	I9MT08T1B0200-NC2033	2.00		4.25	8.0	2.5		4.79	5.87	
033001	I9MT12T2B0200-NC2033	2.00	+0.14 0	4.25	6.3	2.5		4.3	4.9	12
033002	I9MT12T2B0250-NC2033	2.50		5.3	8.0	3.1	+1.0 0	5.5	6.8	
033003	I9MT12T2B0315-NC2033	3.15	+0.18 0	6.7	10.0	3.9		7.4	9.0	
034001	I9MT1603B0400-NC2033	4.00		8.5	12.5	5.0	+1.2 0	9.5	10.6	16
034002	I9MT1603B0500-NC2033	5.00		10.6	16.0	6.3		11.7	13.3	
035001	I9MT2004B0630-NC2033	6.30	+0.22 0	13.2	18.0	8.0		14.6	15.9	20
035002	I9MT2004B0800-NC2033	8.00		17.0	20.0	10.1	+1.4 0	18.6	19.4	
036001	I9MT2506B1000-NC2033	10.00		21.2	25.0	12.8		23.2	24.3	25



ANSI 60°

Code	Parts No.	Size	d1			d2		L1			L2	IC
				mm			mm		mm			
033101	I9MT12T2A2-NC2033	#2	5/64	1.98	+0.14 0	3/16	4.76	5/64	1.98	+.08 0	4.4	
033102	I9MT12T2A3-NC2033	#3	7/64	2.78		1/4	6.35	7/64	2.78	+1.0 0	5.9	12
033103	I9MT12T2A4-NC2033	#4	1/8	3.18		5/16	7.94	1/8	3.18		7.3	
034101	I9MT1603A5-NC2033	#5	3/19	4.76	+0.18 0	7/16	11.11	3/16	4.76		10.3	16
035101	I9MT2004A6-NC2033	#6	7/32	5.56		1/2	12.7	7/32	5.56	+1.2 0	11.8	
035102	I9MT2004A7-NC2033	#7	1/4	6.35		5/8	15.88	1/4	6.35		14.6	20
035103	I9MT2004A8-NC2033	#8	5/16	7.94	+0.22 0	3/4	19.05	5/16	7.94	+1.4 0	17.6	
036101	I9MT2506A10-NC2033	#10	3/8	9.53		0.98”	25.0	3/8	9.53		22.9	25

CUTTING DATA



▸Ø1 ~ Ø4 (#2~#5)

Work piece material	f / d1 / Vc (m/min.)	f (mm/rev)					Cutting fluid
		IC08		IC12			
		Ø1~1.25	Ø1.6~2 (#2)	Ø2 (#2)	Ø2.5 (#3)	Ø3.15 (#4)	
Carbon steel C<0.3%	60-70-80	(S=17825 rpm) 0.02-0.03-0.05	(S=13930 rpm) 0.03-0.05-0.06	(S=11140 rpm) 0.04-0.06-0.08	(S=8912 rpm) 0.06-0.08-0.10	(S=7073 rpm) 0.08-0.10-0.12	emulsion
Carbon steel C>0.3%	50-60-70	(S=17825 rpm) 0.02-0.03-0.05	(S=11940 rpm) 0.03-0.04-0.05	(S=9549 rpm) 0.03-0.04-0.05	(S=7639 rpm) 0.06-0.08-0.10	(S=6063 rpm) 0.08-0.10-0.12	emulsion
Low alloy steel C<0.3%	45-55-65	(S=14005 rpm) 0.01-0.02-0.04	(S=10950 rpm) 0.02-0.03-0.05	(S=8753 rpm) 0.02-0.03-0.05	(S=7002 rpm) 0.04-0.06-0.08	(S=5557 rpm) 0.06-0.08-0.10	emulsion
High alloy steel C>0.3%	40-50-60	(S=12732 rpm) 0.01-0.02	(S=9950 rpm) 0.01-0.02-0.04	(S=7957 rpm) 0.01-0.02-0.04	(S=6366 rpm) 0.02-0.04-0.06	(S=5052 rpm) 0.04-0.06-0.08	emulsion
Stainless Steel	5-10-20	X	X	(S=1592 rpm) 0.01-0.02	(S=1270 rpm) 0.01-0.02-0.03	(S=1010 rpm) 0.02-0.03-0.05	emulsion
Cast iron	50-60-70	(S=15278 rpm) 0.01-0.02-0.04	(S=11940 rpm) 0.02-0.04-0.06	(S=9549 rpm) 0.02-0.04-0.06	(S=7639 rpm) 0.04-0.06-0.08	(S=6063 rpm) 0.06-0.08-0.10	dry
Al, and non-ferrous metal	100-150 -200	(S=38197 rpm) 0.01-0.02-0.03	(S=29850 rpm) 0.01-0.02-0.04	(S=23873 rpm) 0.01-0.02-0.04	(S=19098 rpm) 0.02-0.03-0.05	(S=15157 rpm) 0.02-0.04-0.06	emulsion

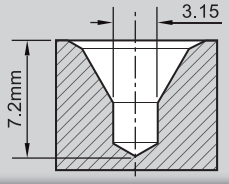
▸Ø5 ~ Ø10 (#6~#10)

Work piece material	f / d1 / Vc (m/min.)	f (mm/rev)					Cutting fluid
		IC16		IC20		IC25	
		Ø4 (#5)	Ø5	(#6)	Ø6.3 (#7)	Ø8 (#8)	Ø10 (#10)
Carbon steel C<0.3%	60-70-80	(S=5570 rpm) 0.08-0.12-0.14	(S=4456 rpm) 0.10-0.12-0.16	(S=3536 rpm) 0.10-0.14-0.16	(S=2785 rpm) 0.12-0.15-0.18	(S=2228 rpm) 0.14-0.18-0.20	emulsion
Carbon steel C>0.3%	50-60-70	(S=4774 rpm) 0.08-0.12-0.14	(S=3819 rpm) 0.10-0.12-0.16	(S=3031 rpm) 0.10-0.14-0.16	(S=2387 rpm) 0.12-0.15-0.18	(S=1909 rpm) 0.14-0.18-0.20	emulsion
Low alloy steel C<0.3%	45-55-65	(S=4376 rpm) 0.06-0.08-0.10	(S=3501 rpm) 0.08-0.10-0.12	(S=2778 rpm) 0.08-0.12-0.14	(S=2188 rpm) 0.10-0.14-0.16	(S=1750 rpm) 0.12-0.16-0.20	emulsion
High alloy steel C>0.3%	40-50-60	(S=3978 rpm) 0.04-0.06-0.08	(S=3183 rpm) 0.06-0.08-0.10	(S=2526 rpm) 0.08-0.10-0.12	(S=1989 rpm) 0.10-0.14-0.16	(S=1591 rpm) 0.10-0.14-0.16	emulsion
Stainless Steel	10-15-25	(S=1194 rpm) 0.02-0.04-0.06	(S=955 rpm) 0.02-0.04-0.06	(S=758 rpm) 0.04-0.06-0.08	(S=597 rpm) 0.04-0.06-0.08	(S=477 rpm) 0.05-0.07-0.10	emulsion
Cast iron	50-60-70	(S=4774 rpm) 0.06-0.08-0.10	(S=3819 rpm) 0.08-0.10-0.12	(S=3031 rpm) 0.08-0.12-0.14	(S=2387 rpm) 0.10-0.14-0.16	(S=1909 rpm) 0.12-0.16-0.18	dry
Al, and non-ferrous metal	100-150 -200	(S=11936 rpm) 0.02-0.04-0.06	(S=9549 rpm) 0.04-0.06-0.08	(S=7578 rpm) 0.04-0.06-0.08	(S=5968 rpm) 0.06-0.08-0.10	(S=4774 rpm) 0.06-0.08-0.10	emulsion

PERFORMANCE

i-Center's undeniable benefits

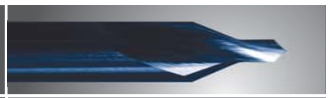
The i-Center is the unique solution to upgrade the center drill process to the indexable generation – leaving behind HSS and solid carbide centering as ancient history.



i-Center® No Re-setting Time Saving

Comparison example

- Work piece : Low carbon alloy steel, 850 N/mm^2
- Diameter of tool : Ø3.15 mm Depth of drilling : 7.2 mm
- Machine: Vertical Machining Center, BT40 with internal coolant

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

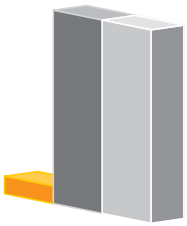
Profit by making the right choice

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

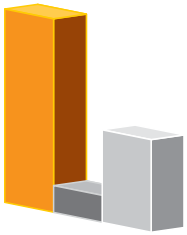
Feed rate

Tool life per edge

Tool setting time



Cost saving



Nine9 i-Center HSS center drill Solid carbide center drill

Attention

- For d1< 4 mm or size #5, make certain the center misalignment is less than 0.05mm.
- If the misalignment of the CNC lathe's turret center is above 0.15 mm, use the center height adjusting sleeve.
- For special machines or lathes requiring low spindle speed, maintain the feed rate with the lower spindle speed.

Disassemble

- Step-1

Loosen the screw

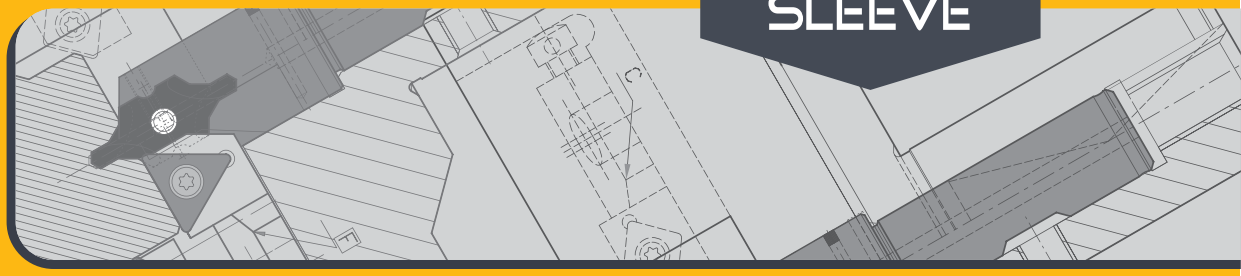
- Step-2

Hole in the back

- Step-3

Push out insert

ADJUSTING SLEEVE



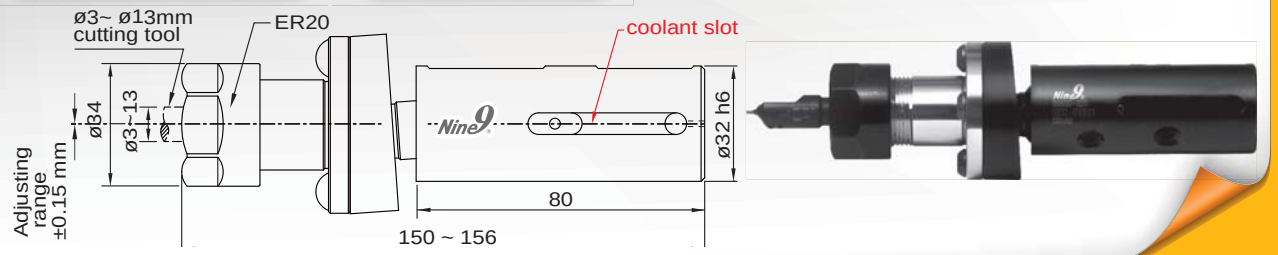
Center Height Adjusting Sleeve with coolant hole

Principle

- Designed for adjusting Center Height of center drills, NC spot drills, reamers and taps on the CNC lathes.
- The main body is made from two sleeves. The inner sleeve is to hold and lock the cutting tool.
- Its center is inclined to the outer sleeve. When the inner sleeve is pushed or pulled, the cutting tool's center height is adjusted to lower or higher position.

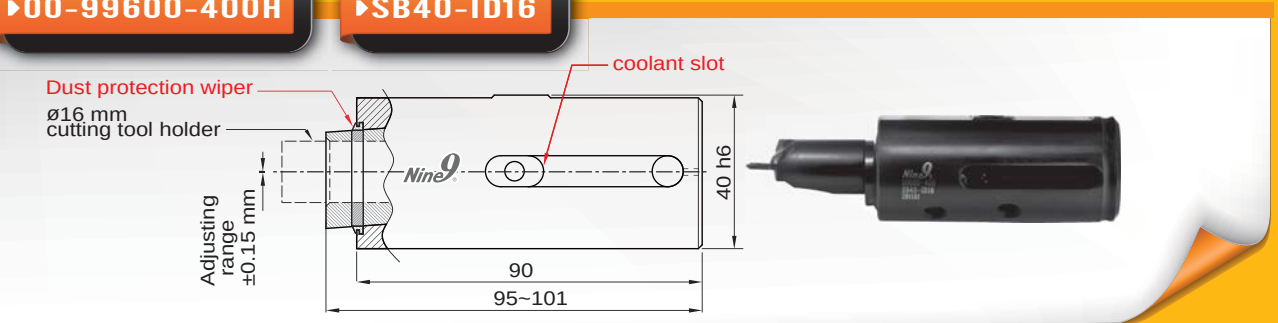
Ordering Code ▸00-99600-320H

Part Number ▸SB32-IDER20



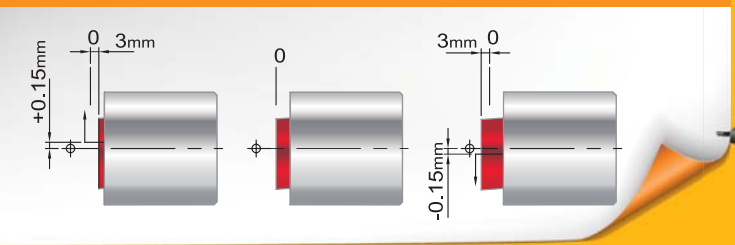
Ordering Code ▸00-99600-400H

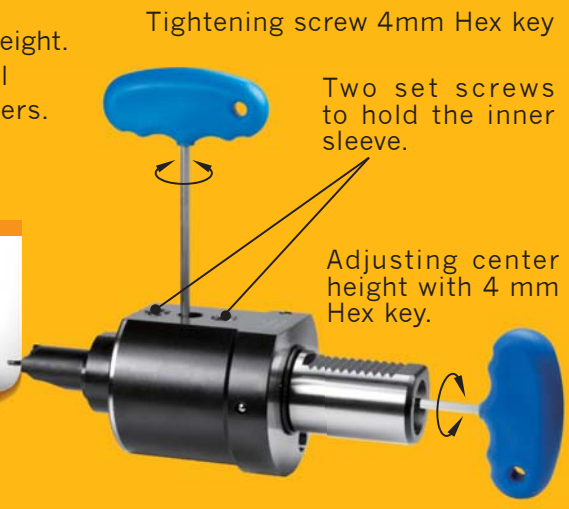
Part Number ▸SB40-ID16



Applications

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





THE ACCURATE & ADVANTAGED SOLUTION

Nine9®

Nine9 works with the global brand spirit, by way of headquarter foundation, sales network throughout Northern and Southern Hemisphere, spreads all the world.
We do our best to approach customers as far as possible, satisfy all market specific request and the need, work closely with customers, share the Nine9 unremittingly dedicated research and development innovation technology, help you to promote the enterprise competitiveness sustainability then to sharpen the whole profitability.

www.jic-tools.com.tw

i-Center Highlight of Product

Jimmore International Corp.

Distributor

2011.05. Cat. No.:NEN 05 : 2000 JC