

NIKKEN

CONVENTIONAL TOOLING SYSTEM

*your **P**artner in
precision*



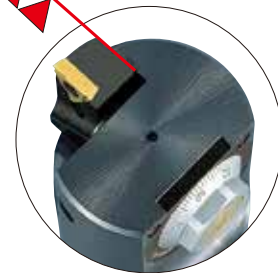
MULTI LOCK MILLING CHUCK  P.7



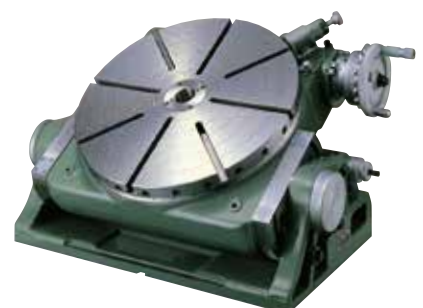
QUICK
CHANGE
HOLDER
 P.17

TAPPER
CHUCK
 P.26

eMAC
DIGITAL BORING HEAD
 P.50



ZMAC
ADVANCED
BORING
HEAD
 P.35



UNIVERSAL ROTARY &
TILTING TABLE  P.57

NIKKEN KOSAKUSHO WORKS, LTD.
CAT.NO.560A



OSAKA-DAITO NEW OFFICE & FACTORY
 LAND:55,000m²
 BUILDING:27,800m²

Our company's name, "NIKKEN," is derived from our desire to "always maintain the willingness to study patiently on a daily basis and contribute to future industry with technology and ideas." Pursuing the development and production of tools for **60** years, we have developed peripheral instruments such as NC tooling systems, reamers, CNC rotary tables and controllers (NIKKEN-Ø21 series), etc. conforming to customers' demands. Today's effort and study bear tomorrow's fruits. NIKKEN wishes to provide you with original products of the highest quality founded in **everyday study and research.**

Carbonizing & Sub-Zero Treatment

NIKKEN is the only tooling product manufacturer which performs sub-zero treatment for tooling. This refers to a technique where -90 deg. ultra-low-temperature processing is performed after carbonizing and quenching in order to eliminate the residual austenite and to form 100% martensite compositions to prevent deterioration over time. This technique has been applied for block gauges and for bearings of the highest grade in the past. It is an example of how NIKKEN pays attention to those aspects which are often hidden from view and how we put our hearts and souls into each and every tooling product.





Ion Nitriding

Ion nitriding refers to a nitriding process where glow discharges are generated in a vacuum of a nitrogen-mixed gas atmosphere to heat the workpieces at a low temperature of 450 deg. while at the same time nitriding them by a sputtering action. This processing improves both the wear resistance and sliding performance.(It reduces the surface friction coefficient.)The experience and know-how of ion nitriding have been utilized in a large number of NIKKEN's products, including worm wheels for CNC Rotary Tables and Tough-Cut Skill Reamers.



NC Lathe Line

NIKKEN Oil Jetter System  P.65 and **Combat Z Drill**  P.73 resolved the problems from the cooling of the cutting edge and the swarf removal, then, night time un-manned operation could be done.

M/C Line

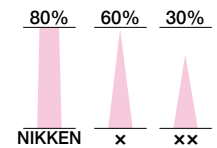
The ANNIVERSARY Chuck is an efficient multi purpose base holder for M/C and conventional machine use. Please use it for versatile and versatile purpose.



Tool Grinding Line

More than 80% Taper Contact is needed for this vital linkage between M/C and workpiece.

NIKKEN holders protect the spindle. (They eliminate "dance" in the spindle.)



Reamer Grinding Line

Reamer grinding line to seek the ultimate unmanned operation with high accuracy and high productivity.



RADICAL MILL REAMER



CNC Rotary Table Assembling Line

NIKKEN builds the most rigid, precise and durable CNC Rotary Table for the worldwide manufacturing market.

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MILLING CHUCK SYSTEM

The method of tool clamping on a conventional machine tool uses the draw bar system. This method produces a very high pulling force and the ANNIVERSARY Chuck allows the machine to perform to 100% of its capability.

National Taper

MCA P.7



Quick Change Holder

HA P.17



Quick Change Type

MCT P.18

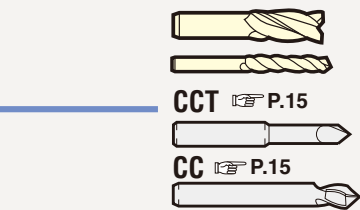


Morse Taper

MCM P.20

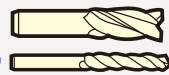


KM P.7



CCT P.15

CC P.15

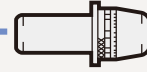


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KM P.7



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BAL P.16

SY P.16

The ANNIVERSARY Chuck is an efficient multi purpose base holder for conventional machine use. It incorporates a simple, easy to use chucking mechanism.

- ◆ Easy Operation
- ◆ High precision
- ◆ High Rigidity • Powerful Performance

NIKKEN is keeping the manufacturing not only the quality, but also the safety in mind. Please be careful for the content marked e.g. P.27 CAUTION



"ANNIVERSARY"
type



MULTI LOCK MILLING CHUCK

It has been 55 years since NIKKEN developed the MULTI-LOCK MILLING CHUCK, NIKKEN's technology has developed the new generation universal chuck.

We call this MULTI -LOCK MILLING CHUCK  "ANNIVERSARY" type. 松本 駿一



Sub-zero Treatment

NIKKEN Toolings are all subjected to ultra-low temperature treatment of -90°C after carburizing, as shown. This treatment removes residual austenite to prevent from deformation for many years. Thus all of our NIKKEN toolings are produced one by one with greatest possible care of NIKKEN spirits.



1 Chucking Torque and Durability

All the NIKKEN MULTI-LOCK Milling Chucks incorporate the multi-roller system including **140% more needle rollers** than the other imitations. Besides, the retainer is not made of phosphor bronze but of special steel which will never break.



As seen from the cross sectional view, the needle rollers are arranged in perfect order with a dense production, but they are arranged to be scattered in the imitations.



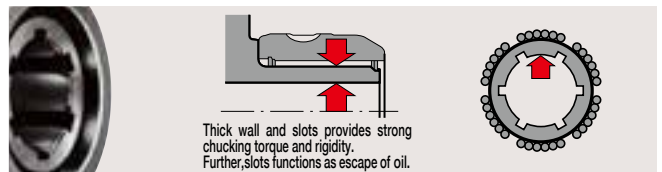
The larger quantity of needle rollers enables the moving of the same load with a small force and less damage on the bearing surface, thus providing a stronger chucking torque without creating even rolling when tightening.

2 Rigidity and Chucking Torque

Internal slots together with thickened wall of chuck body ensure no distortion even at heavier milling. Thus, smooth milling work is attained without the vibration or slipping of end mill.

Effects of Internal Slots

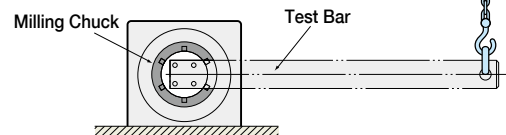
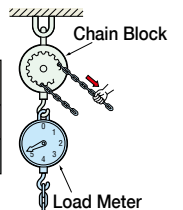
Thanks to internal slots, even if oil remains on the end mill shank, there is no decreasing of chucking torque. In case of imitations without slots, chucking torque is largely reduced by oil, causing the shank to slip down.



Chucking Torque Test Data(C42)

	When oil is removed completely with thinner	When a little oil is adhered.	%
NIKKEN With Slots	5,000Nm	4,800Nm	Only 5% Down
Others Without Slots	3,500Nm	1,250Nm	67%Down

NIKKEN
Others →



MULTI LOCK MILLING CHUCK



Same Appearance,
but a Remarkable Improvement can be found when cutting.



JAPAN, USA, FRANCE, ITALY, SPAIN PAT.
KOREA, TAIWAN

3 New Clamping at Root & Anti-Vibration Mechanism

Cutting Data **HSS** Endmill-**Carbide** Endmill

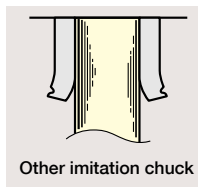
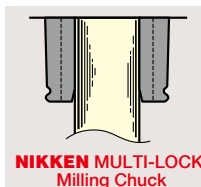
CHUCK	ENDMILL	CUTTING CONDITION	Ad×Rd
BT50-C32-90	HSS Coating 32φ4t	V 38m/min S 380min ⁻¹ F 152mm/min	S55C 60mm OIL 12mm
BT50-C42-95	HSS Roughing 42φ 45φ6t	V 30m/min S 210min ⁻¹ F 130mm/min	S55C 110mm OIL 20mm
BT50-C20-135 KM20-16	Carbide Coating 16φ4t	V 176m/min S 3,500min ⁻¹ F 2,000mm/min	S55C 35mm 3mm
BT40-C25-70	HSS Coating 25φ4t	V 38m/min S 480min ⁻¹ F 192mm/min	S55C 50mm OIL 8mm
BT40-C16-60	Carbide Coating 16φ4t	V 200m/min S 4,000min ⁻¹ F 2,000mm/min	S55C 30mm 3mm
BT30-C12-55 KM12-10	Carbide Coating 10φ4t	V 160m/min S 5,000min ⁻¹ F 2,000mm/min	S50C 15mm 3mm
BT30-C12-55	HSS Non Coating 12φ4t	V 30m/min S 800min ⁻¹ F 250mm/min	S50C 18mm WATER 4mm
		V 228m/min S 6,000min ⁻¹ F 3,600mm/min	ALUMINIUM 20mm WATER 3mm

The End Mill can perform at 100% of their capability by using the cutting data. If cutting condition is exceeded, they may cause tool failure. For the M/C with ball guide mechanism, MAJOR DREAM HOLDER might perform better than MULTI-LOCK milling chuck.

4 Clamping at Nose Mechanism

Clamping at nose - key Condition for Precise Milling.

Surface Finish and Tool Life are decided by Clamping at Nose, Rigidity and Run-Out Accuracy. Only our mechanism performs real clamping at nose, never rivalled by imitations : ideal for heavy milling to fine finishing. Only the NIKKEN MULTI-LOCK Milling Chuck perfectly clamps even at 3mm from chuck nose.



The cutting chips show us the actual machining capability

Quiet, high speed heavy milling



Stable finishing

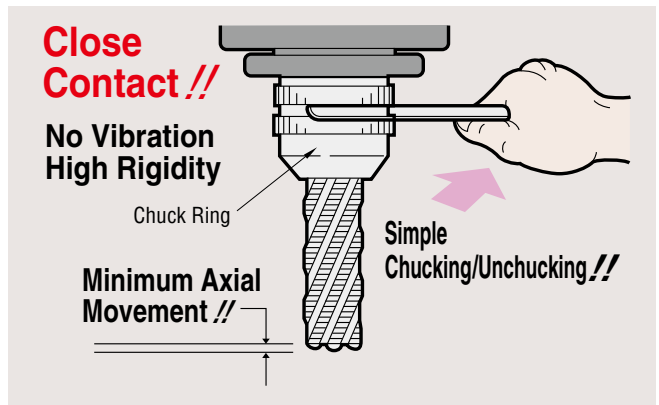


5 Stable Milling with Stopper

Easy for "anyone to attain a stable torque."

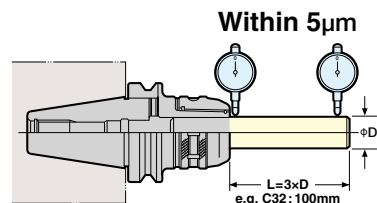
Wear of the bearing surface is only 1~2microns even after practical use of 4~5years owing to the use of 140% more needle rollers than imitations, the use of special material (steel) of NIKKEN own. and the know-how of hardening. The stopper is therefore located to the MULTI-LOCK Milling Chuck where the maximum efficiency of chucking torque is exerted. Tightening the chuck close to the flange face gives a sign of "MILLING OK" to ensure smooth, stable and reliable milling work.

(Important : Good production with Assurance!!)



6 Fine Run-Out Accuracy

Only NIKKEN MULTI-LOCK Milling Chuck can obtain the run-out accuracy within 5μm(T. I. R) at the position 100mm apart from the nose.(C32 Style)



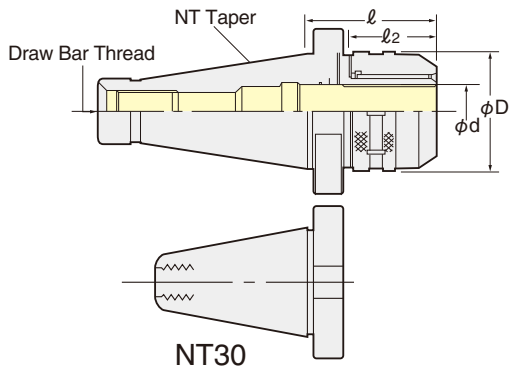


MULTI LOCK MILLING CHUCK for NATIONAL TAPER



MCA

●National Taper MULTI LOCK Milling Chuck



Note: Please specify the Taper Size, Chuck Size, Thread.

e.g. **MCA 40 F - 32 M**

- Taper Size
30: NT30
40: NT40
50: NT50
- Flange Type
16: C16 (φ16mm)
20: C20 (φ20mm)
22: C22 (φ22mm)
25: C25 (φ25mm)
32: C32 (φ32mm)
42: C42 (φ42mm)
- Chuck Size
16: C16 (φ16mm)
20: C20 (φ20mm)
22: C22 (φ22mm)
25: C25 (φ25mm)
32: C32 (φ32mm)
42: C42 (φ42mm)
- Thread
No Letter: Unify
M: Metric
W: Whit worth
(Only for NT30)
- Milling Chuck National Taper

TAPER	Code No.	φd	φD	l	l ₂	Thread
NT30	MCA30F-16	16	45	46.1	36.5	W $\frac{1}{2}$ -12Threads
	-20	20	54	59.6	59.6	
	-22	22	59	64.6	64.6	
	-25	25	62	77	77	
NT40	MCA40F-16	16	45	48.1	36.5	U $\frac{5}{8}$ -11Threads
	-20	20	54	57	45.4	
	-22	22	59	60.8	47.2	
	-25	25	62	57	45.4	
	-32	32	72	68.6	68.6	
NT50	MCA50F-20	20	54	75	59.8	U1-8Threads
	-22	22	59	75	59.8	
	-25	25	62	75	59.8	
	-32	32	72	73.6	52.4	
	-42	42	90	79	54.8	

★Chuck bore Dia. d=φ50mm and φ50.8mm are also available.

★Long Gauge Length series are also available.

★Spanner is supplied as standard.

TAPER	Code No.	φd	φD	l	l ₂	Thread
NT30	MCA30F-16M	16	45	46.1	36.5	M12 P=1.75
	-20M	20	54	59.6	59.6	
	-22M	22	59	64.6	64.6	
	-25M	25	62	77	77	
NT40	MCA40F-16M	16	45	48.1	36.5	M16 P=2
	-20M	20	54	57	45.4	
	-22M	22	59	60.8	47.2	
	-25M	25	62	57	45.4	
	-32M	32	72	68.6	68.6	
NT50	MCA50F-20M	20	54	75	59.8	M24 P=3
	-22M	22	59	75	59.8	
	-25M	25	62	75	59.8	
	-32M	32	72	73.6	52.4	
	-42M	42	90	79	54.8	

★Chuck bore Dia. d=φ50mm and φ50.8mm are also available.

★Long Gauge Length series are also available.

★Spanner is supplied as standard.

KM Straight Collet



Photo shows ANNIVERSARY type KM Collet.



○ means with internal grooves for gripping strongly to eliminate the oil.

Explanation of the Code No.

KM 32 - 10

- ID of Collet
- OD of Collet
- Symbol of Collet

- KM** :Standard
- NK** :Adjustable
- CCK** :Centre Coolant
- CCNK**:Centre Coolant, Adjustable

Style	L	KM Collet Code No. (OD-ID)
KM12	40	KM12-2, 3, 4, 5, 6, 7, 8, 9, 10
KM16	47.5	KM16-2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
KM20	53	KM20-2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16
KM22	57	KM22-3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20
KM25	59	KM25-3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22
KM32	64.5	KM32-3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 30
KM42	73(78)	KM42-3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 40

★For Synchronous Tapping Program: Special ID Collets for Tap Shank are also available.

★Other metric sizes and imperial sizes, 1/8, 1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4, 13/16, 7/8, 1, 1-1/8, 1-1/4, 1-1/2" are also available.

★The collets with bold character are the "ANNIVERSARY" type KM Collet. Ordinary KM Collet can be used with "ANNIVERSARY" type Milling Chuck, but better performance can be found with the "ANNIVERSARY" type KM Collet.

★Please note the acceptable shank tolerance is h6~h7.

★(): L dimension for KM42-12 or larger ID.

★Collet removal (9CKR) is an optional accessory for NC milling chuck.

ATTACHMENT for MULTI LOCK MILLING CHUCK

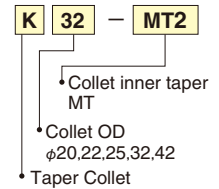


K-MT Morse Taper Collet



■ For Morse taper shank drills and reamers

Milling Chuck ID	Code No.
φ 20	K20-MT1, 2
φ 22	K22-MT1, 2
φ 25	K25-MT1, 2
φ 32	K32-MT1, 2, 3
φ 42	K42-MT1, 2, 3, 4

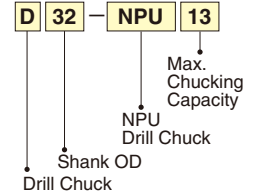


D-NPU Straight Shank NPU Drill Chuck



■ Arbor complete with NPU Drill Chuck

Milling Chuck ID	Code No.	Drill Dia.
φ 32	D32-NPU 8	0.3~8
	-NPU13	1~13
φ 42	D42-NPU 8	0.3~8
	-NPU13	1~13



Y Centering Bar

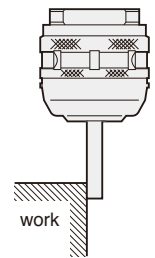
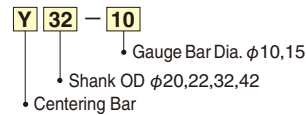


Please also order optical measuring tools.

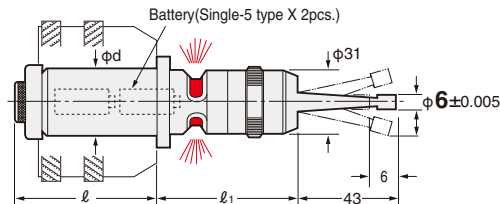
■ For positioning

Milling Chuck ID	Code No.
φ 20	Y20-10
φ 22	Y22-10
φ 32	Y32-10
φ 42	Y42-15

- ★ Easy positioning can be achieved by touching the component with the bar.
- ★ An alternative bar with a 60° point at the front end is also available.

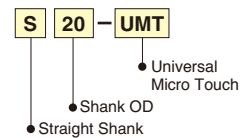


S-UMT Straight Shank UMT MICRO TOUCH

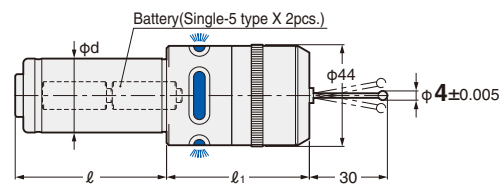


Code No.	φd	l	l ₁	Weight (Kg)
S20-UMT	20	68	61	0.4
S32-UMT	32	65	65	0.7

★ Ball type φ6mm stylus is also available : S32-UMTB

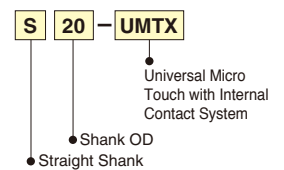


S-UMTX Straight Shank UMTX MICRO TOUCH Internal Contact Type



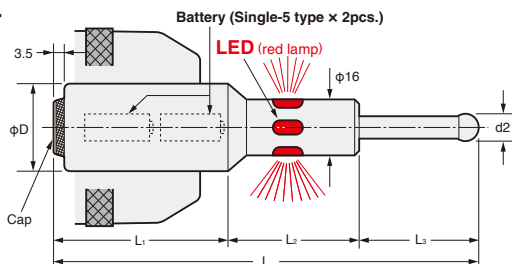
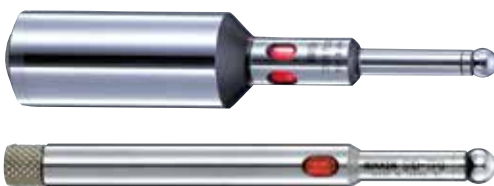
Code No.	φd	l	l ₁	Weight (Kg)
S20-UMTX	20	68	64	0.5
S32-UMTX	32	65	64	0.8

- ★ φ4mm steel stylus and battery are supplied as standard.
- ★ The delay of the system is within 0.01mm, because of the internal contact system.
- ★ For non conductive work piece.



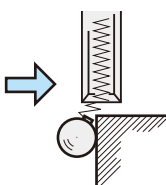
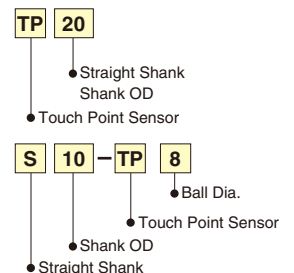
Ruby stylus is available as an option.

S-TP / TP Straight Shank TOUCH POINT



Code No.	D	d ₁	d ₂	L	L ₁	L ₂	L ₃	Weight (Kg)
S10-TP8	10	-	8	110	77	-	30	0.12
TP-20	20	16	10	157	77	35	45	0.20
TP-32	32	16	10	157	71	41	45	0.50

★ No Z-axis float in straight shank type TOUCH POINT.





MULTI LOCK MILLING CHUCK - STANDARD BOXED SET



S.MCA Series



★Photo shows the contents of S.MCA50F-A5N set.

< Please select the set which best suits your applications >

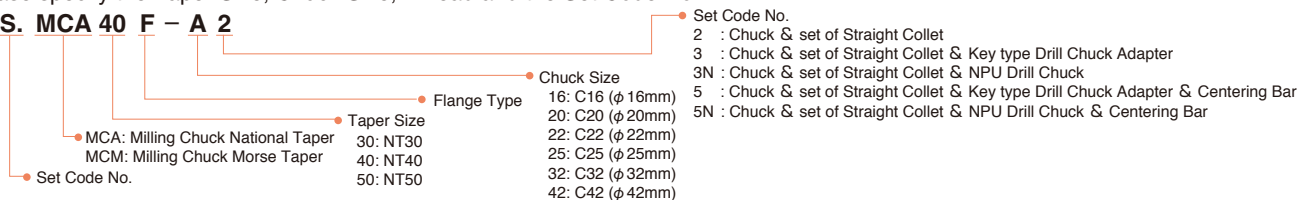
TAPER	Milling Chuck Boxed Set Code No.	Chuck Size	Boxed Set Content Code No.					
			Milling Chuck	Straight Collet	MT Collet	NPU Drill Chuck	Drill Chuck Adapter	Centering Bar
NT30	S.MCA30F-S2	φ16	MCA30F-16	KM16-6,8,10,12	—	—	—	—
	-E3	φ20	MCA30F-20	KM20-6,8,10,12,16	K20-MT1,2	—	D20-6	—
	-G2	φ25	MCA30F-25	KM25-6, 8,10,12,16,20	—	—	—	—
NT40	S.MCA40F-E5	φ20	MCA40F-20	KM20-6,8,10,12,16	K20-MT1,2	—	D20-6	Y20-10
	-E2				—	—	—	
	-E3	K20-MT1,2	—	D20-6	—			
	-G2	φ25	MCA40F-25	KM25-6, 8,10,12,16,20	—	—	—	—
	-A5N	φ32	MCA40F-32	KM32-6,8,10,12,16,20,25	K32-MT1,2,3	D32-NPU13	—	Y32-10
	-A2				—	—	—	
	-A3N				K32-MT1,2,3	D32-NPU13	—	—
NT50	S.MCA50F-G2	φ25	MCA50F-25	KM25-6,8,10,12,16,20	—	—	—	—
	-A5N	φ32	MCA50F-32	KM32-6,8,10,12,16,20,25	K32-MT1,2,3	D32-NPU13	—	Y32-10
	-A2				—	—	—	
	-A3N	K32-MT1,2,3	D32-NPU13	—	—			
	-D2	φ42	MCA50F-42	KM42-6,8,10,12,16,20,25,32	—	—	—	—
-D3N	MCM3-16				K42-MT1,2,3,4	D42-NPU13	—	—
MT 3	S.MCM3 -S2	φ16	MCM3-20	KM16-6,8,10,12	—	—	—	—
	-E3	φ20	MCM3-25	KM20-6,8,10,12,16	K20-MT1,2	—	D20-6	—
	-G2	φ25	MCM3-32	KM25-6,8,10,12,16,20	—	—	—	—
	-A3N	φ32	MCM4-20	KM32-6,8,10,12,16,20,25	K32-MT1,2,3	D32-NPU13	—	—
MT 4	S.MCM4 -E3	φ20	MCM4-25	KM20-6,8,10,12,16	K20-MT1,2	—	D20-6	—
	-G2	φ25	MCM4-32	KM25-6,8,10,12,16,20	—	—	—	—
	-A5N	φ32	MCM5-32	KM32-6,8,10,12,16,20,25	K32-MT1,2,3	D32-NPU13	—	Y32-10
-A3N	MCM5-42				K32-MT1,2,3	D32-NPU13	—	—
MT 5	S.MCM5 -A3N	φ32	MCM6-42	KM32-6,8,10,12,16,20,25	K32-MT1,2,3	D32-NPU13	—	—
	-D3N	φ42					K42-MT1,2,3,4	D42-NPU13
MT 6	S.MCM6 -D3N	φ42	—	KM42-6,8,10,12,16,20,25,32	K42-MT1,2,3,4	D42-NPU13	—	—

★ D32-NPU8 is sold separately.

Note:

1. Please specify the Taper Size, Chuck Size, Thread and the Set Code No.

e.g. S. MCA 40 F - A 2



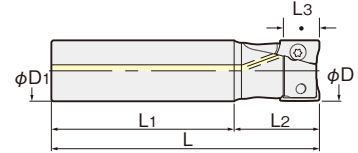
2. Unless specified otherwise, the inch size draw bar thread is supplied. P.7

3. Chuck bore Dia. φ22mm is also available.

Straight Shank PRO-END MILL



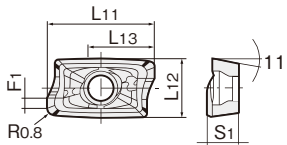
S-MDPE



Code No.	ϕD	D_1	L	L_1	L_2	MAX. Cutting Depth L_3	No. of Teeth	Insert Code No.	Tip Clamp Bolt	Tip Clamp Wrench	Weight (Kg)
S16-MDPE16-90	16	16	90	60	30	10	2	AOMT123608PEER-M	TPS-25	TIP07F	0.2
S20-MDPE20-100	20	20	100	70			3				0.2
S25-MDPE25-110	25	25	110	75	40	15	2	AOMT184808PEER-M	TPS-4	TIP15W	0.4
S32-MDPE32-120	32	32	120	80			3				0.7

★2 tip clamp bolts and tip clamp wrench are supplied as standard.

★Coolant through tool is available as an standard for all series.

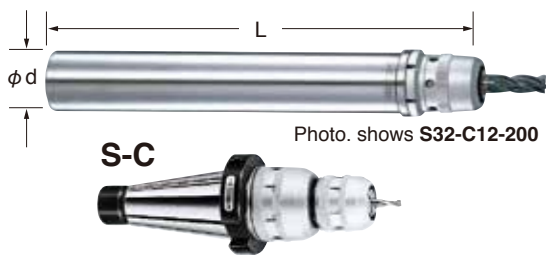


AOMT (Insert Tip)

Insert Tip Code No.	L_{11}	L_{12}	L_{13}	S_1	F_1
AOMT123608PEER-M	12	6.6	10	3.6	1.2
AOMT184808PEER-M	18	9	15	4.8	1.4

★Only Nose R = 0.8 is available. Please contact Mitsubishi for the rigid type insert tip and the insert tip with other Nose R.
 ★Only grade of VP15TF (for steel, cast iron, hardened steel) is available. Please contact Mitsubishi for VP20RT (for stainless steel) and TF15 (for aluminum).
 ★Minimum order quantity: 10pcs.

Straight Shank Milling Chuck

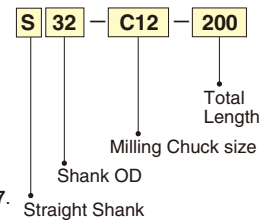


S-C

Photo. shows S32-C12-200

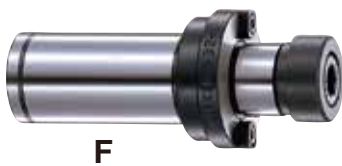
■ For milling in confined spaces.

Style	Code No.	L
32	S32-C12	120,160,200
	-C16	130
	-C20	150
42	S42-C16	180
	-C20	185



★Please use NIKKEN KM collet, please refer P.7.

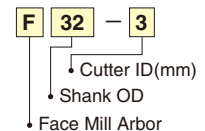
Straight Shank Face Mill Arbor



F

■ For improved surface finishes.

Style	Code No.
32	F32-2,3,4
42	F42-2,3,4



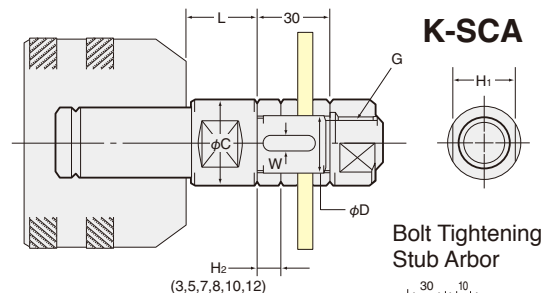
★Ideal for finishing operations
 ★Various types of face mill can be fitted
 ★Please refer P.21 for cutter fitting dimensions.

Straight Shank Stub Arbor



K-SCA

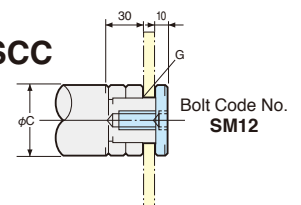
K-SCC



K-SCA

Bolt Tightening Stub Arbor

K-SCC



Thinner Bolt Head type is also available.

Style	K No. ϕD -L	H_1	C	W	G	Weight (kg)
32	K32-SCA25.4-30	32	40	6.35	M24	1.2
	-SCC25.4-30				M12	1.2
42	K42-SCA25.4-30				M24	1.3
	-SCC25.4-30				M12	1.3

Straight Shank SLIM CHUCK

NIKKEN

Suitable for Multi-Lock Milling Chuck



K-SK

Explanation of the Code No.

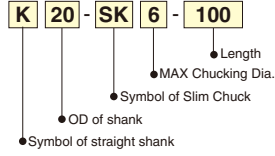


Fig. 1

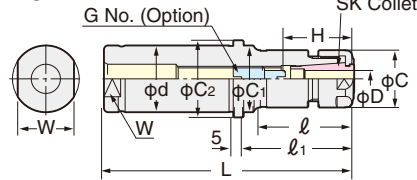
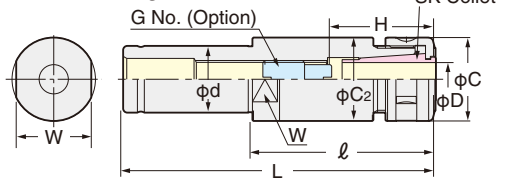


Fig. 2



Code No.	D	ℓ	ℓ ₁	C	C ₁	C ₂	W	H	G No. (Option)	Weight (kg)	Fig	SK Collet
K20-SK 6-100, 120	0.7~6.0	37, 57		19.5		27	18	21~35	SKG-8	0.2, 0.2	1	SK 6
-SK10-100, 120	1.75~10.0	40, 60		27.5		27.5	18	30~50	SKG-12L	0.3, 0.3	2	SK10
K22-SK 6-100, 120	0.7~6.0	37, 57		19.5		27	19	21~35	SKG-8	0.2, 0.2	1	SK 6
-SK10-100, 120	1.75~10.0	40, 60		27.5		27.5	19	30~50	SKG-12L	0.3, 0.3	2	SK10
K25-SK 6-100, 130	0.7~6.0	32, 62		19.5		30	22	21~35	SKG-8	0.3, 0.3		SK 6
-SK10-120, 150	1.75~10.0	50, 80		27.5		30	22	30~50	SKG-12L	0.4, 0.5		SK10
K32-SK 6-120, 140, 170	0.7~6.0	45, 65, 63	53, 73, 100	19.5	32, 32, 24			21~35	SKG-8	0.5, 0.5, 0.5	1	SK 6
-SK10-120, 150, 180, 210	1.75~10.0	45, 75, 75, 75	53, 83, 111, 141	27.5	32, 32, 31.5, 33.5	37	27	30~50	SKG-12L	0.6, 0.7, 0.8, 1.0		SK10
-SK13-120, 150, 180, 210	2.75~13.0	52, 82, 112, 142		33				31~65	SKG-15	0.7, 0.8, 1.0, 1.2		SK13
-SK16-120, 150, 180, 210	2.75~16.0	58, 88, 118, 148		40		40	36	45~70	SKG-18L	0.7, 0.9, 1.2, 1.4		SK16
-SK20-120, 150, 180	3.5~20.0	58, 88, 118		48.5		40	41	47~80	SKG-22	0.9, 1.3, 1.7	2	SK20
-SK25-150	7.5~25.4	88		55		42	46	55~65	SKG-18L	1.3		SK25
K42-SK 6-150, 170	0.7~6.0	52, 62	61, 78	19.5	32			21~35	SKG-8	1.0, 1.1		SK 6
-SK10-150, 180	1.75~10.0	56, 78		27.5				30~50	SKG-12L	1.1, 1.3		SK10
-SK13-150, 180	2.75~13.0	56, 86		33			36	31~65	SKG-15	1.2, 1.4	1	SK13
-SK16-150, 180	2.75~16.0	58, 88		40			36	45~70	SKG-18L	1.2, 1.4		SK16
-SK20-150, 180	3.5~20.0	68, 98		48.5		48.5	36	47~80	SKG-22	1.5, 1.9		SK20
-SK25-170	7.5~25.4	88		55		44.5	46	55~65	SKG-18L	1.8	2	SK25

★ Collet, adjust screw (G No.) and spanner are available as an option. The Code No. of the spanner is SK6 (C=φ18) : SKL-6, SK6 (C=φ19.5) : SKL-6W, SK10: SKL-10, SK13: 9HC12A, SK16: 9HC16, SK20: 9HC22, SK25: 9HC25

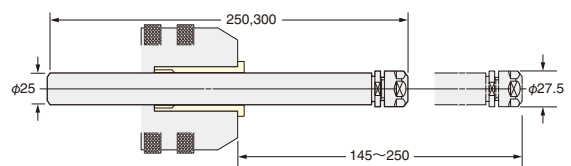
★ Please refer P.12 for SK Collet. ★ All Slim Chucks are Centre Through Coolant type. ★ Please refer NC TOOLING catalogue P.44 for adjust screw (G No.).

Straight Shank SLIM CHUCK ULTRA LONG

S25-SK10-250,300 S25-SK10X-250,300



Please refer NC TOOLING catalogue.



Insert into Multi-Lock Milling Chuck. Axial Direction Adjustable type.

TiN BEARING NUT for SLIM CHUCK PAT.

NIKKEN

○ TiN Bearing Nut can be used for currently used SLIM CHUCK.

■ SK standard Nut (for C-Spanner)



Cap is option



J Type Nut



Style	TiN Bearing Nut	J type TiN Bearing Nut	C-Spanner	WRENCH for CAP
SK 6(φ19.5)	SKN- 6WK	SKN- 6WKJ	SKL- 6W	SKJL- 6
SK10	-10K	-10KJ	SKL-10	SKJL-10
SK13	-13B	-13BJ	9HC12A	SKJL-16
SK16	-16B	-16BJ	9HC16	
SK20	-20B	-20BJ	9HC22	SKJL-25
SK25	-25B	-25BJ	9HC25	

Please use both wrenches for SK nut (SKL, 9HC) and for J cap (SKJL) together, to attach J cap into SK nut surely. This is recommended to fix a cap to the nut with an adhesive.

SLIM CHUCK COLLET

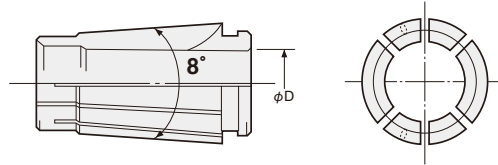


SK

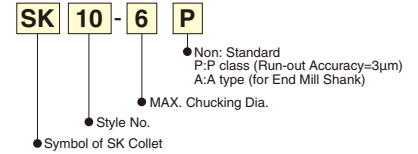


The Secret of strong gripping power and high rigidity is 8°Taper

φ0.7~25.4 Precise Collets are available in accordance with 6 styles of Slim Chuck, **SK 6** **SK 10** **SK 13** **SK 16** **SK 20** **SK 25**. There are suitable for End Mill, Drill, Center-Drill, Tap, Reamer, Boring Tool for CNC Lathe.



Explanation of the Code No.



“A” type SK collet (for End Mill Shank) are marked **●**. The acceptable shank tolerance is h8. Code No. is e.g. SK10-10A
“P” class SK collet (for drill) are available. (except for SK6-0.8) e.g. SK10-10P

Code No.	Chucking D
SK 6- 0.8	0.7 ~ 0.8
- 1	0.9 ~ 1.0
- 1.25	1.15~ 1.25
- 1.5	1.3 ~ 1.5
- 1.75	1.55~ 1.75
- 2	1.8 ~ 2.0
- 2.25	2.05~ 2.25
- 2.5	2.3 ~ 2.5
- 2.75	2.55~ 2.75
- 3	2.8 ~ 3.0
- 3.5	3.0 ~ 3.5
- 4	3.5 ~ 4.0
- 4.5	4.0 ~ 4.5
- 5	4.5 ~ 5.0
- 5.5	5.0 ~ 5.5
- 6	5.5 ~ 6.0
SK10- 2	1.75~ 2.0
- 2.25	2.0 ~ 2.25
- 2.5	2.25~ 2.5
- 2.75	2.5 ~ 2.75
- 3	2.75~ 3.0
- 3.5	3.0 ~ 3.5
- 4	3.5 ~ 4.0
- 4.5	4.0 ~ 4.5
- 5	4.5 ~ 5.0
- 5.5	5.0 ~ 5.5
- 6	5.5 ~ 6.0
- 6.5	6.0 ~ 6.5
- 7	6.5 ~ 7.0
- 7.5	7.0 ~ 7.5
- 8	7.5 ~ 8.0
- 8.5	8.0 ~ 8.5
- 9	8.5 ~ 9.0
- 9.5	9.0 ~ 9.5
- 10	9.5 ~ 10.0

Code No.	Chucking D
SK13- 3	2.75~ 3.0
- 3.5	3.0 ~ 3.5
- 4	3.5 ~ 4.0
- 4.5	4.0 ~ 4.5
- 5	4.5 ~ 5.0
- 5.5	5.0 ~ 5.5
- 6	5.5 ~ 6.0
- 6.5	6.0 ~ 6.5
- 7	6.5 ~ 7.0
- 7.5	7.0 ~ 7.5
- 8	7.5 ~ 8.0
- 8.5	8.0 ~ 8.5
- 9	8.5 ~ 9.0
- 9.5	9.0 ~ 9.5
- 10	9.5 ~ 10.0
- 10.5	10.0~ 10.5
- 11	10.5~ 11.0
- 11.5	11.0~ 11.5
- 12	11.5~ 12.0
- 12.5	12.0~ 12.5
- 13	12.5~ 13.0

Code No.	Chucking D
SK16- 3	2.75~ 3.0
- 3.5	3.0 ~ 3.5
- 4	3.5 ~ 4.0
- 4.5	4.0 ~ 4.5
- 5	4.5 ~ 5.0
- 5.5	5.0 ~ 5.5
- 6	5.5 ~ 6.0
- 6.5	6.0 ~ 6.5
- 7	6.5 ~ 7.0
- 7.5	7.0 ~ 7.5
- 8	7.5 ~ 8.0
- 8.5	8.0 ~ 8.5
- 9	8.5 ~ 9.0
- 9.5	9.0 ~ 9.5
- 10	9.5 ~ 10.0
- 10.5	10.0~ 10.5
- 11	10.5~ 11.0
- 11.5	11.0~ 11.5
- 12	11.5~ 12.0
- 12.5	12.0~ 12.5
- 13	12.5~ 13.0
- 13.5	13.0~ 13.5
- 14	13.5~ 14.0
- 14.5	14.0~ 14.5
- 15	14.5~ 15.0
- 15.5	15.0~ 15.5
- 16	15.5~ 16.0

Code No.	Chucking D
SK20- 4	3.5 ~ 4.0
- 4.5	4.0 ~ 4.5
- 5	4.5 ~ 5.0
- 5.5	5.0 ~ 5.5
- 6	5.5 ~ 6.0
- 6.5	6.0 ~ 6.5
- 7	6.5 ~ 7.0
- 7.5	7.0 ~ 7.5
- 8	7.5 ~ 8.0
- 8.5	8.0 ~ 8.5
- 9	8.5 ~ 9.0
- 9.5	9.0 ~ 9.5
- 10	9.5 ~ 10.0
- 10.5	10.0~ 10.5
- 11	10.5~ 11.0
- 11.5	11.0~ 11.5
- 12	11.5~ 12.0
- 12.5	12.0~ 12.5
- 13	12.5~ 13.0
- 13.5	13.0~ 13.5
- 14	13.5~ 14.0
- 14.5	14.0~ 14.5
- 15	14.5~ 15.0
- 15.5	15.0~ 15.5
- 16	15.5~ 16.0
- 16.5	16.0~ 16.5
- 17	16.5~ 17.0
- 17.5	17.0~ 17.5
- 18	17.5~ 18.0
- 18.5	18.0~ 18.5
- 19	18.5~ 19.0
- 19.5	19.0~ 19.5
- 20	19.5~ 20.0

Code No.	Chucking D
SK25- 8	7.5~ 8.0
- 10	9.5~ 10.0
- 12	11.5~ 12.0
- 16	15.5~ 16.0
- 16.5	16.0~ 16.5
- 17	16.5~ 17.0
- 17.5	17.0~ 17.5
- 18	17.5~ 18.0
- 18.5	18.0~ 18.5
- 19	18.5~ 19.0
- 19.5	19.0~ 19.5
- 20	19.5~ 20.0
- 20.5	20.0~ 20.5
- 21	20.5~ 21.0
- 21.5	21.0~ 21.5
- 22	21.5~ 22.0
- 22.5	22.0~ 22.5
- 23	22.5~ 23.0
- 23.5	23.0~ 23.5
- 24	23.5~ 24.0
- 24.5	24.0~ 24.5
- 25	24.5~ 25.0
- 25.4	25.0~ 25.4

★SK6 collet with the special internal dia. is also available.

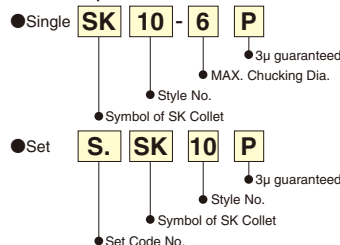


Collet removal (SKR-6) is supplied as standard only for SK6. SKR-10, SKR-16 and SKR-25 are available as an option. Collet removal is not necessary for the new types of collet (SK10 to SK25 collet including SK13 and SK20).

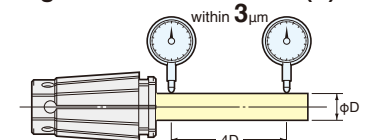
Collet Code No.	Set Code No.
SK 6- 1P... 6P	S.SK 6P (1.0~ 6.0 6pcs set)
SK10- 2P... 10P	S.SK10P (2.0~ 10.0 9pcs set)
SK13- 3P... 13P	S.SK13P (3.0~ 13.0 11pcs set)
SK16- 3P... 16P	S.SK16P (3.0~ 16.0 14pcs set)
SK20- 4P... 20P	S.SK20P (4.0~ 20.0 17pcs set)
SK25- 17P... 25P	S.SK25P (17.0~ 25.0 9pcs set)

★ For Set Code No. of all sizes collets, please add “FP” at the end of Set Code No. e.g. S.SK6FP (1.0~6.0 15pcs set)

Explanation of the Code No.



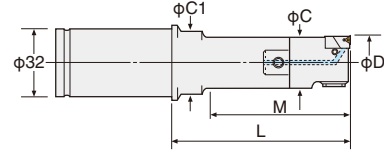
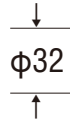
High Precision SK Collet (P)



Even the above SK Collet can obtain the runout accuracy within 5μm, but more Precise SK Collet is also available. It guarantees the runout accuracy within 3μm at the nose (4D) from the chuck. Additionally, Collet Set is also available.

Straight Shank ZMAC ADVANCED BORING BAR

NIKKEN



K-ZMAC-V

You can use following boring tools with C32 Milling Chuck. It is convenient for Various/Small Volume Productions.

Code No.	Boring Range D	Boring Depth M	C	C ₁	Shank Code No.	P.48		P.49		Weight (kg)						
						Head No.	Insert No.	Head No.	Insert No.							
K32-ZMAC16- 65V	15.9~20.2	38	15	-	K32-Q12-20	12-ZMAC16-45V	3MP-C,B	-	-	0.5						
- 75V		48				12-ZMAC16-55V				0.5						
-ZMAC20- 60V	19.8~25.2	55	19	-	-Q 9-20	9-ZMAC20-40V				6MP-C,B	-	-	0.6			
- 80V		63				-Q 9-40							0.7			
-ZMAC25- 60V	24.8~32.2	55	24	-	-Q12-20	12-ZMAC25-40V							CC06-C	-	-	0.6
-100V		83				-Q12-60										0.7
-ZMAC32- 75V	31.8~42.2	70	31	-	-Q16-20	16-ZMAC32-55V	4MP-C,B	16-ZMAC32R-55V	0.9							
-110V		105				-Q16-55	16-ZMAC32R-55V	1.1								
-ZMAC42-110V	41.8~55.2	105	40	-	-Q20-40	20-ZMAC42-70V	6MP-C,B	20-ZMAC42R-70V	1.5							
-ZMAC55-110V	54.8~70.2		53			-	-Q26-40	26-ZMAC55-70V	26-ZMAC55R-70V	1.6						

★All Codes shown are for Heads with Triangular Inserts.

For Heads with Rhomboid Inserts, please add "R" to the Code No. e.g.) K32-ZMAC32 R -75V

★MIN. dial read out: ZMAC25-V and smaller is 0.02mm on dia. ZMAC32-V and larger is 0.01mm on dia. (Sub scale : 0.005)

★"C" grade (coated) Insert for Steel, Stainless and Cast Iron is supplied as standard with the Head.

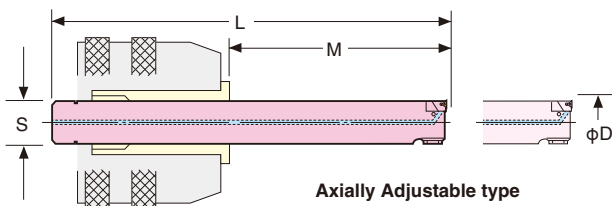
(Smooth Boring and Long tool-life) Please refer P.45 for cutting condition.

We would recommend "B" grade (CBN) Insert for Hardened Steel and High Speed Boring of Cast Iron.

Straight Shank DEEP HOLE ZMACX ADVANCED BORING BAR

NIKKEN

Axially Adjustable and Solid Carbide



Axially Adjustable type

S-ZMACX-V



Code. No.	Boring Range D	Boring Depth M	L	S	Unit No.	Insert No.	Weight (kg)	Suitable Holder		
								Chuck	KM Collet	
S12-BCBX12.7- 95	12.7~14.5	50~ 95	130	12	M1-12.7	1MP-T	0.2	BT40-C32 BT50-C32	KM32-12	
S13-BCBX14.5-105	14.5~19.5	50~105	135	13	M1-14.5				-13	
S15-ZMACX16-120V	15.9~20.2	65~120	150	15	M2HZ-16V	3MP-C, B	0.3		-15	
S19-ZMACX20-150V	19.8~25.2	100~150	180	19	M2HZ-20V				0.6	-19
S24-ZMACX25-190V	24.8~32.2	140~190	220	24	M3HZ-25V				1.3	-24
S30-ZMACX32-260V	31.8~42.2	190~260	290	30	M4HZ-32V	4MP-C, B	2.6		-30	
S32-ZMACX42-275V	41.8~55.2	205~275	305	32	M5HZ-42V	6MP-C, B	3.8	-		

★T grade (Cermet) insert tip or "C" grade (Coated) insert tip is supplied as standard for BCBX or S-ZMACX-V respectively.

P.48 Please refer P.45 for cutting condition.

★MIN. dial read out: BCBX12.7,BCBX14.5 is 0.02mm (Sub scale : 0.004)

★MIN. dial read out: ZMAC25-V and smaller is 0.02mm on dia. ZMAC32-V and larger is 0.01mm on dia. (Sub scale : 0.005)

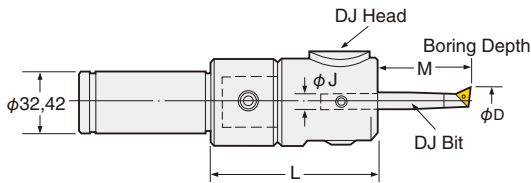
Straight Shank DJ BORING BAR

NIKKEN

K-DJ



Photo. shows cut-sample.



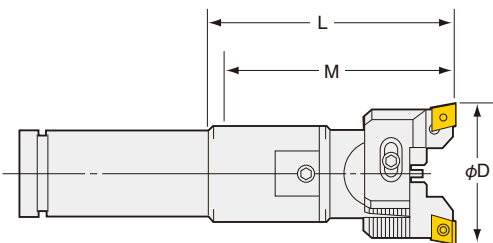
Style	Code No.	Boring Range D	M	J	Bit
	K No.-Min D-L				
32	K32-DJ3-80A	3~28	14~ 80	10	J10
	-DJ8-84AN	8~50	14~130	16	J16
42	K42-DJ3-80A	3~28	14~ 80	10	J10
	-DJ8-84AN	8~50	14~130	16	J16

- ★Min. dial readout for Dia. : Main scale 0.01mm, Sub scale 0.005mm.
- ★Each boxed set of DJ3 & DJ8 boring bars includes 4 pieces Carbide Cored Boring Bits as standard. [P.40](#)
- ★DJ type boring heads without Boring Bits are available. e.g. K32-DJ3-76-BD.
- ★Solid Carbide and Carbide Cored long and short series Bits are also available (P.40).
- ★"C" grade (Coated) inserts are supplied as standard. [P.48, 49](#)
- ★One set of insert clamp spanner and micron adjusting spanner are supplied as standard.
- ★The straight shank (P.34) and DJ head (P.40) are delivered in separate packages.
- ★Please refer [P.47](#) for cutting condition.

Straight Shank BALANCE CUT BORING BAR

NIKKEN

K-RAC



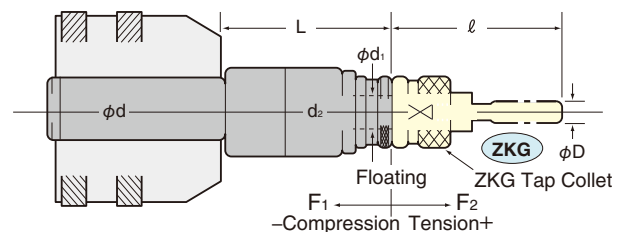
Code No.	Boring Range D	Boring Depth M	Head No.	Tip No.
K32-RAC25- 75E	25~32	70	12-RAC025-55E	CC07-C
-115E		93		
-RAC32- 75E	32~45	70	16-RAC 32-55E	CC08-C
-110E		105		
-RAC43-110E	43~55	105	20-RAC 43-70E	CC12-C
-RAC53-110E	53~70	105	26-RAC 53-70E	
-RAC70-110E	70~100	105	26-RAC 70-70E	

- ★"C" grade (coated) Insert is supplied as standard. [P.49](#)
- ★The straight shank (P.34) and RAC head (P.39) are delivered in separate packages.
- ★Cartridges & Inserts for Alloy Steel (E), for Aluminium & Cast iron (A) and for Through Hole (K) are also available. Please refer P.39.
- ★*For RAC25, Cartridge No.RCC-25 & Tip No.CC08 is available.
- ★Please refer [P.46](#) for cutting condition.

Straight Shank TAPPER CHUCK

NIKKEN

NZ ■ For slim body and ultra smooth tapping operations with float mechanism.



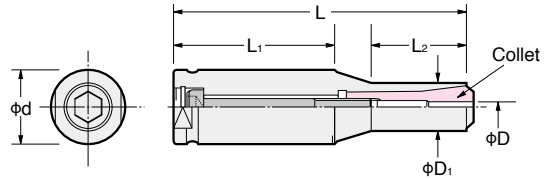
Style	Code No.	Tapping Capacity		L	d ₁	d	d ₂	Float		Weight (kg)	Tap Collet
		M	P					F ₁	F ₂		
32	NZ32-12-105	M3~12	P1/8~1/4	105~125	19	32	45	5	15	1.3	ZKG12
	-16-125	M3~16	P1/8~3/8	125~145	25		55	8	20	2.2	ZKG16
	-24-140	M8~24	P1/4~5/8	140~160	30		63	8	20	2.8	ZKG24
42	NZ42-12- 90	M3~12	P1/8~1/4	90~125	19	42	45	5	15	2.0	ZKG12
	-16-125	M3~16	P1/8~3/8	125~160	25		55	8	20	3.0	ZKG16
	-24-140	M8~24	P1/4~5/8	140~175	30		63	8	20	3.6	ZKG24

★Please refer [P.29, 31](#) for details of ZKG Tap Collets.

Straight Shank MINI-MINI CHUCK

NIKKEN

**K-MMP
K-MMC**



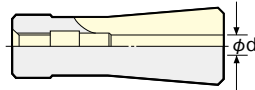
Style φd	Code No.	φD	L	φD1	L1	L2	Collet	Weight (Kg)
16	K16-MMP 4- 70	1~ 4	70	15	50	20	MPK 4	0.1
	-150		150		130			0.2
20	K20-MMC 8-100	3~ 8	100	20	80	20	PMK 8	0.2
32	K32-MMC 8-122	3~ 8	122	20	67	40	PMK 8	0.5
	-160		160					0.7
	K32-MMC12-170S	4~12	170	30	120	50	PMK12	1.0

★Wrench is supplied as standard. Collet is available as an option.

MPK/PMK collet for the MINI-MINI CHUCK



MPK/PMK



Style	MPK/PMK Collet Code No.
MPK 4	MPK 4-1, 1.5, 2, 2.5, 3, 3.5, 4
PMK 8	PMK 8-2~8 each (0.2mm)
PMK12	PMK12-4, 5, 6, 8, 10, 12

★Please note the acceptable shank tolerance of MPK Collet is h6.

★Even the gripping range of PMK collet is 0.2mm /dia. (e.g. PMK8-2 : 1.8~2.0), but the shank tolerance of h6 is highly recommended for precision machining.

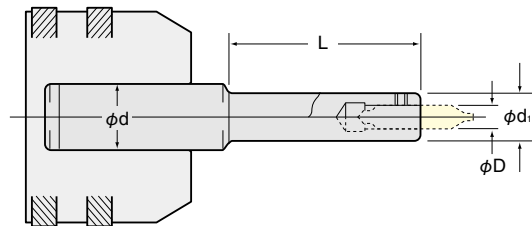
Straight Shank CENTER DRILL HOLDER

NIKKEN

NCD

For Multi-Lock Milling Chuck

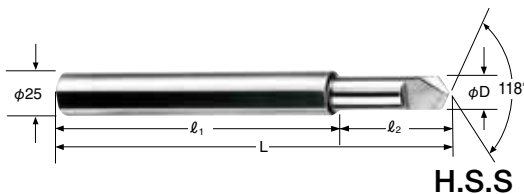
■Effective for centering in narrow places



Style	Code No.	D	L	d ₁	d
32	NCD32- 5-100,150	5	85,135	16	32
	NCD32- 6-100,150	6	85,135		
	NCD32- 8-100,150	8	85,135		
	NCD32-10-100,150	10	85,135	20	
	NCD32-12-100,150	12	85,135		
	NCD32-14-100,150	14	85,135	26	
	NCD32-18-100,150	18	85,135		

Style	Code No.	D	L	d ₁	d
42	NCD42- 5-100,150	5	82,132	16	42
	NCD42- 6-100,150	6	82,132		
	NCD42- 8-100,150	8	82,132		
	NCD42-10-100,150	10	82,132	20	
	NCD42-12-100,150	12	82,132		
	NCD42-14-100,150	14	82,132	26	
	NCD42-18-100,150	18	82,132		

CCT CENTERING TOOL



Code No.	φD	L	l ₁	l ₂
CCT25-12-165	12	165	100	65
-15-220	15	220	155	
-15-330		330	265	
-19-165	19	165	100	
-19-220		220	155	
-19-330		330	265	

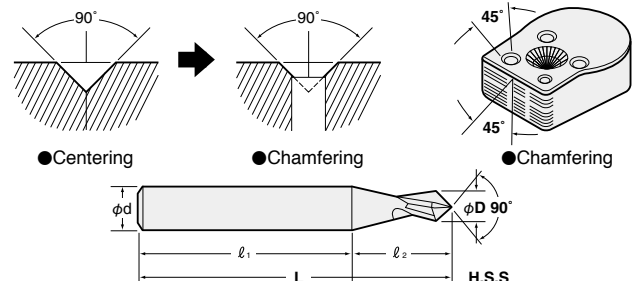
CC CENTERING END MILL



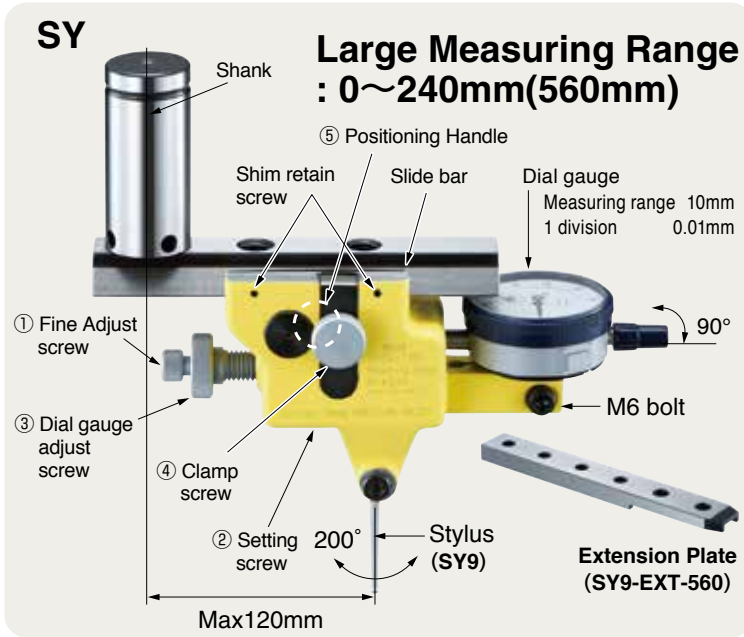
Nikken Chamfering combined centering end mill 90° Twist type

Code No.	φD	φd	L	l ₁	l ₂
CC10-16	10	16	130	95	35
CC12-16	12	16	145	100	45
CC16-20	16	20	150	100	50
CC20-25	20	25	155	100	55

■Three kinds of machining can be done with one cutting tool.



CENTERING HOLDER



- No need of changing the setting of dial Gauge. Only by turning Knob, ID, OD and Parallelism can be easily measured.
- Large measuring range. Cross moving distance of stylus is 120mm in radius.
- Up to $\phi 560\text{mm}$ can be measured by the extension plate. It can be user on your existing centering holder.

Centering Holder Code No.	ID of Milling Chuck	Measuring Range
SY20-120	$\phi 20$	0~ $\phi 240$
SY32-120	$\phi 32$	
SY42-120	$\phi 42$	

★0.01mm Dial Gauge is supplied as standard accessory.
 ★MT Shank (MT2~6), and IT Shank (#40/#50) are available.

Explanation of the Code No.

- SY 32 - 120
- MAX. Measuring Radius
 - OD of Shank : $\phi 20, 32, 42$
 - Symbol of Centering Holder

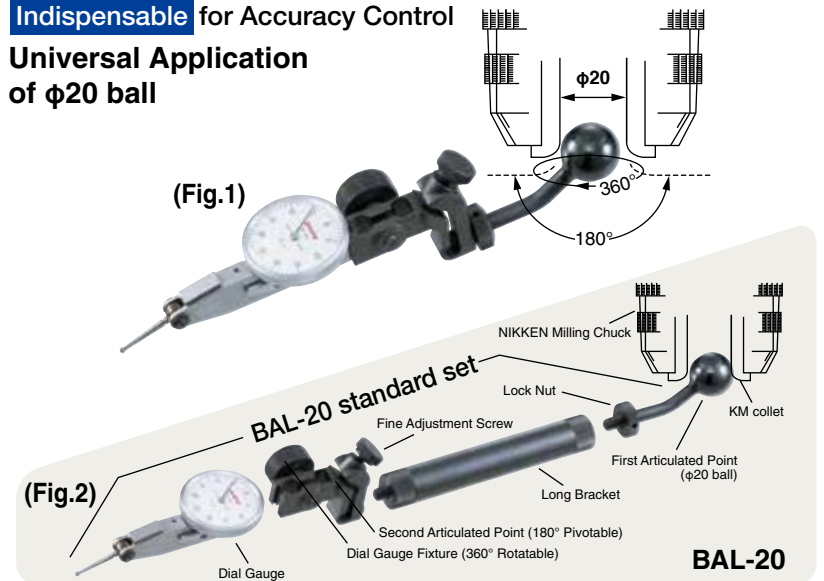
● Wide Range Measuring is possible both for ID and OD.



BALL CENTRALIZER



Indispensable for Accuracy Control
 Universal Application of $\phi 20$ ball



■ 0.01mm dial Gauge is supplied as standard accessory.

Code No.	Measuring Range	
	Using Fig.1	Using Fig.2
BAL-20	ID : $\phi 3.5 \sim \phi 320$	ID : $\phi 3.5 \sim \phi 520$
	OD : MAX. $\phi 300$	OD : MAX. $\phi 500$

QUICK CHANGE HOLDER



Efficiency with quick tool change

All types of conventional machining operations can be achieved with the added advantage of quick tool change.

Protection of machine spindle taper for long term, high precision use.

Ideal Taper holder

The master holder has an ISO taper both internally and externally, therefore this is an ideal tool holder for heavy cutting applications and quick tool fitting and removal.

High precision and long life.

The master holder is made of SNCM materials and sub-zero heat treated after carburizing. This guarantees a high precision finish and high durability.

Modular System

Besides standard tool holders, a quick change spindle speeder (☞ P.22) and quick change boring heads (☞ P.41, 42, 44) are also available.

Quick Change Master Holder HA

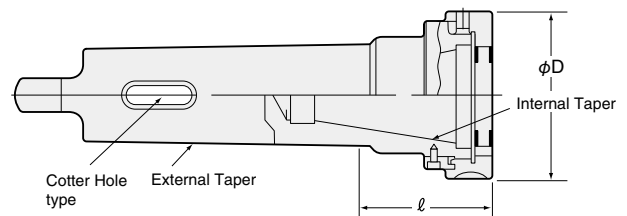
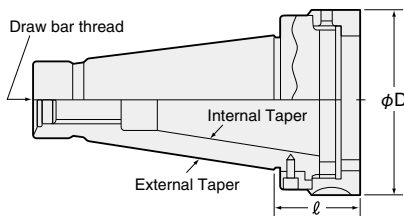


Side Lock Screw
For safety during heavy milling operations.

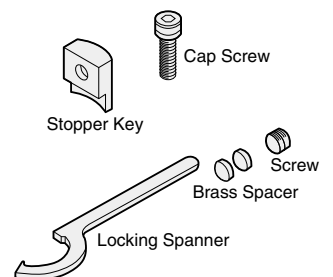


● Please refer P.19 for Boxed set.

Unless specified otherwise, draw bar threads for all holders will be supplied as Inch.



EXT. TAPER	Code No.	EXT. TAPER	φD	ℓ	Draw Bar Thread	Stopper key	Brass Spacer	Cap Screw	Screw	Spanner
NT30	HA30-T30	NT30	60	41.6	W1/2-12 (M12 P=1.75)	9H31	9H30	9H42	9H43	9HA30
NT40	HA40-T35	NT35	79	35.6	U 5/8-11 (M16 P=2)	9H41	9H45	9H42	9H43	9HA40
NT50	HA50-T45	NT45	103	44.8	U 1-8 (M24 P=3)	9H51		9H52		9HA50
MT5	HM5T-T35	NT35	79	—	—	9H41	9H45	9H42	9H43	9HA40
MT6	HM6T-T45	NT45	103	—		9H51		9H52		9HA50



★R8 Shank with Internal Taper=ISO30 is available, Code No. is **HR8-T30**

ATTACHMENT for QUICK CHANGE HOLDER



Quick Change type MULTI LOCK Milling Chuck

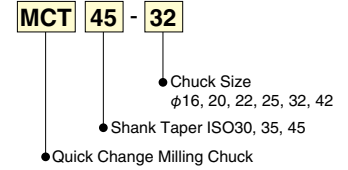
MCT



Quick Change Holder	Code No.
H A 30	MCT30-16, 20, 22
H A 40	MCT35-20, 22, 25, 32
H A 50	MCT45-20, 22, 25, 32, 42

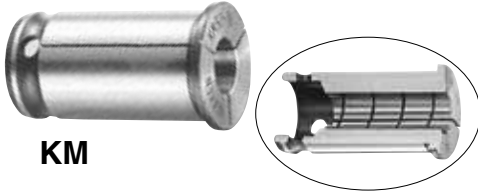
★Please note the acceptable shank tolerance is h6-h7.

Explanation of Code No.



Straight Collet

KM



★An oil groove in the internal bore of the collet prevents the cutter from slipping.

Milling Chuck ID	Code - No.
$\phi 16$	KM16-6,8,10,12
$\phi 20$	KM20-6,8,10,12,16
$\phi 22$	KM22-6,8,10,12,16,20
$\phi 25$	KM25-6,8,10,12,16,20
$\phi 32$	KM32-6,8,10,12,16,20,25
$\phi 42$	KM42-6,8,10,12,16,20,25,32

★Internal bore size: The following special metric and imperial sizes are also available.

2, 3, 4, 5, 5.5, 6, 2, 7, 8, 5, 9, 10, 5, 11, 12, 5, 13, 14, 15, 17, 18, 19, 21,

22, 23, 24, 26, 27, 28, 29, 30, 31, 33, 34, 40

$\frac{1}{4}, \frac{3}{8}, \frac{5}{16}, \frac{7}{16}, \frac{1}{2}, \frac{5}{8}, \frac{3}{4}, \frac{13}{16}, \frac{7}{8}, 1, 1\frac{1}{8}, 1\frac{1}{4}, 1\frac{1}{2}$

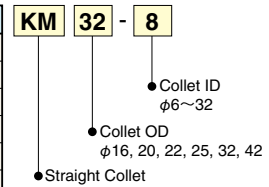
★KM50 & KM50.8 type collets are also available.

★The following ANNIVERSARY type KM collets are also available.

KM12-8,10, KM16-12, KM20-16, KM22-16, KM25-16, 20,

KM32-16, 20, 25, KM42-20, 25, 32

★Please note the acceptable shank tolerance is h6-h7.



Quick Change type Face Mill Arbor

FT



Quick Change Holder	Code No.	ϕd	L	Drive Key*1	Clamp Piece
H A 30	FT30-2	22.225	26.4	9F2-W8.0	FM10A*2
	FT35-3	25.4	28.4	9FW5	9F31
H A 40	4	31.75	28.4	9FWT35-4	9F41
	5	38.1	31.4	9FWT35-5	9F51
H A 50	FT45-3	25.4	28.6	FW5	9F31
	4	31.75	29.6	FW13	9F41
	5	38.1	38.6	9FWT45-5	9F51
	6	50.8	38.6	9FWT45-6	9F61

★Various types of face mill cutter can be fitted.

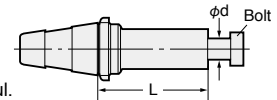
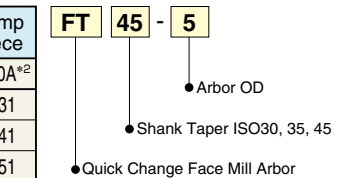
★Please refer **P.21** for cutter fitting dimensions.

★Drive keys, bolt and spanner are supplied as standard.

★If the protrusion is long, please contact L dimension.

★*1 There are two types, new and old, so please be careful.

★*2 It is a hexagon socket head bolt.



Quick Change type Morse Taper Sleeve

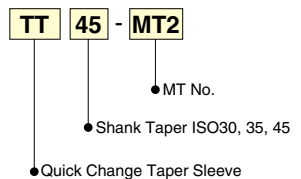
TT



■ For drills and reamers with Morse Taper Shanks.

Quick Change Holder	Code No.
H A 30	TT30-MT1, 2
H A 40	TT35-MT1, 2, 3, *4
H A 50	TT45-MT1, 2, 3, 4, *5

★The sleeves marked * are only for reamer or light drilling only.



Quick Change type Stub Arbor

ET

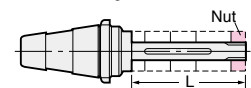
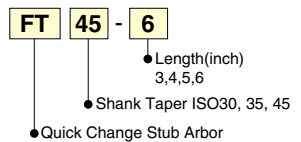


Quick Change Holder	Code No.	L(mm)
H A 40	ET35-3, 4, 5	76, 102, 128
H A 50	ET45-3, 4, 5, 6	76, 102, 128, 153

★A spigot dia. is 25.4mm.

★5, 10, 20 & 40mm extended collars, drive key, and nut are supplied as standard. Please refer **P.21**.

★If the protrusion is long, please contact L dimension.



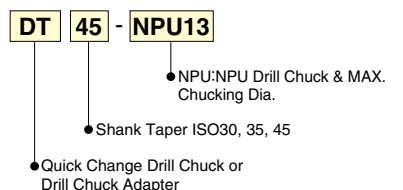
Quick Change type NPU Drill Chuck

DT-NPU



■ With NPU Drill Chuck

Quick Change Holder	Code No.	Drill Dia.
H A 30	DT30-NPU 8	$\phi 0.3 \sim 8$
	-NPU13	$\phi 1 \sim 13$
H A 40	DT35-NPU 8	$\phi 0.3 \sim 8$
	NPU13	$\phi 1 \sim 13$
H A 50	DT45-NPU 8	$\phi 0.3 \sim 8$
	NPU13	$\phi 1 \sim 13$



QUICK CHANGE HOLDER BOXED SET



Quick Change Holder Standard Boxed Set.

TAPER	Quick Change Holder Boxed Set Code No.	Chuck Size	Boxed Set Content								
			Quick Change Holder	Milling Chuck	Straight Collet	MT Collet	Face Mill Arbor	NPU Drill Chuck	NPU Drill Chuck	Drill Chuck	Taper Sleeve
NT30	S.MHA30-S8N	φ16	HA30-T30	MCT30-16	KM16-6,8,10,12	—	FT30-2	DT30-NPU13	—	—	TT30-MT1,2
	-E8N	φ20	HA30-T30	MCT30-20	KM20-6,8,10,12,16	—	FT30-2	DT30-NPU13	—	—	TT30-MT1,2
NT40	S.MHA40-E3	φ20	HA40-T35	MCT35-20	KM20-6,8,10,12,16	K20-MT1,2	FT35-4	—	—	D20-6	—
	-E4N		HA40-T35	MCT35-20	KM20-6,8,10,12,16	—	FT35-4	DT35-NPU13	—	—	—
	-E8N		HA40-T35	MCT35-20	KM20-6,8,10,12,16	—	FT35-4	DT35-NPU13	—	—	TT35-MT2,3,4
	-G4N	φ25	HA40-T35	MCT35-25	KM25-6,8,10,12,16,20	—	FT35-4	DT35-NPU13	—	—	—
	-G8N		HA40-T35	MCT35-25	KM25-6,8,10,12,16,20	—	FT35-4	DT35-NPU13	—	—	TT35-MT2,3,4
	-A3N	φ32	HA40-T35	MCT35-32	KM32-6,8,10,12,16,20,25	K32-MT1,2,3	FT35-4	—	D32-NPU13	—	—
	-A4N		HA40-T35	MCT35-32	KM32-6,8,10,12,16,20,25	—	FT35-4	DT35-NPU13	—	—	—
	-A8N		HA40-T35	MCT35-32	KM32-6,8,10,12,16,20,25	—	FT35-4	DT35-NPU13	—	—	TT35-MT2,3,4
NT50	S.MHA50-A3N	φ32	HA50-T45	MCT45-32	KM32-6,8,10,12,16,20,25	K32-MT1,2,3	FT45-6	—	D32-NPU13	—	—
	-A4N		HA50-T45	MCT45-32	KM32-6,8,10,12,16,20,25	—	FT45-6	DT45-NPU13	—	—	—
	-A8N		HA50-T45	MCT45-32	KM32-6,8,10,12,16,20,25	—	FT45-6	DT45-NPU13	—	—	TT45-MT2,3,4
	-D4N	φ42	HA50-T45	MCT45-42	KM42-6,8,10,12,16,20,25,32	—	FT45-6	DT45-NPU13	—	—	—
	-D8N		HA50-T45	MCT45-42	KM42-6,8,10,12,16,20,25,32	—	FT45-6	DT45-NPU13	—	—	TT45-MT2,3,4

★Please refer to P.7, P.8 for KM Straight Collet, MT Collet & NPU Drill Chuck.

●DT30-NPU8 is sold separately.

< Please select the set which best suits your applications >

●Set Code No.3N : With Straight Shank NPU Drill Chuck and Morse Taper Collet.



●Set Code No.4N : With Quick Change type NPU Drill Chuck.

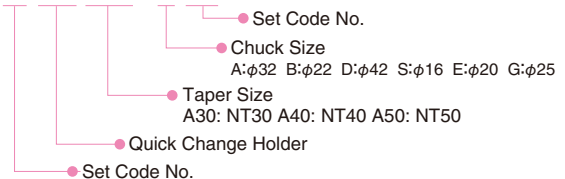


S.MHA Series

Note:

1. When purchasing the boxed set of quick change tooling, please advise us of the machine details, the machine spindle size and the required milling chuck size. Also advise the required Set Code No.

e.g. **S. MH A40-B 4N**



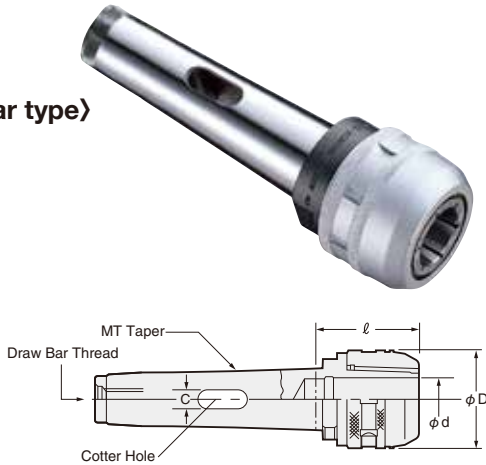
●Set Code No.8N : With Quick Change type NPU Drill Chuck and Morse Taper Sleeve.



MULTI LOCK MILLING CHUCK for MORSE TAPER



MCM (Draw Bar type)



MCM□T (Tang type)



(Draw Bar type)

TAPER	Code No.	φd	φD	ℓ	Thread
MT3	MCM3-16	16	44	56.5	W1/2-12 (M12)
	-20	20	52	69	
	-22	22	57	68.2	
MT4	MCM4-20	20	52	70	U5/8-11 (M16)
	-22	22	57	70	
	-25	25	60	74.5	
MT5	MCM5-32	32	69	76.5	U3/4-10 (M20)
	-42	42	86	94.5	

★ Unless specified otherwise, draw bar threads for all holders will be supplied as **Inch**.

★ Draw bar threads are also metric. e.g. MCM3-16M

★ B&S type is also available.

★ Spanner is supplied as standard.

(Tang type)

TAPER	Code No.	φd	φD	ℓ
MT4	MCM4T-25	25	60	74.5
	-32	32	69	81.5
MT5	MCM5T-32	32	69	76.5
	-42	42	86	94.5
MT6	MCM6T-32	32	69	63
	-42	42	86	83

★ If the cotter hole is required on the shank, please specify the dimensions A, B & C. Please refer to the table below.

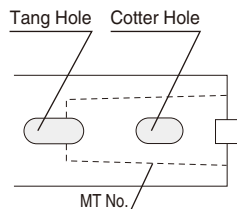
★ Spanner is supplied as standard.

COTTER HOLE DIMENSIONS

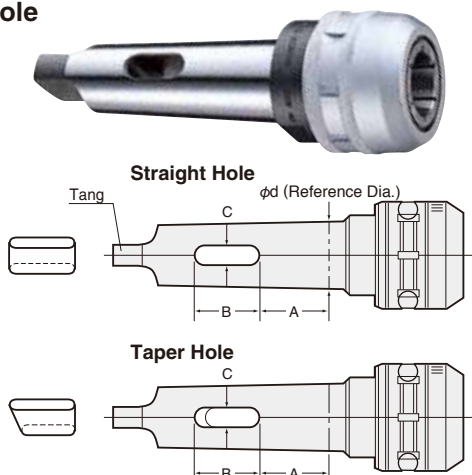


What is a cotter hole?

Milling machines and Boring machines that use Morse Taper Spindles, normally have elliptically shaped holes on the spindle quill. The hole prevents the tooling from dropping down during heavy cutting operations. In particular these operations tend to be large dia. end milling and large dia. tapping. During normal drilling, reaming and boring operations, it is not necessary to use the cotter hole. Please specify the size of the cotter hole from the attached list of machine models, or simply supply the details of dimensions A, B and C. We can then manufacture the holes to suit.



Cotter Hole



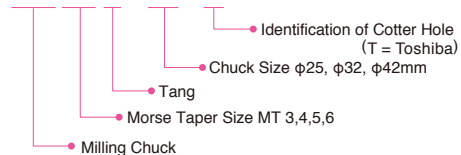
Example of Japanese Machines

TAPER	MAKER	Cotter Hole No.	φd	Cotter Hole			Shape	
				A	B	C		
MT4	IKEGAI	-I	31.267	33	24	10	⊖	*
	OKUMA	-B		27	28	8.4	⊖	*
	KURASHIKI	-K		26.3	28.7	12.2	⊖	*
	OHYA	-O		10	16	8.2	⊖	*
	YOSHIDA	-Y		6	20	8	⊖	*
MT5	OKUMA	-B	44.399	27	38.5	12.4	⊖	*
	IKEGAI	-K		52	33	13	⊖	*
	KURASHIKI	-K		27	35	12.2	⊖	*
	NOMURA	-N		37	37	16	⊖	*
	SHINADA	-S		50.8	34.93	12.95	⊖	*
	TOSHIBA	-T						

DIN 1806

	MT No.	Cotter Hole No.	φd	Cotter Hole			Shape
				A	B	C	
DIN	MT3	-DIN3	23.825	23.5	32	8.3	⊖
	MT4	-DIN4	31.267	22.5	37	8.3	
	MT5	-DIN5	44.399	22	42	12.4	
	MT6	-DIN6	63.348	21	35	16.4	

e.g. MC M5 T - 42 - T



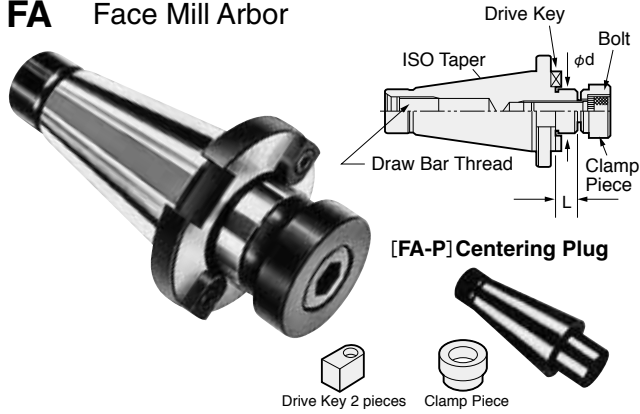
Note:

1. Please specify dimensions A, B & C, if your machine details are not listed.
2. Milling chucks marked * are standard items.

FACE MILL ARBOR



FA Face Mill Arbor



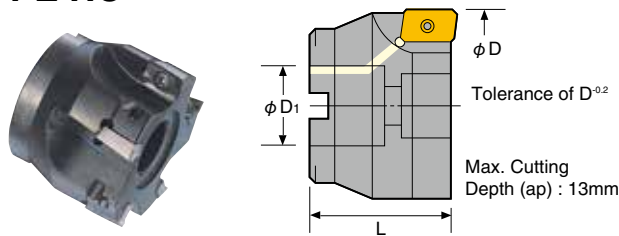
TAPER	Code No.	Cutter Dia	φd	L	Drive Key	Clamp Piece
NT40	FA40-3	3" (75)	25.4	16	FW4	9F31
	-4	4" (100)	31.75	24.5	FW12	9F41
	-5	5" (125)	38.1	18.5	9F5-15.5*2	9F51
	-6	6" (150)	50.8	18.5	9F6-18.5*2	9F61
NT50	FA50-3	3" (75)	25.4	16	FW4	9F31
	-4	4" (100)	31.75	24.5	FW12	9F41
	-5	5" (125)	38.1	18.5	9F5-15.5*2	9F51
	-6	6" (150)	50.8	18.5	9F6-18.5*2	9F61
	-8	8" (200)以上	47.625	32	FW26	-
Centering Plug	-8P*1	8" (200)以上	47.625	38	-	-

- ★ Only FA 50 - 8 uses four Hexagon socket head cap screws.
- ★ Drive key, bolt and spanner are supplied as standard. (Not for centering plug)
- ★ Unless specified otherwise, the inch size draw bar thread is supplied as standard.
- ★ * 1 Centering Plug : Special flange type can be supplied to fit directly onto the spindle for mounting larger cutters. ★ Please order for Seco and Sandvik.
- ★ * 2 Please note that there are new and old.

PRO-END MILL



PE HC



Code No.	D	D1	L	No. of Teeth	Arbor
PE 50HC	50	22	45	5	FA ⁴⁰ ₅₀ -22
PE 60HC	60	25.4	45	5	FA ⁴⁰ ₅₀ -3
PE 80HC	80	25.4	45	6	
PE100HC	100	31.75	50	6	FA ⁴⁰ ₅₀ -4

- ★ Insert Clamp Bolt & Wrench are supplied as standard.
- ★ Suitable for Face Mill Arbor FA. ★ The Lock Bolt is not supplied for PE50HC.
- ★ Please use the bolt (M10×30) attached to FA○-22.
- ★ The Lock Bolt is supplied for PE60HC~PE100HC as standard.
- ★ PE60HC:M12×35, PE80HC:9PEM12-50, PE100HC:9PEM16-55
- ★ Insert Tip is available as an option.

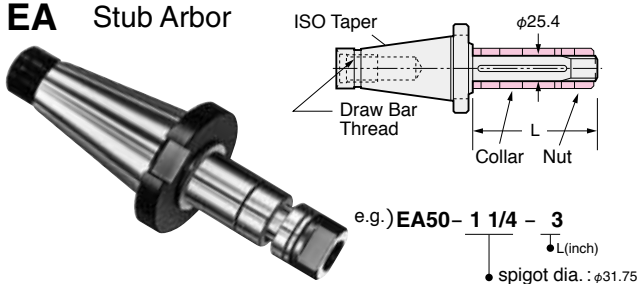
Code No.	Dimension	Grade	Material	ISO Code No.	Tip Clamp Bolt	Tip Clamp Wrench
9DKT15		IC50M	Steel	ADKT1505	M 4090*1	PE-T15
9DKR15		IC28	Aluminum, Cast Iron	ADKR1505	M 4012*2	

- ★ Please ask us if you require any other type of insert grade e.g. Coated, Cermet etc. For Heavy Cutting on Cast Iron, insert grade of IC520M is suitable.
- ★ Purchase of Insert : box each (10 pcs.) ★ * 1 For PE50CH, PE60HC. ★ * 2 For PE80CH, PE100HC.

STUB ARBOR



EA Stub Arbor



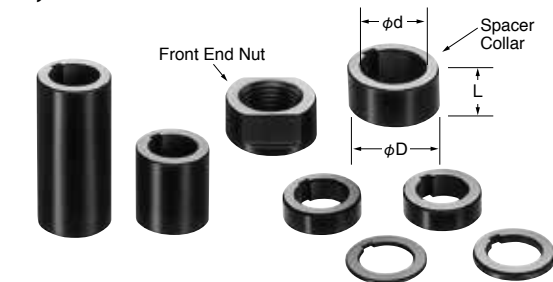
TAPER	Code No.	L	Draw Bar Thread
NT40	EA40-3	3" (75)	U5/8-11 (M16 P=2)
	-4	4" (100)	
	-5	5" (125)	
NT50	EA50-3	3" (75)	U1-8 (M24 P=3)
	-4	4" (100)	
	-5	5" (125)	
	-6	6" (150)	

- ★ Spacer collars, drive key and front end nut are supplied as standard.
- ★ Unless specified otherwise, the inch size draw bar thread is supplied as standard.
- ★ A spigot dia. =φ31.75mm also available.

G, GNT Spacer Collar and Front End Nut

For Stub Arbor, Milling Machine Arbors with 7/24 tapers

Bearing Collar
For φ25.4 : φ25.4×φ55×100ℓ For φ31.75 : φ31.75×φ62×100ℓ



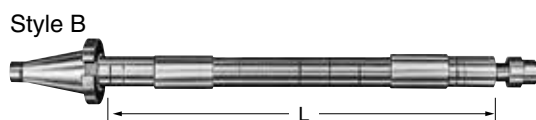
Collar

Size φd	Code No.	L	D
For 25.4	G1	-3, 5, 7, 8, 10, 12, 20, 40, 60, 80	40
For 31.75	G11/4-3	5, 7, 8, 10, 12, 20, 40, 60, 80	46

★ There are also for d = 1/2", 5/8", 7/8", 1 1/2". Front End Nut

Nut

Size φd	Code No.	Screw
For 25.4	GNT1	M24 P=2
For 31.75	GNT11/4	M30 P=2

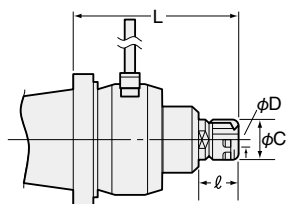


Milling Machine Arbors are also available. Please contact us for more details.

SPINDLE SPEEDER



NX With an increasing speed ratio of 4 or 5 times, the machine spindle is prevented from overheating and over loading, thus the machine productivity will be greatly improved.

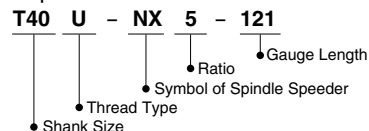


Air Cylinder for Cooling with ON/OFF Magnet NXE-COOL

The best cooling is to cool the speeder body directly.

NXE-COOL

Explanation of the Code No.



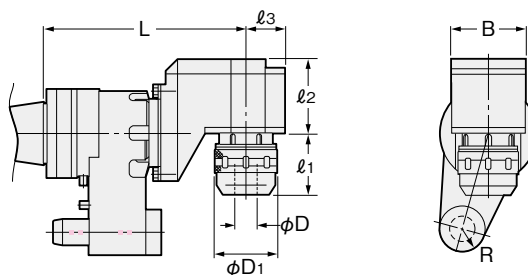
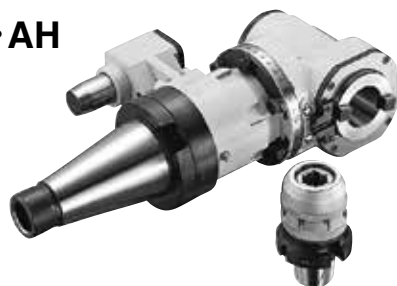
TAPER	Code No.	D	L	φC	ℓ	Ratio	MAX.min ⁻¹	Weight(kg)	Collet
NT40	T40U(M)-NX5-117	1.75~10	117	27.5	32	5	20,000	4.8	SK10A
	T50U(M)-NX5-122		122					6.8	
NT50	-NX4-147	2.75~16	147	40	46	4	10,000	10.8	SK16A

- ★For End Mill, please use **SK A** type collet. For Drill, please use **SK-P** class collet. P.12
- ★Wrench, Collet Extractor and A type SK Collets are supplied as standard. **NX5: SK10-6A, 8A, 10A NX4: SK16-8A, 10A, 12A, 16A**
- ★Air Cylinder for Cooling (NXE-COOL) is highly recommended to use for the stable milling.
- ★Special shank spindle speeder is also available on request.

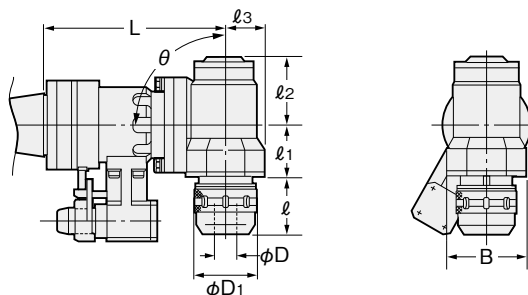
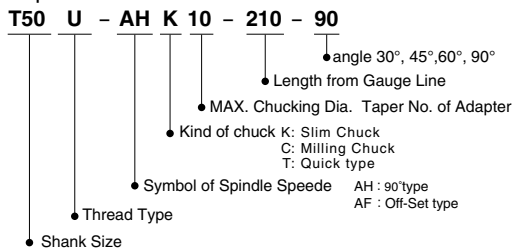
SOLID TYPE ANGULAR HEAD (Free Positioning in 360°)



AF·AH



Explanation of the Code No.



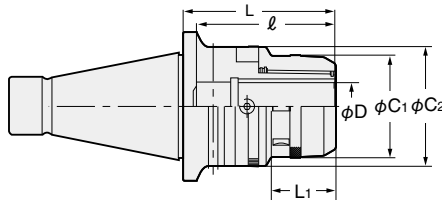
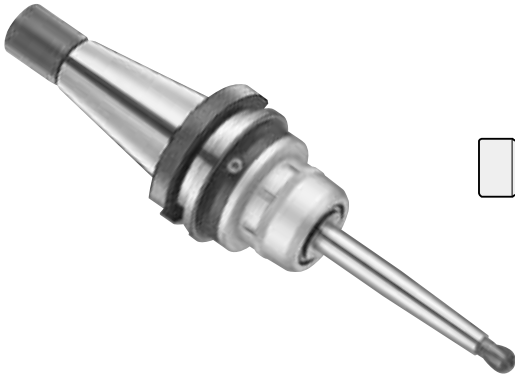
TAPER	Code No. L-θ	D	D ₁	ℓ	ℓ ₁	ℓ ₂	ℓ ₃	B	R	Adapter	Weight(kg)	min ⁻¹
NT50	T50U(M) -AHK10-200-90	1.75~10	27.5	18	45	57	32	60	-	SK10	15.0	4,000
	-AHK16-200-90	2.75~16	40	25	41	58	35	70		SK16	15.7	
	-AHK25-210-90	7.5~25.4	55	57	60	82	45	90		SK25	17.2	2,000
	-AHC32-210-90	3~32	69		65	88		90		KM32	17.5	
	-AHT35-210-90	-	-	58	85	84		25	AHK35	17.0		
	-AFC20-230-90	2~20	52	65	85	84		25	KM20	17.0		
	-AFC32-230-90	3~32	69	-	-	-	-	-	KM32	17.2		
	-AFT35-230-90	-	-	-	-	-	-	-	AHK35	16.0		

- ★For SK Collet, please refer P.12. For KM Collet, please refer P.7.
- ★Angle 30°, 45°, 60° are also available as an option.
- ★For the Quick Type Angular Head's (AHK35) Adapter, please refer **NC TOTAL TOOLING SYSTEM catalog** P.120.
- ★Angular Heads of different shanks such as NT 40, Direct Mount Flange type Angular Head (**TOTAL TOOLING SYSTEM catalog** P.124) are also available. Please contact with us.
- ★When AH90 (angle 30°, 45°, 60°), CCW rotation of the machine spindle, the cutter rotates CW. Therefore, the machine needs a reverse rotation function.

ZERO FIT TYPE MILLING CHUCK



CZF



MAX. run-out at 100mm

CZF20	0.050mm/dia.
CZF25	0.050mm/dia.
CZF32	0.030mm/dia.

PAT.

TAPER	Code No.	C1	C2	L	L1	ℓ	Weight (Kg)	Collet
NT40	T40U(M)-CZF20- 90	51.5	66.5	90	35	80	2.0	(KM20)
	-CZF25- 90	59.5	74.5				2.3	(KM25)
	-CZF32-105	69	80.5	105	42	105	2.6	(KM32)
NT50	T50U(M)-CZF20-105	51.5	66.5	105	35	80	4.6	(KM20)
	-CZF25-105	59.5	74.5				5.0	(KM25)
	-CZF32-105	69	80.5	42	105	5.3	(KM32)	

★Spanner is available as an option.
CZF20 type : 9HC22, CZF25 type : 9HC25, CZF32 type : 9HC32

★Wrench to adjust run-out (9ZFL) is available as an option.



★Please refer P.7 for KM collet.

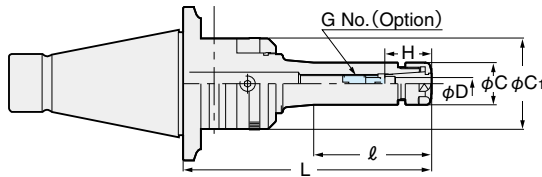


•In case of CZF (Milling Chuck) style, please rotate the Adjust Cam to the free position.
Then, tighten the nose ring until face contact. If the face contact is not completed, the Adjust Cam can not function. (Free run) If the Adjust Cam is not at the free position before tightening, you can not tighten the nose ring until face contact correctly.
•For the safety reason, the Cam Ring Lock Screws can not be loosen to remove to the outside.
Please loose the Cam Ring Lock Screws slightly to rotate the Cam Ring.

ZERO FIT TYPE SLIM CHUCK



SZF



MAX. run-out at 100mm

SZF 6	L < 150	0.050mm/dia.
	L ≥ 150	0.040mm/dia.
SZF10		0.050mm/dia.
SZF16		0.040mm/dia.
SZF25		0.025mm/dia.

PAT.

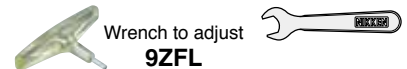
TAPER	Code No.	L	ℓ	C	C1	H	G No. (Option)	Weight (Kg)	Collet
NT40	T40U(M)-SZF 6- 90	90	37.5	19.5	40.5	21~35	SKG- 8	1.3	(SK 6)
	-SZF10- 90			27.5	48.5	30~50	SKG-12L	1.5	(SK10)
	-SZF16- 90			40	59.5	40~70	SKG-18L	1.8	(SK16)
	-SZF25-120	120	67.5	55	66.5	55~85	SKG-28	2.4	(SK20)
NT50	T50U(M)-SZF 6-105	105	64	19.5	40.5	21~35	SKG- 8	3.8	(SK 6)
	-SZF10-105			27.5	48.5	30~50	SKG-12L	4.3	(SK10)
	-SZF16-105			40	59.5	40~70	SKG-18L	4.9	(SK16)
	-SZF25-105	55	66.5	55~85	SKG-28	5.7	(SK20)		

★Adjust screw (G No.), wrench to adjust run-out (9ZFL) and SKL spanner are available as an option.

SZF6: SKL-6W, SZF10: SKL-10, SZF16: 9HC16, SZF25: 9HC25

★Please use "P" class or "A" type SK collet. P.12

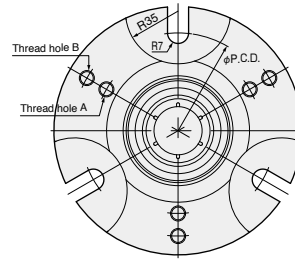
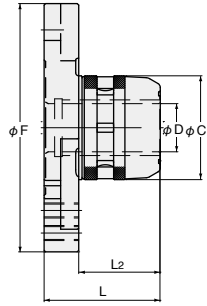
★Multi-Cam style is available. e.g. T40U-SZF16-90-C3. (3 Cams) Please contact us for more detail.



MILLING CHUCK for HOBBING MACHINE



CF
MILLING CHUCK for
HOBBING MACHINE



Explanation of the Code No.

CF - **32**

• Chuck Size

• MILLING CHUCK for
Hobbing Machine

The CF chuck is ideal for improving efficiency with its powerful gripping force.

Style	Code No.	ϕF	ϕD	ϕC_1	L	L ₂	Width of groove for fixing bolts	$\phi P, C, D$	Thread hole A	Thread hole B
32	CF-32	165	32	69	77	54	14mm (three places)	130	3-M10 P.C.D.110	3-M10 P.C.D.140
42	CF-42	175	42	86	80	57		140	3-M10 P.C.D.120	3-M10 P.C.D.150

★Spanner is available as an option. **CF32 type : 9HC32, CF42 type : 9HC42.**

★Please refer P.7 for KM collet.

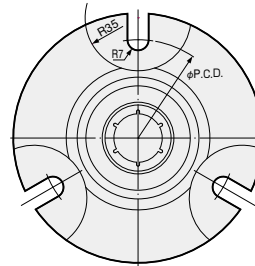
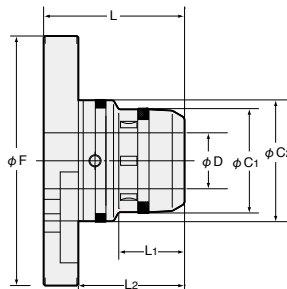
★Please note the acceptable shank tolerance is h6~h7.



FLANGE STYLE ZERO FIT TYPE MILLING CHUCK



CF-CZF



Explanation of the Code No.

F - **CZF32**

• Chucking Capacity
Zero Fit Type Milling Chuck

• Symbol of Flange Style

A holder for gripping the cutter on a tool-grinding machine and adjusting run-out.

Style	Code No.	ϕF	ϕD	ϕC_1	ϕC_2	L	L ₁	L ₂	Width of groove for fixing bolts	$\phi P, C, D$
32	CF-CZF32	165	32	69	80.5	93.2	43.5	70.2	14mm (three places)	130
42	CF-CZF42	175	42	86	98.2	95	46	72		140

★Spanner is available as an option. **CF32 type : 9HC32, CF42 type : 9HC42.**

★Wrench to adjust run-out (Hexagon Key:4mm) does not provide. Please use commercially available products.

★Please refer P.7 for KM collet.

★Please note the acceptable shank tolerance is h6~h7.



- Ideal for adjusting cutter run-out on an NC grinding machine or universal grinding machine.
- 3-point cam as a standard feature makes it easy to adjust runout on a grinding machine.



•In case of CZF (Milling Chuck) style, please rotate the Adjust Cam to the free position.
Then, tighten the nose ring until face contact.
If the face contact is not completed, the Adjust Cam can not function. (Free run)
If the Adjust Cam is not at the free position before tightening, you can not tighten the nose ring until face contact correctly.
•For the safety reason, the Cam Ring Lock Screws can not be loosen to remove to the outside.
Please loose the Cam Ring Lock Screws slightly to rotate the Cam Ring.

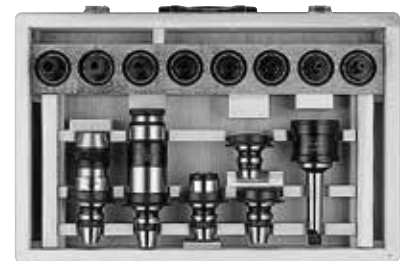


NON-STOP CHUCK DRILLING and TAPPING series



D.T and S.NQM series

As a standard attachment of the market boom product NPU Drill Chuck, it is an easy-touse, highly efficient set content.

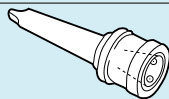
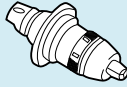



D.T4-38BN and D.T5-38BN are not wooden box sets.

- ◆ Tapping from drilling can be done efficiently.
("Non-Stop Chuck" is the trade name, do not change tools during spindle rotation)
- ◆ The floating mechanism is built into the Tupper chuck itself, so it can be used for most machines.
- ⚠ Do not change tools during spindle rotation.

D.T 3 - 16 AN G

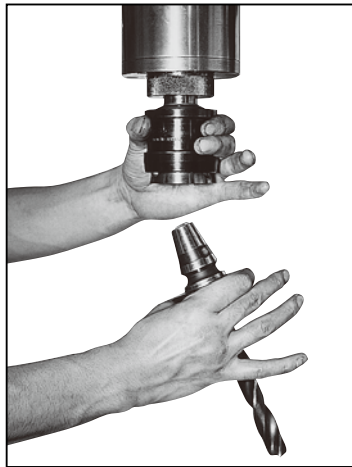
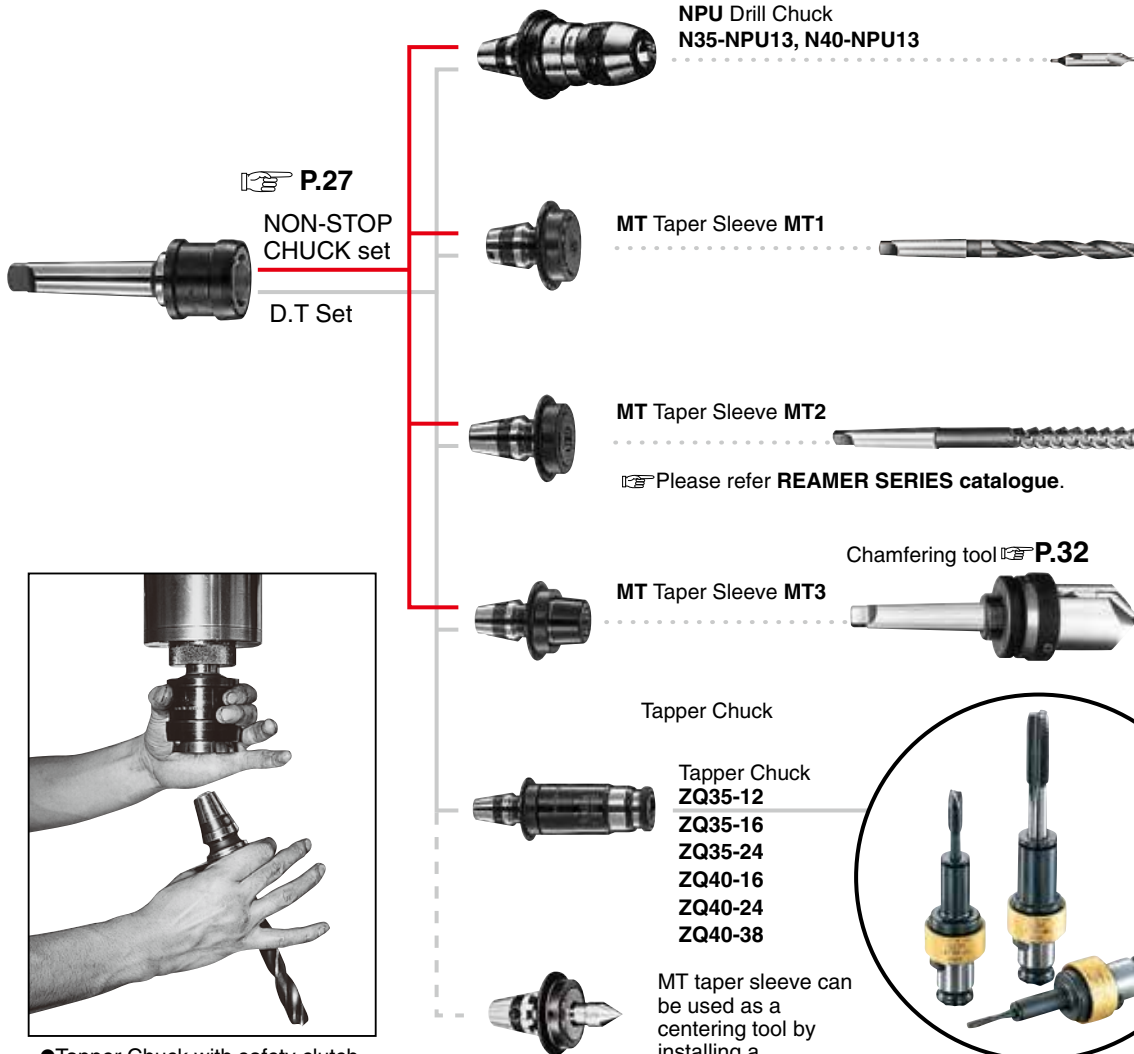
- G: with ZKG Tap Collet
- Max. drilling diameter: AN=φ32 BN=φ50
- Max. tapping capacity: M12, 16, 24, 38
- Size of Taper 3: MT3, 4: MT4, 5: MT5
- D.T set: for drilling and tapping

TAPER	D.Tセット Code No.	Max. Drilling Dia.	Tapping Cap.	Set Content Code.No.		
				Non-Stop Chuck Holder 	NPU Drill Chuck for φ1~φ13 	MT Taper Sleeve 
MT 3	D.T3-12ANG	φ32	(M)2~12 (U)1/16~1/2	NQM3-35(1P)	N35-NPU13	N35-MT1, 2, 3 (3P)
	D.T3-16ANG	φ32	(M)2~16 (U)1/16~5/8	NQM3-35(1P)	N35-NPU13	N35-MT1, 2, 3 (3P)
MT 4	D.T4-12ANG	φ32	(M)2~12 (U)1/16~1/2	NQM4-35(1P)	N35-NPU13	N35-MT1, 2, 3 (3P)
	D.T4-16ANG	φ32	(M)3~16 (U)1/8~5/8	NQM4-35(1P)	N35-NPU13	N35-MT1, 2, 3 (3P)
	D.T4-16BNG	φ50	(M)3~16 (U)1/8~5/8	NQM4-40(1P)	N40-NPU13	N40-MT1, 2, 3, 4(4P)
	D.T4-24ANG	φ32	(M)8~24 (U)1/2~1	NQM4-35(1P)	N35-NPU13	N35-MT1, 2, 3 (3P)
	D.T4-24BNG	φ50	(M)8~24 (U)1/2~1	NQM4-40(1P)	N40-NPU13	N40-MT1, 2, 3, 4(4P)
	D.T4-38BN	φ50	(M)14~38 (U)3/4~1 1/2	NQM4-40(1P)	N40-NPU13	N40-MT1, 2, 3, 4(4P)
MT 5	D.T5-16BNG	φ50	(M)3~16 (U)1/8~5/8	NQM5-40(1P)	N40-NPU13	N40-MT1, 2, 3, 4(4P)
	D.T5-24BNG	φ50	(M)8~24 (U)1/2~1	NQM5-40(1P)	N40-NPU13	N40-MT1, 2, 3, 4(4P)
	D.T5-38BN	φ50	(M)14~38 (U)3/4~1 3/8	NQM5-40(1P)	N40-NPU13	N40-MT1, 2, 3, 4(4P)

[Note] 1) When ordering D.T Set please decide model by taper shank of machine, max. tapping dia., and max. drill cap. e.g. D.T5-38BN
2) Please inform each Code No. when ordering as a single unit.

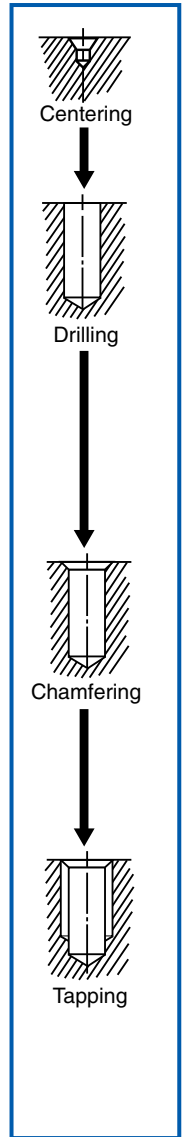
NON-STOP CHUCK - D.T BOXED SET

NIKKEN



●Taper Chuck with safety clutch mechanism.

⚠ Do not change tools during spindle rotation.



Set Content Code.No.		Tap collet outside the set (for unified, pipe etc)	Tap Collet (JIS)			
TAPPER CHUCK	Tap Collet (JIS)		l ₁	l ₂	l ₃	φ d
			for ZKG12			
ZQ35-12(1P) Float : 15mm·5	ZKG12-(M)4, 5, 6, 8, 10, 12 Each one (6P)	ZKG12-(M)2, 3	75	120	55	32
			for ZKG16			
ZQ35-16(1P) Float : 20mm·8	ZKG16-(M)4, 5, 6, 8, 10, 12, 14, 16 Each one (8P)	ZKG16-(M)3	75	130	66	39
			for ZKG24			
ZQ35-24(1P) Float : 15mm·5	ZKG24-(M)4, 5, 6, 8, 10, 12 Each one (6P)	ZKG24-(M)8, 10	75	120	55	32
			for ZKN38			
ZQ40-16(1P) Float : 20mm·8	ZKG16-(M)4, 5, 6, 8, 10, 12, 14, 16 Each one (8P)	ZKN38-(M)38	75	130	66	39
			for ZKG24			
ZQ40-24(1P) Float : 20mm·8	ZKG24-(M)4, 5, 6, 8, 10, 12, 14, 16 Each one (8P)	ZKG24-(M)8, 10	75	130	66	39
			for ZKN38			
ZQ40-38(1P) Float : 0	ZKG24-(M)12, 14, 16, 18, 20, 22, 24 Each one (7P)	ZKN38-(M)38	75	134	74	46
			for ZKN38			
ZQ40-38(1P) Float : 0	ZKG24-(M)12, 14, 16, 18, 20, 22, 24 Each one (7P)	ZKN38-(M)38	98	135	74	46
			for ZKN38			
	ZKN38-(M)18, 20, 22, 24, 27, 30, 33, 36 Each one (8P)	ZKN38-(M)38	98	105	64	78
			for ZKN38			
		ZKN38-(M)38	82	130	66	39
			for ZKN38			
		ZKN38-(M)38	82	135	74	46
			for ZKN38			
		ZKN38-(M)38	82	105	64	78
			for ZKN38			
		ZKN38-(M)38	82	135	74	46
			for ZKN38			
		ZKN38-(M)38	82	105	64	78

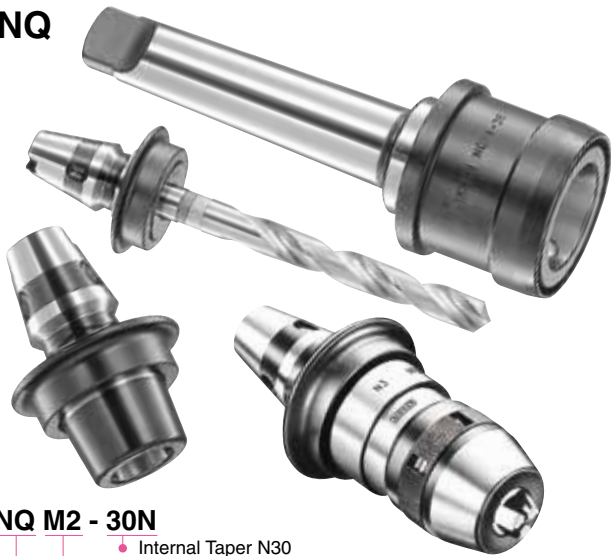
3)There are also shank shape of National Taper, NT 40, NT 50.

4)For drilling and reaming only, please use **NON-STOP CHUCK** set.

NON-STOP CHUCK - BOXED SET

NIKKEN

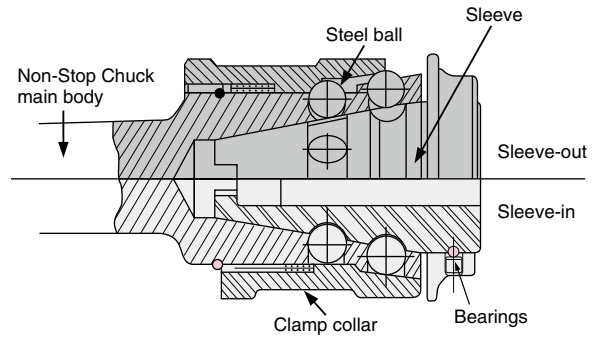
S.NQ



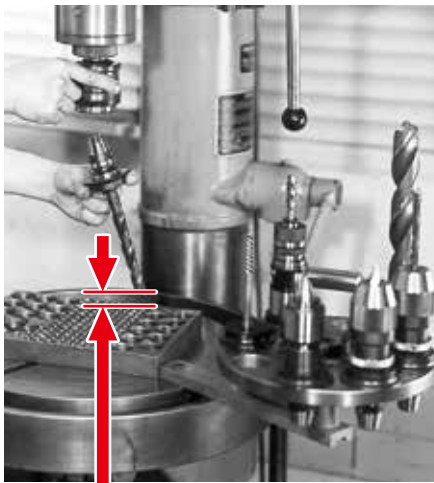
S. NQ M2 - 30N

- Internal Taper N30 N40
- Shank Type : MT2, 3, 4, 5 : 40=NT40, 50=NT50
- Non-Stop Chuck
- Set Code No.

【Non-Stop Chuck internal mechanism】



- ◆ Quick and easy tool change system.
(*Non-Stop Chuck is the trade name, do not change tools during spindle rotation)
- ◆ Damage to the machine tool spindle can be kept to a minimum as the tool change is carried out smoothly and efficiently.
- ◆ Only 10mm clearance between the tool and the workpiece is required for a tool change.
- ◆ Powerful tool clamping.
- ◆ NPU drill chuck is available.



Only 10mm clearance between the tool and the workpiece is required for a tool change.

Non-Stop Chuck Set Contents

TAPER	Non-Stop Chuck Set Code No.	Max. Drilling Dia.	Non-Stop Chuck	NPU Drill Chuck $\phi 1\sim 13\text{mm}$	MT Taper Sleeve
MT 2	S.NQM2-30N	$\phi 23$	NQM2-30(1P)	N30-NPU13(1P)	N30-MT1, 2 Each one(2P)
MT 3	S.NQM3-35N	$\phi 32$	NQM3-35(1P)	N35-NPU13(1P)	N35-MT1, 2, 3 Each one(3P)
MT 4	S.NQM4-35N	$\phi 32$	NQM4-35(1P)	N35-NPU13(1P)	N35-MT1, 2, 3 Each one(3P)
	S.NQM4-40N	$\phi 50$	NQM4-40(1P)	N40-NPU13(1P)	N40-MT1, 2, 3, 4 Each one(4P)
MT 5	S.NQM5-40N	$\phi 50$	NQM5-40(1P)	N40-NPU13(1P)	N40-MT1, 2, 3, 4 Each one(4P)
NT 40	S.NQ 40-35N	$\phi 32$	NQ 40-35(1P)	N35-NPU13(1P)	N35-MT1, 2, 3 Each one(3P)
NT 50	S.NQ 50-40N	$\phi 50$	NQ 50-40(1P)	N40-NPU13(1P)	N40-MT1, 2, 3, 4 Each one(4P)

★N30-NPU8, N35-NPU8 and N40-NPU8 are also available.

★Jacobs Taper Adapter are also available. e.g. N35-J6, N40-J6

⚠ Do not change tools during spindle rotation.

⚠ Caution for Tooling

General

- Please use a **NIKKEN** collet for the **NIKKEN** chucks.
- Please use a **NIKKEN** chuck for the **NIKKEN** collets. may not be performed 100% using on the other makers chucks.
- Please be careful not to inflict personal injury at your handling of cutting tools.
- Please clean the contact surface on a holder & cutting tool shank.
- Please pay attention to prevent from the rust at the storage.
- Please do not use the tooling that has scratches, damaged or rusted on its taper. This may cause false accuracy readings and reduce cutting performance.
- Please pay attention not to inflict personal injury with the broken tools or swarfs.
- Please do not modify the holders by yourselves.
- Please do not touch the tool at its rotating.
- Please do not touch the tool just after machining, it might be very hot.
- Please check if the cutting tool is held with the holder properly before the machining.

Quotation fee of the repair is always necessary whether repair or not.

MT Tapper Sleeve

- Please insert the tool shank into the bore of the holder with adjusting the tang location, and hold them with facing tool front end upwards, and hit

the bottom end of the holder(pull stud end) by copper hammer hardly.

- For removal of the tool, insert a bar into tang hole and hit the bar by hammer with special care to prevent the tool from popping out.

Stub Arbor

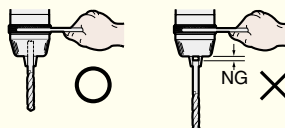
- When setting of side cutter or metal saw onto the arbor, please adjust the location of the drive key.

Drill Chuck Adapter

- When setting drill chuck onto the arbor please put the chuck onto the arbor with adjusting the locations of male & female tapers and hit the bottom end of the holder(pull stud end) by copper hammer.

NPU Drill Chuck

- Please insert the drill shank into the bottom, and chuck the shank with the total chucking length of NPU.
- Please check the run-out accuracy before machining especially for the small diameter drill.
- When setting the drill onto the chuck, set the drill into the chuck and tighten the chuck ring by hand then tighten the ring by attached spanner to complete.



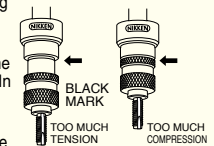
Face Mill Arbor

- Please use the bolt specified by the cutter maker.
- When setting the face milling cutter onto the arbor, insert the spigot of the arbor into the cutter bore and minimize the backlash between the drive key and the slot against the direction of rotation, then tighten the end bolt.

Tapperr Chuckck

- NIKKEN Tapper Chucks have a built-in floating mechanism which creates tension and compression of the spindle body. This mechanism prevents double threading and also ensure the synchronized movement between pitch thread of tap and Z axis feed is smooth. Please use the floating system within its limitation.

- 1). Too Much Tension
When tension movement exceeds the limitation, the black line will appear. In this case increase machine feed.
- 2). Too Much Compression
When machine feed is too fast for the tap thread pitch, the compression floating mechanism will work. The machine program should be modified to slow feed rate down.



- When the drilled hole diameter is too small (this is often caused by the drilling of the tough materials, extended drilling diameter is not large enough.), the tap will slip before the breakage due to torque limiter mechanism. In this case enlarge the drilled hole and do not adjust the torque setting.

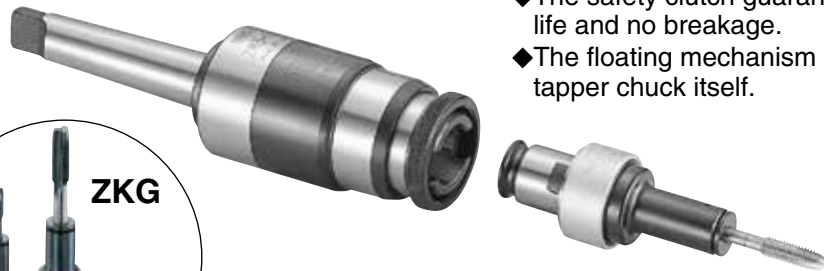
TAPPER CHUCK SERIES

NIKKEN

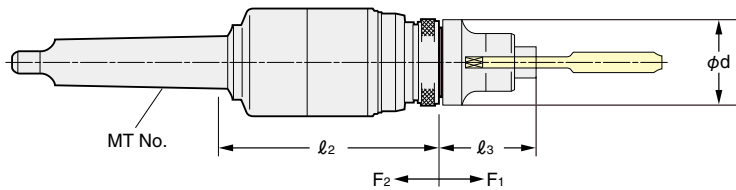
ZM

Morse Taper Tapper Chuck

M2~M100



- ◆ Ideal for production lines and all mass production. (Tapping only)
- ◆ The safety clutch guarantees long tap life and no breakage.
- ◆ The floating mechanism is built into taper chuck itself.



ZM 2 - 12

- Style: M12, M16, M24, M38, M65
- Size of Taper 2: MT2, 3: MT3, 4: MT4
- Morse Taper Tapper Chuck

TAPER	Morse Taper Tapper Chuck	Tap range	l ₂	l ₃	d	Float		Attached Tap collet for set case	Tap collet outside the set
						F ₁	F ₂		
MT2	ZM2-12	(M) 2~12 (U) 1/8~1/2	97	55	32	15	5	ZKG12-(M) 4,5,6,8,10,12 Each one (6P)	for ZKG12 ZKG12 -(M) 2, 3 -(U) 1/8~1/2 -(P) 1/16, 1/8, 1/4
	ZM3-12	(M) 3~16 (U) 1/8~5/8							
MT3	-16	(M) 3~16 (U) 1/8~5/8	120	66	39	20	8	ZKG16-(M) 4,5,6,8,10,12,14,16 Each one (8P)	for ZKG16 ZKG16 -(M) 3 -(U) 1/8~5/8 -(P) 1/8~3/8
	-24	(M) 8~24 (U) 1/2~1							
MT4	ZM4-16	(M) 3~16 (U) 1/8~5/8	120	65	39	20	8	ZKG16-(M) 4,5,6,8,10,12,14,16 Each one (8P)	for ZKG24 ZKG24 -(M) 8, 10 -(U) 1/2~1 -(P) 1/4~5/8
	-24	(M) 8~24 (U) 1/2~1							
MT5	ZM5-38	(M) 14~38 (U) 3/4~1 1/2	156	64	78	25	10	ZKN38-(M) 18,20,22,24,27,30,33,36 Each one (8P)	for ZKG38 ZKN38 -(M) 38 -(U) 3/4~1 3/8 -(P) 3/8~1
	-65*	(M) 36~100 (U) 1 1/16~3 3/4							
MT6	ZM6-65*	(M) 36~100 (U) 1 1/16~3 3/4	190	89	110	25	10	ZKN65-(M) 36,39,42,45,48,50,52,56,60,64,65 Each one (11P)	For more information ☎ P29, 30, 31

★ Please refer ☎ P.29 (JIS), P.31 (ISO, DIN) for suitable ZKG tap collets and ☎ P.30 (JIS), P.31 (ISO, DIN) for suitable ZKN and ZK tap collet.

★ Please specify the dimensions of the cotter hole, if required. Please refer ☎ P.20

★ In case of set, please add "S." to the beginning.

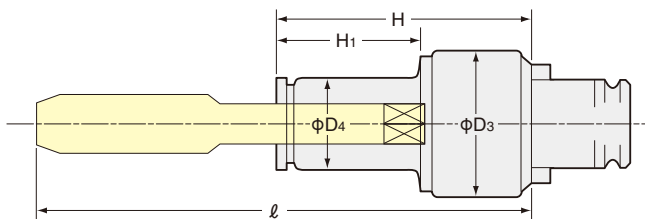
e.g. S.ZM2-12G (The last G means ZKG tap collet.)

*mark: The Code No. is S.ZM5-100, S.ZM6-100.

ONE TOUCH TAP COLLET (JIS)



ZKG Tap Collet

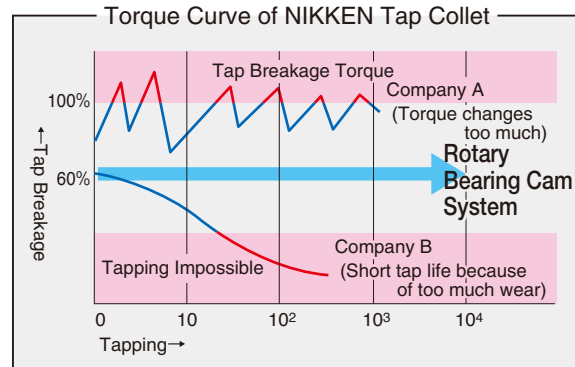


D₃ Dimension
ZKG12:32mm
ZKG16:39mm
ZKG24:46mm

■ **High Accuracy, Quick Response and Long Tap Life.**
 NIKKEN ZKG Tap Collet can be used with all of NIKKEN floating Tapper Chucks.

■ **Rotary Bearing Cam Mechanism**

The ZKG tap collet can respond very smoothly for the change of the tapping torque.



■ The torque of CCW is 1.4 times of the torque of CW to prevent the problem of the swarf.

■ The tap can be clamped with one touch operation.

■ The adjustment mechanism of the setting torque is not installed on the ZKG tap collet. The high torque setting type is available for the tapping on the stainless as an option. e.g ZKG12-4-HT

The ZKG tap collet is not interchangeable with ZKN tap collet.

	ZKG12					ZKG16					ZKG24				
	Code.No	D ₄	H	H ₁	ℓ	Code.No	D ₄	H	H ₁	ℓ	Code.No	D ₄	H	H ₁	ℓ
Metric (M)	ZKG12- 2	13	54.5	30.5	72	ZKG16- 3	13	64.5	37.5	85.5	ZKG24- 8	19	73	45	111
	- 3				75	- 4				90.5	-10				116
	- 4				80	- 5				98.5	-12				122
	- 5				88	- 6				100.5	-14				123
	- 6	19	55	31	90	- 8	19	65	38	104	-16	26	74	48	128
	- 8				94	-10				109	-18				128
	-10				99	-12				115	-20				136
	-12				105	-14				116	-22				141
						-16	26	66	42	121	-24	32			144
	Unified (U) or British Standard Whitworth (W)	ZKG12-1/8	13	54.5	30.5	75	ZKG16-1/8	13	64.5	37.5	85.5	ZKG24-1/2	19	73	45
-3/16		88				-3/16	98.5				-9/16	125			
-1/4		90				-1/4	100.5				-5/8	129			
-5/16		93.5				-5/16	104				-3/4	137			
-3/8		19	55	31	99	-3/8	19	65	38	109	-7/8	32	74	48	141
-7/16					103	-7/16				113	-1				149
-1/2					107	-1/2				117					
						-9/16	26	66	42	118					
						-5/8				122					
Pipe (PT) (PS) (PF)	ZKG12-1/8P	19	56	32	83	ZKG16-1/8P	19	66.5	39	93	ZKG24-1/4P	26	75	49	104
	-1/4P				89	-1/4P				97	-3/8P				105
	-1/16P	19	56	32	81.5	-3/8P	26	68.5	44	98	-1/2P	32		114	
	-1/16P-Y	19	56	32	81.5						-5/8P				115

★ Tap for pipe thread is clamped with the side lock screw.

★ High torque setting type example for stainless steel is available. Please add "-HT" at the end of Code No. e.g. ZKG12-4-HT

★ Low torque setting is "-LT". e.g. ZKG12-4-LT

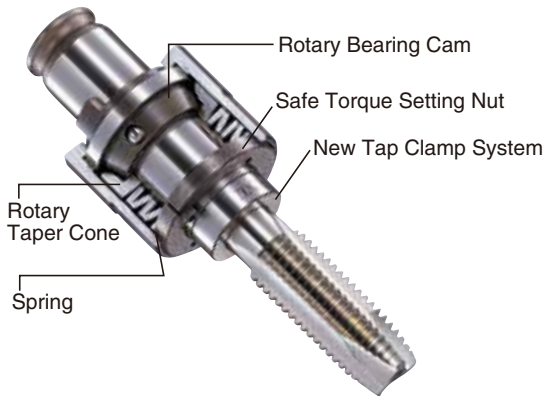
★ The shank dimension of the 1/16P tap varies depending on the tap maker.

★ The internal mechanism of the tap collet for the left handed tap is different from the standard one. Please use the special tap collet for the left handed tap.

ZKN TAP COLLET (JIS)



ZKN Tap Collet



- High Accuracy, Quick Response and Long Tap Life.
- Rotary Bearing Cam Mechanism
NIKKEN ZKG Tap Collet can be used with the all NIKKEN floating Tapper Chucks.
- The torque of CCW is 1.4 times of the torque of CW to prevent the problem of the swarf.
- The setting torque can be adjusted.

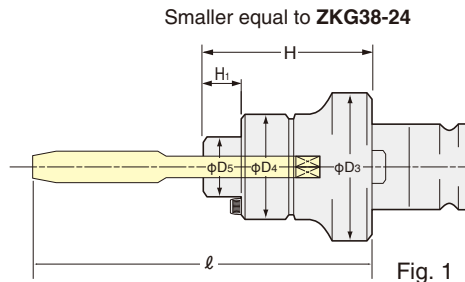


Fig. 1

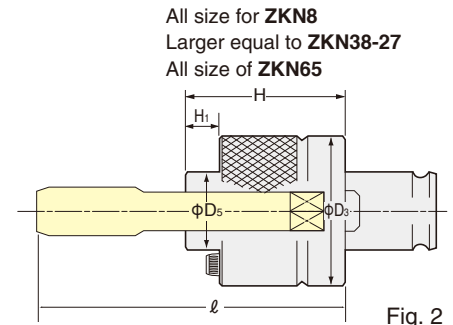


Fig. 2

ZKN65 : The tap collet for the unified thread is also available. (U,W)
 1³/₈, 1¹/₂, 1⁵/₈, 1³/₄, 1⁷/₈, 2, 2¹/₄,
 2¹/₂, 2³/₄, 3, 3¹/₄, 3¹/₂, 3³/₄

	ZKN8	ZKN38		ZKN65	
		M18~24	M27~36	M36~65	M68~100
D ₃	23	78		110	125
D ₄	—	56	—	—	—

ZKN8 is semi-standard.

	ZKN 8					ZKN38					ZKN65					
	Code.No	D ₅	H	H ₁	ℓ	Code.No	D ₅	H	H ₁	ℓ	Code.No	D ₅	H	H ₁	ℓ	
Metric (M)	ZKN 8-2	13	29.5	6.5	50	ZKN38-18	32	61	17	117	ZKN65- 36	68	89	20	179	
	-3				55	-20				121	- 39				187	
	-4				56	-22				130	- 42				189	
	-5				64	-24				133	- 45				194	
	-6				66	-27				142	- 48				198	
	-8				73	-30				145	- 52				205	
						-33				153	- 56				212	
						-36				161	- 60				222	
						-38				121	- 64				229	
											- 65				229	
				- 68	254											
Unified (U) or British Standard Whitworth (W)	ZKN 8-1/8	13	29.5	6.5	55	ZKN38-3/4	32	61	17	122	- 72	84	94	25	254	
	-3/16				64	-7/8				130	- 80				264	
	-1/4				66	-1				138	-100*				274	
						-11/8				145	ZKN65-1P				127	
						-11/4				153	-11/8P				135	
						-13/8				161	-11/4P				139	
											-13/8P				144	
											-11/2P				144	
											-15/8P				144	
											-13/4P				144	
Pipe (PT) (PS) (PF)					ZKN38 -3/8P	26	61	17	24	91	-13/4P	84	94	25	144	
					-1/2P	32			100	-2P	149					
					-5/8P	104			-21/4P	159						
					-3/4P	103			-21/2P	174						
					-7/8P	45			64	12	106				-23/4P	174
					-1P	109			-3P	174						

★*mark: The Code No. of tap collet for M85 to M90 is ZKN65-100.

The Code No. of tap collet for M95 to M100 is ZKN65-100N.

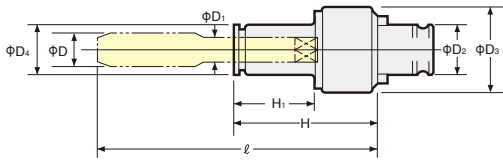
★The internal mechanism of the tap collet for the left handed tap is different from the standard one.

Please use the special tap collet for the left handed tap.

ONE TOUCH TAP COLLET (ISO, DIN)



ZKG



Tapping Capacity	ZKG12		ZKG16			ZKG24		
	M2~5	M6~12	M3~5	M6~12	M14~20	M8~12	M14~20	M22~24
D ₂	19		25			30		
D ₃	32		39			46		
D ₄	13	19	13	19	26	19	26	32
H	54.5	55	64.5	65	66	73	74	
H ₁	30.5	31	37.5	38	42	45	48	

TAP SPEC.	ZKG12					ZKG16				ZKG24					
	Code No.	D	D ₁	W	ℓ	Code No.	D	D ₁	W	ℓ	Code No.	D	D ₁	W	ℓ
ISO Metric	ZKG12-2S	2	2.5	2	74	ZKG16-4S	4	4	3.15	93	ZKG24-12S	12	9	7.1	129
	-3S	3	3.15	2.5	79	-5S	5	5	4	97	-14S	14	11.2	9	130
	-4S	4	4	3.15	83	-6S	6	6.3	5	102	-16S	16	12.5	10	136
	-5S	5	5	4	87	-8S	8	8	6.3	106	-18S	18	14	11.2	145
	-6S	6	6.3	5	92	-10S	10	10	8	113	-20S	20	14	11.2	145
	-8S	8	8	6.3	96	-12S	12	9	7.1	121	-22S	22	16	12.5	145
	-10S	10	10	8	103	-14S	14	11.2	9	122	-24S	24	18	14	155
	-12S	12	9	7.1	111	-16S	16	12.5	10	128					
ISO Pipe	ZKG12-1/8PS	9.728	8	6.3	87	ZKG16-1/8PS	9.728	8	6.3	97.5	ZKG24-1/4PS	13.157	10	8	110
						-1/4PS	13.157	10	8	103.5	3/8PS	16.662	12.5	10	116
						-3/8PS	16.662	12.5	10	109.5	-1/2PS	20.955	16	12.5	122
											-5/8PS	22.911	18	14	124
DIN Metric	ZKG12-2D(DIN352)	2	2.8	2.1	72	ZKG16-4D(DIN371)	4	4.5	3.4	102	ZKG24-12D(DIN376)	12	9	7	150
	-3D(DIN371)	3	3.5	2.7	85	-5D(DIN371)	5	6	4.9	107	-14D(DIN376)	14	11	9	145
	-4D(DIN371)	4	4.5	3.4	92	-6D(DIN371)	6	6	4.9	117	-16D(DIN376)	16	12	9	145
	-5D(DIN371)	5	6	4.9	97	-8D(DIN376)	8	6	4.9	127	-18D(DIN376)	18	14	11	158
	-6D(DIN371)	6	6	4.9	107	-8D7(DIN371)	8	8	6.2	123	-20D(DIN376)	20	16	12	168
	-8D(DIN376)	8	6	4.9	117	-10D(DIN376)	10	7	5.5	134	-22D(DIN376)	22	18	14.5	166
	-8D7(DIN371)	8	8	6.2	113	-10D7(DIN371)	10	10	8	131	-24D(DIN376)	24	18	14.5	186
	-10D(DIN376)	10	7	5.5	124	-12D(DIN376)	12	9	7	142					
	-10D7(DIN371)	10	10	8	121	-14D(DIN376)	14	11	9	137					
	-12D(DIN376)	12	9	7	132	-16D(DIN376)	16	12	9	137					
DIN Pipe	ZKG12-1/8R(DIN353)	9.728	7	5.5	92	ZKG16-1/8R(DIN353)	9.728	7	5.5	102.5	ZKG24-1/4R(DIN353)	13.157	11	9	105
						-1/4R(DIN353)	13.157	11	9	98.5	-3/8R(DIN353)	16.662	12	9	112
						-3/8R(DIN353)	16.662	12	9	105.5	-1/2R(DIN353)	20.955	16	12	116

★ Tap for pipe thread is clamped with the side lock screw.

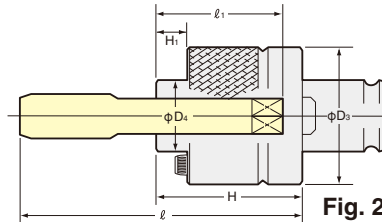
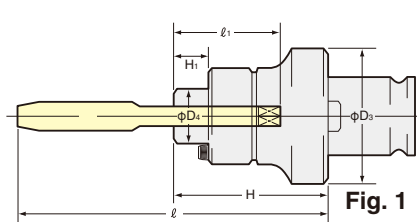
★ High torque setting type example for stainless steel is available. Please add "-HT" at the end of Code No. e.g. ZKG12-3S-HT

★ Low torque setting is "-LT". e.g. ZKG12-3S-LT

ZK TAP COLLET (ISO, DIN)



ZK



	ZK8	ZK38	ZK65
D ₄	13	45	68
D ₃	23	78	110
H ₁	6.5	12	13
H	29.5	64	89

Total length " ℓ " is calculated as; $\ell = \text{Tap length} - \ell_1 + H$

ZK8 type is semi-standard.

TAP SPEC.	ZK 8					ZK38				ZK65					
	Code No.	D	D ₁	W	ℓ_1	Code No.	D	D ₁	W	ℓ_1	Code No.	D	D ₁	W	ℓ_1

★ For the dimensions of ISO (metric), ISO (pipe), DIN (metric), DIN (pipe) of ZK TAP COLLET, please refer to NC TOTAL TOOLING SYSTEM catalog.

CHAMFERING TOOL (Necessities of the drilling machine)

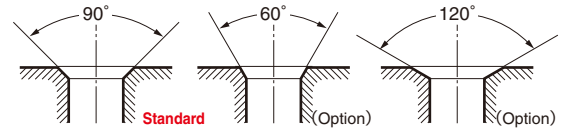


- High quality chamfering is possible.
- Suppresses chatter.
- Can accommodate wide range chamfering.
- Correspond to chamfering with electric drill.



A #18

1 Chamfering Angle Standard is 90.



2 Relation between the work materials and the rake angle

There are 0° and 14° rake angle blades to suit each material.

Rake angle θ°	0° (F)	14° (E)
Material	Cast iron, Brass, Copper	Soft & Hard Steel, Bronze

3 Explanation of the Code No.

Main Tool

e.g.) **A M2-42-90-F**

- Rake angle / E : 14° , F : 0°
- Chamfering angle / (60°) , 90° , (120°)
- MAX. Chamfering diameter / 18 : $\phi 5\sim 18$, 42 : $\phi 15\sim 42$
80 : $\phi 40\sim 80$
- Type of Shank / S : Straight Shank M1 : MT1, M2 : MT2, M3 : MT3
- Chamfering Tool

Blade

e.g.) **AB42-90-F**

- Blade rake angle / E : 14° , F : 0°
- Chamfering angle / (60°) , 90° , (120°)
- Style No. (MAX. Chamfering diameter) / 18, 42

[Features]

- It is possible to correspond to many materials.
- Pilot cone with spring makes centering easier.

Chamfering Tool Standard Set

Standard set	SSA-42 (Capable to chamfer $\phi 5\sim 42\text{mm.}$)						Spare blade (Option)			
	Main Tool (With blades for Steel 18-90-E & 42-90-E)						Easy exchanging operation by loosening/tightening of 2 screws.			
	Style	Code No.	Chamfer dia.	Shank	Chamfer angle	pcs	Style	Code No.	Rake angle	Chamfer angle
#18		AS-18-90	$\phi 5\sim 18$	$\phi 10$ straight	90°	1		AB18-90-E	14° (Steel)	90°
								AB18-90-F	0° (Cast iron)	
#42		AM2-42-90	$\phi 15\sim 42$	MT2	90°	1		AB42-90-E	14° (Steel)	90°
								AB42-90-F	0° (Cast iron)	
#80		AM3-80-90	$\phi 40\sim 80$	MT3	90°	1		AB42-90-E	14° (Steel)	90°
								AB42-90-F	0° (Cast iron)	

With blades for Steel 42-90-E
The above blade for #80 style tool is compatible with the one for #42 style.

The standard set includes the items marked.

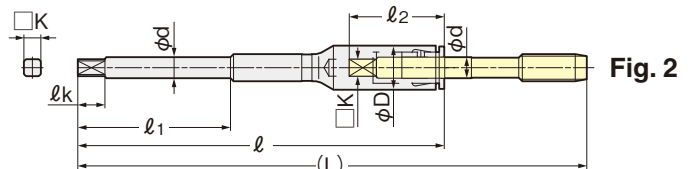
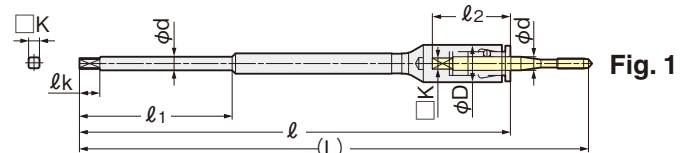
TAP EXTENSION



M3~M6



M8, M10



Code No.	L	l	l ₁	l ₂	D	d	□K	lk	Fig.
ZGE 3-M 3-150	150	127	45	23	11	4	3.2	6	1
ZGE 4-M 4-150		122		24	12	5	4		
ZGE 5-M 5-150		114		12.5	5.5	4.5			
ZGE 6-M 6-150		115		27	13	6	5	8	
ZGE 8-M 8-150		108		28	14	6.2	5		
ZGE10-M10-150		103					7	5.5	

★ It is dedicated for manual handling and drilling machine. It can not be used in machining centers or NC lathes.
★ Please use cutting speed less than 6 m/min.

MODULAR ZMAC ADVANCED BORING BAR



BASE-HOLDER

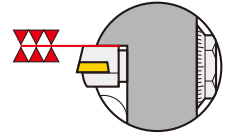
Q26type base holder can be used for various combinations.
Ideal for low volume production on manual machine with wide variety of boring sizes.
We recommend that you also use the Q42 base holder on #50 M/C.

Spacer & Head

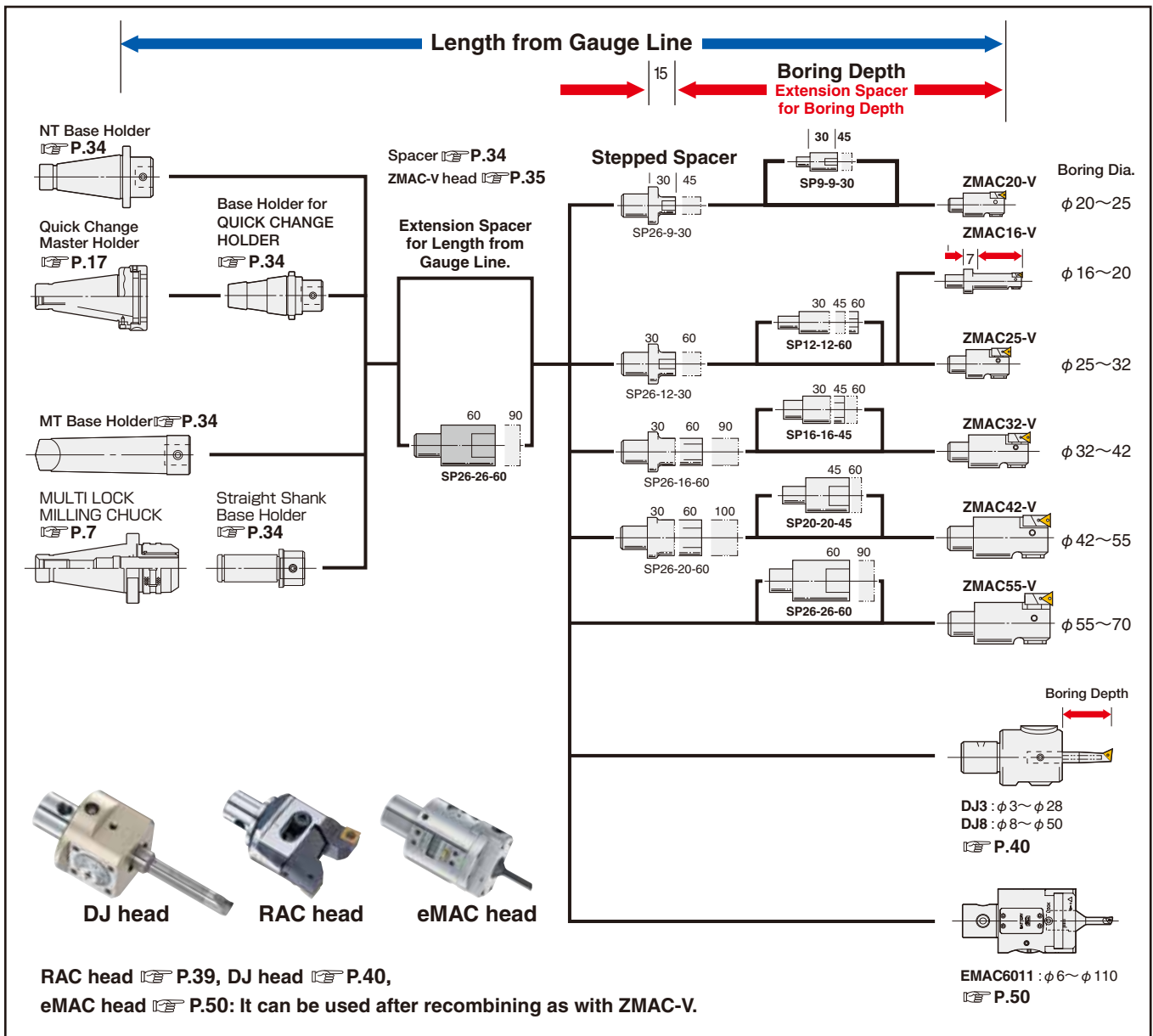
The extensive range of heads & spacers allow the correct selection to suit your boring applications.

Method of Selection for Modular ZMAC-V Boring Arbors

Firstly, select a head, spacer and stepped spacer from boring diameter and depth.
Then select base holder and SP26 extension spacer by the length from gauge line.

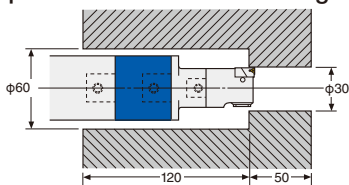


No Micro Vibration due to Double-Contact Support of Cartridge.
Long Tool-Life & High Accuracy.



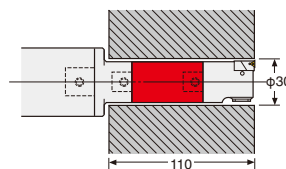
Extension Spacer

Example of small diameter boring in a deep recess using the largest diameter extension spacer in order to maintain rigidity.



BT40-Q26-95
SP26-26-60
SP26-12-30
12-ZMAC25-40V

Example of deep hole boring using the extension spacer with the same diameter as head.

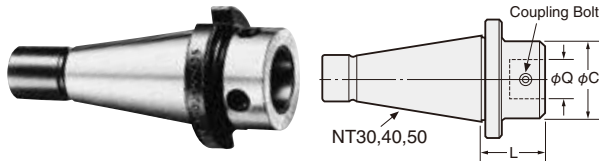


BT40-Q26-95
SP26-12-30
SP12-12-60
12-ZMAC25-40V

BASE HOLDER and SPACER for MODULAR TYPE

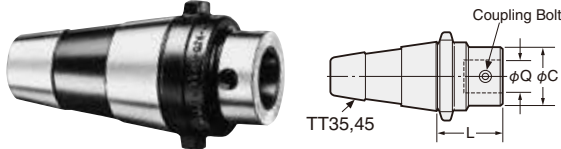


NT Base Holder (for National Taper)



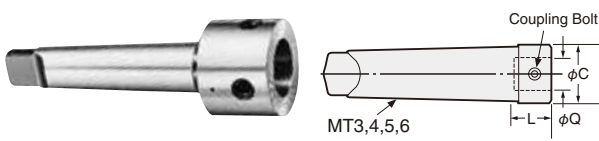
TAPER	Code No.		C	Coupling Bolt	Thread
	TNo.	Q - L			
NT 30	T30W	-Q26 - 40	50	B26 N	W1/2-12
NT 40	T40U(M)	-Q26 - 35	50	B26 N	U5/8-11 (M16-2)
NT 50	T50U(M)	-Q26 - 45	50	B26 N	U1-8 (M24-3)
		-Q34 - 50	64	B34	
		-Q42 - 95	83	B42	

TT Base Holder (for QUICK CHANGE HOLDER)



Quick Change Master Holder	Code No.		L	C	Coupling Bolt
	TTNo.-	Q - L			
HA 40	TT35-Q26	- 35	35	50	B26N
HA 50	TT45-Q26	- 45	45	50	B26N

MT Base Holder (for Morse Taper)



TAPER	Code No.		L	C	Coupling Bolt
	MTNo.-	Q - L			
MT3	MT3T	-Q26 - 45	45	50	B26 N
MT4	MT4T	-Q26 - 45	45	50	B26 N
MT5	MT5T	-Q26 - 35	35	50	B26 N
		-Q34 - 65	65	64	B34
MT6	MT6T	-Q26 - 60	60	50	B26 N
		-Q34 - 50	50	64	B34
		-Q42 - 60	60	83	B42

★Draw bar thread type also is available.

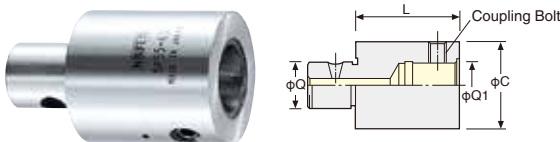
K Straight Shank Base Holder (for MULTI LOCK MILLING CHUCK)



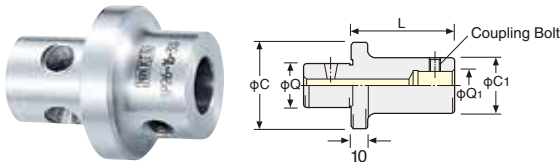
Style	Code No.		L	C	Coupling Bolt
	TTNo.-	Q - L			
32	K32-Q	-Q26 - 40	40	50	B26N
42	K42-Q	-Q26 - 40	40	50	B26N

K32-Q 9-20, -40
K32-Q12-20, -60
K32-Q16-20, -55
K32-Q20-40
There are also available.

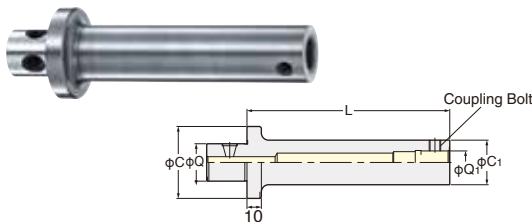
SP Extension Spacer



Stepped Spacer



A1 Spacer for Deep Hole



L/D:MAX.6 times

Coupling Dia		C	C ₁	L
Q	Q ₁			
26	9	50	19	85
	12		24	115
	16		31	140
	20		40	180
	26		50	190

Please specify the "length" when ordering. Code No. is e.g) SP26-9-85-A1 (Q1=9 and L=85)

Code No.	Coupling Dia		C	Coupling Bolt
	Q - Q ₁ - L	Q		
SP 9- 9-30, 45	9	9	19	B19
SP12-12-30, 45, 60	12	12	24	B12
SP16-16-30, 45, 60	16	16	31	B16
SP20-20-45, 60	20	20	40	B20
SP26-26-60, 90	26	26	50	B26N
SP34-34-60, 90	34	34	64	B34
SP42-42-60, 90	42	42	83	B42

★Various kinds are prepared for changing the boring length. ★Coupling bolt is supplied as standard.

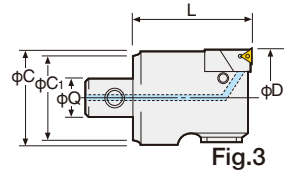
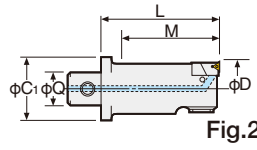
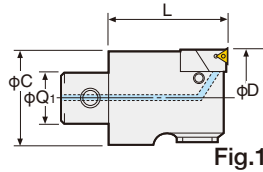
Code No.	Coupling Dia		C	C ₁	Coupling Bolt
	Q - Q ₁ - L	Q			
SP12- 9-45	12	9	24	19	B19
SP16- 9-45	16	9	31	19	
SP16-12-60	16	12	31	24	B12
SP20- 9-45	20	9	40	19	B19
SP20-12-60	20	12	40	24	B12
SP20-16-60, 90	20	16	40	31	B16
SP26- 9-30, 45	26	9	50	19	B19
SP26-12-30, 60	26	12	50	24	B12
SP26-16-30, 60, 90	26	16	50	31	B16
SP26-20-30, 60, 100	26	20	50	40	B20
SP34-16-60, 90	34	16	64	31	B16
SP34-20-60, 100	34	20	64	40	B20
SP34-26-60, 100	34	26	64	50	B26N
SP42-20-60, 100	42	20	83	40	B20
SP42-26-60, 100	42	26	83	50	B26N
SP42-34-60, 100	42	34	83	64	B34

★C of Spacer has been increased from 45mm to 50mm due to improvement of its rigidity.

★Various kinds are prepared for changing the boring diameter. ★Coupling bolt is supplied as standard.

MODULAR TYPE ZMAC ADVANCED BORING HEAD **NIKKEN**

ZMAC-V Triangular Insert type head





Head No.	Boring Range D	Boring Depth M	Coupling Dia. Q	Remarks					Weight (Kg)
				C	C1	Unit No.	Insert No.	Fig.	
12-ZMAC 16- 45V	15.9~20.2	38	12	15	24	M 2HZ- 16V	3MP-C,B	2	0.4
12-ZMAC 16- 55V		48							0.4
9-ZMAC 20- 40V	19.8~25.2	40	9	19	24	M 2HZ- 20V	4MP-C,B	1	0.4
12-ZMAC 25- 40V	24.8~32.2		12			M 3HZ- 25V			0.5
16-ZMAC 32- 55V	31.8~42.2	55	16	31	-	M 4HZ- 32V	6MP-C,B	1	0.7
20-ZMAC 42- 70V	41.8~55.2	20	40	M 5HZ- 42V		1.1			
26-ZMAC 55- 70V	54.8~70.2	70	26	53	-	M 5HZ- 55V	6MP-C,B	1	1.2
34-ZMAC 70- 70V	69.8~85.2		34	67		M 7HZ- 70V			2.0
42-ZMAC 85-100V	84.8~100.2	100	42	83	83	M10HZ- 85V	6MP-C,B	1	4.3
42-ZMAC100-100V	99.5~140.5			95		M10HZ-100V			4.9
42-ZMAC140-100V	139.5~180.5	135	83	M10HZ-140V	3	6.3			

★MIN. dial read out: ZMAC25-V and smaller is 0.02mm on dia.

ZMAC32-V and larger is 0.01mm on dia.(ZMAC25-V and larger : Sub scale : 0.005mm)

★The above boring ranges are based on heads with Nose/R 0.2 insert.

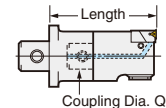
★“C” grade (Coated) insert for Steel is supplied as Standard with the head (Smooth boring & Long tool-life).  P.48

Please refer  P.45 for cutting condition. We would recommend “B” grade (CBN) insert for Hardened Steel & High Speed boring of Cast Iron.

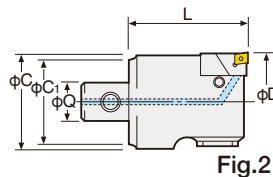
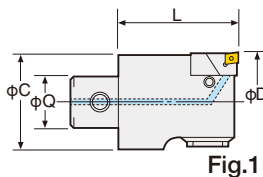
★Centre Through Tool Coolant function is available as standard.

★Code No. of the set with SP26 stepped spacer is Q26-Coupling Dia.-ZMAC○-LengthV e.g. Q26-20-ZMAC42-100V

★Please refer  P.36 for ZMAC ADOVANCED unit parts list.



ZMAC-VR Rhomboid Insert type head



Head No.	Boring Range D	Boring Depth M	Coupling Dia. Q	Remarks					Weight (Kg)
				C	C1	Unit No.	Insert No.	Fig.	
16-ZMAC 32R - 55V	31.8~42.2	55	16	31	-	M 4HZ- 32VR	CC06-C	1	0.7
20-ZMAC 42R - 70V	41.8~55.2	20	40	M 5HZ- 42VR		1.1			
26-ZMAC 55R - 70V	54.8~70.2	70	26	53	-	M 5HZ- 55VR	CC08-C	1	1.2
34-ZMAC 70R - 70V	69.8~85.2		34	67		M 7HZ- 70VR			2.0
42-ZMAC 85R -100V	84.8~100.2	100	42	83	83	M10HZ- 85VR	CC12-C	2	4.3
42-ZMAC 100R -100V	99.5~140.5			95		M10HZ-100VR			4.9
42-ZMAC 140R -100V	139.5~180.5	135	83	M10HZ-140VR	6.3				

★MIN. dial read out: ZMAC32-VR and larger is 0.01mm on dia.(Sub scale : 0.005)

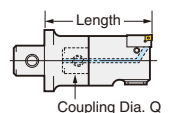
★“C” grade (Coated) insert for Steel, Stainless & Cast Iron is supplied as Standard with the head (Smooth boring & Long tool-life).

 P.49 Please refer  P.45 for cutting condition.

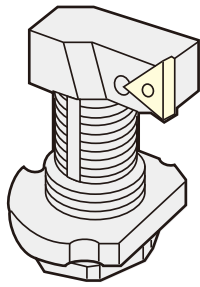
★Centre Through Tool Coolant function is available as standard.

★Code No. of the set with SP26 stepped spacer is Q26-Coupling Dia.-ZMAC○-LengthV e.g. Q26-20-ZMAC42R-100V

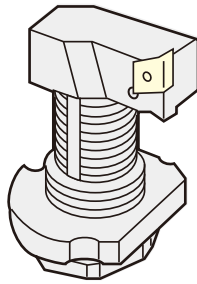
★Please refer  P.36 for ZMAC ADOVANCED unit parts list.



ZMAC ADVANCED BORING UNIT PARTS LIST



ZMAC-V



ZMAC-VR

NIKKEN ZMAC-V Boring Heads come complete with the ZMAC-V Boring Unit. Specify the part No. in the table below when ordering spares.

Triangular Insert Heads and Rhomboid Insert Heads use different boring units, cartridges, insert tips, insert clamp bolts, and insert clamp handles, but all other parts are common to both.

Other manufacturers' ISO standard insert tips available on the market may have different insert clamp hole diameters, so please contact us regarding use.

* Boring heads that use ISO standard insert tips available on the market are also available with us.

ZMAC Advanced (ISO) Boring Head

P.37

* The ZMAC units and new ZMAC-V, ZMAC-VR units are interchangeable.

ZMAC-V Style	Boring Range	Unit	Triangular Insert	Insert Clamp Screw	Insert Clamp Handle	Lock Screw	Adjustment Handle	Unit Clamp Bolt
ZMAC16 -V	15.9~20.2	M 2HZ- 16V	3MP-C,B	M2045	T-6	M361	M 2HZL-A	M2045
ZMAC20 -V	19.8~25.2	M 2HZ- 20V				M362	M 2HZL-B	
ZMAC25 -V	24.8~32.2	M 3HZ- 25V				M363	M 3HZL	
ZMAC32 -V	31.8~42.2	M 4HZ- 32V	4MP-C,B	M2055	T-8	M365	M 4HZL	M2577
ZMAC42 -V	41.8~55.2	M 5HZ- 42V	6MP-C,B	M2577 (M2562D) [*]		M364	M 5HZL	
ZMAC55 -V	54.8~70.2	M 5HZ- 55V				M366	M 7HZL	
ZMAC70 -V	69.8~85.2	M 7HZ- 70V			M360	M 7HZL	M3090	
ZMAC85 -V	84.8~100.2	M10HZ- 85V	M10HZL	M4012	M367	M10HZL	M4012	
ZMAC100-V	99.5~140.5	M10HZ-100V			M368			
ZMAC140-V	139.5~180.5	M10HZ-140V			M369			

★ Each Unit and Cartridge are supplied without Insert Tip.

★ Cartridge for base forming of bore is an option.

Please specify the diameter and width of base forming.

★ For Diamond Insert Tip (6MP-D), M2562D* must be used.

★ Cartridge can not be supplied alone, please order ZMAC-V unit.



Special cartridge example for necking is available. Please contact us with the work piece drawing.

ZMAC-VR Style	Boring Range	Unit	Triangular Insert	Insert Clamp Screw	Insert Clamp Handle
ZMAC32 -VR	31.8~42.2	M 4HZ- 32VR	CC06-C	M2560	T-8
ZMAC42 -VR	41.8~55.2	M 5HZ- 42VR		M2577	
ZMAC55 -VR	54.8~70.2	M 5HZ- 55VR		M4090	
ZMAC70 -VR	69.8~85.2	M 7HZ- 70VR	CC08-C	M4012	T-15
ZMAC85 -VR	84.8~100.2	M10HZ- 85VR	CC12-C	M5012	T-15
ZMAC100-VR	99.5~140.5	M10HZ-100VR			
ZMAC140-VR	139.5~180.5	M10HZ-140VR			

The cartridge head can be exchanged itself for the head bigger equal to ZMAC42-V.

Boring Range	Cartridge Head		Head Clamp Bolt
41.8~55.2	M 5HZ- 42 CH	M 5HZ- 42RCH	M512C
54.8~70.2	M 7HZ- 70 CH	M 7HZ- 70RCH	M625
69.8~85.2	M10HZ- 85 CH	M10HZ- 85RCH	M825
99.5~140.5	M10HZ-100 CH	M10HZ-100RCH	M835
139.5~180.5	M10HZ-100 CH	M10HZ-100RCH	M835

★ Each Unit and Cartridge are supplied without Insert Tip.

★ Cartridge can not be supplied alone, please order ZMAC-V unit.

Detach Attach

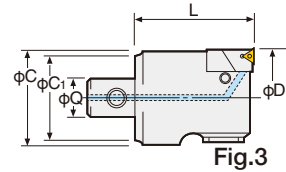
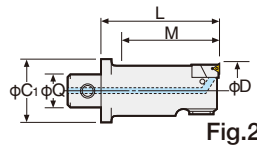
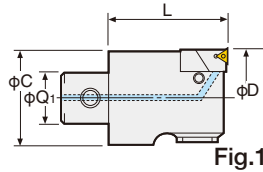
- Loosen head clamp bolt after boring diameter is set to little larger than the MIN. boring diameter.
- Insert the head into cartridge, then tighten head clamp bolt temporary.
- Loosen side lock bolt.
- Rotate the dial ring 0.2~0.3mm to minus direction.
- Tighten head clamp bolt by pushing the head to the support portion of the main body.

MODULAR TYPE ZMAC ADVANCED (ISO) BORING HEAD


NIKKEN

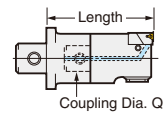
ZMAC-V-I  Triangular Insert type head

These boring heads use insert tip sizes that are widely available on the market.
 * Only insert clamp bolts are supplied (Insert tips are not supplied).

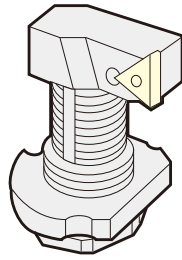


Head No.	Boring Range D	Boring Depth M	Coupling Dia. Q	Remarks						Weight (Kg)
				C	C1	Unit No.	Insert No.	チップクランプボルト ネジサイズ	Fig.	
16-ZMAC 32- 55V-I	31.8~42.2	55	16	31	-	M 4HZ- 32V-I	TC□□0902□□L	M2.2	1	0.7
20-ZMAC 42- 70V-I	41.8~55.2		20	40		M 5HZ- 42V(M3)				
26-ZMAC 55- 70V-I	54.8~70.2		26	53		M 5HZ- 55V(M3)				
34-ZMAC 70- 70V-I	69.8~85.2		34	67		M 7HZ- 70V(M3)				
42-ZMAC 85-100V-I	84.8~100.2	100	42	83		83	M10HZ- 85V(M3)	TP□□1103□□L		M3
42-ZMAC100-100V-I	99.5~140.5			95	M10HZ-100V(M3)		3		4.9	
42-ZMAC140-100V-I	139.5~180.5			135	M10HZ-140V(M3)				6.3	

- ★MIN. dial read out: ZMAC32-V-I and larger is 0.01mm on dia.(Sub scale : 0.005)
- ★The above boring ranges are based on heads with Nose/R 0.2 insert.
- We would recommend "B" grade (CBN) insert for Hardened Steel & High Speed boring of Cast Iron.
- ★Centre Through Tool Coolant function is available as standard.
- ★Code No. of the set with SP26 stepped spacer is Q26-Coupling Dia.-ZMAC○-LengthV-I e.g. Q26-20-ZMAC42-100V-I
- ★Please refer  P.38 for ZMAC ADOVANCED(ISO) unit parts list.



ZMAC ADVANCED (ISO) BORING UNIT PARTS LIST



ZMAC-V-I

NIKKEN **ZMAC-V-I** Boring Heads come complete with the **ZMAC-V-I** Boring Unit. Specify the part No. in the table below when ordering spares. Triangular Insert Heads and Rhomboid Insert Heads use different boring units, cartridges, insert tips, insert clamp bolts, and insert clamp handles, but all other parts are common to both.

* The **ZMAC** units and new **ZMAC-V-I** units are interchangeable.

ZMAC-V-I Style	Boring Range	Unit	Triangular Insert	Insert Clamp Screw	Insert Clamp Handle	Lock Screw	Adjustment Handle	Unit Clamp Bolt
ZMAC 32-V-I	31.8~42.2	M 4HZ- 32V-I	TC□□0902□□L	M2255	T-6	M365	M 4HZL	M2577
ZMAC 42-V-I	41.8~55.2	M 5HZ- 42V(M3)	TP□□1103□□L	M3070	T-10	M364	M 5HZL	
ZMAC 55-V-I	54.8~70.2	M 5HZ- 55V(M3)				M366		
ZMAC 70-V-I	69.8~85.2	M 7HZ- 70V(M3)				M360	M 7HZL	M3090
ZMAC 85-V-I	84.8~100.2	M10HZ- 85V(M3)				M367		
ZMAC 100-V-I	99.5~140.5	M10HZ-100V(M3)				M368		
ZMAC 140-V-I	139.5~180.5	M10HZ-140V(M3)				M369		

★Each Unit and Cartridge are supplied without Insert Tip.



Special cartridge example for necking is available. Please contact us with the work piece drawing.

ZMAC-VR Style	Boring Range	Unit	Triangular Insert (ISO code)	Insert Clamp Screw	Insert Clamp Handle
ZMAC 32-VR	31.8~42.2	M 4HZ- 32VR	CC06-C (CC□□0602□□)	M2560	T-8
ZMAC 42-VR	41.8~55.2	M 5HZ- 42VR		M2577	
ZMAC 55-VR	54.8~70.2	M 5HZ- 55VR	CC08-C (CC□□09T3□□)	M4090	T-15
ZMAC 70-VR	69.8~85.2	M 7HZ- 70VR		M4012	
ZMAC 85-VR	84.8~100.2	M10HZ- 85VR	CC12-C (CC□□1204□□)	M5012	T-15
ZMAC 100-VR	99.5~140.5	M10HZ-100VR			
ZMAC 140-VR	139.5~180.5	M10HZ-140VR			

The cartridge head can be exchanged itself for the head bigger equal to ZMAC42-V.

Boring Range	Cartridge Head		Head Clamp Bolt
	Triangular	Rhomboid	
41.8~55.2	M 5HZ- 42 CH (M3)	M 5HZ- 42RCH	M512C
54.8~70.2	M 7HZ- 70 CH (M3)	M 7HZ- 70RCH	
69.8~85.2	M10HZ- 85 CH (M3)	M10HZ- 85RCH	
84.8~100.2	M10HZ-100 CH (M3)	M10HZ-100RCH	
99.5~140.5			
139.5~180.5			

★Each Unit and Cartridge are supplied without Insert Tip.
★Cartridge can not be supplied alone, please order ZMAC-V unit.

- Detach**
- Loosen head clamp bolt after boring diameter is set to little larger than the MIN. boring diameter.
- Attach**
- Insert the head into cartridge, then tighten head clamp bolt temporary.
 - Loosen side lock bolt.
 - Rotate the dial ring 0.2~0.3mm to minus direction.
 - Tighten head clamp bolt by pushing the head to the support portion of the main body.

INSERT TIP (please refer to the ISO code below to purchase.)

ZMAC-V-I Style	Dimension	ISO code
ZMAC32-V-I		TC□□0902□□L
ZMAC42-V-I ZMAC140-V-I		TP□□1103□□L

Code No. of ISO standard Insert Tip

T P G T 1 1 0 3 0 4 L

T : Insert Shape
 P : Normal Clearance
 G : Tolerance Class
 T : Tip Breaker & Hole Configuration
 1 : Cutting Edge Thickness Length
 1 : Corner Radius
 0 : Cutting Direction
 3 : L : Left, N : Either
 0 : Normal Clearance
 4 : Tolerance Class
 L : Tip Breaker & Hole Configuration

T :
 W :
 C :
 M :
 S :
 A :

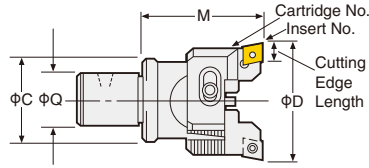
B : 5°
 C : 7°
 P : 11°
 N : 0°
 E : 20°

M : Pressed
 W :
 T :
 R :
 H :
 M :
 X : Special

MODULAR TYPE RAC BORING HEAD

NIKKEN

RAC-E Balance-Cut Boring Head



For Steel, Stainless Steel and Cast Iron
CC Insert (Positive type)

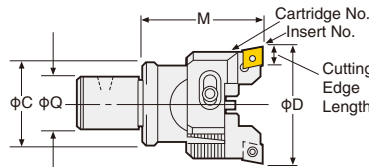
P.49

Head Code No.	Boring Range D	Boring Depth M	Coupling Dia Q	C	Cartridge No.	Insert No.	Cutting Edge Length	Weight (Kg)
12-RAC 25 - 55E	25 ~ 32	55	12	24	RCC-025E	CC07	8.0	0.4
16-RAC 32 - 55E	32 ~ 45		16	31	RCC- 32E	CC08	9.7	0.5
20-RAC 43 - 70E	43 ~ 55	70	20	40	RCC- 43E	CC12	12.9	0.7
26-RAC 53 - 70E	53 ~ 70		26	50	RCC- 53E			0.8
26-RAC 70 - 70E	70 ~ 100		26	50	RCC- 70E			1.0
34-RAC 70 - 85E	70 ~ 100	85	34	64	RCC-100E			1.5
42-RAC100 -100E	100 ~ 130	100	42	83				2.9

★Insert tips are supplied as an option. **P.49** Please refer **P.46** for cutting condition.

★For centre through tool coolant type, please add “-C” at the end of Code No. e.g. 26-RAC53-70E-C

RAC Balance-Cut Boring Head



For Heavy Duty Boring of Iron and Cast Iron
CN Insert (Negative type)

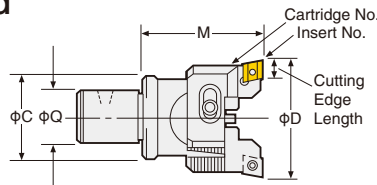
P.49

Head Code No.	Boring Range D	Boring Depth M	Coupling Dia Q	C	Cartridge No.	Insert No.	Cutting Edge Length	Weight (Kg)
20-RAC 43 - 70	43 ~ 55	70	20	40	RCC- 43	CN08	12.9	0.7
26-RAC 53 - 70	53 ~ 70		26	50	RCC- 53			0.8
26-RAC 70 - 70	70 ~ 100	26	50	RCC- 70	1.0			
34-RAC 70 - 85	70 ~ 100	85	34	64	RCC-100			1.5
42-RAC100 -100	100 ~ 130	100	42	83				2.9

★Insert tips are supplied as an option. **P.49** Please refer **P.46** for cutting condition.

★For centre through tool coolant type, please add “-C” at the end of Code No. e.g. 26-RAC53-70-C

RAC-A Balance-Cut Boring Head



For Aluminum

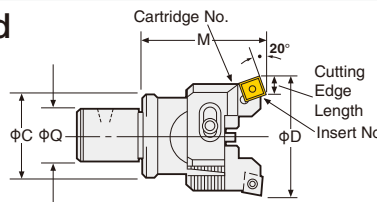
P.49

Head Code No.	Boring Range D	Boring Depth M	Coupling Dia Q	C	Cartridge No.	Insert No.	Cutting Edge Length	Weight (Kg)
12-RAC 25 - 55A	25 ~ 32	55	12	24	RAC- 25A	AEG12	9.5	0.4
16-RAC 32 - 55A	32 ~ 45		16	31	RAC- 32A			0.5
20-RAC 43 - 70A	43 ~ 55	70	20	40	RAC- 43A	AEG16	15.875	0.7
26-RAC 53 - 70A	53 ~ 70		26	50	RAC- 53A			0.8
26-RAC 70 - 70A	70 ~ 100		26	50	RAC- 70A			1.0
34-RAC 70 - 85A	70 ~ 100	85	34	64	RAC-100A			1.5
42-RAC100 -100A	100 ~ 130	100	42	83				2.9

★Insert tips are supplied as an option. **P.49** Please refer **P.46** for cutting condition.

★For centre through tool coolant type, please add “-C” at the end of Code No. e.g. 26-RAC53-70A-C

RAC-K Balance-Cut Boring Head



For Through Hole
and Multi Sheets

P.49

Head Code No.	Boring Range D	Boring Depth M	Coupling Dia Q	C	Cartridge No.	Insert No.	Cutting Edge Length	Weight (Kg)
12-RAC 25 - 55K	25 ~ 32	55	12	24	RAC- 25K	SC09	7.4	0.4
16-RAC 32 - 55K	32 ~ 45		16	31	RAC- 32K			0.5
20-RAC 43 - 70K	43 ~ 55	70	20	40	RAC- 43K	SC12	11.9	0.7
26-RAC 53 - 70K	53 ~ 70		26	50	RAC- 53K			0.8
26-RAC 70 - 70K	70 ~ 100		26	50	RAC- 70K			1.0
34-RAC 70 - 85K	70 ~ 100	85	34	64	RAC-100K			1.5
42-RAC100 -100K	100 ~ 130	100	42	83				2.9

★Insert tips are supplied as an option. **P.49** Please refer **P.46** for cutting condition.

★For centre through tool coolant type, please add “-C” at the end of Code No. e.g. 26-RAC53-70K-C

DJ BORING HEAD WITH DJ BORING BIT

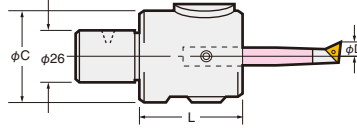


DJ (DJ Boring Head)



Code No.	D	M	L	C	Bit Code No. (Standard Accessories)
Q26-DJ3-40A	3~28	14~ 80	40	45	J10
Q26-DJ8-44AN	3~50	14~130	44	54	J16

- ★MIN. dial readout on dia.: 0.01mm, Sub scale: 0.005mm, 0.8mm/rev.
- ★Each boxed set of DJ3 and DJ8 Boring Bars include 4 pcs. of DJ Bits, Insert, Insert Clamp Handle, (T6, T8, (10S for DJ3))Micro Adjusting Handle (M2.5) as standard.
- ★“C” grade (Coated) insert tip is supplied. Please refer P.47 for cutting condition.
- ★DJ Boring Head without Bits is also available. Please add “-BD” at the end of Code No. e.g. Q26-DJ3-40A-BD, Q26-DJ8-44A-BD

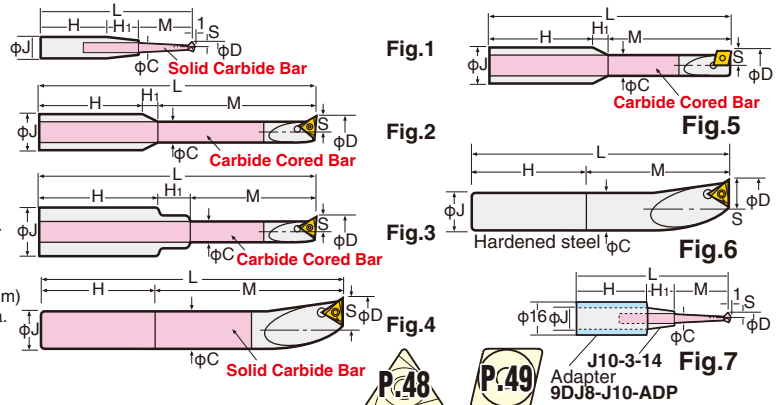


DJ BORING BIT SOLID CARBIDE



New Bit Series for DJ8

Explanation of the Code No.
J - Abbreviation of DJ Bit.
16 - Dia. of Shank.
5 - Min. Boring Dia.
35 - Boring Depth(mm)



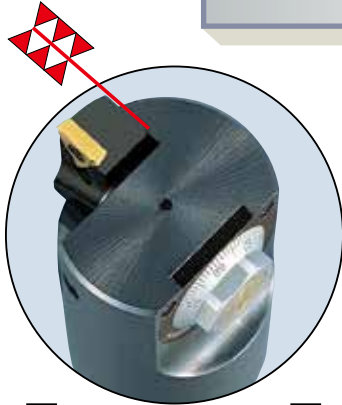
Style	Code No.	Boring Range		J	L	H	H ₁	C	S	Insert No.	Insert Clamping Bolt No.	Insert Clamping Handle No.	Fig.	Weight (g)												
		D	M																							
DJ3	J10- 3- 14	3~ 8	14	10	62	30	18	2.2	1.5	-	-	-	1	30												
	- 5- 30*	5~15	30		60		-	4.3	2.5						CC03-C	M611	10S	5	28							
	- 5- 35		35		70		5.0													30						
	- 8- 35*	8~18	35		65	-	7.2	4.0	3MP-C	M2040	T-6	2	43													
	- 8- 40		40		75	32.5								2.5	7.2	4.0										
	- 8- 55*		55		90	30											10	6.0								
	-12- 40* ₂	12~22	40		70	30	10	6.0	6MP-C	M2577	T-8	4	80													
	-12- 55* ₂		55		85	26																				
	-18- 65* ₁		65		91	26																				
	-18- 50A* ₂		18~28		50	79								29	12	9.0										
	-18- 62A* ₂				62	91								26												
	-18- 80* ₁				80	106								26												
-18- 77A* ₂	77	106	29	16	33	-	16	14.0	M2577	T-8	4	370														
J10- 3- 14*	3~ 8	14	62										30	18	2.2	1.5	-	-	-	7	30					
J16- 5- 25*	5~15	25	60										31.5	3.5	4.3	2.5						CC03-C	M611	10S	5	76
- 5- 35*		35	78										33	10												
- 8- 35*	8~18	35	70										32.5	2.5	11.2	6.0						6MP-C	M2045	T-6	3	100
- 8- 40		40	83										32	10												
- 8- 55*		55	98										32	10												
-12- 50*	12~22	50	90										35	-	11.2	6.0						6MP-C	M2045	T-6	2	140
-12- 60*		60	103										40.5	2.5												
-18- 60	18~28	60	93										-	-	16	14.0						6MP-C	M2577	T-8	6	150
-18- 80		80	113										-	-												
-18-100*		100	133										-	-												
-18-120*		120	153	-	-																					
-28- 65		28~39	65	98	-	-	16	14.0	6MP-C	M2577	T-8	6	150													
-28- 85			85	118	-	-																				
-28-100*	100		133	-	-																					
-28-130*	38~50	130	163	-	-	19.0	19.0	6MP-C	M2577	T-8	4	350														
-38- 65		65	98	-	-																					
-38- 85		85	118	-	-																					
-38-100*		100	133	-	-																					
-38-130*		130	163	-	-																					
-38-130*		130	163	-	-																					

- ★The Bits marked * are optional accessories. ★Please refer P.47 for cutting condition.
- ★9DJ8-J10-ADP adapter option is necessary to use J10-3-14 for DJ8 head.
- ★The shorter bits are added for J10-5, J10-8, J10-12 and J10-18. ★The shorter bits are added for J16-5, J16-8 and J16-12.
- ★“C” grade (Coated) insert tip is supplied. Please refer P.47 for cutting condition.
- ★Coolant through tool is basically available for the boring bits with MIN. boring diameter is phi12mm. e.g. J16-12-60C Please contact us.
- ★* 1 means bits for old type DJ3. ★* 2 means bits for new type DJ8. It can be used for old type DJ8, but M will be 3mm longer than above figure. e.g. J10-18-65A

ZMAC ADVANCED BORING ARBOR (ZMAC-V)



The World Leading Boring Head



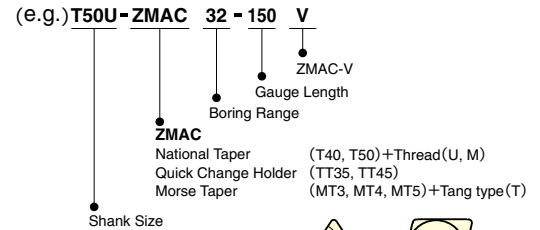
High rigidity
Double-contact
support



High-precision /
Easy micro-adjustment /
High durability /
High rigidity

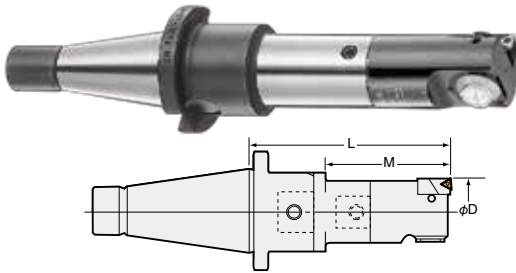
Thread on Cartridge:
Hardness of HRC50-55 &
Precision ground
Internal thread of dial ring:
Special heat-treated to HV800

Explanation of the Code No.



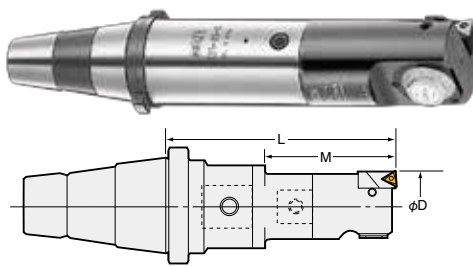
All codes shown are for heads with triangular inserts For heads with rhomboid inserts please add the letter "R" to the code No. (ZMAC32 or more).

T-ZMAC-V <for National Taper>



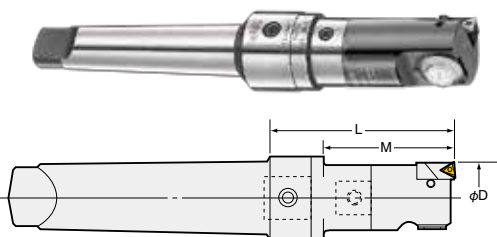
TAPER	Code No.	Boring Range D	M	Unit No.
NT40	T40U (M) -ZMAC16 -110V	15.9~20.2	38	M2HZ-16V
	-ZMAC20 -105V	19.8~25.2	55	M2HZ-20V
	-ZMAC25 -105V	24.8~32.2	55	M3HZ-25V
	-ZMAC32 (R) -150V	31.8~42.2	100	M4HZ-32V (R)
	-ZMAC42 (R) -165V	41.8~55.2	115	M5HZ-42V (R)
	-ZMAC55 (R) -165V	54.8~70.2	150	M5HZ-55V (R)
NT50	T50U (M) -ZMAC16 -120V	15.9~20.2	38	M2HZ-16V
	-ZMAC20 -115V	19.8~25.2	55	M2HZ-20V
	-ZMAC25 -115V	24.8~32.2	55	M3HZ-25V
	-ZMAC32 (R) -160V	31.8~42.2	100	M4HZ-32V (R)
	-ZMAC42 (R) -175V	41.8~55.2	115	M5HZ-42V (R)
	-ZMAC55 (R) -175V	54.8~70.2	155	M5HZ-55V (R)
	-ZMAC70 (R) -210V	69.8~85.2	185	M7HZ-70V (R)

TT-ZMAC-V <for QUICK CHANGE HOLDER>



Quick Change Master Holder	Code No.	Boring Range D	M	Unit No.
HA40	TT35 -ZMAC16 -110V	15.9~20.2	38	M2HZ-16V
	-ZMAC20 -105V	19.8~25.2	55	M2HZ-20V
	-ZMAC25 -105V	24.8~32.2	55	M3HZ-25V
	-ZMAC32 (R) -150V	31.8~42.2	100	M4HZ-32V (R)
	-ZMAC42 (R) -165V	41.8~55.2	115	M5HZ-42V (R)
	-ZMAC55 (R) -165V	54.8~70.2	145	M5HZ-55V (R)
HA50	TT45 -ZMAC16 -120V	15.9~20.2	38	M2HZ-16V
	-ZMAC20 -115V	19.8~25.2	55	M2HZ-20V
	-ZMAC25 -115V	24.8~32.2	55	M3HZ-25V
	-ZMAC32 (R) -160V	31.8~42.2	100	M4HZ-32V (R)
	-ZMAC42 (R) -175V	41.8~55.2	115	M5HZ-42V (R)
-ZMAC55 (R) -175V	54.8~70.2	150	M5HZ-55V (R)	

MT-ZMAC-V <for Morse Taper>



TAPER	Code No.	Boring Range D	M	Unit No.
MT5	MT5T -ZMAC16 -110V	15.9~20.2	38	M2HZ-16V
	-ZMAC20 -105V	19.8~25.2	55	M2HZ-20V
	-ZMAC25 -105V	24.8~32.2	55	M3HZ-25V
	-ZMAC32 (R) -150V	31.8~42.2	100	M4HZ-32V (R)
	-ZMAC42 (R) -165V	41.8~55.2	115	M5HZ-42V (R)
	-ZMAC55 (R) -165V	54.8~70.2	165	M5HZ-55V (R)

★Draw bar thread type also is available. Please consult us.
★MT3 and MT4 also are available. Please consult us.

★MIN. dial read out : ZMAC25-V & smaller is 0.02mm on dia.

ZMAC32-V and larger is 0.01mm on dia. (ZMAC25-V and larger : Sub scale : 0.005mm)

★ZMAC42-V or less with stepped spacer, ZMAC55-V or more with a Q26 extension spacer.

★Shank (P.34), spacer (P.34), head (P.35) are shipped in separate packaging.

★All codes shown are for units with Triangular Inserts.

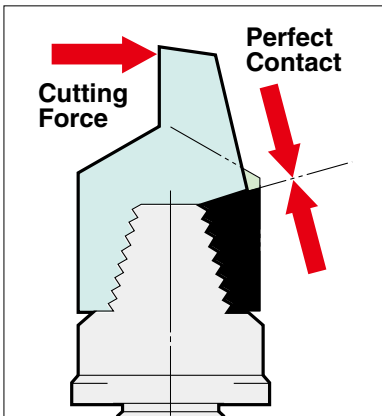
For Heads with Rhomboid inserts, please add "R" to the code No. e.g.) M4HZ-32V R

★"C" grade (Coated) insert for Steel, is supplied as Standard with the head (Smooth boring & Long tool-life). P.48 Please refer P.45 for cutting condition.

BALANCE-CUT BORING ARBOR

NIKKEN

Power of Shoulder Support



Various Cartridges & Inserts



☞ P.39

Explanation of the Code No.

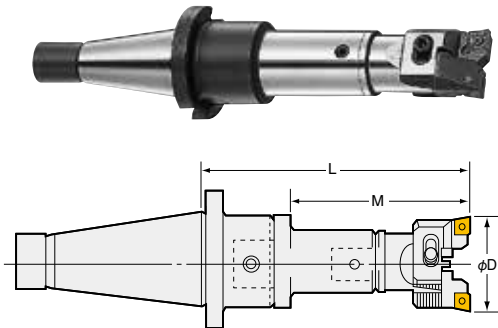
(e.g.) T40U- RAC 25 - 120 E

- Shank Size
- National Taper
- Quick Change Holder
- Morse Taper
- RAC
- Boring Range
- Gauge Length
- E : Positive type
- None : Negative type
- A : For Aluminum
- K : For Through Hole

(T40, T50)+Thread(U, M)
(TT35, TT45)
(MT3, MT4, MT5)+Tang type(T)

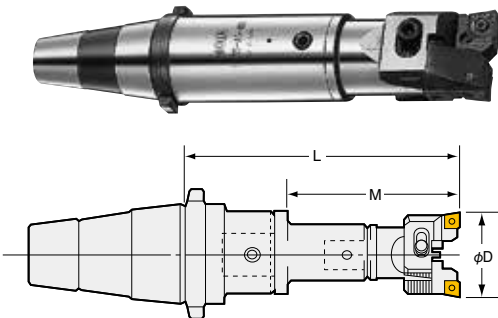


T-RAC <for National Taper>



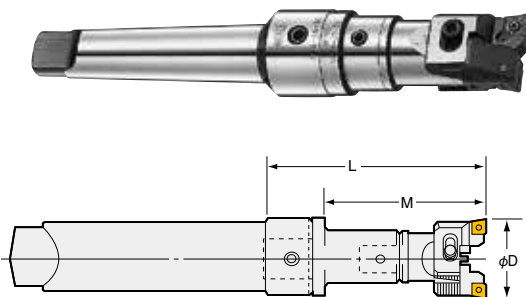
TAPER	Code No.	Boring Range D	M	Cartridge No.
NT40	T40U(M) -RAC25-120E	25~32	70	RCC-025E
	-RAC32-150E	32~45	100	RCC- 32E
	-RAC43-165E	43~55	115	RCC- 43E
	-RAC53-165E	53~70	150	RCC- 53E
NT50	T50U(M) -RAC25-130E	25~32	70	RCC-025E
	-RAC32-160E	32~45	100	RCC- 32E
	-RAC43-175E	43~55	115	RCC- 43E
	-RAC53-175E	53~70	155	RCC- 53E
	-RAC70-175E	70~100	155	RCC- 70E

TT-RAC <for QUICK CHANGE HOLDER>



TAPER	Code No.	Boring Range D	M	Cartridge No.
HA40	TT35 -RAC25-120E	25~32	70	RCC-025E
	-RAC32-150E	32~45	100	RCC- 32E
	-RAC43-165E	43~55	115	RCC- 43E
	-RAC53-165E	53~70	145	RCC- 53E
HA50	TT45 -RAC25-130E	25~32	70	RCC-025E
	-RAC32-160E	32~45	100	RCC- 32E
	-RAC43-175E	43~55	115	RCC- 43E
	-RAC53-175E	53~70	150	RCC- 53E
	-RAC70-175E	70~100	150	RCC- 70E

MT-RAC <for Morse Taper>



TAPER	Code No.	Boring Range D	M	Cartridge No.
MT5	MT5T -RAC25-120E	25~32	70	RCC-025E
	-RAC32-150E	32~45	100	RCC- 32E
	-RAC43-165E	43~55	115	RCC- 43E
	-RAC53-165E	53~70	165	RCC- 53E
	-RAC70-165E	70~100	165	RCC- 70E

★Draw bar thread type also is available. Please consult us.
★MT3 and MT4 also are available. Please consult us.

★“C” grade (Coated) insert are supplied as Standard with the head. ☞ P.49 Please refer ☞ P.46 for cutting condition.
★RAC43 or less with stepped spacer, RAC53 or more with a Q26 extension spacer.
★Shank (☞ P.34), spacer (☞ P.34), head (☞ P.39) are shipped in separate packaging.

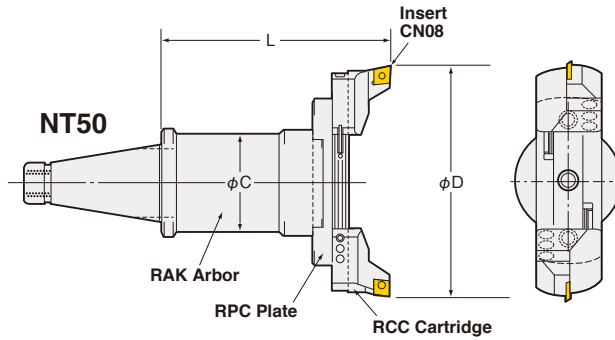
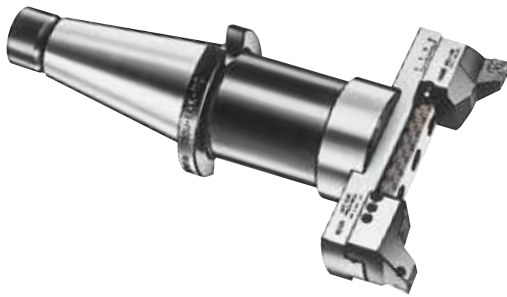
RAC BALANCE-CUT BORING ARBOR for LARGE DIA.

NIKKEN

T-RAC

For Roughing

- With the screws for slight adjustment
- Boring Dia. : $\phi 130 \sim \phi 580 \text{mm}$



P.49

Boring Dia. : $\phi 130 \sim 580 \text{mm}$

TAPER	Code No.	D		L	C	RAK Arbor Code No.	RPC Plate No.	RCC Cartridge No.	Weight (Kg)
		MIN.	MAX.						
NT50	T50U(M)-RAC130-185	130~180	185	185	90	T50U(M) -RAK-110	RPC-130	RCC-130	11.8
	-RAC130-235		235			-RAK-160			13.3
	-RAC130-285		285			-RAK-210			16.3
	-RAC180-185	180~230	185	185	90	-RAK-110	RPC-180	RCC-130	12.3
	-RAC180-235		235			-RAK-160			13.8
	-RAC180-285		285			-RAK-210			16.8
	-RAC230-185	230~280	185	185	90	-RAK-110	RPC-230	RCC-130	12.8
	-RAC230-235		235			-RAK-160			14.3
	-RAC230-285		285			-RAK-210			17.3
	-RAC280-185	280~330	185	185	90	-RAK-110	RPC-280	RCC-130	13.5
	-RAC280-235		235			-RAK-160			15.0
	-RAC280-285		285			-RAK-210			18.0

★“C” grade (Coated) insert are supplied as Standard with the head. **P.49** Please refer **P.46** for cutting condition.
 ★Various wrenches are supplied as Standard.

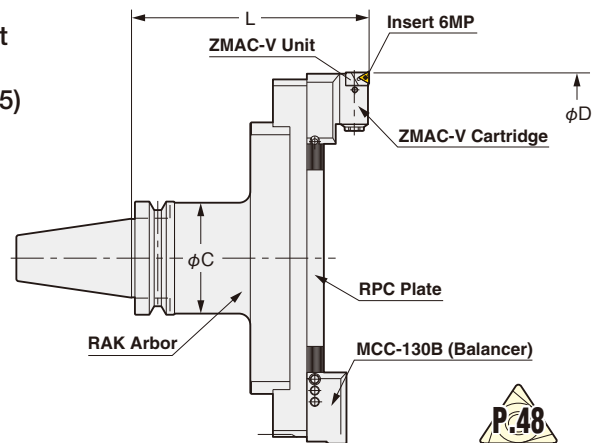
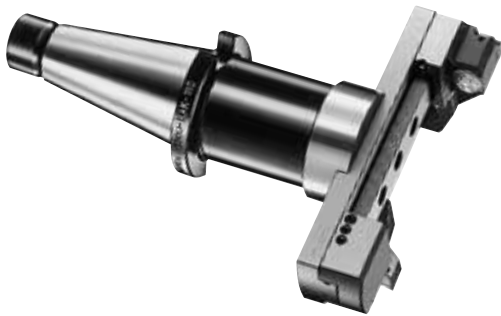
BALANCE-CUT BAC ADVANCED BORING ARBOR for LARGE DIA.

NIKKEN

T-BAC-V

For Finishing

- MIN. dial readout on dia. : 0.01mm (Sub scale : 0.005)
- Boring Dia : $\phi 130 \sim \phi 595 \text{mm}$



P.48

Boring Dia: $\phi 130 \sim 595 \text{mm}$

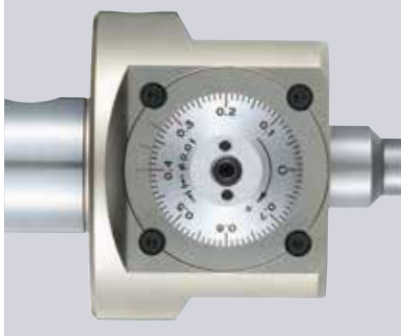
TAPER	Code No.	D		L	C	RAK Arbor Code No.	RPC Plate No.	Cartridge (Balancer)	Weight (Kg)
		MIN.	MAX.						
NT50	T50U(M)-BAC130-185V	130~195	185	185	90	T50U(M) -RAK-110	RPC-130	MCCZ-130V (MCC-130B)	13.5
	-BAC130-235V		235			-RAK-160			15.0
	-BAC130-285V		285			-RAK-210			18.0
	-BAC180-185V	180~245	185	185	-RAK-110	RPC-180	14.0		
	-BAC180-235V		235		-RAK-160		15.5		
	-BAC180-285V		285		-RAK-210		18.5		
	-BAC230-185V	230~295	185	185	-RAK-110	RPC-230	14.5		
	-BAC230-235V		235		-RAK-160		16.0		
	-BAC230-285V		285		-RAK-210		19.0		
	-BAC280-185V	280~345	185	185	-RAK-110	RPC-280	15.0		
	-BAC280-235V		235		-RAK-160		16.5		
	-BAC280-285V		285		-RAK-210		19.5		

★“C” grade (Coated) insert are supplied as Standard with the head. **P.49** Please refer **P.45** for cutting condition.
 ★Various wrenches are supplied as Standard.

DJ BORING BAR With DJ BORING BIT



Easy to Set **Micron Accuracy**



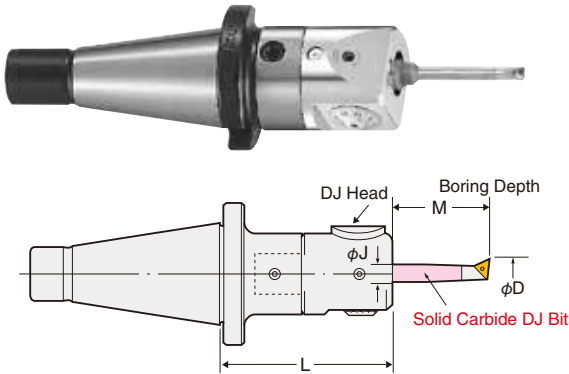
▲1 Graduation: 0.01mm on dia.

Explanation of Code No.

(e.g.) **T40U - DJ 3 - 75A**

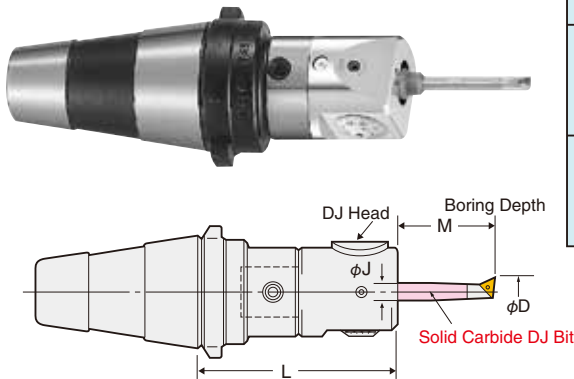
- New model
A: DJ3
AN: DJ8
- Gauge Length
- Min Boring dia.
- DJ
- Shank Size
National Taper (T30, T40, T50) + Thread (U, M)
Quick Change Holder (TT35, TT45)
Morse Taper (MT3, MT4, MT5) + Tang type (T)

NT-DJ <for National Taper>



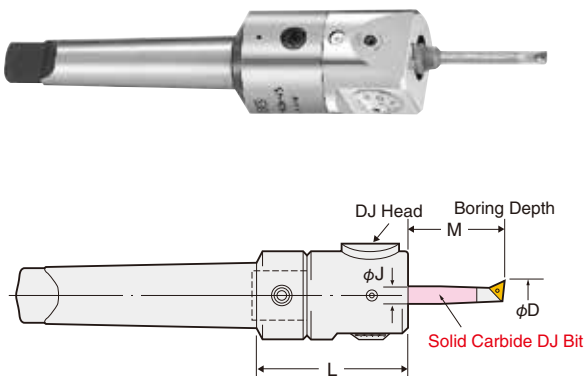
TAPER	Code No.	Boring Range D	M	Bit Hole Size J	Bit Code No.
	NT No. -Min.D- L				
NT40	T40U(M)-DJ3-75A	3~28	14~ 80	10	J10
	-DJ8-79AN	3~50	14~130	16	J16
NT50	T50U(M)-DJ3-85A	3~28	14~ 80	10	J10
	-DJ8-89AN	3~50	14~130	16	J16

TT-DJ <for QUICK CHANGE HOLDER>



Quick Change Master Holder	Code No.	Boring Range D	M	Bit Hole Size J	Bit Code No.
	NT No. -Min.D- L				
HA40	TT35 -DJ3-75A	3~28	14~ 80	10	J10
	-DJ8-79AN	3~50	14~130	16	J16
HA50	TT45 -DJ3-85A	3~28	14~ 80	10	J10
	-DJ8-89AN	3~50	14~130	16	J16

MT-DJ <for Morse Taper>



TAPER	Code No.	Boring Range D	M	Bit Hole Size J	Bit Code No.
	NT No. -Min.D- L				
MT3	MT3T -DJ3-85A	3~28	14~ 80	10	J10
	-DJ8-89AN	3~50	14~130	16	J16
MT4	MT4T -DJ3-85A	3~28	14~ 80	10	J10
	-DJ8-89AN	3~50	14~130	16	J16
MT5	MT5T -DJ3-75A	3~28	14~ 80	10	J10
	-DJ8-79AN	3~50	14~130	16	J16

★ Draw bar thread type also is available. Please consult us.

★ MIN. dial readout on dia.: 0.01mm, Sub scale: 0.005mm, 0.8mm/rev.

★ Each boxed set of DJ3 and DJ8 Boring Bars include 4 pcs of DJ Boring Bits as standard. P.40

★ "C" grade (Coated) insert for Steel, Stainless & Cast Iron is supplied as Standard with the head (Smooth boring & Long tool-life).

P.48, P49 Please refer P.47 for cutting condition.

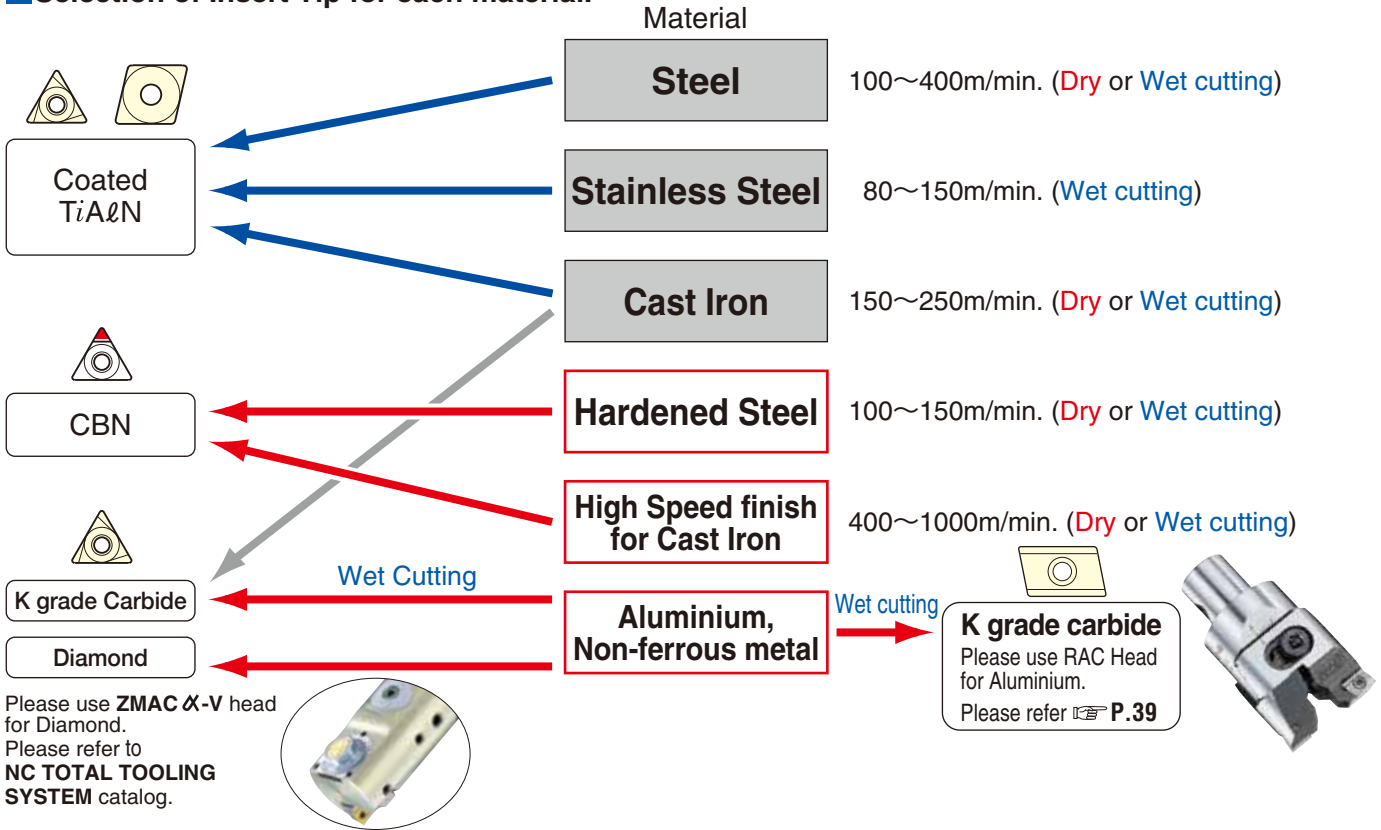
★ Bolts and wrenches are supplied as Standard

★ Shank (P.34), spacer (P.34), head (P.40) are shipped in separate packaging.

★ DJ Boring Head without Bits is also available. Please add "-BD" at the end of Code No. e.g. T50U-DJ3-85A-BD

ZMAC ADVANCED BORING SYSTEM CUTTING DATA **NIKKEN**

Selection of Insert Tip for each material.



Recommended cutting Speed ○...Best ○...Good -...Unsuitable

Insert	Code No.	Grade	SS41	S55C	SCM	SKD	SC	FC,FCD	SUS	AL,ALC	Hardened Steel			Interrupted Cutting
											SCM	SKD	SUJ	
	C	Coated	○	○	○	○	○	○	○	-	-	-	-	○
	E	P10	○	○	○	○	○	-	○	-	-	-	-	○
	F	K10	-	-	-	-	-	○	-	○	-	-	-	○
	T	Cermet	○	○	○	○	○	-	○	-	-	-	-	○
	B	CBN	-	-	-	-	-	○	-	-	○	○	○	○
	D	Diamond	-	-	-	-	-	-	-	○	○	-	-	-
	C	Coated Carbide M	○	○	○	○	○	○	○	-	-	-	-	○
		Coated Carbide K	○	○	○	○	○	○	○	-	-	-	-	○

- ★ Existing Inserts (Cermet, P grade Carbide & K grade Carbide) are available.
- ★ The cutting speed is recommended to be reduced to 50% for the interrupted cutting.
- ★ When L/D is longer, the insert tip with small Nose R is recommended.
- ★ When L/D is longer, the feed rate at the entrance is recommended to be reduced to 60 to 70%.

Recommended Cutting Condition (removal, feed)

Boring Range	Type								
		Best Condition		MAX. Condition		Best Condition		MAX. Condition	
		Removal mm/φ	Feed mm/rev.	Removal mm/φ	Feed mm/rev.	Removal mm/φ	Feed mm/rev.	Removal mm/φ	Feed mm/rev.
φ16~20	ZMAC16-V	0.2~0.4	0.05~0.07	1.0	0.1				
φ20~25	ZMAC20-V	0.2~0.4	0.05~0.07	1.5	0.1				
φ25~32	ZMAC25-V	0.2~0.4	0.05~0.07	2.0	0.1				
φ32~42	ZMAC32-V	0.2~0.4	0.05~0.08	2.0	0.2	1.0~3.0	0.1~0.15	5.0	0.2
φ42~55	ZMAC42-V	0.2~0.5	0.05~0.08	4.0	0.2	1.0~3.0	0.1~0.15	5.0	0.2
φ55~70	ZMAC55-V	0.2~0.5	0.05~0.08	4.0	0.2	1.0~3.0	0.1~0.15	5.0	0.2
φ70~85	ZMAC70-V	0.2~0.8	0.05~0.1	4.0	0.25	1.0~4.0	0.1~0.2	8.0	0.25
φ85~	ZMAC85-V~	0.2~0.8	0.05~0.1	4.0	0.25	1.0~4.0	0.1~0.2	8.0	0.25

In case of CBN insert, reduce L/D as small as possible : MAX. 3 times.
Stock removal on diameter.
D<32mm : less than 0.25mm
D>32mm : less than 0.3mm

Feed per rev. depends on Nose/R and accuracy required.
Logical Surface Finish : $\frac{(\text{Feed per rev.})^2}{8 \times \text{Nose/R}}$

RAC BALANCE-CUT BORING ARBOR CUTTING DATA **NIKKEN**

CC (Positive type) RAC-E



CN (Negative type) RAC



RAC-A



RAC-K



Material

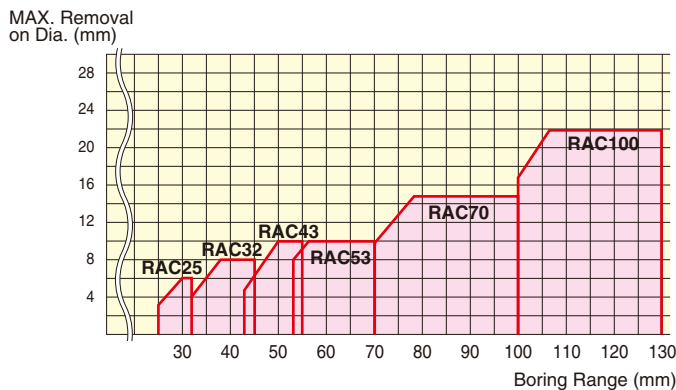
Steel	60~150m/mim. (Dry or Wet cutting)
Stainless Steel	40~80m/mim. (Wet cutting)
Cast Iron	60~150m/mim. (Dry or Wet cutting)
Aluminium, Non-ferrous metal	200~500m/mim. (Wet cutting)
Multiple Sheets, Through Hole	40~120m/mim. (Dry or Wet cutting)

Recommended cutting Speed ◎...Best ○...Good ---...Unsuitable

Insert		SS41	S55C	SCM	SKD	SC	FC,FCD	SUS	AL,ALC	Interrupted Cutting
Code No.	Grade									
CC	Coated Carbide M	◎	◎	◎	◎	○	○	◎	—	○
	Coated Carbide K	—	—	—	—	◎	◎	—	—	—
CN	Coated Carbide M	○	○	○	○	○	○	○	—	○
AEG	K10	—	—	—	—	—	—	—	◎	○
SC	Coated Carbide M	◎	◎	◎	◎	○	○	◎	—	○
	Coated Carbide K	—	—	—	—	◎	◎	—	—	—

- ★The cutting speed is recommended to be reduced to 50% for the interrupted cutting.
- ★When L/D is longer, the insert tip with small Nose R is recommended.
- ★When L/D is longer, the feed rate at the entrance is recommended to be reduced to 60 to 70%.

Relation between Boring Dia. & MAX. Removal



Recommended Cutting Condition (removal, feed)

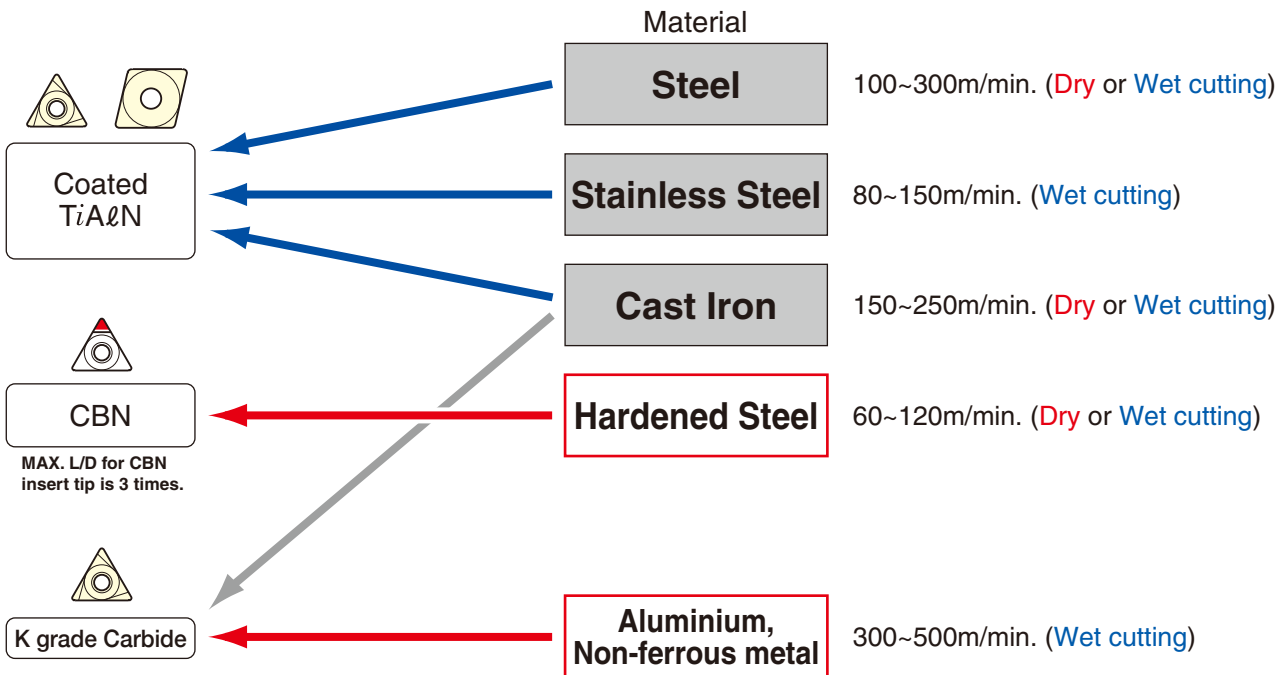
These figures are based on the application of L/D=3~3.5 times on cast iron.

Boring Range	Type	Best Condition		MAX. Condition	
		Removal mm/φ	Feed mm/rev.	Removal mm/φ	Feed mm/rev.
φ25~ 32	RAC 25	2.0~ 4.0	0.2~0.3	0.5~ 6.0	0.1~0.4
32~ 43	RAC 32	3.0~ 5.0	0.2~0.3	1.0~ 8.0	0.1~0.4
43~ 53	RAC 43	4.0~ 7.0	0.2~0.3	1.0~10.0	0.1~0.5
53~ 70	RAC 53	4.0~ 7.0	0.2~0.3	1.0~10.0	0.1~0.5
70~100	RAC 70	5.0~10.0	0.3~0.4	1.0~15.0	0.1~0.5
100~130	RAC100	7.0~12.0	0.3~0.4	1.0~22.0	0.1~0.5

DJ BORING ARBOR CUTTING DATA



Selection of Insert Tip for each material.



Recommended cutting Speed ○...Best ○...Good -...Unsuitable

Insert	Code No.	Grade	SS41	S55C	SCM	SKD	SC	FC,FCD	SUS	AL,ALC	Hardened Steel			Interrupted Cutting
											SCM	SKD	SUJ	
	C	Coated	○	○	○	○	○	○	○	-	-	-	-	○
	E	P10	○	○	○	○	○	-	○	-	-	-	-	○
	F	K10	-	-	-	-	-	○	-	○	-	-	-	○
	T	Cermet	○	○	○	○	○	-	○	-	-	-	-	○
	B	CBN	-	-	-	-	-	-	○	-	-	○	○	○
	C	Coated	○	○	○	○	○	○	○	-	-	-	-	○

★Existing Inserts (Cermet,P grade Carbide & K grade Carbide) are available.
 ★The cutting speed is recommended to be reduced to 50% for the interrupted cutting.

Recommended Cutting Condition (removal,feed)

Boring Range	Type		Best Condition		MAX. Condition	
	DJ3	DJ8	mm/φ	mm/rev.	mm/φ	mm/rev.
φ 3~ 8	J10- 3		~0.1	0.03~0.07		
φ 5~ 15	J10- 5		0.1~0.2	0.05~0.07		
φ 8~ 18	J10- 8	J16- 8	0.1~0.2	0.05~0.08		
φ18~ 28	J10-18	J16-18	0.2~0.4	0.05~0.08	1.0	0.1
φ28~ 39		J16-28	0.2~0.4	0.05~0.08	1.5	0.15
φ38~ 50		J16-38	0.2~0.5	0.05~0.08	2.0	0.15

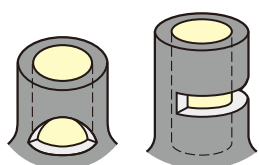
In case of CBN insert, reduce L/D as small as possible : MAX. 3 times.
 Stock removal on diameter.
 D<32mm : less than 0.25mm
 D>32mm : less than 0.3mm

Feed per rev. depends on Nose/R and accuracy required.

Logical Surface Finish : $\frac{(\text{Feed per rev.})^2}{8 \times \text{Nose/R}}$

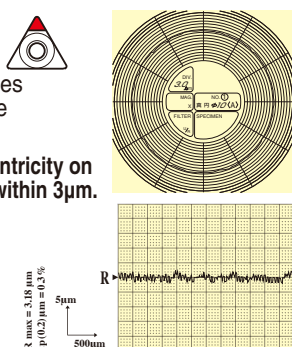
Example of hardened steel boring with CBN Insert

Reduce L/D as small as possible:MAX. 3times
 For bits of L/D shorter than standard one are also available. Please contact with us.



Example of intermittent boring of hardened steel (HRC60) φ10mm

Results of concentricity on 24 pcs. were all within 3μm.

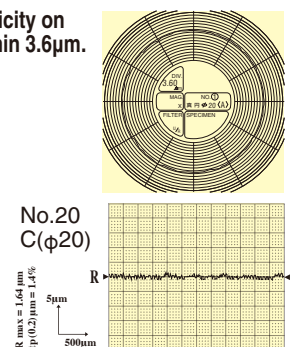


Results of surface finish on 24 pcs. were all within 3.3 microns. (R MAX.)

Results of concentricity on 24 pcs. were all within 3.6μm.



Example of intermittent boring of hardened steel (HRC60)φ20mm



Results of surface finish on 24 pcs. were all within 2.8 microns. (R MAX.)

NIKKEN INSERT TIP (EXCLUSIVE FOR BORING ARBOR) (1)



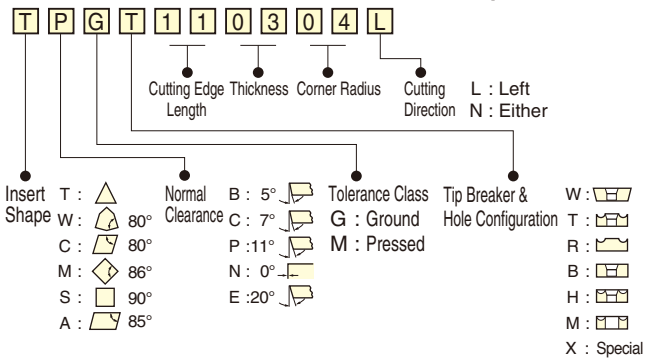
Material	Steel	●	●	●				
	Stainless Steel	●	●					
	Cast Iron	●			●	●		
	Aluminium					●		
	High Speed finish for Cast Iron						●	
	Hardened Steel						●	
	High Speed finish for Aluminium							●

For the Boring of Large Diameter and Short Depth, the use of insert with large nose radius is recommended. The smaller nose radius inserts are ideal for smaller diameter boring or finishing operation.

Applicable Arbor	Dimension	Code No.	Material NOSE R	Coated Cermet		Cermet (w/o coating)		Carbide P	Carbide K	CBN	Diamond
				Grade		Grade		Grade	Grade	Grade	Grade
				C	T	E	F-NB*2 w/o breaker	F	B	D	
				PV90*1	T2000Z	NS530*5	TN90	ST10P	H1	KBN10B*6	KPD010
BCB12.7, BCB14.5		1MP-○2	0.2	●			●	●		●	
BCB19, BCB22, BCB29		3MS-○2	0.2	●			●	●	●*2	●	●
ZMAC16-V, ZMAC20-V, ZMAC25-V for DJ Bit		3MP-○2	0.2		●	●		●	●*2	●	●
		3MP-○4	0.4		●					●	●
ZMAC32-V		4MP-○2	0.2		●	●		●	●*2	●	●
		4MP-○4	0.4		●					●*2	●
ZMAC42-V-ZMAC140-V BCB38, BCB48 DJ Bit, MCCZ130-V BAC130-V - BAC530-V		6MP-○2	0.2	●*1	●	●		●	●*2	●	●*4
		6MP-○4	0.4	●*1	●	●		●	●*2	●	●*4
		6MP-○8	0.8	●*1	●	●		●	●*2	●	●*4
BCB62, BCB82, BCB100		10MP-○2	0.2	●*1				●	●*2	●	
		10MP-○4	0.4	●*1				●	●*2	●	
		10MP-○8	0.8	●*1				●	●*2	●	

- ★Minimum quantity of CBN and Diamond: 1pcs, All other insert tip: 10pcs
- ★*1 Changes it to **PV720** sequentially as stock disappears.
- ★*2 "-NB" (w/o breaker) is recommended for cast iron.
- ★*3 Hole diameter of 6MP is φ2.8mm. M2562D (Optional tip clamp bolt) is required for the ISO standard insert tip with the hole diameter of φ3.3~φ3.5mm.
- ★*4 M2562D is necessary for 6MP-D (Diamond), because of the hole diameter is different.
- ★The ISO code No. surrounded with () is the Nikken original insert tip.
- ★*5 Changes it to **NS9530** sequentially as soon as stock disappears.
- ★*6 Changes it to **KBN510** sequentially as soon as stock disappears.

Code No. of ISO standard Insert Tip



Please add the grade indication into ○, and add the insert tip material indication at the end off the Code No.
e.g. 6MP-C4 (PV90), 6MP-F4-NB (H1)

NIKKEN INSERT TIP (EXCLUSIVE FOR BORING ARBOR) (2)



Material	Steel	●	●	●	●	○
	Stainless Steel	●	●	●	●	○
	Cast Iron	●	●	○	●	○
	Aluminium					●

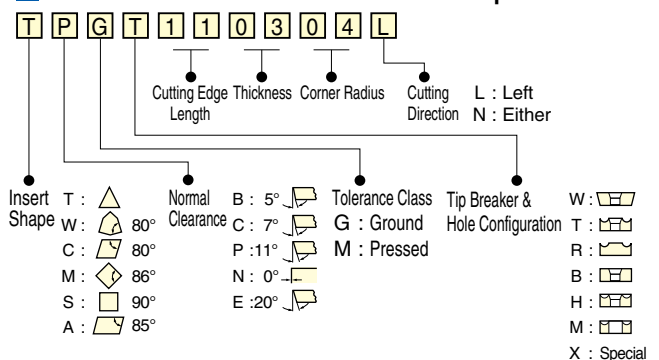
For the Boring of Large Diameter and Short Depth, the use of insert with large nose radius is recommended. The smaller nose radius inserts are ideal for smaller diameter boring or finishing operation.

Applicable Arbor	Dimension	Code No.	Material NOSE R	Coated Cermet	Coated Carbide M	Coated Carbide M	Coated Carbide K	Carbide K
				Grade	C			
				PV90	AC630M	AC630M	AC410K	KW10
J10-5, J16-5		CC03-○2	0.2	●				
ZMAC32-VR, ZMAC42-VR, ZMAC55-VR		CC06-○4	0.4		●		●	
		CC06-○8	0.8		●		●	
RAC25E		CC07-○4	0.4		●		●	
		CC07-○8	0.8		●		●	
ZMAC70-VR, ZMAC85-VR, RAC25E (CC08), RAC32E		CC08-○4	0.4		●		●	
		CC08-○8	0.8		●		●	
RAC43 - RAC530 (偏芯軸タイプ共用)		CN08-○8	0.8		●			
ZMAC100-VR, ZMAC140-VR, RAC43E - RAC100E		CC12-○4	0.4		●		●	
		CC12-○8	0.8		●		●	
RAC25A, RAC32A		AEG12-○1	0.1					●
		AEG12-○2	0.2					●
		AEG12-○4	0.4					●
RAC43A-RAC530A		AEG16-○1	0.1					●
		AEG16-○2	0.2					●
		AEG16-○4	0.4					●
RAC25K, RAC32K		SC09-○4	0.4			●		
RAC43K-RAC100K		SC12-○8	0.8			●		

★Minimum quantity of CBN and Diamond: 1pcs, All other insert tip: 10pcs
★The ISO code No. surrounded with () is the Nikken original insert tip.

Please add the grade indication into ○, and add the insert tip material indication at the end off the Code No.
e.g. 6MP-C4 (PV90) , 6MP-F4-NB (H1)

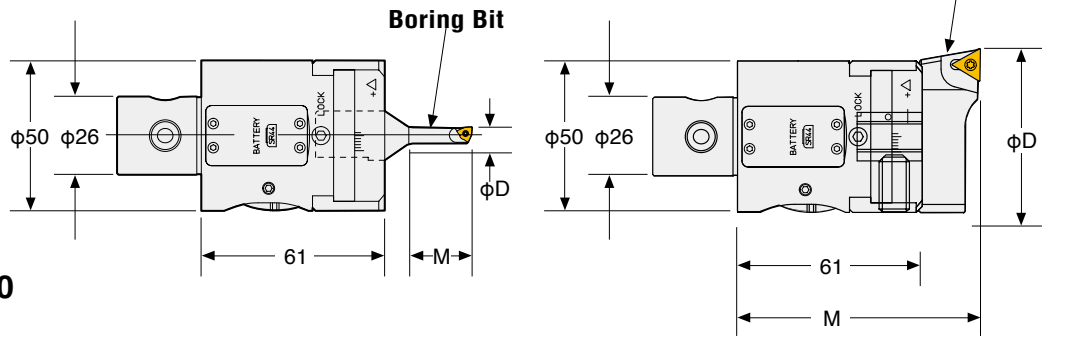
Code No. of ISO standard Insert Tip



MODULAR TYPE eMAC BORING HEAD



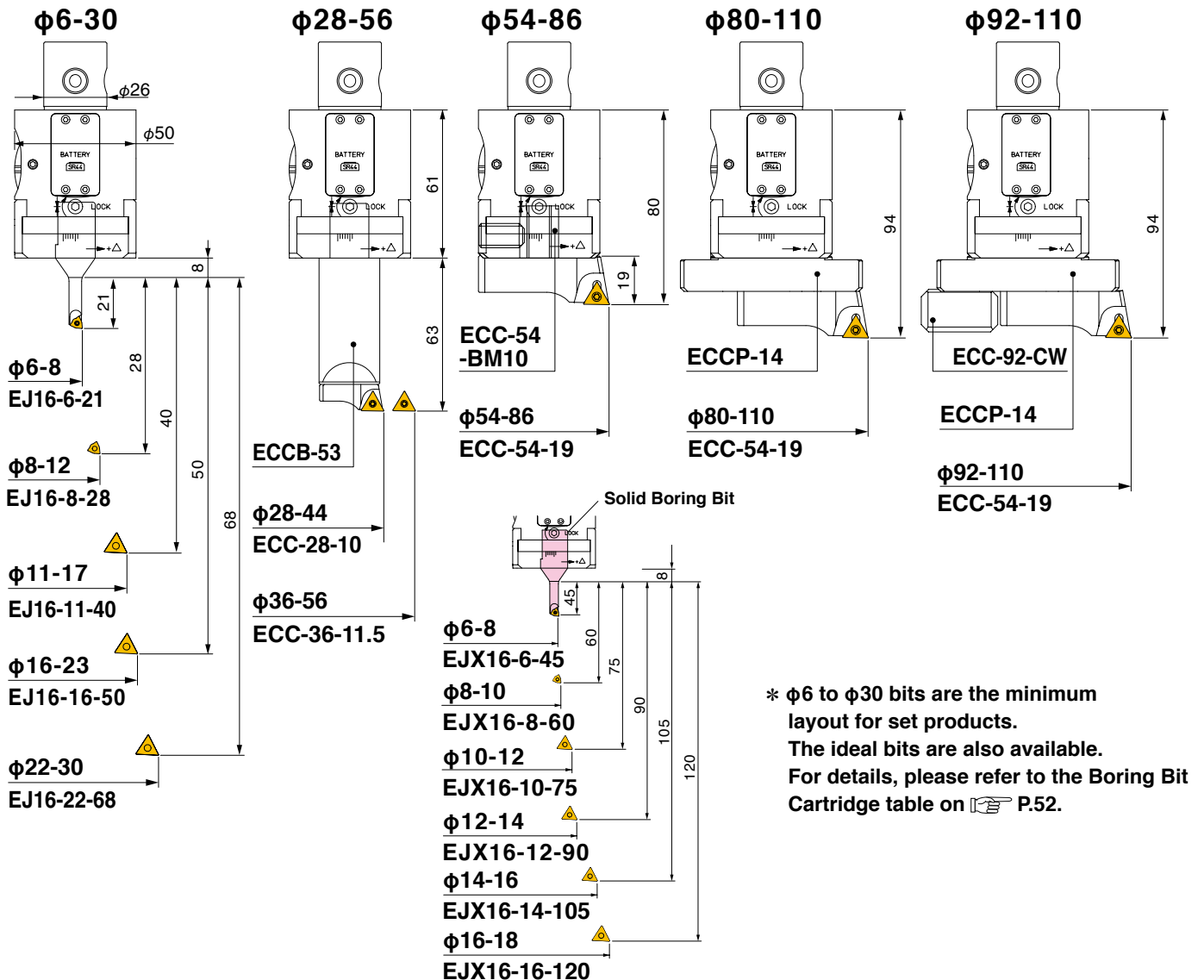
eMAC $\phi 6 \sim \phi 110$



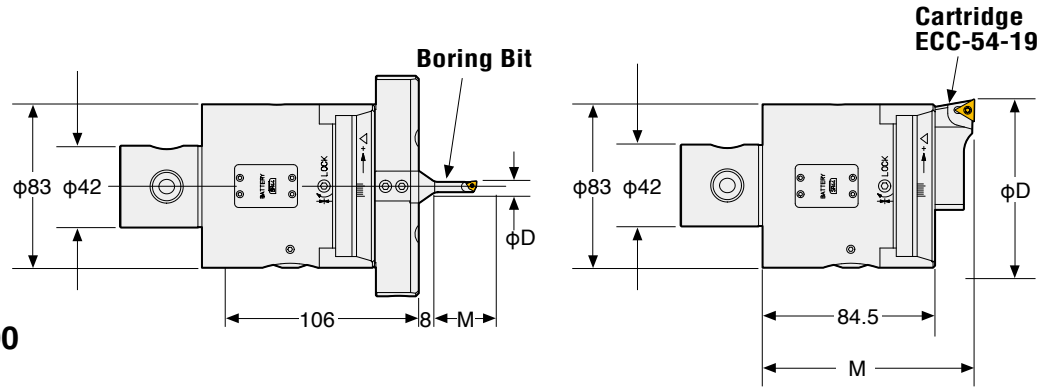
Q No.	Boring Head Code No.	Boring Range	Boring Depth	Boring Bit	Solid Boring Bit	Cartridge
		ϕD	M			
Q26	Q26-EMAC6110-61	$\phi 6 \sim \phi 110$	21~(94) * Please refer to the layout below	EJ16- 6-21	EJX16- 6- 45	ECC-28- 10 -36-11.5 -54- 19
				- 8-28	- 8- 60	
				-10-35	-10- 75	
				-11-40	—	
				-12-42	-12- 90	
				-14-50	-14-105	
				-16-50	-16-120	
				-18-63	—	
				-22-68	—	

- ★Please refer to P.34 for Shank and P.34 for Spacer.
- ★Centre Through Tool Coolant function is available as standard.(MAX.4MPa)
- ★Please refer to P.52 for Boring Bit, Cartridge and Insert Tip.
- ★Please refer to P.53 for Cutting Condition.

COMBINATION OF PROCESSING EACH DIAMETER



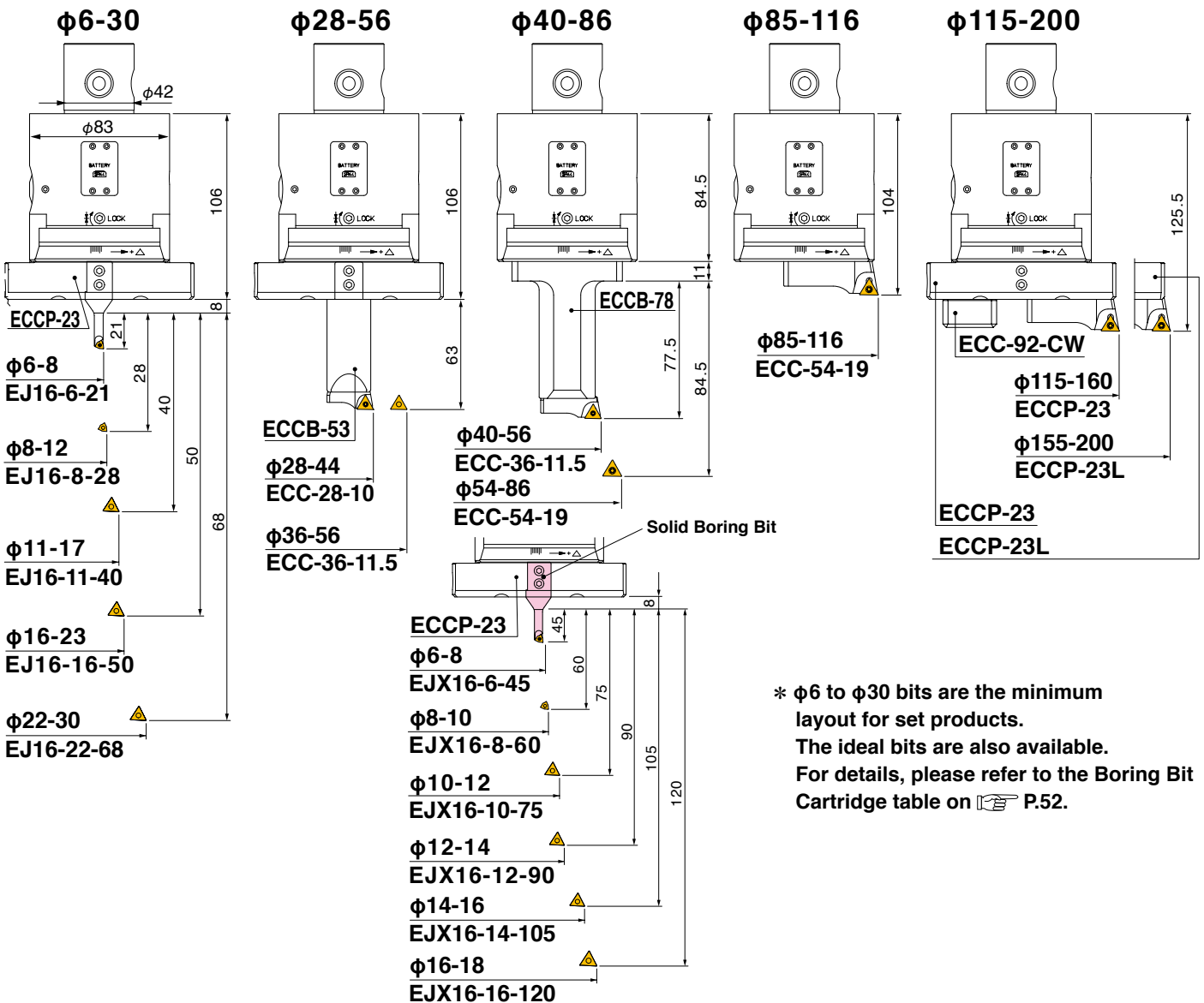
MODULAR TYPE eMAC-W BORING HEAD



Q No.	Boring Head Code No.	Boring Range	Boring Depth	Boring Bit	Solid Boring Bit	Cartridge
		ϕD	M			
Q42	Q42-EMAC6200W-85	$\phi 6 \sim \phi 200$	21~(125.5) * Please refer to the layout below	EJ16- 6-21	EJX16- 6- 45	ECC-28- 10 -36-11.5 -54- 19
				- 8-28	- 8- 60	
				-10-35	-10- 75	
				-11-40	—	
				-12-42	-12- 90	
				-14-50	-14-105	
				-16-50	-16-120	
				-18-63	—	
				-22-68	—	

- ★ Please refer to P.34 for Shank and P.34 for Spacer.
- ★ Centre Through Tool Coolant function is available as standard.(MAX.4MPa)
- ★ Please refer to P.52 for Boring Bit, Cartridge and Insert Tip.
- ★ Please refer to P.53 for Cutting Condition.

COMBINATION OF PROCESSING EACH DIAMETER



BORING BIT & CARTRIDGE for eMAC BORING SYSTEM



eMAC Boring Head & eMAC-W Boring Head



Q26-EMAC6110-61



Q42-EMAC6200W-85

* Select the ideal bit, cartridge, and insert tip based on the boring head and the equipment conditions

Boring Bit & Cartridge *Each Boring bit and Cartridge are supplied without insert tip.

Boring Range Φ	Boring bit	Solid carbide bit	Cartridge	Insert tip		Clamp bolt		Torx Wrench	
							Thread size		
6 - 8	EJ16- 6-21	EJX16- 6- 45	-	EM02	-	TS21	M2	T-6	
8 - 10	EJ16- 8-28	EJX16- 8- 60		TS211					
10 - 12	EJ16-10-35	EJX16-10- 75		-	-	EM09	CS250T	M2.5	T-8
11 - 13	EJ16-11-40	-							
12 - 14	EJ16-12-42	EJX16-12- 90							
14 - 16	EJ16-14-50	EJX16-14-105							
16 - 18	EJ16-16-50	EJX16-16-120							
18 - 22	EJ16-18-63	-							
22 - 30	EJ16-22-68	-	-	-	EM09	CS250T	M2.5	T-8	
28 - 44	-	-							ECC-28-10
36 - 56	-	-							ECC-36-11.5
54 - 200	-	-	ECC-54-19	-	EM11	CS300890T	M3	T-8	

★The EJ16-10-35, EJ16-12-42, EJ16-14-50, EJ16-18-63 bits, and the EJX16 carbide bit series are not included in sets. These products should be purchased separately.

Inserts

Material	Steel	●	
	Stainless Steel	●	
Material	Cast Iron	●	●
	Aluminium		●
	Titanium Alloy, Heat Resistant Alloy		●

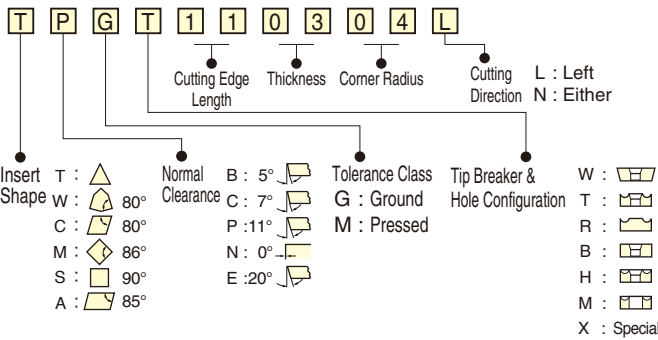
Insert with large nose radius have a stronger cutting edge, and are therefore ideal for large diameter boring of short holes. Small nose radius insert is ideal for smaller diameter boring or finishing.

Boring head type	Dimension	Code No.	Grade	Cermet (w/o coating)	Carbide K
			Material NOSE R	NX	HTI
EJ16-6-21 EJX16-6-45 -8-28 EJX16-8-60		EM02-○2	0.2	●	●
		EM02-○4	0.4	●	●
EJ16-10-35 EJX16-10-75 -11-40 EJX16-10-75 -12-42 EJX16-10-75 -14-50 EJX16-10-75 -16-50 EJX16-10-75 -18-63 EJX16-10-75 -22-68 EJX16-10-75		EM09-○2	0.2	●	●
		EM09-○4	0.4	●	●
ECC -54-19		EM11-○2	0.2	●	●
		EM11-○4	0.4	●	●

★Minimum order quantity : 10pcs

★When you use the other brand insert, use same brand Clamp bolt.

Code No. of ISO standard Insert Tip



Please add the grade indication into ○, and add the insert tip material indication at the end of the Code No.
e.g. EM09-T4(NX)

Grade & Material

Grade	Grade Indication	Insert Tip Material Indication	Specification
Cermet (w/o coating)	T	NX	The general material for the steel and the cast iron with the heat resistance and the toughness.
Carbide K	F	HTI	Toughness and the excellent wear resistance. Applicable for the cast iron, non-ferrous metal and the non-metal.

Recommended Cutting Speed ○...Best ○...Good —...Unsuitable

Insert		SS41	S55C	SCM	SKD	SC	FC,FCD	SUS	ALC	Ti
	Code No.	Material								
	T	NX	○	○	○	○	○	○	-	-
	F	HTI	-	-	-	-	-	○	○	○

★The cutting speed is recommended to be reduced to 50% for the interrupted cutting. ★Rapid speed : ~6000min-1.
 ★Please be sure to make a test run and confirm of no deflection, vibration and unusual sound.

Recommended Cutting Condition(removal,feed)

Boring Range	Boring head type			Best Condition		MAX. Condition	
	Boring bit	Solid carbide bit	Cartridge	Removal mm/φ	Feed mm/rev	Removal mm/φ	Feed mm/rev
φ 6~ 12	EJ16- 6-21 - 8-28	EJX16- 6- 45 - 8- 60		0.1~0.2	0.03~0.07	-	-
φ 10~ 30	EJ16-10-35 -11-40 -12-42 -14-50 -16-50 -18-63 -22-68	EJX16-10- 75 -12- 90 -14-105 -16-120		0.1~0.3	0.05~0.07	-	-
φ 28~ 56			ECC-28-10 -36-11.5	0.2~0.4	0.05~0.08	1.0	0.1
φ 54~200			ECC-54-19	0.2~0.5	0.05~0.08	2.0	0.15

$$\text{Speed } n(\text{min}^{-1}) = \frac{V_c \cdot 1000}{\pi D}$$

Vc: Cutting Speed(m/min)

π : 3.14

D : Boring dia(mm)

f : Feed(mm/rev)

$$\text{Feed } V_f(\text{mm/min}) = n \cdot f$$

$$\text{Logical Surface Finish (min)} = \frac{(\text{Feed per rev.})^2}{8 \times \text{Nose/R}}$$

Feed per rev. depends on Nose/R and accuracy required.

eMAC BORING SET PARTS LIST

eMAC Boring Set



* Photo Shows
S.EMAC6110

φ 6 ~ 110 eMAC Boring Set

Code. No.	Part name	Code No.	Q'ty	Weight (Kg)	
S.EMAC6110	eMAC Boring Head	Q26-EMAC6110-61	1	0.85	
	Boring Bit	EJ16-6-21	1	0.04	
		EJ16-8-28	1	0.04	
		EJ16-11-40	1	0.06	
		EJ16-16-50	1	0.07	
		EJ16-22-68	1	0.1	
	Extension Bar for Cartridge(S/M)	ECCB-53	1	0.5	
	Cartridge	S	ECC -28-10	1	0.01
		M	ECC -36-11.5	1	0.02
		L	ECC -54-19	1	0.08
	Bush	ECC -54-BM10	1	0.02	
	Plate for Cartridge	ECCP-14	1	0.2	
	Counter Weight for Large Dia.	ECC-92-CW	1	0.5	
	Insert Tip	EM02-T2(NX)	2	—	
		EM09-T2(NX)	5	—	
		EM11-T2(NX)	1	—	
	Tip Clamping Bolt / Spare	TS21	1	—	
TS211		1	—		
CS250T		1	—		
CS300890T		1	—		
Wrench Set		1	—		
Case	S.EMAC6200W-EB	1	—		

★Base Holder for eMAC Boring Head is available as an option. Please refer P.34

★Please refer P.53 for Insert Tip. ★Gross weight : 2.9kg Case Size : 330×290×120

eMAC-W Boring Set



* Photo Shows
S.EMAC6200
-W85200

φ 85 ~ 200 eMAC-W Boring Set Parts List

Code. No.	Part name	Code No.	Q'ty	Weight (Kg)
S.EMAC6200 -W85200	eMAC-W Boring Head	Q42-EMAC6200W-85	1	3.4
	Cartridge(L)	ECC-54-19	1	0.08
	Plate for Cartridge(L)	ECCP-23	1	0.4
		ECCP-23L	1	0.6
	Counter Weight for Large Dia.	ECC-92-CW	1	0.05
	Insert Tip	EM11-T2(NX)	1	—
	Tip Clamping Bolt / Spare	CS300890T	1	—
	Wrench Set		1	—
Case		1	—	

★Base Holder for eMAC-W Boring Head is available as an option. Please refer P.94

★Please refer P.95 for Insert Tip. ★Gross weight : 5.7kg Case Size : 330×290×120

HEIGHT PRESETTER



Reference point of work piece can be measured very quickly and accurately without damage of tool teeth.

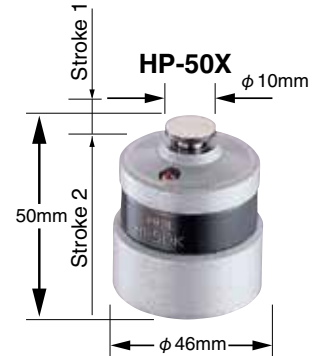


Proximity Lamp

The red lamp is activated when the plunger comes within the measuring range of the reference height.



HP-50X INTERNAL CONTACT TYPE HEIGHT PRESETTER



Powerful Magnetic Base can be switched on and off.

2 of Batteries LR44(HC) are supplied as standard.

! HP-50K can not be used for work piece without conductivity.

- $\phi 0.2\text{mm}$ drill can be measured. (Feed rate must be lower than 5mm/min.)
- It can be used for not conductive machine and work piece.

UNIVERSAL MICRO STAND



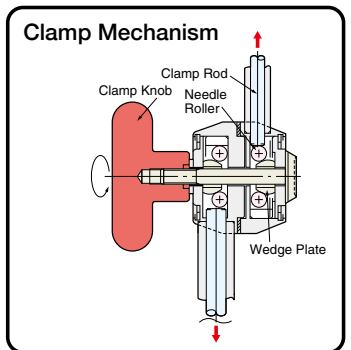
Remote Fine Adjusting Knob

Code No.	Style
UDS-1	With magnet base
UDS-2	With precision casting base

★Dial gauge is supplied as an option.

New mechanism permitting no looseness due to vibration

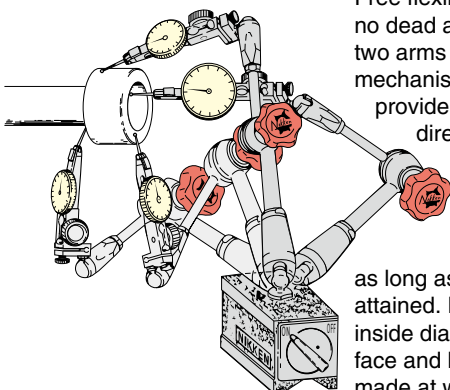
By only tightening the single red clamp knob, all articulated joints are locked firmly and no fine (micron) movement will occur even after being left as they are for 100 hours.



Remote Fine Adjusting Knob (UDS-2)

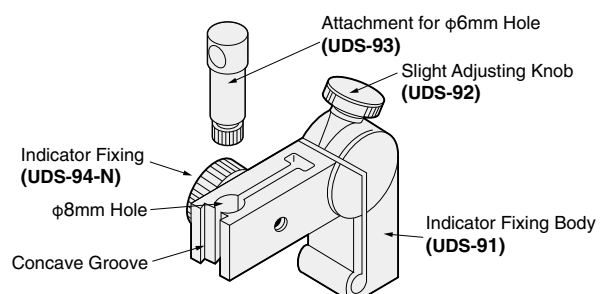
The base is made by heavy and precision casting and arms are clamped by a remote knob with fine adjustment. Measurement position of dial gauge can be easily adjusted without losing setup of Universal Micro Stand.

Long Reach 300mm



Free flexing with single knob, no dead angle and long reach, two arms incorporating ball joint mechanism at both ends provide free movement in any direction such as vertical, lateral, longitudinal or rotational etc. If stretched horizontally, a reach as long as **300mm** can be attained. Measurements of inside dia., outside dia., end face and back face etc, can be made at will.

Any dial gauge, pick tester can be connected with this attachment.



TOOL PRESETTER



E236N

- **Rapid & Accurate Measurement Non-Contact Type**
C MOS Sensor
Autocollimation
(The cutting edge is detected automatically and displayed.)
Rapid Positioning & Fine Adjustment
- **Rapid Positioning & Fine Adjustment**
Granite Column and Base
- **Spindle can be exchanged.**
(BT, HSK, CAPTO TOOLING)
- **Fine and Easy Screen**
5.7" LCD Monitor (80 X 60mm)
Magnification: 20
- **Various Functions for Measurement**



Spindle (Option)



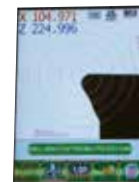
Printer WASP-PT



Measuring of the cutting edge

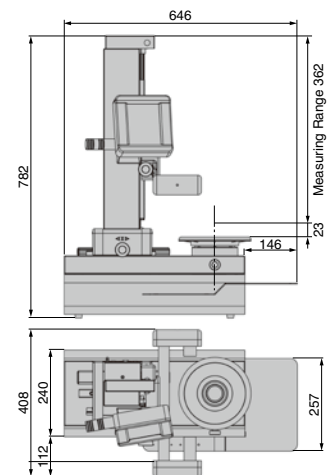


Angle of the cutting edge (Each 1 deg.)



Nose R of the cutting edge (Concentric circle by each 0.2mm)

Item	Contents	E236N-40	E236N-50
Measuring Range	X Axis: Dia. of Tool	0~φ260mm	0~φ260mm
	Z Axis: Length of Tool	30~360mm	30~360mm
MIN. Reading	Reading Method MIN. Reading	X Axis	Scale Counter 0.001mm (Radius)
		Z Axis	Scale Counter 0.001mm
Monitor		Magnification: 20 5.7" LCD Monitor	
Tool Clamp		Not installed	
Spindle		NT40	NT50
Master Gauge*1		GN40K	GN50K
Spindle (Option)		The spindle can be exchanged. NT40, 50, HSK32, 40, 50, 63, 80, CAPTO TOOLING C4, 5, 6 Z stroke will be shortened for HSK and CAPTO TOOLING.	
Reduction Sleeve (Option)		TN430 : NT40-NT30	TN540 : NT50-NT40
Power		AC100~230V	



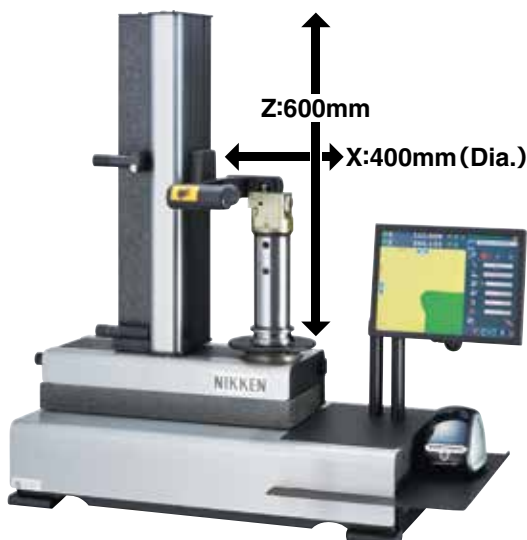
★The spindle for HSK100A, CAPTO TOOLING C8, 3LOCK, NC5 can not be supplied.

★Box size : W x H x D = 900 x 550 x 600mm, Box weight : 53Kg

★Printer (WASP-PT) and 10 pcs of the roll papers with seal (WASP-PTP) are available as an option.

★* 1 Master gauge for BT40, BT50 are only standard accessory. Master gauge for HSK or CAPTO TOOLING is available as an option.

★Spindle for HSK32, 40, 50, 80 and CAPTO TOOLING C4, C5, C6 are order made spindles.



E236N

●Measuring Range
X : 400mm (diameter)
Z : 400mm

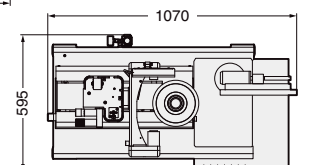
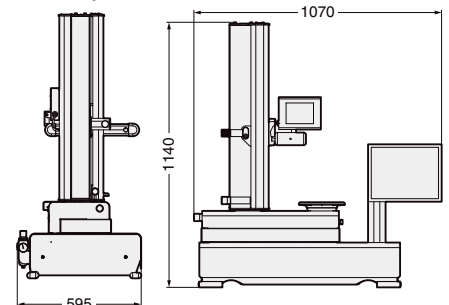
●MIN. Reading
X : 0.001mm (radius)
Z : 0.001mm

- **Super Precision & High Accuracy**
Granite Column and Base
- **Touch Panel Display with Quick & Easy Operation**
Non-Contact Type Fine Screen -15" LCD Monitor
Magnification: X30
Changeable of C MOS Sensor/ Micro Scope

Micro Scope



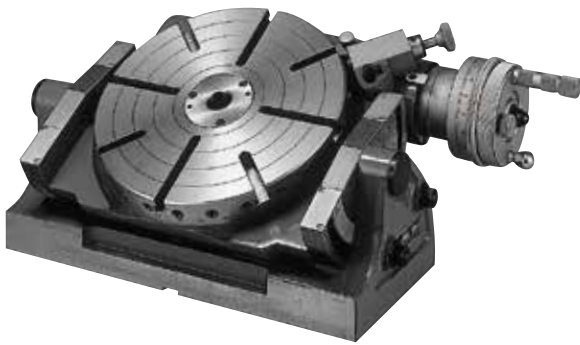
- **Rapid & Accurate Measurement**
Changeable Clutch of Rapid/Fine Feed
- **Spindle can be exchanged.**
Vacuum Clamping for NT30, 40 and 50
Manual Clamping for HSK and Polygon taper
- **Tool Management System "TOOLIVE"**
M/C data: MAX.1000
The management of the difference of the gauge line of M/C can be done.
Tool Set (Layout) Data: MAX.1000
Tool Data: MAX.1000



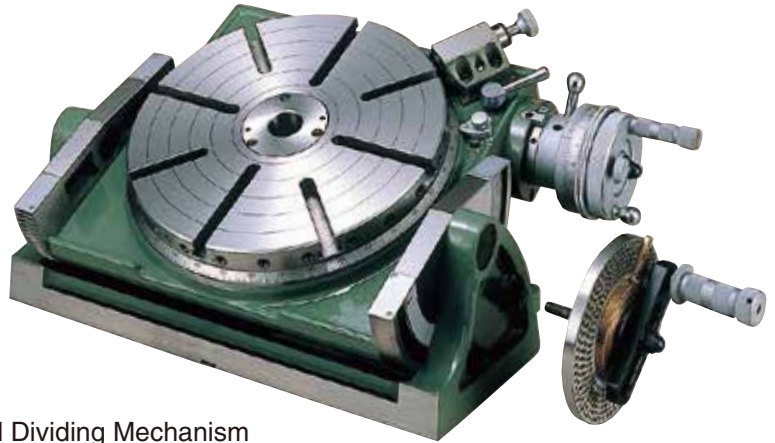
Box size: W X H X D: 1,100 X 1,200 X 700mm
Presetter Weight: 145Kg, Box Weight: 170Kg

Universal Rotary & Tilting Table

NST-250HP



NST-300HP



With Universal Dividing Mechanism
With Quick Dividing Mechanism

HP is an abbreviation for High Precision.

0°~ 90° Universal Use

The work setting angle can be shifted between 0°~90°, and the table can be rotated.

Full Bearing

Since hollow roller bearings are adopted as the spindle rotation part, light operation, high precision, super rigidity are realized.

Minimum Table Height

To minimize the machining area of the machine, the height of the table from the base is designed to be minimum.

NST-250HP	151mm
NST-300HP	172mm
NST-500HP	285mm

Rotary Indexing Angle

The majority of the 1 to 100 equalized dividing indexing operation can be done easily by attached dividing plates.

Quick Indexing

Quick indexing for equal dividing of 2,3,4,6,8,12 and 24 can be done with using of indexing notch pin and 24 holes on the external dia. of the face plate.

Max. Work Load on the Table

	vertical	Horizontal
NST-250HP	100kg	200kg
NST-300HP	100kg	200kg
NST-500HP	200kg	500kg

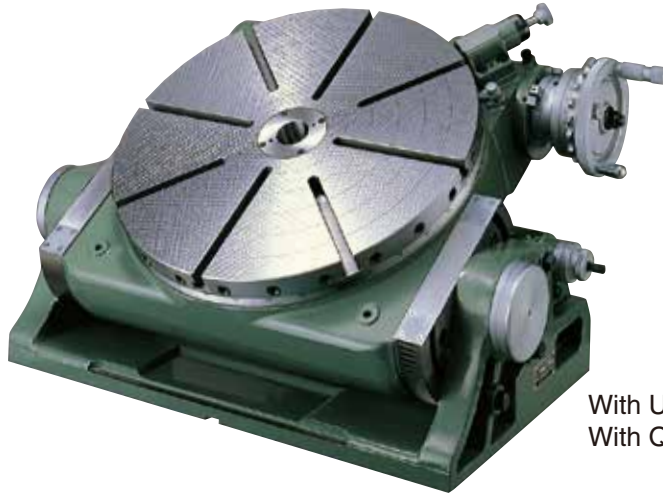
The spindle rotation part adopts the full-range bearing.

Hollow roller

Bearings are adopted for all rotating sliding parts, operation is light and keeps accuracy for a long time. Particularly in the thrust direction subject to high load, hollow roller preloaded is adopted to suppress occurrence of displacement and chatter. Therefore even if 500 kg workpieces are placed on the table surface, it rotates lightly.

Minimum Incremental: 10 sec. Indexing Accuracy : ±15 sec.

NST-500HP



With Universal Dividing Mechanism
With Quick Dividing Mechanism

Specifications

Code. No.	NST-250HP	NST-300HP	NST-500HP
Table Dia.	250mm	300mm	500mm
Table Height at 0°Pos.	151mm	172mm	285mm
Total Table height at 90°Pos.	307mm	370mm	575mm
Center Bore Dia.(Inside diameter of socket)	*φ50 _{H7} (MT#3)	*φ60 _{H7} (MT#4)	*φ75 _{H7} (MT#5)
Table Center Height at 90°Pos.	155mm	198mm	288mm
Through Hole Dia.	φ50	φ60	φ61.5
Net Weight	67kg	93kg	310kg
Number of Quick dividing	24	24	24
Guide Key Slot Width	16h7	16h7	20h7
T-slot on the Face Plate	10H7	12H7	14H7
Circular Handle One Rotation	3°	3°	2°
Circular Handle One Graduation	1min.	1min.	20sec.
Circular Handle Sub-Scale	10sec.	10sec.	5sec.
Tilting Handle One Rotation	3°	3°	2°
Tilting Handle One Graduation	5min.	5min.	1min.
Tilting Handle Sub-Scale	1min.	1min.	10sec.

Accuracy

Code. No.	NST-250HP	NST-300HP	NST-500HP
Parallelism between Table Surface & Base	0.015mm	0.02mm	0.02mm
Run-out of Table Surface	0.015mm	0.02mm	0.02mm
Run-out of Table Outside Dia.	0.015mm	0.02mm	0.02mm
Run-out of Table Centre Bore	0.01mm	0.01mm	0.01mm
Quick Dividing Accuracy	40sec.	40sec.	40sec.
Rotating Indexing Accuracy	15sec.	15sec.	15sec.
Tilting Indexing Accuracy	40sec.	60sec.	60sec.

Accessories

Code. No.	NST-250HP	NST-300HP	NST-500HP
Tail Stock	*P-150S	*P-190S	*P-280S
Dividing Plate A & B	Each 1	Each 1	Each 1
Guide Key	2	2	2
Clamp Bolt	4 set	4 set	4 set
Lifting Hook	2	2	4 set
Chuck Plate & Scroll Chuck	*X-7E	*X-7B,-9A,-10B,-12A	*X-7G,-9B,-10C,-12

P.64

P.59

P.59

★Items marked * are optional accessories.

★Please contact us if you need a guidepiece width other than standard. **P.59**

★For NST300HP and NST500HP, 7 to 12 inch scroll chuck can be mounted by chuck plate.

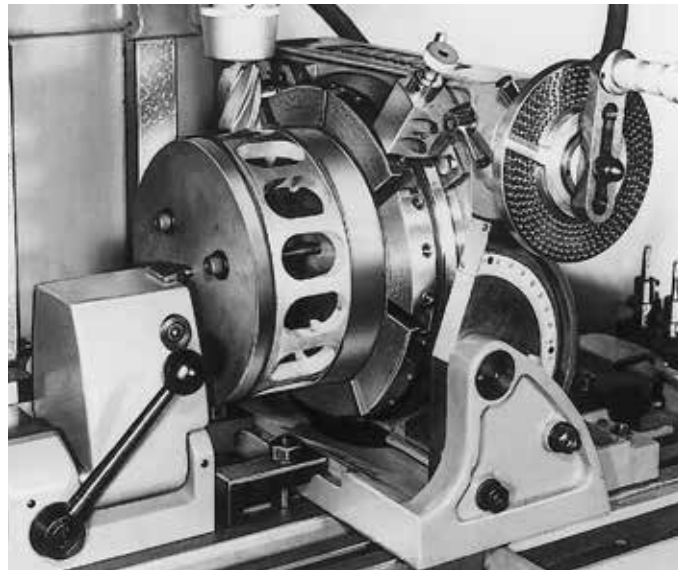
UNIVERSAL ROTARY & TILTING TABLE



Machining example at UNIVERSAL ROTARY & TILTING TABLE.

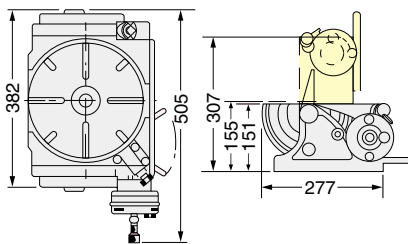


Tilting operation

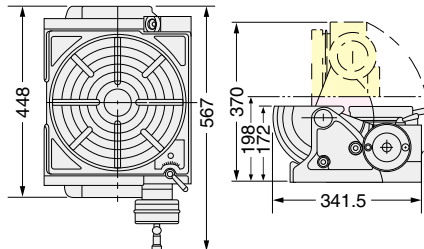


Vertical indexing operation

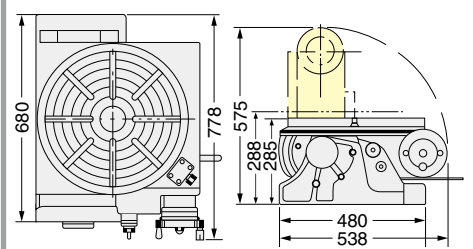
NST-250HP



NST-300HP



NST-500HP



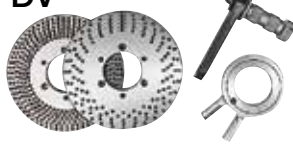
NST,SRI Circular table accessories

CH



• Circular handle
(as standard)

DV



• Dividing plate (NST : as standard)
(SRI : as option)

J



• Jig plate
(SRI-200 : as option)
(SRI-150 : as option)

R



• Scroll chuck
(SRI-200 : as standard)
(SRI-150 : as standard)

M



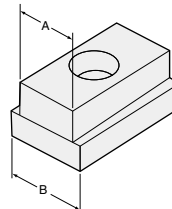
• Mask plate for 2, 3, 4, 6, 8, 12, 24 equal division
(SRI : as standard)

X



• Chuck plate
(NST-300, 500 : as option)
(SRI-300 : as option)

W

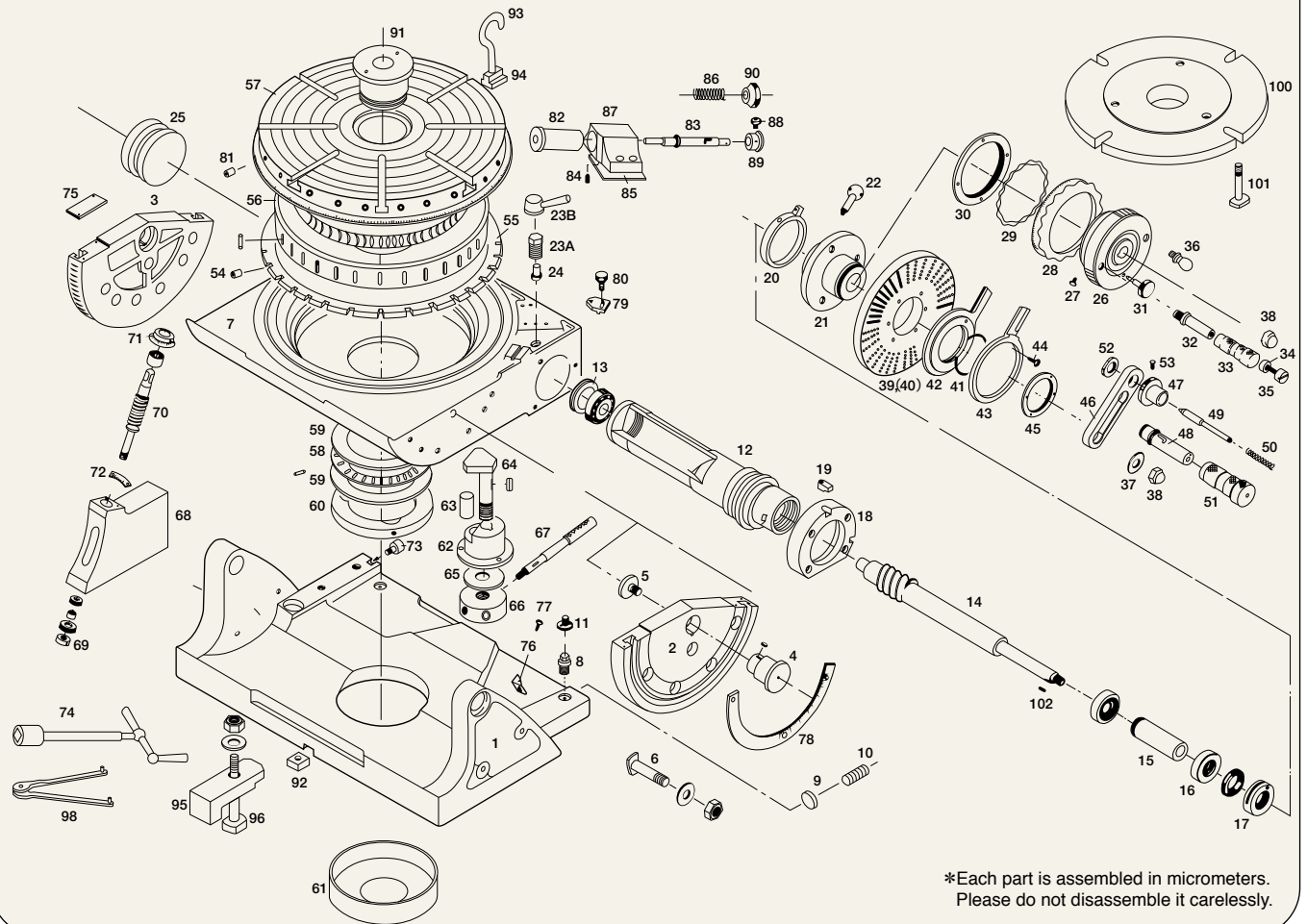


Stepped Guide piece
(as option)

It is one set with 2 each

Code No.	A	B
W - 14A	14	16
- 14B		18
- 14C		20
- 14H		12
- 14I		10
W - 16A	16	14
- 16B		18
- 16C		20
- 16J		12
W - 18A	18	14
- 18B		16
- 18C		20
- 18D		22
- 18E		12
W - 20A	20	16
- 20B		18
- 20C		22
- 20D		24

Exploded View & Part List NST-300HP

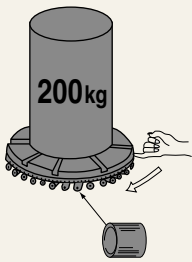


*Each part is assembled in micrometers.
Please do not disassemble it carelessly.

- | | | |
|---|------------------------------|---|
| 1) Tilting axis base | 35) Set bolt | 70) Worm screw for tilting axis |
| 2) Segment plate | 36) Round handle lever (B) | 71) Dial scale |
| 3) Segment worm wheel | 37) Washer | 72) Scale plate |
| 4) Tilting axis shaft | 38) Box nut | 73) Adjustment bolt |
| 5) Tilting axis shaft locking bolt | 39) Dividing plate (A) 24-43 | 74) Tilting handle |
| 6) Segment clamp bolt | 40) Dividing plate (B) 46-66 | 75) T slot cover |
| 7) Rotary axis body | 41) Spring ring | 76) Reference plate for tilting axis |
| 8) Level adjustment bolt | 42) Divider (A) | 77) Set screw |
| 9) Setting piece | 43) Divider (B) | 78) Scale for tilting axis |
| 10) Hexagon socket flat point set screw | 44) Set screw | 79) Base line plate |
| 11) Level stopper | 45) Round nut (M45) | 80) Base line plate set screw |
| 12) Eccentric housing | 46) Adjustment piece | 81) Notch bush |
| 13) Bearing holder (A) | 47) Safety collar | 82) Single-function guide bush |
| 14) Worm screw | 48) Dividing guide bush | 83) Notch rod |
| 15) Distance collar | 49) Notch pin | 84) Guide bush set screw (pointed end) |
| 16) Oil seal case | 50) Coil spring (for notch) | 85) Shim plate (single-function dividing) |
| 17) Bearing holder (B) | 51) Dividing lever | 86) Notch spring |
| 18) Flange | 52) Round nut (M15) | 87) Notch body |
| 19) Stopper key | 53) Guide screw | 88) Guide screw |
| 20) Setting collar | 54) Tubular roller (Thrust) | 89) Spring holder |
| 21) Dividing plate mounting housing | 55) Retainer (Thrust) | 90) Notch grip |
| 22) Single-function switchover handle | 56) Retainer (Radial) | 91) Centre socket (Option) |
| 23A) Clamp screw for eccentric housing | 57) Rotary table spindle | 92) Guide piece |
| 23B) Clamp lever for eccentric housing | 58) Retainer (Thrust) | 93) Hacker |
| 24) Clamp piece | 59) Bearing ring | 94) Hacker piece |
| 25) Cover for eccentric housing | 60) Round nut (M88) | 95) Table fitting metal |
| 26) Round handle | 61) Cover | 96) Table fitting bolt |
| 27) Clamp piece | 62) Brake guide bush | |
| 28) Scale collar | 63) Clamp pin | |
| 29) Waved spring | 64) Brake | |
| 30) Round nut (M75) | 65) Brake washer | |
| 31) Clamp screw | 66) Clamp nut | |
| 32) Handle guide | 67) Clamp lever | |
| 33) Round handle lever (A) | 68) Tilting axis housing | |
| 34) Washer | 69) Round nut (M10) | |
| | | 98) Swivel wrench |
| | | 100) Chuck plate 7 1/2" or 7" (Option) |
| | | 101) Chuck plate mounting bolt |

Minimum Read Out : 10 sec.
Indexing Accuracy : ± 15 sec.

$\phi 150, \phi 200$ & $\phi 300$
Index Table
can be used both
vertically & horizontally.



Bearings are adopted for all rotating sliding parts, operation is light and keeps accuracy for a long time. Particularly in the thrust direction subject to high load, hollow roller preloaded is adopted to suppress occurrence of displacement and chatter. Therefore even if 200 kg workpieces are placed on the table surface, it rotates lightly.

Max. Work Load on the Table

Code No.	Vertical	Horizontal
SRI-150	50kg	100kg
-200	100kg	200kg
-300	150kg	300kg



SRI-150

With Quick Dividing Mechanism
With 6 inch Scroll Chuck

Grasping range : Internal jaw ... $\phi 3.0 \sim \phi 42$ mm
External jaw ... $\phi 62 \sim \phi 127$ mm

■ Quick indexing

Quick indexing for equal division 2, 3, 4, 6, 8, 12 and 24 can be done with using of built-in master plate.

■ Functional design

It is designed to match every milling machine and drilling machine, and it can be used vertically and horizontally freely, and free reading of the minimum unit of 10 seconds is possible.

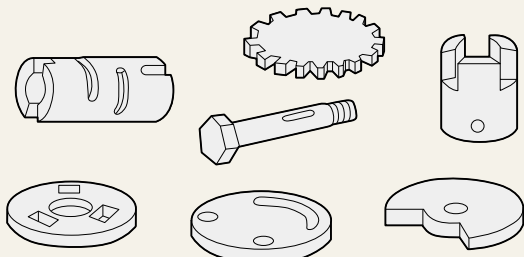
■ Full Bearing

Since hollow roller bearings are adopted as the spindle rotation part, light operation, high precision, super rigidity are realized.

■ Rotary Indexing Angle

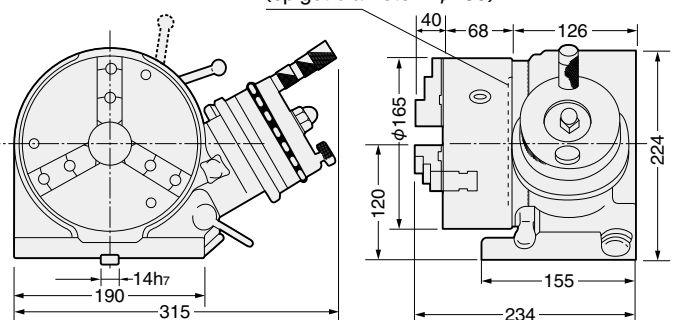
High precision worm wheel, and quenching, gear grinding, sub-zero treatment axis are used, so high precision indexing is possible. The majority of the 1 to 100 equalized dividing indexing operation can be done easily by attached dividing plates of option.

《 Machining parts sample 》



SRI-150

6 inch scroll chuck: 2 piece jaw
(spigot diameter : $\phi 130$)

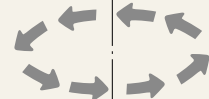


φ 150, φ 200 & φ 300 Index Table

Simple indexing by handle



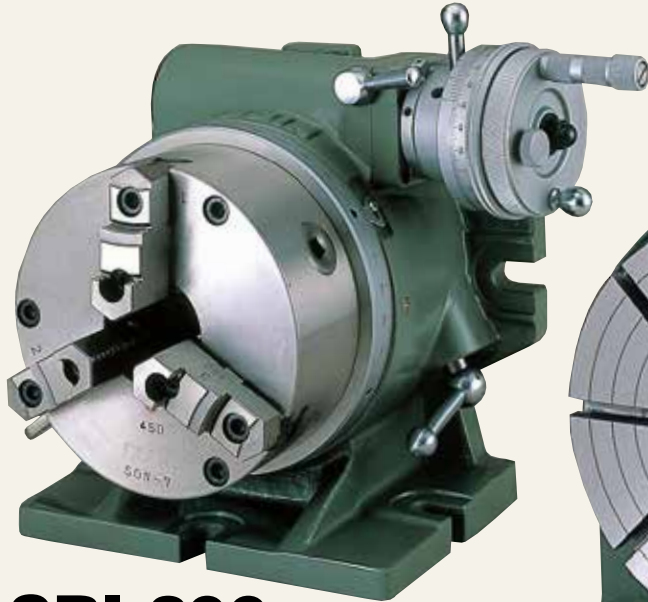
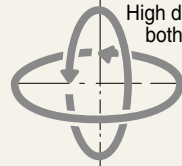
Quick dividing with the built-in master plates



Universal dividing

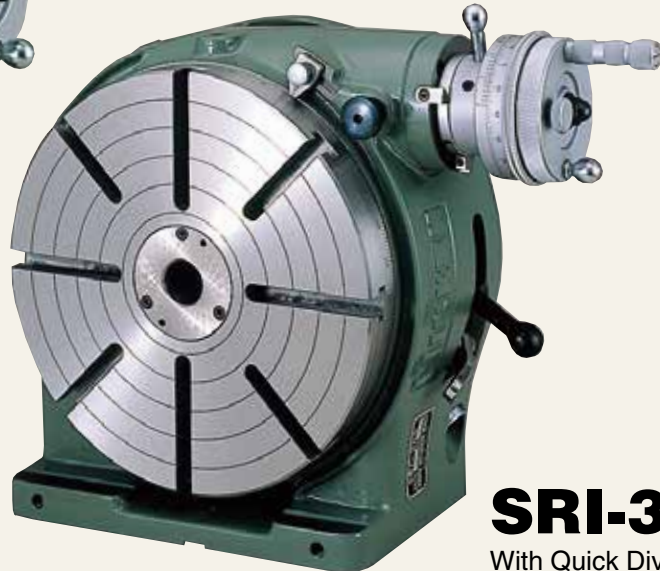


High durability in both the vertical & horizontal position



SRI-200

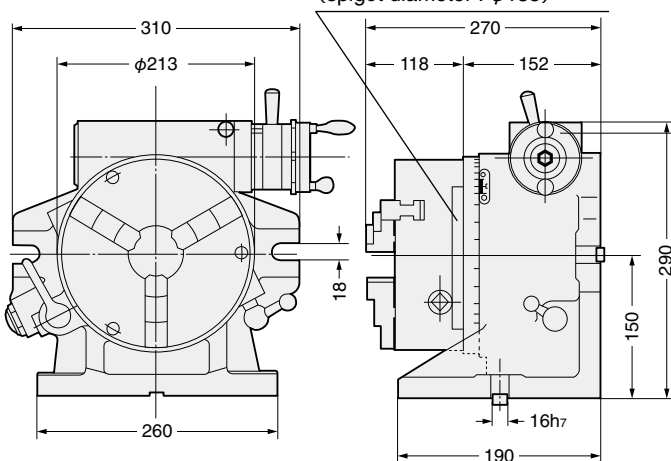
With Quick Dividing Mechanism
With 7 inch Scroll Chuck
Grasping range : Internal jaw ... φ3.0~φ53mm
External jaw ... φ73~φ146mm



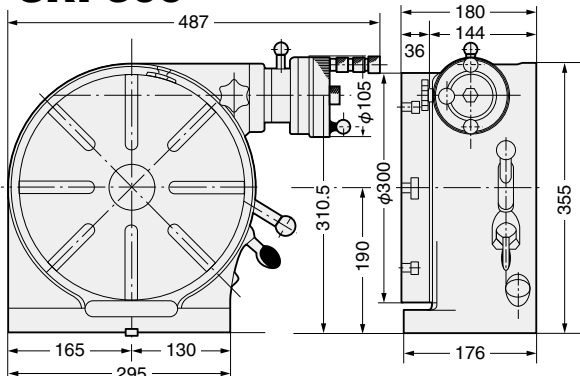
SRI-300

With Quick Dividing Mechanism

SRI-200



SRI-300



Specifications

Code No.	SRI-150	SRI-200	SRI-300
Table Face Plate Dia.	168mm	213mm	300mm
Table Surface Height at Horizontal Pos.	126mm (No Chuck)	152mm (No Chuck)	180mm
Table Total Height at Vertical Pos.	224mm	290mm	355mm
Circular Handle One Rotation	4°	4°	3°
Circular Handle One Graduation	1min.	1min.	1min.
Circular Handle Sub-Scale	10sec.	10sec.	10sec.
One Graduation on the Face Plate	1°	1°	1°
Quick Dividing	2, 3, 4, 6, 8, 12, 24	2, 3, 4, 6, 8, 12, 24	2, 3, 4, 6, 8, 12, 24
T-slot on the Face Plate	12H7 (Jig Plate Installation)	12H7 (Jig Plate Installation)	12H7
Guide Key Slot Width	14h7	16h7	16h7
Centre Bore Dia.	Root: φ43mm Through : φ38mm	63.5mm	60mm
Centre Socket Bore Size	—	—	*φ60 _{H7} (MT #4)
Scroll Chuck to suit	R-6 (Bore : φ43)	R-7 (Bore : φ54)	* 7", 9", 10", 12"
Weight	37kg	65kg	85kg

Accuracy

Code No.	SRI-150	SRI-200	SRI-300
Parallelism between Table Surface and Base	0.015mm	0.015mm	0.02mm
Run-Out of Table Surface	0.015mm	0.015mm	0.02mm
Quick Dividing Accuracy	±20sec.	±20sec.	±20sec.
Positioning Indexing Accuracy	±15sec.	±15sec.	±15sec.

Accessories

Code No.	SRI-150	SRI-200	SRI-300
Circular Handle	1	1	1
Table Clamps & Bolts	4	3	4
Scroll Chuck	R-6...1pcs	R-7...1pcs	*
Guide Key	2	2	2
Jig Plate	*	*	—
Multi Indexing Plate A, B	*	*	*
Tail Stock	* P-110S	* P-150S	* P-190S
Chuck Plate	—	—	* X-7B,-9A,-10B,-12A

Items marked * are optional accessories.

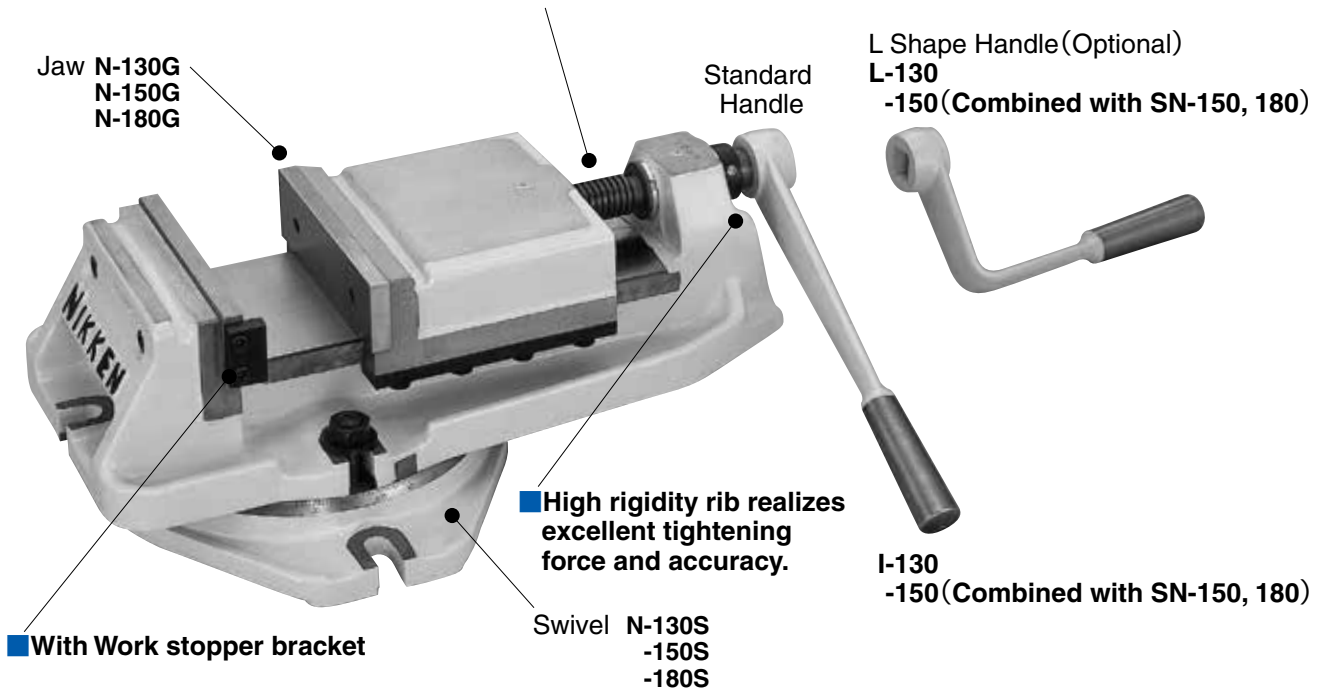
Please contact us if you need a guidepiece width other than standard. ☎P.59

The scroll chuck has been changed by the manufacturer since 2007.

It is NIKKEN standard 2-pcs jaw type. (Top jaw is changeable).

For Tailstock, please refer ☎P.64

■ **4KN strong clamping easily by hand tightening.**
The screw adopts ion nitriding treatment which is superior in hardness and sliding performance equivalent to that of cemented carbide.



■ S.N-130 ■ S.N-150 ■ S.N-180

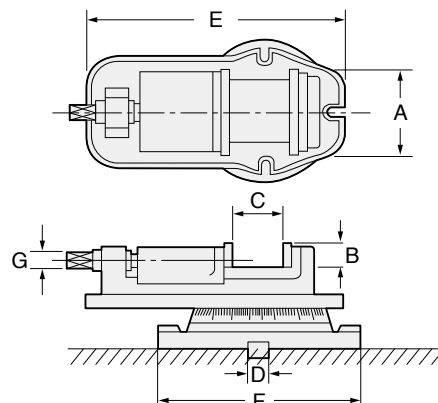
- Parallelism between the bottom of the main unit and jaw sliding surface 0.015mm/100mm
- Parallelism of gripping surfaces of both jaw 0.015mm/100mm
- Squareness of the gripping surfaces of both jaw 0.03mm/100mm
- Squareness of the guide block on the bottom of the main unit and the gripping surface of jaw 0.015mm/100mm
- Parallelism between the top and bottom of the swivel base 0.015mm/100mm
- Parallelism between the top surface of the test piece and the bottom surface of the main body 0.02mm/100mm

■ Features

- (1) NIKKEN Machine Vice is a precision grinding finish of all sliding surfaces and mounting surfaces. In particular, the fastening screw is grinding special steel after quenching.
- (2) As the material of each part is made of special steel, Miehinite metal is used for frame, slide and swivel, so maintain durability and accuracy for a long time.

■ Specification

Item	Code No.	S.N-130	S.N-150	S.N-180
A Jaw Width		130mm	150mm	180mm
B Jaw Hight		40	45	50
C Jaw Opening Width (Max.)		86	120	139
D Guide Key Slot Width		14	16	16
E Overall Length		357	440	525
F Diameter of Swivel		215	246	316
G Square Width of Handle		17	19	19
Weight	Main Unit	21.0kg	30.5kg	50.6kg
	Swivel	6.5kg	10.0kg	17.3kg



★ In case of no swivels, Code No. are N-130, N-150, N-180.
 ★ Swivel only, Code No. are N - 130S, N - 150S, N - 180S.
 ★ If two or more units are used in conjunction, please contact us.
 ★ Other guide piece widths are also as option. P.59

SOLID VISE SYSTEM for long length



Solid vise produced ideas and technology

This solid vise can make full use of planing machine, milling and boring machine. This means that the workpiece can be clamped reliably on the table with the principle of the wedge using the slope, so it is possible to machine the top of the workpiece to full.

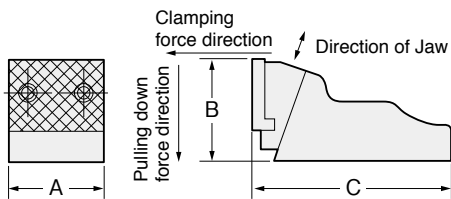
- SV-62
- SV-85
- SV-120



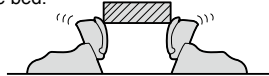
Specification

Item	Code No.	SV-62	SV-85	SV-120
A Jaw Width		62mm	85mm	120mm
B Min. Jaw Height		56	82	135
C Max. Length		120	185	230
D Bolt Thread Size		14	14	16

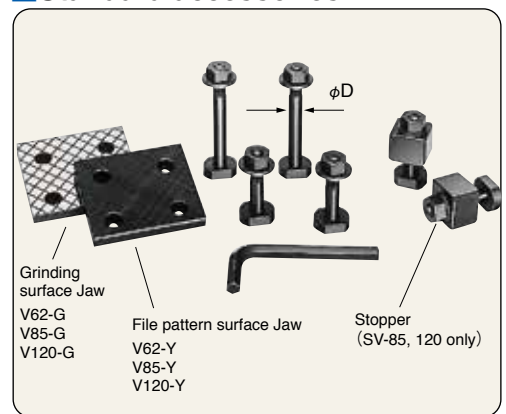
★It is one set with 2 each



Please do not clamp as shown below. Please close the bottom of the work to the bed.



Standard accessories

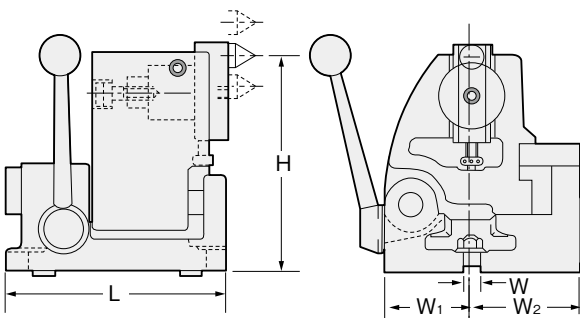


Grinding surface Jaw
V62-G
V85-G
V120-G

File pattern surface Jaw
V62-Y
V85-Y
V120-Y

Stopper
(SV-85, 120 only)

TAILSTOCK (MANUAL)



Code No.	Center Height H	L	W	W ₁	W ₂	Weight (kg)	Suitable Table
P-110S	110~120	150	14	55	70	10.0	SRI-150
P-150S	145~160	195	16	77	98	22.0	SRI-200, NST-250HP
P-190S	180~200	195	16	77	98	23.5	SRI-300, NST-300HP
P-280S	280~300	235	20	103	124	41.0	NST-500HP

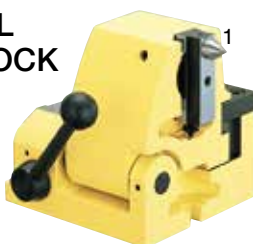
★For **P-150S, P-190S, P-280S, PC-1, -2, -3, -4, -5, -6** are included as standard.

★For **P-110S, PC-1** and **PS-2** are included as standard.

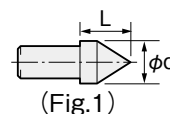
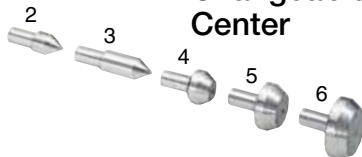
★Please contact us if you need a guidepiece width other than standard. ☎ **P.59**

★Left handed tailstocks are available in all sizes.

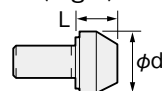
TAIL STOCK



Changeable Center



(Fig.1)



(Fig.2)

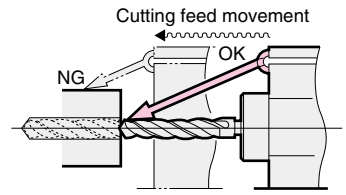
Code No.	L	φ d	Fig
PC-2	25	20	1
-3	50	20	1
-4	20	30	2
-5	20	40	2
-6	20	50	2
-1	Changeable Center Base		

OIL JETTER SYSTEM for NC LATHE



The problem of NC lathe process is said to be inner diameter machining.

Trouble frequent due to insufficient supply of coolant



Coolant is not supplied to required area.

Solution

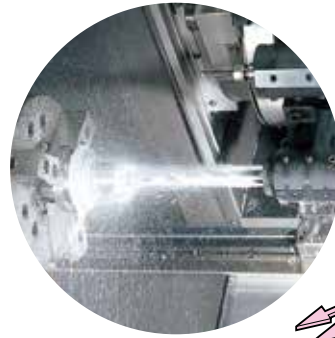
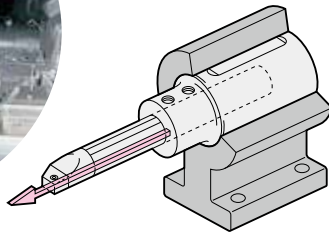
Drilling
Boring
Variation in inner diameter dimension

Coolant is not enough for external supply

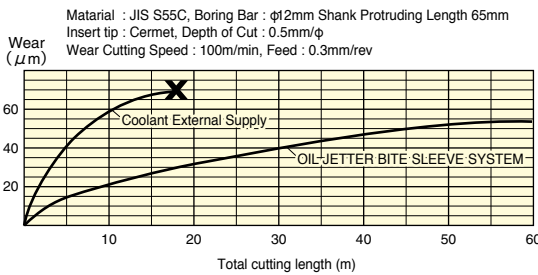
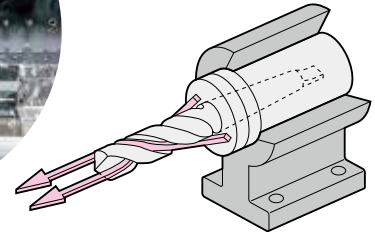
NIKKEN OIL JETTER SYSTEM developed for internal rationalization solves this problem.



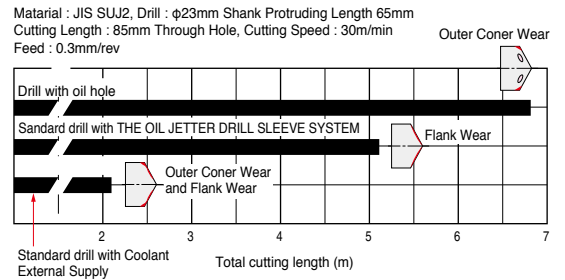
Boring



Drilling



With reliable jetting
Edge Cooling
Chip Discharge
Long Service Life of Cutting
Tool Reduction of Setup Time
and Setup Times Unattended
Operation at Night



- With external supply, the total cutting length is 17m and wears by 70 μ m, and the service life is reached.
- In THE OIL JETTER BITE SLEEVE SYSTEM it is possible to continue with wear of 50 μ m even after cutting 60m.

- Oil hole drill is good for life expectancy,
- The outer corner wear and there are many regrinding steps.
- Not suitable for through holes.
- There is a limit to the discharge amount.
- It is expensive.

- In contrast, THE OIL JETTER SLEEVE SYSTEM
- Mainly flank are wear, easy to regrinding.
- Suitable for through holes.
- It is proportional to the tank discharge amount and the discharge amount is large.
- It is also possible to use a standard drill.

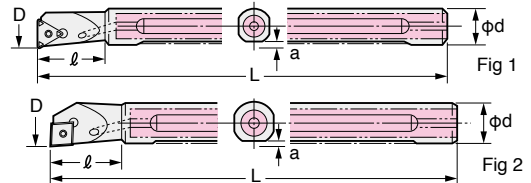
OIL JETTER BITE with CARBIDE MANDREL



LST



OIL JETTER BITE while stocks last.



Code No.	DMIN D	d	L	l	a	Fig	Accessories Code No.			
							Insert Chip	Clamp Screw	Clamp Handle	
LST- 6	8.0	6	80	13	0.25	1	△	3LP-T2 (TBMT 0601○)	M 2045	T- 6
- 8	10.0	8	100	17	0.5			4LP-T4 (TPMT 0802○)		
-10	12.0	10	120	20				5LP-T4 (TPMT 0902○)		
-12	15.0	12	140	25				6LP-T4 (TPMT 1103○)		
LSC-12	15.0	12	140	25	0.5	2	□	8CP-T4 (CPMT 0903○)	M 4047	T-15

★The included insert chip is T (Cermet).

★Special steel boring tool also available. △ LNT- 6, 8, 10, 12, 16, 20, 25 □ LNC- 12, 16, 20

OIL JETTER SYSTEM for NC LATHE

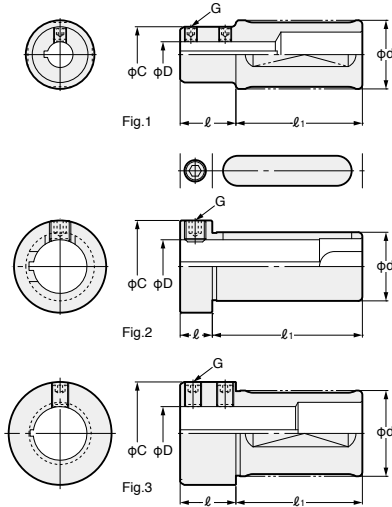


Oil Jetter Bite Sleeve (for Commercially Available Boring Bar)

LEA



- With powerful coolant discharge groove. PAT.
- Excellent coolant effect for boring.
- Always remove chips with strong pressure to protect the cutting edge.



Code No. d- D	C	ℓ	ℓ ₁	G	Fig	Code No. d- D	C	ℓ	ℓ ₁	G	Fig
LEA16- 6	15.5	26	70	2-M5	1	LEA32-16	30	26	70	2-M8	1
- 8	16			2-M6		-20	31.5			M10	
LEA20- 6	18	26	70	2-M5	1	LEA40-10	24	26	70	2-M6	1
- 8	19.5			2-M6		-12	26			2-M8	
-10	19.5			2-M6		-16	30			2-M8	
LEA25- 6	20	10	70	M6	2	-20	34	20	75	2-M8	3
- 8	22			2-M5		-25	48			M12	2
-10	22	26	70	2-M6	1	LEA50-12	26	26	75	2-M6	1
-12	24			2-M6		-16	30			2-M8	
-16	24.5			2-M6		-20	34			2-M8	
LEA32- 8	22	26	70	2-M6	1	-25	48	20	75	2-M10	3
-10	24			2-M6		-32	53				
-12	26			2-M6		LEA50-12	26			2-M6	
				2-M6		-16	30			2-M8	
						-20	34			2-M8	
						-25	48			2-M8	
						-32	58			2-M10	

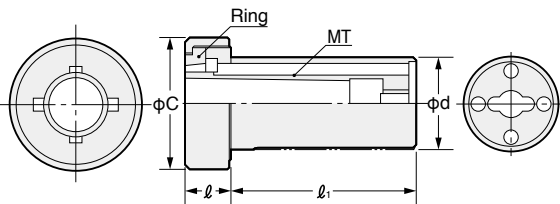
Oil Jetter Drill Sleeve

LE-MT



- With 4 coolant discharge nozzles along the drill groove.
- Since the nozzle position is variable, it exhibits the coolant effect.
- An expensive oil hole drill is unnecessary and continuous operation is possible.

(For MT Shank Drill)



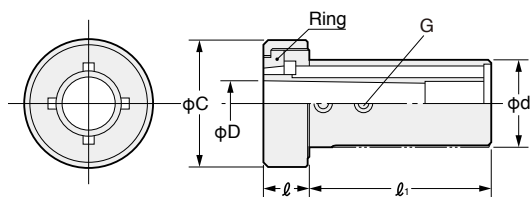
MT No.	Drill diameter	Ring
MT1	φ 8.1~12	9LSR2-1
	φ 12.1~14	9LSR2-2
MT2	φ 14.1~19	9LSR4-1
	φ 19.1~23	9LSR4-2
MT3	φ 23.1~26	9LSR5-1
	φ 26.1~32	9LSR5-2
MT4	φ 32.1~44	9LSR7-1

Code No. d-MT	C	ℓ	ℓ ₁	Code No. d-MT	C	ℓ	ℓ ₁	
LE25-MT1	47	15	44.5	LE50-MT1	66	18	75	
-MT2			57	-MT2			75	
LE32-MT1	47	15	44.5	-MT3			20	70
-MT2			59	-MT4			38	75
-MT3	56	25	65					
LE40-MT1	56	18	41.5					
-MT2			56					
-MT3			25	65				
-MT4			83	48	65			

LS



(For Straight Shank Drill)

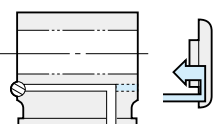


φD	Drill diameter
10	φ 8.1~10
12	φ 10.1~13
16	φ 13.1~14.5
20	φ 14.6~18.5
25	φ 18.6~23.5
32	φ 23.6~32

Code No. d-D	C	ℓ	ℓ ₁	G	Code No. d-D	C	ℓ	ℓ ₁	G			
LS16-10	47	25	60	M8	LS40-10	56	18	70	M8			
LS20-10	47	25	60	M8	-12				30	M10		
-12				M8	-16						M12	
LS25-10	47	15	60	M6	-20				66	35	M12	
-12				M8	-25							
-16	25	M8	LS50-10	66	18	75	M8					
LS32-10	47	15	70				M6	-12	20	M10		
-12							M8	-16			35	M12
-16							M10	-20				
-20							56	30			M10	-25
							-32					

- ★Please use the coolant-through type base holder (internal supply type).
- ★A one-touch back cover is also available that can change the external supply type base holder to the internal supply type. Please contact us separately.
- ★Corresponding to the drill diameter, the Ring is attached.

Back cover LES

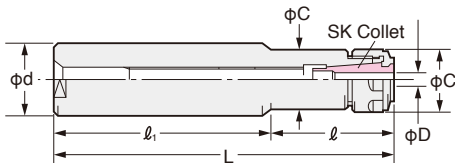


OIL JETTER SYSTEM for NC LATHE

NIKKEN

Oil Jetter SLIM CHUCK

STH-SK



Code No.	L	D	d	C	l	l_1	SK Collet
STH16-SK10-120		1.75~10	16	27.5	50	70	SK 10
STH20-SK16-130		3~16	20	40	60	70	SK 16
STH25-SK16-130		3~16	25	40	60	70	SK 16
STH32-SK16-120		3~16	32	40	40	70	SK 16
STH40-SK16-120		3~16	40	40	40	70	SK 16
STH50-SK16-120		3~16	50	40	40	70	SK 16

★STH is unified from ST

★STH20-SK10 type is available as option. Please ask us.

★Please refer P.72 for SK Collet.

J TYPE NUT for SLIM CHUCK



- J type nut and cap fit all existing Slim Chuck.
- With the standard drill, the effect like the oil hole drill is expected.



J type Nut Code No.	Cap Code No.	Wrench Code No.
SKN-10KJ	SKJ10-3, 4, 5, 6, 8, 10	SKJL-10
SKN-16BJ	SKJ16-8, 10, 12, 16	SKJL-16

★Cap for Tap Shank, Drill Shank are also available.

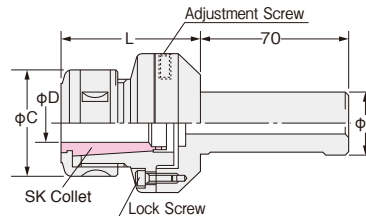
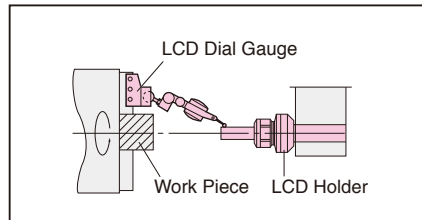
Please refer NC Tooling Catalogue. P.39

Adjust type Centering Holder & Centering Dial Gauge

LCH-SK



The angle of the flat surface of the shank and the adjusting screw is 45° as standard. For different angles, please contact us separately.



- Adjust any radial direction 0.5mm.
- Adjust misalignment within ± 0.01 mm between a chuck and a turret head.
- Stable drilling and perfect finishing.
- Improve tool life and promote high precision and unmanned operation.
- Especially, it is essential for carbide and small diameter center drill.

Code No.	D	d	L	C	SK Collet
LCH16-SK10	1.75~10	16	46	27.5	SK 10
LCH20-SK16	3~16	20	58	40	SK 16
LCH25-SK16	3~16	25	58	40	SK 16
LCH32-SK16	3~16	32	58	40	SK 16
LCH40-SK16	3~16	40	58	40	SK 16
LCH50-SK16	3~16	50	58	40	SK 16

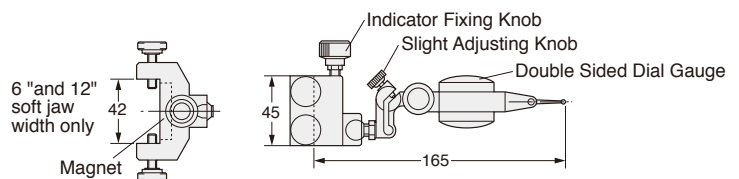
★Please refer P.72 for SK Collet.

(Magnet mounted)
Easy centering



LCD

- 6" to 12" chuck is available.
- It is possible to put on lathe chuck jaws and measure directly runout turret head.
- Double Sided Dial Gauge with excellent visibility is attached.



TAPPER CHUCK for NC LATHE

NIKKEN

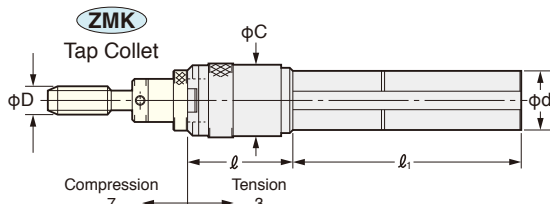
ST-ZT



- Tapper chuck dedicated to the center tap.
- Follows freely with long float mechanism and is ideal for precision tap work.

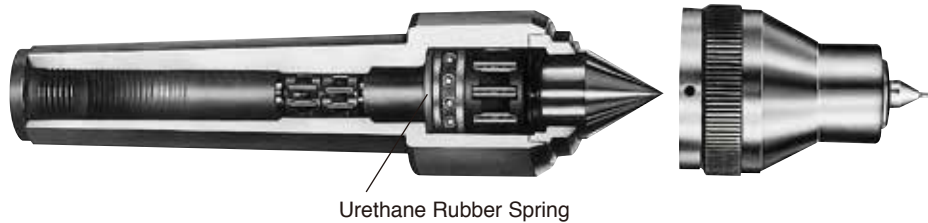
Code No.	L	Tapping Capability D	d	C	l	l_1	SK Collet
ST25-ZT12		M3~M12	25	32	48	70	ZMK 12
ST32-ZT12		M3~M12	32	32	48	70	
-ZT16		M4~M16	32	42	55	70	ZMK 16

★Tap collet is sold separately. P.68



〈Live Center and Centering Equipment〉^{LM}

■ With the same machine, same worker, the same work, the work will be easy and accurate.

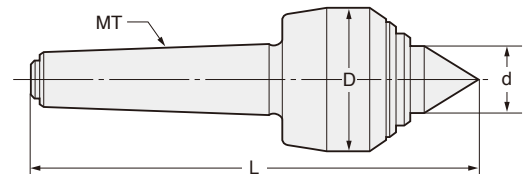


■ Standard Set

Set No.	Live Center	Holder	Collet
S.LM3-C	LM3-C	LC	LK-6·7.7-8 10(4P)
S.LM4-C	LM4-C	LC	LK-6·7.7-8 10(4P)
S.LM4-M	LM4-M	LM	LK-6·7.7-8 10(4P)
S.LM5-H	LM5-H	LH	LK-6·7.7-8 10(4P)

- ★ 1 off collet setting and extracting tool is 9 LMR supplied in each set as standard.
- ★ The center drill can be purchased from Nikken. It is also possible to use commercially available products cut in half.
- ★ Optional collet for center drill : LK-4 , -5 , -11 , -12

■ Live Center Dimensions



■ Live Center Main Body

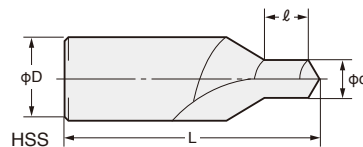
Code No.	MT	L	D	d
LM3-C*	3	158	44	24
LM4-C*	4	181	44	24
LM4-M	4	188	55	24.7
LM5-H	5	228	62	29.7

★ * C type is designed for copy lathing.

LQ Center Drill for the Live Center

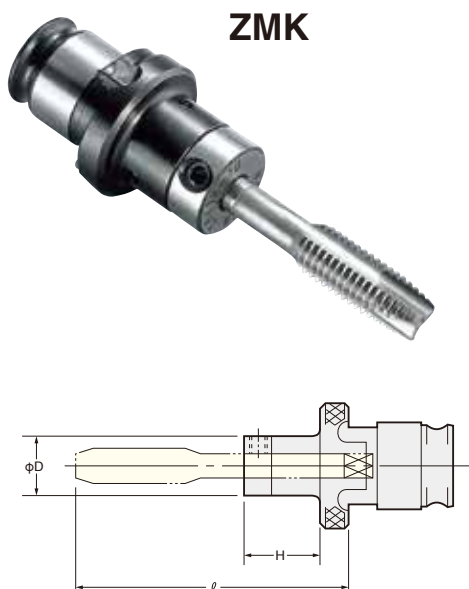


■ For the Nikken Live Center use only



Code No.	φd	φD	ℓ	L	Collet
LQ2 - 6	2.0	6.0	2.3	21	LK- 6
LQ2.5- 7.7	2.5	7.7	2.7	26	LK- 7.7
LQ2.5- 8	2.5	8.0	2.7	24	LK- 8
LQ3 - 7.7	3.0	7.7	3.0	26	LK- 7.7
LQ3 -10	3.0	10.0	3.0	26	LK-10
LQ4 -11	4.0	11.0	3.5	29	LK-11
LQ4 -12	4.0	12.0	3.5	26	LK-12

TAP COLLET for NC LATHE (without Torque Limiter Mechanism)



	ZMK12				ZMK16			
	Code No.	ℓ	D	H	Code No.	ℓ	D	H
Metric (M)	ZMK12- 3	47.5	13	16	ZMK16- 4	53.5	19	21
	- 4	48.5			- 5	61.5		
	- 5	56.5			- 6	63.5		
	- 6	58.5	- 8	66				
	- 8	65	-10	71				
	-10	70	-12	77				
	-12	76	-14	78				
Unified (U) or British Standard Whitworth (W)	ZMK12-1/8	47.5	19	20	ZMK16-1/8	52.5	19	21
	-3/16	56.5			-3/16	61.5		
	-1/4	58.5			-1/4	63.5		
	-5/16	65			-5/16	66		
	-3/8	70			-3/8	71		
	-7/16	74			-7/16	75		
	-1/2	78			-1/2	79		
Pipe (PT) (PF)	ZMK12-1/8P	51	19	20	ZMK16-1/8P	54	19	21
					-1/4P	56		
					-3/8P	57		

HIGH PRECISION SLEEVE for CNC Automatic Turning Lathe **NIKKEN**

The tool holder with good run-out accuracy is essential for high precision hole machining on NC lathe. Please use NIKKEN Slim Chuck or Mini-Mini Chuck.

SLIM CHUCK for NC Lathe

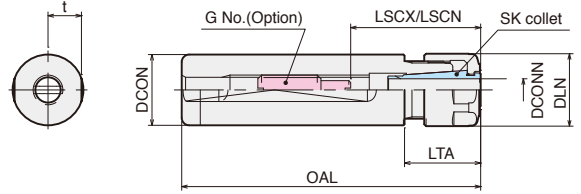
For Turning Skill Reamer **P.70**, Slim Chuck and Mini - Mini Chuck with excellent runout accuracy are indispensable.



Reaming can be successfully performed by using high precision tool holder.
*The chuck is holding the **RSST-6.OF** in the picture.



Spanner is available as an option. **SKL-6W,SKL-10**
★Please use **SKL-6WS** spanner in case of narrow space.



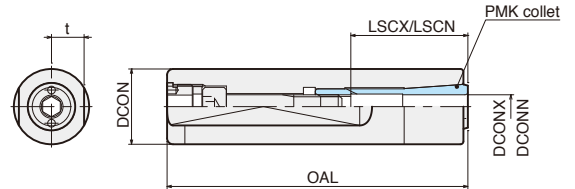
Code.No.	DCON	t	DCONN~DCONX	OAL	LTA	DLN	LSCN~LSCX	G No. (Option)	Weight (kg)	SK Collet	Spanner (Option)
ST 3/4 -SK 6 - 81	19.05	9	0.7~6.0	80.5	20.5	19.5	21~35	SKG-8	0.14	SK6	SKL-6W (SKL-6WS)
ST 3/4 -SK 6 -141				140.5					0.26		
ST 3/4 CM -SK 6 - 97				96.5					0.17		
ST 20 -SK 6 - 81	20			80.5		19.5			0.14		
ST 20 -SK 6 -141				140.5					0.26		
ST 22 SC -SK 6 - 97	22	10.5 (1ヶ所)		96.5					0.18		
ST 1 -SK10 - 82	25.4	11	1.75~10.0	82.1	22.1	27.5	30~57	SKG-12L	0.23	SK10	SKL-10
ST 1 -SK10 -142				142.1			0.40				
ST 1 CM -SK10 - 97				97.1			0.30				
ST 25 -SK10 - 82	25			82.1			30~57		0.23		
ST 25 -SK10 -142				142.1					0.40		

- ★Nut is supplied as standard.
- ★Please use **SKL-6WS** spanner in case of narrow space.
- ★Collet is available as an option. Please refer **P.12 and P.72** for **SK Collet**. Please refer **P.72** for **SK-AC Collet**.
- ★Type A and AC (for through coolant) collect : Chucking range : h8
- ★There are also shank diameters of 22 and 15.875. ★Shank shape may need to be changed by machine. Please check the shape of the shank.

Mini-Mini CHUCK for NC Lathe



Clamp / Unclump from backside with only I wrench.
*The chuck is holding the **SRST-6.OF** in the picture.



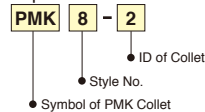
Code.No.	DCON	t	DCONN~DCONX	OAL	LSCN~LSCX	Collet	Spanner (Option)
K 5/8 CM - MMC4 - 50	15.875	7	1.0~4.0	52.0	16~24	MPK4	Allen Key 4mm
K 3/4 CM - MMC8 - 80	19.05	9	1.8~8.0	81.5	22~41	PMK8	Allen Key 6mm or EA573KL-6
K 1 CM - MMC8 -100	25.4	11					
K 20 CM - MMC8 -100	20.0	9					
K 22 SC - MMC8 -100	22.0	10.5 (1ヶ所)		101.5			
K 25 TG - MMC8C -100	25.0	11.5 (1ヶ所)	2.0~8.0 (1.8~8.0)			VMK8 (PMK8)	

★Collet is available as an option.

PMK Collet Please select PMK collet for the MINI-MINI Chuck without coolant through capability.



Explanation of the Code No.



PMK Collet Code No.
MPK 4-1, 1.5, 2, 2.5, 3, 3.5, 4
PMK 8-2, 2.2, 2.4, . . . 3, . . . 4, . . . 5, . . . 6, . . . 7, . . . 8 (each 0.2mm)
PMK12-4, 5, 6, 8, 10, 12

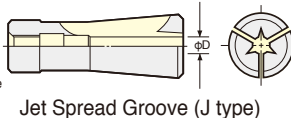
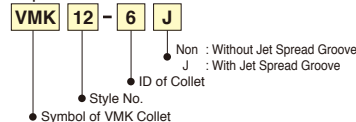
- ★Please note the acceptable shank tolerance of **MPK Collet** is h6.
- ★Even the gripping range of **PMK collet** is 0.2mm/dia. (e.g. **PMK8-2** : 1.8~2.0), but the shank tolerance of h6 is highly recommended for precision machining.

VMK, VMK-J Collet For centre through tool coolant type MINI-MINI Chuck ;

- Standard **VMK** collet is for the cutting tool with coolant hole.
- **VMK-J** collet is for the cutting tool without coolant hole.



Explanation of the Code No.



VMK Collet Code No.
VMK 8-2J,3J,4J,5J,6J,8J
VMK12-4J,5J,6J,8J,10J,12J

- ★Please note the acceptable shank tolerance is h6.
- ★**VMK8-2J** is Jet Spread Hole type.

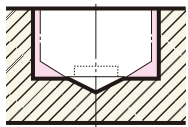
NIKKEN TURNING SKILL REAMER for NC Lathe



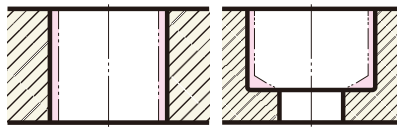
- SHORT TYPE FOR CNC TURNING MACHINE AND BAR FEEDER
- MILLING BLADE MAKES FINE STRAIGHTNESS AND ROUNDNESS
- LINEUP FOR PRIMARY SPINDLE AND BACK SPINDLE
- FOR TURNING SKILL REAMER, SLIM CHUCK AND MINI - MINI CHUCK WITH EXCELLENT RUNOUT ACCURACY ARE INDISPENSABLE. P.69



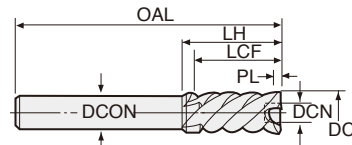
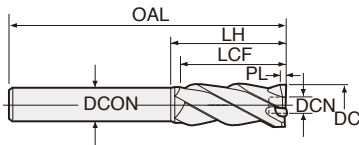
Be sure to select the reamer shape according to the hole shape.



Explanation of the Code No.
RSST - **10.0** - **F**
 • FOR BLIND HOLE
 • DIAMETER
 • TURNING SKILL REAMER SERIES
 RSS : STRAIGHT SHANK RIGHT HAND HELICAL FOR BLIND HOLE



Explanation of the Code No.
SRST - **10.0** - **F**
 • FOR STEPPED HOLE
 • DIAMETER
 • TURNING SKILL REAMER SERIES
 SRST : STRAIGHT SHANK SHORT



MILLING BLADE LH-HELIX 30-40° PN

MILLING BLADE LH-HELIX 45° PN

Code No.	DC H7	OAL	DCON	PL	DCN	LCF	LH
RSST-3.0F	3.0	60	3	0.6	1.5	20	35
RSST-4.0F	4.0	60	3	0.6	1.5	20	20
RSST-5.0F	5.0	65	4	0.6	2.0	25	25
RSST-6.0F	6.0	65	5	0.6	3.0	25	25
RSST-7.0F	7.0	70	6	0.6	3.0	25	25
RSST-8.0F	8.0	70	6	0.6	3.5	25	25
RSST-9.0F	9.0	70	8	0.6	4.0	25	25
RSST-10.0F	10.0	70	8	0.6	4.5	25	25
RSST-11.0F	11.0	80	10	0.6	4.5	30	30
RSST-12.0F	12.0	80	10	0.6	5.5	30	30

Code No.	DC H7	OAL	DCON	PL	DCN	LCF	LH
SRST-3.0F	3.0	60	3	0.6	1.5	20	35
SRST-4.0F	4.0	60	3	0.6	1.5	20	20
SRST-5.0F	5.0	65	4	0.6	2.0	25	25
SRST-6.0F	6.0	65	5	0.6	3.0	25	25
SRST-7.0F	7.0	70	6	0.6	3.0	25	25
SRST-8.0F	8.0	70	6	0.6	3.5	25	25
SRST-9.0F	9.0	70	8	0.6	4.0	25	25
SRST-10.0F	10.0	70	8	0.6	4.5	25	25
SRST-11.0F	11.0	80	10	0.6	4.5	30	30
SRST-12.0F	12.0	80	10	0.6	5.5	30	30

- ★PL means chamfering length to DC.
- ★DCN is the front end bore diameter without bottom teeth, thus please make sure predrilled hole should be larger than DCN.
- ★There is also an intermediate processing diameter. Please consult us.
- ★For detailed dimensions please refer to Reamer series catalog.

- ★OH Type is also available. Coated Carbide is also available. Please consult us.
- ★Please slightly decrease feed rate before reaching the bottom of the hole without using G86.
- ★There is also an intermediate processing diameter. Please consult us.
- ★For detailed dimensions please refer to Reamer series catalog.

■ Aptitude for material ○ : Optimal ○ : Suitable

Material	Coolant	Mild steel SS	Carbon steel (Annealed) S55C	Carbon steel (Tempered) S55C	Free-cutting steel	Alloy steel SUJ SCM	Tool steel SKH SKD	Stainless SUS	Brass Phos phor bronze	Castiron Ductile FC FCD	Aluminium ALcasting Diecast
Cutting speed m/min	water/oil	○ 10~16	○ 10~16	○ 10~14	○ 10~16	○ 10~16	○ 8~14	○ 6~10	○ 10~18	○ 10~18	○ 12~22

■ Spindle speed S (min⁻¹)

Determine material and cutting speed.

Mildsteels SS
10~16

The value in left side is minimum condition. Please use the value in middle.

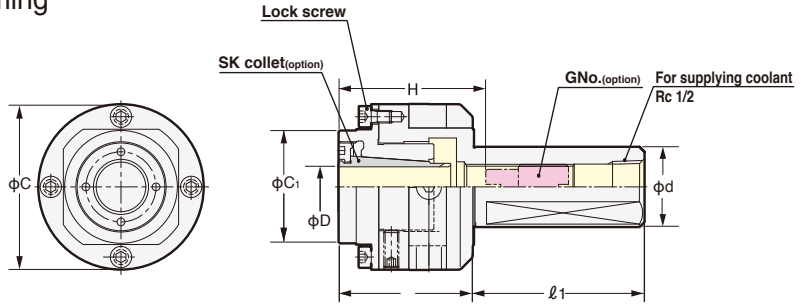
$$S = \frac{\text{Cutting speed (m/min.)} \times 1000}{3.14 \times \text{Reamer dia. (mm)}}$$

■ Coolant

Recommend JIS A1 no.1 (former W1 no.2) with dilution ratio of 5 to 10.

NIKKEN ZERO-ZERO HOLDER for Turning Machine **NIKKEN**

Ideal for Ultra Deep Drilling and Precise Reaming

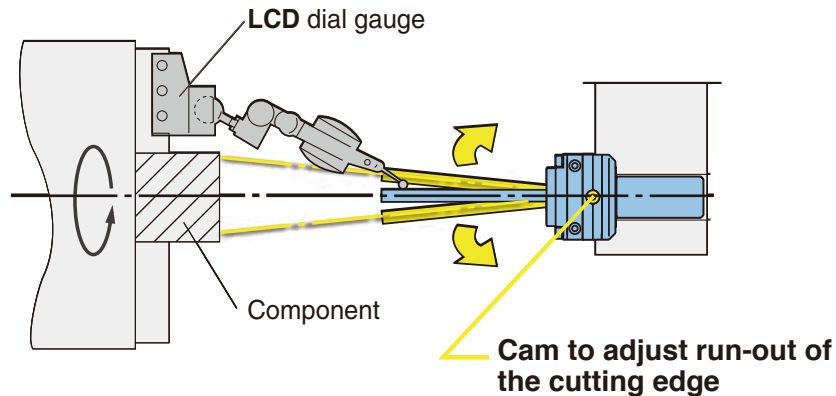


Code.No.	D	d	L	ℓ_1	H	C	c1	G No. (Option)	Nut (Standard)	SK Collet	Spanner (Option)
LCH32-SZF10S-52	1.75~10	32	52.1	68	50	66	35	SKG-18-SZF10S	SKN-10SB	SK10	SKL-10S-P
LCH40-SZF10S-52		40								SK10-P	
LCH32-SZF10S-52-A		32							SK10-AC		
LCH40-SZF16S-52-A		40									
LCH32-SZF16S-55	2.75~16	32	54.3	70	70	45	SKG-18L	SKN-16SB	SK16	SKL-16S-P	
LCH40-SZF16S-55		40							SK16-P		
LCH32-SZF16S-55-A		32						SK16-AC			
LCH40-SZF16S-55-A		40									

- ★Nut is supplied as standard.
- ★Collet is available as an option. Please refer [P.12 and 72](#).
- ★A Type and SK Coolant Collect : Chucking range : h8
- ★Tightening Spanner SKL-10S-P, SKL-16S-P is available as an option.
- ★Adjustment Wrench 9ZFL is available as an option.
- ★Dial Gauge LCD is available as an option. Please refer [P.67](#).

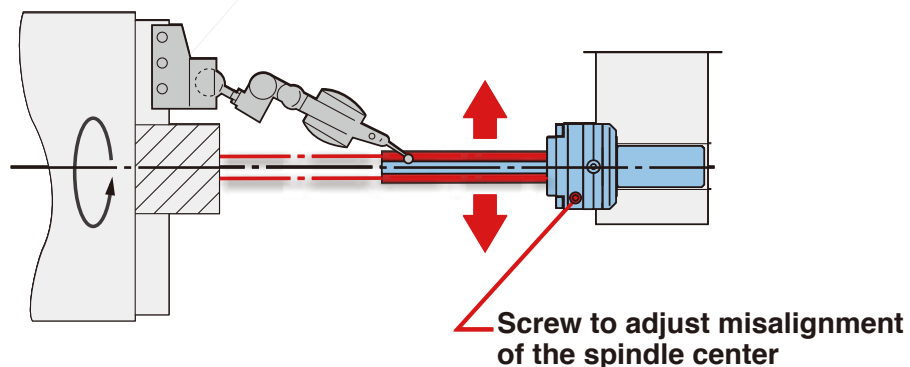


Run-out adjustment to ZERO ZERO HOLDER



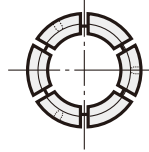
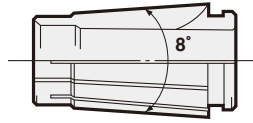
Run-out adjustment range at the tip of 100mm test bar : 0.05
(Cam ring indication : $\phi 0.1$)

Misalignment adjustment to ZERO ZERO HOLDER

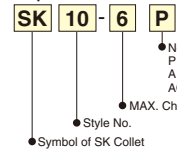


Misalignment adjustment range : 0.5mm/diameter

SLIM CHUCK COLLET additional SK Coolant Collet



Explanation of the Code No.



SK SK Coolant Collet are marked. The acceptable shank tolerance is h8. Code No. is e.g. **SK10-10AC**
 "P" class SK collet (for drill) are available for all series. e.g. **SK10-10P**

Code No.	Chucking D
SK 6- 0.8	0.7 ~ 0.8
- 1	0.9 ~ 1.0
- 1.25	1.15~ 1.25
- 1.5	1.3 ~ 1.5
- 1.75	1.55~ 1.75
- 2	1.8 ~ 2.0
- 2.25	2.05~ 2.25
- 2.5	2.3 ~ 2.5
- 2.75	2.55~ 2.75
- 3	2.8 ~ 3.0
- 3.5	3.0 ~ 3.5
- 4	3.5 ~ 4.0
- 4.5	4.0 ~ 4.5
- 5	4.5 ~ 5.0
- 5.5	5.0 ~ 5.5
- 6	5.5 ~ 6.0
SK10- 2	1.75~ 2.0
- 2.25	2.0 ~ 2.25
- 2.5	2.25~ 2.5
- 2.75	2.5 ~ 2.75
- 3	2.75~ 3.0
- 3.5	3.0 ~ 3.5
- 4	3.5 ~ 4.0
- 4.5	4.0 ~ 4.5
- 5	4.5 ~ 5.0
- 5.5	5.0 ~ 5.5
- 6	5.5 ~ 6.0
- 6.5	6.0 ~ 6.5
- 7	6.5 ~ 7.0
- 7.5	7.0 ~ 7.5
- 8	7.5 ~ 8.0
- 8.5	8.0 ~ 8.5
- 9	8.5 ~ 9.0
- 9.5	9.0 ~ 9.5
- 10	9.5 ~ 10.0

Code No.	Chucking D
SK13- 3	2.75~ 3.0
- 3.5	3.0 ~ 3.5
- 4	3.5 ~ 4.0
- 4.5	4.0 ~ 4.5
- 5	4.5 ~ 5.0
- 5.5	5.0 ~ 5.5
- 6	5.5 ~ 6.0
- 6.5	6.0 ~ 6.5
- 7	6.5 ~ 7.0
- 7.5	7.0 ~ 7.5
- 8	7.5 ~ 8.0
- 8.5	8.0 ~ 8.5
- 9	8.5 ~ 9.0
- 9.5	9.0 ~ 9.5
- 10	9.5 ~ 10.0
- 10.5	10.0~ 10.5
- 11	10.5~ 11.0
- 11.5	11.0~ 11.5
- 12	11.5~ 12.0
- 12.5	12.0~ 12.5
- 13	12.5~ 13.0

Code No.	Chucking D
SK16- 3	2.75~ 3.0
- 3.5	3.0 ~ 3.5
- 4	3.5 ~ 4.0
- 4.5	4.0 ~ 4.5
- 5	4.5 ~ 5.0
- 5.5	5.0 ~ 5.5
- 6	5.5 ~ 6.0
- 6.5	6.0 ~ 6.5
- 7	6.5 ~ 7.0
- 7.5	7.0 ~ 7.5
- 8	7.5 ~ 8.0
- 8.5	8.0 ~ 8.5
- 9	8.5 ~ 9.0
- 9.5	9.0 ~ 9.5
- 10	9.5 ~ 10.0
- 10.5	10.0~ 10.5
- 11	10.5~ 11.0
- 11.5	11.0~ 11.5
- 12	11.5~ 12.0
- 12.5	12.0~ 12.5
- 13	12.5~ 13.0
- 13.5	13.0~ 13.5
- 14	13.5~ 14.0
- 14.5	14.0~ 14.5
- 15	14.5~ 15.0
- 15.5	15.0~ 15.5
- 16	15.5~ 16.0

Code No.	Chucking D
SK20- 4	3.5 ~ 4.0
- 4.5	4.0 ~ 4.5
- 5	4.5 ~ 5.0
- 5.5	5.0 ~ 5.5
- 6	5.5 ~ 6.0
- 6.5	6.0 ~ 6.5
- 7	6.5 ~ 7.0
- 7.5	7.0 ~ 7.5
- 8	7.5 ~ 8.0
- 8.5	8.0 ~ 8.5
- 9	8.5 ~ 9.0
- 9.5	9.0 ~ 9.5
- 10	9.5 ~ 10.0
- 10.5	10.0~ 10.5
- 11	10.5~ 11.0
- 11.5	11.0~ 11.5
- 12	11.5~ 12.0
- 12.5	12.0~ 12.5
- 13	12.5~ 13.0
- 13.5	13.0~ 13.5
- 14	13.5~ 14.0
- 14.5	14.0~ 14.5
- 15	14.5~ 15.0
- 15.5	15.0~ 15.5
- 16	15.5~ 16.0
- 16.5	16.0~ 16.5
- 17	16.5~ 17.0
- 17.5	17.0~ 17.5
- 18	17.5~ 18.0
- 18.5	18.0~ 18.5
- 19	18.5~ 19.0
- 19.5	19.0~ 19.5
- 20	19.5~ 20.0

Code No.	Chucking D
SK25- 8	7.5~ 8.0
- 10	9.5~ 10.0
- 12	11.5~ 12.0
- 16	15.5~ 16.0
- 16.5	16.0~ 16.5
- 17	16.5~ 17.0
- 17.5	17.0~ 17.5
- 18	17.5~ 18.0
- 18.5	18.0~ 18.5
- 19	18.5~ 19.0
- 19.5	19.0~ 19.5
- 20	19.5~ 20.0
- 20.5	20.0~ 20.5
- 21	20.5~ 21.0
- 21.5	21.0~ 21.5
- 22	21.5~ 22.0
- 22.5	22.0~ 22.5
- 23	22.5~ 23.0
- 23.5	23.0~ 23.5
- 24	23.5~ 24.0
- 24.5	24.0~ 24.5
- 25	24.5~ 25.0
- 25.4	25.0~ 25.4

★SK6 collet with the special internal dia. is also available.



SK Coolant Collet

- Optimized for the cutting tools with oil holes.
- High pressure coolant is compliant up to 7MPa.



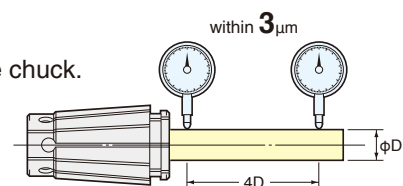
Collet removal (SKR-6) is supplied as standard only for SK6. SKR-10, SKR-16 and SKR-25 are available as an option. Collet removal is not necessary for the new types of collet (SK10 to SK25 collet including SK13 and SK20).

“P” class SK collet for drill

It guarantees the Run-out accuracy within 3 micron at the nose (4D) from the chuck. Additionally Collet Set is also available.

“A” type SK collet for endmill shank

The acceptable shank tolerance is h8.



SK Collet A Type
SK 6-3A, 4A, 5A, 6A
SK10-3A, 4A, 5A, 6A, 8A, 10A
SK13-3A, 4A, 5A, 6A, 8A, 10A, 12A, 13A
SK16-3A, 4A, 5A, 6A, 8A, 10A, 12A, 16A
SK20-4A, 5A, 6A, 8A, 10A, 12A, 16A, 20A
SK25-8A, 10A, 12A, 16A, 20A, 25A

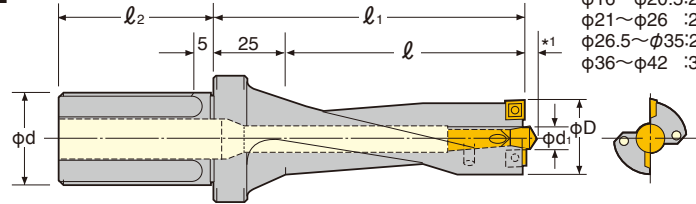
SK Collet A Type (Inch)
SK 6 -1/8A, 3/16A
SK10 -1/8A, 3/16A, 1/4A, 5/16A, 3/8A
SK13 -1/8A, 3/16A, 1/4A, 5/16A, 3/8A, 7/16A, 1/2A
SK16 -1/8A, 3/16A, 1/4A, 5/16A, 3/8A, 7/16A, 1/2A, 9/16A, 5/8A
SK20 -1/8A, 3/16A, 1/4A, 5/16A, 3/8A, 7/16A, 1/2A, 9/16A, 5/8A, 3/4A
SK25 -3/16A, 1/4A, 5/16A, 3/8A, 7/16A, 1/2A, 5/8A, 3/4A, 25.4A

COMBAT Z DRILL

Cost down can be achieved by improvement of drilling operation.



Dimensions of $\phi 16 \sim 42$ mm
COMBAT Z DRILL



*1 Dimension
 $\phi 16 \sim \phi 20.5$: 2.1mm
 $\phi 21 \sim \phi 26$: 2.4mm
 $\phi 26.5 \sim \phi 35$: 2.8mm
 $\phi 36 \sim \phi 42$: 3.4mm

$\phi 16 \sim \phi 38$
 $L/D=3$ or 4

$\phi 16 \sim \phi 35$ mm by every 0.5mm increment, $\phi 36 \sim \phi 60$ mm by every 1mm increment, $\phi 60 \sim \phi 80$ mm by every 5mm increment are standard.

Each 0.1mm increment drill is available as an option.

Drill Dia.	3D Series				4D Series				3D, 4D							
	Code No.			l	l_1	Code No.			l	l_1	ϕd	l_2	Pilot Drill	Insert Tip	Clamp Screw	Tip Clamp Handle
	ϕd	ϕD	$-l$			ϕd	ϕD	$-l$								
16	ST20-COMZ16	-	50	50	75	ST20-COMZ16	-	65	65	90	20	43	9CMD5 $d_1=\phi 5$	9CMT4 2 pcs	M1840	T-6
16.5	-COMZ16.5	-	50	75	-COMZ16.5	-	65	65	90							
17	-COMZ17	-	50	75	-COMZ17	-	65	90	90							
17.5	-COMZ17.5	-	50	75	-COMZ17.5	-	65	90	90							
18	-COMZ18	-	55	80	-COMZ18	-	75	100	100							
18.5	-COMZ18.5	-	55	80	-COMZ18.5	-	75	100	100							
19	-COMZ19	-	55	80	-COMZ19	-	75	100	100							
19.5	-COMZ19.5	-	55	80	-COMZ19.5	-	75	100	100							
20	-COMZ20	-	60	85	-COMZ20	-	80	105	105							
20.5	-COMZ20.5	-	60	85	-COMZ20.5	-	80	105	105							
21	ST25-COMZ21	-	60	85	85	ST25-COMZ21	-	80	80	105	25	53	9CMD6 $d_1=\phi 6$	9CMT6 2 pcs	M2560	T-8
21.5	-COMZ21.5	-	60	85	85	-COMZ21.5	-	80	105	105						
22	-COMZ22	-	65	90	90	-COMZ22	-	85	110	110						
22.5	-COMZ22.5	-	65	90	90	-COMZ22.5	-	85	110	110						
23	-COMZ23	-	70	95	95	-COMZ23	-	90	115	115						
23.5	-COMZ23.5	-	70	95	95	-COMZ23.5	-	90	115	115						
24	-COMZ24	-	70	95	95	-COMZ24	-	90	115	115						
24.5	-COMZ24.5	-	70	95	95	-COMZ24.5	-	90	115	115						
25	-COMZ25	-	75	100	100	-COMZ25	-	100	125	125						
25.5	-COMZ25.5	-	75	100	100	-COMZ25.5	-	100	125	125						
26	-COMZ26	-	75	100	100	-COMZ26	-	100	125	125						
26.5	ST32-COMZ26.5-80N	-	80	105	105	ST32-COMZ26.5-110N	-	110	110	135	32	58	9CMD8 $d_1=\phi 8$	9CMT7 2 pcs	M3070	T-10
27	-COMZ27	-	80	105	105	-COMZ27	-	110	135	135						
27.5	-COMZ27.5	-	80	105	105	-COMZ27.5	-	110	135	135						
28	-COMZ28	-	80	105	105	-COMZ28	-	110	135	135						
28.5	-COMZ28.5	-	80	105	105	-COMZ28.5	-	110	135	135						
29	-COMZ29	-	80	105	105	-COMZ29	-	110	135	135						
29.5	-COMZ29.5	-	80	105	105	-COMZ29.5	-	110	135	135						
30	-COMZ30	-	80	105	105	-COMZ30	-	110	135	135						
30.5	-COMZ30.5	-	80	105	105	-COMZ30.5	-	110	135	135						
31	-COMZ31	-	80	105	105	-COMZ31	-	110	135	135						
31.5	-COMZ31.5	-	80	105	105	-COMZ31.5	-	110	135	135						
32	-COMZ32	-	90	115	115	-COMZ32	-	120	145	145						
32.5	-COMZ32.5	-	90	115	115	-COMZ32.5	-	120	145	145						
33	-COMZ33	-	90	115	115	-COMZ33	-	120	145	145						
33.5	-COMZ33.5	-	90	115	115	-COMZ33.5	-	120	145	145						
34	-COMZ34	-	90	115	115	-COMZ34	-	120	145	145						
34.5	-COMZ34.5	-	90	115	115	-COMZ34.5	-	120	145	145						
35	-COMZ35	-	90	115	115	-COMZ35	-	120	145	145						
36	-COMZ36	-	100	125	125	-COMZ36	-	125	125	125						
37	-COMZ37	-	100	125	125	-COMZ37	-	125	125	125						
38	-COMZ38	-	100	125	125	-COMZ38	-	125	125	125						

★2 off Pilot Drill, one set of Insert and Insert Clamp Handle are supplied as standard.

★For use at MC, for Center Through, Flange Through Side Lock Holder and Oil Hole Holder, please refer to NC TOTAL TOOLING SYSTEM catalog.

COMBAT Z DRILL

Cost down can be achieved by improvement of drilling operation.



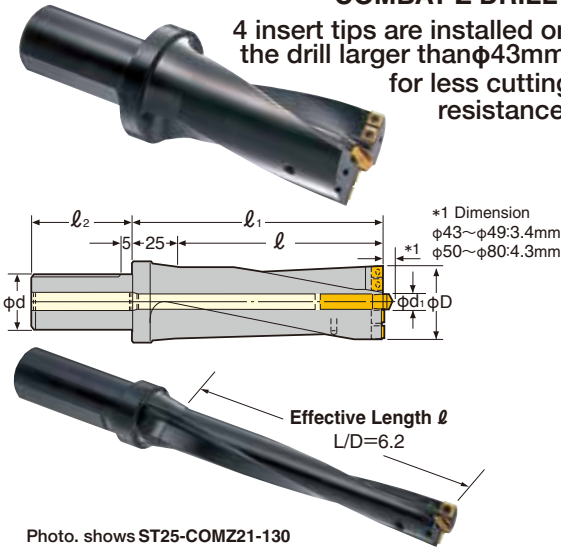
φ39~φ49 L/D=2, 3 or 4

Drill Dia.	2D Series				3D Series				4D Series			2D,3D,4D				
	Code No.	ℓ	ℓ ₁	Code No.	ℓ	ℓ ₁	Code No.	ℓ	ℓ ₁	φ _d	ℓ ₂	Pilot Drill	Insert Tip	Clamp Screw	Tip Clamp Handle	
																φ _d -φD -ℓ
39	ST32-COMZ39- 80	80	105	ST32-COMZ39-120	120	145	ST32-COMZ39-160	160	185	32	58	9CMD10 d:=φ10	9CMT9 2 pcs	M4090	T-15	
40	-COMZ40- 80			-COMZ40-120			-COMZ40-160									
41	-COMZ41- 80			-COMZ41-120			-COMZ41-160									
42	-COMZ42- 80			-COMZ42-120			-COMZ42-160									
43	-COMZ43- 80			-COMZ43-120			-COMZ43-160									
44	-COMZ44- 80			-COMZ44-120			-COMZ44-160									
45	-COMZ45- 80			-COMZ45-120			-COMZ45-160									
46	-COMZ46- 80			-COMZ46-120			-COMZ46-160									
47	-COMZ47- 80			-COMZ47-120			-COMZ47-160									
48	-COMZ48- 80			-COMZ48-120			-COMZ48-160									
49	-COMZ49- 80	-COMZ49-120	-COMZ49-160													

Dimensions of φ43mm or larger

COMBAT Z DRILL

4 insert tips are installed on the drill larger than φ43mm for less cutting resistance.



The extended drill longer than L/D=5 or with chamfering tool are available as an option.
MIN. order quantity of special drill is 2 off.

φ50~φ80 L/D=2

Drill Dia.	2D Series				φ _d	ℓ ₂	Pilot Drill	Insert Tip	Clamp Screw	Tip Clamp Handle
	Code No.	ℓ	ℓ ₁	φ _d						
50	ST32-COMZ50-100	100	125	32	58	9CMD12 d:=φ12	9CMT6 (4 pcs)	M2560	T-8	
51	-COMZ51-100									
52	-COMZ52-100									
53	-COMZ53-100									
54	-COMZ54-100									
55	-COMZ55-100									
56	-COMZ56-110									
57	-COMZ57-110									
58	-COMZ58-110									
59	-COMZ59-110	110	135	40	68	9CMD12 d:=φ12	9CMT7 (4 pcs)	M3070	T-10	
60	ST40-COMZ60-120									
65	-COMZ65-120									
70	-COMZ70-130	130	155	40	68	9CMD12 d:=φ12	9CMT9 (4 pcs)	M4090	T-15	
75	-COMZ75-130									
80	-COMZ80-150									150

★2 off Pilot Drill, one set of Insert and Insert Clamp Handle are supplied as standard.
★For use at MC, for Center Through ,Flange Through Side Lock Holder and Oil Hole Holder , please refer to NC TOTAL TOOLING SYSTEM catalog.

Insert Tip for COMBAT Z DRILL

Code No.	Insert Tip					ISO Code No.	Grade	Material	Applicable Drill	
	Dimensions	φD	T	φ _d	Nose Radius					
9CMT4		4.76	1.98	1.9	0.4	MPMT04T104	Coated (PR630)	Steel Cast Iron	COMZ16~20.5	
9CMT6		6.35	2.38	2.8					COMZ21~26 COMZ43~55	
9CMT7		7.94	3.18	3.4	0.8				MPMT070308	COMZ26.5~35 COMZ56~65
9CMT9		9.525		4.4					MPMT090308	COMZ36~42 COMZ66~80

★The Rhomboid insert tips are installed on the drill. Total 4 corners at 2 external and 2 internal diameters can be used. Please pay attention to install the insert into the pockets correctly. ★The spare Insert Tips are available per a box(10 off).

COMBAT Z DRILL Economical Cutting Condition

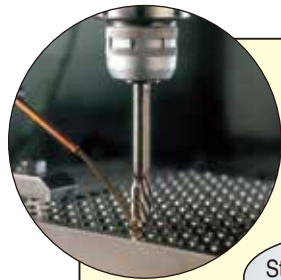
- For Steel/Cast Iron
"40,000" is the basic figure for cutting speed, and the rotation speed could be obtained by dividing above figure by the drill diameter.
e.g. for φ32mm diameter drill: 40,000 ÷ 32 = 1,250 (min⁻¹)
- For Stainless Steel/Steel Plate SS41
"25,000" is the basic figure for cutting speed, and the rotation speed could be obtained by dividing above figure by the drill diameter.
e.g. for φ32mm diameter drill: 25,000 ÷ 32 = 780 (min⁻¹)
- Feed Rate

Drill Dia	φ16~φ26	φ26.5~φ42	φ43~φ85
Mild Steel Feed per rev.	0.1~0.15	0.1~0.2	0.15~0.2
Cast Iron Feed per rev.	0.15~0.2	0.2~0.3	0.2~0.35

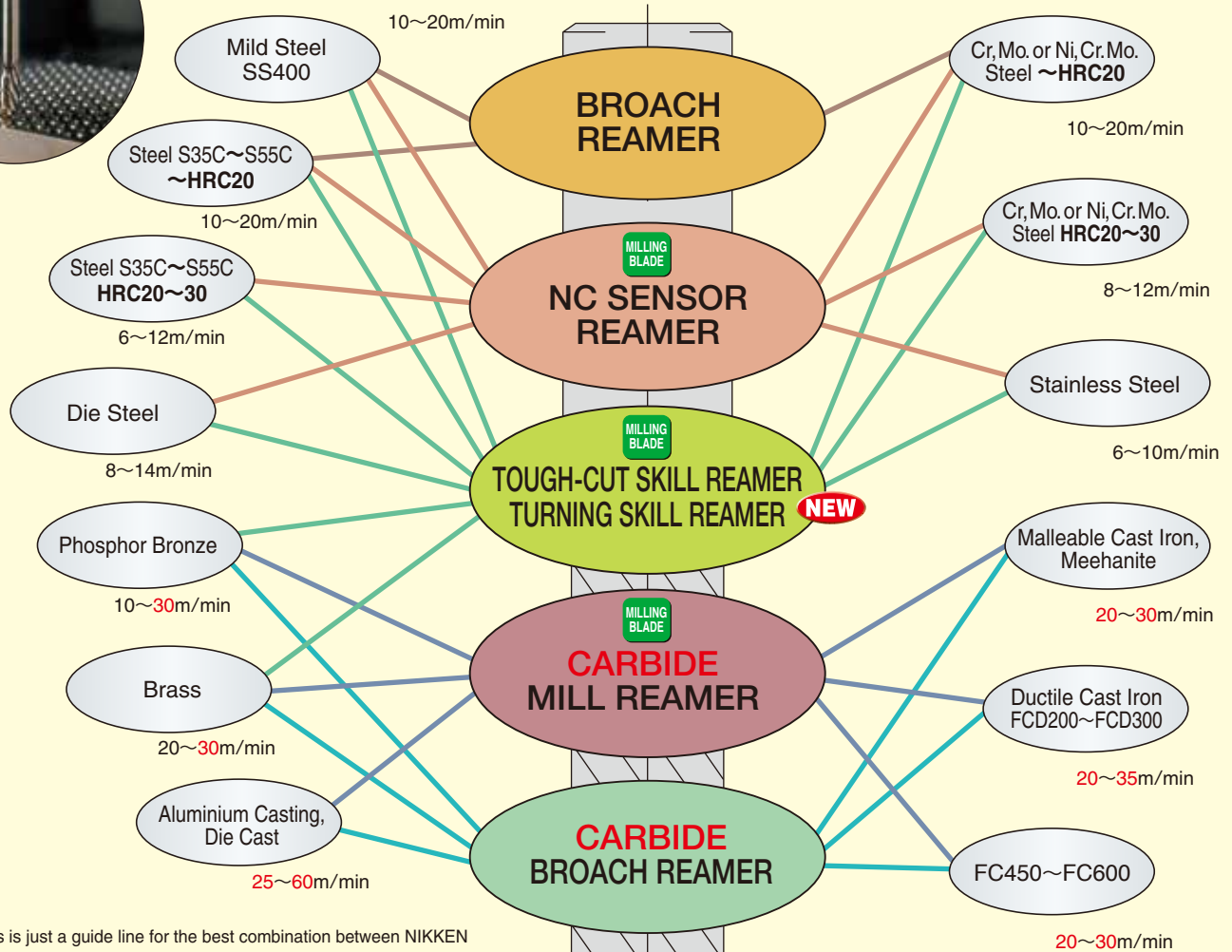
★How to install Insert Tips

★Coolant higher than 0.5MPa pressure must be supplied.
★For Stainless Steel/Steel Plate, even the cutting speed is reduced to meet with the materials, please do not reduce the feed rate and keep it as for steel.
★For tough materials, e.g. steel plate, please use stepped feed (G73) for breaking the swarf.
★This drill is suitable for offset hole, or inter-merged twin bore, but not suitable for stacked plate drilling.

Wide Product Range to meet All Material Requirements
Long Tool Life • High Finishing Accuracy on Tough Materials



Cutting Speed on Each Material for Oil Base Coolant Use

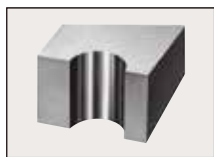


This is just a guide line for the best combination between NIKKEN reamers and each material, Therefore Broach reamer also can be used on die steel or non-alloy steel.

(The above cutting speed in red shows the cutting speed by carbide reamer.)

REAMERS FOR THROUGH HOLE / STEPPED HOLE / BLIND HOLE

CAN BE SELECTED BY SHAPE OF THE HOLE



WHEN YOU CANNOT GET GOOD RESULT FOR BLIND HOLE BY USING ENDMILL, BORING ARBOR AND SO ON, PLEASE TRY "REAMERS FOR BLIND HOLE"

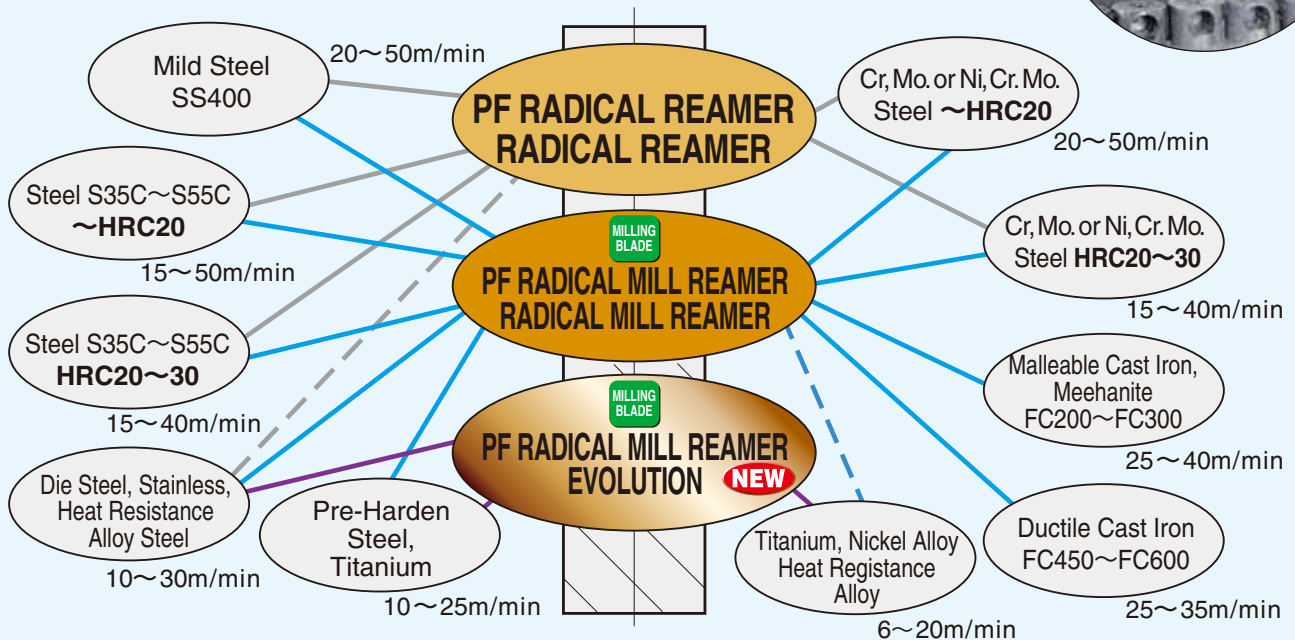
PARTICULAR CASE

- *Coated reamer is normally not suitable for the cast iron, however(PF)RADICAL REAMER / NC SENSOR REAMER may be suitable for FCD400-600.
- *Under normal conditions, coated reamer is not suitable for the aluminium, however (PF)RADICAL REAMER may be suitable for ADC as well.
- *For the cast iron with soluble coolant, CARBIDE MILL REAMER (K01 GRADE) may be used.

Wide Product Range to meet All Material Requirements
Long Tool Life • High Finishing Accuracy on Tough Materials

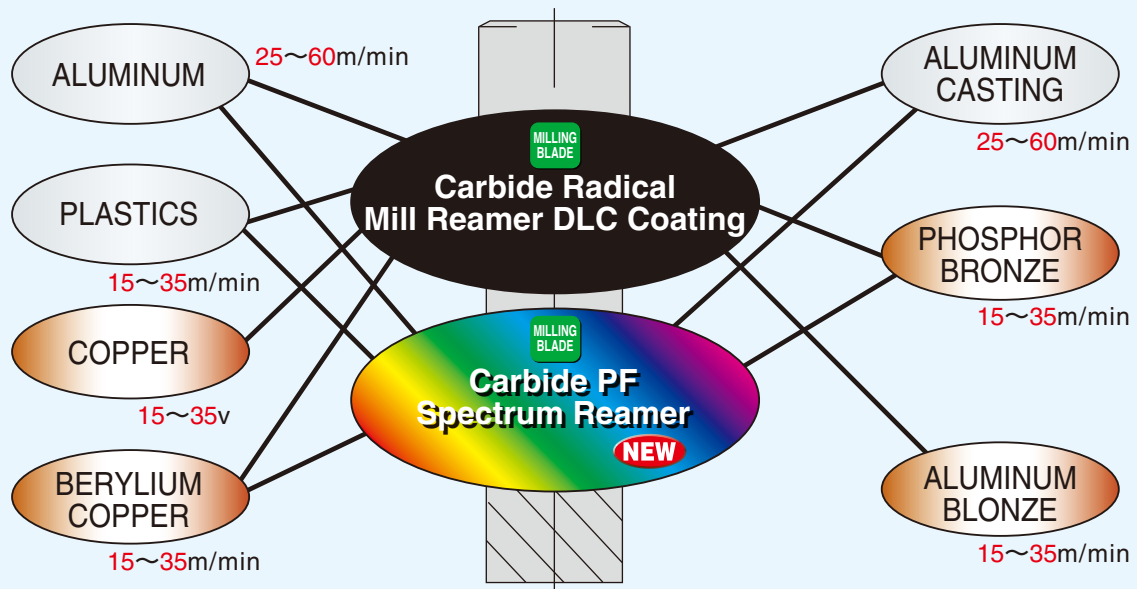


Cutting Speed on Each Material for Soluble Coolant Use



- Please select the other reamers as PF radical reamer(below) for aluminium / copper / no-ferrous alloy.
- When using oil base coolant, you could get better accuracy and longer tool life.

Cutting Speed on Each Material for Soluble Coolant Use



- Please select the other reamers for the other materials.
- With using oil base coolant, you could get better accuracy and longer tool life.



Please refer to REAMER SERIES Catalogue.

NIKKEN REAMER SERIES PRODUCTIVITY COMPARISON **NIKKEN**

Reamer Revolution ... NIKKEN reamer series 5 times productivity compared to straight blade reamer.

■ Productivity comparison of BRS(M)



Material	Carbon steel(S50C)	Coolant = Oil base	Reamer: BRS-10.0 Material: S50C Cutting fluid: Oil PRODUCTIVITY 2.9times
	H.S.S. Straight Reamer	BRS(M) NIKKEN H.S.S. Broach Reamer	
Processing diameter φ10H7			
Prepared hole	φ9.8~φ9.9	φ9.6~φ9.9	
Rotation speed	160min ⁻¹	480min ⁻¹	
feed	50 mm/min	◎ 144 mm/min	
roughness	4.2μm	◎ 0.8μm	

■ Productivity comparison of RMSS



Material	Casting(FC250)	Coolant = Soluble coolant	Reamer: RMSS-10.0 Material: Casting(FC250) Cutting fluid: Water PRODUCTIVITY 5times
	Carbide Straight Reamer	RMSS NIKKEN carbide Radical mill reamer	
Processing diameter φ10H7			
Prepared hole	φ9.8~φ9.9	φ9.5~φ9.8	
Rotation speed	390min ⁻¹	1,150min ⁻¹	
feed	70 Mm/min	◎ 350 mm/min	
roughness	3.5μm	◎ 1.0μm	

■ Productivity comparison of RMSS



Material	Prehardened steel(NAK80)HRC45	Coolant = Soluble coolant	Reamer: RMSS-10.0 Material: Prehardened steel(NAK80)HRC45 Cutting fluid: Oil PRODUCTIVITY 4.8times
	Carbide Straight Reamer	RMSS NIKKEN carbide Radical mill reamer	
Processing diameter φ10H7			
Prepared hole	φ9.8~φ9.9	φ9.7~φ9.9	
Rotation speed	230min ⁻¹	470min ⁻¹	
feed	23 mm/min	◎ 110 mm/min	
roughness	6.5μm	◎ 0.8μm	

■ Productivity comparison of HMS(M)



Material	Aluminium alloy(A7075, ADC)	Coolant = Soluble coolant	Reamer: HMS-10.0 Material: Aluminium alloy(A7075) Cutting fluid: water PRODUCTIVITY 4.3times
	Carbide Straight Reamer	HMS(M) NIKKEN mill reamer	
Processing diameter φ10H7			
Prepared hole	φ9.8~φ9.9	φ9.5~φ9.8	
Rotation speed	640min ⁻¹	1,900min ⁻¹	
feed	130 mm/min	◎ 570 mm/min	
roughness	3.3μm	◎ 0.6μm	

*This data is data obtained under a specific processing environment.

Please choose better cutting condition depending on the combination of machining condition and machining environment.



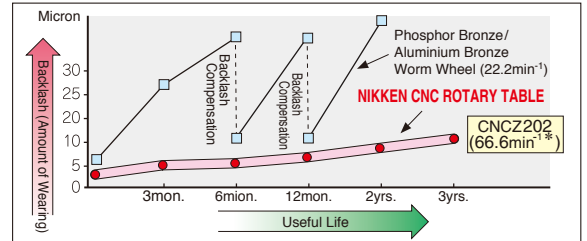
CNC ROTARY TABLE

Worldwide Field-proven NIKKEN CNC ROTARY TABLE
Consequently and finally, NIKKEN Carbide Worm Screw System



Carbide Worm System

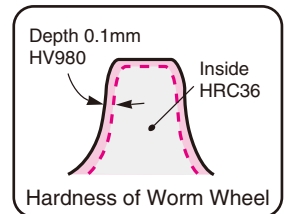
For heavy duty capability and high speed rotation with maintaining the high accuracy, the carbide worm screw is used for the hardened worm wheel. The wearing of the worm wheel is reduced and rotary table is used for more years comparing with the conventional worm system of soft material. For better impact capability, the special alloy steel worm screw is used for the worm screw of the small tooth module.



* Rotation speed of motor = 3,000min⁻¹

Worm Wheel

Material is special NIKKEN order made steel. Specially hardened and furthermore ion-nitro treated on teeth. Thus, the problem of sliding friction is solved.



CNC ROTARY TABLE $\phi 105 \sim \phi 1600$ HIGH SPEED Z SERIES (66.6min⁻¹)



CNCZ401

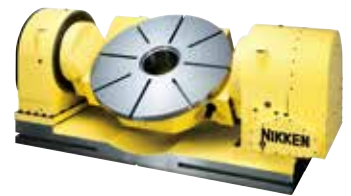


CNC1600

TILTING ROTARY TABLE $\phi 100 \sim \phi 1200$

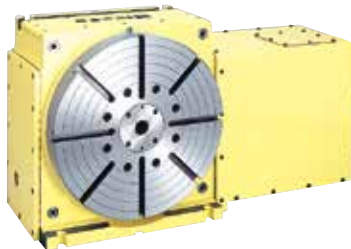


5AX-201



5AX-1200

ULTRA PRECISION ROTARY HIRTH COUPLING INDEX Indexing Accuracy $\pm 2'' \phi 180 \sim \phi 500$



NSVX400

MANUAL TILTING ROTARY TABLE $\phi 250 \sim \phi 500$



NST300

MULTI-SPINDLE ROTARY TABLE (2W, 3W, 4W) $\phi 100 \sim \phi 260$



CNC100-4W

MULTI-SPINDLE TILTING ROTARY TABLE $\phi 105 \sim \phi 200$



5AX-4MT-120



Please refer to CNC ROTARY TABLE Catalogue.

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★ Specifications are subject to change without notice.