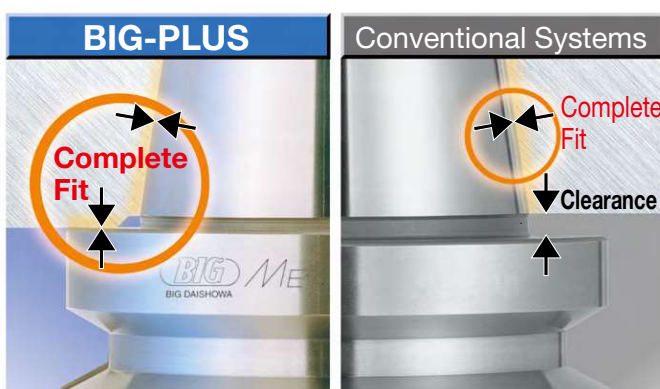


Dual contact system **BIG-PLUS[®] Spindle System**



- This system creates simultaneous dual contact between the taper and flange face by establishing a complete gauging system.
- Manufacturers in use: 69 in Japan, 115 overseas



23rd Invention Grand Prize/Ikemoto Award for Distinguished Invention

The many advantages of using BIG-PLUS

- **Improved** surface finish and dimensional accuracy
- **Extended** tool life
- **Prevention** of fretting corrosion caused by heavy cutting
- **Improvement** of ATC repeatability
- **Elimination** of Z-axial movement at high speeds
- **Improved** roundness of boring operations

Draw-in amount of the holder is the key to perfect face contact!

Before the holder is clamped, there is a slight clearance at the flange face. Axial movement of the clamping equipment causes the main spindle to expand due to elastic deformation, achieving perfect face contact. In this way, axial movement is essential to guarantee perfect face contact.

<Reference values>

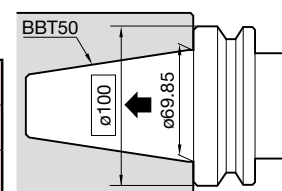
Spindle Size	Clamping force	Axial movement
#40	800kg	20 μ m
#50	2,000kg	20 μ m

※ Reference figures. Axial movement may differ depending on spindle design, clamping mechanism, etc.

Increased contact diameter provides more rigidity

A conventional BT toolholder is supported on a reference diameter called the gauge face. On the contrary, a BIG-PLUS toolholder is supported on the flange face, which brings remarkable improvement to rigidity.

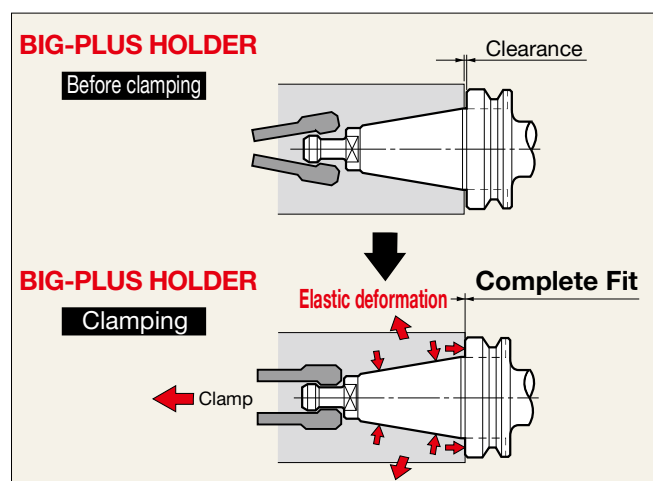
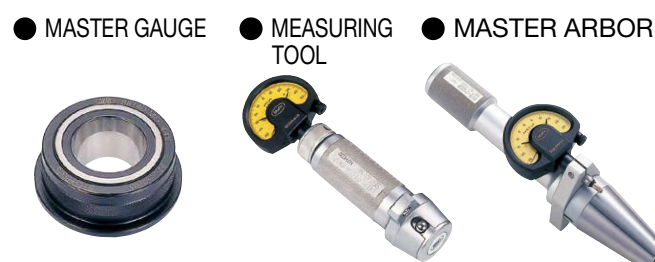
For BT30	$\phi 31.75 \rightarrow \phi 46$
For BT40	$\phi 44.45 \rightarrow \phi 63$
For BT50	$\phi 69.85 \rightarrow \phi 100$



Strict gauge control through the established gauge system

BIG-PLUS spindles produced by licensed machine or spindle builders are strictly controlled in dimensions by the (BIG) original MASTER GAUGE. Only the trademarked BIG-PLUS HOLDERS can achieve the optimal performance of these spindles fully and safely.

(BIG-PLUS Spindle exclusive gauge)



It is highly recommended to consult with the machine tool manufacturer in order to specify the BIG-PLUS Spindle before introducing a new machining center in your facility.

7/24 taper dual contact system, the simplest available with excellent results

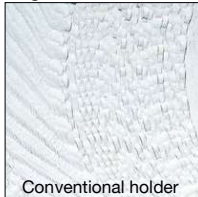


The ultimate combination of “BIG-PLUS Spindle” and “BIG-PLUS HOLDER”

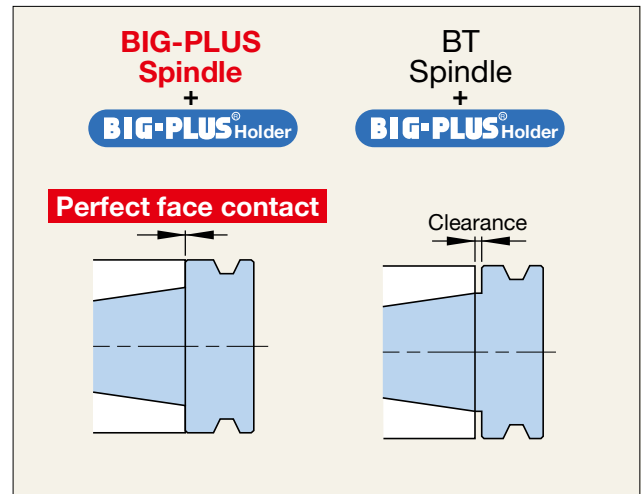
The **BIG-PLUS Spindle System** achieves maximum dual contact performance by combining the **BIG-PLUS HOLDER** and **BIG-PLUS Spindle**. The BIG-PLUS HOLDER can also be used with existing BT spindles with standard specs. However, this will not achieve dual contact. To realize superior dual contact performance, use a BIG-PLUS HOLDER with a BIG-PLUS Spindle. Please be aware that dual contact holders other than BIG-PLUS holders may damage BIG-PLUS spindles.

We recommend the **BIG-PLUS HOLDER** for the **BIG-PLUS Spindle**.
Avoid using both the BIG-PLUS HOLDER and BT Holder with the BIG-PLUS Spindle.

<Example of Face Milling>



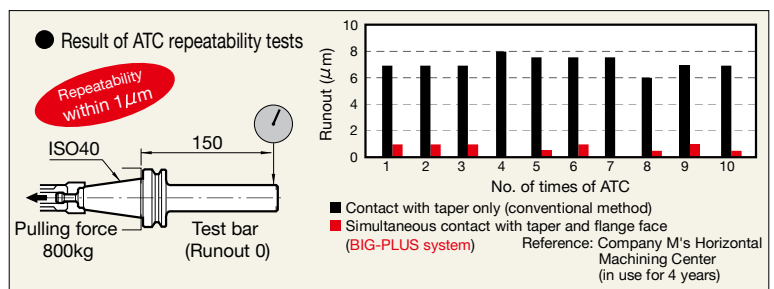
Machine: #40
Tool: Face Mill (ø125)
Workpiece: A2017
Cutting Depth: 2.4mm



With the exception of the flange face position dimensions, the BIG-PLUS HOLDER is in accordance with the MAS-BT standard.

Improvement of ATC repeatability

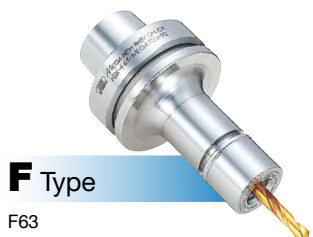
The taper and flange face are securely retained when the holder is attached to the machine spindle, improving ATC repeatability. As a result, this achieves significant effects including improved chuck runout accuracy and dimensional accuracy for boring.



- ▶ A Type : C1
- ▶ E Type : C53
- ▶ F Type : C59
- ▶ T Type : E15

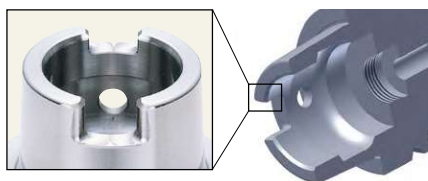
HSK TOOLING SYSTEM

● A hollow dual contact system series with superior accuracy.



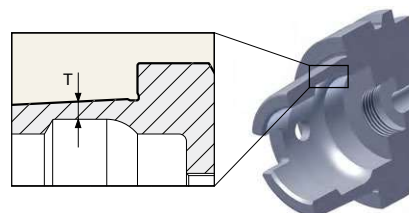
Drive key is important for torque transmission

The torque transmission of HSK-A type is commenced via the drive key grooves located at the smaller end of the taper. The curved surfaces on the outer drive key groove are important. This curved surface is designed to take the required torque. To achieve precise dimensions of the curves and drive key groove width, BIG provides finish machining of all tools after heat treatment.



Premium material selection

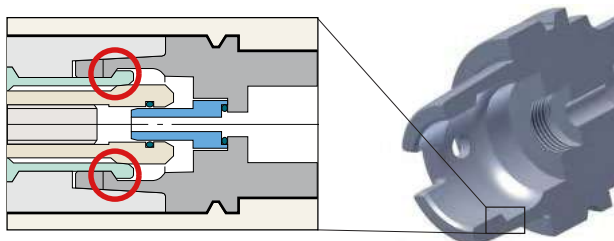
Since HSK is a hollow taper shank, the material has a critical role for optimum performance. For this purpose, BIG uses carefully selected materials with optimal hardness and strength to prevent product failure.



HSK size	T
25	1.09
32	1.25
40	1.92
50	2.60
63	3.47
100	5.17
125	6.45

Important tool retention feature

Internal clamping of HSK tools is defined by the location of highly concentrated forces from the machine tool. Accuracy and position of this form will affect the rigidity, repeatability, and precision of tool holders. BIG provides finish machining of this area after heat treatment.



HSK turning tools for millturn machines

ISO12164-3
HSK-T Type
T50, T63, T100

The abundant Cartridge range and revolutionary modular systems improve turning efficiency on millturn machines.



Polygon Taper DUAL CONTACT **BIG CAPTO TOOLING**

● Polygonal tapered dual contact tooling system adopted by ISO standards.



CAPTO is a trademark licensed by Sandvik Coromant.

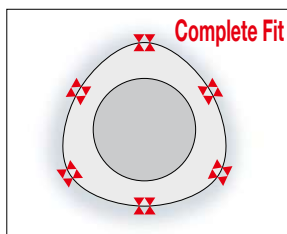
Polygonal tapered dual contact tooling system

Sandvik Coromant AG developed, in 1989, a triangular polygon shaped 1/20 taper dual contact system. BIG DAISHOWA launched licensed production in 2000. Polygon taper maintains close contact and eliminates radial clearance, making it an ideal interface for turning. ISO standardized in November 2008.



Outstanding cutting edge height repeatability

The polygon taper without clearance achieves high repeatability of cutting edge height, as well as secure function as a drive.



Abundant rotating tool series

Collet Chuck, Milling Chuck, Boring Tool, Tapper, Sensor, Endmill Cutter, Arbor...
A wide range of rotating tool holders are available.



Turning tool series ideal for millturn machines

The abundant cartridge range and revolutionary modular systems improve turning efficiency on millturn machines.

45° Tilt Type
S Type



S Type Cartridge



90° Right Angle Type
F Type



F Type Cartridge



C3
C4



NEW

BIG CAPTO's C3/C4 Series for turning is now available. **E29**

For Micro Drills and Ultra-Fine Endmills

MEGA MICRO CHUCK



- ▶ BBT : A1
- ▶ BDV/DV : B1
- ▶ HSK : C1
- ▶ ST : D1
- ▶ BIG CAPTO : E39
- ▶ For N/C : F1

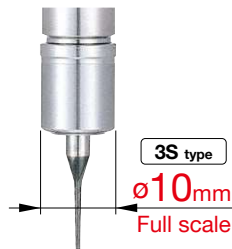


● Ultra-slim design of $\phi 10\text{mm}$ nut diameter minimizes interference with the jig and workpiece.



Extremely slim design with $\phi 10\text{mm}$ nut diameter (3S type)

Slim design avoids interference.
Ideal for small mold making combining high speed and high precision.



Collet accuracy: Within $1\mu\text{m}$ at nose

Unique and compact design of taper and cylindrical guide achieves stable accuracy within $1\mu\text{m}$ at nose.

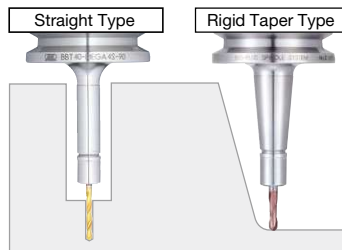


● Collet accuracy

Collet class	Runout accuracy	
	Nose	4D
AA	Within $1\mu\text{m}$	Within $3\mu\text{m}$

Slim design to reduce workpiece interference

“Straight Type” for minimal interference and “Rigid Taper Type” for increased rigidity are available.

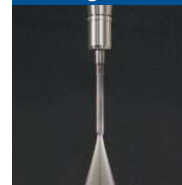


2 way coolant supply

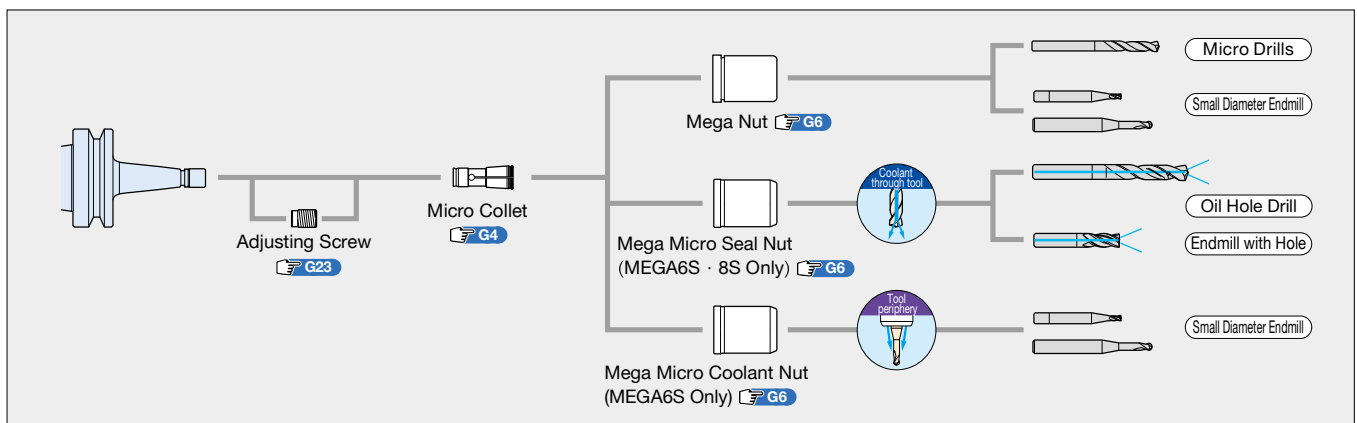
Select a coolant nut suitable for the lubrication method.



MEGA MICRO SEAL NUT
Through Tools



MEGA MICRO COOLANT NUT
Jet Through



For Carbide Drills, Reamers and Finishing Endmills

MEGA NEW BABY CHUCK

BIG-PLUS®
SPINDLE SYSTEM
DUAL CONTACT

Max.
50,000
min⁻¹

- ▶ BBT : A3
- ▶ BDV/DV : B2
- ▶ HSK : C3
- ▶ BIG CAPTO : E40



- Makes high speed machining possible in addition to its high accuracy and versatility.
- MEGA25N series added with maximum clamping diameter of $\phi 25.4$.



1 μ m high precision collet

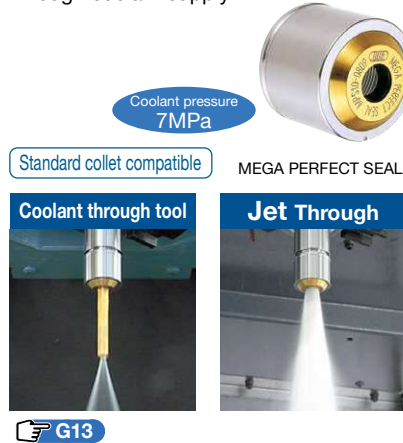
The New Baby Collet uses know-how cultivated through years of experience to produce a world top-class high-precision collet subjected to two complete strict quality management inspections, covering everything from material and machining methods to heat treatment.

● Collet accuracy

Collet class	Runout accuracy	
	Nose	4D
AA	Within 1 μ m	Within 3 μ m

2 way coolant supply

A coolant nut with oil sealing functionality. Removing the internal PS Ring allows jet-through coolant supply.

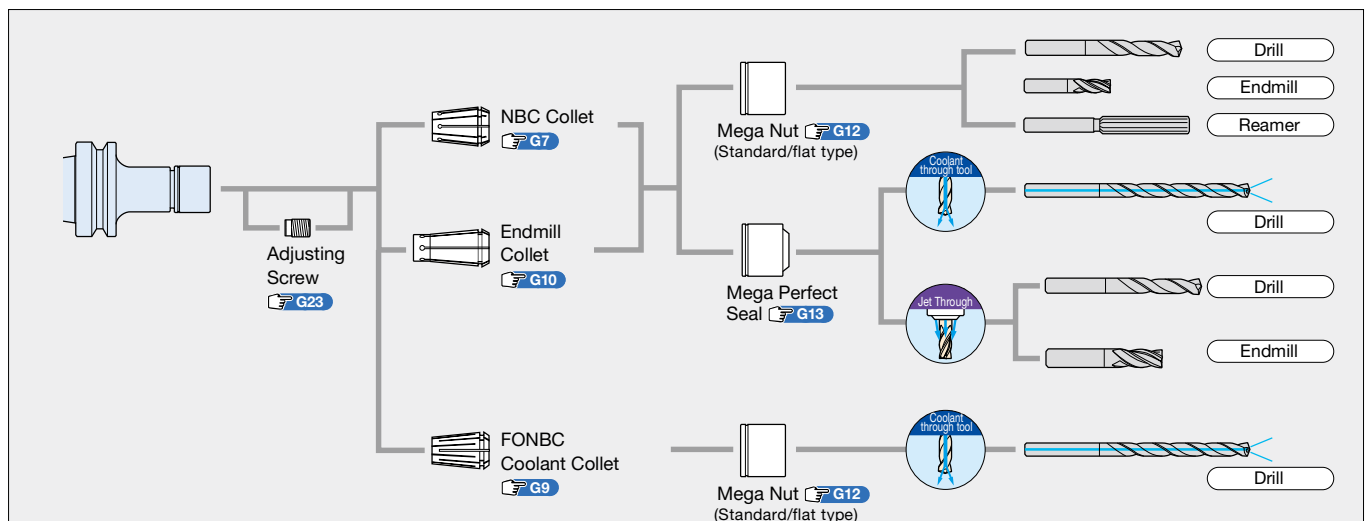
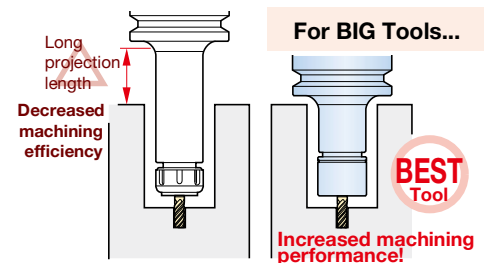


An abundant variety of bodies

Ideal length and diameter of holder is the key to precision machining. Select the optimum from the wide range available.

If selection is limited;

Increased tool extension reduces performance



For Roughing and Finishing Endmills

MEGA E CHUCK

BIG-PLUS®
SPINDLE SYSTEM
DUAL CONTACT

Max.
45,000
min⁻¹

- ▶ BBT : A7
- ▶ BDV : B4
- ▶ HSK : C7
- ▶ BIG CAPTO : E43



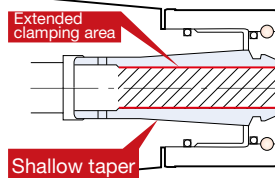
● A collet chuck holder for endmilling that makes both high speed and powerful endmilling possible.



Collet designed for heavy duty gripping force

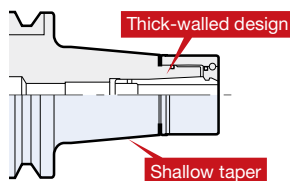
The shallower taper and long tool shank clamping length of the MEGA E Collet improve concentricity and gripping force in order to achieve better surface finishes and stable clamping performance.

Within **1μm** at nose
4d within **3μm**



Substantial body eliminates chatter

The chuck body is designed to be thicker in order to prevent chatter and deflection of the work surface during endmilling. Tapered body enhances damping effect by varying vibration frequency.



2 way coolant supply

A coolant nut with an oil sealing function. Removing the internal PS Ring allows jet-through coolant supply.



Coolant pressure
7MPa

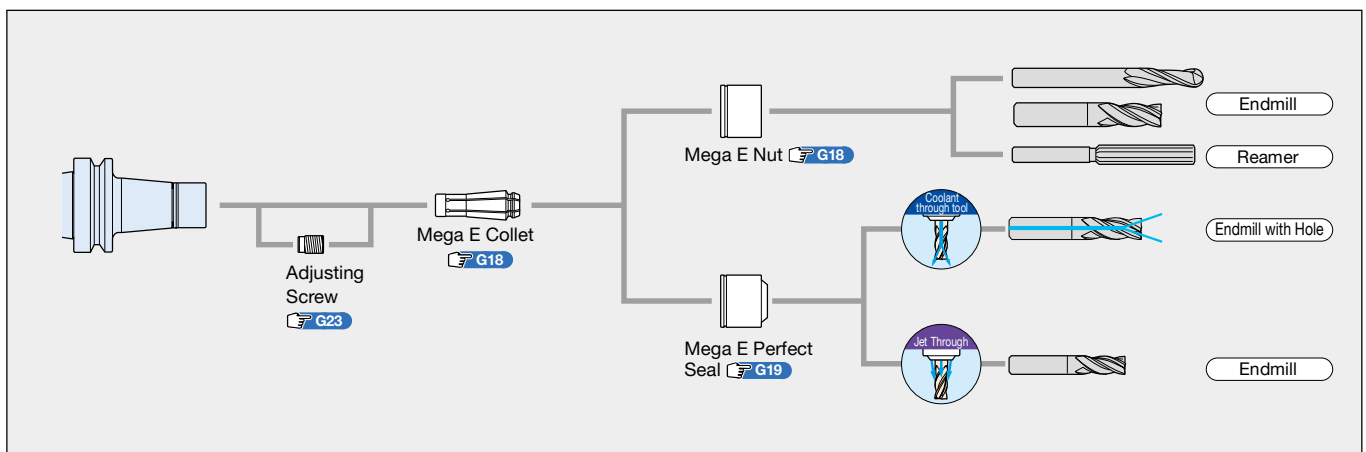
MEGA E PERFECT SEAL

Coolant through tool



G19

Jet Through



Collet Chuck System **NEW BABY CHUCK**

Max.
25,000
min⁻¹

- ▶ BT : A9
- ▶ BBT : A10
- ▶ DV : B5
- ▶ HSK : C9
- ▶ ST : D2
- ▶ BIG CAPTO : E45
- ▶ For N/C : F2



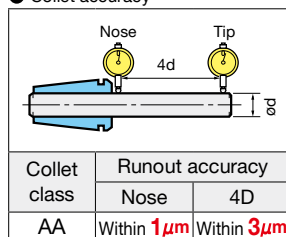
- High-precision collet chuck system with an accuracy of 1 micron at nose.
- The perfect tool to use in drilling, endmilling, reaming and tapping.
(Clamping diameter $\varnothing 0.25 - \varnothing 20$)



1 μ m high precision collet

The New Baby Collet uses know-how cultivated through years of experience to produce a world top-class high-precision collet subjected to two complete strict quality management inspections, covering everything from material and machining methods to heat treatment.

● Collet accuracy



2 way coolant supply

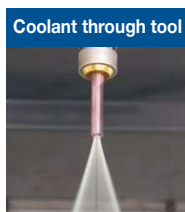
A coolant nut with oil sealing functionality. Removing the internal PS Ring allows jet-through coolant supply.

Coolant pressure
7MPa



BABY PERFECT SEAL

Standard collet compatible



G15



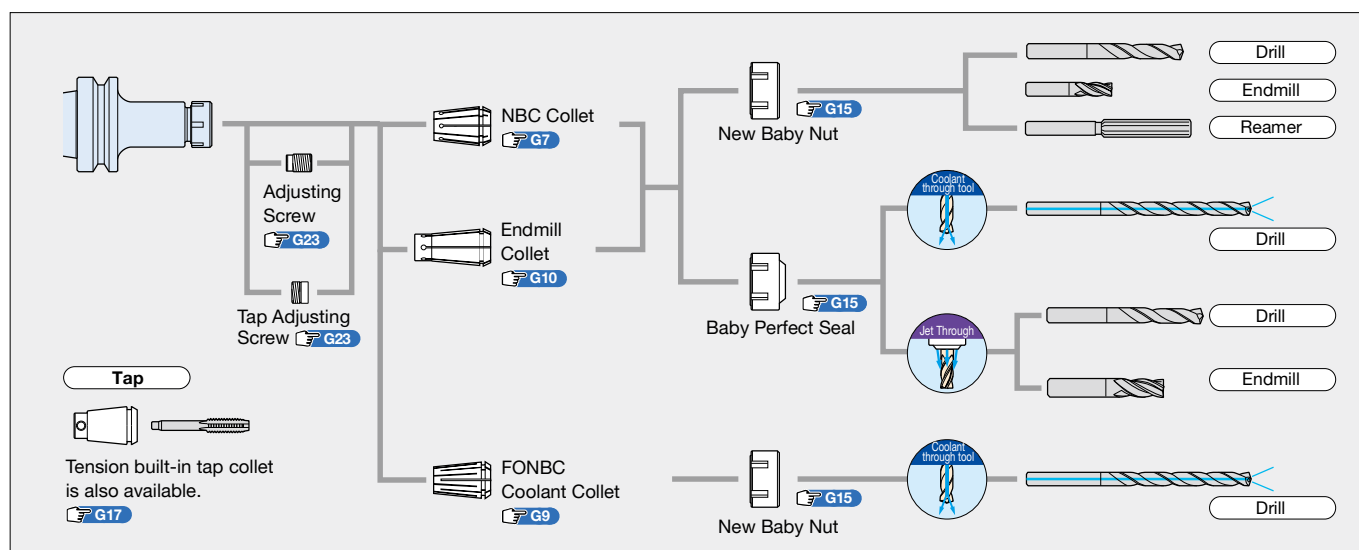
Runout Adjustable RA Holder

Simple structure allows for easy adjustment of runout accuracy!



Compensates for increased runout of machine tool spindles caused by extended use. Simple structure allows for easy adjustment in the machine.

A14 C11



For Heavy Cutting and Endmills

MEGA DOUBLE POWER CHUCK

- ▶ BBT : A15
- ▶ BDV : B7
- ▶ HSK : C12
- ▶ BIG CAPTO : E46

BIG-PLUS®
SPINDLE SYSTEM
DUAL CONTACT

Max.
30,000
min⁻¹

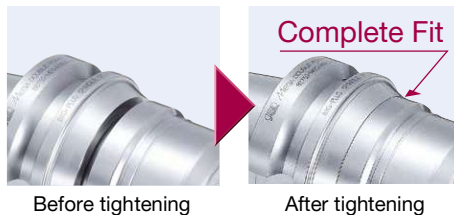


● The evolved Milling Chuck, equal to integration with machine spindle.



Complete fit of nut and body

Tightening the nut achieves dual contact between the body and end surface of the nut.
This superior rigidity assures heavier duty machining without chatter.

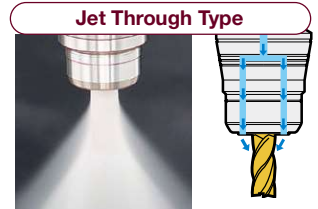


Secure coolant supply

Two types are individually designed for the most effective coolant supply.

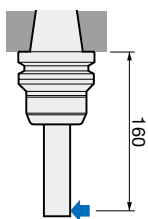
Coolant through tool

Tool periphery

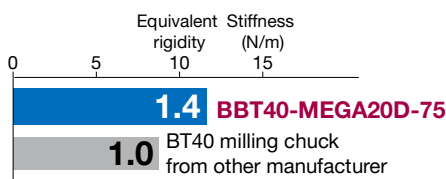


Coolant is ejected from the chuck nose.
Reliable coolant supply to cutting edge periphery.

Rigidity increased by 1.4 times combined with dual contact.



1.4 times higher total rigidity is achieved compared to a competitor's milling chuck.



High Accuracy Straight Collet G25

High accuracy straight collet with runout suppressed to a minimum. Select in accordance with the coolant usage.

For Coolant Through Tool
PSC Collet

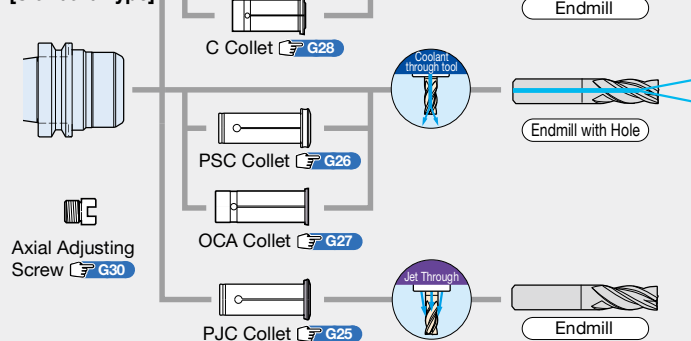
For Coolant Through Tool
OCA Collet



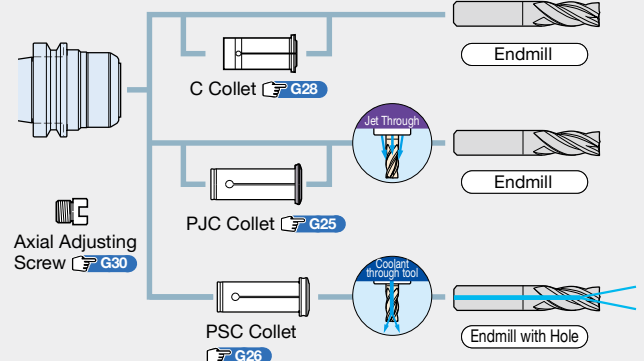
Jet Through Type
PJC Collet



[Standard Type]



[Jet Through Type]





- **No slip, no pullout.**
The absolutely reliable milling chuck.
- **For machining difficult-to-cut materials**
such as titanium or Inconel.
- **Accepts industry standard Weldon flat cutters.**
(Can be used with additional machining for tools without a flat section.)



The unique Key Grip locking mechanism prevents the tool from slipping or pulling out during heavy machining



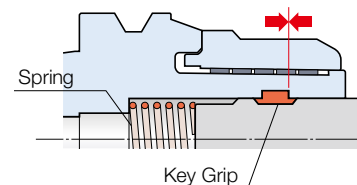
Simple and easy handling with secure clamping

- (1) Place the Key Grip onto the flat part of the endmill.
- (2) Set the spring into the bore of chuck, then insert the endmill in alignment with the groove.
- (3) Rotate the endmill and set the stopper pin.
- (4) Clamp the tool until the nut contacts to the chuck body completely.



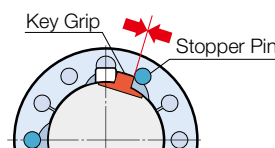
Non-Pullout mechanism

The Key Grip engages in the groove of the chuck body to ensure no tool pullout.



Non-Slip Mechanism

The Key Grip maintains contact with the Stopper Pin to prevent any slip.



Complete fit of nut and body

Tightening the nut achieves dual contact between the nut and body for rigidity close to that of an integral cutter.



Before Tightening



After Tightening

Flood jet through coolant



A sufficient volume of jet-through coolant is ejected from vents in three locations.



- ▶ BBT/BT : A20
- ▶ BDV/DV : B9
- ▶ HSK : C16
- ▶ ST : D5
- ▶ BIG CAPTO : E47

MILLING CHUCK

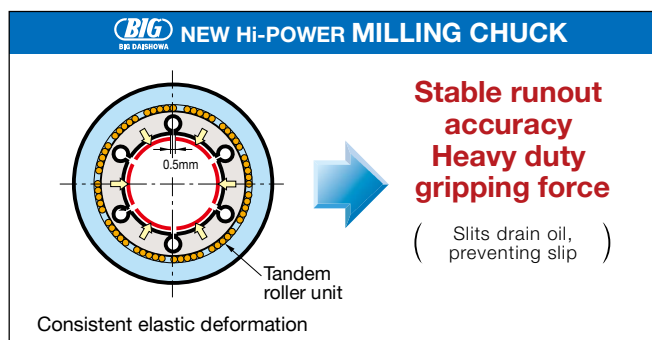
NEW Hi-POWER MILLING CHUCK



- Highly rigid chuck for resistance against chatter.
- Supports endmilling with its heavy duty gripping force and high runout accuracy.



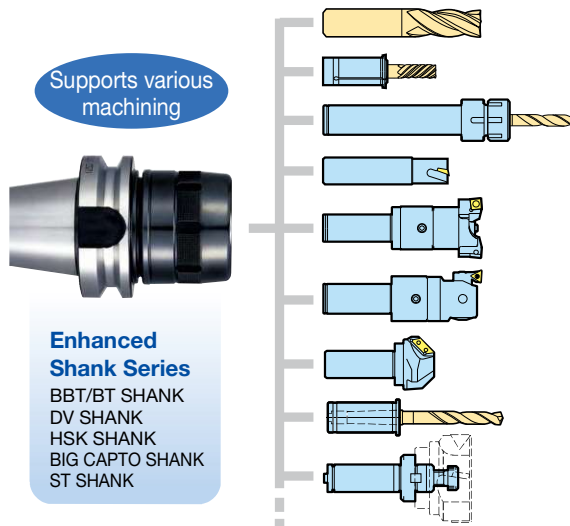
Reliable slit design ensures high accuracy



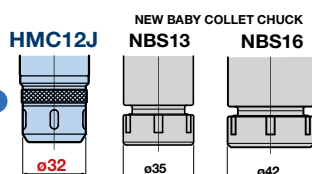
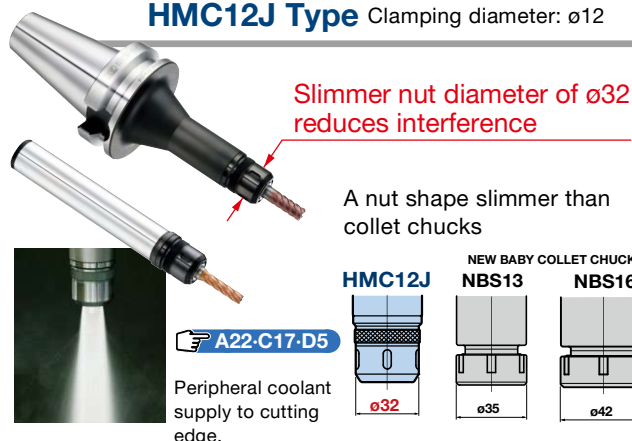
A unique BIG slit shape is adopted to achieve both the essential runout accuracy and gripping force which are the key elements of a milling chuck. Stable clamping is possible due to sufficient elastic deformation and the ability to remove oil film from the tool shank.

The Milling Chuck is also ideal as a basic holder

Allows the reliable use of straight collets as well as boring bars, arbors such as face milling cutters. Also optimal as a basic holder.



HMC12J Type Clamping diameter: $\phi 12$



Runout Adjustable RA Holder



- ▶ BBT : A26
- ▶ BDV : B11
- ▶ HSK : C19
- ▶ ST : D6
- ▶ BIG CAPTO : E48
- ▶ For N/C : F7

HYDRAULIC CHUCK PAT.



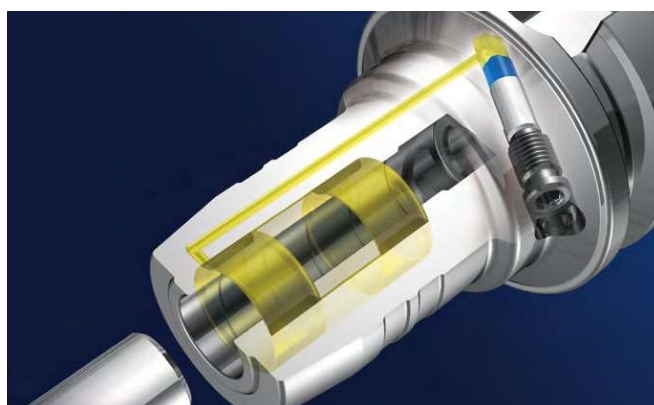
Runout accuracy within 3 microns



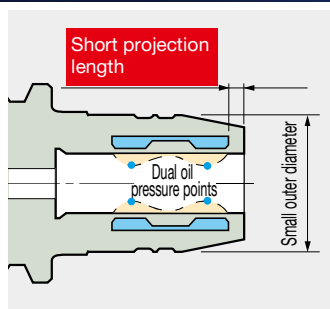
- Easy to attach and remove with one wrench
- Supports high runout accuracy for machining with endmills, carbide drills and burnishing reamers.
- Enhanced lineup of a range of clamping diameters and length variations.



Internal structure with increased accuracy and rigidity



The integrated structure of the body and clamp sleeve gives greater rigidity and achieves better accuracy compared to the traditional two-part construction sealed with O-rings. 2-point tightening with dual hydraulic chambers and a short overhang area where the tool is not clamped give improved runout accuracy.



Super Slim Type PAT.



Tip diameter Min. $\varnothing 14\text{mm}$
Max. $60,000\text{min}^{-1}$ (HSK-E25)

Slim design eliminates interference.
Ideal for high precision 5 axis machining.

An even lighter and slimmer Extra Slim Type

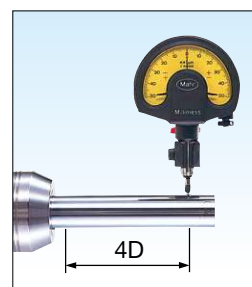


Tip outer diameter $\varnothing 10\text{mm}$
MAX. $60,000\text{min}^{-1}$

Runout accuracy within $3\mu\text{m}$

High precision runout accuracy within $3\mu\text{m}$ at 4D. High runout accuracy improves the workpiece surface finish and extends tool life.

High precision runout accuracy within **$3\mu\text{m}$**
(center alignment repeatability within $1.5\mu\text{m}$)



Complete sealing mechanism prevents oil-leaks

Specially selected material and shape of the hydraulic plunger seal prevents leakage of oil and decrease in gripping force. The complete seal design avoids minute cutting particles of graphite or ceramics from entering into the toolholder. This enables usage on tool grinding machines.



Jet Through Type PAT.



Tip diameter Min. $\varnothing 20\text{mm}$
Max. $35,000\text{min}^{-1}$

Securely supplies coolant or oil mist to the tool periphery.
Delivers outstanding results with high accuracy finishing in 5-axis machines.

- ▶ BBT :A131
- ▶ BDV :B18
- ▶ HSK :C34

Holders for Screw-on Cutter

SCREW-ON HOLDER

- Achieves stable damping effect even with Head Indexable Holder!
- Tapered body with excellent rigidity and interference avoidance.



SCREW-ON HOLDER



Damper

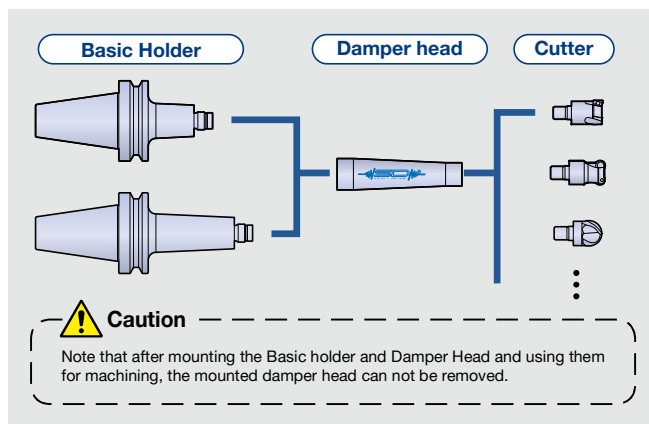
SMART DAMPER
SCREW-ON HOLDER



Setup in accordance with the processing is available



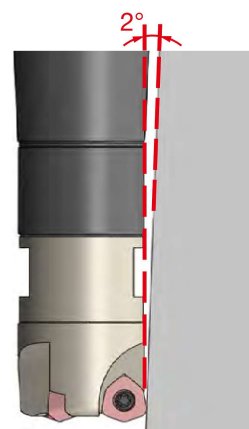
One damper head is available for basic holders of different lengths.



2° standing wall supported



Slim shape that minimizes the work and fixture interference supports the 2° standing wall.



Shoulder Milling (S55C)



Holder	Tool Projection length	Radial DOC (mm)							Result
		0.2	0.4	0.6	...	1.8	2	2.2	
Carbide Shank	295	○	×	×	...	×	×	×	Radial DOC 10x higher
BIG Built-In Damper SMART DAMPER BBT50-SDF20-39-145T SDF20-M16DP-29-155T	295	○	○	○	...	○	○	×	

○ = Excellent surface finish x = Chattering

Cutting Conditions

Machine	Vertical MC (BBT50)
Shoulder Milling Cutter	ø32 (3-inserts)
Cutting speed	150m/min
Feed	0.1mm/t
Axial DOC	11mm



Radial DOC 0.4mm



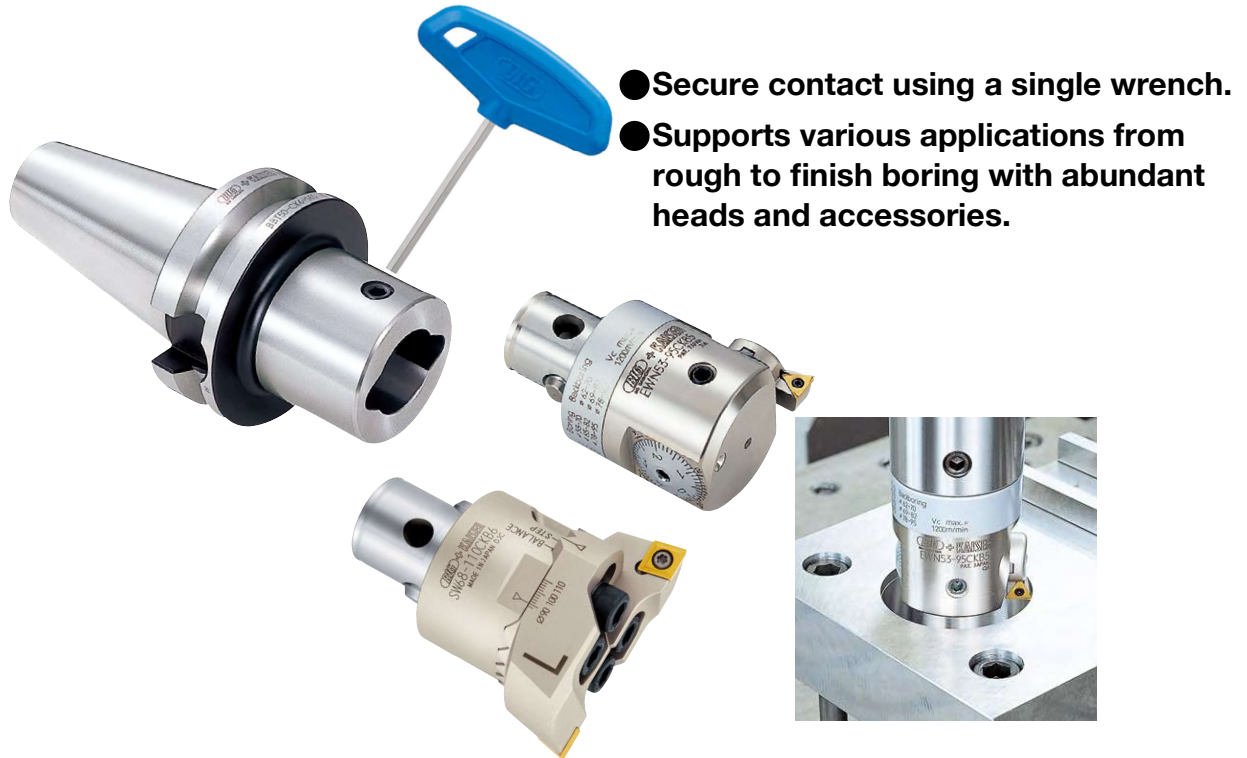
Radial DOC 2.0mm

BORING SYSTEM **BIG**+KAISER **CK BORING SYSTEM**

BIG-PLUS
SPINDLE SYSTEM
DUAL CONTACT

- ▶ Heads : A40
- ▶ BBT/BT : A77
- ▶ DV : B13
- ▶ HSK : C25
- ▶ ST : D8
- ▶ BIG CAPTO : E52
- ▶ For N/C : F10

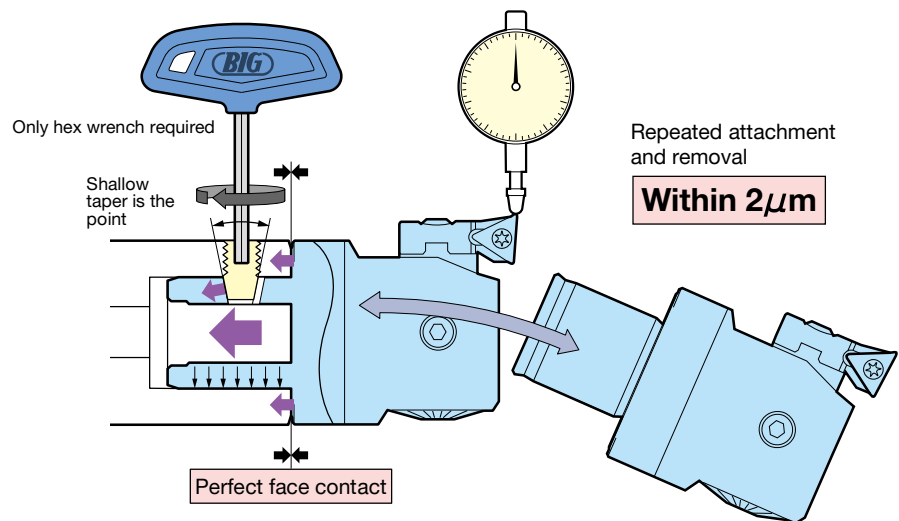
Cutting Conditions **A105**



Secure contact using a single wrench! The simplest modular boring clamping system

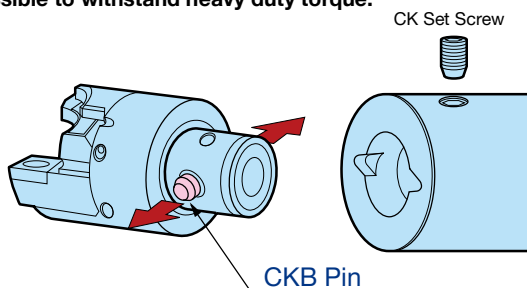
The CK is a simple method for securely and powerfully clamping flange faces with a single wrench.

Since the connection system has a high connection accuracy with less than a 2-micron difference of the cutting edge position, it allows boring head diameter adjustment and drastic labor reduction to increase machine utilization.



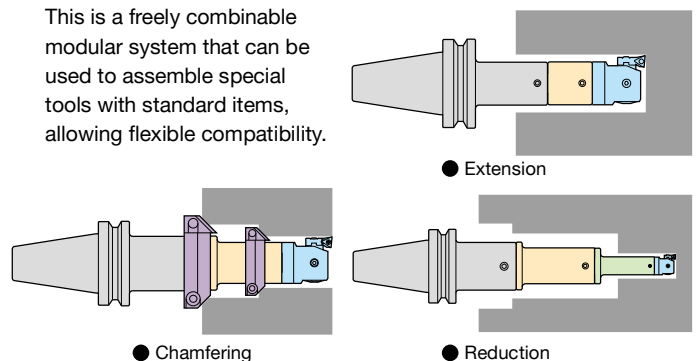
Safe structure at high torque

Adopts a proprietary CKB pin for rough boring at high cutting torque. **The CKB pin is of floating type which gives it good horizontal balance, dampening cutting torque and making it possible to withstand heavy duty torque.**



Rapid adaptation to special tools

This is a freely combinable modular system that can be used to assemble special tools with standard items, allowing flexible compatibility.

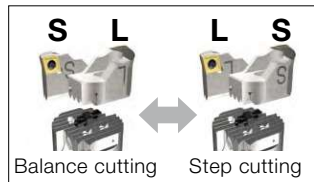


CK BORING SYSTEM

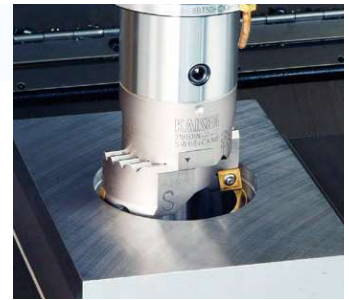
ROUGH BORING HEAD Pursuit of rigidity



High rigidity
SW BORING HEAD PAT. **A41**
● $\phi 20 - 203$
● Serrated for high connection rigidity



Adapted for both balance and step cutting by simply changing positions of standard Cartridges. (for blind holes)



Roughing Head with Built-In Damper
SMART DAMPER SW BORING HEAD PAT. **A43**
● Smart Damper with SW head
● Closely adjacent vibrating point and damper achieve a high damping effect.



100% completely balanced cutting
RW BORING HEAD **A47**
● $\phi 25 - 150$
● Abundant Cartridges
● Fine axial adjustment



Boring tool for small-diameter 2-flute roughing
MW BORING HEAD PAT. **A49**
● $\phi 16 - \phi 21$
● Versatile $\phi 20$ shank
● Spiral groove for improved chip evacuation

FINISH BORING HEAD Insert Holder Type Quick micron-level adjustment



Prebalanced design/Multifunction head
EWN BORING HEAD **A53**
● $\phi 20 - 203$
● Prebalanced design supports high-speed boring
● Abundance of insert holders

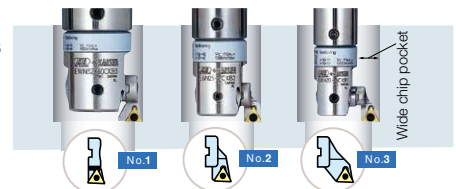
Back boring available as standard
Supports back boring by simply reversing the Insert Holder.



Display Resolution
1 $\mu\text{m}/\phi$

Digital boring head
EWE BORING HEAD **A55**
● $\phi 41 - 203$
● Digital display allows the adjustment amount to be read at a glance
● Fully waterproof and dustproof structure (IP69K equivalent)

Emphasis on chip evacuation properties
Replacing the Insert Holder makes it possible to secure sufficient clearance for chips.



High speed
EWB BORING HEAD **A57**
● $\phi 32 - 105/\phi 100 - 203$ (Aluminum)
● $0.01\text{mm}/\phi$ scale

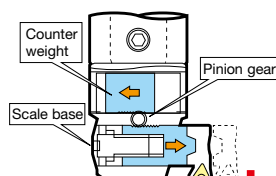
Vc Max. 2,000m/min



Lightweight special aluminum head 600g -

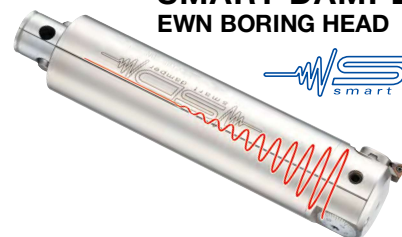
Built-in automatic precision balancing unit

The counter weight moves as the diameter is adjusted, allowing the balance to be automatically compensated.



No change to "Z" dimension even if diameter is adjusted!

Built-in damper
SMART DAMPER EWN BORING HEAD **A54**



● Integrated EWN BORING HEAD and SMART DAMPER.
● Closely adjacent vibrating point and damper achieve a high damping effect.

FINISH BORING HEAD **Cylindrical Tool Type**

Abundant toolholder series



High precision **EWN BORING HEAD**

A63

- $\phi 1 - 54$
- 0.01mm/ ϕ scale plus 1 micron vernier
- Combine with carbide shank for stable deep-hole boring



Compact high precision boring head **EWN04-7/04-15**

A61

- $\phi 1 - 7/\phi 1 - 15$ (EWN04-7)
- O.D. $\phi 18.5$ ultra-compact design
- Max. 30,000min⁻¹



Digital boring head **EWE BORING HEAD**

A64

- $\phi 1 - 54$
- Digital display means the adjustment amount can be read at a glance
- Waterproof and dustproof structure (IP69K equivalent)

Display Resolution
1 μ m/ ϕ



Max.
16,000min⁻¹

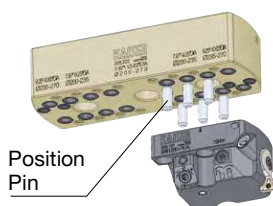
High speed **EWB BORING HEAD**

A65

- $\phi 1 - 50$
- 5 μ m/ ϕ precision diameter adjustment
- Built-in manual precision balancing function

CK7 LARGE DIAMETER BORING SERIES

● New, safer mechanism



Position
Pin

Using the position pin fastens the head or clamp base to the slide. Prevents the head from flying off due to high-speed rotation caused by programming errors.



(For Roughing) **TW200 BORING HEAD**

- $\phi 200 - 830$

A51

Aluminum high speed type

● Lighter weight for greater speed

Uses hardened aluminum components, tough yet lightweight. (Slide/Clamp Base)

Vc Max.
2,000m/min

● Center through supported

Reliable coolant supply to finishing and roughing cutting tool peripheries.



(For Finishing) **EWN200 BORING HEAD**

- $\phi 200 - 880$

Precision head with outstanding operability. Back boring available.

A59

PIN TURNING HEAD

- $\phi 0.5 - 686$
- Realizes finishing accuracy not possible with contouring.



A75



ACCESSORIES

Various shanks/ accessories **A77**



Combine with a CK Shank for a wide range of applications not limited to boring.

Built-In Damper **SMART DAMPER** PAT.

A80-C26

- Unique dynamic damper eliminates chatter.



CK Extension

CK SHANK



CK BORING SYSTEM

▶ **BBT** :A80

▶ **HSK** :C26

FACE MILL ARBOR TYPE H

▶ **BBT** :A119

▶ **BDV** :B17

▶ **HSK** :C29

TURNING ADAPTER

▶ **HSK** :E22

▶ **BIG CAPTO** :E38

BORING BAR

▶ **Details** :F11

Built-In Damper SMART DAMPER PAT.

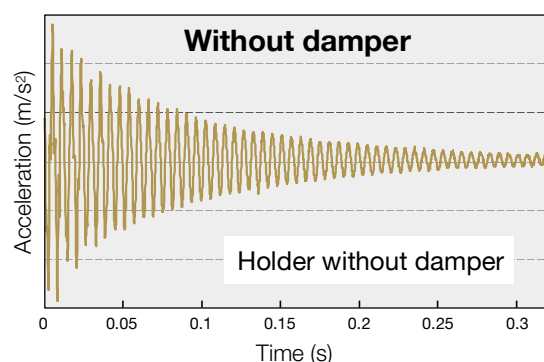
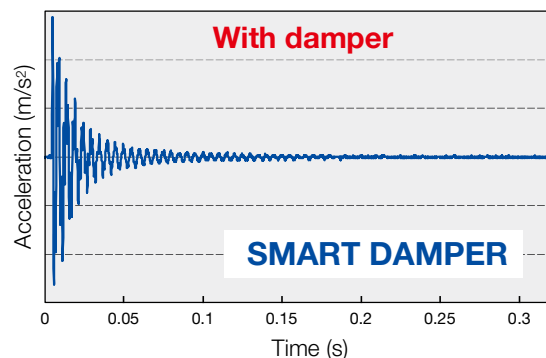


- Unique dynamic damper eliminates chatter!
- Even machining with long projection lengths achieves high speed and efficiency.



Comparison of oscillatory waveforms with and without dampers

The Smart Damper incorporates a damping mechanism and reduces chatter instantly. The Smart Damper solves various problems caused by chatter due to long projection, such as inadequate surface roughness, defective dimensions of machined workpiece and shortened tool life.



Chatter suppressing mechanism



An incorporated unique damper that functions as both a counter damper and friction damper. Patent-pending counter weight maximizes effect of the friction damper. Chatter is absorbed effectively and higher machining accuracy is achieved.

Finish Boring of Ductile Cast Iron (FCD500)

× = Chattering ○ = Good ◎ Excellent surface finish

Boring holder	Cutting speed Vc (m/min)			
	25	50	100	150
Holder without damper	○	×	×	×
Built-in Damper SMART DAMPER BBT50-CKB6DP-380	○	○	○	◎

Results: 6 times greater productivity.

Superior surface finish and better tool life due to increased cutting speed.

Cutting Conditions

Machine	Horizontal MC
Boring diameter	ø68mm
Depth	408mm (L/D=6)

Insert radius	R0.4
Feed	0.2mm/rev
Depth of cut	0.3mm/ø

Abundant series available for various machining requirements

CK Boring Series with Built-In Damper

High-efficiency machining of deep hole rough and finishing boring is available.



EWN BORING HEAD Type

Boring head with a built-in damper. The EWN Boring Head functions are maintained, featuring integrated damper.

A54



Highly reliable scale plate
With vernier scale
enabling 1-micron adjustment

SW BORING HEAD Type PAT.

Boring head with a built-in damper. Damper located closer to the cutting edge provides greater damping effect.

A43

CK Shank Type PAT.

A damper is built into the CK Shank. L/D = 6x



A80-C26

CK Extension Type PAT.

Just combine it with your standard CK Boring Head/CK Shank to achieve damping countermeasures.

A80

Built-In Damper FACE MILL ARBOR TYPE H

Stable cutting is possible even in face milling with long projection lengths.



Basic Holder
(BBT50/BDV50/HSK-A100)

Damper head

FMH22 / FMH25.4
FMH27 / FMH32



A119-B17-C29



Caution

If attaching both a Basic Holder and damper head, note that the damper head cannot be removed once it has been used for work.

Built-In Damper Turning Adapter for internal turning / BORING BAR



Eliminates chatter in internal turning.

Cartridges can be exchanged according to the application.

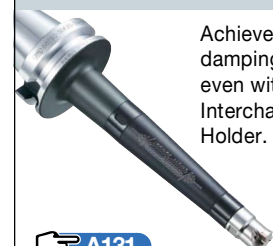
BORING BAR F11

Turning Adapter E22-E38



Screw-on Type is also available.

Achieves stable damping effect even with Head Interchangeable Holder.



A131

Synchronized Tap Holder with Compensation Mechanism

MEGA SYNCHRO[®] Tapping Holder PAT.



- ▶ BBT : A133
- ▶ BDV/DV : B14
- ▶ HSK : C35
- ▶ ST : D11
- ▶ BIG CAPTO : E54
- ▶ For N/C : F13

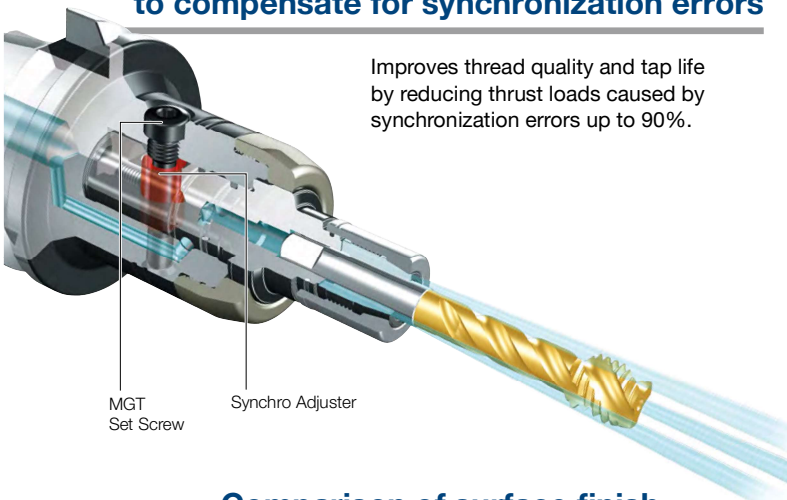


- Compensates for synchronization errors during synchronized tapping
- Improves thread quality and tap life by reducing thrust loads caused by synchronization errors up to 90%.



Unique new mechanism built in to compensate for synchronization errors

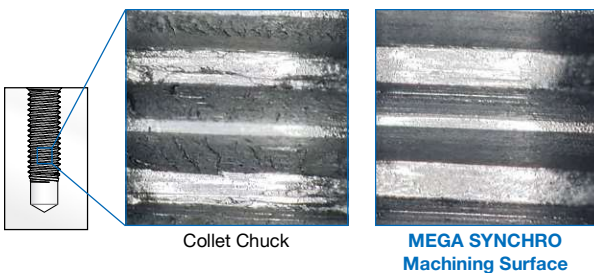
Improves thread quality and tap life by reducing thrust loads caused by synchronization errors up to 90%.



Comparison of surface finish

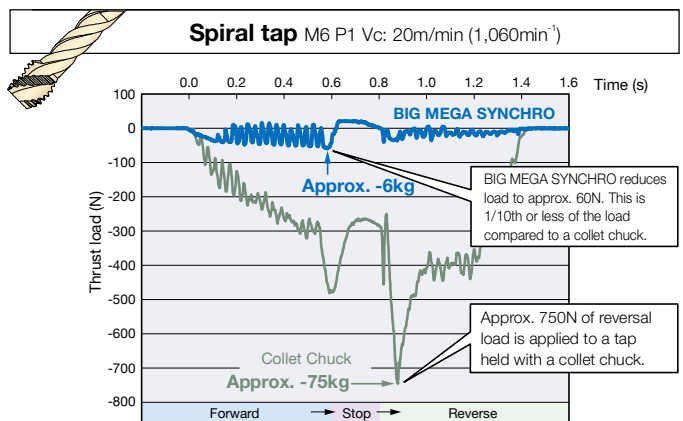
Tapping of difficult-to-cut materials with collet chuck tends to cause a compressed burr on the thread surface. **(BIG)** MEGA SYNCHRO compensates for synchronization errors and minimizes cutting load. Fine surface finish of threads is achieved.

Spiral tap M5 P0.8 Material: SNCM420



Reduces thrust load on both the tap and workpiece.

Due to feed misalignment occurring when the rotation is changed from forward to reverse, or tolerance to the tap pitch, 100% synchronization is hardly ever achieved. **(BIG)** MEGA SYNCHRO minimizes the thrust load to both the tap and workpiece to improve thread quality and tap life.



Lineup of types from small to large diameters

Abundant series of taps, from compact to large.



<Small Diameter Tap

MGT3 PAT.>

Tapping range

M1 - M3

BBT/HSK/Cylindrical Shank Type
For N/C Lathes

<Large Diameter Tap

MGT36 PAT.>

Tapping range

M20 - M36

BBT/BDV/HSK/CK Shank Type

►BBT :A171

►DV :B28

Coolant Feed

Hi-JET HOLDER

BIG-PLUS®
SPINDLE SYSTEM
DUAL CONTACT

Max.
10,000
min⁻¹



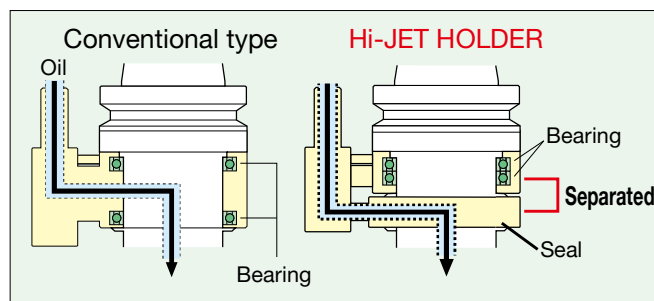
- Unique separated housing keeps coolant out of bearings.
(for water-soluble coolant only)

A Stop Block is required for use.

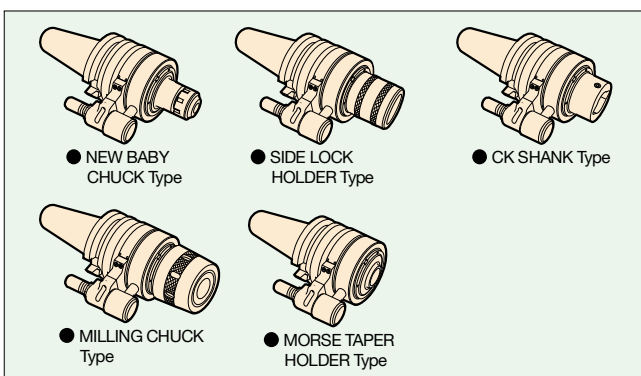


Unique separable structure improves the holder life

Ingress of the coolant to the bearings is eliminated by separating the bearing housing from the coolant channel, which elongates toolholder life drastically.



Abundant series lineup to support various machining



►BBT :A179

►BDV :B27

Speed Inserter

HIGH SPINDLE

BIG-PLUS®
SPINDLE SYSTEM
DUAL CONTACT

Max.
24,000
min⁻¹



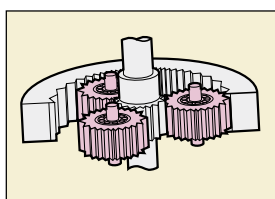
- Increased speed for small diameter endmilling and drilling.
- Multiplies the spindle speed 4, 5, or 6 times.

A Stop Block is required for use.

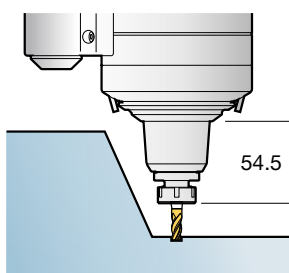


High performance, low vibration drive mechanism

A planetary gear system that has been constantly refined and upgraded over the years since BIG first announced the Speed Inserter in 1970. Ground gears are used to achieve low-vibration rotation.



Long nose type for mold machining (GTX)



Low heat generation design drastically reduces Holder spindle expansion.
Ideal for small-diameter machining with long cycle times.
Long nose is ideal as an interference countermeasure.

►BBT :A150

►BDV :B19

►HSK :C38

ANGLE HEAD



- An abundant series of high rigidity Angle Heads for systematic machining of multiple surfaces.
- Entire series is a dual contact specification as standard. Further increased rigidity.



A Stop Block is required for use.

Spiral bevel gears used



All series are heat treated first and adopt spiral bevel gears with finish machined teeth. This suppresses tooth runout, eliminating noise and vibration to achieve solid machining precision.

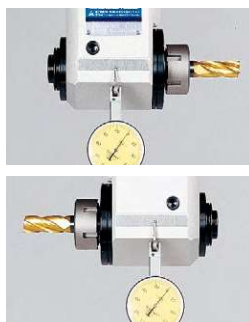
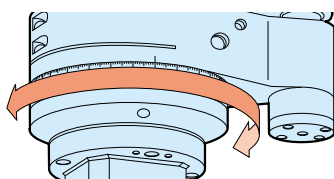
Unique special sealing mechanism



The conventional sealing mechanism has been further enhanced with improved waterproofing and dustproofing effects.

360° cutting edge directions available

With a head reference surface on both sides of the spindle angle, the cutting edge direction can be speedily set.



SPECIAL DESIGNS

We are able to design and manufacture special Angle Heads such as special angle or long type models to meet various machining requirements.



SLIM HEAD
FMC16
Specifications

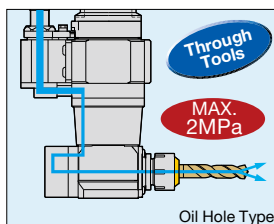


SPECIAL HEAD
SCA25.4
Specifications



Flange Specifications
HMC25
Specifications

Supply Through tools supported



Accurate supplying through tools is possible when the cutting oil is supplied from the positioning block and passes through the angle head case. The cool effect also creates at the same time by the oil passing through the case (except for Universal Type).

An Oil Hole Type, which allows through-tool oil supply, is also included in the product lineup!

Enhanced Angle Head series compatible with various multi-axis machining.



4 types available to suit the application (select from our abundant lineup to suit the shape of the workpiece.)

AG90 Series



TWIN HEAD

- High Precision
Collet Chuck System
NEW BABY CHUCK Type



Long Type

Long types with +100mm,
+200mm or +300mm
additional length are also
available.



- Through Tools
Through Tool



- Dedicated
for drilling/tapping
Compact Type



- Weight under 2 kg
Clears ATC weight restrictions
BBT30 Lightweight Type



- For Face Milling
Face Milling Type



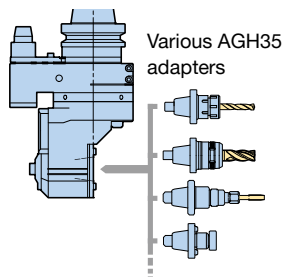
- Built-In tap depth control
Tapper Type



- Powerful $\phi 32$ specification
HMC32 Type



- Replaceable adapter type
BUILD-UP Type



Various AGH35
adapters

AG45 Series



- 45° spindle angle
**NEW BABY
CHUCK Type**

AGU Series



- 1° increment
flexible angle
Universal Type (0° - 90°)



- Adjustable within 30°
AGU30 Type (0° - 30°)

Small bore type



- Bore $\phi 30$ -
Tool clamping
diameter: $\phi 3$ - $\phi 6$



Min. bore diameter $\phi 30$

►BBT :A176

►BDV :B26

►HSK :C51

Ultra-High Speed Air Spindle

AIR TURBINE SPINDLE



Max.
80,000
min⁻¹

For small diameter
drilling/endmilling

RBX

Ceramic ball
bearing type

Max. spindle speed 80,000min⁻¹



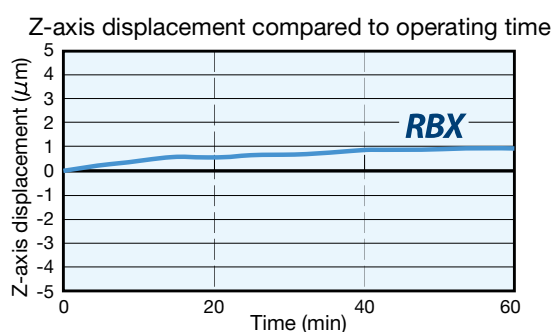
- High-speed micro-machining can be performed on a normal machining center, eliminating the need of an expensive high-speed machine!

A Stop Block is required depending on the type.



Extended tool life with minimal thermal displacement

High speed rotation of the machine spindle generates heat, causing spindle expansion and Z-axial displacement. This displacement results in dimension defects of precision molds or tool breakage in micro machining. The Air Turbine Spindle utilizes air for both driving and cooling the spindle simultaneously, thus the Z-axis displacement is eliminated.

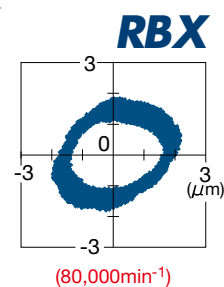


Outstanding dynamic runout accuracy

Most problems associated with micro-machining are caused by poor dynamic runout of a machine spindle. We have established a runout measuring system that can detect spindle movement during rotation at high speed and achieved the best dynamic runout accuracy.

<Measuring Example>

Plotted position of
test bar (16 mm) at
max. spindle speed



Improved machining
accuracy

Improved tool
life

Automatic tool change (RBX ATC Type)

ATC is made possible by supplying air via Stop Block.

Unmanned operation results in increased machining efficiency.



ATC
compatible

Environmental measures

Saving on power consumption

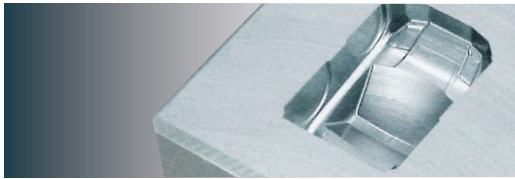
Minimizes loss of energy compared with power consumption of machine spindle rotation.

Air pressure: 0.5MPa, Air consumption: 200L/min
(Ex.: Compressor output 2.2kW 250L/min)

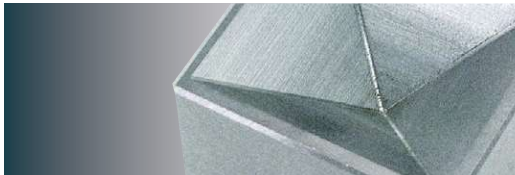
Low-noise design (Within 65dBA)

Air channels and turbine are optimized for low noise. So quiet that you can even hear the cutting noise of the micro tools.

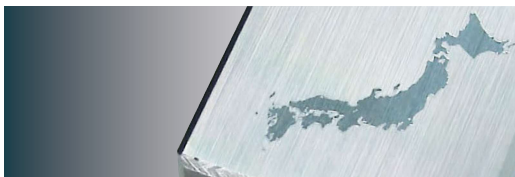
High-speed Micro-Machining can be done on a normal machining center, eliminating the need of an expensive high-speed machine.



Original 5 hour operation in MC is reduced to 2 hours.



Overall cutting length of 656m can be achieved with one ball nose endmill.
Drastically extended tool life.



Drastic time reduction by ultra high speed rotation.
Excellent dynamic runout accuracy makes DOC of 5 μ m clearly visible.



Ultra-low vibration design

Perfect dynamic balance is obtained for ultra-low vibration.
A notch-free nut eliminates unbalance at high speed rotation.

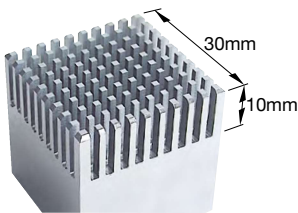
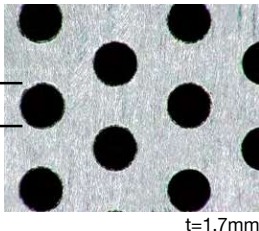
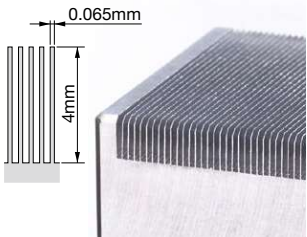
※Cutting tool is clamped with an exclusive wrench.



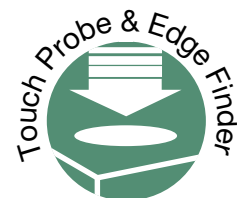
[Application range examples]

Machining range		RBX5	RBX7
Drill	$\phi 0.1$ mm or less	△	△
	$\phi 0.1 - 0.3$ mm	○	○
	$\phi 0.3 - 0.5$ mm	○	◎
	$\phi 0.5 - 1.0$ mm	◎	○
	$\phi 1.0 - 1.5$ mm	△	X
Endmill	$\phi 0.5$ mm or less	○	◎
	$\phi 0.5 - 1.0$ mm	◎	◎
	$\phi 1.0 - 1.5$ mm	◎	△
Jig grinding		◎	◎
Practical max. spindle speed (min ⁻¹)		50,000	80,000
Bearing type		Ceramic ball	

The table is just for reference. Machining range may change according to material, cutting conditions and cutting tools.

Application example	Pre-hardened steel	Stainless steel	Aluminum
			
Holder used	RBX5	RBX5	RBX7
Tool	$\phi 1.5$ mm tapered rib endmill	$\phi 1.5$ mm tapered rib endmill	$\phi 0.5$ mm deep rib endmill
Workpiece	Pre-hardened steel HRC40 (NAK55)	SUS303	Aluminum (A2017)
Spindle speed	40,000min ⁻¹	40,000min ⁻¹	70,000min ⁻¹
Feed	1,000mm/min	20mm/min	1,500mm/min
Effect	Stable machining can be achieved even with a high-resistance tapered endmill	Tool life is doubled with over 1,200 holes and cutting time is reduced to 1/3.	Outstanding runout accuracy permits super thin wall cutting

COMPACT SENSOR SERIES



- Measuring is the decisive factor for the following process.
Sensor series minimizes machine down time.
- Quick detection of reference position.



The 3-dimensional touch sensor series that detect touch-position instantaneously.
3-D touch probe

POINT MASTER PRO

For all workpieces and machine tools

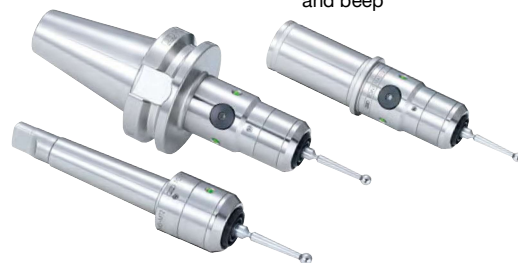


POINT MASTER

For use with conductive workpieces and machine tools



Detection with LED and beep



The all-rounder dial-read 3-D measuring instrument.

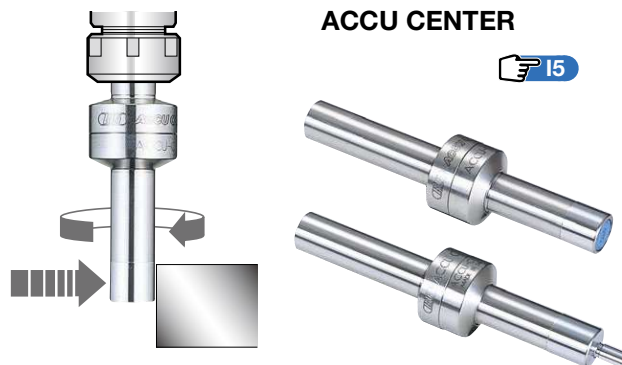
3D MASTER RED

For all workpieces and machine tools



Battery-less slide type simple edge finder.

ACCU CENTER



COMPACT SENSOR SERIES



- Quick detection of workpiece offset and tip position.
- Abundant series available for various tool materials and diameters.
- Repeatability within $1\mu\text{m}$ (2σ).
(BASE MASTER, BASE MASTER MINI)

BASE MASTER SERIES Registered Design

360° lighting allows for detection from any direction.

BM-50H **NEW**

For use with conductive cutting tools, workpieces, and machine tools



BM-50GH **NEW**

For all cutting tools, workpieces and machine tools



BM-100GH
with 100mm
reference height
also available.



BM-50MH **NEW**

For all cutting tools, workpieces and machine tools



Tool
diameter
from $\phi 0.05$
mm

BASE MASTER MINI SERIES

Compact design avoids tool/workpiece interference. 

BMM-20D

For all cutting tools, workpieces and machine tools

Ultra-compact design with an outer diameter of $\phi 20\text{mm}$



With loupe



BMM-10H

For all cutting tools, workpieces and machine tools

Ultra-compact design with a reference height of 10mm



BMM-20H **NEW**

For all cutting tools, workpieces and machine tools

Tool position detection in small lathes.



TOOL MASTER

Tool offset detected using a dial gauge.

TM-100N

For all cutting tools, workpieces and machine tools



Notifies the height with LED and buzzer

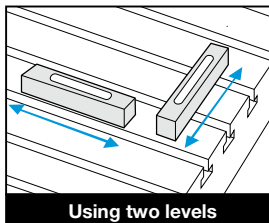


Precision Electron Level **LEVEL MASTER**

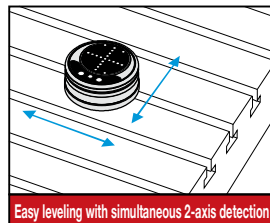


- Ideal for level management of machine tools/precision assembly devices.
- 2-axis simultaneous level detector.

2-axis simultaneous detection High precision of 0.01mm/1m



Using two levels



Easy leveling with simultaneous 2-axis detection

2-axis simultaneous detection makes leveling drastically faster and more economical, compared to the conventional process of using two separate levels.

Notifies leveling completion with LED and beep

HIGH Mode

When level is
0.01mm/1m or
less

LOW Mode

When level is
0.1mm/1m or
less

Notification with LED (blue) and beep

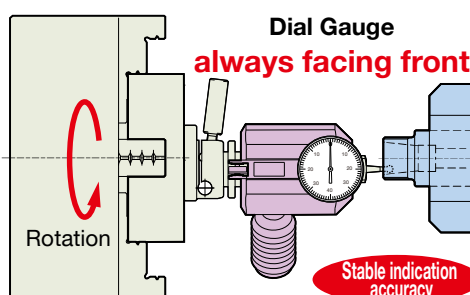
Centering Device for Small Lathes **CENTERING TOOL**



- Dial gauge always stays in front of the operator.



Unique centering tool with superior visibility



- With a Dial Gauge always facing front, toolholder centering can be done with an eye on the gauge.
- Fine adjustment mechanism aids easy centering (2mm adjustment amount).
- Unrestricted mounting positions with a magnet base.
- Compact design of 90mm total length, ideal for small lathes.

TEST BAR **DYNA TEST[®] / DYNA FORCE[®]**



Static/dynamic precision test bar
DYNA TEST

- For maintenance and inspection of machine tool spindle
- A machine maintenance tool of the highest quality for use as a precision measurement instrument.
- Calibration certificate and traceability diagram available upon request. (with charge)

Tool clamp measuring device for pulling force
DYNA FORCE



DYNA TEST

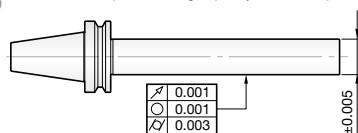
Static

Test bar with a focus on superb quality and accuracy. Prevents trouble through the periodic inspection of machine runout accuracy.

- A high-precision test bar developed by BIG's precise machining technology.
- Periodic accuracy evaluation eliminates machining defects.
- Abundant variation to suit the standards of each holder.

Precision standard of BIG Daishowa Test Bars

BIG Daishowa provides high quality test bars, produced under a strict quality control system.



Runout accuracy	0.001mm
Roundness	0.001mm
Cylindricity	0.003mm
O.D. tolerance	±0.005mm

Dynamic

Evaluates the dynamic runout accuracy of the machine spindle by measuring the runout while rotating at practical speeds.

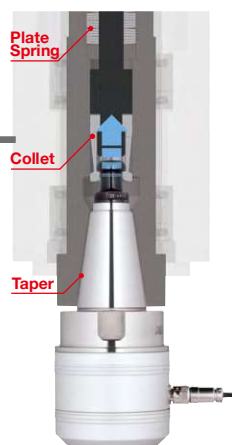
Knowing the dynamic accuracy of the machine tool spindle affected by centrifugal forces, vibrations and heat will aid in finding the appropriate cutting parameters for actual machining.



DYNA FORCE

Measures pulling force of machine tool spindle, a vital factor of machine tool performance.

The pulling force produced by the clamping device of machine tools could deteriorate due to degradation of disc springs or wear of the components of the booster. Pulling force is especially vital when it comes to dual face contact spindle interface, thus regular inspection is recommended.

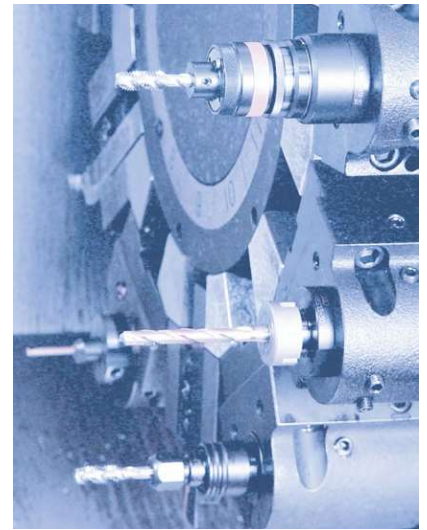


A calibration certificate and traceability diagram is offered upon request with charge for reliable use of these measuring instruments, or for the customers certified with ISO9000. Please contact us for details.

※ Traceability is defined under JIS Z8103 as "the establishment of a pathway related to national and international standards in which standard instruments or measuring instruments are continually calibrated according to higher-level measurement standards."

N/C Lathe Tooling

● Improving the efficiency of NC lathes and supporting productivity through reliable technology



Abundant series including holders for small lathes and tapping attachments



Ultra-slim nut.
Ideal for small lathes with limited space.
MEGA MICRO CHUCK



Ideal as a basic holder for lathes.
NEW BABY CHUCK



Achieves stable machining with highly accurate chucking repeatability.
MEGA ER GRIP



Easy and reliable compensation of center of sleeve holder in turret lathe.
CENTERING HOLDER



High-precision Hydraulic Chuck that allows easy tool change using a single wrench.
HYDRAULIC CHUCK



Improves thread quality and tap life by reducing thrust loads to 1/10.
MEGA SYNCHRO TAPPING HOLDER



B Type with tap depth control.
E Type with built-in torque limiter.
AUTO TAPPER B/E



Tool offset sensor.
Setup of tool offset position without a trial cut.
LATHE MASTER

SMART DAMPER for internal turning



Unique dynamic damper adopted

Internal Turning Tool with Built-In Damper
SMART DAMPER Boring Bar 



Efficient centering of turning tool holder



With a Dial Gauge always facing front, toolholder centering can be done with an eye on the gauge. Unique centering tool for lathes with superior visibility.

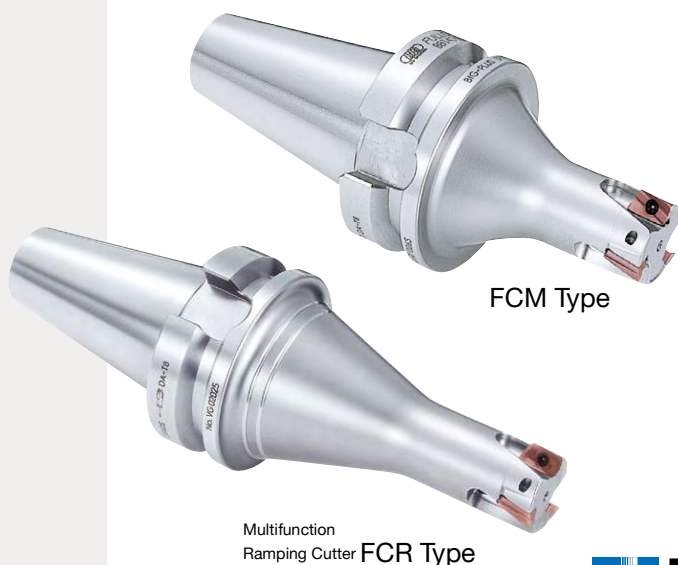
 I10

Centering Device for Small Lathes
CENTERING TOOL
CTL-90



Indexable cutting edge endmill cutter

FULLCUT MILL FCR / FCM Type

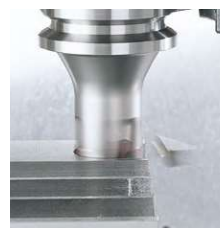


FCM Type

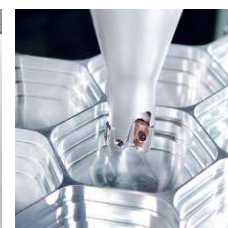
Multifunction Ramping Cutter FCR Type



- Indexable cutting edge cutter with high efficiency and low cutting resistance, achieving both excellent sharpness and toughness.
- Integrated dual contact shank for increased power even with compact machines!

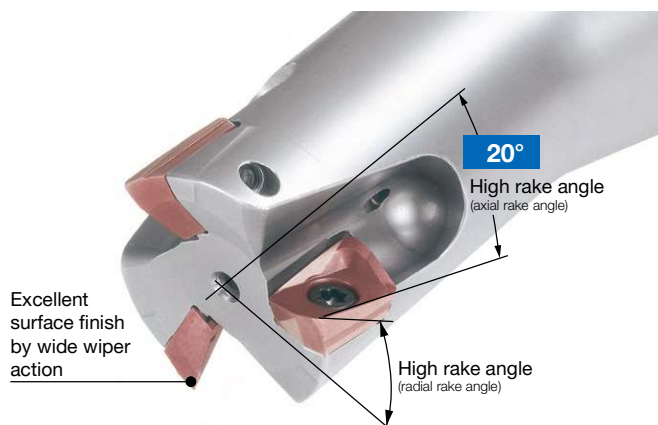


FCM Type



FCR Type

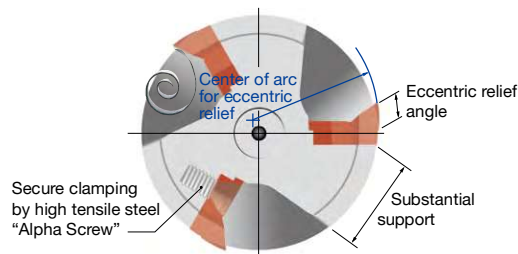
Sharp cutting edge with large radial and axial rake angles



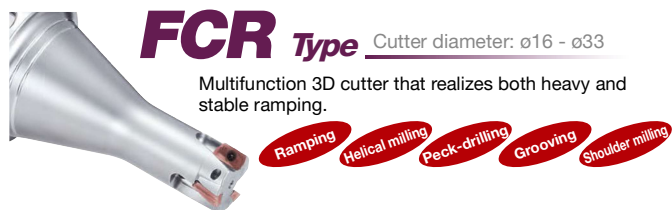
Positive high rake cutting edge for both radial and axial directions achieves smooth and quiet endmilling.

The first indexable cutting edge endmill with an eccentric relief angle

The eccentric relief angle originating from solid endmills is adopted. Tough and perfect cutting edges without sacrificing sharpness are realized.



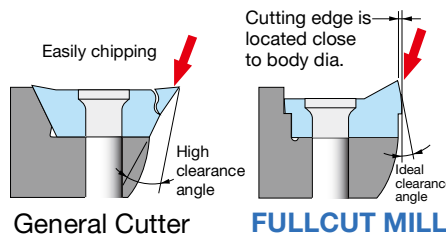
- Featuring a tough cutting edge!



FCR Type Cutter diameter: ø16 - ø33

Multifunction 3D cutter that realizes both heavy and stable ramping.

Ramping Helical milling Peck-drilling Grooving Shoulder milling



General Cutter

FULLCUT MILL

Eccentric relief angle
An eccentric relief angle improves the cutting edge toughness and stays sharp, using the traditional solid endmill cutting edge shape technology.



FCM Type Cutter diameter: ø12 - ø100

Low resistance, high efficiency cutter especially for cross-feed machining.

Grooving Shoulder milling

High Speed Cutter for Aluminum and Cast Iron

SPEED Finisher

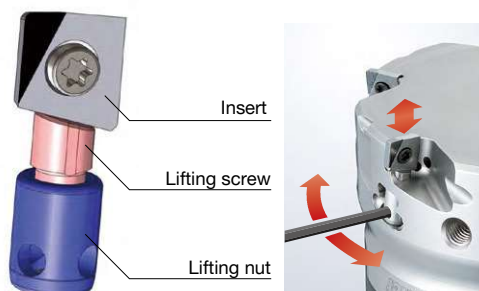
Cutter diameter: $\phi 50$, $\phi 63$, $\phi 80$, $\phi 100$, $\phi 125$, $\phi 160$

- Greatly improves the surface finish in ultra-high-speed machining!
- Achieves $R_z = 0.55\mu\text{m}$ for die-cast aluminum ADC12 and $R_z = 0.67\mu\text{m}$ for gray cast iron FC250.



Speedily adjusts the cutting edge height

It has a simple and highly operable mechanism in which the cutting edge height is adjusted after clamping the insert by turning the lifting nut from the side, then directly pushing up the insert with the lifting screw. Since the lifting screw has a fine pitch (0.25mm), accurate adjustment is possible.



Adjustable in μm increments. Exclusive presetter

Presetter that allows adjustment in true micron increments

Presetter that allows cutting edge adjustment in micron increments.

With a soft contact function that prevents damage to delicate cutting edges. While it is simple, it allows all cutting edges to be perfectly aligned in a short time, which even non-contact presetters could not accomplish. Purchase together with the SPEED FINISHER body.

With dial gauge stabilizing function



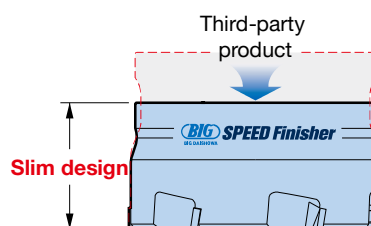
Combines light weight and high rigidity

The slim body allows increased rigidity and reduced vibration and deflection. Therefore, height difference of the machined surface is minimized.

Also, as it is lighter than other cutters, it can be safely used with a small #30 taper machining center.

Direct coolant supply to the cutting edge

Use in combination with the Face Mill Arbor Type H allows coolant to be supplied directly to the cutting edge. This prevents welding and biting of chips in aluminum cutting.



Face Mill Cutter

FULLCUT MILL FCM Type ARBOR TYPE

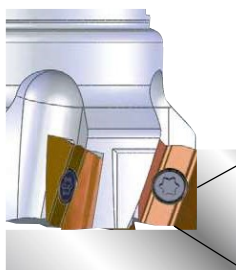
Cutter diameter: $\phi 50$, $\phi 63$, $\phi 80$, $\phi 100$



- Sharp and powerful cutting. Exhibits incredible cutting capacity even with #40 machining centers or millturn machines.
- FACE MILL ARBOR TYPE FMH supported.



Superb perpendicularity and beautiful surface finish as an indexable cutting edge endmill cutter



Machined with holder **BBT40-FMH22-47-45** and Fullcut Mill **FMH22-FCM63116-40**

● Perpendicularity

Cutting speed Vc (m/min)	150
Feed rate fz (mm/t)	0.1
Axial DOC ap (mm)	5
Radial DOC ae (mm)	0.1

BIG BIG DAISHOWA	10 μm
General Cutter	40 μ m

● Surface roughness

Cutting speed Vc (m/min)	250		Ra(μ m)	Rz(μ m)
Feed rate fz (mm/t)	0.2	BIG BIG DAISHOWA	0.51	2.89
Axial DOC ap (mm)	0.1	General Cutter	1.56	7.77
Radial DOC ae (mm)	50			

※ The perpendicularity and surface roughness will vary depending on the cutting conditions, material, machine tool and workpiece rigidity.

Face Mill Cutter

SURFACE MILL

Cutter diameter: $\phi 80$



- Exhibits difference in the top surface finish of the workpiece!



Surface finish comparison with a general cutter

Workpiece material	S50C
Cutting speed Vc (m/min)	200
Feed rate fz (mm/t)	0.2
Axial DOC ap (mm)	3
Radial DOC ae (mm)	75
Cutting method	Dry



CHAMFERING TOOL **C-CUTTER**

Hole diameter: $\phi 5 - \phi 100$



CK SHANK



ST SHANK



Universal type



● Wide chamfering range reduces number of tools and ATC.

Center through specification (30°, 45°, 60° types)

Coolant nozzles can be adjusted towards the machining point to achieve reliable coolant supply. Sharp cutting edge and reliable coolant supply achieve beautiful surface finish like never before. Securely chamfers difficult-to-cut or easy-to-weld materials.



Reduces the number of tools and machining time

The extensive chamfering range reduces the number of tools and tool changes. Effective use of the magazine pots and shorter machining time are achieved.



Stable machining with double screw

Parallelogram long insert ideal for chamfering. Two screws are used for secure fixing, allowing stable machining.



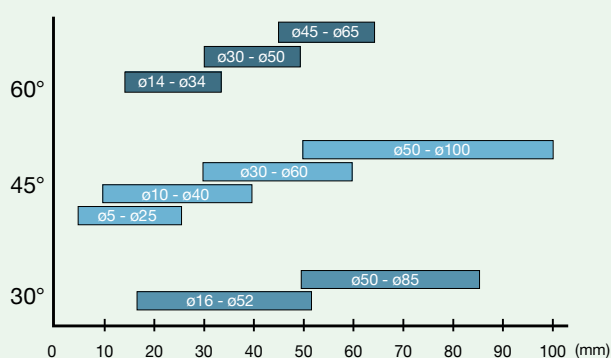
Chamfering angle can be easily adjusted by 5° to 85° (universal type)



The cartridge swings when the angle adjuster is turned using a wrench; the chamfer angle can be adjusted by 5° to 85° by aligning the scale line of the cartridge with the mark on the body.



<Comparison of cutter diameter range>



Chamfering Tool

C-CUTTER mini



Full scale

- Ultra-high feed! The 4 insert design and compact tool diameter improve the feed drastically.
- Hexagonal insert with the ultra-small inscribed circle of $\phi 3.31$.
- Suppresses stainless steel and mild steel burrs with “sharp cutting edge insert”.

Front & back
chamfering

Starting hole and
bolt hole chamfering

Face milling

(ST20-C2232
ST32-C3242
CKB Type)



4 inserts, ultra small diameter and new coating achieve triple effect

Effect 1

Superb design
Ultra high feed by 4 inserts

Compared to 1 or 2 insert cutter, feed rate is multiplied with 4 inserts.

Effect 2

Increased spindle speed by
ultra-compact diameter

At the same cutting speed, smaller tool diameter means faster spindle speeds.

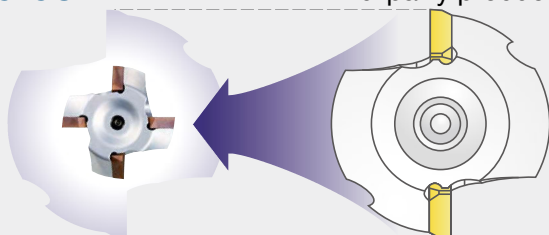
Effect 3

Cutting speed is increased by
the latest “ACP200” coating

Ultra multi layer PVD coating increases the cutting speed drastically.

C-CUTTER MINI

Third-party product



Small tool diameter
and 4 inserts

Large tool diameter
with only 1 or 2 inserts

Significantly
Improved!!
Feed

UP
Spindle
speed

x Feed per tooth x Number of teeth

UP
Number of
teeth

UP
Spindle
speed

UP
Cutting
speed

$\pi \times \text{tool diameter}$

Realizes “back chamfering” with minimum starting hole diameter of $\phi 5$

Back chamfering with minimum starting hole diameter of $\phi 5$ realizes high-efficiency machining, enabled by ultra-small inserts. Also economical with 3-corner inserts.



Ultra-small Insert

Inscribed
circle $\phi 3.31$

Machining efficiency is significantly improved



8 times greater
machining efficiency

Workpiece: S55C
Chamfering amount: C1
Feed per tooth fz: 0.1mm/t

	General product	C-CUTTER MINI (ST12-C1116-45B-25)	
Chamfering diameter	$\phi 29$	$\phi 13.5$	Small diameter
Number of inserts	2	4	UP
Cutting speed Vc (m/min)	150	300	UP
Spindle speed n (min ⁻¹)	1,646	7,040	UP
Feed Vf (mm/min)	329	2,820	Much higher!

► Details : J38

R-CUTTER **R-CUTTER** PAT.



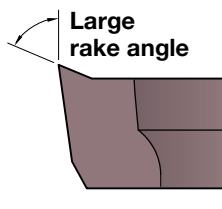
- Automates rounded chamfering for both the front and back.



Excellent sharpness with new insert shape!

R-CUTTER is the first in the industry to use an insert with a large rake angle that's capable of producing clean surfaces with no vertical streaking.

The insert has an indexable cutting edge and four available corners, helping reduce costs.



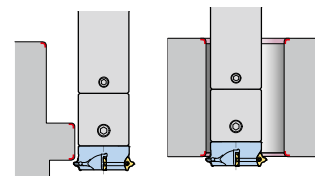
CK BORING SYSTEM CKB Type

Modular type round chamfering tool.

CK extensions allow front/back chamfering of deep holes, as well as grooves or steps at the distance.



BIG + KAISER
BIG DARMOWA



Front and back chamfering of grooves and steps located at a distance

Front and back chamfering of deep holes

► Details : J43

CHAMFERING TOOL **C-CUTTER BOY**

Hole diameter: $\varnothing 5 - \varnothing 25$

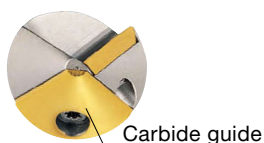


- The carbide guide prevents chatter on bench drilling machines.
- Economical three-corner insert.



Carbide guide allows stable cutting

Carbide guide allows stable cutting and prevents triangular chamfering. It does not damage the body, extending the life.



Carbide guide

Insert that does not need to be reground

Since the insert has an indexable cutting edge, regrinding is unnecessary.

Moreover, the carbide coating insert with 3 usable corners offers lower cost and extended tool life.

Centering/Chamfering Tool

C-CENTERING CUTTER

Registered Design

- A multifunction cutter capable of both centering and chamfering

(Centering is not available with the 3-insert type.)

- Negative insert tip shape dramatically improves the life

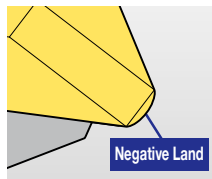


Centering Angle
90° & 120°



Prevents chipping during centering

Since the nose radius on the insert is a negative shape, it resists chipping and extends the life of the insert.



Effective for traverse chamfering (3-insert type)

3-insert type with maximum chamfering width of C9. Effectively reduces machining time.

Max.
chamfering width
C9



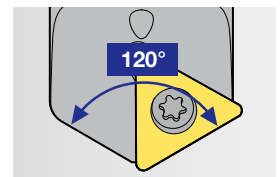
Immediate chip evacuation with coolant

The coolant hole allows cooling of the cutting edge, which reaches high temperatures during centering in particular, and enables immediate chip evacuation.



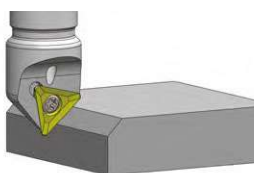
Centering Angle 120° Type Available

Centering angle near the drill's centering part reduces the drill's consumption.

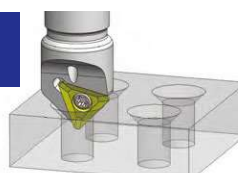


A variety of machining available

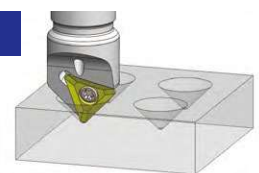
Chamfering
(Side)



Chamfering
(Hole)



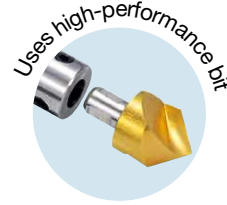
Centering



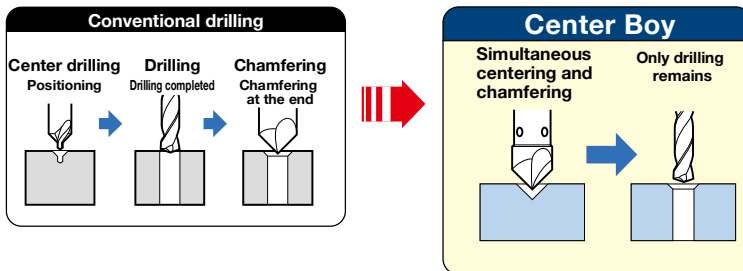
(Centering is not available with the 3-insert type.)

Centering + chamfering tool **CENTER BOY**

- Accurate positioning in drilling and chamfering can be performed simultaneously

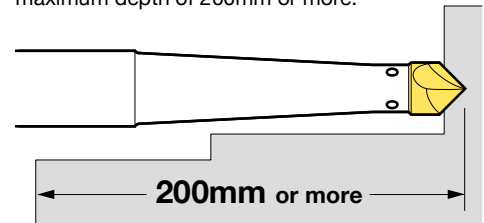


Reduced processes shorten machining time remarkably



Long shank with less interference

The long type covers workpieces with maximum depth of 200mm or more.



Back spot facing tool for cap bolt **BF-CUTTER**

Cap bolt size: M6 - M30



- Economical thanks to indexable inserts.
- Optimal design that matches the cap bolt size.



Reliable cooling through oil hole

Coolant can be supplied to cutting edges (all models). It securely supplies coolant even in places that are hard to reach such as when machining a rear surface, contributing to the extension of tool life.

Easy NC programming

Simple programming: Offset the machine spindle and starting hole centers before inserting the BF-Cutter into the hole.

