



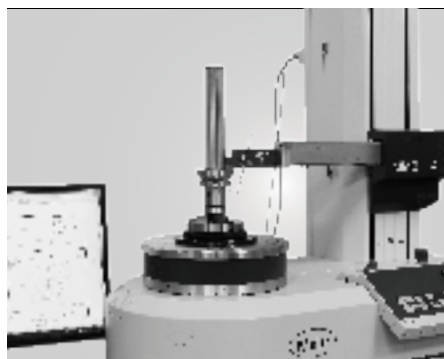
MACHINE ACCESSORIES

Machining Center | Milling Machine | Lathe | Mill-turn machines

NO.55-2010A



COMPANY INTRODUCTION



APP Store



Android



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About SYIC

Established in 1979, SYIC is a professional manufacturer of precise tool holders, cutting tools, angel heads, boring series and collets with more than 500 employees. The taper types of tool holders we manufacture include BT (MAS403), CAT (ANSI B5.50), DAT (DIN69871-A), HSK (DIN69893), PSC (ISO26623-1), VDI (DIN ISO10889) and straight shank holders.

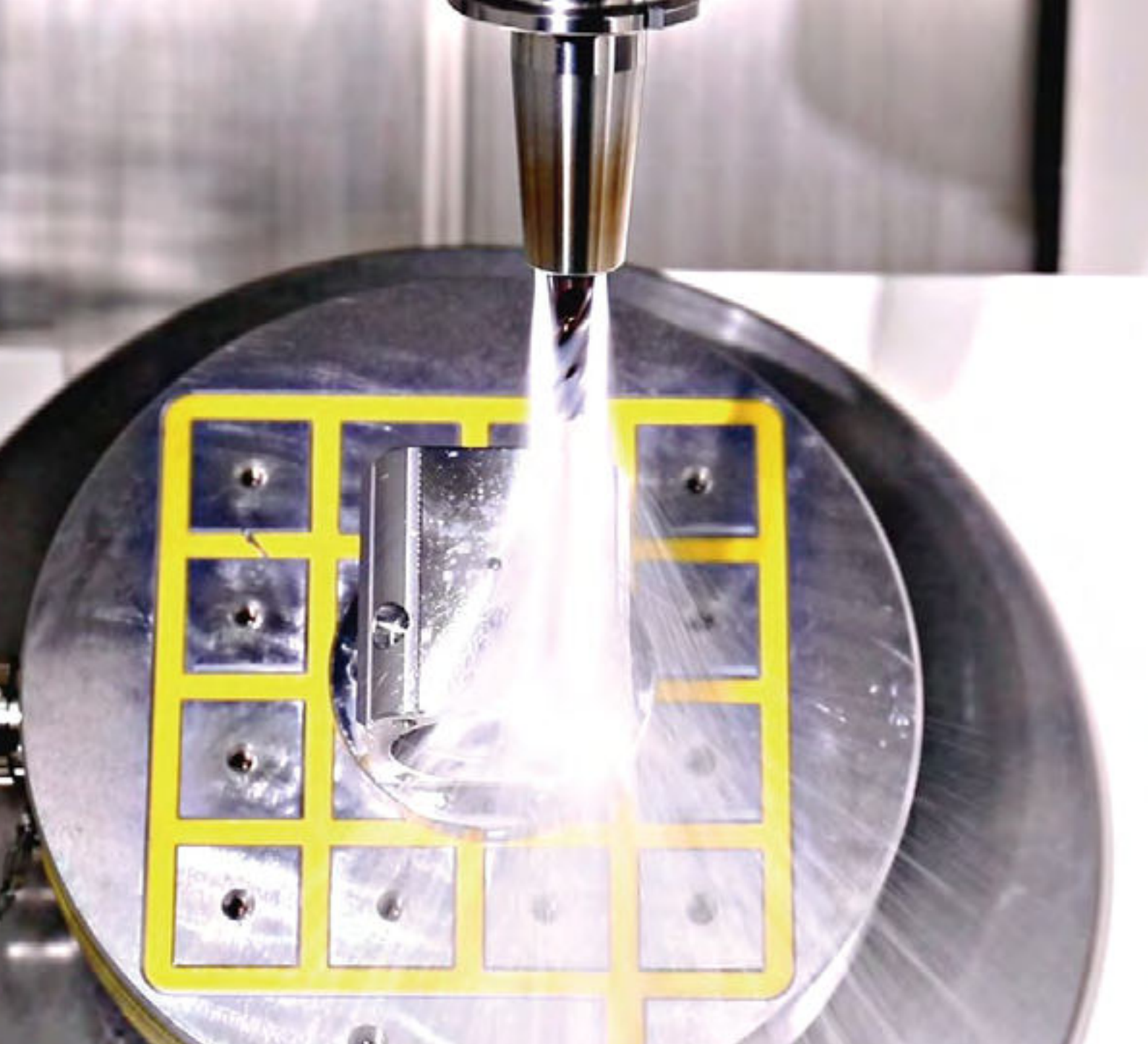
SYIC is certified to ISO9001 and ISO14001. With contribution to the design, production and sale of high accuracy and inventive products, SYIC has over 300 pieces of patents worldwide. SYIC keeps investing in high-end equipment and measuring instruments from Japan and Europe to implement excellent quality control and manufacturing capability.

SYIC keeps the core value "Quality creates reputation; reputation ensures quality" to impress our customers, possessing professional technical skills to provide comprehensive solutions for customers, improving customers' machining efficiency, and enhancing the mutual competitiveness with customers. Based on the mission of "Excellent service, supreme quality," SYIC will continue to launch more high precision products to customers.



Youku





Innovation is our mission!

SYIC is committed to developing high precision products to optimize the machining process and offering professional technical service. With experienced technical professionals, our products are developed in response to different types of industries. We aim to achieve customers' demands from different industries including machining industry, mold and die industry, aerospace industry, automotive industry, and energy industry. We offer the most professional and technical service, effectively resolve your machining problems to create maximum production efficiency.

PRODUCT CATEGORY

7:24 SERIES | HSK SERIES | PSC SERIES | PRODUCT ACCESSORIES

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7:24 SERIES

MAS 403

ANSI B5.50

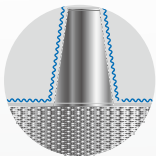
DIN 69871-A



SPINDLE TYPE	FEATURES	TYPES	AVAILABLE TAPER
▶ 7:24	▶ TAPER 7:24 ▶ TAPER TOLERANCE < AT3 ▶ SURFACE ROUGHNESS $R_a < 0.25\mu\text{m}$ ▶ ROUNDNESS < $0.6\mu\text{m}$	▶ REGULAR	▶ BT 15.20.30.40.50 ▶ CAT 40.50 ▶ DAT 30.40.50 ▶ ISO 15.20.25.30.40
		▶ DualDRIVE+	▶ SBT 30.40.50 ▶ SCAT 40.50 ▶ SDAT 40.50

100% CONTACT

- ▶ DualDRIVE+ tool holders can be used for regular spindles and double face contact spindles. With DualDRIVE+ tool holders and spindles, 100% contact can be achieved.



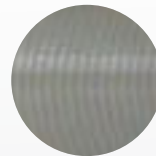
Regular Holders



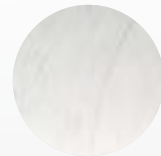
DualDRIVE+ Holders

INCREASE RIGIDITY, IMPROVE THE MACHINING

- ▶ DualDRIVE+ tool holders improve rigidity, decrease vibration, and improve the machining capacity substantially.
- ▶ Improve the processing accuracy on workpiece surface and extend tool life.
- ▶ The surface roughness of workpiece is improved.



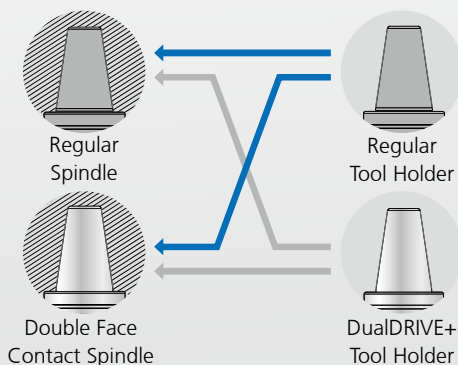
Regular Holders



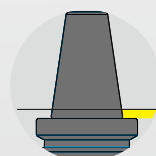
DualDRIVE+ Holders

ECONOMICAL AND COMPATIBLE

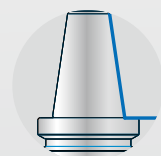
- ▶ DualDRIVE+ tool holders and spindles are compatible with regular tool holders and spindles.



- ▶ The perfect combination of DualDRIVE+ system between machine spindles and tool holders maximizes the function of double face contact. DualDRIVE+ tool holders can also be used for regular machine spindles, but without double face contact. To achieve double face contact performance, both DualDRIVE+ machine spindles as well as DualDRIVE+ tool holders are required.



Clearance



100% Contact

HSK SERIES

DIN 69893



SPINDLE TYPE	FEATURES	AVAILABLE TAPER
▶ HSK	▶ TAPER 1:9.98 ▶ SURFACE ROUGHNESS $R_a < 0.25\mu\text{m}$ ▶ ROUNDNESS $< 0.6\mu\text{m}$ ▶ DOUBLE FACE CONTACT	▶ TYPE A (69893-1) 32.40.50.63.80.100 ▶ TYPE E (69893-5) 25.32.40.50.63.80.100 ▶ TYPE F (69893-6) 40.50.63.80 ▶ TYPE T (ICTM) 32.40.50.63.80

HOLLOW SHANK FOR HIGH SPEED

- ▶ Modern machining process often requires higher revolutions. The design of HSK hollow shank decreases weights by 40% compared with BT holders. With double face contact and high torque transmission in X and Z axis, HSK are ideal for high speed machining.



HSK-T (ICTM)

- ▶ The tolerance requirements for the key sizes on HSK-T machine spindles and tool holders are stricter to ensure the positioning accuracy of insert tips during turning process.



HIGH PRECISION

- ▶ Small-scale machining requires revolutions higher than 40,000rpm, small holders of high precision ensure the balance and concentricity for stable processing.



BLANK

- ▶ Make your own tool! HSK blanks allow users to process the shapes they want. Different diameters can be custom made.



PSC SERIES

ISO 26623-1



台灣精品 2012
TAIWAN EXCELLENCE

SPINDLE TYPE	FEATURES	AVAILABLE TAPER
▶ PSC	▶ TAPER 1:20 ▶ FORM ACCURACY $\pm 2\mu\text{m}$ ▶ SURFACE ROUGHNESS $R_a < 0.25\mu\text{m}$ ▶ DOUBLE FACE CONTACT	▶ PSC 32.40.50.63.80.80X

STRENGTHENED STRUCTURE

- ▶ PSC tooling system is in triangle curve form of polygon, adapting 1/20 tapered coupling structure for two-face positioning and clamping. There is no drive key, tool life can be extended.



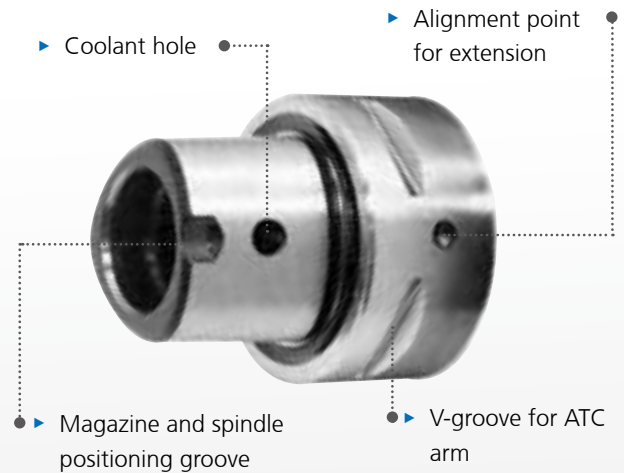
HIGH PRECISION

- ▶ The repeat precision of coupling structure in X, Y and Z directions is $\pm 2\mu\text{m}$, the total runout is $3\mu\text{m}$.



FEATURES

- ▶ Coolant hole
- ▶ Alignment point for extension
- ▶ Magazine and spindle positioning groove
- ▶ V-groove for ATC arm



HIGH TORQUE TRANSMISSION AND HIGH RIGIDITY

- ▶ Ultra-high torque transmission and bending strength of PSC tooling system increase production efficiency.

- ▶ High bending strength
- ▶ Double faced positioning and clamping.



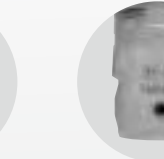
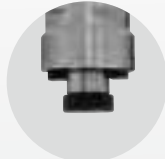
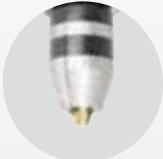
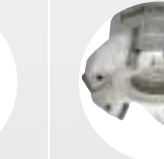
PROMOTE EFFICIENCY

- ▶ Quick tool change system is applicable for lathes, easy to operate and quick for changing tools. The modular design enhances machine utilization rate and decreases machine downtime.



QUICK TOOL
CHANGE
<30sec.

PRODUCT ACCESSORIES

COLLET TYPE					SHRINK TYPE	
						
PRO	PRO-E	UT	ER	SKX	SFC	MQL-SFC
DRAW BOLT TYPE			MILLING CHUCK	SYNCHRON	SIDE LOCK	
						
SBL	EBL	HBL	MLD	STA	SLN	
BORING TYPE			FACE MILL	DRILL CHUCK		
						
SCK	SBJ	SMB	FMA / FMB	SPU	GDCC	
BORING TYPE		FACE MILL CUTTER	INDEXIBLE CUTTER	TAPPING CHUCK	OIL HOLE	
						
SCA	CSR	SFMC	END MILL	QTC	OSL	

CFB CERAMIC FIBER BRUSH

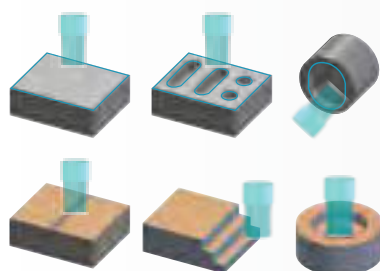


REMOVING CUTTER MARKS

SURFACE POLISHING

DEBURRING

CFB is hard bristle, suitable for processing surfaces and simple - shaped workpieces .

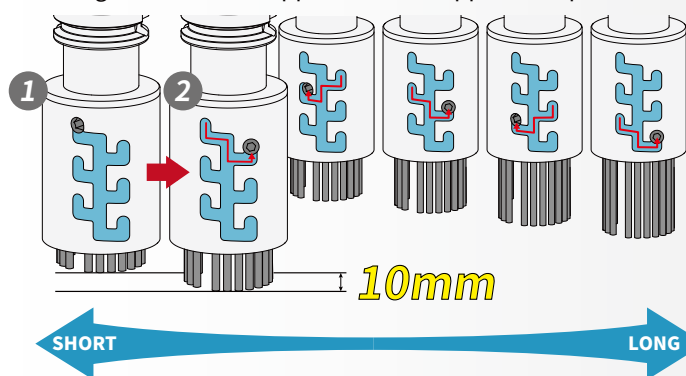


NEW

The brush can be replaced when it is totally worn out.

Patented Design:

The brush projection length is adjustable with interval of 10mm for truing worn brush or application of stepped workpiece.



Performance:

There are 6 types of brush granularity and each CFB Ceramic Fiber Brush can be assembled according to customer demands of granularity.

						POLISHING
DEBURRING						
#180	#250	#400	#700	#1000	#1200	
Brush Granularity						

INDUSTRY 4.0



It can process the material hardness up to HRC52 and materials, e. g. aluminum, copper, metals, nickel alloy and alloy steel.



TRUING & MAINTENANCE:

Diamond Dressing Board

When the brush is worn out, please use Diamond Dressing Board to grind the used brush off.



DMB DIAMOND BRUSH



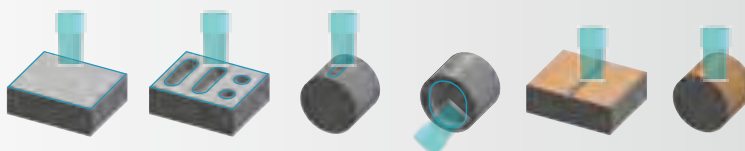
SURFACE POLISHING

NEW



1

- DMB is soft bristle, suitable for processing the inclined surfaces and irregular shapes of workpieces.



- The heat-resistant temperature of DMB diamond brush is within 180°C.
- Suitable for flood coolant.

2

- It is compatible with standard FMB face mill arbors.

INDUSTRY
4.0



Suitable for processing materials, e.g. aluminum, copper, metals, nickel alloy, alloy steel, carbide and hard material and the material hardness up to HRC60.



TRUING & MAINTENANCE:

Diamond Dressing Board

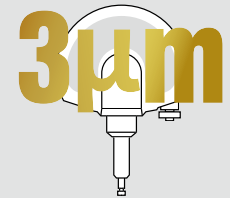
When the brush is worn out, please use Diamond Dressing Board to grind the used brush off.





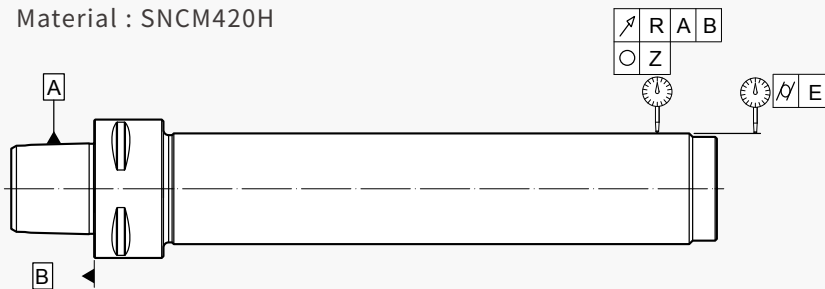
SPINDLE MASTER BAR

PRECISION TYPE



Regular inspection of machine spindles is an extremely important step to realize high precision machining!

Material : SNCM420H



TAPER SHANK PRECISION	AT2
ROUNDNESS	0.8μm
SURFACE ROUGHNESS	Ra < 0.15μm
RUNOUT ACCURACY	3μm
CYLINDRICITY	5μm

100% GUARANTEED PRECISION:

Every spindle master bar is inspected with high precision instrument and delivered with an inspection report. 100% quality guaranteed !

Part identifier: M1
Object:
Name:
*
L: 0.622 mm
L: Standard 0.5 μm
L: 0.300 mm
R: 0.305 μm
R: 0.2 μm
Rmax: 0.02 μm



■ What are the benefits of using Spindle Master Bar?



- 1 Optimal for checking machine spindle runout accuracy.
- 2 Checking spindle accuracy maximizes tool holder performance and increases productivity.
- 3 Ensures the machining precision and prolong the tool life.
- 4 Helps detect potential problems of spindle and saves downtime and costly repair cost.

Tool Holder Performance ↑

Tool Life ↑

Machining Productivity ↑

■ Recommendation of storage:

It's recommended to store in stock vertically to prevent deformation.

Every spindle master bar is delivered with an aluminum box for vertical storage.





PRO COLLET CHUCK



- ▶ Trapezoidal thread on the front increases the clamping stability of collet chucks and nuts.
- ▶ The design of straight parts above and below collet chuck threads enables closer contact with clamping nuts to achieve higher runout accuracy.
- ▶ Nuts are designed without slots to reduce the vibration caused by audio frequency of wind shear at high speed.
- ▶ Power Good nuts supply strong gripping force.

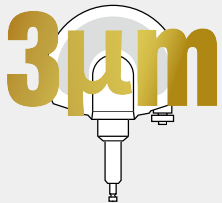


HIGH PRECISION

HEAVY DUTY MACHINING

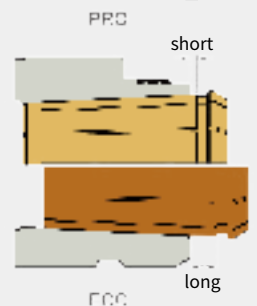
HIGH STABILITY

HIGH SPEED
G2.5 25000rpm



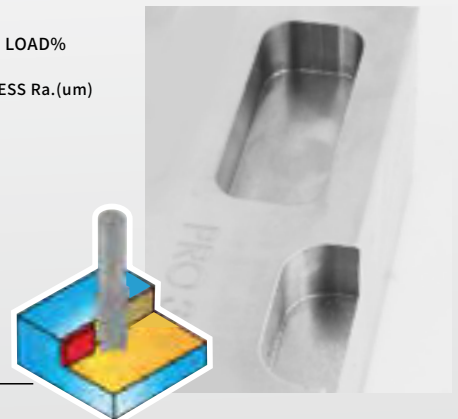
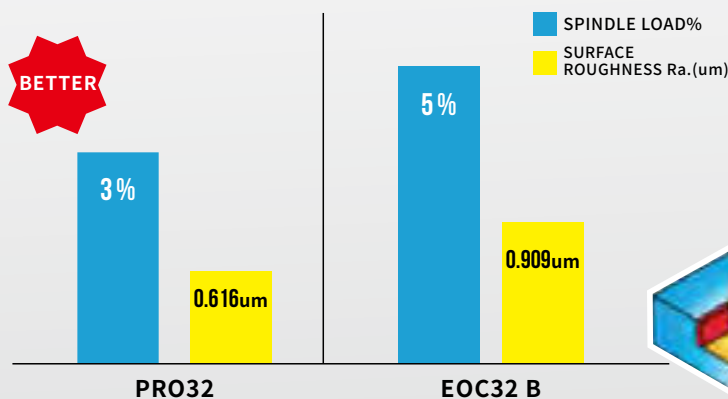
PRO COLLET

- ▶ Shortened collet gauge line allows better coverage inside tool holders to ensure machining stability.
- ▶ Long overall length offers more clamping length of tool shank than ER system.
- ▶ Self-locking tapers of collets create excellent clamping power.



SBT40 x PRO32-90 V.S SBT40 x EOC32-90

Helical milling
Machine: NSV102AM
Material: SUS304
S:4281rpm
F:2002mm/min
Ap:15mm
Ae:0.8mm



PRO-E COLLET CHUCK



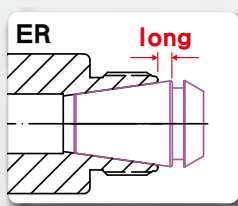
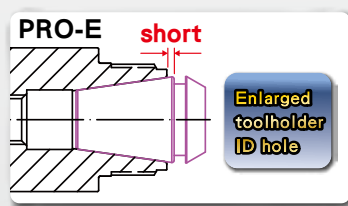
**Superior interchangeability with ER collets.
Optimized design improves machining stability.**



- ▶ The design of straight parts decreases the deviation of threads and improves accuracy.

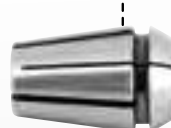


- ▶ The enlarged design of holder ID hole optimizes the coverage of ER collet, shortens the tool overhanging length and improves runout accuracy and machining stability.

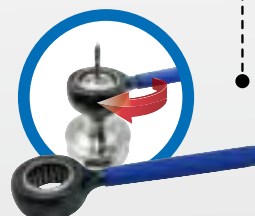


Clamping range of ER spring collet: 0.5mm

- ▶ Assembled with ER spring collet, ERS metallic sealed collet and ERS coolant collet (FOD).
- ▶ ER collets must conform to ISO 15488 standard.



- ▶ "Power Good" increases the holding power by at least 60%.



- ▶ The clamping nut is without slots for reducing the windshear and noise. The best choice for high speed machining.

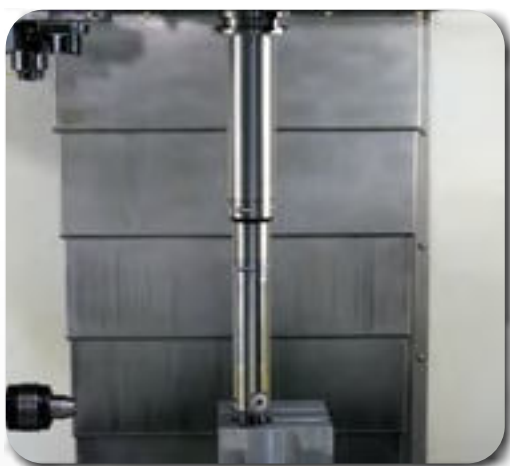
BUILT-IN DAMPING MECHANISM

SILENT DAMPING GENIUS

BORING SERIES



Silent Damping Genius is an anti-vibration technology for long overhanging and deep cavity operations.



- ▶ Silent Damping Genius equipped with damping mechanism eliminates vibration, improves workpiece surface finish, roundness, tool life, maintains spindle precision, and increases the overall production efficiency!

Set upright in stock



REMINDER

- ▶ The closer vibrating point gets to the damping mechanism, the higher damping effect will be.
- ▶ To maintain runout accuracy, all damping products need to be placed upright in stock.

SFC SHRINK FIT CHUCK

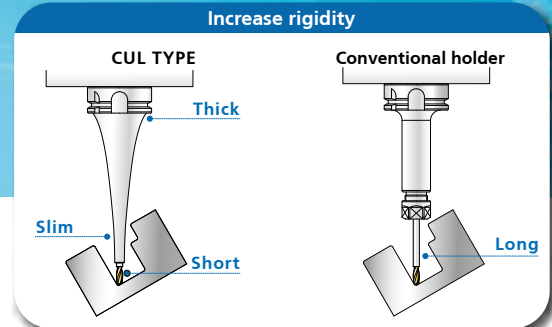
CUL TYPE / CP TYPE

Perfect design for 5-axis machining!

CUL TYPE CURVE LINE



Gauge length:
150~300mm,
6"~12"

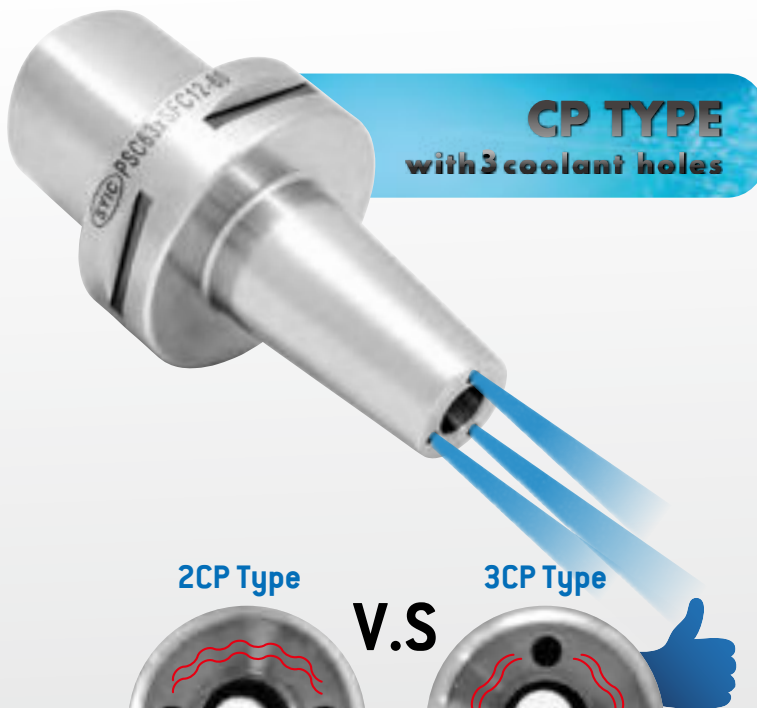


Increase rigidity!

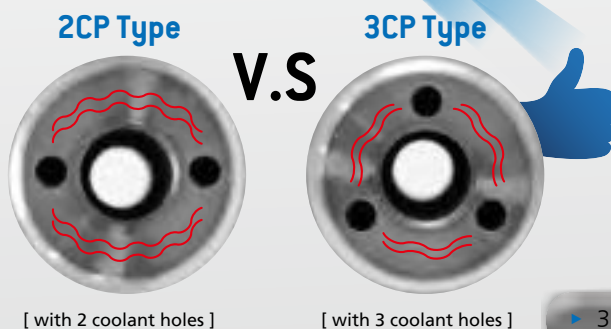
Avoid interference!

Prolong tool life!

CUL shortens the
overhanging length
of tool



- ▶ Coolant fluid from 3 coolant holes concentrates on tools, optimizing heat dissipation and chip evacuation, and ensuring better surface finish of workpiece.
- ▶ The CP type of 3 coolant holes allows internal holes to expand evenly free from deformation and maintain good runout accuracy, extending the use life of holder.



[with 2 coolant holes]

[with 3 coolant holes]



▶ CUL TYPE

▶ CP TYPE

▶ 3 coolant holes allow more even hole expansion!

MQL TECHNOLOGY

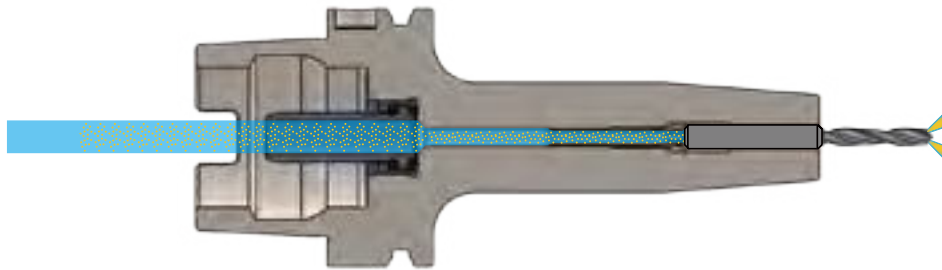
What is MQL?

MQL (Minimum Quantity Lubrication) is a near dry machining with compressed air stream and minimal quantity of oil lubrication in an aerosol format to the cutting surface.

MQL technology:

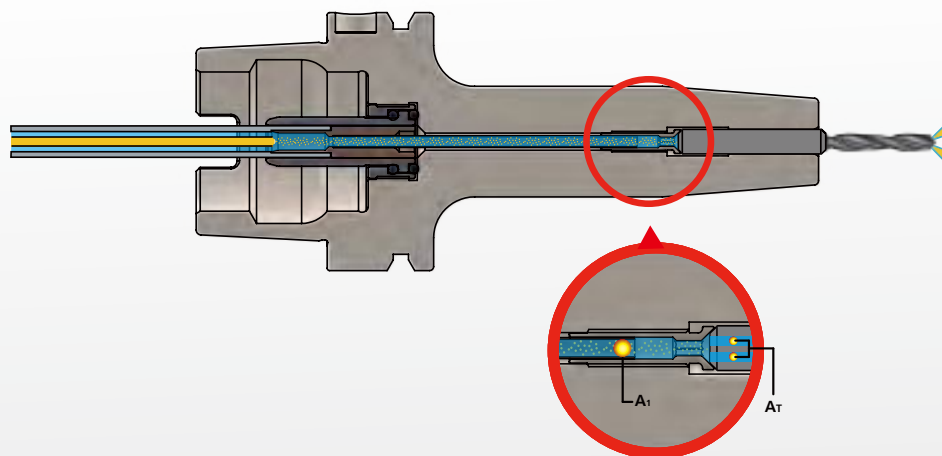
MQL-a type: 1 channel

The compressed air and oil lubrication are mixed before entering the machine spindle and delivered to the tool through machine spindle and tool holder.



MQL-b type: 2 channels

The compressed air and oil lubrication are delivered through 2 separate channels and mixed in the chamber and then delivered to the tool.



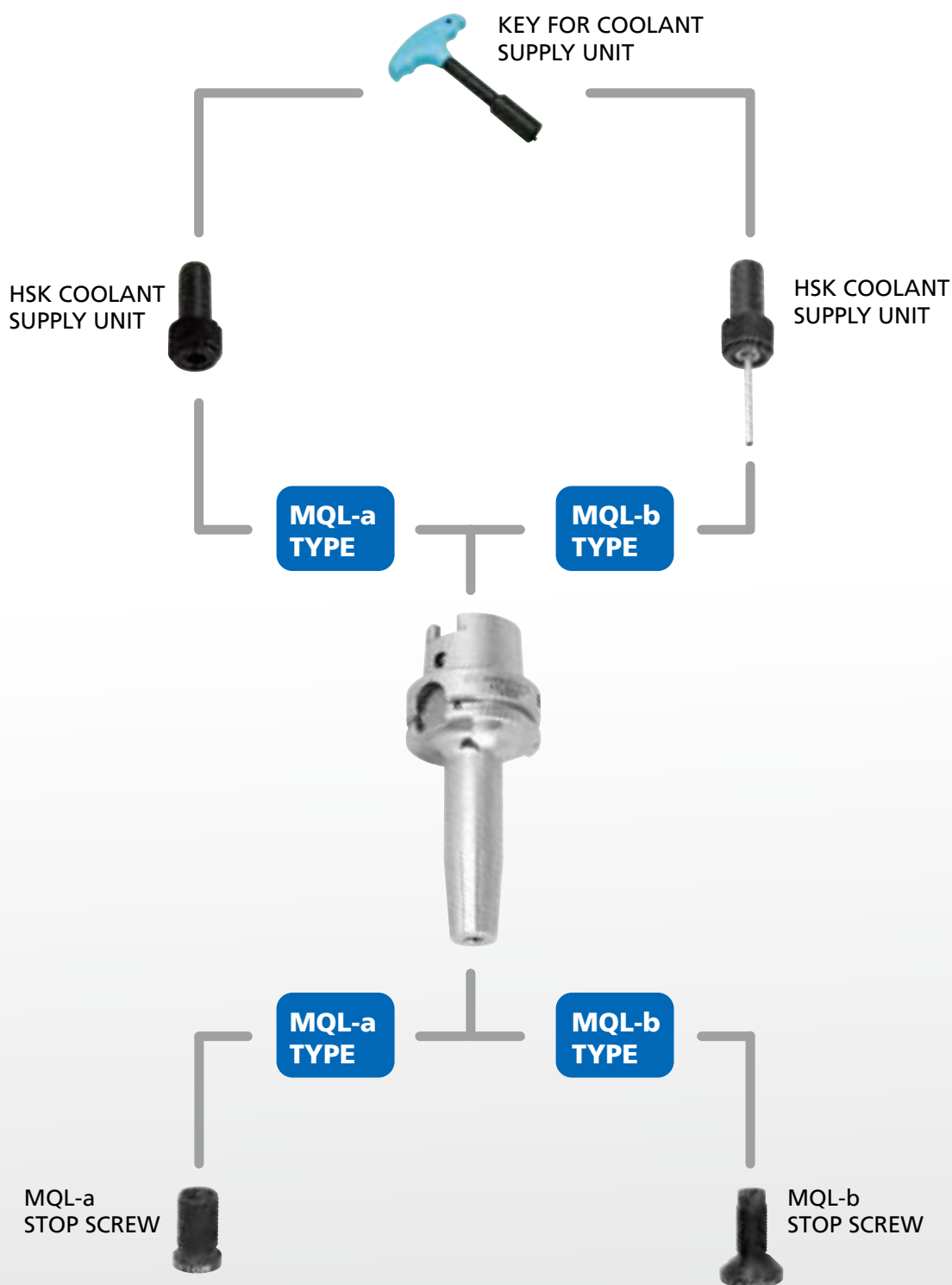
A_1 mm ²	A_T mm ²
2.01	0 ~ 1.6
4.15	1.4 ~ 3.0
9.08	2.5 ~ 6.5
16.62	5.5 ~ 16.6

$$1 \times A_T \leq A_1 \leq 4 \times A_T$$

When selecting MQL-b type shrink fit chucks, please note:

To ensure an optimal delivery of coolant fluid flow to the cutting edge, the cross-section ratio between the cross-section of coolant supply unit's pipe A_1 (mm²) and the sum of tool coolant channels' cross-section A_T (mm²) should be 1:1 to 4:1. It is recommended to use the combination with the ratio the closest to 1:1.

APPLICATION DIAGRAM



Reminder:

- Shrink Fit Chuck MQL-a Type and Shrink Fit Chuck MQL-b Type are assembled with stop screw and coolant supply unit as standard accessories. Shrink Fit Chuck MQL type is "the holder body" without any accessories, and the stop screw and coolant supply unit should be ordered "separately".

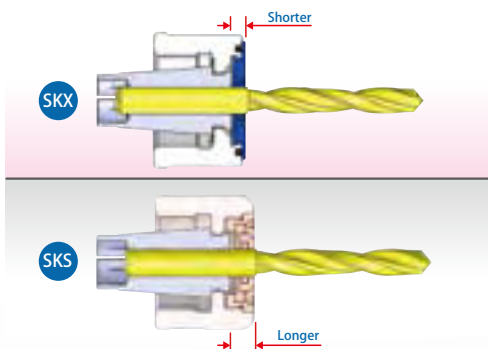
HIGH
SPEEDHIGH
RIGIDITYHIGH
PRECISION5 μ m

SKX COLLET CHUCK SYSTEM

- SKX sealed nuts and sealed caps are capable of coolant pressure up to 70 bar.



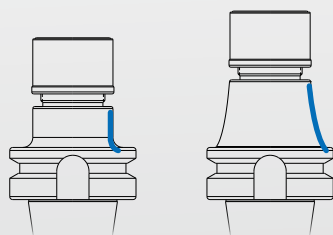
- Compared to other brand, shorter distance between sealed cap, sealed nut and collets allows shorter tool overhanging length.



- Special SKX sealed cap holes avoid the problem of slipping when fastening.



- Besides the standard design of straight neck, SKX tool holders of length over 120mm also have curved line design for better rigidity and less vibration.



- SKX tool holders and collets are exchangeable with other brands.

- The OD of SKX nut is the same with other brand, so it's workable with other brand spanners.



HIGH
SPEEDSHORTER
TOOL
OVERHANGING
LENGTHSLIM
DESIGN5 μ m

EBL SLIM-FIT COLLET CHUCK SYSTEM

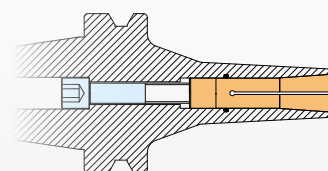
- ▶ Taper option: BT/SBT, CAT/SCAT, DAT/SDAT, HSK, PSC, ISO30 and straight shank.



- ▶ EBL collet is designed to have extended length which can shorten the tool overhanging length and improve the machining stability. EBL sealed collet is also available.

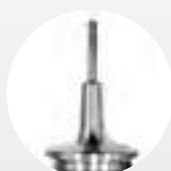


- ▶ The optimized design of thicker neck improves the machining rigidity and eliminates vibration.



▶ Comparison:

Cutting Data
Material: S45C
S: 4500rpm
F: 500mm/min
Ap: 12mm
Ae: 0.3mm



▶ BT40 x SBL6 - 70

SBL

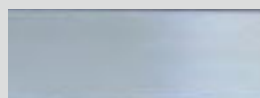


- ▶ Surface Roughness
Ra: 1.695 μ m



▶ BT40 x EBL6 - 70

EBL



- ▶ Surface Roughness
Ra: 0.216 μ m

Better

COMPENSATION
FOR
INACCURACY

BETTER TAP
USE LIFE

COOLANT
THROUGH



STA SYNCHRONIZED TAPPING HOLDER

- ▶ BT / SBT, CAT / SCAT, DAT / SDAT, HSK and PSC are available.

- ▶ Modular design: tap holder body with adapter is modular design, lowering purchase cost.

- ▶ The special structure design provides compensation for the axial inaccuracy when tapping, improving the thread surface roughness.



- ▶ If interference occurs, longer adapter can be custom made.

- ▶ Can be used for coolant-through tap.

- ▶ The tap use life is increased by at least 2 times compared to traditional tapping system.

Tap capacity

- | | |
|----------|----------|
| ▶ M3~M5 | ▶ M3~M16 |
| ▶ M3~M6 | ▶ M6~M18 |
| ▶ M3~M12 | |

QUICK CHANGE TAPPING CHUCK



QUICK CHANGE
TAPPING CHUCK

***with length compensation
on tension and compression**

- ▶ quick and easy tool change in second!
- ▶ Absorb any inaccuracies between the synchronous movement of the rotating spindle and the moving Z axis , increasing tap life and improving tapping quality.



TAPPING
COLLET

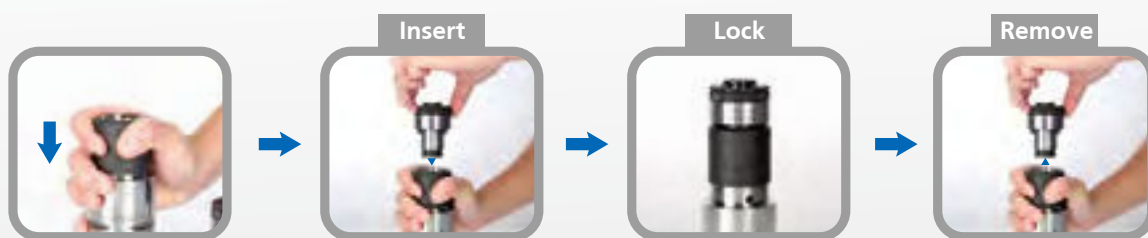
***with safety clutch mechanism**

To prevent tap breakage when higher torque is applied to a tap (Use with a Quick Change Tapping Chuck with length compensation)

Installing and Removing Steps:

Tapping chuck and tapping collet

- ▶ Pull down the sleeve of the tapping chuck.
- ▶ Insert tapping collet into tapping chuck and they are connected firmly.
- ▶ Pull back the sleeve of the tapping chuck to remove the tap collet.



Tapping collet and tap

- ▶ Insert a tap into the bottom of tapping collet and rotate the tap manually to connect them firmly.
- ▶ Push down the ball bush to remove the tap.



SBF RADIAL ZERO ADJUSTABLE HOLDER



Output options:

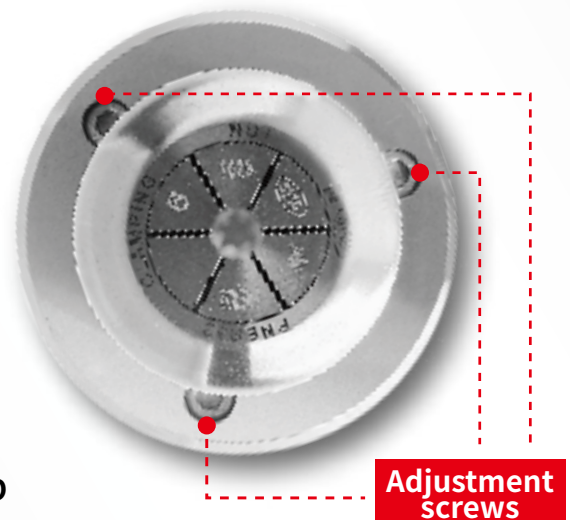
ER
PRO-E
PRO
SFC
SK3



SBF Radial Zero Adjustable Holder is applicable for spindles with deteriorating runout accuracy caused by many years use. It can compensate for the bad runout accuracy accumulated from machine spindle, tool holder and cutter, and adjust it to be $< 2\mu\text{m}$.

Runout Accuracy
 $< 2\mu\text{m}$

- ▶ Suitable for reaming and drilling.
- ▶ Improve the surface accuracy of workpiece.
- ▶ Ensure the machining stability in hole making.
- ▶ Compensate for bad runout accuracy generated from machine spindle, tool holder and cutter, adjust runout accuracy to be within $2\mu\text{m}$ and extend tool use life.
- ▶ Simple and quick to adjust by 3 screws.
- ▶ Center coolant through is available and can be up to 70 bar.



Adjustment screws

Taper options:



HSK



PSC



SBT



SCAT



SDAT

REAMING TEST



Machine: NSV102AM
Material: Aluminum
S=800rpm
F=286mm/min
Ap: 45mm



SBT40xSBF32PN-100

Perthometer M1	
Object Name	
#	
Lt	5.600 mm
Ls Standard	2.5 μ m
Lc	0.800 mm
Ra	0.800 μ m
Rz	4.42 μ m
Rmax	5.02 μ m



SBT40xPNER32-100

Perthometer M1	
Object Name	
#	
Lt	5.600 mm
Ls Standard	2.5 μ m
Lc	0.800 mm
Ra	1.110 μ m
Rz	5.33 μ m
Rmax	6.28 μ m



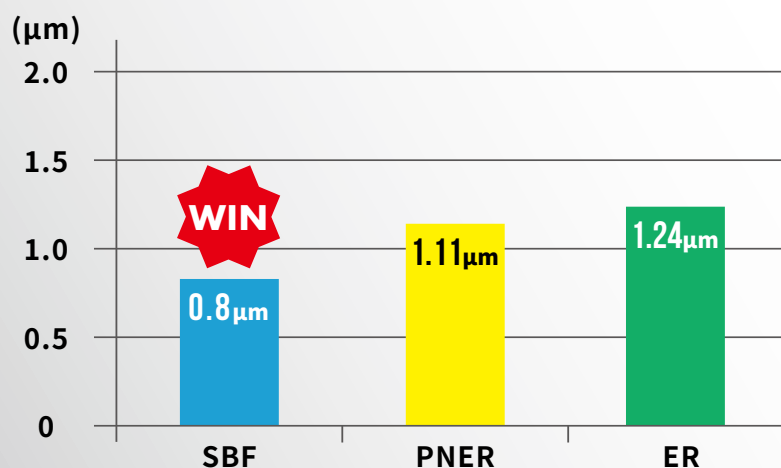
BT40xER32-100

Perthometer M1	
Object Name	
#	
Lt	5.600 mm
Ls Standard	2.5 μ m
Lc	0.800 mm
Ra	1.241 μ m
Rz	6.06 μ m
Rmax	7.17 μ m

↓ Test Result ↓

SBF Radial Zero Adjustable Holders surpass conventional tool holders in the performance of work piece surface finish!

COMPARISON OF WORKPIECE ROUGHNESS

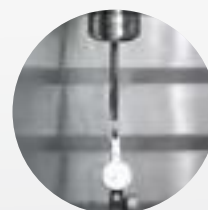


PRECISION
ADJUSTABLE<5 μ m

SAF RUNOUT ADJUSTABLE HOLDER



- Output choices: SK3, PNER, UT and SFC.

0 ~ 5 μ m

- BT/GBT, CAT/SCAT, DAT/SDAT, HSK and PSC are available.

- Drive axial and radial set screws for precision adjustment and the runout accuracy of the tool edge can be adjusted within 5 μ m.

POLYGONAL
TAPERRIGIDITY
IMPROVEDMODULAR
DESIGN

PSC ONE-PIECE BORING SYSTEM

- Use polygonal taper as coupling structure, achieving high torque transmission and rigidity.



- PSC one-piece boring head has high rigidity and is convenient to extend the length with PSC extensions.



- Modular design: applicable for different spindles with the converting of adapters and convenient to change different PSC one-piece boring heads.



BT ADAPTER



CAT ADAPTER



DAT ADAPTER



HSK ADAPTER



PSC ADAPTER



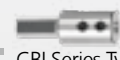
PCK ROUGH BORING HEAD



PBJ FINISH BORING HEAD



PMB FINISH BORING HEAD



CBI Series Type AC



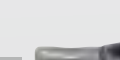
CBI Series Type SBJ



SBE EXTENDED BORING INSERT SEAT



BORING CUTTER



SIC-1



SIC-2



SIC-3

QUICK
TOOL
CHANGEHIGH
COOLANT
PRESSUREHIGH
PRECISION

PSC SYSTEM FOR LATHE (EXTERNAL SERIES)



PSC QUICK TOOL CHANGE SYSTEM FOR LATHE

- ▶ Conventional tool holders take longer time on tool change, PSC system saves time on tool change to increase the time for production.



Conventional Tool
Holders



New Tool Holders

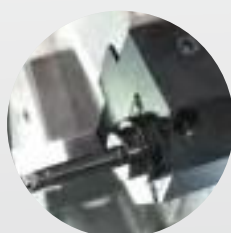
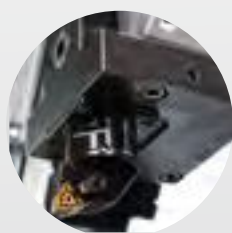
POLYGONAL TAPER (ACCURATE POSITIONING)

- ▶ Use polygonal form from PSC as the coupling structure to achieve ultimate repeated positional precision which is $\pm 2\mu\text{m}$.



DURABLE FOR HIGH PRESSURE COOLANT SUPPLY

- ▶ Use PSC system with high pressure coolant supply up to 130 bar can improve the efficiency and extend tool use life.



CUSTOM MADE AVAILABLE UPON REQUEST

- ▶ The designs and dimensions of turning tool posts are varied for different brands, the new quick change system of internal and external turning tools can be custom-made upon request.





PSC SYSTEM FOR LATHE (INTERNAL SERIES)



APPLICATION OF SHRINK FIT CLAMPING

- ▶ With PSC system, shrink fit chucks can be used to improve the clamping power and runout accuracy.



ONE-PIECE DESIGN OF INTERNAL TURNING TOOLS AND HIGH SPEED DRILLS

- ▶ With these tool holders, you can have better productivity and improved processing efficiency.



PSC SYSTEM



One-Piece Tool Post



One-Piece Tool Post



▶ 	PSC / MWLN	▶ 	PSC / DTJN	▶ 	PSC / MDJN
▶ 	PSC / SPD High Speed Drill	▶ 	PSC / SLN Side Lock End Mill Holder	▶ 	PSC / SFC Shrink Fit Chuck
Internal Boring Bar			▶ 		
▶ 	PSC / STUP	▶ 	PSC / SCLC	▶ 	PSC / SDUC
▶ 	PSC / ER Collet Chuck	▶ 	ER Collet	▶ 	ER Sealed Collet
				▶ 	Nut

LATERAL
MACHINING

360°
ADJUSTMENT

GEAR
RATIO
1:1

ANGLE HEAD HOLDER SERIES


Coolant
Supply

Coolant
Supply

台灣精品 2009
TAIWAN EXCELLENCE


SAM

- ▶ Light Machining
[Suggested $A_p \leq 2\text{mm}$]



SAC

- ▶ Middle Machining
[Suggested $A_p \leq 3\text{mm}$]

Coolant
Supply

台灣精品 2012
TAIWAN EXCELLENCE


SAR

- ▶ Heavy-duty Machining
[Suggested $A_p \leq 4\text{mm}$]

TYPE	INTERFACE	OUTPUT	MAX REVOLUTION	DIRECTION OF ROTATION	COOLANT OUTLET	MAX TORQUE	WEIGHT (KGS)
▶ SAM	BT/GBT 40.50 CAT/SCAT 40.50 DAT/SDAT 40.50 HSK63A.HSK100A	ER. SKS. SCA (Not Interchangeable)	4000rpm	Opposite to machine spindle	Through cutting tool or coolant nozzle	20 N-m	5.2 ~ 8.8
▶ SAC	BT/GBT 40.50 CAT/SCAT 40.50 DAT/SDAT 40.50 HSK63A.HSK100A	ER. SKS. Face Mill Cutter. PNER. SCA (Not Interchangeable)	3000rpm	Opposite to machine spindle	N/A	25 N-m	6.4 ~ 8.5
▶ SAR	BT/GBT 50 CAT/SCAT 50 DAT/SDAT 50	SBT30 Tool Holders PSC50 Tool Holders Face Mill Cutter. MLD TPYE (Not Interchangeable)	3000rpm	Same as machine spindle	Coolant nozzle	50 N-m	16.1


SAD

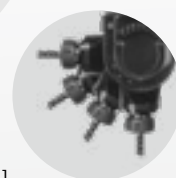
- ▶ Light Machining
[Suggested $A_p \leq 1.5 \text{ mm}$]


SAG

- ▶ Light Machining
[Suggested $A_p \leq 2 \text{ mm}$]


SAU

- ▶ Middle Machining
[Suggested $A_p \leq 4 \text{ mm}$]



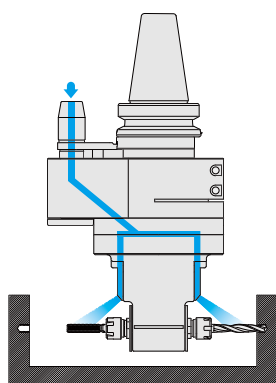
TYPE	INTERFACE	OUTPUT	MAX REVOLUTION	DIRECTION OF ROTATION	COOLANT NOZZLE	MAX TORQUE	WEIGHT (KGS)
▶ SAD	SBT30.40 HSK63A	EBL8. SKS10 (Not Interchangeable)	6000rpm	Opposite to machine spindle	N/A	10 N-m	2.6 ~ 3.8
▶ SAG	BT/SBT 40	ER11. SKS6 (Not Interchangeable)	6000rpm	Opposite to machine spindle	Coolant holes	10 N-m	5.5
		ER16. ER20. SKS13 (Not Interchangeable)				15 N-m	
▶ SAU	BT/SBT 50 CAT/SCAT 50	ER32	4000rpm	Opposite to machine spindle	Connect with two coolant pipes or coolant nozzle	40 N-m	21

REDUCING
PRODUCTION
COST

IMPROVING
EFFICIENCY

CONSERVING
TOOL
MAGAZINE
SPACE

SAG-D ANGLE HEAD HOLDER [FOR DUAL SIDE MACHINING]



- ▶ BT40/ BT50/ SBT40/ SBT50/ HSK63A are available.

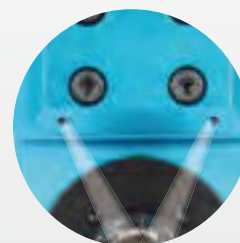
- ▶ Weight: 5.5kg, suitable for ATC system. The speed can reach 6,000 rpm.

- ▶ Gear ratio 1:1.

- ▶ Direction of rotation same as machine spindle.
- ▶ Cutting depth recommendation $\leq 2\text{mm}$.
- ▶ For tool shank dia.: 1~13mm.

- ▶ Max. coolant pressure: 7kgf/cm².

- ▶ Direction of rotation opposite to machine spindle.



ADJUSTABLE
BALANCECOOLANT
THROUGH1 μ m

SMU BLACK KNIGHT FINISH BORING HEAD



► The design of groove helps drain coolant fluid away and absorb vibrations.

► Coolant hole design can effectively remove the metal chips and durable for coolant pressure 1300PSI.



► Move the insert seat to the specific interval and then do micro-adjustment.



► Precision adjustment.

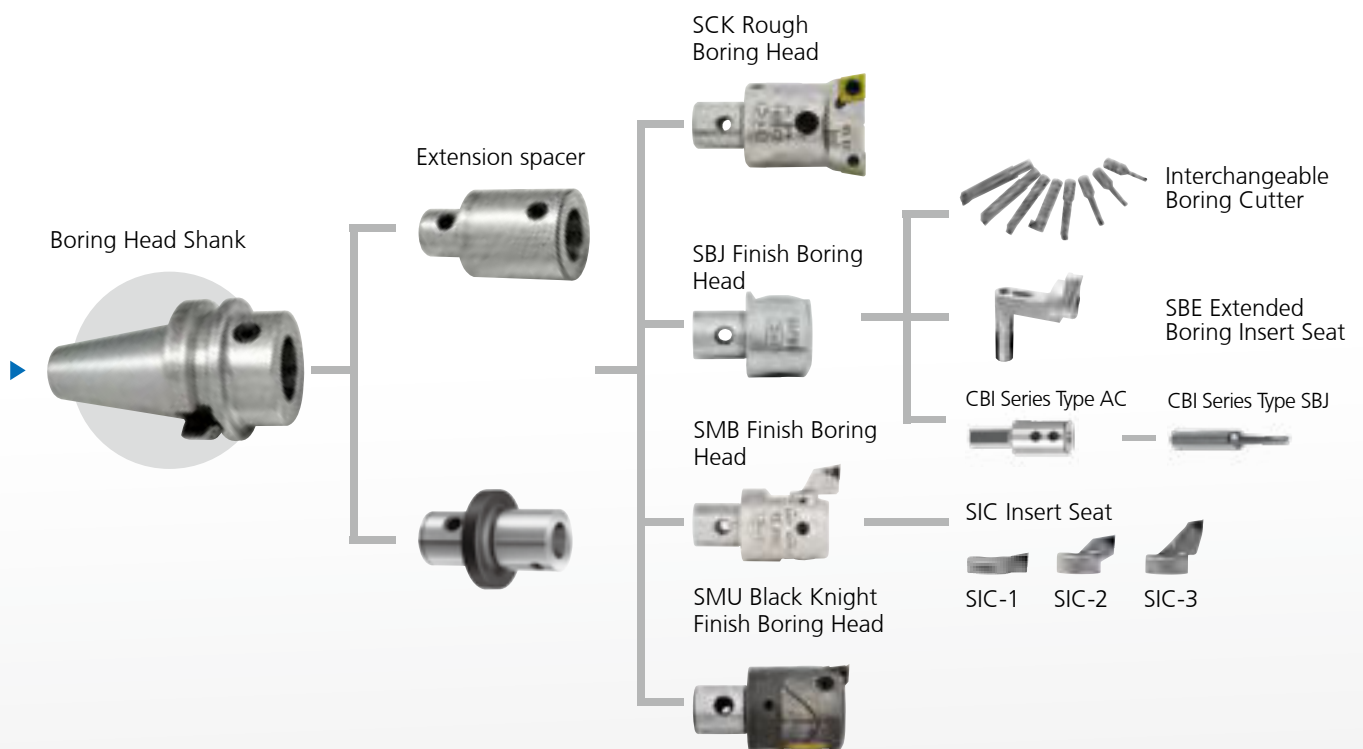


► Balance adjustment according to the boring diameter can be done; max. speed of revolution: 1,200rpm.

MODEL NO.	TYPE	BORING RANGE	SCK NO.
► 19590	SMU32	32~42	SCK3
► 19591	SMU41	41~54	SCK4
► 19592	SMU53	53~70	SCK5
► 19593	SMU68	68~100	SCK6

MODULAR
SCK SYSTEMHIGH
RIGIDITYHIGH
PRECISION

ROUGH BORING



ROUGHING TWIN ADJUSTMENT BORING HEAD

- ▶ Adjustment unit:
1mm on radius.



- ▶ Dual synchronous movement.



FINISH BORING

SBJ BORING HEAD FOR FINISHING

- ▶ One division for adjustment is 10μm on diameter.
- ▶ Not only work with boring bars, but also work with SBE extended boring insert seats for large diameters.



SUPER MICRON EXCHANGEABLE FINISH BORING HEAD

- ▶ Exchangeable insert seats offer various boring ranges.
- ▶ One division for adjustment is 10μm on diameter.



SIC-1



SIC-2



SIC-3

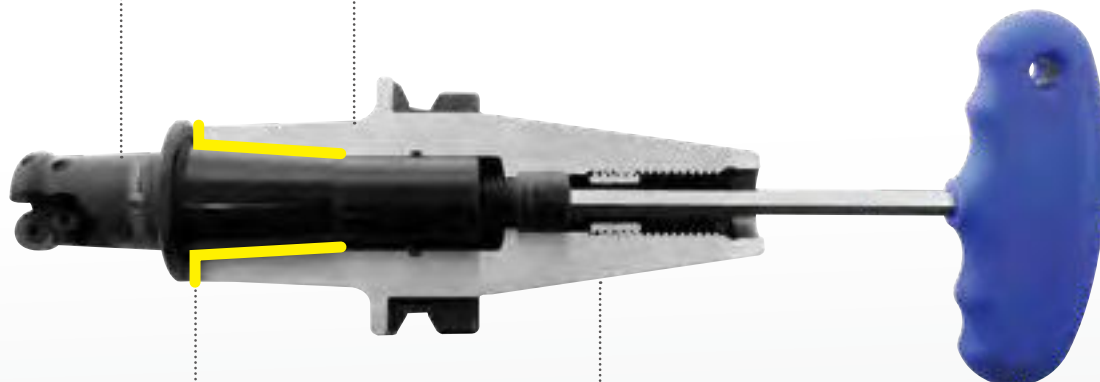
- MODULAR SYSTEM
- TWO FACE CONTACT
- DRAWBAR CLAMPING DESIGN

HBL COLLET CHUCK + HLB FACE CONTACT TYPE CUTTING TOOLS



▶ Modular design reduces the purchase cost of tool holder. Applicable for various kinds of processing.

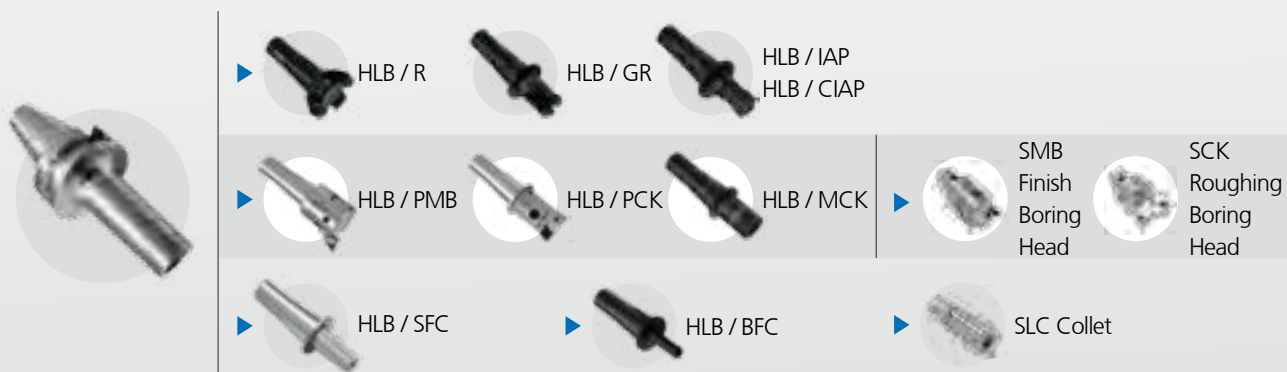
▶ HLB CUTTING TOOL-ONE PIECE DESIGN WITH SLC COLLET TAPER
Eliminate the gap between HLB cutter and HBL tool holder.
The taper of HLB cutter remains 4° slanted design, which improves holding power, concentricity and rigidity.



▶ Two-face contact between collet taper, collet flange and the end of HBL tool holder, increases the rigidity of machining.

▶ HLB drawbar clamping design strengthens the axial clamping force.

HBL & HLB SYSTEM





PNER & PTER COLLET CHUCK SYSTEM

FEATURES

- ▶ Standard balanced at G2.5 25,000rpm with inspection report.
- ▶ PNER collet is well covered in PNER tool holder, improving overall runout accuracy and the machining stability.
- ▶ PNER improves the surface finish of workpiece, reduces the total processing time, extends the tool use life and prolongs the durability of machine spindle precision. Therefore, PNER system reduces the total production cost and improves the efficiency.

▶ PTER:



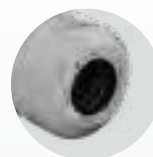
MINI TYPE



- ▶ PNER nuts without slots reduce the wind shear at high speed, avoiding tools from vibrating due to the audio frequency arisen by wind shear.



- ▶ There's a design of straight parts above and below the thread, which correspond to the nut, on the front of PNER tool holder. After the nut is locked with the tool holder it makes the tolerance more accurate which improves the runout of tool holder and machining stability.



- ▶ Use PNER coolant nut and SR sealed ring for coolant through cutters.

- ▶ Runout accuracy at 4D: within 0.003mm.



0.003 mm

4D



- ▶ Roundness < 0.6 μm
- ▶ Surface roughness Ra < 0.2 μm

- ▶ The tolerance requirement of tool shank diameter: h6

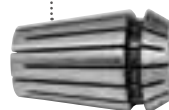
OVERALL
WELL-
COVEREDHIGH
STABILITYHIGH
CLAMPING
POWER

UT COLLET CHUCK SYSTEM

- ▶ The design with O-ring on the front of holders prevents chips and coolant from entering holders.



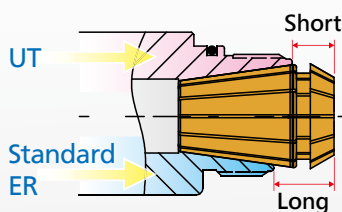
- ▶ Use with standard ER collet for specific diameter.



- ▶ The design of UT nuts without slots reduces the wind shear during high speed machining and avoids vibration, which need to use with roller bearing wrenches.



- ▶ The deeper gauge lines accommodate standard ER collet in holders more, achieve better coverage, and increase stability.



▶ Cutting Data

Tool Holder BT40 x UT20 - 100

Collet ER20-8mm

8mm End Mill Cutter

Material SKD61

S: 3100rpm

F: 600mm/min

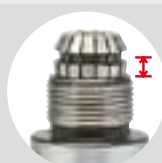
Ap: 15mm



UT

- ▶ Surface Roughness
Ra: 0.654μm

Better



Standard ER

- ▶ Surface Roughness
Ra: 1.039μm





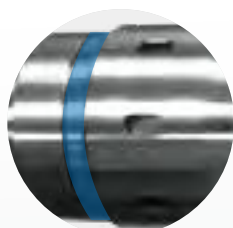
MLD MULTI-LOCK MILLING CHUCK SERIES



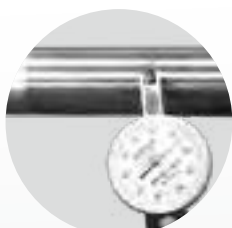
HIGH RIGIDITY AND DUST PROOF

- ▶ After clamping tools (the requirement of shank tolerance is less than h6), the nut and the flange contact firmly to prevent the needle bearing cage from deforming, rigidity is increased and achieves the function of dust proof.
- ▶ Featured with high precision and easy-to-fasten, vibrations do not occur in high speed machining or heavy duty machining.

RUNOUT ACCURACY WITHIN 5μm



- ▶ After fastening, the nuts and tool holders contact tight to enhance the cutting rigidity and achieve dustproof purposes.



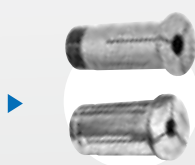
- ▶ Runout accuracy within 5μm at 4D length.

NEEDLE BEARING CAGE

- ▶ Special slotted design of internal hole increases the clamping force and decreases vibration. Suitable for heavy-duty machining.



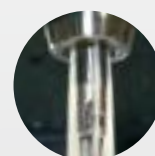
MLD SYSTEM



COLLET



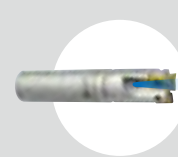
GENERAL TOOL



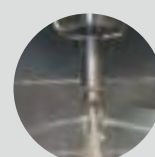
SEALED CAP



COLLET



COOLANT THROUGH TOOL



DIFFERENT
HARDNESSCUSTOM
MADE

BLANK SERIES



MAKE YOUR OWN TOOL

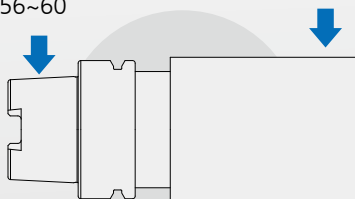
- ▶ Blanks allow users to process the shapes they want.



- ▶ Available Taper:
BT, CAT, DAT, SBT, SCAT, SDAT,
HSK, PSC

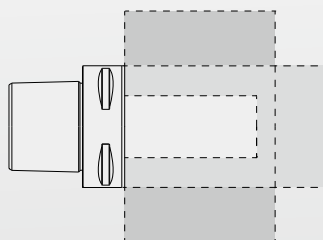


DIFFERENT HARDNESS POSSIBLE

Hardness of Taper:
HRC 56~60Hardness of Blank:
HRC 25~30

CUSTOM MADE ACCEPTED

- ▶ Different sizes can be custom made on request.
- ▶ Take PSC63 for example:



HIGH
SPEEDWITHOUT
KEY-WAYHIGH
PRECISION

SMALL TOOL HOLDER



FEATURES

- ▶ 7:24:
ISO 15, 20, 25, 30, 40
BT 30, 40
DAT 30, 40
- ▶ HSK:
HSK 25, 32, 40
- ▶ Without key-ways.
- ▶ Light cutting.
- ▶ While tool change, spindle needn't be positioned.

ER COLLET CHUCK (M TYPE)



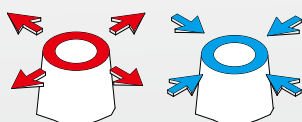
Clamping
power
improved by
60%!

SBL SLIM-FIT COLLET CHUCK

- ▶ Collet chuck designed w/o nut and with inner-holding collet.
- ▶ Strong rigidity & high stability!



SFC SHRINK FIT CHUCK



- ▶ Slim design avoids interference.

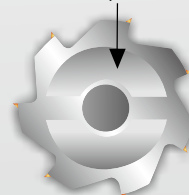


FACE MILL ARBOR & FACE MILLING CUTTER



- ▶ Shrink Fit Face Milling Cutter

No Gap

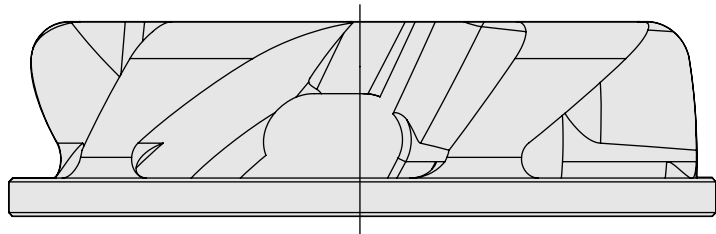


Reduced vibration &
faster feed, speed &
productivity. Longer tool
& insert life!

GOOD
DUST
REMOVALFOR
WOOD
WORKING25,000
rpm

FNER FAN NUT

FEATURES

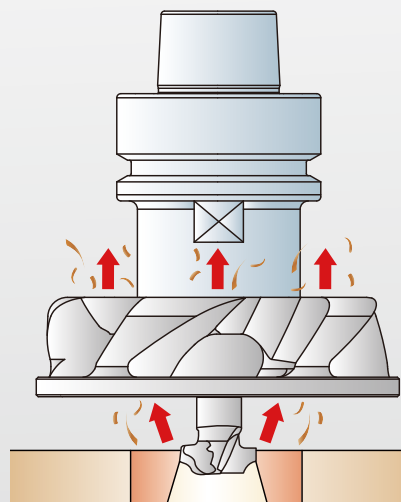


- ▶ Special design of fan blade shape facilitates dust removal to 99.8%.
- ▶ Improve the evacuation of wooden dust, extend tool life and increase efficiency.
- ▶ Can be used for standard ER collet chucks, easy to operate.
- ▶ The special surface treatment of POWER GOOD nut enhances the clamping force.
- ▶ Decrease the wooden particle in the air to maintain a healthy working environment.
- ▶ Balanced to 25,000RPM at G2.5.

ILLUSTRATION

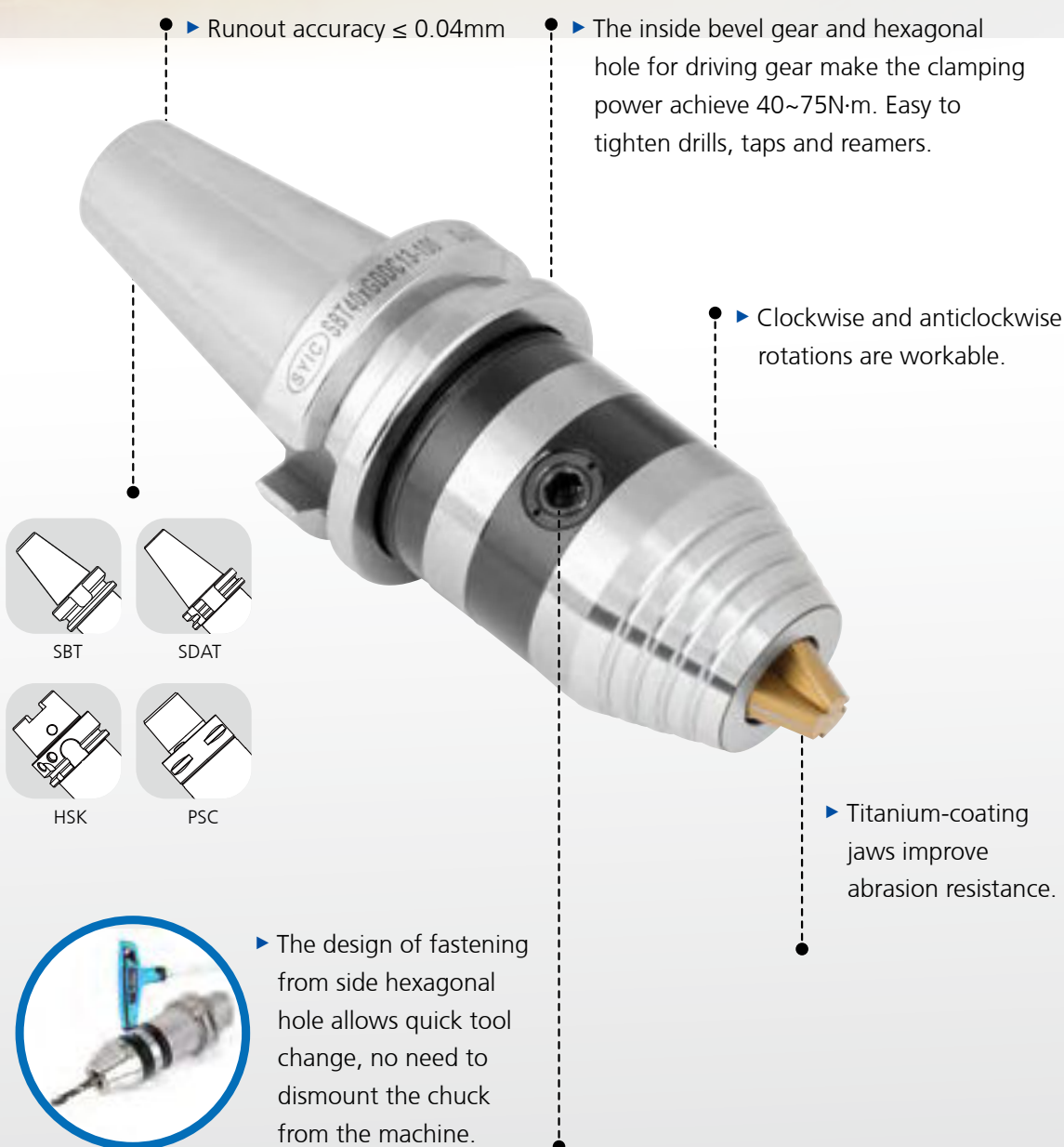
- ▶ The wood dust was lifted up through the blades.

TYPE
FN-ER32-B
FN-ER40-B
FN-EOC25



GDDC GEAR DRIVING DRILL CHUCK

Quick tool change! Time-saving & labor-saving



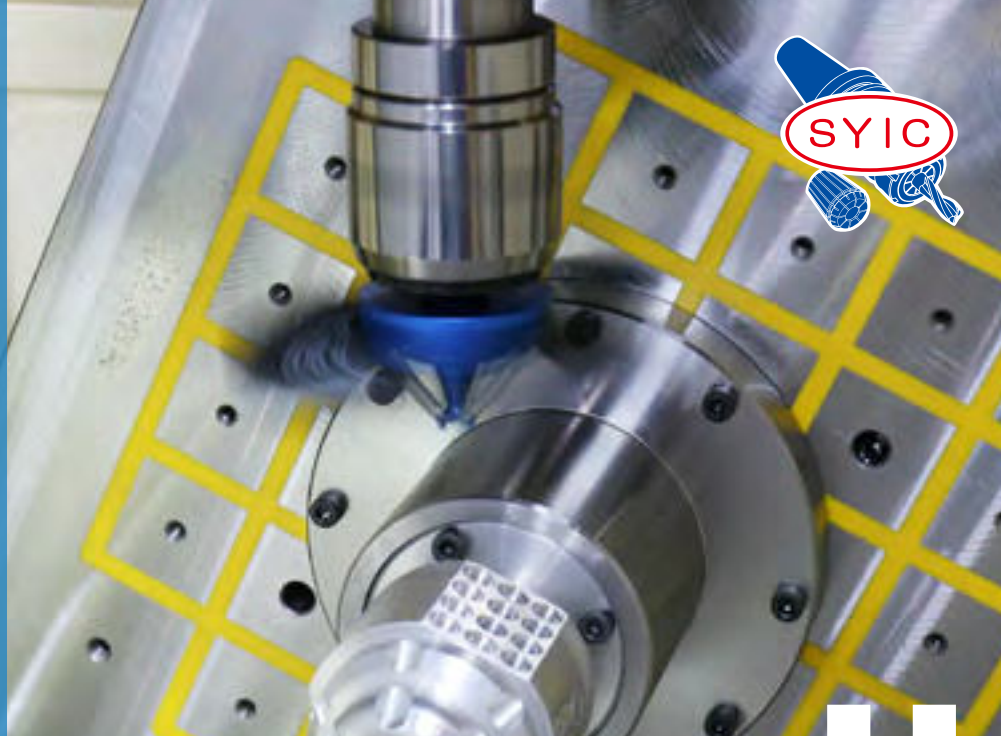
CHIP REMOVER



Automatic chip cleaning

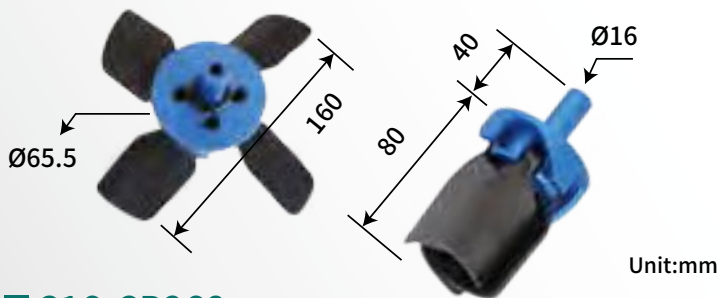
Center coolant through

Improve workplace safety

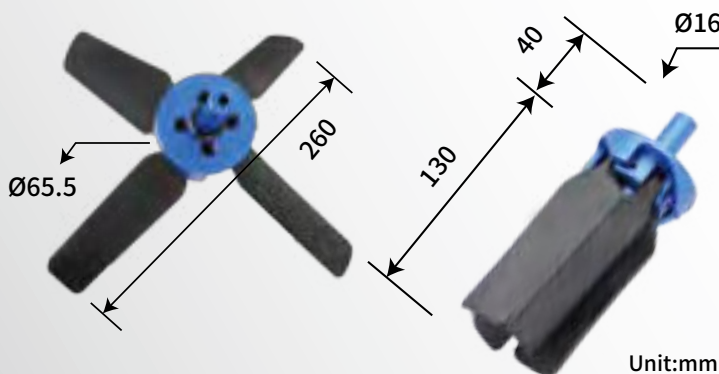


Cleaning metal chips and coolant is no more a nightmare!
Automatic cleaning saves labor, time and improves workplace safety.

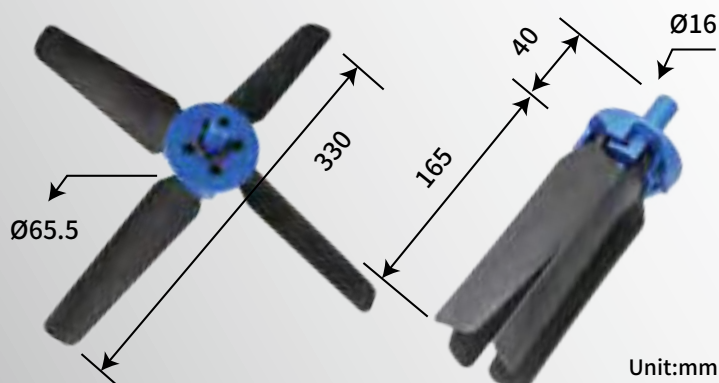
■ C16-CR168



■ C16-CR268



■ C16-CR338



Model No.	332.16.168
Specification	C16-CR168
RPM recommendation	Min. 7000 /Max. 12000rpm
Rotation Direction	Clockwise
Distance between open wings and metal chips & fluid	100~150mm
Feed rate recommendation	1000~3000mm/min
Net weight	0.18kg

Ideal for small machine with few chips and coolant.

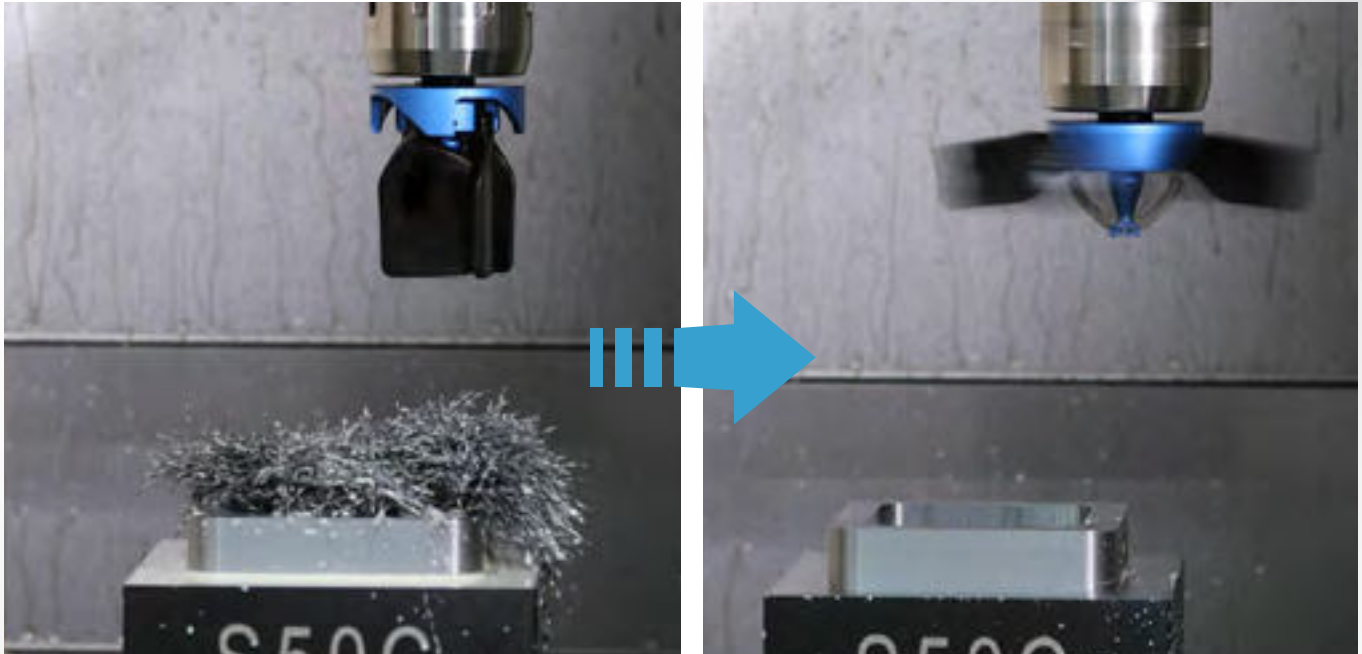
Model No.	332.16.268
Specification	C16-CR268
RPM recommendation	Min. 5000 /Max. 8000rpm
Rotation Direction	Clockwise
Distance between open wings and metal chips & fluid	100~150mm
Feed rate recommendation	3000~15000mm/min
Net weight	0.2kg

Ideal for medium machine with a large number and hard-to-remove metal chips.

Model No.	332.16.338
Specification	C16-CR338
RPM recommendation	Min. 4000 /Max. 7000rpm
Rotation Direction	Clockwise
Distance between open wings and metal chips & fluid	100~150mm
Feed rate recommendation	3000~15000mm/min
Net weight	0.22kg

Ideal for big machine with a large number and hard-to-remove metal chips.

Before vs. After



- 1 Use with collet chucks, the shank is 16mm.
- 2 Suitable for vertical and horizontal machine centers.
- 3 Cleaning by automation saves labor, increases productivity and assures workplace safety.
- 4 Capable of center coolant through, removing metal chips and coolant effectively.
- 5 Pre-shipment inspections are performed to ensure product reliability.



Caution!

- ▶ During operation, metal chips and coolant will be scattered, chip removers must be used in a completely closed and fully covered machine.
- ▶ Use center coolant supply only when chip remover stops rotating.
- ▶ Please strictly follow the revolution recommendation in Model specification table. Never exceed the limit of max. RPM.
- ▶ Please use suitable collets for clamping chip remover shank (16mm). Worn and damaged collets should be changed immediately to avoid hazard caused by defective clamping.
- ▶ The heights and diameters are varied from folded wings and open wings when chip remover is stopped and initiated. Please keep safe distance from the workpiece when the chip remover stops and rotates.
- ▶ To maintain the product functionality and safety do not disassemble, reassemble or modify chip remover.

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