

Smartbore

Smartbore Cartridges
Smartbore Nano Boring Head
Smartbore Built-in Assembly

RIGIBORE® Innovation Technology and Quality in **Design and Manufacture**



RIGIBORE

Smartbore

Smartbore is available built-in, as a cartridge based solution or as Smartbore Nano boring head for small hole boring

Tooling Summary

- Precise adjustment to $1\mu\text{m}$ / $0.00004''$ on diameter
- Easy to read digital adjustment display.
- Optional remote display device
- Allows multiple Smartbore cutting edges per tool
- Minimum bore size: $28\text{mm}/1.1''$ on diameter for cartridge, $16\text{mm}/0.63''$ if built in (with adjusting slide incorporated into boring bar)



Smartbore Nano

Rigibore Smartbore Nano allows the use of Rigibore Smartbore technology on Small hole boring operations. Able to bore holes down to 0.5mm in diameter. Precision adjustment of 0.001mm on small hole boring operations, with no unclamping or tool adjustment required.

The boring head, which has been tested extensively against competitors, does not require any clamping after the adjustment has been made.



Once set using a standard Smartbore Adjuster the boring head is ready to cut. The Smartbore Nano boring head has a rigid zero backlash design which allows fast setting and micron adjustment in the machine spindle. The digital display is on the Smartbore Adjuster. This means that the sensitive electronics and batteries are kept outside the working environment, making the unit more cost effective and lower risk.

Smartbore Adjuster (Digital Torx Wrench)

The Smartbore adjuster allows micron accurate adjustments to be made to a cutting tool without removing it from the machine spindle.

Key Features

The adjustment type can be toggled between radius and diameter and can use either metric or imperial measurements. There is a simple menu system built in to the wrench to allow you to select your preferred adjustment or measurement value.

The adjustment indicator displays the precise change in the position of the cutting edge as the unit is adjusted.

The screen provides a graphical representation of the current adjustment position within the physical adjustment range of the cartridge and the unit will output a warning message if the operator has tried to adjust the cartridge outside its 0.30mm adjustment range.



Smartbore Cartridges

Smartbore cartridges are available in various sizes and styles from taking an 06 CC style insert to taking a 16 TC style insert. The cartridges taking size 06, 07 and 11 inserts are available both right and left hand. The larger cartridges taking size 12 and 16 inserts and designed for large hole boring are available in right hand only.



Excellent Repeatability & Rigidity

Smartbore cartridges demonstrate excellent repeatability and rigidity thanks to an adjustment mechanism that incorporates a constantly applied preload. They are self contained and derive power directly from the adjuster (digital torx wrench).



Smartbore Cartridges

Supports high-precision finishing and semi-finishing applications; offers a more accurate method of adjustment on the machine spindle

Use the Smartbore adjuster to plug in to the Smartbore cartridge, rotate the adjuster handle to make your adjustment and retract from cartridge

Accurate to just 1 micron; fast, easy adjustment using our digital torx wrench

Ease and accuracy of adjustment

Reduces time pre-setting

Single or multi-point cartridge systems

Feature any number of Smartbore cartridges per tool

Easily replaceable cartridges

If the cartridge gets damaged you just replace the cartridge and not the complete tool!

Excellent repeatability and rigidity

A consistent preload maintains accuracy in the toughest of applications

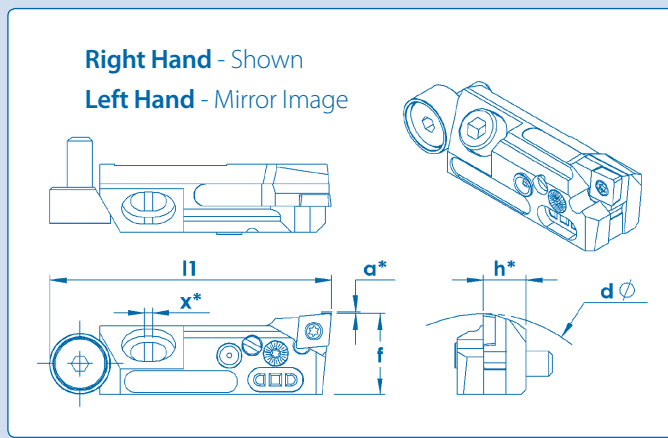


* Minimum bore: 28mm (cartridge) 16mm (built-in)

Smartbore Cartridges Technical Specification

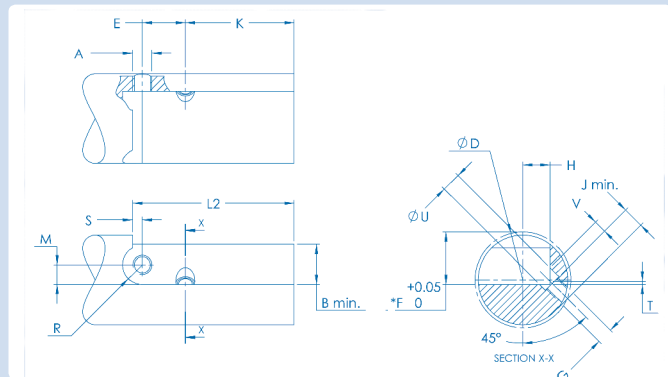
	Part Number	D (Min Bore ø)	f	L1	Insert	Datum Rad
		mm	mm	mm		mm
<p>SB-UFP0695</p>	SB-UFP0695 SB-UFP0695LH	28.0	16.0	55.5	CC..0602..	0.4
<p>SB-UFP07120</p>	SB-UFP07120 SB-UFP07120LH	28.0	16.0	58.5	DC..0702..	0.4
<p>SB-UFP1195</p>	SB-UFP1195 SB-UFP1195LH	36.0	20.0	55.5	TC..1102..	0.4
<p>SB-UFP1290</p>	SB-UFP1290	75.0	32.0	107.0	CC..1204..	0.8
<p>SB-UFP1690</p>	SB-UFP1690	75.0	32.0	107.0	TC..16T3..	0.8

Smartbore Cartridges Technical Specification



- **a***: 0.3 Adjustment on all UFP's Adjustment = 0.005mm per division on diameter
- **h***: 8.5 on UFP 06-11
- **h***: 18.0 on UFP 12-16
- **x***: 1.0 on UFP 06-11
- **x***: 1.6 on UFP 12-16

Smartbore & UFP Mounting Dimensions



No machine spindle modification required. Smartbore bars can be carried in a standard magazine and tool management system.

Smartbore cartridges are easily replaceable.

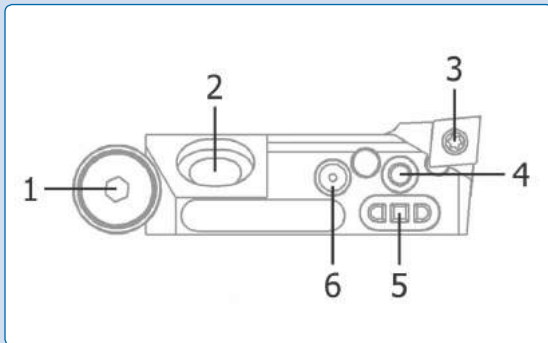
UFP	A	B (min)	H	L2	R	S	K
	mm	mm	mm	mm	mm	mm	mm
Standard	M5 x 0.8	12.5	8.5	47.5	6.1	3.0	34.0
Large	M8 x 1.25	24.6	18.0	98.0	10.1	3.0	63.0

UFP	G	T	U (diam.)	V	J (min)	E	M
	mm	mm	mm	mm	mm	mm	mm
Standard	M5 x 0.8	1.0	6.0	4.0	5.0	13.5	6.1
Large	M10 x 1.5	1.4	11.0	8.0	10.0	32.0	10.0

Smartbore Spares and Accessories

UFP	Clamp Screw	Hexagon Wrench for Clamp Screw	Axial Adjusting Screw	Axial Wedge	Insert Screw	Torx Wrench for Insert Screw	Grease Gun	Hexagon Wrench for Axial Screw	Torx Wrench for Adjustment Screw	Smartbore Adjuster	Smartbore Battery Recharger
Standard	WS360	R58	WS359	WP311	RS2560	R37		R48			
Large	WS1035	R108	WS830	WP411	RS40120	R87 R77	UFPG_00	R88	R57 (T10)	SB-ADJ187	SB-CHR07

Smartbore Cartridge Technical Information



1. Axial adjustment (1 mm) by wedge component

(Use screw/wedge WS359/WP311)

2. Use clamping screw WS360 (5-6 Nm)

3. Use insert screw RS2560 (RS2055 for WC insert)

4. Micron adjustment (use Smartbore adjuster)

0.001 mm on diameter

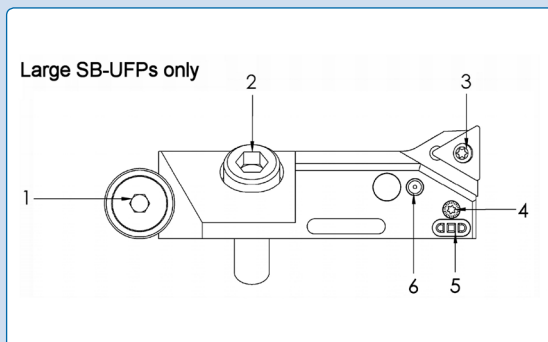
Radial adjustment 0.3 mm

5. Smartbore electronic interface

The internal electronic transducer is activated when the Smartbore adjuster is connected

6. Lubrication point

Lubrication with a high quality teflon based grease should be used in accordance with the maintenance schedule overleaf.



1. Axial adjustment (1 mm) by wedge component

(Use screw/wedge WS830/WP411)

2. Use clamping screw WS1035

3. Use insert screw RS4084 (RS40120 for CC12)

4. Micron adjustment (use Smartbore adjuster)

0.001 mm on diameter

Radial adjustment 0.3 mm

5. Smartbore electronic interface

The internal electronic transducer is activated when the Smartbore adjuster is connected

6. Lubrication point

Lubrication with a high quality teflon based grease should be used in accordance with the maintenance schedule overleaf.

Smartbore Cartridge Maintenance

ActiveEdge and Smartbore cartridges require regular maintenance to ensure optimal performance and durability, especially when machining cast iron.

The greasing process is designed to flush out small chips and machining dust that may build up in the cartridge mechanism.

Grease should be pumped into the cartridge until it emerges clean from around the slide.



Recommended Greasing Intervals

Material/Usage	Heavy	Medium	Light
Ferrous (cast iron) - no coolant	3/week	2/week	1/week
Ferrous (cast iron)	2/week	1/week	1/week
Ferrous (steel)	1/week	1-2 weeks	1/month
Non-ferrous	1-2 weeks	1/month	6/year

The correct operation and micron accuracy of the adjustment will be negatively affected unless the above schedule is adhered to

Smartbore Nano

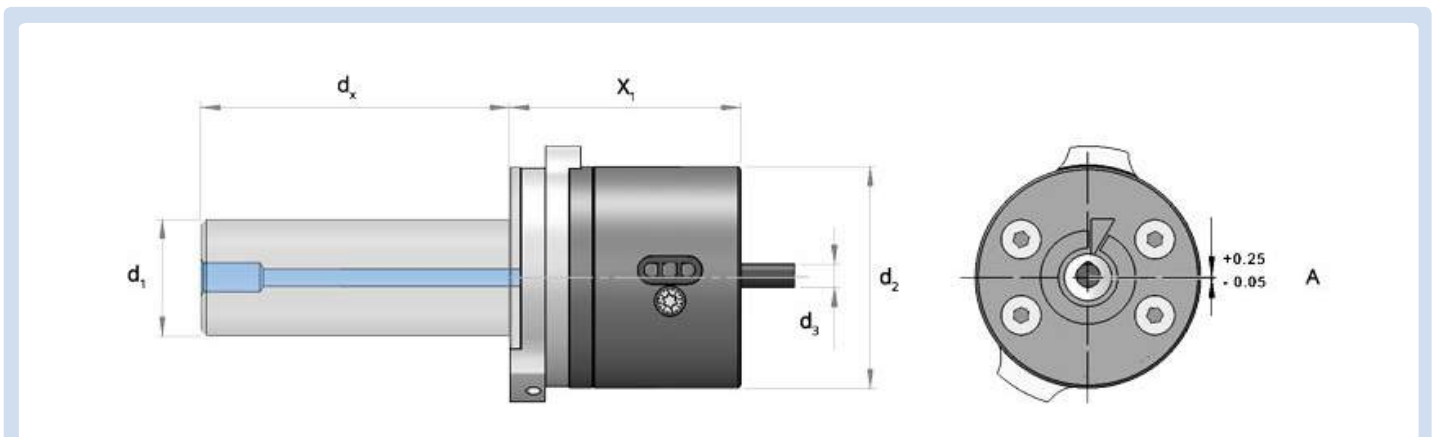
Fine boring head with digital adjustment and no clamping

Key Features

- 0.5 - 16mm boring diameter
- Accurately adjustable to within 0.001mm on diameter
- Digital adjustment at machine with Smartbore adjuster
- Pre-loaded clamp-free adjustment system
- Adjustable weights for fine balancing
- Screen and other electrical items including the power source are in the adjuster not the head - zero down time
- Lower cost on multiple boring heads



Rigibore Smartbore Nano Head Specification



Boring Head	d1	d2	d3	X1	A	kg
SB-FBH500160	20.0mm	48.0mm	4.0-8.0mm	50.0mm	0.5-16.0mm	0.890

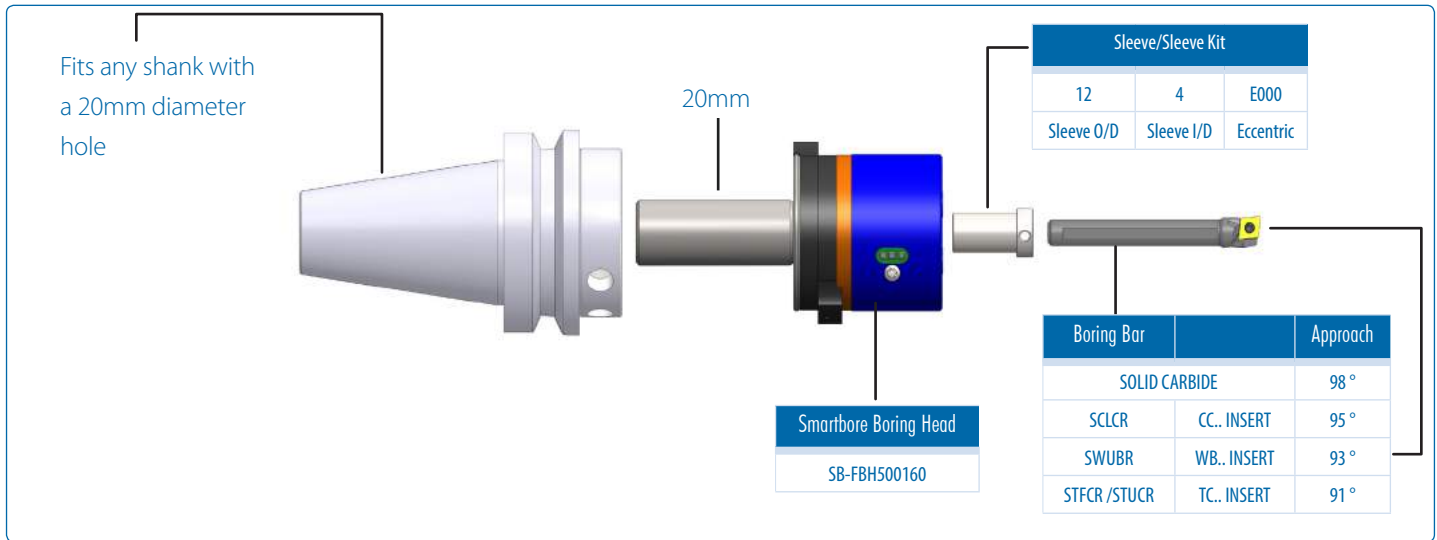
Rigibore Smartbore Nano Adjuster

Adjuster
 SB-ADJ107 – Standard Adjuster & Recharger
 SB-ADJ807 – 180° Revolving Adjuster & Recharger

Adjustment displayed in microns

Boring head
No clamping

Rigibore Smartbore Nano Components



Rigibore Smartbore Nano Components Boring Bars/Sleeves

Range	Max Bore Depth	Kit Part Number Solid Carbide Boring Bar
0.5-1.0	3	SB-FBH0510
1.0-1.5	4	SB-FBH1015
1.5-2.0	7	SB-FBH1520
2.0-2.5	9	SB-FBH2025
2.5-3.0	12	SB-FBH2530
2.0-3.5	14	SB-FBH3035
3.5-4.0	14	SB-FBH3540
4.0-5.0	17	SB-FBH4045

PART SELECTION TOOL AVAILABLE

www.rigibore.com/en/smartbore-nano/ordering

Range	Max Bore Depth	Sleeve Kit	Insert
5.0-6.0	24	SB-FBH5060	CC..03S102
6.0-7.0	30	SB-FBH6070	
7.0-8.0	36	SB-FBH7080	CC..04T002
8.0-9.0	42	SB-FBH8090	
9.0-10.0		SB-FBH90100	
10.0-11.0	48	SB-FBH100110	CC..060202
11.0-12.0		SB-FBH110120	
12.0-13.0	60	SB-FBH120130	CP..080202
13.0-14.0		SB-FBH130140	
14.0-15.0		SB-FBH140150	
15.0-16.0	60	SB-FBH150160	CC..060204

For insert selection details and recommended cutting technology see insert catalogue or website

Kit Includes

- Smartbore Nano Boring Head
- Smartbore Adjuster
- Solid Carbide Boring Bar
- Sleeve Kit

N.B Shank and Inserts not included