

**RIGIBORE**  
Innovation technology and quality in design and manufacture



# Smartbore

Micron accurate cutting edge tool adjuster

**Finish boring tools  
with digital display**

**Adjustable to one micron on diameter**

Smartbore is a tooling range for finish boring with a **digital display** covering diameters from **15mm-1020mm**.

Available in a range of indexable cartridges, boring heads, a standard module for large diameter bores and a slide assembly, Smartbore is the most flexible 'digital' solution for finish boring applications in the market.

Smartbore is an innovative and unique solution for finish boring providing a user-friendly way to make consistently accurate adjustments.

**Smartbore**  
A new generation in precision boring  
**Plus+**



**Smartbore**  
Micron accurate cutting edge tool adjuster  
**Nexus**





Smartbore works by electronically measuring real time movement of the **cutting edge** to an accuracy of **one micron on diameter**.

## The Smartbore Adjuster

Sensors in the adjuster monitor the exact position of the insert slide and swivel barrel orientation enables viewing in horizontal or vertical spindle position.



Exact adjustments are displayed clearly on the LCD screen

Adjustments are made by rotating the adjuster handle

The Smartbore adjuster can be used with all types of tooling in the Smartbore range



Cartridges built into special tools

Smartbore Plus+

Smartbore Nexus

Fine-adjusting slide



Machine operators of all skill & experience levels can accurately set the cutting edge.

Adjustments are made without removing the tool from the machine, minimising downtime



Measurement can be toggled between radius & diameter, metric & imperial, boring & over-turning

No clamping or un-clamping required after adjustment - ensuring accuracy every time



## Smartbore Cartridges

Smartbore finishing cartridges are used for precision machining on single or multi-feature special tools.

Smartbore cartridges are designed with pockets to hold inserts from sizes 06 - 16.

The fine-adjusting slide which is built into special tools takes an 04 insert.



## Reduce Cycle Time

Smartbore cartridges are built into special tools which are designed and manufactured to suit your specific application.

Any number of cartridges can be built into a boring tool to machine multiple features simultaneously in just 'one shot'.



'One Shot' tooling improves process efficiency, reduced cycle time and minimises tooling requirements.



Micron accurate cartridge adjustment to one micron on diameter. 0.6mm adjustment range.



Available as replaceable cartridges or built-in slide assembly



Multi-cartridge tooling capabilities reduce cycle time

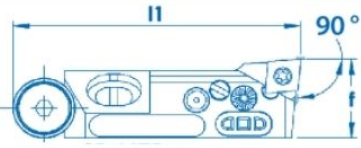
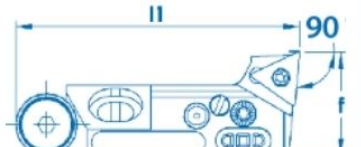
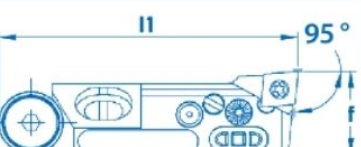
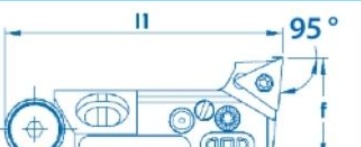
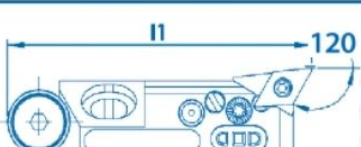
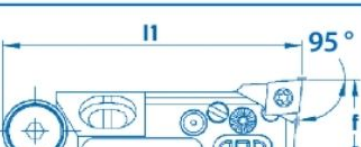
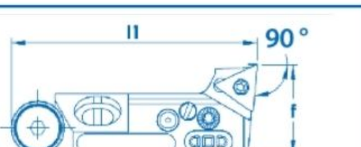


Precise adjustment values displayed clearly on the adjuster, not the tool



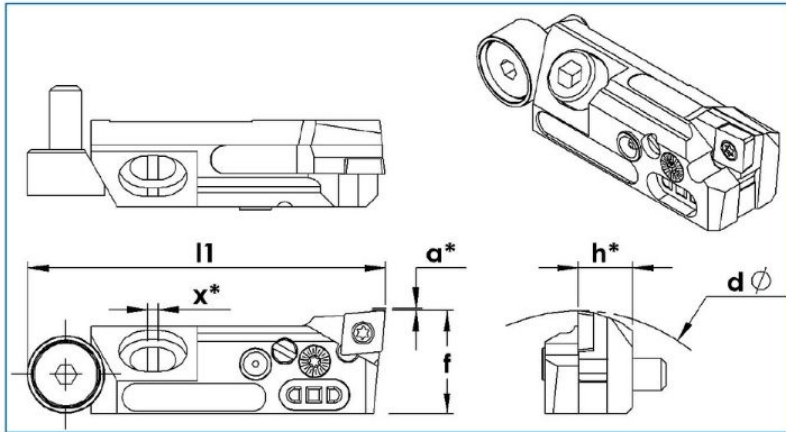
## Smartbore Cartridges

### Smartbore Cartridge Technical Specification

	Part Number	Min Bore	f	l1	Insert	Datum Rad
 <p>SB-UFP0690</p>	SB-UFP0690 SB-UFP0690LH	28.0mm	16.0mm	55.5mm	CC..0602..	0.4mm
 <p>SB-UFP1190</p>	SB-UFP1190 SB-UFP1190LH	36.0mm	20.0mm	55.5mm	TC..1102..	0.4mm
 <p>SB-UFP0695</p>	SB-UFP0695 SB-UFP0695LH	28.0mm	16.0mm	55.5mm	CC..0602..	0.4mm
 <p>SB-UFP1195</p>	SB-UFP1195 SB-UFP1195LH	36.0mm	20.0mm	55.5mm	TC..1102..	0.4mm
 <p>SB-UFP07120</p>	SB-UFP07120 SB-UFP07120LH	28.0mm	16.0mm	55.5mm	DC..0702..	0.4mm
 <p>SB-UFP1290</p>	SB-UFP1290	75.0mm	32.0mm	107.0mm	CC..1204..	0.8mm
 <p>SB-UFP1690</p>	SB-UFP1690	75.0mm	32.0mm	107.0mm	TC..16T3..	0.8mm

## Smartbore Cartridges

### Smartbore Cartridge Technical Specifications



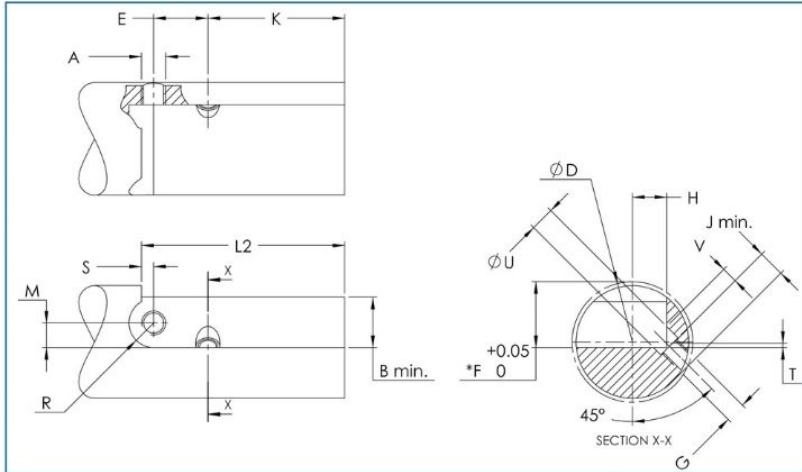
a\* : 0.3mm adjustment range. 0.001 mm per division on diameter

h\* : 8.5 (UFP06-11) 18.0 (UFP12-16)

x\* : 1.0 (UFP06-11) 1.6 (UFP12-16)

Right hand shown  
Left hand mirror image

## Mounting Dimensions



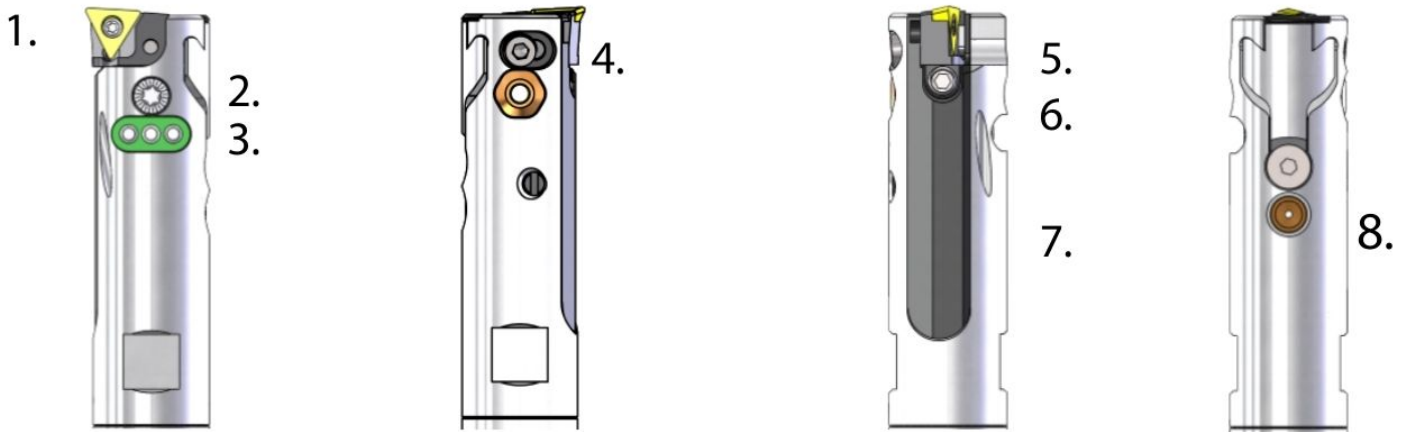
UFP	A	B (min)	H	l2	R	S	K
Standard	M5x0.8	12.5	8.5	47.5	6.1	3.0	34.0
Large	M8x1.25	24.6	18.0	98.0	10.1	3.0	63.0
	G	T	U (diam)	V	J (min)	E	M
		mm	mm	mm	mm	mm	mm
Standard	M5x0.8	1.0	6.0	4.0	5.0	13.5	6.1
Large	M10x1.5	1.4	11.0	8.0	10.0	32.0	10.0

## Spares & 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	Battery Recharger
06-11	WS360	R58	WS359	WP311	RS2560	R37	UFGP-00	R48		SB-ADJ187	SB-CHR07
1290	WS1035	R108	WS830	WP411	RS40120	R87	UFGP-00	R88	R57	SB-ADJ187	SB-CHR07
1690						R77					

# Smartbore Plus Boring Heads

## Smartbore Plus+ Technical Specifications



## Smartbore Plus+ Components

1. Insert	2. Fine Adjustment Torx Screw	3. Electronic Interface	4. Coarse Adjustment Locking Screw
5. Insert Holder	6. Coarse Adjustment Screw	7. Insert Slide	8. Lubrication Point

Smartbore Plus+ Head	Part Number	Diameter Range	Shank Length	Shank Diameter	Tool Body Length	Coarse Adjust	Approach Angle
		mm	Short / Long (mm)	mm	mm	mm	°
	SB-M15	15-18.5	55.0 / 95.0	14	50	1.75	93
	SB-M18-CC06 SB-M18-TP08	18-22 *	52.50 / 77.50	16	57	2	93
	SB-M20-CC06 SB-M20-TP08	20-31	75	18	46	5.5	93

Total adjustment range: 0.30mm on radius

\* Diameter is achieved across two separate insert holders covering 20-26mm & 25-31mm



# Smartbore Plus Boring Heads

## Smartbore Plus+ Technical Specifications

### Smartbore Plus+ Spares & Accessories

						
Part Number	Hexagon Wrench for Clamp Screw	Insert Screw	Torx Wrench for Insert Screw	Smartbore Adjuster	Smartbore Charger	Grease Gun
SB-M15	R28	TS21	R27	SB-ADJ187	SB-CHR07	UFGP-00
SB-M18-CC06		RS2560	R37			
SB-M18-TP08		RS2045	R37			
SB-M20-CC06		RS2543	R37			
SB-M20-TP08		RS2045	R37			

Smartbore Plus+ is available to purchase in the following combinations

Boring Head	Short Shank & Boring Head	Long Shank & Boring Head	Insert Holder	Boring Set
Part Number	Part Number	Part Number	Part Number	Part Number
SB-M15	SB-M15-S	SB-M15-L	CC..04	SB-M15-S-SET SB-M15-L-SET
SB-M18-CC06	SB-M18-CC06-S	SB-M18-CC06-L	CC..06	SB-M18-CC06-S-SET SB-M18-TP08-S-SET
SB-M18-TP08	SB-M18-TP08-S	SB-M18-TP08-L	TP..08	SB-M18-CC06-L-SET SB-M18-TP08-L-SET
SB-M20-CC06	SB-M20-CC06-SH		CC..06	SB-M20-CC06-SET
SB-M20-TP08	SB-M20-TP08-SH		TP..08	SB-M20-TP08-SET

Purchasing the Smartbore Plus+ as a boring set provides a saving over purchasing parts individually

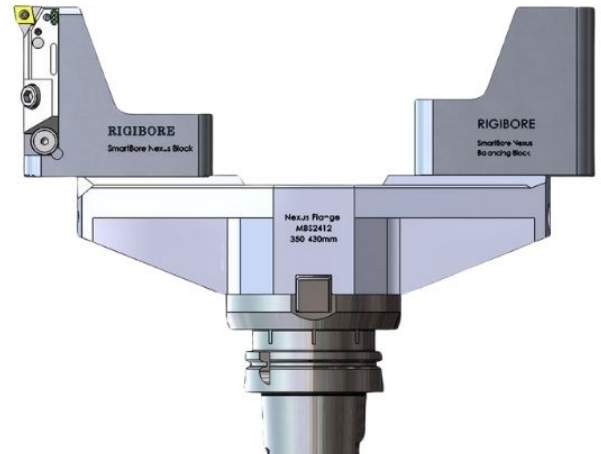


## Smartbore Nexus - Module for large diameter boring

Smartbore Nexus is designed for large diameter finish boring operations.

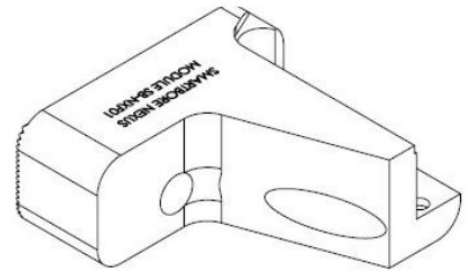
The Smartbore Nexus Module is used with standard boring flanges and holds a Smartbore cartridge (SB-UFP1290).

The boring diameter ranges from 275mm - 1020mm.

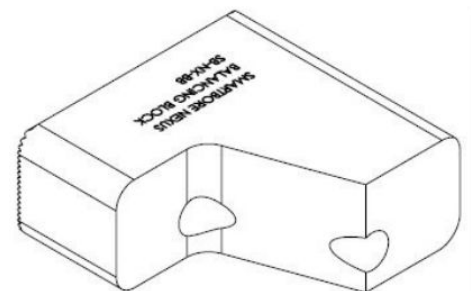


The Nexus is a self-contained module that is assembled to a standard flange.

The Smartbore cartridge is mounted on the block and adjusted using the Smartbore Adjuster.



The Nexus balance block is adjusted radially to bring the tool into balance after Nexus is preset to the required diameter.



Micron accurate cartridge adjustment to one micron on diameter. 0.6mm adjustment range.



Smartbore Cartridge easily replaceable and minimal maintenance required



Adjustments are made without removing the tool from the machine

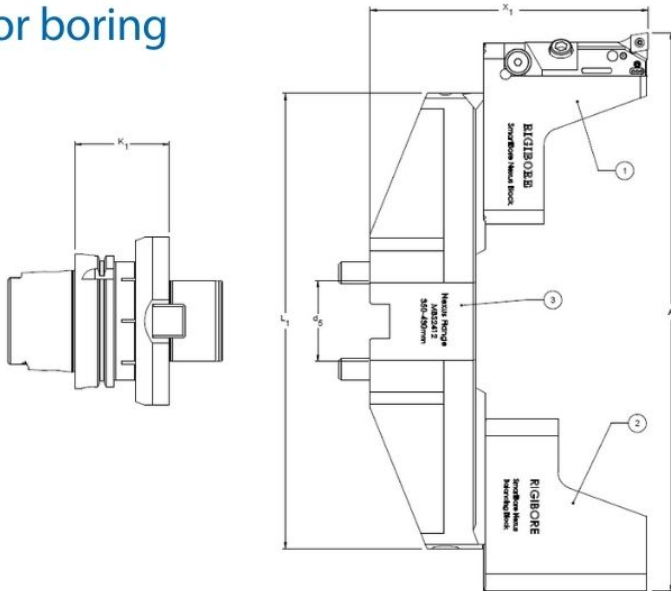


Precise adjustment values displayed clearly on the adjuster, not the tool

## Smartbore Nexus - Module for large diameter boring

### Smartbore Nexus Technical Specifications

For boring

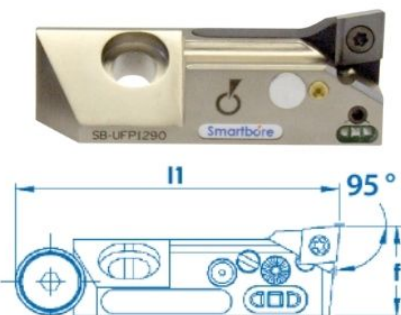


1. Smartbore Nexus Block - SB-NXF01
2. Smartbore Balance Block - SB-NX-BB
3. Nexus Flange - NXF-FL01

\* Flange Adaptor shown is HSK100A but other adaptors on other shanks are available. E.g. BT50, MVS100, 7388-50. Flange adaptor price is dependent on length.

Nexus Module	Balance Block	Cutting Range (mm)	Flange	Flange Adaptor	X1 (mm)	D5 (mm)
SB-NXF01	SB-NX-BB	275-355	NXF-FL01		208	D60
SB-NXF01	SB-NX-BB	350-430	NXF-FL02		208	D60
SB-NXF01	SB-NX-BB	425-505	NXF-FL03		208	D60
SB-NXF01	SB-NX-BB	465-745	NXF-FL04	NX-FA	262	D60
SB-NXF01	SB-NX-BB	740-1020	NXF-FL05	NX-FA	262	D60

## Smartbore Cartridge - SB-UFP1290



Part Number	Insert	Insert Screw	Datum Rad	Approach
SB-UFP1290	CC12..04	RS40120	0.8	95°
Min Bore	f	L1	Smartbore Adjuster	Grease Gun
75mm	32mm	107mm	SB-ADJ187	UFGP-00
2.953"	1.260"	4.213"	SB-ADJ187-CHR (supplied with charger)	UFGP-00RFL (Grease Gun refill)

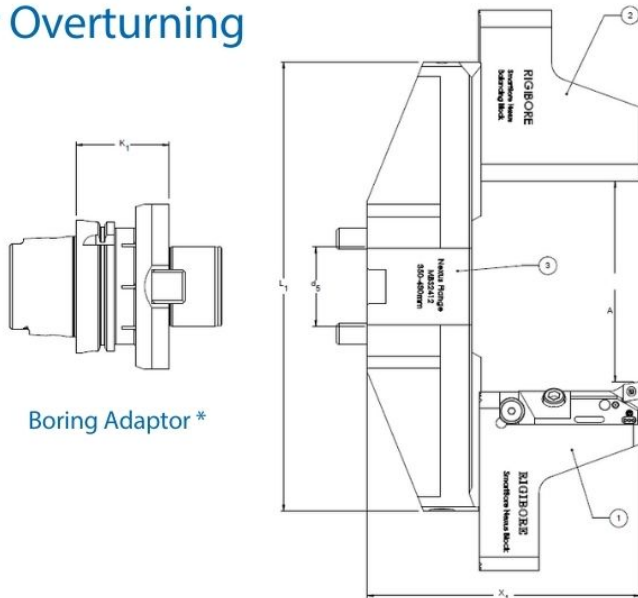
Total adjustment range = 0.6mm



## Smartbore Nexus - Module for large diameter boring

### Smartbore Nexus Technical Specifications

#### For Overturning



1. Smartbore Nexus Block - SB-NXF01
2. Smartbore Balance Block - SB-NX-BB
3. Nexus Flange - NXF-FL01

\* Flange Adaptor shown is HSK100A but other adaptors on other shanks are available. E.g. BT50, MVS100, 7388-50. Flange adaptor price is dependent on length.

Nexus Module	Balance Block	Cutting Range (mm)	Flange	Flange Adaptor	X1 (mm)	D5 (mm)
SB-NXF01	SB-NX-BB		NXF-FL01		208	D60
SB-NXF01	SB-NX-BB		NXF-FL02		208	D60
SB-NXF01	SB-NX-BB		NXF-FL03		208	D60
SB-NXF01	SB-NX-BB	465-745	NXF-FL04	NX-FA	262	D60
SB-NXF01	SB-NX-BB	740-1020	NXF-FL05	NX-FA	262	D60

Note 1: Contact Rigibore for more information. \* Cutting length can be increased with custom spacers

## Smartbore Cartridge - SB-UFP1290



Part Number	Insert	Insert Screw	Datum Rad	Approach
SB-UFP1290	CC12..04	RS40120	0.8	95°
Min Bore	f	L1	Smartbore Adjuster	Grease Gun
75mm	32mm	107mm	SB-ADJ187	UFGP-00
2.953"	1.260"	4.213"	SB-ADJ187-CHR (supplied with charger)	UFGP-00RFL (Grease Gun refill)

Total adjustment range = 0.6mm

## Smartbore Adjuster - SB-ADJ187

### Operating Instructions

#### Set-up Menu

The **MENU** and **SEL** buttons are used to access the set-up menu:-

##### Adjustment Measurement (mm/in)

Press the **ON** button to activate the adjuster.

Press the **MENU** button twice and mm will be displayed.

Press the **SEL** button to change to INCHES.

Press the **MENU** button to save and move to the next option (Radius/Diameter)

Follow the above procedure to also change between radius/diameter and move to the next option boring/overturning.

The following options will appear when repeatedly pressing the menu buttons:

**SHUTDOWN** – press SEL to turn the adjuster off.

**METRIC/INCH** – press SEL to change the measurement between mms and inches. Press MENU to save.

**RADIUS/DIAMETER** – press SEL to switch between diameter or on radius. Press MENU to save.

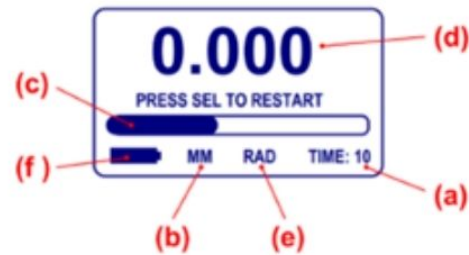
**BORING/OVERTURNING** – selecting OVERTURNING inverts the adjustment indicator so that a clockwise handle turn displays a decreasing measurement.

Press **MENU** to save.

**PART NO** – press SEL to view the part number and the software version.

Press **MENU** once to exit the set-up menu.

#### Smartbore Adjuster Main Screen



- The adjuster will switch off** automatically if it is not inserted into a tool. When the adjuster is activated a thirty second timeout begins. When the adjuster is withdrawn, the timeout is set to 10 seconds.
- Measurement** – MM or INCH.
- Adjustment range bar** provides a graphical representation of the current adjustment position within the physical adjustment range of the Smartbore cartridge or boring head.
- Adjustment indicator** displays the precise change in the position of the cutting edge as the unit is adjusted, relative to the initial start position.
- Adjustment type** – RADIUS OR DIAMETER.
- Battery indicator** – when this show only one bar or is flashing, the adjuster needs charging.

#### NOTE:

A WARNING MESSAGE IS DISPLAYED IF THE CARTRIDGE IS ACCIDENTALLY ADJUSTED BEYOND THE 0.6MM (ON DIAMETER) ADJUSTMENT RANGE



## Smartbore Adjuster - SB-ADJ187

### Operating Instructions

#### Making an adjustment

1. Press the ON button. The screen will display PLUG INTO CARTRIDGE.
2. Ensuring that the cartridge or boring head is free of coolant and metal particles push the adjuster nose into the mating slot.
3. Push the adjuster rear handle until the Torx™ head is securely located in the cartridge adjustment screw. A three second WAIT period begins after which the adjuster is operational.
4. Adjustments are made by turning the handle and are shown on the display in increments of one micron ( $\mu\text{m}$  / 1/1000th mm) or the imperial equivalent.



5. Remove the adjuster once the adjustment has been made. The display shows UNPLUGGED and a ten second countdown starts after which the adjuster will switch off. The final adjustment reading will be displayed during this time.
6. Press SEL to reset the adjuster while UNPLUGGED is displayed on the screen. You can now adjust another cartridge or boring head.

#### Recharging

The adjuster recharging kit (SB-CHR07) contains a range of interchangeable AC adaptors.

It is essential that the instructions for use described in the safety leaflet supplied with the recharger are followed. The Smartbore Adjuster can only be recharged with SB-CHR07.

##### To recharge the adjuster:

1. Insert the D.C. power plug into the adjuster recharge port.
2. Plug in or switch on the recharger unit
3. The adjuster is fully charged when the recharge displays a constant green indicator light.
4. It takes approximately 2 hours for a completely empty unit to recharge

<https://rigibore.com>

#### Important Information

Do not leave the charger connected to an adjuster for longer than 24 hours.

It is not possible to use the adjuster while it is charging.

In the unlikely event that the adjuster does not automatically switch off after an adjustment session, the unit can be switched off by inserting the recharger plug in to the recharge socket. The unit will operate normally again when the plug is removed.

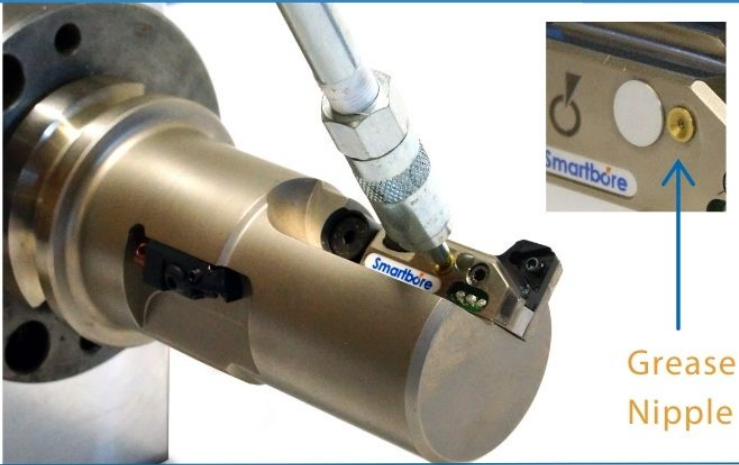
The adjuster contains delicate electronic components and should be handled with care.

It should not be subjected to shock loads or immersed in liquids.



# CARTRIDGE MAINTENANCE

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



Grease Nipple

## Greasing Process

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 via the grease nipple until it emerges clean from around the slide as shown.

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

## Essential WEEKLY Maintenance

Material	Heavy Use	Medium Use	Light use
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

## Grease Applicator



Grease applicator / gun can be purchased from Rigibore.

Part Number: UFG-00  
Grease Gun & Refill

Part Number: UFG-00RFL  
Grease Refill

## Grease

Rigibore recommends Castrol Tribol GR 100-1 PD



Our grease applicator is supplied with a refill with approx 120g of grease.



## Frequently asked questions

### How durable is the Smartbore hand-held adjuster?

The Smartbore adjuster has been rigorously tested to ensure that there is minimal risk of damage even in the harshest machining environments. Adjustments can be made in the machine spindle without risking damage from dust, oil, chips or coolant that may collide with the tool. The adjuster is so durable that it will maintain full functionality even if it is dropped into coolant or water.

### What adjustment ranges do Smartbore tools cover?

Rigibore's patented Smartbore technology covers a wide adjustment range for boring applications. Smartbore cartridges have an adjustment range from 16mm and are built into the bar as a slide assembly or as a cartridge based solution. Alternatively, for small hole boring operations, the Smartbore Nano boasts an adjustment range from 16mm down to 0.5mm in diameter.

### How prone to damage is the handheld Smartbore adjuster?

The Smartbore adjuster's sophisticated design minimises the risk of damage during use. By applying a constant preload and determining adjustments using sensor technology the adjuster doesn't apply more torque than required thereby eliminating the risk of damage. If accidentally dropped during the adjustment process, the torx head will spring back inside the adjuster. If damage to the torx driver occurs in operation, the adjuster can be returned to Rigibore for repair.

### How does communication between the Smartbore cartridge and adjuster work?

The Smartbore cartridge contains an integral position transducer. This is activated by the adjuster when the connection is made. The adjuster has a rechargeable power source and the control electronics necessary to display the adjustment reading on the LCD display screen. The adjuster also supplies power to the cartridge position transducer when connected. The transducer returns position data to the adjuster which is then interpreted and displayed on the LCD display screen.

### What capabilities does the Smartbore adjuster have for monitoring diameter changes?

The Smartbore adjuster displays can be changed depending on the boring operation and the operator's preference. The measurement system can be toggled between 'mm' and 'inch' by using the menu button. The adjustment type can also be toggled between 'RADIUS' and 'DIAMETER' to suit the operator's needs. The adjuster also offers adjustment based on the type of diameter change, displaying both 'BORING' and 'OVERTURNING' capabilities.



## Frequently asked questions

### Are Smartbore cartridges interchangeable with UFP Cartridges?

Smartbore cartridges are designed to fit UFP cartridge pockets, and are completely interchangeable with standard UFP cartridges.

### How can the Smartbore adjuster be charged in case of a flat battery ?

A re-charger kit (SB-CHR07) is included with each Smartbore adjuster. The re-charger can be purchased separately if required. The Smartbore Adjuster can be fully charged from flat battery in under an hour.

### Is the Smartbore adjustment system relative or absolute in it's adjustment methods?

Smartbore adjustments are based on an absolute scale , beginning at 0 and monitoring positive or negative diameter changes in a certain direction from the established starting point.

The adjuster's capabilities do not account for a relative measurement scale, meaning it can not establish the current diameter of the tool's cutting edge and therefore must be predetermined before making an adjustment.

### Do you have to calibrate the Smartbore adjuster?

No, the Smartbore adjuster is fully calibrated before dispatch from Rigibore and is ready for use upon arrival.





The widest & most flexible range of tooling for finish boring with digital display - accurate to 1 micron on diameter



Smartbore  
Micron accurate cutting edge tool adjuster  
Nexus



Smartbore  
A new generation in precision boring  
Plus+





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