

**The most accurately adjustable boring tools in the world**



***ActiveEdge***

**Micron Accurate Automatic Adjustment**

**Closed Loop Boring Solution**

## What is ActiveEdge ?

ActiveEdge is a unique type of boring tool developed by Rigibore. It automates the adjustment of the cutting edge. It does this using low level radio frequency to transmit the adjustment value required to reach the target diameter. Adjustment is possible to one micron on diameter.

It becomes part of a '**closed-loop**' process when used to automate the boring operation. Automating the adjustment process delivers increased productivity, lower production costs & improved operator safety.

**ActiveEdge** is micron accurate, integrates with the machine control, uses replaceable cartridges to ISO standard, does not require operators to enter the machine to adjust the cutting edge and can be maintained simply with no additional service charges.

## Features & Benefits

- Automated, wireless, micron-accurate boring tool adjustments.
- Up to seven cutting edges on one boring tool – custom designed and manufactured for your specific application – fewer tools required saving time and cost.
- Each cutting edge is independently adjustable based on in process measurement data – ensuring accuracy & reducing scrap and improves process control (Cpk).
- Reduces cycle time – the tool is adjusted in the machine or the tool carousel without operator intervention – tangible ROI and improved operator safety.
- Maximises insert life & monitors cutting edge adjustments – continuous process improvement.

## What type of tooling is available with ActiveEdge technology?

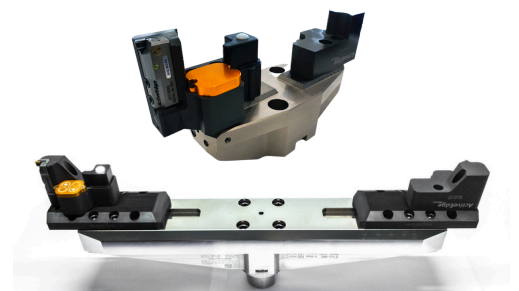
ActiveEdge technology can be used in different types of tooling making it a very flexible solution and the only boring tools that can be fully automated to allow for 'closed-loop' boring.

### Custom or Special Tools



<https://rigibore.com>

### Standard Module for Large Diameter Boring - ActiveEdge Nexus



The most accurately adjustable boring tools in the world

## Return on Investment



ActiveEdge's precision performance and accurate repeatability generates tangible and continuing savings by reducing machine downtime and massively reducing the chance of scrapping parts.

## Reduction in Scrap Rates

A speedy and continuous return on investment, far outweighing the value of the the initial outlay is one of ActiveEdges biggest benefits. The automated, closed-loop solution ensures consistent accurate machining removing the risk of scrap and maximising production.

## Adjustment in the tool carousel - successfully reducing cycle time

This automated solution can adjust the tool anywhere in the machine envelope, minimising the time that the tool spends idle and maximising spindle utilisation. A huge benefit over manually adjusting tools.

### Manual Adjustment

- ❌ Process stops for several minutes while operators make adjustment
- ❌ While operators are occupied with other tasks, the manufacturing operation can stop.
- ❌ Production is solely reliant on highly skilled operators to make accurate adjustments
- ❌ Health & safety compromised by operators entering the machine to make adjustments.

### Automatic Adjustment with ActiveEdge

- ✅ Adjustment in seconds with minimal spindle downtime.
- ✅ Tool can be adjusted in the tool carousel so the production process can continue without interruption.
- ✅ No operator intervention required, freeing staff up for other tasks & improving staff health & safety.
- ✅ Reliable, micron-accuracy in adjustment
- ✅ Streamlined & efficient process reducing cycle time.

## Increased Productivity

Automating the bore-sizing process accelerates productivity without increasing the variable costs associated with production.

- ✅ The automatic adjustment value calculation eliminates the risk of making an incorrect adjustment
- ✅ Automation reduces reliance on a skilled operator being present to carry out precise manual adjustments





## What is a closed loop boring process ?

**Rigibore's ActiveEdge tooling when integrated with the CNC machine control and in-process measurement (probe or gauge) becomes part of a 'closed-loop' system.**

A closed-loop boring system refers to a precision engineering setup where the boring process is continuously monitored and adjusted in real-time to maintain high accuracy and consistency.

In a closed loop system, a feedback mechanism allows for automatic adjustments based on real-time data. This keeps the process within set tolerances and eliminates the potential for human error.

This, in turn leads to increased efficiency, reduced scrap rates, and improved overall productivity.

## What does this setup look like in practice ?

The tooling is loaded into the ATC like any other tooling and the ActiveEdge interface (AEI) is connected to the CNC machine which has probing or gauging installed.

The AEI is an intelligent communication device. It is connected to the machine control and enables wireless communication with the ActiveEdge boring tool.



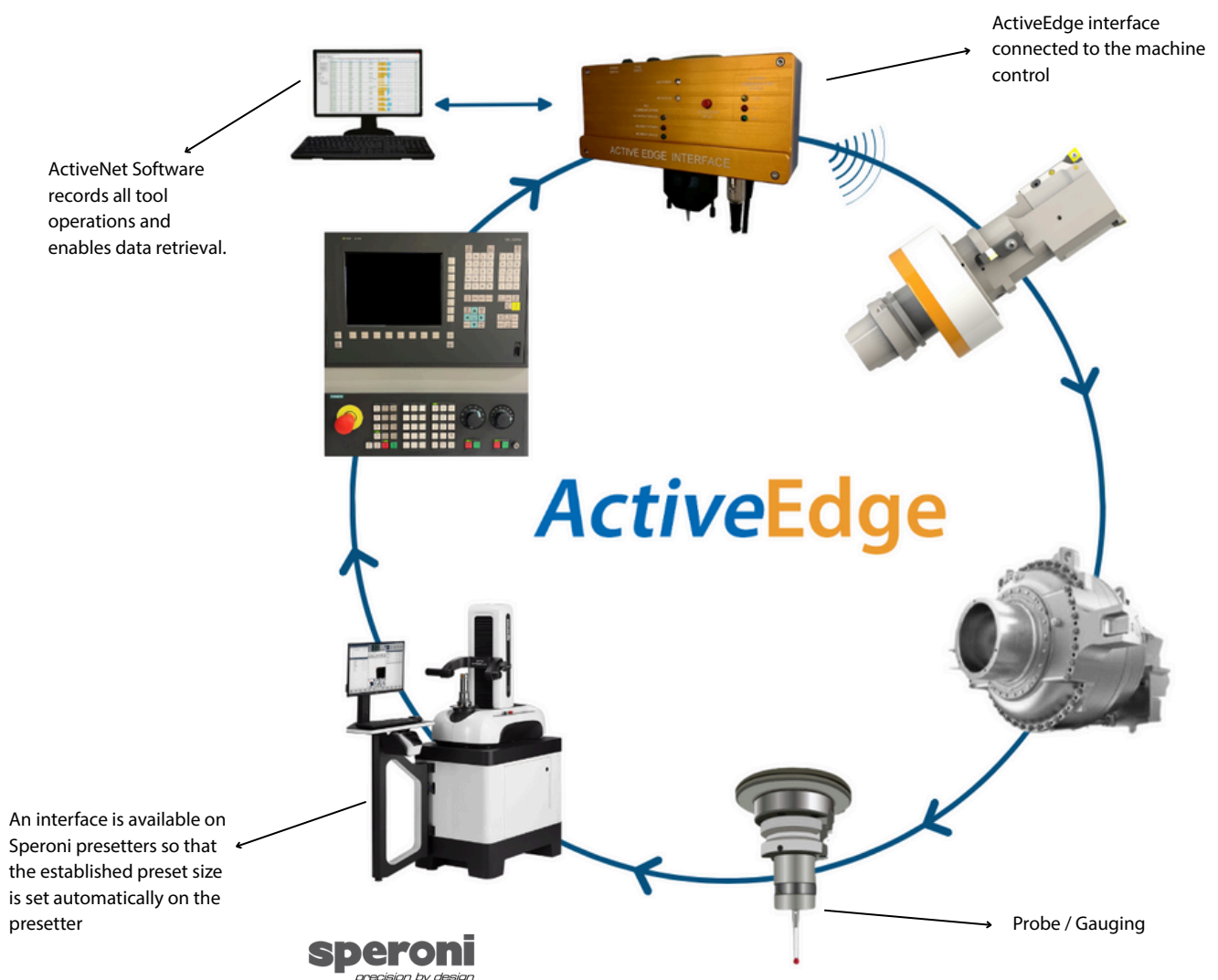
## What is the process?

Bore measurement data is transmitted to the machine control. The necessary adjustment is then calculated and sent via the AEI to the tool. The insert moves to the required position automatically and you can start cutting. This can be done while the tool is in the spindle or in the ATC.



## The Closed Loop Process - Step by Step

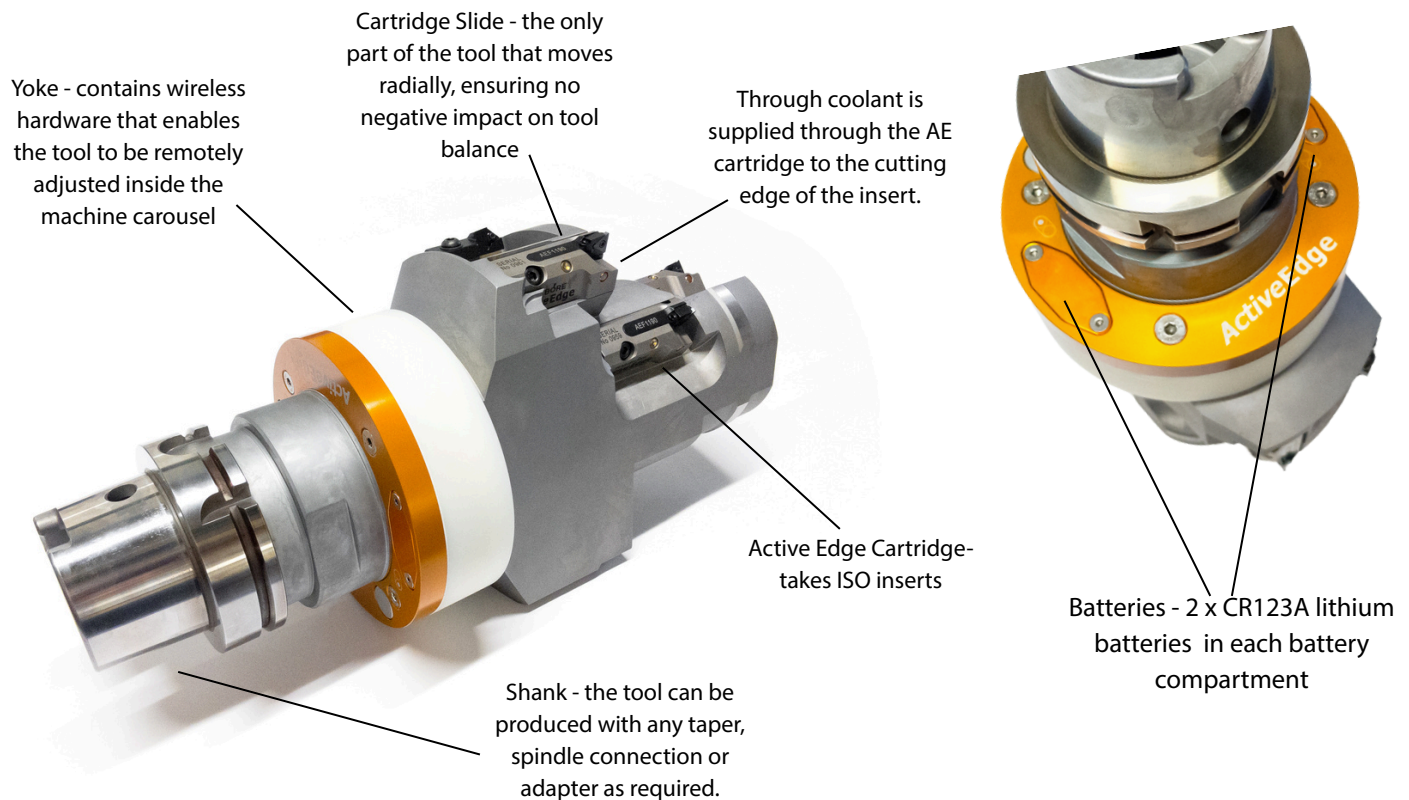
1. **Initial Bore** - Bore the hole using the ActiveEdge tool.
2. **Measure** - Bore is measured using in-process gauging or probing and the measured diameter is stored in a dedicated variable in the machine tool control.
3. **Calculate** - Measured diameter is assessed against user-defined limits. If necessary an adjustment is calculated.
4. **Adjust** - Automatic adjustment request is sent to the ActiveEdge tool which adjusts to ensure that the next machined bore reaches nominal size.
5. **Process Monitoring** - ActiveNet software captures a record of all tool operations and the data is easily retrieved for analysis and optimisation.





## The ActiveEdge Tool

ActiveEdge uses wireless technology to remotely adjust up to seven cutting edges on a tool with an accuracy of one micron on diameter.



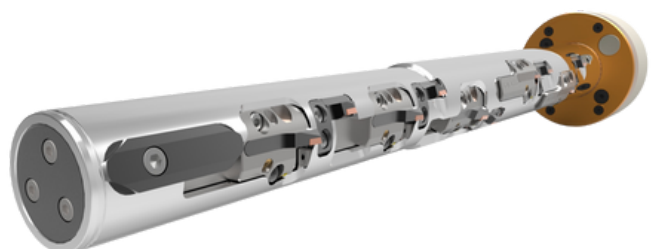
**The ActiveEdge tool** is a custom designed boring bar with the capability to adjust its cutting edge with micron-accuracy using wireless transmission.

Up to seven cartridges can be mounted on a single tool. ActiveEdge cartridges can be easily replaced by the user and on-going maintenance is simple and no service contracts are required.

All Rigibore products are designed to ISO standard.

## Line Boring

ActiveEdge is a perfect solution for line boring applications such as crankshaft boring





## ActiveEdge Nexus for Large Diameter Boring

An ActiveEdge module to be used on large diameter flanges is available in our Nexus range of tooling.

A specially designed module holding an ActiveEdge cartridge can be mounted on standard aluminium flanges (available in 5 sizes) covering a range from 275mm-1020mm. A counter-weight or balance block is mounted on the other end of the flange or a module can be made to hold an ISO cartridge so that a semi-finish cut can be made with the same tool as the finish cut with ActiveEdge.

## Benefits

**Reduced Cycle Time:** The tool is adjusted in the machine or the ATC without operator intervention. Integrated with in-process gauging or probing, it automatically adjusts without stopping production.

**Return on Investment:** Increased productivity and elimination of scrapped parts delivers a fast return on investment.

**Automation:** Automatic cutting edge adjustment is integrated with the machine control using real time measurement data.

**Ease of Adjustment:** The automatic adjustment reduces the reliance on highly skilled operators.

**Minimal Maintenance and On-going Service:** ActiveEdge tooling requires occasional greasing and no service contract is required.

**Replaceable Cartridges:** Replaceable cartridges are used in the module and are adjustable to 1 micron on diameter. The ActiveEdge cartridges all take ISO standard inserts.



**Increased Productivity**



**Return on Investment**



**Automated Process**



**Micron Accurate**



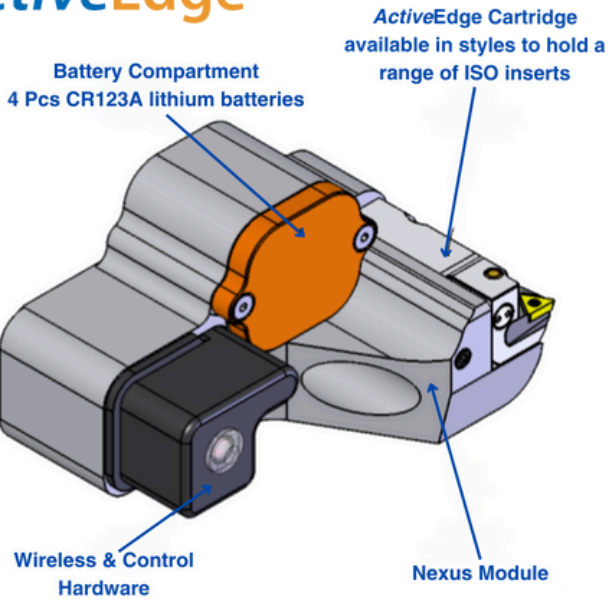
Nexus Module

Boring diameters from 275mm/10.8268" to 1020mm/40.15748".

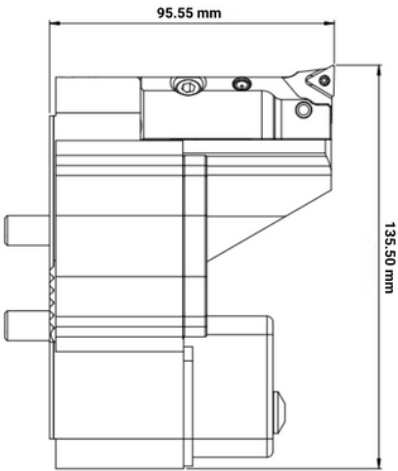
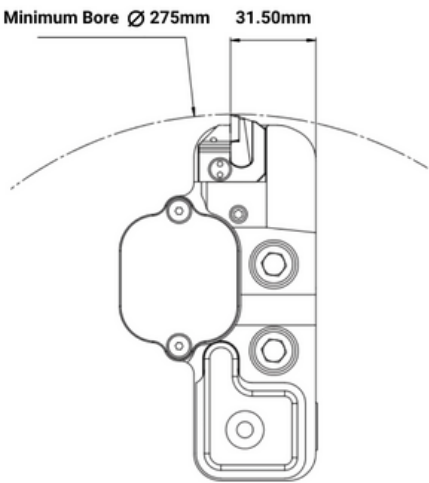
The self-contained module is added to standard flanges. The module comprises a wireless transceiver, a battery compartment and holds a micron-adjustable ActiveEdge cartridge.

Find out more about ActiveEdge on our website: <https://rigibore.com/activeedge>

ActiveEdge



Nexus Module - Boring Diameter 275mm-1020mm



ActiveEdge Cartridge

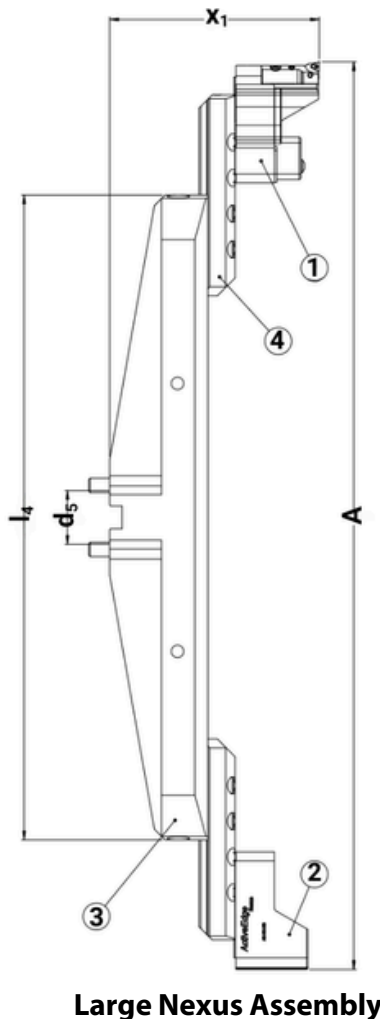
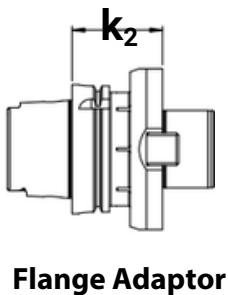
Part Number	Insert	Insert Screw	Approach	Fine Adjustment Range (mm) on dia
AEF110390	TC__110304	RS2560	90°	0.6
AEF09T390	CC__09T304	RS4084	90°	0.6

Batteries Required: 4 x CR123A lithium batteries  
Other approach angles and geometries are available

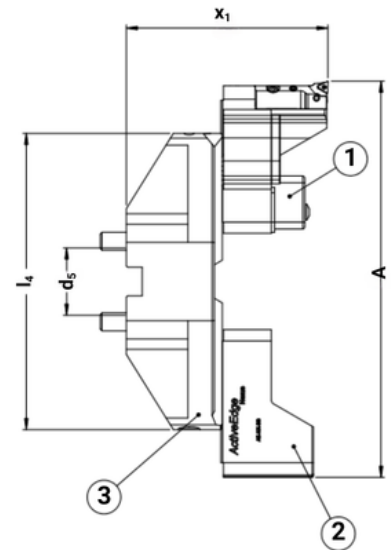


## Nexus Assembly - Module & Flange

1. Nexus Block
2. Balance Block
3. Flange
4. Serration Plate



Large Nexus Assembly



Small Nexus Assembly

### Boring

Boring Range (mm)	Nexus Module	Balance Block	Flange	Serration Plate	x <sub>1</sub> (mm)	d <sub>5</sub> (mm)	l <sub>4</sub> (mm)
275-355	AE-NXF104 AE-NXF109	AE-NX-BB	NXF-FL01	-	178.5	D60	264
350-430	AE-NXF104 AE-NXF109	AE-NX-BB	NXF-FL02	-	178.5	D60	339
425-505	AE-NXF104 AE-NXF109	AE-NX-BB	NXF-FL03	-	178.5	D60	425
465-745	AE-NXF104 AE-NXF109	AE-NX-BB	NXF-FL04	MBS1992	203.5	D60	465
740-1020	AE-NXF104 AE-NXF109	AE-NX-BB	NXF-FL05	MBS1992	203.5	D60	740

#### Serration Plate - Part Number: MBS1992

Serration plates are only required for NXF-FL04 & NXF-FL05

**Shank adaptors** are made to order depending on required gauge length. Please contact us with your details.

#### Nexus Module

09 Nexus Module for use in North America  
04 Nexus Module for use in rest of world

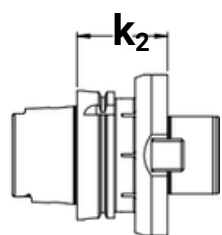
#### Additional Information

Cutting length can be increased with custom spacers

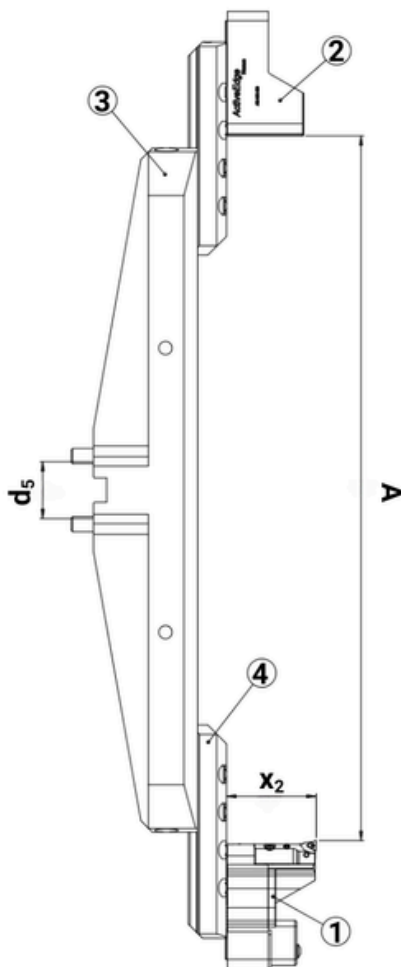
**Larger diameters** can be achieved using non-standard flanges

## Nexus Assembly - Module & Flange

1. Nexus Block
2. Balance Block
3. Flange
4. Serration Plate



Flange Adaptor



### Overturning

Boring Range (mm)	Nexus Module	Balance Block	Flange	Serration Plate	$x_1$ (mm)	$d_5$ (mm)	$L_4$ (mm)
Note 1	AE-NXF104 AE-NXF109	AE-NX-BB	NXF-FL01	-	93.5	D60	264
Note 1	AE-NXF104 AE-NXF109	AE-NX-BB	NXF-FL02	-	93.5	D60	339
Note 1	AE-NXF104 AE-NXF109	AE-NX-BB	NXF-FL03	-	93.5	D60	425
190-460	AE-NXF104 AE-NXF109	AE-NX-BB	NXF-FL04	MBS1992	93.5	D60	465
455-735	AE-NXF104 AE-NXF109	AE-NX-BB	NXF-FL05	MBS1992	93.5	D60	740

#### Serration Plate - Part Number: MBS1992

Serration plates are only required for NXF-FL04 & NXF-FL05

**Shank adaptors** are made to order depending on required gauge length. Please contact us with your details.

#### Nexus Module

09 Nexus Module for use in North America  
04 Nexus Module for use in rest of world

**Note 1:** Please contact Rigibore for details

#### Additional Information

Cutting length can be increased with custom spacers

**Larger diameters** can be achieved using non-standard flanges



<https://rigibore.com>

Rigibore Ltd  
Guildford Road Industrial Estate  
Hayle, Cornwall  
TR27 4QZ  
Tel: +44 (0)1736 755355  
Email: [info@rigibore.com](mailto:info@rigibore.com)

Rigibore Inc  
700, Swan Drive  
Mukwonago  
WI 53149  
USA  
Tel: +1 262 363 3922  
Email: [info@rigiboreinc.com](mailto:info@rigiboreinc.com)

Rigibore India Private Ltd  
4/1 Brindavan  
Millers Road  
Bangalore 560052  
India  
Tel: +9180 4125 3035  
Email: [info@rigibore-india.com](mailto:info@rigibore-india.com)

Rigibore India Private Ltd  
fmTOS,  
Plot No S 13, Pune - Nashik Hwy,  
Tathawade, Sector No. 1, Bhosari, Pune,  
Pimpri-Chinchwad,  
Maharashtra 411039  
India

**ActiveEdge**