

168"/180" Farrel 4-Axis, CNC Vertical Boring Mill

Remanufactured 2019

Installation & Warranty Available!

See Pages 3-5 for Scope of Work

Table diameter:	168" (14')
Maximum Swing:	180" (15')
Height under a 10" tall tool:	120" (10')
Diameter of bore both rams will enter:	40"
Table capacity:	75 Tons
Maximum table speed:	50 RPM
Rams:	2
Ram stroke:	80"
Ram cross section:	11.3" X 10.8"
8 Station Tool Changers	2 (CAT 60)
Table drive:	200 HP AC
Control / Axis drives:	FANUC 0iTF
Controlled / programmable axis:	X1,Z1,X2, Z2, W (rail elevation)
Lot of misc. #60 tool holders	

See Pages 3-5 for Scope of Work

168" FARREL VBM



- **PRESENT CONDITION:**

The machine has been fully remanufactured and the following work has been or will be done.
- **DISASSEMBLY:**

Machine has completely disassembled. All components have been inspected for damage or wear. Any damaged or worn parts will be repaired or replaced
- **RAILWAYS:**

The existing rail ways will be machined to accept hardened wear material. After installation, the wear surface will be ground flat and parallel to an accuracy of .0002" per foot with an accumulated error not greater than .0007".
- **RAMS:**

2 new rams with CAT 60 taper and OTT drawbars have been manufactured for the machine. The rams will have 80" of travel.
- **CROSS SLIDES:**

New cross slides have been designed, manufactured and installed on the existing rail. The new cross slides will be designed to allow the rams to both enter a 40" (or smaller bore) at the same time. The design will allow for easy adjustment of the X/Z ram squareness of the machine.
- **WEAR SURFACES:**

The mating components to the ways and the machines gibs will have non-metallic wear material bonded to them. These surfaces will then be fitted for proper alignment and bearing surface contact.
- **BALL SCREWS:**

Four new precision ground ball screws will be installed in the ram vertical and cross slide horizontal axis (Here after referred to as X1, Z1, X2, Z2 or "cutting axis").
- **RAIL ELEVATION DRIVE SYSTEM:**

The 2 lead screws which move the rail vertically have been replaced with new precision ground lead screws. New rail elevation nuts have been installed. 2 Heidenhain scales have been installed (one on each side of the rail) 2 Fanuc servo motors will be installed to control the rail elevation (Here after referred to as W and W2 or "rail axis"). This will be a programmable axis controlled by the Fanuc CNC.
- **WAY LUBE SYSTEM:**

A complete new BIJUR automatic way lube system with both pressure and level failure indications will be installed on the machine.
- **WAY WIPERS:**

All of the machines way wipers will be replaced with new wipers.

➤ **WAY COVERS:**

X axis way covers will be installed on the rail. There will be 2 solid covers (one on the outside of each ram cross slide) and a soft “accordion” type between the ram cross slides. The center cover will be set up for easy removal and manufactured as a “wide pleat” to reduce closed thickness.

➤ **TABLE LUBE SYSTEM:**

The complete table lube system will be rebuilt on the machine. The pumps will be replaced, all soft lines will be replaced. Any worn or damaged hard lines will be replaced.

➤ **COOLANT SYSTEM:**

The machine will be plumbed for coolant thru the tool. A coolant pump will be supplied and controlled by M-codes in the CNC. The system will allow for use of shop air to be controlled by M-codes to allow for air thru the tool.

➤ **ELECTRIC MOTORS:**

All three-phase electric motors on the machine will be replaced with new High Efficiency motors.

➤ **GASKETS AND SEALS:**

All gaskets and seals on the machine will be replaced with equal or better grade or type.

➤ **BEARINGS:**

With the exception of the main table bearings, all bearings in the machine will be replaced with new bearings of equal or better quality.

➤ **ELECTRICAL SYSTEM:**

All electrical system wiring, motor starters, pushbuttons, relays, fuses, and associated hardware will be new. The machine will be completely rewired to national electrical code.

➤ **CONTROL:**

The control will be replaced with a new Fanuc 0iTF. The control will be equipped with all standard features, RS232 communications, hand wheel, 10" LCD monitor, and extended memory.

➤ **AXIS DRIVES:**

All new Fanuc AC digital drives will be installed.

➤ **TABLE SYSTEM DRIVE:**

The table drive motor will be replaced with a new 200 H.P. AC digital drive and drive motor. The train will be completely rebuilt all bearing and seals will be replaced.

➤ **TOOL CHANGERS:**

Two - 8 station #60 tool stations have been installed on the machine. The rams will standard CAT #60 taper tools. Power draw bars are installed in the rams to facilitate automatic tool changes with coolant thru the tool.

➤ **PAINT:**

The machine has been sanded or sandblasted, and all surface defects will be filled. An epoxy primer will be applied. A final coat of Sherwin Williams POLANE epoxy hi gloss (color of your choice) will be applied.

➤ **MACHINE FUNCTION TEST:**

Before the machine leaves our facility it will complete 40 hours of function testing.

➤ **ALIGNMENTS:**

A complete alignment test is done at our facility and after the machine is installed. This includes both a geometrical alignment and axis travel certification.

➤ **INSTALLATION:**

Our personnel will install the machine at your facility. During that installation, a complete alignment check will be done and a machine function test will be completed.

➤ **OPERATOR AND MAINTENANCE TRAINING:**

During installation, operator and maintenance training will be done.

➤ **DOCUMENTATION:**

2 copies of all electrical, mechanical, hydraulic, and other technical documentation will be supplied.

➤ **DELIVERY:**

Delivery of this machine is estimated to be 30-45 days after the Purchase Order and first payment. This estimate is based on shop and parts availability.

➤ **CUSTOMERS RESPONSIBILITY:**

All foundation costs
Truck costs of the new machine
Having power and air supply connected to the machine
All rigging costs during installation
Arranging 24/7 clear access to the work site