ROTTLER

THE CUTTING EDGE

FA Series

CNC Boring & Sleeving Machine

Now with Rottler Windows Touch Screen Control!

Machine Tools for the Performance Racing, Engine Remanufacturing and OEM Manufacturing Industries

ROTTLER BORING AND SLEEVING MACHINES

The FA Series Boring Machines are unlike anything else available to automotive and diesel engine builders. These machines represent the next generation of boring equipment, evolving from the Rottler boring bar which has been the industry standard since 1923. With improvements in electronic motors and cutting tool technology, Rottler Boring Machines are two to three times more productive than anything else available on the market.

Speed and Feed

FA Series machines have the new technology high performance AC servo motor, delivering up to 1200 RPM and high torque throughout the speed range.. Independent feed control allows you to change the feed rate from .001” (.025mm) to .012” (.3mm) per revolution.

Accuracy

The FA Series uses a precision ground ball screw to control feed rate and cutter position. This allows the machines to repeat cutter position accuracy to .0002” (.005mm). The FA Series have digital programmable cycles. Boring depth can be programmed to .0001” (.0025mm).

Strength

Rottler has increased the size of the F10A spindle to ensure the best possible bore geometry at high spindle speeds. The Rottler proven spindle and bearing design gives you a rigid machine capable of making heavy sleeve cuts for a lifetime. The F9A spindle has been reduced to allow the machining of compact engines, motorcycles, marine blocks, etc.

Flexibility

The F Series machines have variable feed rates that allow you to maximize the performance of the machine. Increase spindle feed rates for simple oversize bores. Decrease feed rates for sleeve cuts or counter bores. The F10 machines can bore from 1.5” (38mm) to 9” (230mm) in diameter, with optional cutterheads. The F9 machines can bore from 1.5” (38mm) to 5” (127mm). Special carbide tools are available for counterboring, chamfer cutting, offset boring, and O-ringing.

Cost Savings

The high speed Rottler FA Series machine can bore a block in half the time that other models of boring machines require. New insert technology is producing long lasting, inexpensive inserts which are capable of handling these high speed and feed rates, with the same cost per insert as previous styles. Inserts do not require sharpening and the low cost of these tools makes them the ultimate choice for boring cylinders.

F10A

1.5-9” (38-228mm) Bore Capacity

This heavy-duty machine was designed for small to large capacity machine work. The spindle diameter is 3.25" (82.5mm) for extra heavy duty machining up to 9" (230mm) bore size. Large sleeve cuts can be taken at high spindle RPMs, and in many blocks, one pass sleeve cuts are possible to increase productivity. Programmable counterboring operations eliminate guesswork and provides added timesaving. The massive one piece meehanite, stress relieved, precision machined base casting allows the fixturing of large diesel blocks such as Cummins 855, Detroit 12V71, Mercedes 444V12 and odd jobs such as gear cases and connecting rods. The FA machines can also handle small jobs down to 1.5" (38mm) bore diameter with optional cutterheads.

F9A

1.5-5” (38-127mm) Bore Capacity

The F9A machine is the industry standard worldwide for small to medium size engine blocks or cylinders. Designed for all automotive blocks up to big block V8's and small diesel blocks, the F9A will produce accurate bores for a lifetime. The F9A is ideal for the production shop where the odd sleeve must be fitted. The F9A is the fastest, most powerful boring machine available to the jobber shop. The simple set up and Windows touch screen control make this a very economical machine to operate.

Internet Connection

Rottler offers cutting edge internet support. Factory technicians can connect direct to the machine through the worldwide internet for service and support.

Automated Workhead Tilting System

After completion of automatic boring to programmed depth, the spindle indexes the cutting tool to one side then the workhead automatically tilts so that the cutting edge does not contact the bore when the spindle rapid retracts from the cylinder. The prevents any scratch on the surface of the bore and also extends the life of the carbide cutting inserts.

Automation

The FA models have programmable boring cycles and automatic centering cycles. Both models will store an unlimited number of boring programs. Each program stores boring depth, spindle speeds and feed rate. Automated cycles reduce costly errors while freeing operators to perform other tasks.

Electronic Hand Wheel

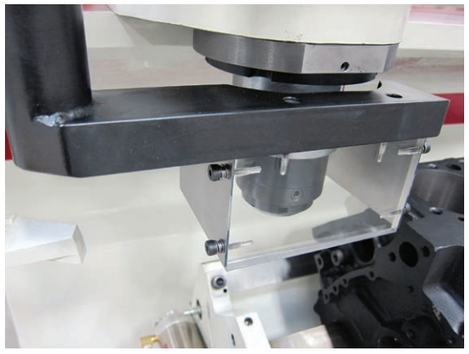
The electronic hand wheel on the FA machines has two modes of operation. In fine mode, each "click" of the hand wheel will move the machine exactly .001" (.01mm) and in coarse mode, each click will move the machine exactly .010" (.1mm). The hand wheel is also used to vary the feed rate during automatic cycles to find the most productive feed rate.

Reliability

The FA Series machines use a high-speed, cogged belt drive system. This, and the use of two independent motors to run the spindle speed and feed, entirely eliminates any gear box. With fewer moving parts, and a superior design, the FA Series becomes a much more reliable boring machine than other designs of equipment.

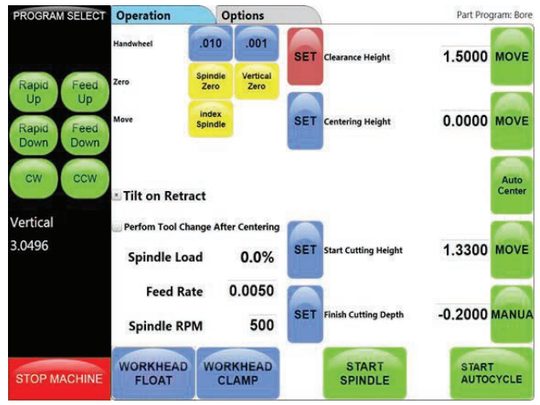
Chip Shield and Dust Collector

Optional Chip Shield and Dust Collector allows connection of vacuum extractor to remove cast iron dust when boring and resleeving cylinders.



WINDOWS TOUCH SCREEN CONTROL

The world famous Rottler FA boring and sleeving machines have been upgraded to the proven Rottler Windows Touch Screen Control with the latest technology CNC BISS encoder servo motors giving faster cutting speed and feed rates. One pass sleeve cuts and automatic equal depth counterboring are all possible with these powerful automatic machines.



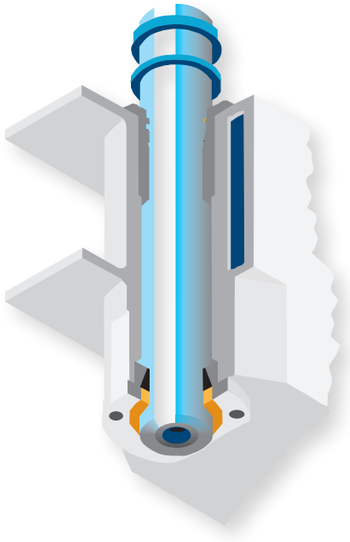
Operation and programming of Rottler's FA Boring Machines is done with ergonomical touch screen positioned on the front of the machine. Rottler pioneered the development of this simple method of operation and the display tells the operator exactly where the spindle is positioned at all times. Programmed information such as depth of cut, speed and feed is clearly displayed so the operator knows the machine movements at all times. Unlimited block programs can be stored in the machines memory for future use.

FA models are programmable for Automatic Cycles. Press cycle start and "walk away", the machines will center, bore to the exact depth, index spindle, tilt work head for tool clearance, rapid retract to home/start position. When boring for new sleeves, the exact length of the sleeve can be programmed, eliminating the need to cut down the top sleeve after installation saving considerable time. Blind hole software pauses the machine after centering to allow the cutting tool to be installed in the cutterhead then cycle is automatically completed.

SPINDLE

Sliding Quill Spindle Design

Starting in 1923 Rottler pioneered the sliding quill spindle design that has proven to give decades of precision and reliable machining. Over the last 90 years, Rottler has perfected this design which is ideal for deep hole machining such as engine block machining. Resleeving long cylinders and machining lower seal area are examples requiring this unique feature. The spindle is hard chromed and cross hatch external honed then mounted in precision adjustable outer support bearings. Feed is controlled by a large diameter precision ball screw and AC servo motor.

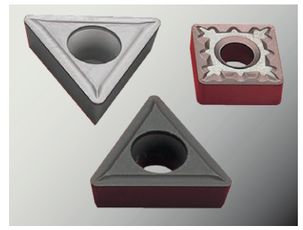


HIGH SPEED CUTTING INSERTS & TOOLING

Cutterheads

Quick change cutterheads on Rottler boring machines can be easily changed. The quick-change draw bar system pulls the cutterhead into the spindle and firmly locks it into the internal taper for chatter free cutting. Cutterheads are available to machine from 1.5" (38mm) to 9.0" (230mm). Different design cutterheads are available for production thru boring, blind hole boring, and heavy duty large diameter boring, sleeving and counterboring. Shown here are typical cutterheads for small diameter cylinder boring, production boring and heavy duty, large diameter machining.

Coated Carbide Inserts



Rottler offers several different styles of indexable coated carbide inserts. The square RS inserts are used for standard oversize boring applications. The new high performance black RT inserts were developed for the FA series machines. It is capable of standard to heavy cuts up to 1200 RPM's. Triangular inserts work well where cutting a bore to a square shoulder is needed, such as sleeves. The black coating provides a tough finish capable of heavy sleeve cuts at high RPM's. The grey RTF inserts provide a sharper edge, and better finish on the cutting surface. Ideal for finishing counter bores. Both styles of triangular inserts are available with 1/64" (0.4 mm) or 1/32" (0.8 mm) radius cutting tips.

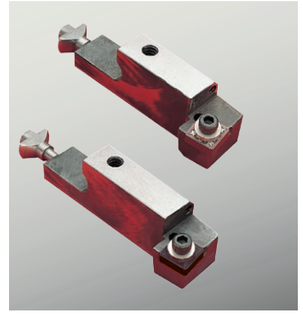
Square:	Triangle:	
Black, #RS322	Grey, 1/32" (0.8 mm) #RT322F	Black, 1/32" (0.8 mm) #RT322
	Grey, 1/64" (0.4 mm) #RT321F	Black, 1/64" (0.4 mm) #RT321

Special Tool Bits

Rottler Manufacturing offers a wide variety of brazed carbide tool bits to handle applications such as facing and counterboring, offset tools for blind hole and tight clearance situations, special grooving tools, etc.

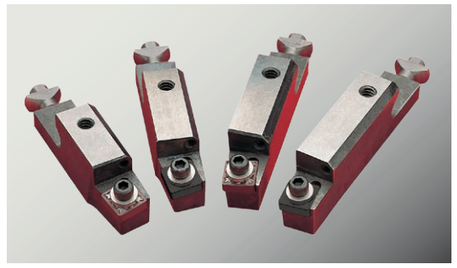
Offset Square Insert Indexable Toolholders

These tools were designed for V-Block applications where main bearing interference at the bottom of the bore is a problem. They provide an additional .25" (6.35mm) of cutting depth compared to standard tool holders. Available currently from 3.48-4.32" (88.39-109.72mm) diameter.



Triangular Insert Indexable Toolholders

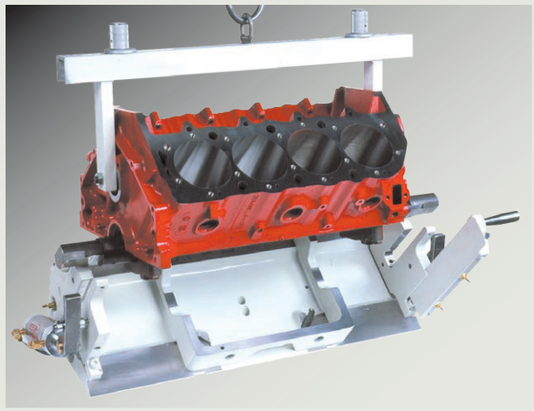
The 'Positive Rake' of these tools reduces cutting pressure, allowing you to take a larger cut. Triangular toolholders are used for sleeve cutting or counterbores. Different insert styles are available for your application. Triangle tool holders are standard with Cutterhead assemblies.



Square Insert Indexable Toolholders

These toolholders are used for general boring to heavy stock removal. Square inserts have eight different cutting edges, making them very economical. Can be used with the RS322 insert for high performance cutting up to 1200 RPM. Square toolholders are optional with cutterhead assemblies.

PRODUCTION FIXTURES



V-Block Fixture
Multiple Angles 15°, 30°, 60°, 90°

The Rottler Universal V-Block fixture system provides a fast and effortless method of holding blocks for boring and sleeving operations. A simple side shift of the fixture changes from 90° to 60°. This fixture has two modes of operation: one mode automatically aligns to main bearing and pan rail; the adjustable mode allows you to use the fixture to align to the original deck surface. The fixture floats on air for easy adjustment and rigidly clamps with flick of a switch. The same fixture can be used on Rottler Surfacing machines.

Block Handler

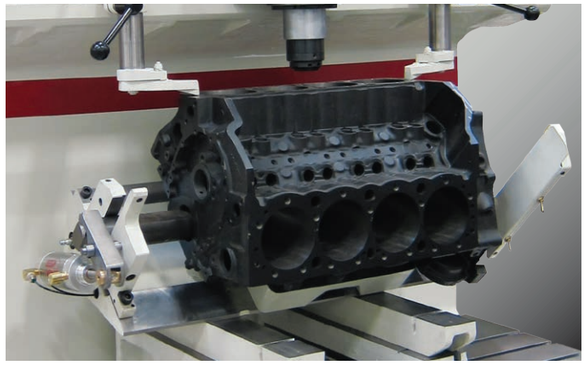
The Rottler Block Handle provides a safe and efficient way to load, unload and move heavy camshaft style blocks.

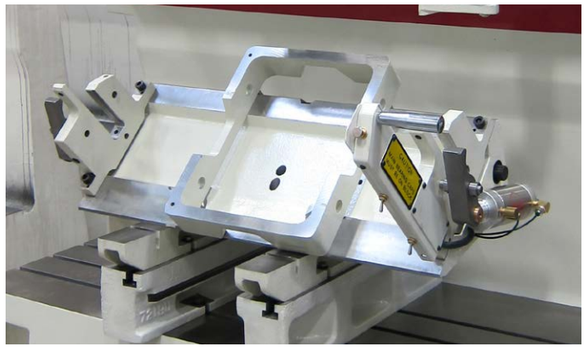
#502-1-72F Fixture with Air Clamping and Airfloat
#502-3-49 15 Degree Adapter Plate for #502-1-72F
#7219W 5.2" (132mm) Heavy Duty T Slot Parallels

Marine Outboard Fixtures

Marine Outboard V Blocks can be machined on same fixture with special adapter plates.

#502-3-23 Evinrude/Johnson/Mercury
#502-3-23C 76 Deg.Yamaha

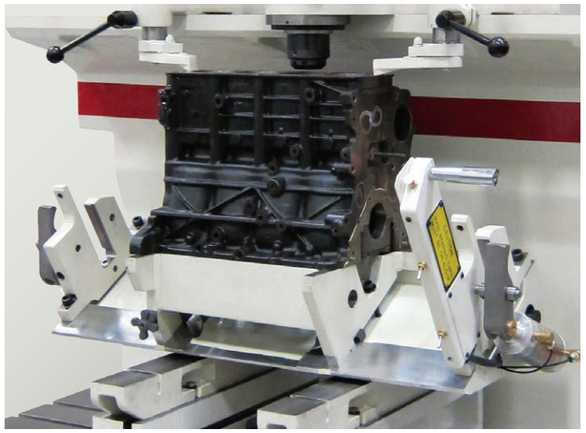




In-Line Block Adapter

This adapter allows quick mounting and leveling of in-line blocks without removing the V block fixture from the machine.

#502-3-48Q In-Line Block Adapter

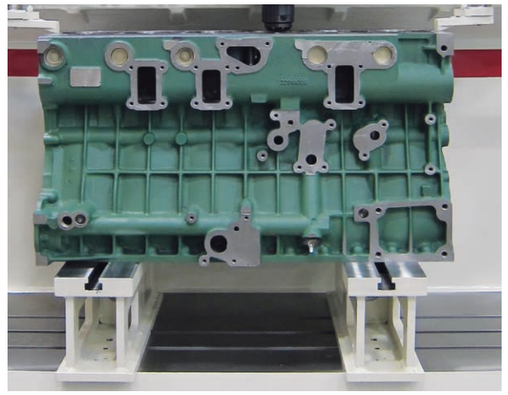


Large Diesel V Block Fixture

Large Diesel V Blocks such as Detroit 71 or 92 and Mercedes 400 can be machined with the Heavy Duty V Block Fixtures.

#7243 Diesel V-Block Assembly

PARALLELS



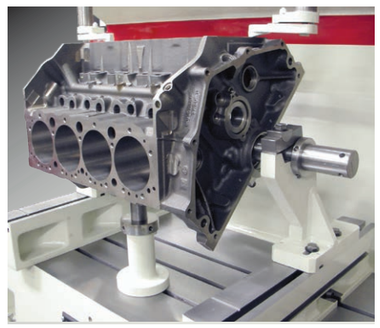
Optional Parallels allow setting up of a wide variety of engine blocks, cylinders and odd jobs, shown here with Harley-Davidson cylinder.

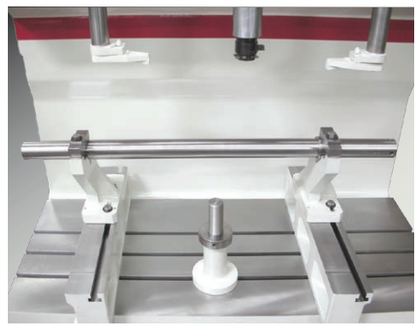
#11112 Universal 8" (203mm) Heavy Duty T-Slot Parallels with Air Float
#11114 Universal 16" (405mm) Heavy Duty T-Slot Parallels with Air Float
#11115 2" (50mm) x 3" (75mm) Parallels for general purpose machine work such as setting up in-line blocks on the pan or small single cylinders.

UNIVERSAL FIXTURE

Mount V and In-Line Blocks on one Universal Fixture. The 2" (50mm) Main Line Bar can be adjusted to bore blocks square to the crankshaft centerline or head gasket face. Rotating the eccentric bearing lifts and lowers the main line bar. The optional parallels can be removed and the supports bolted directly to the base of the machine for extra tall blocks. Extra clearance below and behind the fixture allow tall V blocks to be rolled to both banks to allow the complete block to be bored without removing from the machine. The same universal fixture can be used on a Rottler surfacing machine to surface cylinder heads and manifolds.

#7241R Universal Automotive Block Fixture
#7219W 5.2" (132mm) Heavy Duty T Slot Parallels





STANDARD EQUIPMENT

- CNC (Computer Numerical Control) Machine using Windows Operating System and Industrial PC with Intel Processor.
- Precision Programming and Control thru a 4.5" (114mm) Computerized Touch Screen.
- Software for Programmable & Automated Cycles such as Boring, Sleeving, Counterboring and Blind Hole Machining
- USB flash drive for file transfer to and from computer
- Internet connection to the machine computer must be provided for training support and service.
- Machine/Computer can operate in either inch or metric system
- Machine Workhead Floats on Air Cushion for Precision Centering
- All motors - AC Servo Motors with BISS Encoders - Infinitely Variable
- Vertical and Spindle Load Monitoring for Fast Overload Shut Down
- Precision Position Display in .0001" (.002mm) Resolution.
- Electronic Handwheel for manual movement - per click: Coarse Mode .01" (.25mm) Medium Mode .001" (.01mm) Fine Mode .0001" (.002mm)
- Infinitely Variable Feedrates adjustable by handwheel during automatic cycles
- High Performance Spindle Rotation AC Brushless Servo Motor - infinitely variable to 1200RPM
- Heavy Duty Hard Chromed Precision Spindle with High Speed Angular Contact Bearings supported with Adjustable Conical Outer Bearings
- Spindle with Quick Change Cutterhead System
- Fast Rapid and Jog Speeds for Reduced Cycle Time
- Automatic Workhead Tilt System for Back Clearance during Spindle Retract
- One Piece Heat Treated Mehanite Cast Iron Machine Castings
- Turcite Coated Slideways for Low Friction and Extended Life
- Automatic Central Lubrication System monitored by computer
- Operation, Programming and Spare Parts Manual - Digital

SPECIFICATIONS

MADE IN USA

	American	Metric
Bore Capacity with Optional Cutterheads		
F9A	1.5-5""	28-127 mm
F10A	1.5-9""	28-228 mm
Spindle Speed RPM	Variable 100 to 1200 RPM	
Feed per Revolution (Programmable Feed Rates)	.001 to .012"	.025 to .300 mm per rev.
Spindle Travel Vertical		
F9A	13"	330 mm
F10A	15"	381 mm
Workhead Travel Horizontal		
F9A	40"	1000 mm
F10A	50"	1270 mm
T Slot Machine Base Table		
F9A	50" x 21"	1270 mm x 530 mm
F10A	54" x 21"	1370 x 530mm
Spindle Taper to Machine Base	26"	670 mm
Floor Space Required		
F9A	54" x 46"	1371 mm x 1170 mm
F10A	64" x 46"	1625 mm x 1170 mm
Spindle Motor (AC Servo)	3.3 HP	2.5kW
Air Requirements	1 cfm @ 90 - 100 psi	6-6.6 bar
Power Requirements	208-240 V, 1PH, 20A, 50-60 HZ	
Shipping Dimensions	67" x 77" x 90" H	1702 x 1956 x 2286mm
Shipping Weight		
F9A	3500 lbs	1591 kg
F10A	3700 lbs	1682 kg
Paint Color Code	RAL9002 (Grey White)	

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