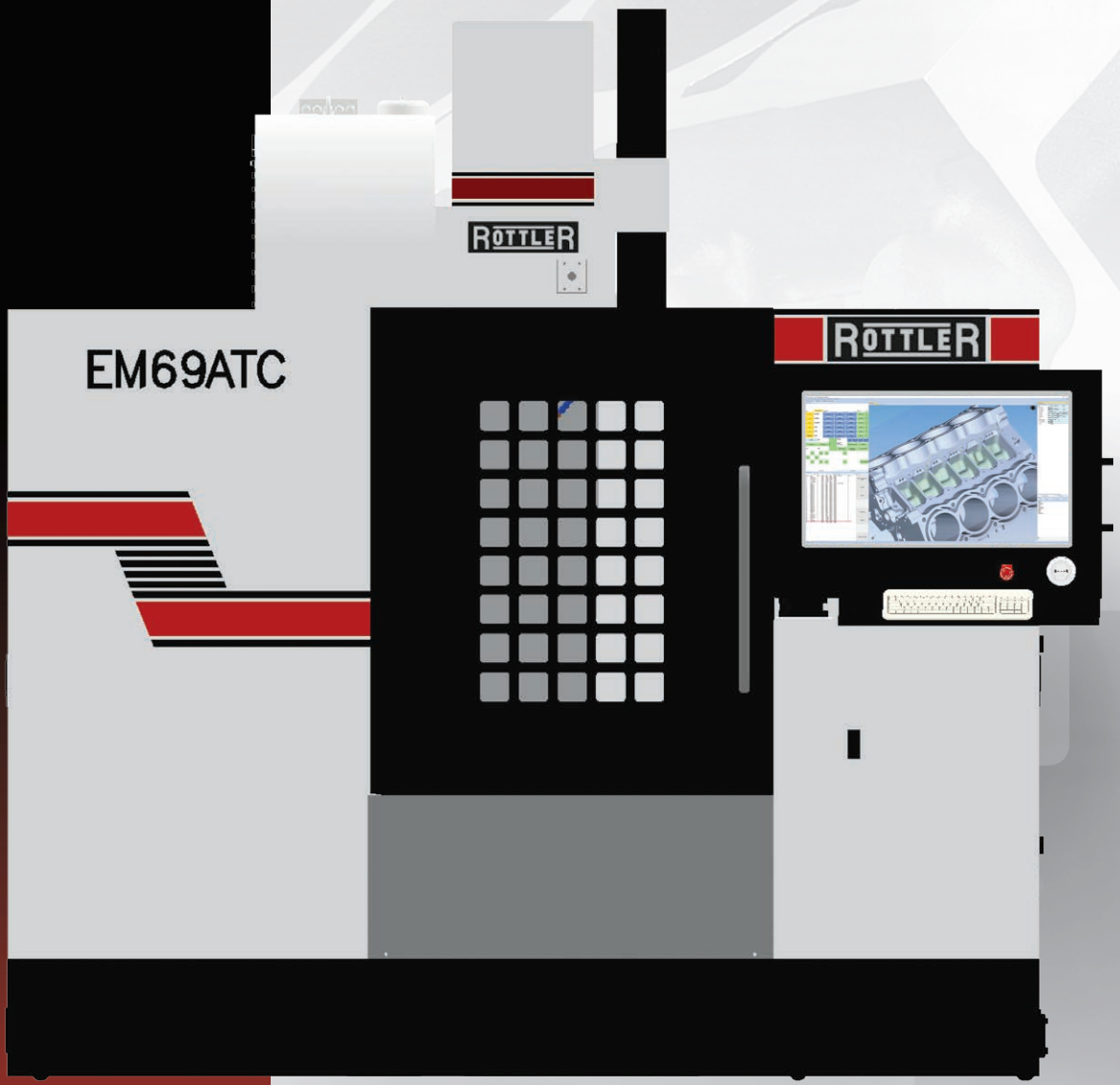
ROTTLER

THE CUTTING EDGE

EM69ATC

Multi Purpose Vertical CNC Machining Center

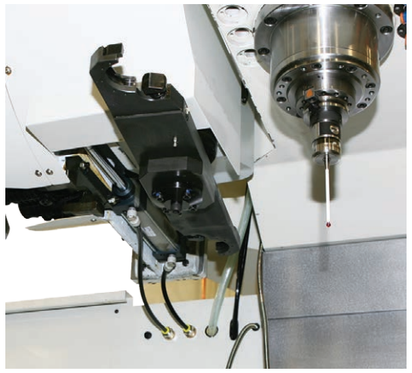
with Automatic Tool Changer

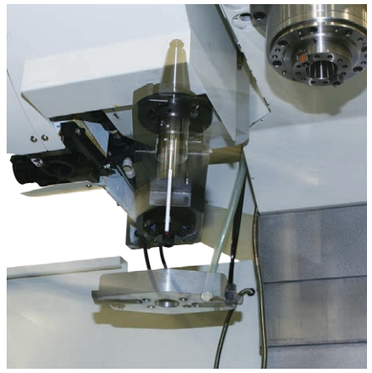


Machining Equipment Created for Performance Racing & Engine Remanufacturing.

So Advanced, It's Simple.

EM69ATC MULTI-PURPOSE VERTICAL CNC MACHINING CENTER





Automatic Tool Changer

The 24 Space Automatic Tool Changer for CAT40 Taper can handle up to a 5.9" (150mm) diameter tool weighing 15.5 lbs (7kgs).

Spindle

Super hard finish resists wear for years of operation. 0-8,000 RPM Spindle Rotation with quick change CAT40 Taper.

Linear Roller Slideways

All Axes of the EM machines are supported on low friction Linear Roller Bearing Slideways allowing fast acceleration and precise positioning for more production and precision parts.

Chip Auger

Automatically removes chips from enclosure and deposits chips into disposal cart.

Massive Frame

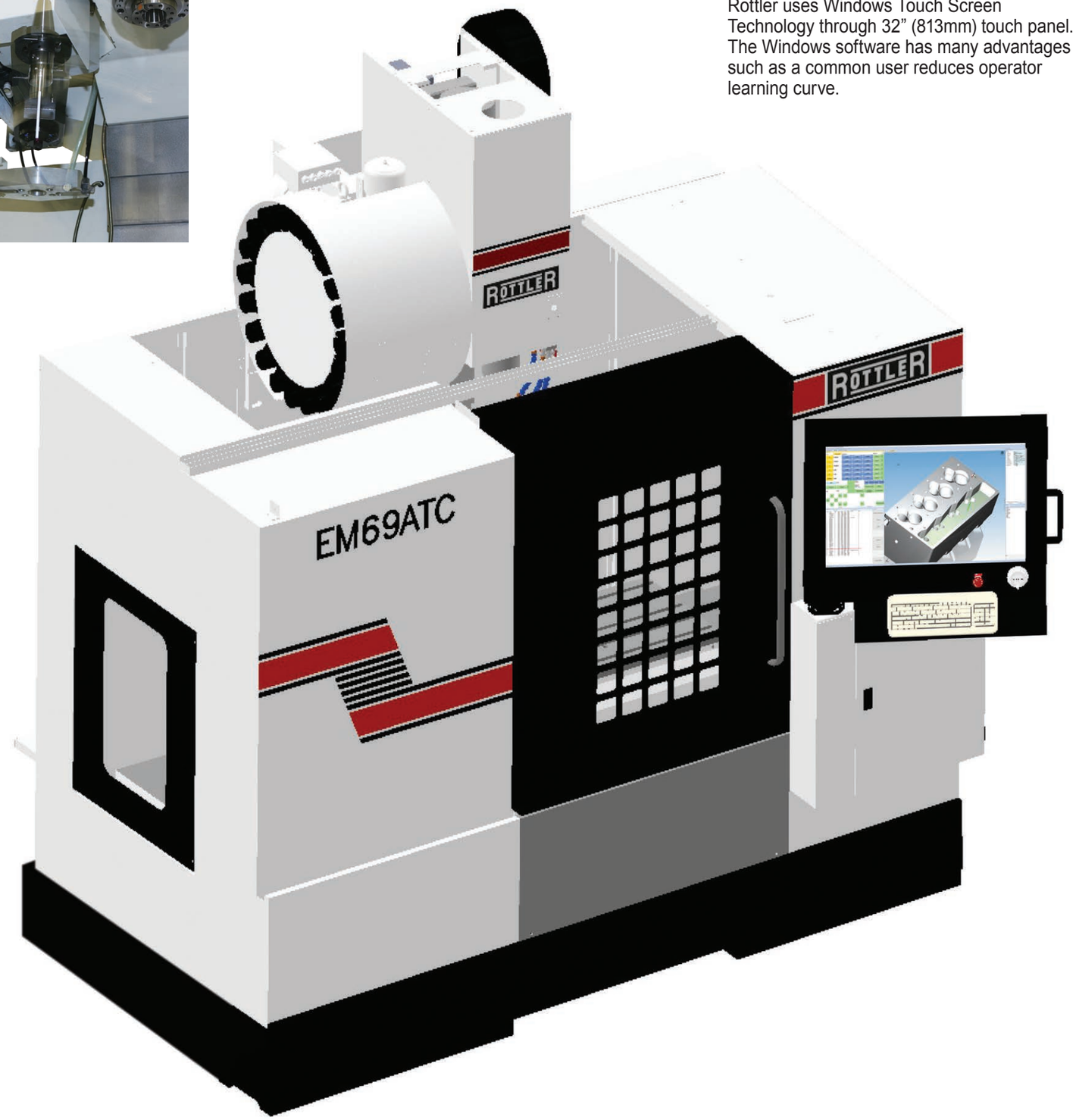
Massive frame boasts full enclosure with sight panels in front and on sides of enclosure to view work area.

Large T-Slot Table

Allows operator to clamp or fixture a wide range of jobs quickly and easily.

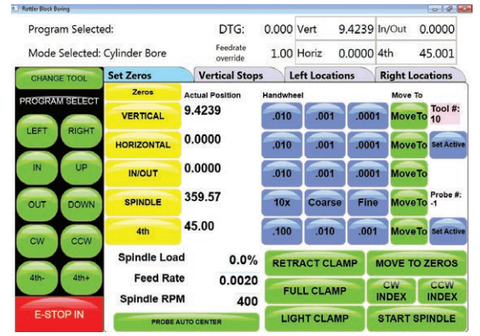
Coolant Tank

Complete coolant system for tool lubrication during machining. 30 gallon (120 liter) capacity.



Windows Operating System

Rottler uses Windows Touch Screen Technology through 32" (813mm) touch panel. The Windows software has many advantages such as a common user reduces operator learning curve.



Touch Screen Control
INDUSTRY EXCLUSIVE

Two Operating Systems!

1: Rottler System for simple, fast and easy programming of common jobs such as boring, surfacing and line boring. Anyone can learn in a few hours!
2: Rottler PATH System for advanced CNC programming for making parts, engraving names, and much more.

Electronic Hand Wheel

Offers operator infinite control of machine movement in all axes for quick and easy setup. Also controls variable feed rate during automatic cycles.

Brushless Servo Motors with BISS Encoders

The EM69ATC has the latest technology servo motors with BISS encoders offering 100 times finer resolution compared to previous models. These new Servo motors give maximum torque and performance throughout the RPM range for improved accuracy and increased productivity. BISS encoders eliminate any limit switches and do not require homing at start up saving time and increasing reliability.

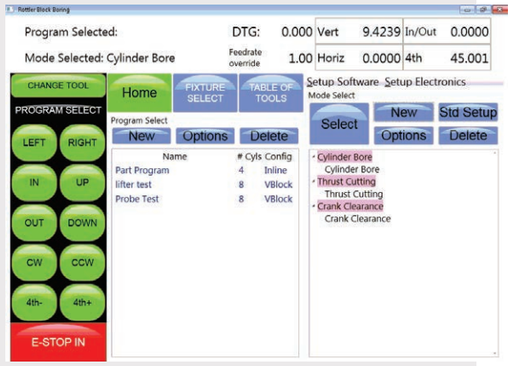
Direct Drive Ball Screws

Direct drive precision ball screws for faster rapid feed rates and accurate positioning eliminating backlash problems relating to belt drive systems.

Automatic Lubrication

For years of trouble free life and reduced wear.

ROTTLER EXCLUSIVE TOUCH SCREEN PROGRAMMING

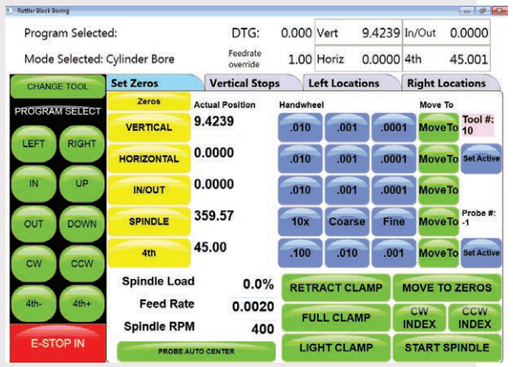


Mode Screen

Allows operator to select operation to perform and save every program by engine name.

Blueprint

Type locations from blueprint into machine.

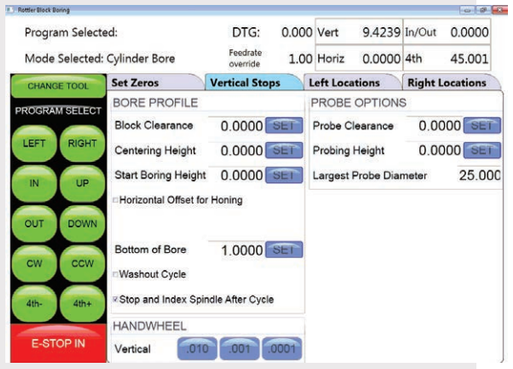


Set Zeroes

Simply set zeroes to begin set-up of block.

Indicate

Older blocks that may not clean-up by blueprinting. Center bore and touch set button.



Vertical Stops

Allows operator to set machine to begin/ stop boring. Operator can also offset bore at bottom of cylinder to clearance main web for cylinder honing.

Probe

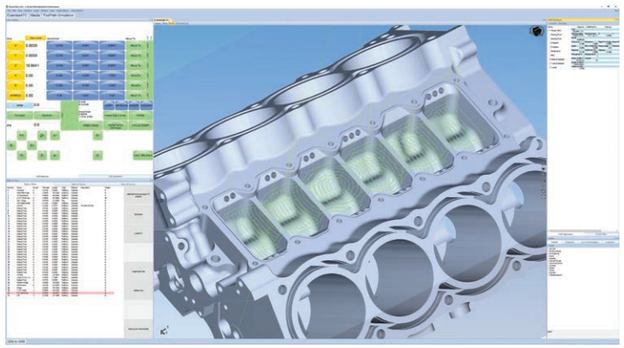
Machine will probe all eight bores and set centers for boring. Once finished touch “Start Auto Cycle” to begin boring.

Fully Programmable Cycles

Simple CNC control, PC based with Windows operating system.

Dimensions input through touch screen:

- Bore Centers, Exact Depth, Speed, Feed, etc.
- Bores complete bank in Automatic Cycle.
- Lower Bore Relief, off center boring for Honing Clearance.
- Surfacing Multiple Pass programmable for roughing and finishing can remove any amount of material in one automatic cycle. Enter desired deck height of block and the machine will cut to that height. No more guess work!
- Lifter Bore Machining - bore housings and bushings to exact final size.
- Automatic line bore cycle completes all main bearing housings to within .0002”.
- Face main line thrust bearing faces square to crankshaft centerline.
- Machine a radius for stroker crank connecting rod and bolt clearance.
- Rottler PATH CNC program allows G code programming and file transfer with CAD/CAM programs.



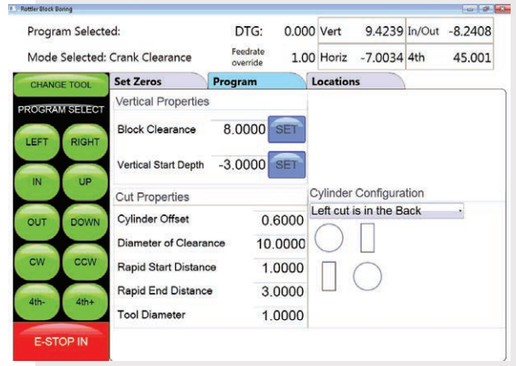
Rottler PATH

Rottler PATH software offers even more versatility, for machining parts, combustion chambers on cylinder heads, etc.

Versatility & Simplicity

Thrust Cutting

Allows operator to easily program for thrust cutting on both sides of the main bearing cap.

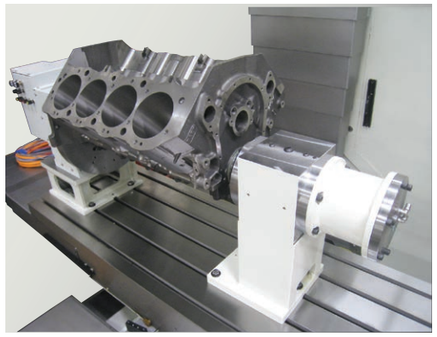


Crank Clearance

Stroker Crank & Rod Clearancing of blocks.

Lifter Bore

Operator can easily program lifter bore dimension by blueprinting, indicating or probing.

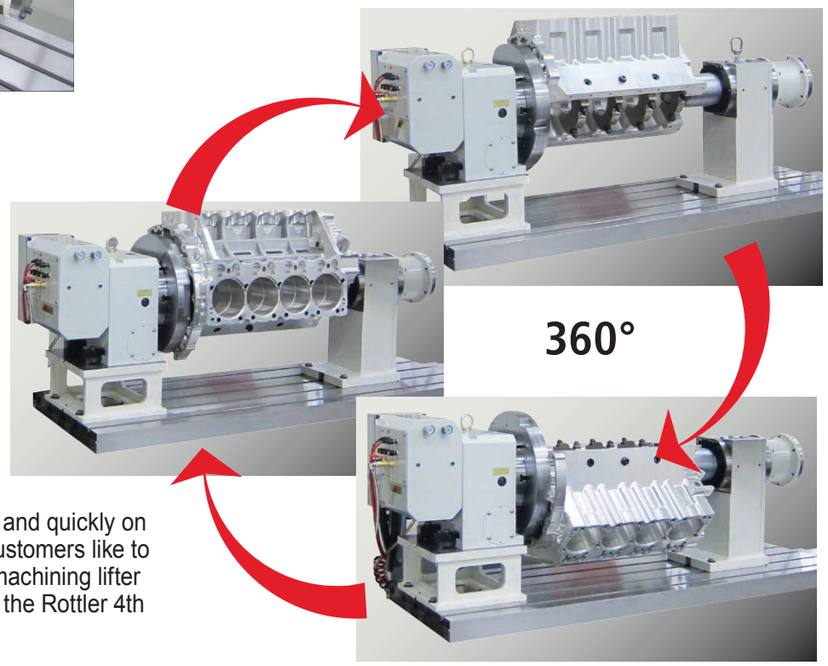


Crankshaft and Camshaft Centerline Fixture

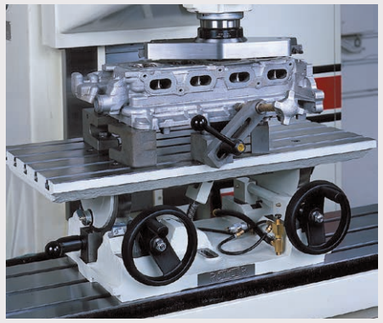
All engine block machining should be done with reference to the Crankshaft or Camshaft Centerlines. It is not accurate to set up blocks on their pan rail or end faces! When any main line boring work is to done, this should be completed before any other machine work in done to the block. The Rottler 4th Axis quick load/unload fixture utilizes precision locators to set up blocks accurately and quickly on their crankshaft centerline. Some customers like to set up on Camshaft Centerline for machining lifter bores and this can also be done on the Rottler 4th Axis Fixture.

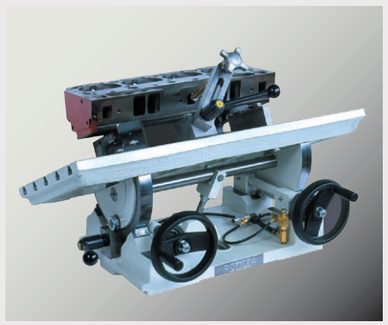
Automatic 4th Axis Block Roll Over Fixture

Rottler's Universal quick load/unload Automatic 4th Axis Block Roll Over Fixture and Software allows the computer to rotate the block or cylinder head during the automatic machining cycle. Large V blocks can be rotated 360 degrees to allow special machining jobs such as stroker clearancing in same set up as boring, surfacing and lifter bore machining. The tail stock is pneumatically operated allowing easy and fast loading and unloading of heavy blocks.



Cylinder Head Surfacing





Leveling Table

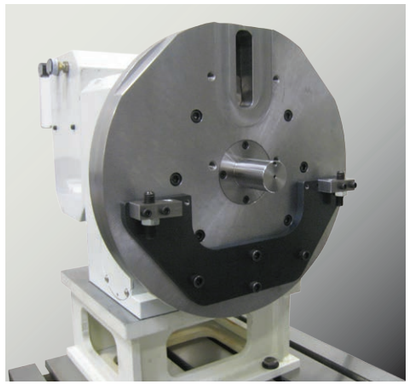
Rottler's patented dual axis leveling table and universal quick clamping system for surfacing/milling heads, blocks and manifolds with CBN and PCD tooling. The Rottler Dual Axis Leveling Table allows clamping of the head to be completed first, then the level adjusted in both directions simply by rotating the two hand wheels. Combined with Rottler's Dual Axis Level, any job can be clamped and leveled in seconds! This process results in minimal stock removal when surfacing.

Dual Axis Level

Displays both axes simultaneously allowing quick leveling, eliminating any need for shimming and resulting in minimum metal removal when surfacing heads. Leveling table can be set up on parallels allowing heads to be surfaced on EM69ATC without moving the 4th Axis Fixture.

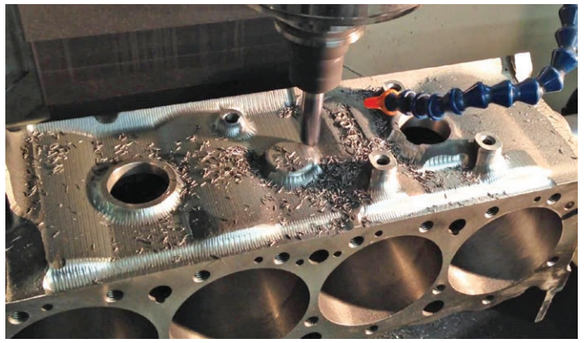
Main Cap Conversions and Line Boring

All operations for installation of splayed main caps including milling, drilling, tapping can be done in one automatic cycle with the 4th Axis Fixture. After the studs and main caps are fitted, line boring is done with Rottler exclusive Right Angle Drive and Line Bore Pivot Table. No line honing is required.



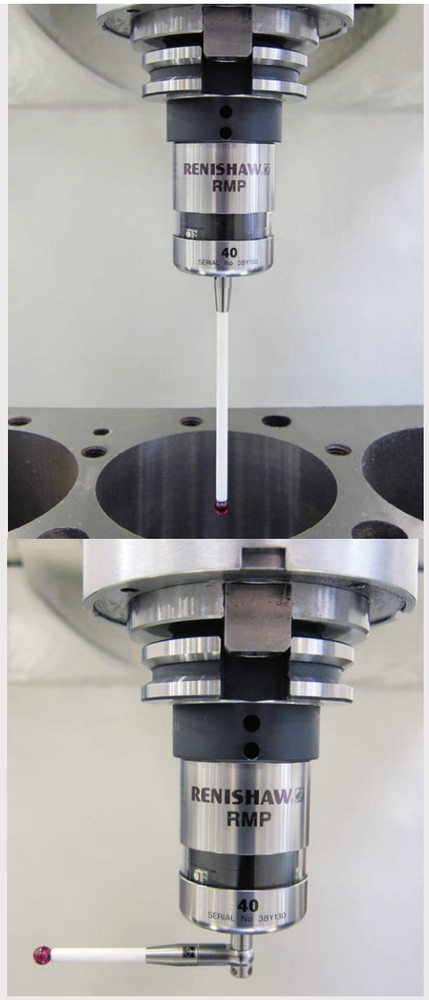
Overhead Camshaft Fixture

Special Fixture allows overhead camshaft engine in-line and V blocks to be machined with the Rottler 4th Axis Automatic Roll Over Fixture.



CNC Lightening

Lightening parts such as blocks and main caps requires simultaneous movement of 4th axis for complete lightening programs. The EM69ATC is able to complete advanced block lightening for maximum weight reduction.



Wireless Radio Probing

Computer controlled wireless probe automatically finds cylinder bore centers and at the same time measures bore diameters. The difference between the drawing blueprint and the probed dimensions can be displayed by touching one button.

The deck (head gasket face) can be probed to check flatness and squareness to ensure accuracy and minimum metal removal when surfacing.

Upper and Lower Centering

With the use of a radio probe, the upper and lower areas of a cylinder bore can be probed to check concentricity and perpendicularity to ensure that the block is setup correctly before machining.

Rottler Boring and Sleeving Cutterhead installed in massive heavy duty EM69ATC Spindle.

Block Lightening Tooling Packages

Rottler offers a range of block lightening tooling packages.

Part #650-2-44W - for Dart Small Block Chevy

Part #650-2-44X - for World Products Small Block Chevy

Part #650-2-45J - for Big Block Chevy

Drill Chuck

Precision Drill Chuck Assembly.

Part #650-2-44M

Tap Holder

Quick change tap holder assembly with adaptor. Torque control tap holders available for 1/4" (6.35mm), 5/16" (7.95mm), 3/8" (9.52mm), 7/16" (11.13mm), and 1/2" (12.70mm) taps

Part #650-2-11K

Shell Mill

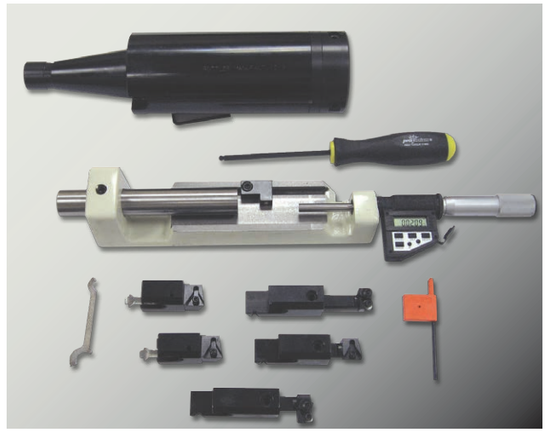
We offer both 2 1/2" (63.50mm) and 4" (101.60mm) Shell Mill assemblies.

Part #650-2-44N - 2 1/2" (63.5mm)
Part #650-2-44P - 4" (101.6mm)

Cam Line Boring Tooling

Camshaft Line Bore Tooling Package allows camshaft tunnel line boring for jobs such as roller bearing conversions. Special right angle drive and fixture available for line boring blocks such as Cummins 5.9

Part #650-3-43T



Boring and Sleeving Cutterhead

Package includes Boring Head, Cartridges and Tool Holders, Digital Setting Fixture. Tools available for O-Ring groove cutting and chamfering.

Lifter Bore Tooling

Single point Lifter Tooling fixture for boring, facing and finishing lifter bores and bushings. Special tooling and software is available to install lifter bushes automatically.

Lifter Bore Setting Fixture

Digital Setting Fixture allows exact size to be set for final lifter bore diameter finishing.

Spindle Adapters

The CAT40 worldwide standard Spindle Taper allows a wide selection of spindle adapters which allows the use of a wide variety of industrial tooling. ISO 40, R8, Morse Taper #5 and 1" (25.4mm) are available. Rottler also has a blank spindle adapter to allow customers to machine and adapt to special requirements.

Milling Cutter Holders

Collet Chuck Kits with CAT40 taper allow milling tools such as end mills, slot drills and reamers to be used.

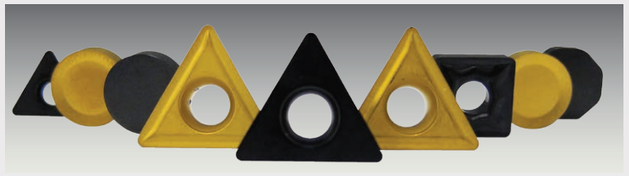
Flycutters and Milling Heads

Surfacing with the EM69ATC machine can be done during the same set up as boring. 10" (250mm) flycutter can be used with CBN/PCD inserts for high speed dry surfacing giving excellent surface finish results. The deck of a large block such as a V12 can be surfaced in less than 10 minutes. Multi Teeth Milling Heads can be used for milling welded and spray built up surfaces. Small diameter milling heads are ideal for facing main bearing housing contact surfaces in preparation for line boring to standard diameter. Special Surfacing Software allows very wide surfaces up to about 26" (660mm) to be surfaced.

Boring Cutterheads

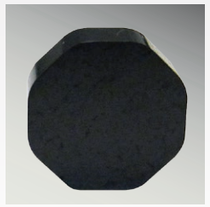
Rottler manufactures a complete range of CAT40 quick change boring cutterheads for boring and sleeving operations from .750" (19mm) to 5" (127mm). The air assisted CAT40 quick change retention system minimizes down time between tooling changes. Cutterheads can be changed in seconds!

CUTTING INSERTS



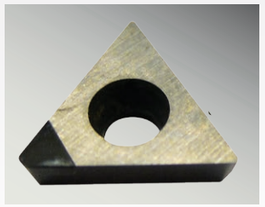
Rottler's tag line is 'The Cutting Edge', and we take pride in offering many different grades of cutting inserts for dry, high speed cutting a wide variety of materials. Decades of experience machining engines worldwide allows Rottler machines to dry cut a wide variety of parts. **CBN inserts** give exceptional long life for surfacing gasket faces as well as produce fine surface finishes for reliable sealing of metal gaskets. Dry CBN surfacing eliminates the need for wet grinding and at the same time gives flatter surfaces as cutting pressure is substantially reduced compared to surface grinding. **PCD inserts** allow soft metals such as Aluminum to be surfaced at high speed without coolant.

Rottler offers several different grades of **indexable carbide inserts** for cylinder boring & sleeving and main & cam line boring. **Special Black coated carbide inserts** are capable of standard to heavy sleeve cuts up to 1000rpm. **Triangle inserts** work well where cutting a bore to a square shoulder is needed, such as sleeves and counterbores. **Finishing Inserts** provide a sharper edge which results in a smoother surface finish on the cutting surface, ideal for finishing counterbores. **Carbide inserts** are available with 1/64" (0.4mm) and 1/32" (0.8mm) corner radius. Specially custom sharpened tools are available for operations such as chamfering, O-ring grooving, undercutting and blind hole boring.



Octagonal Cutting Inserts

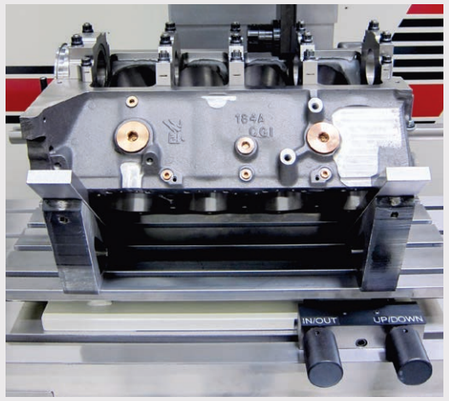
New Octagonal 16 Cutting Corner Surfacing Inserts have increased corner radius to allow faster feed rates and finer surface finish.



PCD Tipped Insert for Boring Aluminum

PCD cutting corner allows aluminum to be bored at high speed without any coolant.

LINE BORING AND THRUST FACING

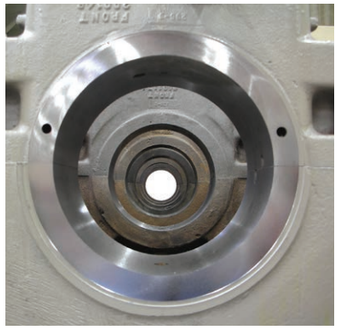


Line Bore Pivot Table

The Rottler Line Bore Pivot Table is a fast and easy system to set up blocks and heads for line boring. The table has five T-slots which allow set up of locating devices such as V-cradles. The pivot table is preloaded which allows machining without clamping.

This fixture is used for main and camshaft line boring. It can also be used for jobs such as roller bearing conversions, stroker crankshaft clearancing and machining registers for new main caps and four bolt conversions.

Rottler's slim line extended right angle drive can line bore both main and camshaft tunnel in one set up for blocks such as Cummins 5.9.



Thrust Facing

Rottler's unique circular interpolation software and thrust facing tooling allow thrust faces to be machined perfectly square to bearing centerline using the same right angle drive that is used for line boring. Single point cutting allows build up to be removed without chatter resulting in fine surface finish.

Precision Line Boring with Right Angle Drive

Precision Line Boring with Rottler's exclusive 90 degree right angle drive provides perfectly round bores and straight lines, no honing necessary! Hard steel main caps and aluminum blocks can be line bored to final size in one process – no honing necessary! Crankshaft to camshaft centerline is accurately controlled – honing can cause centerline to deviate away from the steel main caps.

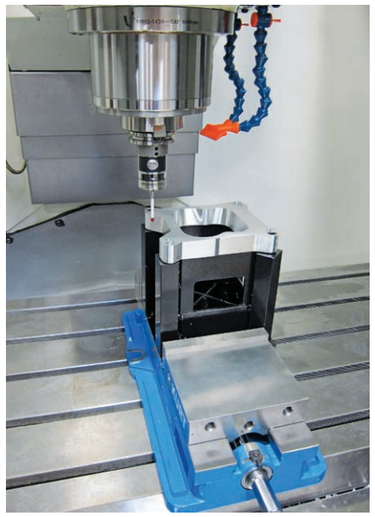
PARTS MANUFACTURING

CNC offers the real, tangible benefits of accuracy and repeatability, meaning your rebuilding machining operations will be precise, each and every time. But Rottler's CNC machines and our unique CAD/CAM software not only ensure your block and head machining operations are on the money, but give you the ability to create a whole new reality.

Can't find the parts you need for that one-off project? Make them yourself! We find that more and more customers - after researching the real-world adequacy of top-of-the-line industrial CNC machines - have recognized the parts manufacturing capabilities built into Rottler's state of the industry machines. Many of Rottler's machines can easily be programmed to custom-create the parts you need, when you need them.

What are our customers making in their own shops?

- Custom Tools and Fittings · Carburetor Spacers
- Suspension Components · Connecting Rods
- Bushings · Custom Intake and Exhaust Manifolds
- Non-Standard Blocks and Cylinder Heads · Industrial Components

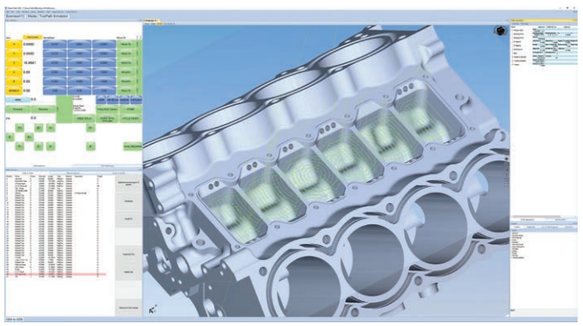


ROTTLER'S ADVANCED SOFTWARE

Rottler's Advanced 4C Software

What is 4C Software? Rottler's newest EM Series equipment offers Computer Numeric Control (CNC), Computer Aided Design (CAD) and Computer Aided Manufacturing (CAM) in the industry's most advanced Computer Measuring Machine (CMM). The 4C technology allows users to digitize, edit designs and begin cutting in less time but also requires less machining/programming expertise compared to many other systems. This brand new, revolutionary CNC machine CAD/CAM software allows 3D CAD Solid Models to be imported or created at the machine – the built-in CAM functions can be used to semi-automatically and interactively create complex 3D tool paths direct from the CAD geometry.

One of the main features is the EM series' expanded size 32″ touch screen – by maximizing screen size, Rottler's CAM software allows unprecedented amounts of information to be displayed for the operator's use. The user can choose the information to be displayed for incremental and interactive functionality.



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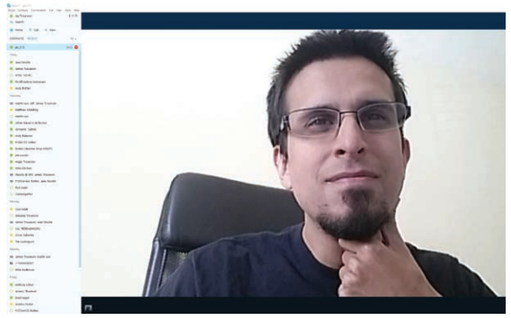
INSTANT INTERNET SUPPORT



Rottler offers cutting edge internet support direct from your machine to the factory. Skype™ and a webcam are installed for video conferencing and internet support. This feature gives you instant, direct contact with Rottler right on the machine without even making a phone call. The standard webcam comes pre-installed so that Rottler Technicians can see exactly what you are seeing, this saves a tremendous amount of time when trying to answer questions. Shop busy or too noisy for talking? The pre-installed Skype™ application gives you instant messaging capabilities with Rottler Technicians.

STANDARD EQUIPMENT

- CNC (Computer Numerical Control) Machine using Windows Operating System and Industrial PC with Intel Processor. Precision Programming and Control through a 32" (313mm) Computerized Touch Screen.
- Software options available for Programmable & Automated Cycles such as Boring, Surfacing, Lower Sleeve Offset Boring, Water Hole Repairs, Main & Cam Line Boring, General CNC Machine Work and more.
- Internet connection to the machine computer must be provided for training support and service.
- Programming and Machine Operation Thru 32" (813mm) Extra Bright Touch Screen
- Electronic hand wheel for manual movement - per click: Coarse Mode .01" (.25mm) Medium Mode .001" (.01mm) Fine Mode .0001" (.002mm)
- Precision Digital Readout, .0001" (.002mm) Resolution in 3 Axis
- Machine Prepared for 4th axis fixture upgrade
- 3 Axis Movement by direct drive Precision Ball Screws & AC Servo Motors - Infinitely Variable Horizontal Movement - Left and Right Direction - 40.5" (1028mm)
- Extra Clearance Between Spindle Nose and Machine Table - 40" (1016mm)
- High Speed, Rigid Spindle for Chatter Free Cutting
- Spindle Rotation by AC Servo Motor - Infinitely Variable 0-8,000RPM
- Automatic Central Lubrication System
- 24 Space Tool Changer for CAT 40 Taper
- Full Enclosure with Sight Panels of Work Area
- Complete Coolant System for Tool Lubrication During Machining
- Operation and Spare Parts Manual
- Chip auger for chip removal

SPECIFICATIONS

	AMERICAN	METRIC
Table		
Table Dimensions	59 X 20"	1498 x 508mm
Width of T Slots	5 - .63 x 3.94"	5 - 16mm x 100mm
Maximum Weight Capacity on Table	1540 lbs	700 Kg
Travel		
X Axis Travel (Horizontal)	40.5"	1028mm
Y Axis Travel (In/Out)	20.5"	520mm
Z Axis Travel (Vertical)	30.5"	775mm
Spindle Nose to Table	10 - 40"	254 - 1016mm
Spindle		
Spindle Taper	Cat 40	
Spindle Rotation Speed	0 to 8,000 RPM	
Spindle Motor (Continuous)	27HP - 70.5ft.lbs	20kW – 95.6Nm
Performance		
Rapid Travel X & Y	400 IPM	10,160mm/min
Rapid Travel Z	400 IPM	10,160mm/min
Tool Changer		
Number of Tools	24	
Maximum Weight of Tool	15.5lbs	7kg
Maximum Diameter of Tool	10"	254mm
Tool Changing Time	2 seconds	
Overall Specifications		
Machine Weight	12000 lbs	5400 kg
Machine Dimensions	88D x 127W x 109"H	2235D x 3225W x 2768mmH
Shipping Dimensions	132D x 90W x 110" H	3353D x 2286W x 2794mmH
Electrical Requirement	208/240V, 60A, 50/60Hz, 3Ph	
Air Requirement	90 psi	6 bar
Coolant Capacity	30 gallons	113 liters
Paint Color Code	RAL9002 (Grey White)	

Specifications and design subject to change without notice.

May 2018

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