ROTTLER

THE CUTTING EDGE

H85A

CNC Automatic Vertical Honing Machine

Machining Equipment Created for Performance Racing & Engine Remanufacturing.

So Advanced, It's Simple.

H85A CNC VERTICAL HONING MACHINE

Automatic Lower Crash Protection System

Many Engine Blocks have interference in the lower area of the bores and can damage honing stones and holders. Every time the H85 starts honing a cylinder, the machine will check bores for interference avoiding potential damage to honing stones and holders. Variances in lower bores are common. Rottler H85 Control senses lower bore interference prior to rotation and stroking motion starts, eliminating any stone or holder damage.

Vertical Stroking System

CNC Servo Controlled High Pitch Ball Screw and Hardened Steel Linear Slideway Systems allow precision vertical stroking and fully automated operation, creating a true constant cross hatch pattern thoughout the entire length of the bore increasing oil retention while reducing oil consumption extending engine life and reliability.

Monitored Variable Load Control

A must for cylinder honing! 'Load' is used to describe the pressure that the honing stones experience against the cylinder wall during the honing operation. Roughing cycles require higher loads for faster stock removal and finishing cycles requires lower loads to reduce distortion. The H85 is programmed with roughing and finishing loads automatically controlling the stone pressure while honing cylinder bores producing the desired geometry and surface finish in every cylinder. Honing time is substantially reduced for maximum productivity and repeatability.

Programmable Plateau Operation

The machine automatically expands plateau brushes or CBN stones to programmed load and counts down the number of plateau strokes, then retracts the brushes/CBN and withdraws to the clearance position.

Automatic Zero Position Setting System

H85 Series machines automatically expand the stones to a preset load and allow the operator to set zero position. The Automatic Zero Feature allows the operator to calibrate the hone head to different diameters quickly and consistently. Automation eliminates guess work and intuitively removes variations created by the feel method.

Precision Stone Feed-Out System

Once the hone head is positioned in the bore, the hone head rotates slowly and expands the stones simultaneously. The spindle accelerates to full speed and begins the stroking process only after the stones have precisely contacted the bore.

Automatic Honing Stone Retract at End of Cycle

The Rottler H85 is designed to automatically retract the stones during the last stroke producing a perfect scratch free bore every time.

Infinitely Variable

Hone Head rotation and stroking speed is infinitely variable to produce any surface finish and cross hatch requirement - fast.

Cross Hatch Pattern Control

H85 Series machines offer programmable parameters to produce the Cross Hatch Pattern you desire on your bore finish. Cross Hatch Angle Patterns and Bore finish programs can be stored and pulled up for re-use easily. Digital camera and special software available to check cross hatch angle.

Independent Overstroke Control

Machine allows operator to independently adjust overstroke distance at top and bottom of stroke allowing much straighter cylinders without excessive dwelling. This same feature allows operator to adjust top overstroke while machine is honing!

Electronic Hand Wheel

Lowers the hone head into each bore. Manually expand stones inside the bore for the ultimate in versatility.

Rugged Design – Solid Construction

H85 series machines ensure a lifetime of accuracy and reliability along with ease of cleaning and maintenance due to industrial powder coated finish and pullout coolant cart.

Removable Coolant Tank

Large capacity 70 Gals (265 liters) coolant tank is mounted on wheels and is easily removed to the front of the machine to allow fast and easy cleaning. The coolant pump is mounted on an adjustable support allowing it to be easily lifted for removal of tank.

Quick Change Spindle System

Spindle Taper and Quick Change System allow hone heads to be changed in seconds with the Rottler Automatic Locking System - change from diamond to plateau brush in seconds. Wrenches are eliminated. Automatic tightening locks or releases nearly instantly!

Manual Simplicity. Digital Accuracy

The H85 boasts a bright full color, easy to read, ergonomically positioned 15" (400MM) Windows Touch Screen Control that simplifies all aspects of cylinder honing. Precision display in .0001" (.002mm) increments of bore diameter.

Filtration System

The H85A is supplied with a dual gradient cartridge filter system. The filter starts filtering 50 micron particles and ends filtering 5 micron particles - keeping the coolant cleaner while removing very fine particles from the coolant. Optional life time magnetic cartridge filter is available for further filtration and extended life.

Water Based Synthetic Coolant

Water based synthetic honing coolant can be used with Rottler diamond/CBN honing stones, greatly reducing heat buildup during the honing process. Cost is substantially reduced over conventional honing oils and cleaning is nearly eliminated. Disposal of used water based coolants is environmentally friendly and disposal effort is reduced compared to conventional honing oils.

International Multi Language

Windows Touch Screen Computer Control allows for easy translation into multiple languages.

Large Capacity and Versatility

Large Capacity and Versatility – the H85 has capacity to hone from the smallest to large 6 cylinder in-line diesel blocks up to 55' (1400mm) long. The H85 has 38" (965mm) of X axis travel on linear slideways so that large blocks with cylinder bore centers up to 38" (965mm) can be honed – automatically! The H85 can hone very large liners up to 7.38" (187mm) Max Diameter

Stainless Steel Door

Sliding stainless steel door provides easy cleaning, smooth movement and long life with wide opening for easy loading of blocks. The door is easily removed for cleaning of machine and changing fixtures.

Compact Size

Efficient design takes up less room in your shop increasing production while allowing room for future expansion.

Lighting

Three LED lights in the cabinet and two LED lights under the work head illuminate the complete work area so the operator can clearly see the honing operation.

WINDOWS TOUCH SCREEN CONTROL

Rottler has been dedicated to the Engine Rebuilding industry since 1923 and has produced computer controlled machinery since the 1980s. We've used these years of experience, combined with dedicated R&D and precision engineering, to bring you the most advanced, easy to learn and operate touch screen controls available on the market today and into the future. Rottler innovation sets the standard in Diamond and CBN Honing.

Automatic Controls

The new Rottler H85 Control is an intuitive easy to use Touch Screen created by our team of technical and electronic experts. Feedback from the marketplace is built in, creating a control that is easy to understand and simple to use. Rottler Touch Screen Controls handle a wide variety of precision bore finishing work such as automotive, diesel blocks, motorcycle engines, outboard marine applications, snowmobile, airplane and more. Industrial applications experience the ultimate in versatility.

Program Select

With memory to store each job, operators can save programs and refer back to past jobs without the need to re-enter any parameters. All settings for each block are saved under fully customized names for instant recall; select any saved program from the startup screen, use the automatic zero setting function and you're ready to start honing. This improves quality and consistency of the honing process from day to day and from operator to operator.

Automatic Cross Hatch Angle

Automatic cross hatch is simple to use and automatically obtains any desired cross hatch angle and self-adjusts automatically. Manual calculating is eliminated. The Automatic Cross Hatch angle system is solution capable. Simply enter the angle and the computer will maintain the angle from top to bottom of the cylinder.

Rottler H80s Machines are manufactured with Precision Ball Screw Stroke Mechanisms to create precise cross hatch angle.

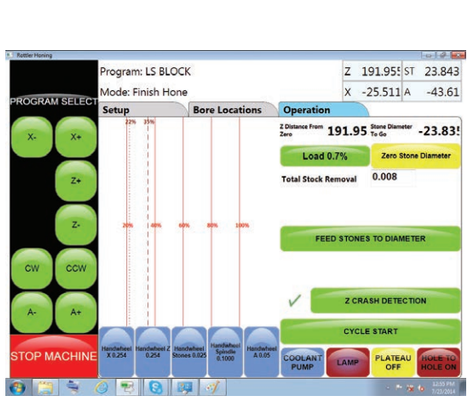
The Rottler H85 Series Advantage

There are several important features of the new Rottler H85 computerized control which account for substantial improvements in accuracy and productivity.

- The digital bore profile display projects an exact profile of the bore during honing.
- Rottler software continuously analyzes the bore and senses taper anywhere in the cylinder - top, middle or bottom and automatically dwells or short strokes as programmed, correcting the tight area.
- Two stage roughing and finishing cycle allows higher loads in the roughing cycle for fast stock removal and light loads for finishing, increasing productivity and accuracy.
- Infinitely variable hone head speed (1-400 RPM) allows high speeds for roughing, for fast stock removal and a slower speed for finishing giving the desired cross hatch angle and surface finish.
- The finishing cycle operates much like a "spark out" system where there is very light stone load eliminating any distortion resulting in accurate bore geometry and consistent surface finish.
- Automatic Plateau Mode holds the stones at a preset load and counts down the number of strokes so that each cylinder has the same plateau surface finish.
- Manual controls are within easy reach on the touch screen for fine adjusting settings during automatic cycles and R&D.

TOUCH SCREEN PROGRAMMING

Rottler Software is designed with Manual Operators in mind. Intuitive design allows for manual ease with digital accuracy. Manual operators create programming by utilizing Touch Screen icons for easy control.

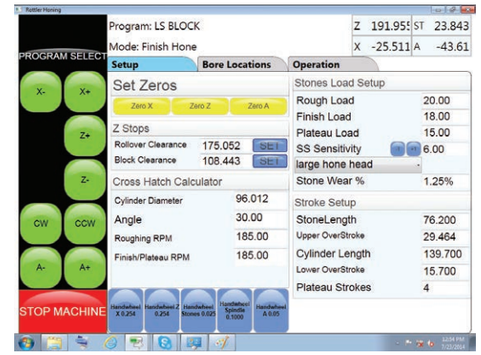


Operations Screen

The Operations Screen is where the operator spends the most time. Activating the Automatic Zero Setting is an innovative feature that creates final size accuracy that can be pulled up quickly on all new jobs. From the Operations Screen, the operator can program and control functions such as coolant, lights, plateau, jogging and more. On screen control lets you toggle between automation and touch screen movements that mirror old school manual control.

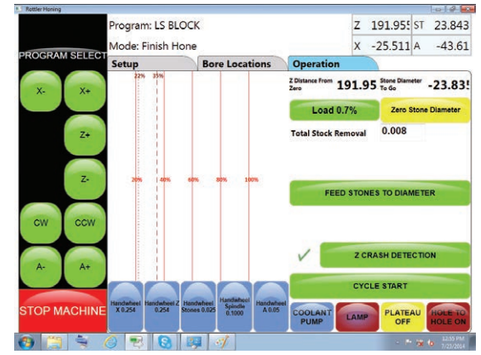
Home Screen

The home screen is where new programs are created and saved by name for future use. Unlimited number of programs can be saved in memory.



Setup Screen

All information and specifications are easily programed in the Set Up screen for a specific engine or job. Recall is simple as past jobs are pulled up with a quick touch.



Running Screen

The Running Screen appears when running an automatic cycle allowing the operator to visually experience what is running on the machine at all times.

ROTTLER'S DIAMOND AND CBN PROCESS

Rottler Manufacturing has powered the industry forward by innovating a new and efficient application of diamond and CBN abrasives to the automotive aftermarket. In collaboration with experts, ranging from performance racing to the locomotive industry, Rottler developed engineering has created an entire process that proves diamond/CBN abrasive honing technology is the most accurate and cost effective method to produce superior hone finishes in a consistent fashion.

Automatic Pressure/Load Control

The H85 control was specifically designed to correctly maintain honing stone to cylinder wall pressure/load for diamond or CBN finishing. Diamond and CBN stones are capable of exerting excessive load which results in poor finish and geometry. The H85 control automatically senses and controls load to ensure correct loads during finishing for accurate geometry.

Advanced Rottler Diamond & CBN Honing

Diamond abrasives do not break down like vitrified stones and require very precise, heavy duty, rigid hone heads. The Rottler Precision Hone Head is designed and manufactured to exacting tolerances. Each stone holder set is designed to operate within a 5/16" (8mm) range, which is the recommended diameter range of a diamond stone set.

The process has been developed and proven after years of in-house and in-field experience. Rottler now leads the industry with more installations of diamond honing systems for engine cylinder finishing than any other company worldwide.

Alusil, Lokasil & Silitec Honing

Rottler's H85 offers versatility to hone Alusil, Lokasil or Silitec cylinders with specialized stones available directly from Rottler. These new materials are becoming quite common in many of the models of BMW, Mercedes, Porsche, and Audi.

Innovative Abrasives

Manufacturing the most widely used diamond and CBN system in the engine manufacturing industry has allowed Rottler to optimize diamond and CBN abrasives for maximum life and correct finish. Rottler diamond and CBN abrasives last up to ten times longer than other less expensive brands.

Rottler Water Based Coolant Superiority

Using the correct coolant is critical to obtaining the best possible finish. Rottler brand water based coolant has been developed to work specifically with Rottler diamond and CBN abrasives. New synthetic coolants are environmentally friendly when compared to traditional honing oils. Cleaning is easy and Rottler coolant eliminates washing machine contamination.

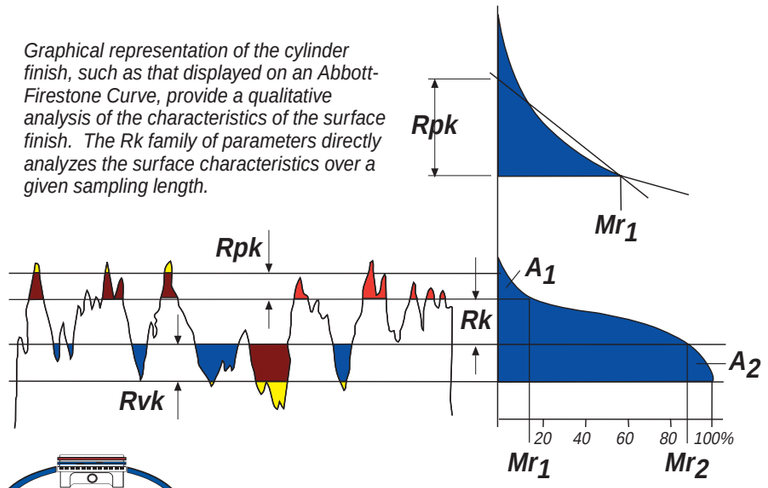
Profits for the Machine Shop

Turn difficult jobs into dollars with Rottler's new H85. Whether removing material or finishing the cylinder, the H85 makes money fast.

Today's honing finish standards are becoming more demanding

Today's progressive engine builder must be responsive to the dynamic changes in the industry. With the latest piston ring sealing requirements and the diverse number of block configurations, staying on top of the latest trends is vital. The versatility offered by the Rottler H80 honing machine provides the machinist with the latest technology to meet the demands of the evolving honing market. Cylinder finish requirements are now a science and Rottler tools are engineered to create cylinder surface finishes to meet your honing requirements both today and tomorrow.

Graphical representation of the cylinder finish, such as that displayed on an Abbott-Firestone Curve, provide a qualitative analysis of the characteristics of the surface finish. The Rk family of parameters directly analyzes the surface characteristics over a given sampling length.



ROTTLER HAS MADE DIAMOND AND CBN HONING TECHNOLOGY PROFITABLE FOR EVERY TYPE OF ENGINE BUILDER

HEAVY DUTY PRECISION DIAMOND HONE HEADS

Rottler Precision Honing Heads

Rottler Precision Hone Heads were developed to create a universal system capable of high precision with the flexibility to accommodate a bore diameter range of 2.34" (59.44mm) to 7.38" (187.45mm). Rottler Precision Hone Heads are compatible with diamond, vitrified, cork and brush abrasives, allowing for unmatched flexibility to customize your finish to the piston rings exact requirement. Exotic materials like nickasil and alusil can be honed with special abrasives. Abrasives are held in the stone holders with a clamping system designed for speed. The stone holder assemblies are quickly and easily interchangeable in the hone head to cover different diameter ranges or surface finish requirements. Using coarse, aggressive stones, bores can be quickly enlarged accommodating the next oversize cylinder bores and eliminating additional boring machine set ups.

Diamond and CBN Abrasives

Rottler abrasives are available in many different grit sizes and lengths to give perfect surface finish for all kinds of materials and cylinders. Ranging from tiny two stroke motorcycles with blind holes to huge liners and cylinders, Rottler produces a full line of abrasives to meet your needs.

Rigid Guide Shoes

Diamond particles are imbedded in hard bronze material allowing the diamond stones to work as rigid guide shoes supporting the hone head with even bore pressure.

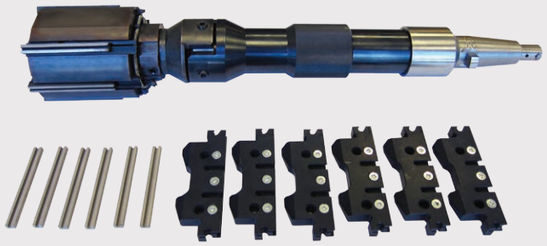
Feed Out System

The Precision Hone Head feed out system controls stock removal to .0001" (.0025mm) per increment.

Rottler also offers a wide variety of honing tools and accessories to easily size and finish bores in extra large, heavy or odd-shaped work pieces.

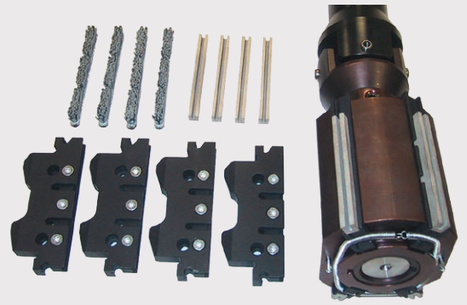
Rottler Precision 4 Stone Hone Head Systems have set the Diamond Honing Standard for decades. Proven performance is engineered to produce accurate and cylindricity for the ultimate in roundness.

Large hone head has interchangeable sleeves that extend the diameter capacity from 2.99" (75.92mm) all the way up to 7.38" (187.45mm)



New 6 Stone Honing Head

Rottler engineers are committed to providing customers with versatile honing head technology. 6 Stones provide dependable accuracy and longer stone life producing superior finishes. The increased surface area removes material efficiently providing the next level in honing performance. Rottler honing heads are engineered to pair with a variety of grit options to generate any surface finish required. Rottler is well positioned to accurately hone the new sprayed on materials being applied in racing applications. Rottler Honing Science eliminates variables allowing you to focus on accurate and productive output.



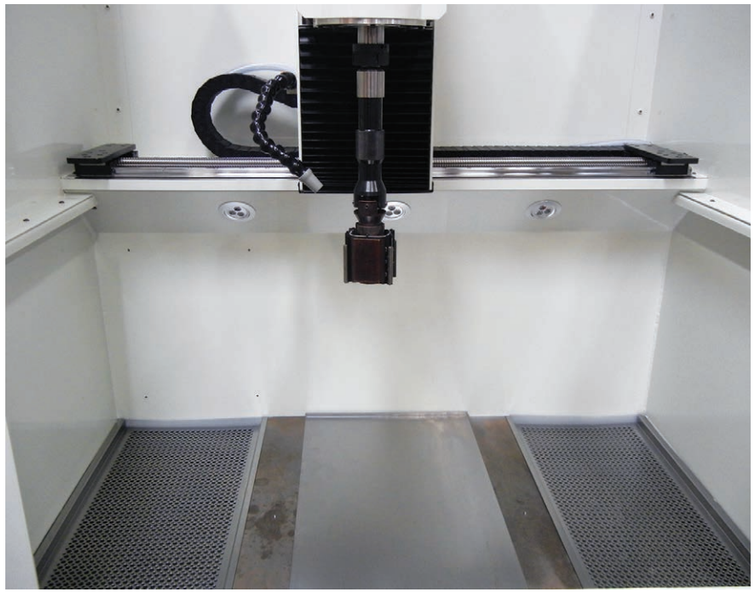
Quick Change Stone Holders

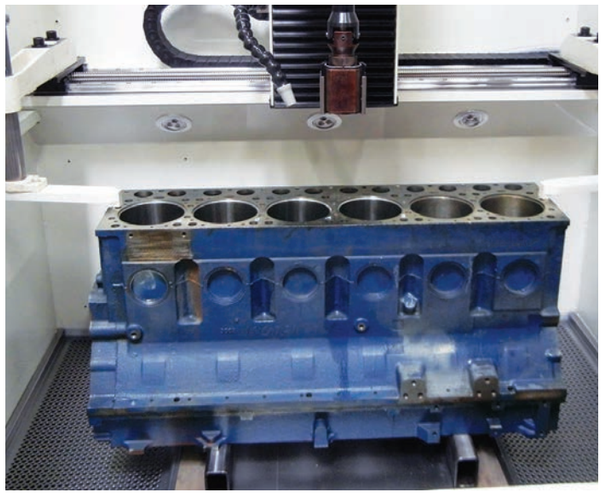
Rottler lifetime Quick Change stone holders are designed to clamp with three screws engineered for rapid changes and replacement. Replacement diamond stones and plateau brushes are quickly changed saving considerable cost over the lifetime of the machine.

CAPACITY

Universal and Large Capacity

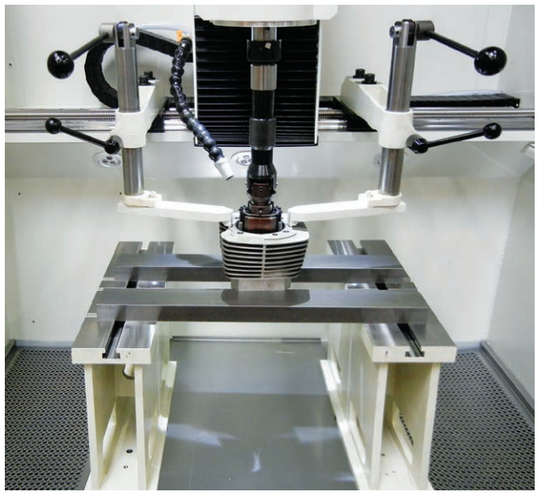
Rottler H85 Machines have an oversize coolant cabinet with parallel supports. The rigid cabinet allows the use of various fixtures and parallels for honing a variety of engine blocks and parts. Often, large race block studs can be left in the block as the increased size of the tank has the clearance required. The H85 Series handles single cylinders to large diesel In-line blocks up to 55" (1400mm) long can be easily setup. Optional Quick Clamp Handles can be utilized to efficiently hold parts for honing.





Universal Quick Clamp Handles

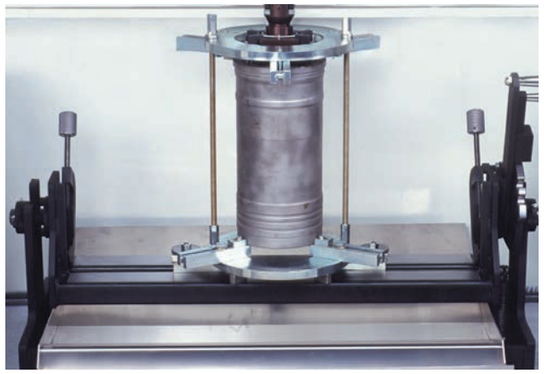
Universal Quick Clamp Handles allow for rigid clamping of small single cylinders. Large Inline diesel blocks utilize the Quick Clamp System for fast and versatile set up.



Universal Parallels

Universal Parallels allow for small single cylinder or smallest compressor cylinders to be set up and honed.

UNIVERSAL FIXTURES



Universal Liner Clamping System

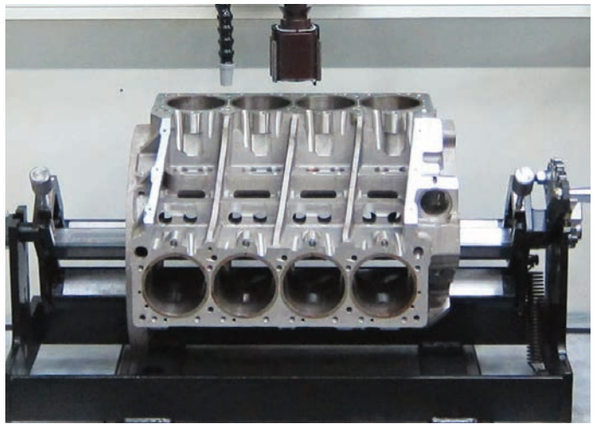
Liners and cylinders can be clamped using the optional universal liner clamping fixture #514-7B. The fixture holds loose liners and cylinders such as Deutz and Porsche. Requires Optional Roll Fixture.

Multiple Liner Honing Fixture

Special Liner Honing Fixture allows multiple liners to be clamped and honed with the same setup. The Multiple Liner Honing Fixture is shown here with four CAT 3500 liners. Fixtures for smaller cylinders such as Harley can hold up to six or eight liners/cylinders. Profit from the lucrative business of recycling liners!

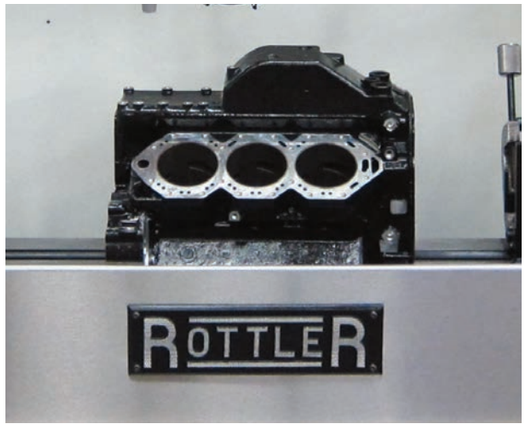
Manual Roll Over Fixture

Optional Manual Roll Over fixture provides exceptionally fast set up and block roll over is simple for V blocks with deck angles - 7.5°, 15°, 30° and 45°. A bar through the main line firmly holds the block on the cradle for rigid honing.



Fixtures Engineered for Industrial Applications

The easy clamp system built to provide the industrial market multiple options to attain the ultimate in flexibility and efficiency.



Marine Outboard, Snowmobile, Motorcycle and other similar cylinders can be easily mounted and rolled over for precision blind hole honing.

STANDARD EQUIPMENT

- Automatic Lower Crash Protection System – every time cycle start is activated, the machine will check that the stones will not interfere with lower bore before starting rotation and stroking preventing stone and stone holder damage.
- Spindle Taper with Quick Change System - change hone heads in seconds without any wrenches
- Automatic Honing Stone retract at End of Cycle – the machine will automatically retract the stones during last stroke so that the stones do not leave any scratches or marks in the bore.
- Automatic Cross Hatch Angle System – the machine will automatically adjust parameters to programmed cross hatch angle and finish the bore to programmed angle.
- Automatic Roughing and Finishing Load Sensing System - machine short strokes or dwells anywhere it senses a tight area.
- Electronic Hand Wheel for lowering hone head into each bore
- Automatic Stone Feed-out System - once hone head is positioned in the bore, the machine automatically expands stones and rotates slowly before starting hone cycle
- Automatic Plateau Brush Finish Program - the machine automatically expands plateau brushes to programmed load and counts down number of plateau strokes, then withdraws the brushes and retracts to the clearance position.
- Control and programming through 15” (400mm) CNC Touch Screen Control
- Precision Display in .0001” (.002mm) resolution
- Industrial PC with Windows Operating System
- USB Flash Drive and port for file transfer
- Remote training, service and support via internet connection to machine (required)
- Operation in either American or Metric systems
- Horizontal Movement (X Axis) - Left and Right Direction - 38” (965mm) - movement is manual on linear slideways
- Horizontal Movement (Y Axis) - Front and Back Direction - 3” (75mm) - movement is manual on linear slideways
- Vertical Movement (Z Axis) - Up and Down - 19” (483mm)
- Stroking System - CNC SERVO Controlled High Pitch Ball Screw System and Linear Slideways
- Infinitely Variable Stroke Speed Control - Variable from 0 to 2500IPM (63m/min)
- Stroke System Acceleration - 250in/sec (6.35m/sec)
- Spindle Rotation System - CNC SERVO Controlled High Torque Spindle Rotation System - 530 in-lb (60NM)
- Infinitely Variable Spindle RPM Control - Variable from 0 to 400RPM
- (2) Stone Trays for up to 6 stone holder sets with built-in Dial Bore Gage Holder
- Hone Head Storage Rack for up to 5 Hone Heads
- Coolant System - Large Capacity coolant tank 70 Gal (265 Liter) - tank is located under the machine on wheels and is removable for servicing from front or rear of machine
- Magnetic system for primary filtering inside coolant tank. Magnets are removable for easy tank cleaning once tank is removed from under the machine
- Replacable Cartridge Canister Filter System. Dual Gradient 50-5 Micron replacement filter cartridge keeps coolant and cabinet clean. Filter Cartridge 514-2-42C
- Machine Cabinet finished in Baked Enamel is Power Coated for easy cleaning and appearance
- Operation, Programming and Spare Parts Manual - Digital

Call to arrange a live internet software demo right on your computer

Internet Support

Rottler offers cutting edge internet support direct from your machine to the factory. Our cutting edge internet support even enables us to “Log In” and remotely control your machine from our factory if necessary. Shop too busy or noisy for talking? The pre-installed Skype™ application gives you instant messaging capabilities with Rottler Factory Technicians.

Video Chat and Instant Messaging

Skype™ and a webcam are installed on the H85 for video conferencing, instant messaging 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. Video communication to the machine is required.

SPECIFICATIONS

MADE IN U.S.A.	American	Metric
Diameter Range (with Rottler Hone Heads)	1.69” - 7.38”	43mm – 187.45mm
Spindle/Hone Head Rotation Speed	1 to 400 RPM	1 - 400 RPM
Torque at Hone Head	44 ft.lbs	60NM
Spindle Motor - Torque	15 ft.lbs	20NM
Spindle Motor - Power	3.7HP	2.77 Kw
Stroker Motor - Torque	88.5in.lbs	10NM
Stroker Motor - Power	1.94HP	1.45KW
Stroke System - Acceleration	250 in/sec^2	6.35m/sec^2
Spindle Stroke - Speed	0-1500-ipm	0-38-m/min
Stroke Length - Vertical Travel (Z Axis)	19"	483mm
Length of Cylinder to be Honed	17"	432mm
Workpiece Capacity - Length	55"	1400mm
Workhead - Horizontal Travel (X Axis)	38"	965mm
Coolant Capacity	70 Gallons	265 Liters
Dimensions - Floor Space Requirements	48"D X 75"W x 86"H	1.2mD X 1.1.9mW X 2.2mH
Dimensions - Shipping	91"D X 60"W X 89"H	2.3mD X 1.5mW X 2.26mH
Weight - Shipping (excluding optional equipment)	2300 lbs	1045 kg
Electrical Requirements	208-240V, 30A, 50/60Hz, 3Ph	
Paint Color Code	RAL9002 (Grey White)	

Specifications and design subject to change without notice.

Since 1923 Rottler Manufacturing has developed precision performance racing and engine rebuilding machinery with unmatched dedication, diversity and innovative product development. Rottler's advanced designs and equipment continue to meet the most demanding engineering needs of engine builders around the world.

Rottler offers a complete range of machines for every type of engine builder from a performance racing shop, to a diesel jobber shop or a demanding production remanufacturing facility. Rottler has a machine for your specific application. Rottler equipment is manufactured to the exacting standards demanded by the most accurate machining companies in the world.

SG7MTS Cylinder Head Valve Seat & Guide Machine

SG8MTS Cylinder Head Valve Seat & Guide Machine

SG9MTS Cylinder Head Seat & Guide Machine utilizing UNIPILOT Tooling

SG10X CNC Cylinder Head Seat & Guide Machine

SG80MTS Heavy Duty CNC Cylinder Head Valve Seat & Guide Machine

P69AHD
5-Axis CNC Cylinder Head Digitizing and Porting Machine

F109AH
Multi Purpose CNC Machining Center for Medium to Very Large Blocks

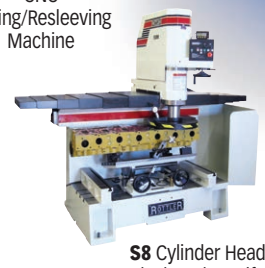
F69ATC
CNC Machining Center with Automatic Tool Changer

F10X
CNC Boring/Resleeving Machine with Hole-to-Hole Automation

F10A
CNC Boring/Resleeving Machine

VR9 Centerless Valve Refacing Machine

VR7 Valve Refacing Machine



S8 Cylinder Head, Block and Manifold Surfacing Machine

F69A Multi Purpose CNC Machining Center for Small to Medium Connecting Rods

H85A
CNC Honing Machine

H85AXY
CNC Vertical Honing Machine with Complete Block Automation

F79A Multi Purpose CNC Machining Center for Small to Medium Blocks & Heads & Conrods

F105A Multi Purpose CNC Machining Center for Medium to Large Blocks

F69A
Programmable Automatic Machining Center for Small Size Blocks

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