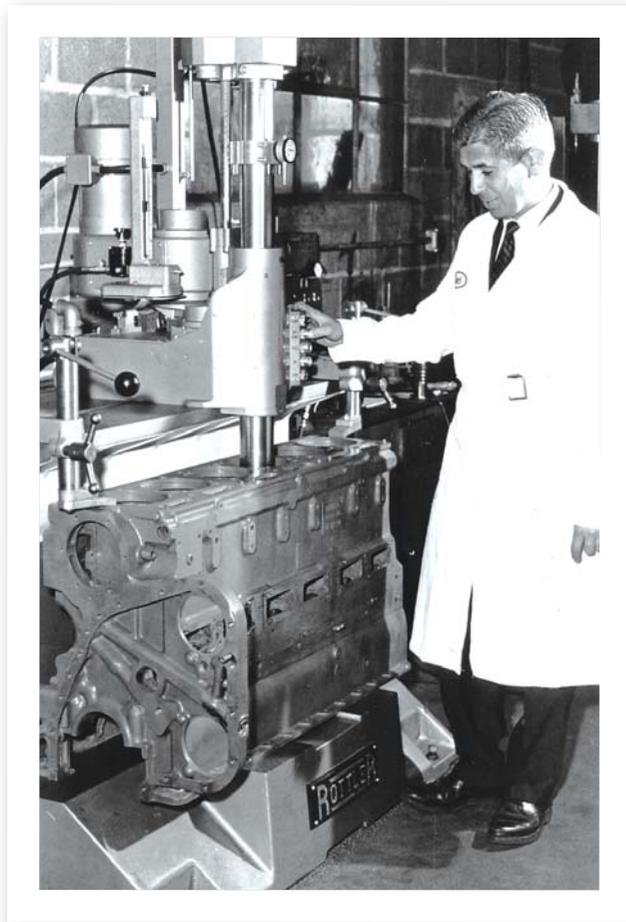


Engines that Move the World are Machined with ROTTLER



ROTTLER

**THE
CUTTING
EDGE**



1950 Don Rottler's innovation allows engine blocks to be fixed to the machine's base and the workhead to be floated over the surface improving productivity and accuracy.

Since 1923, Rottler Manufacturing has pushed the limits – and the expectations – of technology to become a leading supplier of state-of-the-art machining equipment. In the early days, “high-tech” meant non-powered portable boring bars, but unsurpassed research and attention to the needs of the American engine rebuilding market has allowed Rottler to redefine the standard in rebuilding equipment. Today, Rottler machines can be found in shops in more than 75 countries around the world. With literally thousands of users serving every category of the transportation industry, Rottler remains at a level of technological expertise second to none in our industry. Rottler's advanced designs and equipment continue to meet the most demanding engineering needs of engine builders around the world.

Today, Rottler Manufacturing offers a complete range of machines for every type of engine builder with a machine designed specifically for your application. From major OEMs, to production rebuilders, to every segment of high performance and one- or two-man shops, Rottler machines are designed and constructed to meet the most critical demands. Rottler equipment is not built to be warehoused for some potential future sale; each piece is custom-built to the exacting standards demanded by the most accurate machining companies in the world.

Located near Seattle, Washington, U.S.A., Rottler maintains the largest domestic facility dedicated entirely to serving the needs of repair facilities in the transportation aftermarket. Rottler's manufacturing facility boasts the finest equipment available for maximizing the precision componentry used in our machines. This commitment to quality keeps Rottler Manufacturing on the cutting edge and ensures that what we sell will help you sell.

Designed & Made In The USA

Designed and built to last using the best equipment and materials assembled by dedicated professionals, you can be sure that your Rottler machine will meet your needs today and into the future. New 3D design systems are improving prototype development. We installed the first Okuma seven-axis fully automated CNC machining center in the Northwest, and have nearly doubled the size of our facilities to continue to accommodate new equipment and bring products currently in research and development to market.

Many of the processes used in the construction of our equipment are accomplished using Rottler machines – not only do we sell them, we use them!



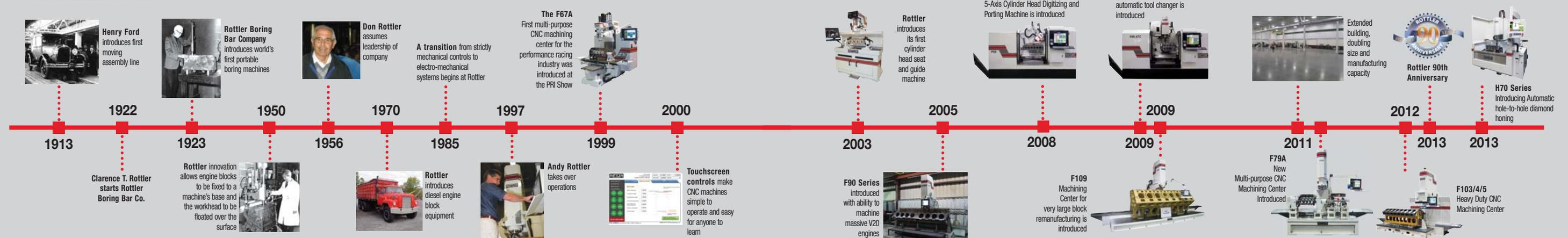
We not only sell Rottler equipment, we use our own machines to make Rottler parts. The capabilities of Rottler equipment are proven in our shop before they are ever released for use in yours. Each year, we buy the latest products from equipment manufacturers and compare our machines and software to the best in the world. If the features and software in Rottler machines don't exceed the demands of our employees they are refined, reworked and redesigned until they do.



In 2011, we expanded our facilities with a 20,000-square-foot addition to the plant. This extension accommodates the fast growth we are experiencing with new multi-purpose machining centers and also allows us to bring products from design and R&D, to completion in less time with improved quality and accuracy.

At Rottler, we're not satisfied with “good enough.” We are innovators and will always work diligently to be even better. We have a saying: “Strive for perfection in everything you do. Take the best that exists and make it better. When it does not exist, design it.”

TIMELINE





International

In today's economy, a company that thinks globally yet acts locally – wherever "local" happens to be – is your best partner. Rottler serves the needs of engine rebuilders all over the world, and our international presence continues to grow. Rottler offers worldwide coverage of its entire product line through a large network of representatives and distributors in over 50 countries. These local professionals know your business conditions and are familiar with your needs.

The versatility required for the diversity of today's engine configurations is provided by the wide range of machines, accessories and special fixtures offered, many of which are interchangeable across the full line of Rottler machines.

A wide range of tooling options allow customers to develop the set-up best suited to their own special requirements, but even in such remote locations as Colombia, Russia and Dubai, our customers have confidence that they are not alone.

Even when one of our knowledgeable professionals isn't in your shop to answer your questions, our state-of-the-art equipment speaks YOUR language. Non English-speaking users with Windows-powered operating systems can operate Rottler machines in their native language, including Chinese, Arabic or Cyrillic.

Our customers have trusted us to meet their needs and have confidence that we will be here tomorrow with service and parts support for their machines' tooling and software. We continue to strive to earn that trust by keeping most of our essential parts in stock, ready to be delivered anywhere in the world within 48 hours.

We Value Your Investment

With our in-house capability of quality control, each part is inspected prior to shipment. This assures our customers the highest standard of quality. Having the ability to engineer, manufacture, assemble and stock machinery makes us responsive to the dynamic changes that we are constantly faced with in the industry.

Yet, despite the technological leaps, it still comes down to one simple fact – the investment you make isn't only in money...it's in trust. Our dedicated team of experts can help you find the machine you need for your market. Your name is on the line with each engine you produce, so be sure that our name is on your machine.

Rottler manufactures a variety of accessory tooling designed to make jobs easier and faster. We have developed tooling to allow the job shop or performance shop to quickly produce precision surfaces on odd jobs competitors must turn away. The same capability applies to the production machine shop where the increasing demand for quality now requires finishing surfaces previously left unmachined.



Others Make Promises... We Make Commitments

Without credibility and commitment, words are just words. The proof is in the performance. Just ask our satisfied customers all over the world.

Our commitment to the success of the worldwide transportation industry means designing, developing and delivering the things that ensure your long-term profitability. Equipment designed to service engines of all sizes – from the smallest two-cycle to the largest locomotive – is our stock in trade and has been for 90 years.

Since 1923, the precision machinery developed by Rottler Manufacturing has given progressive engine builders the ability to move beyond their current level of expertise, to become more profitable and productive. Thanks to 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.

More importantly, we're committed to absolute integrity – in everything we do, with every customer we work and with every engine we help to rebuild. We do what we say, with no hidden agendas, no sudden shifts and no excuses.

At Rottler, we believe in partnerships and we work toward a single goal every day – total customer satisfaction. It starts with our in-house sales team, extends to our regional representatives and ultimately culminates with a satisfied customer.

Whether you're doing traditional automotive, high performance and racing, light-, medium- or even the heaviest-duty on- or off-road diesel work, we can help. Not sure which machine might be right for your application? Look for the icons included with each machine description in this brochure. You'll know instantly whether it can be used with small, medium, large or even extra-large engines.

Contact us by phone, by email or even by Skype – we look forward to answering your questions.



Need Support Right Now?

Now you don't even have to leave the machine, thanks to Rottler's cutting edge Internet support direct from your machine to the factory. Skype and a Web cam are installed on many Rottler machines for instant video conferencing and Internet support. This feature gives you instant, direct contact with Rottler right on the machine without even making a phone call. Rottler technicians can see exactly what you are seeing, saving 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.

When Windows and later machines are permanently connected to the Internet, Rottler technicians can monitor the condition of your equipment without any interference in your daily operations. We can send diagnostic reports, routine maintenance suggestions, operating software updates and alerts about potential system failures before they occur, saving you frustration, time and money.



CUSTOMER TESTIMONIAL

"As a leader in our field in South Africa, we need to be at the forefront of engineering technology and equipment. We need to meet our customer demands in terms of accuracy, cost and timely delivery. We have identified Rottler as the supplier of our block machines. Rottler's equipment is technologically advanced and extremely accurate. Yet, despite their precision, the machines have proven to be durable and reliable, which is most important when you are operating so far from their source."

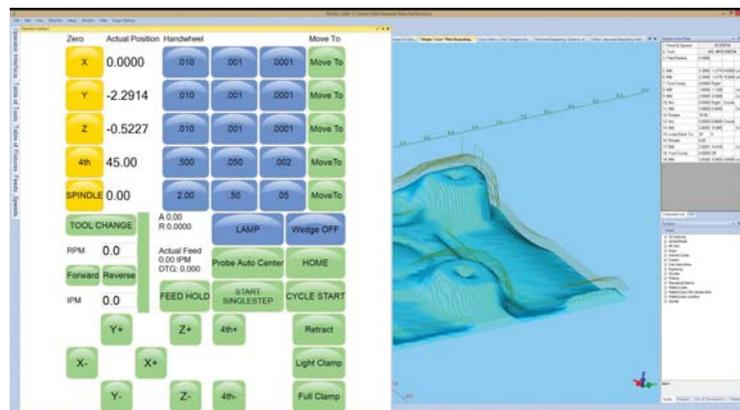
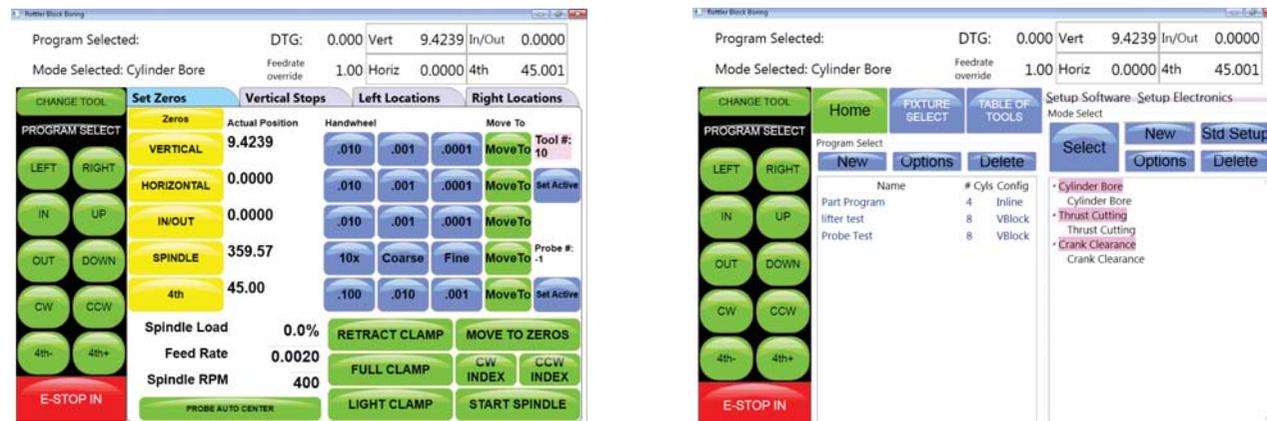
*Daryl Yorke, Metric Automotive Engineering
Johannesburg, South Africa*

Automatic CNC Touch Screen Programming

Rottler's Touch Screen CNC Control uses "Direct Motion Control Technology" with the latest Windows Operating System.

The Rottler Touch Screen Control found on Rottler's automatic machines allow simple programming for machining operations. This revolutionary system allows a non-CNC trained worker to program machining sequences for any head or block that meets the machining capacity requirements. Fully programmable cycles with simple menus transfer input to the 3-, 4- or 5-axis CNC control for unparalleled accuracy.

The highly advanced computer technology that powers our Touch Screen Control is also responsible for its simplicity. You won't be overwhelmed with options because, with Rottler programming, only the buttons and interactive menus you need for a particular machine operation are displayed on the screen. Yet all other functions are easily accessed when needed. The process is intuitive, simple to learn and operate and easily changed when needed.



Our sales force can demonstrate this programming capability in your shop!

Call us for details.

Or visit www.rottlermfg.com for online demos of the simplicity of Rottler's Conversational Touch Screen programming.

Our sales technicians are able to log into your computer via Skype and demonstrate and explain our unique software - you don't have to move from your computer to see and hear all about our industry leading software and control systems.

Rottler CAD/CAM

Far from space age, inaccessible technology, Computer Numeric Controlled (CNC) equipment has proven its worth to the engine builder for more than a decade. Rottler's innovative system lets you profit from its many capabilities.

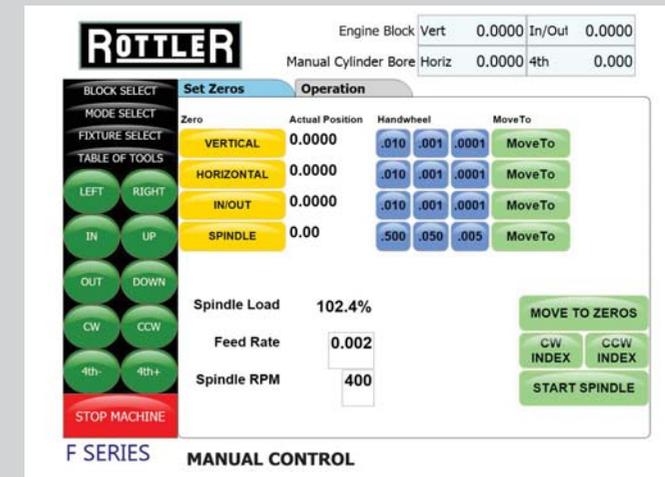
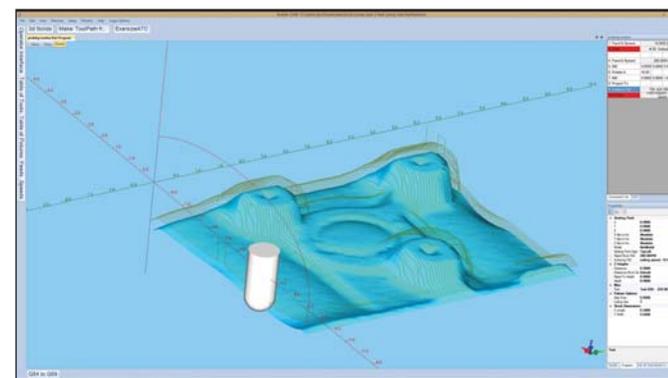
The benefits, according to engine builders who already use the equipment, are incredible. And, they say, engine builders who make the investment in CNC equipment have a significant competitive advantage.

Rottler's CAD/CAM system allows you to create unlimited CNC programs to do general machining such as water hole repairs on fire decks/head gasket faces, drill and tap head bolt threads, machine grooves and many other operations.

The format of the control has been designed for users who have little to no CNC experience. The software is extremely user friendly with a quick learning curve; You can expect to be cutting with Rottler CAD/CAM within the first day of instruction. The software will allow you to effortlessly create programs such as pocketing, peck drilling, boring, rigid tapping, circular interpolation, engraving and bolt hole patterns.

Rottler CAD/CAM will not only expand block machining, it will allow you to use your machine for industrial applications. It can also be used for surfacing applications.

Rottler's CAD/CAM software also allows the end user to quickly and easily perform engraving instructions. You can use this feature to help market your business by engraving your company name, website or contact information on components that go out to your customers. Whether you are building one or 20 motors per month, your company can gain a lot of exposure if you provide the information where everyone can see it. For example, you can market your business on the valve covers. With each motor you build, consider all the people looking under the hood. This is a great and inexpensive way to enhance your product marketing. When your customer comes in first place, everyone will know who built the motor.



Manual Controls

Not ready for full CNC? Rottler's Touch Screen Control found on Rottler's automatic machines make programming and operation easy, even for non-CNC trained workers. But sometimes state-of-the-art is simply not needed. Many customers feel they do not require CNC features and prefer a manual machine operated with handwheels and dial gauges for centering in cylinder bores.

There's no need to sacrifice Rottler quality even if you feel that Rottler capability isn't needed. Business can grow, opportunities may present themselves and you could quickly find that your business now justifies a fully automatic machine. Rottler's manual machines are easily upgradeable to full CNC at any time in the future. The cost of the upgrade is the same as the difference between the M and the A model machine base price.



CYLINDER HEAD TECHNOLOGY

According to industry research, cylinder head work remains the single biggest part of the typical gas and diesel engine rebuilding business.

With today's engines, the terms "close enough" and "almost" are unacceptable. Yesterday's equipment offers neither the speed nor accuracy required. Outdated equipment is slow to setup and needs more operator skill. Valuable man-hours that could be better spent on other tasks are often wasted doing things the old-fashioned way.

Thanks to our pioneering use of electronic controls and state-of-the-art cutting tools and fixturing, Rottler has overcome many of the traditional bottlenecks that slow work flow through a shop. Operation and programming of Rottler machines is done using ergonomic keypads positioned on the front of the machine. The display tells the operator exactly where the spindle is positioned at all times.

Spindle Technology

Rottler's spindle technology has been developed to meet YOUR needs – and we offer choices that other manufacturers only wish they had. Rottler's patented R1 "fixed pilot" tooling is easier and faster to set up than that which is used on competitive fixed pilot guide and seat machines. This innovative one-hand automatic tightening spindle lock nut system locks the tool holder for easy locating over the pilot, yet easily releases for machining. By redesigning the pilot and tooling, Rottler has eliminated the spring that others use over their pilot. The result is reduced time to complete the job with less runout and better concentricity.

For even faster speeds, Rottler machines are available with a new **ACTIV** spindle system. The Rottler **ACTIV** spindle is mounted on a sphere, which allows the **UNIPILLOT** tooling system to automatically center with the valve guide centerline while the workhead is floating on air cushions. Once air floating stops and the workhead clamps, the **UNIPILLOT** and valve guide centerline are maintained while cutting the valve seat.

The **ACTIV** spindle can be used just like a fixed spindle – simply flick a switch and the sphere is locked vertically so jobs like reaming, drilling, tapping, etc., can be easily done on the **ACTIV** spindle machines.

WHAT IS 'CONCEN?'

Rottler's precision carbide centering pilots are manufactured to a very precise tolerance and, combined with the lightweight Air Float workhead, gives perfect centering in the valve guide and the best concentricity of the valve-seat to guide centerline – accuracy to within few tenths or microns is easily obtainable. "CONCEN" is our trademarked logo that ensures you are getting the most accurate machine possible. To be certain you are able to meet all of your customers' needs, don't settle for anything less than the best. Choose Rottler.



Unipilot
ROTTLER TOOLING

The Speed of Live and the Accuracy of Fixed

UNIPILLOT Tooling

The **UNIPILLOT** TOOLING system allows the carbide centralizing **UNIPILLOT** to work like a live pilot – it stays in the spindle while moving from valve guide to valve guide – but at the same time has a fixed pilot design to give improved **CONCEN**.

Fixed and dead pilots have proven over the years to give more accurate **CONCEN** compared to live pilots, mainly because live pilots have clearance between the pilot and the valve guide. The section of the **UNIPILLOT** that fits into the valve guide is straight/parallel, but it has a tapered upper area which is spring loaded and fixes in the valve guide while centering to eliminate any clearance between the pilot and valve guide. After cutting the valve seat, when the spindle lifts up automatically, the **UNIPILLOT** remains in the spindle and is lifted at the same time ready to float over the head gasket fire decks and ready to enter the next valve guide.

Manual or CNC Control

Whether you're operating a manual or an automatic machine, **UNIPILLOT** provides the consistency and ease of operation to ensure the job is done right every time.

On a manual machine, the vertical travel of the spindle is controlled by the operator by turning the steering wheel on the front of the workhead. With a taper on its lower end, the spring-loaded **UNIPILLOT** is easily inserted into each valve guide after each seat is cut.

Automatic machines give even easier operation! The operator simply moves the floating workhead with **UNIPILLOT** over the valve guide and touches the down feed button until the tapered part of the **UNIPILLOT** enters the valve guide then presses AUTO CYCLE, at this stage, the CNC control takes over and completes the entire seat cutting operation, rapidly returns to the top, ready to cut the next valve seat.

You can get copies of optional tooling equipment, custom parts order forms, MSDS sheets and other reference documents online 24/7 at www.rottermfg.com/documentation.php



CYLINDER HEAD MACHINES

All valve seats machined to the exact same depth automatically!



SG10A

ACTIV Spindle with CNC Control



ACTIV Spindle gives fast location of pilots into the valve guide and accurate centering.

The **SG10A** has a Conversational Touch Screen Control that allows the operator to program the machine to cut at a certain RPM with a specific feed rate. This eliminates chatter on hard-to-cut seats by eliminating the human error when trying to machine difficult seats. The machine feeds down at a constant rate to a given depth, dwells on the seat at preset RPM and time, and then retracts, all without any operator involvement, resulting in all valve seats machined to the exact same depth – automatically! The SG10A is simple and fast to program – anyone who operates a seat and guide machine can do it in minutes.



Rottler Production Fixture allows cylinder heads to be front loaded, pneumatically clamped upwards, machined and unloaded fast and easy - no adjustments required.



SG9M

ACTIV Spindle with Manual Control



The **SG9M** has the **ACTIV** Spindle technology and allows the use of the **UNIPILOT TOOLING** system resulting in a very fast machine as the spring-loaded centralizing carbide pilot stays in the spindle when the machine moves from guide to guide. One of the most difficult processes of live pilot use, especially very small diameter pilots, is to get the pilot into the guide! Modern cylinder heads have very small diameter valve guides and the start is far down into the port and difficult for the machine operator to see. However, the spring-loaded feature of the **UNIPILOT** makes it much easier to get the pilot into the valve guide. Fast clamping of virtually any cylinder head, 360-degree roll over fixture, lightweight workhead and **UNIPILOT TOOLING** all combine to give a very fast and very accurate cylinder head seat and guide machine.



SG8M

Heavy Duty Spindle

Simply the best fixed carbide pilot machine available, the **SG8M** is nearly 2,500 pounds (1437 Kg) of casting along with Rottler's heavy duty 3.150" (80.01mm) spindle to ensure the best surface finishes and concentricity with ease of operation. Even an inexperienced shop hand can be trained to perform perfect valve seat cutting in no time flat. Rottler's Rigid Precision Carbide Centering Pilots are manufactured to a very fine tolerance and combined with the lightweight air float workhead gives perfect centering in the valve guide and the best concentricity of the valve seat to guide.

The SG8M handles a wide variety of cylinder heads, from small multi-valve to large six-cylinder diesels such as Cummins or CAT. This versatile machine does many cylinder head machining operations such as multi-angle valve seat cutting, boring out valve seat inserts/rings and boring housings for oversize valve seats, reaming valve guides and boring/reaming for oversize valve guides, cam follower boring, spring seat and valve guide machining, drilling and thread tapping, removing broken bolts and thread repairs, as well as many other operations.



SG7

Compact and Competitively Priced

Rottler's **SG7** is a compact machine competitively priced with big machine features and accuracy. The machine will easily handle large six-cylinder heads and all automotive and light truck heads, but really shines with motorcycle and pleasure craft cylinder heads. The new generation of 4-stroke engines in snowmobiles, personal watercraft and all-terrain vehicles have very small valves. The SG7 is designed to machine these valve seats to high accuracy. Great chatter-free finishes and perfect concentricity are guaranteed with the SG7.



SG8M now available with Touch Screen Control to increase productivity and save settings in memory



SG9M now available with Touch Screen Control to increase productivity and save settings in memory



COMPARE MODELS
SIDE-BY-SIDE ON OUR
WEBSITE!

rottlermfg.com

CYLINDER HEAD MACHINES

To service very large cylinder heads, Rottler has the SG80 seat and guide machines. The SG80 can handle all of the necessary machining operations on the biggest diesel and natural-gas engines, including industrial, mining and marine workboat equipment. The extra-large air floating/clamping work table is adjustable in/out with over 6" (150mm) of movement. This table allows 360° roll over fixture, 4 head fixtures and very large cylinder heads to be set up for machining.



Fixturing

For increased versatility, the SG80s have many different fixturing systems:

- Rottler's heavy-duty 360 Degree Rollover Fixture allows small to large six-cylinder diesel heads to be aligned and clamped with reference to their head gasket face. This fixture allows the heads to be rotated 360° to be able to handle difficult jobs such as machining diesel injector tubes, drilling out broken bolts for thread repairs or repairing valve spring seats. Large heads such as the CAT 3406 & 3412, White Superior 825 and Waukesha 7042 can be rolled over for machine work on all faces of the head.
- Rottler's heavy-duty Tilting Fixture allows large heads such as CAT 3600 to be set up for valve seat cutting and valve seat housing boring. Very large, heavy heads found in the marine work boat industry can be set up and clamped with the Rottler Tower Clamping Assemblies.
- Rottler multi head fixture allows up to 4, 5 & 6 cylinder heads to be set up and rotated 360 degrees for machining on all faces of the cylinder heads

P Fixture

Rottler Production Fixture allows 4 CAT 3500 cylinder heads to be front loaded, pneumatically clamped upwards, machined and unloaded fast and easy - no adjustments required.

SG80A CNC Control

The SG80A has a conversational touch screen control that allows the operator to program the machine to cut at a certain RPM with a specific feed rate. This helps eliminate chatter on hard seats by eliminating the human error when trying to machine difficult seats. The machine feeds down at a constant rate to a given depth, dwells on the seat at preset RPM and time, and then retracts, all without any operator involvement resulting in all valve seats machined to the exact same depth - automatically. The SG80A is simple and fast to program and all information is stored in the computer's memory for future use.



SG80M Manual Control

The SG80M is a manual version of the proven CNC version and has rapid downfeed with a steering wheel and fine feed with a small handwheel allowing equal valve seat depth features similar to the CNC version without any computer and programming.



VALVE REFACING MACHINES

VR9 Centerless Grinding

Rottler's VR9 combines centerless grinding and CBN (cubic boron nitride) cutting technology to give excellent valve seat surface finish, concentricity and circularity. The VR9 utilizes Centerless Grinding Technology - the main feature is equal length valves from the stem end to the valve seat without any manual handwheel feed. Just set the first valve and then each valve in the set will be the exact length!

- Rottler's Centerless Technology eliminates any collets and chucks and gives maximum versatility to face a large range of valve stem diameters.
- Variable Valve Rotation Speed and Digital Angle Display allow precision valve facing of different design valves used in high performance, diesel and gasoline cylinder heads.
- Stem End Facing and Chamfering combined with an adjustable V-stop allows exact-length valves.
- Water-based synthetic coolant and an external tank allow long life and easy maintenance.



VR7 Linear Slideways

The VR7 sets new standards in speed and accuracy for Performance Racing and Remanufacturing cylinder headwork. The air-operated 2 x 3 Ball Precision Chuck System eliminates collets. Valve face is machined concentric to the valve stem for improved sealing, better heat transfer and reduces mechanical stresses on valves.

- Grinding Wheels - The VR7 is supplied standard with vitrified wheels, grinding oil and 2 diamond dressers. Special wheels are available for grinding difficult metals such as Titanium, Inconel, etc.
- Variable Valve Rotation Speed allows the operator to adjust surface speed for different diameter valves for a wide range of valve head diameters.
- Control Panel - Variable Chuck Speed and Selector for Grinding or Wheel Dressing.
- Fine Feed Handle and Depth Stop allows valves to be ground to the exact same length.
- Optional Base Storage Cabinet includes a large 5 gal/20 liter removable coolant tank with replaceable paper filter system. This large capacity filtered coolant system allows machine use for months with no cleaning or maintenance required, saving time and money.
- The Rottler VR7 features hardened-steel, precision-ground Linear Roller Bearing Slideways to allow easy stroking of the wheel slide reducing operator fatigue and improving surface finish on the valve seat face for improved sealing and cooling. No friction and wear associated with dovetail slideways. Featherlite stroking with linear slideways requires only one finger to move the wheel back and forth over the valve.



The Rottler VR machines set new standards in speed and accuracy for performance racing and engine remanufacturing cylinder head work.



SURFACING MACHINES

Today, surface finish is more critical than ever, thanks to such industry advancements as MLS gaskets and bimetal engine construction. A surfer must allow the right combination of cutting speed and feed rate to achieve exceptionally low Ra finish numbers. High cutting speeds, in turn, require superabrasives that can handle the heat. Rottler machines were the first surfacing machines to use CBN (cubic boron nitride) inserts to resurface cast iron blocks and heads, and PCD (polycrystalline diamond) to resurface aluminum blocks and heads.

The S7 and S8 series of machines are designed to cut dry, so there's no messy lubricant to deal with or dispose. The cutter head can be used with one or two inserts, but many users prefer to use only a single bit because it eliminates the need to match the heights of the inserts. All of Rottler's surfacing machines use the same tooling and fixturing for quick, rigid setup and versatility. Compact, one-piece castings and multi-layer slideway guards give the most compact surfacing machines available today. All Rottler machines have ball screws on both horizontal and vertical travels.

From the affordable S7M with Rottler's new Universal Head and Block Fixture to the top-of-the-line automated S8AD capable of surfacing large heads such as the CAT 3406, Rottler has a machine to suit all of your surface finish requirements and budget. The S7 machines have 40" (1000 mm) workhead travel.

SM SERIES Manual Control

The Rottler **S7M/S8M** Surfacing Machines are the most economical surfacers available today combined with improved productivity resulting in profits for automotive and diesel machine shops looking for the lowest cost. Featuring the M control unit with Soft Touch Buttons with LED lights for simple operation, high rapid traverse rates to minimize cycle times, long-lasting precision ground ball screw driven by a toothed belt for smooth workhead feed, and infinitely variable speeds (up to 1,250 RPM) allow the use of a wide variety of cutting inserts for any metal to be surfaced.

SA SERIES Automatic Control

The **S7A/S8A** machines have computerized automatic cycles to reduce operator involvement and maximize productivity. When the workpiece and machine are set up, the operator presses the "cycle start" button and walks away. The electronic gearing found in the SA series surfacing machines maintain spindle rotation and workhead feed rate with digital accuracy so that the exact programmed feed per revolution is always maintained for consistent and fine surface finish. Simply by dialing in the length of the piece to be surfaced, the Rottler S7A/S8A will travel that exact distance before returning home, eliminating the time-consuming need to set end stops.

The machine completes the surfacing job, indexes spindle, rapid returns to home ready for the next job. The SA Series machines come standard with a digital vernier scale for precise stock removal.



SAD SERIES Automatic Downfeed

The new **S7AD/S8AD** machines offer all the features of Rottler's S7A/S8A models, but take the ease of automatic operation a step further. These machines use the new CNC Touch Screen Control Technology.

The AD machines are easily programmed to take multiple passes to remove large amounts of material without an operator being required to stand there simply to feed the machine down each time. The new Rottler AD machines can be set to automatically remove certain amounts of material, allowing the operator to walk away until the machine is finished. The program allows different speeds and feeds for rough- and finish-machining to ensure the best surface finish after multiple cuts.

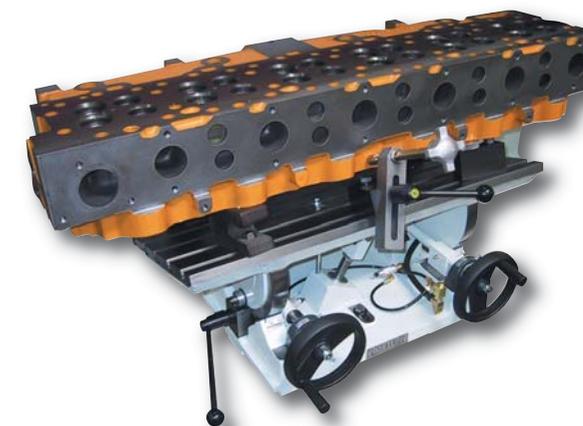
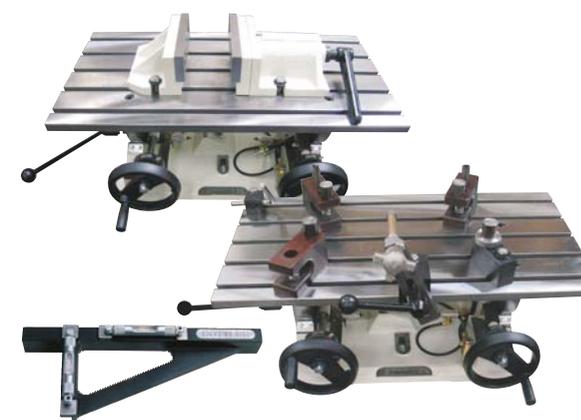
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SIDE-BY-SIDE ON OUR
WEBSITE!
rottlermfg.com



LEVELING TABLE

Rottler's universal dual-axis leveling table and head clamping tooling allows any component to be fixed then leveled in both directions in a matter of seconds. The Air Float and the Dual-Axis Leveling Assembly ensures simple, accurate positioning of any workpiece, without the need for confusing gages or shims.

Just as there's little margin for error when it comes to valve, seat and guide work, today's computer-controlled, low-emission engines are very sensitive to surfacing work as well. Accuracy is critical for today's engine builders, because engine blocks and cylinder heads require only the minimum metal removal when surfacing the head gasket faces.



DIAMOND HONING

Today's Boring Finish Standards are becoming more demanding and cylinder finish is becoming more of a science as the demands continue to grow. Today's progressive engine builder must be responsive to the dynamic changes in the industry and machinists need the versatility offered by the Rottler honing machines. Rottler has made Diamond Honing Technology affordable for every engine builder.



HP7A

Automatic Pressure Control

The only Automatic Pressure Control is a must for diamond cylinder honing. The **HP7A** allows for faster honing without bore distortion. Program the desired roughing and finishing loads and walk away! The Rottler system controls stone pressure on cylinder walls thus reducing bore distortion and decreasing honing time.

Automatic Plateau Finish Cycle

The HP7A computer has a program specifically for plateau finishing of cylinders. By counting the number of strokes with a light stone pressure, this automatic cycle guarantees the same exact finish hole after hole, block after block.

Automatic Controls

The new Rottler HP7A control is the result of feedback from the marketplace. The new control is easy to understand, simple to use, and handles a wide variety of precision bore finishing work – from automotive and diesel blocks to motorcycle, outboard marine, snowmobile, airplane and industrial applications.



Features

- Digital bore profile display projects exact profile of the bore during honing.
- Computer senses any taper and automatically dwells or short strokes – correcting the tight area.
- 2 stage roughing and finishing cycle allows fast stock removal for roughing and light loads for finishing – for productive and accurate cycles.
- Infinitely variable hone head RPM allows high speeds for roughing and a slower speed for finishing, giving the desired cross-hatch angle and surface finish.
- Finishing cycle operates much like a “spark out” system where there is very light stone load 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 surface finish.
- Manual buttons are provided for fine adjusting settings during automatic cycles and R&D.

CNC VERTICAL HONING MACHINES

Main Features:

- Automated hole-to-hole unattended operation, offering 50-70% labor savings
- CNC Touch Screen Control – easy programming for automated operation
- Automated Load/Force Control for perfect surface finish and geometry
- Automatic Lower Crash Protection helps prevent costly damage when castings vary
- Rottler's Two-Stage Honing System provides rough/finish or finish/plateau honing in one automatic cycle.

Automatic Hole to Hole and Automatic Roll Over System

The optional Automatic Hole to Hole System allows a complete bank of cylinders to be honed unattended, combined with the optional Automatic Roll Over Fixture, the complete V block can be honed unattended. This will substantially increase productivity with 50-70% labor savings over any manual honing machine. Imagine a cylinder honing machine running unattended while the operator performs other jobs!

H75A

The **H75A** is designed for blocks and liners from automotive and small diesel engines found in jobber, performance and production shops.



H76A

The **H76A** is designed for all of the above plus larger/longer liners found in large off-road engines such as CAT 3600, MTU 1163 & 8000, GE and EMD Locomotives. The H76A has increased capacity and is also able to hone liners such as EMD without removing the long upper studs saving hours of work when remanufacturing these liners!



Remanufacturing diesel cylinder liners is becoming a very lucrative process for engine rebuilders as well as helping preserve the environment. The majority of liners simply require cleaning and honing and are as good as new.



CUSTOMER TESTIMONIAL

“With Diamond Honing becoming the industry standard the Rottler HP7A cylinder hone has all the features we require to allow our Total Seal Diamond Finish Piston Rings to conform better from top to bottom in the cylinder bores. This means better sealing, increased vacuum and more HORSEPOWER!”

- Allan & Todd Patterson
Patterson Racing



BORING MACHINES

Rottler's F Series Automatic CNC Touch Screen boring and sleeving machines are the industry standard worldwide. When blocks require resleeving, there is no faster and easier machine to get them done in just a few minutes. Large cuts up to .200" (5mm) and high speed and feed rate, are common with these machines. The floating machine head and air clamping system allow quick centering and accurate machining, making them the world's fastest boring machines.

These machines are the next generation, evolving from the Rottler F2 boring bar that has been the industry standard for over 90 years. 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.

F10A & F10X 1.5-9" (38-228mm) Bore Capacity



The FX and FA machines are the industry standard worldwide. Designed for all automotive blocks up to big-block V8s and small diesel blocks, the FX and FA will produce accurate bores for a long lifetime. The FX is ideal for the shop that wants a machine to bore or sleeve a complete bank of cylinders unattended – just press "Cycle Start" and the FX will center in each cylinder and bore a complete bank – automatically. The FA is just as fast but requires an operator to move the air float workhead to each cylinder before the machine takes over and centers and bores the cylinder automatically. The simple set up with touch screen control and unlimited memory make these very productive and economical machines to operate.



F9A 1.5-5" (38-127mm) Bore Capacity

The FA machines are the industry standard worldwide. Designed for all automotive blocks up to big block V8s and small diesel blocks, the F9A will produce accurate bores for a lifetime. This model is ideal for the production shop where sleeves must be fitted. The F9A is the fastest, most powerful boring machine available to the jobber shop. The simple set up and manual push button controls make this a very economical machine to operate.



MULTI PURPOSE MACHINING CENTER

Interest in computer numeric controlled (CNC) multi-purpose machining equipment is no longer restricted to the large production facility or the highest volume race engine builder. Even smaller shops that build fewer engines each year can benefit from the versatility these machines offer. While skilled operators with a number of single-purpose manual machines can achieve quality results, engine builders who make the investment in CNC clearly have a competitive advantage.

Performance and race engine building has always been a very exacting science that requires considerable know-how, experience and machining savvy. One of the keys to building engines that are consistent race winners is the ability to closely control and maintain exact tolerances and machining geometry.

"Blueprinting" is the cornerstone of performance engine building. It's all about making sure blocks are square, that deck surfaces are flat and parallel to the crankshaft centerline, that bore centerlines and lifter bores are exactly where they should be. It's demanding work that requires precise measurements and top-notch equipment.

Small shops that build a limited number of engines each year may have space or budget limitations that prevent them buying separate machines for each and every task they do. For this type of customer, versatility is an absolute must. Just as important, however, accuracy and payback are critical elements to the selection of a multi-purpose machining center. Rottler offers machines that give ease of operation, repeatability and pinpoint accuracy – at a surprisingly affordable cost.



F69A Multi Purpose CNC Machining Center

Rottler's F69A multi-purpose boring, surfacing and line boring machine is the next generation in performance engine building equipment. Leapfrogging the competition, the F69 provides both the versatility and precision needed by today's performance engine builders. The F69A fixed-spindle machine is truly on the cutting edge of today's high-performance technology, with its touch screen programmable CNC controls.

Its easy-to-use, fully programmable CNC electronics allow this machine to handle conventional jobs, as well as specialized tasks such as machining logos into valve covers. No programming skills are needed as the F69A comes with user-friendly programming capability that does all the coding work for you.

The F69A gives you the power to write your own programs without any CNC G code experience. The control system is a Rottler proprietary system available only with Rottler machines. Rottler programming allows the operator to program custom machining programs with ease.



Manual Model
available with ability to
upgrade to CNC later



CUSTOMER TESTIMONIAL

"When we learned of the Rottler F69A's capabilities, we knew right away this was going to be a major component to take our production to the next level. The addition of the F69A will significantly improve our throughput in the shop by cutting down set up times, eliminating the need for multiple machines, and the need for us to send blocks between different block types quickly, allowing us to meet the varying needs of our customers while providing consistent quality."

- Jon Giles, Roush Yates Performance Engine Group General Manager



F69ATC Automatic Tool Changer

The **F69ATC** has a 24-pocket tool changer with full enclosure and coolant system. The F69ATC has the same simple screens and operational system for block machining as our F69A and also includes our direct motion software for general machining of parts. A simple mouse click can change from block machining software to general parts machining software. Now you can load tools in the tool changer, select programs, load the block, push a button and the machine will bore, deck, lifter bore and stroker clearance without operator interaction until all operations are complete!

Production facilities can gain time and floor space with the F69ATC's digitizing features. Floor space doesn't come cheap in today's world. The machine literally takes the place of your boring machine, surfacing machine, line honing machine (.0002" tolerance on main bores) and line boring machine. You can also do cam boring for installation of roller cam bearings. The probing feature on these machines is probably one of the most productive functions of the machine. In a matter of a couple minutes, you can determine the accuracy to blueprint your lifter bores, cylinder bores, deck surface and deck height along with main bores before and after you machine the block.

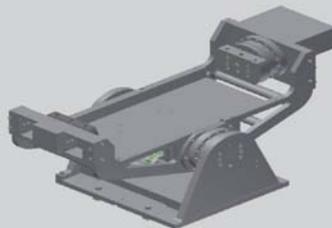


Features

- 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.
- Automatic Tool Changer**
 24 Space Automatic Tool Changer for CAT40 Taper. Can handle up to a 10" (250mm) diameter tool weighing 15.5 lbs (7kgs).
- Spindle**
 0-4000 RPM Spindle Rotation with quick change CAT40 Taper.
- Power Drawbar**
 Offers fingertip changing of cutting tools in manual mode.
- Direct Drive**
 Direct drive precision ball screws for faster rapid feed rates and accurate positioning.
- Windows Operating System**
 Rottler uses Windows OS and Touch Screen Technology through 19" touch panel.
- 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: CAD/CAM System for advanced, CNC programming for making parts, engraving names and much more.
- Manual handwheel**
 Offers operator infinite control of machine movement in all axes for quick and easy setup.
- Servo Motors**
 Offer maximum torque and performance throughout the RPM range for precise accuracy and increased productivity.
- Chip Auger**
 Automatically removes chips from enclosure and deposits chips in wheeled disposal cart.
- Coolant Tank**
 Complete coolant system for tool lubrication during machining. 30-gallon capacity.

ROCK AND ROLL HEAD PORTING FIXTURE

This system comes complete with Rottler Cylinder Head Digitizing, Programming and Porting Software for fast, easy digitizing and porting of cylinder heads directly on the machine. Includes the same great ability to manipulate port profiles and balance cross section areas. Programming can be done directly on the machine, not necessary for any standalone computers or third party software. Factory and On-Site operator training included in the package. Cylinder head fixture plates and porting tools to suit cylinder heads to be digitized and ported must be ordered separately. See details listed in the Rottler pricelist.



P69



Rottler's **P69 5-Axis CNC Cylinder Head Porting Machine** offers the precision and speed needed to reproduce cylinder heads with exceptional accuracy – with no handwork needed. The P69 also has the capability of porting intake manifolds with the same techniques used to port cylinder heads.

Near Zero Backlash on XYZ Axis

Overall accuracy to .001" (.025 mm) allows operator to accurately match the hand-ported sample and ensures ports will line up with no steps. No handwork necessary! CNC ported head will normally flow within 1% of sample head.

Upgradeable Software

Allows machine owners to benefit from the latest software developments and additional features as they become available.

Remote Diagnostics

Gives operator hard record of what happened if something goes wrong by providing a mechanism to identify and resolve any issues. Problems can be resolved over the Internet resulting in faster, lower-cost support to the machine owner.

5th Axis is Center of Ball Cutter

Allows +/- of 60 degrees on 5th axis to access all port geometry. X axis does not chase the 5th axis motion, making machine very accurate and ports all the same.

Adjustable Tail Stock

The adjustable tail stock of the P69 accommodates a wide range of cylinder heads. From small motorcycle heads, all the way up to inline eight-cylinders – the P69 can do it all.

Support

Animated training videos come pre-installed. Skype and a webcam are also installed for video conferencing and instant messaging. Our cutting edge Internet support even enables us to "Log In" to and remotely control your machine from our factory if necessary.

Digitizing Probe

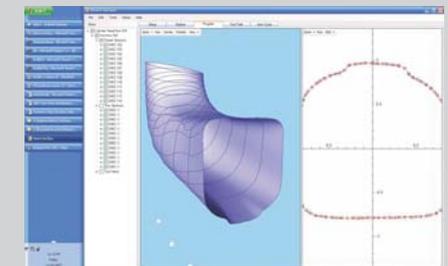
Our automatic digital probing feature utilizes a Renishaw probe and eliminates the need for an expensive CMM. The machine operator is able to digitize and duplicate a port in about 30 minutes.



Cycloidal gear drive gives less than 1 arc-min of backlash on 4th and 5th axis. This helps ensure no step in port area where tool paths meet.



Advanced Direct Motion Software Tools allow manipulation of port design and minimize digitizing time. This allows operator to pick up data once and tweak the design on the screen. Operator can tweak hand-ported design if necessary.



Rottler/Direct Motion software gives you the advantage! Specially designed software for head porting allows entire programming process to be done on the machine. Rottler software allows operator to import and export to most common CAD/CAM software such as Master Cam or Surf Cam.



Fairway Tested, Racetrack Approved

By dimpling the surface of a golf ball you eliminate surface area thus reducing drag of the air across the ball. By dimpling a port in the cylinder head you can also reduce drag of the air going across the face of a port thus improving airflow.

With Rottler's P69's Exclusive Dimpling Program (Patent Pending), you can give your customers an edge over their competition. In tests of identical cylinder heads bolted on the same short block, the dimpled ports increased horsepower on the dyno by 1 1/2 to 2% over heads that weren't dimpled.

With our unique Rottler software you're able to dimple ports in certain areas, not only increasing horsepower but you are preventing your competition from copying your exact port.

MULTI PURPOSE MACHINING CENTER

The F70 Series machines are designed for both the small to medium size diesel engine rebuilder as well as the performance racing engine builder. Since 1923, Rottler has been designing and manufacturing machines and has used all their experience and knowledge to design a new class of machine. The F70 Series machines complete the range of Rottler machines that already exist.

The large capacity of the **F79A** allows dual work stations so two jobs can be set up at once. A block can be bored and surfaced on one side of the machine while another block can be set up on the other side of the machine for main line boring and thrust facing.

Diesel Engine Remanufacturer

The small to medium size diesel engine remanufacturer requires an automatic machine that is easy to learn and fast to operate so any block can be machined quickly and accurately. In order for engine rebuilders to move out of the manual machine age and into the CNC era, they need computer technology. Features such as Rottler's Windows Touch Screen Control Panel combined with Conversational Programming allow virtually anyone to easily operate these machines.

Performance Engine Builder

The performance racing engine builder requires a versatile, multi-purpose machining center that can handle a wide variety of engine machine work. From simple jobs like boring a block and surfacing a head to complex machine work like line boring and general CNC machine work and making parts.

F79A

Multi Purpose CNC Machining Center

Common, everyday jobs such as boring, surfacing and line boring can be easily automated with the F70A machines. Operator attendance is only required for set up.

Often when surfacing a block, more than one pass is required. The F70A can be programmed for multiple passes, moving down the exact amount each pass and completing with a finish cut for the required surface finish during the final pass. Bore centers are either measured from the block or from a blueprint, then saved in the memory. The F70A machine moves automatically to the exact positions, useful when multiple boring operations are required for jobs such as resleeving. For special applications, Optional Renishaw Wireless Probing can automatically find bore centers and measure diameters.



Features

- Windows Touch Screen Control – Easy to learn and fast to operate.
- Extra height capacity for medium size diesel blocks for increased versatility.
- Sliding quill spindle design for deep hole machining required for block work.
- World standard CAT40 Spindle for fast tool changing and worldwide versatility.
- 4th Axis Automatic 360 Degree Roll Over Fixture for increased productivity.
- Single phase 220V for power efficiency – save electrical running costs.
- Automated workhead tilting system for surfacing gives superior surface finish.
- Automatic tool changing system available for production machining applications.



The F79A is designed to machine large diesel blocks used in the fast-growing tractor pulling race engine market.

PRODUCTION ENGINE REMANUFACTURER

F79ATC

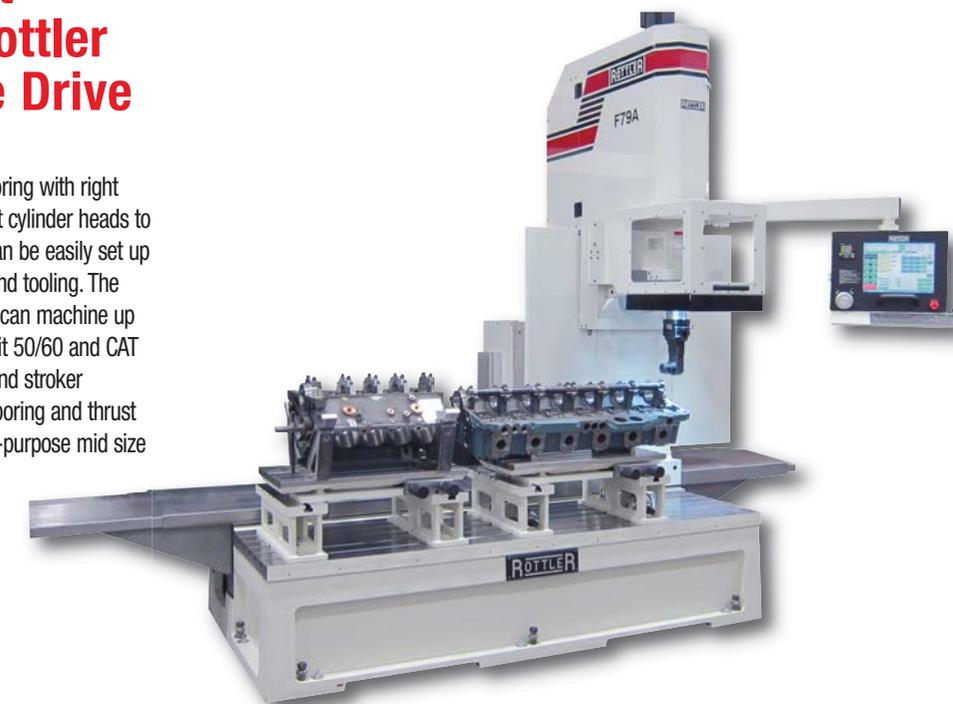
Multi Purpose CNC Machining Center with Automatic Tool Changer and Full Enclosure

Rottler has developed special F79A machines ATC automatic tool changer and full chip enclosure for production applications. Special fixturing allows fast block loading and unloading as well as easy change over to different design blocks. Operators can change from V Block to In-line block in just few minutes and the CNC control stores all settings in memory for instant recall. Complete cycles including probing, boring and surfacing can be completed unattended with the doors locked closed.



Main and Camshaft Line Boring with Rottler Unique Right Angle Drive

Rottler has over 30 years of experience at line boring with right angle drives. From very small overhead camshaft cylinder heads to large diesel and industrial engines and frames can be easily set up and line bored with Rottler machines, software and tooling. The F79A is well developed for this type of work and can machine up to large overhead camshaft heads such as Detroit 50/60 and CAT 3406E and C Series. Main bearing conversions and stroker clearancing can be done at same set up as line boring and thrust facing allowing maximum versatility of this multi-purpose mid size machining center.



CUSTOMER TESTIMONIAL

"The Rottler machines are easy to learn and fast to operate and have increased our quality and production. We have just ordered our third machine – an F79A for our medium size engines."

– David Lee, Managing Director of LH Group Services, UK

F100 SERIES

Multi-Purpose CNC Machining Centers

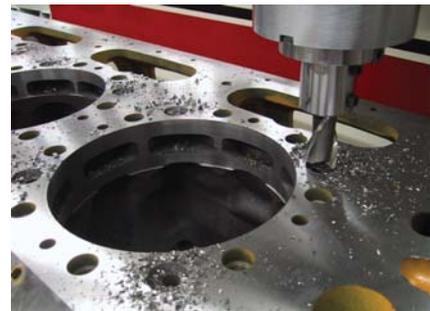
In both size of the engines and scope of the market, “heavy-duty” has taken on a new and much more important role on the world’s stage. Rottler’s commitment to this arena has earned a reputation among OEM remanufacturers and large engine rebuilders worldwide. Our rugged equipment and unmatched versatility make Rottler the number one choice for this kind of engine work.

Rottler’s Programmable Automatic Control makes these machines fast and accurate. The machines work like advanced CNC machining centers but Rottler’s conversational programming technology makes them very easy to operate. No programming knowledge is required and operators are trained by factory technicians in just a few days to run these machines at full speed.

Many unique jobs such as large connecting rods, gear housings and other often overlooked jobs can be performed with this versatile equipment. The F100 Series machines are available in five sizes and two control systems – CNC or Manual.

Available in Manual Versions

Rottler now offers a range of manual machining centers for considerably less investment compared to the CNC versions. The manual version is simple to learn and is not programmable. It works similar to a digital readout. For example, when boring a line of cylinders, the center of bores are located with a dial gage or digital runout gage and the dimensions recorded, then the boring tooling is installed in the spindle and the operator locates the center of the bores by manually moving the machine with the handwheel to the dimensions previously recorded. Line boring is done in a similar method. The manual machines are easily upgradeable to full CNC at any time in the future.



Productivity and Accuracy

Common, everyday jobs such as boring, surfacing and line boring can be easily automated with Rottler’s Heavy-Duty machines. Operator attendance is only required for set up. The machine is capable of boring along a complete cylinder bank automatically. Likewise, the machine is capable of line boring along a main line automatically.

Often when surfacing a block, more than one pass is required. The F100 can be programmed for multiple passes, moving down the exact amount each pass and completing with a finish cut for the required surface finish during the final pass.



Rottler right angle line boring tools

Bore centers are either measured from the block or from a blueprint, then saved in the memory. The F100 machine moves automatically to the exact positions, useful when multiple boring operations are required for jobs such as resleeving. For special applications, optional Renishaw Wireless Probing can automatically find bore centers and measure diameters. The F100 machine moves automatically to the exact positions, useful when multiple boring operations are required for jobs such as resleeving upper and lower seal areas.

When resleeving the lower seal area of wet liner blocks, it is often required to bore a diameter larger than the upper diameter. Rottler’s Automatic Lower Sleeve Repair Software allows the machine to offset so that the boring tool will clear the upper diameter, move down, then move back on center to bore the lower area on center with the upper bore. Once boring is complete, the machine will index the cutting tool, offset the programmed amount and retract and continue to the next cylinder – automatically.

Special Circular Interpolation Software

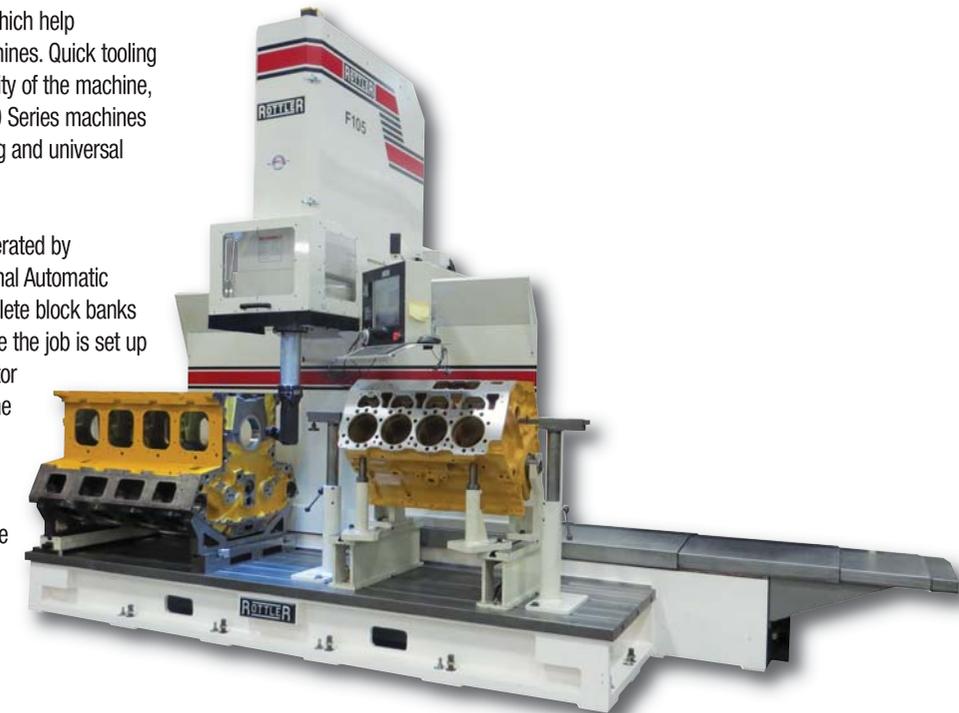
Rottler software allows wide counter bores and main line thrust faces to be cut with a single-point machining system. The single-point cutting tool spins in a small circle and simultaneously moves in a large circle to face counterbores and thrust faces to very accurate surface finish and geometry. Radius undercuts can be machined into the counterbore corner with special Rottler tool holders.

F100 SERIES

All **F100** machines employ an array of features which help maximize the productivity capabilities of the machines. Quick tooling change-over maximizes the versatility and flexibility of the machine, allowing boring and surfacing in one set-up. F100 Series machines have the capability of boring, surfacing, line boring and universal machining.

Traveling column and spindle movements are operated by precision ball screws and AC servo motors. Optional Automatic cycle software and production tooling allow complete block banks to be machined without operator attendance, once the job is set up and the “cycle start” button is pressed, the operator is free to “walk away” and do other work while the F100 completes a block bank or main line bore unattended!

The massive F100 is designed for machining large engines used in the earthmoving, mining, oil and gas, power generation and marine work boat industries up to the size of V20 engines blocks.



F103

The **F103** is designed for machining smaller engine blocks used in “On Highway” applications such as trucks and buses. At the same time it is a large machine capable of machining mid-range size blocks up to the size of a CAT3508 and 3412, Komatsu 170 V12, MTU 2000 V16, Cummins K38, Detroit 60, Mercedes 400 V12 and similar.



F104

The **F104A** is designed for machining large engines used in the earthmoving, mining, oil and gas, power generation and marine work boat industries up to the size of the CAT3516 and 399, Cummins QSK 60, MTU 4000 V16, Waukesha 7042 and others.



F105

The massive **F105A** is designed for machining large engines used in the earthmoving, mining, oil and gas, power generation and marine work boat industries up to the size of V20 engine blocks such as the CAT3520 and C175 V20, MTU 4000 V20, Cummins QSK78, Waukesha 9390 and others.



EXTRA LARGE BLOCKS

Extra large blocks weigh in excess of 20,000 lbs (10,000 kgs), so Rottler had to come up with a completely new concept in machine design. The **F109** is a massive machine manufactured to handle these very large and heavy engine blocks. The F100 Series is exceedingly capable of performing such jobs as boring, surfacing and line boring. Rottler's Programmable Automatic Control makes these machines fast and accurate.

The machines work like advanced CNC machining centers but Rottler's Conversational Programming Technology makes them very easy to operate. No programming knowledge is required and operators are trained by factory technicians in just a few days to run these machines at full speed.

VERTICAL LATHE

F107 & F109 available with Vertical Lathe for machining large diameter parts such as wheel hubs and spindles - Increasing versatility and allowing the F100 to perform as a complete multi purpose machining center

All F100 machines employ an array of features which help maximize the productivity capabilities of the machines. Quick tooling change-over maximizes the versatility and flexibility of the machine, allowing boring and surfacing in one set-up. F100 Series machines have the capability of boring, surfacing, line boring, and universal machining. Traveling column and spindle movements are operated by precision ball screws and AC servo motors. Optional Automatic cycle software and production tooling allow complete block to be machined without operator attendance, once the job is set up and the "cycle start" button is pressed, the operator is free to "walk away" and do other work while the F100 completes a block or main line bore unattended!

F109 line boring GE EVO Locomotive Frame



F107 & F109 Multi Purpose CNC Machining Centers

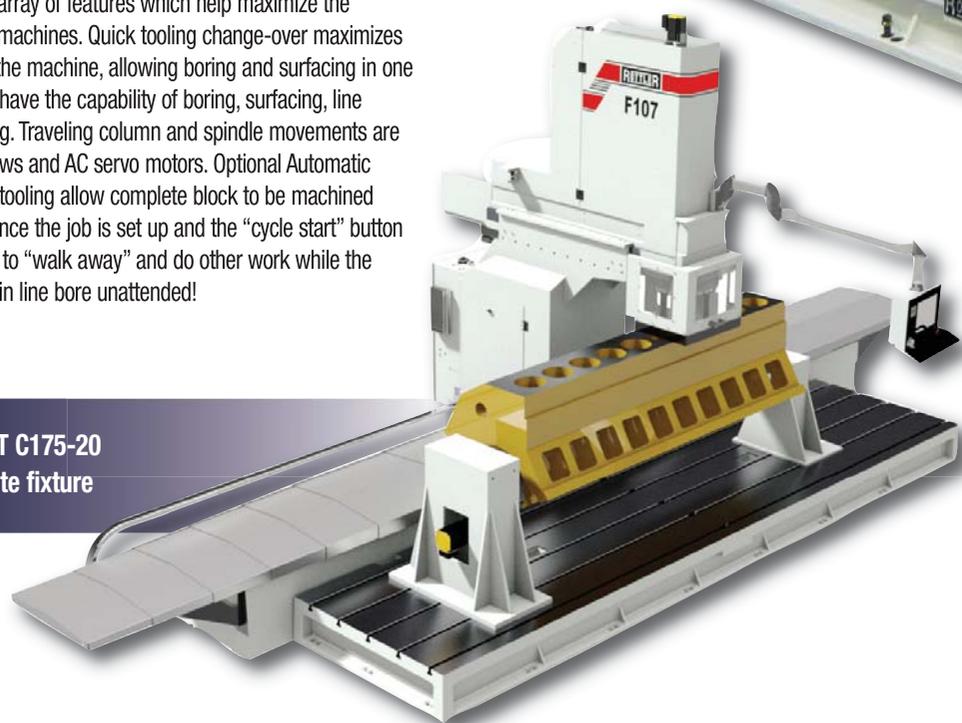
The Rottler F109 has been designed and developed to machine the huge engine blocks and frames found in locomotives, marine workboats, power generation and natural gas pumping engines such as CAT 3600, MTU 1163 and 8000, EMD and GE Locomotive.

The size of the fixed worktable and traveling column design allows massive blocks/frames to be set up as well as multi work stations for set up of a variety of different parts or fixtures at one time. The extra long travel of the column allows a vertical lathe to be installed at one end of the machine so that large diameter parts such as wheel hubs and spindles can be turned increasing the versatility and redefining the phrase MULTI-PURPOSE.

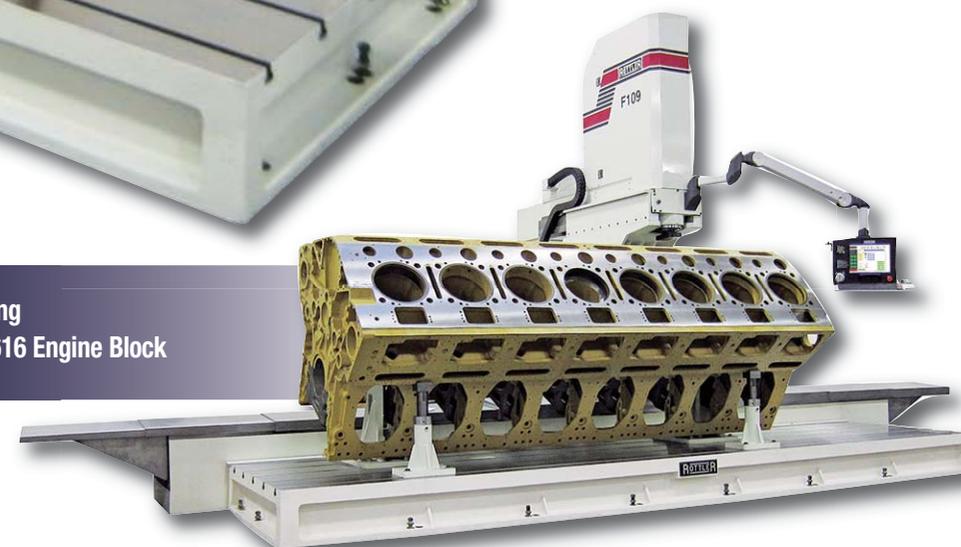
The Rottler F107 can machine some of the above engines but has been designed and developed to incorporate special fixtures such as 4th axis to allow large blocks such as CAT C175-20 to be rolled and indexed during machining. Combined with Rottler's automatic tool changer, many operations can be completed automatically – unattended – giving savings of 50-75% time and cost.

F109 with CAT C280 - 3616 Engine Block and CAT 797 Mining Truck Wheel Hub on Vertical Lathe

F107 with CAT C175-20 and auto rotate fixture



F109 machining CAT C280 - 3616 Engine Block



CONNECTING RODS

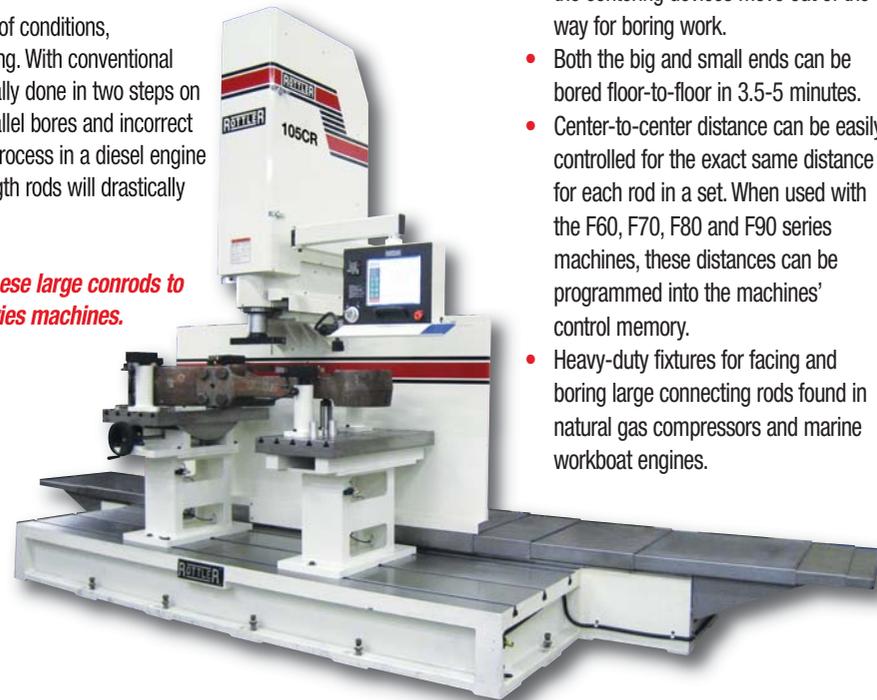
Connecting Rod Machining

To remain in service under even the most demanding of conditions, heavy-duty connecting rods require precision machining. With conventional rod reconditioning equipment, the two ends are normally done in two steps on different machines. This increases the risk of non-parallel bores and incorrect center-to-center distances. Because the combustion process in a diesel engine is controlled by compression, incorrect or unequal length rods will drastically affect the performance of the engine.

Rottler's patented connecting rod fixture allows these large conrods to be bored on the Rottler F60, F70, F90 and F100 series machines.



Rottler's Conrod Fixture System for diesel engines allows both ends of the rod to be machined without having to remove, reposition and reclamp the rod.



- Automatic alignment system allows quick setup with reference to the center of both ends. After clamping, the centering devices move out of the way for boring work.
- Both the big and small ends can be bored floor-to-floor in 3.5-5 minutes.
- Center-to-center distance can be easily controlled for the exact same distance for each rod in a set. When used with the F60, F70, F80 and F90 series machines, these distances can be programmed into the machines' control memory.
- Heavy-duty fixtures for facing and boring large connecting rods found in natural gas compressors and marine workboat engines.

Connecting rods that have serrations at their joining surfaces required special cutters and software to remachine the serrations to ensure that they are perfectly straight and equally spaced.

Rottler has been manufacturing right angle drive equipment for line boring for over 20 years and has used this technology to design a right angle drive to cut serrations.

Rottler has developed a special fixture that aligns and locates each rod and cap for machining. After clamping, the locating device is removed and the software program machines the serrations automatically.



THE CUTTING EDGE

Indexable Carbide and CBN/PCD 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 of a wide variety of materials. Decades of experience machining engines worldwide allows Rottler machines to be able 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 totally 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 1,000 RPM. 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.

Dry Surfacing Cutting Inserts

Versatile S tooling provides the right tool for every job!

Rottler surfacing machines use indexable cutting inserts held by adjustable toolholders in the standard double insert flycutterheads. Rottler offer inserts designed specifically for high speed dry milling of cast iron, aluminum, diesel heads with prechambers, aluminum blocks with iron liners, as well as optional cutterheads for weld removal.

CBN (Cubic Boron Nitride) Inserts

These inserts provide an excellent finish on cast iron and have an exceptionally long life giving savings over grinding stones.

PCD (Poly-Crystalline Diamond) Inserts

These inserts are designed for high speed dry cutting of aluminum giving a super fine surface finish for today's MLS (Multi-Layer Steel) head gaskets.

Coated Carbide Inserts

These inserts are inexpensive and can be used for roughing work at low speeds.

Special Inserts

Rottler has developed special inserts for surfacing difficult jobs such as aluminum heads with steel pre chambers and aluminum blocks with ductile iron liners.





You can get copies of optional tooling equipment, custom parts order forms, MSDS sheets and other reference documents online 24/7 at www.rottlermfg.com/documentation.php

ORDER 3 WAYS

PARTS DEPARTMENT

Rottler is working to catalog parts and set up an online store. In the meantime you can find copies of Optional Tooling Equipment, Custom Parts Order Forms, MSDS Sheets and reference documents online at www.rottlermfg.com/documentation.php

1 Phone:

(800) 452-0534 / +1 (253) 872-7050

2 Online:

www.rottlermfg.com/parts.php

3 Email:

parts@rottlermfg.com



ROTTLER OPENHOUSE

Rottler holds an Annual Open House

- Live Rottler Machine Demos
- Technical Seminars
- Raffle Prizes
- Dinner Events Thursday & Friday
- Thursday Night BBQ
- Friday Night Dinner Cruise



Visit www.rottlermfg.com/open_house.php for current Open House details and RSVP.



Trade Shows

Rottler exhibits all over the world! Check out our events page at www.rottlermfg.com/upcoming_events.php for a schedule of events.

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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.



SG7 Cylinder Head Valve Seat & Guide Machine



SG8M TS Cylinder Head Valve Seat & Guide Machine



SG9M TS Cylinder Head Seat & Guide Machine utilizing UNIPILOT Tooling



SG10A CNC Cylinder Head Seat & Guide Machine



SG80A Heavy Duty CNC Cylinder Head Valve Seat & Guide Machine



P69
5-Axis CNC Cylinder Head Digitizing and Porting Machine



F109
Multi Purpose CNC Machining Center for Medium to Very Large Blocks



F69ATC
CNC Machining Center with Automatic Tool Changer



HP7A
Diamond Honing Machine



H70
CNC Honing Machine



VR9 Centerless Valve Refacing Machine



VR7 Valve Refacing Machine



F10X Programmable CNC Cylinder Boring and Resleeving Machine

S8 Cylinder Head, Block and Manifold Surfacing Machine



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



F105A Multi Purpose CNC Machining Center for Medium to Large Blocks



F105A Multi Purpose CNC Machining Center for Medium to Very Large Connecting Rods



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

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