ROTTLER

THE CUTTING EDGE

SG9MTS

Cylinder Head Seat & Guide Machine

Unipilot®

The Speed of Live and the Accuracy of Fixed

manualmatic

Machining Equipment Created for Performance Racing & Engine Remanufacturing.

So Advanced, It's Simple.

SG9MTSMTS CYLINDER HEAD SEAT & GUIDE MACHINE

New SG9MTS MANUALMATIC Touch Screen Control

SG9MTS machines utilize proven patented UNIPILOT tooling featuring 2 modes of operation:

MANUALMATIC: Productivity increases of 30% to 50% are experienced due to the new concept of MANUALMATIC operation. Buttons and switches have been eliminated saving operator time. Feed the spindle and Rottler intuitive control easily manages functions such as workhead float/clamp, valve guide pilot centering and spindle power. When seat depth is reached, MANUALMATIC changes the spindle RPM automatically for exacting finishes.

MANUAL MODE: Touch Screen Controls utilize proven Rottler Intuitive SG9 Software that displays spindle vertical position vividly on the screen eliminating external dial gauges. Feeding the spindle to the valve seat sets the cutting insert to zero. A quick touch sets the zero position allowing the Digital Display to show exact spindle position at all times. Workhead clamp and float pedals are eliminated saving valuable operator time. Low to High finishing speed transitions are controlled by separate buttons on the touch screen for manual operation.

Fast & Accurate

Heavy duty SG9MTS workheads are robust with the capability to machine large diameter valve seats. The lightweight design is engineered for speed and accurate centering creating the ultimate concentricity.

Precision Seat Cutting Inserts

Rottler's Precision CNC Ground Fine Grain Carbide Seat Cutting Inserts are substantially faster and less expensive than grinding. Inserts eliminate the need to purchase a different grinding stone for every angle. Rottler manufactures inserts in single and multi-angle. Curved and radius shapes are available.

Storage Cabinet

Three Drawers and Top Tray allow for convenient storage of a wide selection of tooling available from Rottler.

Built in Vacuum Tester

Quality check valve seats while the cylinder head is still set up on the machine!

360° Rollover Fixture

360° roll provides quick and easy access to all sides of the head. Precision adjustments are accomplished fast using the Micro Adjust Feature. A cushion of air floats the fixture for fast easy set ups.

Rigid Cast Iron Construction

Rottler SG9MTS machines are manufactured from heavy thick wall cast iron. The all cast iron rigid platform is precision machined providing superior accuracy as compared to welded steel. Rigidity is vital in producing high quality chatter free valve seat cutting.

Heavy Duty Base Cabinet

Extending the heavy duty base cabinet to the rear assists in safe handling during machine relocation. Foot clearance is provided for operator comfort.

Unipilot® POWERED BY manualmatic

"MANUALMATIC removes wasted operator motion in flipping of switches and stepping on pedals. Additional gains in process repeatability creates less hard work which is a key metric in our high production environment. What does that mean at JASPER? Reduced Cycle Time = Reduced Cost.....bottom line".

– CHUCK LYNCH

JASPER ENGINES & TRANSMISSIONS 100% Associate Owned

Variable Speed Spindle from 25 to 1000 RPM

Spindle Speed can be accurately selected for varying machining operations. Soft Touch Buttons and a bright digital display are located for ease of operation.

Touch Screen Control Panel

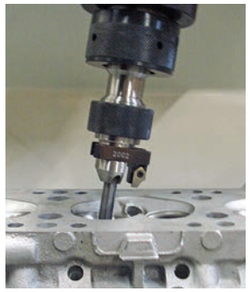
The intuitive Rottler Touch Screen Control Panel is ergonomically placed at eye level for simple operation.

Spindle Alignment

Vertical spindle alignment is controlled via the Pneumatic System switch to allow **UNIPILOT** Tooling to easily enter the valve guide.

Dual Speed Spindle Feed

Rapid feed is accomplished through the large handwheel. Use the small handwheel to perform precise fine feed spindle control when depth of cut is required to attain extreme levels of accuracy.



Adjustable Spindle Tilt & Depth Stop

Spindle tilts up to 15° from vertical, in both directions, providing quick alignment on all canted valve cylinder heads. Each seat is cut to identical depths for optimal performance of computer controlled engines.

Automatic Spindle Lock Nut

Patented Spindle Locking Nut System automatically tightens tools in the spindle with a wrench free design. Secure tool installation and removal is nearly instantaneous.

Large Diameter Spindle

3.150 inch (80mm) diameter heavy duty spindle assures rigidity for chatter free operation. Outer spindle support bearings are adjustable over the entire length of the bearing area. Superior High Precision Rottler design is built in for durable operation.

Electronic Level

Digital readout provides clear feedback on the screen allowing for quick and accurate adjustments.

Digital Depth Indicator

Digital Depth indication shows operators the exact amount of material that has been removed from the seat resulting in consistent seat depths. Operations such as installing seat rings, reducing valve guides, facing spring seats and more are benefited by digital accuracy. One Touch Zero saves operator time while ensuring accuracy.

Air Float

The easy to use Rottler Touch Screen is designed to mirror manual operation. Air Float allows simple In/Out Adjustment of the 360° rotation fixture. Workhead clamping and Air Float are quickly controlled via the Touch Screen Control.

UNIVERSAL TOOLING

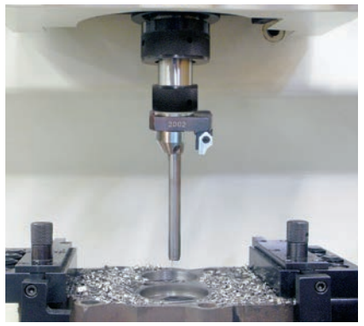
Rottler makes an assortment of drivers for our patent pending Unipilot Tooling spindle system. Combined with our wide range of insert/bit holders, valve seats ranging from .550” to3.25” (14mm to 80mm) and larger can be cut on the SG9MTS.

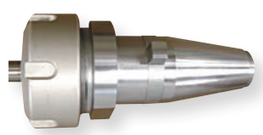
Fixed Diameter Milling Heads

The engineered milling head bores the correct seat ring housing with press fit interference allowing for adjustment free installation. Four Corner Carbide Inserts are indexed to change out fast without readjusting. Rottler cutterheads can be re-used when inserts get dull reducing tooling and labor costs.

Drilling & Taping Program

Automatic Spindle Reversing is built into the automatic drilling and tapping program included in the SG9MTS Control.



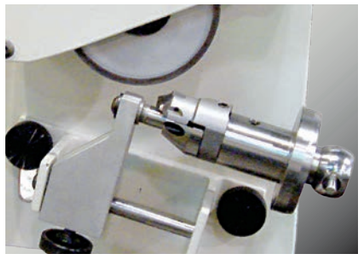


Precision Collet Chuck

Allows holding of reamers, cutters, drills, taps and other tools for special machining operations.

Universal Chuck

For general drilling and tapping work. Often used for spring seat and valve guide seal tooling.



Cutting Insert Sharpener

Rottler offers machine mounted diamond wheel cutting insert sharpeners for fast easy sharpening of multi-angle tool bits.

Electronic Level

For precision leveling of valve guides (Canted Guide Fixture shown).

Triangle Tool Holders

Indexable Triangular Coated Carbide Tool Holders are available in 10°, 20°, 30° and 45°. Ideal and economical when cutting only one seat angle. Designed for boring old Rottler inserts and boring new insert housings.

CBN Cutting Inserts

CBN triangular cutting inserts are now available for cutting extremely hard valve seat materials found in natural gas, biogas and alternate fuel engines

UNIPILOT POWERED BY MANUALMATIC

Unipilot® *The Speed of Live and the Accuracy of Fixed* *POWERED BY* manualmatic

Rottler **UNIPILOT** (patent pending) tooling loads securely into the Rottler Automatic Quick Clamping System holding the tooling in the spindle without the need for wrenches.

The **UNIPILOT** Tooling system allows the carbide centralizing **UNIPILOT** to work like a live pilot. **UNIPILOT** Tooling stays in the spindle while moving from valve guide to valve guide. Rottler **UNIPILOT** Tooling has a fixed pilot design to improve ***CONCEN*** eliminating clearance found in live pilots.

The lower taper on the spring loaded **UNIPILOT** easily enters the valve guide. The spring loaded upper area fixes and centers in the valve guide automatically eliminating clearance between the pilot and guide.

After cutting the valve seat, the spindle rises automatically when **MANUALMATIC** control is utilized. The **UNIPILOT** rises with the spindle ready to float over the head gasket fire decks in position to enter the next valve guide.

UNIPILOT, Powered By **MANUALMATIC**, creates accurate seat and guide work fast. Operators maintain Steering Wheel contact releasing only for the instant required for the floating Workhead to lock down automatically centered in the guide.

Rottler **MANUALMATIC** automates repetitive manual operations into one **MANUALMATIC** process. **UNIPILOT** Tooling, powered by **MANUALMATIC**, produces the best ***CONCEN*** in the industry.

After entering your seat or guide requirements on the user friendly Touch Screen, a quick touch off and zeroing initiates **MANUALMATIC** operation. With zero set, **MANUALMATIC** manages spindle speed transitioning to finish RPM automatically.

UNIPILOT Tooling works in conjunction with **MANUALMATIC** to automate ***CONCEN.*** Finish machining completes and the Workhead floats automatically. Operators move the Workhead effortlessly on a cushion of air to the next operation allowing the patented **UNIPILOT** tooling to easily center into the next guide ready for **MANUALMATIC** to accurately repeat the process.

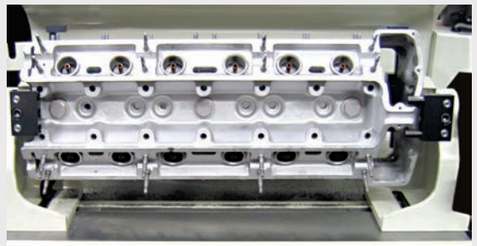
Workhead lights illuminate heads and flash intuitively when the Digital Depth Gauge senses the entered spindle height. Buzzers are replaced by bright LED lights improving operator efficiency. **MANUALMATIC** eliminates foot pedals and combines final lowering, roughing, finishing, raising and Workhead Float into one automated **MANUALMATIC** process! Operator hands stay on the Wheel driving maximum performance.

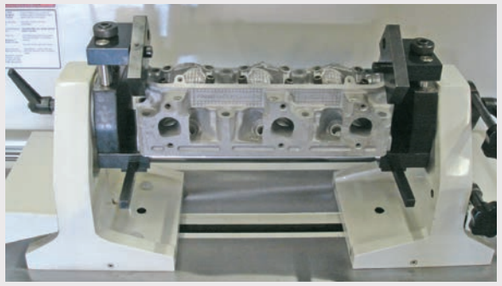
MANUALMATIC is designed for operators that are accustom to standard manual equipment. Rottler has created a Touch Screen that is easy operate on day one. Manual controls are simply placed on the Touch Screen and operators push screen buttons that mirror manual operation. The SG9MTS can be learned quickly even if operators have little computer experience. MANUALMATIC Mode combines standard seat and guide machining steps for efficiency and improved accuracy. So Advanced, It’s Simple.

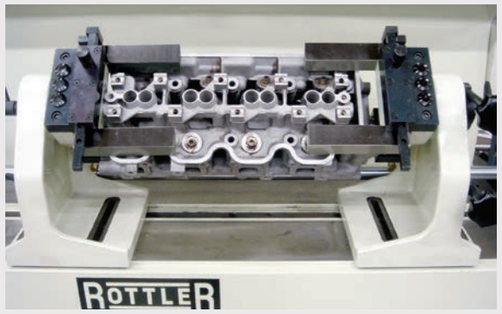
CONCEN

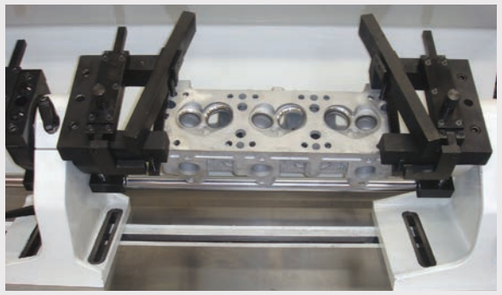
The **CONCEN** trademark is Rottler’s promise of quality. **CONCEN** creates the most accurate and versatile seat and guide machines on the market today. The centering action of Rottler’s Precision Carbide **UNIPILOT** System, supported on our balanced air float work head, give perfect centering in the valve guide. The Rottler combination creates the best **CONCEN** of valve seat to valve guide in the industry.

UNIVERSAL QUICK ACTION FIXTURING









360° Roll Over Fixture

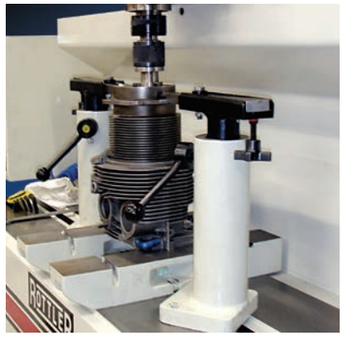
The standard 360° rollover fixture allows large and long heads, such as this Jaguar XJ6, to be rolled 360° for multiple operations. Boring cam follow bores and repairing broken exhaust studs by drilling and tapping benefit from the 360 action.

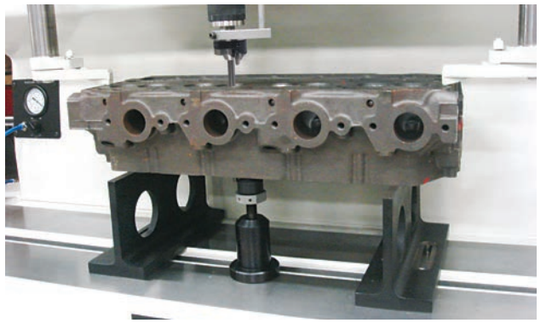
Difficult Angle and Canted heads, such as the GM 2.0L, are easily clamped and rolled 360°.

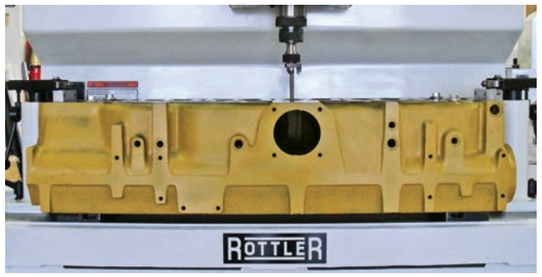
Included is a two piece frame kit that allows mounting of overhead camshaft and difficult to mount cylinder heads.

Aircraft Cylinders

Rottler offers special fixturing for cutting seats in one piece aircraft cylinders.







Diesel Head Fixture

Optional small to medium diesel head fixture allows for fast setup and clamping of in-line cylinder heads.

Cat 3406E cylinder head in large diesel head fixture.

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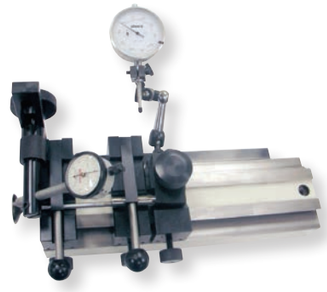
So Advanced, It's Simple

MEASURING INSTRUMENTS



Valve CONCEN Measuring Gauge

Spring loaded V supports allow the valve stem to be rotated around its own center line allowing valve seat run out to be measured with a precision gauge. Resolution is .0001" (.002mm) per division. A second dial gauge can be used to check that the valve stem has no run out or bend.

Valve Seat CONCEN Measuring Gauge

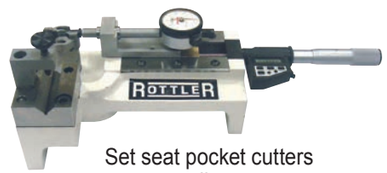
Rottler's **CONCEN** gauge allows concentricity to be easily and quickly checked to ensure accuracy.

Digital Boring Micrometer

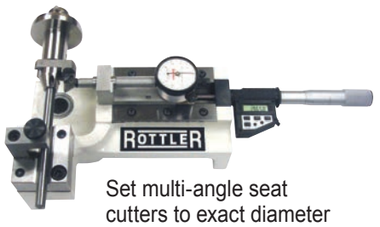
Accurately set the boring diameter to any size with single blade adjustable cutting inserts. Measuring tooling for boring valve seat housings for new seat rings is also accomplished.

6 IN 1 SETTING FIXTURE

Check pilots for bend and diameter

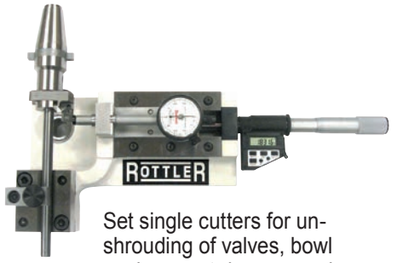


Set seat pocket cutters to proper diameter

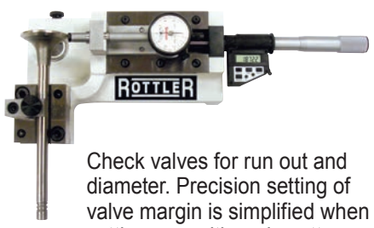


Set multi-angle seat cutters to exact diameter

Rottler's ***6 in 1 Setting Fixture*** makes precision valve work simple and fast!



Set single cutters for un-shrouding of valves, bowl work or seat ring removal



Check valves for run out and diameter. Precision setting of valve margin is simplified when setting up multi-angle cutters

STANDARD EQUIPMENT

- **ACTIVE SPINDLE** - Spherical Pneumatic Automatic Alignment System is built into the Spindle for fast locating of the pilot into the Valve Guide resulting in Accurate Centering (Patent Pending)
- Air Float Work Head with simple Touch Screen Control
- Heavy Duty Spindle - Diameter 3.150" (80mm) Hardened and Ground with 8" (200mm) of hand wheel vertical travel
- Rottler Automatic Tightening and Quick Release Spindle Lock Nut System automatically and securely clamps tooling in place nearly instantly
- Steering Wheel for Rapid Vertical Travel of Spindle
- Fine Feed Mechanism precisely controls Spindle Down Feed to create equal depth cutting of valve seats
- Work head tilts up to 15° in both directions for canted angle valve guides
- Infinitely Variable Spindle Rotation Speed from 25 to 1000 RPM. RPM is constantly monitored in clear view on the color Digital Display
- Quick Change RPM from Low to High with a single button push conveniently located on the bottom of the control panel
- Digital Electronic Level is engineered for quick and accurate Valve Guide alignment
- Digital Gauge for Depth Control of Spindle Travel
- Universal Heavy Duty Bolt Down 360° Roll Over Cylinder Head Fixture. Air floats heads on the table simplifying the set up process
- A Holder Kit is included to handle jobs that are outside of the Roll Over Fixture profile. The adjustable Holder Kit features a two piece frame to accommodate heads of differing length
- A Flexible Compact Halogen work light is strategically placed on the Work Head supplying light where it matters most
- Tool Storage Cabinet with four Drawers mounts on the machine and swivels for ease of use
- Built in Vacuum Tester Kit is supplied with seven pads and flexible hose. Heads can be quality checked while still fixtured in the machine!

SPECIFICATIONS

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	AMERICAN	METRIC
Valve Seat Diameter Range	0.550" - 3.150"	14 - 80mm
Cylinder Head Length with 360° rollover fixture	44"	1120mm
Cylinder Head Width with 360° rollover fixture	12"	300mm
Cylinder Head Height with 360° rollover fixture	6"	150mm
Cylinder Head Length with Diesel Fixture	Unlimited	
Cylinder Head Width with Diesel Fixture	16"	400mm
Cylinder Head Height with Diesel Fixture	10"	250mm
Spindle Diameter	3.150"	80mm
Spindle Taper	R30 Quick Change with Automatic Lock Nut	
Spindle Speed	25 to 1000 RPM	
Spindle Motor	AC Vector Drive	
Spindle Motor Power Maximum	2 HP	1.5 kW
Spindle Motor Torque Peak	27.3 lb/ft	37 Nm
Spindle Travel/Stroke Vertical	7.875"	200mm
WorkHead Travel Horizontal - Airfloat/Airclamp	43.5"	1100mm
Work Head Travel In/Out - Airfloat/Airclamp	3.065"	78mm
Roll Fixture Movement In/Out - Airfloat/Clamp	4.5"	115mm
Max. Work Head Tilt (either side of zero)	15° both sides of Vertical	
Maximum Distance from Table Surface to Spindle Taper	19.5"	495mm
Electrical Requirements	208/240 V, 15 A, 50/60 Hz, 1PH	
Air Requirements (Pressure and usage)	90 PSI - 4CFM	6 BAR - 2L/Sec
Working Dimensions with Sharpener and Tooling Cabinet	88" wide x 42" deep x 86" high	2235 x1070 x 2185 mm
Shipping Dimensions	59" wide x 38" deep x 85" high	1499 x 965 x 2159mm
Shipping Weight	2850 lbs	1293 kg
Paint Color Code	RAL9002 (Grey White)	

Specifications and design subject to change without notice.

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