

**ROTTLER**  
THE CUTTING EDGE

# SG80MTS

## Heavy Duty Cylinder Head Machine



**CONCEN**

**MANUALMATIC**

Machining Equipment  
Created for Performance  
Racing & Engine  
Remanufacturing.

So Advanced, It's Simple.

SG80MTS cutting  
Detroit DD15  
24 Valve Cylinder Head

# SG80MTS HEAVY DUTY CYLINDER HEAD MACHINING CENTER

The Rottler SG80MTS was specifically designed for machine shops that rebuild small to large cylinder heads found in the heavy duty engine industry. Large cylinder heads come in many shapes and sizes – from 24 valve single casting cylinder heads to huge single cylinder heads used in natural gas, mining and marine workboat engines. Rottler spent several months visiting cylinder head rebuilders around the globe and went about using our proven engine block machining technology to design a heavy duty machine that handles many operations required on a wide variety of cylinder heads.

We believed that many large cylinder heads could be “plunge cut” with fixed tooling as this process is very fast and low cost. We realized that plunge cutting would require a very rigid machine and were able to utilize many of our trusted design features such as Rottler’s exclusive spindle design. Rottler’s spindle design has proven over decades that our engine block machines are able to “plunge cut” wide counterbores found in large engine blocks with excellent results. The SG80MTS is capable of plunge cutting large valve seats very quickly and with excellent CONCEN and surface finish results.

## Proven Rottler Spindle Design

Large Diameter Precision Spindle has R40 Taper with Quick Change Self-locking Spindle Adapter System. Tooling never comes loose and no wrenches are required to change tools. Rottler’s Unique Heavy Duty Tooling allows large and wide Valve Seats to be machined to accurate Concentricity. Solid Carbide Pilots offer maximum rigidity and long life for years of precision machine work.



## Oversize Valve Seat Insert Rings

The SG80MTS is ideal for boring housings for oversize valve seat insert rings. Rottler manufactures special adjustable cutterheads with quick change driver. Water cooled valve seats require 2 diameters to be bored with accurate CONCENTRICITY to prevent any water leakage. These cutterheads can be preset and used to bore both diameters.



## UNIPILOT Tooling

The UNIPILOT tooling system allows the carbide centralizing UNIPILOT to work like a live pilot. It stays in the spindle while moving from valve guide to valve guide, but all at the same time has a fixed pilot design to give improved concentricity.

## Multi Angle Seat Cutting

Rottler’s Precision CNC Ground Fine Grain Carbide Seat Cutting Inserts are available in many different designs to suit customer requirements. Single angle, multi angle or curves and radius shapes are available. Cutting tools are substantially faster and less expensive than grinding, where a different grinding stone is required for each angle.

## Storage Cabinet

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

## Built in Vacuum Tester

For quick checking of valve seats before removing the cylinder head.

## 360 Degree Rollover Fixture

Provides quick loading and easy access to all sides of the head. Quickly levels head using the micro adjust feature. Fixture floats on an air cushion for quick, easy setup with both hands.

## Rigid Machine Construction

Heavy thick wall cast iron machine castings and precision machining during the manufacturing process give excellent chatter free valve seat cutting. Heavy duty cabinet/base extended to the rear for safe handling when machine has to be moved.

## Foot Clearance

Foot clearance under the machine for the operator’s comfort.





POWERED BY



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.

**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 SG80MTS 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.



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

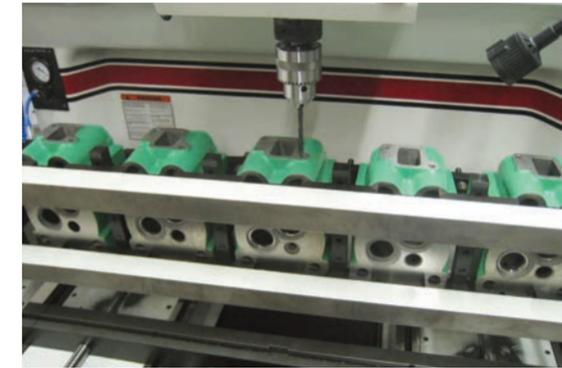
After entering your seat or guide requirements on the user friendly Touch Screen, a quick touch off and zeroing initiates **MANUALMATIC** operation. With zero set, **MANUALMATIC** manages spindle speed transitioning to finish RPM automatically.

**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.



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 Chuck

Universal Chuck can be used for odd jobs like drilling out broken bolts and tapping threads



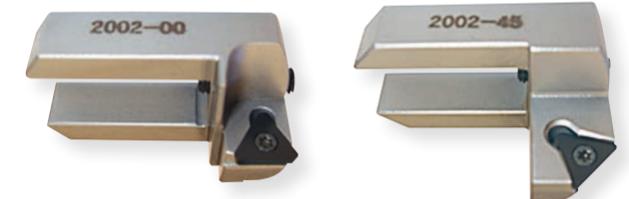
### Fire Ring Groove

Special cutterhead for machining fire ring groove in head gasket surface. Can also be used to bore large valve guide housings/bores.



### Modular Carbide Centralizing Pilot

Rottler offers a Modular Carbide Centralizing Pilot System for very large engine applications with valve guides larger than .875" (22.23mm) diameter. This system is versatile as it allows the use of different size sleeves which are adjustable for different lengths and diameters of valve guides



### Triangle Tool Holders

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



### Collet Chuck

can hold a wide range of precision tools for valve guide reaming, injector tube boring and facing, thread tapping, etc.

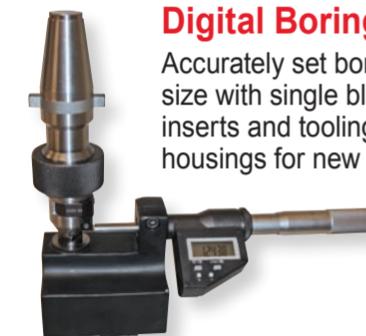


### CONCEN Gage

To measure concentricity of Valve Seat

### 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



### Digital Boring Micrometer

Accurately set boring diameter to any size with single blade adjustable cutting inserts and tooling for boring valve seat housings for new seat rings

# FIXTURES

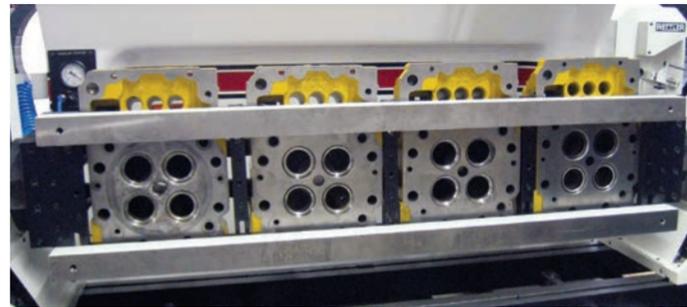
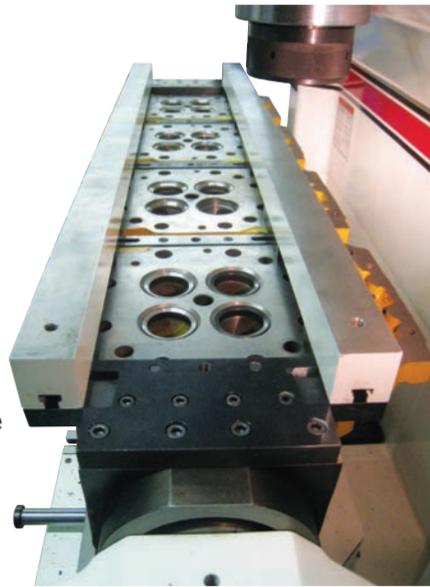
## 360 Degree Rotation of Large Cylinder Heads

Many cylinder head rebuilders asked us that they need to rotate cylinder heads 360 degrees to be able to do machine work on all sides of the cylinder head such as injector tube or spark plug work, and odd jobs such as drilling and tapping broken studs on exhaust flange surfaces. Rottler's 360 degree roll fixture is the answer, allowing large 24 valve cylinder heads to be clamped with reference to their head gasket fire deck and rolled 360 degrees in one set up. The heavy duty clamping and fine adjust system allow quick leveling and rigid clamping for heavy cutting during machining.



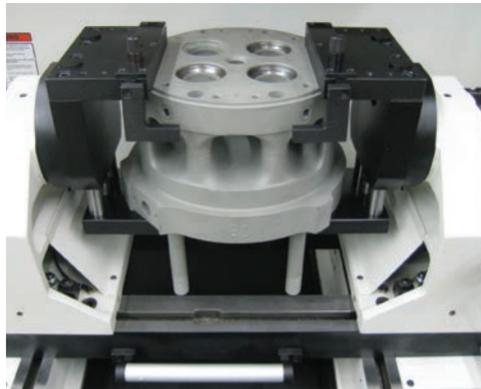
## Multi Head Fixture

Three, four, five or six single cylinder heads can be set up at once in the 360 degree roll over fixture allowing machine work on all faces of the cylinder heads. Cylinder heads are located with reference to their head gasket fire deck surface so that all valve seats are machined to equal depth automatically – every time.



## Quick Action Air Float/Air Clamp Roll Over Fixture

Adjusts effortlessly along parallels on air cushion and clamps with the flick of a switch. This dual purpose and can be used as 360 Degree Roll Over Fixture for smaller heads or Quick Clamp for larger single cylinder heads such as CAT3600. Digital level and fine adjustment system allow valve guides to be leveled accurately and rigidly clamped in seconds for heavy machine work.



## Adjustable Air Float and Air Clamp Work Table

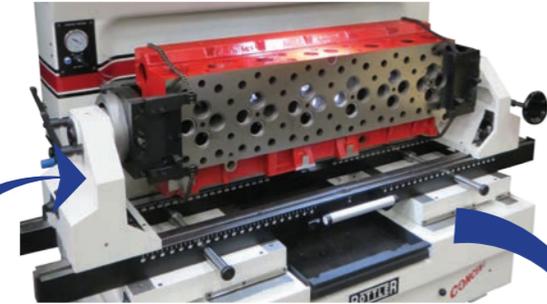
The large worktable of the SG80MTS consists of two 68" (1730mm) long parallels that are mounted on an air floating and air clamping base. These extra long T-slot parallels allow a wide variety of fixtures and jobs to be set up for machining. The complete table and fixture assembly is easily adjusted in/out with air float and locked rigidly with air clamping allowing cylinder heads with four valves per cylinders to be adjusted in/out and machined without any resetting of the cylinder head in the fixture – just press the foot pedal to float the table, slide in or out and the table locks in position ready for machining!



# SMALL TO LARGE CYLINDER HEADS



The SG80MTS can handle from the smallest diesel heads up to the largest heads from extra large engines.



All 24 valve seats, counterbores, and guides can be machined in one set up. Fixture can be rolled 360 degrees for diesel injector and valve spring seat work. Difficult jobs like drilling broken bolts and tapping threads on side of cylinder head can be also done in same set up.

## 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



Set single cutters for unshrouding of valves, bowl work or seat ring removal.



Check valves for run out and diameter (also allows precision setting of valve margin when setting up multi-angle cutters)

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

# STANDARD EQUIPMENT

- MANUALMATIC Touch Screen Control allows valve seats to be cut to equal depth without the operator looking at dials or gages. The LED lights flash when the preset depth is reached.
- Spindle adapters available for use of UNIPILLOT TOOLING SYSTEM.
- Machine Work Head Floats on Air Cushion for Precision Centering - Total Travel in In/Out Direction 2.5" (678mm) and Left/Right Direction 42" 1067mm
- Spindle Diameter 3.75" (94mm) Hardened and Ground with 10" (250mm) of Hand Wheel Vertical Travel
- Steering Wheel for Rapid and Fine Feed Mechanism for Precise Spindle Down Feed
- Heavy Duty Spindle with Inner Precision Angular Contact Bearings supported in Adjustable Outer Bearings
- Spindle Rotation by 5HP (4KW) AC Motor with Vector Control - Infinitely Variable to 500RPM
- Digital Electronic Level for quick leveling of cylinder head
- Spindle Head Tilt - 10 Degrees to left and right
- Rottler Automatic Tightening and Quick Release Spindle Lock Nut System for One Hand Operation for fitting and removing tooling to and from the spindle
- 360 Degree Roll Over Fixture with Safety Chains for Large Cylinder Heads
- Table Cross Slide operated with Air Float/Air Clamp for Easy Adjustment for In/Out Positioning of the Fixture - Total Travel 6.5" 170mm
- 2 LED Work lights - either side of the spindle giving shadowless view of valve seat area
- Tooling Storage Cabinet and Mounting Arm and swivels 360-degrees
- Removable center tray for Chip Disposal
- Built In Vacuum Tester including Hose, Hose holding Bracket, Filter and selection of pads

## SPECIFICATIONS



	INCH	Metric
Valve Seat Diameter Range	.550" - 8.25"	14 - 210mm
Valve Guide Diameter Range	.160" - 1.5"	4 - 38mm
Cylinder Head Length (with 360 degree rollover fixture)	49"	1250mm
Cylinder Head Width (with 360 degree rollover fixture)	14"	355mm
Cylinder Head Height (with 360 degree rollover fixture)	10"	254mm
Cylinder Head Length (with Tilt Fixture or Parallels)	Unlimited	Unlimited
Cylinder Head Width (with Tilt Fixture or Parallels)	16"	40mm
Cylinder Head Height (with Tilt Fixture)	12" & 14.5"	305 & 370mm
Cylinder Head Height (with Parallels)	17"	430mm
Spindle Diameter	3.75"	95mm
Spindle Taper	R40 Quick Change with Automatic Lock Nut	
Spindle Speed	40-500 RPM	
Spindle Motor	AC Vector Inverter	
Spindle Motor Power Maximum	5HP AC	3.75kW AC
Spindle Travel/Stroke Vertical	10"	254mm
Workhead Travel Horizontal - Airfloat/Airclamp	44"	1120mm
Workhead Travel In/Out - Airfloat/Airclamp	2.312"	58mm
Worktable Travel In/Out - Airfloat/Airclamp	7.5"	190mm
Workhead Tilt (either side of vertical zero)	10 Degrees	
Maximum Distance from Parallels to Spindle	29"	736mm
Electrical Requirements	208-240V, 30A, 50/60Hz, 1Ph	
Air Requirements (Pressure and Usage)	90psi - 15 CFM	6bar - 400 l/min
Working Dimensions with Sharpener and Tooling Cabinet	48"D x 105"W x 86"H	1220 x 2670 x 2185mm
Machine Dimensions	40"D x 68"W x 86"H	1220 x 1730 x 2185mm
Shipping Dimensions	52"D x 72"W x 92"H	1320 x 1830 x 2340mm
Shipping Weight	5000 lbs	2273 kg
Paint Color Code	RAL9002 (Grey White)	

Specifications and design subject to change without notice.

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