

ROTTLER

SG8 Cylinder Head Seat & Guide Machine



CONCEN

THE CUTTING EDGE

SG8

Cylinder Head Seat & Guide Machine

Concentricity

Rottler's Rigid Precision carbide centering pilots are manufactured to a fine tolerance. Combined with the light weight air float workhead the SG8 gives perfect centering in the valve guide and the best concentricity of any machine on the market.

Storage Cabinet

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

360 Degree Rollover Fixture

Provides quick loading and easy access to all sides of the head. Quickly levels head using the micro adjust feature. Clamps onto table firmly for chatter free cutting with extremely accurate 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.

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. Recessed toe kick allows more comfortable machine operation.

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Light Weight Workhead

The SG8 has a light weight workhead for fast and accurate centering for the minimum concentricity. At the same time, the workhead is heavy duty capable of machining large diameter valve seats.

Variable Speed Spindle from 40 to 400 rpm

Accurately select specific spindle speeds required for different machining operations. Soft touch buttons and bright digital display allow ease of operation.

Electronic Level

Digital readout for quick, accurate adjustment.

Digital Depth Indicator

Shows the operator exactly how much has been removed from the seat assuring consistent seat depth. Also useful for installing seat rings, reducing valve guides, facing spring seats, etc.

Adjustable Depth Stop

Dual Speed Spindle Feed

Large handwheel provides rapid feed and small handwheel allows precise fine feed control of the spindle. Very helpful when depth of cut must be maintained to extreme levels of accuracy.

15 Degree Tilt

Spindle tilts up to 15 degrees from vertical in both directions, providing quick alignment on all canted valve cylinder heads. Cuts each seat to the exact same depth - a must for today's computer controlled engines.

Spindle Nut

Patented Spindle Locking Nut system offers automatic tightening of tools in spindle. Won't come loose when cutting. One hand operation pushes tool up and spindle lock nut tightens automatically, ejects tool when loosened.

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 whole length of the bearing area, similar to High Precision Boring Bar design.

Rottler Patented Tooling

Rottler's patented SG tooling totally eliminates any bounce springs. The quick change spherical spindle adapter allows different tool holders to be changed in a few seconds. Change from multi angle seat cutting to pocket boring or reaming in just a few seconds! When the collar is moved down it aligns the tool holder vertically to allow the tool holder to be easily lowered down over the fixed pilot. While the tool holder is being lowered, the collar is lifted to release the sphere for precision centering and cutting. One hand pilot removal wrench allows fixed pilots to be moved from guide to guide - fast and easily.

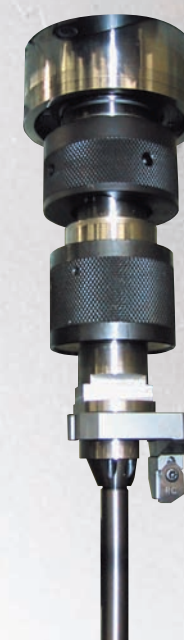


Control Panel

Soft Touch buttons conveniently located at eye level height.



Fine Feed Handle



THE CUTTING EDGE

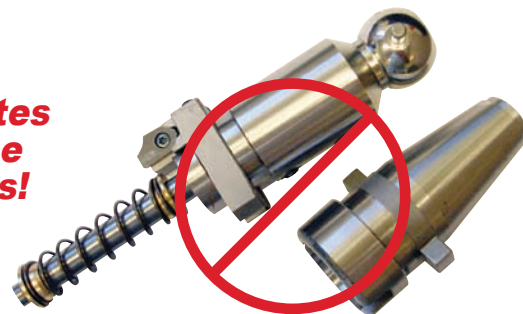
Tooling

Rottler Patented exclusive multi-angle seat tooling eliminates the need for bounce springs. The Rottler patented tooling holds the ball driver firmly yet allows ball to float during seat cutting. This eliminates the cumbersome/troublesome bounce springs but gives you the ultimate in valve seat concentricity.

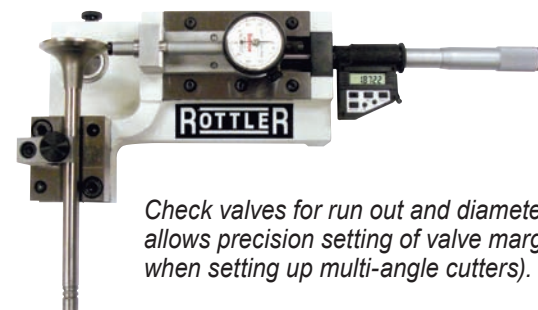
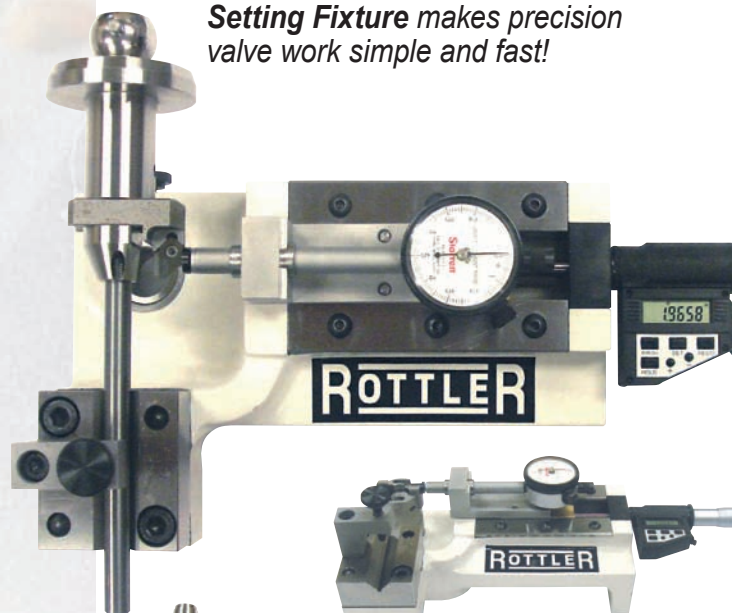


Wide selection of Tooling available for Valve Seat Cutting and Insert Ring Replacement, Valve Guide Reaming and Boring, Modifications for Replacement Valve Guides, Spring Seats and Stem Seals, etc.

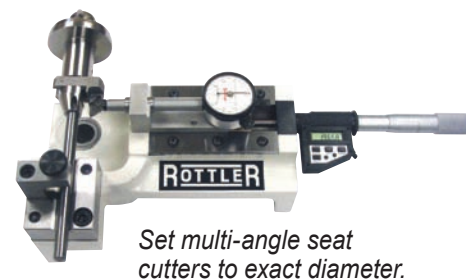
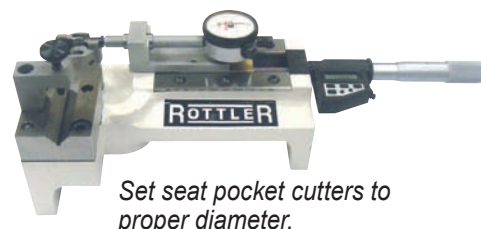
Eliminates Bounce Springs!



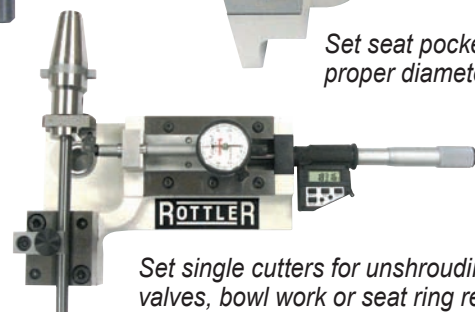
Rottler's NEW 6 in 1 Setting Fixture makes precision valve work simple and fast!



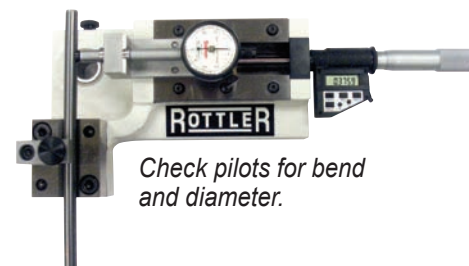
Check valves for run out and diameter (also allows precision setting of valve margin when setting up multi-angle cutters).



Set seat pocket cutters to proper diameter.

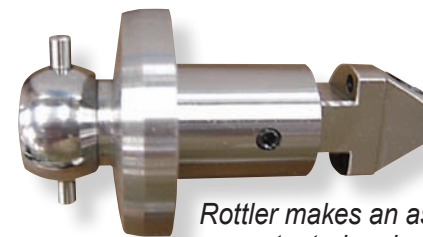


Set single cutters for unshrouding of valves, bowl work or seat ring removal.



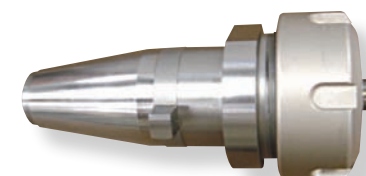
Check pilots for bend and diameter.

Tooling

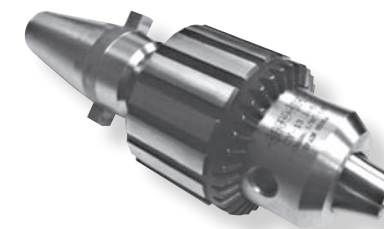


Rottler makes an assortment of drivers for our patented spring free spindle drive system. Combined with our wide range of insert/bit holders, valve seats from .550" to 3.1" (14mm to 80mm) can be cut on the SG8.

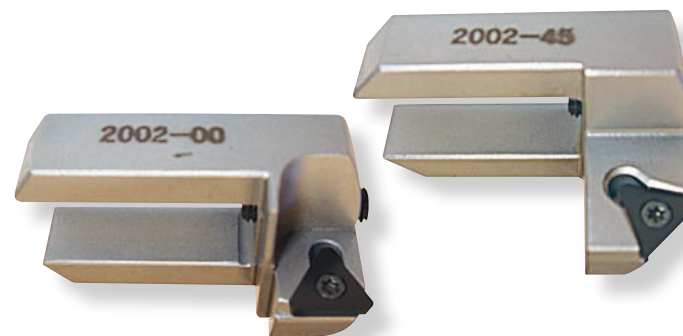
Precision Collet Chuck allows holding of reamers, cutters, drills, taps and other tools for special machining operations.



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



Fixed Diameter Milling Heads for boring seat ring housings for standard seat rings – gives correct interference for press fit with no adjusting or setting. Indexable Carbide Inserts have 4 corners and are easy to change when dull without any adjusting or setting. No need to purchase a new cutterhead when the inserts get dull.



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



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



Electronic level for precision leveling of guides (pictured with canted guide fixture).



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

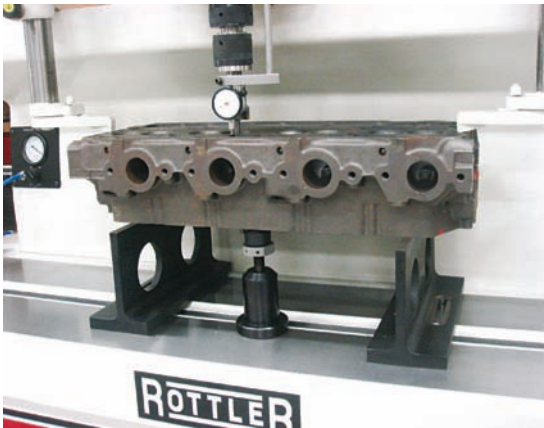


.375 (9.52mm) and .500" (12.70mm) inside diameter spindle adapters for driving standard reamers, core drills, spot facers, etc.

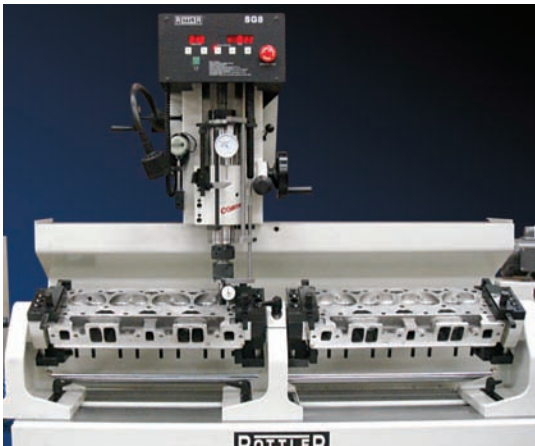
Optional Fixturing



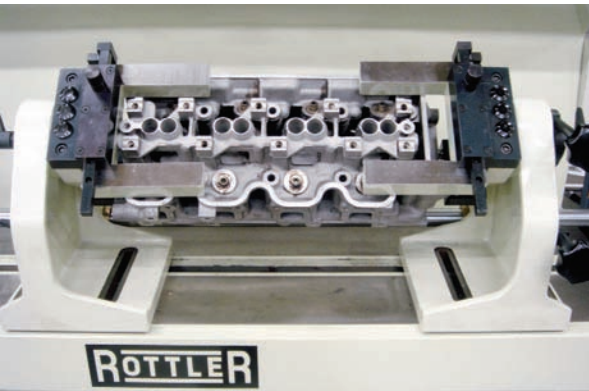
Rottler offers special fixturing for cutting seats in one piece aircraft cylinders.



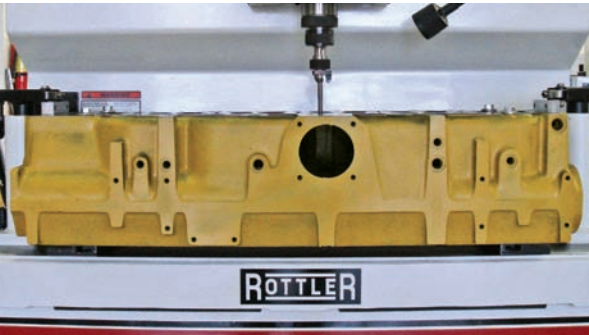
Rottler's small to medium diesel head fixture allows fast set up and inline cylinder heads.



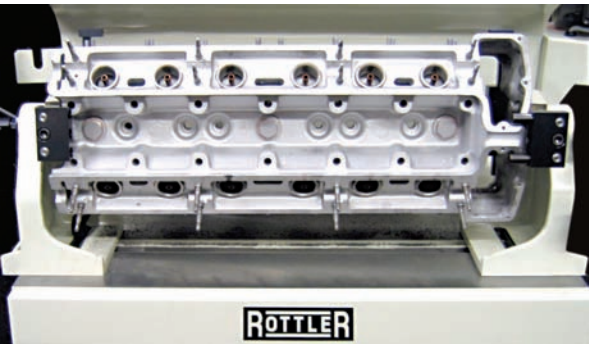
Rottler offers the high performance shop a dual head fixture for machining two V6 or V8 heads at the same time.



Two piece frame kit allows mounting of overhead camshaft and difficult to mount cylinder heads.



Cat 3406E cylinder head in large diesel head fixture.



Rottler's 360 degree rollover fixture allows large, long heads, such as this Jaguar XJ6, to be rolled 360 degrees for multiple operations such as boring cam follow bores and repairing broken exhaust studs by drilling and tapping.

Standard Equipment

Shipped with SG8

- Air float work head and pedal control
- Universal heavy duty 360 degree rollover fixture for cylinder heads
- Flexible compact halogen work light mounted on work head
- Rottler Automatic tightening spindle lock nut system
- 2 piece frame kit allows mounting of overhead camshaft and difficult to mount cylinder heads (shown on page 6).
- Fine feed for precision spindle movement

- +/-15 degree work head tilt
- Digital display rpm
- Tool Storage Cabinet (3 drawer)
- Digital Electronic Level
- Dial gage for depth control of spindle travel
- Built in Vacuum Tester

Optional Equipment

Part Number	Description
Rottler Spherical Self Aligning Spring Free Spindle Adaters	
RBHAR1	Rottler Spring-Free Spindle Adapters. Patented for Rottler R1 Spindle Taper for 1.000: Dia. Spherical Heads, for .375" and 6.00mm tooling
BH375WR1	Spring-Free Spherical Tool Holder for use with TH2003, TH2004 and TH2005 Tip Holders. Range: 1.570" - 4.724" (40mm-120mm). Used with RBHAR1 Spindle Adapter.
BH375R1	Spring-Free Spherical Tool Holder for use with TH2000, TH2001 and TH2002 Tip Holders. Range: .750" - 2.630" (20mm-60mm). Used with RBHAR1 Spindle Adapter.
BH600R1	Spring-Free Spherical Tool Holder for use with TH1999 Tip Holder and 6.00mm Shank Pilots. Range: .551" - .984" (14mm-25mm) for 6.00 mm Shank Carbide Pilots. Used with RBHAR1 Spindle.
Tip Holders For Multi Angle Valve Seat Cutting	
(using RCA630 Insert - minimum diameter will vary with other inserts/tips)	
TH1999	Tip Holder, Range with UPT600 Unipilot and R5000CL1 Toolholder: .570" - 1.250" (14.48mm-33.52mm) Cutting Insert for minimum range)
TH2000	Tip Holder, Range with UPT5100 Unipilot or R5100CL1 Toolholder: .800" - 1.395" (20.32mm - 35.43mm Cutting Insert for minimum range)
TH2001	Tip Holder, Range with UPT5100 Unipilot or R5100CL1 Toolholder: 1.00" - 1.800" (25.4mm - 45.72mm
TH2002	Tip Holder, Range with UPT5100 Unipilot or R5100CL1 Toolholder: 1.190" - 2.200" (30.22mm - 55.90mm
TH2003	Tip Holder, Range with UPT5300 Unipilot or R5300CL1 Toolholder: 1.270" - 2.360" (32.26mm - 60mm)
TH2004	Tip Holder, Range with UPT5300 Unipilot or R5300CL1 Toolholder 1.850" - 3.150" (47mm - 80mm)
TH2005	Tip Holder, Range with UPT5300 Unipilot or R5300CL1 Toolholder: 2.625" - 4.724" (66.7mm - 120mm) Special order

Cutting Inserts/Tips	
Rottler has a wide range of Multi and Single Angle Cutting Inserts for all applications. Special profile inserts are available on order.	
Cutting Insert Sharpener for Multi Angle Inserts	
BWS02	Diamond Wheel Cutting Tip Sharpener
Tip Holders for Valve Seat Housing Counterboring using Rottler RT211 & RT212 Triangular Boring Inserts	
TH2000-00	0 Degree Triangular Insert Tip Holder. Range with UPT600 or R5000CL1 .1.055"-1.400" (27mm - 36mm) with UPT5100: 1.27"-1.58" (32mm - 40mm)
TH2001-00	0 Degree Triangular Insert Tip Holder. Range: 1.100"-1.570" (28mm-42mm) with UPT5100 or R5100CL1 Toolholder.
TH2002-00	0 Degree Triangular Insert Tip Holder. Range: 1.600" - 2.458" (40.64mm - 60.43mm) with UPT5100 Unipilot or R5100CL1 Toolholder.
TH2003-00	0 Degree Triangular Insert Tip Holder. Range: 1.640" - 2.200" (41.65mm - 55.88mm) with UPT5300 Unipilot or R5300CL1 Toolholder.
TH2004-00	0 Degree Triangular Insert Tip Holder. Range: 2.220" - 2.850" (56.38mm - 72.40mm) with UPT5300 Unipilot or R5300CL1 Toolholder.
TH2005-00	0 Degree Triangular Insert Tip Holder. Range: 3.160" - 4.000" (80.26mm - 101.60mm) with UPT5300 Unipilot or R5300CL1 Toolholder. Special Order. 10, 20, 30, 35, 45 degree Single Angle Triangular Insert Tip Holders available.

Fixed Diameter Double Cutting Insert Milling Heads for Valve Seat Housing Counterboring	
FMH	Fixed Double Replaceable Insert Milling Heads - Counterbore diameter 1.00" - 2.375" available in increments of 1/16" (.125") (Requires Milling Head driver)
RS105	Milling Head Driver for Fixed milling head cutters for .625" ID milling head body.
RS560	Milling Head Driver for Fixed milling head cutters for .562" ID milling head body.
Universal Tooling for Rottler R1 Spindle Taper	
SAD500R1	Spindle Adapter for 1/2" (12.70mm) Shank Diameter Tools, reamers, drills, etc includes 2 locking set screws
SAD375R1	Spindle Adapter for 3/8" (9.525mm) Shank Diameter Tools, reamers, drills, etc includes 2 locking set screws
R1MT2	Spindle Adapter for Morse #2
R1MT3	Spindle Adapter for Morse #3
PC375R1	Universal 3-Jaw Chuck including Spindle Adapter
COLLET-KITR1	Collet Chuck Kit including retaining nut, wrench and range of collets.
Micrometers Setting Fixtures & Measurement Tools	
DSP	Tool setting Device with Interchangeable Point
BM	Boring Micrometer, Digital Reading Inch and Metric (.800" - 2.80") for .375" (9.52mm) and 6.00mm (152.40mm) shank toolholders
6-1SETTINGFIX	6-in-1 Measuring Fixture (Pilot Dia, Valve Stem Dia, Set Dia. of multi angle inserts, Set counterboring insert dia, Set adjustable milling head cutters, Check valves and pilots for bend).
VSG102-375	Precision Valve Seat Concentricity Gage for .375" 9.52mm Pilot Shank (Must Order .0001" or .002mm dial indicator)
VSG102-6mm	Precision Valve Seat Concentricity Gage for 6.00mm Pilot Shank (Must Order .0001" or .002mm dial indicator)
502-11-39L	Dial indicator (.002mm resolution) METRIC
502-11-39D	Dial indicator (.0001" resolution) INCH
Special Fixtures, Clamps and Parallels	
DUALHEFIXT	Center Cradle support system for dual V6/V8 cylinder head clamping
DIESELFIX	Diesel Fixture for large in line cylinder heads, includes 1 pair Parallels 12" X 6" (305mm X 152mm) Requires 1 set Clamp Towers 7242T
7242T	Set of 2 Low Profile Clamp Tower assembly
650-3-34	2-1/2" (63.50mm) wear pads, 1 pair (For large cylinder heads using Clamp Tower 7242T to hold the hold the Cylinder Head)
7618	Large Cylinder Head Clamping Fixture (CAT 3406E, Detroit 60 series, etc)
CANTEDFIX	Canted Fixture for leveling Canted cylinder heads on any fixed pilot Seat and Guide Machine
Miscellaneous Tooling	
CDR312	Combo Core drill / Reamer .792mm) Pilot with .375" (9.52mm) diameter Shank to bore for standard 1/2" OD valve guides
CDR343	Combo Core drill / Reamer .343" (8.71mm) Pilot with .375" (9.52mm) diameter Shank to bore for standard 1/2" OD valve guides
CDR375	Combo Core drill / Reamer .375" (9.52mm) Pilot with .375" (9.52mm) diameter Shank to bore for standard 1/2" OD valve guides
VSD100-Kit	Valve Seat Driver Kit Includes: Seat Driver Body, 5 Dual seat Ring Adapters, 5 Solid Tapered Pilots
VGD-Kit	Valve Guide Driver Kit including .312" (7.92mm), .343" (7.92mm), .372" (9.44mm) and 7mm Valve Guide Drivers (requires air hammer - not available from Rottler)
VGTC-Kit3	Valve Guide top cutter Kit with 1/2" straight Shank include 5/16", 11/32" & 3/8" pilots



What is **CONCEN**

Rottler's trade mark that guarantees that you our customer get the most accurate and versatile machine possible. Rottler combines precision carbide centering pilots with our light weight air float workhead to give you perfect centering with the valve guide. This guarantees the best **CONCEN** of valve seat to valve guide centerline in the industry. Accuracy of .0005" per inch (.01mm per 25mm) is easily obtainable.

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



Surface Finish

Fine grain carbide cutting inserts and precision spindle bearings and tooling all combine to give perfect surface finish on machined valve seats. The A model machines have touch screen CNC control to give precise surface finish when machining the hardest, widest valve seats.



SG8 Specifications

MADE IN U.S.A.

Valve Seat Diameter	.550" - 4.724" (14mm - 120mm)
Maximum Cylinder Head Length (with 360° rollover fixture)	44" 1118mm
Maximum Cylinder Head Length (with diesel fixture)	50" 1270mm
Spindle Diameter	3.150" 80mm
Maximum Spindle Stroke	8" 203mm
Maximum Tilt (either side of zero)	15 degrees
Distance from Table to Spindle	19.5" 495mm
Spindle Speed	40 to 400 rpm
Electrical Requirements	208/220 volt, single phase, 15 amp
Air Requirements	90/100 psi 6 Bar
Spindle Motor	1 HP/.75 kW
Machine Dimensions	53" wide x 32" deep x 74" high (1346 x 813 x 1880mm)
Working Dimensions	84" wide x 42" deep x 80" high (213m x 1067 x 2032mm)
Shipping Dimensions	59" wide x 39" deep x 83" high (1499 x 991 x 2108mm)
Shipping Weight	2700 lbs (1227 kg)
Paint Color Code	RAL9002 (Grey White)

Specifications and design subject to change without notice.

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