S80 SERIES
CNC SURFACING MACHINES

Machining Equipment
Created for Performance
Racing & Engine
Remanufacturing.

So Advanced, It’s Simple.
The S80 series surfacers are the most advanced surfacing machine available today. The S86 model is designed for surfacing from the smallest to large heavy duty diesel heads and blocks. The S85 model is designed for surfacing from the smallest to automotive and small diesel heads and blocks.

The Rottler S80A machines combine cutting edge control technology with proven traveling column machine tool dry surfacing technology to give the world’s most advanced surfacing machines available today.

Traveling column design proven for decades in Rottler engine block machining centers reduces floor space requirements and improves accuracy of surface finish.

The S86A is designed for surfacing from the smallest to large heavy duty diesel heads and blocks. The S85A is ideal for a job shop that does a wide variety of engines including small diesel.

The S85A model is designed for surfacing from the smallest to automotive and small diesel heads and blocks. The S85A is ideal for the requirements of the performance racing engine builder and production engine remanufacturer.

The programmable downfeed with multiple passes is ideal when large amounts of material need to be removed in one set up. Angle milling and weld removal are also easily done in one cycle.

Direct Drive Ball Screws and Linear Roller Bearing Slideways on vertical and horizontal movements combine to give precise motion control resulting in precision surface finish.

Full Steel Enclosure surrounds the machine and keeps the work area clean and free of chips and protects operators from moving machine parts.

Electrical Enclosure mounted on the side of the machine allows the back of the machine to be installed against a wall reducing floor space requirements.

Features

- **Latest ClearPath Integrated Servo Control Technology** - State of the art electronic controls make the S80 machines the most advanced dry cutting surfacing machines available today.

- **Increased Vertical Travel** – the workhead is mounted on linear roller bearing slideways and has extended travel 19” (483mm) eliminating the need for parallels while being able to surface a wide variety of jobs from small single cylinder heads to tall diesel blocks.

- **Linear Roller Bearing Slideways** – the vertical and horizontal movements are by precision direct drive ball screws and on linear roller bearing slideways.

- **Super Fine Surface Finish** – Direct Drive precision ball screws and linear slideways combined with infinitely variable speeds and feeds allows surface finish as low as 2Ra to 6Ra. Today’s MLS (Multi Layer Steel) head gaskets require super fine finish to seal combustion pressure and oil and water.

**Touch Screen Control**

Over four decades ago, Rottler pioneered automation and programming by utilizing electronics and computers. Today, the S80 Series Surfacing Machines incorporate the latest ClearPath Integrated Servo Touch Screen Control Technology into a Dry Surfacing Machine capable of surfacing a wide variety of materials and with features such as multi pass automatic machining. Rottler touch screen control technology make the machine easy and fast to learn and operate. Touch Screen Control shows the operator at all times by digital display the exact position of the vertical and horizontal movements - accurate to .0001” (.01mm)

- **Dry Cutting** – the spindle and cutterhead system is specially designed and developed for dry cutting with CBN and PCD cutting tools eliminating the need for coolant.

- **Chip Collection System** - the base casting and machine enclosure is designed to catch chips and direct them down into a roll out chip bin making clean up fast and easy.

- **Reduced Floor Space** – Traveling Column Design and compact, one piece base castings give the most compact surfacing machines available today reducing floor space requirements.

- **Folding Doors** – the stainless steel doors fold down with one hand for access to the work area and fold up to protect the operator and keep the work area clean of any chips.

- **Universal T Slot Base** – Large One Piece Meehanite Cast Iron Base with T-Slots allows mounting of any fixture and any job – jacks and clamps can be placed anywhere!

- **Program Length of Part** – Input length of surface to be machined and the machine travels the exact distance then returns to home – not necessary for time consuming setting of end stops.

- **Fast Floor to Floor Time** - Heads can be surfaced in a few minutes and a pair of angled V8 heads in less than eight minutes.
FEATURES

Hinged Door
Drop down hinged door for easy one handed operation.

Linear Motion Construction
Linear Motion sideways on the vertical and horizontal axis provide smooth and precise movement along with consistent surface finishes.

Direct Drive Axis Motors
All axis feature a direct coupled digital servo controlled precision ground ball screw drive feed system for smooth and precise movement. Direct coupling eliminates belts and allows for minimal backlash.

Side Mounted Electrical Cabinet
Reduces floorspace requirements allowing the machine to be placed closer to the wall or other equipment.

Advanced Axis Drive Motors
High-quality Clearpath® AC brushless servos feature a built-in controller and drive offer reliable operation. This integrated design means fewer components and wiring to go wrong compared to other systems without sacrificing performance.

Traveling Column Design
Work head travels vertically on separate column allowing 19” (482mm) vertical travel for greater flexibility with workpiece size.

Touch Screen Control
Over four decades ago, Rottler pioneered automation and programming by utilizing electronics and computers. Today, the S80 series surfacing machines incorporate the latest Clearpath® Integrated Touch Screen Control Technology into a dry surfacing machine capable of surfacing a wide range of materials and with features such as multi-pass automatic machining. Rottler touch screen control technology makes the machine fast and easy to learn to operate. Touch screen control shows the operator at all times by digital display the exact position of the vertical and horizontal movements accurate to .0001” (.01mm).

CUTTING INSERTS

Versatile tooling provides the right tool for every job!
Rottler S80 machines use indexable cutting inserts held by adjustable toolholders in the standard double insert flycutterheads. Rottler offers inserts designed specifically for high speed dry milling of cast iron, aluminum, diesel heads with prechambers, aluminum blocks with iron liners, and 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.
V-Block Fixture Multiple Angle 15°, 30°, 60°, 90°
V-Block fixture has two modes of operation; one mode automatically aligns to main bearing and pan rail; the adjustment mode allows you to use the fixture to align to the original deck surface. The same fixture can be used on Rottler boring machines. Block handler allows easy handling for loading/unloading and rotation of block.

Universal Head and Block Fixture
Mount V and In-Line blocks, angled and parallel heads, manifolds on one universal fixture. 2” (50.80mm) Main Line Bar can be leveled for decking blocks parallel to the main line centerline or fine adjusted with eccentric bearings.

Universal Head and Block Fixture
Angled and parallel heads, and In-Line and V-Blocks can be easily mounted and leveled on the same universal fixture. Custom fixtures can also be easily mounted on the base of the machine.

Extra clearance below and behind the fixture allow high deck height V-Blocks to be rolled to both banks for surfacing without removing the block from the machine.

Intake/Exhaust Manifold Tooling
Increases flexibility and profit on the S80 series surfacers. Damaged manifolds can be surfaced with indexable shell mill in a few minutes.

Two piece vice allows parts like exhaust manifold and main line bearing caps to be clamped, then leveled and surfaced.

Rottler’s answer to holding a wide variety of Heads, Blocks and Manifolds
The Rottler Dual Axis Leveling Table allows clamping to be completed first – then the level to be quickly adjusted in both directions – simply by rotating the 2 handwheels – fast and rigid! Combined with Rottler’s Dual Axis Level, any workpiece can be clamped and leveled in seconds! Air Float allows the table to be floated out from the machine for easy loading and clamping then floated back into the machine for positioning for surfacing. Designed for fast, universal clamping for “one cut” surfacing for minimal metal removal - a must for modern engines.
STANDARD EQUIPMENT

- New Technology ClearPath® Integrated Servo System with Touch Screen Control.
- Conversational Touch Screen Control allows simple programming for any workpiece such as depth of cut, multiple passes, total material removed, speeds and feeds.
- No Handwheel required, machine is moved by sliding finger on touch screen slide bars.
- Programmable Rapid Touch Off Set Point for reduced Cycle Times
- On completion of Automatic Cycle, Cutterhead returns to Home Start Position at Vertical Zero Height
- Infinitely Variable Spindle Speeds from 350 - 1,800 RPM for machining different metals
- Infinitely Variable Travel Feeds .001 - .080" (.025-2mm) per Cutterhead Revolution for Desired Surface Finish Roughness
- Work Head Vertical Travel via Ball Screw and Linear Roller Slideway for Precise Movement
- Maximum Work Head Horizontal Travel
- High Rapid Traverse Rate for Reduced Cycle Time - 200" (5,080mm) per minute

Direct Drive Ground Ball Screw for Work Head and Vertical Column Traverse
Linear Roller Bearing Slideways for Smooth and Precise Movement
Cutterhead includes 2 radially and axially adjustable cutting insert tool holders for 3/8" (9.52mm) IC Round or Square inserts (Optional 1/2" (12.70mm) IC Cutting Insert tool holders available)
Cutterhead Guard and Slanted Casting with Roll Out Chip Bin for Efficient Chip Collection
Enclosed Work Area with Quick Folding with One Hand Door for Easy Access and a Cleaner Work Environment.
Depth Dial Indicator Assembly for Rapid Touch Off on Surface to be Machined
Large One Piece Base Casting with 3 T Slots for Universal Fixture Mounting
Instruction and Spare Parts Manual
Floor Space Requirement S85A: 76.2" W x 68.3" D (1,935 X 1,734mm) S86A: 86.2" W x 68.3" D (2189 x 1734mm)
Paint Color Code: RAL9002 (Grey White)

S85A                                      S86A
---------------------------------          ---------------------------------          
Horizontal Travel  42" (1,067mm)          51" (1,300mm)
Cutterhead Diameter  14" (356mm)          16" (406mm)
Spindle Power 2 HP (1.5kW)
Spindle Speed - Variable RPM 350 ~ 1,800RPM
Spindle Feed - Variable per Rev. 0.001" ~ 0.080" (.025 ~ 2.00mm)
Rapid Traverse Rate 200" per Minute (5,080mm per Minute)
(X & Z Axis) Linear Roller Bearing Slideways
X & Z Axis Feed Method Direct Drive Ball Screw
Feed Motor ClearPath® Integrated Servo
Machine Dimensions (WxDxH) 76.2x68.3x74.5" (1,935 1,734x1,893mm) 86.2x68.3x78" (2,189x1,981mm)
Electrical Requirement 15A, 210-240V, 1PH, 50/60Hz
Shipping Weight (excl fixtures) 4,300 LBS (1,950 Kg) 5,000 LBS (2,268 Kg)
Shipping Dimensions (WxDxH) 87x60x93" (2,210x1,524x2,362mm) 81x79x86" (2,057 x2,007x2,184mm)
Paint Color Code RAL 9002 (Grey White)

Specifications and design subject to change without notice.

September 2017

www.rottlermfg.com
www.youtube.com/rottlermfg
www.facebook.com/rottlermfg
contact@rottlermfg.com

8029 South 200th Street
Kent, Washington 98032 USA
+1 253 872 7050
1-800-452-0534

Represented by: