

**ROTTLER**  
THE CUTTING EDGE

# S80 SERIES

## CNC SURFACING MACHINES



Machining Equipment  
Created for Performance  
Racing & Engine  
Remanufacturing.

So Advanced, It's Simple.

# S80 SERIES SURFACING MACHINES

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.

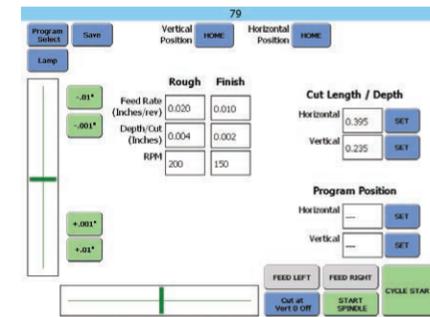
Direct Drive Ball Screws and Linear Roller Bearing Slideways on vertical and horizontal movements combine to give precise motion control resulting in precision surface finish.

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 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)



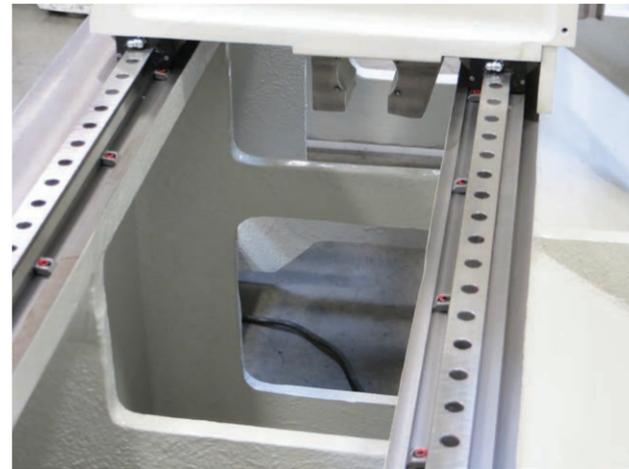
- **Dry Cutting** – the spindle and cutterhead system is specially designed and developed for dry cutting with CBN and PCD cutting tools eliminating the need for coolant.
- **Chip Collection System** - the base casting and machine enclosure is designed to catch chips and direct them down into a roll 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 Mehanite 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 slideways on the vertical and horizontal axis provide smooth and precise movement along with consistent surface finishes.

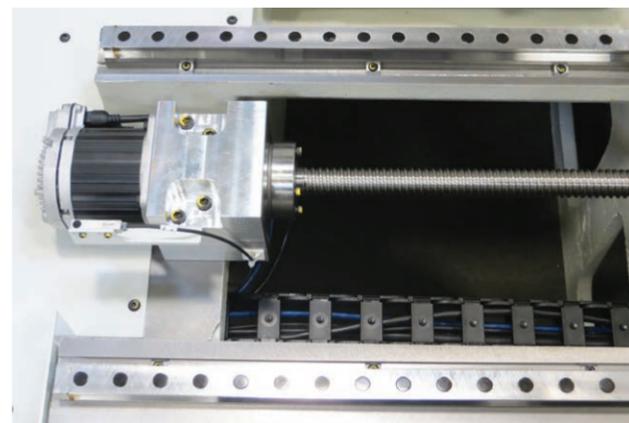


## Side Mounted Electrical Cabinet

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.



## Direct Drive Axis Motors

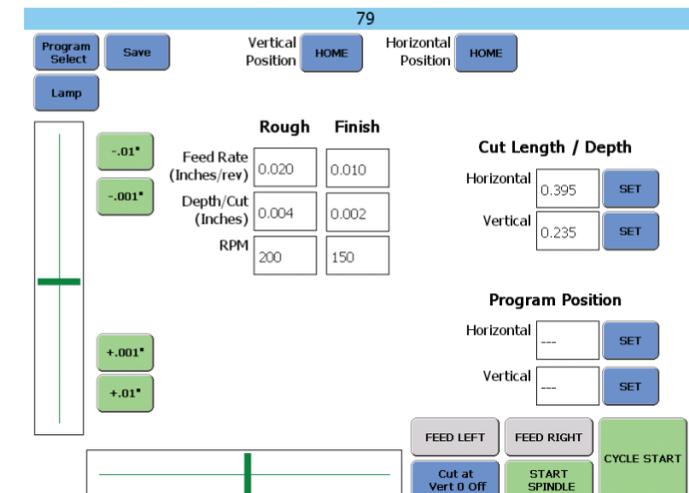
All axis feature a direct coupled digital servo controlled precision ground ball screw drive feed system for smooth and precise movement. Direct coupling eliminates belts and allows for minimal backlash.



## Traveling Column Design

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

# TOUCH SCREEN CONTROL



## 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).

## Key Features

- **Programmable Length of Part** – no more cumbersome end stops to adjust. Simply input required length and the machine travels home once the cycle is complete.
- **Rapid Feed** – manual axis feed is done with convenient slider bars on the touchscreen. No handwheel required.
- **Single Screen Control** – all machine functions are displayed on a single screen. No selecting between menus for operation.
- **American and Metric Modes** – easily select between American and Metric display modes.

# 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

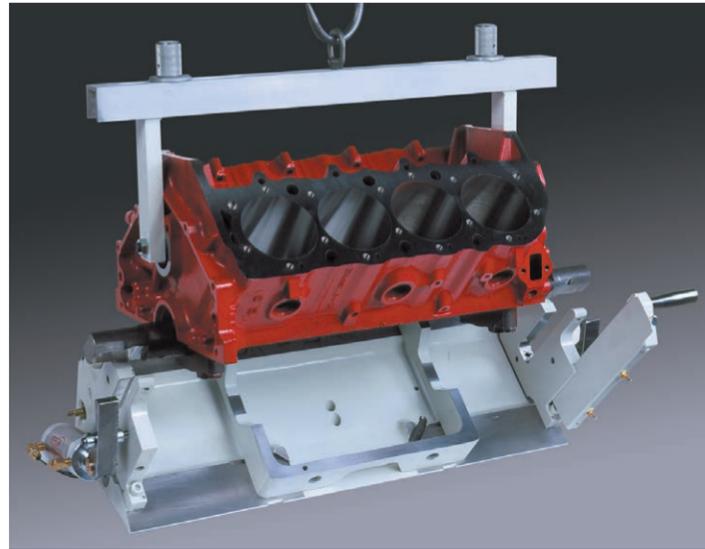
These inserts are inexpensive and can be used for roughing work at low speeds.

## 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.

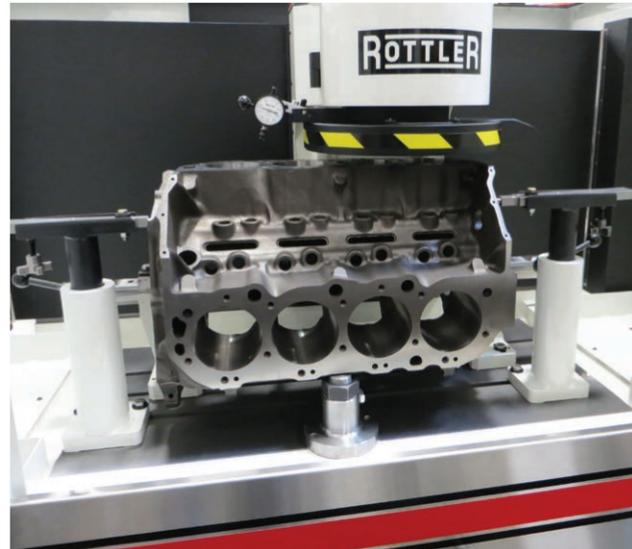


# FIXTURES



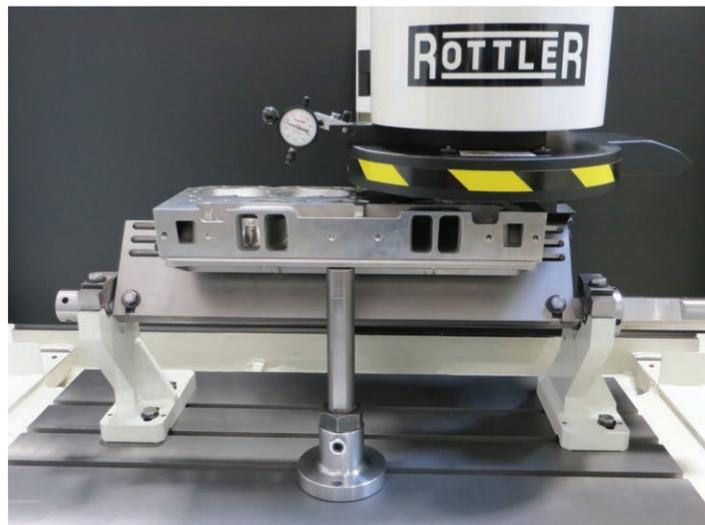
## V-Block Fixture Multiple Angle 15°, 30°, 60°, 90°

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.



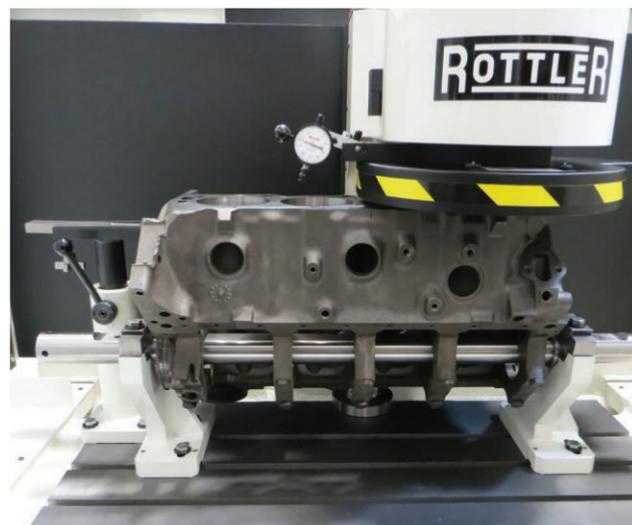
## Universal Head and Block Fixture

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.



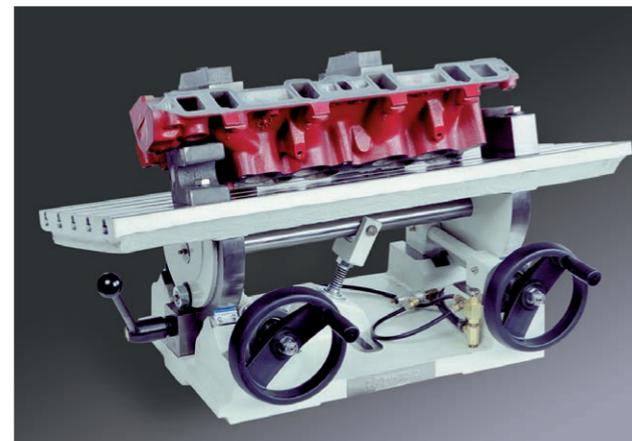
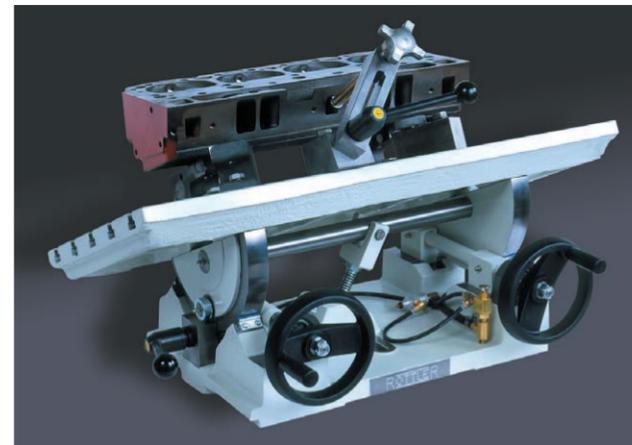
## Universal Head and Block Fixture

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.

# FIXTURES



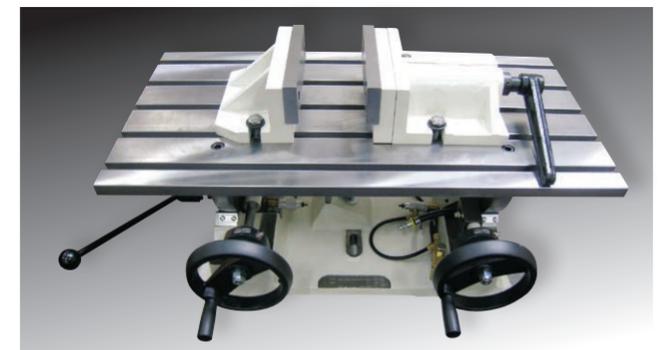
## Intake/Exhaust Manifold Tooling

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



## 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.



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

# 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)



## SPECIFICATIONS

	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)	
Slide Type - 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)	86.2x 68.3x78" (2,189x1,734x1,981mm)
Electrical Requirement	30A, 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.

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