



**SH-4000**

**NEXT GENERATION POWER  
STROKED HONING MACHINE**





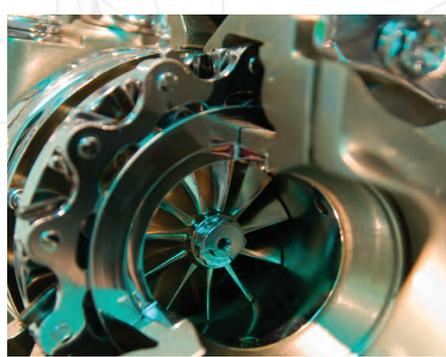
250-20 UNC-2B  
 300- 675 FULL THR  
 25- 800 DRILL  
 Ø 282± 030 X 90°

⊕ ⊗ 0.14 (M) D E (M) F (M)

2X R 500 MIN  
 SPOTFACE

250-20 UNC-2B  
 ▽ 560 MIN FULL THREAD  
 ▽ 800 MAX DRILL  
 Ø 275± 015 X 90°

(M)



# The SH-4000 Horizontal Honing Machine Redefines Honing

From its designer styling and lack of manual controls to its digital repeatability and touchscreen HMI, Sunnen's SH-4000 builds on the heritage of the successful EC and ML series machines. Simply stated, the SH-4000 takes honing to the next level of capability.

The SH-4000 is the result of a four-year development process with input from around the globe. All aspects of the machine have been analyzed for improvement and tested. The machine is engineered to improve operator productivity.

The next generation of power stroked horizontal honing machines are suited for quick changeover for medium-to-high volume production and with a higher level of control.

With 45 percent fewer parts, the SH-4000 is more reliable and durable.

The design focus of this machine makes it easy to setup, easy to operate with more features, more capability, and increased reliability and maintainability.

## FEATURES INCLUDE

- PLC controls replace outdated circuit card control. All machine settings are accessible via the large 225 mm (9 in.) touch screen. No manual levers, knobs, and switches to set.
- Setups can now be saved and retrieved. No need to keep printed setup sheets for each part.
- Robust 25 mm servo controlled ball screw stroker assures precise positioning and consistent performance
- Wider stroker carriage has a removable fixture mounting plate (standard) that accepts all current EC/ML standard fixtures. For custom fixturing additional blank plates can be ordered.

## THE SUNNEN SERVICE TEAM

Your Sunnen Technical Specialist will work with you to determine the best solution for your needs – it's all part of the added value you get with Sunnen. Plus, our worldwide sales and service team provides comprehensive support for the installation and operation of every system we make. Whatever your need, we have the expertise and product range to create the right solution for you and the dedication to support you for the long run.

To find the Sunnen representative nearest you, visit our website at [www.sunnen.com](http://www.sunnen.com)



# The SH-4000 Power Stroked Honing Machine: Its Performance Matches Its Looks

## STANDARD & OPTIONAL FEATURES

- 1** Patented digital-servo, linear hybrid tool feed and cutting pressure control for consistent, predictable performance. The system provides precise settings at the touch of a button to maximize process control and productivity. Can be adjusted in 4.4 N (1 lbf) increments with 2225 N (500 lbf) available, doubling the feed force of earlier machines.  
  
Superior feed control at low pressure for small bore processing. Step feed capability for rough and finish pressures in one setup.  
  
20 mm (0.79 in.) of additional feed travel allows for increased diameter range for high production MMT tool applications.
- 2** Standard true running spindle with direct collet connection for quick changeover with production MMT tooling. Includes an easy setup runout adjustable adapter for Sunnen standard tooling. Optional precision CGT tooling capability.  
  
Digital honing indicator can be easily configured at the touch of a button.
- 3** Rear mounted large capacity electrical enclosure is standard. The enclosure can be special ordered on the right or left side to easily adapt to floor space limitations.
- 4** All-electric foot pedal for setup and truing in mandrels.
- 5** Generous ergonomic work area.
- 6** A true global platform, CE Compliant guarding is standard. Easy-to-adjust canopy slides back for side access during setup and ensures operator safety. Complete, integrated state-of-the-art safety system with guard interlocks, light curtain, and separate safety PLC with safe limited speed setup mode.
- 7** Easy-to-maintain standard coolant system is almost 70 percent larger than earlier machine models at 208 liter (55 gallon) capacity and is equipped with quick disconnect lines and a level gage. It removes from the front on easy-to-roll casters and is available with an optional magnetic separator.

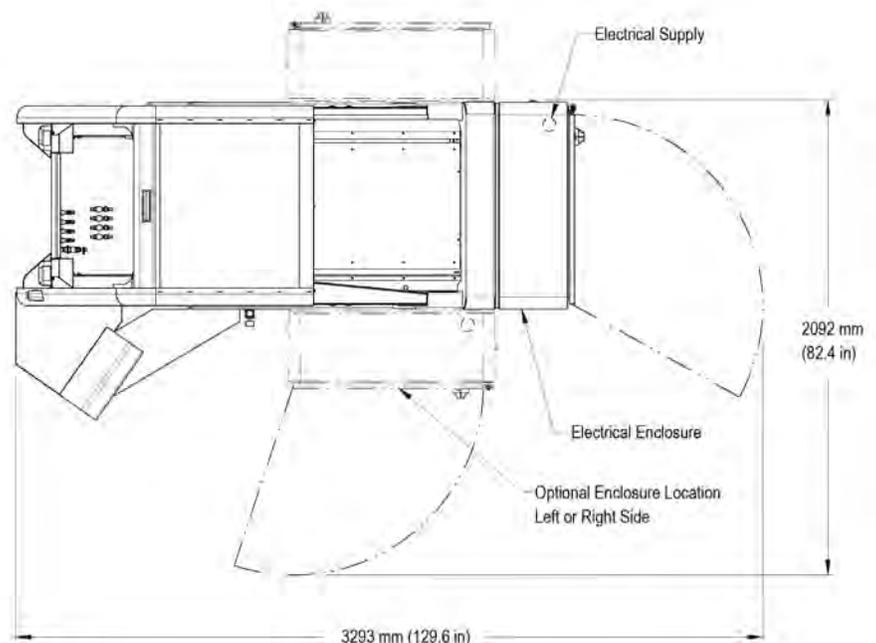




## Intuitive Touchscreen Puts You in Control

- Proven, globally supported Siemens PLC is easy-to-use with the following features standard:
- Large 225 mm (9 in.) color display.
- Intuitive touch screens allow inexperienced operators to run the machine efficiently and easily transition from older model machines.
- Stroker jog joystick for easy setup.
- Safe setup mode switch and safe speed limits ensure operator safety during setup.
- Conveniently located cycle start buttons (foot pedal may also be used).
- Other standard control system features include infinite saved setups, stone wear compensation, feed speed regulation (stone saver), two-step feed, spindle reverse, ability to change speeds in process, inch/metric selectable, system diagnostics, cycle dwell, in-process short stroking, part counter and 13 operator languages.
- USB port for backup and updates.
- Designed with automation in mind.
- Screen selectable languages include English, German, French and Italian.

SH-4000 Floor Plan Layout





## Specifications

### DIAMETER RANGE (ID)

1.5 mm to 105 mm (0.060 in. to 4.1 in.)

Optional CGT:

Up to 11.07 mm (0.436 in.)

### STROKER CARRIAGE TRAVEL

6 mm to 392 mm (0.24 mm to 15.43 in.)

### SPINDLE SPEED

200 to 3000 RPM

### SPINDLE POWER

4.1 kW (5.5 hp)

### STROKER

2.5 kW servo (3.4 hp) maximum

### STROKER RATE

10 to 550 SPM (length dependent)

### FEED SYSTEM

Servo linear, 2225 N (500 lbf) maximum

### COOLANT PUMP:

0.37 kW (0.5 hp) / 11.2 liters per minute (3 gpm)

### COOLANT CAPACITY

208 liters (55 gallons)

### MACHINE WEIGHT

(Including Coolant Cart)

Dry Weight: 1300 kg (2,860 lbs.)

Shipping Weight: 1553 kg (3,425 lbs.)

### VOLTAGES AVAILABLE

Electrical System:

400 VAC 50 Hz 3 phase: FLA 18.5

460 VAC 60 Hz 3 Phase: FLA 18.2

### PNEUMATIC SUPPLY PRESSURE

5.5 bar (80 psig) min.

## Up Close Features on the SH-4000

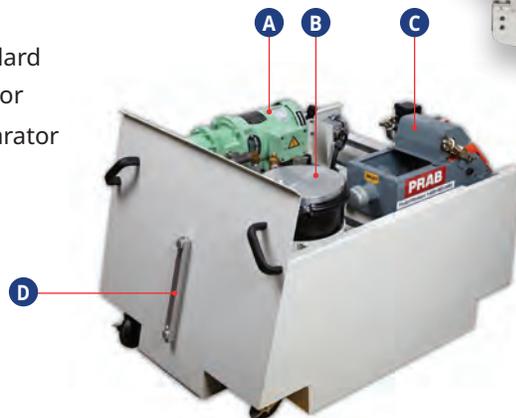
### DETAILS MAKE THE DIFFERENCE

- Easy-to-change stroker fixture plate standard (unit allows mounting of all ML/EC style fixtures). Additional plates can be ordered to mount custom fixtures or for quick changeover.
- Robust 25 mm (1 in.) servo controlled ball screw stroker assures precise positions and consistent performance.
- 400 mm (15.75 in.) maximum stroke travel allows for longer parts.
- Stroker carriage is 52 mm (2 in.) for improved access.

The SHA-4000 (pictured right) is available with a package that allows totally automated honing so you can perform a superior job without the cost of a full-time operator.

## SH-4000 Coolant Cart is Easy to Move and Easy to Maintain

- A** Proven heavy-duty long-life coolant pump
- B** PF Filter cartridge standard with filter status indicator
- C** Optional magnetic separator
- D** Level gage is standard



## Ordering Information

### STANDARD EQUIPMENT

The SH-4000 comes standard with the following:

- EC-6100 Universal Honing Fixture with mounting plate
- Run out adjustable standard mandrel spindle
- Coolant cart with PF Cartridge Filtration
- SH-6550 Alignment Indicator
- ML-6190 Torque Arm

### OPTIONAL EQUIPMENT

To be ordered as needed:

- SH-4515 Automatic Size Control Unit
- MMT-SC1: 17 mm MMT collett
- MMT-SC2: 23 mm MMT collett
- MMT SC3: 25 mm MMT collett
- Long Fixture Support Bars
- EC-7100 Square Honing Fixture
- KKN980/990/995 Gimbal Fixtures
- SH-6620 Fixture Air Lines Package
- SH-5705 Magnetic Separator
- PEM-1214 230 VAC Supply Transformer
- SH-6610 Anti Glazing (cycle time control)
- Electrical Enclosure Air Conditioning Unit – Recommended for temperatures exceeding 30 C (95 F) Ambient
- SH-6650 CGT Capability (CGT 12 max)
- SH-6670 LED Work Area Light
- SH-6640 Automation Package
- SH-6630 Status Light
- ML-7210 Runout adjustable adapter for MMT Tooling
- SH-6680 Gage Stand

The electrical enclosure comes standard on the back of the machine but can be special ordered on the right (operator station) side or left side of the machine.

### FOR EVERY APPLICATION

## SH-4000 Tooling, Abrasives and Lubricants

The SH-4000 incorporates the latest technology in horizontal honing. Sunnen offers a wide range of tooling options from multi-stone mandrels to standard mandrels.

### MMT HIGH-PRODUCTION MULTI-STONE MANDRELS

MMT mandrels offer faster cycle times, superior accuracy, longer time between stone changeovers, and maintain superior bore geometry and bore centerline. Every mandrel is manufactured using high-strength steel to ensure long production life.

### SRT MULTI-STONE TOOLS

SRT multi-stone honing tools are known for their dependability for both production and high precision applications. Each uses a series of seven stone holder types, featuring replaceable abrasives to reach the specified diameter range.

### STANDARD MANDRELS

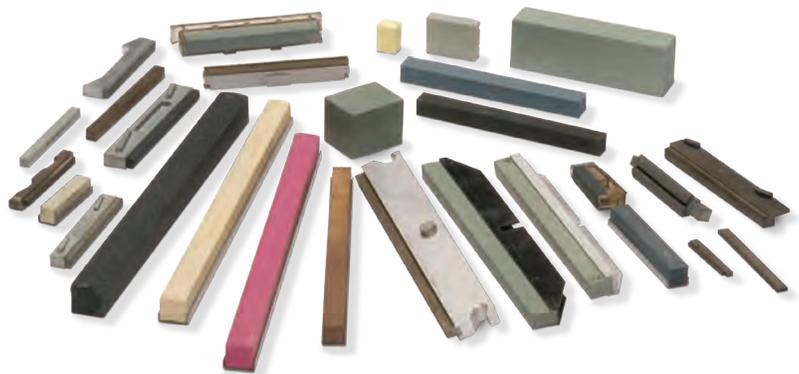
For bores under 150 mm (6 in.) in diameter, the industry standard Sunnen mandrels provide straightness and roundness with minimum stock removal. Standard mandrels can be supplied for blind hole honing, with multiple stones for honing long bores.

### CGT KROSSGRINDING® DIAMOND PLATED TOOLS

CGT high-precision diamond-plated tools provide extreme accuracy, excellent stock removal capability and durable diamond grit for long tooling life. These tools provide consistent bore size and unparalleled roundness, holding tolerances to within 0.00025 mm (0.000010 in.).

## Sunnen Abrasives, Honing Oils and Coolants

Complete your honing system with Sunnen's precision honing abrasives, teamed with Sunnen premium honing oils and coolants. They are designed to work together to deliver optimum bore geometry at the lowest cost-per-part.



A LEGACY OF EXCELLENCE SINCE 1924

## Sunnen Worldwide

With world headquarters in St. Louis, Missouri, Sunnen is the largest fully integrated company in the world specializing in precision bore creation, sizing and finishing equipment. A Sunnen solution might include honing, lapping, skiving/roller burnishing or deep hole machining...or a combination of those processes.

Our 14 international affiliates and over 40 authorized distributors allow us to deliver top quality Sunnen machines, tools, service and training wherever they are needed around the globe.

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