SH-4000

NEXT GENERATION POWER STROKED HONING MACHINE
From its designer styling and lack of manual controls to its digital repeatability and touchscreen HMI, Sunnen’s new SH-4000 builds on the 21-year 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 and new technology throughout. With 45 percent fewer parts, the SH-4000 is more reliable and durable.
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:
www.sunnen.com

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- PLC controls replace outdated circuit card control.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”) 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.
- New robust 25 mm Bosch Rexroth servo controlled ball screw stroker assures precise positioning and consistent performance.
- New 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 SH-4000 Power Stroked Honing Machine . . . Its performance matches its looks

**Standard & Optional Features**

1. Patent pending 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 (.79 in) of additional feed travel allows for increased diameter range for high production MMT tool applications.


   New 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. New, 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. New, easy-to-maintain standard coolant system is almost 70 percent larger than earlier machine models at 208 L (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.
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.
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 change-over.
- Robust 25 mm (1 in) servo controlled ball screw stroker assures precise positions and consistent performance.
- Increased 400 mm (15.75 in) maximum stroke travel allows for longer parts.
- Improved design ... the carriage is 52 mm (2 in) wider for improved access.

SH-4000 coolant cart is easy to move and easy to maintain

Proven heavy duty long life coolant pump
Optional Magnetic Separator
Level gage is standard
PF Filter cartridge standard with filter status indicator

Specifications:

Diameter Range (ID):
1.5 - 101.6 mm (.060 - 4.0 in)
Optional CGT: Up to 11.07 mm (.436 in)

Stroker Carriage Travel:
6 - 392 mm (.24 - 15.43 in)

Spindle Speed:
200 - 3000 RPM

Spindle Power:
4.1 kW (5.5 hp)

Stroker:
2.5 kW servo (3.4 hp) maximum

Stroker Rate:
10 - 550 SPM (length dependent)

Feed System:
Servo linear, 2225 N (500 lbf) maximum

Coolant Pump:
.37 kW (5 hp)/11.2 liters per minute (3 gpm)

Coolant Capacity:
208 Liters (55 gallons)

Machine Weight, including coolant cart:
Dry Weight: 1133 kg (2500 lbs.)
Shipping Weight: 1553 kg (3425 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

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

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.

**Bore Diameter Range (I.D.):** 4 mm - 65 mm (0.156 in. - 2.56 in.)*

**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.

**Bore Diameter Range (I.D.):** 35 mm – 102 mm (1.4 in. - 4.0 in.)*

**Standard Mandrels**
For bores under 150 mm (6 inch) 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.

**Bore Diameter Range (I.D.):** 1,5 mm - 165 mm (.06 in. - 6.5 in.)*

**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 00025 mm (.000010 in).

**Bore Diameter Range:** Up to CGT 12 11.87 mm/.436 in.

*For diameter sizes below or above the standard range, or for specially designed tools, contact your Sunnen Field Engineer.

Abrasives

From aluminum oxide to silicon carbide to diamond and CBN, Sunnen manufactures the industry’s largest variety of mounted or un-mounted stick abrasives, bond types, grain sizes and stone configurations.

Before any stone is shipped, it is graded and qualified, maintaining the most exacting quality control standards in the industry to assure you of the most precise honing performance available.

**Get the precision you need with Sunnen Premium Honing Oils and Coolants**
Sunnen’s premier line of honing oils and coolants provide extreme lubricity for higher honing pressure and harder abrasives, delivering faster, lower cost-per-part and ultimately more profitable cutting rates.
WORLDWIDE

Our global manufacturing, distribution, and sales and service network allows us to deliver quality Sunnen solutions worldwide.

And our state-of-the-art Technical Services Centers allow our technical experts to develop innovative solutions to customer application challenges. The Centers also provide answers for customer questions and training for Sunnen representatives around the world.

Sunnen Products Company
World Headquarters
St. Louis, MO – USA
Phone 1.314.781.2100
Fax 1.314.781.2268
Toll Free 1.800.325.3670
Email sunnen@sunnen.com
www.sunnen.com

Austria - Sunnen Austria GmbH
Hohenems
Phone +43 5576 74194
Fax +43 5576 74196
Email sales@sunnen.eu
www.sunnen.at

Belgium - Sunnen Benelux BVBA
Kontich
Phone +32 38 80 2800
Fax +32 38 44 3901
Email info@sunnen.be
www.sunnen.be

Brazil - Sunnen Do Brasil LTDA.
São Paulo
Phone +55 11 4177-3824
Fax +55 11 4362-3083
Email sunnen@sunnen.com.br
www.sunnen.com.br

China - Shanghai Sunnen Mechanical Co. Ltd.
Shanghai
Phone +86 21 5813 3990
Fax +86 21 5813 2299
Email shsunnen@sunnensh.com
www.sunnensh.com

Czech Republic - Sunnen s.r.o.
Strakonice
Phone +420 383 376 317
Fax +420 383 376 316
Email sunnen@sunnen.cz
www.sunnen.cz

France - Sunnen SAS
Saclay
Phone +33 169 30 00 00
Fax +33 169 30 11 11
Email info@sunnen.fr
www.sunnen.fr

India - Sunnen India Pvt. Ltd.
Mumbai
Phone +91 223 913 6055
Fax +91 223 913 6056
Email sales@sunnen.in
www.sunnen.in

Italy - Sunnen Italia S.r.l.
Arese
Phone +39 02 383 417 1
Fax +39 02 383 417 50
Email sunnen@sunnenitalia.com
www.sunnenitalia.com

Poland - Sunnen Polska Sp. z o.o.
Warszawa
Phone +48 22 814 34 29
Fax +48 22 814 34 28
Email sunnen@sunnen.pl
www.sunnen.pl

Russia - Sunnen RUS LLC
Moscow –
Phone +7 495 258 43 43
Fax +7 495 258 91 75
Email sunnen@sunnen-russia.ru
www.sunnen.ru

Switzerland - Sunnen AG
Ennetach
Phone +41 71 649 33 33
Fax +41 71 649 33 34
Email sales@sunnen.eu
www.sunnen.eu

UK - Sunnen Products Ltd.
Hempestead Herts
Phone +44 1442 39 39 39
Fax +44 1442 39 12 12
Email hemel@sunnen.co.uk
www.sunnen.co.uk

Sunnen reserves the right to change or revise specifications and product design in connection with any feature of our products contained herein. Such changes do not entitle the buyer to corresponding changes, improvements, additions, or replacements for equipment, supplies, or accessories previously sold. Information contained herein is considered to be accurate based on available information at the time of printing. Should any discrepancy of information arise, Sunnen recommends that user verify the discrepancy with Sunnen before proceeding.