

SUNNEN'S SH-2000 TAKES POWER HONING TO WITH FEATURES THAT MAKE JOBS PRECISE



For superior high-performance, high-production bore sizing and finishing, the new Sunnen SH-2000 is extremely easy to setup and operate – even an inexperienced operator can run the SH-2000 with ease.

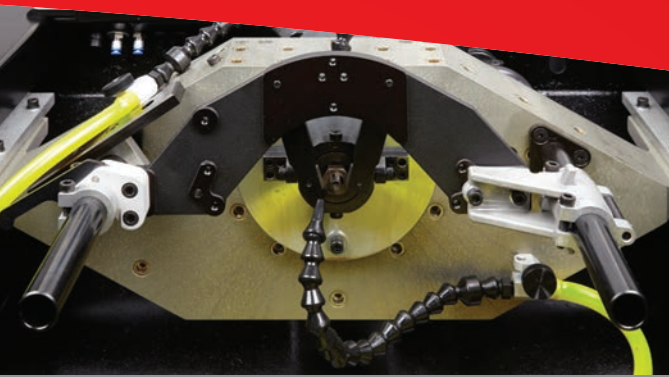
Complete setup is handled from the front of the machine without raising a cover, cutting setup times in half over older Sunnen machines. Universal honing fixtures handle nine out of ten jobs, with no chucks, fixtures or special tooling. Feed rates, stroke length and stroke speed are set and locked in, greatly reducing the chance for human error. And in many cases, you can use your existing tooling for even lower investment costs.

The SH-2000 is up to six times faster than I.D. grinding and other honing processes, and, out-produces older Sunnen 1800 Series machines by at least 2 to 1. Plus you get

Ø 137.185±0.025
0.18 A-B
0.025 LG H
0.013/20° LG H



A NEW LEVEL OF EFFICIENCY & PERFORMANCE AND EASY



better bore geometry, a desirable oil-bearing crosshatch finish and longer tool life.

Another major benefit of the SH-2000 is its ability to handle hard materials efficiently. This allows you to keep your high-cost CNC machines open for specific CNC required applications. Because hard turning is costly and time consuming, the SH-2000 is truly a profitable alternative.

Applications include:

- Multiple Land and Tandem Bores
- Heavy or Odd Shaped Parts
- Keyways or Splines
- Blind End Bores
- Thinwall Parts



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 SH-2000 HAS FEATURES THAT MAKE JOBS PRECISE AND EASY

BETTER THAN I.D. GRINDING IN MANY WAYS

Job after job in all kinds of shops, Sunnen® Power Stroked Honing is producing work faster and with greater accuracy and consistency than I.D. grinders – especially where diameters are under 40 mm (1.57 in.).

Incomparable Quality – Sunnen Power Stroking assures constant stroke length and stroke rates. Combined with a zero shutoff means better control of bore size, finish and geometry than ever before – at high-production rates.

Saves Time And Costs By Reducing Bore Sizing Operations – With the fast stock removal rates of the Sunnen SH-2000, you can eliminate preliminary reaming, boring or grinding on many jobs.

Run All Kinds Of Parts – The SH-2000 is extremely versatile. It handles workpieces of almost any size or configuration and cuts all kinds of materials fast and clean.

- **Multiple land and tandem bores:** Sunnen's long stone bridges the lands, keeping them all in line and the same size. No rainbow or washout.
- **Bores with keyways or splines:** Specially designed stones and mandrels make honing keyways as easy as plain bores.
- **Blind end holes:** Sunnen tooling is easily adapted to hone to the bottom of blind bores and gives you better fits than any other process.
- **Thin-wall parts:** There are no chucks or clamps to distort or break delicate pieces. Holds tight tolerances.
- **Heavy or odd-shaped parts:** They don't have to be chucked or swung or precisely located. A simple, easy-to-make holding fixture does the trick in most cases.



OPTIONAL CE COMPLIANT
SAFETY SYSTEM
Includes Front Light
Curtain, Side Guards,
and Safety PLC.



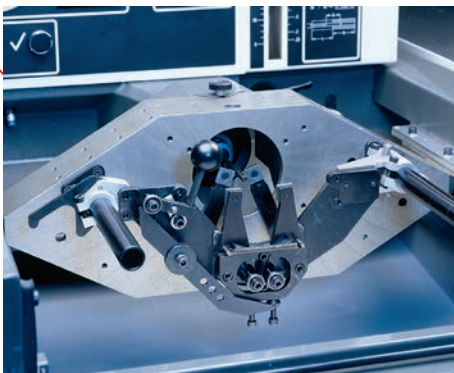
ELECTRONIC CONTROL SYSTEM

NEW Siemens PLC Control with Touchscreen replaces circuit board technology. Spindle/Stroker speed and extra strokes feature are controlled via the touchscreen. Speeds may be adjusted during honing. Swivel mounted vertical control panel allows easier use.

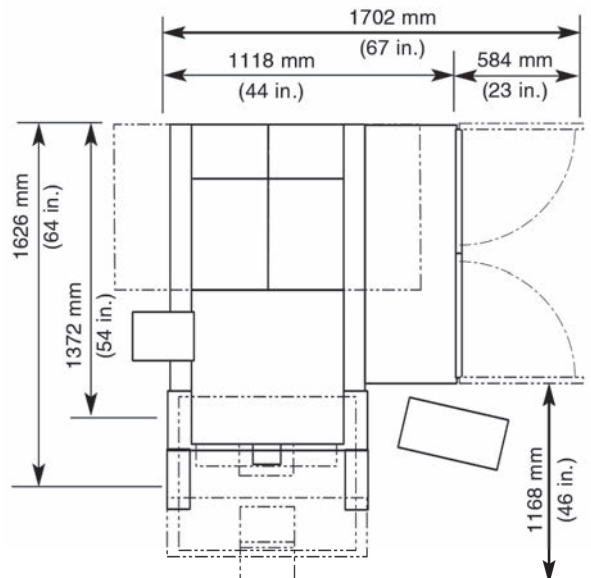
New PLC touchscreen controls functions that on previous models required opening the control panel and adjusting switches, such as: slow extra strokes, ASC up before cycle start, ignore ACS alignment error, ignore oversize workpiece, and stroke count honing. Machine diagnostics are available via the touchscreen. Digital honing indicator can be easily configured at the touch of the screen. What this means is no opening the operator panel and manually changing switch positions for these functions/options which are required to optimize a process, it is all done via the screen now.

The SH-2000 is designed for both inch and metric use.

A variety of workholding fixtures are available for use with the SH-2000. The Universal Honing Fixture (shown below) comes standard with the machine, and can be used for most honing applications. The machine can also be equipped with fixtures designed for your specific application.



SH-2000 Floor Plan Layout



MORE FEATURES

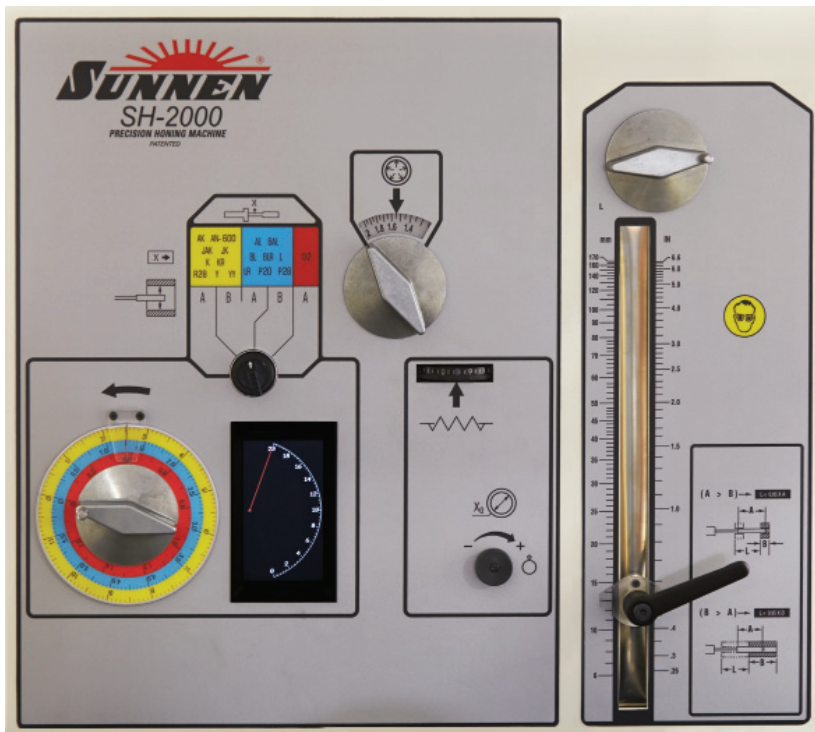
Rigid Machine Base - Reinforced structural steel and cast iron provides a solid machining platform. Moving components are isolated from the base to eliminate vibration problems.

Solid Construction Throughout - Rigid stroker carriage and robust linkage driven design permit more rapid stroking, which shortens cycle times. Square honing results are better than ever.

Detachable Coolant Cart - The unique coolant reservoir is mounted on casters so it can be rolled out to provide room for stroking long parts. Two models are available. A simple sediment tank with centrifugal pump or the filter cartridge equipped unit.

Optional Automatic Size Control Compensation - allows fine tuning of size by adding extra strokes after the probe enters the bore. More effective targeting of the nominal diameter delivers better process control (larger Cpk).

Sensing probes are adjustable so you can set size exactly where you want it – high, low or in the middle of your tolerance range. You can use the same sensing probe for rough and finish honing. Use with optional Automatic Size Control (ASC).



Up close features on the SH-2000

Specifications:

DIAMETER RANGE (ID):

Stroke length, diameter range, and workpiece weight are contingent on machine configuration, workpiece, and application.

MANUAL STROKING†:

1,5 – 165,1 mm (.060 – 6.500 in.)

POWER STROKING†:

1,5 – 101,6 mm (.060 – 4.000 in.)

AUTOMATIC SIZING†:

3,2 – 51,0 mm (1.25 – 2.000 in.)

STROKE LENGTH:

6,0 – 170 mm (.236- 6.700 in.)

SPINDLE SPEEDS:

200 to 3000 RPM (adjustable in fine increments)

STROKE RATE:

60 to 350 SPM

SPINDLE MOTOR:

2.25 kW (3 HP)

STROKER MOTOR:

.75 kW (1 HP)

SETTLEMENT TANK:

.22 kW (.33 HP)

57 Liters/Minute (15.6 Gallons/Minute)
Capacity - 113 Liters (30 Gallons)

PF FILTER CART:

.37 kW (.5 HP)

11.2 Liters/Minute (3 Gallons/Minute)
Capacity - 121 Liters (32 Gallons)

FLOOR SPACE:

Depth: 1,6 m (64 in.) Width: 1,22 m (48 in.)
Height: 1,9 m (75 in.) with covers open

MACHINE WEIGHT:

(Less Coolant Cart): 725 kg (1,600 lbs.)
PF Coolant Cart Weight (Dry): 110 kg (250 lbs.)

VOLTAGES AVAILABLE:

230 VAC 60 Hz 3-Phase

400 VAC 50 Hz 3-Phase

460 VAC 60 Hz 3-Phase

PNEUMATIC REQUIREMENTS:

5,5 Bar (80 psi)

† CONTINGENT ON APPLICATION



OPTIONAL EQUIPMENT:

(ORDER AS NEEDED)

- **EC-4500 Automatic Size Control** - Simply set the diameter of the sensing probe slightly smaller than the bore being honed. As soon as the bore is "to size," the sensing probe slips into the bore. The stroking circuit is de-energized and the honing cycle stops automatically.
- **EC-7170 Gage Stand** for Non-Light Curtain Machine
- **ML-4425 Gage Bracket** for Light Curtain Machine
- **PF-150 Coolant Filtration System**
- **Cartridge Filter** for PF-150
- **Integral Cartridge Filter Tank**
Order SH-2000 ()F
- **Custom Workholding Fixtures**
- **CE Compliant Safety System**
- **ML-7210 MMT Adapter Kit**
- **MMT-SC1 17 mm MMT Collet**
- **MMT-SC2 23 mm MMT Collet**
- **MMT-SC3 25 mm MMT Collet**
- **EC-7100 Square Honing Fixture**
- **KKN980/990/995 Gimbal Fixtures**
- **EC-7190 Long Fixture Support Bars**

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TOOLING

The SH-2000 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.)*

Note: Review application with your Sunnen Field Engineer.

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.)*

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

SUNNEN ABRASIVES

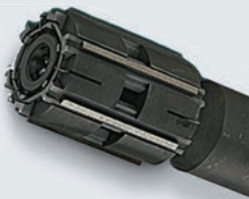
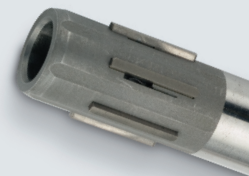
From aluminum oxide to silicon carbide to diamond and CBN, Sunnen manufactures the industry's largest variety of mounted or un-mounted stick abrasives, bond types, grain sizes and stone configurations.



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.





A LEGACY OF EXCELLENCE SINCE 1924.

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.

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