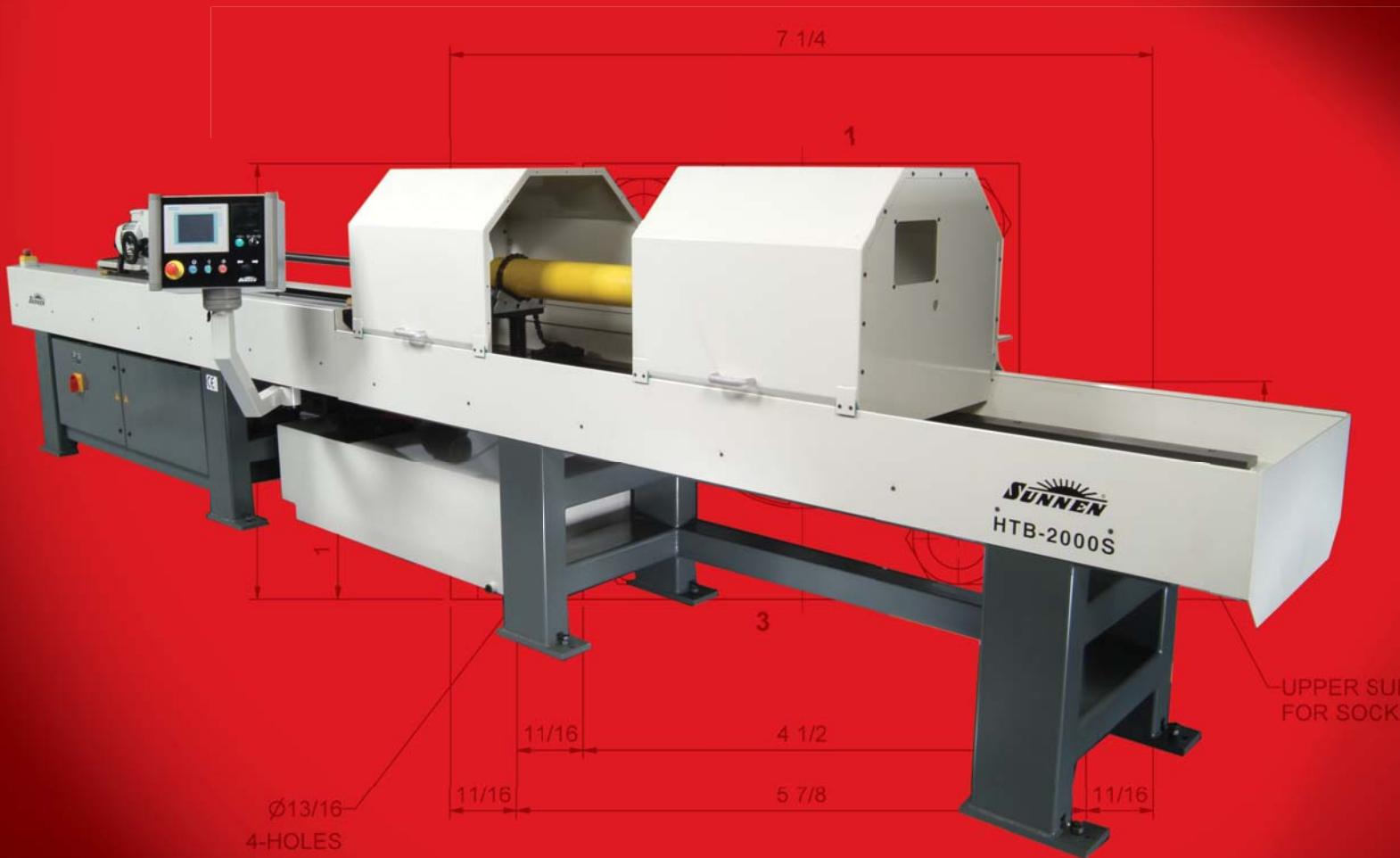




ABOVE AND BEYOND **HONING**

HTB-S SERIES

SMALL PRODUCTION TUBE HONE



SUNNEN'S HTB-S SERIES . . . THE RESULT OF DECADES



The Sunnen HTB-S Series tube hone is the perfect solution for job shops in need of a flexible systems for small production applications and repair work. The HTB-S Series is ideal for hydraulic cylinders, aircraft components and compressor components.

The HTB is available in seven models from the HTB-2000S [featuring a 2-meter (6.56 ft) stroke] up to the HTB-10000S [featuring a 10,000 meter (33 ft.) stroke]. These systems are designed for bore diameters up to 400 cm (13 in.)

OF TUBE HONING EXPERIENCE



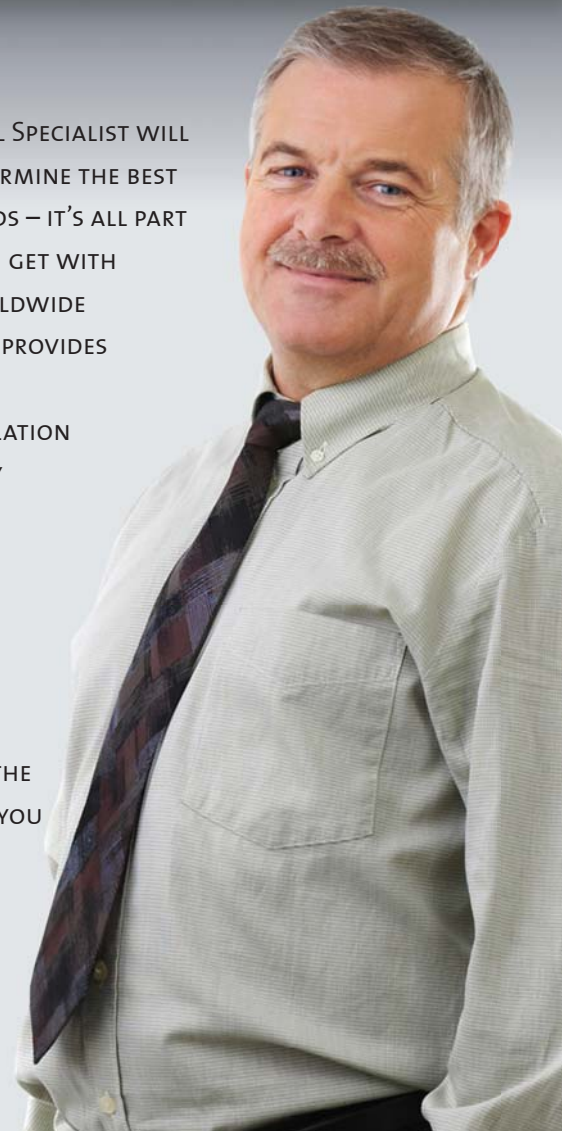
The HTB-S Series is a medium-duty tube hone that combines the best features of other Sunnen tube hones. Precision sizing and finishing of long and large bores has never been easier or more productive.

The field-proven features of the HTB-S Series include:

- An easy and reliable Stober drive spindle
- A stroking servo motor with the proven power to match the spindle drive
- The familiar V-type fixture that is used
- The proven Sunnen MPS feed system
- Touch screen display simplifies setup - storage for more than 100 setups

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.



THE HTB FEATURES THE MOST ADVANCED TECHNOLOGY AVAILABLE TO MAKE YOUR JOB EASIER AND MORE PRODUCTIVE



FEATURES THAT MAKE THE HTB-SERIES IDEAL FOR SIZING AND FINISHING BIG BORES

SPINDLE LOAD METER FOR PEAK EFFICIENCY

Built-in load meter indicates high and low spots in the tube bore. Operator can adjust the stroke as required for optimum cycle time.

“BLIND HOLE” CAPABILITIES

Work out tight spots in the bore when using the Short Stroke Cycle and Stroke Dwell features.

ADJUSTABLE WORKHOLDING FIXTURE

Accurately position and securely hold a wide variety of workpieces with the adjustable workholding fixture.

COMPENSATING STONE FEED

The Sunnen Modular Honing Tool System continually compensates for stock removal and stone wear. This keeps the operation running at peak efficiency at all times.

AUTOMATIC CYCLE TIMER

The time required for any work cycle is preset on the touchscreen menu. It automatically resets at the end of each cycle.

VARIABLE SPEED DRIVE UNIT

The perfect spindle speed for most honing jobs is quickly set by the Variable Speed Drive Unit.

EASY-TO-SET STROKE STOPS

This feature makes setup quick and easy. The tool can be short-stroked at any point within the stroke using the manual override. The end of the stroke can be controlled to allow the operator to hone rough bores at slow speed on the first pass. The operator can adjust the speed to maximum without resetting the stroke stops.

END STROKE

Short stroking is activated with a touch of the joystick. This is ideal for working on barrel shaped holes and blind holes.

SPEED RANGE, CAPABILITY AND SPEED

Six HTB models cover a stroke range of 2000 mm to 10,000 mm (6.56 ft to 32.8 ft) so there is a machine size available to meet your specific requirements. A servo stroking motor allows speeds to be changed during operation with minimal dwell time for stroke reversals. Stroke speed is set through the touchscreen to assure accurate speeds in both directions.

DIGITAL DISPLAY AND PLC CONTROL

The easy-to-read display shows machine status. View conditions such as spindle motor load and spindle carriage reaction. The PLC controls the stroke direction consistently smooth stroke reversals.

DWELL FEATURES AND MANUAL REVERSAL

The touch of a button allows the operator to dwell the stroke anywhere in the workpiece. Manual reversal of the stroke can take place anywhere in the workpiece.

MANUAL MODE

Use this mode for honing a workpiece for the first time. Ideal for locating unknowns such as weld seams before the automatic honing cycle begins.

WORKPIECE HEIGHT ADJUSTMENT

The height of the workpiece can be easily adjusted without removal. Just turn the collars to lower or raise the height.

HONING CYCLE TIMES

A touchscreen allows the operator to set the cycle time. Times can be increased or decreased with a touch of the screen anytime during the cycle.

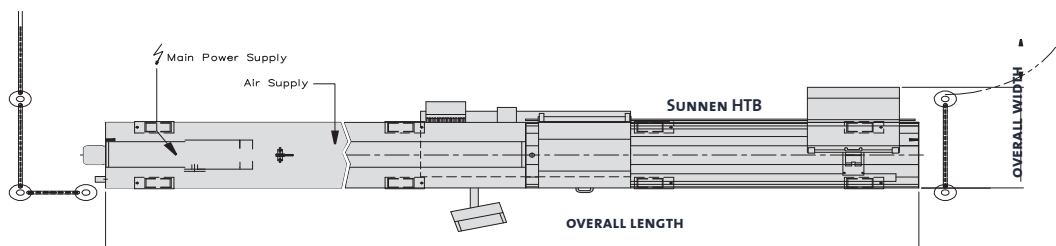


Easy-to-read PLC touchscreen display simplifies setups and operation.

HTB-S SERIES FLOOR PLAN LAYOUT AND DIMENSIONS

This versatile system packs a lot of performance into an efficient footprint that's significantly smaller than other horizontal tube honing systems.

HTB-S Series Specifications	HTB-2000S	HTB-3000S	HTB-4000S	HTB-5000S	HTB-6000S	HTB-8000S	HTB-10000S
Maximum Stroke Length	2'000 mm (6.56 ft.)	3'000 mm (9.8 ft.)	4'000 mm (13 ft.)	5'000 mm (16.4 ft.)	6'000 mm (19.7 ft.)	8'000 mm (26.25 ft.)	10'000 mm (32.8 ft.)
Number of Steady Rests	Optional	Optional	Optional	1	1	1	2
Overall Length	6'200 mm (20.3 ft.)	8'200 mm (26.9 ft.)	10'000 mm (33.46 ft.)	12'700 mm (44.66 ft.)	14'700 mm (48.22 ft.)	18'700 mm (61.35 ft.)	23'200 mm (76.11 ft.)
Overall Width	1'200 mm (3.94 ft.)	1'200 mm (3.94 ft.)	1'200 mm (3.94 ft.)	1'500 mm (4.9 ft.)	1'500 mm (4.9 ft.)	1'500 mm (4.9 ft.)	1'500 mm (4.9 ft.)
Spindle Center Height to Floor	1'100 mm (3.44 ft.)	1'100 mm (3.44 ft.)	1'100 mm (3.44 ft.)	1'100 mm (3.44 ft.)	1'100 mm (3.44 ft.)	1'100 mm (3.44 ft.)	1'100 mm (3.44 ft.)
Height	1'523 mm (5 ft.)	1'523 mm (5 ft.)	1'523 mm (5 ft.)	1'523 mm (5 ft.)	1'523 mm (5 ft.)	1'523 mm (5 ft.)	1'523 mm (5 ft.)
Weight	2'200 kg (5894 lbs.)	2'600 kg (6966 lbs.)	3'000 kg (8038 lbs.)	3'800 kg (10,181 lbs.)	4'200 kg (11,253 lbs.)	5'000 kg (13,396 lbs.)	5'800 kg (15,540 lbs.)



SPECIFICATIONS:

SPINDLE SPEED:

30 - 400 RPM

SPINDLE POWER:

4.7 Hp (3,5 kW) variable speed controlled

STROKE:

4.3 Hp (3,2 kW), servo standard

STROKE SPEED RANGE:

.32 - 131 ft/min (1 - 40 m/min)

BORE DIAMETER RANGE:

1 - 13.8 inches (25 - 350 mm)*

*FOR DIAMETER SIZES ABOVE 13.8 INCHES (350 MM), CONTACT YOUR SUNNEN FIELD ENGINEER.

APPROXIMATE STOCK REMOVAL RATE:

up to 24.4 in³/hr (400 cm³/hour)*

*ACTUAL STOCK REMOVAL RATES WILL VARY DEPENDING UPON APPLICATION.

O.D. CAPACITY - STANDARD:

2.4 - 15.8 inches (60 - 400 mm)

O.D. CAPACITY - OPTIONAL:

13.8 - 23.6 inches (350 - 600 mm) with additional HT-350 fixture

ELECTRICAL SYSTEM:

400/460 V, 50/60 Hz, 3 phase

Optional transformer configurations also available

COMPRESSED AIR:

8 gal/min (30 l/min) at 6 bar

WORK HOLDING FIXTURE:

2 Standard

Universal V-Type chain fixture

1.18 to 15.75 inches (30 - 400 mm)

Optional HT-350

13.78 - 23.62 inches (350 - 650 mm)

SAFETY FEATURES:

- CE Standard - 1 light curtain on front of spindle table
- CE Optional - 1 light curtain on backside of spindle table or fence

STEADY REST:

- Standard on HTB-6000s - HTB-10000s.
- Optional on HTB-2000s - HTB-4000s.

OPTIONAL EQUIPMENT:

COOLANT TANK:

79 gal. (300 l) reservoir or 123 gal. (500l)

MAGNETIC SEPARATOR:

70 % cleaning rate

- PF-401 Filter unit with paper cartridge filter elements for non ferrous applications or very fine surface finish requirements
- External, turbo separator centrifugal filter unit with integrated oil chiller
- PG-50 in-process gaging system for I.D. 1 to 9 inches (25 to 230 mm)
- Automatic tool support
- Chiller unit
- Steady Rest for HTB-2000S to HTB-4000S (stroke length minus 19.68 inches/500 mm)

TOOLING

The HTB-S is compatible with Sunnen's MPS Modular Tool System Sunnen's MPS Modular Tooling. With the MPS you can convert any "big work" honing machine into a new bore finishing system and you can "tailor" tooling to fit your jobs. Sunnen's MPS Modular Tooling can handle from 25.1 mm to 381 mm (.990" to 15.00") inside diameters and up to 3.65m (12') in length. With the cage assembly and stone and guide extension set the HTB-S with MPS tools can handle diameters up to 650 mm (25,590 in.) All components are standard and interchangeable and most are available from stock for immediate delivery.

BORE DIAMETER RANGE:

2.5 – 21 inches (64 – 533 mm)*



SUNNEN-MADE 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 and consistent honing performance available.



SUNNEN PREMIUM HONING OILS & COOLANTS

Sunnen's premium 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, sales, and service network allows us to deliver quality Sunnen solutions worldwide. And our network of more than 50 authorized Sunnen international distributors is second to none.

Sunnen's state-of-the-art Advanced Technology Centers – located in the US, Switzerland, and China – 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 globe.

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