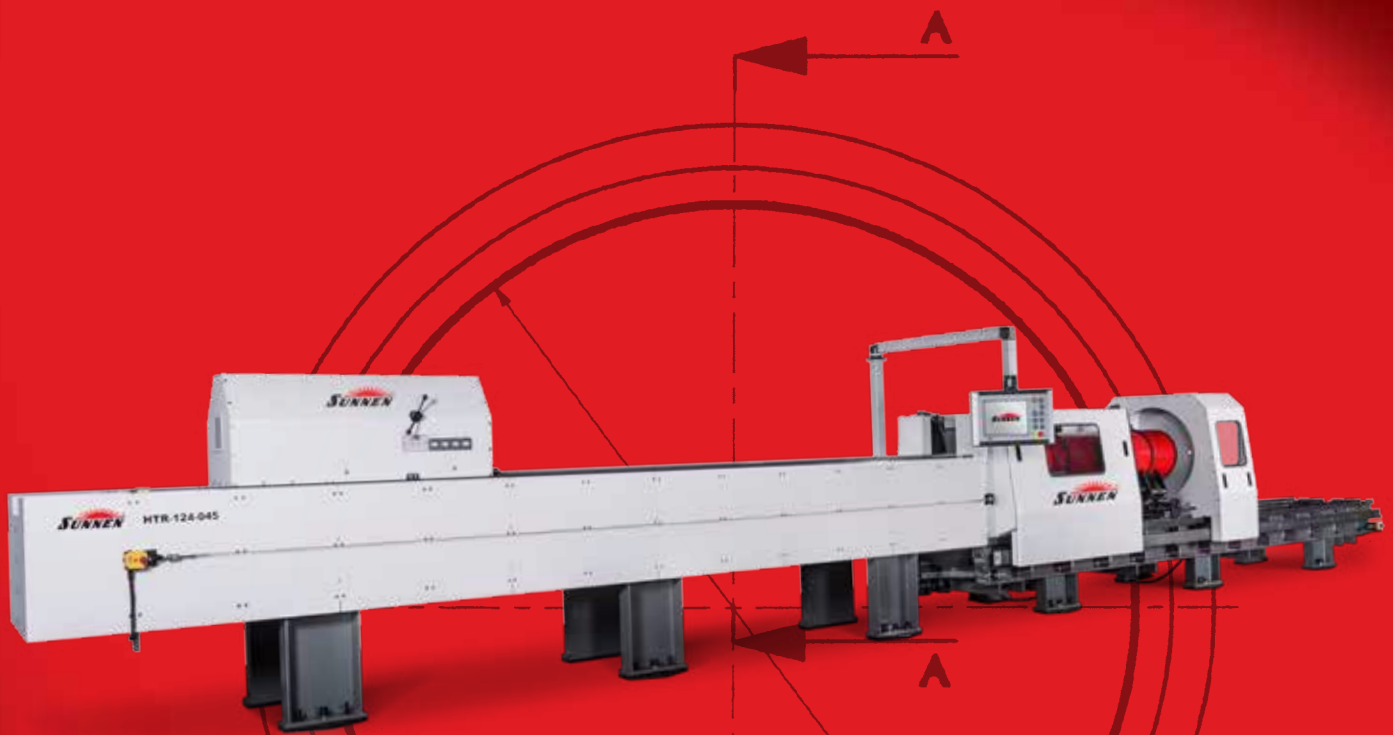




ABOVE AND BEYOND **HONING**

HTR SERIES

ALL ELECTRIC TUBE HONE



$\varnothing 137.185 \pm 0.025$

	0.18	A-B
	0.025	LG H
	0.013/20°	LG H

SUNNEN'S NEW HTR ALL ELECTRIC TUBE HONE ... PAC



The new HTR all-electric tube hone combines servo precision and cycle-automation features for a versatile system well suited for job shops and manufacturing facilities.

With input from customers around the globe, the HTR is designed and equipped to efficiently hone blind bores or correct tight spots without operator intervention. The machine can handle bore I.D.'s up to 900 mm (35.41 in). Its modular design can be configured for stroke lengths from 2.5 m to 14 m (8 to 26.2 ft).

For job-shop versatility and productivity, the HTR boasts a 12 kW (16-hp) spindle motor and four-step gearbox which produces constant spindle power through the entire speed range of 10-470 rpm for fast metal removal.

The HTR is easy to maintain as the design has eliminated all hydraulics thereby reducing noise and heat while eliminating leakage.



KED WITH FEATURES FOR VERSATILITY



With a Windows® touchscreen PC control, the HTR manages stroke position, motion control, stone feed and spindle speed.

The HTR Series tube hone is ideal for applications such as:

- oil and gas components
- wind mills and turbines
- large hydraulic cylinders
- landing gears
- any heavy duty application that calls for deep, round, straight, sized and finished holes with precise tolerances

The HTR is built and backed by Sunnen, the global expert with more than 800 tube hones delivered worldwide. It comes standard with the industry-leading customer service you expect from Sunnen.

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.

SUNNEN AND THE SUNNEN LOGO ARE REGISTERED TRADEMARKS OF SUNNEN PRODUCTS COMPANY



FLEXIBLE AND VERSATILE, THE HTR HANDLES BOTH ROTARY- AND PUSH-FEED TOOLS

STANDARD AND OPTIONAL FEATURES

SERVO RACK AND PINION STROKING SYSTEM

achieves 0.1 mm (0.0004 in) stroke repeatability to hone blind bores. Stroker can automatically dwell to correct tight spots without operator intervention.

WINDOWS® TOUCHSCREEN PC CONTROL manages stroke position, motion control, stone feed, spindle speed and cutting pressure for optimum accuracy and bore geometry. It can store up to 900 different part programs and be configured for 13 operator languages.

POWERFUL 12 kW (16-HP) SPINDLE MOTOR and easy-to-shift four-step gearbox produces constant spindle power through the entire speed range for fast material removal. Spindle carriage moves on linear ball bearings and ground hardened way bars for maximum precision and efficiency.

STANDARD SERVO ROTARY

TOOL FEED also functions as a push-feed system with the optional drive shaft that converts rotary to linear motion, allowing use of a full range of Sunnen heavy-duty tooling.

TOOL OVERLOAD MONITORING

ensures optimal stock removal rates, while protecting the tool and the workpiece.

ALL-ELECTRIC, NO HYDRAULICS

ERGONOMIC OPERATOR STATION is mounted on swing arm and swivels for ease of setup and operation.

OPTIONAL COOLANT SYSTEMS with 300 or 600 liter (78 or 156 gallon) capacity with magnetic separator. Paper filter and chiller units available.

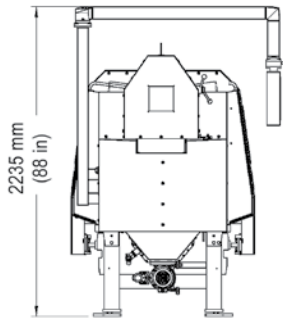
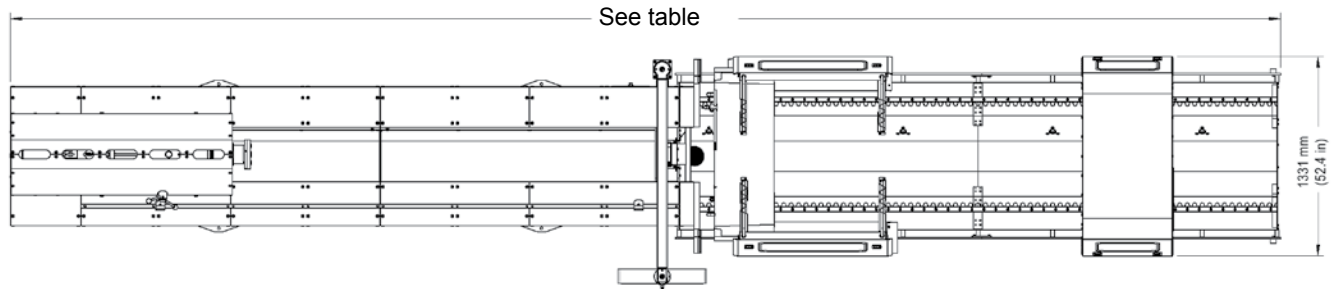


CE SAFETY SYSTEM OPTION FEATURES LIGHT CURTAIN in front of spindle section with protective fencing.

HEAVY-DUTY WELDED FRAME CONSTRUCTION.

STANDARD STROKE LENGTHS from 2.5 m to 14 m (8.2 to 45.9 ft).

HTR FLOOR PLAN LAYOUT



SPECIFICATION NUMBER HTR-124-XXX

SPINDLE POWER

12 = 12 kW

GEAR BOX

4 = 4 STEPS

STROKE LENGTH

025 = 2,500 mm (8.2 FT)
 045 = 4,500 mm (14.75 FT)
 060 = 6,000 mm (19.7)
 080 = 8,500 mm (27.9 FT)
 100 = 10,000 mm (32.8 FT)
 110 = 11,000 mm (36 FT)
 120 = 12,000 mm (39.4 FT)
 140 = 14,000 mm (45.9 FT)



HTR DIMENSIONS

	HTR-124-025	HTR-124-045	HTR-124-060	HTR-124-080	HTR-124-100	HTR-124-110	HTR-124-120	HTR-124-140
Max. Bore Length*	2000 mm 6.56 ft	4000 mm 13.12 ft	5500 mm 18.04 ft	7500 mm 24.61 ft	9500 mm 31.17 ft	10500 mm 34.5 ft	11500mm 37.7 ft	13000mm 42.65 ft
Max. Stroke Length	2'500 mm 8.2 ft	4'500 mm 14.76 ft	6'000 mm 19.7 ft	8'000 mm 26.24 ft	10'000 mm 32.81 ft	11'000 mm 36 ft	12000 mm 39.4 ft	14000 mm 49.93 ft.
No. of Fix Steady Rests	1	1	1	1	1	1	1	1
No. of Moving Steady Rests	0	0	1	2	3	3	3	3
Overall Length	8'500 mm 27.90 ft	12'500 mm 41.00 ft	16'500 mm 54.12 ft	20'500 mm 67.24 ft	24'500 mm 80.36 ft	26'500 mm 87 ft	28'500 mm 93.50 ft	32500 mm 106.60 ft
Spindle Center Height	1'200 mm 3.93 ft	1'200 mm 3.93 ft	1'200 mm 3.93 ft	1'200 mm 3.93 ft	1'200 mm 3.93 ft	1'200 mm 3.93 ft	1'200 mm 3.93 ft	1200 mm 3.93 ft
Machine weights	5500 kg 12125 lbs	7500 kg 16535 lbs	9500 kg 20950 lbs	10500 kg 23150 lbs	12000 kg 26500 lbs	13500 kg 29800 lbs	14000 kg 30900 lbs	15000 kg 33100 lbs

* Dependent on tooling/ verify maximum length/tooling to ensure correct length machine. Other lengths on request.

THE HTR IN ACTION



An innovative second station for spindle control ensures one operator can easily do the job of changing driveshafts and setting up the machine.



New optional easy-to-setup part fixturing is available in two sizes:

- 40 - 600 mm OD (1.6 to 23.6 in)
- 50-800 mm OD (2 to 31.5 in)

Fixtures are easily moved using a linear bearing/rail system. No air required.

A large 305 mm (12 in) easy-to-use PC touchscreen controls all the machine functions such as zero shutoff, feed pressure control and cross hatch angle calculator. Additional standard features include automatic bore geometry correction, recommended setups and tool overload protection. Jog buttons allow the operator to move the honing tool over the entire stroke length. The control is mounted on an easy-to-use adjustable arm for maximum flexibility.



SPECIFICATIONS:

SPINDLE SPEED:

10-470 RPM

MAXIMUM SPINDLE POWER:

12 kW (16 HP)

MAXIMUM (SERVO) STROKER POWER:

10.2 kW (13.7 HP)

STROKE SPEED RANGE:

1-48M/MIN (.32-157.4 FT/MIN)

I.D. RANGE:

20 - 900 mm (.8 - 35.4 inches)

TOOL FEED:

1.0 kW (1.3 hp) servo rotary (rotary-to-linear adapter available)

O.D. RANGE: (fixturing options/max. part weight)

V-Blocks 6,000 KG (13,228 LBS)

40-600 MM (1.6-23.6 IN)

V-Blocks 8,000 KG (17,637 LBS)

50-810 MM (2 - 31.8 IN)

MAXIMUM STOCK REMOVAL RATE:

1,600 cm³/hour (97.6 in³/hr)

Dependent on application and tooling

ELECTRICAL SYSTEM:

460 VAC, 60 Hz, 3-Phase (22A)

400 VAC, 50 Hz, 3-Phase (22A)

PNEUMATIC SYSTEM:

6 bar, 30 l/min (7.8 gal/min)

COOLANT RETURN PUMP:

Sump Pump 100 l/min (26g/min)

COOLANT SYSTEM OPTIONS:

- 300 L (78 GAL) tank with magnetic separator
- 600 L (156 GAL) tank with magnetic separator
- Paperbed
- 4.5 kW (6 hp) chiller

OPTIONAL EQUIPMENT

(to be ordered as needed)

- In-process gaging system for I.D. 25-230 mm (0.984 - 9 in)
- Moving steady rests for 2 and 4 meter machines (stroke length less than 300 mm/11.8 in)
- Two-stage roughing/finishing option
- Part rotation device
- Air conditioning for electrical enclosure
- Fixturing (see previous page)
- Coolant systems (see previous page)
- CE safety system

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.



TOOLING

The HTR is compatible with Sunnen's heavy-duty GH, 2C and HB tooling.

MULTI-STONE GHSS TOOLS

Designed for use with metal bond CBN and diamond abrasives for fast cutting action and reduced cycle times, Multi-stone GHSS tools provide consistent bore geometry and precise surface finish

BORE DIAMETER RANGE (I.D.): 37 mm - 195 mm (1.5 - 7.68 in.)*

FOUR-STONE MPS TOOLS

All components are standard and interchangeable. MPS tools make bores rounder with minimal stock removal and with a smooth quiet, efficient cutting action

BORE DIAMETER RANGE (I.D.): 50 mm - 177 mm (1.97 in. - 6.97 in.)*

MULTI-STONE GH TOOL

GH tools allows the operator to effectively hone using either conventional abrasives or superabrasives for even greater accuracy and stock removal rates

BORE DIAMETER RANGE (I.D.): 20 mm - 350 mm (0.787 in. - 13.78 in.)*

EIGHT-STONE HB TOOL

The eight-stone HB tool is designed for use on large diameters needing large stock removal.

BORE DIAMETER RANGE (I.D.): 76 mm - 1,200 mm (3 in. - 47.24 in.)*

FOUR-STONE HB-SL TOOL

Designed for easy handling when the application calls for large cutting volume.

BORE DIAMETER RANGE (I.D.): 97 mm - 670 mm (3.8 in. - 26.38 in.)*

2C TOOL

The 2C tool is for high performance and large cutting volume.

BORE DIAMETER RANGE (I.D.): 100 mm - 810 mm (3.94 in. - 31.90 in.)*

* FOR DIAMETER SIZES BELOW OR ABOVE THE STANDARD RANGE, OR FOR SPECIALLY DESIGNED TOOLS, CONTACT YOUR SUNNEN FIELD ENGINEER.





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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