



SV-35

VERTICAL HONING MACHINES





Step and repeat functionality provides automatic bore-to-bore operation with the optional Servo X-axis.



Sunnen 2 HMI with intuitive 19" touch screen is simple for new operators to learn.



The two-stage hone head enables you to complete roughing and finishing without stone changes, for faster processing times.



SUNNEN'S SV-35 VERTICAL HONING MACHINE

Powerful, Rugged and Precise with New Sunnen2 Controls

The SV-35 Series is the next generation of the legendary Cylinder King® line of honing machines known worldwide. The SV-35 features the all new Sunnen2 control system designed in-house by engineers who are experts in honing applications. The machines offer a wide variety of features and flexibility in an affordable package ideal for contract machine shops, automotive performance and rebuilding shops, and mid-volume industrial production facilities. There are three new standard SV-35 models with varying options assuring the right fit for virtually any applications. Depending on the model, the SV-35 series includes such features as:

- Constant crosshatch finish is maintained throughout the bore from top to bottom, with no rollover, via the synchronized servo spindle and stroker mechanisms.
- Step and repeat functionality provides automatic bore-to-bore operation with servo X-axis and new GH LF series tooling.
- Tool protection at both top and bottom of the bore.
- Rugged cast iron column.
- Intuitive, easy-to-use Sunnen2 controls with a large 396.00 mm (15.600 in.) color touch screen.
- Proven servo ball screw stroking mechanism.
- CE compliant safety system standard on all models.
- All models feature Beckhoff industrial controls with Sunnen2 software.
- For applications not requiring a high level of automation, the base SV-35 is equipped with manual column movement.
- Backed by Sunnen's best in the industry 3-year parts and labor warranty and our extensive global field service support team.

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



The SV-35 Drives Diamond and CBN Abrasives in Production, Job and Performance Shops

STANDARD & OPTIONAL FEATURES

- Variable speed 50-600 rpm, 3.4 kW (4.55 hp) servo spindle motor is powerful enough to drive two-stage, metal-bond, diamond and CBN abrasives for short cycle times with high accuracy and minimal labor.
- Heavy-duty cast iron column.
- The front loading design and weight capacity of up to 600 kg (1325 lbs.), including fixture, combine for versatility in honing a wide range of parts.
- PC-controlled with a large 396.00 mm (15.600 in.) color touch screen that is rugged and eliminates cumbersome buttons that collect oil, dirt and grime. The swiveling operator panel can be adjusted for viewing from a variety of positions.
- Servo or manual driven X-axis allows left/right positioning of the column with 813.00 mm (32.000 in.) range.
- Servo rotary tool feed system can be used with two-stage hone heads to complete roughing and finishing without stone changes for faster processing times. Rough-to-finish changeover is four times faster than previous models.
- Proven 3.5 kW (4.7 hp) servo ball screw stroking system allows for increased flexibility and performance.
- Heavy-duty welded base for durability.
- Standard LED work area lighting.
- Standard 206 liter (55 gallon) internal coolant system is equipped with two canister filters on the side of the machine, for ease of maintenance, and provides increased coolant filtration for precise surface finish. Includes filter status indicator.
- Standard state-of-the-art CE compliant safety features include interlocked sliding front panel, side and rear panels, front mounted light curtain, safety PLC, and safe limited setup speeds.
- Optional OPC-UA interface allows access for remote process monitoring.
- Standard PC uninterruptible power supply (UPS) eliminates unsafe shutdown of control system and ensures a safe start-up.

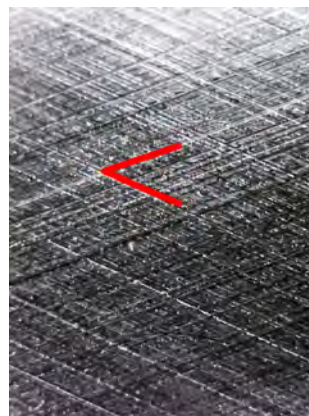




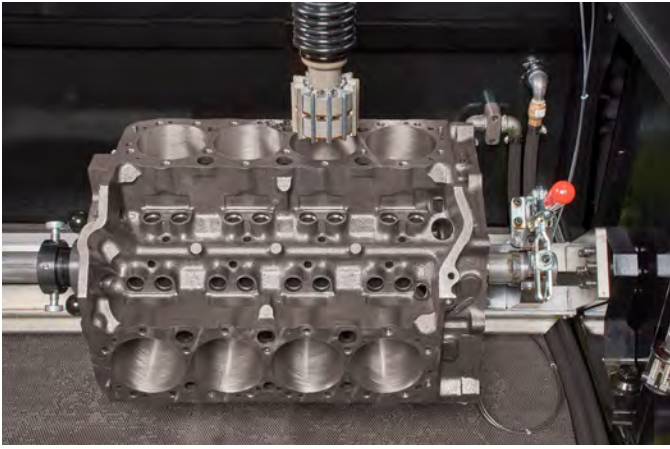
NEW SUNNEN2 CONTROLS

Increased Precision, Consistency, Productivity and Quality at Your Fingertips

- **Windows®-based PC touch screen control system** – coupled with servo tool feed provides optimum process control with ease of set-up.
- **Intuitive touch screen** – ensures new machine operators are quickly trained. Setup time is minimized.
- **Crosshatch control** – Enter desired crosshatch angle and the Sunnen2 controls automatically adjust spindle and stroker speeds continuously to achieve constant crosshatch angle throughout the bore.
- **Full bore profile display** – projects a real-time display of the bore cross section that simplifies removing taper from the bore ... allows user to dwell in the exact position as long as necessary where bore is visually smaller – a Sunnen innovation.
- **Tool Protection** – automatically checks the top and bottom of the bore prior to starting the cycle.
- **Rough and finish cycles** – rough cycle removes stock fast and can be set to automatically switch to finish cycle for optimum bore geometry and for the desired crosshatch angle.
- **Standard programmable Auto Dwell for unattended operation** – the machine automatically dwells in the tightest part of the bore – top, middle or bottom.
- **Bore Oversize Setup** – allows for fast setup for engine rebuilders in standard oversizes (Example: 0.010 in., 0.020 in., 0.030 in.).
- **Screen selectable languages** – English, German, Spanish and Chinese are included.



The new Sunnen2 controls on the SV-35 allow for a consistent crosshatch surface finish from the top to the bottom of the bore.



The SV-35 features Sunnen's Innovative Step and Repeat Capability

The SV-35 Series is capable of labor saving, automatic bore-to-bore operation (step-and-repeat) when equipped with a servo X axis. Models are available for both in line and V-block configurations. For V-block automatic operation the servo rollover cradle is required. This incorporates an innovative fixturing system to keep the tool and bore centerlines aligned. This feature requires use of the GH LF series of tools.

MACHINE OPTIONS INCLUDE

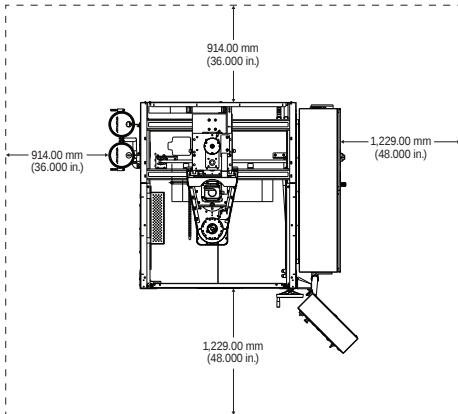
- T-slot base plate for custom fixturing.
- Heavy-duty Manual Rollover Cradle for engine blocks accommodates in line and 60°/90°/120° V-type blocks. Special configurations are available. (pictured above). Both above options allow easy change over from cradle to T-slot.
- Block Clamp Kit
- Automation PLC
- 208/230 VAC Transformer
- OPC-UA Connectivity

SV-35 Work Area and Dimensions

Overall machine height:
2,853.00 mm
(112.300 in.)

Overall machine width, side:
1,914.00 mm
(75.400 in.)

Overall machine width, front:
2,270.00 mm
(89.400 in.)



NEW SV-45 Hone Larger Parts Without the Extra Cost of a Larger System

The SV-45 is almost identical to the SV-35 but with an extended stroke length up to 1,143.00 mm (45.000 in.). Ideally suited for large cylinder liners and aerospace parts between 762.00 mm (30.000 in.) and 1,143.00 mm (45.000 in.) of stroke but do not need to go up to the larger SV-3460 with its 1,524.00 mm (60.000 in.) stroke capability.



Specifications

SPINDLE SPEED

50 to 600 RPM

SPINDLE POWER

3.4 kW (4.55 hp)

STROKER

3.5 kW servo (4.7 hp)
Variable speed: 5 to 100 SPM
Stroke Length: up to 1,143.00 mm (45.000 in.)

CARRIAGE TRAVEL

813.00 mm (32.000 in.) left/right travel available (X axis)

MAXIMUM WORKPIECE AND FIXTURE WEIGHT

600 kg (1,325 lbs.)

WORKPIECE ENVELOPE

1,219.00 mm W x 760.00 mm D (48.000 in. x 30.000 in.)

HONING FLUID/FILTER SYSTEM

Must be ordered separately

VOLTAGES AVAILABLE

400 VAC 50 Hz 3 phase
460 VAC 60 Hz 3 phase

STANDARD SV-45 MODELS

Only the standard SV-45 and SV-45X, without the step and repeat function, are available at this time.

Tooling for any Application

You get many tooling choices with the SV-35. It allows you to choose the exact tooling and abrasive to meet your specific production requirements and will use the same Sunnen tooling you've come to depend on. Sunnen is the only full-line company that produces its own precision honing abrasives. And with the largest variety of diamond or CBN superabrasives and aluminum oxide or silicon carbide conventional abrasives, you are assured of the most exact and consistent surface finish in the industry.

NOTE: All of the tools at right, are available for use in all SV-35 models unless using step and repeat. The GHSS LF Series and GHTS LF Series tools have been specially designed for use with the step and repeat feature.



Sunnen Abrasives and Lubricants

From aluminum oxide to silicon carbide to diamond and CBN, Sunnen offers 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 consistent and precise honing performance available.

Sunnen's premium honing oils and coolants provide extreme lubricity for higher honing pressure and harder abrasives, delivering faster cutting rates, longer abrasive life, lower cost-per-part and ultimately more profits.

GHSS/GHTS TOOLING

Sunnen's GHSS/GHTS multi-stone tools are designed for use with metal bond CBN and diamond abrasives for fast cutting action and reduced cycle times. Sunnen's Plateau Honing Tool (PHT) brushes work in these tools to provide consistent plateau finishes. The GHTS is a two-stage tool that performs both rough and fine honing operations (stone or brush) within the same honing tool – without changing stones – to reduce your bore sizing costs.

Bore Diameter Range*:

GHSS: 37.59 mm to 140.71 mm (1.480 in. to 5.540 in.)

GHTS: 62.00 mm to 140.70 mm (2.440 in. to 5.540 in.)

DH-SERIES DIAMOND HONING SYSTEM

Sunnen's Diamond Honing System features multi-point cutting action that spreads out force for faster, rounder bores and greatly improves productivity and performance. Three different tools cover the size range. An excellent choice for blind bores or ported cylinder heads.

Bore Diameter Range*:

70.00 mm to 139.70 mm (2.750 in. to 5.500 in.)

SUNNEN CK/CV-TYPE TOOLING

Industry standard CK and CV-Type tools cut fast and are rugged, economical and easy to use. They have a large range, and the stones can be changed in seconds. Bores are finished faster and more accurately with minimum stock removal.

Bore Diameter Range*:

51.00 mm to 203.00 mm (2.000 in. to 8.000 in.)

P20/P28 MANDRELS

These mandrels incorporate multiple stones aligned end-to-end to allow for long bore honing, with the P28 accommodating blind bore honing as well. Both P20 and P28 mandrels have replaceable abrasives and guide shoes. Requires CV-1010 adapter.

Bore Diameter Range*:

P20: 19.00 mm to 25.40 mm (0.750 in. to 1.000 in.)

P28: 25.15 mm to 152.40 mm (0.990 in. to 6.000 in.)

MPS/ANR MODULAR TOOLING

The MPS and ANR Tooling System can be used to convert any big work honing machine into a state-of-the-art bore finishing system. Allows you to hone a wide variety of materials, sizes and bore conditions quickly and economically.

Bore Diameter Range*:

MPS: 50.00 mm to 292.10 mm (1.980 in. to 11.500 in.)

ANR: 64.00 mm to 533.00 mm (2.500 in. to 21.000 in.)

* Bore diameter ranges are for the standard tool series. Special tools are available to extend this range but may be beyond the size capability of the machine.

Technical Specifications

SPINDLE SPEED	50 to 600 RPM
SPINDLE POWER	3.4 kW (4.55 hp)
STROKER	3.5 kW servo (4.7 hp)
Variable Speed:	5 to 100 SPM
Stroke Length:	Up to 705.00 mm (27.750 in.)
Servo X Axis Models:	0.8 kW (1.07 hp)
CARRIAGE TRAVEL	813.00 mm (32.000 in.) left/right travel available (X axis)
MAXIMUM WORKPIECE AND FIXTURE WEIGHT	600 kg (1,325 lbs.)
WORKPIECE ENVELOPE	1,219.00 mm W x 760.00 mm D (48.000 in. x 30.000 in.)
MACHINE WEIGHT	
Dry Weight:	1,329 kg (2,930 lbs.)
Shipping Weight:	1,823 kg. (4,020 lbs.)
HONING FLUID/FILTER SYSTEM	
Honing Oil Reservoir:	206-liter (55-gallon) capacity with two standard canister filters.
VOLTAGES AVAILABLE	
Electrical System:	400 VAC 50 Hz 3 phase 460 VAC 60 Hz 3 Phase
STANDARD SV-35 SERIES MODELS	
SV-35:	Manual X axis
SV-35X:	Servo drive X axis, step and repeat function – in-line blocks
SV-35AX:	Servo drive X axis, Servo rollover cradle, step and repeat function – V-block

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