

ML-2000 SPECIFICATIONS

Note: Models available for both metric (SI) or inch (USCS) usage. Please specify when ordering.

Diameter Range (ID):

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)

Pump Motor:

.22 kW (1/3 HP)

Coolant Pump:

11.2 Liters/Minute

(3 Gallons/Minute)

Coolant Capacity:

106 Liters (28 Gallons)

Coolant Filtration:

Standard: Sediment Tank

Option 1: PF-150 Cartridge Filter

Option 2: Integral Cartridge

Filter Tank

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.) Coolant Cart Weight (Dry):

110 kg (250 lbs.)

Power Requirements:

3-Phase, 50/60 HZ (maximum

current load 17.5 amps) 230V, or

3-Phase, 50/60 Hz (maximum

current load 10 amps) 400V.

Optional 460V to 230V

transformer available.

Pneumatic Requirements:

5,5 Bar (80 psi)

† Contingent on application

* Floor space and weight of ML-2000 dependent on optional fixturing system ordered.

Optional Equipment:

(order as needed)

• EC-4500 Automatic Size Control

• EC-4485 Gage Bracket

• PF-150 Coolant Filtration System

• Cartridge Filter for PF-150

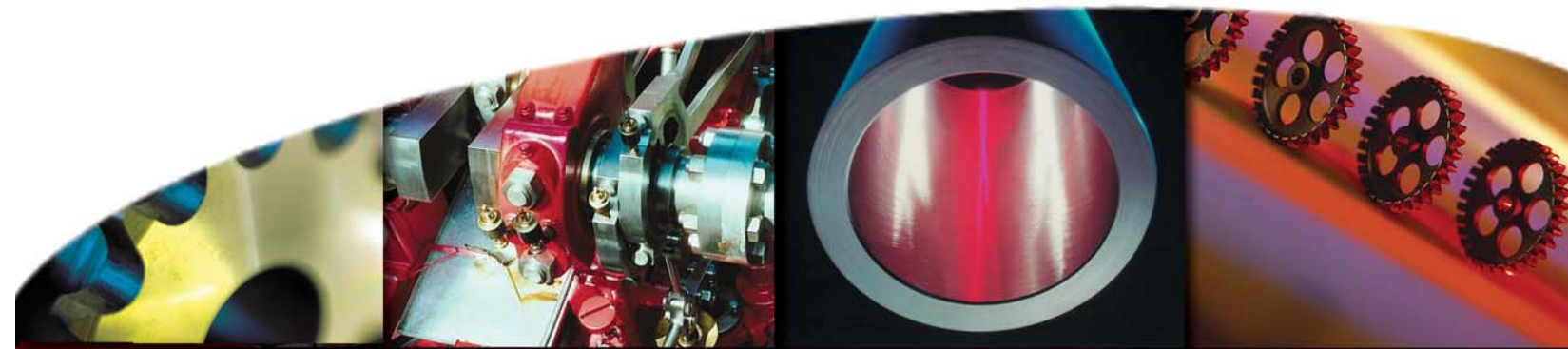
• Integral Cartridge Filter Tank

Order ML-; ()F

• Custom Workholding Fixtures



SUNNEN
ABOVE AND BEYOND HONING



ML-2000

POWER STROKED HONING MACHINE



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THE ML-2000 TAKES POWER HONING TO A NEW LEVEL OF EFFICIENCY AND PERFORMANCE.

MULTIPLE LAND AND TANDEM BORES

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 ML-2000, you can eliminate preliminary reaming, boring or grinding on many jobs.

Run All Kinds Of Parts – The ML-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.

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HEAVY OR ODD SHAPED PARTS

THE ML-2000 HAS FEATURES THAT MAKE JOBS PRECISE AND EASY

For superior high-performance, high-production bore sizing and finishing, the new Sunnen ML-2000 is extremely easy to setup and operate – even an inexperienced operator can run the ML-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 ML-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 better bore geometry, a desirable oil-bearing cross-hatch finish and longer tool life.

Another major benefit of the ML-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 ML-2000 is truly a profitable alternative.



KEYWAYS OR SPLINES

BLIND END BORES

THINWALL PARTS



A variety of workholding fixtures are available for use with the ML-2000. The Universal Honing Fixture (shown left) 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.

Automatic Size Control (optional) - 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.

Low-cost, Adjustable Probes - 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.

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).

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.

Electronic Control System - Vertical control panel allows easier use. There are no exposed contacts or switches to maintain. A sealed control box, completely outside the work area, protects circuitry from dirt and coolant.

Advanced electronic components designed to international standards assure reliability of sensing and switching circuits. The microprocessor control interfaces easily to automation.

Detachable Coolant Cart - The unique coolant reservoir is mounted on casters so it can be rolled out to provide room for stroking long parts. It is a self-contained unit with all the components a freestanding unit would have. By purchasing an additional coolant cart, coolant types can be switched in minutes without draining and refilling the unit.