

VSM-95

One, Two or Four-Spindle, Vertical Scanning Precision Induction Hardening Machine

Features/Benefits:

- Scan hardens cylindrical parts up to (80 in./2030 mm) long with weights up to (300 lbs./135 kg on single spindle) (400 lbs./180 kg max. total)
- Single or dual position tooling for optimum machine usage
- Easily adapts to most heat stations
- User friendly controls simplify set-up, changeover and trouble-shooting, includes PLC with industrial computer operator interface
- Pre-plumbed integral quench system for a controlled, clean quench
- Multiple operating modes are easily selected for maximum application flexibility
- High speed index capability for exceptional productivity

Self-Contained Quench System

A completely pre-plumbed, self-contained quench system features a plate and frame water-to-water heat exchanger for low plant water demand and easy cleaning. A bronze fitted integral pump motor combination eliminates alignment problems. The quench tank has epoxy coated surfaces for long life. A four outlet quench manifold allows the user to balance each line separately for uniform quench impingement. A suction strainer and in-line basket strainer with dual filters assures a clean quench.



Rugged Production Hardening System

Integrating our experience and technology has paved the way for developing this precision vertical hardening system (VSM-95). The outstanding rigidity of our design results in repeatability of better than $\pm .002$ in. Heavy-duty hardened and chrome plated shafting with bearing seals, wipers and scrapers means long life and low maintenance. In addition to scanning, our flexible system performs a variety of static applications such as single shot hardening, tempering, annealing and gear hardening. The standard low maintenance, large servo allows a high speed index without sacrificing slow speed accuracy for increased productivity. The standard available model includes many special mechanical features with a wide variety of options to expand the application range including a second work station.

Programmable For Maximum Flexibility

The standard VSM-95 has a programmable logic controller (PLC) based closed-loop servo control. Individual 36 step part process program controls position, power level, dwell time, scan speed, rotation speed and quench on/off. It also features a real time display of process parameters. The control cycles automatically through intermittent heating and quenching times at selected scanning speeds. It is easily reprogrammed for static and lift-and-rotate applications. To further simplify set-up, the upper tooling carriage can be adjusted up/down without tools. Options are available for even more versatility. See our option sheet, Bulletin HT-45 OP, for details.

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SPECIFICATIONS:

Scanning Distance	Models available to scan part lengths in 10 in. (250 mm) increments from 30 in. (760 mm) to 80 in. (2030 mm) depending on tower size.
Workpiece Capacity	Standard models available for maximum part lengths in 10 in. (250 mm) increments from 34 in. (860 mm) up to 84 in. (2130 mm) depending on model.
Spindle Rotation	DC variable speed 0-350 RPM / 10 in. (255 mm) centers
Quench Systems	Integrated, water-to-water plate flow heat exchanger with integral pump/motor combination. Dual, four-port outlet quench manifolds, balancing valves with air operated solenoid valves, digital temperature controller, quench heater, and pressure gauges.
Scanning Speed	User-selectable from 0.01 in./sec - 8.0 in./sec (1 mm/sec - 200 mm/sec)
Controls	Programmable Logic Controller (PLC) based closed-loop servo control with individual 36-step part process program controlling position, power level, dwell time, scan speed, rotation speed and quench on/off. Real-time display of process parameters.
Program Entry	15" LCD color touchscreen operator interface utilizing onscreen numeric keypad. Programs stored offline can be loaded to the machine via a panel mounted USB port.
Program Storage	Part process programs are stored on the operator interface industrial computer with no practical limit on the quantity.
Workpiece	300 lbs. (135 kg) on single spindle or 400 lbs. (180 kg) max. total.
Workpiece Loading	Manual load/unload through sliding door.
Shipping Weight	Approx. 6500 lbs. (2950 kg).
Plant Water Requirements	85°F max. (30°C) Flow depends upon the model and size of the power supply.
Safety Features	Inductor ground sensor. Travel limits. Heavy-duty aluminum splash door with safety switch.
Options/Accessories	See option sheet HT-45 OP, for an extensive list of the latest available options and accessories.

* Specifications are subject to change without notice.



Low distortion camshaft hardening with 25kHz power



Uppers centers adjustable without tools



PLC Control / PC HMI operator touch screen



ISO 9001:2000 Certified