

# HardLine® VL 1000



HardLine VL vertical induction hardening systems are designed for high-throughput hardening of shafts, bars, racks, tubes, axles and gears. Used by some of the world's most demanding manufacturers, the HardLine VL range of hardening systems delivers speed, reproducibility and uptime. Some of the main benefits to you are:

#### **High throughput**

Short heating and quenching cycles, quick loading/unloading systems, and tried-and-tested components work together to ensure high throughput rates.

#### **Easy in-line integration**

All HardLine VL systems are ideal for integrating into existing or planned production lines.

#### **Lower capital costs**

A single HardLine VL system can handle a spectrum of workpiece dimensions, reducing your need for dedicated machines.

#### **Improved operator productivity**

Smart ergonomic design and easy-to-use control interfaces help maximize operator productivity.

\* The system shown is for illustrative purposes only.



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## PRODUCT FEATURES

### Advanced CNC controls

All HardLine VL models feature an advanced CNC system. Functionality can be expanded by adding options such as network connections, printing protocols and database capabilities. All EFD Induction HardLine VL models use absolute encoders that eliminate time-consuming system referencing otherwise needed on start-up.

### Proven power supply

All HardLine VL systems are powered by EFD Induction Sinac power sources, available in parallel or serial compensated versions. Extremely energy efficient, the Sinac features a diode rectifier with a constant power factor of 85-87% from input at the rectifier to output at the coil, and automatic load matching to help ensure full output power. A Sinac can offer programmable multiple-frequency switching. This means the Sinac will automatically switch between frequencies in order to achieve different heat penetration depths in a single workpiece.

### Best-in-class coils

The coils and tooling in HardLine VL systems are custom-built for specific materials and applications. We also offer comprehensive after-sales support to maximize coil lifetimes.

### Range of options

The HardLine VL supports a range of optional subsystems, including: automated loading/unloading solutions, indexing tables with unlimited position control, double tailstocks and centres for the simultaneous hardening of two workpieces, a HF/MF chuck connection for quick changeovers between high and medium frequencies. The HardLine VL can also be paired with an integrated or separate tempering station.



*Flexibility to suit your needs—this indexing table on a HardLine VL 1000 system can be manually or automatically loaded.*

## TECHNICAL DATA

### HardLine VL 1000

Model type	1000.2x1
Scanning capability (Z) mm	1000
Motion capability (Y) mm	500
Weight capability (kg)	1000
Max. part dia (mm)	1200
Max. part length (mm)	1000
Max. scanning speed (mm/s)	300
Rotary table	1500 mm, Optional 2x satellites 350mm
Control system	Siemens 840D

Subject to modification

## APPLICATIONS AREAS

The HardLine VL is typically used to harden shafts, bars, axles, pins, gears and bars, quite often for the automotive industry.