

HardLine[®] heat treatment machines

Introducing the HardLine Hybrid horizontal hardening machine

Two machines in one

**THE WORLD'S FASTEST AND MOST FLEXIBLE
HORIZONTAL HARDENING MACHINE**



HardLine Hybrid HH 600

The HardLine Hybrid combines a pusher machine (HP) and a continuous loading machine (HC) into one single machine. The system is modular, so the same machine can be used as HC only, HP only, or have both HC and HP assemblies installed. This means two functionalities in the same machine.

The Hybrid machine can handle workpieces lengths from 50 to 600 millimetres, and diameters of 5 to 50 millimetres. Optionally, a loading magazine—which can be easily adjusted to suit the workpiece—can be delivered. Rejects are automatically separated and the scrap parts are separated from the main flow.

Hand wheels (with or without electronic distance measuring) allow quick and easy change-overs between workpiece groups, and because of the new design, it is even simpler.

Optionally, the machine can be set up automatically by stepper motors. At the push of a button, the machine can be adapted to a new work piece size, taking just seconds to adjust.

The redesigned machining area door will improve the accessibility, ergonomics and safety of the machine.



MODULAR:
*With EFD Induction's unique modular system,
we can deliver two machines in one framework.*

Lower capital investment

A HardLine HH system can handle a wide range of workpiece dimensions and types, reducing the need for dedicated machines. Having both HC and HP in one versatile unit reduces the cost with a minimum set-up.

Easy to set up

The HardLine Hybrid can be very easily set up for a new workpiece type. Due to its numerous automatic systems, the set-up time is greatly decreased, taking only seconds.

Customizable

The new design allows both basic (manual) or comfort (automatic) options to be used. Every functional assembly lets you choose your level of comfort.

New design and ergonomics

The machine has a new look and is more operator friendly with improved operator accessibility and ergonomics; smart ergonomic design and easy-to-use control interfaces; larger window panels on the redesigned door and easy-to-access components.

High, safe throughput

High scanning speed, quick loading/unloading systems and proven components work together to ensure high throughput rates. The rejection separation allows working without stops.

Option: Coil protection with ground fault detection plate.

HardLine Pusher HP 600 and HP 1200

The high throughput Horizontal Pusher (HP) machines are ideal for plain shafts requiring precise hardening. Standard pusher systems can handle workpieces up to a maximum length of 600 or 1200 millimetres, and diameters of 5 to 50 millimetres.

The HP models are also available with twin pusher feeds that effectively double the throughput. A loading magazine is standard on all basic HP systems. Unloading is via a V-guide, and the horizontal feed is

powered by a CNC controlled servo-motor. Hardened rollers with stainless steel bearings rotate the workpieces.

The heating and quench areas are completely enclosed. The central lubrication system is manually operated.

In special cases, workpieces up to 6 metres can be treated. The horizontal pushers are also available with twin pusher feeds that effectively double the throughput.

HardLine Continuous HC 300 and HC 600

With throughput speeds of up to 10 metres per minute, our Horizontal Continuous (HC) hardening systems offer unrivalled productivity, particularly when integrated into production lines. HC systems are available for workpiece lengths of 300 or 600 millimetres, and diameters of 5 to 30 millimetres.

Standard HC machines feature a conveyor belt with inlet and automatic speed control. The workpieces are rotated by hardened rollers with stainless steel

bearings. The heating and quench areas are completely enclosed. Rejects are automatically separated. Hand wheels allow quick and easy changeovers between workpiece groups.

A discharge belt with jam control is also available. This optional feature stops the machine should the workpieces not be able to exit. Once the workpieces can exit again, the feature automatically restarts the machine.



Options and controls for maximum productivity

Each HardLine horizontal heat treatment HC/HP/HH machine can be fitted with various options to adapt the machine to your specific process requirements.

Options

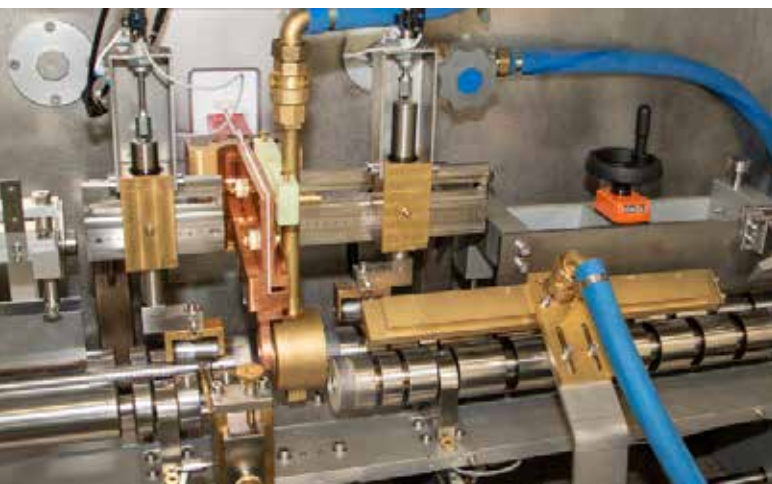
- Automated loading solutions that increase throughput and enable integration of the hardening machine into a production line.
- Reject chutes that help maximize throughput by maintaining production while safely separating rejects.
- Automatically configurable machine for a new set of work parts that greatly reduces set-up time. By using motors and stored recipes, the machine can automatically configure itself for different types of workpieces.
- Various automatic solutions or software configurable: Positioning motors, variable pressure force for part holders, rotation speed of the quenching pump, proportional valves.
- Many improvements come as standard: New splash guard door design, high performance processing units, easy and fast setup of the machine.

Controls

All horizontal machines are based on cutting edge technology. Major improvements include new PLC family, new motor drives, new 15" TFT touch screen display, ProfiNET network usage, IO-Link technology (instead of analog signals) and safety integrated system.

Standard EFD Induction continuous machines feature a high-speed control solution with a reaction time of only 1 μ s. An ultra-accurate sensor—which is easily mounted in front of or behind the inductor—detects the workpiece edge and controls the hardening program. This enables safe and reproducible heat treatment of completely plain shafts without journals, even with narrow hardness tolerances at high line speeds.

The control terminal is easy-to-use, featuring a 15" Thin Film Transistor (TFT) touch-screen, multilingual displays and online documentation.



**ALL OUR HORIZONTAL
HARDLINE MACHINES
ARE POWERED BY
EFD INDUCTION
SINAC CONVERTERS.**

PRECISION: Inductor-quench-unit with quick-change connection.

Boost productivity with HardLine heat treatment machines

Reliable, consistent solutions that will help you increase and improve production.

High throughput and consistent heating outcomes are essential when heat treating bars and shafts. EFD Induction's HardLine horizontal heat treatment systems are field-proven solutions that deliver short cycle times, reproducibility and the reliability needed when mass producing steel bars and shafts.

Available in Horizontal Continuous (HC), Horizontal Pusher (HP) and Horizontal Hybrid (HH) versions, these systems are used by many of the world's leading manufacturing companies.



Global reach, local presence

When you choose a HardLine heat treatment machine you choose security and peace-of-mind. Equipment from EFD Induction is supported by a global network of factories, workshops and offices. Wherever you are, after-sales service and support is never far away. You can also benefit from our program of operator training courses to help you make the most of your system.

Visit our website to learn more about EFD Induction and our solutions that are boosting productivity for companies around the world.

www.efd-induction.com



PUTTING THE SMARTER
HEAT TO SMARTER USE