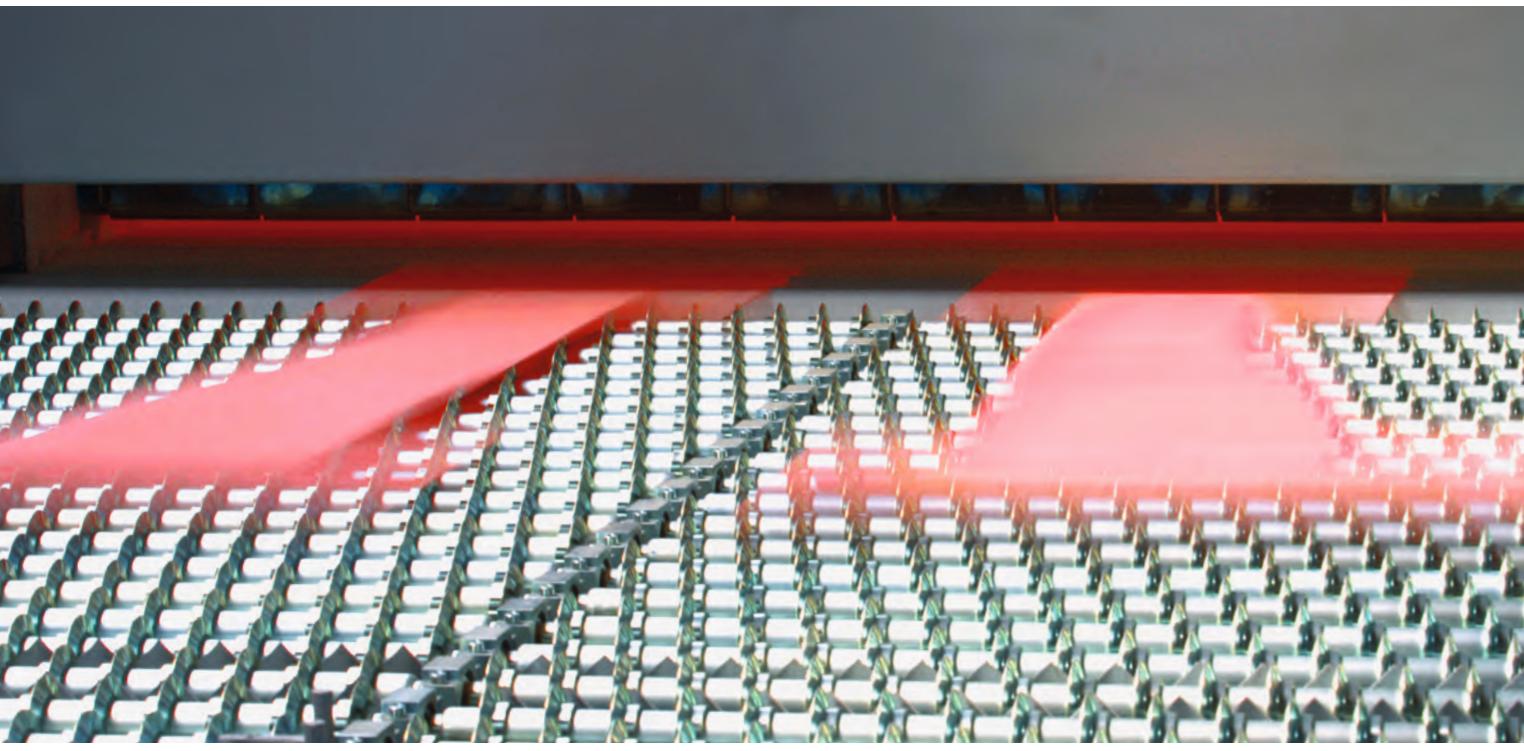




**Customized
heat treatment systems for
press hardening**

schwartz heat treatment equipment – as unique as your production line



Innovation based on vast experience

Ever since schwartz was founded in 1984, we have been building heat treatment systems tailored to our customers' specific production requirements along with the associated handling equipment, as well as offering specialist customer support services.

Working with a customer in a partnering spirit is always our key priority. From the first enquiry through system development, delivery and commissioning to competent all-round after-sales support, we will serve as your competent and reliable partner worldwide. This enables us to fulfill our commitment to supply you with customized equipment that will perfectly support your production requirements.

Our specialty heat treatment systems for press-hardening applications are being successfully deployed in particular in the automotive industry (OEMs), its suppliers (tier 1, tier 2) and the steel industry. We custom-design, build, and efficiently integrate all our systems into production lines all over the world.

To maintain our ability to fulfill your justifiably high quality and innovativeness demands, we place special emphasis on regular further training for our staff. As a result, our experienced engineers and technicians are characterized by their state-of-the-art technological expertise.

schwartz heat treatment systems for press-hardening applications not only match your specific production needs but also combine dependability with high uptimes and low energy costs.

schwartz heat treatment equipment – your productive advantage



All schwartz heat treatment systems are characterized by high uptimes, low maintenance costs, and the ability to accommodate variable product dimensions.

In particular, our specialty heat treatment systems for press hardening give you field-proven technology that has been intelligently designed down to the very last detail for optimized production processes. In this way, they help you achieve high overall equipment efficiency (OEE) and maximized uptime.

Sophisticated technology as standard

One particular quality feature of our heat treatment systems for press-hardening lines is the wide range of individually adjustable parameters. This versatility ensures your heat treatment can be quickly and easily adapted to changing production needs.

With the opening of the furnace door precisely matched to cycle times, our equipment offers optimal energy efficiency, while high-grade insulation ensures maximum heat utilization.

Highly precise temperature control and monitoring plus infinitely variable roller conveyor speeds make it possible to adapt your process to varying blank dimensions. If required, your system can be supplied in a CQI-9 compliant version.



Tailor-rolled and -welded blanks

Programmable temperature profiles enable blanks of different material thickness to be heat-treated as well.

Monitoring devices in the entry section prevent double blank loading. After an unscheduled stop, the movement of blanks through the furnace is automatically resumed, which further enhances system uptime.

In the product unloading area, an optimized roller drive arrangement supports cycle times of less than 10 seconds. Specially designed steel rollers ensure a uniformly high temperature of the heated blanks. The blank centering units are maintenance-friendly and the lifters provide enough space for gripping each blank. As blanks exit the furnace at conveyor speeds of over 2,000 mm/s, they are centered quickly yet accurately for a shorter time in air. On request, we can also supply fully automatic blank lifting devices with individually controllable lifter blades.



**We offer customized heat treatment systems
for press hardening:**

- Design diversity, e.g. vertical or horizontal twin-type or single line
- Operable under normal atmospheric conditions, dried air, or protective gas
- Suitable for heat treatment of coated and uncoated blanks
- Gas or electric heating, or a combination of both



Clean conveying rollers for long lifetimes
Our ceramic rollers are finished with a special coating we exclusively developed in cooperation with the Technical University of Aachen (RWTH). As a result, roller contamination with molten AlSi is greatly reduced and the lifetime of a roller is significantly extended, providing regular maintenance is carried out.

Our patented roller bearing assemblies featuring a particularly heat-resistant lubrication and custom-developed flushing system come with a 24-month warranty.

schwartz press hardening systems – tailored to your needs



The right choice for all heating methods

Depending on your specific requirements, we supply heat treatment systems with gas, electric or hybrid (gas/electric) heating to ensure you get the most cost-efficient process.

Gas-fired systems

Gas-fired systems can burn natural gas or liquefied gas. As a general rule, these systems feature recuperative burners with fuel efficiencies of up to 75%. Burners with a higher efficiency (up to 85 %) are available on request.

Electric heating systems

Such systems are heated by means of heat-resistant wire coils wound onto ceramic support tubes arranged above and below the furnace roller conveyors. An indirect (and thus mechanically protected) electric heating system is optionally available.

The optimized arrangement of the heating elements ensures uniform temperature distribution and high efficiency.

If required, the electric heating system can be controlled via clock-pulsed thyristors to enable a homogeneous temperature control of each individual heating zone.

Try-out systems

To meet your die try-out heat treatment needs or for small production runs we can supply various electrically heated chamber furnaces (including multi-layer chamber furnaces) fitted with a matching automatic loading and unloading capability.

Commissioning with all-round expert support

Needless to say, we will help you install the equipment at your production site. Our experienced crews will ensure your new schwartz heat treatment system is integrated into your production line quickly and smoothly. Moreover, they will expertly program the interfaces with upstream/downstream equipment so that the heat treatment system performs perfectly right from the start.



The right solution for any atmosphere

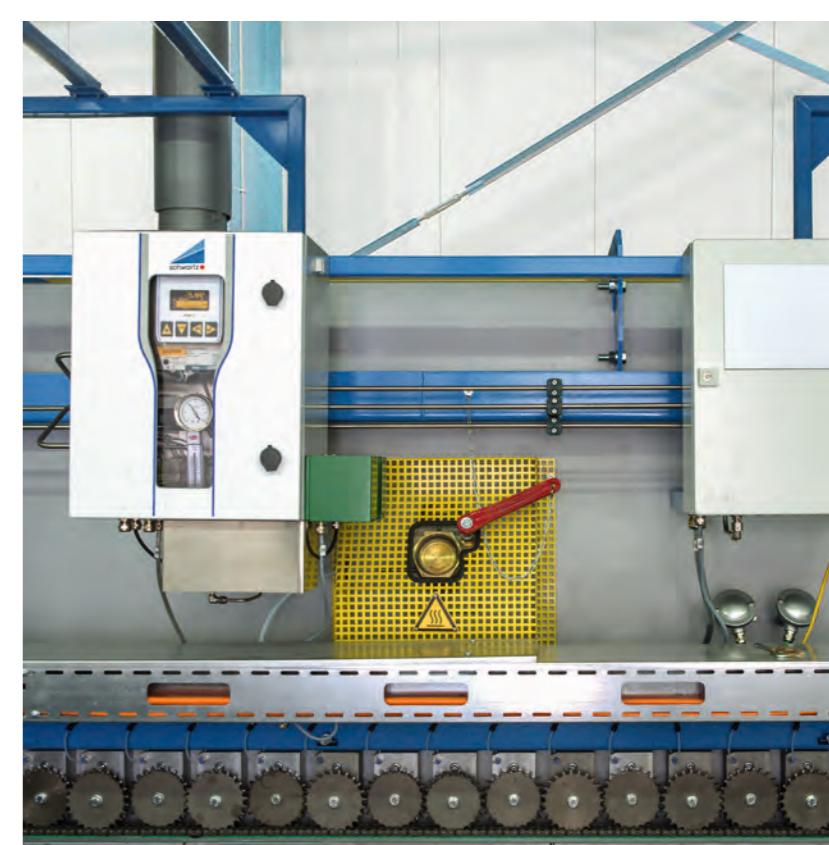
Banks can be heat-treated in various atmospheres. Regardless of whether you are using AISI or zinc-coated or even uncoated blanks, we can supply a furnace that provides just the right atmosphere.

In addition to normal air, heat treatment can take place in an atmosphere of inert or reactive gases or dried air. The supply of protective gas into the furnace is automatically controlled. Any gas escaping at the entry and exit ends of the furnace is extracted away.

State-of-the-art in-furnace dew point measurement and control

The risk of hydrogen-induced cracking associated with the heat treatment of AISI-coated blanks (as a result of hydrogen inclusions in the product) can be substantially reduced by running the furnace in a dried air atmosphere.

To this end, our equipment comes with a newly developed laser-based dew point measuring and control system providing automatic dew point monitoring and control at several points in the furnace. The dew point measuring and control system is self-calibrating to minimize maintenance.



Scan the QR code to see the film about our heat treatment systems for press hardening.

Pinpoint accuracy: Individualized heat treatment



Thermal printing – tailored tempering

The thermal printing technology first implemented by our company allows two or more zones of different hardness and strength to be created in the same blank. Selective localized heat treatment yields distinct time-temperature curves in the various zones.

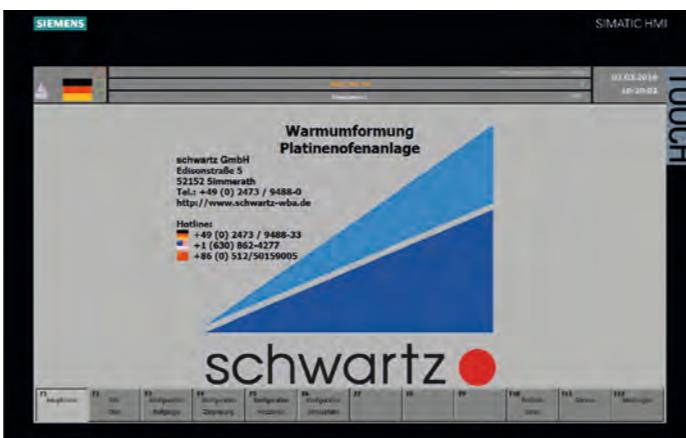
Beside the hard martensitic areas obtained by conventional press hardening, you can thus produce additional zones of different hardness and strength. This technique opens up a host of new manufacturing options.

Our thermal printing system is capable of delivering exceptionally narrow transition areas between the different temperature zones. Subsequent press hardening of the blanks can be performed with standard dies, eliminating the need for differently heated tooling. Unlike tailored tempering in the press die, thermal printing does away with long cool-down periods after the press.

We can build you a custom-designed thermal printer to perfectly match your schwartz heat treatment system.



Clever solutions for optimum process performance



Easy maintenance

Our goal is not just to help you achieve production excellence, but also to deliver a heat treatment system offering the easiest possible maintenance. To this end, our equipment for press-hardening lines embodies smart technology that enables you to handle any necessary maintenance quickly and conveniently.

Our systems offer various advantages, e.g. a furnace lid subdivided into individual sections that can be lifted quickly and easily by means of manual lifting devices. Motor-operated lifting units are optionally available as well. The lid segments require no storage or support area as they can be indefinitely held in the raised position. This design guarantees rapid cooling as well as a well-lit furnace interior.

Once the furnace has fully cooled down, it can be accessed easily and safely thanks to the wide furnace lid opening and a specially approved safety locking system.

State-of-the-art control software – ready for Industry 4.0

schwartz heat treatment systems are monitored and controlled via the latest Siemens PLC technology. Highly advanced HMI features make our equipment particularly straightforward and convenient to operate.

The application software is characterized by maximum user friendliness. The integration of all peripheral systems is the key to maximum equipment performance. A shared database facilitates the selective use of all operating, machine and process functions.

In addition, schwartz heat treatment systems support energy-efficient operations, e.g. through temperature reduction at weekends and special burner control technology.

Moreover, data interfaces for Industry 4.0 applications can be integrated into the controller. The control system features a fault diagnostics function developed specifically for schwartz heat treatment equipment. The diagnosis is displayed in the HMI system for seamless production management.

Selected references



FIAT CHRYSLER AUTOMOBILES



A growing number of renowned customers all over the world trust our product quality and high standards. As your dependable partner for innovative heat treatment

systems for press hardening, you can count on us to supply you with the right equipment and service to meet your needs.

The schwartz Group – close by worldwide: individual, competent and always accessible



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