

Range of Products

Inductive Heating and Hardening Systems

- Standard machines vertical
- Standard machines horizontal
- Standard machines rotary table
- Special systems linear
- Special systems rotary table
- Special systems for customer-specific applications

IGBT Converters with digital Inverter Control Unit

IGBT (transistor) converters with capacity sizes of 20 kW up to several 1,000 kW, with working frequencies of 5 Hz to 360 kHz

- Heating
- Melting
- Forging/forming
- Hardening/tempering
- Exchange of waste equipment/third-party devices

AFTER SALES SERVICE

- Competitive and competent service centre, guaranteeing a long-term, world-wide system service
- Effective conception with regard to spare parts and personnel training
- Optimised service and maintenance structure

Certified according to DIN EN ISO 9001:2000 and VDA 6.4

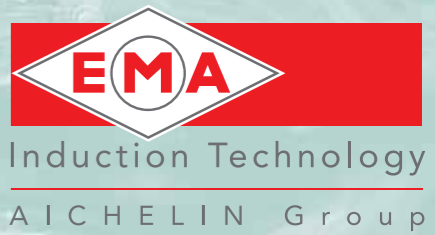


EMA Indutec GmbH
Petersbergstraße 9
D-74909 Meckesheim
Phone: +49 (0) 62 26 788-0
Fax: +49 (0) 62 26 788-100
info@ema-indutec.de
www.ema-indutec.com
www.aichelin.com

RELIABILITY AT WORK

EMA *line*

Special Systems for Inductive Heat Treatment



RELIABILITY AT WORK

EMA Indutec's special systems can be used for all common inductive procedures within the different range of application.

Procedure

- Stand-/rotation-stand
- Progressive-/spin-progressive
- Total surface
- Spin-progressive

Range of Application

- Surface hardening
- Stress-relieving/tempering/annealing
- Hardening and tempering
- Forging

EMA develops and supplies systems for complex components with several hardening and tempering zones. The equipping with a wide choice of work piece-handling systems (e.g. such as robots, portals, pick and place devices, magazines etc.) is available as options. EMA plants can be integrated into one production line, but can also be designed as autonomous stand alone solutions. Different versions are available: vertical, horizontal, round table, linear, drum or lifting bar.

The modular construction of our systems enable an ideal, individually tailored and reliable adaptation to the individual customer's requirements. A high level of system availability, reduced set-up requirements/tooling, etc. are achieved and hence a long-term investment security is ensured.

The combination of an energy-efficient and digitally controlled converter with a hardening system, both coming from the same

producer, offers the ideal and most economical solution with regard to the inductive hardening of work pieces of consistently high and reproducible quality. The control device is user-friendly, its operation comprehensible. The visualisation and documentation of all process-relevant parameters is effected via a multi-colour operation panel. Machine connection to Internet, Ethernet or modem and automation interfaces is possible.

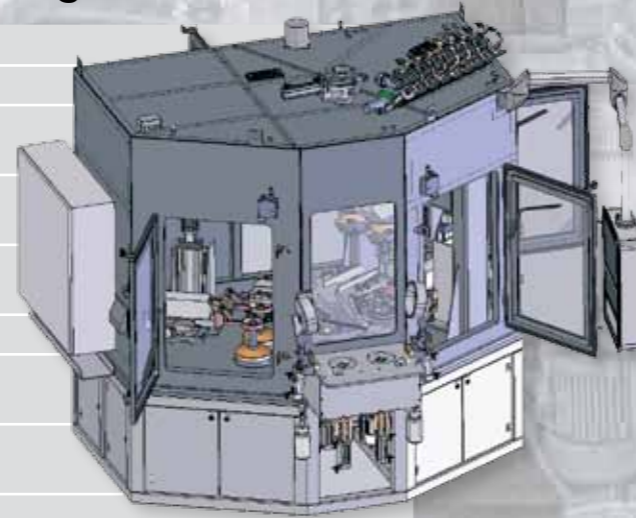
The examples below show a selection of a large number of possible plant concepts.

If you require further information, please contact us! We will certainly find the right solution for your application.

EMAline VELA

Inductive systems for the hardening, calibrating (fixture hardening) and tempering – also with protective gas – of rotation-symmetric components such as shift sleeves, clutch bodies, gear rings, bearings, inner and outer rings

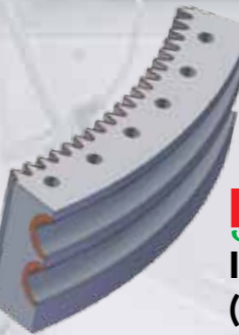
- Fully automatic machine with CNC control
- Dimensioned for large number of pieces
- Hardening process distortion reduced (concentricity, axial eccentricity, conicity < 0.05 mm)
- Work piece surface in low scale-formation by use of protective gas
- Individual measuring, placing and adjusting of the quench positions
- Water-polymer-solution as quench medium (no oil)
- Low protective gas consumption by adjusted inert gas housing construction
- Integrated tempering with shrinking off from mandrel (reduced tool wear)
- No or minor follow-up processing costs (e. g. for grinding or cleaning)



EMAline PAVO

Inductive systems for the hardening and tempering, quenching of steel bars, (round and square), steel pipes, threaded rods, threaded spindles

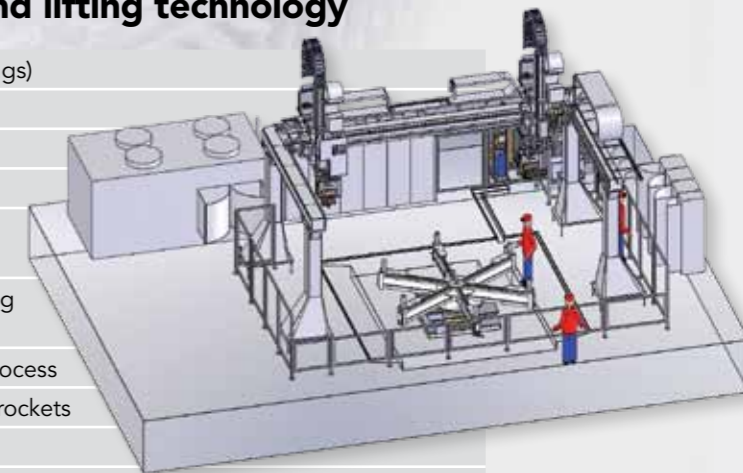
- Fully automatic horizontal machines with complete magazine technics
- Flexible converter technics for the compliance with different quality requirements
- High production capacity by continuously inline processes
- Reduced scale processing compared with furnace heating
- Different drive concept to optimize the distortion due to hardening
- Cost saving due to high energy efficiency (no reactive compensation)
- Short set-up times due to the use of quick change systems for tools



EMAline LIBRA

Inductive systems for the hardening of bearing races and gearings (sprockets) designed for gear boxes, wind energy plants, hauling or earth-moving machines and lifting technology

- Individual sprocket-, track hardening (one or double row bearings)
- Surface portal and panel stand solution
- Horizontal and inclined table for the intake of work pieces
- Fully automatic production process
- Electronic scanning device or cross slide for the inductor positioning during the hardening of individual sprockets
- Fully automatic track adaptation of the hardening or pre-heating inductor during track hardening (in two coordinates)
- Continued control of performance during the track hardening process
- Control of the energy flow during the hardening of individual sprockets
- Parallel hardening of two gaps
- Track hardening at high feeding speed and with important hardening depth
- Short set-up time when changing loads
- Reduced operating time and only little distortion compared with the traditional furnace heating
- Additional energy to reduce cycle time



EMAline AQUILA

Inductive systems for the hardening and tempering of single cam lobes made for cam shafts designed for cars and trucks

- Fully automatic indexing-table machine with loading via bunker magazine
- Work piece position- and type check via electronic camera
- High work piece throughput by optimized process run
- Cleaning, hardness test, crack test, signing can be integrated

