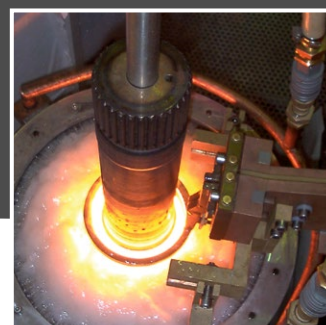
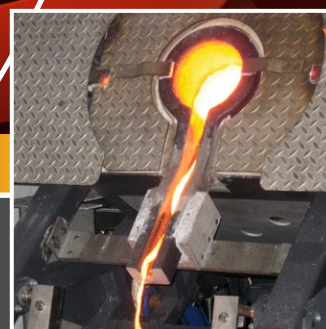
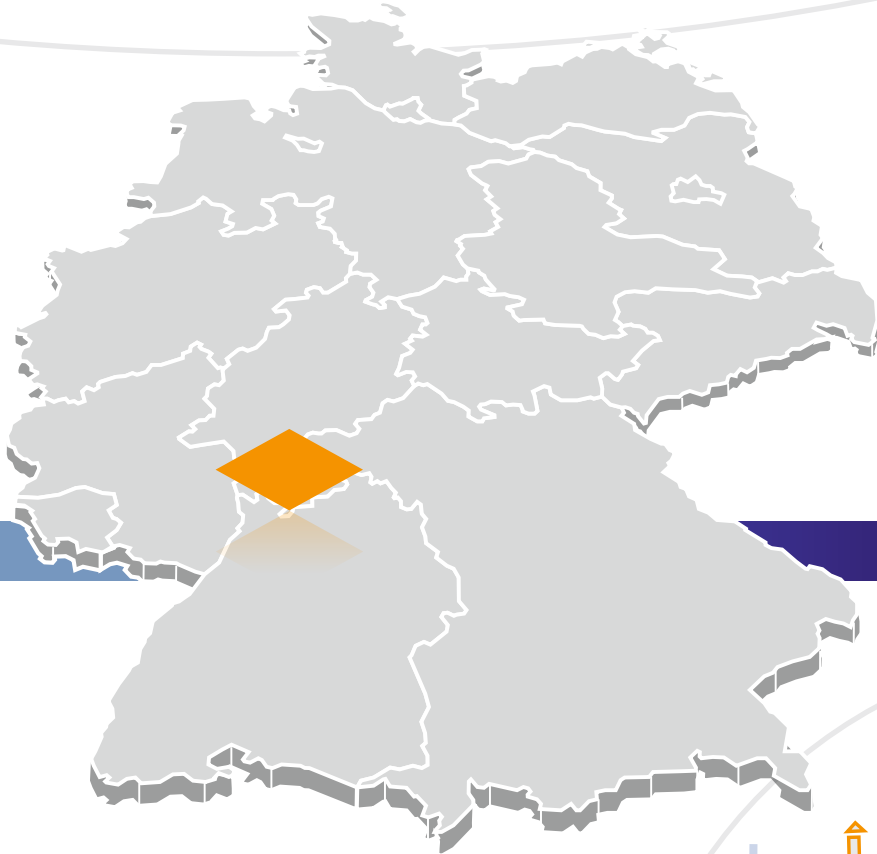


COMPLETE
INDUCTION SOLUTIONS



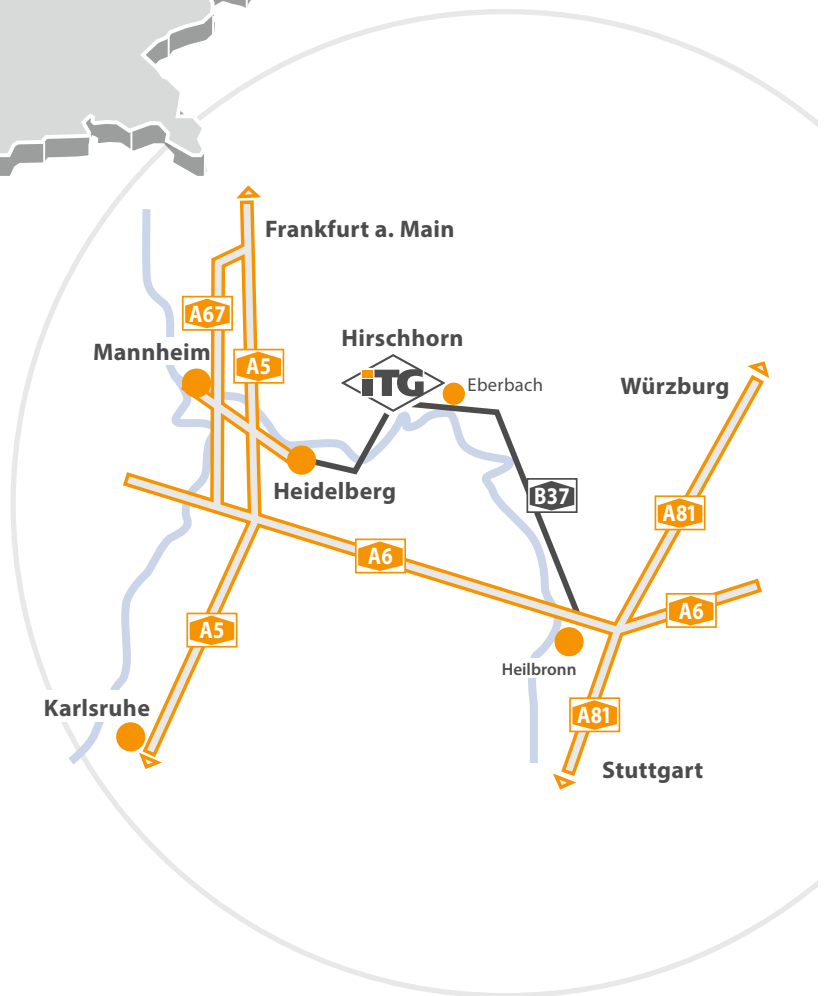
ABOUT US

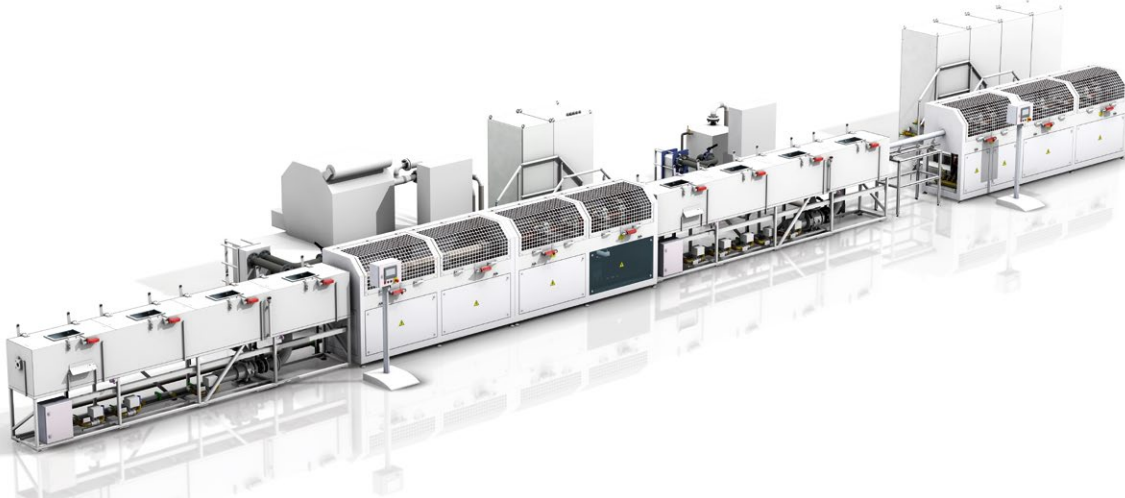


**ITG Induktionsanlagen GmbH
Hirschhorn/Neckar**

We are a medium-sized company working closely with our customers and partners from a wide range of industrial sectors in a team of around 120 people at our Hirschhorn site.

Our induction heating solutions are used successfully all over the world.



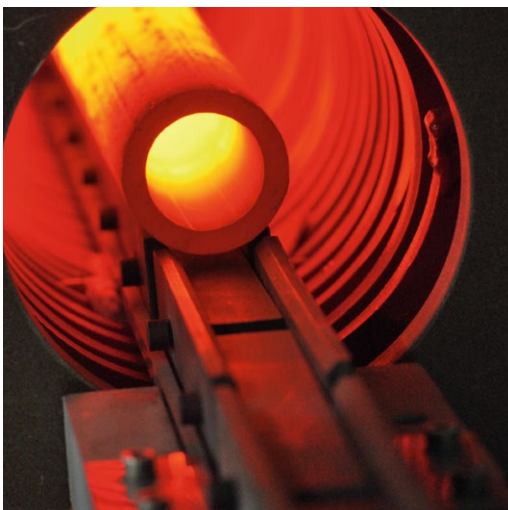


ITG INDUKTIONSANLAGEN GmbH

INDUCTION HEATING SYSTEMS

ITG Induktionsanlagen GmbH is a leading manufacturer of induction heating systems. Our core competence is the implementation of individual customer requirements into marketable solutions. ITG has access to an above-average level of know-how and service within the scope of SYSTEC Karlstadt group, which operates in various business areas.

Our innovative strength is the result of many years of intensive development processes implemented in a vast variety of process and energy-optimised systems.



APPLICATIONS - INDUSTRIES

HARDENING

ANNEALING

QUENCHING

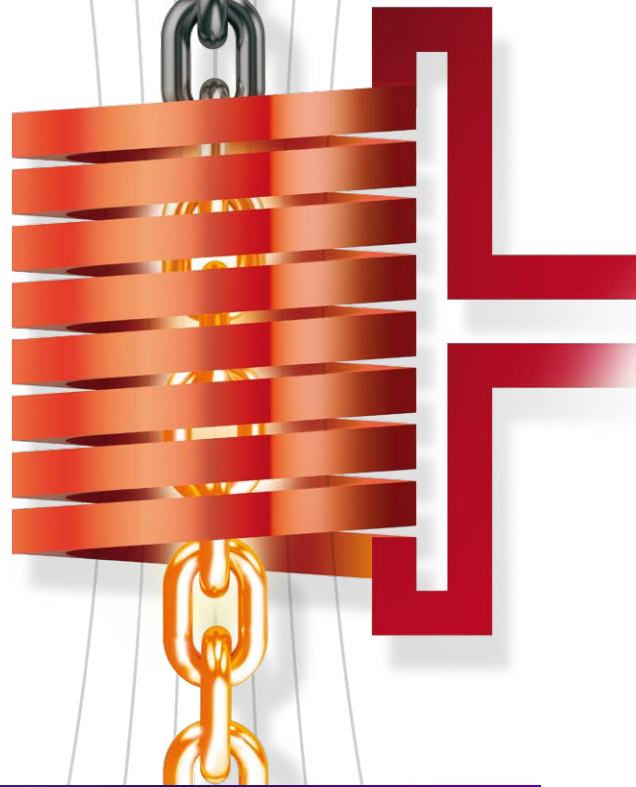
FORGING

COATING

MELTING

TEMPERING

HEATING



OUR STRENGTHS

COMPLETE INDUCTION SOLUTIONS

The key to successful implementation of a system is in a sophisticated overall concept created by intensive consultation and close cooperation with our customers.

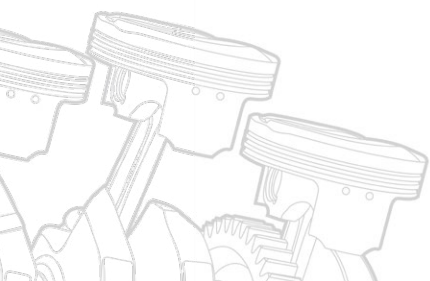
We will review feasibility of concepts by comprehensive calculations and tests in our own laboratory, followed by precise execution as an innovative standard or customised solution. Sustainability, energy efficiency, and optimal efficiency of the systems are among our fundamental objectives.

ITG designs and manufactures induction solutions for the following areas

- ◆ Research and development
- ◆ Mechanical and system engineering
- ◆ Steel industry
- ◆ Automotive industry
- ◆ Precious metal processing

ITG heating systems are used in the following areas

- ◆ Raw material extraction
- ◆ Processing of non-ferrous, light, heavy and precious metals
- ◆ Powder production
- ◆ Semiconductors



INDUCTION HEATING SYSTEMS

OUR RANGE AS DIVERSE AS YOUR APPLICATIONS



www.itg-induktion.de

Development and construction of custom induction heating systems

- ◆ Design and implementation of custom solutions in the typical fields of induction heating page 9

Assemblies for induction systems

- ◆ Frequency converters / generators page 10
- ◆ Inductors / coils page 11

Hardening, annealing and tempering systems

- ◆ Chain tempering systems page 13
- ◆ Vertical feed hardening machines page 14
- ◆ Horizontal surface-hardening systems page 15
- ◆ Pipe tempering systems page 16
- ◆ Single-rod tempering systems page 17

Induction systems for melting and heating

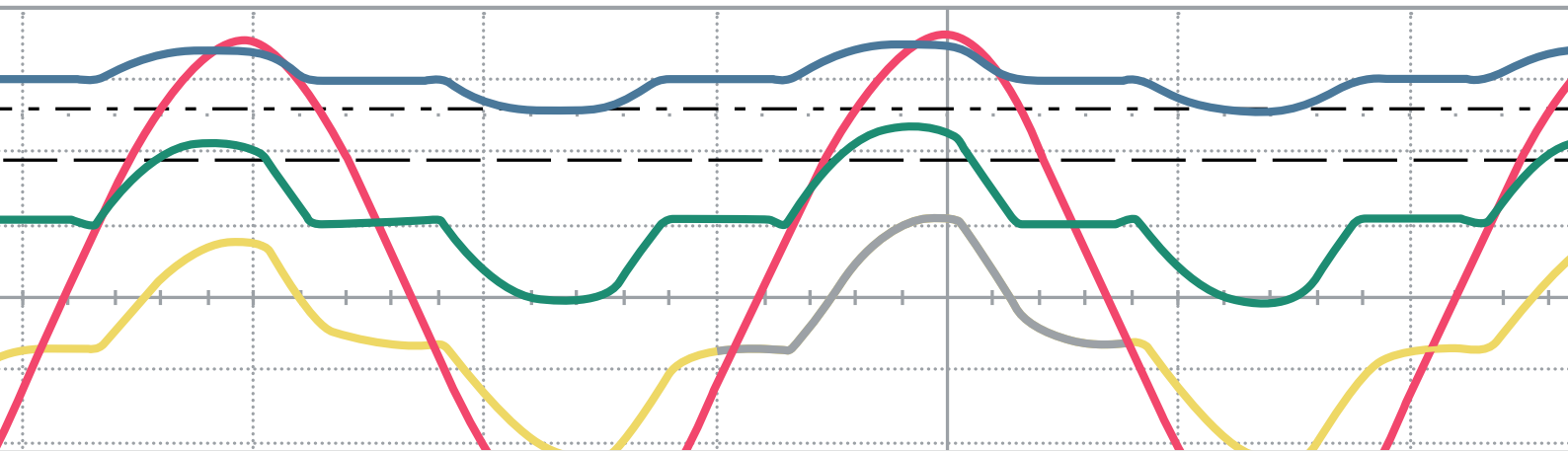
- ◆ Wire and strip heating systems page 19
- ◆ Forge heating systems page 20
- ◆ Melting systems page 21

Service – after sales

- ◆ Maintenance / repair / service / training page 23
- ◆ Spare parts sale page 23

COMPONENTS

CUSTOM-CONFIGURED



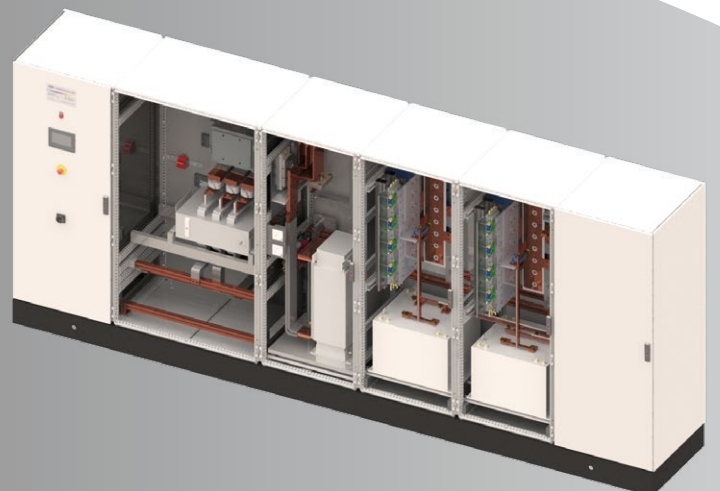
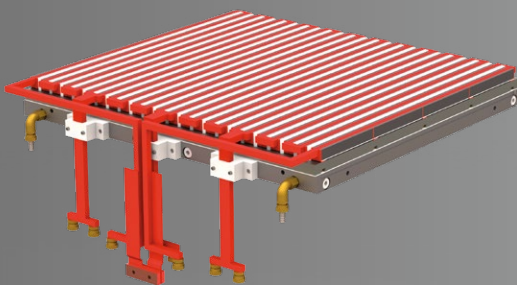
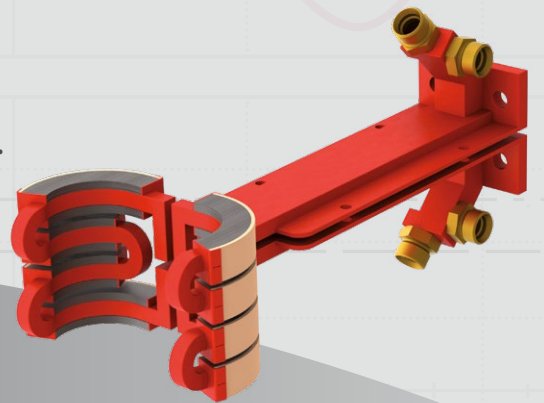
Converters and coils are developed, planned, and manufactured in-house as key induction-heating components.

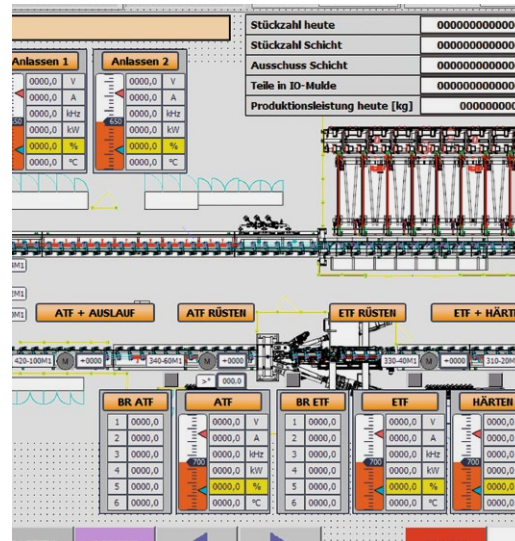
We offer an individual, complete induction technology solution for virtually any customer requirement in combination with material handling, cooling systems, and machine control systems.

Frequency converters / generators

Inductors / coils

Customized complete machine solutions





Our warrant responsible use of resources and live up to the associated challenge to produce developing modern, energy-efficient systems.

Our long experience and integration into SYSTEC group makes us a leading manufacturer of induction heating systems and a competent contact for customised special solutions anywhere in the world.

ITG Induktionsanlagen – complete solutions from a single source

- ◆ Process development and research
- ◆ Consultation and planning
- ◆ Concept and production
- ◆ Project management
- ◆ Assembly and commissioning
- ◆ Maintenance, service and training

Our systems are used in a wide variety of industrial sectors in the metalworking industry.

Our customer base comprises foundries and smelters, manufacturers of tubes, rods, and wire, as well as many hardening shops.

The automotive and supplier industries also rely on induction systems from ITG.

FREQUENCY INVERTERS / GENERATORS

An individually adapted frequency converter is at the heart of every induction system. Combined with the high efficiency of our components, induction systems from ITG offer unique benefits in terms of energy efficiency and carbon footprint as compared to other industrial heating processes. Our range for a vast variety of applications covers anything from 50 Hz to 1000 kHz, with outputs from 2 kW up to several megawatts.

ITH high-frequency transistor generator

The high-frequency generator is built in SiC transistor technology. Operating frequencies from 100 to 1000 kHz are possible depending on the power at the inductor terminals. This is 2 to 20 kW for table-top units; cabinet design permits more powerful units up to several hundred kW.



ITPC compact converters

The medium-frequency converter is built in IGBT technology with compact parts. Working frequencies of 6 to 100 kHz with an output of up to 25 kW can be achieved here in the table-top unit and up to 50 kW in cabinet design.



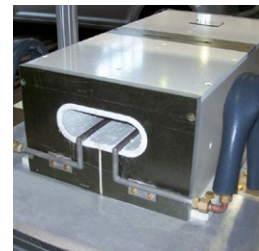
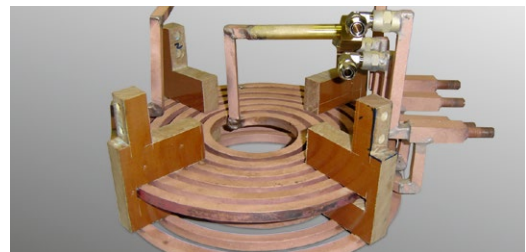
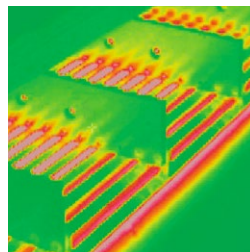
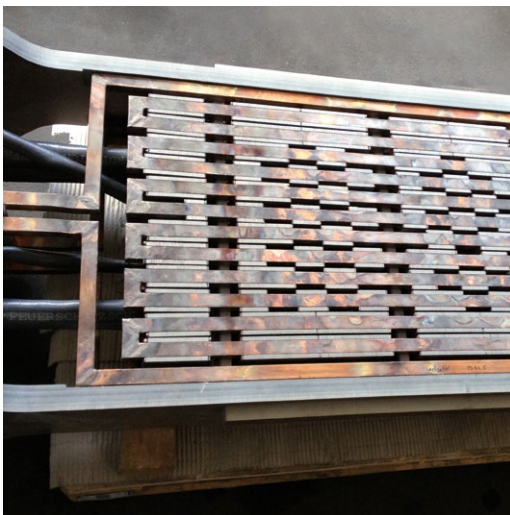
ITPA medium-frequency transistor converter

The medium-frequency converter is equipped with IGBT technology, permitting operating frequencies from 50 Hz to 100 kHz and up to several megawatts. Several converters can be operated independently or synchronised in a common housing in order to implement different temperature zones on a workpiece.



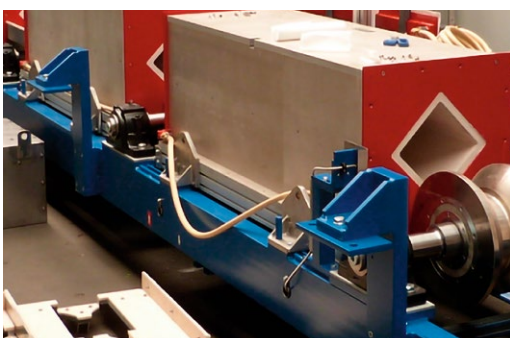
INDUCTORS / COILS

The inductor or coil is deemed the typical tool of induction heating. The inductor, consisting of a water-cooled copper tube specifically shaped for the heating task, transfers power to heat the workpiece.



The inductors are designed based on the requirements of our customers and the heating task.

Our experienced production team manufactures the coils in precise manual work and performs professional repair and maintenance work on damaged inductors. We also support our customers in optimising existing inductors.



Skills

- + Induction tools
- + Inductors and coils adapted to the application
- + Contactless energy transmission

Key benefits

- + In-house development and production
- + In-house repairs
- + Optimisation of existing customer inductors

HARDENING, ANNEALING, TEMPERING FOR CUSTOM APPLICATIONS



Heat treatment in our systems can significantly change material properties. Our induction systems are all designed to meet the customers' individual requirements. Defined power transfer to the part permits accurate and repeatable heat treatment of entire batches.

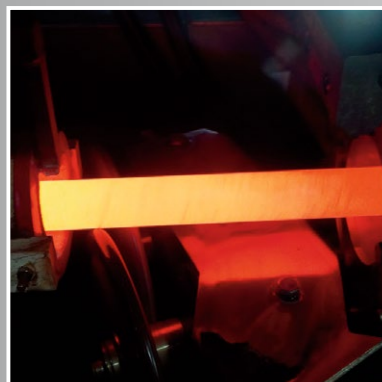
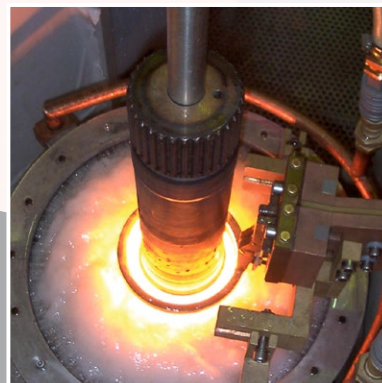
Chains used in tempering systems

Vertical feed hardening machines

Horizontal surface-hardening lines

Pipe tempering systems

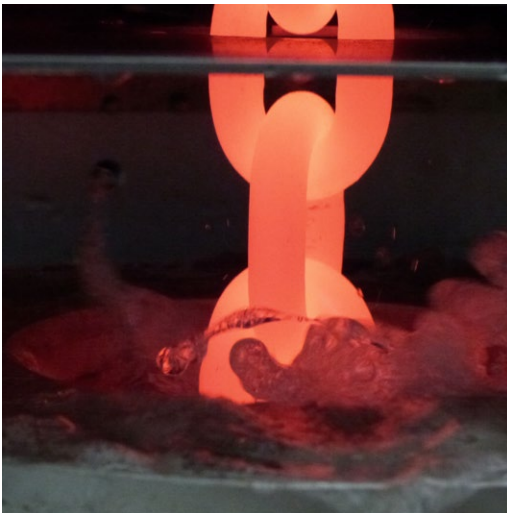
Single-rod tempering systems



CHAIN-TEMPERING SYSTEMS

The requirements to chains for lifting gear or in mining keep increasing.

Our chain-tempering systems support our customers in meeting these requirements with heat treatment.



Heating to hardening temperature, annealing temperatures that can be set as desired, and the option of partial annealing keeps customers flexible with only a single system.

Chains can then be annealed in a standard-compliant design with a homogeneous hardness throughout the cross-section or with varying hardness.

Framework data

- + Implemented systems for chains from $\varnothing 6$ - $\varnothing 48$ mm
- + Hardening, annealing, and partial annealing in a single pass
- + Continuous process monitoring

Key benefits

- + Homogeneous annealing due to equalising section
- + User-friendly coil change with the quick-change system
- + Monitoring and documentation of all relevant process parameters

VERTICAL FEED HARDENING MACHINES

The new generation of ITG feed hardening machines combines cutting-edge technology with extremely compact design and optimum ease of maintenance.



The basic package comprises two recooling systems for cooling water and emulsion as well as the converter necessary for power generation (including transformer or oscillating circuit) and a freely programmable Siemens control unit.

The innovative technology convinces with its efficiency and economy. Among other things, it offers the option of contour-compliant hardening, reproducible hardening results, and continuous quality control thanks to permanent process monitoring and documentation.

Framework data for the default machines

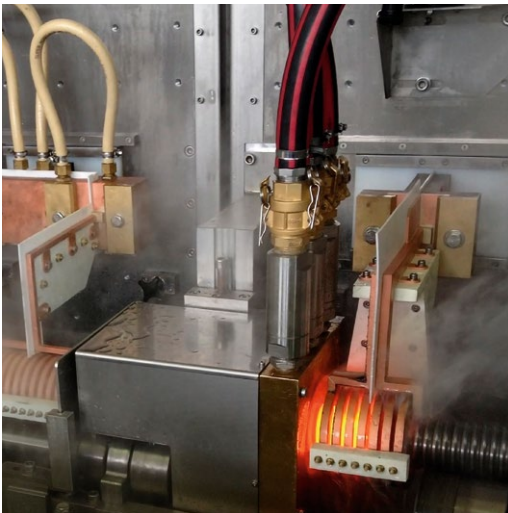
- + Workpiece lengths of up to 2,000 mm
- + Workpiece diameters of up to 250 mm
- + Workpiece weights of up to 250 kg
- + Special designs possible

Key benefits

- + Complete system in compact design
- + Very user-friendly thanks to easy-to-understand, menu-guided control unit
- + Wide range of power and frequency for optimum hardening result

HORIZONTAL SURFACE-HARDENING LINES

Surface hardening and annealing lines for variable penetration depths are characterised by maximum process control with minimum distortion.



Surface heat treatment processes on input material for complex parts in the automotive sector require outstanding process data management. Compliance with tight tolerance bands from quality assurance is ensured by the control hardware and software.

Framework data

- + Can be implemented for a wide range of component sizes (including short shafts of approx. 100 mm) and surface hardening depths
- + Surface hardening with immediate subsequent annealing of the surface layer
- + Also ideal for bright steel products due to minimal distortion

Key benefits

- + Many different surface hardening depths thanks to frequency control
- + Reproducible processes with highest product quality
- + Energy-efficient production with optimised matching transformers
- + Double disc drive concept for optimum heating and quenching results
- + Process data control and archiving for the highest requirements (CQI-9)
- + Extensive option catalogue for customised adaptation
- + Short changeover times

PIPE TEMPERING SYSTEMS

Heat treatment of pipes permits expansion of the range of applications and saves material and thereby weight.



The combined hardening and annealing system for pipes can be set up as an inline system or in a U-shape, depending on the available space. Different coil sets adapted to the tube diameter allow a wide range of tube diameters.

Framework data

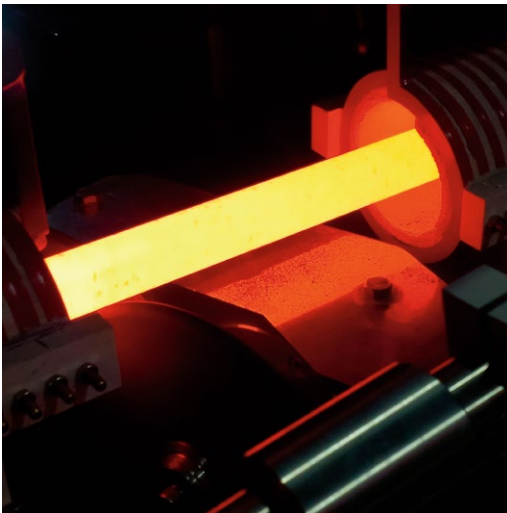
- + Systems implemented for pipe diameters up to 450 mm
- + Hardening and annealing in a single pass
- + Recrystallisation annealing possible
- + Systems implemented for throughputs of up to 7 t/h

Key benefits

- + Consistent quality with high throughput, including fast heating and cooling
- + Short set-up times due to user-friendly conversion of the coils
- + Automatic setting of the process parameters by recipe management

SINGLE-ROD TEMPERING SYSTEMS

The challenge in the heat treatment of long products is in ensuring reproducible processes with low distortion.



The complex interaction between transport unit, inductive heating, and quenching shower supports this solution from a single source.

Our systems are consistently optimised and adapted to the constantly changing requirements from the various application areas.

Framework data

- + A wide range of dimensions can be implemented
- + Hardening, annealing, and other heat treatment processes in continuous operation
- + Continuous process monitoring and logging

Key benefits

- + System design customised to the process requirements for a coordinated overall concept
- + Optimised heating homogeneity
- + State-of-the-art quality assurance systems
- + Reproducible processes with highest product quality
- + Energy-efficient production with low maintenance and servicing requirements
- + Several drive concepts available
- + Extensive option catalogue for customised adaptation
- + Short changeover times

PROCESSING METALS

HIGHLY EFFICIENT AND PRECISELY

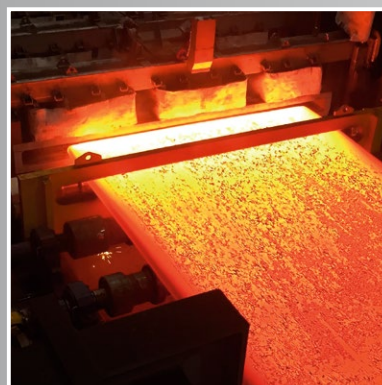


One field of application for the induction systems is heating or melting of metals before hot forming or primary forming. Induction systems are also used for drying, coating, or tempering of wires or strips.

Wire and strip heating systems

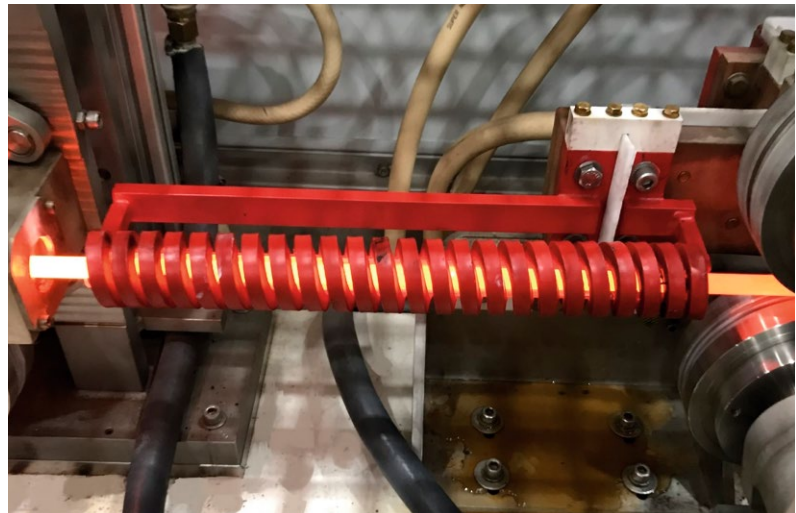
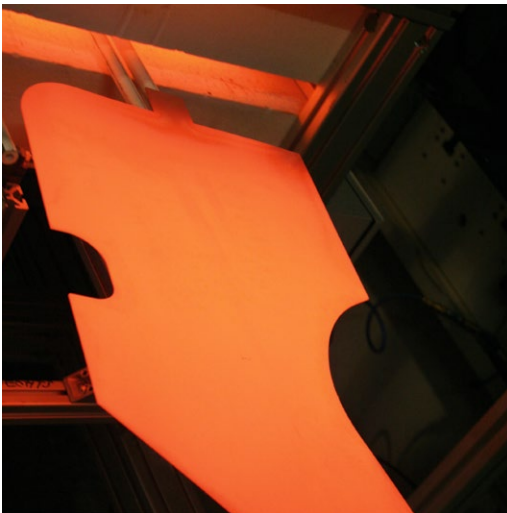
Forging systems

Melting systems



WIRE AND STRIP HEATING SYSTEMS

Production of brake lines, high-voltage cables, bridge tension wires, spring wires, etc. requires continuous heating of the input material. Induction heating can generally be integrated in any process line with continuous flow of the semi-finished product.



A wide range of processes can be realised due to the simple adjustability of the process parameters of an induction system. Wires or strips will be dried at low temperatures, while they are coated, or the material properties specifically adjusted, at higher temperatures.

Surface heating or through heating of the parts can be implemented depending on requirements. Heating requires only little space due to the high energy density of an induction system.

Framework data

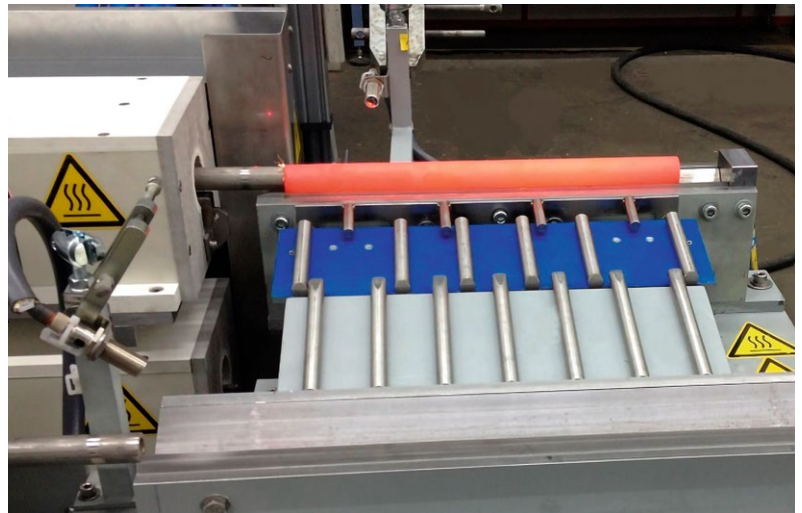
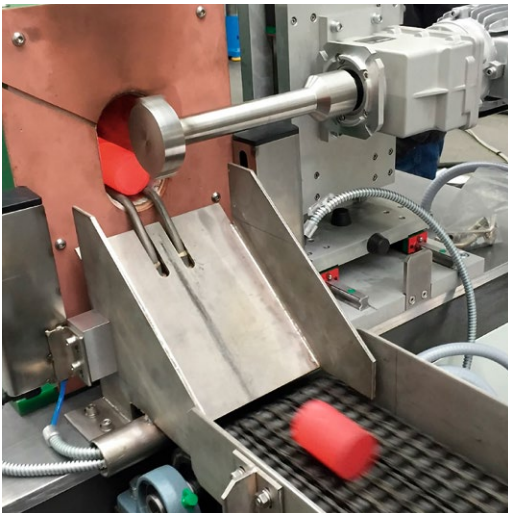
- + Sheet metal from 0.8 mm thickness onwards
- + Wires from 0.9 mm diameter onwards
- + Several parallel strands possible

Key benefits

- + Short heating distances
- + Surface heating or through-heating possible
- + Speed-dependent power control possible

FORGE HEATING SYSTEMS

**Workpieces usually need to be heated in advance for high degrees of forming.
Energy- and time-efficient repetitive processes are possible with induction systems.**



Induction heating of forged parts offers the advantage that parts can be heated either completely or only in the sections relevant to the forging process.

Framework data

- + Manual or automatic loading
- + Transport systems can be implemented with pushers, lifting beams, or chains
- + Temperature control possible for stationary heating units

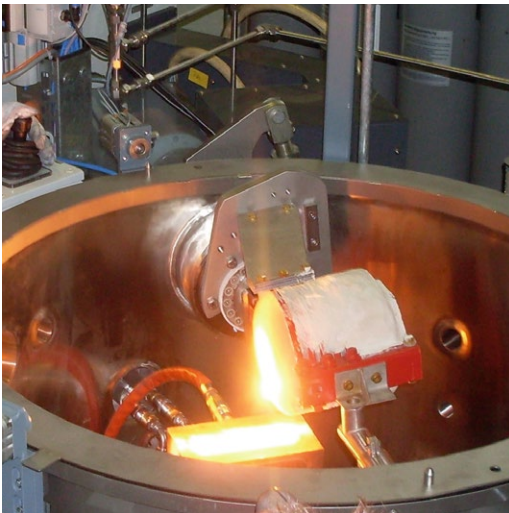
Key benefits

- + Quick, efficient heating
- + Reproducible results
- + Partial heating possible

MELTING SYSTEMS

Liquid metal can be used to create a virtually unlimited variety of shapes.

Induction melting systems permit very high temperatures that will melt even platinum alloys.



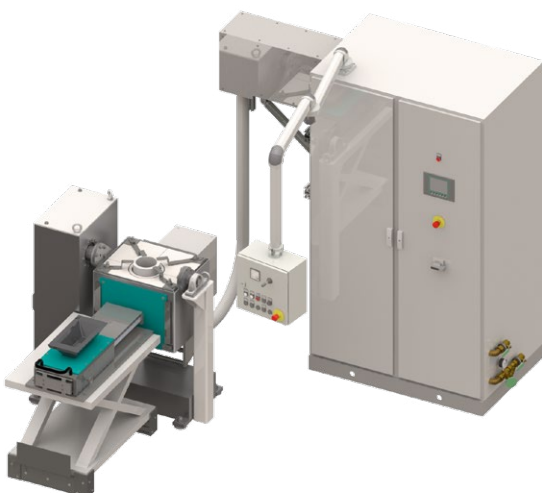
Induction melting systems are mostly used to liquefy metals. The variety of materials ranges from light metals to steel and heavy metals to precious metals. We offer different types of melt furnaces – matched to the respective application based on the required batch size.

Framework data

- + Manual tilting melt furnace for batches of up to 5 kg
- + Lift-type melt furnace for batches of up to 30 kg
- + Electrically tilting melt furnace for batches of up to 150 kg
- + Hydraulically tilting melt furnace for batches of up to 1,000 kg
- + Vacuum melting systems

Key benefits

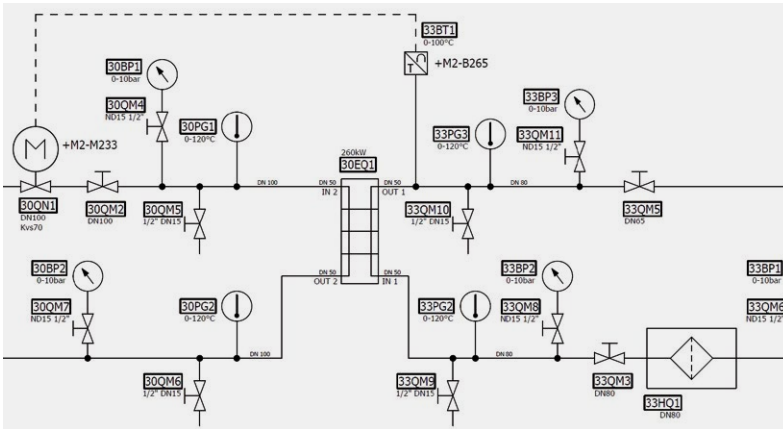
- + Industrial design
- + Various crucible materials possible



SERVICE – AFTER SALES

CERTAINLY IN THE BEST HANDS





**ITG Induktionsanlagen –
certainly in the best hands**

- ◆ Service around the world
- ◆ Rental and used converters
- ◆ Experienced and highly-qualified service engineers
- ◆ Commissioning, maintenance, repair, service and training
- ◆ Spare parts shipped world-wide
- ◆ Professional advice on energy efficiency, cooling water management, and occupational safety

Maintenance / repair / service / training

Our service does not end after commissioning of the new system! A competent team of experts will be happy to answer your technical questions regarding your system. Our employees are your contact for advice, repairs, maintenance, conversions, machine conversions, etc., as well as for any issues with machines from other manufacturers.

Spare parts sale

Any parts required usually can be manufactured or procured at short notice. We ship worldwide, supported by our international offices.

Procedure and process development

We are happy to support our customers in the joint development or optimisation of procedures and processes related to induction heating.

In-house contract hardening

We can perform contract hardening for you on our in-house hardening machines. We have a well-equipped laboratory for quality assurance.


Rental and used converters

A wide variety of converters and additional equipment are available for rent/hire at short notice, depending on availability, be it for testing a process, as a temporary solution, or to stand in for a failed unit. Power levels up to 1,500 kW and frequencies from 0.5 kHz to 350 kHz can be achieved.

Energy efficiency and cooling water management

Our professional team will advise you on current matters of energy efficiency and cooling-water management. Since the focus of further developments in converter technology regarding the global requirements to “Green Economy” is on power components, we developed a smart cooling water-management system to achieve savings in cooling water consumption that can reach as much as 50%.

Complementing the induction components, the custom cooling water systems ensure that the product range can provide a full solution from a single source.

 Scan the code
for detailed
information



Quality 
Made in Germany

ITG Induktionsanlagen GmbH • Neckarsteinacher Straße 88 • 69434 Hirschhorn/Neckar • Germany
phone +49 6272 9203 820 • fax +49 6272 9203 10 • zentrale@itg-induktion.de

www.itg-induktion.de

EIN UNTERNEHMEN DER
SYSTEC
GRUPPE

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