



IAS ExtruLine™

Induction solutions: Metal Forming



SMS GROUP

Leaders in plant construction and machine engineering

The SMS group unites global players in the construction of plants and machines for the processing of steel and NF metals, operating under the roof of SMS Holding GmbH. It consists of the two business areas, SMS Siemag and SMS Meer, as well as industrial participations. SMS Holding GmbH is responsible for strategic planning and control. The sole owner of the SMS group is Siemag Weiss GmbH & Co. KG, the holding of the Weiss entrepreneurial family.

FAMILY-OWNED AND WORLDWIDE PRESENT

As a family-owned company, the SMS group has built on solid values and a culture of responsibility for four generations. It holds a strong market position, while its decentralised structure ensures a fast and efficient response to individual customer demands. The SMS group combines the flexibility of company units that operate as medium-sized enterprises with the broad resources of an internationally active company – all to the benefit of the business partners. The decentralised corporate culture ensures that not only the individual units, but also the employees always think and act in an entrepreneurial manner.

BUILDING ON A STRONG BASIS

A long-term view, careful financial management, the focus on values, plus an understanding of the cycles of the machine and plant construction market have guided the group's strategic planning for decades. Also high on the agenda are investments in the areas of energy and environment technology, service and modernisation of plants as well as on-the-job training and qualification of core employees. On this basis, the SMS group creates tailor-made plant solutions which enable its business partners to keep well ahead of the competition.



SMS MEER BUSINESS AREA

The SMS Meer Business Area bundles its activities in the fields of steelmaking plants and continuous casting technology (long products), tube plants, long product rolling mills, forging technology, nonferrous metals plants, heat treatment technology and service. Starting with advisory services, followed by implementation and commissioning, and finally modernisations – the employees of the business area always combine their specialist knowledge with approachability and flexibility.

TOP QUALITY

The innovative solutions provide our customers with measurable benefits in their challenging markets. Whether steel for automotive parts, pipelines, heavy structural profiles, wheels for high-speed trains or aluminium for façade structures: the machines and plants tailored by the SMS Meer Business Area ensure the cost-efficient and flawless production of the necessary components.

INDIVIDUAL SOLUTIONS

The SMS Meer Business Area concentrates the competence of globally successful specialist firms under one roof to create a unique, full range of supplies and services for metal processing and associated fields. In doing so, the employees focus consistently on the needs of their business partners. They find individual solutions and fulfil the plant operators' expectations, both flexibly and reliably. This is verified by 17000 successful reference projects the world over – in the last 50 years alone.



IAS

Induktions-Anlagen und Service

With its induction solutions and special machinery for extrusion plants, foundries and metalworking businesses, IAS is regarded as an international technology leader. The company offers plant owners a full range of products and services from a single source: planning, design, production, commissioning, training and comprehensive services.

CUSTOMISED PLANT SOLUTIONS

The IAS product range is focussed on two key areas:

ExtruLine™

- Induction equipment for extrusion press plants
- Inline furnaces
- Container heating systems

MetalLine™

- Channel-type furnaces
- Coreless-type furnaces
- Casting furnaces

SMS ELOTHERM

Since 2013 IAS has been a part of SMS Elotherm, which itself belongs to the SMS Meer Business Area, and with its range of plants is the perfect complement to the current systems solutions offered for induction hardening and heating. Together Elotherm and IAS are able to deliver energy-efficient, high-productivity machinery for clean electrothermal applications right down the entire metallurgical process chain.



CORE COMPETENCES

All your benefits at a glance

CLEAN, ENERGY-EFFICIENT HEATING TECHNOLOGY

IAS's core activities lie in the high-precision heating, melting and pouring of ferrous and non-ferrous metals. This is where clean induction technology plays a key role. With induction heating the metal is subjected to an electromagnetic alternating field using a current-carrying coil. As a result, eddy currents are produced in the material in a non-contact manner and heat is generated. This process can be specifically influenced to suit requirements. Therefore it does not need to be heated by means of heat transfer in a conventional furnace. The heating times for the IAS plants are consequently very short and the temperature can be set very precisely.

HOLISTIC PARTNERSHIP

In IAS customers have a responsible partner for all their planning, design, production and service needs. Highly-skilled staff, many years of experience and pioneering development work guarantee IAS customers innovative plant solutions that are both highly cost-effective and functionally reliable. IAS boasts state-of-the-art production facilities.

KEY FACTORS FOR THE SUCCESS OF YOUR HEATING SOLUTIONS

- Defined heating of metallic materials
- Short heating times
- High process reliability
- Low spatial requirements
- Low energy consumption values
- Low-maintenance technology
- Modular plant concepts

MAKING EXTRUSION PROCESSES MORE PRODUCTIVE

TEM-PRO Heater® for billet heating

DIRECT AND PRECISE HEATING

The TEM-PRO Heater® is a temperature profile heating system. It enables precise temperature control during extrusion and thus ensures a flawless manufacturing process with isothermal extrusion. Due to the higher power density that can be transferred, the TEM-PRO Heater® is far more effective, especially with large billet sizes, compared to a gas furnace. Another of its features is that overheating of the billet surface is prevented. Depending on the input stock, the TEM-PRO Heater® can achieve excellent efficiency levels of up to 75 percent.

STAND-ALONE OR INTELLIGENTLY COMBINED

The TEM-PRO Heater® is modular in design and can be seamlessly integrated into existing production lines. The system is so flexible that it can be operated as a stand-alone unit or combined with upstream gas furnaces for basic billet heating. The standardised link to tools for isothermal extrusion improves the productivity of the overall extrusion line considerably.

- Creation of an axially uniform basic temperature profile
- Low energy consumption
- Short heating times
- Setting of defined temperature profiles
- Processing of various billet lengths
- Suitable for use with various alloys
- PC and database-assisted operator guidance
- Interfaces with higher-level control systems
- Service-friendly design

KEY FEATURES

MATCHING THE MATERIALS

Its modular design, intelligent, computer-aided temperature profile adjustment system as well as the ability to adjust power levels and heating individually mean the TEM-PRO Heater® can be used for a variety of materials:

- Aluminium alloys
- Copper alloys
- Steel and iron alloys
- Special alloys such as titanium, zirconium and molybdenum
- Precious metals





PATENTED COMBINATION

Induction and gas for inline heating

OPTIMUM USE OF SPACE AND PERFECT BILLET HEATING

Together with extrutec IAS has developed a patented inline heating system for extrusion plants. They have succeeded in delivering a compact system solution that can be integrated into an existing extrusion line, even when space is extremely limited. The inline system comprises a gas furnace with various heating zones and multi-zone induction furnace that be connected directly.

FAST RETURN ON INVESTMENT

A single gas furnace alone is no longer enough to meet current temperature control requirements on modern aluminium extrusion presses. The innovative combination of the inline system comprising gas and induction furnace ensures there is optimal energy utilisation with high-precision temperature control. All axial temperature gradients (taper) are possible. This means the extrusion process is not just far more productive but the quality of the extruded products is consistently high. What's more, any undesired temperature distribution in the workpiece that could lead to process malfunctions is avoided. Such advantages give plant owners a return on their investment within just a short period of time.





CONTINUOUS INLINE PRODUCTION

With the patented inline heating system the log is first heated in the gas furnace. It then reaches the desired final temperature in the multi-zone induction furnace, whereby the exact temperature profile of the billet that is still to be separated is taken into consideration. The concept is based on the TEM-PRO Heater® technology from IAS. The log is then cut to the required length using a saw or shear unit before the extrusion process starts.

- Patented inline system for log heating
- Space-saving design, ideal for retrofitting
- High energy efficiency and low operating costs
- High-precision temperature control
- Increased productivity and extrusion product quality
- Fast ROI

KEY FEATURES

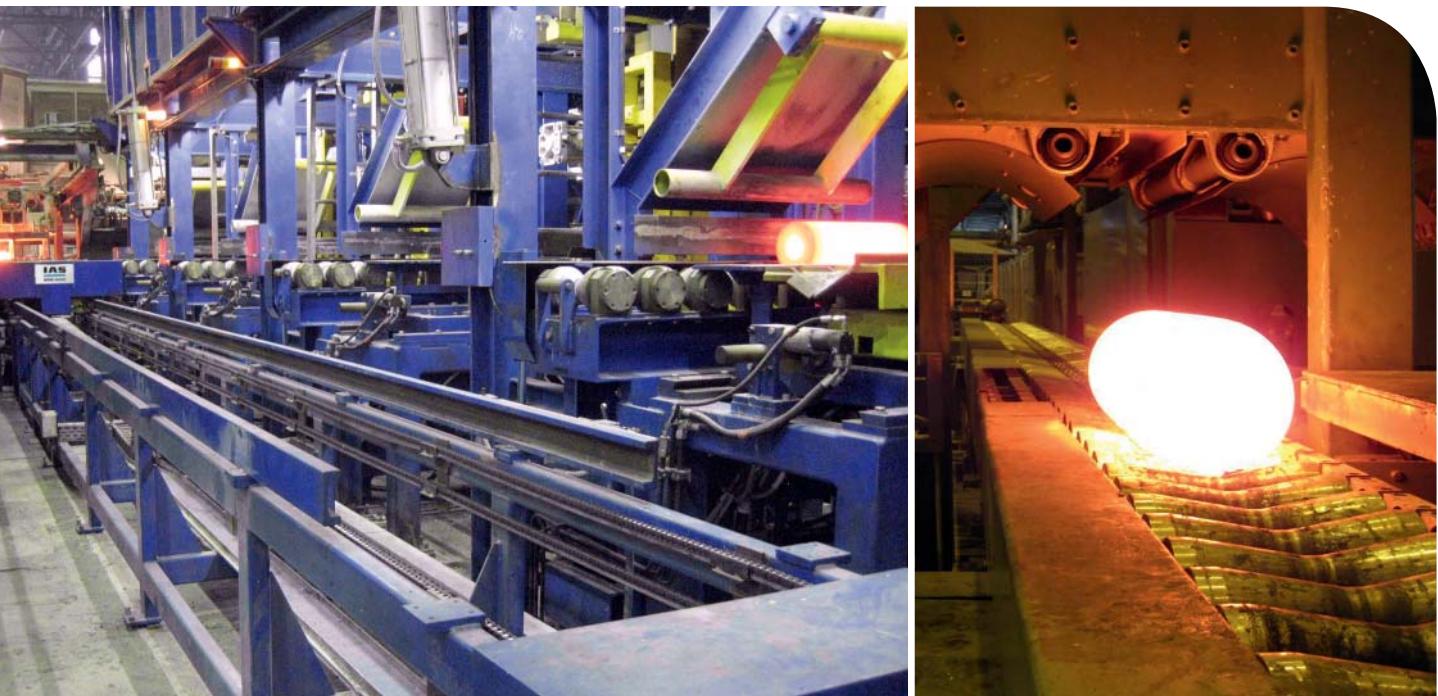
IDEAL TEMPERATURE RANGE

Induction for extruded special steel tubes

SMALL BATCH SIZES; HIGH-ALLOY MATERIALS

IAS has developed state-of-the-art induction plant concepts for seamless, high-alloy steel tubes that are manufactured using the extrusion method. This ensures key market requirements are fulfilled:

Even small batch sizes with varying geometries in special alloys can be profitably produced. What's impressive about these concepts from IAS is that they offer high cost efficiency, flexibility, energy efficiency, quick conversions and reliable process control.





INDUCTION PLUS GAS HEATING

With complex special steels the extrusion temperature must be kept within a very narrow range. To ensure this is the case, IAS has developed clever combinations of gas heating and induction furnace systems with high efficiency levels, with the result that the benefits of both types of heating, appropriately matched with the product range and extrusion technology, can really be felt. The following combinations have proven to be effective in practical applications:

- Horizontal, inductive basic heating with vertical, inductive final heating
- Gas-fired rotary-hearth furnaces with reduced atmosphere and vertical, inductive re-heating
- With smaller billet dimensions up to 180 mm and when operating without a piercing press, horizontal inductive pre-heating systems are used
- Gas pre-heating up to approximately 700 °C as well as vertical inductive intermediate heating and re-heating

UP TO 83% EFFICIENCY

The use of a multi-zone induction heating coil for re-heating as well as the ability to make frequency adjustments and the options for infinitely variable power control using IGBT converters ensure the temperature can be reliably influenced relative to the process, and narrow temperature limits can be observed. Depending on the configuration, electrical efficiency levels of up to 81% can be achieved, and even up to 83 % for titanium alloys.

- Defined temperature profiles
- Uniform temperature distribution
- Consistent process conditions

KEY FEATURES

NEW IDEAS FOR PROVEN TECHNOLOGY

Container heating systems with C.O.P Cartridge™

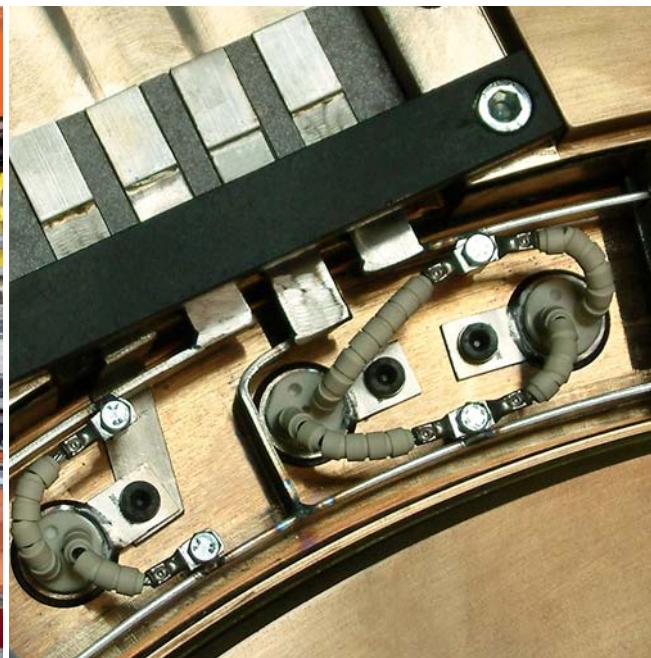
CUSTOMISED TECHNOLOGY FROM IAS

The resistance and induction heating systems for multi-part extrusion containers from IAS are proven technology systems for temperature-controlled extrusion applications.

With them the power and zone heating can be variably controlled, which is precisely what modern extrusion presses require. What's more, preheating stations, cap heaters for indirect extrusion presses and stem heaters can also be implemented with this technology. The heating systems are equipped with a quick-change device.

- Patented overheating protection
- Easy retrofitting
- Multi-zone technology
- Intelligent control systems
- Quick-change technology

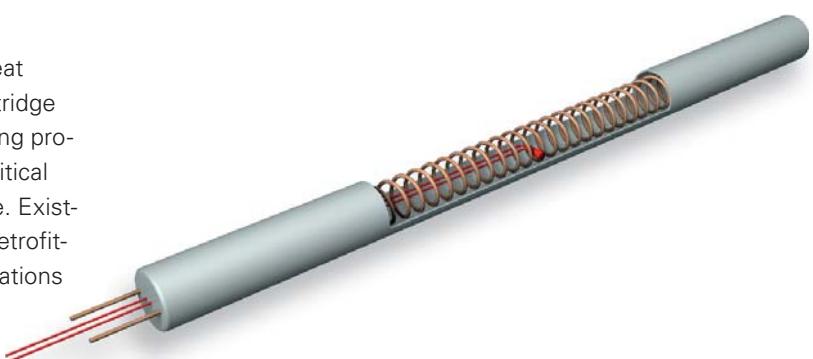
KEY FEATURES





C.O.P. - AN INNOVATION IN TEMPERATURE MEASUREMENT

With the C.O.P. Cartridge™ (Container Overheat Prevention) IAS is proud to offer a heating cartridge solution with considerably improved overheating protection. This innovation is the answer to the critical problem of overheating at the heating rod bore. Existing resistance heating systems can be easily retrofitted with C.O.P. Cartridges™ – with no modifications to the container required.



CONVERTERS AND COILS

Knowing what it's all about

GREATER COST EFFICIENCY IS A MATTER OF COMPETENCE

Converter and induction coils - together they form the core of any induction plant. Perfect interaction between them is a key factor in how reliable and cost effective the system is for the customers. That's why IAS has combined all core competences under one roof.

POWER UNITS

IAS manufactures both conventional switchgear and switchgear based on power electronics - all tailored to the customer's individual requirements. Field bus systems, which require a minimum of cables and offer maximum flexibility with regard to the interfaces, are used for the sensors.

STATE-OF-THE-ART IGBT TRANSISTOR CONVERTERS

IAS heating and melting furnace plants are fed using IGBT transistor converters. The fully digitalised systems provide easy access, smooth integration in existing control units and efficient converter module servicing.

COILS

The heating coils are mostly of the multi-layer design and are particularly cost-efficient. Combined with magnetic flux guidance systems and stainless steel casings, electrical efficiency levels of over 80 % can be achieved.

- Fully digitalised control systems
- Infinitely variable power control from 0 to 100 %
- Optional multi-zone technology
- Flexible integration in complex control concepts
- Integrated heating processor

KEY FEATURES



SERVICE

For maximum customer satisfaction

SERVICE DELIVERED BY EXPERTS

The experts at IAS offer a service that covers both in-house induction systems as well as third-party equipment. Customers benefit here from their extensive expertise and many years' experience. The IAS experts offer practice-based training courses, in particular, to let you know how best to use your equipment.

ON-SITE AND SPARE PARTS SERVICE

IAS offers an on-site service with state-of-the-art measuring technology for troubleshooting. A comprehensive inventory of spare parts means the right part can be supplied in no time; if need be, special components can be quickly manufactured in our own production facilities.

ROUND-THE-CLOCK SERVICE

To keep plant shutdowns to a minimum, the IAS Service team is on hand round-the-clock.

PREVENTIVE MAINTENANCE AND UPGRADES

The Service unit at IAS also supports plant owners with preventive maintenance as well as upgrades, in order to keep the induction plants technologically up-to-date on a cost-effective basis.

The benefits:

- Increased productivity
- Increased plant availability
- Improvement of product quality
- Reduced operating costs
- Safeguarding of the plant value
- New range of applications for older equipment

OUR SERVICES AT A GLANCE

- Repairs, including third-party equipment
- Erection/assembly
- Retrofits and upgrades
- Performance optimisation
- Manufacture of individual components
- Converter service
- Service on site
- Spare parts service
- Training courses
- Hotline



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MEETING your EXPECTATIONS