IAS MetalLine
Induction solutions: Foundry
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.

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.
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 ELOTERM**
Since 2013 IAS has been a part of SMS Elotherm, 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 with efficient special machinery is needed first and foremost. 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 using the heat transfer method in a conventional furnace. In this way IAS plants can be tailored to customers’ individual requirements.

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. When it comes to plant construction and service, IAS boasts an extensive, state-of-the-art production facility.

KEY FACTORS FOR THE SUCCESS OF YOUR FOUNDRY APPLICATIONS
- Defined melting and pouring of metallic materials
- High process reliability
- Low space requirements
- Low energy consumption values
- Low-maintenance technology
- Modular plant concepts
- Process-based melting and casting furnaces
- High-performance IGBT converters
HIGHLY EFFICIENT
MetalLine channel-type induction furnaces

IDEAL FOR COPPER MATERIALS
MetalLine channel-type induction furnaces from IAS are characterized by their high thermal efficiency with low energy consumption. They provide smooth molten metal mixing for homogeneous alloys with a constant, uniform temperature.

As a result, when it comes to non-ferrous applications - particularly copper materials - this type of furnace is the unit of choice for induction melting processes. Other benefits include variable furnace geometries and pressure-tight designs, which mean IAS can react flexibly to all customer requirements.

WIDE RANGE OF APPLICATIONS
MetalLine channel-type induction furnaces can be used for melting scrap and large-size melting stock as well as for storing and maintaining the temperature of various alloys, and can also be used as heatable casting furnaces.

STATE-OF-THE-ART TECHNOLOGIES
State-of-the-art converter technology from IAS means the process can be precisely controlled when metals are being poured. The preferred system here is FEM-designed inductors with a twin channel, which ensures not only a consistent temperature distribution in the melt but a long service life too.

KEY FEATURES
- Process-based furnace technology
- High efficiency
- Eco-friendly technology
- Universally applicable
- High melt quality
FLEXIBLE MELTING PROCESSES
MetalLine coreless-type induction furnaces

HOMOGENEOUS MELTING
The electromagnetic forces generated in MetalLine coreless-type induction furnaces cause intense movement in the molten metal bath due to the technology used. The result is perfect homogenisation of the melt and degassing of oversaturated melts. The bath movement also facilitates rapid alloying that takes varying process requirements into account.

IGBT TECHNOLOGY FOR HIGH PERFORMANCE AND EFFICIENCY
For its MetalLine coreless-type induction furnaces IAS uses IGBT-based converters as power units. The frequency range is adjusted depending on the furnace size and melting stock. There are various converter topologies available, with one or more inverter outputs.

KEY FEATURES
- High metal yield
- Homogeneous melting thanks to stirring effect
- Clean melting with induction technology
- Eco-friendly, energy-efficient technology
- Wide range of furnace sizes
FROM THE CHIP TO THE MELT
Productive and clean

HIGH METAL YIELD
With a metal yield of around 98 percent MetalLine coreless-type induction furnaces are the preferred solution in the field of ferrous and non-ferrous metals for melting swarf. The furnaces attain their high level of productivity thanks to the desired movement of the molten metal bath and the high power density installed. IAS offers coreless-type furnace plants with capacities ranging between 10 kg and 30,000 kg.

CLEAN MELTING OF OILY SWARF
The problem: When melting oily swarf the residual oil is burnt off and contaminates the exhaust system; in addition, slag adhesions appear on the furnace walls, resulting in a steady loss of power and considerable cleaning work. IAS has developed an efficient solution to this problem: A precision-controlled charging system combined with an intelligent control system and modern IGBT converter.

ECOPLANTS
The sustainability concept that puts the customer’s interests first. With it we are recognising the fact that sustainability has become an important factor for our customers – for economic and ecological reasons. Economic, because savings in energy and raw materials reduce costs; ecological because the conservation of resources is becoming ever more important. Ecoplants solutions do both.

KEY FEATURES
- High metal yield
- Reduction in swarf oil content to around 2 %
- Eco-friendly process
- Low volume of slag formed
- Low crucible maintenance
- Minimal energy consumption
INTELLIGENT FEED SYSTEM
The swarf which has been covered in cutting oil and water is fed into a centrifuge, where the oil content is reduced to around 2%. This prevents subsequent metal loss when the swarf is burnt. The oil itself can also be re-used. The dried swarf is then fed into the melting furnace from a chip bin.

EFFICIENT ENERGY CONTROL
The IAS control system ensures the thermal energy is precisely matched with the swarf volume being fed in and with the molten metal bath movement. It takes a whole array of parameters into account, in order that the optimum process temperature can be achieved each time using quick-reacting IGBT converters.
GREATER COST EFFICIENCY IS A MATTER OF COMPETENCE
Converter and inductor - 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.

OPTIMUM-PERFORMANCE SWITCHGEAR UNITS
IAS manufactures both conventional switchgear and switchgear based on power electronics - all tailored to customer requirements using high-quality components. Field bus systems, which require a minimum of cables and offer maximum flexibility with regard to the interfaces, are used for the sensors.

KEY FEATURES
- Fully digitalised control systems
- Infinitely variable power control from 0 to 100 %
- Various converter topologies
- Flexible integration in complex control concepts
- Integrated melt processor
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
To improve efficiency the induction coils on IAS melting and casting furnaces are designed and manufactured on the basis of the relevant application. The electrical and mechanical insulation, professionally designed and installed, ensures they are long-lasting.
KEEPING UP TO DATE MEANS STAYING COMPETITIVE
IAS offers innovative retrofits, upgrades and overhauls. Not just for IAS equipment but for other manufacturer’s systems too.

How you benefit: Your plant is kept technologically up-to-date. You can safeguard your supply of spare parts, since out-of-date assemblies or parts that are no longer available are replaced in a timely manner.

All in all, your plant’s availability is increased, support and troubleshooting processes are more efficient and you save the costs of a new plant investment.

OPTIMISED PROCESSES, FEWER COSTS
As a plant manufacturer we have in-depth knowledge of the contribution a power unit, inductor or software, for example, makes towards an energy-saving production process. Let us show you how an energy-efficient process not only saves costs, but creates advantages for your process too.

MODERNISATION SERVICES

- Converter revamp
- Control system upgrade
- Machine overhaul
- Energy efficiency
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, of course, on hand round-the-clock and can be reached via the telephone hotline.

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 heating plants technologically up-to-date on a cost-effective basis.

How you benefit:
- 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 SERVICE 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
The information provided in this brochure contains a general description of the performance characteristics of the products concerned. The actual products may not always have these characteristics as described and, in particular, these may change as a result of further developments of the products. The provision of this information is not intended to have and will not have legal effect. An obligation to deliver products having particular characteristics shall only exist if expressly agreed in the terms of the contract.