

Solutions for the industry sector

Electric drives and process automation

***Ingeteam***

Industry Business Unit

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# Ingeteam Power Technology S.A.

Industry Business Unit



**Ingeteam Power Technology's Industry Unit specialises in electric drives and industrial automation processes. The Industry Unit develops systems, using the most advanced technologies available in the market, geared towards improving industrial monitoring and control functions.**

The services we offer comply with the highest standards, meeting the required deadlines, including advisory services, consultancy, design and implementation of systems and their maintenance. Our platforms are designed to meet the industry sector's demanding needs; the functions offered by these platforms allow our customers to attain the maximum levels of efficiency, flexibility and profitability.

The expertise acquired over the years gives us a distinct advantage over our competition. Thus our solutions are not only based on technology but also backed by experience. For over 40 years, Ingeteam Power Technology has been offering the market industrial process control solutions.

We implement new installations and revamp existing ones, assisting our customers to use energy (electricity) efficiently and consequently increase their industrial production in a sustainable manner.

Several decades have passed since Ingeteam

Power Technology installed its first PLC; today it is ranked amongst the most important industrial PLC solution provider, and leader in process automation, offering solutions for all types of applications. We believe that each installation is unique, and for this reason our systems are developed to meet the needs of all types of processes, including discreet manufacturing by batches, continuous processes, safety processes or a combination of the latter.

Our business unit's engineering services are geared towards providing assistance to industrial plants, ferrous and non-ferrous plants, industrial water treatment plants, cement and mining plants, etc. The vast experience acquired in the design of installations and equipment, our capacity to integrate other manufacturer's equipment and platforms, our proposals' flexibility, and a permanent coordination between the mechanical and electric departments, enable us to attain the optimal solution for our customers. We are renowned in the market for providing solutions suited to the particular needs of each installation.

Our engineering services cover the useful life of our customers' automation and control systems

# Automation and drive solutions

Automation solutions  
Drive solutions  
HMI solutions

## AUTOMATION SOLUTIONS

**Our automation engineers are specialists in the implementation of proven and cost-effective solutions, adapted to the needs of the industry sector.**

Ingeteam Power Technology's Industry Unit offers integrated systems at all automation levels, for the entire production chain, catering for both new installations and the revamping and expansion of existing installations.

Our extensive experience in drive systems, process control, process optimization, expert packs and plant logistics, combined with our strong commitment to research and development, allow us to introduce decisive improvements in product quality, performance and feasibility of the plant. We cater for all project stages; from instrumentation, level 1, level 2, compatibility between the different platforms or with existent equipment, addressing the needs of any platform developed either by Ingeteam, Siemens, Rockwell, Allen Bradley, ABB, or any other manufacturer. Open systems that can be maintained and modified by the customer, if required.

Our solutions' structure is based on the principle functions of automation systems: power control, data processing and acquisition, human-machine dialogue interface. Our solutions' contents cover frequency converters, PLCs, etc.

Efficient software that provides inestimable support throughout the entire machine or plant's life cycle, starting at the planning and design stages, configuration and programming, and inclusive the commissioning, daily operation and revamping stages.

## FREQUENTLY USED MODULES

- Installation management modules
- Data acquisition modules
- Historical data storage modules
- Alarms and events processing modules
- Operating panel editing modules
- Operating panel monitoring modules
- Production tables and recipe modules
- Report generation modules
- Alarm notification modules
- Website access modules



We work continuously towards developing the most advanced service concepts and solutions required by our customers to obtain the best performance from their plants

**We develop, in close collaboration with our customers, production system configurations that meet, down to the minutest detail, each and every operating requisite.**

This way, with only one and very specific point of contact we are able to cater for all our customers' needs. Moreover, with our tailor-made streamlined services we provide the solutions that best suit our customers' challenges and projects.

Ingeteam Power Technology's Industry Unit has equipped a great number of installations with the most advanced electric system solutions.

From consultancy and planning, delivery and installation as well as optimization and maintenance, we stand besides our customers, during each phase of the project, providing reliable measurement and control systems, equipped with the most advanced drive technology, power management, efficient warehouse logistics or state-of-the-art component control solutions.

**At the essential level of the industrial automation pyramid are the following control systems:**

- Real-time data acquisition systems (data logger).
- Auxiliary power and distribution switchgear.
- Control desks and local control panels.
- Field devices and sensors.
- Logic and sequential control systems in PLCs.
- Remote I/O units for field data acquisition.
- Local communications networks (Interbus S, Profibus DP, Can, etc.)
- Industrial communications networks, Ethernet type (cable, F.O., wireless, etc.)
- HMI operating and monitoring systems.
- Engineering units.



## DRIVE SOLUTIONS

In industrial processes, drives, from a simple motor to a more complex drive system, need to fully comply with the installation's power, torque, regulation dynamics, availability, communications and diagnosis capacity requirements. However, our engineers' major priority is the cost-effectiveness level of our customers' systems, adapting them to their specific needs during consultancy, planning and commissioning, and studying and analysing each new requisite.

Ingeteam Power Technology uses its highly efficient, state-of-the-art, in-house drive technology or installs the equivalent technology available in the market. Our highly efficient drive systems offer our customers multiple profit opportunities.

**The most costly aspect in drive acquisition is not the purchase price but rather the operating costs of drives throughout their useful life.**

Since we are experts in drive systems, we offer our customers a complete portfolio of highly efficient drives, ranging from products right up to special services, such as competent advisory services and efficient tools, all geared towards assisting our customers attain the maximum savings their installations allow them to achieve. The convenience of a completely new design or the revamping option must be analysed within the context of each concrete situation.

Our drive solutions are easily integrated into any industrial application and in any automation environment

## HMI SOLUTIONS

Ingeteam Power Technology's innovative Human Machine Interface products allow for the implementation of HMI solutions in machine-level applications. Human machine interface technology has been designed to meet the needs of the more and more complex processes of installations and systems. We use open and standardized interfaces that can be easily integrated into installed automation systems.

**Our open architecture solutions are designed for applications with high customization requirements, including different Windows platforms.** Embedded packages, based on industrial PCs, are systems that are used at machine-level; these are very compact and robust systems that do not require maintenance.

**Efficiency:** our HMI solutions combine efficient engineering with high storage capacity and maximum data safety; these are key factors in achieving high production levels.

**Scalability:** we offer fixed and mobile solutions for growing demands, without discarding safety. Our renowned experience places us in a position to provide HMI solutions to all the sectors. Independently of the complexity or the amount of requisites, we always provide the adequate solution.

**Innovation:** the use of multi-touch gestures in an industrial environment opens the door to modern management systems. Open nature: individual requisites are easily implemented via international standards as well as script and programming interfaces used in each system.



# Services

General services  
Training services  
Technical assistance services  
Maintenance services

## GENERAL SERVICES

Founded in 1972, Ingeteam Power Technology is an internationally renowned and leading company in the supply of global state-of-the-art engineering services; a company that develops electrical engineering and control systems for the industry. It is experienced in a wide spectrum of industrial environments, highly skilled in project management, integration of systems and engineering as well as project execution and commissioning.

**Our major objective is to assist our customers introduce improvements in their plants, so they may achieve the highest efficiency levels in production, comfort and safety.** We make use of the most advanced technologies and equipment to achieve the best results.

- Project Technical Management.
- Development of detail engineering: electrical diagrams, dimensional diagrams, hook-ups, functional control descriptions, etc.
- Supply of equipment, manufacturing of electrical and control cabinets: control desks, MCCs, etc.
- Installation of equipment on-site: electrical and control equipment.
- Control system programming: PLC, HMI system and SCADA.
- Commissioning of installations.
- Training.
- Technical assistance and maintenance.

Ingeteam Power Technology's Industry Unit, assisted by a large number of highly skilled engineers, provides assessment services and designs the best solution for each project's concrete needs. Ingeteam Power Technology employs the required resources to carry out the electrical, hardware and software integration of equipment, systems and subsystems, amongst which a department specially dedicated to software development.

We offer our customers integral solutions to assist them successfully complete their projects



## TRAINING SERVICES

To enable our customers to obtain the maximum performance from the equipment supplied, and acquire the required know-how of the technology and solutions provided by Ingeteam Power Technology, we provide the training that may be required by our customers' staff (technical operators). Our training courses are carried out at our training centres or alternatively at the customer's premises, in the language required by the customer. The scope of the training provided by Ingeteam Power Technology covers all the equipment and systems implemented, including the following levels:

**Elementary, intermediate, advanced, customized courses and installation courses.**

## TECHNICAL ASSISTANCE SERVICES

Ingeteam Power Technology's Industry Unit offers technical assistance and after-sales support for the systems installed, anywhere in the world. The Central Services are located in Zamudio (Biscay), Spain, where strategic management and the coordination of logistic activities are centred. Our subsidiaries also provide assistance and support, with a rapid and efficient response under any circumstances.

## MAINTENANCE SERVICES

In today's production processes there is no room for non-programmed machine shutdowns. To minimize the number of equipment failures and extend its useful life, Ingeteam Power Technology's Industry Unit offers its customers a wide range of made-to-measure maintenance contracts to meet customer requirements, reducing breakdowns, to a considerable extent, and attaining a better control over expenses. Our maintenance contracts may include the following services:

**Predictive, Preventive, Corrective Maintenance, Remote Assistance and Spare Parts.**

# Solutions for the metallurgical sector

Solutions for ferrous and non-ferrous metals  
Continuous casting machines  
Reheating furnaces  
Hot strip mills  
Cold rolling mills  
Processing Lines  
Revamping of installations

## SOLUTIONS FOR FERROUS AND NON-FERROUS METALS

The metallurgical sector develops several manufacturing processes, ranging from heavy industrial production of iron and steel slabs to delicate processes for aluminium and copper production.

These applications require a wide diversity of processes (hot and cold), different technologies (continuous and in batches) and ferrous metals (iron and steel) and non-ferrous (aluminium, copper, bronze and zinc).

**The specific application needs of ferrous and non-ferrous metal producers are diversified, whilst associated difficulties are normally very similar in very competitive markets.**

The applications most often configured for control equipment and systems are:

- Smelting and ladle furnaces.
- Continuous Casting.
- Reheating Furnaces.
- Hot strip mills: long and flat product.
- Cold rolling mills.
- Galvanizing lines.
- Painting lines.
- Pickling lines.
- Degreasing lines.
- Cutting and inspection lines.
- Cutting and measurement machines.
- Aluminium cold rolling mills.
- Copper cold rolling mills.

Our customized solutions range from simple modifications, involving motors and drives, to complete turnkey electric solutions.

Our goal is to meet and exceed the needs of ferrous and non-ferrous producers in introducing improvements in the control of their processes, aimed at producing higher-quality products, improving plant productivity and profit margins.

For over 40 years we have provided our automation know-how and back-up to different fields of the metallurgical sector



Ingeteam Power Technology's Industry Unit provides automation solutions and a vast range of support services, to optimize its customers' production processes, with the following objectives:

- Systematically obtain the highest quality metal finishing.
- Achieve high levels of precision and repetitiveness in the performance, control and reliability of the machines.
- Increase productivity.
- Energy saving.
- Reduce operating expenses.
- Provide the support and technology required to successfully meet production needs.
- Increase safety levels and provide environmentally friendly solutions.

## CONTINUOUS CASTING MACHINES

Ingeteam Power Technology's Industry Unit supplies level 1 and 2 automation electrical equipment for Continuous Casting machines (billet, blooms, beam blanks, slabs, etc.).

### The supply covers:

- Electrical equipment for motor drives and control.
- Synchronization of casting withdrawal motors in multi-motor drives.
- Basic level 1 automation, made up of control PLCs and HMIs.
- Level 2 (process) automation, with advanced product control monitoring and quality assessment.
- MLC – Mould level control.
- TLC – Tundish level control.
- MWC – Mould width control.
- Break-out control, break-out prediction (liquid core rupture).
- Control of weights in turret, tundish, product (evacuation).
- Measurement of temperature and O2 activity of liquid steel (converter/tundish).
- Optimized billet /slab monitoring up to marking machines.

### Ingeteam Power Technology's Industry Unit optimized continuous casting processes are designed for:

- Automatically measure steel level in tundishes.
- A strict control of steel bath level in the mould.
- Precise mould oscillation.
- Addition of powder in mould.
- Fully automated cooling control.

## REHEATING FURNACES

Our list of references for this type of installation covers all types of furnaces: Pusher Furnaces, refractory long-product furnaces, tubular long-product furnaces, walking-beam furnaces, rotating-beam furnaces, etc.

Within the framework of heating furnace control we have developed up to three different types of applications implemented in different physical environments: PCs or PLCs, covering a furnace's entire control and regulation range.

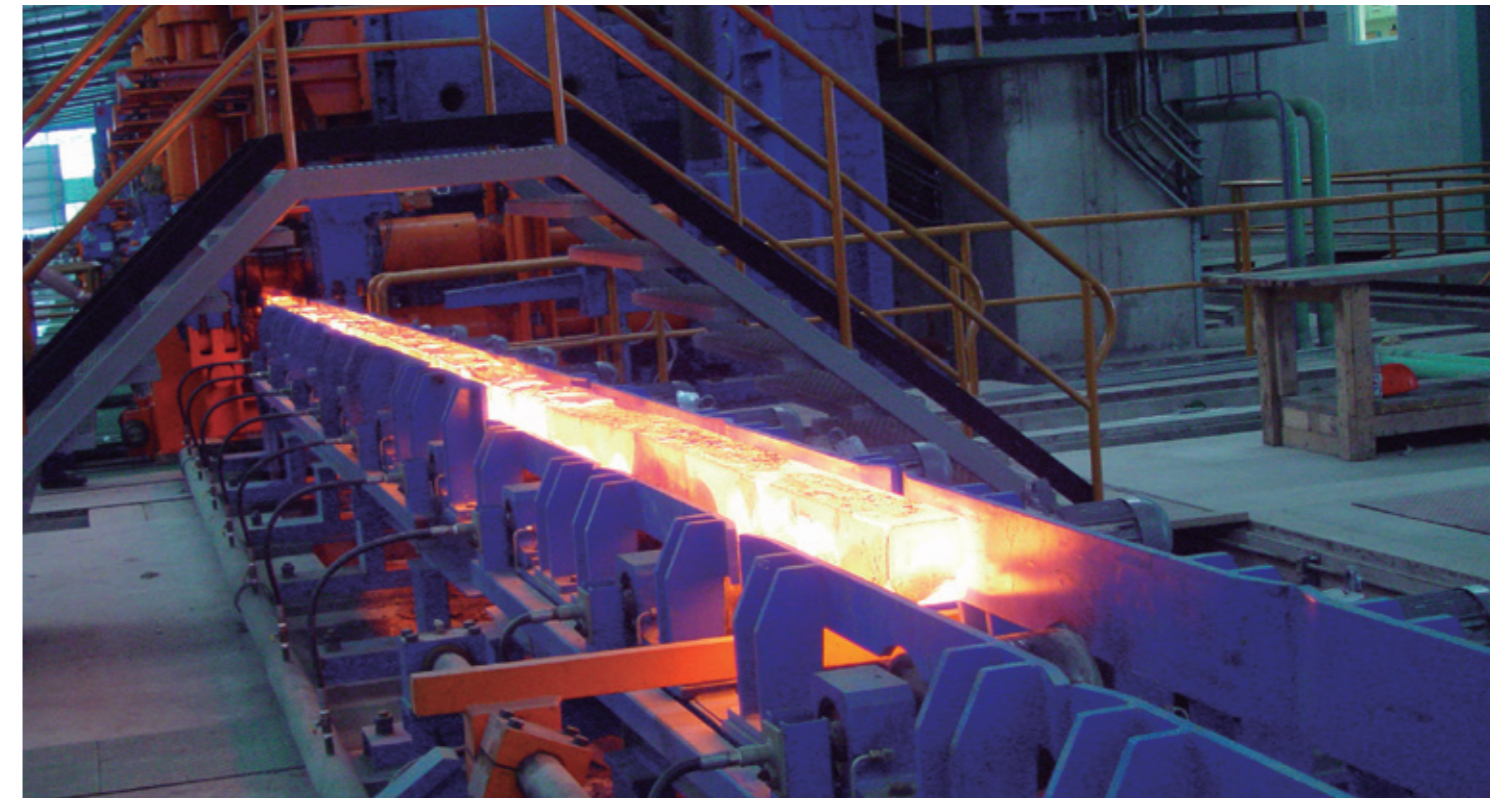
**Sequential control system:** controls the furnace's kinematics, loading and downloading manoeuvres and auxiliaries, like hydraulics, lubrication, furnace cooling, etc.

**Technological control system:** Relating to the furnace's specific instrumentation and regulation: PID temperature loops, air/fuel or air/gas cross-regulation, etc.

Amongst the regulation loops and associated tasks that control this application are the following:

- Regulating the temperature of each area. Adjustment of air/gas output. Furnace pressure regulation. Air-combustion pressure regulation. Control and regulation of furnace cooling circuits: level, flow and temperature. Control of valves and combustion fans operation.
- Regulation of air and fuel flows using the cross-control method.
- Indication of total fuel consumptions – monitoring of process values and editing of historical data (trending, Jogging).

We supply more than equipment, we deliver solutions



## HOT ROLLING

Hot rolled products are produced using a thermo-mechanical process to reduce slab thickness at high temperatures.

Hot rolling is a challenge for automation due to the high speeds and frequent changes when producing a wide range of steel grades, shapes and dimensions.

The rolling process automation objectives are: **maximize the availability of mills, reduce to a minimum shutdown times and constantly produce high quality products.**

In these types of plants Ingeteam Power Technology provides integral, turnkey solutions, with the following scope of supply:

**Electrical equipment**, including medium voltage switchgear, transformers, variable speed drives for alternating and direct current and corresponding motors, motor control centres, field sensors and actuators, control panels and control desks, etc.

**Level 1 basic automation**, including programmable logic controllers (PLCs) and

operation and monitoring systems (HMIs), centralized or distributed type, interconnected via field bus and local area networks. These systems execute mainly the following functions:

- Control of operating and start modes.
- Speed and torque references for different drives.
- Set-up Management.

**These systems execute mainly the following standard calculus functions:**

- Setup management.
- Regulation of speed in cascade between stands.
- Minimum load control between stands.
- Loop regulation between stands.
- Cut optimisation.
- Shear control for cropping and cutting processes.

Optimization of programs aimed at obtaining maximum rolling speeds to achieve the same motor power required in all passes



## COLD ROLLING

Cold rolling lines are applications commonly handled by our Industrial Solutions team, who has developed, supplied and commissioned a great number of drive systems to increase operation and production precision levels. **In new projects as well as revamps our solutions offer a precise control that allows for high levels of repetitiveness and exactness in machines.**

Cold rolling mills are an important part of metal steel manufacturing processes. These plants use rollers to progressively deform metal, with several passes, and this way achieve the desired surface and material properties and thickness.

Ingeteam Power Technology's Industry Unit has experience in developing high speed cold rolling automation projects in the following types of rolling mills:

- Tandem rolling mills.
- Coupled pickling and tandem rolling mills.
- Reversible cold rolling Mills.
- Skin-pass rolling mills.
- Cluster type rolling mills for stainless steel.

### Rolling applications covered by Ingeteam Power Technology

Rolling mills with one or several stands. Rolling mills in group and Sendzimir. In-line and continuous rolling mills. Reversible and non-reversible. Skin-pass reduction (temper mill), double cold reduction (DCR) and rolling of sheet steel, stainless steel, aluminium, for a vast range of final products. The task of the rolling model is to provide the adequate configuration values at level 1 of the open control system. The main objectives of the pre-adjustment model are:

- Optimization of the quality of the strip in terms of length, surface and flatness out of tolerance.
- Optimization of production by increasing feeding rates, maximum acceleration and speed.

The operational duration of equipment increases when integrated diagnostics systems are implemented to simplify plant maintenance, thanks to reliable and problem-free operations



- Guarantee that all preset values remain within the limits set for the material and the mill.
- Avoid strip ruptures, ridges produced by the rollers and unforeseen feed stops.
- Hydraulic Gap Control (HGC) of rollers, which acts on the rollers' tightening torque and position.
- Thickness control, including feed-forward and mass flow calculation.
- Set-up of stable rolling conditions.



## PROCESS LINES

Process Lines are installations used for surface and/or thermal treatment of strips of steel, aluminium, copper, etc. These treatments are required to regenerate the internal structure, improve surface coating and attain dimensional tolerances.

### The generic term Process Lines includes several installations:

- EGL (Electro galvanizing Lines and electrolytic coating processes).
- CGL (Continuous Galvanizing Lines and dip-coating processes).
- PL (Pickling lines and other chemical processes).
- CCL (Paint and organic coating lines).
- AL (Annealing lines and other chemical processes).

We have, for many years, been designing systems and applying solutions, for automation and control of Continuous Process Lines. These solutions are geared towards reducing maintenance and operating costs and, subsequently, improve manufacturing outputs and obtain better quality products.

The solutions supplied by Ingeteam Power Technology are not only based on technology but also on the expertise behind the technology

With the following "turnkey" solutions we aim to attain the aforementioned objectives:

- Complete electrical equipment, medium voltage switchgear, transformers, motors, motor control centres, control desks and panels, field devices, etc.
- Basic level 1 automation, comprising control PLC systems and operation and display HMI's in local and global typology Networks (Ethernet).
- Level 2 process automation.

We are in a position to comply with the necessary requisites to achieve desired final product yields, in terms of quality and tolerance, as well as required plant production and availability levels. **We supply complete electric solutions, ranging from power distribution solutions, drives, automation systems, technological control functions, instrumentation and sensors as well as auxiliary equipment.**

Our integrated solutions are geared towards achieving high automation levels and increased outputs, adequate displays for the operator and diagnosis systems that make it easier to handle and control the plant.

## REVAMPING OF INSTALLATIONS

In numerous occasions industrial plants still incorporate obsolete electrical/automation systems. The problems associated to such systems are: High power consumptions, frequent shutdowns, lack of spare parts, working methods that do not meet current needs, limited control capabilities, etc.

All these may lead to a lack of competitiveness in the market, due to frequent production losses, high energy consumption costs, high costs associated to repairing breakdowns, etc.

**The objective is to gradually revamp the electronic equipment of machines in plants, taking into account financial resources and budget available, etc.**

Ingeteam Power Technology's Industry Unit is able to carry out revamps by phases, to suit its customers' budgets.

After analysing the needs of the plant in question we are able to introduce, taking one step at a time, the latest innovations available in the market and revamp said plant to the required level, and consequently improve production, reliability and competitiveness levels.

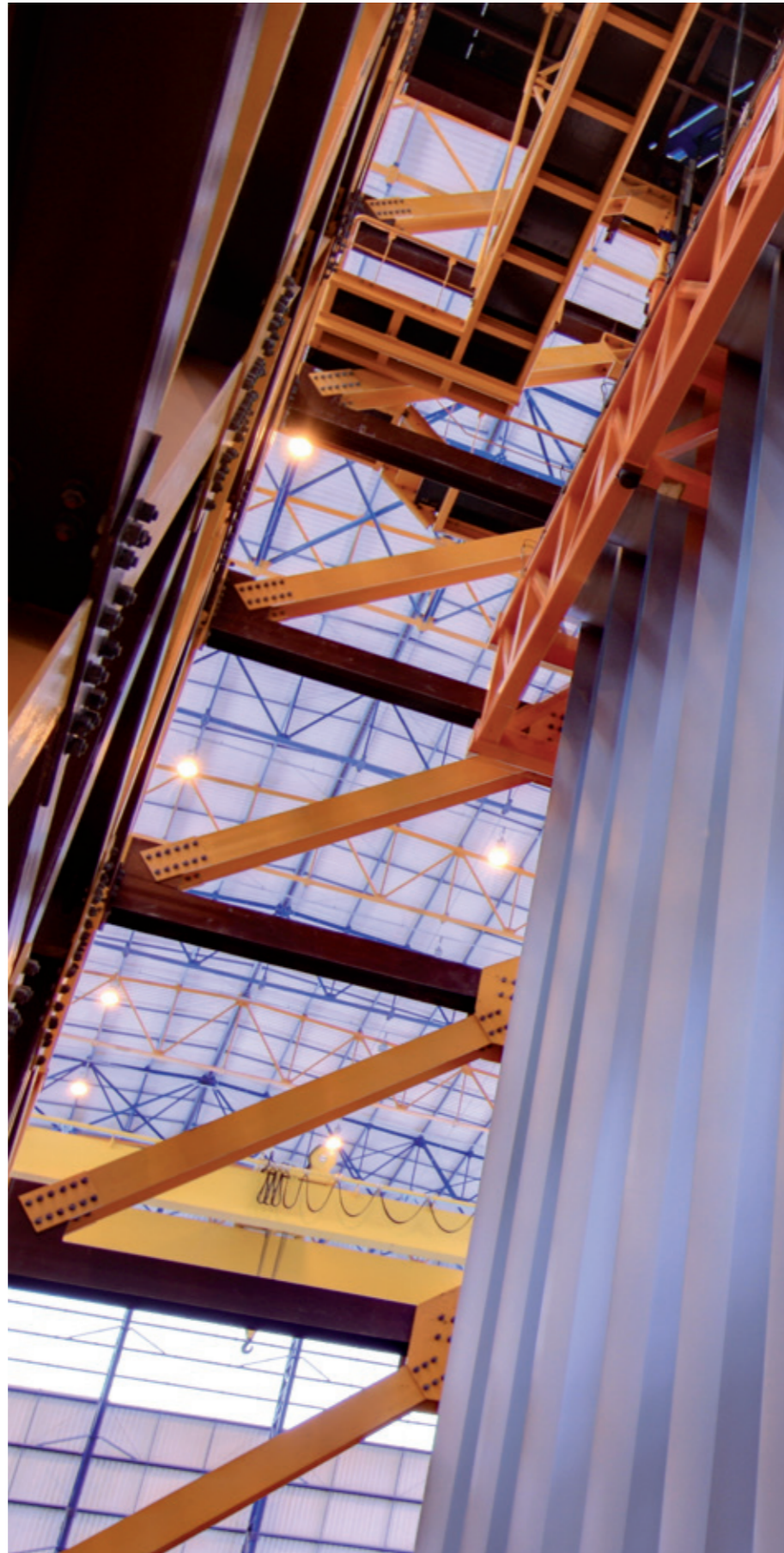
### Advantages:

- Improves operational comfort levels.
- Possibility of networking machines.
- Possibility of obtaining remote technical support.
- Safe and reliable data management.
- Savings in energy consumption.
- Reductions of stoppage time due to faults.

### We improve installations' feasibility

By keeping close contact with our customers, we help them develop and update their plants' equipment and control systems in order to achieve growing production objectives and the market's quality requirements.

Our aim is to give added value to our clients' activity and react immediately to their different needs. We offer customized maintenance and technical service packages to guarantee an incident free plant



We are also in a position to supply hardware and software updates in keeping with technological advances, as well as add new functions, if required.

### Effective revamping of ferrous and non-ferrous plants

By establishing close working relationships with our customers and carrying out in-depth audits of current equipment and processes, we are able to quickly detect aspects that must be improved. This assessment may include the following:

- Review of the original installation platform.
- Energy efficiency analysis.
- Identification of system and/or process improvement options, as well as the advantages derived from said improvements.
- Management of useful life cycles.

### Best quality and price guarantee supplies

Ingeteam Power Technology designs solutions to suit its customers' budgets. Many of our customers seek to make improvements in their processes and plant efficiency levels through operational expenses (OPEX, operational expenses) instead of making use of large capital investments (CAPEX, capital expenditure).

The reconditioning, even when it is only partial, of plant equipment may be done on an annual basis. By focusing mainly on aspects of higher efficiency or critical elements that initially, are likely to produce more impact, we can guarantee the maximum operation and economic profits.

All the previously mentioned solutions, services and applications offer indisputable evidence that Ingeteam Power Technology has the expertise, experience and innovation indispensable to implement automation and manufacturing processes required in modern plant environments.

We are in a position to offer our customers all the assistance they require, independently of the production volume of their plants.

From simple modifications in drives and motors to complete turnkey electrical automation solutions we always strive to meet or exceed our customers' needs



# Other Sectors

Mining sector  
Cement sector  
Water sector

## MINING SECTOR

Using data processing tools, development of new methods and adequate automation technologies, the mining industry is able to increase production levels, reduce costs, and consequently obtain operational continuity and improvements in occupational health and safety.

Automation in mining only produces significant production increments and reduces expenses when the required energy resources are available. Energy demands in mining and mineral producing processes are continuously being increased; consequently to improve the different stages of said processes an efficient and powerful energy grid is required.

### We offer integral turnkey electrical solutions:

- Electrical engineering and automation for updates and new systems.
- Partial and complete automation of individual machines.
- Solutions with converters (CC and AC).
- Direct and soft start solutions for AC motors.
- Variable speed drives (individual or multiple) with energy recovery facilities.
- Air and fluid cooled converters for LV and MV.
- Simulation, modelling, network analysis.
- Distribution panels (MV and LV).
- Electrical rooms in containers for panels and motors.
- Transmitters and sensors.

### Complete electrical equipment:

- Electric mining shovels and draglines.
- Spreaders (with or without car).
- Stackers and reclaimers.
- Ship loaders.
- Bunkers Management Systems.
- Rotary Railcar Dumper (Wagon Tippler)
- Conveyor belts.
- Silos.

We develop automation solutions required for precise interaction between the basic movements of mining and mineral transportation equipment within the mine





### CEMENT SECTOR

With its technical expertise as well as economically and energetically efficient processes Ingeteam Power Technology's Industry Unit is the ideal partner. We offer the cement sector a vast range of products, systems and integral solutions, to assist our customers in improving the quality of the final products and attain better production results.

**We develop systems to suit customers' current installations. By controlling each variable, in no time and at low cost, the plant will achieve the levels of efficiency, quality and recording that only an innovative automation and control system is capable of.**

Our automation, control and drive solutions guarantee a robust and safe power as well as maximum efficiency.

By working closely with our customers during project development phases we are able to rapidly and without problems deliver the installation required.

#### Our solutions:

- Automation, drive and control systems.
- Measurement and control of clinker burners.
- Cyclonic pre-heater locking control instruments.
- Optimization of crusher and feeder.
- Wireless and remote data monitoring and transmission at the storage silos and crushers.
- Optimized maintenance and local support.
- Complete Tools in web format for implemented Solutions.

For the cement sector we design and supply solutions for individual machines, as well as complete plants, covering the entire process

### WATER SECTOR

Ingeteam Power Technology's Industry Unit supplies the adequate solutions for all drinking and municipal water treatment processes. **Automation and energy distribution play a vital role in guaranteeing an efficient and sustainable water management system.**

Efforts in automation solution's details engineering, drives and control, as well as adequate maintenance, are fundamental pillars required to control the large amount of data generated by these systems.

The aforementioned is successfully achieved by maintaining all the field devices and units centralized, using a field bus and segmented grid.

When our customers are seeking effective and integral solutions to their water handling problems Ingeteam Power Technology is the perfect partner in control technologies, instrumentation, automation and drives required for water catchment, transportation, treatment and distribution.

#### Solutions for:

- Transportation of drinking water: Aqueducts and pumping stations.
- Water Treatment: Drinking water treatment plants and industrial water and municipal water treatment plants.
- Water distribution: Secondary drinking water distribution network and wells.
- Sanitation: Municipal water pumping stations.

Revamping of existing equipment and supply of solutions for new installations respecting all our customers' needs.

#### Measurement, control and distribution

- Programmable Logic Controllers (PLC).
- Human Machines Interfaces (HMIs).
- SCADA Software.
- Instrumentation (pressure, level, flow).
- Drives and motors in LV and MV.
- Motor Control Centres (MCCs) and accessories.

Ingeteam Power Technology uses advanced technology in all equipment that is supplied to aqueduct projects, pumping stations and water treatment stations



# Occupational risk prevention



Ingeteam Power Technology's Industry Unit tries to create a healthy and safe working environment in all sites and installations it is involved in and takes the adequate measures to avoid possible accidents and health impediments that are likely to occur at the work place, to minimize, insofar as possible, the causes of hazards inherent to working environments.

Thanks to the firm and innovative standards implemented at our plants and offices, we may proudly state that we have a good safety at work history and low work accident rates.

We carry out a series of initiatives to continue implementing our occupational hazard prevention measures.

**The strict occupational safety measures implemented by Ingeteam Power Technology's Industry Unit has considerably reduced accident rates and prevented occupational illness from occurring.**

Notwithstanding the previously mentioned, there is still a lot of work to be done in promoting health at work as a means of reducing illness related costs and increase productivity.

- Motivating people to get actively involved.
- Enquire with the Employee Health Promotion Department about the important decisions made regarding health and safety in the company's entire organization unit.

- All associated measures and programs are systematically carried out: analysis of needs, establishment of priorities, planning, execution, continuous monitoring and result evaluation (project management).
- Decision-making related to compliance, geared towards working relationships.
- Involves hazard mitigation measures with strengthening of the protection factors and preventive healthcare (holistic approach, global analysis).

Moreover, our employees are given know-how, training and the team required to comply with their responsibilities in terms of health and safety, and consequently take the necessary precautions to avoid hazards and danger. Personal responsibilities are clearly defined. Periodic audits are carried at all the companies that form part of the Ingeteam Group to ensure that external and internal regulations are implemented and complied with.

Company executives, health and safety specialists, safety employees, experts in safety as well as workers representatives, all work together to implement additional improvements.

With systematic information it is possible to efficiently evaluate the occupational risk prevention system and develop strategies geared towards its improvement

# Quality and Environment

The quality of our products and services is an essential part of corporate strategies, and, moreover, our responsibility in terms of quality includes our decision to be proactive in protecting the environment and the natural resources.

**Ingeteam Power Technology's Industry Unit strategy includes working tirelessly to achieve excellence in terms of quality, always with maximum respect to the environment. With this in mind we are actively involved in:**

- The development of the EFQM model, improving internal and external customer satisfaction, our suppliers and the social environment.
- The integration of quality, environment and occupational hazard prevention management systems, conforming to the ISO 9001:2000, ISO 14001 and OHSAS 18001:2007 standards.
- The reduction of CO2 emissions and elimination of hazardous waste in strict compliance with R or HS standards.

Our daily tasks are carried out bearing in mind the importance of protecting and preserving global resources. This approach forms part of our responsibility as a company, and this means that we are committed to adopting working methods that are environmentally sustainable, responsible and reasonable. The use we make of the natural resources placed at our disposal is an integral component of our commitment with environmental protection.

We strongly believe that an efficient management starts with a careful acquisition of supplies, equipment and goods.

In line with our commitment to the environment we reduce CO2 emissions and eliminate hazardous waste





Ingeteam in the  
world

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# *Ingeteam*

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