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POWERFUL SOLUTIONS  
IN METALS INDUSTRIES

# Converteam, An Ideal Global Partner

**Converteam provides customised solutions** to convert electrical energy through optimum application of technology in drives, controls, motors and generators. Our customers operate in three main markets: Marine and Offshore, Oil and Gas, and Process Industries, as well as in many specialized areas. Our long history in supplying solutions for the metals industry, along with our international network of specialist metals application centres makes Converteam an ideal global partner in projects ranging from complete greenfield installations to process revamps, delivering tangible benefits.



## Strength in Depth & Special Skills

Converteam brings together the experience of more than 2000 major references in the metals industry since 1985.

To put it another way, we have completed a major metal-industry project somewhere in the world every 4.5 days for the last 25 years. This is in addition to tens of thousands of smaller projects and retrofit work over the same period.

Such things do not happen by accident, but by design – better designs, for a better world. Converteam combines special skills in its people and products:

## Electrical Engineering Experts and Process Experts

With over 100 years experience of converting electrical energy into productive performance and a massive store of “know-how” about your process – its physics and chemistry and metallurgy, and all the latest techniques for optimum control of your product-manufacture route.

## System Builders

With wide experience of drives and actuators, controllers and computers, and open-system networking, to build powerful systems with flexibility for future adaption and upgrade.

## Strategic Products

Advanced drives, power rectifiers and controllers, not available from vendors of standard products, to ensure high- performance systems for your process.

## Project Managers

Ensuring smooth progress and fast startup for your project.

This is a rare combination, possessed by few of our competitors. It is why our solutions succeed.



# Expertise and Innovation

## You can rely on us for:

- Strong support in productivity, quality, and safety improvements in manufacturing operations
- Conversion of electrical power for manufacturing processes
- Customization of standard solutions for specific applications
- Proven products compliant with international standards and compatible with all current standards for automation systems
- Powerful solutions to manufacturing challenges anywhere in the world

## Constant thrust on R&D

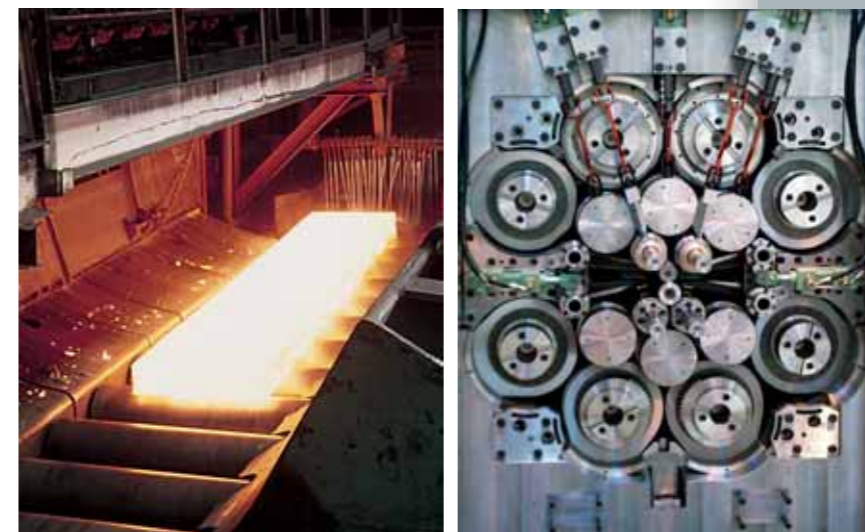
Drawing from its tried and tested skills and innovation capacities in designing electric motors and generators, power converters, control and automation systems, Converteam ensures that its customers benefit from cutting edge technologies. This is one of key factors for sustained competitiveness.



## Main References

Since 1985, more than 2,000 major references have been acquired.

- 450 projects for **Steelmaking and Continuous Casting** (Sinter and Coke Plants, Blast Furnaces, Oxygen Steel Plants, Electric Arc Furnaces, Secondary Metallurgy, Continuous Casting Plants)
- 300 large projects for **Hot Strip and Plate Mills** (Heavy Plate Mills, Semi-Continuous Strip Mills, Continuous Strip Mills, Steckel Mills, Strip Mills of all types, Thin Slab and Strip Casting, CSP and ISP pioneer work, Continuous and Semi-Continuous Mills, Harmonised power/drives solutions)
- 350 projects for **Section Mills** (Rod, Bar and Light Sections Billet and Medium Sections Rail and Tube, Beam and Heavy Sections, Continuous and Semi-Continuous Mills Furnaces to finishing areas)
- More than 300 **Tandem and Single-Stand Cold Mill projects** (Coil to Coil Tandem Cold Mills, Fully Continuous Tandem Cold Mills, Sendzimir and other Cluster Mills, Skin-Pass Mills, Conventional Reversing Mills)
- More than 500 **Processing Lines** (Continuous Hot Dip Galvanising Lines, Continuous Electrolytic Galvanising Lines, Tinning Lines, Pickling Lines and Coupled Lines/Mills, Annealing Lines, Coating Lines of every kind. Also special steel and stainless steel applications such as : Bright Annealing Lines, Annealing and Pickling Lines, Grinding Lines).



# Successful Systems

Converteam brings together all the elements of a successful integrated system:

## Powerful Architecture

An economic blend of standard products and high performance controllers; based on open-system concepts for interoperability; with fast reliable networks to link the components; covering every level, from plant to production management.

## Libraries of Process Expertise

A simple top-level model to describe any process; standard libraries of process know-how, within this top-level structure; pre-proven control modules; extensive pre-delivery proving; simple entry-level packages, may be extended later to provide extra functions.

## Advanced Software Tools

Covering the whole life-cycle – from system design, programming and testing, to operator interfaces for plant management and process control, to powerful tools for system analysis, monitoring and maintenance.

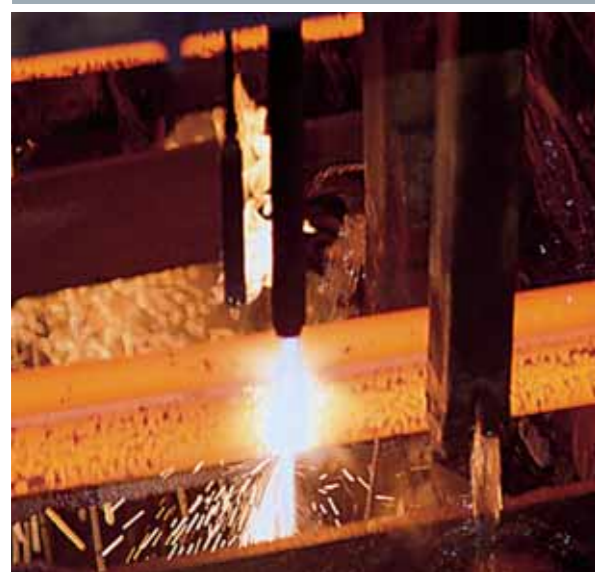


In Converteam solutions, key data and facts are highlighted and made visible to managers, operators and maintainers – clearing the confusion and putting them in charge of the process at every stage.

## Leading Solutions

Following these principles, Converteam provides leading solutions for every metal industry process sector. Reliability, adaptability, efficiency – these are the key-words.

Retrofit and modernization projects provide a good example of the flexibility of Converteam's solutions. In this area, which many others find too much of a challenge, Converteam has a proud record, interfacing with equipment from many suppliers, and building success with minimum additional cost or complexity.



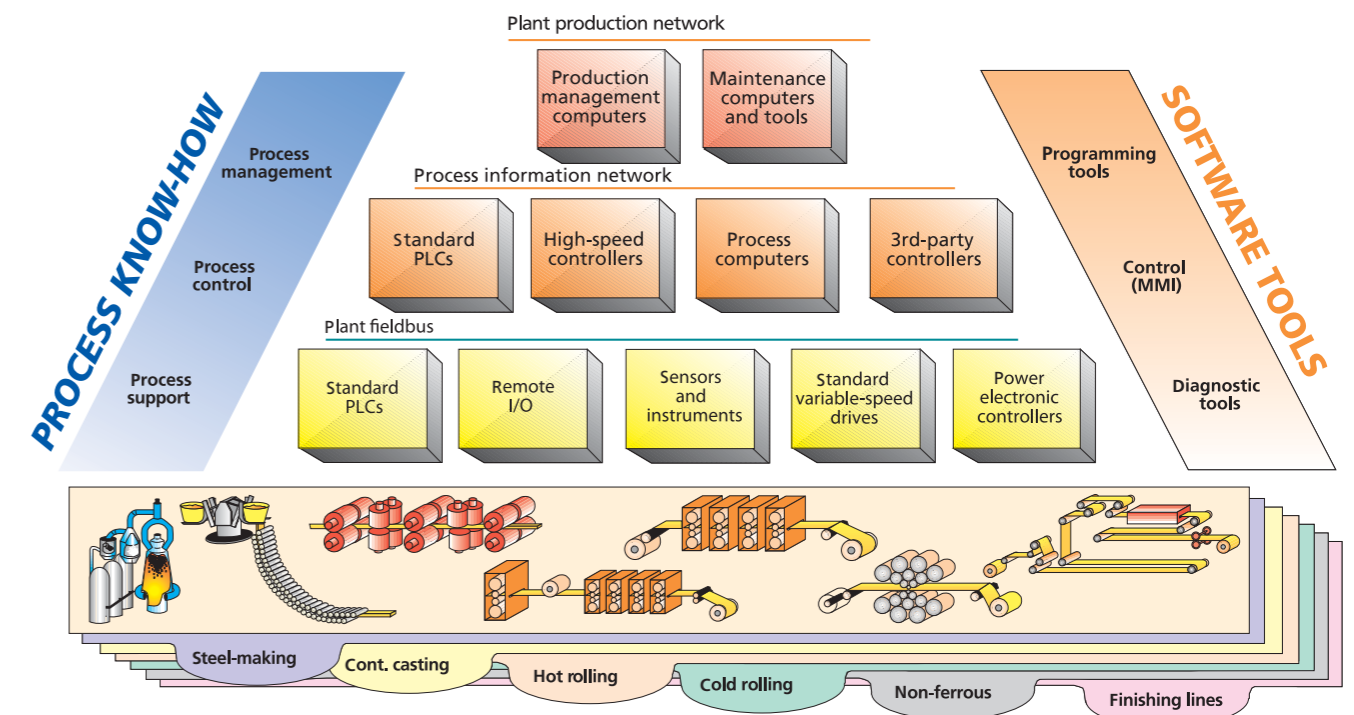
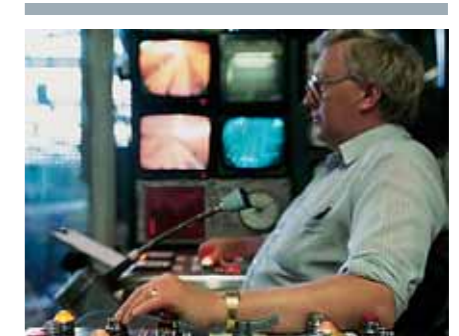
# Performance throughout the Process

We improve the performance of our customers, by providing solutions based on high performance power electronics and automation.

In every project, our first task is to look ahead and decide which of these key factors can be improved. We also monitor our work, to ensure that we have succeeded.

Performance improvements are assessed against important metrics, such as:

- Plant throughput rate
- Product quality
- Percentage yield
- Plant availability
- Process efficiency
- Customer's market share for his products



# Benefits

## for our Customers



With advanced process models, know-how and experience, Converteam translates the customer's overall aims into specific targets, for instance:

### Quality

- Producing consistent product quality
- Dimensional and flatness accuracy
- Good metallurgy and surface
- Good presentation of finished coil
- Obtaining product QC data promptly

### Yield

- Reduced end and side losses
- Reduced cobble rate

### Production/Throughput

- Accurate product pacing throughout the process
- Increased rolling speed
- Reduced delay/downtime due to faults, roll-changes etc.

### Efficiency

- Reduced operational manning costs
- Reduced energy consumption
- Reduced inventory

With the targets clearly identified, the improvement in performance can be measured as the project proceeds:

### Improved Production

Converteam's control systems include options to cater for all of the Quality/Yield/Production objectives.

### Increased Effectiveness

Greater operational effectiveness – operators and managers have more data and greater control.

### Minimum Production Loss

- Less production disruption during installation
- Fast and smooth startup
- Quick return to high quality production

### Diagnostics

Powerful diagnostic aids help users to maintain the system at peak performance.



# Making

## our Know-how Available

Our range of process-control solutions covers every aspect of the processes involved in ferrous and non-ferrous rolling, shaping and treatment.

Converteam solutions are based on key concepts:

### Managed Structure

Breaking down the overall task into a managed structure of sub-tasks.

### Re-usability

Re-use of standard modules wherever a task is repeated.

### Consistent Model

A consistent system for describing the process in diagram form, presenting a common top-level view for any specific process.

### Modular Economy

Structured so as to have a basic kernel, with optional extra features to enhance the system.

### Offline Support

Supported by powerful offline models for development, testing and validation.

### Remote Support

Converteam's experts are available via modem and Internet to analyze and diagnose your problem, anywhere in the world.

### Consistent Control Concept

We view the control of any process as being composed of three main elements – Management, Control and Support.

In more detail, this top-level view can be expanded to a second level – as shown in the diagram below.

This provides a consistent control concept, which applies across a wide variety of different processes.

Such an approach makes it easier to think constructively about the tasks of controlling and managing – and there are other benefits.

### Cross-fertilisation

It is easy to compare solutions for different process areas – good ideas in one discipline may easily be adopted in other market sectors.

### Easy Linkage

It is easy to link different process areas (example: a furnace and a rolling mill, a mill and a process line, etc), since they follow the same overall control system structure.

