

## Scope of Supply

Ingeteam Power Technology, S.A. Industrial Systems Division is responsible for the complete "Turnkey" electrical project:

- Project management
- Basic and detail engineering
- Supply of electrical equipment, drives and automation:
  - Low voltage distribution center.
  - Auxiliary control voltage distribution.
  - Emergency power UPS.
  - Main DC drives – MOTOCON DC\*.
  - Auxiliary DC drives – MOTOCON DC\*, MOTOCON AC\*.
  - AC motor control center.
  - Field sensors.
  - Control desks and local panels.
  - Integrated control equipment (SISTEAM M)\*.
  - Control and supervision equipment (OPERATOR MT)\*.
  - Intercommunication and PA system.
  - Fire detection and passive protections.
- Electrical Installation.
- Supervision of electrical installation.
- Commissioning.

(\*) MOTOCON DC, MOTOCON AC, SISTEAM M and OPERATOR MT is equipment designed and manufactured by Ingeteam Power Technology, S.A.



DC Motor Control Center



Local Control Panel



Mill Stand Motor



Hot Rolling Mill Coiler

## After Sales Services

- Hotline.
- Spare parts in 24 hours.
- Direct line with our technical staff.
- Remote communication from our offices to the factory automation network.

# Ingeteam

## HOT ROLLING MILL (3 Stands)

## VALENCIANA DEL ALUMINIO BAUX S.L. (Spain)



## Mill Description

**VAI Cosim** the Spanish subsidiary of the VATECH group (Voest Alpine) commissioned **Ingeteam Power Technology, S.A. Industrial Systems Division** during the second half of 1999, to design, supply and install the state-of-the-art Electrical and Automation Equipment for an aluminium Hot Rolling Mill. The end user is **Valenciana del Aluminio, BAUX s.l.** in Segorbe (Castellón), Spain.

The aim of the mill is to obtain stainless steel coils from a continuous casting placed at the entry. It consists of 3 QUARTO mill stands (two working rolls and two back-up rolls), and two coilers.

The main drives feature DC motors recovered from another installation, driven by new digitally-controlled thyristor rectifiers (MOTOCON DC).

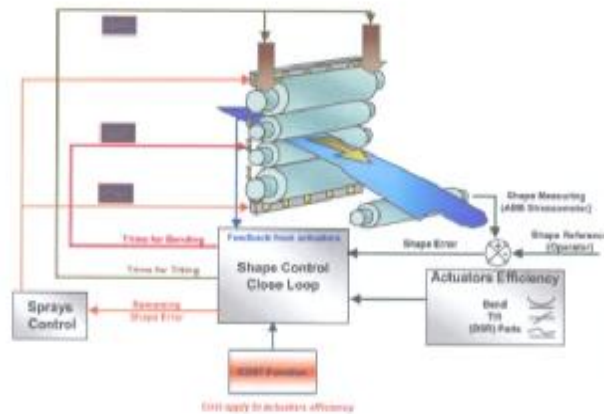
The mill automation was carried out by PLC control systems: 1 PLC as master control system and 1 PLC for auxiliary drives and spraying systems, lubrication and hydraulics.

The master control system executes the thickness control functions, bending and manual tilting, torque and speed setpoint generation for mill stands and coilers.

Valenciana del Aluminio BAUX, s.l. supplies the thickness gauges.

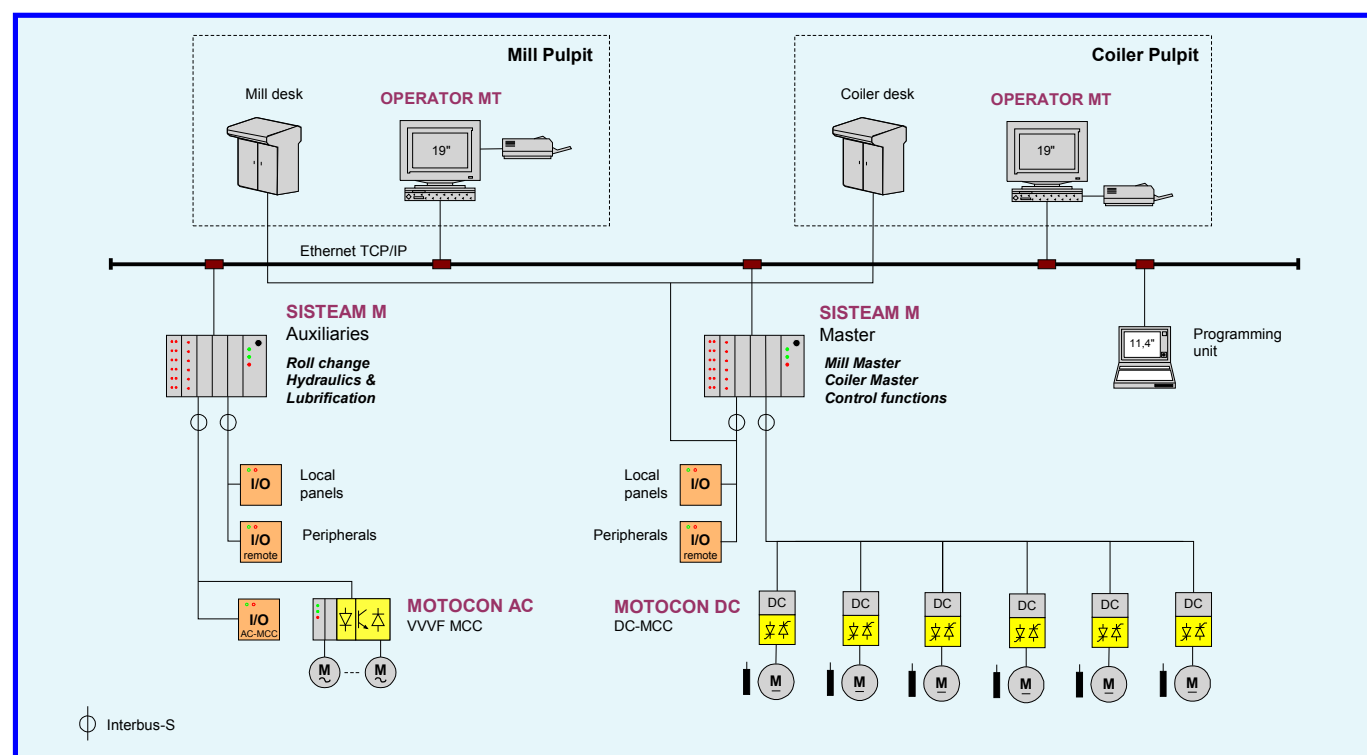
The automation also includes two HMIs (Human Machine Interfaces) in the control pulpits, as shown in the drawing, which make easy to the user the mill adjustment, control and tracking. These systems are based on PCs and incorporate the operation and monitoring software.

## Technical Features

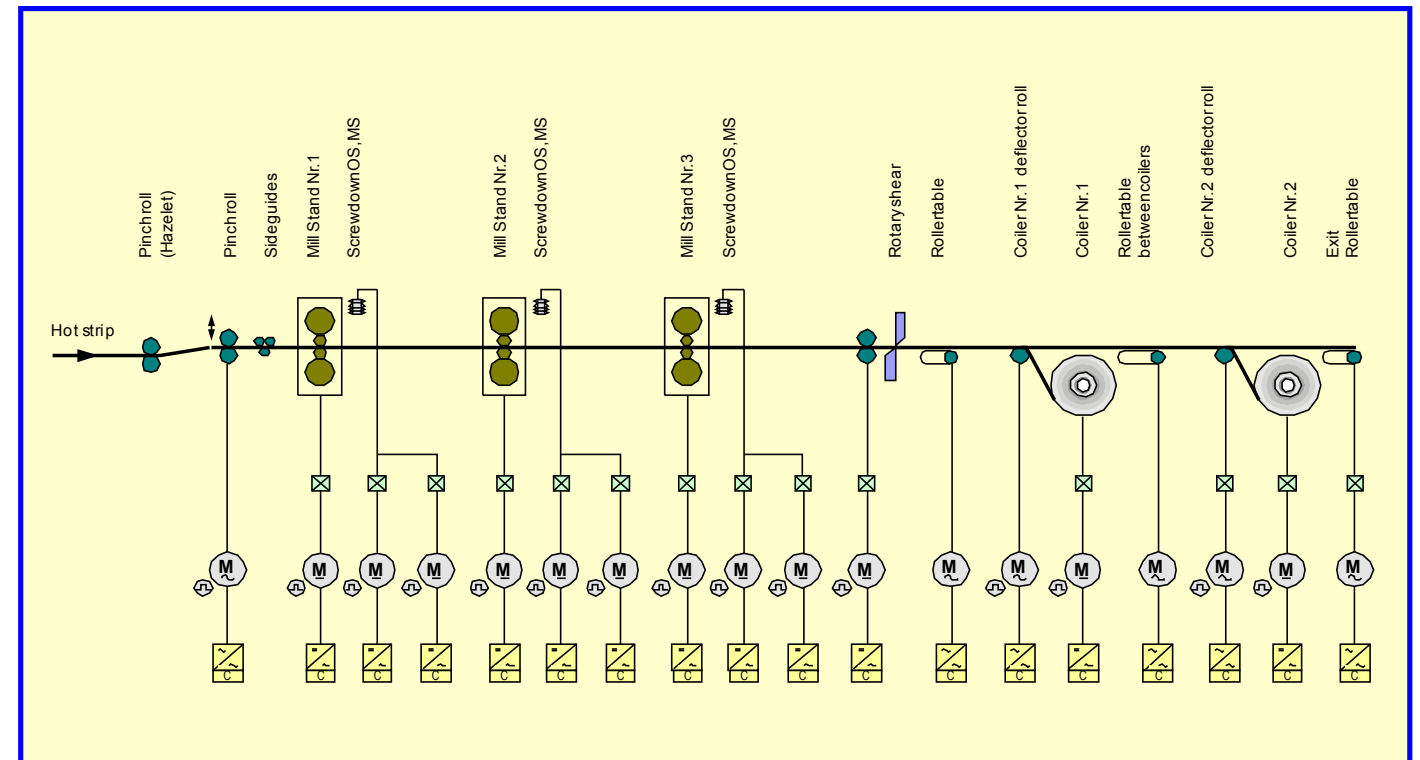


Thickness	
Casting Delivery	19 mm
Delivery 1st Stand	7.4 mm
Delivery 2nd Stand	3.7 mm
Delivery 3rd Stand	1.3 mm
Production Data	
Coils Diameter	from 508 to 1 800 mm
Winding Speed	up to 120 m/min
Annual Production	150 000 tpy
Casting Data	
Temperature	520° C
Speed	8 m/min

## Control Diagram



## Mill Lay-Out



	Stand Nr. 1	Stand Nr. 2	Stand Nr. 3	Rotary Shear	Coiler Nr. 1 and 2
Pn (KW)	746	1 305	1 305	140	175
rpm	225 / 450	225 / 450	225 / 450	1 650 / 1 950	550 / 1 650
Un (V)	600	600	600	600	600
In (A)	1 325	2 365	2 365	255	315
i (Gearbox)	33.34	13.97	6.83	22.4	21.6
Ø (mm)	675 / 730	675 / 730	675 / 730	460	508 / 1 800
V <sub>L</sub> (m/min)	15 to 30	36 to 73	75 to 151	-	23 to 121

## MOTOCON DC

The main drives are driven by DC motors and controlled by four-quadrant thyristor rectifiers (4Q), including field excitation (1Q), using latest generation thyristors.

Its software regulation provides the equipment with an excellent reliability and facilitates its parameterization.

The MOTOCON DC rectifiers feature two formats:

\* A compact execution ranging from 30 A. to 1,500 A.

\* A cabinet execution from 1750 A. to 6800 A. with physically independent control and power units.



Compact MOTOCON DC Rectifiers