

Scope of Supply

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

Power installed: 2,000 KVA

- * Project management.
- * Basic and detailed engineering.
- * Supply:
 - Medium-voltage switchgears.
 - Low-voltage distribution boards.
 - Main motors – manufactured by **INDAR**.
 - Main drives – MOTOCON DC, VVVF (common rectifier and inverters).
 - Auxiliary drives – MOTOCON AC, MP-BT
 - AC motor control centre.
 - Sensors.
 - Integrated control equipment (SISTEAM M).
 - Control and supervision equipment (OPERATOR MT).
- * Electrical Installation.
- * Commissioning.
- * As regards the control and automation system, Aceralia has supplied the following measurement devices:
 - Hole detector
 - Strip thickness meter
 - Strip width meter



Control Pulpit



Control System



Uncoiler Local Panel



Uncoiler Motor

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

Recoiling Line

ARCELORMITTAL Etxebarri (Spain)



Equipment

In the year 2001, the company INSTALACIONES SIDERURGI-CAS S.A. commissioned Ingeteam Power Technology S.A., Industrial Systems Division to provide the turnkey supply of the electrical and automation equipment for a high-speed recoiling line.

This line will mainly be used to process coils from the double reduction skin-pass mill (black plate, tinplate and chromium plate). The maximum processing speed is 1,200 m/min.

The line basically consists of two decoilers which are loaded using a hydraulic feeder, a welding machine, an edge cutting shear, a hydraulic press for collecting edges (100 kg maximum per package), an inspection area and a coiler, which also has a hydraulic feeder. The line also includes thickness and width measurement equipment, as well as a hole detector, these all being supplied by ArcelorMittal.

The drives' electrical equipment is composed of AC motors, squirrel cage type, and frequency converters with digital control using PWM technology at 400 and 690 Vac.

The line is automated using PLCs and HMIs (Human Machine Interfaces), integrated into a single, industrial ETHERNET-type network.

The line is also integrated in the process control of the rolling mill Nr. 6 for the purpose of controlling and tracking the process correctly.



Technical Features

Type of installation: Recoiling Line

Mechanical supplier: INSTALACIONES SIDERÚRGICAS S.A.

Operating features:

Threading speed:	30	mpm
Remanent coil winding:	30 / 90	mpm
Maximum process speed:	1,200	mpm
Average hourly capacity:	45 - 65	(Ton/h)

Production:

Single reduction (SR):	230.000	Ton/year
- average thickness:	0.23	mm
- average width:	850	mm
Double reduction (DR):	150.000	Ton/year
- average thickness:	0.16	mm
- average width:	850	mm

Availability time:	8500	hours
Run time:	6850	hours

Coils features:

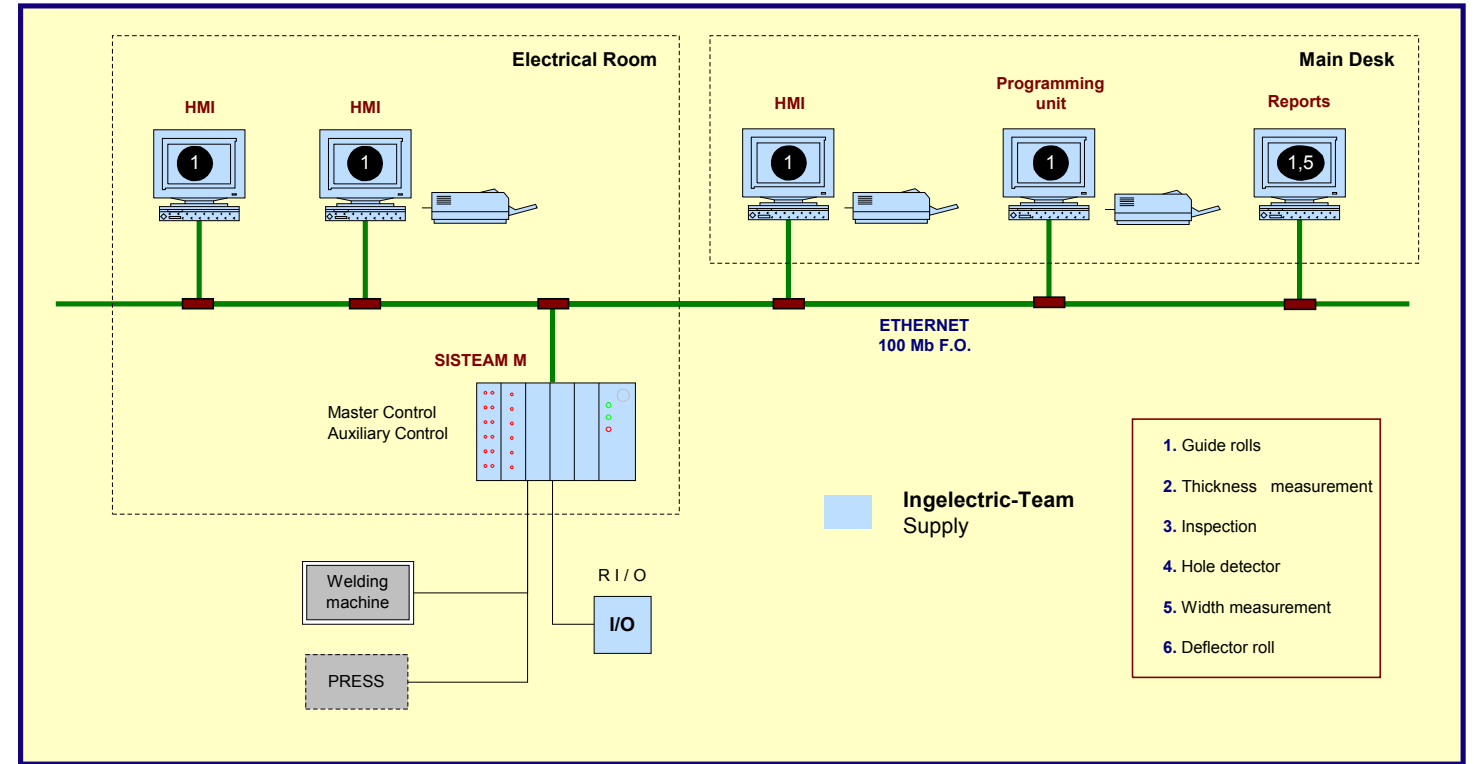
Strip width:	400 - 1350	mm
Incoming thickness:	0.1 - 0.5	mm
Outgoing thickness:	0.1 - 0.5	mm
Inner diameter:	420/508	mm
Outer diameter :	700/2000	mm
Maximum weight:	23	Ton

The motors are controlled by modular MOTOCON AC equipment, designed and manufactured by Ingeteam Industry.

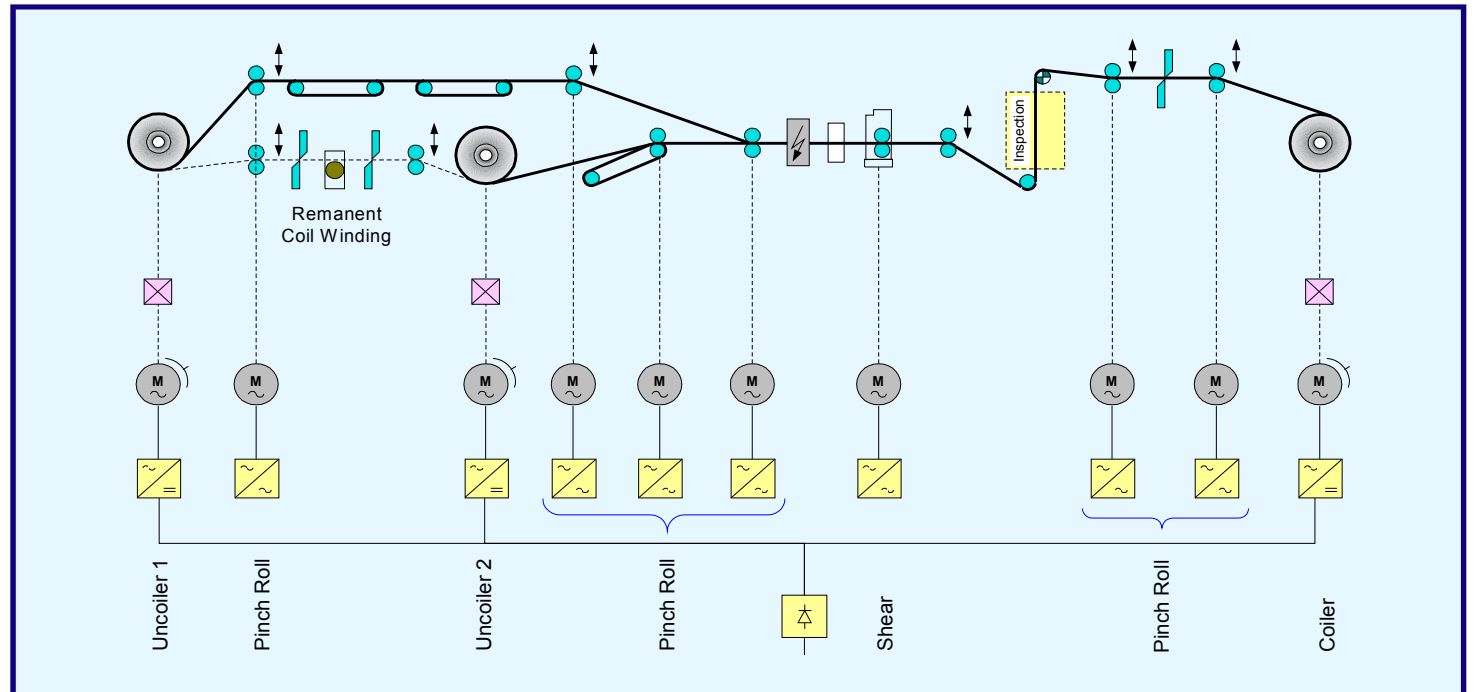
The equipment consists of three-phase frequency converters with vectorial control. The devices corresponding to the main drives are fed with power from a common diode rectifier to the DC bus, and from the DC bus to each motor by means of an IGBT inverter. There is also a common braking resistance. The coilers and uncoilers power supply to 690 Vca.

The devices belonging to the auxiliary drives are each composed of a rectifier and inverter and are powered to 400 Vcc.

Control Diagram



Single Line Diagram



	Uncoiler 1	Pinch Roll	Uncoiler 2	Pinch Roll	Shear	Pinch Roll	Coiler
Pn (kW)	295	5.5	295	5.5	35	5.5	295
rpm	0-400 / 1900	40 - 1560	0-400 / 1900	40 - 1560	0 - 2000	40 - 1560	0-400 / 1900
Un (V)	340 / 690	400	340 / 690	400	400	400	340 / 690
In (A)	610 / 300	10.4	610 / 300	10.4	66.8	10.4	610 / 300
i	2.06		2.06				2.06
Ø (mm)	420 / 1000 mm	250 mm	420 / 1000 mm	250 mm		250 mm	420 / 1000 mm