

Scope of Supply

Ingeteam Power Technology, S.A., Industrial Systems Division is responsible for the complete turn-key electrical supply:

Power installed: 5,000 kVA (for each line)

- Project management
- Basic and detailed engineering
- Supply:
 - Low voltage switchgears
 - Main motors – manufactured by INDAR
 - AC auxiliary drives – MOTOCON AC*
 - AC motor control center
 - Field sensors
 - UPS and control voltage distribution
 - Control desks and local panels
 - Integrated control equipment SISTEAM M*
 - Control and supervision equipment OPERATOR MT*
- Supervision of electrical installation
- Commissioning

(* MOTOCON AC, SISTEAM M, OPERATOR MT, is equipment designed and



Strip Exit to Cooling Tower



Inspection Area Panel

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



Main Control Pulpit

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Ingeteam

Ingeteam

Hot-Dip Galvanizing Line Combined Galvanizing and Painting Line

METALCO (Costa Rica)



Ingeteam

Industry

The Equipment

In early 2000, Fives Stein (formerly Stein Heurtey) commissioned Ingeteam Power Technology, S.A. Industrial Systems Division to design and install the state-of-the-art electrical and basic automation equipment for two process lines:

- ^ 1 galvanizing line
- ^ 1 combined galvanizing and painting line

These lines are intended for the company METALCO (formerly GALVATICA) in Costa Rica. Commissioning will take place in the second half of 2002.

The contractors for the lines are:

- * FIVES STEIN: Main contractor and horizontal furnace supplier
- * DURMECH (Stein Heurtey Group): mechanical supplier
- * AJAX: Zinc pots
- * COIL JOINING: Welding machines
- * CMI: Paint machines
- * CONTINENTAL INDUSTRIES: Air blades, compressor
- * REDEX: Tension leveller, Skin-Pass
- * Ingeteam Power Technology, S.A. Industrial Systems Division.
- * Steel Solution.

The process lines are basically:

- ^ Entry section: two uncoilers, shears, welding machine, accumulator
- ^ Process section: furnace, zinc pot, air knives, air/ water cooling and tension leveller
- ^ Exit section: accumulator, oiler, shear and one coiler.

The combined galvanizing and painting line also has a Skin-Pass (instead of a tension leveller), chromating, painting machine and furnace.

Ingeteam supplies the drive electrical equipment and the basic automation of the lines, besides the electrical engineering and the project co-ordination and the necessary interfaces with the other electrical suppliers of machines and commercial equipment.

Technical Features

Line type: 1 x Galvanizing Line (CGL)
1 x Combined Galvanizing and Painting Line (CGPL)

Contractor: FIVES STEIN (France)

Incoming material: Non-greased tempered or pre-tempered coils and low-carbon steel (up to 0.15%)

- * Width: 600 to 1,250 mm
- * Thickness: 0.2 to 2 mm
- * Weight: Max. 20 Tn

Outgoing material: Zinc coated hard or tempered coils
FH and FR quality
Cromated, painted or oiled coil

Production: 100,000 Tn/year

Line speed:

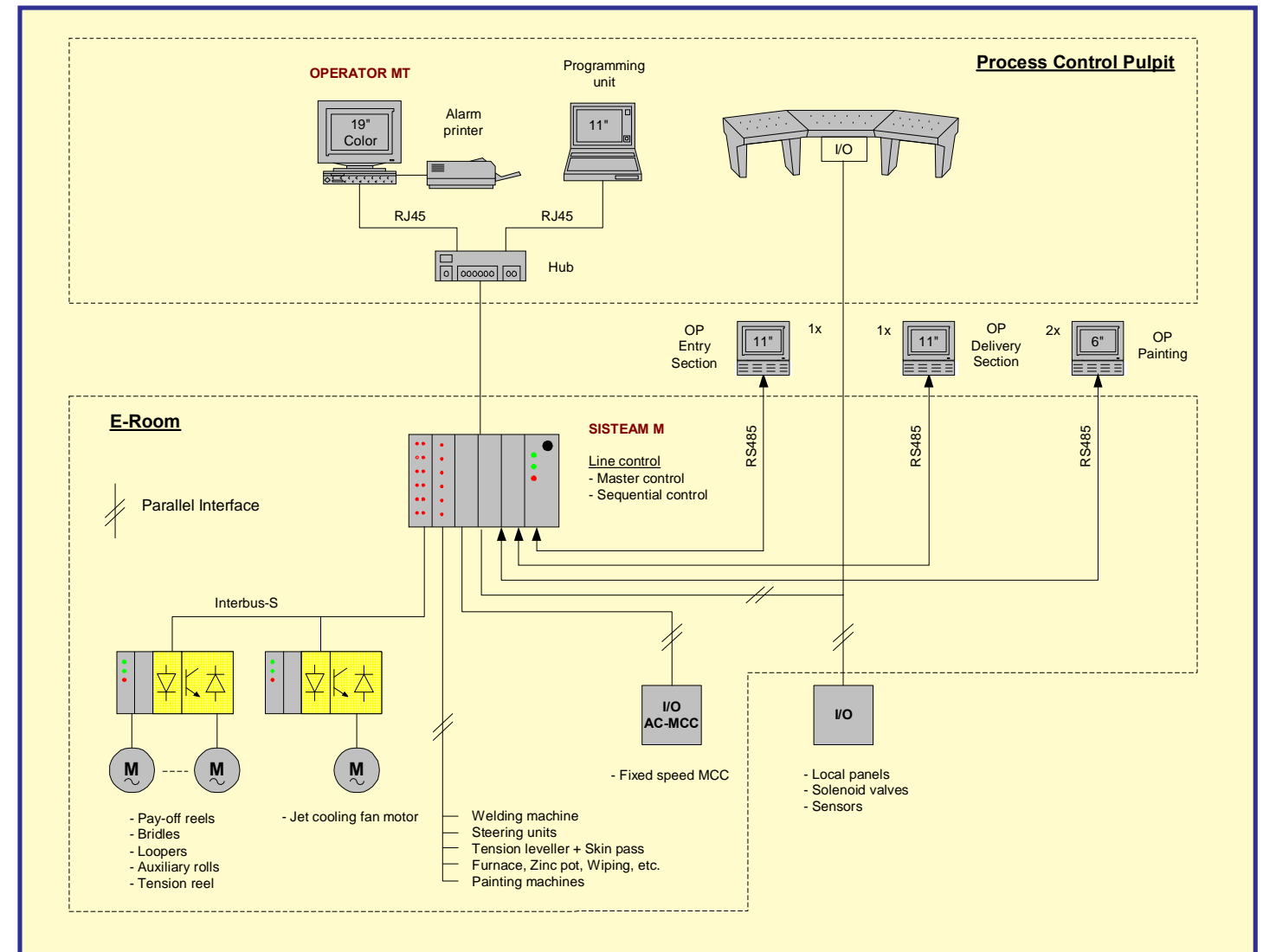
- * Process: 90 mpm galvanized coil
75 mpm painted coil
- * Entry: 120 mpm
- * Exit: 120 mpm
- * Threading: 15 mpm

Coating:

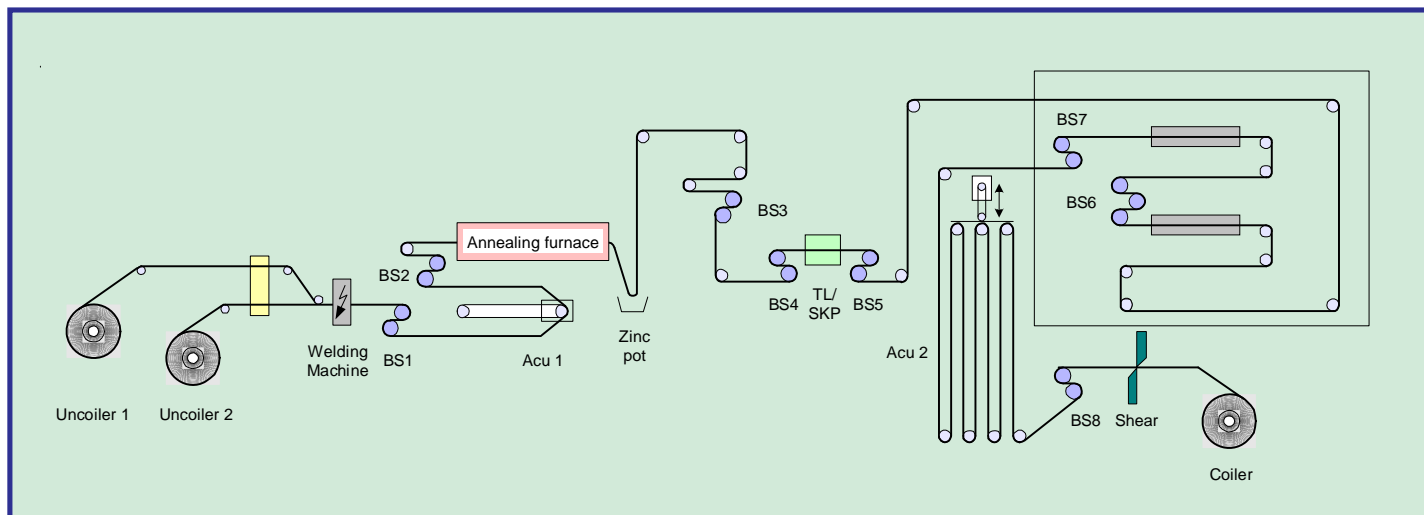
- * Zinc: Zn 99.6, Pb < 0.08, Al < 0.2
80 – 400 g./m² both sides
- * Chromating: film OKEMCOAT
15 – 25 mg./m² both sides
- * Painting: Polyester, acrylic, polyurethane, water-paint, PVDF and plastisol

- 3 – 10 mm thickness, both sides, 1st coating (exposy)
- 18 – 20 mm thickness, upper side, final coating (polyester)
- 0 – 20 mm thickness, lower side, final coating (polyester)

Automation Control Diagram



CGPL Line Lay-out



Single Line Diagram

