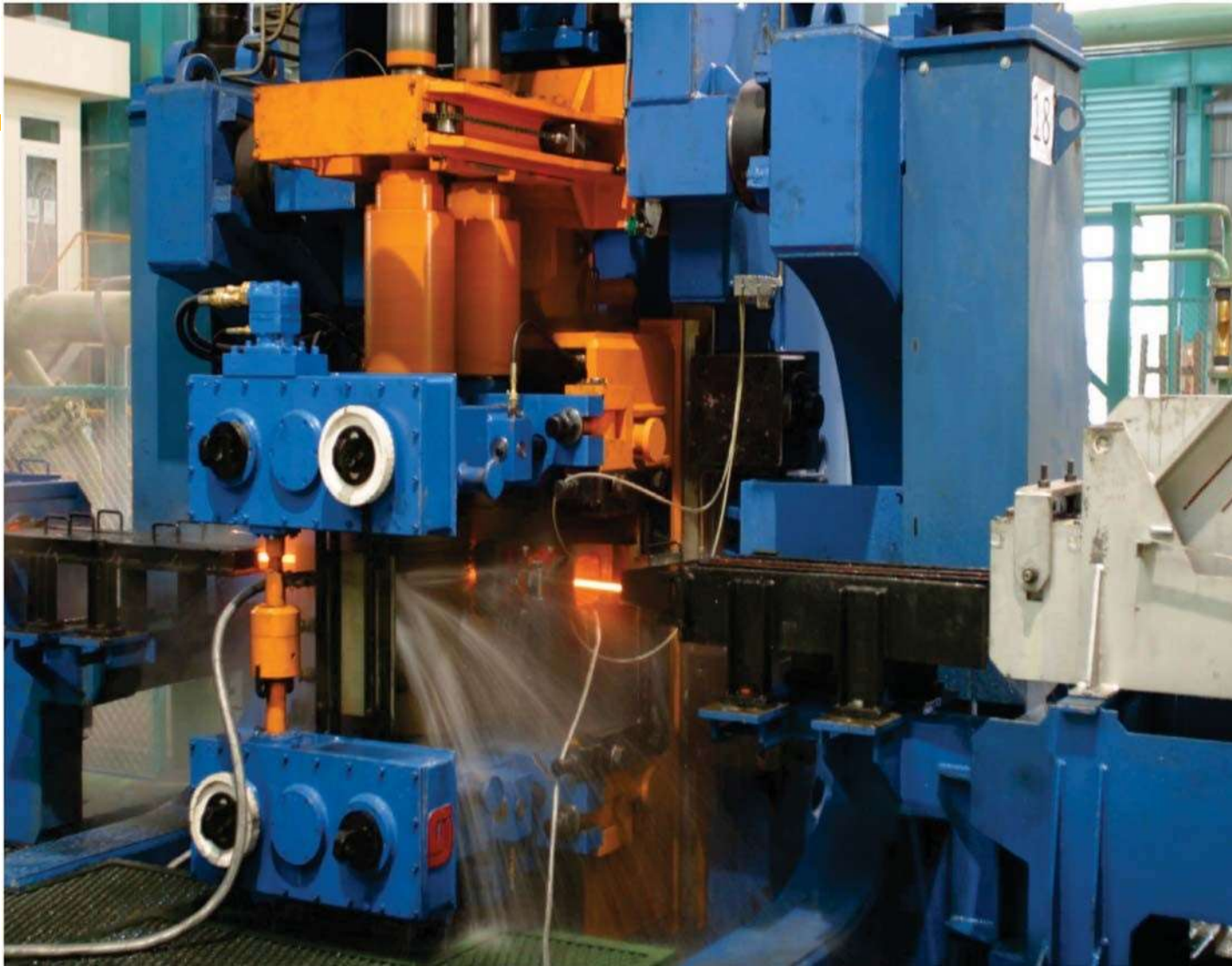


COMBINED REBAR & WIRE ROD MILL



Technical Features

- Type: Continuous Mill of 18 mill stands, an outlet to cooling bed and bar evacuation
The mill is composed of:

- ❖ 1 Heating furnace of 80 Tn/h
- ❖ 6 Roughing mill stands 3H & 3V
- ❖ 6 Intermediate mill stands 3H & 3V
- ❖ 6 Finishing stands 5H & 1V
- ❖ Cutting shears
- ❖ Outlet roller table, cooling bed and bar evacuation system
- ❖ Wire rod block, laying forming device, lay cooling R.T. and coil carroussel handling.

- Incoming material: square billets

- ❖ SECTION: 120 x 120 ÷ 160 x 160 mm
- ❖ LENGTH: 6.000 mm ÷ 12.000 mm

- Finished product:

- ❖ Bar: 8 to 32 mm, diameter
- ❖ Wire rod: 5,5 to 14mm

- Product length:

- ❖ Rebars (corrugated): 6 ÷ 12 m
- ❖ Wire rod: 2,3ton max

- Product speed:

- ❖ Bar: 14 m/sg
- ❖ Wire rod: 80 m/sg (5,5mm)



Main Control Pulpit

Electrical Process Description

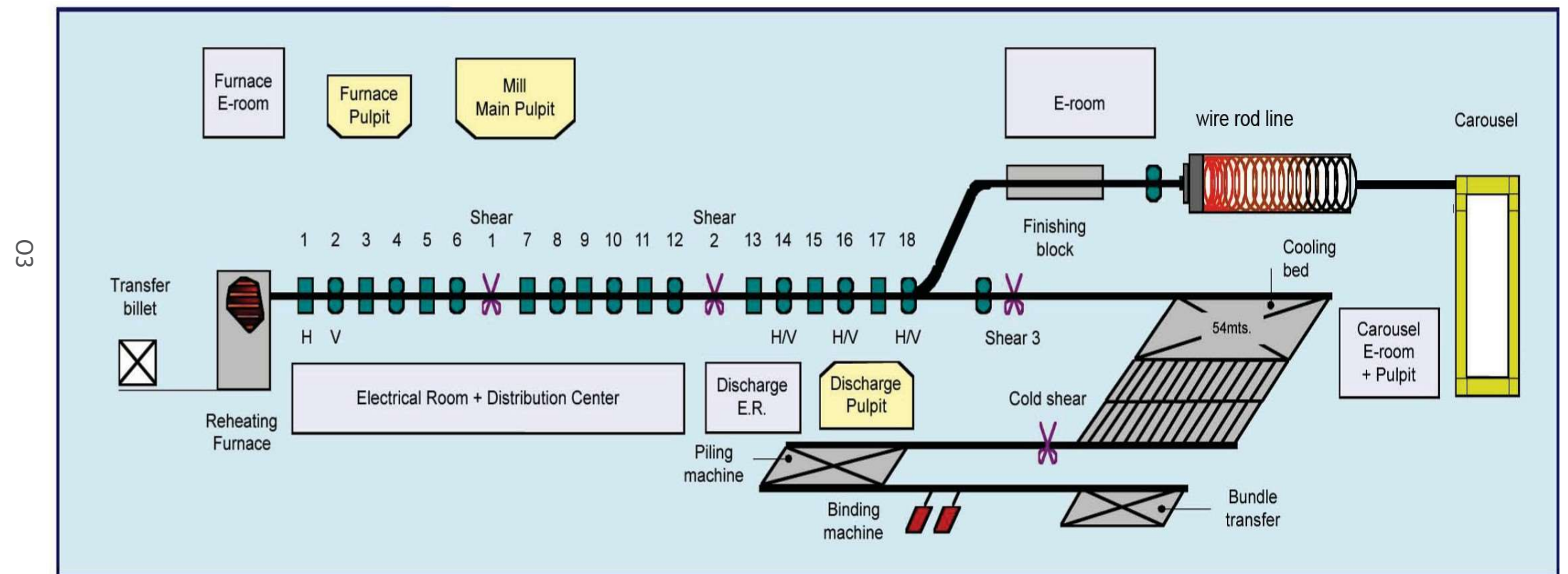
- The electric and automation equipment to be installed in said plant, includes the following main sections:
 - 22/0,4 kV Indoor Electrical Substation, power distribution and power factor correction at 20 kV.
 - AC and DC equipment, drive equipment with corresponding motors, digital technology DC thyristor converters for the mill stands and shears main drives. AC/AC converters for variable speed auxiliary drives.
 - Automation Systems: Control PLC's, remote I/O units, HMI operator stations, control desks.
 - Auxiliary equipment: field sensors, etc.
- The Integrated Control System topology is configured as a flexible distributed control incorporating PLC's, I/O's remote units, operator stations and HMI displays, interfaced through an industrial TCP-IP Ethernet network of 100 Mb/s and local networks type INTERBUS, PROFIBUS, etc.

The control systems incorporate state-of-the-art Pentium processing units with high dynamic response designed to suite the process requirements.

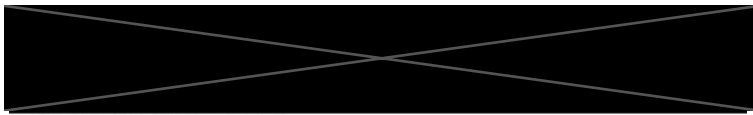
The master speed control system (master mill) is a dedicated PLC that calculates the speed references for each one of the continuous rolling mill's drives (stands, pinch-roll, shears, roller tables, etc). This system executes the following main control functions:

- Speed reference for stands / other motors
- Minimum voltage between Rolling Mill Stands
- Regulation of loop position between stands
- Impact speed reference
- Speed reference in jogging mode (slow)
- Master speed reference
- Speed adjustments in simple or cascade mode
- Continuity control between stands
- Control of dummy bar (testing)
- Elaboration of cutting commands (trimmings, cut to length)
- Cut optimization

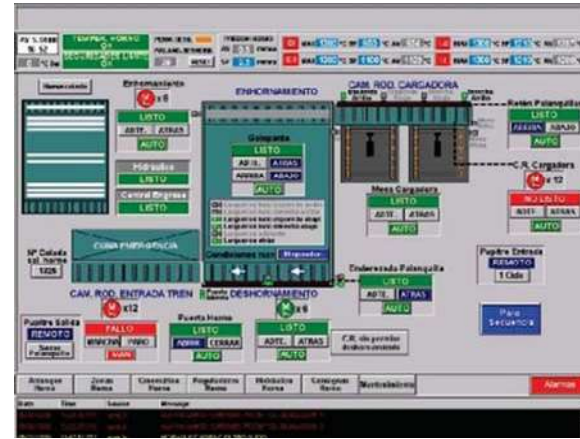
Will Lay-out



Scope of Supply

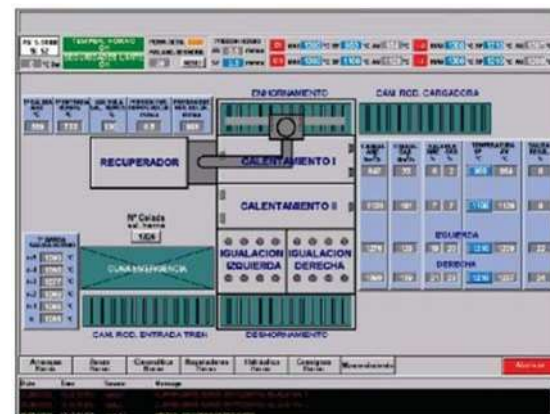


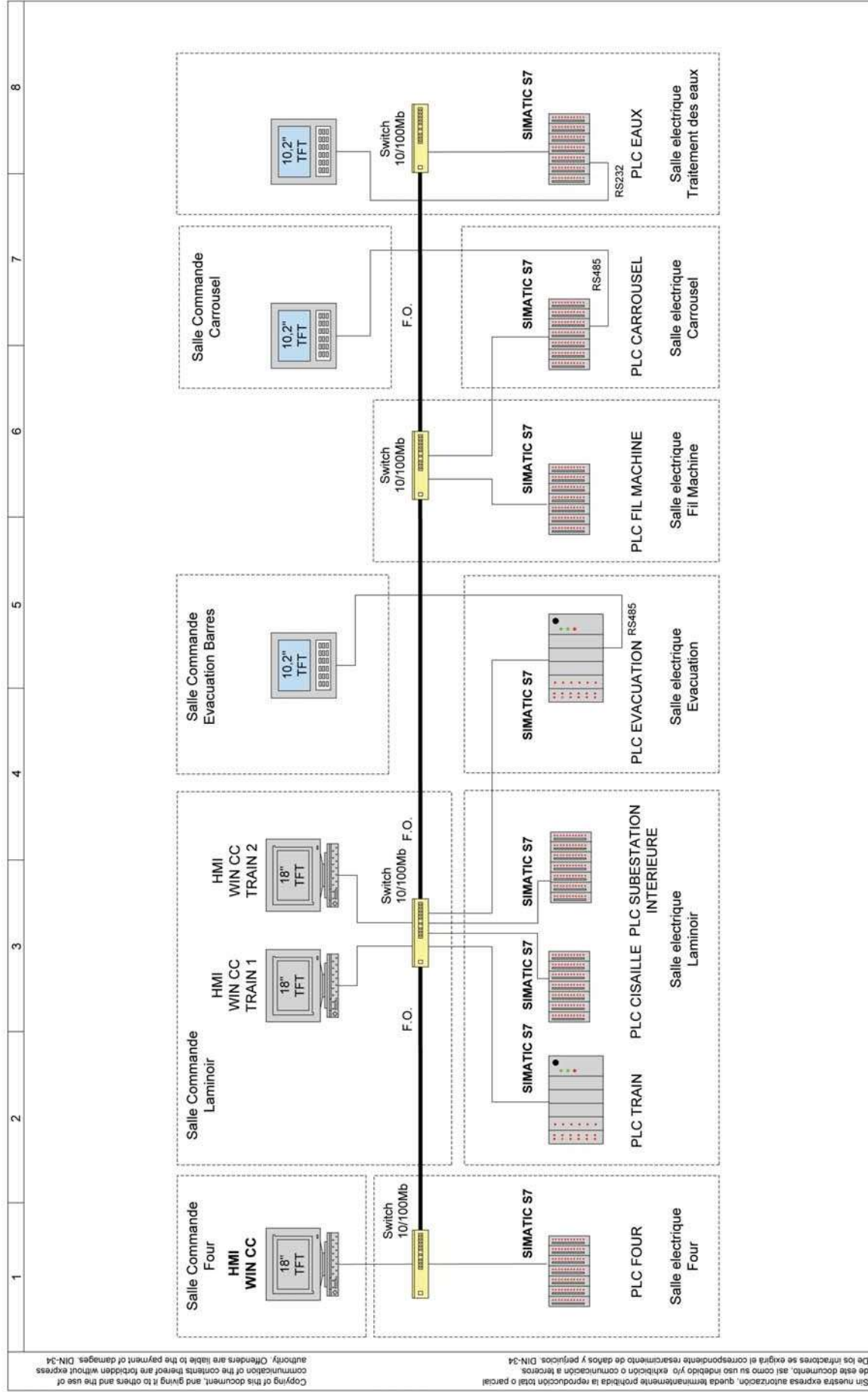
- **Project management**
- **Basic and detail engineering**
- **Supply of:**
 - ✓ 1 Reheating furnace of 80 Tn/h
 - ✓ 6 Roughing mill stands 3H & 3V
 - ✓ 6 Intermediate mill stands 3H & 3V
 - ✓ 6 Finishing stands 5 H & 1 V
 - ✓ Cutting shears
 - ✓ Outlet roller table, cooling bed and bar evacuation system
 - ✓ Wire rod block, laying forming device, lay cooling R.T. and coil carroussel handlind.
 - ✓ Medium voltage switchgears 20 kV
 - ✓ Power factor compensation equipments 34.5 kV
 - ✓ Low voltage distribution centre
 - ✓ Main motors - manufactured by SIEMENS
 - ✓ Main DC drives - SIEMENS
 - ✓ AC auxiliary drives - SIEMENS
 - ✓ AC Motor control center.
 - ✓ Field sensors
 - ✓ UPS and auxiliary control voltage distribution
 - ✓ Control desks and local panels
 - ✓ Integrated control equipment SISTEAM OCS*
 - ✓ Control and supervision equipment OPERATOR OCS*
- Electrical and mechanical erection supervision
- Commissioning



After - Sales Services

- **24-hour / 365-day Hotline service**
- **Spare parts in 24 hours**
- **Technological improvements**
- **Direct line with our technical staff**
- **Remote communication from our offices to the factory automation network.**





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