

Automation Systems



Innovation, skill, expertise in
automation and information technology

A team of skilled engineers able to supply hardware, software, start-up and services for every type of automation in Steel industry.

The partner in all the phases of the automation development

Through its OTO Systems Division, Fives designs, supplies and executes the commissioning of complete automation systems for brand-new plants or for existing ones as part of refurbishing projects

Our extensive process knowledge combined with the application of cutting edge automation technology allows us to propose the most cost effective solutions that lead to increased productivity and improve quality while saving energy.

HARDWARE DESIGN

Fives' OTO Systems Division utilizes primary brands hardware components available on the market and selected in accordance with the Users country standards.

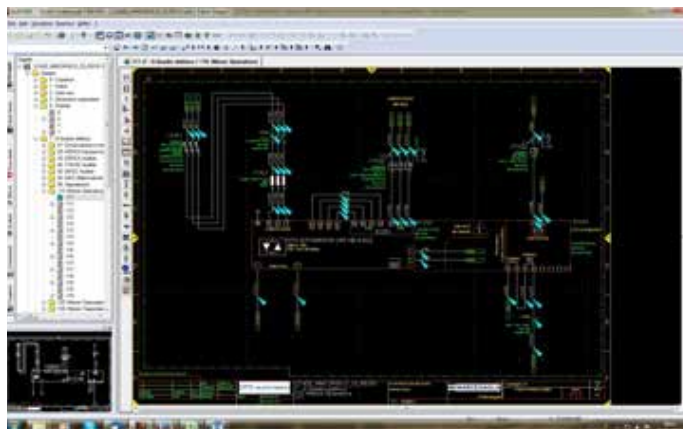
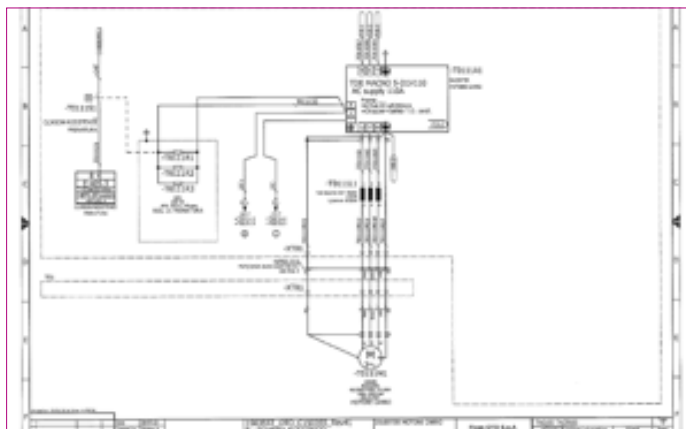
The automation and the supervision systems are created with the aid of a wide set of hardware and software products from among the most widespread in the world, integrated

SCOPE OF SUPPLY

- Power switchboards
- MCC switchboards
- Control desks
- Control & supervision software
- Diagnostic and troubleshooting software
- MES software

with some products entirely designed and made by the OTO Systems Division.

Complete systems hardware design using an advanced CAE System



SOFTWARE DEVELOPMENT

A turnkey system - programming using different hardware platforms.

We have experience with all the main types of hardware on the market.

Design of state-of-the-art PLC software to control the plant process with the use of customized algorithms and to manage sequences and cycles tailored to fully meet the users needs.



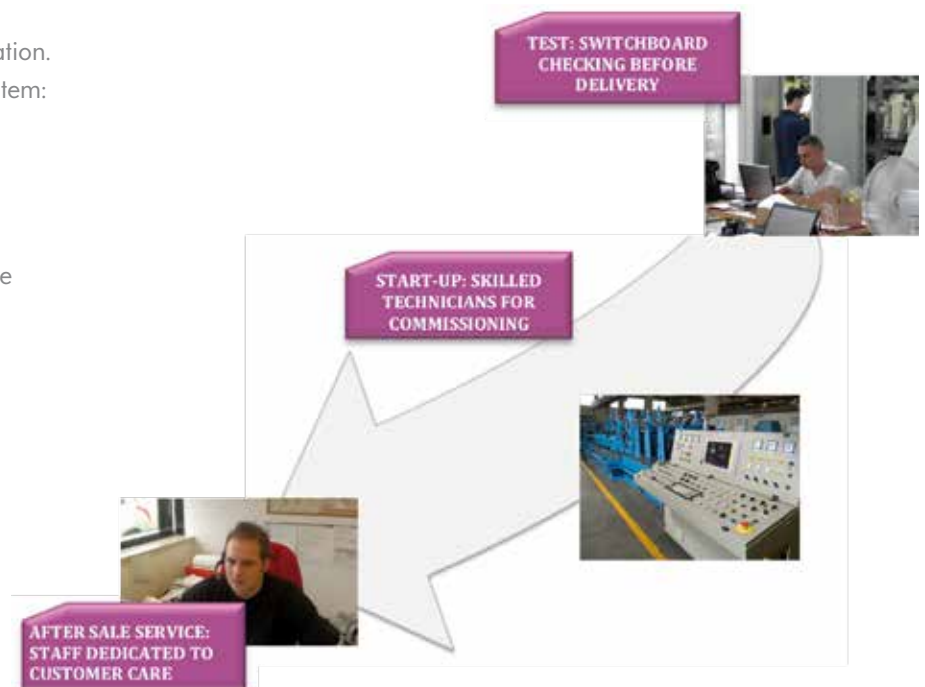
PLC	Siemens	Simatic S7-400, S7-300, Simatic TDC, S7-1200, S7-1500, Safety CPU
	Rockwell Automation	Compact Logix, ControlLogix L3x, L6x, L7x and Safety CPUs
	Mitsubishi	Melsec
	Pilz	PNOZ Multi
Remote I/O	Siemens	ET200S, ET200M
	Rockwell Automation	Point I/O, Flex I/O
Fieldbus		Profibus, Profinet Ethernet IP, Controlnet, DeviceNet Ethernet TCP/IP
Programming Software	PLC	Simatic S7 Manager, Drives ES, Simatic NET, Tia Portal ControlLogix 5000, RSlinx, Drive Executive
	SCADA	Wonderware Intouch, Siemens Wincc, Rockwell Factory Talk and RSView32
Programming language		KOP, AWL, CFC, SCL, VB, C++, Microsoft NET

TEST, START UP & AFTER SALE SERVICE

Internal technicians for all the phases of automation.

A support to maintain the efficiency of your system:

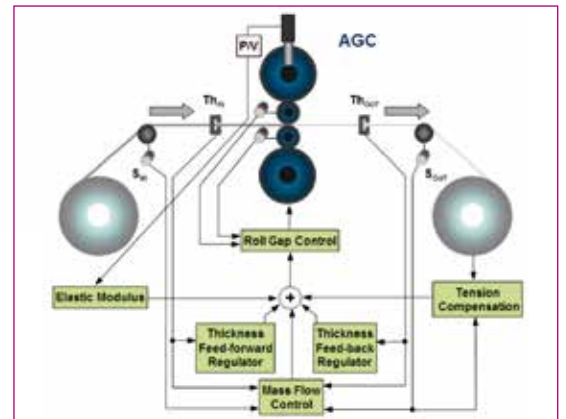
- Technical assistance
- Spare parts
- Remote connection
- Revamping proposal
- Training for customers in classroom or on site
- Supervision of installation





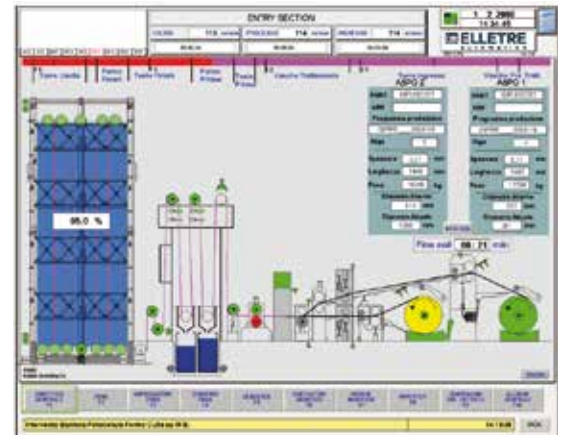
Level 0-1

— Automation and Technological Control (Master Reference, Servo-Diameter, PIDs, etc.) and process parameters regulations.



Level 1-2

- HMI (Human Machine Interface) with customized mimic diagrams and guided troubleshooting of the entire plant failures.
- Adoption of Client-Server architecture making the system extremely reliable in case of any failure in the Client Hardware.
- Protection against Server data loss in case of hard disk failure by proper redundancy policy solution.



Level 2-3

MES - Manufacturing Execution System connecting shop- floor to Company ERP for:

- Production integrated management
- Materials Traceability
- Process Tracking
- Quality Management
- Document Management
- Warehouse Management
- Business Intelligence & Reports



TUBE MILL AND TUBE FINISHING LINE

Hundreds of lines
all around
the world

From 1 up to
24 inches

Packing line,
handling of large
diameter tubes,
beveling,
cut-to-
length



The higher skill for
top-level tube mills

- Drives
- Logics PLC
- HMI & SCADA system
- Cut Off Controller

Tracking of tubes with
interface to level 2 and ERP

COIL CONTINUOUS PROCESSING LINE

Stainless and
carbon steel
pickling line,
galvanizing line,
coating line

Up to
9000 I/Os
and 163 drives
per line

Turnkey system:
Drives, Level_1,
Level_2



Supply of the whole control
system
The highest level in
integration

- Large DC-bus solution
- Structured Field Wiring
with concentration into PLC
remote I/O units

- Master Reference
- Production Tracking
- Line setup

SLITTING LINE

More than 50 complete lines supplied of various producers

High specialization from a long experience

Complete with strips packing lines & level 2



Full digital control automation with tension and speed regulation

- Interface with all available machine and bundling equipment.
- Integration with blade warehouse
- Cut Assembly Plan tool option

Design state-of-the-art PLC software to control the plant process using customized algorithms

COLD ROLLING MILL

4 Hi-Mill, 6 Hi-Mill and Skin Pass Mill

Mathematical pass scheduling program, level 2 and MES

Drives, Logics_PLC, AGC coprocessor HMI & SCADA system



- Roll Gap Control
- Elastic Modulus
- Thickness Feedback regulator
- Feed-forward Regulator
- Tension Compensation
- Mass Flow Control

- Large AC and DC motors application.
- Revamping of existing mills
- High Speed controllers and PLC integration

- Mathematical Model and Recipe management.
- Fast Data Acquisition and Data Base storage

APPLICATIONS EXAMPLES

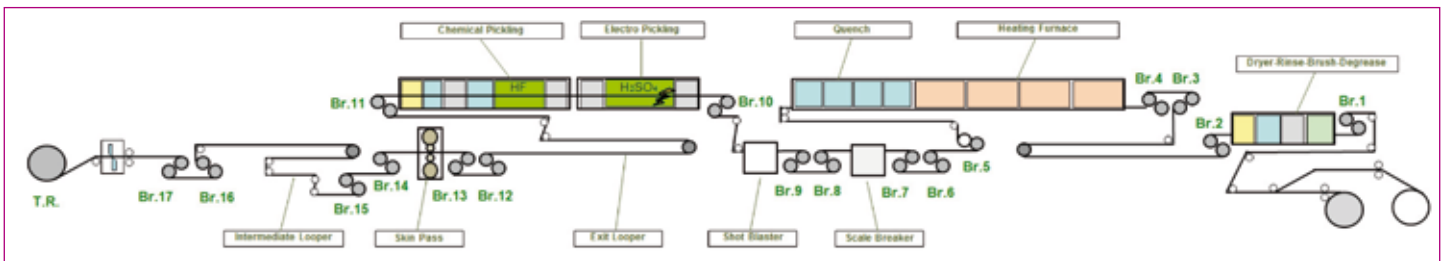
Six High Mill

- 6 Hi CRM
- Max Exit Speed **1,000 m/min**
- Entry Thickness **1.5 to 3mm**
- Exit Thickness **0.25 to 0.8mm**
- Width **835 to 1,100mm**
- PLC I/O **2,700**
- Main Drives **8**
- Field cabinets **6**
- Control Desks **6**
- Control Boxes **14**
- Supervision Clients **6**



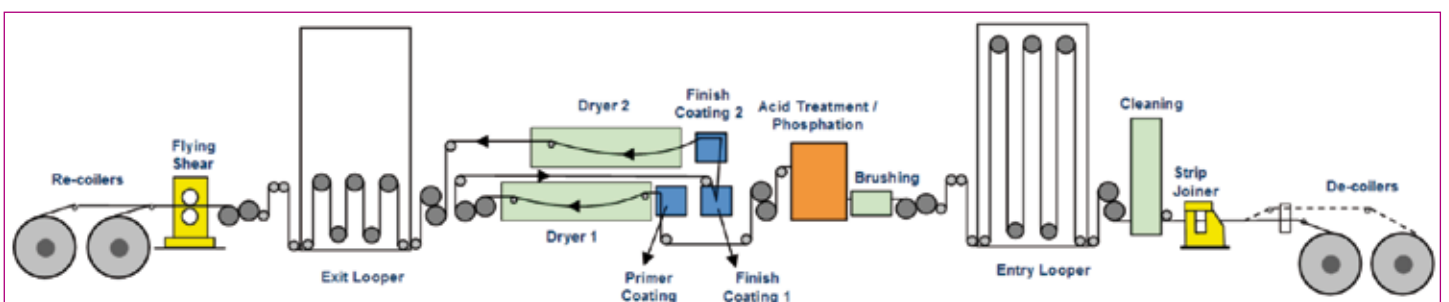
HACPL - Continuous Pickling Line

- Manufacturing capacity **500,000 tpy**
- Thickness **0.4 / 6.00 mm**
- Width **700 / 1,500 mm**
- Coil Max Weight **35 t**
- Quality **pickled, skinpassed**
- PLC I/O **9000**
- Main AC Drives **163**
- Remote I/O Cabinets **20**
- Command Pulpits **6**
- Command Boxes **68**
- Fixed Speed AC motors **450**



CCL - Continuous Color Coating Line

- Manufacturing Capacity **240,000 tpy**
- Strip Thickness **0.25 / 2.00mm**
- Width **600 / 1,500**
- Max Speed: **180 m/min - Process**
240 m/min - Entry/Exit
- Inputs/outputs: **3,600**
- Main Drives: **49**
- Field Cabinets: **6**
- Control Desks: **3**
- Supervision Clients: **5**





Turnkey automation systems:

- Drives
- PLC
- Supervision
- Level 2

Know-how of lines for laminate and tubular products:

- Tube Mills
- Slitter
- Coil-to-coil lines
- Rolling mills

- Development of hardware and software of complex systems
- Production of special hardware for applications
- High level software for plant management

AUTOMATION DIVISION PROFILE

The OTO Systems Division was created in 1988 as an independent company from a wealth of varied and consolidated experience in the sector of industrial process automation with particular reference to metal processing.

Since then, the company has had continual technological growth, until achieving the state of the art technology.

Today it is a fundamental part of the Tube and Pipe Business Line, as a division dedicated primarily to the study and realization of automation for production plants in the metallurgical industry. It has considerably facilitated the acquisition and development of technological process know-how, enabling the formulation of decidedly innovative solutions.

In addition to providing automation systems, the OTO Systems Division offers proven experience focused on the design and manufacturing of measuring and control devices for laminated and tubular products aimed at improving the quality of the final product.

The OTO Systems division also boasts an IT division dedicated to the development of MES solutions for managing the flow of production data, the quality control system, product traceability, through to warehouse stock management (raw materials, semi-finished and finished products).

CONTACT US: