DANIELI AUTOMATION

INNOVATION IN AUTOMATION OF METALS PROCESSING
Our Mission

Excellence in Automation, Control Systems and Electrical Solutions for Metals Industry
Our Vision

QUALITY
Continuous monitoring and product certification

QUANTITY
High productivity

QUICKNESS
Fast reaction and solution to every situation
Established in Buttrio in 1969, as a manufacturer of electric switchboards and proprietary hardware for the steel industry, over the years the company has grown and expanded, becoming a world reference in the metals industry sector.
Scorecard

> 26 Production Management
> 532 Process Control Systems
> 145 Electric Arc Furnaces
> 207 Secondary Metallurgy Stations
> 75 Slab Casters
> 182 Bloom/Billet Casters (over 1300 strand)
> 209 Instrumentation & Quality Control Systems
> 370 Long Products Rolling Mills
> 154 Hot / Cold Rolling Plants
> 94 Strip Processing Lines
> 12 Seamless Pipes Plants
> 4 Direct Reduction Plants
Financial year 2011

- **Revenue**: €199,7 million
- **Employees**: 368
- **Research, development and innovation**: €4,8 million

![Turnover Chart](turnover_chart.png)
Over 104 patents in the steel industry

Technology
> Laser
> Optical
> Electromagnetic
> Infrared
> X-ray

for our instrumentation for metal industry
Danieli Automation is the partner through all steps of the project

- One Partner
- Software Modules
  - Factory Acceptance Test
- Worldwide service
  - In house software
  - Mechanical + electrical together
  - Hardware and software from Market Leaders
  - Single team
Automation

Level 4

> Enterprise Resource Planning ERP

Level 3

> Production Management

Level 2

> Process Control Systems

Level 1

> Equipment Control Systems

Level 0

> Instruments & Robots
> Drives and motors
> Power distribution
Design of electromechanical systems with world leader components’ supplier

Products and services

> HV & MV substations
> Metal Clad for MV distribution
> Power Center for LV distribution
> SVC & PFC systems
> MV inverters and Cycloconverters
> Main synchronous/asynch. Motors
> Main AC & DC drives and motors
> Variable speed AC/AC, AC/DC drives
> Motor Control Centers
> Prefabricated electrical cabins
> Installation engineering
Instrumentation for the steel industry

- **HiREG/Plus**: Electric arc regulator
- **HiSLAG**: Electromagnetic slag detector
- **HiLEVEL**: Electromagnetic mould level detectors
- **HiPROFILE**: Laser profile gauges
- **HiGAUGE**: Contact-less Optical Gauges
- **HiWEIGHT**: On-line bar Weighing system
- **HiSECTION**: On-line bar section gauge
Instrumentation for the steel industry

- **HiWEDGE**: Wedge gauge for flat products
- **HiTEST/RP**: In-line round bar surface inspection system
- **HiWIDTH**: Width gauge for flat products
- **SM3100**: Speed meter
- **ID6000 series**: Loop scanners
- **HiTENSION**: Electromagnetic detectors of the rolled bar tension
- **ID2000 series**: Hot Metal Detectors
- **MD2000**: Hot and cold metal detectors
Anthropomorphic robots used for improving Personnel Safety in dangerous areas such as continuous casting platform, zinc pot, furnace sampling area with fully automatic operation.
Design of automation systems with world leader components’ supplier

The equipment control system (Level 1) features automatic control of operating sequences in order to minimize operator activities.

Shop floor control and operation

- Sequence and alarms control
- Operator interface
- Open-close loop control
- Interlocking control
- Distributed PLC architecture for:
  - minimum down-times
  - easier maintenance
- Extensive use of remote I/O
The KNOWLEDGE BASED APPROACH, a new functional approach where the operator, according to his role, reaches the information he needs in an assisted way from any work station. This is the concept which inspired the 3Q architecture here presented by the 3Q pyramid.

The concept of levels of automation is overcome by the role of the functions and of the technological packages.
The structural part of the pyramid which supports the 3Q concept

The **Q3MET** is the Danieli Automation Manufacturing Execution System (MES) for sales and orders management, production planning, material and yards management.

The **Q3Intelligence** is the Business Intelligence suite that provides deep analysis and batch reporting of the process interfacing and elaborating the data of the other 3Q pyramid systems.

The **Q3Technologies** are a set of three innovative and intelligent application of process interface for operators and production managers.
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The most important components of this desk are: the Operator Assistant (OA), the Plant Performance Indicator (PPI) and the Area Performance Indicator (API).
**Q3Intelligence architecture**

**Extraction:** data collection at periodic intervals from the different sources

**Transformation:** data blocks are checked for integrity

**Loading:** data is loaded into the data warehouse

**End-user data browsing tools** (PC with a Web browser and OLAP browser)

**OLAP Engines** (Multidimensional Analysis Software and Database)
MOREIntelligence architecture

**Extraction:**
data collection at periodic intervals from the different sources

**Transformation:**
data blocks are checked for integrity

**Loading:**
data is loaded into the data warehouse

- **Plant**
  - Server
  - HMI-SCADA
  - PLC's

- **Process control Systems**
  - Level 3
  - Level 2
  - Level 1
  - other sources

- **MOREIntelligence**
  - Data Collector
  - Data Warehouse

- **Multidimensional Analysys Software**
  - Multidimensional Database (Hypercube)

- **Dashboard:**
  - > Olap
  - > Statistics
  - > Data Mining ...

- **OLAP Engines**
  - (Multidimensional Analysis Software and Database)

- **End-user data browsing tools**
  - (PC with a Web browser or OLAP browser)
Q3MET includes a powerful Manufacturing Execution System (MES) specifically designed for the metals industry. The subsystems are designed to manage the entire life cycle from acquisition of customer orders to invoicing, through the planning steps:

- ORDER ACCEPTANCE
- PLANNING
- OPTIMIZATION
- SCHEDULING
- PRODUCTION TRACKING
- QUALITY
- STORAGE
- SHIPPING
- INVOICING
- CUSTOMER ACCEPTANCE
DANIELI AUTOMATION is providing the following service for a QUICK, EFFECTIVE and PROFESSIONAL Assistance to CUSTOMER

> Web assistance
> E-Ticket
> Teleservice
> Feasibility study
> Engineering
> Commissioning
> Training
  • Theoretical training
  • Hands-on training on own process simulation platform
  • Factory Acceptance testing of software for a quicker startup
> Preventive maintenance
> After sale remote assistance
> After sale support
Certification of DANIELI Automation

- Job management from order to final acceptance
- Design using consistent procedures
- Software & hardware certification
- Integrated FAT of the entire application
- Factory Acceptance Test for hardware & software
- On site installation and supervision
- Performance test support
- Final acceptance certification
- Training to operators and maintenance staff
- After commissioning support

to operate in compliance with UNI EN ISO 9001 Standard