



TERMOTECNICA INDUSTRIALE
Y O U R C O M P L E T E S O L U T I O N

GROUP OVERVIEW

TERMOTECNICA INDUSTRIALE S.r.l.
ESTABLISHED IN 1980

A PROVIDER OF ENGINEERING
PROCUREMENT CONSTRUCTION AND
SERVICES OF HIGH TECHNOLOGY
PRODUCTS AND PACKAGES FOR ENERGY,
AND OIL & GAS MARKETS





TERMOTECNICA INDUSTRIALE
YOUR COMPLETE SOLUTION

Termotecnica Industriale - Company Group Structure



100%

**Termotecnica Industriale
Battipaglia - ITALY**

100%
Since 2018

STF Boilers - ITALY

Since 2018

Pensotti's licensee - ITALY



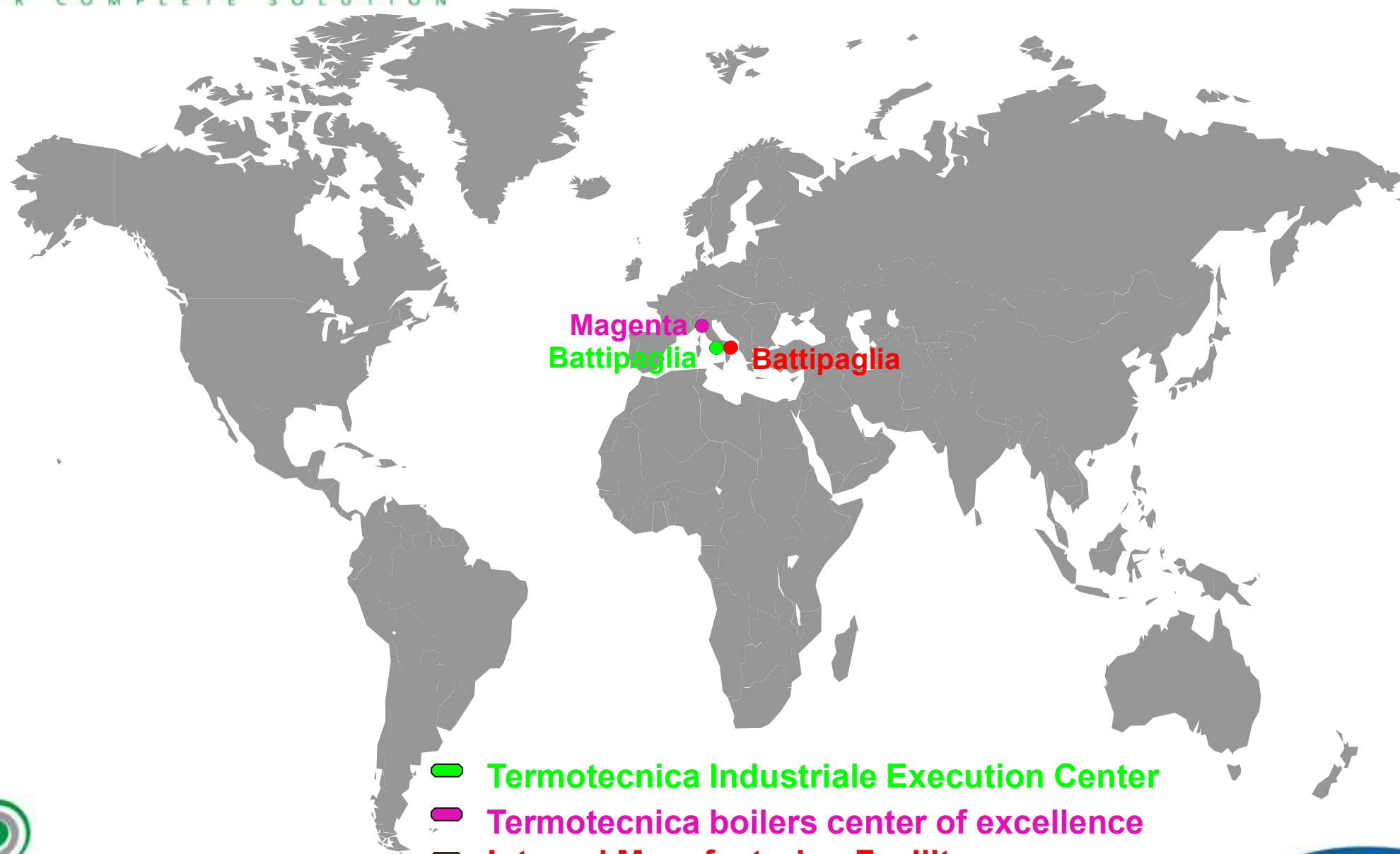
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Termotecnica Industriale - Global Organization



-  **Termotecnica Industriale Execution Center**
-  **Termotecnica boilers center of excellence**
-  **Internal Manufacturing Facility**



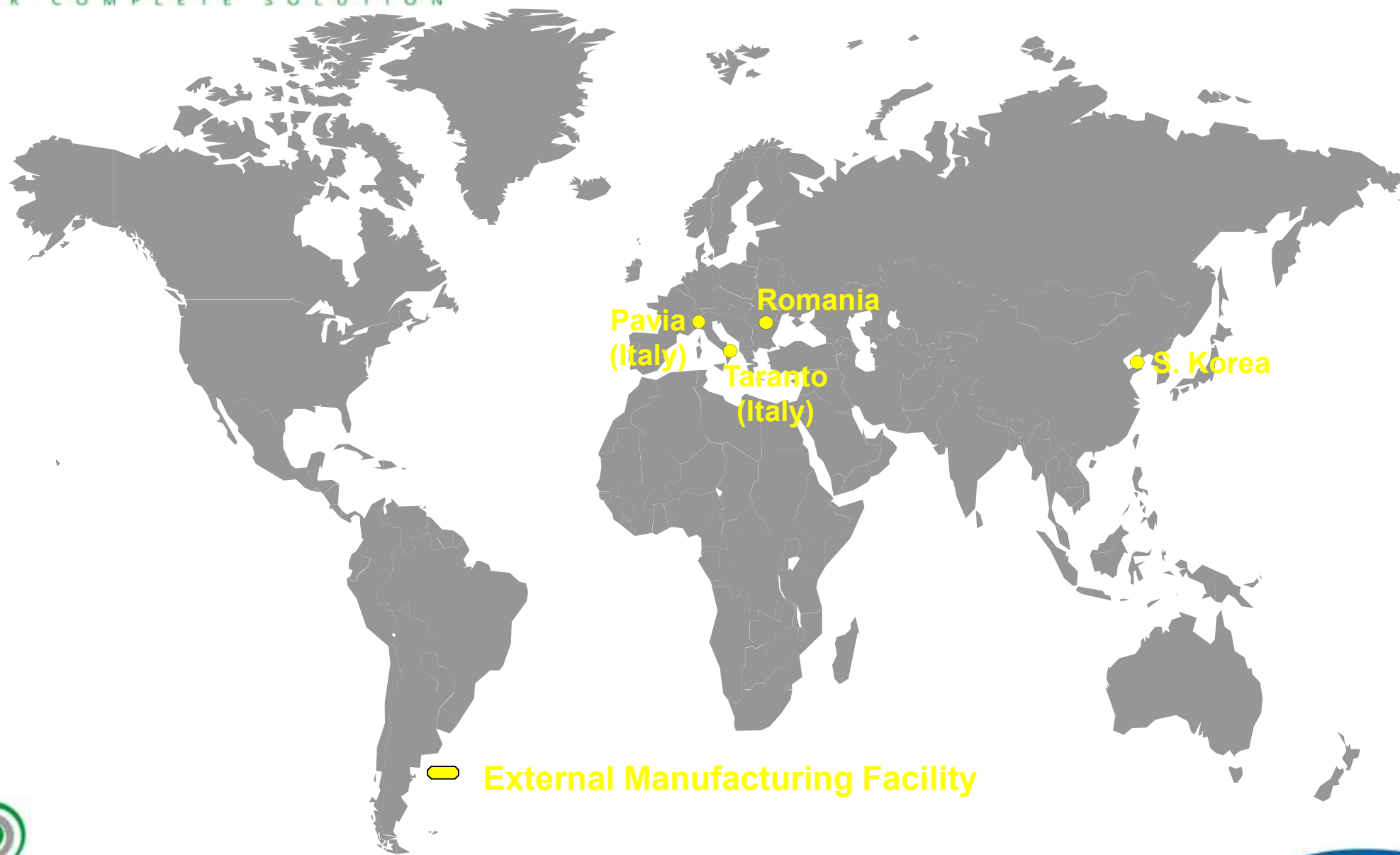
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Termotecnica Industriale - External Manufacturing Facility

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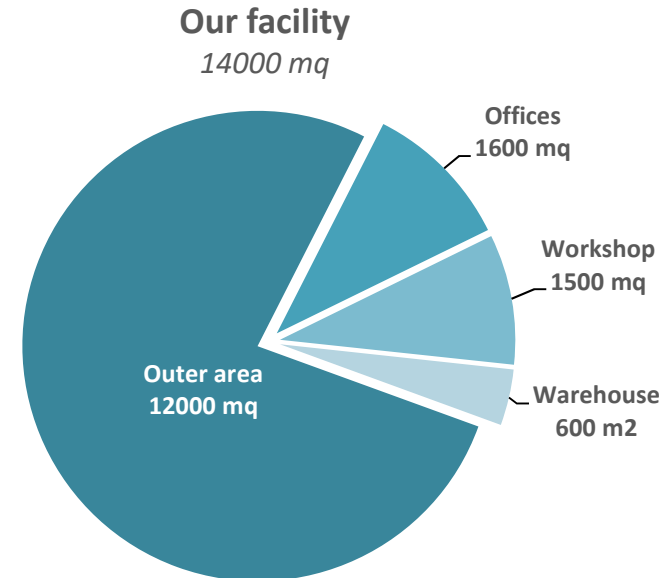
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We operate as EPC Contractor providing our Customers with turn-key solutions

- Unit Strengths :

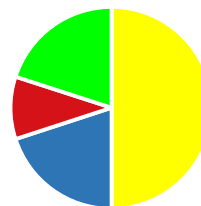
- Professional seniority of all components of the team
- Deep team working capability coming from long time working together
- Good knowledge of the allocated market
- Capability to approach different type of projects. Focused on project more than product with good general knowledge of boilers.
- Capability of managing difficult projects
- Good knowledge of the suppliers market
- Stability of performances during the last years



Center of excellence where the know-how of STF boiler (100% acquired in the 2018) and Pensotti Idrotermici (license acquired in the 2018) were grouped together with relevant technician staff coming from both original Companies, ensuring a complete expertise in the boiler field

- Unit Strengths :
 - RfQ processing (Commercial and Technical Customer/EPC requirements), site survey (new project and/or services/spare parts activities)
 - Proposal emission, Commercial/Technical clarification, final negotiation, up to order award
 - Skilled staff, with problem solving attitude, focused on “tailor-made” projects
 - Mainly on boilers and auxiliary equipment, we are able to perform the following:
 - Thermal design
 - Natural/forced circulation calculation
 - Mechanical/auxiliary design as per Applicable Codes/Specifications/Standards
 - Steelwork/Ductwork/structural design
 - Detailed drawings (GA, lay-out, pressure parts, piping, steelwork, ductwork, auxiliaries)
 - E/I, BMS, BCS design
 - O&M manual, Final data book, Erection/installation procedures preparation
 - Plant renewal and modernization (retrofitting, efficiency increasing, burners fuels conversion, new combustion systems, refurbishment)
 - State assessment, boiler pressure parts/equipment revamping, preventive maintenance

Personnel



■ Technicians ■ Operation ■ Quality ■ Commercial dept.

- Consultant for Feasibility Studies
- Specification and Product Consulting
- EPC for Power and Oil & Gas sector
- Firm-Priced Proposals
- Project Management
- HRSG Design and Fabrication
- Package Boiler Design and Fabrication
- WTE Boiler Design and Fabrication
- Biomass Design and Fabrication
- Field Construction and TFA
- Commissioning Services Engineers
- After Sales Services
- Maintenance and Service

Our Core Business

- CHP – combined heat and power plants
- Gas fired thermal stations
- Green field
- HRSGs (horizontal or vertical type)
- Fired Boilers (with horizontal or vertical gas path)
- WTE boilers (with horizontal or vertical convective section)
- Biomass boilers
- Maintenance and service



We develop **Custom Solutions** to meet specific business requirements

Company expertise:

- *Engineering*
- *Complete piping systems*
- *Gas Stations, compressed air plants*
- *Primary waters treatment; Flue gas treatment*
- *Thermal plants revamping*
- *Air ventilation and conditioning; fire-fighting systems*
- *Control instrumentation, BCS, DCS*
- *Burner Management Systems (BMS)*
- *Energy recovery systems*
- *Boilers (HRSGs, Fired boilers, WTE, Biomass) and auxiliaries*

ENGINEERING

Termotecnica Industriale has a consolidated experience concerning the study, design and engineering of the plant. The competence of personnel and the use of cutting-edge software ensure swiftness and quality during the preliminary, final and executive engineering of all systems (mechanical, electrical and special).



KED

Power plant simulator and Thermal calculator for boilers/HRSGs

KRAVAL

Thermal calculator for HRSGs

ESAIN – ESA PRO PROCESS DESIGN

Complete suite for integrated plant engineering: P&ID, Piping, Data sheet, Sketch, Hook up

AVEVA

Smart P&ID execution

AVEVA

PDMS (3D modelling)

AUTODESK INVENTOR LT

Mechanical drawing (2D-3D)

AUTODESK SUITE PREMIUM

Mechanical drawing (2D-3D)

AUTODESK SUITE ULTIMATE

Mechanical drawing (2D-3D)

SAP 2000 PLUS NETWORK

Structural calculation - FEM

SAP 2000 ADVANCED

Structural calculation - FEM

TEKLA – STRUCTURES STEEL DETAILING (DOMESTIC)

Structural calculation, structures detailed design



TEKLA – STRUCTURES STEEL DETAILING (ENTERPRISE)

Structural calculation, structures detailed design

TEKLA – STRUCTURES STEEL DETAILING (PROJECT VIEWER)

Structural calculation, structures detailed design

TEKLA – STRUCTURES STEEL DETAILING (PROJECT VIEWER)

Structural calculation, structures detailed design

CAESAR II

Piping stress analysis calculation

ANSYS MECHANICAL

FEA calculation

ANSYS FLUENT

Fluid dynamic calculation

AutoCAD®

Powerful engineering tools supporting technical design

SPAC®

Electrical layout and digrams complete engineering

TecnoMETAL®

Steel structures complete engineering



PROCUREMENT

Verification of equipment and components,
Market Analysis and the choice of purchase.
All executed with transparency and quality criteria.



CONSTRUCTION

Overview on project, engineering and executive drawings, provided by our
technical office to the production department.
Site management and commissioning by high qualified personnel.



SERVICE

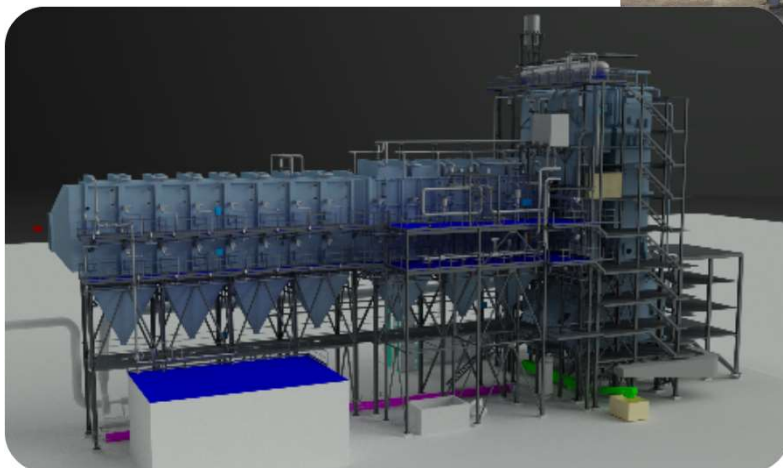
A prompt and timely, on site and remote service, and an effective
maintenance service ensure a constant care of our customers.



Steam Power Plant



As EPC



Gas Power Plant



As Boilers Manufacturer

Heat Recovery Steam Generators



HICO - Oman



ENEL POWER - Cassano d'Adda, Italy



ENEL – Porto Corsini, Italy



MOTOR OIL - Greece



SEC – K.S.A.



Fired Boilers



DEWA – Jebel Ali, U.A.E.



HELPE – Greece



TECNIMONT –
Kingisepp, Russia



EON – Tavazzano, Italy



REPSOL – Spain



Biomass



STC – Anagni, Italy



ENEL GREEN POWER– Finale Emilia, Italy



TECNIMONT – Olevano, Italy



EQUITIX – Nottingham, UK



WTE



VINCI – Clemont Ferrand, France



ASTER – Poland



TME – San Vittore, Italy



TERNI SCARL – Italy



HERA – Rimini, Italy

SERVICE





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Supply Package Steam Generators worldwide, using a global network of regional hubs to serve regional markets.

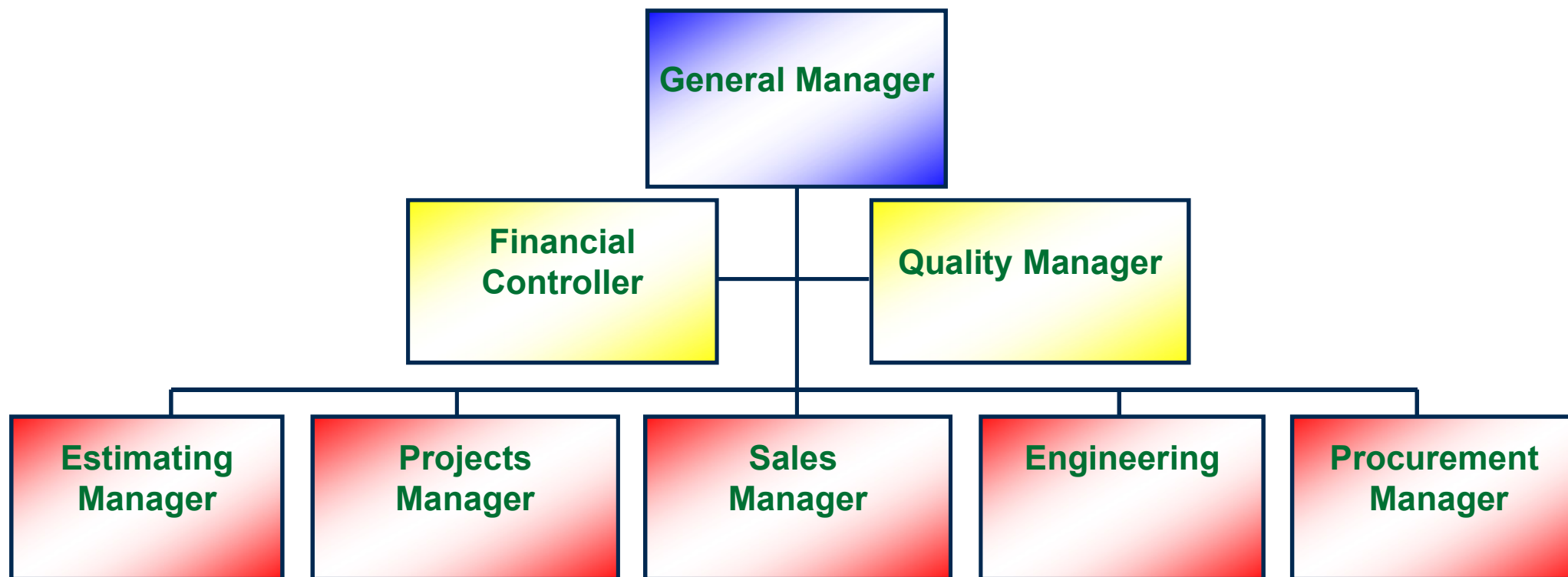
Be the market leader in product innovation and process standardization to provide an efficient and reliable product to our customers.

Be the low cost supplier by dominating the market in supply chain and logistics management.



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Gas/Oil Fired Industrial Boilers from approx 40 t/h to 400 t/h up to 110 bar, 530 °C

- Natural circulation
- Single or bi-drums type
- Single or multi fuels burning



HRSGs downstream GT from 5 to 270 MW

- Natural/Forced circulation
- Single or multiple pressure levels
- Horizontal or vertical flow arrangement
- Heat recovery only, supplementary firing, fresh air mode



Biomass Boilers up to 120 t/h, 145 bar, 550 °C (100 MWt – 30 MWe)

- Natural circulation
- Horizontal or vertical convective arrangement
- Bottom or mid supported
- Combustion system with grate (air or water cooled type)



WTE Boilers up to 110 t/h 115 bar, 510 °C

- Natural circulation
- Horizontal or vertical convective arrangement
- Bottom or mid supported
- Combustion system with grate (air or water cooled type)

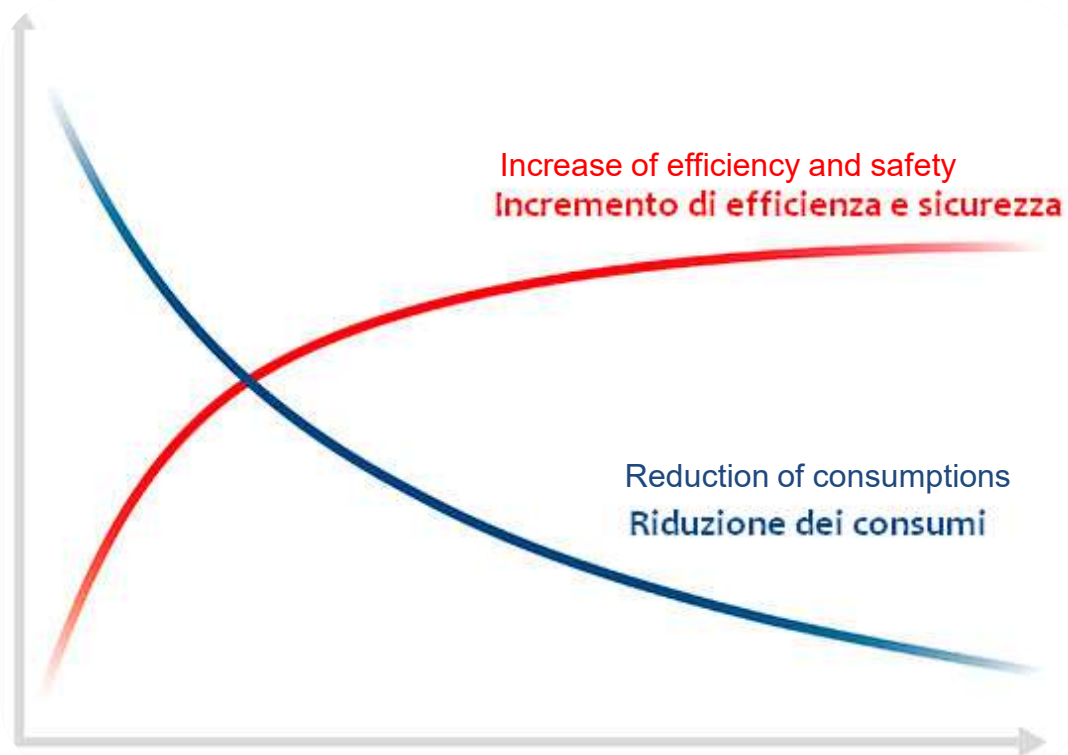


Products that should meet market drivers

- **Assessments and expertises**
- **Rehabilitation**
 - pressure / non pressure components and systems
- **Environmental compliance**
 - NOx, Sox, CO, particulates
- **Fuel switching / fuel blend changing / biomass cofiring**
- **Advanced coating solutions for corrosion**
- **Performance Improvements**
 - output / efficiency / load follow / availability / reliability
- **Safety improvements**
 - BMS, BCS, DCS



We have strong competencies on thermal stations and existing boilers revamping and retrofits



- **Thanks to our retrofits we are able to increase:**
 - Efficiency
 - Production
 - Environmental sustainability
- **Revamping requires specific skills and competencies, in particular for larger and/or technologically complex systems**
- **We are able to Re–Certify complete systems after revamping is performed**

BMS e BCS

- **We engineer technologically advanced plants, or upgrade those existing, providing them with modern safety and control systems:**
 - BMS (Burner Management System) for safe operation of burners
 - BCS (Boiler Control System) for boiler automatic control sequences

UNI/TS 11325-3

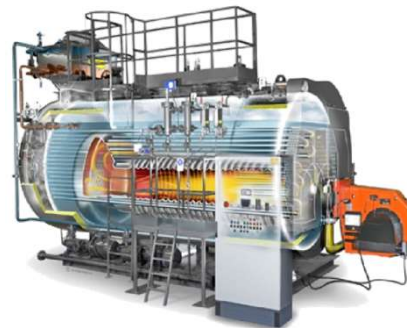
- **Supervision criteria for steam or superheated water plants are ruled by UNI EN 12952-7:2013 standard**

Termotecnica Industriale has extended experience in plants which supervision system is operated with:

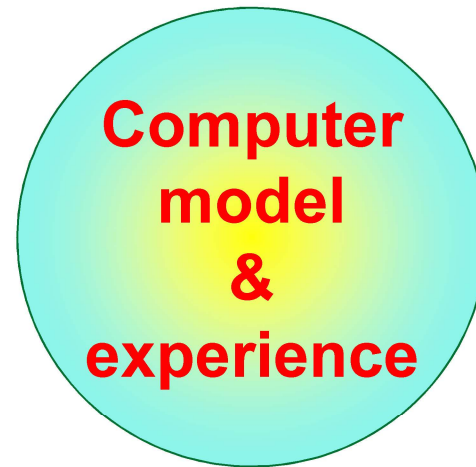
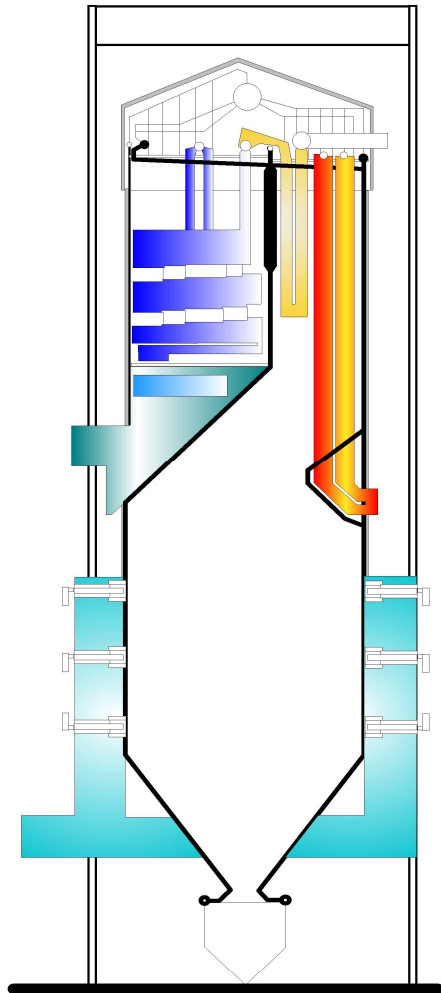
- Permanently manned operation from control room
- Unmanned operation up to **24 h**
- Unmanned operation up to **72 h**

24 h

72 h



Comprehensive Basic Design Capabilities : Performance Prediction



Combustion calculations

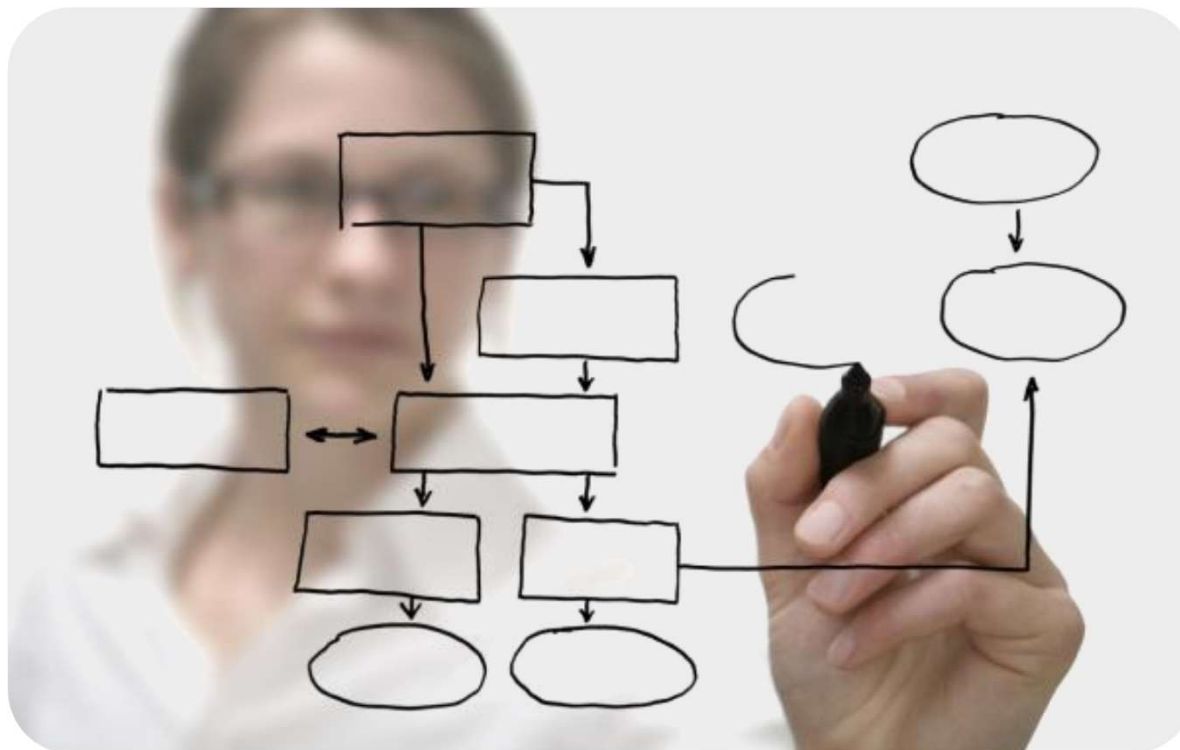
Products of combustion

Steam conditions / heat balance

Fuel, air and gas flow rates

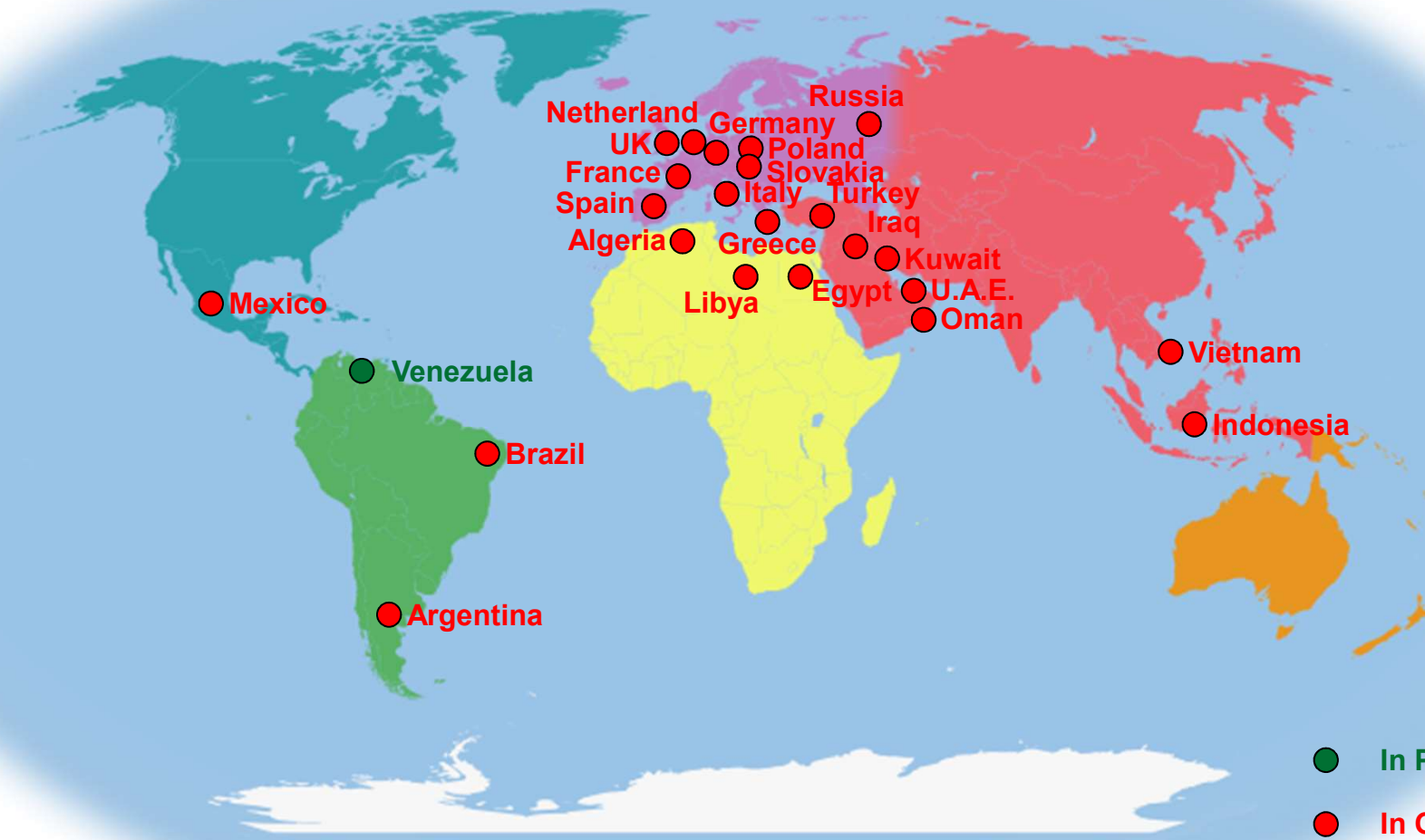
Fuel heat inputs

Boiler efficiency



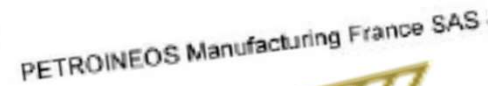
- QCP
- Engineering Schedule
- Overall project schedule
- P&ID
- Piping 3D
- Isometric sketch
- Lay-out
- MTO
- Piping Stress Analysis
- IO list, alarm list, SD Matrix
- Hook up
- Electrical and control schematics
- Commissing and performance procedures
- Technical dossier as per CE requirements
- O&M manual
- Plant Declaration of Conformity



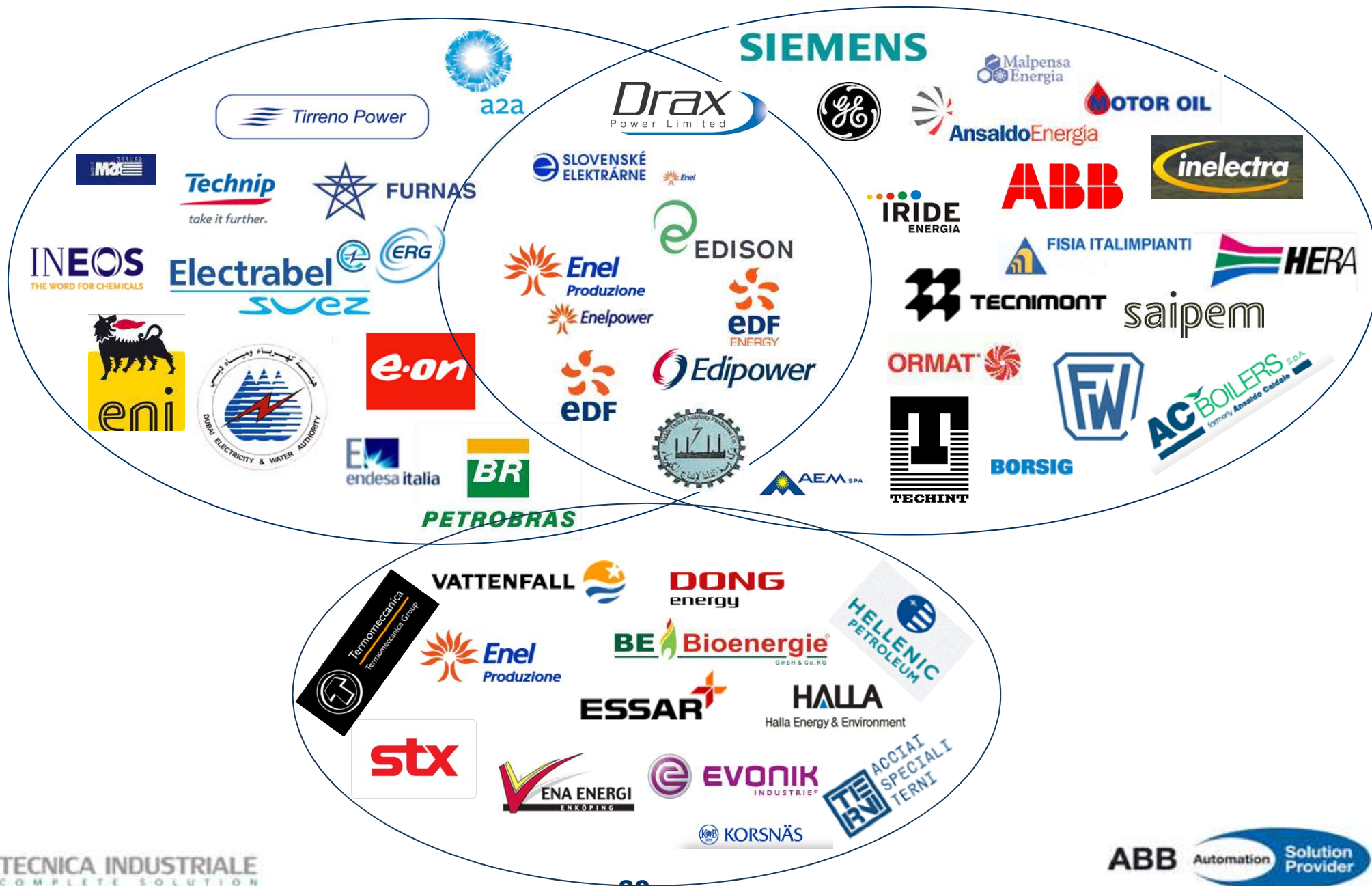


REFERENCES

Main Customers & Final Users



Main Customers - End Users



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Thanks for Your kind attention

