

Power generation Storage, Engineering & IT











IT SYSTEMS, DATA & SCADA SOFTWARE DEVELOPMENT

SCALINK

System supervisor with server-client architecture for production and / or data collection

FRONTWEB

Web server module

To monitor and interact with the supervision system from anywhere, with any device connected to the Internet (pc, tablet, mobile phone)

SCALINK ONE

Solution for geographically distributed and / or multi-project systems.







PLANT DESIG, REVAMPING & PROCESS SKIDS

- □ PROCESS ENGINEERING
- ☐ CIVIL AND STRUCTURAL ENGINEERING
- □ PIPING ENGINEERING
- ☐ FIRE AND SAFETY ENGINEERING
- ☐ MACHINERY AND EQUIPMENT ENGINEERING
- ☐ LASER SCAN SURVEYS
- ELECTRICAL-INSTRUMENTAL-AUTOMATION-PROTOTYPING ENGINEERING
- □ STANDARDS AND SPECIFICATIONS



CALINK ONE

DECISION PPORT SYSTEM



POWER ELECTRONIC, STORAGE, DRIVE & SMART GRID CONTROL

- ☐ SMART GRID MANAGER SYSTEMS
- □ BMS
- ☐ INVERTERS / CONTROL SOFTWARE
- □ POWER TRANSFORMERS
- MODULAR ELECTRICAL CABINETS





IT SYSTEMS





POWER ELECTRONIC



MULTIDISCIPLINARY ENGINEERING



SKIDS

TURN-KEY VALUE CHAIN



Power ElectronicStorage Sistems





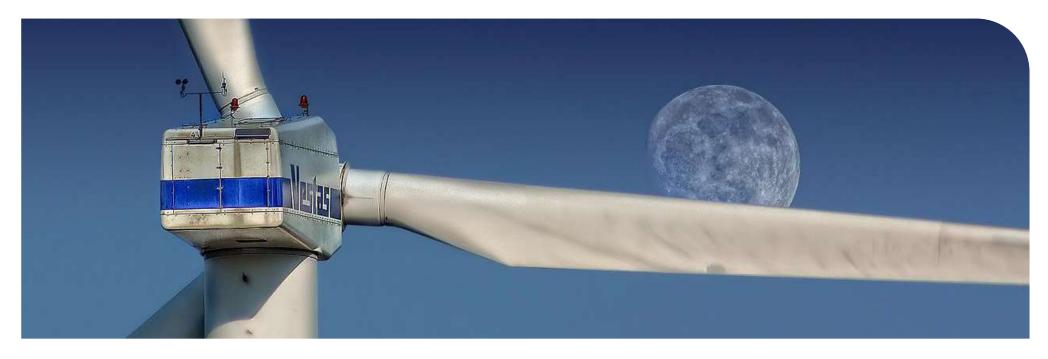
Power electronic

2C_ENERGY TO COME proposes itself as a qualified partner to the companies in all sectors which look for innovative energy-efficient customized solutions for development of high power electronic systems in the Industrial, Institutional field of Renewable Energies and Industrial Automotive.

Services include electrical and power electronic design, firmware development for micro-controllers and DSP, production of prototypes and pre-series, the research and procurement of appropriate electronic components, industrialization of product, technical support in the start-up of production.

E2C_ENERGY TO COME is capable of following the client in a competent and professional way throughout the qualification process of products, from the identification of the applicable rules to the support in the execution of the planned tests and to the resolution of any criticalities. from kWh to multi-MWh)





PRODUCTS:

- Static Converter AC/DC (ranging from kW to MW, from 50V to 690Vca)
- Static Converter Isolated and not Isolated AC/DC (rancing from kW to MW, from 50V to 1500Vdc)
- Storage Systems Power Intensive and relative interfaces (in the range from kWh to multi-MWh)

IN EVIDENCE:

- Converters AC/DC (rancing kW-MW module with: SCR, IGBT or Sic Device. Size: 3kW- 500kW – Voltage from 400Vca to 690Vca).
- Topologies: 2-3-5 levels, multilevel cells configurations available for Medium Voltage insulated applications
- Converters DC/DC (in the range from kW to MW 50Vdc to 1500Vdc with FET, IGBT and SiC Technology)
- Resonant DC//DC insulated power converter 50-100kHz water or air cooled
- Bidirectional back-boost, H bridge converters configuration
- Digital control boards, with lates model of: DSP, microcontrollers, FPGA; relevant for fast control and high precision processes

Prototypes

E2C deals with optimized design, control and construction of electronic power converters (used independently or as subsystems in variable speed drives), inverters and battery packs for industrial applications related to the production of energy from renewable sources.

The electronic power converters under study are of all types (dc-dc, dc-ac, ac-dc and ac-ac), both traditional and innovative (three-phase, matrix, multilevel, multiphase, back to back, dual two-level converters, resonant and soft-switching). Performance optimization is achieved by analyzing modulation strategies, reducing losses, reducing current ripple and improving the quality of the voltage produced by the converters, in relation to the specificity of the application.

Among the competences of E2C there is also the definition of methodologies for power conditioning using active front end converters, such as compensation of pulsating loads, transient disturbances, current harmonics and reactive power.

The E2C power converters and inverters allow you to generate and produce energy in the best possible way, even in the most unfavorable conditions, reducing operating costs. support

Storage systems

2C_ENERGY TO COME

The qualified partner of international manufacturing companies, public services, automotive and public transport industries and some investors looking for energy storage systems tailor-made.

The tailor-made solutions are ideal for reduce energy and create new profit opportunities, improve visibility in markets and sustainability.

E2C_ENERGY TO COME selects and proposes selected solutions to meet the energy flexibility needs of industrial and commercial companies. E2C favors the use of renewable resources destined to cover global requests.

Among these services, energy storage systems are highlighted (new generation electrochemical type) which combine high performance and ease of use and usability.

Storage systems are capable of storing energy and rendering (available when there is a greater need) to balance supply and demand of the electricity grid.





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About Us

Since 1987 Sael has been developing integrated systems and process control solutions for industrial automation. A solid Italian company. A leader in paper mill automation, with important business in steel, plastic, rubber, CNC and metallic wire machines.

Two sites and over 50 employees in Italy, with hardware and software technical teams focused on projects and development.

12% of the budget is re-invested in R&D projects and new technology research.

Own AC and DC drives implementing the main field buss communication protocols.

Supervision control systems with own technology and system integration using the most popular Drives.

Our Mission

Based on Lean and Learning organization process, the customer is the main priority. The V.O.C. (Voice Of Customer) is our Spirit of Improving.

Our Vision

Developing better system automation and drives, means working to improve the quality of our customer's products. This is our job; this is our passion.

Good automation facilitates the works.

Everyone has the right to perform better, in safety, with high efficiency and offering competitive prices. This is our commitment.



Frequency Converters V-Series Drive

One Drive

Platform

The long experience in the heavy-duty industry, has led to the last series of AC drives, which are characterized by a compact design, robust – all die-cast – and fast to install. Due to the market requirements and the latest energy efficiency demands, the V drives support all the existing motor types, including Induction motors (IM), Permanent magnet Synchronous motors (PMSM) and Synchronous reluctance motors (SynRM).

The intuitive control panel and the removable eeprom unit leads to easy maintenance in case of replacement of the AC drive.

SAELs "ONE platform" is now completed by the new LONG LIFE inverter series. Product designed to meet the mission of "last over time" as much as "repairable in every part": a huge gap from any Competitor else, slave of the commercial policy who forces them to continuous changings over the years

- •Film capacitors vs. traditional electrolytic virtually infinite lifetime component -,
- •Just "ONE" control board for any power rating,
- •Faster replacement of the control board in case of failure due to the removable eeprom, no parameters are required -,
- •Performances improved by the newest Tri-Core processor,
- •AC motor parameters detection by the accurate identification algorithm Smart auto tuning: faster inverter set-up in three steps, From today on, all our drives will need only "ONE" control board as a spare part no matters if AC, DC, Brushless or Reborn drives -. Maximum 3 minutes for a replacement in case of failure. No skilled operators are required; and no programming steps as well.



AC Drives

Full Digital Control of AC motors, Induction Motors (IM), Permanent Magnet Synchronous Motors (PMSM-SPM and PMSM-IPM) as well as Synchronous Reluctance Motors (SynRM).

From 2 to 1500kw - With common DC bus, for industrial application that need high static and dynamic performances and independent controls or combination of speed, acceleration, torque and space. Examples: PID regulation, programmable rotund ramps for acceleration and deceleration, diameter control or pull for winder and unwinder, pull control or material stretching, space control (positioning), absolute electric shaft control with programmable numeric connection and settable trough serial way. STO Certified. - Water cooling system (VW series)

Main features

Sensorless control of IM, PMSM (both isotropic and anisotropic motor types) and SynRM with high overloading capability -Field Oriented Control (FOC) for IM, PMSM and SynRM motors with optimized flux weakening control - Flying restart functionality - Open loop scalar V/F control with current monitoring (2-300% of the nominal speed) for IMs - BLDC control option.

AC Drives power parts

Power circuit with IGBT, film capacitors with long life, connection to low inductance. PWM modulation with frequency settable from 2 to 5KHz; 3 phases AC/DC power supply available in different size and type: standard bridge, with brake resistor, regenerative with breaking power line recovery





Control of DC motors, and purely resistive and

inductive loads in general; rapid switching for

inversion of polarity of the output terminals (only 4 quadrant version); feedback by encoder or

tachometric dynamo (input with resistive

divider); internal structural in blocks that can be fully

configured to obtain (for example): speed control over

the motor, with a reference speed (default); control over the motor with torque reference; feed-forward

for position / speed / current, calculated inside the

unit and/or coming from outside; following references

from the encoder /electric shaft with gearing ratio

settable): calculation of diameter and servo

diameter; control of the dancer roller speed with /

without reference to the line speed; reference

selectors for differentiated jogging or differentiated

references for machines with mechanical gearboxes

or to exclude dancer roller control: positioners rooted

in space; load shedding between two motors.

limitation of one of the internal values, with suitable

blocks; register cutting or cutting fly function. RC

protection groups; pulse transformers

board; transducers for the signal indicating

automating limiting of the current.

REBORN Platform

On the way of refreshing the existing drives SAELs R&D developed a specific devic To achieve the best reliability on old DC equipments, we optimized a regulation rack fit to replace every market drive - already



This replaces the old regulation board by a new full digital "one" board - One universal board for all the AC and DC sizes.The philosophy is to use the existing power section - main switch, distribution lines, SCR bridge, capacitor and fuses -. The old devices used for regulations are replaced. It remains the line switch - named "REBORN" is directly linked to the SCR bridge getting a full digital system with double field bus vs. the original analogical or semi-digital drive. Old devices without PLC have been upgraded on a drive level too. The big plus is to get the best technology higher performance at a competitive cost ever. Since the beginning of the 2000 year has been applied to many customers. The system offers the same benefits of our entire new product lines like "ONE Inverter", DC Drives, and so on: tough and rough, fully compatible to Siemens S7 PLC - there is a specific direct link to the Bridge board on Can-Bus / Profi-Bus.

Your Back-uP

in the hand

It is worth noting that the removable memory unit contains all the drive data and configuration. It makes replacement of the drive easy, in case of fault or maintenance. Extract the Flash memory from the broken drive, plug it into the new drive, and restart: no programming, no parameter setting, no skilled operator is required.

The drive commissioning and configuration is handled by the Web configuration interface, which is built-in the new series of Sael drives. In accordance with the international standards, SAEL drives are equipped with safety functions and safe torque-off (STO) certified.

Main features

- Supports various motor types including Induction Motors (IM), Permanent Magnet Synchronous Motors (PMSM-SPM and PMSM-IPM) as well as Synchronous Reluctance Motors (SynRM)
- Removable EEPROM memory unit for easy start-up and board replacement
- · Web interface for commissioning and settings
- Integrated safety including safe torque off (STO)
- Intuitive remote control panel (keypad)
- Support for a wide range of fieldbuses, input/output options and position/speed feedback
- EMC filter option
- du / dt filter option for motor protection



Sael Co-generation storage System

The co-generation and storage systems, are intended for applications where there are surges in power demand which are higher than the power rating of the mains supply from the grid. The system will store energy on batteries when the power demand is low and will return that energy when the power demand is high. The system is certified by the CEI021 norms, but can also work in islanding mode if the grid mains power supply should fail. After a power outage, the system can disconnect from the mains and provide power autonomously, resulting in a short transient on the user side. When the mains voltage returns and stabilizes, there will be seamless re-synchronization and co-generation.

Typical applications:

- Support to the mains in areas where the latter is fluctuating or discontinuous.
- Support to the mains in applications with fluctuations and high peaks in power demand (e.g.: electric vehicle charging stations). There is an obvious cost benefit as the installed power rate can be lower than the peak power rate.





Smart Grid Manager (SGM): is a complete system for the Network Managing:

- Frequency control as a function of Active Power (P(f) curve);
- Voltage control as a function of Reactive Power (Q(V) curve);
- Limiting Active Power surges(Peaks Shaving);
- Controlling the Active power exchange with the delivery point, based on daily or weekly plan (Time Shifting):
- Charging and discharging of the batteries in order to have maximum capacity when required.
- Automatic accumulators Loading and discharging for a maximum energy availability in case of demand;
- Optimization of the power supplied/absorbed by the providers (choosing between different sources) with management of the priorities.

SGS System Smart Grid Sael

The main building blocks inside the electrical cabinets are

- Battery
- BMS
- electro mechanic components
- Inverter/ Control software
- Power Transformer

Modular Electrical Cabinet, engineered for:

- Minimizing the EMI;
- Designed to be modular paralleled modules reach up to 6 megaWatt –

SGM software (Smart Grid Manager) consists of:

Smart Grid manager which co-ordinates the elements in the network. This is done with a calculation algorithm which optimizes the load partitioning according to online set points of the users. The smart grid flexible structure is configured by a graphical interface.

Intuitive and user friendly interface. The graphics can be easily modified by an editor without re compiling;

The data acquisition interface supports standard protocols, allowing data exchange with the most used PLC/RTU:

Interfacing to the protection system, in order to monitor and register the electrical events with a millisecond chronology

Interface compatible to standards given by the mains supplier (TERNA in Italy) for load disconnection and remote monitoring and controlling.

Storage of all smart grid data with a 1 second sampling time interval, with the possibility to show them graphically (up to 16 traces at a less than 2 second interval) or export them in tables. Minimum, maximum, average deviation and standard deviation values are calculated by groups of minutes and hours.



One or more high performance inverters – Intelliflex Platform One–

The VT series inverter is equipped with a last gen. tricore processor with high computing capacity;

Film capacitors (Sael is one of the few in the market), offering huge benefits in term of long life and performances. Tough and rough hardware with tough metallic casing for use in all environmental conditions; CEI 021 TUV Certified;





Systemdivision





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Coelme s.r.l. operates since 1984 for automation, supervision and electrical energy systems, ship and rail transport, the tertiary sector, the steel industry, metallurgical, paper, waste disposal and exploitation. The consolidated work method and the wealth of experience gained characterize Coelme s.r.l. as a highly

qualified company in the development and implementation of the most various industrial applications, offering the most complete assistance to the customer during the entire development cycle of the project and construction of the relevant plant.

POWER SYSTEMS

ENGINEERING

- consultancy and feasibility studies
- electrical engineering for LV systems
- technical interface with Customers/ Suppliers

AUTOMATION SYSTEMS

ENGINEERING

- DCS/PLC systems automation
- HMI and system integration
- process modeling and optimization

SERVICE & COMMISSIONING

- · on site inspections
- erection assistance
- commissioning plant start-up assistance
- hardware and software
- · training and educational courses
- operation assistance

Software

Development

- Operator interface
- System integration
- Process optimization modeling
- DCS / PLC systems
- SCADA suites
- Electrical engineering for LV systems
- Electrical power panels
- Equipped cabin cruisers
- Electrical equipment
- Powergen & waste treatment supervision systems
- Industrial automation
- Automation systems & engineering of electrical distribution
- Plant engines starting systems, conveyors electrical drives / panels / automation

Scada Suite



System supervisor with server-client architecture for production and / or data collection

- Data acquisition from PLC (Siemens, General Electric, ABB ...)
- Trend display with sampling per secondExport data in CSV / Excel format
- Light-client support (up to 5 included)

FRONTWEB

Web server module

To monitor and interact with the supervision system from anywhere, with any device connected to the Internet (pc. tablet, mobile phone)

SCALINK ONE

Solution for geographically distributed and / or multi-project systems.

It includes all supervisor functions and the web server and allows data integration and processing from multiple SCALINK projects for:

- Cost analysis (interfacing with management systems)
- Decision support Optimization and performance
- Use as an engineering station (EWS) for the development and updating of individual projects.





SCADA Software

Supervision Control and Data Acquisition developed by Coelme s.r.l. for plant supervision.

It interfaces with all common PLCs (Siemens, ABB, GE,...) and includes up to 5 light-clients to connect to the server PC. Born in 1996, it has been developed over the years to be always at the forefront while maintaining the solidity and stability acquired It has found application in the iron and steel, naval, petrochemical, paper and energy fields.

Its flexibility also allowed to reach the service sector with the additional FRONTWEB module.

Modular approach

Light. Use only what you need

Multiplicity of data sources

Forget communication obstacles

Scalability

Easily expandable for your future needs

Customer customization

Made on your needs

Future portability

Continuously updated to stay current

Scalink One

Solution for geographically distributed and / or multi-project systems.





Front Web

View server module

View and interact with SCALINK supervisory system from anywhere, with any device with an internet connection. It allows you to view the system supervision as you were on site and / or have new interfaces targeted to meet different needs, for example managerial. It is possible to add FRONTWEB to an existing SCALINK.

WEB Interface

Display of realtime and historical SCALINK data on the Interne for remote monitoring and analysis

Send commands

Allow sending commands and data to server (always possible, active on request for security)

Custom homepage

It is possible to differentiate the homepage and visible pages for users

High compatibility

Compatible with all common browsers

(Chrome, Edge, Firefox, Safari,..)

Responsive

Suitable for smartphones, tablets and personal computer

Management / decisional System

Cost analysis, interfacing with management systems, Optimization, performance indices, forecast

Engineering workstation

Development and deploy of projects related to different plant areas from a single station.

Unified supervision

Use as unified supervisor for monitoring and analysis of different plant areas projects

Distribuited systems

Use as supervisor and/or management systems for geographically distributed plants

It includes all SCALINK supervisor functions and FRONTWEB web server and allows SCALINK projects data integration and processing for:











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- PROCESS ENGINEERING
- SKIDS DESIGN & ASSEMBLY

The 2 Companies carries out engineering services and skids design & assembly , operating in the On-shore and Off-shore Oil & Gas sectors | Chemistry | Energy and Environment | Perforation | Food and Pharmaceutical | Naval | Skid & Packages. Tecnoteam's corporate knowhow allows to operate in the field of multidisciplinary engineering in ISO 9000 certified quality, carrying out

activities ranging from Basic design to workshop construction drawings, through the related activities of project management, procurement, construction assistance and assembly, commissioning and site survey, for which reference should be made to the relevant section which summarizes the various specializations and technological-operational characteristics.

Energy

In the energy field, especially in the past, there has been the possibility of developing know-how in the hydroelectric field, both for plants located on national and international soil.

For some years now, however, many skills have been developed in the field of cogeneration and trigeneration, through the continuous engineering service to exclusive companies specialized in the supply of this type of plant. The continuation of the crisis in the "Oil & gas" sector has determined a series of internal company dynamics and policies, aimed at specializing specific processes, while retaining the possibility of taking care of the design of this typology down to the detail, the historical essence of the company. of plant.

Chemicals

Despite the crisis in the sector on the national territory, the company background allows even nowadays to be able to continuously make available a whole series of engineering activities qualitatively compliant with the standards of the sector, having great experience in the application of the plant engineering methodology of the chemical plants in general, due to the presence of the historical and most important international companies of the chemical pole, located in the immediate operational area of the company.

Skid & Package design & assembly

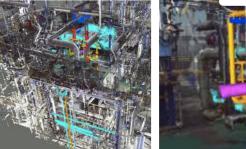
The general orientation in the design of modern systems is aimed at establishing assemblies of well-defined process parts preinstalled on transportable structures called skids or packages, depending on the different choices and technical needs of the process. The practicality of prefabrication and on-site installation gives countless advantages, including a more economical, functional and faster manufacturing system. For these reasons, Tecnoteam specializes in this activity, being able to boast countless technical experiences and seniority in design practice by the entire staff; as well as numerous and important curricular references, which place it among the most important companies in the sector specialty.

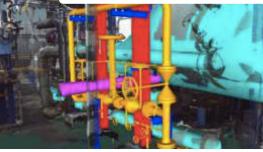












Project Description

C16-17 | Progettazione di dettaglio per un impianto di recupero calore "Heat Recovery System – EAF" presso Acciaieria ARVEDI di Cremona.

Rilievi, modellazione 3D con ESAPRO, lay-out, strutture di supporto tubazioni, isometrici, elaborazione documenti per certificazioni PED, verifiche di Stress Analysis.



Cogeneration

ENGINEERING:

Tecnoteam is equipped with the know-how to design any type of system from the earliest stages.

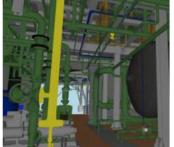
He has the skills to be able to perform a series of calculations and analyzes such as to allow the maximum yield of the chemical and physical processes typical of plant engineering, in relation to the needs and conditions expressed by the customer.

The studies may include several phases, in relation to the customer's purpose, costs and time for carrying out the activity; from pure conceptual to feasibility, to arrive at the definition of all project data and related costs, in order to be able to issue any calls for tender.

These activities are better listed below:

- Study and choice of the parameters of matter and energy, definition and elaboration of the balance sheets
- Strength and stability checks of pipes and flanges, in relation to the design parameters
- PFD, P&ID processing and related mechanization
- Definition and processing of line specifications, based on project data
- Data-sheet processing of equipment, regulation and safety valves
- Basic design of the plant, plot plan, equipment arrangement
- Management and assistance to the customer for the coordination of the offers of the various Vendors







Project Description

C11-10 | Progettazione di dettaglio "Revamping linee Ammoniaca e Vapore B.P." presso il polo chimico di Ravenna per YARA Italia S.p.A.

Rilievi utilizzando Laser Scan FARO, trattamento dati, modellazione 3D con ESAPRO, ricostruzione parziale dell'esistente utilizzando POINTSENSE, piping layout e supporti, isometrici tubazioni, relazioni di Stress Analysis.





Project Description

C11-10 | Progettazione di base e di dettaglio per un impianto di cogenerazione 83 MW composto da n° 2 motori Jenbacher da 10 MWe, n° 3 caldaie a gas da 21 MWe e n° 6 serbatoi di stoccaggio da 213 m3e. Impianto Tor di Valle a Roma per ACEA Produzione S.p.A.

Modellazione 3D con ESAPRO, layout, strutture, isometrici e supporti tubazioni, relazioni di calcolo strutturali e di Stress Analysis, data sheet apparecchiature, specifiche tecniche di fornitura, elaborazione documenti per certificazioni PED.



SOLARIUS	AUTOCAD FULL	PDMS
PRIMUS	MECHANICAL DESKTOP	E3D
INTEGRA	INVENTOR	PIPEPLUS
SPAC START IMPIANTI	ADVANCE STEEL	CAESAR II
TNE VIP	RECAP 360	PV ELITE
MC4 SUITE	ESAPRO	PIPINGOFFICE
CPIWIN	POINTSENSE	PIPEMILL
EC700	PROE - CREO	PROSAP
SPAC AUTOMAZIONE 2018	SOLIDWORKS	SAP2000
AUTOCAD LT	SOLID EDGE	STAAD

PIPING ENGINEERING:

Represents the phase that follows the process engineering; that is, the transition from the conceptual analysis of the different stages of the process to the concrete design of lines, equipment, plants and package systems in their entirety.

During this phase, the typological and functional characteristics of each equipment or system are defined, providing for the relative mechanical connection and location in the system. Icona di Verificata con community

FIRE AND SAFETY ENGINEERING:

Given the complexity of the plants treated and the type of substances used in them, Tecnoteam is generally involved in the definition of the risks deriving from fire and explosion, as well as in the definition of systems for the prevention, detection and extinction of such events.

LASER SCAN SURVEYS:

In recent years, the desire for innovation and the certainty that plant maintenance, updating and revamping activities will become increasingly important business choices in the near future, have led to approach, develop and deepen this type of service, through the aid of equipment, most advanced technologies that can currently be found on the market.

- On-shore, Off-shore and naval field surveys
- Point cloud alignment
- Joint and several reconstruction of the interested parties



Project Description

C11-10 | Progettazione di base e di dettaglio per un impianto di cogenerazione da 39 MW composto da n°2 motori Wartsila da 17 MWe, turbovapore DePretto da 3 MWe, caldaie recupero fumi con postcombustore a metano per produzione vapore e Caldaia ausiliaria a metano per produzione vapore 40bar, installato nella raffineria zucchero di canna a Brindisi – Italia per conto di S.F.I.R. S.p.A.

Modellazione 3D con ESAPRO ed Advanced Steel, layout, strutture, isometrici e supporti tubazioni, relazioni di calcolo strutturali e di Stress Analysis, specifiche tecniche di fornitura, data sheet apparecchiature, elaborazione documenti per certificazione PED.



to COMPLY