Tecnigroup

Oil & Gas Engineering

HISTORY AND MISSION

Tecnigroup is able to provide consolidated and consistent competence, technical updating and coordination of activities, which are the basis of our success.

Tecnigroup provides clients with a whole service within engineering jobs including “turn Key” formula. Each job/contract is committed to a project manager who identifies the suitable resources and double-checks the operations carried out by experts in different disciplines.

Our specialists are highly qualified within a huge experience, directly performed in plants’ field.
The Project Manager is attended by a program of control and of cost management, a HSEQ Coordinator and some designers who are appointed on the basis of the size and of the characteristics of the job order. Projects are followed up with extreme efficiency and excellence, by paying with constant attention to the effects that the project might have on things, people and environment.

Tecnigroup has adopted one quality system in accordance with the ISO9001 International Standard, and one environmental management system in accordance with ISO14001 Regulations. Moreover, **Tecnigroup** has adopted a system for the management of health and safety in the workplace. The Company was founded in 2011; nevertheless but the experience in designing of its engineers, dates back to many years ago, on behalf of companies in the oil and gas sector. **Tecnigroup** is able to provide with design and construction of package in the industrial, civil, particularly in the oil and gas industry.

The high professional skills present in **Tecnigroup** have been developed, thanks to the recruitment of specialized staff, who had previously worked for major companies in the engineering industry.
Today **Tecnigroup** stands out for its dynamism, versatility and experience in production and management of multidisciplinary engineering projects (both in Italy and abroad) on behalf of oil companies, private clients and public authorities.

PROCESS

- Feasibility studies
- PFD / materials analysis
- P&ID
- Hydraulic/thermodynamic sizing and process simulation
- Calculations for equipment sizing and piping
- Data sheet and technical specification
- Technical bids
- Economical bids
- Purchase assistance and technical evaluation
- Manuals & handbooks
- Technical on-site training
- FAT/SAT

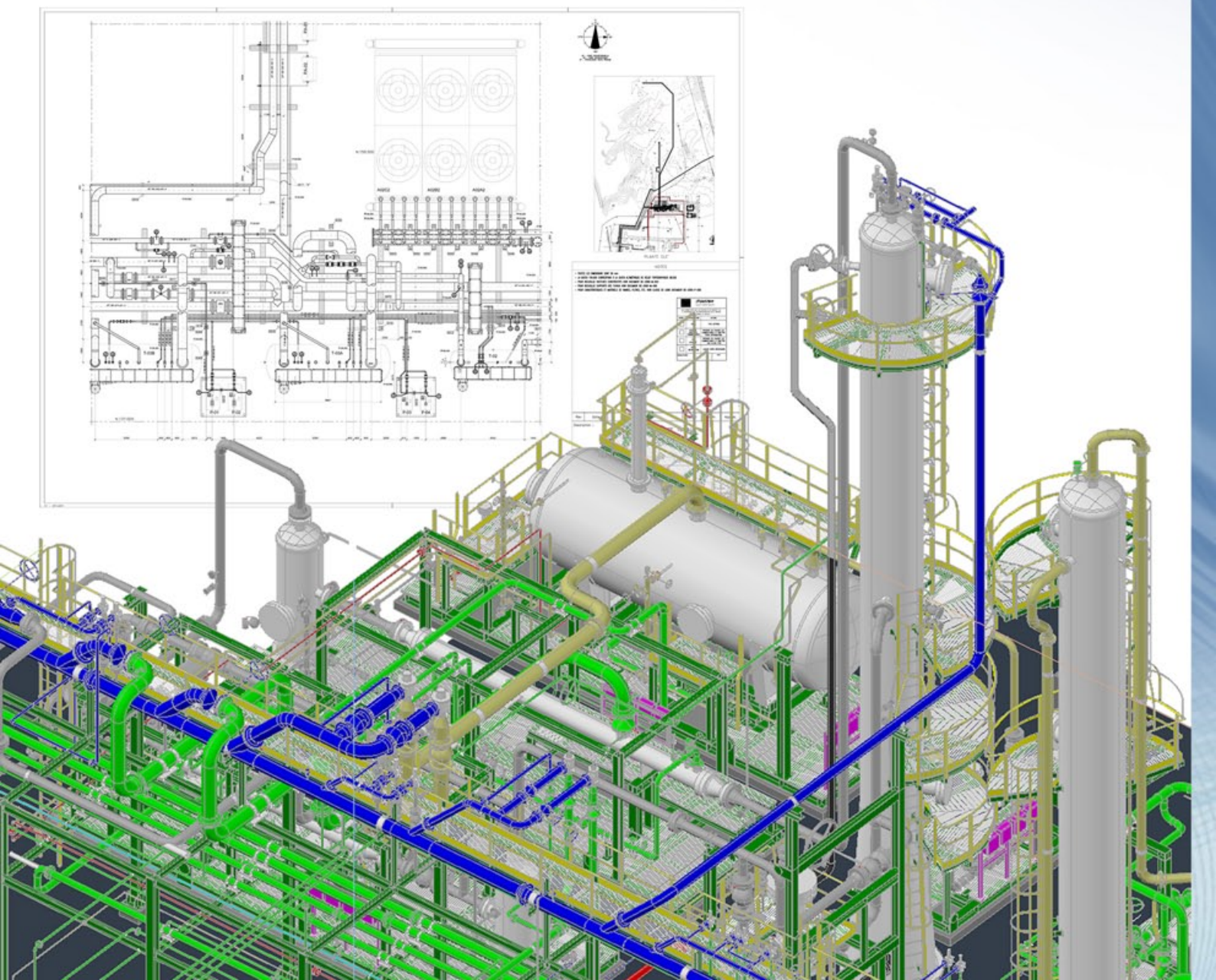
Tecnigroup's activity starts from the early project's planning phase, where both experience and simulators are used in order to perform materials analysis, process and flow analysis and equipment sizing. Our process engineers develop accurate technical specifications and datasheets, along with a full assistance to the purchase of materials and of equipments. **Tecnigroup** provides customers with manuals, handbooks and on-site training in order to guarantee a successful achievement of the project targets.
Tecnigroup employs specific software packages such as: Aspen HYSYS, HTFS, Pipenet, Pipeflow, Olga etc..

Tecnigroup

PIPING

- Piping and supports
- Stress analysis
- 3D piping modelling and rendering
- SKID design
- Plot plan and lay-out
- Sketches
- Bill of materials, lines, supports
- Thermohydraulic calculations
- Ventilation and HVAC
- Fireproof design
- FAT/SAT

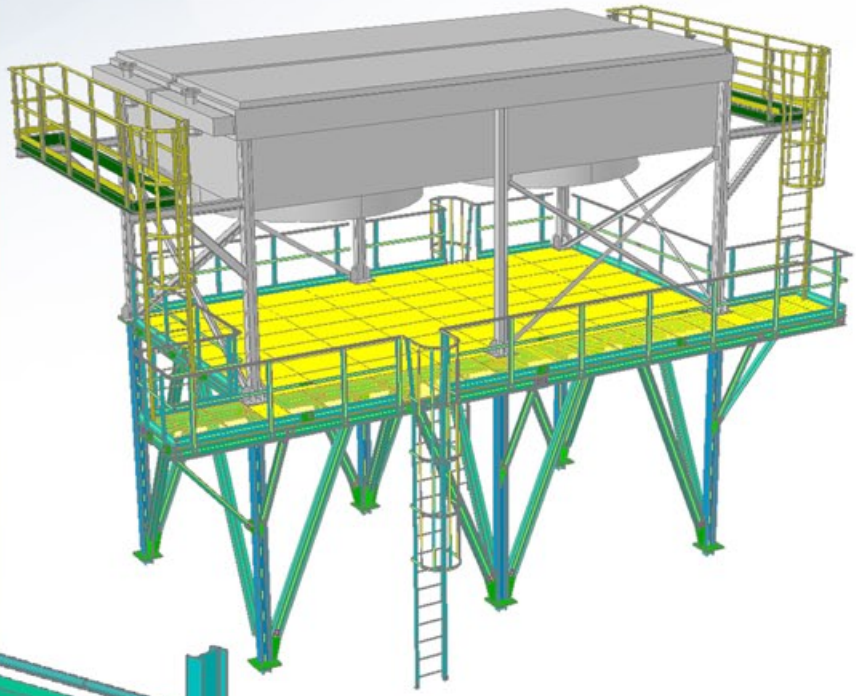
Tecnigroup's main target consists in a supply of a fully detailed piping engineering suitable for the erection of the palnt. A complete 3D modelling of the plant is developed where applicable, including equipments, pipe supports and instrumentation modelling in order to achieve the project's requirements. 2D documentation is developed for the production of plot plans, piping detailed lay-outs, isometric and support drawings. Every critical issue is faced with our Stress Analysis experts following current Regulations and International Codes and Standards.
Tecnigroup employs specific software packages such as: AutoCAD Plant 3D, PipePack, Caesar II, Pipenet, Rhinoceros 3D, etc..

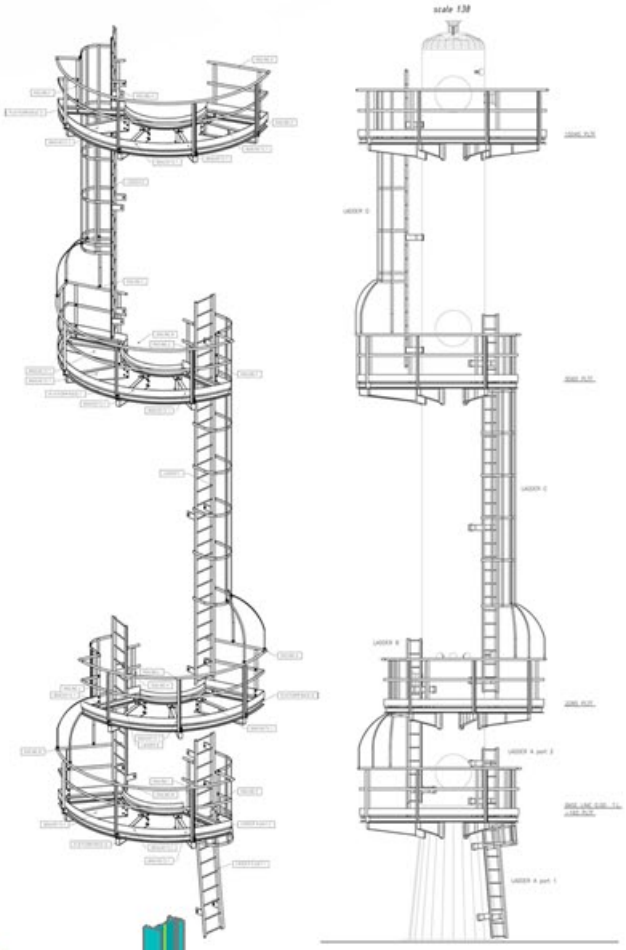


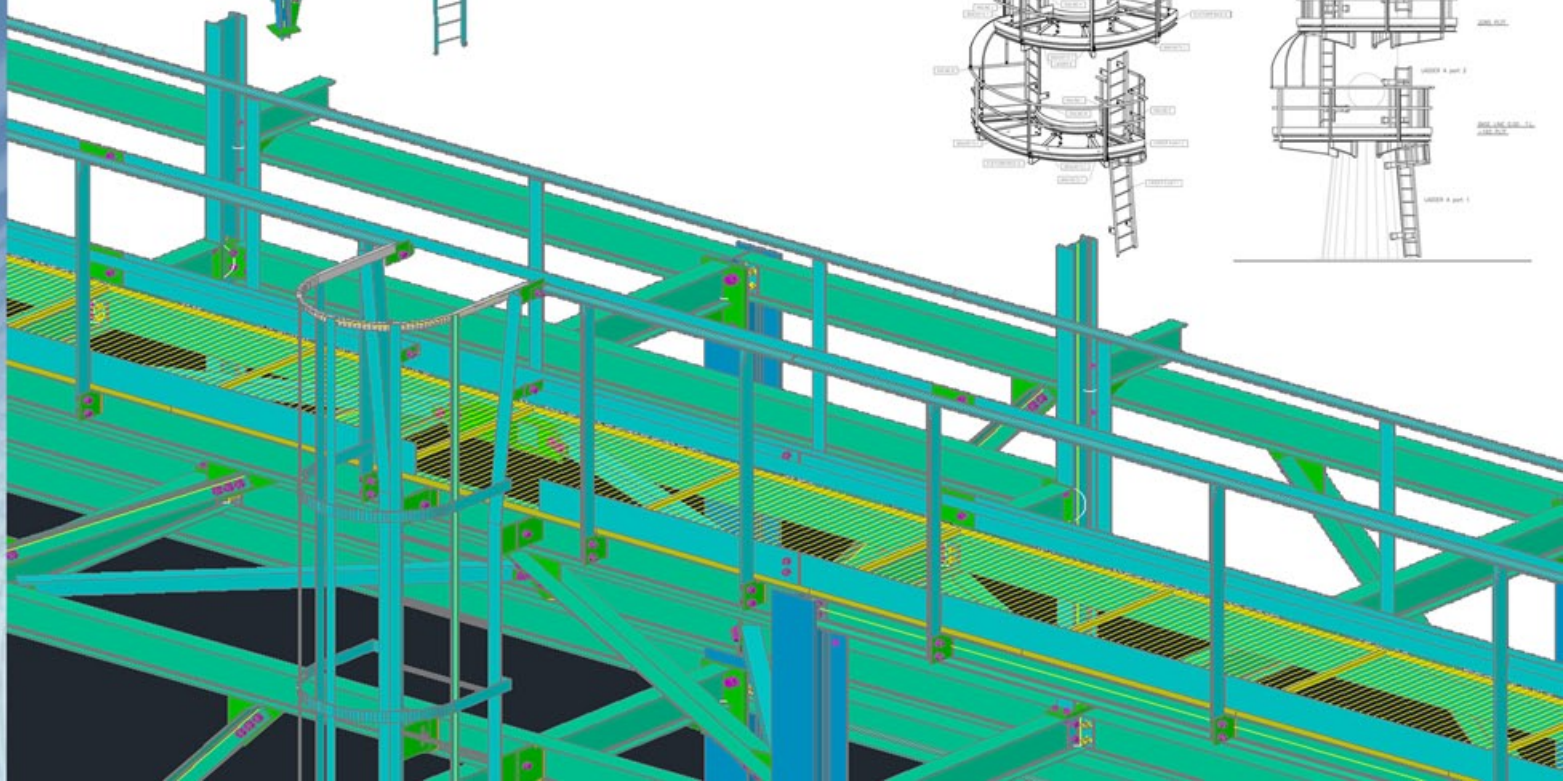
MECHANICAL

- Tank and silos design
- 3D tank modelling
- One-line structure drawing
- 3D structures modelling and rendering
- Structure calculation
- Erection lay-out structure drawings
- Equipments' data sheets
- MTO

Tecnigroup designs required structures for the realization of any type of industrial plant, beginning with the one line preliminary feasibility frames up to the structural calculations and architectural definitions details; the project is integrated with drawings of carpentry and assembly of each component. Each project is completed with a material take-off and structural calculations' reports in compliance with current Regulations and International Standards.
Tecnigroup employs specific software packages such as: AutoCAD Structural detailing, Prosap, Sargon, C.S.E, Rhinoceros 3D, etc..



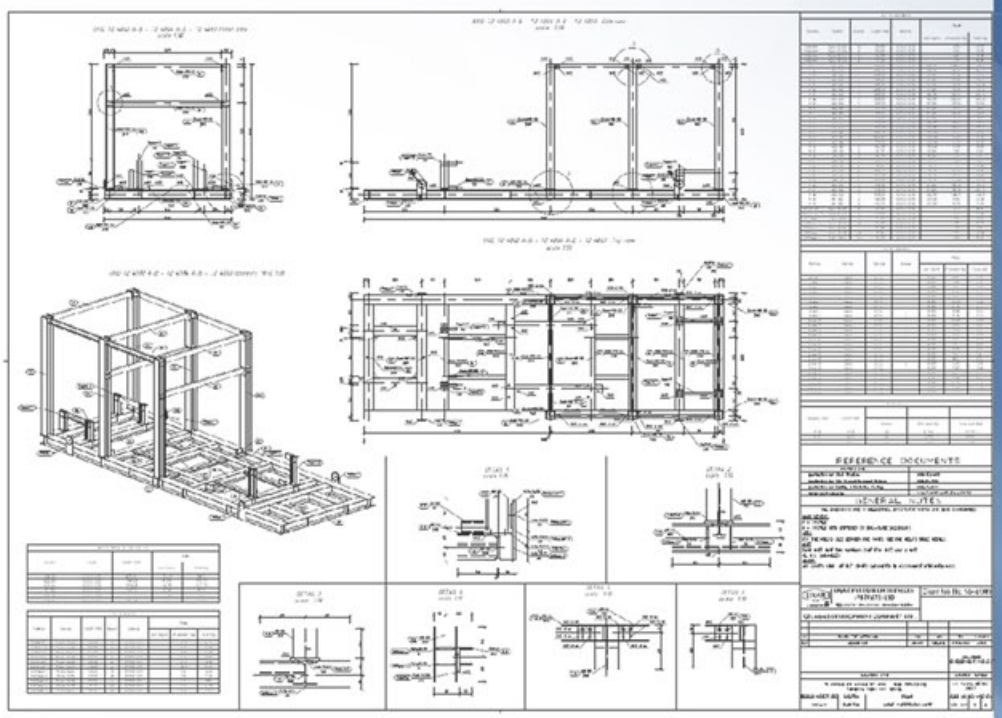


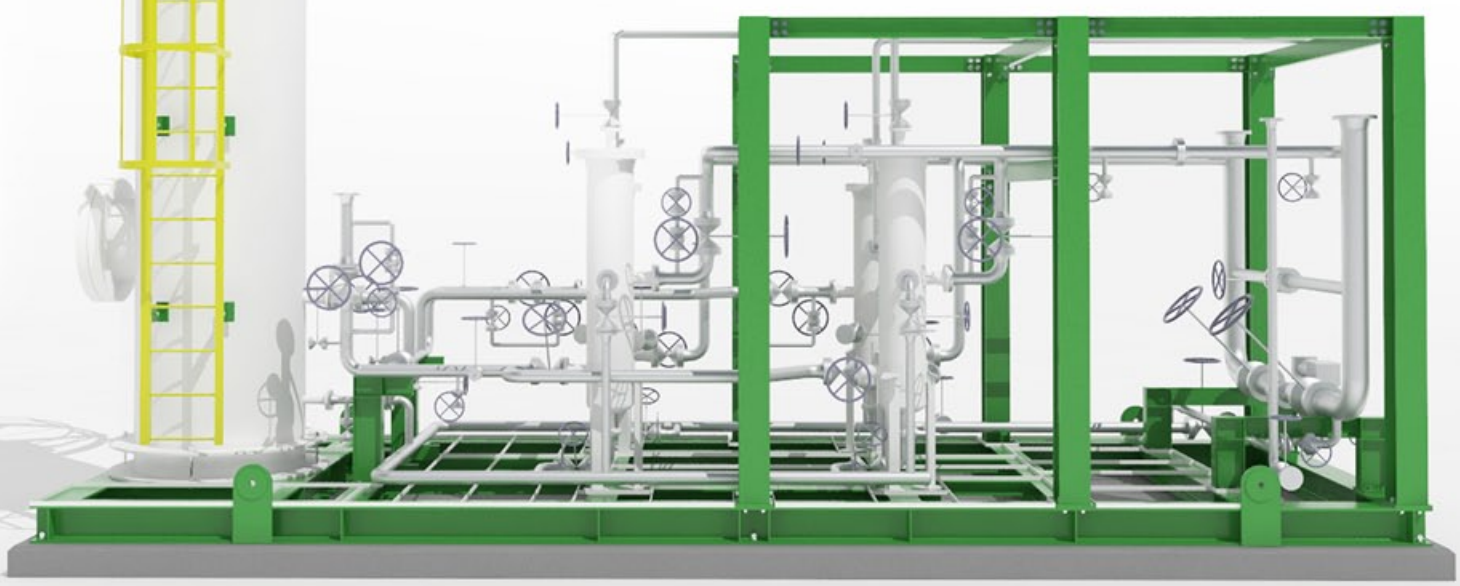


PACKAGES

- Skid and equipment design
- 3D Skid Modelling, GA and rendering
- Skid Structure
- 3D structures modelling
- Structure calculation
- Structures constructive lay-out
- Equipments and accessories data sheet
- MTO

Tecnigroup realizes packages according both to customer's engineered drawings and/or projects developed according to customers' requirements. Beginning with the design of the basic skid's requirements, **Tecnigroup** perform stress analysis model and structural calculation, up to detailed piping lay-out and isometric drawings for construction. General Arrangements drawings and lifting schemes are implemented accordingly up to a mechanical completion and erection activities. **Tecnigroup** supplies a complete package design suitable to any requirement.
Tecnigroup employs specific software packages such as: AutoCAD Plant3D, AutoCAD Structural detailing, Prosap, Sargon, Caesar II, Pipenet, etc..

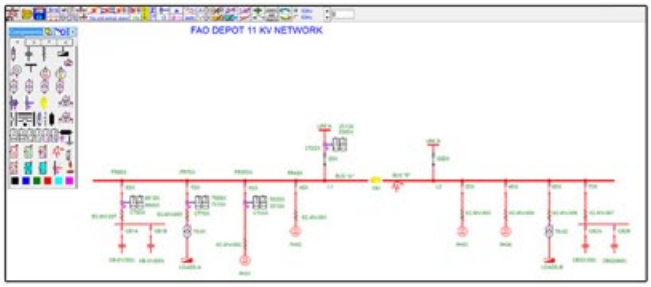




ELECTRICAL

- Network analysis
- Protections' coordination & cables
- Data sheets ad technical specification
- Electric substations HT/MT design
- Electrical lay-out
- Classification of dangerous zones ATEX
- SIL analisys
- LPS
- Technical bids
- Economical bids
- Purchase assistance and technical evaluation
- Manuals & handbooks
- Technical on-site training
- FAT/SAT

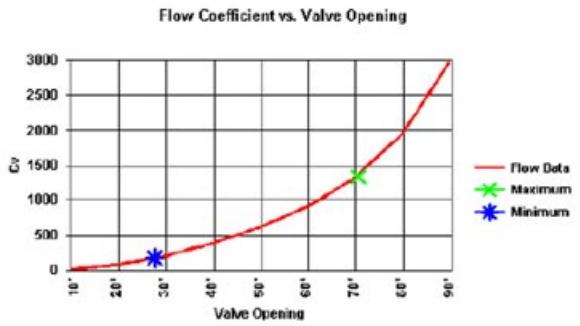
Tecnigroup achieves the development of electrical engineering starting from the design of one-line diagram, through calculations within the detailed engineering, by realizing electrical cables' layout, hook-up for the installation of electric utilities, cable lists, datasheets up to the MTO's issue and wiring diagrams for the final construction of electrical panels.
In order to reach a deep design detail, all engineering activities are developed in cooperation with mechanical engineers and piping designers by interfacing one each other through 3D models. **Tecnigroup** employs specific software packages such as: AutoCAD Electrical, ELPLEK, IprojectSw ABB, Sw Siemens, etc..



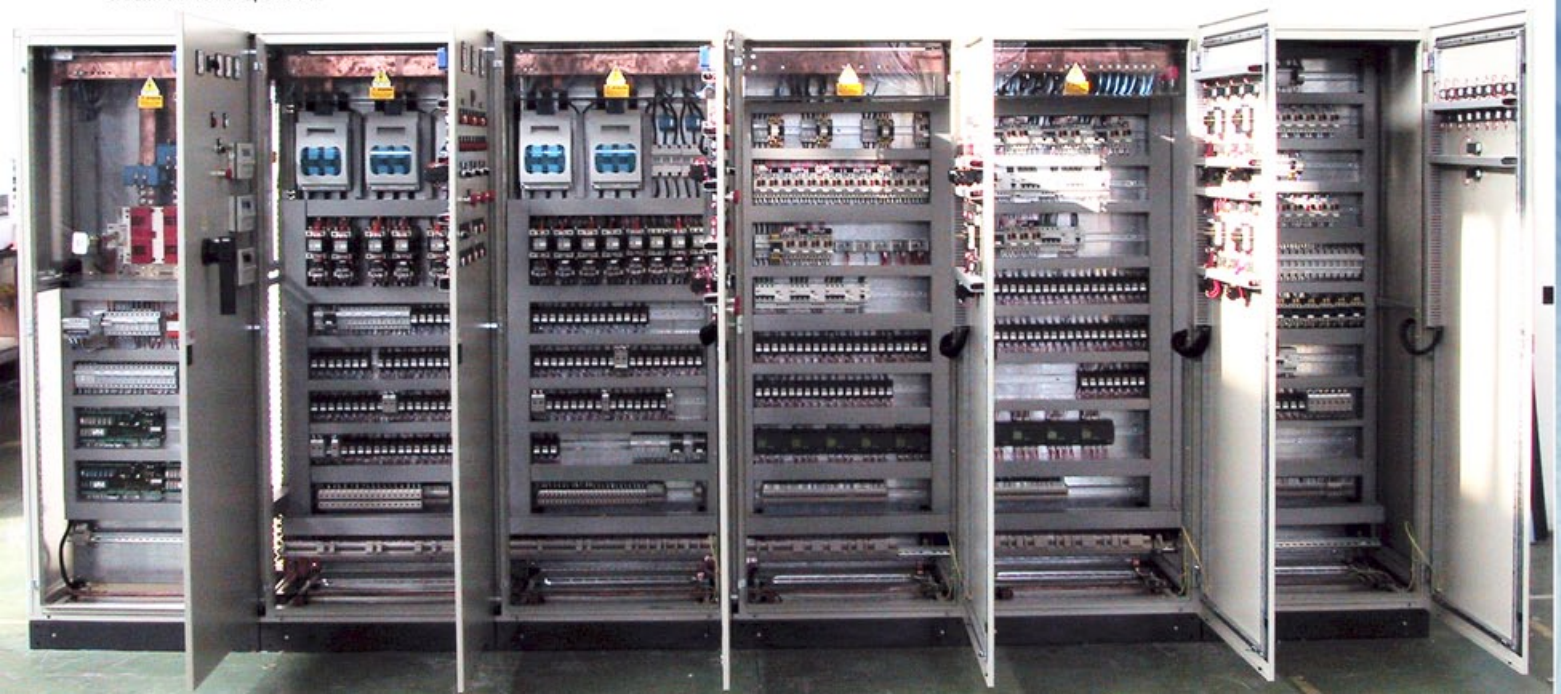
INSTRUMENTATION AND AUTOMATION

- P&I
- Data sheets ad technical specification
- Control systems for chemical plant DCS - SCADA
- AND / OR schemes
- Process, pneumatic, electrical connections
- Instrumentation lay-out
- Technical bids
- Economical bids
- Purchase assistance and technical evaluation
- Manuals & handbooks
- Technical on-site training
- FAT/SAT

Following the P&ID statements and detailed defintions, **Tecnigroup** selects and designs the proper instrumentation in order of the required monitoring features of field equipments, packages and tools connected to the control system.
Datasheets of instruments are realized for technical and economical Request For Quotation, Loop diagrams, logic diagrams and any other tools required for a complete control of the process of the plant. Moreover, the terminal PC useful for the management of the areas to be monitored, is also enabled. Hook ups (process, electrical, pneumatic), plants' tools and PLC / DCS's schemes are developed in order to configure the automation framework level required by the project in terms of alarms and locks managing. MTO and purchasing documents are prepared in order to perform materials requisition and expediting by the client.
Tecnigroup employs specific software packages such as: AutoCAD Electrical, Instruplus, Atex Gas, etc..



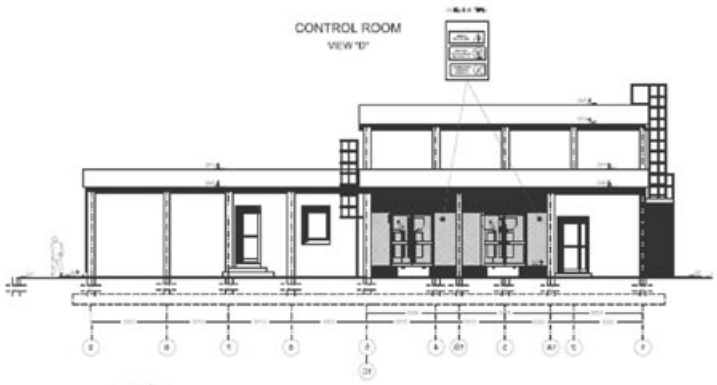
Product: V150 Valve Size=NPS 10 Ball Seal=HD Metal Attenuator=No Flow=Forward
Characteristic=Modified Equal Percent



CIVIL

Architectural lay-out for:
- Directional and service buildings
- Industry building and structures
- Metallic structures lay-out and calculation
- Concrete panels and structures with calculation
- Furnishing and accessories
- Technological systems
- Manuals & Handbooks
- Technical on site training
- Technical bids
- Economical bids
- Purchase assistance and technical evaluation
- Soil bearing reports

Tecnigroup takes care of the design of the entire area of an industrial plant. Particular attention is paid to soil type, optimization of space, study of safety and passages for working staff, vehicles and process tools. Buildings are designed according to the proper use due to the plant's and installation requirements, leading to the design of best solutions in compliance with the climate conditions of the site. Where ever tanks' dike walls are required, engineers will develop the most suitable solutions based on the site's characteristics in order to grant the customer's satisfactions and expectations. Proper MTO and purchasing documents are prepared in order to perform materials requisition and expediting by the client. Structural calculation model and report are developed within each project in compliance with current Regulations and Standards applicable.
Tecnigroup employs specific software such as: Architectural, Structural detailing, Rhinoceros 3D



VARIOUS

- Data and telephone network
- CCTV, design
- Paging systems
- Fireproof design
- Fire fighting network analysis and calculation
- Top event analysis
- Testing of supplies
- Paging design
- Cathodic protection system for pipelines and tank
- Manuals & handbooks
- Technical on-site training
- Welding test and NDT (non destructive tests)
- FAT/SAT

In order to ensure a complete engineering service, **Tecnigroup**'s activity includes CCTV, paging design and data/telephone network in order to ensure both plant monitoring and security. Environment and staff safety are guaranteed by a deep study of the fire protection system within the entire plant both for building and for process environment. Required active and passive fire fighting systems are designed according to the latest Codes and Standards (API, NFPA, ISO, etc...) and local Regulations. **Tecnigroup** employs specific software packages such as: DNV software PHAST (E.U. and INERIS approved), etc..

Pre-commissioning, Commissioning and Start UP

- Welding controls
- Destructive and non-destructive test
- Painting thickness test
- Hydro test
- Mechanical alignments
- Mechanical completion
- Instruments calibration
- Control system FAT/SAT
- Relay calibration
- HV/MV/LV Panel board test
- Safety system test
- Fire fighting test
- Environmental test
- Start up procedures
- Training for maintenance technicians
- Training for process technicians
- Training for safety technicians

Tecnigroup performs both workshop and field activities beginning with Precommissioning up to the start up of the plant. The development of procedures for commissioning, normal operation and decommissioning are developed by our engineers tanks to professional skills performed directly in field. Wherever needed or required, **Tecnigroup** perform test run analysis in terms of problem solving or process adjustments and revamping.

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