

# Company Presentation 2022





**ITALIAN MECHANICAL ENGINEERING  
MEETS GLOBAL CHALLENGES**

# TAILOR MADE TECHNOLOGY MEETS EVERY REQUEST FROM OUR LICENSORS AND CLIENTS

## Gas Monetization

**HALDOR TOPSOE**   
CATALYSING YOUR BUSINESS

**JM**  
Johnson Matthey  
Inspiring science, enhancing life



**Davy Process Technology**



**BASF**  
We create chemistry



**Snamprogetti**

**sasol**

**thyssenkrupp**

## Oil & Gas Downstream



**SCIENTIFIC DESIGN COMPANY, INC.**  
A SABIC - Clariant Partnership Company

**Honeywell UOP**

**Axens**  
Powering integrated solutions

**EXXON Mobil**



**Air Liquide**

**TOYO ENGINEERING**

## Nuclear & Power Special Products



**ENEA**

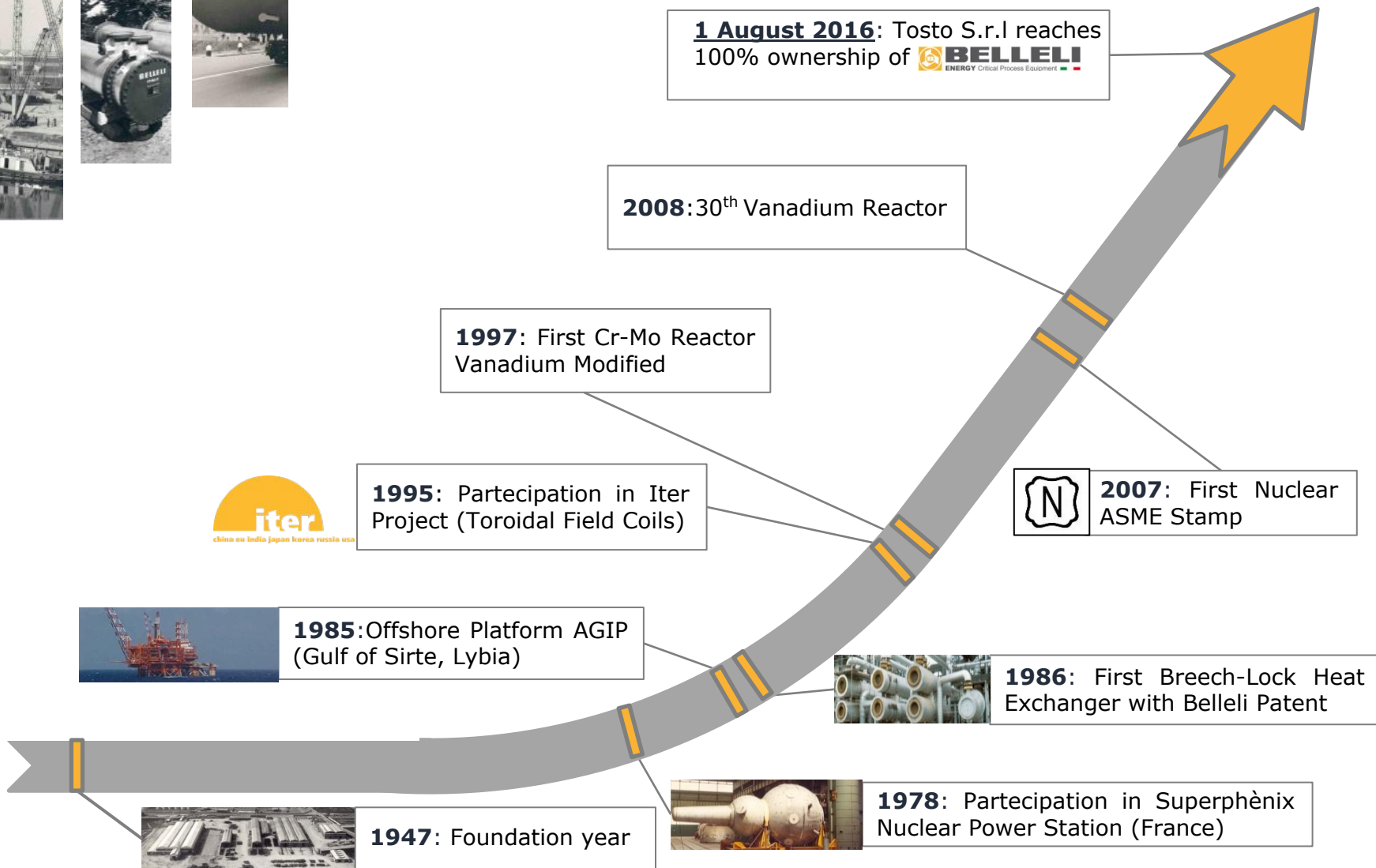


Since 1947 belleli defines solutions for critical process equipments for the gas monetization, oil & gas and nuclear industries, pioneering and patenting new design and fabrication solutions



# COMPANY







- HP Urea equipment
- Ammonia converters
- Synthetic gas equipment
- Methanol reactors
- Radiant Syngas Cooler EB/SM equipment
- GTL reactors
- Heavy wall vessels

- Hydrocracking/
- Hydrotreating reactors
- Breech lock type heat exchangers
- Tubular reactors
- High pressure separators
- High pressure heat exchanger

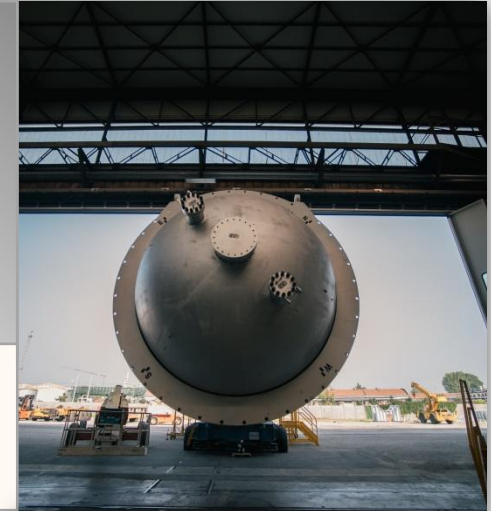
## Gas Monetization

## Oil & Gas Downstream



## Nuclear & Power, Special Projects

- Iter Project
- R&D with Prototypes
- CIRA Wind Tunnel
- VIRGO Interferometer
- Steam Generators
- Heat Exchangers for BOP
- Pressure Vessels & Pumps Casing
- Main containment & Air Locks
- Primary Piping

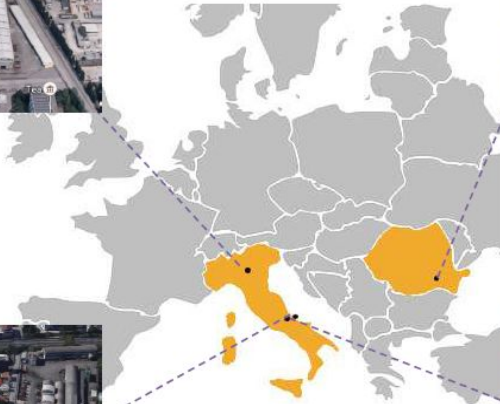


# TOSTO GROUP



- Belleli Energy C.P.E., based in Mantova (Italy), has been recently acquired by Tosto S.r.l., an Italian Holding company that among others retains full ownership of Walter Tosto (WT) (major Equipment Provider with Facilities in Italy and Rumania) and WTS Gas (Italian Liquefied Gas Trading and Retail company).
- The combined three plants capacity is 158.000 m<sup>2</sup> Workshop covered area and 490.000 m<sup>2</sup> of Workshops uncovered area, with more than 1 000 people and an overall capacity of 1 000 000 Manhours/Year.
- Belleli Energy CPE is managed independently.



**BELLELI**  
 ENERGY Critical Process Equipment  
**Mantova - Italy**  
 Covered Area 60.000 sqm  
 Uncovered Area: 280.000 sqm


**walter tosto**  
**Bucharest - Romania**  
 Covered Area: 25.500 sqm  
 Uncovered Area: 14.500 sqm

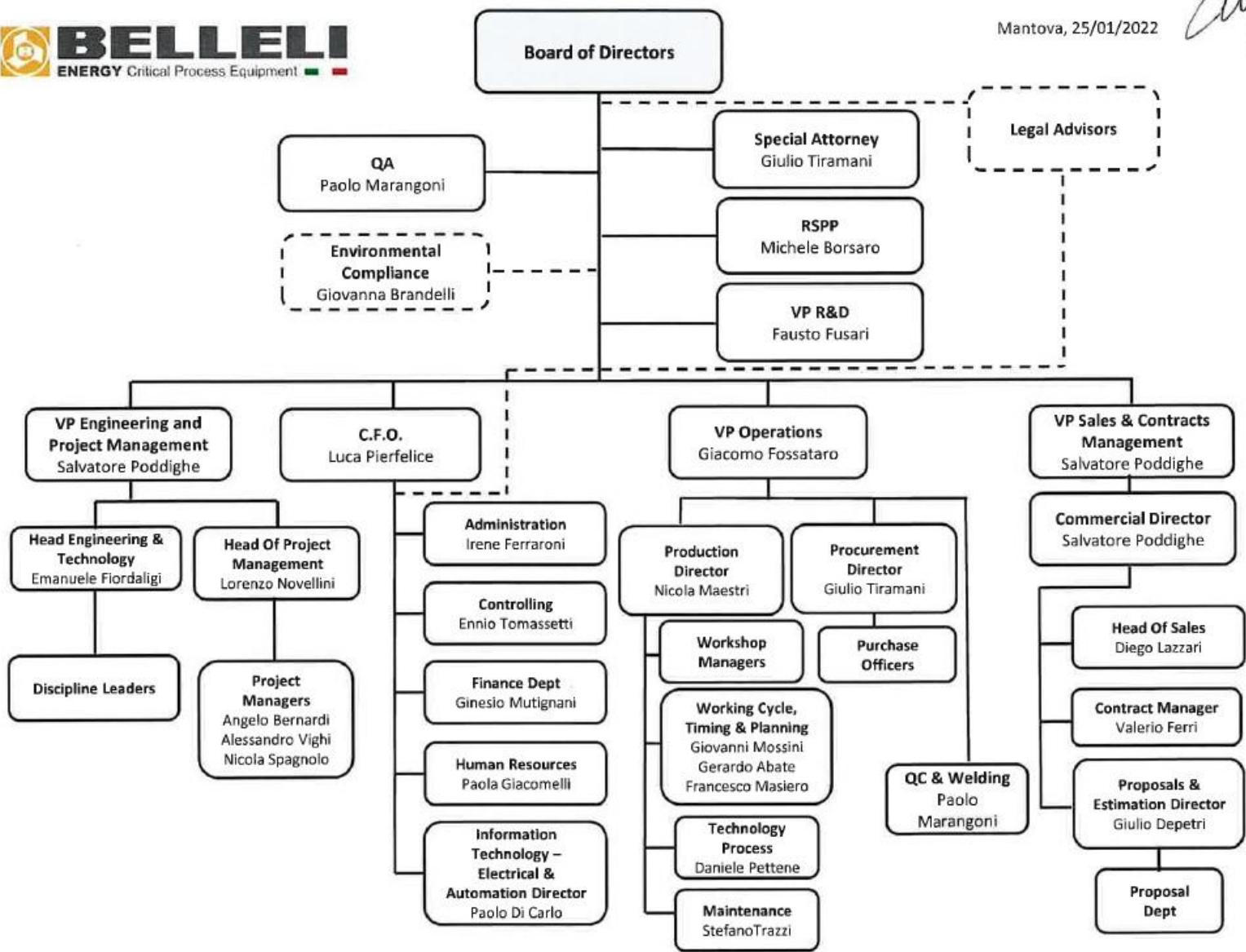

**walter tosto**  
**Chieti - Italy**  
 6 workshops  
 Covered Area: 91.000 sqm  
 Uncovered Area: 340.000 sqm


**walter tosto**  
**Ortona - Italy**  
 Sea Front Workshop  
 Covered Area: 9.000 sqm  
 Uncovered Area: 20.395 sqm



Mantova, 25/01/2022

ORGANIZATION CHART





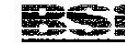


# ENGINEERING

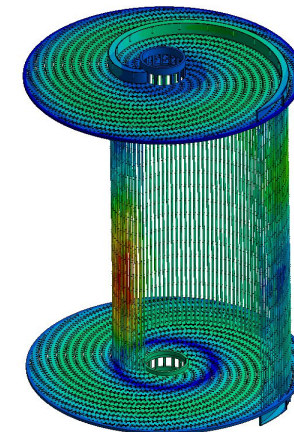
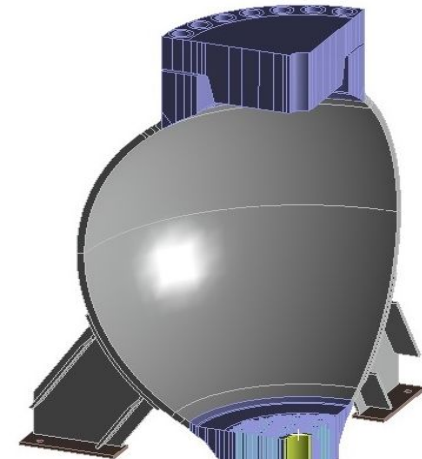
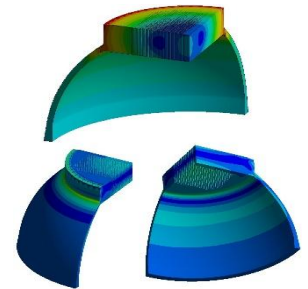


## Some of the applicable design Codes and Standards

- ASME III
- ASME VIII Div. 1
- ASME VIII Div. 2
- PD5500
- AD2000-Merkblatt
- ACI
- API
- AS
- ASCE
- CSA
- UNI-ISO
- TEMA
- KTA
- GOST
- DTU



Sdu Uitgeverij  
Sdu Publisher



<b><u>Code Calculations</u></b>	<ul style="list-style-type: none"> <li>• NEXTGEN Sant'Ambrogio</li> <li>• PV Elite</li> <li>• FINGLOW</li> <li>• Several validated calculation sheets covering code requirements together with special cases (e.g. Breach Lock)</li> </ul>
<b><u>Design by Analysis FEA</u></b>	<ul style="list-style-type: none"> <li>• ANSYS Mechanical Enterprise (including Space Claim and Design Modeler)</li> <li>• CAESAR II Intergraph</li> </ul>
<b><u>Thermal calculation</u></b>	<ul style="list-style-type: none"> <li>• HTFS Aspentech</li> <li>• HTRI</li> </ul>
<b><u>Cad 2D / 3D</u></b>	<ul style="list-style-type: none"> <li>• AUTOCAD Autodesk 2D</li> <li>• INVENTOR Autodesk 3D</li> </ul>



# MANUFACTURING FACILITY

# MANUFACTURING FACILITY



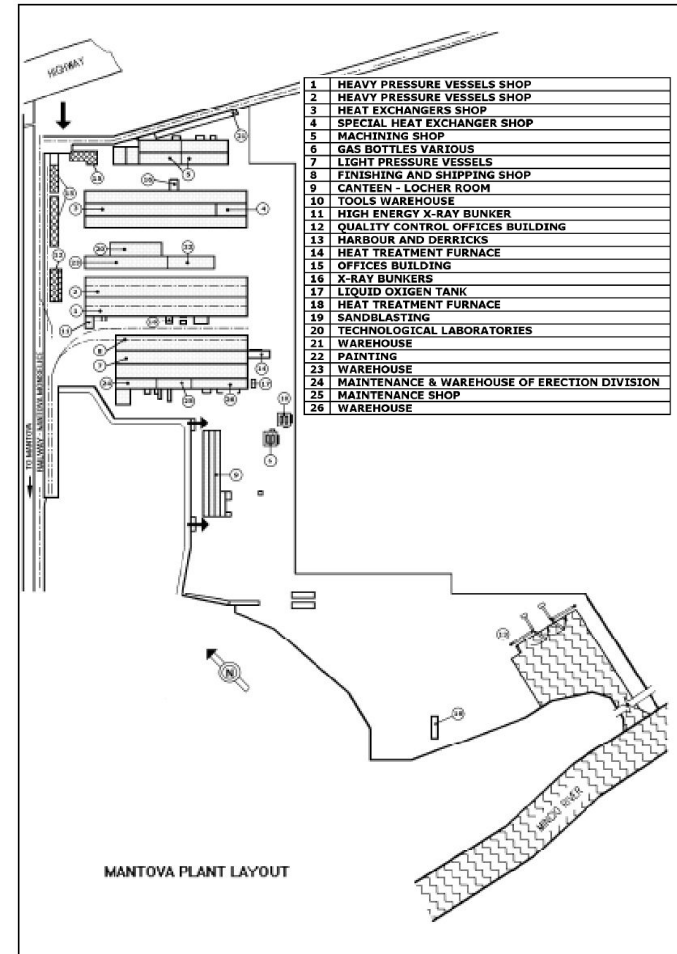
- **FACTORY LAYOUT**
- **MAJOR EQUIPMENT**
- **SHIPPING FACILITY**



# Main Data

With over 280.000 m<sup>2</sup> of total area and 60.000 m<sup>2</sup> of covered buildings (including office headquarters and workshops), Belleli Energy CPE has one of the best equipped and referenced manufacturing facility to satisfy our clients' requests.

The combination of great space, large-size manufacturing and very favourable global shipping conditions enables Belleli to satisfy all kind of requests for sophisticated process equipment of any size and weight.



# Aerial View



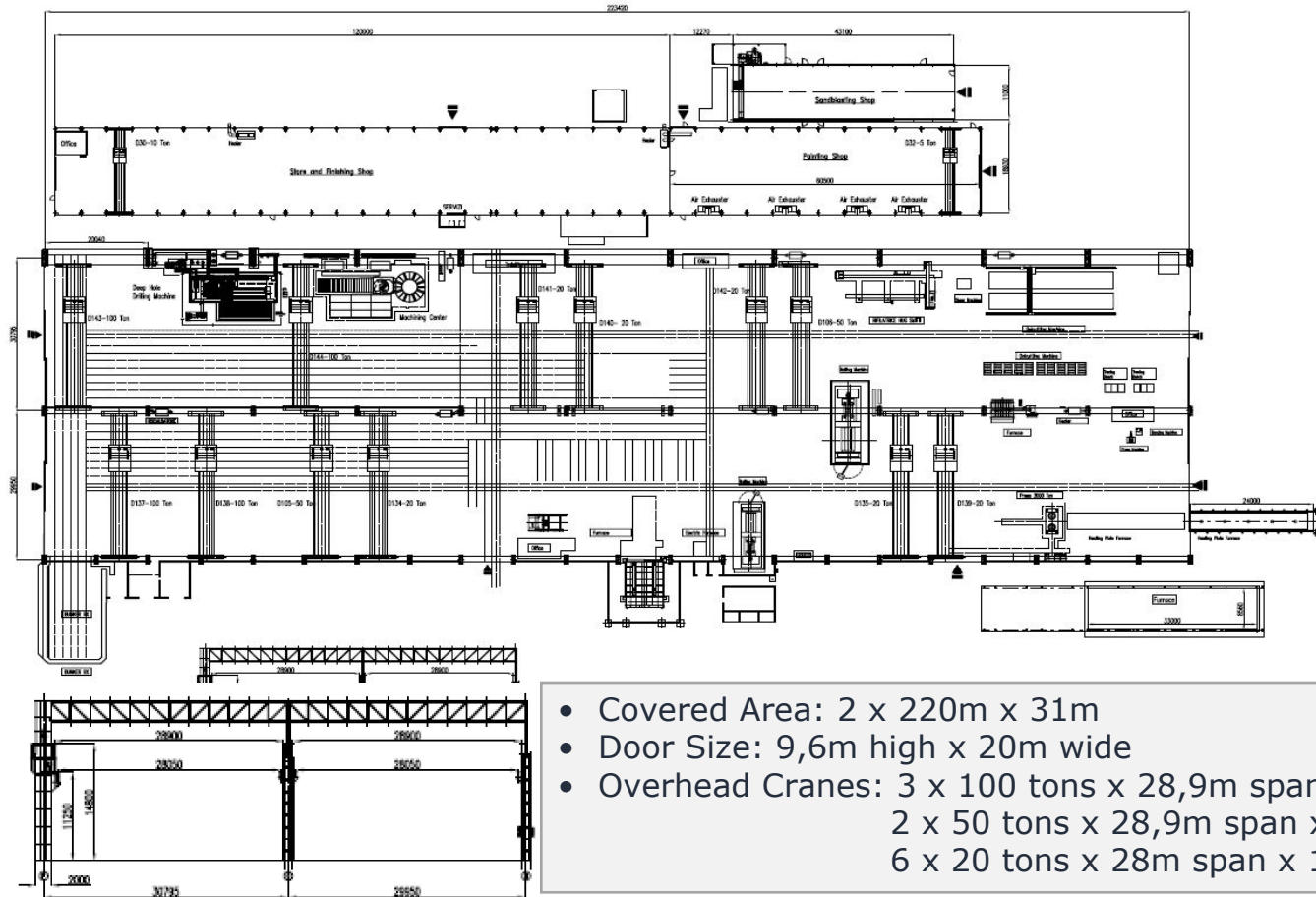


# THE BUILDINGS

FACTORY LAYOUT

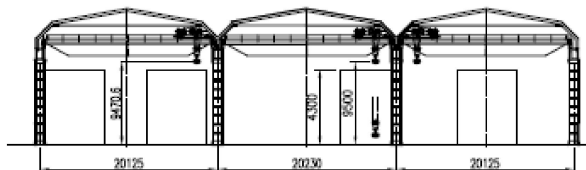
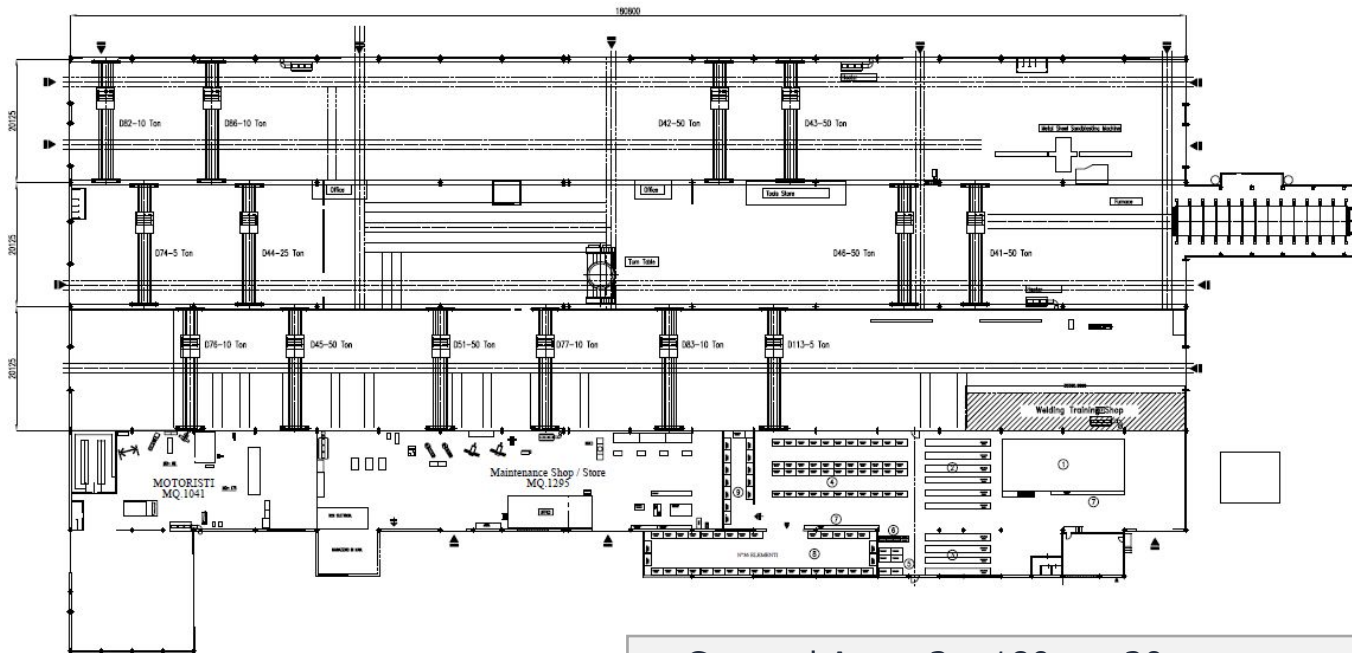


# HEAVY WALL REACTORS SHOP



- Covered Area: 2 x 220m x 31m
- Door Size: 9,6m high x 20m wide
- Overhead Cranes: 3 x 100 tons x 28,9m span x 13,5m height  
 2 x 50 tons x 28,9m span x 13,5m height  
 6 x 20 tons x 28m span x 10,5m height

# MEDIUM VESSELS & HEAT EXCHANGER SHOP

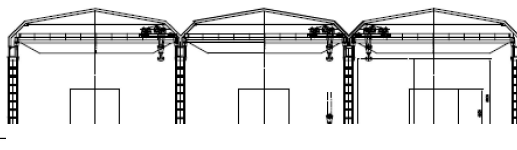
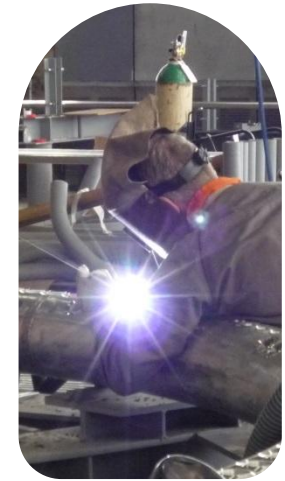
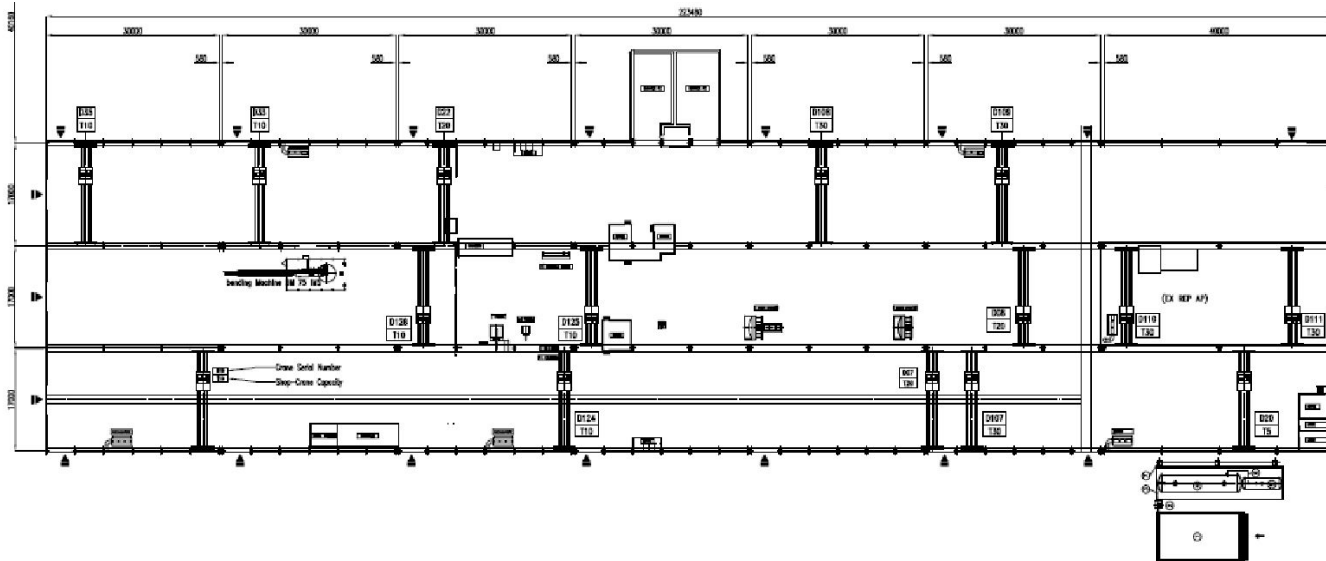


- Covered Area: 3 x 180m x 20m
- Door Size: 6,2m high x 6,5m wide
- Overhead Cranes:
  - 5 x 50 tons x 19,1m span x 11m height
  - 1 x 10 tons x 19,1m span x 11m height
  - 2 x 5 tons x 19,1m span x 11m height

FACTORY LAYOUT

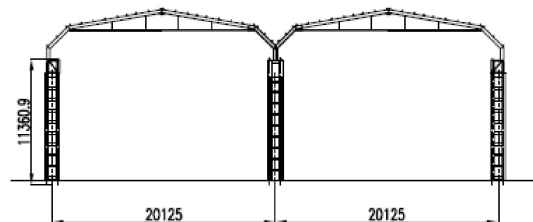
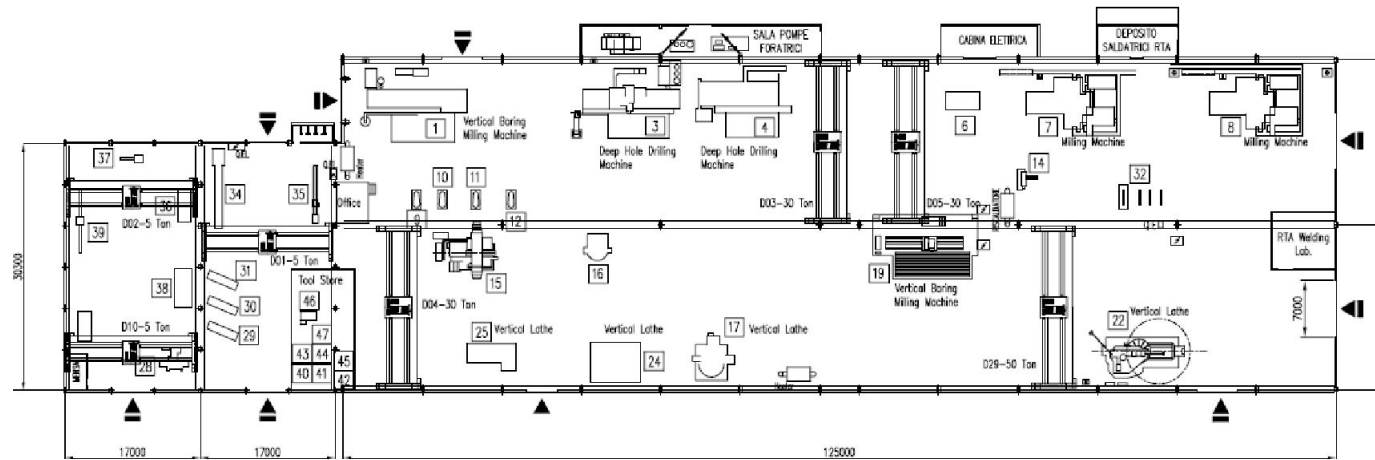


# LIGHT VESSEL & SPECIAL MATERIAL SHOP



- Covered Area: 3 x 220m x 17,5m
- Door Size: 8,2m high x 10,8m wide
- Overhead Cranes:
  - 2 x 30 tons x 16m span x 25m height
  - 3 x 30 tons x 16m span x 7,5m height
  - 3 x 20 tons x 16m span x 7,5m height
  - 6 x 10 tons x 16m span x 7,5m height
  - 1 x 5 tons x 16m span x 7,5m height

# MACHINING SHOP



- Covered Area: 2 x 155m x 20m
- Door Size: 6,2m high x 6,5m wide
- Overhead Cranes: 1 x 50 tons x 19,1m span x 9m height  
 2 x 30 tons x 19,1m span x 9m height  
 1 x 25 tons x 19,1m span x 9m height  
 3 x 5 tons x 19,1m span x 9m height

# FORMING & CUTTING EQUIPMENT

FORMING & CUTTING		
Equipment Type	Quantity	Max. Capacity / Performance
Horizontal Plate Rolling machines	2	Plate Kilax. Width 4500 mm, ; Max. Plate Bending capacity: up to 220 mm thk. (cold); 400 mm (hot) Min. forming ID : clown to 800 mm
Shape/Pipe bending machines	1	Up to 180 mm (shapes) ; 6 inches (pipes)
Vertical Hydro Press machnines	2	Up to 3000 tons; max width of working area:4,2 x 3,7 m; max vertical Stroke : 2,2 m
Gantry Hydro Press machnines	1	Up to 1000 tons; max width of working area: 5,3 m ; max vertical Stroke : 1 m
Bending press	1	35 Tons; Max. Working length: 2,4 m, table stoke: 100 mm.
Planing & milling machine for plate's trimming & beveling	2	Plate max. Length: up to 15 m; max plate thk: 280 mm
Oxifuel gas — cutting benches	2	Computer controlled; Up to no.4 cutting heads; max. Plate thk.: 280 mm, working area up to 24 m x 7,5 m.



**ROLLING MACHINE  
(6000 TONS)**



**PLATE HEATING FURNACES  
HYDRO PRESS  
(3000 TONS)**



**HYDRO PRESS  
(3000 TONS)**



MAJOR EQUIPMENT

# WELDING EQUIPMENT

ROLLER / POSITIONERS		
Equipment Type	Quantity	Max. Capacity / Performance
Roller-driven positioners	48 (pairs)	Up to 1400 Tons. — variable speed DC - transportable
Idle intermediate Roller positioners	6	500 Tons/ each- transportable
Welding Positioners ( Turning & Tilting)	36	Moment up to 120 Tons. — Capacity up to 120 Tons - transportable

**WELDING POSITIONER**



**ROLLER DRIVEN POSITIONER**



**WELDING POSITIONER (TURNING AND TILTING)**



# WELDING EQUIPMENT

WELDING		
Equipment Type	Quantity	Max. Capacity / Performance
Welding Equipments for SAW process (Single wire & tandem)	30	Sliding arm type. Horizontal stroke up to 7,5 m. Vertical Stroke up to 7 m. 1500 A DC 1200 A AC- transportable
Welding Equipments for ESW weldoverlay process	4	3000 A DC for strip width up to 90 mm - transportable
Welding sets for nozzle SAW welding	3	AC/DC 1000 A - Nozzle diam. 250-1000 mm - transportable
Welding equipments for mechanized welding of tube to tube sheets	15	TIG wire welding head - 300 A Power Supplier- Computer controlled welding program -transportable
Mechanized grinding Machines (Belt , Disk & brushing tools)	2	20 HP Horizontal stroke: 7,5 m, vertical stroke: 4,5 m, Minimum machinable ID: 600 mm movable on rails - transportable

**ESW WELD-OVERLAY PROCESS**



**TUBE-TO-TUBESHEET WELD**



**NARROW GAP & MONOWELD TECHNOLOGY**





# MACHINING EQUIPMENT

MACHINING		
Equipment Type	Quantity	Max. Capacity / Performance
Machining Center INNSE	1	5 Axes; Computer controlled , Vertical turning capacity up to 12 m; 8 m max height; Max. Weight: 250 Tons; Boring & Milling operations: Longitudinal Stroke : 6,2 m; Boring stroke: 1m
Vertical milling & drilling machines	2	3 Axes-computer controlled; Capacity: width: 3,5 m; length:3,7 m, vertical stroke: 1 m.
Machining Center ATLAS	1	5 Axes; Computer controlled , Vertical turning capacity up to 16,5 m; 13 m max height; Boring & Milling operations: Longitudinal Stroke : 16,5 m; Boring stroke: 8,2 m
Horizontal Deep hole drilling machines	5	3 Axes; Computer controlled; gun drill & BTA drilling technology; up to 3 spindles; max. Longitudinal Stroke: 8 m; max. Vertical stroke: 3,5 m; boring depth up to 1,2 m.
Vertical turning lathes	3	Max Machinable Dia: up to 8 m; Max. Machinable height: up to 3,8 m; Piece Max Weight: up to 50 Tons.

**MACHINING CENTRE ATLAS**



**DEEP HOLES DRILLING MACHINE**



MAJOR EQUIPMENT

# HEAT TREATMENT EQUIPMENT

HEAT TREATMENTS		
Equipment Type	Quantity	Max. Capacity / Performance
Plate heating furnaces	2	Natural Gas feed; 1100 °C max. Temp; Max Plate weight : 100 Tons; Max. Plate dimensions: 7 x 6 4 m.- No.2 Temp. Recorders each
Gas fired fumaces for PWHT	4	Up to 1000 °C; capacity up to 8 x 8 x 46 m; Max. Load : 1000 Tons
Induction heaters for local PWHT	2	Up to 200 KW power; Max Temp.: 1000 °C
Resistance heaters for local PWHT and preheating	6	Up to 100 KW power; Max. Temp.: 1000 °C



**NOZZLE PREHEATING ARRANGEMENT  
(ELECTRICAL RESISTANCES +  
GAS BURNERS)**

**MODULAR HEAT TREATMENT  
FURNACE W8M X H8M X L46M**



# QUALITY CONTROL EQUIPMENT

MISCELLANEOUS		
Equipment Type	Quantity	Max. Capacity / Performance
Bunkers for Radiographic examination	3	RX : LINAC Up to 6 MeV RX Energy — Gamma rays: No 2 Surces of Co 60 up to 100 Ci



**TEST AT FABRICATION SHOP  
(TOFD+PAUT)**



**INTERNAL LABORATORY FOR  
TECHNOLOGICAL MATERIAL TESTING**

## TRANSPORT LINK (MANTOVA - ITALY)

The manufacturing complex is characterized by large spaces and includes all the necessary infrastructures and equipment for handling and moving large and heavy components.

The transportation and movement of components is carried out with fixed overhead cranes installed in each workshops and with an agile fleet of self-propelled jack-up trailers and mobile cranes with the following loading capacities:

- 3 self-propelled jack-up trailers, 600, 650, 750 Tons
- 2 self-propelled jack-up trailers, 300 Tons
- 1 trailer, 160 Tons
- 2 trailers 150 Tons





# SHIPMENT FACILITIES FOR INTERNATIONAL EXPORT

## WATERFRONT CONNECTION

Private harbour with dimensions of 120 m width x 1200 m length, is served by our private river barge with shipping capacity:

- **70,0 m x 7,5 m x 9,8 m** (Lx HxW)
- **2.000 Tons** (Max weight)

The Loading quay (78 m long) is equipped with **4 nr derrick cranes**, suitable to RO-RO activities.

**PRIVATE BARGE  
«MASTRO PEPPE»**



**PRIVATE HARBOUR**



**DERRICK CRANES AND PRIVATE BARGE**



# SHIPMENT FACILITIES FOR INTERNATIONAL EXPORT

## WATERFRONT CONNECTION

The harbour is connected to international **Porto Marghera (Venice port)** by channels (yellow line).



**VENICE PORT**



## RAILROAD

Own railroad connection with internal tracks.

## HIGHWAY

Short highway access(1km, Brenner Motorway).



**PRODUCTS**

# HYDROCRACKING / HYDROTREATING REACTORS



Units: > 150 nr built since 1988  
 > 84 nr **Cr-Mo-V Modified**

Weight: From 400 tons to 1850 tons

Maximum Dimensions: Length: 56.750 mm. (TT)  
 Internal Diameter: 6.000 mm.  
 Wall Thickness: 328 mm.

Materials: 2.25 Cr 1 Mo Standard  
 2.25 Cr 1 Mo Enhanced  
 12 Cr Mo 9 10  
**2.25 Cr 1 Mo 0.25V Modified**

Design Codes: ASME, AD-Merkblätter, BS5500,  
 Stoomwezen, Finnish Code, EN  
 13445

Process Licensors: UOP, CLG, ExxonMobil, Axens, KBR,  
 Haldor Topsoe, Shell



# BREECH LOCK / SCREW PLUG HIGH PRESSURE SHELL & TUBE HEAT EXCHANGERS



Design: Breech Lock type (BELLELI design)  
Bolted In, Combined Breech Lock - Bolted In (Up to Three-Stacked Exchanger)

Units: > 210 nr built since 1980

Weight: From 20 tons to 200 tons

Maximum Dimensions: Tubes length: >10.000 mm.  
Shell Diameter: up to 1.600mm.

Materials: 1.25 Cr 0.5 Mo  
2.25 Cr 1 Mo Standard  
2.25 Cr 1 Mo Enhanced  
12 Cr Mo 9 10  
**2.25 Cr 1 Mo 0.25V Modified**

Process Licensors: CLG, ExxonMobil, KBR, Shell

# SHELL & TUBE HEAT EXCHANGERS



Design: TEMA Type - Up to Three-Stacked Exchanger

Units: > 800 nr built since 1980  
> 14 nr **Cr-Mo-V Modified**

Weight: From 30 tons to 365 tons

Materials: 1.25 Cr 0.5 Mo  
2.25 Cr 1 Mo Standard  
2.25 Cr 1 Mo Enhanced  
12 Cr Mo 9 10  
**2.25 Cr 1 Mo 0.25V Modified**

Process Licensors UOP, CLG, ExxonMobil, Axens, KBR, Shell

# HIGH PRESSURE SEPARATORS, VESSELS & COLUMNS



Units: > 420 nr since 1966

Weight: From 10 tons to 1350 tons

Materials: Carbon Steel  
1.25 Cr 0.5 Mo  
2.25 Cr 1 Mo Standard  
2.25 Cr 1 Mo Enhanced

Design Codes: ASME, AD-Merkblätter, BS5500, Stoomwezen, Finnish Code, EN 13445

Process Licensors: UOP, CLG, ExxonMobil, Axens, KBR, Haldor Topsoe, Shell

# HP UREA EQUIPMENT



**Design:** HP Pool Reactor, HP Urea Stripper, HP Urea Reactor, HP Pool Condenser, HP Scrubber, HP Carbamate Condenser.

**Units:** > 70 nr built since 1980

**Weight:** From 25 tons to 500 tons

**Materials:** High Strength Carbon Steel with lining in Safurex, 25-22-2 High Alloy Steels, Duplex Steel, 316 L Urea Grade Stainless Steel

**Process Licensors:** (references) Stamicarbon, Toyo Engineering, Snamprogetti



# AMMONIA EQUIPMENT



Design: Ammonia Converter shell with internal Basket, Waste Heat Boiler, Gas-Gas Exchanger

Units: > 170 nr built

Weight: From 25 tons to 800 tons

Materials: High Strength Carbon Steel, 1.25 Cr 0.5 Mo Steels, 2,25 Cr 1 Mo (Std and Enhanced), **2.25 Cr 1 MO 0,25 V** steels, Stainless Steel

Process Licensors: KBR, Haldor Topsoe, Ammonia Casale, TKIS - Uhde

# METHANOL REACTORS



**Design:** Methanol Process

**Units:** > 60 nr built since 1989, including  
 N. 5 Water Cooled  
 N. 5 Gas Cooled

**Weight:** From 100 tons to 475 tons

**Maximum Dimensions:**  
 Max Tube Length: 10.500 mm  
 Shell Diameter: 5.470 mm  
 N. Of Tubes: 6.400

**Materials:** High Strenth Carbon Steel,  
 Low Alloy Steel,  
 300 series and Duplex Stainless Steel

**Process Licensors:** Air Liquide - Lurgi, Toyo, Davy Process Technology

# TUBULAR REACTORS & ETHYLENE OXIDE REACTORS



Units: > 50 nr built since 1989

Weight: From 900 tons to 1160 tons

Maximum Dimensions: Reactor Length: 30.000 mm  
Shell Diameter: 7.200 mm  
N. Of Tubes: 29.400

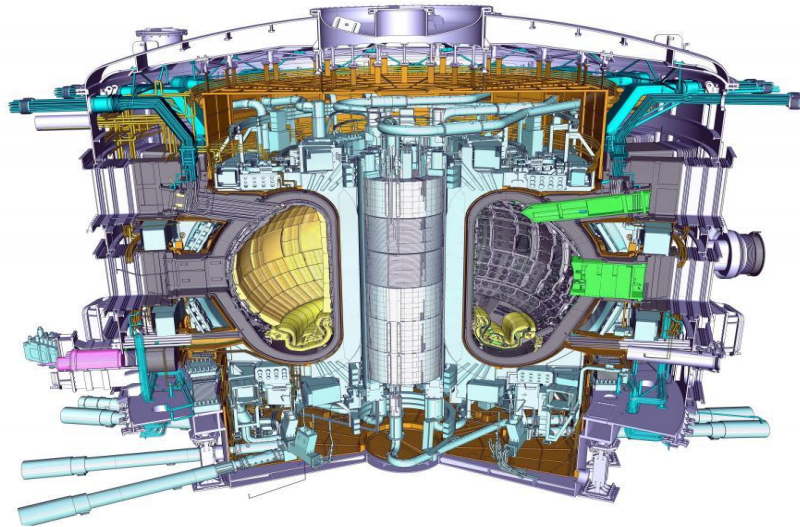
Materials: High Strength Carbon Steel,  
Low Alloy steel,  
300 Series and Duplex Stainless steel

Process Licensors: Shell, KBR, Basf, Scientific Design,  
Air Liquide - Lurgi, Toyo



# NUCLEAR & POWER

- ITER Project (International Thermonuclear Experimental Reactor). 1995: International R&D Activities related to the experimental and contracts from NET/EFDA. 2017: Construction of 2 nr sectors of the Vacuum Vessel for AMW consortium / Fusion for Energy (F4E)
- Completion of n. 4 Steam Generators for US Nuclear PWR Plant.
- N. 3 Radiant Syngas Cooler for General Electric.
- Nuclear Power Plants supplier of Critical Equipment for nuclear island and BOP including Site Construction and Erection of Steel Containments.
- HP/MP Piping and Structures for Conventional and Nuclear Power Plants





# INNOVATION ACTIVITIES IN CIRCULAR ECONOMY

Tosto Group, of which Belleli Energy CPE belongs to, has been carrying out detailed studies for process licensors, specifically aimed at identifying the optimal fabrication solutions and possible fabrication alternatives related to critical equipment for wastes or plastic materials recycling.

The Group has the ambition to challenge the design of equipment used in the circular processes such as gasification, pyrolysis etc.

Additionally, Belleli is promoting various industrial research and customer support for the gas-storage of hydrogen.



# CERTIFICATIONS

# Asme S, Asme U, Asme U2, Asme N, Asme NPT, Asme NS, National Board, Nuclear National Board, UNI EN ISO 9001:2015, SQL, GOST ...



The American Society of Mechanical Engineers



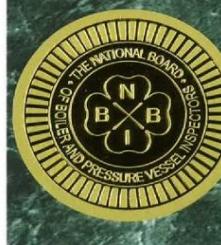
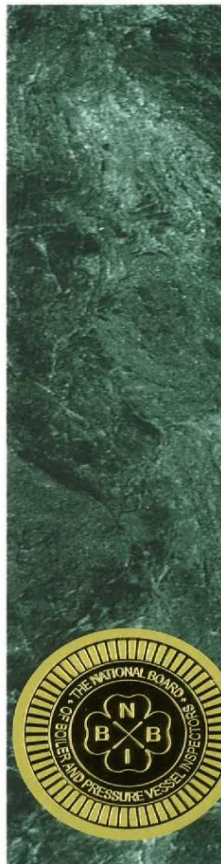
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General Admin  
Inspection and  
有效期至: 2  
Date of Expiri

**ЗАЯВИТЕЛЬ** фирма «Bel (наименование и место нахождения заявителя)

**ИЗГОТОВИТЕЛЬ** фирма (наименование и место нахождения изготовителя продукции)

**ОРГАН ПО СЕРТИФИКАЦИИ** (наименование и место нахождения органа по сертификации)


**ПОДТВЕРЖДАЕТ, ЧТО А ПРОДУКЦИЯ** (информация об объекте сертификации, локационная идентификация объекта)

**СООТВЕТСТВУЕТ ТРЕБОВАНИЯМ ТЕХНИЧЕСКОГО РЕГУЛАТОРА (ТЕХНИЧЕСКИХ РЕГУЛИРОВАНИЙ)**, на соответствие требованиям (кодексов) проводится сертификация

**ПРОВЕДЕННЫЕ ИСПЫТАНИЯ (ИСПЫТАНИЯ) И ИЗМЕРЕНИЯ** (наименование государственного регламента (технического регламента), на соответствие требованиям (кодексов) проводится сертификация)

**ПРЕДСТАВЛЕННЫЕ ДОКУМЕНТЫ** (документы, представленные заявителем и подтверждающие качество соответствия продукции требованиям технического регламента)

**СРОК ДЕЙСТВИЯ СЕРТИФИКАТА**

## DNV BUSINESS ASSURANCE MANAGEMENT SYSTEM CERTIFICATE

Certificato No. / Certificate No. **CERT-02935-98-AQ-MIL-SINCERT/A**

Si attesta che / This is to certify that

**BELLELI ENERGY CPE S.r.l.**  
Via G. Talliercio, 1 - 46100 Mantova (MN) - Italy

è conforme ai requisiti della norma per i sistemi di gestione:  
has been found to conform to the management system standard:

**UNI EN ISO 9001:2008 (ISO 9001:2008)**

Questa Certificazione è valida per il seguente campo applicativo:  
This Certificate is valid for the following product or service ranges:

**Ingegneria, approvvigionamento e costruzione di apparecchi critici in pressione (scambiatori di calore ad alta pressione, apparecchi a pressione con spessori elevati, reattori hydrocracking/hydrotreating, reattori tubolari, apparecchi per la produzione di urea e ammoniaca) per l'industria oil&gas, chimica e petrolchimica (Settore EA : 17 - 34)**

**Design, procurement and production of critical pressure equipment (high pressure heat exchangers, hydrocracking/hydrotreating reactors, tubular reactors, urea and ammonia equipment) for oil&gas, chemical and petrochemical industry (Sector EA : 17 - 34)**

Data Prima Emissione/Initial Certification Date:

**1998-05-12**

Il Certificato è valido fino al:  
This Certificate is valid until:

**2018-08-01**

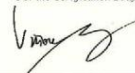
L'audit è stato eseguito sotto la supervisione di/  
The audit has been performed under the supervision of

**Walter Franzoi**  
Lead Auditor

Luogo e Data/Place and Date:

**Vimercate (MB), 2015-06-05**

Per l'Organismo di Certificazione:  
For the Certification Body:



**Vittore Marangon**  
Management Representative

La validità del presente Certificato è subordinata al rispetto delle condizioni contenute nel Contratto di Certificazione.  
Lack of fulfillment of conditions as set out in the Certification Agreement may render this Certificate invalid.

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*Thanks for Your Attention*

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