



PRESENTATION 2023



History



1968

Walter Tosto WTB,
Formerly Fecne Nuclear
Components, was one of
the main suppliers of
pressure vessels, heat
exchangers and heavy
welded structures in
Romania.

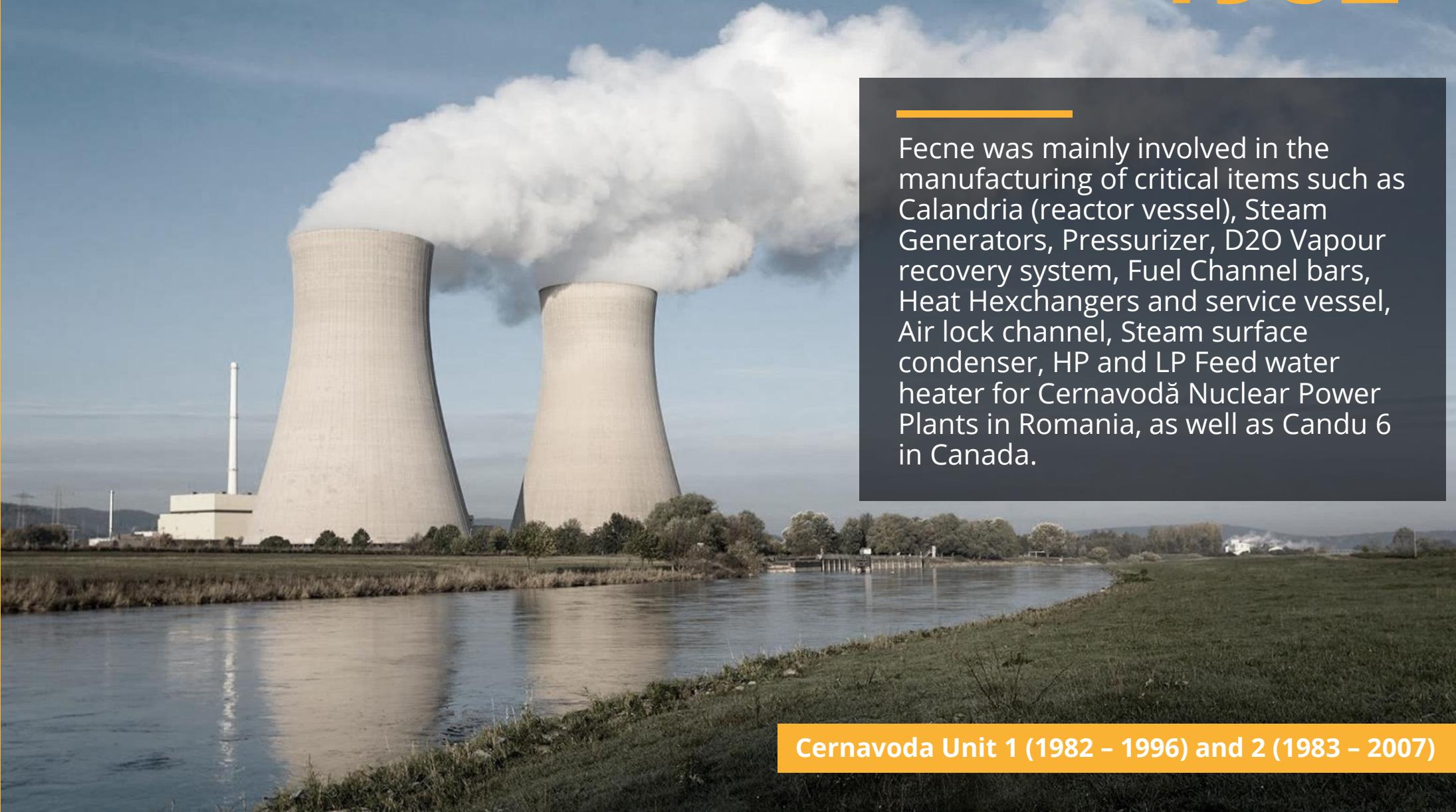
History

1979



Fecne was an important point in the collaboration program between the French and Romanian governments, as J-F Mitterrand provided to Ceausescu the drawings and the specifications of the Framatome Usine (today AREVA Saint Marcel)

History



1982

Fecne was mainly involved in the manufacturing of critical items such as Calandria (reactor vessel), Steam Generators, Pressurizer, D2O Vapour recovery system, Fuel Channel bars, Heat Hexchangers and service vessel, Air lock channel, Steam surface condenser, HP and LP Feed water heater for Cernavodă Nuclear Power Plants in Romania, as well as Candu 6 in Canada.

Cernavoda Unit 1 (1982 – 1996) and 2 (1983 – 2007)

History



Fecne was acquired by the Italian company Walter Tosto SpA in 2012, which identified in the factory a potential opportunity for the continuation of its growth in the nuclear market.

2012

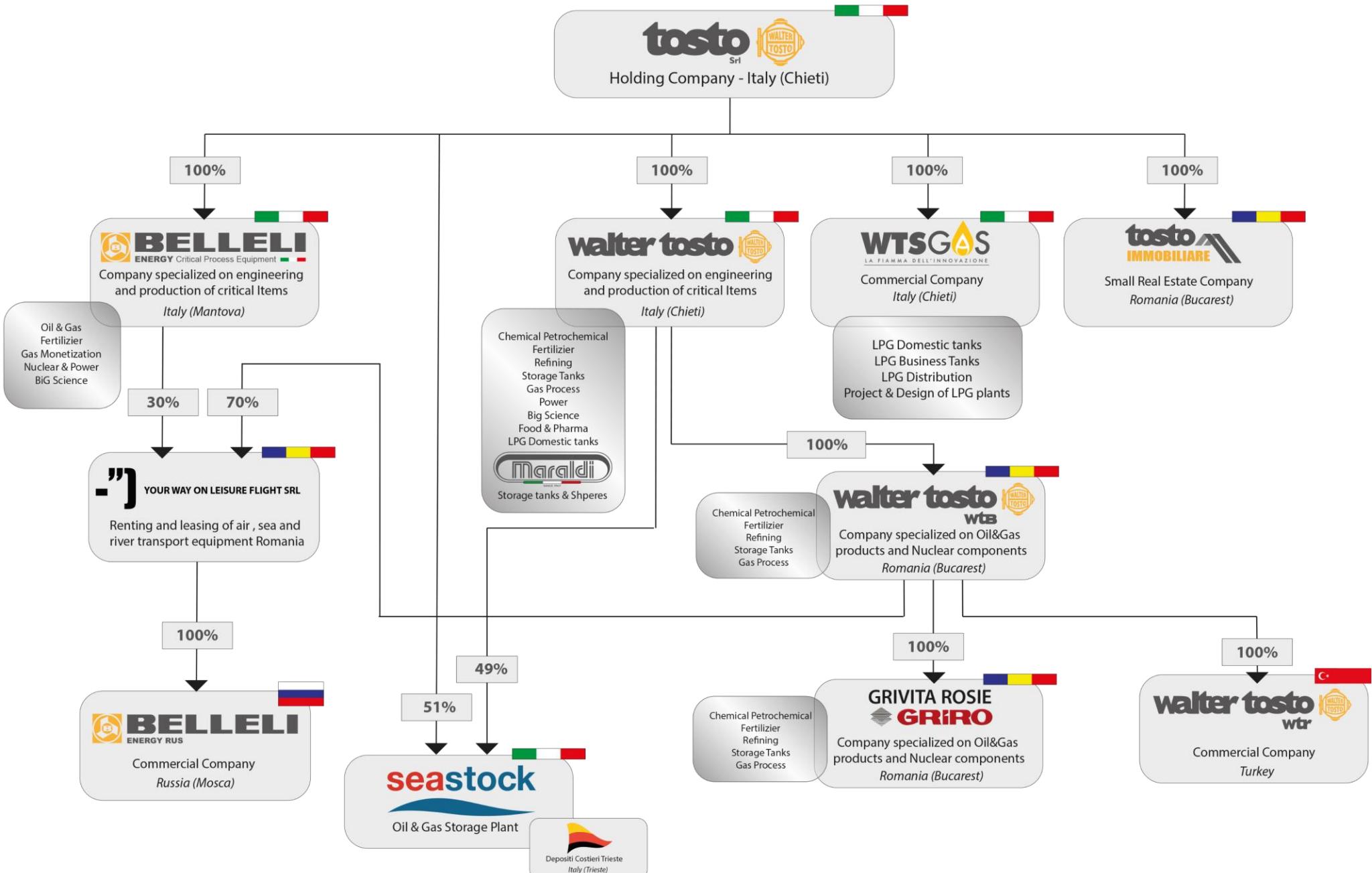
History



2018

Walter Tosto WTB's infrastructure in Bucharest has been completely renewed with energy efficient improvements, new machinery equipment and modern facilities for employees.

The Group



Facts & Figures



Employees
250



Workshops
120.000 sqm



Manhours/year
450.000



**Wide
Machine park**



Investments
50 mln € in 5 years



**River-front
workshop**

Workshops location



WTB Facility in Bucharest



WTO River front workshop in Oltenita

WTB Workshop



ROMANIA - Bucharest

Walter Tosto WTB's in Bucharest is the largest and most powerful manufacturing workshop in Europe with unique machinery and facilities

Covered Area : 32.500 sqm

Uncovered Are : 87.500 sqm



WTW Workshop



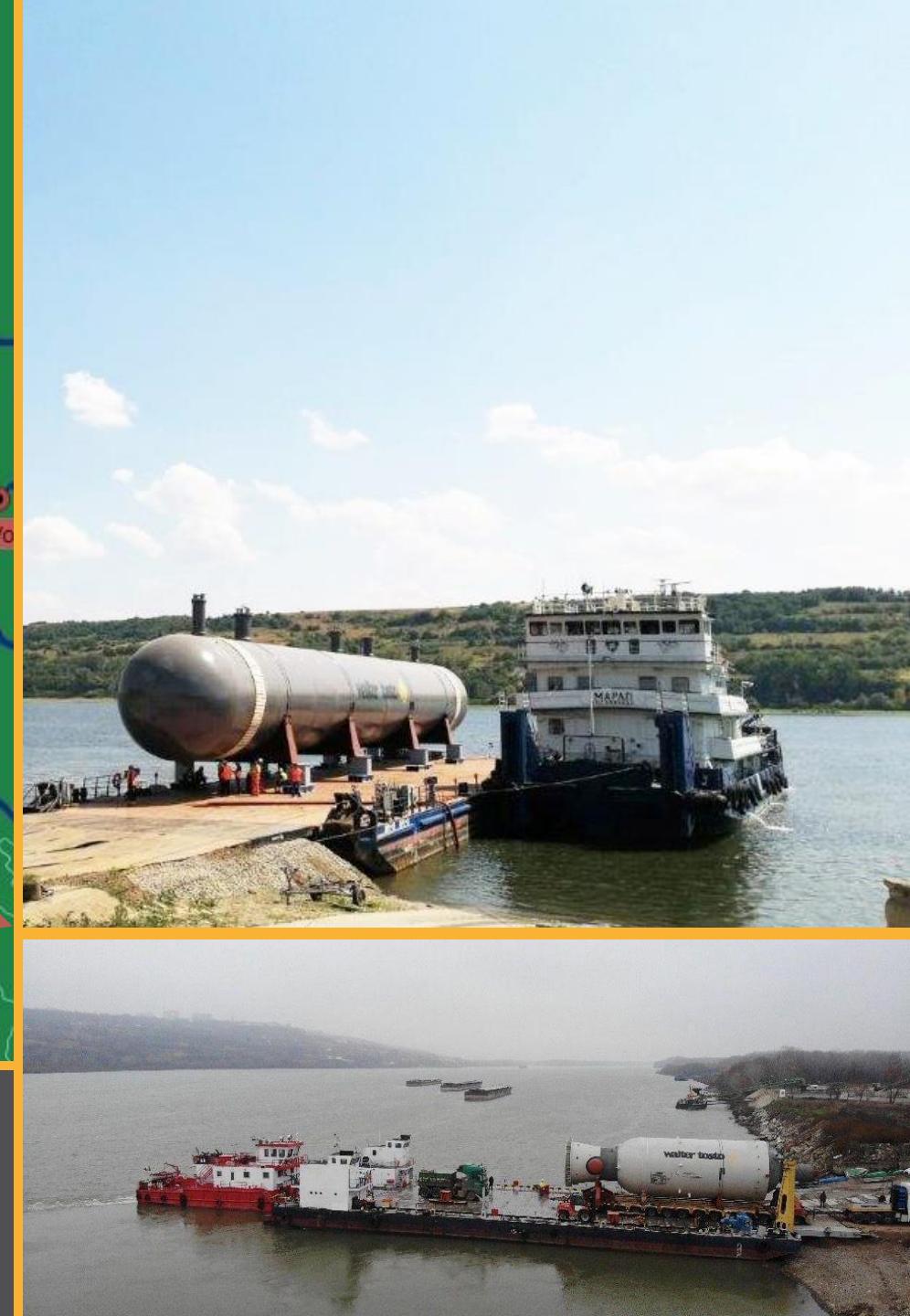
ROMANIA - Oltenita

We own a private River Port in Oltenița where we're currently building a new workshop with a covered area of 7.700 sqm and uncovered area of 72.000 sqm. All logistics are carried out by self-propelled trailers and mobile cranes, and our own access ramps to the river for roll-on and roll-off operations.

Inland waterway transport



Thanks to the direct connection with the **Danube River** and the **Black Sea**, Walter Tosto WTB is enabled to deliver its items all over the world by river and maritime transport.



Company Markets



Refining

Crude Oil Distillation unit

Vacuum distillation unit

Naphtha hydrotreater unit

Catalytic reforming unit

Alkylation unit

Isomerization unit

Distillate hydrotreater unit

Amine gas treater, Claus unit, and tail gas treatment

Fluid catalytic cracking (FCC) unit

Hydrocracker unit

Visbreaker unit

Delayed coking



Chemical & Petrochemical

Ethane cracking: PE/HDPE/LDPE/PP

EB/SM Styrene

Ethylene Oxide (EO)

Ethylene Glycol (EG)

PVC

Propylene Oxide (PO) and

Tertiary Butyl Alcohol (TBA)

Ammonia

Methanol

Urea



Gas Process

Natural GAS Processing (NGL)

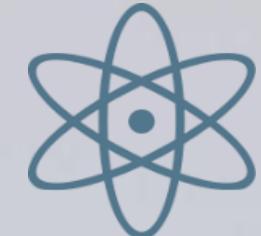
Liquefied Natural GAS (LNG)

Gasification Plant

LPG Storage

GAS to Liquid (GTL)

Coal Gasification



Power and Big Science

Conventional

Nuclear

Renewable

Licensors



Refining



Chemical & Petrochemical



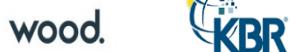
Gas Process



Power



Big Science



Products



Secondary Reformer
Bintulu Methanol Plant
Sarawak, Malaysia
Air Liquide

Products

Feed Vaporizer / Feed Effluent Exchanger / HP Steam WHB (3CG)

Lihuayi Lijin Refining and Chemical, Shandong Province, China

Length: 42 m

Diameter: 5 m

Weight: 800 tons



Products



Coke drums

Petrobrazi - Ploiesti Refinery, Romania

Omv Petrom

Length: 30 m

Weight: 185 tons

Products

Hydrotreating Reactors

Pemex's Dos Bocas Refinery, Mexico



Products

Ethilene Oxide Reactors
1000 tons each
Middle East



Products

LPG Bullets
Fiamma 2000, Italy
Capacity 5000 cm



Products



Deisohexanizer Tray Column

Middle East Oil Refining

Alexandria, Egypt

(L) 6.860 x (W) 750 x (H) 750 cm

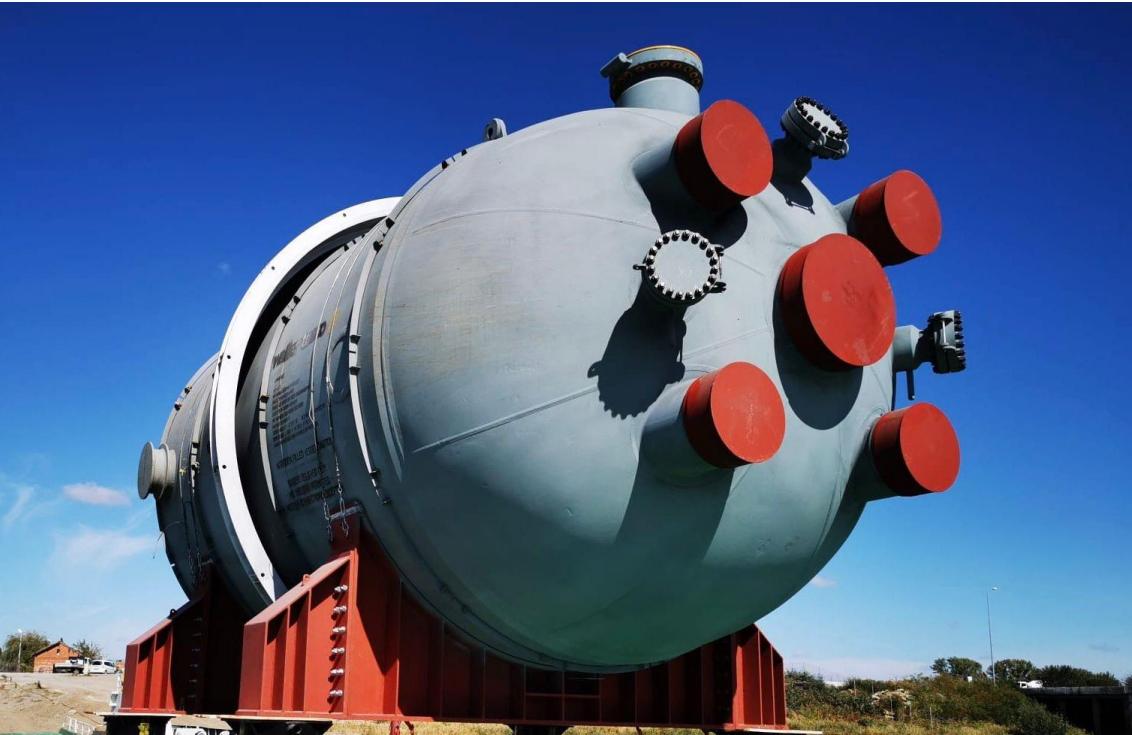
Products



Steam Drum

Arauco Mill, Bío Bío Region, Chile
Valmet
Internal Diameter: 2500 cm
Weight: 230 tons

Products



Products



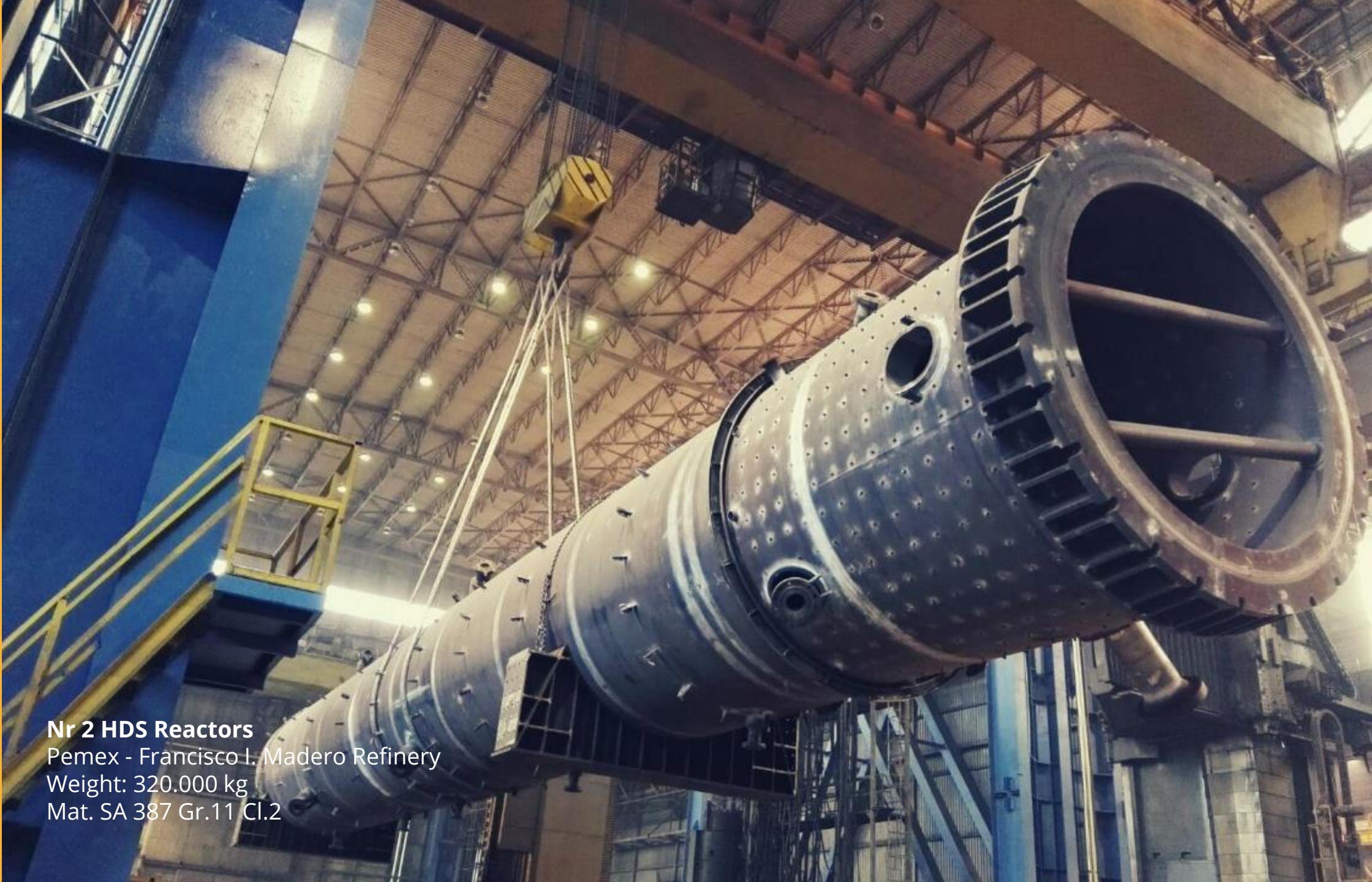
Nr. 3 Methanol Reactors
Nakhodka Fertilizer Plant
Haldor Topsoe

Products

Nr. 2 Hydrocracker Reactors
Riyadh Refinery, Saudi Arabia
Saudi Aramco



Products



Nr 2 HDS Reactors

Pemex - Francisco I. Madero Refinery

Weight: 320.000 kg

Mat. SA 387 Gr.11 Cl.2

Products



Nr 4 Pre-Reforming Reactors

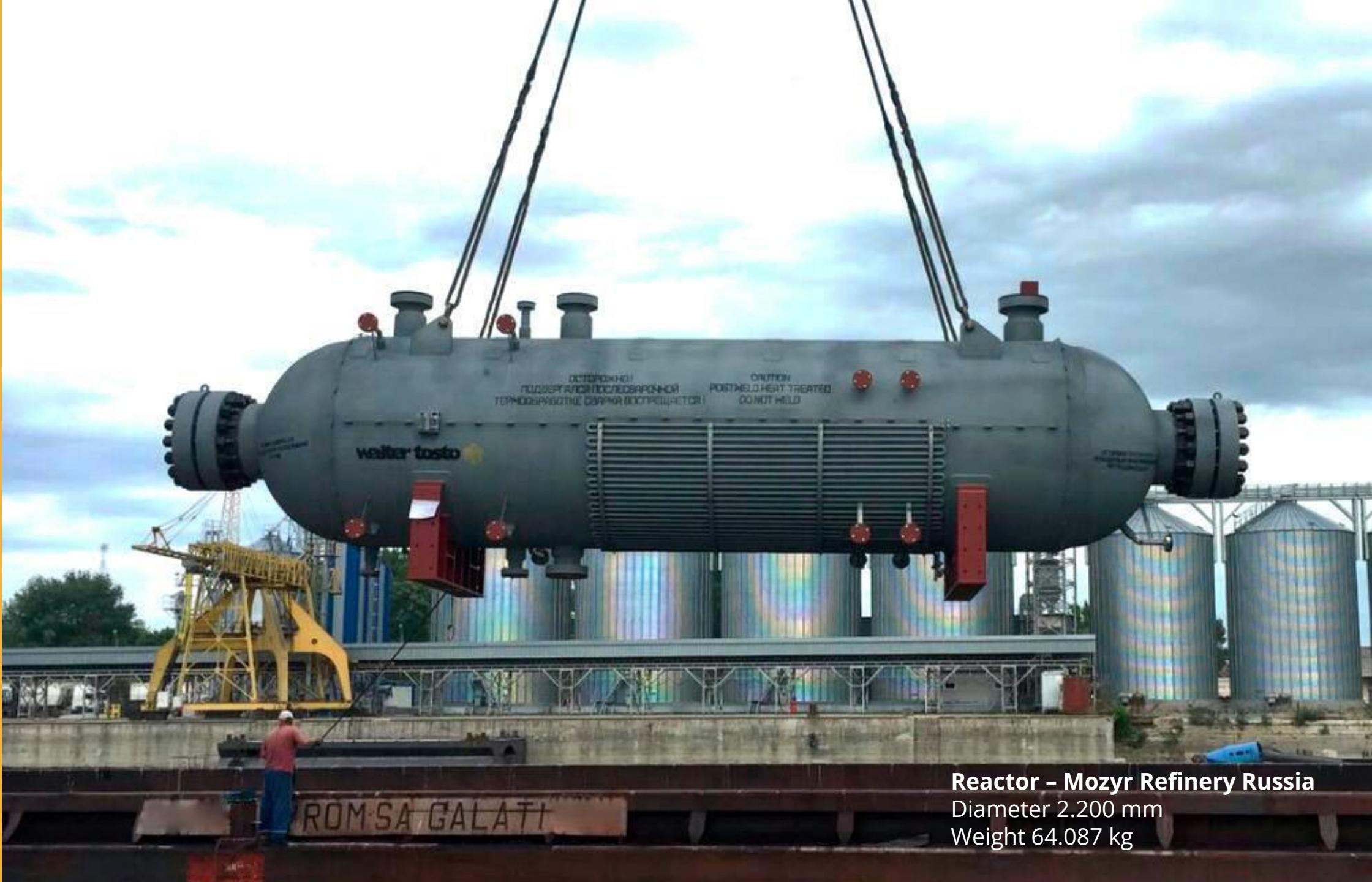
Mozyr Refinery - Belarus

Diameter 2.200 mm

Weight 64.000 kg

Mat SA 336 F22 / SA 387 Gr.22 Cl.2

Products



Reactor - Mozyr Refinery Russia
Diameter 2.200 mm
Weight 64.087 kg

Products



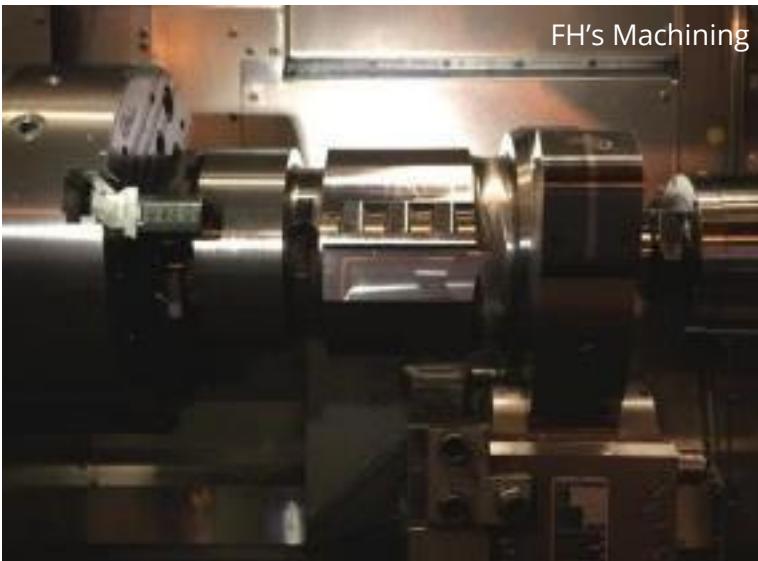
**Catofin Reactors - Ningbo Haiyue Material co. Ltd,
China**
Diameter 7.900 mm
Weight 252.000 kg

Big Science

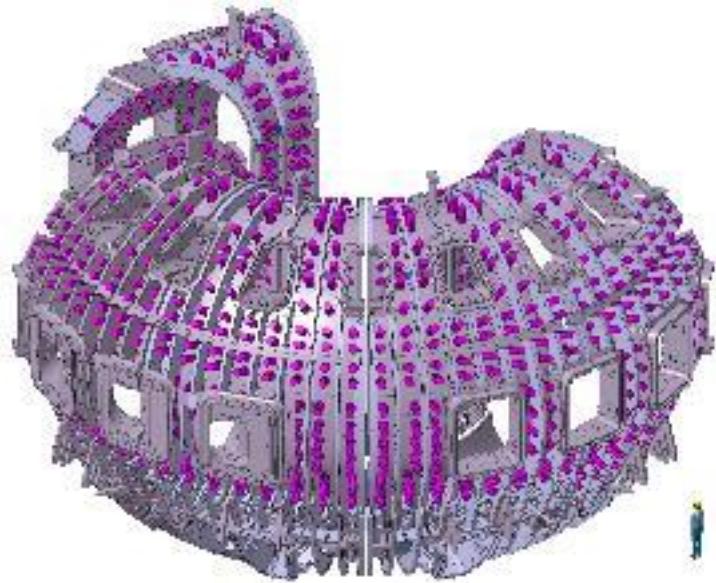


Machining of Flexible Housings (FH) for PS1, PS2 and PS3 of the five EU sectors of the ITER Vacuum Vessel.

Big Science



FH's Machining



NDEs



The activities include acceptance of the incoming material, machining and NDEs.

Equipment

Cranes		
Q.ty	Weight	Location
1	800 (400+400) tons	WTB – Bucharest
1	400 tons	WTB – Bucharest
3	160 tons	WTB – Bucharest
2	60 tons	WTB – Bucharest
5	50 tons	WTB – Bucharest
1	32 tons	WTB – Bucharest
2	300 tons	WTO – Oltenita
1	60 tons	WTO – Oltenita

Jib Cranes		
Q.ty	Length	Weight
6	5,5 meters	2 tons
20	12 meters	10 tons
1	21 meters	50 tons



Machining



Beveling Machine Verrina

Length: 20.000 mm
Thickness: 300 mm

Machining



Hydraulic Rolling Machine

Bending Roller Verrina
max length 4.000 mm
thk. 210 mm
yield strength material 280 MPa

Machining



Lathe Milling Machine

WFL-1

X: 720 mm

Y: 600 mm

Z: 3.150 mm

Machining



Cutting Machine

16.000 X 4.000 mm
Thk max 300 mm

Machining



Hydraulic Press

600 T
Max Diameter 5000 mm
Max Thickness 70 mm

Machining



Milling Machine including controller

Vertical Lathes: IMUAB

Diam: 8.500 mm

Height: 5.000 mm

Weight: 100.000 kg

Machining



Drilling Machine EMSIL

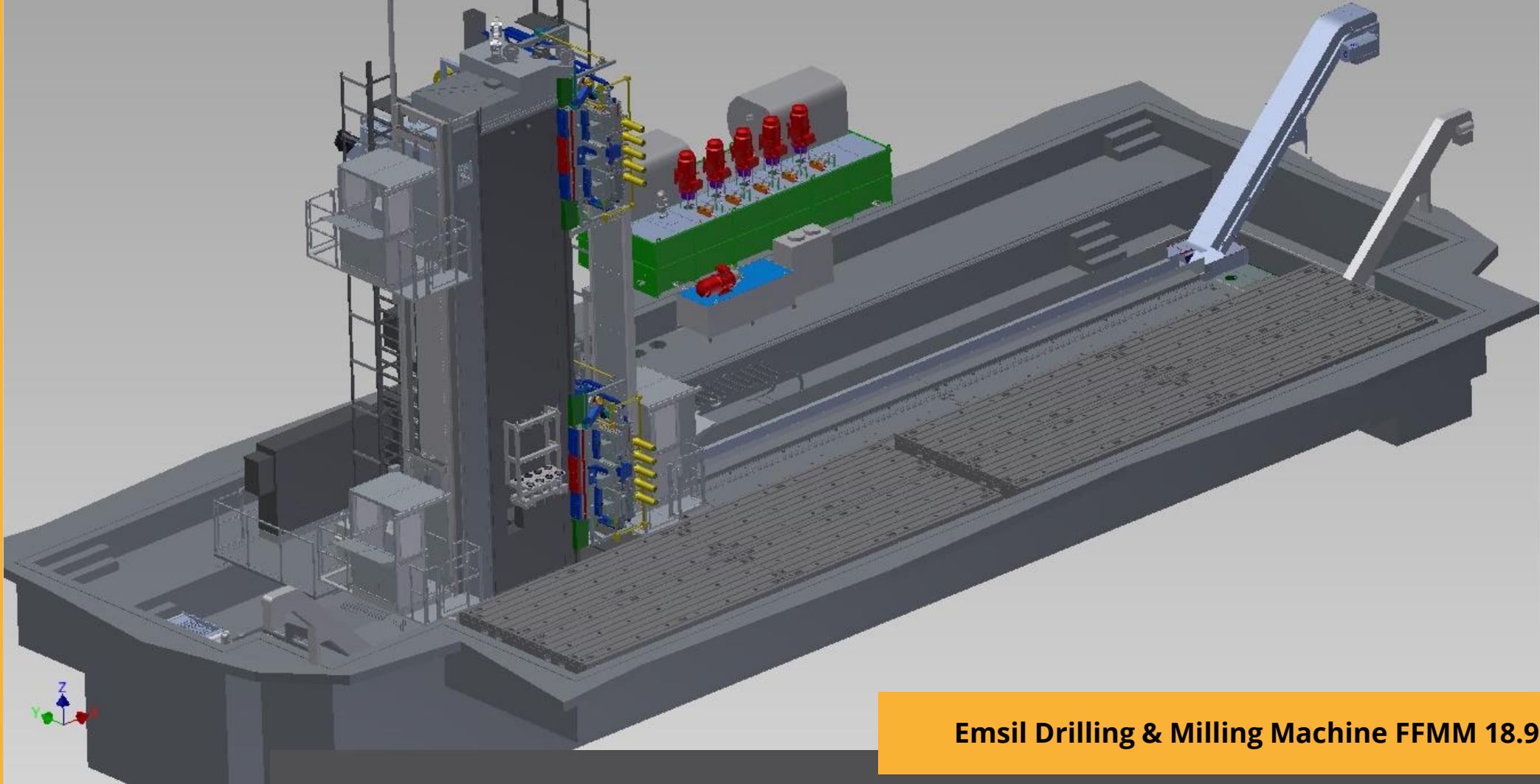
3 STS system drilling
heads max. 80 mm
X: 6900 mm

Y: 4300 mm
Z: 1800 mm
W: 600 mm



Handling Table

New Investment



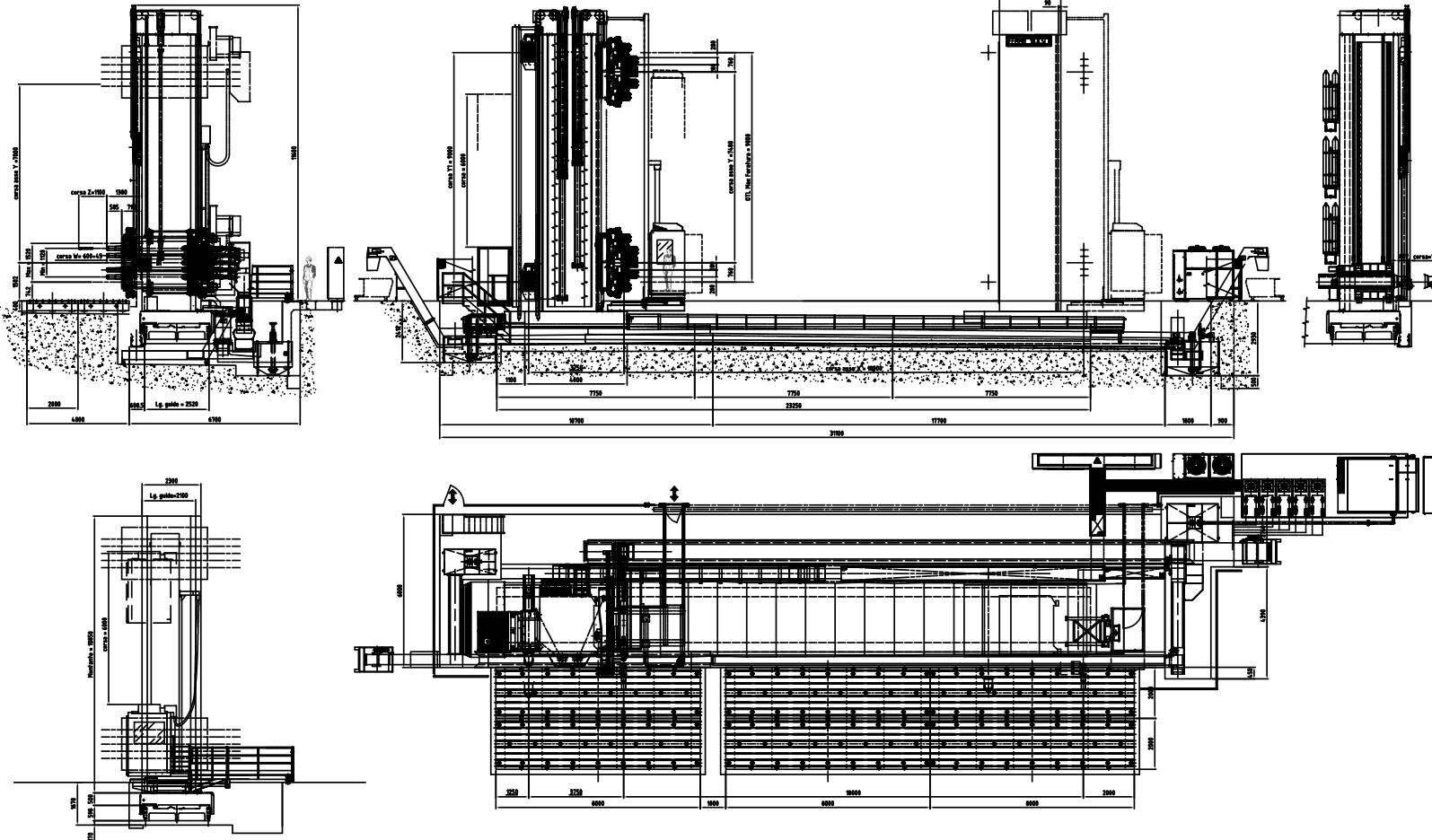
Emsil Drilling & Milling Machine FFMM 18.9.5I

The Emsil FFMM 18.9.5I machine is equipped with a 5 spindles drilling unit plus an independent ram with a milling spindle. The 5 spindles drilling unit is designed for drilling deep holes on tubesheets for the nuclear industry by means of STS drilling system (BTA).

The pitch between drilling spindles can be adjusted automatically. Three of those drilling spindles are independent and two spindles move simultaneously with lateral spindles.

The machine is equipped with Siemens Sinumerik 840D SL numeric control which can manage 16 axes and 6 spindles.

Emsil Drilling & Milling Machine FFMM 18.9.5I



Main technical details

Longitudinal travel (X-axis)
mm 18.000

Drilling Vertical travel (Y-axis)
mm 7.480

Milling Vertical travel (Y1-axis)
mm 9.000

Milling transversal travel (Z6-axis milling) mm 1.200

Maximum transversal travel
independent drilling axes Z1-
Z2-Z3 mm 1.700

S1 S2 S3 S4 S5 Maximum
drilling depth mm 1.100

S1 S2 S3 S4 S5 Minimum
drilling diameter mm 15.8

S1 S2 S3 S4 S5 Maximum
drilling diameter mm 70

New Investment

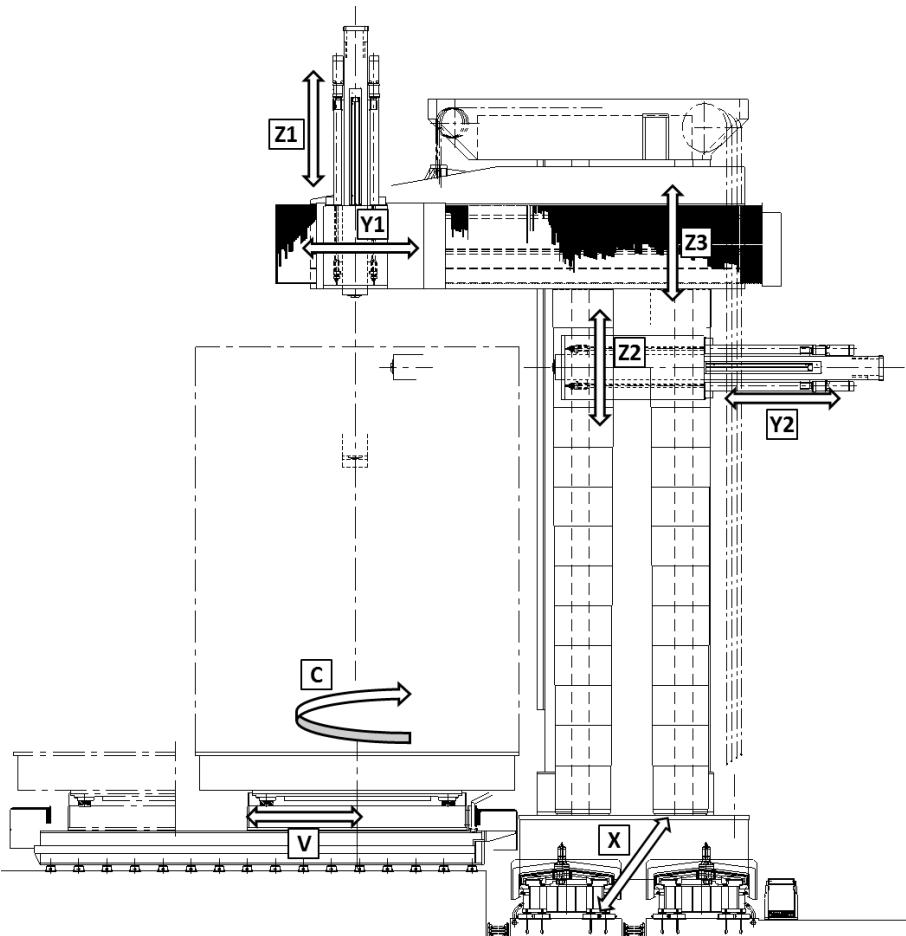
New Milling Machine INNSE ZEUS 9000

A.1 Working table

Width: 8.000 mm
Length: 13.500 mm
Diameter: 17.000 mm

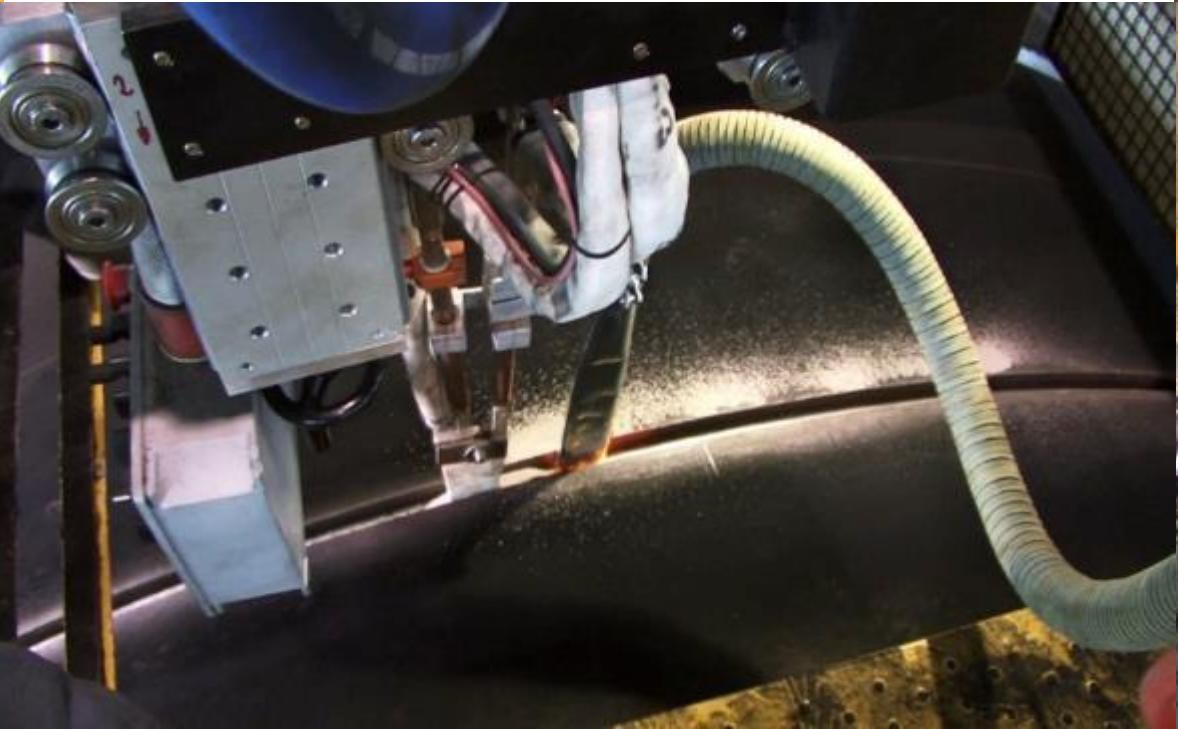
A.2 Moving Rotary Platform

Diameter: 8.000 mm
Weight Tolerance: 400 Tons
Ram Speed: 30 rpm



Welding

	Welding process employed	Manual	Automatic
SMAW	Shielded Metal-Arc welding	X	
SAW	Submerged-Arc Welding		X
SAW STRIP	Subm.-Arc Weld. with strips		X
SAW Tandem	SAW Double Wire		X
GMAW	Gas Metal-Arc Welding	X	X
GTAW	Gas Tungsten-Arc Welding	X	X
FCAW	Flux-Cord Arc Welding	X	X
ESW	Electro Slag Welding		X
PAW	Plasma-Arc Welding		X



Our design activities

3D simulations

Stress analysis by finite elements methods

Fracture mechanics analysis

Static analysis in steady and unsteady conditions

Fatigue analysis

Creep fatigue damage evaluation

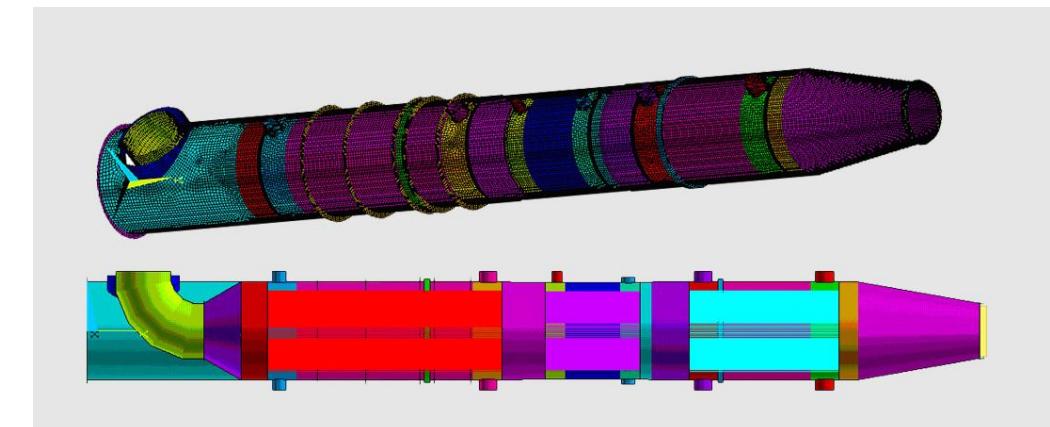
Thermo-hydraulic design of heat transfer systems

Design codes and standards

ASME I	ASME III Ed.2007 Add. 2009	ASME VIII Div.1 latest edition
ASME VIII Div.2 latest edition	ASME VIII Div.3 latest edition	PD 5500
AD Merkblatt 2000	VSR	STOOMWEZEN
SELO	API 579 – 1 ASME FFS-1	API 620/650/660
CODAP 2000 CODRES	HEI	GOST
IBR	TEMA	EN 13445
IBC 2006	UBC 97	ABSA
ASCE / SEI 7-05	BS 7910-2005	EJMA 9TH Ed.
EN 1405	ASME B 16.5	ASME B 16.47
API STD 6A	API 934 – 941	NACE MR 0175/ ISO 15156-3
RCC-M e RCC-MR – nuclear sector	EUR (European Utility Requirements) – nuclear sector	ABSA

Main Design Softwares

- Finglow: PD5500 pressure vessels calculation software
- Solid Edge: 3D drawing calculation software
- Pro ENGINEER: parametric 3D drawing program
- CATIA V5 R20: 3D drawing program
- ANSYS: finite element analysis and CFD analysis
- ASPEN Shell & Tube Exchanger Design Rating Software
- Aspen Exchanger Mechanical Design Software
- Sant'Ambrogio: mechanical calculation software for VSR, ASME VIII
- Div. 1 + EJMA expansion joints module
- ASME VIII Div. 2, AD 2000 Merkblatt + expansion joints module, WRC 107/297
- AUTO CAD AUTODESK: 2D drawing program



Materials

Carbon Steel (CS)

Fine-grain
Steel/Normalized

Cr – Mo alloys

0,5 Mo
1 Cr – 0,5 Mo
2,25 Cr – 1 Mo
2,25 Cr – 1 Mo 0,25V

Ferritic Austenitic Steel Duplex

S 31803
S 32205

Ni – Alloyed Steel

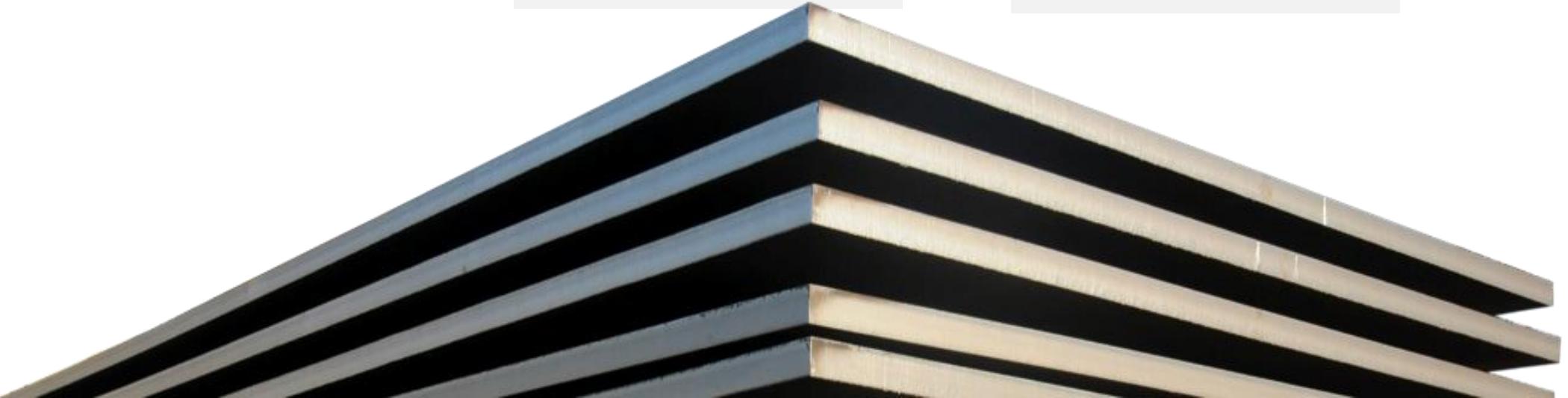
0,5 Ni
3,5 Ni

Stainless Steel

Ferritic
Austenitic
Alloy cladded

Non Ferr. Materials

Ti-Gr I/Gr. II
Copper Alloy
High Nickel Alloy



Certificates

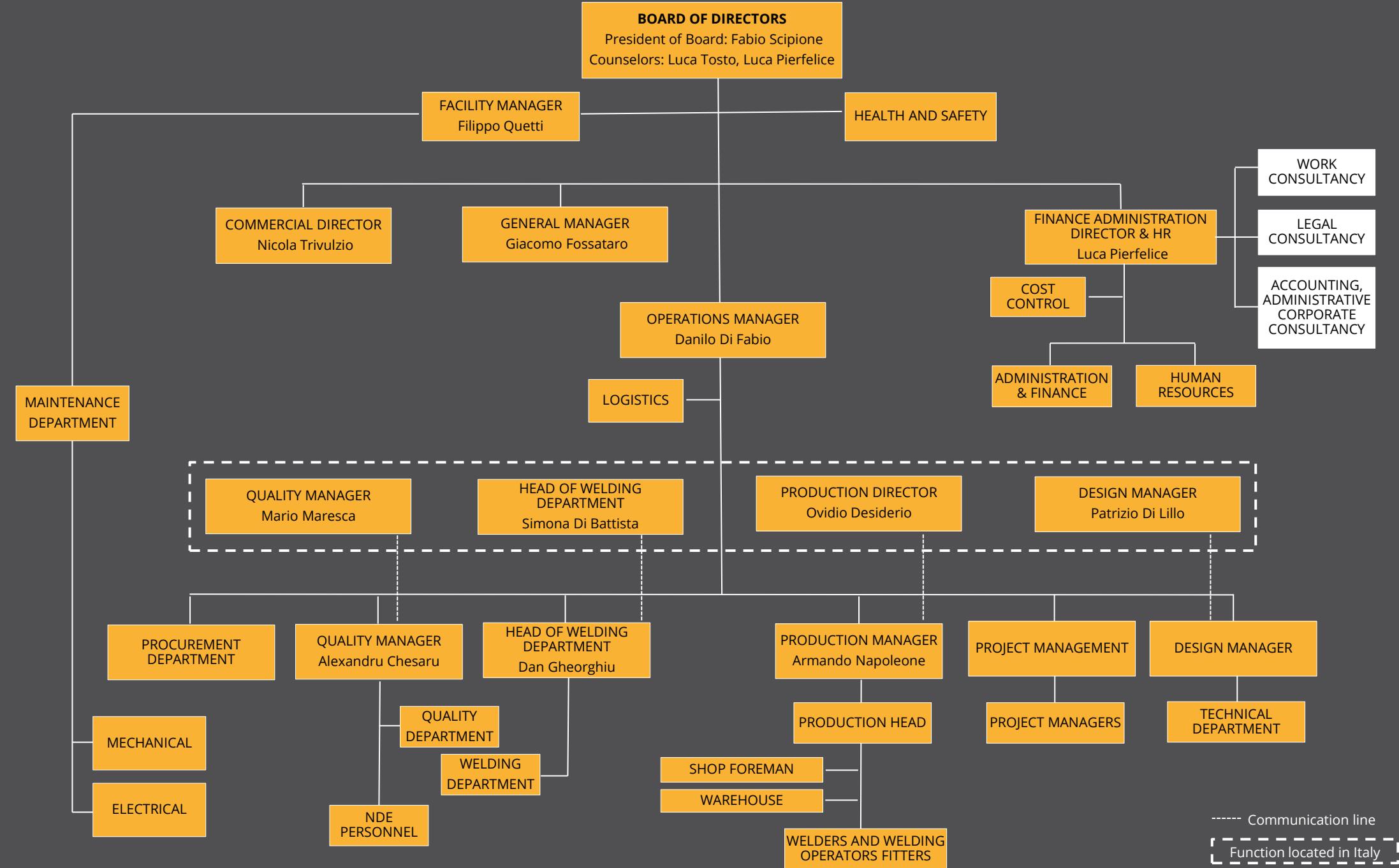
Qualified Workshop
CNCAN
Facility stated in WT Shop
Qualification RCC/MR

Certificates

SELO Pressure Vessel (WTB)
National Board (WTB)
National Board (WTO)
ASME U Designator WTB
ASME U Designator WTO
ASME U2 Designator WTB
ASME U2 Designator WTO
ASME S Designator WTB



Organization



Training



Welding School

Walter Tosto WTB activated an internal Welding School with a 3-year training program for young people.

The participants learn different types of welding : Automatic, Semi-automatic, Mechanized (SAW, Strip cladding, TIG, Electron beam welding, Weld overlay) and other Welding processes such as GTAW, SMAW, FCAW, ESW.

Training



Professional Schools

We have signed collaboration agreements with ten Professional Schools from different Moldavian cities in order to offer an outstanding career to the best graduated future welders and carpenters.

University of Bucharest

The company established a partnership with Universitatea Politehnica din Bucuresti in order to activate training programs with high specialization.

The faculty of Mechanical Engineer assigned us a Diploma of Excellence as a "Sign of recognition and appreciation for vision and dynamics of industrial processes development and equipment, and for the successful participation in human resources training".



THANK YOU FOR THE ATTENTION

walter tosto
wtb

