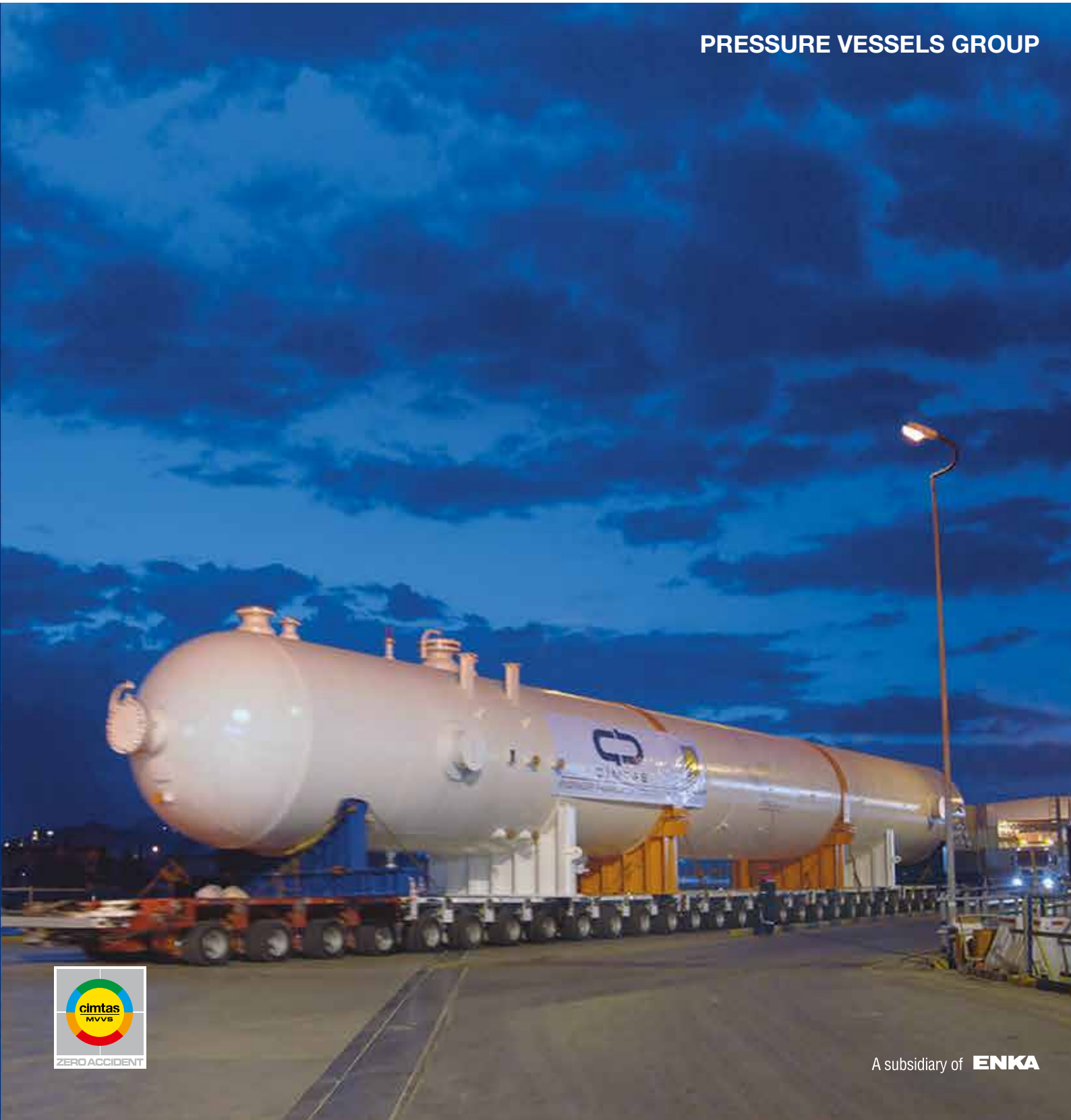


PRESSURE VESSELS GROUP



Çimtaş Gemlik Works



Çimtaş Group, over 40 years of experience and 5 fabrication shops with an aggregated annual capacity of 100,000 mt, provides engineering (plant engineering, piping, pressure vessels, structural), procurement (mechanical equipment, piping, valves, supports, structural), welded fabrication, modularization and installation services to the leading customers of power, OG&C and construction industries. Group conducts shipbuilding activities at its module and shipyard in Gölcük, Turkey.

Çimtaş is a fully owned subsidiary of ENKA consists of 5 subsidiaries, located in Turkey (4) and China (1).

Çimtaş Gemlik Works is located 200 km from Istanbul, within two km of international deep-sea ports. Built on a 160,000 sqm fenced yard with a 60,000 sqm covered fabrication shop space and a 45,000 sqm stocking area.

The highly advanced facility includes 17 bays and is equipped with 67 overhead cranes. The annual production capacity of the Gemlik Works is 50,000 tons.

The latest technology is employed at the Gemlik Works, including automated and robotic welding, together with the state-of-the-art QA/QC systems and equipment to perform various tests, inspections and measurements in order to meet such international standards and specifications as ASME, ASTM, AWS, EN, API, BS, AWWA, GOST and JIS (all according to customer/project requirements) for fabrication and field work of its own, or as a third party service provider to power and petrochemical projects.

The Welder Training Center and Mechanical Test Laboratory established in-house for the qualification and certification of welding procedures and personnel for the application of various welding techniques such as SAW, SMAW, GTAW, GMAW, FCAW, GTAW Hotwire, ESW Weld Overlay covering manual, automated and robotic welding under the leadership of internationally certified welding engineers is one of the most important differentiators of the company.



Pressure Vessels Group



our mission

To deliver **high quality** engineering, procurement, welded fabrication, assembly and installation services, **safely, on time** and at the **least total cost** of each customer.

our vision

To be the **best-in class** and **preferred** partner for the engineered and **integrated** solutions of the demanding construction projects.

our values

Safety, competency, development and leadership of our **employees**
Satisfaction of our **customers** through operational excellence and flexibility
Effective use of advanced **technology** and **information**
Identification and roll-out of **best practices** and **lessons learned**
Being **innovative** in everything we do and willingness to **change**
Being ethically, environmentally and socially **responsible**

Products:

- Pressure Vessels including:
Heavy Wall/Large Size Alloy Vessels
- Reactors
- Columns
- Drums and Heat Exchangers
- Spherical Storage Tanks
- Process Skids
- Heat Recovery Steam Generators
- Cylindrical Gas Storage Tanks & Road Tankers
- Field Installed Storage Tanks
- Launchers and Receivers

Business References:

INTERNATIONAL				LOCAL	
AALBORG ABB LUMMUS AGIP AIR LIQUIDE AKER KVAERNER ALSTOM POWER INC. ALSTOM LTD. AMOC AUSTRIAN ENERGY AXSIA HOWMAR BASF BASSE SAMBRE BECHTEL BRITISH GAS BP CHEVRON CMI DELTA DOW CHEMICAL EGYPT ELEC. HC	EMERSON ENERCON ENKA FLUOR FOSTER WHEELER GASCO GE ENERGY GE EPE GE HYDRO GE NUOVO PIGNONE GE WIND HITACHI EUROPE HITACHI POWER IHI ITOCHU JPMC KBR KCC KTI LUKOIL	MAN FERROSTAAL MHI NEM NOOTER ERIKSEN NORDEX PETRECO PETROFAC PETROGAL PARSONS FLUOR DANIEL QAPCO Q-CHEM RELIANCE INDIA S.N.P. PETROM S.A. SAUDI ARAMCO SAUDI BINLADEN SAUDI CHEVRON PHILLIPS SHELL SIEMENS SPIE-CAPAG	STF STONE & WEBSTER TECHNIP TENGIZ CHEVROIL TOSHIBA UOP	AK-KİM AKGÜBRE AYGAZ BARIT MADEN BİLGİN ENERJİ BİS BİZİMGAZ BOTAŞ BP GAZ DEMİRER HOLDİNG DSİ EGEGAZ ENERCON SERVİS A.Ş. ERGAZ ETİBANK GAMA GENERAL ELEKTRİK TÜRKİYE İPRAGAZ İŞ-DOĞAN	KARADENİZ ENERJİ KARBOGAZ LİPETGAZ MİLANGAZ MOGAZ NEMA KİMYA NORDEX ENERJİ A.Ş. OCAKGAZ PETKİM SABANCI SHELLGAZ SİHİRGAZ TEK TOTALGAZ TOYOTASA TPAO TRAKYA CAM TÜGSAŞ TÜPRAŞ ZORLU

SHELL & HEAD MATERIALS

ALLOY & LOW ALLOY

SS 316
SS 304
SA 387 Gr.11 Cl.2
SA 387 Gr.12 Cl.2
15Mo3
15NiCuMoNb5
SA 533 Type C

CARBON STEEL

SA 738 Gr.B P265GH
SA 299 P355NH
SA 516 Gr.70 P355N
SA 516 Gr.65 P355NL
SA 516 Gr.60 P460NL
API 5L X52 BS1501
H-II

CORROSION RESISTANT

HIC Tested SA 516 Gr.60
HIC Tested SA 516 Gr.65
HIC Tested SA 516 Gr.70

OTHERS

SS 316L Cladded Plates
SS 316L Weld Overlay Application
Incoloy 825 Weld Overlay Application
Monel Weld Overlay Application

TYPICAL RANGE FOR PRESSURE VESSELS

Weight	1,050 tons
Length	50 m T/T
Diameter	8 m
Thickness	200 mm

Export Countries:

Angola, Belgium, Bulgaria, Canada, Egypt, France, Germany, India, Italy, Japan, Jordan, Kazakhstan, Libya, Morocco, The Netherlands, Nigeria, Oman, Portugal, Qatar, Romania, Russian Federation, Saudi Arabia, Spain, Sweden, Switzerland, Syria, Trinidad & Tobago, Tunisia, Turkey, Turkmenistan, U.A.E., U.K., U.S.A., Venezuela.

Total Fabrication:
(as of Q4/2013)

ASME & CE Stamped Pressure Vessels: 1,000 units and 36,000 tons
Spherical Storage Tanks: 60 units and 23,000 tons

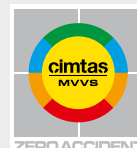
Pressure Vessels

Çimtaş provides design, engineering, supply and fabrication with ASME U, U2 Stamps and CE Marking of Pressure Vessels in various materials including HIC tested carbon steel, stainless steel, alloy materials, clad or overlaid steel plates where applicable.

(including TOFD), heat treatment, painting and packaging with the latest technologies. Çimtaş also provides refractory lining, internal coating, internal assembly, ladders & platforms fabrication & assembly, if required.

The in-house fabrication activities include cutting, head forming, shell rolling, welding, assembly, NDE





Rich Solvent Flash Drum
ID : 5,200 mm
t : 25 mm + 3 mm
L : 26,500 mm
W : 124 tons



Hydrocarbon Flare K.O. Drum
ID : 5,200 mm
t : 16 mm + 3 mm
L : 34,500 mm
W : 114 tons



Molecular Sieve Gas Adsorbers
ID : 4,300 mm t : 129 mm
L : 15,500 mm W : 177 tons each



CO₂ Absorber
ID : 3,810 mm t : 78 mm
L : 26,700 mm W : 195 tons

Pressure Vessels

Çimtaş has engineered and fabricated 1,000 units of ASME & CE Stamp thin, moderate and heavy wall vessels amounting to 36,000 tons as of Q4/2013 by adding value to customers with high skill, top quality and on time delivery at least total installed cost.

Flare K.O. Drums
ID : 2,300 mm
t : 14 mm
L : 6,900 mm
W : 13 tons each



HP Separator
ID : 2,900 mm t : 87 mm + 3 mm
L : 10,500 mm W : 107 tons



Propane Compressor Suction Drum
ID : 5,800 mm t : 64 mm
L : 14,000 mm W : 153 tons





Pressure Vessels

Heavy Wall / Large Size

Çimtaş provides design, engineering, supply and fabrication with ASME U, U2 Stamps and CE Marking of Heavy Wall / Large Size Pressure Vessels.

Çimtaş's recent Heavy Wall / Large Size Pressure Vessel fabrication experience includes a single piece vessel weight of 1,050 tons, diameter of 8 m and thickness of 200 mm.

Çimtaş Gemlik Works is equipped with plate bending machines with capacity up to 180 mm and also TOFD equipments to perform in-house NDE

for thick wall weld seams up to 340 mm thickness in consideration of HSE and quality perspectives. Çimtaş also has the capability to heat treat vessels in single piece up to 9 m diameter and 54 m length with its own modular heat treatment furnace.

The new dedicated Heavy Wall Pressure Vessels fabrication hall which is in service as of at Çimtaş Gemlik Works is equipped with 300 tons crane capacity.

CO₂ Absorber
ID : 5,260 mm
t : 162/163 mm
L : 48,100 mm
W : 1,050 tons



Slug Catcher Surge Vessel
ID : 3,850 mm
t : 112 mm
L : 45,000 mm
W : 503 tons

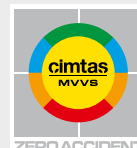


Sweet Gas K.O. Drum
ID : 5,200 mm
t : 157 mm + 3 mm
L : 20,000 mm
W : 355 tons



Condensate Drum
ID : 4,200 mm t : 133 mm + 3 mm
L : 21,000 mm W : 304 tons





HP Adsorber
ID : 3,600 mm
t : 110 mm + 3 mm/117 mm
L : 44,400 mm
W : 500 tons



Gas Dehydration Separator
ID : 3,600 mm t : 111 mm + 3 mm
L : 20,500 mm W : 255 tons



Sour Feed Gas K.O. Drum
ID : 3,400 mm t : 102 mm + 3 mm
L : 10,400 mm W : 72 tons



Guard Bed Vessels
ID : 2,220 mm
t : 120 mm
L : 8,200 mm
W : 40 tons each



Molecular Sieve Dehydrators
ID : 5,300 mm t : 200 mm
L : 20,500 mm W : 400 tons

Reactors

The design, engineering, supply and fabrication with ASME U Stamp of 4 sets of Reactors under a purchase order awarded by Parsons Fluor Daniel (PFD) for Second Generation Project, Tengizchevroil (TCO) Kazakhstan

These 4 sets of Reactors were delivered to the project site with a piece weight/length/diameter of 280 tons, 33 m and 7,5 m, respectively.





Columns

Çimtaş provides design, engineering, supply and fabrication of columns with ASME U, U2 Stamps and CE Marking from a range of materials, including stainless steel and high alloys, where applicable, with a delivery weight/length/diameter of 1,050 tons, 50 m and 8 m respectively.

and trial assembly, internals fabrication and assembly, internal lining & weld overlay, if required.

The services provided for columns at Çimtaş Gemlik Works also include; shot blasting, painting, pickling & passivation, insulation, ladders & platforms fabrication





Columns

The 46 m long Debutanizer is the longest column which is designed, fabricated and assembled at Çimtaş Gemlik Works for Parsons Fluor Daniel (PFD) and shipped in one piece for the Second Generation Project, Tengizchevroil (TCO) Kazakhstan. The Debutanizer has been fabricated under ASME Sec.VIII Div.1 (U Stamp) and weighs 98 tons.



Amine Adsorber
ID : 2,600 mm
t : 84 mm + 3 mm
L : 32,000 mm
W : 171 tons



Naptha Splitter
ID : 4,100 mm
t : 21 mm
L : 39,600 mm
W : 147 tons



Stabiliser Tower
ID : 3,500 mm
t : 18 mm / 30 mm / 35 mm
L : 28,700 mm
W : 73 tons



Feed Liquid Strippers
ID : 1,800 mm t : 16 mm + 3 mm/29 mm
L : 42,000 mm W : 63 tons each



Alloy Pressure Vessels

Çimtaş provides design, engineering, supply and fabrication of Alloy Pressure Vessels with steel material qualities such as SA 387 Gr.11 CL.2, SA 240 316L, SA 240 304L for major local and global owners-operators. The alloy pressure vessels that have been fabricated include Regeneration Towers, Molecular Sieve Driers, DeEthaniser and other drums and storage vessels that are delivered to various Refineries,

Gas Plants and Methanol Plants worldwide.

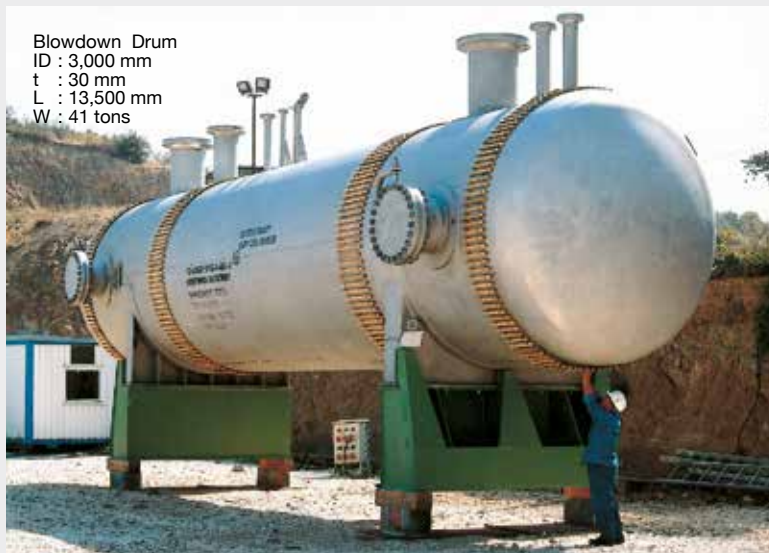
Çimtaş also has the capability and experience to work with various types of alloy materials such as Incoloy 825, Incoloy 625, Duplex, P91, P22, P11, etc.



DeEthaniser
ID : 1,850 mm/2,000 mm
t : 35 mm/40 mm
L : 42,000 mm
W : 112 tons



Blowdown Drum
ID : 3,000 mm
t : 30 mm
L : 13,500 mm
W : 41 tons



Molecular Sieve Driers
ID : 3,658 mm
t : 58 mm
L : 11,000 mm
W : 49 tons each



Drums and Heat Exchangers

Çimtaş fabricates ASME S Stamp HP, IP, LP drums for international steam generation projects with steel material qualities such as 15NiCuMoNb5, SA 299, SA 516 Gr.70 and with shell thicknesses of 100 mm and above.

Çimtaş has fabricated the first Heat Exchanger in 1985 and continues to fabricate various sizes of Heat Exchangers in accordance with ASME Sec. VIII Div.1 and TEMA for both major local and global owners-operators.





Reduced Crude Coolers
ID : 737 mm
t : 13 mm/15 mm
L : 7,250 mm
W : 8 tons each



Vacuum Residue Coolers
ID : 1,016 mm
t : 13 mm/18 mm
L : 7,455 mm
W : 14 tons each



Heat Exchangers Fabrication

Spherical Storage Tanks

Çimtaş provides supply, fabrication and construction of spherical storage tanks including PWHT (if required) at site after installation up to 8,000 cum. The spherical storage tanks are designed and engineered according to A.D. Merkblätter and ASME Section VIII Div 1. and Div.2. Çimtaş has fabricated in total 60 units and 211,000 cum of spherical storage tanks with column-supports or skirt-supports on a turnkey basis.

3 X 5,000 cum
vertical column supported
Spherical Propane Storage Tanks



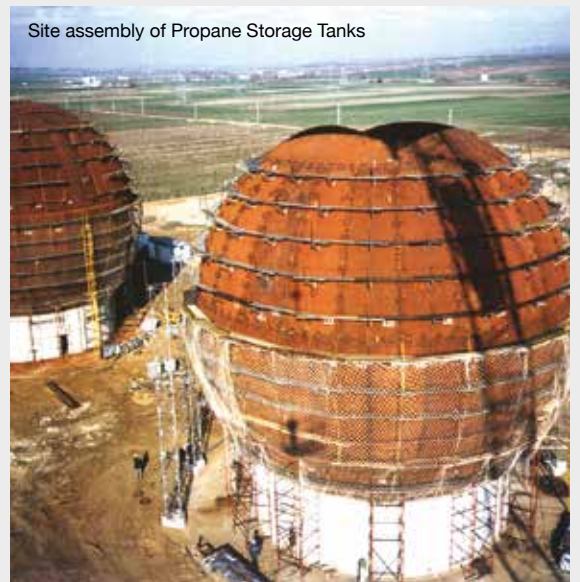
5,000 cum LPG Storage Tank
with tower type staircase



4,000 cum vertical column supported
Propane Storage Tank



Site assembly of Propane Storage Tanks





2 X 1,590 cum
VCM Storage Spheres with sun shield



4 X 5,000 cum inclined column supported
LPG Storage Tanks



5 X 5,000 cum skirt supported
Propane Storage Tanks

Process Skids

Çimtaş provides supply, fabrication, assembly and testing of process skids and modules, primarily for the oil and gas industries, including supply and fabrication of associated structural steel, pressure vessels and piping systems, as well as complete electrical and instrumentation works and insulation.

A recent modularization project for a refinery project included the detailing, supply and installation of a CCR Tower, which was built horizontally into a process skid with a weight 610 tons and a length of 63 meters, and then disassembled into modules, each with a maximum weight of 166 tons.





Heat Recovery Steam Generators

Çimtaş provides ASME S stamped fabrication of modules, including header fabrication where required, for heat recovery steam generators with horizontal and vertical gas paths for major boiler suppliers, including NEM Austria, Austrian Energy, Deltak, CMI, Aalborg and Nooter-Eriksen. These are delivered to various site locations such as Turkey, Kazakhstan, Switzerland, the U.S.A. and Canada.





Cylindrical Gas Storage Tanks and Road Tankers

The design, engineering, supply, fabrication and field assembly (where required), of Small Bulk (1-10 cum), Large Bulk (10-180 cum), Very Large Bulk (250-3,500 cum) and Autogas (10 and 22 cum) tanks for local and overseas gas storage and distribution companies. Production capacity is approximately 5,000 units/year.





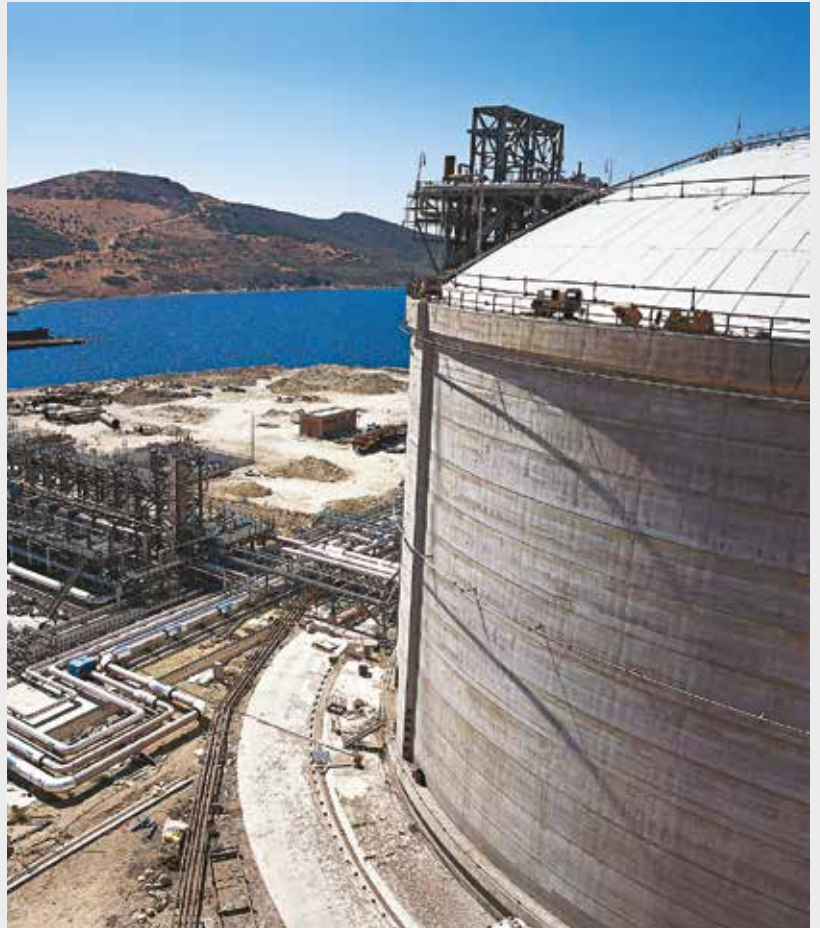
Field Installed Storage Tanks

Includes design, engineering, supply, fabrication and assembly of field-installed storage tanks with various capacities for the petroleum and the petrochemical industries.

Çimtaş has a vast experience in installation of storage tanks starting back in 1978 with Liquid Storage Tanks. Çimtaş provides installation services for Liquid Storage Tanks, LNG Tanks, Spherical Storage Tanks and Over Size Mounded Storage Tanks.

The most recent cylindrical storage tank project entailed the field installation of two 140,000 cum LNG Storage Tanks for Egegaz LNG Terminal located in Aliaga-Izmir, Turkey, and was successfully completed within 18 months. The LNG Storage Tanks are designed by CBI as per API 620 specifications with a total steel weight of 7,000 tons. The inner tank steel material is ASTM A553 Type 1, which required advanced welding technology. The standout feature of this project was

the lifting operation for the tank roofs. Following its ground assembly, the tank roof - with a single piece weight of 800 tons and a diameter of 80 m - was lifted to its final position, at height over 35 m, by means of compressed air.



Another recent turnkey project, performed for BP Gaz, included basic and detail engineering according to A.D. Merkblätter and EEMUA, as well as supply, fabrication and installation of a 3,500 cum mounded tank - the biggest cylindrical tank ever constructed in Turkey.

Çimtaş has installed 2 x 140,000 cum LNG Storage Tanks, 160 Liquid Storage Tanks, 60 Spherical Gas Storage Tanks, 8 Mounded Storage Tanks as of Q1 2010.



Fabrication

This is a highly advanced facility: located 200 km from Istanbul, within two km of international deep-sea ports, built on 160,000 sqm fenced yard with a 60,000 sqm covered fabrication shop space with 17 bays and equipped with 67 overhead cranes, and has 50,000 tons annual production capacity.

The latest fabrication technologies are employed at Çimtaş Gemlik

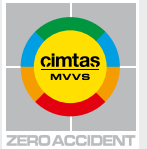
Works, including automated and robotic welding, various CNC, NC, PLC, and DNC on-line machines, integrated QA/QC systems, certified destructive and non-destructive laboratories, heat treatment furnaces, as well as advanced communication technology and an in-house developed ERP system in addition to powerful computer hardware with all associated design, engineering and simulation software.



Post Weld Heat Treatment

Çimtaş in-house Heat Treatment furnaces include;

- One Modular Gas Fired Furnace Max Temp 1,000°C, 9mW x 9mH x 54mL, Manual, 2x12 Point Recorder.
- One Car Bottom Gas Fired Boogie Hearth Furnace Max Temp 1,000 °C, 6,5mW x 6,5mH x 16mL, Programmable, Fully Automatic Control, 12 Point Recorder.



Logistics

The Pressure Vessels fabricated at Çimtaş Gemlik Works are shipped to global destinations via 2 international deep sea ports (Borusan Port and Gempert) which are conveniently located within 1-2 kms from the facility.

Çimtaş pressure vessel shipments are handled by expert local and international shipping companies which provide top quality road and maritime transportation and handling services including side-by-side hydraulic trailers.

The heaviest and longest single piece Pressure Vessel shipments from Çimtaş as of Q1 2010 are 1,050 tons and 48,1 meters respectively.





Welding

Çimtaş owns and maintains a robust welding programme thru an in-house Welding Training Centre and a Certified Mechanical Test Laboratory.

Çimtaş enables in-house qualification and certification of welding procedures and personnel in pursuant to various welding techniques such as SAW, SMAW, GTAW, GMAW, FCAW, GTAW Hotwire, ESW Weld Overlay (Incoloy 825, 316L) covering both automated and robotic welding under the

leadership of certified European Welding Engineers.

Çimtaş welding procedures are qualified according to ASME Section IX covering the welding of Carbon Steel for Normal and Lower Temperature Service, Heat Resisting Cr and Cr-Ni Stainless Steels, Alloy Steel Quenched and Tempered 9% Nickel, Ferritic Alloy Steel for High Temperature Service (P11, P22, P 91), Ni Base Alloys (Inconel 625, Incoloy 825, Alloy 31, Alloy C276) and Aluminum Alloys (Al 5083).





QC Services

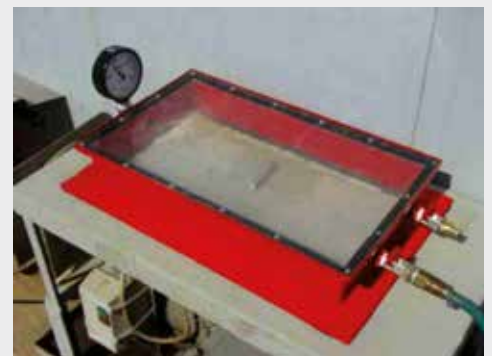
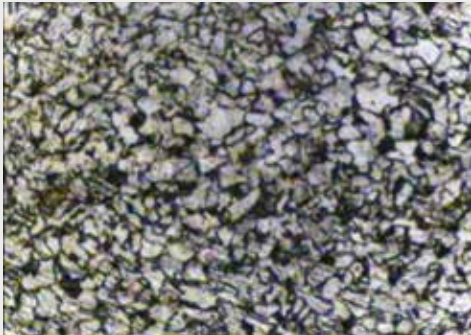
Çimtaş Gemlik Works utilizes state-of-the-art quality control technology with world class equipment, including TOFD manned by highly qualified personnel to perform various tests, inspections and measurements - in order to meet such international standards and specifications as ASME, ASTM, AWS, EN, API, BS, AWWA, GOST and JIS (all according to customer/project requirements) for fabrication and field work of its own, or as a third party service provider to power and

petrochemical projects.

Çimtaş QC personnel include in-house Level I, II, III NDT personnel, American SNT-TC-1A & Europe PED 97/23/EC qualified 15 personnel and a total of 26 QA/QC staff including 8 engineers.

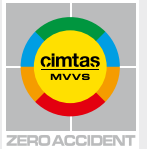
Çimtaş in-house NDE equipments include (but not limited to) Automated Ultrasonic Testing equipments (TOFD, RASTER) up to 340 mm, Digital Radiography System with phosphorus imaging plate (DRS), RT

(4 X-ray, 5 Gamma), UT (3 Manual), MT (Yoke & Prode, dry / wet visible, fluorescent), PT (wet visible, fluorescent), portable devices for ferrite content measurements, spectral analysis and PMI, metal hardness (HV, HB, HRb, HRC), thickness and conductivity measurements, coating film thickness, surface roughness, gloss and adhesion measurements and Holiday tests laser surface and laser distance measurements, optical inspection devices (distomat, theodolite and nivelman), temperature measurement



(up to 1,000 °C) pressure testing equipment and test recorders.

Other services provided by Çimtaş QC department includes; in-house mechanical test equipment for tensile testing (up to 300 °C testing temperatures), bending testing and NIST approved charpy impact testing (from room temperature to below -196 °C), crack depth measurement, leak test with ultra probe, vacuum box testing (up to -760 mmHg) and weight measurement/center of gravity determination.



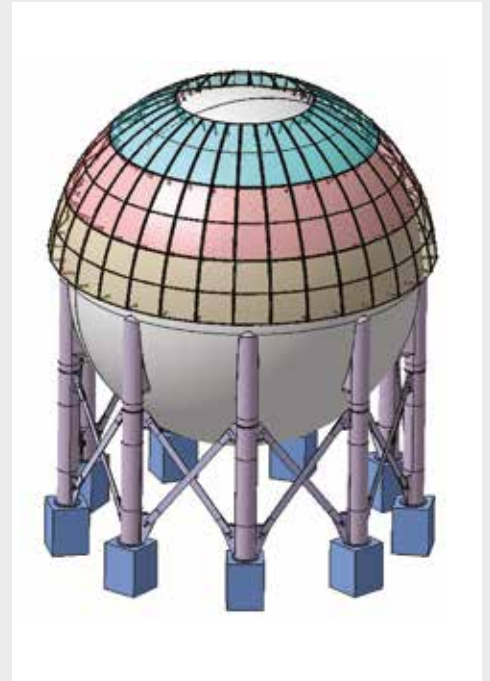
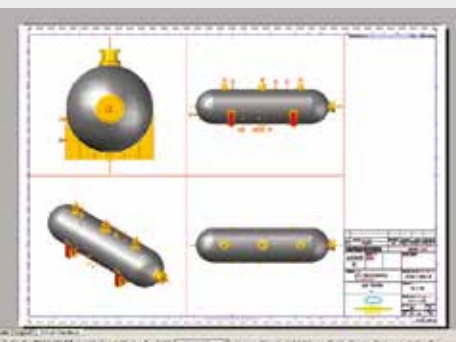
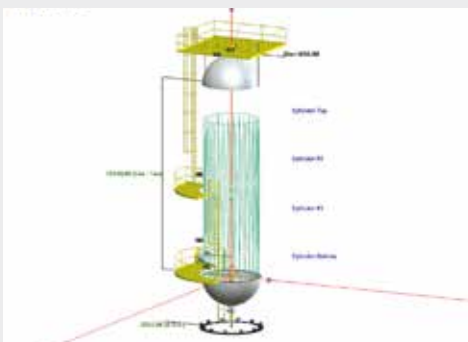
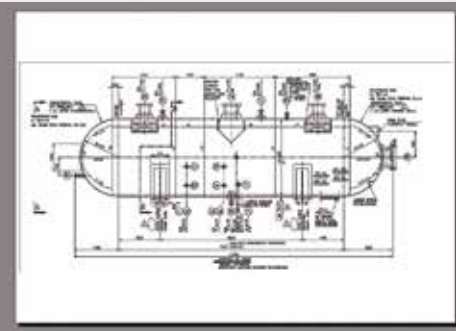
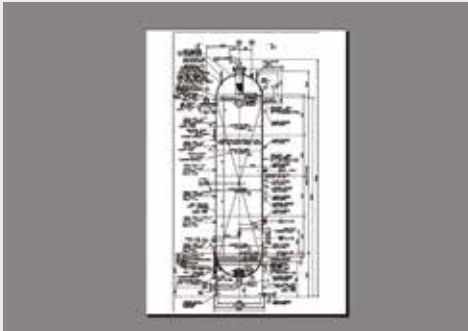
Engineering

Çimtaş provides engineering services for Pressure Vessels to support the fabrication and installation projects.

Çimtaş utilizes the latest versions of Compress (for modeling of pressure vessels and performing ASME calculations), Winshell (for modeling of pressure vessels and performing AD-M calculations), ANSYS and SAP 2000 (for modeling of pressure vessels and performing Finite Element Analysis) and AutoCAD (for design of pressure vessels), X-Steel (for modeling and

detailing of ladders and platforms). The design codes used in engineering of Pressure Vessels are as follows; ASME (Sec.I, Sec.VIII Div.1 & Div.2, B31.1), PED 97/23/EC, GOST, AD-Merkblätter, API 620, API 650, PD 5500, TEMA.

The design and engineering information is shared by the engineering offices, the Gemlik Works and the jobsites via a well-established communication network and advanced information systems.



Information Technology and Sharing

Çimtaş Pressure Vessel Portal, a powerful e_suite is a robust project collaboration and management tool which enables Çimtaş users and customers to access the latest version and/or status of whole project documentation as well as the project progress and offers full and online integration with Çimtaş ERP software.

As a powerful, digitized, simple and combined solution Çimtaş Pressure Vessel Portal enhances collaboration and the timely distribution of information throughout the entire project life.

