
Your Reliable Partner

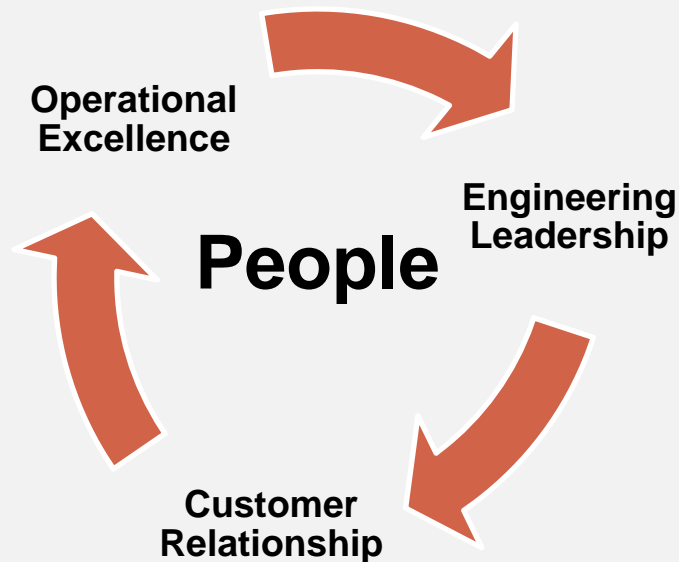
Company Introduction



ENERGYEN.CO.KR

Mission Statement and Operating Strategy

- **Ensure our customers' success by providing enabling engineering services and product that deliver the best performance at economic value**
- **Achieve and maintain engineering leadership in our business**
- **Maintain stable financial results through the business cycle to generate values for stakeholders**



Company Profile

WELCOME!

On behalf of the dedicated, skillful, and competent workforce of Energyen Corporation, I welcome you all with great pleasure to our company.

Modesty aside, our consistently good performance coupled with sophisticated technology and optimum quality control has earned us a good reputation in the industry for the manufacture of pressure equipment and components of power plant.

We are your reliable partner!

Choon-Bae Park

President

Type of company: Private

Number of factories: 2

Gunsan Factory : 72,138 m²

Gimje Factory: 12,830 m²

Total site area: 84,968 m²

Gunsan Factory: 21,000 m²

Gimje Factory: 6,260 m²

Total floor area: 27,260 m²

Production capacity: 24,000 tons/ year

Gunsan Factory

Site area: 72,138 m² Floor area: 23,400 m²



Shop C

Length: 140 m Width : 50 m
 Floor area: 7,000(2 Bays) m²
 Lifting Height: 16m

Over Head Crane

80 tons(2EA), 50 tons(2EA), 25tons(4EA)

- Fabrication & Machining



Shop B

Length: 100 m Width : 56 m
 Floor area: 5,600(2 Bays) m²
 Lifting Height: 10m

Over Head Crane

35 tons(6EA)

- Fabrication



Shop A

Length: 150 m Width : 56 m
 Floor area: 8,400(2 Bays) m²
 Lifting Height: 8m

- Fabrication
- Fin mill
- Brazing
- Bundle Assembly



Gimje Factory

Site area: 12,830 m² Floor area: 6,260 m²

Shop A

- Fabrication & Machining



Shop B

- Assembly

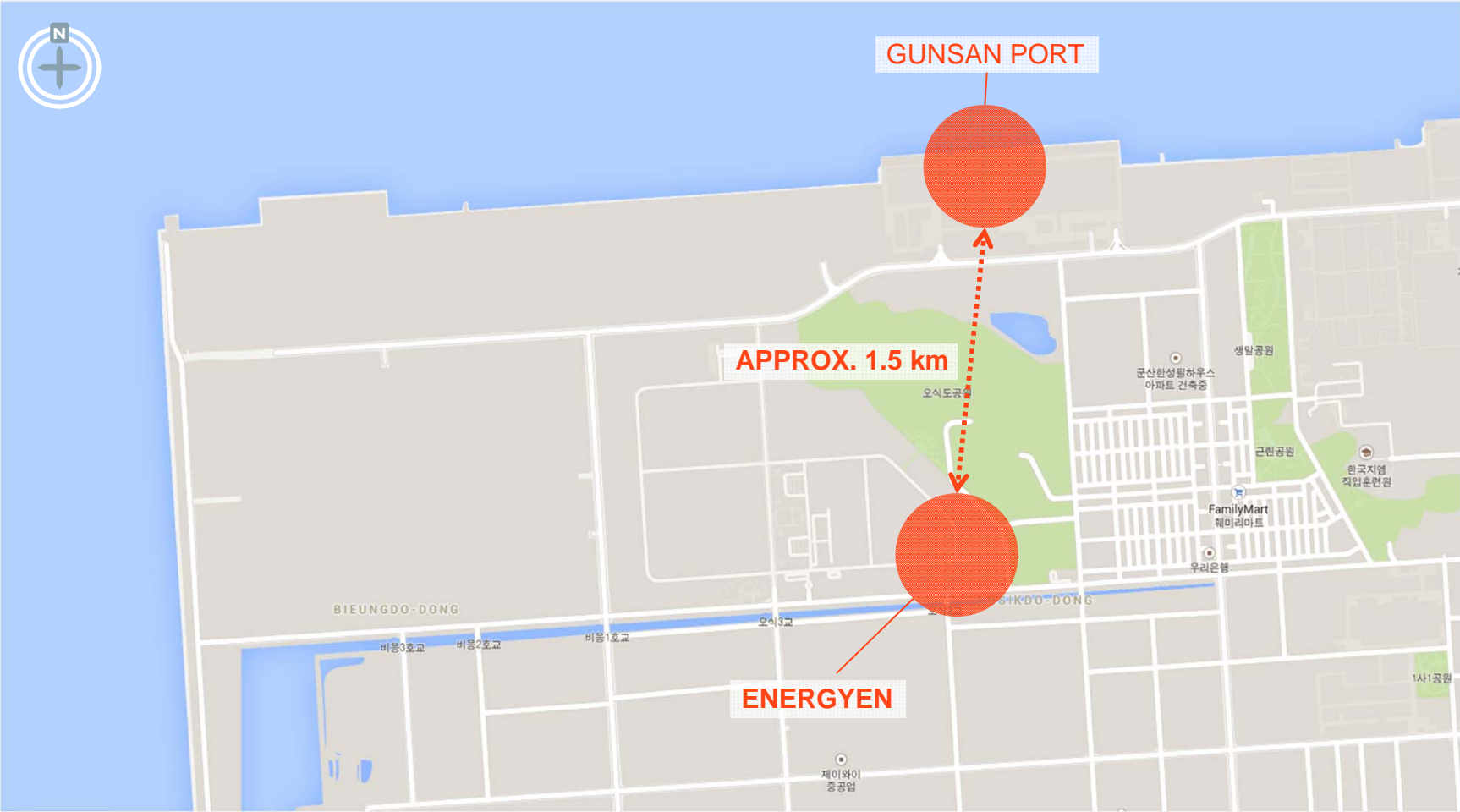


Shop C

- Machining



Gunsan Free Trade Zone



We can transport any product size regardless of weight, width or height.

Transportation and Handling Capacity



Seoul to Gunsan: 230 km (143 miles)

Shipping ports

Gunsan Port: 1.5 km (0.9 miles)

Mokpo Port: 150 km (93 miles)

Masan Port: 220 km (137 miles)

Busan Port: 270 km (168 miles)

Airport

Gunsan Airport: 16km (10 miles) from Gunsan

Maximum handling capacity per equipment

Weight: 400 Tons (881,849 lbs)

Thickness: 200 mm (7.87 inch)

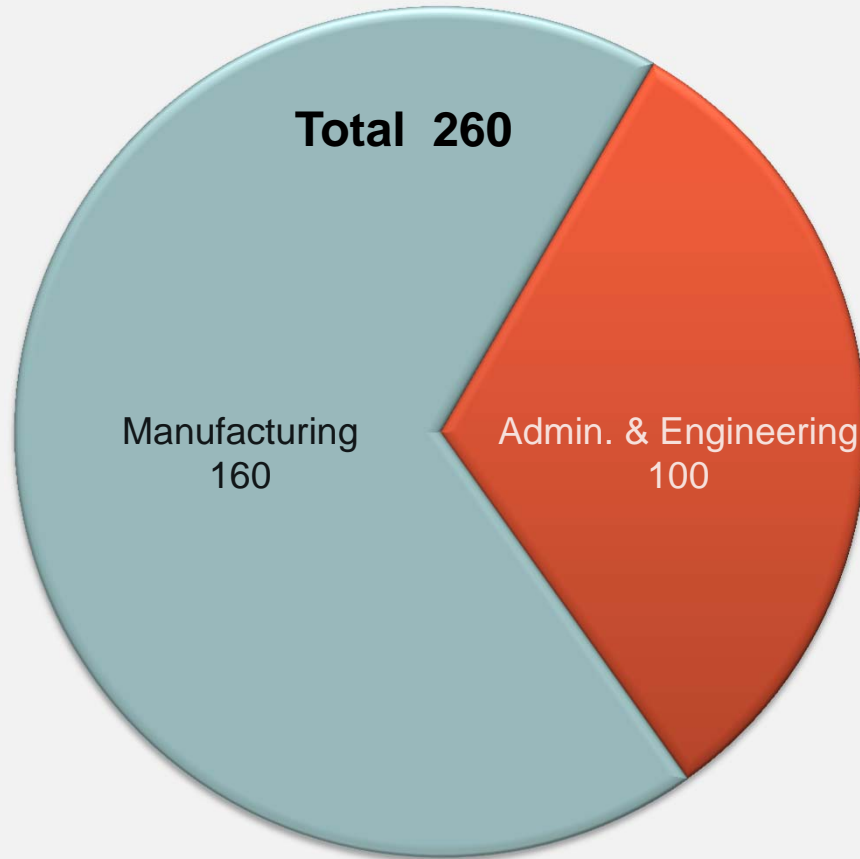
Length: 100 m (328 ft)

Diameter: 10 m (393.7 inch)

History of Energyen

- | | |
|-----------------------|---|
| 1995 October | Established under the name of Seoul Precision & Industry Co., Ltd. |
| 2000 May | Approved by GE Power as a supplier for Turbine and Generator components by qualification of End Shields |
| 2001 September | Registered in KEPCO (Korea Electric Power Corporation) as a manufacturer and for maintenance of power plant equipment |
| 2001 October | Supplied our heat exchangers to Japanese Power Plant in accordance with METI Regulation |
| 2009 April | Changed the name of company to Energyen Corporation |
| 2012 October | Expanded Gunsan factory for large steel fabrication and full automated ACC bundle facility |
| 2013 November | Delivered high pressure Feedwater Heater for 1,000MW Ultra Super Critical Coal Fired Power Plant |
| 2016 July | Launched ERP and e-Shop system for shop flow control system to manage execution progress |

Organization



Management, 9

Design & Engineering, 35

Quality Assurance / Control, 13

Manufacturing, 160

Manufacture Engineering, 4

Sales and Marketing, 9

Project Management, 7

Procurement, 14

Finance and Administration, 9

*Note : Temporary manpower of 50~100 persons are not included and they can be added promptly, when needed.

Business Fields

Heat Exchangers and Process Equipment

Steam Surface Condenser

Air Cooled Condenser

HP & LP Feed Water Heater

Steam Drum

Shell & Tube Heat Exchanger

Gas Gas Heater

Deaerator

Gland Steam Condenser

Fuel Gas Heater

Intercooler

Lube Oil Cooler

Skid Module

Components of Turbine & Generator

Stator Frame

End Shields (Bearing Brackets)

Hydrogen & Air Cooler

Combustor Casing

Exhaust Casing

Exhaust Frame

Oil & Gas

Tension Ring

Diverter Components

Packer Housing

Spacer & Drilling Spool

Mandrel

Our List of Customers

Our **OVERSEAS** Customers

55%

GE

Siemens Energy, Inc

MH Power Systems

Fuji Electric

Mitsubishi Electric

Toshiba Corporation

Kobe Steel., Ltd

Kiewit

Nooter Eriksen

Toyo Engineering

Fluor Ltd.

JGC Corporation

Kuwait National Petroleum Company(KNPC)

Our **DOMESTIC** Customers

45%

Korea Electric Power Corporation (KEPCO)

Korea District Heating Corporation (KDHC)

Hyundai Engineering & Construction Co., Ltd.

Hyundai Engineering Co., Ltd.

Hyundai Heavy Industries Co., Ltd.

Samsung Engineering Co., Ltd .

Samsung Engineering & Construction

Daewoo Engineering & Construction Co., Ltd.

Doosan Heavy Industries & Const. Co., Ltd.

GS Engineering & Construction Corporation

GS-Caltex Oil Corporation

SK Engineering & Construction Co., Ltd.

LOTTE Engineering & Construction Co., Ltd.

Experience of Materials

Material

Specification

Carbon Steel

ASTM : A283, A285, A515, A516, A537, etc.

JIS : SS400, SB410, SM400, SPV50Q, SLA325, etc.

Low Alloy Steel

A387 Gr.5, A387 Gr.11/ 22, Class 1/2, A203 Gr.E etc.

Stainless Steel & Special Material

Type 321, 304(L), 316(Ti)(L), 317(L), 347, 410,
Incoloy, Hastelloy, UOP High, Flux,
Super Duplex Stainless (SAF2507, J4L)
25Cr-1Mo-0.25V

Clad Steel

Base Metal : Carbon & Alloy Steel
Clad Metal : Stainless steel, Copper, Titanium

Nonferrous

Copper-Nickel, Titanium

Major Raw Material Suppliers

Carbon & Low Alloy Steel Plate

POSCO	Korea
HYUNDAI STEEL	Korea
DONGKUK STEEL	Korea
JFE Steel	Japan
Kobe Steel Co., Ltd.	Japan
Sumitomo Metal Ltd.	Japan
Dilinger	Germany
INDUSTEEL	Belgium

Clad Plate

Hanhwa Co., Ltd.	Korea
JFE Steel	Japan
Asahi Chemical Co., Ltd.	Japan
Japan Steel Works	Japan
Creusot-Loire Industries(CLI)	France

Stainless Steel Plate

POSCO	Korea
Daeyung Corp.	Korea
NSSC	Japan
NKK Co., Ltd.	Japan
Nippon Metal Industry Co., Ltd.	Japan
NCS	Japan
Aperam Stainless	France
OUTOKUMPU	Sweden

Copper Alloy

MKM Mansfelder Kumperund Messing GmbH	Germany
Revere Copper Products, Inc.	USA
Carl Schreiber	Germany
Hussey Copper Ltd.	USA

Major Raw Material Suppliers

Flange & Forging

Taewoong Co., Ltd.	Korea
Korea Flange Co., Ltd.	Korea
Daeheong Industry Co., Ltd.	Korea
Dong-O Flange Co., Ltd.	Korea
Seah Besteel	Korea
DHF. CO.,LTD	Korea
F&F	Korea

Tube & Pipes

Shinhan Metal	Korea
SeAH Changwon Specialty Steel Co., Ltd.	Korea
POONGSAN NEOTIS	Korea
YCP	Korea
RMK	Korea
Il Jin Steel	Korea
JFE Steel	Japan
NSSMC	Japan
Kobe Steel Ltd.	Japan
AB Sandvik Steel	Sweden
Benteler AG	Germany
Vallourec & Mannesmann Tubes	Germany
PRODUCTOS TUBULAR, S.A	Spain
Tubacex Tubos Inoxidables S.A	Spain
RATNAMANI METALS & TUBES LTD	India

Applicable Codes and Standards

- ASME** Section I, Section V, Section VIII. Div. 1&2., Section IX
- TEMA** Class “R”, “C” & “B”
- HEI** Heat Exchange Institute
- ASTM** American Society for Testing and Materials
- API** American Petroleum Institute
- ANSI** American National Standards Institute
- METI** Ministry of Economy, Trade and Industry
- JIS** Japanese Industrial Standard
- IBR** Indian Boiler Regulation
- ISO** International Organization Standardization
- PED** Pressure Equipment Directive
- CSA** Canadian Standard Association
- GOST** GOST-R Certification



Software and Programs

Type of Design

Name of Computer Program

Pressure Vessel

COMPRESS (Codeware)

Heat Exchanger

ASPEN and HTRI Shell & Tube Heat Exchanger for Thermal Design

COMPRESS for Mechanical Design

Air Cooled Heat Exchanger

HTRI Air Cooled Heat Exchanger for Thermal Design

Piping Stress Analysis

PIPE PLUS

Structure Analysis

MIDAS GENw

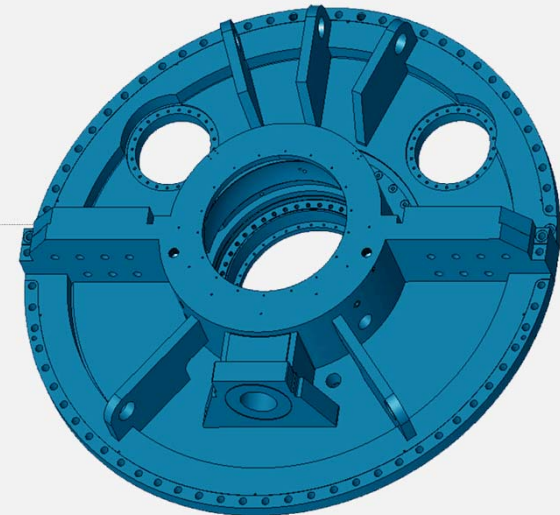
In addition to the above items, ENERGYEN has several self-developed design programs.

Computer Aided Design System

AutoCad System

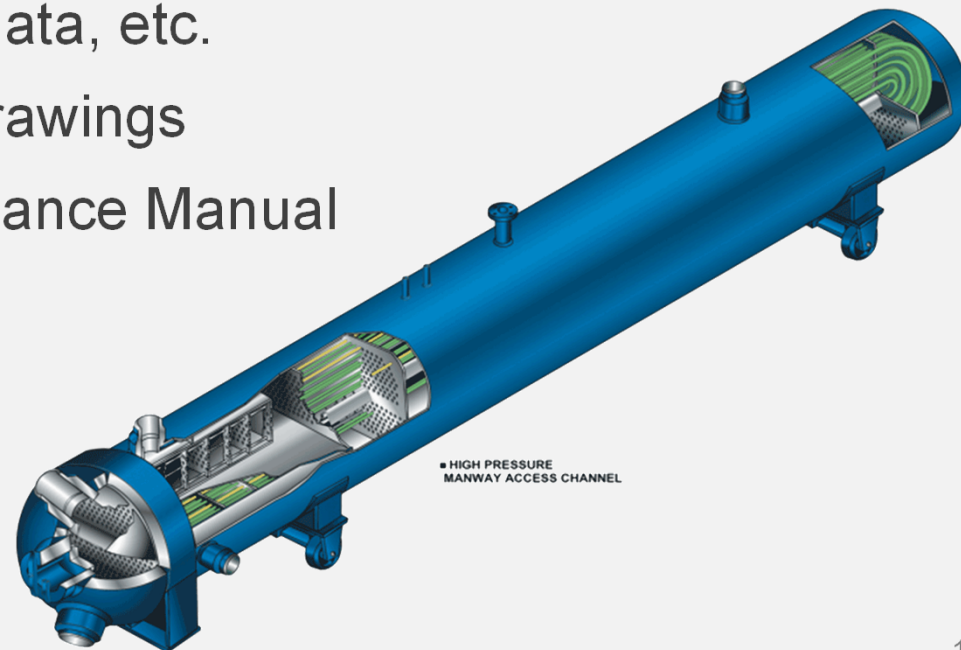
Inventor for 3 Dimensional Design

Tekla Structure for 3 Dimensional Design



Design Tasks

- Design / Engineering and Documentation
- Basic Design (Including Thermal Performance Calculation)
- Bill of Material
- Strength Calculation including Stress and Fatigue Analysis
- Foundation / Loading data, etc.
- Detailed Fabrication Drawings
- Operating and Maintenance Manual



Quality, Safety and Environmental Management System

Quality Policy

- Understanding customer requirement
- Taking actions to achieve customer's needs timely
- Involving employees to continual improving process
- Creating a cultures to promote values and safety

Quality Manual Level 1

Requirements

- ISO 9001 Quality Manual
- ISO 14001/OHSAS 18001
- ASME Sect. VIII Appendix 10

Quality Control Procedure Level 2

Requirements

- Quality Control Procedure
- ASME Sect. I & VIII Appendix 10

Detailed Instruction Level 3

Requirements

- MPP/Working Instructions
- Check sheet

Company Certifications



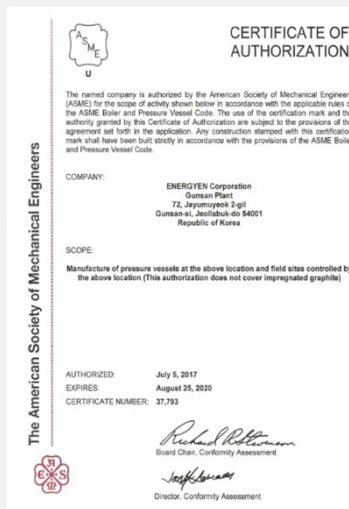
ISO 9001:2015 with 3834



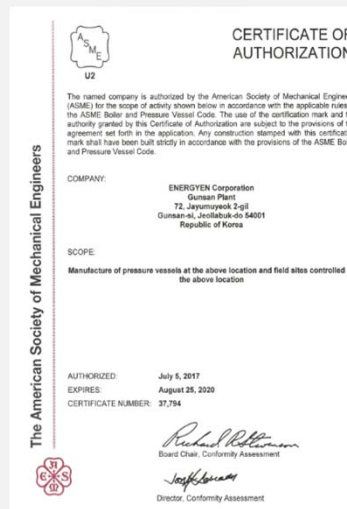
ISO 14001:2015



OHSAS 18001:2007



ASME 'U'



ASME 'U2'



ASME 'S'



Machining Facilities

Horizontal Boring Machine

X-Axis: 12,500 mm Y-Axis: 5,000 mm Z-Axis: 2,500 mm Ram 800
Rotary Table Size: W4,000 x L4,000



CNC Planer Milling Machine

X-Axis : 4,200 mm Y-Axis: 3,850 mm Z-Axis: 2,750 mm

Table Size: W2,000 x L4,000

Max. Size for Machining: L6,000 x W2,700 x H3,500



Drill Master

X-Axis: 6,900 mm Y-Axis: 5,500 mm Z-Axis: 1,200 mm

Cutting Capacity: $\phi 16\sim\phi 60$ End Milling : $\phi 30$ x DP10 Face Milling: $\phi 150$ x DP3



CNC Deep Hole BTA Drilling Machine

Max. Drill Dia.: **OD 3,000 mm** Hole Dia. Range: **ø5~55 mm**
Max. Drill Th'k: **1,000 mm**



CNC Vertical Turning Lathe

Max. Cutting Dia. : OD 4,300 mm

Max. Height : 3,000 mm



Main Products

Main Products



H.P. Feed Water Heater



L.P. Feed Water Heater



Intercooler



ACC



Surface Condenser



Skid



CCW Heat Exchanger



Fuel Gas Heater



Horizontal Deaerator



Lube Oil Cooler



Gland Steam Condenser



H2 Cooler (Vertical)



H2 Cooler (Horizontal)



Stator Frame



End shield/ Bearing bracket



Exhaust Casing

H.P. Feedwater Heater

Client: Korea Midland Power Co., Ltd.

Project: 1,000MW Shinboryung Thermal Power Plant

Size: OD1,790 x 15,600L Weight : 88,000 kg



Client: Fuji Electric

Project: Ishinomaki Hibarino, Japan

Size: OD1,225 x 9,098L Weight : 25,800 kg



L.P. Feedwater Heater

Client : Saudi Eclectic Company

Project : 660MW Shuqaiq Steam Power for 4 units

Size : ID1,676 x 16,800L Empty Weight: 41,100 kg



Horizontal Deaerator

Client : Korea East-West Power Co., Ltd.

Project : 1,000MW Dangjin Thermal Power Plant Unit 9

Capacity: 2,952 Ton/Hr Empty Weight: 168,400 kg



Surface Condenser (Stainless Steel) for Power Plant

Client: GE Power

Project: Bhikki & Balloki Power Plant (1,000MW & 1,200MW)



Surface Condenser for Power Plant

Client: POSCO Engineering & Construction

Project: 300MW Masinloc CFPP



Air Cooled Condenser

Client: Siemens

Project: 300MW Santo Domingo Combined Conversion

Delivery: December. 2016



ACC Bundle

Client: Siemens

Project: 300MW Santo Domingo Combined Conversion

Delivery: December. 2016



Fin Fan Cooler (Air Cooled Heat Exchanger)

Client: Fuji Electric

Project: Y-Binary Project in Japan

Delivery: January. 2017



Steam Drum

Client : Nooter Eriksen

Project : Turakurgan

Size : 114T x ID1,879 x 13,411L

Weight : 114,000 kg



Shell & Tube Heat Exchanger for Oil & Gas

Client: JGC Corporation

Project: Titan No.2 Cracker, Malaysia

Size: L7200 x W1200 x H2000



Shell & Tube Heat Exchanger for Oil & Gas

Client: SK E&C

Project: Clean Fuels Project, Kuwait

Size: L9500 x W1800 x H2400



Shell & Tube Heat Exchanger for Oil & Gas

Client: Tecnicas Reunidas

Project: Gas Train 5 Project, Kuwait

Size: L11200 x W2400 x H3100



Components of Power Plant

End Shields / Bearing Brackets



Components of Power Plant

Stator Frame



Components of Power Plant

Intercooler



Components of Power Plant

Lube Oil Cooler



Components of Power Plant

H2 Cooler: GE, Siemens, MH Power Systems, Toshiba Corp.



Vertical (Single)



Horizontal (Duplex)

Stator Cooling Water Unit

Client: Toshiba Corporation

Project: Talin 1, 2 Power Plant Renewal Project



Seal Oil Unit

Client: Toshiba Corporation

Project: Talin 1, 2 Power Plant Renewal Project



Components of Power Plant

Combustor Casing



Thank you.



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