

*Together 2570*

# COMPANY PROFILE 2022

## REETING MESSAGE



The management philosophy of DASCO is that the enterprises should permanently exist and develop, the purpose of management of the company is “profit maximization”, and the goal of the management of the company is to be a world-class company. DASCO has continuously made investments and endeavors to be the best in the heat exchange area since its establishment in 1995.

The company intends to make every endeavor as the leader in heat exchanger area based on its know-how that has been accumulated as a professional heat exchanger company including Air compressor inter cooler, H2 cooler, Shell & Tube heat exchanger, Pressure Vessels, and Electric heater as well as good-quality products and competitive prices.

Dasco co., Ltd.  
PRESIDENT **Lee, Geun young**

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*Beyond the Simple  
Customer’s Satisfaction*





**Head office and factory**

Date of establishment : Jul. 2020 Land area : 11,600 m<sup>2</sup>  
 Factory Building area : 7,700 m<sup>2</sup>

## 1. OUTLINE OF COMPANY

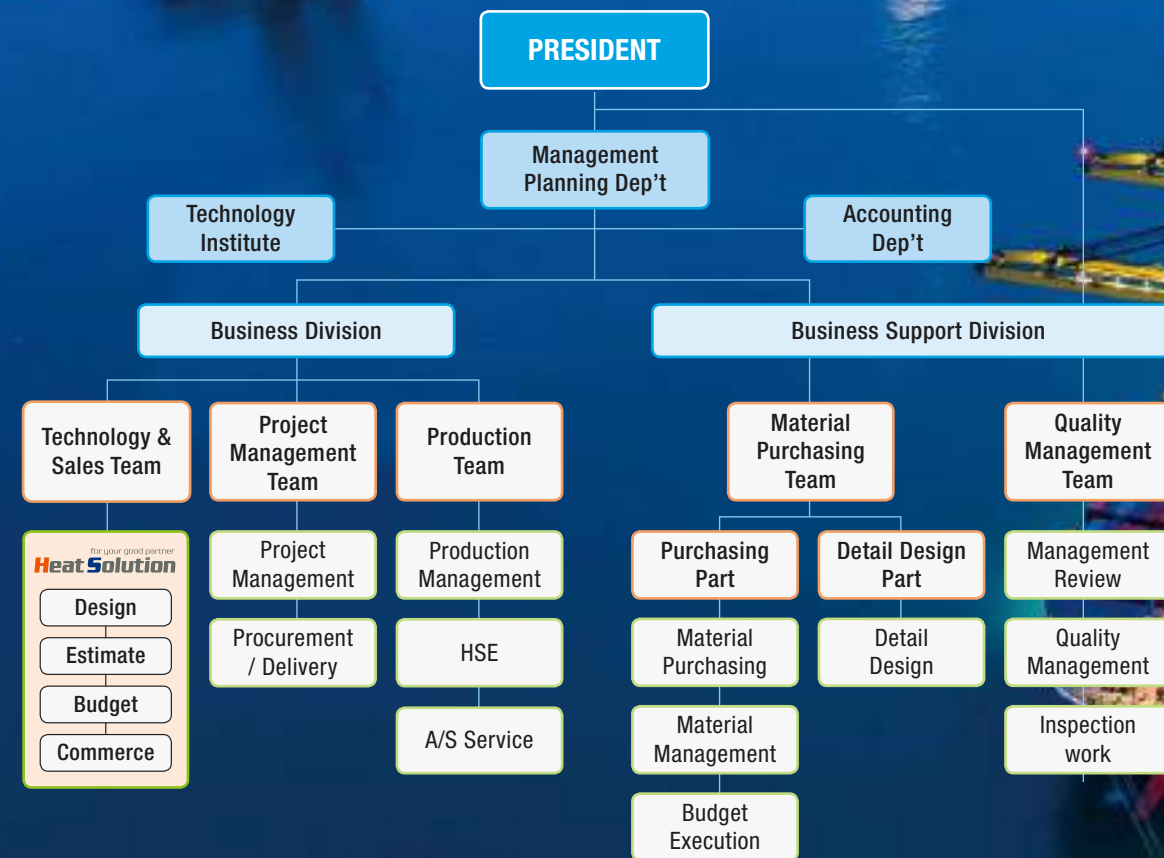
1. NAME : DASCO Co., Ltd
2. BOARD OF DIRECTOR / PRESIDENT : Lee, Geun young
3. FOUNDED : OCT, 1995
4. CORRESPONDENT BANKS : KOOKMIN BANK, KOREA
5. NUMBER OF EMPLOYEES : 111 PERSONS
  - Financial & Managing : 13 / Sales : 6
  - Design : 10 / Q.A : 10 / Production : 63
6. CAPITAL : ₩ 363,270,000 (US\$ 330,000)
7. SALES AMOUNT OF YEAR 2021 : US\$ 24,500,000
8. ADDRESS : 33, Noksansandan 17-ro 78beon-gil, Gangseo-gu, Busan, Korea  
 T. 82.51.324.9984 E-mail : hs@heatsolution.co.kr



Factory 2 : 124, Noksansandan 27-ro, Gangseo-gu, Busan, Korea



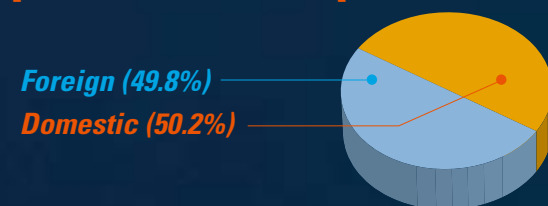
## 2. ORGANIZATION CHART



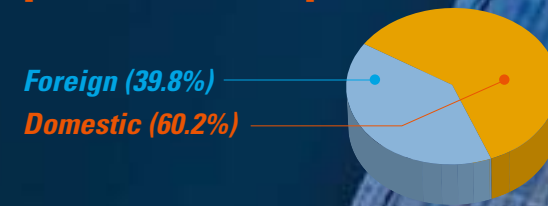
## 3. TURN-OVER (YEARLY SALES)



### [ Contract Breakdown ]



### [ Sales Breakdown ]



## 4. HISTORY OF DASCO

- Oct. 1995 Established DASCO in 1995, Busan, Korea
- May. 2000 Changed the company into a corporation, DASCO Co., Ltd.
- Nov. 2003 Certified of ISO 9001:2000(NQA)
- Nov. 2005 Obtained the certification of anti-explosive electric heater (KIMM)
- Aug. 2006 Obtained CE certification (in electric heater part (SGS))
- Aug. 2006 Renewal the office to Gimhae from Busan
- Feb. 2007 Registered vendor in Hanwha Power Systems (Previously Samsung Techwin)
- Oct. 2008 Obtained the classification society certification of ABS, BV, KR
- Dec. 2008 Shop approved by DNV-GL ship classification
- Feb. 2009 Obtained INNO-BIZ certification
- Mar. 2009 Registered vendor in Doosan Heavy Industries
- Nov. 2009 Obtained the certification of ASME, S and U Stamp
- Jun. 2010 Registered as business partner of GE (General Electric)
- Jul. 2010 Registered manufacture of specific equipment in Korea Gas Safety Corporation
- Sep. 2010 Newly constructed 2nd factory in Gimhae
- Apr. 2013 Registered vendor of DSEC (Marine field)
- Mar. 2014 Newly constructed 3rd factory in Gyeongnam
- Nov. 2014 Registered vendor of DSME
- Dec. 2014 Registered vendor of STX, SungDong, Doosan Engine (Marine field)
- Apr. 2015 Invested capital to plant engineering professional company, **Heat Solution**
- May. 2015 Registered vendor of Air Liquide (Japan), Hyundai Heavy Industries
- Oct. 2015 Registered vendor of IHI, MHPS, Atlas Copco (America, France, Korea)
- Dec. 2015 Registered vendor of Kobe Steel
- Feb. 2016 Obtained the certification of 5 Major Korea Electric Power Co.
- Sep. 2016 Registered vendor of Fuji Electric, POSCO
- Oct. 2017 Obtained the certification of TR-CU as approved factory
- Jul. 2019 Selected as a prospective medium & small enterprise
- Dec. 2019 Awarded export tower for USD 3 million dollars
- Jul. 2020 Renewal H.Q. to Noksan National ind. Complex in Busan, Korea
- Dec. 2021 Renewal 2nd factory to Noksan National ind. Complex in Busan, Korea



## 5. MAIN CUSTOMER

### FOR PLANT

#### FOR ASU

- AIR LIQUIDE
- AIR PRODUCTS
- AMCS
- DIG AIRGAS
- LINDE
- PRAXAIR
- TAIYO NIPPON SANSEI



#### FOR ROTATING MACHINERY

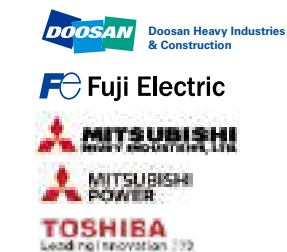
##### COMPRESSOR

- ATLAS COPCO : [AMERICA], [GERMANY], [FRANCE], [KOREA]
- HANWHA POWER SYSTEMS
- HITACHI
- HOWDEN
- HYUNDAI HEAVY INDUSTRIES TURBOMACHINERY
- IHI ROTATING MACHINERY
- IR (INGERSOLL RAND)
- KOBE STEEL
- SEAH ENGINEERING
- MAN



##### TURBINE & GENERATOR

- DOOSAN HEAVY INDUSTRIES
- FUJI ELECTRIC
- MITSUBISHI HEAVY INDUSTRY
- MITSUBISHI POWER
- TOSHIBA



#### FOR POWER PLANT

- KOREA 5 MAJOR ELECTRIC POWER CO. : [KOEN], [KOMIPO], [KOSPO], [KEWP], [KOWEPO],



## 5. MAIN CUSTOMER

### FOR MARINE

#### FOR SHIPYARD

- DAEHAN SHIPBUILDING
- DAESUN SHIPBUILDING & ENGINEERING
- DAEWOO SHIPBUILDING & MARINE ENGINEERING
- DAEWOO SHIPBUILDING ENGINEERING COMPANY (DSEC)
- HANJIN HEAVY INDUSTRIES
- HYUNDAI HEAVY INDUSTRIES
- SAMSUNG HEAVY INDUSTRIES
- STX OFFSHORE & SHIPBUILDING



#### FOR PACKAGE

- HI AIR KOREA / CONDITIONING
- KANGRIM HEAVY INDUSTRIES
- SAMWOO HEAVY INDUSTRIES
- SUNBO INDUSTRIES



#### FOR ENGINE

- HYUNDAI HEAVY INDUSTRIES (HHI-EMD)
- HSD ENGINE
- STX ENGINE
- STX HEAVY INDUSTRIES





## 6. MAIN PRODUCTS

### FOR PLANT

#### COMPRESSOR – INTER /AFTER/OIL COOLER

- 1) SHELL & TUBE TYPE (BY API660 & 614)
- 2) AIR FAN COOLED TYPE (BY API661)
- 3) GAS PIPING & SPOOL
- 4) LUBE OIL & JACKET WATER UNIT
- 5) WATER SEPARATOR
- 6) PRESSURE VESSEL (DAMPER / SNUBBER)

#### TURBINE

- 1) SURFACE CONDENSER (CYLINDRICAL TYPE)  
WITH EJECTOR UNIT FOR STEAM TURBINE
- 2) GLAND STEAM CONDENSER
- 3) EJECTOR FOR GLAND CONDENSER

#### GENERATOR

- 1) HYDROGEN COOLER
- 2) AIR COOLER

#### ETC.

- 1) STEAM AIR HEATER FOR BOILER
- 2) GAS & OIL FILTER SHELL
- 3) PRESSURE VESSEL & TANK

### FOR LNG & LPG

#### CARGO HANDLING SYSTEM

- 1) VAPORIZER(LNG, FORCING)
- 2) GAS HEATER(HIGH DUTY, LOW DUTY,  
WARM-UP HEATER)
- 3) MIST SEPARATOR / DRAIN POT

#### REGASIFICATION SYSTEM

- 1) HIGH PRESSURE VAPORIZER
- 2) TRIM HEATER

#### RELIQUEFACTION PACKAGE

- 1) BOG PREHEATER
- 2) WASTE GAS HEATER
- 3) GAS SEPARATOR & TANK

#### FUEL GAS SUPPLY SYSTEM

- 1) VAPORIZER(HIGH&LOW PRESSURE)
- 2) FUEL GAS HEATER
- 3) GLYCOL WATER HEATER & TANK

#### INERT GAS GENERATOR

- 1) GAS COOLER
- 2) GAS HEATER

### FOR MARINE

- 1) SHELL & TUBE HEAT EXCHANGER
- 2) COPT CONDENSER
- 3) WEATHER LOUVER & CATCHER
- 4) OIL UNIT
- 5) SOUND ATTENUATOR
- 6) COOLER PACKAGE
- 7) VIBRATION COMPENSATOR  
(H-TYPE & V-TYPE)
- 8) VESSEL & STRUCTURE & AIR SEPARATOR
- 9) SILENCER



## 1) INTER/AFTER COOLER FOR COMPRESSOR (PLATE FIN TYPE HEAT EXCHANGER)

A Inter/After Cooler is installed in air compressor, It requires special design with a heat exchanger that cools compressed high temperature air to reduce its volume.  
It consists of Fin Tube, Water Box, and Casing, etc.

- **Material Code** : ASME, ASTM, JIS
- **Applicable Code** : ASME(U-STMP with NB Cer't)  
TEMA R.C.B.  
KOREA KGS, KOSHA, KEMCO, KESCO and Etc.  
JAPAN KHK, 2nd Pressure Vessel code  
CE MARK (PED Cer't)  
World Wide Local law (DOSH, MOL, TRCU for Russia, CRN for Canada & etc.)
- **Material Combination** : Tube : Cu-Ni (9:1, 7:3), Cu, SUS 304, 316, Duplex.  
Fin : AL, CU, SUS  
Fin Coat : Sn Coat, Bly gold Coat, Phenolic Coat



## 2) AIR FAN COOLED FOR COMPRESSOR (API 661)

It is a device that cools the fluid flowing into tube inside to the temperature designed by customers using air from the atmosphere and is used in oil refining plant, petrochemical plant, incinerator, and compressor.

- **Applicable Code** : ASME(U-STMP with NB Cer't)  
TEMA R.C.B.  
KOREA KGS, KOSHA, KEMCO, KESCO and Etc.  
JAPAN KHK, 2nd Pressure Vessel code  
CE MARK (PED Cer't)  
World Wide Local law (DOSH, MOL, TRCU for Russia, CRN for Canada & etc.)
- **Material Combination** : Tube : Cu-Ni (9:1, 7:3), Cu, SUS 304, 316, Duplex.  
Fin : AL, CU, SUS, C.S





### 3) H2 / AIR COOLER FOR GENERATOR FOR PLANT

Hydrogen Cooler is a heat exchanger that cools with tube side cooling water. A large-sized power generator uses hydrogen which specific heat is big as a cooling media. The high temperature hydrogen by cooling power generator flows to fin side and it is used for cooling. It consist of plate fin, tube and water box. To prevent from vibration, it is manufactured using a professional vibration interpretation device.

- **Applicable Code** : ASME(U-STMP with NB Cer't)  
TEMA R.C.B.  
KOREA KGS, KOSHA, KEMCO, KESCO and Etc.  
JAPAN KHK, 2nd Pressure Vessel code  
CE MARK (PED Cer't)  
World Wide Local law (DOSH, MOL, TRCU for Russia, CRN for Canada & etc.)
- **Material Combination** : Tube : Cu-Ni (9:1, 7:3), Cu, SUS 304, 316, Duplex.  
Fin : AL, CU, SUS  
Fin Coat : Sn Coat, Bly gold Coat, Phenolic Coat
- **Registered to GE, Doosan Heavy Industries**



### 4) SHELL & TUBE TYPE HEAT EXCHANGER FOR PLANT & MARINE

A Shell & Tube Heat Exchanger is heat exchanger that is the most general form and the most widely used. It is used for processor of power generation station, petroleum and chemical engineering factory and for facilities such as fuel Oil heater, Lubrication oil cooler. We provides heat calculation and structure design services for its manufacturing.

- **Applicable Code** : ASME(U-STMP with NB Cer't)  
TEMA R.C.B.  
KOREA KGS, KOSHA, KEMCO, KESCO and Etc.  
JAPAN KHK, 2nd Pressure Vessel code  
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**O2 COOLER WITH  
O2 CLEANING ROOM**



**RECYCLE GAS COOLER  
AND AFTER COOLER**



**LUBE OIL COOLER**



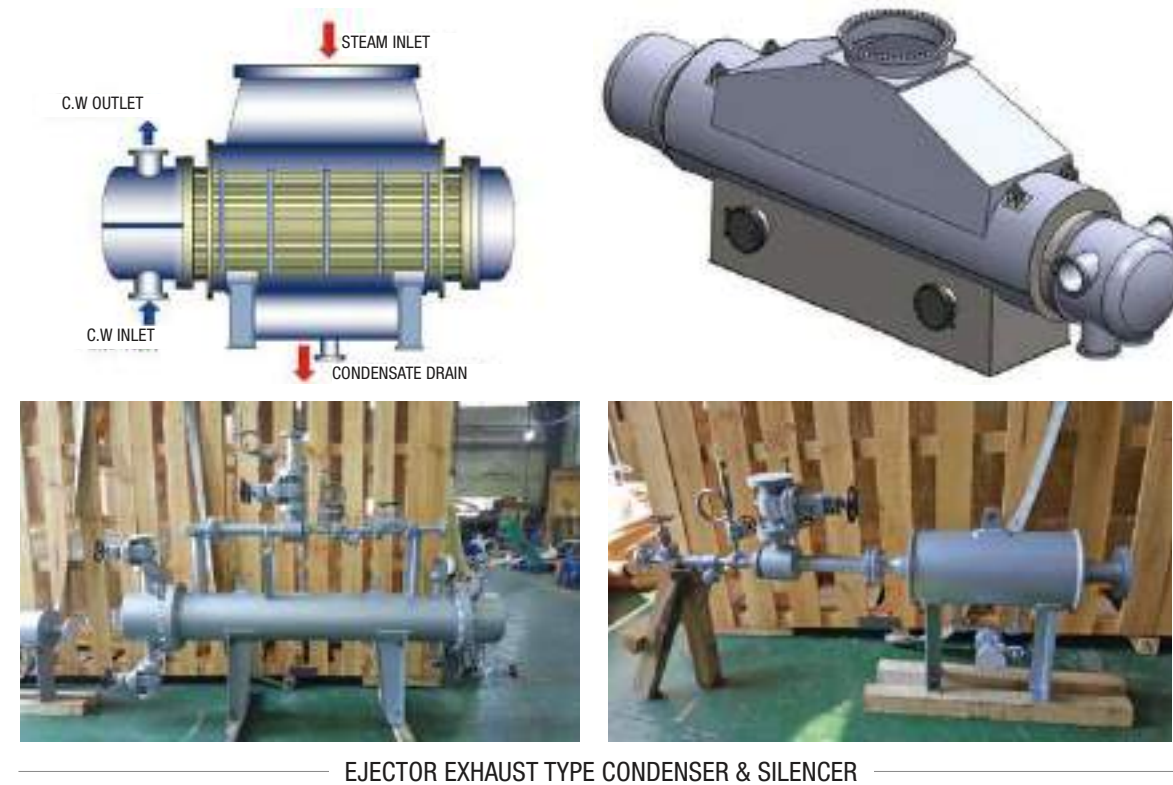
**GLAND STEAM  
CONDENSER**





## 5) SURFACE & EJECTOR CONDENSER (ONLY ROUND TYPE)

- **Applicable Code :** HEI  
ASME(U-STMP with NB Cer't)  
TEMA R.C.B.  
KOREA KGS, KOSHA, KEMCO, KESCO and Etc.  
JAPAN KHK, 2nd Pressure Vessel code  
CE MARK (PED Cer't)  
World Wide Local law (DOSH, MOL, TRCU for Russia, CRN for Canada & etc.)



### EJECTOR FOR AIR EJECTOR UNIT



## 6) LNG & LPG FOR MARINE

- **Applicable Code :** SHIP CLASS ABS, BV, DNV-GL, KR, LR, NK, RS  
ASME(U-STAMP)  
TEMA R.C.B





## 7) FOR MARINE & PLANT ITEM

- **Applicable Code** : ASME(U-STMP with NB Cer't)  
TEMA R.C.B.  
SHIP CLASS ABS, BV, DNV-GL, KR, LR, NK, RS  
KOREA KGS, KOSHA, KEMCO, KESCO and Etc.  
JAPAN KHK, 2nd Pressure Vessel code  
CE MARK (PED Cer't)  
World Wide Local law (DOSH, MOL, TRCU for Russia, CRN for Canada & etc.)



LOUVER & WATER MIST CATCHER



PACKAGE HEATER



PIPE SPOOL



EXPLOSION PROOF ELECTRIC RADIATOR



VENT SILENCER  
FOR MEGI ENGINE



UNIT COOLER



SOUND ATTENUATOR

## 7. PRODUCTION CAPACITY & HANDLING MATERIALS

### 1) PRODUCTION CAPACITY FOR 1 FACTORY

- MAX. WEIGHT : 100 TON
- MAX. SIZE (L x W x H) : 20 x 8 x 7 (m)

### 2) PRODUCTION CAPACITY FOR 2 FACTORY

- MAX. WEIGHT : 50 TON
- MAX. SIZE (L x W x H) : 20 x 7 x 6 (m)

### 3) MAJOR HANDLING MATERIALS

- CARBON STEEL
- STAINLESS STEEL
- COPPER & COPPER ALLOY (BRASS, BRONZE, CU-NI)
- ALLOY STEEL (Cr-Mo & CARBON-Mo)
- TITANIUM & TITANIUM CLAD

## 8. MAIN FACILITY

| NO. | Equipment                            | Specification                                                                                                  | Q'ty |
|-----|--------------------------------------|----------------------------------------------------------------------------------------------------------------|------|
| 1   | Overhead Crane                       | 2ton(3ea) / 2.8ton(2ea) / 3ton(1ea) / 5ton(4ea) / 10ton(2ea) / 15ton(2ea) 20ton(2ea) / 25ton(1ea) / 30ton(1ea) | 17   |
| 2   | TIG Welding Machine                  | 500A                                                                                                           | 45   |
| 3   | CO2 Welding Machine                  | 600A                                                                                                           | 30   |
| 4   | Plate Fin Press Machine              | 60 ton (1ea), 80 ton (3ea)                                                                                     | 4    |
| 5   | Lathe Machine                        | D-480                                                                                                          | 2    |
| 6   | H2/C, Air/C, I/AC Bundle Ass'y Table | 1600 x 4500 (1ea), 1600 x 3500 (6ea)                                                                           | 7    |
| 7   | Vibration Tester                     | Lion / VA-12                                                                                                   | 1    |
| 8   | Hydro. Test Unit                     | 35 kg/cm <sup>2</sup> (3ea), 450 kg/cm <sup>2</sup> (1ea)                                                      | 4    |
| 9   | Oil Flushing Equipment               | 3,000 L                                                                                                        | 1    |
| 10  | Hydraulic Torque Wrench              | 450 ~ 4510 N/M                                                                                                 | 2    |
| 11  | R.T Room                             | 13 L x 5 W x 5 H (m)                                                                                           | 1    |
| 12  | Compressor                           | 75HP                                                                                                           | 1    |
| 13  | Gas Booster                          | 420 kg/cm <sup>2</sup>                                                                                         | 1    |
| 14  | Liquid Storage Tank                  | L - N2 (3.33 MPa, 1ea), L - Ar (1.03 MPa, 1ea)                                                                 | 2    |
| 15  | Tube Expanding Machine               | -                                                                                                              | 5    |
| 16  | Plate Fin & Tube Multi-Expander      | 2.5M x 280Hole (2ea), Ø12 x 930L (1ea)                                                                         | 3    |
| 17  | Tube Single Expander                 | Ø10 x 20 mm                                                                                                    | 5    |
| 18  | Drilling Machine                     | Ø19 (1ea), Ø32 (1ea)                                                                                           | 3    |
| 19  | Vacuum Pump (For He Leak Test)       | 1.5kw                                                                                                          | 1    |
| 20  | Gouging                              | 1500A                                                                                                          | 2    |
| 21  | Plasma cut                           | 100A (1ea), 120A (2ea)                                                                                         | 3    |
| 22  | Tube Bending                         | Ø15.88 COOPER TUBE BENDING                                                                                     | 1    |
| 23  | SAW Welding Machine                  | 1000A                                                                                                          | 1    |



Compressor



Liquid Storage Tank (L-N2)



Liquid Storage Tank (L-Ar)



## 8. MAIN FACILITY



Plate Fin & Tube Multi Expander



Fin-Tube Bundle Ass'y Jig



RT Room



SAW Welding Machine



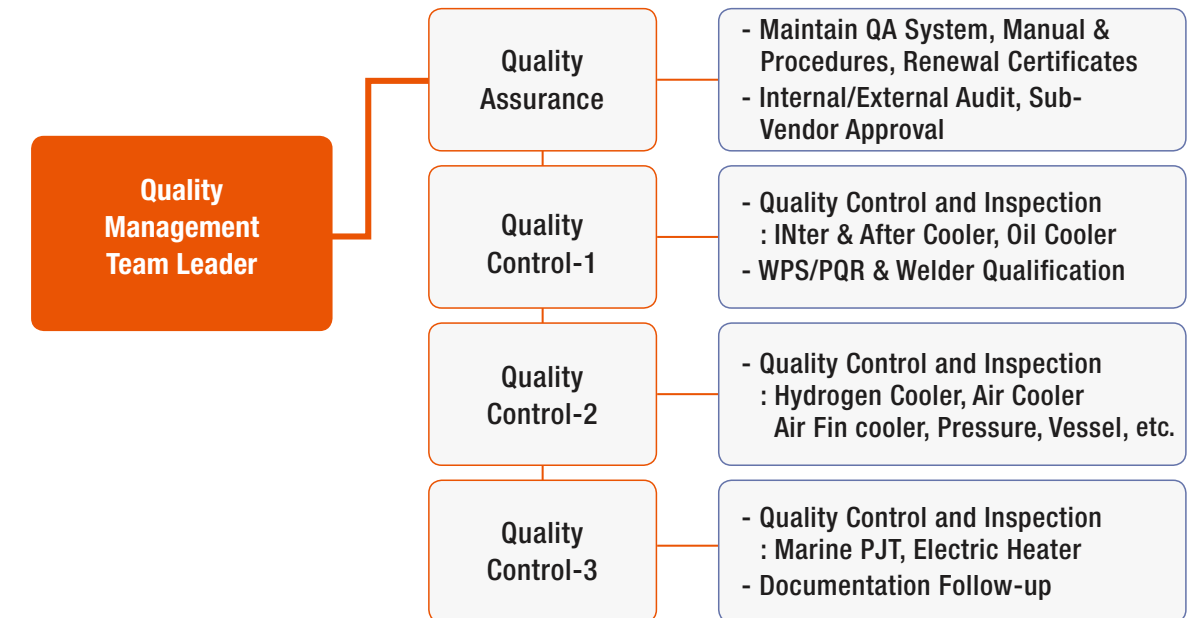
Plate Fin Press Machine



Oil Flushing Equipment

## 9. QUALITY MANAGEMENT

### 1) Organization of Quality Management Team



### 2) Qualified Welder List by ASME

| Welder I.D No.      | Welder Name       | Welding Process |           |           |
|---------------------|-------------------|-----------------|-----------|-----------|
|                     |                   | GTAW            | FCAW      | SAW       |
| DW-06               | J.H Lee           | O               | O         |           |
| DW-10               | S.Y Choi          | O               | O         |           |
| DW-22               | J.G Kim           | O               | O         |           |
| DW-27~28            | M.G Kang and etc. | O               | O         | AVAILABLE |
| DW-30~31            | J.G Kang and etc. | O               | O         |           |
| DW-32~34            | S.G Lee and etc   | O               | O         |           |
| DW-39               | C.S Lee           | O               | O         |           |
| DW-43               | G.B.Gu            | O               | O         |           |
| <b>Total Welder</b> | <b>12 Persons</b> | <b>12</b>       | <b>12</b> |           |

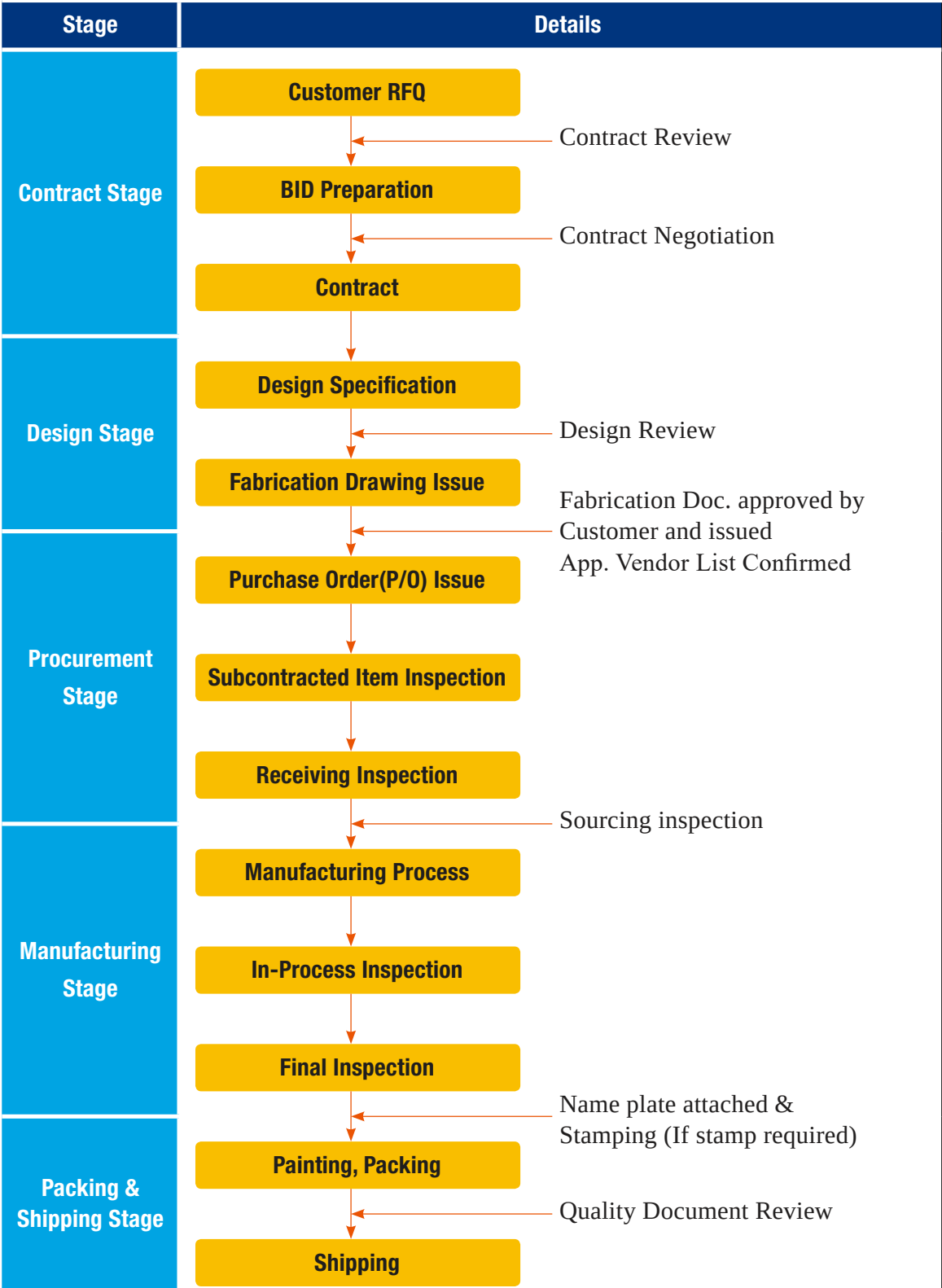
### 3) Certified NDE Personnel List

| No. | Name           | Method             | Level | Certificated by |
|-----|----------------|--------------------|-------|-----------------|
| 1   | Kim, Kye-You   | RT, UT, MT, PT     | III   | ASNT            |
| 2   | Lee, Jong-Woon | RT, UT, MT, PT, VT | III   | ASNT            |
| 3   | Lee, Sang-Yul  | RT, UT, MT, PT, VT | III   | ASNT            |
| 4   | Cho, Yong-Tae  | RT, UT, MT, PT, VT | III   | ASNT            |
| 5   | Ha, Kyung-Min  | RT, MT, PT         | II    | ASNT            |



10. STATUS OF QUALITY CERTIFICATION

4) Quality Plan of the Manufacturing Process



| Organization | Certificate Item | Expiry Date  | Number   |
|--------------|------------------|--------------|----------|
| SPEC         | ISO 9001         | 2024. 04. 24 | QMS-1404 |
| ASME         | U-STAMP          | 2024. 12. 10 | #39135   |
| ASME         | S-STAMP          | 2024. 12. 10 | #39134   |

| Korean Local Regulation                              |
|------------------------------------------------------|
| 1. KESCO – Korea Electrical Safety Corporation       |
| 2. KGS – Korea Gas Safety Corporation                |
| 3. KEMCO – Korea Energy Management Corporation       |
| 4. KOSHA – Korea Occupational Safety & Health Agency |
| 5. KIMM – Korea Institute of Machinery & Materials   |

| Other International Local Regulation                                                        |
|---------------------------------------------------------------------------------------------|
| 1. Japanese KHK, and 1st & 2nd Pressure Vessel Code                                         |
| 2. CE-Mark (PED) for European site                                                          |
| 3. TR-CU (GOST-R, etc.) for Russian, Kazakhstani, Belarusian, Kyrgyzstani and Armenian site |
| 4. IBR Cert. for Indian site                                                                |
| 5. Others (Singapore-MOL, Malaysian- DOSH, CRN for Canada, Algerian rule, etc)              |

| Class | Certificate Item                         |
|-------|------------------------------------------|
| A.B.S | Approval of Welding Procedure            |
| B.V   | Approval of Welding Procedure            |
| DNV   | Approval of Manufacturer (Class 1 & 2)   |
| L.R   | Fusion Welded Pressure Vessels (Class 1) |
| K.R   | Approval of Manufacturer (Class 1 & 2)   |
| NK    | Approval of Manufacturer (Class 1 & 2)   |
| RS    | Approval of Manufacturer (Class 1 & 2)   |



Certificate of Registration




## Quality Management System Certificate

Certificate No : QMS - 1404

Company Name : **DASCO CO., LTD.**  
33, Noksansandan 17-ro, 78beon-gil, Gangseo-gu, Busan, Korea

Scope of registration : Design, development and production of equipment for vessel & heat exchanger

Standard : KS Q ISO 9001:2015 / ISO 9001:2015

SPEC hereby certifies that the Quality Management System of the above organization has been assessed and found to meet the requirements of the standard and scope of registration detailed above.

Certificate From : 2021-04-25 Certificate Expiry : 2024-04-24  
(Registration on 2008-07-15)  
Reissue : Re-certificate  
Issue date : 2021-04-25

Signed for and on behalf of SPEC

  
 By authority of the Chief Executive

■ The Accreditation Mark indicates accreditation by KAB in respect of those activities covered by the accreditation certificate number KAB-QC-18  
 ■ SPEC is accredited by Member(KAB) of the International Accreditation Forum Multilateral Recognition Arrangement for Quality Management Systems

  
  
 KAB-QC-18

## CERTIFICATE OF AUTHORIZATION



The named company is authorized by The American Society of Mechanical Engineers (ASME) for the scope of activity shown below in accordance with the applicable rules of the ASME Boiler and Pressure Vessel Code. The use of the ASME Single Certification Mark and the authority granted by this Certificate of Authorization are subject to the provisions of the agreement set forth in the application. Any construction stamped with the ASME Single Certification Mark shall have been built strictly in accordance with the provisions of the ASME Boiler and Pressure Vessel Code.

COMPANY:  
**DASCO Co., Ltd.**  
33, Noksansandan 17-ro 78beon-gil  
Gangseo-gu, Busan 46751  
Republic of Korea

SCOPE:  
Manufacture of pressure vessels at the above location and field sites controlled by the above location (This authorization does not cover integrated graphics)

AUTHORIZED: December 10, 2021  
EXPIRES: December 10, 2024  
CERTIFICATE NUMBER: 39135

  
 Board Chair, Conformity Assessment

  
 Managing Director, Conformity Assessment

## CERTIFICATE OF AUTHORIZATION



The named company is authorized by The American Society of Mechanical Engineers (ASME) for the scope of activity shown below in accordance with the applicable rules of the ASME Boiler and Pressure Vessel Code. The use of the ASME Single Certification Mark and the authority granted by this Certificate of Authorization are subject to the provisions of the agreement set forth in the application. Any construction stamped with the ASME Single Certification Mark shall have been built strictly in accordance with the provisions of the ASME Boiler and Pressure Vessel Code.

COMPANY:  
**DASCO Co., Ltd.**  
33, Noksansandan 17-ro 78beon-gil  
Gangseo-gu, Busan 46751  
Republic of Korea

SCOPE:  
Manufacture and assembly of power boilers at the above location and field sites controlled by the above location

AUTHORIZED: December 10, 2021  
EXPIRES: December 10, 2024  
CERTIFICATE NUMBER: 39134

  
 Board Chair, Conformity Assessment

  
 Managing Director, Conformity Assessment

The American Society of Mechanical Engineers







# THE NATIONAL BOARD OF BOILER & PRESSURE VESSEL INSPECTORS

## Certificate of Authorization to Register



*This is to certify that*

**DASCO Co., Ltd.**  
33, Noksansandan 17-ro 78beon-gil  
Gangseo-gu, Busan 46751  
Republic of Korea

*is authorized to apply the "NB" mark and register boilers, pressure vessels or other pressure retaining items with the National Board.*

*The scope of Authorization is limited to items manufactured in accordance with:*

|                     |                  |
|---------------------|------------------|
| ASME Designator(s): | S, U             |
| Issue Date:         | December 3, 2015 |
| Revision Date:      | December 9, 2021 |

*This Certificate of Authorization to Register will remain in effect as long as the manufacturing organization holds a valid Certificate of Authorization issued by the American Society of Mechanical Engineers.*

Executive Director





Issue No : BCT14CB-4161-4888-0210-EB12D5541477

## CERTIFICATE OF APPROVAL

Registration No: WITHU20190208366  
Company Name: DASCO Co., Ltd.  
Factory Location: 296, Gimhae-daero 927beon-gil, Hallim  
-myeon, Gimhae-si, Gyeongsangnam -  
Period Of Validity: 2019-02-07 ~ 2022-02-07

This is to certify that the above-mentioned company has been registered as the repair & maintenance of company of KOEN, KOSPO, EWP, KOWEPO and KOMIPO for the listed items according to the standard for integrated management.

| Management Item  | Heat Exchanger&Condenser | Heat Exchanger | Shop Repair |
|------------------|--------------------------|----------------|-------------|
| Certificate Item |                          |                |             |
| Manufacture      | On Site Maintenance      |                |             |
| V                |                          |                |             |

2019.02.19



Issue No : B9186608-4D47-6094-950A-92137803879C

## CERTIFICATE OF APPROVAL

Registration No: WITHU20190208365  
Company Name: DASCO Co., Ltd.  
Factory Location: 296, Gimhae-daero 927beon-gil, Hallim  
-myeon, Gimhae-si, Gyeongsangnam -  
Period Of Validity: 2019-02-07 ~ 2022-02-07

This is to certify that the above-mentioned company has been registered as the repair & maintenance of company of KOEN, KOSPO, EWP, KOWEPO and KOMIPO for the listed items according to the standard for integrated management.

| Management Item  | Pressure Vessel     | Pressure Vessel | Shop Repair |
|------------------|---------------------|-----------------|-------------|
| Certificate Item |                     |                 |             |
| Manufacture      | On Site Maintenance |                 |             |
| V                |                     |                 |             |

2019.02.19



\* This document issued form website. You can verify this document from <http://withu.ewp.co.kr>



Lloyd's  
Register

Page 1 of 1  
Certificate No.: LR23456789A/ES  
Form Ref: 68052003  
Expiry Date: 31/09/2024

## Fusion Welded Pressure Vessels Class 1

### Manufacturer DASCO CO., LTD

#### Address

33 Midsummit Drive IT-117 Bloomington, IL 61704, Republic of  
India

#### Type

Fusion Welded Pressure Vessels, Class 1

#### Limits

Vessels designed by Heat Solution Corporation, Basingstoke, UK.

This approval is subject to compliance with the Lloyd's Register Rules for the Classification of Steel PIP. The full details of the processes, products and grades to which this approval applies are given on subsequent pages of this certificate.

This certificate is issued to the named manufacturer, and is valid until the expiry date specified. Lloyd's Register is to be notified of any change that may affect the validity of this certificate, and received the right to consider withdrawal from this certificate.

The Registrar Group, London EC4M 3DF, United Kingdom

#### Approved Signatory

Principal Officer for Lloyd's Register (Asia)  
A member of Lloyd's Register Group

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents, in whatever capacity they may be engaged, accept no liability for any loss, damage or expense caused by reliance on the information or advice in this document as if it relied upon. This disclaimer shall apply to all communications and documents issued in the context of this certification.

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|                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div style="text-align: center;"> <h1 style="margin: 0;">APPROVAL OF MANUFACTURER<br/>CERTIFICATE</h1> </div> <div style="text-align: right; margin-top: 20px;"> <h2 style="margin: 0;">DNV GL</h2> </div>                                                    | <div style="text-align: center;"> <p><b>Certificate No:</b><br/><b>4NF00000025</b></p> <p><b>Revision No:</b><br/><b>2</b></p> </div>                                                                                                                                                                                                                               |
| <p><b>This is to certify:</b><br/> <b>That the Manufacturer</b><br/> <b>DASCO Co., Ltd.</b><br/> <b>Busan, Republic of Korea</b></p>                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                     |
| <p><b>is authorized for the</b><br/> <b>Manufacture of Welded Pressure Vessels, Class 1 &amp; 2</b></p>                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                     |
| <p><b>The approval is granted on condition that</b><br/> <b>DNV GL class programme DNVGL-CP-0261 – Manufacture of pressure equipment</b><br/> <b>DNV GL class programme DNVGL-CP-0352 – Manufacture of welded products – Welding</b><br/> <b>workshop</b></p> |                                                                                                                                                                                                                                                                                                                                                                     |
| <p><b>are complied with in all respect</b></p>                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                     |
| <p><b>Welding of pressure equipment has been approved with the following particulars:</b><br/> <b>Welding supervisor : Young Sang, Seo</b><br/> <b>Duties welding supervisor : Young Sang, Seo</b></p>                                                        |                                                                                                                                                                                                                                                                                                                                                                     |
| <p><b>Manufacturer(s) approved by this certificate is/are accepted to deliver according to DNV GL, DNV and GL rules.</b></p>                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                     |
| <p><b>Signed at <b>Mavik</b> on <b>2021-02-17</b></b></p> <p><b>This Certificate is valid until <b>2023-12-31</b>.</b></p> <p><b>DNV GL local station: <b>Gimhae</b></b></p> <p><b>Approval of Engineer: <b>Jane Laganave</b></b></p>                         | <div style="text-align: center;">  <p><b>For DNV GL</b><br/> <i>Equally signed by: Zaidub Shauifi</i><br/> <b>Engineer (DNV GL South, Norway)</b></p> </div> <div style="text-align: center; margin-top: 20px;"> <p><b>Zaidub Shauifi</b><br/> <b>Head of Section</b></p> </div> |

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**EAC**

**CERTIFICATE OF REGISTRATION**

No TC RU.C-KK.MN10.03.0126

Сери RC № 0147881

ОРГАН ПО СЕРТИФИКАЦИИ продукции в у-еу "Башкирский центр сертификации и тестирования" ООО "АУТИРУШН" улицы 56-летия Октября, дом 24, офис 309, город Уфа, Республика Башкортостан, Россия, 450005. Телефон +7(347) 246-07-17; адрес электронной почты autirushn@autirushn.ru. Аттестат аккредитации № KA.RU.10MHI10 выдан 24.06.2015 Федеральным службой по аккредитации.

**ЗАЯВИТЕЛЬ:** Общество с ограниченной ответственностью "ТЕХНОХИМ".  
ОГРН: 1094280010259. Место нахождения и фактический адрес: Улицы Столыпина Заводо, дом 31,  
второй 2, город Уфа, Республика Башкортостан, Российская Федерация, 450022. Телефон: +7(987) 719  
5835, адрес электронной почты techhim@yandex.ru.

**ПОДПИСАТЕЛЬ:** DABSCO CO., LTD. Место нахождения и фактический адрес: #2, Сайбас-даво  
9/10km gl. Hailin-purou, Glinhe-n, Суонгфрангапхонг, Республика Корея.

**ПРОДУКТЫ:** Аппараты теплообменного теплообработки, охлаждающие преобразователи (DUTER  
COOLERS) в комплекте (JACKET COOLER), рабочие жидкости жидкокристального пространства от 0,06 до 9,0  
MPa, рабочее давление рабочего пространства от 0,66 до 9,0 MPa, вместимость жидкокристального  
пространства от 0,015 м³ до 16 м³, вместимость рабочего пространства от 0,015 м³ до 16 м³.  
Продукция изготавливается в соответствии с ASME VIII раздел 1, редакции 2015 года. Продукция  
проектирована согласно надписям: Корейский выпуск.

KOA TH BSA TC 8619 30 000 0

**СОПОТВЕТСТВУЮТ ТРЕБОВАНИЯМ:** TP TC 010/2011 "О безопасности машин и оборудования".

**CERTIFICATE ВЫДАНА ОСНОВАННИ:** Наименование №1812/17 от 16.10.2017 Издательством  
технической инспекции (наименование Общества с ограниченной ответственностью "Технохим"  
технической инспекции, деятельности, компетенции), аттестованной № KA.RU.121F C01,  
дата о результатах анализа состояния производства № 015/17 от 28.08.2017, инспекция на основе результатов  
подписания, обоснования безопасности TSPR02A/CB, уровня безопасности № UP-TSPR02A-CB-STP,  
инспекция на соответствие требованиям к техническому обеспечению, одобренного журнала №9-10/P028-LC-GA.  
Схема сертификации вид 1с.

**МОДУЛЬНЫЕ ИДЕНТИФИКАЦИОННЫЕ:** Означает, в результате проверки которого обеспечивается  
соблюдение требований нормативных документов (ГОСТ Р 54269-2017 "Судья и инспекторский сертификат  
Общая технология услуг": Услуга хранения, срок хранения (в) персонализации и срок службы в  
соответствии с требованиями документарной идентификации).

**СПРАВЕЖИВЪЕ С:** 30.10.2017 ПО 30.10.2022 КОМУЧЕТАНО

Э.П. Виноградова  
И.В. Шаломова

## APPROVAL CERTIFICATE FOR MANUFACTURING PROCESS

Certificate No.

(CWN)24029 (GPOH)

Initial Approval : (08th September, 2015)

Product

Manufacture of Wadded Class 3 & II Pressure Vessels

Manufacturer

(DASCO Co., Ltd.

92, Gumbong-dong 910 (Boseong-ri), Gimhae-si, Gyeongsangnam-do, 50851, Korea

Product Description: Manufacture of Wadded Class 3 & II Pressure Vessels (Heat Exchanger)

Approval Conditions: 1. Approvals for Manufacture of Pressure Vessels, Building Procedures

2. Specifications and Repair Qualifications are to be maintained

3. Material Building examination shall be approved by this Society

4. Individual Product Certification is required.

### THIS IS TO CERTIFY

that the manufacturing process for the above mentioned product has been approved in accordance with the relevant requirement of this Society's Rules and / or of the recognized standards as follows and entered in the "List of Approved Manufacturer and Type-Approved Equipment".

In 5, Ch 5, Sec 4 of the Rules for Classification of Steel Ships.

This Certificate is valid until 08th September, 2023  
Issued at Busan, Korea on 10th September, 2018

KOREAN REGISTER OF SHIPPING

*Seung-han Kim*

General Manager of

Marine & Ocean Engineering Team

Notes: 1. This certificate is valid only for manufacturing with the general conditions specified on the certificate on the basis of the Rules.  
2. The certificate is not valid when the certificate holder is not in compliance with the conditions specified in the certificate.  
3. The certificate is not valid when the certificate holder is not in compliance with the conditions specified in the certificate.  
4. The certificate is not valid when the certificate holder is not in compliance with the conditions specified in the certificate.

Form KR-1A (2517.08)

[illegible][illegible]



## 11. TEST & MEASURING EQUIPMENTS

### 1) I.M.T.E Control List

| No. | Equipment                              | Specification                    | Q'ty |
|-----|----------------------------------------|----------------------------------|------|
| 1   | Dial Pressure Gauge                    | 0.1 ~ 100MPa                     | 1    |
| 2   | Ultrasonic Th'k Gauge                  | 2 ~ 200mm (2ea), 2 ~ 225mm (1ea) | 3    |
| 3   | Marking Machine                        | E-MARK                           | 1    |
| 4   | Pressure Recorder                      | 0 ~ 10MPa                        | 5    |
| 5   | Borescope                              | -                                | 3    |
| 6   | Vibration Analyzer                     | -                                | 1    |
| 7   | Black Light Inspection                 | UV-LED/3P-BS                     | 1    |
| 8   | Helium Leak Detector                   | ASM340                           | 1    |
| 9   | Coating thickness tester               | -                                | 3    |
| 10  | Electromagnetic Liquid Flowmeter       | -                                | 1    |
| 11  | TORQUE WRENCH                          | 10N-m, 25N-m                     | 2    |
| 12  | 3-point micrometers (digital type)     | 6~50mm(0.001mm)                  | 12   |
| 13  | Positive Material Identification (PMI) | -                                | 1    |



### 2) Welding Machine List

| No. | Equipment              | Model               | Manufacture      | Type | Q'ty |
|-----|------------------------|---------------------|------------------|------|------|
| 1   | DC Ammeter             | EP-500T             | EAGLE            | GTAW | 1    |
| 2   | DC Ammeter             | DUTY - 500D / 502AD | PRO - TECH       | GTAW | 26   |
| 3   | DC Ammeter / Voltmeter | 500SC               | SUNJIN WELD      | FCAW | 2    |
| 4   | DC Ammeter / Voltmeter | COD-600A            | DWEL TECH        | FCAW | 12   |
| 5   | DC Ammeter / Voltmeter | YD-500RF2           | PANASONIC        | FCAW | 2    |
| 6   | DC Ammeter / Voltmeter | PROPAC 600          | HYOSUNG          | FCAW | 1    |
| 7   | DC Ammeter             | MICRO-352XD         | PRO-TECH         | GTAW | 2    |
| 8   | DC Ammeter             | 500LT               | WORLDWEL         | GTAW | 1    |
| 9   | DC Ammeter             | IDEALARC DC-1000    | LINCOLN ELECTRIC | SAW  | 1    |

## 12. DESIGN LICENSE LIST





### 13. EXPERIENCE LIST

| JOB No. | CUSTOMER                          | CONTRACTOR                        | PROJECT Name / ITEM Name                                                         |  | CLASS        | ITEM | Q'TY | DESIGN TEMP. | DELIVERY |
|---------|-----------------------------------|-----------------------------------|----------------------------------------------------------------------------------|--|--------------|------|------|--------------|----------|
| 2017-1  | DSME                              | HANWHA POWER SYSTEMS              | DSME MOL EXPANDER(H.2462) / AFTER COOLER                                         |  | BV           | 1    | 1    | 200 °C       | 2017. 05 |
| 2017-2  | DSME                              | KOBE STEEL                        | "E.ON-MOL 180,000m3 LNG CARRIER(H.NO.2462) / DISCHARGE COOLER & DAMPER"          |  | BV&IGC       | 11   | 12   | 180 °C       | 2017. 06 |
| 2017-3  | H.H.I                             | KOBE STEEL                        | "HHI PARDUS M50 COMPRESSOR (H.NO.2945) / DISCHARGE COOLER & DAMPER"              |  | BV&IGC       | 9    | 9    | 180 °C       | 2018. 02 |
| 2017-4  | DSME                              | HANWHA POWER SYSTEMS              | DSME MOL EXPANDER(H.2462) / OIL COOLER                                           |  | BV           | 1    | 1    | 100 °C       | 2017. 06 |
| 2017-5  | "CORAL FLNG / MOZAMBIQUE / S.H.I" | HANWHA POWER SYSTEMS              | "CORAL SOUTH DEVELOPMENT / INTERAFTER&OIL COOLER"                                |  | LR&IGC       | 4    | 12   | 195 °C       | 2018. 11 |
| 2017-6  | S.H.I                             | ATLAS COPCO                       | KOGASHI(NO.2235/2234) / PRE-HEATER                                               |  | KR           | 1    | 4    | -165 °C      | 2018. 09 |
| 2017-7  | "CORAL FLNG / MOZAMBIQUE / S.H.I" | HANWHA POWER SYSTEMS              | "CORAL SOUTH DEVELOPMENT / LNG CARGO TANK WARM-UP HEATER"                        |  | LR&IGC       | 1    | 4    | -170 °C      | 2019. 06 |
| 2018-1  | DSME                              | ATLAS COPCO                       | "MARAN 173,400 CBM FSRUH(NO. 2477/2487) / AFTER COOLER"                          |  | DNV-GL       | 3    | 6    | 200 °C       | 2019. 01 |
| 2019-1  | S.H.I                             | ATLAS COPCO                       | LNG SHIP(SN297/2298) / OIL COOLER                                                |  | LR           | 2    | 4    | 110 °C       | 2019. 06 |
| 2019-2  | DSME                              | KOBE STEEL                        | "E.ON-MOL 180,000m3 LNG CARRIER(H.NO.2498/2499) / DISCHARGE COOLER & DAMPER"     |  | BV&IGC       | 11   | 24   | 180 °C       | 2019. 11 |
| 2019-3  | S.H.I                             | ATLAS COPCO                       | LNG SHIP(SN2313/2314) / OIL COOLER                                               |  | LR           | 2    | 2    | 110 °C       | 2019. 12 |
| 2019-4  | S.H.I                             | ATLAS COPCO                       | LNG SHIP / OIL COOLER                                                            |  | ABS          | 1    | 1    | 140 °C       | 2020. 02 |
| 2019-5  | S.H.I                             | ATLAS COPCO                       | LNG SHIP(SN2310) / OIL COOLER                                                    |  | DNV-GL       | 1    | 2    | 110 °C       | 2020. 02 |
| 2019-6  | DSME                              | KOBE STEEL                        | "LNG SHIP PROJECT (H.NO.2495/2504) / DISCHARGE COOLER & DAMPER"                  |  | ABS&IGC      | 11   | 24   | 180 °C       | 2020. 05 |
| 2019-7  | DSME                              | KOBE STEEL                        | "LNG SHIP PROJECT (H.NO.2505) / DISCHARGE COOLER & DAMPER"                       |  | BV&IGC       | 11   | 12   | 180 °C       | 2020. 05 |
| 2019-8  | DSME                              | KOBE STEEL                        | "LNG SHIP PROJECT (H.NO.2502/2503) / DISCHARGE COOLER & DAMPER"                  |  | DNV-GL&IGC   | 11   | 24   | 180 °C       | 2020. 05 |
| 2019-9  | DSME                              | KOBE STEEL                        | "LNG SHIP PROJECT (H.NO.2507) / DISCHARGE COOLER & DAMPER"                       |  | LR&IGC       | 11   | 12   | 180 °C       | 2020. 07 |
| 2019-10 | DSME                              | KANGRIM HEAVY INDUSTRIES CO., LTD | DRYER (H.NO.2357/2358) / IGG GAS COOLER                                          |  | LR           | 1    | 2    | 50 °C        | 2020. 11 |
| 2020-1  | H.H.I                             | KANGRIM HEAVY INDUSTRIES CO., LTD | DRYER (H.NO.3185-3188) / IGG GAS COOLER                                          |  | LR&DNV-GL&KR | 1    | 4    | 50 °C        | 2020. 11 |
| 2020-2  | H.H.I                             | KANGRIM HEAVY INDUSTRIES CO., LTD | DRYER (H.NO.8091-8094) / IGG STEAM GAS HEATER                                    |  | LR&DNV-GL&KR | 1    | 4    | 50 °C        | 2020. 11 |
| 2020-3  | DSME                              | HANWHA POWER SYSTEMS              | MOL 361,600 m3 LNG BARGE, N2 COMPANDER (H.NO.2512/2513) / INTER&AFTER&OIL COOLER |  | BV&RS&IGC    | 4    | 24   | 150 °C       | 2021. 04 |
| 2020-4  | DSME                              | HANWHA POWER SYSTEMS              | MOL 361,600 m3 LNG BARGE, BOG COMP.(H.NO.2512/2513) / INTER&AFTER&OIL COOLER     |  | BV&RS&IGC    | 4    | 24   | 150 °C       | 2021. 04 |
| 2020-5  | DSME                              | HANWHA POWER SYSTEMS              | MOL 361,600 m3 LNG BARGE, FG COMP.(H.NO.2512/2513) / AFTER&OIL COOLER            |  | BV&RS&IGC    | 2    | 8    | 150 °C       | 2021. 04 |
| 2020-6  | DSME                              | SAMWOO HEAVY IND.                 | "MOL 361,600 m3 LNG BARGE, (H.NO.2512/2513) / BOG PRE HEATER"                    |  | BV&RS&IGC    | 1    | 6    | -196 °C      | 2021. 03 |
| 2020-7  | DSME                              | SAMWOO HEAVY IND.                 | "MOL 361,600 m3 LNG BARGE, (H.NO.2512/2513) / WASTE GAS HEATER"                  |  | BV&RS&IGC    | 1    | 6    | -196 °C      | 2021. 03 |
| 2020-8  | DSME                              | SAMWOO HEAVY IND.                 | "DSME NRS PILOT PLANT / NG HEATER"                                               |  | KR           | 1    | 1    | -196 °C      | 2021. 04 |
| 2020-9  | DSME                              | SAMWOO HEAVY IND.                 | "DSME NRS PILOT PLANT / N2 INVENTORY TANK"                                       |  | KR           | 1    | 1    | 70 °C        | 2021. 04 |
| 2020-10 | DSME                              | SAMWOO HEAVY IND.                 | "DSME NRS PILOT PLANT / LIQUID/GAS SEPARATOR"                                    |  | KR           | 1    | 1    | -196 °C      | 2021. 04 |
| 2020-11 | DSME                              | SAMWOO HEAVY IND.                 | "DSME NRS PILOT PLANT / LIQUID/GAS SEPARATOR"                                    |  | KR           | 1    | 1    | -196 °C      | 2021. 04 |
| 2020-12 | HMD                               | KANGRIM HEAVY INDUSTRIES CO., LTD | "IGG / HMD(LPQ) PROJECT (H.NO. 8305-8308) / GAS COOLER"                          |  | LR           | 1    | 4    | 50 °C        | 2021. 05 |
| 2020-13 | S.H.I                             | ATLAS COPCO                       | LNG SHIP(SN2336/2337) / OIL COOLER                                               |  | ABS          | 1    | 4    | 110 °C       | 2020. 08 |
| 2020-14 | S.H.I                             | ATLAS COPCO                       | LNG SHIP(SN2319) / OIL COOLER                                                    |  | BV           | 1    | 2    | 110 °C       | 2021. 02 |
| 2020-15 | S.H.I                             | ATLAS COPCO                       | LNG SHIP(SN2315/2316) / OIL COOLER                                               |  | BV           | 2    | 4    | 110 °C       | 2020. 11 |
| 2020-16 | S.H.I                             | ATLAS COPCO                       | LNG SHIP(SN2364/2365) / OIL COOLER                                               |  | ABS          | 2    | 4    | 110 °C       | 2021. 03 |
| 2021-1  | H.H.I                             | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HHI 3186 PROJECT / GAS COOLER, STEAM HEATER                                |  | DNV-GL       | 2    | 1    | 50 °C        | 2021. 06 |
| 2021-2  | H.S.H.I                           | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HSHI 8094 PROJECT / GAS COOLER, STEAM HEATER                               |  | LR           | 2    | 1    | 50 °C        | 2021. 09 |
| 2021-3  | H.M.D                             | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HMD8307 PROJECT / GAS COOLER                                               |  | LR           | 1    | 1    | 50 °C        | 2021. 09 |
| 2021-4  | H.H.I                             | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HHI 3187 PROJECT / GAS COOLER, STEAM HEATER                                |  | DNV-GL       | 2    | 1    | 50 °C        | 2021. 08 |
| 2021-5  | H.M.D                             | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HMD 8308 PROJECT / GAS COOLER                                              |  | LR           | 1    | 1    | 50 °C        | 2021. 09 |
| 2021-6  | H.H.I                             | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HHI 3188 PROJECT / GAS COOLER, STEAM HEATER                                |  | DNV-GL       | 2    | 1    | 50 °C        | 2021. 09 |
| 2021-7  | H.S.H.I                           | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HSHI 8095 PROJECT / GAS COOLER, STEAM HEATER                               |  | LR           | 2    | 1    | 50 °C        | 2021. 09 |
| 2021-8  | H.H.I                             | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HHI 8096 PROJECT / GAS COOLER, STEAM HEATER                                |  | LR           | 2    | 1    | 50 °C        | 2021. 10 |
| 2021-9  | S.H.I                             | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / SHI (SN2425) PROJECT / GAS COOLER                                          |  | BV           | 1    | 1    | 50 °C        | 2022. 02 |

Experience List (for LNG & LPG SHIP)

| JOB No. | CUSTOMER | CONTRACTOR                        | PROJECT Name / ITEM Name                             |  | CLASS    | ITEM | Q'TY | DESIGN TEMP. | DELIVERY |
|---------|----------|-----------------------------------|------------------------------------------------------|--|----------|------|------|--------------|----------|
| 2021-10 | S.H.I    | KANGRIM HEAVY INDUSTRIES CO., LTD | SN2425 16,500 Nm3/h LNG D-IGG / STEAM HEATER         |  | BV       | 2    | 1    | 50 °C        | 2022. 02 |
| 2021-11 | H.H.I    | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HHI 3243 PROJECT / GAS COOLER, STEAM HEATER    |  | LR       | 2    | 1    | 50 °C        | 2021. 10 |
| 2021-12 | H.M.D    | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HMD 8328 PROJECT / GAS COOLER                  |  | LR       | 1    | 1    | 50 °C        | 2021. 10 |
| 2021-13 | DSME     | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / DSME 2360 PROJECT / GAS COOLER                 |  | LR       | 1    | 1    | 50 °C        | 2021. 11 |
| 2021-14 | DSME     | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / DSME 2361 PROJECT / GAS COOLER                 |  | LR       | 1    | 1    | 50 °C        | 2021. 11 |
| 2021-15 | H.S.H.I  | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HSHI 8113 PROJECT / GAS COOLER                 |  | LR       | 1    | 1    | 50 °C        | 2021. 12 |
| 2021-16 | H.S.H.I  | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HSHI 8114 PROJECT / GAS COOLER                 |  | LR       | 1    | 1    | 50 °C        | 2021. 12 |
| 2021-17 | H.H.I    | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HHI 3244 PROJECT / GAS COOLER, STEAM HEATER    |  | LR       | 2    | 1    | 50 °C        | 2021. 12 |
| 2021-18 | H.H.I    | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HHI 3276 PROJECT / GAS COOLER                  |  | ABS      | 1    | 1    | 50 °C        | 2021. 12 |
| 2021-19 | H.S.H.I  | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HSHI 8105 PROJECT / GAS COOLER, STEAM HEATER   |  | DNV-GL   | 2    | 1    | 50 °C        | 2022. 01 |
| 2021-20 | H.H.I    | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HHI 3189 PROJECT / GAS COOLER, STEAM HEATER    |  | DNV-GL   | 2    | 1    | 50 °C        | 2022. 01 |
| 2021-21 | H.M.D    | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HMD 8346 PROJECT / GAS COOLER                  |  | LR       | 1    | 1    | 50 °C        | 2022. 02 |
| 2021-22 | H.S.H.I  | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HSHI 8115 PROJECT / GAS COOLER                 |  | LR       | 1    | 1    | 50 °C        | 2022. 03 |
| 2021-23 | H.H.I    | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HHI 3190 PROJECT / GAS COOLER, STEAM HEATER    |  | DNV-GL   | 2    | 1    | 50 °C        | 2022. 03 |
| 2021-24 | H.M.D    | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HMD 8347 PROJECT / GAS COOLER                  |  | LR       | 1    | 1    | 50 °C        | 2022. 02 |
| 2021-25 | H.S.H.I  | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HSHI 8117 PROJECT / GAS COOLER                 |  | LR / KR  | 1    | 1    | 50 °C        | 2022. 03 |
| 2021-26 | H.S.H.I  | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HSHI 8118 PROJECT / GAS COOLER                 |  | LR / KR  | 1    | 1    | 50 °C        | 2022. 04 |
| 2021-27 | H.H.I    | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HHI 3191 PROJECT / GAS COOLER, STEAM HEATER    |  | LR / KR  | 2    | 1    | 50 °C        | 2022. 05 |
| 2021-28 | H.M.D    | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HMD 8356 PROJECT / GAS COOLER                  |  | ABS      | 1    | 1    | 50 °C        | 2022. 05 |
| 2021-29 | H.M.D    | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HMD 8329 PROJECT / GAS COOLER                  |  | LR       | 1    | 1    | 50 °C        | 2022. 05 |
| 2021-30 | H.H.I    | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HHI 3277 PROJECT / GAS COOLER                  |  | ABS      | 1    | 1    | 50 °C        | 2022. 07 |
| 2021-31 | H.H.I    | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HHI 3198 PROJECT / GAS COOLER, STEAM HEATER    |  | LR / KR  | 2    | 1    | 50 °C        | 2022. 07 |
| 2021-32 | H.M.D    | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HMD 8357 PROJECT / GAS COOLER                  |  | ABS      | 1    | 1    | 50 °C        | 2022. 07 |
| 2021-33 | H.M.D    | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HMD 8366 PROJECT / GAS COOLER                  |  | ABS      | 1    | 1    | 50 °C        | 2022. 07 |
| 2021-34 | H.M.D    | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HMD 8330 PROJECT / GAS COOLER                  |  | LR       | 1    | 1    | 50 °C        | 2022. 08 |
| 2021-35 | H.M.D    | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HMD 8359 PROJECT / GAS COOLER                  |  | LR       | 1    | 1    | 50 °C        | 2022. 09 |
| 2021-36 |          | KANGRIM HEAVY INDUSTRIES CO., LTD | EGCS PROJECT(SHIP NO. CSBC 1182) / PLATE TYPE COOLER |  | BV       | 1    | 1    | 50 °C        | 2022. 03 |
| 2021-37 | H.S.H.I  | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HSHI 8148 PROJECT / GAS COOLER, STEAM HEATER   |  | LR       | 2    | 1    | 50 °C        | 2022. 04 |
| 2021-38 | H.S.H.I  | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HSHI 8149 PROJECT / GAS COOLER, STEAM HEATER   |  | LR       | 2    | 1    | 50 °C        | 2022. 08 |
| 2021-39 | H.H.I    | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HHI 3303 PROJECT / GAS COOLER                  |  | ABS      | 1    | 1    | 50 °C        | 2022. 04 |
| 2021-40 | H.S.H.I  | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HSHI 8138 PROJECT / GAS COOLER                 |  | LR / KR  | 1    | 1    | 50 °C        | 2022. 06 |
| 2021-41 | H.H.I    | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HHI 3278 PROJECT / GAS COOLER                  |  | ABS      | 1    | 1    | 50 °C        | 2022. 09 |
| 2021-42 | H.H.I    | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HHI 3304 PROJECT / GAS COOLER                  |  | ABS      | 1    | 1    | 50 °C        | 2022. 09 |
| 2021-43 | H.S.H.I  | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HSHI 8149 PROJECT / GAS COOLER, STEAM HEATER   |  | LR       | 2    | 1    | 50 °C        | 2022. 09 |
| 2021-44 | H.M.D    | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HMD 8331 PROJECT / GAS COOLER                  |  | LR       | 1    | 1    | 50 °C        | 2022. 09 |
| 2021-45 | DSME     | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / DSME 2362 PROJECT / GAS COOLER                 |  | LR       | 1    | 1    | 50 °C        | 2022. 08 |
| 2021-46 | DSME     | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / DSME 2365 PROJECT / GAS COOLER                 |  | ABS / KR | 1    | 1    | 50 °C        | 2022. 07 |
| 2021-47 | S.H.I    | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / SHI 2580 PROJECT / GAS COOLER, STEAM HEATER    |  | DNV-GL   | 2    | 1    | 50 °C        | 2022. 07 |
| 2021-48 | H.S.H.I  | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / HSHI 8101 PROJECT / GAS COOLER, STEAM HEATER   |  | LR       | 2    | 1    | 50 °C        | 2022. 08 |
| 2021-49 | S.H.I    | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / SHI 2581 PROJECT / GAS COOLER, STEAM HEATER    |  | DNV-GL   | 2    | 1    | 50 °C        | 2022. 08 |
| 2021-50 | S.H.I    | KANGRIM HEAVY INDUSTRIES CO., LTD | IGG / SHI 2582 PROJECT / GAS COOLER, STEAM HEATER    |  | DNV-GL   | 2    | 1    | 50 °C        | 2022. 08 |
| 2021-51 | H.H.I    | SAMWOO HEAVY INDUSTRY             | H2502/7 A-PRS / SEPARATOR                            |  | NK       | 2    | 1    | -196 °C      | 2022. 07 |
| 2021-52 | H.H.I    | KOBE STEEL                        | "MOL H2505,2520 / DAMPER, SEPARATOR, CHARCOL FILTER" |  | NK       | 12   | 2    | 180 °C       | 2022. 07 |



## Experience List (for RUSSIAN TR-CU)

[illegible]

## Experience List (API 661 AIR FAN COOLED HEAT EXCHANGER)

[illegible]



### Experience List (for Gland Steam Condenser & Ejector Condenser & Ejector)

[illegible]

### Experience List (for Hydrogen Cooler & Helium Gas Cooler)

| JOB No | END USER                    | CONTRACTOR                     | PROJECT Name / ITEM Name                   | DELIVERY     | Unit | Quantity | DELIVERY    |
|--------|-----------------------------|--------------------------------|--------------------------------------------|--------------|------|----------|-------------|
| 2002   | GENERAL ELECTRIC COMPANY    | DOOSAN HEAVY INDUSTRIES / KPHE | GE SOURCING / 324 H2 COOLER                | U.S.A        | 3    | 12 SETS  | 2002        |
| 2003-1 | GENERAL ELECTRIC COMPANY    | DOOSAN HEAVY INDUSTRIES / KPHE | GE SOURCING / 324 H2 COOLER                | U.S.A        | 9    | 36 SETS  | 2003        |
| 2003-2 | KOREA SOUTHERN POWER        | DOOSAN HEAVY INDUSTRIES / KPHE | YONGDOONG / H2 COOLER                      | KOREA        | 1    | 1 SET    | 2003        |
| 2004-1 | KOREA HYDRO & NUCLEAR POWER | DOOSAN HEAVY INDUSTRIES / KPHE | YANGWANG / H2 COOLER                       | KOREA        | 1    | 27 SETS  | 2004        |
| 2004-2 | KOREA HYDRO & NUCLEAR POWER | DOOSAN HEAVY INDUSTRIES / KPHE | YANGWANG / H2 COOLER                       | KOREA        | 1    | 24 SETS  | 2005        |
| 2007-1 | KOREA HYDRO & NUCLEAR POWER | DOOSAN HEAVY INDUSTRIES / KPHE | YEONGGWANG / H2 COOLER                     | KOREA        | 1    | 8 SETS   | 2007        |
| 2007-2 | KOREA EAST-WEST POWER       | DOOSAN HEAVY INDUSTRIES / KPHE | ULSAN / H2 COOLER                          | KOREA        | 1    | 12 SETS  | 2007        |
| 2008-1 | GENERAL ELECTRIC COMPANY    | DOOSAN HEAVY INDUSTRIES / KPHE | GE SOURCING / 7FH2 COOLER                  | U.S.A        | 13   | 52 SETS  | 2008        |
| 2008-2 | GENERAL ELECTRIC COMPANY    | DOOSAN HEAVY INDUSTRIES / KPHE | GE SOURCING / 324 H2 COOLER                | U.S.A        | 7    | 28 SETS  | 2008        |
| 2009-1 | GENERAL ELECTRIC COMPANY    | DOOSAN HEAVY INDUSTRIES / KPHE | GE SOURCING / 7FH2 COOLER                  | U.S.A        | 4    | 16 SETS  | 2009        |
| 2009-2 | GENERAL ELECTRIC COMPANY    | DOOSAN HEAVY INDUSTRIES / KPHE | GE SOURCING / 324 H2 COOLER                | U.S.A        | 4    | 16 SETS  | 2009        |
| 2009-3 | KOREA SOUTHERN POWER        | DOOSAN HEAVY INDUSTRIES        | YEONGWOL (300 MM) / STG-H2 COOLER          | KOREA        | 1    | 4 SETS   | 2009        |
| 2009-4 | KOREA SOUTHERN POWER        | DOOSAN HEAVY INDUSTRIES        | YEONGWOL (300 MM) / GTG H2 COOLER          | KOREA        | 1    | 12 SETS  | 2009        |
| 2010-1 | GENERAL ELECTRIC COMPANY    | DOOSAN HEAVY INDUSTRIES / KPHE | GE SOURCING / 7FH2 COOLER                  | U.S.A        | 8    | 32 SETS  | 2010        |
| 2010-2 | GENERAL ELECTRIC COMPANY    | DOOSAN HEAVY INDUSTRIES / KPHE | GE SOURCING / 324 H2 COOLER                | U.S.A        | 2    | 8 SETS   | 2010        |
| 2010-3 | GENERAL ELECTRIC COMPANY    | DOOSAN HEAVY INDUSTRIES / KPHE | GE SOURCING / 7FH2 COOLER                  | U.S.A        | 3    | 12 SETS  | 2010        |
| 2010-4 | GENERAL ELECTRIC COMPANY    | DOOSAN HEAVY INDUSTRIES / KPHE | GE SOURCING / 324 COOLER                   | U.S.A        | 1    | 4 SETS   | 2010        |
| 2010-5 | KOREA WESTERN POWER         | DOOSAN HEAVY INDUSTRIES        | PYEONGTAEK #3, #4 (582 MM) / H2 COOLER     | KOREA        | 2    | 8 SETS   | 2010        |
| 2010-6 | KOREA SOUTH-EAST POWER      | DOOSAN HEAVY INDUSTRIES        | SAMCHONPO #1, #2, #4 (324 MM) / H2 COOLER  | KOREA        | 3    | 12 SETS  | 2010        |
| 2010-7 | GMR ENERGY                  | DOOSAN HEAVY INDUSTRIES        | RAIPUR #1, #2 (1370 MM) / H2 COOLER        | INDIA        | 2    | 8 SETS   | 2011        |
| 2011-1 | GENERAL ELECTRIC COMPANY    | DOOSAN HEAVY INDUSTRIES        | GE SOURCING / 324 H2 COOLER (ASME U-STAMP) | U.S.A        | 8    | 32 SETS  | 2011        |
| 2011-2 | KOREA WESTERN POWER         | DOOSAN HEAVY INDUSTRIES        | PYEONGTAEK #1 (582 MM) / H2 COOLER         | KOREA        | 1    | 4 SETS   | 2011        |
| 2012-1 | AES-VCIM                    | DOOSAN HEAVY INDUSTRIES        | IMONG DOJUNG-2 (1120 MM) / H2 COOLER       | VIETNAM      | 2    | 8 SETS   | 2012        |
| 2012-2 | MARAFIQ                     | DOOSAN HEAVY INDUSTRIES        | YANBU-2 / H2 COOLER (ASME U-STAMP)         | SAUDI ARABIA | 3    | 12 SETS  | 2012        |
| 2012-3 | POCHEON POWER               | DOOSAN HEAVY INDUSTRIES        | POCHEON (1560 MM) / H2 COOLER              | KOREA        | 2    | 8 SETS   | 2012        |
| 2012-4 | H.I.L.C                     | DOOSAN HEAVY INDUSTRIES        | YANGJU (550 MM) / H2 COOLER                | KOREA        | 3    | 12 SETS  | 2012        |
| 2012-5 | KOREA MIDLAND POWER         | DOOSAN HEAVY INDUSTRIES        | SEJONG (530 MM) / H2 COOLER                | KOREA        | 3    | 12 SETS  | 2012        |
| 2012-6 | KOREA MIDLAND POWER         | TURBOCORE                      | BORYEONG #4 (500 MM) / H2 COOLER           | KOREA        | 1    | 4 SETS   | 2013        |
| 2013-1 | EWN                         | DOOSAN HEAVY INDUSTRIES        | IMONG DOJUNG-1 (1120 MM) / H2 COOLER       | VIETNAM      | 2    | 8 SETS   | 2013        |
| 2013-2 | HANAM ENERGY SERVICE        | DOOSAN HEAVY INDUSTRIES        | HANAM CHP (469 MM) / H2 COOLER             | KOREA        | 1    | 4 SETS   | 2013        |
| 2013-3 | GENERAL ELECTRIC COMPANY    | DOOSAN HEAVY INDUSTRIES        | 7FH2B / H2 COOLER (ASME U-STAMP)           | U.S.A        | 1    | 4 SETS   | 2013        |
| 2013-4 | KOREA SOUTH-EAST POWER      | DOOSAN HEAVY INDUSTRIES        | SAMCHONPO #3 (324 MM) / H2 COOLER          | KOREA        | 1    | 4 SETS   | 2013        |
| 2013-5 | GENERAL ELECTRIC COMPANY    | DOOSAN HEAVY INDUSTRIES        | GE SOURCING / 324 H2 COOLER (ASME U-STAMP) | U.S.A        | 2    | 8 SETS   | 2013        |
| 2014-1 | KOREA MIDLAND POWER         | KEPCO                          | BORYEONG #3 (500 MM) / H2 COOLER           | KOREA        | 1    | 4 SETS   | 2014        |
| 2014-2 | KOREA MIDLAND POWER         | DOOSAN HEAVY INDUSTRIES        | SEOUL GTG #1 & #2 (400 MM) / H2 COOLER     | KOREA        | 2    | 8 SETS   | 2016        |
| 2014-3 | GENERAL ELECTRIC COMPANY    | DOOSAN HEAVY INDUSTRIES        | 7FH2B / H2 COOLER (ASME U-STAMP)           | U.S.A        | 8    | 32 SETS  | 2014 & 2015 |
| 2014-4 | GENERAL ELECTRIC COMPANY    | DOOSAN HEAVY INDUSTRIES        | 7FH2B / H2 COOLER (MEXICAN REGULATION)     | U.S.A        | 1    | 4 SETS   | 2014        |
| 2014-5 | KOREA WESTERN POWER         | DONGHWA ENTEC                  | TAEAN #1 & #2 (500 MM) / H2 COOLER         | KOREA        | 1    | 4 SETS   | 2014 & 2015 |
| 2014-6 | AES-VCIM                    | DOOSAN HEAVY INDUSTRIES        | IMONG DOJUNG-2 (1120 MM) / H2 COOLER       | VIETNAM      | 1    | 4 SETS   | 2014        |
| 2015-1 | GENERAL ELECTRIC COMPANY    | DOOSAN HEAVY INDUSTRIES        | 7FH2B / H2 COOLER (ASME U-STAMP)           | U.S.A        | 2    | 8 SETS   | 2015        |



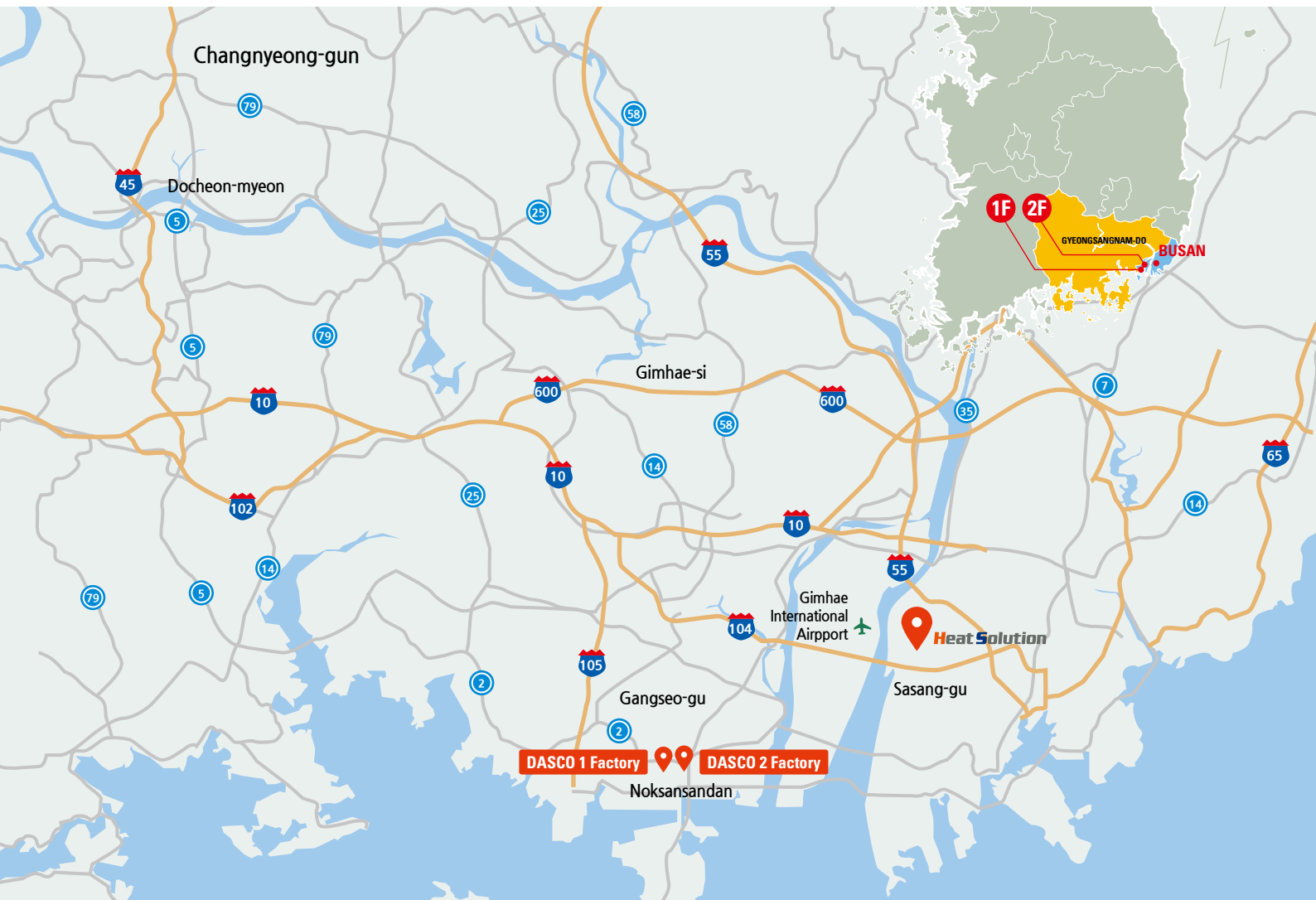
### Experience List (for Hydrogen Cooler & Helium Gas Cooler)

| Job No  | End User                             | Contractor                       | Project Name / Item Name                           | Delivery     | Unit | Quantity | Delivery    |
|---------|--------------------------------------|----------------------------------|----------------------------------------------------|--------------|------|----------|-------------|
| 2015-2  | GENERAL ELECTRIC COMPANY             | DOOSAN HEAVY INDUSTRIES          | 7F2B / H2 COOLER (ASME U-STAMP)                    | U.S.A        | 4    | 16 SETS  | 2015        |
| 2015-3  | KOREA DISTRICT HEATING CORP.         | DOOSAN HEAVY INDUSTRIES          | HWSUNG DONGTAN2 #1 & #2 (800 MM) / H2 COOLER       | KOREA        | 2    | 8 SETS   | 2016        |
| 2015-4  | SAFT ENERGY COMPANY                  | mitsubishi hitachi power systems | SAFT INDEPENDENT POWER (1 320 MM) / H2 COOLER      | MOROCCO      | 2    | 8 SETS   | 2016        |
| 2016-1  | EMPLAME                              | DOOSAN HEAVY INDUSTRIES          | EMPALME #1,2 (770 MM) / H2 COOLER                  | MEXICO       | 2    | 8 SETS   | 2016        |
| 2016-2  | PVN (PETRO VIETNAM)                  | DOOSAN HEAVY INDUSTRIES          | SONGHAIU1 (1200 MM) / H2 COOLER                    | VIETNAM      | 2    | 8 SETS   | 2017        |
| 2016-3  | GANGREUNG ECO POWER                  | DOOSAN HEAVY INDUSTRIES          | GANGREUNG #1, 2 (1100 MM) / H2 COOLER              | KOREA        | 2    | 8 SETS   | 2018        |
| 2016-4  | SK E&C                               | DOOSAN HEAVY INDUSTRIES          | GOSUNG 1,2 (1 000 MM) / H2 COOLER                  | KOREA        | 2    | 8 SETS   | 2018        |
| 2016-5  | KOREA MIDLAND POWER                  | DOOSAN HEAVY INDUSTRIES          | SHIN SECHUN (1000 MM) / H2 COOLER                  | KOREA        | 1    | 4 SETS   | 2018        |
| 2016-6  | PUBLIC POWER CORPORATION S.A         | mitsubishi hitachi power systems | XGPT- 5 IN GRECE (660 MM) / H2 COOLER              | GREECE       | 1    | 2 SETS   | 2017        |
| 2016-7  | KOBE STEEL , LTD.                    | FUJI ELECTRIC                    | MOKA POWER PLANT #1 / H2 COOLER                    | JAPAN        | 1    | 2 SETS   | 2017        |
| 2016-8  | SAN BUENAVENTURA POWER LTD.          | mitsubishi hitachi power systems | XSRP (500 MM) SUPERCRITICAL PULVERIZED / H2 COOLER | PHILIPPINE   | 1    | 4 SETS   | 2017        |
| 2016-9  | KOREA SOUTH-EAST POWER               | DOOSAN HEAVY INDUSTRIES          | SAMCHOHPD #5,6 (324 MM) / H2 COOLER                | KOREA        | 2    | 8 SETS   | 2017 & 2018 |
| 2016-10 | KOREA SOUTHERN POWER                 | DOOSAN HEAVY INDUSTRIES          | HADONG #1-6 (300 MM) / H2 COOLER                   | KOREA        | 5    | 20 SETS  | 2017 & 2018 |
| 2017-1  | KOBE STEEL , LTD.                    | FUJI ELECTRIC                    | MOKA POWER PLANT #2 / H2 COOLER                    | JAPAN        | 1    | 2 SETS   | 2017        |
| 2017-2  | PUBLIC POWER CORPORATION S.A         | mitsubishi hitachi power systems | XGPT-5, EXTRA (660 MM) / H2 COOLER                 | GREECE       | 1    | 1 SET    | 2017        |
| 2017-3  | FADHILI                              | DOOSAN HEAVY INDUSTRIES          | FADHILI (1500 MM) / H2 COOLER                      | SAUDI ARABIA | 2    | 4 SETS   | 2017        |
| 2017-4  | ASSIUT                               | DOOSAN HEAVY INDUSTRIES          | ASSIUT (650 MM) / H2 COOLER                        | EGYPT        | 1    | 4 SETS   | 2018        |
| 2017-5  | CAIRO WEST                           | DOOSAN HEAVY INDUSTRIES          | CAIRO WEST (650 MM) / H2 COOLER                    | EGYPT        | 1    | 4 SETS   | 2018        |
| 2018-1  | KOREA SOUTHERN POWER                 | YEONGWOL POWER PLANT             | YEONGWOL COMBINED CYCLE POWER / H2 COOLER          | KOREA        | 1    | 1 SET    | 2018        |
| 2018-2  | MARCUS HOOK ENERGY CENTER            | TOSHIBA                          | MARCUS HOOK / H2 COOLER                            | U.S.A        | 1    | 4 SETS   | 2018        |
| 2018-3  | GEO THERMAL POWER STATION            | FUJI ELECTRIC                    | F-PROJECT / H2 COOLER                              | KENYA        | 1    | 4 SETS   | 2019        |
| 2018-4  | OLKARIA I GEOTHERMAL POWER STATION   | DASHO-FUJI                       | OLKARIA U6 / AIR COOLER                            | KENYA        | 1    | 4 SETS   | 2019        |
| 2018-5  | SHARJAH LAYYAH POWER STATION         | mitsubishi hitachi power systems | XULS- GTG- 1,2/STG / H2 COOLER                     | U.A.E        | 1    | 6 SETS   | 2019        |
| 2018-6  | MONTGOMERY POWER PLANT               | TOSHIBA                          | MONTGOMERY / H2 COOLER                             | U.S.A        | 1    | 4 SETS   | 2019        |
| 2019-1  | KOREA SOUTH-EAST POWER               | DOOSAN HEAVY INDUSTRIES          | YEONGHEUNG #2 / H2 COOLER                          | KOREA        | 1    | 4 SETS   | 2019        |
| 2019-2  | CIREBON POWER PLANT                  | TOSHIBA                          | CIREBON / H2 COOLER                                | INDONESIA    | 1    | 4 SETS   | 2019        |
| 2019-3  | NGH SON II THERMAL POWER PLANT       | mitsubishi hitachi power systems | XVMS-1,2/ H2 COOLER                                | U.A.E        | 1    | 8 SETS   | 2019        |
| 2019-4  | TCLA GODO KAISHA                     | mitsubishi hitachi power systems | TKE3 TOKUYAMA TTP/ H2 COOLER                       | JAPAN        | 1    | 4 SETS   | 2020        |
| 2019-5  | JERA CO. , INC.                      | mitsubishi hitachi power systems | JERA TAKETOYO-5 TTP/ H2 COOLER                     | JAPAN        | 1    | 4 SETS   | 2020        |
| 2019-6  | JACKSON GENERATION                   | mitsubishi hitachi power systems | XJAX-1, 2 / H2 COOLER                              | U.S.A        | 1    | 8 SETS   | 2020        |
| 2020-1  | POWER SOUTH ENERGY COOPERATIVE       | mitsubishi hitachi power systems | XPSL- STG / H2 COOLER                              | U.S.A        | 1    | 2 SETS   | 2020        |
| 2020-2  | POWER SOUTH ENERGY COOPERATIVE       | mitsubishi hitachi power systems | XPSL- GTG / H2 COOLER                              | U.S.A        | 1    | 2 SETS   | 2020        |
| 2020-3  | MARIM AZUL                           | mitsubishi hitachi power systems | XMAZ / H2 COOLER                                   | BRAZIL       | 1    | 2 SETS   | 2020        |
| 2020-4  | AIR LIQUIDE                          | AIR LIQUIDE(FRANCE)              | TBF- 350 / HELIUM GAS COOLER                       | FRANCE       | 1    | 2 UNIT   | 2020        |
| 2020-5  | TERMOCANDELARIA POWER                | mitsubishi hitachi power systems | XTCN / H2 COOLER                                   | COLUMBIA     | 1    | 2 SETS   | 2020        |
| 2020-6  | RELANCE POWER                        | TOSHIBA                          | XVXP-1,2 / H2 COOLER                               | BANGLADESH   | 1    | 8 SETS   | 2021        |
| 2020-7  | KOREA HYDRO & NUCLEAR POWER          | DOOSAN HEAVY INDUSTRIES          | HANUL #3,#4 / H2 COOLER                            | KOREA        | 2    | 2 SETS   | 2021        |
| 2020-8  | EMIRATES WATER & ELECTRICITY COMPANY | mitsubishi power                 | FUJAIRAH F3 IPP / H2 COOLER                        | UAE          | 3    | 2 SETS   | 2021        |
| 2020-9  | SALUD POWER STATION                  | mitsubishi power                 | JAPAN SALUD POWER STATION / H2 COOLER              | JAPAN        | 1    | 4 SETS   | 2021        |
| 2021-1  | DOMINION ENERGY                      | mitsubishi power systems, LTD.   | USA DOMINION ENERGY/WATERREE- 2 / H2 COOLER        | U.S.A        | 1    | 4 SETS   | 2021        |
| 2021-2  | ALABAMA POWER                        | mitsubishi power, LTD            | XUB/ ALABAMA POWER BARRY8 / H2 COOLER              | U.S.A        | 1    | 2 SETS   | 2021        |
| 2021-3  | TAIWAN THE REPUBLIC OF CHINA         | mitsubishi power, LTD            | TAIWAN DATAN UNIT (XTD-7) / H2 COOLER              | TAIWAN       | 1    | 4 SETS   | 2021        |
| 2021-4  | ALABAMA POWER                        | mitsubishi power, LTD            | XUB/ ALABAMA POWER BARRY8 / H2 COOLER              | U.S.A        | 1    | 2 SETS   | 2021        |

### Experience List (for Hydrogen Cooler & Helium Gas Cooler)

[illegible]





DYNAMIC & SPECIAL COMPANY

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