With Heat We do Solution



Together 2570

DASCO

COMPANY PROFILE 2024

DYNAMIC & SPECIAL COMPANY

DASCO

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Beyond the Simple
Customer's Satisfaction

DYNAMIC & SPECIAL COMPANY

DASCO

GREETING 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.

CHAIRMAN **Lee, Geun young**

Our mission is to be a company with core technologies that contribute to the development of our customers, businesses, local community and the nation. We promise to develop into a strong company that contributes to the development of local communities and the nation through continuous technology development and self-directed management.

PRESIDENT **Lee, Sang kyu**



Date of establishment : Jul. 2020
Land area : 11,600 m²
Factory Building area : 7,700 m²

DASCO NOKSAN FACTORY

OUTLINE OF NOKSAN FACTORY (HEAD OFFICE)

1. NAME : **DASCO Co., Ltd**
2. BOARD OF DIRECTOR / CHAIRMAN : **Lee, Geun young**
3. FOUNDED : **OCT, 1995**
4. CORRESPONDENT BANKS : **KOOKMIN BANK, KOREA**
5. NUMBER OF EMPLOYEES : **114 PERSONS**
   (Financial & Managing : **11** / Sales : **5** / Design : **8** / Q.A : **10** / Production : **61** / Procurement : **10** / **R&D : 9**)
6. CAPITAL : ₩ **363,270,000 (US$ 330,000)** / SALES AMOUNT OF YEAR 2023 : US$ 40,000,000
7. ADDRESS : 33, Noksansandan 17-ro 78beon-gil, Gangseo-gu, Busan, Korea
   T. 82.51.324.9984 E-mail : hs@heatsolution.co.kr



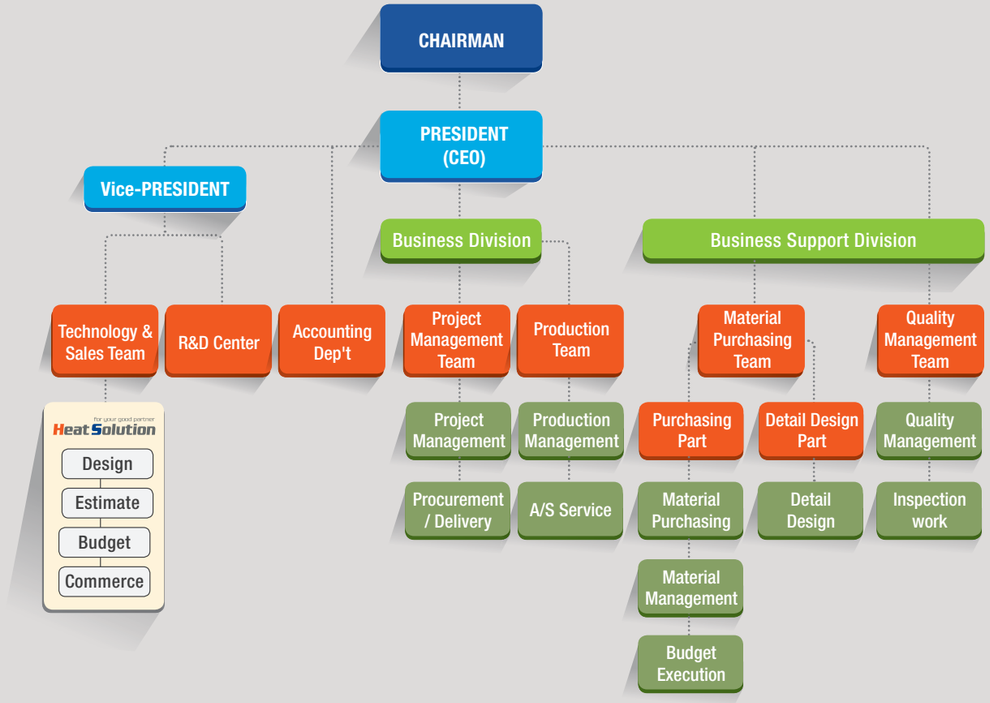
Date of establishment : Nov. 2023
Land area : 8,460 m²
Factory Building area : 4,974 m²

DASCO MIEUM FACTORY

OUTLINE OF MIEUM FACTORY

ADDRESS : 33, Mieumsandan 1-ro 15beon-gil, Gangseo-gu, Busan, Korea
T. 82.51.324.9984 E-mail : hs@heatsolution.co.kr

2. ORGANIZATION CHART

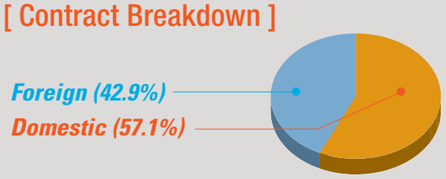


3. TURN-OVER (YEARLY SALES)

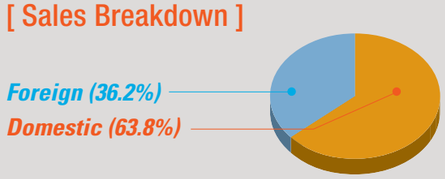
(1,000 WON/USD)

2019	*USD 20,300,000*
2020	*USD 21,000,000*
2021	*USD 25,000,000*
2022	*USD 35,000,000*
2023	*USD 40,000,000*
2024 : TARGET	***USD 45,000,000***

[Contract Breakdown]



[Sales Breakdown]



4. HISTORY OF DASCO

1995	**10.** Established DASCO in 1995, Busan, Korea
2000	**05.** Changed the company into a corporation, DASCO Co., Ltd.
2003	**11.** Certified of ISO 9001:2000(NQA)
2005	**11.** Obtained the certification of anti-explosive electric heater (KIMM)
2006	**08.** Obtained CE certification (in electric heater part (SGS)
2007	**02.** Registered vendor in Hanwha Power Systems (Previously Samsung Techwin)
2008	**10.** Obtained the classification society certification of ABS, BV, KR
	12. Shop approved by DNV-GL ship classification
2009	**02.** Obtained INNO-BIZ certification
	03. Registered vendor in Doosan Heavy Industries
	11. Obtained the certification of ASME, S and U Stamp
2010	**06.** Registered as business partner of GE (General Electric)
	07. Registered manufacture of specific equipment in Korea Gas Safety Corporation
2013	**04.** Registered vendor of DSEC (Marine field)
2014	**11.** Registered vendor of DSME
	12. Registered vendor of STX, SungDong, Doosan Engine (Marine field)
2015	**04.** Invested capital to plant engineering professional company, Heat Solution
	05. Registered vendor of Air Liquide (Japan), Hyundai Heavy Industries
	10. Registered vendor of IHI, MHPS, Atlas Copco (America, France, Korea)
	12. Registered vendor of Kobe Steel
2016	**02.** Obtained the certification of 5 Major Korea Electric Power Co.
	09. Registered vendor of Fuji Electric, POSCO
2017	**10.** Obtained the certification of TR-CU as approved factory
2019	**07.** Selected as a prospective medium & small enterprise
	12. Awarded export tower for USD 3 million dollars
2020	**07.** Renewal H.Q. to Noksan National ind. Complex in Busan, Korea
2022	**11.** Selected as a leading regional innovation company
	12. Awarded export tower for USD 5 million dollars
2023	**04.** Selected as one of the 1000+ Global small giant companies
	11. Renewal 2nd factory to Mieum District General Industrial Complex in Busan, Korea
	12. Certified of ISO 45001
	12. Awarded export tower for USD 10 million dollars

5. MAIN CUSTOMER

FOR PLANT

FOR ASU

- AIR LIQUIDE
- AIR PRODUCTS
- DIG AIRGAS
- LINDE
- PRAXAIR
- TAIYO NIPPON SANSO

FOR ROTATING MACHINERY

COMPRESSOR

- ATLAS COPCO : [AMERICA], [GERMANY], [FRANCE], [KOREA]
- HANWHA POWER SYSTEMS
- HITACHI
- HOWDEN
- HYUNDAI HEAVY INDUSTRIES TURBOMACHINERY
- IHI ROTATING MACHINERY
- SA ENGINEERING
- KOBE STEEL
- SK materials airplus
- MAN

TURBINE & GENERATOR

- DOOSAN ENERBILITY
- 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

- WOOD SIDE ENERGYS
- HANWHA OCEAN
- DAEWOO SHIPBUILDING ENGINEERING COMPANY (DSEC)
- HD HYUNDAI HEAVY INDUSTRIES
- SAMSUNG HEAVY INDUSTRIES

FOR PACKAGE

- HI AIR KOREA
- KANGRIM HEAVY INDUSTRIES
- HANWHA OCEAN ECOTECH
- SUNBO INDUSTRIES

FOR ENGINE

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



6. MAIN PRODUCTS

FOR PLANT

COMPRESSOR – INTER /AFTER/OIL COOLER

1) INTER, AFTER, RECYCLE COOLER
   - PLATE & HIGH FIN TYPE (BY TEMA TYPE)
2) AIR FAN COOLED TYPE (BY API 661)
3) GAS PIPING & SPOOL
4) K.O DRUM
5) PRESSURE VESSEL

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) PRESSURE VESSEL & TANK
3) H2 & He HEAT EXCHANGER

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) STEAM GAS HEATER
3) ELECTRIC GAS HEATER

FOR MARINE

1) SHELL & TUBE HEAT EXCHANGER
2) SOUND ATTENUATOR
3) VESSEL & STRUCTURE & AIR SEPARATOR
4) SILENCER

FOR INNOVATION

1) R&D CENTER
   - Development and Demonstration of Core Technology for Commercial Liquid Hydrogen Plant
   - Development of hair-pin type vaporizer for pump package localization of eco-friendly LNG-fuelled ships
   - Commercialization of heat exchangers for hydrogen stations and onshore plants through the development of air fan type heat exchangers to improve compressor efficiency

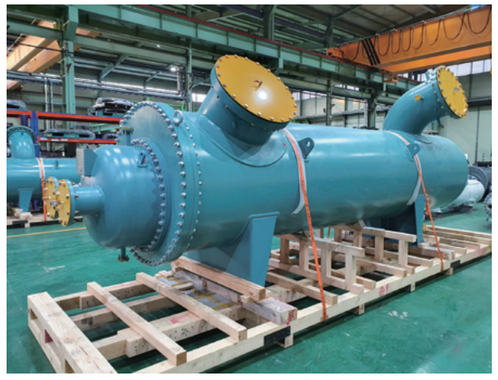
INTER/AFTER COOLER FOR COMPRESSOR (PLATE FIN TYPE HEAT EXCHANGER)

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

- **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

- **Applicable Code**
  - ASME(U-STMP with NB Cer't)
  - TEMA R.C.B.
  - KOREA KGS, KOSHA, KEA, 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, UKCA (U.K) & etc.)



AIR FAN COOLER 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, KEA, 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, UKCA (U.K) & etc.)

- **Material Combination**
  - Tube : Cu-Ni (9:1, 7:3), Cu, SUS 304, 316, Duplex.
  - Fin : AL, CU, SUS, C.S






H2 / AIR COOLER FOR GENERATOR FOR PLANT

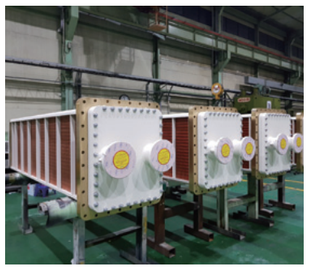
Hydrogen Cooler is a heat exchanger that cools with tube side cooling water. A large-sized power generator uses hydrogen which specific heat is big as a cooling media.
The high temperature hydrogen by cooling power generator flows to fin side and it is used for cooling. It consist of plate fin, tube 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, KEA, 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, UKCA (U.K) & 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








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)
  - SHIP CLASS : ABS, BV, DNV, KR, LR, NK, RS
  - TEMA R.C.B.
  - KOREA KGS, KOSHA, KEA, 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, UKCA (U.K) & etc.)

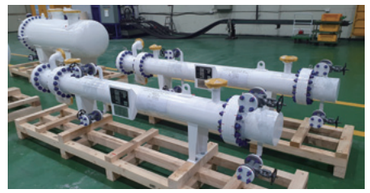
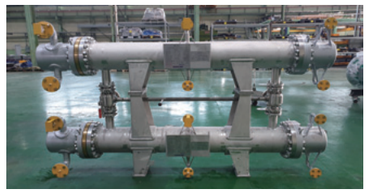
O2 COOLER WITH O2 CLEANING ROOM




RECYCLE GAS COOLER AND AFTER COOLER




LUBE OIL COOLER

GLAND STEAM CONDENSER





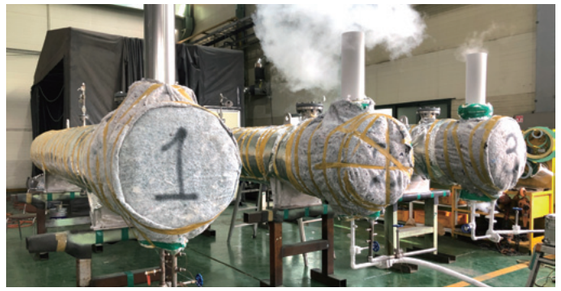
TRUCK BOIL-OFF HEATER




LNG & LPG FOR MARINE

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

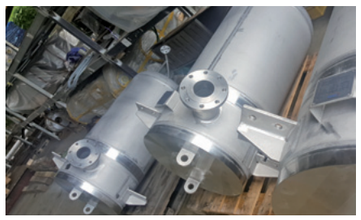

N2 COMPANDER FOR FSRU


NG HEATER


WARM-UP HEATER


GAS COOLER & GAS HEATER FOR IGG(LNG&LPG)


N2 INVENTORY TANK


NG PRE HEATER


LNG SEPARATOR






LNG VAPORIZOR DEMONSTRATION FACILITY TEST

PRESSURE VESSEL & TANK

- **Applicable Code**
  - ASME(U-STMP with NB Cer't)
  - TEMA R.C.B.
  - SHIP CLASS ABS, BV, DNV, 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, UKCA (U.K) & etc.)















7. PRODUCTION CAPACITY & HANDLING MATERIALS

1) PRODUCTION CAPACITY FOR NOKSAN FACTORY(HEAD OFFICE)
- · MAX. WEIGHT : 100 TON
- · MAX. SIZE (L x W x H) : 20 x 8 x 7 (m)

2) PRODUCTION CAPACITY FOR MIEUM FACTORY
- · MAX. WEIGHT : 100 TON
- · MAX. SIZE (L x W x H) : 20 x 8 x 7 (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
- · DUPLEX & SUPER DUPLEX STAINLESS STEEL

8. MAIN FACILITY

NO.	Equipment	Specification	Q'ty
1	OVERHEAD CRANE	1TON (1ea), 2TON(3ea), 3TON(1ea), 5TON(9ea), 10TON(7ea), 20TON(2ea), 30TON(2ea), 5/20TON(1ea)	26
2	TIG WELDING MACHINE	500A	43
3	CO2 WELDING MACHINE	600A	29
4	PLATE FIN PRESS MACHINE	60TON(1EA), 80TON(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	35kg/cm²(1ea), 70kg/cm²(1ea), 450kg/cm²(1ea)	9
9	OIL FLUSHING EQUIPMENT	3,000L	1
10	HYDRAULIC TORQUE WRENCH	450 ~ 4510 N/m	3
11	R.T ROOM	13L x 5W x 5H (m)	1
12	COMPRESSOR	75HP	1
13	GAS BOOSTER	420kg/cm²(1ea), 1000kg/cm²(1ea)	2
14	LIQUID STORAGE TANK	L-N2(3.33MPa, 2ea), L-Ar(1.03MPa, 1ea)	3
15	TUBE EXPANDING MACHINE	-	8
16	PLATE FIN & TUBE MULTI-EXPANDER	2.5m x 280Hole (2ea), Ø12 x 930L (1ea)	3
17	TUBE SINGLE EXPANDER	Ø10 x 20mm	5
18	DRILLING MACHINE	Ø19 (2ea), Ø23 (1ea), Ø32 (1ea)	4
19	VACUUM PUMP (FOR HE LEAK TEST)	1.5kw	1
20	GAOUGING	1500A	2
21	PLASMA CUT	150A (1ea), 120A (2ea)	3
22	TUBE BENDING	Ø15.88 COPPER TUBE BENDING	1
23	SAW WELDING MACHINE	1000A, 600A (In/Outside SAW Welding Machine for AFC)	2
24	RADIAL DRILLING MACHINE	2HP x 960L	1
25	BUNDLE INSERT MACHINE	220/380V 1.5kw	2
26	BUNDLE ASSEMBLY JIG	W1800 x L6000	4
27	CLEANING ROOM for O2 COOLER		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




SAW Welding Machine


RT Room


Oil Flushing Equipment


Press Machine


Transportation Equipment

9. QUALITY MANAGEMENT

1) Organization of Quality Management Team



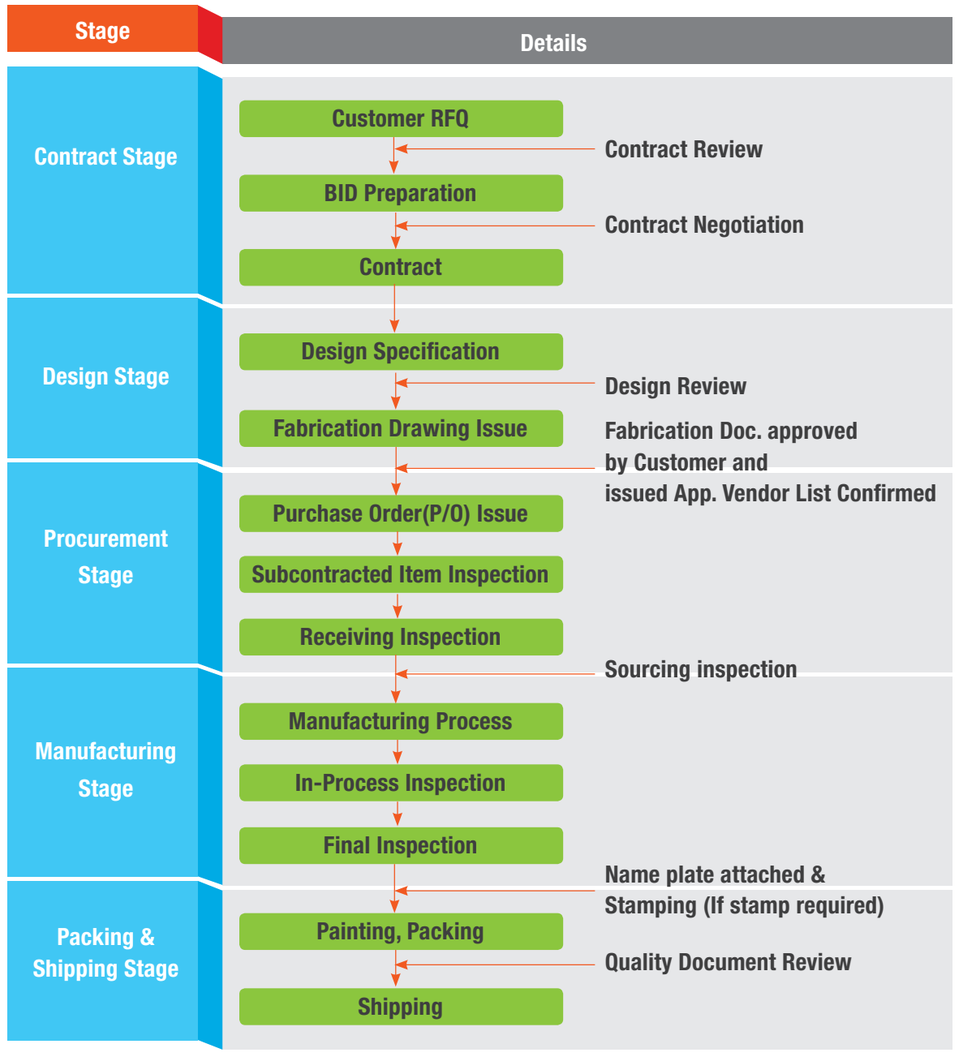
2) For Welder List

Welder I.D No.	Welder Name	Welding Process		
		GTAW	FCAW	SAW
DW01	S.G LEE	○	○	X
DW03	J.S WOO	○	○	X
DW06	J.H LEE	○	○	X
DW22	J.G KIM	○	○	X
DW27, DW28	M.G KANG, S.E KWON	○	○	X
DW30~33	J.G KANG, Etc	○	○	X
DW34	J.S KIM	○	○	○
DW37~44	G.H PACK	○	○	X
DW48	H.Y LEE	○	○	X
DW50	H.C KIM	○	○	X
DW51	K.J OH	○	X	X
DW61~69	H.J LEE, Etc	○	○	X
DW70	J.C LEE	○	X	X
DW71	SH LEE	X	○	X
DW72	M.S CHOI	○	X	X
DW73~75	P.S HWANG, Etc	○	○	X
Total Welders	**37 Persons**	**36**	**34**	**1**

3) Certified NDE Personnel List

No	Name	Method	Level	Certificated by
1	M.J Park	RT, UT, MT, PT, LT	Ⅲ	ASNT
2	K.C Kang	MT	Ⅲ	ASNT
		MT	Ⅱ (EN ISO9712)	TUV NORD
3	D.W Kim	RT	Ⅱ (EN ISO9712)	TUV NORD
4	K.S Park	MT, PT, UT	Ⅱ (EN ISO9712)	TUV NORD
5	C.S Shin	RT	Ⅱ (EN ISO9712)	TUV NORD
6	S.H Yang	UT	Ⅱ (EN ISO9712)	TUV NORD
7	S.H Park	PT, MT	Ⅱ (EN ISO9712)	TUV NORD
8	K.W Dan	RT, UT, MT, PT	Ⅱ	ASNT

4) Quality Plan of the Manufacturing Process



10. R&D CENTER



DASCO R&D Center is dedicated to continuous self-innovation and R&D.
We will do our best to be reborn as a global heat exchanger company.

Since DASCO Center was recognized as a company-affiliated R&D Center by the Korea Industrial Technology Association in 2008, it has been striving to improve heat exchanger-related manufacturing technology and product quality, as well as develop products in various fields for shipbuilding, offshore and onshore plants and enhancing technological process.
In order to survive in the fierce technological competition in the world, our research institute is striving to develop heat exchangers and packages using eco-friendly fuels to meet the eco-frindly technologies and carbon-neutral lifestyles demanded by modern industrial society.
We are confident that our researchers will contribute to creating a pleasant environment through the development of eco-friendly products. DASCO R&D Center will strive to create global brand value and become a global heat exchanger company through continuous self-innovation and R&D.



11. STATUS OF QUALITY CERTIFICATION

Organization	Certificate Item	Expiry Date	Number
KGC	ISO 9001	2024. 04. 24	022-80082-Q
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. KEA- Korea Energy Agency
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. UKCA for UK site
4. TR-CU (GOST-R, etc.) for Russian, Kazakhstani, Belarusian, Kyrgyzstani and Armenian site
5. IBR Cert. for Indian site
6. Others (Singapore-MOL, Malaysian- DOSH, CRN for Canada, Algerian rule)

Class	Certificate Item
A.B.S.	Manufacturer Approval (Boiler and Group I and II Pressure Vessel Manufacturer Approval)
B.V.	Welding Procedure Approval
D.N.V.	Manufacturer Approval (Manufacture of Welded Pressure Vessels Class I & II)
L.R.	Manufacturer Approval (Fusion Welded Pressure Vessels Class I)
K.R.	Manufacturing Process Approval (Manufacture of Welded Class I & II Pressure Vessels (Heat Exchangers))
N.K.	Manufacturer Approval Manufacture of Welded Pressure Vessels Class I & II

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

Korea Global Certification Institute
Korea Global Certification Institute
Korea Global Certification Institute
Korea Global Certification Institute

KOREA GLOBAL CERTIFICATION INSTITUTE

Certificate of Approval

No. 022-80082-Q

DASCO CO., LTD.

33, Noksansandan 17-ro 78beon-gil, Gangseo-gu, Busan, Korea

Korea Global Certification Institute hereby certifies that the Management System of the above organization has been assessed and found to meet the requirements of the standard and scope of certification detailed below:

KS Q ISO 9001:2015 / ISO 9001:2015
Quality Management System

Scope of Certification:

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

Dongbae Park

Dong Bae Park
CEO
Approval: Korea Global Certification Institute Co., Ltd.

Initial issue date	Jul. 15. 2008
Date of issue	Apr. 04. 2022
Expire date	Apr. 24. 2024

KAB-QC-72

- KGC Co., Ltd. has been accredited by Korea Accreditation Board (KAB) as an ISO 9001:2015 Certification body. (Accreditation Number : KAB-QC-72)
- This certificate is only valid by completion of surveillance audit which is conducted at least once a year.
- If you cannot maintain the certification, this certificate shall be returned to KGC Co., Ltd.

KGC Co., Ltd. (16079) Rm.1006, 1-dong, 25, Obongsandan 3-ro, Uiwang-si, Gyeonggi-do, Korea http://www.kgcert.com

The American Society of Mechanical Engineers

S

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

U

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 impregnated graphite)

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

Board Chair, Conformity Assessment

Managing Director, Conformity Assessment

BUREAU VERITAS

MARINE & OFFSHORE DIVISION
DIRECTION MARINE & OFFSOHRE

Approval Cert. No. PSN/WP/20/056/R0

APPROVAL OF WELDING PROCEDURE

Issued within the scope of the latest Bureau Veritas Marine & Offshore Division, General Conditions

Name of company : DASCO CO., LTD.
Address : 33, Noksansandan 17-ro 78beon-gil, Gangseo-gu, Busan, Korea
Requirements : Bureau Veritas Rules - Materials and Welding, NR216 DT R11 E, Ch.5, Sec.4 & IGC code

This is to certify that under mentioned welding procedure specification(s) with supporting procedure qualification record(s) have been reviewed and found complying with the requirements mentioned above.

1. MANUAL GAS TUNGSTEN ARC WELDING (GTAW/141) with SHIELDING GAS (Argon)
1.1 WPS No. : **GT-1.1-001-BV (Rev.0)** dated on 21 October 2020
1.2 PQR No. : **QGT-1.1-001-BV**

2. MANUAL GAS TUNGSTEN ARC WELDING (GTAW/141) with SHIELDING GAS (Argon)
1.1 WPS No. : **GT-8.8-001-BV (Rev.0) dated on 21 October 2020**
1.2 PQR No. : **QGT-8.8-001-BV**

3. MANUAL GAS TUNGSTEN ARC WELDING (GTAW/141) with SHIELDING GAS (Argon) & SEMI-AUTOMATIC FLUX CORED ARC WELDING (FCAW/136) with ACTIVE GAS SHIELD (CO_2)
3.1 WPS No. : **GTFC-1.1-001-BV (Rev.0)** dated on 21 October 2020
3.2 PQR No. : **QGTFC-1.1-001-BV**

4. MANUAL GAS TUNGSTEN ARC WELDING (GTAW/141) with SHIELDING GAS (Argon) & SEMI-AUTOMATIC FLUX CORED ARC WELDING (FCAW/136) with ACTIVE GAS SHIELD (CO2)
4.1 WPS No. : **GTFC-8.8-001-BV (Rev.0) dated on 21 October 2020**
4.2 PQR No. : **QGTFC-8.8-001-BV**

Remark : The welding procedure(s) is/are to be used within the range of the parameters indicted on the WPS mentioned above ; changes outside the range specified of one or more of these Parameters require a new qualification test.

This latest published Rules of the Bureau Veritas Marine & Offshore Division and the General Conditions therein are applicable.
La dernière édition des Règlements de la Direction Marine & Offshore du Bureau Veritas ainsi que les Conditions Générales qui y figurent sont applicables.

Toute personne qui n'est pas partie au contrat aux termes duquel ce document est délivré ne pourra engager la responsabilité du Bureau Veritas pour les inexactitudes ou omissions qui pourraient y être relevées ainsi que pour les erreurs de jugement, fautes ou négligences connues par le personnel de la Société ou par ses agents dans l'établissement de ce document et dans l'exécution des interventions qu'il comporte.

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ABS

MISCELLANEOUS SURVEY REPORT

SURVEY OF: WELDING PROCEDURE APPROVAL

Report No.: BK1000340-A	Date: 24 July 2008	Port: Busan, Korea
Vessel's Name: -		Class No./VID/CID: -
Manufacturer: DASCO Co., Ltd.		Mfg.No.: -
Purchaser/Builder/S.Y.: -		PO No./Hull No.: -
Location: Kimhae, Korea		Rating (WP/HP/KW): -
Serial Number: -	Weight: -	Test Pressure: -
Material Test Report No. or Mill Sheets Verified: -		Service Use: -
Drawing No. and Date Approved or for Multiple Drawing, Plan Approval Office: ABS Busan Task No. : 340826	13 May 2008/ABS Busan Eng'g Office	ABS Markings N/A

THIS IS TO CERTIFY that the undersigned Surveyor to this Bureau attended for the above survey and reports as follows:
The following welding procedure approval tests were carried out in accordance with approved welding specifications and the applicable Rules, examined, tested as required and considered satisfactory.

WPS No. : GT-1.1-101
PQR No. : QGT-1.1-101
Welding Process: GTAW
Welding Position: 1G
Type of Joint: Single Vee Groove
Thickness Range Qualified: 3 ~ 14.2 mmT
Diameter of Pipe Qualified: 165.2mmφ - Unlimited
Shielding Gas: Ar
Base Metal: Pipe, SPPS38(KS D3562), 150A
Filler Metal: AWS A5.18, ER70S-G (Hyundai, ST-50G), 2.4mmφ
Backing Materials : N/A
Preheat Temp. : Min. 10°C
Interpass Temp. : Max. 250°C
Post Weld Heat Treatment : N/A

Chang-Hae Kang, Surveyor, American Bureau of Shipping

WPS No. : GT-FC-1.1-101
PQR No. : QGT-FC-1.1-101
Welding Process: GTAW + FCAW
Welding Position: 1G
Type of Joint: Single Vee Groove
Thickness Range Qualified: 3 ~ 32mmT
Diameter of Pipe Qualified: N/A
Shielding Gas: Ar or CO2
Base Metal: Plate, SS400(JIS G3101), 16 mmT
Filler Metal: AWS A5.18, ER70S-G, AWS A5.20, E71T1-1C (Hyundai, ST-50G, 2.4 mmφ, SF-71, 1.2mmφ)
Backing Materials : N/A
Preheat Temp. : 10°C
Interpass Temp. : Max. 250°C
Post Weld Heat Treatment : N/A

Surveyor, American Bureau of Shipping

(If additional space is required, use other side of this form)

NOTE: This Report evidences compliance with one or more of the Rules, guides, standards or other criteria of American Bureau of Shipping and is issued solely for the use of the Bureau, its committees, its clients or other authorized entities. This Report is a representation only that the vessel, structure, item of material, equipment, machinery or any other item covered by this Report has met one or more of the Rules, guides, standards or other criteria of American Bureau of Shipping as of the date of issue. Parties are advised to review the Rules for the scope and conditions of classification and to review the survey records for a fuller description of any restrictions or limitations on the vessel's service or surveys. The validity, applicability and interpretation of this Report is governed by the Rules and standards of American Bureau of Shipping who shall remain the sole judge thereof. Nothing contained in this Report or in any notation made in contemplation of this Report shall be deemed to relieve any designer, builder, owner, manufacturer, seller, supplier, repairer, operator or other entity of any warranty express or implied.

Lloyd's Register

Certificate No: LR21346169WA-01
Issue Date: 08/09/2021
Expiry Date: 11/04/2024

Fusion Welded Pressure Vessels Class 1

Manufacturer	**DASCO CO., LTD**
Address	33 Noksansandan 17-ro 78beon-gil, Gangseo-gu, Busan, 46751, Republic of Korea
Type	Fusion Welded Pressure Vessels Class 1
Limitations	Vessels designed by Heat Solution Corporation, Busan, Korea.

This approval is subject to compliance with the Lloyd's Register Rules for the Classification of Ships. 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 reserves the right to cancel or withdraw this certificate.

APPROVED

Jaspal Nirankari
Principal Specialist to Lloyd's Register EMEA
A member of the Lloyd's Register group

71 Fenchurch Street, London, EC3M 4BS, United Kingdom

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

DNV·GL

APPROVAL OF MANUFACTURER CERTIFICATE

Certificate No: **AMT000003S**
Revision No: **2**

This is to certify:

That the Manufacturer
DASCO Co., Ltd.
Busan, Republic of Korea

is approved for the
Manufacture of Welded Pressure Vessels, Class I & II

The approval is granted on condition that
DNV GL class programme DNVGL-CP-0261 – Manufacture of pressure equipment
DNV GL class programme DNVGL-CP-0352 – Manufacture of welded products – Welding workshop

are complied with in all respect

Welding of pressure equipment has been approved with the following particulars:
Welding supervisor : Young Sang, Seo
Deputy welding supervisor : Young Jin, Kim

Manufacturer(s) approved by this certificate is/are accepted to deliver according to DNV GL, DNV and GL rules.

Issued at **Høvik** on **2021-02-17**

This Certificate is valid until **2023-12-31**.
DNV GL local station: **Gimhae**

Approval Engineer: **Jane Lozanov**

for **DNV GL**
Digitally Signed By: Zeinab Sharifi
Location: DNV GL Høvik, Norway

Zeinab Sharifi
Head of Section

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This Certificate is subject to terms and conditions overleaf. Any significant change in production facilities and methods may render this Certificate invalid.

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HeatSolution for your good partner
DASCO DYNAMIC & SPECIAL COMPANY

ЕВРАЗИЙСКИЙ ЭКОНОМИЧЕСКИЙ СОЮЗ

СЕРТИФИКАТ СООТВЕТСТВИЯ

EAC

№ ЕАЭС RU C-KR.MH10.B.00670/21

Серия RU № 0237087

ОРГАН ПО СЕРТИФИКАЦИИ продукции и услуг "Башкирский центр сертификации и тестирования" Общества с ограниченной ответственностью "АРТГРУПП". Адрес места нахождения: Российская Федерация, 450005, Республика Башкортостан, город Уфа, улица 50-летия Октября, дом 24, офис 309. Регистрационный номер аттестата аккредитации RA.RU.10MH10 от 24.06.2015. Телефон +7(347)2460717, адрес электронной почты artgrupp10@rambler.ru

ЗАЯВИТЕЛЬ Общество с ограниченной ответственностью "БашСтройЛидер". Адрес места нахождения и места осуществления деятельности: 450054, Российская Федерация, Республика Башкортостан, город Уфа, улица Шафиева, дом 24, корпус 1, квартира 18. ОГРН: 1180280013825. Номер телефона +7(967)7395835, адрес электронной почты bsl-ufa@mail.ru

ИЗГОТОВИТЕЛЬ DASCO CO., LTD. Адрес места нахождения и места осуществления деятельности по изготовлению продукции: 33, Noksansandan 17-ro, 78 beon-gil, Gangseo-gu, Busan, Республика Корея

ПРОДУКЦИЯ Аппараты теплообменные кожухотрубчатые, типов: охладитель промежуточный (INTER COOLER), охладитель концевой (AFTER COOLER), расчетное давление межтрубного пространства от 0,06 до 9,0 МПа, расчетное давление трубного пространства от 0,06 до 9,0 МПа, вместимость межтрубного пространства от 0,015 м³ до 25 м³, вместимость трубного пространства от 0,015 м³ до 16 м³, рабочая среда газ, группа рабочей среды 1, 2, категория оборудования 3, 4 в соответствии с приложением № 1 ТР ТС 032/2013. Продукция изготовлена в соответствии с ASME VIII раздел 1 редакция 2019 года "Правила проектирования сосудов под давлением". Серийный выпуск

КОД ТН ВЭД ЕАЭС 8419 50 000 0

СООТВЕТСТВУЕТ ТРЕБОВАНИЯМ ТР ТС 032/2013 "О безопасности оборудования, работающего под избыточным давлением"

СЕРТИФИКАТ СООТВЕТСТВИЯ ВЫДАН НА ОСНОВАНИИ Протокола испытаний № 1586/21 от 03.05.2021 Испытательной лаборатории потенциально опасных объектов Общества с ограниченной ответственностью "Научно-технический центр экспертиза, диагностика, освидетельствование", аттестат аккредитации № RA.RU.21ГС01, акта анализа состояния производства № 050ТС-21 от 04.03.2021, документов, представленных заявителем, смотри приложения бланки № 0737760. Схема сертификации: 1с

ДОПОЛНИТЕЛЬНАЯ ИНФОРМАЦИЯ Стандарт, в результате применения которого обеспечивается соблюдение требований технического регламента: ГОСТ 34347-2017 "Сосуды и аппараты стальные сварные. Общие технические условия". Условия хранения по группе 8 (ОЖ3) ГОСТ 15150-69. Срок хранения без переконсервации 24 месяца. Назначенный срок службы 25 лет. Анализ состояния производства проведен посредством дистанционной оценки

СРОК ДЕЙСТВИЯ С 06.05.2021 **ПО** 05.05.2026 **ВКЛЮЧИТЕЛЬНО**

Руководитель (уполномоченное лицо) органа по сертификации _____ (подпись) Винокурова Елена Павловна (Ф.И.О.)

М.П.

Эксперт (эксперт-аудитор) (эксперты (эксперты-аудиторы)) _____ (подпись) Шавалдина Валентина Викторовна (Ф.И.О.)

Certificate No : GCH24059-BP001

Approval Certificate for Manufacturing Process

[Manufacture of Welded Class I & II Pressure Vessels]

Initial Approval 10 September 2018

Manufacturer DASCO Co., Ltd.
33, Noksansandan 17-ro 78beon-gil, Gangseo-gu, Busan, Rep. of Korea

Product Description Manufacture of Welded Class I & II Pressure Vessels (Heat Exchangers)

Approval Condition
1. Approvals for Drawings of Pressure Vessels, Welding Procedure Specifications and Welder Qualifications are to be maintained separately from this Approval.
2. Materials/Welding consumables shall be of certified by this Society.
3. 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.

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

This Certificate is valid until 9 September 2028

Issued at Gamcheon, Korea on 8 November 2023

This certificate is signed electronically in accordance with IMO FAL.5/Circ.39/Rev.2. Validation and authentication of the certificate can be confirmed from "http://e-cert.krs.co.kr" by using the tracking No(ME23051826053) and certificate No.(GCH24059-BP001).

KOREAN REGISTER

General Manager of Gamcheon Branch Office

Note : 1. This certificate will be valid subject to complying with the approval conditions described on the certificate and/or on the Rules of this Society.
2. This certificate will be invalid from the expiry date aforementioned unless the extension or renewal has been granted to the applicant or the manufacturer.
3. Any significant modifications or changes in design or construction to the above product without approval from this Society will render this certificate invalid.
4. Should the specified rules, regulations or standards be amended during the validity of this certificate, the product is to be re-approved by this Society in accordance with the requirements as amended.

AC-1A (2021.01) 1/1 KOREAN REGISTER

ЕВРАЗИЙСКИЙ ЭКОНОМИЧЕСКИЙ СОЮЗ

ПРИЛОЖЕНИЕ

К СЕРТИФИКАТУ СООТВЕТСТВИЯ № ЕАЭС RU C-KR.MH10.B.00670/21

Серия RU № 0737760

Документы, представленные заявителем:

- паспорт DSC-TP-20DP095-1 от 04.03.2021;
- сборочный чертеж 0012K96160-2650-B-DE5002.001 (EN-RU) от 26.01.2021;
- руководство по эксплуатации DSC-MA-20DP095 от 20.12.2020;
- обоснование безопасности DSC-JOS-20DP095-1 от 01.03.2021;
- расчет на прочность VP-20DP095-1IC-STR от 14.12.2020;
- технологии сварок (WPS, PQR) GTFC-1.1-106 от 04.12.2019, FC-1.1-102 от 21.04.2020, GT-1.1-108 от 21.04.2020;
- свидетельства сварщиков DW03 от 18.11.2015, DW28 от 08.07.2020, DW27 от 07.12.2019;
- сертификаты на материалы 170202-FP01PN-0017A1-0001 от 14.03.2017, IC202010-197-001 от 09.10.2020;
- протокол гидравлических испытаний DHPS-P20-20DP095-1-01 & 02 от 04.03.2021;
- протокол визуального и измерительного контроля VTR-20DP095/1-DSC210225-01 от 25.02.2021;
- отчет о термической обработке TH-201219-01 от 19.12.2020;
- протокол радиографического контроля RTR-20DP095/1-DSC210130-01 от 06.02.2021;
- протокол магнитнопорошкового контроля MTR-20DP095/1-210225-01 от 25.02.2021;
- протокол капиллярной дефектоскопии PTR-20DP193/1-DSC210225-01 от 25.02.2021;
- протокол механических испытаний сварных соединений TS2021-0080-1 от 19.02.2021.

Руководитель (уполномоченное лицо) органа по сертификации _____ (подпись) Винокурова Елена Павловна (Ф.И.О.)

М.П.

Эксперт (эксперт-аудитор) (эксперты (эксперты-аудиторы)) _____ (подпись) Шавалдина Валентина Викторовна (Ф.И.О.)

ЕВРАЗИЙСКИЙ ЭКОНОМИЧЕСКИЙ СОЮЗ

СЕРТИФИКАТ СООТВЕТСТВИЯ

EAC

№ ЕАЭС RU C-KR.MH10.B.00672/21

Серия RU № 0237088

ОРГАН ПО СЕРТИФИКАЦИИ продукции и услуг "Башкирский центр сертификации и тестирования" Общества с ограниченной ответственностью "АРТГРУПП". Адрес места нахождения: Российская Федерация, 450005, Республика Башкортостан, город Уфа, улица 50-летия Октября, дом 24, офис 309. Регистрационный номер аттестата аккредитации RA.RU.10MH10 от 24.06.2015. Телефон +7(347)2460717, адрес электронной почты artgrupp10@rambler.ru

ЗАЯВИТЕЛЬ Общество с ограниченной ответственностью "БашСтройЛидер". Адрес места нахождения и места осуществления деятельности: 450054, Российская Федерация, Республика Башкортостан, город Уфа, улица Шафиева, дом 24, корпус 1, квартира 18. ОГРН: 1180280013825. Номер телефона +7(967)7395835, адрес электронной почты bsl-ufa@mail.ru

ИЗГОТОВИТЕЛЬ DASCO CO., LTD. Адрес места нахождения и места осуществления деятельности по изготовлению продукции: 33, Noksansandan 17-ro, 78 beon-gil, Gangseo-gu, Busan, Республика Корея

ПРОДУКЦИЯ Аппараты теплообменные кожухотрубчатые, типов охладитель масла (OIL COOLER), охладитель промежуточный (INTER COOLER) и охладитель концевой (AFTER COOLER), расчетное давление межтрубного пространства от 0,06 до 9,0 МПа, расчетное давление трубного пространства от 0,06 до 9,0 МПа, вместимость межтрубного пространства от 0,01 м³ до 25 м³, вместимость трубного пространства от 0,003 м³ до 16 м³. Продукция изготовлена в соответствии с ASME VIII раздел 1 редакция 2019 года "Правила проектирования сосудов под давлением". Серийный выпуск

КОД ТН ВЭД ЕАЭС 8419 50 000 0

СООТВЕТСТВУЕТ ТРЕБОВАНИЯМ ТР ТС 010/2011 "О безопасности машин и оборудования"

СЕРТИФИКАТ СООТВЕТСТВИЯ ВЫДАН НА ОСНОВАНИИ Протоколов испытаний № 1585/21 от 03.05.2021, № 1587/21 от 05.05.2021 Испытательной лаборатории потенциально опасных объектов Общества с ограниченной ответственностью "Научно-технический центр экспертиза, диагностика, освидетельствование", аттестат аккредитации № RA.RU.21ГС01, акта анализа состояния производства № 051ТС-21 от 04.03.2021, документов, представленных заявителем, смотри приложения бланки № 0737761. Схема сертификации: 1с

ДОПОЛНИТЕЛЬНАЯ ИНФОРМАЦИЯ Стандарт, в результате применения которого обеспечивается соблюдение требований технического регламента: ГОСТ 34347-2017 "Сосуды и аппараты стальные сварные. Общие технические условия" (взамен ГОСТ Р 52630-2012 "Сосуды и аппараты стальные сварные. Общие технические условия"). Условия хранения по группе 8 (ОЖ3) ГОСТ 15150-69. Срок хранения без переконсервации 24 месяца. Назначенный срок службы 25 лет. Анализ состояния производства проведен посредством дистанционной оценки

СРОК ДЕЙСТВИЯ С 06.05.2021 **ПО** 05.05.2026 **ВКЛЮЧИТЕЛЬНО**

Руководитель (уполномоченное лицо) органа по сертификации _____ (подпись) Винокурова Елена Павловна (Ф.И.О.)

М.П.

Эксперт (эксперт-аудитор) (эксперты (эксперты-аудиторы)) _____ (подпись) Шавалдина Валентина Викторовна (Ф.И.О.)

ЕВРАЗИЙСКИЙ ЭКОНОМИЧЕСКИЙ СОЮЗ

ПРИЛОЖЕНИЕ

К СЕРТИФИКАТУ СООТВЕТСТВИЯ № ЕАЭС RU C-KR.MH10.B.00672/21

Серия RU № 0737761

Документы, представленные заявителем:

- паспорта DSC-TP-20DP095-1 от 04.03.2021, DSC-TP-20DP095-3 от 04.03.2021;
- сборочные чертежи 0012K96160-2650-B-DE5002.001 (EN-RU) от 26.01.2021, 0012K96160-2650-B-DE5002.002 (EN-RU) от 23.02.2021;
- руководство по эксплуатации DSC-MA-20DP095 от 20.12.2020;
- обоснования безопасности DSC-JOS-20DP095-1 от 01.03.2021, DSC-JOS-20DP095-3 от 01.03.2021;
- расчеты на прочность VP-20DP095-1IC-STR от 14.12.2020, VP-20DP095-OC-STR от 14.12.2020;
- технологии сварок (WPS, PQR) GTFC-1.1-106 от 04.12.2019, FC-1.1-102 от 21.04.2020, GT-1.1-108 от 21.04.2020;
- свидетельства сварщиков DW03 от 18.11.2015, DW28 от 08.07.2020, DW27 от 07.12.2019;
- сертификаты на материалы 170202-FP01PN-0017A1-0001 от 14.03.2017, IC202010-197-001 от 09.10.2020, 01-19-00047 от 01.01.2019, MTR20-32301-01 от 04.11.2020;
- протоколы гидравлических испытаний DHPS-P20-20DP095-1-01 & 02 от 04.03.2021, DHPS-P20-20DP095-4-01 от 04.03.2021;
- протоколы визуального и измерительного контроля VTR-20DP095/1-DSC210225-01 от 25.02.2021, VTR-20DP095/4-DSC210225-01 от 25.02.2021;
- отчет о термической обработке TH-201219-01 от 19.12.2020;
- протоколы радиографического контроля RTR-20DP095/1-DSC210130-01 от 06.02.2021, RTR-20DP095/4-DSC210205-01 от 05.02.2021;
- протоколы магнитнопорошкового контроля MTR-20DP095/1-210225-01 от 25.02.2021, MTR-20DP095/4-210225-01 от 25.02.2021;
- протоколы капиллярной дефектоскопии PTR-20DP193/1-DSC210225-01 от 25.02.2021, PTR-20DP193/3-DSC210225-01 от 25.02.2021;
- протоколы механических испытаний сварных соединений TS2021-0080-1 от 19.02.2021, TS2021-0080-4 от 19.02.2021.

Руководитель (уполномоченное лицо) органа по сертификации (подпись) Винокурова Елена Павловна (Ф.И.О.)

М.П.

Эксперт (эксперт-аудитор) (эксперты (эксперты-аудиторы)) (подпись) Шавалдина Валентина Викторовна (Ф.И.О.)

ЕАС ЕВРАЗИЙСКИЙ ЭКОНОМИЧЕСКИЙ СОЮЗ
ДЕКЛАРАЦИЯ О СООТВЕТСТВИИ

Заявитель Общество с ограниченной ответственностью "БашСтройЛидер". Основной государственный регистрационный номер 1180280013825.
Адрес места нахождения: улица Шафиева, дом 24, корпус 1, квартира 18, город Уфа, Республика Башкортостан, Российская Федерация, 450022. Номер телефона +7(967)7395835, адрес электронной почты bsl-ufa@mail.ru.
в лице директора Муллабаева Альберта Рафинатовича

заявляет, что
Аппараты теплообменные кожухотрубчатые, типов охладитель масла (OIL COOLER), охладитель промежуточный (INTER COOLER) и концевой (AFTER COOLER), расчетное давление межтрубного пространства от 0,06 до 9,0 МПа, расчетное давление трубного пространства от 0,06 до 9,0 МПа, вместимость межтрубного пространства от 0,01 до 25 м³, вместимость трубного пространства от 0,003 до 16 м³, рабочая среда жидкость, газ, группа рабочей среды 1, 2, категория оборудования 1, 2 в соответствии с приложением № 1 ТР ТС 032/2013.

изготовитель DASCO CO., LTD.
33, Noksansandan 17-ro, 78 beon-gil, Gangseo-gu, Busan, Республика Корея.

наименование и обозначение документа (документов), в соответствии с которым изготовлена продукция
ASME VIII раздел 1 редакция 2019 года "Правила проектирования сосудов под давлением"

код ТН ВЭД ЕАЭС 8419 50 0000
Серийный выпуск.

соответствует требованиям
ТР ТС 032/2013 "О безопасности оборудования, работающего под избыточным давлением"

Декларация о соответствии принята на основании
Протокол испытаний № 1585/21, № 1586/21 от 03.05.2021. Испытательной лаборатории потенциально опасных объектов Общества с ограниченной ответственностью "Научно-технический центр экспертиза, диагностика, освидетельствование", аттестат аккредитации № RA.RU.21ITC01, паспорта DSC-TP-20DP095-1 от 04.03.2021, DSC-TP-20DP095-3 от 04.03.2021, сборочные чертежи 0012K96160-2650-B-DE5002.001 (EN-RU) от 26.01.2021, 0012K96160-2650-B-DE5002.002 (EN-RU) от 23.02.2021, руководство по эксплуатации DSC-MA-20DP095 от 20.12.2020, обоснования безопасности DSC-JOS-20DP095-1 от 01.03.2021, DSC-JOS-20DP095-3 от 01.03.2021, расчеты на прочность VP-20DP095-1IC-STR от 14.12.2020, VP-20DP095-OC-STR от 14.12.2020, технологии сварок (WPS, PQR) GTFC-1.1-106 от 04.12.2019, FC-1.1-102 от 21.04.2020, GT-1.1-108 от 21.04.2020, свидетельства сварщиков DW03 от 18.11.2015, DW28 от 08.07.2020, DW27 от 07.12.2019, сертификаты на материалы 170202-FP01PN-0017A1-0001 от 14.03.2017, IC202010-197-001 от 09.10.2020, 01-19-00047 от 01.01.2019, MTR20-32301-01 от 04.11.2020, протоколы гидравлических испытаний DHPS-P20-20DP095-1-01 & 02 от 04.03.2021, DHPS-P20-20DP095-4-01 от 04.03.2021, протоколы визуального и измерительного контроля VTR-20DP095/1-DSC210225-01 от 25.02.2021, VTR-20DP095/4-DSC210225-01 от 25.02.2021, отчет о термической обработке TH-201219-01 от 19.12.2020, протоколы радиографического контроля RTR-20DP095/1-DSC210130-01 от 06.02.2021, RTR-20DP095/4-DSC210205-01 от 05.02.2021, протоколы магнитнопорошкового контроля MTR-20DP095/1-210225-01 от 25.02.2021, MTR-20DP095/4-210225-01 от 25.02.2021, протоколы капиллярной дефектоскопии PTR-20DP193/1-DSC210225-01 от 25.02.2021, PTR-20DP193/3-DSC210225-01 от 25.02.2021, протоколы механических испытаний сварных соединений TS2021-0080-1 от 19.02.2021, TS2021-0080-4 от 19.02.2021

Схема декларирования соответствия 1д

Дополнительная информация
Стандарт, в результате применения которого обеспечивается соблюдение требований технического регламента: ГОСТ 34347-2017 «Сосуды и аппараты стальные сварные. Общие технические условия» Условия хранения по группе 8 (ОЖ3) ГОСТ 15150-69. Срок хранения без переконсервации 24 месяца. Назначенный срок службы 25 лет.

Декларация о соответствии действительна с даты регистрации по 11.05.2026 **включительно.**

(подпись) Муллабаев Альберт Рафинатович (Ф.И.О. заявителя)

М.П.

Регистрационный номер декларации о соответствии ЕАЭС № RU Д-KR.PA01.B.60604/21

Дата регистрации декларации о соответствии 12.05.2021

Issue No : 093B9E0D-9660-46BC-BEC8-1D80C07A55F1

CERTIFICATE OF APPROVAL

Registration No: WITHU20230922382
Company Name: DASCO Co., Ltd.
Factory Location: 33, Noksansandan 17-ro 78beon-gil, Gangseo-gu, Busan, Republic of Korea
Period Of Validity: 2023-09-25 ~ 2026-09-25

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	
Certificate Item	Heat Exchanger	
Manufacture	On Site Maintenance	Shop Repair
V		

2023.09.25

KOEN KOREA SOUTH-EAST POWER CO. · KOREA SOUTHERN POWER CO.,LTD. · KOREA EAST-WEST POWER CO.,LTD. · KOREA WESTERN POWER CO., Ltd. · KOREA MIDLAND POWER CO.,LTD.

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Issue No : C07CF3C1-9AB7-44EC-BFF3-3B17FE985FF9

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Certificate Item	Condenser	
Manufacture	On Site Maintenance	Shop Repair
V		

2023.09.25

KOEN KOREA SOUTH-EAST POWER CO. · KOREA SOUTHERN POWER CO.,LTD. · KOREA EAST-WEST POWER CO.,LTD. · KOREA WESTERN POWER CO., Ltd. · KOREA MIDLAND POWER CO.,LTD.

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HeatSolution for your good partner
DASCO DYNAMIC & SPECIAL COMPANY

12. TEST & MEASURING EQUIPMENTS

1) Welding Machine List

No.	Equipment	Model	Manufacture	Type	Q'ty
1	DC Ammester	EP-500T	EAGLE	GTAW	1
2	DC Ammester	DUTY-500D/502AD	PRO-TECH	GTAW	37
3	DC Ammester	500SC	SUNJIN WELD	FCAW	3
4	DC Ammester	COD-600A	DWEL TECH	FCAW	21
5	DC Ammester	RF2-500	PANASONIC	FCAW	1
6	DC Ammester	PROPAC 600	HYOSUNG	FCAW	1
7	DC Ammester	MICRO-352XD	PRO-TECH	GTAW	2
8	DC Ammester	EALARC DC-1000	LINCOLN ELECTRIC	SAW	1
9	DC Ammester	CAPTAIN-500C	CAPTAIN	FCAW	3
10	DC Ammester	EAKARC-DC600	LINCOLN ELECTRIC	SAW	6
11	DC Ammester	350TP	D.WELCO	GTAW	1
12	DC Ammester	LONGRUN 500LT	WORLDWEL	GTAW	1
13	DC Ammester	TIGSTAR 350T	WELDING START	GTAW	1

2) I.M.T.E Control List

No.	Equipment	Specification	Q'ty
Pressure Recorder	Range : ~10 MPa	MyungsungHyoda	11
Helium Leak Detector	ASM340	PFEIFFER	1
3-Point Micrometers	Range : 6 mm ~ 50 mm	MITUTOYO	19
Tabular Inside Micrometer	337-302, 200 mm ~ 1500 mm	MITUTOYO	1
Ferrite Meter	MF300Fm+ P46	DIVERSE	1
Black Light	UV LED 3P-BS	NAWOO	1
Borescope	NTS300 / TD500	TESLONG	3
Gas Analyzer	MINIMAX-X4	HONEYWELL	1
Coating Thickness Gauge	A456C	ELCOMETER	2
Ultrasonic thickness gauge	C1M100 / AR860	Solid NDT / SMART SENSOR	2
Hardness Testers (Portable)	HLN-11A / PB	TIME / IMAI	2
Temperature Recorders	GL840	GRAPHTEC	1
Vibration Analyzer	VA-12 / ACO-3116	Rion / ACO	2
Sound Level Meter	1350A	TES	1
Air Velocity Meter	TSI-5725	TSI	1
Belt Frequency Meter	CON-TR10400	CONTINENTAL	1
Liquid Flowmeter	FTT-S-S 15A	AUTO FLOW	1


Ultrasonic thickness gauge


3-Point Micrometers


Air Velocity Meter


Belt Frequency Meter


Black Light


Borescope


Coating Thickness Gauge


Ferrite Meter


Gas Analyzer

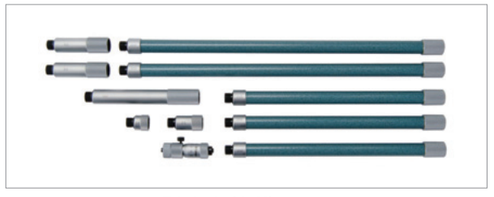

Hardness Testers (Portable)


Helium Leak Detector


Liquid Flowmeter


Pressure Recorder


Sound Level Meter

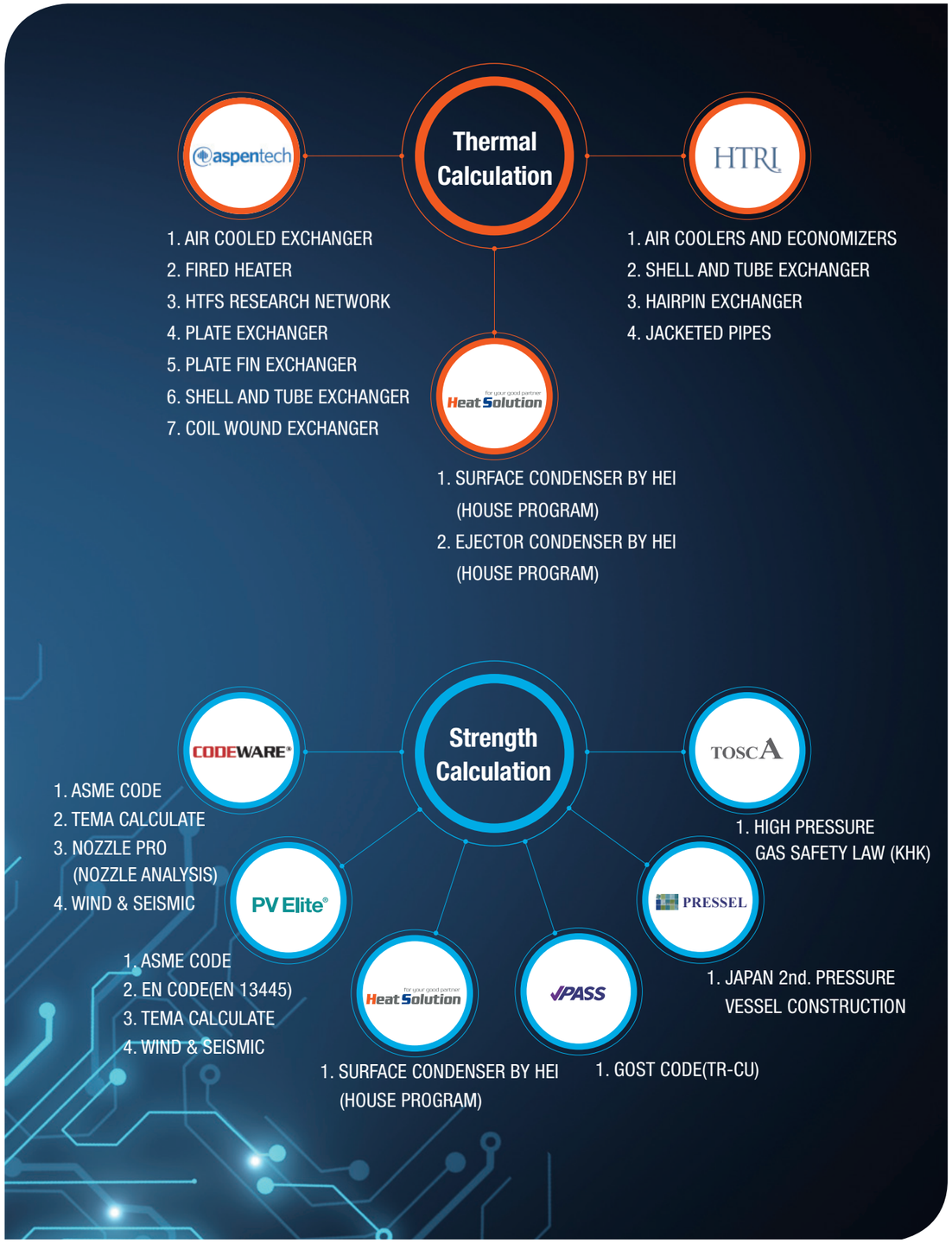

Tabular Inside Micrometer


Temperature Recorders


Ultrasonic thickness gauge


Vibration Analyzer

13. DESIGN LICENSE LIST



14. EXPERIENCE LIST

▶ INDEX

1. EXPERIENCE LIST (**for API 661 AIR COOLED HEAT EXCHANGER**)

2. EXPERIENCE LIST (**for CARBON CAPTURE PLANT**)

3. EXPERIENCE LIST (**for LNG & LPG SHIP**)

4. EXPERIENCE LIST (**for HYDROGEN**)

5. EXPERIENCE LIST (**for AMMONIA(NH3)**)

6. EXPERIENCE LIST (**for MIDDLE EAST**)

7. EXPERIENCE LIST (**for SAUDI ARAMCO PROJECT**)

8. EXPERIENCE LIST (**for RUSSIA TR-CU**)

Experience List (for API 661 AIR COOLED HEAT EXCHANGER)

JOB No	END USER	CONTRACTOR	PROJECT Name / ITEM Name	LOCATION	ITEM	Q'TY	DELIVERY
2020-1	SAMSUNG CONSTRUCTION & TRADING	HYUNDAI HEAVY INDUSTRIES TURBOMACHINERY CO. LTD.,	UAE FUJAIRA 3 IPP FGC / AIR FAN COOLED HEAT EXCHANGER (RECYCLE/C + OIL/C)	U.A.E	1	4 BAY / 8 BUNDLE	2021
2021-1	POSCO ENGINEERING & CONSTRUCTION	HYUNDAI HEAVY INDUSTRIES TURBOMACHINERY CO. LTD.,	POSCO PULAU INDAH CCPP / AIR FAN COOLED HEAT EXCHANGER (RECYCLE/C + OIL/C)	MALAYSIA	1	3 BAY / 6 BUNDLE	2022
2021-2	MITSUBISHI POWER LTD	HYUNDAI HEAVY INDUSTRIES TURBOMACHINERY CO. LTD.,	THAILAND HINKONG FGC / AIR FAN COOLED HEAT EXCHANGER (RECYCLE/C + OIL/C)	THAILAND	1	3 BAY / 6 BUNDLE	2022
2022-1	TSK / MITSUBISHI POWER LTD	HYUNDAI HEAVY INDUSTRIES TURBOMACHINERY CO. LTD.,	CCC SALAMANCA / AIR FAN COOLED HEAT EXCHANGER (RECYCLE/C + OIL/C)	MEXICO	1	3 BAY / 3 BUNDLE	2023
2022-2	NATIONAL GRID GRAIN LNG LTD	IHI ROTATING MACHINERY	NATIONAL GRID LNG HP BOG COMPRESSORS / AIR FAN COOLED HEAT EXCHANGER (INTER/C + AFTER/C)	U.K	1	3 BAY / 4 BUNDLE	2023
2023-1	TAIWAN CPC CORPORATION & JGC	IHI ROTATING MACHINERY	CPC TAICHUNG BOG COMPRESSOR / AIR FAN COOLED HEAT EXCHANGER (OIL COOLER)	TAIWAN	3	1 BAY / 1 BUNDLE	2023
2023-2	CCGT OSTROLEKA	HANWHA POWER SYSTEMS	OSTROLEKA PROJECT / AIR FAN COOLED HEAT EXCHANGER (RECYCLE COOLER)	POLAND	2	1 BAY / 1 BUNDLE	2024
2023-3	COBRA SENER SERAING JV	HANWHA POWER SYSTEMS	CCGT SERAING EXTENSION PROJECT / AIR FAN COOLED HEAT EXCHANGER (RECYCLE COOLER)	BELGIUM	1	1 BAY / 2 BUNDLE	2024
2023-4	POSCO	DAEWON ENT CO., LTD	POSCO PROJECT / AIR FAN COOLED HEAT EXCHANGER (GAS C / BUNDLE)	KOREA	11	1 BAY / 1 BUNDLE	2023
2023-5	SOUTH HOOK LNG TERMINAL COMPANY LTD	IHI ROTATING MACHINERY	SOUTH HOOK LNG TERMINAL / AIR FAN COOLED HEAT EXCHANGER (INTER/C + AFTER/C)	U.K	1	1 BAY / 3 BUNDLE	2024
2023-6	CCGT GRUDIADZ / GRUPA ORLEN	HANWHA POWER SYSTEMS	POLAND METKA GRUDIADZ FGC / AIR FAN COOLED HEAT EXCHANGER (AFTER + OIL/C)	POLAND	1	1 BAY / 2 BUNDLE	2024

Experience List (for CARBON CAPTURE PLANT)

JOB No	END USER	CONTRACTOR	PROJECT Name / ITEM Name	LOCATION	ITEM	Q'TY	DELIVERY
2022-1	DEOKYANG COPERATION LTD.	HANWHA POWER SYSTEMS	DEOKYANG CO2 COMP / INTER, AFTER COOLER	KOREA	5	5 UNIT	2023
2023-1	DEOKYANG COPERATION LTD.	HANWHA POWER SYSTEMS	DEOKYANG LCO2 450TPD / INTER/AFTER COOLER	KOREA	2	6 UNIT	2023
2023-2	TRIMERIC CORP.	ATLAS COPCO - GERMANY	MARQUIS / INTER, AFTER COOLER	USA	4	12 UNIT	2023
2023-3	TRIMERIC CORP.	ATLAS COPCO - GERMANY	VAULT / INTER, AFTER COOLER	USA	4	4 UNIT	2023
2023-4	TECNIMONT	HANWHA POWER SYSTEMS	CE5816 TECNIMONT BOROUGE 4 / INTER COOLER	UAE	2	8 UNIT	2023
2023-5	-	IHI ROTATING MACHINERY	3051-258 / INTER, AFTER COOOERL	JAPAN	4	8 UNIT	2024

Experience List (for LNG & LPG SHIP)

JOB No.	CUSTOMER	CONTRACTOR	PROJECT Name / ITEM Name	CLASS	ITEM	Q'TY	DESIGN TEMP.	DELIVERY
2017-1	DAEWOO SHIPBUILDING & MARINE ENGINEERING	HANWHA POWER SYSTEMS	DSME MOL EXPANDER(H.2462) / AFTER COOLER	BV	1	1 UNIT	200 ℃	2017
2017-2	DAEWOO SHIPBUILDING & MARINE ENGINEERING	KOBE STEEL	E.ON-MOL 180,000m3 LNG CARRIER(H.NO.2462) / DISCHARGE COOLER & DAMPER	BV&IGC	11	12 UNIT	180 ℃	2017
2017-3	HYUNDAI HEAVY INDUSTRIES	KOBE STEEL	HHI PARDUS MSO COMPRESSOR (H.NO.2945) / DISCHARGE COOLER & DAMPER	BV&IGC	9	9 UNIT	180 ℃	2018
2017-4	DAEWOO SHIPBUILDING & MARINE ENGINEERING	HANWHA POWER SYSTEMS	DSME MOL EXPANDER(H.2462) / OIL COOLER	BV	1	1 UNIT	100 ℃	2017
2017-5	CORAL FLNG / MOZAMBIQUE / SAMSUNG HEAVY INDUSTRIES	HANWHA POWER SYSTEMS	CORAL SOUTH DEVELOPMENT / INTER&AFTER&OIL COOLER	LR&IGC	4	12 UNIT	195 ℃	2018
2017-6	SAMSUNG HEAVY INDUSTRIES	ATLAS COPCO	KOGAS(H.NO.2233/2234) / PRE-HEATER	KR	1	4 UNIT	-165 ℃	2018
2017-7	CORAL FLNG / MOZAMBIQUE / SAMSUNG HEAVY INDUSTRIES	HANWHA POWER SYSTEMS	CORAL SOUTH DEVELOPMENT / LNG CARGO TANK WARM-UP HEATER	LR&IGC	1	4 UNIT	-170 ℃	2019
2018-1	DAEWOO SHIPBUILDING & MARINE ENGINEERING	ATLAS COPCO	MARAN 173,400 CBM FSRU(H.NO. 2477/2487) / AFTER COOLER	DNV-GL	3	6 UNIT	200 ℃	2019
2019-1	SAMSUNG HEAVY INDUSTRIES	ATLAS COPCO	LNG SHIP(SN2297/2298) / OIL COOLER	LR	2	4 UNIT	110 ℃	2019
2019-2	DAEWOO SHIPBUILDING & MARINE ENGINEERING	KOBE STEEL	E.ON-MOL 180,000m3 LNG CARRIER(H.NO.2498/2499) / DISCHARGE COOLER & DAMPER	BV&IGC	11	24 UNIT	180 ℃	2019
2019-3	SAMSUNG HEAVY INDUSTRIES	ATLAS COPCO	LNG SHIP(SN2313/2314) / OIL COOLER	LR	2	2 UNIT	110 ℃	2019
2019-4	SAMSUNG HEAVY INDUSTRIES	ATLAS COPCO	LNG SHIP / OIL COOLER	ABS	1	1 UNIT	140 ℃	2020
2019-5	SAMSUNG HEAVY INDUSTRIES	ATLAS COPCO	LNG SHIP(SN2310) / OIL COOLER	DNV-GL	1	2 UNIT	110 ℃	2020
2019-6	DAEWOO SHIPBUILDING & MARINE ENGINEERING	KOBE STEEL	LNG SHIP (H.NO.2495/2504) / DISCHARGE COOLER & DAMPER	ABS&IGC	11	24 UNIT	180 ℃	2020
2019-7	DAEWOO SHIPBUILDING & MARINE ENGINEERING	KOBE STEEL	LNG SHIP (H.NO.2505) / DISCHARGE COOLER & DAMPER	BV&IGC	11	12 UNIT	180 ℃	2020
2019-8	DAEWOO SHIPBUILDING & MARINE ENGINEERING	KOBE STEEL	LNG SHIP (H.NO.2502/2503) / DISCHARGE COOLER & DAMPER	DNV-GL&IGC	11	24 UNIT	180 ℃	2020
2019-9	DAEWOO SHIPBUILDING & MARINE ENGINEERING	KOBE STEEL	LNG SHIP (H.NO.2507) / DISCHARGE COOLER & DAMPER	LR&IGC	11	12 UNIT	180 ℃	2020
2019-10	DAEWOO SHIPBUILDING & MARINE ENGINEERING	KANGRIM HEAVY INDUSTRIES	IGG / H.2357&2358 / GAS COOLER	LR	1	2 UNIT	50 ℃	2020
2020-1	HYUNDAI HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.3185~3188 / GAS COOLER	LR&DNV-GL&KR	1	4 UNIT	50 ℃	2020
2020-2	HYUNDAI HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.8091~8094 / STEAM GAS HEATER	LR&DNV-GL&KR	1	4 UNIT	197 ℃	2020
2020-3	DAEWOO SHIPBUILDING & MARINE ENGINEERING	HANWHA POWER SYSTEMS	MOL 361,600 m3 LNG BARGE, N2 COMPANDER (H.NO.2512/2513) / INTER&AFTER&OIL COOLER	BV&RS&IGC	4	24 UNIT	150 ℃	2021
2020-4	DAEWOO SHIPBUILDING & MARINE ENGINEERING	HANWHA POWER SYSTEMS	MOL 361,600 m3 LNG BARGE, BOG COMP. (H.NO.2512/2513) / INTER&AFTER&OIL COOLER	BV&RS&IGC	4	24 UNIT	150 ℃	2021
2020-5	DAEWOO SHIPBUILDING & MARINE ENGINEERING	HANWHA POWER SYSTEMS	MOL 361,600 m3 LNG BARGE, FG COMP. (H.NO.2512/2513) / AFTER&OIL COOLER	BV&RS&IGC	2	8 UNIT	150 ℃	2021
2020-6	DAEWOO SHIPBUILDING & MARINE ENGINEERING	SAMWOO HEAVY IND.	MOL 361,600 m3 LNG BARGE, (H.NO.2512/2513) / BOG PRE HEATER	BV&RS&IGC	1	6 UNIT	-196 ℃	2021
2020-7	DAEWOO SHIPBUILDING & MARINE ENGINEERING	SAMWOO HEAVY IND.	MOL 361,600 m3 LNG BARGE, (H.NO.2512/2513) / WASTE GAS HEATER	BV&RS&IGC	1	6 UNIT	-196 ℃	2021
2020-8	DAEWOO SHIPBUILDING & MARINE ENGINEERING	SAMWOO HEAVY IND.	DSME NRS PILOT PLANT / NG HEATER"	KR	1	1 UNIT	-196 ℃	2021
2020-9	DAEWOO SHIPBUILDING & MARINE ENGINEERING	SAMWOO HEAVY IND.	DSME NRS PILOT PLANT / N2 INVENTORY TANK	KR	1	1 UNIT	70 ℃	2021

Experience List (for LNG & LPG SHIP)

JOB No.	CUSTOMER	CONTRACTOR	PROJECT Name / ITEM Name	CLASS	ITEM	Q'TY	DESIGN TEMP.	DELIVERY
2020-10	DAEWOO SHIPBUILDING & MARINE ENGINEERING	SAMWOO HEAVY IND.	DSME NRS PILOT PLANT / LIQUID/GAS SEPARATOR	KR	1	1 UNIT	-196 ℃	2021
2020-11	DAEWOO SHIPBUILDING & MARINE ENGINEERING	SAMWOO HEAVY IND.	DSME NRS PILOT PLANT / LIQUID/GAS SEPARATOR	KR	1	1 UNIT	-196 ℃	2021
2020-12	HYUNDAI MIPO DOCKYARD	KANGRIM HEAVY INDUSTRIES	IGG / HMD(LPG) (H.NO. 8305~8308) / GAS COOLER"	LR	1	4 UNIT	50 ℃	2021
2020-13	SAMSUNG HEAVY INDUSTRIES	ATLAS COPCO	LNG SHIP(SN2336/2337) / OIL COOLER	ABS	1	4 UNIT	110 ℃	2020
2020-14	SAMSUNG HEAVY INDUSTRIES	ATLAS COPCO	LNG SHIP(SN2319) / OIL COOLER	BV	1	2 UNIT	110 ℃	2021
2020-15	SAMSUNG HEAVY INDUSTRIES	ATLAS COPCO	LNG SHIP(SN2315/2316) / OIL COOLER	BV	2	4 UNIT	110 ℃	2020
2020-16	SAMSUNG HEAVY INDUSTRIES	ATLAS COPCO	LNG SHIP(SN2364/2365) / OIL COOLER	ABS	2	4 UNIT	110 ℃	2021
2021-1	HYUNDAI HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.3186 / GAS COOLER, STEAM HEATER	DNV-GL	2	1 UNIT	50 ℃	2021
2021-2	HYUNDAI SAMHO HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.8094 / GAS COOLER, STEAM HEATER	LR	2	1 UNIT	50 ℃	2021
2021-3	HYUNDAI MIPO DOCKYARD	KANGRIM HEAVY INDUSTRIES	IGG / H.8307 / GAS COOLER	LR	1	1 UNIT	50 ℃	2021
2021-4	HYUNDAI HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.3187 / GAS COOLER, STEAM HEATER	DNV-GL	2	1 UNIT	50 ℃	2021
2021-5	HYUNDAI MIPO DOCKYARD	KANGRIM HEAVY INDUSTRIES	IGG / H.8308 / GAS COOLER	LR	1	1 UNIT	50 ℃	2021
2021-6	HYUNDAI HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.3188 / GAS COOLER, STEAM HEATER	DNV-GL	2	1 UNIT	50 ℃	2021
2021-7	HYUNDAI SAMHO HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.8095 / GAS COOLER, STEAM HEATER	LR	2	1 UNIT	50 ℃	2021
2021-8	HYUNDAI HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.8096 / GAS COOLER, STEAM HEATER	LR	2	1 UNIT	50 ℃	2021
2021-9	SAMSUNG HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / SN.2425 / GAS COOLER	BV	1	1 UNIT	50 ℃	2022
2021-10	SAMSUNG HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / SN.2425 / STEAM HEATER	BV	2	1 UNIT	50 ℃	2022
2021-11	HYUNDAI HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.3243 / GAS COOLER, STEAM HEATER	LR	2	1 UNIT	50 ℃	2021
2021-12	HYUNDAI MIPO DOCKYARD	KANGRIM HEAVY INDUSTRIES	IGG / H.8328 / GAS COOLER	LR	1	1 UNIT	50 ℃	2021
2021-13	DAEWOO SHIPBUILDING & MARINE ENGINEERING	KANGRIM HEAVY INDUSTRIES	IGG / H.2360 / GAS COOLER	LR	1	1 UNIT	50 ℃	2021
2021-14	DAEWOO SHIPBUILDING & MARINE ENGINEERING	KANGRIM HEAVY INDUSTRIES	IGG / H.2361 / GAS COOLER	LR	1	1 UNIT	50 ℃	2021
2021-15	HYUNDAI SAMHO HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.8113 / GAS COOLER	LR	1	1 UNIT	50 ℃	2021
2021-16	HYUNDAI SAMHO HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.8114 / GAS COOLER	LR	1	1 UNIT	50 ℃	2021
2021-17	HYUNDAI HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.3244 / GAS COOLER, STEAM HEATER	LR	2	1 UNIT	50 ℃	2021
2021-18	HYUNDAI HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.3276 / GAS COOLER	ABS	1	1 UNIT	50 ℃	2021
2021-19	HYUNDAI SAMHO HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.8105 / GAS COOLER, STEAM HEATER	DNV-GL	2	1 UNIT	50 ℃	2022
2021-20	HYUNDAI HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.3189 / GAS COOLER, STEAM HEATER	DNV-GL	2	1 UNIT	50 ℃	2022
2021-21	HYUNDAI MIPO DOCKYARD	KANGRIM HEAVY INDUSTRIES	IGG / H.8346 / GAS COOLER	LR	1	1 UNIT	50 ℃	2022
2021-22	HYUNDAI SAMHO HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.8115 / GAS COOLER	LR	1	1 UNIT	50 ℃	2022

Experience List (for LNG & LPG SHIP)

JOB No.	CUSTOMER	CONTRACTOR	PROJECT Name / ITEM Name	CLASS	ITEM	Q'TY	DESIGN TEMP.	DELIVERY
2021-23	HYUNDAI HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.3190 / GAS COOLER, STEAM HEATER	DNV-GL	2	1 UNIT	50 ℃	2022
2021-24	HYUNDAI MIPO DOCKYARD	KANGRIM HEAVY INDUSTRIES	IGG / H.8347 / GAS COOLER	LR	1	1 UNIT	50 ℃	2022
2021-25	HYUNDAI SAMHO HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.8117 / GAS COOLER	LR / KR	1	1 UNIT	50 ℃	2022
2021-26	HYUNDAI SAMHO HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.8118 / GAS COOLER	LR / KR	1	1 UNIT	50 ℃	2022
2021-27	HYUNDAI HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.3191 / GAS COOLER, STEAM HEATER	LR / KR	2	1 UNIT	50 ℃	2022
2021-28	HYUNDAI MIPO DOCKYARD	KANGRIM HEAVY INDUSTRIES	IGG / H.8356 / GAS COOLER	ABS	1	1 UNIT	50 ℃	2022
2021-29	HYUNDAI MIPO DOCKYARD	KANGRIM HEAVY INDUSTRIES	IGG / H.8329 / GAS COOLER	LR	1	1 UNIT	50 ℃	2022
2021-30	HYUNDAI HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.3277 / GAS COOLER	ABS	1	1 UNIT	50 ℃	2022
2021-31	HYUNDAI HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.3198 / GAS COOLER, STEAM HEATER	LR / KR	2	1 UNIT	50 ℃	2022
2021-32	HYUNDAI MIPO DOCKYARD	KANGRIM HEAVY INDUSTRIES	IGG / H.8357 / GAS COOLER	ABS	1	1 UNIT	50 ℃	2022
2021-33	HYUNDAI MIPO DOCKYARD	KANGRIM HEAVY INDUSTRIES	IGG / H.8366 / GAS COOLER	ABS	1	1 UNIT	50 ℃	2022
2021-34	HYUNDAI MIPO DOCKYARD	KANGRIM HEAVY INDUSTRIES	IGG / H.8330 / GAS COOLER	LR	1	1 UNIT	50 ℃	2022
2021-35	HYUNDAI MIPO DOCKYARD	KANGRIM HEAVY INDUSTRIES	IGG / H.8359 / GAS COOLER	LR	1	1 UNIT	50 ℃	2022
2021-36	-	KANGRIM HEAVY INDUSTRIES	EGCS (SHIP NO. CSBC 1182) / PLATE TYPE COOLER	BV	1	1 UNIT	50 ℃	2022
2021-37	HYUNDAI SAMHO HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.8139 / GAS COOLER, STEAM HEATER	LR	2	1 UNIT	50 ℃	2022
2021-38	HYUNDAI SAMHO HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.8148 / GAS COOLER, STEAM HEATER	LR	2	1 UNIT	50 ℃	2022
2021-39	HYUNDAI HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.3303 / GAS COOLER	ABS	1	1 UNIT	50 ℃	2022
2021-40	HYUNDAI SAMHO HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.8138 / GAS COOLER	LR / KR	1	1 UNIT	50 ℃	2022
2021-41	HYUNDAI HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.3278 / GAS COOLER	ABS	1	1 UNIT	50 ℃	2022
2021-42	HYUNDAI HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.3304 / GAS COOLER	ABS	1	1 UNIT	50 ℃	2022
2021-43	HYUNDAI SAMHO HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.8149 / GAS COOLER, STEAM HEATER	LR	2	1 UNIT	50 ℃	2022
2021-44	HYUNDAI MIPO DOCKYARD	KANGRIM HEAVY INDUSTRIES	IGG / H.8331 / GAS COOLER	LR	1	1 UNIT	50 ℃	2022
2021-45	DAEWOO SHIPBUILDING & MARINE ENGINEERING	KANGRIM HEAVY INDUSTRIES	IGG / H.2362 / GAS COOLER	LR	1	1 UNIT	50 ℃	2022
2021-46	DAEWOO SHIPBUILDING & MARINE ENGINEERING	KANGRIM HEAVY INDUSTRIES	IGG / H.2365 / GAS COOLER	ABS / KR	1	1 UNIT	50 ℃	2022
2021-47	SAMSUNG HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.2580 / GAS COOLER, STEAM HEATER	DNV-GL	2	1 UNIT	50 ℃	2022
2021-48	HYUNDAI SAMHO HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.8101 / GAS COOLER, STEAM HEATER	LR	2	1 UNIT	50 ℃	2022
2021-49	SAMSUNG HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / SN.2581 / GAS COOLER, STEAM HEATER	DNV-GL	2	1 UNIT	50 ℃	2022
2021-50	SAMSUNG HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / SN.2582 / GAS COOLER, STEAM HEATER	DNV-GL	2	1 UNIT	50 ℃	2022
2021-51	HYUNDAI HEAVY INDUSTRIES	SAMWOO HEAVY INDUSTRY	H2520/27 A-PRS / SEPARATOR	NK	2	1 UNIT	-196 ℃	2022
2021-52	HYUNDAI HEAVY INDUSTRIES	KOBE STEEL	MOL H2505,2520 / DAMPER, SEPARATOR, CHARCOL FILTER"	NK	12	24 UNIT	180 ℃	2022

Experience List (for LNG & LPG SHIP)

JOB No.	CUSTOMER	CONTRACTOR	PROJECT Name / ITEM Name	CLASS	ITEM	Q'TY	DESIGN TEMP.	DELIVERY
2022-1	DAEWOO SHIPBUILDING & MARINE ENGINEERING	TRANS GAS SOLUTION	DSME N2 SUPPLY UNIT / GLYCOL WATER HEATER & TANK (ELECTRIC TYPE)	N/A	1	1 UNIT	500KW	2022
2022-2	DAEWOO SHIPBUILDING & MARINE ENGINEERING	KANGRIM HEAVY INDUSTRIES	IGG / H.2521 & 2522 / GAS COOLER	KR	1	2 UNIT	50 ℃	2023
2022-3	HYUNDAI MIPO DOCKYARD	KANGRIM HEAVY INDUSTRIES	IGG / H.8368 / GAS COOLER	LR	1	1 UNIT	50 ℃	2022
2022-4	SAMSUNG HEAVY INDUSTRIES	KOBE STEEL	SN2580~2583 / OIL RECOVERY TANK, PRE HEATER, OIL SEPARATOR	DNV	4	24 UNIT	180 ℃	2022
2022-5	DAEWOO SHIPBUILDING & MARINE ENGINEERING	KOBE STEEL	H2527 / DAMPER, SEPARATOR, CHARCOL FILTER	NK	11	12 UNIT	180 ℃	2023
2022-6	DAEWOO SHIPBUILDING & MARINE ENGINEERING	KANGRIM HEAVY INDUSTRIES	IGG / H.2523~2526 / GAS COOLER	BV	1	4 UNIT	50 ℃	2023
2022-7	HD HYUNDAI HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.3306&3307 / GAS COOLER	ABS & KR	1	2 UNIT	50 ℃	2023
2022-8	HD HYUNDAI HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.3221&3222 / GAS COOLER, STEAM HEATER	DNV & KR	2	4 UNIT	50 ℃	2023
2022-9	SAMSUNG HEAVY INDUSTRIES	KOBE STEEL	H2527 / OIL SEP, TANK, GAS COOLER, HEATER	NK	6	12 UNIT	180 ℃	2022
2022-10	DAEWOO SHIPBUILDING & MARINE ENGINEERING	KANGRIM HEAVY INDUSTRIES	IGG / H.2532~2535 / GAS COOLER, STEAM HEATER	ABS	2	8 UNIT	50 ℃	2023
2022-11	DAEWOO SHIPBUILDING & MARINE ENGINEERING	KANGRIM HEAVY INDUSTRIES	IGG / H.2528&2529&2537~2540 / GAS COOLER, STEAM HEATER	ABS & LR & DNV	1	6 UNIT	50 ℃	2023
2022-12	DAEWOO SHIPBUILDING & MARINE ENGINEERING	KOBE STEEL	H2523~2526 / OIL RECOVERY TANK, OIL SEPARATOR, GAS COOLER, PRE HEATER	BV	4	72 UNIT	50 ℃	2023
2022-13	HYUNDAI MIPO DOCKYARD	KANGRIM HEAVY INDUSTRIES	IGG / H.8100 / GAS COOLER	LR	1	1 UNIT	50 ℃	2023
2022-14	DAEWOO SHIPBUILDING & MARINE ENGINEERING	KANGRIM HEAVY INDUSTRIES	IGG / H.2523~2526 / STEAM HEATER	BV	1	4 UNIT	50 ℃	2023
2022-15	DAEWOO SHIPBUILDING & MARINE ENGINEERING	KOBE STEEL	H2536 / OIL RECOVERY TANK, PRE HEATER, STARTUP HEATER, GAS COOLER	NK	6	12 UNIT	180 ℃	2023
2022-16	DAEWOO SHIPBUILDING & MARINE ENGINEERING	KOBE STEEL	H2536 / DAMPER, SEPARATOR, CHARCOL FILTER	NK	11	12 UNIT	180 ℃	2023
2022-17	HD HYUNDAI HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.3224&3225 / STEAM HEATER	DNV & KR	1	2 UNIT	50 ℃	2023
2022-18	HD HYUNDAI HEAVY INDUSTRIES	KANGRIM HEAVY INDUSTRIES	IGG / H.3223&3224 / GAS COOLER	DNV & KR	1	2 UNIT	50 ℃	2023
2023-1	HD HYUNDAI HEAVY INDUSTRIES HANWHA OCEAN SAMSUNG HEAVY INDUSTRIES"	KANGRIM HEAVY INDUSTRIES	IGG / GAS COOLER, STEAM HEATER	"DNV & KR & LR & BV & ABS"	2	34 UNIT	50 ℃	2023~2025
2023-2	KR CLASS SOCIETY	E & CO	LNH3 HEAT EXCHANGER / HP LNH3 HEATER/COOLER CASE 2	BV	1	3 UNIT	70 ℃	2023
2023-3	QATAR GAS	KOBE STEEL	22-00323 QATAR GAS LNG (H2559~65) / DISCHARGE COOLER	BV & KR	3	21 UNIT	70 ℃	2023
2023-4	QATAR GAS	KOBE STEEL	DSME QATAR GAS 174K LNGC / H2566~71 / DISCHARGE COOLER	LR	3	18 UNIT	70 ℃	2023
2023-5	HANWHA OCEAN	KOBE STEEL	21-00574, 577 H2523~26 DSME MOL / CHARCOAL FILTER	NK & BV	2	8 UNIT	70 ℃	2023
2023-6	QATAR GAS	KOBE STEEL	DSME QATAR GAS 174K LNGC / H2546~49, 59~71 / VESSELS	NK & BV	11	17 UNIT	70 ℃	2023~2025
2023-7	MITSUI O.S.K. LINES, LTD.	KOBE STEEL	DSME MOL 174K LNGC / H2520,27,36 / VESSELS	NK	3	11 UNIT	70 ℃	2023~2025
2023-8	QATAR GAS	KOBE STEEL	DSME QATAR GAS 174K LNGC / H2546~49, 59~71 / VESSELS	BV & KR	17	11 UNIT	70 ℃	2025
2023-9	MITSUI O.S.K. LINES, LTD.	KOBE STEEL	DSME MOL 174K LNGC / H2520,27,36 / VESSELS	NK	3	11 UNIT	70 ℃	2025
2023-10	QATAR GAS	KOBE STEEL	DSME QATAR GAS 174K LNGC / H2559~65 / VESSELS	BV & KR	9	63 UNIT	70 ℃	2024

Experience List (for HYDROGEN)

JOB No.	END USER	CONTRACTOR	PROJECT Name / ITEM Name	LOCATION	ITEM	Q'TY	DELIVERY
2021-1	DOOSAN HEAVY INDUSTRIES	AIR LIQUIDE-FRANCH	CHANGWON H2 / AFTER COOLER	KOREA	1	2 UNIT	2022
2021-2	SK ENGINEERING & CONSTRUCTION	AIR LIQUIDE-FRANCH	SK LH2 / H2 BUFFER BEARINGS	KOREA	1	6 UNIT	2022
2022-1	SK E&S	AIR LIQUIDE-FRANCH	GREEN ENERGY PROGRAM 1 / TRUCK BOIL OFF HEATER	KOREA	1	1 UNIT	2022
2022-2	SK ENGINEERING & CONSTRUCTION	AIR LIQUIDE-FRANCH	SK LH2 / H2 GAS COOLER	KOREA	4	12 UNIT	2023

Experience List (for AMMONIA(NH3))

JOB No.	END USER	CONTRACTOR	PROJECT Name / ITEM Name	LOCATION	ITEM	Q'TY	DELIVERY
2023-1	KOREAN REGISTER OF SHIPPING (KR)	E&CO CO.,LTD	R&D PROJECT / HP LNH3 HEATER	KOREA	2	2 UNIT	2023
2023-2	HANWHA OCEAN	HANWHA OCEAN ECOTECH	AMMONIA FUEL SUPPLY SYSTEM / AMMONIA SEPARATOR	KOREA	1	1 UNIT	2023
2023-3	SUNBO INDUSTRIAL	SUNBO INDUSTRIAL	R&D TEST FACILITY / AMMONIA CONDENSER & HEATER	KOREA	3	4 UNIT	2023
2023-4	E&CO CO.,LTD	E&CO CO.,LTD	KOMERI KUNSAN PJT / LNH3 HEATER & COOLER	KOREA	2	2 UNIT	2023

Experience List (for MIDDLE EAST)

JOB No.	END USER	CONTRACTOR	PROJECT Name / ITEM Name	LOCATION	ITEM	Q'TY	DELIVERY
2014-1	ABU DHABI MARINE OPERATING CO.	SAMSUNG TECHWIN	SARB IA / OIL COOLER (AEW TYPE)	UAE	1	3 UNIT	2014
2015-1	KUWAIT NATIONAL PETROLEUM COMPANY	MISUZU Industrial Corporation	KNPC CLEAN FUEL / DRAIN POT	KUWAIT	1	3 UNIT	2015
2015-2	KUWAIT NATIONAL PETROLEUM COMPANY	MISUZU Industrial Corporation	KNPC CLEAN FUEL / N2 GAS FILTER	KUWAIT	1	6 UNIT	2015
2015-3	HYUNDAI CHEMICAL CO., LTD	MISUZU Industrial Corporation	HDC MX LLI PJT / DRAIN POT	KUWAIT	1	8 UNIT	2015
2015-4	KUWAIT NATIONAL PETROLEUM COMPANY	MISUZU Industrial Corporation	KNPC CLEAN FUEL / N2 GAS FILTER, DRAIN POT, BOOSTER POT	KUWAIT	3	2 UNIT	2015
2016-1	KUWAIT NATIONAL PETROLEUM COMPANY	MISUZU Industrial Corporation	SINOPEC KNPC / DRAIN POT & BOOSTER POT (ASME STAMP)	KUWAIT	2	2 UNIT	2016
2017-1	SAUDI ARAMCO	HANWHA POWER SYSTEMS	ETHANE DEEP RECOVERY FACILITY / OIL COOLER	SAUDI ARABIA	1	3 UNIT	2018
2019-1	BAHRAIN PERTROLEUM COMPANY	KOBE STEEL	BAPCO / LUBE OIL COOLER	BAHRAIN	3	5 UNIT	2019
2019-2	BAHRAIN PERTROLEUM COMPANY	KOBE STEEL	BAPCO / WATER COOLER	BAHRAIN	3	4 UNIT	2019
2019-3	SAUDI ARAMCO	HANWHA POWER SYSTEMS	HAWIYAH GAS PLANT EXPANSION / OIL COOLER	SAUDI ARABIA	1	4 UNIT	2019
2019-4	SAUDI ARAMCO	HANWHA POWER SYSTEMS	SHEDGUM / OIL COOLER	SAUDI ARABIA	1	1 UNIT	2019
2020-1	SAUDI ARAMCO	HANWHA POWER SYSTEMS	MARJAN INCREMENT PROGRAM PKG12 (AC) / OIL COOLER	SAUDI ARABIA	1	4 UNIT	2020
2022-1	QATAR GAS	HANWHA POWER SYSTEMS	QA_QC NFE IAC(CT JV) / OIL COOLER	QATAR	1	10 UNIT	2022
2022-2	ADVANCED GLOBAL INVESTMENT COMPANY	MITSUI E&S MACHINERY	APOC PDH / INTER STAGE GAS COOLER	SAUDI	1	2 UNIT	2022
2022-3	QATAR GAS	KOBE STEEL	S777 / 21-65526 / NORTH FIELD EAST / SEPARATOR DRUM	QATAR	1	4 UNIT	2023
2022-4	QATAR GAS	HANWHA POWER SYSTEMS	QA_QC NFE OAC(CTJV) / OIL COOLER	QATAR	1	2 UNIT	2023
2022-5	SAUDI ARAMCO	HANWHA POWER SYSTEMS	JAFURAH (IAC) / OIL COOLER	SAUDI ARABIA	1	4 UNIT	2023
2022-6	SAUDI ARAMCO	HANWHA POWER SYSTEM	JULUF / KO DRUM	SAUDI	2	8 UNIT	2023
2023-1	QATAR GAS	KOBE STEEL	DSME QATAR GAS 174K LNGC / H2546~49, 59~71 / VESSELS	QATAR	11	17 UNIT	2023~2025
2023-2	SAUDI ARAMCO	HANWHA POWER SYSTEMS	GAS INCREMENT PROGRAM / OIL COOLER	SAUDI ARABIA	1	6 UNIT	2024
2023-3	QATAR GAS	KOBE STEEL	22-00323 QATAR GAS LNG (H2559~65) / DISCHARGE COOLER	QATAR	3	21 UNIT	2023
2023-4	QATAR GAS	KOBE STEEL	DSME QATAR GAS 174K LNGC / H2566~71 / DISCHARGE COOLER	QATAR	3	18 UNIT	2023
2023-5	DAEWOO SHIPBUILDING & MARINE ENGINEERING	KOBE STEEL	DSME MOL OP4 (22-00347/53/59)	QATAR	3	9 UNIT	2024
2023-6	TECNIMONT	HANWHA POWER SYSTEMS	CE5816 TECNIMONT BOROUGE 4 / OIL COOLER	UAE	1	4UNIT	2023
2023-7	QATAR GAS	KOBE STEEL	DSME QATAR GAS 174K LNGC / H2546~49, 59~71 / VESSELS	QATAR	11	17 UNIT	2025
2023-8	QATAR GAS	KOBE STEEL	DSME QATAR GAS 174K LNGC / H2559~65 / VESSELS	QATAR	9	63 UNIT	2024

Experience List (for SAUDI ARAMCO PROJECT)

JOB No.	CUSTOMER	CONTRACTOR	PROJECT Name / ITEM Name	LOCATION	ITEM	Q'TY	DELIVERY
2017-1	SAUDI ARAMCO	HANWHA POWER SYSTEMS	ETHANE DEEP RECOVERY FACILITY / INTER, AFTER COOLER	SAUDI ARABIA	3	9 UNIT	2018
2017-2	SAUDI ARAMCO	HANWHA POWER SYSTEMS	ETHANE DEEP RECOVERY FACILITY / OIL COOLER	SAUDI ARABIA	1	3 UNIT	2018
2019-1	SAUDI ARAMCO	HANWHA POWER SYSTEMS	HAWIYAH GAS PLANT EXPANSION / INTER, AFTER COOLER	SAUDI ARABIA	3	12 UNIT	2019
2019-2	SAUDI ARAMCO	HANWHA POWER SYSTEMS	HAWIYAH GAS PLANT EXPANSION / OIL COOLER	SAUDI ARABIA	1	4 UNIT	2019
2019-3	SAUDI ARAMCO	HANWHA POWER SYSTEMS	SHEDGUM / INTER, AFTER COOLER	SAUDI ARABIA	3	3 UNIT	2019
2019-4	SAUDI ARAMCO	HANWHA POWER SYSTEMS	SHEDGUM / OIL COOLER	SAUDI ARABIA	1	1 UNIT	2019
2020-1	SAUDI ARAMCO	HANWHA POWER SYSTEMS	MARJAN INCREMENT PROGRAM PKG12 (AC) / INTER, AFTER COOLER	SAUDI ARABIA	3	12 UNIT	2020
2020-2	SAUDI ARAMCO	HANWHA POWER SYSTEMS	MARJAN INCREMENT PROGRAM PKG12 (AC) / OIL COOLER	SAUDI ARABIA	1	4 UNIT	2020
2020-3	SAUDI ARAMCO	HANWHA POWER SYSTEMS	MARJAN DEVELOPMENT PROGRAM PKG 10 / INTER COOLER	SAUDI ARABIA	2	12 UNIT	2021
2022-1	SAUDI ARAMCO	HANWHA POWER SYSTEMS	MARJAN INCREMENT PROGRAM PKG12 (MAC for ASU) / INTER,AFTER COOLER	SAUDI ARABIA	3	12 UNIT	2022
2022-2	SAUDI ARAMCO	HANWHA POWER SYSTEMS	MARJAN INCREMENT PROGRAM PKG12 / COMPANDER AFTER COOLER	SAUDI ARABIA	1	2 UNIT	2023
2022-3	SAUDI ARAMCO	HANWHA POWER SYSTEMS	JAFURAH (IAC) / INTER, AFTER COOLER	SAUDI ARABIA	3	12 UNIT	2023
2022-4	SAUDI ARAMCO	HANWHA POWER SYSTEMS	JAFURAH (IAC) / OIL COOLER	SAUDI ARABIA	1	4 UNIT	2023
2023-1	SAUDI ARAMCO	HANWHA POWER SYSTEMS	GAS INCREMENT PROGRAM / OIL COOLER	SAUDI ARABIA	1	6 UNIT	2024

Experience List (for RUSSIA TR-CU)

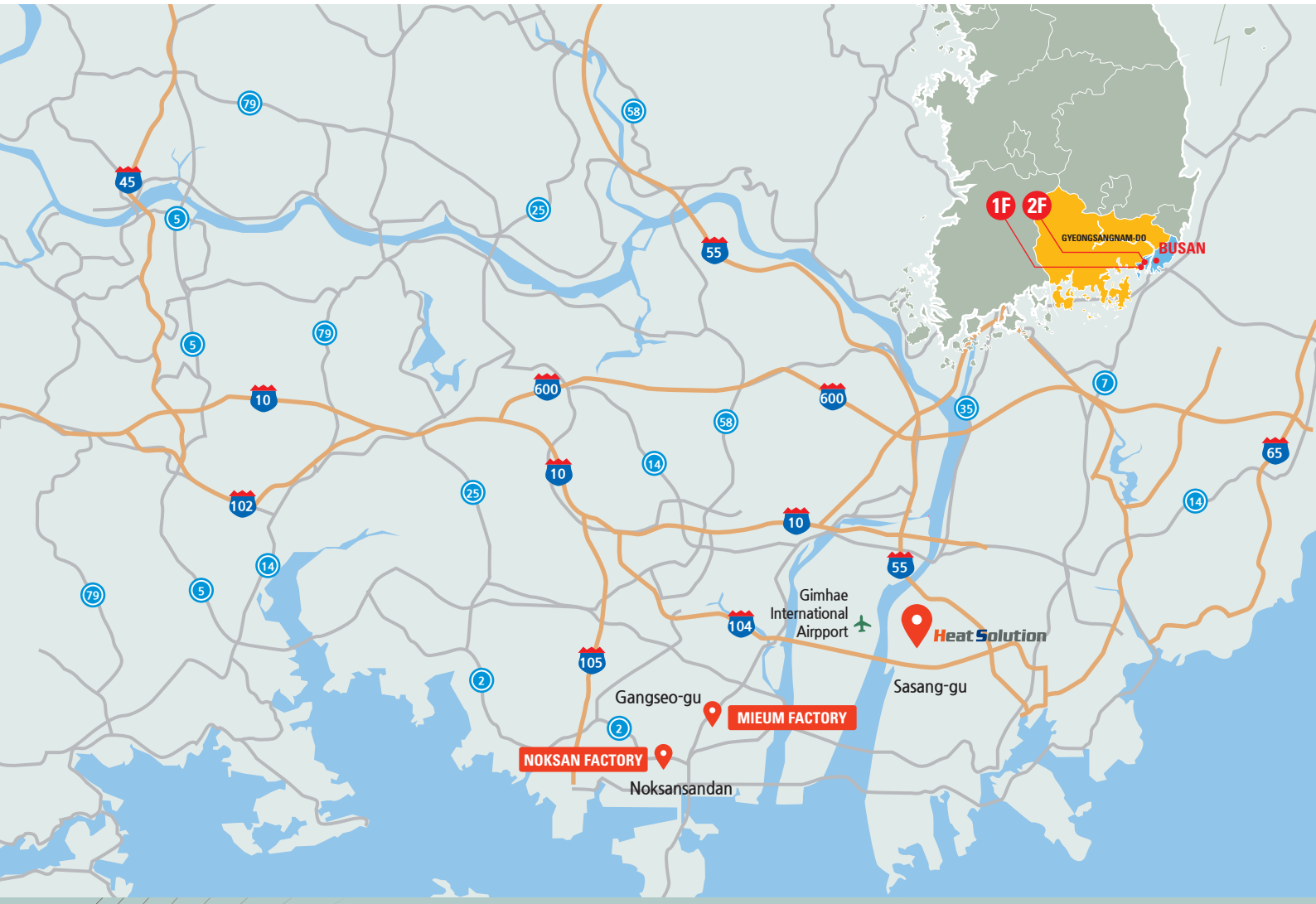
JOB No.	CUSTOMER	CONTRACTOR	PROJECT Name / ITEM Name	LOCATION	ITEM	Q'TY	DELIVERY
2017-1	SEVERSTAL	HANWHA POWER SYSTEMS	RU SEVERSTAL / INTER, AFTER COOLER	RUSSIA	3	9 UNIT	2017
2017-2	KAZANORGSINTEZ	HANWHA POWER SYSTEMS	RU KAZANORGSYNTHEZ #01 / INTER, AFTER, OIL COOLER	RUSSIA	5	4 UNIT	2018
2017-3	OLTIN YO'L GTL	KOBE STEEL	HEC/OLTIN YO'L GTL / OIL COOLER, CW COOLER	UZBEKISTAN	6	6 UNIT	2018
2017-4	OLTIN YO'L GTL	KOBE STEEL	UZBEKISTAN GAS TO LIQUID / PRESSURE VESSEL	UZBEKISTAN	11	24 UNIT	2017
2018-1	AMUR GAS PROCESSING PLANT	HANWHA POWER SYSTEMS	TECNIMONT AGPP SINERGIA / INTER, OIL COOLER	RUSSIA	5	6 UNIT	2018
2018-2	AMUR GAS PROCESSING PLANT	HANWHA POWER SYSTEMS	TECNIMONT AGPP SIAD / INTER, OIL COOLER	RUSSIA	3	6 UNIT	2018
2018-3	CRYOGENMASH	HANWHA POWER SYSTEMS	S_RU CRYOGENMASH ZHELEZNOGORSK / AFTER COOLER	RUSSIA	1	1 UNIT	2018
2018-4	NEFTECHEMSERVICE	HANWHA POWER SYSTEMS	YAISKY / AFTER COOLER	RUSSIA	1	1 UNIT	2019
2019-5	NIZHNEKAMSKNEFTEKHIM	HANWHA POWER SYSTEMS	LINDE Nizhnekamsk / INTER COOLER	RUSSIA	2	1 UNIT	2020
2019-1	TOYO INKGCC	HANWHA POWER SYSTEMS	IPP 650 KTA Ethylene Plant / INTER, OIL COOLER	RUSSIA	3	1 UNIT	2020
2019-2	VNIIEF	HANWHA POWER SYSTEMS	RU VNIIEF / AFTER COOLER	RUSSIA	2	1 UNIT	2020
2019-3	ALNG	HANWHA POWER SYSTEMS	TECHNIP ARCTIC LNG2 / INTER, OIL COOLER	RUSSIA	6	6 UNIT	2020
2019-4	SIBUR	HANWHA POWER SYSTEMS	RU SIBUR / AFTER, RECYCLE COOLER	RUSSIA	2	1 UNIT	2020
2020-5	VNIEF	HANWHA POWER SYSTEMS	VNIEF PJT / AFTER COOLER	RUSSIA	1	1 UNIT	2020
2020-6	SIAD	HANWHA POWER SYSTEMS	RU_SIAD / INTER COOLER	RUSSIA	3	1 UNIT	2021
2020-7	AMUR GCC LLC	HANWHA POWER SYSTEMS	LINDE- SIBUR / INTER, OIL COOLER	RUSSIA	3	1 UNIT	2021
2021-1	SIBUR	KOBE STEEL	SIBUR / OIL COOLER	RUSSIA	1	1 UNIT	2021
2021-2	SIBUR	KOBE STEEL	SIBUR / DRAIN POT	RUSSIA	1	1 UNIT	2021
2021-3	SIBUR	KOBE STEEL	SIBUR / LUBE OIL HEAD TANK	RUSSIA	1	1 UNIT	2021
2021-4	SIAD	HANWHA POWER SYSTEMS	RU_SIAD VYKSA MAC / INTER,AFTER COOLER	RUSSIA	3	3 UNIT	2022
2021-5	SIAD	HANWHA POWER SYSTEMS	RU_SIAD VYKSA MAC / INTER,AFTER COOLER	RUSSIA	3	2 UNIT	2022
2021-6	SIAD	HANWHA POWER SYSTEMS	RU_SIAD VYKSA / OIL COOLER	RUSSIA	2	2 UNIT	2022
2021-7	LEDEDINSKY	HANWHA POWER SYSTEMS	LINDE LEBEDINSKY / AFTER COOLER	RUSSIA	1	1 UNIT	2022
2021-8	AIR LIQUIDE	HANWHA POWER SYSTEMS	RUSSIA SEVERSTAL B15 / INTER,AFTER, OIL COOLER	RUSSIA	5	1 UNIT	2022
2021-9	RED METAL, SWITZERLAND, LINDE	HANWHA POWER SYSTEMS	S_RU_LINDE AFIPSKY-2 MAC / AFTER COOLER	RUSSIA	1	3 UNIT	2022
2021-10	JSC TATENERGO	HANWHA POWER SYSTEMS	ENKA ZAINSKAYA FGC / INTER,RECYCLE, OIL COOLER	RUSSIA	3	4 UNIT	2022
2021-11	AMUR	SEAH ENGINEERING	AMUR / INTER,AFTER COOLER	RUSSIA	4	5 UNIT	2022
2022-1	-	HANWHA POWER SYSTEMS	SIN TZ #2 / INTER,AFTER COOLER	RUSSIA	3	1 UNIT	2022

Experience List (for RUSSIA TR-CU)

JOB No.	CUSTOMER	CONTRACTOR	PROJECT Name / ITEM Name	LOCATION	ITEM	Q'TY	DELIVERY
2022-2	-	HANWHA POWER SYSTEMS	VOLKUZ #1 / INTER,AFTER COOLER	RUSSIA	3	1 UNIT	2022
2022-3	GARANT ENERGO	HANWHA POWER SYSTEMS	GARANT ENERGO #1 / INTER,AFTER COOLER	RUSSIA	3	1 UNIT	2022
2022-4	BUKHTARMA	HANWHA POWER SYSTEMS	BUKHTARMA #2 / INTER,AFTER COOLER	KAZAHSTAN	3	1 UNIT	2022
2022-5	-	HANWHA POWER SYSTEMS	KAMA / INTER,AFTER COOLER	KAZAHSTAN	3	3 UNIT	2022
2022-6	PREMIX	HANWHA POWER SYSTEMS	PREMIX #3 / INTER COOLER	RUSSIA	2	1 UNIT	2022
2022-7	-	HANWHA POWER SYSTEMS	KAZCHROME AKSU #1,2 / INTER,AFTER COOLER	KAZAHSTAN	6	2 UNIT	2022
2022-8	-	HANWHA POWER SYSTEMS	FERGANA PROEJCT / INTER,AFTER COOLER	UZBEKISTAN	2	1 UNIT	2022
2022-9	GAYASKIY GOK	HANWHA POWER SYSTEMS	GAYASKIY GOK / INTER,AFTER COOLER	RUSSIA	2	1 UNIT	2023
2022-10	OMK	HANWHA POWER SYSTEMS	OMK VYKSA #4 / INTER,AFTER COOLER	RUSSIA	9	3 UNIT	2023
2022-11	-	HANWHA POWER SYSTEMS	CHKPZ #1 / INTER,AFTER COOLER	RUSSIA	3	1 UNIT	2022

Together 2570

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