UPDATED: 05 MAR. 2025

KEON SAE HIGH PRESSURE CO., LTD.

(株)健世高壓

KEON SAE HIGH PRESSURE CO .,LTD.

Personal Safety Equipment Requirement

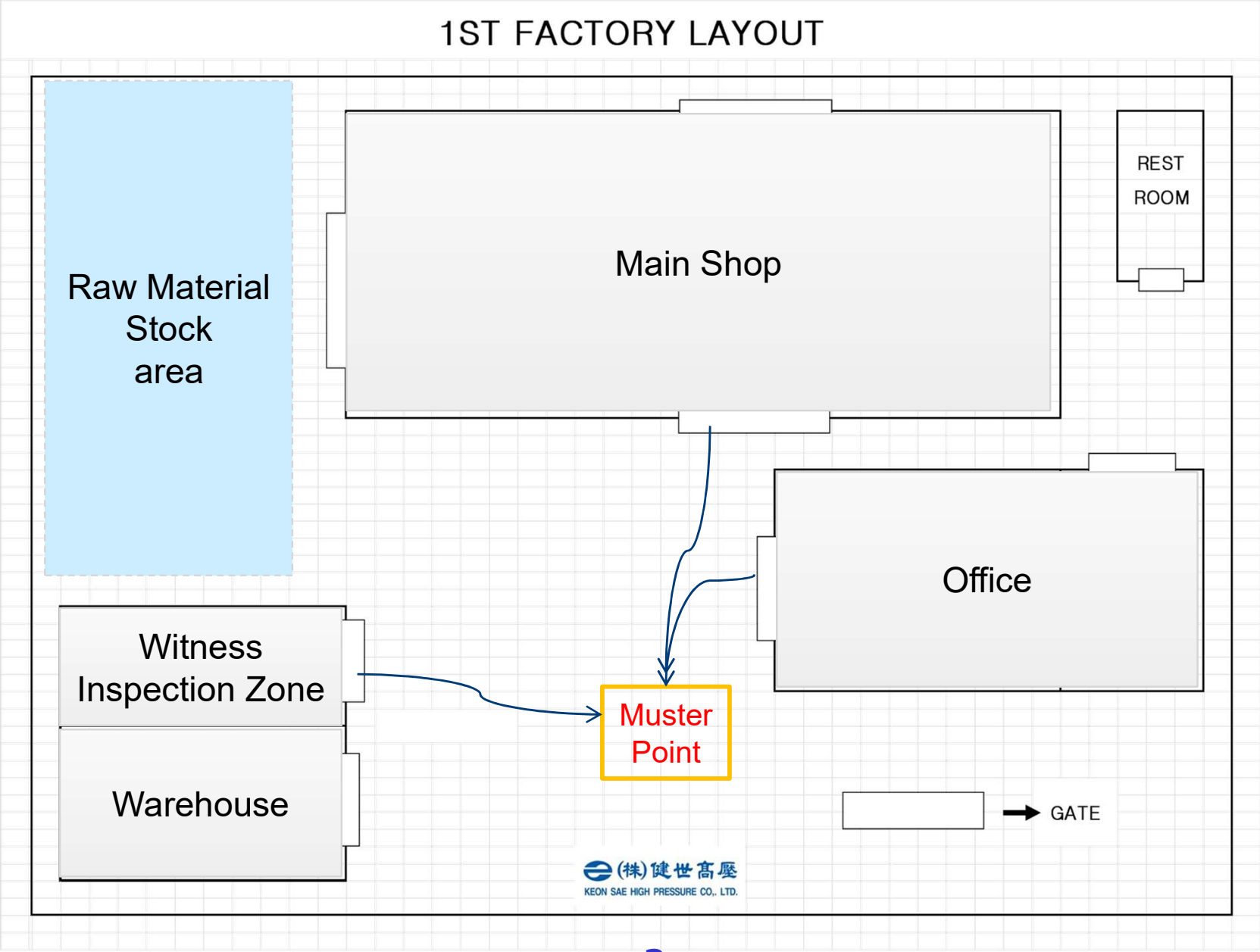
Hard Hat	All workers and visitors are obliged to wear the hard hat in the shop.

Safety Shoes	All workers at workshop are obliged to wear the Safety Shoes in the shop. Visitors will follow instruction.

Safety Glass	All workers are obliged to wear the Safety Glass in the shop. Visitors will follow instruction.

Security	Photo prohibited at shop Follow instruction of accompanied Guider during shop tour

Emergency Evacuation



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1. SALES WORLD WIDE

USA
Canada
Colombia
Bolivia
Chile

Egypt
Algeria
Libya
Nigeria
Congo
Morocco

Norway
Italy
Spain

Saudi Arabia
Kuwait
UAE
Qatar
Oman
Turkey
Turkmenistan
Uzbekistan
Iran
Iraq

India
Malaysia
Indonesia
Thailand
Philippine
Taiwan
Vietnam
Bangladesh
Myanmar

2. HEALTH, SAFETY AND ENVIRONMENT POLICY

KEON SAE HIGH PRESSURE CO.,LTD. treasures natural environment, safety and health of the public, clients and employees.
It is our company policy to protect them by all means throughout the execution of our business activities with the following principle ;

* We meet the requirements of applicable international codes and standards, as well as local regulations.

* We will evaluate and minimize the impact of health, safety and environment.

* We will reduce energy consumption and introduce programs to recover waste and recycle materials.

* We continue to cooperate with our business partners to enhance the technologies to fulfill our commitments.

This policy meets legal requirements for health, safety and environment management of this company.
It also includes that we should observe by all means to prevent our work place from industrial accidents and harmful environment.
Therefore, the health, safety and environment management policy can be successful
only if the company, management and workers together observe all the regulations related to the health, safety and environment policy sincerely.

KEON SAE HIGH PRESSURE CO.,LTD.
Y. K. Yang
PRESIDENT

3. EMERGENCY ORGANIZATION CHART

President Yang Yong Kil

Director Lee Dong Hwan

Control Team	Fire Extinguishing Team	Evacuation Induction Team	Emergency Rescue Team
Jo Hong Rae	Shin Bong Kil	Yoon Jung Woong	Kwon Dae Hyuk
An Hyun Woo	Park Jin Sol	Park Sang Min	Kang Tae Yee

4. ORGANIZATION CHART

Employee	
President	1
Sales Team	11
Quality Assurance Team	6
Supply & Purchasing Team	2
R&D Team	2
Manufacturing Team	7
Administration Team	2
Shop Worker	27
TOTAL	58

Office Worker	31
Production Worker	27
TOTAL	58

President Yang Yong Kil (45 Years)

Quality Assurance Team
Leader
Jung Young Seok (7 Years)

Quality System Management
Witness inspection
Certificate Management

Purchasing Team
Leader
Shin Bong Kil
(17 Years)

- Outsourcing Material Purchasing
- Financial Status Human Resource

Administration Team
Leader
Yang Hae Jin
(17 Years)

R&D Team
Leader
Choi Jae Hoon
(5 Years)

- Design, Research & Development

Manufacturing Team
Leader
Lee Dong Hwan (14 Years)

- Production &Process Control
- Design &Calculation

Sales Team

Head Office Director
Kim Sung Chan
(20 Years)
- Domestics /EPC Marketing

Head Office Director
Yang Seong Je
(9 Years)
- Overseas Marketing

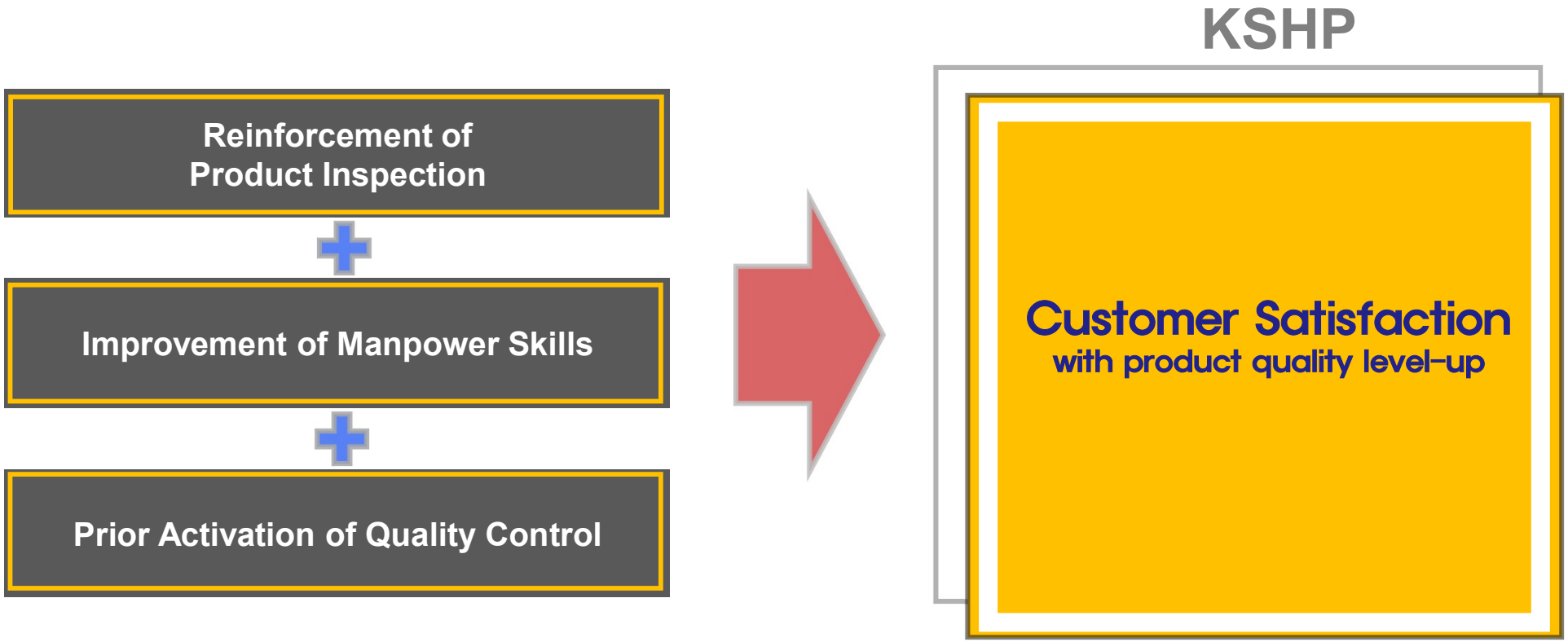
Seoul Office Leader
Jeong Ho Meng
(15 Years)
- EPC, Agent Marketing

As of 12 DEC. 2023

5. 2025 MANAGEMENT POLICY

KSHP's Quality Management Policy

Our mission is to be the leading supplier of Fitting items that provide excellent products and services to increase our customer's competitiveness.



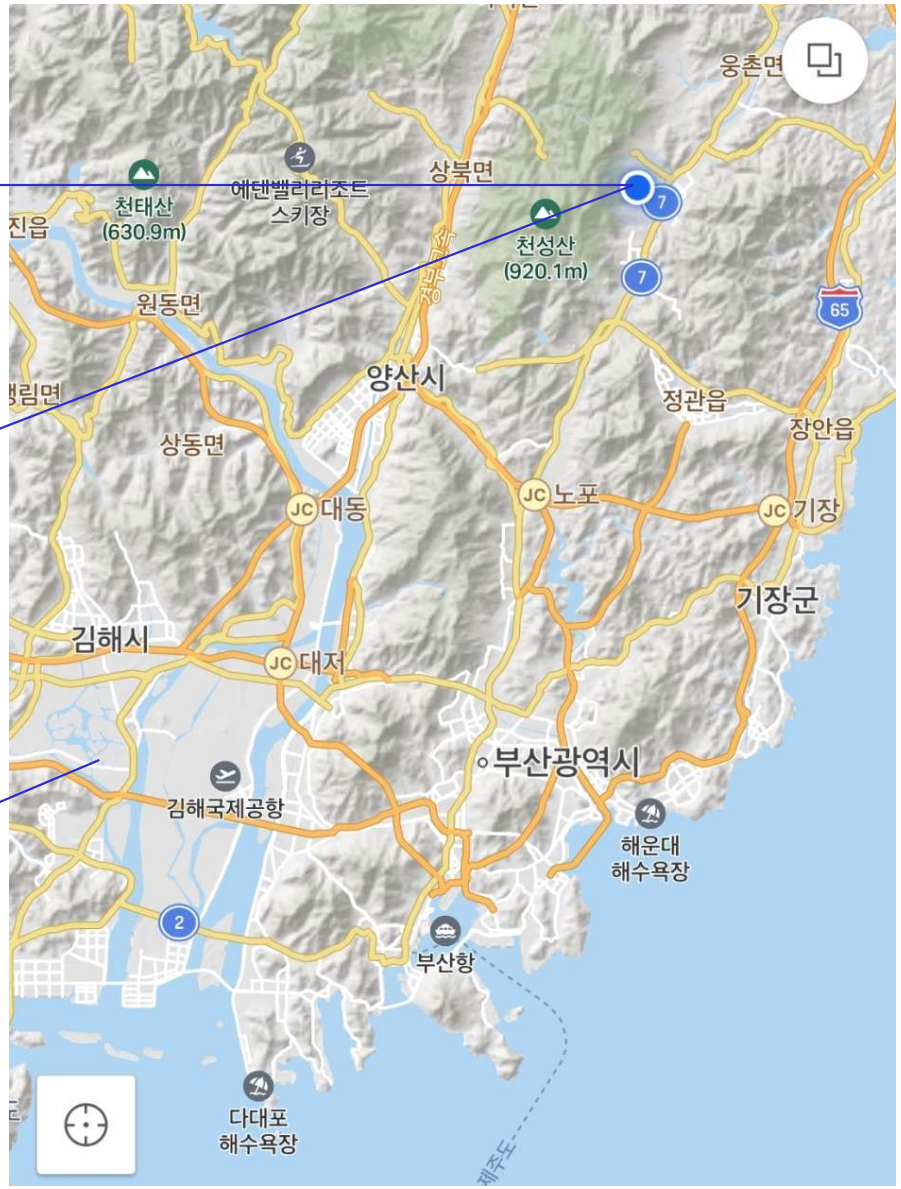
7. COMPANY STATUS

Company type		Company Limited
President		Yang Y.K.
Establishment		20 Mar. 1978
Head Office and Plant	1st Factory (Head Office)	#119-29, Soju-ro, Yangsan-si, Gyeongnam, Korea
	2nd Factory	#76, Soju-ro, Yangsan-si, Gyeongnam, Korea
	3rd Factory	#119-23, Soju-ro, Yangsan-si, Gyeongnam, Korea
	Forging Factory	#80-112, Goldenroute-ro, Juchon-myeon, Gimhae-si, Gyeongnam, Korea
	Area	Land: 6,794.00m^2 Covered: 4,375.45m^2 Uncovered: 2,418.55m^2)

7. COMPANY STATUS

Products	1.Forged Fittings & Flanges
	2.Cupro Nickel Pipe, Fittings & Flanges
	3. Special Fittings
Certificates	ISO 9001, ISO 14001, ISO 45001, CE-PED, BV
Applicable Standards	ANSI, ASTM, ASME, MSS SP, EEMUA, JIS, KS
Business Area	Oil&Gas, Power, Desalination, Petrochemical, Shipbuilding, Offshore, Construction
Number of Employees	58

8. LOCATIONS OF MANUFACTURING FACILITIES



9. PRODUCTS LINE UP

World Best!

PRODUCTS LINE-UP FORGED FITTINGS
(ASME B16.11, MSS-SP)

- ELBOW (90° 45°)
- TEE(STRAIGHT, REDUCING)
- COUPLING(FULL, HALF)
- UNION
- CAP
- BOSS
- REDUCER(CONCENTRIC, ECCENTRIC)
- PLUG(ROUND HEAD, SQUARE HEAD, HEX HEAD)
- BUSHING(HEX HEAD, FLUSH)
- NIPPLE(PIPE, HEX)
- SWAGE
- BRANCH OUTLET NIPPLE
- BRANCH OUTLET BUTT WELD
- BRANCH OUTLET SOCKET
- BRANCH OUTLET THREADS
- BRANCH OUTLET FLANGE

PRODUCTS LINE-UP WROUGHT FITTINGS

- DIMENSION OF WELDING ENDS
- BUTT WELDING FITTINGS
- SOCKET WELDING FITTINGS
- THREADED FITTINGS
- BRANCH CONNECTION FITTINGS

PRODUCTS LINE-UP FLANGES

- SOLID WELD NECK
- SOLID SLIP - ON
- STUB ENDS

9. PRODUCTS LINE UP

Forged Fittings

9. PRODUCTS LINE UP

Branch outlet

BUTT WELD

SOCKET

THREADS

AND OTHER BRANCH OUTLET

FLANGE

NIPPLE

We save GREEN

9. PRODUCTS LINE UP

Wrought Fittings

45ELBOW

SWAGE

TEE

REDUCER

90 ELBOW

CAP

We save GREEN

9. PRODUCTS LINE UP

Flanges

BLIND

SLIP-ON

WELD NECK

FLANGE WITH SLIVER-RING

WELD NECK STUB END

THREADED

COMPOSITE

C70600+A105GAL'V

We save GREEN

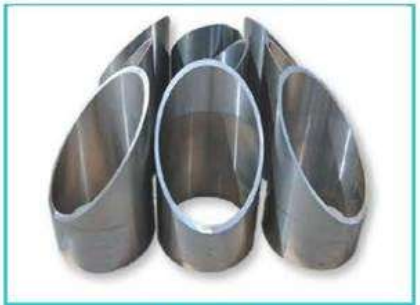
9. PRODUCTS LINE UP

Special

END CAP TYPE-1

DUMMY SPOOL

DUMMY SPOOL



SLEEVE

FORGED NOZZLE

NOZZLE

CONDENSATE POT

SAFETY VALVE NOZZLE

THERMOCOUPLING WELL

INSPECTION NOZZLE

SAMPLE NOZZLE

We save GREEN

9. PRODUCTS LINE UP

PRODUCT RANGE

ITEM NAME	MATERIALS	SIZE (Max. Inch)	CAPACITY (Tons / Year)	PICTURE
90, 45 ELBOW TEE	**C/STEEL** (A105,A350-LF2) **STAINLESS STEEL** (F304/304L,F316/316L,F321) **LOW ALLOY STEEL** (F11,F22,F5,F9, F91) **CU-NI(90-10/ 70-30), B61** **DUPLEX, SUPER DUPLEX** **MONEL, INCONEL**	~ 4 inch	3,500 Tons	
90, 45 ELBOW TEE (Butt Weld)	**CU-NI(90-10/70-30)**	~ 24 inch	300 Tons	
FULL COUPLING **HALF COUPLING**	**C/STEEL** (A105,A350-LF2) **STAINLESS STEEL** (F304/304L,F316/316L,F321) **LOW ALLOY STEEL** (F11,F22,F5,F9, F91) **CU-NI(90-10/ 70-30), B61** **DUPLEX, SUPER DUPLEX** **MONEL, INCONEL**	~ 4 inch	600 Tons	

9. PRODUCTS LINE UP

PRODUCT RANGE

ITEM NAME	MATERIALS	SIZE (Max. Inch)	CAPACITY (Tons / Year)	PICTURE
CONCENTRIC, ECCENTRIC REDUCER	**C/STEEL** (A105,A350-LF2) **STAINLESS STEEL** (F304/304L,F316/316L,F321) **LOW ALLOY STEEL** (F11,F22,F5,F9, F91) **CU-NI(90-10/ 70-30), B61** **DUPLEX, SUPER DUPLEX** **MONEL, INCONEL**	~ 4 inch	100 Tons	
CONCENTRIC, ECCENTRIC REDUCER (Butt Weld)	**CU-NI(90-10/ 70-30)**	~ 24 inch	150 Tons	
REDUCER INSERT	**C/STEEL** (A105,A350-LF2) **STAINLESS STEEL** (F304/304L,F316/316L,F321) **LOW ALLOY STEEL** (F11,F22,F5,F9, F91) **CU-NI(90-10/ 70-30), B61** **DUPLEX, SUPER DUPLEX** **MONEL, INCONEL**	~ 4 inch	100 Tons	

9. PRODUCTS LINE UP

PRODUCT RANGE

ITEM NAME	MATERIALS	SIZE (Max. Inch)	CAPACITY (Tons / Year)	PICTURE
SQUARE PLUG HEX PLUG ROUND PLUG	**C/STEEL** (A105,A350-LF2) **STAINLESS STEEL** (F304/304L,F316/316L,F321) **LOW ALLOY STEEL** (F11,F22,F5,F9, F91) **CU-NI(90-10/ 70-30), B61** **DUPLEX, SUPER DUPLEX** **MONEL, INCONEL**	~4 inch	100 Tons	
CAP BUSHING BOSS	**C/STEEL** (A105,A350-LF2) **STAINLESS STEEL** (F304/304L,F316/316L,F321) **LOW ALLOY STEEL** (F11,F22,F5,F9, F91) **CU-NI(90-10/ 70-30), B61** **DUPLEX, SUPER DUPLEX** **MONEL, INCONEL**	~4 inch ~2 inch (Bushing)	150 Tons	
UNION	**C/STEEL** (A105,A350-LF2) **STAINLESS STEEL** (F304/304L,F316/316L,F321) **LOW ALLOY STEEL** (F11,F22,F5,F9, F91) **CU-NI(90-10/ 70-30), B61** **DUPLEX, SUPER DUPLEX** **MONEL, INCONEL**	~4 inch	150 Tons	

9. PRODUCTS LINE UP

PRODUCT RANGE

ITEM NAME	MATERIALS	SIZE (Max. Inch)	CAPACITY (Tons / Year)	PICTURE
NIPPLE SWAGED NIPPLE	**C/STEEL** (A105,A350-LF2) **STAINLESS STEEL** (F304/304L,F316/316L,F321) **LOW ALLOY STEEL** (F11,F22,F5,F9, F91) **CU-NI(90-10/ 70-30), B61** **DUPLEX, SUPER DUPLEX** **MONEL, INCONEL**	~ 4 inch	200 Ton	
FLANGE (WN, SO, RTJ) **COMPOSITE OVERLAY**	**C/STEEL** (A105,A350-LF2) **STAINLESS STEEL** (F304/304L,F316/316L,F321) **LOW ALLOY STEEL** (F11,F22,F5,F9, F91) **CU-NI(90-10/ 70-30), B61** **DUPLEX, SUPER DUPLEX** **MONEL, INCONEL**	~ 24 inch	350 Ton	
Branch Outlet-Socket, Threads, Butt weld	**C/STEEL** (A105,A350-LF2) **STAINLESS STEEL** (F304/304L,F316/316L,F321) **LOW ALLOY STEEL** (F11,F22,F5,F9, F91) **CU-NI(90-10/ 70-30), B61** **DUPLEX, SUPER DUPLEX** **MONEL, INCONEL**	~ 4 inch ~ 26 inch (upto 60 inches for BW type)	1,600 Ton	

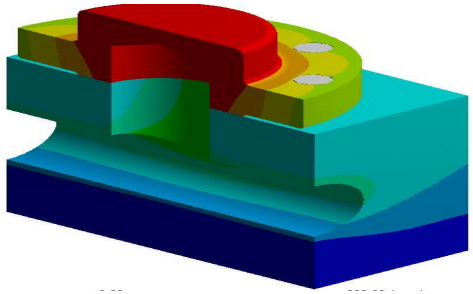
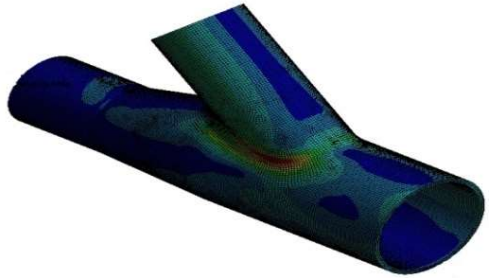
9. PRODUCTS LINE UP

PRODUCT RANGE

ITEM NAME	MATERIALS	SIZE (Max. Inch)	CAPACITY (Tons / Year)	PICTURE
Branch Outlet-Flange	**C/STEEL** (A105,A350-LF2) **STAINLESS STEEL** (F304/304L,F316/316L,F321) **LOW ALLOY STEEL** (F11,F22,F5,F9, F91) **CU-NI(90-10/ 70-30), B61** **DUPLEX, SUPER DUPLEX** **MONEL, INCONEL**	~ 4 inch	500 Ton	
Branch Outlet-Nipple	**C/STEEL** (A105,A350-LF2) **STAINLESS STEEL** (F304/304L,F316/316L,F321) **LOW ALLOY STEEL** (F11,F22,F5,F9, F91) **CU-NI(90-10/ 70-30), B61** **DUPLEX, SUPER DUPLEX** **MONEL, INCONEL**	~ 2 ½ inch	300 Ton	
SPECIAL FITTING	**C/STEEL** (A105,A350-LF2) **STAINLESS STEEL** (F304/304L,F316/316L,F321) **LOW ALLOY STEEL** (F11,F22,F5,F9, F91) **CU-NI(90-10/ 70-30), B61** **DUPLEX, SUPER DUPLEX** **MONEL, INCONEL**	Custom Made	-	

9. PRODUCTS LINE UP

PRODUCT RANGE

ITEM NAME	MATERIALS	SIZE (Max. Inch)	CAPACITY (Tons / Year)	PICTURE
WN FLANGE	**A788GR4130, A105, A182F316L,N06625**	~ 24 inch	350 Ton	
SPECIAL FITTING TARGET ELBOW, TEE	**A788GR4130, A105, A182F316L,N06625**	Custom Made	-	
SPECIAL LATERAL TEE	**C/STEEL** (A105,A350-LF2) **STAINLESS STEEL** (F304/304L,F316/316L,F321) **LOW ALLOY STEEL** (F11,F22,F5,F9, F91) **DUPLEX, SUPER DUPLEX**	Custom Made	-	

9. PRODUCTS LINE UP

PRODUCT RANGE

ITEM NAME	MATERIALS	SIZE (Max. Inch)	CAPACITY (Tons / Year)	PICTURE
Reducer Spool (12 SET)	**A182-F304** **(WN Flange A182-F304 20” , 16”)** **(C/Reducer A403-WP304 20” x 16”)** **WPS&PQR(RT), PT, Hydro Test,** Passivation	20” x 16”	3 Ton (2021)	
Cu-Ni Pipe	**CU-NI(90-10 / 70-30)** **B466-C70600, B466-C71500**	½” ~ 8”	100 ton	

10. CERTIFICATES

Certificate KR18/81825945

The management system of

Keon Sae High Pressure Co., Ltd.

#119-29, Soju-ro, Yangsan-si, Gyeongsangnam-do, Korea

has been assessed and certified as meeting the requirements of

ISO 9001:2015

For the following activities
Manufacture of fitting, pipe and flanges for high pressure (Ferrous and Nonferrous Materials)

This certificate is valid from 02 June 2023 until 28 April 2025 and remains valid subject to satisfactory surveillance audits.

Issue 6. Certified since 29 April 2016.
Certified activities performed by additional sites are listed on subsequent pages.

Authorised by
Jonathan Hall
Global Head - Certification Services

SGS United Kingdom Ltd
Rossmore Business Park, Ellesmere Port, Cheshire, CH65 3EN, UK
t +44 (0)151 350-6666 - www.sgs.com

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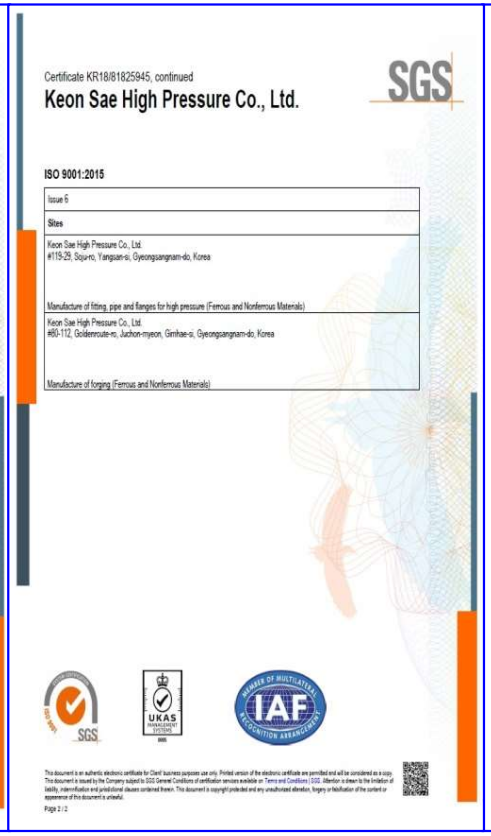

Certificate KR18/81825945, continued

Keon Sae High Pressure Co., Ltd.

ISO 9001:2015

Issue 6
Sites
Keon Sae High Pressure Co., Ltd. #119-29, Soju-ro, Yangsan-si, Gyeongsangnam-do, Korea Manufacture of fitting, pipe and flanges for high pressure (Ferrous and Nonferrous Materials)
Keon Sae High Pressure Co., Ltd. #85-112, Goldenroute-ro, Jachon-myeon, Gimhae-si, Gyeongsangnam-do, Korea Manufacture of forging (Ferrous and Nonferrous Materials)

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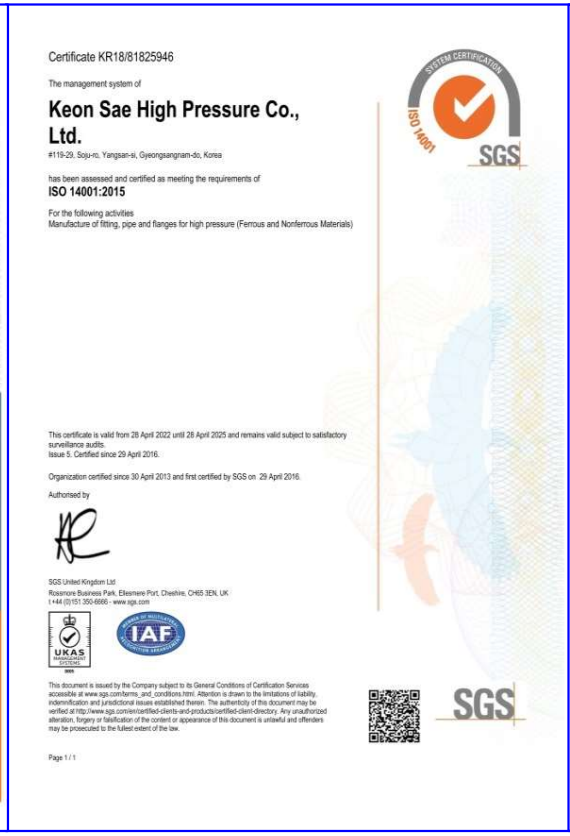

Certificate KR18/81825946

The management system of

Keon Sae High Pressure Co., Ltd.

#119-29, Soju-ro, Yangsan-si, Gyeongsangnam-do, Korea

has been assessed and certified as meeting the requirements of

ISO 14001:2015

For the following activities
Manufacture of fitting, pipe and flanges for high pressure (Ferrous and Nonferrous Materials)

This certificate is valid from 28 April 2022 until 28 April 2025 and remains valid subject to satisfactory surveillance audits.
Issue 5. Certified since 29 April 2016.

Organization certified since 30 April 2013 and first certified by SGS on 29 April 2016.

Authorised by

SGS United Kingdom Ltd
Rossmore Business Park, Ellesmere Port, Cheshire, CH65 3EN, UK
t +44 (0)151 350-6666 - www.sgs.com

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Certificate KR20/81826467

The management system of

Keon Sae High Pressure Co., Ltd.

#119-29, Soju-ro, Yangsan-si, Gyeongnam, Korea

has been assessed and certified as meeting the requirements of

ISO 45001:2018

For the following activities

Manufacture of fitting, pipe and flanges for high pressure (ferrous and nonferrous materials)

This certificate is valid from 23 October 2020 until 23 October 2023 and remains valid subject to satisfactory surveillance audits.
Recertification audit due a minimum of 60 days before the expiration date.
Issue 1. Certified since 23 October 2020

Authorised by

SGS United Kingdom Ltd
Rossmore Business Park Ellesmere Port Cheshire CH65 3EN UK
t +44 (0)151 350-6666 f +44 (0)151 350-6600 www.sgs.com

HC SGS 45001 2018 0318

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Certification	ISO 9001	ISO 14001	ISO 45001
Scope	Manufacture of fitting, pipe and flanges for high pressure / Manufacture of forging	Manufacturing of fittings, pipe and flanges for high pressure	Manufacturing of fittings, pipe and flanges for high pressure
Cert No.	KR18/81825945	KR18/81825946	KR20/81826467
Valid Until	28-Apr-2025	28-Apr-2025	31-Mar-2026
Certifying Body	SGS	SGS	SGS

10. CERTIFICATES

Certificate

Quality management system
for Manufacturer of Materials
acc. to Directive 2014/68/EU

Certificate no.: 01 202 ROK/Q-20 0105

Name and address of the certificate holder: **KEON SAE HIGH PRESSURE CO.,LTD. 119-29, Soju-ro, Yangsan-si, Gyeongsangnam-do 50516 Republic of Korea**

Herewith we certify that the material manufacturer has established and applies a Quality Management System. The system was audited according to the European Directive 2014/68/EU, Annex I, Par. 4.3, with regard to the materials as listed in the scope of approval.

Test basis: **QM System acc. to EN 764-5, article 4.2**

Audit report no.: 01 202 ROK/Q-20 0105

Scope: **Manufacturing of forged fittings and flanges, see annex, 11.11 2022, Rev.:1, to certificate**

Manufacturing plant: see certificate holder

Validity: **This certificate is valid until 2026-02-06.**

Cologne, 2022-11-29

Dipl.-Ing. (FH) Vera Rütt

TÜV Rheinland Industrie Service GmbH
Notified Body for Pressure Equipment, ID-No. 0035
Am Grauen Stein, D-51105 Cologne

E-108a

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TÜVRheinland®
Precisely Right.

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Marine & Offshore

Certificate number: SMS.W.II./22819/E.0

www.veristar.com

RECOGNITION FOR

BV MODE II SCHEME

KEONSAE HIGH PRESSURE CO., LTD.
Yangsan (Gyeongnam) - KOREA (REPUBLIC OF)

Summary of the range of the recognition which is detailed in the subsequent page(s):

1. Flanges in Carbon, Alloy Steel, Austenitic Stainless Steel and Ferritic-Austenitic(Duplex) Stainless Steel
2. Flanges from Casting, Forging & Rolled bar in Copper-Nickel
3. Pipe/Tube Fittings in Carbon, Alloy Steel, Austenitic Stainless Steel and Ferritic-Austenitic(Duplex) Stainless Steel
4. Seamless & Welded Pipe/Tube Fittings in Copper-Nickel

This certificate is issued to attest that Bureau Veritas Marine & Offshore has performed, at the above company's request and in compliance with the requirements of NR320, a satisfactory assessment of the manufacturing facilities and associated quality procedures related to the range of the recognition.

This certificate will expire on: 20 Aug 2025

For BUREAU VERITAS,
At BV PUSAN, on 31 Aug 2021,
Won-Jun JANG

This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

The electronic version is available at: http://www.veristarpm.com/veristarnb/jsp/viewPublicPdfRecognition.jsp?id=xv0rhtcnzk

BV Mod. Ad.E 697 June 2017 This certificate consists of 2 page(s)

Certificate No : R151101 - 00223

CERTIFICATE OF Inno-Biz

Company : KEONSAE HIGH PRESSURE CO.,LTD
C E O : YANG YONG_KIL
Address : 119-29, SOJU-RO, YANGSAN-SI, GYEONGSANGNAM-DO, REPUBLIC OF KOREA
Validity of Certificate : 2021. 04. 06 ~ 2024. 04. 05

This is to certify that the above mentioned company is a Technology Innovation-Oriented Small and Medium Enterprise(Inno-Biz) selected by the Ministry of SMEs and Startups in accordance with the Act on the Promotion of Technology Innovation of Small and Medium Enterprises.

APR
MINISTRY OF SMEs AND STARTUPS

중소벤처기업부 장관인
minister

Ministry of SMEs and Startups
Republic of Korea

Certification	CE/PED	BV	INNO-BIZ
Scope	Manufacturing of forged fittings and flanges	Alloy and non – alloy Pipe Fittings And Flanges(1/8” to 24”)	Act on Promotion of Technology Innovation
Cert No.	01 202 ROK/Q-20 0105	SMS.W.II /22819/C.0	R151101-00223
Valid Until	6-Feb-2026	20-Aug-2025	5-Apr-2024
Certifying Body	TUV Rheinland	BUREAU VERITAS	Small and Medium Business Administration

10. CERTIFICATES

NORSOK standard M-650 Edition 4, September 2011

(株)健世高壓 KEON SAE HIGH PRESSURE CO.,LTD	Qualification Test Record (QTR) NORSOK M-650	QTR No.: KSHP-QTR-181107-01 Rev. No.: 0
Manufacturer name/address/ Web page:	KEON SAE HIGH PRESSURE CO., LTD #119-29, Sojo-ro, Yangsan-si, Gyeongnam, Korea http://www.keonsae.com	
Reference standard	NORSOK M 650, Edition 4	
Material designation and MDS No.:	ASTM A182 Gr. F51; MDS D44 Revision 4.	
Manufacturing Summary doc. No.:	Manufacturing Summary route 01 : MS-KSHP-001	Rev. No.:0
Products and manufacturing process(es):	Die-forged Flangedolet #1500 3/4" UNS S31803	
Mandatory conditions and sub-contractors:	• Heat treatment by: KEON SAE HIGH PRESSURE CO.,LTD • Induction Heating, Forming, Trimming by : JIN KWANG CO.,LTD	
Other information:	• Production of Duplex Fittings by KEON SAE HIGH PRESSURE CO.,LTD	
Qualification expires:		

Tested and qualified thickness and weight

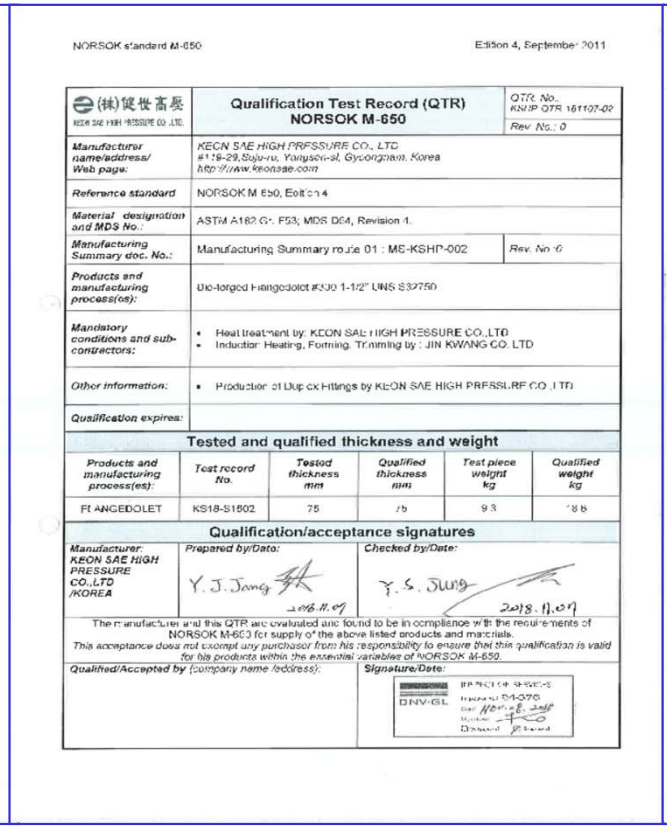
Products and manufacturing process(es):	Test record No.	Tested thickness mm	Qualified thickness mm	Test piece weight kg	Qualified weight kg
FLANGEDOLET	KS18-S1601	75	82.5	8.2	16.4

Qualification/acceptance signatures

Manufacturer: KEON SAE HIGH PRESSURE CO.,LTD /KOREA	Prepared by/Date: Y.J.Jang 2018.11.07	Checked by/Date: Y.S.Jung 2018.11.07

The manufacturer and this QTR are evaluated and found to be in compliance with the requirements of NORSOK Y-650 for supply of the above listed products and materials.
This acceptance does not exempt any purchaser from his responsibility to ensure that this qualification is valid for his products within the essential variables of NORSOK M-650.

Qualified/Accepted by (company name /address):	Signature/Date: DNV·GL INSPECTION ANALYSTS Inspection No. PA-978 Date: NOV. 08. 2018



NORSOK standard M-650 Edition 4, September 2011

(株)健世高壓 KEON SAE HIGH PRESSURE CO.,LTD	Qualification Test Record (QTR) NORSOK M-650	QTR No.: KSHP-QTR-181107-02 Rev. No.: 0
Manufacturer name/address/ Web page:	KEON SAE HIGH PRESSURE CO., LTD #119-29, Sojo-ro, Yangsan-si, Gyeongnam, Korea http://www.keonsae.com	
Reference standard	NORSOK M 650, Edition 4	
Material designation and MDS No.:	ASTM A182 Gr. F53; MDS D54, Revision 4.	
Manufacturing Summary doc. No.:	Manufacturing Summary route 01 : MS-KSHP-002	Rev. No.:0
Products and manufacturing process(es):	Die-forged Flangedolet #300 1-1/2" UNS S32750	
Mandatory conditions and sub-contractors:	• Heat treatment by: KEON SAE HIGH PRESSURE CO.,LTD • Induction Heating, Forming, Trimming by : JIN KWANG CO.,LTD	
Other information:	• Production of Duplex Fittings by KEON SAE HIGH PRESSURE CO.,LTD	
Qualification expires:		

Tested and qualified thickness and weight

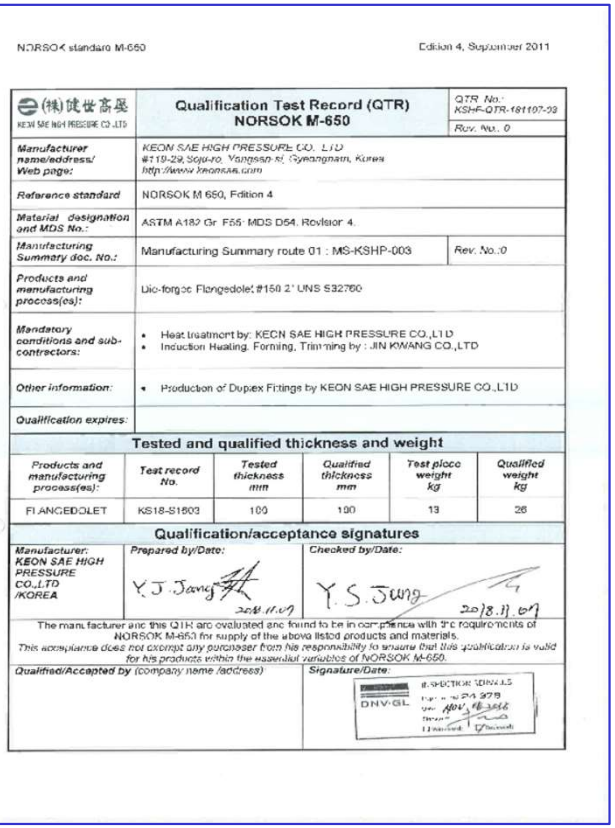
Products and manufacturing process(es):	Test record No.	Tested thickness mm	Qualified thickness mm	Test piece weight kg	Qualified weight kg
FLANGEDOLET	KS18-S1602	75	75	9.3	18.6

Qualification/acceptance signatures

Manufacturer: KEON SAE HIGH PRESSURE CO.,LTD /KOREA	Prepared by/Date: Y.J.Jang 2018.11.07	Checked by/Date: Y.S.Jung 2018.11.07

The manufacturer and this QTR are evaluated and found to be in compliance with the requirements of NORSOK M-650 for supply of the above listed products and materials.
This acceptance does not exempt any purchaser from his responsibility to ensure that this qualification is valid for his products within the essential variables of NORSOK M-650.

Qualified/Accepted by (company name /address):	Signature/Date: DNV·GL INSPECTION ANALYSTS Inspection No. PA-978 Date: NOV. 08. 2018



NORSOK standard M-650 Edition 4, September 2011

(株)健世高壓 KEON SAE HIGH PRESSURE CO.,LTD	Qualification Test Record (QTR) NORSOK M-650	QTR No.: KSHP-QTR-181107-03 Rev. No.: 0
Manufacturer name/address/ Web page:	KEON SAE HIGH PRESSURE CO., LTD #119-29, Sojo-ro, Yangsan-si, Gyeongnam, Korea http://www.keonsae.com	
Reference standard	NORSOK M 650, Edition 4	
Material designation and MDS No.:	ASTM A182 Gr. F55; MDS D54, Revision 4.	
Manufacturing Summary doc. No.:	Manufacturing Summary route 01 : MS-KSHP-003	Rev. No.:0
Products and manufacturing process(es):	Die-forged Flangedolet #150 2" UNS S32760	
Mandatory conditions and sub-contractors:	• Heat treatment by: KEON SAE HIGH PRESSURE CO.,LTD • Induction Heating, Forming, Trimming by : JIN KWANG CO.,LTD	
Other information:	• Production of Duplex Fittings by KEON SAE HIGH PRESSURE CO.,LTD	
Qualification expires:		

Tested and qualified thickness and weight

Products and manufacturing process(es):	Test record No.	Tested thickness mm	Qualified thickness mm	Test piece weight kg	Qualified weight kg
FLANGEDOLET	KS18-S1603	100	100	13	26

Qualification/acceptance signatures

Manufacturer: KEON SAE HIGH PRESSURE CO.,LTD /KOREA	Prepared by/Date: Y.J.Jang 2018.11.07	Checked by/Date: Y.S.Jung 2018.11.07

The manufacturer and this QTR are evaluated and found to be in compliance with the requirements of NORSOK M-650 for supply of the above listed products and materials.
This acceptance does not exempt any purchaser from his responsibility to ensure that this qualification is valid for his products within the essential variables of NORSOK M-650.

Qualified/Accepted by (company name /address):	Signature/Date: DNV·GL INSPECTION ANALYSTS Inspection No. PA-978 Date: NOV. 08. 2018

Certification	NORSOK M-650, Edition 4		
Scope	Die-forged Flangedolet #1500 3/4" UNS S31803 (A182-F51)	Die-forged Flangedolet #300 1-1/2" UNS S32750 (A182-F53)	Die-forged Flangedolet #150 2" UNS S32760 (A182-F55)
Cert No.	KSHP-QTR-181107-01	KSHP-QTR-181107-02	KSHP-QTR-181107-03
Valid Until	7-Nov-2023		
Certifying Body	DNV·GL DET NORSKE VERITAS		

10. CERTIFICATES

ABSA
the pressure equipment safety authority

9410 - 20 Ave N.W.
Edmonton, Alberta, Canada T6N 0A4
Tel: (780) 437-9100 / Fax: (780) 437-7787

March 28, 2021

Attention: Hee Jin Yang
KEONSAE HIGH PRESSURE CO LTD
119-29 SOJU-RO,YANGSAN-SI
GYEONGNAM,

The design submission, tracking number 2021-00856, originally received on February 19, 2021 was surveyed and accepted for registration as follows:

CRN : 0A11198.2 **Accepted on:** March 28, 2021
Reg Type: RENEWAL **Expiry Date:** March 28, 2031
Drawing No. : SEE SCOPE IN PRODUCTS LINE-UP Rev 2021-03-11 As Noted
Fitting type: CATEGORY A FITTINGS

The registration is conditional on your compliance with the following notes:

The Scope of this registration is to renew all the previous registrations and combine all 3 registrations into one.

There is no change to any of the previous registrations.

The full renew scope is listed in the PRODUCTS LINE-UP document date on March 11, 2021.

As indicated on AB-41 Statutory Declaration form and submitted documentation, the code of construction are ASME B31.3, B16.11 and other engineering analysis.

- It is our understanding that the fitting(s), included as the scope of this submission, that is(are) subject to the Safety Codes Act shall comply with the requirements of the indicated Standard or Code of Construction on the AB-41 Statutory Declaration as supported by the attached data which identifies the dimensions, materials of construction, press./temp. ratings and the basis for such ratings, and the identification marking of the fittings.
- This registration is valid only for fittings fabricated at the location(s) covered by the QC certificate attached to the accepted AB-41 Statutory Declaration form.
- This registration is valid only until the indicated expiry date and only if the Manufacturer maintains a valid quality management system approved by an acceptable third-party agency until that date.
- Should the approval of the quality management system lapse before the expiry date indicated above, this registration shall become void.

An invoice covering survey and registration fees will be forwarded from our Revenue Accounts.

If you have any question don't hesitate to contact me by phone at (780) 433-0281 ext 3336 or fax (780) 437-7787 or e-mail su@absa.ca.

Sincerely,

SU, YI
DOP Cert. No. D00008398

2021-00856 Page 1 of 1

ЕВРАЗИЙСКИЙ ЭКОНОМИЧЕСКИЙ СОЮЗ

ЕАС

СЕРТИФИКАТ СООТВЕТСТВИЯ

№ ЕАЭС RU C-KR.ГБ09.В.00441/23

Серия RU № 0365983

ОРГАН ПО СЕРТИФИКАЦИИ Орган по сертификации Общества с ограниченной ответственностью "Независимая экспертиза". Место нахождения (адрес юридического лица): 115280, Россия, город Москва, улица Ленинская Слобода, дом 19, этаж 2, помещения R-277, R-277-1, R-281, R-281-1; адрес места осуществления деятельности: 115280, Россия, город Москва, улица Ленинская Слобода, дом 19, этаж 2, помещения № R-277, R-277-1, R-281, R-281-1, R-282; Телефон: +7 (495) 722-61-68; Адрес электронной почты: info@n-exp.ru; Аттестат аккредитации № РОСС RU.0001.11ГБ09 от 09.09.2014 г.

ЗАЯВИТЕЛЬ Общество с ограниченной ответственностью «РУСКОНСАЛТ». Место нахождения (адрес юридического лица) и адрес места осуществления деятельности: 141075, РОССИЯ, Московская обл., г. Королев, пр-т Космонавтов, д 15, пом. CXXXXVII. ОГРН 1185053037839. Номер телефона +74952260615. Адрес электронной почты info@rus-cons.ru

ИЗГОТОВИТЕЛЬ KEONSAE HIGH PRESSURE CO., LTD. Место нахождения (адрес юридического лица) и адрес места осуществления деятельности по изготовлению продукции: Республика Корея, 119-29, Soju-ro, Yangsan-si, Gyeongsangnam-do.

ПРОДУКЦИЯ Элементы оборудования, выдерживающие воздействие давления торговой марки «KEONSAE», типы и характеристики (см. Приложение – бланк № 0800561). Изготовлена в соответствии со стандартами (см. Приложение – бланк № 0800561) Серийный выпуск

КОД ТН ВЭД ЕАЭС 7307210009, 7307229000, 7307231000, 7307239000, 7307291008, 7307298009, 7307910000, 7307929000, 7307931100, 7307931900, 7307939100, 7307939900, 7307998009, 7307991000

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

СЕРТИФИКАТ СООТВЕТСТВИЯ ВЫДАН НА ОСНОВАНИИ Протоколы испытаний № 230426/П-01И; № 230426/П-02И от 26.04.2023 г. – Испытательная лаборатория "Ивановский Центр Сертификации" ООО "Ивановский Фонд Сертификации" (Аттестат аккредитации № RA.RU.21АЮ21). Акт анализа состояния производства № 23032701/ПРТС/РА от 05.04.2023 г., выдан ОС ООО "Независимая экспертиза" (Аттестат аккредитации № РОСС RU.0001.11ГБ09). Обоснование безопасности № KSHP-JOS-230206-1 от 06.02.2023 г. Паспорта № KSHP-MFG-230309-1, № KSHP-MFG-230309-2 от 09.03.2023 г., Руководство по эксплуатации № KSHP-MAN-230210-1 от 10.02.2023 г., Расчет на прочность; Сведения о технологическом процессе; Сертификаты на материалы; Сведения о проведенных испытаниях; Документы о квалификации специалистов и персонала. Схема сертификации 1с

ДОПОЛНИТЕЛЬНАЯ ИНФОРМАЦИЯ Договор уполномоченного лица ООО "РУСКОНСАЛТ" № KN1278 от 03.03.2023 г. Условия хранения продукции в соответствии с ГОСТ 15150-69. Условия хранения конкретного изделия, срок хранения (службы) указываются в прилагаемой к продукции товаросопроводительной и/или эксплуатационной документации.

СРОК ДЕЙСТВИЯ С 28.04.2023 **ПО** 27.04.2028 **ВКЛЮЧИТЕЛЬНО**

Руководитель (уполномоченное лицо) органа по сертификации (подпись) Крестина Ирина Сергеевна (ф.и.о.)

М.П.

Эксперт (эксперт-аудитор) (эксперты (эксперты-аудиторы)) (подпись) Исупов Михаил Юрьевич (ф.и.о.)

Certification	CRN	TRCU
Scope	Forged steel fittings	Forged steel fittings
Cert No.	0A11198.2	RU 0365983
Valid Until	28-Mar-2031	27-Apr-2028
Certifying Body	ABSA	-

11. COMPANY HISTORY

1978.03 Established

1992.05 Approved vendor of K.H.I.C (ex Doosan Heavy Industries & Construction)

1995.04 Approved vendor of Hyundai E&C

1995.06 Approved vendor of Daelim Industrial Co., Ltd.

1995.07 Approved vendor of GS E&C

1996.01 Approved vendor of KEPCO (Korea Electric Power Corp.)-GRADE : “R”

1996.05 Approved vendor of Hyundai Heavy Industries Co., Ltd.

1996.06 ISO9001:1994/KSA9002:1995 QUALITY SYSTEM Achieved

1996.10 Approved vendor of Samsung Engineering Co., Ltd.

1997.02 Approved vendor of KEPCO (Korea Electric Power Corp.)- Nuclear Power Plant Grade Q.S

1997.06 Approved vendor of SK E&C

1997.08 Approved vendor of KEPIC(Korea Electric Power Industry) – Nuclear MN

2000.03 QGPC (Qatar General Petroleum Corporation)

2000.12 Approved vendor of KNPC (Kuwait National Petroleum Company)

11. COMPANY HISTORY

2003.06 ISO 9001:2000/KSA9001:2001 QUALITY SYSTEM

2003.06 BV(Bureau Veritas) (CERT NO SMS.W.II /22819/A.I)

2003.08 Expansion of product range - Copper Alloy Fittings & Flanges

2006.02 Approved vendor of KOC (Kuwait Oil Company)

2008.03 Technical Innovation Small Business (INNO-BIZ) acquired from Korea Government

2008.09 Awarded a prize of 'Development for the Best Capital Goods' from Korea Government

2008.10 ISO 14001:2004/KSA 14001:2004 Environmental Management System

2009.01 Approved vendor of SAIPEM Italy

2009.06 Awarded a prize of an 'Excellent Supplier' from Hyundai Heavy Industries Co., Ltd.

2009.08 Approved vendor of RELIANCE Infrastructure Ltd.

2009.10 Approved vendor of TECHNIP France

2009.11 Approved vendor of EIL India

2009.12 Awarded 'Support of Real Economy' from Ministry of Knowledge Economy, Korea Government

11. COMPANY HISTORY

2010.03 Approved vendor of QP (Qatar Petroleum)

2010.03 Approved vendor of DESCON, Pakistan

2010.06 Approved vendor of TAKREER, UAE

2010.06 Approved vendor of GASCO, UAE

2011.01 CRN Acquired (Canadian Registration Number)

2011.01 Approved vendor of ENPPI, Egypt

2011.09 Approved vendor of Petrofac, UAE

2011.09 Approved vendor of Larsen & Toubro, India

2011.11 Approved vendor of ESSAR, India

2011.11 Approved vendor of Chiyoda, Japan

2011.11 NORSOK M-650 Acquired from DNV

2011.11 Approved vendor of PDO, Oman

2012.02 CE/PED Acquired from DNV

2012.12 Designated as a Promising Export Company by the Small and Medium Business Admin., Korea Government

11. COMPANY HISTORY

2012.12 Confirmed as an exclusive R&D Dept. for Keon Sae High Pressure by Korea Industrial Technology Association

2013.05 Approved vendor of Reliance Industries Ltd. India

2014.01 API 6A Monogram Acquired from API

2014.03 Approved vendor of Daewoo Shipbuilding & Marine Engineering Ltd.

2014.03 Approved vendor of Saudi Ma'aden

2015.10 Awarded a prize of 'Development for the Best Capital Goods' from Korea Government

2016.01 Established Forging factory

2016.07 Approved vendor of PETRONAS, Malaysia

2016.12 Expansion of Facility / Factory site

2017.12 Approved vendor of Punj Lloyd Limited India

2017.12 Awarded a prize of '$ 5 Million Export Tower' from Korean Government

2018.01 Approved vendor of Gama Power systems E&C Turkey

2018.03 Approved vendor of FLUOR USA

2018.04 Approved vendor of ADNOC UAE

2018.12 Approved vendor of BP, United Kingdom

11. COMPANY HISTORY

2019.01 New market entry into USA for inventory transaction

2019.03 Approved vendor of LONGSON Petrochemical

2019.12 Approved vendor of MCDERMOTT

2019.12 Awarded a prize of '$10 Million Export Tower' from Korean Government

2020.10 ISO 45001:2018 Occupational Health and Safety(OH&S) Management System Achieved

12. VENDOR REGISTRATION STATUS

End Users

Kuwait Oil Company
KNPC
Petroleum Development Oman
PETRONAS
TAKREER
Qatar Petroleum
GASCO
ADNOC
ई·आई·एल
bp
ptt GLOBAL CHEMICAL
LONG SON PETROCHEMICALS
ESSAR
Enppi
MA'ADEN
Saudi Arabian Mining Company

EPC

Technip
Eni Saipem
Petrofac
MCDERMOTT
Reliance Industries Limited
TOYO ENGINEERING
FLUOR
CHIYODA CORPORATION

12. VENDOR REGISTRATION STATUS

End Users (KOREA)

KHNP

GS Caltex

Hanwha Chemical

EPC (KOREA)

HYUNDAI ENGINEERING & CONSTRUCTION

SK E&C

HYUNDAI HEAVY INDUSTRIES CO.,LTD.

SAMSUNG CORPORATION

SAMSUNG ENGINEERING

DAELIM

SAMSUNG HEAVY INDUSTRIES

DSME

GS E&C

DOOSAN

posco ENGINEERING

13.REFERENCE LIST

(1) OIL & GAS - 1/6

Year of Supply	Client	Project Name	Material Specifications	Value	Ton	Project Location	Contractors
2024	QATARGAS OPERATING COMPANY LIMITED	SURFUR FACILITIES FOR THE NORTH FIELD EXPANSION(NFXP)-EPC-4	E/T, PLUG, COUPLING,SWAGE, OLET, A234-WPB,A105,A182-F304	$99,349	9	Qatar	CUNADO
2024	GALP and MITSUI	HVO SINES	COUPLING, CAP, ELBOW, NIPPLE, TEE, SWAGE, PLUG, OLET, A105, A105(GALV),A234 WPB,A106-B,F11,B564-N10276	$109,817	13	PORTUGAL	CUNADO
2024	NAJIM	AMIRAL PROJECT	E/T, COUPLING, NIPPLE, SWAGE, CAP, BOSS, OLET A105,A182-F304,F316, A182-F11, F22, F91	$25,186	2.6	Saudi Arabia	Samsung C&T
2024	ADNOC	Habshan Gas Compressor Plant (HGCP) PKG 2	CAP, REDUCER, ELBOW, OLET, NIPPLE, PLUG, NIPOFLANGE, COUPLING, TEE, UNION API5L-B_PSL 1, A105N, A105N(GALV),A182-F316, A350-LF2, A694-F65, A106-B, A312-TP316	$162,388	10.2	UAE	Petrofac Emirates LLC
2024	PDO		O'LET, NIPPOFLANGE A105, A182-F316, F51, A350-LF2	$1,751,328	139.5	Oman	DESERT PIPING
2024	JGC HOLDINGS CORPORATION TAIWAN BRANCH(JAPAN)	CPC TAICHUNG PHASE 3 REGAS	E/T, O'LET, SWAGE, PLUG, CAP, COUPLING, NIPPLE, SWEEPOLET, UNION A105,A234-WPB,A106-B,A333-6,A182-F304,F316,A350 LF2,A312-TP304, TP316,A420-WPL6,A403-WP304,WP316,B151-C70620,B466-C70620	$332,070	12.7	TIWAN	CUNADO
2024	Técnicas Reunidas (TR)	YPF ARGENTINA	E/T, O'LET, SWAGE, PLUG, CAP, COUPLING, NIPPLE A105, A105(GALV), A182-F304,F321,F60,F11	$288,870	27	ARGENTINA	CUNADO
2024	QatarEnergy	NFE Onshore LNG Facilities	E/T, O'LET, SWAGE, PLUG, CAP, COUPLING, NIPPLE, UNION A105, A350 LF2, A182-F304,F316,F11	$1,984,852	141	Qatar	CHIYODA, CUNADO
2024	QATARGAS OPERATING COMPANY LIMITED	Qatar LNG NFXP EPC-2	E/T, LATROLET,O'LET,SWAGE,CPLG A105,LF2, A182-F304,F316,F11,F91,F92	$333,200	30	Qatar	Samsung C&T
2024	ADNOC	EPC FOR DALMA GAS DEVE LOPMENT PROJECT	O'LET, SWAGE, NIPPOFLANGE A105,A105(GALV),A234-WPB,A350 LF2,A182-F316,F51,F53, B564-N08825, A694-F60,F65	$325,852	8	UAE	CUNADO

13.REFERENCE LIST

(1) OIL & GAS - 2/6

Year of Supply	Client	Project Name	Material Specifications	Value	Ton	Project Location	Contractors
2024	RDMP Balikpapan JO and PT PERTAMINA(PERSERO)	RDMP RU-V Balikpapan	E/T, O'LET,SWAGE, CAP,NIPPLE,SWAGE,LATROLET A105,A350-LF2,LF3,A182-F304,F316,F321,F5,F11	$2,699,681	356	Indonesia	Hyundai Engineering Co.,Ltd.
2024	Thai Oil Public Co., Ltd.	CLEAN FUELS PROJECT - THAILAND	E/T, O'LET,PLUG CAP,COUPLING,REDUCER,NIPPLE,SWAGE, SWEEPOLET,NIPOFLANGE A105,A350-LF2,A182-F304,F316,F321,F347,F5,F9,F11,F91, B564-N04400,N08825	$1,543,219	72.2	Thailand	PSS Netherlands B.V. (Petrofac,Saipem,Samsung eng.)
2024	KNPC	KNPC Clean Fuels	E/T, O'LET, NIPO FLANGE, TRANSITION PIECE A105,A350-LF2,A182-F316,F304,F321,11,F22,F9	$2,967,320	60.4	Kuwait	Petrofac & Samsung JV
2024	Reliance Industries Limited	J3(Jamnagar, Hazira, Nagothane etc.)	OLET, ELBOLET, LARTROLET, PLUG, E/T, SWAGE, CAP A105,A350-LF2,A182-F51,F11,F304,F316 C7060X, N10276, N04400,N08020, S31803	$785,388	54.4	India	Reliance Industries Limited
2023	BOROUGE	Borouge 4 Project	E/T, O'LET, SWAGE, CPLG, NIPPLE, REDUCER, CAP, PLUG, A105, A350 LF2, A182-F304,F316,A403 WP316/316L,A234 WPB	$58,569	4	UAE	TECNIMONT
2023	TATWEER PETROLEUM	NCF & Ultimate Destination Wells	E/T,CAP, COUPLING,REDUCER,TEE,OLET,NIPPLE, NIPPOLET, NIPOFLANGE,PLUG A105,A105(GALV),A694-F52,A182-F316,A312-TP316	$79,867	6	Bahrain	Petrofac Int'l UAE LLC.
2023	PETRONAS	BINTULU	E/T, OLET, COUPLING, CAP, PLUG, REDUCER, NIPPLE, NIPPOLET, NIPOFLANGE A105,API5L-B, A350-LF2, A694-F52	$48,552	2.4	Malaysia	Petrofac Engineering Services (Malaysia) Sdn Bhd
2023	PDO	MMPS GAS COMPRESSION PROJECT (MGCP)	E/T, OLET, CAP, REDUCER, PLUG,UNION, COUPLING, NIPPLE, NIPOFLANGE A105N, API5L-B,A350-LF2, A182-F316	$69,678	6.81	Oman	Petrofac E & C Oman LLC
2023	MOGE, Myanma Oil & Gas Enterprise	SHEW	TEE,OLET, DUMMY SPOOL,NIPPLE, FLANGE A105,A182-F316,B151-C70600,API5L-B	$62,258	2	Myanmar	Hyundai Heavy Industries Co., Ltd.
2022	Public Company ORLEN Lietuva	EPC for RHCU ISBL AND FEED OSBL, Lithuania	E/T, OLET, COUPLING, CAP, PLUG, REDUCER, UNION, NIPPLE, NIPOFLANGE A182-F11,F22,A350-LF2,A182-F60,A182-F304,F316,F321, B564-N06625,N08825,N04400,A312-TP316	$310,827	42.1	Lithuania	Petrofac Int'l UAE LLC.

13.REFERENCE LIST

(1) OIL & GAS - 3/6

Year of Supply	Client	Project Name	Material Specifications	Value	Ton	Project Location	Contractors
2022	NORTH CASPIAN OPERATING COM PANY(NCOC)	EPCC OF THE NEW WATER TREATING FACILITIES	E/T,OLET,CAP,PLUG,COUPLING,NIPPLE,WELDOFLANGE A350-LF2,A333-6,A182-F316,A312-TP316,B564-N08825, B462-N08020	$44,977	2	Kazakhstan	Petrofac Kazakhstan B.V
2022	Sharjah National Oil Corporation (SNOC)	LPG IMPORT, BACKFLOW & LOADING LINES REPLAC EMENT PROJECT	E/T,OLET,NIPOFLANGE,SWAGE,PLUG,NIPPLE,CAP,COUPLING, REDUCER A105N,A234-WPB,A106-B,A350-LF2,A333-6,A312-TP316, A420-WPL6	$13,598	2	UAE	Petrofac Facility Management International Limited
2022	ADNOC	M Project	E/T, COUPLING, NIPPLE, PLUG, REDUCER, O'LET A105, API5L-B, A694-F65, A182-F55, F316	$434,215	35	UAE	SK E&C
2022	TATWEER PETROLEUM	EPC FOR NAG WELL HOOK -UPS AND PIPELINES	E/T,COUPLING,CAP,O'LET,NIPOFLANGE,PLUG,NIPPLE,UNION A105N,A182-F316/316L,A694-F52,A694-F65	$137,246	8	Bahrain	Petrofac Int'l UAE LLC.
2022	Samsung Ingeniería Manzanillo S.A. de C.V. (SIMA)	PTI-ID Dos Bocas Phase 2 (DBNR)	E/T, COUPLING, NIPPLE, PLUG, REDUCER, O'LET A105N, A182-F304/304L, A182-F316/316L, A182-F5, A182-F9	$1,648,751	150	Mexico	Samsung Engineering Co., Ltd.
2021	TERMOCANDELA RIA S.C.A. E.S.P	Termocandelaria Combined Cycle Conversion Project	E/T,COUPLING,OLET A182-F304/304L,A312-TP316/316L	$26,057	1	Colombia	Técnicas Reunidas (TR)
2020	Duqm Refinery & P etrochemical Indust ries LLC	Duqm Refinery - EPC Package Two	E/T, O'LET,NIPOFLANGE,UNION,PLUG A105N,A350-LF2,A182-F304,B564-N04400 (2018~2020)	$942,727	60	Oman	Petrofac- Samsung JV
2020	KOC	GC-32	E/T,COUPLING,UNION,OLET,NIPOFLANGE,PLUG A105,A350-LF2,A182-F316,A182-F55,B564-N06625 (2017~2020)	$1,410,002	80	Kuwait	Petrofac Int'l UAE LLC.
2020	Tokuyama Malaysia Sdn. Bhd.	(MDE 5)Melaka Refinery Diesel Euro 5	E/T, O'LET,SWAGE, NIPPOLET, FLANGEDOLET, LATROLET A105,A350-LF2,A182-F304,F316,F304H,F347,F321,A335-P5, A182-F11	$323,156	42	Malaysia	Hyundai Engineering Co.,Ltd.
2020	Sakhalin Energy Inv estment Company Ltd.	Sakhalin Energy OPF Compression	E/T,OLET,NIPOFLANGE,COUPLING A105,A182-F316,A350-LF2	$113,708	6	Russia	Petrofac Int'l UAE LLC.

13.REFERENCE LIST

(1) OIL & GAS - 4/6

Year of Supply	Client	Project Name	Material Specifications	Value	Ton	Project Location	Contractors
2020	ADNOC	UAE ADNOC Refining CFP	FLANGEDOLET,NIPOLET,OLET, E/T A105,A350-LF2,A182-F304,F316,F11,F5,F9,Duplex & Ni-Alloy	$3,031,434	220	UAE	Samsung Engineering Co., Ltd.
2020	KIPIC	Kuwait Al-Zour LNG IMPORT [KALM]	E/T, O'LET, FLANGEDOLET, LATROLET, VESSELET A105,A182-F304	$313,500	8	Kuwait	Hyundai E&C
2020	Qatargas	NORTH FIELD PRODUCTION SUSTAINABILITY (NFPS)	E/T,FLANGE,CAP,SWAGE,UNION,OLET,PIPE,REDUCER B151-C70600, B466-C70600, B283 C70620	$521,419	20	Qatar	McDermott
2020	KOC	NSGEP	E/T,SWAGE,OLET,PLUG,COUPLING A105,A350-LF2,F182-F316	$23,309	0.5	Kuwait	LARSEN & TOUBRO LIMITED
2020	Sharjah National Oil Corporation (SNOC)	MOVEYEID GAS STORAGE SURFACE FACILITY	E/T,NIPOFLANGE,OLET,NIPPLE,COUPLING A105,A694-F65,A694-F52,A182-F44,A182-F304,A106-B	$42,711	3	USA	Petrofac Facility Management International Limited
2020	PDO	OIL wells 2021	NIPOFLANGE, WELDOLET A105N	$145,362	16	Oman	-
2019	KIPIC	NRP	E/T, NIPPLE, BOSS A105,A182-F304,F316,F52	$64,443	4	Kuwait, Oman	SK E&C
2019	Salalah Methanol Company (SMC)	Salalah Ammonia	E/T,SWAGE,COUPLING,NIPPLE,OLET,NIPOFLANGE, NIPOLET A105,A350-LF2,A182-F316,316H,304,317,321,A182-F11CL.2, A182-F5	$206,157	9	Oman	SNC Lavalin Inc.
2019	GC Polyols Co.,Ltd	POLYOLS	E/T, CAP, COUPLING, NIPPLE, PLUG, O'LET A105N, A182-F304, 316L, A106-B, A312-TP304, TP316	$359,619	44	Thailand	SK E&C
2019	KNPC	Kuwait Al-Zour LNG Import (KLNG)	O'LET, FLANGEDOLET, LATROLET, INSERT WELDOLET, VESSELET, PIPE A105,A350-LF2,A182-F304,Cu-Ni(C71500)	$1,182,349	41	Kuwait	Hyundai Engineering Co.,Ltd.

13.REFERENCE LIST

(1) OIL & GAS - 5/6

Year of Supply	Client	Project Name	Material Specifications	Value	Ton	Project Location	Contractors
2019	OLTIN YO'L	UZBEKISTAN GAS TO LIQUID(UZGTL)	E/T, O'LET,SWAGE, CAP,NIPPLE,SWAGE,SWEEPOLET A105,A350-LF2,A182-F304,F316,F321,F9,F11, B564-N04400	$931,642	138	Uzbekistan	Hyundai Engineering Co.,Ltd.
2019	KOC	NEW STRATEGIC GAS EXPORT PIPELINE FROM NORTH KUWAIT TO MAA	E/T,UNION,OLET A105,A350-LF2,F182-F316/316L	$27,928	1	Kuwait	LARSEN & TOUBRO LIMITED
2018	ADMA OPCO	SARB	WELDOLET, THREADOLET A105N, A182F316, A694F60N, B564N06625	$2,920,869	55	UAE	Hyundai E&C
2017	KNPC	KNPC Clean Fuels	PIPE, FLANGE, ELBOW, HEX BUSHING B466-C70600, B61	$104,840	5	Kuwait	FLOUR, DAEWOO E&C, HHI JV
2017	TAKREER	RRW	E/T,OLET,PLUG,COUPING,CAP,FLANGEDOLET, NIPPOLET A105,A350-LF2,A182-F304/304L,F-11,F-22,A182-F316	$1,100,000	96	UAE	GS E&C
2016	KOC	MGT System for the GCs 29,30 and 31	OLET, NIPOFLANGE, ELBOW, COUPLING A694-F52, F60, A105	$342,841	17	Kuwait	Petrofac Int'l UAE LLC.
2016	Aboitiz Power	THERMA VISAYAS 2x150MW CFB ENERGY (TVEP)	E/T, O'LET,SWAGE, CAP,NIPPLE A105,A182-F304,F11,F22,F91	$146,376	22	Philippines	Hyundai Engineering Co.,Ltd.
2015	Suncor	Fort Hills	E/T, O'LET, LATROLET, NIPPLE A105, LF2, F316	$1,348,343	100.5	Canada	SK E&C
2015	BHP Billiton Group	CHILE KELAR	OLET,NIPPLE,E/T,CAP,SWAGE, COUPLING,UNION,FLANGEDOLET A105,A350-LF2,A182-F304,F316,F11,F91,C70600	$192,406	15	Chile	Samsung Engineering Co., Ltd.
2015	KNPC	KNPC Clean Fuels	PIPE, E/T, FLANGE B466-C70600,B151-C70600,B148-C95200,B61	$1,753,790	30	Kuwait	SK E & C , GS E & C, JGC JOINT VENTURE

13.REFERENCE LIST

(1) OIL & GAS - 6/6

Year of Supply	Client	Project Name	Material Specifications	Value	Ton	Project Location	Contractors
2014	Sonatrach & GDF Suez	TOUATGAZ	E/T,O'LET A105,LF2,A182-F316L,F51,F53,F60	$405,852	26	Algeria	Technicas Reunidas / Cunado
2014	YPFB	Bolivia YPFB	E/T, O'LET A105,A182-F304,F316,F11,F22	$408,100	20	Bolivia	Samsung Engineering Co., Ltd.
2014	KNPC	KNPC NLTF	PIPE, E/T, OLET, NIPPOLET, FLANGE, LATROLET, NIPPOFLANGE A105, A350-LF2, A182-F304, B466-C70600, B151-C70600	$3,313,214	40	Kuwait	GS E&C
2014	PTT LNG Company Limited	PTT LNG Receiving Terminal Expansion Phase II	E/T, OLET, REDUCER A105,A182-F304, F316	$76,000	3	Thailand	Posco Engineering
2013	Egyptian Refining Company	ERC Refinery	E/T, O'LET A105,A182-F304,F316,F5,F9	$1,000,000	50	Egypt	GS E&C
2013	Gazprom	BADRA	NIPPO FLANGE, E/T OLET A105,A350-LF2,A182-F316L	$730,380	53	Iraq	Samsung Engineering Co., Ltd.
2013	Laffan Refinery Company Limited 2	LR2 Refinery	E/T, COUPLING, PLUG, NIPPLE, NIPPOLET A105,A350-LF2,A182-F11,F321,F9	$250,014	36	Qatar	Chiyoda CTCI Joint Venture (CCJV)
2013	SAUDI BUTANOL COMPANY	BUTANOL AND SYNGAS	OLET, E/T A105,A350-LF2,A182-F304,AF316	$653,950	48	Saudi Arabia	Daelim Industrial Co., Ltd.
2013	TAKREER	CBDC	E/T, O'LET A182-F304,LF2,A105N	$2,321,310	20	UAE	Samsung Engineering Co., Ltd.

13.REFERENCE LIST

(2) POWER - 1/3

Year of Supply	Client	Project Name	Material Specifications	Value	Ton	Project Location	Contractors
2024	AES Corporation	ANDRES	END PLUG, RING PLATE, LUG PLATE, SUPPORT PLATE, RADIOFRAPH PLUG, U-BOLT, RING PLATE SA105, SA182-F91, F92,F11, SA182-F22	$72,335	7	Dominican	GE POWER SYSTEMS VIETNAM
2024	YTL POWER SERAYA	SERAYA	END PLUG, RING PLATE, LUG PLATE, SUPPORT PLATE, RADIOFRAPH PLUG, U-BOLT SA105, SA182-F91, F92,F11, SA182-F22	$83,855	8	Singapore	GE POWER SYSTEMS VIETNAM
2024	EnBW	Altbach&Heilbronn Internal piping	Forged Pipe(EN Code) X10CrMoVNb9-1, 11CrMo9-10, X10CrWMoVNb9-2	$850,539	88	Germany	GE Power Systems Korea
2023	CHUNG CHIA POWER CO., LTD	CHUNG CHIA OCC Link Forging	END PLUG, LUG PLATE, NOZZLE SA182-F92, F22, F11, SA105,	$88,432	5	TAIWAN	GE POWER SYSTEMS VIETNAM
2023	Shady Hills Energy Center, LLC	SHADY HILLS LINK FORGING	END PLUG, RING PLATE, LUG PLATE, SUPPORT PLATE, RADIOFRAPH PLUG, U-BOLT, RING PLATE SA105, SA182-F91, F92,F11, SA182-F22	$101,000	7	USA	GE POWER SYSTEMS VIETNAM
2023	Yantai Hyundai Heavy Industreis Co. Ltd.	H159-01-0206	CAP,NOZZLE,THERMOWELL,WELD BOSS SA182-F91,F92	$153,344	4	CHINA	Yantai Hyundai Heavy Industries Co. Ltd.
2023	TAIWAN POWER COMPANY	Datan Add-On CCPP (TACC)	E/T, O'LET,CAP,NIPPLE,PLUG,BOSS, A105(GALV),A182-F304,316,317, A182-F11,F91	$158,067	18	Taiwan	Hyundai Engineering Co.,Ltd.
2022	SAMSUNG C&T CORPORATIO N	NHON TRACH OT 3/4	HAND HOLE, ORIFICE, COUPLING SA105, SA182-F304,	$141,453	8	VIETNAM	GE POWER SYSTEMS VIETNAM
2022	EWEC(Emirates Water and Electricity Company)	UAE FUJAIRAH F3 IPP	E/T, LATROLET,O'LET,SWAGE,CPLG A105,LF2, A182-F304,F316,F11,F91,F92	$160,250	10	UAE	Samsung C&T
2022	SPE	OUMACHE III COMBINED CYCLE POWER PLANT	E/T, O'LET,SWAGE, CAP,NIPPLE,LATROLET A105,A350-LF2,A182-F304,F316/H,F321,F11,F91,F92	$218,008	31	ALGERIA	Hyundai E&C

13.REFERENCE LIST

(2) POWER - 2/3

Year of Supply	Client	Project Name	Material Specifications	Value	Ton	Project Location	Contractors
2020	Goi United Generation	GOI	END PLATE&PLUG,NOZZLE,LUG, THERMOWELL, BOSS, FLANGE SA105,SA182-F22	$73,600	10	Japan	GE Power Systems Korea
2020	PT Cirebon Energi Prasarana	[IBON]INDONESIA CIREBON-2 CFPP	E/T, O'LET,LATROLET,CAP,NIPPLE,PLUG,BOSS, A105(GALV),A182-F304,316, A182-F22,F92	$368,704	57	Indonesia	Hyundai E&C
2020	Sharjah Hamriyah Independent Power Company (SHIPCO)	HAMRIYAH IPP 1800 MW CCPP (SEWA)	E/T, OLET, SWAGE, REDUCER, COUPLING, NIPPLE A105(GALV),A182-F316,A182-F11,F22,F91	$237,346	12	UAE	TECNICAS REUNIDAS S.A.
2020	PT. PLN (Persero)	Sulut-1 CFSPP Project	E/T,OLET,SWAGE,REDUCER,COUPLING,PLUG A105,A182-F11,A182-F91,A182-F316L,A182-F304L	$79,292	3	Indonesia	PT.Inti Karya Persada Tehnik
2019	Edra Energy Sdn. Bhd.	(MMCC)Melaka 2,242MW CCGT Power Plant	E/T, O'LET,LATROLET,CAP,NIPPLE,PLUG A105(GALV),A182-F304, A182-F11,F92,F22	$236,368	38	Malaysia	Hyundai Engineering Co.,Ltd.
2019	Uzbekenergo	UTCC (UZBEKISTAN TAKHIATASH)	E/T, O'LET,LATROLET,CAP,NIPPLE,PLUG,BOSS, A105(GALV),A182-F304,316, A182-F11,F91	$100,834	18	Uzbekistan	Hyundai Engineering Co.,Ltd.
2018	Bangladesh Power Development Board (BPDB)	Bibiyana South	OLET,NOZZLE,TRANSITION PIECE, ATTEMPERATOR PROVE SA105,SA182-F91,SA182-F11CL.2,F22CL.3,	$27,268	1.5	India	LARSEN & TOUBRO LIMITED
2018	TNB Western Energy Berhad	JIMAH EAST POWER COAL FIRED PLANT	E/T, O'LET,LARTROLET,NIPPLE A105,A105 GALV,,A182-F304,F11,F91,P91	$188,981	32	Malaysia	Hyundai Engineering Co.,Ltd.
2018	OCP S.A.	Jorf Lasfar Centrale Electrique	E/T,COUPLING,PLUG,OLET,SWAGE A105,A182-F316	$45,803	3	Morocco	Initec Energia
2017	TNB	TRACK 4A	END PLATE&PLUG,NOZZLE,LUG, PAD, SLEEVE, O'LET SA105,SA182-F91,F11,F22,F304	$130,691	15	Malaysia	GE Power Systems Korea

13.REFERENCE LIST

(2) POWER - 3/3

Year of Supply	Client	Project Name	Material Specifications	Value	Ton	Project Location	Contractors
2017	SAN BUENAVENTURA POWER LTD. CO	SBPL 500MW CFPP	OLET, E/T, NIPPLE A105,A350-LF2,A182-F304,F316,F22	$135,000	15	Philippines	Daelim Industrial Co., Ltd.
2017	SEC	FADHILI	E/T,OLET,BOSS, SAMPLING NOZZLE, PLUG, NOZZLE A105,A350-LF2,A182-F304,F316,F22,F11,F22,F91	$96,890	18	Saudi Arabia	GE Power Systems Korea
2017	PTT (Petroleum Authority of Thailand)	PTT Wangnoi Compressor Station	OLET, E/T A105,A350-LF2,A182-F304,F316	$50,411	5	Thailand	Samsung Engineering Co., Ltd.
2015	TNB Western Energy Berhad	Fast Track 3A	E/T, NIPPLE, BOSS, OLET A105,A182-F304,F316,F11,F22,F92	$177,856	1	Malaysia	Daelim Industrial Co., Ltd.
2015	MPHS Korea	TUNG HSIAO	E/T, OLET, NOZZLE A105, A182-F316,A182-F11,A182-F22,A182-F91, A182-347H	$52,876	3	Taiwan	Doosan Engineering & Construction
2013	Ashuganj Power Station Company., Ltd	APSCL(BAPP)	E/T, NIPPLE,O'LET A105,A182-F316,F304,F91	$116,861	10.2	Bangladesh	Hyundai Engineering Co.,Ltd.
2012	Maaden Phosphate Company	Ma'aden	E/T, O'LET A105,A182-F53	$353,551	21	Saudi Arabia	Hyundai E&C
2012	Saudi Electricity Company	Shoaiba II CCPP	E/T, O'LET A105,A182-F304,F11	$433,743	36	Saudi Arabia	Daelim Industrial Co., Ltd.
2011	GMR Energy	Raipur	E/T, O'LET&END CAP A105, A182-F304,F11,F22,F91	$594,688	51	India	Doosan Heavy Industries & Construction
2011	Saudi Electricity Company	Yanbu2	THERMOWELL,RT PLUG,NOZZLE A182-F316,F51	$233,554	19.4	Saudi Arabia	Doosan Heavy Industries & Construction

13.REFERENCE LIST

(3) PETROCHEMICAL - 1/5

Year of Supply	Client	Project Name	Material Specifications	Value	Ton	Project Location	Contractors
2024	INDORAMA ELEME FERTILIZER AND CHEMICALS LIMITED	IEFCL3	E/T, O'LET, NIPPLE, COUPLING A105,LF2, A182-F304,F316,F22,F11	$178,363	15	Nigeria	Toyo Engineering India Ltd.
2024	Denka SCGC Advanced Materials Co., Ltd	DSAM	E/T, O'LET, NIPPLE, COUPLING A105,LF2, A182-F304,F316,F22,F11	$100,050	8.4	Thiland	Toyo Engineering India Ltd.
2024	Qatar-Energy and Chevron Phillips Petrochemical Company (Joint Venture)	Ras Laffan Petrochemicals	FLANGEDOLET,O'LET, E/T, CPLG,NIPPLE, CAP, DI-UNION A105,A350-LF2,A182-F304,F316,F11,F22,F91,N06625, N08020	$706,900	55	Qatar	Samsung Engineering Co., Ltd.
2024	REPSOL	ALBA PP AND PEL PLANT	E/T,O'LET,SWAGE,CAP,COUPLING,NIPPLE, 45D LATROLET,SWEEPOLET A105, A105(GALV),A106-B,A234-WPB,A333-6, A350 LF2,A182-F304,F316, A312-TP304,TP316,A420-WPL6,-A403-WP304	$86,511	7.4	PORTUGAL	CUNADO
2024	PKN Orlen	Poland PKN Olefins Expansion (EOSE)	E/T, O'LET,SWEEPOLET,SWAGE, CAP,NIPPLE, LATROLET,TRANSITION A105,A350-LF2,A182-F304,F316,F321,F11,N8020 P245GH, P280GH, 16Mo3, X10CrMoVNb9-1	$2,809,497	312	Poland	Hyundai Engineering Co.,Ltd.
2024	PT LOTTE CHEMICAL INDONESIA	INDONESIA LINE WP2,3,4,5,7	E/T,O'LET,CPLG,CAP,BOSS,DEEP RING A105,LF2, A182-F304,F316,F321,F22	$313,250	37	Indonesia	LOTTE E&C
2024	ORLEN	OLEFIN EXPANSION PROJECT-EPCC FOR THE PLANT	NIPPLE A106-B,A106-B(GALV),A333-6,A182-F11,F22,A335-P11, P22,A312-TP304,316,P265GH,X10CrMoVNb9-1	$174,480	9.5	POLAND/ TURKEY	CUNADO
2023	Golden Triangle Polymers Company LLC	Golden Triangle Polymers	E/T, O'LET, SWAGE, PLUG, CAP, COUPLING, NIPPLE, UNION A105, A350-LF2, A182-F304,F11	$29,000	3	USA	DL E&C
2023	AGIC(Advanced Global Investment Company)	APOC PDH/UTOS	FLANGEDOLET,NIPOLET,SWEEPOLET,O'LET, E/T, CPLG,NIPPLE,CAP A105,A350-LF2,A182-F304,F316,F321,F11	$1,706,000	90	Saudi Arabia	Samsung Engineering Co., Ltd.
2022	LG PETRONAS CHEMICALS MALAYSIA SDN. BHD	NBL	E/T, SWAGE,O'LET,CPLG,NIPPLE,CAP A105,182-F304,A106	$88,770	10	Malaysia	DL E&C

13.REFERENCE LIST

(3) PETROCHEMICAL - 2/5

Year of Supply	Client	Project Name	Material Specifications	Value	Ton	Project Location	Contractors
2022	SARAWAK PETCHEM	Sarawak PetChem Methanol Project	E/T, COUPLING, NIPPLE, PLUG, REDUCER, O'LET A105N, A182-F304/304L, A182-F316/316L, A182-F11, A182-F22	$164,715	5	Malaysia	Samsung Engineering Co., Ltd.
2022	Long Son	Vietnam LSP HDPE/PP Project	E/T,OLET,REDUCER,CAP,NIPPLE,COUPLING,PLUG A105(GALV),LF2,A106-B,A53-B,A333-6, A182-F304/304L,A312-TP304	$251,014	25	Vietnam	Samsung Engineering Co., Ltd.
2022	Long Son Petrochemicals Co., Ltd	Vietnam LSP Tank Farm Project	E/T,OLET,REDUCER,CAP,NIPPLE,COUPLING,PLUG A105(GALV),LF2,A106-B,A53-B,A333-6, A182-F304/304L,A312-TP304	$81,213	3	Vietnam	Posco Engineering
2020	INDORAMA ELEME FERTILIZER AND CHEMICALS LIMITED	IEFCL2	E/T, O'LET, NIPPLE, COUPLING A105,LF2, A182-F304,F316,F22,F11	$144,702	12	Nigeria	Toyo Engineering Corporation
2020	ADNOC	UAE ADNOC WHRP	FLANGEDOLET,NIPOLET,OLET, E/T A105,A182-F304,F91	$109,785	9	UAE	Samsung Engineering Co., Ltd.
2020	DANGOTE OIL REFINING COMPANY LTD.	DANGOTE REFINERY & PETROCHEMICALS PROJECT (DRPP)	WELDOLET A105,A182-F316,B462-N08020,B462-N10276	$35,915	1	Nigeria	ENGINEERS INDIA LIMITED
2020	HMEL	GURU GOBIND SINGH POLYMER ADDITION	LATROLET, EBOLET,SWEEPOLET A105,A182-F304	$47,706	1	India	ENGINEERS INDIA LIMITED
2019	HPCL	Hydrogen Generation Unit (EPCC-06)	WELDOLET SA105,A182-F347H,A182-F11CL.2	$62,034	3	India	TECHNIP INDIA LTD.
2019	HPCL – MITTAL ENERGY LIMITED (HMEL)	GURU GOBIND SINGH POLYMER ADDITION	OLET SA105,A182-F5,A182-F347H,SA182-F91	$61,924	3	India	L&T HYDROCARBON ENGINEERING LTD
2019	Saudi SABIC	Saudi SABIC EO/EG	FLANGEDOLET,NIPOLET,OLET, E/T A105,,A182-F304,	$432,659	35	Saudi Arabia	Samsung Engineering Co., Ltd.

13.REFERENCE LIST

(3) PETROCHEMICAL - 3/5

Year of Supply	Client	Project Name	Material Specifications	Value	Ton	Project Location	Contractors
2019	PTTGC Oxirane Co., Ltd	Thai GC Oxirane PO	FLANGEDOLET,NIPOLET,OLET, E/T A105,A350-LF2,A182-F304,F316,F53,F11	$592,498	50	Thailand	Samsung Engineering Co., Ltd.
2019	HPCL – MITTAL ENERGY LIMITED (HMEL)	CDU & VDU for VISAKH REFINERY MODERNIZATION PROJECT (VRMP)	E/T,UNION,OLET,SWAGE,COUPLING A105,A182-F22,F316,F317,F321	$121,215	3	India	L&T HYDROCARBON ENGINEERING LTD.
2019	IOCL	BS-VI	WELDOLET, ELBOLET A182-F304H,F11,F22,B564-N06625,N08825	$57,986	1	India	ENGINEERS INDIA LIMITED
2019	BPCL	Propylene Derivative Petrochemical Project (PDPP)	LATROLET, WELDOLET, ELBOLET, SWEEPOLET A105,A350-LF2,A182-F304,F316	$12,960	0.5	India	ENGINEERS INDIA LIMITED
2018	Persian Gulf Petrochemical Industries Co. (PGPIC)	HENGAM FERTILIZER	E/T,SWAGE,COUPLING,CAP,PLUG,OLET A105,A182-F304,F347H	$110,078	10	Iran	PIDEC
2018	KNPC	Debottlenecking of Coker Unit (U-20) MAB	E/T,COUPLING,UNION,SWAGE,NIPPLE B466-C70600,B61,A105,A182-F5a,F9	$71,503	5	Kuwait	GULFSPIC
2018	PTT Global Chemical	ORP	E/T,NIPPLE,COUPLING,CAP,NIPOLET,OLET A105,A182-F304	$14,858	1	Thailand	TTCL, Samsung JV
2017	Bahrain LNG	Bahrain LNGIT	E/T, NIPPLE, BOSS A105,A182-F304,F316, F11, F22	$60,000	4.5	Bahrain	GS E&C
2017	ORPIC	LPIC	E/T, NIPPLE, BOSS A105,A182-F304,F316, F11, F22	$200,000	12	Oman	GS E&C
2016	IOCL	IOCL Aishwarya Haldia Refinery	OLET, NIPPLE A105, A182-F321,F11,F22	$11,028	0.8	India	LARSEN & TOUBRO LIMITED

13.REFERENCE LIST

(3) PETROCHEMICAL - 4/5

Year of Supply	Client	Project Name	Material Specifications	Value	Ton	Project Location	Contractors
2016	KNPC	MINA AL-AHMADII GT-5	OLET, A105, A350-LF2, A182-F316/316L,F347,F11, B151-C70600	$70,498	5	Kuwait	TECNICAS REUNIDAS
2016	LOTTE CHEMICAL USA	TE-3	E/T, NIPPLE, BOSS A105,A182-F304,F316, F11, F22,LF3	$97,151	7	Malaysia	GS E&C
2016	Saudi Arabia Mining Company (Ma'aden)	Umm Wu'AL	CONDENSATE POT, ADAPTOR, E/T, OLET, NIPPLE A105,A350-LF2, A182-F304,F316,F11,F22	$286,371	17	Saudi Arabia	Daelim Industrial Co., Ltd.
2016	TURKIYE PETROL RAFINERILERI A.S.	BATMAN REFINERY FIRED EQUIPMENT REVAMP	E/T,NIPPLE,OLET,CAP,COUPLING A182-F5,F9	$5,488	0.2	TURKEY	TECHNIP INDIA LTD.
2016	FLUOR, USA	Fluor Greensville County Power Station	RT PLUG, RT STUB, OLET A105, A182-F22,F11,F91	$31,635	2	USA	LARSEN & TOUBRO LIMITED
2016	Sasol Chemicals (USA) LLC	LAKE CHARLES CHEMICALS (SASOL)	E/T,OLET,PLUG,COUPING,CAP A105,A350-LF2,A182-F304/304L	$80,792	4	USA	MITSUI ENGINEERING & SHIPBUILDING CO.,LTD.
2016	LOTTE CHEMICAL USA	LOTTE MEG	E/T,OLET,COUPLING,CAP A105,F304, NO4400	$55,000	6	USA	Samsung Engineering Co., Ltd.
2015	Turkmen Gas	Turkmenistan Ethane Cracker and PE PP PI	E/T, OLET A105, A333-6, A182-F304	$500,000	65	Turkmenistan	Hyundai Engineering Co.,Ltd.
2015	SASOL Chemicals (USA), LLC	SASOL LLDPE EPFCs	E/T, COUPLING, REDUCER A105, A350-LF2	$82,439	8	USA	Toyo Engineering Corporation
2015	LUOC	UKAN	O'LET, NIPO FLANGE A105,A182-F316,A350-LF2,B564-N08825	$160,000	13	Uzbekistan	Hyundai Engineering Co.,Ltd.

13.REFERENCE LIST

(3) PETROCHEMICAL - 5/5

Year of Supply	Client	Project Name	Material Specifications	Value	Ton	Project Location	Contractors
2014	PT Chandra Asri Petrochemical Tbk	CAPEx	E/T, O'LET A105,LF2, A182-F304,F316	$160,607	15	Indonesia	Toyo Engineering Corporation
2014	Saudi Arabia Mining Company (Ma'aden)	Umm Wu'AL	E/T, O'LET A105,A182-F316/316L,F11, F22	$203,839	15	Saudi Arabia	Daelim Industrial Co., Ltd.
2014	IRPC	UHV Plant	E/T, OLET, NIPPLE A105,A182-F304	$910,082	58	Thailand	GS E&C / SK E&C
2013	ETHYDCO	EEPE	E/T A105,A182-F304/F316/F11	$246,000	12.5	Egypt	Toyo Engineering Corporation
2013	AL-JUBAIL PETROCHEMICAL COMPANY	SAUDI ELASTOMERS	OLET, E/T A105,A350-LF2,A182-F304,AF316	$768,872	60	Saudi Arabia	Daelim Industrial Co., Ltd.
2013	UNG	UGCC (Ustyurt Gas Chemical Complex)	E/T, NIPPLE, BOSS A105,A182-F304,F316, F11, F22	$556,715	147	Uzbekistan	GS, Samsung Eng.,
2012	Tokuyama Malaysia Sdn. Bhd.	TMP2	E/T, NIPPLE, BOSS A105,A182-F304,F316	$245,425	20	Malaysia	Chiyoda Corporation.
2011	SABIC	Kayan LDPE	E/T, O'LET A105,A182-F316/316L	$481,640	40	Saudi Arabia	Daelim Industrial Co., Ltd.
2011	Turkmenhimya	Amonia and Urea Plant in Mary	E/T, OLET A105,A350-LF2,A182-F304,F11	$43,809	3.6	Turkmenistan	Kawasaki Heavy Industries

13.REFERENCE LIST

(4) FPSO - 1/1

Year of Supply	Client	Project Name	Material Specifications	Value	Ton	Project Location	Contractors
2024	MODEC	UARU FPSO PROJECT	E/T,O'LET,SWAGE, NIPOFLANGE,SWEEPOLET A105,A182-F316,A350 LF2	$413,105	16.5	CHINA Singapore	CUNADO
2024	MODEC	FPSO RAIA PROJECT	ELBOW, O'LET, NIPOFLANGE,SWEEPOLET A105,A350 LF2,A182-F316,F91	$448,337	7.5	CHINA Singapore	CUNADO
2023	Petrobras	P78 PJT	E/T,OLET,CAP,PLUG,COUPLING,NIPPLE,SWAGE,SLEEVE A105,API5L-B,A234-WPB,A182-F316,F51,F53,F55,A312-TP316, A403-WP316,B148-C95800,A234-7060X	$418,784	11	Brazil	Hyundai Heavy Industries Co., Ltd.
2023	BOE (Beacon offshore energy)	SHENANDOAH FPS	E/T,OLET,CAP,PLUG,COUPLING,NIPPLE,SWAGE, DUMMY SPOOL A105,A105(GALV),A350-LF2,A106-B,A106-B(GALV),A333-6,A182-F316,F51,F53,F55,B564-N06625,A312-TP316,A790 S32750	$942,831	17	USA	Hyundai Heavy Industries Co., Ltd.

13.REFERENCE LIST

(5) DOMESTIC(S.KOREA) - 1/4

Year of Supply	Application	Client	Project Name	Material Specifications	Value	Ton	Contractors
2024	Power	LOTTE E&C	롯데바이오로직스 K1 PROVIDENCE	E/T, COUPLING,CAP, UNION A105,A182-F304,F316	$70,400	6	LOTTE E&C
2024	Petrochemical	S-OIL	S-Oil Shaheen BDEU & C4 HDT Project	E/T, COUPLING,NIPPLE,CAP,OLET, FLANGEDOLET A105,A106-B,A182-F304	$97,000	10	Toyo Engineering Korea Ltd.
2024	Petrochemical	S-OIL	S-OIL SHAHEEN PROJECT	E/T, COUPLING,SWAGE,NIPPLE,CAP,OLET, FLANGEDOLET,Y-TEE,SHORT PIECE A105,A350-LF2,A182-F304,F321,F347,F9, F11,F22,N08825	$790,700	65	DL E&C
2024	Power	한국지역난방공사	대구친환경 발전소	E/T, COUPLING, SWAGE,CAP A105,A182-F304,F316	$11,100	1.5	Hanwha Corporation / E&C
2024	Oil & Gas	S-OIL	S-OIL SHAHEEN (PKG 1)	E/T, O'LET,SWAGE, CAP,NIPPLE,SWAGE, LATROLET A105,A350-LF2,A182-F304,F316,F321,F91,F11	$1,103,856	182	Hyundai Engineering Co.,Ltd.
2024	Petrochemical	LG Chem	LG ABS Rebuilding	E/T, NIPPLE,SWAGE,CPLG,CAP,BOSS A105,A182-F304,F316	$289,000	32	DL E&C
2023	Power	SK multi utility	SKMU Project	E/T, COUPLING, NIPPLE,CAP, OLET A105,A350-LF2,A182-F304,F316	$18,626	1	SK E&C
2023	Power	LG Chem	DAESAN BH-1 Project	E/T, COUPLING, NIPPLE,CAP, OLET A105,A182-F304,F316, F11	$23,668	1	LG Chem
2023	Power	DL Chemical Co.,LTD	PB2 120,000 MTA REVAMPING	E/T, COUPLING, SWAGE,NIPPLE,CAP, OLET A105,A182-F304,F316	$13,300	3	DL E&C
2023	Petrochemical	Hanwha Corporation / E&C	N-1	E/T, COUPLING,CAP,BOSS A105,A350-LF2,A182-F304,F316	$22,900	3	Hanwha Corporation / E&C

13.REFERENCE LIST

(5) DOMESTIC(S.KOREA) - 2/4

Year of Supply	Application	Client	Project Name	Material Specifications	Value	Ton	Contractors
2023	Power	LG Chem	[LECO] LG Chem E Project	E/T, O'LET,SWAGE, CAP,NIPPLE,SWAGE, LATROLET A105,A350-LF2,A182-F304,F316,	$111,338	25	Hyundai Engineering Co.,Ltd.
2023	Power	Tongyeong Eco Power Co., Ltd.	TEP (Tongyeong Gas Power Generation Project)	E/T, CPLG,CAP,BOSS,PLUG A105,A182-F304,F316,F92	$115,000	10	Hanwha Corporation / E&C
2022	Petrochemical	KPIC NEO-II & KBD	KPIC	E/T, O'LET,SWAGE, CAP,NIPPLE,SWAGE, A105,A350-LF2,A182-F304,F11	$110,439	34	GS E&C
2022	Power	IGE Co., LTD	GEP1 Project	E/T, COUPLING, NIPPLE,CAP, OLET A105,A350-LF2,A182-F304,F316	$209,936	20	SK E&C
2022	Power	D-REX Polymer LCC	Yeosu 40 KTA APAO	E/T, NIPPLE,CAP, OLET A105,A182-F51,F304,F316,F91,F5	$95,730	10	DL E&C
2021	Petrochemical	KPIC	KPIC NEO-Ⅱ	E/T, COUPLING, NIPPLE,CAP, OLET A105,A350-LF2,A182-F304,F316	$120,500	35	GS E&C
2021	Power	UGPS	Ulsan GPS Project	E/T, COUPLING, NIPPLE,CAP, OLET A105,A350-LF2,A182-F304,F316	$87,716	7	SK E&C
2021	Power	SK Hynix	SMART ENERGY CENTER Project (CheongJu)	E/T, COUPLING, NIPPLE,CAP, OLET A105,A350-LF2,A182-F304,F316	$77,499	6	SK E&C
2020	Petrochemical	Hanwha Chemical Corp.	HSC HYCO	E/T,CPLG,NIPPLE,SWAGE,O'LET A105,A182-F304,F316	$47,100	8	Hanwha Corporation / E&C
2020	Petrochemical	BoryeongLNG Terminal	BoryeongLNG TerminalProject (Phase-II)2-2	E/T, COUPLING, NIPPLE,CAP, OLET A105,A350-LF2,A182-F304,F316	$23,062	7	GS E&C

13.REFERENCE LIST

(5) DOMESTIC(S.KOREA) - 3/4

Year of Supply	Application	Client	Project Name	Material Specifications	Value	Ton	Contractors
2020	Petrochemical	Hanwha Chemical	HYCO	E/T,O'LET,NIPPLE,SWAGE A105,A182-F304,F316,F11	$18,071	1.5	Hanhwa E & C
2020	Petrochemical	Hanwha Chemical	XLPE C6 Expansion	E/T, OLET A105	$11,836	1	Hanhwa E & C
2020	Power	KOEN	GOSEONG HAI THERMAL POWER PLANT UNITS 1&2	CAP, BOSS, COUPLING, INSERT, NIPPEL, E/T,OLET A105,F304,F316,A106-B	$132,893	18	SK E&C
2019	Petrochemical	Hanwha Chemical	PVC K-10	E/T, CAP, OLET A105,F304,F316	$10,200	1	Hanhwa E & C
2019	Petrochemical	Lotte Chemical	Lotte Chemical PolyCarbonate NO.2(LPC2)	E/T, NIPPLE,CAP, OLET A105,A182-F304,F316	$147,816	45	Hyundai Engineering Co., Ltd.
2019	Petrochemical	Hanwha Chemical	XDI	E/T,O'LET,NIPPLE etc A105,A182-F304,F316	$12,784	1	Hanhwa E & C
2019	Power	Yeochun NCC. Co. Ltd	YNCC SM Debottleneck Project	E/T,O'LET,COUPLING,NIPPLE A105,A182-F304,F11	$14,300	2.8	Daelim Industrial Co., Ltd.
2018	Petrochemical	LG Chem	6AA	E/T, COUPLING, NIPPLE,CAP, OLET A105,A350-LF2,A182-F304,F316,F11	$61,300	27	GS E&C
2018	Petrochemical	Hanwha Chemical	THE	E/T, OLET, SWG A105,F304	$41,000	3	Hanwha E & C
2018	Petrochemical	Lotte Chemical	LPC2(Lotte Chemical PolyCarbonate NO.2)	E/T, NIPPLE,CAP, OLET, FLANGEDOLET A105,A182-F304,F316	$147,317	18	Hyundai Engineering Co., Ltd.

13.REFERENCE LIST

(5) DOMESTIC(S.KOREA) - 4/4

Year of Supply	Application	Client	Project Name	Material Specifications	Value	Ton	Contractors
2017	Oil & Gas	S-OIL Corporation	S-OIL RESIDUE UPGRADING COM	E/T, OLET, SWG etc A182-F5,F9,F11,F53	$45,000	1	Daelim Industrial Co., Ltd.
2017	Petrochemical	Hanwha Total	De-Aromatization Solvent	E/T, OLET, CPLG A105,F304,F11	$35,000	5	Hanwha E & C
2017	Petrochemical	Lotte Chemical Corporation	LCC H-NC3 Revamping	E/T, OLET, SWG, CPLG etc A105,A350-LF2,A182-F11,F304	$65,000	15	Daelim Industrial Co., Ltd.
2017	Petrochemical	LG Chem	3 NE	ELBOLET,E/T,OLET,NIPPLE,SWAGE A105,A106-B, A182-F304,316,A350-LF2	$52,000	7	GS E&C
2016	Petrochemical	PETROCHEMICAL DIVISION OF DAELIM	E Project	E/T,OLET,NIPPLE,SWAGE A105,A106-B, A182-F304,F316	$27,100	4	Daelim Industrial Co., Ltd.
2016	Power	Hanwha Energy	G2	E/T,O'LET,NIPPLE,SWAGE A105,A182-F304	$20,000	1.5	Hanwha E & C
2015	Power	PMP	Jangmoon Combined Cycle Power Project	E/T, NIPPLE,CAP, OLET A105,A182-F51,F304,F316,F91,F5	$204,527	15	SK E&C
2014	Power	Boryeong LNG Terminal	Boryeoung LNG Terminal	E/T,O'LET A105,LF-2, A182-F304	$31,000	1	GS E&C & SK E&C
2013	Power	Korea East-West Power Co., Ltd	Dangjin Thermal Power Plant	E/T,O'LET A105,A182-F304,316,F11	$130,290	14.5	Daelim Industrial Co., Ltd

13.REFERENCE LIST

(6) OFFSHORE - 1/2

Year of Supply	Client	Project Name	Material Specifications	Value	Ton	Project Location	Contractors
2024	Pembina Pipeline	CEDAR FLNG	E/T,CPLG,PLUG,OLET, FLNAGEDOLET, SWEEPOLET A105,A350-LF2,A182-F304/316,F22	$202,524	21	Kitimat	Samsung Heavy Industries
2024	ExxonMobil	Coral Norte FLNG (CORAL NORTH)	E/T,CPLG,REDUCER,OLET, FLNAGEDOLET A105,A350-LF2,A182-F304/316	$271,821	12	Mozambique	Samsung Heavy Industries
2024	Qatar NOC	Ruya Batch 1 Project	O'LET, NIPPLE A350-LF2, A182-F316, A182-F51, A182-F53	$182,371	10	Qatar	Hyundai Heavy Industries Co., Ltd.
2024	Woodside Energy	Trion FPU	E/T, O'LET, SWAGE, PLUG, CAP, COUPLING, NIPPLE,UNION A105, A350-LF2, A182-F316, A182-F51, A182-F53, B564-N06625, A694-F65, B462-N10276	$1,058,018	80	Mexico	Hyundai Heavy Industries Co., Ltd.
2024	Petronas	PETRONAS ZLNG	E/T, OLET, FLNAGEDOLET, NIPPOLET A105,A350-LF2	$242,832	32	Malaysia	Samsung Industries Co., Ltd.
2020	LLOG exploration Company	King's QUAY	E/T,O'LET A182-F53,A790-S32750,B564-N06625,A350-LF2	$363,008	3.6	USA	Hyundai Heavy Industries Co., Ltd
2018	ENI	ENI Coral FLNG	OLET, FLNAGEDOLET A105,A350-LF2,A182-F304/316	$434,692	20	Mozambique	Samsung Industries Co., Ltd.
2015	Total	BADAMYAR	E/T, O'LET A105,LF2,A182-F316,A182-F321	$65,000	8	Myanmar	Hyundai Heavy Industries Co., Ltd.
2015	Statoil	ASTA HANSTEEN	E/T, COUPLING, REDUCER, O'LET A182-F316	$80,752	3	Norway	Hyundai Heavy Industries Co., Ltd.

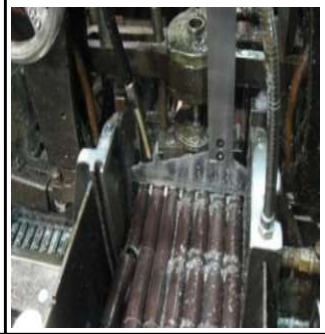
13.REFERENCE LIST

(6) OFFSHORE - 2/2

Year of Supply	Client	Project Name	Material Specifications	Value	Ton	Project Location	Contractors
2014	ENI	MOHO TLP,FPU	E/T, O'LET A105,LF2,A182-F316,F60, F65, 904	$810,482	70	Congo	Hyundai Heavy Industries Co., Ltd.
2014	Carigali Hess	Booster	E/T,O'LET&FLANGEDOLET A105,A350-LF2,A182-F316, F51	$575,307	50	Malaysia Thailand	Hyundai Heavy Industries Co., Ltd.
2013	Ras GAS	Barzan	E/T, O'LET A105,A350-LF2,A182-F316,C70600,8825	$203,884	25	Qatar	Hyundai Heavy Industries Co., Ltd.
2013	ROWAN	2559~2564	TARGET E/T, FLANGE(IN-LAYED),O'LET 4130,A350-LF2,A182-F316L,6625	$2,299,000	255	Drill Ship	Hyundai Heavy Industries Co., Ltd.
2013	NOBLE	2503~2508	FLANGE(IN-LAYED),O'LET 4130,LF2,A182-F316L,6625	$330,000	31	Drill Ship	Hyundai Heavy Industries Co., Ltd.
2012	BP (British Petroleum)	Clair Ridge	E/T, OLET & FLANGEDOLET NO8904,A350-LF2, F904L, NO8825	$664,978	55	North Sea	Hyundai Heavy Industries Co., Ltd.
2011	BP (British Petroleum)	Goliat	E/T, O'LET & FLANGEDOLET,SLEEVE A105,A350-LF2,A182-F316,UNS32760,31803	$1,537,403	128.5	Norway	Hyundai Heavy Industries Co., Ltd.
2011	Chevron	Gorgon	OLET, NIPPO FLANGE, SWAGE A350-LF2,LF6,A105,A182-F304,F316	$3,387,642	283	Australia	Hyundai Heavy Industries Co., Ltd.

14. PROCESS CHART

DIE FORGED FITTING MANUFACTURING PROCESS CHART

PROCESSING	1	2	3	4	5
UNIT PROCESS	**RAW MATERIAL RECEIVE**	**CHEMICAL ANALYSIS**	**CUTTING**	**DIE FORGING**	**HEAT TREATMENT**
PROCESS PICTURES					
INSPECTION /TEST	1.Mill Sheet Review 2.Visual, Dimension 3.PMI	Chemical analysis	Dimension	1.Visual 2.Dimension 3.Forging Ratio	1.H/T time 2.Temparature 3.Solution Treatment
REQUIRE -MENTS	ASTM Purchase Order Purchasing Specification	ASTM Purchase Order Purchasing Specification	Maker Standard	ASTM	ASTM Purchase Order Purchasing Specification
WORKSHOP	Outsourced	In-house / Outsourced	In-house	In-house / Outsourced	In-house / Outsourced

14. PROCESS CHART

DIE FORGED FITTING MANUFACTURING PROCESS CHART

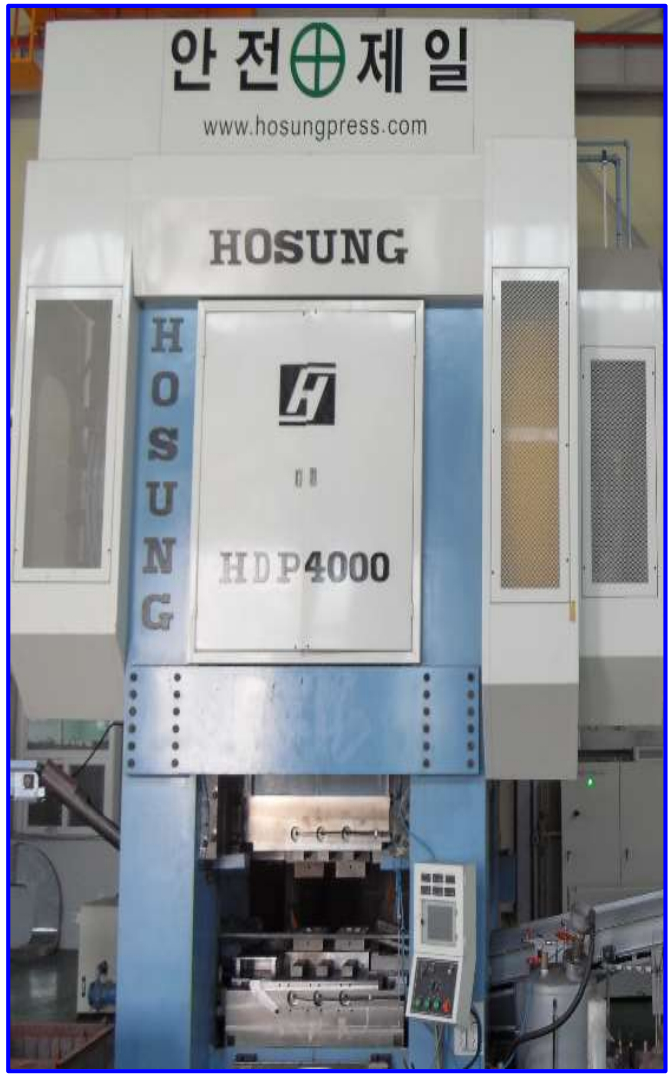
PROCESSING	6	7	8	9	10
UNIT PROCESS	**MECHANICAL TEST**	**MACHINING**	**N.D.E TEST**	**MARKING**	**PICKLING & PASSIVATION**
PROCESS PICTURES					
INSPECTION /TEST	1.Tension 2.Impact 3.Hardness	1.Visual 2.Dimension	1.UT 2.PT 3.MT 4.RT	Visual	Visual
REQUIRE-MENTS	ASTM Purchase Order Purchasing Specification	ASME MSS	ASME ASTM Purchase Order Purchasing Specification	MSS SP-25 Purchase Order Purchasing Specification	Maker Standard
WORKSHOP	In-house / Outsourced	In-house	Outsourced	In-house	In-house / Outsourced

14. PROCESS CHART

DIE FORGED FITTING MANUFACTURING PROCESS CHART

PROCESSING	11	12	13	14	15
UNIT PROCESS	**COLOR CODING**	**PRODUCT INSPECTION**	**WITNESS INSPECTION**	**PRODUCT PACKING**	**PACKING W/ INSPECTION**
PROCESS PICTURES					
INSPECTION /TEST	Identification color	1.Visual 2.Dimension 3.PMI 4.Ferrite content	1.Material verification 2.Marking 3.Visual 4.Dimension	1.Quantity 2.Label identification	1.Dimension 2.Sea worthiness 3.Water proof 4.Marking
REQUIRE-MENTS	Purchase Order	ASME MSS Purchase Order	ITP	Maker Standard	Maker Standard Purchasing Specification
WORKSHOP	In-house	In-house	In-house	In-house	In-house / Outsourced

15. MANUFACTURING FACILITIES



PRESS MACHINE

TRIMMING MACHINE

HIGH-FREQUENCY HEATING MACHINE

15. MANUFACTURING FACILITIES

1'st HEAT TREATMENT FURNACE

2'nd HEAT TREATMENT FURNACE - QUENCHING

SHOT BLAST MACHINE

15. MANUFACTURING FACILITIES

BAND SAW H-550A MACHINE

HIGH-SPEED CUTTING NCS-5/100 MACHINE

BAND SAW WBS-400BA MACHINE

DRILL MACHINE

AUTO DRILL MACHINE

15. MANUFACTURING FACILITIES

CNC LATHE PUMA – 160G MACHINE

CNC LATHE 10” PUMA 280 MACHINE

CNC LATHE 12” SKT 300 MACHINE

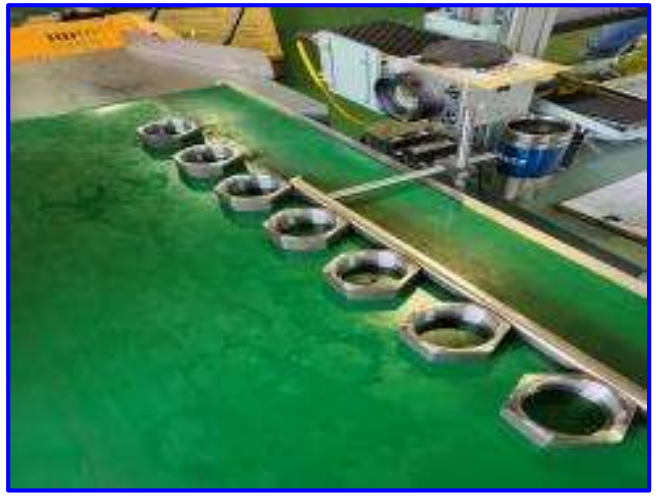
HIGH SPEED LATHE MACHINE

15. MANUFACTURING FACILITIES

TURNING MACHINE

MCT MACHINE

SPEED DOT MARKING MACHINE



LASER MARKING MACHINE

LOW STRESS MARKING MACHINE

15. INSPECTION FACILITIES

CHEMICAL ANALYSIS TESTER

HYDRAULIC UNIVERSAL TESTER

BRINELL HADNESS TESTER

PRECISION SURFACE PLATS

ROCK WELL HARDNESS TESTER

15. INSPECTION FACILITIES

FERRITE-SCOPE

ULTRA SONIC HARDNESS TESTER

X-RAY PMI (Portable Analyzer)

ELCOMETER

UT THICKNESS TESTER

World Best!