

# BMT Pre-Qualification

\_Process Piping Valves \_Fittings \_Instrument Valves





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# COMPANY PROFILE

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Company Name	BMT Co., Ltd.	Brand Name	SUPERLOK, BMT
Businesses	Process Piping Valves; Tube Fittings & Valves		
CEO	Yoon, Jongchan		
Establishment	1988 (Legally incorporated in 2000)	Business Registration #	606-81-28130
Legal Entity Type	Publicly Traded Company (KOSDAQ Listed)		
Sales (Million USD) *	63.7 (2019), 68.9 (2018), 59.4 (2017)	Paid-in Capital	4,073 KRW million
R&D/Sales **	6.9% ('19), 7.1% ('18), 6.2% ('17), 6.0% ('16)		
Manufacturing Location	<ul style="list-style-type: none"><li>• <b>HQ, Factory 1:</b> 35, Sanmakgongdannam11-gil, Yangsan-si, Gyeongsangnam-do 50568 South Korea</li><li>• <b>Factory 2:</b> 29, Sanmakgongdannam8-gil, Yangsan-si, Gyeongsangnam-do 50568 South Korea</li></ul>		
Number of Employees	269 (as of December 2019)		
Sales Contact	TEL: + 82 55 783 1072/1069	E-MAIL: superlok@superlok.com	
Web Site	http://www.superlok.com		

\* Exchange Rate: Basic rate at the end of each year applied.

\*\* R&D to Sales Ratio includes government R&D subsidies.

# HISTORY

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- 2019** · Vendor approval from ORPIC (Oman Refinery Company)
- 2018** · Vendor approval from Chevron Corporation and PDO (Petroleum Development Oman)
- 2015** · Vendor approval from Exxon Mobil and KOC (Kuwait Oil Company)
- 2014** · Vendor approval from KNPC (Kuwait National Petroleum Company) and Subsidiaries of ADNOC (Abu Dhabi National Oil Company)
- 2013** · Factory 2 established in Yangsan, Korea
- 2012** · Cryogenic Valves launched  
· Ultra High Purity Division started up  
· Anti-corrosion back ferrule patented
- 2011** · Process Piping Valves launched  
· i-Fitting developed & patented
- 2009** · HQ and Factory moved to Yangsan, Korea
- 2007** · Listed on KOSDAQ market
- 2005** · BMT R&D Center established
- 2004** · HQ & Factory moved to Noksan Industrial Complex, Korea
- 2000** · Legally incorporated (BMT Co., Ltd.)
- 1988** · Gyeong Pung Machinery Co. established

## Awards & Recognition

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- Outstanding Contributions to Public Disclosure Culture (KRX: Korea Exchange)
- Grand prize for exports (Gyeongsangnam-do Province, Korea)
- Productivity & Innovation Partnership Awards (Minister of MOTIE, S.Korea)
- i-AWARD at the IOT Innovation Award (NIA, S.Korea)
- Export Cooperation Partner Firm Designation (KOMIPO, S.Korea)
- Authorized Economic Operator (AEO) Certification (KCS, S.Korea)
- Excellent Venture Company Designation (President of KOVA, S.Korea)
- Global Hidden Champion Designation (SMBA, S.Korea)
- World Class 300 Company Designation (SMBA, S.Korea)

'11

- Best Practice Company Award (KATA, S.Korea)
- Presidential Citation for Venture Vitalization (President of S.Korea)
- Award for Advanced Hybrid Tech. & Local Economy (Busan Mayor, S.Korea)
- Award for Honest Tax Payment (NTS Geumjeong Office, S. Korea)
- 2014 USD 20 million Export Tower (President of S.Korea)
- Award for Excellent Gyeongnam Work Place (Gyeongnam SMBA, S.Korea)
- Award for Development of Excellent Capital Goods (MOTIE, S.Korea)
- Certification of Hidden Champion Candidate (Export-Import Bank, S.Korea)

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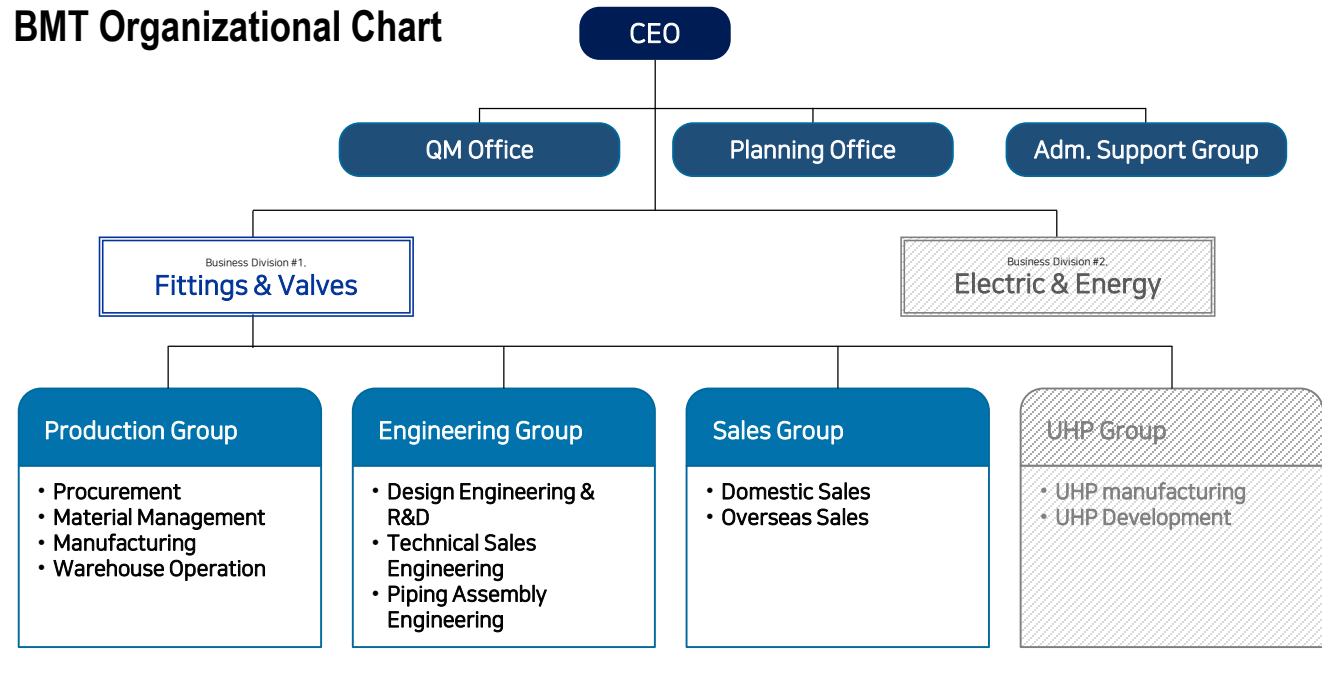
- One-KEPCO Export Business Company Nomination (KEPCO, S.Korea)
- Excellent Partner Nomination (KHNP, S.Korea)
- 2010 Excellent Partner Nomination (Doosan Heavy Industries & Construction)
- Export Initiative Company Award (KOTRA, S.Korea)
- Tin Tower Order of Industrial Service Merit (President of S.Korea)
- Great Leader Certificate (Mayor of Busan City, S.Korea)
- Excellent Quality Competitiveness Enterprise (MOTIE, S.Korea)
- New Technology Innovation Award (Busan Regional SME, S. Korea)
- Great Leader Certificate (Mayor of Busan City, S.Korea)

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- Busan industrial Technology Grand Prize (BCCI, S. Korea)
- Busan Venturing Leadership Award (Mayor of Busan City, S.Korea)
- Exemplary Business Leadership Award (SMBA, S.Korea)
- Inno-Biz Company Certification (Export-Import Bank of Korea)
- Certification of Enterprise Specialized in Components & Materials (MOTIE, S.Korea)
- Maekyung Excellent Venture Company Award (Minister of SME, S.Korea)
- Prime Minister Award for SME Promotion (Prime Minister, S.Korea)
- Superior Technology Company Award (KIBO, S.Korea)
- New Technology Venture Designation (SME, S.Korea)



## BMT Organizational Chart



## # of Employees by Key Areas\*

(as of Jan 2020)

R&D · Design · Engineering

28



Quality Mngt.

30



Process Mngt. · Production

149



Mngt. Support · Admin.

13

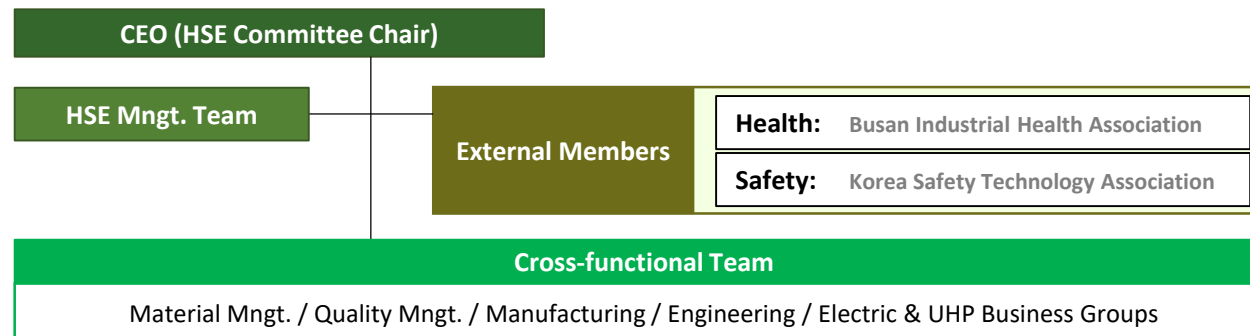


Marketing · Sales

31



## BMT HSE Committee





BMT serves customers all over the world together with its **56 International Distributors** in 28 Countries.



## Piping Valve series

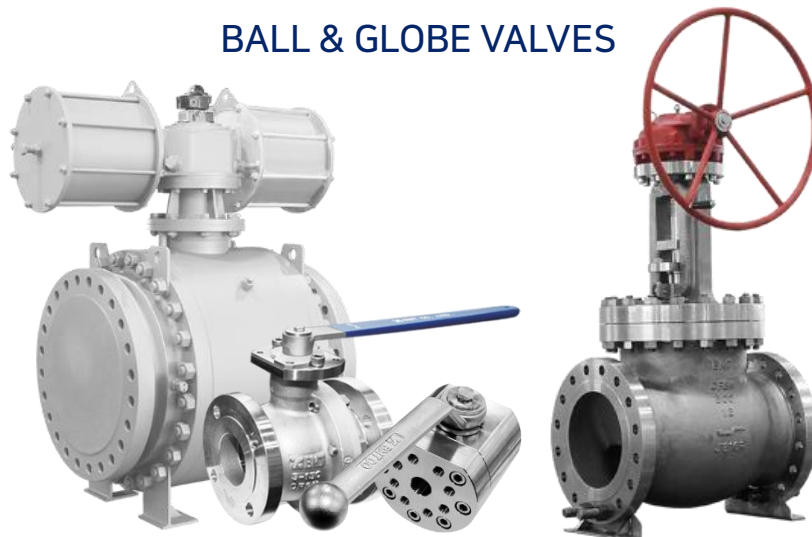
### BLOCK & BLEED VALVES



### CRYOGENIC VALVES



### BALL & GLOBE VALVES



### OTHER PRODUCT OFFERINGS



*Any products not mentioned in this PQ document, please consult BMT (SUPERLOK) sales representative for availability.*

## Instrument Valve series

### INSTRUMENT BALL VALVES



### HIGH PRESSURE VALVES



### NEEDLE VALVES



### CHECK VALVES



## Fitting series

### SUPERLOK TUBE FITTINGS (Compression Type)



### BITE TYPE TUBE FITTINGS (STD: JIS B2351)



### BITE TYPE TYBE FITTINGS (STD: DIN 2353)



### 37° FLARED TUBE FITTINGS (STD: SAE J514)



### PIPE FITTINGS (STD: ASME B1.20.1, SAE AS71051, ISO 228/1, JIS B0202, ISO 7/1, JIS B0203)



### O-RING FACE SEAL FITTINGS (O-ring Face to Face Design)



### HIGH PRESSURE FITTINGS (Coned & Threaded Connection Design)



### i-FITTINGS (BMT developed & patented)





## Piping Valves

## Instrument Valves

## Fittings

### BLOCK & BLEED

### CRYOGENIC

### BALL & GLOBE

## BMT Block & Bleed Series ADVANTAGE



## Single Block & Bleed (SBB) Valve

### DESIGN SPECIFICATION

ASME B16.34, B16.5, B31.3, B1.20.1; API 6D

### SIZE

1/2 to 16 in

### BODY MATERIAL

I Carbon Steel: A105, A350 LF2, A352 LCB/LCC, A216 WCB

I Stainless Steel: ASTM A182 F316/316L/F51/F53, A351 CF8M/CF3M, A890 4A/6A

I Duplex: A182 F51/F53

I Al-bronze Alloy: B148, B150

I Inconel 625/825

### END CONNECTION

Butt Weld, Socket Weld, Thread, Flange

### ISOLATE TYPE

Ball, Needle (Optional: OS&Y)

### BLEED VALVE TYPE

Ball, Needle (Optional: OS&Y)

### BLEED CONNECTION

1/2" FNPT as standard,  
optional connections including Flange

### TEMPERATURE

(Soft seated) -49 to 500 °F (-45 to 260 °C)  
(Metal seated) up to 842 °F (450 °C)

### PRESSURE RATING

CL150 to CL2,500



# PRODUCT SPECIFICATION

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## Piping Valves

## Instrument Valves

## Fittings

### BLOCK & BLEED

### CRYOGENIC

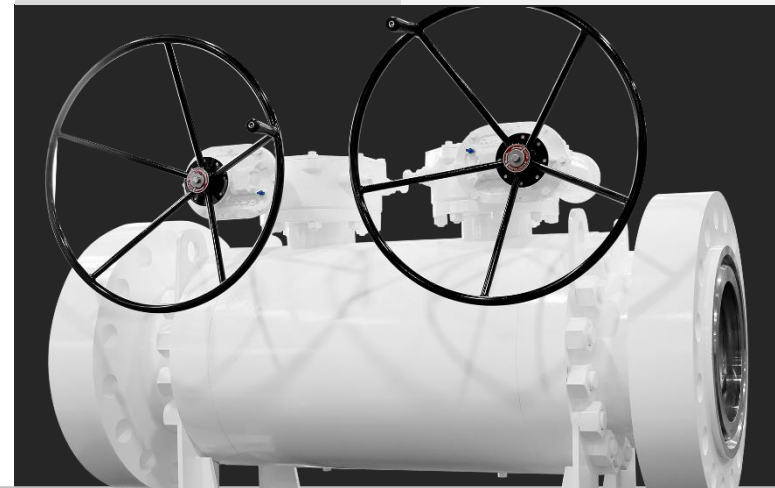
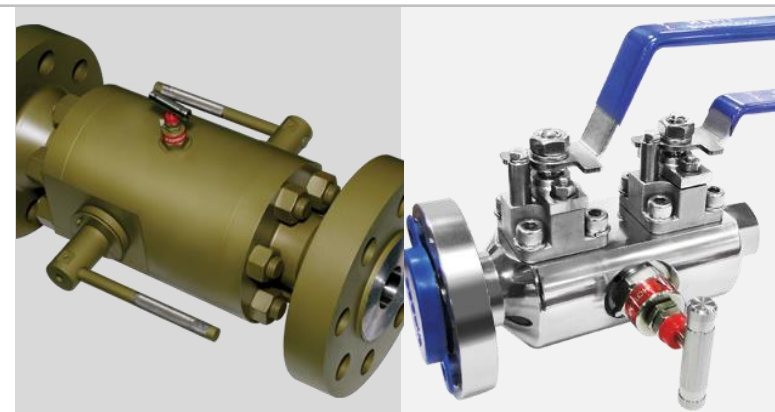
### BALL & GLOBE

## BMT Block & Bleed Series ADVANTAGE (continued)

BMT Block & Bleed Valves incorporate up to 3 ball valves or mixture of ball and needle design into a single valve unit. One compact unit reduces the need for Large, Complicated, Costly Multi-Valve Systems. Removing Connections between separate units result in fewer potential leak paths. A vent valve allows to check the integrity of seat seals and permits withdrawal of fluid leakage increasing safety and ease of maintenance.

### Double Block & Bleed (DBB) Valve

<b>DESIGN SPECIFICATION</b>	ASME B16.34, B16.5, B31.3, B1.20.1; API 6D
<b>SIZE</b>	1/2 to 16 in
<b>BODY MATERIAL</b>	I Carbon Steel: A105, A350 LF2, A352 LCB/LCC, A216 WCB I Stainless Steel: ASTM A182 F316/316L/F51/F53, A351 CF8M/CF3M, A890 4A/6A I Duplex: A182 F51/F53 I Al-bronze Alloy: B148, B150 I Inconel 625/825
<b>END CONNECTION</b>	Butt Weld, Socket Weld, Thread, Flange
<b>ISOLATE TYPE (1<sup>st</sup>, 2<sup>nd</sup>)</b>	Ball, Needle (Optional: OS&Y)
<b>BLEED VALVE TYPE</b>	Ball, Needle (Optional: OS&Y)
<b>BLEED CONNECTION</b>	½" FNPT as standard, optional connections including Flange
<b>TEMPERATURE</b>	(Soft seated) -49 to 500 °F (-45 to 260 °C) (Metal seated) up to 842 °F (450 °C)
<b>PRESSURE RATING</b>	CL150 to CL2,500



# PRODUCT SPECIFICATION

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## Piping Valves

## Instrument Valves

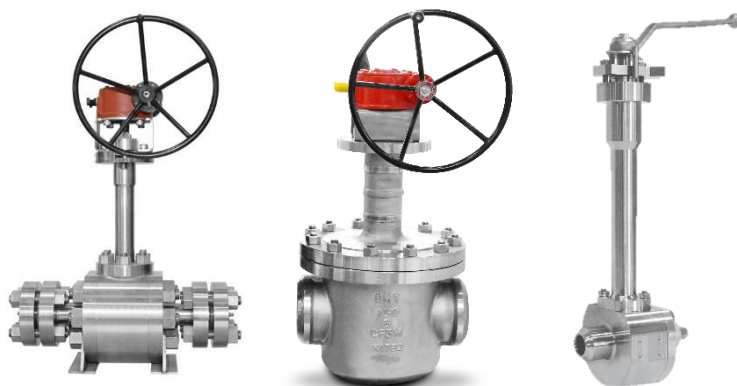
## Fittings

BLOCK &amp; BLEED

CRYOGENIC

BALL &amp; GLOBE

### Cryogenic Ball Valve



#### DESIGN SPECIFICATION

ASME B16.10, B16.11, B16.25, B16.5, B16.34  
BS6364 API 6D

SIZE 1/2 to 14 in

#### BODY MATERIAL

Stainless Steel: A182-F316, A182-F316L, A351-CF8M, A351-CF3M

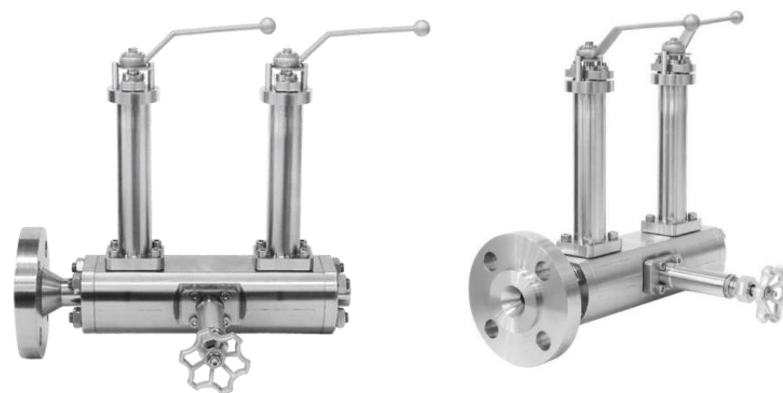
#### END CONNECTION

Butt weld, Socket weld, Thread, Flange

TEMPERATURE Down to -321 °F (-196 °C)

PRESSURE RATING CL150 to CL2,500

### Cryogenic DBB Valve



#### DESIGN SPECIFICATION

ASME B16.5, B16.34 API 6D BS6364

SIZE 1/2 to 4 in

#### BODY MATERIAL

Stainless Steel: A182-F316, A182-F316L, A351-CF8M, A351-CF3M

VALVE TYPE Ball-Ball-Needle, Needle-Needle-Needle

END CONNECTION Flanged-Threaded, Flanged-Flanged

TEMPERATURE Down to -321 °F (-196 °C)

PRESSURE RATING CL150 to CL2,500

# PRODUCT SPECIFICATION

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## Piping Valves

## Instrument Valves

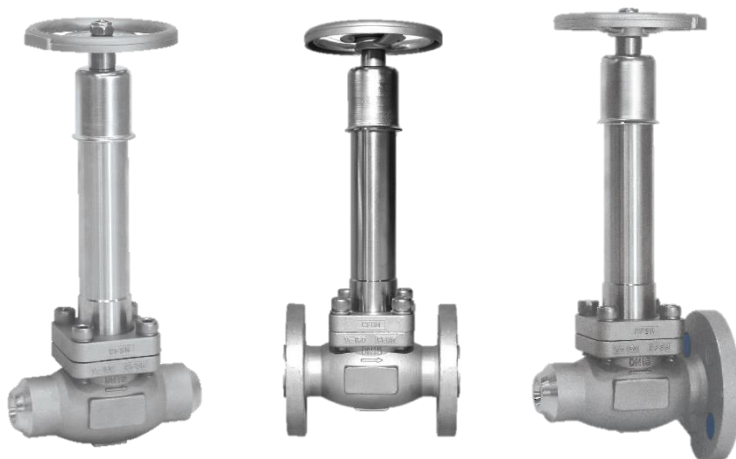
## Fittings

BLOCK &amp; BLEED

CRYOGENIC

BALL &amp; GLOBE

### Cryogenic Needle Valve



#### DESIGN SPECIFICATION

ASME B16.34, B16.11, B16.25, B16.5

**SIZE** 1/2 to 1-1/2 in

#### BODY MATERIAL

Stainless Steel: A182-F316, A182-F316L, A351-CF8M, A351-CF3M

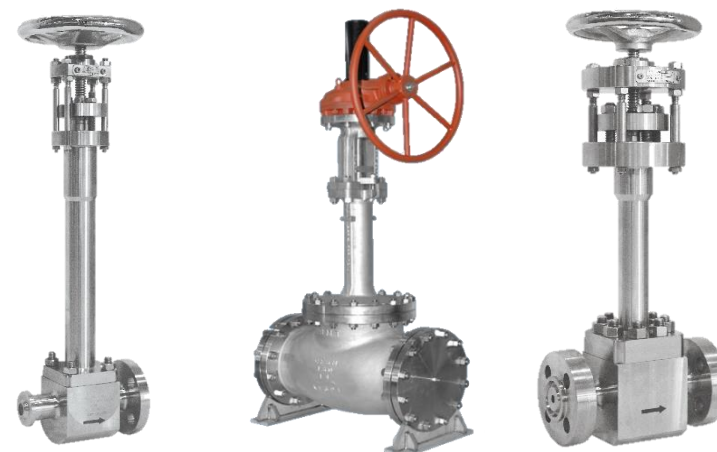
#### END CONNECTION

Butt weld, Socket weld, Thread, Flange, SUPERLOK Tube Fitting

**TEMPERATURE** Down to -321 °F (-196 °C)

**PRESSURE RATING** CL150 to CL2,500

### Cryogenic Globe Valve



#### DESIGN SPECIFICATION

ASME B16.10, B16.25, B16.5, B16.34

BS6364

**SIZE** 1/2 to 14 in

#### BODY MATERIAL

Stainless Steel: A182-F316, A182-F316L, A351-CF8M, A351-CF3M

#### END CONNECTION

Butt weld, Socket weld, Thread, Flange

**TEMPERATURE** Down to -321 °F (-196 °C)

**PRESSURE RATING** CL150 to CL2,500



## Piping Valves

## Instrument Valves

## Fittings

BLOCK &amp; BLEED

CRYOGENIC

BALL &amp; GLOBE

### Cryogenic Gate Valve



#### DESIGN SPECIFICATION

ASME B16.10, B16.25, B16.5, B16.34  
BS6364 API 600

**SIZE** 2 to 8 in.

#### BODY MATERIAL

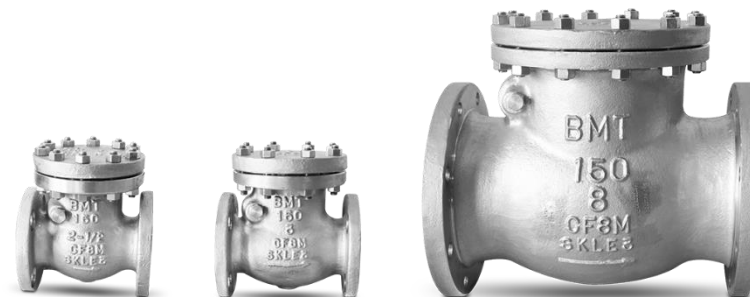
Stainless Steel: A351-CF8M, A351-CF3M

**END CONNECTION** Butt weld, Flange

**TEMPERATURE** Down to -321 °F (-196 °C)

**PRESSURE RATING** CL150 to CL300

### Cryogenic Check Valve



#### DESIGN SPECIFICATION

ASME B16.10, B16.25, B16.5, B16.34  
BS6364, BS1868

**SIZE** 1 to 14 in.

#### BODY MATERIAL

Stainless Steel: A182-F316, A182-F316L, A351-CF8M, A351-CF3M

**END CONNECTION** Butt weld, Flange

**TEMPERATURE** Down to -321 °F (-196 °C)

**PRESSURE RATING** CL150 to CL300

## Piping Valves

## Instrument Valves

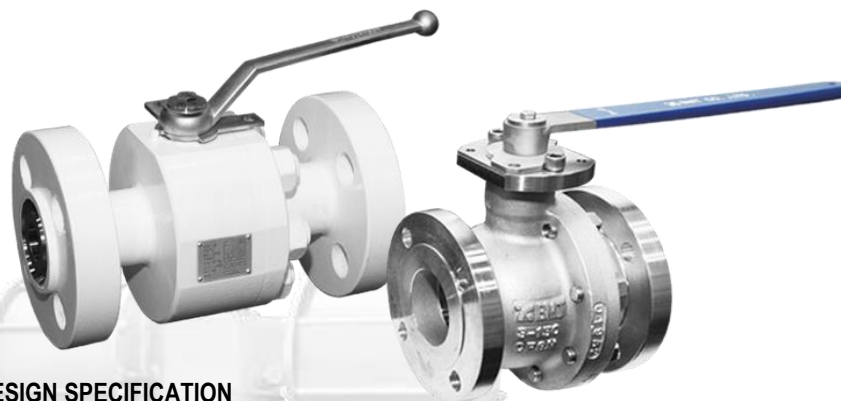
## Fittings

BLOCK &amp; BLEED

CRYOGENIC

BALL &amp; GLOBE

### Ball Valve



#### DESIGN SPECIFICATION

I ASME B16.34, B16.10, B16.5, B16.25, B16.11, B1.20.1  
I API 608, 6D I BS5351 I (Special) NACE MR-01-75

#### SIZE

1/2 to 24 in

#### BODY MATERIAL

I Carbon Steel: A105, A350 LF2, A352 LCB/LCC, A216 WCB  
I Stainless Steel: ASTM A182 F316/316L/F51/F53, A351 CF8M/CF3M, A890 4A/6A  
I Duplex: A182 F51/F53  
I Al-bronze Alloy: B148, B150  
I Inconel 625/825

#### END CONNECTION

Butt Weld, Socket Weld, Thread, Flange

#### TEMPERATURE

(Soft seated) -49 to 500 °F (-45 to 260 °C)  
(Metal seated) up to 842 °F (450 °C)

#### PRESSURE RATING

CL150 to CL2,500

### SAE Flanged Ball Valve



#### DESIGN SPECIFICATION

I (End Connection) SAE J518 Code 61 & 62  
I (End Connection) ISO 6164-2

#### SIZE

1/2 to 5 in

#### BODY MATERIAL

I Carbon Steel: A105, A350 LF2  
I Stainless Steel: A182 F316  
I Duplex: A182 F51/F53  
I Al-bronze Alloy: B148, B150  
I Inconel 625/825

#### END CONNECTION

SAE J518 Code 61&62 Flange, ISO 6164 Flange

#### TEMPERATURE

-4 to 392 °F (-20 ~ 200 °C)

#### PRESSURE RATING

210 to 420 bar



# PRODUCT SPECIFICATION

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## Piping Valves

## Instrument Valves

## Fittings

BLOCK &amp; BLEED

CRYOGENIC

BALL &amp; GLOBE

### Globe Valve



#### DESIGN SPECIFICATION

ASME B16.10, B16.25, B16.5, B16.34, B1.20.1, B16.11

**SIZE** 1/2 to 16 in

#### BODY MATERIAL

I Carbon Steel: A105, A350 LF2, A216 WCB  
I Stainless Steel: A182 F316, A351 CF8M  
I Duplex: A182 F51/F53  
I Al-bronze Alloy: B148, B150  
I Inconel 625/825

#### CONNECTION

Butt welded, Socket welded, Threaded, Flanged, or Combinations

**TEMPERATURE** -49 to 842 °F (-45 ~ 450 °C)

**PRESSURE RATING** CL150 to CL2,500

## OTHER PRODUCT OFFERINGS

### Tubing



#### TYPE

I Seamless Coiled/Straight  
I Pre-insulated

#### SIZE

1/8 to 2 in., 3 to 25 mm

### Break Away Coupling



#### WORKING PRESSURE

Up to 362.5 psi (25 bar)

#### TEMPERATURE

Down to -321 °F (-196 °C)

#### BREAKING FORCE

13KN

### Hydraulic Flanges



#### WORKING PRESSURE

Up to 6000 psi (413 bar)

#### TEMPERATURE

-20 to 1000 °F (-29 to 538 °C)

# PRODUCT SPECIFICATION

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Piping Valves

Instrument Valves

Fittings

BALL

HIGH PRESSURE

NEEDLE

CHECK

## SBV 120H Ball Valve



**SIZE** 1/16 to 3/4 in, 3 to 12 mm

### BODY MATERIAL

I Stainless Steel: ASTM A479 TP316,  
ASTM A276 TP 316

I Brass: B16

### END CONNECTION

SUPERLOK Tube Fitting,  
Female Thread, Male Thread

**TEMPERATURE** 50 to 150 °F (10 to 65 °C) with PTFE seat and packing

**PRESSURE RATING** 3,000 psig (206 bar) @ 100 °F (38 °C)

## SBV210 Ball Valve



**SIZE** 1/4 to 1 in, 6 to 16 mm

### BODY MATERIAL

I Stainless Steel: ASTM A479 TP316,  
ASTM A276 TP 316

I Brass: B16

### END CONNECTION

SUPERLOK Tube Fitting,  
Female Thread, Male Thread

**TEMPERATURE** 0 to 450 °F (-17 to 232 °C)

**PRESSURE RATING** 1,000 psig (69 bar) @ 100 °F (38 °C)

## SBVH360 Ball Valve



**SIZE** 1/4 to 1 in, 6 to 25 mm

### BODY MATERIAL

I Stainless Steel: ASTM A479 TP316,  
ASTM A276 TP 316

I Brass: ASTM B16

I Alloy 400 (Monel)

### END CONNECTION

SUPERLOK Tube Fitting,  
Female Thread, Male Thread

**TEMPERATURE** -65 to 302 °F (-54 to 150 °C) with PCTFE seat  
-65 to 500 °F (-54 to 260 °C) with PEEK seat

**PRESSURE RATING** 6,000 psig (413 bar) @ 100 °F (38 °C)

## Key Operation Ball Valve



**SIZE** 1/4 to 1 in, 6 to 25 mm

### BODY MATERIAL

Stainless Steel: ASTM A182 F316

### END CONNECTION

SUPERLOK Tube Fitting,  
Female Thread, Male Thread

**TEMPERATURE** 0 to 450 °F (-17 to 232 °C) with PTFE seat

**PRESSURE RATING** up to 6000 psi (413 bar) @ 70°F (21°C)



# PRODUCT SPECIFICATION

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Piping Valves

Instrument Valves

Fittings

BALL

HIGH PRESSURE

NEEDLE

CHECK

## Ball Valve to DIN Standard

**SIZE** 4mm to 42mm**BODY MATERIAL**

I Stainless Steel: DIN 17440,  
ASTM A479 TP316  
I Carbon Steel: DIN 1651, ASTM A108

**END CONNECTION**

Tube Fitting (DIN 2353),  
Female BSP Thread, Female NPT Thread

**TEMPERATURE** -4 to 212 °F (-20 to 100 °C)**PRESSURE RATING** up to 7,200 psig (500 bar) @ 100 °F (38 °C)

## Trunnion Ball Valve

**SIZE** 1/8 to 1/2 in, 6 to 12 mm**BODY MATERIAL**

I Stainless Steel: ASTM A479 TP316,  
ASTM A276 TP316  
I Alloy 400 (Monel)

**END CONNECTION**

SUPERLOK Tube Fitting,  
Female Thread, Male Thread

**TEMPERATURE** 0 to 450 °F (-17 to 232 °C)**PRESSURE RATING** up to 10,000 psig (689 bar) @ 100 °F (38 °C)

## Swing-Out Ball Valve

**SIZE** 1/4 to 2 in**BODY MATERIAL**

Stainless Steel: ASTM A351 CF8M

**END CONNECTION**

SUPERLOK Tube Fitting, Female Thread,  
Male Thread, Socket Weld, Butt Weld, Sanitary

**TEMPERATURE** -20 to 450 °F (-28 to 232 °C)**PRESSURE RATING** up to 3,000 psig (206 bar) @ 100 °F (38 °C)

## Forged High Pressure Ball Valve

**SIZE** 1/8 to 3/4 in, 3 to 16 mm**BODY MATERIAL**

I Stainless Steel: ASTM A182 F316  
I Brass: ASTM B283

**END CONNECTION**

SUPERLOK Tube Fitting,  
Female Thread, Male Thread

**TEMPERATURE**

I -65 to 200 °F (-54 to 93 °C) with PCTFE seat  
I -65 to 350 °F (-54 to 177 °C) with PTFE seat

**PRESSURE RATING**

up to 6,000 psig (413 bar) @ 100 °F (38 °C)

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Piping Valves

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Fittings

BALL

HIGH PRESSURE

NEEDLE

CHECK

## High Pressure Needle Valve

**SIZE** 1/4 to 1 in**BODY MATERIAL**

- I Stainless Steel: ASTM A479 TP316
- I Hastelloy
- I Inconel

**END CONNECTION**

Cone &amp; Threaded connection

**TEMPERATURE**

- I 0 to 450 °F (-17 to 232 °C) with PTFE packing
- I up to 800 °F (427 °C) with Graphite packing

**PRESSURE RATING**

up to 60,000 psig (4,140 bar)

## High Pressure Ball Valve

**SIZE** 1/8 to 1 in**BODY MATERIAL**

- I Stainless Steel: ASTM A479 TP316
- I Hastelloy
- I Inconel

**END CONNECTION**

Cone &amp; Threaded connection

**TEMPERATURE**

0 to 400 °F (-17 to 204 °C)

**PRESSURE RATING**

up to 20,000 psig (1,379 bar)

## High Pressure Check Valve

**SIZE** 1/4 to 1 in**BODY MATERIAL**

- I Stainless Steel: ASTM A479 TP316
- I Hastelloy
- I Inconel

**END CONNECTION**

Cone &amp; Threaded connection

**TEMPERATURE**

- I -110 to 1,200 °F (-79 to 649 °C) with Metal seat
- I -50 to 500 °F (-45 to 260 °C) with O-ring seat

**PRESSURE RATING**

up to 60,000 psig (4,140 bar)

# PRODUCT SPECIFICATION

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Piping Valves

Instrument Valves

Fittings

BALL

HIGH PRESSURE

NEEDLE

CHECK

## Integral Bonnet Needle Valve



**SIZE** 1/4 to 1/2 in, 3 to 18 mm

### BODY MATERIAL

I Stainless Steel: ASTM A479 TP316,  
ASTM A276 TP 316

I Alloy 400 (Monel)

### END CONNECTION

SUPERLOK Tube Fitting,  
Female Pipe Thread, Male Pipe Thread

### TEMPERATURE

I -65 to 450 °F (-54 to 232 °C) with PTFE packing  
I Up to 1,200 °F (649 °C) with Graphite packing

### PRESSURE RATING

p to 6,000 psig (413 bar) @ 100 °F (38 °C)

## Union Bonnet Needle Valve



**SIZE** 1/4 to 1 in, 6 to 25 mm

### BODY MATERIAL

I Stainless Steel: ASTM A479 TP316,  
ASTM A276 TP 316

I Alloy 400 (Monel)

I Hastelloy

### END CONNECTION

SUPERLOK Tube Fitting, Female Pipe Thread,  
Male Pipe Thread

### TEMPERATURE

I -65 to 450 °F (-54 to 232 °C) with PTFE packing  
I -65 to 600 °F (-54 to 315 °C) with PEEK packing  
I up to 1,200 °F (649 °C) with Graphite packing

### PRESSURE RATING

up to 6,000 psig (413 bar) @ 100 °F (38 °C)

## Integral Bonnet Bar Stock Needle Valve



**SIZE** 1/4 to 1 in, 6 to 25 mm

### BODY MATERIAL

I Stainless Steel: ASTM A479 TP316,  
ASTM A276 TP 316

I Alloy 400 (Monel)

### END CONNECTION

SUPERLOK Tube Fitting, Female Pipe Thread,  
Male Pipe Thread

### TEMPERATURE

I -65 to 450 °F (-54 to 232 °C) with PTFE packing  
I -65 to 600 °F (-54 to 315 °C) with PEEK packing

### PRESSURE RATING

up to 6,000 psig (413 bar) @ 100 °F (38 °C)

# PRODUCT SPECIFICATION

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Piping Valves

Instrument Valves

Fittings

BALL

HIGH PRESSURE

NEEDLE

CHECK

## High Pressure Bar Stock Needle Valve

**SIZE** 1/4 to 1/2 in**BODY MATERIAL**

I Stainless Steel: ASTM A479 TP316  
I Carbon Steel: ASTM A105

**END CONNECTION**

Female Pipe Thread, Male Pipe Thread

**TEMPERATURE**

I -65 to 450 °F (-54 to 232 °C) with PTFE packing  
I up to 1,200 °F (649 °C) with Graphite packing

**PRESSURE RATING**

up to 10,000 psig (689 bar) @ 100 °F (38 °C)

## Instrumentation Manifold Valve

**SIZE** 1/4 to 1/2 in**BODY MATERIAL**

I Stainless Steel: ASTM A276 TP316,  
ASTM A479 TP316  
I Alloy 400 (Monel)

**END CONNECTION**

Female Pipe Thread, Flange

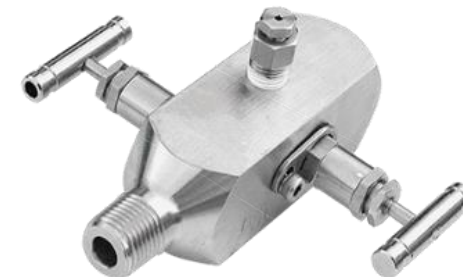
**TEMPERATURE**

I -65 to 450 °F (-54 to 232 °C) with PTFE packing  
I up to 1,200 °F (649 °C) with Graphite packing

**PRESSURE RATING**

up to 6,000 psig (413 bar) @ 100 °F (38 °C)

## Instrumentation Gauge Valve

**SIZE** 1/2 to 3/4 in**BODY MATERIAL**

Stainless Steel: ASTM A276 TP316,  
ASTM A479 TP316

**END CONNECTION**

Female Pipe Thread, Male Pipe Thread

**TEMPERATURE**

I -65 to 450 °F (-54 to 232 °C) with PTFE packing  
I up to 1,200 °F (649 °C) with Graphite packing

**PRESSURE RATING**

up to 6,000 psig (413 bar) @ 100 °F (38 °C)



# PRODUCT SPECIFICATION

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Piping Valves

Instrument Valves

Fittings

BALL

HIGH PRESSURE

NEEDLE

CHECK

## Check Valve



**SIZE** 1/8 to 1 in, 6 to 25 mm

**BODY MATERIAL**

Stainless Steel: ASTM A479 TP316,  
ASTM A276 TP 316

**END CONNECTION**

SUPERLOK Tube Fitting,  
Female Pipe Thread, Male Pipe Thread

**TEMPERATURE**

-10 to 375 °F (-23~190 °C) with VITON

**PRESSURE RATING**

up to 3,000psig (206 bar) @ 100 °F (38 °C)

**CRACKING PRESSURE**

1/3 to 25 psi (0.03 to 1.7 bar) @ 70 °F (20 °C)

## High Pressure Check Valve



**SIZE** 1/8 to 1 in, 6 to 25 mm

**BODY MATERIAL**

Stainless Steel: ASTM A479 TP316,  
ASTM A276 TP 316

**END CONNECTION**

SUPERLOK Tube Fitting,  
Female Pipe Thread, Male Pipe Thread

**TEMPERATURE**

-10 to 375 °F (-23 to 190 °C) with VITON

**PRESSURE RATING**

up to 6,000 psig (413 bar) @ 100 °F (38 °C)

**CRACKING PRESSURE**

1/3 to 25 psi (0.03 to 1.7 bar) @ 70 °F (20 °C)

## One-Piece Check Valve



**SIZE** 1/4 to 3/4 in

**BODY MATERIAL**

I Stainless Steel: ASTM A276 TP316  
I Brass: ASTM B16

**END CONNECTION**

Female Pipe Thread, Male Pipe Thread

**TEMPERATURE**

-10 to 375 °F (-23 to 190 °C) with VITON

**PRESSURE RATING**

up to 3,000psig (206 bar) @ 100 °F (38 °C)

**CRACKING PRESSURE**

1/3 to 25 psi (0.03 to 1.7 bar) @ 70 °F (20 °C)

# PRODUCT SPECIFICATION

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Piping Valves

Instrument Valves

Fittings

BALL

HIGH PRESSURE

NEEDLE

CHECK

## One-piece Adjustable Check Valve



**SIZE** 1/4 to 1/2 in

### BODY MATERIAL

I Stainless Steel: ASTM A479 TP316,  
ASTM A276 TP 316  
I Brass: ASTM B16

### END CONNECTION

Female Pipe Thread, Male Pipe Thread

### TEMPERATURE

-10 to 375 °F (-23~190 °C) with VITON

### PRESSURE RATING

up to 3,000 psig (206 bar) @ 100 °F (38 °C)

### CRACKING PRESSURE

3 to 600 psi (0.2 to 41.3 bar) @ 70 °F (20 °C)

## Adjustable Check Valve



**SIZE** 1/4 to 3/8 in., 6 to 8 mm

### BODY MATERIAL

I Stainless Steel: ASTM A479 TP316,  
ASTM A276 TP 316  
I Brass: ASTM B16

### END CONNECTION

SUPERLOK Tube Fitting, Male Pipe Thread

### TEMPERATURE

-10 to 375 °F (-23 to 190 °C) with VITON

### PRESSURE RATING

up to 3,000 psig (206 bar) @ 100 °F (38 °C)

### CRACKING PRESSURE

3 to 600 psi (0.2 to 41.3 bar) @ 70 °F (20 °C)

## Industrial Excess Flow Valve



**SIZE** 1/8 ~ 1/2 in, 6 ~ 12 mm

### BODY MATERIAL

Stainless Steel: ASTM A479 TP316,  
ASTM A276 TP 316

### END CONNECTION

SUPERLOK Tube Fitting,  
Female Pipe Thread, Male Pipe Thread

### TEMPERATURE

-10 to 400 °F (-23 to 204 °C) with VITON

### PRESSURE RATING

up to 6,000 psig (413 bar) @ 100 °F (38 °C)

# PRODUCT SPECIFICATION

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## Piping Valves

## Instrument Valves

## Fittings

### SUPERLOK Tube Fitting (Compression Type)

**SIZE**

1/16 to 2 in, 2 to 38 mm

**PRESSURE RATING**

Limited by the working pressure of the tube

**TEMPERATURE**

-320 to 1,200 °F (-196 to 649 °C)

**BODY MATERIAL**

I Stainless Steel: ASTM A479 TP316,  
ASTM A276 TP316,  
ASTM A182 F316  
I Brass: ASTM B16, ASTM B453, ASTM B283

I Carbon Steel: ASTM A105  
I Monel, Alloy 400  
I Inconel, Alloy 600  
I Hastelloy, Alloy C-276



### Bite Type Tube Fitting (DIN 2353)

**SIZE**

4mm to 42 mm

**PRESSURE RATING**

I Very Light Series: PN 100 bar  
I Light Series: PN 315 bar  
I Heavy Series: PN 630 bar

**TEMPERATURE**

-76 to 752 °F (-60 to 400 °C)

**BODY MATERIAL**

I Stainless Steel: DIN 17440, ASTM A479 TP316, ASTM A276 TP 316  
I Brass: DIN 17660, DIN 17672, ASTM B16  
I Carbon Steel: DIN 3859, ASTM A108



### Bite Type Tube Fitting (JIS B2351)

**SIZE**

1/8 to 1-1/2 in, 4 to 50 mm

**PRESSURE RATING**

7,250 psi (500 bar)

**TEMPERATURE**

-76 to 752 °F (-60 to 400 °C)

**BODY MATERIAL**

I Stainless Steel: SUS316  
I Brass: JIS H3250, C3604, C3771  
I Carbon Steel: JIS G4051, S10C, S10C-S48C, S20C-S48C



### High Pressure Fitting (Coned & Threaded)

**SIZE**

1/4 to 1 in

**PRESSURE RATING**

60,000 psi (4,137 bar)

**TEMPERATURE**

-423 to 1,200 °F (-252 to 649 °C)

**BODY MATERIAL**

Stainless Steel: ASTM A479 TP316



# PRODUCT SPECIFICATION

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## Piping Valves

## Instrument Valves

## Fittings

### 37° Flared Tube Fitting (STD: SAE J514)

**SIZE**

1/8 to 2 in, 2 to 50 mm

**PRESSURE RATING**

18,700 psi (600 bar) @ 100 °F (38 °C) with O-Ring  
15,000 psi (345 bar) @ 100 °F (38 °C) without O-Ring

**TEMPERATURE**

800 °F (427 °C)

**BODY MATERIAL**

1 Stainless Steel: ASTM A479 TP316, ASTM A276 TP316, ASTM A182 F316  
1 Brass: ASTM B16, ASTM B453, ASTM B283  
1 Carbon Steel: ASTM A105



### Instrument Thread Fitting (STD: ASME B1.20.1, SAE AS71051, ISO 228/1, JIS B0202, ISO 7/1, JIS B0203)

**SIZE**

1/8 to 1 in

**PRESSURE RATING**

10,000 psi (689 bar) @ 100°F (38°C)

**TEMPERATURE**

-320 to 1,000 °F (-196 to 537 °C)

**BODY MATERIAL**

1 Stainless Steel: ASTM A479 TP316, ASTM A276 TP316, ASTM A182 F316  
1 Brass: ASTM B16, ASTM B453, ASTM B283  
1 Carbon Steel: ASTM A108, ASTM A105



### O-ring Face Seal Fitting (O-ring Face to Face)

**SIZE**

1/8 to 1 in

**PRESSURE RATING**

13,000 psi (910 bar) @ 100°F (38°C)

**TEMPERATURE**

up to 550°F (287°C)

**BODY MATERIAL**

Stainless Steel: ASTM A479 TP316, ASTM A276 TP316, ASTM A182 F316



### Pipe (Forged) Fittings

**SIZE**

1/2 to 4 in.

**PRESSURE RATING**

3000 lbs, 6000 lbs, 9000 lbs

**END CONNECTION**

Socket Welded, Female Pipe Thread,  
Male Pipe Thread

**BODY MATERIAL**

1 Stainless Steel: ASTM A182 304/F316/F51/F53/F55 /F5/F9/F11/F12/F22/F91  
1 Carbon Steel: ASTM A105, A350 LF2  
1 Monel, Inconel





Piping Valves

Instrument Valves

Fittings

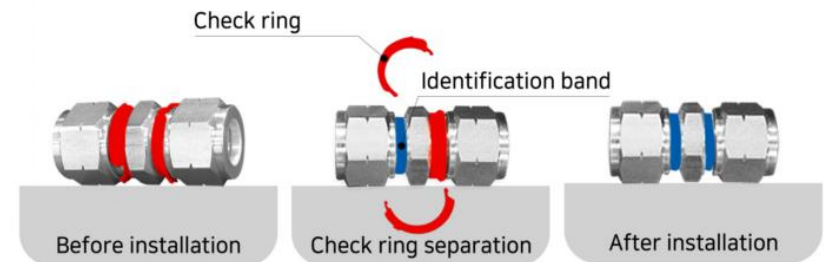
## *i-Fitting*

Chevron-approved • Industry-changing • Patented-design

PERFECT CONNECTION can be **SEEN, HEARD, FELT** with the **SAFEST** fitting in the market!!

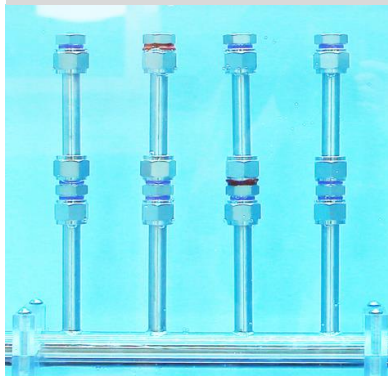
Most tube fitting leaks are caused by improper installation. i-Fittings ensure a safe, quick, and precise connection every time. The "Check Ring", which functions as a built-in gap gauge, separates as a fitting is tightened to the exact point of perfect compression. This quality control and safety features indicate that a fitting has been tightened properly and is not easily confused with other fittings on a job that have not been tightened.

### i-Fitting Installation



### Can you **See** the **Potential Leak Points**?

Installation with **i-Fitting**



**Conventional** Installation



### Specifications

#### SIZE

1/4 to 1 in, 6 to 25 mm

#### PRESSURE RATING

Limited by the working pressure of the tube

#### TEMPERATURE

-320 to 1,200 °F (-196 to 649 °C)

#### BODY MATERIAL

I Stainless Steel: ASTM A479 TP316, ASTM A276 TP316, ASTM A182 F316

I Brass: ASTM B16, ASTM B453, ASTM B283

I Carbon Steel: ASTM A105

I Monel, Alloy 400

I Inconel, Alloy 600

I Hastelloy, Alloy C-276



Piping Valves

Instrument Valves

Fittings

## Pre-Forming Fitting

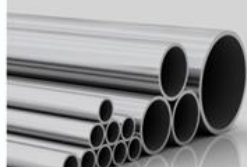
### SPECIAL METAL & ALLOY

Alloy  
400

Ti

Super  
Duplex

### HEAVY WALL TUBING



### MEDIUM PRESSURE GAS

CNG

H<sub>2</sub>

BMT Patented



## Specifications

### SIZE

1/4 in. to 1 in., 6mm to 25mm

### PRESSURE RATING

up to 20,000 psig (1,380 bar)

### TEMPERATURE

-423 to 1200°F (-252 to 649°C)

### END CONNECTION

Female Thread, Male Thread

### BODY MATERIAL

Titanium, Super Duplex, Alloy C-276, Alloy 400, Alloy 20, 316 Stainless Steel

## Double Ferrule Tube Fittings for Medium Pressure & Special Materials!

Best suitable for applications requiring:  
higher pressure, excellent corrosion-resistance,  
special metals and alloys, and/or heavy-wall tubing.

SUPERLOK Pre-forming Fittings are [medium-pressure tube fittings](#) that can help you eliminate leakage in applications [up to 20,000 psig \(1,380 bar\)](#) with [variety of tubing materials](#) such as Titanium and Super Duplex. The SUPERLOK Pre-forming Tools (manual or automatic) pre-form grooves on the outside surface of the tubing which offers robust tube grip and leak-tight sealing.

## HQ & FACTORY 1

### Tube Fitting & Valve Center; R&D Center

- » Address: 35, Sanmakgongdannam11-gil, Yangsan-si, Gyeongsangnam-do, 50568, South Korea
- » Floor Area: 19,559 m<sup>2</sup>
- » Plot Area: 16,107 m<sup>2</sup>



## FACTORY 2

### Process Piping Valve Center

- » Address: 29, Sanmakgongdannam8-gil, Yangsan-si, Gyeongsangnam-do, 50568, South Korea
- » Floor Area: 8,258 m<sup>2</sup>
- » Plot Area: 11,652 m<sup>2</sup>

## ANNUAL CAPACITY

### Fittings

12,000,000  
ea



### Instrument Valves

800,000  
ea



### Manifold Valves

6,000  
ea



### Ball/DBB Valves

7,000  
ea



### Cryogenic Valves

5,000  
ea





## Machining

Description	Q' ty
Cutting/Milling/Drilling Machine	10
CNC Lathe	130
Machining Center	17
Thread Rolling Machine	5

## Cleaning & Assembly

Description	Q' ty
Cleaning/Passivation Machine	4
Auto Ferrule Ass'y Machine	8

## Marking & Packaging

Description	Q' ty
Laser Marking Machine	2
Roller Marking Machine	2
Dot Peen Marking Machine	1
Auto Box Bending Machine	2
Auto Packaging Machine	1

## Painting

Description	Q' ty
Shot Blasting Machine	1
Paint Booth	1
Drying Oven	1





## Verification of Raw Material



Vickers Hardness Tester



Rockwell  
Hardness Tester



Spectrometer



PMI  
(2 ea)



Universal Test Machine

## Verification of Machined Parts



Profile Projector



Form Tester



Surface Roughness  
Measuring  
Instrument



Contact Coordinate  
Measuring Machine



Ferrule Tester  
(3ea)



Temp & Humid  
Controller

## Verification of Instrument Fittings



Impulse & Vibration  
Tester



Rotary Flex Tester  
(with Strain Gauge)



High Pressure Gas  
Tester (N2)



Pressure Test Unit (Water)

## Verification of Instrument Valves



N2 Leak Tester (2ea)



Cracking Tester



High Pressure Gas Tester (Water)



## Verification of Process Piping Valves



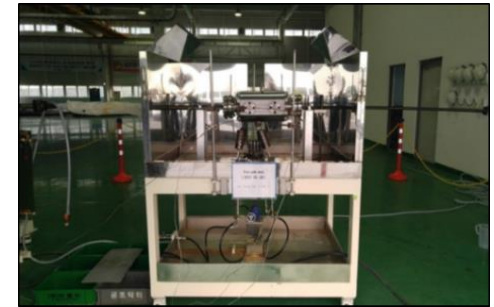
Hydraulic Valve Pressure Tester (4ea)



Cryogenic Valve Tester (5 chambers)



Hydraulic &amp; Pneumatic Valve Pressure Tester (4ea)



Fire Safety Tester



Hydraulic Pipe Test M/C



Dew Point Meter



Chloride Tester

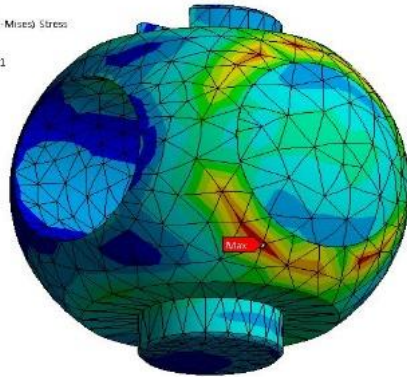


Surface Adhesion Tester

## Stress Analysis

E: P Anal  
Equivalent Stress 3  
Type: Equivalent (von Mises) Stress  
Unit: MPa  
Time: 1  
2016-03-29 2:51:11

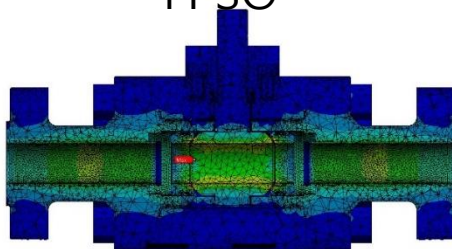
290.64 Max  
259.77  
226.69  
195.02  
168.14  
131.27  
99.397  
67.524  
35.65  
3.7767 Min



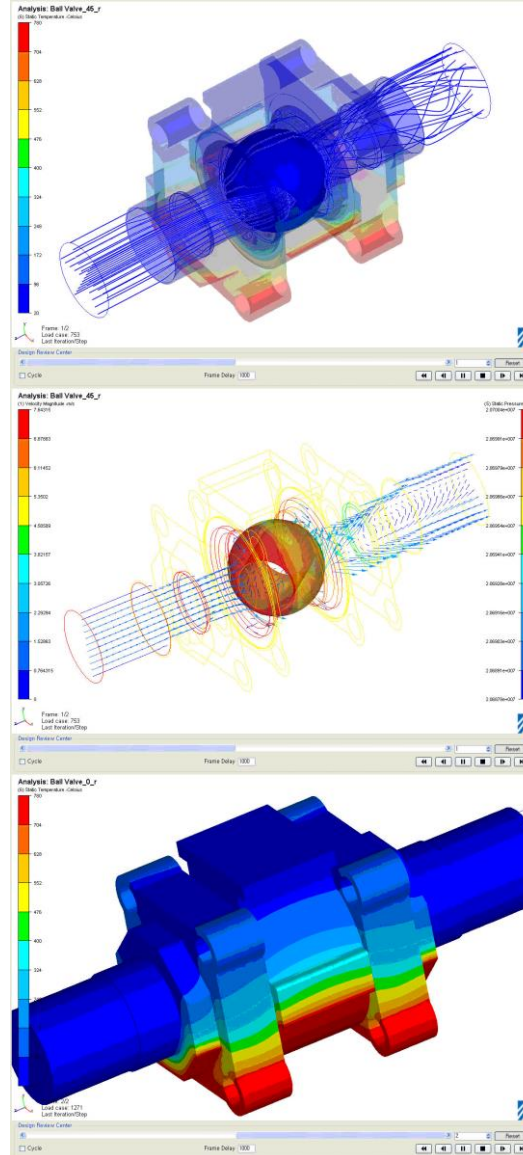
INPEX Ichthys  
FPSO

E: Full  
Equivalent Stress  
Type: Full (Linear Elastic) Stress  
Unit: MPa  
Time: 1  
2016-03-29 2:51:11

918.89 Max  
840  
780  
720  
660  
600  
540  
480  
420  
360  
300  
240  
180  
120  
60  
0  
-60  
-120  
-180  
-240  
-300  
-360  
-420  
-480  
-540  
-600  
-660  
-720  
-780  
-840  
-918.89 Min



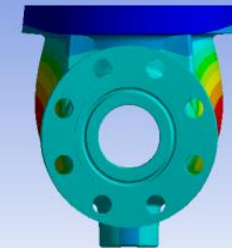
## Flow Analysis



## Body Structural Analysis

A: Static Structural  
Total Deformation  
Type: Total Deformation  
Unit: mm  
Time: 1  
2016-10-01 2:15

0.11183 Max  
0.099403  
0.086983  
0.074557  
0.062131  
0.049704  
0.037278  
0.024852  
0.012426  
0 Min

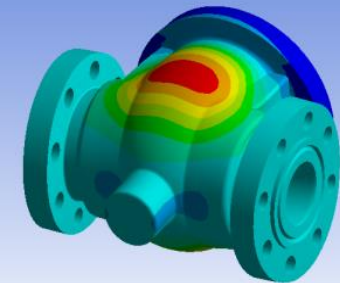


0.00 150.00 300.00 (mm)  
75.00 225.00

ANSYS  
R15.0

A: Static Structural  
Total Deformation  
Type: Total Deformation  
Unit: mm  
Time: 1  
2016-10-01 2:15

0.11183 Max  
0.099403  
0.086983  
0.074557  
0.062131  
0.049704  
0.037278  
0.024852  
0.012426  
0 Min



0.00 150.00 300.00 (mm)  
75.00 225.00

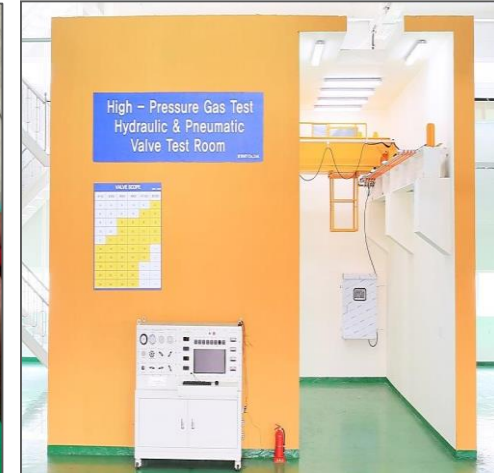
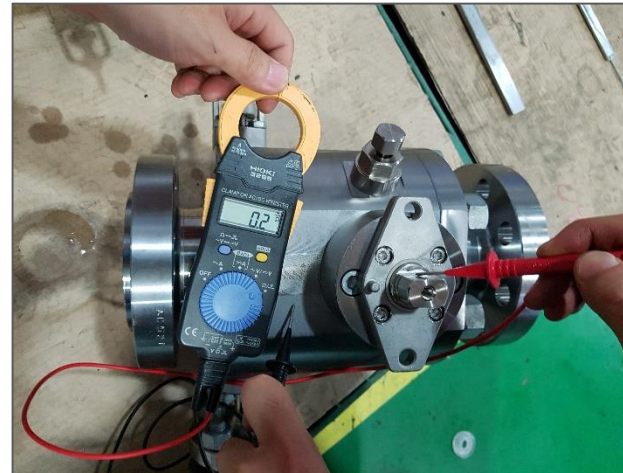
ANSYS  
R15.0



## Inspection & Testing for Process Piping Valves

### Hydraulic & Pneumatic Pressure Test

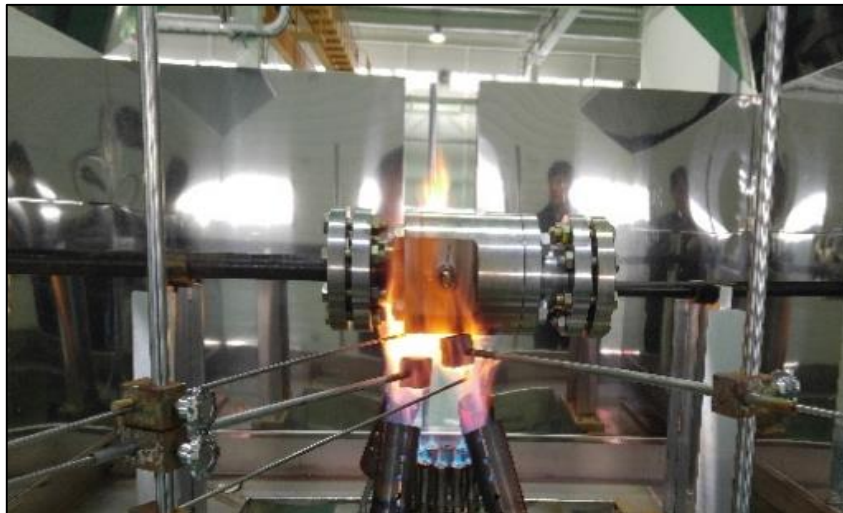
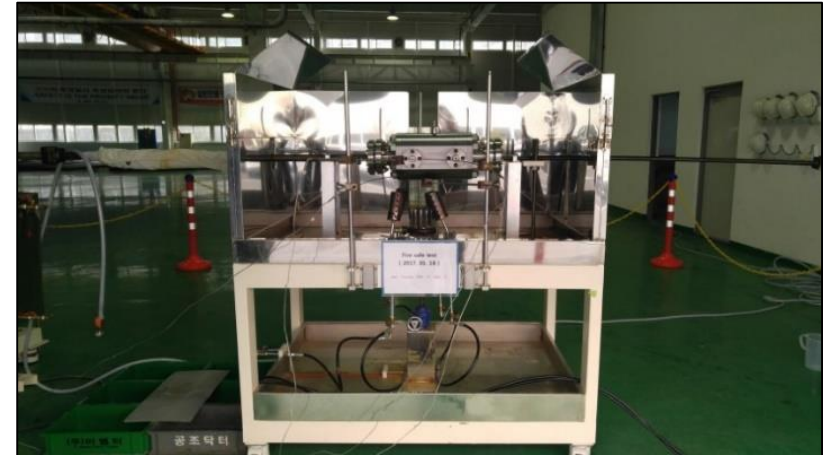
- **Conformance Standards:**  
API 598, API 6D, ISO 5208, EN 12266-1
- Orifice blocking test method without pressing end flanges (as field condition)
- Capacity: **Size** up to 48" for Class 150  
**Pressure** up to CL 2500 for 12"
- Test records are traceable by digital record
- High Pressure Gas Test Chamber conforming to the requirements of major oil & gas companies.



## Inspection & Testing for Process Piping Valves

### Fire Safety Test

- **Conformance Standards:** API 607, API 6FA, ISOEN10497
- **Test Procedure:**
  1. System Check at 1.4 times of the M.D.P.
  2. Pressurize the system to designated test pressure
  3. Measure seat leakage during 30 minutes of burn period
  4. Cool down to 100°C within 10 minutes after extinguishing and measure the external and seat leakage.
  5. low pressure seat test, if required
  6. High pressure shell test

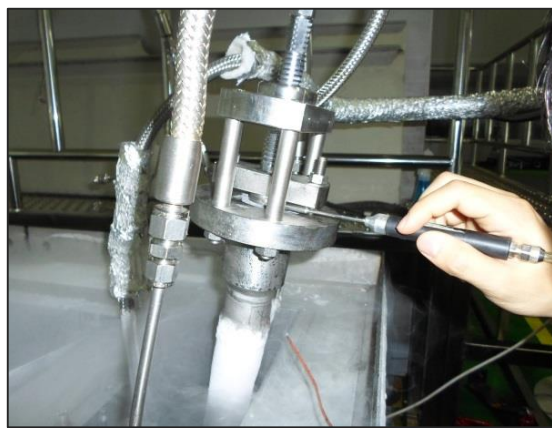




## Inspection &amp; Testing for Process Piping Valves

## Cryogenic Test

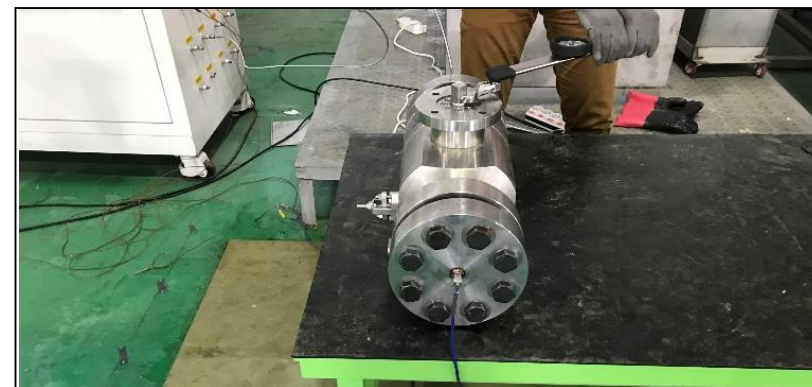
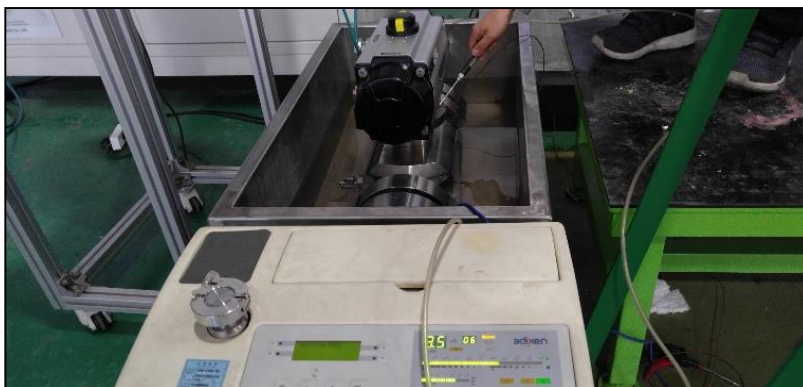
- **Conformance Standard:** BS 6364 & ISO28921
- **Test Procedure:**
  1. **Initial Proving test:**  
Pressure: 1.1 x MDP, @ R.T      Test Fluid: Helium
  2. **Operating test with Torque measurement:**  
Open + Close: 20 Cycle      Torque measurement: at 1<sup>st</sup> and 20<sup>th</sup> cycle
  3. **Seat Closure Leak test:**  
Pressure: 1.1 x MDP, @ -196°C      Test Fluid: Helium
  4. **Shell Leak test:**  
Pressure: 1.1 x MDP, @ -196°C      Test Fluid: Helium      Duration: 15 mins
  5. **R.T Restoration test:**  
Pressure: 1.1 x MDP, @ R.T      Test Fluid: Helium



## Inspection & Testing for Process Piping Valves

### Fugitive Emission Test

- **Conformance Standards:**  
ISO 15848-1&2, MESC SPE 77/300, MESC SPE 77/312
- **Test Procedure:**
  - [Test 1] Preliminary tests at the room temperature
  - [Test 2] Mechanical cycle test at the room temperature
  - [Test 3] Static test at the selected test temperature
  - [Test 4] Mechanical cycle test at the selected test temperature
  - [Test 5] Intermediate static test at the room temperature
  - [Test 6] Final test at the room temperature





## Inspection & Testing for Process Piping Valves

### Coating Inspection

- **Test Procedure:**

- ① Check Climatic parameters (by Elcometer G319)
- ② Determination of soluble contaminations on surface (by TQC Bresle Chloride Test)
- ③ Surface roughness check (by Press-O-Film and foil thickness gauge)
- ④ Wet film thickness check (by wheel or comb type gauge)
- ⑤ Dry film thickness check for ferrous or non-ferrous steel (by ultrasonic DFT gauge)
- ⑥ Adhesion test (Cross hatch cut by Elcometer 107 or X-cut)
- ⑦ Adhesion test (by Elcometer 106 Pull-off adhesion tester)



## Inspection & Testing for Tube Fittings & Valves

**Each BMT instrument fitting and valve** has passed a stringent visual and dimensional inspection to assure freedom from surface defects, fluid leaks, and possible malfunctions.

**Every individual valve** from production is tested with nitrogen at 1,000 psig (69 bar).

**Sample pieces of fittings & valves** are tested to confirm corrosion resistance and mechanical properties such as hardness, impact strength, and tensile strength.

**On request**, BMT can conduct following tests:

- Tests under the guideline of ASTM F1387 to evaluate vibration resistance, thermal shock and high temperature resistance, tube grip, corrosion resistance;
- Shell test (at 1.5 times maximum rated working pressure) per ASME B16.34;
- Seat test (at 1.1 times maximum rated working pressure) per ASME B16.34; and
- Other tests to evaluate the conformance to industry standards.



## System Certificates :

ISO 9001	Quality Management System	Q 379
ISO 14001	Environmental Management System	19-E-0721-02
ISO 45001	Occupational Health & Safety Management System	19-S-0027-02
PED Module H	Quality System according to the PED 2014/68/EU & Module H	HSBI-10-07-074 (R1)
KEPIC-MN	Quality Assurance Program according to the applicable rules of KEPIC-MN	MN-288
ASME-N/NPT/NS	Authorization according to the applicable rules of ASME N/NPT/NS	N-3409 / 3410 / 3411

## Product Certificates :

Cryogenic Ball Valves	1/2" to 2" (BV, DNV.GL, LR, KR), 1/2" to 6" (ABS), 3" to 6" (LR), 4" (DNV.GL), 6" (BV, DNV.GL), 10" (LR)
Cryogenic Globe Valves	1/2" to 2" (ABS, BV, DNV.GL, LR, KR), 1/2" to 8" (ABS, BV, LR), 10" & 12" (ABS, BV, DNV.GL, KR, LR), 14" (DNV.GL, LR)
Cryogenic Needle Valves	1/2" to 2" (ABS, BV), 1/2" to 1" (DNV.GL, LR, KR)
Cryogenic Block & Bleed Valves	1/2" (KR)
Cryogenic Gate/Check Valves	2 and 10" (KR)
Flanged Ball Valves (SBVE series)	3/4" (LR)
Floating Ball Valves	1/2" (SGS)
SUPERLOK Tube Fittings	BV, LR, EC (RDW), DNV.GL/GL, NK, TUV NORD
Bite Type Tube Fittings	BV, GL, LR, DNV.GL/GL, NK, ABS
SAE 37° Flared tube fitting	DNV
ECE Regulation 110 (CNG Components)	SUPERLOK Tube Fittings, High Pressure Ball/Check Valves, Trunnion Ball Valves, Receptacles, Filters
EC (79/2009/EC Hydrogen Components)	SUPERLOK Tube Fittings
CRN (Canadian Registration Number)	Ball/Needle Valves, Thread Fittings, Flanges

## Raw Materials

<b>SeAH CSS</b>	Location: Changwon, South Korea Item: Stainless Steel & Carbon Steel
<b>SeAH Special Steel</b>	Location: Pohang-si, South Korea Item: Stainless Steel
<b>KPCM</b>	Location: Gyeongsan, South Korea Item: Special Steel
<b>Special Metals Co.</b>	Location: USA Item: Nickel Alloy
<b>Acciairie Valbruna S.p.a</b>	Location: Vicenza, Italy Item: Nickel Alloy
<b>MCM</b>	Location: Busan, South Korea Item: Precision Casting
<b>Woosung Enterprise</b>	Location: Busan, South Korea Item: Forging
<b>S&amp;W</b>	Location: Busan, South Korea Item: Forging, Mold

## Surface Treatment & Coating

<b>Jaewon Industries Co., Ltd.</b>	Location: Busan, South Korea Item: Coating
<b>Shinhwa Metal</b>	Location: Busan, South Korea Item: Surface Treatment

## Welding

<b>Taeyoung Welding</b>	Location: Gimhae, South Korea Item: Welding
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## Parts

<b>Iljin Precision Co.</b>	Location: Busan, South Korea Item: Machined Parts
<b>JS Tech</b>	Location: Changwon, South Korea Item: Machined Parts
<b>Gumsung</b>	Location: Busan, South Korea Item: Machined Parts
<b>James Walker Gr.</b>	Location: Cheshire, UK Item: O-ring, Seal
<b>Trelleborg</b>	Location: Sweden Item: Lip, Seal
<b>Hwashin Bolt</b>	Location: Busan, South Korea Item: Bolt, Nut
<b>Samsung Industry</b>	Location: Busan, South Korea Item: Gasket, Packing
<b>Seal Star</b>	Location: Seoul, South Korea Item: O-ring

## Services

<b>QNG Engineering</b>	Location: Busan, South Korea Item: Calibration Service for M&TE
<b>Unitree</b>	Location: Yangsan-si, South Korea Item: Calibration Service for M&TE
<b>KNDE</b>	Location: Busan, South Korea Item: NDE Services (PT, RT, UT, MT)





# VENDOR REGISTRATION

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#*	Company Name	Registration Date (Initial)	Nationality	Registered Items
1	ORPIC (Oman Refinery Company)	17-Feb-2019	Oman	1. DBB Valves; 2. Instrument Fittings/Valves
2	PDO (Petroleum Development Oman)	27-Sep-2018	Oman	1. Super Pressure Fittings (>10,000 PSI); 2. Tubing Orifice Fitting; 3. Tubing Mounting Brackets; 4. Condensate Pot/Seal Pot; 5. Gauge Adaptors 1/2" NPT -Male to Female; 6. Gauge Adaptors 1/2" NPT -Male to Male; 7. Instrument Installation Materials; 8. Quick Exhaust Valve Contr.Valve/Choke; 9. Metering Valves; 10. Valve-Needle; 11. Valves-Ball; 12. Valves-Check; 13. Instrument Valves-Gauge/Root; 14. Manifold-Installation Materials; 15. Instrument Tubing (Seamless/Seamwelded)
3	SABIC (Saudi Basic Industries Corporation)	8-Apr-2018	Saudi Arabia	1. Instrumentation Fittings & Valves
4	Chevron	15-Jan-2018	USA	1. Ball Valves (up to 24", up to CL 2500); 2. DBB Valves (up to 24", up to CL2500); 3. Cryogenic Valves (up to 14", up to CL 2500); 4. Tube Fittings (up to 2", up to 10000 psig); 5. i-Fittings (up to 1", up to 10000 psig); 6. Instrumentation Valves including manifold (up to 2", up to 10000 psig)
5	TAKREER** (Abu Dhabi Oil Refining Company)	29-Dec-2016	UAE	1. Valves: Ball (Approved Only For Size Range 1/2" To 4"); 2. Valves: Double Block (Approved Only For Size Range 1/2" To 4"); 3. Fittings: Compression; 4. Fittings: CS/AS/SS (Buttweld); 5. Instrument Valves And Manifolds
6	ZADCO** (Zakum Development Company)	15-Dec-2016	UAE	1. Fittings - for Tubes (Compression Type); 2. Valves - Double Block and Bleed; 3. Instrument Tubing; 4. Compression Fittings for Instrument Tubing; 5. Valve manifolds -for Instruments
7	Petronas Carigali	14-Apr-2016	Malaysia	1. Instrument Tube; 2. Instrument Fitting; 3. Instrument Valves & Manifolds; 4. DBB Valves (Non-Instrument)

\* This list is sorted by initial registration date.

\*\* Affiliate subsidiary companies of ADNOC (Abu Dhabi National Oil Company) Group. BMT is a registered supplier of ADNOC Group.

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#*	Company Name	Registration Date (Initial)	Nationality	Registered Items
8	ExxonMobil	11-Dec-2015	USA	1. Ball Valve, API 6D, Trunnion Mounted, Soft-Sealed Classes 150, 300 and 600 (up to 10 in ch diameter) Fire-safe to API607 - Piping AML Category 7.7; 2. Ball Valve, API 6D, Floating Ball, Flanged, Soft-Sealed, Classes 150 and 300 Up to NPS 6 (full bore, class 150), up to NPS 4 (full bore, Class 300), Fire-safe to API 607
9	ADMA-OPCO** (Abu Dhabi Marine Operating Company)	29-Sep-2015	UAE	1. DBB Valves; 2. Tube Fittings (Compression Type); 3. Instrument Tubing; 4. Compression Fittings/Adapter Flange for Instrument Tubing; 5. Valve Manifolds for Instruments
10	BOROUGE** (Abu Dhabi Polymers Co., Ltd.)	19-May-2015	UAE	1. High Pressure Components; 2. Manifold & Parts; 3. General Instruments; 4. Flanged Ball Valve ANSI/MMS/API/BS; 5. Tubing Needle Valve; 6. House Connectors & Accessories; 7. Quick Connector-Tubing; 8. Fitting Connectors DIN
11	ADCO** (Abu Dhabi Company for Onshore Petroleum Operations Ltd.)	1-Apr-2015	UAE	1. Fittings - For Tubes (Compression Type); 2. Fittings - For Pipes - CS/AS/SS - BW 3. Instrument Tubing; 4. Valve Manifolds - For Instruments
12	GAZPROM	17-Mar-2015	Russia	1. Instrument Fittings & Valves
13	ADGAS** (Abu Dhabi Gas Liquefaction Company Ltd.)	20-Jul-2014	UAE	1. Fittings - For Tubes (Compression Type); 2. Valve Manifolds - For Instruments; 3. Valves - Double Block & Bleed; 4. Valves : Ball (Standard Side Entry Valve For Process Plants); 5. General Use/Bulk Materials & Requisites - For Instrument Workshop; 6. Lighting Distribution Boards For Safe Areas

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#*	Company Name	Registration Date (Initial)	Nationality	Registered Items
14	KNPC (Kuwait National Petroleum Company)	20-Apr-2014	Kuwait	1. Fittings Pipe Below 2 inches - C.Steel; 2. Fittings Pipe below 2 inches - S.Steel; 3. Fittings Pipe below 2 inches - Alloy Steel; 4. Valves, Ball; 5. Quick Shut-Off, Ball Valves; 6. Barstock Needle Valves including angle & manifolds; 7. Manifolds / Tube Fittings and accessories; 8. Pipe Fittings - C.Steel - below 1/2"; 9. Pipe Fittings - S.Steel - below 1/2"; 10. Pipe Fittings - Alloy Steel - below 1/2"
15	FERTIL** (Ruweis Fertilizer Industries)	5-Mar-2014	UAE	1. Fittings : Compression; 2. Fittings : CS/AS/SS (FORGED/SOCKED WELD/THREAD); 3. Instrument Fittings; 4. Instrument Valves and Manifolds; 5. LV Distribution Board & Lightening Panels for safe area; 6. PTFE lined Ball Valves; 7. Valves : Ball; 8. Valves : Double Block
16	Petroamazonas EP	13-Feb-2014	Ecuador	1. Instrument Fittings and Valves (Stainless Steel)
17	PERTAMINA	15-Feb-2012	Indonesia	1. SUPERLOK Fittings & Valves
18	Mitsubishi Heavy Industry - Hiroshima Machinery Works	11-Jul-2011	Japan	1. Instrument Fittings & Valves
19	KOC (Kuwait Oil Company)	21-Oct-2008	Kuwait	1. Impulse Pipe Fittings; 2. Instrument Valves

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PROJECT	LOCATION	OWNER	CLIENT	YEAR	ITEM
ADNOC Integrated Gas Field Development - Expansion	UAE	ADNOC (Abu Dhabi National Oil Company)	Tecnicas Runidas	2019	Seamless Tubing
ADNOC Bu-Hasa Field Development	UAE	ADNOC (Abu Dhabi National Oil Company)	Tecnicas Runidas	2019	Instrument Tube Fitting & Valve; Seal port; Seamless Tubing; Air distribution manifold
Golar Gimi FLNG	Singapore	Golar LNG	Inoxciva, Kepple Fels	2019	Cryogenic Valves
Lekhwair RMS-12 DD	Oman	PDO (Petroleum Development Oman)	Fast Line Technical Service	2019	Tube; Tube Fitting; Instrument Valve; Manifold
Garraf Oil Train 3, 4, 5	Iraq	Petronas Carigali Iraq	CPECC (China Petroleum E&C Corporation) Middle East	2019	Tube; Tube Fitting; Instrument Valve; Manifold
No.2 CDU Project	Korea	SK Energy	SK E&C	2019	Tube; Tube Fittings
S-Project	Korea	SK Energy	SK E&C	2019	Tubes; Tube Fittings
Mozyr Refinery	Belorussia	SLAVNEFT	MNPZ	2019	Tube Fittings
UZGTL	Uzbekistan	GTL LLC	Hyundai E&C	2018	Tube Fittings
Jurassic Production Facilities Off-Plot Works	Kuwait	KOC	Emirates Electrical & Instrumentation	2018	Valves (Needle, Ball); Tube Fittings
WEST QURNA-2	Iraq	Lukoil	77 İNŞAAT VE TAAHHÜT	2018	DBB Valves; Check Valves; Ball Valves (Trunnion/Floating types); Check Valves (Water/Swing /Lift types); Gate Valves
Novatek Vysotsk LNG Plant	Russia	Lukoil	Novatek	2018	DBB Valves; SBB Valves
Karbala	Iraq	SCOP	Hyundai E&C	2018	Tubes; Pits; Tube Fittings

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PROJECT	LOCATION	OWNER	CLIENT	YEAR	ITEM
MDE5	Malaysia	SDN BHD	Hyundai E&C	2018	Pipes; Pipe Fittings
BeAAT Treatment Plant Expansion	UAE	TAKREER	METRADE	2018	Instrument Tube Fittings
Gas-to-Gasoline	Turkme-nistan	TURKMENGAZ	SKB PACIFIC	2018	Tube Fittings
Al-Zour Refinery Package #1, 2&3, 4	Kuwait	KNPC	Tecnicas Reunidas, Sin opec, Hanwha E&C, S aipem, Hyundai Eng.	2017 -2018	Tube Fittings; Instrumentation Valves; Manifold valves; Block and Bleed valv es; Monoflange valves; Tubes
SIBA Field Development Project	Iraq	Basrah Oil / Kuwait Energy Limited Iraq	PETROSOLUTIONS (FZE)	2017	DBB Valves
NASR 2	Various	ADMA-OPCO	HHI (Hyundai Heavy I ndustries)	2016	Single Block & Bleed Valve
Rumaila Oil Field Development	Iraq	British Petroleum	CPECC (China Petroleum E&C Corporation)	2016	DBB valves; Monoflange valves
Sampal Compression Station	Indonesia	Conoco Phillips	PT. Rekayasa Industries	2016	Tube Fittings; Instrument Ball Valves; Flange Adaptors
EPC CPF Phase 2 at Badra Oilfield	Iraq	Gazprom	Samsung E&C	2016	Tube; Tube Fittings
KNPC Sulphur Handling Facilities Project (SHFP) at MAA Refinery	Kuwait	KNPC	Daelim Industrial	2016	Tube; Tube Fittings
KNPC Clean Fuel Project (CFP)	Kuwait	KNPC	GS E&C; SK E&C; Dae woo E&C; JGC Corpor ation	2016	Tube Fitting; Instrument Ball Valve
KOC Gather Center (GC-29)	Kuwait	KOC	Larsen & Toubro	2016	Tube Fittings; Instrument Valve (Ball and Needle)
KOC GC-28, 29 & 30	Kuwait	KOC	Petrofac; Larsen & To ubro; Dodsai	2016	DBB valves; Monoflange valves
H307 CR600 (Platform)	China	CIMC Raffels	CIMC Raffels	2015	Tube Fitting; Instrument Ball Valves
Lioaohe, Dagang and Jidong Oil field Development	China	CNOOC (China National Offshore Oil Corporation)	Timeast Offshore	2015	Instrument Ball Valves

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PROJECT	LOCATION	OWNER	CLIENT	YEAR	ITEM
Ghana OCTP	Ghana	ENI – Gahna National Petroleum Company	Yingson Engineering	2015	Double Block and Bleed Valves (~2" CL2500)
Hebron DES Project	Canada	ExxonMobil	HHI (Hyundai Heavy Industries)	2015	High Pressure Fittings
Compressor Package A-3901	Oman	PDO (Petroleum Development Oman)	Leobersdorfer Maschinenfabrik	2015	Double Block & Bleed Valves
Petronas Floating Liquefied Natural Gas 1 (L) Ltd. (PFLNG-1)	Malaysia	Petroliam Nasional Berhad	DSME	2015	Double Block & Bleed Valves
Shell Prelude FLNG	Australia	Shell	SHI	2015	Valves (Types: Flanged Ball; DBB; Instrument Ball/Needle; DIN2353 Ball)
BADAMYAR Project	Myanmar	Total	HHI (Hyundai Heavy Industries)	2015	Air Manifolds; Drain Pots
EGINA FPSO	Nigeria	Total	SHI	2015	Ball Valves ( ~ 4" CL150 RF)
Point Thomson Project	U.S.A	ExxonMobil	HHI (Hyundai Heavy Industries)	2014	Air Manifolds
FRIGSTAD SHEKOU (H1277)	China	Frigstad Offshore Ltd	Frigstad Offshore Ltd	2014	Tube Fittings; Instrument Valves (Ball and Needle)
FRIGSTAD KRISTIANSAND (H1278)	China	Frigstad Offshore Ltd	Frigstad Offshore Ltd	2014	Tube Fittings; Instrument Valves (Ball and Needle)
Moho Nord FPU	Nigeria	Total	HHI (Hyundai Heavy Industries)	2014	Instrument Manifold 3-Valves (DBB Type)
Jurong Refinery Expansion	Singapore	Chevron	Foster Wheeler	2012	Tube Fittings
KNPC Pipeline Project	Kuwait	KNPC	Hyundai E&C	2012	Gate Valves; Needle Valves; Ball Valves
KOC Pipeline Project	Kuwait	KOC	Hyundai E&C	2012	Gate Valves; Needle Valves; Ball Valves
Hai Thach FSO	Vietnam	Petro Vietnam	National Oilwell Varco	2012	DBB Valves; Flanged Ball Valves

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PROJECT	LOCATION	OWNER	CLIENT	YEAR	ITEM
P-61 Platform	Brazil	Petrobras	FloaTec	2012	Instrument Air Manifolds; Instrument Valves and Manifolds
Mehar Gas Development	Pakistan	Petrolia Nasional Berhad	SPEC International	2012	Tube Fittings; DBB Valves; SBB Valves; Instrument Valves and Manifolds
Ammonia / Urea Expansion Project	U.A.E	Fertil	Samsung E&C	2011	Tube Fittings; Pipe Fittings
New Booster Station 160	Kuwait	KOC	Saipem	2011	Tube Fittings; Instrument Valves; Tubes; Pipes; Flanges
Arabian Chlor Vinyl(CA/EDC) Plant	Saudi Arabi a	SAHARA ACVC	Daelim E&C	2011	Instrument Air Manifolds
E8K & F13K Compression	Malaysia	Shell	Worley Persons	2011	DBB Valves (Fugitive Emission)
KNPBG-B	Malaysia	Petrolia Nasional Berhad	Malaysia Marine & Heavy Industry	2010	DBB Valves (Fugitive Emission)
F6 REJUV	Malaysia	Shell	Kencana Petroleum	2010	DBB Valves
3 years Price Agreement	Indonesia	Conoco Phillips	N/A	2009	Tube Fittings; Pipe Fittings
Cili Padi gas field Development	Malaysia	Shell	Technip	2009	DBB Valves (Chemical Injection/Sampling Probe)
CLOV FPSO	Angola	Total	DSME	2009	DBB Valves; Instrument Valves; Manifold Valves
PAZFLOR FPSO	Angola	Total	DSME	2008	Instrument Valves and Manifolds
Umm Sharif Field Development	U.A.E	ADMA-OPCO	HHI (Hyundai Heavy Industries )	2007	Tube Fittings; Instrument Valves; Brackets, Clamps

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PROJECT	LOCATION	OWNER	CLIENT	YEAR	ITEM
25K PC Tanker Bunkering Station& LNG Tank	Various	JP Morgan	HHI	2020	Cryogenic Remote Globe/Butterfly /Remote Butterfly/Ball/Globe/Lift Check /Needle Valves
25K PC Tanker FGSS & Bunkering Station	Various	JP Morgan	HHI (Sunbo Industries)	2020	Cryogenic SDNR/Globe/Needle Valves
180,000 DWT Class Bulk Carrier	Various	H-Line Shipping	HSHI	2019- 2020	Cryogenic Top Entry Ball Valves
Maran Gas 174K LNGC	Various	Maran Gas	DSME (PTK)	2019	Cryogenic Ball Valves; Cryogenic Safety Relief Valves
			DSME (Sunbo Industries)	2019	Swing-out Ball Valves
MOL 174K LNGC (X-DFI) Cargo System	Various	MOL	DSME (Core Plant)	2019	Cryogenic Ball Valves
			DSME	2019	Globe Valves; Cryogenic Needle Valves
			DSME (IDSSW)	2019	Cryogenic Globe/Needle Valves
Temile 22.8K LPGC	Various	Temile	HMD	2019	Instrument Ball Valves
Navigare 174K	Various	Navigare Capital	SHI (Centra)	2019	2-piece Casting Ball Valves
Nisshin 174K LNGC	Various	Nisshin Shipping	SHI (Centra)	2019	2-piece Casting Ball Valves
SCORPIO 19,500TEU CNT	Various	SCORPIO SHIP	SHI (VTL)	2019	2-piece Casting Ball Valves
Liquefaction System for LNG Pilot Plant	Various	SHI	Sunbo Industries	2019	Ball Valves; DBB Valves; SBB Valves; Trunnion Ball Valves; Cryogenic DBB/SBB/Ball Valves
Golar Gimi FLNG	Singapore	Golar LNG	Inoxciva, Kepple Fels	2019	Cryogenic Valves
King's Quay FPS	USA	LLOG Exploration	HHI	2019	Ball Valves (3" to 16", up to CL1500)
KOGAS 174K LNGC Cryo. Fitter System (MEGI)	Various	KLC, SK SHIPPING	DSME (Core Plant)	2019	Cryogenic Ball Valves

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PROJECT	LOCATION	OWNER	CLIENT	YEAR	ITEM
Dorian 84K LPGC	Various	Dorian Corporate Guarantees	DSME (DongHwa Entec)	2019	Globe Valves
Seatankers 173K LNG Carrier	Various	Sea Tankers	DSME (Sunbo Industries)	2019	Swing-out Ball Valves; Cryogenic Valves (Globe, Lift check, Swing check); Ball Valves (1-pc, DIN) ; Globe/Gate/Butterfly Valves; Check Valves (P an, Swing, Dual Plate); Instrument Valves
Seatankers 174K LNGC	Various	Sea Tankers	DSME (Core Plant)	2019	Cryogenic Ball Valves
			DSME (Jeon-Jin)	2019	Cryogenic Valves (Ball, Safety Relief); Instrument Valves
SK 174K KC-1 (for KOGAS)	Various	SK SHIPPING	SHI (Core Plant)	2019	Cryogenic Ball Valves
200K LNGC Cargo System	Various	Dynagas LTD	HHI	2019	Cryogenic Trunnion Ball Valves; Cryogenic Ball Valves
98,000 m3 Ethane/LPG Carrier	Various	DELOS	HHI	2019	Cryogenic Globe Valves; Globe Valves; Safety Relief Valves; Lift Check Valves
14,700 TEU Container Carrier	Various	EPS (Eastern Pacific Shipping)	HSHI (Donghwa Entec)	2019	Cryogenic Needle Valves; Gate/Globe Valves; Bar Stock Needle Valves
170K FSRU	Various	Türkiye Petrolleri a.o	HHI (DongHwa Entec)	2019	Cryogenic Needle Valves; Gate Valves; Bar Stock Needle Valves
			HHI (Young Kwang Machine)	2019	Ball Valves; Globe Valves; Gate Valves
173,400 CBM LNGC	Various	Maran Gas Andros	DSME (Young Kwang Machine)	2019	DBB Valves; Ball Valves; Cryogenic Ball/Gate /Lift Check Valves; Globe Valves; Gate Valves
Celsius 180K LNGC	Various	Celsius Shipping	SHI (Centra)	2019	2-piece Casting Ball Valves
			SHI (DongHwa Entec)	2019	Cryogenic Valves (Needle, Globe)
173,400 CBM LNGC	Various	Alpha Gas S.A.	DSME (Young Kwang Machine)	2019	DBB Valves; Ball Valves; Cryogenic Ball/Gate/Lift Check Valves; Globe Valves; Gate Valves
JAWA 170K FSRU	Various	PERTAMINA	SHI	2018-19	DBB Valves (#600 8" & 16")
ENI Coral FLNG	Various	Coral FLNG S.A.	SHI (Scana Korea)	2019	DBB Valves; SBB Valves; Instrument Ball Valves (2-piece, DIN); Ball Valves; Instrument Valves
			SHI (DongHwa Entec)	2018	Valves (Types: Ball; Gate; Single Block & Bleed; Bar-stock Needle)

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PROJECT	LOCATION	OWNER	CLIENT	YEAR	ITEM
KOGAS 7.5K LNG Carrier (KC-1)	Korea	KOGAS	SHI (Centra)	2018	Cryogenic Ball Valves
			Korea Line Corp (DongHwa Entec)	2018	Cryogenic Globe/Needle Valves; Gate Valves; Bar Stock Needle Valves
170K-Turkey FSRU	Various	Kolin/Kalyon	HHI (Sunbo Industries)	2018	Gate Valves; Globe Valves; Lift/Swing/Integral Bonnet Check Valves; Two Piece Ball Valves
173K LNGC Sea tanker	Various	Flex LNG	DSME (Core Plant)	2018	Cryogenic Ball Valves
180K LNG	Various	Knutsen	HHI (DongHwa Entec)	2018	Cryogenic Valves (Globe, Lift Check, Needle, SDNR); Ball/Globe /Gate Valves; Stop-check Valves; Instrument Valves
180K LNG	Korea	SK shipping	HHI (Hansuk Int'l, Kobe Steel)	2018	Dual Plate Check Valves
180K LNG KNUITSEN	Various	Knutsen	HHI (DongHwa Entec)	2018	Valves (Types: Cryogenic Globe/ Lift check/SDNR/Needle; Ball; Globe; Gate; SDNR; Bar Stock Needle)
180K LNG MOL	Various	MOL	DSME (DongHwa Entec)	2018	Cryogenic Ball Valves
260ton LNG Fuel Cleaning Ship	Various	UROOF (Ulsan Regional Office of Oceans and Fisheries)	Sunbo Industries	2018	Valves (Types: Cryogenic Ball/Globe; Ball; Globe; Gate; Life check; Two piece ball)
26K FSRU Paxocean Zhoushan H1028	Liberia	PAXOCEAN	DongHwa Entec	2018	Valves (Types: Cryogenic Globe; Bar-stock Needle)
7.5K LNG Bunkering Vessel	Various	Bernhard Schulte	HMD	2018	Cryogenic Ball Valves
325K VLOC Mrine De-Sox	Various	Marine De-Sox	HSI (Panasia)	2018	Gauge Root Valves
BW Gas 173K LNGC	Various	BW Gas	DSME (Dongwha Entec; Sunbo Industries)	2018	Cryogenic Ball Valves
EON-MOL 180K LNG Carrier	Various	MOL	DSME (Sunbo Industries)	2018	Gate Valves
1,800TEU CNTR Marine De-Sox	Various	Marine De-Sox	HMD (Panasia)	2018	Gauge Root Valves

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PROJECT	LOCATION	OWNER	CLIENT	YEAR	ITEM
114K COT SOVCOMFLOT	Various	SOVCOMFLOT	HSHI (Sunbo Industries)	2018	Valves (Types: Cryogenic Ball/Globe /Needle/SDNR; Globe; Gate; Swing Check; SDNR; Two-piece Ball)
			HHI (Sunbo Industries)	2017-2018	Valves (Types: Cryogenic Ball/Globe/Needle /SDNR; Globe; Gate; Swing Check; SDNR; Two Piece Ball; Bar Stock Needle)
174K LNG Carrier HI-ERS	Various	Teekay	HSHI (Sunbo Industries)	2018	Instrument Valves
			HSHI (DongHwa Entec)	2017	Valves (Types: Cryogenic Ball/Globe; 2-piece Casting/Swing-out Ball; Globe; Gate; SDNR Check; Bar Stock/Union Bonnet Needle)
KHI(S) 22N1743, 22N1745	Japan	Kawasaki Heavy Industries	Kawasaki Heavy Industries (BOGO)	2018	Needle Valves; High-pressure Ball Valves; Swing Check Valves; Stop Check Valves; Gate Valves; Globe Check Valves; Globe Valves
SK LNG	Various	SK shipping	SHI (Mt.H)	2018	Eccentricity Ball Valves
TDD GRS Drillship 3#	Various	Transocean Deep water Drilling	DSME (GIO-DINTEC)	2018	Valves (Type: DIN Ball; ISO 6164 Flanged Ball; SAE J518 Flanged Ball)
Sampling Station in Unit-1600	Various	ADNOC REFINING (TAKREER)	SM Solution	2018	Valves (Types: Gate; Lift Check)
Ichthys FPSO	Australia	INPEX Operations Australia Pty. Ltd.	DSME	2018	Ball Valves
KNC-1501 LNG JSK FRU	Indonesia	PEL (PT Pelabuhan Indonesia)	Kangnam Corp. (DongHwa Entec)	2018	Valves (Types: Cryogenic Globe; Bar-stock Needle)
SK shipping 180K LNG	Korea	SK shipping	HHI (Sunbo Industries)	2017	Valves (Types: Cryogenic Gate/Globe/Needle; Dual Plate Check)
TEEKAY ECC SHTL	Various	Teekay Shipping (Canada)	SHI	2017	High-pressure Ball Valves (3-way), SAE Flanges
OCEANRIG Drill Ship 10	Various	Ocean Rig	SHI	2017	Valves (Types: Non return; 2-piece Casting /SAE J518 Flanged/Din Type/High-pressure; SAE Flanged Check); SAE Flanges
PETRONAS FLNG 2	Various	PETRONAS	SHI	2017	Flanged Ball Valves; SAE Flanges
BP SHIPPING 173K LNGC	Various	BP	DSME (Sunbo Industries)	2017	High Pressure Ball Valves

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PROJECT	LOCATION	OWNER	CLIENT	YEAR	ITEM
50K Bulk Carrier	Korea	Ilshin Shipping	HMD	2017	Cryogenic Globe Valves
AET A-MAX	Various	AET Tanker Holdings	SHI (YoungKwang Machine)	2017	Valves (Types: Cryogenic Needle; 2-piece Casting Ball; Needle; Globe; Gate; Screw Down Non Return; Swing Check)
ASP 49K CT	Various	ASP	HHI (Scana)	2017	DIN Type Ball Valves
NASR 2	Various	ADMA-OPCO	HHI	2016	Single Block & Bleed Valve
MAN ME-GI Low Pressure Filter	Various	DSME, SHI	Korea-filter	2016	Cryogenic Valves (Types: Needle, DBB, Ball, Globe)
Burckhardt Compression Vessel Skid	Various	Chandris Maran Gas	DSME, SHI	2016	Valves (Types: Cryogenic Globe; Check; Globe)
Shell Prelude FLNG	Australia	Shell	SHI	2015	Valves (Types: Flanged Ball; DBB; Instrument Ball/Needle; DIN2353 Ball)
MOL LNG FSRU	Various	Mitsui O.S.K. Lines	DSME	2015	Cryogenic Valves (Types: Ball, Globe, Check, Gate)
Nakilat MEGI Project	Various	MAN Diesel & Turbo	SHI	2015	Cryogenic Needle Valves
Ghana OCTP	Ghana	ENI – Gahna National Petroleum Company	Yingson Engineering	2015	Double Block and Bleed Valve (~2" CL2500)
HI-GAS Test Bed	Various	HHI	DongHwa Entec	2015	Cryogenic Globe Valves; Swing Valves
Höegh LNG	Various	Höegh LNG	HHI	2015	Cryogenic Needle Valves; Swing Valves
JSK PROJECT	Various	JSK CO.,LTD.	DongHwa Entec	2015	Cryogenic Globe Valves
KNUTSEN LNG FSRU	Various	Knutsen	HHI	2015	Cryogenic Valves (Types: Ball, Globe, Check, Gate)
EGINA FPSO	Nigeria	Total	SHI	2015	Ball Valves ( ~ 4" CL150 RF)
TEEKAY LNG CARRIER	Canada	Teekay	DSME	2014	Cryogenic Globe Valves; Check Valves
ROYAL DUTCH SHELL FLNG	Various	SHELL	SHI	2014	Flanges, Hub & Blind - SAE, ISO & Special
Moho Nord FPU	Nigeria	Total	HHI	2014	Instrument Manifold 3-Valves (DBB Type)
FLNG	Various	PETRONAS	DSME	2014	Cryogenic Ball Valves; 2-piece Ball Valves
GAZPROM LNGF	Various	GAZPROM	HHI	2014	Cryogenic Needle Valves

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Burckhardt Compression Leak Gas & Oil Removal Skid	Various	Sea Tankers, SK Shipping, BW Fleet Management, KOGAS, Chandris, Maran Gas, Teekay	DSME, SHI	2014	Cryogenic Ball/Globe Valves; Single Block & Bleed Valves; DIN Type Ball Valves
Chevron LNG	Various	Chevron	SHI	2014	Flange with U-Type Quick Coupling
NASSCO FGSS	U.S.A	NASSCO	DSME	2013	Cryogenic Valves - Ball, Globe, Check, Butterfly
Semi Submersible Rig	Norway	Fred. Olsen Energy ASA	HHI	2012	DIN Tube Fitting
NOCC OCEANIC TRIAL	Norway	Norwegian Car Carriers ASA	HHI	2012	Pipe Fittings
Perusahaan Gas Negara FSRU	Indonesia	Höegh LNG	HHI	2012	Pipe Fittings
LNG Carriers	Greece	Dynagas Ltd	HHI	2012	Tube Fittings
LPG TANKER	Norway	SK Shipping	HHI	2012	Forged Fittings
ETESCO – PETROBRAS	Brazil	Etesco Brasil, LTD	SHI	2012	Flange, Hub & Blind - SAE & ISO; Tube Fittings (DIN Bite-type)
Goliat FPSO	Norway	ENI Norge	HHI	2012	Titanium Fittings
AB Klaipėdos Nafta FSRU	Lithuania	Höegh LNG	HHI	2012	Pipe Fittings
Ddrill Ship TBN	U.S.A	Rowan Companies	HHI	2012	Pipe Fittings
Drill Ship	U.S.A	Diamond Offshore	HHI	2012	Tube Fittings
Drill Ship	Greece	Noble Energy	HHI	2012	DIN Tube Fitting; High Pressure Fittings; High Pressure Bar Stock Needle Valves; P.S.V Valves
STENA Drilling Drill Ship	Various	STENA DRILLING	SHI	2011	Flange, Hub & Blind - SAE & ISO; Bite-type Fittings (DIN); High Pressure Fittings (Cone & Threaded connection)
STENA Semi-Rig	Various	STENA DRILLING	SHI	2011	Flange, Hub & Blind - SAE & ISO; Bite-type Fittings (DIN); High Pressure Fittings (Cone & Threaded connection)
VANTAGE Drill Ship	Various	Vantage Drilling Company	DSME	2011	ANSI Flanged & SAE Flanged Ball Valves; Ball & Spring Check Valves (DIN Bite-type); SAE Flange & Tube Fitting & Forged Fittings; Gauge Root Valves

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PROJECT	LOCATION	OWNER	CLIENT	YEAR	ITEM
OCEAN RIG Drill Ship #5~8	Various	Ocean Rig	SHI	2011	Ball & Check Valves; DIN Tube Fittings Instrument Manifold Tube Fittings & Valves; High Pressure Fittings (Cone & Threaded);
Odebrecht Drillship # 1 & 2	U.S.A	Odebrecht	DSME	2011	Tube Fittings; Forged Fittings; Instrument Valves and Manifolds; Flanges
Pacific Drilling Drill Ship #3~8	Various	Pacific Drilling	SHI	2011	Ball & Check Valves; DIN Tube Fittings Instrument Manifold Tube Fittings & Valves; High Pressure Fittings (Cone & Threaded);
QGOG Drill Ship #1~3	Various	QGOG Constellation	SHI	2011	Flange, Hub & Blind - SAE & ISO; High Pressure Fittings (Cone & Threaded connection)
SCHAHIN Drill Ship #1	Various	SCHAHIN Drill	SHI	2011	Tube Fittings (DIN Bite-type)
SEADRILL #4 & 5	Various	Seadrill	SHI	2011	Ball & Check Valves; DIN Tube Fittings Instrument Manifold Tube Fittings & Valves; High Pressure Fittings (Cone & Threaded);
MAERSK Drill Ship	Various	Transocean Deepwater Drilling	DSME	2011	ANSI Flanged & SAE Flanged Ball Valves; SAE Flanges; Ball & Spring Check Valves (DIN Bite-type); Tube Fittings; Forged Fittings; Gauge Root Valves
MAERSK Drill Ship # 1~4	Various	Maersk Oil	SHI	2011	Ball & Check Valves; DIN Tube Fittings Instrument Manifold Tube Fittings & Valves; High Pressure Fittings (Cone & Threaded);
ENSCO Drill Ship #3~10	Various	ENSCO	SHI	2011	Flange, Hub & Blind - SAE & ISO; Tube Fittings (DIN Bite-type)
GAZTRANSPORT & TECHNIGAZ	Various	GAZTRANSPORT & TECHNIGAZ (GTT)	SHI	2011	Flanges, Hub & Blind - SAE & ISO
GVA 7,500 SEMI RIG	Mexico	R. S.A. De C.V	DSME	2011	Tube Fittings; Forged Fittings; Instrument Valves and Manifolds; Flanges
ATWOOD Drill Ship	Various	Atwood Oceanics	DSME	2011	ANSI Flanged & SAE Flanged Ball Valves; SAE Flanges; Ball & Spring Check Valves (DIN Bite-type); Tube Fittings; Forged Fittings; Gauge Root Valves
CARDIFF Drill Ship #1~4	Various	CARDIFF	SHI	2011	Flanges, Hub & Blind - SAE & ISO; Tube Fittings (DIN Bite-type)
TMT Drillship #1	Marshall Island	Madarin Drilling Co.	DSME	2010	Tube Fittings; Forged Fittings; Instrument Valves and Manifolds; Flanges

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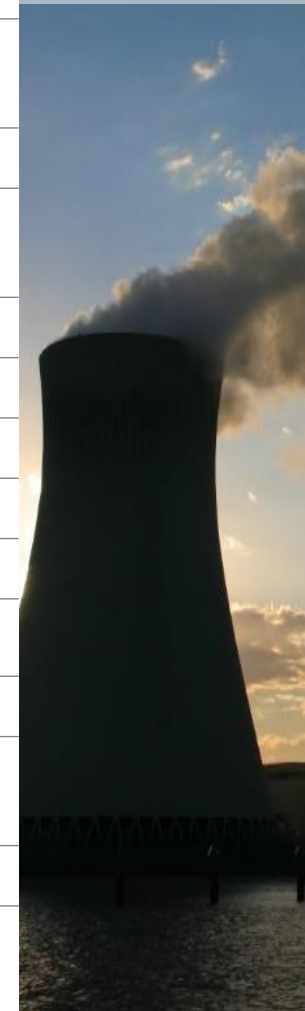
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PROJECT	LOCATION	OWNER	CLIENT	YEAR	ITEM
Barakah NPP	U.A.E	Emirates Nuclear Energy Corporation	Hyundai E&C	2020	Flexible Hose
			Hyundai E&C	2018	Pipe; Tube Fitting
			Hyundai E&C	2017	Tube Fitting
			Hyundai E&C	2013	Intake Air Duct Spools; Exhaust Gas Pipe Spools; Air Intake Reducers; Flexible Hoses; Gallery
			Doosan HIC	2013	Flanges; Tube Fittings
			Hyundai E&C	2012	Tube Fittings; Forged Fittings; Pipe Fittings; Tubes; Pipes
Hanbit (Yonggwang) NPP	Korea	KHNP	Daeelim	2020	Pipe Fitting
			KHNP	2019	Forged Fitting
			Daewoo E&C	2019	Tube Fitting; Pipe Fitting
			KHNP	2018-19	Tube Fitting (Monel)
			KHNP	2017	Tube Fitting (Monel); Tube
			Kepco KPS	2016	Forged Fitting; Pipe Fitting; Flange; Pipe
			KHNP	2016	Pipe; Tube; Forged Fitting; Pipe Fitting; Tube Fitting
			KHNP	2014	3-Way Manifold Valves; Instrument Valves; Union Bonnet Needle Valves; Tubes; U-GUIDEs
			KHNP	2013	Tube Clamps
			KHNP	2011	Spool, 24IN, SA106B, Archcoat Lined ESW Systems; Pipes; Metal products

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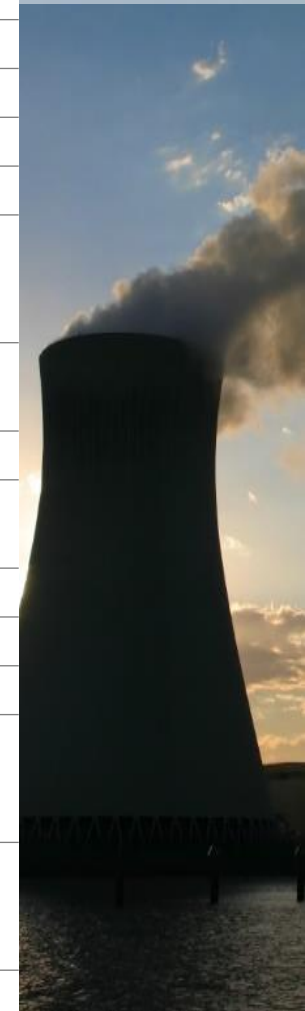
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PROJECT	LOCATION	OWNER	CLIENT	YEAR	ITEM
Hanul (Uljin) NPP	Korea	KHNP	KHNP	2020	Flange
			KHNP	2019	Pipe Fitting; Bolt & Nut; Pipe
			KHNP	2018	Unistrut Channel (with 3/8" Bolt, Nut, Washer); CLP Plate
			KHNP	2017	Pipe; Tube Fitting
			Kepco KPS	2017	Liner Plate
			Kepco KPS	2016	28" Pipe Fitting
			KHNP	2016	Pipe; Pipe Fitting
Shin-Kori NPP #5, 6	Korea	KHNP	KHNP	2011	Tube Fittings; Tube Clamps; Tubes; 3-Way Manifold Valves; Instrument Valves; Union Bonnet Needle Valves; ESW Pipe spools
			Samsung C&T	2019-2020	Forged Fitting; Pipe Fitting
			HSD Engine	2019	Tube; Tube Fitting; Forged Fitting
Kori NPP	Korea	KHNP	LG Electronics (Samsung C&T)	2018	Pipe Fitting
			Kepco KPS	2018	Forged Fitting; Pipe
			KHNP	2018	Forged Fitting; Pipe Fitting; Flange; Pipe
			KHNP	2016	Forged Fitting; Pipe Fitting
			KHNP	2014	Tube Fittings; Tubes; Instrument Valves (Types: Manifold, Needle); Pipe Fittings; Pipes; U-GUIDEs
			KHNP	2013	Tube Fittings; Tubes; Integral Bonnet Needle Valves; Secondary Cooling Sea Water System Piping for Central Cooler
			KHNP	2011	Bellows; Bellows Spools; Spool Joints

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PROJECT	LOCATION	OWNER	CLIENT	YEAR	ITEM
UK 5211	UK	EDF Energy	Hyundai E&C	2017-2020	Brackets
Wolsong NPP	Korea	KHNP	Doosan HIC	2019	Pipe; Pipe Fitting
Wolsong NPP	Korea	KHNP	KHNP	2019	Forged Fitting, Pipe Fitting
Kori NPP #3, 4	Korea	KHNP	Doosan HIC	2019	Flange, Pipe Fitting
Karachi (K2/K3) NPP	Pakistan	Pakistan Atomic Energy Commission (PAEC)	HHI	2017-19	Flexible Hose
Shin-Hanul (Uljin) NPP #1 & 2	Korea	KHNP	Hyundai E&C	2018	Pipe; Pipe Fitting
Wolsong NPP	Korea	KHNP	Kepco KPS	2018	Forged Fitting; Pipe Fitting; Pipe; Tube Clamp, Forged Fitting, Pipe
Wolsong NPP	Korea	KHNP	KHNP	2017	Pipe; Tube; Forged Fitting
Wolsong NPP	Korea	KHNP	Kepco KPS	2016	Pipe, Forged Fitting
Wolsong NPP	Korea	KHNP	KHNP	2013	Tube clamps
China AP-1000 NPP	China	China National Nuclear Corporation	Westinghouse	2012	Tube Fittings; Tubes
Shin-Hanul (Uljin) NPP	Korea	KHNP	Hyundai E&C	2012	Instrument Fittings (Types: Tube/Forged/Pipe); Tubes; Pipes
Shin-Kori NPP #3, 4	Korea	KHNP	Hyundai E&C; Doosan HIC	2011	Tube Fittings; Tubes; Pipes
Shin-Uljin NPP #1 & 2	Korea	KHNP	Hyundai E&C	2011	Tube Fittings; Tubes; Pipes
Shin-Wolsong #1 & 2 NPP	Korea	KHNP	Samsung E&C	2011	Tube Fittings; Instrument Valves; Tubes; Pipes
Wolsong Waste Treatment	Korea	KHNP	N/A	2010	Tube Fittings; Tubes; Pipes

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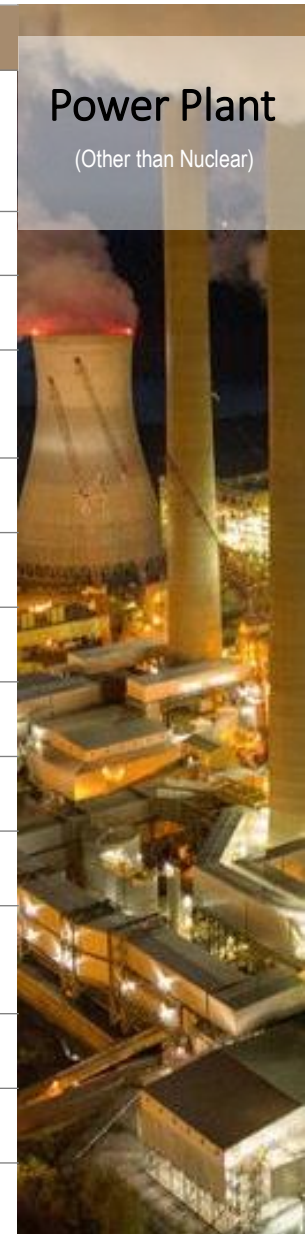
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PROJECT	LOCATION	OWNER	CLIENT	YEAR	ITEM
Shin Seochon 1018MW Coal Fired Thermal Power Plant #1	Korea	Korea Midland Power	Daelim Industrial	2019	Ball Valves
Sulsel Barru-2 CFSPP	Indonesia	PT PLN Persero	BHI (FLATDIS)	2019	Instrument Manifold Valves
Masinloc Power Station	Philippines	Masinloc Power Partners (MPPCL)	POSCO E&C	2018	Tube Fittings
BIBIYANA-III, 400MW Combined Cycle P.P	Bangladesh	Bangladesh Power Development Board (BPDB)	SKB PACIFIC	2018	Tube Fittings
Goseong Hai Power Plant	Korea	KOEN (Korea South East Power)	DHI	2018	Tube Fittings; Instrument Valves
Doha SWRO Desalination Plant S1	Kuwait	MEW (Ministry of Electricity & Water)	DHI	2018	Tube Fittings; instrument Valves
Boryeong TPP #3	Korea	KOMIPO (Korea Midland Power)	DHI	2018	Forged Fittings
SEC 210 1x105MW Coal-Fired Power Project	Philippines	Sarangani Energy Corporation (SEC)	SKB PACIFIC	2018	Tube Fitting
Panama Colon Gas Project	Panama	AES	Posco E&C / Kumyang Electric	2017	Tube, Tube Fittings
Botswana Morupule A Retrofit PJT	Botswana	Botswana National Energy Company (BPC)	DHI	2017	Integral Bonnet Needle Valves; Tubes; Tube Fittings
Hyundai Hi-Well Pump	Various	HHI	HHI	2017	SAE Flange Check Valves; SAE J518 Flanged Ball Valves; DIN Type Ball Valves
Yanbu 2 PKG1 PJT	Saudi Arabia	MARAFIQ	Hanwha E&C / OMC Corp.	2017	Union Bonnet Needle Valves; Tubes; Tube Fittings
Doha SWRO Desalination Plant	Kuwait	MEW (Ministry of Electricity & Water)	DHI	2017	Instrument Valves and Manifolds; Tubes; Fittings
Fadhili CCPP	Saudi Arabia	SEC & Saudi Aramco	DHI	2017	Condensate Pots; Needle Valves; Tubes; Fittings

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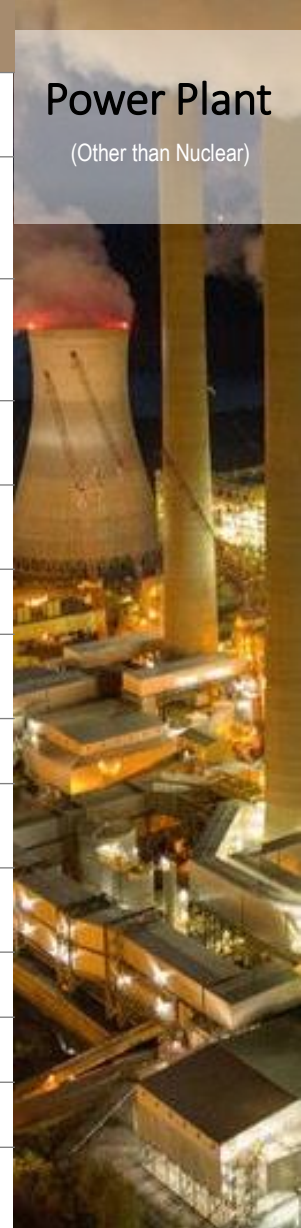
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PROJECT	LOCATION	OWNER	CLIENT	YEAR	ITEM
Kahramaa	HHI	Facility D IWPP (Umm Al Houl Power)	Qatar	2016	Tube Fittings; SMLS Tubes; Needle Valves; Manifold Valves
ADWEA	HHI	Mirfa IWPP Plant	U.A.E	2015	Tube Fittings; SMLS Tubes; Needle Valves; Gate Valves; Manifold Valves
Aboitiz Power Corp.	HHI	PAGBILAO Project	Philippines	2015	Tube Fittings; SMLS Tubes; Needle Valves; Manifold Valves (F51)
Saudi Electricity Company (SEC)	HHI	Shuqaiq Steam Power Plant	Saudi Arabi a	2015	Tube Fittings
KOMPO	Doosan HIC	SEJONG Combined Heat and Power Plant	Korea	2013	Tube Fittings
Eskom	Siemens	Duvha Power Station	South Africa	2012	<i>i-fittings</i>
Oman Power and Water Procurement Co.	GS E&C	Sohar 2 & Barka III IPP	Oman	2012	Tube Fittings; Tubes
Saudi Electricity Company	Doosan HIC	Rabigh Power Plant	Saudi Arabia	2012	Tube Fittings; Pipe Fittings
SK E&S	Doosan HIC	YANGJU Combined Heat and Power Plant	Korea	2012	Tube Fitting s
VietNam Electricity	Doosan HIC	Mong Duong Power Plant	Vietnam	2012	Tube Fittings; Pipe Fittings
Eskom	Kentz E&C	Medupi Power Station	South Africa	2011	Tube Fittings
Saudi Electricity Company	Doosan HIC	Shuaibah IWPP Expansion	Saudi Arabia	2011	Tube Fittings; Pipe Fittings; Flanges
Marafiq	Doosan HIC	Marafiq IWPP	Saudi Arabia	2010	Tube Fittings; Pipe Fittings
Dubai Electricity and Water Authority	HHI	Jebel Ali M Station	U.A.E	2009	Tube Fittings

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OWNER	CLIENT	PROJECT	LOCATION	YEAR	ITEM
GS Caltex	GS E&C	MFC PROJECT	Korea	2020	Condensate Pot; Tubes; Tube Fittings
Hanwha Chemical	Hanhwa E&C	K-10 Project	Korea	2019	Needle Valves
Long Son Petrochemicals	Hyundai Engineering	LSP Complex Project	Vietnam	2020	Pipes; Pipe Fitting
Korea Nexlene Company	SK E&C	Nexlene Plant 1st Value up (Step1) EPC Project	Korea	2019	Tubes; Tube Fittings
SK Global Chemical	SK E&C	#2 PX PSA Requisition & New PSA Project	Korea	2019	Tubes; Tube Fittings
Daelim Industrial	Daelim Industrial	EPO Project	Korea	2019	Tubes; Tube Fittings
Hanwha Total	Burckhardt Compression Korea Busan	Hanwha Daesan 01	Korea	2019	2- & 3-piece Ball Valves; Butterfly Valves; Dual Check Valves; Gate Valves; Globe Valves; Swing Check Valves
Ulsan PP	SK E&C (Burckhardt Compression Korea Busan)	Ulsan PP#1	Korea	2019	2- & 3-piece Ball Valves; Globe Valves; Gate Valves; Swing Check Valves
Lotte Chemical	GS E&C	TE-3	Malaysia	2016	Tubes; Pit; Tube Fittings

**Chemical & Petrochemical**

