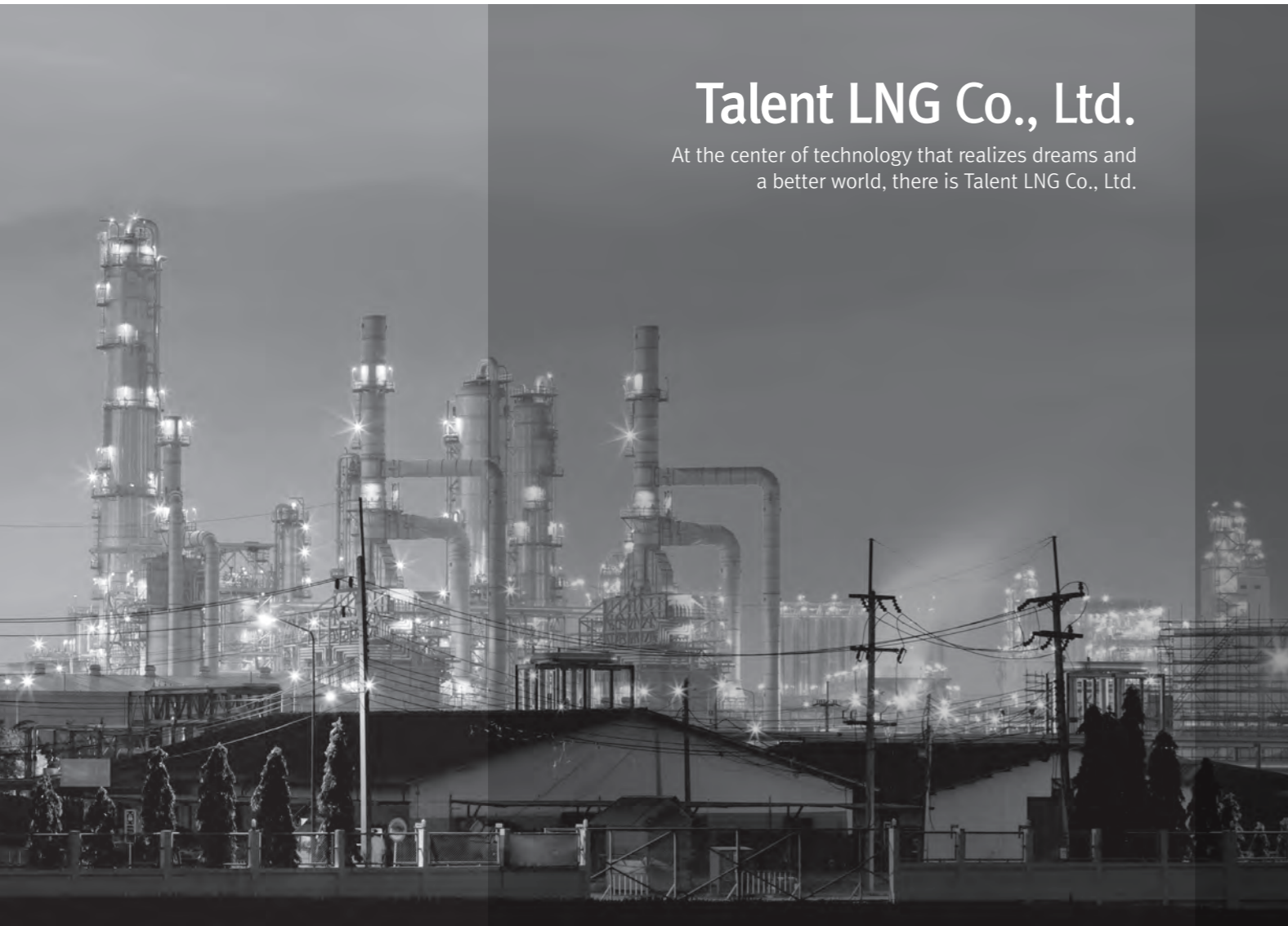


TALENT LNG

At the center of technology that realizes dreams and
a better world, there is Talent LNG Co., Ltd.

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a better world, there is Talent LNG Co., Ltd.



#172, Mieum-sandan 3ro, Gangseo-gu, Busan, Korea (46744)

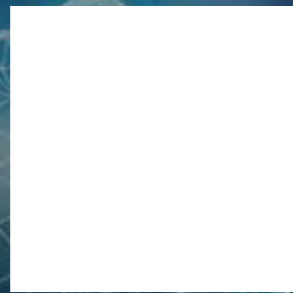
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www.talent-tn.com



Talent LNG Co., Ltd. is
at the center of technology which
realizes dreams and leads
to a brighter world in the future.



TALENT
LNG



Talent LNG Co., Ltd. pursues customer satisfaction with our own technology and high quality products. We have been manufacturing total piping systems for fuel gases such as LNG, LN2. It is environment-friendly and dreams of steady development as our passion and vision for the better future.

Technology & Product

We, Talent LNG Co., Ltd., have been focusing on gas piping/tubing systems with our own technology, contributing environment-friendly fuel system.

Environment

Our products, Fuel Gas Piping/Tubing System for LNGC, has been manufactured and applied to complying with new IMO regulations with regard to marine & offshore environment. We are closely connected with environment business.

People & Fun

We, Talent LNG Co., Ltd. pursue to grow and create the better future with our clients, business partners and member(employees), promoting a pleasant environment with fun.

CONTENTS

About Us	06
LNG Fuel Gas Supply Piping System	08
Double Wall Piping System	09
Vacuum Insulation Piping System & Vacuum Pumping System	10
Ventilation System Package	12
Insulation Materials	13

Non-welded Flange System	14
Non-welded Fitting System	15
Tubing System(Tube)	16
Construction of High Pressure & Liquefied Gas Storage Facility	18
Others	19

About Us

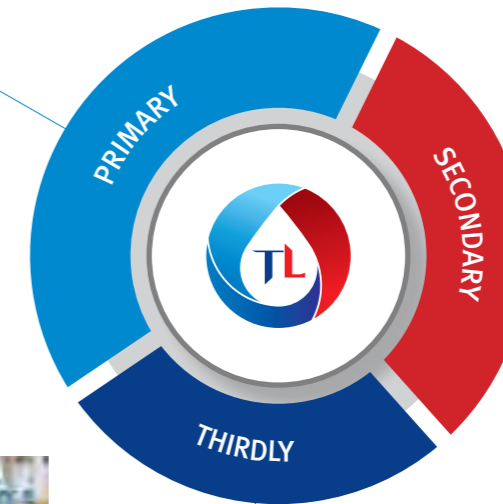
Business Area

 MARINE & OFFSHORE	 SCIENCE & TECHNOLOGY RESEARCH
 SEMICONDUCTOR	 PETROCHEMICAL
 DEFENSE & AEROSPACE	 OTHERS

- INSTRUMENT
- ANALYSIS EQUIPMENT
- IQF (INDIVIDUAL QUICK FREEZING)
- SAMPLE STORAGE FACILITY
- BIO LABORATORY FACILITY

LNG & NG Double Wall Piping System

- Manufacturing/ Fabrication**
- Fuel Gas Supply Piping (Double Wall Pipe)
 - Cryogenic piping (Vacuum Insulated Pipe)
 - Ventilation System



Piping & Tubing System Package

- Fabrication & Trade**
- Non-welded Flange/Piping System
 - Austenite Stainless Steel
 - Duplex Stainless Steel
 - Copper Alloy
 - Carbon Steel
 - Instrumentation
 - Piping Skid

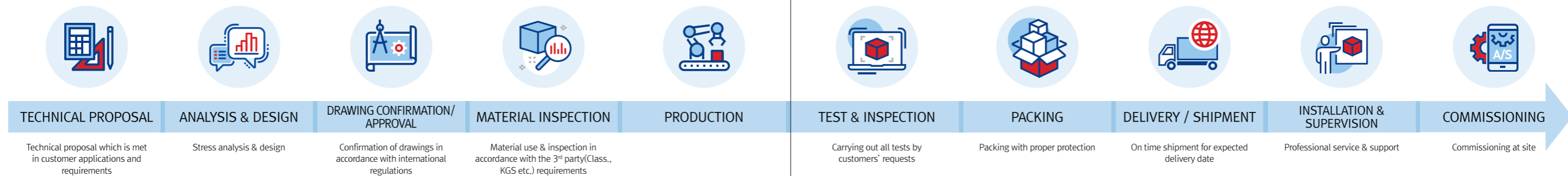


Equipment


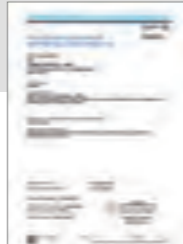


- Gas Control Unit
- Circulation Unit
- Marine Equipment




Process Chart



Certificate

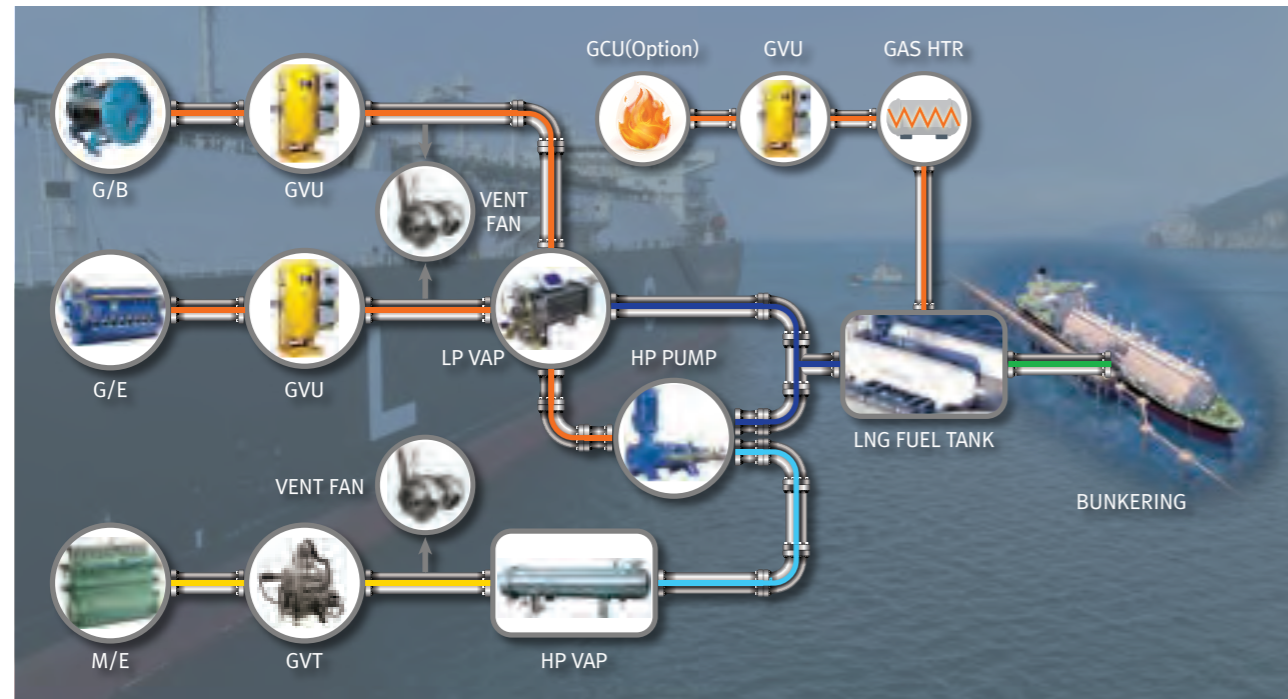
ISO9001 (ABS-2015)	WWA (DNV-GL)	WPS (DNV-GL)	WPS (ABS)
			

WPS (BV)	WPS (LR)	WPS (RINA)	WPS (NK)	WPS (CCS)
				

LNG Fuel Gas Supply Piping System

LNG Fuel Gas Supply Piping System – Marine & Offshore

Double Wall Piping System is to supply the fuel gas to main engine with purpose of protection of explosion and leak-check mainly. Double wall pipe has excellent performance against high pressure and extreme temperatures.



※ This image is to understand the system only, not to promote.

Flange For Double Wall Pipe – Double Lip Flange

- Low Pressure & High Pressure
- Vent.holes are calculated in accordance with the air volume.

Design Pressure	10~420Bar(g)
Design Temperature	-90℃ ~ 60℃ in general range
Material	Duplex & Stainless Steel 316L

ASTM TP316L	Liquid Line	1 ~ 10Bar / -163℃
ASTM TP 316L	Liquid Line	1 ~ 10Bar / -163℃
ASTM TP 316L	Liquid Gas Line	~ 330Bar / -150℃
Duplex or ASTM TP316L	Gas Phase	~ 330Bar / ~ +60℃
ASTM TP 316L	Gas Phase	~ 16Bar / -20℃ ~ +60℃

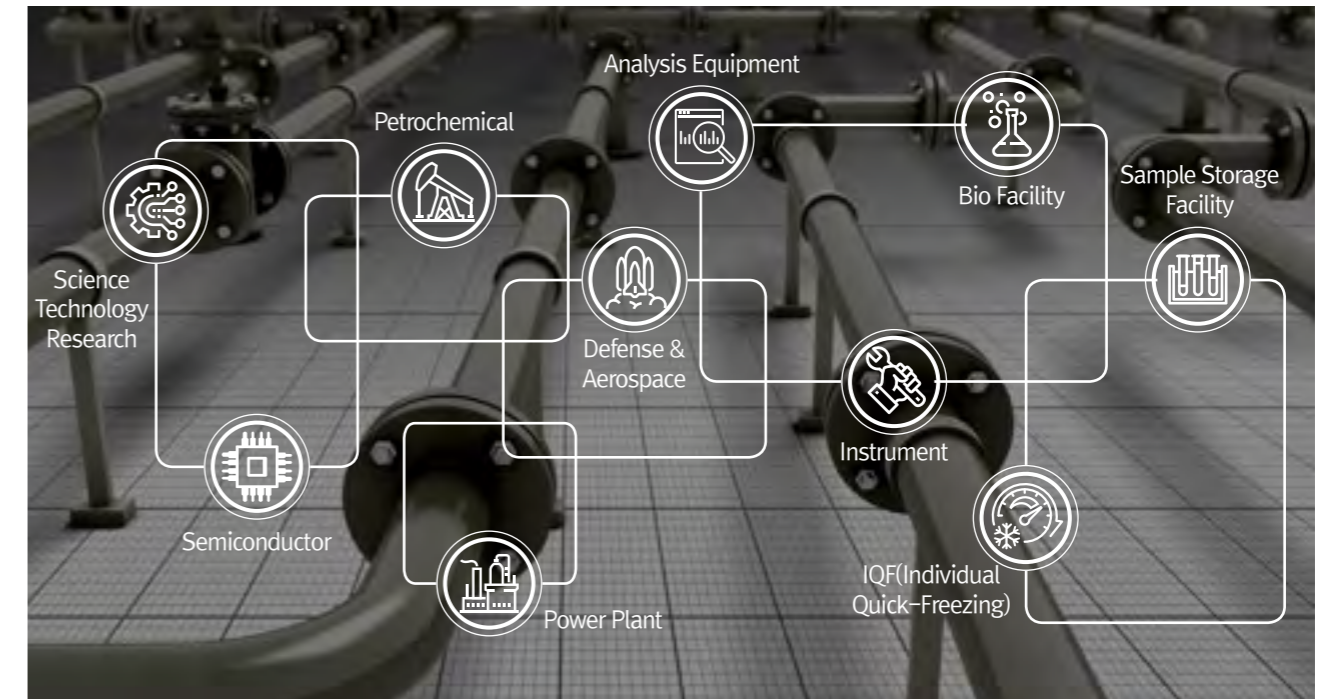
Certificate



Double Wall Piping System

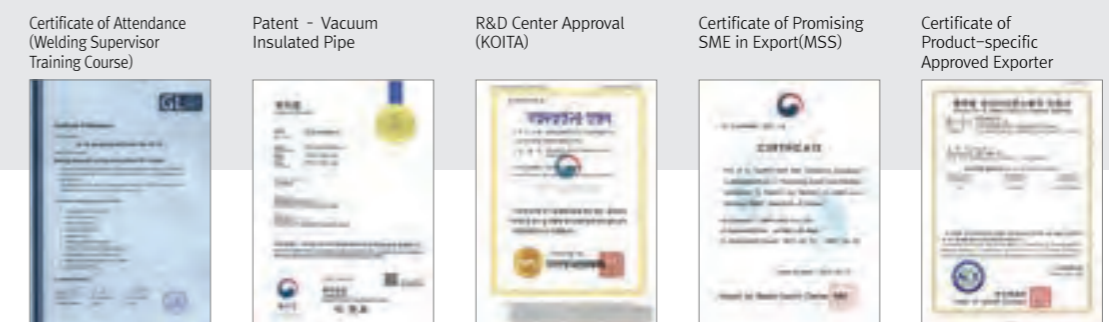
Double Wall Piping System – Inland Facility

We are specialized in 'Double Wall Piping System' in both Marine & Offshore and Inland Facility. Our double wall piping systems are applied to various industries as its systems are designed for super high pressure and cryogenic environment.



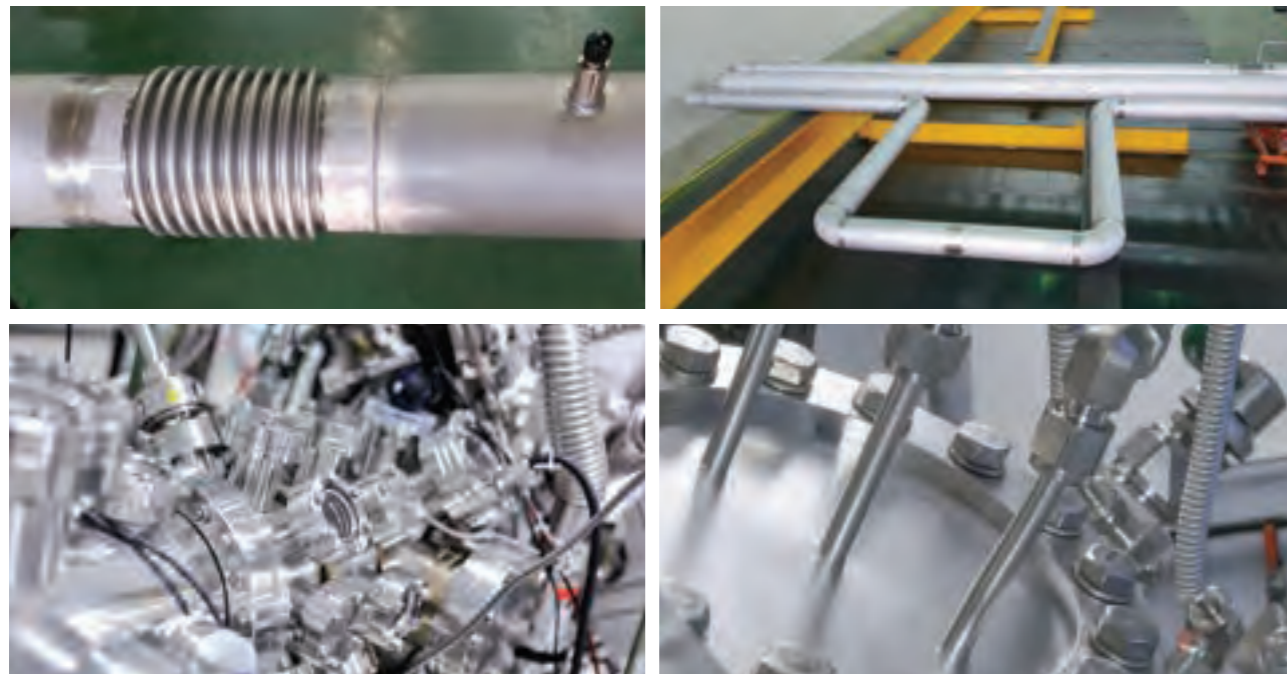
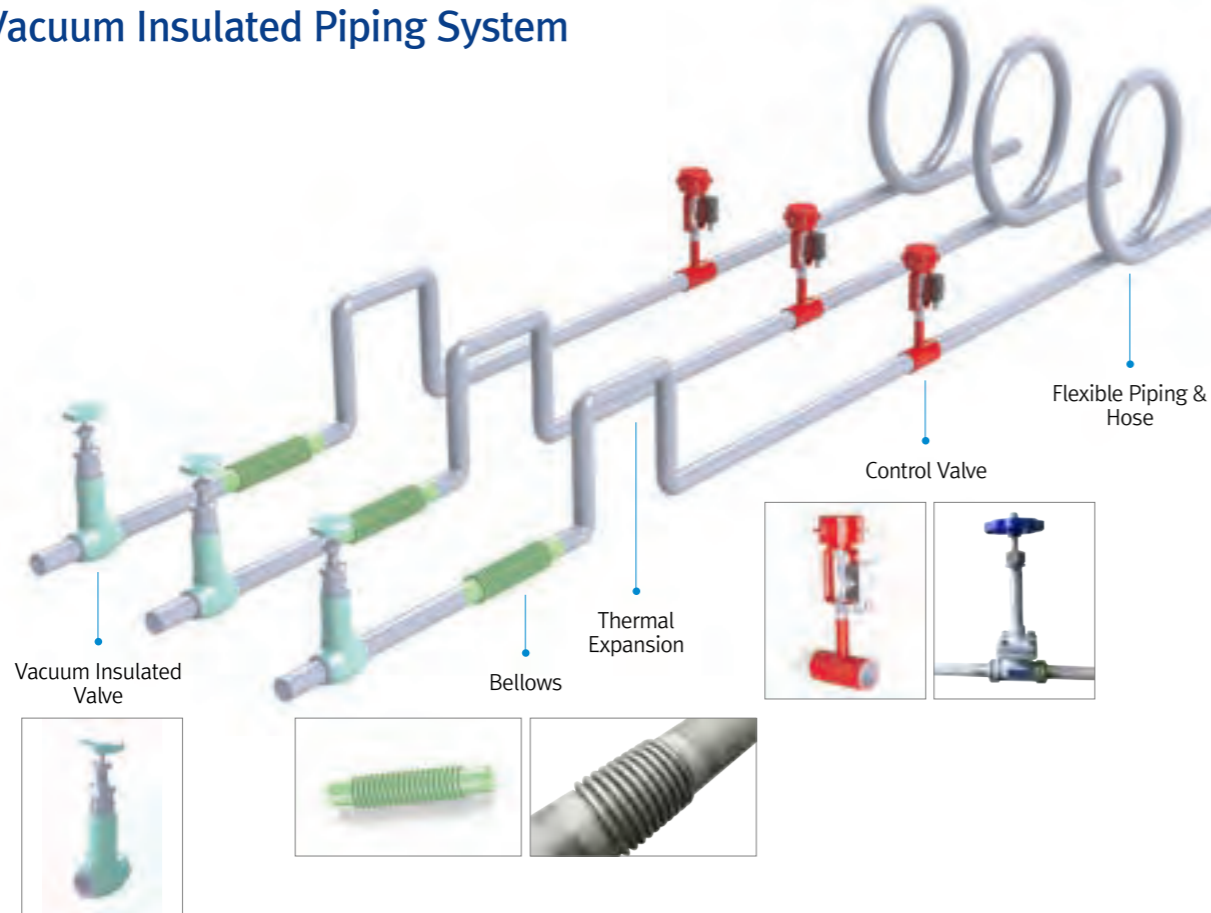
Double Wall Pipe – Low Pressure & High Pressure

	General Pressure & Temperature	High Pressure
Size	Inner Pipe DN15~300 in general Outer Pipe DN50~450 in general	Inner Pipe DN15 ~ 50 in General Outer Pipe DN100 ~ 150 in general
Fluid	Natural Gas & Liquefied Gas	Natural Gas (Vaporized)
Design Pressure	10~20Bar(g)	300~420Bar(g)
Design Temperature	-269℃ ~ 60℃ in general range	-90℃ ~ 60℃ in general range
Material	Inner Pipe: Stainless Steel 316L Outer Pipe: Stainless Steel 316L	Inner Pipe: Super Duplex or Duplex Outer Pipe: Duplex or Stainless Steel 316L



Vacuum Insulated Piping System

Vacuum Insulated Piping System



What are the **Advantages** of Vacuum Insulated Piping System?



- ✓ Higher efficiency than Urethane Form insulation pipe (About 10 times higher)
- ✓ Outer pipe secures the safety of inner pipe in case of explosion or accident
- ✓ Easy check : Crack & insulated performance of pipe
- ✓ Recommended by shipowner & Classification
- ✓ To meet the requirement of IMO Regulation
- ✓ Almost no radiant heat loss
- ✓ No condensation at normal condition
- ✓ To save the space as outer pipe can be small

Size	½" ~ 40"
Design Pressure	~ 30Bar(g)
Vacuum	~ 5*10 ⁻⁶ torr
Connection Type	Clamp & Flange Type (Bayonet Type), Welding Type
Fluid	LNG, LHe, LH2, LN2, LO2, LAr, & Others
Design Temperature	-269 °C ~



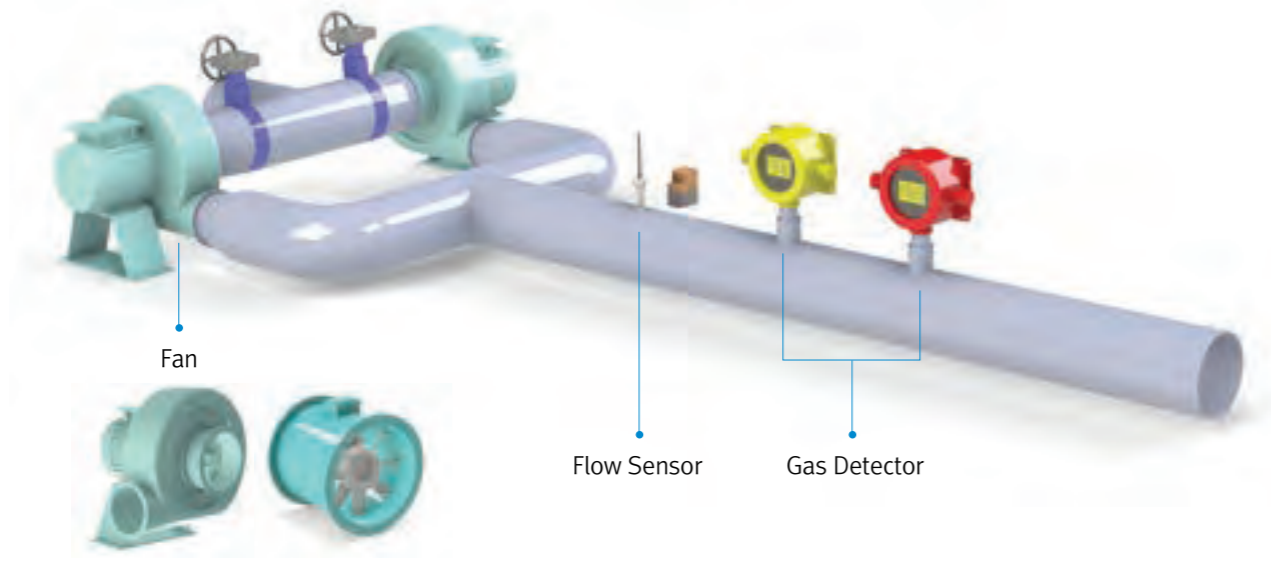
Vacuum Pumping System



Ventilation System Package

Ventilation Package

- We have been designing and manufacturing total Ventilation System Package according to customers' needs and applications.
- Fan, Flow Sensor, Gas Detector and the other related Valves



FAN Explosion Proof Fan

- Centrifugal Fan
- Axial Flow Fan
- Mixed Fan

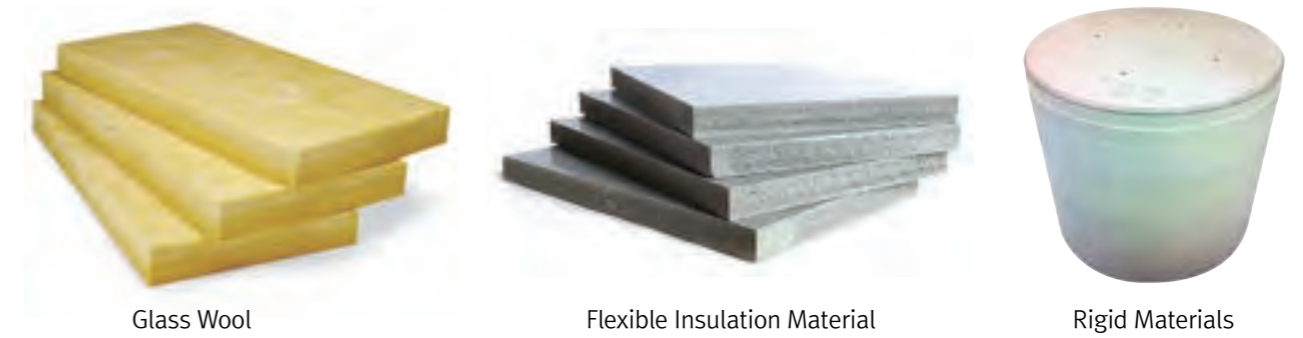


Flow Sensor & Gas Detector



Insulation Materials

For Insulated Piping & Vessel

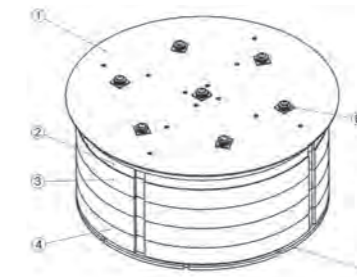


- Insulation : PIF or PUF
Mineral Wool(Glass Wool & Rock Wool)
Cryogel(Arogel)
Aerogel (Cryogel, Pyrogel)

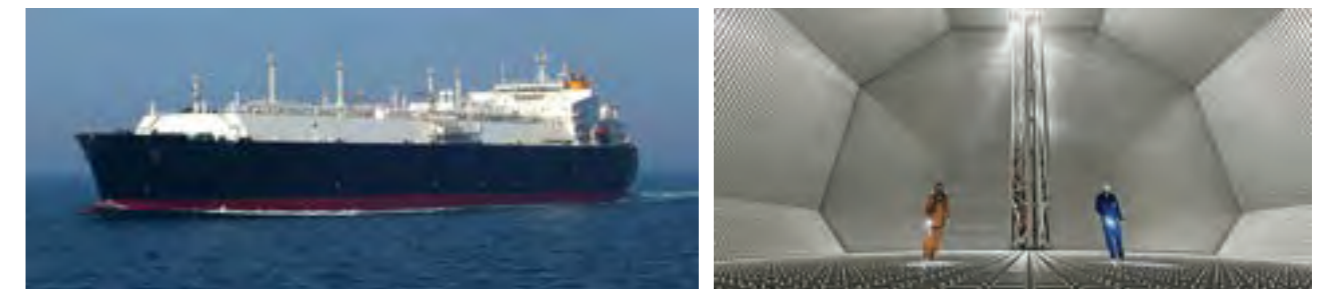


LNG Repair Kits

- All GTT Certified. We can supply all materials for CCS if required.
- Insulation Box & Panel : Invar / Stainless Steel Material



No.	DESIGNATION
1	Fixing Support
2	Rigid insulating material
3	Rigid insulating material
4	Rigid insulating material
5	Plywood
6	Fixing device



LNG CCS

Non-welded Flange System

- ✓ Completed Reliability and Cleanness
- ✓ Flexible and Easy-and-Fast to Install
- ✓ Highly Cost Effective
- ✓ Fast-and-Easy to Prefabricate Available

Retain Ring Flange System



Retain Ring system is used for piping with a maximum allowable working pressure of 350-420Bar(g). In special applications, this system can be used with working pressures as high as 690Bar(g). Extensive testing programs demonstrate the system for the high-pressure pipe system within the wide range of different materials ranging from carbon and stainless steel to duplex and titanium and all other quality pipe materials with an elongation above 20%.

	SAE 3000	SAE 6000	ISO 6164
Pressure(Bar(g))	210~350	420	210~690
Pipe Size	26x6~97x12	26x6~97x12	60.3x11.04~355.6x41.4
Flange Size	1/2"~3"	1/2"~3"	2"~14"
Pipe Material	Carbon Steel, Stainless Steel, Duplex, Super Duplex, Titanium(Materials having elongation above 20%)		
Flange Material	Electric Zinced Carbon Steel, Hot Dip Galvanized Carbon Steel, Stainless Steel or Titanium		
Seal Material	NBR, Viton		
Retain Ring Material	Stainless Steel		

37° Flare Flange System



37° Flare Flange System is used for a wide range of high and medium pressures, which are used for a wide range of industries: Marine and Offshore, Automotive, Metals & Mining, Wood & Forestry, Pulp & Paper and Aerospace & Defense. This system is generally used within the allowable working pressure with range from 210~350Bar(g). In special applications, the system is used for piping with a maximum allowable working pressure of 420Bar(g). The 37° flare flange jointing method is suitable for high pressure piping systems in a wide range of different materials.

	SAE 50	SAE 3000	SAE 6000	ISO 6164
Pressure(Bar(g))	< 50	210~350	420	350~400
Pipe Size	50x3~273x6	16x2~90x5	16x2~90x9	50x5~90x9
Flange Size	1 1/2"~10"	1/2"~3"	1/2"~3"	1 1/2"~3"
Pipe Material	Carbon Steel, Stainless Steel, Duplex, Super Duplex, Titanium(Materials having elongation above 20%)			
Flange Material	Electric Zinced Carbon Steel, Hot Dip Galvanized Carbon Steel, Stainless Steel or Titanium			
Insert Cone Material	Electric Zinced Carbon Steel, Stainless Steel			
Seal Material	NBR, Viton			

90° Flare Flange System



In GS-90° Flare Flange System, the end of the tube is clamped into a flaring machine where a conical rotating tool flares the pipe end into a die. A seal is placed between the pipe ends and the flanges are then tightened together to complete the connection. The System is used for class III piping with a maximum allowable working pressure of 16Bar(g). The GS-90° Flare Flange Jointing method is suitable for low pressure piping systems in a wide range of different materials ranging from mild steel to super duplex. The System can be utilized for low pressure piping systems(10~40Bar(g)) and for pipes with a maximum diameter of 608mm.

	SAE	ANSI/JIS/BS/DIN
Pressure(Bar(g))	10~40	10~40
Pipe Size	16x1.5~220x6	21.3x2.1~608x12.5
Flange Size	1/2"~8"	1/2"~24"
Pipe Material	Carbon steel, galvanized steel, copper-nickel, aluminum/brass, duplex, super duplex, titanium (Materials having elongation above 20%)	
Flange Material	Electric zinced carbon steel, hot dip galvanized carbon steel, stainless steel	
Seal Material	Based on media inside pipe (example Klinger SIL C-4430)	

Non-welded Fitting System

DIN2353 Cutting System

- Working pressure : 100 ~ 800Bar(g)
- Pipe Outer Diameter : 4 ~ 42mm



DIN2353 Walform

- Working pressure : 100 ~ 800Bar(g)
- Pipe Outer Diameter : 4 ~ 42mm



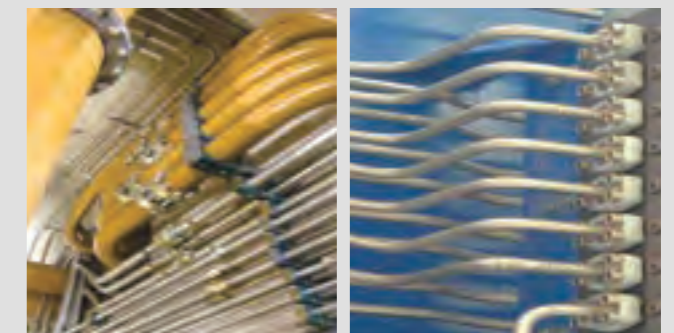
37° Flare

- Working pressure : 250 ~ 600Bar(g)
- Pipe Outer Diameter : 6 ~ 38mm



Advantage of Non-welded Fitting System

- Best-in-Class Pressure Performance
- Connections Meeting Industry Specification
- Enhanced Cost-Effectiveness Due to Increased Pressure Resistance
- Easy and Safe Assembly



Tubing System(Tube)

Stainless & Alloys Seamless Coil Tube

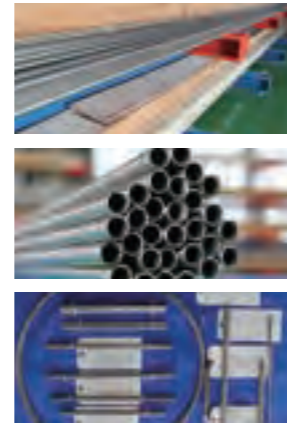
Material

- Stainless : 904L, S31254(6Mo), 317L, 347, 321, 316L(+2.5% Mo), 316 Ti, 304L
- Duplex : S32750, S31803
- Nickel Alloys : 200, 400, 600, 625, 825, C22, C276
- Copper Alloys : CuNi90/10, CuNi70/30, Brass, Bronze, Al-Br

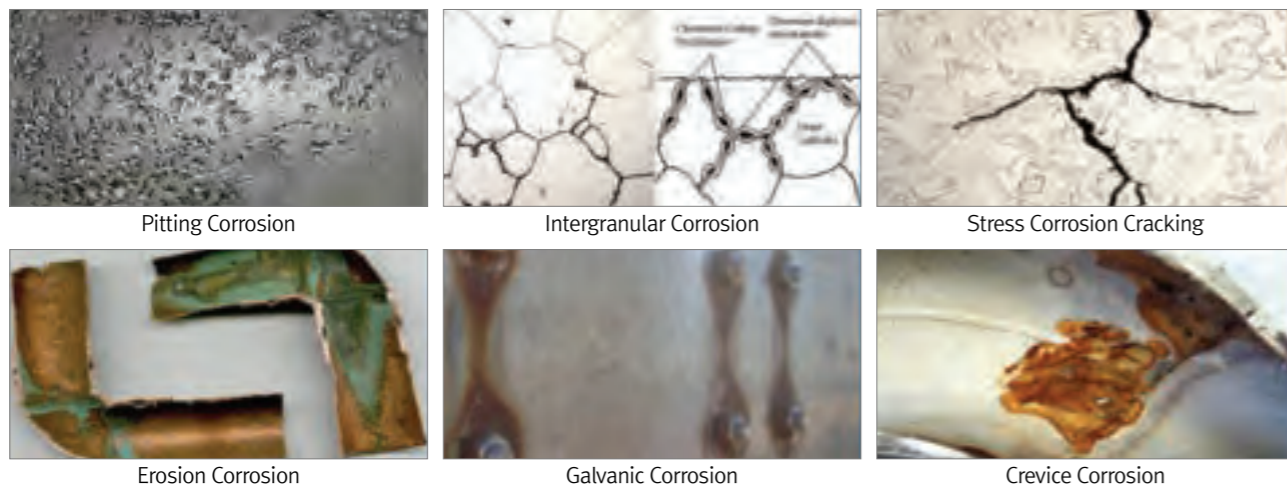
Size

- O.D : 0.020" ~ 1" (Inch Size), 0.51mm~25.4mm(Metric Size)
- Wall thickness : 0.005" ~0.083"(Inch Size), 0.127mm~3.175mm(Metric Size)
- Length : 1Coil = 70mtr~ 2,000mtr

Applicable industry



Alloys ASTM Code & Types of Corrosion



We, Talent LNG Co., Ltd., have been manufacturing and installing tubing systems by selecting proper materials for customers' applications. It is not only simple assembly but also considering of the preservation for all types of corrosion.

Tubing Pressure Rate

Stainless Steel Tubing

ASTM A213/A269, TP316/316L & 304/304L Seamless Tubing, Minimum Tensile Strength (MPa) : 515

O.D	Wall Thickness : Inch					bar				Gas Service	
	0.02	0.028	0.035	0.049	0.065	0.083	0.095	0.109	0.12	O.D	Wall Thickness
Inch	390	580	730							1/8"	0.028"
1/8		370	470							3/16"	0.028"
3/16			270	350	510	690				1/4"	0.028"
1/4				220	330	450	590			5/16"	0.035"
5/16				160	240	330	430			3/8"	0.035"
3/8					190	250	330	390		1/2"	0.049"
1/2					150	210	270	320	370	7/8"	0.083"
5/8						150	200	230	270	1"	0.083"
3/4									300		
1											
mm	1	1.2	1.5	1.8	2	2.2	2.5	2.8	3		
6	430	520	660							6mm	0.8mm
8	310	380	490							8mm	1.0mm
10	240	300	380	460	530					10mm	1.0mm
12	200	240	310	380	430					12mm	1.0mm
15	160	190	240	300	340	370				15mm	1.2mm
16		180	230	280	310	350	400			16mm	1.5mm
18		160	200	240	270	300	350			18mm	1.5mm
20		140	180	220	240	270	310	350		20mm	1.8mm
22		130	160	200	220	240	280	320		22mm	2.0mm
24				170	190	210	240	280	300	25mm	2.2mm

ALLOYS Tubing Pressure rate

ALLOYS	20	200	400	600	625 (Gr1)	625 (Gr2)	800	825	C-276	Titanium Gr2	S32750	S31803	S31254	904L	317L	316L (Mo+)	
ASTM STANDARD	B729	B161	B165	B167	B444	B444	B407	B423	B622	B338	A789	A789	A213	A269	A213	A213	
Min.Tensile(MPa)	550	380	480	550	827	690	520	586	690	345	800	620	655	490	515	490	
O.D	W.T	WORKING PRESSURE															Unit : bar
1/4"	0.035"	370	260	320	370	560	470	350	400	470	230	540	420	440	330	350	330
	0.049"	540	370	470	540	820	680	510	580	680	340	790	610	650	480	510	480
	0.065"	760	520	660	760	1140	950	720	810	950	470	1110	860	900	670	710	670
3/8"	0.035"	240	160	210	240	360	300	230	260	300	150	350	270	290	210	220	210
	0.049"	350	240	300	350	520	440	330	370	440	220	510	390	410	310	320	310
	0.065"	480	330	420	480	720	600	450	510	600	300	700	540	570	420	450	420
1/2"	0.035"	180	120	150	180	270	220	170	190	220	110	260	200	210	160	160	160
	0.049"	250	170	220	250	380	320	240	270	320	160	370	290	300	230	240	230
	0.065"	350	240	300	350	520	440	330	370	440	220	510	390	410	310	320	310
3/4"	0.049"	160	110	140	160	250	210	150	170	210	100	240	180	200	150	150	150
	0.065"	220	150	190	220	340	280	210	240	280	140	330	250	270	200	210	200
	0.083"	290	200	250	290	440	370	270	310	370	180	420	330	350	260	270	260
6mm	1.0mm	450	310	390	450	680	570	430	480	570	280	660	510	540	400	420	400
	1.5mm	730	500	640	730	1100	920	690	780	920	460	1060	820	870	650	680	650
8mm	1.0mm	330	230	290	330	500	410	310	350	410	200	480	370	390	290	310	290
	1.5mm	520	360	450	520	790	660	490	560	660	330	760	590	620	460	490	460
10mm	1.0mm	260	180	220	260	390	330	240	280	330	160	380	290	310	230	240	230
	1.5mm	410	280	350	410	610	510	380	430	510	250	590	460	480	360	380	360
12mm	1.0mm	210	140	180	210	320	270	200	230	270	130	310	240	250	190	200	190
	1.5mm	330	230	290	330	500	420	310	350	420	210	480	370	400	290	310	290
	2.0mm	460	320	400	460	690	580	430	490	580	290	670	520	550	410	430	410

For Gas Service, consideration of the Min.thickness with the tolerance is recommended.
Safety Factor: 4:1 / Tolerance-O.D : +0.005in / Tolerance-Wall Thickness : -10%

Constructions of High Pressure Gas & Liquefied Gas Facilities

Construction Case 1_ Vaporizers



Construction Case 2_ Facility of High Pressure Gas & Liquefied Gas



Construction Case 3_ Facility of Cryogenic Gas & LPG Storage



Construction Case 4_ Various Tubing Facility



Others

Piping Skid



High Pressure Valve



Material	Stainless Steel 304 & 316L
Type	Ball valve / Check valve / Needle valve and Shuttle valve

High Pressure Hose



We provide different materials, pressure levels, and connecting forms of high pressure hose.

Working pressure	40~630Bar(g)
Nominal size of hose	1/4" ~ 4"

Pipe in Stock or Order Based

Material

Stainless Steel	904L, S31254(6Mo), 317L, 316L(+2.5%Mo), 304L
Duplex	S32750, S31803(S32205)
Nickel Alloys	20, 200, 400, 600, 625, 825, C276
Copper Alloys	CuNi70/30, CuNi90/10, Brass, Bronze, Al-Br



Fittings



Material

Stainless Steel	316L(+2.5%Mo), 304L
Duplex	S32750, S31803(S32205)
Copper Alloys	CuNi70/30, CuNi90/10, Brass, Bronze, Al-Br

