www.steelworld.org

PIPE, FITTING, FLANGE, FORGINGS, BOLT & NUT, VALVE, DISHED END, INDUCTION BEND




STEELWORLD
주식회사 스틸월드

CONTENTS

ISO 9001 : 2008

STEEL WORLD




Introduction

Estabished in the year 2006, Steel World Co. , Ltd has been worked as a world leader for piping materials supplies based on Korea, and expanded our supply scope to all kinds of steel products including pipe, flange, forging, fitting, plate, bolt & nuts, tube, and valve etc.

Our products cover almost whole ranges of steel products required from all the steel works such as PetroChemical industries, Shipbuilding & Marine Engineering, Power Generation, Thermal Processing & Heat Treatment etc.

Our highly trained and experienced staffs will ensure high quality service to all the valuable customers by providing with fast feedback, on-time delivery, accurate logistics from the moment of discharging cargo to the delivery of all necessary documents.

And our production group consisted of companies with most high standard quality control procedure will enable you to make a successful performance of your order and engineering works.

Steel World Co., Ltd will continuously do all our best in order to provide you with most satisfactory service from the time of receiving enquiry to the perfect management of logistics.

History

2006. 03	Established Steel World Co., Ltd at Haeundae, Busan
2008. 03	Moved to New office at Haeundae, Busan
2009. 11	Awarded Order of Industrial Service Merit by President of Korea
2009. 12	Awarded Excelent Enterpreneur Award by Busan City
	Recieved 20 million Dollar Export Award on annual trade day
2011. 11	Obtain Certificate of MAIN-BIZ by Small and Medium Business Administeatio(SMBA)
2012. 11	Achieved Export sales record of 38 Million US Dollars
2013. 03	Established warehouse at Kimhae-city
2013. 08	Obtain ISO 9001 : 2008 Certification

Business Activity

Steel World Co., Ltd →

- Quality Products
- Accurate Logistics
- On-time Delivery
- Quality Certification
- Quick decision and action

→

- Petro-Chemical and Chemical Industries
- Oil & Gas Industries
- Marine Engineering & Shipbuilding
- Power Generation
- Chemical & process Industness

Steel World Co.,Ltd offers an extensive range of service from the selection of specialized manufacturers to perfect logistics.

Receiving an order	World-wide network for import and export business
Procurement	We provide full range of products by our long-term related factory who was selected as the most qualified vendor of Steel World Co.,Ltd.
Quality Control	Timely report on the up-date status of order and strict checking for the process of manufacturing, inspection, testing
Logistics Service	We provide perfect documentation for the Storage, Customs Clearence, Cargo Insurance, Packing, Shipping service through long-time related partners for logistics.
Products Certification	Any claim or request placed by customer will be treated with most urgent attention and resolve the matter as quickly as possible.

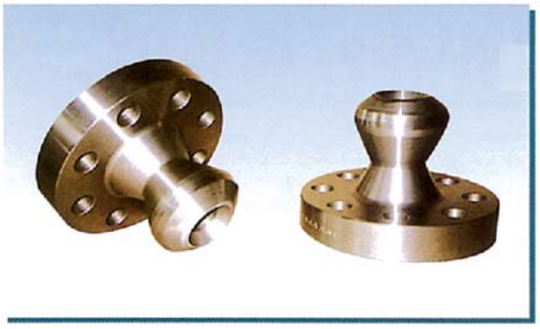
Handling Products

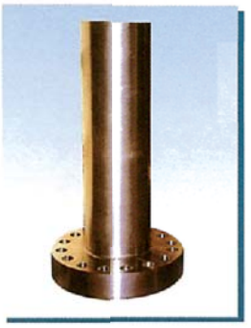
Products	Major production group
Flange Nozzle Tube Sheet Outlet Flange Spectacle Flange Orifice Flange	Seyu Flange Co. Ltd Myung Sung Metal Co.,Ltd.(MYSCO) Myung Jin Metal Co.,Ltd(MJ Flange) BIM Co.,Ltd
Forgings Shaft Forged Pipe	Myung Sung Metal Co.,Ltd.(MYSCO) BIM Co.,Ltd Sam Bu Forging Co.,Ltd Tae Sang Forging Co.,Ltd Tae Woong Forging Co.,Ltd
Pipe & Tube	Seah Steel Pipe Co.,Ltd Hyundai RB Co.,Ltd LS Metal Co.,Ltd IL Jin Corporation YHBM Co.,Ltd Dongyang Steel Pipe Co.,Ltd YCP Co.,Ltd
Fittings Induction Bend	T.K Corp. Co.,Ltd (Tae Kwang Bend) Sung il Bend. Co.,Ltd Chun Woo Ind. Co.,Ltd Sam Young Fittings Co.,Ltd Dae Kyung Bend Co.,Ltd Hwa Jin Co.,Ltd
Bolt & Nuts	Hwasung Fasteners Co.,Ltd
Valves	Hwa Sung Value Nam Sung Valve(NSV) Seo Heung Metal Sam Sung Precision Industry Se Jin Value
Gasket	Dae Young Industral Company
Dished End Expansion Joint Conical Shell	Chun Woo ind. Korea
Plate Structural Beams Hollow Section Angle Channel Flat Bars Rods	Stock Sales

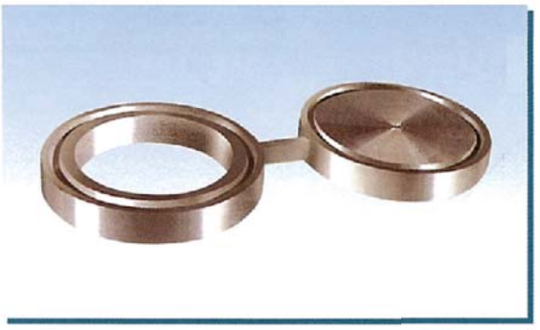
Organization Chart

Flange







KIND OF ITEMS

- Welding neck flange
- Slip on flange
- Blind flange
- Long welding neck flange
- Orifice flange
- Nozzle neck flange
- Shell/Channel flange
- Weldo flange/Nipo flange
- Square flange
- Spectacle flange

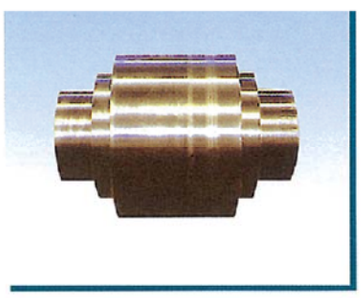
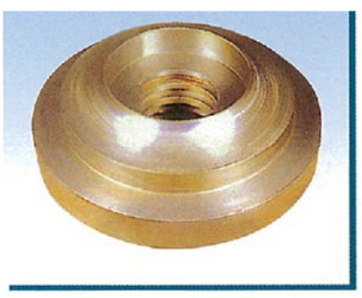
APPLICABLE STANDARD

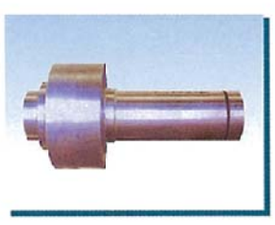
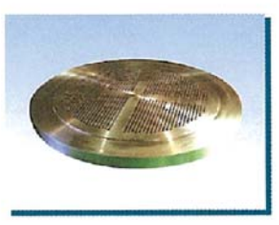
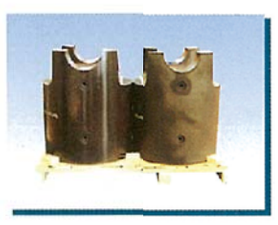
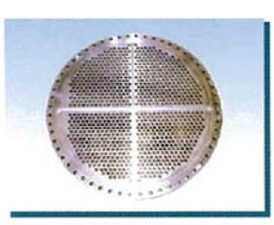
- ANSI B16. 5(1/2" ~24")
- MSS SP-44(ANSI B16. 47 SERIES A 26"~60")
- API 605(ANSI B16. 47 SERIES B 26"~60")
- JIS(1/2"~60")
- API 6B/6BX(1- 11/16"~16 3/4")
- AWWA C207(1/2"~96")
- BS 3293(26"~48")
- DIN, BS, AS

AVAILABLE MATERIALS

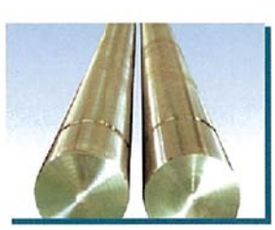
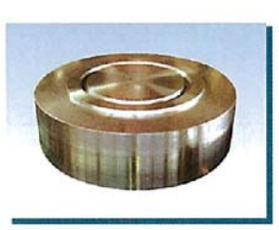
- Carbon steel(A105, A266CL2/CL4)
- Low temp carbon steel(A350LF2,LF3)
- High yield carbon steel(A694F52/F60/F65/F70)
- Stainless steel(A182F304/L, 316/L, 321, 310, 347)
- Alloy steel(A182 F1, F5, F9, Fll, F12, F22)
- Duplex(A182F51/ A182F53)
- Super Duplex(A182F44)
- Lined materials
- Clad marerials
- Explosive clad

Forgings(custom made)




KIND OF ITEMS

- Tube sheet
- Nozzle neck
- Shaft
- Piston rod
- Cylinder
- Forged pipe
- Body Flange
- Girth Flange
- Other special forgings

APPLICABLE STANDARD

- ASTM
- ASME
- DIN
- BS
- JIS

AVAILABLE MATERIALS

- Carbon steel(A105, A266CL2/CL4)
- Low temp carbon steel(A350LF2, LF3)
- High yield carbon steel(A694F52/60/65/70)
- Stainless steel(A182F304/L, 316/L, 317, 321,310, 347)
- Duplex(A182F51/A182F53)
- Alloy steel(A182F1, F5, F9, Fll, F12, F22, F91)
- Duplex(A182 F51/F53)
- Lined materials
- Clad marerials
- Super Duplex(A182F44)
- Nickel Alloys(Alloy20/Alloy625 etc.)

PRODUCTION RANGES

- Nozzle(30 Ton)
- Tube sheet(~4,500mm OD)
- Ring flange(~5,000mm OD)
- Forged pipe(~8,000mm length)

Available Materials for Flange & Forgings
(JIS, DIN, ASTM, etc. available)

Chemical & Mechanical Composition for ASTM

GRADE	COMPOSITION									
	C	Mn	P	S	Si	Ni	Cr	Mo	N	V
LOW ALLOY STEELS										
F1	0.28	0.06-0.90	0.045	0.045	0.15-0.35			0.44-0.65		
F5	0.15	0.30-0.60	0.03	0.03	0.5	0.5	4.0-6.0	0.44-0.65		
F9	0.15	0.30-0.60	0.03	0.03	0.50-1.10		8.0-10.0	0.90-1.10		
F91	0.08-0.12	0.30-0.60	0.02	0.01	0.20-0.50	0.4	8.0-9.5	0.85-1.05		
F92	0.07-0.13	0.30-0.60	0.02	0.01	0.5	0.4	8.50-9.50	0.30-0.60		
F11	0.05-0.15	0.30-0.60	0.03	0.03	0.50-1.00		1.00-1.50	0.44-0.65		
F12	0.05-0.15	0.30-0.60	0.045	0.045	0.50		0.80-1.25	0.44-0.65		
F22	0.05-0.15	0.30-0.60	0.04	0.04	0.5		2.00-2.50	0.87-1.13		
F23	0.04-0.10	0.10-0.60	0.03	0.01	0.5		1.92-2.60	0.05-0.30		
SCM440	0.38-0.43	0.60-0.90	0.03	0.03	0.15-0.35	0.25	0.90-1.20	0.15-0.30		
SNCM439	0.36-0.43	0.60-0.90	0.03	0.03	0.15-0.35	1.60-2.00	0.60-1.00	0.15-0.30		
STAINLESS STEELS (MARTENSITIC)										
F6	015	1	0.04	0.03	1	0.5	11.5-13.5			
STAINLESS STEELS (FERRITIC)										
F429	0.12	1	0.04	0.03	0.75	0.5	14.0-16.0			
F430	0.12	1	0.04	0.03	0.75	0.5	16.0-18.0			
STAINLESS STEELS (AUSTENITIC)										
F304L	0.03	2	0.045	0.03	1	8.0-13.0	18.0-20.0			
F310	0.25	2	0.045	0.03	1	19.0-22.0	24.0-26.0			
F316L	0.03	2	0.045	0.03	1	10.0-15.0	16.0-18.0	2.0-3.0		
F317L	0.03	2	0.045	0.03	1	11.0-15.0	18.0-20.0	3.0-4.0		
F321	0.08	2	0.045	0.03	1	9.0-12.0	17.0-19.0			
F347	0.08	2	0.045	0.03	1	9.0-13.0	17.0-20.0			
F44	0.02	1	0.03	0.01	0.8	17.5-18.5	19.5-20.5	6.0-6.5		
STAINLESS STEELS (DUPLEX)										
F51	0.03	2	0.03	0.02	1	4.5-6.5	21.0-23.0	2.5-3.5		
F53	0.03	1.2	0.035	0.02	0.8	6.8-8.0	24.0-26.0	3.0-5.0		
F904L	0.02	2	0.04	0.03	1	23.0-28.0	19.0-23.0	4.0-5.0		
SUSF329J3L	0.03	2.00	0.04	0.030	1.00	4.50-6.50	21.0-24.0	2.50-3.50	0.08-0.20	
F60										
CARBON STEELS										
A105	0.35	0.60-1.05	0.035	0.04	0.10-0.35	0.4 0.3	0.12			
A350LF2	0.3	0.60-1.35	0.035	0.04	0.15-0.30	0.4	0.3 0.12			
A350LF3	0.2	0.9	0.035	0.04	0.20-0.35	3.3-3.7	0.3 0.12			
A694/F65	0.26	1.4	0.025	0.025	0.15-0.35					
S45C	0.42-0.48	0.60-0.90	0.30	0.35	0.15-0.35					
ALLOY STEELS										
ALLOY20	0.07	2	0.45	0.35	1	32-38	19-21	2.0-3.0		
ALLOY625	0.1	0.5	0.015	0.015	0.5	58	20-23	8.0-10.0		
ALLOY800	0.1	1.5		0.015	1	30-35	19-23			
A800H/HT	0.05-0.10	1.5		0.015	1	30-35	19-23			
ALLOY825	0.05	1		0.03	0.5	38-46	19.5-23.5	2.50-3.50		
MOLD STEELS										
SKT4	0.05-0.15	0.06-0.90	0.03	0.02	0.10-0.10	1.50-1.80	0.80-1.20	0.35-0.55		0.05-0.15
STD61	0.32-0.42	0.50	0.03	0.03			4.50-5.50	1.00-1.50		0.08-1.20

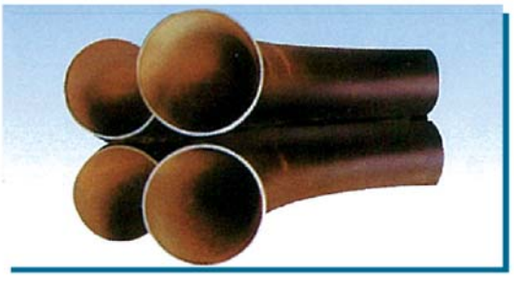
Chemical & Mechanical Composition for ASTM

GRADE	UNS NO.	DIN	Tensile strength	Yield strength	Brinell
			Min, ksi(MPa)	Min, ksi(MPa)	Hardness
LOW ALLOY STEELS					
F1	K12822	15Mo3	70(485)	40(275)	143-192
F5	K41545	12CrMo19-5	70(485)	40(275)	143-217
F9	K90941	12-CrMo9-1	85(585)	55(380)	179-217
F91	K90901	X10CrMovN69-1	85(585)	60(415)	248max
F92			90(620)	64(440)	269max
F11	K11597	13CrMo44	60(415)	30(205)	121-174
F12	K11562	16CrMo44	60(415)	32(220)	121-174
F22	K21590	10CrMo9-10	60(415)	30(205)	170max
F23	K41650		74(510)	58(400)	220max
SCM440		42CrMo4			
SNCM439		36CrNiMo4			
STAINLESS STEELS (MARTENSITIC)					
F6	S41000	X12Cr13	70(485)	40(275)	143-207
STAINLESS STEELS (FERRITIC)					
F429	S42900		60(415)	35(240)	190max
F430	S43000		60(415)	35(240)	190max
STAINLESS STEELS (AUSTENITIC)					
F304L	S30403	X2CrNi19-11	70(485)	25(170)	
F310	S31000	X12CrNi25-20	75(515)	30(205)	
F316L	S31603	X2CrNiMo18-14-3	70(485)	25(170)	
F317L	S31703		70(485)	25(170)	
F321 8	S32100	X6CrNiTi18-10	75(515) 3	0(205)	
F347	S34700	X6CrNiNb18-10 7	5(515)	30(205)	
F44	S31254		94(650)	44(300)	
STAINLESS STEELS (DUPLEX)					
F51	S31803	X2CrNiMoN22-5-3	0(620)	65(450)	
F53	S32750	X2CrNiMoCuWN25-7-4	16(800)	80(550)	310max
F904L	N08904		71(490)	31(215)	
SUSF329J3L					
F60	S32205				
CARBON STEELS					
A105		CK25	70(485)	36(250)	187
A350LF2			70-95(485-655)	36(250)	197
A350LF3			70-95(485-655)	37.5(260)	
A694/F65			77(530)	65(450)	
S45C		CK45			
ALLOY STEELS					
LLOY20	N08020				
ALLOY625	N06625				
ALLOY800	N08800				
A800H/HT	N0881O/11				
ALLOY825	N08825				
MOLD STEELS					
SKT4					
STD61					

Fitting and Induction Bend

Wrought Steel Butt-Welding Fitting(carbon&Alloy Steel)

Wrought Steel Butt-Welding Fitting(Stainless & Duples Steel)



KIND OF ITEMS

- Elbow, Tee, Reducer, Cap, Stub-End
- Pre-Insulated Bend & Fittings
- Bend(3D/5D/8D/10D/20D/30D Induction bend)

APPLICABLE STANDARD

- ANSI, MSS, JIS, BS

AVAILABLE MATERIALS (Seamless & Welded)

- ASTM A234 WPB/WPC/WPll/WP22
- Bend(3D/5D/8D Induction bend)
- ASTM A403 WP304/WP304L/WP316/WP316L/WP304H/WP316H/WP317/WP317L
- ASTM A420 WPL6/WPL3
- ASTM A860 WPHY42/46/52/60/65/70
- ASTM A815 UNS S31803/S32750

PRODUCTION RANGES

- 2"~24"(Seamless)-SCH10(S), SCH STD, XS, 40(S), 80(S), 160, XXS, other special Thickness
- 26"~60"(Welded)-SCH STD, XS, 40, 80
- 64"~120"(Welded)

Forged Fittings

Forged Steel Socket-Welding & Threaded Fittings

● Socket Welding Fitting

● Threaded Fitting

KIND OF ITEMS

- SW Fittings – Elbow, Tee, Cross, Coupling, Reducer, Cap, Union
- Threaded fittings – Plug, Bushing, Boss, Insert, Nipple, Swage Nipple
- Outlets – Sockolet, Threadolet, Nopolet

APPLICABLE STANDARD

- ANSI B16.11, MSS SP-79, BS3799

AVAILABLE MATERIALS

- Carbon steel(A105)
- High yield caron steel(A694F52/60/65/70)
- Alloy steel(A182F1, F5, F9, Fll, F12, F22, F91)
- Low temp carbon steel(A350LF2, LF3)
- Stainless steel(A182F304/L, 316/L, 317, 321, 310, 347)
- Duplex (A182 F51/F53)
- Super Duplex (A182 F44)

PRODUCTION RANGES

- SIZE : 1/8H~4H(3000#,6000#)
- Latrolet : ~48"

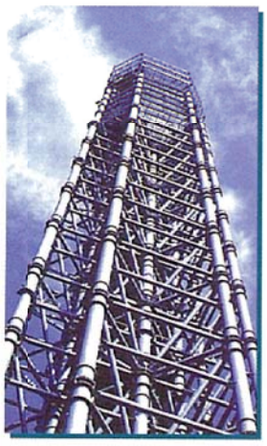
Butt Weld Fitting(ASTM)

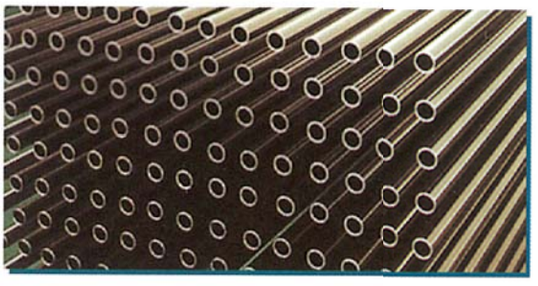
Chemical & Mechanical Composition

Marking Symbols		Materials	Form	Chemical Composition(Percent) Max. or Range (Unless otherwise indicated)					
				C	Si	Mn	P	S	Ni
A234	WPB	A106 Gr. B	P	0.30	0.10 Min	0.29-1.06	0.048	0.058	-
		A515 Gr. 65	PL	0.28-0.33	0.13-0.33	0.90	0.035	0.040	-
		A515 Gr. 70	PL	0.31-0.35	0.13-0.33	0.90	0.035	0.040	-
	WPC	A106 Gr. C	P	0.35	0.10 Min	0.29-0.06	0.048	0.058	-
	WP1	A335 Gr. P1	P	0.10-0.20	0.10-0.50	0.30-0.80	0.045	0.055	-
		A204 Gr. B	PL	0.20-0.27	0.13-0.32	0.90	0.035	0.040	-
	WP12	A335 Gr. P12	P	0.15	0.50	0.30-0.61	0.045	0.055	-
		A387 Gr. 12	PL	0.17	0.13-0.32	0.36-0.69	0.035	0.040	-
	WP11	A335 Gr. P11	P	0.15	0.50-1.00	0.30-0.61	0.030	0.030	-
		A387 Gr. 11	PL	0.17	0.44-4.86	0.36-0.69	0.035	0.040	-
	WP22	A335 Gr. P22	P	0.15	0.50	0.30-0.60	0.030	0.030	-
		A387 Gr. 22	PL	0.15-0.17	0.50	0.27-0.63	0.035	0.035	-
	WP5	A335 Gr. P5	P	0.15	0.50	0.30-0.60	0.030	0.030	-
		A387 Gr. 5	PL	0.15	0.50	0.27-0.63	0.040	0.030	-
	WP9	A335 Gr. 9	P	0.15	0.25-1.00	0.30-0.60	0.025	0.025	-
		A387 Gr. 9	PL	0.15	1.00	0.30-0.60	0.030	0.030	-
	WP91	A335 Gr. 91	P	0.08-0.12	0.20-0.50	0.30-0.60	0.020	0.010	0.400
		A387 Gr. 91	PL	0.18-0.12	0.20-0.50	0.30-0.60	0.020	0.010	0.400
A403	WP304	A312 Gr. TP304	P	0.08	0.75	2.00	0.040	0.030	8.00-11.00
		A240 Type 304	PL	0.15	1.00	2.00	0.045	0.030	8.00-10.05
	WP304H	A312 Gr. TP304H	P	0.04-0.10	0.75	2.00	0.045	0.030	8.00-11.00
		A240 Type 304	PL	0.04-0.10	1.00	2.00	0.045	0.030	8.00-10.50
	WP304L	A312 Gr. TP304L	P	0.035	0.75	2.00	0.040	0.030	8.00-13.00
		A240 Type 304L	PL	0.030 1	.00	2.00	0.045	0.030	8.00-12.00
	WP309	A312 Gr. TP309	P	0.15	0.75	2.00	0.040	0.030	12.00-15.00
		A240 Type 309S	PL	0.08	1.00	2.00	0.045	0.030	12.00-15.00
	WP310	A312 Gr. TP310	P	0.15	0.75	2.00	0.040	0.030	19.00-22.00
		A240 Type 310S	PL	0.08	1.50	2.00	0.045	0.030	19.00-22.00
	WP316	A312 Gr. TP316	P	0.08	0.75	2.00	0.040	0.030	11.00 14.00
		A240 Type 316	PL	0.08	1.00	2.00	0.045	0.030	10.00-14.00
	WP316H	A312 Gr. TP316H	P	0.04-0.10	0.75	2.00	0.040	0.030	11.00-14.00
		A240 Type 316H	PL	0.04-0.10	1.00	2.00	0.045	0.030	10.00-14.00
	WP316L	A312 Gr. TP316L	P	0.035	0.75	2.00	0.040	0.030	10.00-15.00
		A240 Type 316L	PL	0.030	1.00	2.00	0.045	0.035	10.00-14.00
	WP317L	A312 TP317L	P	0.035	0.75	2.00	0.040	0.030	11.00-15.00
		A240 Type 317L	PL	0.030	0.75	2.00	0.045	0.030	11.00-15.00
	WP321	A312 Gr. TP321	P	0.08	0.75	2.00	0.040	0.030	9.00-13.00
		A240 Type 321	PL	0.08	1.00	2.00	0.045	0.030	9.00-12.00
	WP321H	A312 Gr. TP321H	P	0.04-0.10	0.75	2.00	0.040	0.030	9.00-13.00
		A240 Type 321H	PL	0.04-0.10	1.00	2.00	0.045	0.030	9.00-12.00
	WP347	A312 Gr. TP347	P	0.08	0.75	2.00	0.040	0.030	9.00-13.00
		A240 Type 347	PL	0.08	1.00	2.00	0.045	0.035	9.00-13.00
	WP347H	A312 Gr. TP347H	P	0.04-0.10	0.75	2.00	0.040	0.030	9.00-13.00
		A240 Type 347H'	PL	0.08	1.00	2.00	0.045	0.030	9.00-13.00
	WP S312544	A240 S31254	P	0.020	0.80	1.00	0.030	0.010	17.5-18.5
		A420 WPL6	PL						
A420	WPL6	A333 and A334 Gr.6	P	0.30	0.10 Min.	0.29-1.06	0.048	0.058	-
		A516 Gr. 60	PL	0.21-0.27	0.13-0.33	0.60-1.25	0.035	0.040	-
	WPL3	A333 and A334 Gr.3	P	0.19	0.18-0.37	0.31-0.64	0.050	0.050	3.18-3.82
		A203 Gr. D	PL	0.17-0.20	0.13-0.32	0.70-0.80	0.035	0.040	3.18-3.82
	WPL8	A333 and A334 Gr.8	P	0.20	-	0.40-1.06	0.025	0.025	1.60-2.24
		A203 Gr. A	PL	0.17	0.15-0.40	0.70	0.035	0.040	2.10-2.50
A815	S31803	A790 S31803	P	0.05	1.00	2.0	0.030	0.020	4.50-6.50
		A240 S31803	PL						
	S32750	A790 S32750	P	0.030	0.8	0.8	0.035	0.020	6.0-8.0
		A240 S32750	PL						
	S32760	A790 S32760	P	0.05	1.00	1.00	0.030	0.010	6.00-8.00
		A240 S32760	PL	0.030					
A860	WPHY42	AP15L Gr. X42	P	0.28	-	1.25	1.25	0.04	-
		A572 Gr. 42	PL		-				-
	WPHY60	AP15L Gr. X60	P	0.26	-	1.35	1.35	0.04	-
		A572 Gr. 60	PL		-				-
	WPHY65	AP15L Gr. X65	P	0.26	-	1.40	1.40	0.04	-
		A572 Gr. 65	PL		-				-

Cr	Mo	Ti	Other Elements	Mechanical				Marking Symbols
				Tensile Strength Min. or Range Ksi (Mpa)		Yield Strength Min. Ksi (Mpa)	Longitudinal Elongation in 2 in (50mm) Min. %	
–		–	–	60	(414)	35(241)	25	WPB
–	–	–	–	65–85	(450–585)	35(240)	23	
–	–	–	–	70–90	(485–620)	8(260)	21	
–	–	–	–	70	(483)	40(276)	30	WPC
–	0.44–0.65	–	–	55	(379)	30(207)	30	WP1
–	0.41–0.64	–	–	70–90	(485–620)	40(275)	21	
0.80–1.25	–	–	–	60	(414) 3	0(207)	30	WP12
0.74–1.21	0.40–0.65	–	–	56–80	(380–550)	33(230)	22	
1.00–1.50	0.40–0.65	–	–	60	(414)	30(207)	30	WP11
0.94–1.56	0.40–0.70	–	–	60–85	(415–585)	35(240)	22	
1.90–2.62	0.87–1.13	–	–	60	(414)	30(207)	30	WP22
1.88–2.62	0.85–1.15	–	–	60–85	(415–585)	30(205)	18	
4.00–6.00	0.45–0.65	–	–	60	(414)	30(207)	30	WP5
4.00–6.00	0.40–0.70	–	–	60–85	(415–585)	30(205)	18	
8.00–10.00	0.90–1.10		–	– 60	(415)	30(205)	30	WP9
8.00–10.00	0.90–1.10	–	–	60–85	(415–585)	30(205)	18	
8.00–9.50	0.85–1.05	–	V:0.18–0.25 Cb:0.06–0.10	85	585	60(415)	–	WP91
8.00–9.50	0.85–1.05	–	N:0.030–0.070 Al:0.04	85–110	585–760	60(415)	18	
18.00–20.00	–	–	–	75	(517)	30(207)	30	WP304
18.00–20.00	–	–	–	75	(515)	30(205)	40	
18.00–20.00	–	–	–	75	(517)	25(172)	35	WP304H
18.00–20.00	–	–	–	75	(515)	25(175)	40	
18.00–20.00	–	–	–	65	(448)	30(207)	30	WP304L
18.00–20.00	–	–	–	65	(448)	30(205)	40	
22.00–24.00	–	–	–	75	(517)	30(207)	30	WP309
22.00–24.00	–	–	–	75	(515)	30(205)	40	
24.00–26.00	–	–	–	75	(517)	30(207)	30	WP310
24.00–26.00	–	–	–	75	(515)	30(205)	40	
16.00 18.00	2.00–3.00	–	–	75	(517)	30(207)	35	WP316
16.00–18.00	2.00–3.00	–	–	75	(515)	30(205)	40	
16.00–18.00	2.00–3.00	–	–	75	(517)	30(207)	35	WP316H
16.00–18.00	2.00–3.00	–	–	75	(515)	30(205)	40	
16.00–18.00	2.00–3.00	–	–	75	(517)	25(172)	35	WP316L
16.00–18.00	2.00–3.00	–	–	75	(515)	25(170)	40	
18.00–20.00	3.00–4.00	–	–	75	(515)	30(205)	35	WP317L
18.00–20.00	3.00–4.00	–	N–0.10	80	(550)	35(240)	40	
17.00–19.00	–	5×C–0.60	–	70	(483)	30(207)	35	WP321
17.00–19.00	–	5×C–0.70	–	65	(448)	30(205)	40	
17.00–20.00	–	4×C–0.60	–	75	(517)	30(207)	35	WP321H
17.00–19.00	–	4×C–0.70	–	75	(515)	30(205)	40	
17.00–20.00	–	–	Cb+Ta10×C–100	75	(517)	30(207)	35	WP347
17.00–19.00	–	–	Cb+Ta10×C–110	75	(515)	30(205)	40	
17.00–20.00	–	–	Cb+Ta8×C–100	75	(517)	30(207)	35	WP347H
17.00–19.00	–	–	Cb+Ta10×C–110	75	(515)	30(207)	40	
19.5–20.5	6.00–6.50	–	N:0.18–0.22 Cu:0.50–1.00	94	650	44(300)	35	S31254
–	–	–	–	60	(414)	35(241)	30	WPL6
–	–	–	–	60–80	(415–550)	32(220)	25	
–	–	–	–	65	(448)	35(241)	30	WPL3
–	–	–	–	65–85	(450–585)	37(255)	23	
–	–	–	Cu–0.75–1.25	63	(435)	46(315)	28	WPL9
–	–	–	–	65–85	(450–585)	37(255)	23	
21.0–23.0	2.50–3.50	–	N:0.08–0.20	90	620	65(450)	25	S31803
24.0–26.0	3.0–5.0		N:0.24–0.32 Cu:0.5	116	795	80(550)	15	S32750
24.00–26.00	3.00–4.00	N:0.20–0.30 Cu:0.50–1.00 W:0.50–1.00 Cr+3.0 Mo+16N=40min.		108 109–130	750 750–895	80(550)	25	S32760
–	–	–	–	60	414	42(289)	–	WPHY42
–	–	–	–				24	
–	–	0.03 Min	Cb:0.005min. V:0.02min	75	517	60(413)	–	WPHY60
–	–	–					18	
–	–	–	Cb:0.005min. V:0.02min	77	530	65(448)	–	WPHY65
–	–	–		80	550		17	

Pipe and Tube



KIND OF ITEMS

- Line pipe(Welded/Seamless)
- Spiral pipe(Welded)
- Structual pipe(Welded)
- Tube(Welded/Seamless)
- Coated pipes(Poly-ethylene(2Layer, 3Layer)/Coal tar Epoxy/Coal tar Enamel)/Liquid Epoxy
- Pre-Insulated (Polyurethan) pipe

APPLICABLE STANDARD

- ASTM, API, ASME
- JIS, BS
- KR, ABS, LLOYDS, DIN-Class Inspection

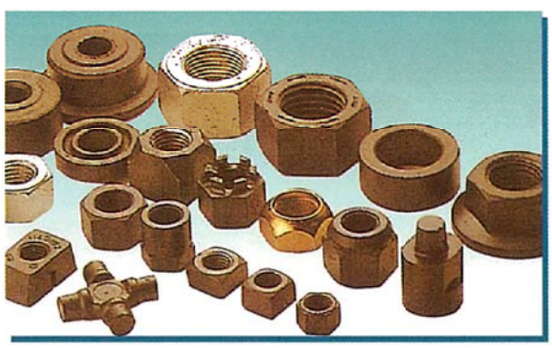
AVAILABLE MATERIALS (Seamless & Welded)

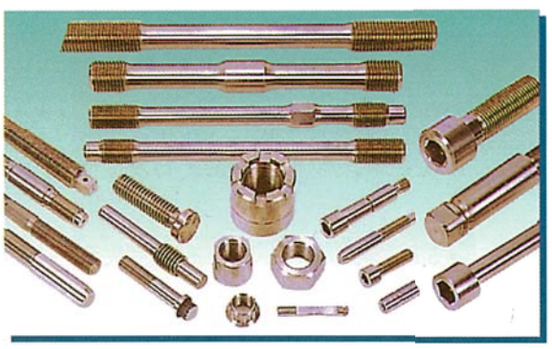
Pipe	Carbon steel	ASTM A53-B / API 5L-B, X42, X46, X52, X56, X60, X65, X70, X80 API 2H, API 2B, ASTM A515, ASTM A516 ASTM A671, / A672 CL22, CL32 API 5L, API 5CT, ASTM A53, ASTM A500
	Stainless steel	JIS G3452, JIS G3454, JIS G3444 ETC. ASTM A312, ASTM A358, TP304/L, TP316/L JIS G3459, JIS G3463, JIS G3447
Tube		ASTM A179, A192, A210, A213, A334, A178, A214 / JIS STANDARD

PRODUCTION RANGES

- Outside Diameter : 1/2"~150"(15mm~3,810mm)
- Wall thickness :Max.180mmWT

Bolt & Nuts





KIND OF ITEMS

- Shaft bolt, Anchor bolts, high strength bolt, Hex bolt & nuts, Threaded bar, Sag rod.
- Shaft of marine engine, Holding down bolt & nuts, Connection rod bolts & nuts
- Anchor sleeve & plate, Lifting bar, Bracket, Foek
- Type of coating
  Hot-dip Galvanized, Electric galvanized
  P.T.F.E Coating(Poly tetra flour ethylene)
  Cadmium plating.

APPLICABLE STANDARD

- ASTM, ASME, ANSI, ISO, DIN, BS

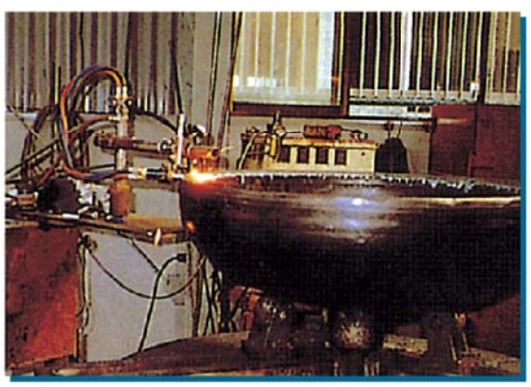
AVAILABLE MATERIALS

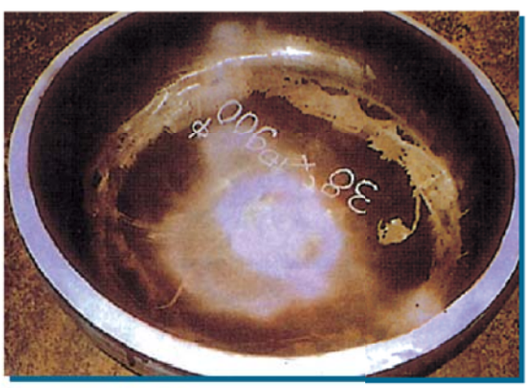
- Carbon steel
- Alloy steel
- Stainless steel
- Copper, Brass, Bronze, Aluminium

PRODUCTION RANGES

- Full size available

Dished End, Expansion Joint, Conical Shell





KIND OF ITEMS

- Formed head, Conical head, Hemispherical head, Ellipsoidal head
  Expansion joint, Ball tank, Cald steel head plate, Roll pipes
- Pressure vessel

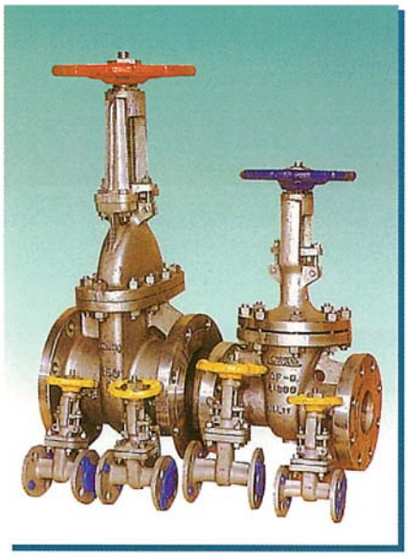
AVAILABLE MATERIALS

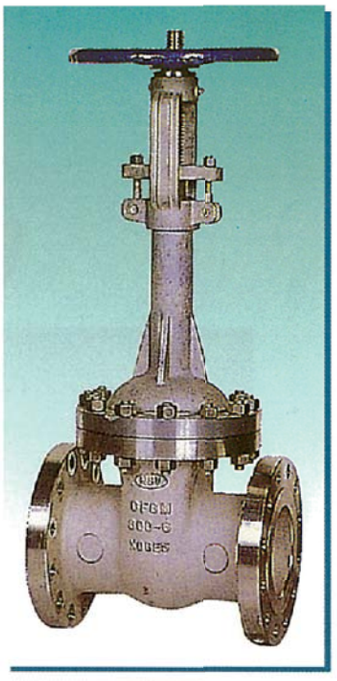
- Carbon steel
- Stainless steel
- Alloy steel
- Duplex Steel
- Super Duplex Steel

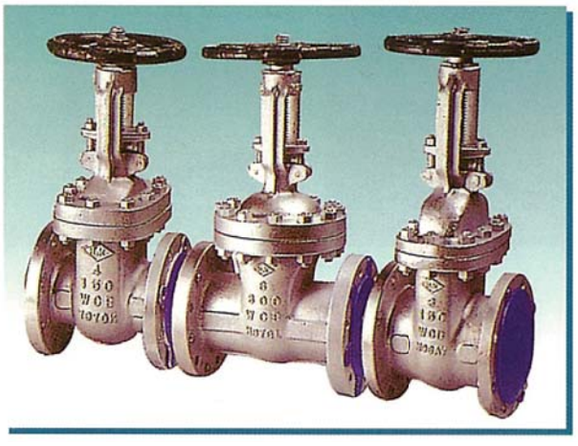
PRODUCTION RANGES

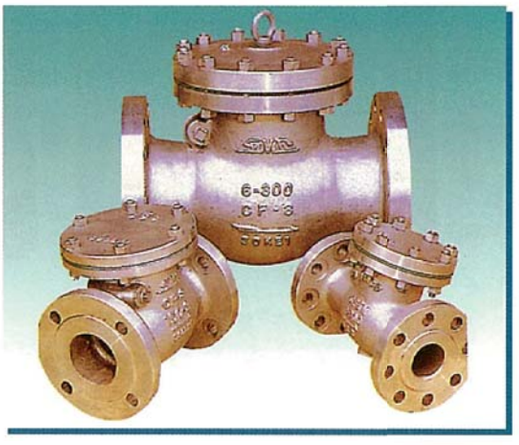
- Max. 200mm WT X Max. 8000mm OD

Valve



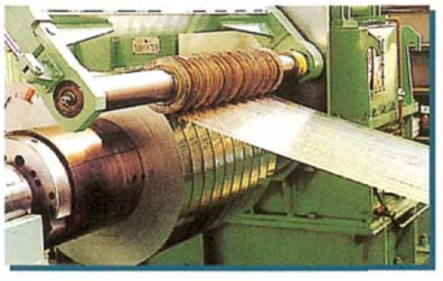






Type	Operation	Size	Materials	Rating	Remarks
Gate	Manual	1/4"~48"	Carbon	150PSI~10,000PSI	
Globe	Geared		Stainless	150PSI~10,000PSI	
Ball	Pneumatic		Duplex	150PSI~10,000PSI	
Check	Electric		Bronze	150PSI~10,000PSI	
Butterfly			Brass	150PSI~10,000PSI	
Plug					
Needle					
Block					

Other Handling Products



KIND OF ITEMS

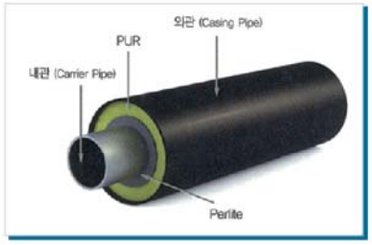
- Gasket
- Tube Fitting
- All kinds of Copper Products, Pipes, Fittings, Flanges
- Plate(Carbon steel/stainless steel)
  Coil
  Coil Strip
  Recoiling
  — Supply From Stock
- Other Steel Structure

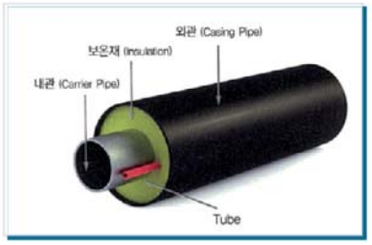
Pre-Insulated Pipe, Flexible Pre-Insulated Pipe, Concrete Coating & Concrete Lining Pipe, 3LPE Coating Pipe















KIND OF ITEMS

- Poly Urethan Pre-Insulated Pipe, Fittings, Sleeves

AVAILABLE MATERIALS

- Carrier Pipe : API / ASTM CARBON STEEL PIPE
- Insulation : 1) Poly - Urethan Form(PUR)
  2) Perlite/ /Hiltrint PUR
- Casing Pipe : HDPE PIPE
  AL-SPIRAL

PRODUCTION RANGES

- SIZE : 3/4" ~ 80"

Comparison of ASTM Specifications and Similar Standards

Steel Composition	ASTM Specifcation and Grade			KS Speicfication and Grade			
	Forging	Pipe	Plate	Forging	Marking Symbol	Pipe	Plate
Carbon Steel	–	A120	A283-A	–	SPP	SPP	SB41
	–	A53-B	A284	–	PS2R(W), PS38, PT38(W), PT38	SPPS38	SWS41B
		A53-6	A284	–	PS42(W), PS42, PT 42(W), PT 42	SPPS42	SWS41B
			A515-60 or 70		HT38, HT38(W)	SPHT38	SBB42
	WPB	A106-6	A516-60 or 70 A515-70 A516-70	A105	HT42, HT42(W)	SPHT42	BB42
	WPC	A106-C		A105	HT49, HT49(W)	SPHT49	SBB49
Low Temperature Steel	WPL6	A333 and A334-6	A516—60	A350-LF2	PL39	STPL39	SLAL39
	WPL3	A333 and A334-3	A203-D	A350-LF3	–	–	–
	WPL9	A333 and A334-9	A203-A	A350-LF9	–	–	–
Alloy Steel	WP1	A335-P1	A204-B	A182-F1	PA12, FA12	SPA12	SBB46M
	WP12	A335-P12	A387-12	A182-F12	PA22, FA22	SPA22	SCMV2
	WP11	A335-P11	A387-11	A182-F11	PA23, FA23	SPA23	SCMV3
	WP22	A335-P22	A387-22	A182-F22	PA24, FA24	SPA24 S	CMV4
	WP5	A335-P5	A387—5	A182-F5	PA25, FA25	SPA25	SCMV6
	WP7	A335-P7	A387-7	A182-F7	–	–	–
	WP9	A335-P9	A387-9	A182-F9	–	–	–
	WP91	A335-P91	A387-F91	A182-F91	–	–	–
Stainless Steel	WP304	A312-TP304	A240-Type 304	A182-F304	STS304, STS304W, STS304F	STS304TP	STS304
	WP304H	A312-TP304H	A240-Type 304H	A182-F304H	–	–	–
	WP304L	A312-TP304L	A240-Type 304L	A182-F304L	STS304 L, STS304LW, STS304LF	STS304LTP	STS304L
	WP309	A312-TP309	A240-Type 309S	–	STS309S, STS309SW, STS309SF	STS309STP	STS309S
	WP310	A312-TP310	A240-Type 310S	A182-F310	STS310S, STS310SW, STS310SF	STS310STP	STS310S
	WP316	A312-TP316	A240-Type 316	A182-F316	STS316, STS316W, STS316F	STS316TP	STS316
	WP316H	A312-TP316H	A240-Type 316H	A182-F316H	STS316H, STS316HF	STS316HTP	–
	WP316L	A312-TP316L	A240-Type 316L	A182-F316L S	TS316L, STS316LW, STS316LF	STS316LTP	STS316L
	WP317L	A312-TP317L	A240-Type 317L	A182-F317L	STS317L, STS317LW	STS317LTP	STS317L
	WP321	A312-TP321	A240-Type 321	A182-F321	STS321, STS321W, STS321F	STS321TP	STS321
	WP321H	A312-TP321H	A240-Type 321H	A182-F321H	–	–	–
	WP347	A312-TP347	A24Q-Type 347	A182-F347	STS34~ STS347W, STS347F	STS347TP	STS347
	WP347H	A312-TP347H	A240-Type 347H	A182-F347H	STS347H, STS347HF	STS347HTP	–
Duplex Stainless Steel	UNS S31803	A790 S31803	A240-S31803	A182-F51			
Super Duplex Stainless Steel	UNS S32750	A790 S32750	A240-S32750	A182-F53			
Super Duplex Stainless Steel	UNS S32760	A790 S32760	A240-S32760	A182-F55			

JIS Specification and Grade			B.S.Specification and Grade	DIN Specification and Grade	Steel Composition
Marking Symbol	Pipe	Plate	Pipe	Plate	
FSGP or SGP	SGP(STPY 400)	SS400	1387-M	2440-ST33-1	Ca rbon Steel
PG370(W), PS370(W), PT370(W), PT370	STPG370	SM416	3602-ERW23	1626-ST37	Ca rbon Steel
PG41O(W), PS41O(W), PT41O(W), PT410	STPG410	SM416	3602-ERW27	-	Carbon Steel
PS370, PT370(W)	STPT370	SB42	3602-Steel23	17175-ST35.8	Carbon Steel
PS41O, PT41O(W)	STPT410	S642	3602-Steel27	17175-8T 45.8	Carbon Steel
PS480, PT480(W)	STPT480	S649	3602-Steel35	-	Carbon Steel
PL380(W)	STPL380	-	3603-Steel 27 LT 30	- Carbon Steel	
PL450(W)	STPL450	-	3603-8teel 503 LT 100	-	3½% Ni Steel
PL690(W)	STPL690	-	-	-	2% Ni-1% Cu Steel
PA12(W), FA12	STPA12	-	-	17175-15 Mo3	Carbon-Molybdenum Steel
PA22(W), FA22	STPA22	-	3603-HF620	17175-10 Cr Mo44	1% Cr- % Molybdenum Steel
PA23(W), FA23	STPA23	-	3603-HF621	-	1½% Cr-t% Molybdenum Steel
PA24(W), FA24	STPA24	SCMV4	3603-HF622, 27	17175-10 Cr Mo910	2¼% Cr-1% Molybdenum Steel
PA25(W), FA25	STPA25	-	3603-HF625	-	5% Cr-t% Molybdenun Steel
-	-	-	-	-	7% Cr-t% Molybdenum Steel
PA26(W), FA26	STPA26	-	-	-	9% Cr-1% Molybdenum Steel
-	-	-	-	-	9% Cr-1% Mo-0.2%V+Cb+N
SUS304, SUS304W, SUS304F	SUS304TP	SUS304	3605-801	17440-X5 Cr Ni189	18% Cr-8% Ni Steel
SUS304H, SUS304HF	SUS304HTP	-	3605-811	-	18% Cr-8% Ni(0.04-0.10)% C Steel
SUS304L, SUS304LW	SUS304LTP	SUS304L	3605-811L	17440-X2 Cr Ni189	18% Ni-0.035% C Steel
SUS309S, SUS309SW, SUS309SF	SUS309STP	SUS309S	-	-	22% Cr-12% Ni Steel
SUS310S, SUS310SW, SUS310SF	SUS310STP	SUS310S	3605-805S	-	25% Cr-20% Ni Steel
SUS316, SUS316W, SUS316F	SUS316TP	SUS316	3605-845	17440-X5 Cr Ni Mo1810	18% Cr-8% Ni-Mo Steel
SUS316H, SUS316HF	SUS316HTP	-	3605-855	-	18% Cr-8% Ni-Mo(0.04-0.10)% C Steel
SUS316L, SUS316L	SUS316LTP	SUS316L	3605-845L	17440-X2 Cr Ni Mo1810	18% Cr-8% Ni-Mo-0.035% C Steel
SUS317 SUS317LTP	SUS317L	-	-	-	18% Cr-12% Ni-3.5% Mo-Low C
SUS321, SUS321W, SUS321F	SUS321TP	SUS321	3605-822Ti	17440-XlO Cr Ni Ti189	18% Cr-8% Ni-Ti Steel
SUS321H, SUS321HF	SUS321HTP	-	3605-832Ti	-	18% Cr-8% Ni-Ti-(0.04-0.10)% C Steel
SUS347, SUS347W, SUS347F	SUS347TP	SUS347	3605-822Nb	17440-X1 Cr Ni Nb189	18% Cr-8% Ni-CbtTa Steel
SUS347H, SUS347HF	SUS347HTP	-	3605-832Nb	-	18% Cr-8% Ni-CbtTa(0.04-0.10)% C Steel

Wall Thickness of Welded and Seamless Pipe

Nominal Pipe Size		Outside Diameter		Nominal Wall Thickness							
A	B	KS/JIS	ANSI	SPP SGP	Sch 55	Sch 105	Sch 10	Sch 205	Sch 20	Sch 30	Sch 405
6	1/8	10.50	10.29	–	–	1.24	–	1.5	–	–	1.73
8	1/4	13.80	13.72	–	–	1.65	–	2.0	–	–	2.24
10	3/8	17.30	17.14	–	–	1.65	–	2.0	–	–	2.31
15	1/2	21.70	21.34	2.8	1.65	2.11	–	2.5	–	–	2.77
20	3/4	27.20	26.67	2.8	1.65	2.11	–	2.5	–	–	2.87
25	1	34.00	33.40	3.2	1.65	2.77	–	3.0	–	–	3.38
32	1 1/4	42.70	42.16	3.5	1.65	2.77	–	3.0	–	–	3.56
40	1 1/2	48.60	48.26	3.5	1.65	2.77	–	3.0	–	–	3.68
50	2	60.50	60.32	3.8	1.65	2.77	–	3.5	3.20	–	3.91
65	2 1/2	76.30	73.02	4.2	2.11	3.05	–	3.5	4.50	–	5.16
80	3	89.10	88.90	4.2	2.11	3.05	–	4.0	4.50	–	5.49
90	3 1/2	101.60	101.60	4.2	2.11	3.05	–	4.0	4.50	–	5.74
100	4	14.30	114.30	4.5	2.11	3.05	–	4.0	4.90	–	6.02
125	5	139.80	141.30	4.5	2.77	3.40	–	5.0	5.10	–	6.55
150	6	165.20	168.30	5.0	2.77	3.40	–	5.0	5.50	–	7.11
200	8	216.30	219.08	5.8	2.77	3.76	–	6.5	6.35	7.04	8.18
250	10	267.40	273.05	6.6	3.40	4.19	–	6.5	6.35	7.80	9.27
300	12	318.50	323.80	6.9	3.96	4.57	–	6.5	6.35	8.38	9.52
350	14	355.60	355.60	7.9	3.96	4.78	6.35	8.0	7.92	9.52	*9.52
400	16	406.40	406.40	7.9	4.19	4.78	6.35	8.0	7.92	9.52	*9.52
450	18	457.20	457.20	7.9	4.19	4.78	6.35	8.0	7.92	11.12	*9.52
500	20	508.00	508.00	7.9	4.78	5.54	6.35	9.5	9.52	12.70	*9.52
550	22	558.80	558.80	–	5.54	6.35	6.35	–	9.52	12.70	*9.52
600	24	609.60	609.60	–	5.54	6.35	6.35	–	9.52	14.27	*9.52
650	26	660.40	660.40	–	–	*7.92	7.92	–	12.70	–	*9.52
700	28	711.20	711.20	–	–	*7.92	7.92	–	12.70	15.88	*9.52
750	30	762.00	762.00	–	6.35	*7.92	7.92	–	12.70	15.88	*9.52
800	32	812.80	812.80	–	–	*7.92	7.92	–	12.70	15.88	*9.52
850	34	863.60	863.60	–	–	*7.92	7.92	–	12.70	15.88	*9.52
900	36	914.40	914.40	–	–	*7.92	7.92	–	12.70	15.88	*9.52
950	38	965.20	965.20	–	–	*7.92	–	–	–	–	*9.52
1000	40	1016.00	1016.00	–	–	*7.92	–	–	–	–	*9.52
1050	42	1066.80	1066.80	–	–	*7.92	–	–	–	–	*9.52
1100	44	1117.60	1117.60	–	–	*7.92	–	–	–	–	*9.52
1150	46	1168.40	1168.40	–	–	*7.92	–	–	–	–	*9.52
1200	48	1219.20	1219.20	–	–	*7.92	–	–	–	–	*9.52

Nominal Wall Thickness											Nominal Pipe Size Inch
STD	Sch 40	Sch 60	Sch 80s	X-S	Sch 80	Sch 100	Sch 120	Sch 140	Sch 160	XX-S	
1.73	1.73	2.20	2.41	2.41	2.41	–	–	–	3.15	4.83	1/8
2.24	2.24	2.40	3.02	3.02	3.02	–	–	–	3.68		1/4
2.31	2.31	2.S0	3.20	3.20	3.20	–	–	–	4.01	6.40	3/8
2.77	2.77	3.20	3.73	3.73	3.73	–	–	–	4.78	7.47	1/2
2.S7	2.S7	3.40	3.91	3.91	3.91	–	–	–	5.56	7.S2	3/4
3.38	3.38	3.90	4.55	4.55	4.55	–	–	–	6.35	9.09	1
3.56	3.56	4.50	4.S5	4.S5	4.S5	–	–	–	6.35	9.70	1 1/4
3.68	3.68	4.50	5.08	5.08	5.08	–	–	–	7.14	10.16	1 1/2
3.91	3.91	4.90	5.54	5.54	5.54	–	–	–	8.74	11.07	2
5.16	5.16	6.00	7.01	7.01	7.01	–	–	–	9.52	14.02	2 1/2
5.49	5.49	6.60	7.62	7.62	7.62	–	–	–	11.12 1	5.24	3
5.74	5.74	7.00	8.00	8.0S	8.0S	–	–	–	–	16.15	3 1/2
6.02	6.02	7.10	8.56	8.56	8.56	–	11.12	–	13.49	17.12	4
6.55	6.55	8.10	9.53	9.53	9.53	–	12.70	–	15.88	19.05	5
7.11	7.11	9.30	10.97	10.97	10.97	–	14.27	–	18.26	21.94	6
8.18	8.18	10.31	12.70	12.70	12.70	15.09	18.26	20.62	23.01	22.22	8
9.27	9.27	12.70	12.70	12.70	15.09	18.26	21.44	25.40	28.58	25.40	10
9.52	10.31	14.27	12.70	12.70	17.48	21.44	25.40	28.58	33.32	25.40	12
9.52	11.13	15.09	* 12.70	12.70	19.05	23.83	27.79	31.75	35.71	–	14
9.52	12.70	16.66	* 12.70	12.70	21.44	26.19	30.96	36.52 4	0.49	–	16
9.52	14.27	19.05	* 12.70	12.70	23.82	29.36	34.92	39.67 4	5.24	–	18
9.52	15.09	20.62	* 12.70	12.70	26.19	32.54	38.10	44.45	50.01	–	20
9.52	15.87	22.22	* 12.70	12.70	28.58	34.92	41.28	47.62	53.98	–	22
9.52	17.48	24.61	* 12.70	12.70	30.96	38.89	46.02	52.37	59.54	–	24
9.52	–	–	* 12.70	12.70	–	–	–	–	–	–	26
9.52	–	–	* 12.70	12.70	–	–	–	–	–	–	28
9.52	–	–	* 12.70	12.70	–	–	–	–	–	–	30
9.52	17.48	–	* 12.70	12.70	–	–	–	–	–	–	32
9.52	17.48	–	* 12.70	12.70	–	–	–	–	–	–	34
9.52	19.05	–	* 12.70	12.70	–	–	–	–	–	–	36
9.52	–	–	* 12.70	12.70	–	–	–	–	–	–	38
9.52	–	–	* 12.70	12.70 –	–	–	–	–	–	–	40
9.52	–	–	* 12.70	12.70	–	–	–	–	–	–	42
9.52	–	–	* 12.70	12.70	–	–	–	–	–	–	44
9.52	–	–	* 12.70	12.70	–	–	–	–	–	–	46
9.52	–	–	* 12.70	12.70	–	–	–	–	–	–	48

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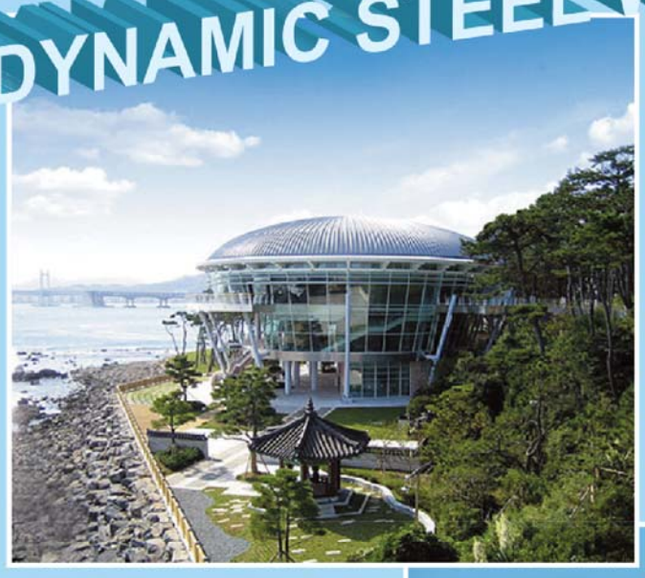

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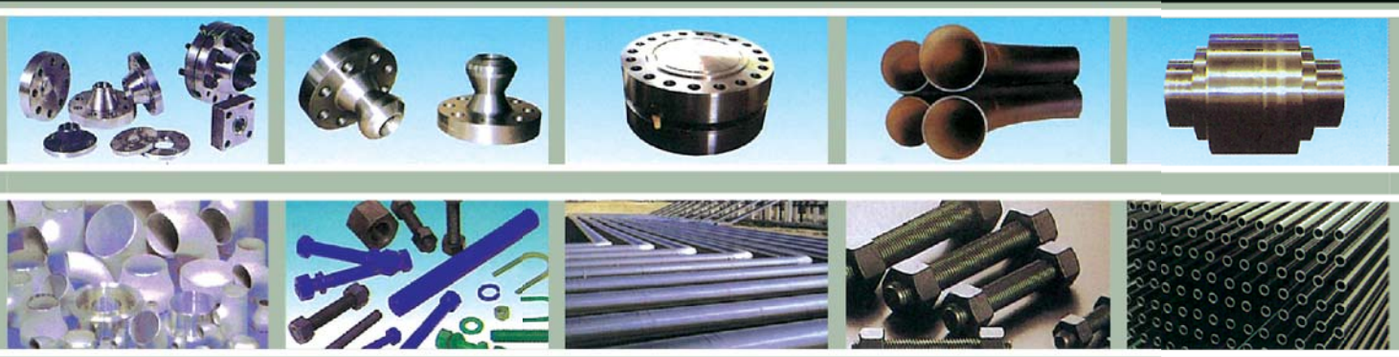

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