



www.hitech-intl.com

Seoul Head Office

Tel : +82 2 576 2006 Fax : +82 2 3461 1333
e-mail : info@hi-tech.co.kr

Yeosu Factory/Warehouse

Tel : +82 61 691 7400 Fax : +82 61 691 4400
e-mail : yeosu@hi-tech.co.kr

HI-TECH I&E Europe

Tel : +44 (0) 1923 828233 Fax : +44 (0) 1923 828731
e-mail : info@hi-tech.org.uk

HI-TECH I&E USA, INC.

Tel : +1 703 435 5301
e-mail : usa@hitech-intl.com, hitechusa@hotmail.com

HI-TECH I&E Singapore

Tel : +65 6515 9182, 6515 9189 Fax : +65 651 591 861
e-mail : singapore@hitech-intl.com, jhshin@hitech-intl.com

HI-TECH I&E Japan

Tel : +81 3 6206 4365 Fax : +81 3 6206 4366
e-mail : watanabe@hi-techjapan.co.jp

HI-TECH I&E Vietnam

Tel : +84 90 160 4687 Fax : +84 24 3212 3723
e-mail : vietnam@hitech-intl.com



Duplex & Super Duplex
Nickel & Nickel Alloy
Copper Nickel
Titanium
Special Alloy
Carbon Steel & High Yield
Stainless Steel
Low Alloy & LTCS





ABOUT HI-TECH I&E

Hi-Tech I&E is a major distributor of pipes, fittings, and flanges in Duplex, Super Duplex, Nickel Alloy, Stainless Steel, Low-Alloy, Carbon Steel and High Yield Strength Steel.

With our experience of domestic sales and export activities, we have built ourselves to become a professional supplier in the Oil & Gas, Petrochemical, Power Plant, Shipbuilding and Offshore areas.

At **Hi-Tech I&E**, we provide a professional and reliable service supplying materials in complete packages to all customers for major capital projects. This is all possible due to our well-organized material handling, quality assurance and our storage facilities located world-wide.



BRIEF

- Private Company
- Founded in 1995 and incorporated the firm as current company name of Hi-Tech I&E in 2004.
- Locations : Seoul, Korea; Yeosu, Korea; London, UK; Virginia, USA; Tokyo, Japan
- Locations : Seoul, Korea; Yeosu, Korea; London, UK; Virginia, USA; Tokyo, Japan; Hanoi, Vietnam



PRODUCTS - PIPES

ASME B36.10 / B36.19



Types

- Seamless
- ERW
- EFW
- DSAW
- Forged

Size & Wall Thickness

- 1/8" NB - 80" NB
- Sch 5S - Sch XXS
- (Heavier wall thicknesses available on request)

Material Grade

Nickel & Nickel Alloy	Alloy 200 & 201, Alloy 400, Alloy 600 & 625, Alloy 800H & 800HT & 825, Hastelloy B-2 & B-3, Alloy C-276, Alloy 20
Duplex Stainless Steel	S31803, S32205, S32750, S32760, S31254
Stainless Steel	TP304, TP304L, TP316, TP316L, TP310S, TP321H, TP347H, 904L (N08904)
Special Alloy	Cu-Ni 90/10 (C70600, C70620), Cu-Ni 70/30 (C71500), Titanium (GR2, GR7)
Low-Alloy & LTCS	A335-P5 & P9 & P11 & P22 & P91, A333-Gr.3 & Gr.6
Carbon & High Yield	A106-B, A53-B, API 5L-X52 & X65



PRODUCTS - BUTT-WELD & FORGED FITTINGS

ASME B16.9 / B16.28 / B16.11, MSS SP-43 / SP-95 / SP-97



Items

- Elbow
- Tee
- Reducer
- Cap
- Forged Fitting
- Branch Connection
- Stub End
- Swage Nipple

Size & Wall Thickness

- 3/8" NB - 120" NB
- Sch 5S - 120mm

(Heavier wall thicknesses available on request)

Material Grade

Nickel & Nickel Alloy	Alloy 200 & 201, Alloy 400, Alloy 600 & 625, Alloy 800H & 800HT & 825, Hastelloy B-2 & B-3, Alloy C-276, Alloy 20
Duplex Stainless Steel	S31803, S32205, S32750, S32760, S31254
Stainless Steel	WP304, WP304L, WP316, WP316L, WP310S, WP321H, WP347H, WP904L
Special Alloy	Cu-Ni 90/10 (C70600, C70620), Cu-Ni 70/30 (C71500), Titanium (GR2, GR7)
Low-Alloy & LTCS	A234 WP5 & WP9 & WP11 & WP22 & WP91, A420 WPL3 & WPL6
Carbon & High Yield	A234 WPB, A860 WPHY52 & WPHY65



PRODUCTS - FLANGES

ASME B16.48 / B16.5



Items

- Welding Neck
- Socket Weld
- Threaded
- Slip-On
- Lap Joint
- Blind
- Collar Ring

Size & Pressure Rating

- 1/4" NB - 80" NB
- Class 150 - Class 2500 (Available on request)

Material Grade

Nickel & Nickel Alloy	Alloy 200 & 201, Alloy 400, Alloy 600 & 625, Alloy 800H & 800HT & 825, Hastelloy B-2 & B-3, Alloy C-276, Alloy 20
Duplex Stainless Steel	F51 (S31803), F60 (S32205), F53 (S32750), F55 (S32760), F44 (S31254)
Stainless Steel	F304, F304L, F316, F316L, F310S, F321H, F347H, F904L
Special Alloy	Cu-Ni 90/10 (C70600, C70620), Cu-Ni 70/30 (C71500), Titanium (GR2, GR7)
Low-Alloy & LTCS	A182 F5 & F9 & F11 & F22 & F91, A350 LF2 & LF3
Carbon & High Yield	A105, A694 F52 & F65

STOCK PROGRAM



STOCKHOLDING PHILOSOPHY

Hi-Tech I&E co-operates closely with qualified world class piping manufacturers to fulfil the requirements of each project. We aim to provide timely delivery of materials and documentation covering not only quality associated general requirements but also specific project requirements.

This stockholding philosophy brought us to stock all **DUPLEX** and **SUPER DUPLEX PIPES** in compliance with **NORSOK** and **NACE MR-0175/0103**. Our stock program continues to expand, providing for growing local and international demand.



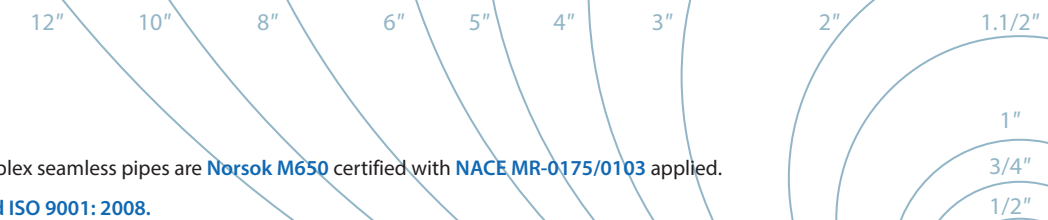
STOCK MATERIAL & RANGE

MAIN MATERIAL

- Duplex (S31803/S32205) Seamless Pipe & Welded Pipe
- Super Duplex (S32750/S32760) Seamless Pipe & Welded Pipe
- Monel 400 (N04400) Seamless Pipe
- Alloy20 (N08020) Seamless Pipe
- Alloy C276 (N10276) Seamless Pipe

MAIN STOCK PIPE SIZE RANGE

- 1/2" NB -12" NB



* All of our Duplex and Super Duplex seamless pipes are **Norsok M650** certified with **NACE MR-0175/0103** applied.

* Hi-Tech I&E holds **DNV certified ISO 9001: 2008**.

QUALITY ASSURANCE

Hi-Tech I&E holds **DNV certified ISO 9001:2015** providing continuous qualified products and services.



SERVICES

TECHNICAL SUPPORT






As the complete piping solution provider, Hi-Tech I&E provides comprehensive technical support; from general technical information to individual project specifications. Hi-Tech I&E employs a technical support team to clarify our customers' technical concerns.

IN-HOUSE TEST SUPPORT

We at Hi-Tech I&E can support our customers by performing in-house NDE for the piping materials we supply. The available tests are PMI, PT, MPT, UT, RT, and Hardness Test. Destructive Tests are also available by employing Third-Party Inspection agents and laboratories.



OTHER SERVICES

Beveling	- End preparation according to ASME B16.25 or MSS SP-75	
Cutting	- Cutting to required length	
Marking	- Standard marking according to ASTM, ANSI/ASME, and MSS SP-25 - Additional marking on request	
Color coding	- Marking identification color on request	
Packing	- Wooden Case, Wooden Crate, Wooden Pallet, Wooden Skid-Pallet - Plastic caps to protect bevelled end and inside surface	

H EALTH
S AFETY
E NVIRONMENT

Hi-Tech I&E keeps a track of all the necessary standards and regulations for HSE to guarantee product and service quality.

The company also actively supports the guiding principles for related international HSE regulations.

CHEMICAL COMPOSITION

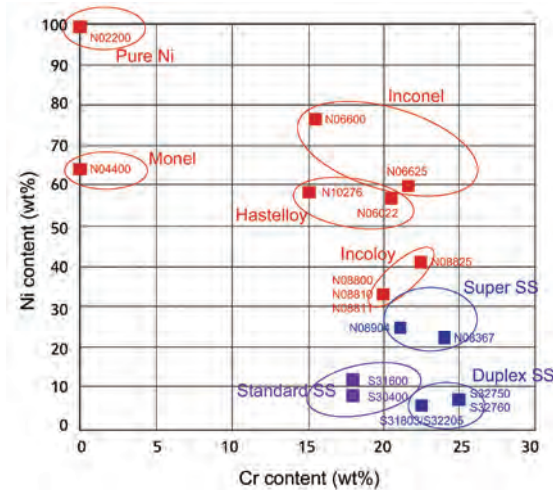
Nickel & Nickel Alloys		UNS	Chemical Composition, % (Maximum, unless a range or minimum is indicated.)												Density (g/cm³)
			Ni	Cr	Cu	Fe	Mo	C	Mn	Si	S	P	N	Others	
Alloy 200	Nickel 200	N02200	99.0 min	-	0.25	0.4	-	0.15	0.35	0.35	0.01	-	-	-	8.89
Alloy 201	Nickel 201	N02201	99.0 min	-	0.25	0.4	-	0.02	0.35	0.35	0.01	-	-	-	8.89
Alloy 400	*Monel 400	N04400	63.0 min	-	28-34	2.5	-	0.3	2.0	0.5	0.024	-	-	-	8.83
Alloy 625	*Inconel 625	N06625	58.0 min	20.0-23.0	-	5.0	8-10	0.1	0.5	0.5	0.015	0.015	-	Al: 0.4 Ti: 0.4 Nb+Ta: 3.15-4.15	8.44
Alloy 800H	*Incoloy 800H	N08810	30.0-35.0	19.0-23.0	0.75	39.5 min	-	0.05-0.1	1.5	1.0	0.015	-	-	Al: 0.15-0.6 Ti: 0.15-0.6	8.00
Alloy 800HT	*Incoloy 800HT	N08811	30.0-35.0	19.0-23.0	0.75	39.5 min	-	0.06-0.1	1.5	1.0	0.015	-	-	Al: 0.15-0.6 Ti: 0.15-0.6	8.00
Alloy 825	*Incoloy 825	N08825	38.0-46.0	19.5-23.5	1.5-3.0	22.0 min	2.5-3.5	0.05	1.0	0.5	0.03	-	-	Al: 0.2 Ti: 0.6-1.2	8.13
Alloy C-22	*Hastelloy C-22	N06022	**remainder	20.0-22.5	-	2.0-6.0	12.5-14.5	0.015	0.5	0.08	0.02	0.02	-	W: 2.5-3.5 Co: 2.5 V: 0.35	8.69
Alloy C-276	*Hastelloy C-276	N10276	**remainder	14.5-16.5	-	4.0-7.0	15.0-17.0	0.01	1.0	0.08	0.03	0.04	-	W: 3.0-4.5 Co: 2.5 V: 0.35	8.87
Alloy B-2	*Hastelloy B-2	N10665	**remainder	1.0	-	2.0	26.0-30.0	0.02	1.0	0.1	0.03	0.04	-	Co: 1.0	9.22
Alloy B-3	*Hastelloy B-3	N10675	65.0 min	1.0-3.0	0.2	1.0-3.0	27.0-32.0	0.01	3.0	0.1	0.01	0.03	-	Al: 0.5, W: 3.0 Co: 3.0, V: 0.2 Ti: 0.2, Nb: 0.2 Ta: 0.2, Zr: 0.1 Ni+Mo: 94.0-98.0	9.22
Alloy 20	*Carpenter 20Cb3	N08020	32.0-38.0	19.0-21.0	3.0-4.0	*remainder	2.0-3.0	0.07	2.0	1.0	0.035	0.045	-	Nb+Ta: 8xC-1.0	8.05

1) Chemical Requirements : Nickel 200, Monel 400, Incoloy based on B163, Inconel 625 based on B444, Hastelloy based on B622, Alloy 20 based on B729. It can differ from the cross-referenced specification.
 2) * Registered Trademarks of Special Metals Corp.(Monel, Inconel, Incoloy), Haynes International Inc.(Hastelloy), Carpenter Technology (Carpenter)
 3) ** "remainder" is the difference between the sum of results of all elements determined and 100%

Special Stainless Steel		UNS	Chemical Composition, % (Maximum, unless a range or minimum is indicated.)												Density (g/cm³)
			Ni	Cr	Cu	Mo	C	Mn	Si	S	P	N	Others		
Duplex	Austenitic-Ferritic Cr-Ni-Mo-N Stainless	S31803	4.5-6.5	21.0-23.0	-	2.5-3.5	0.03	2.0	1.0	0.02	0.03	0.08-0.20	-	7.80	
Duplex	Austenitic-Ferritic Cr-Ni-Mo-N Stainless (2205)	S32205	4.5-6.5	22.0-23.0	-	3.0-3.5	0.03	2.0	1.0	0.02	0.03	0.14-0.20	-	7.80	
Super Duplex Alloy 2507	Austenitic-Ferritic Cr-Ni-Mo-N Stainless (2507)	S32750	6.0-8.0	24.0-26.0	0.5	3.0-5.0	0.03	1.2	0.8	0.02	0.035	0.24-0.32	-	7.81	
Super Duplex Alloy S32760	Austenitic-Ferritic Cr-Ni-Mo-Cu-W-N Stainless	S32760	6.0-8.0	24.0-26.0	0.5-1.0	3.0-4.0	0.05	1.0	1.0	0.01	0.03	0.20-0.30	W: 0.5-1.0 *PREN : 40 min	7.81	
Stainless 6Mo	Austenitic Ni-Cr-Mo-N Stainless	N08367	23.5-25.5	20.0-22.0	0.75	6.0-7.0	0.03	2.0	1.0	0.03	0.04	0.18-0.25	-	8.05	
Stainless 6Mo Alloy 254	Austenitic Cr-Ni-Mo-Cu-N Stainless	S31254	17.5-18.5	19.5-20.5	0.5-1.0	6.0-6.5	0.02	1.0	0.8	0.01	0.03	0.18-0.22	-	8.05	
Alloy 904L	Ni-Cr-Mo Alloy	N08904	23.0-28.0	19.0-23.0	1.0-2.0	4.0-5.0	0.02	2.0	1.0	0.03	0.04	0.01	-	8.05	

1) Chemical Requirements : Duplex & Super Duplex based on ASTM A790, 6Mo & 904L based on ASTM A312. It can differ from the cross-referenced specification.
 2) * PREN : %Cr+3.3x%Mo + 16x%N

HIGH PERFORMANCE ALLOY



MAIN USAGE

- Chemical & Petro-Chemical
- Power Plant
- Nuclear Power Plant
- Oil & Gas Industry
- Ship-Building
- Onshore & Offshore
- Seawater Desalination Plant

Austenitic Stainless Steel		UNS	Chemical Composition, % (Maximum, unless a range or minimum is indicated.)													Density (g/cm³)
			Ni	Cr	Cu	Mo	C	Mn	Si	S	P	N	Others			
Grade 304	18%Cr-8%Ni	S30400	8.0-11.0	18.0-20.0	-	-	0.08	2.00	1.00	0.03	0.045	-	-	7.93		
Grade 304L	18%Cr-8%Ni-0.035%C	S30403	8.0-13.0	18.0-20.0	-	-	0.035	2.00	1.00	0.03	0.045	-	-	7.93		
Grade 316	18%Cr-8%Ni-Mo	S31600	11.0-14.0	16.0-18.0	-	2.00-3.00	0.08	2.00	1.00	0.03	0.045	-	-	7.98		
Grade 316L	18%Cr-8%Ni-Mo-0.035%C	S31603	10.0-14.0	16.0-18.0	-	2.00-3.00	0.035	2.00	1.00	0.03	0.045	-	-	7.98		
Grade 310S	25%Cr-20%Ni	S31008	19.0-22.0	24.0-26.0	-	0.75	0.08	2.00	1.00	0.03	0.045	-	-	8.00		
Grade 321H	18%Cr-8%Ni-Ti-(0.04-0.10)%C	S32109	9.0-12.0	17.0-19.0	-	-	0.04-0.1	2.00	1.00	0.03	0.045	-	Ti: 4xC-0.60	8.00		
Grade 347H	18%Cr-8%Ni-Cb+Ta-(0.04-0.10)%C	S34709	9.0-13.0	17.0-19.0	-	-	0.04-0.1	2.00	1.00	0.03	0.045	-	Nb: 8xC-1.0	8.00		

1) Chemical Requirements based on ASTM A312. It can differ from the cross-referenced specification.

Copper - Nickel		UNS	Chemical Composition, % (Maximum, unless a range or minimum is indicated.)													Density (g/cm³)
			Ni(incl Co)	Cr	Cu(incl Ag)	Fe	Mo	C	Mn	Si	S	P	N	Others		
Copper-Nickel, 10%		C70600 UNS 7060X	9.0-11.0	-	*remainder	1.0-1.8	-	-	1.00	-	-	-	-	-	Zn: 1.0 Pb: 0.05	8.94
90/10 Copper-Nickel		C70620	9.0-11.0	-	86.5min	1.0-1.8	-	0.05	1.00	-	-	-	-	-	Zn: 0.5 Pb: 0.02	8.94
70/30 Copper-Nickel		C71500	29.0-33.0	-	*remainder	0.4-1.0	-	-	1.00	-	-	-	-	-	Zn: 1.0 Pb: 0.05	8.94

1) Chemical Requirements based on ASTM B466. It can differ from the cross-referenced specification.
 2) * "remainder" is the difference between the sum of results of all elements determined and 100%

Titanium		UNS	Chemical Composition, % (Maximum, unless a range or minimum is indicated.)													Density (g/cm³)
			Ni	Cr	Cu	Fe	Mo	C	O	Si	H	Pd	N	Others		
Titanium GR2		R50400	-	-	-	0.3	-	0.08	0.25	-	0.015	-	0.03	each 0.1 total 0.4	4.51	

1) Chemical Requirements based on ASTM B861. It can differ from the cross-referenced specification.
 2) The percentage of titanium is determined by difference

Carbon & Low-Alloy		UNS	Chemical Composition, % (Maximum, unless a range or minimum is indicated.)													Density (g/cm³)
			Ni	Cr	Cu	Mo	C	Mn	Si	S	P	N	Others			
Low Temperature Alloy	A333 Gr.3	3½% Ni	-	3.18-3.82	-	-	0.19	0.31-0.64	0.18-0.37	0.025	0.025	-	-	7.85		
High Temperature Alloy	A335 P5	5%Cr-½%Mo	K41545	-	4.0-6.0	-	0.45-0.65	0.15	0.3-0.6	0.5	0.025	0.025	-	-	7.83	
	A335 P9	9%Cr-1%Mo	S50400	-	8.0-10.0	-	0.9-1.10	0.15	0.3-0.6	0.25-1.0	0.025	0.025	-	-	7.83	
	A335 P11	1¼%Cr-½%Mo	K11597	-	1.0-1.5	-	0.44-0.65	0.05-0.15	0.3-0.6	0.5-1.0	0.025	0.025	-	-	7.83	
	A335 P22	2¼%Cr-1%Mo	K21590	-	1.9-2.6	-	0.87-1.13	0.05-0.15	0.3-0.6	0.5	0.025	0.025	-	-	7.83	
High Yield Strength Steel	A335 P91	9%Cr-1%Mo-0.2%V+Cb+N	K91560	0.4	8.0-9.5	-	0.85-1.05	0.08-0.12	0.3-0.6	0.2-0.5	0.01	0.02	0.03-0.07	V: 0.18-0.25 Al: 0.02	7.83	
	API-5L Gr. X52	PSL 1 SMLS	-	-	-	-	0.28	1.40	-	0.03	0.03	-	-	Ti: 0.04	7.83	
		PSL 1 Welded	-	-	-	-	0.26	1.40	-	0.03	0.03	-	-	Nb+V+Ti: 0.15max		
		PSL 2 SMLS	-	-	-	-	0.24	1.40	-	0.015	0.025	-	-	Ti: 0.04		
API-5L Gr. X65	PSL 2 Welded	-	-	-	-	0.22	1.40	-	0.015	0.025	-	-	Nb+V+Ti: 0.15max	7.83		
	PSL 1 SMLS	-	-	-	-	0.28	1.40	-	0.03	0.03	-	-	Ti: 0.04			
	PSL 1 Welded	-	-	-	-	0.26	1.45	-	0.03	0.03	-	-	Nb+V+Ti: 0.15max			
API-5L Gr. X65	PSL 2 SMLS	-	-	-	-	0.24	1.40	-	0.015	0.025	-	-	Ti: 0.04	7.83		
	PSL 2 Welded	-	-	-	-	0.22	1.45	-	0.015	0.025	-	-	Nb+V+Ti: 0.15max			

1) Chemical Requirements : Low Temp. Alloy based on ASTM A333, High Temp. Alloy based on A335, High Yield Steel based on API 5L. It can differ from the cross-referenced specification.

SYMBOL	ELEMENT
Ag	Argentum (Silver)
Al	Aluminum
C	Carbon
Co	Cobalt
Cr	Chromium
Cu	Cuprum(Copper)
Fe	Ferrum (Iron)
H	Hydrogen
Mn	Manganese
Mo	Molybdenum
N	Nitrogen
Nb	Niobium (=Columbium=Cb)
Ni	Nickel
P	Phosphorus
Pb	Plumbum(Lead)
Pd	Palladium
S	Sulfur
Si	Silicon
Ta	Tantalum
Ti	Titanium
V	Vanadium
W	Tungsten(Wolfram)
Zn	Zinc

UNIFIED NUMBERING SYSTEM	
Axxxx Number Series	Aluminum and Aluminum Alloys
Cxxxx Number Series	Copper And Copper Alloys
Dxxxx Number Series	Specified Mechanical Properties Steels
Exxxx Number Series	Rare Earth and Similar Metals and Alloys
Fxxxx Number Series	Cast Irons
Gxxxx Number Series	AISI and SAE Carbon and Alloy Steels
Hxxxx Number Series	AISI and SAE H-Steel
Jxxxx Number Series	Cast Steels (Except Tool Steels)
Kxxxx Number Series	Miscellaneous Steels and Ferrous Alloys
Lxxxx Number Series	Low Melting Metals and Alloys
Mxxxx Number Series	Miscellaneous Nonferrous Metals and Alloys
Nxxxx Number Series	Nickel and Nickel Alloys
Pxxxx Number Series	Precious Metals and Alloys
Rxxxx Number Series	Reactive and Refractory Metals and Alloys
Sxxxx Number Series	Heat and Corrosion Resistant Steels (Including Stainless), Valves, and Iron-Base "Superalloys"
Txxxx Number Series	Tool Steels, Wrought and Cast
Wxxxx Number Series	Welding Filler Metals
Zxxxx Number Series	Zinc and Zinc Alloys

BUTT WELDING FITTING APPROX. WEIGHT

Weight = kg / pcs

NOTE: The values shown in this table are based on weights for carbon steel (Density ≈ 7.85 g/cm³)

NPS	DN	90° ELBOW (Long Radius)										TEE (Equal)									
		S10S	S40S	S80S	SGP	STD	S40	XS	S80	S160	XXS	S10S	S40S	S80S	SGP	STD	S40	XS	S80	S160	XXS
1/2	15	0.06	0.08	0.10	0.08	0.08		0.10	0.12	0.15	0.07	0.08	0.11	0.09	0.09		0.11	0.12	0.17		
3/4	20	0.06	0.08	0.10	0.10	0.11		0.14	0.13	0.22	0.09	0.11	0.16	0.13	0.13		0.17	0.21	0.26		
1	25	0.16	0.15	0.19	0.15	0.16		0.20	0.25	0.36	0.20	0.24	0.32	0.24	0.25		0.32	0.41	0.53		
1.25	32	0.20	0.25	0.33	0.26	0.26		0.35	0.42	0.64	0.33	0.41	0.54	0.42	0.43		0.56	0.69	0.95		
1.5	40	0.28	0.36	0.49	0.35	0.37		0.50	0.65	0.93	0.46	0.60	0.80	0.58	0.61		0.81	1.07	1.40		
2	50	0.47	0.65	0.89	0.64	0.66		0.90	1.33	1.69	0.63	0.87	1.20	0.86	0.88		1.20	1.78	2.16		
2.5	65	0.79	1.29	1.70	1.12	1.29		1.79	2.33	3.43	1.01	1.66	2.19	1.42	1.74		2.28	2.86	3.92		
3	80	1.16	2.02	2.74	1.58	2.04		2.74	3.83	5.25	1.37	1.90	3.25	1.87	2.41		3.25	4.55	5.90		
4	100	2.00	3.84	5.34	2.91	3.84		5.36	80.20	10.20	2.15	4.13	5.74	3.13	4.12		5.77	8.50	10.60		
5	125	3.46	6.51	9.25	4.49	6.48		9.13	14.70	17.60	3.48	6.55	9.31	4.53	6.54		9.20	14.80	17.30		
6	150	4.96	10.10	15.30	7.09	9.94		15.00	24.20	29.10	4.76	9.73	12.80	6.84	9.58		14.50	23.30	27.20		
8	200	9.55	20.30	30.90	14.40	20.10		30.50	53.20	51.40	8.46	18.00	27.00	12.80	17.90		27.10	47.20	45.70		
10	250	16.60	36.00	48.80	25.40	35.40		47.70	57.00	103.00	14.20	30.80	41.70	21.80	30.40		41.00	49.00	88.00	79.20	
12	300	25.80	53.00	69.90	38.10	52.00	57.00	68.70	94.00	171.00	21.60	44.30	58.40	32.00	43.60	48.70	57.70	79.20	143.00	113.00	
14	350	34.60	68.00	89.90	56.70	67.90	79.10	89.90	133.00	236.00	27.30	53.70	70.90	44.70	53.50	62.40	70.90	104.00	186.00		
16	400	45.20	89.20	118.00	74.30	89.00	118.00	118.00	195.00	350.00	33.60	66.30	87.70	55.20	66.10	88.00	87.70	145.00	260.00		
18	450	57.30	113.00	150.00	94.20	113.00	169.00	150.00	275.00	495.00	47.30	84.10	111.00	70.00	83.90	125.00	111.00	204.00	356.00		
20	500	82.00	140.00	185.00	116.00	140.00	220.00	186.00	373.00	676.00	61.00	104.00	138.00	86.60	104.00	163.00	138.00	277.00	502.00		
22	550	99.40			141.00	169.00	267.00	225.00	493.00	886.00		73.80		106.00	126.00	198.00	167.00	365.00	657.00		
24	600	138.00	202.00	268.00	168.00	202.00	366.00	268.00	636.00	1,160.00		93.50	140.00	185.00	116.00	139.00	252.00	185.00	438.00	800.00	
26	650				198.00	237.00	430.00	315.00						147.00	176.00	319.00	234.00				
28	700				230.00	276.00	500.00	367.00						165.00	198.00	359.00	264.00				
30	750	264.00			264.00	316.00	575.00	421.00			378.00			190.00	228.00	414.00	304.00				
32	800				301.00	361.00	654.00	480.00						217.00	259.00	474.00	347.00				
34	850				340.00	408.00	739.00	543.00						246.00	295.00	535.00	393.00				
36	900				380.00	457.00	904.00	608.00						276.00	331.00	656.00	441.00				
38	950				425.00	510.00		679.00						308.00	370.00		493.00				
40	1000				471.00	565.00		753.00						342.00	411.00		547.00				
42	1050				518.00	622.00		828.00						352.00	422.00		562.00				
44	1100				570.00	684.00		912.00						396.00	475.00		633.00				
46	1150				623.00	748.00		997.00						434.00	521.00		695.00				
48	1200				677.00	814.00		1,085.00						474.00	569.00		759.00				

NPS	DN	CAP										REDUCER * 1 reduction ratio (ex. 3/4"x1/2")									
		S10S	S40S	S80S	SGP	STD	S40	XS	S80	S160	XXS	S10S	S40S	S80S	SGP	STD	S40	XS	S80	S160	XXS
1/2	15	0.028	0.037		0.03	0.04		0.05	0.06	0.10											
3/4	20	0.035	0.048		0.04	0.05		0.07	0.09	0.13	0.043	0.059	0.075	0.06	0.06		0.08				
1	25	0.087	0.106		0.08	0.11		0.15	0.20	0.29	0.095	0.116	0.147	0.11	0.12		0.15	0.19	0.25		
1.25	32	0.110	0.141		0.11	0.14		0.20	0.25	0.39	0.122	0.157	0.206	0.16	0.16		0.21	0.25	0.35		
1.5	40	0.130	0.169		0.15	0.17		0.24	0.35	0.50	0.184	0.243	0.324	0.24	0.25		0.33	0.43	0.57		
2	50	0.170	0.234		0.23	0.24		0.33	0.54	0.68	0.269	0.372	0.508	0.37	0.38		0.51	0.75	0.91		
2.5	65	0.230	0.393		0.34	0.42		0.57	0.77	1.33	0.426	0.724	0.919	0.60	0.73		0.95	1.20	1.68		
3	80	0.370	0.660		0.51	0.67		0.92	1.40	2.18	0.522	0.933	1.230	0.73	0.94		1.25	1.71	2.25		
4	100	0.590	1.17		0.88	1.17		1.68	2.76	3.80	0.802	1.540	2.140	1.10	1.45		2.02	3.00	3.65		
5	125	0.990	1.91		1.29	1.90		2.73	4.85	6.22	1.330	2.500	3.520	1.74	2.50		3.52	5.59	6.47		
6	150	1.390	2.90		1.99	2.83		4.38	7.81	9.85	1.780	3.570	5.380	2.55	3.57		5.38	8.63	9.89		
8	200	2.380	5.19		3.61	5.11		7.91	15.20	16.40	2.720	5.710	8.630	4.17	5.71		8.63	15.00	14.30		
10	250	4.140	9.15		6.33	5.92		12.20	16.40	28.90	28.35	4.49	9.58	12.90	6.87	9.58	12.90	15.40	27.50	24.30	
12	300	6.390	13.30		9.43	13.10	13.10	17.40	26.40	47.70	39.40	6.78	13.60	18.00	9.97	13.60	14.70	18.00	24.80	44.60	35.00
14	350	7.980	15.90		13.20	15.90	18.60	21.20	34.90	61.20		13.00	25.40	33.60	21.20	25.40	29.50	33.60	49.80	88.50	
16	400	10.00	20.00		16.60	20.00	26.70	26.70	49.00	92.80		15.80	31.00	41.10	25.90	31.00	41.10	41.10	67.70	121.00	
18	450	12.80	25.60		21.20	25.50	41.50	34.10	69.00	131.00		19.20	37.80	50.10	31.50	37.80	56.20	50.10	91.40	165.00	
20	500	18.50	31.90		26.40	31.80	54.10	42.50	93.70	179.00		33.10	56.40	74.90	47.00	56.40	88.40	74.90	150.00	233.00	
22	550	22.60			31.50	38.80	61.40	51.70	116.00	219.00		36.60			52.10	62.40	98.00	82.90	181.00		
24	600	30.10	45.10		36.60	45.10	90.10	60.10	160.00	307.00		46.00	68.60	91.00	57.10	68.40	124.00	91.00	215.00		
26	650				41.00	50.50	92.30	67.30						74.50	89.40	162.00	119.00				
28	700				45.50	56.20	103.00	74.90						80.60	96.60	175.00	129.00				
30	750	51.70			50.30	62.10	114.00	82.80						86.60	104.00	188.00	138.00				
32	800				55.40	68.40	126.00	91.20						92.60	111.00	202.00	148.00				
34	850				62.30	75.40	138.00	100.00						98.70	118.00	215.00	158.00				
36	900				68.00	81.90	164.00	109.00						104.60	125.60	250.00	167.30				
38	950				79.00	94.70		126.00						112.00	133.00		177.00				
40	1000				92.00	102.00		137.00						117.00	140.00		187.00				
42	1050				95.00	110.00		147.00						120.00	147.00		196.00				
44	1100				103.00	126.00		167.00						129.00	155.00		206.00				
46	1150				111.00	134.00		179.00						157.00	189.00		252.00				
48	1200				118.00	143.00		191.00						164.00	197.00		263.00				

FLANGE APPROX. WEIGHT

Weight = kg / pcs

NOTE: The values shown in this table are based on weights for carbon steel (Density ≈ 7.85 g/cm³)

NPS	DN	Welding Neck							Slip on							Threaded						
		#150	#300	#400	#600	#900	#1500	#2500	#150	#300	#400	#600	#900	#1500	#2500	#150	#300	#400	#600	#900	#1500	#2500
1/2	15	0.60	1.50	1.50	1.50	2.00	2.00	3.60	0.80	1.20	1.30	1.30	1.70	1.70	3.00	0.80	1.20	1.40	1.40	1.80	1.80	3.00
3/4	20	0.80	1.80	2.00	2.00																	