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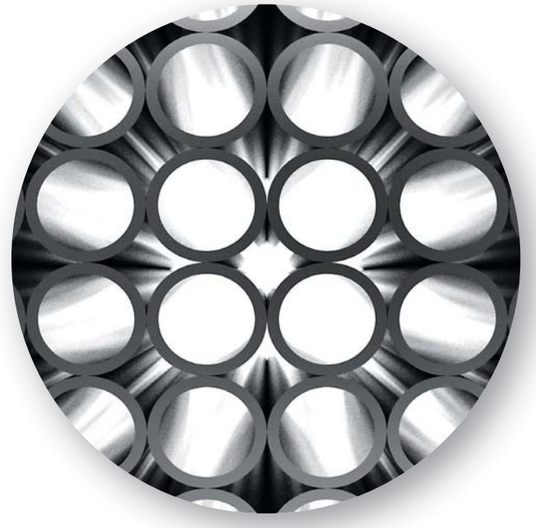

STEEL PIPE

HYUNDAI STEEL

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- Mishandling or uninformed use of products for purposes other than the official purposes for which they are intended may lead to injury or property damage.
  Make sure to thoroughly read and understand the “Handling and Use Manual” before using the product.
- Please contact us if you have any queries regarding the use, handling, or storage of the product.

Caution

- Not all the product characteristics and test results mentioned in this catalog are guaranteed.
- The product may display properties and characteristics different from those mentioned in this catalog, depending on the storage or working conditions.
- Misunderstanding of the technical information contained in this catalog may lead to accidents and injury.

Printed 2015. 11

HYUNDAI MOTOR GROUP

HYUNDAI STEEL

We lead the steel industry ···

From molten metal to finished cars, and from Korea to the world, Hyundai Steel is heralding a new era of change and innovation in the world's steel industry. It is doing this by developing an eco-friendly production system that is firmly grounded on the "3Rs" – reduce, reuse, and recycle.

CONTENTS

HISTORY OF HYUNDAI STEEL

Having merged with Gangwon Industries in 2000 and Hanbo Steel in 2004, Hyundai Steel came to acquire three major steelmaking plants, including those at Incheon, Pohang, and Dangjin. After joining the Hyundai Motor Group in 2001, the company changed its name and corporate identity to “Hyundai Steel Company Limited” in 2006, and paved the way for significant growth when it began to build an integrated steel mill in 2007. Having acquired Hysco’s cold rolled steel division in 2013, Hyundai Steel now operates four plants, including the one at Suncheon.

Foundation

1953

1953. 06
Founded as Daehan Heavy Industries Company.

1962. 11
Changed company name to Incheon Heavy Industries Company Limited.

Reclamation

1964

1964. 09
Incheon Steel Company Limited founded.

1970

1970. 04
Incheon Steel acquires Incheon Heavy Industries.

1978. 06
Incheon Steel joins Hyundai Motor Group.

Development

1980

1987. 05
Initial public offering.

1990

1994. 12
90-ton electric steel mill and second rebar plant built.

1998. 03
120-ton electric steel mill and new heavy rolling plant built.

Advancement

2000

2000. 03
Gangwon Industries Company Limited acquired.

2000. 12
Sammi Special Steel Company Limited acquired.

2001. 04
Company newly launched as part of Hyundai Motor Group.

2001. 07
Company name changed to INI Steel Company Limited.

2004. 10
Dangjin plant and assets of Hanbo Steel acquired.

2006. 03
Company name changed to Hyundai Steel Company Limited.

2006. 09
Opening ceremony for 50,000-ton pier for Dangjin plant held.

2006. 10
Groundbreaking ceremony for integrated steel mill held.

2009. 08
First raw materials delivered to integrated steel mill.

2009. 11
Cokes, incineration, and thick-plate plants of integrated steel mill launched into operation.

2010. 01
Blast Furnace 1 installed and launched into operation at integrated steel mill.

2010. 04
Construction completion ceremony for integrated steel mill held.

2010. 11
Blast Furnace 2 installed and launched into operation at integrated steel mill.

2012. 11
Dangjin plant acquires Green Management System certificate.

2013. 09
Blast Furnace 3 launched into operation at integrated steel mill.

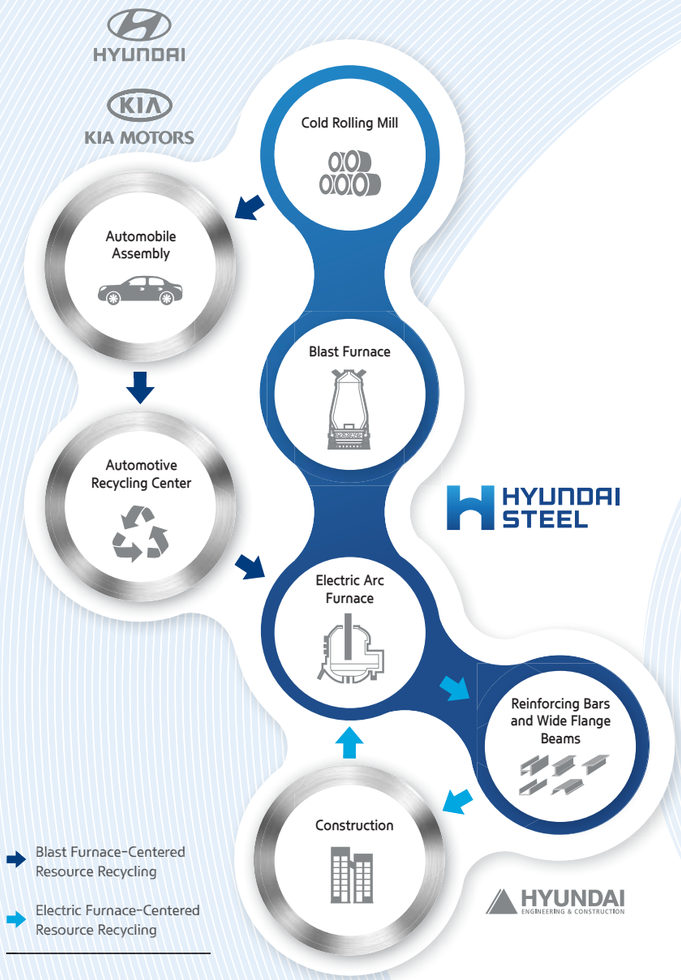
2013. 12
Cold rolled products launched on market.

2014. 04
Groundbreaking ceremony for special steel mill held.

2015

2015. 07
Merger with Hyundai Hysco.

NEW ERA OF RESOURCES RECYCLING



Perfecting Resource Recycling Group-Wide

Having added blast furnaces to its plants, Hyundai Steel is now part of a complete eco-friendly resource recycling system that encompasses the entire Hyundai Motor Group, allowing the efficient and thorough use of iron ore, finished automobiles, and steel scrap. As Korea's largest recycler of steel and other related products, Hyundai Steel continues to enhance the quality of its products with its well-functioning blast and electric furnace systems. The furnace-centered recycling system starts from the production of crude steel, proceeds via the manufacturing of hot and cold rolled steel coils and sheets (at Hyundai Steel), to the manufacturing of finished automobiles (at Hyundai and Kia Motors) and finally to the recycling of scrap cars and steel (at the automobile recycling centers). The steel scrap from the last phase of this cycle is recycled into material used to manufacture rebar and H-shaped steel in Hyundai Steel's electric furnaces, which are then used in works of civil engineering and construction (by Hyundai Construction and Engineering). Any scrap building materials from these construction projects are also recycled.

MANUFACTURING

Dangjin Steelworks

Since Hyundai Steel developed Korea's first privatized integrated steelworks in 2010, Dangjin Integrated Steelworks has been rewriting the history of steel in Korea. The Steelworks includes both blast furnace and electric arc furnace zones. The former consists of hot rolling, cold rolling, and heavy plate mills including three blast furnaces while the latter produces reinforcing bars, using scrap iron as a raw material. Additionally, the special steel mill is under construction and on the way to complete.

▶ Products : Hot-rolled Coil, Cold-rolled Coil, Heavy Plate, Reinforcing Bar

Incheon Plant

The company's Incheon Works was the very first steel plant in Korea. Its eco-friendly, high-efficiency facilities include the world's largest electric arc furnace mill and a host of environmentally friendly devices and activities, including recycling its purified wastewater for further use. The addition of the Incheon North Port Steel Dock, completed in January 2007, has made a significant contribution to the plant's overall operating efficiency.

▶ Products : H Sections, Reinforcing Bar, Stainless Steel, Section Steel, Steel Forging Products

Pohang Plant

Boasting a wide range of industryleading technologies and strong global competitiveness, Hyundai Steel's Pohang Works was only the second player in the world to develop high-speed magnetic levitation train rails. In addition, we lead the steel industry's high-value-added market through the production of rolled steel and rails for high-speed railroads. Our track shoe assembly has been recognized by the Korean government as World-Class Products of Korea.

▶ Products : H Sections, Reinforcing Bar, Railroad Rail, Round Section, Roll, Track Shoe Assembly

Suncheon Plant

Suncheon Works, which is equipped with state-of-the-art production facilities, specializes in a broad range of cold-rolled steel for automobiles, consumer electronics, and construction materials. These high-end facilities include a Continuous Annealing Line (CAL) boasting the world's largest production capacity of 1.2 million tonnes, a Continuous Galvanizing Line (CGL), an Electrolytic Galvanizing Line, a Color Coating Line, and six tailor-welded blank (TWB) units for lightweight automobiles.

▶ Products : Cold-rolled Coil, Hot-dipped Galvanized Steel Sheet, Electrolytic Galvanized Steel Sheet, Pre-coated Steel Sheet

Ulsan Plant

Equipped with four tailor-welded blank units, two hot-stamping units, and three hydro-forming units, Ulsan Works produces high value-added steel pipe products and lightweight automotive parts used primarily in energy development, construction, and automobile manufacturing. The global competitiveness at Ulsan Works has been greatly enhanced thanks to its cutting-edge welding and automation facilities.

▶ Products : Steel Pipe

Yesan Plant

Yesan Works primarily produces high-quality, lightweight automotive parts through ten hot-stamping units and two tailor-welded blank units. Making the best use of its amassed technologies and expertise over the years, Yesan Works has continuously enhancing its competitiveness in the steel market as well as ultimately leading the quality improvement in automotive and other steel-demanding industries.

▶ Products : Lightweight Automotive Parts

Qingdao Plant

Established in 2000 to meet China's rapidly increasing need for steel products, the Qingdao Factory manufactures complete track shoe assembly. It also acts as a bridgehead for the company's advance into the world by placing us firmly within the Chinese market. The Qingdao Factory ranked first in the Chinese market for excavator undercarriages and parts.

▶ Products : Track Assembly for Excavators, Roller

ABOUT ULSAN PLANT

Ulsan Plant

Ulsan Works produces highly value added steel products which has annual capacity of production of 700,000 tonnage. It is the hive of steel pipe industry in Korea, retaining high technology and facilities. The major products in steel pipe industry - OCTGs and gas pipes - are now being produced and supplied including almost 2,000 types of highly value added products such as industrial boiler tubes, pipes for mechanical and automobile structure. Especially, we are now giving spurs to development of the next generation steel pipe and new technology for reducing automobile weight through researching high technology field like hydro-forming. After the ground-breaking in Yumpo Bay, Ulsan 1978, it has been leading mill in domestic steel pipe industry. By acquiring ISO 9001/14001, we are now heading for the quality-first and eco-friendliness management. Ulsan Works will try to remain as leading steel plant in the world through developing new technology for welding and modeling, and parts that could reduce weight of automobiles.

ULSAN PRODUCTION PLANT

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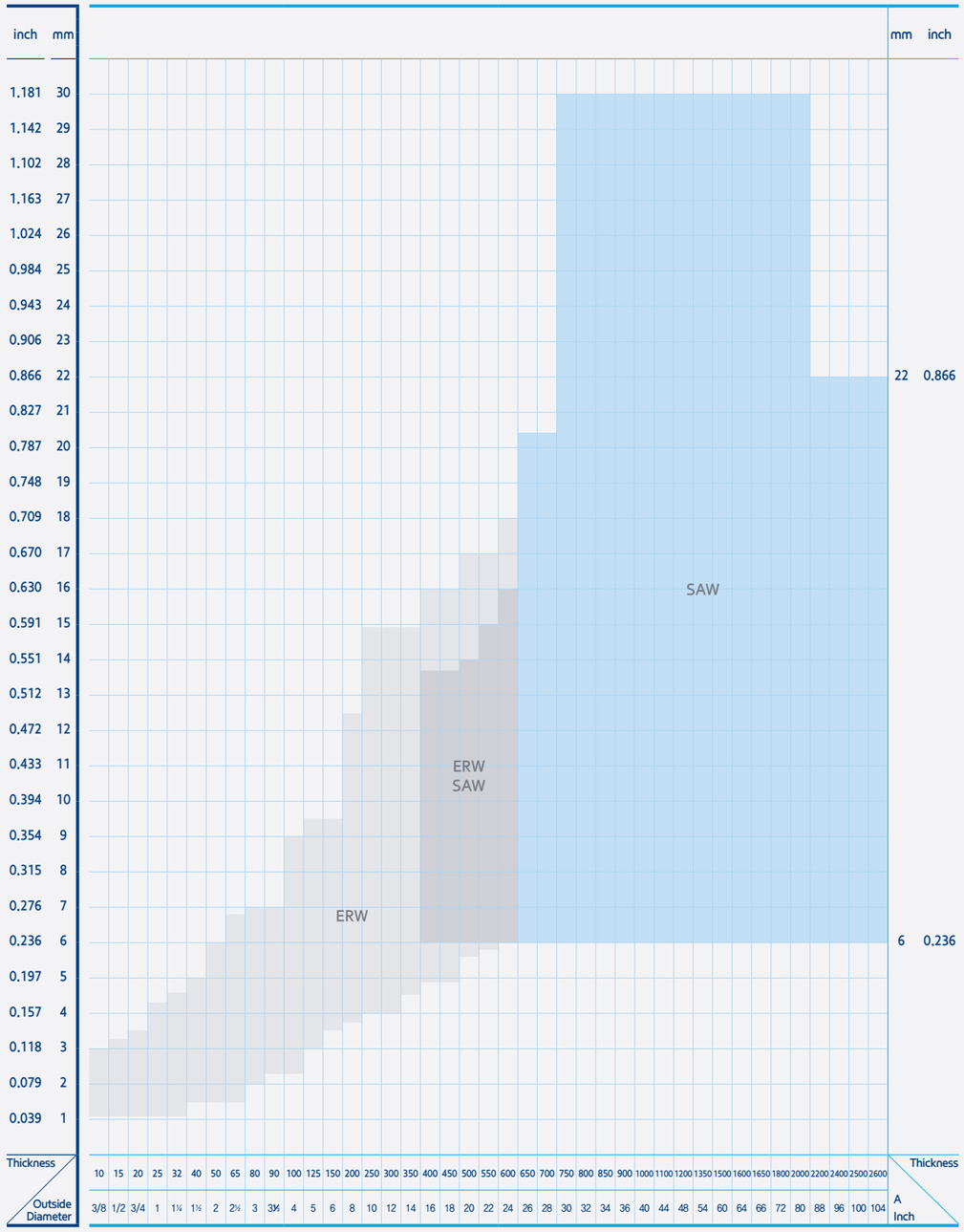
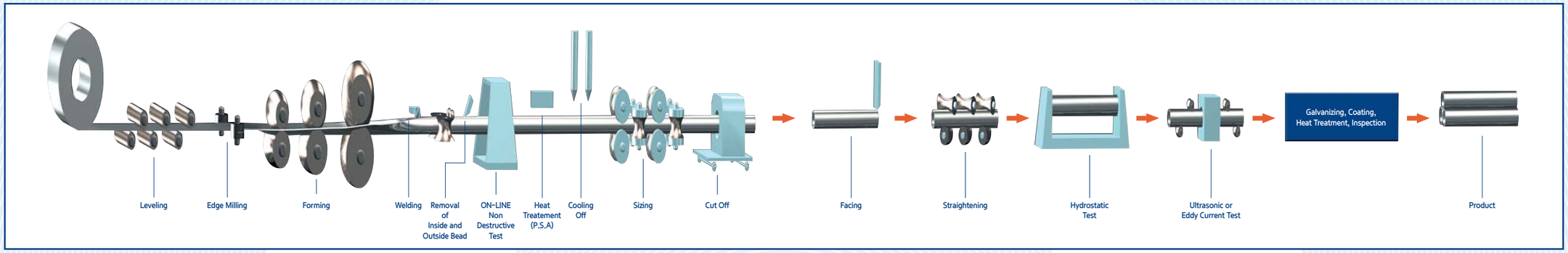
PRODUCTION CAPACITY

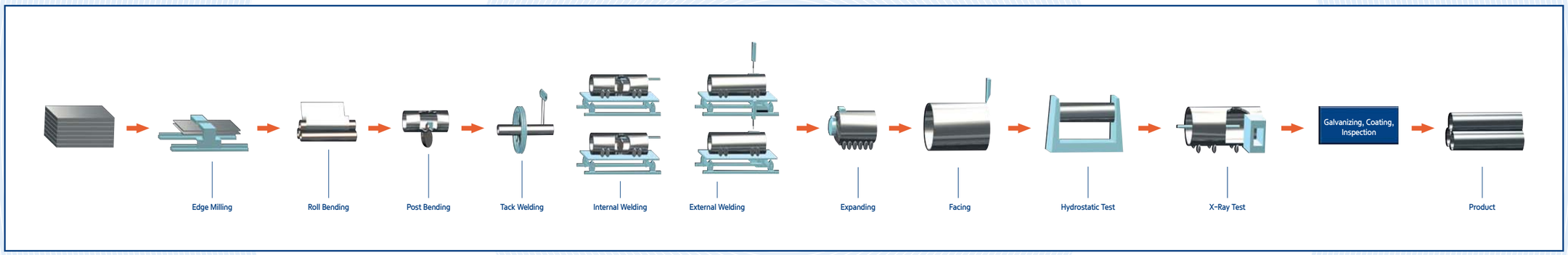


PRODUCTION PROCESS

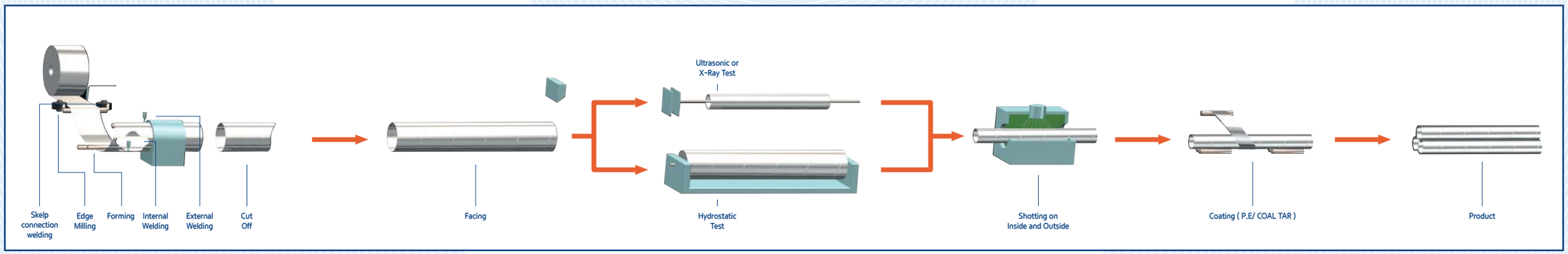
Electric Resistance welded pipes



Roll bending pipes



Sprial pipes



MAJOR RPODUCTION USAGE

Type of pipes		Similar specification				Application
Type	Manufacturing method	Korea	Japan	U.S.A	U.K / Others	
Steel pipes for ordinary piping	ERW	Carbon steel pipes for ordinary piping (KS D 3507/SPP)	Carbon steel pipes for ordinary piping (JIS G 3452/SGP)	ASTM A53	BS 1387 EN10255 ISO65	Steel pipes for steam, air, water, oil and gas etc. with relatively low pressure
	ERW	Galvanized steel pipes for water service (KS D 3537/SPPW)	Galvanized steel pipes for water service (JIS G 3442/SGPW)	ASTM A53	BS 1387 EN10255 ISO65	Steel pipes for water supply wity 100m or less at water head
	ERW Spiral Roll bending	Coated steel pipes for water works (KS D 3565/STWW) Fittings of coated steel pipes for water works (KS D 3578)	-	AWWA C200, C203	-	Steel pipes for water works
	Spiral Roll bending	Arc welded carbon steel pipes (KS D 3583/SPW)	Arc welded carbon steel pipes (JIS G 3457/STPY)	ASTM A 134, A139, A671, A672	-	Steel pipes for steam, air, water, oil and gas etc. With relatively low pressure
Steel pipes for pressure service	ERW and SAW	Carbon steel pipes for pressure service (KS D 3562/SPPS)	Carbon steel pipes for pressure service (JIS G 3454/STPG)	ASTM A53 API 5L	BS 3601 EN10217-1 ISO9330-1	Steel pipes for application at a temperature of 350˚C or less
	Roll bending	Arc welded carbon steel pipes (KS D 3583/SPW)	Arc welded carbon steel pipes (JIS G 3457/STPY)	-	-	Piping for steam, water, gas, air of comparatively low working pressure.
Steel pipes for structural purposes	ERW	Carbon steel tubes for machine structural purposes (KS D 3517/STKM)	Carbon steel tubes for machine structural purposes (JIS G 3445/STKM)	ASTM A513	BS 980 BS 1717 BS 1775	Steel pipes for application for mechanical Parts such as machinery, automobiles, bicycles, furniture and fixtures etc.
	ERW Spiral Roll bending	Caron steel tubes for machine structural purposes (KS D 3566/STK)	Carbon steel tubes for general structural purposes (JIS G 3444/STK)	ASTM A500	BS 980 BS 1139 BS 4848	Steel pipes for application for structures such as civil works, architecture, steel tower, scaffolding, piles, veranda and fence and post etc.
	ERW	Carbon steel square pipes for general structural purposes (KS D 3568/SPSR)	Carbon steel square pipes for general structural purposes (JIS G 3466/STKR)	ASTM A500	BS 4848	Steel pipes for application tocivil works, architecture and other stuctures
	ERW Roll bending	Steel pipe piles (KS F 4602)	Steel pipe piles (JIS A 5525/SKK)	ASTM A252	-	Steel pipes for foundation civil works, architectures etc.
	Spiral Roll bending	-	-	Fubrication of structural steel pipe (API 2B)	-	Offshore structure. Piping and main structural members
Line pipe	ERW Roll bending	-	-	API 5L (GR, A, B, X42, X46, X52, X56, X60, X65, X70, X80)	-	Steel pipes for transportation petroleum and natural gas
OCTG	ERW	-	-	API 5CT (H40, J55, K55, N80)	-	Steel pipes for development for petroleum and natural gas
Conduits	ERW	Rigid steel conduits (KS C 8401)	Rigid steel conduits (JIS C 8305)	ANSI C80.1 UL6	BS 31	Steel pipes for protection of electric cable at electric distribution lines
Steel tubes for boiler & heat exchanger	ERW	Carbon steel boiler and heat exchanger tubes (KS D 3563/STBH)	Carbon steel boiler and heat exchanger tubes (JIS G 3461/STB)	ASTM A 178, A 214, A 226	BS 3059 BS 3606	Water pipes for boiler, connection pipe, overheat engine, air preheating pipe and heat exchange pipes, condenser
Coated steel pipes	ERW Spiral Roll bending	-	-	-	-	Coated steel pipes for protection of outside surface of steel pipe for underground burial.
Steel tubes for tower structural purposes	ERW Spiral Roll bending	-	-	-	-	High tensile steel pipes applicable to electric transmission tower

Notes: KS : Korean standards JIS : Japanese Industrial Standards BS : British Standard API : American Petroleum Institute
UL : Underwriters Laboratories AWWA : American Water Works Association ASTM : American Society for Testing and Materials
UK : United Kingdom
Please consult dimension of main pipes produced with market department.

CERTIFICATE STATUS

CERTIFICATE	CERTIFICATE NO.	CERTIFICATE NAME	Symbol	SCOPE	License No	Acquired Date	ISSUED BY
ISO	9002	ISO9002	-	MANUFACTURE OF MEPOL PRE-INSULATED PIPES,COATED PIPES, WELDED PIPES AND TUBES	955816	96.11.5 (93.10.18)	LRQA
	14001	ISO14001	-	SITE ACTIVITIES ASSOCIATED WITH THE MANUFACTURE OF STEEL AND COATED PIPES	770166	97.4.30	LRQA
KS	C 8401	Rigid steel conduit	-	THICK RIGID STEEL CONDUITS (GALVANIZED) NOT MORE THAN 104	1838	79.10.29	K.S.A
	D 3562	Carbon steel pipes for pressure service	SPPS	SPPS 350, SPPS 420 - Sch20 50A ~ 600A - Sch30 200A ~ 600A - Sch40 15A ~ 500A - Sch60 15A ~ 300A - Sch80 15A ~ 200A	2475	79.10.29	K.S.A
	D 3563	Carbon steel pipes for boiler and heat exchanger	STBH	STBH 340 19.0mm ~ 114.3mm STBH 410 48.6mm ~ 139.8mm	2207	80.9.12	K.S.A
	D 3566	Carbon steel tubes for gereral structural purpose	STK	STK 290, 400, 490, 500 21.7mm ~ 609.6mm	2749	82.7.24	K.S.A
	D 3568	Carbon steel square pipes for general structural purpose	SPSR	SPSR 400, 490 20 X 20 ~ 150 X 150mm	2750	82.7.24	K.S.A
	D 3583	Arc welded carbon steel pipes	SPW	SPW400 650A ~ 2000A	5415	87.8.14	K.S.A
	D 3631	Carbon steel pipes for fuel gas piping	SPPG	15A ~ 600A	99-0635	99.5.31	K.S.A
JIS	F 4602	Steel pipe piles	SPS	406.4 ~ 1016.0mm	2950	83.2.3	K.S.A
	A 5525	Steel pipe piles	SKK	FULL SIZE	KR9466	94.9.13	Administration of economy & Industry
	A 5530	Steel sheet piles	SKY	FULL SIZE	KR9433	99.8.4	Administration of economy & Industry
	C 8305	Rigid steel conduuit	-	FULL SIZE	KR8859	88.9.12	Administration of economy & Industry
	G 3444	Carbon steel pipes for general structural purpose	STK	FULL SIZE	CRKR47412	84.9.25	Administration of economy & Industry
	G 3445	Carbon steel pipes for mechanical structural purpose	STKM	FULL SIZE	CRKR47412	95.2.6	Administration of economy & Industry
	G 3452	Carbon steel pipes for ordinary piping	SGP	FULL SIZE	KR8521	85.6.17	Administration of economy & Industry
	G 3454	Carbon steel pipes for pressure service	STPG	FULL SIZE	KR8521	85.6.17	Administration of economy & Industry
	G 3457	Arc welded acrbon steel pipes	STPY	FULL SIZE	KR8521	90.3.23	Administration of economy & Industry
	G 3461	Carbon steel pipes for boiler and heat exchanger	STB	FULL SIZE	KR8522	85.6.17	Administration of economy & Industry
	G 3466	Carbon steel square pipes for general structural purpose	STKR	FULL SIZE	CRKR47412	84.9.25	Administration of economy & Industry
API	5L	Line Pipe	5L	FULL SIZE	5L-0026	81.5.14	American Petroleum Institute
	5CT	Casing & Tubing	5CT	FULL SIZE	5CT-0030	81.5.14	American Petroleum Institute
	2B	Fabricated Structural steel Pipe	2B	FULL SIZE	2B-0050	97.4.21	American Petroleum Institute
CCS		ERW PIPE	5LBPSL1	Ø17.3 ~ 609.6	FS08W00020	09.12	China classification society
			STPG370	1.6 ~ 18.0t			
Korea Register of Shipping	-	Steel tubes & pipes - Steel pipes for pressure service - Steel pipes for boiler & heat exchanger	-	RST 138-E-C, 142-E-C, 338-E-C, 342-E-C RSTH 33-E-C, 35-E-C, 42-E-C	ULS 00783-ST001	80.4.30	Korea shipping class
Lloyd's register	-	Welded pipes & tubes in austenitic stainless steel	-	MAX 320mm(Outside Diameter), MAX 8mm(Thickness)	MDOO/0735/ 0006/4	96.10.15	English shipping class
	-	Welded pipes & tubes in carbon and carbon - Manganese steel	-	MAX 610mm(Outside Diameter), MAX 13mm(Thickness)		80.5.1	
Det Norke Veritas	-	WELD PIPES & TUBES (SAW, PAW + TIG + ERW)	-	SAW Max. 2438.4mm X 25t PAW Max. 323.85mm X 7t TIG Max. 323.85mm X 3t ERW Max. 610mm X 18t	AMM - 449	82.8.26 (SAW, PAW, TIG) 00.9.19 (ERW)	Norway shipping class
Bureau Veritas	-	LONGITUDINALLY WELDED STEEL PIPES	-	ERW : MIN OD19.1mm X 1.4t MAX OD609.4mm X 12.6t SAW(R/B) : MIN OD558.8mm X 6.0t MAX OD 1066.8mm X 25.0t	SMS II PSN / 5337 1.AO	97.10.15	French shipping class
Germanish Lloyd's	-	LONGITUDINALLY WELDED STEEL PIPES	STPG370	19.1mm ~ 609.6mm / 1.4mm ~ 12.6mm	WZ 802HHI	00.1.20	German shipping class
			STKR490	20mm ~ 400mm / 1.2mm ~ 16mm			
			STB340	20mm ~ 140mm / 1.2mm ~ 11mm			
			STPY400	558.8mm ~ 1066.8mm / 6.0mm ~ 25.0mm			
			SUS304LTP SUS316LTD	MAX. 323.85mm / 0.5mm ~ 7.5mm			
RINA	-	STEEL TUBES AND PIPES	ERW	MAX. 610mm / max. 18.0mm	00/PM/ TO/5256-1	00.04.11	Italian Shipping class
			SAW	MAX. 1524mm / max. 25.0mm	00/PM/ TO/5256-1	00.04.11	Italian Shipping class
			TIG	MAX. 323.9mm / max. 8.0mm	00/PM/ TO/5256-1	00.04.11	Italian Shipping class
American Bureau of Shipping	-	Welding Procedures Qualification Test Record	-	GMAW + SAW - Groove Joint Welding	ML 4 - 7	00.12.12	American Shipping class
UL	-	RIGID METAL CONDUIT	-	TYPE "L"(1/2" ~ 6")	E88167	94.6	Underwriters Laboratories Inc
	-	SPRINKLER	-	1 + 1/4"~4"(Note, Thread applies to 1 ~ 2")	EX5217	99.3	
AN	D 3566	CARBON STEEL PIPES FOR ORDINARY	STK500	1, 2, 3, 4, 5, 6M	-	95.1	KOREA OCCUPATIONAL SAFETY & HEALTH AGENCY
SASO	-	V-02 STEEL AND IRON ALLOY PIPES	-	ASTM A53 Gr, B/API 5L Gr.B, ASTM A671/API 5L KS D3583/JIS G3457	R-301201 S2	01.6	SAUDI ARABIAN STANDARDS ORGANIZATION

SPECIFICATIONS

API

API 5L (PSL I / PSL II)

Classification \ Specification		A25 Class 1	A25 Class 2	A	B	X42	X46	X52	X56	X60	X65	X70	X80
Application		Line pipe											
Chemical composition(%)	C(Max.)	0.21	0.21	0.22	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	–
	Si(Max.)	–	–	–	–	–	–	–	–	–	–	–	–
	Mn(Max.)	0.60	0.60	0.90	1.20	1.30	1.40	1.40	1.40	1.40	1.45	1.65	–
	P(Max.)	0.030	0.080	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	–
	S(Max.)	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	–
	Others	–	–	–	–	–	–	–	–	–	–	–	–
Mechanical properties	Tensile strength (min.) PSI	45,000	48,000	60,000	60,000	63,000	66,000	71,000	75,000	77,000	82,000	–	
	Tensile strength (min.) MPa	310	331	414	414	434	455	490	517	531	565	–	
	Tensile strength (min.) kgf/mm²	31.6	33.7	42.2	42.2	44.3	46.4	49.9	52.7	54.1	57.7	–	
	Yield point (min.) PSI	25,000	30,000	35,000	42,000	46,000	52,000	56,000	60,000	65,000	70,000	–	
	Yield point (min.) MPa	172	207	241	290	317	359	386	414	448	483	–	
	Yield point (min.) kgf/mm²	17.6	21.6	24.6	29.5	32.3	36.6	39.4	42.2	45.7	49.2	–	
	Elongation (min.) (%)	e : Minimum elongation in 2 in. (50.80mm) in percent rounded to nearest 1/2 percent A : Cross-sectional area of the tensile test specimen in sq. in. (mm) U : Specified minimum ultimate tensile strength. PSI (MPa) - U.S. Customary Equation e = 625.000(A^{02}/U^{09}) - Metric Equation e = 1.944(A^{02}/U^{09})											
Flattening	H : Distance between Flattening plates (mm) D : Outside diameter of the pipe(mm) t : Wall thickness of the pipe(mm)	Welded part H = 3/4D base metal H = 0.6D		- Flattening test Welded part H = 2/3D Base metal H = 1/3D		- Weld ductility test $H = \frac{0.07t}{0.07+3t/D}$ (Grades less than X 52) $H = \frac{3.05t}{0.05+3t/D}$ (Grades X 52 or higher)							
Bending test	Bending angle X Inside radius (D : Outside diameter of the pipe)	90° X 12D (Nominal size 2 or below)		-									
Hydrostatic test	P : Test pressure, PSI (MPa) S : Fiber stress, PSI (MPa) t : Wall thickness, in. (mm) D : Outside diameter, in. (mm)	- U.S. Customary Formula $P = \frac{2St}{D}$ - Metric Formula $P = \frac{2000St}{D}$											
NDT (Non-Destructive Test)		-		Electric resistance welded pipe : Ultrasonic Test or Electromagnetic Test(Eddy Current Test) submerged-arc weld pipe : Radiographic test									
Others		Residual Magnetism Measurement											

Grade	Size Designation	Percent of specified minimum yield strength(%) STD	ALT
A25	5 9/16	60	-
A	2 3/8 over	60	75
B	2 3/8 over	60	75
X42-X80	5 9/16 below	60	75
	5 9/16 - 8 5/8	75	75
	8 5/8 - 20	85	85
	20 over	90	90

- P = 2st/D

Grade	F factor STD smaller than 10 3/4	STD 10 3/4 and larger	ALT All sizes
H40	0.8	0.6	0.8
J55	0.8	0.6	0.8
K55	0.8	0.6	0.8
N80	0.8	0.6	-

API 5CT

Classification \ Specification		H40	J55	K55	N80
Application		Casing Tubing			
Chemical composition(%)	C(Max.)	-			
	Si(Max.)	-			
	Mn(Max.)	-			
	P(Max.)	0.030			
	S(Max.)	0.030			
	Others	-			
Mechanical properties	Tensile strength (min.) PSI	60000	75000	95000	10000
	Tensile strength (min.) MPa	414	517	655	689
	Tensile strength (min.) kgf/mm²	42.2	52.7	66.8	70.3
	Yield point (min.) PSI	40000-80000	55000-80000		80000-110000
	Yield point (min.) MPa	276-552	379-552		552-758
	Yield point (min.) kgf/mm²	28.1-56.2	38.7-56.2		56.2-773
	Elongation (min.) (%)	e : Minimum elongation in 50.80mm in percent rounded to nearest 0.5% A : Cross-sectional area of the tensile test specimen in sq.mm U : Specified tensile strength in N/mm²			
Flattening	H : Distance between Flattening plates(mm) D : Outside diameter of the pipe(mm) t : Wall thickness of the pipe(mm)	D/ t ≥ 16 H = 0.5D D/ t < 16 H=D (0.83-0.0206D/ t)	D/ t ≥ 16 H = 0.65D 3.93 ≤ D/ t < 16 H=D (0.98-0.0206D/ t) D/ t < 3.93 H=D (1.104-0.0518D/ t)		9 ≤ D/ t < 28 H=D (1.074 -0.0194D/ t)
Bending test	Bending angle X Inside radius (D : Outside diameter of the pipe)	-			
Hydrostatic test	P : Test pressure, PSI (MPa) S : Fiber stress, PSI (MPa) t : Wall thickness, in. (mm) D : Outside diameter, in. (mm)				
NDT (Non-Destructive Test)		Ultrasonic Test or Electromagnetic Test			
Others		-			

ASTM

Classification \ Specification		ASTM A53 A	ASTM A53 B	ASTM A500 A Heat	ASTM A500 A Product	ASTM A500 B Heat	ASTM A500 B Product	ASTM A513 MT 1010	ASTM A513 MT 1015	ASTM A513 MTX 1015	ASTM A513 MT 1020	ASTM A513 MTX 1020	ASTM A513 1025	ASTM A513 1026	ASTM A513 1030	ASTM A513 1035	ASTM A513 4130	ASTM A513 8630
Application		Ordinary piping		General structural purposes				Machine structural purposes										
Chemical composition(%)	C(Max.)	0.25	0.30	Heat 0.26	Product 0.30	Heat 0.26	Product 0.30	0.05 - 0.15	0.10 - 0.20	0.10 - 0.20	0.15 - 0.25	0.15 - 0.25	0.22 - 0.28	0.22 - 0.28	0.27 - 0.34	0.31 - 0.38	0.28 - 0.33	0.28 - 0.33
	Si(Max.)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.15 -0.35	0.15 -0.35
	Mn(Max.)	0.95	1.20	-	-	-	-	0.30 - 0.60	0.30 - 0.60	0.60 - 0.90	0.30 - 0.60	0.70 - 1.00	0.30 - 0.60	0.60 - 0.90	0.60 - 0.90	0.60 - 0.90	0.40 - 0.60	0.70 - 0.90
	P(Max.)	0.05	0.05	0.035	0.045	0.035	0.045	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
	S(Max.)	0.045	0.045	0.035	0.045	0.035	0.045	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.040	0.040
	Others	-	-	Cu 0.20 (Min.)	Cu 0.18 (Min.)	Cu 0.20 (Min.)	Cu 0.18 (Min.)	-	-	-	-	-	-	-	-	-	Cr 0.80-1.10 Mo 0.15-0.25	Cr 0.40-0.60 Mo 0.15-0.25 Ni 0.40-0.70
Mechanical properties	Tensile strength (min.) PSI	48000	6000	R 45000	S 45000	R 58000	S 58000											
	Tensile strength (min.) MPa	330	415	310	310	400	400											
	Tensile strength (min.) kgf/mm²	33.8	42.2	31.6	31.6	40.8	40.8											
	Yield point (min.) PSI	30000	35000	33000	39000	42000	46000											
	Yield point (min.) MPa	205	240	228	269	290	317											
	Yield point (min.) kgf/mm²	21.1	24.6	23.3	27.4	29.6	32.3											
	Elongation (Min.)	e = 625,000 $A^{0.2}/ U^{0.9}$		25 (56t + 17.5)		23 (61t + 12)												
Flattening test	H : Distance between Flattening plates(mm) H` : Inside disance between flattening plates(mm) D : Outside diameter of the pipe(mm) D` : Inside diameter of the pipe(mm)	NPS2 over Weld H = 2/3D Base metal H = 1/3D Welded part is located at 90 degree		Weld H = 2/3D Base metal H = 1/3D Soundness Test H = Contact Welded part is located at 90 degree				Welded part H = 2/3D Base metal H = 1/3D Welded part is located at 90 degree										
Bending test	Bending angle X Inside radius (D : Outside diameter of the pipe)	NPS2 below 90° X 12D close coiling 180° X 8D		-				-										
Hydrostatic test	P : Test pressure (PSI, MPa) D : Outside diameter(mm) t : Thickness(mm)	$P = \frac{2St}{D}$		-				$P = \frac{2St}{D}$ s = allowable fiber stress of 14000PSI or 96.5MPa										
NDT (Non-Destructive Test)		Ultrasonic Test or Eddy current test		-				Eddy - Current Test or Ultrasonic Test or Flux leakage Test										
Others		Weight of zinc coating Average : Min. 550g/m² Individual : Min. 490g/m²		-				Flaring Test ID` = 1.15D`(60° tool) D` : Inside diameter ID` : Enlarged inside diameter										

Type	Grade	Tensile strength Min. (PSI)	Yield point Min. (PSI)	Elongation Min(%)
As-welded	1010	45000	32000	15
	1015	48000	35000	15
	1020	52000	38000	12
	1025	56000	40000	12
	1030	62000	45000	10
	1035	66000	50000	10
Normalized	1010	40000	25000	30
	1015	45000	30000	30
	1020	50000	35000	25
	1025	55000	37000	25
	1030	60000	40000	25
	1035	65000	45000	20
Sink-drawn	1010	50000	40000	8
	1015	55000	45000	8
	1020	60000	50000	8
	1025	65000	55000	7
	1030	70000	62000	7
	1035	80000	70000	7
Mandrel-drawn	1010	60000	50000	5
	1015	65000	55000	5
	1020	70000	60000	5
	1025	75000	65000	5
	1030	85000	75000	5
	1035	90000	80000	5
Mandrel-drawn stress-relieved	1010	55000	45000	12
	1015	60000	50000	12
	1020	65000	55000	10
	1025	70000	60000	10
	1030	80000	70000	10
	1035	85000	75000	10

SPECIFICATIONS

ASTM

Classification \ Specification			ASTM A589					BS 1387	BS 3601			BS 3602		BS 1775			
			TYPE 1		TYPE 2	TYPE 3	TYPE 4	(L)Light (M)Medium (H)Heavy	ERW 320	ERW 360	ERW 430	ERW 360	ERW 410	ERW 11	ERW 16	ERW 20	ERW 23
Application			Drive Pipe (Grade A)	Drive Pipe (Grade B)	Water-Well Reamed and Drifted Pipe (Grade A)	Driven Well Pipe (Grade A)	Water-Well Casing Pipe (Grade A)	Ordinary piping	Pressure services			High-pressure services		Machine structural purposes, General structural purposes			
Chemical composition(%)	C(Max.)		–	–	–	–	–	0.20	0.16	0.17	0.21	0.17	0.21	–	–	–	–
	Si(Max.)		–	–	–	–	–	–	–	0.35	0.35	0.35	0.35	–	–	–	–
	Mn(Max.)		–	–	–	–	–	1.20	0.30–0.70	0.40–0.80	0.40–1.20	0.40–0.80	0.40–1.20	–	–	–	–
	P(Max.)		0.050	0.050	0.050	0.050	0.050	0.045	0.040	0.040	0.040	0.045	0.045	0.060	0.060	0.060	0.060
	S(Max.)		0.060	0.060	0.060	0.060	0.060	0.045	0.040	0.040	0.040	0.045	0.045	0.060	0.060	0.060	0.060
	Others		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Mechanical properties	Tensile strength (min.)	PSI	48000	60000		48000		–	–	–	–	–	–	–	–	–	–
		MPa	331	413		331		320–460	320–460	360–500	430–570	360–500	410–550	309	386	463	494
		kgf/mm^2	33.8	42.1		33.8		32.7–46.9	32.7–46.9	36.7–51.0	43.9–58.2	36.7–51.0	41.8–56.1	31.5	39.4	47.2	50.4
	Yield point (min.)	PSI	30000	35000		30000		–	–	–	–	–	–	–	–	–	–
		MPa	207	241		207		195	195	235	275	215	245	170	247	309	355
		kgf/mm^2	21.1	24.6		21.1		19.9	19.9	24.0	28.1	21.9	25.0	17.3	25.2	31.5	36.2
	Elongation (Min.)		e = 625,000($A^{0.2}/U^{0.9}$)					20	25	25	22	24	22	600/TS(700/TS) TS : Ton/in^2, Kgf/mm^2			
Flattening test	H : Distance between Flattening plates(mm) H` : Inside disance between flattening plates D : Outside diameter of the pipe D` : Inside diameter of the pipe t : Wall thickness of the pipe		–					DN Over 50 Welded part H = 0.75D Base metal H = 0.60D Welded part is located at 90 degree	$H = \frac{(1+e)t}{e+t/D}$ Constant: Class 320: Welded part 0.029, Base metal 0.10; 360: 0.026, 0.09; 460: 0.023, 0.08			$H = \frac{(1+e)t}{e+t/D}$ e = 0.10 e = 0.08		H`=3t or H`=1/2D` whichever is the smaller	H`=6t or H`=3/4D` whichever is the smaller	H`=8t or H`=7/8D` whichever is the smaller	H`=6t or H`=3/4D` whichever is the smaller
Bending test	Bending angle X Inside radius (D : Outside diameter, t : Wall thickness)		–					DN 50below Black pipes 180° X 6D Galvanized pipes 90° X 8D	–			Outside diameter of bar is 4t		–			
Hydrostatic test	P : Test pressure S : Fiber stress, PSI(mPa) D : Outside diameter(mm) t : Thickness(mm)		Prescribed according to dimension and grade					51 (50 bar)	$P = \frac{20St}{(bar)\ D}$ S : 80% of the specified minimum yield strength			$P = \frac{20St}{(bar)\ D}$ S : 80% of the specified minimum yield strength Max : 143Kgf/cm^2 (140bar)		–			
NDT (Non-Destructive Test)			–					Eddy Current Test (substitute with hydrostatic test)	Eddy Current Test (Applied to pipes with Outside diameter of 180mm or less as substitution for hydrostatic test)			Ultrasonic Test		–			
Others			–					Bore Test (hot-dip zinc coated tubes)	–			The Charpy V-notch Impact test		Drift Expanding Test: 1D = 1.125D`	1D = 1.10D`	1D = 1.075D`	1D = 1.10D`

ASTM

Classification \ Specification			ASTM A135		ASTM A178			ASTM A252		
			A	B	A	C	D	A	B	C
Application			Sprinkler		Boiler & Heat exchanger			Steel Pipe Piles		
Chemical composition(%)	C(Max.)		0.25	0.30	0.60 ~ 0.18	0.035	0.27	–	–	–
	Si(Max.)		–	–	–	–	0.10	–	–	–
	Mn(Max.)		0.95	1.20	0.27 ~ 0.63	0.80	1.00 ~ 1.50	–	–	–
	P(Max.)		0.035	0.035	0.035	0.035	0.030	–	–	–
	S(Max.)		0.035	0.035	0.035	0.035	0.015	0.050	0.050	0.050
	Others		–	–	–	–	–	–	–	–
Mechanical properties	Tensile strength (min.)	PSI	48000	60000	47000	60000	70000	50000	60000	66000
		MPa	331	414	325	415	485	345	414	455
		kgf/mm^2	33.8	42.2	33.1	42.2	49.3	35.2	42.2	46.5
	Yield point (min.)	PSI	30000	35000	26000	37000	40000	30000	35000	45000
		MPa	207	241	180	255	275	205	240	310
		kgf/mm^2	21.1	26.7	18.3	26.1	28.2	21.1	24.7	31.7
	Elongation (min.)		E = 56t+17.50	E = 48t+15.00	35	30 (e = 48t+15.0)	30 (e = 48t+15.0)	30 (e = 48t+15.0)	25 (e = 40t+12.5)	20 (e = 32t+10.0)
Flattening test	H : Distance between Flattening plates H`: Inside disance between flattening plates D : Outside diameter of the pipe D`: Inside diameter of the pipe t : Wall thickness of the pipe		0° , 90°	0° , 90°	TEST	TEST	TEST	–	–	–
Bending test	Bending angle X Inside radius (D : Outside diameter, t : Wall thickness)		–	–	–	–	–	–	–	–
Hydrostatic test	P : Test pressure S : Fiber stress, PSI(MPa) D : Outside diameter(mm) t : thickness(mm)		P = 2St/D	P = 2St/D	–	–	–	–	–	–
NDT (Non-Destructive Test)			Eddy Current Test & Ultrasonic Test (Substitute with Hydrostatic Test)		UT or ECT	UT or ECT	UT or ECT	–	–	–
Others			–	–	Flange Test, Crush Test, Reverse flattening Test	Flange Test, Reverse flattening Test	Flange Test, Reverse flattening Test	–	–	–

SPECIFICATIONS

ASTM

Classification \ Specification			ASTM A249			
			TP304	TP304L	TP316	TP316L
Application			Boiler, Superheater, Heat Exchanger & Condenser Tubes			
Chemical composition(%)	C(Max.)		0.08	0.035	0.08	0.035
	Si(Max.)		0.75	0.75	0.75	0.75
	Mn(Max.)		2.0	2.0	2.0	2.0
	P(Max.)		0.04	0.04	0.04	0.04
	S(Max.)		0.03	0.03	0.03	0.03
	Others		Ni, Cr	Ni, Cr	Ni, Cr, Mo	Ni, Cr, Mo
Mechanical properties	Tensile strength (min.)	PSI	75000	70000	75000	70000
		MPa	515	485	515	485
		kgf/mm²	52.8	49.3	52.8	49.3
	Yield point (min.)	PSI	30000	25000	30000	25000
		MPa	205	170	205	170
		kgf/mm²	21.1	17.6	21.1	17.6
	Elongation (min.)		35	35	35	35
Flattening test	H : Distance between Flattening plates H` : Inside disance between flattening plates D : Outside diameter of the pipe D` : Inside diameter of the pipe t : Wall thickness of the pipe		$H = \frac{(1+e)t}{e+t/D}$ e : 0.07(C : 0.19% over)			
Bending test	Bending angle X Inside radius (D : Outside diameter, t : Wall thickness)		-			
Hydrostatic test	P : Test pressure S : Fiber stress, PSI(MPa) D : Outside diameter(mm) t : thickness(mm)		-			
NDT (Non-Destructive Test)			Eddy Current Test (Substitute with Hydrostatic Test)			
Others			Flange Test, Reverse Bend Test Hardness Test			

ASTM

Classification \ Specification			ASTM A671						
			CA55	CB60	CB65	CB70	CC60	CC65	CC70
Application						-			
Chemical composition(%)	C(Max.)		0.28	0.24	0.28	0.31	0.21	0.24	0.27
	Si(Max.)		-	0.15 ~ 0.40	0.15 ~ 0.40	0.15 ~ 0.40	0.15 ~ 0.40	0.15 ~ 0.40	0.15 ~ 0.40
	Mn(Max.)		0.90	0.90	0.90	1.20	0.60 ~ 0.90	0.85 ~ 1.20	0.85 ~ 1.20
	P(Max.)		0.035	0.035	0.035	0.035	0.035	0.035	0.035
	S(Max.)		0.04	0.035	0.035	0.035	0.035	0.035	0.035
	Others		-	-	-	-	-	-	-
Mechanical properties	Tensile strength (Min.)	PSI	-	-	-	-	-	-	-
		MPa	380 ~ 515	415 ~ 550	450 ~ 585	485 ~ 620	415 ~ 550	450 ~ 585	485 ~ 620
		kgf/mm²	33.8 ~ 52.6	42.4 ~ 56.1	45.9 ~ 59.7	45.9 ~ 63.3	42.4 ~ 56.1	45.9 ~ 59.7	49.5 ~ 63.3
	Yield point (Min.)	PSI	-	-	-	-	-	-	-
		MPa	205	220	240	260	220	240	260
		kgf/mm²	21.0	22.5	24.5	26.6	22.5	24.5	26.6
Elongation (min.)			27	25	23	21	25	23	21
Flattening test			-	-	-	-	-	-	-
Bending test			-	-	-	-	-	-	-
Hydrostatic test			Class 10		-		P = 2St/D		
			Class 11		-				
			Class 12		TEST				
			Class 13		TEST				
			Class 20		-				
			Class 21		-				
			Class 22		TEST				
			Class 23		TEST				
NDT (Non-Destructive Test)			Class 10		-		-		
			Class 11		TEST(RT)				
			Class 12		TEST(RT)				
			Class 13		-				
			Class 20		-				
			Class 21		TEST(RT)				
			Class 22		TEST(RT)				
			Class 23		-				
Others			-		-		-		

SPECIFICATIONS

ASTM

Classification \ Specification			ASTM A672									
			A45	A50	A55	B55	B60	B65	B70	C55	C60	C65	C70
Application								-					
Chemical composition(%)	C(Max.)		0.17	0.22	0.28	0.20	0.24	0.28	0.31	0.18	0.21	0.24	0.27
	Si(Max.)		-	-	-	0.15 ~ 0.40	0.15 ~ 0.40	0.15 ~ 0.40	0.15 ~ 0.40	0.15 ~ 0.40	0.15 ~ 0.40	0.15 ~ 0.40	0.15 ~ 0.40
	Mn(Max.)		0.90	0.90	0.90	0.90	0.90	0.90	1.20	0.60 ~ 0.90	0.60 ~ 0.90	0.85 ~ 1.20	0.85 ~ 1.20
	P(Max.)		0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
	S(Max.)		0.04	0.04	0.04	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
	Others		-	-	-	-	-	-	-	-	-	-	-
Mechanical properties	Tensile strength (Min.)	PSI	-	-	-	-	-	-	-	-	-	-	-
		MPa	315 ~ 450	345 ~ 485	380 ~ 515	380 ~ 515	415 ~ 550	450 ~ 585	485 ~ 620	380 ~ 515	415 ~ 550	450 ~ 585	485 ~ 620
		kgf/mm²	32.2 ~ 45.9	35.2 ~ 49.5	38.8 ~ 52.6	38.8 ~ 52.6	42.4 ~ 56.1	45.9 ~ 59.7	49.5 ~ 63.3	38.8 ~ 52.6	42.2 ~ 56.1	45.9 ~ 59.7	49.5 ~ 63.3
	Yield point (Min.)	PSI	-	-	-	-	-	-	-	-	-	-	-
		MPa	165	185	205	205	220	240	260	205	220	240	260
		kgf/mm²	16.9	18.9	21.0	21.0	22.5	24.5	26.6	21.0	22.5	24.6	26.6
	Elongation (min.)		30	28	27	27	25	23	21	27	25	23	21
Flattening test								-					
Bending test								-					
Hydrostatic test			Class 10	-	P = 2St/D								
			Class 11	-									
			Class 12	TEST									
			Class 13	TEST									
			Class 20	-									
			Class 21	-									
			Class 22	TEST									
			Class 23	TEST									
NDT (Non-Destructive Test)			Class 10	-	-								
			Class 11	TEST(RT)									
			Class 12	TEST(RT)									
			Class 13	-									
			Class 20	-									
			Class 21	TEST(RT)									
			Class 22	TEST(RT)									
			Class 23	-									
Others								-					

KS (JIS)

Classification			Specification									
			KS D 3507 (JIS G 3452)	KS D 3537 (JIS G 3442)	KS D 3565			KS D 3583 (JIS G 3457)	KS D 3562 (JIS G 3454)		KS D 3569 (JIS G 3460)	KS D 3570 (JIS G 3456)	
			SPP (SGP)	SPPW (SGPW)	STWW 290 (300A below)	STWW 370 (300A below)	STWW 400 (350A below)	SPW 400 (STPY 400)	SPPS 38 (STPG 370)	SPPS 42 (STPG 410)	SPLT 39 (STPL 380)	SPHT 38 (STPT 370)	SPHT 42 (STPT 410)
Name of specification			Carbon steel pipes for ordinary piping	Galvanized steel pipes for water service	Coated steel pipes for water works			Arc welded carbon steel pipes	Carbon steel pipes for pressure services		Steel pipes for low temperature service	Carbon steel pipes for high temperature service	
Chemical composition (%)	C(Max.)		-	-	-	0.25	0.25	0.25	0.25	0.30	0.25	0.25	0.30
	Si(Max.)		-	-	-	-	-	-	0.35	0.35	0.35	0.10 - 0.35	0.10 - 0.35
	Mn(Max.)		-	-	-	-	-	-	0.30 - 0.90	0.30 - 1.00	1.35	0.30 - 0.90	0.30 - 1.00
	P(Max.)		0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.035	0.035	0.035
	S(Max.)		0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.035	0.035	0.035
	Others		-	-	-	-	-	-	-	-	-	-	-
Mechanical properties	Tensile strength (min.)	kgf/mm²	30	30	30	38	41	41	38	42	39	38	42
		N/mm²	294	294	294	373	402	400	373	472	382	373	412
	Yield point (min.)	kgf/mm²	-	-	-	22	23	23	22	25	21	22	25
		N/mm²	-	-	-	216	226	225	216	245	206	216	245
	Elongation (min.) (%)	No.11 specimen	30	30	30	30	-	-	30	25	35	30	25
		No.12 Specimen	25	25	25	25	18	18	25	20	25	25	20
		No. 5 specimen											
Flattening test	H : Distance between Flattening plates(mm) D : Outside diameter of the pipe(mm) t : Wall thickness of the pipe(mm)		H = 2/3D	H = 2/3D	H = 2/3D (Electric resistance welded pipe)			-	Welded part H = 2/3D Base metal H = 1/3D		$H = \frac{(4+e)t}{e+t/D}$ e = 0.08	$H = \frac{(1+e)t}{e+t/D}$ e = 0.07	
Bending test	Bending angle X Inside radius (D : Outside diameter of the pipe)		90° X 6D (pipes of 50A or below, substitute with flattening test)	90° X 8D (pipes of 50A or below)	-			-	90° X 6D (Pipes of 40A or below, substitute with flattening test)		90° X 6D (Pipes of 50mm or below, substitute with flattening test)	90° X 6D (Pipes of 50mm or below, substitute with flattening test)	
Hydrostatic test	Test pressure (kgf/cm²)		25	25	Letter symbol of grade / Test pressure: STWW 290 — 25; STWW 370 — 35; STWW 400 A — 25; STWW 400 B — 20			25	Schedule No. / Test pressure: 10 — 20; 20 — 35; 30 — 50; 40 — 60; 60 — 90; 80 — 120		Schedule No. / Test pressure: 10 — 20; 20 — 35; 30 — 50; 40 — 60; 60 — 90; 80 — 120	Schedule No. / Test pressure: 10 — 20; 20 — 35; 30 — 50; 40 — 60; 60 — 90; 80 — 120	
Non-destructive Test	Ultrasonic test or eddy current test		substitute with hydrostatic test	substitute with hydrostatic test	Substitute with hydrostatic test (Selection of one from ultrasonic test, eddy current test, radiographic test)			substitute with hydrostatic test	substitute with hydrostatic test		substitute with hydrostatic test	substitute with hydrostatic test	
	Others		Galvanized pipes (uniformity test 5 times)	Weight of zinc coating (average 600g/m²) Uniformity test 6 times	Tensile strength test for welded part (Arc welded steel pipes)			Tensile strength test for welded part	-		Charpy impact test	-	

SPECIFICATIONS

KS (JIS)

Classification \ Specification		KS D 3517 (JIS G 3445)																					
		STKM 11A	STKM 12A	STKM 12B	STKM 12C	STKM 13A	STKM 13B	STKM 13C	STKM 14A	STKM 14B	STKM 14C	STKM 15A	STKM 15C	STKM 16A	STKM 16C	STKM 17A	STKM 17C	STKM 18A	STKM 18B	STKM 18C	STKM 19A	STKM 19C	STKM 20A
Name of specification		Carbon steel Tubes for machine structural purposes																					
Chemical composition(%)	C(Max.)	0.12	0.20			0.25			0.30			0.25 ~ 0.35	0.35 ~ 0.45			0.45 ~ 0.55		0.18			0.25		0.25
	Si(Max.)	0.35	0.35			0.35			0.35			0.35	0.40			0.40		0.55			0.55		0.55
	Mn(Max.)	0.60	0.60			0.30 ~ 0.90			0.30 ~ 1.00			0.30 ~ 1.00	0.40 ~ 1.00			0.40 ~ 1.00		1.50			1.50		1.60
	P(Max.)	0.040	0.040			0.040			0.040			0.040	0.40			0.40		0.040			0.040		0.040
	S(Max.)	0.040	0.040			0.040			0.040			0.040	0.40			0.40		0.040			0.040		0.040
	Others	-	-			-			-			-	-			-		-			-		Nb or V 0.15 below
Mechanical properties	Tensile strength (min.) kgf/mm²	30	35	40	48	38	45	52	42	51	56	48	59	52	63	56	66	45	50	52	50	56	55
	Tensile strength (min.) N/mm²	290	340	390	470	370	440	510	410	500	550	470	580	510	620	550	650	440	490	510	490	550	540
	Yield point (min.) kgf/mm²	-	18	28	36	22	31	39	25	36	42	28	44	33	47	35	49	28	32	39	32	42	40
	Yield point (min.) N/mm²	-	175	275	356	215	305	380	245	355	410	275	430	325	460	345	480	275	315	380	315	410	390
	Elongation (min.) (%) No.11 specimen / No.12 Specimen	35	35	25	20	30	20	15	25	15	15	22	12	20	12	20	10	25	23	15	23	15	23
	Elongation (min.) (%) No. 5 specimen	30	30	20	15	25	15	10	20	10	10	17	7	15	7	15	5	20	18	10	18	10	18
Flattening test	H : Distance between Flattening plates(mm) D : Outside diameter of the pipe(mm) t : Wall thickness of the pipe(mm)	H = 1/2D	H = 2/3D	H = 2/3D	-	H = 2/3D	H = 3/4D	-	H = 3/4D	H = 7/8D	-	H = 3/4D	-	H = 7/8D	-	H = 7/8D	-	H = 7/8D	H = 7/8D	-	H = 7/8D	-	H = 7/8D
Bending test	Bending angle X Inside radius (D : Outside diameter of the pipe) Pipes of 50mm or below (Outside Diameter)	180° X 4D	90° X 6D	90° X 6D	-	90° X 6D	90° X 6D	-	90° X 6D	90° X 8D	-	90° X 6D	-	90° X 8D	-	90° X 8D	-	90° X 6D	90° X 8D	-	90° X 6D	-	90° X 6D
Hydrostatic test	Hydrostatic test pressure (kgf/cm²)	By agreement																					
Non-destructive Test	Ultrasonic test or eddy current test	By agreement																					
Others		-																					

KS (JIS)

Classification \ Specification		KS D 3566 (JIS G 3444)					KS F 4602 (JIS A 5525)		KS D 3780 (JIS G 3474)	
		STK 290 (STK 290)	STK 400 (STK 400)	STK 500 (STK 500)	STK 490 (STK490)	STK 540 (STK 540)	SPS 400 (SKK 400)	SPS 490 (SKK 490)	STKT 540 (STKT 540)	STKT 590 (STKT 590)
Name of specification		Carbon steel tubes for general structural purposes					Steel pipe piles		High tensile strength steel for tower structural purposes	
Chemical composition(%)	C(Max.)	-	0.25	0.24	0.18	0.23	0.25	0.18	0.23	0.12
	Si(Max.)	-	-	0.35	0.55	0.55	-	0.55	0.55	0.40
	Mn(Max.)	-	-	0.30 ~ 1.30	1.50	1.50	-	1.50	1.50	2.00
	P(Max.)	0.050	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.030
	S(Max.)	0.050	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.030
	Others	-	-	-	-	-	-	-	-	0.15 (Nb+V)
Mechanical properties	Tensile strength (min.) kgf/mm²	30	41	51	50	55	41	50	55	60 ~ 70
	Tensile strength (min.) N/mm²	290	400	500	490	540	400	490	540	590 ~ 740
	Yield point (min.) kgf/mm²	-	24	36	32	40	24	32	40	45
	Yield point (min.) N/mm²	-	235	356	315	390	235	315	390	440
	Elongation (min.) (%) No.11 specimen / No.12 Specimen	30	23	15	23	20	23	23	20	20
	Elongation (min.) (%) No. 5 specimen	25	18	10	18	16	18	18	16	16
Flattening test	H : Distance between Flattening plates(mm) D : Outside diameter of the pipe(mm) t : Wall thickness of the pipe(mm)	H = 2/3D	H = 2/3D	H = 7/8D	H = 7/8D	H = 7/8D	H = 2/3D	H = 7/8D	H = 7/8D	H = 3/4D
Bending test	Bending angle X Inside radius (D : Outside diameter of the pipe)	90° X 6D	90° X 6D	90° X 8D	90° X 6D	90° X 6D	-		-	
		Pipes of 50mm or below, substitute with flattening test								
Hydrostatic test	Hydrostatic test pressure (kgf/cm²)	By agreement					By agreement		By agreement	
Non-destructive Test	Ultrasonic test or eddy current test or radiographic test	By agreement					By agreement		By agreement	
Others		Tensile strength test for welded part (Arc welded steel pipes 350mm or above)					Tensile strength test for welded part (Arc welded steel pipes)		- Tensile strength test for welded part (Arc welded steel pipes 350mm or above) - Impact test (STKT590) - 0.40% or less for carbon unit quantity	

SPECIFICATIONS

EN

Classification \ Specification		EN10255	EN 10217 - 1					
Application		LIGHT, MEDIUM, HEAVY	P195TR1	P195TR2	P235TR1	P235TR2	P265TR1	P265TR2
		Ordinary Piping	Pressure Purposes					
Chemical composition(%)	C(Max.)	0.2	0.13	0.13	0.16	0.16	0.2	0.2
	Si(Max.)	-	0.35	0.35	0.35	0.35	0.4	0.4
	Mn(Max.)	1.4	0.7	0.7	1.2	1.2	1.4	1.4
	P(Max.)	0.035	0.025	0.025	0.025	0.025	0.025	0.025
	S(Max.)	0.03	0.02	0.02	0.02	0.02	0.02	0.02
	Others	-	-	-	-	-	-	-
Mechanical properties	Tensile strength (min.) PSI	-	-	-	-	-	-	-
	Tensile strength (min.) MPa	320-520	320-440	320-440	360-500	360-500	410-570	410-570
	Tensile strength (min.) kgf/mm²							
	Yield point (min.) PSI	-	-	-	-	-	-	-
	Yield point (min.) MPa	195	195	195	235	235	265	265
	Yield point (min.) kgf/mm²							
	Elongation (min.)	20	27	27	25	25	21	21
Flattening test		DN Over 50 Welded part H = 0.75D Base metal H = 0.60D Welded part is located at 90 degree	0,09 for steel grades P195TR1/TR2 and P235TR1/TR2 0,07 for steel grade P265TR1/TR2 $H = \frac{(1 + C)}{C + (T/D)} \times T$					
Bending test		DN 10 UP TO 50 90° X BENDING RADIUS	Only applicabe to SAW pipes					
Hydrostatic test		if applicable, 50bar (5s)	70bar or $P = 20\frac{S \times T}{D}$ holding time : 5s(D< = 457) 10s(D>457)					
NDT (Non-Destructive Test)			the test method is specified by the purchaser					
Others								

DN	BENDING RADIUS
10	50
15	65
20	85
25	100
32	150
40	170
50	220

ISO

Classification \ Specification		ISO 9330 - 1				
Application		TW320	TW350	TW410	TW430	TW500
		Pressure Purposes				
Chemical composition(%)	C(Max.)	0.16	0.17	0.21	0.21	0.22
	Si(Max.)	-	0.35	0.35	0.35	0.35
	Mn(Max.)	0.3-0.7	0.3-0.8	0.4-1.2	0.4-1.2	<1.6
	P(Max.)	0.04	0.04	0.04	0.04	0.04
	S(Max.)	0.04	0.04	0.04	0.04	0.04
	Others	-	-	-	-	-
Mechanical properties	Tensile strength (min.) PSI	-	-	-	-	-
	Tensile strength (min.) MPa	515	515	515	515	515
	Tensile strength (min.) kgf/mm²					
	Yield point (min.) PSI	-	-	-	-	-
	Yield point (min.) MPa	195	235	255	275	355
	Yield point (min.) kgf/mm²					
	Elongation (min.)	25	25	22	21	21(1)
Flattening test		Welded part H = 2 /3D Base metal H = 1 / 3D				
Bending test						
Hydrostatic test		70bar or $P = 20\frac{S \times T}{D}$ holding time : 5s				
NDT (Non-Destructive Test)		ultrasonic test				
Others						

LINE PIPE

API 5L

Nominal size	Outside diameter		Wall thickness			Weight			Test pressure								Test pressure															
									A				B				X42		X46		X52		X56		X60		X65		X70		X80	
									STD		ALT		STD		ALT		STD	ALT	STD	ALT	STD	ALT	STD	ALT	STD	ALT	STD	ALT	STD	ALT	STD	ALT
in.	in.	mm	Grade	in.	mm	lb/ft	kg/ft	kg/m	psi	kpa X 100	psi	kpa X 100	psi	kpa X 100	psi	kpa X 100	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi
3/8	0.675	17.1	STD	0.091	2.3	0.57	0.26	0.84	700	48	-	-	700	48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			XS	0.126	3.2	0.74	0.34	1.10	850	59	-	-	850	59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1/2	0.840	21.3	STD	0.109	2.8	0.85	0.39	1.28	700	48	-	-	700	48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			XS	0.147	3.7	1.09	0.49	1.61	850	59	-	-	850	59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3/4	1.050	26.7	STD	0.113	2.9	1.13	0.52	1.70	700	48	-	-	700	48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			XS	0.154	3.9	1.47	0.67	2.19	850	59	-	-	850	59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	1.315	33.4	STD	0.133	3.4	1.68	0.77	2.52	700	48	-	-	700	48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			XS	0.179	4.5	2.17	0.98	3.21	850	59	-	-	850	59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1¼	1.660	42.2	STD	0.140	3.6	2.27	1.05	3.43	1200	83	-	-	1300	90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			XS	0.191	4.9	3.00	1.37	4.51	1800	124	-	-	1900	131	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1½	1.900	48.3	STD	0.145	3.7	2.72	1.24	4.07	1200	83	-	-	1300	90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			XS	0.200	5.1	3.63	1.66	5.43	1800	124	-	-	1900	131	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2⅜	2.375	60.3		0.083	2.1	2.03	0.92	3.01	1260	87	1570	-	1470	101	1830	-	1760	2200	1930	2410	2180	2730	2350	2940	2520	3000	2730	3000	2940	3000	3000	3000
				0.109	2.8	2.64	1.21	3.97	1650	-	2070	-	1930	-	2410	-	2310	2890	2530	3000	2860	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
				0.125	3.2	3.00	1.37	4.51	1890	-	2370	-	2210	-	2500	-	2650	3000	2910	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
				0.141	3.6	3.36	1.53	5.03	2140	-	2500	-	2490	-	2500	-	2990	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
			STD	0.154	3.9	3.65	1.65	5.42	2330	161	2500	-	2500	172	2500	-	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
				0.172	4.4	4.05	1.85	6.07	2500	172	2500	-	2500	172	2500	-	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
				0.188	4.8	4.39	2.00	6.57	2500	172	2500	-	2500	172	2500	-	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
			XS	0.218	5.5	5.02	2.26	7.43	2500	172	2500	-	2500	172	2500	-	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
				0.250	6.4	5.67	2.59	8.51	2500	172	2500	-	2500	172	2500	-	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
				0.281	7.1	6.28	2.84	9.31	2500	172	2500	-	2500	172	2500	-	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
2⅞	2.875	73.0		0.083	2.1	2.47	1.12	3.67	1040	71	1300	-	1210	83	1210	-	1460	1820	1590	1990	1800	2250	1940	2430	2030	2600	2250	2310	2430	3000	2770	3000
				0.109	2.8	3.22	1.48	4.85	1360	-	1710	-	1590	-	1590	-	1910	2390	2090	2620	2370	2960	2550	3000	2730	3000	2960	3000	3000	3000	3000	3000
				0.125	3.2	3.67	1.68	5.51	1570	-	1960	-	1830	-	1830	-	2190	2740	2400	3000	2710	3000	2920	3000	3000	3000	3000	3000	3000	3000	3000	3000
				0.141	3.6	4.12	1.88	6.16	1770	-	2210	-	2060	-	2060	-	2470	3000	2710	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
				0.156	4.0	4.53	2.08	6.81	1950	136	2440	-	2280	158	2280	-	2730	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
				0.172	4.4	4.97	2.27	7.44	2150	150	2500	-	2500	172	2500	-	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
				0.188	4.8	5.40	2.46	8.07	2350	163	2500	-	2500	172	2500	-	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
			STD	0.203	5.2	5.79	2.65	8.69	2500	172	2500	-	2500	172	2500	-	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
				0.216	5.5	6.13	2.79	9.16	2500	172	2500	-	2500	172	2500	-	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
				0.250	6.4	7.01	3.20	10.51	2500	172	2500	-	2500	172	2500	-	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
			XS	0.276	7.0	7.66	3.47	11.39	2500	172	2500	-	2500	172	2500	-	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
3½	3.500	88.9		0.083	2.1	3.03	1.37	4.50	850	59	1070	-	1000	68	1250	-	1200	1490	1310	1640	1480	1850	1590	1990	1710	2130	1850	2310	1990	2490	2280	2850
				0.109	2.8	3.95	1.81	5.95	1120	-	1400	-	1310	-	1640	-	1570	1960	1720	2150	1940	2430	2090	2620	2240	2800	2430	3000	2620	3000	2990	3000
				0.125	3.2	4.51	2.06	6.76	1290	89	1610	-	1500	104	1880	-	1800	2250	1970	2460	2230	2790	2400	3000	2570	3000	2790	3000	3000	3000	3000	3000
				0.141	3.6	5.06	2.31	7.57	1450	-	1810	-	1690	-	2120	-	2030	2540	2220	2780	2510	3000	2710	3000	2900	3000	3000	3000	3000	3000	3000	3000
				0.156	4.0	5.57	2.55	8.37	1600	112	2010	-	1870	130	2340	-	2250	2810	2460	3000	2780	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
				0.172	4.4	6.11	2.80	9.17	1770	123	2210	-	2060	143	2500	-	2480	3000	2710	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
				0.188	4.8	6.65	3.03	9.95	1930	134	2420	-	2260	156	2500	-	2710	3000	2970	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
			STD	0.216	5.5	7.58	3.45	11.31	2220	154	2500	-	2500	172	2500	-	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
				0.250	6.4	8.68	3.97	13.02	2500	172	2500	-	2500	172	2500	-	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
				0.281	7.1	9.66	4.36	14.32	2500	172	2500	-	2500	172	2500	-	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
			XS	0.300	7.6	10.25	4.65	15.24	2500	172	2500	-	2500	172	2500	-	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000

LINE PIPE

API 5L

Nominal size	Outside diameter		Wall thickness			Weight			Test pressure A STD		Test pressure A ALT		Test pressure B STD		Test pressure B ALT	
in.	in.	mm	Grade	in.	mm	lb/ft	kg/ft	kg/m	psi	kpa X 100	psi	kpa X 100	psi	kpa X 100	psi	kpa X 100
4	4.000	101.6		0.083	2.1	3.47	1.57	5.15	750	51	930	–	870	60	1090	–
				0.109	2.8	4.53	2.08	6.82	980	68	1230	–	1140	80	1430	–
				0.125	3.2	5.17	2.37	7.76	1130	78	1410	–	1310	91	1640	–
				0.141	3.6	5.81	2.65	8.70	1270	88	1590	–	1480	102	1850	–
				0.156	4.0	6.40	2.94	9.63	1400	98	1760	–	1640	114	2050	–
				0.172	4.4	7.03	3.22	10.55	1550	108	1940	–	1810	125	2260	–
				0.188	4.8	7.65	3.49	11.46	1690	117	2120	–	1970	137	2470	–
			STD	0.226	5.7	9.11	4.11	13.48	2930	139	2540	–	2370	162	2800	–
				0.250	6.4	10.01	4.58	15.02	2250	156	2800	–	2630	182	2800	–
				0.281	7.1	11.16	5.04	16.55	2530	174	2800	–	2800	193	2800	–
			XS	0.318	8.1	12.50	5.69	18.68	2800	193	2800	–	2800	193	2800	–
4½	4.500	114.3		0.083	2.1	3.92	1.77	5.81	660	46	830	–	770	53	970	–
				0.125	3.2	5.84	2.67	8.77	1000	70	1250	–	1170	81	1460	–
				0.141	3.6	6.56	3.00	9.83	1130	78	1410	–	1320	91	1650	–
				0.156	4.0	7.24	3.32	10.88	1250	87	1560	–	1460	101	1820	–
				0.172	4.4	7.95	3.63	11.92	1380	96	1720	–	1610	111	2010	–
				0.188	4.8	8.66	3.95	12.96	1500	104	1880	–	1750	121	2190	–
				0.203	5.2	9.32	4.26	13.99	1620	113	2030	–	1890	132	2370	–
				0.219	5.6	10.01	4.58	15.01	1750	122	2190	–	2040	142	2560	–
			STD	0.237	6.0	10.79	4.88	16.02	1900	130	2370	–	2210	152	2770	–
				0.250	6.4	11.35	5.19	17.03	2000	139	2500	–	2330	162	2800	–
				0.281	7.1	12.66	5.72	18.77	2250	154	2800	–	2620	180	2800	–
				0.312	7.9	13.96	6.32	20.73	2500	172	2800	–	2800	193	2800	–
			XS	0.337	8.6	14.98	6.83	22.42	2700	187	2800	–	2800	193	2800	–
				0.438	11.1	19.00	8.61	28.25	2800	193	2800	–	2800	193	2800	–
				0.531	13.5	22.51	10.23	33.56	2800	193	2800	–	2800	193	2800	–
5⁹⁄₁₆	5.563	141.3		0.083	2.1	4.86	2.20	7.21	540	37	–	–	630	43	–	–
				0.125	3.2	7.26	3.32	10.90	810	56	–	–	940	65	–	–
				0.156	4.0	9.01	4.13	13.54	1010	70	–	–	1180	82	–	–
				0.188	4.8	10.79	4.93	16.16	1220	84	–	–	1420	98	–	–
				0.219	5.6	12.50	5.71	18.74	1420	98	–	–	1650	115	–	–
			STD	0.258	6.6	14.62	6.68	21.92	1670	116	–	–	1950	135	–	–
				0.281	7.1	15.85	7.16	23.50	1820	125	–	–	2120	145	–	–
				0.312	7.9	17.50	7.92	25.99	2020	139	–	–	2360	162	–	–
				0.344	8.7	19.17	8.67	28.45	2230	153	–	–	2600	178	–	–
			XS	0.375	9.5	20.78	9.41	30.88	2430	167	–	–	2800	193	–	–
				0.500	12.7	27.04	12.28	40.28	2800	193	–	–	2800	193	–	–
				0.625	15.9	32.96	14.99	49.17	2800	193	–	–	2800	193	–	–
6⅝	6.625	168.3		0.083	2.1	5.80	2.62	8.61	450	31	560	39	530	37	660	45
				0.109	2.8	7.59	3.48	11.43	590	41	740	51	690	48	860	59
				0.125	3.2	8.68	3.97	13.03	680	47	850	59	790	54	990	68
				0.141	3.6	9.76	4.46	14.62	770	53	960	66	890	61	1120	77
				0.156	4.0	10.78	4.94	16.21	850	59	1060	73	990	68	1240	85
				0.172	4.4	11.85	5.42	17.78	930	64	1170	81	1090	75	1360	94
				0.188	4.8	12.92	5.90	19.35	1020	70	1280	88	1190	82	1490	103
				0.203	5.2	13.92	6.37	20.91	1100	76	1380	95	1290	89	1610	111
				0.219	5.6	14.98	6.85	22.47	1190	82	1490	103	1390	96	1740	120
				0.250	6.4	17.02	7.79	25.55	1360	94	1700	117	1580	109	1980	136
			STD	0.280	7.1	18.97	8.60	28.22	1520	105	1900	131	1780	123	2220	153

Test pressure X42 STD	X42 ALT	X46 STD	X46 ALT	X52 STD	X52 ALT	X56 STD	X56 ALT	X60 STD	X60 ALT	X65 STD	X65 ALT	X70 STD	X70 ALT	X80 STD	X80 ALT
psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi
1050	1430	1150	1430	1290	1620	1390	1740	1490	1870	1620	2020	1740	2180	1990	2490
1370	1720	1500	1880	1700	2130	1830	2290	1960	2450	2130	2660	2290	2860	2620	3000
1580	1970	1730	2160	1950	2440	2100	2630	2250	2810	2440	3000	2630	3000	3000	3000
1780	2220	1950	2430	2200	2750	2370	2960	2540	3000	2750	3000	2960	3000	3000	3000
1970	2460	2150	2690	2430	3000	2620	3000	2810	3000	3000	3000	3000	3000	3000	3000
2170	2710	2370	2970	2680	3000	2890	3000	3000	3000	3000	3000	3000	3000	3000	3000
2370	2960	2590	3000	2930	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
2850	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
930	1160	1020	1270	1150	1440	1240	1550	1330	1660	1440	1800	1550	1940	1770	2210
1400	1750	1530	1920	1730	2170	1870	2330	2000	2500	2170	2710	2330	2920	2670	3000
1580	1970	1730	2160	1960	2440	2110	2630	2260	2820	2440	3000	2630	3000	3000	3000
1750	2180	1910	2390	2160	2700	2330	2910	2500	3000	2700	3000	2910	3000	3000	3000
1930	2410	2110	2640	2390	2980	2570	3000	2750	3000	2980	3000	3000	3000	3000	3000
2110	2630	2310	2880	2610	3000	2810	3000	3000	3000	3000	3000	3000	3000	3000	3000
2270	2840	2490	3000	2810	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
2450	3000	2690	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
2650	3000	2910	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
2800	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
750	–	820	–	930	–	1000	–	1040	–	1160	–	1250	–	1430	–
1130	–	1240	–	1400	–	1500	–	1630	–	1750	–	1890	–	2160	–
1410	–	1550	–	1750	–	1910	–	2020	–	2120	–	2360	–	2690	–
1700	–	1870	–	2110	–	2270	–	2430	–	2640	–	2840	–	3000	–
1990	–	2170	–	2460	–	2650	–	2830	–	3000	–	3000	–	3000	–
2340	–	2560	–	2890	–	3000	–	3000	–	3000	–	3000	–	3000	–
2550	–	2790	–	3000	–	3000	–	3000	–	3000	–	3000	–	3000	–
3000	–	3000	–	3000	–	3000	–	3000	–	3000	–	3000	–	3000	–
3000	–	3000	–	3000	–	3000	–	3000	–	3000	–	3000	–	3000	–
3000	–	3000	–	3000	–	3000	–	3000	–	3000	–	3000	–	3000	–
3000	–	3000	–	3000	–	3000	–	3000	–	3000	–	3000	–	3000	–
3000	–	3000	–	3000	–	3000	–	3000	–	3000	–	3000	–	3000	–
790	–	860	–	980	–	1050	–	1130	–	1220	–	1320	–	1500	–
1040	–	1140	–	1280	–	1380	–	1480	–	1600	–	1730	–	1970	–
1190	–	1300	–	1470	–	1580	–	1700	–	1840	–	1980	–	2260	–
1340	–	1470	–	1660	–	1790	–	1920	–	2080	–	2230	–	2550	–
1480	–	1620	–	1840	–	1980	–	2120	–	2300	–	2470	–	2830	–
1640	–	1790	–	2030	–	2180	–	2340	–	2530	–	2730	–	3000	–
1790	–	1960	–	2210	–	2380	–	2550	–	2770	–	2980	–	3000	
1930	–	2110	–	2390	–	2570	–	2760	–	2990	–	3000	–	3000	–
2080	–	2280	–	2580	–	2780	–	2980	–	3000	–	3000	–	3000	–
2380	–	2600	–	2940	–	3000	–	3000	–	3000	–	3000	–	3000	–
2660	–	2920	–	3000	–	3000	–	3000	–	3000	–	3000	–	3000	–

LINE PIPE

API 5L

Nominal size	Outside diameter		Wall thickness			Weight			Test pressure																
									A				B				X42	X46	X52	X56	X60	X65	X70	X80
									STD		ALT		STD		ALT									
in.	in.	mm	Grade	in.	mm	lb/ft	kg/ft	kg/m	psi	kpa X 100	psi	kpa X 100	psi	kpa X 100	psi	kpa X 100	psi	psi	psi	psi	psi	psi	psi	psi
6⅝	6.625	168.3		0.312	7.9	21.04	9.53	31.25	1700	117	2120	146	1980	136	2470	170	2970	3000	3000	3000	3000	3000	3000	3000
				0.344	8.7	23.08	10.44	34.24	1870	129	2340	161	2180	150	2500	172	3000	3000	3000	3000	3000	3000	3000	3000
				0.375	9.5	25.03	11.34	37.20	2040	141	2550	176	2380	164	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
			XS	0.432	11.0	28.57	13.01	42.67	2350	-	2800	-	2740	-	2800	-	3000	3000	3000	3000	3000	3000	3000	3000
				0.500	12.7	32.71	14.85	48.73	2720	187	2800	193	2800	193	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				0.562	14.3	36.39	16.55	54.31	2800	193	2800	193	2800	193	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				0.625	15.9	40.05	18.21	59.76	2800	193	2800	193	2800	193	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				0.719	18.3	45.35	20.63	67.69	2800	193	2800	193	2800	193	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				0.750	19.1	47.06	21.42	70.27	2800	193	2800	193	2800	193	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
8⅝	8.625	219.1		0.125	3.2	11.35	5.19	17.04	520	36	650	45	610	42	760	52	910	1000	1130	1220	1300	1410	1520	1740
				0.156	4.0	14.11	6.47	21.22	650	45	810	56	760	52	950	65	1140	1250	1410	1520	1630	1760	1900	2170
				0.188	4.8	16.94	7.73	25.37	780	54	980	68	920	63	1140	79	1370	1500	1700	1830	1960	2130	2290	2620
				0.203	5.2	18.26	8.36	27.43	850	-	1060	-	990	-	1240	-	1480	1620	1840	2000	2120	2290	2470	2820
				0.219	5.6	19.66	8.99	29.48	910	63	1140	79	1070	74	1330	92	1600	1750	1980	2130	2290	2480	2670	3000
				0.250	6.4	22.36	10.23	33.57	1040	72	1300	90	1220	84	1520	105	1830	2000	2260	2430	2610	2830	3000	3000
				0.277	7.0	24.70	11.16	36.61	1160	80	1450	100	1350	93	1690	116	2020	2220	2510	2700	2890	3000	3000	3000
				0.312	7.9	27.70	12.54	41.14	1300	90	1630	112	1520	105	1900	131	2280	2500	2820	3000	3000	3000	3000	3000
			STD	0.322	8.2	28.55	13.00	42.65	1340	92	1680	116	1570	108	1960	135	2350	2580	2910	3000	3000	3000	3000	3000
				0.344	8.7	30.42	13.76	45.14	1440	99	1790	123	1680	116	2090	144	2510	2750	3000	3000	3000	3000	3000	3000
				0.375	9.5	33.04	14.97	49.10	1570	108	1960	135	1830	126	2280	157	2740	3000	3000	3000	3000	3000	3000	3000
				0.438	11.1	38.30	17.36	56.94	1830	126	2290	158	2130	147	2670	184	3000	3000	3000	3000	3000	3000	3000	3000
			XS	0.500	12.7	43.39	19.70	64.64	2090	-	2610	-	2430	-	2800	-	3000	3000	3000	3000	3000	3000	3000	3000
				0.562	14.3	48.40	22.01	72.22	2350	162	2800	193	2740	189	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				0.625	15.9	53.40	24.28	79.67	2610	180	2800	193	2800	193	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				0.719	18.3	60.71	27.62	90.62	2800	193	2800	193	2800	193	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				0.750	19.1	63.08	28.71	94.20	2800	193	2800	193	2800	193	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				0.812	20.6	67.76	30.74	100.84	2800	193	2800	193	2800	193	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
10¾	10.750	273.1		0.156	4.0	17.65	8.09	26.54	520	36	650	45	610	42	760	52	1040	1130	1280	1380	1480	1600	1730	1970
				0.188	4.8	21.21	9.68	31.76	630	43	790	54	730	50	920	63	1250	1370	1550	1660	1780	1930	2080	2380
				0.203	5.2	22.87	10.47	34.35	680	-	850	-	790	-	990	-	1350	1480	1670	1800	1930	2090	2250	2570
				0.219	5.6	24.63	11.26	36.94	730	50	920	63	860	59	1070	74	1450	1590	1800	1940	2080	2250	2420	2770
				0.250	6.4	28.04	12.83	42.09	840	58	1050	72	980	68	1220	84	1660	1820	2060	2210	2370	2570	2770	3000
				0.279	7.1	31.20	14.19	46.57	930	64	1170	81	1090	75	1360	94	1850	2030	2290	2470	2650	2870	3000	3000
				0.307	7.8	34.24	15.55	51.03	1030	71	1290	89	1200	83	1500	103	2040	2230	2520	2720	2910	3000	3000	3000
				0.344	8.7	38.23	17.29	56.72	1150	79	1440	99	1340	92	1680	116	2280	2500	2830	3000	3000	3000	3000	3000
			STD	0.365	9.3	40.48	18.44	60.50	1220	84	1530	105	1430	99	1780	123	2420	2660	3000	3000	3000	3000	3000	3000
				0.438	11.1	48.24	21.86	71.72	1470	101	1830	126	1710	118	2140	147	2910	3000	3000	3000	3000	3000	3000	3000
			XS	0.500	12.7	54.74	24.86	81.55	1670	-	2090	-	1950	-	2440	-	3000	3000	3000	3000	3000	3000	3000	3000
				0.562	14.3	61.15	27.82	91.26	1880	130	2350	162	2200	152	2740	189	3000	3000	3000	3000	3000	3000	3000	3000
				0.625	15.9	67.58	30.74	100.85	2090	144	2620	181	2440	168	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				0.719	18.3	77.03	35.05	114.99	2410	166	2800	193	2800	193	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				0.812	20.6	86.18	39.10	128.27	2720	187	2800	193	2800	193	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				0.875	22.2	92.28	41.87	137.36	2800	193	2800	193	2800	193	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				0.938	23.8	98.30	44.60	146.32	2800	193	2800	193	2800	193	2800	193	3000	3000	3000	3000	3000	3000	3000	3000

LINE PIPE

API 5L

Nominal size	Outside diameter		Wall thickness			Weight			Test pressure															
									A				B				X42	X46	X52	X56	X60	X65	X70	X80
									STD		ALT		STD		ALT									
in.	in.	mm	Grade	in.	mm	lb/ft	kg/ft	kg/m	psi	kpa X 100	psi	kpa X 100	psi	kpa X 100	psi	kpa X 100	psi	psi	psi	psi	psi	psi	psi	psi
12¾	12.750	323.9		0.172	4.4	23.11	10.57	34.67	490	34	610	42	570	39	710	49	960	1050	1190	1280	1380	1490	1610	1830
				0.188	4.8	25.22	11.51	37.77	530	37	660	45	620	43	770	53	1050	1150	1300	1400	1500	1630	1750	2010
				0.203	5.2	27.20	12.46	40.87	570	-	720	-	670	-	840	-	1140	1250	1410	1520	1620	1760	1890	2170
				0.219	5.6	29.31	13.40	43.96	620	43	770	53	720	50	900	62	1230	1340	1520	1640	1750	1900	2040	2340
				0.250	6.4	33.38	15.27	50.11	710	49	880	61	820	56	1030	71	1400	1530	1730	1870	2000	2170	2330	2670
				0.281	7.1	37.42	16.91	55.47	790	54	990	68	930	64	1160	80	1570	1720	1950	2100	2250	2440	2620	3000
				0.312	7.9	41.45	18.76	61.56	880	61	1100	76	1030	71	1280	88	1750	1910	2160	2330	2500	2700	2910	3000
				0.330	8.4	43.77	19.92	65.35	930	64	1160	80	1090	75	1360	94	1850	2020	2290	2460	2640	2860	3000	3000
				0.344	8.7	45.58	20.61	67.62	970	67	1210	83	1130	78	1420	98	1930	2110	2390	2570	2750	2980	3000	3000
			STD	0.375	9.5	49.56	22.45	73.65	1060	73	1320	91	1240	85	1540	106	2100	2300	2600	2800	3000	3000	3000	3000
				0.406	10.3	53.52	24.28	79.65	1150	-	1430	-	1340	-	1670	-	2270	2490	2810	3000	3000	3000	3000	3000
				0.438	11.1	57.59	26.10	85.62	1240	85	1550	107	1440	99	1800	124	2450	2690	3000	3000	3000	3000	3000	3000
			XS	0.500	12.7	65.42	29.71	97.46	1410	-	1760	-	1650	-	2060	-	2800	3000	3000	3000	3000	3000	3000	3000
				0.562	14.3	73.15	33.28	109.18	1590	110	1980	136	1850	127	2310	159	3000	3000	3000	3000	3000	3000	3000	3000
				0.625	15.9	80.93	36.81	120.76	1760	121	2210	152	2060	142	2570	177	3000	3000	3000	3000	3000	3000	3000	3000
				0.688	17.5	88.63	40.30	132.23	1940	134	2430	167	2270	156	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				0.750	19.1	96.12	43.76	143.56	2120	146	2650	183	2470	170	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				0.812	20.6	103.53	46.96	154.08	2290	158	2800	193	2670	184	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				0.875	22.2	110.97	50.34	165.17	2470	170	2800	193	2800	193	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				0.938	23.8	118.33	53.68	176.13	2650	183	2800	193	2800	193	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
14	14.000	355.6		0.188	4.8	27.73	12.66	41.52	480	33	600	41	560	39	700	48	960	1050	1190	1280	1370	1480	1600	1830
				0.203	5.2	29.91	13.69	44.93	520	36	650	45	610	42	760	52	–	–	–	–	–	–	–	1970
				0.210	5.3	30.93	13.95	45.78	540	-	680	-	630	-	790	-	1070	1170	1330	1430	1530	1660	1790	2040
				0.219	5.6	32.23	14.73	48.33	560	-	700	-	660	-	820	-	1120	1220	1380	1490	1600	1730	1860	2130
				0.250	6.4	36.71	16.80	55.11	640	44	800	55	750	52	940	65	1280	1400	1580	1700	1820	1970	2130	2430
				0.281	7.1	41.17	18.60	61.02	720	50	900	62	840	58	1050	72	1430	1570	1770	1910	2050	2220	2390	2730
				0.312	7.9	45.61	20.65	67.74	800	55	1000	69	940	65	1170	81	1590	1740	1970	2120	2270	2460	2650	3000
				0.344	8.7	50.17	22.68	74.42	880	61	1110	76	1030	71	1290	89	1750	1920	2170	2340	2510	2720	2920	3000
			STD	0.375	9.5	54.57	24.71	81.08	960	66	1210	83	1120	77	1410	97	1910	2090	2370	2550	2730	2960	3000	3000
				0.406	10.3	58.94	26.73	87.71	1040	-	1310	-	1220	-	1520	-	2070	2270	2560	2760	2960	3000	3000	3000
				0.438	11.1	63.44	28.74	94.30	1130	78	1410	97	1310	90	1640	113	2230	2450	2770	2980	3000	3000	3000	3000
				0.469	11.9	67.78	30.74	100.86	1210	-	1510	-	1410	-	1760	-	2390	2620	2960	3000	3000	3000	3000	3000
			XS	0.500	12.7	72.09	32.73	107.39	1290	89	1610	111	1500	103	1880	130	2550	2790	3000	3000	3000	3000	3000	3000
				0.562	14.3	80.66	36.69	120.36	1450	100	1810	125	1690	116	2110	145	2870	3000	3000	3000	3000	3000	3000	3000
				0.625	15.9	89.28	40.60	133.19	1610	111	2010	138	1880	130	2340	161	3000	3000	3000	3000	3000	3000	3000	3000
				0.688	17.5	97.81	44.47	145.91	1770	122	2210	152	2060	142	2580	178	3000	3000	3000	3000	3000	3000	3000	3000
				0.750	19.1	106.13	48.31	158.49	1930	133	2410	166	2250	155	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				0.812	20.6	114.37	51.87	170.18	2090	144	2610	180	2440	168	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				0.875	22.2	122.65	55.63	182.52	2250	155	2800	193	2620	181	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				0.938	23.8	130.85	59.36	194.74	2412	166	2800	193	2800	193	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				1.000	25.4	138.84	63.04	206.83	2570	177	2800	193	2800	193	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				1.062	27.0	146.74	66.69	218.79	2730	189	2800	193	2800	193	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				1.125	28.6	154.69	70.30	230.63	2800	193	2800	193	2800	193	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				1.250	31.8	170.21	77.21	253.31	2800	193	2800	193	2800	193	2800	193	3000	3000	3000	3000	3000	3000	3000	3000

LINE PIPE

API 5L

Nominal size	Outside diameter		Wall thickness			Weight			Test pressure								Test pressure							
									A				B				X42	X46	X52	X56	X60	X65	X70	X80
									STD		ALT		STD		ALT									
in.	in.	mm	Grade	in.	mm	lb/ft	kg/ft	kg/m	psi	kpa X 100	psi	kpa X 100	psi	kpa X 100	psi	kpa X 100	psi	psi	psi	psi	psi	psi	psi	psi
16	16.000	406.4		0.188	4.8	31.75	14.49	47.54	420	29	530	37	490	34	620	43	840	920	1040	1120	1200	1300	1400	1600
				0.203	5.2	34.25	15.68	51.45	460	32	570	39	530	37	670	46	910	990	1120	1210	1290	1400	1510	1730
				0.219	5.6	36.91	16.87	55.35	490	34	620	43	570	39	720	50	980	1070	1210	1300	1400	1510	1630	1860
				0.250	6.4	42.05	19.24	63.13	560	39	700	48	660	45	820	56	1120	1220	1380	1490	1590	1730	1860	2130
				0.281	7.1	47.17	21.31	69.91	630	43	790	54	740	51	920	63	1250	1370	1550	1670	1790	1940	2090	2390
				0.312	7.9	52.27	23.66	77.63	700	48	880	61	820	56	1020	70	1390	1520	1720	1860	1990	2150	2320	2650
				0.344	8.7	57.52	26.01	85.32	770	53	970	67	900	62	1130	78	1540	1680	1900	2050	2190	2380	2560	2920
			STD	0.375	9.5	62.58	28.34	92.98	840	58	1050	72	980	68	1230	85	1670	1830	2070	2230	2390	2590	2790	3000
				0.406	10.3	67.62	30.67	100.61	910	-	1110	-	1070	-	1330	-	1810	1980	2240	2420	2590	2800	3000	3000
				0.438	11.1	72.80	32.98	108.20	990	68	1230	85	1150	79	1440	99	1950	2140	2420	2610	2790	3000	3000	3000
				0.469	11.9	77.79	35.29	115.77	1060	-	1320	-	1230	-	1540	-	2090	2290	2590	2790	2990	3000	3000	3000
			XS	0.500	12.7	82.77	37.58	123.30	1120	77	1410	97	1310	90	1640	113	2230	2440	2760	2980	3000	3000	3000	3000
				0.562	14.3	92.66	42.14	138.27	1260	87	1580	109	1480	102	1840	127	2510	2750	3000	3000	3000	3000	3000	3000
				0.625	15.9	102.63	46.67	153.11	1410	97	1760	121	1640	113	2050	141	2790	3000	3000	3000	3000	3000	3000	3000
				0.688	17.5	112.51	51.15	167.83	1550	107	1940	134	1810	125	2260	156	3000	3000	3000	3000	3000	3000	3000	3000
				0.750	19.1	122.15	55.60	182.42	1690	116	2110	145	1970	136	2460	169	3000	3000	3000	3000	3000	3000	3000	3000
				0.812	20.6	131.71	59.73	195.98	1830	126	2280	157	2130	147	2660	183	3000	3000	3000	3000	3000	3000	3000	3000
				0.875	22.2	141.34	64.11	210.33	1970	136	2460	169	2300	158	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				0.938	23.8	150.89	68.44	224.55	2110	145	2640	182	2460	169	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				1.000	25.4	160.20	72.74	238.64	2250	155	2800	193	2620	181	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				1.062	27.0	169.43	77.00	252.61	2390	165	2800	193	2790	192	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				1.125	28.6	178.72	81.21	266.45	2530	174	2800	193	2800	193	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				1.188	30.2	187.93	85.40	280.17	2670	185	2800	193	2800	193	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				1.250	31.8	196.91	89.54	293.76	2800	193	2800	193	2800	193	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
18	18.000	457.0		0.188	4.8	35.76	16.32	53.53	380	26	470	32	440	30	550	38	750	820	920	990	1070	1150	1240	1420
				0.219	5.6	41.59	19.00	62.34	440	30	550	38	510	35	640	44	870	950	1080	1160	1240	1340	1450	1650
				0.250	6.4	47.39	21.68	71.12	500	34	620	43	580	40	730	50	990	1090	1230	1320	1420	1530	1650	1890
				0.281	7.1	53.18	24.01	78.77	560	39	700	48	660	45	820	56	1110	1220	1380	1490	1590	1730	1860	2120
				0.312	7.9	58.94	26.67	87.49	620	43	780	54	730	50	910	63	1240	1360	1530	1650	1770	1920	2060	2360
				0.344	8.7	64.87	29.32	96.18	690	48	860	59	800	55	1000	69	1360	1490	1690	1820	1950	2110	2270	2600
			STD	0.375	9.5	70.59	31.96	104.84	750	52	940	65	880	61	1090	75	1490	1630	1840	1980	2120	2300	2480	2830
				0.406	10.3	76.29	34.58	113.46	810	-	1020	-	950	-	1180	-	1610	1760	1990	2150	2300	2490	2680	3000
				0.438	11.1	82.15	37.20	122.05	880	61	1100	76	1020	70	1280	88	1740	1900	2150	2320	2480	2690	2900	3000
				0.469	11.9	87.81	39.81	130.62	940	-	1170	-	1090	-	1370	-	1860	2040	2300	2480	2660	2880	3000	3000
			XS	0.500	12.7	93.45	42.41	139.15	1000	69	1250	86	1170	81	1460	101	1980	2170	2460	2640	2830	3000	3000	3000
				0.562	14.3	104.67	47.58	156.11	1120	77	1400	96	1310	90	1640	113	2230	2440	2760	2970	3000	3000	3000	3000
				0.625	15.9	115.98	52.72	172.95	1250	86	1560	107	1460	101	1820	125	2480	2720	3000	3000	3000	3000	3000	3000
				0.688	17.5	127.21	57.81	189.67	1380	95	1720	119	1610	111	2010	138	2730	2990	3000	3000	3000	3000	3000	3000
				0.750	19.1	138.17	62.87	206.25	1500	103	1880	130	1750	121	2190	151	2980	3000	3000	3000	3000	3000	3000	3000
				0.812	20.6	149.06	67.57	221.69	1620	112	2030	140	1890	130	2370	163	3000	3000	3000	3000	3000	3000	3000	3000
				0.875	22.2	160.03	72.55	238.03	1750	121	2190	151	2040	141	2550	176	3000	3000	3000	3000	3000	3000	3000	3000
				0.938	23.8	170.92	77.50	254.25	1880	130	2340	161	2190	151	2740	189	3000	3000	3000	3000	3000	3000	3000	3000
				1.000	25.4	181.56	82.40	270.34	2000	138	2500	172	2330	161	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				1.062	27.0	192.11	87.26	286.30	2120	146	2660	183	2480	171	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				1.125	28.6	202.75	92.09	302.14	2250	155	2800	193	2620	181	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				1.188	30.2	213.31	96.88	317.85	2370	163	2800	193	2770	191	2800	193	3000	3000	3000	3000	3000	3000	3000	3000
				1.250	31.8	223.61	101.63	333.44	2500	172	2800	193	2800	193	2800	193	3000	3000	3000	3000	3000	3000	3000	3000

LINE PIPE

API 5L

Nominal size	Outside diameter		Wall thickness			Weight			Test pressure															
									A				B				X42	X46	X52	X56	X60	X65	X70	X80
									STD		ALT		STD		ALT									
in.	in.	mm	Grade	in.	mm	lb/ft	kg/ft	kg/m	psi	kpa X 100	psi	kpa X 100	psi	kpa X 100	psi	kpa X 100	psi	psi	psi	psi	psi	psi	psi	psi
20	20.000	508.0		0.219	5.6	46.27	21.15	69.38	390	27	490	34	460	32	570	39	830	910	1020	1100	1180	1280	1380	1580
				0.250	6.4	52.73	24.13	79.16	450	31	560	39	520	36	660	45	950	1040	1170	1260	1350	1460	1580	1800
				0.281	7.1	59.18	26.73	87.70	510	35	630	43	590	41	740	51	1060	1160	1320	1420	1520	1640	1770	2020
				0.312	7.9	65.60	29.70	97.43	560	39	700	48	660	45	820	56	1180	1290	1460	1570	1680	1830	1970	2250
				0.344	8.7	72.21	32.65	107.12	620	43	770	53	720	50	900	62	1300	1420	1610	1730	1860	2010	2170	2480
			STD	0.375	9.5	78.60	35.59	116.78	680	47	840	58	790	54	980	68	1420	1550	1760	1890	2030	2190	2360	2700
				0.406	10.3	84.96	38.53	126.41	730	-	910	-	850	-	1070	-	1530	1680	1900	2050	2190	2380	2560	2920
				0.438	11.1	91.51	41.46	136.01	790	54	990	68	920	63	1150	79	1660	1810	2050	2210	2370	2560	2760	3000
				0.469	11.9	97.83	44.37	145.58	840	-	1060	-	980	-	1230	-	1770	1940	2190	2360	2530	2740	2950	3000
			XS	0.500	12.7	104.13	47.28	155.12	900	62	1120	77	1050	72	1310	90	1890	2070	2340	2520	2700	2930	3000	3000
				0.562	14.3	116.67	53.07	174.10	1010	70	1260	87	1180	81	1480	102	2120	2330	2630	2830	3000	3000	3000	3000
				0.625	15.9	129.33	58.81	192.95	1120	77	1410	97	1310	90	1640	113	2360	2590	2930	3000	3000	3000	3000	3000
				0.688	17.5	141.90	64.52	211.68	1240	85	1550	107	1440	99	1810	125	2600	2850	3000	3000	3000	3000	3000	3000
				0.750	19.1	154.19	70.19	230.27	1350	93	1690	116	1580	109	1970	136	2840	3000	3000	3000	3000	3000	3000	3000
				0.812	20.6	166.40	75.47	247.60	1460	101	1830	126	1710	118	2130	147	3000	3000	3000	3000	3000	3000	3000	3000
				0.875	22.2	178.72	81.06	265.95	1580	109	1970	136	1840	127	2300	158	3000	3000	3000	3000	3000	3000	3000	3000
				0.938	23.8	190.96	86.62	284.18	1690	116	2110	145	1970	136	2460	169	3000	3000	3000	3000	3000	3000	3000	3000
				1.000	25.4	202.92	92.13	302.28	1800	124	2250	155	2100	145	2620	181	3000	3000	3000	3000	3000	3000	3000	3000
				1.062	27.0	214.80	97.62	320.26	1910	132	2390	165	2230	154	2750	189	3000	3000	3000	3000	3000	3000	3000	3000
				1.125	28.6	226.78	103.06	338.11	2020	139	2530	174	2360	162	2750	189	3000	3000	3000	3000	3000	3000	3000	3000
				1.188	30.2	238.68	108.46	355.83	2140	147	2670	184	2490	172	2750	189	3000	3000	3000	3000	3000	3000	3000	3000
				1.250	31.8	250.31	113.82	373.43	2250	155	2750	189	2620	181	2750	189	3000	3000	3000	3000	3000	3000	3000	3000
				1.312	33.3	261.86	118.81	389.81	2360	162	2750	189	2750	189	2750	189	3000	3000	3000	3000	3000	3000	3000	3000
				1.375	34.9	273.51	124.11	407.17	2480	171	2750	189	2750	189	2750	189	3000	3000	3000	3000	3000	3000	3000	3000
22	22.000	559.0		0.219	5.6	50.94	23.29	76.42	360	25	450	31	420	29	520	36	750	820	930	1000	1080	1160	1250	1430
				0.250	6.4	58.07	26.58	87.21	410	28	510	35	480	33	600	41	860	940	1060	1150	1230	1330	1430	1640
				0.281	7.1	65.18	29.45	96.63	460	32	570	39	540	37	670	46	970	1060	1200	1290	1380	1490	1610	1840
				0.312	7.9	72.27	32.72	107.36	510	35	640	44	600	41	740	51	1070	1170	1330	1430	1530	1660	1790	2040
				0.344	8.7	79.56	35.98	118.06	560	39	700	48	660	45	820	56	1180	1290	1460	1580	1690	1830	1970	2250
			STD	0.375	9.5	86.61	39.24	128.73	610	42	770	53	720	50	890	61	1290	1410	1600	1720	1840	1990	2150	2450
				0.406	10.3	93.63	42.48	139.37	660	-	830	-	780	-	970	-	1400	1530	1730	1860	1990	2160	2330	2660
				0.438	11.1	100.86	45.71	149.97	720	50	900	62	840	58	1050	72	1510	1650	1860	2010	2150	2330	2510	2870
				0.469	11.9	107.85	48.94	160.55	770	-	960	-	900	-	1120	-	1610	1770	2000	2150	2300	2490	2690	3000
			XS	0.500	12.7	114.81	52.15	171.09	820	56	1020	70	950	65	1190	82	1720	1880	2130	2290	2450	2660	2860	3000
				0.562	14.3	128.67	58.55	192.08	920	63	1150	79	1070	74	1340	92	1930	2120	2390	2570	2760	2990	3000	3000
				0.625	15.9	142.68	64.91	212.95	1020	70	1280	88	1190	82	1490	103	2150	2350	2660	2860	3000	3000	3000	3000
				0.688	17.5	156.60	71.23	233.68	1130	78	1410	97	1310	90	1640	113	2360	2590	2930	3000	3000	3000	3000	3000
				0.750	19.1	170.21	77.51	254.30	1230	85	1530	105	1430	99	1790	123	2580	2820	3000	3000	3000	3000	3000	3000
				0.812	20.6	183.75	83.37	273.51	1330	92	1660	114	1550	107	1940	134	2790	3000	3000	3000	3000	3000	3000	3000
				0.875	22.2	197.41	89.57	293.87	1430	99	1790	123	1670	115	2090	144	3000	3000	3000	3000	3000	3000	3000	3000
				0.938	23.8	211.00	95.74	314.11	1530	105	1920	132	1790	123	2240	154	3000	3000	3000	3000	3000	3000	3000	3000
				1.000	25.4	224.28	101.87	334.23	1640	113	2050	141	1910	132	2390	165	3000	3000	3000	3000	3000	3000	3000	3000
				1.062	27.0	237.48	107.97	354.22	1740	120	2170	150	2030	140	2500	172	3000	3000	3000	3000	3000	3000	3000	3000
				1.125	28.6	250.81	114.02	374.08	1840	127	2300	158	2150	148	2500	172	3000	3000	3000	3000	3000	3000	3000	3000
				1.188	30.2	264.06	120.03	393.81	1940	134	2430	167	2270	156	2500	172	3000	3000	3000	3000	3000	3000	3000	3000
				1.250	31.8	277.01	126.01	413.42	2050	141	2500	172	2390	165	2500	172	3000	3000	3000	3000	3000	3000	3000	3000
				1.312	33.3	289.88	131.58	431.69	2150	148	2500	172	2500	172	2500	172	3000	3000	3000	3000	3000	3000	3000	3000
				1.375	34.9	302.88	137.48	451.06	2250	155	2500	172	2500	172	2500	172	3000	3000	3000	3000	3000	3000	3000	3000
				1.438	36.5	315.79	143.35	470.30	2350	162	2500	172	2500	172	2500	172	3000	3000	3000	3000	3000	3000	3000	3000
				1.500	38.1	328.41	149.17	489.41	2450	169	2500	172	2500	172	2500	172	3000	3000	3000	3000	3000	3000	3000	3000

LINE PIPE

API 5L

Nominal size	Outside diameter		Wall thickness			Weight			Test pressure															
									A				B				X42	X46	X52	X56	X60	X65	X70	X80
									STD		ALT		STD		ALT									
in.	in.	mm	Grade	in.	mm	lb/ft	kg/ft	kg/m	psi	kpa X 100	psi	kpa X 100	psi	kpa X 100	psi	kpa X 100	psi	psi	psi	psi	psi	psi	psi	psi
24	24.000	610.0		0.250	6.4	63.41	29.04	95.26	380	26	470	32	440	30	550	38	790	860	980	1050	1130	1220	1310	1500
				0.281	7.1	71.18	32.17	105.56	420	29	530	37	290	34	610	42	890	970	1100	1180	1260	1370	1480	1690
				0.312	7.9	78.93	35.75	117.30	470	32	580	40	550	38	680	47	980	1080	1220	1310	1400	1520	1640	1870
				0.344	8.7	86.91	39.32	129.00	520	36	640	44	600	41	750	52	1080	1190	1340	1440	1550	1680	1810	2060
			STD	0.375	9.5	94.62	42.88	140.68	560	39	700	48	660	45	820	56	1180	1290	1460	1580	1690	1830	1970	2250
				0.406	10.3	102.31	46.43	152.32	610	-	760	-	710	-	890	-	1280	1400	1580	1710	1830	1980	2130	2440
				0.438	11.1	110.22	49.97	163.93	660	45	820	56	770	53	960	66	1380	1510	1710	1840	1970	2140	2300	2630
				0.469	11.9	117.86	53.50	175.51	700	-	880	-	820	-	1030	-	1480	1620	1830	1970	2110	2290	2460	2810
			XS	0.500	12.7	125.49	57.02	187.06	750	52	940	65	880	61	1090	75	1580	1730	1950	2100	2250	2440	2630	3000
				0.562	14.3	140.68	64.03	210.07	840	58	1050	72	980	68	1230	85	1770	1940	2190	2360	2530	2740	2950	3000
				0.625	15.9	156.03	71.00	232.94	940	65	1170	81	1090	75	1370	94	1970	2160	2440	2630	2810	3000	3000	3000
				0.688	17.5	171.29	77.93	255.69	1030	71	1290	89	1200	83	1500	103	2170	2370	2680	2890	3000	3000	3000	3000
				0.750	19.1	186.23	84.83	278.32	1120	77	1410	97	1310	90	1640	113	2360	2590	2930	3000	3000	3000	3000	3000
				0.812	20.6	201.09	91.26	299.41	1220	84	1520	105	1420	98	1780	123	2560	2800	2930	3000	3000	3000	3000	3000
				0.875	22.2	216.10	98.08	321.79	1310	90	1640	113	1530	105	1910	132	2760	3000	3000	3000	3000	3000	3000	3000
				0.938	23.8	231.03	104.87	344.05	1410	97	1760	121	1640	113	2050	141	2950	3000	3000	3000	3000	3000	3000	3000
				1.000	25.4	245.64	111.61	366.17	1500	103	1880	130	1750	121	2190	151	3000	3000	3000	3000	3000	3000	3000	3000
				1.062	27.0	260.17	118.31	388.17	1590	110	1990	137	1860	128	2300	158	3000	3000	3000	3000	3000	3000	3000	3000
				1.125	28.6	274.84	124.98	410.05	1690	116	2110	145	1970	136	2300	158	3000	3000	3000	3000	3000	3000	3000	3000
				1.188	30.2	289.44	131.61	431.80	1780	123	2230	154	2080	143	2300	158	3000	3000	3000	3000	3000	3000	3000	3000
				1.250	31.8	303.71	138.20	453.42	1880	130	2300	158	2190	151	2300	158	3000	3000	3000	3000	3000	3000	3000	3000
				1.312	33.3	317.91	144.34	473.57	1970	136	2300	158	2300	158	2300	158	3000	3000	3000	3000	3000	3000	3000	3000
				1.375	34.9	332.25	150.86	494.95	2060	142	2300	158	2300	158	2300	158	3000	3000	3000	3000	3000	3000	3000	3000
				1.438	36.5	346.50	157.34	516.20	2160	149	2300	158	2300	158	2300	158	3000	3000	3000	3000	3000	3000	3000	3000
				1.500	38.1	360.45	163.78	537.33	2250	155	2300	158	2300	158	2300	158	3000	3000	3000	3000	3000	3000	3000	3000
				1.562	39.7	374.31	170.18	558.32	2300	158	2300	158	2300	158	2300	158	3000	3000	3000	3000	3000	3000	3000	3000
26	26.000	660.0		0.250	6.4	68.75	31.44	103.15	350	24	430	30	400	28	500	34	730	800	900	970	1040	1130	1210	1380
				0.281	7.1	77.18	34.84	114.31	390	27	490	34	450	31	570	39	820	890	1010	1090	1170	1260	1360	1560
				0.312	7.9	85.60	38.72	127.04	430	30	540	37	500	34	630	43	910	990	1120	1210	1300	1400	1510	1730
				0.344	8.7	94.26	42.59	139.73	480	33	600	41	560	39	690	48	1000	1100	1240	1330	1430	1550	1670	1910
			STD	0.375	9.5	102.63	46.45	152.39	520	36	650	45	610	42	760	52	1090	1190	1350	1450	1560	1690	1820	2080
				0.406	10.3	110.98	50.30	165.02	560	-	700	-	660	-	820	-	1180	1290	1460	1570	1690	1830	1970	2250
				0.438	11.1	119.57	54.14	177.62	610	42	760	52	710	49	880	61	1270	1390	1580	1700	1820	1970	2120	2430
				0.469	11.9	127.88	57.97	190.19	650	-	810	-	760	-	950	-	1360	1490	1690	1820	1950	2110	2270	2600
			XS	0.500	12.7	136.17	61.79	202.72	690	48	870	60	810	56	1010	70	1450	1590	1800	1940	2080	2250	2420	2770
				0.562	14.3	152.68	69.40	227.70	780	54	970	67	910	63	1130	78	1630	1790	2020	2180	2330	2530	2720	3000
				0.625	15.9	169.38	76.98	252.55	870	60	1080	74	1010	70	1260	87	1820	1990	2250	2420	2600	2810	3000	3000
				0.688	17.5	185.99	84.51	277.27	950	65	1190	82	1110	76	1390	96	2000	2190	2480	2670	2860	3000	3000	3000
				0.750	19.1	202.25	92.01	301.87	1040	72	1300	90	1210	83	1510	104	2180	2390	2700	2910	3000	3000	3000	3000
				0.812	20.6	218.43	99.00	324.81	1120	77	1410	97	1310	90	1640	113	2360	2590	2920	3000	3000	3000	3000	3000
				0.875	22.2	234.79	106.42	349.16	1210	83	1510	104	1410	97	1770	122	2540	2790	3000	3000	3000	3000	3000	3000
				0.938	23.8	251.07	113.81	373.39	1300	90	1620	112	1520	105	1890	130	2730	2990	3000	3000	3000	3000	3000	3000
				1.000	25.4	267.00	121.15	397.49	1380	95	1730	119	1620	112	2000	138	2910	3000	3000	3000	3000	3000	3000	3000
28	28.000	711.0		0.250	6.4	74.09	33.89	111.20	320	22	400	28	370	25	470	32	680	740	840	900	960	1040	1130	1290
				0.281	7.1	83.19	37.56	123.24	360	25	450	31	420	29	530	37	760	830	940	1010	1080	1170	1260	1450
				0.312	7.9	92.26	41.75	136.97	400	28	500	34	470	32	580	40	840	920	1040	1120	1200	1300	1400	1600
				0.344	8.7	101.61	45.92	150.67	440	-	550	-	520	-	650	-	930	1020	1150	1240	1330	1440	1550	1770
			STD	0.375	9.5	110.64	50.09	164.34	480	33	600	41	560	39	700	48	1010	1110	1250	1350	1450	1570	1690	1930
				0.406	10.3	119.65	54.25	177.98	520	-	650	-	610	-	760	-	1100	1200	1360	1460	1570	1700	1830	2090
				0.438	11.1	128.93	58.39	191.58	560	39	700	48	660	45	820	56	1180	1300	1460	1580	1690	1830	1970	2250
				0.469	11.9	137.90	62.53	205.15	600	-	750	-	700	-	880	-	1270	1390	1570	1690	1810	1960	2110	2410

LINE PIPE

API 5L

Nominal size	Outside diameter		Wall thickness			Weight			Test pressure							
									A				B			
									STD		ALT		STD		ALT	
in.	in.	mm	Grade	in.	mm	lb/ft	kg/ft	kg/m	psi	kpa X 100	psi	kpa X 100	psi	kpa X 100	psi	kpa X 100
28	28.000	711.0	XS	0.500	12.7	146.85	66.66	218.69	640	44	800	55	750	52	940	65
				0.562	14.3	164.69	74.88	245.68	720	50	900	62	840	58	1050	72
				0.625	15.9	182.73	83.07	272.54	800	55	1000	69	940	65	1170	81
				0.688	17.5	200.68	91.22	299.28	880	61	1110	76	1030	71	1290	89
				0.750	19.1	218.27	99.33	325.89	960	66	1210	83	1120	77	1410	97
				0.812	20.6	235.78	106.90	350.72	1040	72	1300	90	1220	84	1520	105
				0.875	22.2	253.48	114.93	377.08	1120	77	1410	97	1310	90	1640	113
				0.938	23.8	271.10	122.93	403.32	1210	83	1510	104	1410	97	1760	121
				1.000	25.4	288.36	130.89	429.44	1290	89	1610	111	1500	103	1880	130
				0.250	6.4	79.43	36.35	119.25	300	21	370	25	350	24	440	30
				0.281	7.1	89.19	40.29	132.17	340	23	420	29	390	27	490	34
				0.312	7.9	98.93	44.78	146.91	370	25	470	32	440	30	550	38
				0.344	8.7	108.95	49.26	161.61	410	-	520	-	480	-	600	-
			STD	0.375	9.5	118.65	53.73	176.29	450	31	560	39	520	36	660	45
				0.406	10.3	128.32	58.20	190.93	490	-	610	-	590	-	710	-
				0.438	11.1	138.29	62.65	205.54	530	37	660	45	610	42	770	53
				0.469	11.9	147.92	67.09	220.12	560	-	700	-	660	-	820	-
			XS	0.500	12.7	157.53	71.53	234.67	600	41	750	52	700	48	880	61
				0.562	14.3	176.69	80.37	263.67	670	46	840	58	790	54	980	68
30	30.000	762.0		0.625	15.9	196.08	89.17	292.54	750	52	940	65	880	61	1090	75
				0.688	17.5	215.38	97.93	321.29	830	57	1030	71	960	66	1200	83
				0.750	19.1	234.29	106.65	349.91	900	62	1120	77	1050	72	1310	90
				0.812	20.6	253.12	114.80	376.63	970	67	1220	84	1140	79	1420	98
				0.875	22.2	272.17	123.44	405.00	1050	72	1310	90	1220	84	1530	105
				0.938	23.8	291.14	132.06	433.26	1130	78	1410	97	1310	90	1640	113
				1.000	25.4	309.72	140.63	461.38	1200	83	1500	103	1400	96	1750	121
				1.062	27.0	328.22	149.16	489.38	1270	88	1590	110	1490	103	1860	128
				1.125	28.6	346.93	157.66	517.25	1350	93	1690	116	1580	109	1970	136
				1.188	30.2	365.56	166.11	544.99	1430	99	1780	123	1660	114	2080	143
				1.250	31.8	383.81	174.53	572.61	1500	103	1880	130	1750	121	2190	151
				0.250	6.4	84.77	38.80	127.30	280	19	350	24	330	23	410	28
				0.281	7.1	95.19	43.01	141.10	320	22	400	28	370	25	460	32
				0.312	7.9	105.59	47.80	156.84	350	24	440	30	410	28	510	35
				0.344	8.7	116.30	52.60	172.56	390	-	480	-	450	-	560	-
			STD	0.375	9.5	126.66	57.38	188.24	420	29	530	37	490	34	620	43
				0.406	10.3	136.99	62.14	203.88	460	-	570	-	530	-	670	-
				0.438	11.1	147.64	66.90	219.50	490	34	620	43	570	39	720	50
				0.469	11.9	157.94	71.66	235.09	530	-	660	-	620	-	770	-
			XS	0.500	12.7	168.21	76.40	250.64	560	39	700	48	660	45	820	56
				0.562	14.3	188.70	85.85	281.65	630	43	790	54	740	51	920	63
32	32.000	813.0		0.625	15.9	209.43	95.26	312.54	700	48	880	61	820	56	1030	71
				0.688	17.5	230.08	104.64	343.30	770	53	970	67	900	62	1130	78
				0.750	19.1	250.31	113.97	373.93	840	58	1050	72	980	68	1230	85
				0.812	20.6	270.47	122.69	402.54	910	63	1140	79	1070	74	1330	92
				0.875	22.2	290.86	131.96	432.93	980	68	1230	85	1150	79	1440	99
				0.938	23.8	311.17	141.18	463.19	1060	73	1320	91	1230	85	1540	106
				1.000	25.4	331.08	150.36	493.32	1120	77	1410	97	1310	90	1640	113
				1.062	27.0	350.90	159.51	523.33	1190	82	1490	103	1390	96	1740	120
				1.125	28.6	370.96	168.62	553.22	1270	88	1580	109	1480	102	1850	127
				1.188	30.2	390.94	177.69	582.98	1340	92	1670	115	1560	107	1950	134
				1.250	31.8	410.51	186.72	612.61	1410	97	1760	121	1640	113	2050	141

Test pressure							
X42	X46	X52	X56	X60	X65	X70	X80
psi	psi	psi	psi	psi	psi	psi	psi
1350	1480	1670	1800	1930	2090	2250	2570
1520	1660	1880	2020	2170	2350	2530	2890
1690	1850	2090	2250	2410	2610	2810	3000
1860	2030	2300	2480	2650	2870	3000	3000
2020	2220	2510	2700	2890	3000	3000	3000
2190	2400	2710	2920	3000	3000	3000	3000
2360	2590	2920	3000	3000	3000	3000	3000
2530	2770	3000	3000	3000	3000	3000	3000
2700	2960	3000	3000	3000	3000	3000	3000
630	690	780	840	900	980	1050	1200
710	780	880	940	1010	1100	1180	1350
790	860	970	1050	1120	1220	1310	1500
870	950	1070	1160	1240	1340	1440	1650
940	1040	1170	1260	1350	1460	1580	1800
1020	1120	1270	1360	1460	1580	1710	1950
1100	1210	1370	1470	1580	1710	1840	2100
1180	1290	1460	1580	1690	1830	1970	2250
1260	1380	1560	1680	1800	1950	2100	2400
1420	1550	1750	1890	2020	2190	2360	2700
1580	1720	1950	2100	2250	2440	2630	3000
1730	1900	2150	2310	2480	2680	2890	3000
1890	2070	2340	2520	2700	2920	3000	3000
2050	2240	2530	2730	2920	3000	3000	3000
2200	2420	2730	2940	3000	3000	3000	3000
2360	2590	2930	3000	3000	3000	3000	3000
2520	2760	3000	3000	3000	3000	3000	3000
2680	2930	3000	3000	3000	3000	3000	3000
2840	3000	3000	3000	3000	3000	3000	3000
2990	3000	3000	3000	3000	3000	3000	3000
3000	3000	3000	3000	3000	3000	3000	3000
590	650	730	790	790	910	980	1130
660	730	820	890	950	1030	1110	1260
740	810	910	980	1050	1140	1230	1400
810	890	1010	1080	1160	1260	1350	1550
890	970	1100	1180	1270	1370	1480	1690
960	1050	1190	1280	1370	1480	1600	1830
1030	1130	1280	1380	1480	1600	1720	1970
1110	1210	1370	1480	1580	1710	1850	2110
1180	1290	1460	1580	1690	1830	1970	2250
1330	1450	1640	1770	1900	2050	2210	2530
1480	1620	1830	1970	2110	2290	2460	2810
1630	1780	2010	2170	2320	2520	2710	3000
1770	1940	2190	2360	2530	2740	2950	3000
1920	2100	2380	2560	2740	2970	3000	3000
2070	2260	2560	2760	2950	3000	3000	3000
2220	2430	2740	2950	3000	3000	3000	3000
2360	2590	2920	3000	3000	3000	3000	3000
2510	2750	3000	3000	3000	3000	3000	3000
2660	2910	3000	3000	3000	3000	3000	3000
2810	3000	3000	3000	3000	3000	3000	3000
2950	3000	3000	3000	3000	3000	3000	3000

LINE PIPE

API 5L

Nominal size	Outside diameter		Wall thickness			Weight			Test pressure							
									A				B			
									STD		ALT		STD		ALT	
in.	in.	mm	Grade	in.	mm	lb/ft	kg/ft	kg/m	psi	kpa X 100	psi	kpa X 100	psi	kpa X 100	psi	kpa X 100
34	34.000	864.0		0.250	6.4	90.11	41.25	135.35	260	18	330	23	310	21	390	27
				0.281	7.1	101.19	45.73	150.03	300	21	370	25	350	24	430	30
				0.312	7.9	112.25	50.83	166.78	330	23	410	28	390	27	480	33
				0.344	8.7	123.65	55.93	183.50	360	-	460	-	420	-	530	-
			STD	0.375	9.5	134.67	61.01	200.18	400	28	500	34	460	32	580	40
				0.406	10.3	145.67	66.09	216.84	430	-	540	-	500	-	630	-
				0.438	11.1	157.00	71.16	233.46	460	32	580	40	540	37	680	47
				0.469	11.9	167.95	76.22	250.05	500	-	620	-	580	-	720	-
			XS	0.500	12.7	178.89	81.26	266.61	530	37	660	45	620	43	770	53
				0.562	14.3	200.70	91.33	299.64	600	41	740	51	690	48	870	60
				0.625	15.9	222.78	101.36	332.53	660	45	830	57	770	53	970	67
				0.688	17.5	244.77	111.35	365.31	730	50	910	63	850	59	1060	73
				0.750	19.1	266.33	121.30	397.95	790	54	990	68	930	64	1160	80
				0.812	20.6	287.81	130.59	428.44	860	59	1070	74	1000	69	1250	86
				0.875	22.2	309.55	140.47	460.85	930	64	1160	80	1080	74	1350	93
				0.938	23.8	331.21	150.30	493.12	990	68	1240	85	1160	80	1450	100
				1.000	25.4	352.44	160.10	525.27	1060	73	1320	91	1240	85	1540	106
				1.062	27.0	373.59	169.86	557.29	1120	77	1410	97	1310	90	1640	113
				1.125	28.6	394.99	179.59	589.19	1190	82	1490	103	1390	96	1740	120
				1.188	30.2	416.31	189.27	620.96	1260	87	1570	108	1470	101	1830	126
				1.250	31.8	437.21	198.91	652.60	1320	91	1650	114	1540	106	1930	133
36	36.000	914.0		0.250	6.4	95.45	43.66	143.24	250	17	310	21	290	20	360	25
				0.281	7.1	107.20	48.40	158.79	280	19	350	24	330	23	410	28
				0.312	7.9	118.92	53.80	176.52	310	21	390	27	360	25	450	31
				0.344	8.7	131.00	59.20	194.22	340	-	430	-	400	-	500	-
			STD	0.375	9.5	142.68	64.59	211.90	380	26	470	32	440	30	550	38
				0.406	10.3	154.34	69.96	229.54	410	-	510	-	470	-	590	-
				0.438	11.1	166.35	75.33	247.15	440	30	550	38	510	35	640	44
				0.469	11.9	177.97	80.69	264.72	770	-	590	-	550	-	680	-
			XS	0.500	12.7	189.57	86.04	282.27	500	34	620	43	580	40	730	50
				0.562	14.3	212.70	96.70	317.27	560	39	700	48	660	45	820	56
				0.625	15.9	236.13	107.33	352.14	620	43	780	54	730	50	910	63
				0.688	17.5	259.47	117.92	386.88	690	48	860	59	800	55	1000	69
				0.750	19.1	282.35	128.47	421.50	750	52	940	65	880	61	1090	75
				0.812	20.6	305.16	138.33	453.84	810	56	1020	70	950	65	1180	81
				0.875	22.2	328.24	148.81	488.22	880	71	1090	75	1020	70	1280	88
				0.938	23.8	351.25	159.25	522.47	940	65	1170	81	1090	75	1370	94
				1.000	25.4	373.80	169.65	556.59	1000	69	1250	86	1170	81	1460	101
				1.062	27.0	396.27	180.01	590.58	1060	73	1330	92	1240	85	1550	107
				1.125	28.6	419.02	190.33	624.45	1130	78	1410	97	1310	90	1640	113
				1.188	30.2	441.69	200.62	658.19	1190	82	1480	102	1390	96	1730	119
				1.250	31.8	463.91	210.86	691.81	1250	86	1560	107	1460	101	1820	125

Test pressure							
X42	X46	X52	X56	X60	X65	X70	X80
psi	psi	psi	psi	psi	psi	psi	psi
560	610	690	740	790	860	930	1060
620	680	770	830	890	970	1040	1190
690	760	860	920	990	1070	1160	1320
760	840	950	1020	1090	1180	1270	1460
830	910	1030	1110	1190	1290	1390	1590
900	990	1120	1200	1290	1400	1500	1720
970	1070	1210	1300	1390	1510	1620	1860
1040	1140	1290	1390	1490	1610	1740	1990
1110	1220	1380	1480	1590	1720	1850	2120
1250	1370	1550	1670	1790	1930	2080	2380
1390	1520	1720	1850	1990	2150	2320	2650
1530	1680	1890	2040	2190	2370	2550	2910
1670	1830	2060	2220	2380	2580	2780	3000
1810	1980	2240	2410	2580	2790	3000	3000
1950	2130	2410	2590	2780	3000	3000	3000
2090	2280	2580	2780	2980	3000	3000	3000
2220	2440	2750	2960	3000	3000	3000	3000
2360	2590	2920	3000	3000	3000	3000	3000
2500	2740	3000	3000	3000	3000	3000	3000
2640	2890	3000	3000	3000	3000	3000	3000
2780	3000	3000	3000	3000	3000	3000	3000
520	580	650	700	750	810	880	1000
590	650	730	790	840	910	980	1120
660	720	810	870	940	1010	1090	1250
720	790	890	960	1030	1120	1200	1380
790	860	980	1050	1120	1220	1310	1500
850	930	1060	1140	1220	1320	1420	1620
920	1010	1140	1230	1310	1420	1530	1750
980	1080	1220	1310	1410	1520	1640	1880
1050	1150	1300	1400	1500	1620	1750	2000
1180	1290	1460	1570	1690	1820	1970	2250
1310	1440	1620	1750	1880	2030	2190	2500
1440	1580	1790	1930	2060	2240	2410	2750
1580	1720	1950	2100	2250	2440	2630	3000
1710	1870	2110	2270	2440	2640	2840	3000
1840	2010	2280	2450	2620	2840	3000	3000
1970	2160	2440	2630	2810	3000	3000	3000
2100	2300	2600	2800	3000	3000	3000	3000
2230	2440	2760	2970	3000	3000	3000	3000
2360	2590	2930	3000	3000	3000	3000	3000
2490	2730	3000	3000	3000	3000	3000	3000
2630	2870	3000	3000	3000	3000	3000	3000

LINE PIPE

API 5L

Nominal size	Outside diameter		Wall thickness			Weight			Test pressure A STD		Test pressure A ALT		Test pressure B STD		Test pressure B ALT	
in.	in.	mm	Grade	in.	mm	lb/ft	kg/ft	kg/m	psi	kpa X 100	psi	kpa X 100	psi	kpa X 100	psi	kpa X 100
				0.312	7.9	125.58	56.83	186.46	300	21	370	25	340	23	430	30
				0.344	8.7	138.35	62.54	205.17	330	23	410	28	380	26	480	33
			STD	0.375	9.5	150.69	68.23	223.84	360	25	440	30	410	28	520	36
				0.406	10.3	163.01	73.91	242.49	380	26	480	33	450	31	560	39
				0.438	11.1	175.71	79.59	261.11	410	28	520	36	480	33	610	42
				0.469	11.9	187.99	85.25	279.69	440	30	560	39	520	36	650	45
			XS	0.500	12.7	200.25	90.90	298.24	470	32	590	41	550	38	690	48
				0.562	14.3	224.71	102.18	335.25	530	37	670	46	620	43	780	54
				0.625	15.9	249.48	113.43	372.14	590	41	740	51	690	48	860	59
38	38.000	965.0		0.688	17.5	274.16	124.63	408.89	650	45	810	56	760	52	950	65
				0.750	19.1	298.37	135.79	445.52	710	49	890	61	830	57	1040	72
				0.812	20.6	322.50	146.23	479.75	770	53	960	66	900	62	1120	77
				0.875	22.2	346.93	157.32	516.14	830	57	1040	72	970	67	1210	83
				0.938	23.8	371.28	168.37	552.40	890	61	1110	76	1040	72	1300	90
				1.000	25.4	395.16	179.38	588.53	950	65	1180	81	1110	76	1380	95
				1.062	27.0	418.96	190.36	624.54	1010	70	1260	87	1170	81	1470	101
				1.125	28.6	443.05	201.30	660.42	1070	74	1330	92	1240	85	1550	107
				1.188	30.2	467.06	212.20	696.18	1130	78	1410	97	1310	90	1640	113
				1.250	31.8	490.61	223.05	731.80	1180	81	1480	102	1380	95	1730	119
				0.312	7.9	132.25	59.86	196.39	280	19	350	24	330	23	410	28
				0.344	8.7	145.69	65.87	216.11	310	21	390	27	360	25	450	31
			STD	0.375	9.5	158.70	71.87	235.79	340	23	420	29	390	27	490	34
				0.406	10.3	171.68	77.86	255.45	370	25	460	32	430	30	530	37
				0.438	11.1	185.06	83.84	275.07	390	27	490	34	460	32	570	39
				0.469	11.9	198.01	89.81	294.66	420	29	530	37	490	34	620	43
			XS	0.500	12.7	210.93	95.77	314.22	450	31	560	39	520	36	660	45
				0.562	14.3	236.71	107.67	353.24	510	35	630	43	590	41	740	51
				0.625	15.9	262.83	119.52	392.13	560	39	700	48	660	45	820	56
40	40.000	1016.0		0.688	17.5	288.86	131.34	430.90	620	43	770	53	720	50	900	62
				0.750	19.1	314.39	143.12	469.55	680	47	840	58	790	54	980	68
				0.812	20.6	339.84	154.13	505.66	730	50	910	63	850	59	1070	74
				0.875	22.2	365.62	165.83	544.06	790	54	980	68	920	63	1150	79
				0.938	23.8	391.32	177.49	582.33	840	58	1060	73	980	68	1230	85
				1.000	25.4	416.52	189.12	620.48	900	62	1120	77	1050	72	1310	90
				1.062	27.0	441.64	200.71	658.50	960	66	1190	82	1120	77	1390	96
				1.125	28.6	467.08	212.26	696.39	1010	70	1270	88	1180	81	1480	102
				1.188	30.2	492.44	223.77	734.16	1070	74	1340	92	1250	86	1560	107
				1.250	31.8	517.31	235.24	771.80	1130	78	1410	97	1310	90	1640	113
				0.344	8.7	153.04	69.20	227.05	290	20	370	25	340	23	430	30
			STD	0.375	9.5	166.71	75.51	247.74	320	22	400	28	380	26	470	32
				0.406	10.3	180.35	81.81	268.40	350	24	430	30	410	28	510	35
				0.438	11.1	194.42	88.10	289.03	380	26	470	32	440	30	550	38
				0.469	11.9	208.03	94.37	309.62	400	28	500	34	470	32	590	41
42	42.000	1067.0	XS	0.500	12.7	221.61	100.64	330.19	430	30	540	37	500	34	620	43
				0.562	14.3	248.72	113.15	371.22	480	33	600	41	560	39	700	48
				0.625	15.9	276.18	125.62	412.13	540	37	670	46	620	43	780	54
				0.688	17.5	303.55	138.05	452.91	590	41	740	51	690	48	860	59
				0.750	19.1	330.41	150.44	493.57	640	44	800	55	750	52	940	65
				0.812	20.6	357.19	162.02	531.57	700	48	870	60	810	56	1020	70

Test pressure							
X42	X46	X52	X56	X60	X65	X70	X80
psi	psi	psi	psi	psi	psi	psi	psi
620	680	770	830	890	960	1030	1180
680	750	850	910	980	1060	1140	1300
750	820	920	990	1070	1150	1240	1420
810	880	1000	1080	1150	1250	1350	1540
870	950	1080	1160	1240	1350	1450	1660
930	1020	1160	1240	1330	1440	1560	1780
990	1090	1230	1330	1420	1540	1660	1890
1120	1220	1380	1490	1600	1730	1860	2130
1240	1360	1540	1560	1780	1920	2070	2370
1370	1500	1690	1830	1960	2120	2280	2610
1490	1630	1850	1990	2130	2310	2490	2840
1620	1770	2000	2150	2310	2500	2690	3000
1740	1910	2160	2320	2490	2690	2900	3000
1870	2040	2310	2490	2670	2890	3000	3000
1990	2180	2460	2650	2840	3000	3000	3000
2110	2310	2620	2820	3000	3000	3000	3000
2240	2450	2770	2980	3000	3000	3000	3000
2360	2590	2930	3000	3000	3000	3000	3000
2490	2720	3000	3000	3000	3000	3000	3000
590	650	730	790	840	910	980	1120
650	710	800	870	930	1010	1080	1240
710	780	880	940	1010	1100	1180	1350
770	840	950	1020	1100	1190	1280	1460
830	910	1020	1100	1180	1280	1380	1580
890	970	1100	1180	1270	1370	1480	1690
940	1040	1170	1260	1350	1460	1580	1800
1060	1160	1320	1420	1520	1640	1770	2020
1180	1290	1460	1580	1690	1830	1970	2250
1300	1420	1610	1730	1860	2010	2170	2480
1420	1550	1760	1890	2020	2190	2360	2700
1530	1680	1900	2050	2190	2380	2560	2920
1650	1810	2050	2200	2360	2560	2760	3000
1770	1940	2190	2360	2530	2740	2950	3000
1890	2070	2340	2520	2700	2920	3000	3000
2010	2200	2490	2680	2870	3000	3000	3000
2130	2330	2630	2830	3000	3000	3000	3000
2250	2460	2780	2990	3000	3000	3000	3000
2360	2590	2930	3000	3000	3000	3000	3000
620	680	770	830	880	960	1030	1180
680	740	840	900	960	1040	1130	1290
730	800	900	970	1040	1130	1220	1390
790	860	980	1050	1130	1220	1310	1500
840	920	1050	1130	1210	1310	1410	1610
900	990	1110	1200	1290	1390	1500	1710
1010	1110	1250	1350	1450	1570	1690	1930
1120	1230	1390	1500	1610	1740	1880	2140
1240	1360	1530	1650	1770	1920	2060	2360
1350	1480	1670	1800	1930	2090	2250	2570
1460	1600	1810	1950	2090	2260	2440	2780

LINE PIPE

API 5L

Nominal size	Outside diameter		Wall thickness			Weight			Test pressure A STD		Test pressure A ALT		Test pressure B STD		Test pressure B ALT	
in.	in.	mm	Grade	in.	mm	lb/ft	kg/ft	kg/m	psi	kpa X 100	psi	kpa X 100	psi	kpa X 100	psi	kpa X 100
42	42.000	1067.0		0.875	22.2	384.31	174.34	571.98	750	52	940	65	880	61	1090	75
				0.938	23.8	411.35	186.62	612.26	800	55	1000	69	940	65	1170	81
				1.000	25.4	437.88	198.86	652.42	860	59	1070	74	1000	69	1250	86
				1.062	27.0	464.33	211.06	692.45	910	63	1140	79	1060	73	1330	92
				1.125	28.6	491.11	223.22	732.36	960	66	1210	83	1130	78	1410	97
				1.188	30.2	517.82	235.35	772.14	1020	70	1270	88	1190	82	1480	102
				1.250	31.8	544.01	247.43	811.79	1070	74	1340	92	1250	86	1560	107
44	44.000	1118.0		0.344	8.7	160.39	72.54	237.99	280	19	350	24	330	23	410	28
			STD	0.375	9.5	174.72	79.15	259.69	310	21	380	26	360	25	450	31
				0.406	10.3	189.03	85.76	281.35	330	23	420	29	390	27	480	33
				0.438	11.1	203.78	92.35	302.99	360	25	450	31	420	29	520	36
				0.469	11.9	218.04	98.94	324.59	380	26	480	33	450	31	560	39
			XS	0.500	12.7	232.29	105.51	346.16	410	28	510	35	480	33	600	41
				0.562	14.3	260.72	118.63	389.21	460	32	570	39	540	37	670	46
				0.625	15.9	289.53	131.71	432.13	510	35	640	44	600	41	750	52
				0.688	17.5	318.25	144.76	474.92	560	39	700	48	660	45	820	56
				0.750	19.1	346.43	157.76	517.59	610	42	770	53	720	50	890	61
				0.812	20.6	374.53	169.92	557.47	660	45	830	57	780	54	970	67
				0.875	22.2	403.00	182.85	599.90	720	50	890	61	840	58	1040	72
				0.938	23.8	431.39	195.74	642.19	770	53	960	66	900	62	1120	77
				1.000	25.4	459.24	208.60	684.37	820	56	1020	70	950	65	1190	82
				1.062	27.0	487.01	221.41	726.41	870	60	1090	75	1010	70	1270	88
				1.125	28.6	515.14	234.19	768.33	920	63	1150	79	1070	74	1340	92
				1.188	30.2	543.19	246.92	810.12	970	67	1210	83	1130	78	1420	98
				1.250	31.8	570.71	259.63	851.79	1020	70	1280	88	1190	82	1490	103
46	46.000	1168.0		0.344	8.7	167.74	75.81	248.72	270	19	240	23	310	21	390	27
			STD	0.375	9.5	182.73	82.72	271.40	290	20	370	25	340	23	430	30
				0.406	10.3	197.70	89.63	294.05	320	22	400	28	370	25	460	32
				0.438	11.1	213.13	96.52	316.67	340	23	430	30	400	28	500	34
				0.469	11.9	228.06	103.41	339.26	370	25	460	32	430	30	540	37
			XS	0.500	12.7	242.97	110.28	361.82	390	27	490	34	460	32	570	39
				0.562	14.3	272.73	124.00	406.84	440	30	550	38	510	35	640	44
				0.625	15.9	302.88	137.69	451.73	490	34	610	42	570	39	710	49
				0.688	17.5	332.95	151.33	496.50	540	37	670	46	630	43	790	54
				0.750	19.1	362.45	164.94	541.14	590	41	730	50	680	47	860	59
				0.812	20.6	391.88	177.66	582.87	640	44	790	54	740	51	930	64
				0.875	22.2	421.69	191.19	627.27	680	47	860	59	800	55	1000	69
				0.938	23.8	451.42	204.69	671.54	730	50	920	63	860	59	1070	74
				1.000	25.4	480.60	218.14	715.68	780	54	980	68	910	63	1140	79
				1.062	27.0	509.69	231.56	759.70	830	57	1040	72	970	67	1210	83
				1.125	28.6	539.17	244.93	803.59	880	61	1100	76	1030	71	1280	88
				1.188	30.2	568.57	258.28	847.36	930	64	1160	80	1080	74	1360	94
				1.250	31.8	597.41	271.57	890.99	980	68	1220	84	1140	79	1430	99
48	48.000	1219.0		0.344	8.7	175.08	79.14	259.66	260	18	320	22	300	21	380	26
			STD	0.375	9.5	190.74	86.37	283.35	280	19	350	24	330	23	410	28
				0.406	10.3	206.37	93.58	307.01	300	21	380	26	360	25	440	30
				0.438	11.1	222.49	100.78	330.63	330	23	410	28	380	26	480	33
				0.469	11.9	238.08	107.97	354.23	350	24	440	30	410	28	510	35
			XS	0.500	12.7	253.65	115.15	377.79	380	26	470	32	440	30	550	38

Test pressure							
X42	X46	X52	X56	X60	X65	X70	X80
psi	psi	psi	psi	psi	psi	psi	psi
1580	1720	1950	2100	2250	2440	2630	3000
1690	1850	2090	2250	2410	2610	2810	3000
1800	1970	2330	2400	2570	2790	3000	3000
1910	2090	2370	2550	2730	2960	3000	3000
2030	2220	2510	2700	2890	3000	3000	3000
2140	2340	2650	2850	3000	3000	3000	3000
2250	2460	2790	3000	3000	3000	3000	3000
590	650	730	790	840	910	990	1130
640	710	800	860	920	1000	1070	1230
700	760	860	930	1000	1080	1160	1330
750	820	930	1000	1080	1160	1250	1430
810	880	1000	1070	1150	1250	1340	1530
860	940	1060	1150	1230	1330	1430	1640
970	1060	1200	1290	1380	1490	1610	1840
1070	1180	1330	1430	1530	1660	1790	2050
1180	1290	1460	1580	1690	1830	1970	2250
1290	1410	1600	1720	1840	1990	2150	2450
1400	1530	1730	1860	1990	2160	2330	2600
1500	1650	1860	2000	2150	2330	2510	2860
1610	1770	2000	2150	2300	2490	2690	3000
1720	1880	2130	2290	2450	2660	2860	3000
1820	2000	2260	2430	2610	2820	3000	3000
1930	2120	2390	2580	2760	2990	3000	3000
2040	2240	2530	2720	2920	3000	3000	3000
2150	2350	2660	2860	3000	3000	3000	3000
570	620	700	750	810	870	940	1080
620	680	760	820	880	950	1030	1170
670	730	830	890	950	1030	1110	1270
720	790	890	960	1030	1110	1200	1370
770	840	950	1030	1100	1190	1280	1470
820	900	1020	1100	1170	1270	1370	1570
920	1010	1140	1230	1320	1430	1540	1760
1030	1120	1270	1370	1470	1590	1710	1960
1130	1240	1400	1510	1620	1750	1880	2150
1230	1350	1530	1640	1760	1910	2050	2350
1330	1460	1650	1780	1910	2070	2220	2540
1440	1580	1780	1920	2050	2230	2400	2740
1540	1690	1910	2060	2200	2390	2570	2940
1640	1800	2030	2190	2350	2540	2740	3000
1750	1910	2160	2330	2490	2700	2910	3000
1850	2020	2290	2470	2640	2860	3000	3000
1950	2140	2420	2600	2790	3000	3000	3000
2050	2250	2540	2740	2930	3000	3000	3000
540	590	670	720	770	840	900	1030
590	650	730	790	840	910	980	1130
640	700	790	850	910	990	1070	1220
690	760	850	920	990	1070	1150	1310
740	810	910	980	1060	1140	1230	1410
790	860	980	1050	1120	1220	1310	1500

LINE PIPE

API 5L

Nominal size	Outside diameter		Wall thickness			Weight			Test pressure A STD		Test pressure A ALT		Test pressure B STD		Test pressure B ALT	
in.	in.	mm	Grade	in.	mm	lb/ft	kg/ft	kg/m	psi	kpa X 100	psi	kpa X 100	psi	kpa X 100	psi	kpa X 100
48	48.000	1219.0		0.562	14.3	284.73	129.49	424.82	420	29	530	37	490	34	610	42
				0.625	15.9	316.23	143.78	471.73	470	32	590	41	550	38	680	47
				0.688	17.5	347.64	158.04	518.51	520	36	640	44	600	41	750	52
				0.750	19.1	378.47	172.26	565.16	560	39	700	48	660	45	820	56
				0.812	20.6	409.22	185.56	608.78	610	42	760	52	710	49	890	61
				0.875	22.2	440.38	199.70	655.19	660	45	820	56	770	53	960	66
				0.938	23.8	471.46	213.81	701.47	700	48	880	61	820	56	1030	71
				1.000	25.4	501.96	227.88	747.63	750	52	940	65	880	61	1090	75
				1.062	27.0	532.38	241.91	793.66	800	55	1000	69	930	64	1160	80
				1.125	28.6	563.20	255.90	839.56	840	58	1050	72	980	68	1230	85
				1.188	30.2	593.94	269.85	885.34	890	61	1110	76	1040	72	1300	90
				1.250	31.8	624.11	283.77	930.99	940	65	1170	81	1090	75	1370	94
			STD	0.375	9.5	206.76	93.65	307.25	260	18	320	22	300	21	380	26
				0.406	10.3	223.72	101.47	332.92	280	19	350	24	330	23	410	28
				0.438	11.1	241.20	109.29	358.55	300	21	380	26	350	24	440	30
				0.469	11.9	258.11	117.09	384.16	320	22	410	28	380	26	470	32
			XS	0.500	12.7	275.01	124.89	409.74	350	24	430	30	400	28	500	34
				0.562	14.3	308.74	140.45	460.79	390	27	490	34	450	31	570	39
				0.625	15.9	342.93	155.97	511.53	430	30	540	37	500	34	630	43
				0.688	17.5	377.03	171.46	562.53	480	33	600	41	560	39	690	48
52	52.000	1321.0		0.750	19.1	410.51	186.90	613.20	520	36	650	45	610	42	760	52
				0.812	20.6	443.91	201.35	660.60	560	39	700	48	660	45	820	56
				0.875	22.2	477.76	216.72	711.03	610	42	760	52	710	49	880	61
				0.938	23.8	551.53	232.06	761.34	650	45	810	56	760	52	950	65
				1.000	25.4	544.68	247.35	811.52	690	48	870	60	810	56	1010	70
				1.062	27.0	577.75	262.61	861.57	740	51	920	63	860	59	1070	74
				1.125	28.6	611.26	277.83	911.50	780	54	970	67	910	63	1140	79
				1.188	30.2	644.69	293.00	961.30	820	56	1030	71	960	66	1200	83
				1.250	31.8	677.51	308.15	1010.98	870	60	1080	74	1010	70	1260	87
				0.375	9.5	222.78	100.86	330.91	240	17	300	21	280	19	350	24
				0.406	10.3	241.06	109.29	358.57	260	18	330	23	300	21	380	26
				0.438	11.1	259.91	117.71	386.20	280	19	350	24	330	23	410	28
				0.469	11.9	278.15	126.13	413.80	300	21	380	26	350	24	440	30
				0.500	12.7	296.37	134.53	441.37	320	22	400	28	380	26	470	32
				0.562	14.3	332.75	151.31	496.41	360	25	450	31	420	29	530	37
				0.625	15.9	369.63	168.04	551.32	400	28	500	34	470	32	590	41
				0.688	17.5	406.42	184.74	606.11	440	30	550	38	520	36	650	45
56	56.000	1422.0		0.750	19.1	442.55	201.40	660.77	480	33	600	41	560	39	700	48
				0.812	20.6	478.60	216.99	711.91	520	36	650	45	610	42	760	52
				0.875	22.2	515.14	233.57	766.32	560	39	700	48	660	45	820	56
				0.938	23.8	551.60	250.12	820.61	600	41	750	52	700	48	880	61
				1.000	25.4	587.40	266.63	874.78	640	44	800	55	750	52	940	65
				1.062	27.0	623.12	283.10	928.82	680	47	850	59	800	55	1000	69
				1.125	28.6	659.32	299.54	982.73	720	50	900	62	840	58	1050	72
				1.188	30.2	695.45	315.93	1036.52	760	52	950	65	890	61	1110	76
				1.250	31.8	730.91	332.29	1090.18	800	53	1000	69	940	65	1170	81
				0.375	9.5	238.80	108.14	354.80	230	16	280	19	260	18	330	23
60	60.000	1524.0		0.406	10.3	258.40	117.19	384.48	240	17	300	21	280	19	360	25
				0.438	11.1	278.62	126.22	414.12	260	18	330	23	310	21	380	26
				0.469	11.9	298.19	135.25	443.73	280	19	350	24	330	23	410	28

Test pressure							
X42	X46	X52	X56	X60	X65	X70	X80
psi	psi	psi	psi	psi	psi	psi	psi
890	970	1100	1180	1260	1370	1480	1690
980	1080	1220	1310	1410	1520	1640	1880
1080	1190	1340	1440	1550	1680	1810	2060
1180	1290	1460	1580	1690	1830	1970	2250
1280	1400	1580	1710	1830	1980	2130	2440
1380	1510	1710	1840	1970	2130	2300	2630
1480	1620	1830	1970	2110	2290	2460	2810
1580	1720	1950	2100	2250	2440	2630	3000
1670	1830	2070	2230	2390	2590	2790	3000
1770	1940	2190	2360	2530	2740	2950	3000
1870	2050	2320	2490	2670	2900	3000	3000
1970	2160	2440	2620	2810	3000	3000	3000
550	600	680	730	780	840	910	1040
590	650	730	790	840	910	980	1120
640	700	790	850	910	990	1060	1210
680	750	840	910	970	1060	1140	1300
730	800	900	970	1040	1130	1210	1380
820	890	1010	1090	1170	1260	1360	1560
910	1000	1130	1210	1300	1410	1510	1730
1000	1100	1240	1330	1430	1550	1670	1910
1090	1190	1350	1450	1560	1690	1820	2080
1180	1290	1460	1570	1690	1830	1970	2250
1270	1390	1580	1700	1820	1970	2120	2420
1360	1490	1690	1820	1950	2110	2270	2600
1450	1590	1800	1940	2080	2250	2420	2770
1540	1690	1910	2060	2210	2390	2570	2940
1640	1790	2030	2180	2340	2530	2730	3000
1730	1890	2140	2300	2470	2670	2880	3000
1820	1990	2250	2420	2600	2810	3000	3000
510	550	630	670	720	780	840	960
550	600	680	730	780	850	910	1040
590	650	730	790	840	920	990	1130
630	690	780	840	900	980	1060	1210
680	740	840	900	960	1040	1130	1290
760	830	940	1010	1080	1170	1260	1450
840	920	1040	1120	1210	1310	1410	1610
930	1020	1150	1240	1330	1440	1550	1770
1010	1110	1250	1350	1450	1570	1690	1930
1100	1200	1360	1460	1570	1700	1830	2090
1180	1290	1460	1570	1690	1830	1970	2250
1270	1390	1570	1690	1810	1960	2110	2410
1350	1480	1670	1800	1930	2090	2250	2570
1430	1570	1780	1910	2050	2220	2390	2730
1520	1660	1880	2020	2170	2350	2530	2890
1600	1760	1990	2140	2290	2480	2670	3000
1690	1850	2090	2250	2410	2610	2810	3000
470	520	590	630	680	730	790	900
510	560	630	680	730	790	850	970
550	600	680	740	790	850	920	1050
590	650	730	790	840	910	980	1130

LINE PIPE

API 5L

Nominal size	Outside diameter		Wall thickness			Weight			Test pressure A STD		Test pressure A ALT		Test pressure B STD		Test pressure B ALT	
in.	in.	mm	Grade	in.	mm	lb/ft	kg/ft	kg/m	psi	kpa X 100	psi	kpa X 100	psi	kpa X 100	psi	kpa X 100
60	60.000	1524.0		0.500	12.7	317.73	144.26	473.31	300	21	380	26	350	24	440	30
				0.562	14.3	356.76	162.27	532.38	340	23	420	29	390	27	490	34
				0.625	15.9	396.33	180.23	591.32	380	26	470	32	440	30	550	38
				0.688	17.5	435.81	198.16	650.13	410	28	520	36	480	33	600	41
				0.750	19.1	474.59	216.05	708.82	450	31	560	39	530	37	660	45
				0.812	20.6	513.29	232.78	763.72	490	34	610	42	570	39	710	49
				0.875	22.2	552.52	250.59	822.16	530	37	660	45	610	42	770	53
				0.938	23.8	591.67	268.37	880.48	560	39	700	48	660	45	820	56
				1.000	25.4	630.12	286.11	938.67	600	41	750	52	700	48	880	61
				1.062	27.0	668.48	303.80	996.73	640	44	800	55	740	51	930	64
				1.125	28.6	707.38	321.46	1054.67	680	47	840	58	790	54	980	68
				1.188	30.2	746.20	339.08	1112.48	710	49	890	61	830	57	1040	72
				1.250	31.8	784.31	356.67	1170.17	750	52	940	65	880	61	1090	75
64	64.000	1626.0		0.375	9.5	254.82	115.43	378.70	210	14	260	18	250	17	310	21
				0.406	10.3	275.75	125.08	410.38	230	16	290	20	270	19	330	23
				0.438	11.1	297.33	134.73	442.04	250	17	310	21	290	20	360	25
				0.469	11.9	318.22	144.37	473.66	260	18	330	23	310	21	380	26
				0.500	12.7	339.09	154.00	505.26	280	19	350	24	330	23	410	28
				0.562	14.3	380.77	173.23	568.35	320	22	400	28	370	25	460	32
				0.625	15.9	423.03	192.42	631.31	350	24	440	30	410	28	510	35
				0.688	17.5	465.21	211.58	694.15	390	27	480	33	450	31	560	39
				0.750	19.1	506.63	230.69	756.86	420	29	530	37	490	34	620	43
				0.812	20.6	547.98	248.58	815.54	460	32	570	39	530	37	670	46
				0.875	22.2	589.90	267.61	878.00	490	34	620	43	570	39	720	50
				0.938	23.8	631.75	286.62	940.34	530	37	660	45	620	43	770	53
				1.000	25.4	672.84	305.58	1002.56	560	39	700	48	660	45	820	56
				1.062	27.0	713.85	324.51	1064.65	600	41	750	52	700	48	870	60
				1.125	28.6	755.44	343.39	1126.61	630	43	790	54	740	51	920	63
				1.188	30.2	796.95	362.24	1188.44	670	46	840	58	780	54	970	67
				1.250	31.8	837.71	381.05	1250.15	700	48	880	61	820	56	1030	71
68	68.000	1727.0		0.469	11.9	338.26	153.41	503.30	250	17	310	21	290	20	360	25
				0.500	12.7	360.45	163.64	536.89	260	18	330	23	310	21	390	27
				0.562	14.3	404.77	184.09	603.96	300	21	370	25	350	24	430	30
				0.625	15.9	449.73	204.49	670.91	330	23	410	28	390	27	480	33
				0.688	17.5	494.60	224.86	737.73	360	25	460	32	420	29	530	37
				0.750	19.1	538.67	245.19	804.43	400	28	500	34	460	32	580	40
				0.812	20.6	582.67	264.21	866.84	430	30	540	37	500	34	630	43
				0.875	22.2	627.28	284.47	933.30	460	32	580	40	540	37	680	47
				0.938	23.8	671.82	304.68	999.62	500	34	620	43	580	40	720	50
				1.000	25.4	715.56	324.86	1065.82	530	37	660	45	620	43	770	53
				1.062	27.0	759.22	345.00	1131.89	560	39	700	48	660	45	820	56
				1.125	28.6	803.50	365.10	1197.84	600	41	740	51	690	48	870	60
				1.188	30.2	847.70	385.16	1263.66	630	43	790	54	730	50	920	63
				1.250	31.8	891.11	405.19	1329.36	660	45	830	57	770	53	970	67

Test pressure							
X42	X46	X52	X56	X60	X65	X70	X80
psi	psi	psi	psi	psi	psi	psi	psi
630	690	780	840	900	980	1050	1200
710	780	880	940	1010	1100	1180	1350
790	860	980	1050	1130	1220	1310	1500
870	950	1070	1160	1240	1340	1440	1650
950	1030	1170	1260	1350	1460	1580	1800
1020	1120	1270	1360	1460	1580	1710	1950
1100	1210	1370	1470	1580	1710	1840	2100
1180	1290	1460	1580	1690	1830	1970	2250
1260	1380	1560	1680	1800	1950	2100	2400
1340	1470	1660	1780	1910	2070	2230	2550
1420	1550	1760	1890	2030	2190	2360	2700
1500	1640	1850	2000	2140	2320	2490	2850
1580	1720	1950	2100	2250	2440	2630	3000
440	490	550	590	630	690	740	840
480	530	590	640	690	740	800	910
520	570	640	690	740	800	860	990
550	610	690	740	790	860	920	1060
590	650	730	790	840	910	980	1130
660	730	820	890	950	1030	1110	1260
740	810	910	980	1050	1140	1230	1410
810	890	1010	1080	1160	1260	1350	1550
890	970	1100	1180	1270	1370	1480	1690
960	1050	1190	1280	1370	1480	1600	1830
1030	1130	1280	1380	1480	1600	1720	1970
1110	1210	1370	1480	1580	1710	1850	2110
1180	1290	1460	1570	1690	1830	1970	2250
1250	1370	1550	1670	1790	1940	2090	2390
1330	1460	1650	1770	1900	2060	2210	2530
1400	1540	1740	1870	2000	2170	2340	2670
1480	1620	1830	1970	2110	2290	2460	2810
520	570	650	700	740	810	870	990
560	610	690	740	790	860	930	1060
620	680	770	830	890	970	1040	1190
690	760	860	930	990	1080	1160	1320
760	840	950	1020	1090	1180	1270	1460
830	910	1030	1110	1190	1290	1390	1590
900	990	1120	1200	1290	1400	1500	1720
970	1070	1200	1300	1390	1510	1620	1850
1040	1140	1290	1390	1490	1610	1740	1990
1110	1220	1380	1480	1590	1720	1850	2120
1180	1290	1460	1570	1690	1830	1970	2250
1250	1370	1550	1670	1790	1940	2080	2380
1320	1450	1640	1760	1890	2040	2200	2520
1390	1520	1720	1850	1990	2150	2320	2650

LINE PIPE

API 5L

Nominal size	Outside diameter		Wall thickness			Weight			Test pressure							
									A				B			
									STD		ALT		STD		ALT	
in.	in.	mm	Grade	in.	mm	lb/ft	kg/ft	kg/m	psi	kpa X 100	psi	kpa X 100	psi	kpa X 100	psi	kpa X 100
				0.500	12.7	381.81	173.38	568.83	250	17	310	21	290	20	360	25
				0.562	14.3	428.78	195.05	639.93	280	19	350	24	330	23	410	28
				0.625	15.9	476.43	216.69	710.91	310	21	390	27	360	25	460	32
				0.688	17.5	523.99	238.28	781.75	340	23	430	30	400	28	500	34
				0.750	19.1	570.71	259.83	852.47	380	26	470	32	440	30	550	38
				0.812	20.6	617.35	280.01	918.66	410	28	510	35	470	32	590	41
72	72.000	1829.0		0.875	22.2	664.66	301.49	989.14	440	30	550	38	510	35	640	44
				0.938	23.8	711.89	322.93	1059.49	470	32	590	41	550	38	680	47
				1.000	25.4	758.28	344.34	1129.71	500	34	630	43	580	40	730	50
				1.062	27.0	804.59	365.70	1199.81	530	37	660	45	620	43	770	53
				1.125	28.6	851.56	387.03	1269.78	560	39	700	48	660	45	820	56
				1.188	30.2	898.45	408.32	1339.62	590	41	740	51	690	48	870	60
				1.250	31.8	944.51	429.57	1409.34	630	43	780	54	730	50	910	63
				0.500	12.7	403.17	183.02	600.46	240	17	300	21	280	19	350	24
				0.562	14.3	452.79	205.91	675.55	270	19	330	23	310	21	390	27
				0.625	15.9	503.13	228.76	750.51	300	21	370	25	350	24	430	30
				0.688	17.5	553.38	251.56	825.34	330	23	410	28	380	26	480	33
				0.750	19.1	602.75	274.34	900.05	360	25	440	30	410	28	520	36
				0.812	20.6	652.04	295.65	969.97	380	26	480	33	450	31	560	39
76	76.000	1930.0		0.875	22.2	702.04	318.34	1044.43	410	28	520	36	480	33	600	41
				0.938	23.8	751.96	341.00	1118.76	440	30	560	39	520	36	650	45
				1.000	25.4	801.00	363.62	1192.97	470	32	590	41	550	38	690	48
				1.062	27.0	849.96	386.20	1267.06	500	34	630	43	590	41	730	50
				1.125	28.6	899.62	408.74	1341.01	530	37	670	46	620	43	780	54
				1.188	30.2	949.20	431.24	1414.84	560	39	700	48	660	45	820	56
				1.250	31.8	997.91	453.71	1488.55	590	41	740	51	690	48	860	59
				0.562	14.3	476.80	216.87	711.52	250	17	320	22	300	21	370	25
				0.625	15.9	529.83	240.94	790.50	280	19	350	24	330	23	410	28
				0.688	17.5	582.77	264.98	869.36	310	21	390	27	360	25	450	31
				0.750	19.1	634.79	288.98	948.09	340	23	420	29	390	27	490	34
				0.812	20.6	686.73	311.44	1021.78	370	25	460	32	430	30	530	37
				0.875	22.2	739.42	335.36	1100.27	390	27	490	34	460	32	570	39
80	80.000	2032.0		0.938	23.8	792.03	359.25	1178.63	420	29	530	37	490	34	620	43
				1.000	25.4	843.72	383.09	1256.86	450	31	560	39	530	37	660	45
				1.062	27.0	895.33	406.90	1334.97	480	33	600	41	560	39	700	48
				1.125	28.6	947.68	430.67	1412.95	510	35	630	43	590	41	740	51
				1.188	30.2	999.95	454.40	1490.80	530	37	670	46	620	43	780	54
				1.250	31.8	1051.31	478.09	1568.53	560	39	700	48	660	45	820	56

Test pressure							
X42	X46	X52	X56	X60	X65	X70	X80
psi	psi	psi	psi	psi	psi	psi	psi
530	570	650	700	750	810	880	1000
590	650	730	790	840	910	980	1120
660	720	810	870	940	1020	1090	1250
720	790	890	960	1030	1120	1200	1380
790	860	980	1050	1130	1220	1310	1500
850	930	1060	1140	1220	1320	1420	1620
920	1010	1140	1220	1310	1420	1530	1750
980	1080	1220	1310	1410	1520	1640	1880
1050	1150	1300	1400	1500	1630	1750	2000
1120	1220	1380	1490	1590	1730	1860	2120
1180	1290	1460	1570	1690	1830	1970	2250
1250	1370	1540	1660	1780	1930	2080	2380
1310	1440	1630	1750	1880	2030	2190	2500
500	540	620	660	710	770	830	950
560	610	690	750	800	870	930	1060
620	680	770	830	890	960	1040	1180
680	750	850	910	980	1060	1140	1300
750	820	920	990	1070	1150	1240	1420
810	880	1000	1080	1150	1250	1350	1540
870	950	1080	1160	1240	1350	1450	1660
930	1020	1160	1240	1330	1440	1560	1780
990	1090	1230	1330	1420	1540	1660	1890
1060	1160	1310	1410	1510	1630	1760	2010
1120	1230	1390	1190	1600	1730	1870	2130
1180	1290	1460	1580	1690	1830	1970	2250
1240	1360	1540	1660	1780	1920	2070	2370
530	580	660	710	760	820	890	1010
590	650	730	790	840	910	980	1130
650	710	800	870	930	1010	1080	1240
710	780	880	940	1010	1100	1180	1350
770	840	950	1020	1100	1190	1280	1460
830	910	1020	1100	1180	1280	1380	1580
890	970	1100	1180	1270	1370	1480	1690
950	1030	1170	1260	1350	1460	1580	1800
1000	1100	1240	1340	1430	1550	1670	1910
1060	1160	1320	1420	1520	1650	1770	2030
1120	1230	1390	1500	1600	1740	1870	2140
1180	1290	1460	1570	1690	1830	1970	2250

CASING AND TUBING

API 5CT(Casing)

Outside diameter		Wall thickness		Weight						Test pressure(psi)				Type of thread		
				Plain end			Threaded & Coupling			H40		J55 & K55				
in.	mm	in.	mm	lb/ft	kg/ft	kg/m	lb/ft	kg/ft	kg/m	STD	ALT	STD	ALT	Short thread	Long thread	Buttress thread
4½	114.30	0.205	5.21	9.40	4.26	13.99	9.50	4.31	14.14	2.900	–	3.000	4.000	x		
		0.224	5.69	10.23	4.64	15.22	10.50	4.76	15.63	–	–	3.000	4.400	x		x
		0.250	6.35	11.35	5.15	16.89	11.60	5.26	17.26	–	–	3.000	4.900	x	x	x
5	127.00	0.220	5.59	11.23	5.09	16.71	11.50	5.22	17.11	–	–	3.000	3.900	x		
		0.253	6.43	12.83	5.82	19.09	13.00	5.90	19.35	–	–	3.000	4.500	x	x	x
		0.296	7.52	14.87	6.75	22.13	15.00	6.80	22.32	–	–	3.000	5.200	x	x	x
5½	139.70	0.244	6.20	13.70	6.21	20.39	14.00	6.35	20.83	2.800	–	3.000	3.900	x		
		0.275	6.99	15.35	6.96	22.84	15.50	7.03	23.07	–	–	3.000	4.400	x	x	x
		0.304	7.72	16.87	7.65	25.11	17.00	7.71	25.30	–	–	3.000	4.900	x	x	x
6⅝	168.28	0.288	7.32	19.49	8.84	29.00	20.00	9.07	29.76	2.800	–	–	–	x		
		0.288	7.32	19.49	8.84	29.00	20.00	9.07	29.76	–	–	3.000	3.800	x	x	x
		0.352	8.94	23.58	10.70	35.09	24.00	10.89	35.72	–	–	3.000	4.700	x	x	x
7	177.80	0.231	5.87	16.70	7.57	24.85	17.00	7.71	25.30	2.100	–	–	–	x		
		0.272	6.91	19.54	8.86	29.08	20.00	9.07	29.76	2.500	–	3.000	3.400	x		
		0.317	8.05	22.63	10.27	33.68	23.00	10.43	34.23	–	–	3.000	4.000	x	x	x
		0.362	9.19	25.66	11.64	38.19	26.00	11.79	38.69	–	–	3.000	4.600	x	x	x
7⅝	193.68	0.300	7.62	23.47	10.65	34.93	24.00	10.89	35.72	2.500	–	–	–	x		
		0.328	8.33	25.56	11.59	38.04	26.40	11.98	39.29	–	–	3.000	3.800	x	x	x
8⅝	219.08	0.264	6.71	23.57	10.69	35.08	24.00	10.89	35.72	–	–	2.700	–	x		
		0.304	7.72	27.02	12.26	40.21	28.00	12.70	41.67	2.300	–	–	–	x		
		0.352	8.94	31.10	14.11	46.28	32.00	14.51	47.62	2.600	–	–	–	x		
		0.352	8.94	31.10	14.11	46.28	32.00	14.51	47.62	–	–	3.000	3.600	x	x	x
		0.400	10.16	35.14	15.94	52.29	36.00	16.33	53.57	–	–	3.000	4.100	x	x	x
9⅝	244.48	0.312	7.92	31.03	14.08	46.18	32.30	14.65	48.07	2.100	–	–	–	x		
		0.352	8.94	34.86	15.81	51.88	36.00	16.33	53.57	2.300	–	–	–	x		
		0.352	8.94	34.86	15.81	51.88	36.00	16.33	53.57	–	–	3.000	3.200	x	x	x
		0.395	10.03	38.94	17.66	57.95	40.00	18.14	59.53	–	–	3.000	3.600	x	x	x
10¾	273.05	0.279	7.09	31.20	14.15	46.43	32.75	14.86	48.74	1.200	1.700	–	–	x		
		0.350	8.89	38.88	17.64	57.86	40.50	18.37	60.27	1.600	2.100	–	–	x		
		0.350	8.89	38.88	17.64	57.86	40.50	18.37	60.27	–	–	2.100	2.900	x		x
		0.400	10.16	44.22	20.06	65.81	45.50	20.64	67.71	–	–	2.500	3.300	x		x
		0.450	11.43	49.50	22.45	73.66	51.00	23.13	75.90	–	–	2.800	3.700	x		x
11¾	298.45	0.333	8.46	40.60	18.42	60.42	42.00	19.05	62.50	1.400	1.800	–	–	x		
		0.375	9.52	45.56	20.67	67.80	47.00	21.32	69.94	–	–	2.100	2.800	x		x
		0.435	11.05	52.57	23.84	78.23	54.00	24.49	80.36	–	–	2.400	3.300	x		x
		0.489	12.42	58.81	26.68	87.52	60.00	27.22	89.29	–	–	2.700	3.700	x		x
13⅜	339.73	0.330	8.38	45.98	20.86	68.43	48.00	21.77	71.43	1.200	1.600	–	–	x		
		0.380	9.65	52.74	23.92	78.49	54.50	24.72	81.10	–	–	1.900	2.500	x		x
		0.430	10.92	59.45	26.97	88.47	61.00	27.67	90.78	–	–	2.100	2.800	x		x
		0.480	12.19	66.10	29.98	98.37	68.00	30.84	101.19	–	–	2.400	3.200	x		x
16	406.40	0.375	9.52	62.58	28.39	93.13	65.00	29.48	96.73	1.100	–	–	–	x		
		0.438	11.13	72.80	33.02	108.34	75.00	34.02	111.61	–	–	1.800	–	x		x
		0.495	12.57	81.97	37.18	121.98	84.00	38.10	125.01	–	–	2.000	–	x		x
18⅝	473.08	0.435	11.05	84.51	38.33	125.76	87.50	39.69	130.21	1.100	–	1.500	–	x		
		0.435	11.05	84.51	38.33	125.76	87.50	39.69	130.21	–	–	1.500	–			x
20	508.00	0.438	11.13	91.51	41.51	136.18	94.00	42.64	139.89	1.100	–	1.400	–	x	x	
		0.438	11.13	91.51	41.51	136.18	94.00	42.64	139.89	–	–	1.400	–			x
		0.500	12.70	104.13	47.23	154.96	106.50	48.31	158.49	–	–	1.600	–	x	x	x

API 5CT(Tubing)

Outside diameter		Wall thickness		Weight						Test pressure(psi)				Type of pipe
				Plain end			Threaded & Coupling			H40		J55 & K55		
in.	mm	in.	mm	lb/ft	kg/ft	kg/m	lb/ft	kg/ft	kg/m	STD	ALT	STD	ALT	
1.050	26.7	0.113	2.87	1.13	0.51	1.68	1.14	0.52	1.70	3.000	6.900	3.000	9.500	Non-Upset
		0.113	2.87	1.13	0.51	1.68	1.20	0.54	1.79	3.000	6.900	3.000	9.500	Ext. Upset
1.315	33.4	0.133	3.38	1.68	0.76	2.50	1.70	0.77	2.53	3.000	6.500	3.000	8.900	Non-Upset
		0.133	3.38	1.68	0.76	2.50	1.72	0.78	2.56	3.000	6.500	3.000	8.900	Integral Joint
		0.133	3.38	1.68	0.76	2.50	1.80	0.82	2.68	3.000	6.500	3.000	8.900	Ext. Upset
1.660	42.2	0.125	3.18	2.05	0.93	3.05	2.10	0.95	3.13	3.000	4.800	3.000	6.600	Integral Joint
		0.140	3.56	2.27	1.03	3.38	2.30	1.04	3.42	3.000	5.400	3.000	7.400	Non-Upset
		0.140	3.56	2.27	1.03	3.38	2.33	1.06	3.47	3.000	5.400	3.000	7.400	Integral Joint
		0.140	3.56	2.27	1.03	3.38	2.40	1.09	3.57	3.000	5.400	3.000	7.400	Ext. Upset
1.900	48.3	0.125	3.18	2.37	1.08	3.53	2.40	1.09	3.57	3.000	4.200	3.000	5.800	Integral Joint
		0.145	3.68	2.72	1.23	4.05	2.75	1.25	4.09	3.000	4.900	3.000	6.700	Non-Upset
		0.145	3.68	2.72	1.23	4.05	2.76	1.25	4.11	3.000	4.900	3.000	6.700	Integral Joint
		0.145	3.68	2.72	1.23	4.05	2.90	1.32	4.32	3.000	4.900	3.000	6.700	Ext. Upset
2.063	52.4	0.156	3.96	3.18	1.44	4.73	3.25	1.48	4.84	3.000	4.800	3.000	6.700	Integral Joint
2⅜	60.3	0.167	4.24	3.94	1.79	5.86	4.00	1.81	5.95	3.000	4.500	3.000	6.200	Non-Upset
		0.190	4.83	4.43	2.01	6.59	4.60	2.09	6.85	3.000	5.100	3.000	7.000	Non-Upset
		0.190	4.83	4.43	2.01	6.59	4.70	2.13	6.99	3.000	5.100	3.000	7.000	Ext. Upset
2⅞	73.0	0.217	5.51	6.16	2.80	9.17	6.40	2.90	9.52	3.000	4.800	3.000	6.600	Non-Upset
		0.217	5.51	6.16	2.80	9.17	6.50	2.95	9.67	3.000	4.800	3.000	6.600	Ext. Upset
3½	88.9	0.216	5.49	7.58	3.44	11.28	7.70	3.49	11.46	3.000	3.900	3.000	5.400	Non-Upset
		0.254	6.45	8.81	4.00	13.11	9.20	4.17	13.69	3.000	4.600	3.000	6.400	Non-Upset
		0.254	6.45	8.81	4.00	13.11	9.30	4.22	13.84	3.000	4.600	3.000	6.400	Ext. Upset
		0.289	7.34	9.91	4.50	14.75	10.20	4.63	15.18	3.000	5.300	3.000	7.300	Non-Upset
4	101.6	0.226	5.74	9.11	4.13	13.56	9.50	4.31	14.14	3.000	3.600	3.000	5.000	Non-Upset
		0.262	6.65	10.46	4.75	15.57	11.00	4.99	16.37	3.000	4.200	3.000	5.800	Ext. Upset
4½	114.3	0.271	6.88	12.24	5.55	18.22	12.60	5.72	18.75	3.000	3.900	3.000	5.300	Non-Upset
		0.271	6.88	12.24	5.55	18.22	12.75	5.78	18.97	3.000	3.900	3.000	5.300	Ext. Upset

API 2B

- API 2B pipe is suitable for use in connection of welded offshore structures.
- The purchaser shall specify the grade and quality of plate steel to be used.
- Dimension (Outside diameter, thickness, length) are specified by purchaser.
- Tolerance on roundness, straightness, circumference are determined by purchaser and API 2B requirements.
- HYSCO produces API 2B pipe in accordance with API 2B and purchase requirements.

ORDINARY PIPING

ASTM A53

NPS Designator	Outside diameter		Wall thickness		Nominal weight: Plain end			Nominal weight: threads & couplings			Weight class	Schedule No.	Test pressure: Plain end Grade A		Test pressure: Plain end Grade B		Test pressure: threads & couplings Grade A		Test pressure: threads & couplings Grade B	
in.	in.	mm	in.	mm	lb/ft	kg/ft	kg/m	lb/ft	kg/ft	kg/m			psi	kpa	psi	kpa	psi	kpa	psi	kpa
3/8	0.675	17.1	0.091	2.31	0.57	0.26	0.84	0.57	0.26	0.84	STD	40	700	4830	700	4830	700	4830	700	4830
			0.126	3.20	0.74	0.34	1.10	0.74	0.34	1.10	XS	80	850	5860	850	5860	850	5860	850	5860
1/2	0.840	21.3	0.109	2.77	0.85	0.39	1.27	0.85	0.39	1.27	STD	40	700	4830	700	4830	700	4830	700	4830
			0.147	3.73	1.09	0.49	1.62	1.09	0.49	1.62	XS	80	850	5860	850	5860	850	5860	850	5860
			0.188	4.78	1.31	0.59	1.95	–	–	–	–	160	900	6210	900	6210	–	–	–	–
3/4	1.050	26.7	0.113	2.87	1.13	0.52	1.69	1.13	0.52	1.69	STD	40	700	4830	700	4830	700	4830	700	4830
			0.154	3.91	1.47	0.67	2.20	1.48	0.67	2.21	XS	80	850	5860	850	5860	850	5860	850	5860
			0.219	5.56	1.94	0.88	2.90	–	–	–	–	160	950	6550	950	6550	–	–	–	–
1	1.315	33.4	0.133	3.38	1.68	0.76	2.50	1.68	0.76	2.50	STD	40	700	4830	700	4830	700	4830	700	4830
			0.179	4.55	2.17	0.99	3.24	2.18	0.99	3.25	XS	80	850	5860	850	5860	850	5860	850	5860
			0.250	6.35	2.84	1.29	4.24	–	–	–	–	160	950	6550	950	6550	–	–	–	–
1¼	1.660	42.2	0.140	3.56	2.27	1.03	3.39	2.28	1.04	3.40	STD	40	1200	8270	1300	8960	1000	6890	1100	7580
			0.191	4.85	3.00	1.36	4.47	3.02	1.37	4.49	XS	80	1800	12410	1900	13100	1500	10340	1600	11030
			0.250	6.35	3.76	1.71	5.61	–	–	–	–	160	1900	13100	2000	13790	–	–	–	–
1½	1.900	48.3	0.145	3.68	2.72	1.23	4.05	2.73	1.24	4.04	STD	40	1200	8270	1300	8960	1000	6890	1100	7580
			0.200	5.08	3.63	1.65	5.41	3.66	1.64	5.39	XS	80	1800	12410	1900	13100	1500	10340	1600	11030
			0.281	7.14	4.86	2.21	7.25	–	–	–	–	160	1950	13440	2050	14130	–	–	–	–
2	2.375	60.3	0.154	3.91	3.65	1.66	5.44	3.68	1.66	5.46	STD	40	2300	15860	2500	15860	2300	15860	2500	17240
			0.218	5.54	5.02	2.28	7.48	5.07	2.30	7.55	XS	80	2500	17240	2500	17240	2500	17240	2500	17240
			0.344	8.74	7.46	3.39	11.11	–	–	–	–	160	2500	17240	2500	17240	–	–	–	–
2½	2.875	73.0	0.203	5.16	5.79	2.63	8.63	5.82	2.64	8.67	STD	40	2500	17240	2500	17240	2500	17240	2500	17240
			0.276	7.01	7.66	3.48	11.41	7.73	3.51	11.52	XS	80	2500	17240	2500	17240	2500	17240	2500	17240
			0.375	9.52	10.01	4.54	14.90	–	–	–	–	160	2500	17240	2500	17240	–	–	–	–
3	3.500	88.9	0.125	3.18	4.51	2.05	6.72	–	–	–	–	–	1290	8890	1500	10340	–	–	–	–
			0.156	3.96	5.57	2.53	8.29	–	–	–	–	–	1600	11030	1870	12890	–	–	–	–
			0.188	4.78	6.65	3.02	9.92	–	–	–	–	–	1930	13310	2260	15580	–	–	–	–
			0.216	5.49	7.58	3.44	11.29	7.62	3.46	11.35	STD	40	2220	15310	2500	17240	2200	15170	2500	17240
			0.250	6.35	8.68	3.94	12.93	–	–	–	–	–	2500	17240	2500	17240	–	–	–	–
			0.281	7.14	9.66	4.39	14.40	–	–	–	–	–	2500	17240	2500	17240	–	–	–	–
			0.300	7.62	10.25	4.65	15.27	10.33	4.69	15.39	XS	80	2500	17240	2500	17240	2500	17240	2500	17240
			0.438	11.13	14.32	6.51	21.35	–	–	–	–	160	2500	17240	2500	17240	–	–	–	–
3½	4.000	101.6	0.125	3.18	5.17	2.35	7.72	–	–	–	–	–	1120	7720	1310	9030	–	–	–	–
			0.156	3.96	6.40	2.90	9.53	–	–	–	–	–	1400	9650	1640	11310	–	–	–	–
			0.188	4.78	7.65	3.48	11.41	–	–	–	–	–	1690	11650	1970	13580	–	–	–	–
			0.226	5.74	9.11	4.14	13.57	9.20	4.18	13.71	STD	40	2030	14000	2370	16340	2000	13790	2400	16550
			0.250	6.35	10.01	4.55	14.92	–	–	–	–	–	2250	15510	2500	17240	–	–	–	–
			0.281	7.14	11.16	5.07	16.63	–	–	–	–	–	2500	17240	2500	17240	–	–	–	–
			0.318	8.08	12.51	5.68	18.63	12.63	5.74	18.82	XS	80	2800	19310	2800	19310	2800	19310	2800	19310
4	4.500	114.3	0.125	3.18	5.84	2.65	8.71	–	–	–	–	–	1000	6890	1170	8070	–	–	–	–
			0.156	3.96	7.24	3.29	10.78	–	–	–	–	–	1250	8620	1460	10070	–	–	–	–
			0.188	4.78	8.66	3.93	12.91	–	–	–	–	–	1500	10340	1750	12070	–	–	–	–
			0.219	5.56	10.01	4.54	14.91	–	–	–	–	–	1750	12070	2040	14070	–	–	–	–
			0.237	6.02	10.79	4.90	16.07	10.89	4.95	16.23	STD	40	1900	13100	2210	15240	1900	13100	2200	15170
			0.250	6.35	11.35	5.15	16.90	–	–	–	–	–	2000	13790	2330	16060	–	–	–	–
			0.281	7.14	12.66	5.75	18.87	–	–	–	–	–	2250	15110	2620	18060	–	–	–	–
			0.312	7.92	13.98	6.33	20.78	–	–	–	–	–	2500	17240	2800	19310	–	–	–	–
			0.337	8.56	14.98	6.80	22.32	15.17	6.89	22.60	XS	80	2700	18620	2800	19310	2700	18620	2800	19310
			0.438	11.13	19.00	8.63	28.32	–	–	–	–	120	2800	19310	2800	19310	–	–	–	–
			0.531	13.49	22.51	10.22	33.54	–	–	–	–	160	2800	19310	2800	19310	–	–	–	–

NPS Designator	Outside diameter		Wall thickness		Nominal weight: Plain end			Nominal weight: threads & couplings			Weight class	Schedule No.	Test pressure: Plain end Grade A		Test pressure: Plain end Grade B		Test pressure: threads & couplings Grade A		Test pressure: threads & couplings Grade B	
in.	in.	mm	in.	mm	lb/ft	kg/ft	kg/m	lb/ft	kg/ft	kg/m			psi	kpa	psi	kpa	psi	kpa	psi	kpa
5	5.563	141.3	0.156	3.96	9.01	4.09	13.41	–	–	–	–	–	1010	6960	1180	8140	–	–	–	–
			0.188	4.78	10.79	4.90	16.09	–	–	–	–	–	1220	8410	1420	9790	–	–	–	–
			0.219	5.56	12.50	5.67	18.61	–	–	–	–	–	1420	9790	1650	11380	–	–	–	–
			0.258	6.55	14.62	6.64	21.77	14.81	6.73	22.07	STD	40	1670	11510	1950	13440	1700	11720	1900	13100
			0.281	7.14	15.85	7.20	23.62	–	–	–	–	–	1820	12550	2120	14620	–	–	–	–
			0.312	7.92	17.50	7.94	26.05	–	–	–	–	–	2020	13930	2360	16270	–	–	–	–
			0.344	8.74	19.17	8.71	28.57	–	–	–	–	–	2230	15380	2600	17930	–	–	–	–
			0.375	9.52	20.78	9.43	30.94	21.09	9.58	31.42	XS	80	2430	16750	2800	19310	2400	16550	2800	19310
			0.500	12.70	27.04	12.28	40.28	–	–	–	–	120	2800	19310	2800	19310	–	–	–	–
			0.625	15.88	32.96	14.97	49.11	–	–	–	–	160	2800	19310	2800	19310	–	–	–	–
6	6.625	168.3	0.188	4.78	12.92	5.87	19.27	–	–	–	–	–	1020	7030	1190	8200	–	–	–	–
			0.219	5.56	14.98	6.80	22.31	–	–	–	–	–	1190	8200	1390	9580	–	–	–	–
			0.250	6.35	17.02	7.73	25.36	–	–	–	–	–	1360	9380	1580	10890	–	–	–	–
			0.280	7.11	18.97	8.61	28.26	19.18	8.71	28.58	STD	40	1520	10480	1780	12270	1500	10340	1800	12410
			0.312	7.92	21.04	9.55	31.32	–	–	–	–	–	1700	11720	1980	13650	–	–	–	–
			0.344	8.74	23.08	10.48	34.39	–	–	–	–	–	1870	12890	2180	15030	–	–	–	–
			0.375	9.52	25.03	11.36	37.28	–	–	–	–	–	2040	14070	2380	16410	–	–	–	–
			0.432	10.97	28.57	12.97	42.56	28.89	13.12	43.05	XS	80	2350	16200	2740	18890	2300	15860	2700	18620
			0.562	14.27	36.39	16.52	54.20	–	–	–	–	120	2800	19310	2800	19310	–	–	–	–
			0.719	18.26	45.35	20.59	67.56	–	–	–	–	160	2800	19310	2800	19310	–	–	–	–
8	8.625	219.1	0.188	4.78	16.94	7.70	25.26	–	–	–	–	–	780	5380	920	6340	–	–	–	–
			0.203	5.16	18.26	8.30	27.22	–	–	–	–	–	850	5860	1000	6890	–	–	–	–
			0.219	5.56	19.66	8.92	29.28	–	–	–	–	–	910	6270	1070	7380	–	–	–	–
			0.250	6.35	22.36	10.15	33.31	–	–	–	–	20	1040	7170	1220	8410	–	–	–	–
			0.277	7.04	24.70	11.07	36.81	25.55	11.60	38.07	–	30	1160	7800	1350	9310	1200	8270	1300	8960
			0.312	7.92	27.70	12.57	41.24	–	–	–	–	–	1300	8960	1520	10480	–	–	–	–
			0.322	8.18	28.55	12.97	42.55	29.35	13.33	43.73	STD	40	1340	9240	1570	10820	1300	8960	1600	11030
			0.344	8.74	30.42	13.82	45.34	–	–	–	–	–	1440	9930	1680	11580	–	–	–	–
			0.375	9.52	33.04	15.00	49.20	–	–	–	–	–	1570	10820	1830	12620	–	–	–	–
			0.406	10.31	35.64	16.18	53.08	–	–	–	–	60	1700	11720	2000	13790	–	–	–	–
			0.438	11.13	38.30	17.40	57.08	–	–	–	–	–	1830	12620	2130	14690	–	–	–	–
			0.500	12.70	43.39	19.70	64.64	43.90	19.94	65.41	XS	80	2090	14410	2430	16750	2100	14480	2400	16550
			0.594	15.09	50.95	23.14	75.92	–	–	–	–	100	2500	17240	2800	19310	–	–	–	–
			0.719	18.26	60.71	27.57	90.44	–	–	–	–	120	2800	19310	2800	19310	–	–	–	–
			0.812	20.62	67.76	30.76	100.92	–	–	–	–	140	2800	19310	2800	19310	–	–	–	–
10	10.750	273.0	0.188	4.78	21.21	9.64	31.62	–	–	–	–	–	630	4340	730	5030	–	–	–	–
			0.203	5.16	22.87	10.39	34.08	–	–	–	–	–	680	4690	800	5520	–	–	–	–
			0.219	5.56	24.63	11.18	36.67	–	–	–	–	–	730	5030	860	5930	–	–	–	–
			0.250	6.35	28.04	12.73	41.75	–	–	–	–	20	840	5790	980	6760	–	–	–	–
			0.279	7.09	31.20	14.17	46.49	32.75	14.87	48.80	–	–	930	6410	1090	7520	950	6550	1100	7580
			0.307	7.80	34.24	15.55	51.01	35.75	16.24	53.27	–	30	1030	7100	1200	8270	1000	6890	1200	8270
			0.344	8.74	38.23	17.36	56.96	–	–	–	–	–	1150	7930	1340	9240	–	–	–	–
			0.365	9.27	40.48	18.38	60.29	41.85	19.31	63.36	STD	40	1220	8410	1430	9860	1200	8270	1400	9650
			0.438	11.13	48.24	21.91	71.87	–	–	–	–	–	1470	10140	1710	11790	–	–	–	–
			0.500	12.70	54.74	24.85	81.52	55.82	25.35	83.17	XS	60	1670	11510	1950	13440	1700	11720	2000	13790
			0.594	15.09	64.43	29.25	95.97	–	–	–	–	80	1990	13720	2320	16000	–	–	–	–
			0.719	18.26	77.03	34.96	114.70	–	–	–	–	100	2410	16620	2800	19310	–	–	–	–
			0.844	21.44	89.29	40.54	133.00	–	–	–	–	120	2800	19310	2800	19310	–	–	–	–

ORDINARY PIPING

ASTM A53

NPS Designator	Outside diameter		Wall thickness		Nominal weight: Plain end			Nominal weight: threads & couplings			Weight class	Schedule No.	Test pressure: Plain end Grade A		Test pressure: Plain end Grade B		Test pressure: threads & couplings Grade A		Test pressure: threads & couplings Grade B	
in.	in.	mm	in.	mm	lb/ft	kg/ft	kg/m	lb/ft	kg/ft	kg/m			psi	kpa	psi	kpa	psi	kpa	psi	kpa
12	12.750	323.8	0.203	5.16	27.20	12.36	40.55	–	–	–	–	–	570	3930	670	4620	–	–	–	–
			0.219	5.56	29.31	13.30	43.63	–	–	–	–	–	620	4270	720	4960	–	–	–	–
			0.250	6.35	33.38	15.15	49.71	–	–	–	–	20	710	4900	820	5650	–	–	–	–
			0.281	7.14	37.42	16.99	55.75	–	–	–	–	–	790	5450	930	6410	–	–	–	–
			0.312	7.92	41.45	18.80	61.69	–	–	–	–	–	880	6070	1030	7100	–	–	–	–
			0.330	8.38	43.77	19.87	65.18	45.45	20.64	67.72	–	30	930	6410	1090	7520	950	6550	1100	7580
			0.344	8.74	45.58	20.70	67.90	–	–	–	–	–	970	6690	1130	7790	–	–	–	–
			0.375	9.52	49.56	22.49	73.78	51.15	23.23	76.21	STD	–	1060	7310	1240	8550	1100	7580	1200	8270
			0.406	10.31	53.52	24.29	79.70	–	–	–	–	40	1160	7930	1340	9240	–	–	–	–
			0.438	11.13	57.59	26.16	85.82	–	–	–	–	–	1240	8550	1440	9930	–	–	–	–
			0.500	12.70	65.42	29.70	97.43	66.71	30.30	99.40	XS	–	1410	9720	1650	11380	1400	9650	1600	11030
			0.562	14.27	73.15	33.20	108.92	–	–	–	–	60	1590	10960	1850	12760	–	–	–	–
			0.688	17.48	88.63	40.25	132.04	–	–	–	–	80	1940	13380	2270	15650	–	–	–	–
			0.844	21.44	107.32	48.73	159.86	–	–	–	–	100	2390	16480	2780	19170	–	–	–	–
14	14.000	355.6	0.210	5.33	30.93	14.03	46.04				–	–	540	3720	630	4340				
			0.219	5.56	32.23	14.63	47.99				–	–	560	3860	660	4550				
			0.250	6.35	36.71	16.67	54.69				–	10	640	4410	750	5170				
			0.281	7.14	41.17	18.70	61.35				–	–	720	4960	840	5790				
			0.312	7.92	45.61	20.70	67.90				–	20	800	5520	940	6480				
			0.344	8.74	50.17	22.79	74.76				–	–	880	6070	1030	7100				
			0.375	9.52	54.57	24.77	81.25				STD	30	960	6620	1120	7720				
			0.438	11.13	63.44	28.82	94.55				–	40	1130	7790	1310	9030				
			0.469	11.91	67.78	30.77	100.94				–	–	1210	8340	1410	9720				
			0.500	12.70	72.09	32.73	102.25				XS	–	1290	8890	1500	10340				
			0.594	15.09	85.05	38.62	126.71				–	60	1530	10550	1790	12340				
			0.750	19.05	106.13	48.19	158.10				–	80	1930	13310	2250	15510				
			0.938	23.83	130.85	59.42	194.96				–	100	2410	16620	2800	19310				
			1.094	27.79	150.79	68.47	224.65				–	120	2800	19310	2800	19310				
			1.250	31.75	170.22	77.29	253.56				–	140	2800	19310	2800	19310				
			1.406	35.71	189.11	85.86	281.70				–	160	2800	19310	2800	19310				
			2.000	50.80	256.32	116.38	381.83				–	–	2800	19310	2800	19310				
			2.125	53.97	269.51	122.36	401.44				–	–	2800	19310	2800	19310				
			2.200	55.88	277.26	125.89	413.01				–	–	2800	19310	2800	19310				
			2.500	63.50	307.05	139.42	457.40				–	–	2800	19310	2800	19310				
16	16.000	406.4	0.219	5.56	36.91	16.75	54.96				–	–	490	3380	570	3930				
			0.250	6.35	42.05	19.09	62.64				–	10	560	3860	660	4550				
			0.281	7.14	47.17	21.43	70.30				–	–	630	4340	740	5100				
			0.312	7.92	52.27	23.72	77.83				–	20	700	4830	820	5650				
			0.344	8.74	57.52	26.12	85.71				–	–	770	5310	900	6210				
			0.375	9.52	62.58	28.40	93.17				STD	30	840	5790	980	6760				
			0.438	11.13	72.80	33.07	108.49				–	–	990	6830	1150	7930				
			0.469	11.91	77.79	35.31	115.86				–	–	1060	7310	1230	8480				
			0.500	12.70	82.77	37.58	123.30				XS	40	1120	7720	1310	9030				
			0.656	16.66	107.50	48.80	160.12				–	60	1480	10200	1720	11860				
			0.844	21.44	136.62	62.04	203.53				–	80	1900	13100	2220	15310				
			1.031	26.19	164.82	74.85	245.56				–	100	2320	16000	2710	18680				
			1.219	30.96	192.43	87.37	286.64				–	120	2740	18890	2800	19310				
			1.438	36.53	223.64	101.56	333.19				–	140	2800	19310	2800	19310				
			1.594	40.49	245.25	111.36	365.35				–	160	2800	19310	2800	19310				

NPS Designator	Outside diameter		Wall thickness		Nominal weight: Plain end			Weight class	Schedule No.	Test pressure: Plain end Grade A		Test pressure: Plain end Grade B	
in.	in.	mm	in.	mm	lb/ft	kg/ft	kg/m			psi	kpa	psi	kpa
18	18.000	457.2	0.250	6.35	47.39	21.52	70.60	–	10	500	3450	580	4000
			0.281	7.14	53.18	24.15	79.24	–	–	560	3860	660	4550
			0.312	7.92	58.94	26.75	87.75	–	20	620	4270	730	5030
			0.344	8.74	64.87	29.46	96.66	–	–	690	4760	800	5520
			0.375	9.52	70.59	32.03	105.10	STD	–	750	5170	880	6070
			0.406	10.31	76.29	34.63	113.62	–	–	810	5580	950	6550
			0.438	11.13	82.15	37.32	122.43	–	30	880	6070	1020	7030
			0.469	11.91	87.81	39.86	130.78	–	–	940	6480	1090	7520
			0.500	12.70	93.45	42.43	139.20	XS	–	1000	6890	1170	8070
			0.562	14.27	104.67	47.51	155.87	–	40	1120	7720	1310	9030
			0.750	19.05	138.17	62.74	205.83	–	60	1500	10340	1750	12070
			0.938	23.83	170.92	77.62	254.67	–	80	1880	12960	2190	15100
			1.156	29.36	207.96	94.41	309.76	–	100	2310	15930	2700	18620
			1.375	34.92	244.14	110.84	363.64	–	120	2750	18960	2800	19310
			1.562	39.67	274.22	124.50	408.45	–	140	2800	19310	2800	19310
			1.781	45.24	308.50	140.08	459.59	–	160	2800	19310	2800	19310
20	20.000	508.0	0.250	6.35	52.73	23.94	78.55	–	10	450	3100	520	3590
			0.281	7.14	59.18	26.88	88.19	–	–	510	3520	590	4070
			0.312	7.92	65.60	29.77	97.67	–	–	560	3860	660	4550
			0.344	8.74	72.21	32.80	107.60	–	–	620	4270	720	4960
			0.375	9.52	78.60	35.67	117.02	STD	20	680	4690	790	5450
			0.406	10.31	84.96	38.57	126.53	–	–	730	5030	850	5860
			0.438	11.13	91.51	41.57	136.37	–	–	790	5450	920	6340
			0.469	11.91	97.83	44.41	145.70	–	–	850	5860	950	6550
			0.500	12.70	104.13	47.28	155.12	XS	30	900	6210	1050	7240
			0.594	15.09	123.11	55.91	183.42	–	40	1170	8070	1250	8620
			0.812	20.62	166.40	75.54	247.83	–	60	1460	10070	1710	11790
			1.031	26.19	208.87	94.84	311.17	–	80	1860	12820	2170	14960
			1.281	32.54	256.10	116.29	381.53	–	100	2310	15930	2690	18550
			1.500	38.10	296.37	134.57	441.49	–	120	2700	18620	2800	19310
			1.750	44.45	341.10	154.87	508.11	–	140	2800	19310	2800	19310
			1.969	50.01	379.17	172.15	564.81	–	160	2800	19310	2800	19310
24	24.000	609.6	0.250	6.35	63.41	28.79	94.46	–	10	380	2620	440	3030
			0.281	7.14	71.18	32.33	106.08	–	–	420	2900	490	3380
			0.312	7.92	78.93	35.82	117.51	–	–	470	3240	550	3790
			0.344	8.74	86.91	39.47	129.50	–	–	520	3590	600	4140
			0.375	9.52	94.62	42.94	140.88	STD	20	560	3860	660	4550
			0.406	10.31	102.31	46.44	152.37	–	–	610	4210	710	4900
			0.438	11.13	110.22	50.07	164.26	–	–	660	4550	770	5310
			0.469	11.91	117.86	53.50	175.54	–	–	700	4830	820	5650
			0.500	12.70	125.49	56.98	186.94	XS	–	750	5170	880	6070
			0.562	14.27	140.68	63.86	209.50	–	30	840	5790	980	6760
			0.688	17.48	171.29	77.80	255.24	–	40	1030	7100	1200	8270
			0.938	23.83	231.03	104.92	344.23	–	–	1410	9720	1640	11310
			0.969	24.61	238.35	108.21	355.02	–	60	1450	10000	1700	11720
			1.219	30.96	296.58	134.65	441.78	–	80	1830	12620	2130	14690
			1.531	38.89	367.39	166.83	547.33	–	100	2300	15860	2680	18480
			1.812	46.02	429.39	194.94	639.58	–	120	2720	18750	2800	19310
			2.062	52.37	483.12	219.34	719.63	–	140	2800	19310	2800	19310
			2.344	59.54	542.14	246.17	807.63	–	160	2800	19310	2800	19310

ORDINARY PIPING

Carbon steel pipes for ordinary piping KS D 3507 SPP(JIS G 3452 SGP)

Norminal diameter		Outside diameter mm	tolerances on outside diameter		Wall thickness mm	Tolerances on wall thickness	Unit weight excluding socket kg/m
A	B		Taper threaded pipe	Others			
10	3/8	17.3	±0.5mm (±0.5mm)		2.35 (2.3)		0.866 (0.851)
15	1/2	21.7	±0.5mm (±0.5mm)		2.65 (2.8)		1.25 (1.31)
20	3/4	27.2	±0.5mm (±0.5mm)		2.65 (2.8)		1.60 (1.68)
25	1	34.0	±0.5mm (±0.5mm)		3.25 (3.2)		2.45 (2.43)
32	1¼	42.7	±0.5mm (±0.5mm)		3.25 (3.5)		3.16 (3.38)
40	1½	48.6	±0.5mm (±0.5mm)		3.25 (3.5)		3.63 (3.89)
50	2	60.5	±0.5mm (±0.5mm)	±1% (±1%)	3.65 (3.8)		5.12 (5.31)
65	2½	76.3	±0.7mm (±0.7mm)	±1% (±1%)	3.65 (4.2)		6.34 (7.47)
80	3	89.1	±0.8mm (±0.8mm)	±1% (±1%)	4.05 (4.2)		8.49 (8.79)
90	3½	101.6	±0.8mm (±0.8mm)	±1% (±1%)	4.05 (4.2)		9.74 (10.1)
100	4	114.3	±0.8mm (±0.8mm)	±1% (±1%)	4.5 (4.5)		12.2 (12.2)
125	5	139.8	±0.8mm (±0.8mm)	±1% (±1%)	4.85 (4.5)	+Not specified −12.5%	16.1 (15.0)
150	6	165.2	±0.8mm (±0.8mm)	±1% (±1.6mm)	4.85 (5.0)		19.2 (19.8)
175	7	190.7	±0.9mm (±0.9mm)	±1% (±1.6mm)	5.3 (5.3)		24.2 (24.2)
200	8	216.3	±1.0mm (±1.0mm)	±1% (±0.8%)	5.85 (5.8)		30.4 (30.1)
225	9	241.8	±1.2mm (±1.2mm)	±1% (±0.8%)	6.2 (6.2)		36.0 (36.0)
250	10	267.4	±1.3mm (±1.3mm)	±1% (±0.8%)	6.4 (6.6)		41.2 (42.4)
300	12	318.5	±1.5mm (±1.5mm)	±1% (±0.8%)	7.0 (6.9)		53.8 (53.0)
350	14	355.6	- (-)	±1% (±0.8%)	7.6 (7.9)		65.2 (67.7)
400	16	406.4	- (-)	±1% (±0.8%)	7.9 (7.9)		77.6 (77.6)
450	18	457.2	- (-)	±1% (±0.8%)	7.9 (7.9)		87.5 (87.5)
500	20	508.0	- (-)	±1% (±0.8%)	7.9 (7.9)		97.4 (97.4)
550	22	558.8	-	±1%	7.9		107
600	24	609.6	-	±1%	7.9		117

Arc welded carbon steel pipes KS D 3583 SPW400(JIS G 3457 STPY400)

(unit : kg/m)

Norminal diameter		Outside diameter(mm) \ Wall thickness (mm)	6.0	6.4	7.1	7.9	8.7	9.5	10.3	11.1	11.9	12.7	13.1	15.1	15.9
A	B														
650	26	660.4	96.8	103	114	127	140	152	165	178	190	203			
700	28	711.2	104	111	123	137	151	164	178	192	205	219			
750	30	762.0		119	132	147	162	176	191	206	220	235			
800	32	812.8		127	141	157	173	188	204	219	235	251	258	297	312
850	34	863.6				167	183	200	217	233	250	266	275	316	332
900	36	914.4				177	194	212	230	247	265	282	291	335	352
1000	40	1016.0				196	216	236	255	275	295	314	324	373	392
1100	44	1117.6						260	281	303	324	346	357	411	432
1200	48	1219.2						283	307	331	354	378	390	448	472
1350	54	1371.6									399	426	439	505	532
1500	60	1524.0									444	473	488	562	591
1600	64	1625.6											521	600	631
1800	72	1828.8											587	675	711
2000	80	2032.0												751	791

Coated steel pipes for water works KS D 3565 STWW

Norminal diameter	Outside diameter	STWW 40 Nominal wall thickness A			B		
A	mm	Wall thickness mm	Weight kg/m	Test pressure kgf/cm²	Wall thickness mm	Weight kg/m	Test pressure kgf/cm²
350	355.6	6.0	51.7	25	-	-	-
400	406.4	6.0	59.2	25	-	-	-
450	457.2	6.0	66.8	25	-	-	-
500	508.0	6.0	74.3	25	-	-	-
600	609.6	6.0	89.3	25	-	-	-
700	711.2	7.0	122	25	6.0	104	20
800	812.8	8.0	159	25	7.0	139	20
900	914.4	8.0	179	25	7.0	157	20
1000	1016.0	9.0	223	25	8.0	199	20
1100	1117.6	10.0	273	25	8.0	219	20
1200	1219.2	11.0	328	25	9.0	269	20
1350	1371.6	12.0	402	25	10.0	366	20
1500	1524.0	14.0	521	25	11.0	410	20
1600	1625.6	15.0	596	25	12.0	477	20
1650	1676.4	15.0	615	25	12.0	493	20
1800	1828.8	16.0	715	25	13.0	582	20
1900	1930.4	17.0	802	25	14.0	662	20
2000	2032.0	18.0	894	25	15.0	746	20
2100	2133.6	19.0	991	25	16.0	836	20
2200	2235.2	20.0	1090	25	16.0	876	20
2300	2336.8	21.0	1200	25	17.0	973	20
2400	2438.4	22.0	1310	25	18.0	1070	20
2500	2540.0	23.0	1430	25	18.0	1120	20
2600	2641.6	24.0	1550	25	19.0	1230	20
2700	2743.2	25.0	1676	25	20.0	1343	20
2800	2844.8	26.0	1807	25	21.0	1462	20
2900	2946.4	27.0	1944	25	21.0	1515	20
3000	3048.0	29.0	2159	25	22.0	1642	20

ORDINARY PIPING

BS 1387

Classification	Nominal Bore		Outside diameter(black pipes) Max.		Outside diameter(black pipes) Min.		Wall thickness		Nominal weight(black pipes) Plain end			Nominal weight(black pipes) Screwed & socketed		
	in.	mm	in.	mm	in.	mm	in.	mm	lb/ft	kg/ft	kg/m	lb/ft	kg/ft	kg/m
Light weight pipes (L)	3/8	10	0.673	17.1	0.657	16.7	0.071	1.8	0.450	0.204	0.670	0.454	0.206	0.676
	1/2	15	0.843	21.4	0.827	21.0	0.079	2.0	0.636	0.289	0.947	0.642	0.291	0.956
	3/4	20	1.059	26.9	1.039	26.4	0.091	2.3	0.927	0.421	1.38	0.934	0.424	1.39
	1	25	1.331	33.8	1.307	33.2	0.102	2.6	1.331	0.604	1.98	1.344	0.610	2.00
	1¼	32	1.673	42.5	1.650	41.9	0.102	2.6	1.707	0.774	2.54	1.727	0.783	2.57
	1½	40	1.906	48.4	1.882	47.8	0.114	2.9	2.170	0.985	3.23	2.197	0.997	3.27
	2	50	2.370	60.2	2.346	59.6	0.114	2.9	2.742	1.244	4.08	2.789	1.265	4.15
	2½	65	2.992	76.0	2.961	75.2	0.126	3.2	3.837	1.740	5.71	3.918	1.777	5.83
	3	80	3.492	88.7	3.461	87.9	0.126	3.2	4.516	2.048	6.72	4.630	2.100	6.89
	4	100	4.484	113.9	4.449	113.0	0.142	3.6	6.552	2.972	9.75	6.720	3.048	10.0
Medium weight pipes (M)	3/8	10	0.685	17.4	0.661	16.8	0.091	2.3	0.564	0.256	0.839	0.568	0.258	0.845
	1/2	15	0.854	21.7	0.831	21.1	0.102	2.6	0.813	0.369	1.21	0.820	0.372	1.22
	3/4	20	1.071	27.2	1.047	26.6	0.102	2.6	1.048	0.475	1.56	1.055	0.479	1.57
	1	25	1.346	34.2	1.315	33.4	0.126	3.2	1.619	0.735	2.41	1.633	0.741	2.43
	1¼	32	1.689	42.9	1.657	42.1	0.126	3.2	2.083	0.945	3.10	2.103	0.954	3.13
	1½	40	1.921	48.8	1.890	48.0	0.126	3.2	2.399	1.088	3.57	2.426	1.100	3.61
	2	50	2.394	60.8	2.354	59.8	0.142	3.6	3.380	1.533	5.03	3.427	1.554	5.10
	2½	65	3.016	76.6	2.969	75.4	0.142	3.6	4.321	1.960	6.43	4.401	1.996	6.55
	3	80	3.524	89.5	3.469	88.1	0.157	4.0	5.624	2.551	8.37	5.739	2.603	8.54
	4	100	4.524	114.9	4.461	113.3	0.177	4.5	8.198	3.719	12.2	8.400	3.810	12.5
	5	125	5.535	140.6	5.461	138.7	0.197	5.0	11.155	5.060	16.6	11.491	5.212	17.1
	6	150	6.539	166.1	6.461	164.1	0.197	5.0	13.238	6.005	19.7	13.641	6.187	20.3
Heavy weight pipes (H)	3/8	10	0.685	17.4	0.661	16.8	0.114	2.9	0.685	0.311	1.02	0.692	0.314	1.03
	1/2	15	0.854	21.7	0.831	21.1	0.126	3.2	0.968	0.439	1.44	0.974	0.442	1.45
	3/4	20	1.071	27.2	1.047	26.6	0.126	3.2	1.257	0.570	1.87	1.263	0.573	1.88
	1	25	1.346	34.2	1.315	33.4	0.157	4.0	1.976	0.896	2.94	1.989	0.902	2.96
	1¼	32	1.689	42.9	1.657	42.1	0.157	4.0	2.553	1.158	3.80	2.574	1.167	3.83
	1½	40	1.921	48.8	1.890	48.0	0.157	4.0	2.943	1.335	4.38	2.970	1.347	4.42
	2	50	2.394	60.8	2.354	59.8	0.177	4.5	4.160	1.887	6.19	4.207	1.908	6.26
	2½	65	3.016	76.6	2.969	75.4	0.177	4.5	5.329	2.417	7.93	5.409	2.454	8.05
	3	80	3.524	89.5	3.469	88.1	0.197	5.0	6.920	3.139	10.3	7.056	3.200	10.5
	4	100	4.524	114.9	4.461	113.3	0.213	5.4	9.744	4.420	14.5	9.945	4.511	14.8
	5	125	5.535	140.6	5.461	138.7	0.213	5.4	12.028	5.456	17.9	12.364	5.608	18.4
	6	150	6.539	166.1	6.461	164.1	0.213	5.4	14.312	6.492	21.3	14.716	6.675	21.9

BS 1387-Commercial Steel Tubes(HYUNDAI STEEL THIN WALL TUBES)

Nominal Bore		Outside diameter(black pipes) Max.		Outside diameter(black pipes) Min.		Wall thickness		Nominal weight(black pipes) Plain end		Nominal weight(black pipes) Screwed & socketed	
in.	mm	in.	mm	in.	mm	in.	mm	lb/ft	kg/m	lb/ft	kg/m
1/2	15	0.841	21.4	0.825	21.0	0.075	1.9	0.607	0.904	0.614	0.914
3/4	20	1.059	26.9	1.041	26.4	0.083	2.1	0.854	1.272	0.866	1.284
1	25	1.328	33.8	1.309	33.2	0.091	2.3	1.19	1.77	1.21	1.787
1¼	32	1.670	42.5	1.650	41.9	0.091	2.3	1.52	2.26	1.54	2.280
1½	40	1.903	48.4	1.882	47.8	0.099	2.5	1.89	2.81	1.92	2.830
2	50	2.370	60.2	2.347	59.6	0.103	2.6	2.46	3.67	2.51	3.693
2½	65	2.991	76.0	2.960	75.2	0.114	2.9	3.49	5.20	3.56	5.228
3	80	3.491	88.7	3.460	87.9	0.114	2.9	4.10	6.11	4.21	6.136
4	100	4.481	113.9	4.450	113.0	0.126	3.2	5.84	8.70	6.00	8.736
5	125	5.534	140.6	5.459	138.7	0.177	4.5	10.07	15.00	10.38	15.103
6	150	6.359	166.1	6.459	164.1	0.177	4.5	11.96	17.82	12.38	17.933

ORDINARY PIPING

EN 10255

Specified outside diameter	Thread size	Nominal diameter	Outside diameter		H			M		
					Heavy Series			Medium Series		
D	R	DN	max.	min.	Wall Thickness	Mass per unit length of bare tube		Wall Thickness	Mass per unit length of bare tube	
(mm)			(mm)	(mm)	T (mm)	Plain and (kg/m)	Socketed	T	Plain and	Threaded and socketed (kg/m)
10.2	1/8"	6	10.6	9.8	2.6	0.487	0.49	2	0.404	0.407
13.5	1/4"	8	14	13.2	2.9	0.765	0.769	2.3	0.641	0.645
17.2	3/8"	10	17.5	16.7	2.9	1.02	1.03	2.3	0.839	0.845
21.3	1/2"	15	21.8	21	3.2	1.44	1.45	2.6	1.21	1.22
26.9	3/4"	20	27.3	26.5	3.2	1.87	1.88	2.6	1.56	1.57
33.7	1"	25	34.2	33.3	4	2.93	2.95	3.2	2.41	2.43
42.4	1-1/4"	32	42.9	42	4	3.79	3.82	3.2	3.1	3.13
48.3	1-1/2"	40	48.8	47.9	4	4.37	4.41	3.2	3.56	3.6
60.3	2"	50	60.8	59.7	4.5	6.19	6.26	3.6	5.03	5.1
76.1	2-1/2"	65	46.6	75.3	4.5	7.93	8.05	3.6	6.42	6.54
88.9	3"	80	89.5	88	5	10.3	10.5	4	8.36	8.53
114.3	4"	100	115	113.1	5.4	14.5	14.8	4.5	12.2	12.5
139.7	5"	125	140.8	138.5	5.4	17.9	18.4	5	16.6	17.1
165.4	6"	150	166.5	163.9	5.4	21.3	21.9	5	19.8	20.4

TUBES FOR BOILER & HEAT EXCHANGER

Boiler Tube(ASTM A178/ASME SA178 Gr.A, Gr.C, Gr.D)

Outside diameter \ Wall Thickness		in.	0.095	0.100	0.105	0.110	0.115	0.120	0.125	0.130	0.135	0.140	0.145	0.150	0.165	0.175
		mm	2.41	2.54	2.67	2.79	2.92	3.05	3.18	3.30	3.43	3.56	3.68	3.81	4.19	4.45
1¼	31.8		0.581	0.608	0.638	0.663	0.690	0.718	0.744	0.769	0.794	0.821	0.845	0.870	0.942	0.991
1½	38.1		0.706	0.740	0.777	0.808	0.842	0.877	0.910	0.940	0.973	1.01	1.04	1.07	1.16	1.22
1¾	44.5		0.834	0.875	0.918	0.956	0.996	1.04	1.08	1.12	1.15	1.20	1.23	1.27	1.38	1.46
2	50.8		0.959	1.01	1.06	1.10	1.15	1.20	1.24	1.29	1.33	1.38	1.42	1.47	1.60	1.69
2½	63.5		1.21	1.27	1.34	1.39	1.45	1.52	1.58	1.63	1.69	1.76	1.81	1.87	2.04	2.16
3	76.2		1.46	1.54	1.62	1.69	1.76	1.84	1.91	1.98	2.05	2.13	2.20	2.27	2.48	2.63
3¼	82.6		1.59	1.67	1.76	1.84	1.92	2.00	2.08	2.15	2.23	2.32	2.39	2.47	2.70	2.86
3½	88.9		1.72	1.81	1.90	1.98	2.07	2.16	2.25	2.33	2.41	2.50	2.58	2.67	2.92	3.09
4	101.6		1.97	2.07	2.18	2.27	2.37	2.48	2.58	2.67	2.77	2.88	2.97	3.07	3.36	3.56

Carbon steel boiler and heat exchanger tubes KS D 3563 STBH(JIS G 3461 STB)

(unit : kg/m)

	1.2	1.6	2.0	2.3	2.6	2.9	3.2	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	8.0	9.5	11.0	12.5
15.9	0.435	0.564	0.686	0.771	0.853	0.930													
19.0	0.527	0.687	0.838	0.947	1.05	1.15													
21.7	0.607	0.793	0.972	1.10	1.22	1.34	1.46												
25.4	0.716	0.939	1.15	1.31	1.46	1.61	1.75	1.89											
27.2	0.769	1.01	1.24	1.41	1.58	1.74	1.89	2.05	2.29										
31.8	0.906	1.19	1.47	1.67	1.87	2.07	2.26	2.44	2.74	3.03									
34.0		1.28	1.58	1.80	2.01	2.22	2.43	2.63	2.96	3.27	3.58								
38.1		1.44	1.78	2.03	2.28	2.52	2.75	2.99	3.36	3.73	4.08	4.42							
42.7			2.01	2.29	2.57	2.85	3.12	3.38	3.82	4.24	4.65	5.05	5.43						
45.0			2.12	2.42	2.27	3.01	3.30	3.58	4.04	4.49	4.93	5.36	5.77	6.17					
48.6			2.30	2.63	2.95	3.27	3.58	3.89	4.40	4.89	5.38	5.85	6.30	6.75	7.18				
50.8			2.41	2.75	3.09	3.43	3.76	4.08	4.62	5.14	5.65	6.14	6.63	7.10	7.56	8.44	9.68	10.8	11.8
54.0			2.56	2.93	3.30	3.65	4.01	4.36	4.93	5.49	6.04	6.58	7.10	7.61	8.11	9.07	10.4	11.7	12.8
57.1			2.72	3.11	3.49	3.88	4.25	4.63	5.24	5.84	6.42	7.00	7.56	8.11	8.65	9.69	11.2	12.5	13.7
60.3			2.88	3.29	3.70	4.10	4.51	4.90	5.55	6.19	6.82	7.43	8.03	8.62	9.20	10.3	11.9	13.4	14.7
63.5				3.47	3.90	4.33	4.76	5.18	5.87	6.55	7.21	7.87	8.51	9.14	9.75	10.9	12.7	14.2	15.7
65.0				3.56	4.00	4.44	4.88	5.31	6.02	6.71	7.40	8.07	8.73	9.38	10.0	11.2	13.0	14.6	16.2
70.0				3.84	4.32	4.80	5.27	5.74	6.51	7.27	8.01	8.75	9.47	10.2	10.9	12.2	14.2	16.0	17.7
76.2				4.19	4.72	5.24	5.76	6.27	7.12	7.96	8.78	9.59	10.4	11.2	11.9	13.5	15.6	17.7	19.6
82.6							6.27	6.83	7.75	8.67	9.57	10.5	11.3	12.2	13.1	14.7	17.1	19.4	21.6
88.9							6.76	7.37	8.37	9.37	10.3	11.3	12.3	13.2	14.1	16.0	18.6	21.1	23.6
101.6								8.47	9.63	10.8	11.9	13.0	14.1	15.2	16.3	18.5	21.8	24.6	27.5
114.3									10.9	12.2	13.5	14.8	16.0	17.3	18.5	21.0	24.6	28.0	31.4
127.0									12.1	13.6	15.0	16.5	17.9	19.3	20.7	23.5	27.5	31.5	35.3
139.8												18.2	19.8	21.4	22.9	26.0	30.5	34.9	39.2

PRESSURE SERVICE

Nominal Size	Outside diameter (mm)	Thickness (mm)												
		1.2	1.4	1.6	1.8	2	2.3	2.6	2.9	3.2	3.6	4	4.5	5
		Mass per unit length (kg/m)												
6	10.2	0.266	0.304	0.339	0.373	0.404	0.448	0.487						
8	13.5	0.364	0.418	0.470	0.519	0.567	0.635	0.699	0.758					
10	17.2	0.473	0.545	0.616	0.684	0.750	0.845	0.936	1.023	1.105	1.207	1.302	1.409	
15	21.3	0.595	0.687	0.777	0.866	0.952	1.078	1.199	1.316	1.428	1.571	1.706	1.864	2.010
20	26.9	0.761	0.880	0.998	1.114	1.228	1.395	1.558	1.716	1.870	2.068	2.259	2.486	2.700
25	33.7	0.962	1.115	1.267	1.416	1.563	1.781	1.994	2.203	2.407	2.672	2.930	3.240	3.539
32	42.4	1.219	1.415	1.610	1.802	1.993	2.274	2.552	2.825	3.095	3.445	3.788	4.206	4.611
40	48.3	1.394	1.619	1.843	2.064	2.284	2.609	2.930	3.247	3.559	3.968	4.370	4.860	5.339
50	60.3		2.033	2.316	2.597	2.875	3.290	3.699	4.105	4.506	5.034	5.553	6.192	6.818
65	76.1				3.298	3.655	4.186	4.713	5.235	5.753	6.436	7.112	7.945	8.767
80	88.9				3.866	4.286	4.912	5.533	6.150	6.763	7.573	8.375	9.366	10.345
90	101.6						5.632	6.347	7.058	7.765	8.700	9.627	10.775	11.911
100	114.3						6.352	7.162	7.967	8.767	9.828	10.880	12.185	13.477
125	139.7									10.771	12.082	13.385	15.003	16.609
150	168.3									13.028	14.621	16.207	18.177	20.135
175	193.7									15.033	16.876	18.712	20.996	23.267
200	219.1									17.037	19.131	21.217	23.814	26.399
225	244.5									19.041	21.386	23.723	26.633	29.530
250	273									21.290	23.916	26.534	29.795	33.044
300	323.9									25.307	28.435	31.555	35.444	39.320
350	355.6									27.809	31.249	34.682	38.962	43.229
400	406.4									31.817	35.759	39.693	44.599	49.493
450	457									35.810	40.251	44.684	50.214	55.732
500	508									38.835	44.779	49.715	55.873	62.020
550	559									43.859	49.306	54.745	61.533	68.308
600	610											59.776	67.192	74.597
650	660												72.741	80.762
700	711												78.400	87.050
750	762													83.338
800	813													
850	864													
900	914													
1000	1016													
1200	1219													
1400	1422													
1600	1626													
1800	1829													
2000	2032													
2200	2235													

Thickness (mm)															Nominal Size	Outside diameter (mm)
5.4	5.6	6.3	7.1	8	8.8	10	11	12.5	14.2	16	17.5	20	22.2	25		
Mass per unit length (kg/m)																
															6	10.2
															8	13.5
															10	17.2
2.117															15	21.3
3.863	2.941	3.200													20	26.9
3.769	3.880	4.257	4.657	5.070	5.403										25	33.7
4.927	5.082	5.608	6.181	6.786	7.291										32	42.4
5.713	5.897	6.525	7.214	7.950	8.572	9.445	10.118								40	48.3
7.311	7.554	8.389	9.315	10.318	11.176	12.404	13.373	14.734	16.143						50	60.3
9.415	9.736	10.844	12.081	13.435	14.605	16.300	17.659	19.605	21.676	23.713	25.289	27.669			65	76.1
11.119	11.503	12.833	14.322	15.960	17.382	19.457	21.131	23.550	26.158	28.763	30.813	33.981	36.515		80	88.9
12.810	13.257	14.506	16.546	18.465	20.138	22.589	24.576	27.465	30.605	33.774	36.293	40.245	43.468	47.224	90	101.6
14.502	15.011	16.779	18.769	20.971	22.894	25.720	28.021	31.380	35.052	38.785	41.774	46.509	50.420	55.053	100	114.3
17.884	18.519	20.725	23.216	25.982	28.406	31.984	34.911	39.209	43.947	48.807	52.753	59.036	64.326	70.713	125	139.7
21.692	22.468	25.168	28.224	31.624	34.613	39.037	42.669	48.025	53.962	60.091	65.078	73.142	79.983	88.344	150	168.3
25.075	25.976	29.114	32.671	36.635	40.125	45.300	49.559	55.855	62.856	70.113	76.039	85.669	93.888	104.004	175	193.7
28.457	29.483	33.060	37.118	41.646	45.637	51.564	56.449	63.684	71.750	80.135	87.000	98.196	107.793	119.663	200	219.1
31.840	32.991	37.006	41.565	46.657	51.149	57.828	63.339	71.514	80.645	90.157	97.962	110.723	121.699	135.322	225	244.5
35.635	36.927	41.434	46.555	52.279	57.334	64.856	71.070	80.299	90.625	101.402	110.261	124.780	137.301	152.892	250	273
42.413	43.956	49.342	55.467	62.321	68.379	77.408	84.877	85.989	108.448	121.485	132.227	149.883	165.166	184.272	300	323.9
46.634	48.334	54.267	61.017	68.575	75.258	85.225	93.476	105.761	119.549	133.993	145.907	165.518	182.520	203.815	350	355.6
53.399	55.349	62.159	69.912	78.596	86.282	97.752	107.256	121.420	137.337	154.036	167.830	190.572	210.331	235.133	400	406.4
60.137	62.337	70.020	78.771	88.579	97.263	110.230	120.982	137.017	155.056	174.001	189.666	215.528	238.032	266.328	450	457
66.928	69.379	77.943	87.701	98.640	108.330	122.807	134.816	152.738	172.915	194.124	211.675	240.682	265.952	297.770	500	508
73.720	76.422	85.866	96.630	108.701	119.398	135.383	148.650	168.459	190.774	214.246	233.684	265.835	293.872	329.211	550	559
80.511	83.465	93.790	105.559	118.763	130.465	147.960	162.485	184.179	208.632	234.369	255.693	290.988	321.792	360.653	600	610
87.169	90.370	101.558	114.314	128.627	141.316	160.290	176.048	199.592	226.141	254.097	277.271	315.648	349.165	391.478	650	660
93.961	97.413	109.481	123.243	138.688	152.383	172.867	189.882	215.313	244.000	274.219	299.280	340.801	377.085	422.919	700	711
100.752	104.456	117.404	132.172	148.749	163.450	185.443	203.716	231.033	261.859	294.342	321.289	365.954	405.005	454.361	750	762
107.543	111.499	125.327	141.102	158.810	174.518	198.020	217.551	246.754	279.717	314.464	343.298	391.108	432.925	485.802	800	813
114.335	118.542	133.251	150.031	168.872	185.585	210.596	231.385	262.475	297.576	334.587	365.307	416.261	460.845	517.244	850	864
		141.018	158.785	178.736	196.436	222.926	244.948	277.887	315.085	354.315	386.885	440.921	488.218	548.069	900	914
		156.865	176.644	198.858	218.570	248.080	272.616	309.329	350.802	394.560	430.903	491.227	544.058	610.952	1000	1016
		188.403	212.187	238.906	262.623	298.139	327.682	371.904	421.887	474.656	518.507	591.347	655.191	736.101	1200	1219
		219.940	247.729	278.954	306.676	348.199	382.748	434.478	492.972	554.751	606.112	691.466	766.323	861.251	1400	1422
		251.633	283.447	319.199	350.945	398.506	438.085	497.361	564.407	635.242	694.148	792.079	878.004	987.017	1600	1626
			318.989	359.247	394.998	448.565	493.151	559.936	635.492	715.337	781.753	892.199	989.136	1112.166	1800	1829
				399.295	439.051	498.625	548.216	622.511	706.577	795.433	869.357	992.318	1100.269	1237.316	2000	2032
					483.103	548.685	603.282	685.086	777.662	875.529	956.962	1092.438	1211.402	1362.465	2200	2235

Notes: - BS3601 Carbon steel pipes and tubes with specified room temperature properties for pressure purposes (dimensions and masses per unit length of BS3600)

- BS EN 10217-1: Welded steel tubes for pressure purposes - Technical delivery conditions Part1: Non-alloy steel tubes with specified room temperature properties (dimensions and mass per unit length of BS EN 10220)

- ISO 9330-1: Welded steel tubes for pressure purposes - Technical delivery conditions Part1: Unalloyed steel tubes with specified room temperature properties (dimension and mass per unit length of ISO 4200)

Notes: ERW 12M Roll Bending Press Bending

STRUCTURAL PURPOSES

Carbon steel tubes for general structural purposes KS D 3566 STK(JIS G 3444 STK)

Outside diameter	Wall thickness		weight		Cross-sectional area		Geometrical moment of inertia		Section modulus		Radius of gyration of area	
mm	mm		kg/m		cm^2		cm^4		cm^3		cm	
21.7	2.0	(2.0)	0.972	(0.972)	1.238	(1.238)	0.607	(0.607)	0.560	(0.560)	0.700	(0.700)
27.2	2.0	(2.0)	1.24	(1.24)	1.583	(1.583)	1.26	(1.26)	0.930	(0.930)	0.890	(0.890)
	2.3	(2.3)	1.41	(1.41)	1.799	(1.799)	1.41	(1.41)	1.03	(1.03)	0.880	(0.880)
34.0	2.3	(2.3)	1.80	(1.80)	2.291	(2.291)	2.89	(2.89)	1.70	(1.70)	1.12	(1.12)
42.7	2.3	(2.3)	2.29	(2.29)	2.919	(2.919)	5.97	(5.97)	2.80	(2.80)	1.43	(1.43)
	2.5	(2.5)	2.49	(2.49)	3.157	(3.157)	6.40	(6.40)	3.00	(3.00)	1.42	(1.42)
	2.8		2.76		3.510		7.02		3.29		1.41	(1.41)
48.6	2.3	(2.3)	2.63	(2.63)	3.345	(3.345)	8.99	(8.99)	3.70	(3.70)	1.64	(1.64)
	2.5	(2.5)	2.84	(2.84)	3.621	(3.621)	9.65	(9.65)	3.97	(3.97)	1.63	(1.63)
	2.8	(2.8)	3.16	(3.16)	4.029	(4.029)	10.6	(10.6)	4.36	(4.36)	1.62	(1.62)
	3.2	(3.2)	3.58	(3.58)	4.564	(4.564)	11.8	(11.8)	4.86	(4.86)	1.61	(1.61)
60.5	2.3	(2.3)	3.30	(3.30)	4.205	(4.205)	17.8	(17.8)	5.90	(5.90)	2.06	(2.06)
	3.2	(3.2)	4.52	(4.52)	5.760	(5.760)	23.7	(23.7)	7.84	(7.84)	2.03	(2.03)
	4.0	(4.0)	5.57	(5.57)	7.100	(7.100)	28.5	(28.5)	9.41	(9.41)	2.00	(2.00)
76.3	2.8	(2.8)	5.08	(5.08)	6.465	(6.465)	43.7	(43.7)	11.5	(11.5)	2.60	(2.60)
	3.2	(3.2)	5.77	(5.77)	7.349	(7.349)	49.2	(49.2)	12.9	(12.9)	2.59	(2.59)
	4.0	(4.0)	7.13	(7.13)	9.085	(9.085)	59.5	(59.5)	15.6	(15.6)	2.56	(2.56)
89.1	2.8	(2.8)	5.96	(5.96)	7.591	(7.591)	70.7	(70.7)	15.9	(15.9)	3.05	(3.05)
	3.2	(3.2)	6.78	(6.78)	8.636	(8.636)	79.8	(79.8)	17.9	(17.9)	3.04	(3.04)
	4.0	(4.0)	8.39		10.69		97.0		21.8		3.01	(3.01)
101.6	3.2	(3.2)	7.76	(7.76)	9.892	(9.892)	120	(120)	23.6	(23.6)	3.48	(3.48)
	4.0	(4.0)	9.63	(9.63)	12.26	(12.26)	146	(146)	28.8	(28.8)	3.45	(3.45)
	5.0	(5.0)	11.9	(11.9)	15.17	(15.17)	177	(177)	34.9	(34.9)	3.42	(3.42)
114.3	3.2	(3.2)	8.77	(8.77)	11.17	(11.17)	172	(172)	30.2	(30.2)	3.93	(3.93)
	3.6	(3.6)	9.83	(9.83)	12.52	(12.52)	192	(192)	33.6	(33.6)	3.92	(3.92)
	4.5	(4.5)	12.2	(12.2)	15.52	(15.52)	234	(234)	41.0	(41.0)	3.89	(3.89)
	5.6		15.0		19.12		283		49.6		3.85	(3.85)
139.8	3.6	(3.6)	12.1	(12.1)	15.40	(15.40)	357	(357)	51.1	(51.1)	4.82	(4.82)
	4.0	(4.0)	13.4	(13.4)	17.07	(17.07)	394	(394)	56.3	(56.3)	4.80	(4.80)
	4.5	(4.5)	15.0	(15.0)	19.13	(19.13)	438	(438)	62.7	(62.7)	4.79	(4.79)
	6.0	(6.0)	19.8	(19.8)	25.22	(25.22)	566	(566)	80.9	(80.9)	4.74	(4.74)
165.2	4.5	(4.5)	17.8	(17.8)	22.72	(22.72)	734	(734)	88.9	(88.9)	5.68	(5.68)
	5.0	(5.0)	19.8	(19.8)	25.16	(25.16)	808	(808)	97.8	(97.8)	5.67	(5.67)
	6.0	(6.0)	23.6	(23.6)	30.01	(30.01)	952	(952)	115	(115)	5.63	(5.63)
	7.0	(7.0)	27.3	(27.3)	34.79	(34.79)	109 x 10	(109 x 10)	132	(132)	5.60	(5.60)
190.7	4.5	(4.5)	20.7	(20.7)	26.32	(26.32)	114 x 10	(114 x 10)	120	(120)	6.59	(6.59)
	5.0	(5.0)	22.9	(22.9)	29.17	(29.17)	126 x 10	(126 x 10)	132	(132)	6.57	(6.57)
	6.0	(6.0)	27.3	(27.3)	34.82	(34.82)	149 x 10	(149 x 10)	156	(156)	6.53	(6.53)
	7.0	(7.0)	31.7	(31.7)	40.40	(40.40)	171 x 10	(171 x 10)	179	(179)	6.50	(6.50)
		(8.2)		(36.9)		(47.01)		(196 x 10)		(206)		(6.46)
216.3	4.5	(4.5)	23.5	(23.5)	29.94	(29.94)	168 x 10	(168 x 10)	155	(155)	7.49	(7.49)
		(5.8)		(30.1)		(38.36)		(213 x 10)		(197)		(7.45)
	6.0	(6.0)	31.1	(31.1)	39.61	(39.61)	219 x 10	(219 x 10)	203	(203)	7.44	(7.44)
	7.0	(7.0)	36.1	(36.1)	46.03	(46.03)	252 x 10	(252 x 10)	233	(233)	7.40	(7.40)
	8.0	(8.0)	41.1	(41.1)	52.35	(52.35)	284 x 10	(284 x 10)	263	(263)	7.37	(7.37)
		(8.2)		(42.1)		(53.61)		(291 x 10)		(269)		(7.36)
267.4	6.0	(6.0)	38.7	(38.7)	49.27	(49.27)	421 x 10	(421 x 10)	315	(315)	9.24	(9.24)
		(6.6)		(42.4)		(54.08)		(460 x 10)		(344)		(9.22)
	7.0	(7.0)	45.0	(45.0)	57.27	(57.27)	486 x 10	(486 x 10)	363	(363)	9.21	(9.21)
	8.0	(8.0)	51.2	(51.2)	65.19	(65.19)	549 x 10	(549 x 10)	411	(411)	9.18	(9.18)
	9.0	(9.0)	57.4	(57.4)	73.06	(73.06)	611 x 10	(611 x 10)	457	(457)	9.14	(9.14)
		(9.3)		(59.2)		(75.41)		(629 x 10)		(470)		(9.13)
318.5	6.0	(6.0)	46.2	(46.2)	58.91	(58.91)	719 x 10	(719 x 10)	452	(452)	11.1	(11.1)
	7.0	(6.9)	53.8	(53.8)	68.50	(68.50)	813 x 10	(820 x 10)	552	(552)	11.0	(11.0)
	8.0	(8.0)	61.3	(61.3)	78.04	(78.04)	941 x 10	(941 x 10)	591	(591)	11.0	(11.0)
	9.0	(9.0)	68.7	(68.7)	87.51	(87.51)	105 x 10^2	(105 x 10^2)	659	(659)	10.9	(10.9)
		(10.3)		(78.3)		(99.73)		(119 x 10^2)		(744)		(10.9)
355.6	6.3	(6.4)	54.3	(54.3)	69.13	(69.13)	105 x 10^2	(107 x 10^2)	593	(602)	12.4	(12.4)
	8.0	(7.9)	68.6	(68.6)	87.36	(87.36)	132 x 10^2	(130 x 10^2)	742	(734)	12.3	(12.3)
	9.0	(9.0)	76.9	(76.9)	98.00	(98.00)	147 x 10^2	(147 x 10^2)	828	(828)	12.3	(12.3)
		(9.5)		(81.1)		(103.3)		(155 x 10^2)		(871)		(12.2)
	12.0	(12.0)	102	(102)	129.5	(129.5)	191 x 10^2	(191 x 10^2)	108 x 10	(108 x 10)	12.2	(12.2)
		(12.7)		(107)		(136.8)		(201 x 10^2)		(113 x 10)		(12.1)
406.4		(7.9)		(77.6)		(98.90)		(196 x 10^2)		(967)		(14.1)
	9.0	(9.0)	88.2	(88.2)	112.4	(112.4)	222 x 10^2	(222 x 10^2)	109 x 10	(109 x 10)	14.1	(14.1)
		(9.5)		(93.0)		(118.5)		(223 x 10^2)		(115 x 10)		(14.0)
	12.0	(12.0)	117	(117)	148.7	(148.7)	289 x 10^2	(289 x 10^2)	142 x 10	(142 x 10)	14.0	(14.0)
		(12.7)		(123)		(157.1)		(305 x 10^2)		(150 x 10)		(13.9)
	16.0	(16.0)	154	(154)	196.2	(196.2)	374 x 10^2	(374 x 10^2)	184 x 10	(184 x 10)	13.8	(13.8)
	19.0	(19.0)	182	(182)	231.2	(231.2)	435 x 10^2	(435 x 10^2)	214 x 10	(214 x 10)	13.7	(13.7)
457.2	9.0	(9.0)	99.5	(99.5)	126.7	(126.7)	318 x 10^2	(318 x 10^2)	140 x 10	(140 x 10)	15.8	(15.8)
		(9.5)		(105)		(133.6)		(335 x 10^2)		(147 x 10)		(15.8)
	12.0	(12.0)	132	(132)	167.8	(167.8)	416 x 10^2	(416 x 10^2)	182 x 10	(182 x 10)	15.7	(15.7)
		(12.7)		(139)		(177.3)		(438 x 10^2)		(192 x 10)		(15.7)
	16.0	(16.0)	174	(174)	221.8	(221.8)	540 x 10^2	(540 x 10^2)	236 x 10	(236 x 10)	15.6	(15.6)
	19.0	(19.0)	205	(205)	261.6	(261.6)	629 x 10^2	(629 x 10^2)	275 x 10	(275 x 10)	15.5	(15.5)
500	9.0	(9.0)	109	(109)	138.8	(138.8)	418 x 10^2	(418 x 10^2)	167 x 10	(167 x 10)	17.4	(17.4)
	12.0	(12.0)	144	(144)	184.0	(184.0)	548 x 10^2	(548 x 10^2)	219 x 10	(219 x 10)	17.3	(17.3)
	14.0	(14.0)	168	(168)	213.8	(213.8)	632 x 10^2	(632 x 10^2)	253 x 10	(253 x 10)	17.2	(17.2)
508.0		(7.9)		(97.4)		(124.1)		(388 x 10^2)		(153 x 10)		(17.7)
	9.0	(9.0)	111	(111)	141.1	(141.1)	439 x 10^2	(439 x 10^2)	173 x 10	(173 x 10)	17.6	(17.6)
		(9.5)		(117)		(148.8)		(462 x 10^2)		(182 x 10)		(17.6)
	12.0	(12.0)	147	(147)	187.0	(187.0)	575 x 10^2	(575 x 10^2)	226 x 10	(227 x 10)	17.5	(17.5)
		(12.7)		(155)		(197.6)		(606 x 10^2)		(239 x 10)		(17.5)
	14.0	(14.0)	171	(171)	217.3	(217.3)	663 x 10^2	(663 x 10^2)	261 x 10	(261 x 10)	17.5	(17.5)
	16.0	(16.0)	194	(194)	247.3	(247.3)	749 x 10^2	(749 x 10^2)	295 x 10	(295 x 10)	17.4	(17.4)
	19.0	(19.0)	229	(229)	291.9	(291.9)	874 x 10^2	(874 x 10^2)	344 x 10	(344 x 10)	17.3	(17.3)
	22.0	(22.0)	264	(264)	335.9	(335.9)	994 x 10^2	(994 x 10^2)	391 x 10	(391 x 10)	17.2	(17.2)
558.8	9.0	(9.0)	122	(122)	155.5	(155.5)	588 x 10^2	(588 x 10^2)	210 x 10	(210 x 10)	19.4	(19.4)
	12.0	(12.0)	162	(162)	206.1	(206.1)	771 x 10^2	(771 x 10^2)	276 x 10	(276 x 10)	19.3	(19.3)
	16.0	(16.0)	214	(214)	272.8	(272.8)	101 x 10^3	(101 x 10^3)	360 x 10	(360 x 10)	19.2	(19.2)
	19.0	(19.0)	253	(253)	322.2	(322.2)	118 x 10^3	(118 x 10^3)	421 x 10	(421 x 10)	19.1	(19.1)
	22.0	(22.0)	291	(291)	371.0	(371.0)	134 x 10^3	(134 x 10^3)	479 x 10	(479 x 10)	19.0	(19.0)
600	9.0	(9.0)	131	(131)	167.1	(167.1)	730 x 10^2	(730 x 10^2)	243 x 10	(243 x 10)	20.9	(20.9)
	12.0	(12.0)	174	(174)	221.7	(221.7)	958 x 10^2	(958 x 10^2)	320 x 10	(320 x 10)	20.8	(20.8)
	14.0	(14.0)	202	(202)	257.7	(257.7)	111 x 10^3	(111 x 10^3)	369 x 10	(369 x 10)	20.7	(20.7)
	16.0	(16.0)	230	(230)	293.6	(293.6)	125 x 10^3	(125 x 10^3)	418 x 10	(418 x 10)	20.7	(20.7)
609.6	9.0	(9.0)	133	(133)	169.8	(169.8)	766 x 10^2	(766 x 10^2)	251 x 10	(251 x 10)	21.2	(21.2)
		(9.5)		(141)		(179.1)		(806 x 10^3)		(265 x 10)		(21.2)
	12.0	(12.0)	177	(177)	225.3	(225.3)	101 x 10^3	(101 x 10^3)	330 x 10	(330 x 10)	21.1	(21.1)
		(12.7)		(187)		(238.2)		(106 x 10^3)		(348 x 10)		(21.2)
	14.0	(14.0)	206	(206)	262.0	(262.0)	116 x 10^3	(116 x 10^3)	381 x 10	(381 x 10)	21.1	(21.1)
	16.0	(16.0)	234	(234)	298.4	(298.4)	132 x 10^3	(132 x 10^3)	432 x 10	(432 x 10)	21.0	(21.0)
	19.0	(19.0)	277	(277)	352.5	(352.5)	154 x 10^3	(154 x 10^3)	505 x 10	(505 x 10)	20.9	(20.9)
	22.0	(22.0)	319	(319)	406.1	(406.1)	176 x 10^3	(176 x 10^3)	576 x 10	(576 x 10)	20.8	(20.8)

STRUCTURAL PURPOSES

Steel pipe piles KS F 4602(TABLE.1) / JIS A 5525

Outside diameter	Wall thickness	Cross-sectional area	Unit weight	Geometrical moment of inertia	Modulus of section	Radius of gyration of area	Outside surface area
mm	mm	cm^2	kg/m	cm^4	cm^3	cm	m^2/m
				I	Z	i	
400	9	110.6	86.8	211 X 10^2	106 X 10	13.8	1.26
	10	122.5	96.2	233 X 10^2	117 X 10	13.8	1.26
	11	134.4	106	254 X 10^2	127 X 10	13.8	1.26
	12	146.3	115	276 X 10^2	138 X 10	13.7	1.26
500	9	138.8	109	418 X 10^2	167 X 10	17.4	1.57
	10	153.9	121	462 X 10^2	185 X 10	17.3	1.57
	11	169.0	133	505 X 10^2	202 X 10	17.3	1.57
	12	184.0	144	548 X 10^2	219 X 10	17.3	1.57
	13	198.9	156	590 X 10^2	236 X 10	17.2	1.57
	14	213.8	168	632 X 10^2	253 X 10	17.2	1.57
600	9	167.1	131	730 X 10^2	243 X 10	20.9	1.88
	10	185.4	145	807 X 10^2	269 X 10	20.9	1.88
	11	203.5	160	883 X 10^2	294 X 10	20.8	1.88
	12	221.7	174	958 X 10^2	319 X 10	20.8	1.88
	13	239.7	188	103 X 10^3	344 X 10	20.8	1.88
	14	257.7	202	111 X 10^3	369 X 10	20.7	1.88
	15	275.7	216	118 X 10^3	393 X 10	20.7	1.88
	16	293.6	230	125 X 10^3	467 X 10	20.7	1.88
700	9	195.4	153	117 X 10^3	333 X 10	24.4	2.20
	10	216.8	170	129 X 10^3	369 X 10	24.4	2.20
	11	238.1	187	141 X 10^3	404 X 10	24.4	2.20
	12	259.4	204	154 X 10^3	439 X 10	24.3	2.20
	13	280.6	220	166 X 10^3	473 X 10	24.3	2.20
	14	301.7	237	178 X 10^3	507 X 10	24.3	2.20
	15	322.8	253	189 X 10^3	541 X 10	24.2	2.20
	16	343.8	270	201 X 10^3	575 X 10	24.2	2.20

Steel pipe piles KS F 4602(TABLE.2) / JIS A 5525

Outside diameter	Wall thickness	Cross-sectional area	Unit weight	Geometrical moment of inertia	Modulus of section	Radius of gyration of area	Outside surface area
mm	mm	cm^2	kg/m	cm^4	cm^3	cm	m^2/m
				I	Z	i	
406.4	9	112.4	88.2	222 x 10^2	109 x 10	14.0	1.28
	10	124.5	97.8	245 x 10^2	120 x 10	14.0	1.28
	11	136.6	107.0	267 x 10^2	132 x 10	14.0	1.28
	12	148.7	117	289 x 10^2	142 x 10	14.0	1.28
508.0	9	141.1	111	439 x 10^2	173 x 10	17.6	1.60
	10	156.4	123	485 x 10^2	191 x 10	17.6	1.60
	11	171.8	135	531 x 10^2	209 x 10	17.6	1.60
	12	187.0	147	575 x 10^2	227 x 10	17.5	1.60
	13	202.2	159	620 x 10^2	244 x 10	17.5	1.60
	14	217.3	171	663 x 10^2	261 x 10	17.5	1.60
609.6	9	169.8	133	766 x 10^2	251 x 10	21.2	1.92
	10	188.4	148	847 x 10^2	278 x 10	21.2	1.92
	11	206.9	162	927 x 10^2	304 x 10	21.2	1.92
	12	225.3	177	101 x 10^3	330 x 10	21.2	1.92
	13	243.6	191	108 x 10^3	356 x 10	21.2	1.92
	14	262.0	206	116 x 10^3	381 x 10	21.2	1.92
	15	280.0	220	124 x 10^3	407 x 10	21.0	1.92
	16	298.4	234	132 x 10^3	431 x 10	21.0	1.92
711.2	9	198.5	156	122 x 10^3	344 x 10	24.8	2.23
	10	220.3	173	135 x 10^3	381 x 10	24.8	2.23
	11	242.0	190	148 x 10^3	417 x 10	24.8	2.23
	12	263.6	207	161 x 10^3	453 x 10	24.7	2.23
	13	285.1	224	174 x 10^3	489 x 10	24.7	2.23
	14	306.6	241	186 x 10^3	524 x 10	24.7	2.23
	15	328.1	258	199 x 10^3	559 x 10	24.6	2.23
	16	349.4	274	211 x 10^3	594 x 10	24.6	2.23
812.8	9	227.3	178	184 x 10^3	452 x 10	28.4	2.55
	10	252.2	198	203 x 10^3	500 x 10	28.4	2.55
	11	277.1	217	223 x 10^3	548 x 10	28.4	2.55
	12	301.9	237	242 x 10^3	596 x 10	28.3	2.55
	13	326.6	256	261 x 10^3	643 x 10	28.3	2.55
	14	351.3	276	280 x 10^3	690 x 10	28.2	2.55
	15	376.0	295	299 x 10^3	736 x 10	28.2	2.55
	16	400.5	314	318 x 10^3	782 x 10	28.2	2.55
914.4	12	340.2	267	346 x 10^3	758 x 10	31.9	2.87
	13	368.1	289	374 x 10^3	818 x 10	31.9	2.87
	14	396.0	311	401 x 10^3	878 x 10	31.8	2.87
	15	423.8	333	429 x 10^3	928 x 10	31.8	2.87
	16	451.6	354	456 x 10^3	997 x 10	31.8	2.87
	17	479.3	376	483 x 10^3	106 x 10^2	31.7	2.87
	18	506.9	398	509 x 10^3	111 x 10^2	31.7	2.87
	19	534.5	420	536 x 10^3	117 x 10^2	31.7	2.87
1016.0	12	378.5	297	477 x 10^3	939 x 10^2	35.5	3.19
	13	409.6	322	515 x 10^3	101 x 10^2	35.5	3.19
	14	440.7	346	553 x 10^3	109 x 10^2	35.4	3.19
	15	471.7	370	591 x 10^3	116 x 10^2	35.4	3.19
	16	502.6	395	628 x 10^3	124 x 10^2	35.4	3.19
	17	533.5	419	666 x 10^3	131 x 10^2	35.3	3.19
	18	564.4	443	703 x 10^3	138 x 10^2	35.3	3.19
	19	595.1	467	740 x 10^3	146 x 10^2	35.2	3.19

CONDUITS

Rigid steel conduits KS C8401(JIS C8305)

Heavy gauge

Size designation	Outside diameter	Tolerances on outside diameter	Wall thickness	weight	Effective length of threads(mm)	
	mm	mm	mm	kg/m	Max.	Min.
G16	21.0	± 0.3	2.3	1.06	19	16
G22	26.5	± 0.3	2.3	1.37	22	19
G28	33.3	± 0.3	2.5	1.90	25	22
G36	41.9	± 0.3	2.5	2.43	28	25
G42	47.8	± 0.3	2.5	2.79	28	25
G54	59.6	± 0.3	2.8	3.92	32	28
G70	75.2	± 0.3	2.8	5.00	36	32
G82	87.9	± 0.3	2.8	5.88	40	36
G92	100.7	± 0.4	3.5	8.39	42	36
G104	113.4	± 0.4	3.5	9.48	45	39

Light gauge

Size designation	Outside diameter	Tolerances on outside diameter	Wall thickness	weight	Effective length of threads(mm)	
	mm	mm	mm	kg/m	Max.	Min.
C19	19.1	± 0.2	1.6	0.690	14	12
C25	25.4	± 0.2	1.6	0.939	17	15
C31	31.8	± 0.2	1.6	1.19	19	17
C39	38.1	± 0.2	1.6	1.44	21	19
C51	50.8	± 0.2	1.6	1.94	24	22
C63	63.5	± 0.35	2.0	3.03	27	25
C75	76.2	± 0.35	2.0	3.66	30	28

Threadless conduits

Size designation	Outside diameter	Tolerances on outside diameter	Wall thickness	weight
	mm	mm	mm	kg/m
E19	19.1	± 0.15	1.2	0.530
E25	25.4	± 0.15	1.2	0.716
E31	31.8	± 0.15	1.4	1.05
E39	38.1	± 0.15	1.4	1.27
E51	50.8	± 0.15	1.4	1.71
E63	63.5	± 0.25	1.6	2.44
E75	76.2	± 0.25	1.8	3.30

CONDUITS

Fence Tubings

Size	Outside diameter		Wall thickness		Weight of Plain Ends		
	mm	in.	mm	in.	lb/ft	kg/ft	kg/m
0.840	21.34	0.840	2.03	1.080	0.65	0.30	0.97
0.854	21.69	0.854	1.91	0.075	0.62	0.28	0.93
1.050	26.67	1.050	2.34	0.092	0.94	0.43	1.40
1.315	33.40	1.315	1.19	0.047	0.64	0.29	0.95
			1.40	0.055	0.74	0.34	1.10
			1.65	0.065	0.87	0.39	1.29
			1.75	0.069	0.92	0.42	1.37
			1.83	0.072	0.96	0.43	1.42
			20.1	0.079	1.04	0.47	1.55
			2.31	0.091	1.19	0.54	1.77
			2.39	0.094	1.23	0.56	1.83
			2.64	0.104	1.36	0.62	2.02
1.660	42.16	1.660	1.19	0.047	0.84	0.37	1.20
			1.40	0.055	0.94	0.43	1.41
			1.65	0.065	1.11	0.50	1.65
			1.75	0.069	1.17	0.53	1.74
			1.83	0.072	1.22	0.55	1.82
			2.01	0.079	1.33	0.60	1.99
			2.39	0.094	1.57	0.71	2.34
			2.64	0.104	1.73	0.78	2.57
			2.95	0.116	1.91	0.87	2.85
1.900	48.26	1.900	1.40	0.055	1.08	0.49	1.61
			1.65	0.065	1.27	0.58	1.89
			1.75	0.069	1.35	0.61	2.01
			1.83	0.072	1.41	0.64	2.10
			2.01	0.079	1.54	0.70	2.29
			2.39	0.094	1.81	0.82	2.70
			2.64	0.104	1.99	0.90	2.97
			2.95	0.116	2.21	1.00	3.29
2.375	60.33	2.375	1.40	0.055	1.36	0.62	2.03
			1.65	0.065	1.60	0.73	2.39
			1.75	0.069	1.70	0.77	2.53
			1.83	0.072	1.77	0.80	2.64
			2.01	0.079	1.94	0.88	2.89
			2.39	0.094	2.29	1.04	3.41
			2.64	0.104	2.52	1.14	3.76
			2.95	0.116	2.80	1.27	4.17
2.875	73.03	2.875	2.95	0.116	3.42	1.55	5.09
			5.16	0.203	5.79	2.63	8.63
2.975	75.56	2.975	3.25	0.128	3.89	1.76	5.77
3.000	76.2	3.000	2.11	0.083	2.59	1.17	3.84
			3.25	0.128	3.93	1.78	5.84
3.475	88.27	3.475	3.25	0.128	4.58	2.08	6.82
3.500	88.90	3.500	3.05	0.120	4.33	1.96	6.43
			3.25	0.128	4.61	2.09	6.86
4.000	101.6	4.000	3.40	0.134	5.53	2.51	8.23
			3.68	0.145	5.97	2.71	8.89
			5.74	0.226	9.11	4.13	13.55

CONDUITS

UL 6-Rigid metal conduits

Size designation	Inside diameter		Outside diameter		Wall thickness		Length without socket		Minimum weight of 10 units with coupling	
in.	in.	mm	in.	mm	in.	mm	ft & in.	mm	PE	TC
3/8	0.493	12.52	0.675	17.15	0.091	2.31	9-11½	3035	0.258	0.258
1/2	0.632	16.05	0.840	21.34	0.104	2.64	9-11¼	3030	0.371	0.376
3/4	0.836	21.23	1.050	26.67	0.107	2.72	9-11¼	3030	0.490	0.499
1	1.063	27.00	1.315	33.40	0.126	3.20	9-11	3025	0.726	0.739
1¼	1.394	35.41	1.660	42.16	0.133	3.38	9-11	3025	0.985	1.000
1½	1.624	41.25	1.900	48.26	0.138	3.51	9-11	3025	1.181	1.200
2	2.083	52.91	2.375	60.33	0.146	3.71	9-11	3025	1.579	1.610
2½	2.489	63.22	2.875	73.03	0.193	4.90	9-10½	3010	2.059	2.590
3	3.090	78.49	3.500	88.90	0.205	5.21	9-10½	3010	3.277	3.370
3½	3.570	90.68	4.000	101.60	0.215	5.46	9-10¼	3005	3.946	4.100
4	4.050	102.87	4.500	114.30	0.225	5.72	9-10¼	3005	4.668	4.790
5	5.073	128.85	5.563	141.30	0.245	6.22	9-10	2995	6.315	6.510
6	6.093	154.76	6.625	168.28	0.266	6.76	9-10	2995	8.207	8.520

ANSI C80.1-Rigid steel conduits

Size designation	Inside diameter		Outside diameter		Wall thickness		Length without socket		Minimum weight of 10 units with coupling	
in.	in.	mm	in.	mm	in.	mm	ft & in.	mm	PE	TC
3/8	0.493	12.5	0.675	17.1	0.091	2.31	9-111/2	3.04	51.5	23.36
1/2	0.632	16.1	0.840	21.3	0.104	2.64	9-111/4	3.03	79.0	35.83
3/4	0.836	21.2	1.050	26.7	0.107	2.72	9-111/4	3.03	105.0	47.63
1	1.063	27.0	1.315	33.4	0.126	3.20	9-11	3.02	153.0	69.40
1¼	1.394	35.4	1.660	42.2	0.133	3.38	9-11	3.02	201.0	91.17
1½	1.624	41.2	1.900	48.3	0.138	3.51	9-11	3.02	249.0	112.95
2	2.083	52.9	2.375	60.3	0.146	3.71	9-11	3.02	332.0	150.59
2½	2.489	63.2	2.875	73.0	0.193	4.90	9-10½	3.01	527.0	239.04
3	3.090	78.5	3.500	88.9	0.205	5.21	9-10½	3.01	682.6	309.63
3½	3.570	90.7	4.000	101.6	0.215	5.46	9-10¼	3.00	831.0	376.94
4	4.050	102.9	4.500	114.3	0.225	5.72	9-10¼	3.00	972.3	441.04
5	5.073	128.9	5.563	141.3	0.245	6.22	9-10	3.00	1313.6	595.85
6	6.093	154.8	6.625	168.3	0.266	6.76	9-10	3.00	1745.3	791.67

CONVERSION METHOD

1. Unit Weight Calculation Method

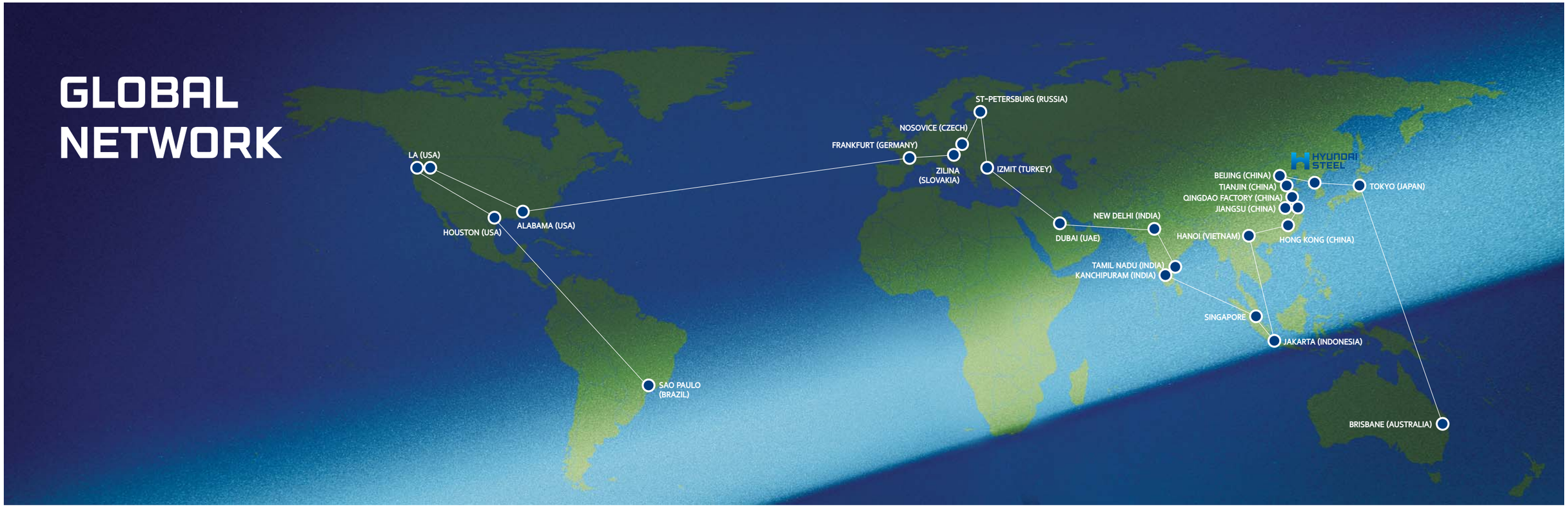
W = 0.02466(D-t)t
W : Weight per unit length(kg/m)
t : Thickness of steel pipes(mm)
D : Outside diameter of steel pipes(mm)

W = 10.68(D-t)t
W : Weight per unit length(lb/ft.)
t : thickness of steel pipes(in.)
D : Outside diameter of steel pipes(in.)

2. Conversion of unit

Items		Unit
Length	1.00000	mm
	1.00000×10^{-3}	m
	3.93701×10^{-2}	in.
	3.28084×10^{-3}	ft
Weight per unit length	1.00000	kg/m
	3.04800×10^{-1}	kg/ft
	6.71971×10^{-1}	lb/ft
Force per unit area	1.00000	N/mm^2(MPa)
	1.01972×10^{-1}	kgf/mm^2
	1.01972×10	kgf/cm^2
	1.45038×10^2	lbf/in^2
Temperature	32+9/5° C	F

GLOBAL NETWORK



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