S e A H • S t e e l • C o r p o r a t i o n

STEEL PIPES & TUBES

SeAH Steel Corporation

Contents

Brief History

Oct.1960 Pusan Steel Pipe Corporation established in Pusan
Mar.1965 Obtained "KS" monogram
Aug.1967 Steel pipes exported to the United States for the first time in Korea
May.1969 Company shares listed on the Korea Stock Exchange
Aug.1970 Seoul plant went into operation
Oct.1973 Spiral welded pipe mill started operation covering 457.2~2,413.0mm
Fed.1975 Company name changed to Pusan Steel pipe
Oct.1978 The first Pohang plant went into operation
Mar.1979 Authorized to use "API" monogram on casing & tubing, on high tensile line pipe and on line pipe
Aug.1980 The second Pohang plant went into operation
Apr.1981 Obtained "LR" (Lloyd's Register Shipping Monogram) and "DNV" (Det Norske Veritas) for welded steel pipe
Dec.1981 Awarded one hundred million U.S.dollar export tower
Jun.1982 Pohang plant has been anthorized as the "A" grade factory under the quality control program
Oct.1982 Obtained "UL" label for rigid steel conduit approved by Underwriters Laboratories
Jan.1983 The Third Pohsng plant went into operation covering upto20 inch high grade line pipe and OCTG.
Jun.1983 Obtained "JIS" monogram(No.8311,8312)
Jan.1985 Production of pre-insulated pipe initiated under the technical tie-up with Ecopipe AB,Sweden
Mar.1990 Stainless Steel Pipe mill went into operation in Seoul plant
Jun.1991 Large diameter manufacturing mill(OD.22"~82")went into operation
Jan.1993 Obtained ISO 9001 Certification for quality system
Jun.1993 Titanium Pipe plant went into operation
Jan.1996 Company name changed to SeAH Steel Corporation
Aug.1997 Obtained ISO 14001 Certification for Environmental System
Aug.1998 PCM Plant established in Gunsan

Main Products

- Korean Industrial Standards
- American Petroleum Institute Standards
- Det Norske Veritas Standards
- Australian Standards
- Canadian Standards Association
- Lloyd's Register of Shipping Standards
- Deutsche Industrie Normen
- KR
- American Bureau of Shipping Standards
- British Standards
- American National Standards Institute
- BV
- Japanese Industrial Standards
- American Society for Testing & Materal Standards

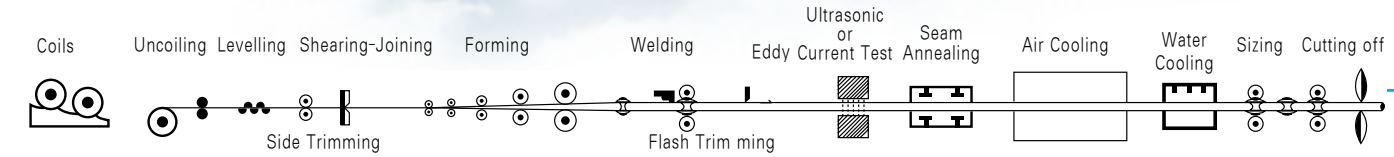
Carbon Steel Pipes for Ordinary Piping	● Pipes for Water Piping ● Pipes for General Ordinary Piping	▶ For City & Industrial Water, Irrigation & Agriculture Water, Oil & Gas Supply, Sprinkler, Fire Hydrant, Ship Piping, etc.	KS JIS BS ASTM
Carbon Steel Pipes for Pressure Service	● Pipes for Pressure Service	▶ For Pressure Service at the Temperature not exceeding 350℃	KS JIS
Conduit Tubes	● Electrical Metallic Tubing ● Thin Wall Conduit Tubes ● Thick Wall Conduit Tubes	▶ For electric wiring	KS, UL CSA ANSI JIS
Carbon Steel Tubes for Structural Purpose	● Tubes fod General Structural Purpose ● Tubes fod Mechanical Structural Purpose ● Automobile Structural Purposes ● Fence Tubes ● Pipe Scaffoldings ● Supports ● Posts for Green House ● Steel Pipe Pile ● Steel Pipe Pole	▶ For Building, Bridge, Harbor, Machinery, Steel Tower, Automobile, Bicycle, Electric, Light Post, Scaffold, Steel Furniture, Support, Hand Rail and Fence etc.	KS JIS ASTM
Oil Country Tubular Goods	● Line Pipe ● High Test Line Pipe ● Casing & Tubing	▶ For use conveying Gas, Water, and Oil, in producing operation in both Oil and Natural Gas Industries.	API
Spiral Welded Pipe	● Asphalt Coating Pipe ● Coal-tar Enamel Coating Pipe ● Steel Fittings Coating Steel Pipes for Water Service ● Bare Spiral Pipe ● Steel Pipe Pile	▶ For Water, Gas, Oil, Piling & other purposes such as Temporary Structures, dredging, supply & exhaust piping for Stream & Air.	KS JIS ASTM
Carbon Steel Tubes for Heat Transfer	● Boiler Tubes ● Heat Exchanger Tubes	▶ For Heat Exchange, such as Water Tubes, smoke Tubes, Superheater Tubes and Air Preheater Tubes of Boilers, or Heat Exchanger Tubes, Condenser Tubes and Catalyzer Tubes in the Chemical and Petroleum Industries.	KS JIS ASTM
Carbon Steel Pipes for Ship	● Boiler Tubes ● Heat Exchanger-Tubes ● Superheater Tubes ● Pipe for Pressure Piping	▶ For Boiler, Pressure Vessels, Ship and Machinery Pressure Piping System	KR, BV ABS LR DNV
Carbon Steel Pipes for Water Well	● Pump Column & Shaft ● Water Well Casing, Drive Pipe, Reamed & Drift Pipe, Driven Well Pipe	▶ For Water Well	ASTM
Pre-Insulated Pipe	● Pre-Insulated Pipe	▶ Piping for District Heating System, Central Heating System, antifreezing, Conveying Chemical Materials, Low Temperature Service, Solar Energy System.	DS SWEDEN FINLAND

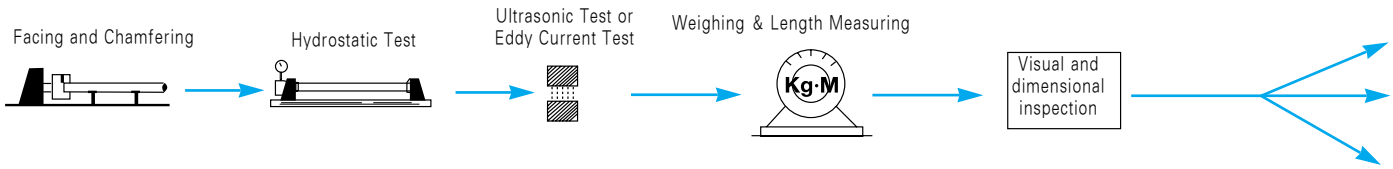
Approved Certifications

Plant	Spec	Description	Code	Classification	Size	Approval No	Approval Date
POHANG	KS	1. Rigid Steel Conduits	KS C8401	Galvanizing	G16~G104 C19~C75	70	65. 3. 17
		2. Carbon Steel Pipes for General Ordinary Piping	KS D3507	SPP(Black. Galv.)	15A~600A	1821	79. 9. 22
		3. Carbon Steel Tube for Machine Structural Purposes	KS D3517	STKM 11A~18C	21.7~216.3mm	2436	81. 8. 10
		4. Carbon Steel Pipes for Pressure Service	KS D3562	SPPS 38			
				SCH.10	350A~600A	2257	80. 12. 29
				SCH.20	50A~600A		
				SCH.40	15A~400A		
				SCH.80	15A~200A		
				SPPS 42	15A~400A		
				SCH. 40	15A~200A		
				SCH. 80			
		5. Carbon Steel Tubes for Boiler and Heat Exchanger	KS D3563	STBH 340, 410	15.9~139.8mm	2225	80. 10. 13
		6. Carbon Steel Tube for General Structural Purposes	KS D3566	STK 290	21.7~508.0mm	3292	83. 11. 18
				STK 400	21.7~609.6mm		
				STK 490	21.7 ~1016.0mm		
				STK 500	21.7 ~914.4mm		
		7. Carbon Steel Square Pipes for General Structural Purposes	KS D3568	SPSR 400, 490	20×20~300×300	4114	85. 8. 2
				30×20~200×100			
		8. Coated Steel Pipes for Water Works	KS D3565	STWW 400(A,C,L)	3000A이하	2146	80. 7. 30
		9. Fittings of Coated Steel Pipes for Water Works	KS D3578	F12, F15, F20	350A~2600A	3552	84. 6. 17
		10. Arc welded Carbon Steel Pipes	KS D3583	SPW 400	350A~2000A	2147	80. 7. 30
		11. Steel Pipe Piles	KS F4602	-	406.4~1016mm	2148	80. 7. 30
		12. Corrosion Resistance Welded Steel Pipes for Water Service	KS D3623	SPCR(Black. Galv.)	15A~500A	10881	94. 4. 9
		13. Steel Pipes for Fuel Gas Piping	KS D3631	SPPG	15A~600A	99-0679	99. 6. 26
		14. Coated Steel Pipes for Ordinary Water Service	KS D3626	STWS400(A,C,L)	350A~2600A	99-0680	99. 6. 26
		15. Joints of Coated Steel Pipes for Ordinary Water Service	KS D3627	F12, F15, F20	350A~2600A	99-0681	99. 6. 26
		16. Steel Pipe Sheet Piles	KS F4605	SKY400, 490	500~1524.0mm	00-1082	00. 2. 2
	JIS	1. Carbon Steel Pipes for General Ordinary Piping	JIS G3452	SGP(Black, Galv.)	all size	KR8311	83. 6. 13
		2. Carbon Steel Pipes for Pressure Service	JIS G3454	STPG 370, 410	〃	KR8311	
		3. Carbon Steel Tubes for Boiler and Heat Exchanger	JIS G3461	STB 340, 410, 510	〃	KR8312	83. 6. 13
		4. Carbon Steel Tube for General Structural Purposes	JIS G3444	STK 290~540	〃	KR8627	86. 3. 17
		5. Carbon Steel Tube for Machine Structural Purposes	JIS G3445	STKM 11A~20A	〃	KR8627	86. 3. 17
		6. Carbon Steel Square Pipes for General Structural Purposes	JIS G3466	STKR 400, 490	〃	KR8627	
		7. Rigid Steel Conduit	JIS C8305	Thick/Thin Steel Conduits,Without Screw	〃	KR8744	87. 8. 3
		8. Arc welded Carbon Steel Pipes	JIS G3457	STPY 400	〃	KR8311	94. 8. 10
		9. Steel Pipe Piles	JIS A5525	SKK 400, 490	〃	KR9432	94. 8. 10
		10. Steel Pipe Sheet Piles	JIS A5530	SKY 400, 490	〃	KR9432	99. 8. 4
	CSA	1. Rigid Metal Conduit 2. Coupling	CSA C22.2 -NO.45	-	1/2″~4″ 〃	LL63989 LL66820	86. 12. 10 87. 6. 30
	UL	1. Rigid Metal Conduit	UL-6	-	all size	E82333	82. 9. 5
	KR	1. Steel Pipes for Pressure piping 2. Steel Tubes for Boiler&Heat Exchanger	KR	RST 138-E-H/E-G RST 142-E-H/E-G RSTH 33-E-H RSTH 35-E-H RSTH 42-E-H	Max. 508mm	POH00341-ST001	80. 9. 15
	LR	1. Welded pipes and Tubes in Carbon Steel	LR	Welded steel Tube & pipes	Max. 1425mm	MD00/1222/0004/4	02. 4. 19
	DNV	1. Steel Tubes and Pipes	DNV	Welded steel Tube & pipes	ERW Max.600mm SAW Max.1423mm	AMM-250 AMM-826	01. 9. 18 01. 9. 3
		2. Steel Tubes and Pipes for Odinary Pressure Systems, Boilers, Heat Exchangers and Superheaters		TW320,360,410,460,500,510	all size	TP332-Kaag	96. 3. 11
	GL	1. Longitudinal Welded Unalloyed Steel Pipes	JIS G3454	STPG 370 (ERW, SRM)	21.7~508.0mm	WZ707HH1	00. 6. 23
	NK	1. Welded Steel Pipes 2. Welded Steel Tubes for Boilers&Heat Exchanger		KSTBG 38-E-G KSTBG 38-E-H KSTB 35	21.7~508.0mm 21.7~101.6mm Max 76.2mm	96EW324ROL 97EW249ROL	96. 6. 25 97. 6. 24
	BV	1. Steel Pipes for Pressure piping 2. Steel Tubes for Boilers &Pressure pipings	BV	Grade 410(SAW) Grade 320~410(ERW)	20″~54″ 19.1~609.6mm	09649/AD BV 2002 I/07528/AD/ PRSD	00. 3. 14 98. 6. 3
	API	1. Line Pipe 2. Casing & Tubing 3. Structural Steel pipe	API 5L API 5CT API 2B	ALL GRADE Group 1&2 ALL GRADE	all size 〃 〃	5L-0318 5CT-0417 2B-0047	79. 3. 21 79. 3. 21 95. 7. 24
	U-Mark	1. Welded Circular Unalloyed Steel Tubes Subject to Special Requirement	DIN1626	ST37.0(ERW)	all size	Report 926/002037	00. 5. 17
	NSF	1. ANSI/NSF Standard 61 : Drinking Water System Components-Health Effect	ASTM A53A(Galv.)	A53ANSF	1″NB~3″NB (A53 Thread&Coupled)	071698-MH25802B	98. 7. 16
					1″NB~3″NB (A589 Thread&Coupled)	200201-MH25802	01. 2. 20
			ASTM A53B(Galv.)	A53BNSF	4″NB×SCH40×18′	071698-MH25802	98. 7. 16
					4″NB×SCH40×21′	071698-MH25802A	98. 7. 16
	ABS	1. Arc welded Carbon Steel Pipes & Tubes	JIS G3457	STPY400	600A~1350A	00BH3462	00. 9. 04
	CCS	1. Carbon and Carbon-Manganese Steel	-	Grade 410	21.7~609.6mm	BJW01010039	02. 3. 4
	RINA	1. Steel Pipes for Pressure Vessel	-	-	ERW Max. 610mm SAW Max. 1371.6mm	00/Pu/94/To-1	00. 2. 28
		2. Steel Tubes and Pipes for Boiler&Heat Exchanger	-	-			

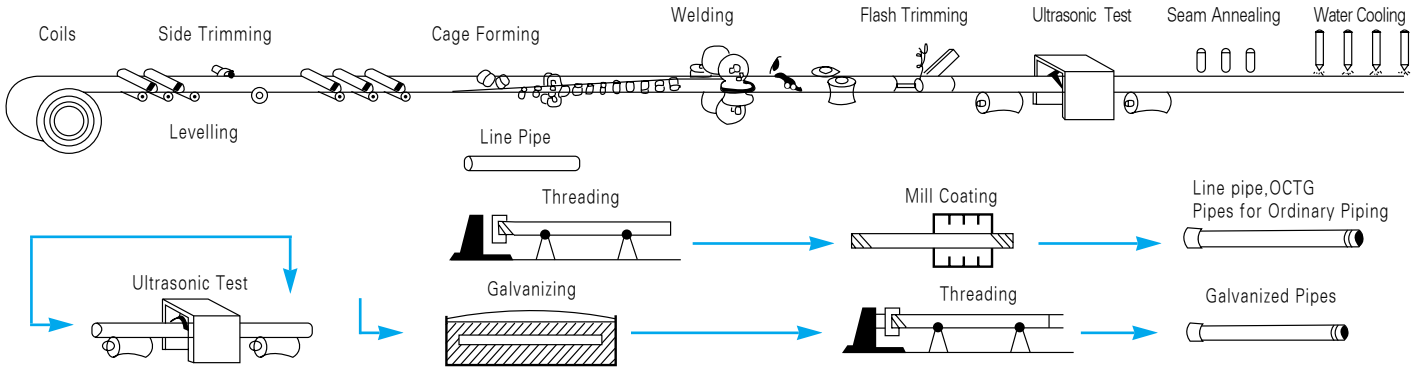
Manufacturing Process

Small Diameter Electric Welded Straight-seam Steel Pipe and Stretch Reducing Mill Pipe(3/8~8 inch O.D)

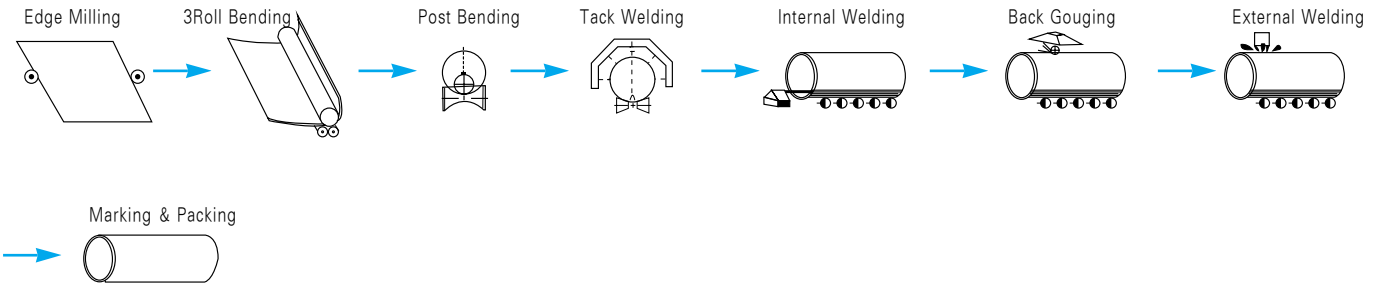




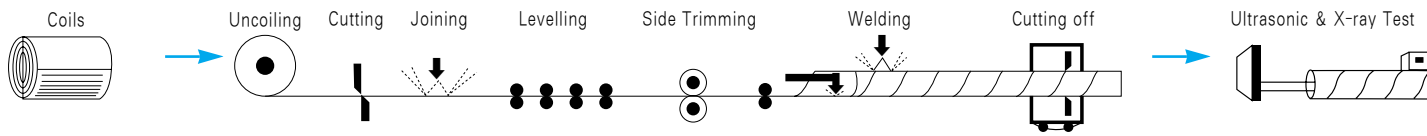
Medium Diameter Cage Forming ERW Steel Pipe(8~24 inch O.D)

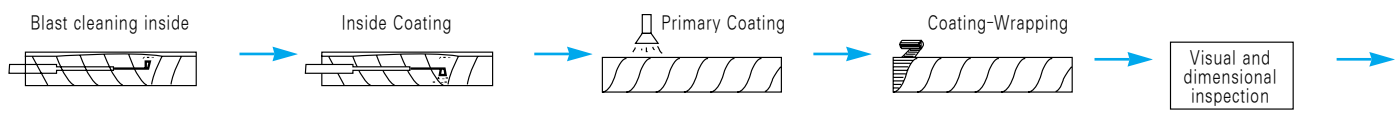


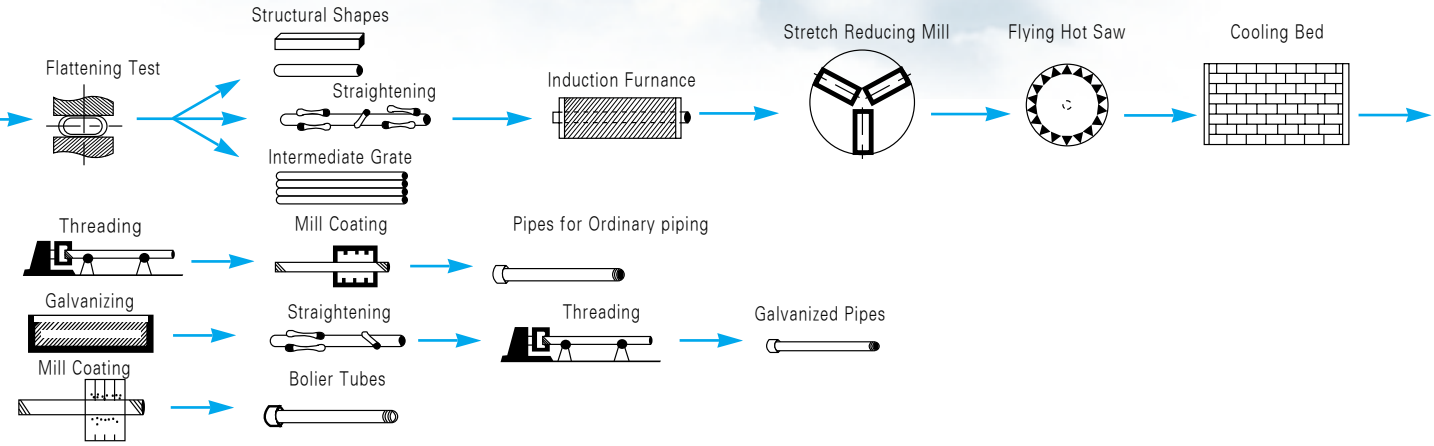
Submerged Arc Welded Logitudinal-Seam Steel Pipe

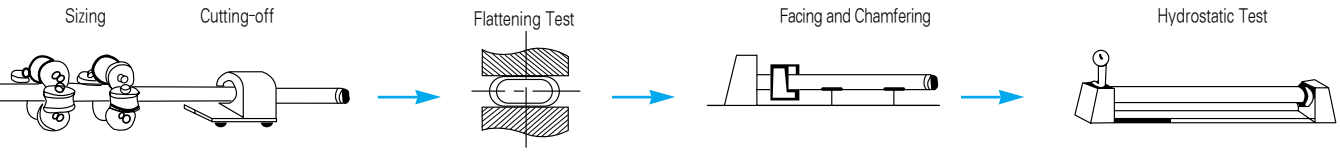


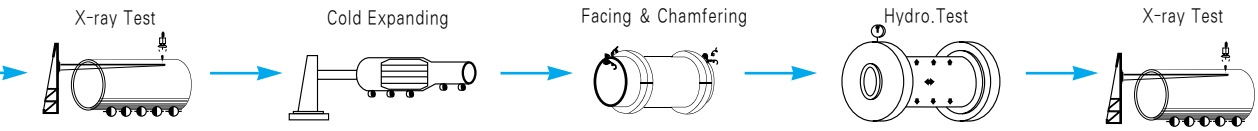
Submerged Arc Welded Spiral-seam Steel Pipe(400A~2600A)

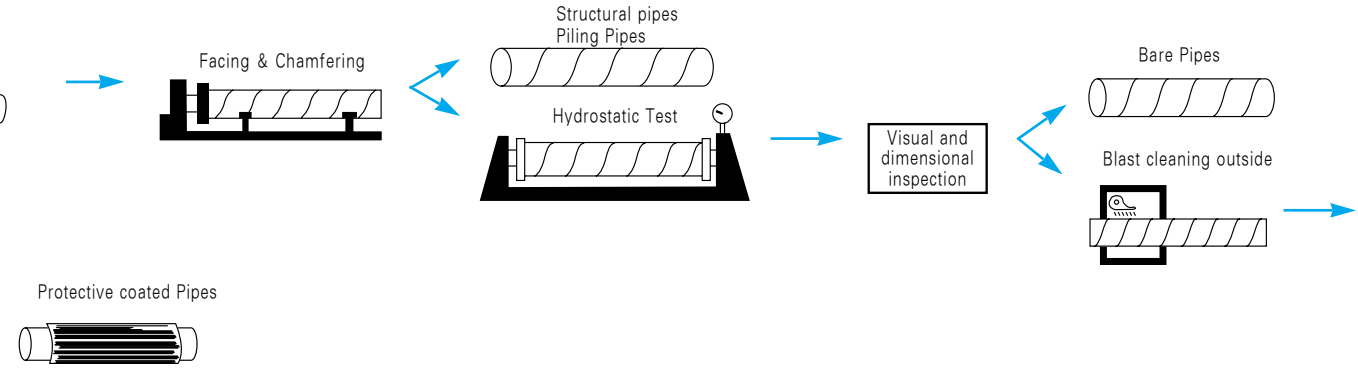





Structural Shapes
Flattening Test
Straightening
Intermediate Grate
Induction Furnance
Stretch Reducing Mill
Flying Hot Saw
Cooling Bed
Threading
Mill Coating
Pipes for Ordinary piping
Galvanizing
Straightening
Threading
Galvanized Pipes
Mill Coating
Bolier Tubes

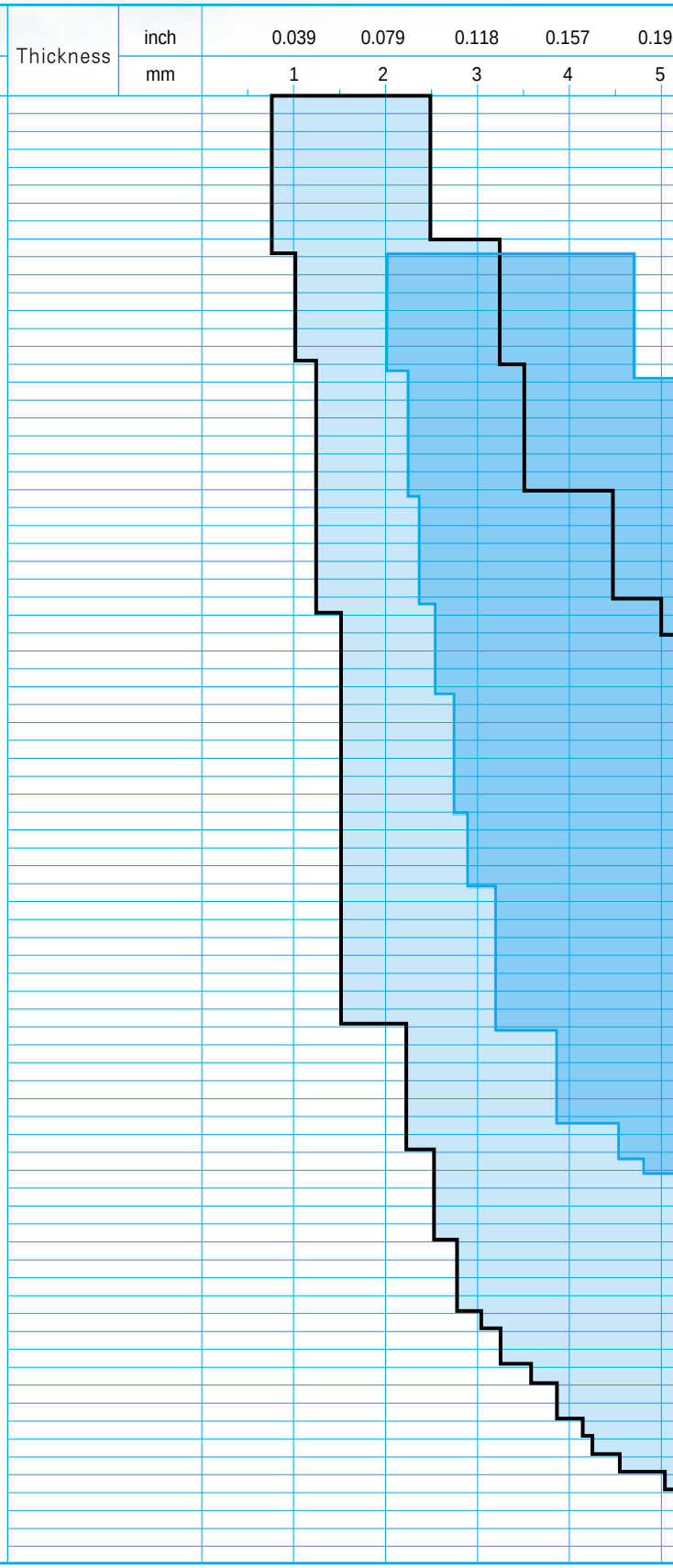

Sizing
Cutting-off
Flattening Test
Facing and Chamfering
Hydrostatic Test

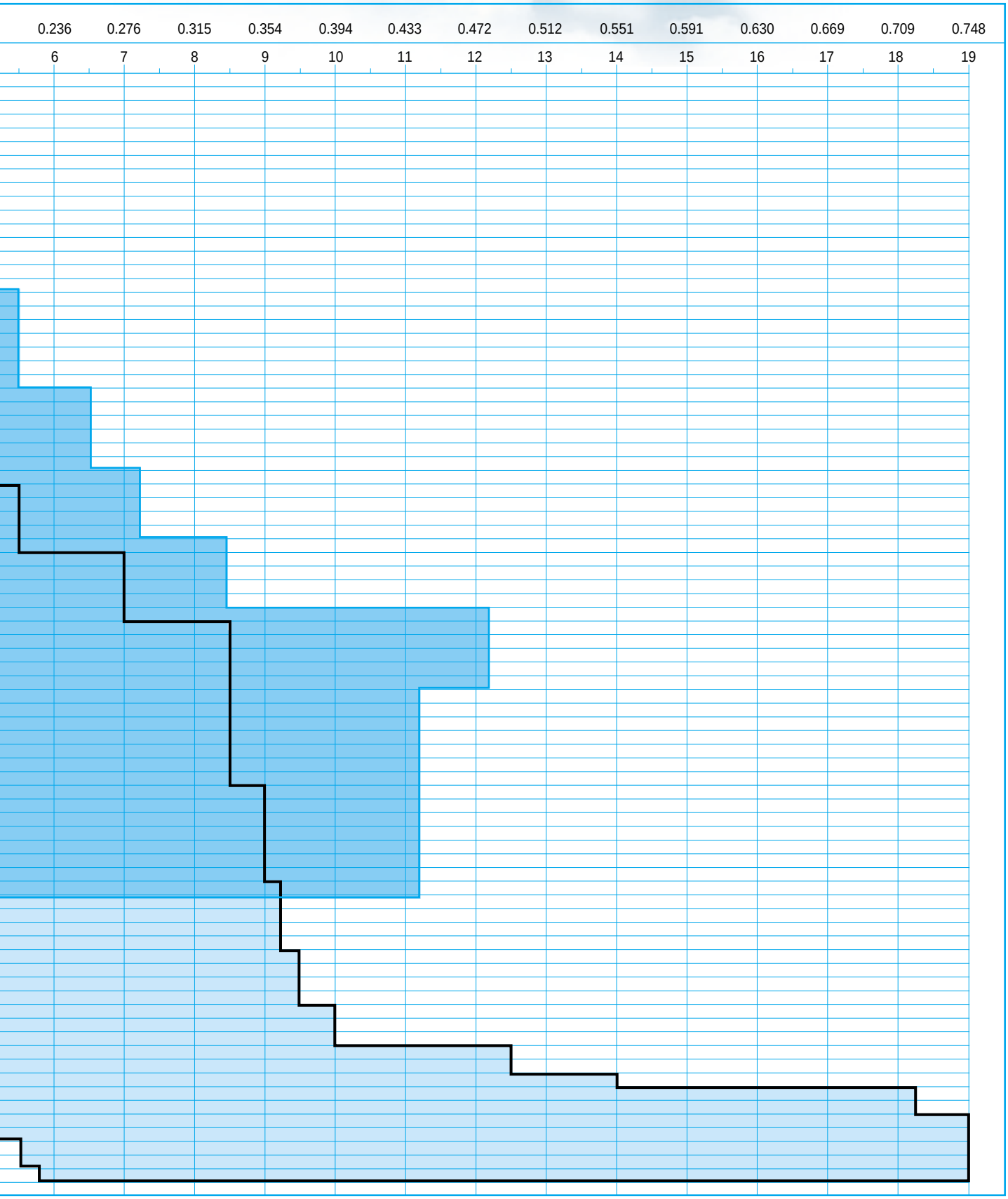

X-ray Test
Cold Expanding
Facing & Chamfering
Hydro.Test
X-ray Test


Facing & Chamfering
Structural pipes
Piling Pipes
Hydrostatic Test
Visual and dimensional inspection
Bare Pipes
Blast cleaning outside
Protective coated Pipes

Size Availability (E. R. W)

ASTM · API		BS		JIS · KS		OD
NB	OD	NB	OD	A	B	mm
		3/8	0.656 - 0.671			15.9 16.7 - 17.1
3/8	0.675		0.660 - 0.685	10	3/8	17.1 16.8 - 17.3 17.4
						19.1 21.0
1/2	0.840	1/2	0.825 - 0.841			21.3 21.0 - 21.4
			0.831 - 0.856	15	1/2	21.1 - 21.7 21.7
						22.2 25.4
						26.5 26.7
3/4	1.050	3/4	1.041 - 1.059			26.4 - 26.9
			1.047 - 1.072	20	3/4	26.6 - 27.2 27.2
						28.6 31.8
						33.3 33.4
1	1.315	1	1.309 - 1.328			33.2 - 33.8
				25	1	34.0
			1.316 - 1.346			33.4 - 34.2 38.1
						41.9 42.2
1 1/4	1.660	1 1/4	1.650 - 1.670			41.9 - 42.5
				32	1 1/4	42.7
			1.657 - 1.687			42.1 - 42.9 47.8
						48.3
1 1/2	1.900	1 1/2	1.882 - 1.903			47.8 - 48.4 48.6
				40	1 1/2	
			1.889 - 1.919			48.0 - 48.8 50.8
						59.6
		2	2.347 - 2.370			59.6 - 60.2 60.3
2	2.375			50	2	60.5
			2.354 - 2.394			59.8 - 60.8 63.5
2 1/2	2.875					73.0 75.2
		2 1/2	2.960 - 2.991			75.2 - 76.0 76.2
				65	2 1/2	76.3
			2.969 - 3.014			75.4 - 76.6 87.9
		3	3.460 - 3.491			87.9 - 88.7 88.9
3	3.500			80	3	89.1
			3.469 - 3.524			88.1 - 89.5 100.7
3 1/2	4.000			90	3 1/2	101.6 113.4
		4	4.450 - 4.481			113.0 - 113.9
4	4.500			100	4	114.3
			4.459 - 4.524			113.3- 114.9 127.0
				125	5	139.8
		5	5.459 - 5.534			138.7 - 140.6 141.3
5	5.563					152.4
				150	6	165.2
		6	6.459 - 6.539			164.1 - 166.1
6	6.625					168.3
7	7.000			175	7	216.3
8	8.625			200	8	219.1
9	9.625			225	9	267.4
10	10.750			250	10	273.0
12	12.750			300	12	318.5
13	13.375			325	13	323.9
14	14.000			350	14	355.6
16	16.000			400	16	406.4
18	18.000			450	18	457.2
20	20.000			500	20	508.0
22	22.000			550	22	558.8
24	24.000			600	24	609.6





Line Block indicates production rangese of Stretch Reducing Mill.
Line Block indicates available wall thickness.

Carbon Steel Pipes for Ordinary Piping

Carbon Steel Pipes For Ordinary Piping(SPP)

KS D 3507-2001

Nominal Size		Outside Dia	Tolerance of Outside Dia.		Wall Thickness	Tolerance of Wall Thickness	Unit weight of Plain Ends
mm	in.	mm	Taper Threaded	Plain Ends	mm		kg/m
★ 6	1/8	10.5	±0.5mm		2.00		0.419
★ 8	1/4	13.8	±0.5mm		2.35		0.664
★ 10	3/8	17.3	±0.5mm		2.35		0.866
15	1/2	21.7	±0.5mm		2.65		1.25
20	3/4	27.2	±0.5mm		2.65		1.60
25	1	34.0	±0.5mm		3.25		2.45
32	1 1/4	42.7	±0.5mm		3.25		3.16
40	1 1/2	48.6	±0.5mm		3.25		3.63
50	2	60.5	±0.5mm	±1%	3.65		5.12
65	2 1/2	76.3	±0.7mm	±1%	3.65		6.34
80	3	89.1	±0.8mm	±1%	4.05	+not Specified	8.49
★ 90	3 1/2	101.6	±0.8mm	±1%	4.05	− 12.5%	9.74
100	4	114.3	±0.8mm	±1%	4.50		12.2
125	5	139.8	±0.8mm	±1%	4.85		16.1
150	6	165.2	±0.8mm	±1%	4.85		19.2
★ 175	7	190.7	±0.9mm	±1%	5.30		24.2
200	8	216.3	±1.0mm	±1%	5.85		30.4
★ 225	9	241.8	±1.2mm	±1%	6.20		36.0
250	10	267.4	±1.3mm	±1%	6.40		41.2
300	12	318.5	±1.5mm	±1%	7.00		53.8
350	14	355.6	-	±1%	7.60		65.2
400	16	406.4	-	±1%	7.9		77.6
450	18	457.2	-	±1%	7.9		87.5
500	20	508.0	-	±1%	7.9		97.4
550	22	558.8	-	±1%	7.9		107.0
600	24	609.6	-	±1%	7.9		117.0

The sizes marked "★" are producible but rare chance in roll, Please consult with our Sales Department.

Carbon Steel Pipes for Ordinary Piping(SGP)

JIS G 3452-1997

Nominal Size		Outside Dia	Tolerance of Outside Dia.		Wall Thickness	Tolerance of Wall Thickness	Unit weight of Plain Ends
mm	in.	mm	Taper Threaded	Plain Ends	mm		kg/m
★ 6	1/8	10.5	±0.5mm		2.0		0.419
★ 8	1/4	13.8	±0.5mm		2.3		0.652
★ 10	3/8	17.3	±0.5mm		2.3		0.851
15	1/2	21.7	±0.5mm		2.8		1.31
20	3/4	27.2	±0.5mm		2.8		1.68
25	1	34.0	±0.5mm		3.2		2.43
32	1 1/4	42.7	±0.5mm		3.5		3.38
40	1 1/2	48.6	±0.5mm		3.5		3.89
50	2	60.5	±0.5mm	±1%	3.8		5.31
65	2 1/2	76.3	±0.7mm	±1%	4.2		7.47
80	3	89.1	±0.8mm	±1%	4.2	+not Specified	8.79
★ 90	3 1/2	101.6	±0.8mm	±1%	4.2	− 12.5%	10.1
100	4	114.3	±0.8mm	±1%	4.5		12.2
125	5	139.8	±0.8mm	±1%	4.5		15.0
150	6	165.2	±0.8mm	±1.6mm	5.0		19.8
★ 175	7	190.7	±0.9mm	±1.6mm	5.3		24.2
200	8	216.5	±1.0mm	±0.8%	5.8		30.1
★ 225	9	241.8	±1.2mm	±0.8%	6.2		36.0
250	10	267.4	±1.3mm	±0.8%	6.6		42.4
300	12	318.5	±1.5mm	±0.8%	6.9		53.0
350	14	355.6	-	±0.8%	7.9		67.7
400	16	406.4	-	±0.8%	7.9		77.6
450	18	457.2	-	±0.8%	7.9		87.5
500	20	508.0	-	±0.8%	7.9		97.4
550	22	558.8	-	±0.8%	7.9		107.0
600	24	609.6	-	±0.8%	7.9		117.0

The sizes marked "★" are producible but rare chance in roll, Please consult with our Sales Department.

Carbon Steel Pipes for Pressure Service(SPPS, STPG)

KS D 3562-1999
JIS G 3454-1988

Nominal Size		Outside Diam-eter	Schedule No.																			
			Sch 10			Sch 20			Sch 30			Sch 40			Sch 60			Sch 80			Sch 160	
A	B	mm	Wall thickness mm	Weight kg/m	Hydrostatic Pressure test kg/cm²	Wall thickness mm	Weight kg/m	Hydrostatic Pressure test kg/cm²	Wall thickness mm	Weight kg/m	Hydrostatic Pressure test kg/cm²	Wall thickness mm	Weight kg/m	Hydrostatic Pressure test kg/cm²	Wall thickness mm	Weight kg/m	Hydrostatic Pressure test kg/cm²	Wall thickness mm	Weight kg/m	Hydrostatic Pressure test kg/cm²	Wall thickness mm	Weight kg/m
★ 6	1/8	10.5										1.7	0.369		2.2	0.450		2.4	0.479			
★ 8	1/4	13.8										2.2	0.629		2.4	0.675		3.0	0.799			
10	3/8	17.3										2.3	0.851		2.8	1.00		3.2	1.11			
15	1/2	21.7										2.8	1.31		3.2	1.46		3.7	1.64		4.7	1.97
20	3/4	27.2										2.9	1.74		3.4	2.00		3.9	2.24		5.5	2.94
25	1	34.0										3.4	2.57		3.9	2.89		4.5	3.27		6.4	4.36
32	1 1/4	42.7										3.6	3.47		4.5	4.24		4.9	4.57		6.4	5.73
40	1 1/2	48.6										3.7	4.10		4.5	4.89		5.1	5.47		7.1	7.27
50	2	60.5				3.2	4.52					3.9	5.44		4.9	6.72		5.5	7.46		8.7	11.1
65	2 1/2	76.3			20	4.5	7.97	35			50	5.2	9.12	60	6.0	10.4	90	7.0	12.0	120	9.5	15.6
80	3	89.1				4.5	9.39					5.5	11.3		6.6	13.4		7.6	15.3		11.1	21.4
90	3 1/2	101.6				4.5	10.8					5.7	13.5		7.0	16.3		8.1	18.7		12.7	27.8
100	4	114.3				4.9	13.2					6.0	16.0		7.1	18.8		8.6	22.4		13.5	33.6
125	5	139.8				5.1	16.9					6.6	21.7		8.1	26.3		9.5	30.5		15.9	48.6
150	6	165.2				5.5	21.7					7.1	27.7		9.3	35.8		11.0	41.8		18.2	66.0
200	8	216.3				6.4	33.1		7.0	36.1		8.2	42.1		10.3	52.3		12.7	63.8		23.0	110
250	10	267.4				6.4	41.2		7.8	49.9		9.3	59.2		12.7	79.8		15.1	93.9			
300	12	318.5				6.4	49.3		8.4	64.2		10.3	78.3		14.3	107		17.4	129			
350	14	355.6	6.4	55.1		7.9	67.7		9.5	81.1		11.1	94.3		15.1	127		19.0	158			
400	16	406.4	6.4	63.1		7.9	77.6		9.5	93.0		12.7	123		16.7	160		21.4	203			
450	18	457.2	6.4	71.1		7.9	87.5		11.1	122		14.3	156		19.0	205		23.8	254			
500	20	508.0	6.4	79.2		9.5	117		12.7	155		15.1	184		20.6	248		26.2	311			
550	22	558.8	6.4	87.2		9.5	129		12.7	171		15.9	213		-	-		-	-			
600	24	609.6	6.4	95.2		9.5	141		14.3	210		-	-		-	-		-	-			
650	26	660.4	7.9	103		12.7	203		-	-		-	-		-	-		-	-			

The size marked ★ are producible but rare chance in roll, Please consult with our Sales Dept.

NOTE) Tolerance ❶ Tolerance of O.D : 25A below ±0.3mm, 32A Over ±0.8%

❷ Tolerance of wall thickness : 3mm below ±0.3mm, 3mm Over ±10%

Steel Tubes and Tubulars Suitable for Screwing to BS 21 Pipe Threads

BS 1387-1985

Tube	Nominal Size		Outside Diameter				Wall Thickness		Weight					
			max.		min.				Piain Ends			Screwed and Socketed		
	in.	mm	in.	mm	in.	mm	in.	mm	lb/ft	kg/ft	kg/m	lb/ft	kg/ft	kg/m
Light	1/4	8	0.535	13.6	0.520	13.2	0.071	1.8	0.346	0.157	0.515	0.349	0.158	0.519
	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	1.380	0.934	0.424	1.390
	1	25	1.331	33.8	1.307	33.2	0.102	2.6	1.331	0.603	1.980	1.344	0.610	2.000
	1 1/4	32	1.673	42.5	1.650	41.9	0.102	2.6	1.707	0.774	2.540	1.727	0.783	2.570
	1 1/2	40	1.906	48.4	1.882	47.8	0.114	2.9	2.171	0.984	3.230	2.198	0.997	3.270
	2	50	2.370	60.2	2.346	59.6	0.114	2.9	2.742	1.244	4.080	2.789	1.265	4.150
	2 1/2	65	2.992	76.0	2.961	75.2	0.126	3.2	3.837	1.740	5.710	3.918	1.777	5.830
	3	80	3.492	88.7	3.461	87.9	0.126	3.2	4.516	2.048	6.720	4.630	2.100	6.890
	4	100	4.484	113.9	4.449	113.0	0.142	3.6	6.552	2.972	9.750	6.721	3.048	10.000
Medium	1/4	8	0.547	13.9	0.524	13.3	0.091	2.3	0.431	0.195	0.641	0.433	0.197	0.645
	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	1.210	0.820	0.372	1.220
	3/4	20	1.071	27.2	1.047	26.6	0.102	2.6	1.048	0.475	1.560	1.055	0.479	1.570
	1	25	1.346	34.2	1.315	33.4	0.126	3.2	1.620	0.735	2.410	1.633	0.741	2.430
	1 1/4	32	1.689	42.9	1.657	42.1	0.126	3.2	2.083	0.945	3.100	2.104	0.954	3.130
	1 1/2	40	1.921	48.8	1.890	48.0	0.126	3.2	2.399	1.088	3.570	2.426	1.100	3.610
	2	50	2.394	60.8	2.354	59.8	0.142	3.6	3.380	1.533	5.030	3.427	1.554	5.100
	2 1/2	65	3.016	76.6	2.969	75.4	0.142	3.6	4.328	1.963	6.440	4.402	1.996	6.550
	3	80	3.524	89.5	3.469	88.1	0.157	4.0	5.625	2.551	8.370	5.739	2.603	8.540
	4	100	4.524	114.9	4.461	113.3	0.177	4.5	8.199	3.718	12.200	8.401	3.810	12.500
	5	125	5.535	140.6	5.461	138.7	0.197	5.0	11.156	5.059	16.600	11.492	5.212	17.100
	6	150	6.539	166.1	6.461	164.1	0.197	5.0	13.239	6.004	19.700	13.643	6.187	20.300
Heavy	1/4	8	0.547	13.9	0.524	13.3	0.114	2.9	0.514	0.233	0.765	0.517	0.234	0.769
	3/8	10	0.685	17.4	0.661	16.8	0.114	2.9	0.685	0.311	1.020	0.692	0.314	1.030
	1/2	15	0.854	21.7	0.831	21.1	0.126	3.2	0.968	0.439	1.440	0.974	0.442	1.450
	3/4	20	1.071	27.2	1.047	26.6	0.126	3.2	1.257	0.570	1.870	1.263	0.573	1.880
	1	25	1.346	34.2	1.315	33.4	0.157	4.0	1.976	0.896	2.940	1.989	0.902	2.960
	1 1/4	32	1.689	42.9	1.657	42.1	0.157	4.0	2.554	1.158	3.800	2.574	1.167	3.830
	1 1/2	40	1.921	48.8	1.890	48.0	0.157	4.0	2.944	1.335	4.380	2.970	1.347	4.420
	2	50	2.394	60.8	2.354	59.8	0.177	4.5	4.160	1.887	6.190	4.207	1.908	6.260
	2 1/2	65	3.016	76.6	2.969	75.4	0.177	4.5	5.329	2.417	7.930	5.410	2.454	8.050
	3	80	3.524	89.5	3.469	88.1	0.197	5.0	6.922	3.139	10.300	7.057	3.200	10.500
	4	100	4.524	114.9	4.461	113.3	0.213	5.4	9.745	4.419	14.500	9.946	4.511	14.800
	5	125	5.535	140.6	5.461	138.7	0.213	5.4	12.030	5.456	17.900	12.366	5.608	18.400
	6	150	6.539	166.1	6.461	164.1	0.213	5.4	14.315	6.492	21.300	14.718	6.675	21.900

Pipe, Steel, Black and Hot-Dipped Zinc-Coated Welded and Seamless

ASTM A 53-2001

Nominal Size	Outside Diameter		Wall Thickness		Nominal Weight						Weight Class	Sch. NO.	Test Pressure (psi)			
					Plain ends			Threads & Couplings					Plain Ends		Threads & Couplings	
in.	in.	mm	in.	mm	lb/ft	kg/ft	kg/m	lb/ft	kg/ft	kg/m			Grade A	Grade B	Grade A	Grade B
1/2	0.840	21.3	0.109	2.77	0.85	0.39	1.27	0.86	0.39	1.27	STD	40	700	700	700	700
			0.147	3.73	1.09	0.49	1.62	1.09	0.49	1.62	XS	80	850	850	850	850
			0.188	4.78	1.31	0.59	1.95	–	–	–	–	160	900	900	–	–
			0.294	7.47	1.72	0.78	2.55	1.72	0.78	2.54	XXS	–	1,000	1,000	1,000	1,000
3/4	1.050	26.7	0.113	2.87	1.13	0.51	1.69	1.14	0.52	1.69	STD	40	700	700	700	700
			0.154	3.91	1.48	0.67	2.20	1.48	0.67	2.21	XS	80	850	850	850	850
			0.219	5.56	1.95	0.88	2.90	–	–	–	–	160	950	950	–	–
			0.308	7.82	2.44	1.11	3.64	2.44	1.11	3.64	XXS	–	1,000	1,000	1,000	1,000
1	1.315	33.4	0.133	3.38	1.68	0.76	2.50	1.69	0.77	2.50	STD	40	700	700	700	700
			0.179	4.55	2.17	0.98	3.24	2.19	0.99	3.25	XS	80	850	850	850	850
			0.250	6.35	2.85	1.29	4.24	–	–	–	–	160	950	950	–	–
			0.358	9.09	3.66	1.66	5.45	3.66	1.66	5.45	XXS	–	1,000	1,000	1,000	1,000
1 1/4	1.660	42.2	0.140	3.56	2.27	1.03	3.39	2.28	1.03	3.40	STD	40	1,200	1,300	1,000	1,100
			0.191	4.85	3.00	1.36	4.47	3.03	1.37	4.49	XS	80	1,800	1,900	1,500	1,600
			0.250	6.35	3.77	1.71	5.61	–	–	–	–	160	1,900	2,000	–	–
			0.382	9.70	5.22	2.37	7.77	5.23	2.37	7.76	XXS	–	2,200	2,300	1,800	1,900
1 1/2	1.900	48.3	0.145	3.68	2.72	1.23	4.05	2.74	1.24	4.04	STD	40	1,200	1,300	1,000	1,100
			0.200	5.08	3.63	1.65	5.41	3.65	1.66	5.39	XS	80	1,800	1,900	1,500	1,600
			0.281	7.14	4.86	2.20	7.25	–	–	–	–	160	1,950	2,050	–	–
			0.400	10.16	6.41	2.91	9.56	6.41	2.91	9.56	XXS	–	2,200	2,300	1,800	1,900
2	2.375	60.3	0.154	3.91	3.66	1.66	5.44	3.68	1.67	5.46	STD	40	2,300	2,500	2,300	2,500
			0.218	5.54	5.03	2.28	7.48	5.08	2.30	7.55	XS	80	2,500	2,500	2,500	2,500
			0.344	8.74	7.47	3.39	11.11	–	–	–	–	160	2,500	2,500	–	–
			0.436	11.07	9.04	4.10	13.44	9.06	4.11	13.44	XXS	–	2,500	2,500	2,500	2,500
2 1/2	2.875	73.0	0.203	5.16	5.80	2.63	8.63	5.85	2.65	8.67	STD	40	2,500	2,500	2,500	2,500
			0.276	7.01	7.67	3.48	11.41	7.75	3.52	11.52	XS	80	2,500	2,500	2,500	2,500
			0.375	9.52	10.02	4.54	14.90	–	–	–	–	160	2,500	2,500	–	–
			0.552	14.02	13.71	6.22	20.39	13.72	6.22	20.39	XXS	–	2,500	2,500	2,500	2,500
3	3.500	88.9	0.125	3.18	4.51	2.05	6.72	–	–	–	–	–	1,290	1,500	–	–
			0.156	3.96	5.58	2.53	8.29	–	–	–	–	–	1,600	1,870	–	–
			0.188	4.78	6.66	3.02	9.92	–	–	–	–	–	1,930	2,260	–	–
			0.216	5.49	7.58	3.44	11.29	7.68	3.48	11.35	STD	40	2,220	2,500	2,200	2,500
			0.250	6.35	8.69	3.94	12.93	–	–	–	–	–	2,500	2,500	–	–
			0.281	7.14	9.67	4.39	14.40	–	–	–	–	–	2,500	2,500	–	–
			0.300	7.62	10.26	4.65	15.27	10.35	4.69	15.39	XS	80	2,500	2,500	2,200	2,500
			0.438	11.13	14.34	6.50	21.35	–	–	–	–	160	2,500	2,500	–	–
3 1/2	4.000	101.6	0.125	3.18	5.18	2.35	7.72	–	–	–	–	–	1,120	1,310	–	–
			0.156	3.96	6.41	2.91	9.53	–	–	–	–	–	1,400	1,640	–	–
			0.188	4.78	7.66	3.47	11.41	–	–	–	–	–	1,690	1,970	–	–
			0.226	5.74	9.12	4.14	13.57	9.27	4.20	13.71	STD	40	2,030	2,370	2,000	2,400
			0.250	6.35	10.02	4.54	14.92	–	–	–	–	–	2,250	2,500	–	–
			0.281	7.14	11.17	5.07	16.63	–	–	–	–	–	2,500	2,500	–	–
			0.318	8.08	12.52	5.68	18.63	12.67	5.75	18.82	XS	80	2,800	2,800	2,800	2,800
4	4.500	114.3	0.125	3.18	5.85	2.65	8.71	–	–	–	–	–	1,000	1,170	–	–
			0.156	3.96	7.24	3.28	10.78	–	–	–	–	–	1,250	1,460	–	–
			0.188	4.78	8.67	3.93	12.91	–	–	–	–	–	1,500	1,750	–	–
			0.219	5.56	10.02	4.54	14.91	–	–	–	–	–	1,750	2,040	–	–

* Psi = 0.0704kg/cm^2

ASTM A 53-2001

Nominal Size	Outside Diameter		Wall Thickness		Nominal Weight						Weight Class	Sch. NO.	Test Pressure (psi)			
					Plain Ends			Threads & Couplings					Plain Ends		Threads & Couplings	
in.	in.	mm	in.	mm	lb/ft	kg/ft	kg/m	lb/ft	kg/ft	kg/m			Grade A	Grade B	Grade A	Grade B
4	4.500	114.3	0.237	6.02	10.80	4.90	16.07	10.92	4.95	16.23	STD	40	1,900	2,210	1,900	2,200
			0.250	6.35	11.36	5.15	16.90	–	–	–	–	–	2,000	2,330	–	–
			0.281	7.14	12.67	5.75	18.87	–	–	–	–	–	2,250	2,620	–	–
			0.312	7.92	13.97	6.34	20.78	–	–	–	–	–	2,500	2,800	–	–
			0.337	8.56	15.00	6.80	22.32	15.20	6.89	22.60	XS	80	2,700	2,800	2,700	2,800
			0.438	11.13	19.02	8.63	28.32	–	–	–	–	120	2,800	2,800	–	–
			0.531	13.49	22.53	10.22	33.54	–	–	–	–	160	2,800	2,800	–	–
5	5.563	141.3	0.156	3.96	9.02	4.09	13.41	–	–	–	–	–	1,010	1,180	–	–
			0.188	4.78	10.80	4.90	16.09	–	–	–	–	–	1,220	1,420	–	–
			0.219	5.56	12.51	5.67	18.61	–	–	–	–	–	1,420	1,650	–	–
			0.258	6.55	14.63	6.64	21.77	14.90	6.76	22.07	STD	40	1,670	1,950	1,700	1,900
			0.281	7.14	15.87	7.20	23.62	–	–	–	–	–	1,820	2,120	–	–
			0.312	7.92	17.51	7.94	26.05	–	–	–	–	–	2,020	2,360	–	–
			0.344	8.74	19.19	8.70	28.57	–	–	–	–	–	2,230	2,600	–	–
			0.375	9.52	20.80	9.43	30.94	21.04	9.54	31.42	XS	80	2,430	2,800	2,400	2,800
			0.500	12.70	27.06	12.27	40.28	–	–	–	–	120	2,800	2,800	–	–
6	6.625	168.3	0.188	4.78	12.94	5.87	19.27	–	–	–	–	–	1,020	1,190	–	–
			0.219	5.56	15.00	6.80	22.31	–	–	–	–	–	1,190	1,390	–	–
			0.250	6.35	17.04	7.73	25.36	–	–	–	–	–	1,360	1,580	–	–
			0.280	7.11	18.99	8.61	28.26	19.34	8.77	28.58	STD	40	1,520	1,780	1,500	1,800
			0.312	7.92	21.06	9.55	31.32	–	–	–	–	–	1,700	1,980	–	–
			0.344	8.74	23.10	10.48	34.39	–	–	–	–	–	1,870	2,180	–	–
			0.375	9.52	25.05	11.36	37.28	–	–	–	–	–	2,040	2,380	–	–
			0.432	10.97	28.60	12.97	42.56	28.88	13.10	43.05	XS	80	2,350	2,740	2,300	2,700
			0.562	14.27	36.43	16.52	54.20	–	–	–	–	120	2,800	2,800	–	–
8	8.625	219.1	0.188	4.78	16.96	7.69	25.26	–	–	–	–	–	780	920	–	–
			0.203	5.16	18.28	8.29	27.22	–	–	–	–	–	850	1,000	–	–
			0.219	5.56	19.68	8.93	29.28	–	–	–	–	–	910	1,070	–	–
			0.250	6.35	22.38	10.15	33.31	–	–	–	–	20	1,040	1,220	–	–
			0.277	7.04	24.72	11.21	36.31	25.53	11.58	38.07	–	30	1,160	1,350	1,200	1,300
			0.312	7.92	27.73	12.58	41.24	–	–	–	–	–	1,300	1,520	–	–
			0.322	8.18	28.58	12.97	42.55	29.35	13.31	43.73	STD	40	1,340	1,570	1,300	1,600
			0.344	8.74	30.45	13.81	45.34	–	–	–	–	–	1,440	1,680	–	–
			0.375	9.52	33.07	15.00	49.20	–	–	–	–	–	1,570	1,830	–	–
			0.406	10.31	35.67	16.18	53.08	–	–	–	–	60	1,700	2,000	–	–
			0.438	11.13	38.33	17.39	57.08	–	–	–	–	–	1,830	2,130	–	–
			0.500	12.70	43.43	19.70	64.64	44.00	19.96	65.41	XS	80	2,090	2,430	2,100	2,400
10	10.750	273.1	0.188	4.78	21.23	9.63	31.62	–	–	–	–	–	630	730	–	–
			0.203	5.16	22.89	10.38	34.08	–	–	–	–	–	680	800	–	–
			0.219	5.56	24.65	11.18	36.67	–	–	–	–	–	730	860	–	–
			0.250	6.35	28.06	12.73	41.75	–	–	–	–	20	840	980	–	–
			0.279	7.09	31.23	14.17	46.49	32.33	14.66	48.80	–	–	930	1,090	950	1,100
			0.307	7.80	34.27	15.54	51.01	35.33	16.03	53.27	–	30	1,030	1,200	1,000	1,200
			0.344	8.74	38.27	17.36	56.96	–	–	–	–	–	1,150	1,340	–	–
			0.365	9.27	40.52	18.38	60.29	41.49	18.82	63.36	STD	40	1,220	1,430	1,200	1,400
			0.438	11.13	48.28	21.90	71.87	–	–	–	–	–	1,470	1,710	–	–
			0.500	12.70	54.79	24.85	81.52	55.55	25.20	83.17	XS	60	1,670	1,950	1,700	2,000
12	12.750	323.9	0.203	5.16	27.23	12.35	40.55	–	–	–	–	–	570	670	–	–
			0.219	5.56	29.34	13.31	43.63	–	–	–	–	–	620	720	–	–
			0.250	6.35	33.41	15.15	49.71	–	–	–	–	20	710	820	–	–
			0.281	7.14	37.46	16.99	55.75	–	–	–	–	–	790	930	–	–
			0.312	7.92	41.48	18.81	61.69	–	–	–	–	–	880	1,030	–	–
			0.330	8.38	43.81	19.87	65.18	45.47	20.62	67.72	–	30	930	1,090	950	1,100
			0.344	8.74	45.62	20.69	67.90	–	–	–	–	–	970	1,130	–	–
			0.375	9.52	49.61	22.50	73.78	51.28	23.26	76.21	STD	–	1,060	1,240	1,100	1,200
			0.406	10.31	53.57	24.30	79.70	–	–	–	–	40	1,150	1,340	–	–
			0.438	11.13	57.65	26.15	85.82	–	–	–	–	–	1,240	1,440	–	–
			0.500	12.70	65.48	29.70	97.43	66.91	30.35	99.40	XS	–	1,410	1,650	1,400	1,600
			0.562	14.27	73.22	33.21	108.92	–	–	–	–	60	1,590	1,850	–	–

ASTM A 53-2001

Nominal Size	Outside Diameter		Wall Thickness		Nominal Weight			Weight Class	Sch. No.	Test Pressure(psi)	
in.	in.	mm	in.	mm	lb/ft	kg/ft	kg/m			Grade A	Grade B
14	14.000	355.6	0.210	5.33	30.96	14.04	46.04	-	-	540	630
			0.219	5.56	32.26	14.63	47.99	-	-	560	660
			0.250	6.35	36.75	16.67	54.69	-	10	640	750
			0.281	7.14	41.21	18.69	61.35	-	-	720	840
			0.312	7.92	45.65	20.71	67.90	-	20	800	940
			0.344	8.74	50.22	22.78	74.76	-	-	880	1,030
			0.375	9.52	54.62	24.78	81.25	STD	30	960	1,120
			0.438	11.13	63.50	28.80	94.55	-	40	1,130	1,310
			0.469	11.91	67.84	30.77	100.94	-	-	1,210	1,410
			0.500	12.70	72.16	32.73	107.39	XS	-	1,290	1,500
16	16.000	406.4	0.219	5.56	36.95	16.76	54.96	-	-	490	570
			0.250	6.35	42.09	19.09	62.64	-	10	560	660
			0.281	7.14	47.22	21.42	70.30	-	-	630	740
			0.312	7.92	52.32	23.73	77.83	-	20	700	820
			0.344	8.74	57.57	26.11	85.71	-	-	770	900
			0.375	9.52	62.64	28.41	93.17	STD	30	840	980
			0.438	11.13	72.86	33.05	108.49	-	-	990	1,150
			0.469	11.91	77.87	35.32	115.86	-	-	1,060	1,230
			0.500	12.70	82.85	37.58	123.30	XS	40	1,120	1,310
18	18.000	457.2	0.250	6.35	47.44	21.52	70.60	-	10	500	580
			0.281	7.14	53.23	24.14	79.24	-	-	560	660
			0.312	7.92	58.99	26.76	87.75	-	20	620	730
			0.344	8.74	64.93	29.45	96.66	-	-	690	800
			0.375	9.52	70.65	32.05	105.10	STD	-	750	880
			0.406	10.31	76.36	34.64	113.62	-	-	810	950
			0.438	11.13	82.23	37.30	122.43	-	30	880	1,020
			0.469	11.91	87.89	39.87	130.78	-	-	940	1,090
			0.500	12.70	93.54	42.43	139.20	XS	-	1,000	1,170
			0.562	14.27	104.76	47.52	155.87	-	40	1,120	1,310
20	20.000	508.0	0.250	6.35	52.78	23.94	78.55	-	10	450	520
			0.281	7.14	59.23	26.87	88.19	-	-	510	590
			0.312	7.92	65.66	29.78	97.67	-	-	560	660
			0.344	8.74	72.28	32.79	107.60	-	-	620	720
			0.375	9.52	78.67	35.68	117.02	STD	20	680	790
			0.406	10.31	84.04	38.12	126.53	-	-	730	850
			0.438	11.13	91.59	41.54	136.37	-	-	790	920
			0.469	11.91	97.92	44.42	145.70	-	-	850	950
			0.500	12.70	104.23	47.28	155.12	XS	30	900	1,050
24	24.000	609.6	0.250	6.35	63.47	28.79	94.46	-	10	380	440
			0.281	7.14	71.25	32.32	106.08	-	-	420	490
			0.312	7.92	79.01	35.84	117.51	-	-	470	550
			0.344	8.74	86.99	39.46	129.50	-	-	520	600
			0.375	9.52	94.71	42.96	140.88	STD	20	560	660
			0.406	10.31	102.40	46.45	152.37	-	-	610	710
			0.438	11.13	110.32	50.04	164.26	-	-	660	770
			0.469	11.91	117.98	53.51	175.54	-	-	700	820
			0.500	12.70	125.61	56.98	186.94	XS	-	750	880
			0.562	14.27	140.81	63.87	209.50	-	30	840	980

Carbon Steel Boiler and Heat Exchanger Tubes

ASTM A 178-1995, KS D 3563-2001
ASTM A 214-1996, JIS G 3461-1988

(Unit : kg/m)

Wall thickness (mm) / outside diameter (mm)	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	2.72	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	21.6	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

Oil Country Tubular Goods

Line Pipe

Size						Weight						
Outside Diameter			Wall Thickness			lb/ft	kg/ft	kg/m	A		B	
Nominal Size	in.	mm	Sch No.	in.	mm				Std.	Alt.	Std.	Alt.
1/2	0.840	21.3		0.109	2.8	0.85	0.39	1.28	48	-	48	-
				0.147	3.7	1.09	0.49	1.61	59	-	59	-
3/4	1.050	26.7		0.113	2.9	1.13	0.51	1.70	48	-	48	-
				0.154	3.9	1.48	0.67	2.19	59	-	59	-
1	1.315	33.4	40 (Std)	0.133	3.4	1.68	0.76	2.52	48	-	48	-
			80 (XS)	0.179	4.5	2.17	0.98	3.21	59	-	59	-
1 1/4	1.660	42.2	40 (Std)	0.140	3.6	2.27	1.03	3.43	83	-	90	-
			80 (XS)	0.191	4.9	3.00	1.36	4.51	124	-	131	-
1 1/2	1.900	48.3	40 (Std)	0.145	3.7	2.72	1.23	4.07	83	-	90	-
			80 (XS)	0.200	5.1	3.63	1.65	5.43	124	-	131	-
2	2 3/8	60.3		0.083	2.1	2.03	0.92	3.01	87	108	101	126
				0.109	2.8	2.64	1.20	3.97	115	144	134	168
				0.125	3.2	3.01	1.37	4.51	132	165	153	172
				0.141	3.6	3.37	1.53	5.03	148	172	172	172
			40 (Std)	0.154	3.9	3.66	1.66	5.42	161	172	172	172
				0.172	4.4	4.05	1.84	6.07	172	172	172	172
				0.188	4.8	4.40	2.00	6.57	172	172	172	172
			80 (XS)	0.218	5.5	5.03	2.28	7.43	172	172	172	172
				0.250	6.4	5.68	2.58	8.51	172	172	172	172
				0.281	7.1	6.29	2.85	9.31	172	172	172	172
				0.436	11.1	9.04	4.10	13.47	172	172	172	172
2 1/2	2 7/8	73.0		0.083	2.1	2.48	1.12	3.67	71	89	83	104
				0.109	2.8	3.22	1.46	4.85	95	119	111	139
				0.125	3.2	3.67	1.66	5.51	109	136	127	158
				0.141	3.6	4.12	1.87	6.16	122	153	143	172
				0.156	4.0	4.53	2.05	6.81	136	170	158	172
				0.172	4.4	4.97	2.25	7.44	150	172	172	172
				0.188	4.8	5.40	2.45	8.07	163	172	172	172
			40 (Std)	0.203	5.2	5.80	2.63	8.69	172	172	172	172
				0.216	5.5	6.14	2.79	9.16	172	172	172	172
				0.250	6.4	7.02	3.18	10.51	172	172	172	172
			80 (XS)	0.276	7.0	7.67	3.48	11.39	172	172	172	172
3	3 1/2	88.9		0.083	2.1	3.03	1.37	4.50	59	73	68	85
				0.109	2.8	3.95	1.79	5.95	78	98	91	114
				0.125	3.2	4.51	2.05	6.76	89	112	104	130
				0.141	3.6	5.06	2.30	7.57	101	126	117	146
				0.156	4.0	5.58	2.53		112	140	130	163
				0.172	4.4	6.12	2.78	9.17	123	154	143	172
				0.188	4.8	6.66	3.02	9.95	134	168	156	172
			40 (Std)	0.216	5.5	7.58	3.44	11.31	154	172	172	172
				0.250	6.4	8.69	3.94	13.02	172	172	172	172
				0.281	7.1	9.67	4.39	14.32	172	172	172	172
			80 (XS)	0.300	7.6	10.26	4.65	15.24	172	172	172	172

* Psi=0.0704kg/cm²

	Hydrostatic Test Pressure (Kpa×100)															
	X42		X46		X52		X56		X60		X65		X70		X80	
	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.
	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
	121	151	132	166	150	188	161	202	173	216	187	234	202	252	207	288
	162	202	177	221	200	250	207	269	207	288	207	312	207	336	207	384
	185	231	202	252	207	286	207	307	207	330	207	357	207	384	207	439
	207	260	207	284	207	321	207	346	207	371	207	401	207	433	207	494
	207	281	207	308	207	348	207	374	207	402	207	435	207	469	207	500
	207	317	207	347	207	393	207	422	207	453	207	490	207	500	207	500
	207	346	207	379	207	429	207	461	207	494	207	500	207	500	207	500
	207	397	207	434	207	491	207	500	207	500	207	500	207	500	207	500
	207	462	207	500	207	500	207	500	207	500	207	500	207	500	207	500
	207	500	207	500	207	500	207	500	207	500	207	500	207	500	207	500
	207	500	207	500	207	500	207	500	207	500	207	500	207	500	207	500
	100	125	109	137	124	155	133	167	143	179	155	193	167	208	191	238
	133	167	146	182	165	207	178	222	191	238	206	258	207	278	207	318
	153	191	167	208	189	236	203	254	207	272	207	295	207	318	207	363
	172	215	188	234	207	266	207	286	207	306	207	331	207	357	207	408
	191	238	207	261	207	295	207	317	207	340	207	368	207	397	207	454
	207	262	207	287	207	325	207	349	207	374	207	405	207	437	207	499
	207	286	207	313	207	354	207	381	207	408	207	442	207	476	207	500
	207	310	207	339	207	384	207	412	207	442	207	479	207	500	207	500
	207	328	207	358	207	406	207	436	207	468	207	500	207	500	207	500
	207	381	207	417	207	472	207	500	207	500	207	500	207	500	207	500
	207	417	207	456	207	500	207	500	207	500	207	500	207	500	207	500
	82	103	90	112	102	127	109	137	117	147	127	159	137	171	156	196
	110	137	120	150	136	170	146	182	156	196	169	207	183	207	207	261
	125	157	137	171	155	194	167	208	179	224	194	242	207	261	207	298
	141	176	154	193	174	218	188	234	201	251	207	272	207	293	207	335
	157	196	171	214	194	242	207	261	207	279	207	302	207	326	207	373
	172	215	188	235	207	267	207	287	207	307	207	333	207	359	207	410
	188	235	205	257	207	291	207	313	207	335	207	363	207	391	207	447
	207	269	207	294	207	333	207	358	207	384	207	416	207	448	207	500
	207	313	207	342	207	388	207	417	207	447	207	484	207	500	207	500
	207	347	207	380	207	430	207	462	207	496	207	500	207	500	207	500
	207	372	207	407	207	460	207	495	207	500	207	500	207	500	207	500

— Continued —

Size						Weight						
Outside Diameter			Wall Thickness			lb/ft	kg/ft	kg/m	A		B	
Nominal Size	in.	mm	Sch No.	in.	mm				Std.	Alt.	Std.	Alt.
3 1/2	4	101.6		0.083	2.1	3.48	1.58	5.15	51	64	60	75
				0.109	2.8	4.53	2.05	6.82	68	86	80	100
				0.125	3.2	5.18	2.35	7.76	78	98	91	114
				0.141	3.6	5.82	2.64	8.70	88	110	102	128
				0.156	4.0	6.41	2.91	9.63	98	122	114	142
				0.172	4.4	7.04	3.19	10.55	108	134	125	157
				0.188	4.8	7.66	3.47	11.46	117	147	137	171
			40 (Std)	0.226	5.7	9.12	4.14	13.48	139	174	162	193
				0.250	6.4	10.02	4.54	15.02	156	193	182	193
				0.281	7.1	11.17	5.07	16.55	174	193	193	193
			80 (XS)	0.318	8.1	12.52	5.68	18.68	193	193	193	193
4	4 1/2	114.3		0.083	2.1	3.92	1.78	5.81	96	57	53	66
				0.125	3.2	5.85	2.65	8.77	70	87	81	101
				0.141	3.6	6.57	2.98	9.83	78	98	91	114
				0.156	4.0	7.24	3.28	10.88	87	109	101	127
				0.172	4.4	7.96	3.61	11.92	96	120	111	139
				0.188	4.8	8.67	3.93	12.96	104	130	121	152
				0.203	5.2	9.32	4.23	13.99	113	141	132	164
				0.219	5.6	10.02	4.54	15.01	122	152	142	177
			40 (Std)	0.237	6.0	10.80	4.90	16.02	130	163	152	190
				0.250	6.4	11.36	5.15	17.03	139	174	162	193
				0.281	7.1	12.67	5.75	18.77	154	193	180	193
				0.312	7.9	13.97	6.34	20.73	172	193	193	193
			80 (XS)	0.337	8.6	15.00	6.80	22.42	187	193	193	193
			120	0.438	11.1	19.02	8.63	28.25	193	193	193	193
5	5 9/16	141.3		0.083	2.1	4.86	2.20	7.21	37	46	43	54
				0.125	3.2	7.27	3.30	10.90	56	70	65	82
				0.156	4.0	9.02	4.09	13.54	70	88	82	102
				0.188	4.8	10.80	4.90	16.16	84	105	98	123
				0.219	5.6	12.51	5.67	18.74	98	123	115	143
			40	0.258	6.6	14.63	6.64	21.92	116	145	135	169
				0.281	7.1	15.87	7.20	23.50	125	156	145	182
				0.312	7.9	17.51	7.94	25.99	139	174	162	193
				0.344	8.7	19.19	8.70	28.45	153	191	178	193
			80 (XS)	0.375	9.5	20.80	9.43	30.88	167	193	193	193
6	6 5/8	168.3		0.083	2.1	5.80	2.63	8.61	31	39	36	45
				0.109	2.8	7.59	3.44	11.43	41	52	48	60
				0.125	3.2	8.69	3.94	13.03	47	59	55	69
				0.141	3.6	9.77	4.43	14.62	53	66	62	77
				0.156	4.0	10.79	4.89	16.21	59	74	68	86
				0.172	4.4	11.87	5.38	17.78	64	81	76	95
				0.188	4.8	12.94	5.87	19.35	70	89	82	103
				0.203	5.2	13.94	6.32	20.91	77	96	89	112
				0.219	5.6	15.00	6.80	22.47	83	103	96	120
				0.250	6.4	17.04	7.73	25.55	94	118	110	137
			40	0.280	7.1	18.99	8.61	28.22	105	131	122	153
				0.312	7.9	21.06	9.55	31.25	117	146	136	170
				0.344	8.7	23.10	10.48	34.24	128	161	149	187
				0.375	9.5	25.05	11.36	37.20	140	175	163	193
			80 (XS)	0.432	11.0	28.60	12.97	42.67	162	193	189	193

API 5L - 2000

Hydrostatic Test Pressure (Kpa×100)															
X42		X46		X52		X56		X60		X65		X70		X80	
Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.
72	90	79	98	89	111	96	120	103	128	111	139	120	150	137	171
96	120	105	131	119	148	128	160	137	171	148	185	160	200	183	228
110	137	120	150	136	170	146	182	156	196	169	212	183	228	207	261
123	154	135	168	153	191	164	205	176	220	190	238	205	257	207	293
137	171	150	187	170	207	182	228	196	244	207	265	207	285	207	326
151	188	165	206	187	207	201	251	207	269	207	291	207	314	207	359
164	206	180	225	204	254	207	274	207	293	207	317	207	342	207	391
195	244	207	267	207	302	207	325	207	348	207	377	207	406	207	465
207	274	207	300	207	339	207	365	207	391	207	423	207	456	207	500
207	304	207	332	207	376	207	405	207	434	207	470	207	500	207	500
207	347	207	379	207	429	207	462	207	495	207	500	207	500	207	500
64	80	70	87	79	99	85	106	91	114	99	123	106	133	122	152
97	122	106	133	121	151	130	162	139	174	151	188	162	203	185	232
110	137	120	150	136	170	146	182	156	196	169	207	183	207	207	261
122	152	133	166	151	188	162	203	174	217	188	235	203	254	207	290
134	167	146	183	166	207	178	223	191	239	207	259	207	279	207	319
146	183	160	200	181	226	195	243	207	261	207	282	207	304	207	348
158	198	173	216	196	245	207	263	207	283	207	306	207	330	207	377
170	213	186	233	207	264	207	284	207	304	207	329	207	355	207	406
183	228	200	250	207	283	207	304	207	326	207	353	207	380	207	435
195	244	207	266	207	302	207	324	207	348	207	376	207	406	207	464
207	270	207	295	207	335	207	360	207	386	207	417	207	450	207	500
207	301	207	329	207	372	207	400	207	429	207	464	207	500	207	500
207	327	207	358	207	405	207	436	207	467	207	500	207	500	207	500
207	422	207	462	207	500	207	500	207	500	207	500	207	500	207	500
52	65	57	71	64	80	69	86	72	92	80	100	86	108	98	123
79	99	86	108	98	122	105	131	113	141	122	152	131	164	150	188
99	123	108	135	122	152	131	164	141	176	152	190	164	205	188	234
118	148	129	162	146	183	157	197	169	211	183	228	197	246	207	281
138	172	151	188	171	213	184	229	197	246	207	266	207	287	207	328
163	203	178	222	201	252	207	270	207	290	207	314	207	338	207	387
175	219	191	239	207	271	207	291	207	312	207	338	207	364	207	416
195	243	207	266	207	301	207	324	207	347	207	376	207	405	207	463
207	268	207	293	207	332	207	356	207	382	207	414	207	446	207	500
207	292	207	207	207	362	207	389	207	418	207	452	207	487	207	500
54	-	59	-	67	-	72	-	77	-	84	-	90	-	103	-
72	-	79	-	90	-	96	-	103	-	112	-	121	-	138	-
83	-	90	-	102	-	110	-	118	-	128	-	138	-	157	-
93	-	102	-	115	-	124	-	133	-	144	-	155	-	177	-
103	-	113	-	128	-	138	-	148	-	160	-	172	-	197	-
114	-	124	-	141	-	157	-	162	-	176	-	189	-	207	216
124	-	136	-	154	-	165	-	177	-	192	-	207	-	207	236
134	-	147	-	166	-	179	-	192	-	207	208	207	224	207	256
145	-	158	-	179	-	193	-	207	-	207	224	207	241	207	276
165	-	181	-	205	-	207	220	207	236	207	256	207	276	207	315
184	-	201	-	207	227	207	244	207	262	207	283	207	306	207	349
204	-	207	223	207	253	207	272	207	291	207	315	207	340	207	389
207	225	207	246	207	278	207	299	207	321	207	347	207	375	207	428
207	246	207	268	207	304	207	327	207	351	207	379	207	409	207	467
207	284	207	311	207	352	207	378	207	406	207	439	207	474	207	500

— Continued —

Size						Weight						
Outside Diameter			Wall Thickness			lb/ft	kg/ft	kg/m	A		B	
Nominal Size	in.	mm	Sch No.	in.	mm				Std.	Alt.	Std.	Alt.
8	8 5/8	219.1		0.125	3.2	11.36	5.15	17.04	36	45	42	53
				0.156	4.0	14.12	6.40	21.22	45	57	53	66
				0.188	4.8	16.96	7.69	25.37	54	68	63	79
				0.203	5.2	18.28	8.29	27.43	59	74	69	86
				0.219	5.6	19.68	8.93	29.48	63	79	74	92
			20	0.250	6.4	22.38	10.15	33.57	73	91	84	106
			30	0.277	7.0	24.72	11.21	36.61	79	99	92	115
				0.312	7.9	27.73	12.58	41.14	90	112	104	130
			40	0.322	8.2	28.58	12.96	42.65	93	116	108	135
				0.344	8.7	30.45	13.81	45.14	99	123	115	144
				0.375	9.5	33.07	15.00	49.10	108	135	125	157
				0.438	11.1	38.33	17.39	56.94	126	157	147	183
			80 (XS)	0.500	12.7	43.43	19.70	64.64	144	180	168	193
10	10 3/4	273.1		0.156	4.0	17.67	8.01	26.54	36	45	42	53
				0.188	4.8	21.23	9.63	31.76	44	55	51	64
				0.203	5.2	22.89	10.38	34.35	47	59	55	69
				0.219	5.6	24.65	11.18	36.94	51	64	59	74
			20	0.250	6.4	28.06	12.73	42.09	58	73	68	85
				0.279	7.1	31.23	14.17	46.57	65	81	75	94
			30	0.307	7.8	34.27	15.54	51.03	71	89	83	103
				0.344	8.7	38.27	17.36	56.72	79	99	92	115
			40	0.365	9.3	40.52	18.38	60.50	85	106	98	123
				0.438	11.1	48.28	21.90	71.72	101	126	118	147
			60 (XS)	0.500	12.7	54.79	24.85	81.55	116	144	134	168
12	12 3/4	323.9		0.172	4.4	23.13	10.49	34.67	34	42	39	49
				0.188	4.8	25.25	11.45	37.77	37	46	43	54
				0.203	5.2	27.23	12.35	40.87	40	50	46	58
				0.219	5.6	29.34	13.31	43.96	43	54	50	63
			20	0.250	6.4	33.41	15.15	50.11	49	61	57	71
				0.281	7.1	37.46	16.99	55.47	54	68	63	79
				0.312	7.9	41.48	18.82	61.56	61	76	71	88
			30	0.330	8.4	43.81	19.87	65.35	64	81	75	94
				0.344	8.7	45.62	20.69	67.62	67	83	78	97
				0.375	9.5	49.61	22.50	73.65	73	91	85	106
			40	0.406	10.3	53.57	24.30	79.65	79	99	92	115
				0.438	11.1	57.65	26.15	85.62	85	106	99	124
				0.500	12.7	65.48	29.70	97.46	97	122	113	142
			60	0.562	14.3	73.22	33.21	109.18	110	137	128	160
				0.625	15.9	81.01	36.75	120.76	122	152	142	177
			80	0.688	17.5	88.71	40.24	132.23	134	168	156	193
				0.750	19.1	96.21	43.64	143.56	146	183	171	193
14	14	355.6		0.188	4.8	27.76	12.59	41.52	34	42	39	49
				0.203	5.2	29.94	13.58	44.93	36	45	42	53
				0.210	5.3	30.96	14.04	45.78	37	46	43	54
				0.219	5.6	32.26	14.63	48.33	39	49	46	57
			10	0.250	6.4	36.75	16.67	55.11	45	56	52	65
				0.281	7.1	41.21	18.69	61.02	50	62	58	72
			20	0.312	7.9	45.65	20.71	67.74	55	69	62	80
				0.344	8.7	50.22	22.78	74.42	61	76	71	88
			30	0.375	9.5	54.62	24.78	81.08	66	83	77	97
				0.406	10.3	59.00	26.76	87.71	72	90	84	105
			40	0.438	11.1	63.50	28.80	94.30	78	97	90	113
				0.469	11.9	67.84	30.77	100.86	83	104	97	121
				0.500	12.7	72.16	32.73	107.39	89	111	103	129
				0.562	14.3	80.73	36.62	120.36	100	125	116	145
				0.625	15.9	89.36	40.53	133.19	111	139	129	162
				0.688	17.5	97.91	44.41	145.91	122	153	142	178
			80	0.750	19.1	106.23	48.18	158.49	133	167	155	193

API 5L - 2000

Hydrostatic Test Pressure (Kpa×100)															
X42		X46		X52		X56		X60		X65		X70		X80	
Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.
64	-	69	-	79	-	85	-	91	-	98	-	1106	-	121	-
79	-	87	-	98	-	106	-	113	-	123	-	132	-	151	-
95	-	104	-	118	-	127	-	136	-	147	-	159	-	181	-
103	-	113	-	128	-	137	-	147	-	159	-	172	-	197	-
111	-	122	-	138	-	148	-	159	-	172	-	185	-	207	212
127	-	139	-	157	-	169	-	181	-	196	-	207	212	207	242
139	-	152	-	172	-	185	-	198	-	207	215	207	231	207	265
157	-	171	-	194	-	207	209	207	224	207	242	207	261	207	299
163	-	178	-	202	-	207	217	207	232	207	252	207	271	207	310
173	-	189	-	207	214	207	230	207	247	207	267	207	288	207	329
189	-	206	-	207	233	207	251	207	269	207	291	207	314	207	359
207	220	207	241	207	273	207	293	207	315	207	340	207	367	207	419
207	252	207	276	207	312	207	336	207	360	207	390	207	420	207	480
72	-	79	-	89	-	96	-	103	-	112	-	120	-	137	-
87	-	95	-	107	-	115	-	124	-	134	-	144	-	165	-
94	-	103	-	116	-	125	-	134	-	145	-	156	-	179	-
101	-	111	-	125	-	135	-	144	-	156	-	168	-	192	-
116	-	126	-	143	-	154	-	165	-	178	-	192	-	207	220
128	-	140	-	159	-	171	-	183	-	198	-	207	213	207	244
141	-	154	-	174	-	187	-	201	-	207	218	207	235	207	268
157	-	172	-	194	-	207	209	207	224	207	243	207	262	207	299
168	-	184	-	207	208	207	223	207	240	207	259	207	280	207	320
200	-	207	219	207	248	207	267	207	286	207	310	207	334	207	381
207	229	207	251	207	284	207	305	207	327	207	354	207	382	207	436
67	-	73	-	83	-	89	-	96	-	103	-	112	-	127	-
73	-	80	-	90	-	97	-	104	-	113	-	122	-	139	-
79	-	87	-	998	-	105	-	113	-	122	-	132	-	151	-
85	-	93	-	106	-	113	-	122	-	132	-	142	-	162	-
97	-	106	-	121	-	130	-	139	-	150	-	162	-	185	-
108	-	118	-	134	-	144	-	154	-	167	-	180	-	206	-
120	-	131	-	149	-	160	-	172	-	186	-	200	-	207	229
128	-	140	-	158	-	170	-	183	-	198	-	207	213	207	243
132	-	145	-	164	-	176	-	189	-	205	-	207	221	207	252
145	-	158	-	179	-	192	-	206	-	207	223	207	241	207	275
157	-	171	-	194	-	207	209	207	224	207	242	207	261	207	298
169	-	185	-	207	209	207	225	207	241	207	261	207	281	207	322
193	-	207	211	207	239	207	257	207	276	207	299	207	322	207	368
207	218	207	238	207	269	207	290	207	311	207	336	207	363	207	414
207	242	207	265	207	300	207	322	207	345	207	374	207	403	207	461
207	266	207	291	207	330	207	355	207	380	207	411	207	444	207	500
207	291	207	318	207	360	207	387	207	415	207	449	207	484	207	500
67	-	73	-	82	-	89	-	95	-	103	-	111	-	127	-
72	-	79	-	89	-	96	-	103	-	111	-	120	-	137	-
73	-	80	-	91	-	98	-	105	-	114	-	122	-	140	-
78	-	85	-	96	-	103	-	111	-	120	-	129	-	148	-
89	-	97	-	110	-	118	-	127	-	137	-	148	-	169	-
98	-	108	-	122	-	131	-	141	-	152	-	164	-	187	-
110	-	120	-	136	-	146	-	156	-	169	-	182	-	207	208
121	-	132	-	149	-	161	-	172	-	186	-	201	-	207	230
132	-	144	-	163	-	175	-	188	-	203	-	207	219	207	251
143	-	156	-	177	-	190	-	204	-	207	221	207	238	207	272
154	-	168	-	191	-	205	-	207	220	207	238	207	256	207	293
165	-	180	-	204	-	207	220	207	236	207	255	207	275	207	341
176	-	192	-	207	218	207	234	207	251	207	272	207	293	207	335
198	-	207	217	207	245	207	264	207	283	207	306	207	330	207	377
207	220	207	241	207	273	207	293	207	315	207	341	207	367	207	420
207	243	207	265	207	300	207	323	207	346	207	375	207	404	207	462
207	265	207	289	207	328	207	352	207	378	207	409	207	441	207	500

— Continued —

Size					Weight						
Outside Diameter		Wall Thickness			lb/ft	kg/ft	kg/m	A		B	
in.	mm	Sch No.	in.	mm				Std.	Alt.	Std.	Alt.
16	406.4		0.188	4.8	31.78	14.42	47.54	29	37	34	43
			0.203	5.2	34.28	15.55	51.45	32	40	37	46
			0.219	5.6	36.95	16.76	55.35	34	43	40	50
		10	0.250	6.4	42.09	19.09	63.13	39	49	46	57
			0.281	7.1	47.22	21.42	69.91	43	54	51	63
		20	0.312	7.9	52.32	23.73	77.63	48	60	56	70
			0.344	8.7	57.57	26.11	85.32	53	66	62	77
		30	0.375	9.5	62.64	28.41	92.98	58	73	68	85
			0.406	10.3	67.68	30.70	100.61	63	79	73	92
			0.438	11.1	72.86	33.05	108.20	68	85	79	99
			0.469	11.9	77.87	35.32	115.77	73	91	85	106
		40	0.500	12.7	82.85	37.58	123.30	78	97	90	113
			0.562	14.3	92.75	42.07	138.27	87	109	102	127
			0.625	15.9	102.72	46.59	153.11	97	121	113	141
			0.688	17.5	112.62	51.08	167.83	107	134	125	156
			0.750	19.1	122.27	55.46	182.42	117	146	136	170
18	457.0		0.188	4.8	35.80	16.24	53.53	26	33	30	38
			0.219	5.6	41.63	18.88	62.34	30	38	35	44
		10	0.250	6.4	47.44	21.52	71.12	35	43	41	51
			0.281	7.1	53.23	24.14	78.77	39	48	45	56
		20	0.312	7.9	58.99	26.76	87.49	43	54	50	62
			0.344	8.7	64.93	29.45	96.18	47	59	55	69
			0.375	9.5	70.65	32.05	104.84	52	65	60	75
			0.406	10.3	76.36	34.64	113.46	56	70	65	81
		30	0.438	11.1	82.23	37.30	122.05	60	75	70	88
			0.469	11.9	87.89	39.87	130.62	65	81	75	94
			0.500	12.7	93.54	42.43	139.15	69	86	80	100
		40	0.562	14.3	104.76	47.52	156.11	78	97	90	113
			0.625	15.9	116.09	52.66	172.95	86	108	101	126
			0.688	17.5	127.32	57.75	189.67	95	119	111	138
		60	0.750	19.1	138.30	62.73	206.25	104	130	121	151
20	508.0		0.219	5.6	46.31	21.01	69.38	27	34	32	40
		10	0.250	6.4	52.78	23.94	79.16	31	39	36	46
			0.281	7.1	59.23	26.87	87.70	35	43	40	51
			0.312	7.9	65.66	29.78	97.43	39	48	45	56
			0.344	8.7	72.28	32.79	107.12	43	53	50	62
		20	0.375	9.5	78.67	35.68	116.78	46	58	54	68
			0.406	10.3	85.04	38.57	126.41	50	63	59	73
			0.438	11.1	91.59	41.54	136.01	54	68	63	79
			0.469	11.9	97.92	44.42	145.58	58	73	68	85
			0.500	12.7	104.23	47.28	155.12	62	78	72	90
			0.562	14.3	116.78	52.97	174.10	70	87	81	102
			0.625	15.9	129.45	58.72	192.95	78	97	91	113
			0.688	17.5	142.03	64.42	211.68	85	107	99	125
			0.750	19.1	154.34	70.01	230.27	93	117	109	136
22	559.0	10	0.219	5.6	50.99	23.13	76.42	25	31	29	36
			0.250	6.4	58.13	26.37	87.21	28	36	33	41
			0.281	7.1	65.24	29.59	96.63	32	39	37	46
			0.312	7.9	72.34	32.81	107.36	35	44	41	51
			0.344	8.7	79.64	36.12	118.06	39	48	45	56
		20	0.375	9.5	86.69	39.32	128.73	42	53	49	61
			0.406	10.3	93.72	42.51	139.37	46	57	53	67
			0.438	11.1	100.96	45.79	149.97	49	62	57	72
			0.469	11.9	107.95	48.97	160.55	53	66	62	97
		30	0.500	12.7	114.92	52.13	171.09	56	71	66	82
			0.562	14.3	128.79	58.42	192.08	64	79	74	92
			0.625	15.9	142.81	64.78	212.95	71	88	82	103
			0.688	17.5	156.74	71.10	233.68	78	97	91	113
			0.750	19.1	170.37	77.28	254.30	85	106	99	124

API 5L - 2000

Hydrostatic Test Pressure (Kpa×100)

X42		X46		X52		X56		X60		X65		X70		X80	
Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.
58	58	64	64	72	72	78	78	83	83	90	90	97	97	111	111
63	63	69	69	78	78	84	84	90	90	97	97	105	105	120	120
68	68	74	74	84	84	90	90	97	97	105	105	113	113	129	129
78	78	85	85	96	96	103	103	111	111	120	120	129	129	148	148
86	86	94	94	107	107	115	115	123	123	133	133	143	143	164	164
96	96	105	105	119	119	128	128	137	137	148	148	160	160	182	182
106	106	115	115	131	131	140	140	151	151	163	163	176	176	201	201
115	115	126	126	143	143	153	153	165	165	178	178	192	192	207	219
125	125	137	137	155	155	166	166	178	178	193	193	207	208	207	238
135	135	147	147	167	167	179	179	192	192	207	208	207	224	207	250
144	144	158	158	179	179	192	192	206	206	207	223	207	240	207	250
154	154	168	168	191	191	205	205	207	220	207	238	207	250	207	250
173	173	190	190	207	215	207	231	207	248	207	250	207	250	207	250
193	193	207	211	207	239	207	250	207	250	207	250	207	250	207	250
207	212	207	232	207	250	207	250	207	250	207	250	207	250	207	250
207	232	207	250	207	250	207	250	207	250	207	250	207	250	207	250
52	52	57	57	64	64	69	69	74	74	80	80	86	86	99	99
60	60	66	66	75	75	80	80	86	86	93	93	101	101	115	115
69	69	75	75	85	85	92	92	99	99	107	107	115	115	131	131
77	77	84	84	95	95	102	102	109	109	118	118	128	128	146	146
85	85	93	93	106	106	113	113	122	122	132	132	142	142	162	162
94	94	103	103	116	116	125	125	134	134	145	145	156	156	179	179
102	102	112	112	127	127	136	136	146	146	158	158	171	171	195	195
111	111	121	121	138	138	148	148	159	159	172	172	185	185	207	228
120	120	131	131	148	148	159	159	171	171	185	185	199	199	207	250
128	128	140	140	159	159	171	171	183	183	198	198	207	214	207	250
137	137	150	150	170	170	182	182	196	196	207	212	207	228	207	250
154	154	169	169	191	191	205	205	207	220	207	238	207	250	207	250
172	172	187	187	207	212	207	228	207	245	207	250	207	250	207	250
189	189	206	206	207	234	207	250	207	250	207	250	207	250	207	250
206	206	207	225	207	250	207	250	207	250	207	250	207	250	207	250
58	58	63	63	71	71	77	77	82	82	89	89	96	96	110	110
66	66	72	72	81	81	88	88	94	94	102	102	110	110	125	125
73	73	80	80	90	90	97	97	104	104	113	113	122	122	139	139
81	81	89	89	100	100	108	108	116	116	125	125	135	135	155	155
89	89	98	98	111	111	119	119	128	128	138	138	149	149	170	170
98	98	107	107	121	121	130	130	139	139	151	151	163	163	186	186
106	106	116	116	131	131	141	141	151	151	164	164	176	176	201	201
114	114	125	125	141	141	152	152	163	163	176	176	190	190	207	217
122	122	134	134	151	151	163	163	174	174	189	189	204	204	207	248
131	131	143	143	162	162	174	174	186	186	202	202	207	217	207	248
147	147	161	161	182	182	196	196	207	210	207	227	207	245	207	250
163	163	179	179	202	202	207	217	207	233	207	250	207	250	207	250
180	180	197	197	207	228	207	245	207	250	207	250	207	250	207	250
196	196	207	215	207	243	207	250	207	250	207	250	207	250	207	250
52	52	57	57	65	65	70	70	75	75	81	81	87	87	100	100
60	60	65	65	74	74	80	80	85	85	92	92	100	100	114	114
66	66	72	72	82	82	88	88	95	95	102	102	110	110	126	126
74	74	81	81	91	91	98	98	105	105	114	114	123	123	140	140
81	81	89	89	101	101	108	108	116	116	126	126	135	135	155	155
89	89	97	97	110	110	118	118	127	127	137	137	148	148	169	169
96	96	105	105	119	119	128	128	137	137	149	149	160	160	183	183
104	104	113	113	128	128	138	138	148	148	160	160	173	173	197	197
111	111	121	121	138	138	148	148	159	159	172	172	185	185	207	212
119	119	130	130	147	147	158	158	169	169	183	183	198	198	207	226
134	134	146	146	165	165	178	178	191	191	206	206	207	222	207	250
148	148	162	162	184	184	198	198	207	212	207	229	207	247	207	250
163	163	179	179	202	202	207	218	207	233	207	250	207	250	207	250
178	178	195	195	207	221	207	237	207	250	207	250	207	250	207	250

— Continued —

Size					Weight						
Outside Diameter		Wall Thickness			lb/ft	kg/ft	kg/m	A		B	
in.	mm	Sch No.	in.	mm				Std.	Alt.	Std.	Alt.
24	610.0		0.312	7.9	79.01	35.84	117.30	32	40	37	47
			0.344	8.7	86.99	39.46	129.00	35	44	41	52
			0.375	9.5	94.71	42.96	140.68	39	48	45	56
			0.406	10.3	102.40	46.45	152.32	42	52	49	61
			0.438	11.1	110.32	50.04	163.93	45	57	53	66
			0.469	11.9	117.98	53.51	175.51	48	61	56	71
			0.500	12.7	125.61	56.98	187.06	52	65	60	75
			0.562	14.3	140.81	63.87	210.07	58	73	68	85
			0.625	15.9	156.17	70.84	232.94	65	81	75	94
			0.688	17.5	171.45	77.77	255.69	71	89	83	104
			0.750	19.1	186.41	84.55	278.32	78	97	91	113
			0.812	20.6	201.28	91.30	299.41	84	105	98	122
			0.875	22.2	216.31	98.12	321.79	90	113	105	132
			0.938	23.8	231.25	104.89	344.05	97	121	113	141
			1.000	25.4	245.87	111.52	366.17	103	129	121	151
26	660.0		0.250	6.4	68.82	31.22	103.15	24	30	28	35
			0.281	7.1	77.26	35.04	114.31	27	33	31	39
			0.312	7.9	85.68	38.86	127.04	30	37	35	43
			0.344	8.7	94.35	42.80	139.73	33	41	38	48
			0.375	9.5	102.72	46.59	152.39	36	45	42	52
			0.406	10.3	111.08	50.39	165.02	39	48	45	56
			0.438	11.1	119.69	54.29	177.62	42	52	49	61
			0.469	11.9	128.00	58.06	190.19	45	56	52	65
			0.500	12.7	136.30	61.82	202.72	48	60	56	70
			0.562	14.3	152.83	69.32	227.70	54	67	63	78
			0.625	15.9	169.54	76.90	252.55	60	75	70	87
			0.688	17.5	186.16	84.44	277.27	66	82	77	96
			0.750	19.1	202.44	91.83	301.87	72	90	84	105
			0.812	20.6	218.64	99.17	324.81	78	97	90	113
			0.875	22.2	235.01	106.60	349.16	84	104	97	122
			0.938	23.8	251.30	113.99	373.39	90	112	104	130
			1.000	25.4	267.25	121.22	397.49	96	119	111	139
28	711.0		0.250	6.4	74.16	33.64	111.20	22	28	26	33
			0.281	7.1	83.26	37.77	123.24	25	31	29	36
			0.312	7.9	92.35	41.89	136.97	28	35	32	40
			0.344	8.7	101.70	46.13	150.67	30	38	35	44
			0.375	9.5	110.74	50.23	164.34	33	41	39	48
			0.406	10.3	119.76	54.32	177.98	36	45	42	52
			0.438	11.1	129.05	58.54	191.58	39	48	45	56
			0.469	11.9	138.03	62.61	205.15	42	52	48	61
			0.500	12.7	146.99	66.67	218.69	44	55	52	65
			0.562	14.3	164.84	74.77	245.68	50	62	58	73

Hydrostatic Test Pressure (Kpa×100)															
X42		X46		X52		X56		X60		X65		X70		X80	
Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.
68	-	74	-	84	-	90	-	97	-	104	-	113	-	129	-
74	-	81	-	92	-	99	-	106	-	115	-	124	-	142	-
81	-	89	-	101	-	108	-	116	-	126	-	135	-	155	-
88	-	96	-	109	-	117	-	126	-	136	-	147	-	168	-
95	-	104	-	118	-	126	-	136	-	147	-	158	-	181	-
102	-	111	-	126	-	136	-	145	-	157	-	170	-	194	-
109	-	119	-	135	-	145	-	155	-	168	-	181	-	207	-
122	-	134	-	151	-	163	-	175	-	189	-	204	-	207	-
136	-	149	-	168	-	181	-	194	-	207	210	207	227	207	233
150	-	164	-	185	-	199	-	207	214	207	231	207	249	207	250
163	-	179	-	202	-	207	218	207	233	207	250	207	250	207	250
176	-	193	-	207	218	207	235	207	250	207	250	207	250	207	250
190	-	207	208	207	235	207	250	207	250	207	250	207	250	207	250
204	-	207	223	207	250	207	250	207	250	207	250	207	250	207	250
207	217	207	238	207	250	207	250	207	250	207	250	207	250	207	250
51	-	55	-	63	-	67	-	72	-	78	-	84	-	96	-
56	-	61	-	70	-	75	-	80	-	87	-	94	-	107	-
62	-	68	-	77	-	83	-	89	-	97	-	104	-	119	-
69	-	75	-	85	-	92	-	98	-	106	-	115	-	131	-
75	-	82	-	93	-	100	-	107	-	116	-	125	-	143	-
81	-	89	-	101	-	108	-	116	-	126	-	136	-	155	-
88	-	96	-	109	-	117	-	125	-	136	-	146	-	167	-
94	-	103	-	117	-	125	-	134	-	145	-	157	-	179	-
100	-	110	-	124	-	134	-	143	-	155	-	167	-	191	-
113	-	124	-	140	-	151	-	161	-	175	-	188	-	207	215
126	-	137	-	156	-	167	-	180	-	194	-	207	209	207	239
138	-	151	-	171	-	184	-	198	-	207	214	207	231	207	250
151	-	165	-	187	-	201	-	207	216	207	233	207	250	207	250
163	-	178	-	202	-	207	217	207	233	207	250	207	250	207	250
176	-	192	-	207	217	207	234	207	250	207	250	207	250	207	250
188	-	206	-	207	233	207	250	207	250	207	250	207	250	207	250
201	-	207	220	207	249	207	250	207	250	207	250	207	250	207	250
47	-	51	-	58	-	63	-	67	-	73	-	78	-	89	-
52	-	57	-	65	-	69	-	74	-	81	-	87	-	99	-
58	-	63	-	72	-	77	-	83	-	90	-	97	-	110	-
64	-	70	-	79	-	85	-	91	-	99	-	106	-	122	-
70	-	76	-	86	-	93	-	100	-	108	-	116	-	133	-
76	-	83	-	94	-	101	-	108	-	117	-	126	-	144	-
81	-	89	-	101	-	108	-	116	-	126	-	136	-	155	-
87	-	96	-	108	-	116	-	125	-	135	-	145	-	166	-
93	-	102	-	115	-	124	-	133	-	144	-	155	-	177	-
105	-	115	-	130	-	140	-	150	-	162	-	175	-	200	-

— Continued —

Size					Weight						
Outside Diameter		Wall Thickness			lb/ft	kg/ft	kg/m	A		B	
in.	mm	Sch No.	in.	mm				Std.	Alt.	Std.	Alt.
28	711.0		0.625	15.9	182.90	82.96	272.54	56	69	65	81
			0.688	17.5	200.87	91.11	299.28	61	76	71	89
			0.750	19.1	218.48	99.10	325.89	67	83	78	97
			0.812	20.6	236.00	107.05	350.72	72	90	84	105
			0.875	22.2	253.72	115.09	377.08	78	97	90	113
			0.938	23.8	271.36	123.09	403.32	83	104	97	121
			1.000	25.4	288.63	130.92	429.44	89	111	103	129
30	762.0		0.250	6.4	79.51	36.07	119.25	21	26	24	30
			0.281	7.1	89.27	40.49	132.17	23	29	27	34
			0.312	7.9	99.02	44.91	146.91	26	32	30	37
			0.344	8.7	109.06	49.47	161.61	28	35	33	41
			0.375	9.5	118.76	53.87	176.29	31	39	36	45
			0.406	10.3	128.44	58.26	190.93	34	42	39	49
			0.438	11.1	138.42	62.79	205.54	36	45	42	53
			0.469	11.9	148.06	67.16	220.12	39	48	45	56
			0.500	12.7	157.68	71.52	234.67	41	52	48	60
			0.562	14.3	176.86	80.22	263.67	47	58	54	68
			0.625	15.9	196.26	89.02	292.54	52	65	60	75
			0.688	17.5	215.58	97.79	321.29	57	71	66	83
			0.750	19.1	234.51	106.37	349.91	62	78	72	91
			0.812	20.6	253.36	114.92	376.63	67	84	78	98
			0.875	22.2	272.43	123.57	405.00	72	90	84	105
			0.938	23.8	291.41	132.18	433.26	78	97	90	113
			1.000	25.4	310.01	140.62	461.38	83	104	96	121
32	813.0		0.250	6.4	84.85	38.49	127.30	20	24	23	28
			0.281	7.1	95.28	43.22	141.10	22	27	25	32
			0.312	7.9	105.69	47.94	156.84	24	30	28	35
			0.344	8.7	116.41	52.80	172.56	27	33	31	39
			0.375	9.5	126.78	57.51	188.24	29	36	34	42
			0.406	10.3	137.12	62.20	203.88	31	39	37	46
			0.438	11.1	147.78	67.03	219.50	34	42	39	49
			0.469	11.9	158.08	71.70	235.09	36	45	42	53
			0.500	12.7	168.37	76.37	250.64	39	49	45	56
			0.562	14.3	188.87	85.67	281.65	44	55	51	64
			0.625	15.9	209.62	95.08	312.54	49	61	57	71
			0.688	17.5	230.29	104.46	343.30	53	67	62	78
			0.750	19.1	250.55	113.65	373.93	58	73	68	85
			0.812	20.6	270.72	122.80	402.54	63	79	73	92
			0.875	22.2	291.14	132.06	432.93	68	85	79	99
			0.938	23.8	311.47	141.28	463.19	73	91	85	106
			1.000	25.4	331.39	150.32	493.32	78	97	90	113
			1.062	27.0	351.23	159.31	523.33	82	103	96	120

API 5L - 2000

Hydrostatic Test Pressure (Kpa×100)															
X42		X46		X52		X56		X60		X65		X70		X80	
Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.
117	-	128	-	145	-	155	-	167	-	180	-	194	-	207	222
128	-	140	-	159	-	171	-	183	-	198	-	207	214	207	245
140	-	153	-	174	-	187	-	200	-	207	217	207	234	207	250
151	-	165	-	187	-	201	-	207	216	207	234	207	250	207	250
163	-	178	-	202	-	207	217	207	233	207	250	207	250	207	250
175	-	191	-	207	216	207	233	207	249	207	250	207	250	207	250
186	-	204	-	207	231	207	248	207	250	207	250	207	250	207	250
44	-	48	-	54	-	58	-	63	-	68	-	73	-	83	-
49	-	53	-	60	-	65	-	69	-	75	-	81	-	93	-
54	-	59	-	67	-	72	-	77	-	84	-	90	-	103	-
60	-	65	-	74	-	79	-	85	-	92	-	99	-	113	-
65	-	71	-	81	-	87	-	93	-	101	-	108	-	124	-
71	-	77	-	87	-	94	-	101	-	109	-	118	-	134	-
76	-	83	-	94	-	101	-	109	-	117	-	127	-	145	-
82	-	89	-	101	-	109	-	116	-	126	-	136	-	155	-
87	-	95	-	108	-	116	-	124	-	134	-	145	-	166	-
98	-	107	-	121	-	130	-	140	-	151	-	163	-	186	-
109	-	119	-	135	-	145	-	155	-	168	-	181	-	207	-
120	-	131	-	148	-	160	-	171	-	185	-	200	-	207	228
131	-	143	-	162	-	174	-	187	-	202	-	207	218	207	249
141	-	154	-	175	-	188	-	201	-	207	218	207	235	207	250
152	-	166	-	188	-	202	-	207	217	207	235	207	250	207	250
163	-	178	-	202	-	207	217	207	233	207	250	207	250	207	250
174	-	190	-	207	215	207	232	207	248	207	250	207	250	207	250
41	-	45	-	51	-	55	-	59	-	63	-	68	-	78	-
46	-	50	-	56	-	61	-	65	-	70	-	76	-	87	-
51	-	55	-	63	-	68	-	72	-	78	-	84	-	97	-
56	-	61	-	69	-	74	-	80	-	86	-	93	-	106	-
61	-	67	-	76	-	81	-	87	-	94	-	102	-	116	-
66	-	72	-	82	-	88	-	94	-	102	-	110	-	126	-
71	-	78	-	88	-	95	-	102	-	110	-	119	-	136	-
76	-	84	-	95	-	102	-	109	-	118	-	127	-	145	-
82	-	89	-	101	-	109	-	116	-	126	-	136	-	155	-
92	-	100	-	114	-	122	-	131	-	142	-	153	-	175	-
102	-	112	-	126	-	136	-	146	-	158	-	170	-	194	-
112	-	123	-	139	-	150	-	160	-	174	-	187	-	207	214
123	-	134	-	152	-	163	-	175	-	189	-	204	-	207	233
132	-	145	-	164	-	176	-	189	-	204	-	207	220	207	250
143	-	156	-	176	-	190	-	203	-	207	220	207	237	207	250
153	-	167	-	189	-	203	-	207	218	207	236	207	250	207	250
163	-	178	-	202	-	207	217	207	233	207	250	207	250	207	250
173	-	189	-	207	215	207	231	207	247	207	250	207	250	207	250

— Continued —

Size					Weight						
Outside Diameter		Wall Thickness			lb/ft	kg/ft	kg/m	A		B	
in.	mm	Sch No.	in.	mm				Std.	Alt.	Std.	Alt.
34	864.0		0.250	6.4	90.20	40.91	135.35	18	23	21	27
			0.281	7.1	101.29	45.94	150.03	20	26	24	30
			0.312	7.9	112.26	50.97	166.78	23	28	26	33
			0.344	8.7	123.77	56.14	183.50	25	31	29	36
			0.375	9.5	134.79	61.14	200.18	27	34	32	40
			0.406	10.3	145.80	66.13	216.84	30	37	34	43
			0.438	11.1	157.14	71.28	233.46	32	40	37	46
			0.469	11.9	168.11	76.25	250.05	34	43	40	50
			0.500	12.7	179.06	81.22	266.61	37	46	43	53
			0.562	14.3	200.89	91.12	299.64	41	51	48	60
			0.625	15.9	222.99	101.15	332.53	46	57	53	67
			0.688	17.5	245.00	111.13	365.31	50	63	59	73
			0.750	19.1	266.58	120.92	397.95	55	69	64	80
			0.812	20.6	288.08	130.67	428.44	59	74	69	86
			0.875	22.2	309.84	140.54	460.85	64	80	74	93
			0.938	23.8	331.52	150.37	493.12	68	86	80	100
			1.000	25.4	352.77	160.01	525.27	73	91	85	106
			1.062	27.0	373.94	169.62	557.29	78	97	90	113
36	914.0		0.250	6.4	95.54	43.34	143.24	17	22	20	25
			0.281	7.1	107.30	48.67	158.79	19	24	22	28
			0.312	7.9	119.03	53.99	176.52	21	27	25	31
			0.344	8.7	131.12	59.48	194.22	24	30	28	34
			0.375	9.5	142.81	64.78	211.90	26	32	30	38
			0.406	10.3	154.48	70.07	229.54	28	35	33	41
			0.438	11.1	166.51	75.53	247.15	30	38	35	44
			0.469	11.9	178.14	80.80	264.72	32	40	38	47
			0.500	12.7	189.75	86.07	282.27	35	43	40	50
			0.562	14.3	212.90	96.57	317.27	39	49	45	57
			0.625	15.9	236.35	107.21	352.14	43	54	50	63
			0.688	17.5	259.71	117.80	386.88	48	59	55	69
			0.750	19.1	282.62	128.19	421.50	52	65	60	76
			0.812	20.6	305.44	138.54	453.84	56	70	65	81
			0.875	22.2	328.55	149.03	488.22	60	75	70	88
			0.938	23.8	351.57	159.47	522.47	65	81	75	94
			1.000	25.4	374.15	169.71	556.59	69	86	80	100
			1.062	27.0	396.64	179.91	590.58	73	92	85	107
38	965.0		0.344	8.7	138.47	62.81	205.17	22	28	26	33
			0.375	9.5	150.83	68.42	223.84	24	31	28	36
			0.406	10.3	163.16	74.01	242.49	27	33	31	39
			0.438	11.1	175.87	79.77	261.11	29	36	33	42
			0.469	11.9	187.17	85.35	279.69	31	38	36	45
			0.500	12.7	200.44	90.92	298.24	33	41	38	48

API 5L - 2000

Hydrostatic Test Pressure (Kpa×100)															
X42		X46		X52		X56		X60		X65		X70		X80	
Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.
39	-	42	-	48	-	51	-	55	-	60	-	64	-	74	-
43	-	47	-	53	-	57	-	61	-	66	-	71	-	82	-
48	-	52	-	59	-	64	-	68	-	74	-	79	-	91	-
53	-	57	-	65	-	70	-	75	-	81	-	88	-	100	-
57	-	63	-	71	-	76	-	82	-	89	-	96	-	109	-
62	-	68	-	77	-	83	-	89	-	96	-	103	-	118	-
67	-	73	-	83	-	89	-	96	-	104	-	112	-	128	-
72	-	79	-	89	-	96	-	103	-	111	-	120	-	137	-
77	-	84	-	95	-	102	-	110	-	119	-	128	-	146	-
86	-	94	-	107	-	115	-	123	-	133	-	144	-	164	-
96	-	105	-	119	-	128	-	137	-	148	-	160	-	183	-
106	-	116	-	131	-	141	-	151	-	163	-	176	-	201	-
115	-	126	-	143	-	154	-	165	-	178	-	192	-	207	220
124	-	136	-	154	-	166	-	178	-	192	-	207	-	207	237
134	-	147	-	166	-	179	-	191	-	207	-	207	223	207	250
144	-	157	-	178	-	191	-	205	-	207	222	207	239	207	250
153	-	168	-	190	-	204	-	207	-	207	237	207	250	207	250
163	-	178	-	202	-	207	217	207	233	207	250	207	250	207	250
37	-	40	-	45	-	49	-	52	-	56	-	61	-	70	-
41	-	44	-	50	-	54	-	58	-	63	-	68	-	77	-
45	-	49	-	56	-	60	-	64	-	70	-	75	-	86	-
50	-	54	-	62	-	66	-	71	-	77	-	83	-	95	-
54	-	59	-	67	-	72	-	77	-	84	-	90	-	103	-
59	-	64	-	73	-	78	-	84	-	91	-	98	-	112	-
63	-	69	-	78	-	84	-	91	-	98	-	106	-	121	-
68	-	74	-	84	-	90	-	97	-	105	-	113	-	129	-
73	-	79	-	90	-	97	-	104	-	112	-	121	-	138	-
82	-	89	-	101	-	109	-	117	-	126	-	136	-	155	-
91	-	99	-	112	-	121	-	130	-	140	-	151	-	173	-
100	-	109	-	124	-	133	-	143	-	154	-	166	-	190	-
109	-	119	-	135	-	145	-	156	-	169	-	182	-	207	208
118	-	129	-	146	-	157	-	168	-	182	-	196	-	207	224
127	-	139	-	157	-	169	-	181	-	196	-	207	211	207	241
136	-	149	-	168	-	181	-	194	-	207	210	207	226	207	250
145	-	159	-	180	-	193	-	207	-	207	224	207	242	207	250
154	-	169	-	191	-	205	-	207	220	207	238	207	250	207	250
47	-	51	-	58	-	63	-	67	-	73	-	78	-	90	-
51	-	56	-	64	-	68	-	73	-	79	-	86	-	98	-
56	-	61	-	69	-	74	-	80	-	86	-	93	-	106	-
60	-	66	-	74	-	80	-	86	-	93	-	100	-	114	-
64	-	70	-	80	-	86	-	92	-	99	-	107	-	123	-
69	-	75	-	85	-	91	-	98	-	106	-	114	-	131	-

— Continued —

Size					Weight						
Outside Diameter		Wall Thickness			lb/ft	kg/ft	kg/m	A		B	
in.	mm	Sch No.	in.	mm				Std.	Alt.	Std.	Alt.
38	965.0		0.562	14.3	224.92	102.02	335.25	37	46	43	54
			0.625	15.9	249.71	113.27	372.14	41	51	48	60
			0.688	17.5	274.42	124.47	408.89	45	56	52	60
			0.750	19.1	298.65	135.47	445.52	49	61	57	72
			0.812	20.6	322.80	146.42	479.75	53	66	62	77
			0.875	22.2	347.26	157.51	516.14	57	71	67	83
			0.938	23.8	371.63	168.57	552.40	61	77	71	89
			1.000	25.4	395.53	179.41	588.53	65	82	76	95
40	1016.0		0.312	7.9	132.37	60.04	196.39	19	24	22	28
			0.344	8.7	145.83	66.15	216.11	21	27	25	31
			0.375	9.5	158.85	72.05	235.79	23	29	27	34
			0.406	10.3	171.84	77.95	255.45	25	31	29	37
			0.438	11.1	185.24	84.02	275.07	27	34	32	39
			0.469	11.9	198.19	88.90	294.66	29	36	34	42
			0.500	12.7	211.13	95.77	314.22	31	39	36	45
			0.562	14.3	236.93	107.47	353.24	35	44	41	51
			0.625	15.9	263.07	119.33	392.13	39	49	45	57
			0.688	17.5	289.13	131.15	430.90	43	53	50	62
			0.750	19.1	314.69	142.74	469.55	47	58	54	68
			0.812	20.6	340.16	154.29	505.66	50	63	59	73
			0.875	22.2	365.97	166.00	544.06	54	68	63	79
			0.938	23.8	391.68	177.66	582.33	58	73	68	85
			1.000	25.4	416.91	189.11	620.48	62	78	72	90
42	1067.0		0.344	8.7	153.18	69.48	227.05	20	25	24	29
			0.375	9.5	166.86	75.69	247.74	22	28	26	32
			0.406	10.3	180.52	81.88	268.40	24	30	28	35
			0.438	11.1	194.60	88.27	289.03	26	32	30	38
			0.469	11.9	208.22	94.45	309.62	28	35	32	40
			0.500	12.7	221.82	100.62	330.19	30	37	34	43
			0.562	14.3	248.95	112.92	371.22	33	42	39	48
			0.625	15.9	276.44	125.39	412.13	37	46	43	54
			0.688	17.5	303.84	137.82	452.91	41	51	48	59
			0.750	19.1	330.72	150.01	493.57	44	56	52	65
			0.812	20.6	357.52	162.17	531.57	48	60	56	70
			0.875	22.2	384.67	174.48	571.98	52	65	60	75
			0.938	23.8	411.74	186.76	612.26	55	69	65	81
			1.000	25.4	438.29	198.80	652.42	59	74	69	86
44	1118.0		0.344	8.7	160.54	72.82	237.99	19	24	23	28
			0.375	9.5	174.88	79.32	259.69	21	26	25	31
			0.406	10.3	189.20	85.82	281.35	23	29	27	33
			0.438	11.1	203.97	92.52	302.99	25	31	29	36
			0.469	11.9	218.25	99.00	324.59	26	33	31	38

Hydrostatic Test Pressure (Kpa×100)															
X42		X46		X52		X56		X60		X65		X70		X80	
Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.
77	-	85	-	96	-	103	-	110	-	119	-	129	-	147	-
86	-	94	-	106	-	114	-	123	-	133	-	143	-	164	-
95	-	103	-	117	-	126	-	135	-	146	-	158	-	180	-
103	-	113	-	128	-	138	-	147	-	160	-	172	-	197	-
111	-	122	-	138	-	148	-	159	-	172	-	186	-	207	212
120	-	131	-	149	-	160	-	171	-	186	-	200	-	207	229
129	-	141	-	159	-	171	-	184	-	199	-	207	214	207	245
137	-	150	-	170	-	183	-	196	-	207	212	207	229	207	250
41	-	44	-	50	-	54	-	58	-	63	-	68	-	77	-
45	-	49	-	55	-	59	-	64	-	69	-	74	-	85	-
49	-	53	-	60	-	65	-	70	-	75	-	81	-	93	-
53	-	58	-	66	-	70	-	76	-	82	-	88	-	101	-
57	-	62	-	71	-	76	-	81	-	88	-	95	-	109	-
61	-	67	-	76	-	81	-	87	-	94	-	102	-	116	-
65	-	71	-	81	-	87	-	93	-	101	-	109	-	124	-
73	-	80	-	91	-	98	-	105	-	113	-	122	-	140	-
82	-	89	-	101	-	109	-	117	-	126	-	136	-	155	-
90	-	98	-	111	-	120	-	128	-	139	-	150	-	171	-
98	-	107	-	121	-	131	-	140	-	152	-	163	-	187	-
106	-	116	-	131	-	141	-	151	-	164	-	176	-	201	-
114	-	125	-	141	-	152	-	163	-	176	-	190	-	207	217
122	-	134	-	151	-	163	-	175	-	189	-	204	-	207	233
131	-	143	-	162	-	174	-	186	-	202	-	207	217	207	248
43	-	47	-	53	-	57	-	61	-	66	-	71	-	81	-
47	-	51	-	58	-	62	-	66	-	72	-	77	-	88	-
50	-	55	-	62	-	67	-	72	-	78	-	84	-	96	-
54	-	59	-	67	-	72	-	78	-	84	-	90	-	103	-
58	-	64	-	72	-	77	-	83	-	90	-	97	-	111	-
62	-	68	-	77	-	83	-	89	-	96	-	103	-	118	-
70	-	76	-	87	-	93	-	100	-	108	-	117	-	133	-
78	-	85	-	96	-	104	-	111	-	120	-	130	-	148	-
85	-	94	-	105	-	114	-	122	-	132	-	142	-	163	-
93	-	102	-	116	-	124	-	133	-	144	-	156	-	178	-
101	-	110	-	125	-	134	-	144	-	156	-	168	-	192	-
109	-	119	-	134	-	145	-	155	-	168	-	181	-	207	-
116	-	127	-	144	-	155	-	166	-	180	-	194	-	207	222
124	-	136	-	154	-	165	-	177	-	192	-	207	-	207	237
41	-	44	-	50	-	54	-	58	-	63	-	68	-	77	-
44	-	48	-	55	-	59	-	63	-	69	-	74	-	84	-
48	-	53	-	60	-	64	-	69	-	74	-	80	-	92	-
52	-	57	-	64	-	69	-	74	-	80	-	86	-	99	-
56	-	61	-	69	-	74	-	79	-	86	-	93	-	106	-

— Continued —

Size					Weight						
Outside Diameter		Wall Thickness			lb/ft	kg/ft	kg/m	A		B	
in.	mm	Sch No.	in.	mm				Std.	Alt.	Std.	Alt.
44	1118.0		0.500	12.7	232.51	105.46	346.16	28	35	33	41
			0.562	14.3	260.97	118.37	389.21	32	40	37	46
			0.625	15.9	289.80	131.45	432.13	35	44	41	51
			0.688	17.5	318.55	144.49	474.92	39	49	45	57
			0.750	19.1	346.76	157.29	517.59	42	53	49	62
			0.812	20.6	374.88	170.04	557.47	46	57	53	67
			0.875	22.2	403.38	182.97	599.90	49	62	57	72
			0.938	23.8	431.79	195.86	642.19	53	66	62	77
			1.000	25.4	459.67	208.50	684.37	56	71	66	82
46	1168.0		0.344	8.7	167.89	76.15	248.72	19	23	22	27
			0.375	9.5	182.90	82.96	271.40	20	25	24	29
			0.406	10.3	197.88	89.76	294.05	22	27	26	32
			0.438	11.1	213.33	96.76	316.67	24	30	27	34
			0.469	11.9	228.27	103.54	339.26	25	32	29	37
			0.500	12.7	243.20	110.31	361.82	27	34	31	39
			0.562	14.3	272.98	123.82	406.84	30	38	35	44
			0.625	15.9	303.16	137.51	451.73	34	42	39	49
			0.688	17.5	333.26	151.16	496.50	37	47	43	54
			0.750	19.1	362.79	164.56	541.14	41	51	47	59
			0.812	20.6	392.24	177.92	582.87	44	55	51	64
			0.875	22.2	422.09	191.46	627.27	47	59	55	69
			0.938	23.8	451.85	204.95	671.54	51	63	59	74
			1.000	25.4	481.05	218.20	715.68	54	68	63	79
48	1219.0		0.344	8.7	175.25	79.49	259.66	18	22	21	26
			0.375	9.5	190.92	86.60	283.35	19	24	23	28
			0.406	10.3	206.56	93.69	307.01	21	26	24	31
			0.438	11.1	222.70	101.02	330.63	23	28	26	33
			0.469	11.9	238.30	108.09	354.23	24	30	28	35
			0.500	12.7	253.89	115.16	377.79	26	32	30	38
			0.562	14.3	285.00	129.27	424.82	29	36	34	42
			0.625	15.9	316.52	143.57	471.73	32	41	38	47
			0.688	17.5	347.97	157.84	518.51	36	45	42	52
			0.750	19.1	378.83	171.83	565.16	39	49	45	57
			0.812	20.6	409.61	185.80	608.78	42	52	49	61
			0.875	22.2	440.80	199.94	655.19	45	57	53	66
			0.938	23.8	471.90	214.05	701.47	48	61	56	71
			0.100	25.4	502.43	227.90	747.63	52	65	60	75
52	1321.0		0.375	9.5	206.95	93.87	307.25	18	22	21	26
			0.406	10.3	223.93	101.57	332.92	19	24	23	28
			0.438	11.1	241.42	109.51	358.55	21	26	24	30
			0.469	11.9	258.36	117.19	384.16	22	28	26	33
			0.500	12.7	275.27	124.86	409.74	24	30	28	35
			0.562	14.3	309.03	140.17	460.79	27	34	31	39

API 5L - 2000

Hydrostatic Test Pressure (Kpa×100)															
X42		X46		X52		X56		X60		X65		X70		X80	
Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.
59	-	65	-	73	-	79	-	85	-	92	-	99	-	113	-
67	-	73	-	83	-	89	-	95	-	103	-	111	-	127	-
74	-	81	-	92	-	99	-	106	-	115	-	124	-	141	-
82	-	89	-	101	-	109	-	117	-	126	-	136	-	156	-
89	-	97	-	110	-	119	-	127	-	138	-	149	-	170	-
96	-	105	-	119	-	128	-	137	-	149	-	160	-	183	-
104	-	113	-	128	-	138	-	148	-	160	-	173	-	197	-
111	-	121	-	138	-	148	-	159	-	172	-	185	-	207	212
119	-	130	-	147	-	158	-	169	-	183	-	198	-	207	226
39	-	43	-	48	-	52	-	56	-	60	-	65	-	74	-
42	-	46	-	53	-	57	-	61	-	66	-	71	-	81	-
46	-	50	-	57	-	61	-	66	-	71	-	77	-	88	-
50	-	54	-	61	-	66	-	71	-	77	-	83	-	94	-
53	-	58	-	66	-	71	-	76	-	82	-	89	-	101	-
57	-	62	-	70	-	76	-	81	-	88	-	95	-	108	-
64	-	70	-	79	-	85	-	91	-	99	-	106	-	122	-
71	-	78	-	88	-	95	-	101	-	110	-	118	-	135	-
78	-	85	-	97	-	104	-	112	-	121	-	130	-	149	-
85	-	93	-	106	-	114	-	122	-	132	-	142	-	162	-
92	-	101	-	114	-	123	-	131	-	142	-	153	-	175	-
99	-	108	-	123	-	132	-	142	-	153	-	165	-	189	-
106	-	116	-	132	-	142	-	152	-	164	-	177	-	202	-
114	-	124	-	141	-	151	-	162	-	175	-	189	-	207	216
37	-	41	-	46	-	50	-	53	-	58	-	62	-	71	-
41	-	44	-	50	-	54	-	58	-	63	-	68	-	77	-
44	-	48	-	55	-	59	-	63	-	68	-	73	-	84	-
48	-	52	-	59	-	63	-	68	-	73	-	79	-	90	-
51	-	56	-	63	-	68	-	73	-	79	-	85	-	97	-
54	-	59	-	67	-	72	-	78	-	84	-	91	-	104	-
61	-	67	-	76	-	82	-	87	-	95	-	102	-	117	-
68	-	74	-	84	-	91	-	97	-	105	-	113	-	130	-
75	-	82	-	93	-	100	-	107	-	116	-	125	-	143	-
82	-	89	-	101	-	109	-	117	-	126	-	136	-	156	-
88	-	96	-	109	-	117	-	126	-	136	-	147	-	168	-
95	-	104	-	118	-	127	-	136	-	147	-	158	-	181	-
102	-	111	-	126	-	136	-	145	-	157	-	170	-	194	-
109	-	119	-	135	-	145	-	155	-	168	-	181	-	207	-
38	-	41	-	46	-	50	-	54	-	58	-	63	-	71	-
41	-	44	-	50	-	54	-	58	-	63	-	68	-	77	-
44	-	48	-	54	-	58	-	63	-	68	-	73	-	83	-
47	-	51	-	58	-	63	-	67	-	73	-	78	-	90	-
50	-	55	-	62	-	67	-	72	-	78	-	84	-	96	-
57	-	62	-	70	-	75	-	81	-	87	-	94	-	108	-

— Continued —

Size					Weight						
Outside Diameter		Wall Thickness			lb/ft	kg/ft	kg/m	A		B	
in.	mm	Sch No.	in.	mm				Std.	Alt.	Std.	Alt.
52	1321.0		0.625	15.9	343.25	155.70	511.72	30	37	35	44
			0.688	17.5	377.39	171.18	562.53	33	41	38	48
			0.750	19.1	410.90	186.38	613.20	36	45	42	52
			0.812	20.6	444.33	201.54	660.60	39	48	45	56
			0.875	22.2	478.21	216.91	711.03	42	52	49	61
			0.938	23.8	512.01	232.24	761.34	45	56	52	65
			1.000	25.4	545.19	247.29	811.52	48	60	56	70
56	1422.0		0.375	9.5	222.99	101.15	330.91	17	21	19	24
			0.406	10.3	241.29	109.45	358.57	18	22	21	26
			0.438	11.1	260.15	118.00	386.20	19	24	23	28
			0.469	11.9	278.41	126.28	413.80	21	26	24	30
			0.500	12.7	296.65	134.56	441.37	22	28	26	32
			0.562	14.3	333.06	151.07	496.41	25	31	29	36
			0.625	15.9	369.97	167.82	551.32	28	35	32	40
			0.688	17.5	406.80	184.52	606.11	31	38	36	44
			0.750	19.1	442.97	200.93	660.77	33	42	39	49
			0.812	20.6	479.05	217.29	711.91	36	45	42	52
			0.875	22.2	515.63	233.88	766.32	39	48	45	56
			0.938	23.8	552.12	250.44	820.61	42	52	48	61
			1.000	25.4	587.95	266.69	874.78	44	55	52	65
60	1524.0		0.375	9.5	239.02	108.42	354.80	15	19	18	23
			0.406	10.3	258.65	117.32	384.48	17	21	20	24
			0.438	11.1	278.88	126.50	414.12	18	23	21	26
			0.469	11.9	298.47	135.38	443.73	19	24	23	28
			0.500	12.7	318.03	144.26	473.31	21	26	24	30
			0.562	14.3	357.09	161.97	532.38	23	29	27	34
			0.625	15.9	396.70	179.94	591.32	26	32	30	38
			0.688	17.5	436.22	197.87	650.13	29	36	33	42
			0.750	19.1	475.04	215.47	708.82	31	39	36	45
			0.812	20.6	513.77	233.04	763.72	34	42	39	49
			0.875	22.2	553.03	250.85	822.16	36	45	42	53
			0.938	23.8	592.23	268.63	880.48	39	48	45	56
			1.000	25.4	630.71	286.08	938.67	41	52	48	60

API 5L - 2000

Hydrostatic Test Pressure (Kpa×100)															
X42		X46		X52		X56		X60		X65		X70		X80	
Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.
63	-	69	-	78	-	84	-	90	-	97	-	105	-	120	-
69	-	76	-	86	-	92	-	99	-	107	-	115	-	132	-
75	-	83	-	93	-	100	-	108	-	117	-	126	-	144	-
81	-	89	-	101	-	108	-	116	-	126	-	136	-	155	-
88	-	96	-	109	-	117	-	125	-	136	-	146	-	167	-
94	-	103	-	116	-	125	-	134	-	145	-	157	-	179	-
100	-	110	-	124	-	134	-	143	-	155	-	167	-	191	-
35	-	38	-	43	-	46	-	50	-	54	-	58	-	66	-
38	-	41	-	47	-	50	-	54	-	58	-	63	-	72	-
41	-	45	-	50	-	54	-	58	-	63	-	68	-	78	-
44	-	48	-	54	-	58	-	62	-	67	-	73	-	83	-
47	-	51	-	58	-	62	-	67	-	72	-	78	-	89	-
52	-	57	-	65	-	70	-	75	-	81	-	87	-	100	-
58	-	64	-	72	-	78	-	83	-	90	-	97	-	111	-
64	-	70	-	80	-	86	-	92	-	99	-	107	-	122	-
70	-	77	-	87	-	93	-	100	-	108	-	117	-	133	-
76	-	83	-	94	-	101	-	108	-	117	-	126	-	144	-
81	-	89	-	101	-	108	-	116	-	126	-	136	-	155	-
87	-	96	-	108	-	116	-	125	-	135	-	146	-	166	-
93	-	102	-	115	-	124	-	133	-	144	-	155	-	177	-
33	-	36	-	40	-	43	-	46	-	50	-	54	-	62	-
35	-	39	-	44	-	47	-	50	-	55	-	59	-	67	-
38	-	42	-	47	-	51	-	54	-	59	-	63	-	72	-
41	-	45	-	50	-	54	-	58	-	63	-	68	-	78	-
44	-	48	-	54	-	58	-	62	-	67	-	72	-	83	-
49	-	54	-	61	-	65	-	70	-	76	-	82	-	93	-
54	-	60	-	67	-	72	-	78	-	84	-	91	-	104	-
60	-	66	-	74	-	80	-	86	-	93	-	100	-	114	-
65	-	72	-	81	-	87	-	93	-	101	-	109	-	125	-
70	-	77	-	87	-	94	-	101	-	109	-	118	-	134	-
76	-	83	-	94	-	101	-	109	-	117	-	127	-	145	-
82	-	89	-	101	-	109	-	116	-	126	-	136	-	155	-
87	-	95	-	108	-	116	-	124	-	134	-	145	-	166	-

Casing(Group1)

API 5CT - 2001

Size				Nominal Weight						Test Pressure(psi)				Type of Thread		
Outside Diameter		Wall Thickness		Plain ends			Threads and Couplings			H-40		J-55&K-55		Short	Long	Butt-ress
in.	mm	in.	mm	lb/ft	kg/ft	kg/m	lb/ft	kg/ft	kg/m	Std.	Alt.	Std.	Alt.			
4 1/2	114.3	0.205	5.21	9.41	4.26	13.99	9.50	4.31	14.14	2,900	-	3,000	4,000	×		
		0.224	5.69	10.24	4.64	15.22	10.50	4.76	15.63			3,000	4,400	×		×
		0.250	6.35	11.36	5.15	16.89	11.60	5.26	17.26			3,000	4,900	×	×	×
5	127.0	0.220	5.59	11.24	5.09	16.71	11.50	5.22	17.11			3,000	3,900	×		
		0.253	6.43	12.84	5.82	19.09	13.00	5.90	19.35			3,000	4,500	×	×	×
		0.296	7.52	14.88	6.74	22.13	15.00	6.80	22.32			3,000	5,200	×	×	×
5 1/2	139.7	0.244	6.20	13.71	6.21	20.39	14.00	6.35	20.83	2,800	-	3,000	3,900	×		
		0.275	6.98	15.36	6.96	22.84	15.50	7.03	23.07			3,000	4,400	×	×	×
		0.304	7.72	16.89	7.65	25.11	17.00	7.71	25.30			3,000	4,900	×	×	×
6 5/8	168.3	0.288	7.32	19.51	8.84	29.01	20.00	9.07	29.76	2,800	-	-	-	×		
		0.288	7.32	19.51	8.84	29.01	20.00	9.07	29.76			3,000	3,800	×	×	×
		0.352	8.94	23.60	10.70	35.09	24.00	10.89	35.72			3,000	4,700	×	×	×
7	177.8	0.231	5.87	16.72	7.57	24.85	17.00	7.71	25.30	2,100	-	-	-	×		
		0.272	6.91	19.56	8.86	29.08	20.00	9.07	29.76	2,500	-	3,000	3,400	×		
		0.317	8.05	22.65	10.26	33.68	23.00	10.43	34.23			3,000	4,000	×	×	×
		0.362	9.19	25.69	11.64	38.19	26.00	11.79	38.69			3,000	4,600	×	×	×
7 5/8	193.7	0.300	7.62	23.49	10.65	34.95	24.00	10.89	35.72	2,500	-	-	-	×		
		0.328	8.33	25.59	11.59	38.04	26.40	11.97	39.29			3,000	3,800	×	×	×
8 5/8	219.1	0.264	6.71	23.60	10.69	35.08	24.00	10.89	35.72			2,700	-	×		
		0.304	7.72	27.04	12.26	40.21	28.00	12.70	41.67	2,300	-	-	-	×		
		0.352	8.94	31.13	14.11	46.28	32.00	14.51	47.62	2,600				×		
		0.352	8.94	31.13	14.11	46.28	32.00	14.51	47.62			3,000	3,600	×	×	×
		0.400	10.16	35.17	15.94	52.30	36.00	16.33	53.58			3,000	4,100	×	×	×
9 5/8	244.5	0.312	7.92	31.06	14.07	46.18	32.30	14.65	48.07	2,100	-	-	-	×		
		0.352	8.94	34.89	15.81	51.88	36.00	16.33	53.58	2,300	-	-	-	×		
		0.352	8.94	34.89	15.81	51.88	36.00	16.33	53.58			3,000	3,200	×	×	×
		0.395	10.03	38.97	17.66	57.95	40.00	18.14	59.53			3,000	3,600	×	×	×
10 3/4	273.0	0.279	7.09	31.23	14.15	46.43	32.75	14.86	48.74	1,200	1,700	-	-	×		
		0.350	8.89	38.91	17.64	57.86	40.50	18.37	60.27	1,600	2,100	-	-	×		
		0.350	8.89	38.91	17.64	57.86	40.50	18.37	60.27			2,100	2,900	×		×
		0.400	10.16	44.26	20.06	65.81	45.50	20.64	67.71			2,500	3,300	×		×
		0.450	11.43	49.55	22.45	73.67	51.00	23.13	75.90			2,800	3,700	×		×
11 3/4	298.4	0.333	8.46	40.64	18.42	60.42	42.00	19.05	62.50	1,400	1,800	-	-	×		
		0.375	9.52	45.60	20.67	67.80	47.00	21.32	69.95			2,100	2,800	×		×
		0.435	11.05	52.62	23.85	78.23	54.00	24.49	80.36			2,400	3,300	×		×
		0.489	12.42	58.87	26.68	87.52	60.00	27.22	89.29			2,700	3,700	×		×
13 3/8	339.7	0.330	8.38	46.02	20.86	68.43	48.00	21.77	71.43	1,200	1,600	-	-	×		
		0.380	9.65	52.79	23.92	78.49	54.50	24.72	81.11			1,900	2,500	×		×
		0.430	10.92	59.50	26.97	88.47	61.00	27.67	90.78			2,100	2,800	×		×
		0.480	12.19	66.17	29.99	98.38	68.00	30.84	101.20			2,400	3,200	×		×
16	406.4	0.375	9.52	62.64	28.39	93.13	65.00	29.48	96.73	1,100	-	-	-	×		
		0.438	11.13	72.86	32.99	108.22	75.00	34.02	111.62			1,800	-	×		×
		0.495	12.57	82.05	37.18	121.99	84.00	38.10	125.01			2,000	-	×		×
18 5/8	473.1	0.435	11.05	84.59	38.33	125.77	87.50	39.69	130.22	1,100	-	-	-	×		
		0.435	11.05	84.59	38.33	125.77	87.50	39.69	130.22			1,500	-	×		×
20	508.0	0.438	11.13	91.59	41.51	136.19	94.00	42.64	139.89	1,100	-	-	-	×	×	
		0.438	11.13	91.59	41.51	136.19	94.00	42.64	139.89			1,400	-	×	×	×
		0.500	12.70	104.23	47.23	154.97	106.50	48.31	158.49			1,600	-	×	×	×

Tubing(Group1)

API 5CT - 2001

Size				Nominal Weight						Test Pressure(psi)				Type of Ends
Outside Diameter		Wall Thickness		Plain ends			Threads and Couplings			H-40		J-55&K-55		
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	1.47	4.84	3,000	4,800	3,000	6,700	Integral Joint
2 3/8	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	4.44	2.01	6.59	4.60	2.09	6.85	3,000	5,100	3,000	7,000	Non-Upset
		0.190	4.83	4.44	2.01	6.59	4.70	2.13	6.99	3,000	5,100	3,000	7,000	Ext.Upset
2 7/8	73.0	0.217	5.51	6.17	2.79	9.17	6.40	2.90	9.52	3,000	4,800	3,000	6,600	Non-Upset
		0.217	5.51	6.17	2.79	9.17	6.50	2.95	9.67	3,000	4,800	3,000	6,600	Ext.Upset
3 1/2	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	Ext.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	9.92	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	9.12	4.13	13.56	9.50	4.31	14.14	3,000	3,600	3,000	5,000	Non-Upset
		0.262	6.65	10.47	4.74	15.57	11.0	4.99	16.37	3,000	4,200	3,000	5,800	Ext.Upset
4 1/2	114.3	0.271	6.88	12.25	5.55	18.22	12.60	5.72	18.75	3,000	3,900	3,000	5,300	Non-Upset
		0.271	6.88	12.25	5.55	18.22	12.75	5.78	18.97	3,000	3,900	3,000	5,300	Ext.Upset

Conduit Tubes

Rigid Metal Conduit

UL6-1996

Nominal Size	Nominal Inside Dia.		Outside Dia		Nominal Wall Thickness		Length Without Coupling		Weight	
in.	in.	mm	in.	mm	in.	mm	ft. & in.	m	P.E	T.C
1/2	0.632	16.05	0.840	21.34	0.104	2.64	9-11 1/4	3.03	0.371	0.376
3/4	0.836	21.23	1.050	26.67	0.107	2.72	9-11 1/4	3.03	0.490	0.499
1	1.049	26.64	1.315	33.40	0.126	3.20	9-11	3.02	0.726	0.739
1 1/4	1.380	35.05	1.660	42.16	0.133	3.38	9-11	3.02	0.985	1.000
1 1/2	1.610	40.89	1.900	48.26	0.138	3.51	9-11	3.02	1.181	1.200
2	2.067	52.50	2.375	60.33	0.146	3.71	9-11	3.02	1.579	1.610
2 1/2	2.469	62.71	2.875	73.03	0.193	4.90	9-10 1/2	3.01	2.509	2.590
3	3.068	77.93	3.500	88.90	0.205	5.21	9-10 1/2	3.01	3.277	3.370
3 1/2	3.548	90.12	4.000	101.60	0.215	5.46	9-10 1/4	3.00	3.945	4.100
4	4.026	102.26	4.500	114.30	0.225	5.72	9-10 1/4	3.00	4.668	4.790
5	5.047	128.19	5.563	141.30	0.245	6.22	9-10	3.00	6.315	6.510
6	6.065	154.05	6.625	168.28	0.266	6.76	9-10	3.00	8.207	8.520

Rigid Steel Conduit, Zinc Coated

ANSI C 80.1-1983

Nominal Size	Nominal Inside Dia.		Outside Dia		Nominal Wall Thickness		Length Without Coupling		Weight of Ten Unit Caupling Attached	
in.	in.	mm	in.	mm	in.	mm	ft. & in.	m	lb.	kg
3/8	0.493	12.5	0.675	17.1	0.091	2.31	9-11 1/2	3.04	51.5	23.36
1/2	0.632	16.1	0.840	21.3	0.104	2.64	9-11 1/4	3.03	79.0	35.83
3/4	0.836	21.2	1.050	26.7	0.107	2.72	9-11 1/4	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
1 1/4	1.394	35.4	1.660	42.2	0.133	3.38	9-11	3.02	201.0	91.17
1 1/2	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	150.60
2 1/2	2.489	63.2	2.875	73.0	0.193	4.90	9-10 1/2	3.01	527.0	239.05
3	3.090	78.5	3.500	88.9	0.205	5.21	9-10 1/2	3.01	682.6	309.63
3 1/2	3.570	90.7	4.000	101.6	0.215	5.46	9-10 1/4	3.00	831.0	376.94
4	4.050	102.9	4.500	114.3	0.225	5.72	9-10 1/4	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

KS Conduit Tubes(KSB 0223)

KS B 0223-1996

(Unit : mm)

Nominal Thread	Nominal Size	Number of Threads per inch	Pitch	Height of thread	External thread		
					Major Dia.	Pitch Dia.	Minor Dia.
					Internal thread		
					Major Dia.	Pitch Dia.	Minor Dia.
CTG 16	G 16	14	1.8143	1.017	20.955	19.793	18.922
CTG 22	G 22	14	1.8143	1.017	26.441	25.279	24.408
CTG 28	G 28	11	2.3091	1.294	33.249	31.770	30.661
CTG 36	G 36	11	2.3091	1.294	41.910	40.431	39.322
CTG 42	G 42	11	2.3091	1.294	47.803	46.324	45.215
CTG 54	G 54	11	2.3091	1.294	59.614	58.135	57.026
CTG 70	G 70	11	2.3091	1.294	75.184	73.705	72.596
CTG 82	G 82	11	2.3091	1.294	87.884	86.405	85.296
CTG 92	G 92	11	2.3091	1.294	100.330	98.851	97.742
CTG104	G 104	11	2.3091	1.294	113.030	111.551	110.442

Rigid Steel Conduit
Thick Steel Conduit Tubes

KS C 8401-1997
JIS C 8305-1992

Nominal Size	Outside Dia	Tolerance of Outside Dia.	Nominal Inside Dia.	Nominal Inside Dia.	Weight	Effective Length of Thread(mm)	
	mm	mm	mm	mm	kg/m	Max	Min
G 16	21.0	±0.3	2.3	16.4	1.06	19	16
G 22	26.5	±0.3	2.3	21.9	1.37	22	19
G 28	33.3	±0.3	2.5	28.3	1.90	25	22
G 36	41.9	±0.3	2.5	36.9	2.43	28	25
G 42	47.8	±0.3	2.5	42.8	2.79	28	25
G 54	59.6	±0.3	2.8	54.0	3.92	32	28
G 70	75.2	±0.3	2.8	69.6	5.00	36	32
G 82	87.9	±0.3	2.8	82.3	5.88	40	36
G 92	100.7	±0.4	3.5	93.7	8.39	42	36
G 104	113.4	±0.4	3.5	106.4	9.48	45	39

Carbon Steel Tubes For General Structural Purposes

Carbon Steel Tubes for General Structural Purposes(STK,SPS)

KS D 3566-1999
JIS G 3444-1994

Outside Diameter (mm)	Wall thickness (mm)	Weight (kg/m)	Reference			
			Area (cm^2)	Moment of inertia (cm^4)	Section modulus (cm^3)	Radius of Gyration (cm)
21.7	2.0	0.972	1.238	0.607	0.560	0.700
27.2	2.0	1.24	1.583	1.26	0.930	0.890
	2.3	1.41	1.799	1.41	1.03	0.880
34.0	2.3	1.80	2.291	2.89	1.70	1.12
42.7	2.3	2.29	2.919	5.97	2.80	1.43
	2.5	2.49	3.157	6.40	3.00	1.42
48.6	2.3	2.63	3.345	8.99	3.70	1.64
	2.5	2.84	3.621	9.65	3.97	1.63
	2.8	3.16	4.029	10.6	4.36	1.62
	3.2	3.58	4.564	11.8	4.86	1.61
60.5	2.3	3.30	4.205	17.8	5.90	2.06
	3.2	4.52	5.760	23.7	7.84	2.03
	4.0	5.57	7.100	28.5	9.41	2.00
76.3	2.8	5.08	6.465	43.7	11.5	2.60
	3.2	5.77	7.349	49.2	12.9	2.59
	4.0	7.13	9.085	59.5	15.6	2.56
89.1	2.8	5.96	7.591	70.7	15.9	3.05
	3.2	6.78	8.636	79.8	17.9	3.04
101.6	3.2	7.76	9.892	120	23.6	3.48
	4.0	9.63	12.26	146	28.8	3.45
	5.0	11.9	15.17	177	34.9	3.42
114.3	3.2	8.77	11.17	172	30.2	3.93
	3.6	9.83	12.52	192	33.6	3.92
	4.5	12.2	15.52	234	41.0	3.89
139.8	3.6	12.1	15.40	357	51.1	4.82
	4.0	13.4	17.07	394	56.3	4.80
	4.5	15.0	19.13	438	62.7	4.79
	6.0	19.8	25.22	566	80.9	4.74
165.2	4.5	17.8	22.72	734	88.9	5.68
	5.0	19.8	25.16	808	97.8	5.67
	6.0	23.6	30.01	952	115	5.63
	7.1	27.7	35.26	110×10	134	5.60
190.7	4.5	20.7	26.32	114×10	120	6.59
	5.3	24.2	30.87	133×10	139	6.56
	6.0	27.3	34.82	149×10	156	6.53
	7.0	31.7	40.40	171×10	179	6.50
	8.2	36.9	47.01	196×10	206	6.46
216.3	4.5	23.5	29.94	168×10	155	7.49
	5.8	30.1	38.36	213×10	197	7.45
	6.0	31.1	39.61	219×10	203	7.44
	7.0	36.1	46.03	252×10	233	7.40
	8.0	41.1	52.35	284×10	263	7.37
	8.2	42.1	53.61	291×10	269	7.36
267.4	6.0	38.7	49.27	421×10	315	9.24
	6.6	42.4	54.08	460×10	344	9.22
	7.0	45.0	57.27	486×10	363	9.21
	8.0	51.2	65.19	549×10	411	9.18
	9.0	57.4	73.06	611×10	457	9.14
	9.3	59.2	75.41	629×10	470	9.13
318.5	6.0	46.2	58.91	719×10	452	11.1
	6.9	53.0	67.55	820×10	515	11.0
	7.0	53.8	68.50	831×10	552	11.0
	8.0	61.3	78.04	941×10	591	11.0
	9.0	68.7	87.51	105×10^2	659	10.9
	10.3	78.3	99.73	119×10^2	744	10.9
355.6	6.4	55.1	70.21	107×10^2	602	12.3
	7.9	67.7	86.29	130×10^2	734	12.3
	9.0	76.9	98.00	147×10^2	828	12.3
	9.5	81.1	103.3	155×10^2	871	12.2
	12.0	102	129.5	191×10^2	108×10	12.2
	12.7	107	136.8	201×10^2	113×10	12.1

KS D 3566-1994
JIS G 3444-1994

Outside Diameter (mm)	Wall thickness (mm)	Weight (kg/m)	Reference			
			Area (cm^2)	Moment of inertia (cm^4)	Section modulus (cm^3)	Radius of Gyration (cm)
406.4	7.9	77.6	98.90	196×10^2	967	14.1
	9.0	88.2	112.4	222×10^2	109×10	14.1
	9.5	93.0	118.5	233×10^2	115×10	14.0
	12.0	117	148.7	289×10^2	142×10	14.0
	12.7	123	157.1	305×10^2	150×10	13.9
	16.0	154	196.2	374×10^2	184×10	13.8
	19.0	182	231.2	435×10^2	214×10	13.7
457.2	9.0	99.5	126.7	318×10^2	140×10	15.8
	9.5	105	133.6	335×10^2	147×10	15.8
	12.0	132	167.8	416×10^2	182×10	15.7
	12.7	139	177.3	438×10^2	192×10	15.7
	16.0	174	221.8	540×10^2	236×10	15.6
	19.0	205	261.8	629×10^2	275×10	15.5
500	9.0	109	138.8	418×10^2	167×10	17.4
	12.0	144	184.0	548×10^2	219×10	17.3
	14.0	168	213.8	632×10^2	253×10	17.2
508.0	7.9	97.4	124.1	388×10^2	153×10	17.7
	9.0	111	141.1	439×10^2	173×10	17.6
	9.5	117	148.8	462×10^2	180×10	17.6
	12.0	147	187.0	575×10^2	226×10	17.5
	12.7	155	197.6	606×10^2	239×10	17.5
	14.0	171	217.3	663×10^2	261×10	17.5
	16.0	194	247.3	749×10^2	295×10	17.4
	19.0	229	291.9	874×10^2	344×10	17.3
	22.0	264	335.9	994×10^2	391×10	17.2
558.8	9.0	122	155.5	588×10^2	210×10	19.4
	12.0	162	206.1	771×10^2	276×10	19.3
	16.0	214	272.8	101×10^3	360×10	19.2
	19.0	253	322.2	118×10^3	421×10	19.1
	22.0	291	371.0	134×10^3	479×10	19.0
600	9.0	131	167.1	730×10^2	243×10	20.9
	12.0	174	221.7	958×10^2	320×10	20.8
	14.0	202	257.7	111×10^3	369×10	20.7
	16.0	230	293.6	125×10^3	418×10	20.7
609.6	9.0	133	169.8	766×10^2	251×10	21.2
	9.5	141	179.1	806×10^2	265×10	21.2
	12.0	177	225.3	101×10^3	330×10	21.1
	12.7	187	238.2	106×10^3	348×10	21.1
	14.0	206	262.0	116×10^3	381×10	21.1
	16.0	234	298.4	132×10^3	432×10	21.0
	19.0	277	352.5	154×10^3	505×10	20.9
	22.0	319	406.1	176×10^3	576×10	20.8
700	9.0	153	195.4	117×10^3	333×10	24.4
	12.0	204	259.4	154×10^3	439×10	24.3
	14.0	237	301.7	178×10^3	507×10	24.3
	16.0	270	343.8	201×10^3	575×10	24.2
711.2	9.0	156	198.5	122×10^3	344×10	24.8
	12.0	207	263.6	161×10^3	453×10	24.7
	14.0	241	306.6	186×10^3	524×10	24.7
	16.0	274	349.4	211×10^3	594×10	24.6
	19.0	324	413.2	248×10^3	696×10	24.5
	22.0	374	476.3	283×10^3	796×10	24.4
812.8	9.0	178	227.3	184×10^3	452×10	28.4
	12.0	237	301.9	242×10^3	596×10	28.3
	14.0	276	351.3	280×10^3	690×10	28.2
	16.0	314	400.5	318×10^3	782×10	28.2
	19.0	372	473.8	373×10^3	919×10	28.1
	22.0	429	546.6	428×10^3	105×10^2	28.0
914.4	12.0	267	340.2	346×10^3	758×10	31.9
	14.0	311	396.0	401×10^3	878×10	31.8
	16.0	354	451.6	456×10^3	997×10	31.8
	19.0	420	534.5	536×10^3	117×10^2	31.7
	22.0	484	616.5	614×10^3	134×10^2	31.5
1,016.0	12.0	297	378.5	477×10^3	939×10	35.5
	14.0	346	440.7	553×10^3	109×10^2	35.4
	16.0	395	502.7	628×10^3	124×10^2	35.4
	19.0	467	595.1	740×10^3	146×10^2	35.2
	22.0	539	687.0	849×10^3	167×10^2	35.2

— Continued —

Carbon Steel Square Pipe for General Structural Purposes

KS D 3568-2001
JIS G 3466-1988

1. Square (SPSR, STKR)

Nominal Size (mm)	Wall thickness (mm)	Weight (kg/m)	Reference			
			Area (cm^2)	Moment of inertia (cm^4)	Section modulus (cm^3)	Radius of Gyration (cm)
				I_X, I_Y	Z_X, Z_Y	i_X, i_Y
40×40	1.6	1.88	2.392	5.79	2.90	1.56
40×40	2.3	2.62	3.332	7.73	3.86	1.52
50×50	1.6	2.38	3.032	11.7	4.68	1.96
50×50	2.3	3.34	4.252	15.9	6.34	1.93
50×50	3.2	4.50	5.727	20.4	8.16	1.89
60×60	1.6	2.88	3.672	20.7	6.89	2.37
60×60	2.3	4.06	5.172	28.3	9.44	2.34
60×60	3.2	5.50	7.007	36.9	12.3	2.30
75×75	1.6	3.64	4.632	41.3	11.0	2.99
75×75	2.3	5.14	6.552	57.1	15.2	2.95
75×75	3.2	7.01	8.927	75.5	20.1	2.91
75×75	4.5	9.55	12.17	98.6	26.3	2.85
80×80	2.3	5.50	7.012	69.9	17.5	3.16
80×80	3.2	7.51	9.567	92.7	23.2	3.11
80×80	4.5	10.3	13.07	122	30.4	3.05
90×90	2.3	6.23	7.932	101	22.4	3.56
90×90	3.2	8.51	10.85	135	29.9	3.52
100×100	2.3	6.95	8.852	140	27.9	3.97
100×100	3.2	9.52	12.13	187	37.5	3.93
100×100	4.0	11.7	14.95	226	45.3	3.89
100×100	4.5	13.1	16.67	249	49.9	3.87
100×100	6.0	17.0	21.63	311	62.3	3.79
100×100	9.0	24.1	30.67	408	81.6	3.65
100×100	12.0	30.2	38.53	471	94.3	3.50
125×125	3.2	12.0	15.33	376	60.1	4.95
125×125	4.5	16.6	21.17	506	80.9	4.89
125×125	5.0	18.3	23.36	553	88.4	4.86
125×125	6.0	21.7	27.63	641	103	4.82
125×125	9.0	31.1	39.67	865	138	4.67
125×125	12.0	39.7	50.53	103×10	165	4.52
150×150	4.5	20.1	25.67	896	120	5.91
150×150	5.0	22.3	28.36	982	131	5.89
150×150	6.0	26.4	33.63	115×10	153	5.84
150×150	9.0	38.2	48.67	158×10	210	5.69
175×175	4.5	23.7	30.17	145×10	166	6.93
175×175	5.0	26.2	33.36	159×10	182	6.91
175×175	6.0	31.1	39.63	186×10	213	6.86
200×200	4.5	27.2	34.67	219×10	219	7.95
200×200	6.0	35.8	45.63	283×10	283	7.88
200×200	8.0	46.9	59.79	362×10	362	7.78
200×200	9.0	52.3	66.67	399×10	399	7.73
200×200	12.0	67.9	86.53	498×10	498	7.59
250×250	5.0	38.0	48.36	481×10	384	9.97
250×250	6.0	45.2	57.63	567×10	454	9.92
250×250	8.0	59.5	75.79	732×10	585	9.82
250×250	9.0	66.5	84.67	809×10	647	9.78
250×250	12.0	86.8	110.5	103×10²	820	9.63
300×300	4.5	41.3	52.67	763×10	508	12.0
300×300	6.0	54.7	69.63	996×10	664	12.0
300×300	9.0	80.6	102.7	143×10²	956	11.8
300×300	12.0	106	134.5	183×10²	122×10	11.7
300×300	16.0	138	175.2	231×10²	154×10	11.5
350×350	9.0	94.7	120.7	232×10²	132×10	13.9
350×350	12.0	124	158.5	298×10²	170×10	13.7
350×350	16.0	163	207.2	379×10²	216×10	13.5
400×400	9.0	109	138.7	351×10²	175×10	15.9
400×400	12.0	143	182.5	453×10²	227×10	15.8
400×400	16.0	188	239.2	579×10²	290×10	15.6

Note) Please consult with our Sales department to detail items.

2. Rectangular

KS D 3568-2001
JIS G 3466-1988

Nominal Size (mm)	Wall thickness (mm)	Weight (kg/m)	Reference							
			Area (cm^2)	Moment of inertia (cm^4)		Section modulus (cm^3)		Radius of Gyration (cm)	
				I_X	I_Y	Z_X	Z_Y	i_X	i_Y
50×20	1.6	1.63	2.072	6.08	1.42	2.43	1.42	1.71	0.829
50×20	2.3	2.25	2.872	8.00	1.83	3.20	1.83	1.67	0.798
50×30	1.6	1.88	2.392	7.96	3.60	3.18	2.40	1.82	1.23
50×30	2.3	2.62	3.332	10.6	4.76	4.25	3.17	1.79	1.20
60×30	1.6	2.13	2.712	12.5	4.25	4.16	2.83	2.15	1.25
60×30	2.3	2.98	3.792	16.8	5.65	5.61	3.76	2.11	1.22
60×30	3.2	3.99	5.087	21.4	7.08	7.15	4.72	2.05	1.18
75×20	1.6	2.25	2.872	17.6	2.10	4.69	2.10	2.47	1.855
75×20	2.3	3.16	4.022	23.7	2.73	6.31	2.73	2.43	1.824
75×45	1.6	2.88	3.672	28.4	12.9	7.56	5.75	2.78	1.88
75×45	2.3	4.06	5.172	38.9	17.6	10.4	7.82	2.74	1.84
75×45	3.2	5.50	7.007	50.8	22.8	13.5	10.1	2.69	1.80
80×40	1.6	2.88	3.672	30.7	10.5	7.68	5.26	2.89	1.69
80×40	2.3	4.06	5.172	42.1	14.3	10.5	7.14	2.85	1.66
80×40	3.2	5.50	7.007	54.0	18.4	13.7	9.21	2.80	1.62
90×45	2.3	4.60	5.862	61.0	20.8	13.6	9.22	3.23	1.88
90×45	3.2	6.25	7.967	80.2	27.0	17.8	12.0	3.17	1.84
100×20	1.6	2.88	3.672	38.1	2.78	7.61	2.78	3.22	0.870
100×20	2.3	4.06	5.172	51.9	3.64	10.4	3.64	3.17	0.839
100×40	1.6	3.38	4.312	53.5	12.9	10.7	6.44	3.52	1.73
100×40	2.3	4.78	6.092	73.9	17.5	14.8	8.77	3.48	1.70
100×40	4.2	8.32	10.60	120	27.6	24.0	10.6	3.36	1.61
100×50	1.6	3.64	4.632	61.3	21.1	12.3	8.43	3.64	2.13
100×50	2.3	5.14	6.552	84.8	29.0	17.0	11.6	3.60	2.10
100×50	3.2	7.01	8.927	112	38.0	22.5	15.2	3.55	2.06
100×50	4.5	9.55	12.17	147	48.9	29.3	19.5	3.47	2.00
125×40	1.6	4.01	5.112	94.4	15.8	15.1	7.91	4.30	1.76
125×40	2.3	5.69	7.242	131	21.6	20.9	10.8	4.25	1.73
125×75	2.3	6.95	8.852	192	87.5	30.6	23.3	4.65	3.14
125×75	3.2	9.52	12.13	257	117	41.1	31.1	4.60	3.10
125×75	4.0	11.7	14.95	311	141	49.7	37.5	4.56	3.07
125×75	4.5	13.1	16.67	342	155	54.8	41.2	4.53	3.04
125×75	6.0	17.0	21.63	428	192	68.5	51.1	4.45	2.98
150×75	3.2	10.8	13.73	402	137	53.6	36.6	5.41	3.16
150×80	4.5	15.2	19.37	563	211	75.0	52.9	5.39	3.30
150×80	5.0	16.8	21.36	614	230	81.9	57.5	5.36	3.28
150×80	6.0	19.8	25.23	710	264	94.7	66.1	5.31	3.24

— Continued —

KS D 3568-2001
JIS G 3466-1988

Nominal Size (mm)	Wall thickness (mm)	Weight (kg/m)	Reference							
			Area (cm^2)	Moment of inertia (cm^4)		Section modulus (cm^3)		Radius of Gyration (cm)	
				I_X	I_Y	Z_X	Z_Y	i_X	i_Y
150×100	3.2	12.0	15.33	488	262	65.1	52.5	5.64	4.14
150×100	4.5	16.6	21.17	658	352	87.7	70.4	5.58	4.08
150×100	6.0	21.7	27.63	835	444	111	88.8	5.50	4.01
150×100	9.0	31.1	39.67	113×10	595	151	119	5.33	3.87
200×100	4.5	20.1	25.67	133×10	455	133	90.9	7.20	4.21
200×100	6.0	26.4	33.63	170×10	577	170	115	7.12	4.14
200×100	9.0	38.2	48.67	235×10	782	235	156	6.94	4.01
200×150	4.5	23.7	30.17	176×10	113×10	176	151	7.64	6.13
200×150	6.0	31.1	39.63	227×10	146×10	227	194	7.56	6.06
200×150	9.0	45.3	57.67	317×10	202×10	317	270	7.41	5.93
250×150	6.0	35.8	45.63	389×10	177×10	311	236	9.23	6.23
250×150	9.0	52.3	66.67	548×10	247×10	438	330	9.06	6.09
250×150	12.0	67.9	86.53	685×10	307×10	548	409	8.90	5.95
300×200	6.0	45.2	57.63	737×10	396×10	491	396	11.3	8.29
300×200	9.0	66.5	84.67	$105×10^2$	563×10	702	563	11.2	8.16
300×200	12.0	86.8	110.5	$134×10^2$	711×10	890	711	11.0	8.02
350×150	6.0	45.2	57.63	891×10	239×10	509	319	12.4	6.44
350×150	9.0	66.5	84.67	$127×10^2$	337×10	726	449	12.3	6.31
350×150	12.0	86.8	110.5	$161×10^2$	421×10	921	562	12.1	6.17
400×200	6.0	54.7	69.63	$148×10^2$	509×10	739	509	14.6	8.55
400×200	9.0	80.6	102.7	$213×10^2$	727×10	107×10	727	14.4	8.42
400×200	12.0	106	134.5	$273×10^2$	923×10	136×10	923	14.2	8.23

Note) Please consult with our Sales department to detail items.

Cold-Formed Welded Carbon Steel Structural Tubing in Round and Shapes

Round Tubes **ASTM A 500-2001**

Nominal Size	Outside Diameter		Calculated Nominal Wall Thickness		Weight		
in.	in.	mm	in.	mm	lb/ft	kg/ft	kg/m
1/2	0.840	21.3	0.109	2.77	0.85	0.39	1.27
3/4	1.050	26.7	0.113	2.87	1.13	0.51	1.69
1	1.315	33.4	0.104	2.64	1.34	0.61	2.00
	1.315	33.4	0.133	3.38	1.68	0.76	2.50
1 1/4	1.660	42.2	0.110	2.79	1.81	0.82	2.71
	1.660	42.2	0.140	3.56	2.27	1.03	3.39
	1.660	42.2	0.191	4.85	3.00	1.36	4.47
1 1/2	1.900	48.3	0.114	2.90	2.17	0.98	3.25
	1.900	48.3	0.145	3.68	2.72	1.23	4.05
2	2.375	60.3	0.121	3.07	2.92	1.32	4.33
	2.375	60.3	0.154	3.91	3.65	1.66	5.44
	2.375	60.3	0.218	5.54	5.02	2.28	7.48
2 1/2	2.875	73.0	0.156	3.96	4.53	2.05	6.74
	2.875	73.0	0.188	4.78	5.40	2.45	8.04
	2.875	73.0	0.203	5.16	5.79	2.63	8.63
	2.875	73.0	0.276	7.01	7.66	3.47	11.41
3	3.500	88.9	0.156	3.96	5.58	2.53	8.29
	3.500	88.9	0.188	4.78	6.63	3.01	9.92
	3.500	88.9	0.216	5.49	7.58	3.44	11.29
3 1/2	4.000	101.6	0.156	3.96	6.40	2.90	9.53
	4.000	101.6	0.188	4.78	7.63	3.46	11.41
	4.000	101.6	0.226	5.74	9.11	4.31	13.57
4	4.500	114.3	0.156	3.96	7.25	3.29	10.78
	4.500	114.3	0.188	4.78	8.64	3.92	12.91
	4.500	114.3	0.219	5.56	10.00	4.54	14.91
	4.500	114.3	0.237	6.02	10.79	4.89	16.07
	4.500	114.3	0.337	8.56	14.98	6.79	22.32
5	5.563	141.3	0.258	6.55	14.62	6.63	21.77
	5.563	141.3	0.375	9.53	20.78	9.43	30.97
6	6.625	168.3	0.280	7.11	18.97	8.60	28.26
8	8.625	219.1	0.322	8.18	28.55	13.95	42.55
	8.625	219.1	0.500	12.70	43.39	19.68	64.64
10	10.750	273.0	0.365	9.27	40.48	18.36	60.29
	10.750	273.0	0.500	12.70	54.74	24.83	81.29
12	12.750	323.8	0.375	9.53	48.56	22.48	73.86
	12.750	323.8	0.500	12.70	65.42	29.67	97.43
14	14.000	355.6	0.375	9.53	54.57	24.75	81.33
	14.000	355.6	0.500	12.70	72.09	32.70	107.39
16	16.000	406.4	0.375	9.53	65.58	28.39	93.27
	16.000	406.4	0.500	12.70	82.77	37.54	123.30
18	18.000	457.2	0.375	9.53	70.59	32.02	105.21
	18.000	457.2	0.500	12.70	93.45	42.39	139.21
20	20.000	508.0	0.375	9.53	78.60	35.65	117.15
	20.000	508.0	0.500	12.70	104.13	47.23	155.12

3-BENDING ROLL

SPIRAL

Bending Rolled Steel Pipes & Tubes

Characteristics

· Wide Range of Size
· High Weldability
· Low-Cost Installation
· Perfect Quality Assurance System

Size Availability

· OD .in.(mm) : 20(558.8)~80(2032)
· TH .in.(mm) : 0.236(7.1)~1.000(25.4)
· L .ft.(m) : Max.40(12.2)

Specification

· API 5L : Line Pipe
· ASTM A139 : Electric-Fusion(Arc)-Welded Steel Pipe
· ASTM A672 : Electric-Fusion-Welded Steel Pipe for High Pressure Service at Moderate Temp.
· JIS G3457 : Arc Welded Carbon Steel Pipes
· KS D3583 : Arc Welded Carbon Steel Pipes
· KS D3565 : Coated Steel Pipes for Water Works
· JIS G3444 : Carbon Steel Tubes for Generral Structural Purposes
· KS D3566 : Carbon Steel Tubes for Generral Structural Purposes
· JIS A5525 : Steel Pipe Piles
· KS F4602 : Steel Pipe Piles

Size Availability

Nominal Size		TH (in)	0.280	0.312	0.343	0.374	0.406	0.437	0.469	0.500	0.563	0.626	0.689	0.752	0.811	0.874	0.937	1.000
A	B	(mm) / OD(mm)	7.1	7.9	8.7	9.5	10.3	11.1	11.9	12.7	14.3	15.9	17.5	19.1	20.6	22.2	23.8	25.4
500	20	508.0																
550	22	558.8																
600	24	609.6																
650	26	660.4																
700	28	711.2																
750	30	762.0																
800	32	812.8																
850	34	863.6																
900	36	914.4																
950	38	965.2																
1,000	40	1016.0																
1,050	42	1066.8																
1,100	44	1117.6																
1,150	46	1168.4																
1,200	48	1219.2																
1,250	50	1270.0																
1,300	52	1320.8																
1,350	54	1371.6																
1,400	56	1422.4																
1,450 ~ 2,000	58 ~ 80	1473.2 ~ 2032.0																

*Above size range maybe changed subject to the manufacturing specification and length

: Cold expanding available : Please Consult with Our Sales Department

Spiral Welded Steel Pipes

Characteristics

- Strong and Economical
- Parallel End Faces
- Wide Range of Sizes
- Welded Inside and Outside
- Inspected most Rigidly
- Easy to Joint in the Field

Spiral-Welded Pipe & Protective Coatings are available in the specifications as follows

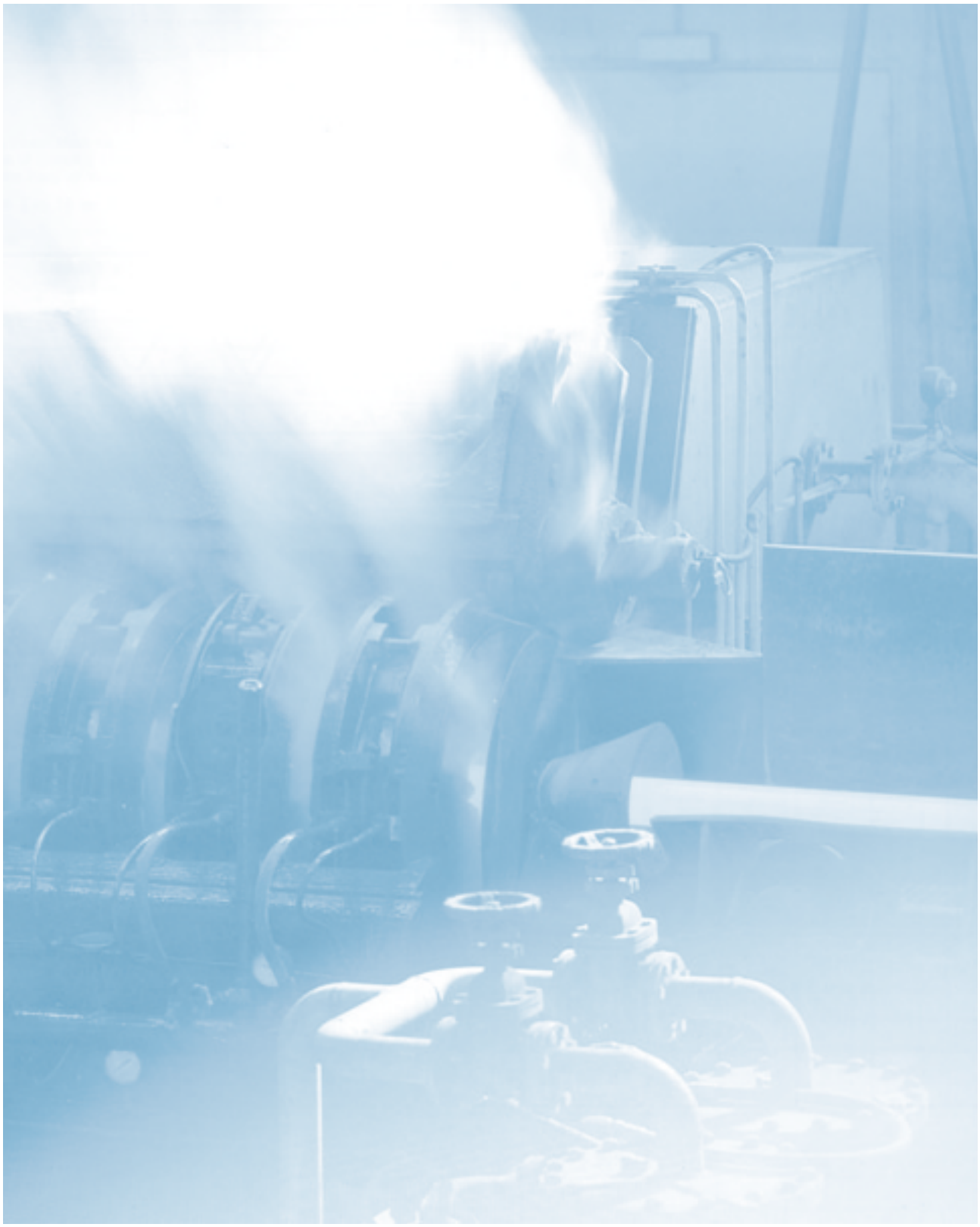
- API 5L : Spiral-Weld Line Pipe
- ASTM A139 : Electric-Fusion(Arc)-Welded Steel Pipe
- ASTM A211 : Spiral-Welded Steel or Iron Pipe
- ASTM A252 : Welded and Seamless Steel Pipe Piles
- AWWA C200 : Steel Water Pipe6″and Larger
- JIS G3444 : Carbon Steel Tubes for General Structural
- KS D3566 : Purposes
- JIS G3457 : Electric Are Welded Carbon Steel Pipe
- KS D3583 : Electric Are Welded Carbon Steel Pipe
- JIS A5525 : Steel Pipe Piles
- KS F4602 : Steel Pipe Piles
- AWWA C203 : Coal-Tar Enamel Protective Coating for Steel Water Pipe
- JIS G3443 : Coating Steel Pipes for Water Service
- KS D3565 : Coating Steel Pipes for Water Service
- JIS G3451 : Steel fittings for Coating Steel Pipes for water Service
- KS D3578 : Steel fittings for Coating Steel Pipes for water Service

Szie Availability (S.A.W.)

Nominal Size		TH (in) (mm)	0.236	0.267	0.315	0.354	0.394	0.433	0.472	0.512	0.551	0.591	0.630	0.669	0.709	0.748	0.787	0.827	0.866	0.906	0.945	0.984
in.	mm	OD(mm)	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0
16	400A	406.4																				
18	450A	457.2																				
20	500A	508.0																				
22	550A	558.8																				
24	600A	609.6																				
26	650A	660.4																				
28	700A	711.2																				
30	750A	762.0																				
32	800A	812.8																				
34	850A	863.6																				
36	900A	914.4																				
40	1000A	1016.0																				
44	1100A	1117.6																				
48	1200A	1219.2																				
52	1300A	1320.8																				
54	1350A	1371.6																				
56	1400A	1422.4																				
60	1500A	1524.0																				
64	1600A	1625.6																				
66	1650A	1676.4																				
72	1800A	1828.8																				
76	1900A	1930.4																				
80	2000A	2032.0																				
84	2100A	2133.6																				
88	2200A	2235.2																				
92	2300A	2336.8																				
96	2400A	2438.4																				
100	2500A	2540.0																				
104	2600A	2641.1																				
108	2700A	2743.2																				
112	2800A	2844.8																				
116	2900A	2946.9																				
120	3000A	3048.0																				

: Please consult with our Sales Department

SRM (Stretch Reducing Mill)



SUMMARY OF S.R.M

what is S.R.M.?
The Stretch Reducing Mill (S.R.M.) consists of24 roll stands, each containing 3 rolls, a design that improves internal surface finish, maintains concentricity, and improves dimensional accuracy. Each roll stand reduces pipe diameter by approximately 5%, with the final 3 stands providing the finish diameter. Also, by controlling longitudinal tension between each stand at the same time, it can also reduce, maintain, or increase wall thickness, resulting in a wide variety of diameters & wall combinations to meet the customer specifications.

The S.R.M. at our Pohang plant consists of8" E.R.W.pipe mill, induction furnace, thickness control system, main unit, flying hot saw, cooling bed, etc. All lines are dependant on the centralized automatic control system, which is only one of its kinds in South Korea.

To begin the stretch reducing process, pipe hollows are heated to an austenite condition of approximately 950 ~ 1050 degrees Celsius by 10 induction furnaces before entering the Stretch Reducing Mill. This process inhibits the oxidation scale along with the grain growth. Also, the pipe for the S.R.M. will have received a uniformed heat.

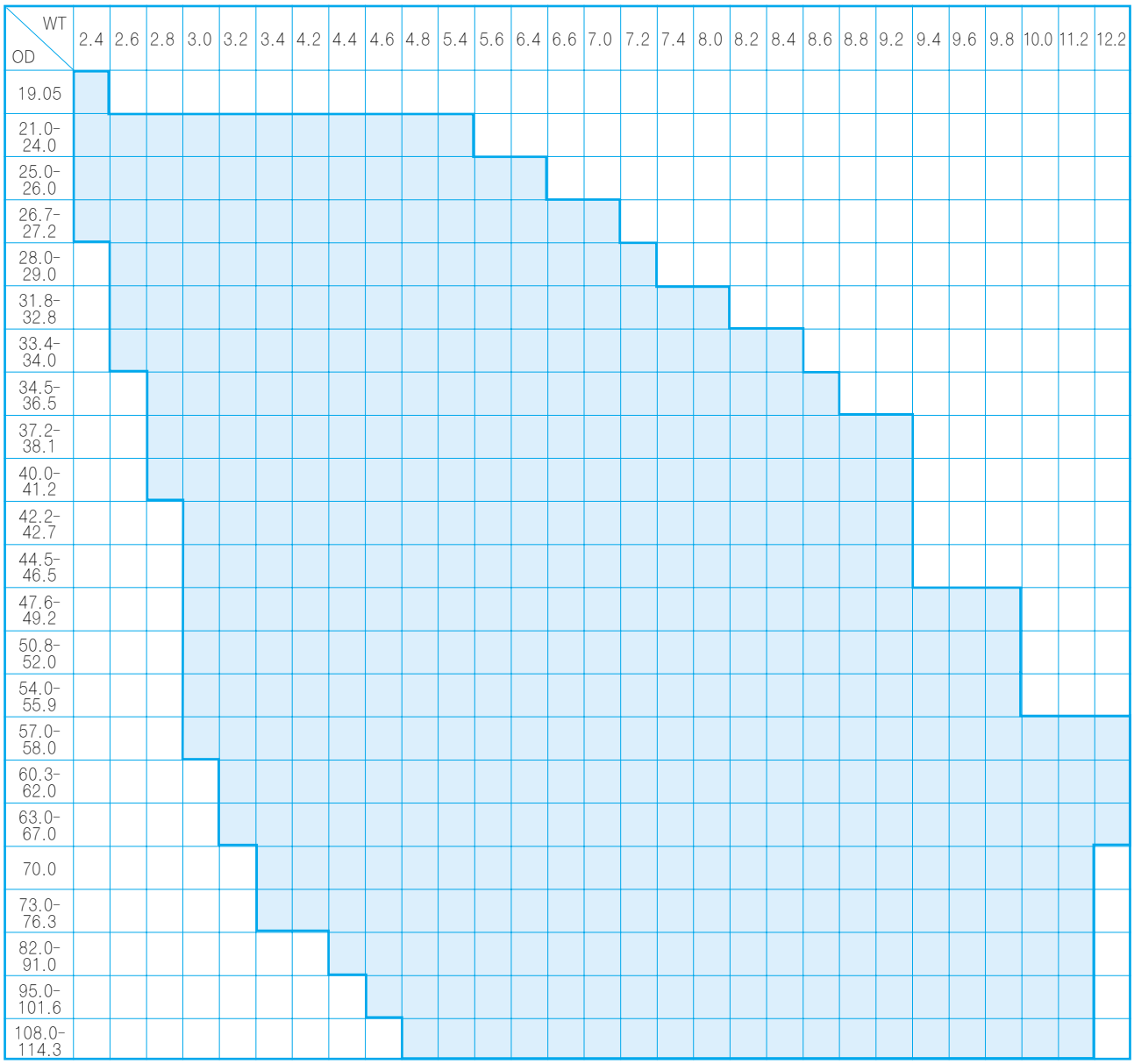
ADVANTAGE OF S.R.M. PRODUCTS

1. LARGE QUANTITY PRODUCTION
2. UNIFORMED HEAT TREAT RESULTS IN TOP QUALITY MACHINING & COOLING
3. COMPLETE REMOVAL OF ALL INNER PIPE BEAD FOR ALL SIZES
4. PRODUCTION OF SCH. 80 & HEAVIER AS WELL AS SPECIALTY PIPES
5. PRODUCTION OF VARIOUS DIAMETER & SMALL LOT

MAIN PRODUCTS

Usage	Main Products
Ordinary Piping	KS D3507 / JIS G3452, KS D3631, KS D3562 / JIS G3454 KS D3623, KS D3570 / JIS G3456, ASTM A53 ASTM A106 ASTM A135, ASTM A334, BS 1387, BS 3601, AS 1074 etc.
Structural Pipe	KS D3566 / JIS G3444, KS D3517 / JIS G3445, ASTM A513 KS D3632 / JIS G3475, ASTM A587, DIN 1626 etc.
Boiler and Heat Exchanger	KS D3563 / JIS G3461, ASTM A178, ASTMA179, ASTM A214 BS 3059 etc.
Conduit Tubes	KS C8401 / JIS C8305, UL6, ANSI C80. 1, CSA C22.2 etc.
Line Pipe	API 5L (All Grade)
Casing & Tubing	API 5CT (Group Ⅰ & Ⅱ)
Mechanical Tubing	Automobile[suspension system / steering apparatus / shaft] Construction Equipment[Oil-Hydraulic Cylinder Rod etc.] Others

Size Availabitity



A.N.S.I. Pipe Schedules

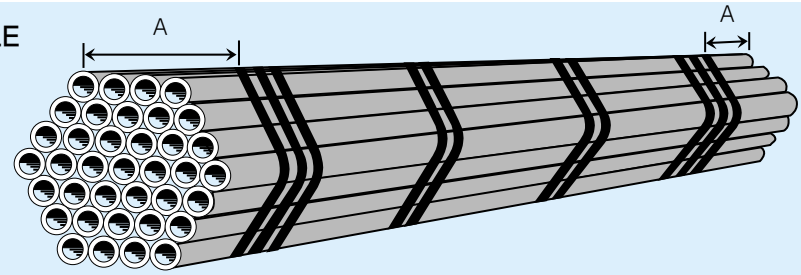
Bold Figures:Wall Thickness in inches
Light Figures: wt/ft. in ibs

Pipe Size	O.D. in inches	5	10	20	30	40	Std.	60	80	x.s.	100	200	140	160	x.x.s
1/8	.405	.035 .1383	0.49 .1863			.068 .2447	.068 .2447		.095 .3145	.095 .3145					
1/4	.540	.1383 .2570	.1863 .3297			.088 .4248	.088 .4248		.119 .5351	.119 .5351					
3/8	.675	.049 .3276	.065 .4235			.091 .5676	.091 .5676		.126 .7388	.126 .7388					
1/2	.840	.065 .5383	.083 .6710			.109 .8510	.109 .8510		.147 1.088	.147 1.088				.188 1.31	.294 1.714
3/4	1.050	.065 .6338	.083 .8572			.113 1.131	.113 1.131		.154 1.474	.154 1.474				.219 1.94	.308 2.441
1	1.315	.065 .8678	.109 1.404			.133 1.679	.133 1.679		.179 2.172	.179 2.172				.250 2.84	.358 3.659
1 1/4	1.660	.065 1.107	.109 1.806			.140 2.273	.140 2.273		.191 2.997	.191 2.997				.250 3.76	.382 5.214
1 1/2	1.900	.065 1.274	.109 2.085			.145 2.718	.145 2.718		.200 3.631	.200 3.631				.281 4.86	.400 6.408
2	2.375	.065 1.604	.109 2.638			.154 3.653	.154 3.653		.218 5.022	.218 5.022				.344 7.46	.436 9.029
2 1/2	2.875	.083 2.475	.120 3.531			.203 5.793	.203 5.793		2.76 7.661	.276 7.661				.375 10.01	.552 13.70
3	3.5	.083 3.029	.120 4.332			.216 7.576	.216 7.576		.300 10.25	.300 10.25				.437 14.32	.600 18.58
3 1/2	4.0	.083 3.472	.120 4.973			.226 9.109	.226 9.109		.318 12.51	.318 12.51					.636 22.85
4	4.5	.083 3.915	.120 5.613			.237 10.79	.258 10.79	12.66	.337 14.98	.337 14.98		.437 19.01		.531 22.51	.674 27.54
5	5.563	.109 6.349	.134 7.770			.258 14.62	.258 14.62		.375 20.78	.375 20.78		.500 27.04		.625 32.96	.750 38.5
6	6.625	.109 7.585	.134 9.289			.280 18.97	.280 18.97		.432 28.57	.432 28.57		.562 36.39		.719 45.35	.864 53.16
8	8.625	.109 9.914	.148 13.40	.250 22.36	2.77 24.70	.322 28.55	.322 28.55	.406 35.64	.500 43.39	.500 43.39	.593 50.87	.718 60.93	.812 67.76	.906 .906	.875 .8745
10	10.75	.134 15.19	.165 18.70	2.250 28.04	.307 34.24	.365 40.48	.365 40.48	.500 54.74	5.93 64.33	.500 54.74	.718 76.93	.843 89.20	1.000 104.1	1.125 115.64	
12	12.75	.165 22.18	.180 24.20	.250 33.38	.330 43.77	.406 53.53	.375 49.56	.562 73.16	.687 88.51	.500 65.42	.843 107.2	1.000 125.5	1.125 139.7	1.312 16.27	
14	14.0		.250 36.71	.312 45.68	.375 54.57	.437 63.37	.375 54.57	.593 84.91	.750 106.1	.500 72.09	.937 130.7	1.093 150.7	1.250 170.2	1.406 189.1	
16	16.0		.250 42.05	.312 52.36	.437 62.58	.562 82.77	.375 62.58	.750 107.5	.937 136.5	.500 82.77	1.156 164.8	1.375 192.3	1.562 223.5	1.781 245.25	
18	18.0		.250 47.39	.312 59.03	.437 82.06	.562 104.8	.375 70.59	.750 138.2	.937 170.8	.500 93.45	1.156 208.0	1.375 244.1	1.562 274.2	1.781 308.5	
20	20.0		.250 52.73	.375 78.60	.500 104.1	.593 122.9	.375 78.60	.812 166.4	1.031 208.9	.500 104.1	1.280 256.1	1.500 296.4	1.750 341.1	1.969 379.17	
24	24.0		.250 63.41	.375 94.62	.562 140.8	.687 171.2	3.75 94.62	.968 238.1	1.218 296.4	.500 125.5	1.531 367.4	1.812 429.4	2.062 483.1	2.344 542.13	

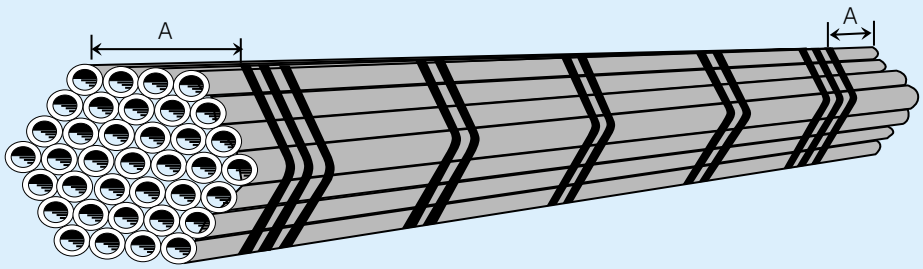
Packing

MASTER BUNDLE

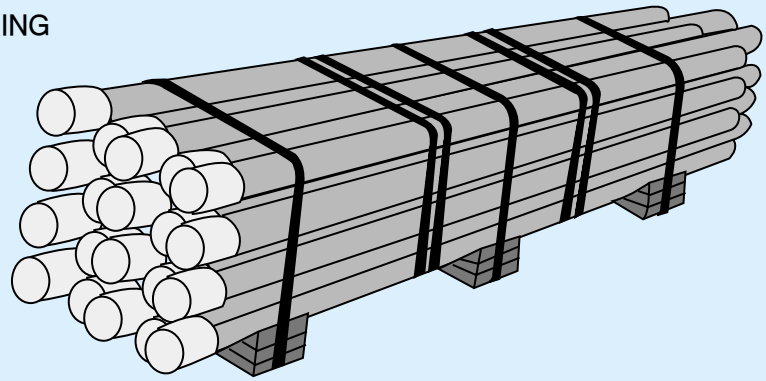
- Shorter than 10m



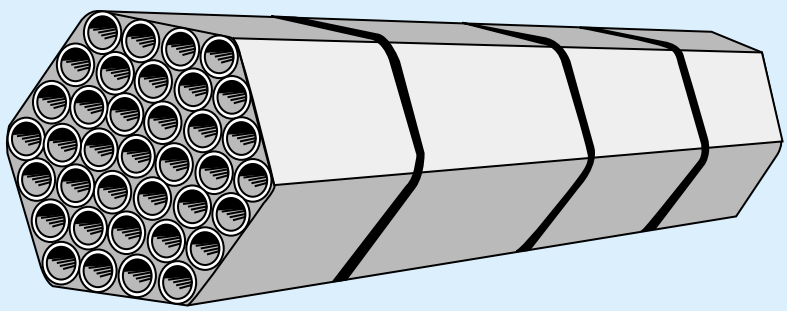
- Longer than 10m



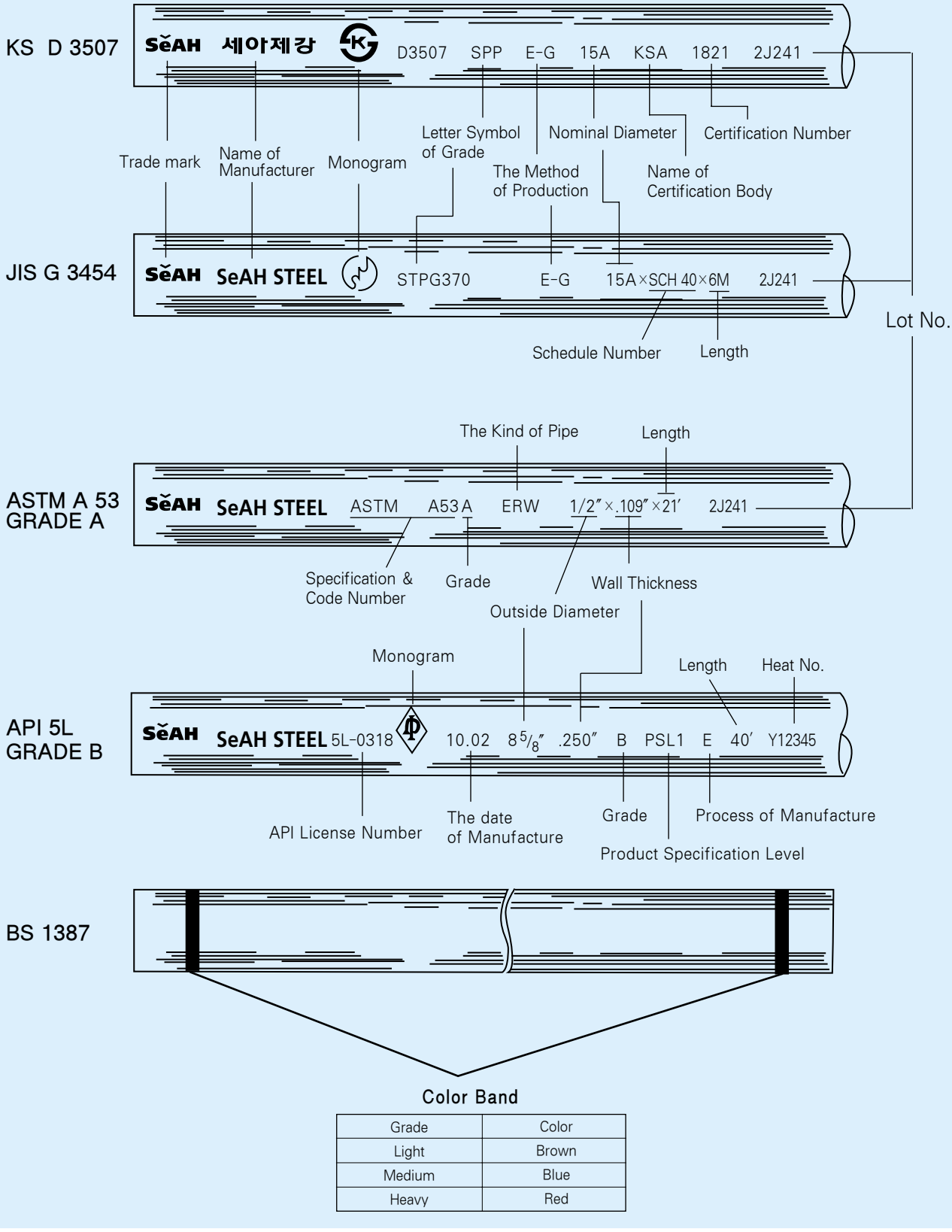
WOODEN PACKING



POLY-PROPHYLENE PACKING



Marking



Color Band

Grade	Color
Light	Brown
Medium	Blue
Heavy	Red

Ordering Practice

- Specification : Name and grade
- Specific requirements:

  Methods of manufacture,

  Type of end finish:
  - Square cut or beveled
  - Threaded and coupled
  - Type of coating : Black or Galvanized
- Dimensions
  - Diameter : Nominal Bore(N.B)or Outside Diameter(O.D)
  - Wall thickness
  - Length : Specific or random
- Quantity : Specify the length and weight
- Inspection : Specify the name of the inspection agent
- Bundling and marking requirements
- Delivery requirements : Time and place
- Other information

List of Specifications of Electric-Resistance-Welded Tubes and Pipes for Piping

Standard Specification			Application	Chemical Requirement (%) C Max	Mn Max	P Max	S Max	Others	Physical Requirement Tensile Strength psi(MPa)	Yield Strength psi(MPa)	Elongation (Min %)	Gauge Length(in)	Flattening Test H = Distance between Exterior Surfaces D = Outside Diameter	Bend Test Angle× Inner Radius	Hydrostatic Test P = Test Pressure (psi) S = Allowable Fiber Stress (psi)
API 5L	PSL1	A	Line Pipe	0.22	0.90	0.030	0.030	–	Min. 48,000(331)	Mln. 30,000(207)	$e = 625{,}000 \times \frac{A^{0.2}}{U^{0.9}}$	2		–	※1
		B		0.26	1.20	0.030	0.030	Nb+V+Ti≦0.15%	Min. 60,000(414)	Mln. 35,000(241)	$e = 625{,}000 \times \frac{A^{0.2}}{U^{0.9}}$	2			
		×42		0.26	1.30	0.030	0.030	Nb+V+Ti≦0.15%	Min. 60,000(414)	Mln. 42,000(290)	$e = 625{,}000 \times \frac{A^{0.2}}{U^{0.9}}$	2			
		×46		0.26	1.40	0.030	0.030	Nb+V+Ti≦0.15%	Min. 63,000(434)	Mln. 46,000(317)	$e = 625{,}000 \times \frac{A^{0.2}}{U^{0.9}}$	2			
		×52		0.26	1.40	0.030	0.030	Nb+V+Ti≦0.15%	Min. 66,000(455)	Mln. 52,000(359)	$e = 625{,}000 \times \frac{A^{0.2}}{U^{0.9}}$	2			
		×56		0.26	1.40	0.030	0.030	Nb+V+Ti≦0.15%	Min. 71,000(490)	Mln. 56,000(386)	$e = 625{,}000 \times \frac{A^{0.2}}{U^{0.9}}$	2	Weld Portion H = $\frac{2}{3}$ D The Other Side of Weld Portion H = $\frac{1}{3}$ D		Specified respectively in size and grade Note : $P = \frac{2St}{D}$ or 3,000. Whichever is the smaller
		×60		0.26	1.40	0.030	0.030	Nb+V+Ti≦0.15%	Min. 75,000(517)	Mln. 60,000(414)	$e = 625{,}000 \times \frac{A^{0.2}}{U^{0.9}}$	2			
		×65		0.26	1.45	0.030	0.030	Nb+V+Ti≦0.15%	Min. 77,000(531)	Mln. 65,000(448)	$e = 625{,}000 \times \frac{A^{0.2}}{U^{0.9}}$	2	The test shall be made alternately with the wled at 0 deg. and at 90 deg. from the line of direction of force.		
		×70		0.26	1.65	0.030	0.030	Nb+V+Ti≦0.15%	Min. 82,000(565)	Mln. 70,000(483)	$e = 625{,}000 \times \frac{A^{0.2}}{U^{0.9}}$	2			
	PSL2	B		0.22	1.20	0.025	0.015	Nb+V+Ti≦0.15%	60,000~110,000 (414~758)	35,000~65,000 (241~448)	$e = 625{,}000 \times \frac{A^{0.2}}{U^{0.9}}$	2	(Weld ductility Test) D≧2$\frac{3}{8}$ in. $H = \frac{3.07t}{0.07 + 3t/D}$ (for Grades less than×52) $H = \frac{3.05t}{0.05 + 3t/D}$ (for Grades×52 or higher)		
		×42		0.22	1.30	0.025	0.015	Nb+V+Ti≦0.15%	60,000~110,000 (414~758)	42,000~72,000 (290~496)	$e = 625{,}000 \times \frac{A^{0.2}}{U^{0.9}}$	2			
		×46		0.22	1.40	0.025	0.015	Nb+V+Ti≦0.15%	63,000~110,000 (434~758)	46,000~76,000 (317~524)	$e = 625{,}000 \times \frac{A^{0.2}}{U^{0.9}}$	2			
		×52		0.22	1.40	0.025	0.015	Nb+V+Ti≦0.15%	66,000~110,000 (455~758)	52,000~77,000 (359~531)	$e = 625{,}000 \times \frac{A^{0.2}}{U^{0.9}}$	2			
		×56		0.22	1.40	0.025	0.015	Nb+V+Ti≦0.15%	71,000~110,000 (490~758)	56,000~79,000 (386~544)	$e = 625{,}000 \times \frac{A^{0.2}}{U^{0.9}}$	2			
		×60		0.22	1.40	0.025	0.015	Nb+V+Ti≦0.15%	75,000~110,000 (517~758)	60,000~82,000 (414~565)	$e = 625{,}000 \times \frac{A^{0.2}}{U^{0.9}}$	2			
		×65		0.22	1.45	0.025	0.015	Nb+V+Ti≦0.15%	77,000~110,000 (531~758)	65,000~87,000 (448~600)	$e = 625{,}000 \times \frac{A^{0.2}}{U^{0.9}}$	2			
		×70		0.22	1.65	0.025	0.015	Nb+V+Ti≦0.15%	82,000~110,000 (565~758)	70,000~90,000 (483~621)	$e = 625{,}000 \times \frac{A^{0.2}}{U^{0.9}}$	2			
		×80		0.22	1.85	0.025	0.015	Nb+V+Ti≦0.15%	90,000~120,000 (621~827)	80,000~100,000 (552~690)	$e = 625{,}000 \times \frac{A^{0.2}}{U^{0.9}}$	2			
API 5CT	H-40		Casing & Tubing	–	–	0.030	0.030	–	Min. 60,000 (414)	40,000~80,0000 (276~552)	$e = 625{,}000 \times \frac{A^{0.2}}{U^{0.9}}$	2	(Grade H40) D/t≧16 H = 0.5D D/t<16 H = D(0.83-0.0206D/t) The weld shall be located at 90 deg. (Grade J55&K55) D/t≧16 H = 0.65D 3.93≦D/t<16 H = D(0.980-0.0518D/t) D/t<3.93 H = D(1.104-0.0518D/t) The weld shall be located at 90 deg. (Grade N80) 9≦D/t<28 H = D(1.074-0.0194D/t)		Specified respectively in size and grade. Note : $P = \frac{(2 \cdot f \cdot YS\ min \cdot t)}{D}$ or 3,000. Whichever is the smaller. (f : 0.6 for Grade H40, J55 and K55 larger than Label 1 : 9$\frac{5}{8}$ or 0.8 for all other grades and sizes)
	J-55			–	–	0.030	0.030	–	Min. 75,000 (517)	55,000~80,000 (379~552)	$e = 625{,}000 \times \frac{A^{0.2}}{U^{0.9}}$	2			
	K-55			–	–	0.030	0.030	–	Min. 95,000 (655)	55,000~80,000 (379~552)	$e = 625{,}000 \times \frac{A^{0.2}}{U^{0.9}}$	2			
	N-80			–	–	0.030	0.030	–	Min. 100,000 (689)	80,000~110,000 (552~758)	$e = 625{,}000 \times \frac{A^{0.2}}{U^{0.9}}$	2			
ASTM A53	A		Steel Pipe for General Purposes	0.25	0.95	0.050	0.045	※8	Min. 48,000 (33.8kg/㎟)	Min. 30,000 (21.1kg/㎟)	$e = 625{,}000 \times \frac{A^{0.2}}{U^{0.9}}$	2	Apply for standard weight and extra strong pipe of NB>2 in. Ductility of the weld H = $\frac{2}{3}$ D Ductility away frome the weld H = $\frac{1}{3}$ D The test shall be made alternately with the weld at 0 deg. and at 90 deg.	Apply for NB≦2in 90° × 6D When ordered for close coliling 180° ×4D	Specified respectively in size and grade Note : The Maximum Pressure NB ≦ 3 in. P = 2,500 psi NB > 3 in. P = 2,800 psi
	B			0.30	1.20	0.050	0.045	※8	Min. 60,000 (42.2kg/㎟)	Min. 35,000 (24.6kg/㎟)	$e = 625{,}000 \times \frac{A^{0.2}}{U^{0.9}}$	2			
ASTM A 135	A		Steel Pipe for Conveying Liquid, Gas, or Vapor	0.25	0.95	0.035	0.035	–	Min. 48,000 (33.7kg/㎟)	Min. 30,000 (21.1kg/㎟)	35 (56t + 16.5)	2	Ductility of the weld H = $\frac{2}{3}$ D Ductility exclusive of the weld H = $\frac{1}{3}$ D The test shall be made alternately with the weld at 0 deg. and at 90 deg.	–	P = $\frac{2St}{D}$ S : Grade A 18,000 psi (124MPa) Grade B 21,000 psi (144MPa) This does not prohibit testing at higher pressure at the manufacturer's option
	B			0.30	1.20	0.035	0.035	–	Min. 60,000 (42.2kg/㎟)	Min. 35,000 (24.6kg/㎟)	30 (48t + 14)	2			
BS 1387	L		Steel Pipe for Ordinary Uses (For Screwing)	0.20	1.20	0.045	0.045	–	320~460N/㎟ (33~47.2kg/㎟)	Min. 195N/㎟ (20kg/㎟)	Min. 20	5.65$\sqrt{A}$	Apply for NB>DN50(2in.) Weld Portion H=0.75 D The Other Side of Weld Portion H = 0.60 D (The weld shall be located at 90 deg.)	Apply for NB≦DN50 Ungalvanized Tubes At cold 180° ×6D Galvanized Tubes 90° ×8D	P = 53kgf/cm^2 (50bar)
	M			0.20	1.20	0.045	0.045	–							
	H			0.20	1.20	0.045	0.045	–							
BS 3601	ERW 320		Steel Pipe for General Pressure Purposes	0.16	0.70	0.040	0.040	Mn Min. 0.30	320~460 (N/㎟)	Min. 195 (N/㎟)	25	5.65$\sqrt{A}$	$H = \frac{(1+e)\,t}{e + t/D}$ Flatting test constant e grade / weld / material 320 / 0.029 / 0.10 360 / 0.026 / 0.09 400 / 0.023 / 0.08	–	$P = \frac{20St}{D}$ (bar) s : 0.80 × Y.P
	ERW 360			0.17	0.80	0.040	0.040	Mn Min. 0.40 Si Max.0.35	360~500 (N/㎟)	Min. 235 (N/㎟)	25	5.65$\sqrt{A}$			
	ERW 410			0.21	1.20	0.045	0.045	Mn Min. 0.40 Si Max.0.35	430~570 (N/㎟)	Min. 275 (N/㎟)	22	5.65$\sqrt{A}$			
KS D 3507 JIS G 3452	SPP SGP		Carbon Steel Pipes for ordinary Piping	–	–	0.040	0.040	–	Min. 290N/㎟	–	30	–	H = $\frac{2}{3}$ D	90° × 6D	2.5MPa(25kgf/cm^2)
KS D 3537 JIS G 3442	SPPW SGPW		Galvanized Steel Pipes for Water Service	–	–	0.040	0.040	–	Min. 290N/㎟	–	30	–	H = $\frac{2}{3}$ D	OD ≦ 50A 90° × 8D	2.5MPa(25kgf/cm^2)
KS D 3583 JIS G 3457	SPW 400 STPY 400		Arc Welded Carbon Steel Pipes	0.25	–	0.040	0.040	–	Min. 400N/㎟ ※7	Min. 225N/㎟	18	–	–	–	2.5MPa(25kgf/cm^2)

Grade	O.C	Standard	Alternative
A	2$\frac{3}{8}$ and over[b]	60	75
B	2$\frac{3}{8}$ and over[b]	60	75
×42	5$\frac{9}{16}$ and under[c]	60	75[d]
~	6$\frac{5}{8}$ ~ 8$\frac{5}{8}$ and under[c]	75	75[d]
×80	10$\frac{3}{4}$ ~ 18 and[c]	85	85[d]
	20 over[c]	90	90[d]

[a]2500psi. Max
[b]2800psi. Max
[c]3000psi. Max
[d]D<16in. 7260psi Max.
D≧16in. 3630psi Max.

Nondestructive Tests & Other inspections	Permissible Variations in Dimensions				Permissible Variations in Weight
	Outside Diameter	Wall Thickness	Length	Height of Inside Flash	
※ 2		※ 4			
(Fracture Toughness Test) PSL1 : not Required PSL2 : Test Temp. 0℃ Min. AVR. 27J(T), 41J(L) GR.×80 Min. AVR. 68J(T), 101J(L)	※ 3	※ 5	-	Hmax = 0.06 in. (Max. Depth of Trim) t ≦ 0.150in. : − 0.10 × t 0.150< t < 0.301 in : − 0.015 in. t ≧ 0.301in. : − 0.05 × t	Single lengths Standard-weight, rgular-weight extra-strong and double-extra strong pipe, except Grade A25 +10 % −3.5 % Special Ligtht-Weight +10 % −5 % Carload Lots −1.75% A carload is considered to be a minimum of 40,000lbs(18144kg)
(Metallographic Examination) PSL1 : For GR.×42 or higher PSL2 : All GR.					
(Residual Magnetism) AVR. Max. 30 Gauss Individual Max.35 Gauss.					
(Weld Seam) a)Ultrasonic testing (L3) b)Flux leakage testing(L3) c)Eddy Current testing(L3) *L3 : 10%t×1W×50L or 3.2Ø (Drift Requirement) Specified respectively in size and product	O.D ≦ 4in. ±0.031 in. O.D ≧ 4 1/2 in. + 1.0% − 0.5%	+Not specified − 12.5%	−	Hmax = 0.045in for Casting or 0.015in for Tubing. (Max. Depth of Trim) 0.151 in≦t<0.301 in : −0.015 in t≧0.301 in : −0.05t	Special Ligtht +6.5 % −3.5 % Carload Lots −1.75% A carload is considered to be a minimum of 40,000lbs
Each pipe shall be inspected by ultrasonic or electromagentic methods ※ 6	NB ≦ 1 1/2 in. ± 1/64 in. NB ≧ 2 in. ±1%	+Not specified − 12.5%	−	−	D ≦ 4 in. may be weighed in convenient lots D > 4 in. Shall be weighed separately. ±10 %
As an alternate to the hydostatic test, nondestructive test may be applied (Schedule 10 pipe in sizes NPS 3/4 to NPS 5 inclusive)	± 1 %	+Not specified − 12.5%	−	−	Special Ligtht +10 % −3.5 % Carload Lots −1.75% The pipe of Sch. 10 ±10 %
For galvanized tube of DN≦25 (1in.) A rod 230mm long shall be passed through them. Nominal size(DN) / Diameter of Rod(mm) 8 / 4.4 10 / 7.1 15 / 9.5 20 / 14.3 25 / 20.6	Specified respectively in size	+Not specified − 8% +Not specified − 10% +Not specified − 10%	· Random Lengths 4m~7m · Mill Lengths Min.6.4m : +150mm, −0 · Approximate Lengths : ±150mm · Exact Lengths : +6mm,−0	−	Single tube +10 % − 8 % Lots of 150m and Over ±4 %
For sizes 180mm and below, this shall be either by an hydraulic test or by an eddy current test.	OD ≦ 168.3mm ± 1 %. (Min ± 0.5mm) OD ≦ 168.3mm ± 0.75 %.	± 10 %. (Not apply to the Weld area)	When ordered to a Exact Lengths or Cut length. Max. 6m : + 6mm − 0 · Every 3m Increase +1.5mm(Max. 12.0mm)	H max = 1.5mm Max Depth of Trim −10% t. or 0.5mm Whichever is the less	−
As an alternate to the hydrostatic test, nondestructive test may be applied.	specified	+Not specified − 12.5%	−	−	−
As an alternate to the hydrostatic test, nondestructive test may be applied. ※9	specified	+Not specified − 12.5%	−	−	−
As an alternate to the hydrostatic test, nondestructive test may be applied.	± 0.5 %.	0D≦450A +15% −12.5% 0D>450A +15% −10%	−	−	−

※ 1 Specified respectively in size and grade.

Note :

$P = \frac{2St}{D}$ except that test pressure shall be limited to 2,500psi for size 3 1/2 in. and Smaller and to 2,800psi for size larger than 3 1/2 in.

※2 For pipe 2 3/8 in. and over in outside diameter. each pipe shall be inspected by ultrasonic or electromagnetic methods.

※ 3 Pipe Boby

OD < 2 3/8 in.	+ 0.016 in − 0.031 in
2 3/8 ≦ OD < 20in.	± 0.75%
20 ≦ OD ≦ 36in.	+ 0.75% − 0.25%
OD < 36in.	± 1/4 in, 1/8 in.

Pipe Ends

OD ≦ 10 3/4 in.	− 1/64 in + 1/16 in
10 3/4 ≦ OD ≦ 20in.	− 1/32 in + 3/32 in

※ 4 Grade B or Lower

OD ≦ 2 7/8 in	+ 20.0 − 12.5 %
2 7/8 < OD < 20 in	+ 15.0 − 12.5 %
OD ≦ 20 in	+ 17.5 − 12.5 %
OD ≧ 20 in	+ 17.5 − 10.0 %

※ 5 Grade ×42 or Higher

OD < 20 in	+ 15.0 − 12.5 %
OD ≧ 20 in	+ 19.5 − 8.0 %

※ 6 (Weight of Zinc Coating Test)
Weight of Zinc Coating AVR 1.8, Min 1.6 oz/ft²

※ 7 Weld tensile Test
41kg/㎟ up

※ 8 Cu, Ni, Cr Max. 0.40%
Mo Max. 0.15%
V Max. 0.08%

※ 9 Zinc Coating Test
· Weight of Zinc Coating AVR. 600g/m², Min. 550g/m²
· Uniformity Test (Copper Sulfate Test) Min. 6 times.
· Alkali Test Min. 100min.

List of Specifications of Electric-Resistance-Welded Tubes and Pipes for Pressure Service

Standard Specification		Application	Chemical Requirement (%)									Heat Treatment	Physical Requirement				Hard
			C Max	Si Max	Mn Max	P Max	S Max	Cu	Cr	Mo	Ni		Tensile Strength	Yield Strength	Elongation (Min %)	Gauge length (in)	HRB HB
ASTM A 178	A	Steel Boilers Tubes	0.06 ~0.18	–	0.27 ~0.63	0.035	0.035	–	–	–	–	Normalized (Min. 900℃)	Min. 47,000psi (325MPa)	Min. 26,000psi (180MPa)	35 (48t + 15.00)	2	
	C		0.35	–	0.80	〃	〃	–	–	–	–		Min. 60,000psi (415MPa)	Min. 37,000psi (255MPa)	30 (48t + 15.00)	2	
	D		0.27	Min. 0.10	1.00 ~1.50	0.030	0.015	–	–	–	–		Min. 70,000psi (485MPa)	Min. 40,000psi (275MPa)	30 (48t + 15.00)	2	
ASTM A 214	–	Heat Exchanger and Condenser Tubes	0.18	–	0.27 ~0.63	0.035	0.035	–	–	–	–	Normalized (Min. 900℃)	–	–	–	–	HR
ASTM A 226	–	Boiler and Super Heater Tubes	0.06 ~0.18	0.25	0.27 ~0.63	〃	〃	–	–	–	–	Normalized	Min. (For Design Purpose) 47,000psi (325MPa)	Min. 26,000psi (180MPa)	35	2	or HB HR
ASTM A 250	T1	Alloy Steel Boiler and Super Heater Tubes	0.10 ~0.20	0.10 ~0.50	0.30 ~0.80	0.025	0.025	–	–	0.44 ~0.65	–	Normalized	Min. 55,000psi (380MPa)	Min. 30,000psi (205MPa)	30 (48t + 15.00)	2	or HB HR
	T1a		0.10 ~0.20	0.10 ~0.50	0.30 ~0.80	0.025	0.025	–	–	0.44 ~0.65	–		Min. 60,000psi (415MPa)	Min. 32,000psi (220MPa)	30 (48t + 15.00)	2	or HB HR
	T1b		0.14	0.10 ~0.50	0.30 ~0.80	0.025	0.025	–	–	0.44 ~0.65	–		Min. 53,000psi (365MPa)	Min. 28,000psi (195MPa)	30 (48t + 15.00)	2	or HB HR
ASTM A 423	1	Corrosion Resistance Low Alloy Steel Tubes	0.15	Min. 0.10	0.55	0.06 ~0.16	0.060	0.20 ~0.06	0.24 ~1.31	–	0.20 ~0.70	Normalized	Min. 60,000psi (415MPa)	Min. 37,000psi (255MPa)	25	2	or HB HR
	2		0.15	–	0.55 ~1.00	0.040	0.050	0.30 ~1.00	–	Min 0.10	0.40 ~1.10		Min. 60,000psi (415MPa)	Min. 37,000psi (255MPa)	25	2	
ASTM A 587		Steel Tubes for Chemical industry	0.15	–	0.27 ~0.63	0.035	0.035	Al 0.02 ~0.10	–	–	–	Normalized	Min. 48,000psi (331MPa)	Min. 30,000psi (207MPa)	40	2	
ASTM A 334	1	Steel Tubes for low Temperature Service	0.30	–	0.40 ~1.06	0.025	0.025	–	–	–	–	Normalized	Min. 55,000psi (380MPa)	Min. 30,000psi (205MPa)	35 (56t + 17.50)	2	or HB HR
	6		0.30	Min 0.10	0.29 ~1.06	0.025	0.025	–	–	–	–		Min. 60,000psi (415MPa)	Min. 37,000psi (240MPa)	30 (48t + 15.00)	2	or HB HR
ASTM A 333	1	LOW Temperature Service	0.30	–	0.40 ~1.06	0.025	0.025	–	–	–	–	Normalized	Min. 55,000psi (380MPa)	Min. 30,000psi (205MPa)	35 (56t + 17.50)	2	
	6		0.30	Min 0.10	0.29 ~1.06	0.025	0.025	–	–	–	–		Min. 60,000psi (415MPa)	Min. 37,000psi (240MPa)	30 (48t + 15.00)	2	
KS D 3570 JIS G 3456	Class 1	SPHT 38 SPHT 370	0.25	0.10 ~0.35	0.30 ~0.90	0.035	0.035	–	–	–	–	As Hot Finished or Low Temperature Annealed. or Normalized	Min. 370N/㎟ (38kg/㎟)	Min. 215N/㎟ (22kg/㎟)	30	–	
	Class 2	SPHT 42 SPHT 410	0.30	0.10 ~0.35	0.30 ~1.00	0.035	0.035	–	–	–	–		Min. 410N/㎟ (42kg/㎟)	Min. 245N/㎟ (25kg/㎟)	25		
KS D 3569 JIS G 3460	Class 1	SPLT 39 STPL 380	0.25	0.35	1.35	0.035	0.035	–	–	–	–	Normalized or Normalized and Tempered	Min. 380N/㎟ (39kg/㎟)	Min. 205N/㎟ (21kg/㎟)	35		
KS D 3562 JIS G 3454		SPPS 38 STPG 370	0.25	0.35	0.30 ~0.90	0.040	0.040	–	–	–	–	Normalized (SPPS 42, STPG 410)	Min. 370N/㎟ (38kg/㎟)	Min. 215N/㎟ (22kg/㎟)	30		
		SPPS 42 STPG 410	0.30	0.35	0.30 ~1.00	0.040	0.040	–	–	–	–		Min. 410N/㎟ (42kg/㎟)	Min. 245N/㎟ (25kg/㎟)	25		

Hardness Test RB = Rockwell B Scale B = Brinell	Flattening Test H = Distance Between Exterior Surfaces D = Outside Diameter		Flange Test W = The Width of Flange D = Outside Diameter	Reverse Flattening Test	Hydrostatic Test P = Test Pressure(psi) S = Allowable Fiber Stress(psi)	Nondestructive Test & Other Inspections	Permissible Variations in Dimensions Outside Diameter	Wall Thickness	Length	Height Inside Flash	Permissible Variations in Weight
–	Weld Portion $H = \frac{(1+e)\,t}{e + t/D}$ The weld shall be located at 90deg. from the line of direction of force	e=0.09	$D \leqq 2\frac{1}{2}$in. W=15%×D $2\frac{1}{2}$in.<$D \leqq 3\frac{3}{4}$in. W=12.5%×D $D > 3\frac{3}{4}$in. W=10%×D	Specified	$P = \frac{2St}{D}$ (S = 16.000psi) The Maximum Pressure(psi) OD <1in. P = 1,000 1 in.≦ OD <1½in. P = 1,500 1½in.≦ OD < 2in. P = 2,000 2in.≦ OD < 3in. P = 2,500 3in.≦ OD < 5in. P = 3,500 5in.≦ OD. P = 4,500	(Crush Test)–For ASTM A 178 Grade A, when required by purchaser. Length of Test Speciman: D ≧ 1 in. h=2½in.(63mm) D < 1 in. h=2.5×D Height of Crushed Section. t ≦ 0.135 in. H = ¾in. or until outside folds are in contact. t > 0.135 in. H = 1¼in. An alternate to the hydrostatic test. non-destructive test may be applied.	D< 1in. ±0.004in. 1 in.≦D≦ 1½in ±0.006in. 1½in. <D< 2in. ±0.008in. 2in. ≦D< 2½in. ±0.010in. 2½in. ≦D< 3in. ±0.012in. 3in. ≦D≦ 4in ±0.015in. 4in. <D≦ 7½in. +0.015in. −0.025in. 7½in. <D≦ 9in. +0.015in. −0.045in.	+18% −0	L≦24ft D<2in. + ⅛ in. −0 D≧2in. + 3/16 in. −0 L>24ft An additional over-tolerance of ⅛ in. for each 10ft or fraction thereof. Max, Tolerance ½ in.	For tube D>2in. or t>0.135in. Hmax=0.010in. For tube D≦2in. and t≦0.135in. Hmax=0.006in.	+ 10% − 0 For tubes D≦4in. Lots of 50 tubes or more are applied. For tubes D>4in. Lots of 20 tubes or more are applied.
HRB = 72 Max		e=0.09		Specified							
HB = 125Max HRB = 72Max		e=0.09		Specified							
HB = 146Max HRB = 80Max		e=0.08		Specified							
HB = 153Max HRB = 84Max		e=0.08									
HB = 137Max HRB = 77Max		e=0.08									
HB = 170Max HRB = 87Max		e=0.08		Specified							
–		e=0.09	$\frac{3}{4}$in.<$D \leqq 2\frac{1}{2}$in. W=15%×D $2\frac{1}{2}$in.<$D \leqq 3\frac{3}{4}$in. W=12.5%×D $3\frac{3}{4}$in.<$D \leqq 4\frac{1}{2}$in. W=10%×D $4\frac{1}{2}$in.<$D \leqq 6\frac{5}{8}$in. W=7.5%×D $D > 6\frac{5}{8}$in. W=5%×D	Specified	$P = \frac{2St}{D}$ (S = 0.60 × Y. P) The Maximum Pressure : D ≦ 3in. P = 2,500psi D > 3in. P = 2,800psi	Each tube shall be subjected to the nondestructive electric test. (Eddy current test)	½in. (21.30) ± 0.15mm ¾in. (26.70) ± 0.15mm 1in. (33.40) ± 0.15mm 1¼in.(42.16) ± 0.18mm 1½in.(48.30) ± 0.020mm 2in. (60.33) ± 0.25mm 3in. (88.90) ± 0.38mm 4in. (114.3) ± 0.43mm	Specified	D<2: + ⅛ in, − 0 D≧2: + 3/16 in, − 0	D≦1½in. Max 0.15mm D>1½in. Max 0.25mm	–
HB = 163Max HRB = 85Max		e=0.07	$D \leqq 2\frac{1}{2}$in. W=15%×D $2\frac{1}{2}$in.<$D \leqq 3\frac{3}{4}$in. W=12.5%×D $D \geqq 3\frac{3}{4}$in. W=10%×D	Specified	$P = \frac{2St}{D}$ (S = 16,000psi) The Maximum Pressure is specified repectivly in size.	(Impact Test) Test Temp : −50°F Size of specimen (mm) / Min. Ave. of Each Set of 3 Specimens (ft-lb) / Min. Value of one Specimens (ft-lb) 10by 10 — 13 — 10 10by 7.5 — 10 — 8 10by 5 — 7 — 5 10by 2.5 — 4 — 3 For A 334. an alternate to the hydrostatic test, N.D.T. may be applied.	½in. (21.30) ± 0.15mm ¾in. (26.70) ± 0.15mm 1in. (33.40) ± 0.15mm 1¼in.(42.16) ± 0.18mm 1½in.(48.30) ± 0.020mm 2in. (60.33) ± 0.25mm 3in. (88.90) ± 0.38mm 4in. (114.3) ± 0.43mm	+ 18% − 0	D<2in. + ⅛ in, − 0 D≧2in. + 3/16 in, − 0	D≦1½in. Max 0.15mm D>1½in. Max 0.25mm	+ 10% − 0
HB = 190Max HRB = 90Max		e=0.07									
–		e=0.07	–	Specified	$P = \frac{2St}{D}$ (S = 0.60×Y.P) The Maximum Pressure : D ≦ 3in. P = 2,500psi D > 3in. P = 2,800psi		(Unit:in.) ⅛in. ≦ D ≦ 1½in. +0.015, −0.031 1½in.< D ≦ 4in. +0.031, −0.031 4 in. < D ≦ 8in. +0.062, −0.031 8 in. < D ≦ 18in. +0.093, −0.031	+ specified − 12.5%	When ordered to a specified length. +¼in − 0	–	D≦12in. + 6.5% − 3.5% D>12in + 10 % − 5 % D≦4in may be weighed in convenient lot D>4in shall be weighed separately
–	$H = \frac{(1+e)\,t}{e + t/D}$ (D≦50mm, Alternativly, Bending Test 90°×6D)	e=0.08	–	–	–. Not-Appointment Time : Specified –. Appointment Time : $P = \frac{200St}{D}$ (S = 60% × Y.P)	Specified	D<40mm±0.3mm D≧40mm±0.8%	t<2mm±0.2mm t≧2mm ±10%	–	–	–
		e=0.07									
	$H = \frac{(1+e)\,t}{e + t/D}$ (D≦50mm, Alternativly, Bending Test 90°×6D)	e=0.08			–. Not-Appointment Time : Specified –. Appointment Time : $P = \frac{200St}{D}$ (S = 60% × Y.P)	Specified	D<40mm±0.3mm D≧40mm±0.8%	t<2mm±0.2mm t≧2mm ±10%	–	–	–
	Weld Portion H = ⅔D The Other Side of Weld Portion H = ⅓D				Specified	Specified	0D≦25A±0.3mm 0D≧32A±0.8%	t<3mm±0.3mm t≧3mm ±10%	–	–	–

Continued

Standard Specification		Applica-tion	Chemical Requirement (%) C Max	Si Max	Mn	P Max	S Max	Cu	Cr	Mo	Ni	Heat Treatment	Physical Requirement Tensile Strength (N/㎟)	Yield Strength	Elongation (Min %)	Gauge Length (in)	Ha HI HI
KS D 3563 / JIS G 3461	STBH 340 / STB 340	Boiler and Heat Exchanger	0.18	0.35	0.30~0.60	0.035	0.035	-	-	-	-	Normalized	340(35kg/㎟)	175(18kg/㎟)	35	-	
	STBH 410 / STB 410		0.32	0.35	0.30~0.80	0.035	0.035	-	-	-	-	Normalized	410(42kg/㎟)	255(26kg/㎟)	25	-	
	STBH 510 / STB 510		0.25	0.35	1.00~1.50	0.035	0.035	-	-	-	-	Normalized	510(52kg/㎟)	295(30kg/㎟)	25	-	

List of Specifications of Electric-Resistance-Welded Tubes and Pipes For Structural Purposes

Standard Specification		Applica-tion	Chemical Requirement (%) C Max	Si Max	Mn Max	P Max	S Max	Cr Max	Mo	Ni	Heat Treatment	Physical Requirement Tensile Strength Min	Yield Strength Min	Elongation (Min %)	Gauge Length (in)
ASTM A 252	1	Steel Pipe Piles	-	-	-	0.05	-	-	-	-	-	50,000pis(345MPa)	30,000pis(205MPa)	30 (48t + 15.00)	2
	2		-	-	-	0.05	-	-	-	-	-	60,000pis(415MPa)	35,000pis(240MPa)	25 (40t + 12.50)	2
	3		-	-	-	0.05	-	-	-	-	-	66,000pis(455MPa)	45,000pis(310MPa)	20 (32t + 10.00)	2
ASTM A 500	A	Round Structural Tubing	0.30	-	-	0.045	0.050	Cu 0.18	-	-	-	45,000pis(310MPa)	33,000pis(228MPa)	25 (56t + 17.50)	2
	B		0.30	-	-	0.045	0.050	Cu 0.18	-	-	-	58,000pis(400MPa)	42,000pis(290MPa)	23 (61t + 12.00)	2
ASTM A513	MT 1010	Mechanical Tubing	0.05~0.15	-	0.30~0.60	0.035	0.035	-	-	-	No Final Thermal Treatment, Stress Relieved and Annealed or Normalized				
	MT 1015		0.10~0.20	-	0.30~0.60	0.035	0.035	-	-	-					
	MTX 1015		0.10~0.20	-	0.60~0.90	0.035	0.035	-	-	-					
	MT 1020		0.15~0.25	-	0.30~0.60	0.035	0.035	-	-	-					
	MTX 1020		0.15~0.25	-	0.70~1.00	0.035	0.035	-	-	-					
	1025		0.22~0.28	-	0.30~0.60	0.035	0.035	-	-	-					
	1026		0.22~0.28	-	0.60~0.90	0.035	0.035	-	-	-					
	1030		0.27~0.34	-	0.60~0.90	0.035	0.035	-	-	-					
	1035		0.31~0.38	-	0.60~0.90	0.035	0.035	-	-	-					
	4130		0.28~0.33	0.15~0.35	0.40~0.60	0.035	0.040	0.80~1.10	0.15~0.25	-					
	8630		0.28~0.33	0.15~0.35	0.70~0.90	0.035	0.040	0.40~0.60	0.15~0.25	0.40~0.70					

Type	Grade	Tensile Strength (Min psi)	Yield Strength (Min psi)	Elongation	Hardness RB Min	Hardness RB Max
As welded	1010	45,000	32,000	15	55	-
	1015	48,000	35,000	15	58	-
	1020	52,000	38,000	12	62	
	1025	56,000	40,000	12	65	-
	1030	62,000	45,000	10	70	-
	1035	66,000	50,000	10	75	-
Normalized	1010	40,000	25,000	30	-	65
	1015	45,000	30,000	30	-	70
	1020	50,000	35,000	25	-	75
	1025	55,000	37,000	25	-	80
	1030	60,000	40,000	25	-	85
	1035	65,000	45,000	20	-	88
Sink Drawn	1010	50,000	40,000	8	65	-
	1015	55,000	45,000	8	67	-
	1020	60,000	50,000	8	70	-
	1025	65,000	55,000	7	72	-
	1030	70,000	62,000	7	78	-
	1035	80,000	70,000	7	82	-
Mandrel Drawn	1010	60,000	50,000	5	73	-
	1015	65,000	55,000	5	77	-
	1020	70,000	60,000	5	80	-
	1025	75,000	65,000	5	82	-
	1030	85,000	75,000	5	87	-
	1035	90,000	80,000	5	90	-
Mandrel Drawn Stress Rlieved	1010	55,000	45,000	12	68	-
	1015	60,000	50,000	12	72	-
	1020	65,000	55,000	10	75	-
	1025	70,000	60,000	10	77	-
	1030	80,000	70,000	10	81	-
	1035	85,000	75,000	10	85	-

Hardness Test	Flattening Test	Flaring Test	Reverse Flattening Test	Hydrostatic Test	Nondestructive Test & Other Inspections	Permissible Variations in Dimensions				Permissible Variations in Weight
						Outside Diameter	Wall Thickness	Length	Height Inside Flash	
HRB = Rockwell B Scale HB = Brinell	H = Distance Between Exterior Surfaces D = Outside Diameter	W = The Width of Flaring D = Outside Diameter		P = Test Pressure(psi) PD = Design Pressure(psi) S = Allowable Fiber Stress(psi)						
–	$H = \frac{(1+e)\,t}{e + t/D}$ e : constant STB(H)340:0.09 410:0.08 510:0.07	W=1.2×D (60°)	–	Not-Appointment Time : $P = \frac{2St}{D}$ (S:60%×Y.P)	Alternativly, Hydrostatic Test or Nondestructive Test	Specified	OD < 40mm t < 2mm +0.3mm 0 t ≧2mm + 18% 0 OD ≧ 40mm + 18% 0	Specified	Max 0.25mm Max 0.25mm Max 0.25mm	– – –

Flattening Test	Flaring Test	Nondestructive Test & Other Inspections	Hydrostatic Test	Permissible Variations in Dimensions				Permissible Variations in Weight
				Outside Diameter	Wall Thickness	Length	Height Inside Flash	
H = Distance Between Exterior Surfaces D = Outside Diameter	W = The width of Flaring D = Outside Diameter		P = Test Pressure(psi) S = Allowable Fiber Stress(psi)					
–	–	–	–	±1%	+not Specified −12.5%	When ordered to a specified length. ± 1 in.	–	Each lengths + 15% − 5%
●Weld Portion(ductility) H = $\frac{2}{3}$D ●The Other size of weld portion H = $\frac{1}{2}$D(H≧5t) ●Soundness test H = 밀착 ●The weld shall be located at 90 deg.	–	–	–	OD ≦ 1.900″ ±0.5% OD ≧ 2.00″ ±0.75%	±10%	When ordered to a specified length. L≦22ft +$\frac{1}{2}$in. −$\frac{1}{4}$in. 22<L≦44ft +$\frac{1}{2}$in. −$\frac{1}{4}$in.	–	–
When required by purchaser ● Weld Portion H = $\frac{2}{3}$D ● The Other Side of Weld Portion H = $\frac{1}{3}$D (H≧5t) ● The weld shall be located at 90 deg. from the line of direction of force.	When required by purchaser W=1.15×D (60°)	When required by purchaser Nondestructive electric test (Eldy Current Test, Ultrasonic test or Flux Leakage Test)	When required by purchaser $P = \frac{2St}{D}$ (S=14,000psi or 96.5MPa)	Specified respectively in type and size	Specified respectively in type and size	When ordered to a specified length. permissible variation of length is specified, repectively in type and size.	Inside flash maybe following conditions. (1) Flash-In Wall Thickness or $\frac{3}{32}$ in.(2.4mm), Whichever is less. (2) Flash Controlled to 0.010in. (0.25mm), Maximum (3) Flash Controlled to 0.005in. (0.13mm), Maximum (4) No Flash	–

Continued

Standard Specification		Applica-tion	Chemical Requirement (%)								Heat Treatment	Physical Requirement			
			C Max	Si Max	Mn Max	P Max	S Max	Cr	Mo	Ni		Tensile Strength Min (N/㎟)	Yield Strength Min (N/㎟)	Elongation (Min %)	Gauge Length (in)
KS D 3566 JIS G 3444	STK 290	General Structural Purposes	–	–	–	0.050	0.050	–	–	–	–	290(30kg/㎟)	–	30	–
	STK 400		0.25	–	–	0.040	0.040	–	–	–	–	400(41kg/㎟)	235(24kg/㎟)	23	–
	STK 500		0.24	0.35	0.30~1.30	0.040	0.040	–	–	–	–	500(51kg/㎟)	355(36kg/㎟)	15	–
	STK 490		0.18	0.55	1.50	0.040	0.040	–	–	–	–	490(50kg/㎟)	315(32kg/㎟)	23	–
	STK 540		0.23	0.55	1.50	0.040	0.040	–	–	–	–	540(55kg/㎟)	390(40kg/㎟)	20	–
KS D 3517 JIS G 3445	STKM 11A	Machine Structural Purposes	0.12	0.35	0.60	0.040	0.040	–	–	–	A : Hot Working (Heat Treatment) B : As welded (ERW) C : Cold working (Stress Relieved)	290(30kg/㎟)	–	35	–
	STKM 12A		0.20	0.35	0.60	0.040	0.040	–	–	–		340(35kg/㎟)	175(18kg/㎟)	35	–
	STKM 12B		0.20	0.35	0.60	0.040	0.040	–	–	–		390(40kg/㎟)	275(28kg/㎟)	25	–
	STKM 12C		0.20	0.35	0.60	0.040	0.040	–	–	–		470(48kg/㎟)	355(36kg/㎟)	20	–
	STKM 13A		0.25	0.35	0.30~0.90	0.040	0.040	–	–	–		370(38kg/㎟)	215(22kg/㎟)	30	–
	STKM 13B		0.25	0.35	0.30~0.90	0.040	0.040	–	–	–		440(45kg/㎟)	305(31kg/㎟)	20	–
	STKM 13C		0.25	0.35	0.30~0.90	0.040	0.040	–	–	–		510(52kg/㎟)	380(39kg/㎟)	15	–
	STKM 14A		0.30	0.35	0.30~1.00	0.040	0.040	–	–	–		410(42kg/㎟)	245(25kg/㎟)	25	–
	STKM 14B		0.30	0.35	0.30~1.00	0.040	0.040	–	–	–		500(51kg/㎟)	355(36kg/㎟)	15	–
	STKM 14C		0.30	0.35	0.30~1.00	0.040	0.040	–	–	–		550(56kg/㎟)	410(42kg/㎟)	15	–
	STKM 15A		0.25~0.35	0.35	0.30~1.00	0.040	0.040	–	–	–		470(48kg/㎟)	275(28kg/㎟)	22	–
	STKM 15C		0.25~0.35	0.35	0.30~1.00	0.040	0.040	–	–	–		580(59kg/㎟)	430(44kg/㎟)	12	–
	STKM 16A		0.35~0.45	0.40	0.40~1.00	0.040	0.040	–	–	–		510(52kg/㎟)	325(33kg/㎟)	20	–
	STKM 16C		0.35~0.45	0.40	0.40~1.00	0.040	0.040	–	–	–		620(63kg/㎟)	460(47kg/㎟)	12	–
	STKM 17A		0.45~0.55	0.40	0.40~1.00	0.040	0.040	–	–	–		550(56kg/㎟)	345(35kg/㎟)	20	–
	STKM 17C		0.45~0.55	0.40	0.40~1.00	0.040	0.040	–	–	–		650(66kg/㎟)	480(49kg/㎟)	10	–
	STKM 18A		0.18	0.55	1.50	0.040	0.040	–	–	–		440(45kg/㎟)	275(28kg/㎟)	25	–
	STKM 18B		0.18	0.55	1.50	0.040	0.040	–	–	–		490(50kg/㎟)	315(32kg/㎟)	23	–
	STKM 18C		0.18	0.55	1.50	0.040	0.040	–	–	–		510(52kg/㎟)	380(39kg/㎟)	15	–

Flattening Test H = Distance Between Exterior Surfaces D = Outside Diameter	Dirft Expanding or Flange Test D = Inside Diameter ID′ = Increased Inside Diameter	Nondestructive Test & Other Inspections	Hydrostatic Test P = Test Pressure (psi) S = Allowable Fiber Stress (psi)	Permissible Variations in Dimensions						Permissible Variations in Weight
				Outside Diameter		Wall Thickness		Length	Height of Inside Flash	
$H=\frac{2}{3}D$	-	-	-	No.1	0D<50mm ±0.5mm 0D≧50mm ±1%	No.1	t<4mm +0.6mm −0.5mm 4mm≦t<12mm +15% −12.5% t≧12mm +15% −1.5mm	-	-	-
$H=\frac{2}{3}D$										
$H=\frac{7}{8}D$										
$H=\frac{7}{8}D$				No.2	0D<50mm ±0.25mm 0D≧50mm ±0.5%	No.2	t<3mm ±0.3mm 3mm≦t<12mm ±10% 12mm≦t +10% −1.2mm			
$H=\frac{7}{8}D$										
$H=\frac{1}{2}D$	-	-	-	No.1	0D<50mm ±0.5mm 0D≧50mm ±1%	No.1	t<4mm +0.6mm −0.5mm t≧4mm +15% −12.5%	+50mm −0mm	-	-
$H=\frac{2}{3}D$										
$H=\frac{2}{3}D$				No.2	0D<50mm ±0.25mm 0D≧50mm ±0.5%	No.2	t<3mm ±0.3mm t≧3mm ±10%			
-				No.3	0D<25mm ±0.12mm 25mm≦0D<40mm ±0.15mm 40mm≦0D<50mm ±0.18mm 50mm≦0D<60mm ±0.20mm 60mm≦0D<70mm ±0.23mm 70mm≦0D<80mm ±0.25mm 80mm≦0D<90mm ±0.30mm 90mm≦0D<100mm ±0.40mm 0D<100mm ±0.5%	No.3	t<2mm ±0.15mm t≧2mm ±8%			
$H=\frac{2}{3}D$										
$H=\frac{3}{4}D$										
-										
$H=\frac{3}{4}D$										
$H=\frac{7}{8}D$										
-	-	-	-							
$H=\frac{3}{4}D$										
-										
$H=\frac{7}{8}D$										
-										
$H=\frac{7}{8}D$										
-										
$H=\frac{7}{8}D$										
$H=\frac{7}{8}D$										
-										

Continued

Standard Specification		Applica-tion	Chemical Requirement (%)							
			C Max	Si Max	Mn Max	P Max	S Max	Cr	Mo	
KS D 3517 / JIS G 3445	STKM 19A	Machine Structural Purposes	0.25	0.55	1.50	0.040	0.040	–	–	
	STKM 19C							–	–	
	STKM* 20A		0.25	0.55	1.60	0.040	0.040	–	–	

* STKM 20A, Nb+V≦0.15%

List of Specifications of Electric-Resistance-Welded

Standard Specification		Application	Chemical Requirement (%)								
			C Max	Si Max	Mn	P Max	S Max	Cr Max	Ni	Mo	Cu
DNV	TW 320	Steel Pipes for Vessel	0.16	–	0.30 ~0.70	0.04	0.04	–	–		
	TW 360		0.17	0.35	0.30 ~0.80	0.04	0.04		–		
	TW 410		0.21	0.35	0.40 ~1.20	0.04	0.04		–		
	TW 430		0.21	0.35	0.40 ~1.20	0.04	0.04		–		
LR	320	Welded Pressure Pipes	0.16	–	0.30 ~0.70	0.050	0.050	Cr 0.25Max Ni 0.30Max Mo 0.10Max Cu 0.30Max Total 0.70Max			
	360		0.17	0.35	0.40 ~1.00	0.045	0.045				
	410		0.21	0.35	0.40 ~1.20	0.045	0.045				
	460		0.22	0.35	0.80 ~1.40	0.045	0.045				

List of Specifications of Conduit Tubes

Standard Specification		Application	Chemical Requirement (%)						T
			C Max	Si Max	Mn Max	P Max	S Max	Other Tests	
KS D 8401 / JIS G 8305	Thin Conduit Tubes	Rigid Steel Conduit	*KS D 3555 or KS D 3512 Grade 1 (JIS G 3132 or JIS G3141 Grade 1)						
	Thick Conduit Tubes								
	Threadless Conduit Tubes								
UL	6		–						
	797		–						
BS	31		–						
ANSI	C 80.1 C 80.2 C 80.3		–						

Ni	Heat Treatment	Physical Requirement (%)			
		Tensile Strength Min (N/㎟)	Yield Strength Min (N/㎟)	Elongation (Min %)	Gauge Length (in)
–	A : Hot Working (Heat Treatment)	490(50kg/㎟)	315(32kg/㎟)	23	–
–	B : As welded (ERW)	550(56kg/㎟)	410(42kg/㎟)	15	–
–	C : Cold working (Stress Relieved)	540(55kg/㎟)	390(40kg/㎟)	23	–

d Tubes and Pipes For Vessel

	Heat Treatment	Physical Requirement (%)					
		Tensile Strength (N/㎟)	Yield Strength Min (N/㎟)	Elongation (Min %)	Gauge Length (in)	Permitted Design Temp(℃) Lowest	Highest
	Normalized	320~460	Grade / Yield Strength: t≦16 / 16<t≦40 / 40<t≦65 — TW 320: 195 / – / –; TW 360: 235 / 225 / 215; TW 410: 255 / 245 / 235; TW 430: 275 / 265 / 255	25	5.65√A	–10	300
		360~500		25			
		410~550		22			
		430~570		21			
	Normalized	320~440	195	25	5.65√A	Where Rimming Steel is used. the Design Temperature is limited to 400℃	
		360~480	215	24			
		410~530	265	22			
		460~580	285	21			

Treatment	Required Tests
–	▶KS Conduit Tubes ○ Bending Test : Table 1 ○ Corrosion resistance Test – Uniformity Test (Copper Sulphate Test) : Min. 3Times.
–	○ Bending Test ○ Corrosion resistance Test – Uniformity Test (Copper Sulphate Test) : Min. 4 Times
–	○ Bending Test ○ Corrosion resistance Test – Uniformity Test (Copper Sulphate Test) : Min. 4 Times
–	○ Bending Test ○ Corrosion resistance Test – Uniformity Test (Copper Sulphate Test) – Salt Water dipping Test – Salt Water Spraying Test
–	○ Bending Test ○ Thickness of Zinc layer : Min. 0.02mm

Table 1

Division	NB	Angle×Inner Radius
Thick	G16 G22	90°×4D
	G28	90°×5D
Thin, Threadless	C19,C25 E19,E25	90°×4D

Flattening Test	Flange Test	Nondestructive Test & Other Inspections	Hydrostatic Test
H = Distance Between Exterior Surfaces D = Outside Diameter	W = The width of Flange D = Outside Diameter		P = Test pressure (psi) S = Allowable Fiber Stress (psi)
$H = \frac{7}{8}D$	–	–	–
–			
$H = \frac{7}{8}D$			

Flattening Test		Hydrostatic Test	Other Tests
H = Distance Between Exterior Surfaces D = Outside Diameter		P = Test Pressure D = Norminal Outside Diameter t = Norminal Wall Thickness	
$H = \frac{(1+e)t}{e+t/D}$		$P = \frac{20St}{D}$	
e:Constant Value		S : 80% of the Specified Min. Yield Stress, in (kg/㎟) P in Bars D & t in mm	
t/D≦0.15 / t/D>0.15			
TW 320: 0.09 / 0.08			
TW 360: 0.09 / 0.08			
TW 410: 0.07 / 0.06			
TW 430: 0.07 / 0.06			
$H = \frac{t(1+C)}{C+t/D}$	C=0.10	$P = \frac{200St}{D}$	
	C=0.10	S : 80% of the Specified Min. Yield Stress, in kg/㎟ P in kg/㎠ D & t in mm	
	C=0.08	Note : The maximum test pressure need not exceed 140bar (143 kg/㎠)	
	C=0.07		

	Outside Diameter
▶JIS Conduit Tubes ○ Bending Test : 90°×60 (G16,G22,C19,C25,E19,E25) ○ Corrosion resistance Test – Uniformity Test (Copper Sulphate Test) : Min. 3Times. ○ Hammer Teat ○ Compressive strain Test	Thin: OD≦50.8 : ±0.2m / 50.8<O.D≦76.2 : Thick: OD≦87.9 : ±0.3m / 87.9<O.D≦113.4 Threadless: OD≦50.8 : ±0.15 / 50.8<O.D≦76.2 :
	OD ≦ 1½ In. +0.4, −0.8mm OD > 2 in ±1%
	17.93≦OD≦55.8 : ±0.13mm OD = 73.03mm : ±0.25mm OD = 88.9mm : ±0.38mm OD = 101.6mm : ±0.50mm OD = 114.3mm : ±0.50mm
	Refer to Spec.
	17.1 ≦OD≦60.3 : ±0.38mm 73.0≦OD≦114.3 : ±0.64mm OD = 141.3mm : ±1%

	Permissible Variations in Dimensions				Permissible Variations in weight
)	Outside Diameter	Wall Thickness	Length	Height of Inside Flash	
			–	–	–

	Permissible Variations in Dimensions
	The tolerance on the wall thickness and diameter of pipes and tubes are to be in accordance with the relevant ISO-standard or an acceptable national specification.
	The tolerance on the wall thickness and diameter of pipes and tubes are to be in accordance with on acceptable national specification.

Permissible Variations in Dimensions				Permissible Variations in weight
ter	Wall Thickness	Length	Height of Inside Flash	
2mm 2 : ±0.35mm 3mm 4 : ±0.4mm 15mm 2 : ±0.25mm	–	±5mm	–	-7%
	–	±6mm (Without Coupling)	–	Minimum acceptable Weight of ten lengths
	–	The maximum length specified length +5mm	–	Refer to Spec
c.	–	–	–	±8%/100ft
	-12.5%	±6.35mm (Without Coupling)	–	Refer to Spec

SeAH

SeAH Steel Corporation

■ **HEADQUARTERS**
10, Bongnae-Dong 1Ga, Jung-Gu, Seoul, Korea
TEL : (02) 3783-8114 FAX : (02) 3783-8181~2

■ **POHANG PLANT**
14-1, Jangheung-Dong, Nam-Gu, Pohang, Gyeungbuk, Korea
TEL : (054) 271-4114 FAX : (054) 285-6401

■ **CHANGWON PLANT**
50, Ungnam-Dong, Changwon, Gyeungnam, Korea
TEL : (055) 278-2222 FAX : (055) 289-8848

■ **GUNSAN PLANT**
1632-19, Soryong-Dong, Gunsan, Jeonbuk, Korea
TEL : (063) 469-8500 FAX : (063) 469-8590

■ **ANSAN PLANT**
1060-2, Singil-Dong, Danwon-Gu, Ansan, Gyeunggi, Korea
TEL : (031) 492-3371 FAX : (031) 491-6836

■ **BUSAN OFFICE**
729-1, Hakjang-Dong, Sasang-Gu, Busan, Korea
TEL : (051) 311-4521 FAX : (051) 311-4530

■ **GWANGJU OFFICE**
913-10, Dongrim-Dong, Buk-Gu, Gwangju, Korea
TEL : (062) 515-0890 FAX : (062) 515-0898

■ **BEIJING OFFICE**
Room No.509, Qingan Building, 27, Xiaoyun Road, Chaoyang District, Beijing, China
TEL : (010) 8451-0345 FAX : (010) 8451-0347

■ **PUSAN PIPE AMERICA, INC.**

● **L.A. OFFICE**
9615 South Norwalk Blvd., Suite B
Santa Fe Springs, CA 90670, U.S.A
TEL : (562) 692-0600 FAX : (562) 692-9295

● **EAST OFFICE**
740 Springdale Road, Suite # 145
Exton, PA 19341, U.S.A
TEL : (610) 280-9480 FAX : (610) 280-9484

● **HOUSTON BRANCH (PAN MERDIAN TUBULAR)**
14550 Torrey Chase Blvd., Suite 345 Houston,
Texas 77014, USA
TEL : (281) 873-7800 FAX : (281) 873-7873

■ **SeAH JAPAN CO., LTD.**
Bonhuri-Man Bldg., 7F 4 - 8, 3-Chome
Shimbashi, Minato-Ku, Tokyo 105, Japan
TEL : (813) 3501-1347 FAX : (813) 3501-1387

2005. 5. Printed in Korea
http : //www.seahsteel.co.kr