

STEEL PIPES



& TUBES

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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 authorized 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 Pohang plant went into operation covering upto 20 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

<ul style="list-style-type: none"> ● Korean Industrial Standards ● American Petroleum Institute Standards ● Det Norske Veritas Standards ● Australian Standards 	<ul style="list-style-type: none"> ● Canadian Standards Association ● Lloyd's Register of Shipping Standards ● Deutsche Industrie Normen ● KR 	<ul style="list-style-type: none"> ● American Bureau of Shipping Standards ● British Standards ● American National Standards Institute ● BV 	<ul style="list-style-type: none"> ● Japanese Industrial Standards ● American Society for Testing & Material Standards
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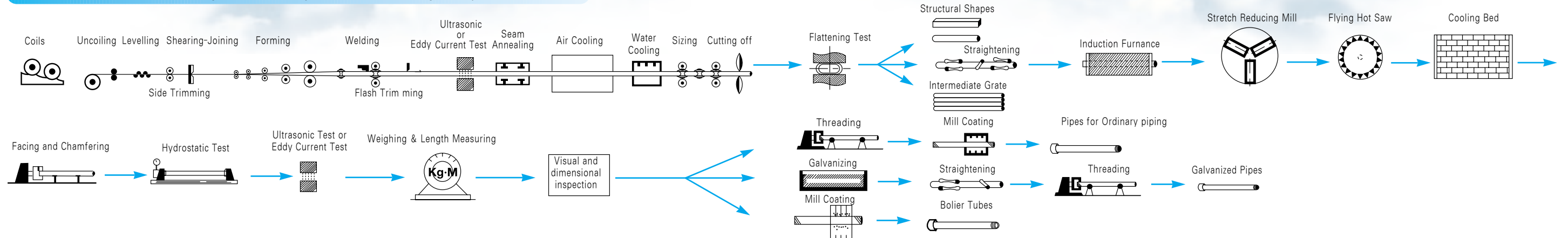
Carbon Steel Pipes for Ordinary Piping	<ul style="list-style-type: none"> ● Pipes for Water Piping ● Pipes for General Ordinary Piping 	▶ For City & Industrial Water, Irrigation & Agriculture Water, Oil & Gas Supply, Sprinkler, Fire Hydrant, Ship Piping, etc.	KS JIS BS ASTM
Carbon Steel Pipes for Pressure Service	● Pipes for Pressure Service	▶ For Pressure Service at the Temperature not exceeding 350℃	KS JIS
Conduit Tubes	<ul style="list-style-type: none"> ● 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	<ul style="list-style-type: none"> ● Tubes for General Structural Purpose ● Tubes for Mechanical Structural Purpose ● Automobile Structural Purposes ● Fence Tubes ● Pipe Scaffolding ● 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	<ul style="list-style-type: none"> ● 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	<ul style="list-style-type: none"> ● 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	<ul style="list-style-type: none"> ● 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	<ul style="list-style-type: none"> ● 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	<ul style="list-style-type: none"> ● 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

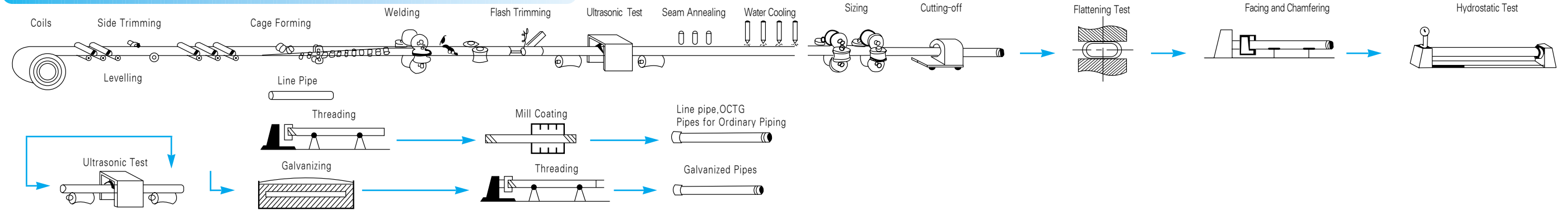
Plant	Spec	Description	Code	Classification	Size	Approval	
						No	Date
P	KS	1. Rigid Steel Conduits	KS C8401	Galvanizing	G16~G104 C19~C75	70	65. 3. 17
		2. Carbon Steel Pipes for General Ordinary Piping	KS D3507	SPP(Black. Galv.)	15A~600A	1821	79. 9. 22
		3. Carbon Steel Tube for Machine Structural 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 SCH.20 SCH.40 SCH.80 SPPS 42 SCH. 40 SCH. 80	350A~600A 50A~600A 15A~400A 15A~200A 15A~400A 15A~200A	2257	80. 12. 29
		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 STK 400 STK 490 STK 500	21.7~508.0mm 21.7~609.6mm 21.7 ~1016.0mm 21.7 ~914.4mm	3292	83. 11. 18
		7. Carbon Steel Square Pipes for General Structural Purposes	KS D3568	SPSR 400, 490 30×20~200×100	20×20~300×300	4114	85. 8. 2
		8. Coated Steel Pipes for Water Works	KS D3565	STWW 400(A,C,L)	3000A0]하	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
O	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
A	CSA	1. Rigid Metal Conduit	CSA C22.2	-	1/2"~4"	LL63989	86. 12. 10
		2. Coupling	-NO.45	-	"	LL66820	87. 6. 30
N	UL	1. Rigid Metal Conduit	UL-6	-	all size	E82333	82. 9. 5
		1. Steel Pipes for Pressure piping	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
G	LR	1. Welded pipes and Tubes in Carbon Steel	LR	Welded steel Tube & pipes	Max. 1425mm	MD00/1222/0004/4	02. 4. 19
		1. Steel Tubes and Pipes	DNV	Welded steel Tube & pipes	ERW Max.600mm SAW Max.1423mm	AMM-250 AMM-826 TP332-Kaag	01. 9. 18 01. 9. 3 96. 3. 11
	GL	1. Longitudinal Welded Unalloyed Steel Pipes	JIS G3454	STPG 370 (ERW, SRM)	21.7~508.0mm	WZ707HH1	00. 6. 23
		1. Welded Steel Pipes		KSTBG 38-E-G KSTBG 38-E-H KSTB 35	21.7~508.0mm 21.7~101.6mm Max 76.2mm	96EW324ROL	96. 6. 25
	NK	2. Welded Steel Tubes for Boilers & Heat Exchanger				97EW249ROL	97. 6. 24
		1. Steel Pipes for Pressure piping	BV	Grade 410(SAW) Grade 320~410(ERW)	20" ~54" 19.1~609.6mm	09649/AD BV 2002 V07528/AD/ PRSD	00. 3. 14 98. 6. 3
	API	2. Steel Tubes for Boilers & Pressure pipings					
		1. Line Pipe	API 5L	ALL GRADE	all size	5L-0318	79. 3. 21
	U-Mark	2. Casing & Tubing	API 5CT	Group 1&2	"	5CT-0417	79. 3. 21
		3. Structural Steel pipe	API 2B	ALL GRADE	"	2B-0047	95. 7. 24
NSF	1. Welded Circular Unalloyed Steel Tubes Subject to Special Requirement	DIN1626	ST37.0(ERW)	all size	Report 926/002037	00. 5. 17	
	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' 4" NB×SCH40×21'	071698-MH25802 071698-MH25802A	98. 7. 16 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	-	-	-	-	-	
	2. Steel Tubes and Pipes for Boiler & Heat Exchanger	-	-	-	ERW Max. 610mm SAW Max. 1371.6mm	00/Pu/94/To-1	00. 2. 28

Manufacturing Process

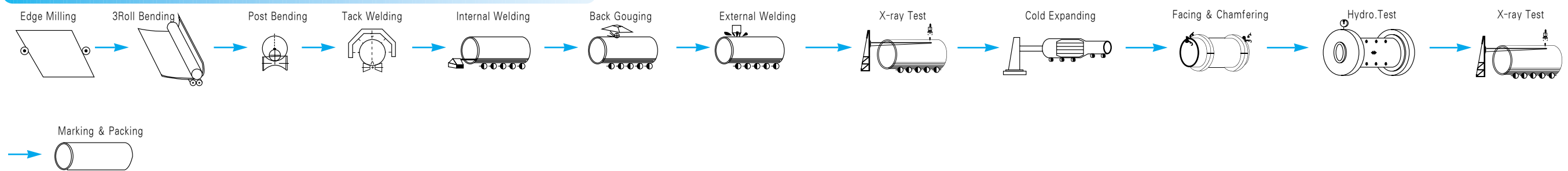
Small Diameter Electric Welded Straight-seam Steel Pipe and Stretch Reducing Mill Pipe (3/8~8 inch O.D)



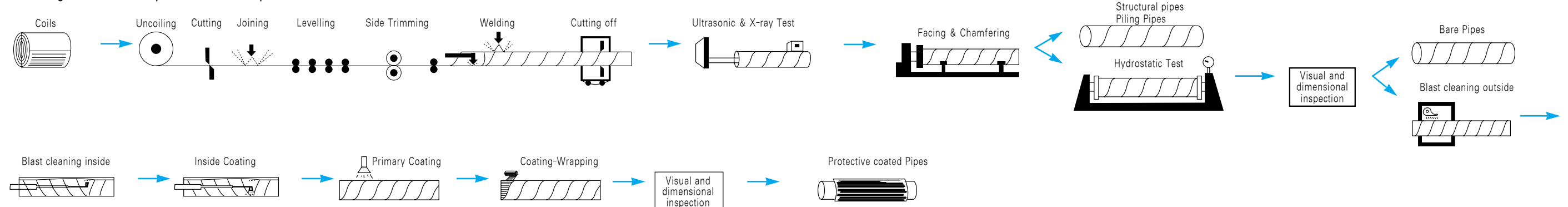
Medium Diameter Cage Forming ERW Steel Pipe (8~24 inch O.D)



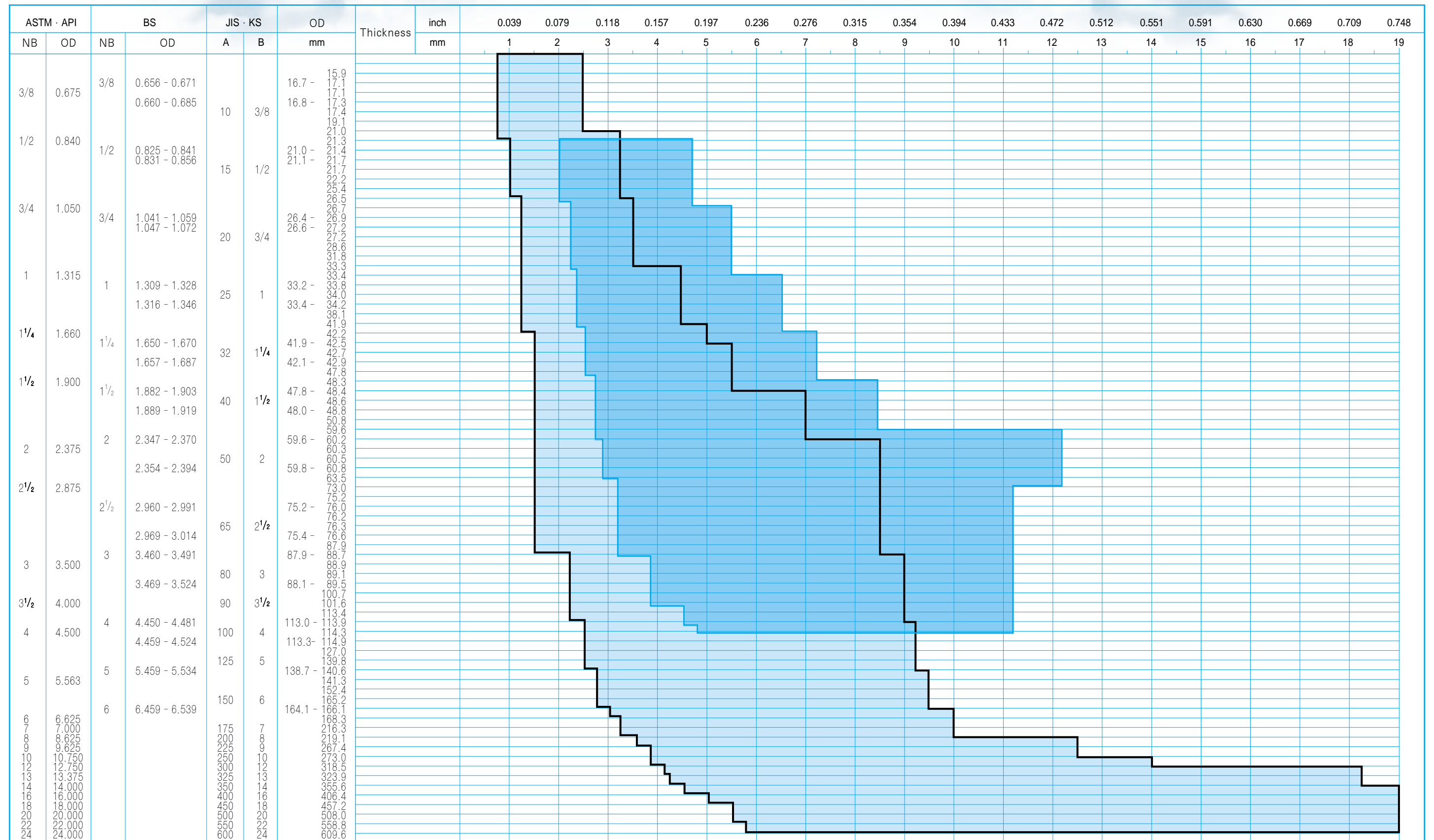
Submerged Arc Welded Logitudinal-Seam Steel Pipe



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



Size Availability (E. R. W)



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 mm	Tolerance of Outside Dia.		Wall Thickness mm	Tolerance of Wall Thickness	Unit weight of Plain Ends kg/m
mm	in.		Taper Threaded	Plain Ends			
★ 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
	1/2	21.7	±0.5mm		2.65		1.25
	3/4	27.2	±0.5mm		2.65		1.60
	1	34.0	±0.5mm		3.25		2.45
	1 1/4	42.7	±0.5mm		3.25		3.16
	1 1/2	48.6	±0.5mm		3.25		3.63
	2	60.5	±0.5mm	±1%	3.65		5.12
	2 1/2	76.3	±0.7mm	±1%	3.65		6.34
	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
	4	114.3	±0.8mm	±1%	4.50		12.2
	5	139.8	±0.8mm	±1%	4.85		16.1
	6	165.2	±0.8mm	±1%	4.85		19.2
★ 175	7	190.7	±0.9mm	±1%	5.30		24.2
	8	216.3	±1.0mm	±1%	5.85		30.4
★ 225	9	241.8	±1.2mm	±1%	6.20		36.0
	10	267.4	±1.3mm	±1%	6.40		41.2
	12	318.5	±1.5mm	±1%	7.00		53.8
	14	355.6	-	±1%	7.60		65.2
	16	406.4	-	±1%	7.9		77.6
	18	457.2	-	±1%	7.9		87.5
	20	508.0	-	±1%	7.9		97.4
	22	558.8	-	±1%	7.9		107.0
	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 mm	Tolerance of Outside Dia.		Wall Thickness mm	Tolerance of Wall Thickness	Unit weight of Plain Ends kg/m
mm	in.		Taper Threaded	Plain Ends			
★ 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
	1/2	21.7	±0.5mm		2.8		1.31
	3/4	27.2	±0.5mm		2.8		1.68
	1	34.0	±0.5mm		3.2		2.43
	1 1/4	42.7	±0.5mm		3.5		3.38
	1 1/2	48.6	±0.5mm		3.5		3.89
	2	60.5	±0.5mm	±1%	3.8		5.31
	2 1/2	76.3	±0.7mm	±1%	4.2		7.47
	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
	4	114.3	±0.8mm	±1%	4.5		12.2
	5	139.8	±0.8mm	±1%	4.5		15.0
	6	165.2	±0.8mm	±1.6mm	5.0		19.8
★ 175	7	190.7	±0.9mm	±1.6mm	5.3		24.2
	8	216.5	±1.0mm	±0.8%	5.8		30.1
★ 225	9	241.8	±1.2mm	±0.8%	6.2		36.0
	10	267.4	±1.3mm	±0.8%	6.6		42.4
	12	318.5	±1.5mm	±0.8%	6.9		53.0
	14	355.6	-	±0.8%	7.9		67.7
	16	406.4	-	±0.8%	7.9		77.6
	18	457.2	-	±0.8%	7.9		87.5
	20	508.0	-	±0.8%	7.9		97.4
	22	558.8	-	±0.8%	7.9		107.0
	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 Boiler and Heat Exchanger Tubes

ASTM A 53-2001

Nominal Size	Outside Diameter		Wall Thickness		Nominal Weight			Weight Class	Sch. No.	Test Pressure(psi)	
	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
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
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			

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	

Size					Weight			Hydrostatic Test Pressure (Kpa × 100)																				
Outside Diameter		Wall Thickness			lb/ft	kg/ft	kg/m	A		B		X42		X46		X52		X56		X60		X65		X70		X80		
in.	mm	Sch No.	in.	mm				Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.
24	610.0		0.312	7.9	79.01	35.84	117.30	32	40	37	47	68	-	74	-	84	-	90	-	97	-	104	-	113	-	129	-	
			0.344	8.7	86.99	39.46	129.00	35	44	41	52	74	-	81	-	92	-	99	-	106	-	115	-	124	-	142	-	
			0.375	9.5	94.71	42.96	140.68	39	48	45	56	81	-	89	-	101	-	108	-	116	-	126	-	135	-	155	-	
			0.406	10.3	102.40	46.45	152.32	42	52	49	61	88	-	96	-	109	-	117	-	126	-	136	-	147	-	168	-	
			0.438	11.1	110.32	50.04	163.93	45	57	53	66	95	-	104	-	118	-	126	-	136	-	147	-	158	-	181	-	
			0.469	11.9	117.98	53.51	175.51	48	61	56	71	102	-	111	-	126	-	136	-	145	-	157	-	170	-	194	-	
			0.500	12.7	125.61	56.98	187.06	52	65	60	75	109	-	119	-	135	-	145	-	155	-	168	-	181	-	207	-	
			0.562	14.3	140.81	63.87	210.07	58	73	68	85	122	-	134	-	151	-	163	-	175	-	189	-	204	-	207	-	
			0.625	15.9	156.17	70.84	232.94	65	81	75	94	136	-	149	-	168	-	181	-	194	-	207	210	207	227	207	233	-
			0.688	17.5	171.45	77.77	255.69	71	89	83	104	150	-	164	-	185	-	199	-	207	214	207	231	207	249	207	250	-
			0.750	19.1	186.41	84.55	278.32	78	97	91	113	163	-	179	-	202	-	207	218	207	233	207	250	207	250	207	250	-
			0.812	20.6	201.28	91.30	299.41	84	105	98	122	176	-	193	-	207	218	207	235	207	250	207	250	207	250	207	250	-
26	660.0		0.250	6.4	68.82	31.22	103.15	24	30	28	35	51	-	55	-	63	-	67	-	72	-	78	-	84	-	96	-	
			0.281	7.1	77.26	35.04	114.31	27	33	31	39	56	-	61	-	70	-	75	-	80	-	87	-	94	-	107	-	
			0.312	7.9	85.68	38.86	127.04	30	37	35	43	62	-	68	-	77	-	83	-	89	-	97	-	104	-	119	-	
			0.344	8.7	94.35	42.80	139.73	33	41	38	48	69	-	75	-	85	-	92	-	98	-	106	-	115	-	131	-	
			0.375	9.5	102.72	46.59	152.39	36	45	42	52	75	-	82	-	93	-	100	-	107	-	116	-	125	-	143	-	
			0.406	10.3	111.08	50.39	165.02	39	48	45	56	81	-	89	-	101	-	108	-	116	-	126	-	136	-	155	-	
			0.438	11.1	119.69	54.29	177.62	42	52	49	61	88	-	96	-	109	-	117	-	125	-	136	-	146	-	167	-	
			0.469	11.9	128.00	58.06	190.19	45	56	52	65	94	-	103	-	117	-	125	-	134	-	145	-	157	-	179	-	
			0.500	12.7	136.30	61.82	202.72	48	60	56	70	100	-	110	-	124	-	134	-	143	-	155	-	167	-	191	-	
			0.562	14.3	152.83	69.32	227.70	54	67	63	78	113	-	124	-	140	-	151	-	161	-	175	-	188	-	207	215	-
			0.625	15.9	169.54	76.90	252.55	60	75	70	87	126	-	137	-	156	-	167	-	180	-	194	-	207	209	207	239	-
			0.688	17.5	186.16	84.44	277.27	66	82	77	96	138	-	151	-	171	-	184	-	198	-	207	214	207	231	207	250	-
28	711.0		0.250	6.4	74.16	33.64	111.20	22	28	26	33	47	-	51	-	58	-	63	-	67	-	73	-	78	-	89	-	
			0.281	7.1	83.26	37.77	123.24	25	31	29	36	52	-	57	-	65	-	69	-	74	-	81	-	87	-	99	-	
			0.312	7.9	92.35	41.89	136.97	28	35	32	40	58	-	63	-	72	-	77	-	83	-	90	-	97	-	110	-	
			0.344	8.7	101.70	46.13	150.67	30	38	35	44	64	-	70	-	79	-	85	-	91	-	99	-	106	-	122	-	
			0.375	9.5	110.74	50.23	164.34	33	41	39	48	70	-	76	-	86	-	93	-	100	-	108	-	116	-	133	-	
			0.406	10.3	119.76	54.32	177.98	36	45	42	52	76	-	83	-	94	-	101	-	108	-	117	-	126	-	144	-	
			0.438	11.1	129.05	58.54	191.58	39	48	45	56	81	-	89	-	101	-	108	-	116	-	126	-	136	-	155	-	
			0.469	11.9	138.03	62.61	205.15	42	52	48	61	87	-	96	-	108	-	116	-	125	-	135	-	145	-	166	-	
			0.500	12.7	146.99	66.67	218.69	44	55	52	65	93	-	102	-	115	-	124	-	133	-	144	-	155	-	177	-	
			0.562	14.3	164.84	74.77	245.68	50	62	58	73	105	-	115	-	130	-	140	-	150	-	162	-	175	-	200	-	

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Size					Weight			Hydrostatic Test Pressure (Kpa × 100)																					
Outside Diameter		Wall Thickness			lb/ft	kg/ft	kg/m	A		B		X42		X46		X52		X56		X60		X65		X70		X80			
in.	mm	Sch No.	in.	mm				Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.
34	864.0		0.250	6.4				90.20	40.91	135.35	18	23	21	27	39	-	42	-	48	-	51	-	55	-	60	-	64	-	74
			0.281	7.1	101.29	45.94	150.03	20	26	24	30	43	-	47	-	53	-	57	-	61	-	66	-	71	-	82	-		
			0.312	7.9	112.26	50.97	166.78	23	28	26	33	48	-	52	-	59	-	64	-	68	-	74	-	79	-	91	-		
			0.344	8.7	123.77	56.14	183.50	25	31	29	36	53	-	57	-	65	-	70	-	75	-	81	-	88	-	100	-		
			0.375	9.5	134.79	61.14	200.18	27	34	32	40	57	-	63	-	71	-	76	-	82	-	89	-	96	-	109	-		
			0.406	10.3	145.80	66.13	216.84	30	37	34	43	62	-	68	-	77	-	83	-	89	-	96	-	103	-	118	-		
			0.438	11.1	157.14	71.28	233.46	32	40	37	46	67	-	73	-	83	-	89	-	96	-	104	-	112	-	128	-		
			0.469	11.9	168.11	76.25	250.05	34	43	40	50	72	-	79	-	89	-	96	-	103	-	111	-	120	-	137	-		
			0.500	12.7	179.06	81.22	266.61	37	46	43	53	77	-	84	-	95	-	102	-	110	-	119	-	128	-	146	-		
			0.562	14.3	200.89	91.12	299.64	41	51	48	60	86	-	94	-	107	-	115	-	123	-	133	-	144	-	164	-		
			0.625	15.9	222.99	101.15	332.53	46	57	53	67	96	-	105	-	119	-	128	-	137	-	148	-	160	-	183	-		
			0.688	17.5	245.00	111.13	365.31	50	63	59	73	106	-	116	-	131	-	141	-	151	-	163	-	176	-	201	-		
			0.750	19.1	266.58	120.92	397.95	55	69	64	80	115	-	126	-	143	-	154	-	165	-	178	-	192	-	207	220		
			0.812	20.6	288.08	130.67	428.44	59	74	69	86	124	-	136	-	154	-	166	-	178	-	192	-	207	-	207	237		
			0.875	22.2	309.84	140.54	460.85	64	80	74	93	134	-	147	-	166	-	179	-	191	-	207	-	207	223	207	250		
			0.938	23.8	331.52	150.37	493.12	68	86	80	100	144	-	157	-	178	-	191	-	205	-	207	222	207	239	207	250		
			1.000	25.4	352.77	160.01	525.27	73	91	85	106	153	-	168	-	190	-	204	-	207	-	207	237	207	250	207	250		
1.062	27.0	373.94	169.62	557.29	78	97	90	113	163	-	178	-	202	-	207	217	207	233	207	250	207	250	207	250					
36	914.0		0.250	6.4	95.54	43.34	143.24	17	22	20	25	37	-	40	-	45	-	49	-	52	-	56	-	61	-	70	-		
			0.281	7.1	107.30	48.67	158.79	19	24	22	28	41	-	44	-	50	-	54	-	58	-	63	-	68	-	77	-		
			0.312	7.9	119.03	53.99	176.52	21	27	25	31	45	-	49	-	56	-	60	-	64	-	70	-	75	-	86	-		
			0.344	8.7	131.12	59.48	194.22	24	30	28	34	50	-	54	-	62	-	66	-	71	-	77	-	83	-	95	-		
			0.375	9.5	142.81	64.78	211.90	26	32	30	38	54	-	59	-	67	-	72	-	77	-	84	-	90	-	103	-		
			0.406	10.3	154.48	70.07	229.54	28	35	33	41	59	-	64	-	73	-	78	-	84	-	91	-	98	-	112	-		
			0.438	11.1	166.51	75.53	247.15	30	38	35	44	63	-	69	-	78	-	84	-	91	-	98	-	106	-	121	-		
			0.469	11.9	178.14	80.80	264.72	32	40	38	47	68	-	74	-	84	-	90	-	97	-	105	-	113	-	129	-		
			0.500	12.7	189.75	86.07	282.27	35	43	40	50	73	-	79	-	90	-	97	-	104	-	112	-	121	-	138	-		
			0.562	14.3	212.90	96.57	317.27	39	49	45	57	82	-	89	-	101	-	109	-	117	-	126	-	136	-	155	-		
			0.625	15.9	236.35	107.21	352.14	43	54	50	63	91	-	99	-	112	-	121	-	130	-	140	-	151	-	173	-		
			0.688	17.5	259.71	117.80	386.88	48	59	55	69	100	-	109	-	124	-	133	-	143	-	154	-	166	-	190	-		
			0.750	19.1	282.62	128.19	421.50	52	65	60	76	109	-	119	-	135	-	145	-	156	-	169	-	182	-	207	208		
			0.812	20.6	305.44	138.54	453.84	56	70	65	81	118	-	129	-	146	-	157	-	168	-	182	-	196	-	207	224		
			0.875	22.2	328.55	149.03	488.22	60	75	70	88	127	-	139	-	157	-	169	-	181	-	196	-	207	211	207	241		
			0.938	23.8	351.57	159.47	522.47	65	81	75	94	136	-	149	-	168	-	181	-	194	-	207	210	207	226	207	250		
			1.000	25.4	374.15	169.71	556.59	69	86	80	100	145	-	159	-	180	-	193	-	207	-	207	224	207	242	207	250		
1.062	27.0	396.64	179.91	590.58	73	92	85	107	154	-	169	-	191	-	205	-	207	220	207	238	207	250	207	250					
38	965.0		0.344	8.7	138.47	62.81	205.17	22	28	26	33	47	-	51	-	58	-	63	-	67	-	73	-	78	-	90	-		
			0.375	9.5	150.83	68.42	223.84	24	31	28	36	51	-	56	-	64	-	68	-	73	-	79	-	86	-	98	-		
			0.406	10.3	163.16	74.01	242.49	27	33	31	39	56	-	61	-	69	-	74	-	80	-	86	-	93	-	106	-		
			0.438	11.1	175.87	79.77	261.11	29	36	33	42	60	-	66	-	74	-	80	-	86	-	93	-	100	-	114	-		
			0.469	11.9	187.17	85.35	279.69	31	38	36	45	64	-	70	-	80	-	86	-	92	-	99	-	107	-	123	-		
			0.500	12.7	200.44	90.92	298.24	33	41	38	48	69	-	75	-	85	-	91	-	98	-	106	-	114	-	131	-		

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Size					Weight			Hydrostatic Test Pressure (Kpa × 100)																			
Outside Diameter		Wall Thickness			lb/ft	kg/ft	kg/m	A		B		X42		X46		X52		X56		X60		X65		X70		X80	
in.	mm	Sch No.	in.	mm				Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.
38	965.0		0.562	14.3	224.92	102.02	335.25	37	46	43	54	77	-	85	-	96	-	103	-	110	-	119	-	129	-	147	-
			0.625	15.9	249.71	113.27	372.14	41	51	48	60	86	-	94	-	106	-	114	-	123	-	133	-	143	-	164	-
			0.688	17.5	274.42	124.47	408.89	45	56	52	60	95	-	103	-	117	-	126	-	135	-	146	-	158	-	180	-
			0.750	19.1	298.65	135.47	445.52	49	61	57	72	103	-	113	-	128	-	138	-	147	-	160	-	172	-	197	-
			0.812	20.6	322.80	146.42	479.75	53	66	62	77	111	-	122	-	138	-	148	-	159	-	172	-	186	-	207	212
			0.875	22.2	347.26	157.51	516.14	57	71	67	83	120	-	131	-	149	-	160	-	171	-	186	-	200	-	207	229
			0.938	23.8	371.63	168.57	552.40	61	77	71	89	129	-	141	-	159	-	171	-	184	-	199	-	207	214	207	245
			1.000	25.4	395.53	179.41	588.53	65	82	76	95	137	-	150	-	170	-	183	-	196	-	207	212	207	229	207	250
40	1016.0		0.312	7.9	132.37	60.04	196.39	19	24	22	28	41	-	44	-	50	-	54	-	58	-	63	-	68	-	77	-
			0.344	8.7	145.83	66.15	216.11	21	27	25	31	45	-	49	-	55	-	59	-	64	-	69	-	74	-	85	-
			0.375	9.5	158.85	72.05	235.79	23	29	27	34	49	-	53	-	60	-	65	-	70	-	75	-	81	-	93	-
			0.406	10.3	171.84	77.95	255.45	25	31	29	37	53	-	58	-	66	-	70	-	76	-	82	-	88	-	101	-
			0.438	11.1	185.24	84.02	275.07	27	34	32	39	57	-	62	-	71	-	76	-	81	-	88	-	95	-	109	-
			0.469	11.9	198.19	88.90	294.66	29	36	34	42	61	-	67	-	76	-	81	-	87	-	94	-	102	-	116	-
			0.500	12.7	211.13	95.77	314.22	31	39	36	45	65	-	71	-	81	-	87	-	93	-	101	-	109	-	124	-
			0.562	14.3	236.93	107.47	353.24	35	44	41	51	73	-	80	-	91	-	98	-	105	-	113	-	122	-	140	-
			0.625	15.9	263.07	119.33	392.13	39	49	45	57	82	-	89	-	101	-	109	-	117	-	126	-	136	-	155	-
			0.688	17.5	289.13	131.15	430.90	43	53	50	62	90	-	98	-	111	-	120	-	128	-	139	-	150	-	171	-
			0.750	19.1	314.69	142.74	469.55	47	58	54	68	98	-	107	-	121	-	131	-	140	-	152	-	163	-	187	-
			0.812	20.6	340.16	154.29	505.66	50	63	59	73	106	-	116	-	131	-	141	-	151	-	164	-	176	-	201	-
0.875	22.2	365.97	166.00	544.06	54	68	63	79	114	-	125	-	141	-	152	-	163	-	176	-	190	-	207	217			
0.938	23.8	391.68	177.66	582.33	58	73	68	85	122	-	134	-	151	-	163	-	175	-	189	-	204	-	207	233			
1.000	25.4	416.91	189.11	620.48	62	78	72	90	131	-	143	-	162	-	174	-	186	-	202	-	207	217	207	248			
42	1067.0		0.344	8.7	153.18	69.48	227.05	20	25	24	29	43	-	47	-	53	-	57	-	61	-	66	-	71	-	81	-
			0.375	9.5	166.86	75.69	247.74	22	28	26	32	47	-	51	-	58	-	62	-	66	-	72	-	77	-	88	-
			0.406	10.3	180.52	81.88	268.40	24	30	28	35	50	-	55	-	62	-	67	-	72	-	78	-	84	-	96	-
			0.438	11.1	194.60	88.27	289.03	26	32	30	38	54	-	59	-	67	-	72	-	78	-	84	-	90	-	103	-
			0.469	11.9	208.22	94.45	309.62	28	35	32	40	58	-	64	-	72	-	77	-	83	-	90	-	97	-	111	-
			0.500	12.7	221.82	100.62	330.19	30	37	34	43	62	-	68	-	77	-	83	-	89	-	96	-	103	-	118	-
			0.562	14.3	248.95	112.92	371.22	33	42	39	48	70	-	76	-	87	-	93	-	100	-	108	-	117	-	133	-
			0.625	15.9	276.44	125.39	412.13	37	46	43	54	78	-	85	-	96	-	104	-	111	-	120	-	130	-	148	-
			0.688	17.5	303.84	137.82	452.91	41	51	48	59	85	-	94	-	105	-	114	-	122	-	132	-	142	-	163	-
			0.750	19.1	330.72	150.01	493.57	44	56	52	65	93	-	102	-	116	-	124	-	133	-	144	-	156	-	178	-
			0.812	20.6	357.52	162.17	531.57	48	60	56	70	101	-	110	-	125	-	134	-	144	-	156	-	168	-	192	-
			0.875	22.2	384.67	174.48	571.98	52	65	60	75	109	-	119	-	134	-	145	-	155	-	168	-	181	-	207	-
0.938	23.8	411.74	186.76	612.26	55	69	65	81	116	-	127	-	144	-	155	-	166	-	180	-	194	-	207	222			
1.000	25.4	438.29	198.80	652.42	59	74	69	86	124	-	136	-	154	-	165	-	177	-	192	-	207	-	207	237			
44	1118.0		0.344	8.7	160.54	72.82	237.99	19	24	23	28	41	-	44	-	50	-	54	-	58	-	63	-	68	-	77	-
			0.375	9.5	174.88	79.32	259.69	21	26	25	31	44	-	48	-	55	-	59	-	63	-	69	-	74	-	84	-
			0.406	10.3	189.20	85.82	281.35	23	29	27	33	48	-	53	-	60	-	64	-	69	-	74	-	80	-	92	-
			0.438	11.1	203.97	92.52	302.99	25	31	29	36	52	-	57	-	64	-	69	-	74	-	80	-	86	-	99	-
			0.469	11.9	218.25	99.00	324.59	26	33	31	38	56	-	61	-	69	-	74	-	79	-	86	-	93	-	106	-

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Size					Weight			Hydrostatic Test Pressure (Kpa × 100)																			
Outside Diameter		Sch No.	Wall Thickness		lb/ft	kg/ft	kg/m	A		B		X42		X46		X52		X56		X60		X65		X70		X80	
in.	mm		in.	mm				Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.
44	1118.0		0.500	12.7	232.51	105.46	346.16	28	35	33	41	59	-	65	-	73	-	79	-	85	-	92	-	99	-	113	-
			0.562	14.3	260.97	118.37	389.21	32	40	37	46	67	-	73	-	83	-	89	-	95	-	103	-	111	-	127	-
			0.625	15.9	289.80	131.45	432.13	35	44	41	51	74	-	81	-	92	-	99	-	106	-	115	-	124	-	141	-
			0.688	17.5	318.55	144.49	474.92	39	49	45	57	82	-	89	-	101	-	109	-	117	-	126	-	136	-	156	-
			0.750	19.1	346.76	157.29	517.59	42	53	49	62	89	-	97	-	110	-	119	-	127	-	138	-	149	-	170	-
			0.812	20.6	374.88	170.04	557.47	46	57	53	67	96	-	105	-	119	-	128	-	137	-	149	-	160	-	183	-
			0.875	22.2	403.38	182.97	599.90	49	62	57	72	104	-	113	-	128	-	138	-	148	-	160	-	173	-	197	-
			0.938	23.8	431.79	195.86	642.19	53	66	62	77	111	-	121	-	138	-	148	-	159	-	172	-	185	-	207	212
			1.000	25.4	459.67	208.50	684.37	56	71	66	82	119	-	130	-	147	-	158	-	169	-	183	-	198	-	207	226
46	1168.0		0.344	8.7	167.89	76.15	248.72	19	23	22	27	39	-	43	-	48	-	52	-	56	-	60	-	65	-	74	-
			0.375	9.5	182.90	82.96	271.40	20	25	24	29	42	-	46	-	53	-	57	-	61	-	66	-	71	-	81	-
			0.406	10.3	197.88	89.76	294.05	22	27	26	32	46	-	50	-	57	-	61	-	66	-	71	-	77	-	88	-
			0.438	11.1	213.33	96.76	316.67	24	30	27	34	50	-	54	-	61	-	66	-	71	-	77	-	83	-	94	-
			0.469	11.9	228.27	103.54	339.26	25	32	29	37	53	-	58	-	66	-	71	-	76	-	82	-	89	-	101	-
			0.500	12.7	243.20	110.31	361.82	27	34	31	39	57	-	62	-	70	-	76	-	81	-	88	-	95	-	108	-
			0.562	14.3	272.98	123.82	406.84	30	38	35	44	64	-	70	-	79	-	85	-	91	-	99	-	106	-	122	-
			0.625	15.9	303.16	137.51	451.73	34	42	39	49	71	-	78	-	88	-	95	-	101	-	110	-	118	-	135	-
			0.688	17.5	333.26	151.16	496.50	37	47	43	54	78	-	85	-	97	-	104	-	112	-	121	-	130	-	149	-
			0.750	19.1	362.79	164.56	541.14	41	51	47	59	85	-	93	-	106	-	114	-	122	-	132	-	142	-	162	-
			0.812	20.6	392.24	177.92	582.87	44	55	51	64	92	-	101	-	114	-	123	-	131	-	142	-	153	-	175	-
			0.875	22.2	422.09	191.46	627.27	47	59	55	69	99	-	108	-	123	-	132	-	142	-	153	-	165	-	189	-
			0.938	23.8	451.85	204.95	671.54	51	63	59	74	106	-	116	-	132	-	142	-	152	-	164	-	177	-	202	-
			1.000	25.4	481.05	218.20	715.68	54	68	63	79	114	-	124	-	141	-	151	-	162	-	175	-	189	-	207	216
48	1219.0		0.344	8.7	175.25	79.49	259.66	18	22	21	26	37	-	41	-	46	-	50	-	53	-	58	-	62	-	71	-
			0.375	9.5	190.92	86.60	283.35	19	24	23	28	41	-	44	-	50	-	54	-	58	-	63	-	68	-	77	-
			0.406	10.3	206.56	93.69	307.01	21	26	24	31	44	-	48	-	55	-	59	-	63	-	68	-	73	-	84	-
			0.438	11.1	222.70	101.02	330.63	23	28	26	33	48	-	52	-	59	-	63	-	68	-	73	-	79	-	90	-
			0.469	11.9	238.30	108.09	354.23	24	30	28	35	51	-	56	-	63	-	68	-	73	-	79	-	85	-	97	-
			0.500	12.7	253.89	115.16	377.79	26	32	30	38	54	-	59	-	67	-	72	-	78	-	84	-	91	-	104	-
			0.562	14.3	285.00	129.27	424.82	29	36	34	42	61	-	67	-	76	-	82	-	87	-	95	-	102	-	117	-
			0.625	15.9	316.52	143.57	471.73	32	41	38	47	68	-	74	-	84	-	91	-	97	-	105	-	113	-	130	-
			0.688	17.5	347.97	157.84	518.51	36	45	42	52	75	-	82	-	93	-	100	-	107	-	116	-	125	-	143	-
			0.750	19.1	378.83	171.83	565.16	39	49	45	57	82	-	89	-	101	-	109	-	117	-	126	-	136	-	156	-
			0.812	20.6	409.61	185.80	608.78	42	52	49	61	88	-	96	-	109	-	117	-	126	-	136	-	147	-	168	-
			0.875	22.2	440.80	199.94	655.19	45	57	53	66	95	-	104	-	118	-	127	-	136	-	147	-	158	-	181	-
			0.938	23.8	471.90	214.05	701.47	48	61	56	71	102	-	111	-	126	-	136	-	145	-	157	-	170	-	194	-
			0.100	25.4	502.43	227.90	747.63	52	65	60	75	109	-	119	-	135	-	145	-	155	-	168	-	181	-	207	-
52	1321.0		0.375	9.5	206.95	93.87	307.25	18	22	21	26	38	-	41	-	46	-	50	-	54	-	58	-	63	-	71	-
			0.406	10.3	223.93	101.57	332.92	19	24	23	28	41	-	44	-	50	-	54	-	58	-	63	-	68	-	77	-
			0.438	11.1	241.42	109.51	358.55	21	26	24	30	44	-	48	-	54	-	58	-	63	-	68	-	73	-	83	-
			0.469	11.9	258.36	117.19	384.16	22	28	26	33	47	-	51	-	58	-	63	-	67	-	73	-	78	-	90	-
			0.500	12.7	275.27	124.86	409.74	24	30	28	35	50	-	55	-	62	-	67	-	72	-	78	-	84	-	96	-
			0.562	14.3	309.03	140.17	460.79	27	34	31	39	57	-	62	-	70	-	75	-	81	-	87	-	94	-		

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Size					Weight			Hydrostatic Test Pressure (Kpa × 100)																			
Outside Diameter		Wall Thickness			lb/ft	kg/ft	kg/m	A		B		X42		X46		X52		X56		X60		X65		X70		X80	
in.	mm	Sch No.	in.	mm				Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.	Std.	Alt.
52	1321.0		0.625	15.9	343.25	155.70	511.72	30	37	35	44	63	-	69	-	78	-	84	-	90	-	97	-	105	-	120	-
			0.688	17.5	377.39	171.18	562.53	33	41	38	48	69	-	76	-	86	-	92	-	99	-	107	-	115	-	132	-
			0.750	19.1	410.90	186.38	613.20	36	45	42	52	75	-	83	-	93	-	100	-	108	-	117	-	126	-	144	-
			0.812	20.6	444.33	201.54	660.60	39	48	45	56	81	-	89	-	101	-	108	-	116	-	126	-	136	-	155	-
			0.875	22.2	478.21	216.91	711.03	42	52	49	61	88	-	96	-	109	-	117	-	125	-	136	-	146	-	167	-
			0.938	23.8	512.01	232.24	761.34	45	56	52	65	94	-	103	-	116	-	125	-	134	-	145	-	157	-	179	-
			1.000	25.4	545.19	247.29	811.52	48	60	56	70	100	-	110	-	124	-	134	-	143	-	155	-	167	-	191	-
			56	1422.0		0.375	9.5	222.99	101.15	330.91	17	21	19	24	35	-	38	-	43	-	46	-	50	-	54	-	58
0.406	10.3	241.29				109.45	358.57	18	22	21	26	38	-	41	-	47	-	50	-	54	-	58	-	63	-	72	-
0.438	11.1	260.15				118.00	386.20	19	24	23	28	41	-	45	-	50	-	54	-	58	-	63	-	68	-	78	-
0.469	11.9	278.41				126.28	413.80	21	26	24	30	44	-	48	-	54	-	58	-	62	-	67	-	73	-	83	-
0.500	12.7	296.65				134.56	441.37	22	28	26	32	47	-	51	-	58	-	62	-	67	-	72	-	78	-	89	-
0.562	14.3	333.06				151.07	496.41	25	31	29	36	52	-	57	-	65	-	70	-	75	-	81	-	87	-	100	-
0.625	15.9	369.97				167.82	551.32	28	35	32	40	58	-	64	-	72	-	78	-	83	-	90	-	97	-	111	-
0.688	17.5	406.80				184.52	606.11	31	38	36	44	64	-	70	-	80	-	86	-	92	-	99	-	107	-	122	-
0.750	19.1	442.97				200.93	660.77	33	42	39	49	70	-	77	-	87	-	93	-	100	-	108	-	117	-	133	-
0.812	20.6	479.05				217.29	711.91	36	45	42	52	76	-	83	-	94	-	101	-	108	-	117	-	126	-	144	-
0.875	22.2	515.63				233.88	766.32	39	48	45	56	81	-	89	-	101	-	108	-	116	-	126	-	136	-	155	-
0.938	23.8	552.12				250.44	820.61	42	52	48	61	87	-	96	-	108	-	116	-	125	-	135	-	146	-	166	-
1.000	25.4	587.95	266.69	874.78	44	55	52	65	93	-	102	-	115	-	124	-	133	-	144	-	155	-	177	-			
60	1524.0		0.375	9.5	239.02	108.42	354.80	15	19	18	23	33	-	36	-	40	-	43	-	46	-	50	-	54	-	62	-
			0.406	10.3	258.65	117.32	384.48	17	21	20	24	35	-	39	-	44	-	47	-	50	-	55	-	59	-	67	-
			0.438	11.1	278.88	126.50	414.12	18	23	21	26	38	-	42	-	47	-	51	-	54	-	59	-	63	-	72	-
			0.469	11.9	298.47	135.38	443.73	19	24	23	28	41	-	45	-	50	-	54	-	58	-	63	-	68	-	78	-
			0.500	12.7	318.03	144.26	473.31	21	26	24	30	44	-	48	-	54	-	58	-	62	-	67	-	72	-	83	-
			0.562	14.3	357.09	161.97	532.38	23	29	27	34	49	-	54	-	61	-	65	-	70	-	76	-	82	-	93	-
			0.625	15.9	396.70	179.94	591.32	26	32	30	38	54	-	60	-	67	-	72	-	78	-	84	-	91	-	104	-
			0.688	17.5	436.22	197.87	650.13	29	36	33	42	60	-	66	-	74	-	80	-	86	-	93	-	100	-	114	-
			0.750	19.1	475.04	215.47	708.82	31	39	36	45	65	-	72	-	81	-	87	-	93	-	101	-	109	-	125	-
			0.812	20.6	513.77	233.04	763.72	34	42	39	49	70	-	77	-	87	-	94	-	101	-	109	-	118	-	134	-
			0.875	22.2	553.03	250.85	822.16	36	45	42	53	76	-	83	-	94	-	101	-	109	-	117	-	127	-	145	-
			0.938	23.8	592.23	268.63	880.48	39	48	45	56	82	-	89	-	101	-	109	-	116	-	126	-	136	-	155	-
1.000	25.4	630.71	286.08	938.67	41	52	48	60	87	-	95	-	108	-	116	-	124	-	134	-	145	-	166	-			

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

Tubing(Group 1)
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		Type of Ends
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					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					Integral Joint
		0.133	3.38	1.68	0.76	2.50	1.80	0.82	2.68					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					Non-Upset
		0.140	3.56	2.27	1.03	3.38	2.33	1.06	3.47					Integral Joint
1.900	48.3	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
		0.125	3.18	2.37	1.08	3.53	2.40	1.09	3.57					Integral Joint
		0.145	3.68	2.72	1.23	4.05	2.75	1.25	4.09					Non-Upset
2.063	52.4	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					Ext.Upset
		0.156	3.96	3.18	1.44	4.73	3.25	1.47	4.84					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					Non-Upset
		0.190	4.83	4.44	2.01	6.59	4.70	2.13	6.99					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					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					Ext.Upset
		0.254	6.45	8.81	4.00	13.11	9.30	4.22	13.84					Ext.Upset
4	101.6	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
		0.226	5.74	9.12	4.13	13.56	9.50	4.31	14.14					Non-Upset
		0.262	6.65	10.47	4.74	15.57	11.0	4.99	16.37					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					Ext.Upset

Conduit Tubes

Rigid Metal Conduit

UL6-1996

Nominal Size	Nominal Inside Dia.		Outside Dia		Nominal Wall Thickness		Length Without Coupling		Weight	
	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

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, Zinc Coated

ANSI C 80.1-1983

Nominal Size	Nominal Inside Dia.		Outside Dia		Nominal Wall Thickness		Length Without Coupling		Weight of Ten Unit Coupling Attached	
	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

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
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 (SPSR, STKR)

KS D 3568-2001
JIS G 3466-1988

1. Square

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>I_x, I_y</i>	<i>Z_x, Z_y</i>	<i>i_x, i_y</i>
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	103×10 ²	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	143×10 ²	956	11.8
300×300	12.0	106	134.5	183×10 ²	122×10	11.7
300×300	16.0	138	175.2	231×10 ²	154×10	11.5
350×350	9.0	94.7	120.7	232×10 ²	132×10	13.9
350×350	12.0	124	158.5	298×10 ²	170×10	13.7
350×350	16.0	163	207.2	379×10 ²	216×10	13.5
400×400	9.0	109	138.7	351×10 ²	175×10	15.9
400×400	12.0	143	182.5	453×10 ²	227×10	15.8
400×400	16.0	188	239.2	579×10 ²	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>I_x</i>	<i>I_y</i>	<i>Z_x</i>	<i>Z_y</i>	<i>i_x</i>	<i>i_y</i>
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>I_x</i>	<i>I_y</i>	<i>Z_x</i>	<i>Z_y</i>	<i>i_x</i>	<i>i_y</i>
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.	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

Bending Rolled Steel Pipes & Tubes

3-BENDING ROLL



■ Characteristics

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

■ 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 General Structural Purposes
- KS D3566 : Carbon Steel Tubes for General Structural Purposes
- JIS A5525 : Steel Pipe Piles
- KS F4602 : Steel Pipe Piles

■ Size Availability

- OD .in.(mm) : 20(508.8)~80(2032)
- TH .in.(mm) : 0.236(7.1)~1.000(25.4)
- L .ft.(m) : Max.40(12.2)

■ 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	58	1473.2																
2,000	80	2032.0																

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

□ : Cold expanding available ■ : Please Consult with Our Sales Department

SPIRAL



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 Pipe 6" and Larger
- JIS G3444 : Carbon Steel Tubes for General Structural Purposes
- KS D3566 : Purposes
- JIS G3457 : Electric Arc Welded Carbon Steel Pipe
- KS D3583 : Electric Arc 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

Size Availability (S.A.W.)

Nominal Size	Th (in)	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	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 of 24 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 of 8" 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.

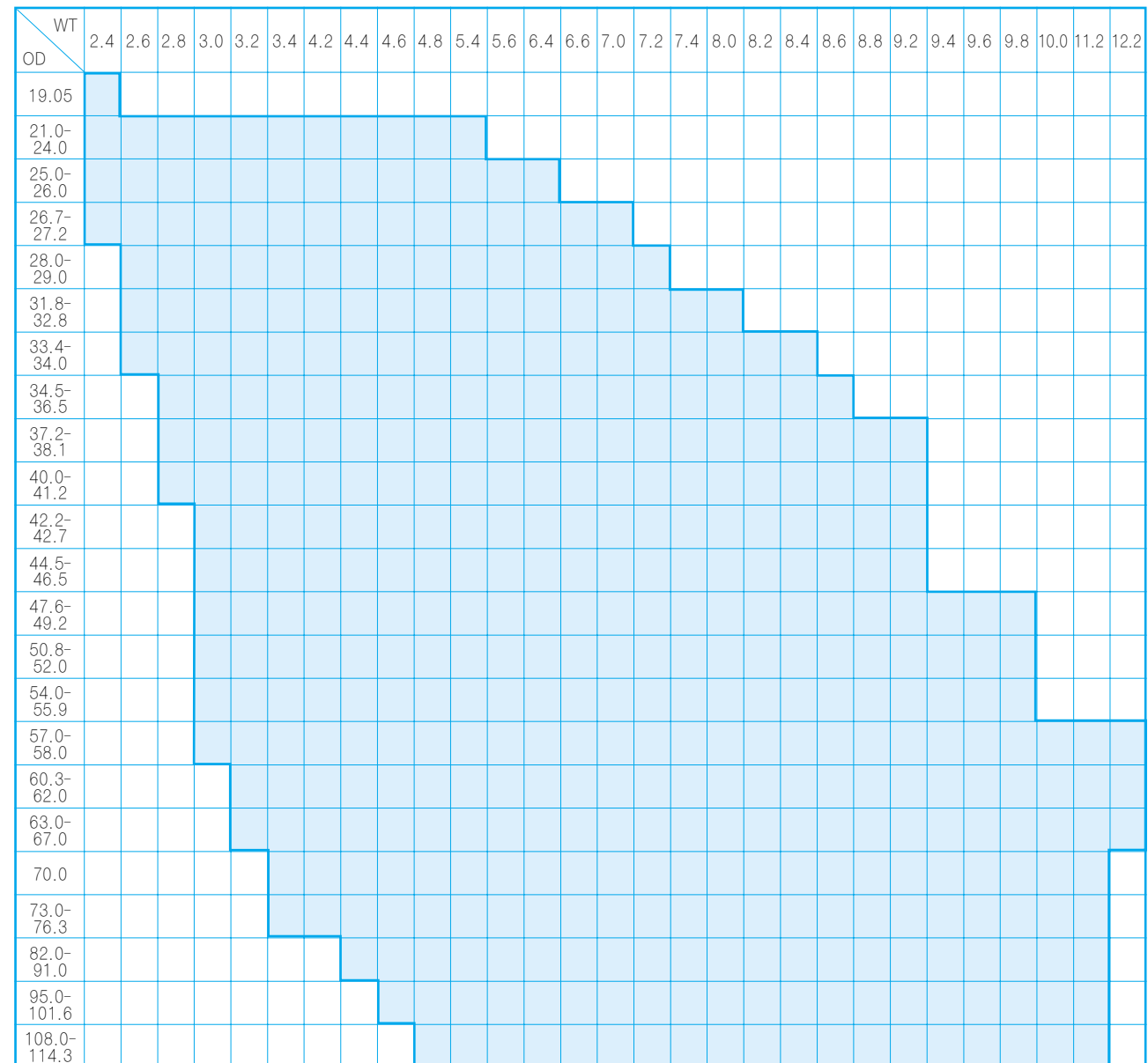
ADVANTAGE OF S.R.M. PRODUCTS

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, ASTM A179, 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 Availability

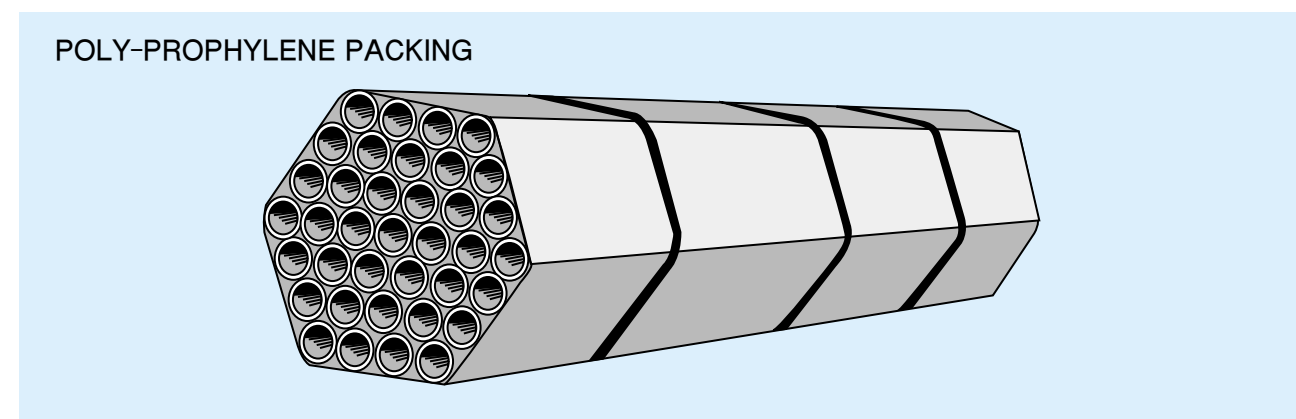
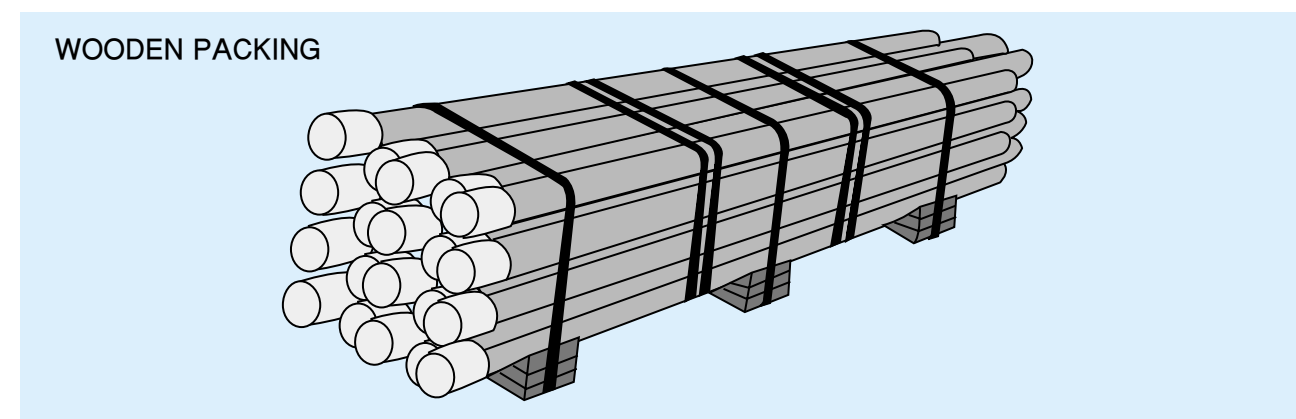
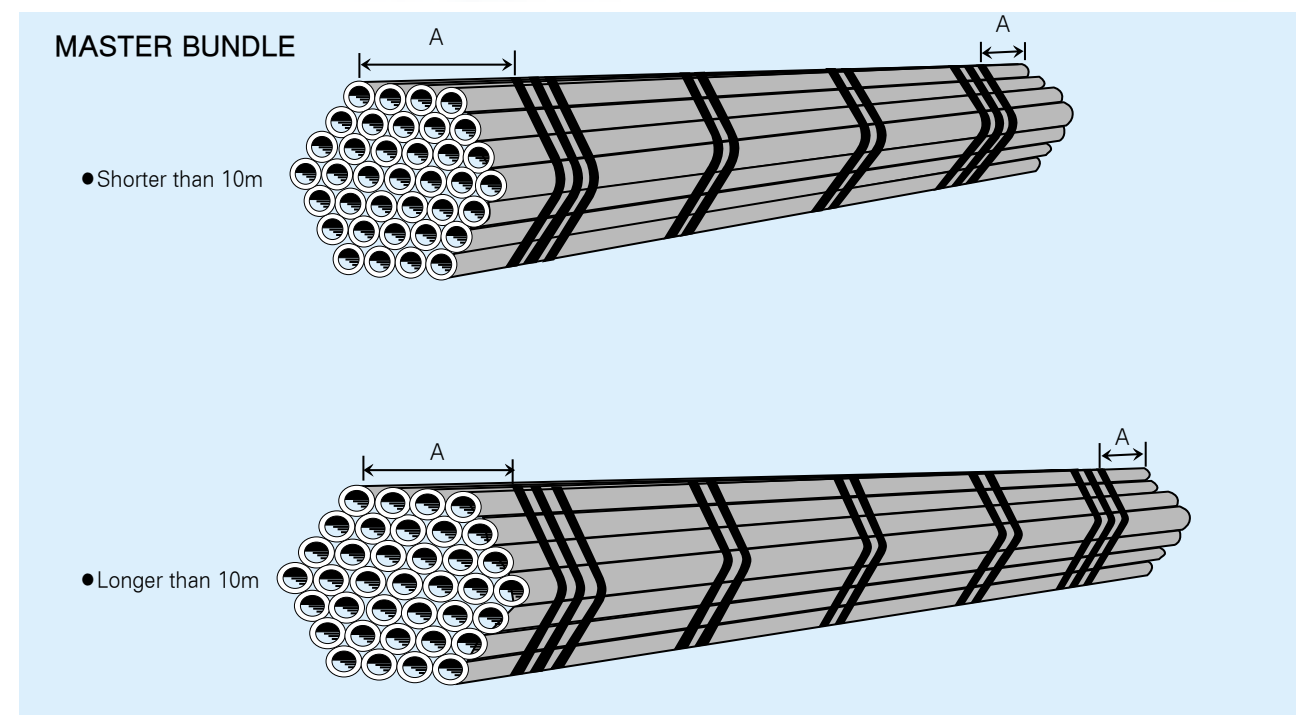


A.N.S.I. Pipe Schedules

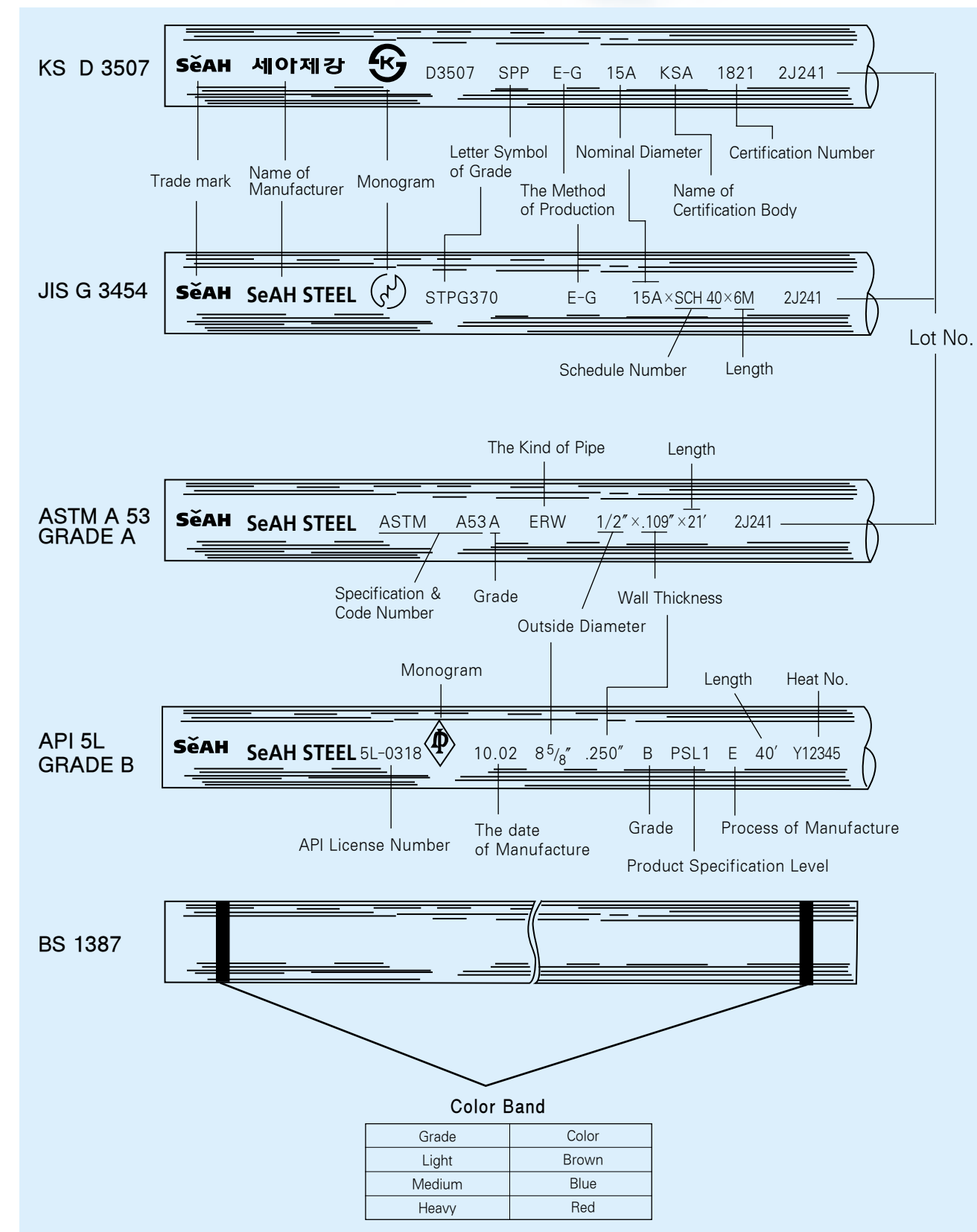
Bold Figures: Wall Thickness in inches
Light Figures: wt/ft. in lbs

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

Packing



Marking



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 (%)					Physical Requirement				Flattening Test		Bend Test		Hydrostatic Test		Nondestructive Tests & Other inspections	Permissible Variations in Dimensions				Permissible Variations in Weight	Note :	
		C _{Max}	Mn _{Max}	P _{Max}	S _{Max}	Others	Tensile Strength psi(MPa)	Yield Strength psi(MPa)	Elongation (Min %)	Gauge Length(in)	H = Distance between Exterior Surfaces D = Outside Diameter	Angle	Inner Radius	P = Test Pressure (psi) S = Allowable Fiber Stress (psi)	Outside Diameter	Wall Thickness		Length	Height of Inside Flash					
API 5L	Line Pipe	A	0.22	0.90	0.030	0.030	-	Min. 48,000(331)	Min. 30,000(207)	e = 625,000 × $\frac{A}{U^{0.9}}$	2	H = Distance between Exterior Surfaces D = Outside Diameter	-	P = Test Pressure (psi) S = Allowable Fiber Stress (psi) * 1	* 2	* 3	* 4	* 5	-	Hmax = 0.06 in.	Single lengths Standard-weight, regular-weight extra-strong and double-extra strong pipe, except Grade A25	* 1 Specified respectively in size and grade. Note : P = $\frac{2St}{D}$ except that test pressure shall be limited to 2,500psi for size 3½ in. and Smaller and to 2,800psi for size larger than 3½ in.		
		B	0.26	1.20	0.030	0.030	Nb+V+Ti≤0.15%	Min. 60,000(414)	Min. 35,000(241)	e = 625,000 × $\frac{A}{U^{0.9}}$	2													
		x42	0.26	1.30	0.030	0.030	Nb+V+Ti≤0.15%	Min. 60,000(414)	Min. 42,000(290)	e = 625,000 × $\frac{A}{U^{0.9}}$	2													
		x46	0.26	1.40	0.030	0.030	Nb+V+Ti≤0.15%	Min. 63,000(434)	Min. 46,000(317)	e = 625,000 × $\frac{A}{U^{0.9}}$	2													
		x52	0.26	1.40	0.030	0.030	Nb+V+Ti≤0.15%	Min. 66,000(455)	Min. 52,000(359)	e = 625,000 × $\frac{A}{U^{0.9}}$	2													
		x56	0.26	1.40	0.030	0.030	Nb+V+Ti≤0.15%	Min. 71,000(490)	Min. 56,000(386)	e = 625,000 × $\frac{A}{U^{0.9}}$	2													
		x60	0.26	1.40	0.030	0.030	Nb+V+Ti≤0.15%	Min. 75,000(517)	Min. 60,000(414)	e = 625,000 × $\frac{A}{U^{0.9}}$	2													
	Line Pipe	x65	0.26	1.45	0.030	0.030	Nb+V+Ti≤0.15%	Min. 77,000(531)	Min. 65,000(448)	e = 625,000 × $\frac{A}{U^{0.9}}$	2													
		x70	0.26	1.65	0.030	0.030	Nb+V+Ti≤0.15%	Min. 82,000(565)	Min. 70,000(483)	e = 625,000 × $\frac{A}{U^{0.9}}$	2													
		P	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 × $\frac{A}{U^{0.9}}$												2	
			x42	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 × $\frac{A}{U^{0.9}}$												2	
			x46	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 × $\frac{A}{U^{0.9}}$												2	
		S	x52	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 × $\frac{A}{U^{0.9}}$												2	
			x56	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 × $\frac{A}{U^{0.9}}$												2	
x60	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 × $\frac{A}{U^{0.9}}$	2														
L	x65	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 × $\frac{A}{U^{0.9}}$	2														
	x70	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 × $\frac{A}{U^{0.9}}$	2														
	x80	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 × $\frac{A}{U^{0.9}}$	2														
API 5CT	H-40	-	-	0.030	0.030	-	Min. 60,000 (414)	40,000~80,000 (276~552)	e = 625,000 × $\frac{A}{U^{0.9}}$	2	(Grade H40) D/16 D/16 The weld shall be located at 90 deg. (Grade J55&K55) D/16 H = 0.65D 3.93D/16 D/16~3.93 The weld shall be located at 90 deg. (Grade N80) 9D/16~28 H = D(1.074-0.0194D/1)	-	Specified respectively in size and grade. Note : P = $\frac{2St}{D}$ or 3,000. Whichever is the smaller. (f : 0.6 for Grade H40, J55 and K55 larger than Label 1 : 9/8 or 0.8 for all other grades and sizes)	(Weld Seam) a)Ultrasonic testing (L3) b)Flux leakage testing(L3) c)Eddy Current testing(L3) *L3 : 10%×1W×50L or 3.2Ø (Drift Requirement) Specified respectively in size and product	-	-	-	Hmax = 0.045in for Casting or 0.015in for Tubing.	Special Light +6.5 % -3.5 %	Carload Lots -1.75% A carload is considered to be a minimum of 40,000lbs	* 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 %			
	J-55	-	-	0.030	0.030	-	Min. 75,000 (517)	55,000~80,000 (379~552)	e = 625,000 × $\frac{A}{U^{0.9}}$	2														
	K-55	-	-	0.030	0.030	-	Min. 95,000 (655)	55,000~80,000 (379~552)	e = 625,000 × $\frac{A}{U^{0.9}}$	2														
	N-80	-	-	0.030	0.030	-	Min. 100,000 (689)	80,000~110,000 (552~758)	e = 625,000 × $\frac{A}{U^{0.9}}$	2														
ASTM A53	A	0.25	0.95	0.050	0.045	* 8	Min. 48,000 (33.8kg/mm ²)	Min. 30,000 (21.1kg/mm ²)	e = 625,000 × $\frac{A}{U^{0.9}}$	2	Apply for standard weight and extra strong pipe of NB ≥ 2 in. Ductility of the weld H = 3/4 D Ductility away from the weld H = 1/2 D The test shall be made alternately with the weld at 0 deg. and at 90 deg.	-	Specified respectively in size and grade Note : The Maximum Pressure NB ≤ 3 in. P = 2,500 psi NB > 3 in. P = 2,800 psi	-	Each pipe shall be inspected by ultrasonic or electromagnetic methods * 6	-	-	-	Special Light +10 % -3.5 %	Carload Lots -1.75% The pipe of Sch. 10	* 5 Grade X42 or Higher OD < 20 in. + 15.0 - 12.5 % OD ≥ 20 in. + 19.5 - 8.0 %			
	B	0.30	1.20	0.050	0.045	* 8	Min. 60,000 (42.2kg/mm ²)	Min. 35,000 (24.6kg/mm ²)	e = 625,000 × $\frac{A}{U^{0.9}}$	2														
ASTM A 135	A	0.25	0.95	0.035	0.035	-	Min. 48,000 (33.7kg/mm ²)	Min. 30,000 (21.1kg/mm ²)	35 (56t + 16.5)	2	Ductility of the weld H = 3/4 D Ductility exclusive of the weld H = 1/2 D The test shall be made alternately with the weld at 0 deg. and at 90 deg.	-	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	-	As an alternate to the hydrostatic test, nondestructive test may be applied (Schedule 10 pipe in sizes NPS 1/2 to NPS 5 inclusive)	-	-	-	-	Special Light +10 % -3.5 %	Carload Lots -1.75% ±10 %	* 6 (Weight of Zinc Coating Test) Weight of Zinc Coating AVR 1.8, Min 1.6 oz/ft'		
	B	0.30	1.20	0.035	0.035	-	Min. 60,000 (42.2kg/mm ²)	Min. 35,000 (24.6kg/mm ²)	30 (48t + 14)	2														
BS 1387	L	0.20	1.20	0.045	0.045	-	320~460N/mm ² (33~47.2kg/mm ²)	Min. 195N/mm ² (20kg/mm ²)	Min. 20	5.65√ _D	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.)	-	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	0.16	0.70	0.040	0.040	Mn Min. 0.30	320~460 (N/mm ²)	Min. 195 (N/mm ²)	25	5.65√ _D	-	-	P = $\frac{2St}{D}$ (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/mm ²)	Min. 235 (N/mm ²)	25	5.65√ _D														
	ERW 410	0.21	1.20	0.045	0.045	Mn Min. 0.40 Si Max. 0.35	430~570 (N/mm ²)	Min. 275 (N/mm ²)	22	5.65√ _D														
KS D 3507 JIS G 3452	SPP SGP	-	-	0.040	0.040	-	Min. 290N/mm ²	-	30	-	-	-	-	-	-	-	-	-	-	-	-	-		
	KS D 3537 JIS G 3442	SPPW SGPW	-	-	0.040	0.040	-	Min. 290N/mm ²	-	30													-	
KS D 3583 JIS G 3457	SPW 400 STPY 400	0.25	-	0.040	0.040	-	Min. 400N/mm ² * 7	Min. 225N/mm ²	18	-	-	-	2.5MPa(25kgf/cm ²)	As an alternate to the hydrostatic test, nondestructive test may be applied.	specified	+Not specified - 12.5%	-	-	-	-	-	-	-	

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

Standard Specification	Application	Chemical Requirement (%)										Heat Treatment	Physical Requirement				Hardness Test HRB = Rockwell B Scale = 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(ksi) S = Allowable Fiber Stress(ksi)	Nondestructive Test & Other Inspections	Permissible Variations in Dimensions				Permissible Variations in Weight					
		C _{Max}	Si _{Max}	Mn _{Max}	P _{Max}	S _{Max}	Cu	Cr	Mo	Ni	Tensile Strength		Yield Strength	Elongation (Min %)	Gauge length (in)	Outside Diameter							Wall Thickness	Length	Height Inside Flash							
ASTM A 178	Steel Boilers Tubes	A	0.06 ~0.18	-	0.27 ~0.63	0.035	0.035	-	-	-	-	Normalized (Min. 900°C)	Min. 47,000psi (325MPa)	Min. 26,000psi (180MPa)	35 (48t + 15.00)	2	-	-	Specified	-	(Crush Test)-For ASTM A 178 Grade A, when required by purchaser.	Length of Test Speciman: D ≥ 1 in. h=2½ in.(63mm) D < 1 in. h=2.5xD	L ≤ 24ft D < 2in. + ⅛ in. -0 D ≥ 2in. + ⅜ in. -0	For tube D > 2in. or t > 0.135in. Hmax=0.010in.	+ 10% - 0							
		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°C)	-	-	-	-	HRB = 72 Max	Weld Portion	D ≤ 2½ in.	Specified	P = 2St / D (S = 16,000psi) The Maximum Pressure(ksi) OD < 1 in. P = 1,000 1 in. ≤ OD < 1½ in. P = 1,500 1½ in. ≤ OD < 2 in. P = 2,000 2 in. ≤ OD < 3 in. P = 2,500 3 in. ≤ OD < 5 in. P = 3,500 5 in. ≥ OD. P = 4,500	Height of Crushed Section. t ≤ 0.135 in. H = ⅜ in. or until outside folds are in contact. t > 0.135 in. H = 1½ in. An alternate to the hydrostatic test. non-destructive test may be applied.	+18% -0	L > 24ft An additional over-tolerance of ⅜ in. for each 10ft or fraction thereof. Max. Tolerance ½ in.	For tube D ≤ 2in. and t ≤ 0.135in. Hmax=0.006in.	For tubes D > 4in. Lots of 20 tubes or more are applied.							
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 = 125Max HRB = 72Max	H = (ft)e / t e + ⅓ D	2½ in. < D ≤ 3½ in.	Specified														
ASTM A 250	Alloy Steel Boiler and Super Heater Tubes	T1	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 = 146Max HRB = 80Max	D > 3½ in.	Specified													
		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 = 153Max HRB = 84Max															
		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 = 137Max HRB = 77Max															
ASTM A 423	Corrosion Resistance Low Alloy Steel Tubes	1	0.15	Min. 0.10	0.55	~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 = 170Max HRB = 87Max	-	-	-	-	-	-	-								
		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	AI 0.02 ~0.10	-	-	Normalized	Min. 48,000psi (331MPa)	Min. 30,000psi (207MPa)	40	2	-	-	Specified	P = 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)	½ in. (21.30) ± 0.15mm ⅜ in. (26.70) ± 0.15mm 1 in. (33.40) ± 0.15mm 1½ in. (42.16) ± 0.18mm 2 in. (48.30) ± 0.20mm 3 in. (88.90) ± 0.38mm 4 in. (114.3) ± 0.43mm	Specified	D < 2: + ⅛ in, - 0 D ≥ 2: + ⅜ in, - 0	D ≤ 1½ in. Max 0.15mm D > 1½ in. Max 0.25mm	-							
ASTM A 334	Steel Tubes for low Temperature Service	1	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 = 163Max HRB = 85Max	D ≤ 2½ in. W=15%xD 2½ in. < D ≤ 3½ in. W=12.5%xD D ≥ 3½ in. W=10%xD	Specified								The Maximum Pressure is specified repectively in size.	½ in. (21.30) ± 0.15mm ⅜ in. (26.70) ± 0.15mm 1 in. (33.40) ± 0.15mm 1½ in. (42.16) ± 0.18mm 2 in. (48.30) ± 0.20mm 3 in. (88.90) ± 0.38mm 4 in. (114.3) ± 0.43mm	+ 18% - 0	D < 2in. + ⅛ in, - 0 D ≥ 2in. + ⅜ in, - 0	D ≤ 1½ in. Max 0.15mm D > 1½ in. Max 0.25mm	+ 10% - 0	
		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 = 190Max HRB = 90Max																
ASTM A 333	LOW Temperature Service	1	0.30	-	0.40 ~1.06	0.025	0.025	-	-	-	Normalized	Min. 55,000psi (380MPa)	Min. 30,000psi (205MPa)	35 (56t + 17.50)	2	-	-	-								-	-	(Unit:in.) ½ in. ≤ D ≤ 1½ in. + 0.015, - 0.031 1½ in. < 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. + ¼ in - 0	-	D ≤ 12in. + 6.5% D > 12in - 3.5% + 10% - 5% D ≤ 4in may be weighed in convenient lot D > 4in shall be weighed separately
		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	High Temperature Service	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/mm ² (38kg/mm ²)	Min. 215N/mm ² (22kg/mm ²)	30	-	-	H = (ft)e / t e + ⅓ D (D ≤ 50mm, Alternatively, Bending Test 90° x 6D)	-								-	-	-	-	-	-	-
Class 2 SPHT 42 SPHT 410	0.30	0.10 ~0.35	0.30 ~1.00	0.035	0.035	-	-	-	-	Min. 410N/mm ² (42kg/mm ²)	Min. 245N/mm ² (25kg/mm ²)	25	-																			
KS D 3569 JIS G 3460	Low Temperature Service	Class 1 SPLT 39 STPL 380	0.25	0.35	1.35	0.035	0.035	-	-	-	Normalized or Normalized and Tempered	Min. 380N/mm ² (39kg/mm ²)	Min. 205N/mm ² (21kg/mm ²)	35	-	-	H = (ft)e / t e + ⅓ D (D ≤ 50mm, Alternatively, Bending Test 90° x 6D)	-	-	-	-	-	-	-	-							
KS D 3562 JIS G 3454	Pressure Service	SPPS 38 STPG 370	0.25	0.35	0.30 ~0.90	0.040	0.040	-	-	-	Normalized (SPPS 42, STPG 410)	Min. 370N/mm ² (38kg/mm ²)	Min. 215N/mm ² (22kg/mm ²)	30	-	-	-	-	-	-	-	-	-	-								
		SPPS 42 STPG 410	0.30	0.35	0.30 ~1.00	0.040	0.040	-	-	-		Min. 410N/mm ² (42kg/mm ²)	Min. 245N/mm ² (25kg/mm ²)	25	-																	

Continued

Standard Specification	Application	Chemical Requirement (%)										Heat Treatment	Physical Requirement				Hardness Test HRB = Rockwell B Scale HB = Brinell	Flattening Test H = Distance Between Exterior Surfaces D = Outside Diameter	Flaring Test W = The Width of Flaring D = Outside Diameter	Reverse Flattening Test	Hydrostatic Test P = Test Pressure(psi) PD = Design Pressure(psi) S = Allowable Fiber Stress(psi)	Nondestructive Test & Other Inspections	Permissible Variations in Dimensions					
		C Max	Si Max	Mn	P Max	S Max	Cu	Cr	Mo	Ni	Tensile Strength (N/mm ²)		Yield Strength	Elongation (Min %)	Gauge Length (in)	Outside Diameter							Wall Thickness	Length	Height Inside Flash	Permissible Variations in Weight		
K S D 3563 JIS G 3461	STBH 340 STB 340 STBH 410 STB 410 STBH 510 STB 510	Boiler and Heat Exchanger	0.18	0.35	0.30~0.60	0.035	0.035	-	-	-	-	Normalized	340(35kg/mm ²)	175(18kg/mm ²)	35	-	-	H = $\frac{(t+e)t}{e+t/D}$ e : constant STB(H)340:0.09 410:0.08 510:0.07	W=1.2xD (60')	-	Not-Appointment Time : P = $\frac{2St}{D}$ (S:60%XY.P)	Alternatively, Hydrostatic Test or Nondestructive Test	Specified	OD < 40mm t < 2mm	+0.3mm 0	Specified	Max 0.25mm	-
	0.32		0.35	0.30~0.80	0.035	0.035	-	-	-	-	Normalized	410(42kg/mm ²)	255(26kg/mm ²)	25	-	t ≥ 2mm								+18% 0	Max 0.25mm		-	
	0.25		0.35	1.00~1.50	0.035	0.035	-	-	-	-	Normalized	510(52kg/mm ²)	295(30kg/mm ²)	25	-	OD ≥ 40mm								+18% 0	Max 0.25mm		-	

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

Standard Specification	Application	Chemical Requirement (%)										Heat Treatment	Physical Requirement				Flattening Test H = Distance Between Exterior Surfaces D = Outside Diameter	Flaring Test W = The width of Flaring D = Outside Diameter	Nondestructive Test & Other Inspections	Hydrostatic Test P = Test Pressure(psi) S = Allowable Fiber Stress(psi)	Permissible Variations in Dimensions				
		C Max	Si Max	Mn Max	P Max	S Max	Cr Max	Mo	Ni	Tensile Strength Min	Yield Strength Min		Elongation (Min %)	Gauge Length (in)	Outside Diameter	Wall Thickness					Length	Height Inside Flash	Permissible Variations in Weight		
ASTM A 252	1	Steel Pipe Piles	-	-	-	0.05	-	-	-	-	-	-	50,000pis(345MPa)	30,000pis(205MPa)	30 (48t + 15.00)	2	-	-	-	-	±1%	+not Specified -12.5%	When ordered to a specified length. ± 1 in.	-	Each lengths + 15% - 5%
	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	-	-	-	-	OD ≤ 1.900' ±0.5% OD ≥ 2.00' ±0.75%	±10%	When ordered to a specified length. L ≤ 22ft + $\frac{1}{2}$ in. - $\frac{1}{2}$ in. 22 < L ≤ 44ft + $\frac{1}{2}$ in. - $\frac{1}{2}$ in.	-	-
	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	When required by purchaser ● Weld Portion H = $\frac{3}{4}$ D ● The Other Side of Weld Portion H = $\frac{3}{4}$ D (H ≥ 5t) ● The weld shall be located at 90 deg. from the line of direction of force.	When required by purchaser W=1.15xD (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, respectively in type and size.	(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	-					
	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	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	-
Normalized	1035	66,000	50,000	10	75	-
	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
Sink Drawn	1030	60,000	40,000	25	-	85
	1035	65,000	45,000	20	-	88
	1010	50,000	40,000	8	65	-
	1015	55,000	45,000	8	67	-
	1020	60,000	50,000	8	70	-
Mandrel Drawn	1025	65,000	55,000	7	72	-
	1030	70,000	62,000	7	78	-
	1035	80,000	70,000	7	82	-
	1010	60,000	50,000	5	73	-
	1015	65,000	55,000	5	77	-
Mandrel Drawn Stress Relieved	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	-
	1010	55,000	45,000	12	68	-

Continued

Standard Specification	Application	Chemical Requirement (%)								Heat Treatment	Physical Requirement				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
		C Max	Si Max	Mn Max	P Max	S Max	Cr	Mo	Ni		Tensile Strength (N/mm ²) Min	Yield Strength (N/mm ²) Min	Elongation (Min %)	Gauge Length (in)					Outside Diameter	Wall Thickness	Length	Height of Inside Flash	
KS D 3566 JIS G 3444	STK 290	-	-	-	0.050	0.050	-	-	-	-	290(30kg/mm ²)	-	30	-	H = $\frac{2}{3}$ D	-	-	-	No.1 OD < 50mm ±0.5mm OD ≥ 50mm ±1%	No.1 t < 4mm +0.6mm -0.5mm 4mm ≤ t < 12mm +15% -12.5% t ≥ 12mm +15% -1.5mm	-	-	-
	STK 400	0.25	-	-	0.040	0.040	-	-	-	-	400(41kg/mm ²)	235(24kg/mm ²)	23	-	H = $\frac{2}{3}$ D								
	STK 500	0.24	0.35	0.30~1.30	0.040	0.040	-	-	-	-	500(51kg/mm ²)	355(36kg/mm ²)	15	-	H = $\frac{1}{8}$ D								
	STK 490	0.18	0.55	1.50	0.040	0.040	-	-	-	-	490(50kg/mm ²)	315(32kg/mm ²)	23	-	H = $\frac{7}{8}$ D								
	STK 540	0.23	0.55	1.50	0.040	0.040	-	-	-	-	540(55kg/mm ²)	390(40kg/mm ²)	20	-	H = $\frac{7}{8}$ D								
KS D 3517 JIS G 3445	STKM 11A	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/mm ²)	-	35	-	H = $\frac{1}{2}$ D	-	-	No.1 OD < 50mm ±0.5mm OD ≥ 50mm ±1%	No.1 t < 4mm +0.6mm -0.5mm t ≥ 4mm +15% -12.5%	-	-	-	
	STKM 12A	0.20	0.35	0.60	0.040	0.040	-	-	-		340(35kg/mm ²)	175(18kg/mm ²)	35	-	H = $\frac{2}{3}$ D								
	STKM 12B	0.20	0.35	0.60	0.040	0.040	-	-	-		390(40kg/mm ²)	275(28kg/mm ²)	25	-	H = $\frac{1}{3}$ D								
	STKM 12C	0.20	0.35	0.60	0.040	0.040	-	-	-		470(48kg/mm ²)	355(36kg/mm ²)	20	-	-								
	STKM 13A	0.25	0.35	0.30~0.90	0.040	0.040	-	-	-		370(38kg/mm ²)	215(22kg/mm ²)	30	-	H = $\frac{2}{3}$ D								
	STKM 13B	0.25	0.35	0.30~0.90	0.040	0.040	-	-	-		440(45kg/mm ²)	305(31kg/mm ²)	20	-	H = $\frac{3}{4}$ D								
	STKM 13C	0.25	0.35	0.30~0.90	0.040	0.040	-	-	-		510(52kg/mm ²)	380(39kg/mm ²)	15	-	-								
	STKM 14A	0.30	0.35	0.30~1.00	0.040	0.040	-	-	-		410(42kg/mm ²)	245(25kg/mm ²)	25	-	H = $\frac{3}{4}$ D								
	STKM 14B	0.30	0.35	0.30~1.00	0.040	0.040	-	-	-		500(51kg/mm ²)	355(36kg/mm ²)	15	-	H = $\frac{1}{8}$ D								
	STKM 14C	0.30	0.35	0.30~1.00	0.040	0.040	-	-	-		550(56kg/mm ²)	410(42kg/mm ²)	15	-	-								
	STKM 15A	0.25~0.35	0.35	0.30~1.00	0.040	0.040	-	-	-		470(48kg/mm ²)	275(28kg/mm ²)	22	-	H = $\frac{3}{4}$ D								
	STKM 15C	0.25~0.35	0.35	0.30~1.00	0.040	0.040	-	-	-		580(59kg/mm ²)	430(44kg/mm ²)	12	-	-								
	STKM 16A	0.35~0.45	0.40	0.40~1.00	0.040	0.040	-	-	-		510(52kg/mm ²)	325(33kg/mm ²)	20	-	H = $\frac{7}{8}$ D								
	STKM 16C	0.35~0.45	0.40	0.40~1.00	0.040	0.040	-	-	-		620(63kg/mm ²)	460(47kg/mm ²)	12	-	-								
	STKM 17A	0.45~0.55	0.40	0.40~1.00	0.040	0.040	-	-	-		550(56kg/mm ²)	345(35kg/mm ²)	20	-	H = $\frac{7}{8}$ D								
	STKM 17C	0.45~0.55	0.40	0.40~1.00	0.040	0.040	-	-	-		650(66kg/mm ²)	480(49kg/mm ²)	10	-	-								
	STKM 18A	0.18	0.55	1.50	0.040	0.040	-	-	-		440(45kg/mm ²)	275(28kg/mm ²)	25	-	H = $\frac{7}{8}$ D								
	STKM 18B	0.18	0.55	1.50	0.040	0.040	-	-	-		490(50kg/mm ²)	315(32kg/mm ²)	23	-	H = $\frac{7}{8}$ D								
STKM 18C	0.18	0.55	1.50	0.040	0.040	-	-	-	510(52kg/mm ²)	380(39kg/mm ²)	15	-	-										

Continued

Standard Specification	Application	Chemical Requirement (%)								Heat Treatment	Physical Requirement (%)				
		C Max	Si Max	Mn Max	P Max	S Max	Cr	Mo	Ni		Tensile Strength (N/mm ²) Min	Yield Strength (N/mm ²) Min	Elongation (Min %)	Gauge Length (in)	
KS D 3517	STKM 19A	Machine Structural Purposes	0.25	0.55	1.50	0.040	0.040	-	-	-	A : Hot Working (Heat Treatment) B : As welded (ERW) C : Cold working (Stress Relieved)	490(50kg/mm ²)	315(32kg/mm ²)	23	-
	STKM 19C											550(56kg/mm ²)	410(42kg/mm ²)	15	-
JIS G 3445	STKM* 20A											0.25	0.55	1.60	0.040

* STKM 20A, Nb+V≤0.15%

List of Specifications of Electric-Resistance-Welded Tubes and Pipes For Vessel

Standard Specification	Application	Chemical Requirement (%)										Heat Treatment	Physical Requirement (%)					
		C Max	Si Max	Mn	P Max	S Max	Cr Max	Ni	Mo	Cu	Tensile Strength (N/mm ²)		Yield Strength (N/mm ²) Min			Elongation (Min %)	Gauge Length (in)	Permitted Design Temp(°C) Lowest Highest
DNV	TW 320	Steel Pipes for Vessel	0.16	-	0.30 ~0.70	0.04	0.04	-	-	-	-	Normalized	320~460	Grade 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
	TW 360		0.17	0.35	0.30 ~0.80	0.04	0.04	-	-	360~500	25							
	TW 410		0.21	0.35	0.40 ~1.20	0.04	0.04	-	-	410~550	22							
	TW 430		0.21	0.35	0.40 ~1.20	0.04	0.04	-	-	430~570	21							
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			Normalized	320~440	195	25	5.65√A	Where Rimming Steel is used. the Design Temperature is limited to 400°C		
	360		0.17	0.35	0.40 ~1.00	0.045	0.045					360~480	215	24				
	410		0.21	0.35	0.40 ~1.20	0.045	0.045					410~530	265	22				
	460		0.22	0.35	0.80 ~1.40	0.045	0.045					460~580	285	21				

List of Specifications of Conduit Tubes

Standard Specification	Application	Chemical Requirement (%)							Treatment	Required Tests				
		C Max	Si Max	Mn Max	P Max	S Max	Other Tests							
KS D 8401	Thin Conduit Tubes	*KS D 3555 or KS D 3512 Grade 1 (JIS G 3132 or JIS G3141 Grade 1)							-	<ul style="list-style-type: none"> ►KS Conduit Tubes ○ Bending Test : Table 1 ○ Corrosion resistance Test - Uniformity Test (Copper Sulphate Test) : Min. 3Times. 				
JIS G 8305	Thick Conduit Tubes										Table 1	Division	NB	Angle×Inner Radius
G 8305	Threadless Conduit Tubes											Thick	G16 G22 G28	90° x4D 90° x5D
	UL	6	-	-	-	-	-	-	-	<ul style="list-style-type: none"> ○ Bending Test ○ Corrosion resistance Test - Uniformity Test (Copper Sulphate Test) : Min. 4 Times 				
797		-	-	-	-	-	-	-	<ul style="list-style-type: none"> ○ Bending Test ○ Corrosion resistance Test - Uniformity Test (Copper Sulphate Test) : Min. 4 Times 					
BS	31	-	-	-	-	-	-	-	<ul style="list-style-type: none"> ○ Bending Test ○ Corrosion resistance Test - Uniformity Test (Copper Sulphate Test) - Salt Water dipping Test - Salt Water Spraying Test 					
ANSI	C 80.1 C 80.2 C 80.3	-	-	-	-	-	-	-	<ul style="list-style-type: none"> ○ Bending Test ○ Thickness of Zinc layer : Min. 0.02mm 					

Flattening Test	Flange Test	Nondestructive Test & Other Inspections	Hydrostatic Test	Permissible Variations in Dimensions				Permissible Variations in weight
				Outside Diameter	Wall Thickness	Length	Height of Inside Flash	
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	Permissible Variations in Dimensions												
H = Distance Between Exterior Surfaces D = Outside Diameter	P = Test Pressure D = Norminal Outside Diameter t = Norminal Wall Thickness														
$H = \frac{(1+e)t}{e+t/D}$ <table border="1"> <thead> <tr> <th colspan="2">e:Constant Value</th> </tr> <tr> <th>t/D ≤ 0.15</th> <th>t/D > 0.15</th> </tr> </thead> <tbody> <tr> <td>TW 320</td> <td>0.09</td> </tr> <tr> <td>TW 360</td> <td>0.09</td> </tr> <tr> <td>TW 410</td> <td>0.07</td> </tr> <tr> <td>TW 430</td> <td>0.07</td> </tr> </tbody> </table>	e:Constant Value		t/D ≤ 0.15	t/D > 0.15	TW 320	0.09	TW 360	0.09	TW 410	0.07	TW 430	0.07	$P = \frac{20St}{D}$ <p>S : 80% of the Specified Min. Yield Stress, in (kg/mm²) P in Bars D & t in mm</p>		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.
e:Constant Value															
t/D ≤ 0.15	t/D > 0.15														
TW 320	0.09														
TW 360	0.09														
TW 410	0.07														
TW 430	0.07														
$H = \frac{t(1+C)}{C+t/D}$	$P = \frac{200St}{D}$ <p>S : 80% of the Specified Min. Yield Stress, in kg/cm² P in kg/cm² D & t in mm</p> <p>Note : The maximum test pressure need not exceed 140bar (143 kg/cm²)</p>		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						
	Outside Diameter	Wall Thickness	Length	Height of Inside Flash							
►JIS Conduit Tubes ◦ Bending Test : 90° x60 (G16,G22,C19,C25,E19,E25) ◦ Corrosion resistance Test - Uniformity Test (Copper Sulphate Test) : Min. 3Times. ◦ Hammer Teat ◦ Compressive strain Test	<table border="1"> <tr> <td>Thin</td> <td>OD ≤ 50.8 : ±0.2mm 50.8 < OD ≤ 76.2 : ±0.35mm</td> </tr> <tr> <td>Thick</td> <td>OD ≤ 87.9 : ±0.3mm 87.9 < OD ≤ 113.4 : ±0.4mm</td> </tr> <tr> <td>Threadless</td> <td>OD ≤ 50.8 : ±0.15mm 50.8 < OD ≤ 76.2 : ±0.25mm</td> </tr> </table>	Thin	OD ≤ 50.8 : ±0.2mm 50.8 < OD ≤ 76.2 : ±0.35mm	Thick	OD ≤ 87.9 : ±0.3mm 87.9 < OD ≤ 113.4 : ±0.4mm	Threadless	OD ≤ 50.8 : ±0.15mm 50.8 < OD ≤ 76.2 : ±0.25mm	-	±5mm	-	-7%
Thin	OD ≤ 50.8 : ±0.2mm 50.8 < OD ≤ 76.2 : ±0.35mm										
Thick	OD ≤ 87.9 : ±0.3mm 87.9 < OD ≤ 113.4 : ±0.4mm										
Threadless	OD ≤ 50.8 : ±0.15mm 50.8 < OD ≤ 76.2 : ±0.25mm										
	OD ≤ 1½ In. +0.4, -0.8mm OD > 2 in ±1%	-	±6mm (Without Coupling)	-	Minimum acceptable Weight of ten lengths						
	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	-	The maximum length specified length +5mm	-	Refer to Spec						
	Refer to Spec.	-	-	-	±8%/100ft						
	17.1 ≤ OD ≤ 60.3 : ±0.38mm 73.0 ≤ OD ≤ 114.3 : ±0.64mm OD = 141.3mm : ±1%	-12.5%	±6.35mm (Without Coupling)	-	Refer to Spec						



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