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Serving Industry Since 1915

January 2008

CARBON STEEL TUBING

SQUARE

A500-GRADE B

Nominal Size	Wall (Gauge or Decimal)	Wall (Inches)	Wt/ft
½ x ½	16GA		.3840
	18GA		.4671
	16GA		.6049
	15GA		.6789
	14GA		.7529
1 x 1	18GA		.6285
	16GA		.8226
	15GA		.9086
	14GA		1.034
	13GA		1.172
	12GA		1.328
1½ x 1½	11GA		1.448
	18GA		.7170
	16GA		.9370
	15GA		1.057
	14GA		1.317
	13GA		1.492
1¾ x 1¾	12GA		1.691
	11GA		1.844
	18GA		.8003
	16GA		1.047
	15GA		1.182
	14GA		1.317
2 x 2	13GA		1.492
	12GA		1.691
	11GA		1.844
	18GA		.9556
	16GA		1.257
	15GA		1.398
2½ x 2½	14GA		1.589
	13GA		1.806
	12GA		2.056
	11GA		2.249
2 x 2	Decimals	Inches	
	.1250	⅛	3.05
2½ x 2½	.1875	⅜	4.32
	.2500	½	5.41
	.1250	⅛	3.90
3 x 3	.1875	⅜	5.59
	.2500	½	7.11
	.3125	⅝	8.43
	.1250	⅛	4.75
3 x 3	.1875	⅜	6.87
	.2500	½	8.81
	.3125	⅝	10.58
	.1250	⅛	4.75

CARBON STEEL TUBING

SQUARE — Continued

A500-GRADE B

Nominal Size	Wall (decimals inches)	Wall (Inches)	Wt./ft.
3½ x 3½	.1250	⅜	5.61
	.1875	⅝	8.15
	.2500	¾	10.51
	.3125	⅞	12.70
4 x 4	.1250	⅜	6.46
	.1875	⅝	9.42
	.2500	¾	12.21
	.3125	⅞	14.83
	.3750	¾	17.30
	.5000	½	21.61
4½ x 4½	.1875	⅝	10.70
	.2500	¾	13.91
5 x 5	.1875	⅝	11.97
	.2500	¾	15.62
	.3125	⅞	19.08
	.3750	¾	22.37
	.5000	½	28.43
5½ x 5½	.1875	⅝	13.25
	.2500	¾	17.32
	.3125	⅞	21.21
	.3750	¾	29.43
6 x 6	.1875	⅝	14.53
	.2500	¾	19.02
	.3125	⅞	23.34
	.3750	¾	27.48
	.5000	½	35.24
7 x 7	.1875	⅝	17.08
	.2500	¾	22.42
	.3125	⅞	27.59
	.3750	¾	32.58
	.5000	½	42.05
8 x 8	.1875	⅝	19.63
	.2500	¾	25.82
	.3125	⅞	31.84
	.3750	¾	37.70
	.5000	½	48.85
9 x 9	.6250	¾	59.32
	.1875	⅝	22.18
	.2500	¾	29.23
	.3125	⅞	36.10
	.3750	¾	42.79
10 x 10	.5000	½	55.66
	.1875	⅝	24.73
	.2500	¾	32.63
	.3125	⅞	40.35
	.3750	¾	47.90
12 x 12	.5000	½	62.46
	.2500	¾	39.43
	.3125	⅞	48.86
	.3750	¾	58.10
	.5000	½	76.07
14 x 14	.3125	⅞	57.36
	.3750	¾	68.31
	.5000	½	89.68
16 x 16	.3125	⅞	65.87
	.3750	¾	78.52
	.5000	½	103.30

CARBON STEEL TUBING

RECTANGULAR

A500-GRADE B

Nominal Size	Wall	Wall	Wt/ft.
2 x 1	18GA.		.955
	16GA.		1.257
	15GA.		1.434
	14GA.		1.589
	13GA.		1.806
3 x 1	12GA.		2.056
	11GA.		3.050
Nominal Size	Decimals	Inches	Wt/ft.
3 x 1½	.1250	⅜	3.48
	.1875	⅜	4.97
	.250	¼	6.25
3 x 2	.1250	⅜	3.90
	.1875	⅜	5.59
	.2500	¼	7.11
	.3125	⅝	8.43
4 x 2	.1250	⅜	4.75
	.1875	⅜	6.87
	.2500	¼	8.81
	.3125	⅝	10.58
4 x 3	.1250	⅜	5.61
	.1875	⅜	8.15
	.2500	¼	10.51
	.3125	⅝	12.70
5 x 2	.1250	⅜	5.61
	.1875	⅜	8.15
	.2500	¼	10.51
	.3125	⅝	12.70
5 x 3	.1250	⅜	6.46
	.1875	⅜	9.42
	.2500	¼	12.21
	.3125	⅝	14.83
	.3750	⅜	17.27
5 x 4	.5000	½	21.63
	.1875	⅜	10.70
	.2500	¼	13.91
	.3125	⅝	16.96
6 x 2	.3750	½	19.82
	.1250	⅜	6.46
	.1875	⅜	9.42
	.2500	¼	12.21
6 x 3	.3125	⅝	14.83
	.3750	⅜	17.27
	.1875	⅜	10.70
	.2500	¼	13.91
6 x 4	.3125	⅝	16.96
	.3750	⅜	19.82
	.1875	⅜	11.97
	.2500	¼	15.62
6 x 5	.3125	⅝	19.08
	.3750	⅜	22.37
	.5000	½	28.43
	.1875	⅜	13.25
7 x 3	.2500	¼	17.32
	.3125	⅝	21.21
	.3750	⅜	24.93
	.1875	⅜	11.97
7 x 4	.2500	¼	15.62
	.3125	⅝	19.08
	.3750	⅜	22.37
	.5000	½	28.43

CARBON STEEL TUBING

RECTANGULAR — Continued

A500-GRADE B

Nominal Size	Decimals	Inches	Wt./ft.
7 x 4	.1875	$\frac{3}{16}$	13.25
	.2500	$\frac{1}{4}$	17.32
	.3125	$\frac{5}{16}$	21.21
	.3750	$\frac{3}{8}$	24.93
	.5000	$\frac{1}{2}$	31.84
7 x 5	.1875	$\frac{3}{16}$	14.53
	.2500	$\frac{1}{4}$	19.02
	.3125	$\frac{5}{16}$	23.34
	.3750	$\frac{3}{8}$	27.48
	.5000	$\frac{1}{2}$	35.24
8 x 2	.1875	$\frac{3}{16}$	11.97
	.2500	$\frac{1}{4}$	15.62
	.3125	$\frac{5}{16}$	19.08
	.3750	$\frac{3}{8}$	22.37
8 x 3	.1875	$\frac{3}{16}$	13.25
	.2500	$\frac{1}{4}$	17.32
	.3125	$\frac{5}{16}$	21.21
	.3750	$\frac{3}{8}$	24.93
	.5000	$\frac{1}{2}$	31.84
8 x 4	.1875	$\frac{3}{16}$	14.53
	.2500	$\frac{1}{4}$	19.02
	.3125	$\frac{5}{16}$	23.34
	.3750	$\frac{3}{8}$	27.48
	.5000	$\frac{1}{2}$	35.24
8 x 6	.1875	$\frac{3}{16}$	17.08
	.2500	$\frac{1}{4}$	22.42
	.3125	$\frac{5}{16}$	27.59
	.3750	$\frac{3}{8}$	32.58
	.5000	$\frac{1}{2}$	42.05
9 x 3	.1875	$\frac{3}{16}$	14.53
	.2500	$\frac{1}{4}$	19.02
	.3125	$\frac{5}{16}$	23.34
	.3750	$\frac{3}{8}$	27.48
	.5000	$\frac{1}{2}$	35.24
9 x 5	.1875	$\frac{3}{16}$	17.08
	.2500	$\frac{1}{4}$	22.42
	.3125	$\frac{5}{16}$	27.59
	.3750	$\frac{3}{8}$	32.58
	.5000	$\frac{1}{2}$	42.05
9 x 7	.1875	$\frac{3}{16}$	19.63
	.2500	$\frac{1}{4}$	25.82
	.3125	$\frac{5}{16}$	31.84
	.3750	$\frac{3}{8}$	37.69
	.5000	$\frac{1}{2}$	48.85
10 x 2	.1875	$\frac{3}{16}$	14.53
	.2500	$\frac{1}{4}$	19.02
	.3125	$\frac{5}{16}$	23.34
	.3750	$\frac{3}{8}$	27.48
10 x 4	.1875	$\frac{3}{16}$	17.08
	.2500	$\frac{1}{4}$	22.42
	.3125	$\frac{5}{16}$	27.59
	.3750	$\frac{3}{8}$	32.58
	.5000	$\frac{1}{2}$	42.05
10 x 6	.1875	$\frac{3}{16}$	19.63
	.2500	$\frac{1}{4}$	25.82
	.3125	$\frac{5}{16}$	31.84
	.3750	$\frac{3}{8}$	37.69
	.5000	$\frac{1}{2}$	48.85

CARBON STEEL TUBING

RECTANGULAR — Continued

A500-GRADE B

Nominal Size	Decimals	Inches	Wt/ft.	
10 x 8	.1875	$\frac{3}{16}$	22.18	
	.2500	$\frac{1}{4}$	29.23	
	.3125	$\frac{5}{16}$	36.10	
	.3750	$\frac{3}{8}$	42.79	
	.5000	$\frac{1}{2}$	55.66	
12 x 4	.1875	$\frac{3}{16}$	19.63	
	.2500	$\frac{1}{4}$	25.82	
	.3125	$\frac{5}{16}$	31.84	
	.3750	$\frac{3}{8}$	37.69	
	.5000	$\frac{1}{2}$	48.85	
12 x 6	.1875	$\frac{3}{16}$	22.18	
	.2500	$\frac{1}{4}$	29.23	
	.3125	$\frac{5}{16}$	36.10	
	.3750	$\frac{3}{8}$	42.79	
	.5000	$\frac{1}{2}$	55.66	
12 x 8	.1875	$\frac{3}{16}$	24.73	
	.2500	$\frac{1}{4}$	32.63	
	.3125	$\frac{5}{16}$	40.35	
	.3750	$\frac{3}{8}$	47.90	
	.5000	$\frac{1}{2}$	62.46	
14 x 4	.1875	$\frac{3}{16}$	22.18	
	.2500	$\frac{1}{4}$	29.23	
	.3125	$\frac{5}{16}$	36.10	
	.3750	$\frac{3}{8}$	42.79	
	.5000	$\frac{1}{2}$	55.66	
14 x 6	.2500	$\frac{1}{4}$	32.63	
	.3125	$\frac{5}{16}$	40.35	
	.3750	$\frac{3}{8}$	47.90	
	.5000	$\frac{1}{2}$	62.46	
	14 x 10	.3125	$\frac{5}{16}$	48.86
.3750		$\frac{3}{8}$	58.10	
.5000		$\frac{1}{2}$	76.07	
16 x 4		.3125	$\frac{5}{16}$	40.35
		.3750	$\frac{3}{8}$	47.90
	.5000	$\frac{1}{2}$	62.46	
	16 x 8	.3125	$\frac{5}{16}$	48.86
		.3750	$\frac{3}{8}$	58.10
.5000		$\frac{1}{2}$	76.07	
16 x 12		.3125	$\frac{5}{16}$	57.36
		.3750	$\frac{3}{8}$	68.31
	.5000	$\frac{1}{2}$	89.68	
	18 x 6	.3125	$\frac{5}{16}$	48.86
		.3750	$\frac{3}{8}$	58.10
.5000		$\frac{1}{2}$	76.07	
20 x 4		.3125	$\frac{5}{16}$	48.86
		.3500	$\frac{3}{8}$	58.10
	.5000	$\frac{1}{2}$	76.07	
	20 x 8	.3125	$\frac{5}{16}$	57.36
		.3750	$\frac{3}{8}$	68.31
.5000		$\frac{1}{2}$	89.68	
20 x 12		.3125	$\frac{5}{16}$	65.87
		.3750	$\frac{3}{8}$	78.52
	.5000	$\frac{1}{2}$	103.30	

A-500 Grade B

Min. Tensile Strength 58,000 — Min. Yield Strength 42,000

CARBON STEEL TUBING ROUND

Nominal Size	Wall	Wt/ft	Nominal Size	Wall	Wt/ft		
¾ OD	16	.3888	1 1/8 OD	13	1.426		
	15	.4252		12	1.619		
	14	.4805		11	1.769		
¾ OD	18	.3668	1 1/4 OD	20	.6411		
	16	.4755		18	.8902		
	15	.5214		16	1.170		
	14	.5913		15	1.290		
	13	.6646		14	1.478		
¾ OD	18	.4323	13	1.679			
	16	.5623	12	1.910			
	15	.6175	11	2.089			
1 OD	18	.4977	2 OD	20	.7345		
				18	1.021		
			16	.6491	16	1.343	
			15	.7236	15	1.483	
			14	.8129	14	1.699	
			13	.9182	13	1.933	
			12	1.037	12	2.201	
			11	1.128	11	2.409	
1 1/8 OD	18	.5306	2 1/4	18	1.152		
				16	1.517		
				15	1.675		
				14	1.921		
				13	2.186		
1 1/4 OD	20	.4074	2 1/2 OD	12	2.492		
				11	2.730		
				16	1.690		
				15	1.867		
				14	2.143		
			13	2.440			
			12	2.783			
			11	3.050			
1 1/2	20	.4542	2 3/4	16	1.863		
				15	2.059		
			18	.6285	14	2.364	
			16	.8226	13	2.693	
			15	.9057	12	3.047	
			14	1.034	11	3.370	
			13	1.172	3 OD	16	2.037
			12	1.328		15	2.252
11	1.448	14	2.586				
1 3/4	20	.5476	4 OD	13	2.947		
				18	.7593	12	3.365
				16	.9962	11	3.691
				15	1.097		
				14	1.256		

**CHATHAM STEEL
A COMPLETE CARBON & STAINLESS
STEEL SERVICE CENTER**

STRUCTURAL AND BAR SHAPES

PLATES - Carbon, Alloy, Stainless, Aluminum

BARS - Hot Rolled, Cold Finished, Stainless, Aluminum

SHEETS - Black, Galvanized, Stainless, Aluminum

PIPE AND TUBING - Carbon, Alloy, Stainless, Aluminum

EXPANDED METAL AND BAR GRATING - Carbon and Stainless

FIBERGLASS GRATING

WIRE MESH AND WIRE ROPE

PROCESSING

SAWING - Square & Mitre

SHEARING - Braking, Forming

CUTTING - Flame, Plasma, Laser

PUNCHING, DRILLING & MACHINING

TEE SPLITTING & STRAIGHTENING

Serving Industry since 1915



PIPE SPECIFICATIONS																																														
SPECIFICATION	A53 Sizes ½"—26" Std., XS and XXS, A.N.S.I. Schedules 10 through 160—Other sizes subject to inquiry.																																													
Scope	Covers seamless and welded BLACK and hot-dipped galvanized nominal (average) wall pipe for coiling, bending, flanging and other special purposes and is suitable for welding. CONTINUOUS WELD pipe is not intended for flanging (rail back operation to form flange using pipe wall). Purpose for which pipe is intended should be stated on order.																																													
Kinds of Steel Permitted For Pipe Material	Open-hearth Basic-oxygen Electric-furnace																																													
Hot-Dipped Galvanizing	Sets standards for coating of pipe with zinc inside and outside by the hot-dipped process. Weight of coating must not average less than 1.8 oz. per square foot and not less than 1.6 oz. per square foot.																																													
Permissible Variations in Wall Thickness	Same as A120.																																													
Chemical Requirements	<table style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td colspan="4" style="text-align: center;">Type S (Seamless pipe) & Type E (electric weld)</td> </tr> <tr> <td style="text-align: left;">Open-Hearth, Electric-Furnace or Basic Oxygen</td> <td colspan="4" style="text-align: center;">Composition — Max %</td> </tr> <tr> <td style="text-align: center;">Grade A</td> <td style="text-align: center;">C</td> <td style="text-align: center;">Mn</td> <td style="text-align: center;">P</td> <td style="text-align: center;">S</td> </tr> <tr> <td></td> <td style="text-align: center;">0.25</td> <td style="text-align: center;">0.95</td> <td style="text-align: center;">0.05</td> <td style="text-align: center;">0.06</td> </tr> <tr> <td style="text-align: center;">Grade B</td> <td style="text-align: center;">0.30</td> <td style="text-align: center;">1.20</td> <td style="text-align: center;">0.05</td> <td style="text-align: center;">0.06</td> </tr> <tr> <td></td> <td colspan="4" style="text-align: center;">Type F (furnace-welded pipe)</td> </tr> <tr> <td style="text-align: left;">Open-Hearth, Electric-Furnace or Basic Oxygen</td> <td colspan="4" style="text-align: center;">Composition—Max %</td> </tr> <tr> <td style="text-align: center;">C</td> <td style="text-align: center;">Mn</td> <td style="text-align: center;">P</td> <td style="text-align: center;">S</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">—</td> <td style="text-align: center;">—</td> <td style="text-align: center;">0.08</td> <td style="text-align: center;">0.06</td> </tr> </table>		Type S (Seamless pipe) & Type E (electric weld)				Open-Hearth, Electric-Furnace or Basic Oxygen	Composition — Max %				Grade A	C	Mn	P	S		0.25	0.95	0.05	0.06	Grade B	0.30	1.20	0.05	0.06		Type F (furnace-welded pipe)				Open-Hearth, Electric-Furnace or Basic Oxygen	Composition—Max %				C	Mn	P	S			—	—	0.08	0.06
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Yield Point min., psi.....	30,000	35,000	35,000																																											
Hydrostatic Testing	<p>Hydrostatic inspection test pressures for plain end and threaded and coupled pipe are specified.</p> <p>Hydrostatic pressure shall be maintained for not less than 5 seconds for all sizes of seamless and electric-weld pipe.</p>																																													

A53 Continued										
Permissible Variations in Weights per Foot	For Extra Strong and lighter wall thicknesses Plus or Minus 5% For heavier than extra strong wall thicknesses Plus or Minus 10%									
Permissible Variations in Outside Diameter	Same as A120.									
Mechanical Tests Specified	Tensile Test—Transverse required on EW sizes 8½" and larger. Bending Test (Cold) Std. and XS-2" and under. XXS-1¼" and under. <table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"></td> <td style="text-align: center;">Degree of Bend</td> <td style="text-align: center;">Diameter of Mandrel</td> </tr> <tr> <td style="text-align: center;">For Normal A53 Uses</td> <td style="text-align: center;">90</td> <td style="text-align: center;">12 x nom. dia. of pipe</td> </tr> <tr> <td style="text-align: center;">For Close Coiling</td> <td style="text-align: center;">180</td> <td style="text-align: center;">8 x nom. dia. of pipe</td> </tr> </table> Flattening Test 2½" and larger Std. and XS (Not required for XXS pipe).		Degree of Bend	Diameter of Mandrel	For Normal A53 Uses	90	12 x nom. dia. of pipe	For Close Coiling	180	8 x nom. dia. of pipe
	Degree of Bend	Diameter of Mandrel								
For Normal A53 Uses	90	12 x nom. dia. of pipe								
For Close Coiling	180	8 x nom. dia. of pipe								
Number of Tests Required	Seamless and Continuous Weld—Bending, flattening tensile on one length of pipe from each lot of 500 lengths or less of a size. Electric-Weld—Bending and tensile on one length of pipe from each lot of 500 lengths or less of a size. Electric-Weld—Flattening on both crop ends of each length. (Coil, in case of multiple lengths.)									
Lengths	Same as A120. (Lengths longer than single random, heavier wall than XS subject to negotiation.)									
Required Markings on Each Length (On Tags attached to each Bundle in case of Bundled Pipe)	Rolled, Stamped or Stenciled Name of brand or manufacturer Kind of pipe, that is, furnace-continuous weld, EW-A, seamless B, etc. XS—for extra strong. XXS—for double extra strong. ASTM A 53. Also necessary to indicate when electric-furnace, Length of pipe. or basic-oxygen steel is used.									
General Information	Couplings—Applied handling tight. Couplings, 2" and smaller straight tapped, other sizes taper tapped. Line pipe couplings may be specified. Thread Protection—Same as specified under A120. End Finish (unless otherwise specified) Std. or XS, or wall thicknesses less than 0.500 in. (excluding XXS): Plain end beveled. EW pipe may be furnished cold expanded. All XXS and wall thicknesses over 0.500 in.: Plain end square cut.									
PIPE SPECIFICATIONS										
SPECIFICATION	A106 Sizes 1/8"—26" A.N.S.I. Schedules to 160—Other sizes subject to inquiry.									
Scope	Covers SEAMLESS carbon steel nominal wall pipe for high-temperature service, suitable for bending, flanging and similar forming operations. Sizes 1½" and under may be either hot finished or cold drawn. Sizes 2" and larger shall be hot finished unless otherwise specified.									
Kinds of Steel Permitted For Pipe Materials	Killed open-hearth Electric-furnace Basic-oxygen									

A106 Continued			
Hot-Dipped Galvanizing	Not covered in specification.		
Permissible Variations in Wall Thickness	Same as A120.		
Chemical	Grade A	Grade B	Grade C
Carbon max. %	0.25	0.30	0.35
Manganese %	0.27 to 0.93	0.29 to 1.06	0.29 to 1.06
Phosphorus, max. %	0.048	0.048	0.048
Sulfur, max. %	0.058	0.058	0.058
Silicon, min. %	0.10	0.10	0.10
Tensile Requirements	Seamless		
	Grade A	Grade B	Grade C
Tensile Strength min., psi	48,000	60,000	70,000
Yield Point min., psi	30,000	35,000	40,000
Hydrostatic Testing	Inspection test pressures produce a stress in the pipe wall equal to 60% of minimum specified Yield Point at room temperature. Maximum Pressures are not to exceed 2500 psi for sizes 3" and under, and 2800 psi for the larger sizes. Pressure is maintained for not less than 5 seconds.		
Permissible Variations in Weights per Foot	For Schedules 120 and under—Weight of any length shall not vary more than 6.5% over and 3.5% under. For Schedules heavier than 120—Weight of any length shall not vary more than 10% over and 3.5% under. NOTE: Size 4" and smaller—weighed in lots. Larger sizes—by length.		
Permissible Variations in Outside Diameter	Outside Diameter at any point shall not vary from standard specified more than—		
		Over	Under
Sizes 1½" and smaller		¼"	½"
2"—4"		½"	½"
5"—8"		⅙"	½"
10"—18"		⅜"	½"
20"—24"		⅙"	½"
Mechanical Tests Specified	Tensile Test—All sizes—either transverse or longitudinal acceptable. Bending Test (Cold)—2" and under.		
	Degree of Bend	Diameter of Mandrel	
For Normal A106 Uses	90	12 x nom. dia. of pipe	
For Close Coiling	180	8 x nom. dia. of pipe	
	Flattening test—Over 2"		
Number of Tests Required	On One Length From Each Lot of		
tensile	5" and smaller	400 or less	
	6" and larger	200 or less	
Bending	2" and smaller	400 or less	
Flattening	over 2" through 5"	400 or less	
	6" and over	200 or less	

A106 Continued

Lengths	Lengths required shall be specified in order. No "joints" permitted unless otherwise specified. If no definite lengths required, following practice applies: Single Random—16'22'—5% may be 12'-16'. Double Random—Minimum length 22', Minimum average 35'—5% may be 16'-22'.				
Required Markings on Each Length (On Tags attached to each Bundle in case of Bundled Pipe.)	Rolled, Stamped or Stenciled Manufacturer's private identifying mark. ASTM A106 A, A106B, or A106C. Hydrostatic test pressure. Length of pipe.	ANSI schedule number. Weight (4" and larger). Additional "S" if tested to supplementary requirements.			
General Information	Unless otherwise specified, pipe furnished with plain ends. Surface finish standards are outlined in specification.				
PIPE SPECIFICATIONS					
SPECIFICATION	API5L Sizes ½"—48"				
Scope	Covers WELDED and SEAMLESS pipe suitable for use in conveying gas, water, and oil in both the oil and natural gas industries.				
Kinds of Steel Permitted For Pipe Material	Open-hearth Electric-furnace Basic-oxygen				
Hot-Dipped Galvanizing	May be ordered galvanized to requirements of ASTM A120.				
Permissible Variations in Wall Thickness	Tolerances on wall thicknesses shall not be more than those listed at right from the nominal walls specified.				
Chemical		Carbon % Max.	Manganese, % Max.	Phosphorous, % Max.	Sulphur, % Max.
	SMLS Grade A	0.22	0.90	0.04	0.05
	SMLS Grade B	0.27	1.15	0.04	0.05
	SMLS A25 Class I	0.21	0.30-0.60	0.045	0.06
	SMLS A25 Class II	0.21	0.30-0.60	0.045-0.080	0.06
	EW and DSA Grade A	0.21	0.90	0.04	0.05
	EW and DSA Grade B	0.26	1.15	0.04	0.05
	EW A25 Class I	0.21	0.30-0.60	0.045	0.06
	EW A25 Class II	0.21	0.30-0.60	0.045-0.080	0.06
Tensile Requirements	Seamless or Electric-Weld		Tensile Strength	Yield Point	
			Min., psi	Min., psi	
	Grade A	.....	48,000	30,000	
	Grade B	.....	60,000	35,000	
	SMLS or EW Grade A25 Class I	.....	45,000	25,000	
	SMLS or EW Grade A25 Class II	.....	45,000	25,000	
Hydrostatic Testing	Lists Hydrostatic inspection test pressure for all sizes covered by the specification.				

API5L Continued			
Permissible Variations in Weights per Foot	For each length of Standard Weight, Regular Weight, Extra Strong, and Double Extra Strong—Not more than plus 10% minus 3.5%. For Special Plain End—Not more than plus 10% minus 5%. For Carload Lots—Not more than minus 1.75%.		
Permissible Variations in Outside Diameter	Outside Diameter at any point shall not vary from standard specified more than:		
	Sizes	Over	Under
	1½" and smaller—	¼"	½"
	2" through 3½" incl.	1%	1%
	4" through 18" incl.	0.75%	0.75%
	20" and larger	1%	1%
Mechanical Tests Specified	Tensile Test Seamless and Continuous Weld—All Sizes—Longitudinal Specimens. Electric-Weld—6" and smaller—Longitudinal—8" and larger—Transverse. Bending Test (Cold)—2" and smaller Continuous Weld		
	For all API Uses	Degree of Bend 90	Diameter of Mandrel 12 x OD of pipe
Number of Tests Required			On One Length From Each Lot of
	Tensile	5" and smaller 6" through 12" 14" and larger	400 or less 200 or less 100 or less
	Bending	2" and smaller BW	400 or less
	Flattening	Non-Expanded Electric-Weld single lengths crop ends from each length	
Lengths	Shortest Length in Entire Shipment	Shortest Length in 95% of Entire Shipment	Minimum Average Length Entire Shipment
	Threaded & Coupled Pipe	16'0"	18'0"
	Single Random	22'0"	—
	Double Random	—	35'0"
Required Markings on Each Length <small>(On Tags attached to each Bundle in case of Bundled Pipe.)</small>	Paint Stenciled (Rolled at Mfgs. Option) Manufacturer's name or mark, API monogram, size, grade, process of manufacture, type of steel, length, weight per foot (4" and larger only). Test pressure when higher than tabulated (2" and larger only).		
General Information	Couplings—Applied handling tight. All sizes are recessed, taper tapped. Thread Protection (all shipments)— 1½" and Smaller 2" to 3½" Burlap Metal Protectors 4" and Over Metal Protectors		

STANDARD MILL PRACTICE

Steel Pipe and Tubing

DIMENSIONS AND WEIGHT TOLERANCES

ROUND TUBING AND PIPE

ASTM A53

Weight—The weight of the pipe as specified in Table X2 and Table X3 (ASTM Specification A53) shall not vary by more than #10 percent.

Note that the weight tolerance of #10 percent is determined from the weights of the customary lifts of pipe as produced for shipment by the mill, divided by the number of feet of pipe in the lift. One pipe sizes over 4 in. where individual lengths may be weighed, the weight tolerance is applicable to the individual length.

Diameter—For pipe 2 in. and over in nominal diameter, the outside diameter shall not vary more than #1 percent from the standard specified.

Thickness—The minimum wall thickness at any point shall be not more than 12.5 percent under the nominal wall thickness specified.

SQUARE AND RECTANGULAR TUBING

Outside Dimensions—The specified dimensions, measured across the flats at positions at least 2 in. from either end of square or rectangular tubing and including an allowance for convexity or concavity, shall not exceed the plus and minus tolerance

Largest Outside Dimension, Across Flats, in.	Tolerance ^a plus and minus, in.
2½ and under	0.020
Over 2½ to 3½, inc.	0.025
Over 3½ to 5½, incl.	0.030
Over 5½	1 percent

shown in the following table:

^aThe respective outside dimension tolerances include the allowances for convexity and concavity.

STANDARD MILL PRACTICE—Continued

Steel Pipe and Tubing

Lengths—Structural tubing is commonly produced in random lengths, in multiple lengths, and in definite cut lengths. When cut lengths are specified for structural tubing, the length tolerances shall be in accordance with the following table:

	22 feet and under		Over 22 to 44 feet, incl.	
	Over	Under	Over	Under
Length tolerance for specified cut lengths in.	½	¼	¾	¼

Straightness—The permissible variation for straightness of structural tubing shall be 1/8 in. times the number of feet of total length divided by 5.

Squareness of Sides—For square or rectangular structural tubing, adjacent sides may deviate from 90 deg. by a tolerance of plus or minus 2 deg. max.

Radius of Corners—For square or rectangular structural tubing, the radius of any outside corner of the section shall not exceed three times the specified wall thickness.

Twist—The tolerances for twist or variation with respect to axial alignment of the section, for square and rectangular structural tubing, shall be as shown in the following Table:

Specified Dimension of Longest Side, in.	Maximum Twist per 3 ft. of length, in.
1½ and under	0.050
Over 1½ to 2½ incl.	0.062
Over 2½ to 4 incl.	0.075
Over 4 to 6 incl.	0.087
Over 6 to 8, incl.	0.100
Over 8	0.112

Twist is measured by holding down one end of a square or rectangular tube on a flat surface plate with the bottom side of the tube parallel to the surface plate and noting the height that either corner, at the opposite end of the bottom side of the tube, extends above the surface plate.

Wall Thickness (A500 only)—The tolerance for wall thickness exclusive of the weld area shall be plus and minus 10 percent of the nominal wall thickness specified. The wall thickness is to be measured at the center of the flat.