

Classification	Specification	Designation of Grade	Mechanical Properties			Chemical Composition %					Bend Test (N2)		Flattening Test H
			Tensile Strength Min	Yield Strength Min	Elongation Min	C	Si	Mn	P	S	Bending Angle	Bending Radius	
			N/mm ²	N/mm ²	%	Max	Max	Max	Max	Max			
Welded Steel Tubes - Light, Medium & Heavy	BS 1387 : 1985	-	320 to 460	195	20 (N3)	0.20	-	1.20	0.045	0.045	180°	6D	3/5 D
Carbon Steel Pipes For Ordinary Piping	JIS G 3462	SGP	290min.	-	(N1) Test Piece No. 11 & 12 - 30min. (N1) Test Piece No. 5 - 25min.	-	-	-	0.040	0.040	90°	6D	2/3D
ASTM Standard Welded Steel Pipes	ASTM A53	Grade A	330min.	205min.	As specified in A-53 specification	0.25	-	0.95	0.050	0.060	90°	12D	1/3 D
		Grade B	415min.	240min.		0.30	-	1.20	0.050	0.060			
ERW Steel Tubes for Cement Lined Pipes	BS 3601	ERW 320	320 - 460	195 min.	25 (N3)	0.16	-	0.30 - 0.70	0.040	0.040	-	-	As specified in BS 3601 Specification
		ERW 430	430 - 570	275 min.	22 (N3)	0.21	0.35	0.40 - 1.20	0.040	0.040			
Standard Welded Steel Pipes		(A) (AA)	270min.	170min.	20 (N3)	0.20	-	1.20	0.045	0.045	90°	6D	1/3 D

NOTES : (N1) - When the tensile test is carried out on No. 12 or No. 15 test piece for the pipe under 8mm in wall thickness the minimum value of elongation shall be obtained by subtracting 1.5% from the thickness values of elongation given in Table above for each 1mm decrease in wall thickness, and rounding off to an integer in accordance with JIS Z 8401

(N1) - The values of elongation given in Table above shall not applied to the pipe whose nominal size is 32mm or smaller

(N2) - Bend test in table above only applied to pipes of nominal size 2" (50mm) or smaller.

(N3) Gauge length $L_0 = 5.65\sqrt{S_0}$ (%)

H - Distance between the plates

D - Outside diameter of the pipe

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			N/mm ²	N/mm ²	%	Max	Max	Max	Max	Max			
Carbon Steel Tubes For Machine Structural Purposes	JIS G 3445	STKM11A	290min.	-	(N1) Test Piece No. 11 & 12 - 35min. (N1) Test Piece No. 5 - 30min.	0.12	0.60	0.035	0.04	0.04	180°	4D	1/2 D
Cold Rolled Square & Rectangular Hollow Section			270min.	170min.	Gauge Length Lo = 50mm - 20min.	0.20	-	1.20	0.045	0.045	-	-	-

NOTES : (N1) - Elongation values in Table above only applied to tubes over 40mm in outside diameter.

(N1) - When the tensile test is carried out on No. 12 or No. 5 test piece for the tube under 8mm in wall thickness, the minimum value elongation shall be determined by reducing 1.5% per 1mm of decrease in wall thickness from the values given in the Table above and rounding off the value obtained to integer in accordance with JIS Z 8401.

H - Distance between flat plates

D - Outside diameter of the tube