

Technical Specification References

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 EN 10255 : 2004	-	320 to 520	195	20 (N3)	0.20	-	1.20	0.045	0.045	180°	6D	3/5 D
Carbon Steel Pipes for Ordinary Piping	JIS G 3452	SGP	290min.	-	(N1) Test Piece No. 11 & 12 - 30min. (N1) Test Piece No. 5 - 25min.	-	-	-	0.040	0.40	90°	6D	2/3 D
ASTM Standard Welded Steel Pipes	ASTM A 53	Grade A	330min.	205min.	As specified in A-53 specification	0.45	-	0.95	0.050	0.060	90°	12D	1/3D
		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	195min.	25 (N3)	0.16	-	0.30 - 0.70	0.040	0.040	-	-	As specified in BS 3601 Specification
		ERW 430	430 - 570	275min.	22 (N3)	0.21	0.35	0.40 - 1.20	0.040	0.040			
Alpine Manufacturer Standard Welded Steel Pipes	APM S 002	(A) (AA)	270min.	170min.	20 (N3)	0.20	-	1.2	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 $L_0 = 5.65 S_0$ (%)
- H - Distance between the plates
D - Outside diameter of the pipe
APM S 002 - Manufacturer Standard