

# 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 <sup>2</sup>	N/mm <sup>2</sup>	%	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	0.040	90°	6D	2/3 D
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			
Alpine Manufacturer Standard Welded Steel Pipes	APM S 002	(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

APM S 002 - Manufacturer Standard

# ASTM Standard Welded Steel Pipes

**ASTM A 53**

Nominal Size	Outside Diameter		Outside Diameter				SCH No.	Wall Thickness		Calculated Weight				Test Pressure *			
			Maximum		Minimum					Plain Ends		Threads and Coupling		Grade A		Grade B	
in	in	mm	in	mm	in	mm	in	mm	lb/ft	kg/m	lb/ft	kg/m	Psi	kPa	Psi	kPa	
1/2	0.840	21.3	0.854	21.7	0.807	20.5	40	0.109	2.77	0.85	1.27	0.85	1.27	700	4830	700	4830
3/4	1.050	26.7	1.067	27.1	1.020	25.9	40	0.113	2.87	1.13	1.69	1.13	1.69	700	4830	700	4830
1	1.315	33.4	1.331	33.8	1.283	32.6	40	0.133	3.38	1.68	2.50	1.68	2.50	700	4830	700	4830
1 1/4	1.660	42.2	1.673	42.6	1.626	41.3	40	0.140	3.56	2.27	3.39	2.28	3.40	1200	8270	1300	8960
1 1/2	1.900	48.3	1.917	48.7	1.870	47.5	40	0.145	3.68	2.72	4.05	2.73	4.06	1200	8270	1300	8960
							80	0.200	5.08	3.63	5.41	3.66	5.39	1800	12410	1900	13100
2	2.375	60.3	2.398	60.9	2.350	59.7	40	0.154	3.91	3.65	5.44	3.68	5.46	2300	15860	2500	17240
							80	0.218	5.54	5.02	7.48	5.07	7.55	2500	17240	2500	17240
2 1/2	2.875	73.0	2.902	73.7	2.846	72.3	40	0.203	5.16	5.79	8.63	5.82	8.67	2500	17240	2500	17240
							80	0.276	7.01	7.66	11.41	7.73	11.52	2500	17240	2500	17240
3	3.500	88.9	3.535	89.8	3.465	88.0	40	0.216	5.49	7.58	11.29	7.62	11.35	2220	15310	2500	17240
							80	0.300	7.62	10.25	15.27	10.33	15.39	2500	17240	2500	17240
3 1/2	4.000	101.6	4.039	102.6	3.961	100.6	40	0.226	5.74	9.11	13.57	9.20	13.71	2030	14000	2370	16340
							80	0.318	8.08	12.51	18.63	12.63	18.82	2800	19310	2800	19310
4	4.500	114.3	4.543	115.4	4.457	113.2	40	0.237	6.02	10.79	16.07	10.89	16.23	1900	13100	2210	15240
							80	0.337	8.56	14.98	22.32	15.17	22.60	2700	18620	2800	19310
5	5.563	141.3	5.618	142.7	5.508	139.9	40	0.258	6.55	14.62	21.77	14.81	22.07	1670	11510	1950	13440
							80	0.375	9.52	20.78	30.94	21.09	31.42	2430	16750	2800	19310
6	6.625	168.3	6.693	170.0	6.560	166.6	40	0.280	7.11	18.97	28.26	19.18	28.58	1520	10480	1780	12270
							80	0.432	10.97	28.57	42.56	28.89	43.05	2350	16200	2740	18890
8	8.625	219.1	8.712	221.3	8.539	216.9	40	0.322	8.18	28.55	42.55	29.35	43.73	1340	9240	1570	10820
							80	0.500	12.70	43.39	64.64	43.9	65.41	2090	14410	2430	16750
10	10.750	273.0	10.858	275.7	10.643	270.3	40	0.365	9.27	40.48	60.29	41.85	63.36	1220	8410	1430	9860
							80	0.594	15.09	64.43	95.97	-	-	1990	13720	2320	16000
12	12.750	323.8	12.878	327.0	12.623	320.6	40	0.406	10.31	53.52	79.70	-	-	1150	7930	1340	9240
							80	0.688	17.48	88.63	132.04	-	-	1940	13380	2270	15650
14	14.000	355.6	14.140	359.2	13.860	352.0	40	0.438	11.13	63.50	94.55	-	-	1130	7790	1310	9030
16	16.000	406.4	16.160	410.5	15.840	402.3	40	0.500	12.70	82.85	123.30	-	-	1120	7720	1310	9030
18	18.000	457.2	18.180	461.8	17.820	452.6	40	0.562	14.27	104.67	155.87	-	-	1120	7720	1310	9030

Thickness Tolerances: ±12.5%

\* Test Pressure For Plain End Pipes only.