

# ASTM CARBON STEEL PIPE AND FLANGE SPECIFICATIONS

<b>PIPE AND TUBING</b> <b>DESCRIPTION AND APPLICATIONS</b>	<b>ASTM GRADE</b> <b>SPEC OR STRENGTH</b> <b>No. TYPE PSI</b>
Seamless milled steel pipe for high-temperature service, suitable for bending, flanging and similar forming operations	(1) A106      A      48,000
As above, except use Grade A for close coiling, cold bending or forge welding.	(1) A106      B      60,000
Black or hot-dip galvanize seamless or res-welded steel pipe suitable for coiling, bending, flanging, and other special purposes, suitable for welding	A 53      A      48,000
As above, except use Grade A for close coiling, cold bending or forge welding.	A 53      B      60,000
Black or hot-dip galvanize seamless or res-welded steel pipe suitable for ordinary uses. (When tension, flattening or bend test required, order to A-53)	A 120      –      – (obsolete)
Resistance welded steel pipe for liquid, gas or vapor	A 135      A      48,000
As above, except use Grade A for flanging and bending	A 135      B      60,000
Electric-fusion-welded strait- or spiral-seam pipe for liquid, gas or vapor from mill grades of plate	A 139      A      48,000
As above	A 139      B      60,000
<b>FORGED PIPE, FLANGES</b> <b>DESCRIPTION AND APPLICATIONS</b>	
Forged or rolled steel pipe flanges, fittings (6) values and parts for high temperature service. Heat treatment required; may be annealed or normalized	A105      I      60,000
As above	A 105      II      70,000
As above except for general service. Heat treatment is not required	A 181      I      60,000
As above	A 181      II      70,000

(1) 0.10% silicon minimum.

(2) Open hearth, 0.13 max for 1/8" and 1/4" size resistance welded pipe only

(3) Seamless: open hearth 0.048 max, acid bessemer 0.11 max;  
Res. welded: open hearth 0.050 max.

(4) Longitudinal or transverse direction of test specimen with respect to pipe axis

YIELD POINT OR STRENGTH PSI	ELONGATION (% IN 2")				CHEMICAL COMPOSITION, %			
	STD ROUND	RECTANGULAR			C	MN	P	S
		t	5/16"	5/16"				
30,000	28 long. OR (4)	17.5+ or	56t	35	.25	.27 to	.048	.058
	20 trans.	12.5+	40t	25	max	.93	max	max
35,000	28 long. OR (4)	17.5+ or	56t	35	30	.27 to	.048	.058
	12 trans.	6.5+	32t	16.5	max	1.06	max	max
30,000	28	17.5+	56t	35	(2)	–	(3)	-
35,000	22	15+	48t	30	(2)	–	(3)	-
–	–	–	–	–	–	–	–	–
30,000	–	17.5+	56t	35	–	–	.050 max	.060 max
35,000	–	15+	48t	30	–	–	.05 max	.060 max
30,000	–	17.5+	56t	35	–	.30 to 1.00	.040 max	.050 max
35,000	–	15+	48t	30	.30 max	.30 to 1.00	.040 max	.050 max
30,000	25	–	–	–	.35 (5) max	.90 max	.05 max	.05 max
36,000	22	–	–	–	.35 (5) max	.90 max	.05 max	.05 max
30,000	22	–	–	–	.35 (5) max	.90 max	.05 max	.05 max
36,000	18	–	–	–	.35 (5) max	.90 max	.05 max	.05 max

(5) When flanges will be subject to fusion welding, carbon content shall be  $\leq 0.35\%$ . If carbon is  $\leq 0.35\%$ , it may be necessary to add silicon to meet required tensile properties. The silicon content shall be  $\leq 0.35\%$ .

(6) Factor-made Wrought Carbon Steel and Ferritic Alloy Steel Welding Fitting Specifications are covered under ASTM A234.