

ASTM Carbon Steel Pipe and Flange Specifications ⁽¹⁾

	Description and Applications	ASTM		Tensile Properties		Chemical Composition, % (2)			
		Serial No.	Grade or Type	Tensile Strength min. psi	Yield PT or Strength min psi	C	MN	P	S
Pipe and Tubing	Black or hot-dip galvanized seamless or res. welded steel PIPE suitable for coiling, bending, flanging, and other special purposes, suitable for welding.	A53	A	48,000	30,000	.25 max	.95 max	.05 max	.06 max
	As above, except use Grade A for close coiling, cold bending or forge welding.	A53	B	60,000	35,000	.30 max	1.20 max	.05 max	.06 max
	Seamless medium carbon steel boiler and superheater TUBES, including boiler flues, safe ends, arch and stay tubes.	A210	A-1	60,000	37,000	.27 max	.93 max	.048 max	.058 max
	Seamless carbon steel PIPE for high-temperature service, suitable for bending, flanging and similar forming operations.	A106	A	48,000	30,000	.25 max	.27 to .93	.048 max	.058 max
	As above, except use Grade A for close coiling, cold bending or forge welding.	A106	B	60,000	35,000	.30 max	.29 to 1.06	.048 max	.058 max
	Black or hot-dip galvanized seamless or res. welded steel PIPE for ordinary uses. (When tension, flattening or bend test required, order A-53).	A120	-	-	-	-	-	-	-
	Resistance welded steel PIPE for liquid, gas or vapor.	A135	A	48,000	30,000	.25 max	.95 max	.050 max	.060 max
	As above, except use Grade A for flanging and bending.	A135	B	60,000	35,000	.30 max	1.20 max	.050 max	.060 max
	Electric-fusion-welded straight- or spiral-seam PIPE for liquid, gas or vapor from mill grades or plate.	A139	A	48,000	30,000	-	-	.040 max	.050 max
	As above.	A139	B	60,000	35,000	.30 max	.30 to 1.00	.040 max	.050 max
Forged Pipe, Flanges, Fittings and Valves	Forged or rolled steel pipe flanges, fittings, (1) valve and parts for high-temperature service. Heat treatment may be required.	A105	-	70,000	36,000	.35 max	.60 to 1.05	.04 max	.05 max
	As above, except for general service. Heat treatment is not required.	A181	Class 60	60,000	30,000	.35 (5) max	1.10 max	.05 max	.05 max
	As above.	A181	Class 70	70,000	36,000	.35 (5) max	1.10 max	.05 max	.05 max

(1) Factory-made Wrought Carbon Steel and Ferrotic Alloy Steel Welding Fitting Specification are covered under ASTM A234.

(2) Check applicable ASTM standard for full requirements of chemical composition.