

**Chrome-Moly Steel Round Bar
ASTM A-182 Grades F-5, F-11, F-22 and F-91**

**A182 Steel Round Bar Grades F-11 and F-22 are dual certified to
A739 Grade B-11 and B-22.**

**A182 Steel Round Bar Grade F-5 is also produced as
T501 and T502 stainless steel.**

	A182 F5	A182 F9	A182 F11	A182 F22	A182 F91
C	0.15 Max	0.15 Max	0.10-0.20 (2)	0.05-0.15	0.08-0.12
Mn	0.30-0.60	0.30-0.60	0.40-0.65	0.30-0.60	0.30-0.60
P	0.035 Max	0.030 Max	0.025 Max	0.035 Max	0.020 Max
S	0.030 Max	0.030 Max	0.040 Max	0.040 Max	0.010 Max
Si	0.50 Max	0.50-1.00	0.50-0.80	0.50 Max	0.20-0.50
Ni	0.50 Max		-	-	0.40 Max
Cr	4.0-6.0	8.0-10.0	1.00-1.50	2.00-2.50	8.0-9.5
Mo	0.44-0.65	0.90-1.10	0.44-0.65	0.90-1.10	0.85-1.05
V	-		-	-	0.18-0.25
Cu	-		-	-	-
Other	-		-	-	Cb, 0.06-0.10; N, 0.03-0.07; Al, 0.04 max.
Source	ASTM A182-98a		ASTM A182-98a	ASTM A182-98a	ASTM A182-98a

A 182 / SA 182

Standard Specification for Forged or Rolled Alloy-Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service

Overview

1.1 This specification covers forged low alloy and stainless steel piping components for use in pressure systems. Included are flanges, fittings, valves, and similar parts to specified dimensions or to dimensional standards such as the ASME specifications.

1.2 For bars and products machined directly from bar, refer to Specifications A 479/A 479M and A 739, for the similar grades available in those specifications. Products made to this specification are limited to a maximum weight of 10 000 lb [4250 kg]. For larger products and products for other applications, refer to Specification A 336 for the similar grades available in that specification.

1.3 Several grades of low alloy steels and ferritic, martensitic, austenitic, and ferritic-austenitic stainless steels are included. Selection will depend upon design and service requirements.

1.4 Supplementary requirements are provided for use when additional testing or inspection is desired. These shall apply only when specified individually by the purchaser in the order.

1.5 This specification is expressed in both inch-pound units and SI units. However, unless the order specifies the applicable "M" specification designation (SI units), the material shall be furnished to inch-pound units.

1.6 The values stated in either inch-pound units or SI units are to be regarded separately as the standard. (A combination of values from the two systems may result in nonconformance with the specification.)