SA-387 Steel Plates Grade 11 & 22

Overview SA 387 Gr 11 / SA 387 Gr 22

More common application of this grade is in Refineries, Power Plants, and certain areas of Chemical Plants in environments with elevated temperatures and limited corrosion concerns. In the lower end of the temperature range SA 387 Gr 11 (1150 °F min tempering temperature) , and SA 387 Gr 22 (1250 °F min tempering temperature) are used. These grades can be specified in either class 1 or 2 and can also be provided in the Normalized & Tempered or Quenched and Tempered. For more severe environments we can perform API 934 Testing to supplement this grade.

- Provided in Normalized and Tempered or Quenched and Tempered
- Thickness’ from 3/16” – 10”
- Supplemental testing available to simulate application and environment conditions
- Elevated temper to accommodate API 934

In the tables use SA 387 Gr 11 and SA 387 Gr 22

Chemical Requirements

*Elements represented in percentage

Element Composition %	SA 387 Grade 11	SA 387 Grade 22
Carbon, max:		
Heat analysis	0.05-0.17	0.05-0.15A
Product analysis	0.04-0.17	0.04-0.15A
Manganese, max:		
Heat analysis	0.40-0.65	0.30-0.60
Product analysis	0.35-0.73	0.25-0.66
Phosphorus, max:		
Heat analysis	0.025	0.025
Product analysis	0.025	0.025
Sulfur, max:		
Heat analysis	0.025	0.025

Element Composition %	SA 387 Grade 11	SA 387 Grade 22
Product analysis	0.025	0.025
Silicon:		
Heat analysis	0.50-0.80	0.50 max
Product analysis	0.44-0.86	0.50 max
Chromium:		
Heat analysis	1.00-1.50	2.00-2.50
Product analysis	0.94-1.56	1.88-2.62
Molybdenum:		
Heat analysis	0.45-0.65	0.90-1.10
Product analysis	0.40-0.70	0.85-1.15

Tensile Requirements For Class 1 Plates

	SA 387 Grade 11	SA 387 Grade 22
Tensile strength, ksi [MPa]	60 to 85 [415 to 585]	60 to 85 [415 to 585]
Yield strength min. ksi [MPa]	35	30
Elongation in 8 in. [200 mm], min. %	19	
Elongation in 2 in. [50 mm], min. %	22	18
Reduction of area, min %		45 40

Tensile Requirements For Class 2 Plates

	SA 387 Grade 11	SA 387 Grade 22
Tensile strength, ksi [MPa]	75 to 100 [515 to 690]	75 to 100 [515 to 690]
Yield strength min. ksi [MPal]/(0.2% offset)	45 [310]	45 [310]
Elongation in 8 in. [200 mm], min. %B	18	…
Elongation in 2 in. [50 mm], min. %B	22	18
Reduction of area, min %	…	45 40