SA-537 Steel Plates

Overview SA 537 Cl 1 & SA 537 Cl 2

This grade is commonly used in pressure vessel applications where low temperature resistance to notch sensitivity is needed and added strength levels are needed. Class 1 is normalized and the tensile is in the 70,000 – 90,000 level. Class 2 is quenched and tempered with a tensile range of 80,000 – 100,000. Minimum yield strength for class 1 is 50,000 and for class 2 is 60,000.

Chemical Requirements

*Elements represented in percentage

Element	Composition %
Carbon, max	0.24
Manganese:	
1 1/2in. (40 mm) and under in thickness	
Heat analysis	0.70-1.35
Product analysis	0.64-1.46
Over 1 1/2in. (40 mm) in thickness	
Heat analysis	1.00-1.60
Product analysis	0.92-1.72
Phosphorus, max	0.025
Sulfur, max	0.025
Silicon	
Heat analysis	0.15-0.50
Product analysis	0.13-0.55
Copper, max:	
Heat analysis	0.35
Product analysis	0.38
Nickel, max:	
Heat analysis	0.25
Product analysis	0.28
Chromium, max:	
Heat analysis	0.25

Element	Composition %
Product analysis	0.29
Molybdenum, max:	
Heat analysis	0.08
Product analysis	0.09

Tensile Requirements

	SA 537 Class 1 ksi(MPa)	SA 537 Class 2 ksi (MPa)
Tensile strength, ksi (MPa)		
2-1/2 in. and under	70-90	80-100
(65mm and under)	(485-620)	(550-690)
Over 2-1/2 to 4 in., incl	65-85	75-95
(Over 65 to 100 mm, incl)	(450-585)	(515-655)
Over 4 to 6 in., incl	…	70-90
(Over 100 to 150 mm, incl)	…	(485-620)
Yield strength, min.		
2-1/2 in. and under	50	60
(65mm and under)	(345)	(415)
Over 2-1/2 to 4 in., incl	45	55
(Over 65 to 100 mm, incl)	(310)	(380)
Over 4 to 6 in., incl	…	46
(Over 100 to 150 mm, incl)	…	(315)
Elongation in 2 in.		
(50 mm), min. %		
4 in. (100 mm) and under	22	22
Over 4 in. (100 mm)	…	20
Elongation in 8 in.		
(200 mm), min, %	18	…