



SA 516 Steel Plates (Hydrogen Induced Cracking HIC)

Overview SA 516 Gr 55 HIC, SA 516 Gr 60 HIC, SA 516 Gr 65 HIC & SA 516 Gr 70 HIC

Our SA 516 Gr 60 HIC and SA 516 Gr 70 HIC are two of the more popular HIC tested grades used in wet / sour gas environments. These SA 516 HIC tested steels are vacuum degassed with extra low sulfur, phosphorus and residual elements for maximum resistance to sulfide stress corrosion, HIC, and notch toughness sensitivity. These plates are used in the pressure vessel industry and primarily in refineries, chemical plants, and power plants.

- Vacuum degassed with low sulfur and residual elements
- Produced to SA 516 60 HIC, SA 516 65 HIC, SA 516 70 HIC
- Testing performed on per heat / thickness basis per NACE Standard TM0284 w/ test solution A
- Acceptance criteria is 15% max: Crack Length Ratio (CLR), Crack Thickness Ratio (CTR), Crack Sensitivity Ratio (CSR)
- Stock thickness' up to 6"
- Supplemental testing performed as per your requirement

Chemical Requirements

*Elements represented in percentage

Elements	SA 516 Grade 55 (Grade 380)	SA 516 Grade 60 (Grade 415)	SA 516 Grade 65 (Grade 450)	SA 516 Grade 70 (Grade 485)
Carbon, max				
1/2 in. (12.5 mm) and under	0.18	0.21	0.24	0.27
Over 1/2 to 2 in. (12.5 to 50 mm), incl	0.20	0.23	0.26	0.28
Over 2 to 4 in. (50 to 100 mm), incl	0.22	0.25	0.28	0.30
Over 4 to 8 in. (100 to 200 mm), incl	0.24	0.27	0.29	0.31
Over 8 in. (200 mm)	0.26	0.27	0.29	0.31



Elements	SA 516 Grade 55 (Grade 380)	SA 516 Grade 60 (Grade 415)	SA 516 Grade 65 (Grade 450)	SA 516 Grade 70 (Grade 485)
Manganese, max				
1/2 (12.5) and under:				
Heat analysis	0.60-0.90	0.60-0.90	0.85-1.20	0.85-1.20
Product analysis	0.55-0.98	0.55-0.98	0.79-1.30	0.79-1.30
Over 1/2 (12.5) and under:				
Heat analysis	0.60-1.20	0.85-1.20	0.85-1.20	0.85-1.20
Product analysis	0.55-1.30	0.79-1.30	0.79-1.30	0.79-1.30
Phosphorus, max	0.010	0.010	0.010	0.010
Sulfur, max	0.002	0.002	0.002	0.002
Silicon				
Heat analysis	0.15-0.40	0.15-0.40	0.15-0.40	0.15-0.40
Product analysis	0.13-0.45	0.13-0.45	0.13-0.45	0.13-0.45

	SA 516 Grade 55 (Grade 380)	SA 516 Grade 60 (Grade 415)	SA 516 Grade 65 (Grade 450)	SA 516 Grade 70 (Grade 485)
Tensile strength, ksi (MPa)	55-75 (380-515)	60-80 (415-550)	65-85 (450-585)	70-90 (485-620)
Yield strength, min. ksi (MPa)	30 (205)	32 (220)	35 (240)	38 (260)
Elongation in 8 in. (200 mm), min, %	23	21	19	17
Elongation in 2 in. (50 mm), min, %	27	25	23	21