

Grade: AISI 8630 (UNS G86300, ASTM A29)

Type: Cr-Mo Steel usually supplied in the hardened, quenched and tempered condition.

Nominal Composition (Standard)	
Element	Weight %
Carbon	0.28 – 0.33
Silicon	0.15 – 0.35
Manganese	0.70 – 0.90
Phosphorus	0.025 max *
Sulphur	0.025 max *
Molybdenum	0.15 – 0.25
Chromium	0.40 – 0.60
Nickel	0.40 – 0.70
Nominal Composition (Modified)	
Element	Weight %
Carbon	0.28 – 0.33
Silicon	0.15 – 0.35
Manganese	0.80 – 0.95
Phosphorus	0.025 max *
Sulphur	0.025 max *
Molybdenum	0.35 – 0.50
Chromium	0.90 – 1.00
Nickel	0.75 – 0.90

Mechanical Properties Condition

Hardened followed by oil quenching and tempering

Typical tempering range is 620 – 680o C, depending on properties required

Property	Values
Ultimate Tensile Strength	100 min Ksi (689 Mpa)
0.2 % Yield Strength	80 min Ksi (551 Mpa)
Elongation	17 % min
Reduction of Area	35 % min
Hardness	197 – 237 BHN



Notes

Low alloy steel typically containing 0.3% Carbon and alloyed with 0.5% Chromium and 0.2% Molybdenum to give enhanced mechanical properties.

Higher strength levels may be obtained through suitable heat treatment but these are not NACE MR0175 approved.

The grade has poor through hardenability to a depth dependent on the chemical composition, and it is critical that the hardenability of the grade must be taken into account when designing and selecting it for specific equipment.

Impact toughness is generally good to temperatures as low as -46 Deg C with typically 27J average and 20J single achieved, this is limited though dependent on a number of factors such as ruling section, chemical composition and heat treatment condition, with impact toughness achieved decreasing with higher strength, ruling section and at lower test temperatures due to the materials Ductile / Brittle transition temperature.

Minimum hardness is based on API 6A requirements. Maximum hardness shown is based on compliance with NACE MR0175 / ISO 15156.