PRODUCT DATASHEET

4330V

Grade

AISI 4330V (UNS G43300, ASTM A29)

Type

A nickel, chromium, molybdenum and vanadium high strength alloy steel

Overview

Low alloy steel typically containing 0.3% Carbon and alloyed with 0.9% Chromium, 1.8% Nickel and 0.5% Molybdenum to give enhanced mechanical properties and higher strength.

Often used in place of 4140/4145 due to its higher strength levels and improved impact properties at high strength.

Impact toughness is generally good to temperatures as low as -46°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, increased ruling section and at lower test temperatures due to the materials Ductile / Brittle transition temperature.

Composition	
Element	**Weight%**
Carbon	0.3 - 0.34
Silicon	0.15 - 0.35
Manganese	0.6 - 1
Phosphorus	0.035 max
Sulphur	0.035 max
Molybdenum	0.3 - 0.65
Chromium	0.8 - 1
Nickel	1.65 - 2
Aluminium	0.015 - 0.05
Manganese	0.6 - 1
Vanadium	0.05 - 0.1
Copper	0.35 max

Application

The grade has limited through hardenability which must be taken into account when designing and selecting it for specific equipment.

Shock loading or stress concentration applications are suitable for this grade. It is widely used in the oil and gas industry for applications such as oil tools, crossovers, drill jars, drill shoes, tool holders, and reamers.

Applications within the aerospace industry include bolting and air frames.

Mechanical Propeties

Hardened followed by oil or polymer quenching and tempering

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Property	Values
0.2% Yeild Strength	150 KSI min (1034 MPA min)
Ultimate Tensile Strength	160 KSI min (1103 MPA min)
Elongation	14
Reduction of area	45% min
Hardness	321 - 388 HBW

Notes: Hardness condition is outside of NACE.