

AMS 6411, 4330 Alloy Steel

Acclaimed for its exceptional strength and resilience, 4330 alloy steel (AMS 6411) stands as a high quality alloy steel with exceptional strength and durability. As part of the renowned nickel-chromium-molybdenum steel family, 4330 alloy steel exhibits a remarkable combination of properties that have firmly established its reputation across a wide spectrum of industries.

At its core, 4330 is classified as a low-alloy steel, deriving its exceptional performance from a meticulously balanced blend of alloying elements. Nickel gives this material its overall toughness and resistance to impact, while chromium enhances the material's hardenability and fortifies it against corrosion. Molybdenum, on the other hand, gives strength and mitigates the risk of brittle fractures.

4330 alloy steel is also able to undergo heat treatment processes that yield extraordinary levels of hardness. The exceptional hardness attainable by 4330 alloy steel makes it an ideal material for applications that require robust wear resistance and durability, such as in the manufacturing of bearings, gears, and other critical components exposed to substantial mechanical loads.

Complementing its impressive mechanical capabilities, 4330 alloy steel possesses an outstanding resistance to severe environmental conditions. The chromium present within its carefully crafted composition bestows upon this material a robust shield against corrosion, enabling it to withstand exposure to moisture, chemicals, and atmospheric factors that would ordinarily compromise the integrity of inferior alloys.

Specific Gravity										
7.8 g/cm ³										
Typical Applications					Related Specifications					
Aircraft landing gears Aircraft shafts Axels and gears					AMS 6411					
Chemical Composition (Wt %)										
	C	Mn	Si	P	S	Cr	Ni	Mo	V	Cu
Min	0.28	0.65	0.15	-	-	0.75	1.65	0.35	0.05	-
Max	0.33	1.00	0.35	0.015	0.015	1.00	2.00	0.50	0.10	0.35
Typical Mechanical Properties										
Type	0.2% Proof Stress	Tensile Strength	Elongation	Reduction of area	Hardness					

	MPA	MPA	%	%	HBW
Bar (Normalised and tempered, 0.5" and above)	1276	1517	10	35	269

What is 4330 steel?

4330 is the designation for a specific grade of nickel-chromium-molybdenum alloy steel. It's not a generic term, but rather a codification that denotes the precise chemical composition and quantities of alloying elements present in this steel. Alloy steels obtain these properties by adding controlled amounts of elements like nickel, chromium, and molybdenum to carbon steel.

In the case of 4330 alloy steel, the nickel provides toughness, chromium imparts hardness and corrosion resistance, while molybdenum increases strength and mitigates brittleness.

What are the properties of 4330 Alloy steel?

4330 alloy steel boasts an impressive combination of properties that make it highly desirable for demanding applications: exceptional strength and toughness to withstand heavy loads and impacts, superior wear resistance, corrosion resistance from chromium content to combat harsh environments, heat resistance to maintain properties at elevated temperatures, and improved hardenability throughout the cross-section.

What is the difference between 4330 and 4340 steel?

The difference between 4330 and 4340 alloy steels lies in their minor variations in chemical composition. Both steels are part of the nickel-chromium-molybdenum family, but 4340 has a slightly higher carbon content (around 0.4%) compared to 4330 (around 0.3%). This higher carbon content in 4340 allows it to achieve marginally higher strength and hardness levels after heat treatment. However, 4330 offers better toughness and ductility due to its lower carbon content. The two steels share similar properties like excellent wear resistance, hardenability, and corrosion resistance, but 4340 is slightly harder and stronger, while 4330 is tougher and more ductile.

* This data has been supplied in good faith and is indicative only. It has been provided for general information purposes only and is not to be relied upon in place of the full specification. Mechanical properties can vary considerably with different supply conditions such as heat treatment or temper and product dimensions.

No liability will be accepted by Dynamic Metals Ltd in respect of any action taken by any third party in reliance of any of the data provided.

The information provided in this datasheet has been taken from multiple recognised sources. No guarantee is given that the information is from the latest issue of these sources and no guarantee is given that the information in the datasheet is accurate or up to date.

Material supplied by Dynamic Metals Ltd may vary significantly from this data but will conform to the relevant and applicable standards. All transactions are subject to Dynamic Metals Ltd latest Terms and Conditions of Sale.

As the products detailed may be used for a wide variety of purposes and as Dynamic Metals Ltd has no control over their use, Dynamic Metals Ltd specifically excludes all conditions or warranties expressed or implied by statute or otherwise as to dimensions, properties and/or fitness for any particular purpose, whether expressed or implied.

Advice given by Dynamic Metals Ltd to any third party is given for that party's assistance only and without liability on the part of Dynamic Metals Ltd.

All transactions are subject to Dynamic Metals Ltd latest Terms and Conditions of Sale. The extent of the Company's liabilities to any customer is clearly set out in those Conditions, a copy of which is available by request or by downloading from our website.

General Enquiries

T: +44 (0) 1525 217 556 [\(tel:+4401525217556\)](tel:+4401525217556)

E: sales@dynamicmetalsltd.com [_\(mailto:sales@dynamicmetalsltd.com\)](mailto:sales@dynamicmetalsltd.com)



UK Address:

Head Office

40 Eden Way
Chartwell Business Park
Leighton Buzzard
Bedfordshire
LU7 4FY

T: +44 (0)1525 217 556 [.\(tel:+441525217556\)](tel:+441525217556)

Conversion Centre

Suite 2 Meadowhall Riverside
Meadowhall Road
Sheffield
South Yorkshire
S9 1BW

T: +44 (0)1143 030 320 [.\(tel:+4401143030320\)](tel:+4401143030320)

Registered Office (only)

The Granary
Crowhill Farm Ravensden Road
Wilden
Bedfordshire
MK44 2QS

T: +44 (0)1525 217 556 [.\(tel:+441525217556\)](tel:+441525217556)



[\(/media/zn2dbklo/cyber-essentials-certified-plus.png\)]((/media/zn2dbklo/cyber-essentials-certified-plus.png)



[\(/media/dyelbliq/cyber-essentials-certified.png\)](#)