

# Technical Bulletin

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## *Subject: Stainless Steel 420 J2*

### General Description

Grade 420 J2 stainless steel is a general purpose stainless steel containing both chromium and medium quantities of carbon. The carbon content allows for the suitable hardening required to achieve a minimum breaking strength of 22kN along the spine and 16kN gate strength without permanent distortion. This strength rating is not achievable with other grades of stainless steel.

It also and provides the best combination of corrosion resistance and general mechanical strength properties and the carbon levels contained provide a low level of magnetism within the material structure.

### Material Composition

Due to its excellent hardening ability 420 J2 is capable of being hardened up to 56 HRC Rockwell or higher depending upon the carbon content, Small sections can be air cooled and larger sections are oil quenched for maximum hardness and complies to Australian Standard AS2837 1986-420 Stainless Steels..

Chemical Composition range of 420 J2 stainless steel

Grade 420 J2		
Ingredients	Min.	Max.
Carbon	0.15	0.36
Manganese	-	1.00
Silicon	-	1.00
* Nickel	-	1.00
Phosphorus	-	0.04
Sulphur	-	0.03
Chromium	12.00	14.00



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### **Material Properties**

420 J2 stainless steel is not a marine grade stainless and in some conditions the surface may show signs of oxidisation which can be cleaned by using an alkaline cleaner, much like the 302 / 304 stainless.

The hardening process employed to achieve the required strength rating may also result in discolouration and Capital Safety have plated the 420 stainless to assist in the protection of the product surface from surface oxidisation and improve overall appearance.

Other properties include:

Good corrosion resistant qualities in both the industrial and domestic environments

Resistance to ammonia, blood, carbonic acid, crude oil, detergent solutions, dilute nitric acid, fresh water, food acids and many of the petroleum products, steam, vinegar and many other generally used chemicals.

420 J2 stainless is commonly known as surgical steel as is used in the production of surgical instruments, has excellent machining qualities and is often used in the manufacture of cutting tools and knives.

Unlike carbon steels the 420 J2 stainless will not break down or lose its strength when exposed to chemical environments as may be found in many of our industries.