

CORROSION RESISTANCE

STAR FASTENERS

A Superior Corrosion Resistant Huck® Blind Structural Fastener

The Huck® 316 (A4) Stainless Steel Magna-Lok® Structural Blind Fastener

Engineered for superior corrosion resistance and retaining all the features of the standard (steel, aluminium and A2 stainless steel) version of the Huck® Magna-Lok®, the 316 A4 stainless steel Magna-Lok® offers corrosion resistance beyond anything else in the Huck® blind fastener range.

The Huck® structural blind Magna-Lok® retains the pin in the rivet body (sleeve) post-installation for extra tensile and shear strength. This 360° internal locking technology enables the pin to be mechanically locked to the sleeve as it expands during installation, giving excellent joint tightness and high-quality resistance to liquid penetration. The Huck® 316 (A4) stainless steel Magna-Lok® is available in 6.4mm (1/4") diameter, with a wide grip range to accommodate variations in joint thickness (2.03mm -15.88mm).

Key Advantages of 316 Marine Grade, Non-Magnetic Huck® Fasteners:

Non-magnetic properties:

Non-magnetic fasteners are essential in environments where magnetic fields can disrupt sensitive electronic components or equipment

Strength and durability:

Huck® fasteners provide strong and reliable joints, often with load-carrying capabilities comparable to or even exceeding traditional fasteners. 316 stainless steel offers high tensile strength and durability, allowing fasteners to withstand significant loads and stresses.



Huck Range Force Battery Installation Tool

Ease of installation: Huck® Magna-Lok® structural blind fasteners are relatively easy to install, requiring minimal access to only one side of the of the joint.

Vibration resistance: Huck® fasteners offer excellent resistance to vibration, making them suitable for applications where the joint might experience movement or mechanical stress.

Corrosion resistance: The primary advantage of using 316 stainless steel fasteners is their exceptional resistance to corrosion.

Aesthetic appeal: The smooth and polished appearance of stainless steel 316 gives a visually appealing finish to the fasteners, making them suitable for applications where aesthetics matter.

Low maintenance: Thanks to their corrosion resistance, Huck® fasteners generally require minimal maintenance over their lifespan.

Versatility: They can be used to join different materials, including

metals and composites, expanding their applicability across industries.

Replaces welding: In some cases, 316 Magna-Lok's can replace the need for welding. 316 stainless steel is susceptible to weld decay; the welded area can be more vulnerable to corrosion, weakening the bond of the weld. Weld decay primarily affects the microstructure of the material around the weld joint. When 316 stainless steel is heated to certain temperatures (typically in the range of 800 to 1600°F or 425 to 870°C) during welding, carbon in the steel combines with chromium to form chromium carbides. This process depletes the chromium content in the immediate vicinity of the weld joint, leading to a reduced ability to form a protective chromium oxide layer that provides the stainless steel's corrosion resistance.

Mechanical advantages: these include, excellent gap closure capability, a flush pin break and outstanding hole filling on the blind side and is capable of filling irregular, slotted, oversized, or misaligned holes, whilst providing strong, vibration resistant joints.

Where is the Huck® A4 Magna-Lok® Fastener Used

The A4 stainless steel Magna-Lok® is widely used in industries and applications where a combination of corrosion resistance, strength, durability, and aesthetic appeal is required. It finds applications in construction, architecture, automotive, aerospace, food processing, medical devices, household appliances, and many other areas where resistance to corrosion and staining is essential.

Stainless Steel: A2 vs A4 - a simple guide

Chemical Composition

A2: Often referred to as 304 or 18/8 stainless.

18/8 refers to the amount of chromium and nickel in the alloy - 18% chromium and 8% nickel, the chromium provides a corrosion and oxidation resistance, however it can be prone to tarnishing.

A4: often referred to as 316, 18/10 and marine grade stainless.

18/10 refers to the chromium and nickel content- 18% chromium and 10% nickel, and 2-3% molybdenum. The molybdenum increases the corrosion resistance to withstand attack from many solvents, for example, sulfuric acid, chlorides, de-icing salts and industrial chemicals. It is considerably more resistant to solutions of bromides, iodides and fatty acids at high temperature.

Corrosion Resistance

A2 (304): Offers good corrosion resistance in most environments, but not as resistant as A4 in corrosive environments like marine or chloride-rich settings.

A4 (316): Provides excellent corrosion resistance, particularly in chloride environments like marine settings or industrial areas with exposure to chemicals.

Strength and Durability

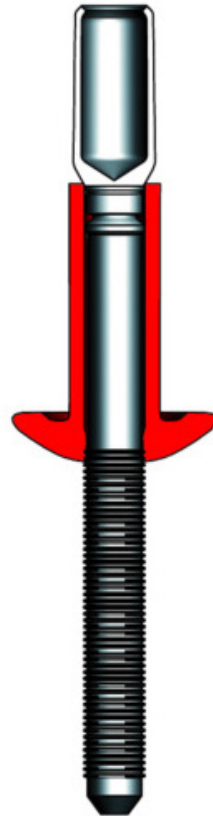
A2 (304): Offers good strength and toughness suitable for many general-purpose applications.

A4 (316): offers the same strength characteristics as A2 but it is more corrosion resistant in demanding environments.

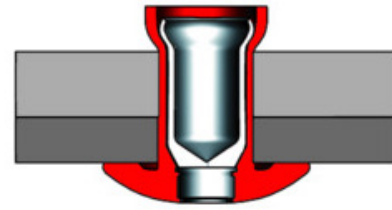
Both A2 and A4 grades are classed as Austenitic stainless steel (sometimes called the 300 series). This means that they have high chemical resistance but cannot be hardened by heat treatment. They can be hardened by cold working.

Molybdenum Content

A2 (304): Does not contain molybdenum.



Huck Magna-Lok Cross Section -
Uninstalled and Installed



In summary, while both A2 (304) and A4 (316) stainless steels offer corrosion resistance and are widely used, the choice between them depends on the specific application requirements. A4 (316) is generally preferred for applications where superior corrosion resistance, particularly in harsh environments is essential.

A4 (316): Contains molybdenum which enhances its corrosion resistance.

Stainless steel may also contain other alloying elements such as nickel, titanium, copper and manganese, among others, to enhance specific properties like strength, corrosion resistance, and durability. Non-metal additions are also made, the main ones being Carbon and Nitrogen. The exact composition and properties of stainless steel can vary depending on the specific grade or type.

Common Properties of A2 and A4 Stainless Steel

While A2 (304) and A4 (316) stainless steels share common properties, their differences in composition, particularly the addition of molybdenum in A4 (316), result in variations in corrosion resistance and mechanical properties. As a result, the selection between A2 and A4 stainless steel depends on the specific application requirements, particularly the level of corrosion resistance needed.

Star Fasteners have been a Huck® fastener distributor for over thirty years and are the UK's largest stockists - we have a wealth of knowledge and experience gained from working in a wide variety of industries. An extensive stock ensures that customers never have a break in supply; this together with a hire tool fleet, an in-house tool maintenance repair department, and in-house powder coating facility, ensures an all-encompassing service can be relied upon.

A key strength of Star Fasteners is our ability to work with customers on projects and to find solutions that will help optimise the application whilst also improving the overall efficiency. We work globally with a diverse range of end users and distributors from across a number of industries, offering technical application knowledge and customer support. Huck® fasteners guarantee performance and help maximise your return on investment; get the right fastener for your project and achieve your business goals.



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starfasteners.co.uk

Telephone: +44 (0)1159 324 939

Email: sales@starfasteners.co.uk