

## AUSTENITIC STAINLESS STEEL FASTENERS



### Why Stainless Steel? Why Unbrako?

Today, with labor costs at record levels and going up, greater consideration at the design level is being given to the reduction—or even elimination—of maintenance. The cost of removing rusty bolts, and replacing them with new ones, is more expensive than using corrosion resistant fasteners to begin with. Other costs resulting from fastener failure, such as downtime and lost production, make an even stronger case for stainless steel fasteners.

Unbrako Stainless Steel Fasteners—available in SS304 & SS316—offer excellent corrosion resistance in a wide variety of environments, especially in low chloride waters (less than 2000ppm chlorides). Additionally, they are more noble (cathodic) than the structural members they join, and are therefore protected by them.

Unbrako SS304 fasteners are the most widely used. They are virtually immune to foodstuffs, sterilizing solutions, most organic chemicals and dyestuffs, and a wide variety of inorganic chemicals. They are thus useful in the food and beverage, pharmaceutical & electronic chip industries, as they maintain product purity, with the minimum contamination.

If an application calls for a material with corrosion resistant properties better

than that of SS304, SS316 is the logical candidate. The 2-3% molybdenum provides improved pitting and crevice corrosion-resistant properties, especially in environments containing chlorides. Unbrako SS316 fasteners have wide applications in pulp and paper mills and water treatment plants. They are also widely used in phosphoric and acetic acids.

Unbrako Stainless Steel fasteners do not require any form of protective coating. This “stainless” characteristic makes them ideal for many architectural applications and atmospheric (indoor and outdoor) services.

### Performance at High Temperatures

At elevated temperatures creep occurs leading to reduction in stress, which means that bolts are unable to maintain a tight joint. Unbrako Stainless Steel fasteners show retention of a high percentage of tensile strength and good creep resistance up to 800°F (without scaling or oxidation).

### Magnetic Properties

Unbrako Stainless Steel fasteners have low magnetic permeability i.e., they will not be attracted by a magnet. Maximum permeability is 1.2 & can be reduced to 1.02 by bright annealing. It is a highly valuable characteristic in electrical applications.

### Performance at Low Temperatures

Unbrako Stainless Steel fasteners show excellent performance even at low temperatures. They are essentially useful in cryogenic applications (like Liquid Nitrogen Gas (LNG) processing), especially SS304, because it does not become brittle as it is chilled. It not only remains tough and ductile at LNG temperature—minus 260°F (-162°C)—but also retains excellent properties with liquid hydrogen at minus 423°F (-253°C) & liquid helium at minus 452°F (-268°C).

### Unbrako Stainless Steel 304/316 Range in A2-70, B8, A4-70, B8M, A4-80, A4-90 and A4-100

- Socket Head Cap Screws
- Socket Countersunk Head Screws
- Socket Button Head Screws
- Hex Head Screws
- Hex Nuts
- Plain Washer
- Spring Washer
- Socket Set Screws
- Threaded Rod
- Specials



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