

# THE STAINLESS ADVANTAGE

The vast range of benefits provided by stainless steel ensure that it continues to be a highly sought after and specified finish in materials selection. Whilst stainless fixtures can often have an initial higher purchase cost, over the total life of a project, it is the highly durable and enduring stainless steel option that provides the greatest *true* value.

## BENEFITS AND CHARACTERISTICS

<b>Value for Money</b>	Taking into consideration total life cycle costs, stainless is often the least expensive material option.
<b>Hygienic</b>	The easy maintenance of stainless makes it the most commonly specified material for the strictest hygiene environments such as hospitals, laboratories, processing plants and kitchens.
<b>Environmentally Friendly</b>	100% recyclable. Stainless used to manufacture new products is generally made from between 65-80% refined stainless steel scrap.
<b>Durable</b>	Highly resilient and easily repaired, stainless is the ideal material for fabricating fixtures that require the most extreme resistance against the toughest physical and environmental challenges.
<b>Aesthetics</b>	Available in a range of finishes, the clean, attractive appearance of stainless is truly timeless, adaptable and equally suited to modern and classic styled interiors.
<b>Versatile</b>	Stainless can be cut, pressed, folded, welded and formed into almost any shape meaning custom designed fixtures can be fabricated without costly castings and custom-built fabrication tooling.

## WHAT IS STAINLESS STEEL?

Stainless steel is a low carbon steel that contains an added 10.5% or more of chromium. It is the added chromium that allows the formation of an invisible, chromium-oxide film on the surface of the steel and gives stainless its unique corrosion-resisting properties.

When this film is damaged, either chemically or by abrasion, the underlying steel is exposed to the atmosphere. Provided that oxygen is present and can make contact with the steel, this chromium film is quickly self-restored to protect the underlying steel from future harm.

Corrosion resistance and other physical properties are enhanced by increased chromium content and adding other elements such as molybdenum, nickel and nitrogen. Each of these alloys - a specific, measured combination of elements - is called a 'grade'. In all, there are more than 60 common grades of stainless steel. Britex predominantly fabricates using grade 304 and 316 stainless steel.

### GRADE 304

**TYPICAL COMPOSITION (%)**  
18 Cr / 10 Ni

#### CHARACTERISTICS

- Hygienic and easy to clean
- Excellent formability
- Hard-wearing and resilient
- Non-magnetic

#### COMMON APPLICATIONS

- Plumbing Fixtures
- Kitchen Sinks
- Commercial Benching
- Architectural Fittings

### GRADE 316

**TYPICAL COMPOSITION (%)**  
17 Cr / 12 Ni / 2 Mo

#### CHARACTERISTICS

- Hygienic and easy to clean
- Excellent formability
- Hard-wearing and resilient
- Non-magnetic
- Added molybdenum and higher nickel content provides greater resistance to corrosion
- AKA 'marine grade' or 'acid resistant' stainless

#### COMMON APPLICATIONS

- Laboratory Fixtures
- Coastal Projects
- Aquatic Centres
- Mineral Processing Plants

## GREEN STAINLESS STEEL?



**In understanding the true ‘whole of life’ impact that any fabricated product has on the environment, it is undeniable that stainless steel fittings and fixtures offer specifiers a truly environmentally sound decision.**

Highly durable in a wide range of project applications, stainless steel fixtures outlast the vast majority of similar products manufactured from alternative materials without, in most cases, requiring any potentially harmful substances required to prolong life such as harsh cleaners, solvents and artificial protective coatings.

Once their service life is complete, stainless products are 100% recyclable. At present, new stainless steel production incorporates between 65% and 80% recycled material. This means that more than 50% of the products being manufactured today by Britex have already served another useful purpose in a previous life. This ongoing rejuvenation chain will continue indefinitely. State of the art stainless mills that supply stainless steel to Britex operate at close to a theoretical minimum and any stainless waste from the recycling process that ends up in landfill is not expected to have any detrimental effect on adjacent soil, ground or water storages.

## 304 or 316 STAINLESS STEEL?

**In the vast majority of cases, it is sufficient to install stainless steel fixtures manufactured entirely using grade 304 stainless steel, as the corrosion resistant properties of this alloy make it more than capable of withstanding all but the harshest of environmental and chemical exposures.**

In situations where a stainless steel fixture is likely to be installed in a highly corrosive setting (laboratories, chemical plants, chlorinated or salt air environments) it is recommended to take the ‘next step up’ in corrosion resistance provided by a stainless alloy and fabricate that fixture from grade 316 stainless steel.

It is important to note however that the advantages of using grade 316 relate only to its corrosion resisting properties. Grade 316 stainless steel does not offer any advantage over grade 304 by way of strength, physical durability, formability or aesthetics.

The higher nickel content, the addition of molybdenum and the fact that this alloy is not stocked by manufacturers at the same levels as grade 304 also means that it is generally more expensive than grade 304 by approximately 25% in material cost alone.

It may also come to be that not all components that are used to fabricate a complete fixture (bowl pressings, brackets, fittings) are available in grade 316 stainless steel. Therefore, an exact alternative to a grade 304 fixture may not be possible to fabricate in grade 316 stainless without significant additional cost.

It should also be noted that even grade 316 stainless steel is not wholly resistant to all environments and substances. Whilst 316 stainless steel is generally suitable to laboratory-type conditions where acids and corrosives are put in contact with the stainless surface, it is imperative that these corrosive substances are not left in contact with the steel, or allowed to dry on the surface, before being thoroughly rinsed from the surface. Allowing a highly corrosive acid to stay in contact with stainless will eventually cause the surface to become pitted.

Grade 316L is a low carbon version of 316 that is more resistant to the sensitisation effect (grain boundary carbide precipitation) caused by the high temperatures generated when welding heavy gauge stainless (over 6.0mm). This sensitisation effect can cause the stainless to become more vulnerable to corrosion, however, grade 316L is generally not used by stainless sheet metal fabricators as the heat generated when welding lighter gauge materials (1.0-2.0mm) is not enough to cause this sensitisation. Fabrication heat not being a factor, the corrosion resistance of 316L is identical to standard grade 316.



**MELBOURNE**  
Britex Place, Mirra Crt  
Bundoora VIC 3083  
t (03) 9466 9000  
f (03) 9466 9044

**SYDNEY**  
16 Northumberland Drv  
Taren Point NSW 2229  
t (02) 9531 2100  
f (02) 9531 2800

**PERTH**  
14 Capital Rd  
Malaga WA 6090  
t (08) 9249 5464  
f (08) 9248 6893

**BRISBANE**  
19 Manilla St  
East Brisbane QLD 4169  
t (07) 3363 2400  
f (07) 3363 2444

**ADELAIDE**  
The Britex Group  
SA State Office  
t 1300 764 744  
f 1300 784 306