

## **Stainless Steel Flagpoles Guide**

When choosing a stainless steel flagpole it is extremely important to consider the atmospheric environment into which it is going. There are many assumptions regarding stainless steel and it's anti corrosive qualities particularly it's inability to stain. However this is not the case and the following factors have a great impact on the surface finish of your stainless steel flagpole;

- Marine atmospheres
- Industrial Pollutants
- Salt Mist and Spray from Roads
- Atmospheric Dirt

### **304 and 316 Grade Stainless Steel.**

The most common grades used for flagpoles are 304 Grade (1.4301) and 316 Grade (1.4401). By adding Nickel and increasing chromium to 304 Grade, the internal structure of the metal is manipulated and the corrosion resistance increased. By further adding Molybdenum and increasing the nickel content to 10% 316 Grade is created and is more commonly known as "Marine Grade". This grade of steel is better suited for coastal or more heavily polluted environments.

### **Staining**

One of the greatest misconceptions with stainless steel is that it will never stain or discolour. All stainless steel has a "passive" surface, a protective layer of chromium oxide, which minimises corrosion, but this passive layer can be attacked by certain chemical particles such as salts or industrial pollutants.

"Tea Staining" is quite common in lower grade stainless steel, such as 304, particularly close to the sea or in more polluted areas and near main roads. This brown discolouration, caused principally by salt deposited on the surface, does not affect the structural integrity or longevity and it can be controlled but it is unsightly.

Whilst Harrison's can offer clients 304 Grade, we will always recommend 316 Grade for our flagpoles. Experience has shown that whilst 304 is adequate within inland sites where there is little to no atmospheric pollutants; wind exposure, industrial pollution and high temperatures can create an environment whereby 304 Grade will tea stain even when 20 kilometres from the sea.

Harrisons believe that the best way to minimise the risk of staining and to ensure you get the right stainless steel flagpole is to specify and insist on a 316 Grade flagpole.

### **Choosing a Surface Finish.**

The best corrosion resistance will be achieved with the smoothest finish. The smoother the finish the fewer the deep surface grooves on the flagpoles where salts and other contaminants can collect and concentrate.

Harrison's standard finish is our Satin finish, a mechanically achieved polish and smoothest of the non reflective finishes, providing corrosion resistance for most external applications (Ra less than 0.5). Alternatively we can provide a brighter reflective "mirror" polish (Ra less than 0.1). As a general rule the brighter polished surfaces will provide a further degree of corrosion resistance by further reducing the depth of the surface grooves.

All our stainless flagpoles can also be painted to offer a coloured finish. By painting the stainless flagpole we effectively add a further protective barrier.

## **Installation**

All Harrison flagpoles come with complete installation instructions and we can offer a complete installation service within the UK.

It is important to note that installation should be avoided whilst construction work is on going. Steel particles from welding, cutting, drilling and grinding can potentially cross contaminate your stainless steel flagpole as can iron particles found in cement dust.

## **Maintenance**

We would always recommend a degree of cleaning to help keep the stainless steel surface in good condition. Rain-water will act as a natural cleaner but in hotter climates it may be necessary to use a mild detergent or soapy water to remove any build up of dust and dirt on the flagpole surface.

For further information on stainless steel, cleaning it and alternative protective coatings see links below;

[www.bssa.org.uk](http://www.bssa.org.uk) British Stainless Steel Association

[www.vecom.co.uk](http://www.vecom.co.uk) Metal Surface Treatments

[www.bromoco.com](http://www.bromoco.com) Stainless Steel Surface Treatments