

Stainless steel owes its corrosion resistance to a thin layer of chromium oxides on its surface, which forms after the production process is complete. When exposed to air, stainless steel undergoes passivation as a result of natural oxidation processes. This process takes 24 to 48 hours, depending on atmospheric conditions, and may take longer in industrial, humid, or aggressive environments.

To ensure maximum corrosion protection, the surface of the steel must remain clean and have access to oxygen, which, when combined with the chromium in the steel, forms a protective passive layer of chromium oxides.

A common misconception is that stainless steel is resistant to all types of corrosion and does not require any maintenance. The term *stain-less* generally means *less corrosive*. Many assume that stainless steel does not require additional surface maintenance compared to other steels, taking its name as a guarantee of corrosion resistance under all conditions. However, this is not the case.

To maintain the corrosion resistance of stainless steel, periodic maintenance, particularly **cleaning, is essential**. This is because its resistance depends on the thin passive layer on the surface. Any contamination, sediment, or foreign material particles deposited on the surface can damage this layer, reducing its resistance.

Maintenance is particularly important for components used in harsh climates or environments containing chloride salts, sulphides, or other corrosive metals, coastal areas or islands. In such conditions, the surface of stainless steel may discolour, accumulate corrosion products, and even begin to corrode. When this occurs, there are several ways to clean it:

- For solid dirt and contamination: clean with water and wipe the surface with a soft cloth.
- For heavier soiling: use a mild soap or detergent (such as cleaning ammonia, baking soda, vinegar, or citric acid) and a soft nylon brush – rinse thoroughly after cleaning.
- For more thorough cleaning: use a synthetic fibre brush, delicate fabrics, alkaline agents, phosphoric acid-based products, lemon-based cleaners, organic solvents, or specialised products for chrome and stainless steel surfaces.

Avoid cleaners that contain chlorine or fluoride, as well as brushes with steel bristles!

When cleaning stainless steel, we also remove the layer of chromium oxides, which must naturally regenerate!

Stainless steel should be cleaned at least once a year to maintain its properties. If necessary, cleaning should be carried out more frequently based on on-site inspections. Regular maintenance ensures optimal conditions for stainless steel, preventing corrosion over a long period.

Another solution for **enhancing stainless steel performance**, particularly in the harsh environmental conditions mentioned above, is **powder coating**. Stainless elements used in BUGLO products can be powder-coated with paint. However, over time, the paint may wear off from surfaces that are walked on or used as ladders or climbing elements. This is a natural process and does not affect the durability of the element.

Powder coating of stainless steel is an additional process that should be **priced separately**.