

Protection and maintenance of stainless steel

Stainless and acid-resistant steel is basically corrosion-resistant, and does not need any additional surface treatment, to retain its gloss and usability for a long time. Routine maintenance, such as cleaning and washing, may however be required to retain the original steel surface aesthetic and corrosion-resistant properties; in that sense, stainless steel is no different from other construction materials such as e.g., glass, plastic, or painted steel, which are also not maintenance-free for the entire life of the building.

The following advice is especially intended for homeowners and maintenance managers. The advice describes how to perform cost-effective maintenance, which at the same time maintains the corrosion resistance of stainless steel.

Stainless steel cleaning and maintenance indoors

The cleaning frequency for stainless steel surfaces indoors is no different than for other materials. The surfaces should be washed before there the appearance of too much dirt and fingerprints. This facilitates cleaning, while reducing the risk of permanent marks or surface damage.

Outdoors, stainless, and acid-resistant steel can be exposed to aggressive environments with e.g.:

- Air from a sea area.
- Air from Industry area.
- Splashes of salted roads.
- Exhaust fumes and other air pollution

Such environments can cause brown spots to form on the surface. A good rule of thumb is to clean the stainless-steel surfaces as often as the building's windows. Depending on the degree of pollution from the surroundings, an interval of 6-12 months is recommended for light pollution and 3-6 months for heavier pollution as in the examples above. A cleaning agent with phosphoric acid can be used to remove any brown stains on the surface.

Detergent

A damp cloth or chamois leather is often sufficient to remove light dirt, fingerprints, or similar. The use of soapy water or a mild dishwashing detergent can also be used.

For more established stains, a cleaning sponge of the "Scotch-Brite" type can be suitable. Do not use metal wire scrubbers (not stainless steel), steel wool or metal brushes on stainless / acid-proof steel. In addition to scratching the surface, they can leave carbon steel particles, which cause rust stains, when the surface gets wet.

A soft nylon brush may be suitable for cleaning patterned stainless steel. Steel brushes of or which have been used on - materials other than stainless steel must not be used.

Cleaning of stainless steel with visible lines must be carried out in the line's direction - not across them. When water has been used for cleaning or rinsing, it is advised to wipe the surface with a dry cloth to avoid watermarks - especially in areas with hard water. By using distilled water, such watermarks can be avoided.

To avoid contamination of contaminants in the form of iron particles, it is important that the cleaning material has not previously been used for ordinary steel (carbon steel). Cleaning materials used for stainless steel should preferably be reserved for this purpose.

Detergent out from a spray bottle can simplify cleaning while providing a thin film with a polished effect. Such spray products remove and protect against fingerprints. Re-polish with a dry, soft cloth.

Discoloration / surface oxidation can be removed with a nylon kitchen sponge of the type "Scotch-Brite". Alternatively, or in addition, you can use cleaning agents that contain phosphoric acid which is intended for stainless steel.

High-gloss polished stainless steel can be cleaned with window cleaner that does not contain chlorides (common salt).

Other washing products for more established stains

Creams with a creamy consistency can be effective. These agents can also be used to remove water stains and light discoloration. Then remove the residue by rinsing with clean water and wipe off water stains and any streaks of polish with a cloth.

NB: Scouring powder should not be used, as it will scratch the steel surface.

Grease and oil stains can be removed with rubbing alcohol or acetone. Such solvents do not pose a risk of corrosion on stainless steel but be careful with the amount of solvent so that the stains do not spread over a larger area and become more difficult to remove. Wash for instance in several coats with clean solvent on a clean, soft cloth, until all traces of grease are gone.

Paint and graffiti can be removed with caustic soda / lye or paint remover. Avoid using a trowel or knife, as this will easily scratch the stainless-steel surface.

Heavily oxidized / discoloured surfaces can be cleaned with metal polish for chrome-plated surfaces (e.g., cars). Polishing agents for car paint can also be considered but be aware that such polishing agents can scratch high-gloss polished surfaces.

Alternatively, or in addition, you can use cleaning agents that contain phosphoric acid, that are intended for stainless steel. Then rinse with clean water and allow the surface to dry. It is recommended to treat the entire relevant surface, so that there is no risk of colour differences between what has been freshly cleaned and the rest of the surface.

Detergents that must not be used on stainless steel are:

- Cleaning agents containing chloride.
- Bleach containing hypochlorite. If this is accidentally spilled on stainless steel, immediately rinse the surface thoroughly with clean water.
- Silver polish

Maintenance cleaning

For external installations, such as facade elements, one can normally expect rain to wash away dust and other coatings if the surfaces are sufficiently freely exposed. When performing routine maintenance, special attention should be paid to covered surfaces, so that areas with accumulated dust are rinsed clean. This is especially important in a maritime and industrial environment, where the dust contains chlorides or sulphur oxides, which can result in local corrosion.

On indoor installations, fingerprints may be less desirable. There are a wide variety of stainless-steel surface designs, particularly in much visited public environments. If you choose a surface finish that is less sensitive to fingerprints already at the design stage, you can reduce the need and cost of cleaning throughout the life of the building.

Brushed surfaces, which are often a popular choice for indoor applications, may show fingerprints immediately after installation. But even after a couple rounds cleaning, such marks tend to be significantly less visible.