



## Care Instructions for Stainless Steel Products

### A) Care Instructions for Stainless Steel Products

The surface of stainless steel products must always be kept clean and open to the air.

- As a basic principle, stainless steel parts should not be treated with acidic cleaning agents – only alkaline cleaning agents which contain a percentage of acid-free oil should be used. Ingredients according to the manufacturer's specifications in accordance with EU-recommendations:
  - less than 5% non-ionic surfactants,
  - in excess of 30% aliphatic hydrocarbons.
- Bleaching and chloride-containing cleaning agents must not be used for cleaning purposes.
- Layers of limescale, grease and oils, starch and protein should be removed regularly by cleaning. Corrosion can occur under these layers owing to the lack of circulating air. The surface can be descaled using descaling agents which contain 10% acetic acid, 10% phosphoric acid or are commercially available.
- Stainless steel parts must not come into contact with concentrated acids, salts, spices etc. for longer periods of time: even acid vapours which form when cleaning tiles cause corrosion. Any contact areas are to be rinsed with fresh water and wiped dry.
- The chloride-content in the cleaning water and the cleaning agent must not exceed the current limit values, since chloride or its compounds, such as for example sodium chloride (salt), also attack the material.
- Fresh rust spots can be removed using mild scouring agents or fine abrasive paper. More stubborn rust spots can be washed away using a warm, 2 to 5% oxalic acid solution.
- If these cleaning agents prove to be unsuccessful, a treatment using 10% nitric acid is recommended. Owing to the risk involved, this treatment must only be performed by technically trained personnel in accordance with current regulations.



## B) Corrosion prevention on stainless steel products

“**Stainless steel**” is basically the term used in particular for corrosion-resistant and hygienic steels. These steels contain at least 10.5% chromium. The stainless steels currently being used by HUPFER® contain at least 17.5% chromium (1.4301 & 1.4509). The surface of this material is smooth and free of pores and corresponds to the hygiene and microbiological specifications. Typical areas of application are: fixtures and fittings in hospitals, commercial kitchens, cladding and coverings.

The corrosion resistance of the stainless steels mentioned above relates to a passive layer which is formed on the surface when oxygen is added. The oxygen in the air is sufficient to automatically remove any contamination or damage to the passive layer which occurs due to mechanical influences.

Corrosive agents such as chlorides and spice concentrates, for example mustard, essences of vinegar, spice blocks, cooking-salt solutions, or also materials containing salt or sulphuric acid can, depending upon their concentration and temperature, lead to chemical damage or interfere with the passive layer and thus allow rust to form. In addition, the stainless steel can be damaged by third-party rust (from other components, tools or flash rust or abrasive dust or water which has an iron content). Surface contaminations, i.e. rust-like deposits, can occur over an area or even in spots or recesses.

From experience, it is possible for rust-like, surface deposits to occur due to an improper cleaning practice, for example by using cleaners which contain hydrochloric acid (HCl). It only needs a small amount which becomes more concentrated by condensing or evaporating once the cleaning is complete and as a result can cause a noticeable red deposit.

So-called crevice corrosion effects also frequently occur in areas where rubber seals are used. This means that, even in these areas, pockets of residual moisture will not be dried out or aerated sufficiently, which can then lead to corrosive attacks as a result of the relatively small chloride-content in the condensate or also as a result of residues of cleaning agent.