

# Medical technology

Our services for the health of  
your patients.



## Surfaces in medical technology.

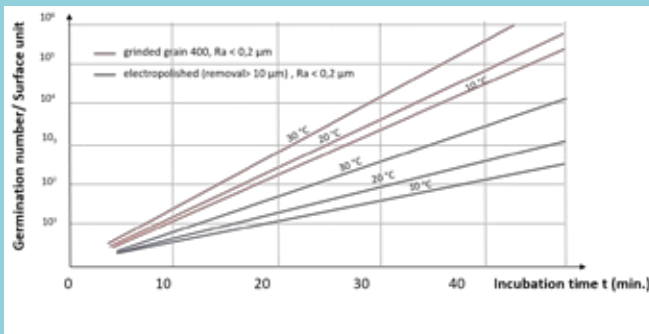
Medical technology poses special challenges for its surfaces. The use of instruments and components in contact with the human body is subject to extremely strict requirements. Germ-free application of the components is essential. Cleaners, pure steam and special equipment can be used to clean and sterilise instruments, enabling the material to be used to its full potential. However, the cleaning and sterilisation process places the surfaces of the instruments, as well as those of the sterilisation chambers, under a high level of strain.

Rouge deposits are also an issue for medical technology.

The use of ultrapure water or pure steam as media in stainless steel systems leads to the formation of rouge deposits (surface corrosion) on the surfaces. The failure to remove these coatings in good time may prevent the required goal of being „visually clean“ from being achieved. It is therefore recommended to remove these rouge deposits at regular intervals.

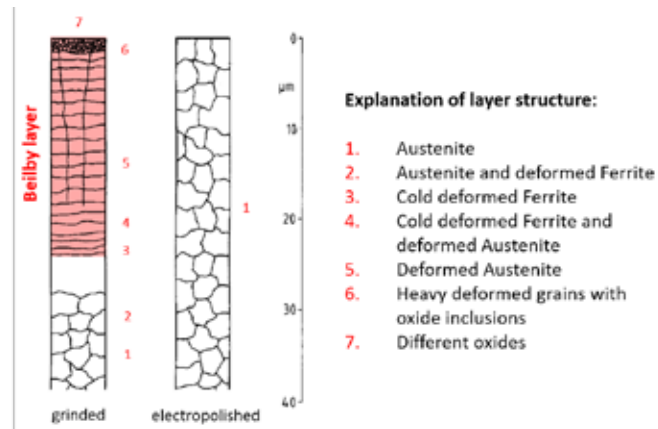
### Beilby layer (porous layer).

Mechanical grinding of stainless steel results in the formation of the Beilby layer on the surface. This layer displays porous areas up to a material depth of approx. 20 – 30 µm. The Beilby layer permanently changes the topography, morphology and energy level of the stainless steel surface. In comparison, electropolished surfaces have a markedly improved functional behaviour.



Schematic representation of microbial growth on stainless steel 1.4301/304L of different surface finishes after cleaning using the CIP method and application with nutrient solution and incubation.

## Representation of porous layer



## HENKEL Steri-Protect method.

The formation of deposits in sterilisation chambers is due to thermodynamic reasons. To support your ZSVA (AEMP) staff, we provide an all-inclusive worry-free service package that employs the Steri-Protect method to remove deposits. Specially developed for the hospital and clinic environment, individual chambers can be cleaned on site during ongoing processing operations.

### Sterile chamber before and after treatment with Steri-Protect



HENKEL-Surfaces Assure Your Component's Value.

## Our Service Range.

- | On-site and factory service
- | Electrochemical polishing
- | Anodic cleaning
- | Chemical polishing / deburring
- | Chemical pickling and passivation
- | Professional cleaning (also in clean room)
- | Derouging and repassivation
- | Process and cleaning chemicals
- | Documentation
- | Construction



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## Steri-Protect at a glance:

- \* Optimisation of wetted surfaces
- \* Removal of coatings and discolouration
- \* On-site processing at the customer's premises without major restrictions to operations
- \* Safety and risk management
- \* Use of process chemicals manufactured according to GMP guidelines
- \* Process and processing documentation for system requalification
- \* Sustainable care with Steri-Care refresh cleaning solutions



Surgical instrument | left after HENKEL treatment | right with discolourative coating | Material: 1.4116 / 420MoV

## Materials.

Every material has special characteristics. The composition of the metallic alloy has a considerable effect on the further treatment of the surface. The HENKEL processes referred to above support the following materials:

*Stainless steels (1.4301/304L, 1.4435/1.4404/316L, 1.4539/904L, etc.), duplex steels (e.g. 1.4462), nickel and nickel alloys (alloy 59, Hastelloy®, Inconel®, etc.), aluminium, copper, niobium, titanium and titanium alloys (incl. nitinol), zirconium, tantalum, other materials on request.*

## Components.

There are next to no limits when it comes to chemical and electrochemical processing. In essence, the geometry of the component is decisive in terms of how it can be processed. Practical examples include:

- \* *Instruments such as needles, screwdrivers, fixing pins, milling heads, shank rasps, etc.*
- \* *Implants such as stents, bone plates, bone nails, joints, prostheses, etc.*
- \* *Hospital equipment and facilities such as beds, sterilisation chambers, mobile loading units, etc.*

## Your benefits.

- \* Optimised surface properties compared to conventional treatment methods
- \* Haptic, non-reflecting surfaces
- \* Improved hygiene and cleaning
- \* Residue-free removal of deposits and discolouration
- \* Improved corrosion resistance and passive surface conditions
- \* Burr-free surfaces
- \* Germ-free and particle-free surfaces
- \* Qualified processing procedures with extensive documentation



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