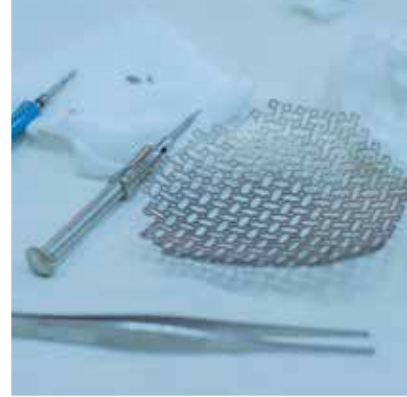




HOW SATISFIED ARE YOU WITH ...

- ... the longevity of your Medical Devices
- ... the reliability of your surgical instruments
- ... the reusability of your stainless steel instruments

Bodycote



Kolsterising® of stainless steel is often a reliable alternative to:

- Hard Chrome
- PVD & DLC coatings
- PEEK
- Ceramics



In the medical industry, Kolsterising® of stainless steel is used in various applications including:

- Needles & cannulas
- Cutting guides
- Bone & Tissue cutting
- Screwdrivers & ancillary tooling





S³P – Specialty Stainless Steel Processes

INCREASED SATISFACTION IN THE MEDICAL INDUSTRY THROUGH KOLSTERISING®

Among the metallic materials used in the field of implants and surgical instruments, stainless steels are often preferred for their balance between cost, availability, safety, wear resistance and corrosion resistance.

But in the face of minimal invasive surgery, requiring ever more miniaturized designs, and increasingly aggressive sterilization operations, it is not uncommon for stainless steel grades to reach their limits.

Wear resistance, corrosion resistance, ductility, strength – unfortunately instrument designers often have to compromise at the expense of one of these parameters.

Kolsterising® provides a solution to these problems and can considerably improve wear resistance of stainless and cobalt-chromium alloy components without any compromises being made.

YOUR ADVANTAGES THROUGH KOLSTERISING®



- **Increased longevity of Medical Devices**
- **Compliance with hygiene regulations**
- **Avoid the use of plastics or ceramics**
- **Simplified design**

WHAT IS KOLSTERISING®?

Kolsterising® is a low-temperature diffusion process that greatly improves the mechanical properties of corrosion resistant materials.

■ **Kolsterising® is NOT a coating**

Kolsterising® is a “surface hardening process” – the parts surface itself is hardened, therefore, delamination is avoided

■ **Compliance with legal requirements**

Kolsterising® meets the requirements of the EU directive 1935/2004, the US NSF51 and has an FDA masterfile (www.bodycote.com/medical-safety)

■ **Environmentally friendly process**

All S³P plants are certified according to ISO 50001 (energy management) and ISO 14001 (environmental management)

WHAT CAN KOLSTERISING® ACHIEVE?

Kolsterising® offers many advantages and valuable properties for your material.

■ **Stainless remains stainless**

Corrosion resistance is maintained

■ **Surface hardness increased up to 8 times**

Surface hardness from 900 - 1300 HV_{0.05} depending on material and surface condition while maintaining ductility

■ **Prevention of galling / fretting**

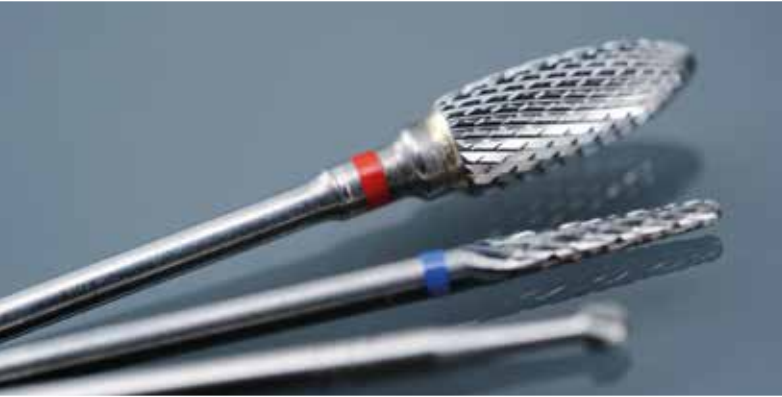
Increasing the resistance to galling / fretting by a factor of 20 to values beyond the material yield strength (in typical applications)

■ **Geometry independent**

Kolsterising® allows bulk treatments so all surfaces are treated equally, including internally threaded fasteners

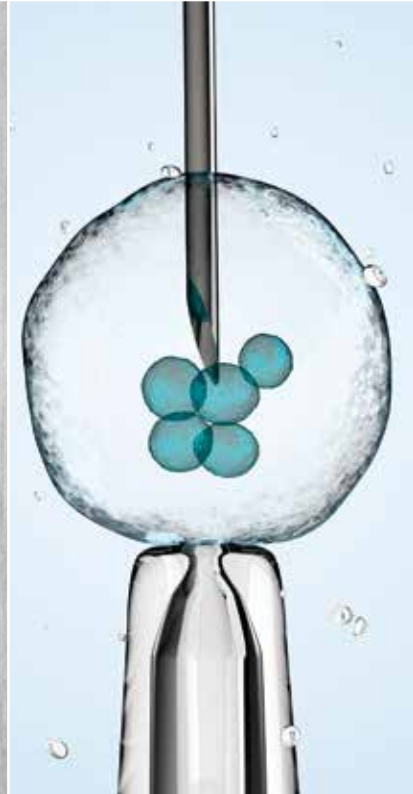
■ **Toxicity is prevented**

Material remains non-toxic after treatment



Bodycote supports a variety of medical and pharmaceutical applications including:

- Medical implants and temporary screwed connections
- Arthroscopic and surgical instruments such as reamer, drills and trephines, tensioners etc.
- Bone and other screws or needles



**Bodycote is the worldwide leading service provider
of thermal processing.**

S³P is part of our Specialist Technologies division.

Kolsterising® is a low-temperature process for surface hardening of stainless steel based on the diffusion of carbon into the steel. Carbon is already an element of stainless steel and therefore does not change the material composition – a significant advantage, especially in the medical industry.

Through extensive laboratory testing and numerous customer applications we have developed trend setting solutions that are proving reliable in daily use worldwide.

Please contact us to benefit from the advantages of Kolsterising® for your application.

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www.bodycote.com/kolsterising

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