NANOCOATINGS

BETTER PROPERTIES FOR WORKPIECE SURFACES

Dirt or water repellent, scratchproof, conductive, insulating, temperature-resistant or wettable: this coating technique can be used for finishing simple materials and imparting very specific properties in accordance with requirements. For surface finishing with nanocomposite coatings developed in-house, Möller Nano-Coatings uses a special technique known as the sol-gel process. Parts ranging in size from relatively large to very small and made from materials such as steel, brass, copper, aluminium, glass and various plastics can be coated. Even the insides of minute cannulae and tubes can be coated. At present, there is a range of around 20 standardised, tested finishes but the list of application ranges is constantly growing.

Applications of nanocoatings include for example:

- Anti-adhesive coatings for plant components and covers
- Scratchproof coatings for plastic display covers
- Easy-to-clean, biocompatible, autoclavable coatings for medical technology
- Interior and exterior coatings for cannulae for analytics and medicine

What is nanotechnology?

Nanotechnology (Greek: nánnos = dwarf) brackets together a great many technologies that deal with structures measuring less than 100 nanometres. A nanometre is one-billionth of a metre. This is the size of a football in relation to the earth, or the breadth of a hair split 80,000 times. Nanotechnology is used in robotics, sensing technology, process technology, biotechnology and medicine, among other areas.
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Coating properties

- Highly effective dirt-repellent, non-stick coatings resembling glass-ceramic or Teflon
- Hydrophilic, conductive, coloured, transparent or decorative ("soft feel") and corrosion-proof coatings
- High adhesion thanks to the coating's chemical bond with the workpiece's surface (unlike a conventional PTFE coating)
- High chemical and temperature resistance (up to 600°C)
- Diffusion barrier for certain metal ions
- Can be cleaned with very little effort

Example of a nanocomposite coating

Strictly speaking not a "coating", but rather the permanent chemical modification of the workpiece's surface with a gradient material.

Decreasing fluorocarbon content forms a soft transition between a PTFE-like and a glass-like structure

Glass-ceramic, polar SiO network with embedded nanoparticles and stable chemical bond with the substrate

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A Product of

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