Technology offer TA 18 045

On behalf of Applied Nano Surfaces (ANS) we are looking for industrial partners, licensees or users for:

“Innovative processes for the optimization of tribologically highly stressed components”

Background
(Keywords: machine parts, pumps, materials science, metals, process engineering, tribology, friction, wear, lubricants, engineering)

The topic of friction and high wear of heavily used parts often determines the service lives of machines and systems. Our client has developed innovative processes that can significantly reduce the friction and wear losses of moving parts. The basic technology has to be adapted specifically in different applications.

Method A: Description and Advantages

In this method, the phenomenon of tribomutation is used - by mechanical processing nanoscale surface layers are produced and adjusted specifically. Within this physical-chemical process the surface peaks are pressed in presence of a special process fluid against the component, which causes a tribochemical reaction. This results in a low-friction coating with the following properties:

- applicable to components made of steel, cast iron and similar iron alloys
- reduction of wear and friction up to 90%
- improved surface texture
- can replace fine machining processes such as honing or rolling
- easy integration into the production process
- wide temperature range (-50 bis +300°C)

Method B: Description and Advantages

This water-based coating is applied to the washed component by spraying, dipping or brushing and cured with heat - the layer thickness is 5-100μm.

- for steel, aluminum and phosphated surfaces
- wear reduction up to 50%
- for dry running and lubricated applications
- suitable for the maintenance of parts that were already in use
- reduction of the stick slip effect and micropitting

Method C: Description and Advantages

This process combines the classic heat treatment (nitriding) with a solid lubricant treatment and significantly increases the properties of a conventional nitriding process. The layer thickness is only 1μm.

- for ferrous metals
- application on a variety of geometries
- surface hardness between 400-1200 HV1
- friction and wear reduction by 30-40%
- reduced corrosion

Potential partners and forms of cooperation

- Licensees
- User