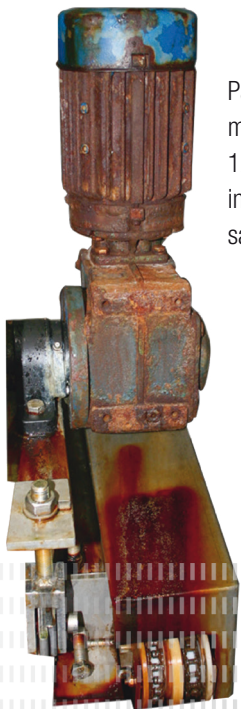


Surface and corrosion protection for extreme ambient conditions



NORD geared motors with nsd tupH are the optimal choice for use in challenging ambient conditions.

No paint – no flaking!



Painted geared motor after 12 months of use in a damp and salty environment

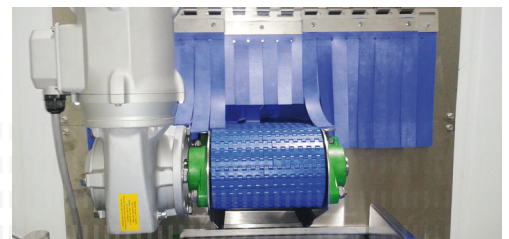


Geared motor with nsd tupH surface treatment after 12 months of use in a damp and salty environment

nsd tupH

Sealed Surface Conversion System

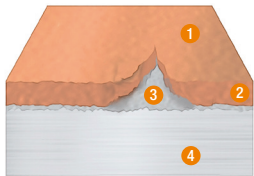
- ▶ Easy to clean surfaces
- ▶ Resistant to acids and alkalis (wide pH range)
- ▶ No blistering, even if damaged
- ▶ Cannot flake
- ▶ Corrosion-resistant, prevents contact corrosion
- ▶ Alternative to stainless steel
- ▶ Complies with FDA Title 21 CFR 175.300
- ▶ Free from chromates



Surface and corrosion protection for extreme ambient conditions

nsd – reduced costs, less weight, better process reliability NORD DRIVESYSTEMS now has an answer for drive technology for extreme ambient conditions. Available for a wide range of familiar standard geared motors products but with the resistance of stainless steel and an excellent price-performance ratio: nsd tUpH surface treatment.

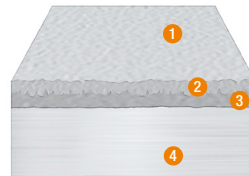
How the **nsd** Sealed Surface Conversion System works:



Paint is applied to the surface and can even conceal porous surfaces. Because the paint does not form a permanent bond with the material it can flake off, even with little use.

01. Paint surface
02. Paint

03. Aluminium surface
04. Aluminium alloy



The nsd tUpH process uses a binder which forms a permanent bond with the aluminium alloy and creates a perfect basis for bonding with the surface treatment. This combination provides extreme resistance and a harder surface than untreated aluminium.

01. Sealer surface
02. Sealer

03. Adhesion Layer
04. Aluminium alloy

Extensive tests with **nsd**



Sprinkling of the products with hot water at 38° – 45° C



Foaming of the products with cleaning agents as well as 1.56 % acid

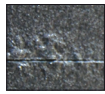


Soaking time of 10 – 30 min. for each cleaning cycle

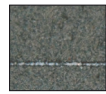


Spraying with hot water at 38° – 45° C under high pressure, spraying with cleaning agents with 0.26 % concentration*

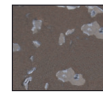
* A comprehensive list of the tested cleaning agents can be requested by e-mail.



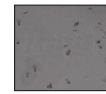
Spreading of corrosion in the region of a scratch test on a conventional painted surface



Example of an **nsd** surface after a scratch test without spreading of corrosion



Gravelometer test for flaking resistance on a painted surface according to ASTM D3170



Gravelometer test for flaking resistance according to ASTM D3170 on **nsd**

The complete solution for extreme conditions

- ▶ **nsd** Surface-treated housing component
- ▶ DIN and standard components made from stainless steel
- ▶ Wash-down housing (gear unit and motor)
- ▶ Stainless steel shafts
- ▶ Special shaft sealing rings
- ▶ Food-compatible oil

nsd for extreme requirements

- ▶ Food and beverage industry
- ▶ Pharmaceutical industry
- ▶ Water and sewage plants
- ▶ Car washes
- ▶ Offshore and coastal areas
- ▶ Cleaning with chemicals (Wash-down, wide pH range)

NORD products available with **nsd**



Motor starter
SK 135E



Frequency inverter
SK 180E



Smooth motors



Helical gear units



Bevel gear units
SK93x72.1



Parallel shaft gear
units SKxx82



SMI worm gear units

NORD DRIVESYSTEMS Group

- ▶ Family business from Bargteheide near Hamburg with 4,000 employees
- ▶ Drive solutions for more than 100 branches of industry
- ▶ 7 production locations worldwide
- ▶ Present in 98 countries on 5 continents
- ▶ More information: www.nord.com

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