

Intelligent Drivesystems



nsd **tupH**

Sealed Surface Conversion System

A6015

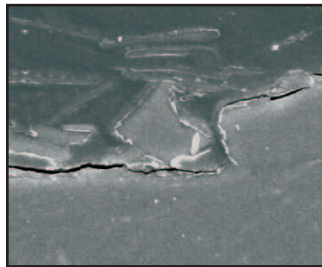
NORD
DRIVESYSTEMS

The nscl^{tupH} Sealed Surface Conversion System

Concept Overview

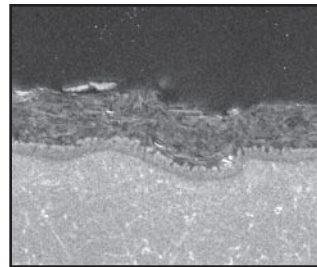
As a leader in the power transmission industry, NORD Gear is committed to providing value to industries where end users demand durable equipment to withstand a variety of harsh environments. The market has long awaited a product with such a large range of standard reducers with the corrosive resistance properties of a stainless steel product without the excessive cost.

In response to these demands, NORD Gear has begun utilizing an electrically catalyzed process to create a uniform case depth protective surface with its existing aluminum alloy housing material. Combined with a sealer, NORD's corrosion resistant cleanable Sealed Surface Conversion system (NSD^{tupH}) allows existing aluminum alloy housings to be protected with a base finish that is 6-7x harder than aluminum alloy. With its stainless steel hardware, optional stainless steel shafts, optional stainless steel motors and optional food grade lubricants, NORD's NSD^{tupH} is the optimal package for applications in a variety of incredibly harsh environments.



Paint simply lies on top of the substrate and may even bridge across pores in the metal. Since paint does not form a permanent bond to the substrate, it can easily release at very low stress levels.

■ Paint ■ Aluminum Surface

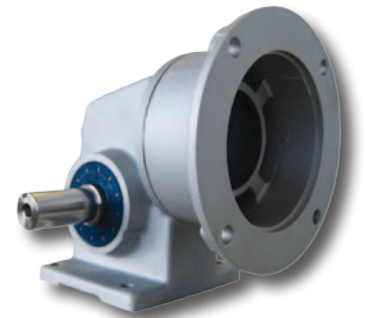


The NSD^{tupH} process includes a base layer that is permanently bonded to the substrate and provides a powerful foundation for adhesion of the surface sealant. This foundation provides excellent roughness, is 6-7x harder than the aluminum substrate and up to 1000x harder than paint.

■ Sealer ■ Aluminum Surface
■ Surface Conversion

nscl^{tupH} System Package

- Standard Electrolytic processed reducer housing
- Standard Stainless Steel Hardware
- Standard C-Face Gasket included
- Housings surfaces are self draining
- Food Grade H1 Synthetic Lubrication (optional)
- Stainless Steel output shafting (optional)
- Stainless Steel C-Face Inverter Duty motor up to 10HP (optional)
- 3 Year Warranty when supplied with synthetic lube



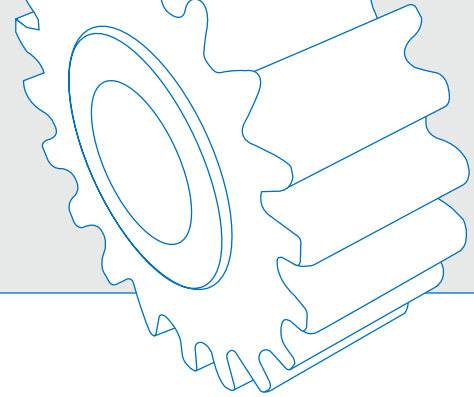
nscl^{tupH} is Useful in Many Harsh Environments

(not limited to but including)

- Chemical wash down
- Damp and wet environments
- Marine / Coastal
- Food & Beverage industry
- Car Wash
- Dairy
- Pharmaceutical
- Water and waste treatment

Some of the Many Benefits of nscl^{tupH}

- Cost effective alternate to stainless steel
- Corrosion resistance
- Chip resistance
- Non propagating from scratches or other blemishes
- Highly Cleanable low friction surface
- Non-porous
- Lighter than stainless
- Chemical resistant
- Elimination of galvanic corrosion
- Surface conversion is 1000X harder than paint



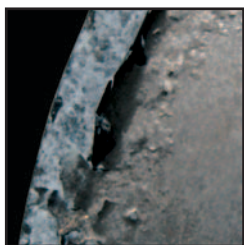
Disadvantages of Other Surfaces

There are many inherent disadvantages to other surface options within the drivesystem industry. Below is a table that portrays these inadequacies and why it is beneficial to incorporate NORD's NSD^{tuPH} Sealed Surface Conversion System with your next gearbox or gearmotor purchase. For further information on the NSD^{tuPH} surface or our rigorous testing methods please contact NORD Gear.

Disadvantage	Paint Coating	Nickel/Nickel Teflon	Stainless Steel
Chipping	X	X	
Coating (non surface conversion)	X	X	
Corrosion propagation	X	X	
Flaking	X	X	
High costs			X
High weights (difficult mounting)			X
Limited product availability			X
Non uniform coating	X		
Peeling	X	X	
Poor thermal conductivity			X
Poor Scratch Resistance	X	X	

Examples

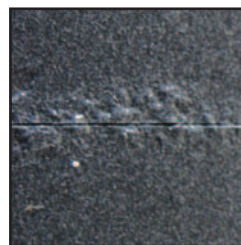
Below you will see examples of imperfections in other commonly used surface materials as well as inherent benefits of the utilization of NORD's NSD^{tuPH} surface conversion procedure.



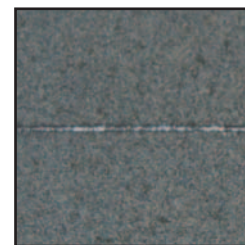
Example of paint peeling.



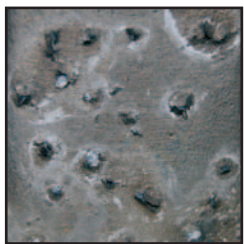
Corrosion of a Nickel Teflon coating after salt spray testing.



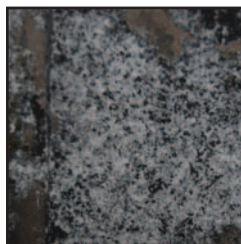
Corrosion propagation in the area of a scratch test performed on a common paint coating.



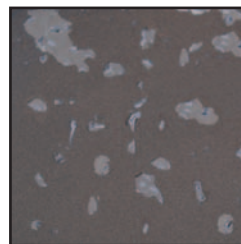
Example of a NSD^{tuPH} surface scratch test without invasion of corrosion propagation.



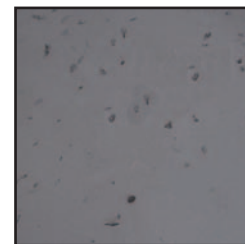
Example of paint blistering.



Corrosion of a Nickel Teflon coating after sanitation testing.

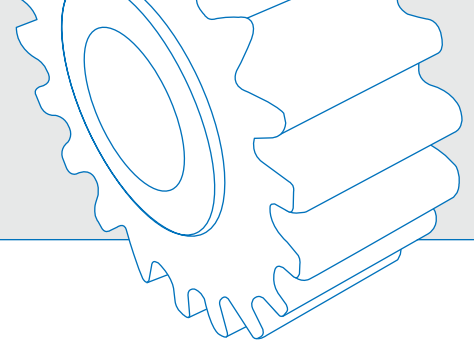


Gravelometer chip resistance test per ASTM D3170 to a painted surface.



Gravelometer chip resistance test per ASTM D3170 to NORD NSD^{tuPH}.

Product Overview



Testing Explanation

Prior to launching the new NSD^{tuPH} surface there were a series of rigorous tests performed that are commonplace in various industries where this sort of product will be used. Explanations of these tests are given below.

Food Industry Sanitation Test Procedure

	<p>Applied a 100° - 120°F water rinse to the units.</p>		<p>Foamed the units with Ecolab® Quorum® Yellow LP then foamed with heavy duty Acid LC-30. (1.56% concentration)</p>
	<p>Contact time of 10-30 minutes per cycle of each sanitation solution used.</p>		<p>Rinse with 100° - 120°F water at high pressure. Spray Ecolab® Vortex® (0.26% concentration)</p>

Sanitation Results

- After one year worth of sanitation testing there was no adverse effects to the NORD NSD^{tuPH} option.
- Results Verified using ASTM D714, ASTM D610-08 and ASTM 1654-08 Standards.
- Orders of Magnitude better than paint.

Other Product Testing Performed

- Salt Spray per ASTM B117 (evaluated performance of surface based on ASTM standards)
 - After 1000 hours of testing there were no signs of corrosion.
- Chip resistance test administered per ASTM D3170.

Available Nordbloc.1® In-line Units with NSD^{tuPH} Conversion

	SK072.1	SK172.1	SK372.1/373.1	SK572.1/573.1	SK672.1/673.1
N48C Input	X				
N56C Input	X	X	X	X	X
N140TC Input		X	X	X	X
N180TC Input			X	X	X
N210TC Input					X

Available Minicase® worm Units with NSD^{tuPH} Conversion

	SK1SM/SMI31	SK1SM/SMI40	SK1SM/SMI50	SK1SM/SMI63
N48C Input	X			
N56C Input		X	X	X
N140TC Input		X	X	X



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