



GRIEKSPoor
THERMAL COATINGS

Product Specification Sheet
TOPCOAT ULTRA
300µm, 2-layer
Nickel Chromium / Cr₂O₃ ceramic
coating

Coating construction and composition (2-layer coating system)

| | | | |
|----------------------|--------|--|----------------------|
| Intermediate coating | Plasma | Nickel/Chromium | ≥ 100µm (max. 900µm) |
| Topcoat | Plasma | Cr ₂ O ₃ SiO ₂ TiO ₂ | ≥ 200µm (max. 600µm) |

Key coating information

| Description | International standard | Minimum value | Griekspoor Standard |
|---|------------------------------|--|--|
| Tensile Adhesive Strength | ISO 14916 | ≥ 35 N/mm ² | ≥ 50 N/mm ² |
| Corrosion test | NOV/DNV-C2 | No corrosion visible after 500h | >1000h |
| | Endurance test acc. NBD10300 | No permeability after 1000h (ECP-test > -350mV) | >1000h (ECP-test > -150mV) |
| Corrosion resistance | ISO 9227 AASS ASTM G85 | No corrosion after 1000h | >1000h |
| Porosity | | <4% | <3% |
| Chem. Resistance 1. NaCl (acid) 2. H ₂ SO ₄ (acid) 3. HCl (acid) 4. NaOH (base) | | 1. Very good - Excellent 2. Very good - Excellent 3. Very good - Excellent 4. Very good - Excellent | |
| Impact toughness test | NOV/DNV-M1 (0.8kpm) | No cracking outside the impact area, min. energy 0.8kpm (8J) | No cracking outside the impact area, min. energy 0.8kpm (8J) |
| Rockwell indentation test | NOV/DNV-M2 | No or negligible break-out or cracking | No break-out, negligible cracking |
| Dynamic bending test 500 x / σ 300 N/mm ² | NOV/DNV-M3 | No cracks after a minimum of 500 bending cycles | No cracks after a minimum of 500 bending cycles |
| Micro hardness | HV0.3 | 850HV (DNV>600) | 1000-1100HV |
| Macro hardness | HR15N | >75 | >87 |
| Operating temp. | --- | -40°C ≤ T ≤ 120°C | -40°C ≤ T ≤ 540°C |
| Wear testing | ASTM G065B | | |
| Surface finish | NEN-EN ISO4287 | Ra <0.5µm Rz < 5.0µm Rpk < 0.2µm | Ra < 0.4µm Rz < 4.0µm Rpk < 0.1µm |
| Seal advice | | 1. Good sealing properties (sealing advice on Griekspoortc.com) 2. Advised choice of sealing construction | |
| Possibility of integrated Linear Positioning Measuring (LPM-system) | | Yes, over full capacity Length 23 meters, Diameter approx. 1 meter, Weight 20 tons. | |
| Elasticity | | | Good |

General information

The bond is a highly corrosion resistant nickel/chromium blend. This coating creates a very good bonding with the ceramic TOPCOAT and improves and secures the corrosion resistance of TOPCOAT.

TOPCOAT ULTRA is our most wear resistant and dense ceramic coating with very good to excellent corrosion resistance and chemical resistance. TOPCOAT ULTRA can be ground to excellent finishes .

Finishing can be very smooth (Ra <0.15µm) however Griekspoor advises to use an Ra-roughness of 0.2-0.4µm. The advice is to use a Stepseal construction (see Griekspoortc.com in TOPCOAT Ultra+ section). This seal construction, together with the advised roughness, will guarantee maximum lifetime with optimal sealing properties (no leakage, no stick-slip, low friction etc.).

This coating is especially designed to withstand severe chemical and corrosive environments. In extremely severe environments is better to choose an intermediate coating of approx. 200µm or to choose our "+"-version.

Typical uses and applications are hydraulic rods/parts, plungers, automotive parts, components for the chemical industry (testing may be needed for the specific environment/situation), electrical insulation, and dielectric applications, pump seal wear rings, casing rings, down hole plungers in petrochemical industry.