



**Product Specification Sheet**  
**TOPCOAT®+**  
**300µm 2-layer**  
**UHCR / Al<sub>2</sub>O<sub>3</sub> Ceramic coating**

**Coating construction and composition (2-layer coating system)**

|                           |         |   |                        |
|---------------------------|---------|---|------------------------|
| Bond/intermediate coating | HP-HVOF | Inconel/Hastelloy mix                           | >= 100µm (max. 3000µm) |
| Topcoat                   | Plasma  | Al <sub>2</sub> O <sub>3</sub> TiO <sub>2</sub> | >= 200µm (max. 600µm)  |

**Key coating information**

| Description   | International standard       | Minimum value   | Griekspoor Standard                      |
|---|------------------------------|---|--|
| Tensile Adhesive Strength   | EN 582 or ISO 41916          | >= 35 N/mm <sup>2</sup>   | >= 50 N/mm <sup>2</sup>                  |
| Corrosion test  | 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  | DIN 50021-ESS ASTM G85       | No corrosion (10) after 1000h   | >2000h                                   |
| Porosity  |                              | <4%   | <3%                                      |
| Chem. Resistance<br>1. NaCl (acid)<br>2. H <sub>2</sub> SO <sub>4</sub> (acid)<br>3. HCl (acid)<br>4. NaOH (base) |                              | 1. Very good<br>2. Very good<br>3. Very good<br>4. Fair/good                                  |  |
| Impact toughness test   | DNV-M1 (0.3kpm)              | No cracking outside the impact area, min. energy 0,3kpm (3J)                                  |  |
| Rockwell indication test  | DNV-M2                       | No or negligible break-out or cracking  | No break-out, negligible cracking        |
| Dynamic bending test 500 x / σ 300 N/mm <sup>2</sup>  | DNV-M3                       | No cracks after bending of minimum of 500 cycles  |  |
| Micro hardness  | HV0,3                        | 850HV (DNV>500)   | 850-1000HV                               |
| Macro hardness  | HR15N                        | >75   | >85                                      |
| Max. operating temp.  | ---                          | -40°C ≤ T ≤ 120 °C  | -40°C ≤ T ≤ 540°C                        |
| Wear testing  | ASTM G065B                   |   |  |
| Surface finish  | NEN-EN ISO4287               | Ra <0,5µm<br>Rz < 5,0µm<br>Rpk < 0,2µm  | Ra < 0,35µm<br>Rz < 4,0µm<br>Rpk < 0,1µm |
| Seal advice   |                              | 1. Good sealing properties<br>2. Advised choice of <u>sealing construction</u>                |  |
| Possibility of integrated Linear Positioning Measuring (LPM-system)   |                              | Yes, over full capacity<br><b>Length 23 meters, Diameter approx. 1 meter, Weight 20 tons.</b> |  |
| Elasticity  |                              |   | Good                                     |

**General information**

The bond/intermediate coating is a Griekspoor development based on a superior stainless steel, especially developed to withstand the most severe environments.

The TOPCOAT®+ is our economic, wear resistant and dense coating with a very good corrosion and chemical resistance. TOPCOAT®+ can be ground to excellent finishes .

Finishing can be very smooth (Ra <0,10µm) however Griekspoor advises to choose an Ra-roughness of approx. 0,2-0,3µm. Griekspoor's seal advice is to use a Stepseal seal construction. This seal construction, together with the advised roughness, will guarantee maximum lifetime with optimum seal properties (no leakage, no stick- slip, low friction etc.).

This coating is specially designed to withstand maritime environments in combination with a very good wear resistance. In very severe environments is better to choose an intermediate coating of approx. 200µm.

Typical uses and applications are hydraulic rods/parts plungers, automotive parts, components for the chemical industry (testing is needed for your specific environment/situation), electrical insulation and dielectric applications.