CoreGard™ ID Coating
Now Available for Smaller Diameters and Longer Lengths

Tungsten Carbide Coating Offers Lasting Protection

- Alternative to chrome plating and nitriding
- Prevents abrasion and erosion
- Resists corrosive fluids when combined with our sealant
- REACH compliant
- Can be applied inside a wide range of sizes, down to 3 inches
  Inner: 81 mm to 210 mm (3.2 in to 8.3 in)
  Length: up to 3000 mm (118 in)

- Extends part life for:
  Cylinders
  Pipes
  Sleeves
  Tubes
### Coating Characteristics

<table>
<thead>
<tr>
<th>Physical Characteristics</th>
<th>Value</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microhardness</td>
<td>1100-1300 kg/mm²</td>
<td>Vickers HV₃</td>
</tr>
<tr>
<td>Apparent porosity</td>
<td>&lt; 0.5%</td>
<td>Metallographic</td>
</tr>
<tr>
<td>Thickness</td>
<td>0.02-0.25mm</td>
<td>Recommended range</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>540°C maximum in air</td>
<td></td>
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</tbody>
</table>
| Roughness                | As coated: 80-120 μm Ra  
As finished: 4-8 μm Ra |
| Sand erosion             | 20 μm/g at 30°  
100 μm/g at 90° | ASTM G76 |

### Proven Results

**Q:** Do CoreGard ID Coatings really last that much longer than hard chrome plating and nitriding?

**A:** Yes. Field testing verifies the performance. A CoreGard-coated downhole tool in use by a leading oil exploration company showed no signs of production loss after more than 1,000 hours. A Houston-based energy company, which typically expects about 100 hours from a component with hard chrome plating, reported continued functionality after 600 hours for parts coated with CoreGard ID Coatings.

### Sand Abrasion Test

**ASTM G65-81**

![Sand Abrasion Test Graph]

- **More than 25% harder** (than chrome plate)
- **>8.5 times lower volume loss** (than chrome plate)

### Coating Microstructure

![Coating Microstructure Image]