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## **SPECIFICATION FOR EHLA LASER CLADDING COATING TCE316L**

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## GENERAL INFORMATION TCE316L

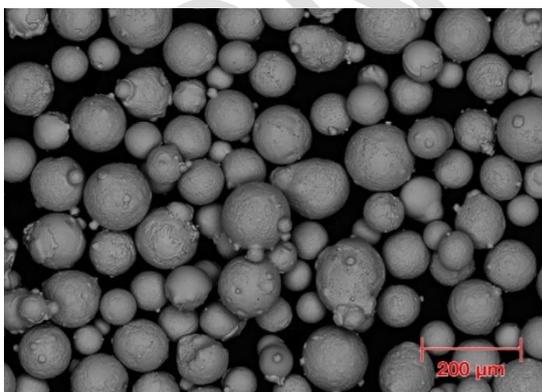
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TCE316 offers excellent resistance to corrosion and oxidation, making it highly effective in environments exposed to corrosion. While its wear and corrosion resistance is slightly lower than that of our other laser clad coatings, its cost-effectiveness due to the laser cladding process makes it an attractive option for various applications. TCE316 is also weldable to almost all steel alloys, making it an ideal choice for repairs or as a base layer in different industrial environments.

TCE316 is engineered for environments where high corrosion and oxidation resistance are crucial. Whether exposed to aggressive chemicals or extreme temperature conditions, it ensures solid performance while remaining a budget-friendly solution.

- Chemical processing environments
- Applicable in other industries requiring corrosion protection
- Weldable to almost all steel alloys
- Highly suitable for repairs and/or as a base layer
- Cost-effective solution for demanding applications

TCE316 is a proven coating solution, providing reliable protection and an extended service life for components subjected to corrosion and oxidation. Its ability to be welded to various steel alloys makes it a versatile choice for both new and refurbished components, ensuring high performance in a wide range of industrial applications.





## COATING SPECIFICATIONS

Measurement	Description	Standard	Specification
<b>Hardness test</b> - HV - HRC	<b>Determination of coating hardness</b> Hardness test expressed in Vickers Hardness test expressed in Rockwell	ISO 6507-1 ISO 6508-1	<b>Approx. 250 HV</b> <b>23 HRC</b>
<b>Rockwell indentation</b>	Hardness test that measures resistance to indentation under a specified load	DNV-M2	<b>No cracking around indentation</b>
<b>Heat affected zone</b>	HAZ	-	<b>&lt; 5% of layer thickness</b>
<b>Impact toughness</b>	Test to assess the layer's resistance to cracking under impact	DNV-M1	<b>No cracking around impact area</b>
<b>Bonding strength</b>	Strength of the material bonding	-	<b>Infinite (metallurgic bonding)</b>
<b>Elasticity</b>	The elasticity of the material	-	<b>Excellent</b>
<b>Ductility</b>	The ductility of the material	-	<b>Excellent</b>
<b>Wear</b>	Test to evaluate resistance to wear	ASTM-G65B	<b>77 Volume loss/mm<sup>3</sup></b>
<b>Wear score</b>	Score of wear resistance compared other layers	TCE-625	<b>+++ (3 of 5)</b>
<b>Operating temperature</b>	Test to evaluate the temperature resistance of the coating	-40°C to 120°C	<b>&lt; 950°C</b>
<b>Saline droplet</b>	Corrosion Resistance Test (Salt Spray Test)	DNV-C1	<b>No corrosion after &gt; 4200hr</b>
<b>Corrosion score</b>	Score of corrosion resistance compared to other layers		<b>+++ (3 of 5)</b>
<b>Destructive porosity</b>	Visual inspection for corrosion after opening the welded joint	DNV-C2	<b>No visible corrosion</b>
<b>Porosity</b>	Detection of porosity and cracks in the laser-clad layer	<1%	<b>&lt; 0%</b>
<b>Layer cracks</b>	Visual detection of cracks	-	<b>No cracks</b>
<b>Dye penetrant</b>	Detection of cracks, holes and porosity	ISO 23277	<b>No detection</b>



## ACCEPTANCE CRITERIA

Production process quality control (measurements performed on every production rod)

Measurement	Standard	Specification
<b>Roughness</b>		
- Ra	NEN-ISO 4287	Conform drawing
- Rvk	NEN-ISO 4287	Conform drawing
- Rpk	NEN-ISO 4287	Conform drawing
- Rmr*	NEN-ISO 4287	Conform drawing
<b>Hardness test</b>	ISO 6507-1	On Request
<b>Dye Penetrant test</b>	ASTM E165	On Request
<b>Corrosion test (salt blanket)</b>	-	On Request
<b>Layer defects</b>	-	Visual inspection
<b>Cracks and porosity</b>	-	Microscopic inspection
<b>Surface imperfections (pinholes)</b>	-	Conform table 1
<b>Running marks/scratches</b>	-	Max. dept ≤ 9 μm Max. width ≤ 19 μm

Table 1: Acceptance criterion for surface imperfections

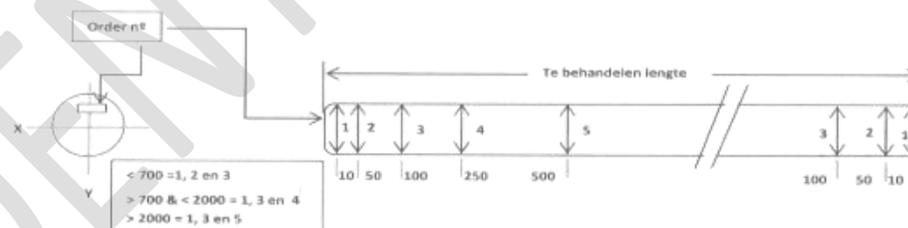
Surface imperfections:	Within 1000 mm rod inspection		
	Ø ≤ 250 mm	Ø ≥ 250 - 400 mm	Ø ≥ 400
Accepted but not reported: ≤ 0.2 mm	All	All	All
Accepted and reported: ≥ 0.2 ≤ 0.5 mm	4	5	6
Reported and repaired ≥ 0.5 – 1,0 mm	0	0	0



## MEASUREMENT REPORT (Example)

### Measurement rapport

Ordernumber Technoplating:	H302500001
Production No:	H602500001
Name Customer:	Customer X
Ordernumber Customer:	123456789
Dimensions:	Ø150 x 3500 / 3500 mm
Date:	1-1-2025



1 2 3 4 5 6 7 8 9 10

On arrival

X-X	149,94	149,94	149,94	149,94	149,92	149,92	149,92	149,94	149,95	149,93
Y-Y	149,94	149,93	149,93	149,94	149,93	149,92	149,93	149,94	149,95	149,93

Pre polish

X-X	149,62	149,63	149,63	149,63	149,63	149,62	149,63	149,62	149,63	149,62
Y-Y	149,63	149,63	149,63	149,62	149,63	149,63	149,63	149,62	149,63	149,62

Requested

Final dimensions

150 f7	X-X	149,95	149,95	149,95	149,95	149,94	149,95	149,95	149,95	149,94	149,94
-0,043 / -0,083	Y-Y	149,94	149,94	149,94	149,95	149,94	149,94	149,95	149,94	149,94	149,94
	Layerthickness TCE 316L	160	157	157	163	155	160	160	163	155	160

0,1 - 0,25	Roughness Ra (µm)
0,63 - 2,5	Roughness Rt (µm)
0,4 - 1,6	Roughness Rz (µm)
0,25 - 0,85	Roughness Rk (µm)
0 - 0,25	Roughness Rpk (µm)
0,25 - 0,85	Roughness Rvk (µm)
50 - 70	Roughness Mr (%)

Remark: Hardness test: 250HV | Dye penetrant test: No porosity detected | Corrosion test: No corrosio