techno cladding europe

TCE-EHLA-COA-625
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SPECIFICATION FOR EHLA LASER CLADDING COATING TCE625

Document number:	Revision
TCE-EHLA-COA-625	01

CONTENT

GENERAL INFORMATION TCE625

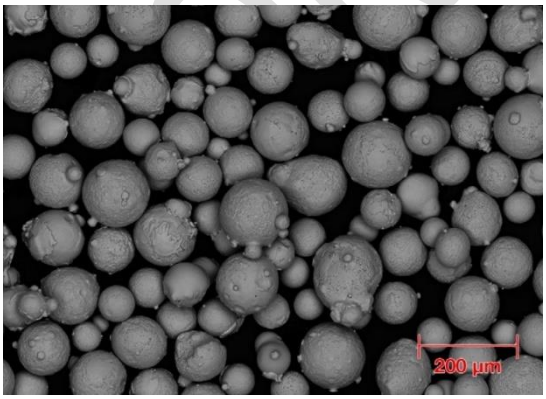
TCE625 offers exceptional resistance to corrosion and oxidation. It is specifically designed to withstand high temperatures, and it can also function under high tensile stresses and temperature variations, both in and out of water. This makes the coating highly suitable for heavy, corrosive environments, particularly in offshore applications.

However, TCE625 is not limited to offshore applications; its properties make it ideal for a variety of other demanding industrial applications. With similar characteristics to Inconel625, it has proven to be a reliable solution in the market for industries that require top-tier protection against harsh environments.

TCE625 is engineered for environments with high mechanical stress, extreme temperatures, and severe corrosive conditions. Whether exposed to saltwater, chemical environments, or high thermal cycling, it ensures long-term performance and reliability.

- Offshore applications
- Applicable in other industries with extreme conditions
- Functions effectively both in and out of water
- Resistant to high tensile stresses and temperatures
- Extremely corrosion-resistant

TCE625 is a proven coating with a track record of success, providing superior protection and extended service life for components exposed to extreme conditions. It offers the same reliable protection as Inconel625, making it a trusted choice for industries with the highest demands.



COATING SPECIFICATIONS

Measurement	Description	Standard	Specification
Hardness test - HV - HRC	**Determination of coating hardness** Hardness test expressed in Vickers Hardness test expressed in Rockwell	 ISO 6507-1 ISO 6508-1	 **Approx. 350 HV** **35.5 HRC**
Rockwell indentation	Hardness test that measures resistance to indentation under a specified load	DNV-M2	**No cracking around indentation**
Heat affected zone	HAZ	-	**< 5% of layer thickness**
Impact toughness	Test to assess the layer's resistance to cracking under impact	DNV-M1	**No cracking around impact area**
Bonding strength	Strength of the material bonding	-	**Infinite (metallurgic bonding)**
Elasticity	The elasticity of the material	-	**Excellent**
Ductility	The ductility of the material	-	**Excellent**
Wear	Test to evaluate resistance to wear	ASTM-G65A ASTM-G65B	**1.30 (25% increase)** **52 Volume loss/mm^3**
Wear score	Score of wear resistance compared other layers	TCE-625	**++++ (4 of 5)**
Operating temperature	Test to evaluate the temperature resistance of the coating	-40°C to 120°C	**< 950°C**
Saline droplet	Corrosion Resistance Test (Salt Spray Test)	DNV-C1	**No corrosion after > 4200hr**
Corrosion score	Score of corrosion resistance compared to other layers		**+++++ (5 of 5)**
Destructive porosity	Visual inspection for corrosion after opening the welded joint	DNV-C2	**No visible corrosion**
Porosity	Detection of porosity and cracks in the laser-clad layer	<1%	**< 0%**
Layer cracks	Visual detection of cracks	-	**No cracks**
Dye penetrant	Detection of cracks, holes and porosity	ISO 23277	**No detection**

ACCEPTANCE CRITERIA

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

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

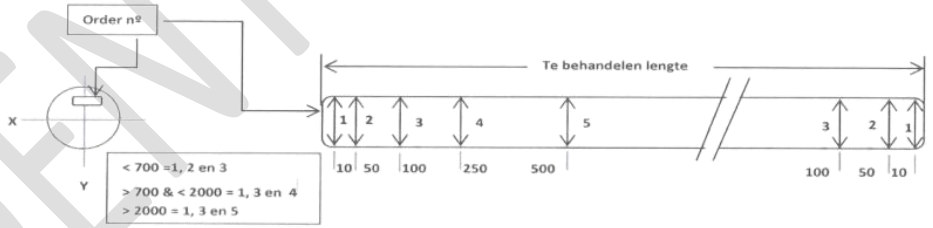
Table 1: Acceptance criterion for surface imperfections

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 625	**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: **350HV** | Dye penetrant test: **No porosity detected** | Corrosion test: **No corrosio**