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

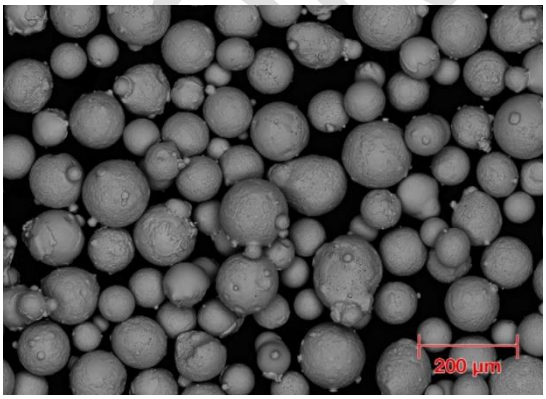
GENERAL INFORMATION TCE625+

TCE625+ is an advanced, high-performance laser clad coating specifically developed for demanding industrial applications. This coating provides exceptional wear, corrosion, and impact resistance, making it ideal for use in the harshest operating environments. With high hardness throughout the coating thickness, combined with optimized ductility and toughness, TCE625+ offers superior protection for components exposed to extreme conditions.

TCE625+ is a metallurgically bonded, durable coating that ensures minimal dilution and iron pick-up, maintaining high reliability and performance over extended service lifetimes. It is engineered for use in environments where the highest demands for wear resistance, corrosion protection, and mechanical integrity are required.

- Ideal for applications in harsh industrial environments, including heavy machinery, offshore drilling, and hydraulic systems
- Applicable to both new and refurbished components
- Proven track record in high-demand applications with significant exposure to wear and corrosion
- Excellent wear, scratch, and impact resistance
- Highly controlled coating process for consistent quality
- Optimized for enhanced ductility, toughness, and long-term performance

This coating is specifically designed to offer superior protection against the elements, ensuring longer life and reduced maintenance costs for critical machinery components.



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. 500 HV** **50 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	**1.65 (65% increase)** **33 Volume loss/mm^3**
Wear score	Score of wear resistance compared other layers	TCE-625+	**+++++ (5 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

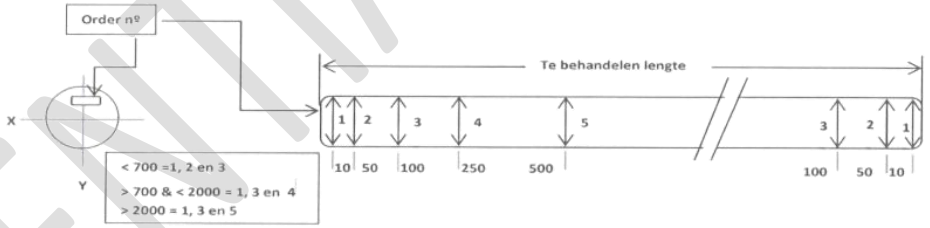
Table 1: Acceptance criterion for surface imperfections

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: **500HV** | Dye penetrant test: **No porosity detected** | Corrosion test: **No corrosio**