

Aligned specification for surface preparation of casted components

The Wind Partnership

EIC-AS-01

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Introduction

This is an aligned specification for surface preparation of casted components used in offshore wind turbines. The document can be used in a sales contract or as an extension to a complete recommended practice.

The purpose of the aligned specification is to ensure identical requirements and continued alignment for the specific components, including a common reference system.

Background

The need for this alignment was first identified by the Wind Partnership, a working group facilitated by Energy Innovation Cluster. The partners in the Wind Partnership included MHI Vestas Offshore Wind Siemens Gamesa Renewable Energy and Vestas wind Systems, who all participated in the alignment of the above-mentioned specification. The facilitation of the alignment was funded by The Ministry of Higher Education and Science.

1. Edges of casted constructions

Position	Feature	Acceptance criteria, preparation grade, and/or additional requirements
1.1	Free edges	<u>Priming coat - Paint</u> Sharp edges and corners shall be rounded and smoothed by grinding to minimum 1mm x 45°
		<u>Priming coat - TSM</u> Sharp edges and corners shall be rounded and smoothed by grinding to minimum radius 2 mm or by 3 pass chamfering.

2. Surface of casted surfaces

Position	Feature	Acceptance criteria, preparation grade, and/or additional requirements
2.1	Class A surface	
2.1.1	As-cast surface	
2.1.1.1	Category A, Surface texture	Class A1, A2 or A3
2.1.1.2	Category H, Metal Removal Marks - Mechanical dressing	Class H1, H3
2.1.1.3	Category B, Non-Metallic inclusion (OPTIONAL)	Class B1, B2
2.1.1.4	Category C, Gas porosity	Class C1 and C2
2.1.1.5	Category D, Fusion Discontinuities	Class D1
2.1.1.6	Areas, which will be machined	The conditions of the areas must be such that the necessary acoustic coupling can be maintained during UT.
2.1.1.7	Other type of defects	Not acceptable
2.1.2	Final machined surface	
2.1.2.1	Visual defects	Slag- and sand-inclusions, gas porosity, shrinkages etc. are not permitted in final machined surfaces.
2.2	Class B surface	
2.2.1	As-cast surface	
2.2.1.1	Category A, Surface texture	Class A1, A2 or A3
2.2.1.2	Category H, Metal Removal Marks - Mechanical dressing	Class H1, H3
2.2.1.3	Category B, Non-Metallic inclusion (OPTIONAL)	Class B1, B2
2.2.1.4	Category C, Gas porosity	Class C1 and C2
2.2.1.5	Category D, Fusion Discontinuities	Class D1
2.2.1.6	Areas, which will be machined	The conditions of the areas must be such that the necessary acoustic coupling can be maintained during UT.
2.2.1.7	Other type of defects	Not acceptable
2.2.2	Final machined surface	

2.2.2.1 Visual defects	Slag- and sand-inclusions, gas porosity, shrinkages etc. are not permitted in final machined surfaces.
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Remarks:

The use of SCRATA Comparators is required for the evaluation of each specific feature.

3. Pre-blasting preparations

Foreign matter such as oil, grease, dirt, remains from NDT, weld flux, or other surface contamination shall be removed with suitable cleaning media and by washing with fresh water. The cleaning media and method used shall be accepted by the paint supplier.

Salts and water-soluble impurities shall be removed by high pressure cleaning with freshwater. Particular care shall be taken on areas which are difficult to access.

The maximum content of soluble impurities on the blasted surface shall not exceed a conductivity measured in accordance with ISO 8502-9 corresponding to a NaCl content of maximum 50 mg/m².

Salt test using appropriate methods shall be carried out after abrasive blasting if there is doubt concerning the fulfillment of technical requirements,