

## INSTALLATION INSTRUCTION

# Surface Preparation of Blades for Application of ELLE™

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## Imprint

### **Polytech A/S**

Industrivej 75  
6740 Bramming  
Denmark

Phone: +45 75 10 10 26

[www.polytech.com](http://www.polytech.com)

Company registration number: 10403782

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# 1. General Information

## 1.1 Change Description

The table below describes changes compared to the previous revision of the document.

Section	Description
Frontpage	Title changed from “Fast Preparation of WTG Blades Before Application of ELLE™” to “Surface Preparation of Blades for Application of ELLE™”.
All	New template. Various editorial changes throughout.
<u>1.3 Icons and Notes</u>	New section added.
<u>1.4 Required Documentation</u>	LE-Q003_Acceptance catalog ELLE™ mounting added.
<u>2.1 Environmental Conditions</u>	Reference to PolyTech TDS ELLE™ added.

## 1.2 Safety





### 1.2.1 Qualifications of Personnel

The table below defines which tasks can be assigned to qualified, trained and instructed personnel.

Task	Personnel
All	Qualified personnel <ul style="list-style-type: none"> <li>■ Personnel who, based on their specialist training, knowledge and experience and knowledge of the relevant regulations, are able to assess the work assigned to them and identify possible hazards.</li> </ul>
Installation	Trained personnel <ul style="list-style-type: none"> <li>■ Personnel trained in the operation and safe use of the product.</li> </ul>
Packaging and Transport	Instructed personnel <ul style="list-style-type: none"> <li>■ Personnel instructed in the tasks assigned to them.</li> </ul>




### 1.2.2 PPE (Personal Protective Equipment)

Wear PPE as defined in the table below.

	<b>For all tasks</b> Wear foot protection.
	<b>For all tasks</b> Wear eye protection.
	<b>For all tasks</b> Wear protective gloves.
	<b>For tasks where sufficient venting is not possible</b> Wear respiratory protection. <ul style="list-style-type: none"> <li>■ Recommended filter type: A2, P2.</li> </ul>

## 1.3 Icons and Notes

The table below defines the meaning of icons that appear in this document.

Icon	Definition
	<b>Caution or Warning</b> Details about risk of personal injury.
	<b>Note</b> Details about risk of property damage.
	Reference to additional documentation.

## 1.4 Required Documentation

The table below lists other required documentation.

<b>Safety Data Sheet</b>	<ul style="list-style-type: none"> <li>■ CENTAUR 960 SDS</li> <li>■ IPA Sprit 99,9% Polytech</li> <li>■ Sika® Aktivator-205</li> </ul>
<b>Technical Data Sheet</b>	<ul style="list-style-type: none"> <li>■ PolyTech TDS Centaur 960</li> <li>■ PolyTech TDS ELLE™</li> <li>■ Sika® Aktivator-205</li> </ul>
<b>Installation Instruction</b>	<ul style="list-style-type: none"> <li>■ LE-Q003 Acceptance Catalog – Installation of ELLE™ Shell</li> <li>■ LE-I002 Application of Replacement ELLE™</li> <li>■ LE-I003 Detached ELLE™</li> <li>■ LE-I007 Standard Application of ELLE™</li> </ul>

## 1.5 Abbreviations

The table below defines the abbreviations used in this document.

<b>Abbreviation</b>	<b>Full Form</b>
ELLE™	Everlasting Leading Edge
GFRP	Glass-fiber Reinforced Polymer
IPA	Isopropanol Alcohol
PPE	Personal Protective Equipment
SDS	Safety Data Sheet
TDS	Technical Data Sheet
WTG	Wind Turbine Generator

## 2. Preparation

### 2.1 Environmental Conditions

The table below defines the temperature and humidity requirements during installation.



Refer to Technical Data Sheets for storage and transportation requirements.

Property	Value	Unit
Ambient temperature	5 ... 35	°C
	41 ... 95	°F
Surface temperature:	5 ... 50	°C
	41 ... 122	°F
Permitted relative humidity	30 ... 90	%

### 2.2 Tools and Consumables

Tools	
Item	Type
Permanent marker	-
Consumables	
Item	Type
Cleaning agent	Isopropanol 99.9 %
Cloths	Lint-free
Color/varnish	In accordance with specifications of the blade type.
Filler	Depending on ambient temperature: <ul style="list-style-type: none"> <li>■ SikaForce-800 Blue (former SikaForce-7800 Blue), 5 to 15 °C,</li> <li>or</li> <li>■ SikaForce-800 Red (former SikaForce-7800 Red), 15 to 35 °C.</li> </ul>
Sandpaper	Grit 80 to 120

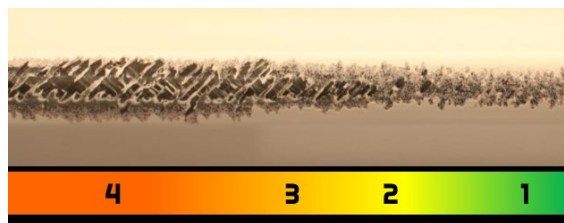
### 3. Installation

#### 3.1 Inspection of Smoothing of Blade Surface

##### Step 1

Inspect blade surface and determine the erosion category.

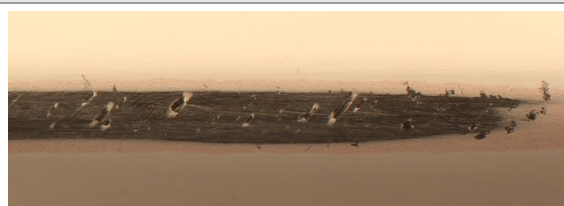
- For erosion category 1 and 2, continue to Step 2.
- For erosion category 3 and 4, continue to Step 3.



##### Step 2

Smoothen out the eroded coat so that the surface become smooth.

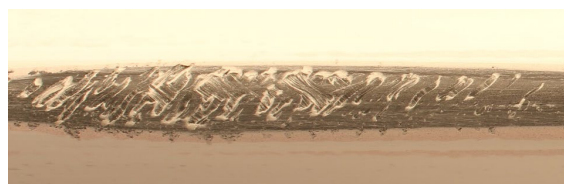
- If any local holes are present, sand the edge and fill it up later.



##### Step 3

Smoothen out the edge of the eroded area and remove any loose filler, paint and so forth.

- If erosion has damaged the GFRP laminate, a structural repair in accordance with the blade supplier specification is required, before application of ELLE™.



##### End

#### 3.2 Cleaning of Blade Surface

##### Before Starting

###### Note



Surface cleaned with isopropanol will dry out fast.

Surface cleaned with water and soap will take longer time to dry out.

Applying isopropanol to the surface can help evaporating remaining water on the surface.

##### Step 1

Clean substrate to remove contamination, for instance salt sediment.

##### Step 2

Use a neutral soap dispersed in water and a brush if the surface is very dirty or full of salt. Otherwise, use isopropanol and a brush to clean the eroded area.

##### End



### 3.3 Sanding of Eroded Surface

#### Before Starting

**Note**

Be careful not to sand surface outside the area where ELLE™ must be installed.

#### Step 1

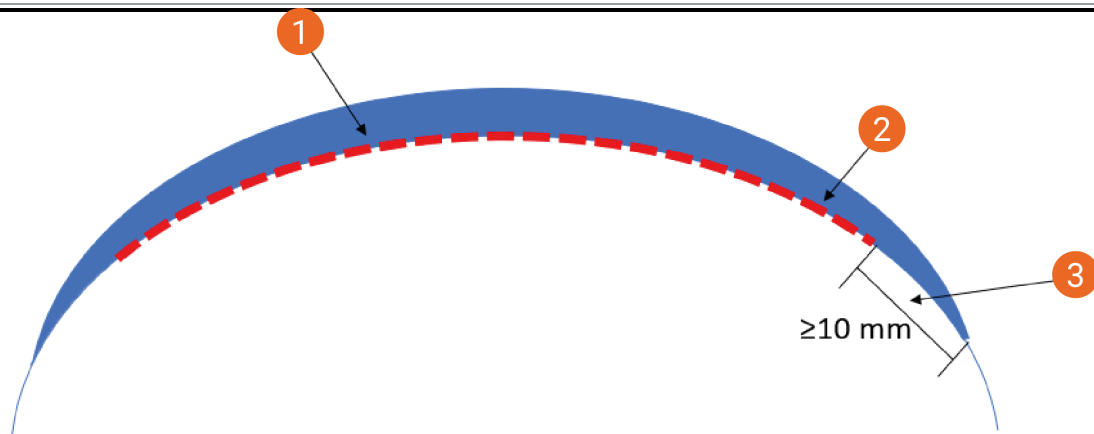
Sand eroded surface to remove loose fibers, paint chips, tape, adhesive and similar.

#### End

### 3.4 Mark Up Area for Installation of ELLE™

#### Step 1

Edge of ELLE™ (1) must extend a minimum of 10 mm (3) from edge of filled/paint free area (2). If this not possible, surface must be painted with topcoat before application of ELLE™.



#### End

### 3.5 Wiping of ELLE™ Installation Area

#### Step 1

Wipe off the surface with isopropanol and a brush to ensure that the eroded area is cleaned for repair.

#### End

### 3.6 Filling of Eroded Area

#### Step 1

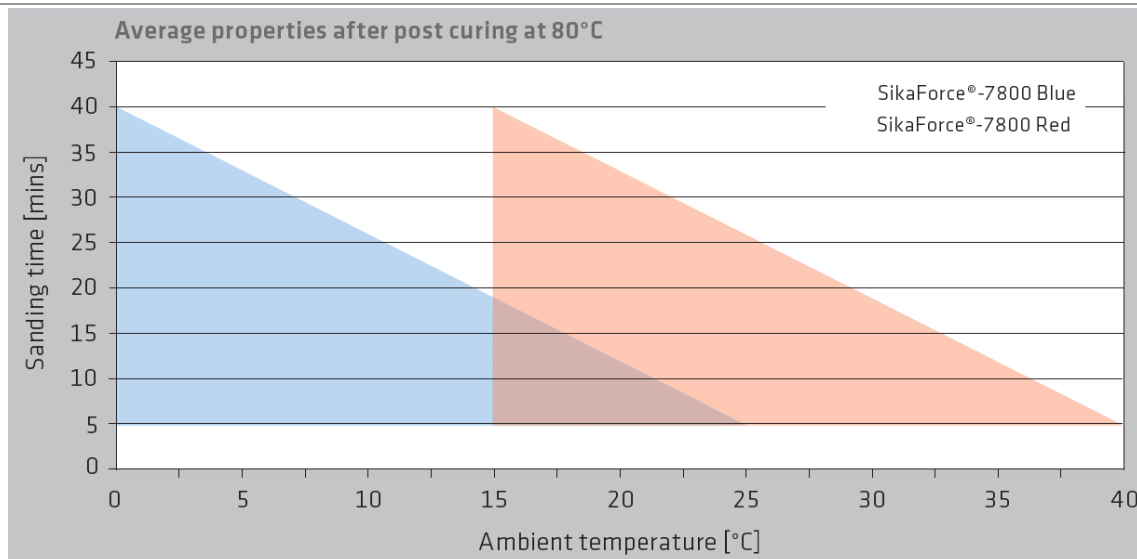
Apply filler and build up original blade profile in the areas with erosion category 3 or higher and local holes remaining after the sanding.

#### End

### 3.7 Curring of Filler

#### Step 1

Let the filler cure until the surface is sandable with sand paper.



End

### 3.8 Sanding of Filler Surface

#### Step 1

Sand the filler with sandpaper so that the surface becomes smooth and regain original aerodynamic profile.

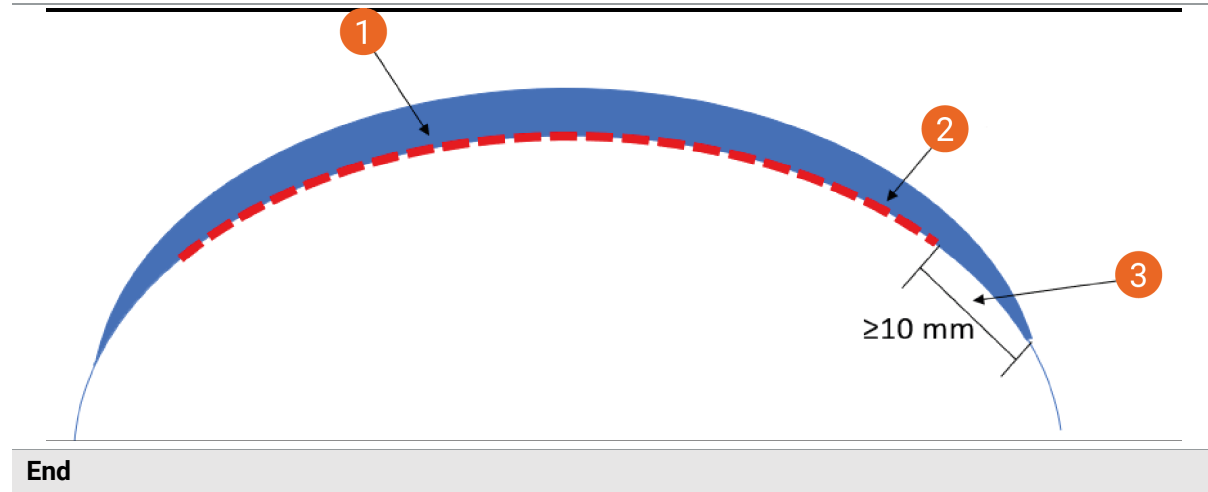


End

### 3.9 Control of Prepared Area

#### Step 1

- If the filled area will be within the ELLE™ shell with a 10 mm overlap on both sides, the blade is now ready for ELLE™ installation in accordance with LE-I007 Standard Application of ELLE™.
- If the filled area is wider, the filler needs to be covered with paint in accordance with blade manufacturer specifications before application of ELLE™.



## 4. Technical Support

### E-mail

[support@polytech.com](mailto:support@polytech.com)

Answers will be sent within one working day.

### Phone

+45 88 444 500

Available 8:00-17:00 CET.

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Please include the following information in your support request:

- Product name.
- Product type.
- Serial number.
- Description of the problem, including detailed, high-resolution pictures.