Polytech
Wind for life™

REPAIR INSTRUCTION

Repair of Detached ELLE™

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Table of Content

1. General Information

1.1 Change Description

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

Section	Description
All	New template. Various editorial changes throughout.
1.3 Icons and Notes	New section added.
1.4 Required Documentation	*LE-Q003_Acceptance Catalog – Installation of ELLE™ Shell* added.
2.2 Tools and Consumables	**Tools:** Type of application squeegee changed to Special Polytech tool.
3.1 Function Description	Section deleted.
3.2 Technical Data	Section merged with *2.1 Environmental Conditions*.
3.10 Curing Time	Information regarding release of rotor and WTG idle mode 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 ■ 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.
Installation	Trained personnel ■ Personnel trained in the operation and safe use of the product.
Packaging and Transport	Instructed personnel ■ Personnel instructed in the tasks assigned to them.

1.2.2 PPE (Personal Protective Equipment)

Wear PPE as defined in the table below.

	**For all tasks** Wear foot protection.
	**For all tasks** Wear eye protection.
	**For all tasks** Wear protective gloves.
	**For tasks where sufficient venting is not possible** Wear respiratory protection. ■ Recommended filter type: A2, P2.

1.3 Icons and Notes

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

Icon	Definition
	**Caution** or **Warning** Details about risk of personal injury.
	**Note** Details about risk of property damage.
	Reference to additional documentation.
	Details about time constraints.

1.4 Required Documentation

The table below lists other required documentation.

Safety Data Sheet	■ CENTAUR 960 SDS ■ IPA Sprit 99,9% Polytech ■ Sika® Aktivator-205
Technical Data Sheet	■ PolyTech TDS Centaur 960 ■ PolyTech TDS ELLE™ ■ Sika® Aktivator-205
Installation Instruction	■ LE-Q003 Acceptance Catalog – Installation of ELLE™ Shell ■ LE-I002 Application of Replacement ELLE™ ■ LE-I006 Surface Preparation of Blades for Application of ELLE™ ■ LE-I007 Standard Application of ELLE™

1.5 Abbreviations

The table below defines the abbreviations used in this document.

Abbreviation	Full Form
ELLE™	Everlasting Leading Edge
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 repair.

Refer to Technical Data Sheets for storage and transportation requirements.

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

2.2 Tools and Consumables

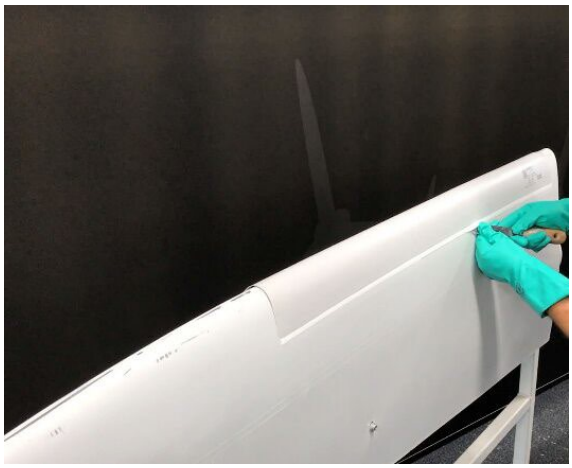
Tools	
Item	**Type**
Application gun	-
Application squeegee	Plastic spatula, special Polytech tool
Consumables	
Item	**Type**
Adhesive	Centaur 960
Cleaning agent	Isopropanol 99.9%
Cloths	Lint-free
Masking tape	-
Sandpaper	Grit 220 to 240
Surface activator	Sika® Aktivator-205

3. Repair

3.1 Loosening of ELLE™ Edge in Affected Area

Step 1

Release edge of ELLE™ gently using the application squeegee.



Step 2

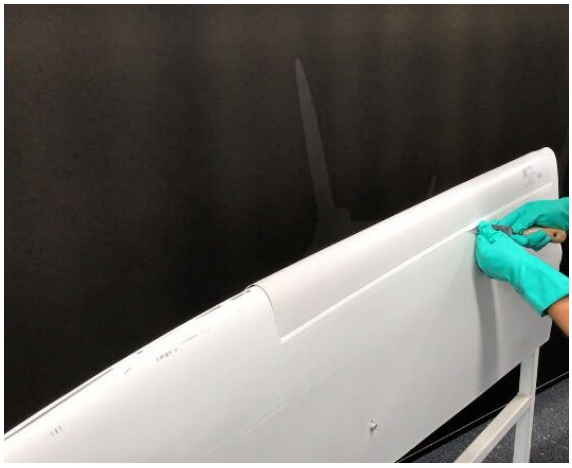
Ensure that the edge of ELLE™ is loosened for the whole area of the blade where ELLE™ have detached from the blade.

End

3.2 Removal of Sealant

Step 1

Remove the sealant from the surface of the blade area were ELLE™ have been released.



Step 2

Remove the sealant from the blade surface using the application squeegee.

- If any sealer is left after using a the application squeegee, continue to Step 3.

Step 3

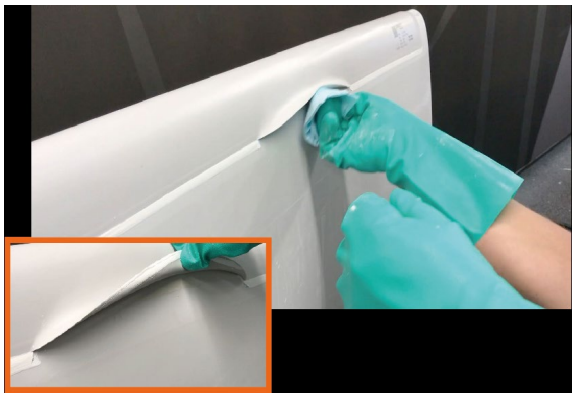
Remove the sealant that is left on the inside of ELLE™ with sandpaper grit 220 to 240 and make sure that all loose sealant is removed.

End

3.3 Cleaning of Surface

Step 1

Clean the entire surface of the blade and ELLE™ where it has been released.



Step 2

Use isopropanol and a damp cloth to clean the surface.

Step 3

Make sure that whole area of the repair is fully cleaned.

End

3.4 Preparation of Surface and ELLE™

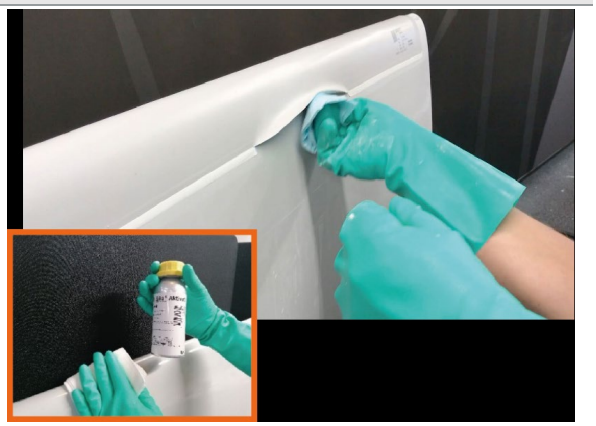
Before Starting

Note
Wear clean, powder-free nitril gloves when handling ELLE™.

Step 1

Wipe ELLE™ and the blade surface in the entire area that have been released Sika® Aktivator-205, using a damp cloth.

Wait between 10 and 120 minutes for the Sika® Aktivator-205 to evaporate before continuing.

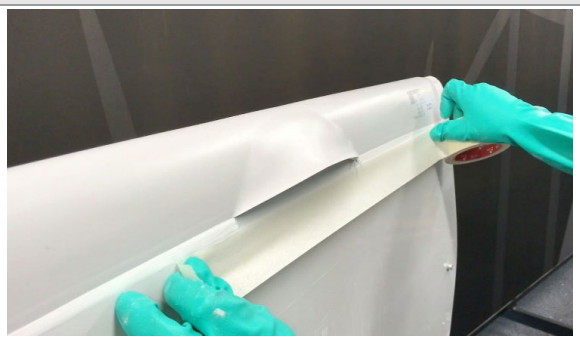


End

3.5 Application of Masking Tape

Step 1

Place masking tape along the edge of ELLE™.



Step 2

Ensure 10±5 mm distance to the outline of ELLE™.

End

3.6 Application of Sealant

Step 1

Place the nozzle under the ELLE™ shell to seal the prepared area.

- The nozzle tip must be placed where ELLE™ is still fully attached to the blade surface.

Step 2

Place a thick layer of Centaur 960 close along the line where ELLE™ is still fully attached to the blade.

End

3.7 Squeezing of Sealant

Step 1

Smoothen out the sealer, moving the application squeegee in longitudinal direction, starting closest to the leading edge of the sealed area.

Step 2

Use the application squeegee in a downward movement, squeezing the sealer towards the edge of ELLE™.

- More sealant can be applied for the chamfer if there is not enough to make a smooth transition from ELLE™ to blade.

End

3.8 Cleaning of ELLE™

Step 1

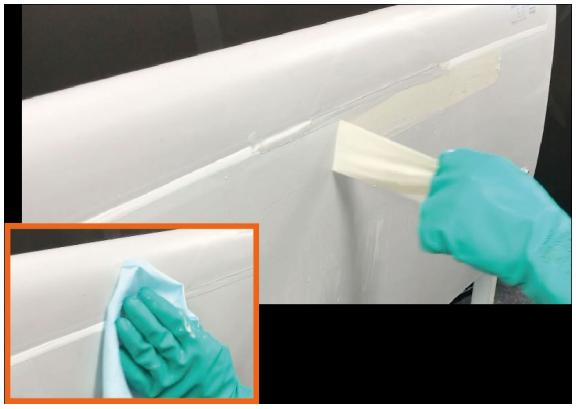
Remove excess of sealer from the surface of the installed ELLE™ section, using isopropanol and a damp cloth.

End

3.9 Smoothing of Sealant

Step 1

Remove the masking tape and even out raised sealant, if any.



Step 2

Use isopropanol for smoothing, spray a layer on sealer and use a cloth well moistened with isopropanol.

Make sure the edge of the sealant is not compressed thinner than the edge of ELLE™. If there is a small difference, smooth the bonding line between ELLE™ and sealant with light finger strokes after wetting sealer with isopropanol.

End

3.10 Curing Time

The rotor can be released and the WTG set to idle mode immediately after application of the replacement ELLE™. The replacement ELLE™ must cure in accordance with the table below before the WTG can be put into operation.

Relative Humidity [%]	Temperature [°C]	Temperature [°F]	Minimum curing time [hours]
> 30	5 ... 10	41 to 50	12
> 30	10 ... 15	50 to 59	9
> 30	15 ... 20	59 to 68	7
> 30	20 ... 25	68 to 77	5
> 30	25 ... 30	77 to 86	4
> 30	30 ... 35	86 to 95	3
> 30	35 ... 40	95 to 104	2

4. Technical Support

E-mail

support@polytech.com
Answers will be sent within one working day.

Phone

+45 88 444 500
Available 8:00-17:00 CET.

Please include the following information in your support request:

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