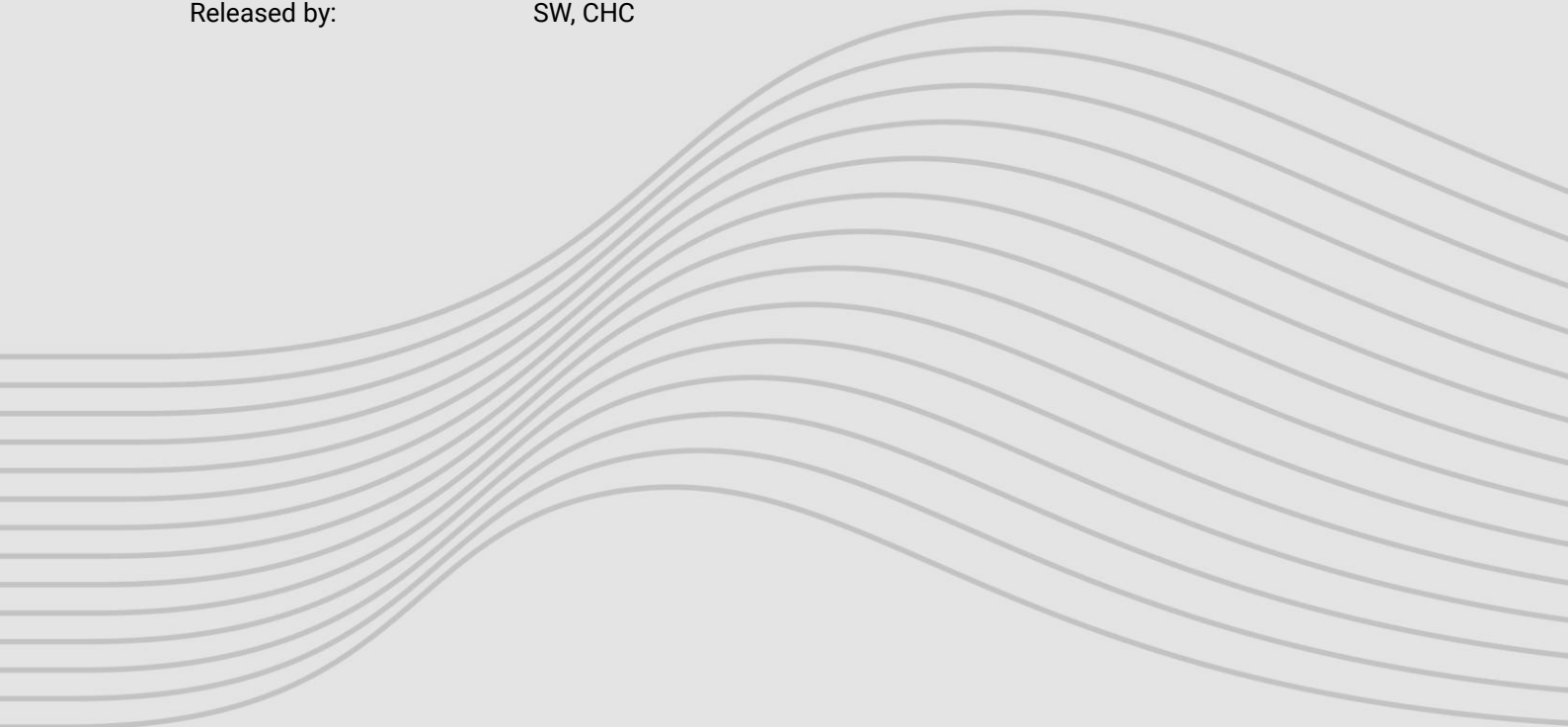


Application of ELLE™ Onshore

Up-tower installation

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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
2.1	Text ref. adjustments in: Section 3.5 step2 (5), step3 & Section 3.5 step4 (1,7)
2.0	Document name changed from <i>LE-I038-1.0-en-Application_of_ELLE_ON</i> to <i>LE-I038-2.0-en-Application_of_ELLE_Onshore_Up-tower</i> . Section 3.1 to 3.5 re – arrange steps, text and new pictures
All	New document.





1.2 Safety

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	<ul style="list-style-type: none">■ IPA Sprit 95% (minimum) Polytech■ 3M™ Wind Tape Adhesion Promoter W9910-1
Technical Data Sheet	<ul style="list-style-type: none">■ LE-D043 ELLE™ Onshore■ 3M™ Wind Tape Adhesion Promoter W9910-1
Appendix	<ul style="list-style-type: none">■ LE-I039 Installation ELLE™ Onshore around obstacles

1.5 Abbreviations

The table below defines the abbreviations used in this document.

Abbreviation	Full Form
IPA	Isopropanol Alcohol
LE	Leading Edge
OEM	Original Equipment Manufacturer
PPE	Personal Protective Equipment
PS	Pressure side of the blade
SS	Suction side of the blade

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
Surface temperature	10 ... 35	°C
	50 ... 95	°F
Relative humidity	0 ... 100	%

2.2 Tools and Consumables

The table below defines the required tools and consumables.

Tools	
Item	Type
Application roller	Special Polytech tool
Application scraper	Plastic spatula with felt
Sander	-
Measuring tape	-
Permanent marker	Carbon-free
Scissor	-
Spray bottle	-
Consumables	
Item	Type
Adhesion promoter	3M™ Wind Tape Adhesion Promoter W9910-1
Application solution	Mixture of 95% (minimum) isopropanol and demineralized water. Mixing ratio: 75% water / 25% isopropanol.
Cleaning agent	Isopropanol 95% (minimum) Alternative: Soap (neutral)
Cloths	Lint-free
Masking tape	-
Sanding disc	Grit 220 to 240
Sandpaper	Grit 220 to 240

3. Installation

3.1 Inspection and Repair of Leading Edge

Step 1

Inspect the leading edge for any erosion or damages.

- If no erosion is found, continue to [3.2](#) *Cleaning of Surface*.



Step 2

If severe erosion causing structural damage is detected, it must be repaired according to the blade manufacturers specifications. Light erosion can be reworked with blade filler.



Step 3

The installation surface must be smooth without any holes, dents or loose material and must be covered with either blade filler or blade coat/paint.

Local areas in the installation area with no blade filler or blade coat/paint can be accepted if there are no signs of exposed or dry fibers.

**Note:**

Any uncoated/unpainted areas outside the installation area can be coated/painted after finalized installation. Don't apply coat/paint onto the *ELLE™ Onshore*.

**End**

3.2 Cleaning of Surface

Step 1

Clean/wash substrate to remove contamination, for instance salt sediment. Use either:

- A neutral soap dispersed in water and a brush if blade is very dirty or full of salt, or:
- Isopropanol (minimum 95%) and a brush to clean the eroded area.

**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.

**End**

3.3 Marking of Application Areas

Step 1

Make a 29 centimeter wide template of a flexible material and draw a line through the centre of it.



Step 2

Measure the desired application length from the TIP-end and put masking tape across the spot where the *ELLE™ Onshore* shall end towards the ROOT.



Step 3

Use the premanufactured template by centering it on the LE and mark with a permanent marker at each side of it.



Note:
Do NOT use a black marker or a pencil.

Do this for 10pprox.. each 0.5 meter of the installation area.

**Step 4**

Apply the masking tape in a straight line along the side marks on both sides of the blade (SS & PS) and make a mark on the masking tape 0.5 meter from the TIP end.



Note:
Do not cover the marks.

**End**

3.4 Sanding of Surface

Step 1



Note Don't sand the first 0.5 meter from the TIP end.

Sand the entire masked application area.

- Use sandpaper grit 220 to 240.
- Shiny areas on the sanded surface after sanding are NOT accepted.



Step 2

Remove dust with 95% (minimum) isopropanol and a lint-free cloth.



Step 3

Apply a thin layer of adhesion promoter **3M™ W9910-1** on the blade, using a damp, lint-free cloth.



Allow the adhesion promoter to dry for 10 minutes. *ELLE™ Onshore* must be applied within 2 hours after activating the blade.



End

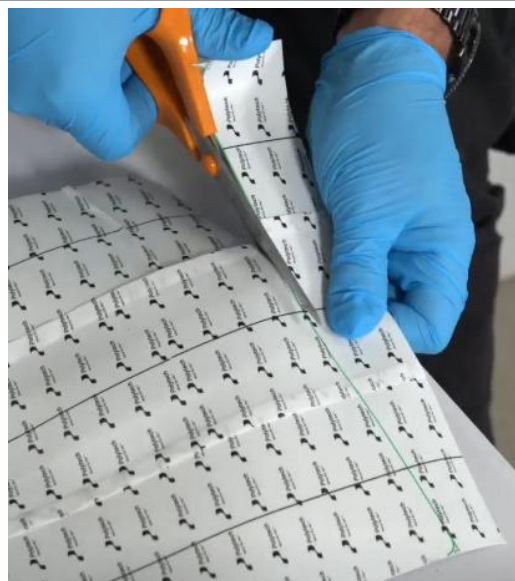
3.5 Application of *ELLE™ Onshore*

Before Starting

Make a clean 90° cut at the start of the *ELLE™ Onshore* roll and cut a 10 mm. radius on all corners.

Make application solution by mixing demineralized water and 95% (minimum) isopropanol and put the application solution into a spray bottle.

Note: Mixing ratio: 75% demineralized water, 25% isopropanol.



Step 1

- Start the installation from the ROOT position.

Step 2

- 1 Spray blade surface with plenty of the application solution.
- 2 Remove the center liner from *ELLE™ Onshore* without touching the pressure sensitive adhesive with bare hands.
- 3 Apply *ELLE™ Onshore* in the center of the masked application area, without covering any of the masking tape.



Note:

If struggling to position the *ELLE™ Onshore* centred in the installation area, centre alignment marks can be made for each meter using the pre manufactured template. Do **NOT** use black marker or pencil.

- 4 Use the application roller or the application scraper to fix *ELLE™ Onshore* to the leading edge of the blade and remove all air and application solution entrapments at the same time.



- 5 Stop the application and remove the loose liner material just before you reach the 0.5 meter from the TIP that hasn't been prepared.



Note: Step 2 & 4 can be performed as you go down the blade, but recommendation is, that step 2 and 3 is finalized before starting step 4.

Step 3

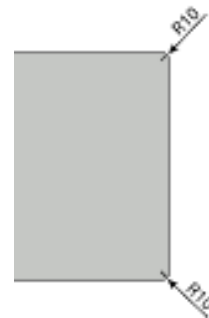
Cut the *ELLE™ Onshore* a few centimeter longer than the TIP-end.



Dry fit the *ELLE™ Onshore* to the TIP and evaluate how close to the TIP you can get. The *ELLE™ Onshore* must be installed as far out towards the TIP – end as possible without creating waves on the sides that are **too** large to be smoothed out **during** installation. The TIP template can be used to trim the *ELLE™ Onshore* if you want to install **further** out towards the TIP end than the waves on the sides allow.

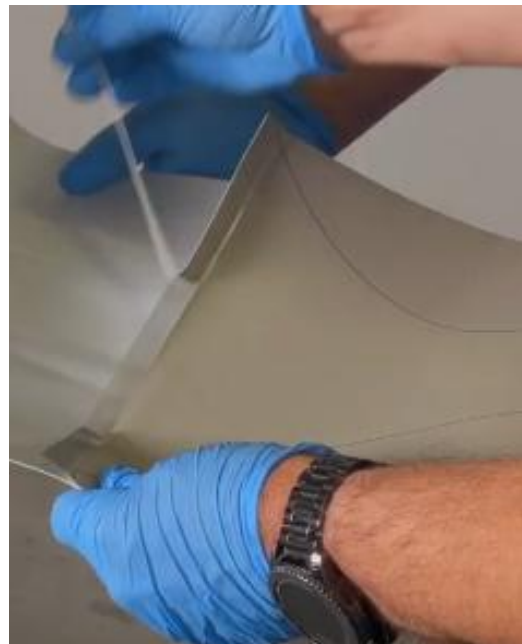


If use of the TIP template isn't necessary make a clean 90° cut at the desired length and cut a 10 mm. radius on both corners.



The delivered template is to be used as follows:

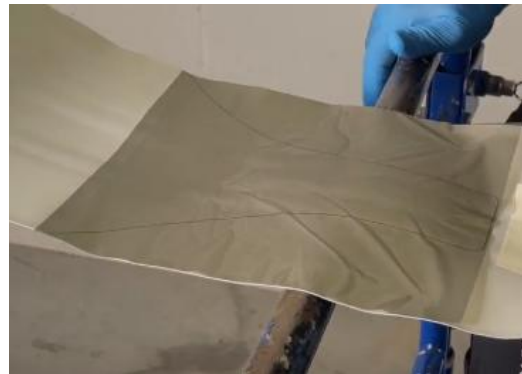
- Put a piece of masking tape to mark the desired length of the *ELLE™ Onshore*.
- Put the template to the length mark and center the template on the *ELLE™ Onshore*.
- Remove the liner strip from the template to attach the template.



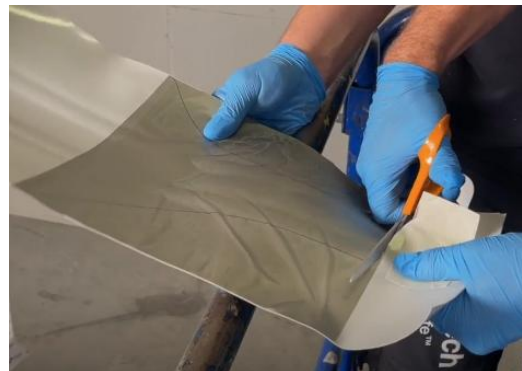
- Attach the template



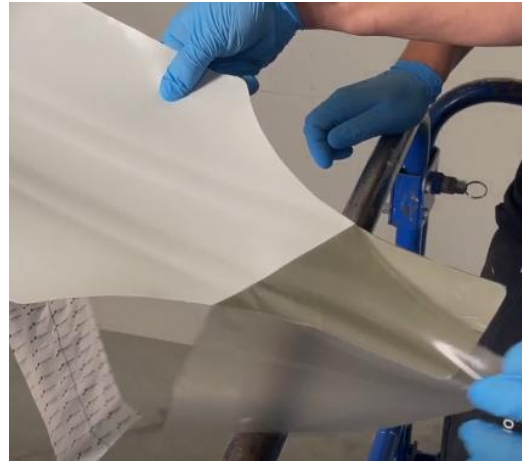
- Remove the rest of the liner and apply the template.



- Cut along the lines of the template



- Remove the template



- Hold the *ELLE™ Onshore* in place without removing the liner and apply masking tape along the edges, leaving a 10 mm. gap to the *ELLE™ Onshore*.



Sand the masked application area.

- Use sandpaper grit 220 to 240.
- Shiny areas on the sanded surface after sanding are not accepted.



Note: Check **cleanliness** of the already promoted area.



Remove dust with 95% (minimum) isopropanol and a lint-free cloth.



Note: Check **cleanliness** of the already promoted area



Apply a thin layer of adhesion promoter **3M™ W9910-1** on the blade using a damp lint-free cloth.



Allow the adhesion promoter to dry for 10 minutes. ELLE Onshore must be applied within 2 hours after activation the blade.



Apply the *ELLE™ Onshore* as described in section 3.5 step 2.



Step 4

- 1 Go back to the installation start position towards the root and apply both sides of the *ELLE™ Onshore*
- 2 Spray the blade surface with plenty of application solution.
- 3 Spray the outside area with plenty of the application solution to reduce friction when removing air entrapments.
- 4 Remove the side liner from *ELLE™ Onshore* without touching the pressure sensitive adhesive with bare hands.
- 5 Remove the air and water entrapments using an application scraper, scraping from the center of the leading edge to each side.
- 6 When no air and water entrapments are left, the masking tape can be removed.
- 7



Appendix: If there are any obstacles in the installation area, please use:
LE-I039 Installation ELLE Onshore around obstacles - for applications concerning this issue.

**Step 5**

After completing the application, wait 1 hour before putting the wind turbine into operation.

End

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.