

# Siemens Gamesa - SG Training Web

SE-P-15100

## Blade B - Basic blade repair

### Purpose

The purpose of this training is to enable the participants to carry out a complete repair of non-structural damage and faults on SWP blades in accordance with ZWI D1683397 Blade Non-Structural Repair Processes.

### Who should attend?

The training is intended for Siemens Gamesa Renewable Energy employees, customers and 3rd parties whose duties include repair of minor blade damages.

### Objectives

Upon successful completion of the course the participants are able to:

- Use personal safety in relation to work with epoxy resins and isocyanates
- Assess the extent of laminate damage in blade structures and assessing technical aspects in connection with repair on the basis of knowledge about thermoset plastics and composite materials and the build-up of wind turbine blades.
- Explain the physical and chemical aspects of the work environment.
- Work hands-on with mixing, handle, and use suitable epoxy systems for hand laying, filling and painting.
- Choose and use the correct personal protective equipment (PPE).
- Prepare / complete including marking up of work area, waste sorting / disposal and planning of task including workflow and preparation of necessary materials
- Repair of minor trailing edge damage.
- Take out and close sample cuts.
- Take TG's (curing sample).
- Use of heating blankets.
- Use blade documentation (Work Instruction, Check list, Control Instruction, Safety Data Sheet (SDS), etc.
- Replacement of Aerodynamic Power Upgrade components (Vortex generator, DinoTails, DinoShells)
- Perform quality and measurement control.

Competencies:

Upon completion the participants will be qualified:

To repair blade damages in accordance with ZWI D1683397 Blade Non-Structural Repair Processes.

### Theory / Practice

30% / 70%

### Prerequisites

Legal requirement in DK:

Prior the SE-P-15100 Blade B - Basic blade repair course the participant must have completed and passed the course: personal safety when working with epoxy and isocyanates, and is able to work safely with substances and materials containing epoxy and isocyanates in accordance with Executive Order No. 1793 of December 18 2015, issued by the Danish Working Authority.

UK course title: Personal Safety when Working with Epoxy and Isocyanates

DK course title: Personlig sikkerhed ved arbejde med epoxy og isocyanater

Available epoxy safety courses I DK:

- EPOXY Safety (SCN-P-2090)
- EPOXY safety (SE-P-20900)
- SE-P-17750 Spot repair on metal and epoxy safety

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## Blade B - Basic blade repair

### Contents

Personal safety in relation to work with epoxy resins and isocyanates.  
Correct personal protective equipment (PPE).  
Blade documentation.  
Material knowledge -how is a blade made?  
Hand lamination.  
Vacuum injection.  
Grinder and sander.  
Grinding, sanding and filling.  
Mixing filler  
Applying filler.  
Mixing paint.  
Painting of blade.  
Mark up of damage.  
Cutting glass for damage.  
Repair of minor damage on trailing edge.  
Take out and close sample cuts.  
Take TG's (curing sample).  
Safe use og heating blanket.  
Use of photo card and damage report.  
Re-installation of broken Aerodynamic Power Upgrade components.

### Notes

#### Validity

No expiry

#### Price:

@ 3 Participants: \$9,850

@4 Participants: \$8,616

@5 Participants: \$7,876

### Export control

AL-Number: N

ECCN: EAR99