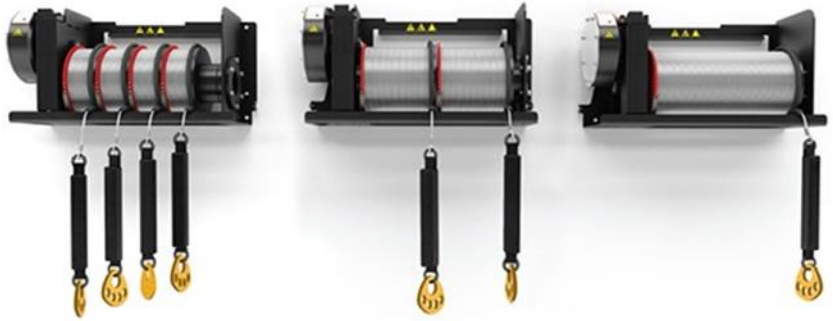
Evacuation from heights during an emergency situation!

IN AN EMERGENCY
EVERY SECOND
COUNTS

ESCAPE FROM HEIGHTS
WITHIN 10 SECONDS
CLICK ON AND GO!



EVACUATOR®
descent device

Windenergietage 2025
14-11-2025, by Bart Thiele

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Content

- Intro and applications
- Scenarios
- The Evacuator details
- Emergency harness details
- Training
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Intro and applications

- Evacuator idea came from the 9-11 disaster where people could not find a save way out of the WTC buildings
- Available for the industry since 2015
- TeSuCon is the worldwide official distributor & engineering partner since 2019
- Installed base 400+ worldwide

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Challenges

Complexity, higher wind turbines or objects with multiple storeys

Duration, longer escape routes to exit the work area (nacelle or operator's cab) and reach safe ground or sea level

Panic, instinctively flee to 'light' and 'oxygen' and chances on stressed related attacks / brain fog

Responsible for safety → object owner

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Advantages compared to other evacuation system

- One time investment, no full system replacement after 10 years
- Lifetime +30 years
- Pre-installed, no preparation or thinking
- Zero chance to (human) failure during brain fog
- Panic & fire proof
- Minimum training time needed, can be done during GWO W@H
- Ready to leave the nacelle within 10 sec, just click on & go
- Technicians are able to escape safe in an emergency

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AVOIDING THESE **12** SITUATIONS...

1: RESCUE KIT NOT PRESENT (LEFT IN VAN)

2: RESCUE KIT NOT CHECKED UPFRONT

3: RESCUE KIT ITEMS MISSING

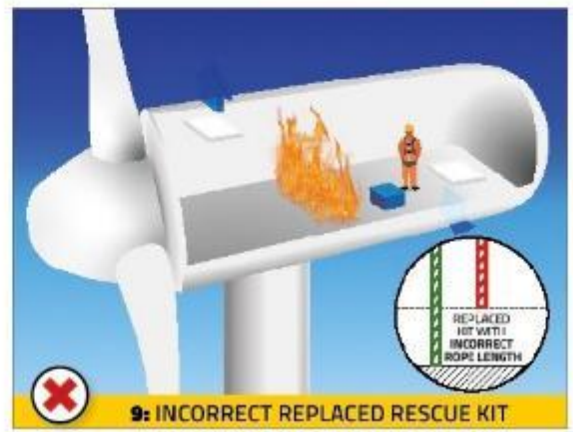
4: TIME CONSUMING

5: SEARCHING FOR RESCUE KIT IN SMOKE

6: FIRE BLOCKING ACCES RESCUE KIT

7: RESCUE KIT NOT FIRE PROOF

8: RESCUE KIT DETERIORATED (STIFF ROPES)

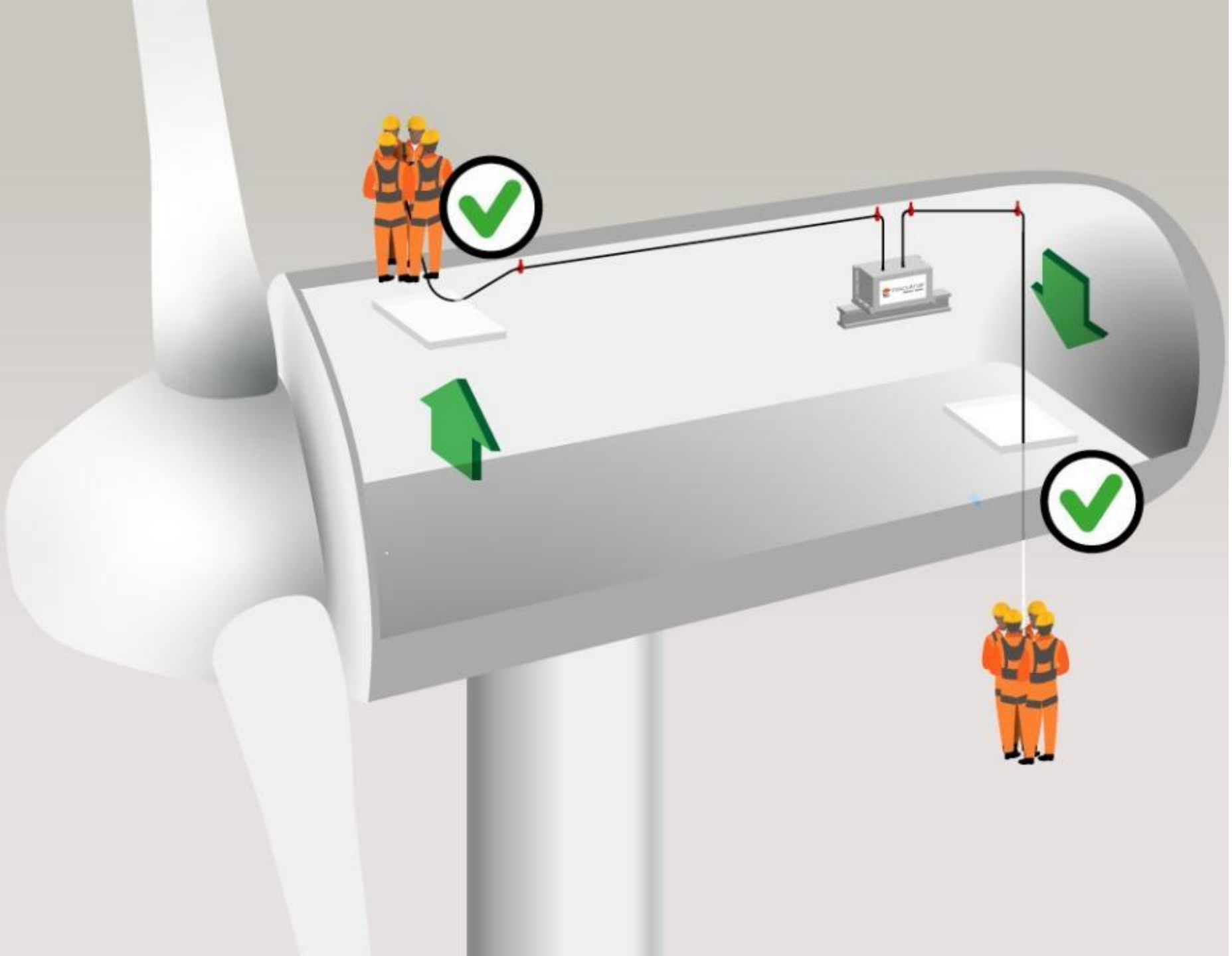


9: INCORRECT REPLACED RESCUE KIT

10: FAILING BRAKE DUE TO WET ROPE

11: GEAR FAILURE FEAR

12: PANIC / ANXIETY ATTACK

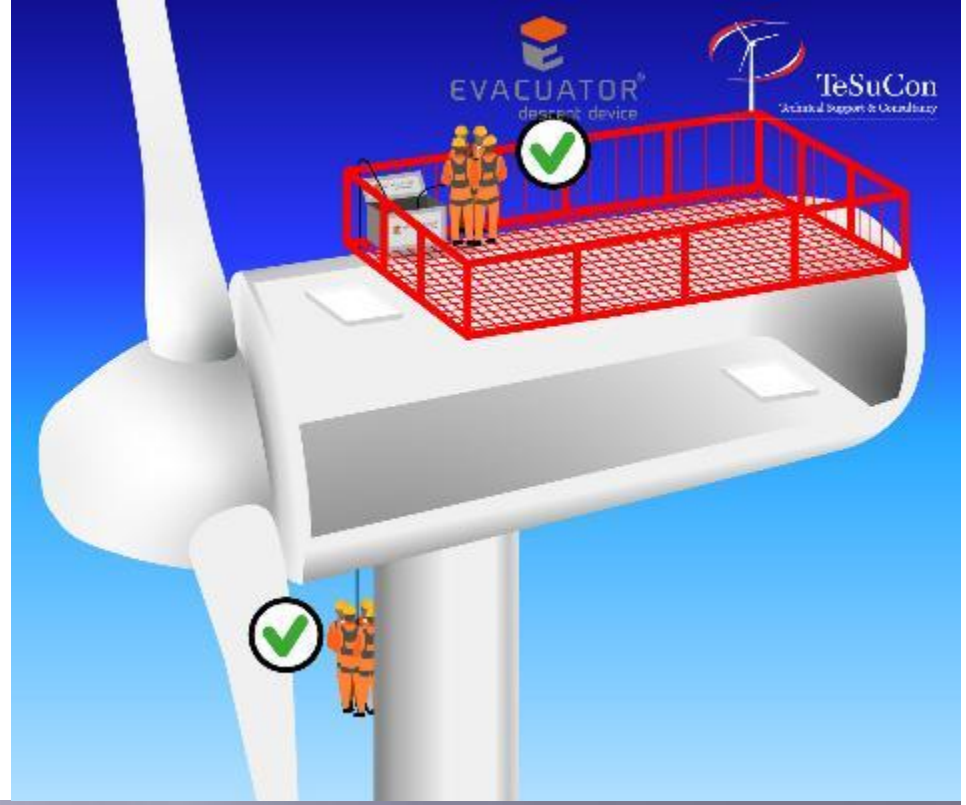


Fireproof

Panic proof

Ready to escape under 10 seconds

Pre-installed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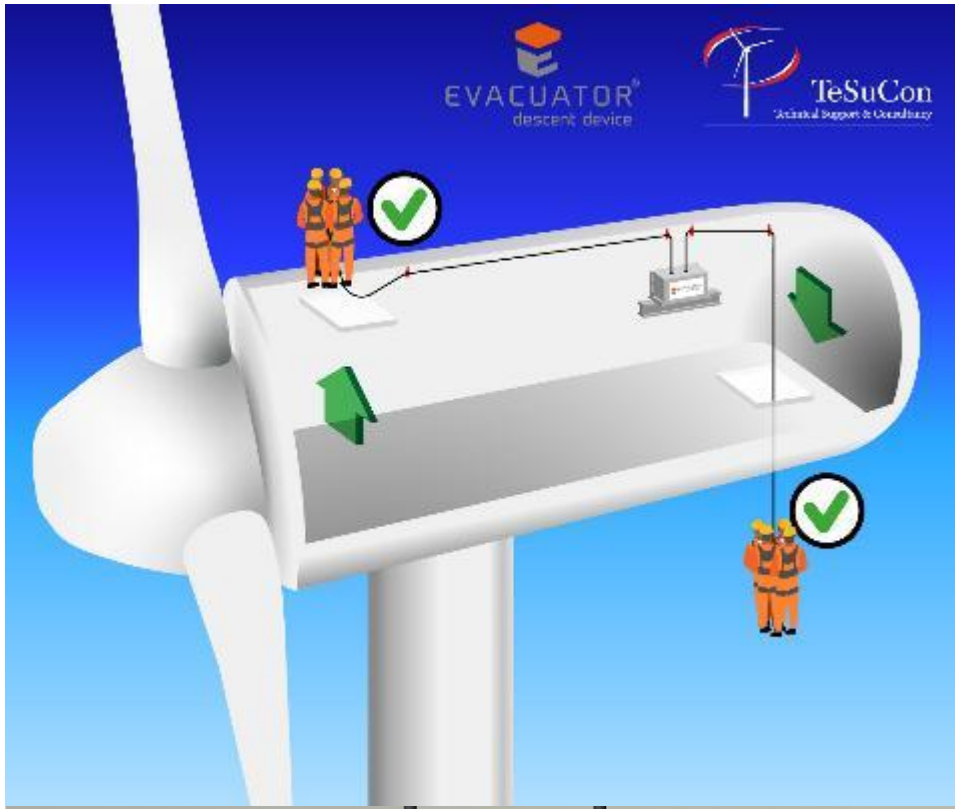
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LARGE WEATHER-PROOF
OUTSIDE INSTALLATION BOX
EVACUATOR
descent device
Dimensions ±1200 x 600 x 600 mm


Evacuator® Model E165
2 Cable-Reel Version
Max. Descent Load 282 Kg Per Cable
Max. Descent Height 165 Metres
CAN BE USED AT THE SAME TIME
EVACUATOR®
descent device
ONLY USE IN CASE OF EMERGENCY

TOP-RUNNER

The Evacuator®

Fireproof upto 1,200°C (90min)

Descent speed approx 1 m/s

Max 282 kg per cable / Max 4 people per cable

Max 564 kg per unit / Max 8 people per unit

Max. 300 meter

Fully automatic, **just click on & go**

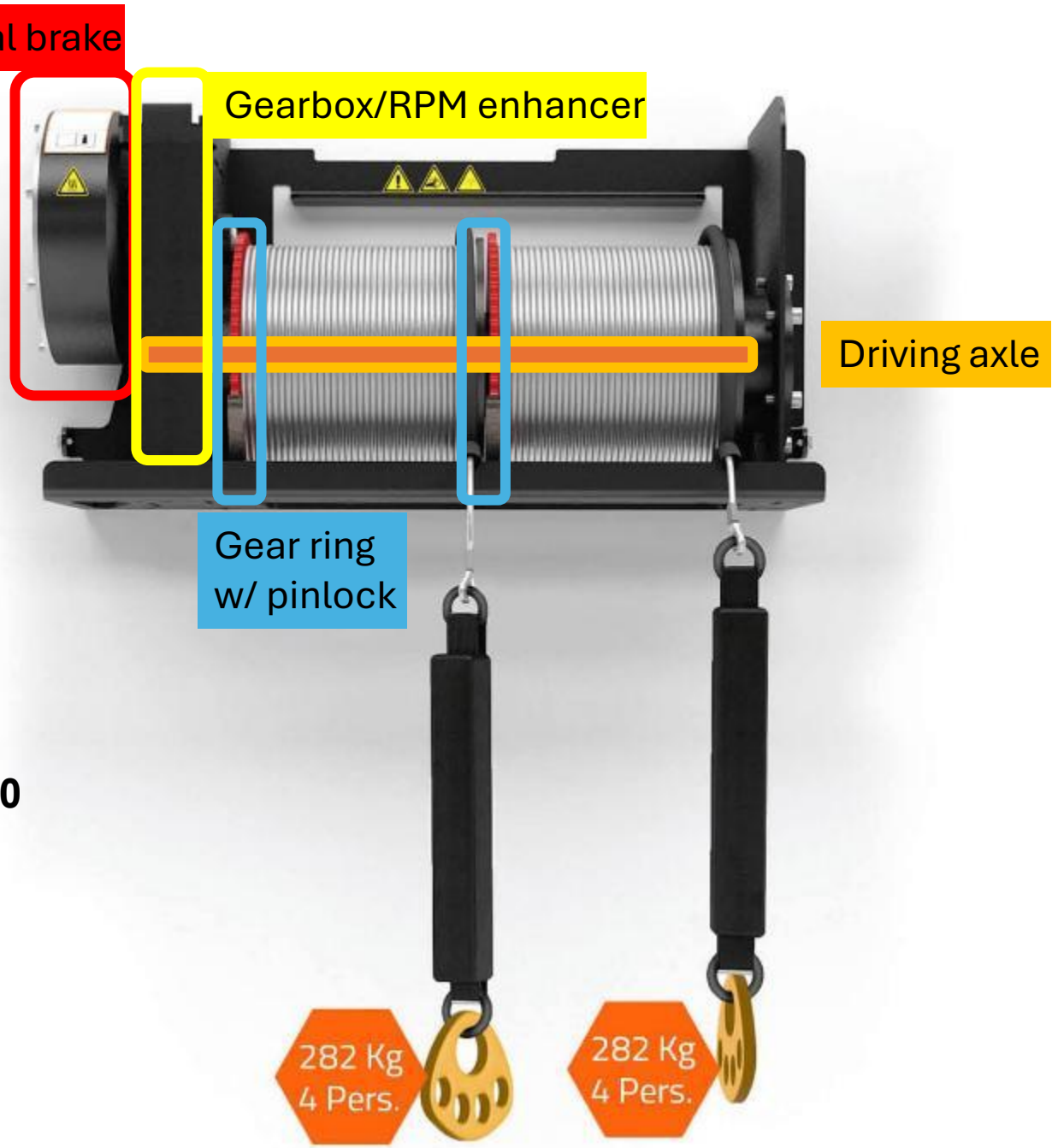
No electricity required, fully mechanical

Maintenance friendly, 15 minutes each year

Life span up to 30 years

DEKRA EN341 certification

In compliance with the **EN50308 and the IEC 61400/30**



Certificates and compliance

DEKRA EN341 certification

Evacuator® brings compliance to:

The official European Safety Standard for wind turbines **EN50308, paragraph 4.2.2**

“The descent device has to be fireproof enough to allow escape from the nacelle to the ground in the event of fire, It shall be suitable for the numbers of persons to be evacuated.”

IEC/TS 61400 – 30: 2023EN → next slide

IEC/TS 61400 – 30: 2023EN

Equipment

the special equipment shall be **permanently located** in the wind turbine near the escape points.

This equipment shall allow the regular number of persons working **simultaneously to escape** in a minimum time.

If additional personnel need to be present in the wind turbine during specific tasks, eg installation, additional equipment for escape can be available through organizational arrangements.

The most relevant scenarios shall be tested:

- Escape from blade…
- ….
- **Set up of equipment and escape from the escape points***

*……..however, the time to descent can be calculated to match the relevant hub height

The equipment can be permanently integrated and shall be protected from the environment and be preserved and maintained

$T_{evacuation/escape}$ is the time between the first person begins to escape and until the last person reaches the place of safety, the time shall be measured **through physical demonstration**.

Maintenance & inspection training

Onsite with our show & event trailer

Friction/rotation testing tool

Calibrated torque wrench with 12 mm adaptor

VpCI, Vapor phase Corrosion inhibitor

Yearly Maintenance & Inspection

15 minutes per year.

- Visual inspection
- Inspection of interface with Evacuator®
- Friction test: 15 Nm on inner axle
- VpCI replacement
- Apply transparent layer corrosion protection

Possibility to extend to every 2 year inspection

- Sealed indicators

Installation process

- Onsite inspection
- Engineering & installation report
- Installation planning
- Customization & installation kits
- Inspection & Maintenance
- Training

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Engineering & installation report

TeSuCon
Technical Support & Consultancy

EVACUATOR INSTALLATION REPORT
NORDEX DELTA 4000

Barneveld, The Netherlands

Report no. EVAC2025014

6-3-2025

Picture 1

The picture shows the place where the Evacuator is mounted. The base frame will be mounted at the U-profile at the left side of the gearbox below the aluminium diamond plate.

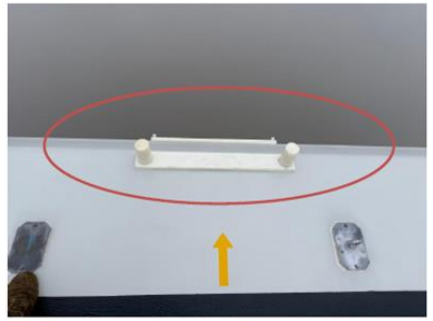
[No Title]

Picture 2

The picture shows the base frame mounted at the U-profile.

Picture 5

At the arrows, certified eye-bolts are installed to handle the loads which will occur when people are descending from the roof hatch.



Picture 6

The picture shows the escape route 1 at the roof. PA6G bars are mounted at the edge to avoid that the steel cable will cut into the polyester nacelle cover during descending. This PA6G bars are mounted with Sikaflex and small bolts.

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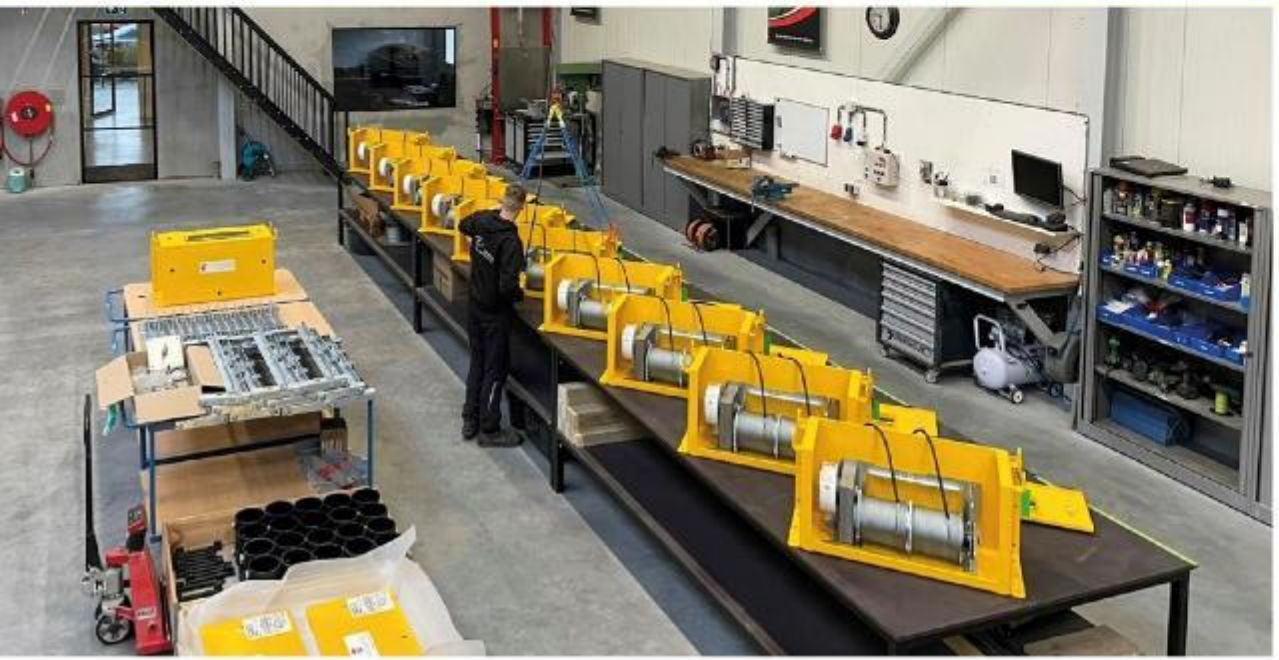

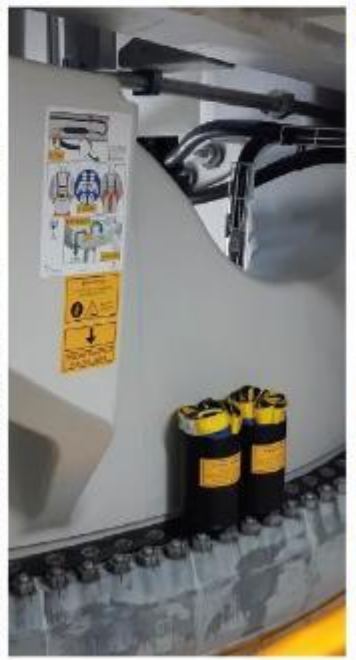

Installation preparation in our workshop

Installation kits

Installation instructions

Installation: 4 hours
2 technicians

Installed by:

- TeSuCon team
- Local partners
- Inhouse service team
  - trained by TeSuCon
  - at your wind farm

References

- More than 400 Evacuators installed worldwide

Germany: ERG full German onshore wind turbine fleet, Parkwind / JERA full Offshore wind turbine fleet

Belgium: Parkwind / JERA full Offshore wind turbine fleet, EDF Luminus full Enercon wind turbine fleet

Netherlands: Eneco, E-connection, WF De Plaet, Zuidenwind wind cooperation, all wind turbines

Australia: several Vestas wind turbine projects

Ireland: Port of Cork, ship to shore cranes

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