

Handling Solutions

Solutions for the Industry Segment Wind Energy

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Solutions for the Entire Production Process in the Field of Rotor Blade Manufacturing

Schmalz develops vacuum lifting devices and load beams that make it possible to reduce the processing times for rotor blade manufacturing. Vacuum lifting devices and load beams can be used throughout the manufacturing process and when performing quality checks on a rotor blade. Our individual vacuum lifting devices guarantee precise handling of rotor blade components within the required tolerances.

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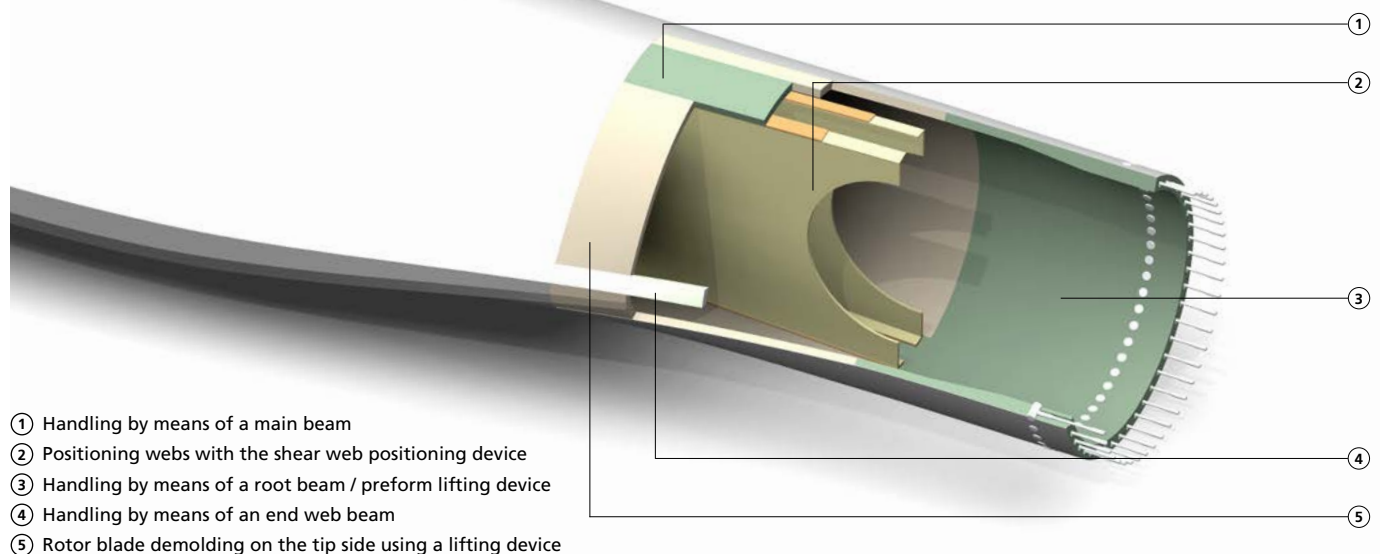


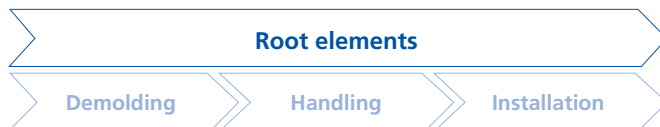
Figure shows the typical structure of a rotor blade on a wind turbine – © Fraunhofer IWES from the Blade Maker project

Vacuum Lifting Devices for Rotor Blade Manufacturing

Root Lifting Device



Application / process step



Your benefits

- Careful demolding of the root elements and ergonomic handling thanks to suction plates adapted to the root area
- Savings on additional material for mounting holes
- No need to trim inside the main mold
- Safe handling due to large vacuum reservoir with non-return valve and additional safety straps
- Optional 90° swivel design for vertical positioning of the root elements
- Optional battery operation allows independent operation e.g. on forklifts

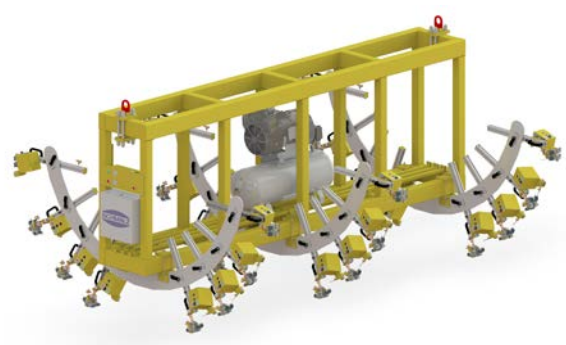
Technical data

Lifting capacity	2 t (demolding force taken into account)
Component weight	Up to 1.3 t
Component length	Up to 4 m

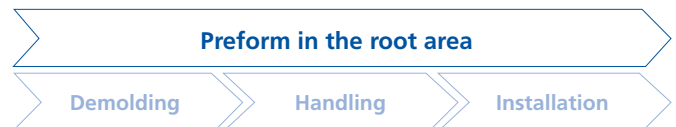


Transporting the root element for installation

Preform Lifting Device



Application / process step



Your benefits

- True-to-contour handling of preform segments
- Needle grippers enable energy-saving and safe handling of multiple layers
- Large puncture depths can be achieved with needle strokes of up to 25 mm
- Less action time needed in the main mold
- Suction-side and pressure-side handling possible

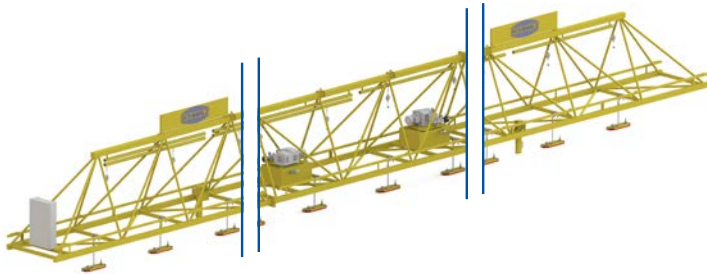
Technical data

Lifting capacity	Up to 1.3 t
Component weight	Up to 1.3 t
Component length	Up to 12 m



Handling of composites by means of a needle gripper

Main Beam



Application / process step



Your benefits

- Handling of main girders, auxiliary girders, main webs and auxiliary webs with one lifting device
- Enables demolding, handling, storing and installing – with or without adapting to the contours
- Simple setup of the suction plates to adapt to the contours when picking up the girders
- Safe handling thanks to redundant vacuum circuits and additional safety straps
- Optional web turning device for horizontal demolding and vertical storage of a web
- Adaptation to different rotor blades is possible
- Individual segment length optimized for standard transport dimensions (up to 12 meters)

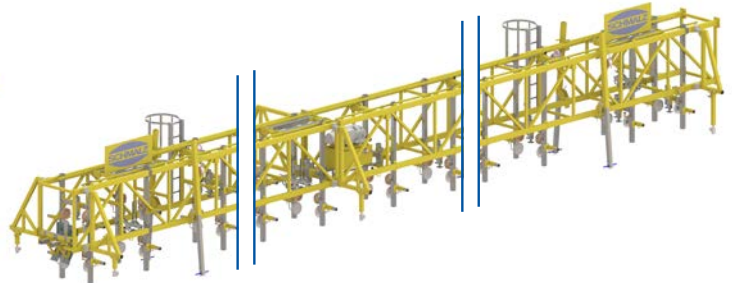
Technical data

Lifting capacity	From 1.5 t to 5 t (demolding force taken into account)
Component weight	From 1 t to 3.5 t (girder); approx. 1.5 t (web)
Component length	Up to 85 m



Handling of the rotor blade segment

Shear Web Positioning Device



Application / process step



Your benefits

- Patented solution for aligning the webs in the shear web positioning device
- Can be used for different webs and bonding flange
- Repeat positioning in the blade shell taking into account parallelism and gap clearances
- Molding the webs via gravity or via hydraulic downward thrust by means of hydraulic molding
- The loss of the presentation frame means that processing times are eliminated and areas are cleared
- Suction-side or pressure-side positioning is possible
- Shear web positioning device including parking feet

Technical data

Lifting capacity	Up to 3 t
Component weight	Up to 1.5 t (main webs)
Component length	Up to 75 m



Aligning and positioning the webs

End Web Lifting Device



Application / process step



Your benefits

- Careful and damage-free demolding of end webs
- Spring-mounted and jointed suction plates for lifting and setting down the load gently
- Large vacuum reservoir with non-return valve for safe handling
- Remote controlled swivelling function for adjusting the demolding and insertion angle
- Precise positioning possible in blade shell or storage
- Lifting device including parking feet

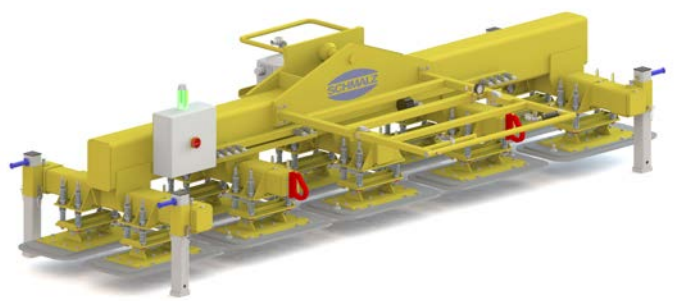
Technical data

Lifting capacity	0.5 t to 1.3 t (demolding force taken into account)
Component weight	0.3 t to 1.0 t
Component length	Up to 33 m
Swivel range	Approx. 110° (+100° to -10°)

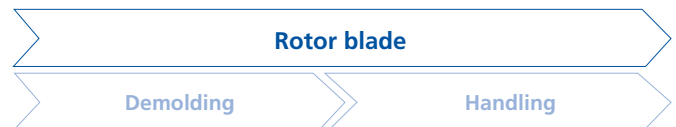


End web beam

Rotor Blade Lifting device



Application / process step



Your benefits

- Time savings on tip-side demolding of the rotor blade
- Careful and damage-free demolding, no need to trim the mold and no edge protection required
- Easy handling thanks to suction plates specially adapted to the rotor blade contour
- High level of safety due to vacuum reservoir and additional safety straps
- Parking feet for storing the lifting device, option of wheels for internal transport

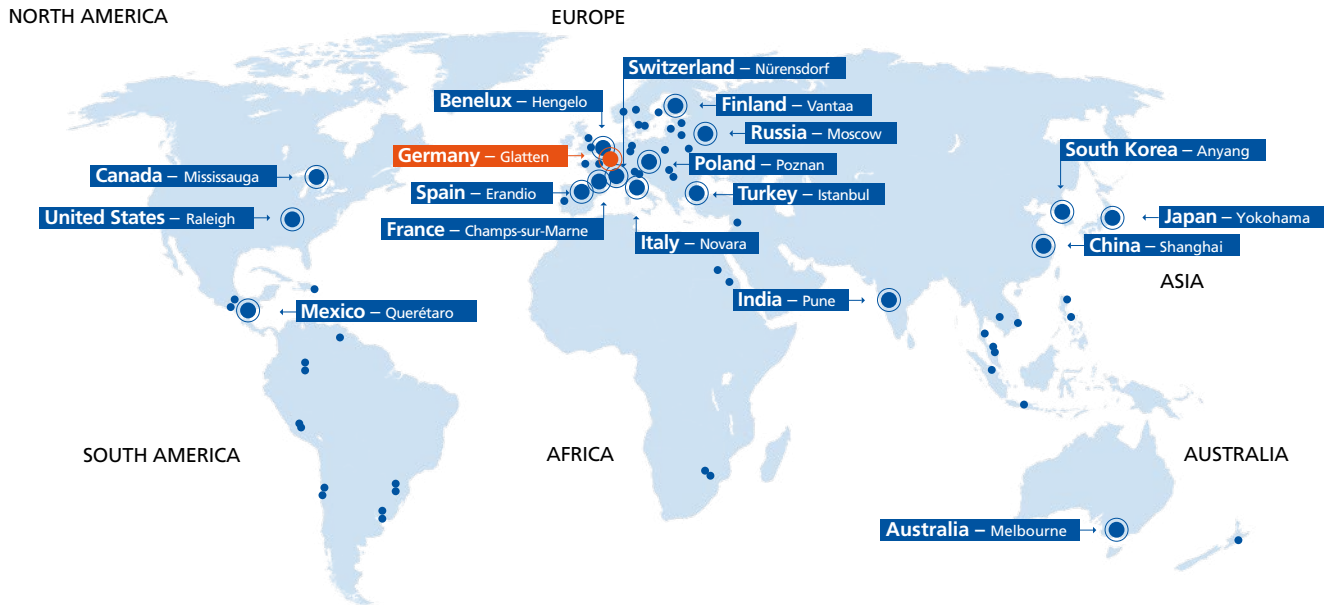
Technical data

Lifting capacity	8 t to 16 t (demolding force / area taken into account)
Component weight	Up to 10 t (in the demolding area on the tip side)
Component length	Up to 85 m
Length	From 3.6 m to 7.2 m
Width	Approx. 2 m



Transporting the rotor blade with demolding beam on the tip side

At your side worldwide



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