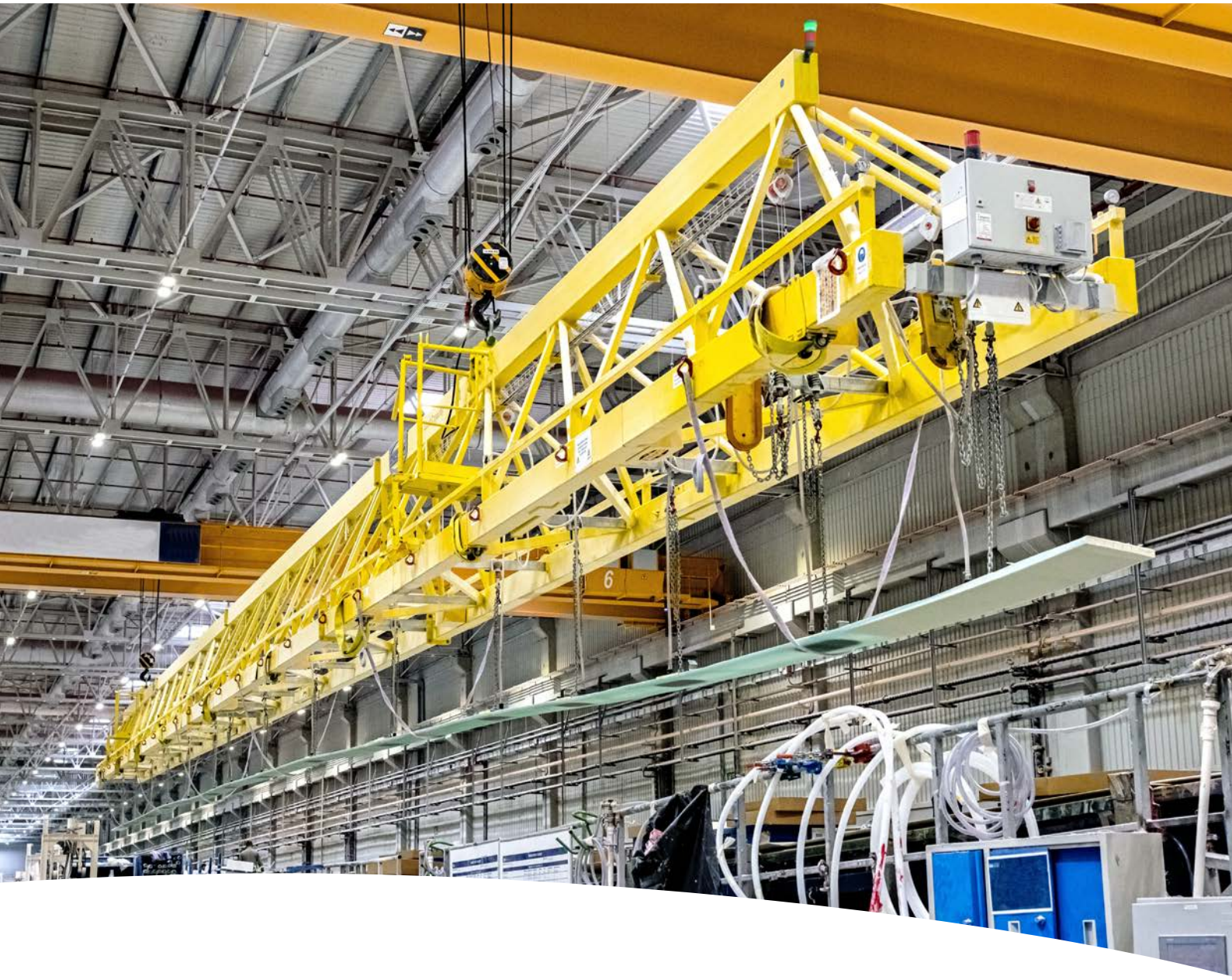

Handling Systems

Solutions for the Wind Energy Industry

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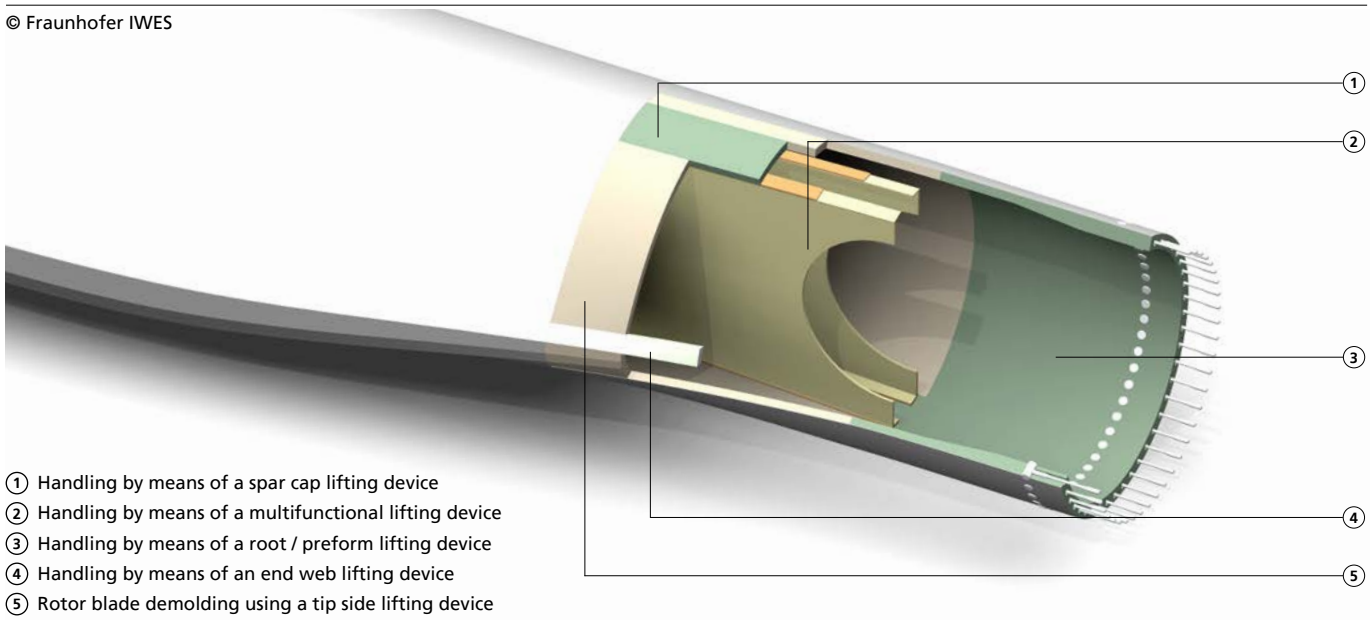
Solutions for the Entire Production Process of Wind Turbine Rotor Blades

Schmalz offers vacuum lifting devices for a wide range of applications throughout the manufacturing process of wind turbine rotor blades. Our vacuum lifting devices are designed to guarantee an easy and precise handling of components and workpieces. Thereby we help our customers to reduce their processing times, ensure repeatability of procedures and support quality inspections on rotor blades.



① Handling by means of a spar cap lifting device
② Handling by means of a multifunctional lifting device
③ Handling by means of a root / preform lifting device
④ Handling by means of an end web lifting device
⑤ Rotor blade demolding using a tip side lifting device

Figure shows the typical structure of a rotor blade for wind turbines – © Fraunhofer IWES Blade Maker project

Vacuum Lifting Devices for Rotor Blade Manufacturing

Root Lifting Device

Application / process step

Root elements

Demolding | Handling | Installation

Your benefits

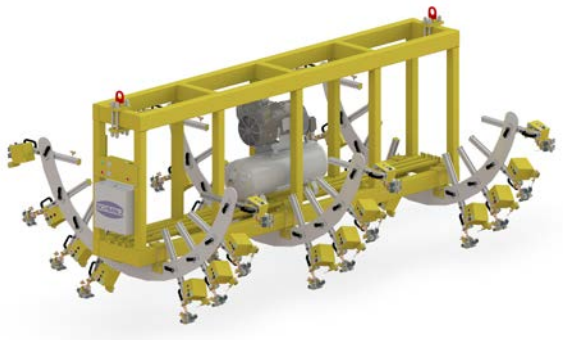
- Careful demolding of the root elements and ergonomic handling thanks to suction plates adapted to the root area
- Saving of additional material for mounting holes
- No need for trimming inside the main mold
- Safe handling due to large vacuum reservoir with non-return valve and additional safety straps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

Technical data

Lift capacity	2 t (demolding force already considered)
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

Preform in the root area

Demolding | Handling | Installation

Your benefits

- True-to-contour handling of preform segments
- Needle grippers enable energy-saving and safe handling of multiple layers of glass or carbon fibers
- Reliable handling with needle strokes of up to 25 mm
- Less occupation time in the main mold
- Handling of both suction side and pressure side parts

Technical data

Lift capacity	Up to 3 t
Component weight	Up to 3 t
Component length	Up to 15 m

Handling of composites by means of needle grippers

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Multifunctional Traverse

Application / process step

Your benefits

- Handling of different spar caps, webs and carbon pultrusion profiles with one lifting device
- Multipurpose use for demolding, handling, storing and placement – with or without adapting to the contours
- Simple adjustment of the suction plates to adapt to the contour of the caps
- Safe handling thanks to redundant vacuum circuits and additional safety belts
- Optional web turning functionality for horizontal demolding and vertical storage placement of a web
- Modular design allows subsequent modifications
- Individual segment length optimized for standard transport dimensions (up to 12 meters)

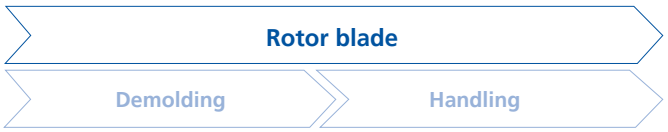
Technical data

Lift capacity	7 t (Onshore) / 10 t (Offshore)
Component length	Up to 95 m (Onshore) / 131 m (Offshore)

Handling of spar caps

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 for trimming and no edge protection required
- Excellent alignment to the blade shape due to highly adaptive suction plates
- High level of safety due to vacuum reservoir and additional safety belt
- Parking feet for storing the lifting device, optional wheels for internal transport

Technical data

Lift capacity	8 t to 20 t
Component weight	Up to 40 t
Length	From 4.6 m to 11.1 m
Width	1.0 m

Transporting the rotor blade with demolding device on the tip side

Accessories and Automation

Work and Process Safety

Two-way redundant vacuum circuit

Integrated safety belts

Bottom support stands

Customized radio remote control

Gripping and Moving

CE certified clamps for pultruded profiles

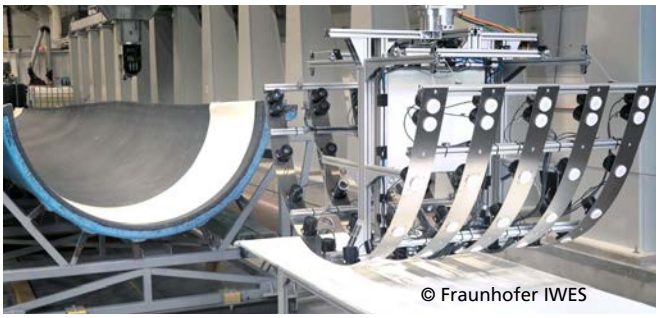
Web swiveling by rigid actuators

Web swiveling by belts (electrical / manual)

Centering and parking accessories

Contouring and Positioning

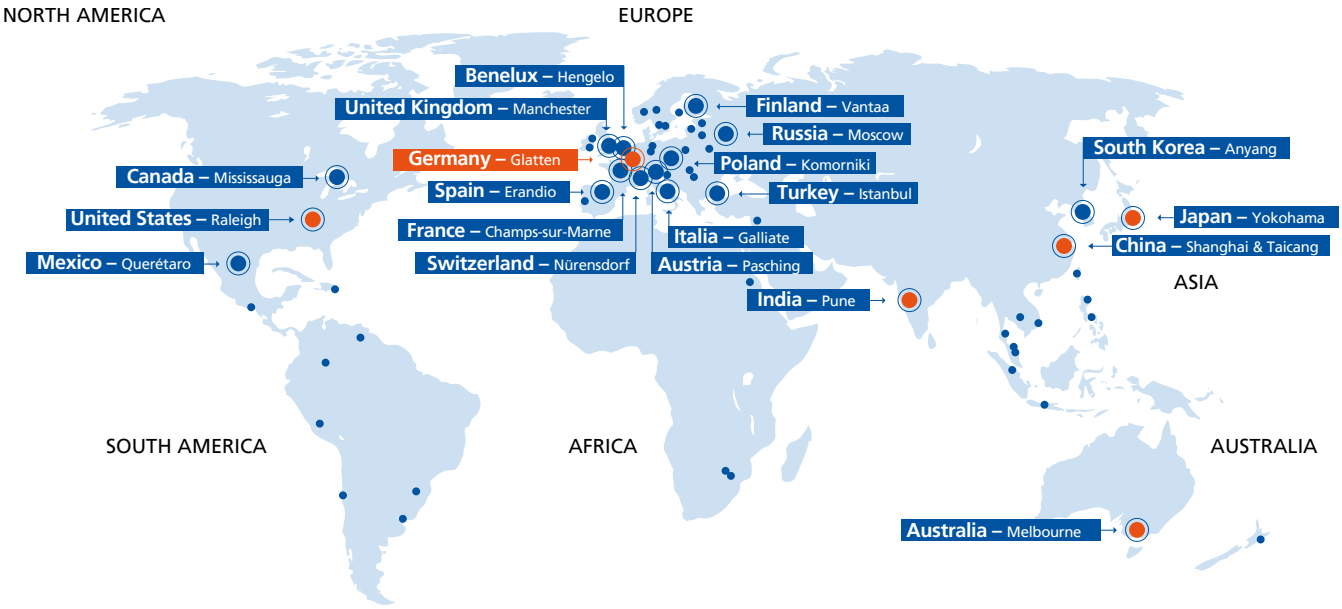
Semi-automated dry glass fibre handling



Flexible and adaptive framework design for contouring

Extensive gripper portfolio for automated handling

At your service worldwide



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