



wind turbine blade adapter.

wind turbine blade adapter.

TILTING THE ODDS

A transport system for wind turbine blades

Construction sites at high elevations, tight corners and alpine terrain with steep inclines require lots of time and make transporting rotor blades difficult. Furthermore, conventional transport demands high investments in the expansion of the road infrastructure.

These challenges can now be mastered much more efficiently thanks to wind turbine blade adapters. This special device allows wind turbine blades to be raised from a horizontal position by up to 70 degrees and swivelled by +/- 110 degrees in a continuously variable way using a wireless remote control unit. Thanks to this hitherto unmatched positioning capability, one can negotiate even the tightest corners.

Special couplings allow mounting on THP axles that are commonly used for heavy haulage. But also so-called self propelled modular transporters (SPMTs) can be used as transport vehicles. Thus, even the steepest inclines can be tackled with wind turbine blades weighing up to 25 tons.

A counter weight delivers additional flexibility depending on the respective blade rotation and tilt. It can be hydraulically shifted on the shifting table using the wireless remote control and thus guarantees the transport vehicle's optimal stability.

Technical data

Max. wind turbine blade weight:	approx. 25,000 kg
Maximum rotation angle of the wind turbine blade:	+ / -110°
Maximum tilt angle of the wind turbine blade / tilt angle of the wind turbine blade during unloaded drive:	up to 60° / 70° (for reduced driving height)
Net weight of wind turbine blade adapter + counter weight + quick coupler (adapted to wind turbine blades):	approx. 23,100 kg + 27,000 kg + approx. 4,000 kg Approx. total weight: 54,100 kg
Dimensions of the wind turbine blade adapter (L x D x H):	approx. 3,320 mm x 2,980 mm x 4,350 mm
Operating temperature:	- 20 °C to + 40 °C
The wind turbine blade adapter can be coupled to the following vehicles:	SPMT Split THP/ST



Safety installations

Roll and pitch sensor:

The wind turbine blade adapter is equipped with roll and pitch sensors that measure the roll and pitch of the vehicle combination. The roll is being displayed on the wireless remote control unit to allow the operator to take appropriate action.

Tilt and rotation angle sensor:

The tilt and the rotation angle of the wind turbine blade are also displayed on the wireless remote control unit.

Wind speed measuring device:

The scope of delivery includes a wind speed measuring device (cable length 70m). To operate it, the measuring device must be attached to the wind turbine blade's tip. The measuring device measures the current wind speed. The wind speed is displayed on the wireless remote control's display. Should the wind speed exceed the set limit values, a buzzer on the remote control is triggered and the remote will start vibrating. Furthermore, a warning symbol on the display and a horn will notify the operator.



Pressure sensors in the support system:

The support pressures for each vehicle side are being displayed on the remote control's display. The pressures are being monitored on the basis of a parametrised limit. Should this limit be exceeded, a visual and acoustic signal is being triggered.

Position sensors counter weight:

Sensors measure the position of the counter weight.

Wireless remote control unit:

With the functions lift, lower and rotate wind turbine blade, diagonally and longitudinally shift counter weight as well as an integrated support pressure display, the wireless remote control unit is equipped with sensible features. Additionally, the remote control unit can be used for the display of I/OA data and for parametrising.

Counter weight:

The counter weight can be shifted along the X axis ($\pm 1,500\text{mm}$) and the Y axis ($\pm 400\text{mm}$) by means of the shifting table. The shifting procedure is performed hydraulically by manual activation of the shifting function on the wireless remote control unit. Shifting the counter weight increases stability. The different counter weight positions result from the stability calculation, depending on blade type and wind turbine blade tilt and wind turbine blade angle, respectively.

