

Linear drives from Grob are in increasing demand for offshore wind turbines

Have you ever wondered how much the giant nacelle of an offshore wind turbine weighs? It's well over 200 tonnes, equivalent to the weight of 6 fully loaded articulated lorries that you encounter every day on the motorway – or the dimension of a detached house.

Such nacelles, which sit on the top of the wind turbine tower, are manufactured by Adwen GmbH in Bremerhaven. You're probably asking yourself why the nacelle is so heavy. It contains the wind turbine's gigantic machine set, which is: a huge gearbox, a drive shaft, the gear ring and the generator, which generates the desired electricity.

Every time a nacelle is finished, it must be tested and then lifted onto a special heavy-duty vehicle, which then brings the nacelle to the base harbour of the offshore wind farm. You can well imagine that such gigantic masses cannot be moved with normal hoists; instead, a special solution is required. And that looks like this:

The solution: One PLC, a great deal of tact and four powerful linear drives move these giants

To this end, Adwen GmbH developed an enormous transport frame that is raised by four Grob linear drives.

The nacelle thus sits on this frame and is set down after manufacturing on the floor of the assembly hall, where the final inspection takes place. After the final inspection the transport frame is raised to the height of the loading surface of a special heavy-haulage vehicle. And from there the nacelle is lifted onto the special heavy-haulage vehicle.



Enormous! The dimension of the gondola!



Huge: The transport rack!

The maximum stroke of the linear drives is 1,350 mm. So that the transport frame with the nacelle is raised or lowered evenly and without jolts, a very slow stroke speed was chosen: the actual driving time for a full stroke is around 17 minutes.

This sophisticated linear drive technology ensures the effortless movement of this gigantic transport frame

Four powerful linear drives from the MC series with the type designation MC 150 ensure that this enormous weight is moved very easily. Each of these linear drives is driven by its own electric motor and can accept a static load of 150 tonnes. The four spindles are constantly monitored – like this:

1. In each linear drive is a load cell that measures the actual load.
2. A rotary encoder detects the precise position of the lifting spindle.

All measured signals are displayed on the control panel and processed in the modern PLC. This ensures the synchronous running of the four linear drives in the system and prevents incorrectly loading and overloading of the spindles. Even differences in the geometry of the transport frame can be compensated and adjusted by the modern controller.



Alle Mess-Signale am Bedienertableau

How we can help you

Would you like to know more about further application cases? Do you already have a specific application? Our pleasure – just send us an email describing your application to: info@grob-antriebstechnik.de or call us directly on +49-(0)7261/92630



Hubgetriebe der MC-Serie können statische Lasten von 5 – 200 Tonnen aufnehmen. Typische Einsatzfälle sind: Papiermaschinen, Lager- und Transporttechnik, Schiffsbau, Gepäck- und Förderanlagen, Getränkeabfüllanlagen, Ölplattformen, Bühnentechnik ...