

Ideally positioned for the future



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The RBC-D50 rotor blade yoke from ematec is in use worldwide



PES WIND

With safety, efficiency and cost-effectiveness among the driving factors for wind turbine manufacturers, there is currently a big rush on high-end yokes. Something that ematec is well placed to help with. By taking customer feedback on board, the German supplier is enjoying full order books as it celebrates its 25th year in business. Why are the solutions offered by the lifting equipment supplier for the single-blade assembly of rotor blades currently in greater demand than ever?

'Since Windenergy in Hamburg in September 2022, a real rush has broken out,' begins Manfred Eberhard, CEO of ematec AG. 'Major wind turbine manufacturers want to complete their new installations with ematec's high-end yokes worldwide and have discovered the RBC-D50 greenline as the ideal yoke for the service and maintenance of wind turbines.'

Julian Eberhard, design manager at ematec, adds, 'Our RBC-D is the only lifting yoke suitable for dismantling all rotor blades on the market. The decisive factor, of course, is the automatic stabilization of the complete unit up to a tilt angle of 30 degrees.'

Always in the centre of gravity

For safe handling of the rotor blade, the RBC-D always finds the exact centre of gravity individually. Two counterweights on the two crosshead wings automatically adjust to the centre of gravity, with and without the rotor blade. This means that even when the blade is released from the hub, there are no uncontrolled movements that could damage the blade or jeopardize the handling process. Due to the round arc on the crosshead, the RBC-D always remains perfectly in the centre of gravity, even when tilting up to 30 degrees. The same applies when pitching the blade up to a maximum of 8 degrees. This eliminates any uncontrolled movement of the unit when tilting or pitching.

Always on the safe side

'This gives the operator the advantage that the rotor blades are always held securely, even if they are not 100% slung at the center of gravity. With other yokes, uncontrolled movements could occur in such a case. Because the double variant of the RBC-D is equipped with telescopic grippers at the bottom and top, the rotor blades are held firmly in the clamp grip even at inclinations of up to 30 degrees so that they cannot slip,' explains Julian.

The all-round solution for service

Since the RBC-D automatically adjusts individually to all rotor blades thanks to adaptive blade holding, it is considered an all-round solution for safe blade handling. Up to a weight of 50 tons and a length of between



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Manfred Eberhard

45 and 110 meters, the RBC-D can handle all blade types. 'This offers our customers the greatest possible freedom and enormous savings potential. They can dismantle and maintain old blades with a single crossbeam, and also install the latest generation of rotor blades. This saves time and money, as they only need a single crosshead.'

Great savings potential

This also convinces the controllers, as Manfred Eberhard explains. 'It's no secret that our yokes are in the high-price segment internationally. However, you must consider the life cycle costs when making an investment decision. And here, our yokes are designed not just for one or at most two blade generations, but for a service life of 20 years or even beyond.' Other yokes are limited to specific blades, and either have to be extensively retrofitted or completely replaced for new blade generations.

Ready for use in no time

In practice, the ematec yokes score with unrivaled efficiency. On the construction site, the RBC yokes are ready for use faster than any others, as they automatically move into their operating position and the attachment to the rotor blade also takes place in record time. The RBC yokes need less than 15 minutes for these two steps.



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Julian Eberhard

Already fully booked

Demand for ematec technology is so high that the specialist supplier is already fully booked in production until 2024 and has orders for 2025. Enercon alone, the largest German manufacturer of wind turbines, is ensuring excellent capacity utilization. It is already using 14 RBC-D yokes from ematec and has ordered six more, which will be delivered over the coming months.

As expected, ematec is continuously developing its yokes. With the current RBC-D, there is now the RBC-D50.1 variant, which is half a ton lighter than the RBC-D50. 'We have also increased the serviceability of the yoke, as there is now only one central hydraulic tank for the units,' says Julian. The radio remote control also received an upgrade: a new, 5.5-inch colour display.

RBC: upgrade for purely horizontal mounts

How close Julian Eberhard and the developers at ematec listen to the professionals from the field is shown by the innovation based on feedback from Windenergy 2022 in Hamburg. 'Some users requested a horizontally adjustable upper jaw to optimize blade-protecting attachment even with purely horizontal installations. We are now implementing this accordingly and thus closing a gap between the RBC and



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RBC-D,' comments Julian. The 'D' in RBC-D stands for 'double' and means that the upper one is equipped with fourteen hydraulically moved and cardanically mounted grip pads in addition to the lower telescopic gripper. In the previous RBC from ematec, the upper gripping jaw was rigid and not movable.

Well positioned

ematec AG sees itself in an excellent position for the future. 'The 2022 financial year was the most successful in the company's history, and we were able to celebrate not only the 25th anniversary but also the 10th anniversary in the wind power industry. It is really great that we have been able to evolve to the technology and innovation leader for

lifting equipment for the installation of rotor blades during this time. The full-order books are an excellent template for further development. We can see that our innovative ideas are being received and appreciated by experts worldwide. This is what matters. After all, we want to make the single-blade installation of rotor blades as safe and efficient as possible,' says ematec Manfred Eberhard.

High vertical range of manufacture

One secret of ematec's success lies in the company's high vertical range of manufacture. 'We make sure that, as far as possible, we manufacture all components ourselves. This way, we can be sure that our

machines and systems meet the highest quality standards, and, in addition, we are not as dependent on the ability of upstream suppliers to deliver,' explains Julian.

In order to be able to assemble completely self-sufficiently, ematec established its electrical department last year. A few months ago, the company also invested over one million euros in a new six-axis machining center for milling. 'Only for sheet metal cutting and surface treatment do we still rely on external service providers; everything else is done in-house.'

About the RBC-D crossheads from ematec

The Green Line variants of the RBC yokes are powered by high-performance rechargeable batteries designed for a working time of 16 hours at temperatures as low as -20 degrees Celsius. The battery operation is double redundant. Thanks to ematec's Green Line technology, wind turbine manufacturers bypass the more stringent Euro 5 and USA EPA Tier 4 final emissions regulations that have applied to combustion engines since January 1, 2019. In addition, ematec has deliberately kept the electric motor below 48 volts, which means it can also be used in the USA without any problems and meets the requirements of Underwriters Laboratories (UL).

With a slope height of just about 3.5 meters, the RBC series makes crane management much easier. Particularly with regard to the ever-increasing hub heights of wind turbines, this is a major advantage in practice, as it can prevent price jumps for another crane class in some projects.



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Proven in practice: wind turbine manufacturer Enercon relies on the yokes of the RBC series

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