CASE STUDY

masosine Process Pumps

# Sine pumps optimise high viscosity resin delivery at Enercon

- **MasoSine pumps prove ideal for high viscosity impregnation resin**
- **Continuous cooling system prevents resin gelling**

**One of the world's largest wind turbine manufacturers, Enercon, is using MasoSine sinusoidal pumps to optimise the delivery of protective impregnating resin at its Magdeburg production facility in Germany.**

## Ring generators

Among the core wind turbine components produced at Magdeburg is the ring generator, which during operation is exposed to particularly high stresses.

By performing impregnation, several objectives are achieved. Firstly, the windings of the generator are protected against humidity, dirt and chemically aggressive substances. Secondly, a potentially disturbing hum from the wind turbine is prevented and any resulting heat can be better directed to the environment.

Two MasoSine SPS 400 sine pumps are deployed, each delivering approximately 40,000 litre/hour of (15,000 mPas) impregnating resin at a pumping pressure of around 4 bar (58psi), to coat the copper windings of the ring generator.

## Innovative design

MasoSine sine pumps are particularly suitable for use with high viscosity fluids. The impregnating resin is first pumped from a reservoir through a pre-filter before it is directed to the dipping tank. Since the formation of small lumps in the resin can never be ruled out (despite using a pre-filter), the pumps must also be capable of transferring larger particles without sustaining damage.

## Continuous cooling prevents gelling

The impregnating resin used at Enercon has proved to be an extremely problematic fluid to pump. Without a cooling system, the resin naturally begins to gel quickly, which particularly with high rotational pump speeds can lead to clogging, especially of the shaft seal.

Thanks to intensive co-operation between Enercon's Magdeburg plant and MasoSine, these initial difficulties were quickly resolved and both pumps were retrofitted with a continuous cooling system that delivers coolant from heat exchangers through the pump housing and front cover. The cooling system ensures that a certain temperature is maintained on the mechanical seal, and gelling of the resin as well as clogging of the seal is prevented.

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