

CUSTOM COOLING SYSTEM

WIND TURBINES

PROBLEM

A Korean wind turbine manufacturer needed a compact solution to cool the generator and converter inside its 4 MW turbines. High temperatures inside turbine nacelles can negatively impact the turbine component performance over time.

Svendborg Brakes' engineers traveled to Korea to meet with the OEM's engineering team and design a custom cooling system that met the specific 4 MW turbine requirements. The free-standing Svendborg Brakes cooling system, including a pump, motor and valve manifold, pumps coolant through the generator, converter and heat exchanger positioned on top of the nacelle. The system creates a constant, controlled temperature inside the nacelle to ensure optimum turbine operation.

SOLUTION

The customer liked that Svendborg Brakes is a well-recognized, approved supplier of braking systems for the wind turbine industry. This saved a long, time-consuming approval process typically associated with a new, unproven supplier.

The custom cooling system features automatic air venting, a thermostatic valve and an expansion vessel to compensate for thermal expansion and pressure pulses. A heater for startup temperatures below 5°C and pressure relief valves to protect the system, generator and converter are also included. The use of a valve manifold significantly reduces the risk of oil leakage. Traceable test reports for all system components are also supplied.

The system's compact footprint fits within the tight space available while allowing easy access to the system's components. Based on the successful integration, the OEM plans to incorporate Svendborg Brake cooling systems on other size wind turbines in its line.



HIGHLIGHTS

- Complete system
- Compact design
- Automatic air venting
- Thermostatic valve
- Pressure relief valves to protect the system, generator and converter
- Valve manifold reduces the risk of oil leakage
- Heater for startup temperatures below 5°C
- Traceable test reports for all system components

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