



CUSTOMER

Northern Power Systems, Vermont, USA

BACKGROUND

Northern Power Systems is an engineering oriented company that has been solving difficult power generation system problems since 1974.

Their technology lab is engaged in the development of wind turbine systems for harsh environments such as the severe cold temperatures in Alaska and the Antarctic.

APPLICATION

The company's NorthWind 100 TM wind turbine was first tested in Alaska. The turbine has a rated output of 100 kW with a rotor diameter of 19.1m (62.7ft) and a rotating inertia of 20,000 kgm².

Operational wind speed is 4-25 m/s (9-56 mph) and the unit can survive a wind speed of 70 m/s (156 mph). At wind speeds higher than 25 m/s (56 mph), the rotor is stopped and held by Dellner SKP 95-27 spring applied, hydraulic released disc brakes operating on a $\varnothing 1,150$ mm (45.3 in) brake disc.

The 115 bar (1,668 psi) of hydraulic release pressure is provided by a Dellner hydraulic power pack (HPP) equipped with an electrical heater so it can operate at extreme temperatures of -46 °C (-50 °F).

The power pack also contains a soft braking function that reduces the stress on the rotating parts when the brake is applied.