

The importance of Accumulators in Wind Turbines

Hydraulics are commonly utilised to control the yaw, pitch and braking systems on modern wind turbines. Accumulators are typically used along with hydraulic power units to feather the blade pitch. Accumulators also serve as an auxiliary power storage device to quickly and safely rotate the blade to a null position in extreme wind conditions.

More importantly, in the case of an electrical power failure, accumulators are used as the energy source to activate the brake calipers of both the high-speed shaft and yaw-brake systems. The brake force holding time required can be as long as several days which means the accumulators must have enough pre-charged gas pressure beforehand to ensure the turbine is held under control. It is therefore a critical maintenance issue that all accumulators have the correct nitrogen gas pre-charge pressure at all times.

Wind turbines commonly use piston type accumulators because of their smaller footprint and high pressure performance. Piston accumulators are commonly fitted with Minimesse charging valves due to their high pressure capability, leak free design and safe ease of use.

Hydrotechnik have developed a range of nitrogen gas charging and testing kits specifically for the wind generation markets. The kit utilises their leak free Minimesse gas charging valves. The kits have adaptors to suit almost all modern accumulator designs even when Minimesse is not fitted as standard to the accumulator.