Components, Systems and Service for Wind Turbines.
Your Professional Partner for Wind Turbines.

With over 7,500 employees worldwide, HYDAC is one of the leading suppliers of fluid technology, hydraulic and electronic equipment.

We help our customers develop wind energy systems from concept to completion. Our knowledge and application experience are your assets.

HYDAC products can be found in thousands of wind turbines worldwide: Complete systems and filtration concepts for lubrication and hydraulics as well as cooling systems for gear oils and generators.

Global yet local.

With over 45 overseas subsidiaries, and more than 500 sales and service partners, HYDAC is your reliable partner worldwide.

System solutions. One supplier. One contact.

Wherever you need us, we are there to help you find the most effective solution.

For every application – from components to a complete system.

Worldwide specifications and approvals.

HYDAC Headquarters in Sulzbach/Saar
We take care of:

- Condition monitoring of oil cleanliness and oil ageing in hydraulic and lubrication oils
- Electronic measurement of pressure, temperature, position and flow rate
- Cooling and filter systems for wind turbines
- Measures to extend service life and optimize operational safety through high-quality filtration systems
- Hydraulic systems and components for safety and yaw brakes
- Pitch control
- In-plant technology: Test rigs / test room equipment for gearbox, rotor bearing, cylinders, accumulators ...
- Secure and gentle mounting of cables

Fluid Condition Monitoring

Sensors for permanent measurement of oil cleanliness class, wear particles, water saturation level and oil ageing in hydraulic systems. By monitoring the gearbox and bearing lubrication, wear and tear can be detected at an early stage and damage can be avoided.

HYDAC Measuring Technology

HYDAC offers sensors for measuring
- Pressure
- Temperature
- Position
- Flow
- Filter contamination and Fluid level.

[Images of various sensors and equipment.]
Cooling and Filter Systems

System advice and design
(also for extreme climate zones, CCV and HCV)
Gearbox lubrication
Gearbox cooling
Generator cooling
Combined cooling of the gearbox and generator
Inverter cooling

Gear oil is cooled using a plate heat exchanger, which is supplied with a water / glycol mixture also used to cool the generator. Heat is then dissipated via a heat exchanger.

Filtration

Many years’ experience in gear oil and hydraulic oil filtration in wind turbines. In compliance with wind power standard AGMA 6006 we develop optimized systems for:
Main filter (integrated in the lubrication system)
Offline filters
Breather filters and dryers

Filter block solution
Stat-Free-Elements® to prevent static charging
Optimized filter elements (e.g. BN4400) also with Quality Protection to protect against product piracy
Accumulators of all types for:
- Pulsation damping
- Energy storage
- Energy storage for emergency functions
- Remote monitoring

Hydraulic Systems and Components

System advice and system design
- Pitch control
- Brake functions:
  - Safety brake
  - Yaw brake
- Yaw adjustment
- Nacelle hood
- Locking cylinder

Lubrication unit for main bearing

Bladder and diaphragm accumulator in a hydraulic power unit for braking and lubrication systems:
- Pulsation damping
- Energy storage

Energy efficient compact power unit to actuate the rotor lock

HY-ROFLEX for mounting cables

Accessories
For the completion of hydraulic systems
Mounting elements for components and lines, particularly the cabling in the tower

Drain valve for gearbox

Mounting of plate heat exchangers

HY-ROFLEX for mounting cables

Fluid level gauges and fluid level sensors

Dry sump oil supply

HPU Brake Control
Hydraulic braking unit

Hydraulic brake supply and gear lubrication
**Pitch Control**

- Cylinder for pitch adjustment
  - with integrated linear position system, subplate-mounted control block with control valve and piston accumulator for emergency function

- Central pitch system power unit
  - with hydraulic accumulators and double cylinders
  - Energy storage as emergency function
  - **Types:** Bladder accumulators
    - 2 x SB330-10 litres
    - 1 x SB330-2.5 litres

- Hydraulic cylinder
  - for pitch adjustment
  - **Hydraulic seals:** low friction seal system
  - **Coating:** seawater resistant
  - **Damping of the end position:** self-adjusting

- Lubrication oil supply for gear test rig
  - Tank volume: 2,000 l
  - Power: 2 x 11 kW
  - Flow rate: 2 x 300 l/min
  - Operating pressure: max. 12 bar
  - Medium: gear oil VG 320

- Rotor bearing flushing and testing unit

**In-Plant Technology: Test Rigs / Test Room Equipment**

- Filter transfer unit
  - for filling and cleaning hydraulic and lubrication systems, including particle counter and heater

- Cylinder testing & flushing unit

- Test rig for low temperature testing, e.g. water glycol systems and oil supply

- Filter transfer unit
  - for filling and cleaning hydraulic and lubrication systems, including particle counter and heater

- Cylinder testing & flushing unit

- Rotor bearing flushing and testing unit

- Test room equipment

- Rotation test rig for components, e.g. bladder and piston accumulators
HYDAC does not just manufacture components but combines these together expertly to produce specific complete systems. Tried and tested technology, high quality standards and detailed testing procedures guarantee the performance capability of HYDAC system solutions.

As a systems and fluid service specialist, HYDAC SERVICENTER can provide individual packages: from cleaning to complete maintenance packages and action plans for system optimization. Our aim is to increase machine availability, reduce system failures and to increase productivity.