Bladder Accumulator Solutions for Wind Power

Sustained performance to meet the world's renewable energy needs

Parker

ENGINEERING YOUR SUCCESS.

Harness the wind's power with greater uptime and performance

Parker understands the importance of keeping your wind farm assets online longer. Our precision-engineered accumulators, bladders, and related equipment are engineered and manufactured to the strictest standards for unmatched reliability and performance. With a strong presence in nearly every region of the world, Parker's innovative products are readily available and supported through an extensive distribution network.

At Parker, we align our ongoing R&D strategy closely with our customers' needs and goals to address improvements in efficiency, safety, and reliability while meeting all appropriate standards and regulations for wind turbine units.

WHY PARKER?

Proven leadership in bladder accumulator technology

Rich brand legacy

Building upon our roots in motion control and power generation technologies, Parker strategically acquired the Greer and Olaer legacy brands to offer our customers the most advanced and proven pedigree accumulator products on the market.

Trusted global partner

There are currently over 75,000 Parker bladder accumulators in service across the world's largest wind farms. We work with leading OEMs, owners, and site managers to supply them with products that consistently yield high output and reliable performance.

Wide availability and support

From bladder repair kits to fully-integrated bladder accumulators, Parker stocks critical wind turbine products. Our collaboration with reliable supply chain partners and authorized Parker Repair Centers ensures on-time delivery and expert support.

Innovation in Action

The gold standard for pitch control applications

Parker Olaer bladder accumulators are explicitly designed for the unique demands of wind turbine pitch control systems. Our special E2 bladder material and Rilsan® coating combine to provide minimal nitrogen permeation, high cycle life, and the broadest operating temperature range so you can extract maximum power during fluctuating wind speeds.

75+ Years of Accumulator Innovation

1936
Olaer engineer Jean Mercier invents the bladder accumulator

1941
The company's bladder accumulators are installed into aircraft as emergency backup for landing gear

1959
Olaer's bladder technology is adopted by the hydraulics market with licensing rights in the U.S., Germany, and Japan

1961
The company acquires 10% share of SACATEC, a rubber components specialist

1993
Olaer develops an accumulator for wind turbines

2012
Parker Hannifin acquires Olaer Group

Rilsan® is a registered trademark of Arkema.

How the Parker Bladder Accumulator sets itself apart

Easily accessible gas valve simplifies gas pre-charging and maintenance. High-pressure cored gas supply valve cartridges available. For safety, the gas valve vents if unscrewed.

Two-piece bladder stems machined from carbon steel with replaceable gas valve cartridge for ease of serviceability.

High-quality elastomer bladder features the latest materials, precisely blended and molded with bonded seams to prevent leakage. Bladders are offered in six different compounds, including Buna Nitrile, Hydrin Butyl, EPR and Fluorocarbon to suit a variety of fluids and temperatures. Parker's unique rubber formulations significantly reduce the permeation rate in extreme temperatures.

Robust port assemblies are designed for maximum durability with high-strength alloy steel or stainless steel construction.

Standard fluid ports with SAE, NPTF and Split Flange connections made from alloy steel coated for corrosion resistance.

Top and bottom repairable designs permit easy checking and maintenance of the bladder without removing the accumulator from the system, saving time and money.

High-impact shell made from chrome-molybdenum alloy steel (SA 372) with a special Rilsan coating that drastically reduces friction between the shell and the bladder, helping extend product life by up to three times. Seamless construction and forged ends withstand extreme shock and vibration. Majority of sizes comply with ASME and PED material and design standards.

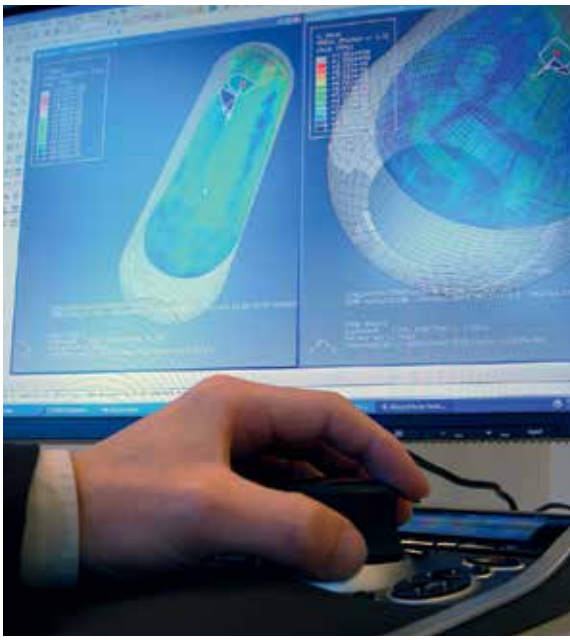
Parker accumulators are manufactured, tested, and certified according to statutory and regulatory requirements. To ensure absolute quality and material integrity, Parker employs a strict propriety process for packaging, storing, and shipping every bladder accumulator we manufacture.

The Parker Advantage

Whether you need to solve a challenging wind turbine problem or optimize performance, Parker puts ideas into motion, delivering unmatched solutions and support. Parker bladder accumulator customers benefit from the following:

- Global sales and service offices
- Extensive worldwide distribution network
- Dedicated repair centers
- Manufacturing facilities on five continents
- Multiple global standards and certifications
- Emergency delivery with a toll-free call: 1-844-372-7537

ASME SETTING THE STANDARD · ABS · CE · CSA · DIN · DNV · PED



Whether you are specifying original equipment or upgrading your accumulators to boost efficiency, bladder-type accumulators will likely optimize system performance for your wind farm.

Parker Bladder Accumulators

Durable, robust, and extremely reliable

The Parker bladder-style accumulator represents the industry's finest designs, which are continually re-examined, re-engineered, and refined to meet the rigorous demands of wind turbines. Our solutions are built from a proven pedigree and technical depth to consistently save space and reduce weight while offering greater reliability, easy maintenance, simple operation, and longer life.

Parker offers a complete selection of bladder accumulators to meet virtually every application on today's wind turbines.

- Ten different capacities from 10 cubic inch to 15 gallons (0.16 to 57 liters)
- Operating pressures up to 6,600 psi (450 bar)
- Flow rates up to 600 gpm (2,271 lpm)
- 3 different configurations
- Highest-quality bladders manufactured in-house to exact standards
- Water/chemical service available, with stainless steel ports
- Multiple bladder compounds to suit a variety of fluids and temperatures
- Transfer barrier models
- ASME and PED certification standard (1 gallons and up)
- CE, CSA, ABS, and other markings available

Keep it REAL with Genuine Parker Parts

When market parts from unknown and unproven manufacturers are used, there is no assurance that a product will perform as originally designed and manufactured. Only Genuine Parker Parts used by an authorized repair center assure that your Parker product will be repaired to the exact original configuration, perform the same as when brand new, and carry our original warranty. That's just the beginning of Parker's "Keep it REAL" promise.

Parker DISTRIBUTOR

Wind Turbine Accumulators, Bladder Replacement Kits, and Related Equipment

Bladder Accumulators

Parker leverages the manufacturing expertise of Greer and Olaer to create industry-leading bladder accumulators for the wind industry. With sizes that range from 10 to 57 liters, each accumulator has a corresponding repair kit for easy replacement in the field. A unique Rilsan coated shell drastically reduces friction between the shell and the bladder, prolonging service life. Parker bladder accumulators are dual-certified to meet AMSE and PED requirements.

Piston Accumulators

Parker piston accumulators offer high durability with extremely low nitrogen permeation rates and low service temperature capabilities that comply with US and European pressure vessel codes. They are made in the USA and Europe for best-in-class lead times.

Crimped Piston Accumulators

Compact and lightweight, Parker crimped piston accumulators are designed to replace diaphragm-type accumulators. They are used on wind turbine braking systems and as an energy reserve solution for emergencies. Lower pre-charge permeation results in longer intervals between inspections. Models are available in 40 mm to 150 mm bore sizes with capacities up to 10 liters.

Diaphragm Accumulators

Our diaphragm accumulators are ideal for wind turbine braking systems and as an energy reserve solution for emergencies. They are compact, lightweight, and meet PED requirements.

Bladder Replacement Kits

Parker's bladder replacement kits feature unique bladder compounds developed specifically for the wind industry to ensure long life, low nitrogen gas permeation, and a wide operating temperature range. They make it possible to repair existing accumulators without removing them from the system.

Air/Oil Coolers

Parker offers a broad range of air/oil coolers designed to withstand harsh environments. They provide efficient cooling at capacities up to 300 kW and are engineered for a long service life with low service and maintenance costs. Our air/oil coolers are well suited for gearbox hydraulic system applications.

Universal Accumulator Charging Kits

Our universal accumulator charging kit offers a wide variety of charging adaptors that fit most types of gas valves and accumulator technologies regardless of the accumulator type. They are equipped with two pressure gauges, enabling more accurate gas pressure measurement for low-, medium-, and high-pressure requirements.

Coolant Evaporation Inhibitor

Designed for the GE 1.5 MW turbine open-loop cooling system platform, Parker's coolant evaporation inhibitor ensures the correct water/glycol coolant mixture in the insulated-gate bipolar transducer (IGBT) circuit. The unit significantly inhibits water evaporation in the coolant solution and stops the ingress of airborne contaminants, eliminating the need for continuous coolant monitoring during the warm season.

Wireless Sensors

Parker SensoNODE™ wireless sensors provide continuous pressure and temperature condition monitoring for local applications. Cloud-based models can also monitor humidity, flow, and power.

⚠ **WARNING:** This product can expose you to chemicals, including chromium, styrene, which are known to the State of California to cause cancer, and lead, which are known to the State of California to cause birth defects and other reproductive harm. For more information go to www.P65Warnings.ca.gov.

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