Power Generation
Empowering innovation worldwide

aerospace
cclimate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding
Energizing the energy business

Advanced technologies and systems that deliver the availability, flexibility, sustainability, reliability, and profitability you need.

AVAILABILITY:
WORLDWIDE AND WORLD RENOWN.

With 50,000 employees serving 500,000 customers in almost 50 countries, Parker is literally everywhere you need us to be. By working with us, you have access to an integrated network of 316 manufacturing plants, 13,000 distributors and MRO outlets, and over 1,500 ParkerStores. Not only that: our technicians and market-specific engineers are ready to help you with system or subsystem design, on-site or off.

FLEXIBILITY:
SYSTEMS THAT OPTIMIZE VALUE

As the world’s motion control expert, Parker offers you a complete range of proven, off-the-shelf products. Engineered to work together, these products deliver streamlined systems and subsystems with exceptional quality and durability. Whether for geothermal, wind, and solar ... or nuclear, fossil fuel, gas turbine, and combined cycle plants ... our system solutions reduce costs and advance performance. Cleanly. Efficiently. And reliably.

PROFITABILITY:
LEAN AND CONTINUOUS

At Parker, we actively seek new and better ways to do things as part of our mandate for continuous improvement. Committed 100% to total support, we partner with our customers to focus on creating solutions that are smaller, lighter, more energy efficient, and highly reliable, as well as cost effective. And we offer services that reduce outage times and operational costs, such as:

• Custom kits: With materials organized by order and quantity, these single part-number kits streamline procedures, reduce assembly time, and lower costs.
• An international network of support facilities: To meet emergency needs and reduce downtime.
• Vendor-managed inventory: Including custom-tailored bin-filling programs managed by us.

RELIABILITY:
NATIONAL AND INTERNATIONAL CERTIFICATIONS

Parker can help you meet the need for fuel-efficient, low-emission, high-performance energy. Our advanced technologies and innovations improve emissions performance, minimize waste, meet environmental regulations, monitor air and water quality, offer longer life, and help create greater fuel efficiency.

Our certifications verify that our systems and solutions offer the highest possible quality for the most efficient performance. These include:

• ASME: Codes and standards set by the American Society of Mechanical Engineers.
• ATEX: Covering equipment operating in mines or potentially explosive gas, vapor, or air/dust environments.
• B31.1/B31.3: Certifying process and power piping.
• CE: Indicating that a product has met EU consumer safety, health, or environmental requirements.
• CSA/CRN: Shows product has been tested and meets applicable national standards in the U.S. and/or Canada.

Want to know more about wind power and other emerging technologies? Call 1-800-C-Parker. International customers call 00800 27 27 5374.

FM: Assures customers a product or service has been tested and conforms to the highest national and international standards.

FM: Quality assurance of construction materials, design, operation, inspection, and continuing maintenance of nuclear facilities.

PM: Globally recognized certification of project management expertise.

UL: An independent product safety certification.
COMBUSTION TURBINE

Parker has been at the forefront of combustion turbine technology from the earliest high-performance jet engines to today’s most demanding power generation applications. Over five decades of experience have given us wide ranging expertise in systems and components for fuel and water atomization, fuel controls, emission controls, and condition monitoring ... all driving turbine efficiency rates. By working with Parker, you’ll benefit from sustained engine performance with higher MW output, the lowest maintenance costs, extended engine and component life, reduced operating costs, and lower emissions due to greater fuel-burning efficiency.

SILOXANE REMOVAL:
Improving the profitability of biogas-to-energy projects

Biogas generated in landfills and wastewater digesters contains siloxane – a man-made chemical that changes into silicon dioxide (sand) when combusted. When landfill and digester gas are used to fuel turbines, reciprocating engines, and fuel cells that generate electricity, silicon dioxide build-up due to siloxane significantly increases maintenance costs, reducing the feasibility of these important green energy projects. Parker’s GES Siloxane Removal System removes siloxanes from biogas, reducing maintenance costs, improving profitability, and ultimately making more of these projects cost-effective. Parker also provides advanced biogas chilling systems and filters to further treat and clean biogas used for power generation. Look to Parker for innovative solutions and filtration protection.

How Parker drives power conversion

The SSD Drives division manufactures electric power conversion systems including variable speed drives for AC, DC, and servo motors, and grid tie inverters. Applications for drives include variable speed blowers, ID and FD fans, cooling towers, pumps, and compressors. Other capabilities include synchronous generator field supplies and electric starting systems for gas turbines. Grid tie inverters are used extensively in wind, wave, and solar power generation. SSD power conversion systems are also used in spinning reserve systems, grid frequency stabilization, and peak shaving applications, efficiently linking battery storage to the grid. In addition, Parker power conversion systems can provide KVAR compensation for optimization of power factor.
Power Source: COMBUSTION TURBINE

Better combustion for cleaner-burning engines.

Look to Parker for:
1. Filtration, lubrication, and condition monitoring
2. Emissions reduction
3. Fuel control and delivery systems
4. Inlet fogging system
5. Continuous emissions monitoring systems (CEMS)
6. Expansion joints

PARKER Advantage:
- Simple, affordable, accurate, and adaptable system.
- Data collection of pressures, temperatures, and flows in potential problem spots around the turbine.
- Solution: Parker Senso Controls data collection system allows for quick, easy, portable problem-spot identification.

CB CHECK VALVES PREVENT CRIME

Problem: Inlet fogging systems can fail, causing fuel to dribble and fire where it shouldn't, with a high potential for starting a fire. Solutions: Parker check valves reduce coke deposits and prevent removal. Parker Advantage: Field-proven, best-performing, and longest-lasting air, water injection, and liquid fuel systems in the industry. Parker's SMR system contains a fail-to-center design inside the check valve.

SMR SYSTEM FOR VARNISH REMOVAL

Problem: Varnish buildup in hydraulic fluid. Solution: Parker’s SMR system contains a fail-to-center design inside the check valve.

ICOUNT BOTTLE SAMPLER FOR CLEANLINESS MONITORING

Problem: Inadequate and filtration systems require centrifugation to screen problems on the fly. Solution: Parker’s icount bottle sampler provides continuous sampling of portable, easy, and adaptable system.

ABEX SERVOVALVES ELIMINATE TURBINE TRIPS

Problem: Turbine control systems are designed to handle turbines that are prone to atmospheric conditions and electrical failures. Solution: Parker ABEX jet nozzle systems can be used on a wide variety of engines and are recommended for all turbine applications.

SENSO CONTROLS FOR DATA COLLECTION

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HIDRAULIC POWER UNIT FOR SINGLE-SOURCE EFFICIENCY

Problem: Multiple suppliers for HPU components result in extended lead times and costly project support, creating operational inefficiencies. Solution: Parker – a single source for complete HPU packages.

ENGINEERED SOLUTIONS

- Filtration, lubrication, and condition monitoring
- Emissions reduction
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COMBINED CYCLE

No matter how your combined cycle plant operates – base load, simple cycle, seasonally, or peaking – Parker has everything you need to keep it running at optimum efficiency. Our combined cycle applications include systems, subsystems, and components that work throughout the plant to reduce emissions, lower maintenance costs, preserve plant and component life, and improve turbine efficiency. From hydraulics and pneumatics to electromechanical, instrumentation, filtration, sealing, emissions controls, fluid connections, and HMI, you can turn to Parker for solutions that will meet and exceed both your specifications, and your expectations.

New technologies
HMI solutions for plant control systems and monitoring

The drive toward open solutions and PC-based machine control is fueling a revolution on the plant floor – a revolution Parker is well prepared for. Offering a full range of hardware and software HMI solutions with the connectivity and expandability of an open platform, our integrated touch-screens, industrially-hardened workstations, and software packages focus on meeting the needs of the power plant with products that offer real-time response, high reliability, deterministic control, and ease of development and support.

Highest performing fuel and fog nozzles

Derived from Parker aerospace technology, our patented Macrospray® nozzles offer the highest performance in the industry, driving the lowest NOx emissions and improving gas turbine efficiencies through improved fuel flow, atomization, better combustion, and lower installed and lifecycle costs.
Look to Parker for:

- Diverter damper controls
- Plant efficiency in all operating modes.
- Systems, subsystems, and components that improve power source availability.

**Hydraulic lift oil pump**
- Industry-leading lift oil pumps and systems provide continuous, reliable fuel and air delivery.

- Actuators and CB check valves prevent coking of liquid fuel lines.
- Filters, including Parker's filtration component, purify hydraulic and lubricating oils with great efficiency.
- AESD apparatus available.

**Expansion joints**
- Completely customized to varying applications on gas turbine inlet, expansion joints offer industry-leading safety and reliability.
- Dies on gas turbine inlet, diesel, and refinery systems, our expansion joints offer industry-leading reliability and extended life.

- Parker’s nitrogen generators provide reliable lubrication to maximize journal bearing life.
- Our expansion joints offer longer-lasting performance and prevent/remove the buildup of sludge for gas turbine inlet, expanding plant limit corrosion during long-term stress and varnish.

**Diverter damper controls**
- Specialized gas/liquid phases and blower damper controls are available on valves with Parker A-LOK® fittings with Suparcase.
- Parker Advantage: A-LOK’s rear ferrule resists inter-granular corrosion, creating tube fittings that offer superior sealing and performance in demanding coal-fired environments.

- Hydrostatic power units for hydraulic and pneumatics systems, and Parker Advantage: Parker’s SOS unit provides LTCs compartment.

**Fuel and air control**
- Fuel and air control systems provide reliable fuel and air delivery.
- Parker Advantage: Parker’s SOS unit provides LTCs compartment.

**Nitrogen generators**
- Parker’s nitrogen generators provide reliable lubrication to maximize journal bearing life.
- Parker Advantage: Parker’s SOS unit provides LTCs compartment.

**Systems, subsystems, and components that improve power source availability.**
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Parker is proven in the power industry like no other supplier. Our years of technology innovation have created motion and control solutions for applications that range from coal handling to emissions monitoring, and everything in between. Our fluid system solutions are particularly impressive. Whether for hydraulics, hydrogen and air, or high-temperature steam systems, Parker has a vast array of legacy and new performance-enhancing components that improve system life, increase safety, eliminate time and cost, boost efficiency, and accurately meet standards for emissions compliance.

Coal-fired power plant owners are working hard to find ways to reduce EPA-mandated mercury emissions. Key to the challenge? Accurate, reliable, and cost-effective mercury-monitoring bundles like Parker’s Multitube® umbilicals.

Consisting of multiple long lengths of pure fluoropolymer tubing wrapped together with high-temperature heating elements, Multitube umbilicals are used to extract stack gas from a probe located at the top of a smoke stack. The umbilical transports the gas by vacuuming it down to a mercury analyzer, where its mercury content can be verified.

Elevated mercury sample temperatures at the analyzer are critical to achieving quality readings and protecting the analyzer from moisture ingress. Parker’s mercury umbilicals maintain a consistent 395°F (202°C) temperature for proper sample transport. In addition, Parker-manufactured tubing offers reduced cost and improved quality. Long-length umbilicals in excess of 1,000 feet are available, and are estimated to save utility companies approximately 35% over conventional bundles. Plus all Parker Multitube bundles meet IEEE specs.

Phastite® tube connectors minimize MRO downtime

An alternative to welding fittings, Phastite® is a new, push-fit (no ferrule) connector system for pressures up to 20,000 psi (1,379 bar). In providing a permanent, leak-free connection without threaded components, Phastite minimizes MRO downtime. In addition, it eliminates the danger of welding and hot work, and does away with the need for hot work permits.
Power Source: FOSSIL FUEL

Look to Parker for:

- Power Source:

  - Oil monitoring and expansion joints monitoring systems (CEMS)
  - Continuous emission pumping systems
  - High-pressure instrument racks
  - Abrasion-resistant coal off-loading conditioning systems
  - Steam control and CERGOM 10 hose

Pictured: icount PD (top); PVS® unit (right).

- Improve system life.
- Equipment and maintain plant lubrication and conditioning systems.
- Oil monitoring and conditioning systems.
- Pictured: icount PD (top); PVS® unit (right).

- FOSSIL FUEL throughput.
- Efficiency and faster performance from 400°F (204°C) to 2,000°F (1,093°C).

- A new hydraulic system reinforced with a synthetic textile.
- Embedded in a rubber compound material with ceramic plates.

- Abrasion-resistant CERGOM 10 hose.
- High-temperature and pressure regulators, FRLs, PFA/PTFE fittings transport lines, stainless steel pigtails, high-purity conditioning and delivery systems (sample deaerators, desulphurization systems).

- Parker Advantage:
  - Lower cost, simplified billing, streamlined delivery, and enhanced inventory management.

- Parker Advantage:
  - Reduced field installation time and costs.
  - Eliminates costly and time-consuming sample collection and analysis.

- Parker Advantage:
  - Reduces both installation time and requires no skilled assembly.
  - What's more, it provides a permanent, leak-free system connection without threaded components.

- Parker Advantage:
  - Increases accuracy of analysis while ensuring an accurate reading every time.
  - Low/high ambient fluctuation durability to temperature accuracy rating of 99%.

- Parker Advantage:
  - Four times the life of conventional diaphragm materials.
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Parker manufactures more than 500,000 components to meet the needs of nuclear power generation companies – components that are installed at more than 200 nuclear plants worldwide and offer the efficiency, reliability, and cost effectiveness the industry demands. But we don’t stop there. Our multi-million dollar commitment to research and development positions us as the company to partner with. Working hand in hand with you to set the standards and engineer the systems that will shape the future of an increasingly critical power source.

The ASME N Stamp quality certification program is critical to the proliferation of nuclear power worldwide. That’s because N Stamp certification is mandatory for plants designed to meet ASME requirements. In addition, Parker meets other international standards for nuclear power plants. These certifications allow Parker to provide a wide variety of products for safety-related and non-safety-related applications.

Parker’s Instrumentation Products Division in Huntsville, Alabama received its N Stamp certification for its Class 1, 2, and 3 valves in 2007, making Parker only one of about 100 companies to achieve this higher standard. N Stamps indicate that all aspects of a component, including design, fabrication, and construction, comply with ASME’s strict specifications, providing an additional layer of safety to nuclear plant operation.

When CPI fittings were designed in 1966, installed tube fittings in nuclear plants were dominated by double ferrule technology – a technology subject to ferrule mixup, ferrule loss, vibration sensitivity and multiple sealing points for multiple leak paths. Parker engineers knew there was a better way. In CPI fittings, they created a unique, interchangeable single ferrule technology that addressed the various drawbacks of a double ferrule design – a technology that evolved with the nuclear market. CPI fittings are just one of the many innovations Parker has brought to the nuclear industry. For more, see the Nuclear Engineered Solutions page.
Power Source: NUCLEAR

A multi-million dollar commitment to nuclear innovation.

Look to Parker for:

1. CCIMS
2. Specialty valve systems
3. Gas spring actuators
4. Spring-energized metal C-seals
5. Automated multi-changeout filter system

CCIMS
Our integrated manifold solution is engineered to support applications requiring a high tolerance for temperature extremes and a strict design specification for radiation. Adaptable to a vast range of processes, CCIMS is available in remote and close-coupled mounts.

Specialty valve systems
Specialty valve systems provide automated, high-performance flow measurement and quick changeout alternative reducing exposure to radiation. Available in remote and close-coupled mounts.

Gas spring actuators
Used in safety-critical applications to operate main steam isolation, feedwater bypass, and emergency borating valves on pressurized water reactors.

Spring-energized metal C-seals
In steam turbines, Parker metal seals use jacket forces, spring forces, and hydrostatic forces to seal the turbine casing with increased force, providing high-pressure sealing capabilities up to 95,000 psi (6,550 bar) with excellent corrosion and fatigue resistance.

Automated multi-changeout filter system
Automated purification systems remove and dispose of the highly radioactive deposits commonly referred to as CRUD that accumulate inside the piping, fuel pools, fuel transfer canals, reactor coolant/feedwater, and other areas of the plant.

The Parker Nuclear Portal
Our new Nuclear Portal allows Parker to bring a wide range of products from different Parker divisions to the nuclear market under an industry-compliant quality assurance program. The Portal has been developed under Parker Instrumentation’s existing NQA-1 and 10CFR50 Appendix B quality assurance programs, and utilizes best practices and guidance from industry and regulatory documents. Current products available through the Parker Nuclear Portal include the following: