



Sealing for the Energy Industry

OEM-driven solutions with maximized life cycles
for demanding sealing environments



ENGINEERING YOUR SUCCESS.

WHY PARKER? ONE PARTNER. MULTIPLE

PROVEN

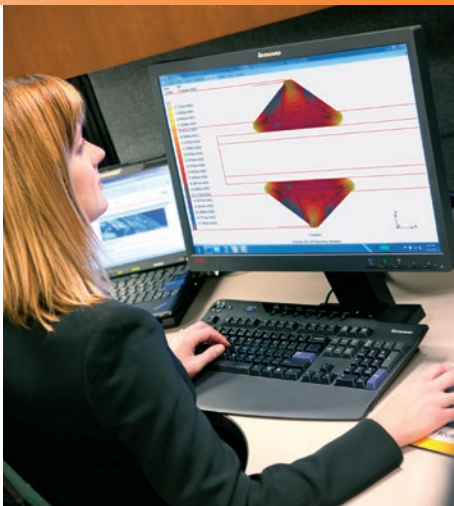
With over five decades providing the performance, reliability, longevity, and durability needed in demanding energy sealing environments.

OEM-DRIVEN

Collaborating one-on-one with your engineers to create and deliver innovative solutions that break new ground.



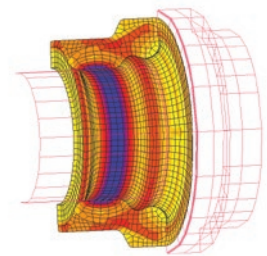
Idea > Concept > Feasibility > Prototype > Test and Development > Manufacture



FASTER DEVELOPMENT

Concept through production. Our state-of-the-art modeling and simulation tools and processes improve new product performance while reducing development time and cost. They include:

- Finite Element Analysis (FEA)
- Simulation testing
- Special alloys for extreme environments
- Precision molding technology
- Materials development
- Ultra-high purity (UHP) processing



FEA is used to predict reactions of complex seal geometry in extreme environments.

OPTIONS.



MORE SOLUTIONS, MORE GLOBAL LOCATIONS

Along with our ability to custom engineer solutions, the largest selection of off-the-shelf O-rings, seals, gaskets, and expansion joints available. Plus numerous facilities worldwide, allowing us to anticipate and answer global market demands.

A SUSTAINABILITY CHAMPION

Our sustainability commitment:

To responsibly solve the world's greatest engineering challenges to foster enduring success for the company, customers, and communities.

Pressured to meet the demands of a world expected to consume 45% more energy by 2030, energy companies are looking for new ways of thinking as they face the challenges of manufacturing in a post-carbon world.

A collaborative partner and technology expert, Parker's commitment to solving the high tech manufacturing challenges of a more sustainable world is unequalled. Through the use of reusable / recyclable sustainable materials, the elimination of waste, and the active reduction of resources such as water and energy used in manufacturing, Parker is helping to protect the environment for future generations.

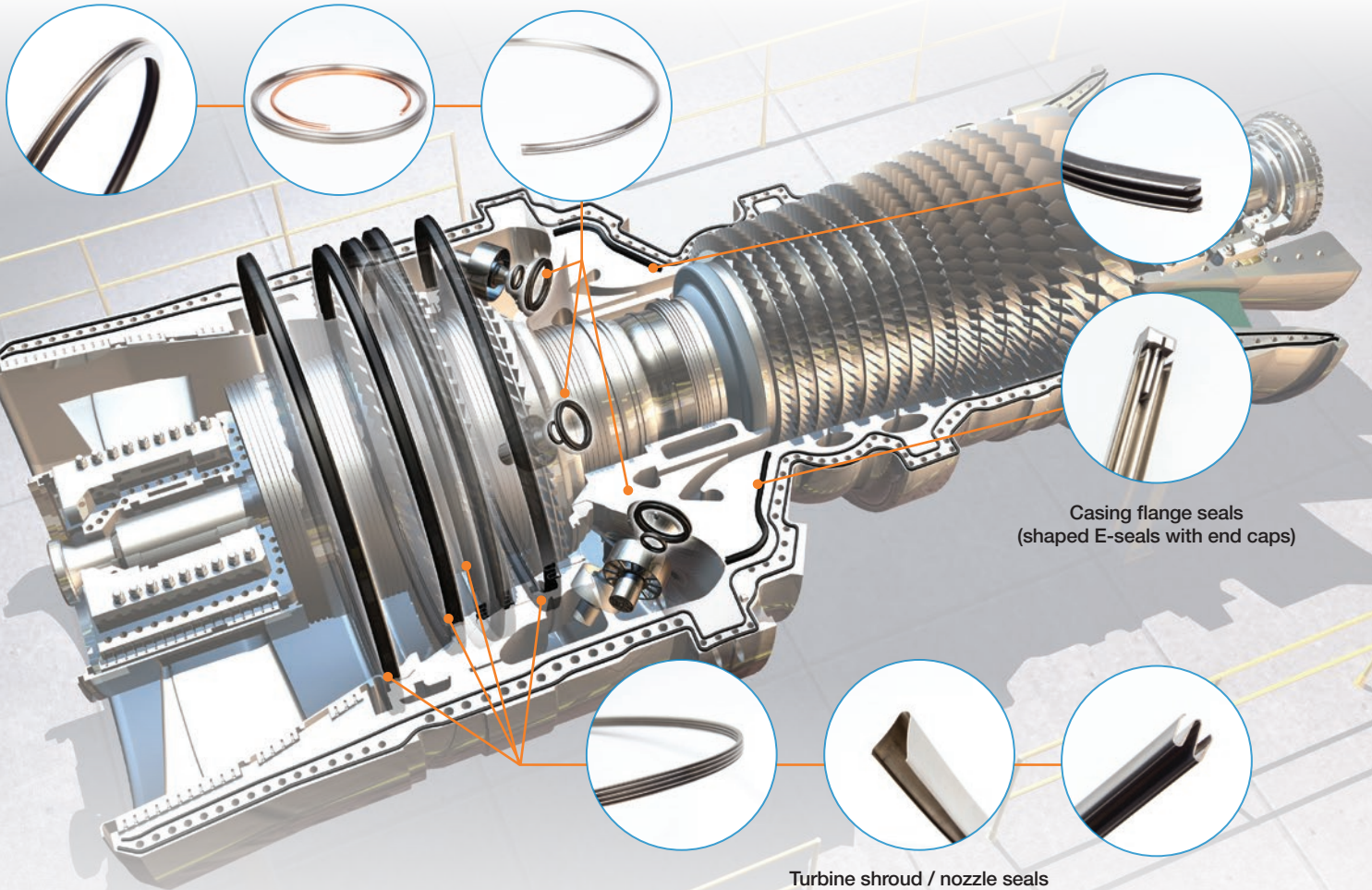


Parker Sealing Solutions for

OEM-driven solutions engineered for **tight tolerances, higher temperatures,**

GAS TURBINES

Fuel system seals (E, C, and spring-energized C-seals)



Casing flange seals
(shaped E-seals with end caps)

Turbine shroud / nozzle seals
(E and V seals, pre-compressed seals)

Parker metal seals are available in these high strength alloys

- Inconel® 625, 718, X-750
- Hastelloy® C-276
- Rene® 41
- Waspaloy
- Stainless steels – 304, 316, 321, 347

Specialized platings and wear protective coatings are also available.

Inconel® is a registered trademark of Special Metals Corporation. Hastelloy® is a registered trademark of Haynes International. Rene® is a registered trademark of General Electric.

ENGINEERING | EDGE

Pre-compressed metal seals offer easier installation

Our pre-compressed E-seals save time and prevent leakage when used to seal the turbine section. Seals slide easily into the groove, preventing the nicks and damage that can result in leakage. Use jacket forces, spring forces, and hydrostatic forces to further improve sealing. Special alloys withstand temperatures above 1,500°F (815°C) with excellent corrosion and fatigue resistance.



Pre-compressed metal seals

DID YOU KNOW ?

A 1% increase in turbine efficiency is equal to \$1 million in savings.

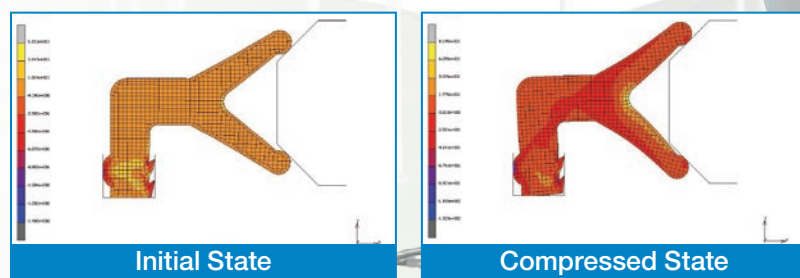
the Energy Industry

and more aggressive chemistries

WIND TURBINES

Pitch and yaw bearing seals

Utilizing FEA, Parker's team of application engineers has the ability to optimize seal design to reduce friction, improve pressure resistance, and increase the system's operating efficiency.



Pitch and yaw bearing seals



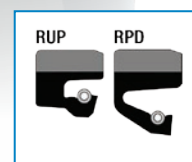
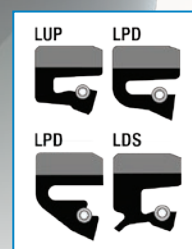
Gearbox static seals



Gearbox radial shaft seals



Gearbox / generator labyrinth ProTech™ bearing isolator seals



Rotary seals

Maximize sealing contact, minimize wear under extreme shaft misalignment conditions; variety of profiles; sizes up to 80" in diameter

Generator radial shaft seals

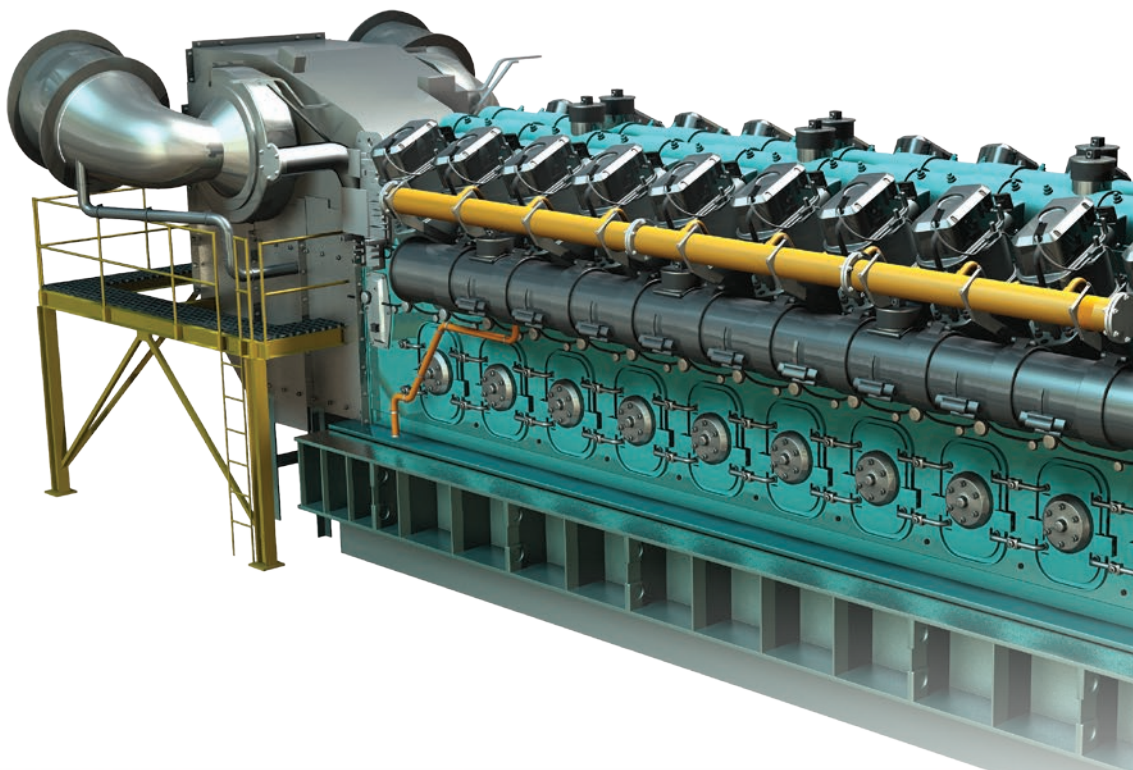
DID YOU KNOW ?

Parker's specialized compounds for wind turbine bearing applications offer excellent resistance to wear, grease, and ozone attack. Creating little friction, bearing seals are optimized to withstand greasing pressure and rotary motion, reducing actuation torque. These unique custom profiles retain the bearing grease and keep contaminants from entering the system, protecting both the environment and the system.

Parker Sealing Solutions for

OEM-driven solutions engineered for **tight tolerances, higher temperatures,**

RECIPROCATING ENGINES



Seal applications for reciprocating engines

- Covers: Crank, Cam, Lifter, Accessory Drive
- Fuel Delivery Fittings
- Oil Coolers
- Front Cover to Plate
- Front Plate to Block
- Fuel Pump System
- Oil Pan and Oil Pan Adapter
- EGR Housings
- Turbo Drain Line
- Coolant Systems
- Flywheel Housings
- Exhaust Pipes and Flanges
- Turbo Flanges

TRANSMISSION AND DELIVERY

Seal applications for power transformer and circuit breaker gas



Elastomeric O-rings



Press-in-place seals for easy installation in horizontal or upside-down grooves



Gas-insulated switchgear and transformer applications

DID YOU KNOW ?

The most commonly used elastomer for sealing SF6 gas is EPDM.

the Energy Industry

and more aggressive chemistries

NON-METALLIC EXPANSION JOINTS



Expansion joint applications in combustion turbines

Coal mills • Flue Gas Desulphurization (FGD) • Selective Catalytic Reduction (SCR) • Boilers • Flue gas ducts • Inlet • Bypass • FD fan • ID fan • Economizer • Air heaters • Precipitators • Wet scrubbers • Bag house • Scrubber • Absorber • HRSG • Chimney stack

ENGINEERING | EDGE

Expansion joints expand innovation

With the addition of RM DYNEX products, Parker is positioned to provide engineering and fabrication expertise for the innovative development of new power generation sealing products. Our non-metallic expansion joints – in a wealth of shapes and sizes as well as temperatures in excess of 600°F (315°C) – are available with EPDM, FKM, CR, Silicone, and PTFE boots and the most advanced high temperature fabrics for insulation, including FleXtra®, reinforced 304 wire, and Nomex®. Metal frames, baffles, and backup bars are constructed of carbon steel as well as the higher nickel steels to meet the demands of today's severe application environments.

DID YOU KNOW ?

Parker has an installed base of more than 75,000 RM DYNEX brand expansion joint systems in service worldwide.

Other sealing technologies for energy

From elastomeric O-rings to static and dynamic seals, Gask-O-Seals, and Integral Seals, as well as fastener and fitting seals, Parker has a complete and diverse range of advanced sealing solutions available in a wealth of durable and reliable materials for the energy industry. For more information, visit www.parker.com/energy.



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