



# ***Engineered Sealing Solutions***

*Catalog PSG 5010 USA*



# Here, There, Everywhere

From aerospace to automotive, health-care to semiconductor fabrication, water systems to consumer electronics, Parker's **engineered seals and sealing systems** are playing an important role in the safe and reliable operation of equipment all over the world — right now. You'll find our sealing products in hydraulic and pneumatic cylinders, hose fittings, high pressure pumps and filtration units, as well as engines, transmissions and cooling systems. Our shielding/grounding products protect cellular telephones, personal computers, cable TV switchgear and other electronic equipment from the effects of Electromagnetic Interference (EMI). And our thermal interface materials cool hot microprocessors and power supplies.



AEROSPACE

*Platforms that fly, including commercial, military and space vehicles*



CONSUMER

*Products for water systems, appliances, consumer electronics and food and beverages that are sold to the general public (WRC, FDA, UL, NSF, KTW, DVGW)*



CPI

*Chemical processing industry and associated equipment*



ENERGY/OIL FIELD

*Oil and natural gas exploration, drilling, extraction, conveyance and power generation equipment*



FLUID POWER

*All hydraulic or pneumatic systems or components, including attachments on mobile equipment, cylinders, valves, accumulators, fittings, pumps and rotary actuators*



GENERAL INDUSTRIAL

*Applications associated with the manufacture or processing of products or components (PMC — Process, Measurement and Control) not specifically identified in other industry categories*



INFORMATION TECHNOLOGY

*All computer systems (personal digital assistants, laptops, desktops and mainframes) and related peripherals*



MEDICAL

*Healthcare, dental and pharmaceutical industries*



MILITARY

*Products for non-aerospace government land and sea-based platforms (i.e., tanks, subs, marine, radar, etc.)*



SEMICONDUCTOR

*Equipment and materials used in the fabrication and assembly of semiconductor devices*



TELECOM

*All equipment associated with communication and datacom, including wireless communications devices, cellular base stations, indoor and outdoor routers and switches (also includes cable TV equipment)*



TRANSPORTATION

*All moving vehicles and components associated with propelling and stopping vehicles, including automotive, heavy-duty truck, off-highway, agricultural equipment and marine applications*

# Engineered Sealing Solutions

The equipment that moves today's industry is more reliable and highly-engineered than ever before. That's why Parker Seal Group develops and manufactures **engineered sealing solutions** – technologically advanced sealing devices and materials that can keep pace with the tighter tolerances, higher temperatures and tougher chemicals found in the modern machine.

These sealing products have our unique combination of experience and innovation built right in, and we're able to supply them quickly and cost-effectively to fit virtually any application you can think of.

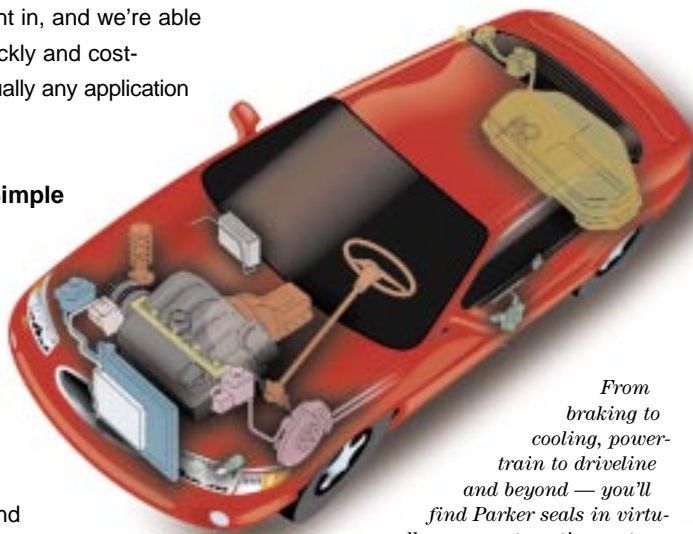
## Systems Made Simple

At Parker Seal Group, we don't just manufacture a few standard seals for a handful of applications. Our products range from standard o-rings and extruded silicone profiles to highly complex composite seals, conductive elastomers (for EMI shielding) and thermal management materials. This means we can offer you a single source for **total systems solutions**. And that translates to reduced costs and improved efficiency for you.

*Parker's engineered environmental seals keep the elements out of telecommunications cabinetry, while its shielding protects the equipment inside against EMI.*

## Worldwide — Where You Need Us

Around the corner or around the globe, Parker's Seal Group is there with solutions to tough sealing problems. This worldwide sealing network, which consists of 46 manufacturing locations and more than 200 distributor and service center locations in nine countries, means that you can always get quality products when and where you need them. It also means that sound advice from Parker sealing experts is never far away.



*From braking to cooling, power-train to driveline and beyond — you'll find Parker seals in virtually every automotive system.*



## Product Innovation

Today's sealing challenges demand innovative solutions, and nobody knows innovation better than Parker. Drawing from over five decades of engineering, material formulation and manufacturing experience, we continually develop new products for your evolving sealing needs. Our Parofluor ULTRA™ series of perfluorinated elastomers and the all-in-one Integrated Piston™ assembly are excellent examples of Parker innovation at work.



*The Integrated Piston and Parofluor ULTRA perfluorinated elastomers represent Parker's commitment to innovation.*



**ULTRA**  
PAROFLUOR

# Built for Speed and Service

An operating unit of the Parker Hannifin Corporation, the North American Seal Group is organized into eight independent divisions. Each division has specific product competencies and extensive

knowledge of the markets it serves. Their lean, focused structure allows for close interaction with customers and ensures a fast, informed response to your sealing questions. The Seal

Group's divisions are supported by a dedicated technical sales force consisting of several specialists in automotive, semiconductor and other industries.

**Engineered Polymer Systems Division (EPS)**  
Salt Lake City, UT



**Composite Sealing Systems Division (CSS)**  
San Diego, CA



**TechSeal Division (TSD)**  
Spartanburg, SC



**Powertrain Division (PTD)**  
Lynchburg, VA



**O-Ring Division (ORD)**  
Lexington, KY



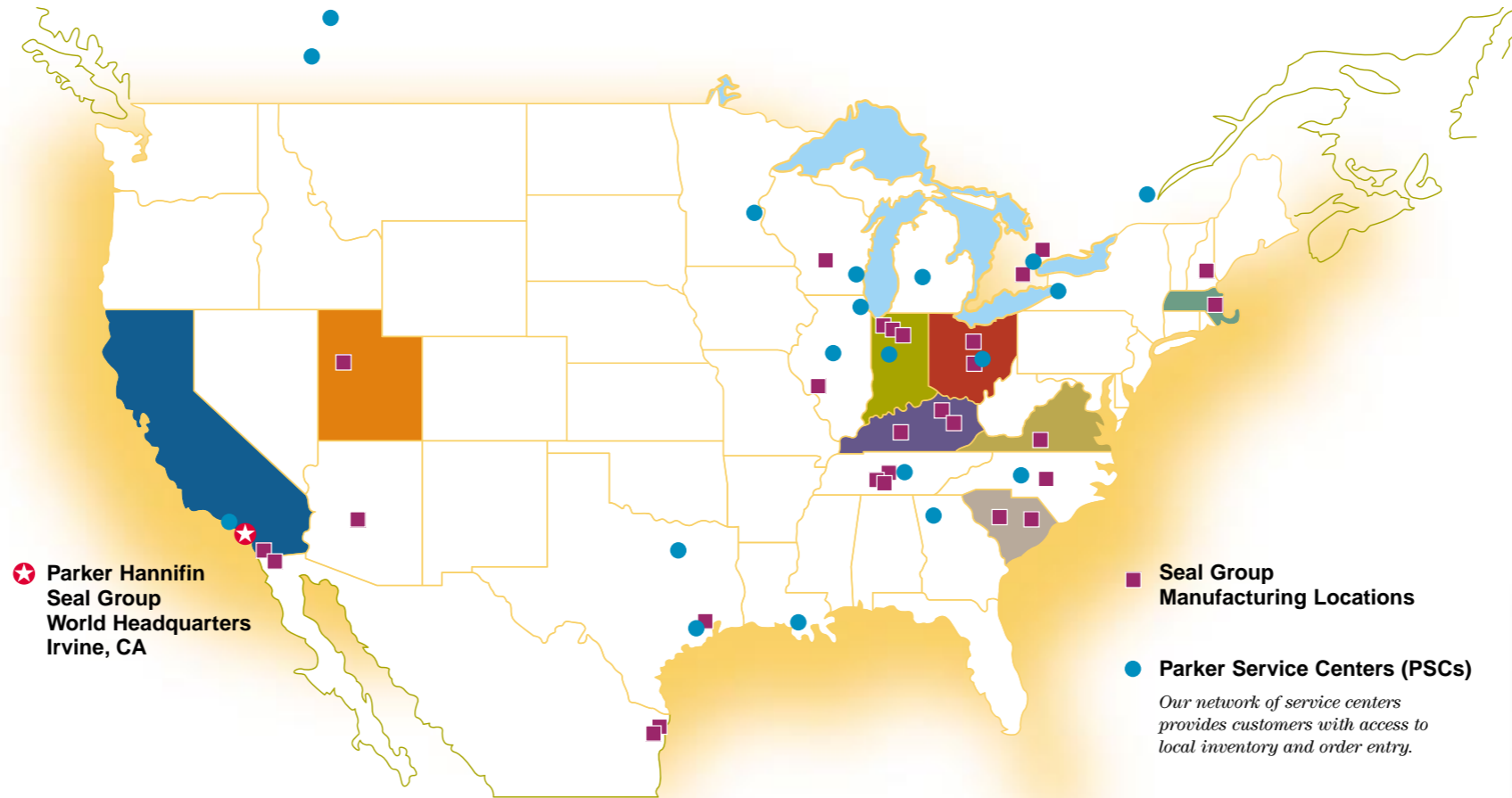
**Thermoplastics Division (TPD)**  
Vandalia, OH



**Chomerics Division (CHO)**  
Woburn, MA



**Engineered Seals Division (ESD)**  
Syracuse, IN



**CHOMERICS DIVISION (CHO)**

**COMPOSITE SEALING SYSTEMS DIVISION (CSS)  
(FORMERLY O-SEAL DIVISION)**

**ENGINEERED POLYMER SYSTEMS DIVISION (EPS)  
(FORMERLY PACKING DIVISION)**

**ENGINEERED SEALS DIVISION (ESD)**

**O-RING DIVISION (ORD)**

**POWERTRAIN DIVISION (PTD)**

**TECHSEAL DIVISION (TSD)  
(FORMERLY JBL DIVISION)**

**THERMOPLASTICS DIVISION (TPD)**

**KEY**



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CONSUMER



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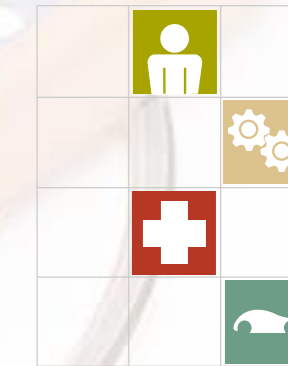
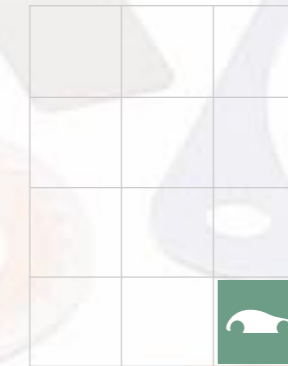
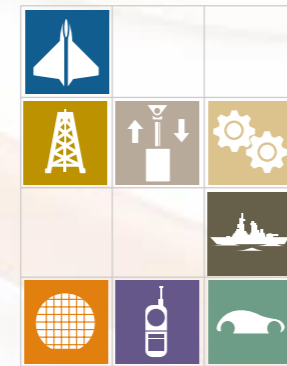
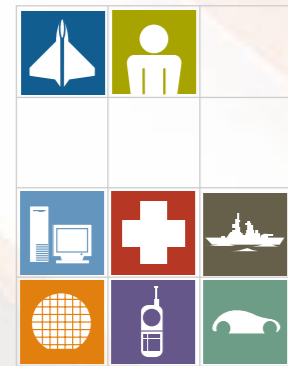
SEMICONDUCTOR



TELECOM



TRANSPORTATION



**CHARTER**

The Chomerics Division designs and manufactures electrically conductive materials for shielding Electromagnetic Interference (EMI), and thermal interface products and systems for electronics packaging.

**PRODUCTS**

- CHO-SEAL® Conductive elastomer gaskets
- PREMIER® Conductive plastic shielding solutions
- SOFT-SHIELD® Low closure force EMI gaskets
- ECOPLATE® Metallic conformal coating process
- Cho-Form® Form-in-place elastomer gaskets
- Wire mesh gaskets and STREAMSHIELD™ Shielded vents
- CHO-BOND® and CHO-SHIELD® Conductive adhesives, coatings and sealants
- SPRINGLINE™ BeCu fingerstock, CHO-SORB® Ferrites
- Electrically conductive tapes and engineered laminate shields
- THERMFLOW™ Phase-change thermal interface materials
- THERM-A-GAP® Thermally conductive gap fillers and insulation pads
- THERMATTACH® Thermally conductive adhesive tapes
- Thermally conductive silicone adhesives and caulks

**MANUFACTURING CAPABILITIES/TECHNOLOGIES**

- Laminating, coating, single-knife slitting, rotary, male/female and steel rule die cutting, vacuum and auto wrapping, water jet prototyping, automated high-speed injection molding, automated form-in-place gasket dispensing and painting, elastomeric extruding and splicing

**CHARTER**

The Composite Sealing Systems Division designs and manufactures engineered seals and sealing systems consisting of metals and plastic or metal retained elastomeric combinations for static face seal applications.

**PRODUCTS**

- Gask-O-Seal® Volume/void seals
- Integral Seal® Edge molded seals
- Stat-O-Seal® Fastener and fitting seals
- ThredSeal® Fastener and fitting seals
- Lock-O-Seal® Fastener and fitting seals
- Resilient metal seals and shapes
- Multi-layered steel (MLS) gaskets

**MANUFACTURING CAPABILITIES/TECHNOLOGIES**

- Machining, stamping, compression, transfer and injection molding, rubber-to-metal/rubber-to-plastic bonding and rapid prototyping

**CHARTER**

The Engineered Polymer Systems Division designs and manufactures engineered elastomeric, polymeric and plastic seals and sealing systems for dynamic applications.

**PRODUCTS**

- PolyPak® Rubber and TPU spring-energized lip seals and PIP rings
- FlexiSeal® PTFE Spring-energized lip seals
- FlexiLip™ PTFE Rotary shaft seals
- Rubber rotary lip seals
- Integrated Piston Assembly (all-in-one piston, bearing and seal)
- Molygard™ and WearGard™ Wear rings and bearings
- Rubber and TPU U-Cups, wipers and scrapers
- RESILON™ polyurethane o-rings
- ULTRACOMP™ Molded and machined shapes
- Bumpers and cushion seals
- PTFE lip seals and T-Seals

**MANUFACTURING CAPABILITIES/TECHNOLOGIES**

- Cryogenic de-flashing, high volume injection-compression molding, large diameter injection molding, PLC compression and transfer molding, PTFE sleeve and isostatic molding, custom prototyping of machined shapes and seals, NSF 61 certified materials

**CHARTER**

The Engineered Seals Division designs and manufactures engineered elastomeric shapes (both homogeneous and inserted) for sealing systems and isolation applications.

**PRODUCTS**

- Fuel tank sender seals
- Vapor recovery canister seals
- Fuel filler neck seals
- Fuel sender isolators
- Fuel cell seals
- Aerosol valve seals
- Isolation mounts and grommets
- Custom seals for HVAC systems
- Custom isolators for HVAC systems
- Diaphragms
- Hay rake tines and other agricultural equipment components
- Poultry picking fingers

**MANUFACTURING CAPABILITIES/TECHNOLOGIES**

- Compression, transfer, injection and liquid injection molding (LIM), rubber-to-metal/rubber-to-plastic bonding

**CHARTER**

The O-Ring Division designs and manufactures engineered elastomeric o-ring seals.

**PRODUCTS**

- O-ring seals in Fluorocarbon, Fluorosilicone, Silicone, Ethylene Propylene, Nitrile, HNBR, Neoprene, Butyl, Polyacrylate, Polyurethane and other formulations
- O-ring seals and engineered shapes in HiFluor® and perfluorinated elastomer formulations, such as Parofluor™ and Parofluor ULTRA
- Large-diameter molded o-rings
- ParBak™ Back-up rings
- Standard and custom o-ring kits

**MANUFACTURING CAPABILITIES/TECHNOLOGIES**

- In-house elastomeric mixing and tooling, computer-controlled compression and injection molding, ultra-high purity (UHP) processing, automated vision inspection

**CHARTER**

The Powertrain Division designs and manufactures engineered seals and sealing systems for transmissions, engines and power generation components of automotive and heavy-duty equipment.

**PRODUCTS**

- Plastic/rubber composite seals for automotive powertrain applications
- Integrated cam covers, oil pans, water outlet connectors, breathers and sealing systems for automotive powertrain applications
- Chem-Cast® Piston seals and bearings

**MANUFACTURING CAPABILITIES/TECHNOLOGIES**

- Plastic and rubber injection molding, rubber transfer and compression molding, integrated (PIA) assembly, lathe cutting, rubber-to-metal bonding, lip seal machining, product identification marking, product packaging and kitting

**CHARTER**

The TechSeal Division designs and manufactures engineered elastomeric extruded profiles, lathe cuts and filtration sealing systems.

**PRODUCTS**

- Small diameter precision cut seals
- Large diameter lathe cut seals
- ParFab™ Spliced/fabricated gaskets
- ParFab Extruded profiles
- Tetraseal™ Lathe cut seals
- Filter seals
- Drive belts
- Special lathe cut profiles
- Long-length extruded seals

**MANUFACTURING CAPABILITIES/TECHNOLOGIES**

- Compression and liquid injection molding, precision cutting, splicing and fabricating, close tolerance extruding, USP Class VI and FDA White Listed, UL Listed and NSF 61 certified materials

**CHARTER**

The Thermoplastics Division designs and manufactures thermoplastic engineered seals and sealing systems, as well as sealing and isolation systems for steering, suspension and drivetrain-to-wheel power transfer.

**PRODUCTS:**

- Thermoplastic components for automotive suspension and steering system, trim, fuel system, oil and air filter applications
- TPR seals and gaskets
- Industrial plastic/rubber molded assemblies
- Vacuum cleaner housing components
- Healthcare products
- Rubber boots/bellows
- Plastic boots/bellows
- Rubber bushings
- Plastic bushings
- Sealing and isolation components for automotive steering, suspensions, drivelines

**MANUFACTURING CAPABILITIES/TECHNOLOGIES**

- Injection molding, co-injection and "2-shot" molding, plastic injection blow molding, plastic extrusion blow molding, direct injection plastic molding and rubber injection molding

# More Than Manufacturing

Our commitment to customer satisfaction extends far beyond the manufacture and supply of superior sealing products and materials. You can also see it in our development of special services and support tools.

## Desktop Seal Design

Our Total inPHorm™ software brings seal design and material specification right to your desktop. The software, which consists of standalone packages for hydraulic and pneumatic sealing, static face sealing, standard composite seal products, EMI shielding and thermal management, uses a simple interface to guide you through the design of application-specific glands and seals. It automatically cross-references thousands of part numbers and recommends materials based on the requirements of SAE, MIL and other standards. Total inPHorm also contains a complete array of online reference materials, including test reports, technical bulletins and seal maintenance instructions.



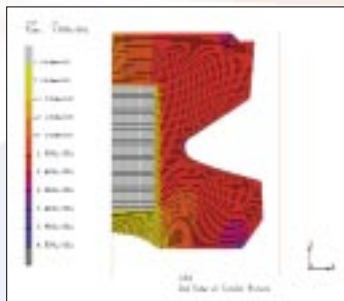
## Applications Assistance

If our software can't solve your sealing problem, you can always turn to our team of applications engineers. These engineers are trained sealing experts with decades of combined experience in

real world applications, and they're ready to help you find the most reliable, cost-effective solution.

## Advanced Computer Simulation

Through the use of powerful computers and finite element analysis (FEA) software, our engineers can evaluate a seal's performance in a variety of media, temperatures and pressures before a single part is made. This eliminates the need for costly tooling, speeds the production process and ensures the selection of the right material and geometry for your application.



*Our FEA capabilities help customers save time and reduce costs.*

## Fast Samples

When you're prototyping a new product, it helps to have fast access to samples. That's why all of our divisions stock them in a broad range of sizes and materials. In most cases, we can provide standard samples within 24 hours.

## Quality Standards

We know you expect high quality and production standards from your seal manufacturer. That's why all of our North American facilities are certified to ISO 9001/QS 9000 or better. For applications that demand an extra level of cleanliness (such as semiconductor and pharmaceutical industry sealing), we offer ultra-high purity (UHP) processing. UHP employs totally enclosed and



*Parker's UHP processing keeps seal materials and products clean, from start to finish.*

dedicated manufacturing areas where FFKM, FKM and other products are mixed, tooled, molded, finished, inspected and packaged.

## Testing, R&D Resources

New applications bring new challenges, and Parker Seal Group is equipped to meet these challenges head-on with a full complement of state-of-the-art testing and research and development tools. In our highly advanced test rigs, we can evaluate seal performance under a wide variety of physical conditions. And in our Electromagnetic Compatibility (EMC) testing facilities, we can check your product for compliance with the latest domestic and European standards. Best of all, our skilled scientists and technicians can develop a solution for you if one doesn't already exist.

# Parker Seal Group Division Headquarters

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