

# ***Parofluor ULTRA™ Series Perfluorinated Elastomers***

ISO 9001/QS 9000/AS 9000 Certified

*Catalog ORD 5726-USA*



# Parofluor ULTRA™

## High Performance for Extreme Sealing

Parker Hannifin's Seal Group, a leading manufacturer of seals and sealing systems for over 50 years, offers the very latest in perfluorinated elastomer technology — Parofluor ULTRA . These new materials are formulated specifically to seal — and keep on sealing — under the most extreme physical conditions.

They offer improved compression set resistance, high temperature capabilities, and broad chemical resistance that allow them to outperform and outseal typical perfluorinated elastomers in:

**Semiconductor fabrication**—where aggressive chemistries and high temperatures are present in the equipment used to manufacture integrated circuits or chips, and purity is absolutely necessary.

**Chemical processing** — where fluid handling equipment (pumps, mechanical seals, valves, reactors, flanges, fittings and other process equipment) is exposed to high temperatures and aggressive chemicals.

**Energy exploration and production** — where downhole conditions demand superior chemical and temperature resistance.

**Pharmaceutical manufacturing and equipment** — where applications require low contamination from extractables, or where sterilization with aggressive chemicals is required.

**Aerospace applications** — where engine temperatures may reach 320°C/608°F, or where sealing materials may encounter aggressive fluids.

**Automotive & heavy truck applications** — where resistance to high temperatures and a broad range of fuels and automotive fluids is critical.

**Industrial harsh fluid handling processes** — where standard seal materials may break down due to severe chemical attack.



# ULTRA Sealing in Many Configurations . . .

Parofluor ULTRA™ materials, whether formed into o-rings, molded shapes, or composite metal/rubber seal configurations, can resist higher temperatures and a broader range of aggressive chemicals than typical perfluorinated elastomers.

Seals made with ULTRA materials are compounded to resist compression set and retain their resiliency in the most demanding environments.

Parker offers ULTRA materials in the following products:

## High Performance O-Rings

Parofluor ULTRA O-Rings solve critical application problems, increase mean-time-between-failure (MTBF), improve process reliability and allow greater predictability for maintenance intervals.

Parofluor ULTRA O-Rings offer both static and dynamic sealing solutions for hydraulic, pneumatic, vacuum and many other sealing applications. Parofluor ULTRA perfluorinated elastomer materials are currently available from 65 to 90 Shore A hardness in black, white and translucent formulations. O-Rings are available in all AS568A inch sizes as well as a wide range of international metric sizes, including JIS standards.

Large-diameter continuous molded o-rings and non-standard sizes are also available. Other molded sealing solutions include:

- Custom molded shapes
- PIP (press in place) profiles
- Slabs or sheet stock

## Composite (Rubber/Metal or Rubber/Plastic) Bonded Sealing Solutions

Parker Gask-O-Seal™ Slit Valve Doors and End Effectors are designed for specific semiconductor applications. These products have a specially designed rubber element that is chemically bonded into a groove to prevent twisting or pinching of the seal. This bond eliminates any possibility of virtual leaks and/or contamination underneath the seal.

Gask-O-Seal designs have been tested to over 50,000 psi, and seal configurations can be designed for low pressure levels (ultra-hard vacuums in the  $10^{-9}$  torr range).

## ULTRA Packing Products

Packing and lip seal products are also manufactured using Parofluor ULTRA materials. These products are available in a broad range of profiles and configurations, including:

- u-cups
- valve stem packing
- vee packings and wipers

## Complete Range of Other Seal Materials

Parker Seal Group offers a complete range of other seal compounds for use in applications that do not require the unique properties of perfluorinated elastomers.

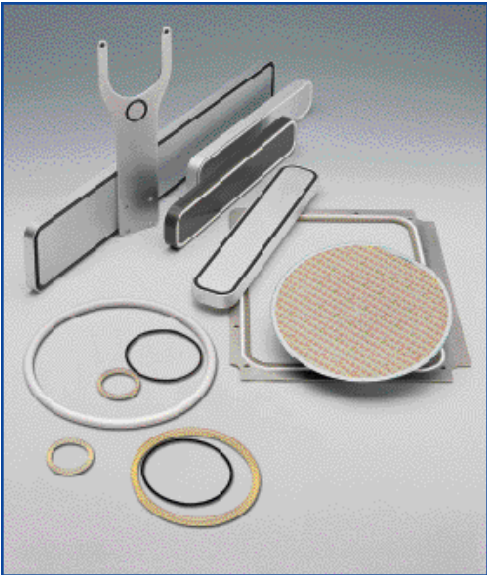
These include:

fluorocarbon, HiFluor™, silicone, fluorosilicone, nitrile, HNBR, Neoprene, butyl, polyurethane, and TFE/propylene Aflas™.

Aflas is a trademark of Asahi Glass



# ULTRA Formulated for Unparalleled Performance



Parofluor ULTRA elastomers are *next generation* sealing materials, representing the very latest in perfluorinated elastomer technology. They are backed by thousands of hours in real world applications, and the sealing experience of Parker.

**Parofluor ULTRA features include:**

- Ultra high temperature resistance up to 320°C/608°F (see Figure 1)
- Ultra high purity (see Figure 2)
- Ultra broad chemical resistance (see Table 1)
- Excellent retained resiliency and compression set resistance (see Figure 1)

**Parofluor ULTRA Advantages**

- Effective sealing in the most aggressive chemistries and severe temperatures
- Improved predictability of maintenance intervals (longer seal life)
- Strictly monitored ultra high purity (UHP) manufacturing process
- In-house tooling capability
- Shortest lead time in the industry
- Applications engineering assistance
- Finite Element Analysis assisted design
- Total inPHorm™ Seal Design Software
- Local stocking distributor network
- Field product specialists

**UHP Manufacturing Advantages**

To maximize seal performance and guard against contamination, Parker employs ultra high purity (UHP) processing — totally enclosed and dedicated manufacturing areas — for compounding, preparation, molding, cleaning and final packaging of Parofluor ULTRA materials.

UHP standards are applied throughout the following processes:

- Perfluorinated elastomer mixing
- Tooling and molding
- Finishing
- Quality SPC charting
- Dimensional and physical tolerance inspection
- Clean room packaging



UHP clean room cell, Lexington KY

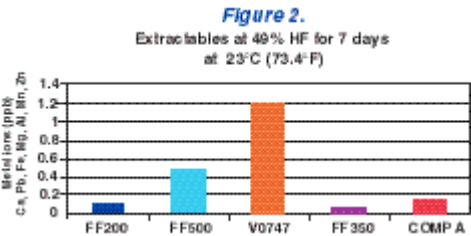
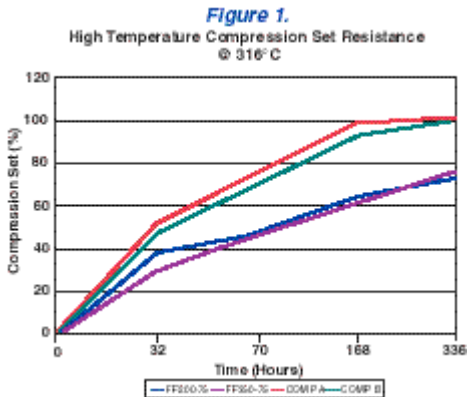
For additional information about ULTRA O-Rings and custom molded products call :

Parker Seal Group, O-Ring Division (ORD)  
2360 Palumbo Drive  
Lexington, KY 40509  
Phone:(859) 269-2351  
FAX:(859) 335-5128

For additional information about ULTRA composite rubber/metal or rubber/plastic seals call:

Parker Seal Group, Composite Sealing Systems Division (CSS)  
7664 Panasonic Way  
San Diego, CA 92154  
Phone:(619) 661-7000  
FAX:(619) 671-3202

Visit: [www.parofluor.com](http://www.parofluor.com)



**Table 1.**

Chemical Family	FF500-75	FF200-75	Competitive FFKM
Organic Acids	1	1	1
Inorganic Acids	1	1	1
Bases	1	2	3
Amines	1	3	4
Steam/Hot Water	1	2	3
Ketones	1	1	1
Aldehydes	1	2	4

1= Excellent, 2= Satisfactory, 3= Doubtful, 4= Not recommended



# ULTRA Benefits Above and Beyond . . .

## Product Innovation

Today's sealing challenges demand innovative solutions, and nobody knows innovation better than Parker. Drawing from its decades of engineering, material formulation and manufacturing experience, Parker continually develops new products for every kind of sealing application.

## Worldwide Locations

Around the corner or around the globe, Parker is there with solutions to tough sealing problems. This worldwide sealing network, which consists of 48 manufacturing locations in 9 countries, means that customers can always get quality products when and where they need them. It also means that sound advice from Parker sealing experts is never far away.

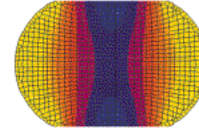
## More Than Manufacturing

The Parker name represents much more than quality products manufactured in ISO 9001/QS 9000/AS 9000 certified facilities. It also represents support. Customers who choose Parker know they'll get the tools they need to bring their products to market quickly and cost-effectively.

Parker's free Total inPHorm™ software package brings seal design and material selection assistance right to the customer's desktop.



And Parker's team of applications engineers can assist in materi-



FEASimulation

al selection and seal design using Finite Element Analysis (FEA) simulation technology, so that customers can evaluate a seal's performance before a single part is made.

## Total Systems Solutions

Parker's Seal Group offers a complete line of O-rings, custom molded shapes, composite (rubber/metal and rubber/plastic) seals, PTFE and thermoplastic seals, bumpers, dust covers, diaphragms, isolators, washers and thermoset injection molded boots and bellows for a wide variety of applications. Parker's "total systems sealing" approach can help customers reduce costs and improve efficiency.

To find out more about Parker seals and sealing systems call 1-800-C-PARKER, or visit [www.parker.com](http://www.parker.com).

# Parker Seal Group - Worldwide Locations

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Engineered Seals Division (ESD)  
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