

Seal Elastomers

Elastomer Type	Temp. Range (°C)	Nominal Hardness (Shore A)
Fluorocarbon	-40 to +230	75 to 90
High Performance Fluorocarbon	-26 to +204	75
Hifluor™	-26 to +204	75
Perfluorinated Elastomers	-15 to +300	65 to 75
Ethylene Propylene	-55 to +150	50 to 80
Fluorosilicone	-65 to +175	40 to 80
Silicone	-115 to +250	40 to 80

These are standard or typical materials. Other materials are available. Contact your Parker representative regarding materials not listed in this table.

Parofluor™ Materials Offering

Parker Compound	Color	Nominal Hardness (Shore A)	Temp. Range (°C)	General Application
V1266-65	White	65	-15 to 300	CVD, PECVD (Plasma enhanced CVD), Metal CVD, HDPCVD (High Density Plasma CVD), SACVD (Sub-atmospheric CVD), ECP (Copper deposition), Plasma Etch, Plasma Strippers and any other application that involves harsh chemistries
V8545-75	Black	75	-15 to 300	LPCVD (Low Pressure CVD), Diffusion Oxidation, RTP (Rapid Thermal Processing) and any other application that involves extremely high temperatures
V8562-75	White	75	-15 to 300	CVD, PECVD (Plasma enhanced CVD), Metal CVD, HDPCVD (High Density Plasma CVD), SACVD (Sub-atmospheric CVD), ECP (Copper deposition), Plasma Etch, Plasma Strippers and any other application that involves harsh chemistries

Your Authorized Parker Seal Distributor is:

Capabilities

Temperature Range (°C)	
Elastomers	Metals
-115 to +300	-267 to +1000
Pressure Rating	Leakage Rates As low as
10 ⁻⁹ torr to 50,000 psi	1x10 ⁻¹¹ ATM cc/sec./linear inch/ He

Retainers/Finishes

Retainer Materials	Surface Treatments
Aluminum	Anodize, Type I & II
Stainless Steel	Hard Anodize
Titanium	Electropolish
Plastic	Nickel Plate



Engineered Sealing Solutions For Semiconductor Applications

ISO 9001 / QS 9000
Certified

Catalog CSS-5111/USA



Parker also offers a complete line of o-rings and molded shapes, extruded spliced and fabricated elastomers and spring-energized PTFE sealing products for the semiconductor industry. For more information on Parker semicon products and materials call 1-800-C-PARKER, or contact your local distributor.



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Engineered Sealing Solutions for Semiconductor Applications

Performance Products

Parker Hannifin's Composite Sealing Systems (CSS) Division is an industry leader in the design and manufacture of high reliability sealing devices for the semiconductor processing industry. Using a combination of various metal or plastic retainers with molded-in-place (or vulcanized) elastomeric seals, CSS provides fabs with innovative, custom-engineered products that boost productivity and dramatically reduce contamination.



Parker sealing products are engineered to perform in critical semicon fabrication environments.

- UHP Slit Valve Doors
- Chamber Lid Seals
- View Port Seals
- End Effectors
- Thrust Plates/Contact Rings
- Flange Seals
- Resilient Metal Seals
- Metal Shapes

Developed in cooperation with leading semiconductor OEMs and suppliers, these and other CSS products are helping fabs all over the world stay productive - and profitable.

More Than Manufacturing

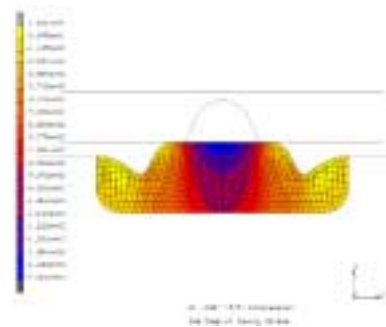
In addition to its line of innovative products, CSS has also developed a complement of value-added services and resources. The division's finite element analysis (FEA) assisted design capabilities enable customers to evaluate a



seal's performance in a variety of conditions before a single part is made. And its ultra-high purity (UHP) manufacturing operation

employs strict environmental and process controls in the mixing, manufacturing and packaging of products for semiconductor applications. UHP ensures the delivery of a clean, high-quality seal.

Finite element analysis (FEA) simulation of a UHP Slit Valve Door.



UHP Slit Valve Doors for process chamber sealing

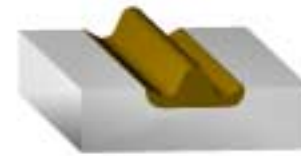


Thermoplastic Thrust Plate Integral Seal for copper deposition processes.



End Effectors for wafer transport.

UHP Slit Valve Door



The UHP Slit Valve Door is an engineered sealing system designed to improve productivity and reduce downtime in critical semiconductor processing applications. Developed in cooperation with leading semiconductor OEMs, the UHP Slit Valve Door consists of a sealing element chemically bonded to an aluminum or stainless steel door.

- Reduces particulation by up to 95%
- Increases seal life up to 10 times
- Eliminates stresses to the elastomeric material, reducing chemical attack
- Maintains optimal sealing force for increased seal life
- Eliminates movement of seal and reduces particle generation
- Eliminates parting lines and potential for leak path
- Reduces installation labor and equipment downtime
- Eliminates "virtual" leaks and/or contamination underneath the seal

Gask-O-Seal™



The Parker Gask-O-Seal™ consists of a metal or plastic retainer with grooves in one or both faces. An elastomer is molded into the groove to create the sealing element. The elastomer element may be either chemically bonded to the groove and/or mechanically locked in place by cross-holes in the retainer groove.

- Retainer eliminates seal over compression increasing seal life
- Eliminates the need to machine costly dovetail grooves
- Custom engineered seal design minimizes exposed surface area to media
- Bonded seal eliminates twisting or pinching and reduces particle generation
- One piece seal design reduces installation time/downtime
- Bonded seal eliminates risk of improper installation

Integral Seal™



The Integral Seal design consists of a metal or plastic retainer with an elastomer material chemically and/or mechanically bonded to the edge of the retainer.

- Used in retrofit situations in designs with o-ring grooves
- Retainer thickness as thin as .025 inch (.64 mm)
- Flexible retainer easily conforms to contoured surfaces
- One piece solution allows for quick and easy installation

Resilient Metal Seal



When sealing requirements exceed the capabilities of elastomeric seals, the resilient metal seal is an excellent alternative. Resilient metal seals are made in a variety of shapes to address diverse sealing needs. Their chemical resistance is superior to that of perfluoroelastomers.

- Typical metal seal configurations include: C-Seals (as shown), Spring Energized C-Seals, O-Rings, U-Seals, E-Seals and V-Seals
- Typical plating options include: silver, gold, soft nickel, aluminum and copper
- Vacuum leak rates down to 10⁻¹¹ ATM cc/sec./linear inch/He
- Pressures up to 25,000 psi (170 MPa)
- High temperature sealing to +1000°C
- Low closure force configurations can be used in retrofit applications

Experience and Innovation

Parker CSS developed its seal design expertise in the emerging aircraft and aerospace markets of the 1950s, and pioneered many of the ultra-reliable designs that are still in use today. That same experience, coupled with a commitment to new product development and technology, enables CSS to provide semiconductor OEM and chip fabricators with the best in engineered sealing solutions and systems.

CSS offers a wide range of elastomer materials and unique sealing geometries specifically designed to perform in:

- Wet Processes
- Fluorinated & oxygenated plasmas and gases
- UPDI water
- High temperatures
- High pressures
- Vacuums

Typical Applications

CSS has developed an entire line of products for typical semiconductor processing applications. These include: