

Composite Sealing Systems Division

Rubber/Metal, Rubber/Plastic & Resilient Metals Seals for EOG



Parker composite & metal seals meet, exceed energy, oil and gas industry performance demands

Parker Hannifin's Composite Sealing Systems Division designs and manufactures standard and customer rubber/metal, rubber/plastic and resilient metal products for energy, oil and gas sealing service. These products are engineered to provide superior performance in harsh EOG environments, while reducing equipment downtime and increasing productivity.

Typical Applications

Parker's composite and metal seals are ideal for use in multi-port subsea control systems, oil and gas pipeline and valve connections, MWD tools, actuator valves and many other applications. Parker engineers can assist with the development of custom solutions and systems for new HPHT designs or field retrofits.

Gask-O-Seals®

These volume/void seal products consist of a metal or plastic carrier plate with an elastomeric sealing element molded directly into a groove. Gask-O-Seals are capable of sealing high pressures (in excess of 20,000 psi) as well as vacuums.



Advantages include:

- Multi-port sealing with one component
- Ability to seal complex flange geometry
- Simple, visually verifiable installation
- Solid metal-to-metal contact insures stable joint with no re-torquing required
- Redundant seals can be incorporated into one component
- No machined grooves required in mating flanges
- Wide range of seal elastomers and retainers

Frac Balls

Frac balls from Parker are designed to perform in the harsh, demanding fracking environment. With multiple advanced materials and high-performance properties to choose from, Parker frac balls are developed to meet precise application needs and are supported by consistent manufacturing, rigid quality control procedures and testing to meet specified requirements.



- Common sizes range from 0.750" to 4.500" with other sizes available
- Pressure-holding capability to 18,000 psi (based on aluminum ball)
- Range of materials from aluminum to metal composite to G10 and G11 glass-reinforced epoxy resin to lighter-weight engineering thermoplastics

Integral Seal®

This product consists of a rubber sealing element bonded to the edge of a metal carrier. The integral seal offers many of the same advantages as the Gask-O-Seal but is recommended for use where a Gask-O-Seal can not be accommodated due to thickness of other geometry constraints. In high volume applications integral seals also offer a more economical alternative.



Advantages include:

- Sealing up to 15,000 psi
- Capable of retrofitting into existing sealing surfaces, including O-ring grooves
- Multi-port sealing with one component
- Ability to seal complex flange geometry
- Simple, visually verifiable installation



ENGINEERING YOUR SUCCESS.

Fastener and Fitting Seals

Most fluid systems have fasteners that must be sealed. Parker's fastener seal designs feature an elastomeric sealing element molded and bonded in place within a metal retainer (washer). Although they resemble a simple O-ring groove concept, the molded-in-place fastener seal offers numerous advantages.



Stat-O-Seal® fastener seals consist of a unique rubber sealing element bonded to a metal washer. They provide the simplest and most reliable method of sealing directly under a fastener head. Stat-O-Seals are available in most standard fastener sizes from #6 to 3" and metric fastener sizes from 5mm to 22mm. **ThreadSeal®** fastener seals consist of a unique rubber sealing element bonded to a metal washer and are intended for sealing directly onto the fastener threads. Parker's 750 series Thread-Seal can be used for sealing both UNF and UNC threads and are available in most english sizes from #6 to 1 1/2".

Metal Seals

Parker's highly-engineered metal seal designs offer customized solutions for more demanding applications, where extreme temperature, corrosive media, high vacuum, near zero leakage or long life concerns are present. The materials used in a resilient metal seals prevent gaseous permeation while providing exceptional performance in critical vacuum applications. Resilient metal seals are made-to-order for specific applications, and offered in many configurations, including:



- Machined Metal V-Seals
- Metal C-Rings
- Vented and Non-Vented Metal O-Rings
- Spring Energized Metal C-Rings
- Metal E-Ring

Common Parker Materials for Oil and Gas Applications

Material	Temperature Range (°F)	Hardness (Shore A)	Comments
Acrylonitrile - Butadiene (Nitrile, Buna-N) – NBR			
NO674-70	-30 to +250	70	General purpose
NO304-75	-65 to +250	75	Excellent low temperature
NB194-90	-30 to +275	90	Low compression set, extrusion resistant
Hydrogenated Nitriles – HSN, HNBR			
N1173-70	-25 to +325	70	General purpose
KA183-85/ N4031A85	-50 to +300	85	Excellent low temperature capability, extrusion resistant, ED resistance, NACE TMO192
KB163-90	-30 to +300	90	General purpose, explosive decompression resistant
Ethylene Propylene Rubber – EPDM, EPM, EP, EPR			
E0740-75	-70 to +250	75	General purpose, low compression set
E0962-90/ E4270A90	-60 to +250	90	Excellent steam to 500°F, explosive decompression resistant, resistant to CO2, H2S, methanol & glycols
Fluorocarbon – FKM, FPM			
V1164-75	-15 to +400	75	General purpose, low compression set
V1289-75	-55 to +400	75	Excellent low temperature
V0709-90	-15 to +400	90	General purpose, low compression set
VG109-90	-50 to +400	90	Excellent low temperature, low compression set, extrusion resistant, RGD resistant, high temperature, high pressure
Perfluoroelastomer (ULTRATM) – FFKM, FFPM			
FF200-75	+5 to +608	75	High temperature, low compression set
FF202-90	+5 to +608	90	Higher modulus version of FF200-75, high temperature, low compression set, extrusion resistant
FF580-75	+5 to +482	75	Most chemically resistant FFKM, steam resistant, low compression set
FF582-90	+5 to +482	90	Higher modulus version of FF580-75, chemically resistant, steam resistant, extrusion resistant, RGD resistant
V8588-90	-5 to +572	90	Higher modulus version of V8545-75, extrusion resistant, chemically resistant, high temperature capable
Tetrafluoroethylene - Propylene – TFE/P (AFLAS)			
V1006-75	+15 to +450	75	General purpose
V1041-85	+15 to +450	85	RGD resistant, broad chemical resistant, H2S

Retainer Material	Properties
304 Stainless	Good formability, excellent corrosion resistance
316 Stainless	Recommended for marine and chemical equipment
630 PH (17-4,15-5)	Corrosion resistance and high strength up to 600°F
718 Inconel	Nickel based alloy, corrosion-resistant
PEEK	High strength plastic, high temp range and chemical resistance
1020/30 Steel	Cold rolled steel, easy to machine high tensile strength
6061 Aluminum	General purpose use, good metal working properties