Parker Seals

Water System Sealing Solutions
Potable Water NSF Standard 61 Listed Materials

ISO 9001 / QS 9000
Certified

Catalog PSG-5025/USA

Introduction

Official NSF International Trademark

NSF®

Keep it Pure! Specify Parker NSF Certified Materials . . .

Parker - Your *Single Source* for NSF-61 Seal Materials . . .
Parker's O-Ring and JBL Divisions together offer one of the most comprehensive seal material selections certified to NSF Standard 61. With a total of nine EPDM compounds, seven Thermoplastic elastomers, and three Nitrile compounds, the O-Ring & JBL Divisions are fast becoming industry leaders in the research and development of quality seal compounds required for applications in potable water systems.

The National Sanitation Foundation (NSF) International is an industry regulatory agency established in 1944 and originally known simply as the National Sanitation Foundation. Now recognized by the American National Standards Institute (ANSI), NSF maintains qualification standards and criteria for toxicological review requirements regarding materials in physical contact with drinking (potable) water.

NSF Standard 61 was originally developed from a proposal by the United States Environmental Protection Agency (EPA). Essentially, NSF Standard 61 deals with indirect drinking water additives that may arise from unintentional migration or leaching into potable water from rubber, plastic, metal and other materials in direct contact with the fluid. NSF testing and qualification to this standard involves sampling of the material in contact with water and subsequent chemical analysis of the exposed water to measure possible leached substances harmful to human health.

NSF Standard 61 covers end-point devices and all components contained within the final one liter of the distribution system - including faucets, coolers, heaters, filtering devices and residential ice makers.

In addition to seal materials certified to NSF Standard 61, Parker Seals has also obtained potable water certifications from the Water Research Council (WRC) in Great Britain and the Kautschuk Trink Wasser (KTW) in Germany. Parker is actively involved in pursuing various other certifications required by key global customers and regulatory agencies.

By committing the resources in personnel and equipment that are necessary for ongoing material development, Parker is well positioned to meet the challenges of changing regulations and standards that occur every year. Parker is committed to providing our customers with the optimum sealing solutions available within the water systems industry.

Typical applications which may require NSF Standard 61 approved seal materials are:

• Bathroom Faucets • Showerheads • Kitchen Fixtures • Aerators • Bib Washers • Water Coolers/Heaters • Water Dispensers • Drinking Fountains • Water Filtration Systems • Irrigation Systems • Residential Ice Makers • Water Sprinklers • Water Meters • Sprayers • Valves & Fittings • Pipes/Tubing • Connector Hoses • Building Valves • Check Valves

Chloramine Resistance
In potable water applications where chloramine resistance is a concern, Parker offers chloramine resistant EPDM seal materials. *Chloramines* are organic materials sometimes used as a water treatment to disinfect and control microbial organisms such as *cryptosporidium parvum*.

Chloramines are aggressive, and if the application is not sealed with properly formulated chloramine resistant elastomers, contact may cause rapid decomposition and failure of the seal material.

An industry standard test method to accurately determine chloramine resistance of elastomers has not been formalized. Parker currently utilizes its own internally developed test methods to evaluate chloramine resistant elastomers suitable for long-term exposure to chloramine in solution. In the meantime, Parker remains active in joint efforts to develop an appropriate industry standard test procedure.

Clean, Healthy & Pure! Thanks to Parker's NSF-61 Approved Materials!

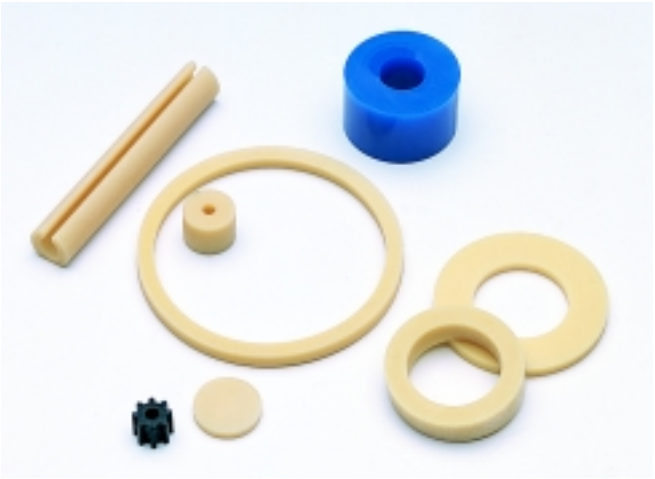
Potable Water Sealing Solutions

Parker Seal Group Divisions produce a wide range of “standard” and “custom” seal products for potable water applications fabricated from a wide variety of approved NSF Standard 61 materials as well as many non-NSF Standard 61 materials.

Seal materials used to produce these parts are guaranteed via our “C.B.I.” (controlled batch identification) system. This is a system of batch numbering, physical property testing, and traceability developed by Parker Seal Group which ties the entire quality control system together from the master batch to finished seals.

Parker JBL Division Extruded & Cut Parts have been manufactured for a large variety of high volume applications for over 35 years. Our unique process for producing precision extrusion and cut static seals provides customers tremendous latitude in design flexibility, typically with no tooling charges for any ID/OD combination from .040” to 3.000” outside diameters. JBL utilizes only “Sealing Grade” material formulations with the highest possible percentage of polymer for the most effective long-term sealing solutions.

Extruded and Cut products are primarily supplied as ID/OD tubing type cross-sections, but are also supplied in a variety of different cross-sections such as: square, rectangular, triangular and many other profiles.



Typical Parker JBL Extruded and Cut Parts used in Potable Water Applications

FEATURES - ADVANTAGES - BENEFITS

• Custom designed seals can be produced for specific applications with no tooling required for ID/OD cross-sections saving the customer time and money.

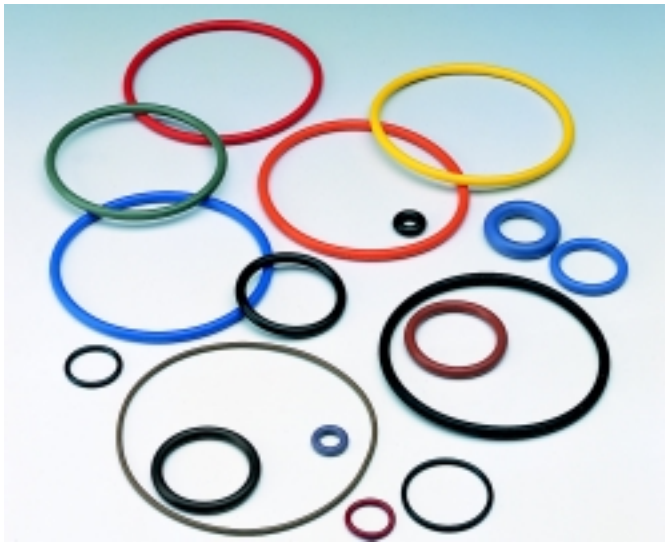
• Maximum sealing surface contact area can be obtained because of flat smooth edges with no hourglassing or mold flash.

For more information regarding JBL Extruded & Cut Parts, please reference JBL inPHorm Design Software or ask for JBL5400 Capabilities Brochure.

Parker O-Rings The Parker O-Ring Division offers EPDM and Nitrile NSF 61 approved elastomeric materials, ranging from 65 to 90 durometer, for use in sealing potable water applications.

In addition to being NSF approved, these materials also minimize the potential for concentration of leachable contaminants in potable water.

Parker O-Rings are available in AS568A Standard, DIN, JIS metric or custom sizes, as the application warrants. Parker Technical Support associates are available to address all design considerations such as temperature, pressure, gland design, surface finish, etc., and can propose several design alternatives. In addition, our staff can support additional testing requirements or work with you to develop the appropriate test protocol.



Typical Parker O-Ring Seals used in Potable Water Applications

FEATURES - ADVANTAGES - BENEFITS

• On going material development to respond to changes in the potable water systems industry.

• Consistent physical properties to assure sealing integrity.

• State-of-the-art equipment to ensure consistent process control.

• In-house tooling design and fabrication capability allows for quick turnaround and delivery of prototypes and production requirements.

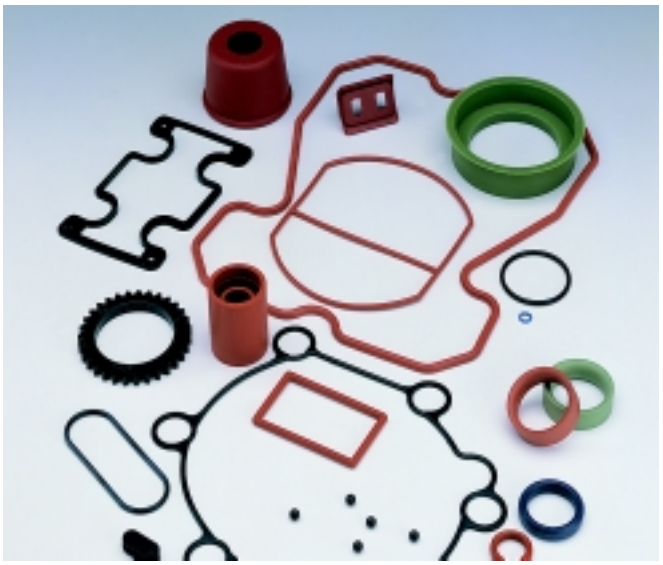
For additional information on all Parker O-Rings, please reference the Parker O-Ring inPHorm Design Software or ask for a copy of ORD5703 O-Ring Reference Guide.

Parker Custom Molded Shapes are designed to meet customer specific requirements utilizing a wide range of NSF approved Parker materials. These seals are homogenous rubber parts functioning as sealing devices in both dynamic and static applications and are available up to 32 inches outside diameter with a cross section thickness up to 1.5 inches.

Parker maintains a highly qualified staff of engineering professionals supported by a technical group using the latest CAD technology to assist you during the critical early design phase of your project.

Our technical associates will work with you on function, shape and materials, to design the best sealing solution for your application.

In addition, through our value analysis, we can assist you in selecting the most cost effective sealing solution while maintaining full sealing integrity and quality control.



Typical Parker Custom Molded Seals

FEATURES - ADVANTAGES - BENEFITS

• Finite Element Analysis (FEA) available to shorten seal design time and provide the best sealing solution for the application.

• Produced in NSF 61 materials as well as other elastomer families, offering a wide selection of materials.

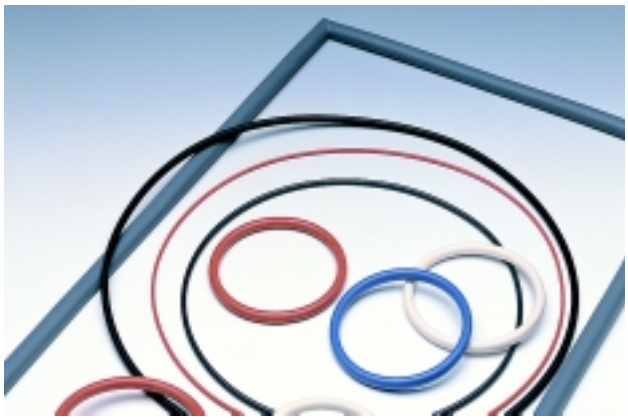
• Designed to meet customer specific requirements to ensure compliance with all specifications.

• Perfect fitting parts can result in less installation time and ultimately reduce assembly cost.

For additional information or assistance in designing a custom molded seal or shape, please contact Technical Support at the O-Ring Division.

ParFab Extruded Profiles are typically used for fabrication into spliced rings, 4-Corner Spliced Picture Frame Gaskets or custom parts cut to specific lengths. However, these profiles can also be supplied in bulk footage. JBL offers many standard extruded profiles in many configurations, such as: Solid & Hollow-O, Solid & Hollow D, U-Channel, Rectangular, Solid & Hollow Square and Hollow-Dart configurations.

Spliced/Fabricated Parts are made utilizing a hot vulcanization process to provide spliced rings and custom gaskets from either “standard” or “custom” cross-sectional profiles. These products offer an ideal, cost-effective sealing solution for many applications. These include low-closure force seals, large diameter profiles that cannot be molded, or requirements for hollow O-rings, non-standard solid O-rings, and other extruded profiles with an inside diameter larger than 2.500.”



Typical JBL ParFab Extruded and Spliced Parts

FEATURES - ADVANTAGES - BENEFITS

• Suitable for use in either traditional grooves or may be applied directly to any flat surface.

• Superior hot vulcanization technology provides stronger, more reliable joints.

• Finite Element Analysis (FEA) available to optimize seal design.

• Ease of adjusting closure-force by adjustment of cross-section design, cross-section I.D. or durometer.

• Hollow cross-sections are excellent replacements for foam or sponge gaskets and offer superior compression set resistance.

• Interference fit designs with asymmetrical solid or hollow cross-sections allow for ease of assembly.

For more information on JBL ParFab Extruded Profiles and Spliced Seals and Gaskets, please reference ParFab Catalog JBL-5420/USA.

Water Systems - Potable Water NSF 61 Approved Materials

EPDM Materials:	ASTM Test Method	E1242-65	E1244-70	E1257-70	E1570-70	E1571-70	E3609-70*	E7871-75	E1240-90	E7885-90
Parker Seal Division:		ORD	ORD	ORD/JBL	ORD	ORD	ORD	JBL	ORD	JBL
Water Contact Temperature *:**		C. HOT	C. HOT	C. HOT	C. HOT	C. HOT	C. HOT	C. HOT	C. HOT	C. HOT
Material Type:		EPDM	EPDM	EPDM	EPDM	EPDM	EPDM	EPDM	EPDM	EPDM
Material Color:		Black	Black	Black	Black	Black	Black	Black	Black	Black
Typical Temperature Range		-50 to 250	-50 to 250	-50 to 250	-50 to 250	-50 to 250	-50 to 250	-50 to 250	-50 to 250	-50 to 250
Properties:										
Hardness (Shore A)	**D2240**	65 +/- 5	70 +/- 5	70 +/- 5	70 +/- 5	70 +/- 5	70 +/- 5	75 +/- 5	90 +/- 5	90 +/- 5
Tensile, psi	**D412**	1200	1500	1500	1800	1450	1500	1500	2000	1700
Elongation, %	**D412**	125	150	125	200	125	150	200	100	150
100% Modulus, psi	**D412**	250	300	500	300	500	400	600	1600	600
Specific Gravity	**D297**	1.09	1.06	1.15	1.06	1.06	1.06	1.17	1.20	1.22
Compression Set:										
70 Hrs. @ 100 Deg. C, %	**D395**	7	10	8	13	16	10	13	8	23
Volume Change:										
70 Hrs. @ 100 Deg. C, %		1.1	0.7	1.0	0.3	0.1	1.0	2.0	1.3	2.0
Chloramine Resistant: (X)**				X						
Internally Lubricated: (X)			X		X					

Thermoplastic Rubber Materials:	ASTM Test Method	J7791-55	J7847-64	J7773-73	J7848-80	J7915-80	J7768-87	J 7916-87
Parker Seal Division:		JBL	JBL	JBL	JBL	JBL	JBL	JBL
Water Contact Temperature *:**		C. HOT	C. HOT	C. HOT	C. HOT	C. HOT	C. HOT	C. HOT
Material Type:		TPR	TPR	TPR	TPR	TPR	TPR	TPR
Material Color:		Beige	Beige	Beige	Beige	Black	Beige	Black
Typical Temperature Range		-76 to 212	-76 to 212	-76 to 212	-76 to 212	-76 to 212	-76 to 212	-76 to 212
Properties:								
Hardness (Shore A)	**D2240**	55 +/- 5	64 +/- 5	73 +/- 5	80 +/- 5	80 +/- 5	87 +/- 5	87 +/- 5
Tensile, psi	**D412**	640	950	1230	1640	1640	2300	2300
Elongation, %	**D412**	330	450	460	520	520	530	530
100% Modulus, psi	**D412**	290	350	525	670	670	1000	1000
Specific Gravity	**D297**	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Compression Set:								
70 Hrs. @ 100 Deg. C, %	**D395**	25	36	38	41	41	45	45
Volume Change:								
168 Hrs. @ 100 Deg. C, %		-6	6.0	5.0	3.0	3.0	3.0	3.0
Chloramine Resistant: (X)**		X	X	X	X	X	X	X
Internally Lubricated: (X)								

Note: TPR materials utilize NSF approved polymers. Contact the JBL Division for additional information.

Nitrile Materials:	ASTM Test Method	N0757-70	N1517-70	N7926-90
Parker Seal Division:		ORD/JBL	ORD	JBL
Water Contact Temperature *:**		CLD23	C. HOT	C. HOT
Material Type:		Nitrile	Nitrile	Nitrile
Material Color:		Black	Black	Black
Typical Temperature Range		-30 to 212	-30 to 212	-30 to 212
Properties:				
Hardness (Shore A)	**D2240**	70 +/- 5	70 +/- 5	90 +/- 5
Tensile, psi	**D412**	2000	1800	2500
Elongation, %	**D412**	180	150	50
100% Modulus, psi	**D412**	600	500	2000
Specific Gravity	**D297**	1.24	1.24	1.24
Compression Set:				
70 Hrs. @ 100 Deg. C, %	**D395**	21	26	30
Volume Change:				
70 Hrs. @ 100 Deg. C, %		4.2	5.0	2.0
Chloramine Resistant: (X)**				
Internally Lubricated: (X)				

Your Single Source for NSF-61 Materials

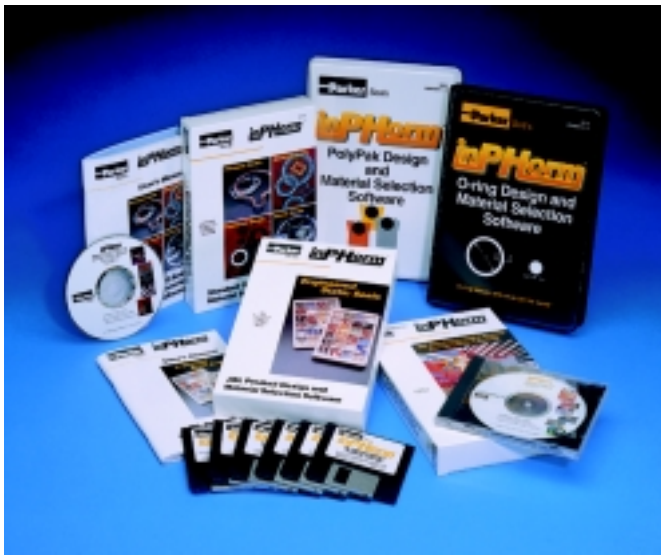
* Additional Approval in Great Britain (WRC) and in Germany (KTW).
** For more information regarding specific Chloramine Testing criteria, please call the appropriate Parker Seal Division.
*** NSF 61 listed materials given a commercial hot water rating are also certified for cold water.
C. HOT designates commercial hot water application. CLD23 designates cold water application.

Note: These test values are from a limited number of samples and should not be used for establishing specific limitations.

Build With The Best!

For fast, easy and accurate seal design assistance, obtain a copy of the latest iteration of Parker's inPHorm™ Seal Design and Material Selection Software. Now available for:

- **O-Rings**
- **JBL Static Seals**
- **O-Seal Standard Products**
- **Parker Hydraulic & Pneumatic Seals**
- **Chomerics EMI & Thermal Management Products**



Your Authorized Parker Seal Distributor:

Parker Seals

Parker Hannifin Corporation

JBL Division
3025 West Croft Circle
Spartanburg, SC 29302
Telephone (864) 573-7332
FAX (864) 583-4299

O-Ring Division
2360 Palumbo drive
Lexington, KY 40509
Telephone (606) 269-2351
FAX (606) 268-3816

For the latest information on all Parker Hannifin products, visit our web site at www.parker.com