DUPONT™ KALREZ®
CUSTOM PARTS
RELIABLE, LONG-TERM SEALING IN EXTREME CHEMICAL, PLASMA, AND THERMAL ENVIRONMENTS
Find A Better Fit With Custom Kalrez® Parts

DuPont™ Kalrez® custom perfluoroelastomer parts can be made with unusual geometries to match unique sealing applications. Kalrez® custom parts combine high heat, plasma, and chemical resistance with unique, one-of-a-kind fit for superior sealing possibilities. Kalrez® is available in a variety of shapes and standard geometries, including large and small parts.

Engineered for optimum Performance
Kalrez® custom parts are available in a variety of compounds depending on the thermal, chemical and plasma resistance required. Parts can be designed and molded to meet your specific needs. In addition to production volume parts, Kalrez® custom parts are also available as machined and molded prototypes.

Kalrez® parts include:
- O-rings
- Rod Stock
- Valve seats
- Diaphragms
- Gaskets
- Packer seals
- T-seals
- Column fittings
- Kalrez® Valve Stem Packing (KVSP™)
- Door seals
- Composites (bonded or over molded parts)
- Parts custom designed for you

KVSP™ Kalrez® Valve stem packing a combination of chemically resistant Kalrez® and Vespel®
Kalrez® Composite Seals for Standard and Complex Geometries

Kalrez® composite seals are available in a variety of compounds depending on the thermal, chemical and plasma resistance required. Kalrez® composite seal applications include; micro valves, micro-pumps, downhole oil and gas, semiconductor chip process equipment, ink jet printers, beverage dispensers, car wash pumps, paint spray, chemical plants and more.

Kalrez® Bonded Door Seals

Kalrez® bonded door seals are designed for easy installation and low particle generation. They combine a custom seal design and proprietary adhesion technology along with the excellent plasma resistance of Kalrez® perfluoroelastomer seal materials developed for semiconductor applications. The seal is held in a “fixed” position versus conventional O-rings, thereby eliminating “rolling/twisting” and abrasion during door actuation. In addition, the seal design has been optimized using finite element analysis (FEA) to minimize high concentrations of localized stresses. As a result, both particle generation and sealing performance are significantly improved versus conventional O-rings.

Less Replacement Time versus O-ring Seals During Preventive Maintenance

- Quick and easy assembly/disassembly to mounting bracket
- Reduces installation problems commonly experienced with O-ring seals
- Eliminates need to clean the seal gland during preventive maintenance
- Barcode on packaging plus bonded door seal part number and Kalrez® product number engraved on back of commercially available bonded door seals maintains traceability and identification plus provides assurance that it is a Kalrez® perfluoroelastomer part (FFKM).
Kalrez® slabs and sheets are available in a variety of standard sizes and thicknesses. Other sizes are available upon request. A wide variety of compounds are available, providing many options to use Kalrez® as a flexible sealing solution.

Kalrez® slabs and sheets are often used to produce simple two dimensional shapes such as disks, washers, flat gaskets, etc.

**Standard Sizes Available:**
76.2 x 76.2 mm [3x3 in], 152.4 x 152.4 mm [6x6 in], 152.4 x 304.8 mm [6x12 in], & 304.8 x 304.8 mm [12x12 in]

**Thicknesses Available:**
0.51 mm [0.020 in], 0.76 mm [0.030 in], 1.02 mm [0.040 in], 1.27 mm [0.050 in], 1.52 mm [0.06 in], 1.78 mm [0.070 in], 2.03 mm [0.080 in], 2.29 mm [0.090 in], 2.79 mm [0.110 in], 3.18 mm [0.125 in]

**Expert Support, Including Finite Element Analysis**

Advanced Finite Element Analysis (FEA) capabilities are available to help design new seal shapes, optimize compound selection and groove geometry, and model performance of parts in service. Use of FEA can shorten development times and produce innovative solutions for long-term sealing performance.

Our Centers of Excellence (COE) give customers the advantage and collaboration through application and testing expertise within our global network.

**Initial State at Room Temperature**

**Installed State, at 23°C**

**Operating State with 50 Torr Outer Pressure at 50°C**

**Operating State with 50 Torr Outer Pressure at 180°C**

**Final Part with validated design after FEA**
Specialty Kalrez® Products for Complex Shapes

Kalrez® 6190
Kalrez® 6190 is a product designed for the most complex custom parts and high volume applications where outstanding thermal stability is required. This material offers very good overall chemical resistance and can be used in application up to 300 °C. Kalrez® 6190 parts can be designed to fit in complex new equipment or can be a performance upgrade in existing industrial applications.

Kalrez® CP222
Kalrez® CP222 is a product tailored for high volume applications and custom shapes. It has opened the design space for perfluoroelastomers and can be manufactured in a variety of geometries. It continues the Kalrez® tradition of providing high value in use perfluoroelastomer parts with outstanding chemical resistance to extend mean time between repair (MTBR). A maximum service temperature of 225°C (437°F) is suggested.

Note: contact a Kalrez® application engineer to assess performance fit in your specific application.
Kalrez® LS390 perfluoroelastomer parts are a grey product for use as sanitary seals in food handling, beverage, and pharmaceutical applications where FDA, USP <87> and <88> Class VI compliance are required. In addition, Kalrez® LS390 parts also meet Japan Pharmacopeia, edition 16. Kalrez® LS390 has been designed to address these issues by offering High hardness properties, low stiction, temperature resistance up to 220°C (428°F) and excellent chemical resistance to process chemicals, WFI (water for injection), as well as SIP and/or CIP processes. Because of its unique grey color, LS390 parts are easy to identify for proper material selection and application. Please contact your Kalrez® perfluoroelastomer parts Representative for available standard sizes and pricing information.

Benefits of Kalrez® Custom Seals

- Meets the rigors of AS9100 aerospace standard quality certification; DuPont is a certified designer and manufacturer of seals and sealing devices per AS9100. (Manufacturing facility in Newark, DE)
- Proprietary technology for bonding compounds to a variety of materials, including aluminum, plastic, stainless steel, metal alloys, PEEK, brass, etc. Improves performance, and reduces cost by integrating the seal and substrate into one part.
- Overall, Kalrez® custom seals improve meantime repair, longer life and lower operating costs.
NETWORK OF RELIABLE DISTRIBUTORS

Kalrez® parts are readily available through an extensive network of worldwide authorized distributors. Our authorized distributors can give you the technical assistance needed to help solve your sealing problem. Contact DuPont™ Authorized Distributors for standard or custom O-rings, valve seats, diaphragms, gasket fittings or custom shapes. Look for the DuPont™ Kalrez® Authorized Distributor Logo.
The information provided in this data sheet corresponds to our knowledge on the subject at the date of its publication. This information may be subject to revision as new knowledge and experience becomes available. The data provided fall within the normal range of product properties and relate only to the specific material designated; these data may not be valid for such material used in combination with any other materials, additives or pigments or in any process, unless expressly indicated otherwise.

The data provided should not be used to establish specification limits or used alone as the basis of design; they are not intended to substitute for any testing you may need to conduct to determine for yourself the suitability of a specific material for your particular purposes. Since DuPont cannot anticipate all variations in actual end-use and disposal conditions, DuPont does not guarantee favorable results, makes no warranties and assumes no liability in connection with any use of this information. All such information is given and accepted at the buyer’s risk. It is intended for use by persons having technical skill, at their own discretion and risk. Nothing in this publication is to be considered as a license to operate under or a recommendation to infringe any patent. DuPont advises you to seek independent counsel for a freedom to practice opinion on the intended application or end-use of our products.

CAUTION: Do not use DuPont materials in medical applications involving implantation in the human body or contact with internal body fluids or tissues unless the material has been provided from DuPont under a written contract that is consistent with DuPont policy regarding medical applications and expressly acknowledges the contemplated use. For further information, please contact your DuPont representative. You may also request a copy of DuPont POLICY Regarding Medical Applications H-50103-5 and DuPont CAUTION Regarding Medical Applications H-50102-5.

Copyright © 2017 DuPont. The DuPont Oval Logo, DuPont™, Kalrez® and Vespel® are trademarks or registered trademarks of E.I. du Pont de Nemours and Company or its affiliates. All rights reserved.

(06/17) Reference number KZE-A40053-00-A0617