

Engineered seal performance for demanding conditions

Kalrez® The original.

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In today's oil and gas environment, seals are potentially the most critical element in your equipment that can be easily overlooked. With oil and gas production increasingly pushing into deep water, the demands on your equipment are becoming more extreme. Choose a seal that's specifically designed to cope in these demanding environments.



Kalrez[®] 0090

Parts for Rapid Gas Decompression

Overview:

Reduce potential for costly seal failure with Kalrez[®] O-rings. Independently certified by two labs, these O-rings are designed for utmost resistance to rapid gas decompression. Building on over 30 years of expertise in catering to the oil and gas sector, DuPont introduces reliable sealing solutions apt for downhole and surface-mounted apparatus including various types of valves, packers, and pumps.

Why Choose Kalrez[®] 0090:

- **Superior RGD Resistance:** Kalrez[®] 0090 parts are scientifically developed to offer exceptional resilience against repeated rapid gas decompression. In tests conducted by third parties based on globally recognized standards, O-rings secured the highest rating (0000), showing no internal imperfections.
- **Comprehensive Test Standards:** Recognized laboratories such as the Materials Engineering Research Laboratory Ltd. (MERL) in the U.K. and Centre Technique des Industries Mécaniques (CETIM) in France have tested these parts. The former followed the NORSOK M-710 (Rev. 2) standards, while the latter adhered to the TOTAL's specification GS EP PVV 142 (Rev. 05).
- **Chemical Resilience:** These sealing parts resist over 1800 chemical compounds, ensuring longevity and durability.
- **Temperature Versatility:** Kalrez[®] 0090 sustains its resilience even at extreme temperatures, ranging from as high as 250°C to as low as -40°C.
- **High Modulus:** At low elongation, it provides top-tier extrusion resistance, enhancing the seal's effectiveness.

Why the 0000 Rating Matters:

A 0000 rating from the NORSOK and TOTAL tests signifies the highest compliance level, indicating that the O-rings remained intact post-testing. Kalrez[®] 0090 showcases performance aligned with these pivotal industry benchmarks.

Kalrez[®] 3065

For Packers and “V”- Rings

Overview:

Kalrez[®] 3065, richly filled with carbon black and fiber reinforcement, is engineered to function efficiently even under immense pressure, without any extrusion. It boasts all-round chemical resilience, particularly against sour oil and amines. Kalrez[®] 3065 can endure up to 288°C, making it the ideal solution for numerous oil and gas well ventures. Typically used as V-rings and specialized parts, it outperforms as an alternative to O-rings.

Why Choose Kalrez[®] 3065:

- **Highly Filled:** DuPont™ Kalrez[®] 3065 is densely packed with carbon black and fiber reinforcement.
- **No Extrusion:** Specifically designed to operate without extrusion, even under extreme pressure.
- **Chemical Resistance:** Possesses broad chemical resistance and showcases excellent resilience against sour oil and amines.
- **Temperature Tolerance:** It can operate at an upper service temperature of 288 °C (550 °F), ideal for demanding environments.
- **Versatile Applications:** The mechanical and chemical attributes of Kalrez[®] 3065 make it the preferred choice for various oil and gas well ventures.
- **Form Factor:** While it's predominantly used as V-rings and other bespoke parts, it's also a formidable O-ring alternative.





Kalrez[®] Spectrum[™] 7090

High Temperature Resistance & High Hardness

Overview:

Kalrez[®] Spectrum[™] 7090 perfluoroelastomer parts are curated especially for tasks demanding high hardness and superior modulus properties. These specialty black parts excel in numerous mechanical domains like compression set resilience, seal force maintenance, temperature cycling impact response, and resistance to rapid gas decompression. Appropriate for both dynamic and static sealing, Kalrez[®] Spectrum[™] 7090 parts are particularly beneficial in scenarios demanding extrusion resistance at elevated temperatures. They also provide unmatched thermal stability and chemical resistance, with a recommended maximum service temperature of 325°C.

Why Choose Kalrez[®] Spectrum[™] 7090:

- **Tailored for Specific Use:** Kalrez[®] Spectrum[™] 7090 is particularly designed for applications demanding high hardness and increased modulus properties.
- **Outstanding Mechanical Traits:** These specialty black parts excel in:
 - Compression set resistance - Seal force retention
 - Adaptability to temperature cycling impacts
- **Resistance to rapid gas decompression.**
- **Dynamic & Static Applications:** Ideal for both moving and non-moving sealing roles, ensuring versatility.
- **Extrusion Resistance:** Especially effective for applications necessitating resistance to extrusion at heightened temperatures.
- **Thermal Robustness:** Offers unmatched thermal stability, even during brief exposures to temperatures exceeding its recommended 325°C (617°F) service limit.
- **Chemical Resistance:** Ensures long-lasting performance in environments with a diverse range of chemicals.

Kalrez® OG193

Reliable sealing performance for complete peace of mind

Overview:

Reduce potential for costly seal failure with Kalrez® O-rings. Independently certified by two labs, these O-rings are designed for utmost resistance to rapid gas decompression. Building on over 30 years of expertise in catering to the oil and gas sector, DuPont introduces reliable sealing solutions apt for downhole and surface-mounted apparatus including various types of valves, packers, and pumps.

Why Choose Kalrez® OG193:

- **Engineered for Specific Use:** DuPont has further optimized Kalrez® to excel specifically in the oil and gas sectors, ensuring easier installation and enhanced performance to address the industry's rigorous demands.
- **Ideal for Various Applications:** Kalrez® OG193 parts are tailored for a multitude of applications in both upstream and downstream segments, making them versatile for different operational challenges.
- **Demonstrated Qualities:** Exhibits top-tier attributes in energy applications that necessitate perfluoroelastomer chemical resistance combined with rapid gas decompression (RGD) performance and robust strength.
- **Best-in-Class RGD Performance:** Kalrez® OG193 parts have achieved a "0000" rating in the ISO 23936-2 RGD test, making them stand out for exceptional performance in environments where RGD resistance is essential.
- **Sour Service Suitability:** Tested rigorously according to the standards of ISO 23936-2 at 215 °C after extended exposure to high H₂S content mixture, ensuring hardness, volume change, and M50, Tb, and Eb retention.

Typical Applications:

- Completion tools • Drilling and wireline tools • Valves • Pumps
- Compressors • Process instrumentation • Packing systems

Additional Information:

Outstanding Balance: For over four decades, DuPont™ Kalrez® perfluoroelastomer parts have been a trusted solution in aggressive processes and high-temperature applications. With the introduction of Kalrez® OG193, DuPont has expanded its offering with top-performing 90+ durometer (Shore A) FFKM parts to cater to the intricate needs of the oil and gas industry.

Customization Capabilities: DuPont offers advanced finite element analysis (FEA) capabilities to assist in designing new seal shapes, optimizing compound selection/groove geometry, and modelling the performance of parts during their lifecycle. This FEA advantage can minimize development times and spur innovative solutions for long-lasting sealing.

For more information on Kalrez®, visit our website:
www.dupont.com/kalrez.html

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