



Full O-Ring Catalogue

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1. NBR (Nitrile / Buna-N) O-rings

1.1. Introduction

NBR (Acrylonitrile-Butadiene Rubber) is a cost-effective general-purpose elastomer with strong resistance to petroleum oils, fuels and many hydraulic fluids. It is widely stocked in standard hardnesses and AS568 sizes.

1.2. Applications

Fuel and oil seals (automotive, industrial)

Hydraulic systems, pumps, valves

General purpose static and some dynamic seals



1.3. Common parameters

Parameter	Typical value / range	Notes
Temperature range	-40°C to +120°C (-40°F to ~248°F) typical; some compounds extend higher.	Range depends on ACN content and compound.
Standard hardness (Shore A)	70A common (range 40–90A)	70A is common stock for general sealing.
Chemical resistance	Good to petroleum oils, fuels, greases; poor to ozone/weathering	Choose compound per fluid exposure.
Typical color	Black	Custom food-grade or special colors possible.

1.4. Common sizes / ordering

AS568 dash sizes widely stocked (refer to AS568 chart for dash code → ID/CS). Common stocked cross sections: 1.78 mm (0.070"), 2.62 mm (0.103").

2. FKM (Viton®) O-rings

2.1. Introduction

FKM (fluoroelastomer, e.g., Viton®) offers superior heat and hydrocarbon/chemical resistance among common elastomers; preferred where elevated temperature and resistance to aggressive hydrocarbons are required.

2.2. Applications



Engine & fuel system seals, petrochemical processing, high-temperature static seals



2.3. Common parameters

Parameter	Typical value / range	Notes
Temperature range	-10°C to +200°C typical; some compounds perform to ~230°C short-term	Compound dependent; consult vendor.
Standard hardness (Shore A)	70A common (60–90A range)	High-temp grades available.
Chemical resistance	Excellent to oils, fuels, many chemicals; poor to amines & certain bases	Use compatibility charts for specific fluids.
Typical color	Black / dark shades	

2.4. Common sizes / ordering

AS568 and ISO 3601 metric sizes; common CS options 1.78 mm and 2.62 mm.

3. EPDM O-rings

3.1. Introduction

EPDM (Ethylene-Propylene Diene Monomer) is chosen for water/steam, weathering and ozone resistance. Not recommended for hydrocarbon fuels or mineral oils.

3.2. Applications

Hot water systems, steam lines, HVAC, outdoor seals, potable water components





3.3. Common parameters

Parameter	Typical value / range	Notes
Temperature range	-50°C to +120°C (up to ~+150°C for special grades)	Excellent steam and hot-water tolerance.
Standard hardness (Shore A)	60–70A common	Formulations vary for static/dynamic duty.
Chemical resistance	Good to water, glycols, polar chemicals; poor to hydrocarbons	Not suited for fuel/oil services.
Typical color	Black	

3.4. Common sizes / ordering

AS568 / ISO metric sizes; frequently stocked cross sections: 1.78 mm, 2.62 mm.

4. Silicone (VMQ) O-rings

4.1. Introduction

Silicone (VMQ) offers outstanding low-temperature flexibility and biocompatibility; used in food, medical and low-temperature applications. Silicone has limited resistance to fuels and high mechanical wear.



4.2. Applications

Medical devices, food processing equipment, low-temperature seals, appliances, sterilizable parts

4.3. Common parameters



Parameter	Typical value / range	Notes
Temperature range	-60°C to +200°C typical	Excellent low-temp elasticity; temperature limits depend on compound.
Standard hardness (Shore A)	50–70A common	Medical grades often 50–60A.
Chemical resistance	Good to water, many polar solvents; poor to hydrocarbon fuels	Not ideal for oil/fuel exposure.
Typical color	Translucent, red, white, custom	

4.4. Common sizes / ordering

AS568 and ISO sizes; medical parts often require certified compound and cleanliness traceability.

5. HNBR (Hydrogenated NBR) O-rings

5.1. Introduction

HNBR is a hydrogenated form of NBR with improved heat, ozone, and abrasion resistance; used where NBR's limits are reached but FKM isn't required.



5.2. Applications

High-temperature hydraulic seals, oilfield equipment, automotive high-heat seals

5.3. Common parameters

Parameter	Typical value / range	Notes
Temperature range	-40°C to +150°C typical	Better aging resistance vs NBR; compound dependent.
Standard hardness (Shore A)	70A common	Available in different durometers.
Chemical resistance	Good to oils, fuels, hydraulic fluids; improved vs NBR for ozone/aging	Preferred when improved durability required.



Parameter	Typical value / range	Notes
Typical color	Black	

5.4. Common sizes / ordering

AS568 and metric sizes; stocked in standard CS.

6. FFKM (Perfluoroelastomer / Kalrez®) O-rings

6.1. Introduction

FFKM (perfluoroelastomer) provides the broadest chemical resistance and highest thermal capability of elastomers; used where uptime and chemical aggressiveness justify high cost.



6.2. Applications

Semiconductor process equipment, aggressive chemical processing, high-temperature valves, critical vacuum systems

6.3. Common parameters

Parameter	Typical value / range	Notes
Temperature range	~ up to 300°C or more depending on compound; some specialty grades service higher	Highest elastomeric temperature capability; check vendor data.
Standard hardness (Shore A)	60–90A typical	Vendor compounds tuned for specific chemistries.
Chemical resistance	Excellent across broad spectrum (acids, solvents, oxidizers)	Often the only elastomer suitable for highly aggressive media.
Typical color	Vendor dependent (black, tan)	

6.4. Common sizes / ordering



Often supplied as molded or custom parts; AS568 sizes available but many procure molded rings to specification.

7. PTFE (Teflon®) O-rings

7.1. Introduction

PTFE (polytetrafluoroethylene) is a thermoplastic polymer (not an elastomer). PTFE O-rings provide near-universal chemical resistance and excellent temperature capability but have negligible elasticity; they are typically used with an elastomeric energizer or as composite rings.



7.2. Applications

Highly corrosive chemicals, static high-temperature seals, valves, flanged connections, semiconductor chemicals

7.3. Common parameters

Parameter	Typical value / range	Notes
Temperature range	-200°C to +260°C (typical)	Excellent high/low temp performance; check vendor specifics.
Elasticity	Very low (not an elastomer)	PTFE requires energizer (elastomeric) or specific gland design.
Chemical resistance	Almost universal chemical resistance	Avoid molten alkali metals and elemental fluorine in many cases.
Typical color	White / natural	Filled grades (glass, carbon, bronze) also common.

7.4. Common sizes / ordering

PTFE O-rings can be supplied to AS568 sizes but often require special tolerances; composite designs common.

8. Fluorosilicone (FVMQ) O-rings

8.1. Introduction

Fluorosilicone combines silicone backbone properties (excellent low-temperature flexibility) with improved fuel/hydrocarbon resistance





compared to standard silicone. It is used where low-temperature performance and some hydrocarbon resistance are both required.

8.2. Applications

Aerospace fuel systems, cryogenic seals that need hydrocarbon resistance, low-temperature fuel handling

8.3. Common parameters

Parameter	Typical value / range	Notes
Temperature range	-70°C to +200°C (compound dependent)	Very good low temp sealing; some compounds usable to ~+232°C dry heat.
Standard hardness (Shore A)	70A common	Vendor dependent.
Chemical resistance	Improved hydrocarbon/fuel resistance vs silicone, not as broad as FKM	Good compromise when low temp and fuel resistance both required.
Typical color	Red, blue, or black (vendor)	

8.4. Common sizes / ordering

AS568/ISO sizes; commonly stocked in aerospace/cryogenic inventories.

9. Medical-grade / FDA-compliant O-rings

9.1. Introduction

Medical-grade O-rings are produced under controlled manufacturing and cleaning conditions with compounds that comply with FDA (21 CFR) and other medical standards (USP, ISO 10993) as required. Materials commonly used: silicone, PTFE, EPDM specially compounded NBR/FKM.



9.2. Applications

Medical devices, pharmaceutical processing equipment, food & beverage contact seals

9.3. Common parameters



Parameter	Typical requirement	Notes
Regulatory compliance	FDA 21 CFR (food contact), USP class, ISO 10993 (biocompatibility)	Certificates and lot traceability required.
Temperature range	Material dependent (silicone example: -60°C to +200°C)	Check sterilization method (autoclave, gamma).
Cleanliness	Class 10000 / ISO 7 or better manufacturing preferred	Parts must be cleaned, packaged, and lot-traced for medical use.
Typical materials	Silicone, PTFE, EPDM, special NBR/FKM compounds	Select per chemical & sterilization needs.

9.4. Common sizes / ordering

AS568/ISO sizes used; medical parts often need tighter tolerances and certification packages.

10. Composite / Reinforced O-rings (AR-glass, fabric reinforced)

10.1. Introduction

Composite or reinforced O-rings incorporate reinforcement materials (glass fiber, aramid, PTFE fabric) to increase mechanical strength, extrusion resistance and dimensional stability for high pressure or abrasive environments.



10.2. Applications

High-pressure dynamic seals, extrusion-prone grooves, abrasive or high wear services

10.3. Common parameters

Parameter	Typical notes	Notes
Temperature range	Depends on base elastomer or PTFE matrix	Reinforced PTFE has wide temp window; elastomer composites follow base polymer limits.
Mechanical benefits	Improved extrusion/wear resistance; higher mechanical strength	Often used as primary or backup rings in demanding designs.



Parameter	Typical notes	Notes
Chemical resistance	Depends on matrix (PTFE composites very resistant)	Reinforcements usually inert but final compatibility depends on matrix and adhesive.

10.4. Common sizes / ordering

Typically supplied to AS568/metric sizes or molded/custom shapes; used in heavy-duty seals.

11. Appendix — AS568 & ISO 3601 Size Standards

AS568 (SAE Aerospace Standard) defines the most common inch (imperial) O-rings sizes (dash numbers). Cross-sections typically range from 0.040" (1.02 mm) to 0.275" (6.99 mm); ID up to 26" and higher for custom parts. Use AS568 dash number or metric ID & CS when ordering.