

## O-Rings Information

O-rings are generally installed between joined components to form a liquid-tight seal to prevent fluid loss. For optimal performance, they should be used with hard-surfaced metals that are kept clean and free from grit, dirt, and other debris that could damage the O-ring.

### DEFINITIONS

**AS568A Dash Number**—A universal standard that defines the sizes and tolerances for O-rings.

**Durometer/Hardness**—Elastomer material hardness is referred to as "durometer"; the higher the durometer number, the harder the material.

### O-RING TYPES

#### Round Cross-Section

The most common O-ring design serves a variety of uses, including sealing valves, faucets, flanges, and engines.



#### Quattro Seal Cross-Section

Quattro seals have 4 sealing surfaces, which reduces the amount of squeeze required for a positive seal; reduces friction and extends seal life. All conform dimensionally to AS568 O-ring sizes.



#### Rectangular Cross-Section (Backup Rings)

Use in conjunction with O-rings to help prevent extrusion in high-pressure applications or where extrusion gaps are excessive. Virtually chemically inert rings are compatible with all hydraulic



fluids. Whenever possible, use 2 backup rings—1 on either side of the O-ring.

### MATERIALS

**Buna N**—Excellent abrasion resistance and chemical resistance in water, petroleum oil, and silicone lubricants. Not recommended for use with ozone, ketones, strong acids, or brake fluids. Do not expose to direct sunlight.

**EPDM**—Excellent low-temperature flexibility and chemical resistance to ozone, weather, water, and steam. Moderate to good resistance to a variety of chemicals. Excellent gas permeability. Incompatible with petroleum-based fluids; not recommended for hydraulic applications.

**FEP Encapsulated**—Solvent-resistant, chemically inert material has an extremely low coefficient of friction and very low gas permeability. Well suited to hostile environments and for sealing corrosive fluids. Clear exterior with either a red silicone or black Viton® core.

**Neoprene**—General-purpose material resists oils, oxidation, and weather. Abrasion- and flame-resistant, with excellent chemical resistance to ozone, weather, dilute acids, dilute alkalis, and automotive refrigerants.

**Polyurethane**—Excellent abrasion resistance and elasticity, with high tensile strength; well suited for hydraulic and pneumatic applications. Excellent chemical resistance to ozone, weather, oxidation, and silicone oil, but poor in ketones, steam, aldehydes, concentrated acids, and bases. Poor flame resistance.

**PTFE**—Can withstand harsh chemical environments, as well as extreme temperatures. PTFE has the lowest coefficient of friction of any seal material. Excellent tensile strength, tear resistance, abrasion resistance, flame resistance, and gas permeability. Poor elasticity.

**Silicone**—Excellent in high-temperature static applications. Stays flexible in very low temperatures. Extraordinary resistance to oxidation and ozone degradation. Poor resistance to gas permeation.

**Viton®**—Well suited to applications with high-temperature petroleum oil exposure. Excellent flame resistance, compression set, and gas permeability. Also outstanding chemical resistance to ozone, weather, dilute acids, dilute alkalis, petroleum oils, and solvents.