

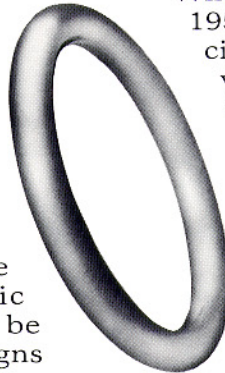
INTRODUCTION

Disogrin O-rings guarantee positive, leak-free sealing under pressure to 10,000 psi. Their performance is so superior that no back-up rings are needed, as they are with rubber O-rings.

The physical properties of these specially formulated urethane O-rings set the highest standards in the industry for toughness, tear strength, resilience and pressure tolerance.

They perform within a wide temperature range, offer excellent oil and abrasion resistance, have a low break-away friction and no extrusion tendency. Lasting up to 10 times longer than the most commonly used O-rings, they considerably reduce operating costs, save maintenance and downtime.

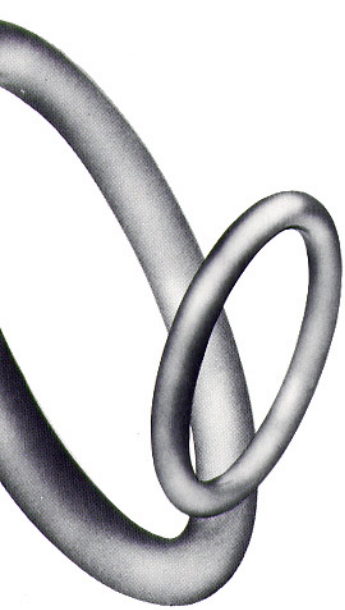
Disogrin O-rings are ideal when the design of the cylinder is such that only a small sealing space is available. It is important, however, that the proper O-ring is selected. Disogrin stocks a wide range of both reciprocating and static type O-rings. In most cases, they can be interchanged with O-rings of similar designs made from other elastomeric compounds.



Our sales department will be pleased to assist you in selecting the right size O-ring for your needs. In addition, our engineers and chemists are available to help you design a custom sized O-ring, or one with special physical properties.

DISOGRIN O-RING COMPOUNDS 9250 & 6865

When Disogrin Industries was founded in 1954, there were no urethanes commercially available. This necessitated the development of proprietary polymers, which are reacted from basic diisocyanates and polyols. Disogrin developed two liquid thermosetting compounds, 9250 (92 Shore A) and 6865 (70 Shore A) which are manufactured exclusively at its Manchester, New Hampshire, plant.



COMPARISON OF TYPICAL ELASTOMER O-RING PROPERTIES

MATERIAL	HARDNESS	TENSILE PSI	ELONGATION %	TEAR NICKED PLI	ABRASION mm ³
DISOGRIN URETHANE	70A	5,000	700	360	25
	90A	6,200	550	480	36
NITRILE RUBBER	70A	1,700	380	67	105
	90A	2,140	225	62	139
NEOPRENE	70A	2,150	250	39	97
	90A	1,570	100	39	135
VITON	65A	1,120	210	45	95
	81A	1,570	125	45	105
TEFLON	Rockwell R-25	3,100	330	—	—

AVAILABLE MATERIALS

These urethanes were produced specifically for use as O-rings and other seals, providing the right balance of physical properties required for optimum sealing. This balance of properties is not available in commercially prepackaged urethane prepolymers for several reasons. These reasons are:

1. Most commercial urethanes are either millable gum or thermoplastic types. These do not have the toughness or high temperature stability required for sealing.
2. The remainder of the commercially packaged urethanes are formulated as wheel compounds, this being a large market for urethane. Unfortunately, most of the characteristics which make good wheels, do not make good hydraulic seals.
3. Commercially packaged prepolymers must be stabilized due to the fact that they may spend six months to one year in the container before being converted to urethane. This stabilization can lead to a deterioration of some important physical properties. It is for this reason that Disogrin's urethane compounds are reacted from basic materials in our plant, and molded immediately.

OPERATING PROPERTIES

Temperatures: The maximum operating temperature of Disogrin's 9250 and 6865 O-rings depends upon the duration of exposure to heat, and the chemical nature of the operating environment. In hydraulic oil containing no acidic or alkaline additives, the O-rings can operate continuously at 250°F; for intermittent service at 275°F; and for short durations at 300°F.



At low temperatures, the compounds stiffen but do not become brittle. The compounds have passed severe impact tests at temperatures of liquid oxygen and helium. Although the compounds become rigid if they remain static at temperatures lower than -60°F, they can operate satisfactorily lower than -100°F if they are flexed during operation. (Their hysteresis characteristics are such that a few flexures warm them and restore their elasticity.) The low temperature stiffening is completely reversible, and the O-rings will regain all their elastic properties as the temperature is raised.

Fluids: Compounds 9250 and 6865 have excellent resistance to mineral based oils and petroleum products, aliphatic solvents, alcohols, ether and water. They swell only slightly when in contact with any of these fluids. For this reason, they bear the ASTM-SAE designation of SB comparable to that of nitrile rubbers.

Aromatic solvents cause moderate swelling. However, even when swollen, compounds 9250 and 6865 maintain their tensile strength.

In water up to 70°F, they can be used for several years. However, they are usually not recommended for extended use in hot water or steam.

Chemicals: Most chemicals that would normally come in contact with Disogrin's O-rings do not affect them. The O-rings are compatible with the following chemicals: most petroleum based fuels and oils; hydraulic fluids; aliphatic hydrocarbons; aliphatic alcohols; cyclic non-aromatic compounds; salts; dilute or weak acids and bases; edible fats and oils; mixtures containing less than 80% aromatic constituents.

Contact with some chemicals, however, is not recommended. These include: fire resistant synthetic fluids such as phosphate esters; brake fluids; esters; strong or concentrated acids and bases; very strong oxidizing agents; ketones; pure aromatic compounds; hot water or steam.