Resilon® D-Ring Seal

High-performance polyurethane solution extends seal life with one-piece design

Extended life and easy installation:

Parker has combined its proprietary polyurethane technology with a new seal design to improve the sealing performance and assembly of hydraulic valves. Parker's Resilon® 4300 polyurethane D-rings are a one-piece, hydraulic valve sealing solution which delivers longer life over traditional multi-component seals.

Assembly is easy! The unique "D"-ring shape provides sealing in critical areas while reducing the chance of a seal being cut during installation. This unique seal design, when combined with Parker's proprietary high performance Resilon polyurethane extends seal life and reduces warranty costs.

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Product Features:

- Proprietary wear resistant and compression set resistant Resilon 4300 polyurethane provides long life
- Available in Resilon 4301 polyurethane for compatibility with water and oil-based fluids
- Pressure capable to 10,000 psi
- Easy installation
- One-piece design eliminates need for back-ups
- Will not roll in groove
- Symmetrical design
- Fits standard O-ring grooves

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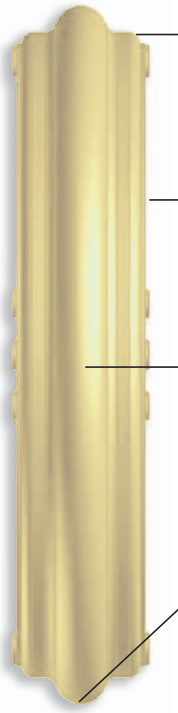
D-Ring Design Advantages

The unique shape of the Parker D-ring also provides a variety of design advantages. The molded "D" shape which is higher in the middle and lower on the ends, provides sealing in critical areas while reducing the chance of a seal being cut during installation. Its sealing lip is minimized, thus reducing the amount of friction between seal and bore while providing expected sealing performance. The "D" shape is symmetrical so there is no performance degradation as the valve cycles in the reverse direction nor concern of backward installation of the seal. The design also incorporates "pressure pedestals" to eliminate the potential for "blow-by," common in reverse cycling.



No Back-up Rings
The increased wear resistance and strength of polyurethane eliminates the need for back-up rings, thus minimizing installation issues.

Resilon® 4300 Polyurethane Material
Specially formulated Parker exclusive Resilon 4300 polyurethane for long life and wear resistance.

"D" Shape
Unique "D" shape provides sealing in the critical areas while reducing the chance of a seal being cut during installation.

Reduced Lip
The unique shape reduces the lip and thus the amount of wear due to friction.

Resilon® Polyurethane Material

Resilon polyurethane was developed by Parker's scientists and engineers to provide improved wear- and compression set-resistance in demanding applications and is considered one of the best hydraulic sealing materials available. The increased strength and resilience of Resilon 4300 polyurethane eliminates the need for back-up rings. Resilon 4300 is rated to perform in hydraulic fluids at service temperatures from -65 to +275°F.

When using high water content fluids at elevated temperatures, Parker recommends water-resistant Resilon 4301 polyurethane. Resilon 4301 polyurethane's unique formulation makes it resistant to hydrolytic deterioration and it is compatible with most water-glycol, water/oil emulsions at temperatures from -35 to +225°F.

High Performance Resilon® Polyurethane

Typical Physical Properties	P4300A90	P4301A90
Hardness, Shore A, pts	92	90
Modulus @ 100%, psi	1793	2029
Tensile Strength at Break, psi	8625	7129
Ultimate Elongation, %	560	514
Specific Gravity	1.17	1.19
Rebound, %	63	45
Compression Set, 70 hrs @ 212°F, %	28.9	24.8*

*158°F

Part Numbering and Dimensions

Part Number Nomenclature — DG Profile

DG Profile — Inch

4	3	0	0	DG	1	2	-	0	1	4

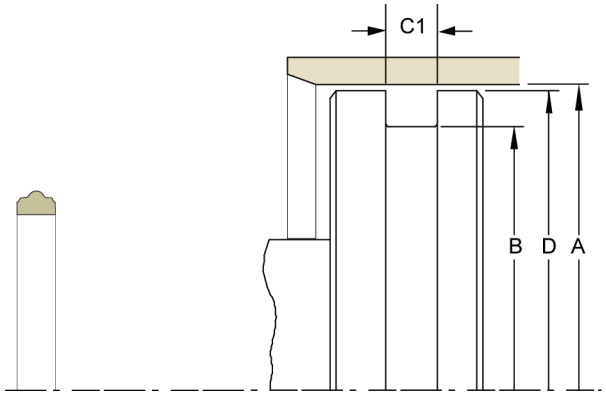
4 Digit Material Code
Example: 4300 = Resilon 4300
4301 = Resilon 4301

"D"-ring Profile

Groove Width (0, 1, or 2 back-up rings)

O-ring Dash Number
Example: 2-014 = .514" I.D. x .070" CS

Gland Dimensions — DG Profile — Dynamic



Please refer to the Engineering Section (Section 2) of Parker's Fluid Power Seal Design Guide (Catalog EPS 5370), Page 2-9 for surface finish and additional hardware considerations.

O-ring 2-Size AS568A-	Piston			Groove Width	Part Number
	A Bore Diameter	B Groove Diameter	D Piston Diameter	C1 One Back-up	
	+.002/ -.000	+.000/ -.002	+.000/ -.001	+.005/ -.000	
010	0.374	0.264	0.372	0.138	4300DG12-010
011	0.436	0.326	0.434	0.138	4300DG12-011
012	0.499	0.389	0.497	0.138	4300DG12-012
013	0.561	0.451	0.559	0.138	4300DG12-013
014	0.624	0.514	0.622	0.138	4300DG12-014
015	0.686	0.576	0.684	0.138	4300DG12-015
016	0.749	0.639	0.747	0.138	4300DG12-016
017	0.811	0.701	0.809	0.138	4300DG12-017
018	0.874	0.764	0.872	0.138	4300DG12-018
019	0.936	0.826	0.934	0.138	4300DG12-019
020	0.999	0.889	0.997	0.138	4300DG12-020

D-Ring Seal is a Problem Solver

Resilon® 4300 Polyurethane D-ring (DG Profile)

Parker's Resilon 4300 polyurethane D-rings are a one-piece, sealing solution which delivers longer life and reduced warranty costs over traditional multiple-component seals. The increased strength and resilience of Resilon 4300 polyurethane eliminates the need for back-up rings and the challenges associated with the rings folding over on a corner inside the manifold during assembly. Its sealing lip is minimized to reduce the amount of friction between seal and bore while providing expected sealing performance The unique D-ring shape provides sealing in critical areas while reducing the chance of a seal being cut during installation. The "D" shape is symmetrical so there is no performance degradation as the valve cycles in the reverse direction or concern of backward installation of the seal. The design also incorporates "pressure pedestals" to lessen possibility of "blow-by," common in reverse cycling.

Your Problem: Back-up and O-ring Seal Failure

Back-up and O-ring seal failure
- **Back-up pinches during installation**
- **Nitrile and FKM seals wear out quickly**
- **O-ring rolls in the groove / spiral failure**

Pesky back-ups and hard to install multi-piece seal
- **Multi-component O-ring/back-up**
- **Worrisome placement of the O-ring and back-up. Is it on the pressure side? Tank side?**
- **Inelastic PTFE back-ups are difficult to re-seat**

PTFE back-ups are pinched and broken during installation; leading to seal failure.

Problem Solved: Parker's Resilon D-Ring Solution

Resilon 4300 Polyurethane D-ring
- **Extrusion resistant polyurethane**
- **Improved strength & wear resistance**
- **Compression set resistant**
- **Longer life reduces warranty costs**
- **Also available in water-resistant 4301**

Single Piece Solution
- **Easy Installation**
- **High strength material + D-ring design eliminates need for back-ups**
- **Will not roll in the groove**

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