LC Profile Seal

One-piece sealing advantages with improved compression force

LC Profile Seal Offers Improved Sealability:

In applications where pressures fluctuate rapidly, the expander rings in traditional two-piece geometry seals can become partially dislodged – resulting in leakage. The LC Seal's unique one-piece construction eliminates this problem.

The LC Profile design was developed utilizing Finite Element Analysis (FEA) optimization tools. Using FEA, Parker engineers are able to see how the LC Profile exhibits higher sealing force and contamination resistance at the sealing interface compared to traditional seal designs.

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Product Features:

- Concentrated compressive force reduces leakage potential
- Fits standard groove dimensions
- One-piece seal means no expander ring to become dislodged
- FEA validated bevel lip design improves overall sealability
- Available in a variety of materials ranging from general purpose to advanced elastomers

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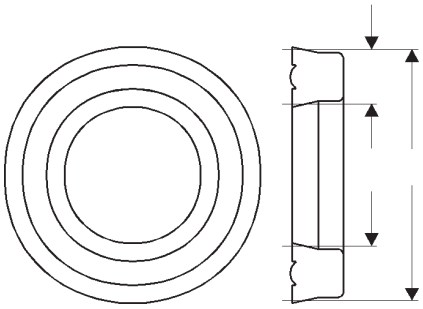
Part Number	ID	OD	C/S
LC18702000	2	2-3/8	3/16
LC18702500	2-1/2	2-7/8	3/16
LC25002750	2-3/4	3-1/4	1/4
LC25003500	3-1/2	4	1/4
LC31203125	3-1/8	3-3/4	5/16
LC37503500	3-1/2	4-1/4	3/8
LC37503750	3-3/4	4-1/2	3/8
LC37504500	4-1/2	5-1/4	3/8
LC37504750	4-3/4	5-1/2	3/8
LC37505500	5-1/2	6-1/4	3/8



Fluid Compatibility
N4263A90 is recommended for general purpose sealing of petroleum based oils and fluids, silicone greases and oils, di-ester based lubricants, ethylene glycol base fluids and water. It is not recommended for service with halogenated hydrocarbons, nitrohydrocarbons, phosphate ester hydraulic fluids, ketones, strong acids, ozone, and automotive brake fluids.

Typical Physical Properties	N4263A90
Hardness, Shore A	90
Modulus @ 50% Elongation (psi)	1607
Modulus @ 100% Elongation (psi)	2960
Ultimate Tensile Strength (psi)	3187
Ultimate Elongation (%)	117
Specific Gravity	1.28
Compression Set (70 hrs @ 212°F) %	35.5
Temperature Range	-20°F to +275 °F

Media	Hardness		100 Modulus		Ultimate Tensile		Elongation		Weight	Volume
	Change, pts	Final Value	Change, %	Final Value	Change, %	Final Value	Change, %	Final Value	Change, %	Change, %
Original		92		2854 psi		3297 psi		143%	-	-
Fuel A*	-2	90	-10	2560	+1	3342	+18	169	+1	+1
Fuel B*	-14	78	-52	1365	-18	2700	-37	196	+15	+24
Fuel C*	-16	76	-52	1373	-21	2596	+29	184	+23	+36
Methanol*	-12	80	-52	1376	-24	2522	-44	80	+15	+33
JP-4 Jet Fuel *	-6	86	-39	1754	-8	3048	+37	196	+7	+12
JA Jet Fuel*	-2	90	-22	2237	-1	3250	+27	182	+4	+5
ASTM #1 Oil †	5	97	+35	3845	+20	3955	-29	102	-3	-4
IRM 903 †	0	92	+2	2913	+14	3771	+8	154	+7	+9
MIL-H-5606 †	0	92	+12	3201	+17	3845	-2	140	+5	+7
Jet Oil II †	-4	88	-2	2810	+9	3587	-3	138	+12	+15
Stauffer 7700 †	-3	89	-2	2798	+11	3673	-3	138	+12	+16
Rando HD32†	+3	95	+33	3797	+25	4121	-19	116	-1	-1
Rapeseed Oil †	+3	95	+15	3272	+15	3806	+10	157	-1	-1
Ethylene Glycol †	+3	95	+4	2960	+6	3508	+3	148	+2	+3
Distilled Water†	-2	90	-9	2601	+6	3497	+21	173	+4	+4
Oven Air Age †	5	97			+37	4513	-44	80	-4	-6

*70 hrs @ Room Temperature
†168 Hrs. @ 100°C

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LC Profile Seal Offers Improved Sealability

Advantages of a One-Piece Seal
Parker's LC Profile Seal offers several advantages over more traditional two-piece seal geometry. The problem with traditional two-piece seals occurs at installation and in service, during rapid fluctuations in pressure where expander rings can become partially dislodged - resulting in leakage. The LC Seal's unique one-piece construction eliminates problems associated with seals containing rubber expander rings used to load the seal lips to maintain leak-free operation.

Better Compression Force
Notice that the LC Profile has a beveled lip. This supports the sealing lip from both sides causing the compressive force to be directed to a narrower sealing line. Other seals have lips that roll toward the unsupported side when installed, resulting in lower compressive force distributed over a wider sealing line (See Figure 1). Design enhancements in the LC Profile geometry concentrate compressive force to reduce leakage and improve overall sealability.

Fits Standard Groove Dimensions
The LC Profile's computer-aided design goemetry has been engineered to provide reliable sealing from the smallest 1/8" cross-section to the larger 1/2" cross-section. This seal is designed to retrofit into the same seal grooves utilized by a wide range of popular seals having the same seal height and cross-section.

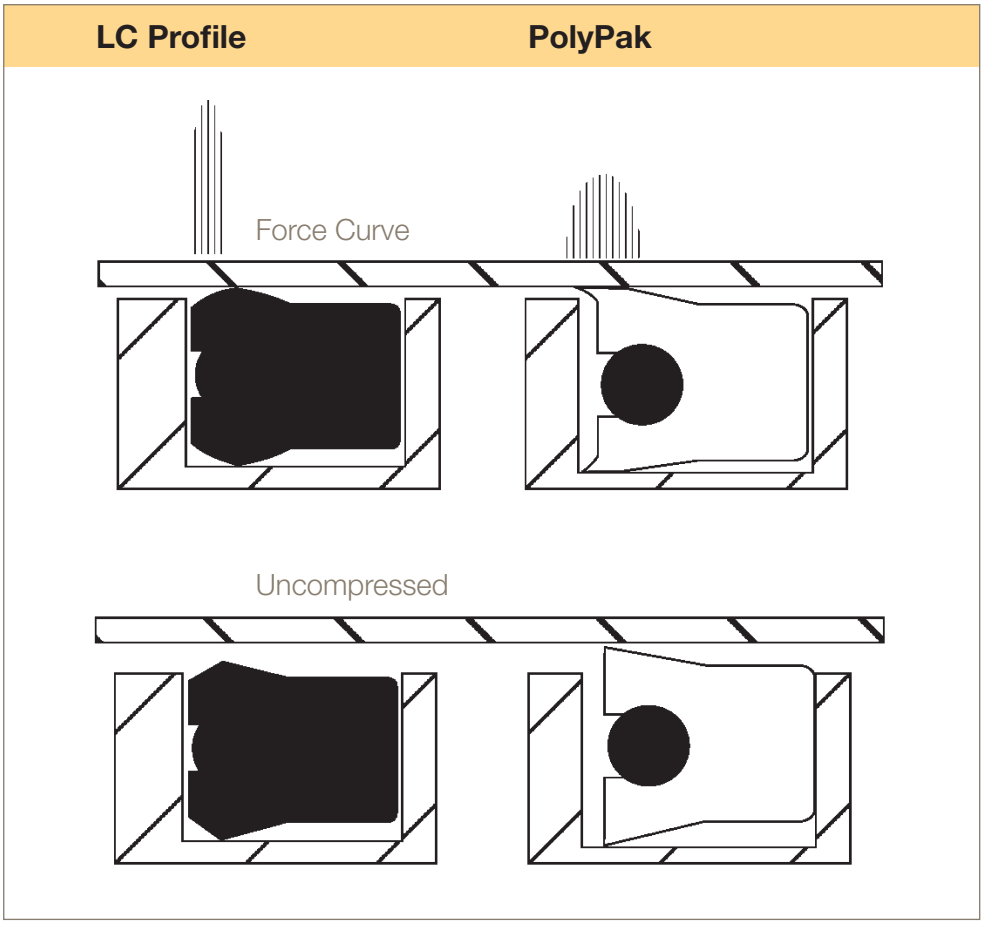

Figure 1

LC Profile Seal

Computer Aided Testing
Computer-aided testing via FEA (Finite Element Analysis) was performed to optimize the seal design. FEA testing provided conclusive evidence that the LC Profile has a higher sealing force and better contamination resistance than traditional sealing designs. Color contours show the radial stress developed in the LC Profile. indicative of high sealing force at the sealing interface. (See Figure 2)

Contact Parker
The LC Profile was designed for use with rubber elastomers, including Parker's most advanced seal materials. However it can be manufactured in different materials upon request. Contact our technical service representatives for more information and current tooling availability. For additional technical and performance data ask for Test Number LT903, LC Profile Test.

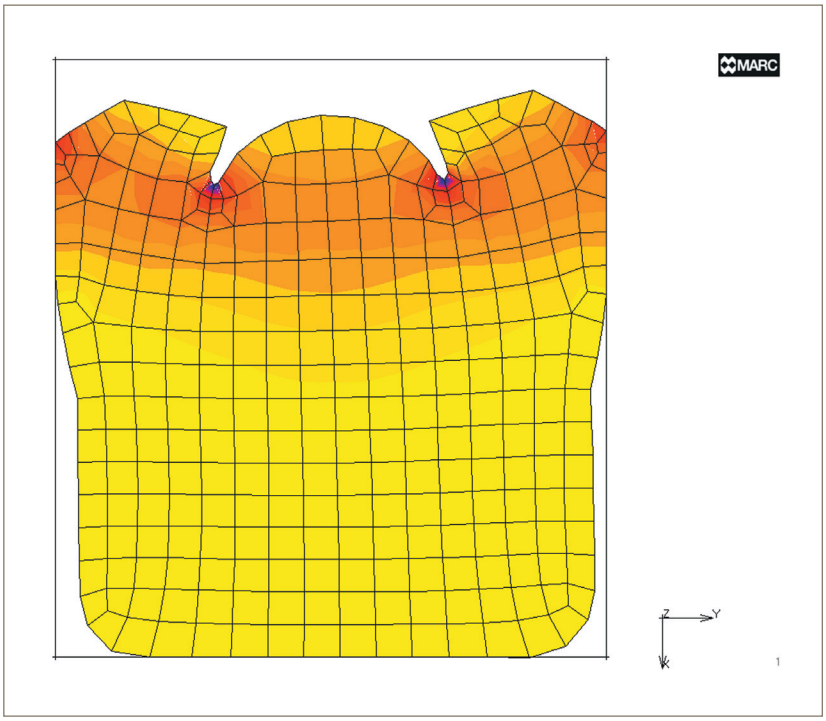

Figure 2

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