

Symmetrical Seal SL Profile

Catalog EPS 5370/USA

SL Profile, Dual Compound Dual Lip Seal



Parker's SL profile is considered a multiple lip seal. The primary sealing lip is provided by the precision knife trimmed rubber element that snaps into the Molythane® base. The base of the SL profile provides the secondary lip which is aligned directly below the primary lip to provide extrusion, and wear resistance. The SL Profile combines the sealing benefit of rubber with the wear and strength of Molythane. The beveled rubber lip geometry is excellent for cutting fluid film and the squeeze forces across the lips maintain sealing contact under low pressure or vacuum. The ability of Parker to supply a variety of rubber compounds allows the SL profile to be compatible with a wide range of pressure, temperature and fluids. The SL profile is designed to work as a stand alone rod seal or can be used in tandem with a buffer seal. In piston applications, this seal will function as a unidirectional seal. SL profiles should not be installed back to back in bi-directional pressure applications, as a pressure trap between the seals may occur.

Technical Data

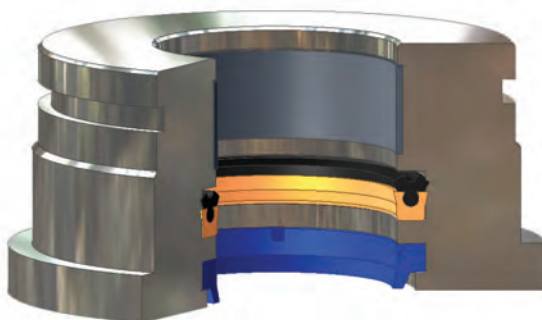
| Standard Materials* | Temperature Range | Pressure Range† | Surface Speed |
|------------------------|------------------------------------|------------------------|-------------------------|
| Rubber Element: | | | |
| N4180A80 | -40°F to 250°F (-40°C to 121°C) | 1,250 psi (86 bar) | < 1.6 ft/s (0.5 m/s) |
| Base: | | | |
| P4615A90 | -65°F to 200°F (-54°C to 93°C) | 5,000 psi (344 bar) | < 1.6 ft/s (0.5 m/s) |



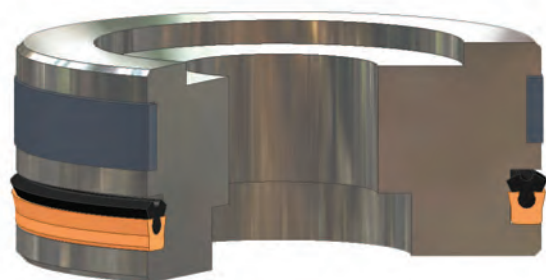
SL Cross-Section

***Alternate Materials:** For applications that may require an alternate material, please contact your local Parker Seal representative.

†Pressure Range without wear rings (see Table 2-4, page 2-5).



SL installed in Rod Gland



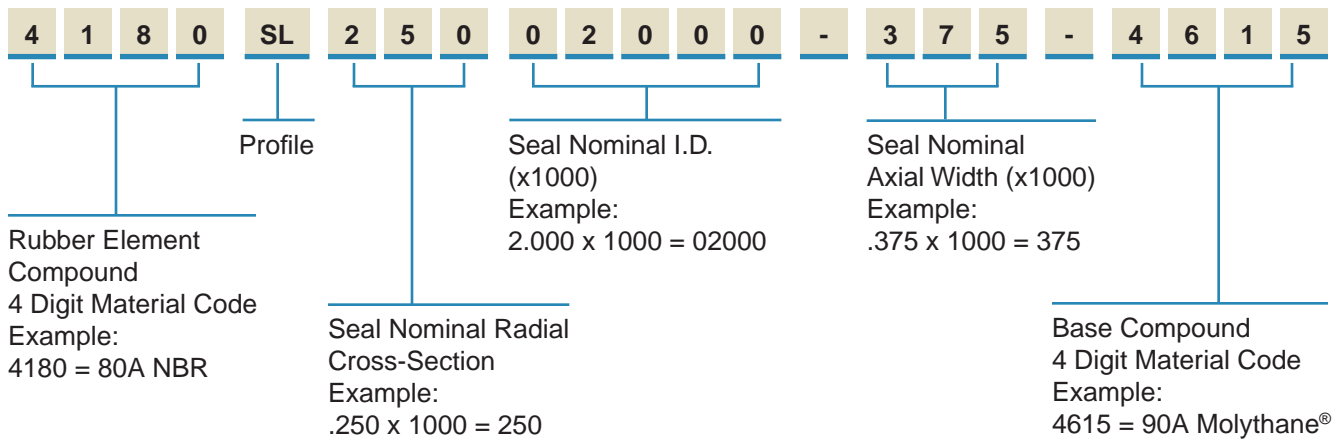
SL installed in Piston Gland

09/01/07

SL Profile

Part Number Nomenclature — SL Profile

Table 6-9. SL Profile — Inch



Gland Dimensions — SL Profile

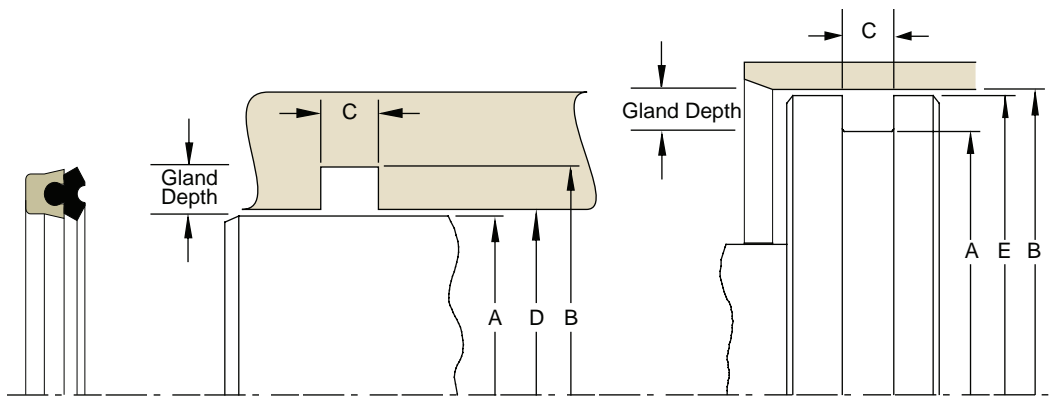


Table 6-10A. Rod Gland Dimension Tolerances

| Nominal Gland Depth | A Rod Diameter | B Groove Diameter | C Groove Width | D Throat Diameter |
|---------------------|----------------|-------------------|----------------|-------------------|
| 1/8 | +0.00/-0.001 | +0.002/-0.000 | +0.015/-0.000 | +0.002/-0.000 |
| 3/16 | +0.000/-0.002 | +0.002/-0.000 | | +0.002/-0.000 |
| 1/4 | +0.000/-0.002 | +0.003/-0.000 | | +0.003/-0.000 |
| 5/16 | +0.000/-0.002 | +0.004/-0.000 | | +0.003/-0.000 |
| 3/8 | +0.000/-0.002 | +0.005/-0.000 | | +0.004/-0.000 |
| 7/16 | +0.000/-0.003 | +0.006/-0.000 | | +0.004/-0.000 |
| 1/2 | +0.000/-0.003 | +0.007/-0.000 | | +0.005/-0.000 |
| 5/8 | +0.000/-0.003 | +0.009/-0.000 | | +0.006/-0.000 |
| 3/4 | +0.000/-0.004 | +0.011/-0.000 | | +0.007/-0.000 |
| 1 | +0.000/-0.005 | +0.015/-0.000 | | +0.009/-0.000 |

Table 6-10B. Piston Gland Dimension Tolerances

| Nominal Gland Depth | B Bore Diameter | A Groove Diameter | C Groove Width | E Piston Diameter |
|---------------------|-----------------|-------------------|----------------|-------------------|
| 1/8 | +0.002/-0.000 | +0.000/-0.002 | +0.015/-0.000 | +0.000/-0.001 |
| 3/16 | +0.002/-0.000 | +0.000/-0.002 | | +0.000/-0.002 |
| 1/4 | +0.003/-0.000 | +0.000/-0.003 | | +0.000/-0.002 |
| 5/16 | +0.003/-0.000 | +0.000/-0.004 | | +0.000/-0.002 |
| 3/8 | +0.004/-0.000 | +0.000/-0.005 | | +0.000/-0.002 |
| 7/16 | +0.005/-0.000 | +0.000/-0.006 | | +0.000/-0.002 |
| 1/2 | +0.005/-0.000 | +0.000/-0.007 | | +0.000/-0.003 |
| 9/16 | +0.006/-0.000 | +0.000/-0.008 | | +0.000/-0.003 |
| 5/8 | +0.006/-0.000 | +0.000/-0.009 | | +0.000/-0.003 |
| 3/4 | +0.007/-0.000 | +0.000/-0.010 | | +0.000/-0.004 |
| 7/8 | +0.008/-0.000 | +0.000/-0.011 | +0.000/-0.005 | |
| 1 | +0.009/-0.000 | +0.000/-0.012 | +0.000/-0.005 | |

Please refer to Engineering Section 2, page 2-8 for surface finish and additional hardware considerations.

Table 6-11. SL Gland Dimensions — Inch

| A | B | C | D | E | Part Number |
|------------------------|-----------------------|---------------------|------------------|--------------------------|-------------------------|
| Rod Diameter | (Rod) Groove Diameter | (Rod) Groove Width | Throat Diameter* | | |
| (Bore) Groove Diameter | Bore Diameter | (Bore) Groove Width | | (Bore) Piston Diameter** | |
| 1.125 | 1.500 | 0.343 | 1.126 | 1.499 | 4180SL18701125-312-4615 |
| 1.250 | 1.625 | 0.343 | 1.251 | 1.624 | 4180SL18701250-312-4615 |
| 1.250 | 1.875 | 0.550 | 1.252 | 1.873 | 4180SL31201250-500-4615 |
| 1.500 | 1.875 | 0.412 | 1.501 | 1.874 | 4180SL18701500-375-4615 |
| 1.500 | 2.000 | 0.412 | 1.501 | 1.999 | 4180SL25001500-375-4615 |
| 1.625 | 2.000 | 0.412 | 1.626 | 1.999 | 4180SL18701625-375-4615 |
| 1.750 | 2.125 | 0.412 | 1.751 | 2.124 | 4180SL18701750-375-4615 |
| 1.750 | 2.250 | 0.412 | 1.751 | 2.249 | 4180SL25001750-375-4615 |
| 1.750 | 2.500 | 0.687 | 1.752 | 2.498 | 4180SL37501750-625-4615 |
| 2.000 | 2.375 | 0.412 | 2.001 | 2.374 | 4180SL18702000-375-4615 |
| 2.000 | 2.500 | 0.412 | 2.001 | 2.499 | 4180SL25002000-375-4615 |
| 2.000 | 2.750 | 0.687 | 2.002 | 2.748 | 4180SL37502000-625-4615 |
| 2.500 | 3.000 | 0.412 | 2.501 | 2.999 | 4180SL25002500-375-4615 |
| 2.625 | 3.375 | 0.687 | 2.627 | 3.373 | 4180SL37502625-625-4615 |
| 2.750 | 3.250 | 0.412 | 2.751 | 3.249 | 4180SL25002750-375-4615 |
| 3.000 | 3.500 | 0.412 | 3.001 | 3.499 | 4180SL25003000-375-4615 |
| 3.250 | 3.750 | 0.412 | 3.251 | 3.749 | 4180SL25003250-375-4615 |
| 3.500 | 4.000 | 0.412 | 3.501 | 3.999 | 4180SL25003500-375-4615 |
| 3.500 | 4.250 | 0.687 | 3.502 | 4.248 | 4180SL37503500-625-4615 |
| 4.000 | 4.500 | 0.412 | 4.001 | 4.499 | 4180SL25004000-375-4615 |
| 4.250 | 4.750 | 0.412 | 4.251 | 4.749 | 4180SL25004250-375-4615 |
| 4.500 | 5.000 | 0.412 | 4.501 | 4.999 | 4180SL25004500-375-4615 |
| 4.750 | 5.250 | 0.412 | 4.751 | 5.249 | 4180SL25004750-375-4615 |
| 5.250 | 5.750 | 0.412 | 5.251 | 5.749 | 4180SL25005250-375-4615 |
| 6.500 | 7.500 | 0.825 | 6.502 | 7.498 | 4180SL50006500-750-4615 |

*If used with wear rings, refer to wear ring throat diameter, see Section 9.

**If used with wear rings, refer to wear ring piston diameter, see Section 9.

For custom groove calculations, see Appendix C.

NOTE: For sizes larger than those shown in the table, please contact your local Parker Seal representative.