## TR Profile (Rod T-seal) Compact Seal with Anti-Extrusion Technology

Parker's rod T-seal is designed to retrofit o-rings in no back-up, single back-up and two back-up standard industrial reciprocating glands. Its compact design provides improved stability and extrusion resistance in dynamic fluid sealing applications. The flange or base of the T-seal forms a tight seal in the gland and supports the anti-extrusion back-up rings. When energized, the back-up rings bridge the extrusion gap to protect the rubber sealing element from extrusion and system contamination. The rod T-seal eliminates the spiral or twisting failure that can occur when o-rings are used against a dynamic surface. Parker offers the rod T-seal in a variety of elastomer and back-up ring compounds to cover a wide range of fluid compatibility, pressure and temperature requirements.

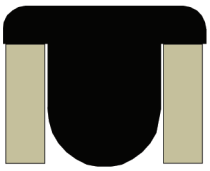
Profile **TR0** for **no** back-up o-ring gland (standard offering)
Profile **TRS** for **single** back-up o-ring gland
Profile **TRT** for **two** back-up o-ring gland

The TR profile is sold only as an assembly (elastomer and back-ups).



## Technical Data

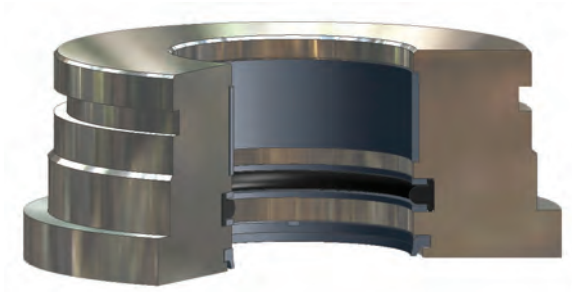
### Standard Materials



*TR Cross-Section*

| Base Elastomer* | Temperature Range | Surface Speed |
|---|---|---|
| N4115A75 | -40°F to 225F (-40°C to 107°C) | < 1.6 ft/s (0.5 m/s) |
| N4274A85 | -10°F to 250°F (-23°C to 121°C) | < 1.6 ft/s (0.5 m/s) |
| V4205A75 | -20°F to 400°F (-29°C to 204°C) | < 1.6 ft/s (0.5 m/s) |
| E4259A80 | -65°F to 300°F (-54°C to 149°C) | < 1.6 ft/s (0.5 m/s) |

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



*TR Installed in Rod Gland*



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## Technical Data (Continued)

### Standard Materials

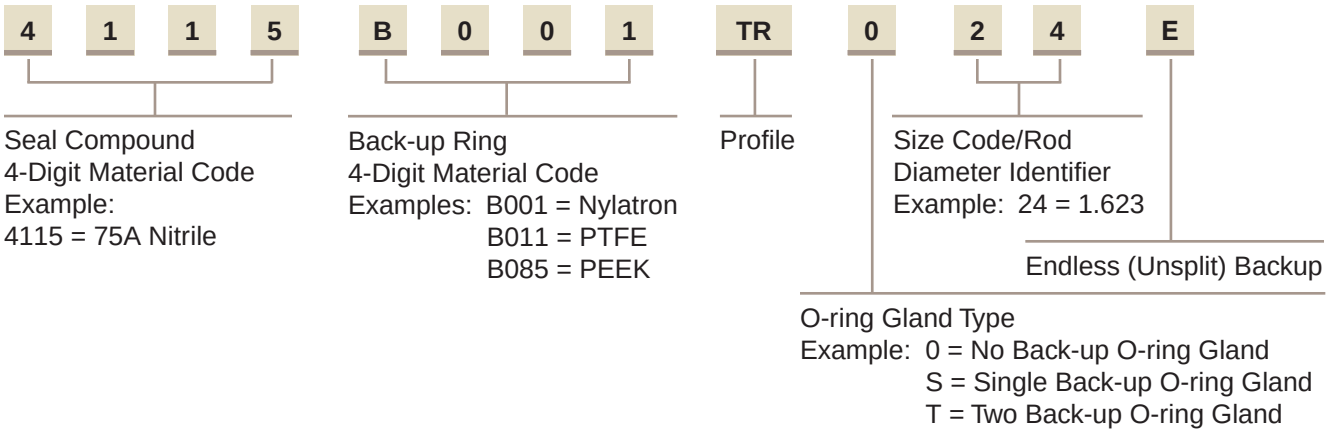
| Back-up Rings** | Temperature Range | Pressure Range† |
|---|---|---|
| B001 (Nylatron) | -65°F to 250°F (-54°C to 121°C) | 5,000 psi (344 bar) |
| B011 (Virgin PTFE) | -20°F to 250°F (-29°C to 121°C) | 3,000 psi (206 bar) |
| B085 (PEEK) | -65°F to 500°F (-54°C to 260°C) | 10,000 psi (689 bar) |

****Alternate Materials:** For applications that may require an alternate material, please see Section 3 for alternate materials.

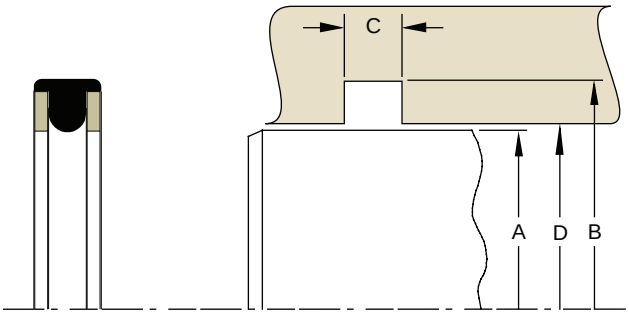
†**Pressure Range** without wear rings (see Table 2-4, page 2-5).

## Part Number Nomenclature — TR Profile

**Table 5-19. TR Profile — Inch**




## Gland Dimensions — TR Profile




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

**Table 5-20. TR Gland Dimensions — Inch**

| A Rod Diameter | B Groove Diameter | C TR0 Groove Width | C TRS Groove Width | C TRT Groove Width | D Throat Diameter* | Ref O-ring Dash Number | Compounds (X = Standard Offering) 4115 | 4274 | 4205 | 4259 | Part Number Com-pound Code | Back-up Ring Code | Groove Width Code** | Size Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| +.000/ -.002 | +.002/ -.000 | +.005/ -.000 | +.005/ -.000 | +.005/ -.000 | +.001/ -.000 | | | | | | | | | |
| 0.186 | 0.362 | 0.140 | 0.171 | 0.238 | 0.188 | 106 | X | | X | | XXXX | B0XX | TR0 | 01 |
| 0.249 | 0.425 | 0.140 | 0.171 | 0.238 | 0.251 | 108 | X | | X | | XXXX | B0XX | TR0 | 02 |
| 0.311 | 0.487 | 0.140 | 0.171 | 0.238 | 0.313 | 109 | X | | X | | XXXX | B0XX | TR0 | 03 |
| 0.373 | 0.615 | 0.187 | 0.208 | 0.275 | 0.376 | 204 | X | X | X | | XXXX | B0XX | TR0 | 04 |

* If used with wear rings, refer to wear ring throat diameter, see Section 9.
**Chart reflects availability for TR0 only. For availability of TRS and TRT, please contact your local Parker Seal representative.
For custom groove calculations, see Appendix C.

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## Table 5-20. TR Gland Dimensions — Inch** (Continued)

| A Rod Diameter | B Groove Diameter | C | | | D Throat Diameter* | Ref O-ring Dash Number | Compounds (X = Standard Offering) | | | | Part Number | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TR0 Groove Width | TRS Groove Width | TRT Groove Width | | | 4115 | 4274 | 4205 | 4259 | Com-pound Code | Back-up Ring Code | Groove Width Code** | Size Code |
| +.000/ -.002 | +.002/ -.000 | +.005/ -.000 | +.005/ -.000 | +.005/ -.000 | +.001/ -.000 | | | | | | | | | |
| 0.435 | 0.677 | 0.187 | 0.208 | 0.275 | 0.438 | 205 | X | | X | | XXXX | B0XX | TR0 | 05 |
| 0.498 | 0.740 | 0.187 | 0.208 | 0.275 | 0.501 | 206 | X | X | X | | XXXX | B0XX | TR0 | 06 |
| 0.560 | 0.802 | 0.187 | 0.208 | 0.275 | 0.563 | 207 | X | | X | | XXXX | B0XX | TR0 | 07 |
| 0.623 | 0.865 | 0.187 | 0.208 | 0.275 | 0.626 | 208 | X | X | X | X | XXXX | B0XX | TR0 | 08 |
| 0.685 | 0.927 | 0.187 | 0.208 | 0.275 | 0.688 | 209 | X | | | | XXXX | B0XX | TR0 | 09 |
| 0.748 | 0.990 | 0.187 | 0.208 | 0.275 | 0.751 | 210 | X | X | X | X | XXXX | B0XX | TR0 | 10 |
| 0.810 | 1.052 | 0.187 | 0.208 | 0.275 | 0.813 | 211 | X | | X | | XXXX | B0XX | TR0 | 11 |
| 0.873 | 1.115 | 0.187 | 0.208 | 0.275 | 0.876 | 212 | X | | X | | XXXX | B0XX | TR0 | 12 |
| 0.935 | 1.177 | 0.187 | 0.208 | 0.275 | 0.938 | 213 | X | | X | | XXXX | B0XX | TR0 | 13 |
| 0.998 | 1.240 | 0.187 | 0.208 | 0.275 | 1.001 | 214 | X | X | X | | XXXX | B0XX | TR0 | 14 |
| 1.060 | 1.302 | 0.187 | 0.208 | 0.275 | 1.063 | 215 | X | | | | XXXX | B0XX | TR0 | 15 |
| 1.123 | 1.365 | 0.187 | 0.208 | 0.275 | 1.126 | 216 | X | | X | X | XXXX | B0XX | TR0 | 16 |
| 1.185 | 1.427 | 0.187 | 0.208 | 0.275 | 1.188 | 217 | X | | X | | XXXX | B0XX | TR0 | 17 |
| 1.248 | 1.490 | 0.187 | 0.208 | 0.275 | 1.251 | 218 | X | X | X | X | XXXX | B0XX | TR0 | 18 |
| 1.310 | 1.552 | 0.187 | 0.208 | 0.275 | 1.313 | 219 | X | | | | XXXX | B0XX | TR0 | 19 |
| 1.373 | 1.615 | 0.187 | 0.208 | 0.275 | 1.376 | 220 | X | | X | X | XXXX | B0XX | TR0 | 20 |
| 1.435 | 1.677 | 0.187 | 0.208 | 0.275 | 1.438 | 221 | X | X | | | XXXX | B0XX | TR0 | 21 |
| 1.498 | 1.740 | 0.187 | 0.208 | 0.275 | 1.501 | 222 | X | X | X | X | XXXX | B0XX | TR0 | 22 |
| 1.498 | 1.868 | 0.281 | 0.311 | 0.410 | 1.501 | 325 | X | | X | | XXXX | B0XX | TR0 | 23 |
| 1.623 | 1.993 | 0.281 | 0.311 | 0.410 | 1.626 | 326 | X | X | | | XXXX | B0XX | TR0 | 24 |
| 1.748 | 2.118 | 0.281 | 0.311 | 0.410 | 1.751 | 327 | X | X | X | | XXXX | B0XX | TR0 | 25 |
| 1.873 | 2.243 | 0.281 | 0.311 | 0.410 | 1.876 | 328 | X | X | | | XXXX | B0XX | TR0 | 26 |
| 1.998 | 2.368 | 0.281 | 0.311 | 0.410 | 2.001 | 329 | X | | X | X | XXXX | B0XX | TR0 | 27 |
| 2.123 | 2.493 | 0.281 | 0.311 | 0.410 | 2.126 | 330 | X | | X | | XXXX | B0XX | TR0 | 28 |
| 2.248 | 2.618 | 0.281 | 0.311 | 0.410 | 2.251 | 331 | X | X | | | XXXX | B0XX | TR0 | 29 |
| 2.373 | 2.743 | 0.281 | 0.311 | 0.410 | 2.376 | 332 | X | | X | | XXXX | B0XX | TR0 | 30 |
| 2.498 | 2.868 | 0.281 | 0.311 | 0.410 | 2.501 | 333 | X | X | X | | XXXX | B0XX | TR0 | 31 |
| 2.623 | 2.993 | 0.281 | 0.311 | 0.410 | 2.626 | 334 | X | | X | | XXXX | B0XX | TR0 | 32 |
| 2.748 | 3.118 | 0.281 | 0.311 | 0.410 | 2.751 | 335 | X | X | X | | XXXX | B0XX | TR0 | 33 |
| 2.873 | 3.243 | 0.281 | 0.311 | 0.410 | 2.876 | 336 | X | | | | XXXX | B0XX | TR0 | 34 |
| 2.998 | 3.368 | 0.281 | 0.311 | 0.410 | 3.001 | 337 | X | | | | XXXX | B0XX | TR0 | 35 |
| 3.123 | 3.493 | 0.281 | 0.311 | 0.410 | 3.126 | 338 | X | | | | XXXX | B0XX | TR0 | 36 |
| 3.248 | 3.618 | 0.281 | 0.311 | 0.410 | 3.251 | 339 | X | | X | | XXXX | B0XX | TR0 | 37 |
| 3.373 | 3.743 | 0.281 | 0.311 | 0.410 | 3.376 | 340 | X | | X | | XXXX | B0XX | TR0 | 38 |
| 3.498 | 3.868 | 0.281 | 0.311 | 0.410 | 3.501 | 341 | X | | | | XXXX | B0XX | TR0 | 39 |
| 3.623 | 3.993 | 0.281 | 0.311 | 0.410 | 3.626 | 342 | X | | | | XXXX | B0XX | TR0 | 40 |
| 3.748 | 4.118 | 0.281 | 0.311 | 0.410 | 3.751 | 343 | X | | X | | XXXX | B0XX | TR0 | 41 |
| 3.873 | 4.243 | 0.281 | 0.311 | 0.410 | 3.876 | 344 | X | | | | XXXX | B0XX | TR0 | 42 |
| 3.998 | 4.368 | 0.281 | 0.311 | 0.410 | 4.001 | 345 | X | | X | | XXXX | B0XX | TR0 | 43 |
| 4.123 | 4.493 | 0.281 | 0.311 | 0.410 | 4.126 | 346 | X | | | | XXXX | B0XX | TR0 | 44 |
| 4.248 | 4.618 | 0.281 | 0.311 | 0.410 | 4.251 | 347 | X | | X | | XXXX | B0XX | TR0 | 45 |
| 4.373 | 4.743 | 0.281 | 0.311 | 0.410 | 4.376 | 348 | X | | | | XXXX | B0XX | TR0 | 46 |
| 4.498 | 4.868 | 0.281 | 0.311 | 0.410 | 4.501 | 349 | X | | X | | XXXX | B0XX | TR0 | 47 |
| 4.997 | 5.471 | 0.375 | 0.408 | 0.538 | 5.001 | 429 | X | | X | X | XXXX | B0XX | TR0 | 48 |
| 5.247 | 5.721 | 0.375 | 0.408 | 0.538 | 5.251 | 431 | X | | | | XXXX | B0XX | TR0 | 49 |
| 5.497 | 5.971 | 0.375 | 0.408 | 0.538 | 5.501 | 433 | X | | | | XXXX | B0XX | TR0 | 50 |

* If used with wear rings, refer to wear ring throat diameter, see Section 9.
**Chart reflects availability for TR0 only. For availability of TRS and TRT, please contact your local Parker Seal representative.
For custom groove calculations, see Appendix C.

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## Table 5-20. TR Gland Dimensions — Inch** (Continued)

| A Rod Diameter | B Groove Diameter | C | | | D Throat Diameter* | Ref O-ring Dash Number | Compounds (X = Standard Offering) | | | | Part Number | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TR0 Groove Width | TRS Groove Width | TRT Groove Width | | | 4115 | 4274 | 4205 | 4259 | Com-pound Code | Back-up Ring Code | Groove Width Code** | Size Code |
| +.000/ -.002 | +.002/ -.000 | +.005/ -.000 | +.005/ -.000 | +.005/ -.000 | +.001/ -.000 | | | | | | | | | |
| 5.622 | 6.096 | 0.375 | 0.408 | 0.538 | 5.626 | 434 | X | | | | XXXX | B0XX | TR0 | 51 |
| 5.997 | 6.471 | 0.375 | 0.408 | 0.538 | 6.001 | 437 | X | | | | XXXX | B0XX | TR0 | 52 |
| 6.247 | 6.721 | 0.375 | 0.408 | 0.538 | 6.251 | 438 | X | | | | XXXX | B0XX | TR0 | 53 |
| 6.497 | 6.971 | 0.375 | 0.408 | 0.538 | 6.501 | 439 | X | | X | | XXXX | B0XX | TR0 | 54 |
| 6.747 | 7.221 | 0.375 | 0.408 | 0.538 | 6.751 | 440 | X | | | | XXXX | B0XX | TR0 | 55 |
| 6.997 | 7.471 | 0.375 | 0.408 | 0.538 | 7.001 | 441 | X | | | | XXXX | B0XX | TR0 | 56 |
| 7.247 | 7.721 | 0.375 | 0.408 | 0.538 | 7.251 | 442 | X | | | | XXXX | B0XX | TR0 | 57 |
| 7.497 | 7.971 | 0.375 | 0.408 | 0.538 | 7.501 | 443 | X | | X | | XXXX | B0XX | TR0 | 58 |
| 7.997 | 8.471 | 0.375 | 0.408 | 0.538 | 8.001 | 445 | X | | | | XXXX | B0XX | TR0 | 59 |
| 8.997 | 9.471 | 0.375 | 0.408 | 0.538 | 9.001 | 447 | X | | | | XXXX | B0XX | TR0 | 60 |
| 9.497 | 9.971 | 0.375 | 0.408 | 0.538 | 9.501 | 448 | X | | | | XXXX | B0XX | TR0 | 61 |
| 9.997 | 10.471 | 0.375 | 0.408 | 0.538 | 10.001 | 449 | X | | | | XXXX | B0XX | TR0 | 62 |
| 10.997 | 11.471 | 0.375 | 0.408 | 0.538 | 11.001 | 451 | X | | | | XXXX | B0XX | TR0 | 63 |
| 11.497 | 11.971 | 0.375 | 0.408 | 0.538 | 11.501 | 452 | | | | | XXXX | B0XX | TR0 | 64 |
| 11.997 | 12.471 | 0.375 | 0.408 | 0.538 | 12.001 | 453 | X | | | | XXXX | B0XX | TR0 | 65 |

* If used with wear rings, refer to wear ring throat diameter, see Section 9.
**Chart reflects availability for TR0 only. For availability of TRS and TRT, please contact your local Parker Seal representative.
For custom groove calculations, see Appendix C.

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




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