# G-T® RINGS
## 11,000 Series

### DOUBLE-ACTING SEAL

The unique G-T® Ring provides a compact double-acting seal for use in new design for heavy duty applications where a more bulky type of seal had previously been required, as well as for retrofit in stadard grooves designed for O-rings with two, one, or no backups.

This proven seal combines a tough, resilient, T-shaped sealing ring with precisely-dimensioned pressure actuated non-extrusion rings—for use with pressures ranging from zero to 10,000 psi and higher.

Performance, reliability, and economy as a piston seal are unequaled—with no piston drift, with minimum piston length. This seal eliminates two major sealing problems: 1) The G-T Ring sealing element is protected from extrusion so that it seals satisfactorily when clearances must be abnormally larger or where pressures are high; 2) The unique G-T Ring configuration prevents seal roll and spiral failure (See Fig. 1).

The G-T Ring is a piston, rod or static seal for use in cylinders, intensifiers, accumulators, spool valves, and other demanding fluid power applications. It is currently specified for critical applications on all major jet aircraft (both military and commercial), sealing accumulators, reservoirs, actuators, valves, and the most rugged landing gear shock strut applications. The 11,000 Series seals are designed to fit industrial O-ring glands incorporating nominal rod and bore diameters for zero, one and two backup widths per MIL-P-5514B.

### EXTRUSION RESISTANCE

The G-T design resists extrusion by preventing the elastomeric sealing element from wedging into the diametral clearance, or pinching off under motion or pressure. Under pressure, the resilient T-shaped elastomeric sealing element deforms, transmitting hydraulic pressure "down stream." This causes radial swelling or expansion of the flange under the non-extrusion back-up ring on the low pressure side of the assembly (See Fig. 2). The skive cut in the non-extrusion ring permits instantaneous radial movement into positive contact with the cylinder bore or rod being sealed, closing the clearance gap before any extrusion of the sealing element can occur.

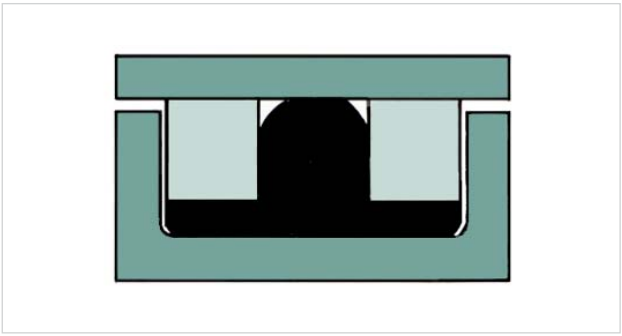


Figure 1

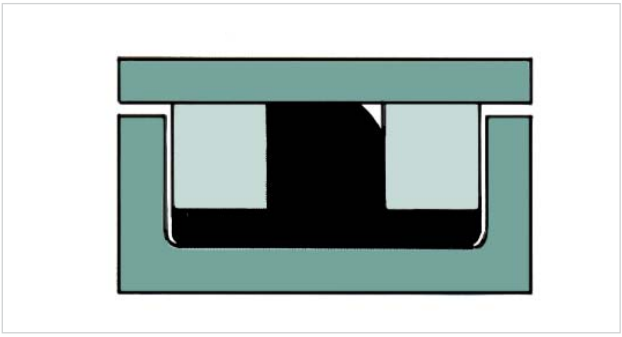


Figure 2

Since the non-extrusion rings do not rely on axial compression to radially expand, but are moved radially by hydro-mechanical action, they need not be made of easily deformed material.




06/08-GT DS-US-OF-056

Rather, they can be made of durable, low friction material with high shear strength and high resistance to cold flow which results in superior resistance to extrusion. These pressure-activated non-extrusion rings successfully bridge the large clearance incident to the use of wear-rings and protect the seal both from extrusion and contamination. As radial loading of the non-extrusion rings varies directly with fluid pressure, seal friction is kept to a minimum during the low pressure portion of the pressure cycle.

## RESISTANCE TO ROLL

The seal is installed in the groove on a flat stable, static base. The non-extrusion rings complete the rectangular shape of the seal assembly and "lock" the T-shaped sealing element in position so that it is restrained from rolling around its circum-ferential axis. The G-T® Ring cannot roll, twist or spiral (See Fig. 3) and, therefore, it is not subject to this mode of failure.

## LOW PRESSURE SEALING

The G-T Ring is dimensioned so that the sealing element is installed with seal "squeeze" balanced between static and dynamic surfaces, thus providing a positive seal even at zero and low pressure differential across the seal.

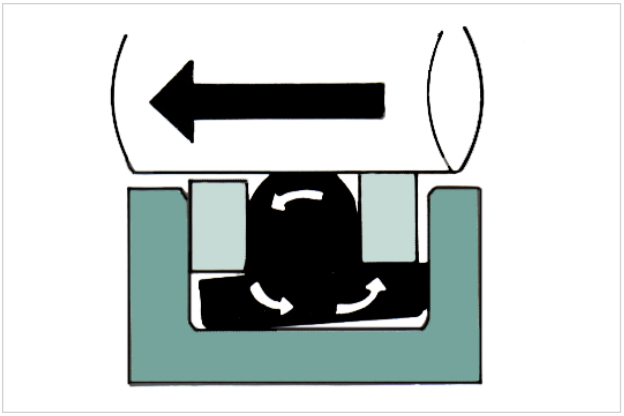
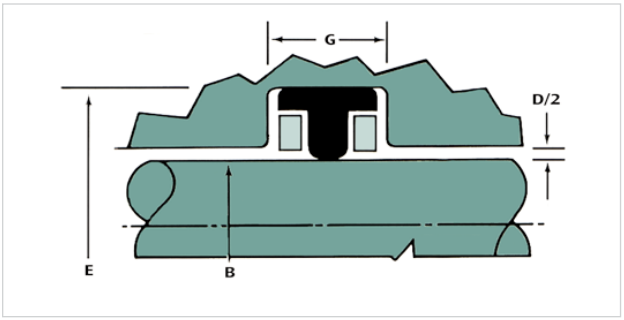
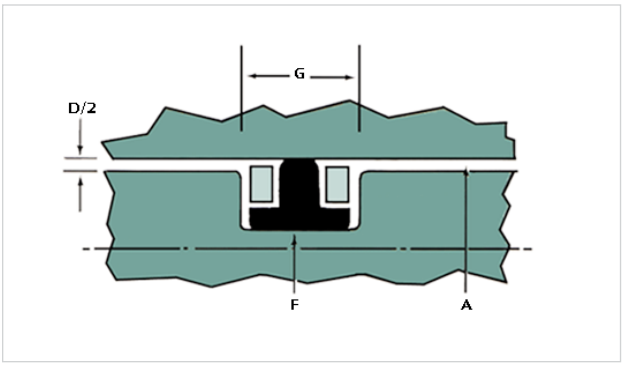


Figure 3




Rod seal




Piston seal

## TABLE 1 11,000 SERIES DIMENSIONAL INFORMATION

| AS568-A Uniform O-Ring Dash No. | Nominal Cross-Section | Piston Type | | | | | | Rod Type | | | | | | Diametral Clearance Max | Radius | Gland Width (+0.005 to 0.000) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Bore Diameter A | | | Gland Diameter F | | | Rod Diameter B | | | Gland Diameter E | | | D | R | G | | |
| | | inch | mm | Tol. | inch | mm | Tol. | inch | mm | Tol. | inch | mm | Tol. | | | 0B/U | 1B/U | 2B/U |
| 106 | 3/32 in. (.103 in.) ±0.003 in. 2.6162 mm ±0.0762 mm | 0.375 | 9.52 | +0.001 in. -0.000 in. 0.0254 mm -0.0 mm | 0.196 | 4.98 | +0.000 in. -0.001 in. 0.0254 mm -0.0 mm | 0.186 | 4.72 | +0.000 in. -0.001 in. 0.0254 mm -0.0 mm | 0.365 | 9.27 | +0.001 in. -0.000 in. 0.0254 mm -0.0 mm | .005 in. 0.127 mm | 0.005 in. to 0.015 in. 0.127 mm to 0.381 mm | 0.150 in. 3.81 mm | 0.171 in. 4.34 mm | 0.238 in. 6.04 mm |
| 108 | | 0.437 | 11.10 | | 0.258 | 6.55 | | 0.249 | 6.32 | | 0.428 | 10.87 | | | | | | |
| 109 | | 0.500 | 12.70 | | 0.321 | 8.15 | | 0.311 | 7.90 | | 0.490 | 12.45 | | | | | | |
| 110 | | 0.562 | 14.28 | | 0.384 | 9.75 | | 0.374 | 9.50 | | 0.552 | 14.02 | | | | | | |
| 111 | | 0.625 | 15.87 | | 0.447 | 11.35 | | 0.436 | 11.07 | | 0.614 | 15.60 | | | | | | |
| 112 | | 0.687 | 17.45 | | 0.509 | 12.93 | | 0.499 | 12.68 | | 0.677 | 17.20 | | | | | | |
| 113 | | 0.750 | 19.05 | | 0.572 | 14.53 | | 0.561 | 14.22 | | 0.739 | 18.77 | | | | | | |
| 114 | | 0.812 | 20.62 | | 0.634 | 16.10 | | 0.624 | 15.85 | | 0.802 | 20.37 | | | | | | |
| 115 | | 0.875 | 22.22 | | 0.697 | 17.70 | | 0.686 | 17.42 | | 0.864 | 21.95 | | | | | | |
| 116 | | 0.937 | 23.80 | | 0.759 | 19.28 | | 0.749 | 19.02 | | 0.927 | 23.55 | | | | | | |
| 203 | 1/8 in. (.139 in.) ±0.004 in. 3.5306 mm ±0.1016 mm | 0.562 | 14.27 | | 0.319 | 8.10 | | 0.311 | 7.90 | | 0.554 | 14.07 | | | | | | |
| 204 | | 0.625 | 15.87 | | 0.382 | 9.70 | | 0.374 | 9.00 | | 0.617 | 15.67 | | | | | | |
| 205 | | 0.687 | 17.45 | | 0.444 | 11.28 | | 0.436 | 11.07 | | 0.679 | 17.25 | | | | | | |
| 206 | | 0.750 | 19.05 | | 0.507 | 12.88 | | 0.499 | 12.68 | | 0.742 | 18.85 | | | | | | |
| 207 | | 0.812 | 20.63 | | 0.569 | 14.45 | | 0.561 | 14.25 | | 0.804 | 20.42 | | | | | | |
| 208 | | 0.875 | 22.22 | | 0.632 | 16.05 | | 0.624 | 15.85 | | 0.867 | 22.02 | | | | | | |
| 209 | | 0.937 | 23.80 | | 0.694 | 17.63 | | 0.686 | 17.42 | | 0.929 | 23.60 | | | 0.010 in. to 0.025 in. 0.127 mm to 0.381 mm | | | |
| 210 | | 1.000 | 25.40 | | 0.757 | 19.23 | | 0.748 | 19.00 | | 0.991 | 25.17 | | | | | | |
| 211 | | 1.063 | 27.00 | | 0.820 | 20.83 | | 0.810 | 20.57 | | 1.053 | 26.75 | | | | 0.185 in. 4.70 mm | 0.208 in. 5.28 mm | 0.275 in. 6.98 mm |
| 212 | | 1.125 | 28.57 | | 0.882 | 22.40 | | 0.873 | 22.17 | | 1.116 | 28.35 | | | | | | |
| 213 | | 1.188 | 30.18 | +0.002 in. -0.000 in. 0.0508 mm/-0.0 mm | 0.945 | 24.00 | | 0.935 | 23.75 | +0.000 in. -0.002 in. 0.0 mm -0.0508 mm | 1.178 | 29.92 | | | | | | |
| 214 | | 1.250 | 31.75 | | 1.007 | 25.58 | | 0.998 | 25.35 | | 1.241 | 31.52 | | | | | | |
| 215 | | 1.313 | 33.35 | | 1.070 | 27.18 | | 1.06 | 27.00 | | 1.303 | 33.10 | | | | | | |
| 216 | | 1.375 | 34.90 | | 1.132 | 28.75 | | 1.123 | 28.52 | | 1.366 | 34.70 | | | | | | |
| 217 | | 1.438 | 36.52 | | 1.195 | 30.35 | | 1.185 | 30.10 | | 1.428 | 36.27 | | | | | | |
| 218 | | 1.500 | 38.10 | | 1.257 | 31.93 | | 1.248 | 31.70 | | 1.491 | 37.87 | | | | | | |
| 219 | | 1.563 | 39.70 | | 1.320 | 33.53 | | 1.31 | 33.27 | | 1.553 | 39.45 | | | | | | |
| 220 | | 1.625 | 41.27 | | 1.382 | 35.10 | | 1.373 | 34.87 | | 1.616 | 41.05 | | | | | | |
| 221 | | 1.688 | 42.87 | | 1.445 | 36.70 | | 1.435 | 36.45 | | 1.678 | 42.62 | | | | | | |
| 222 | | 1.750 | 44.45 | | 1.507 | 38.28 | | 1.498 | 38.05 | | 1.741 | 44.22 | | | | | | |
| 325 | | 1.875 | 47.62 | | 1.503 | 38.18 | | 1.498 | 38.05 | | 1.870 | 47.50 | | | | | | |
| 326 | | 2.00 | 50.80 | | 1.628 | 41.35 | | 1.623 | 41.22 | | 1.995 | 50.67 | | | | | | |
| 327 | | 2.125 | 53.97 | | 1.753 | 44.53 | | 1.748 | 44.40 | | 2.120 | 53.85 | | | | | | |
| 328 | | 2.250 | 57.15 | | 1.878 | 47.70 | | 1.873 | 47.57 | | 2.245 | 57.02 | | | | | | |
| 329 | | 2.375 | 60.32 | | 2.003 | 50.88 | | 1.998 | 50.75 | | 2.370 | 60.20 | | | | | | |
| 330 | | 2.50 | 63.50 | | 2.128 | 54.05 | | 2.123 | 53.92 | | 2.495 | 63.38 | | | | | | |
| 331 | | 2.625 | 66.67 | | 2.253 | 57.23 | | 2.248 | 57.10 | | 2.620 | 66.55 | | | | | | |
| 332 | | 2.750 | 69.85 | | 2.378 | 60.40 | | 2.373 | 60.27 | | 2.745 | 69.72 | | | | | | |
| 333 | 3/16 in. (.210 in.) ±0.004 in. 5.33 mm ±0.1016 mm | 2.875 | 73.02 | | 2.503 | 63.58 | | 2.498 | 63.45 | | 2.870 | 72.90 | | | | | | |
| 334 | | 3.000 | 76.20 | | 2.628 | 66.75 | | 2.623 | 66.62 | | 2.995 | 76.08 | | | | | | |
| 335 | | 3.125 | 79.37 | | 2.753 | 69.93 | | 2.748 | 69.80 | | 3.120 | 79.25 | | | | | | |
| 336 | | 3.25 | 82.55 | | 2.878 | 73.10 | | 2.873 | 72.97 | | 3.245 | 82.42 | | | | | | |
| 337 | | 3.375 | 85.72 | | 3.003 | 76.28 | | 2.998 | 76.15 | | 3.370 | 85.60 | | | | | | |
| 338 | | 3.500 | 88.90 | | 3.128 | 79.45 | | 3.123 | 79.32 | | 3.495 | 88.77 | | | | | | |
| 339 | | 3.625 | 92.08 | | 3.253 | 82.63 | | 3.248 | 82.50 | | 3.620 | 91.95 | | | | | | |
| 340 | | 3.750 | 95.25 | | 3.378 | 85.80 | | 3.373 | 85.67 | | 3.745 | 95.12 | | | | | | |
| 341 | | 3.875 | 98.43 | | 3.503 | 88.97 | | 3.498 | 88.85 | | 3.870 | 98.30 | | | | | | |
| 342 | | 4.000 | 101.60 | | 3.628 | 92.15 | | 3.623 | 92.02 | | 3.995 | 101.47 | | | | | | |

## TABLE 1 11,000 SERIES DIMENSIONAL INFORMATION

| AS568-A Uniform O-Ring Dash No. | Nominal Cross-Section | Piston Type | | | | | | Rod Type | | | | | | Diametral Clearance Max | Radius | Gland Width (+0.005 to 0.000) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Bore Diameter A | | | Gland Diameter F | | | Rod Diameter B | | | Gland Diameter E | | | D | R | G | | |
| | | inch | mm | Tol. | inch | mm | Tol. | inch | mm | Tol. | inch | mm | Tol. | | | 0B/U | 1B/U | 2B/U |
| 343 | 3/16 in. (.210 in.) ±0.005 in. 5.33 mm ±0.127 mm | 4.125 | 104.78 | +0.002 in. −0.000 in. 0.0508 mm −0.0 mm | 3.753 | 95.20 | +0.000 in. −0.002 in. 0.0 mm −0.0508 mm | 3.748 | 95.20 | +0.000 in. −0.002 in. 0.0 mm −0.0508 mm | 4.120 | 104.65 | +0.002 in. −0.000 in. 0.0508 mm −0.0 mm | .007 in. 0.1778 mm | 0.020 in. to 0.035 in. 0.508 mm to 0.889 mm | 0.280 in. 7.112 mm | 0.311 in. 7.8994 mm | 0.410 in. 10.414 mm |
| 344 | | 4.250 | 107.95 | | 3.878 | 98.50 | | 3.873 | 98.37 | | 4.245 | 107.82 | | | | | | |
| 345 | | 4.375 | 111.13 | | 4.003 | 101.68 | | 3.998 | 101.55 | | 4.370 | 111.00 | | | | | | |
| 346 | | 4.500 | 114.30 | | 4.128 | 104.85 | | 4.123 | 104.72 | | 4.495 | 114.17 | | | | | | |
| 347 | | 4.625 | 117.48 | | 4.253 | 108.03 | | 4.248 | 107.90 | | 4.620 | 117.35 | | | | | | |
| 348 | | 4.750 | 120.65 | | 4.378 | 111.20 | | 4.373 | 111.07 | | 4.745 | 120.52 | | | | | | |
| 349 | | 4.875 | 123.83 | | 4.503 | 114.38 | | 4.498 | 114.25 | | 4.870 | 123.70 | | | | | | |
| 425 | | 5.001 | 127.03 | | 4.524 | 114.91 | | 4.498 | 114.25 | | 4.975 | 126.37 | | | | | | |
| 426 | | 5.126 | 130.20 | | 4.649 | 118.08 | | 4.623 | 117.42 | | 5.100 | 129.54 | | | | | | |
| 427 | | 5.251 | 133.38 | | 4.774 | 121.26 | | 4.748 | 120.60 | | 5.225 | 132.72 | | | | | | |
| 428 | | 5.376 | 136.55 | | 4.899 | 124.43 | | 4.873 | 123.77 | | 5.350 | 135.89 | | | | | | |
| 429 | | 5.501 | 139.73 | | 5.024 | 127.61 | | 4.998 | 126.95 | | 5.475 | 139.07 | | | | | | |
| 430 | | 5.626 | 142.90 | | 5.149 | 130.78 | | 5.123 | 130.12 | | 5.600 | 142.24 | | | | | | |
| 431 | | 5.751 | 146.08 | | 5.274 | 133.96 | | 5.248 | 133.30 | | 5.725 | 145.42 | | | | | | |
| 432 | | 5.876 | 149.25 | | 5.399 | 137.13 | | 5.373 | 136.47 | | 5.850 | 148.59 | | | | | | |
| 433 | | 6.001 | 152.43 | +0.003 in. −0.000 in. 0.0762 mm −0.0 mm | 5.524 | 140.31 | | 5.498 | 139.65 | | 5.975 | 151.77 | | | | | | |
| 434 | | 6.126 | 155.60 | | 5.649 | 143.48 | | 5.623 | 142.82 | | 6.100 | 154.94 | | | | | | |
| 435 | | 6.251 | 158.78 | | 5.774 | 146.66 | | 5.748 | 146.00 | | 6.225 | 158.12 | | | | | | |
| 436 | | 6.376 | 161.95 | | 5.899 | 149.83 | | 5.873 | 149.17 | | 6.350 | 161.29 | | | | | | |
| 437 | 1/4 in. (.275 in.) ±0.006 in. 6.985 mm ±0.1524 mm | 6.501 | 165.13 | | 6.024 | 153.01 | | 5.998 | 152.35 | | 6.475 | 164.47 | | | | 0.366 in. 9.296 mm | 0.408 in. 10.363 mm | 0.538 in. 13.665 mm |
| 438 | | 6.751 | 171.48 | | 6.274 | 159.36 | | 6.248 | 158.70 | | 6.725 | 170.82 | | | | | | |
| 439 | | 7.001 | 177.83 | | 6.524 | 165.71 | −0.003 in. 0.0 mm −0.0762 mm | 6.498 | 165.05 | +0.000 in. −0.003 in. 0.000 mm −0.0762 mm | 6.975 | 177.17 | +0.003 in. −0.000 in. 0.0254 mm −0.0 mm | .009 in. 0.2286 mm | | | | |
| 440 | | 7.251 | 184.18 | | 6.774 | 172.06 | | 6.748 | 171.40 | | 7.225 | 183.52 | | | | | | |
| 441 | | 7.501 | 190.53 | | 7.024 | 178.41 | | 6.998 | 177.75 | | 7.475 | 189.87 | | | | | | |
| 442 | | 7.751 | 196.88 | | 7.274 | 184.76 | | 7.248 | 184.10 | | 7.725 | 196.22 | | | | | | |
| 443 | | 8.001 | 203.23 | | 7.524 | 191.11 | | 7.498 | 190.45 | | 7.975 | 202.57 | | | | | | |
| 444 | | 8.251 | 209.58 | | 7.774 | 197.46 | | 7.748 | 196.80 | | 8.225 | 208.92 | | | | | | |
| 445 | | 8.501 | 215.93 | | 8.024 | 203.81 | +0.000 in. 0.0 mm −0.0762 mm | 7.998 | 203.15 | | 8.475 | 215.27 | | | | | | |
| 446 | | 9.001 | 228.63 | | 8.524 | 216.51 | | 8.498 | 215.85 | | 8.975 | 227.97 | | | | | | |
| 447 | | 9.501 | 241.33 | | 9.024 | 229.21 | | 8.998 | 228.55 | | 9.475 | 240.67 | | | | | | |
| 448 | | 10.001 | 254.03 | | 9.524 | 241.91 | | 9.498 | 241.25 | | 9.975 | 253.37 | | | | | | |
| 449 | | 10.501 | 266.73 | | 10.024 | 254.61 | | 9.998 | 253.95 | | 10.480 | 266.07 | | | | | | |
| 450 | | 11.001 | 279.43 | | 10.524 | 267.31 | | 10.50 | 266.65 | | 10.980 | 278.77 | | | | | | |
| 451 | | 11.501 | 292.13 | +0.004 in. −0.000 in. 0.1016 mm −0.0 mm | 11.024 | 280.01 | | 11.00 | 279.35 | +0.004 in. −0.000 in. 0.1016 mm −0.000 mm | 11.480 | 291.47 | | | | | | |
| 452 | | 12.001 | 304.83 | | 11.524 | 292.71 | | 11.50 | 292.05 | | 11.980 | 304.17 | | | | | | |
| 453 | | 12.501 | 317.53 | | 12.024 | 305.41 | | 12.00 | 304.75 | | 12.480 | 316.87 | | | | | | |
| 454 | | 13.001 | 330.23 | | 12.524 | 318.11 | | 12.50 | 317.45 | | 12.980 | 329.57 | | | | | | |
| 455 | | 13.501 | 342.93 | | 13.024 | 330.81 | | 13.00 | 330.15 | | 13.480 | 342.27 | | .010 in. 0.254 mm | | | | |
| 456 | | 14.001 | 355.63 | | 13.524 | 343.51 | | 13.50 | 342.85 | | 13.980 | 354.97 | | | | | | |
| 457 | | 14.501 | 368.33 | | 14.024 | 356.21 | | 14.00 | 355.55 | | 14.480 | 367.67 | | | | | | |
| 458 | | 15.001 | 381.03 | | 14.524 | 368.91 | | 14.50 | 368.25 | | 14.980 | 380.37 | | | | | | |
| 459 | | 15.501 | 393.73 | | 15.024 | 381.61 | | 15.00 | 380.95 | | 15.480 | 393.07 | | | | | | |
| 460 | | 16.001 | 406.43 | | 15.524 | 394.31 | | 15.50 | 393.65 | | 15.980 | 405.77 | | | | | | |

## TABLE 2 ELASTOMERIC COMPOUND SELECTOR

| Fluids | Base Polymer (ASTM Designator) | Temp Range | Durometer Hardness (Shore A) | Compound Designator | Application |
|---|---|---|---|---|---|
| General purpose hydraulic oils, mineral, oils petroleum based lubricants, air, water, water-glycols, soluble oils | NBR | -40°F to 275°F (-40°C to 135°C) | 70 | 173 | General Purpose |
| MIL-H-5606 | NBR | -65°F to 275°F (-54°C to 135°C) | 70 | 160 | MIL-P-25732 as applicable |
| MIL-H-6083 | NBR | -70°F to 275°F (-57°C to 135°C) | 70 | 987 | Low temperature Nitrile |
| | NBR | -65°F to 275°F (-54°C to 135°C) | 75 | 964 | MIL-P-83461 as applicable |
| | FZ | -70°F to 300°F (-57°C to 149°C) | 70/80 | 737/738 | MIL-P-87175 as applicable |
| MIL-H-83282 | NBR | -65°F to 275°F (-54°C to 135°C) | 75 | 964 | MIL-P-83461 as applicable |
| MIL-H-46170 | FZ | -70°F to 300°F (-57°C to 149°C) | 70/80 | 737/738 | MIL-P-87175 as applicable |
| Silicone Oils | EPR | -65°F to 300°F (-54°C to 149°C) | 80 | 952 | NAS-1613 as applicable |
| Phosphate esters, water-glycol cellulubes , automotive brake fluids (SAE-J-1703) | EPDM | -65°F to 300°F (-54°C to 149°C) | 75 | 801 | For use in FYRQUEL, PYDRAUL, PYROGARD and LINDOL type fluids |
| | EPR | -65°F to 300°F (-54°C to 149°C) | 80 | 952 | SKYDROL type phosphate/ester fluids NAS-1613 as applicable |
| Automatic transmission fluids (ATF) | NBR | -40°F to 275°F (-40°C to 135°C) | 70 | 700 | Recommended for low aniline point oils |
| Gasoline, kerosene, aviation fuels JP fuels | FKM | -20°F to 450°F (-29°C to 232°C) | 75 | 731 | MIL-R-83248 as applicable |
| | FKM | -40°F to 450°F (-40°C to 232°C) | 75 | 777 | Low temperature FKM |
| | FZ | -65°F to 300°F (-54°C to 149°C) | 70/80 | 740/741 | AMS-7284 as applicable |
| Inert gases, nitrogen | NBR | -65°F to 275°F (-54°C to 135°C) | 75 | 964 | |
| | NBR | -65°F to 275°F (-54°C to 135°C) | 75 | 972 | Fluoromer treated elastomer for improved wear and low friction characteristics |
| Freon | CR | -65°F to 275°F (-54°C to 135°C) | 80 | 253 | Most freon gases |
| Synthetic hydrocarbons, silicate esters, diesters, solvents | FKM | -20°F to 450°F (-29°C to 232°C) | 75 | 731 | |
| | FKM | -40°F to 450°F (-40°C to 232°C) | 75 | 777 | Low temperature FKM |
| Steam, hot water | EPDM | -40°F to 300°F (-40°C to 149°C) | 80 | 803 | Can be used to 500°F in non-oxidizing environment |
| | *TFE/P | 20°F to 450°F (-6.67°C to 232°C ) | 75 | 797 | Recommended for use in steam systems with corrosion inhibitors |
| Well drilling fluids, “sweet” crude oil, brines | XNBR | -20°F to 225°F (-29°C to 107°C) | 90 | 984 | Tougher compound, abrasion resistance, suitable for downhole applications |
| | FKM | -20°F to 450°F (-29 to 232°C) | 75/90 | | |
| Well drilling fluids, “sour” crude oil, H2S amines, steam, brines | *TFE/P | 20°F to 450°F (-6.67 to 232°C) | 75/90 | 797/799 | 90 durometer 799 compound recommended for rapid gas decompression resistance |
| | ECO | -50°F to 300°F (-45.6 to 149°C) | 80 | 957 | Recommended for low temperature applications |
| Virtually all fluids and fluid combinations EXCEPT fluorinated solvents and alkali metals | FFKM | -20°F to 450°F (-29 to 232°C) | 75/90 | 505/510 | |

**ASTM designator not assigned at the time of this publication*
*NOTE: Temperature ranges may vary depending on fluids and/or applications. Factors other than compatibility may alter the ideal compound recommendation. Consult GT Product Engineering for confirmation of compound selection.*

## TABLE 3 ANTI-EXTRUSION RING MATERIAL SELECTOR

| Pressure | Clearance Limits | Recommended Anti-Extrusion Ring Material* | Designator | Comments |
|---|---|---|---|---|
| 0–3000 psi (0-20.7 MPa) | See Table 1 | Virgin TFE | 005 | |
| | | NWR | 013 | Narrow Base Seal Only |
| | | NWR<br>P5 | 006<br>021 | Includes balanced designed clearances to 0.025 in. (0.635 mm) diametral (i.e., with wear rings). |
| | | P4 | 016 | Thin wall cylinder breathing to 0.012 in. (0.305 mm), diametral clearance. |
| 3000–4500 psi (20.7-31.0 MPa) | to 0.025 in. diametral (0.635mm) | NWR | 006 | 1. Relatively balanced actuator system,even stroke with intermittent side loading and lay down.<br>2. Static applications |
| | From Table 1 to 0.030 in. (0.762 mm) diametral | †Staged Virgin TFE & NWR | 060 | 1. Heavy Duty Wide Base Seal only.<br>2. Heavy shock load system with clearance due to cylinder distortion. |
| | See Table 1 | P5 | 021 | |
| Extreme Pressures | See Table 1 | P9 | 045 | Recommended for service extremes (temperatures to 450ºF, 232.22 C ). |

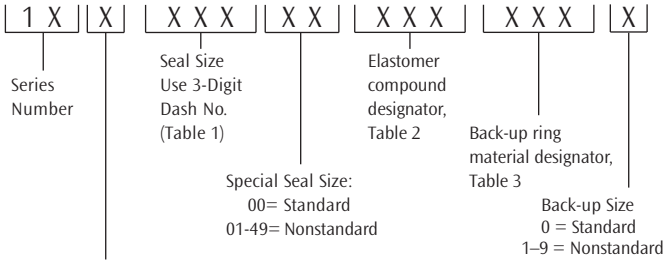
**Material*
*TFE: to MIL-R-8791*
*NWR: Wear Resistant Nylon to L-P-410a*
*P4: Graphite filled TFE to GC spec.*
*P5: Glass and MoS2 filled TFE to GT spec.*
*P9: Polyetheretherketone to GT spec.*

*†Assembly includes 4 backups…1 TFE backup each side adjacent to rubber sealing element; 1 NWR backup each side adjacent to groove wall.*

*Unless otherwise indicated, for temperatures above 275ºF, contact GT for Backup Material selection.)*

## GT-RING PART NUMBERING SYSTEM

The part numbering system requires the use of the material designator tables found in the above text. For nonstandard designs contact GT engineering.




| ROD | PISTON | AXIAL LENGTH |
|---|---|---|
| 1 | 2 | Narrow Base |
| 3 | 4 | Intermediate Base |
| 5 | 6 | Wide Base |
| 7 | 8 | Narrow Base GTL |



Contact Us

Greene, Tweed
Oilfield
Kulpsville, PA, USA

Tel: +1.281.765.4500
Tel: +1.800.927.3301
Fax: +1.281.765.4553

www.gtweed.com