



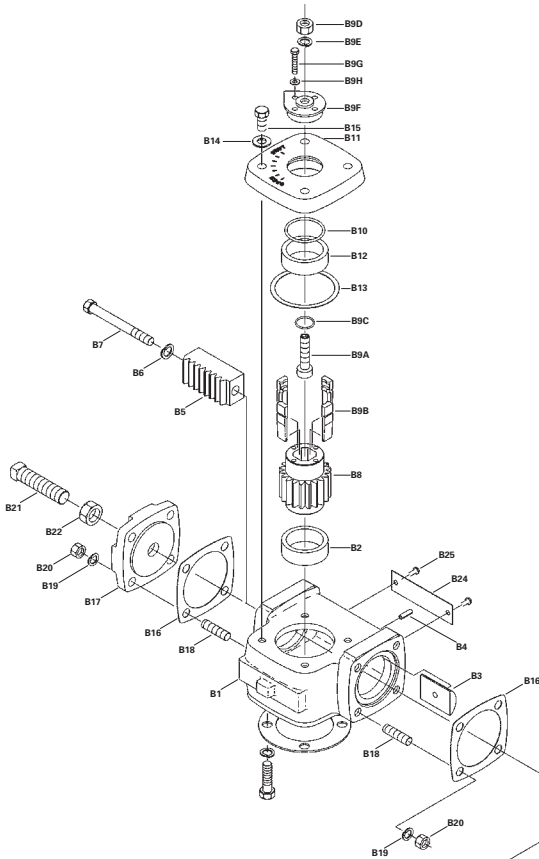
DeZURIK POWERRAC® CYLINDER ACTUATORS TECHNICAL SPECIFICATIONS



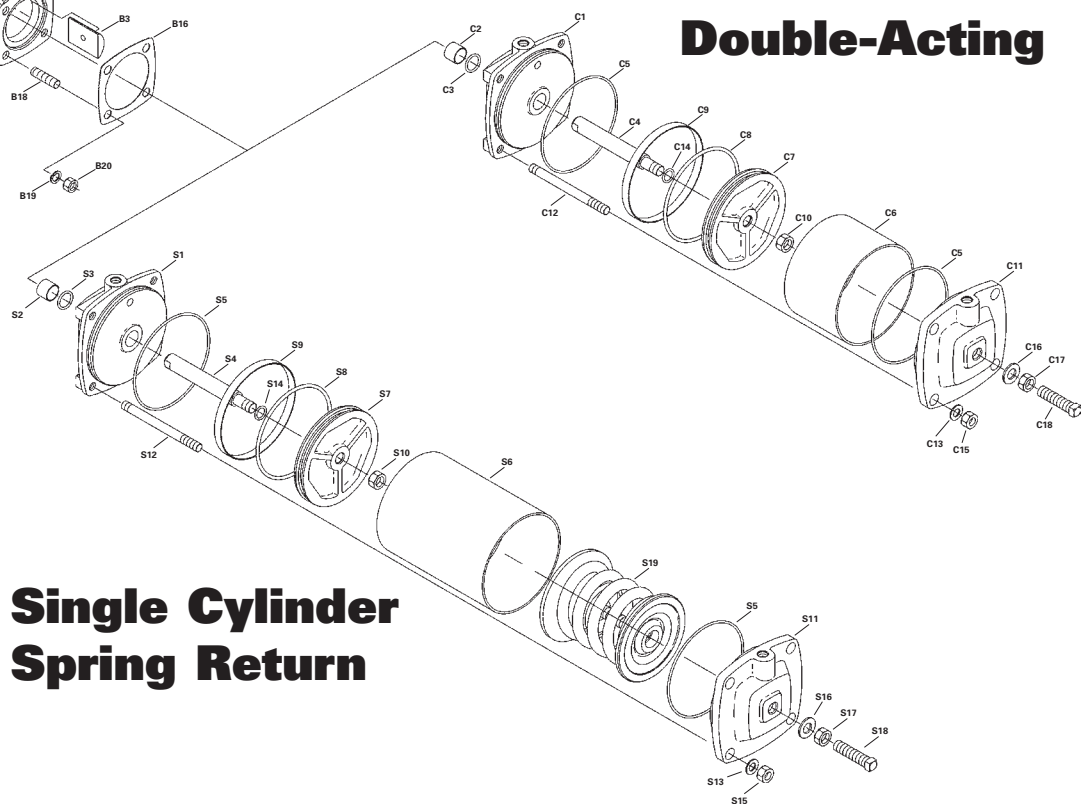
Materials of Construction

| Item | Description | Material |
|------|------------------------|---|
| B1 | Housing | Cast Iron, ASTM A126 CL B |
| B2 | Bearing | Bronze, ASTM B438 |
| B3 | Rack Bearing | Iron-Copper, ASTM B439-83 GR 4 |
| B4 | Pin | Zinc Plated Carbon Steel |
| B5 | Rack | Nickel-Steel Powdered Metal, ASTM B783 FN-0208-80HT |
| B6 | Lockwasher | Zinc Plated Carbon Steel |
| B7 | Rack Screw | Zinc Plated Carbon Steel, SAE GR 5 |
| B8 | Gear | Nickel-Steel Powdered Metal, ASTM B783 FN-0208-80HT |
| B9 | Square Collet Assembly | |
| B9A | Adjusting Screw | 17-4PH Stainless Steel, ASTM 564 Type 6 Condition A |
| B9B | Wedge | 17-4PH Stainless Steel, ASTM A747 Condition H900 |
| B9C | O-Ring | Nitrile |
| B9D | Nut | 18-8 Stainless Steel or 316 Stainless Steel |
| B9E | Lockwasher | 18-8 Stainless Steel or 316 Stainless Steel |
| B9F | Pointer | Nickel Steel Powdered Metal, ASTM B783 FN-0208-80HT |
| B9G | Screw | 18-8 Stainless Steel |
| B9H | Washer | 18-8 Stainless Steel |
| B10 | O-Ring | Nitrile |
| B11 | Top Cover | Cast Iron, ASTM A126 CL B |
| B12 | Bearing | Bronze, ASTM B438 |
| B13 | Gasket | Non-Asbestos Organic Fibers |
| B14 | Washer | Zinc Plated Carbon Steel or 316 Stainless Steel |
| B15 | Top Cover Screw | Zinc Plated Carbon Steel or 316 Stainless Steel |
| B16 | Gasket | Non-Asbestos Organic Fibers |
| B17 | End Cover | Cast Iron, ASTM A126 CL B |
| B18 | Stud | Zinc Plated Carbon Steel or 316 Stainless Steel |
| B19 | Lockwasher | Zinc Plated Carbon Steel or 316 Stainless Steel |
| B20 | Nut | Zinc Plated Carbon Steel or 316 Stainless Steel |
| B21 | Stop Screw | Zinc Plated Carbon Steel or 316 Stainless Steel |
| B22 | Jam Nut | Zinc Plated Carbon Steel or 316 Stainless Steel |
| B24 | Data Plate | 302 Stainless Steel |
| B25 | Drive Screw | Cadmium Plated Carbon Steel |
| C1 | Cylinder Head | Cast Iron ASTM A126 CL B |
| C2 | Bearing | Bronze, ASTM, B438-73 |
| C3 | Seal | PTFE-Nitrile |

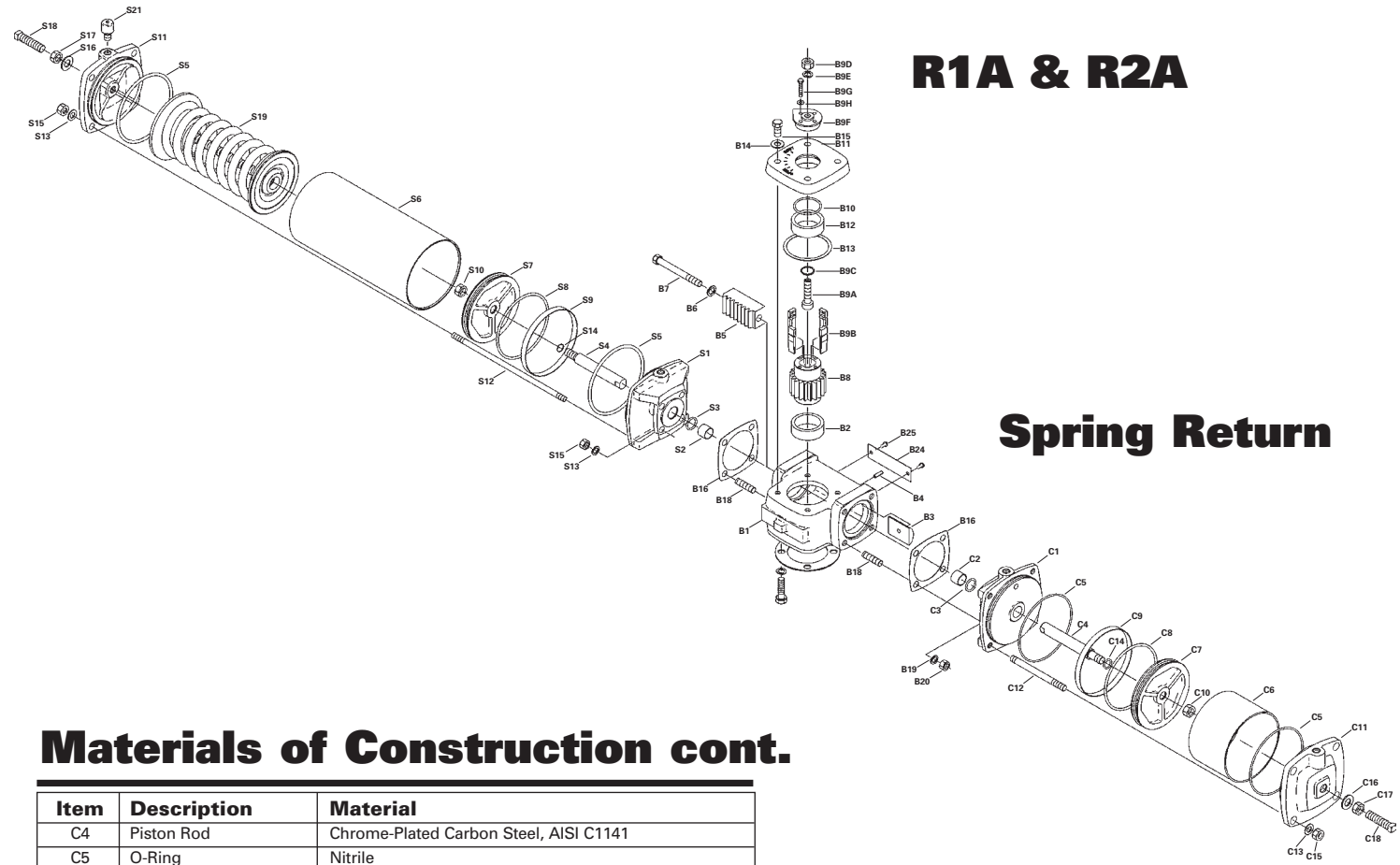
R1A & R2A



Double-Acting



Single Cylinder Spring Return



Materials of Construction cont.

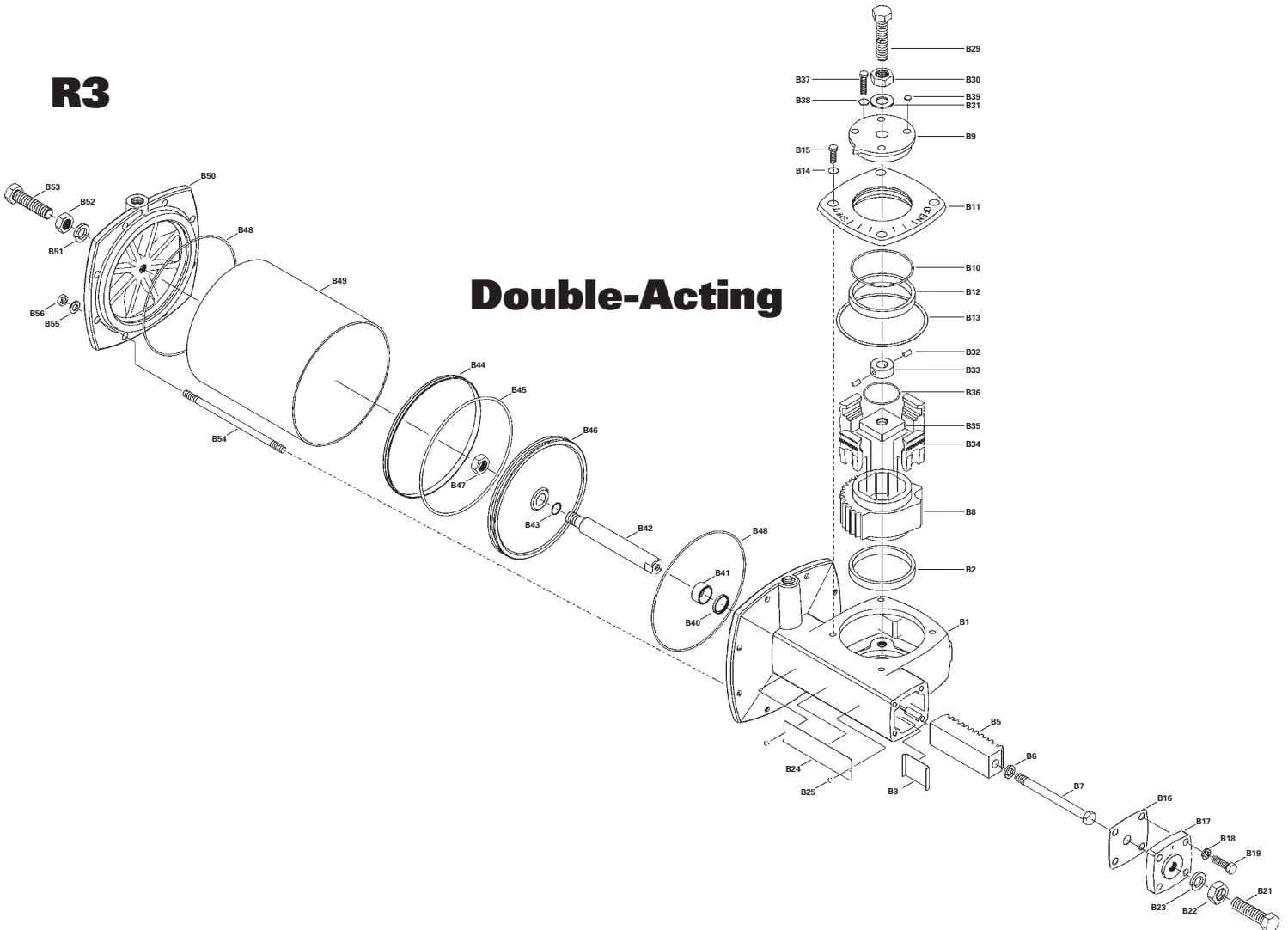
| Item | Description | Material |
|------|-----------------|---|
| C4 | Piston Rod | Chrome-Plated Carbon Steel, AISI C1141 |
| C5 | O-Ring | Nitrile |
| C6 | Tube | Glass Filament Wound |
| C7 | Piston | Cast Iron ASTM A126 CL B |
| C8 | O-Ring | Nitrile |
| C9 | Seal | PTFE |
| C10 | Nut | Zinc Plated Carbon Steel |
| C11 | Cylinder Cap | Ductile Iron, ASTM A536 65-45-12 |
| C12 | Tie Rod | Zinc Plated Carbon Steel or 316 Stainless Steel |
| C13 | Washer | Zinc Plated Carbon Steel or 316 Stainless Steel |
| C14 | O-Ring | Nitrile |
| C15 | Nut | Zinc Plated Carbon Steel or 316 Stainless Steel |
| C16 | Thread Seal | Steel and Nitrile |
| C17 | Jam Nut | Zinc Plated Carbon Steel or 316 Stainless Steel |
| C18 | Set Screw | Zinc Plated Carbon Steel or 316 Stainless Steel |
| S1 | Cylinder Head | Cast Iron, ASTM A126 CL B |
| S2 | Bearing | PTFE Fabric with Cadmium Plated Carbon Steel Backing |
| S3 | Seal | PTFE-Nitrile |
| S4 | Piston Rod | Chrome-Plated Carbon Steel, AISI C1141 |
| S5 | O-Ring | Nitrile |
| S6 | Tube | Glass Filament Wound |
| S7 | Piston | Cast Iron, ASTM A126 CL B |
| S8 | O-Ring | Nitrile |
| S9 | Seal | PTFE |
| S10 | Nut | Zinc Plated Carbon Steel |
| S11 | Cylinder Cap | Ductile Iron, ASTM A536 65-45-12 |
| S12 | Tie Rod | Zinc Plated Carbon Steel or 316 Stainless Steel |
| S13 | Washer | Zinc Plated Carbon Steel or 316 Stainless Steel |
| S14 | O-Ring | Nitrile |
| S15 | Nut | Zinc Plated Carbon Steel or 316 Stainless Steel |
| S16 | Thread Seal | Steel and Nitrile |
| S17 | Jam Nut | Zinc Plated Carbon Steel or 316 Stainless Steel |
| S18 | Stop Screw | Zinc Plated Carbon Steel or 316 Stainless Steel |
| S19 | Spring Assembly | Silicone Manganese Spring – AISI 5160; Ductile Iron Cap and Base – ASTM A536, Grade 80-55-06; Carbon Steel Rod and Washer – Grade 2 |
| S21 | Breather | Brass with Sintered Bronze Filter |

Materials of Construction

| Item | Description | Material |
|------|-----------------|---|
| B1 | Housing | Cast Iron, ASTM A126 CL B |
| B2 | Bearing | Bronze, SAE 660 |
| B3 | Rack Bearing | PTFE Fabric Bonded to 316 Stainless Steel Backing |
| B5 | Rack | Nickel-Steel Powdered Metal, ASTM B783 FN-0208-80HT |
| B6 | Lockwasher | Zinc Plated Carbon Steel |
| B7 | Rack Screw | Black Oxide Coated Steel |
| B8 | Gear | Nickel-Steel Powdered Metal, ASTM B783 FN-0208-80HT |
| B9 | Pointer | Cast Iron, ASTM A126 CL B |
| B10 | O-Ring | Nitrile |
| B11 | Top Cover | Cast Iron, ASTM A126 CL B |
| B12 | Bearing | Bronze, SAE 660 |
| B13 | Gasket | Non-Asbestos Organic Fibers |
| B14 | Washer | 316 Stainless Steel |
| B15 | Screw | 316 Stainless Steel |
| B16 | Gasket | Non-Asbestos Organic Fibers |
| B17 | End Cover | Cast Iron, ASTM A126 CL B |
| B18 | Washer | 316 Stainless Steel |
| B19 | Screw | 316 Stainless Steel |
| B21 | Stop Screw | 316 Stainless Steel |
| B22 | Jam Nut | 316 Stainless Steel |
| B23 | Lockwasher | 316 Stainless Steel |
| B24 | Data Plate | 302 Stainless Steel |
| B25 | Drive Screw | 18-8 Stainless Steel |
| B29 | Adjusting Screw | 316 Stainless Steel |

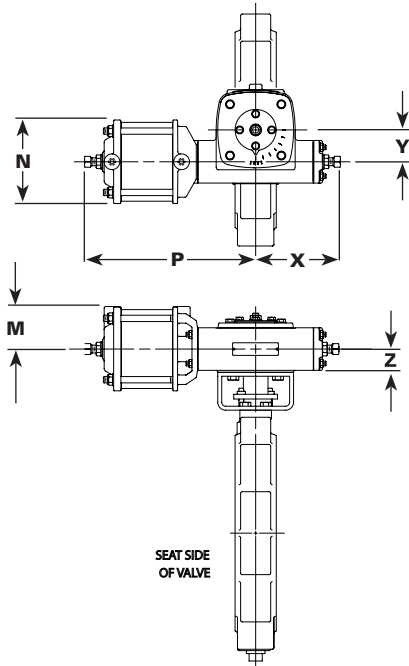
| Item | Description | Material |
|------|--------------|------------------------------------|
| B30 | Jam Nut | 316 Stainless Steel |
| B31 | Washer | 316 Stainless Steel |
| B32 | Pin | Chrome Steel, Type 420 |
| B33 | Collar | Steel, ASTM A108 |
| B34 | Wedge | Cast 17-4PH Stainless Steel |
| B35 | Block | Steel, ASTM A108 GR 1018 |
| B36 | O-Ring | Nitrile |
| B37 | Screw | 316 Stainless Steel |
| B38 | Washer | 316 Stainless Steel |
| B39 | Plugs | Plastic |
| B40 | Seal | PTFE-Nitrile |
| B41 | Bearing | Bronze, Oil Impregnated, ASTM B438 |
| B42 | Piston Rod | Chrome Plated Steel, ASTM A108 |
| B43 | O-Ring | Nitrile |
| B44 | Piston Seal | PTFE |
| B45 | O-Ring | Nitrile |
| B46 | Piston | Cast Iron, ASTM A126 CL B |
| B47 | Nut | Zinc Plated Carbon Steel |
| B48 | O-Ring | Nitrile |
| B49 | Tube | Glass Filament Wound |
| B50 | Cylinder Gap | Cast Ductile Iron, ASTM A536 |
| B51 | Thread Seal | Steel with Nitrile |
| B52 | Jam Nut | 316 Stainless Steel |
| B53 | Stop Screw | 316 Stainless Steel |
| B54 | Tie Rod | 316 Stainless Steel |
| B55 | Washer | 316 Stainless Steel |
| B56 | Nut | 316 Stainless Steel |

R3



Dimensions

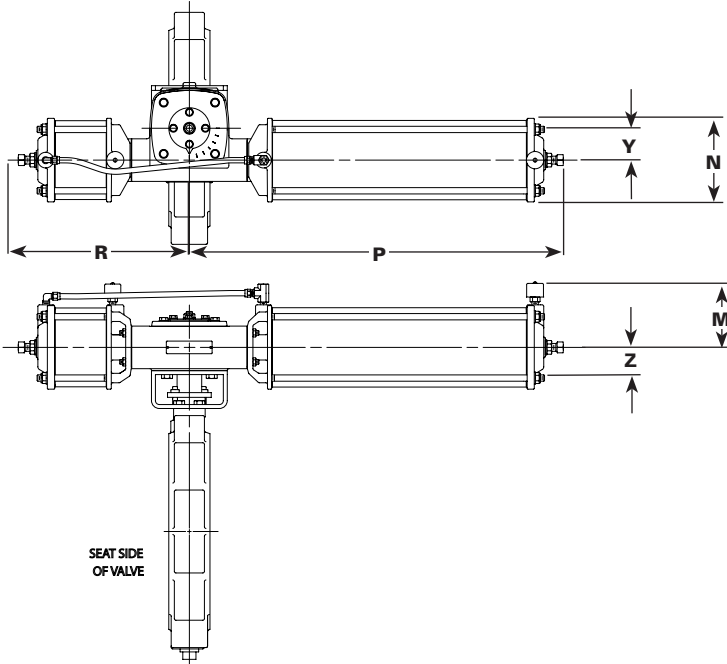
Double-Acting & Spring Return-Single Cylinder



Double-Acting & Spring Return-Single Cylinder

| Actuator | Dimensions | | | | | |
|-------------|------------|-------|-------|------|------|------|
| | M | N | P | X | Y | Z |
| PR-R1A-PC4 | 2.31 | 4.50 | 12.12 | 5.75 | 1.47 | 1.50 |
| | 59 | 114 | 308 | 146 | 37 | 38 |
| PR-R1A-PC6 | 3.38 | 6.62 | 12.62 | 5.75 | 1.47 | 1.50 |
| | 86 | 168 | 321 | 146 | 37 | 38 |
| PR-R1-SC4A | 3.88 | 4.50 | 15.38 | 5.75 | 1.47 | 1.50 |
| | 99 | 114 | 391 | 146 | 37 | 38 |
| PR-R1-SC6A | 4.94 | 6.62 | 16.38 | 5.75 | 1.47 | 1.50 |
| | 125 | 168 | 416 | 146 | 37 | 38 |
| PR-R1-SC6B | 4.94 | 6.62 | 17.69 | 5.75 | 1.47 | 1.50 |
| | 125 | 168 | 449 | 146 | 37 | 38 |
| PR-R2A-PC6 | 3.38 | 6.62 | 16.00 | 7.50 | 2.53 | 1.84 |
| | 86 | 168 | 406 | 191 | 64 | 171 |
| PR-R2A-PC8 | 3.38 | 10.25 | 16.12 | 7.50 | 2.53 | 1.84 |
| | 86 | 260 | 409 | 191 | 64 | 47 |
| PR-R3A-PC8 | 4.81 | 10.25 | 19.25 | 9.69 | 3.84 | 2.31 |
| | 122 | 260 | 489 | 246 | 98 | 59 |
| PR-R3A-PC10 | 5.88 | 11.75 | 19.25 | 9.69 | 3.84 | 2.31 |
| | 149 | 298 | 489 | 246 | 98 | 59 |

Spring Return-Double Cylinder



Spring Return-Double Cylinder

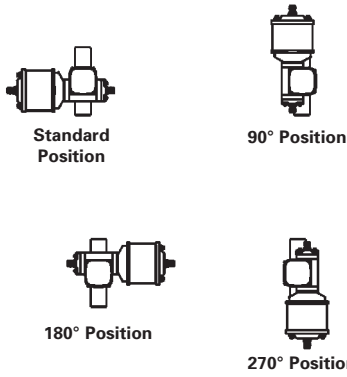
| Actuator | Dimensions | | | | | | |
|------------|------------|-------|-------|-----------------|----------------|------|------|
| | M | N | P | R | | Y | Z |
| | | | | Spring-to-Close | Spring-to-Open | | |
| PR-R1A-SC4 | 3.88 | 4.50 | 12.12 | 21 | 19.12 | 1.47 | 1.50 |
| | 99 | 114 | 308 | 533 | 486 | 37 | 38 |
| PR-R1A-SC6 | 4.94 | 6.62 | 12.62 | 21.88 | 19.16 | 1.47 | 11.5 |
| | 126 | 168 | 321 | 556 | 487 | 37 | 38 |
| PR-R2A-SC6 | 4.94 | 6.62 | 16.00 | 30.5 | 25.00 | 2.53 | 1.84 |
| | 126 | 168 | 406 | 775 | 635 | 64 | 47 |
| PR-R2A-SC8 | 6.38 | 10.25 | 16.12 | 32.75 | 27.50 | 2.53 | 1.84 |
| | 162 | 260 | 409 | 832 | 698 | 64 | 47 |

Inches
Millimeter

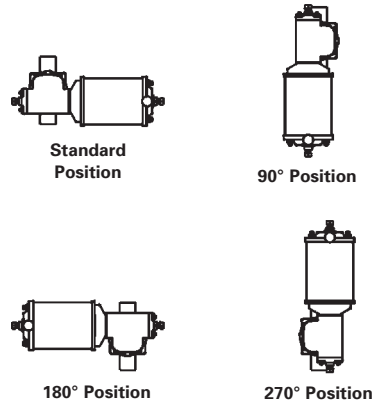
Note: All dimensions are subject to change without notice. Request certified drawings for use in preparing piping layouts.

Actuator Mounting Positions

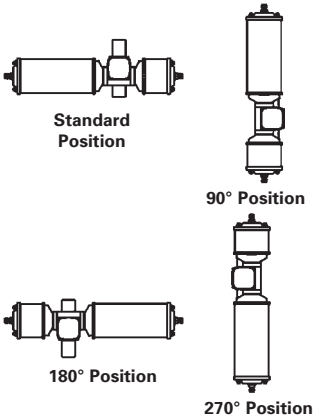
Double-Acting & Spring Return- Spring-to-Open Single Cylinder



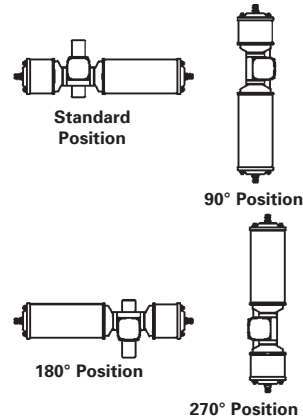
Spring Return Spring-to-Close- Single Cylinder



Spring Return Spring-to-Open- Double Cylinder



Spring Return Spring-to-Close- Double Cylinder



Actuator Torques & Weights

Double-Acting

| Actuator Size | Torque-Ft-Lbs. (NM) | | Weight LBS (KG) |
|---------------|---------------------|------------------|-----------------|
| | 60 psi (4 Bar) | 80 psi (5.5 Bar) | |
| PR-R1A-PC4 | 56 (76) | 75 (102) | 28 (13) |
| PR-R1A-PC6 | 126 (171) | 170 (230) | 42 (19) |
| PR-R2A-PC6 | 255 (346) | 340 (461) | 59 (27) |
| PR-R2A-PC8 | 450 (610) | 600 (813) | 82 (37) |

Spring Return

| Actuator Size | Torque Ft-Lbs. (NM) 60 psi (4 Bar) | Weight LBS (KG) | |
|---------------|---------------------------------------|-----------------|-----------------|
| | | Spring-to-Open | Spring-to-Close |
| PR-R1A-SC4 | 56 (76) | 50 (23) | 53 (24) |
| PR-R1A-SC6 | 126 (171) | 92 (42) | 94 (43) |
| PR-R2A-SC6 | 255 (346) | 114 (52) | 129 (59) |
| PR-R2A-SC8 | 450 (610) | 184 (83) | 208 (94) |
| *PR-R1A-SC4A | 56 (76) | 36 (17) | 38 (17) |
| *PR-R1A-SC6A | 126 (171) | 52 (24) | 54 (25) |
| *PR-R1A-SC6B | 126 (171) | 56 (26) | 58 (27) |

*Single cylinder

Ordering

To order a PowerRac[®] actuator, select the actuator model from the appropriate valve style sizing charts. Specify mounting position on the line following the valve/actuator code. As reference information, the actuator code is defined in the following charts.

Double-Acting

Cylinder Type

Give cylinder type code as follows:

- PR = PowerRac[®] Actuator
- PRL = PowerRac[®] Actuator with Lockout

Gear Size

Give gear size code as follows:

- R1A = 1" (25mm) Radius Gear
- R2A = 2" (50mm) Radius Gear
- R3A = 3" (80mm) Radius Gear

Cylinder Size

Give cylinder size code as follows:

- PC4 = 4" (100mm) Diameter Cylinder
- PC6 = 6" (150mm) Diameter Cylinder
- PC8 = 8" (200mm) Diameter Cylinder
- PC10 = 10" (250mm) Diameter Cylinder

Ordering Example:

BHP,2,L1,CS,TC,S2-S2-FT-TT*PR-R1A-PC4
180° actuator mounting

Spring Return

Cylinder Type

Give cylinder type code as follows:

- PR = PowerRac[®] Actuator

Gear Size

Give gear size code as follows:

- R1A = 1" (25mm) Radius Gear
- R2A = 2" (50mm) Radius Gear

Cylinder Size

Give cylinder size code as follows:

- Double Cylinder
 - SC4 = 4" (100mm) Diameter Cylinder
 - SC6 = 6" (150mm) Diameter Cylinder
 - SC8 = 8" (200mm) Diameter Cylinder
- Single Cylinder
 - SC4A = 4" (100mm) Diameter Cylinder
 - SC6A = 6" (150mm) Diameter Cylinder
 - SC8A = 8" (200mm) Diameter Cylinder

Spring Action*

Give spring action code as follows:

- D = Direct, Spring-to-Open
- R = Reverse, Spring-to-Close

Spring Size*

Give spring size code as follows:

- 60 = 60 psi Minimum Rating

Ordering Example:

BHP,3,L1,S2,G1,S2NH-S5-NS-S2*PR-R1A-SC4-R-60
270° actuator mounting

* Note: Spring cylinders are not field reversible

Sales and Service

For information about our worldwide locations, approvals, certifications and local representative:

Web Site: www.dezurik.com E-Mail: info@dezurik.com



250 Riverside Ave. N. Sartell, Minnesota 56377 • Phone: 320-259-2000 • Fax: 320-259-2227

DeZURIK, Inc. reserves the right to incorporate our latest design and material changes without notice or obligation. Design features, materials of construction and dimensional data, as described in this bulletin, are provided for your information only and should not be relied upon unless confirmed in writing by DeZURIK, Inc. Certified drawings are available upon request.