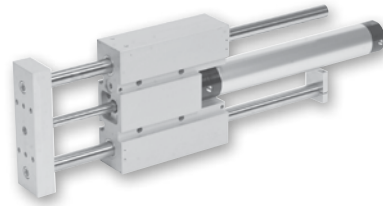


- 3 body styles (Thrust, Reach, Base)
- 8 bore sizes 20mm to 100mm
- Maximum strokes 400 to 1000mm depending on model
- 3 Bearing options: composite, ball bearing, self-aligning ball bearing
- Dowel holes standard on body and tool plate
- Available with adjustable stroke and shock absorbers
- Direct mount of thrust and reach to same size base
- Powered by P1L cylinder



Operating information

Operating pressure: 10 bar (145 PSIG)
 Temperature range:
 Standard seals -17°C to 74°C (0°F to 165°F)
 Fluorocarbon seals* -17°C to 121°C (0°F to 250°F) *
 See fluorocarbon seal option for high temperature applications.
 Operating characteristics: Double acting
 Filtration requirements: 40 micron, dry filtered air
 For technical information see CD

Ordering information

P5L - R L 100 J1 A A N F N - 0900 - A

| | | | | | | | | | |
|----------------------|--------------|------------------|-------|-----------------------|---------------------------------|--|--|----------------------|----------------|
| Series | | Bore size | | Cylinder seals | | Stroke length | | Design series | |
| T | Thrust slide | 020 | 20mm | N | Nitrile (standard) | - | Order in 1mm increments. | A | Current design |
| R | Reach slide | 025 | 25mm | V | Fluorocarbon (high temperature) | A** | Machined T-slots (Sizes 50-100) | | |
| B | Base slide | 032 | 32mm | | | | | | |
| Cylinder type | | 040 | 40mm | | | T-slots | | | |
| L | P1L cylinder | 050 | 50mm | | | - | Standard (Extruded T-slots on sizes 20-40, no T-slots on sizes 50-100) | | |
| | | 063 | 63mm | | | A** | Machined T-slots (Sizes 50-100) | | |
| | | 080 | 80mm | | | ** Not available on sizes 20-40 | | | |
| | | 100 | 100mm | | | Proximity sensor options† | | | |
| | | | | | | N | No Sensor | | |
| | | | | | | P | PNP, lead type | | |
| | | | | | | R | NPN, lead type | | |
| | | | | | | S | PNP, plug in type | | |
| | | | | | | T | NPN, plug in type | | |
| | | | | | | W | Prox ready, 8mm (no sensor supplied) | | |
| | | | | | | Z | Prox ready, 12mm (no sensor supplied) | | |
| | | | | | | † Note: Piston magnet is standard on all cylinders. Inductive proximity sensors are included with Options P, R, S & T. | | | |
| | | | | | | Cylinder port style | | | |
| | | | | | | G | BSPT ports | | |
| | | | | | | H | NPTF ports | | |
| | | | | | | P | BSPT ports w/ Presto-lok flow controls (mm) | | |
| | | | | | | F | NPTF ports w/ Presto-lok flow controls (inch) | | |
| | | | | | | B | BSPT ports w/ flow controls | | |
| | | | | | | N | NPTF ports w/ flow controls | | |
| | | | | | | Order P8S Series reed and solid state sensors separately from Electronic Sensors Section. | | | |
| | | | | | | Sensors | | | |
| | | | | | | For sensors see page B294. | | | |

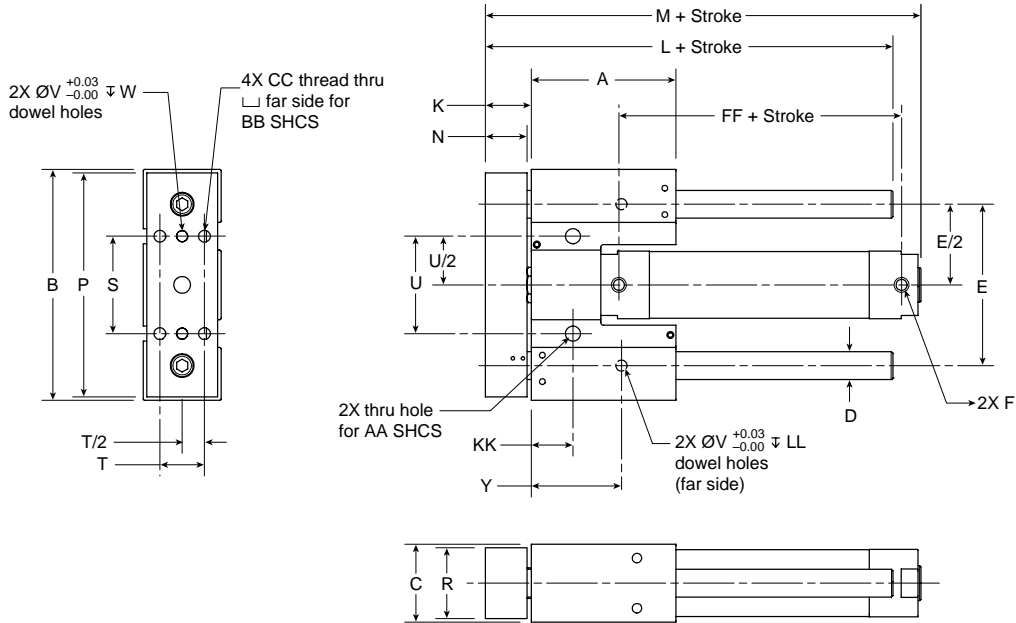
| | |
|-----------------|---|
| Bushings | |
| J1 | Composite bushing, chrome plated shafts |
| J2 | Composite bushing, oversized chrome plated shafts |
| J3 | Composite bushing, stainless steel shafts |
| J4 | Composite bushing, oversized stainless steel shafts |
| G1 | Composite bushing, chrome plated shafts, contaminant tolerant seals |
| G3 | Composite bushing, stainless steel shafts, contaminant tolerant seals |
| H3 | Linear ball bearings, stainless steel shafts |
| H5 | Linear ball bearings, carbon steel shafts |
| S3* | Self aligning linear ball bearings, stainless steel shafts |
| S5* | Self aligning linear ball bearings, carbon steel shafts |

* Not available 20mm bore models

| | | | |
|-----------------------|--|------------------------|--|
| Extend options | | Retract options | |
| N | None | N | None |
| A | Shock/stroke adjusters | A | Shock/stroke adjusters |
| B | Bumpers (base slides only) | B | Bumpers only |
| C | Cushions both ends | C | Cushions both ends |
| E | Micro-adjusters and cushions (both ends only) | E | Micro-adjusters and cushions (both ends only) |
| H | Cushions and bumpers (includes options C & K) | H | Cushions and bumpers (includes options C & K) |
| K | Bumpers and adjustable stop collars | K | Bumpers and adjustable stop collars |
| L | Shock absorbers and bumpers (N/A on base slides) | L | Shock absorbers and bumpers (N/A on base slides) |

B
 Guided Cylinders
 Actuator Products
 P5T Series
 P5T2 Series
 P5L Series
 HB Series
 P5E Series

Thrust Slides



Dimensions in mm (inch)

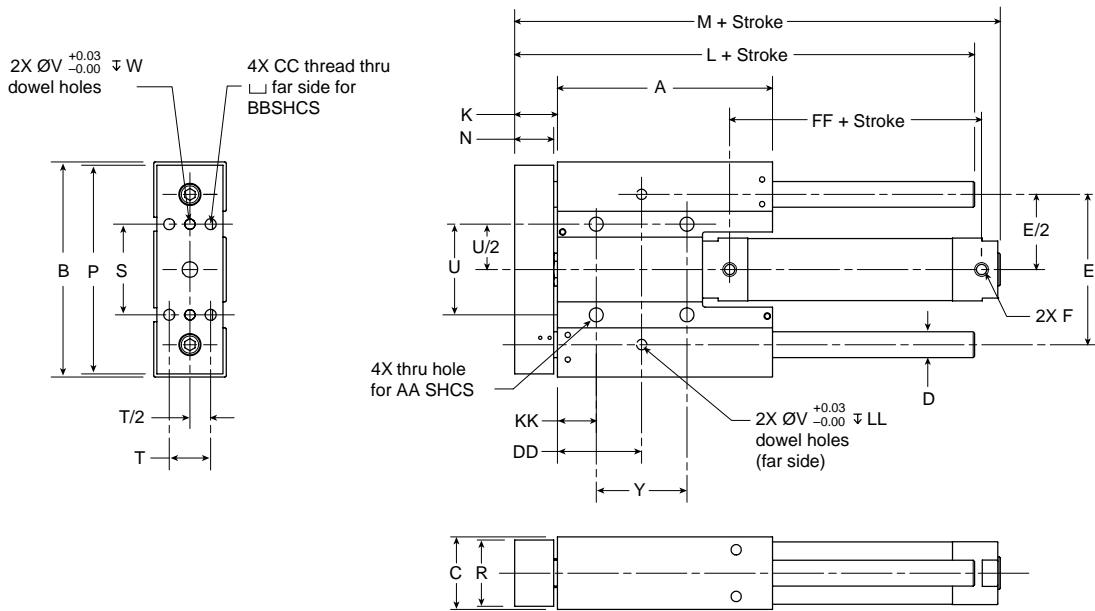
| Bore size | A | B | C | Ds* | Do* | E | F** | K | L | M | N | P | R |
|--------------------------|--------------|---------------|--------------|-------------|-------------|---------------|------|-------------|---------------|---------------|-------------|---------------|--------------|
| P5T Series 20 | 60 (2.4) | 98 (3.9) | 30 (1.2) | 10 (0.4) | 12 (0.5) | 68 (2.7) | 1/8† | 20 (0.8) | 86 (3.4) | 114 (4.5) | 17 (0.7) | 96 (3.8) | 26 (1.0) |
| 25 | 76 (3.0) | 122 (4.8) | 38 (1.5) | 12 (0.5) | 16 (0.6) | 84 (3.3) | 1/8† | 25 (1.0) | 107 (4.2) | 126 (5.0) | 22 (0.9) | 119 (4.7) | 33 (1.3) |
| P5T2 Series 32 | 84 (3.3) | 140 (5.5) | 44 (1.7) | 16 (0.6) | 20 (0.8) | 92 (3.6) | 1/8 | 27 (1.1) | 117 (4.6) | 140 (5.5) | 24 (0.9) | 137 (5.4) | 39 (1.5) |
| 40 | 104 (4.1) | 166 (6.5) | 56 (2.2) | 20 (0.8) | 25 (1.0) | 116 (4.6) | 1/8 | 33 (1.3) | 143 (5.6) | 163 (6.4) | 30 (1.2) | 161 (6.3) | 51 (2.0) |
| P5L Series 50 | 130 (5.1) | 216 (8.5) | 70 (2.8) | 25 (1.0) | 30 (1.2) | 148 (5.8) | 1/4 | 39 (1.5) | 175 (6.9) | 195 (7.7) | 36 (1.4) | 211 (8.3) | 63 (2.5) |
| 63 | 152 (6.0) | 260 (10.2) | 84 (3.3) | 30 (1.2) | 40 (1.6) | 176 (6.9) | 1/4 | 43 (1.7) | 203 (8.0) | 219 (8.6) | 40 (1.6) | 255 (10.0) | 77 (3.0) |
| 80 | 180 (7.1) | 320 (12.6) | 102 (4.0) | 40 (1.6) | 50 (2.0) | 220 (8.7) | 3/8 | 49 (1.9) | 237 (9.3) | 249 (9.8) | 46 (1.8) | 315 (12.4) | 95 (3.7) |
| 100 | 222 (8.7) | 390 (15.4) | 120 (4.7) | 50 (2.0) | 60 (2.4) | 260 (10.2) | 1/2 | 59 (2.3) | 289 (11.4) | 306 (12.0) | 56 (2.2) | 383 (15.1) | 111 (4.4) |

| Bore size | S | T | U | V | W | Y | AA | BB | CC | FF | KK | LL |
|-------------------------|--------------|-------------|--------------|----------------|-------------|--------------|-----|-----|----------|-------------|-------------|-------------|
| HB Series 20 | 40 (1.6) | 16 (0.6) | 40 (1.6) | 4.03 (0.2) | 4 (0.2) | 36 (1.4) | M5 | M4 | M5x0.8 | 45 (1.8) | 16 (0.6) | 4 (0.2) |
| 25 | 48 (1.9) | 20 (0.8) | 48 (1.9) | 5.03 (0.2) | 5 (0.2) | 46 (1.8) | M6 | M5 | M6x1.0 | 46 (1.8) | 22 (0.9) | 5 (0.2) |
| P5E Series 32 | 50 (2.0) | 24 (0.9) | 50 (2.0) | 6.03 (0.2) | 6 (0.2) | 53 (2.1) | M8 | M6 | M8x1.25 | 43 (1.7) | 28 (1.1) | 6 (0.2) |
| 40 | 70 (2.8) | 32 (1.3) | 70 (2.8) | 8.03 (0.3) | 8 (0.3) | 65 (2.6) | M10 | M8 | M10x1.5 | 49 (1.9) | 30 (1.2) | 8 (0.3) |
| 50 | 80 (3.1) | 42 (1.7) | 80 (3.1) | 8.03 (0.3) | 8 (0.3) | 83 (3.3) | M10 | M8 | M10x1.5 | 53 (2.1) | 43 (1.7) | 8 (0.3) |
| 63 | 100 (3.9) | 52 (2.0) | 100 (3.9) | 10.03 (0.4) | 10 (0.4) | 101 (4.0) | M12 | M10 | M12x1.75 | 52 (2.0) | 51 (2.0) | 10 (0.4) |
| 80 | 124 (4.9) | 62 (2.4) | 124 (4.9) | 12.03 (0.5) | 12 (0.5) | 127 (5.0) | M16 | M14 | M16x1.5 | 64 (2.5) | 65 (2.6) | 12 (0.5) |
| 100 | 148 (5.8) | 72 (2.8) | 148 (5.8) | 12.03 (0.5) | 12 (0.5) | 154 (6.1) | M20 | M16 | M20x2.5 | 66 (2.6) | 80 (3.1) | 12 (0.5) |

* s = standard, o = oversized ** NPTF or BSPT † w/cushions M5/10-32



Reach Slides



Dimensions in mm (inch)

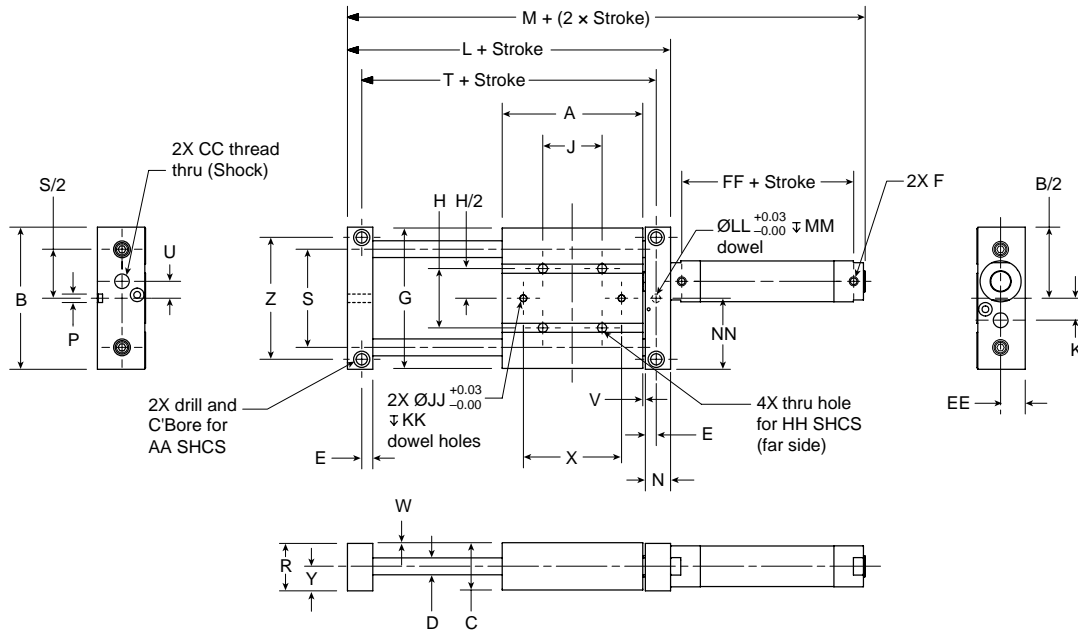
| Bore size | A | B | C | Ds* | Do* | E | F** | K | L | M | N | P | R |
|-----------|---------------|---------------|--------------|-------------|-------------|---------------|------|-------------|---------------|---------------|-------------|---------------|--------------|
| 20 | 98 (3.9) | 98 (3.9) | 30 (1.2) | 10 (0.4) | 12 (0.5) | 68 (2.7) | 1/8† | 20 (0.8) | 124 (4.9) | 152 (6.0) | 17 (0.7) | 96 (3.8) | 26 (1.0) |
| 25 | 122 (4.8) | 122 (4.8) | 38 (1.5) | 12 (0.5) | 16 (0.6) | 84 (3.3) | 1/8† | 25 (1.0) | 153 (6.0) | 172 (6.8) | 22 (0.9) | 119 (4.7) | 33 (1.3) |
| 32 | 140 (5.5) | 140 (5.5) | 44 (1.7) | 16 (0.6) | 20 (0.8) | 92 (3.6) | 1/8 | 27 (1.1) | 173 (6.8) | 196 (7.7) | 24 (0.9) | 137 (5.4) | 39 (1.5) |
| 40 | 166 (6.5) | 166 (6.5) | 56 (2.2) | 20 (0.8) | 25 (1.0) | 116 (4.6) | 1/8 | 33 (1.3) | 205 (8.1) | 225 (8.9) | 30 (1.2) | 161 (6.3) | 51 (2.0) |
| 50 | 216 (8.5) | 216 (8.5) | 70 (2.8) | 25 (1.0) | 30 (1.2) | 148 (5.8) | 1/4 | 39 (1.5) | 261 (10.3) | 281 (11.1) | 36 (1.4) | 211 (8.3) | 63 (2.5) |
| 63 | 260 (10.2) | 260 (10.2) | 84 (3.3) | 30 (1.2) | 40 (1.6) | 176 (6.9) | 1/4 | 43 (1.7) | 311 (12.2) | 327 (12.9) | 40 (1.6) | 255 (10.0) | 77 (3.0) |
| 80 | 320 (12.6) | 320 (12.6) | 102 (4.0) | 40 (1.6) | 50 (2.0) | 220 (8.7) | 3/8 | 49 (1.9) | 377 (14.8) | 389 (15.3) | 46 (1.8) | 315 (12.4) | 9 (3.7) |
| 100 | 390 (15.4) | 390 (15.4) | 120 (4.7) | 50 (2.0) | 60 (2.4) | 260 (10.2) | 1/2 | 59 (2.3) | 457 (18.0) | 474 (18.7) | 56 (2.2) | 383 (15.1) | 111 (4.4) |

| Bore size | S | T | U | V | W | Y | AA | BB | CC | DD | FF | KK | LL |
|-----------|--------------|-------------|--------------|----------------|-------------|--------------|-----|-----|----------|--------------|-------------|-------------|-------------|
| 20 | 40 (1.6) | 16 (0.6) | 40 (1.6) | 4.03 (0.2) | 4 (0.2) | 40 (1.6) | M5 | M4 | M5X0.8 | 36 (1.4) | 45 (1.8) | 16 (0.6) | 4 (0.2) |
| 25 | 48 (1.9) | 20 (0.8) | 48 (1.9) | 5.03 (0.2) | 5 (0.2) | 48 (1.9) | M6 | M5 | M6X1.0 | 46 (1.8) | 46 (1.8) | 22 (0.9) | 5 (0.2) |
| 32 | 50 (2.0) | 24 (0.9) | 50 (2.0) | 6.03 (0.2) | 6 (0.2) | 50 (2.0) | M8 | M6 | M8X1.25 | 53 (2.1) | 43 (1.7) | 28 (1.1) | 6 (0.2) |
| 40 | 70 (2.8) | 32 (1.3) | 70 (2.8) | 8.03 (0.3) | 8 (0.3) | 70 (2.8) | M10 | M8 | M10X1.5 | 65 (2.6) | 49 (1.9) | 30 (1.2) | 8 (0.3) |
| 50 | 80 (3.1) | 42 (1.7) | 80 (3.1) | 8.03 (0.3) | 8 (0.3) | 80 (3.1) | M10 | M8 | M10X1.5 | 83 (3.3) | 53 (2.1) | 43 (1.7) | 8 (0.3) |
| 63 | 100 (3.9) | 52 (2.0) | 100 (3.9) | 10.03 (0.4) | 10 (0.4) | 100 (3.9) | M12 | M10 | M12X1.75 | 101 (4.0) | 52 (2.0) | 51 (2.0) | 10 (0.4) |
| 80 | 124 (4.9) | 62 (2.4) | 124 (4.9) | 12.03 (0.5) | 12 (0.5) | 124 (4.9) | M16 | M14 | M16X1.5 | 127 (5.0) | 64 (2.5) | 65 (2.6) | 12 (0.5) |
| 100 | 148 (5.8) | 72 (2.8) | 148 (5.8) | 12.03 (0.5) | 12 (0.5) | 148 (5.8) | M20 | M16 | M20X2.5 | 154 (6.1) | 66 (2.6) | 80 (3.1) | 12 (0.5) |

* s = standard, o = oversized ** NPTF or BSPT † w/cushions M5/10-32



Base Slides



Dimensions in mm (inch)

| Bore size | A | B | C | Ds* | Do* | E | F** | G | H | J | K | L | M | N | P+.03 | R | S |
|-----------|---------------|---------------|--------------|-------------|-------------|-------------|------|---------------|--------------|--------------|-------------|---------------|---------------|-------------|----------------|--------------|---------------|
| 20 | 98 (3.9) | 100 (3.9) | 30 (1.2) | 10 (0.4) | 12 (0.5) | 8 (0.3) | 1/8† | 98 (3.9) | 40 (1.6) | 40 (1.6) | 18 (0.7) | 140 (5.5) | 211 (8.3) | 18 (0.7) | 5.03 (0.2) | 30 (1.2) | 68 (2.7) |
| 25 | 122 (4.8) | 124 (4.9) | 38 (1.5) | 12 (0.5) | 16 (0.6) | 14 (0.6) | 1/8† | 122 (4.8) | 48 (1.9) | 48 (1.9) | 22 (0.9) | 176 (6.9) | 247 (9.7) | 24 (0.9) | 6.03 (0.2) | 38 (1.5) | 84 (3.3) |
| 32 | 140 (5.5) | 142 (5.6) | 44 (1.7) | 16 (0.6) | 20 (0.8) | 12 (0.5) | 1/8 | 140 (5.5) | 50 (2.0) | 50 (2.0) | 22 (0.9) | 198 (7.8) | 271 (10.7) | 26 (1.0) | 6.03 (0.2) | 44 (1.7) | 92 (3.6) |
| 40 | 166 (6.5) | 168 (6.6) | 56 (2.2) | 20 (0.8) | 25 (1.0) | 13 (0.5) | 1/8 | 166 (6.5) | 70 (2.8) | 70 (2.8) | 26 (1.0) | 232 (9.1) | 312 (12.3) | 30 (1.2) | 10.03 (0.4) | 56 (2.2) | 116 (4.6) |
| 50 | 216 (8.5) | 218 (8.6) | 70 (2.8) | 25 (1.0) | 30 (1.2) | 16 (0.6) | 1/4 | 216 (8.5) | 80 (3.1) | 80 (3.1) | 28 (1.1) | 292 (11.5) | 384 (15.1) | 35 (1.4) | 10.03 (0.4) | 70 (2.8) | 148 (5.8) |
| 63 | 260 (10.2) | 262 (10.3) | 84 (3.3) | 30 (1.2) | 40 (1.6) | 19 (0.7) | 1/4 | 260 (10.2) | 100 (3.9) | 100 (3.9) | 42 (1.7) | 350 (13.8) | 442 (17.4) | 42 (1.7) | 12.03 (0.5) | 84 (3.3) | 176 (6.9) |
| 80 | 320 (12.6) | 322 (12.7) | 102 (4.0) | 40 (1.6) | 50 (2.0) | 24 (0.9) | 3/8 | 320 (12.6) | 124 (4.9) | 124 (4.9) | 42 (1.7) | 434 (17.1) | 545 (21.5) | 54 (2.1) | 16.03 (0.6) | 102 (4.0) | 220 (8.7) |
| 100 | 390 (15.4) | 392 (15.4) | 120 (4.7) | 50 (2.0) | 60 (2.4) | 28 (1.1) | 1/2 | 390 (15.4) | 148 (5.8) | 148 (5.8) | 62 (2.4) | 528 (20.8) | 639 (25.2) | 66 (2.6) | 16.03 (0.6) | 120 (4.7) | 260 (10.2) |

| Bore size | T | U | V*** | W | X | Y | Z | AA | CC | EE | FF | HH | JJ | KK | LL | MM | NN |
|-----------|---------------|-------------|------------|------------|---------------|-------------|---------------|-----|-----|-------------|-------------|-----|----------------|-------------|----------------|-------------|--------------|
| 20 | 120 (4.7) | 11 (0.4) | 3 (0.1) | 1 (0.0) | 68 (2.7) | 14 (0.6) | 86 (3.4) | M6 | M12 | 16 (0.6) | 45 (1.8) | M5 | 4.03 (0.2) | 4 (0.2) | 5.03 (0.2) | 5 (0.2) | 50 (2.0) |
| 25 | 156 (6.1) | 12 (0.5) | 3 (0.1) | 1 (0.0) | 84 (3.3) | 18 (0.7) | 104 (4.1) | M8 | M14 | 20 (0.8) | 46 (1.8) | M6 | 5.03 (0.2) | 5 (0.2) | 6.03 (0.2) | 6 (0.2) | 62 (2.4) |
| 32 | 170 (6.7) | 11 (0.4) | 3 (0.1) | 1 (0.0) | 92 (3.6) | 21 (0.8) | 120 (4.7) | M10 | M14 | 23 (0.9) | 43 (1.7) | M8 | 6.03 (0.2) | 6 (0.2) | 6.03 (0.2) | 6 (0.2) | 71 (2.8) |
| 40 | 198 (7.8) | 20 (0.8) | 3 (0.1) | 1 (0.0) | 116 (4.6) | 27 (1.1) | 144 (5.7) | M12 | M20 | 29 (1.1) | 49 (1.9) | M10 | 8.03 (0.3) | 8 (0.3) | 10.03 (0.4) | 10 (0.4) | 84 (3.3) |
| 50 | 254 (10.0) | 22 (0.9) | 3 (0.1) | 1 (0.0) | 148 (5.8) | 34 (1.3) | 188 (7.4) | M16 | M25 | 36 (1.4) | 53 (2.1) | M10 | 8.03 (0.3) | 8 (0.3) | 10.03 (0.4) | 10 (0.4) | 109 (4.3) |
| 63 | 304 (12.0) | 30 (1.2) | 3 (0.1) | 1 (0.0) | 176 (6.9) | 41 (1.6) | 224 (8.8) | M20 | M25 | 43 (1.7) | 52 (2.0) | M12 | 10.03 (0.4) | 10 (0.4) | 12.03 (0.5) | 12 (0.5) | 131 (5.2) |
| 80 | 374 (14.7) | 36 (1.4) | 3 (0.1) | 1 (0.0) | 220 (8.7) | 50 (2.0) | 276 (10.9) | M24 | M33 | 52 (2.0) | 64 (2.5) | M16 | 12.03 (0.5) | 12 (0.5) | 16.03 (0.6) | 16 (0.6) | 161 (6.3) |
| 100 | 452 (17.8) | 36 (1.4) | 3 (0.1) | 1 (0.0) | 260 (10.2) | 59 (2.3) | 336 (13.2) | M30 | M36 | 61 (2.4) | 66 (2.6) | M20 | 12.03 (0.5) | 12 (0.5) | 16.03 (0.6) | 16 (0.6) | 196 (7.7) |

* s = standard, o = oversized ** NPTF or BSPT † w/cushions M5/10-32
 *** Space between housing and end plate in both extend and retract positions.



Horizontal Load Capacity & Deflection with Standard Shafting

- Standard Composite w/ Chrome Plated or Stainless Steel Rods
- Recirculating Ball Bearings w/ Carbon or Stainless Steel Rods
- Self Aligning Ball Bearings w/ Carbon or Stainless Steel Rods

The graphs on the following two pages illustrate the maximum suggested side load at a given actuator stroke and distance (d) from the face of the tooling plate. The graphs include the weight of the support rods and tooling plate and are based on a bearing life of 10 million cycles under a dynamic loading condition. For an equivalent static load capacity multiply the information in these graphs by 1.5.

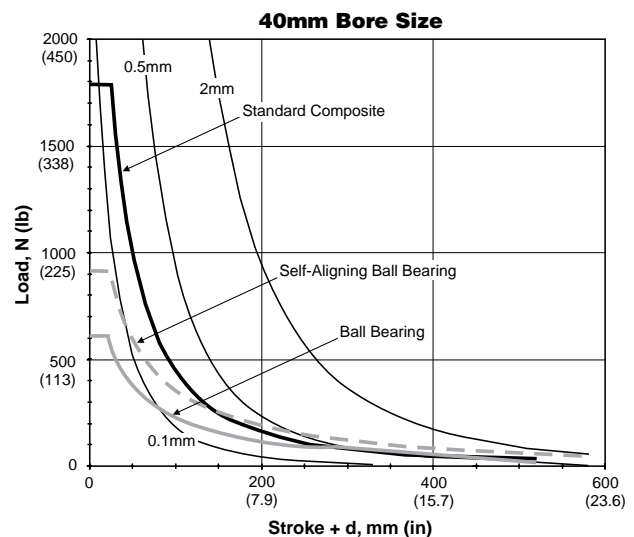
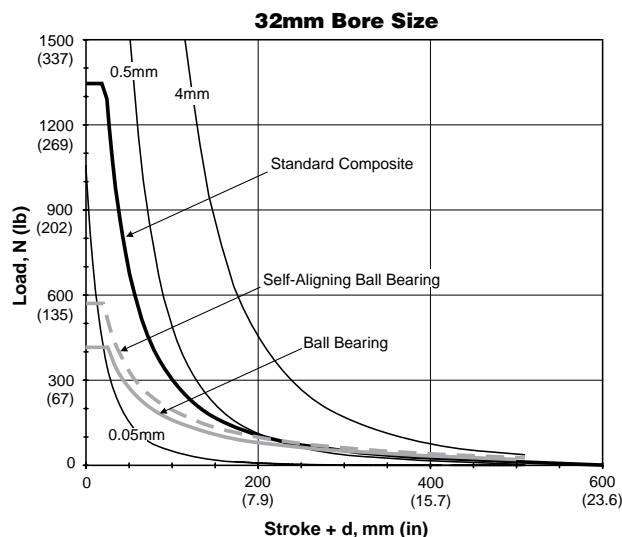
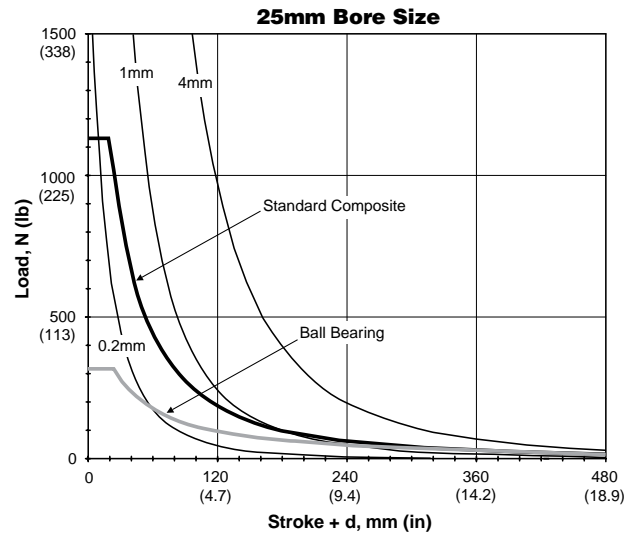
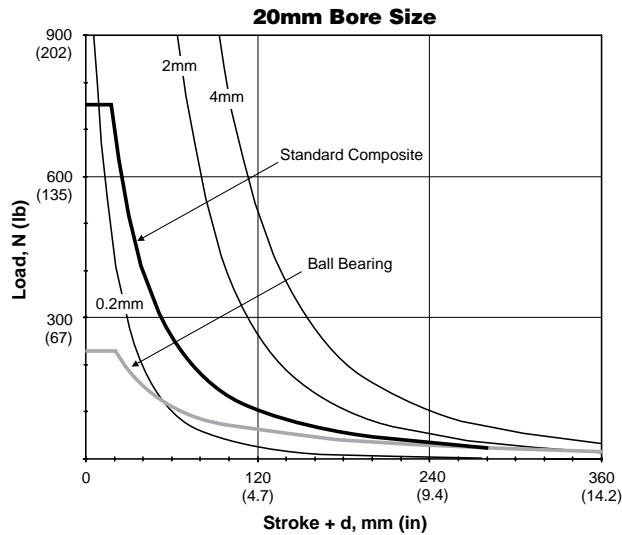
See the P5L options section of this catalog for more bearing selection information.

Dynamic loading is defined as a load which is affixed to the actuator tooling plate during the extend or retract motion of the actuator. Capacities are based on bearing and shafts only. Mounting bolts/hardware should be investigated per customer application.

Note: The following variables commonly affect the bearing life of a guided cylinder:

- Velocity
- Vibration
- Orientation
- Environment (Dust, moisture, etc.)

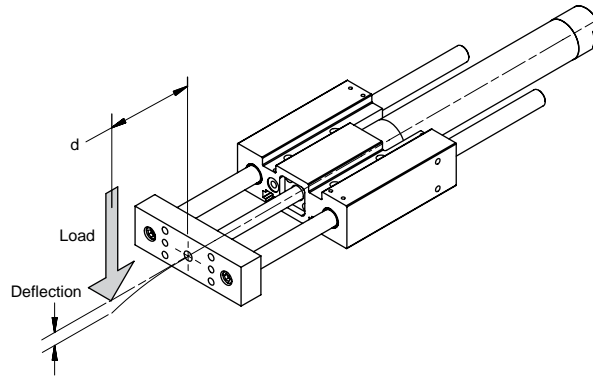
P5L Thrust Slides



| | |
|----------|-------------------|
| B | Guided Cylinders |
| | Actuator Products |
| P5T | Series |
| P5T2 | Series |
| P5L | Series |
| HB | Series |
| P5E | Series |

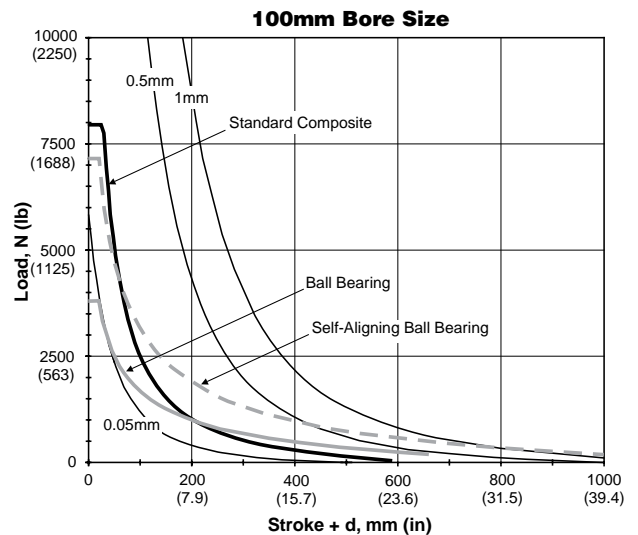
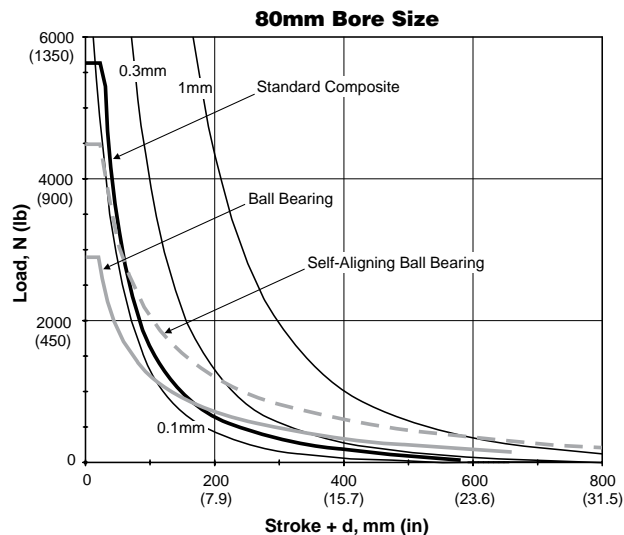
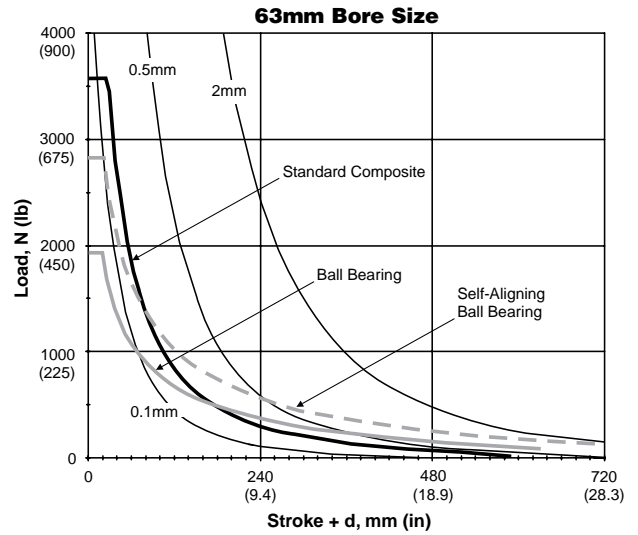
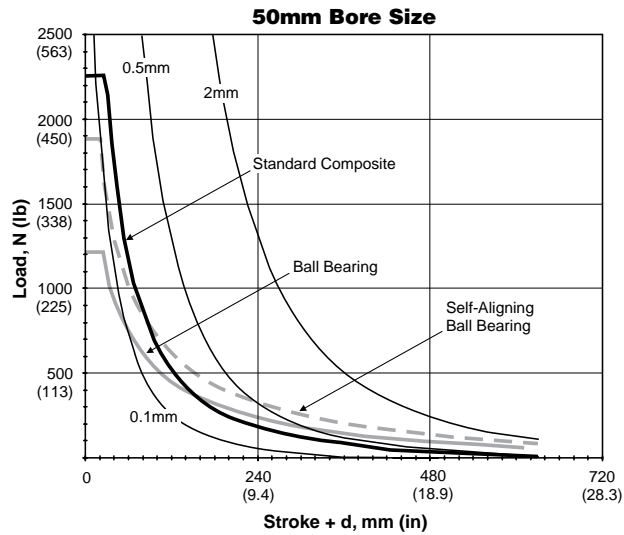


Horizontal Load Capacity & Deflection with Standard Shafting



| | |
|---------------|---------------------------------------|
| B | Guided Cylinders Actuator Products |
| | P5T Series |
| | P5T2 Series |
| | P5L Series |
| HB Series | |
| P5E Series | |

P5L Thrust Slides



Horizontal Load Capacity & Deflection with Oversized Shafting

- Oversized Composite w/ Chrome Plated or Stainless Steel Rods

The graphs on the following two s illustrate the maximum suggested side load at a given actuator stroke and distance (d) from the face of the tooling plate. The graphs include the weight of the support rods and tooling plate and are based on a bearing life of 10 million cycles under a dynamic loading condition. For an equivalent static load capacity multiply the information in these graphs by 1.5.

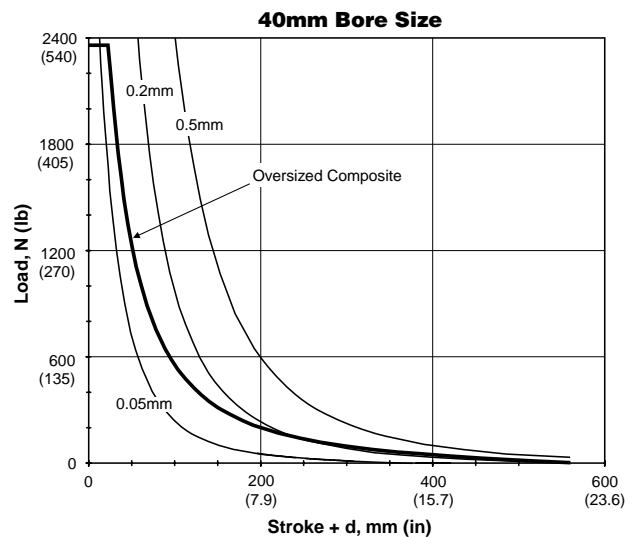
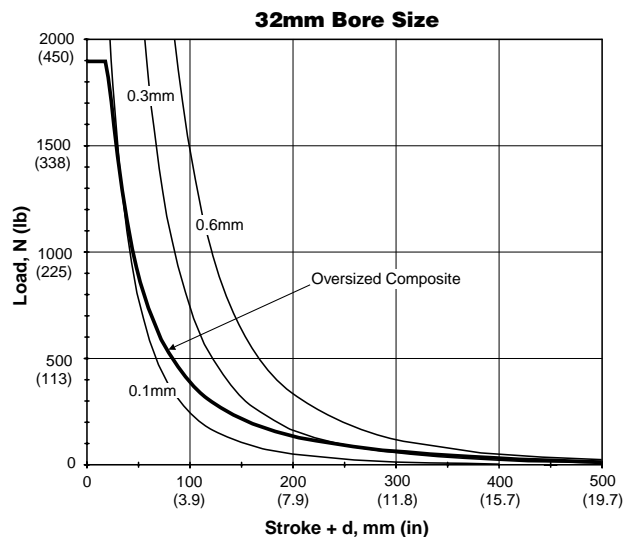
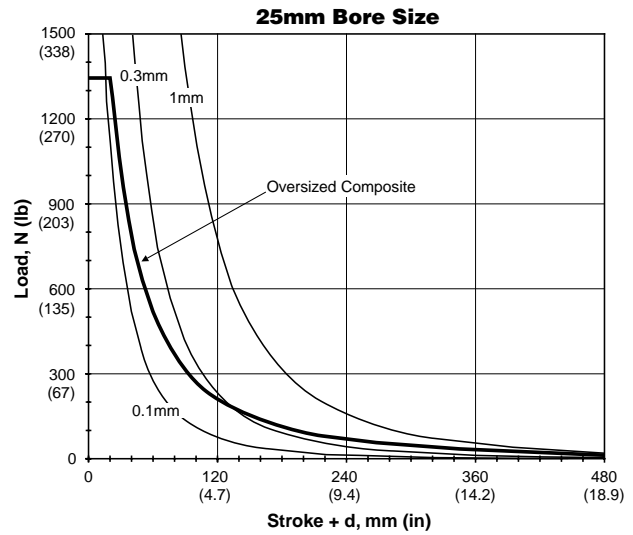
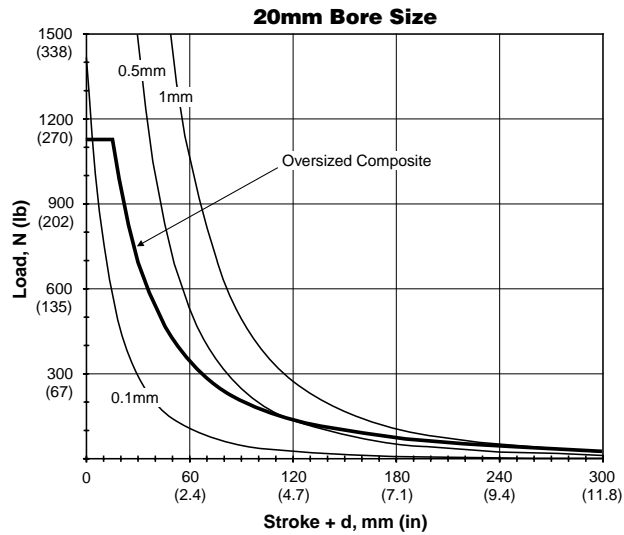
See the P5L options section of this catalog for more bearing selection information.

Dynamic loading is defined as a load which is affixed to the actuator tooling plate during the extend or retract motion of the actuator. Capacities are based on bearing and shafts only. Mounting bolts/hardware should be investigated per customer application.

Note: The following variables commonly affect the bearing life of a guided cylinder:

- Velocity
- Vibration
- Orientation
- Environment (Dust, moisture, etc.)

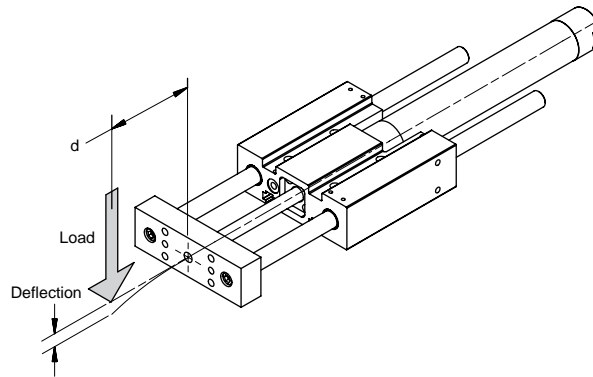
P5L Thrust Slides



| | |
|----------|-------------------|
| B | Guided Cylinders |
| | Actuator Products |
| P5T | Series |
| P5T2 | Series |
| P5L | Series |
| HB | Series |
| P5E | Series |

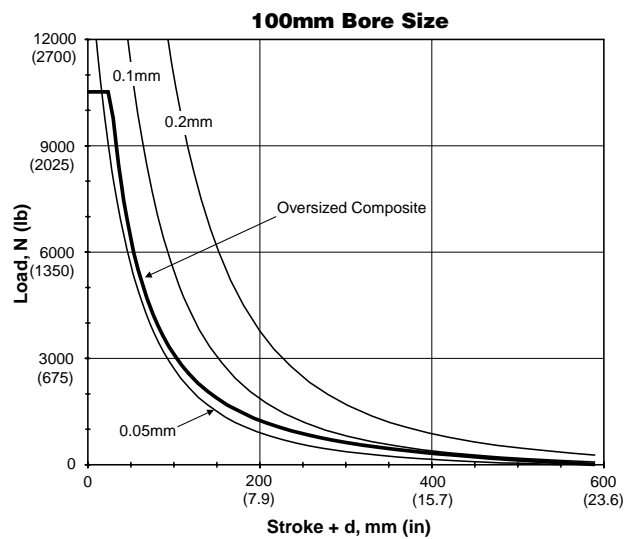
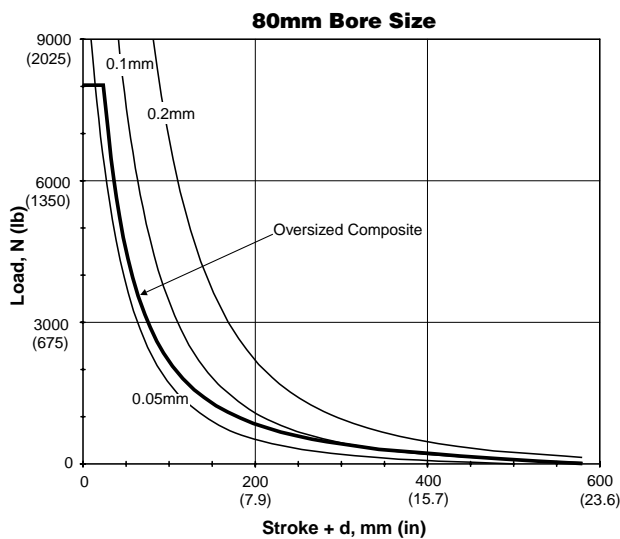
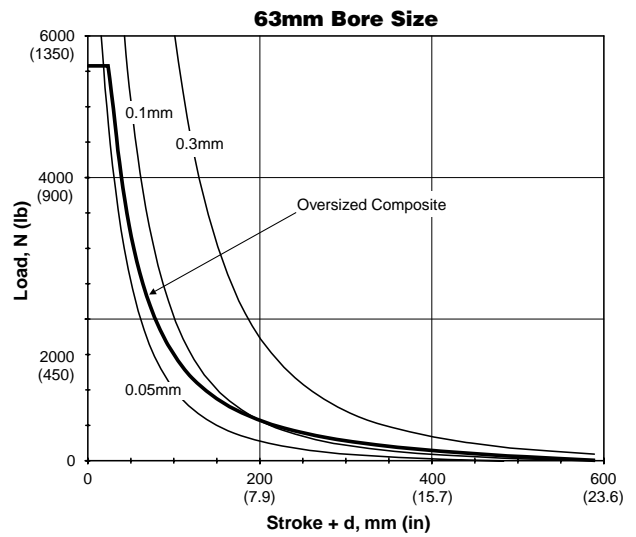
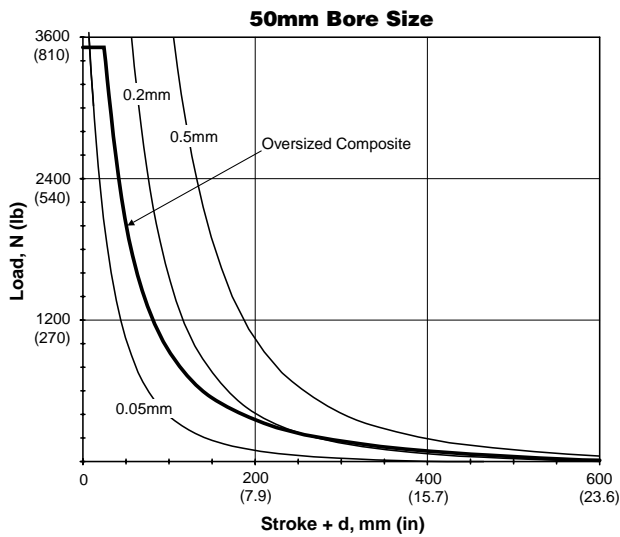


Horizontal Load Capacity & Deflection with Oversized Shafting



| | |
|----------|-------------------|
| B | Guided Cylinders |
| | Actuator Products |
| P5T | Series |
| P5T2 | Series |
| P5L | Series |
| HB | Series |
| P5E | Series |

P5L Thrust Slides



Horizontal Load Capacity & Deflection with Standard Shafting

- Recirculating Ball Bearings w/ Carbon or Stainless Steel Rods
- Self Aligning Ball Bearings w/ Carbon or Stainless Steel Rods

The graphs on the following two pages illustrate the maximum suggested side load at a given actuator stroke and distance (d) from the face of the tooling plate. The graphs include the weight of the support rods and tooling plate and are based on a bearing life of 10 million cycles under a dynamic loading condition. For an equivalent static load capacity multiply the information in these graphs by 1.5.

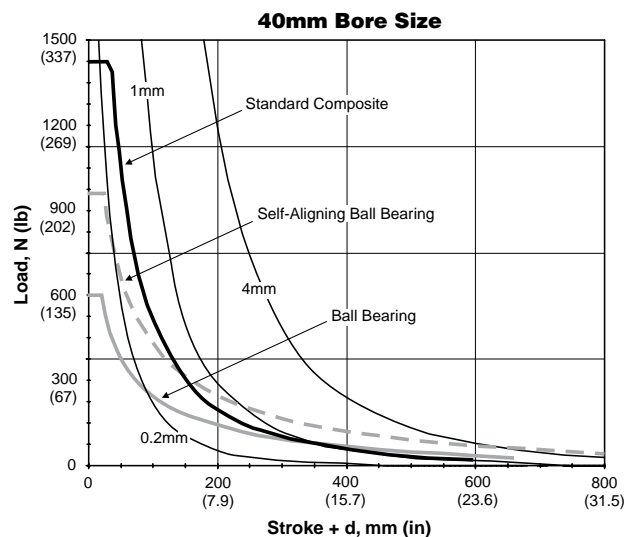
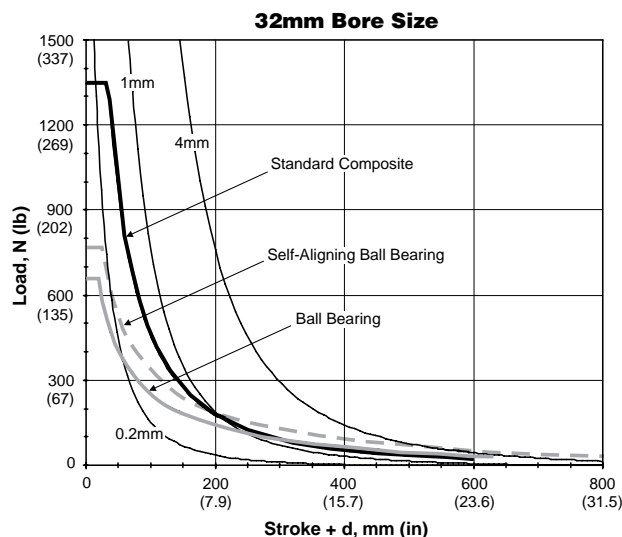
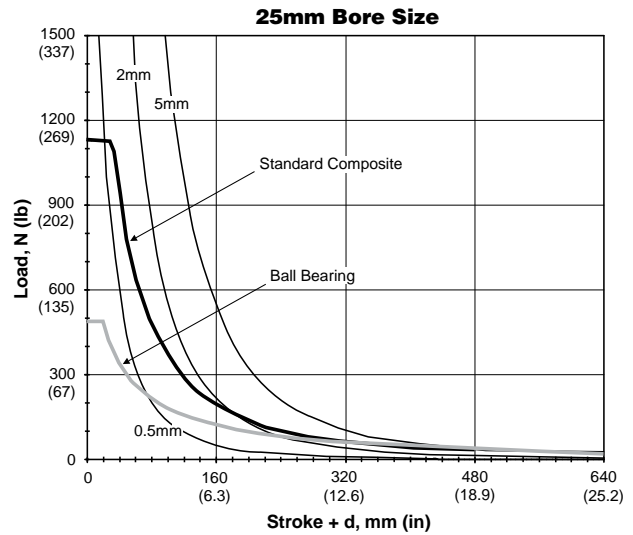
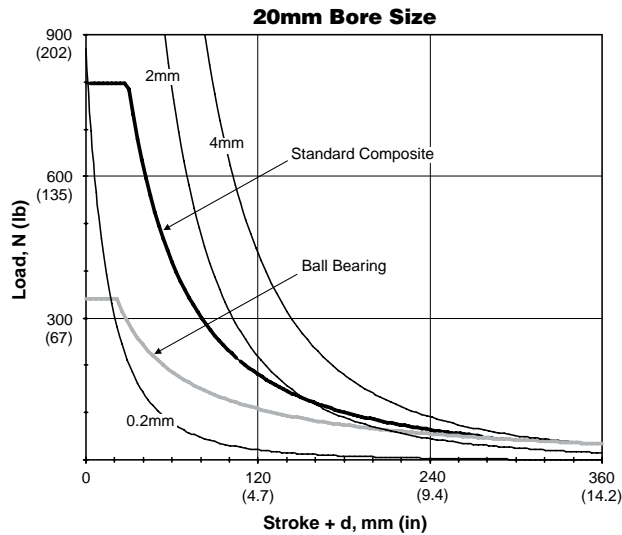
See the P5L options section of this catalog for more bearing selection information.

Dynamic loading is defined as a load which is affixed to the actuator tooling plate during the extend or retract motion of the actuator. Capacities are based on bearing and shafts only. Mounting bolts/hardware should be investigated per customer application.

Note: The following variables commonly affect the bearing life of a guided cylinder:

- Velocity
- Vibration
- Orientation
- Environment (Dust, moisture, etc.)

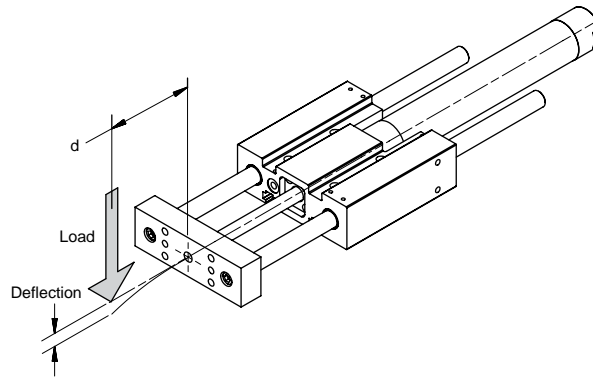
P5L Reach Slides



| | |
|----------|-------------------|
| B | Guided Cylinders |
| | Actuator Products |
| P5T | Series |
| P5T2 | Series |
| P5L | Series |
| HB | Series |
| P5E | Series |

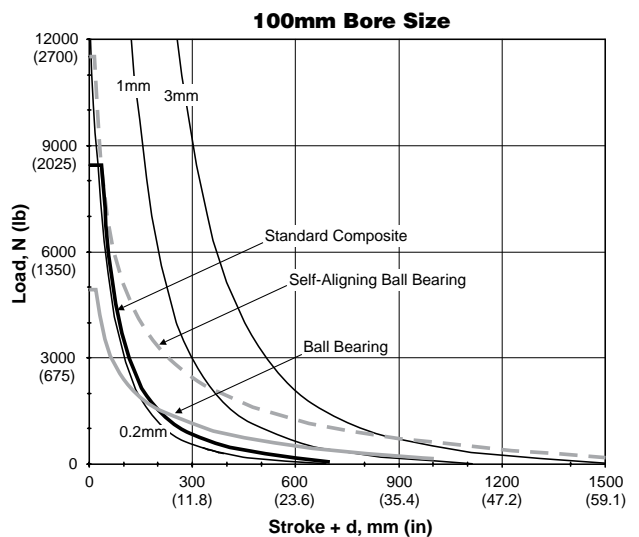
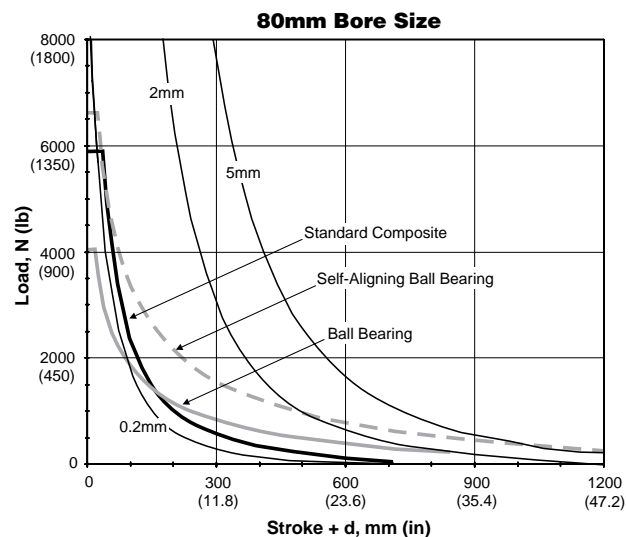
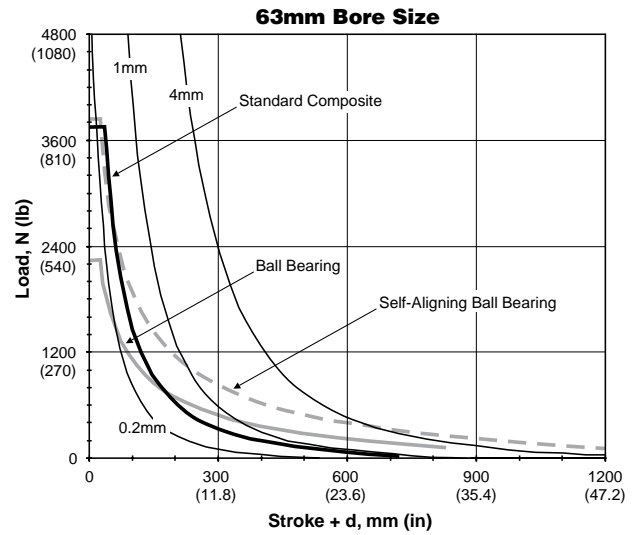
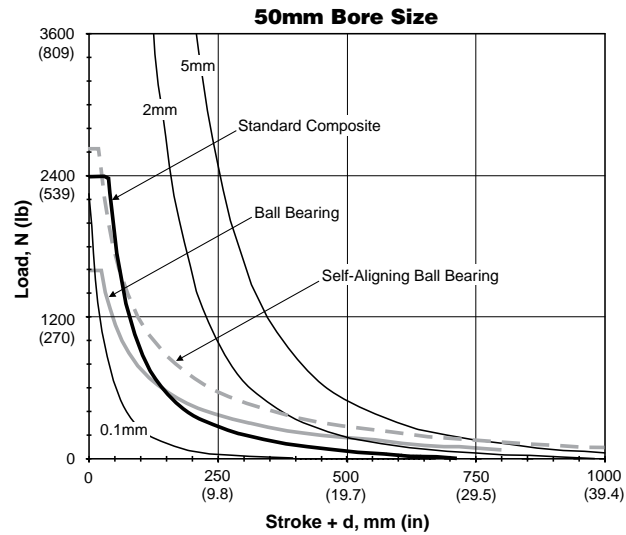


Horizontal Load Capacity & Deflection with Standard Shafting



| | |
|------------|---------------------------------------|
| B | Guided Cylinders Actuator Products |
| | P5T Series |
| | P5T2 Series |
| | P5L Series |
| HB Series | |
| P5E Series | |

P5L Reach Slides



Horizontal Load Capacity & Deflection with Oversized Shafting

- Oversized Composite w/ Chrome Plated or Stainless Steel Rods

The graphs on the following two pages illustrate the maximum suggested side load at a given actuator stroke and distance (d) from the face of the tooling plate. The graphs include the weight of the support rods and tooling plate and are based on a bearing life of 10 million cycles under a dynamic loading condition. For an equivalent static load capacity multiply the information in these graphs by 1.5.

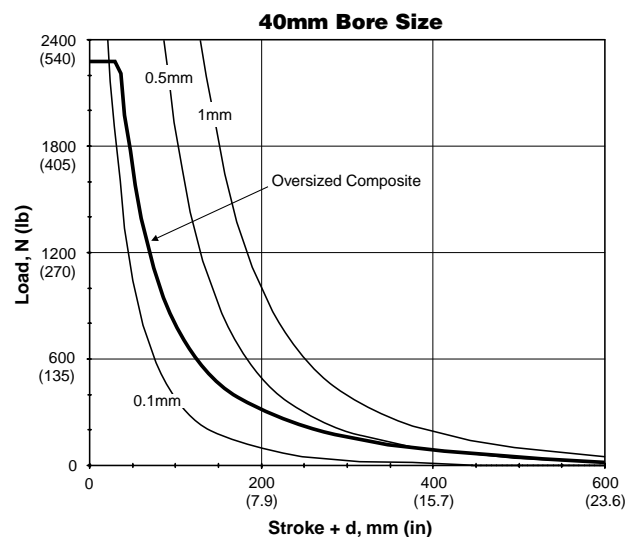
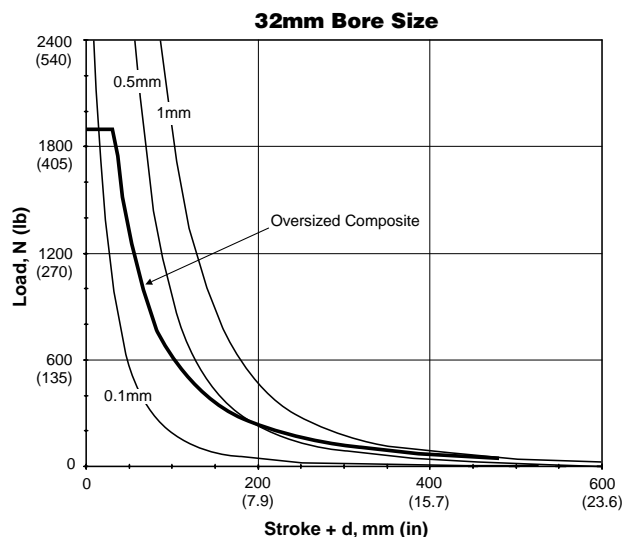
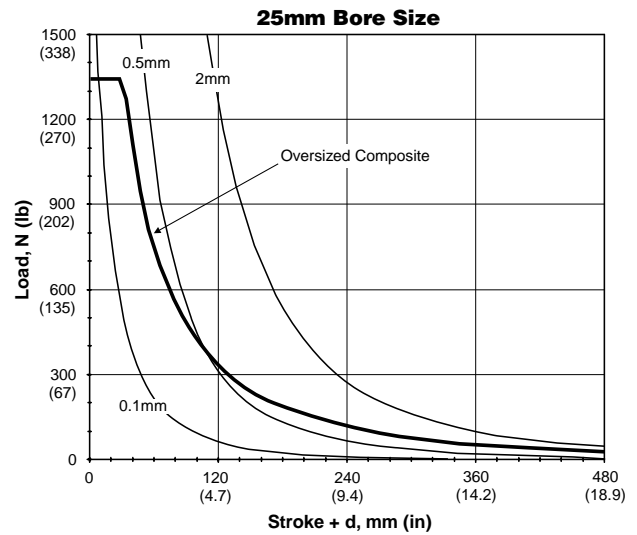
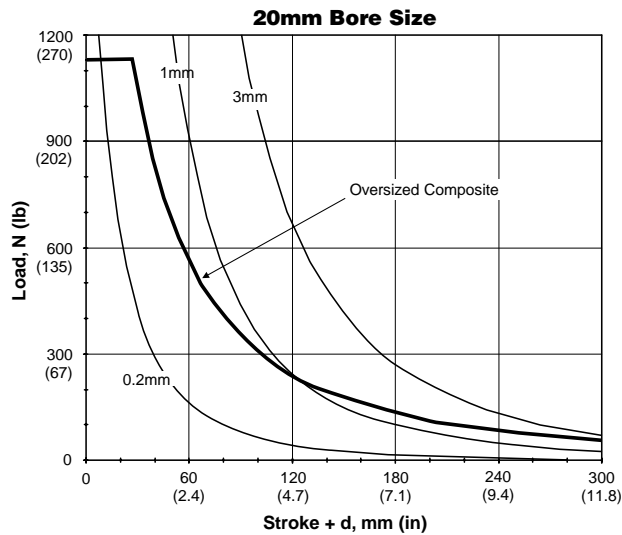
See the P5L options section of this catalog for more bearing selection information.

Dynamic loading is defined as a load which is affixed to the actuator tooling plate during the extend or retract motion of the actuator. Capacities are based on bearing and shafts only. Mounting bolts/hardware should be investigated per customer application.

Note: The following variables commonly affect the bearing life of a guided cylinder:

- Velocity
- Vibration
- Orientation
- Environment (Dust, moisture, etc.)

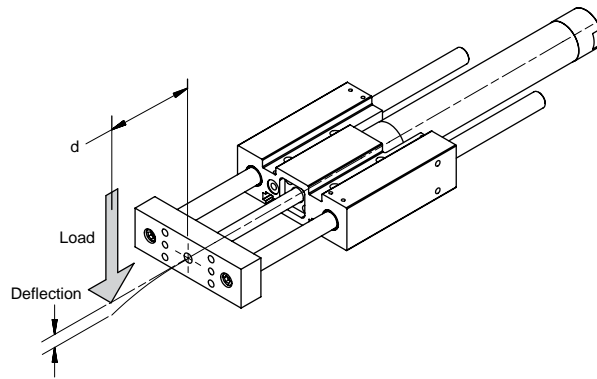
P5L Reach Slides



| | |
|----------------|---------------------------------------|
| B | Guided Cylinders Actuator Products |
| | P5T Series |
| P5T2 Series | |
| P5L Series | |
| HB Series | |
| P5E Series | |

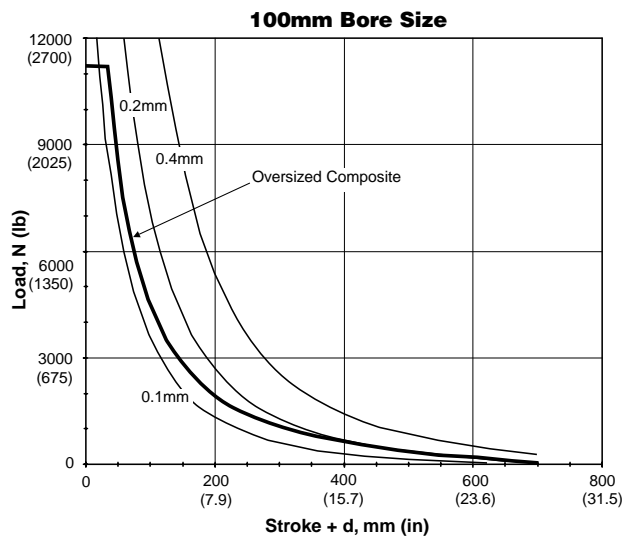
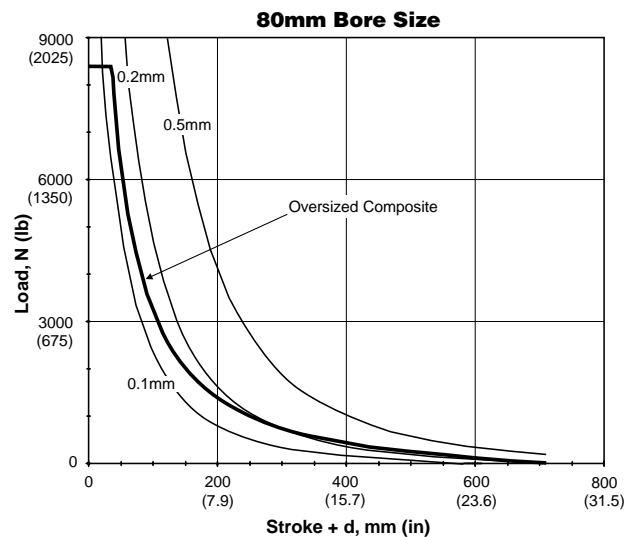
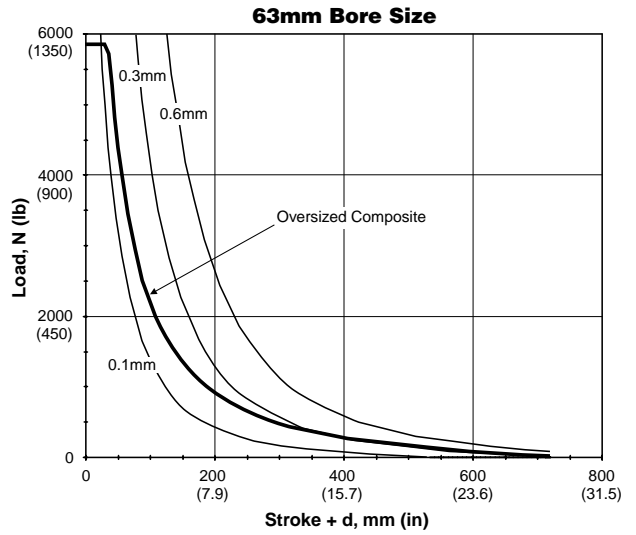
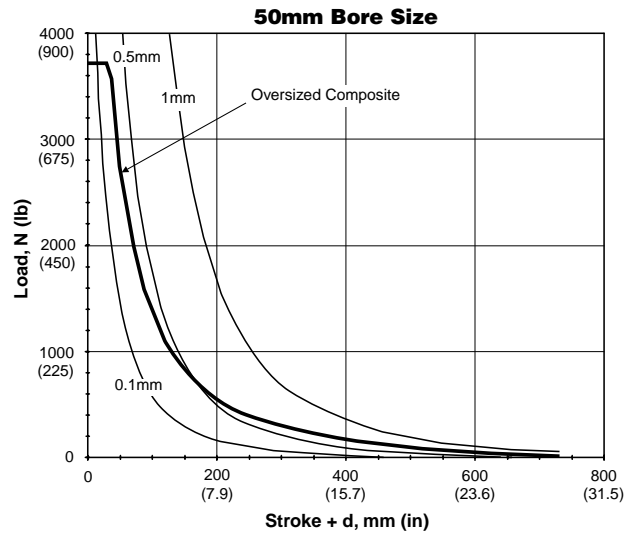


Horizontal Load Capacity & Deflection with Oversized Shafting



| | |
|----------|-------------------|
| B | Guided Cylinders |
| | Actuator Products |
| Series | P5T |
| Series | P5T2 |
| Series | P5L |
| Series | HB |
| Series | P5E |

P5L Reach Slides



Asymmetrical Torque Capacity

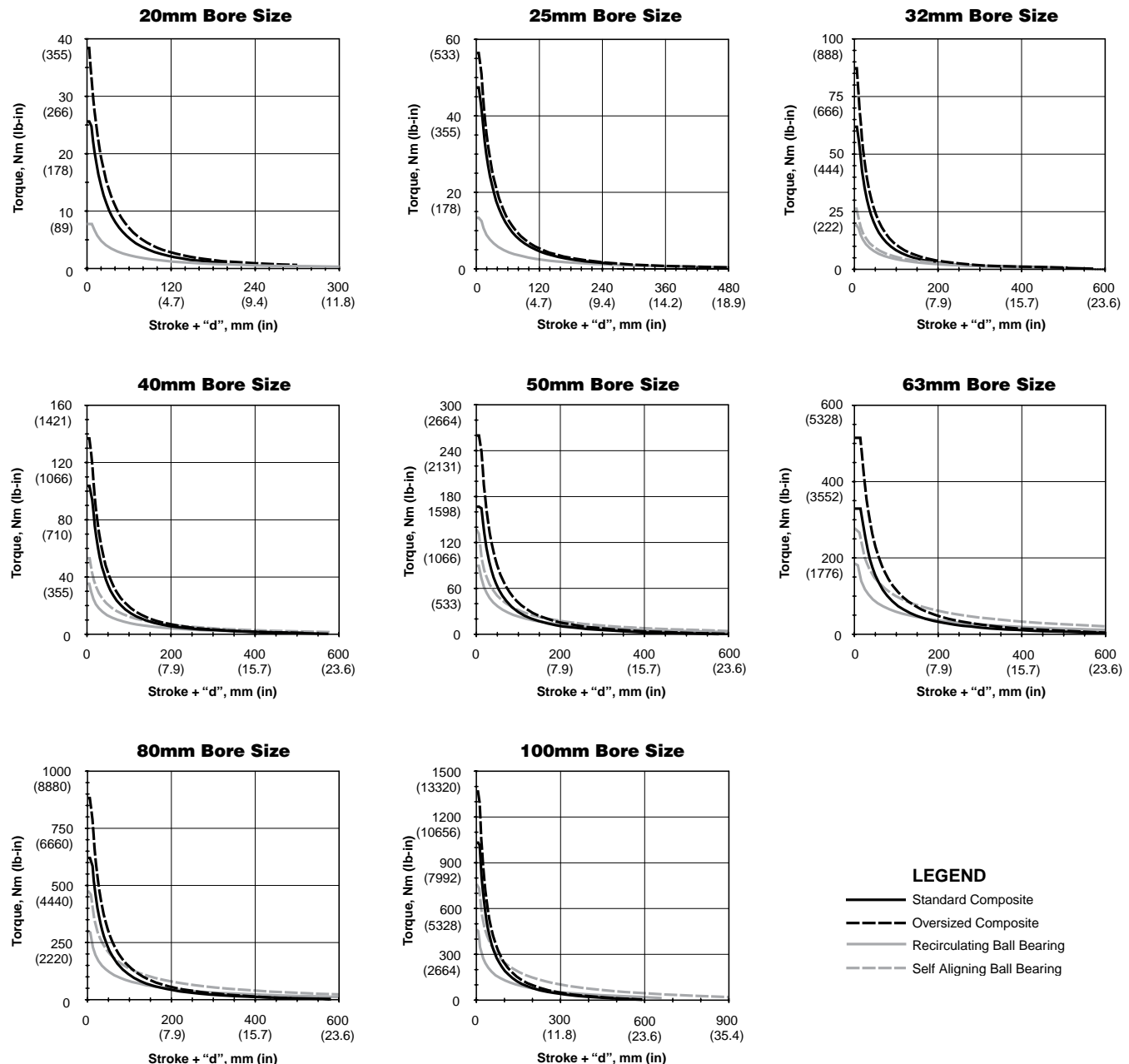
- Standard Composite w/ Chrome Plated or Stainless Steel Rods
- Oversized Composite w/ Chrome Plated or Stainless Steel Rods
- Recirculating Ball Bearings w/ Carbon or Stainless Steel Rods
- Self Aligning Ball Bearings w/ Carbon or Stainless Steel Rods

The graphs on the following two pages illustrate the maximum suggested asymmetrical load at a given actuator stroke and distance (d) from the face of the tooling plate. The graphs

include the weight of the support rods and tooling plate and are based on a bearing life of 10 million cycles under a dynamic loading condition. For an equivalent static load capacity multiply the information in these graphs by 1.5.

Dynamic loading is defined as a load which is affixed to the actuator tooling plate during the extend or retract motion of the actuator. Capacities are based on bearing and shafts only. Mounting bolts/hardware should be investigated per customer application. An asymmetrical load is defined as a perpendicular load applied at some horizontal distance, “m” from the center of the tooling plate.

P5L Thrust Slides



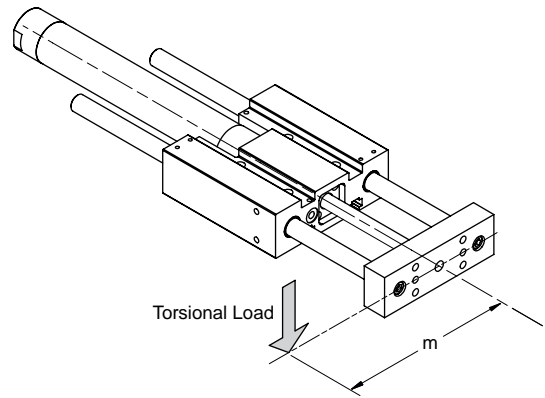
| | |
|-------------|---------------------------------------|
| B | Guided Cylinders Actuator Products |
| | P5T Series |
| P5T2 Series | |
| P5L Series | |
| HB Series | |
| P5E Series | |



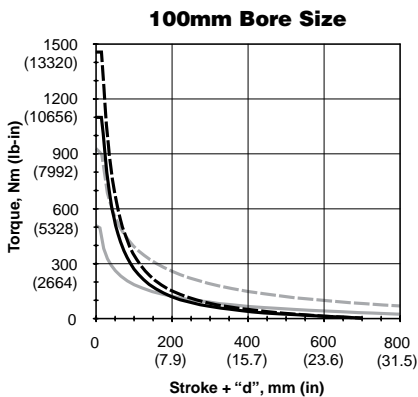
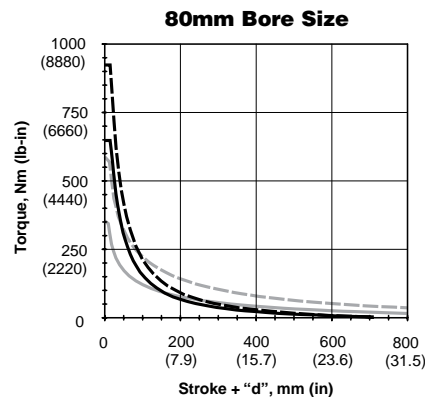
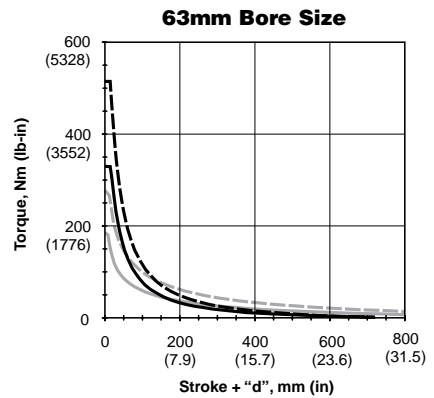
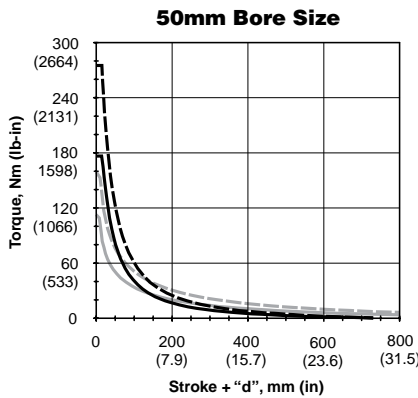
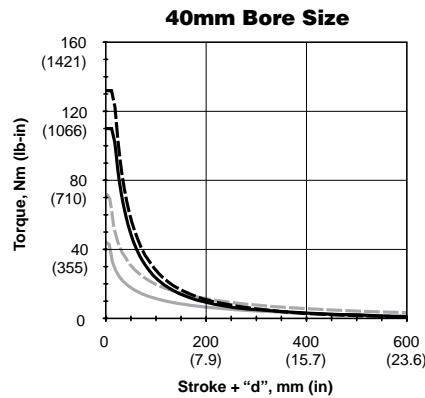
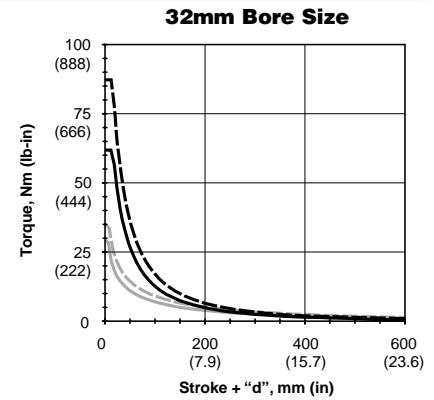
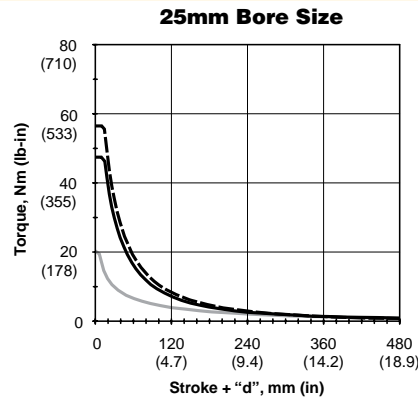
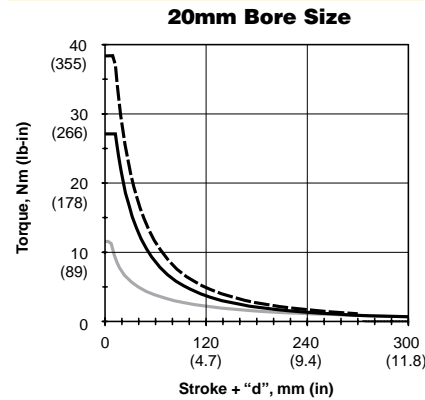
Asymmetrical Torque Capacity

Note: The following variables commonly affect the bearing life of a guided cylinder:

- Velocity
- Vibration
- Orientation
- Environment (Dust, moisture, etc.)



P5L Reach Slides



LEGEND

- Standard Composite
- - - Oversized Composite
- Recirculating Ball Bearing
- - - Self Aligning Ball Bearing

| | |
|----------|-------------------|
| B | Guided Cylinders |
| | Actuator Products |
| Series | P5T |
| Series | P5T2 |
| Series | P5L |
| Series | HB |
| Series | P5E |



Vertical Eccentric Load Capacity

- Standard Composite w/ Chrome Plated or Stainless Steel Rods
- Oversized Composite w/ Chrome Plated or Stainless Steel Rods
- Recirculating Ball Bearings w/ Carbon or Stainless Steel Rods
- Self Aligning Ball Bearings w/ Carbon or Stainless Steel Rods

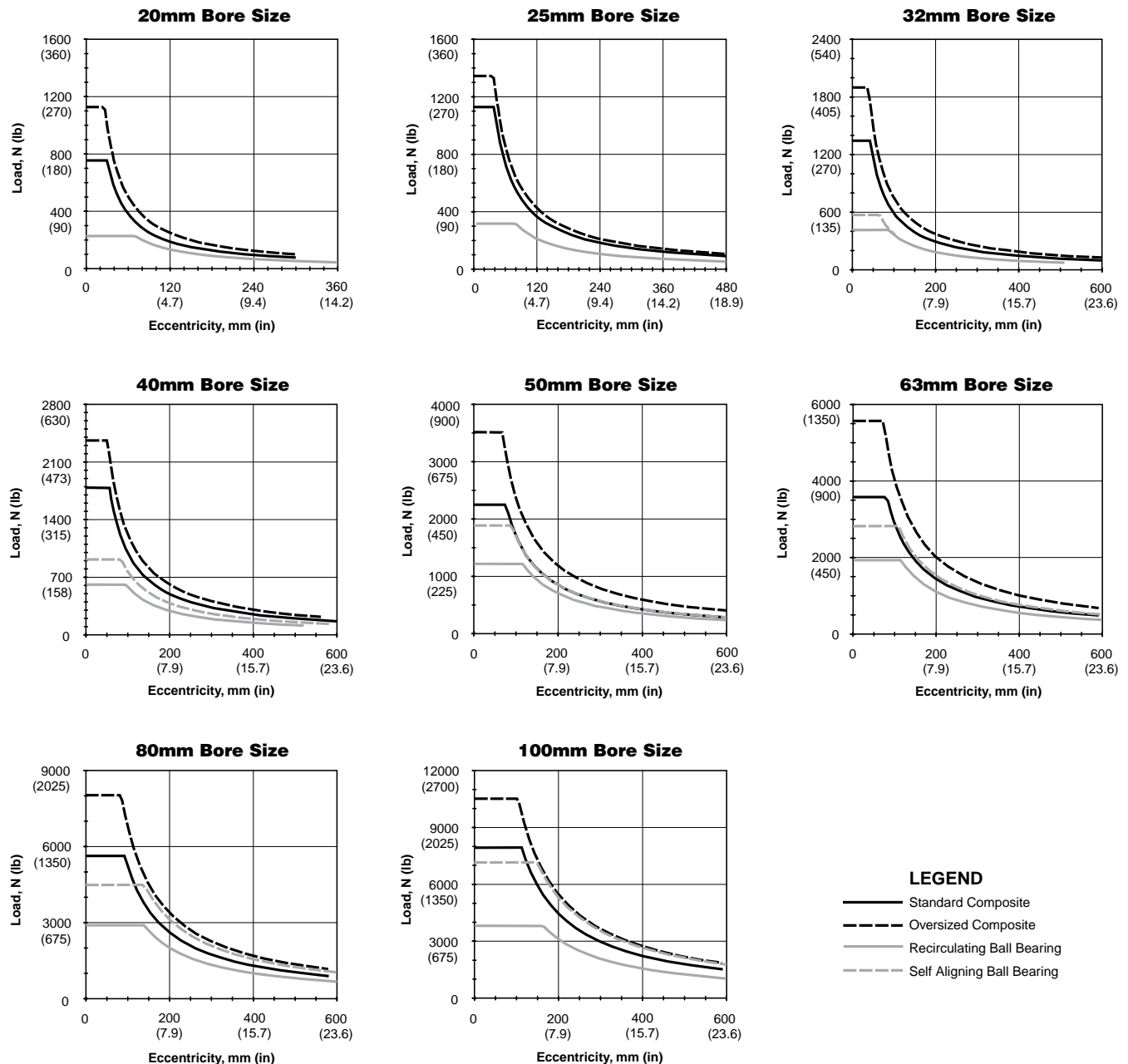
The graphs on the following two pages illustrate the maximum suggested eccentric load based on a stroke of 100mm (4 inches).

An eccentric load is defined as a load applied in the same direction as the motion of the cylinder however, acting at some distance (eccentricity "h") from the center of the tooling plate. Capacities are based on bearing and shafts only. Mounting bolts/hardware should be investigated per customer application.

Note: The following variables commonly affect the bearing life of a guided cylinder:

- Velocity
- Vibration
- Orientation
- Environment (Dust, moisture, etc.)

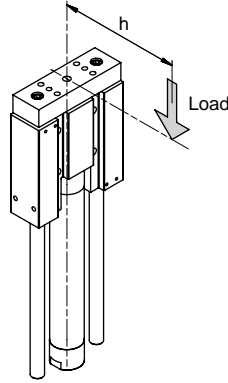
P5L Thrust Slides



| | |
|----------------|---------------------------------------|
| B | Guided Cylinders Actuator Products |
| | P5T Series |
| P5T2 Series | |
| P5L Series | |
| HB Series | |
| P5E Series | |

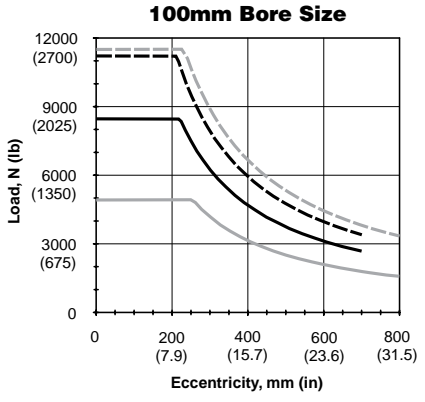
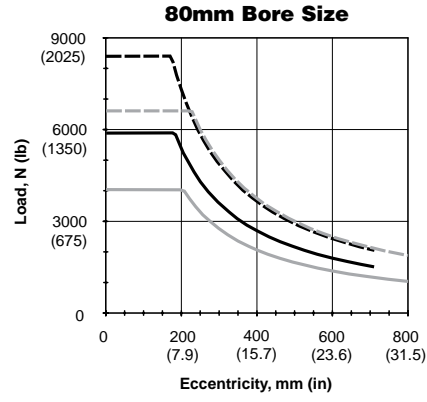
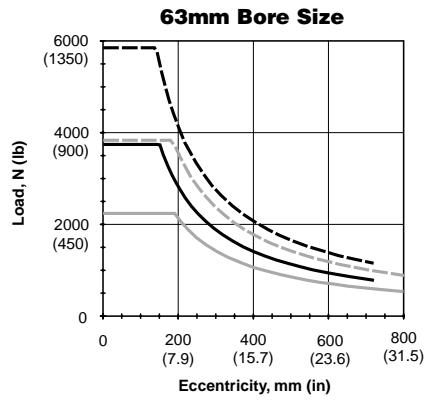
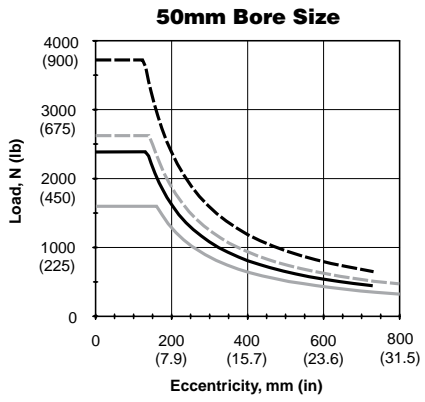
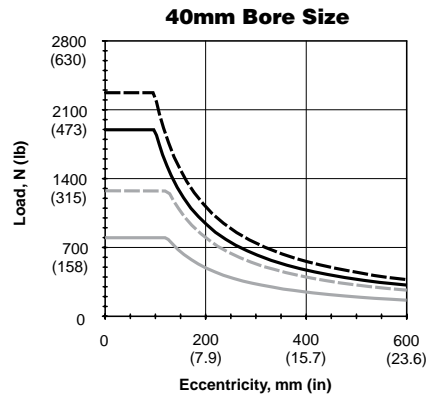
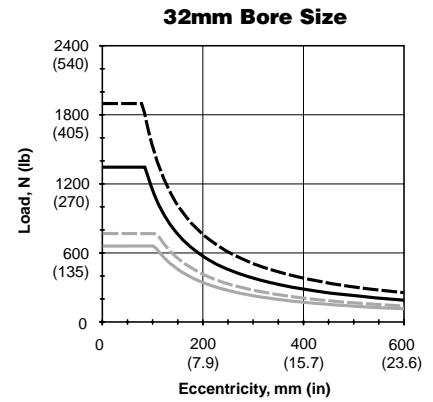
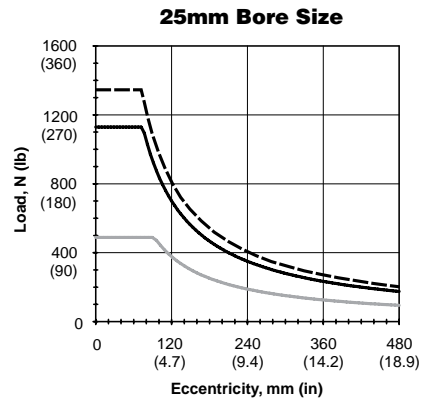
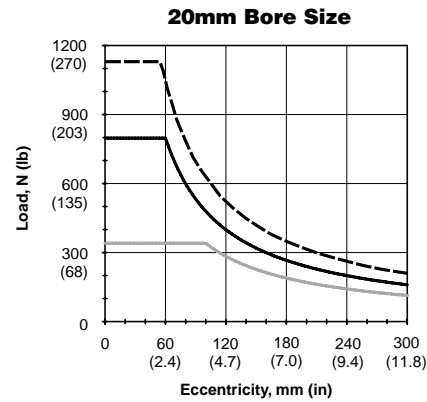


Vertical Eccentric Load Capacity



P5L Reach Slides

| | |
|----------|-------------------|
| B | Guided Cylinders |
| | Actuator Products |
| Series | P5T |
| Series | P5T2 |
| Series | P5L |
| Series | HB |
| Series | P5E |



LEGEND

- Standard Composite
- - - Oversized Composite
- Recirculating Ball Bearing
- - - Self Aligning Ball Bearing



Horizontal Load Capacity & Deflection with Standard Shafting

- Standard Composite w/ Chrome Plated or Stainless Steel Rods
- Recirculating Ball Bearings w/ Carbon or Stainless Steel Rods
- Self Aligning Ball Bearings w/ Carbon or Stainless Steel Rods

The graphs on the following two pages illustrate the maximum suggested side load at a given actuator stroke. The graphs include the weight of the carriage and are based on a bearing life of 10 million cycles under a dynamic loading condition. For an equivalent static load capacity multiply the information in these graphs by 1.5.

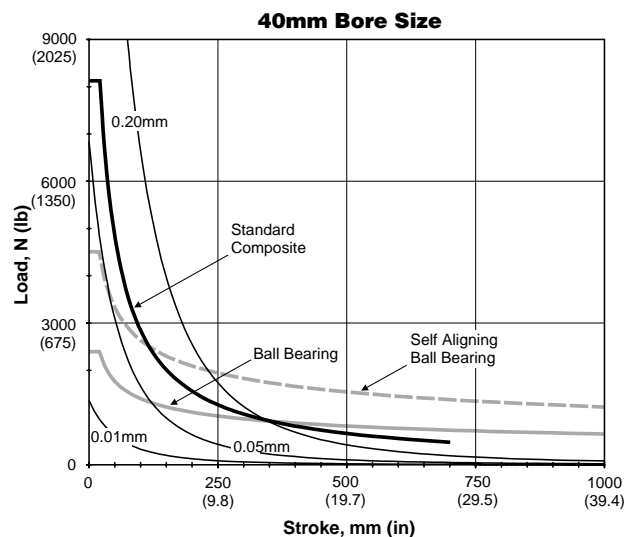
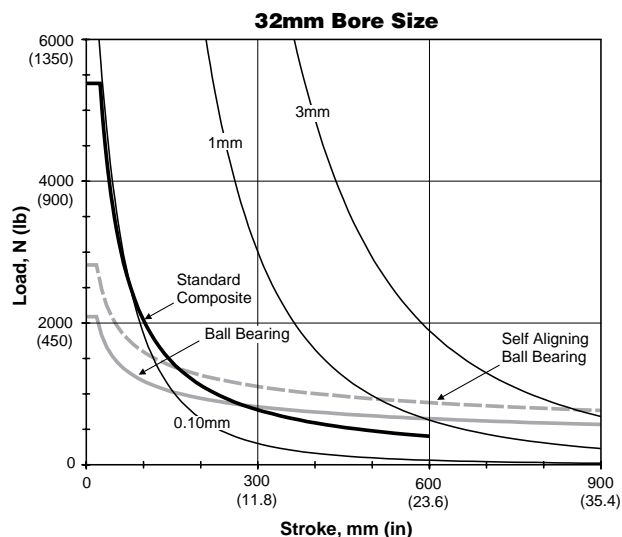
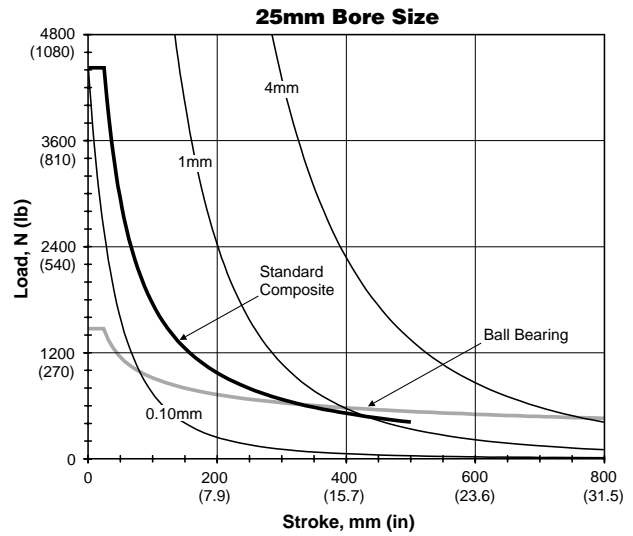
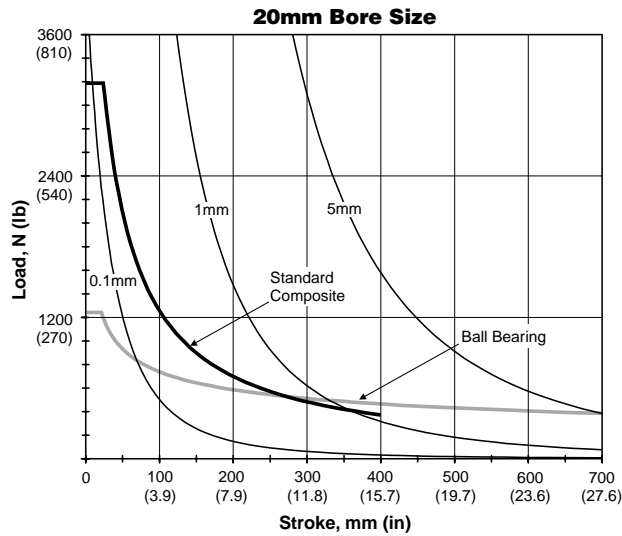
See the P5L options section of this catalog for more bearing selection information.

Dynamic loading is defined as a load which is affixed to the actuator tooling plate during the extend or retract motion of the actuator. Capacities are based on bearing and shafts only. Mounting bolts/hardware should be investigated per customer application.

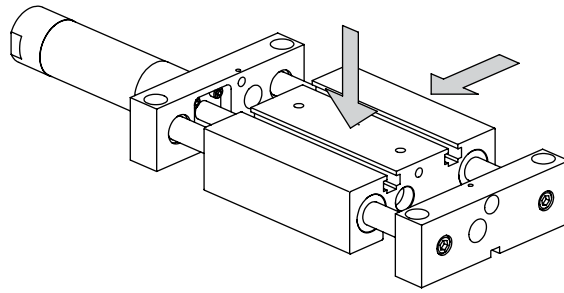
Note: The following variables commonly affect the bearing life of a guided cylinder:

- Velocity
- Vibration
- Orientation
- Environment (Dust, moisture, etc.)

P5L Base Slides

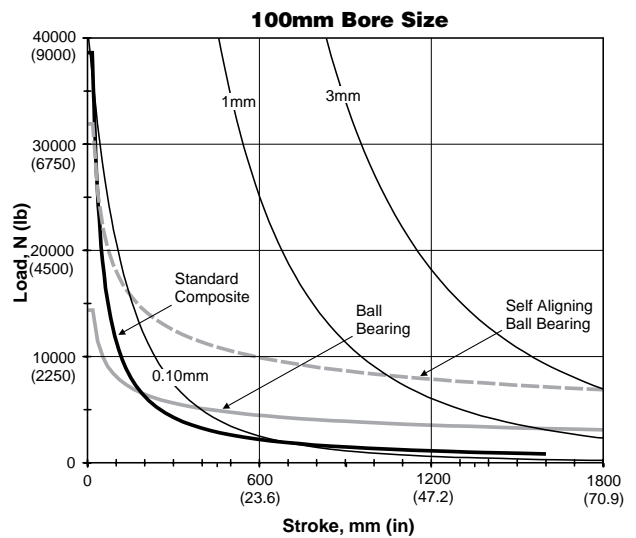
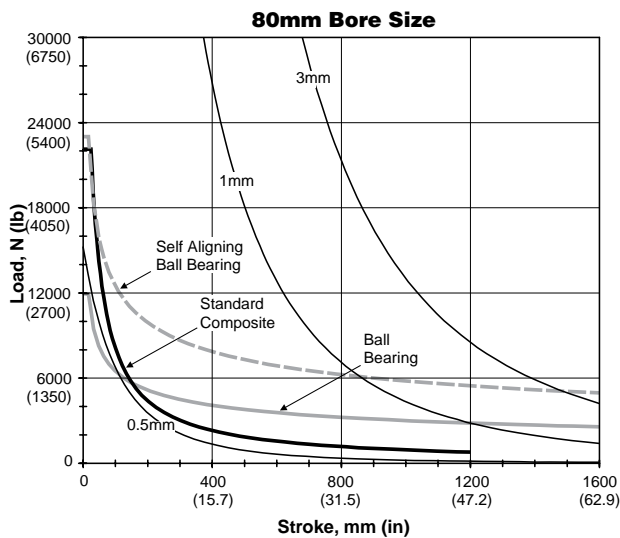
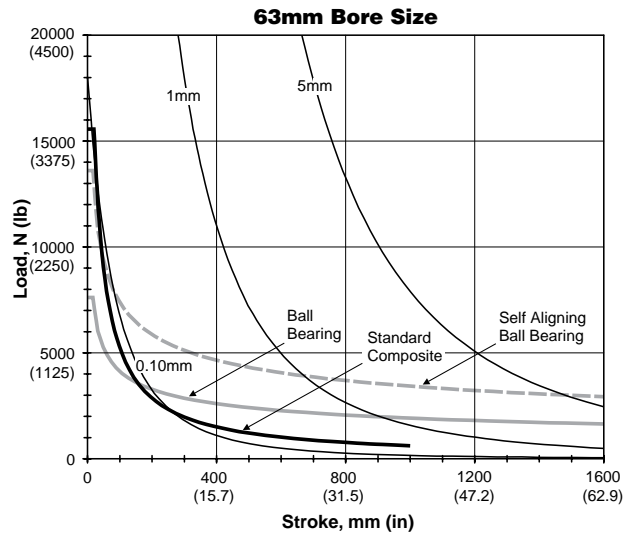
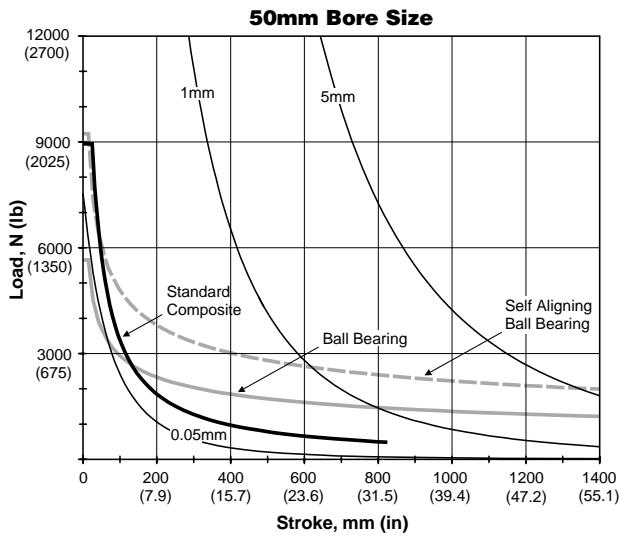


Horizontal Load Capacity & Deflection with Standard Shafting



| | |
|------------|---------------------------------------|
| B | Guided Cylinders Actuator Products |
| | Series P5T |
| | Series P5T2 |
| | Series P5L |
| Series HB | |
| Series P5E | |

P5L Base Slides



Horizontal Load Capacity & Deflection with Oversized Shafting

- Oversized Composite w/ Chrome Plated or Stainless Steel Rods

The graphs on the following two pages illustrate the maximum suggested side load at a given actuator stroke. The graphs include the weight of the carriage and are based on a bearing life of 10 million cycles under a dynamic loading condition. For an equivalent static load capacity multiply the information in these graphs by 1.5.

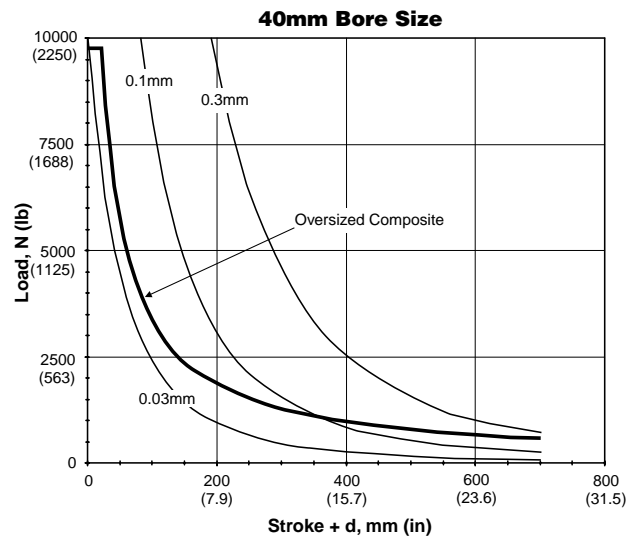
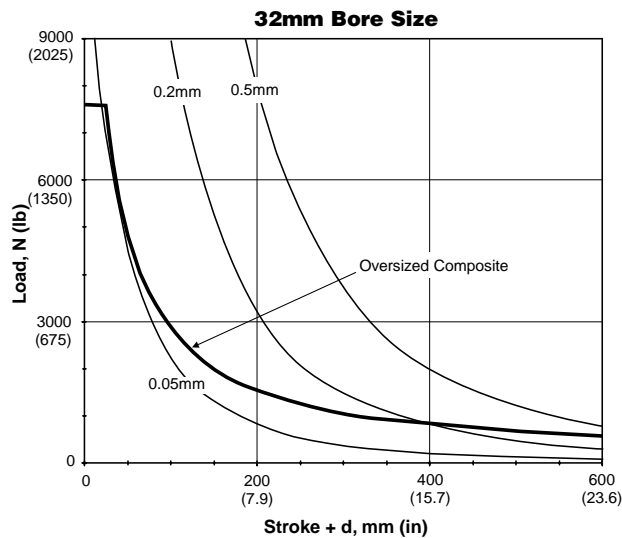
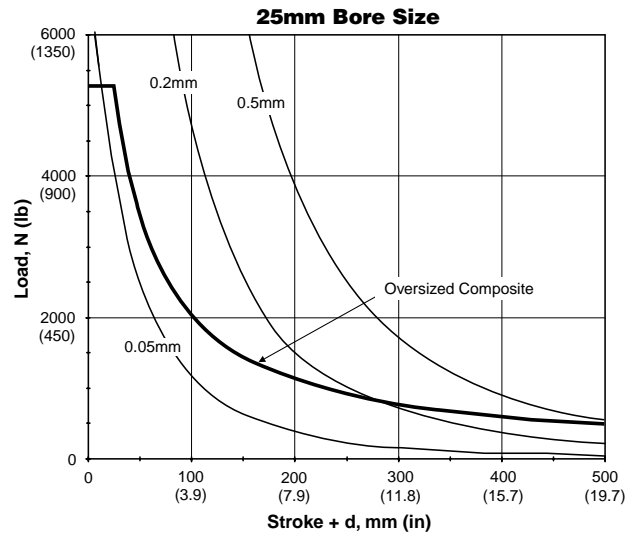
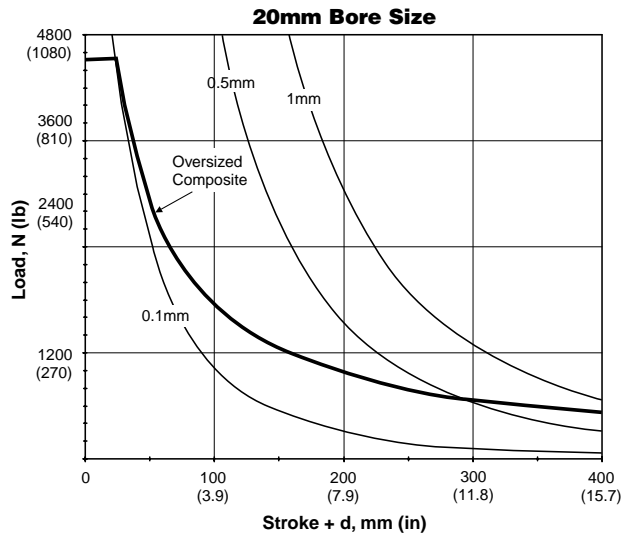
See the P5L options section of this catalog for more bearing selection information.

Dynamic loading is defined as a load which is affixed to the actuator tooling plate during the extend or retract motion of the actuator. Capacities are based on bearing and shafts only. Mounting bolts/hardware should be investigated per customer application.

Note: The following variables commonly affect the bearing life of a guided cylinder:

- Velocity
- Vibration
- Orientation
- Environment (Dust, moisture, etc.)

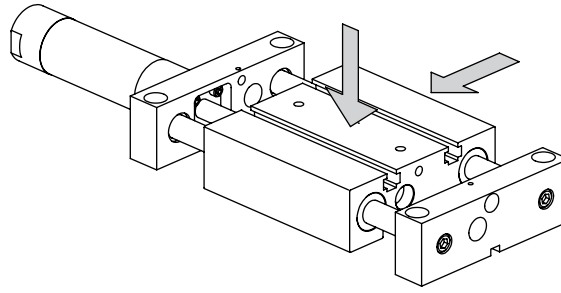
P5L Base Slides



| | |
|----------|-------------------|
| B | Guided Cylinders |
| | Actuator Products |
| P5T | Series |
| P5T2 | Series |
| P5L | Series |
| HB | Series |
| P5E | Series |

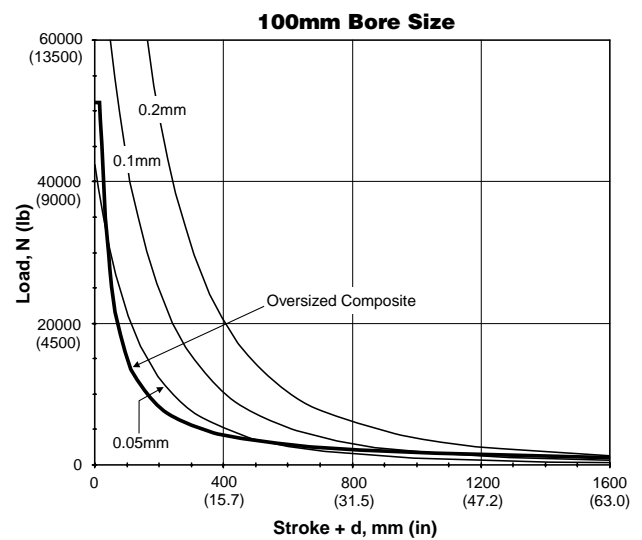
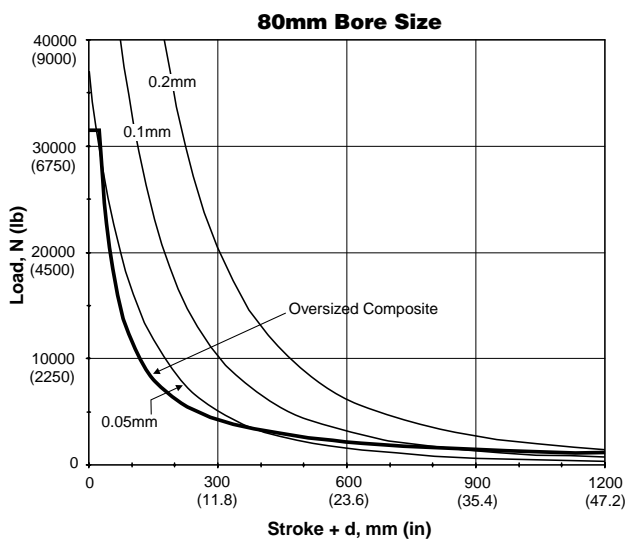
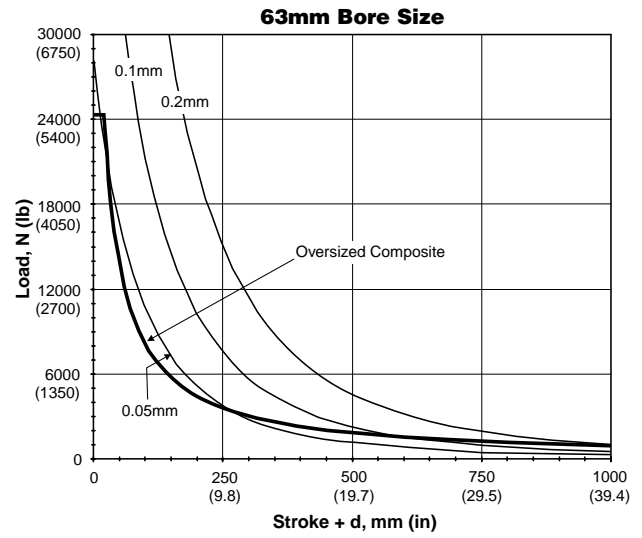
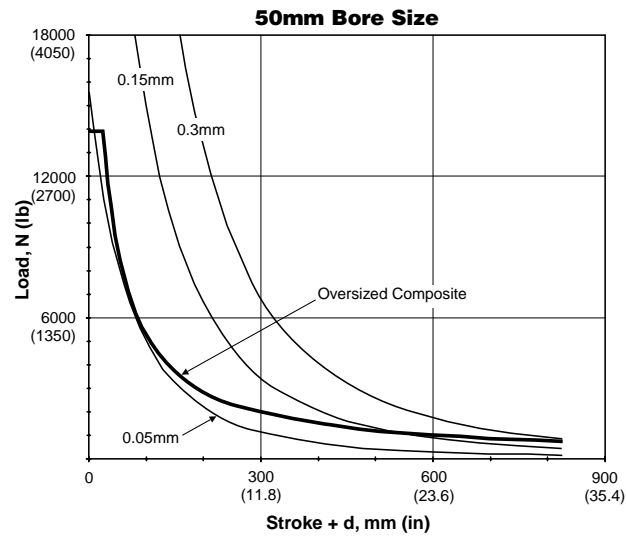


Horizontal Load Capacity & Deflection with Oversized Shafting



| | |
|----------|-------------------|
| B | Guided Cylinders |
| | Actuator Products |
| Series | P5T |
| Series | P5T2 |
| Series | P5L |
| Series | HB |
| Series | P5E |

P5L Base Slides



Symmetrical Roll Torsional Loading

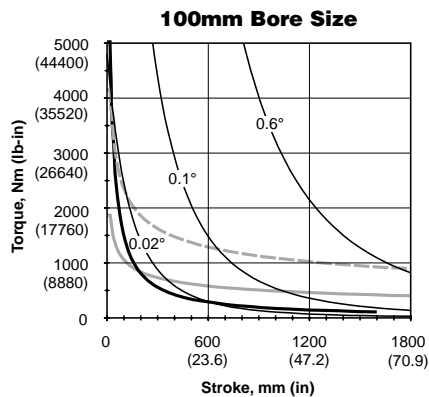
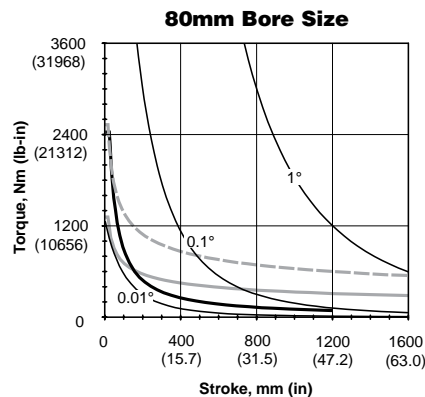
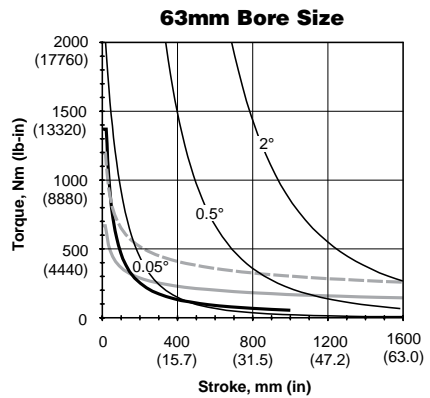
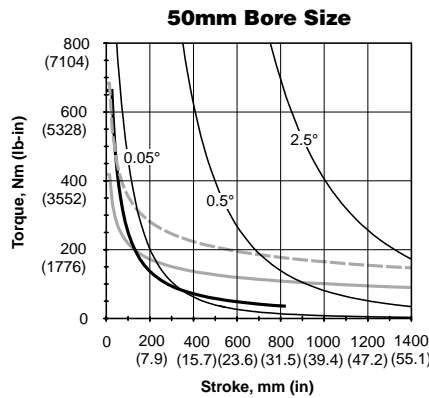
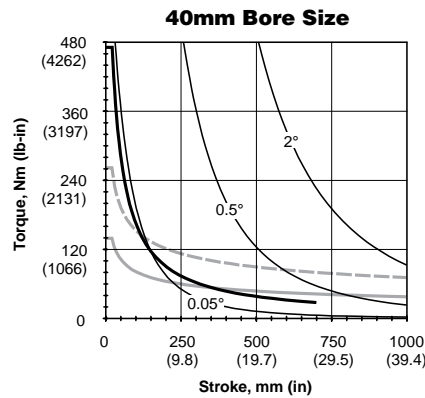
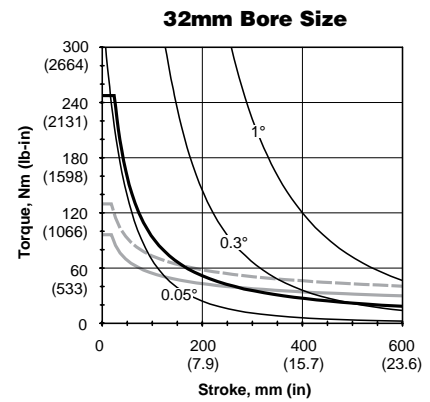
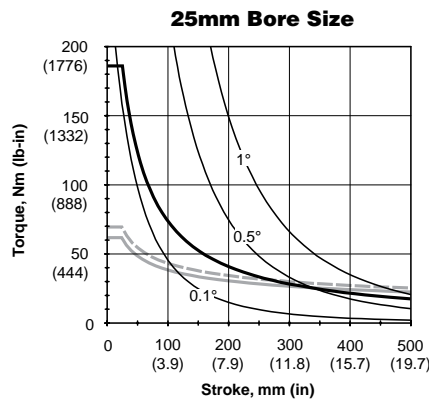
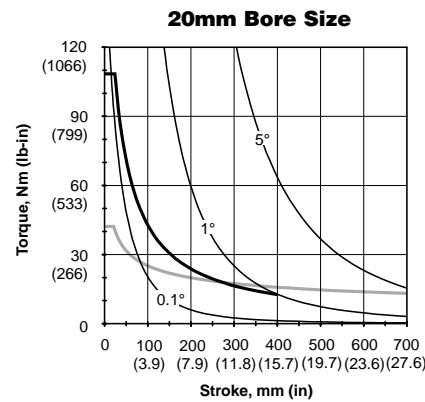
The graphs on the following two pages illustrate the maximum suggested roll load at a given actuator stroke. It is assumed that the moment loading is acting about the centerline of the carriage. The graphs include the weight of the carriage and are based on a bearing life of 10 million cycles under a dynamic loading condition. Capacities are based on bearing and shafts only. Mounting bolts/hardware should be investigated per customer application. For an equivalent static load capacity multiply the information in these graphs by 1.5.

Heavy lines show loading; lighter lines show various degrees of deflection.

Note: The following variables commonly affect the bearing life of a guided cylinder:

- Velocity
- Vibration
- Orientation
- Environment (Dust, moisture, etc.)

Standard Shafting



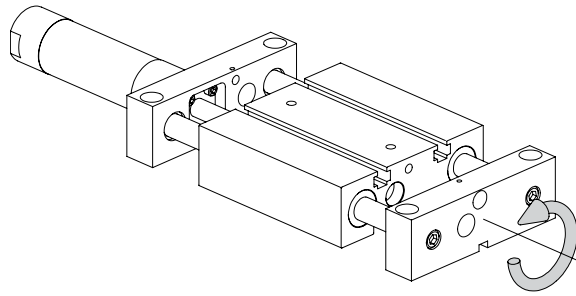
LEGEND

- Standard Composite
- Recirculating Ball Bearing
- - - Self Aligning Ball Bearing

| | |
|-------------|-------------------|
| B | Guided Cylinders |
| | Actuator Products |
| P5T Series | |
| P5T2 Series | |
| P5L Series | |
| HB Series | |
| P5E Series | |

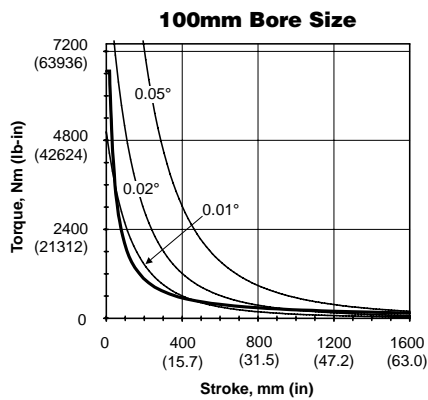
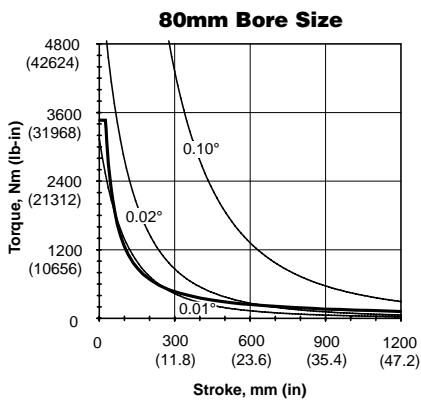
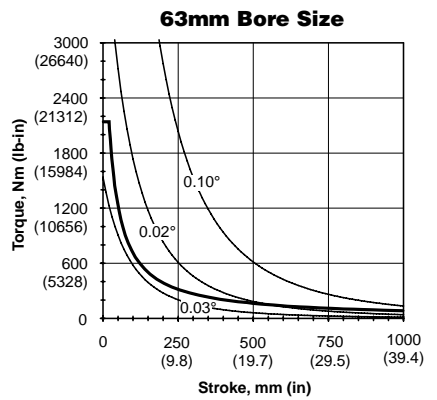
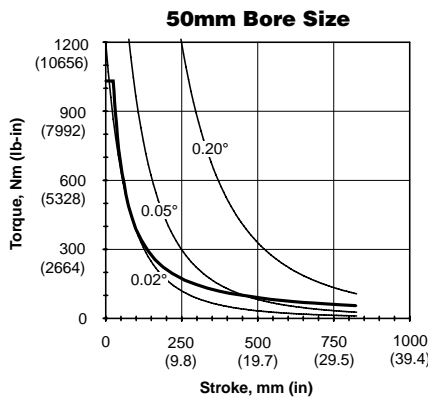
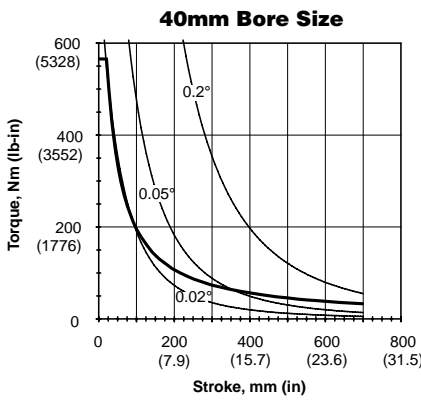
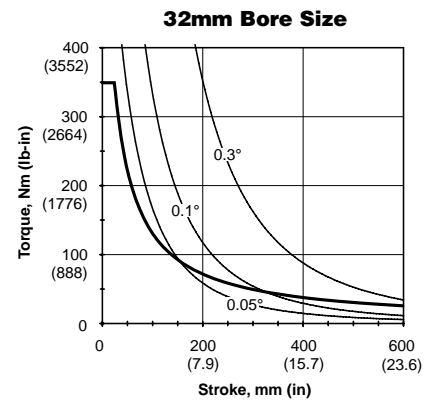
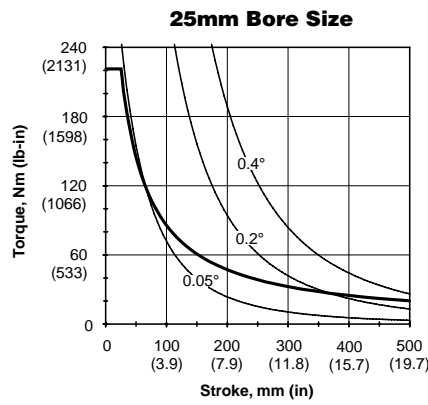
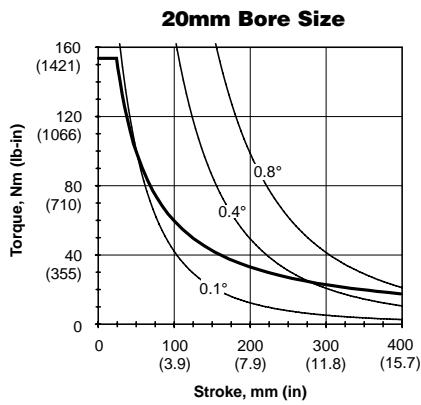


Symmetrical Roll Torsional Loading



Oversized Shafting

| | | |
|---|--------|------------|
| B Guided Cylinders Actuator Products | Series | P5T |
| | Series | P5T2 |
| | Series | P5L |
| | Series | HB |
| | Series | P5E |



Symmetrical Pitch Torsional Loading

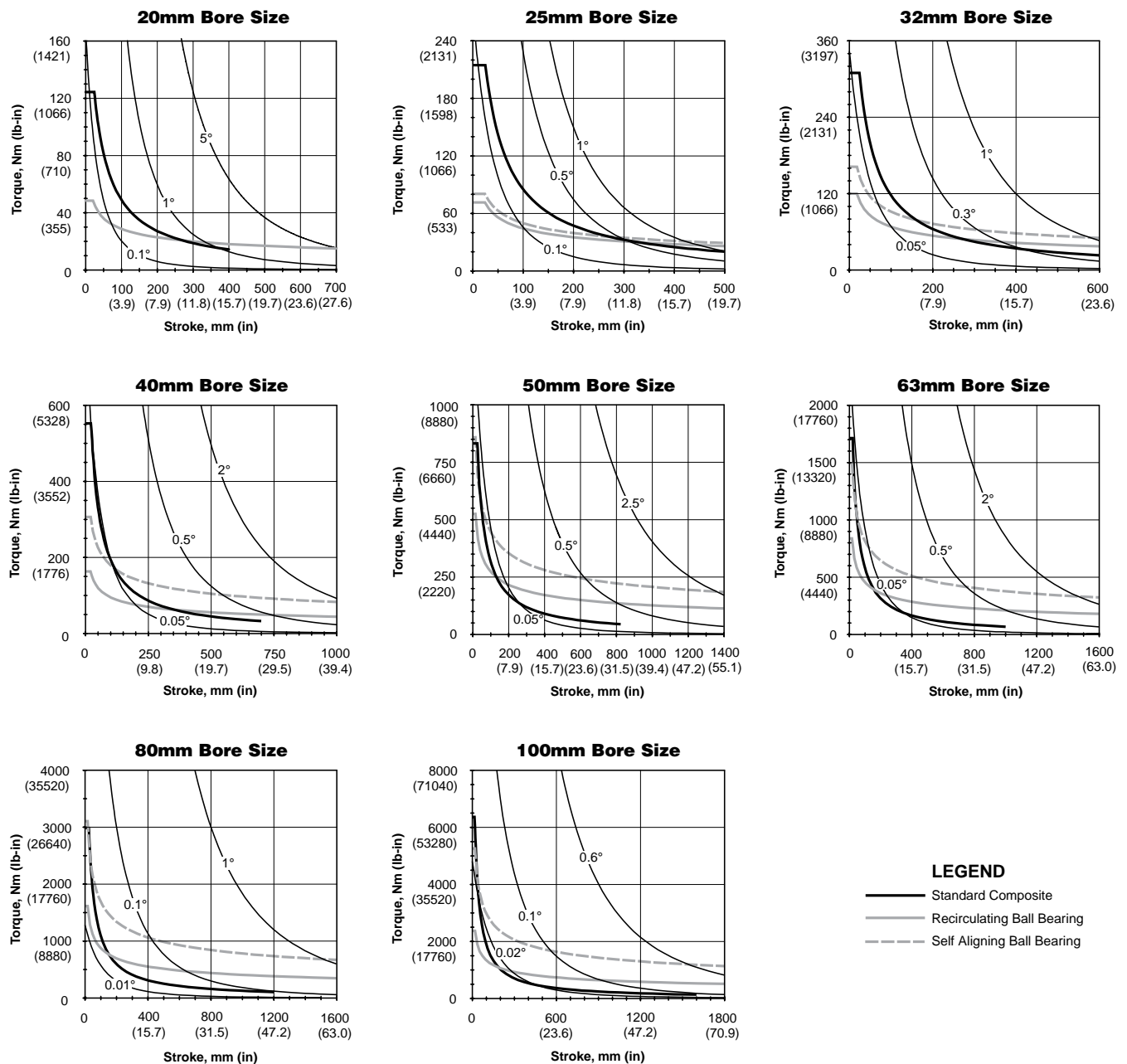
The graphs on the following two pages illustrate the maximum suggested pitch load at a given actuator stroke. It is assumed that the moment loading is acting about the centerline of the carriage. The graphs include the weight of the carriage and are based on a bearing life of 10 million cycles under a dynamic loading condition. Capacities are based on bearing and shafts only. Mounting bolts/hardware should be investigated per customer application. For an equivalent static load capacity multiply the information in these graphs by 1.5.

Heavy lines show loading; lighter lines show various degrees of deflection.

Note: The following variables commonly affect the bearing life of a guided cylinder:

- Velocity
- Vibration
- Orientation
- Environment (Dust, moisture, etc.)

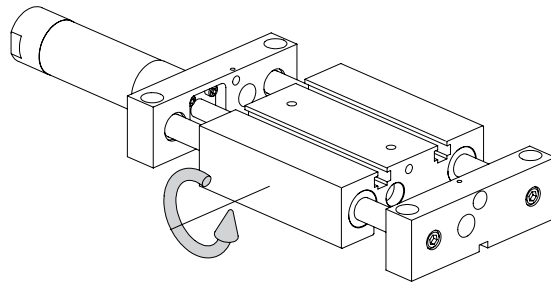
Standard Shafting



| | |
|-------------|-------------------|
| B | Guided Cylinders |
| | Actuator Products |
| P5T Series | |
| P5T2 Series | |
| P5L Series | |
| HB Series | |
| P5E Series | |

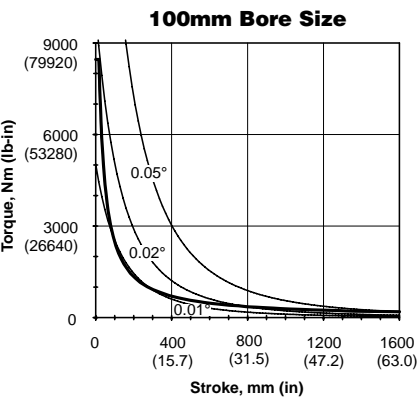
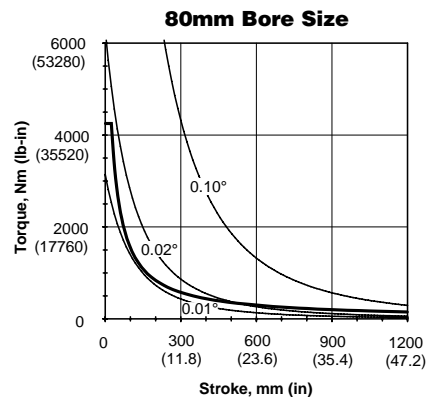
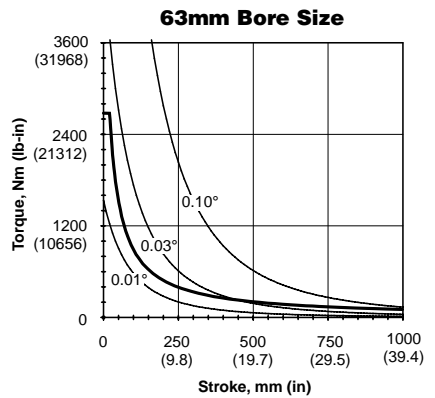
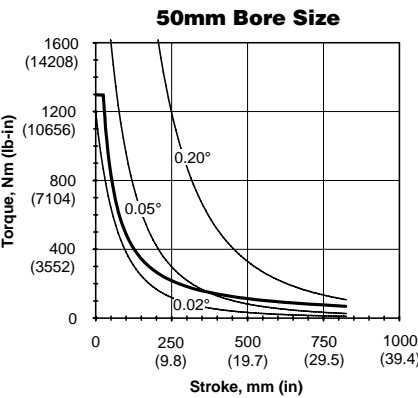
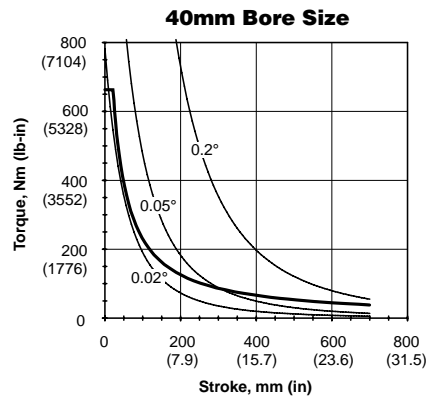
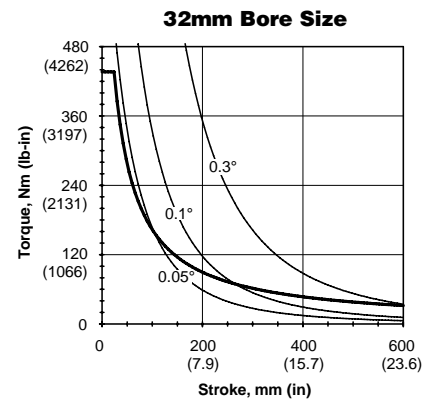
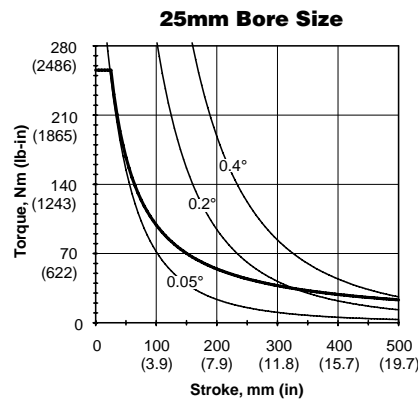
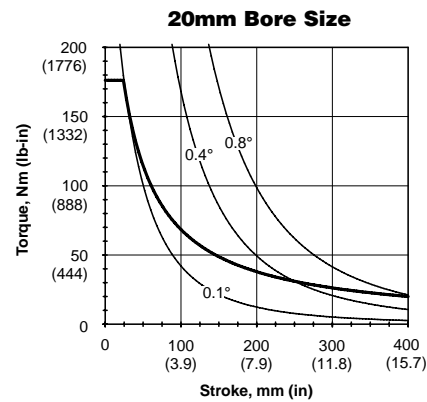


Symmetrical Pitch Torsional Loading



Oversized Shafting

| | |
|----------|-------------------|
| B | Guided Cylinders |
| | Actuator Products |
| Series | P5T |
| Series | P5T2 |
| Series | P5L |
| Series | HB |
| Series | P5E |



Symmetrical Yaw Torsional Loading

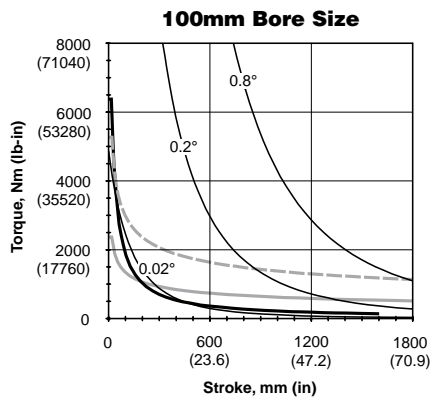
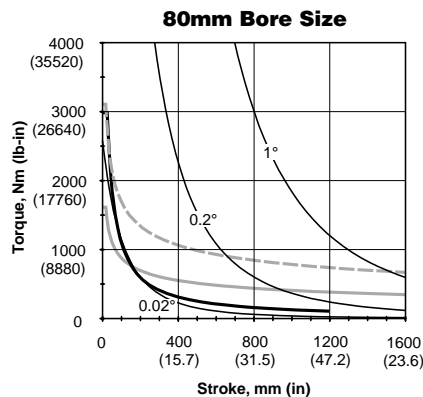
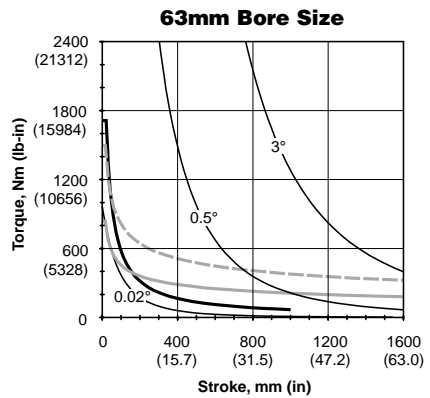
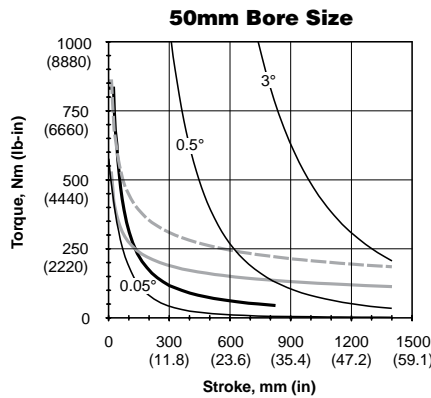
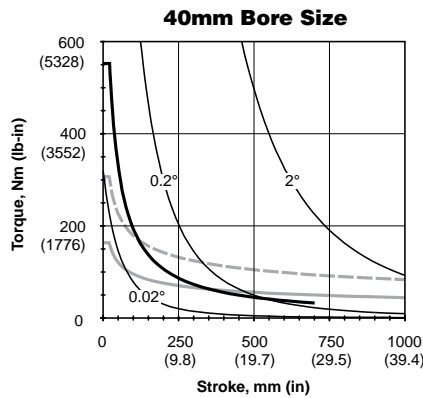
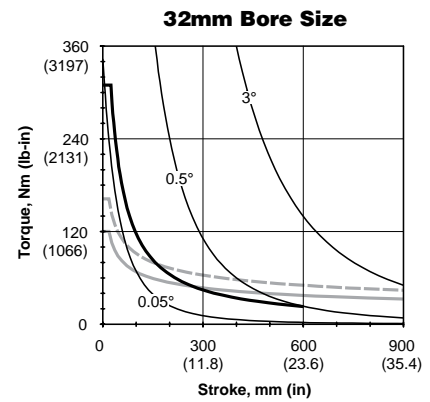
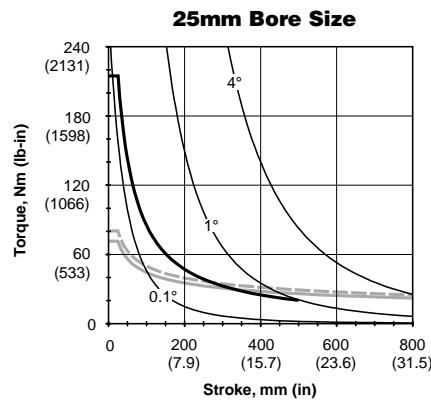
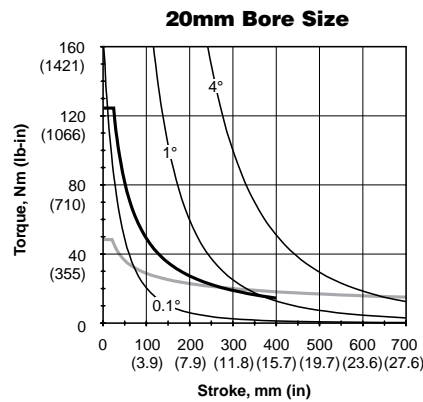
The graphs on the following two pages illustrate the maximum suggested yaw load at a given actuator stroke. It is assumed that the moment loading is acting about the centerline of the carriage. The graphs include the weight of the carriage and are based on a bearing life of 10 million cycles under a dynamic loading condition. Capacities are based on bearing and shafts only. Mounting bolts/hardware should be investigated per customer application. For an equivalent static load capacity multiply the information in these graphs by 1.5.

Heavy lines show loading; lighter lines show various degrees of deflection.

Note: The following variables commonly affect the bearing life of a guided cylinder:

- Velocity
- Vibration
- Orientation
- Environment (Dust, moisture, etc.)

Standard Shafting



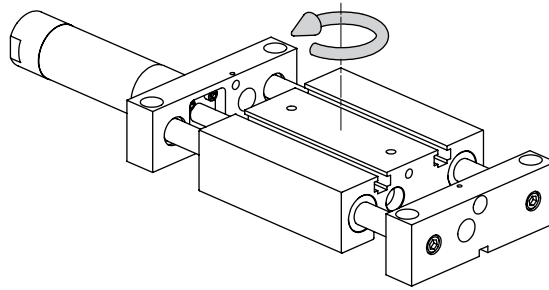
LEGEND

- Standard Composite
- Recirculating Ball Bearing
- - - Self Aligning Ball Bearing

| | |
|-------------|---------------------------------------|
| B | Guided Cylinders Actuator Products |
| | P5T Series |
| P5T2 Series | |
| P5L Series | |
| HB Series | |
| P5E Series | |



Symmetrical Yaw Torsional Loading



Oversized Shafting

| | | |
|---|--------|------------|
| B Guided Cylinders Actuator Products | Series | P5T |
| | Series | P5T2 |
| | Series | P5L |
| | Series | HB |
| | Series | P5E |

