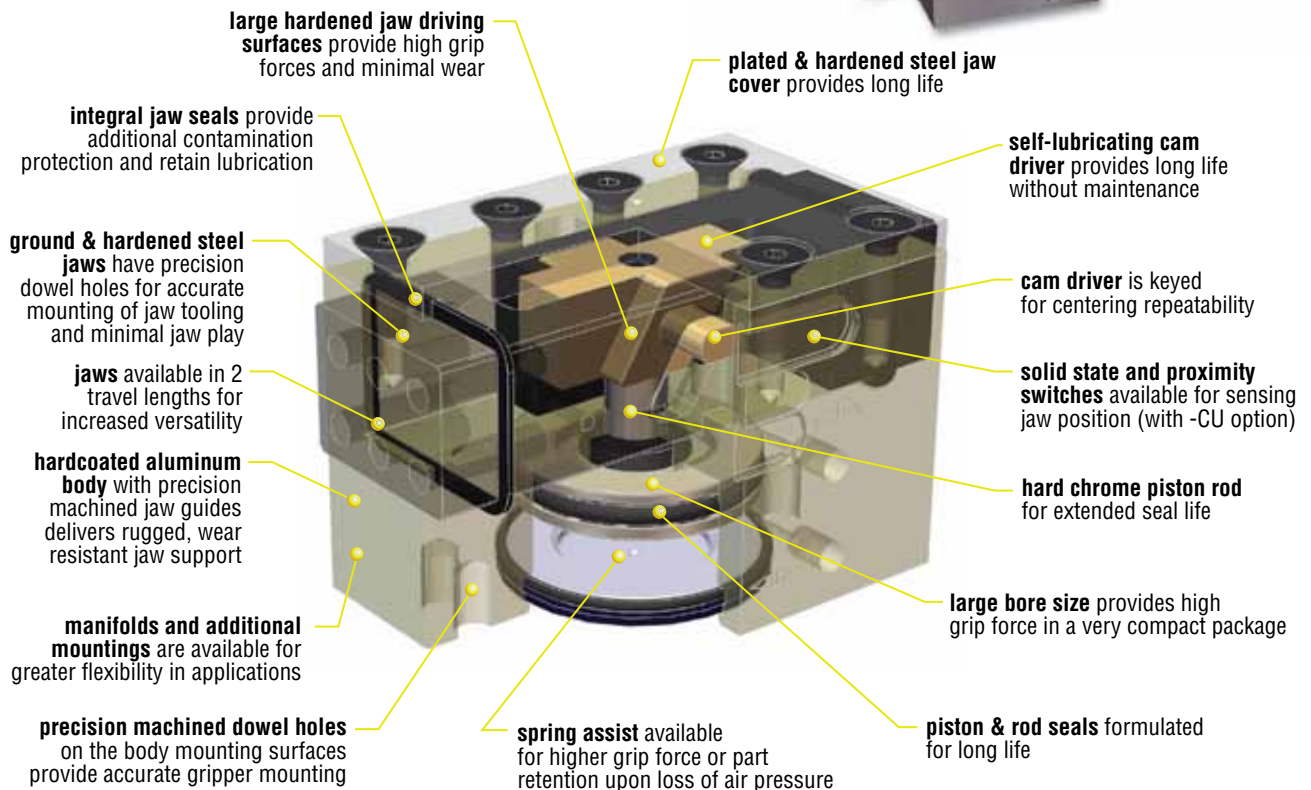


LOW PROFILE WITH MINIMAL JAW PLAY



Major Benefits

- Large hardened jaw driving surfaces
- Low profile
- Two jaw travels per size
- Manifold porting options
- Four bore sizes with five gripper sizes available in both imperial and metric versions
- Optional mounting and port positions available
- Spring assist on open or close available
- 1-2 day shipping
- Six million cycles minimum rated life (includes spring assist units)

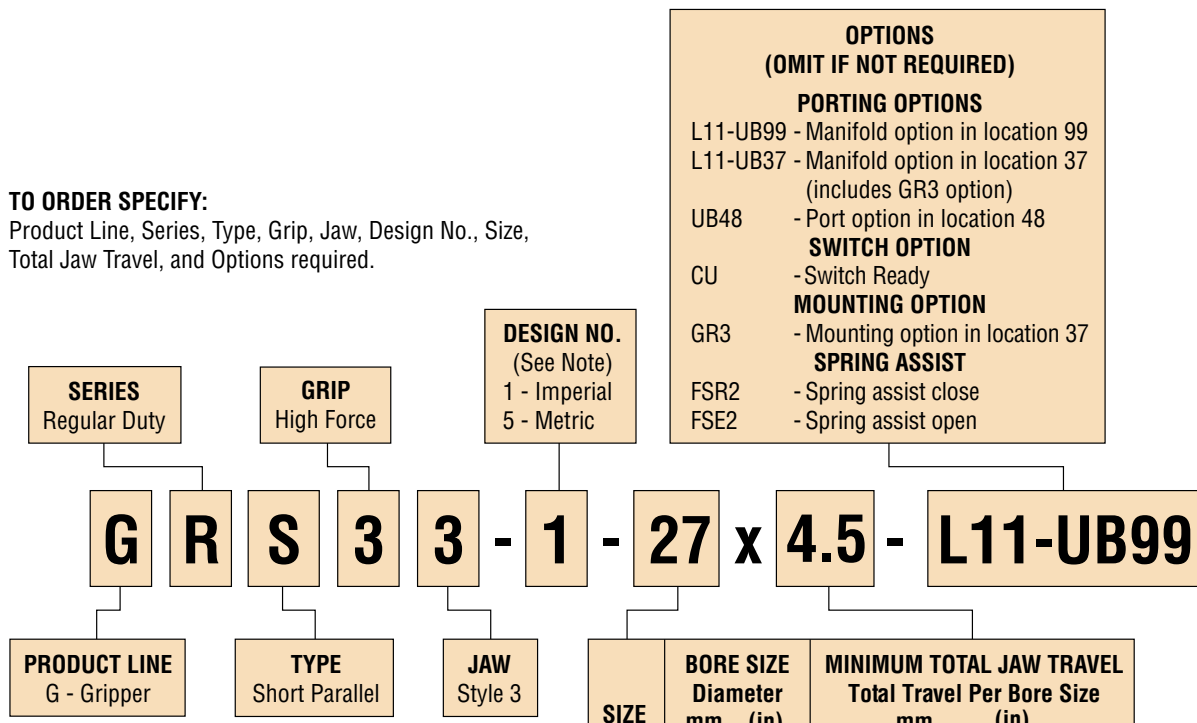
Industry Uses

- Assembly machine builders
- Robotics
- Cosmetics
- Plumbing fixtures
- Vehicle lighting equipment

ORDERING DATA: SERIES GRS GRIPPERS

TO ORDER SPECIFY:

Product Line, Series, Type, Grip, Jaw, Design No., Size, Total Jaw Travel, and Options required.



OPTIONS (OMIT IF NOT REQUIRED)

PORTING OPTIONS

- L11-UB99 - Manifold option in location 99
- L11-UB37 - Manifold option in location 37 (includes GR3 option)
- UB48 - Port option in location 48

SWITCH OPTION

- CU - Switch Ready

MOUNTING OPTION

- GR3 - Mounting option in location 37

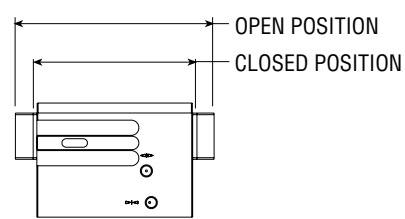
SPRING ASSIST

- FSR2 - Spring assist close
- FSE2 - Spring assist open

| SIZE | BORE SIZE Diameter mm (in) | MINIMUM TOTAL JAW TRAVEL Total Travel Per Bore Size mm (in) | |
|------|----------------------------|---|---------|
| 27 | 27 (1.063) | 4.5 | (.177) |
| 27 | 27 (1.063) | 7 | (.276) |
| 28 | 27 (1.063) | 6 | (.250) |
| 28 | 27 (1.063) | 10 | (.394) |
| 32 | 32 (1.260) | 8 | (.315) |
| 32 | 32 (1.260) | 13 | (.512) |
| 50 | 50 (1.969) | 19 | (.750) |
| 50 | 50 (1.969) | 28 | (1.102) |
| 63 | 63 (2.480) | 32 | (1.260) |
| 63 | 63 (2.480) | 44 | (1.732) |

NOTE: Design number indicates imperial or metric mounting holes, dowel pin holes, and ports.

TOTAL JAW TRAVEL = OPEN POSITION - CLOSED POSITION



4 mm ROUND INDUCTIVE PROXIMITY SWITCHES (SIZE 27, 28, & 32)

| PART NUMBER | DESCRIPTION |
|--------------|----------------------------|
| 18430-001-02 | NPN (Sink) 2 meter cable |
| 18430-002-02 | PNP (Source) 2 meter cable |

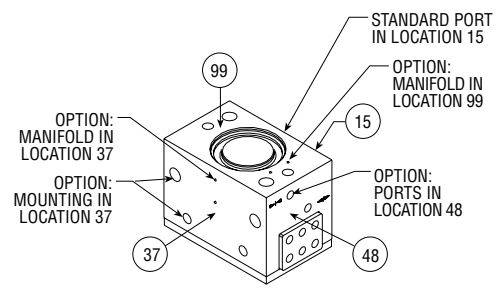
8 mm THREADED INDUCTIVE PROXIMITY SWITCHES (SIZE 50 & 63)

| PART NUMBER | DESCRIPTION |
|--------------|----------------------------|
| 51422-005-02 | NPN (Sink) 2 meter cable |
| 51422-006-02 | PNP (Source) 2 meter cable |

PROXIMITY SWITCH MOUNTING KITS

| SIZE | KIT NUMBER |
|---------|------------|
| 27 & 28 | 70663-27 |
| 32 | 70663-32 |
| 50 | 70663-50 |
| 63 | 70663-63 |

Each kit includes 1 target, 2 switch mounting brackets, and fasteners for mounting. Switches sold separately.



See Accessoires for complete switch information.



UNIQUE GRIPPERS ARE AVAILABLE. SEE PAGES 4-179 TO 4-204.

ENGINEERING DATA: SERIES GRS GRIPPERS

| SPECIFICATIONS | SERIES GRS |
|-----------------------|--|
| OPERATING PRESSURE | |
| STANDARD UNIT | 30 psi min to 100 psi max [2 bar min to 7 bar max] air |
| SPRING ASSIST UNIT | 50 psi min to 100 psi max [3.5 bar min to 7 bar max] air |
| OPERATING TEMPERATURE | -20°F to +180°F [-28°C to +82°C] |
| RATED LIFE | 6 million cycles minimum (including spring assist units) |
| GRIP REPEATABILITY | Within ±0.001 in [±0.025 mm] of original position |
| CYCLE TIME | See table below |
| LUBRICATION | Factory lubricated for rated life |
| MAINTENANCE | Field repairable |

| SIZE | MINIMUM TOTAL JAW TRAVEL | | TOTAL CLOSE GRIP FORCE AT 87 psi [6 bar] | | GRIPPER WEIGHT | | CLOSE OR OPEN TIME 87 psi [6 bar] | | DISPLACEMENT | | GRIP FORCE FACTOR G _F | | | |
|------|--------------------------|------|--|------|----------------|------|-----------------------------------|-----------------|-----------------|---------------|----------------------------------|---------------|--------|--|
| | in | mm | lb | N | lb | kg | sec | in ³ | cm ³ | EXTERNAL GRIP | | INTERNAL GRIP | | |
| | | | | | | | | | | IMPERIAL | METRIC | IMPERIAL | METRIC | |
| 27 | 0.177 | 4.5 | 68 | 302 | 0.29 | 0.13 | 0.11 | 0.133 | 2.2 | 0.78 | 50 | 0.83 | 54 | |
| | 0.276 | 7 | 48 | 213 | 0.29 | 0.13 | 0.11 | 0.133 | 2.2 | 0.55 | 36 | 0.59 | 38 | |
| 28 | 0.250 | 6.35 | 77 | 341 | 0.54 | 0.24 | 0.13 | 0.182 | 3.0 | 0.88 | 57 | 0.93 | 60 | |
| | 0.394 | 10 | 48 | 213 | 0.54 | 0.24 | 0.13 | 0.182 | 3.0 | 0.55 | 36 | 0.59 | 38 | |
| 32 | 0.315 | 8 | 109 | 485 | 1.0 | 0.45 | 0.16 | 0.335 | 5.5 | 1.25 | 81 | 1.33 | 86 | |
| | 0.512 | 13 | 70 | 310 | 1.0 | 0.45 | 0.16 | 0.335 | 5.5 | 0.80 | 52 | 0.86 | 56 | |
| 50 | 0.750 | 19 | 235 | 1045 | 2.4 | 1.1 | 0.18 | 1.570 | 26 | 2.7 | 174 | 2.8 | 181 | |
| | 1.102 | 28 | 157 | 697 | 2.4 | 1.1 | 0.18 | 1.570 | 26 | 1.8 | 116 | 1.9 | 123 | |
| 63 | 1.260 | 32 | 398 | 1770 | 7.8 | 3.5 | 0.22 | 4.397 | 72 | 4.6 | 297 | 4.7 | 303 | |
| | 1.732 | 44 | 289 | 1287 | 7.8 | 3.5 | 0.22 | 4.397 | 72 | 3.3 | 213 | 3.5 | 226 | |

GRS

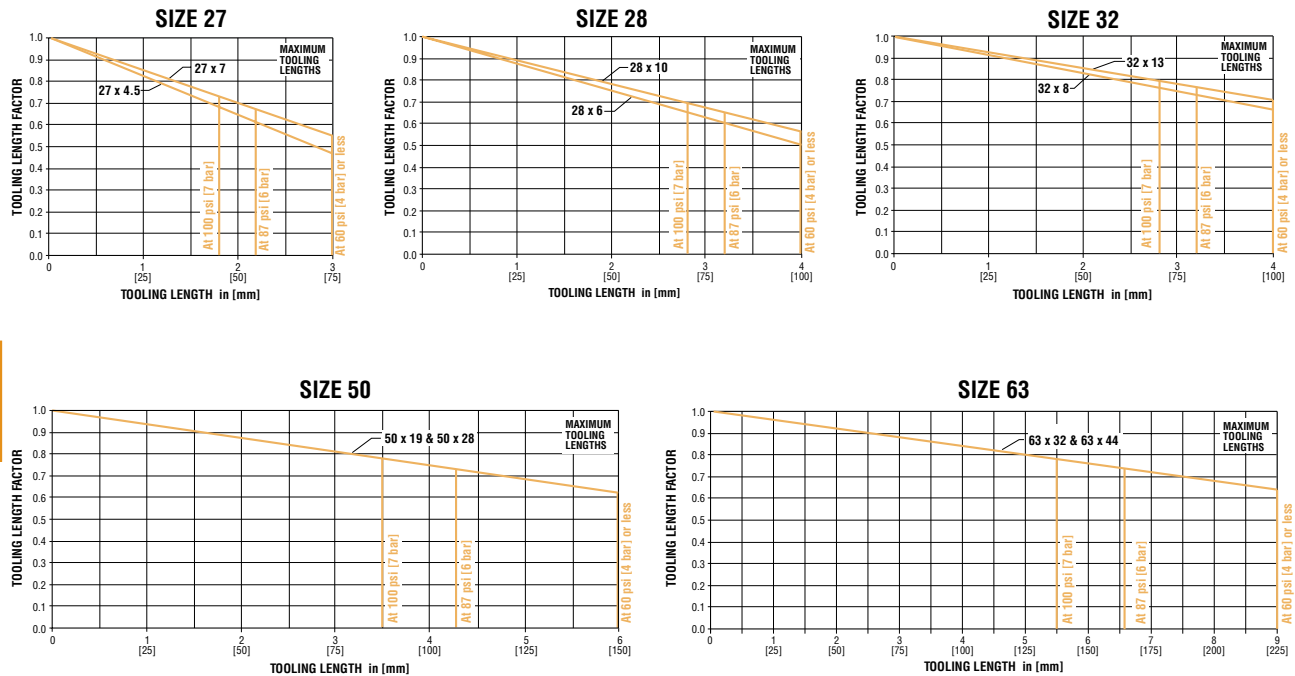
| SIZE | SPRING ASSIST GRIP FORCE | | | | | | | | SPRING ASSIST | | | | |
|----------|-------------------------------|---------|---------|---------|-------------------------------|---------|---------|---------|------------------------------|----------------|-----------------------|------|------|
| | S _F (SPRING ONLY)* | | | | S _F (SPRING ONLY)* | | | | SPRING ASSIST GRIPPER WEIGHT | | CLOSE OR OPEN TIME | | |
| | SPRING CLOSE GRIP FORCE | | | | SPRING OPEN GRIP FORCE | | | | | | 87 psi [6 bar] IN sec | | |
| | MINIMUM | MAXIMUM | MINIMUM | MAXIMUM | MINIMUM | MAXIMUM | MINIMUM | MAXIMUM | WITH SPRING | AGAINST SPRING | SPRING ONLY | | |
| 27 x 4.5 | 22 | 96 | 31 | 137 | 17 | 73 | 33 | 146 | 0.39 | 0.18 | 0.12 | 0.24 | 0.16 |
| 27 x 7 | 15 | 68 | 22 | 96 | 12 | 51 | 23 | 103 | 0.39 | 0.18 | 0.12 | 0.24 | 0.16 |
| 28 x 6 | 23 | 102 | 35 | 154 | 16 | 71 | 37 | 164 | 0.69 | 0.31 | 0.13 | 0.26 | 0.20 |
| 28 x 10 | 14 | 63 | 22 | 96 | 10 | 44 | 23 | 103 | 0.69 | 0.31 | 0.13 | 0.26 | 0.20 |
| 32 x 8 | 29 | 130 | 50 | 224 | 22 | 98 | 53 | 234 | 1.34 | 0.61 | 0.16 | 0.46 | 0.27 |
| 32 x 13 | 19 | 83 | 32 | 143 | 14 | 63 | 34 | 150 | 1.34 | 0.61 | 0.16 | 0.46 | 0.27 |
| 50 x 19 | 74 | 327 | 113 | 503 | 35 | 155 | 113 | 504 | 3.11 | 1.41 | 0.17 | 0.32 | 0.29 |
| 50 x 28 | 49 | 218 | 75 | 336 | 23 | 104 | 76 | 336 | 3.11 | 1.41 | 0.17 | 0.32 | 0.29 |
| 63 x 32 | 79 | 353 | 159 | 708 | 36 | 160 | 160 | 710 | 9.5 | 4.31 | 0.22 | 0.42 | 0.51 |
| 63 x 44 | 58 | 257 | 116 | 515 | 26 | 117 | 116 | 516 | 9.5 | 4.31 | 0.22 | 0.42 | 0.51 |

*Spring grip force (S_F) varies with spring compression. The minimum spring grip force values occur with the spring at least compression (jaws fully closed on spring close units and fully open on spring open units). The maximum spring grip force values occur with the spring at most compression (jaws fully open on spring close units and fully closed on spring open units).

SIZING AND APPLICATION ASSISTANCE
 See PHD Product Sizing Catalog for specific and complete sizing information.
 Online sizing assistance is available at: www.phdinc.com/apps/sizing

TOOLING LENGTH FACTOR

Jaw tooling should be designed so that the grip point is as close to the cover surface as possible. As the grip point is moved away from the cover surface, the applied moment causes jaw friction to increase, resulting in reduced effective grip force. The Grip Force Factor (G_F) values given in the table on page 4-25 are for zero tooling length (cover surface).



GRIP FORCE CALCULATION EQUATIONS:

IMPERIAL:

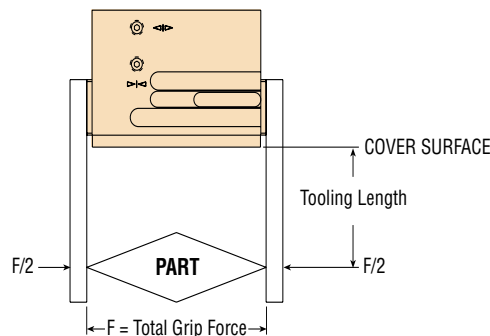
$$\text{TOTAL GRIP FORCE [Ib]} = (\text{Pressure [psi]} \times G_F) \times \text{Tooling Length Factor}$$

$$\text{TOTAL GRIP FORCE WITH SPRINGS [Ib]} = ((\text{Pressure [psi]} \times G_F) \pm S_F [\text{Ib}]) \times \text{Tooling Length Factor}$$

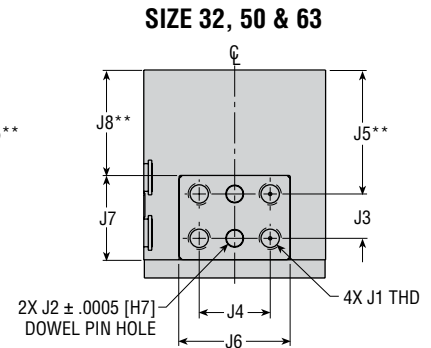
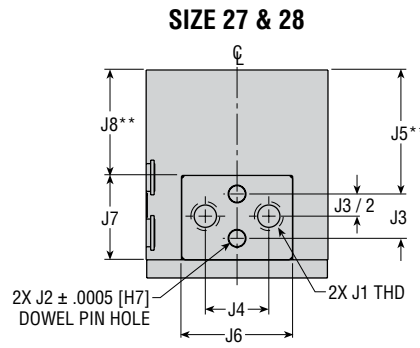
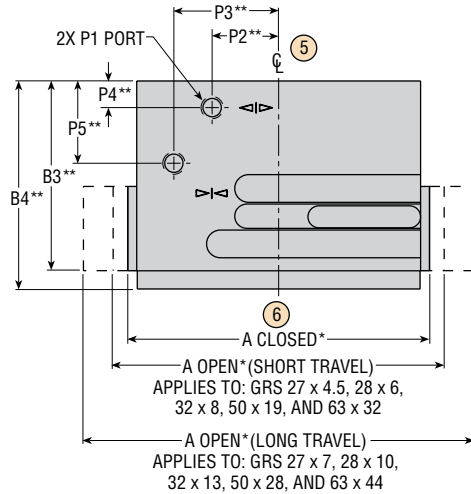
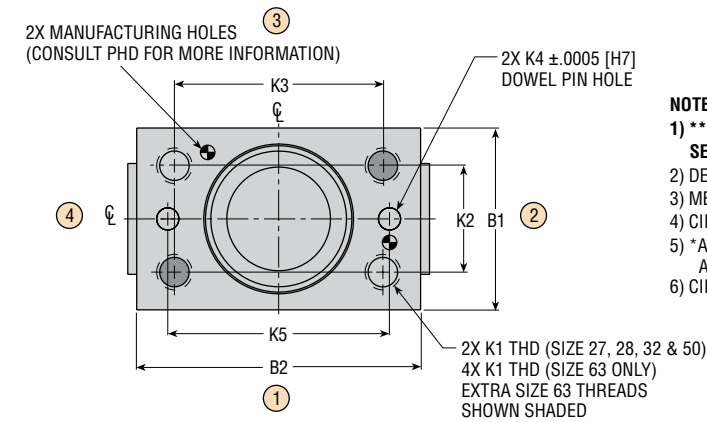
METRIC:

$$\text{TOTAL GRIP FORCE [N]} = (\text{Pressure [bar]} \times G_F) \times \text{Tooling Length Factor}$$

$$\text{TOTAL GRIP FORCE WITH SPRINGS [N]} = ((\text{Pressure [bar]} \times G_F) \pm S_F [\text{N}]) \times \text{Tooling Length Factor}$$



DIMENSIONS: SERIES GRS GRIPPERS



| LETTER DIM | SIZE | | | | | | | | | |
|--------------------------------------|-------------------|----------------------|---------------------|-----------------------|----------------------|------------------------|---------------------|------------------------|----------------------|-------------------------|
| | 27 | | 28 | | 32 | | 50 | | 63 | |
| | in | mm | in | mm | in | mm | in | mm | in | mm |
| SHORT TRAVEL (MIN TRAVEL PER JAW) | .084 | 2.125 | .125 | 3.0 | .157 | 4.0 | .375 | 9.5 | .630 | 16.0 |
| LONG TRAVEL (MIN TRAVEL PER JAW) | .138 | 3.5 | .197 | 5.0 | .256 | 6.5 | .551 | 14.0 | .875 | 22.0 |
| A CLOSED* | 1.614 | 41.0 | 2.125 | 54.0 | 2.677 | 68.0 | 3.500 | 88.9 | 5.748 | 146.0 |
| A OPEN SHORT* | 1.790 | 45.5 | 2.370 | 60.2 | 3.000 | 76.2 | 4.250 | 108.0 | 7.000 | 177.8 |
| A OPEN LONG* | 1.890 | 48.0 | 2.500 | 63.5 | 3.190 | 81.0 | 4.606 | 117.0 | 7.500 | 190.5 |
| B1 | 1.378 | 35.0 | 1.496 | 38.0 | 1.614 | 41.0 | 2.283 | 58.0 | 2.953 | 75.0 |
| B2 | 1.496 | 38.0 | 1.969 | 50.0 | 2.520 | 64.0 | 3.386 | 86.0 | 5.236 | 133.0 |
| B3** | 1.036 | 26.3 | 1.279 | 32.5 | 1.686 | 42.8 | 2.253 | 57.2 | 3.408 | 86.6 |
| B4** | 1.130 | 28.7 | 1.395 | 35.4 | 1.847 | 46.9 | 2.438 | 61.9 | 3.648 | 92.7 |
| J1 | 8-32 x .236 DP | M4 x 0.7 x 6.0 DP | 10-32 x .315 DP | M5 x 0.8 x 8 DP | 10-32 x .394 DP | M5 x 0.8 x 10.0 DP | 1/4-28 x .512 DP | M6 x 1.0 x 13.0 DP | 3/8-24 x .768 DP | M10 x 1.5 x 19.5 DP |
| J2 | .0658 x .197 DP | 2.0 x 5.0 DP | .1283 x .197 DP | 3.0 x 5.0 DP | .1595 x .236 DP | 4.0 x 6.0 DP | .1908 x .394 DP | 5.0 x 10.0 DP | .3158 x .512 DP | 8.0 x 13.0 DP |
| J3 | .2559 | 6.5 | .315 | 8.0 | .3937 | 10.0 | .5510 | 14.0 | .8661 | 22.0 |
| J4 | .354 | 9.0 | .413 | 10.5 | .630 | 16.0 | .787 | 20.0 | 1.063 | 27.0 |
| J5** | .6889 | 17.5 | .8464 | 21.5 | 1.1023 | 28.0 | 1.4563 | 37.0 | 2.1653 | 55.0 |
| J6 | .6301 | 16.0 | .7482 | 19.0 | .9845 | 25.0 | 1.2600 | 32.0 | 1.7719 | 45.0 |
| J7 | .4333 | 11.0 | .5514 | 14.0 | .7482 | 19.0 | 1.0238 | 26.0 | 1.6144 | 41.0 |
| J8** | .602 | 15.3 | .727 | 18.5 | .938 | 23.8 | 1.228 | 31.2 | 1.793 | 45.5 |
| K1 | 8-32 x .375 DP | M5 x 0.8 x 9.5 DP | 1/4-20 x .512 DP | M6 x 1.0 x 13.0 DP | 5/16-18 x .591 DP | M8 x 1.25 x 15.0 DP | 3/8-16 x .768 DP | M10 x 1.5 x 19.5 DP | 1/2-13 x 1.024 DP | M12 x 1.75 x 26.0 DP |
| K2 | 1.024 | 26.0 | .984 | 25.0 | .945 | 24.0 | 1.457 | 37.0 | 1.969 | 50.0 |
| K3 | 1.142 | 29.0 | 1.457 | 37.0 | 1.850 | 47.0 | 2.559 | 65.0 | 4.134 | 105.0 |
| K4 | .1283 x .250 DP | 3.0 x 6.0 DP | .1908 x .256 DP | 5.0 x 6.5 DP | .1908 x .256 DP | 5.0 x 6.5 DP | .3158 x .512 DP | 8.0 x 13.0 DP | .3783 x .512 DP | 10.0 x 13 DP |
| K5 | 1.3386 | 34.0 | 1.5748 | 40.0 | 1.9685 | 50.0 | 2.6378 | 67.0 | 4.1340 | 105.0 |
| P1 | 10-32 | M5 x 0.8 | 10-32 | M5 x 0.8 | 10-32 | M5 x 0.8 | 1/8 NPT | 1/8 BSPP | 1/8 NPT | 1/8 BSPP |
| P2** | .482 | 12.2 | .433 | 11.0 | .591 | 15.0 | 1.016 | 25.8 | 1.181 | 30.0 |
| P3** | .601 | 15.3 | .512 | 13.0 | .591 | 15.0 | .965 | 24.5 | 1.181 | 30.0 |
| P4** | .201 | 5.1 | .201 | 5.1 | .236 | 6.0 | .389 | 9.9 | .413 | 10.5 |
| P5** | .572 | 14.5 | .591 | 15.0 | .728 | 18.5 | 1.151 | 29.2 | 1.437 | 36.5 |

All dimensions are reference only unless specifically toleranced.

www.phdinc.com/grs • (800) 624-8511

OPTIONS: SERIES GRS GRIPPERS

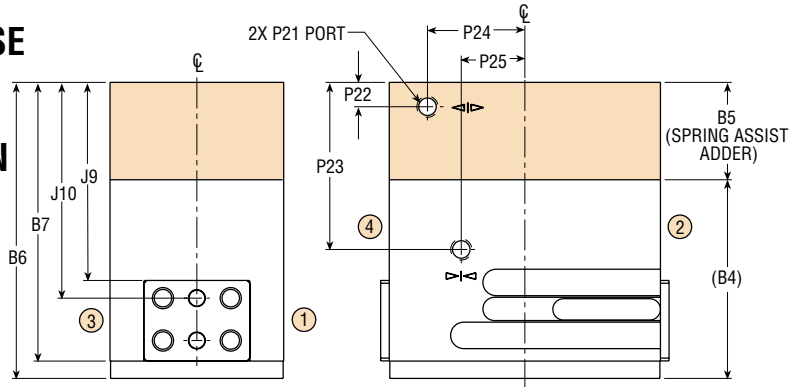
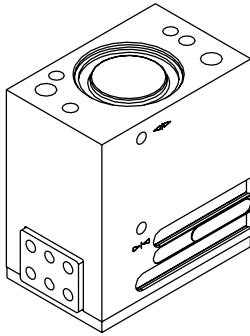
FSR2

**MEDIUM FORCE
SPRING ASSIST CLOSE**

FSE2

**MEDIUM FORCE
SPRING ASSIST OPEN**

Springs can maintain spring grip force if air pressure is lost or increase grip force in one specific direction when used with air pressure. Spring assist units are engineered and tested for a minimum of 6 million cycles under normal operating conditions. Working air pressure for spring assist units is 50 psi min - 100 psi max [3.5 bar min - 7 bar max]. For spring grip forces, see table on page 4-25.



| LETTER DIM | SIZE | | | | | | | | | |
|---------------|----------------|------|----------------|------|----------------|------|---------|----------|---------|----------|
| | 27 | | 28 | | 32 | | 50 | | 63 | |
| | in | mm | in | mm | in | mm | in | mm | in | mm |
| (B4) | 1.130 | 28.7 | 1.395 | 35.4 | 1.847 | 46.9 | 2.438 | 61.9 | 3.648 | 92.7 |
| B5 | .6100 | 15.5 | .6100 | 15.5 | .9054 | 23.0 | 1.1614 | 29.5 | 1.2993 | 33.0 |
| B6 | 1.740 | 44.2 | 2.005 | 50.9 | 2.753 | 69.9 | 3.599 | 91.4 | 4.948 | 125.7 |
| B7 | 1.646 | 41.8 | 1.889 | 48.0 | 2.592 | 65.8 | 3.414 | 86.7 | 4.708 | 119.6 |
| J9 | 1.212 | 30.8 | 1.337 | 34.0 | 1.843 | 46.8 | 2.389 | 60.7 | 3.092 | 78.5 |
| J10 | 1.299 | 33.0 | 1.456 | 37.0 | 2.008 | 51.0 | 2.618 | 66.5 | 3.465 | 88.0 |
| P21 | 10-32 M5 x 0.8 | | 10-32 M5 x 0.8 | | 10-32 M5 x 0.8 | | 1/8 NPT | 1/8 BSPP | 1/8 NPT | 1/8 BSPP |
| P22 | .201 | 5.1 | .201 | 5.1 | .236 | 6.0 | .389 | 9.9 | .413 | 10.5 |
| P23 | 1.164 | 29.6 | 1.138 | 28.9 | 1.553 | 39.4 | 2.087 | 53.0 | 2.736 | 69.5 |
| P24 | .482 | 12.2 | .433 | 11.0 | .591 | 15.0 | 1.016 | 25.8 | 1.181 | 30.0 |
| P25 | .601 | 15.3 | .512 | 13.0 | .591 | 15.0 | .965 | 24.5 | 1.181 | 30.0 |

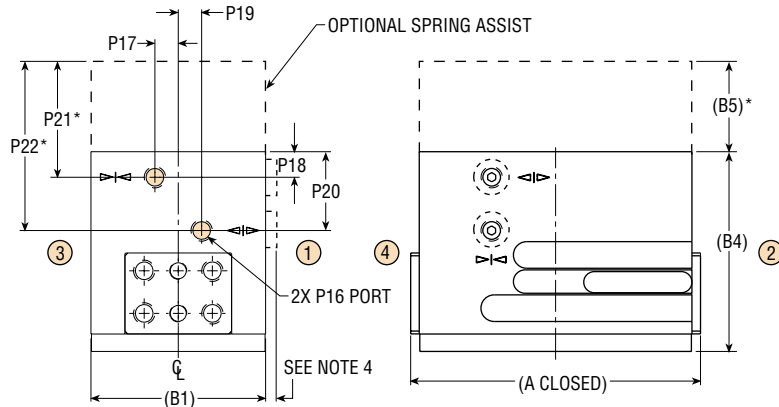
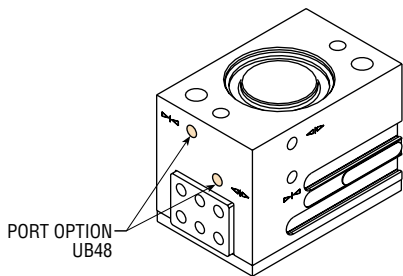
NOTES:

1) DESIGNATED ϕ IS CENTERLINE OF UNIT

UB48

**PORT OPTION IN
LOCATION 48**

This option provides ports in location 48. The standard ports are plugged.



| LETTER DIM | SIZE | | | | | | | | | |
|---------------|-------|------|-------|------|-------|------|-------|------|---------|----------|
| | 27 | | 28 | | 32 | | 50 | | 63 | |
| | in | mm | in | mm | in | mm | in | mm | in | mm |
| P16 | 10-32 | M5 | 10-32 | M5 | 10-32 | M5 | 10-32 | M5 | 1/8 NPT | 1/8 BSPP |
| P17 | .276 | 7.0 | .236 | 6.0 | .216 | 5.5 | .295 | 7.5 | .472 | 12.0 |
| P18 | .201 | 5.1 | .201 | 5.1 | .236 | 6.0 | .290 | 7.4 | .394 | 10.0 |
| P19 | .433 | 11.0 | .236 | 6.0 | .216 | 5.5 | .787 | 20.0 | .472 | 12.0 |
| P20 | .446 | 11.3 | .511 | 13.0 | .728 | 18.5 | 1.060 | 26.9 | 1.407 | 35.7 |
| P21* | .201 | 5.1 | .201 | 5.1 | .236 | 6.0 | .290 | 7.4 | .394 | 10.0 |
| P22* | 1.056 | 26.8 | 1.121 | 28.5 | 1.553 | 39.4 | 2.086 | 53.0 | 2.697 | 68.5 |
| (B1) | 1.378 | 35.0 | 1.496 | 38.0 | 1.614 | 41.0 | 2.283 | 58.0 | 2.953 | 75.0 |
| (B4) | 1.130 | 28.7 | 1.395 | 35.4 | 1.847 | 46.9 | 2.438 | 61.9 | 3.648 | 92.7 |
| (B5)* | .610 | 15.5 | .610 | 15.5 | .905 | 23.0 | 1.161 | 29.5 | 1.299 | 33.0 |
| (A CLOSED) | 1.614 | 41.0 | 2.125 | 54.0 | 2.677 | 68.0 | 3.500 | 88.9 | 5.748 | 146.0 |

NOTES:

1) DESIGNATED ϕ IS CENTERLINE OF UNIT

2) CIRCLED NUMBERS INDICATE POSITIONS

3) * APPLIES TO SPRING ASSIST UNITS ONLY

4) .098 [2.5 mm] PORT PLUG HEAD FOR SIZE 50 & 63 METRIC UNITS ONLY. FOR ALL OTHER SIZES, PORT PLUG HEAD MAY PROTRUDE TO .040 [1 mm]

OPTIONS: SERIES GRS GRIPPERS

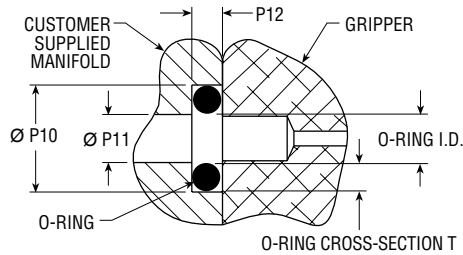
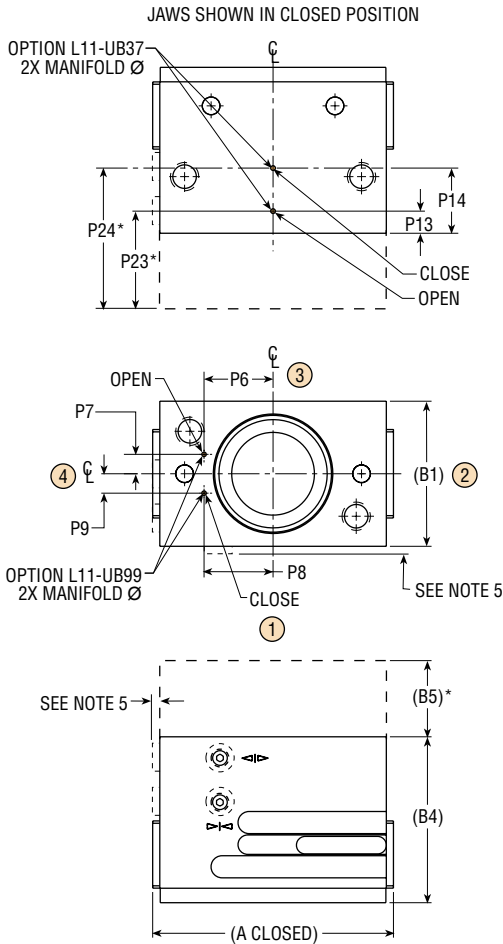
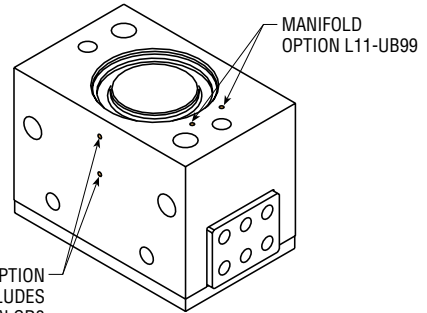
L11-UB99

L11-UB37

MANIFOLD PORTS

With these options the gripper is configured for manifold mounting on either the standard or optional mounting face, according to the selected option code. The standard ports are plugged. O-ring seals are provided for mounting between the gripper and the manifold.

When the L11-UB37 option is specified, the GR3 option is automatically included to provide mountings on the manifold surface. See page 4-30 for GR3 mounting information.



REPLACEMENT MANIFOLD SEAL KITS

| SIZE | KIT NUMBER |
|---------|------------|
| 27 & 28 | 70247-27-1 |
| 32 | 70247-32-1 |
| 50 | 70247-50-1 |
| 63 | 70247-63-1 |

Manifold kit includes O-rings.

MANIFOLD PORTING DIMENSIONS

FOR CUSTOMER USE
(DIMENSIONS REQUIRED FOR CUSTOMER MOUNTING SURFACE)

| LETTER DIM | SIZE | | | | | | | | | |
|-----------------------|---------------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| | 27 | | 28 | | 32 | | 50 | | 63 | |
| | in | mm | in | mm | in | mm | in | mm | in | mm |
| P6 | .608 | 15.4 | .650 | 16.5 | .768 | 19.5 | 1.181 | 30.0 | 1.811 | 46.0 |
| P7 | .236 | 6.0 | .177 | 4.5 | .138 | 3.5 | .276 | 7.0 | .472 | 12.0 |
| P8 | .591 | 15.0 | .650 | 16.5 | .768 | 19.5 | 1.437 | 36.5 | 1.811 | 46.0 |
| P9 | .295 | 7.5 | .236 | 6.0 | .216 | 5.5 | .276 | 7.0 | .472 | 12.0 |
| P10 | .197 | 5.0 | .197 | 5.0 | .197 | 5.0 | .236 | 6.0 | .236 | 6.0 |
| P10 O-RING (I.D. x T) | 2 mm x 1.5 mm | | 2 mm x 1.5 mm | | 2 mm x 1.5 mm | | 3 mm x 1.5 mm | | 3 mm x 1.5 mm | |
| P11 | .078 | 2.0 | .078 | 2.0 | .078 | 2.0 | .098 | 2.5 | .098 | 2.5 |
| P12 | .048 | 1.2 | .048 | 1.2 | .048 | 1.2 | .048 | 1.2 | .048 | 1.2 |
| P13 | .191 | 4.9 | .190 | 4.8 | .246 | 6.2 | .290 | 7.4 | .343 | 8.7 |
| P14 | .489 | 12.4 | .545 | 13.8 | .725 | 18.4 | 1.060 | 26.9 | 1.504 | 38.2 |
| P23* | .191 | 4.9 | .190 | 4.8 | .246 | 6.2 | .290 | 7.4 | .343 | 8.7 |
| P24* | 1.006 | 25.6 | 1.121 | 28.5 | 1.553 | 39.4 | 2.071 | 52.6 | 2.743 | 69.7 |
| (B1) | 1.378 | 35.0 | 1.496 | 38.0 | 1.614 | 41.0 | 2.283 | 58.0 | 2.953 | 75.0 |
| (B4) | 1.130 | 28.7 | 1.395 | 35.4 | 1.847 | 46.9 | 2.438 | 61.9 | 3.648 | 92.7 |
| (B5)* | .6100 | 15.5 | .6100 | 15.5 | .9054 | 23.0 | 1.1614 | 29.5 | 1.2993 | 33.0 |

NOTES:

- DESIGNATED ϕ IS CENTERLINE OF UNIT
- DIMENSIONS TO MANIFOLD HOLES ARE FOR LOCATION OF O-RING COUNTERBORES. MANIFOLD HOLES MAY DIFFER SLIGHTLY
- * APPLIES TO SPRING ASSIST UNITS ONLY
- CIRCLED NUMBERS INDICATE POSITIONS
- .098 [2.5 mm] PORT PLUG HEAD FOR 50 & 63 METRIC UNITS ONLY. FOR ALL OTHER SIZES, PORT PLUG HEAD MAY PROTRUDE UP TO .040 [1 mm]

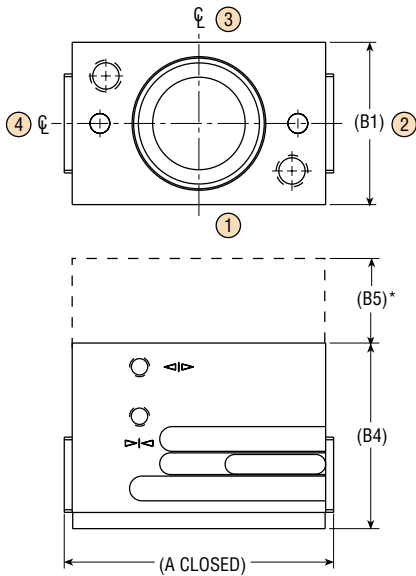
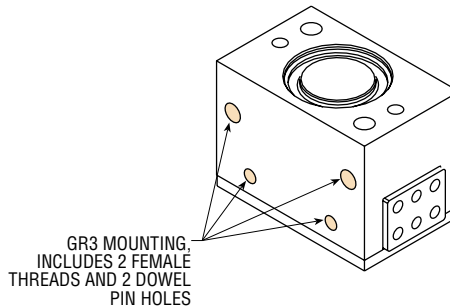
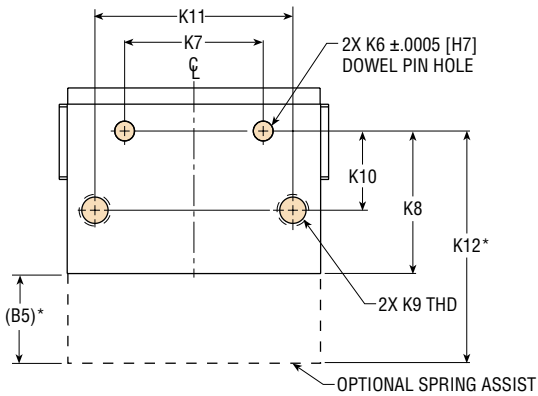
All dimensions are reference only unless specifically toleranced.

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OPTIONS: SERIES GRS GRIPPERS

GR3 MOUNTING OPTION IN LOCATION 37

This option provides mounting threads and dowel holes on the side opposite the standard ports.



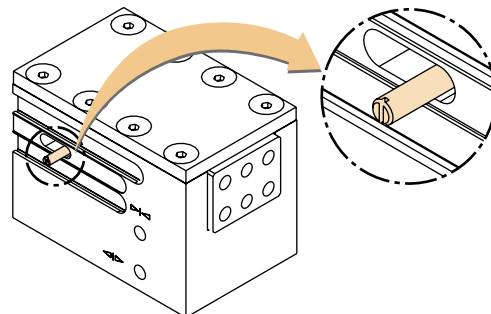
| LETTER DIM | SIZE | | | | | | | | | |
|------------|-----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|
| | 27 | | 28 | | 32 | | 50 | | 63 | |
| | in | mm | in | mm | in | mm | in | mm | in | mm |
| K6 | .1283 | 3.0 | .1908 | 5.0 | .1908 | 5.0 | .3158 | 8.0 | .3783 | 10.0 |
| | x .236 DP | x 6.0 DP | x .236 DP | x 6.0 DP | x .197 DP | x 5.0 DP | x .315 DP | x 8.0 DP | x .394 DP | x 10.0 DP |
| K7 | .7480 | 19.0 | .9449 | 24.0 | 1.3780 | 35.0 | 1.9685 | 50.0 | 3.1496 | 80.0 |
| K8 | .866 | 22.0 | 1.063 | 27.0 | 1.417 | 36.0 | 1.890 | 48.0 | 2.717 | 69.0 |
| K9 | 8-32 | M5 x 0.8 | 1/4-20 | M6 x 1.0 | 5/16-18 | M8 x 1.25 | 3/8-16 | M10 x 1.5 | 1/2-13 | M12 x 1.75 |
| | x .315 DP | x 8.0 DP | x .512 DP | x 13.0 DP | x .591 DP | x 15.0 DP | x .630 DP | x 16.0 DP | x 1.024 DP | x 26.0 DP |
| K10 | .433 | 11.0 | .551 | 14.0 | .787 | 20.0 | 1.024 | 26.0 | 1.378 | 35.0 |
| K11 | 1.220 | 31.0 | 1.496 | 38.0 | 1.969 | 50.0 | 2.559 | 65.0 | 4.134 | 105.0 |
| K12* | 1.476 | 37.5 | 1.673 | 42.5 | 2.323 | 59.0 | 3.051 | 77.5 | 4.016 | 102.0 |
| (B1) | 1.378 | 35.0 | 1.496 | 38.0 | 1.614 | 41.0 | 2.283 | 58.0 | 2.953 | 75.0 |
| (B4) | 1.130 | 28.7 | 1.395 | 35.4 | 1.847 | 46.9 | 2.438 | 61.9 | 3.648 | 92.7 |
| (B5)* | .6100 | 15.5 | .6100 | 15.5 | .9054 | 23.0 | 1.1614 | 29.5 | 1.2993 | 33.0 |
| (A CLOSED) | 1.614 | 41.0 | 2.125 | 54.0 | 2.677 | 68.0 | 3.500 | 88.9 | 5.748 | 146.0 |

NOTES:

- 1) DESIGNATED ϕ IS CENTERLINE OF UNIT
- 2) METRIC INFORMATION SHOWN IN [] OR IN COLUMNS DESIGNATED mm
- 3) CIRCLED NUMBERS INDICATE POSITIONS
- 4) *APPLIES TO SPRING ASSIST UNITS ONLY

CU SWITCH READY

With this option the gripper includes a target pin attached to the jaw for use with inductive proximity switches as well as the Series 6790 and JC1 switches. Switches and switch mounting kits are required in addition to the CU option and are sold separately. See Accessories pages for switches and mounting kits.



ACCESSORIES: SERIES GRS GRIPPERS

PROXIMITY SWITCHES (-CU OPTION REQUIRED)

See Switches and Sensors section for complete switch specifications.

4 mm ROUND INDUCTIVE PROXIMITY SWITCHES (SIZE 27, 28, & 32)

| PART NUMBER | DESCRIPTION |
|--------------|----------------------------|
| 18430-001-02 | NPN (Sink) 2 meter cable |
| 18430-002-02 | PNP (Source) 2 meter cable |

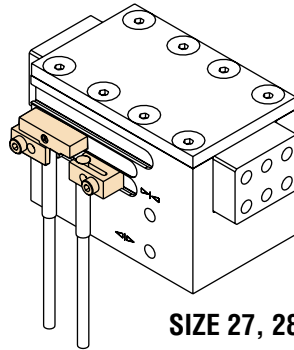
8 mm THREADED INDUCTIVE PROXIMITY SWITCHES (SIZE 50 & 63)

| PART NUMBER | DESCRIPTION |
|--------------|----------------------------|
| 51422-005-02 | NPN (Sink) 2 meter cable |
| 51422-006-02 | PNP (Source) 2 meter cable |

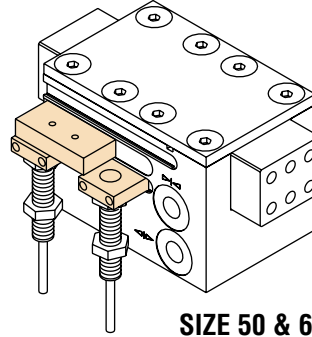
PROXIMITY SWITCH MOUNTING KITS

| SIZE | KIT NUMBER |
|---------|------------|
| 27 & 28 | 70663-27 |
| 32 | 70663-32 |
| 50 | 70663-50 |
| 63 | 70663-63 |

Each kit includes 1 target, 2 switch mounting brackets, and fasteners for mounting. Switches sold separately.

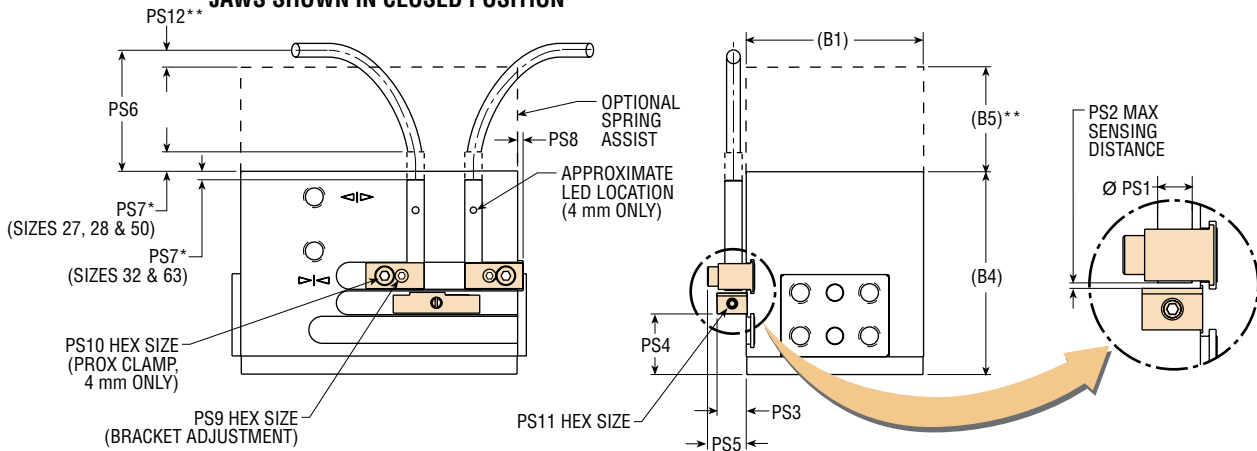


SIZE 27, 28, & 32



SIZE 50 & 63

JAWS SHOWN IN CLOSED POSITION



| LETTER DIM | SIZE | | | | | | | | | |
|---------------|------------|------|------------|------|------------|------|---------------|------|---------------|------|
| | 27 | | 28 | | 32 | | 50 | | 63 | |
| | in | mm | in | mm | in | mm | in | mm | in | mm |
| PS1 | 4 mm ROUND | | 4 mm ROUND | | 4 mm ROUND | | 8 mm THREADED | | 8 mm THREADED | |
| PS2 | .020 | .5 | .020 | .5 | .020 | .5 | .030 | .8 | .030 | .8 |
| PS3 | .236 | 6.0 | .236 | 6.0 | .276 | 7.0 | .680 | 17.3 | .680 | 17.3 |
| PS4 | .354 | 9.0 | .454 | 11.5 | .551 | 14.0 | .630 | 16.0 | 1.337 | 34.0 |
| PS5 | .393 | 10.0 | .393 | 10.0 | .393 | 10.0 | .690 | 17.5 | .690 | 17.5 |
| PS6 | 1.377 | 35.0 | 1.218 | 30.9 | .860 | 21.8 | 1.252 | 31.8 | .753 | 19.1 |
| PS7* | .435 | 11.0 | .276 | 7.0 | .082 | 2.1 | .310 | 7.9 | .189 | 4.8 |
| PS8 | .256 | 6.5 | .165 | 4.2 | .050 | 1.3 | — | — | — | — |
| PS9 | .051 | 1.3 | .051 | 1.3 | .051 | 1.3 | .051 | 1.3 | .051 | 1.3 |
| PS10 | .079 | 2.0 | .079 | 2.0 | .079 | 2.0 | — | — | — | — |
| PS11 | .051 | 1.3 | .051 | 1.3 | .051 | 1.3 | .061 | 1.5 | .061 | 1.5 |
| PS12** | .767 | 19.5 | .608 | 15.4 | — | — | .091 | 2.3 | — | — |
| (B1) | 1.378 | 35.0 | 1.496 | 38.0 | 1.614 | 41.0 | 2.283 | 58.0 | 2.953 | 75.0 |
| (B4)** | 1.130 | 28.7 | 1.395 | 35.4 | 1.847 | 46.9 | 2.438 | 61.9 | 3.648 | 92.7 |
| (B5)** | .6100 | 15.5 | .6100 | 15.5 | .9054 | 23.0 | 1.1614 | 29.5 | 1.2993 | 33.0 |

NOTES:

- 1) * INDICATES BOTTOM OF PROXIMITY SWITCH BARREL, DOES NOT INCLUDE CABLE. DIMENSIONS DO NOT APPLY TO SPRING ASSIST UNIT BECAUSE PROXIMITY SWITCH BARREL DOES NOT PROTRUDE ON SPRING ASSIST UNITS
- 2) ** APPLIES TO SPRING ASSIST UNITS ONLY

All dimensions are reference only unless specifically toleranced.

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ACCESSORIES: SERIES GRS GRIPPERS

SERIES 6790 & JC1 SWITCHES (-CU OPTION REQUIRED)

SERIES 6790 & JC1 SWITCHES

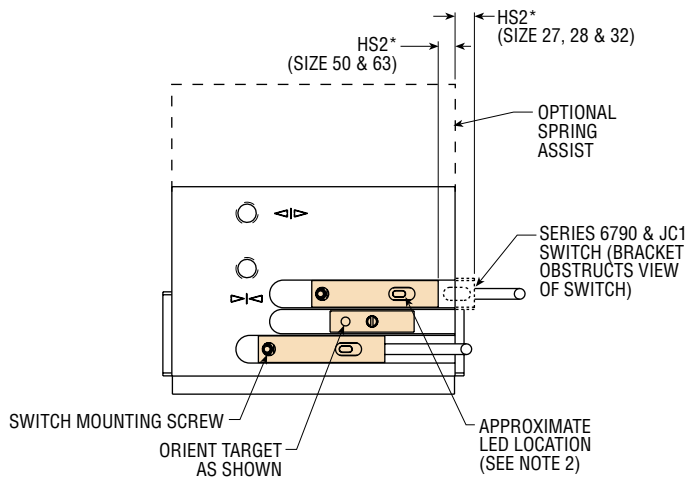
| PART NO. | DESCRIPTION |
|------------|--|
| 67902-1-05 | PNP (Source) or NPN (Sink) Reed, 4.5-30 VDC, 5 m cable |
| JC1SDN-5 | NPN (Sink) Solid State, 10-30 VDC, 5 m cable |
| JC1SDP-5 | PNP (Source) Solid State, 10-30 VDC, 5 m cable |
| 67922-1 | PNP (Source) or NPN (Sink) Reed, 4.5-30 VDC, Quick Connect |
| JC1SDN-K | NPN (Sink) Solid State, 10-30 VDC, Quick Connect |
| JC1SDP-K | PNP (Source) Solid State, 10-30 VDC, Quick Connect |
| 67929-2 | PNP (Source) or NPN (Sink) Reed, 65-120 VDC, Quick Connect |

NOTE: See Switches and Sensors section for additional switch information and complete specification.

SERIES 6790 & JC1SDx CORDSET CHART

| PART NO. | DESCRIPTION |
|----------|---|
| 63549-02 | M8, 3 pin, Straight Female Connector, 2 m cable |
| 63549-05 | M8, 3 pin, Straight Female Connector, 5 m cable |

JAWS SHOWN IN CLOSED POSITION



SERIES JC1STP 2 POSITION SWITCHES

| PART NO. | DESCRIPTION |
|----------|--|
| JC1STP-2 | PNP (Source) Solid State, 12-30 VDC, 2 m cable |
| JC1STP-K | NPN (Sink) Solid State, 12-30 VDC, Quick Connect |

SERIES JC1STP CORDSET CHART

| PART NO. | DESCRIPTION |
|-------------|---|
| 81284-1-001 | M8, 4 pin, Straight Female Connector, 5 m cable |

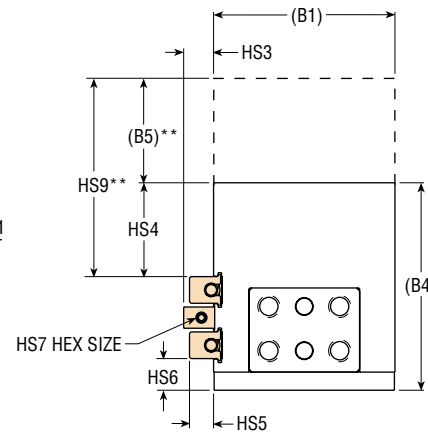
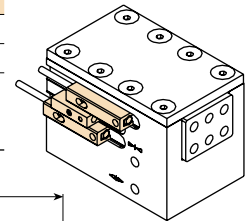
SWITCH MOUNTING KITS

| SIZE | 6790 & JC1SDx | | JC1STx |
|---------|---------------|-------------|-------------|
| | REED | SOLID STATE | SOLID STATE |
| 27 & 28 | 76108-27 | 76107-27 | 81831-27 |
| 32 | 76108-32 | 76107-32 | 81831-32 |
| 50 | 76108-50 | 76107-50 | 81831-50 |
| 63 | 76108-63 | 76107-63 | 81831-63 |

Each kit includes 1 target, 2 switch mounting brackets (1 for JC1STx), and fasteners for mounting. Switches sold separately.

TORQUE CHART

| SWITCH | TORQUE |
|--------|---|
| 6790 | 16 in-oz |
| JC1STx | 14 in-oz |
| JC1SDx | Hand tighten clockwise until switch is securely retained. Do not overtighten. |



| LETTER DIM | SIZE | | | | | | | | | |
|------------|-------|------|-------|------|-------|------|--------|------|--------|------|
| | 27 | | 28 | | 32 | | 50 | | 63 | |
| | in | mm | in | mm | in | mm | in | mm | in | mm |
| HS2* | .197 | 5.0 | .040 | 1.0 | .040 | 1.0 | .560 | 14.2 | 1.298 | 33.0 |
| HS3 | .236 | 6.0 | .236 | 6.0 | .266 | 6.8 | .236 | 6.0 | .236 | 6.0 |
| HS4 | .315 | 8.0 | .483 | 12.3 | .835 | 21.2 | 1.194 | 30.3 | 1.707 | 43.4 |
| HS5 | .246 | 6.2 | .246 | 6.2 | .214 | 5.4 | .296 | 7.5 | .236 | 6.0 |
| HS6 | .084 | 2.1 | .185 | 4.7 | .282 | 7.2 | .325 | 8.3 | 1.032 | 26.2 |
| HS7 HEX | .051 | 1.3 | .051 | 1.3 | .051 | 1.3 | .061 | 1.5 | .061 | 1.5 |
| HS9** | .925 | 23.5 | 1.093 | 27.8 | 1.740 | 44.2 | 2.355 | 59.8 | 3.006 | 76.4 |
| (B1) | 1.378 | 35.0 | 1.496 | 38.0 | 1.614 | 41.0 | 2.283 | 58.0 | 2.953 | 75.0 |
| (B4) | 1.130 | 28.7 | 1.395 | 35.4 | 1.847 | 46.9 | 2.438 | 61.9 | 3.648 | 92.7 |
| (B5)** | .6100 | 15.5 | .6100 | 15.5 | .9054 | 23.0 | 1.1614 | 29.5 | 1.2993 | 33.0 |

NOTES:

- * INDICATES END OF SWITCH BRACKET, DOES NOT INCLUDE CABLE
- FOR JC1STK, SWITCHES ARE ROTATED 90°; LED FACES UP
- SEE SWITCHES AND SENSORS SECTION FOR ADDITIONAL SWITCH INFORMATION AND COMPLETE SPECIFICATION.
- ** APPLIES TO SPRING ASSIST UNITS ONLY