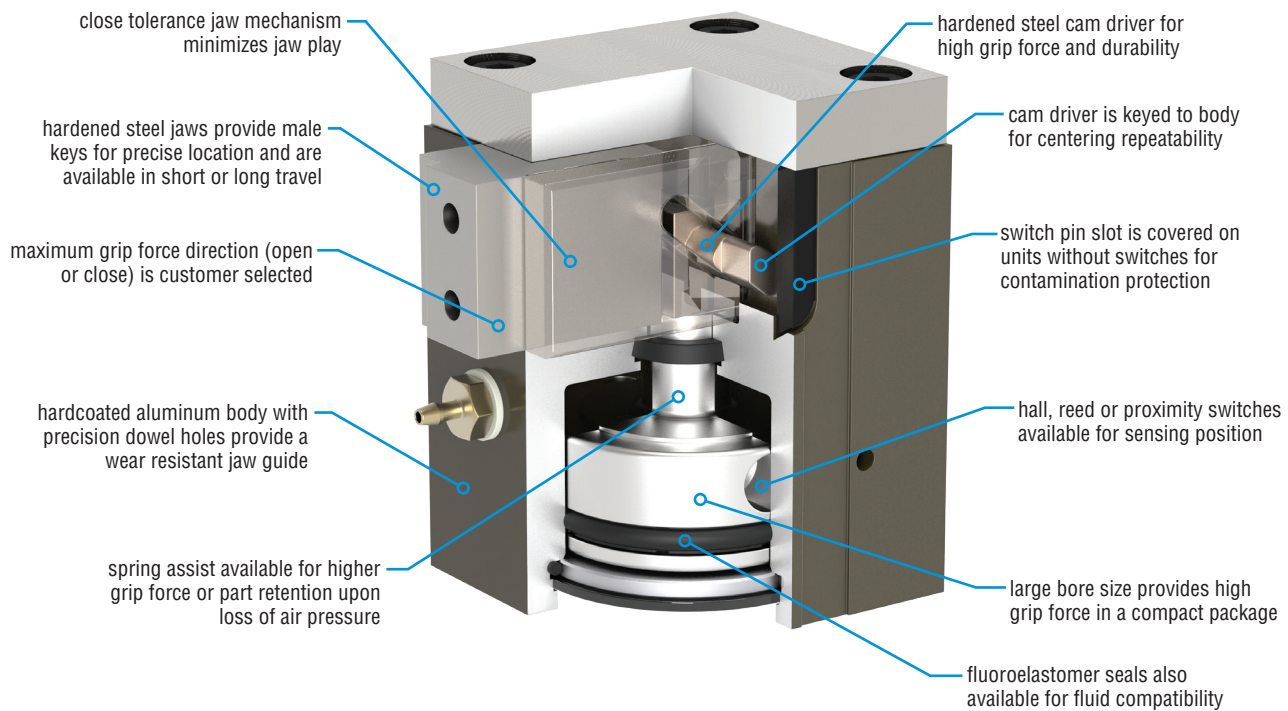


GRD

Major Benefits

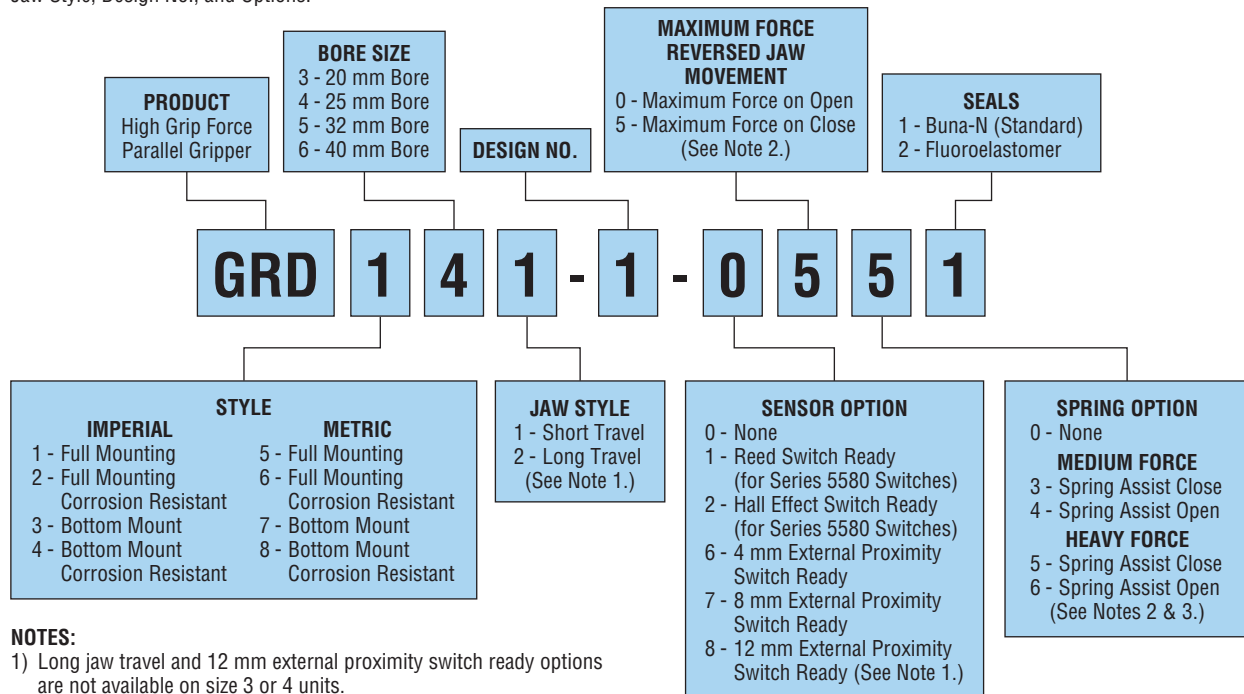
- High grip force to weight ratio
- Compact size
- Two body styles with a total of four sizes available in both imperial and metric versions
- Spring assist on open or close available in two different forces
- 10 million cycles minimum rated life with standard seals (includes spring assist units)



ORDERING DATA: Series GRD Grippers

TO ORDER SPECIFY:

Product Type, Series, Type, Style, Size, Jaw Style, Design No., and Options.



NOTES:

- 1) Long jaw travel and 12 mm external proximity switch ready options are not available on size 3 or 4 units.
- 2) Spring assist available in same direction as maximum force movement only (-x04x, -x06x, -x53x, -x55x). See option pages.
- 3) Spring assist options (-xx3x, -xx4x, -xx5x & -xx6x) are available with full mounting style units only. See page 43 for dimensional changes (GRD1xx, GRD2xx, GRD5xx & GRD6xx).
- 4) All switches and kits must be ordered separately.



Options may affect unit length. See dimensional pages and option information details.

4 mm ROUND INDUCTIVE PROXIMITY SWITCHES

| PART NO. | DESCRIPTION |
|--------------|----------------------------|
| 18430-001-02 | NPN (Sink) 2 meter cable |
| 18430-002-02 | PNP (Source) 2 meter cable |

8 mm THREADED PROXIMITY SWITCHES

| PART NO. | DESCRIPTION |
|--------------|----------------------------|
| 51422-005-02 | NPN (Sink) 2 meter cable |
| 51422-006-02 | PNP (Source) 2 meter cable |

| PART NO. | DESCRIPTION |
|----------|---------------------|
| 61494 | Switch Mounting Kit |

Each mounting kit contains 1 proximity switch bracket and 1 mounting screw.

5580 SWITCH REPLACEMENT CHART

| SWITCH KIT NUMBER | REPLACEMENT KIT INCLUDES | JC1 SWITCH DESCRIPTION |
|-------------------|------------------------------|---|
| 55802-1-02 | JC1RDU-5 switch with adaptor | PNP or NPN DC Reed, 5 meter cable |
| 55822-1 | JC1RDU-K switch with adaptor | PNP or NPN DC Reed, Quick Connect |
| 55803-1-02 | JC1HDN-5 switch with adaptor | NPN (Sink), Radial Sensing, 5 meter cable |
| 55823-1 | JC1HDN-K switch with adaptor | NPN (Sink), Radial Sensing, Quick Connect |
| 55804-1-02 | JC1HDP-5 switch with adaptor | PNP (Source), Radial Sensing, 5 meter cable |
| 55824-1 | JC1HDP-K switch with adaptor | PNP (Source), Radial Sensing, Quick Connect |

For additional switch information, go to phdinc.com.

CORDSETS

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

Cordsets are ordered separately.

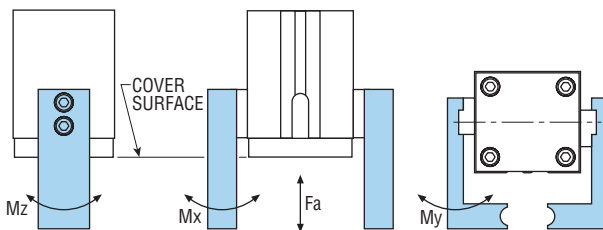
CAD & Sizing Assistance

Use PHD's free online Product Sizing and CAD Configurator at phdinc.com/myphd

| SPECIFICATIONS | SERIES GRD |
|---------------------------|---|
| OPERATING PRESSURE | |
| STANDARD UNIT | 30 psi min to 100 psi max [2 bar min to 7 bar max] air |
| MEDIUM SPRING ASSIST UNIT | 60 psi min to 100 psi max [4 bar min to 7 bar max] air |
| HEAVY SPRING ASSIST UNIT | 72 psi min to 100 psi max [5 bar min to 7 bar max] air |
| OPERATING TEMPERATURE | -20°F to +180°F [-28°C to +82°C] |
| RATED LIFE | 10 million cycles minimum with standard seals (including spring assist units) |
| GRIP REPEATABILITY | Within ±0.002 in [±0.05 mm] of original position |
| CYCLE TIME | See tables below |
| LUBRICATION | Factory lubricated for rated life |
| MAINTENANCE | Field repairable |

| MODEL NO. | MINIMUM TOTAL JAW TRAVEL | | TOTAL GRIP FORCE AT 87 psi [6 bar] | | GRIPPER WEIGHT | | CLOSE OR OPEN TIME 87 psi [6 bar] | | MINIMUM OPERATING PRESSURE | | DISPLACEMENT | | GRIP FORCE FACTOR G _F | | | |
|-----------|--------------------------|-------|------------------------------------|-----|----------------|------|-----------------------------------|--|----------------------------|-----|-----------------|-----------------|----------------------------------|--------|-------------------|--------|
| | | | | | | | | | | | | | MAXIMUM DIRECTION | | MINIMUM DIRECTION | |
| | in | mm | lb | N | lb | kg | sec | | psi | bar | in ³ | cm ³ | IMPERIAL | METRIC | IMPERIAL | METRIC |
| GRDx31 | 0.147 | 3.75 | 33 | 147 | 0.25 | 0.11 | 0.02 | | 30 | 2 | 0.07 | 1 | 0.38 | 24.5 | 0.33 | 21.3 |
| GRDx41 | 0.294 | 7.5 | 40 | 178 | 0.38 | 0.17 | 0.02 | | 30 | 2 | 0.12 | 2 | 0.46 | 29.7 | 0.42 | 27.1 |
| GRDx51 | 0.275 | 7.0 | 87 | 387 | 0.66 | 0.30 | 0.04 | | 30 | 2 | 0.25 | 4 | 1.00 | 64.5 | 0.90 | 58.1 |
| GRDx52 | 0.462 | 11.75 | 54 | 240 | 0.72 | 0.33 | 0.04 | | 30 | 2 | 0.25 | 4 | 0.62 | 40.0 | 0.55 | 35.5 |
| GRDx61 | 0.383 | 9.75 | 136 | 604 | 1.41 | 0.64 | 0.06 | | 30 | 2 | 0.54 | 9 | 1.56 | 100.6 | 1.42 | 91.6 |
| GRDx62 | 0.659 | 16.75 | 91 | 406 | 1.56 | 0.71 | 0.06 | | 30 | 2 | 0.54 | 9 | 1.05 | 67.7 | 0.95 | 61.3 |

| MODEL NO. | HEAVY SPRING | | | | | | | MEDIUM SPRING | | | | | | |
|-----------|--|-----|-------------------|------|---|----------------|----------------|--|-----|-------------------|------|---|----------------|----------------|
| | S _F SPRING GRIP FORCE | | GRIPPER WEIGHT | | CLOSE OR OPEN TIME 87 psi [6 bar] IN sec | | | S _F SPRING GRIP FORCE | | GRIPPER WEIGHT | | CLOSE OR OPEN TIME 87 psi [6 bar] IN sec | | |
| | | | | | AGAINST SPRING | WITH SPRING | SPRING ONLY | | | | | AGAINST SPRING | WITH SPRING | SPRING ONLY |
| | lb | N | lb | kg | | | | lb | N | lb | kg | | | |
| GRDx31 | 15 | 67 | 0.34 | 0.16 | 0.03 | 0.02 | 0.03 | 12 | 55 | 0.33 | 0.15 | 0.03 | 0.02 | 0.04 |
| GRDx41 | 20 | 87 | 0.54 | 0.25 | 0.03 | 0.02 | 0.03 | 16 | 71 | 0.53 | 0.24 | 0.03 | 0.02 | 0.04 |
| GRDx51 | 42 | 187 | 0.97 | 0.44 | 0.06 | 0.03 | 0.05 | 35 | 155 | 0.94 | 0.43 | 0.05 | 0.04 | 0.07 |
| GRDx52 | 26 | 117 | 1.03 | 0.47 | 0.06 | 0.03 | 0.05 | 22 | 96 | 1.00 | 0.45 | 0.05 | 0.04 | 0.07 |
| GRDx61 | 66 | 294 | 2.03 | 0.92 | 0.10 | 0.05 | 0.08 | 55 | 242 | 1.98 | 0.90 | 0.08 | 0.06 | 0.10 |
| GRDx62 | 44 | 196 | 2.19 | 0.99 | 0.10 | 0.05 | 0.08 | 37 | 163 | 2.14 | 0.97 | 0.08 | 0.06 | 0.10 |



MAX. ALLOWABLE FORCES & MOMENTS ON GRIPPER JAWS

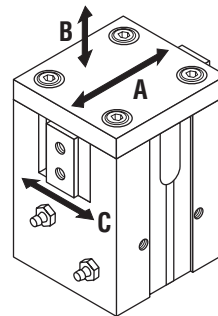
| MODEL NO. | Fa | | Mx | | My | | Mz | |
|-----------|-----|------|-------|----|-------|----|-------|----|
| | lb | N | in-lb | Nm | in-lb | Nm | in-lb | Nm |
| GRDx31 | 109 | 485 | 64 | 7 | 68 | 8 | 52 | 6 |
| GRDx41 | 107 | 476 | 86 | 10 | 68 | 8 | 52 | 6 |
| GRDx5x | 213 | 947 | 230 | 26 | 168 | 19 | 138 | 16 |
| GRDx6x | 320 | 1423 | 437 | 49 | 281 | 32 | 336 | 38 |

Fa: Total for both jaws

Mx: Per jaw, with moments from cover surface

My: Per jaw, with moments from center of gripper

Mz: Per jaw, with moments from cover surface, tooling keyed to jaw



BACKLASH

Jaw backlash in the (A) direction will not exceed 0.005 in [0.127 mm] per jaw.

Total clearance between the parallel jaws and the gripper body or cover will not exceed the following figures:
(B) 0.0025 in [0.064 mm]
(C) 0.003 in [0.076 mm]

Application & Sizing Assistance

Use PHD's free online Product Sizing and Application at www.phdinc.com/apps/sizing