PNEUMATIC GRIPPERS
PARALLEL JAWS DIRECTCONNECT™ MODULAR SERIES

DPG Series

- Grippers Can be Mounted and Operated in Any Orientation
- Up to 5 million Cycles in Typical Life Cycle
- Temperature Operating Range -35 to 80°C (-30 to 180°F)
- Non-Synchronous and Single Jaw Motion
- Repeatability and Accuracy of ±0.05 mm (±0.002")
- Highly Configurable Modular Automation
- Multiply Pneumatic Air Port Locations
- Operates Under Pressure Range of 3 to 7 Bar (40 to 100 psi)
- System Requires Air Filtration of 40 Micron or Better
- 4 Way, 2 Position Valve Required
- Gripper Finger Tooling is Customer Responsibility
- Available in Spring Open or Spring Closed Configuration

DPG-10M-4 shown smaller than actual size.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QUANTITY</th>
<th>NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>1</td>
<td>Body</td>
</tr>
<tr>
<td>02</td>
<td>2</td>
<td>Jaw</td>
</tr>
<tr>
<td>03</td>
<td>2</td>
<td>Cap</td>
</tr>
<tr>
<td>04</td>
<td>2</td>
<td>Piston</td>
</tr>
<tr>
<td>05</td>
<td>2</td>
<td>Drive Pin</td>
</tr>
<tr>
<td>06</td>
<td>2</td>
<td>Synchronizing Bar</td>
</tr>
<tr>
<td>07</td>
<td>1</td>
<td>Equalizer</td>
</tr>
<tr>
<td>09</td>
<td>1</td>
<td>Pivot Pin</td>
</tr>
<tr>
<td>10</td>
<td>2</td>
<td>Set Screw—Drive Pin Access Plug (-LF and -RF options only)</td>
</tr>
<tr>
<td>11</td>
<td>1</td>
<td>Set Screw—Plug</td>
</tr>
</tbody>
</table>
**PRODUCT FEATURES**

**Hard Coat Anodize**
The body and jaws have hard-coat anodize 60RC with PTFE impregnation.

**Sensor Mounting Slots**
Standard mounting slots for magneto resistive and inductive sensors (sensors sold separately).

**Sensor Targets**
Magnets come standard in pistons for magneto resistive sensors. Four inductive sensor targets on sides of jaws.

**Dowel Holes**
Slip fit dowel pin holes in body and jaws.

**Shielded Design**
Shielded design repels contaminants.

**Extremely Compact and Robust Design**

**Self-Lubricating Seals**
Self-lubricating dynamic seals (Buna-N only).

**High Temperature**
Optional Viton® seals are available for high temperature applications.

**Multiple Air Port Locations**
3 standard airport locations (front and both sides). Optional top airports available.

**One Piece Body**
One piece lightweight aircraft quality aluminum body.

**Sensor Targets**
Magnets come standard in pistons for magneto resistive sensors. Four inductive sensor targets on sides of jaws.

**Dowel Holes**
Slip fit dowel pin holes in body and jaws.

**Shielded Design**
Shielded design repels contaminants.

**Extremely Compact and Robust Design**

**Self-Lubricating Seals**
Self-lubricating dynamic seals (Buna-N only).

**Multiple Air Port Locations**
3 standard airport locations (front and both sides). Optional top airports available.

**One Piece Body**
One piece lightweight aircraft quality aluminum body.

**Sensor Targets**
Magnets come standard in pistons for magneto resistive sensors. Four inductive sensor targets on sides of jaws.

**Dowel Holes**
Slip fit dowel pin holes in body and jaws.

**Shielded Design**
Shielded design repels contaminants.

**Extremely Compact and Robust Design**

**Self-Lubricating Seals**
Self-lubricating dynamic seals (Buna-N only).

**Multiple Sensor Capabilities**
Capable of sensing both jaws in the open and closed positions (up to 4 sensors can be used for multi-position sensing).

**Optional Features**
- Top air ports eliminating the need for airlines
- Fixed jaw configurations
- Spring assist for open or close stroke
- Non-synchronous version

**OPERATING PRINCIPLE**

- **Pivot pin**
- **Piston**
- **Cap**
- **Body**
- **Equalizer**
- **Drive pin**
- **Jaw**
- **Synchronizing bar**
- **Pressure**
- **Exhaust**

- **Open position**
- **Closed position**

- **Dual Double Acting Opposed Pistons, Connected to Both a Jaw and a Synchronizing Bar by a Drive Pin, Actuate in Opposite Directions**
- **The Synchronizing Bars are Connected to the Equalizer which Synchronizes the Motion**
- **Suitable for Internal or External Gripping**
- **The Synchronizing Elements Can Be Removed for Non-Synchronous Operation**

**DPG-10M PARALLEL GRIPPERS**

**SIZE “-1”**
- Style: DPG-10M-1
- Stroke: 6.4 mm (0.25”)
- Grip Force: 222 N (50 lb)
- Weight: 0.17 kg (0.39 lb)

**SIZE “-2”**
- Style: DPG-10M-2
- Stroke: 12.7 mm (0.50”)
- Grip Force: 222 N (50 lb)
- Weight: 0.24 kg (0.53 lb)

**SIZE “-3”**
- Style: DPG-10M-3
- Stroke: 19.1 mm (0.75”)
- Grip Force: 222 N (50 lb)
- Weight: 0.30 kg (0.68 lb)

**SIZE “-4”**
- Style: DPG-10M-4
- Stroke: 25.4 mm (1.00”)
- Grip Force: 222 N (50 lb)
- Weight: 0.36 kg (0.81 lb)
**Failsafe Valve**
- Used in Applications Where it is Critical that the Part Being Gripped Not be Dropped if Air Pressure is Lost
- Mounts Directly to Gripper
- M5 Air Port

**Flow Controls**
- Thumb Screw Adjust with Locking Nut for Adjusting Actuation Time
- Available for 5 mm (0.2") OD Tubing

**Sensors**
- Choose from Magneto Resistive and Inductive Prox
- Capable of Sensing 4 Positions Open and Closed on Both Jaws
- PNP and NPN Available
- Magneto Resistive Sensors are Slot Mounted, No Mounting Kits Required
- Threaded Quick Disconnect with Built-In LED Output
- Sensors Mount on Either Side of Gripper

**Multiple Air Port Locations**
- 3 Standard Air Port Locations (Front and Both Sides)
- Optional Top Ports are Tapped for M3 Fittings
- Consult Factory for Plumbing Fitting Part Numbers
Installation
Magneto Resistive Sensors
1) Install sensors (#34) in profile slots of gripper body as shown
2) Set sensors with integrated screw

Inductive Sensors
1) Insert sensor bracket (#30) into slot of body (#1)
2) Insert sensor (#35) into bracket (#30) and adjust sensor depth so that sensor light indicates on target
3) Tighten sensor locking screw (#31) to hold sensor depth
4) Position sensor bracket for desired stroke detection
5) Tighten sensor bracket with setscrew (#32)

Assembly Procedure
(See next page)
1) Lubricate body
2) Plug cross ports in body
3) Press pivot pin into body
4) Insert magnets into pistons making sure magnets attract to each other
5) Lubricate and install seals onto pistons
6) Insert pistons into body aligning drive pin hole in pistons with the drive pin hole in the body
7) Press pins into equalizer
8) Assemble equalizer with synchronizing bars and place onto pivot pin in body making sure holes in synchronizing bars line up with holes in pistons
9) From top body mounting surface insert drive pins through the pistons and into the synchronizing bars making sure not to go through the synchronizing bars
10) Place jaws into body aligning the drive pins with the hole in the jaws
11) Press drive pins into jaws
12) Install drive pin plugs into body
13) Place seals onto caps and install with retaining rings

Non-Synchronous Procedure
1) Remove drive pin plugs
2) Press drive pins out of body from jaw side
3) Remove jaws from body
4) Remove equalizer and synchronizing bars from body
5) Re-install jaws into body aligning the drive pin with the hole in the jaws
6) Press drive pins into jaws
7) Re-install drive pin plugs into body
**To Order**

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>DESCRIPTION</th>
<th>STROKE</th>
<th>GRIP FORCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPG-10M-1</td>
<td>Gripper size 1 open</td>
<td>6.4 mm (0.25&quot;)</td>
<td>222 N (50 lb)</td>
</tr>
<tr>
<td>DPG-10M-1-C</td>
<td>Gripper size 1 closed</td>
<td>6.4 mm (0.25&quot;)</td>
<td>222 N (50 lb)</td>
</tr>
<tr>
<td>DPG-10M-2</td>
<td>Gripper size 2 open</td>
<td>12.7 mm (0.50&quot;)</td>
<td>222 N (50 lb)</td>
</tr>
<tr>
<td>DPG-10M-2-C</td>
<td>Gripper size 2 closed</td>
<td>12.7 mm (0.50&quot;)</td>
<td>222 N (50 lb)</td>
</tr>
<tr>
<td>DPG-10M-3</td>
<td>Gripper size 3 open</td>
<td>19.1 mm (0.75&quot;)</td>
<td>222 N (50 lb)</td>
</tr>
<tr>
<td>DPG-10M-3-C</td>
<td>Gripper size 3 closed</td>
<td>19.1 mm (0.75&quot;)</td>
<td>222 N (50 lb)</td>
</tr>
<tr>
<td>DPG-10M-4</td>
<td>Gripper size 4 open</td>
<td>25.4 mm (1.00&quot;)</td>
<td>222 N (50 lb)</td>
</tr>
<tr>
<td>DPG-10M-4-C</td>
<td>Gripper size 4 closed</td>
<td>25.4 mm (1.00&quot;)</td>
<td>222 N (50 lb)</td>
</tr>
</tbody>
</table>

Add suffix “-C” to model number if requesting spring closed configuration.

**Ordering Example:** DPG-10M-2-C, gripper, size 2, spring closed configuration. DPG-10M-2, gripper, size 2, spring open configuration.

**Sensor Accessories**

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>DESCRIPTION</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSMK-097</td>
<td>Inductive sensor mounting kit mounts 2 sensors</td>
<td>1 or 2</td>
</tr>
<tr>
<td>OISN-019</td>
<td>NPN inductive sensor with quick disconnect*</td>
<td>1, 2, 3 or 4</td>
</tr>
<tr>
<td>OISP-019</td>
<td>PNP inductive sensor with quick disconnect*</td>
<td>1, 2, 3 or 4</td>
</tr>
<tr>
<td>OHSN-017</td>
<td>NPN magneto resistive sensor with quick disconnect*</td>
<td>1, 2, 3 or 4</td>
</tr>
<tr>
<td>OHSP-017</td>
<td>PNP magneto resistive sensor with quick disconnect*</td>
<td>1, 2, 3 or 4</td>
</tr>
<tr>
<td>OHSN-011</td>
<td>NPN magneto resistive sensor (90°) with quick disconnect*</td>
<td>1, 2, 3 or 4</td>
</tr>
<tr>
<td>OHSP-011</td>
<td>PNP magneto resistive sensor (90°) with quick disconnect*</td>
<td>1, 2, 3 or 4</td>
</tr>
<tr>
<td>CABL-010</td>
<td>Quick disconnect cable [2 m (6.6’) long]*</td>
<td>1, 2, 3 or 4</td>
</tr>
<tr>
<td>CABL-013</td>
<td>Quick disconnect cable [5 m (16’) long]*</td>
<td>1, 2, 3 or 4</td>
</tr>
<tr>
<td>CABL-015</td>
<td>Quick disconnect extension cable [1 m (3’) long]*</td>
<td>1, 2, 3 or 4</td>
</tr>
<tr>
<td>CABL-016</td>
<td>Quick disconnect extension cable [2 m (6.6’) long]*</td>
<td>1, 2, 3 or 4</td>
</tr>
</tbody>
</table>

*Sensor and cable sold separately.

**Pneumatic Accessories**

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>DESCRIPTION</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFSV-004</td>
<td>Fail safe valve</td>
<td>1</td>
</tr>
<tr>
<td>VLVF-008</td>
<td>Flow control</td>
<td>1 or 2</td>
</tr>
<tr>
<td>SLKT-184V</td>
<td>Top port manifold seal</td>
<td>1</td>
</tr>
</tbody>
</table>

**Ordering Example:** DPG-10M-4-C, gripper, size 4, closed grip configuration. 2 OISP-019, PNP inductive sensors, quick disconnect, and 2 CABL-010, quick disconnect 2 m (6.6’) cables.