FKHC Series
High Closing Force Angular Grippers

Features
1. Magnetic piston is standard feature.
2. Unique design includes the use of a second moveable part (piston), applying additional force to the gripper jaw when pressurized to close.
3. Compact design makes grippers ideal for handling small parts in confined areas.
4. Gripper body is hardcoated aluminum ensuring abrasion and corrosion resistance.
5. Adjustable needle valve to control speed of jaw motion.

Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>FKHC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action</td>
<td>Double acting</td>
</tr>
<tr>
<td>Bore (mm)</td>
<td>ø10</td>
</tr>
<tr>
<td>Media</td>
<td>Compressed air</td>
</tr>
<tr>
<td>Min. operating pressure</td>
<td>30 psi</td>
</tr>
<tr>
<td>Max. operating pressure</td>
<td>0.6 MPa (6 kgf/cm²) 87 psi</td>
</tr>
<tr>
<td>Ambient &amp; media temperature</td>
<td>–10°C(14°F) ~ +60°C(140°F)</td>
</tr>
<tr>
<td>Lubrication</td>
<td>None required or use ISO VG32</td>
</tr>
<tr>
<td>Port size</td>
<td>M3x0.5</td>
</tr>
<tr>
<td>Opening</td>
<td>–10° to 30°</td>
</tr>
<tr>
<td>Effective gripping force (lbf)*</td>
<td>1.1</td>
</tr>
<tr>
<td>Weight g (ounce)</td>
<td>39(1.37)</td>
</tr>
</tbody>
</table>

How to Order
Please order sensors and female cordsets separately. See selection guide below.

<table>
<thead>
<tr>
<th>FKHC</th>
<th>16</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series</td>
<td>Bore</td>
<td>Action</td>
</tr>
<tr>
<td>ø10</td>
<td>D</td>
<td>Double acting</td>
</tr>
<tr>
<td>ø16</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ø20</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ø25</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

*Note: Grip force at 72 psi and gripping point 20mm from jaw pivot. See page 2 holding force charts.

Sensors

9G49 Sensors
9C49 Sensors

Cordsets

9G49 Sensor Selection Guide for all bore sizes ø10 ~ ø25

<table>
<thead>
<tr>
<th>Sensor Type</th>
<th>Electrical Characteristics</th>
<th>Part No.</th>
<th>Leadwire</th>
<th>Quick Disconnect*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reed (LED)</td>
<td>5-120 VDC/VAC, 0.03 Amp max, 0.005 Amp min, 4 Watt max., 2.0 voltage drop</td>
<td>9G49-000-002</td>
<td>-</td>
<td>9G49-000-302</td>
</tr>
<tr>
<td>Electronic (LED)</td>
<td>Sourcing PNP 5-28 VDC, 0.20 Amp max current, 0.5 voltage drop</td>
<td>9G49-000-031</td>
<td>-</td>
<td>9G49-000-331</td>
</tr>
<tr>
<td>Electronic (LED)</td>
<td>Sinking NPN 5-28 VDC, 0.20 Amp max current, 0.5 voltage drop</td>
<td>9G49-000-003</td>
<td>-</td>
<td>9G49-000-332</td>
</tr>
</tbody>
</table>

9C49 Sensor Selection Guide for bore sizes ø16 ~ ø25

<table>
<thead>
<tr>
<th>Sensor Type</th>
<th>Electrical Characteristics</th>
<th>Part No.</th>
<th>Leadwire</th>
<th>Quick Disconnect*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reed (LED)</td>
<td>5-120 VDC/VAC, 0.04 Amp max, 0.005 Amp min current, 4 Watt max., 2.5 voltage drop</td>
<td>9C49-000-002</td>
<td>-</td>
<td>9C49-000-302</td>
</tr>
<tr>
<td>Electronic (LED)</td>
<td>Sourcing PNP 6-30 VDC, 0.2 Amp max current, 6 Watt max., 1.5 voltage drop</td>
<td>9C49-000-003</td>
<td>-</td>
<td>9C49-000-331</td>
</tr>
<tr>
<td>Electronic (LED)</td>
<td>Sinking NPN 6-30 VDC, 0.2 Amp max current, 6 Watt max., 1.5 voltage drop</td>
<td>9C49-000-003</td>
<td>-</td>
<td>9C49-000-332</td>
</tr>
</tbody>
</table>

*Note: All quick disconnect style sensors are supplied with 6 inch pigtail with male connector.
Effective holding forces on external workpiece surfaces.

- Work holding point should be within the range indicated in the graphs at the right.

Selecting the proper gripper considering component weight
- Selection of the correct model depends upon the component weight, the coefficient of friction between the finger attachment and the component, and respective configurations. A model should be selected with a holding force of 10 to 20 times that of the component weight.
- If high acceleration, deceleration or impact forces are encountered during component transfer, a further margin of safety should be considered.

Effective holding force
- The holding force shown in the tables represents the holding force of one finger when all fingers and attachments are in contact with the work. F = one finger thrust as shown below.

Conversions
- \( \text{lb} = \text{N} \times 0.454\text{lb}f\)  
- \( \text{psi} = \frac{\text{lb}f}{\text{in}^2} \)
- \( \text{psi} = \frac{\text{N}}{\text{mm}^2} \)
- \( \text{psi} = \frac{\text{N}}{\text{cm}^2} \)

 FKHC-10D

 FKHC-16D

 FKHC-20D

 FKHC-25D
FKHC Series
Gripper Dimensions (mm)

**FKHC-10D**
- 2-M3 x 0.5 dp 6 Mounting hole
- 11.4
- 2 - mounting slots for 9G49 sensors
- 5.4
- 23.8
- 4.3
- 6.3
- 6.4 +0.1
- for attachment
- 10.4
- M3 x 0.5 Closing port
- 6.2
- Opening port
- 7.2
- Adjusting screw for finger speed

**FKHC-16D**
- 2-M4 x 0.7 dp 6.5 Mounting hole
- 11.7
- 2 - mounting slots for 9G49 sensors
- 8 +0 -0.1
- for attachment
- 13
- M5 x 0.8 Closing port
- 7
- Opening port
- 18.5
- Adjusting screw for finger speed

**FKHC-20D**
- 2-M5 x 0.8 dp 10 Mounting hole
- 15.7
- 4 - mounting slots for 9G49 sensors
- 5.2
- 20
- 4.3
- 6.3
- 6.4 +0.1
- for attachment
- 18.6
- M5 x 0.8 Closing port
- 6.3
- Opening port
- 21.7
- Adjusting screw for finger speed

**FKHC-25D**
- 2-M6 x 1 dp 10 Mounting hole
- 19.3
- 4 - mounting slots for 9G49 sensors
- 8 +0 -0.1
- for attachment
- 22
- M6 x 1 dp 12 Mounting hole
- 8
- 4.6
- 25.8
- 60.4
- 6.3
- Note: Thru-hole mounting is not possible when using the sensor in the 6.3mm wide mounting slots.

Note: Thru-hole mounting is not possible when using the sensor in the 6.3mm wide mounting slots.
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  - Catalog # PNL2-2

- **Square Pancake® II Air Cylinders**
  - Catalog # SQPNL2

- **ISO 6431 Cylinders**
  - Catalog # FAQR-09

- **ISO 6432 Cylinders**
  - Catalog # FAE-09

- **Air Table Slides**
  - Catalog # FGXS-10

- **Rotary Actuators, Pneumatic**
  - Catalog # FRA.C-09

- **Toggle Type Angular Grippers**
  - Catalog # FKHL-10

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  - Catalog # FDF-09 and Catalog # FDXS-09

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- **Multi-Power® Air Presses**
  - Catalog # FP16

- **Linear Slides - 6 Families**
  - Catalog # LS-03

- **Pneumatic Grippers, Parallel Jaw and Angular Motion**
  - Catalog # GR-08

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  - Catalog # FAE-09

- **Parallel Grippers**
  - Catalog # FKHO-10 and Catalog # FKHZ-10

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  - Catalog # NF-6

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  - Catalog # GC-15

- **Stopper Cylinders**
  - Catalog # ST-SC

- **NFPA Air Cylinders**

- **Pneumatic & Hydraulic Swing Clamps**
  - Catalog # FML.H

- **FKH® Swing Clamps**
  - Catalog # FML.H

- **Square Pancake® II Air Cylinders**
  - Catalog # SQPNL2

- **Stainless Steel Body Air Cylinders**
  - Catalog # SS3B-03

- **Swing Clamps**
  - Catalog # SC-D804

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  - Catalog # FRL-06

- **F-Series Air Cylinders**

- **Pneumatic Swing Clamps**
  - Catalog # SC-D804

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