Features

1. Grippers are ideal for heavy workpieces.
2. A toggle mechanism holds workpiece securely even when pressure drops.
3. Magnetic piston is standard feature.
4. Adding optional sensors enables "open" and "close" position sensing.
5. Gripper body is hardcoated aluminum ensuring abrasion and corrosion resistance.
6. No extra lubrication required.
7. Tapped mounting holes on 5 surfaces.

Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>FKHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action</td>
<td>Double acting</td>
</tr>
<tr>
<td>Bore (mm)</td>
<td>ø32 ø40 ø50 ø63</td>
</tr>
<tr>
<td>Media</td>
<td>Compressed air</td>
</tr>
<tr>
<td>Min. operating pressure</td>
<td>15 psi</td>
</tr>
<tr>
<td>Max. operating pressure</td>
<td>0.7 MPa (7 kgf/cm²) 100 psi</td>
</tr>
<tr>
<td>Ambient &amp; media temperature</td>
<td>5°C (41°F) ~ +60°C (140°F) Use filtered dry air</td>
</tr>
<tr>
<td>Lubrication</td>
<td>None required or use ISO VG32</td>
</tr>
<tr>
<td>Opening</td>
<td>-3° to 28° -2° to 27° -2° to 23° -2° to 23°</td>
</tr>
<tr>
<td>*Effective grip force (lbf)</td>
<td>22 (L=100mm) 44 (L=120mm) 67 (L=150mm) 89 (L=180mm)</td>
</tr>
<tr>
<td>Weight kg (lb)</td>
<td>0.8(1.76) 1.09(2.4) 1.93(4.2) 2.8(6.2)</td>
</tr>
</tbody>
</table>

*Sensors*

9C49 style sensors feature surge suppression, polarity protection, LED indicator, and extremely fast switching speeds. They slide into mating 4mm keyhole slots on either side of the cylinder housing and are easily positioned and locked in place with a set screw. They are offered in two styles: a quick connect style with a six inch pigtail and male connector, or a pre-wired style with a 9 foot lead.

How to Order

Type 9C49 Sensors are used with FKHT toggle type grippers. Please order sensors and female cordsets separately from the selection guides below.

Sensors

9C49 Sensors

Sensor Selection Guide – Electrical Characteristics

<table>
<thead>
<tr>
<th>Sensor Type</th>
<th>Function</th>
<th>Switching Voltage</th>
<th>Switching Current</th>
<th>Switching Power</th>
<th>Switching Speed</th>
<th>Voltage Drop</th>
<th>Part Numbers and Prices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic LED and Sourcing</td>
<td>PNP Normally Open</td>
<td>6-30 VDC</td>
<td>0.2 Amp max.</td>
<td>6 Watts max.</td>
<td>1.5µs operate 0.5µs release</td>
<td>1.5 Volts</td>
<td>9C49-000-031 - 9C49-000-331 -</td>
</tr>
<tr>
<td>Electronic LED and Sourcing</td>
<td>NPN Normally Open</td>
<td>6-30 VDC</td>
<td>0.2 Amp max.</td>
<td>6 Watts max.</td>
<td>1.5µs operate 0.5µs release</td>
<td>1.5 Volts</td>
<td>9C49-000-032 - 9C49-000-332 -</td>
</tr>
</tbody>
</table>

All sensors feature surge suppression, polarity protection, LED indicator, and extremely fast switching speeds.

Fabco-Air, Inc. - 3716 N.E. 49th Avenue - Gainesville, FL 32609-1699
Telephone (352) 373-3578 - Fax (352) 375-8024 - E-Mail service@fabco-air.com
Web Site http://www.fabco-air.com
Effective Gripping Force on external workpiece surfaces

Workpiece gripping point should be within the range indicated in the graph.

The toggle mechanism works most effectively, and can hold a workpiece even if pressure drops, when the gripper fingers are closed to less than 0°.

**Warning**

If a workpiece is to be gripped by using the toggle, make sure to periodically check that the workpiece has not shifted during the acceleration of the movement. If the workpiece is not gripped in a stable manner, it could shift or drop and create a dangerous situation. If the workpiece is not gripped in a stable manner, use shims on the attachment to adjust the grip. To verify the gripping condition, or to make any adjustments, make sure to do so in an area where the gripper or the workpiece will not fall.

### Conversions:

- Where: $\text{lb}f = N \times 0.224$
- $0.4 \text{ MPa} = 58 \text{ psi}$
- $0.2 \text{ MPa} = 29 \text{ psi}$
- $0.6 \text{ MPa} = 87 \text{ psi}$
Sensor Installation

Detection Example

<table>
<thead>
<tr>
<th>Detection Combination</th>
<th>1. Confirmation of fingers in reset position</th>
<th>2. Confirmation of workpiece held</th>
<th>3. Confirmation of workpiece released</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation of sensor</td>
<td>Switch turned on when fingers return. (LED ON)</td>
<td>Switch turned on when gripping a workpiece. (LED ON)</td>
<td>When a workpiece is held (Normal operation): Switch to turn OFF (LED not illuminating) When workpiece is not held (Abnormal operation): Switch to turn ON (LED ON)</td>
</tr>
<tr>
<td>One sensor</td>
<td>Position of fingers fully open</td>
<td>Position when gripping workpiece</td>
<td>Position of fingers fully closed</td>
</tr>
<tr>
<td>Two sensors</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

How to determine sensor installation position

At no or low pressure, connect the sensor to a power supply and follow the directions.

Step 1
- Fully open the fingers
- Position fingers for gripping a workpiece
- Fully close the fingers

Step 2
- Insert the sensor into the mounting slot in the direction shown in the drawing.

Step 3
- Slide the sensor further in the direction shown in the drawing until LED illuminates.

Step 4
- Slide the sensor further until LED goes out.

Step 5
- Move the sensor in the opposite direction and fasten it at a position 0.3 to 0.5 mm beyond the point where indicator light illuminates.

Note: It is recommended that gripping a workpiece be performed close to the center of the finger stroke. Note 2) When holding a workpiece close to the end of open/close finger stroke, detecting performance of the combinations listed above may be limited, depending on sensor hysteresis, etc.

Recent new product catalogs from FABCO-AIR

- FKH Series Parallel Grippers
- FKHL Series Wide Parallel Jaw Grippers
- FKHQ Narrow Opening Parallel Grippers
- FKHZ Wide Opening Parallel Grippers
- FKHC Angular Motion High Force Grippers
- FKHC-10
- FKHL-10
- FKHQ-10
- FKHZ-10
- FKHC Angular Motion Catalog # FKHC-10
- FKHL Series Wide Parallel Jaw Grippers Catalog # FKHL-10
- FKHQ Narrow Opening Parallel Grippers Catalog # FKHQ-10
- FKHZ Wide Opening Parallel Grippers Catalog # FKHZ-10
- FKHA Angular Motion Catalog # FKHA-09
- FKHL Series Wide Parallel Jaw & Angular Motion Catalog # FKHL-10
- FKHQ Narrow Opening Parallel Grippers Catalog # FKHQ-10
- FKHZ Wide Opening Parallel Grippers Catalog # FKHZ-10
- Linear Slides 6 Families Catalog # LS-03
- Pneumatic Rotary Actuators Catalog # FRA.C-09