Check Valve
Series AK

Large flow capacity
Low cracking pressure: 0.02 MPa
A wide variation of models

JIS Symbol
IN  OUT

Port size
AK2000-01  ¼  25  105
AK2000-02  ¼  27.5  100
AK4000-02  ½  47  155
AK4000-03  ¾  85  150
AK4000-04  ½  95  140
AK6000-06  ¾  200  345
AK6000-10  1  230  315

Specifications
Fluid
Air
Proof pressure
1.5 MPa
Maximum operating pressure
1.0 MPa
Minimum operating pressure
0.02 MPa
Ambient and fluid temperature
–5 to 60°C (No freezing)

Flow Characteristics

How to Order
AK2000-01/-02
AK4000-03/-04
AK6000-06/-10

Approved

Courtesy of Steven Engineering, Inc.-230 Ryan Way, South San Francisco, CA 94080-6370-Main Office: (650) 588-9200-Outside Local Area: (800) 258-9200-www.stevenengineering.com
Check Valve  Series AK

Construction

<table>
<thead>
<tr>
<th>Model</th>
<th>Port size</th>
<th>L1</th>
<th>B</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>AK2000-01, 02</td>
<td>1/8, 1/4</td>
<td>50</td>
<td>25</td>
<td>22</td>
</tr>
<tr>
<td>AK4000-02, 03, 04</td>
<td>1/4, 3/8, 1/2</td>
<td>67</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>AK6000-06, 10</td>
<td>3/4, 1</td>
<td>95</td>
<td>50</td>
<td>50</td>
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Component Parts

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Body</td>
<td>Aluminum-die casted</td>
</tr>
<tr>
<td>2</td>
<td>Cover</td>
<td>Aluminum-die casted</td>
</tr>
</tbody>
</table>

Replacement Parts

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Material</th>
<th>Part no.</th>
</tr>
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<tbody>
<tr>
<td>3</td>
<td>Valve</td>
<td>POM</td>
<td>19033</td>
</tr>
<tr>
<td>4</td>
<td>Spring</td>
<td>Stainless steel</td>
<td>19037</td>
</tr>
<tr>
<td>5</td>
<td>O-ring</td>
<td>NBR</td>
<td>20 x 17 x 1.5</td>
</tr>
<tr>
<td>6</td>
<td>Ring</td>
<td>NBR</td>
<td>19016</td>
</tr>
<tr>
<td>7</td>
<td>Seat ring</td>
<td>Brass, NBR</td>
<td>19013</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>19023</td>
</tr>
</tbody>
</table>

Dimensions

Specific Product Precautions

Be sure to read before handling. Refer to front matters 58 and 59 for Safety Instructions and pages 412 to 414 for Flow Control Equipment Precautions.

Caution

1. Even when using with the specification range listed in the catalog, when the IN side of the check valve is throttled, it may fail to open all the way and may generate vibration.

2. The cracking pressure is the pressure when the valve begins to open, and not the pressure when the valve is fully open.
3 configurations provide design solutions based on the operating conditions.

- **Bushing type**
  - Can be used in applications with splashing coolant and spatter, etc.

- **Male connector type**
  - Can be used directly on equipment.

- **Straight type**
  - Easily installed in pipe lines.

- **Can be used for vacuum (−100 kPa)**

- **Compact & lightweight**
  - Outside diameter: ø11.6 mm
  - Overall length: 37.1 mm
  - Weight: 5 g
  - (for AKH06-00)

- **Valve**
  - Low cracking pressure: 0.005 MPa
  - Large effective area: 3 to 34 mm²

- **With One-touch fitting**
  - Reduces piping labor
  - Release bushing color
  - Metric size: White
  - Inch size: Orange

**Series AKH/AKB**

Courtesy of Steven Engineering, Inc. - 230 Ryan Way, South San Francisco, CA 94080-6370 - Main Office: (650) 588-9200 - Outside Local Area: (800) 258-9200 - www.stevenengineering.com
Bushing Type Check Valve with One-touch Fittings

Series AKH/AKB

How to Order

**Straight type**

| AKH | 04 - 00 |

**Male connector type**

| AKH | 04 - 01 S |

Applicable tubing O.D.

<table>
<thead>
<tr>
<th>Metric size</th>
<th>Inch size</th>
</tr>
</thead>
<tbody>
<tr>
<td>04</td>
<td>ø4/32</td>
</tr>
<tr>
<td>06</td>
<td>ø6/14</td>
</tr>
<tr>
<td>08</td>
<td>ø8/16</td>
</tr>
<tr>
<td>10</td>
<td>ø10/8</td>
</tr>
<tr>
<td>12</td>
<td>ø12/10</td>
</tr>
</tbody>
</table>

Check valve free flow direction

- **A** From male thread to One-touch fitting
- **B** From One-touch fitting to male thread

Thread type

- **Nil**
- **Unified thread (10-32 UNF)**
- **NPT**

Port size

<table>
<thead>
<tr>
<th>NPT thread</th>
<th>01/2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8</td>
<td></td>
</tr>
<tr>
<td>1/4</td>
<td></td>
</tr>
<tr>
<td>3/8</td>
<td></td>
</tr>
</tbody>
</table>

Applicable tubing O.D./Port Size Combinations

**Metric size**

<table>
<thead>
<tr>
<th>Model</th>
<th>Applicable tubing O.D.</th>
<th>R thread</th>
</tr>
</thead>
<tbody>
<tr>
<td>AKH04</td>
<td>ø4/32</td>
<td>ø4/32</td>
</tr>
<tr>
<td>AKH06</td>
<td>ø6/14</td>
<td>ø6/14</td>
</tr>
<tr>
<td>AKH08</td>
<td>ø8/16</td>
<td>ø8/16</td>
</tr>
<tr>
<td>AKH10</td>
<td>ø10/8</td>
<td>ø10/8</td>
</tr>
<tr>
<td>AKH12</td>
<td>ø12/10</td>
<td>ø12/10</td>
</tr>
</tbody>
</table>

**Inch size**

<table>
<thead>
<tr>
<th>Model</th>
<th>Applicable tubing O.D.</th>
<th>R thread</th>
</tr>
</thead>
<tbody>
<tr>
<td>AKH03</td>
<td>ø5/32</td>
<td>ø5/32</td>
</tr>
<tr>
<td>AKH07</td>
<td>ø5/16</td>
<td>ø5/16</td>
</tr>
<tr>
<td>AKH09</td>
<td>ø3/8</td>
<td>ø3/8</td>
</tr>
<tr>
<td>AKH11</td>
<td>ø1/2</td>
<td>ø1/2</td>
</tr>
</tbody>
</table>

With seal (Standard)

- **M5**
- **10-32 UNF**

**Body size**

| AKB | 01 A - 01 S |

**Check valve free flow direction**

- **A** From male to female thread
- **B** From female to male thread

Female/Male Threads Combinations

**R thread**

<table>
<thead>
<tr>
<th>Model</th>
<th>Female thread</th>
<th>Male thread</th>
<th>NPT thread</th>
</tr>
</thead>
<tbody>
<tr>
<td>AK01</td>
<td>1/8</td>
<td>1/8</td>
<td>1/8</td>
</tr>
<tr>
<td>AK02</td>
<td>1/8</td>
<td>1/4</td>
<td>1/4</td>
</tr>
<tr>
<td>AK03</td>
<td>3/8</td>
<td>3/8</td>
<td>3/8</td>
</tr>
<tr>
<td>AK04</td>
<td>1/2</td>
<td>1/2</td>
<td>1/2</td>
</tr>
</tbody>
</table>

Notice: M5 and 10-32 UNF types are not required.
### Specifications

<table>
<thead>
<tr>
<th></th>
<th>Air</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid</td>
<td></td>
</tr>
<tr>
<td>Proof pressure</td>
<td>1.5 MPa</td>
</tr>
<tr>
<td>Operating pressure range</td>
<td>−100 kPa to 1 MPa</td>
</tr>
<tr>
<td>Cracking pressure</td>
<td>0.005 MPa</td>
</tr>
<tr>
<td>Ambient temperature and operating fluid temperature</td>
<td>−5 to 60°C (No freezing)</td>
</tr>
<tr>
<td>Applicable tubing material (Note)</td>
<td>Nylon, Soft nylon, Polyurethane</td>
</tr>
</tbody>
</table>

Note: Use caution regarding the max. operating pressure when soft nylon or polyurethane tubing is used. (Refer to pages 371 and 372 for details.)

### Application Example for Bushing Type Check Valve with One-touch Fittings

#### Prevention of reverse flow to vacuum source *

(Simple vacuum holding)

#### Tank pressure reverse flow prevention

#### Drop prevention *

*A certain amount of leakage is allowed in the specifications of this product. Please note that it is not suitable for holding over an extended period of time.

### Specific Product Precautions

Be sure to read before handling. Refer to front matters 58 and 59 for Safety Instructions and pages 412 to 414 for Flow Control Equipment Precautions.

### Caution

1. Even when using with the specification range listed in the catalog, when the IN side of the check valve is throttled, it may fail to open all the way and may generate vibration.
2. The cracking pressure is the pressure when the valve begins to open, and not the pressure when the valve is fully open.
**Series AKH/AKB**

### Dimensions

**Straight type: AKH**

<table>
<thead>
<tr>
<th>Connection thread</th>
<th>Model</th>
<th>(d_D)</th>
<th>L</th>
<th>M</th>
<th>Effective area ((\text{mm}^2))</th>
<th>Mass (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>AKH04-00</td>
<td>9.3</td>
<td>33.5</td>
<td>12.7</td>
<td>2.8</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>AKH06-00</td>
<td>11.6</td>
<td>37.1</td>
<td>13.5</td>
<td>6.5</td>
<td>5</td>
</tr>
<tr>
<td>8</td>
<td>AKH08-00</td>
<td>15.2</td>
<td>53.3</td>
<td>18.5</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td>10</td>
<td>AKH10-00</td>
<td>18.5</td>
<td>63.6</td>
<td>21</td>
<td>24</td>
<td>17</td>
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<tr>
<td>12</td>
<td>AKH12-00</td>
<td>21.7</td>
<td>70.2</td>
<td>22</td>
<td>34</td>
<td>25</td>
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**Inch Size**

<table>
<thead>
<tr>
<th>Connection thread</th>
<th>Model</th>
<th>(d_D)</th>
<th>L</th>
<th>M</th>
<th>Effective area ((\text{mm}^2))</th>
<th>Mass (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/32</td>
<td>AKH03-00</td>
<td>9.3</td>
<td>33.5</td>
<td>12.7</td>
<td>2.8</td>
<td>3</td>
</tr>
<tr>
<td>1/4</td>
<td>AKH07-00</td>
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<td>39</td>
<td>13.6</td>
<td>6.5</td>
<td>6</td>
</tr>
<tr>
<td>5/16</td>
<td>AKH09-00</td>
<td>15.2</td>
<td>53.3</td>
<td>18.5</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td>3/8</td>
<td>AKH11-00</td>
<td>18.5</td>
<td>63.6</td>
<td>21</td>
<td>24</td>
<td>17</td>
</tr>
<tr>
<td>1/2</td>
<td>AKH13-00</td>
<td>21.7</td>
<td>70.2</td>
<td>22</td>
<td>34</td>
<td>24</td>
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</tbody>
</table>

**Male connector type: AKH**

*For M5, UNF10-32>*

<table>
<thead>
<tr>
<th>Connection thread</th>
<th>Model</th>
<th>(d_D)</th>
<th>L</th>
<th>M</th>
<th>Effective area ((\text{mm}^2))</th>
<th>Mass (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>M5 x 0.8</td>
<td>AKH04-M5</td>
<td>8</td>
<td>24.3</td>
<td>21.2</td>
<td>2.8</td>
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<td>1/8</td>
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<td>26.6</td>
<td>20.6</td>
<td>13.5</td>
<td>2.8</td>
<td>8</td>
</tr>
<tr>
<td>6</td>
<td>M5 x 0.8</td>
<td>AKH06-M5</td>
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<td>22.2</td>
<td>2.8</td>
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<td>1/8</td>
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<td>26.9</td>
<td>22.9</td>
<td>13.5</td>
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<td>8</td>
</tr>
<tr>
<td>8</td>
<td>M5 x 0.8</td>
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<td>16</td>
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<td>36</td>
<td>18.5</td>
<td>14</td>
<td>24</td>
</tr>
<tr>
<td>3/8</td>
<td>3/8</td>
<td>48</td>
<td>41.3</td>
<td>16.2</td>
<td>34</td>
<td>62</td>
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<td>3/8</td>
<td>54.3</td>
<td>48.3</td>
<td>18</td>
<td>24</td>
<td>39</td>
</tr>
<tr>
<td>3/4</td>
<td>1/2</td>
<td>49.3</td>
<td>49.3</td>
<td>24</td>
<td>34</td>
<td>62</td>
</tr>
<tr>
<td>1/2</td>
<td>1/2</td>
<td>54.5</td>
<td>46.5</td>
<td>24</td>
<td>34</td>
<td>62</td>
</tr>
</tbody>
</table>

*Reference dimensions of R thread after installation.*

**Bushing type: AKB**

<table>
<thead>
<tr>
<th>Connection thread</th>
<th>Model</th>
<th>(d_D)</th>
<th>L</th>
<th>M</th>
<th>Effective area ((\text{mm}^2))</th>
<th>Mass (g)</th>
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</thead>
<tbody>
<tr>
<td>4</td>
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<td>23.7</td>
<td>19.7</td>
<td>6.5</td>
<td>18</td>
</tr>
<tr>
<td>1/4</td>
<td>1/4</td>
<td>14</td>
<td>39.8</td>
<td>33.8</td>
<td>14</td>
<td>44</td>
</tr>
<tr>
<td>3/8</td>
<td>3/8</td>
<td>22</td>
<td>45.2</td>
<td>36.7</td>
<td>24</td>
<td>86</td>
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<tr>
<td>1/2</td>
<td>1/2</td>
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<td>56.2</td>
<td>48.2</td>
<td>34</td>
<td>113</td>
</tr>
</tbody>
</table>

*Reference dimensions of NPT thread after installation.*

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**Metric Size**

<table>
<thead>
<tr>
<th>Connection thread size</th>
<th>Model</th>
<th>(d_D)</th>
<th>L</th>
<th>M</th>
<th>Effective area ((\text{mm}^2))</th>
<th>Mass (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8</td>
<td>AKB01-01S</td>
<td>14</td>
<td>23.7</td>
<td>19.7</td>
<td>6.5</td>
<td>18</td>
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<tr>
<td>1/4</td>
<td>AKB02-02S</td>
<td>17</td>
<td>39.8</td>
<td>33.8</td>
<td>14</td>
<td>44</td>
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<td>3/8</td>
<td>AKB03-03S</td>
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<td>45.2</td>
<td>36.7</td>
<td>24</td>
<td>86</td>
</tr>
<tr>
<td>1/2</td>
<td>AKB04-04S</td>
<td>24</td>
<td>56.2</td>
<td>48.2</td>
<td>34</td>
<td>113</td>
</tr>
</tbody>
</table>

*Reference dimensions of R thread after installation.*
Bushing Type Check Valve with One-touch Fittings  
Series AKH/AKB

Construction

Straight type: AKH

Male connector type: AKH

Component Parts

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Material</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Body</td>
<td>Brass</td>
<td>Electroless nickel plated</td>
</tr>
<tr>
<td>2</td>
<td>Valve</td>
<td>NBR, Aluminum alloy</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Spring</td>
<td>Stainless steel</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Spacer</td>
<td>Brass</td>
<td>Electroless nickel plated</td>
</tr>
<tr>
<td>5</td>
<td>Stopper</td>
<td>Stainless steel</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>O-ring</td>
<td>NBR</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Cassette</td>
<td>—</td>
<td></td>
</tr>
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<td>8</td>
<td>Seal</td>
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<td></td>
</tr>
<tr>
<td>9</td>
<td>Gasket</td>
<td>Stainless steel + NBR</td>
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</table>

Bushing type: AKB

Component Parts

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Material</th>
<th>Note</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Body</td>
<td>Brass</td>
<td>Electroless nickel plated</td>
</tr>
<tr>
<td>2</td>
<td>Valve</td>
<td>NBR, Aluminum alloy</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Spring</td>
<td>Stainless steel</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Spacer</td>
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<td>Electroless nickel plated</td>
</tr>
<tr>
<td>5</td>
<td>Stopper</td>
<td>Stainless steel</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>O-ring</td>
<td>NBR</td>
<td></td>
</tr>
</tbody>
</table>