HighSpeed Exhaust Valve Range
Model HIPEX Series

Superior Performance Throughout the Full Operational Range

- SIL 3 Third Party Certified
- High Flow
- Additionally, Functions as a Pressure Relief Valve
- Arctic Service Options
- Sensing Pilot / Valve Seat Assembly: Patented
- Compact Modular Design
- 316L Stainless Steel or Aluminium

Innovative and Reliable Valve Solutions

bifold.co.uk
**Model HIPEX Series**

### Product Features

#### Product

**½” HIPEX Valve**
- Exhaust flow is proportional to the differential between inlet and pilot pressures.
- High flow pilot operated Quick Exhaust Valve with automatic pressure sensing and pressure relief capability.
- Exhaust flow is proportional to the differential between inlet and pilot pressures.
- The valve is automatic in operation and requires no adjustment.
- The valve operates on a 1:1 pilot pressure to valve pressure ratio at pressures between 2 and 10 bar g.
- Specifically designed for high flow valve actuator exhausting when accurate partial close testing is required.
- For very fast valve actuator closing, multiple HIPEX units can be fitted to the system.
- Extremely compact modular design.
- SIL 3 third party certified to IEC 61508 Parts 1 & 2. Consult Bifold.
- Additionally functions as a pressure relief valve.
- Soft seat design.
- Finely balanced design to minimise the impact of both downstream and upstream pressure variations.
- Service (without pressure applied) can be carried out without removal from the large diameter piping.

**1” HIPEX Valve**
- Approximate Weight: 4.9kg

**2” HIPEX Valve**
- Approximate Weight (stainless steel 316L): 12.1kg
- Approximate Weight (Aluminium): 5.2kg

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**Schematic**

- **Very high controlled exhaust flow, up to twice the equivalent Quick Exhaust Valve.**
- **High flow pilot operated Quick Exhaust Valve with automatic pressure sensing and pressure relief capability.**
- **Exhaust flow is proportional to the differential between inlet and pilot pressures.**
- **The valve is automatic in operation and requires no adjustment.**
- **The valve operates on a 1:1 pilot pressure to valve pressure ratio at pressures between 2 and 10 bar g.**
- **Specifically designed for high flow valve actuator exhausting when accurate partial close testing is required.**
- **For very fast valve actuator closing, multiple HIPEX units can be fitted to the system.**
- **Extremely compact modular design.**
- **Sensing pilot /valve seat assembly : Patent Pending.**
- **SIL 3 third party certified to IEC 61508 Parts 1 & 2. Consult Bifold.**
- **Additionally functions as a pressure relief valve.**
- **Soft seat design.**
- **Finely balanced design to minimise the impact of both downstream and upstream pressure variations.**
- **Service (without pressure applied) can be carried out without removal from the large diameter piping.**


### ½" HIPEX Valve

Exhaust 3

1/4" NPT Pilot Port (P)

Exhaust 3

Pilot P

Exhaust 3

Inlet

### 1" HIPEX Valve

Exhaust 3

1/4" NPT Pilot Port (P)

Exhaust 3

Inlet

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When selecting a product, the applicable operating system design must be considered to ensure safe use. The products function, material compatibility, adequate ratings, correct installation, operation and maintenance are the responsibilities of the system designer and user.

**Quality Assurance:**

All Bifold products are manufactured to a QA programme to ensure optimum performance and reliability. We are third party certified to ISO 9001:2008. Function test certificate, letter of conformity and copies of original mill certificates, providing total traceability are available on request, BSEN 10204.3.1.B where applicable. We reserve the right to make changes to the specifications and designs without notice.
HIPEX Valve Product Overview

Overview

Product Description
The Bifold HIPEX Valve is a 2-way, normally closed directional control valve with a venting flow rate proportional to the differential pressure between the inlet and the pilot signal pressures. It is specifically designed for both modulating and “on-off” pilot pressure signals.

Operating Principles
When the pilot pressure signal is equal to or above the main valve inlet pressure, the valve exhaust port remains closed.

Partial close testing function
When the pilot pressure falls below the main valve inlet pressure, the valve quickly exhausts the excess pressure until both the valve and pilot pressures are again equal, then the exhaust port closes.

Pressure Relief Function
If the main valve inlet pressure increases above the pilot pressure, the valve automatically exhausts the excess valve actuator pressure.

Optional
The HIPEX valve can be supplied with two exhaust ports. This provides an additional advantage that one exhaust port can be connected to the valve actuator for "closed loop" systems that reduce the need for additional valves, fittings and labour time. The HIPEX can also be supplied with exhaust speed controls fitted as a complete solution.

Ideal for operation in conjunction with the "Bifold Volume Booster” and ’AXIS® valve actuator manifold ranges.

Technical Data
Material grades - stainless steel 316L body as standard.
Standard springs are manufactured from 302S26 stainless steel to BS2056 (alternatively from Elgiloy for sour gas service). The pilot port Φ is ¼” NPT.
Main ports are available as ¼", ⅜" & ½" NPT sizes (½" HIPEX Valve) and ⅝" & 1" NPT sizes (1" HIPEX Valve).
2" HIPEX Valve is supplied with 2" or 1½” NPT port sizes.
Main valve seals are supplied in Viton as standard. Fluorosilicone seals are available for arctic service.
Sensing head seals are supplied in PTFE encapsulated silicone as standard.
Fasteners are 18/10 grade stainless steel; equivalent to 316 grade steels.
Accuracy is within 5% (valve to pilot pressure).
Operating medias are air, natural gas, inert gases and sweet and sour gases.
Maximum valve inlet pressure is 20 bar g.
Operating temperature range -20ºC to +180ºC with viton seals as standard.
Operating temperature range -60ºC to +40ºC with fluorosilicone seals.
Pilot pressure and outlet pressure range from 2 to 10 bar g.

Flow Capacity Cv Table

<table>
<thead>
<tr>
<th>HIPEX Size</th>
<th>Exhaust</th>
<th>With 2 exhaust ports, flow is increased by approximately 30%.</th>
</tr>
</thead>
<tbody>
<tr>
<td>½”</td>
<td>3.2</td>
<td></td>
</tr>
<tr>
<td>1”</td>
<td>11.0</td>
<td></td>
</tr>
<tr>
<td>2”</td>
<td>50.0</td>
<td></td>
</tr>
</tbody>
</table>

Please see closing time table on page 5.

Product Options Available
Pilot port available as BSPP and BSPT options.
Main ports available as BSPP & BSPT options.
Selection Chart

1/2”, 3/4”, 1” & 2” HIPEX Valve Closing Times

50 litre actuator - where stroke completes at between 1.9 bar and 2.3 bar. Set pressure 5 bar. Upstream pressure greater than 10 bar.

HIPEX Valve Ordering Information

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When selecting a product, the applicable operating system design must be considered to ensure safe use. The products function, material compatibility, adequate ratings, correct installation, operation and maintenance are the responsibilities of the system designer and user.

Quality Assurance
All Bifold products are manufactured to a number of standards and are subject to our QA programme to ensure that we meet the requirement of our products for use in safety-critical systems. Further information on these standards is available on request. BS ISO 9001:2008, EN ISO 10204-3.1 and EN 10204-3.1.8 where applicable. We reserve the right to make changes to the specifications and design as, without prior notice.

HIPEX SCHEMATIC (HiPex Valve fitted directly onto the actuator)

<table>
<thead>
<tr>
<th>HIPEX Valve Size</th>
<th>Pressure (Bar)</th>
<th>ESD Closing Time (secs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2”</td>
<td>5</td>
<td>4.2</td>
</tr>
<tr>
<td>3/4”</td>
<td>5</td>
<td>2.0</td>
</tr>
<tr>
<td>1”</td>
<td>5</td>
<td>1.3</td>
</tr>
<tr>
<td>2”</td>
<td>5</td>
<td>0.7*</td>
</tr>
</tbody>
</table>

Table shows results for the HIPEX Valve fitted onto a 50 litre actuator.
* Full 2” exhaust path (time limited by actuator damping).

Alternatively, 3 x 1” HIPEX Valves fitted onto a 178 litre actuator resulted in a closing time of 1.7 secs.

See Catalogue 03:- AXIS® Manifold System.
See Catalogue 13:- Volume Booster Model VBP Series.

HIPEX Selection Chart - Ordering Example

<table>
<thead>
<tr>
<th>HIPEX</th>
<th>Valve Standard service stainless steel</th>
<th>Model Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>04</td>
<td>¼” NPT</td>
<td></td>
</tr>
<tr>
<td>06</td>
<td>⅜” NPT</td>
<td></td>
</tr>
<tr>
<td>08</td>
<td>½” NPT</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>¾” NPT</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>1” NPT</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>1½” NPT</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>2” NPT</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Port Sizes</th>
</tr>
</thead>
<tbody>
<tr>
<td>04 ¼” NPT</td>
</tr>
<tr>
<td>06 ⅜” NPT</td>
</tr>
<tr>
<td>08 ½” NPT</td>
</tr>
<tr>
<td>12 ¾” NPT</td>
</tr>
<tr>
<td>16 1” NPT</td>
</tr>
<tr>
<td>24 1½” NPT</td>
</tr>
<tr>
<td>32 2” NPT</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ratio</th>
<th>Seal Materials</th>
<th>Exhaust Configuration</th>
<th>Revision Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>⅔</td>
<td>Viton (standard)</td>
<td>Single Exhaust</td>
<td></td>
</tr>
<tr>
<td>½</td>
<td>Viton (standard)</td>
<td>Double Exhaust</td>
<td></td>
</tr>
<tr>
<td>⅔</td>
<td>Viton (standard)</td>
<td>Double Exhaust with one needle flow control for closed loop application</td>
<td></td>
</tr>
<tr>
<td>⅔</td>
<td>AL Fluorosilicone(arctic service)</td>
<td>Single Exhaust</td>
<td></td>
</tr>
<tr>
<td>½</td>
<td>AL Fluorosilicone(arctic service)</td>
<td>Double Exhaust</td>
<td></td>
</tr>
<tr>
<td>⅔</td>
<td>AL Fluorosilicone(arctic service)</td>
<td>Double Exhaust with one needle flow control for closed loop application</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Revision number</th>
</tr>
</thead>
<tbody>
<tr>
<td>(current revision to be advised on receipt of order)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ordering Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIPEX - 08 - II - V - E - XX</td>
</tr>
</tbody>
</table>

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Instrument, Process, Directional Control Valves, Pumps and Actuator Electronic Control and Positioning

Pneumatic and Instrumentation Valves
Hydraulic Valves
Subsea Valves
Hydraulic Pumps, Intensifiers and Valves
Actuator Electronic Control and Positioning

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