Kim Diaphragm Valves

Straight Through Type ST

Diaphragm Valves

focus: flow

KDV - Kim Diaphragm Valves Straight Through Type (ST)
The KDV Advantage

The range of KDV Weir Type (WT) Diaphragm Valves are manufactured in accordance with international standards. Available with a wide range of construction materials and lining options, the quality of KDV Diaphragm Valves helps to deliver the full potential of a simple yet versatile and effective flow control design concept. Valve bodies, linings and diaphragms in hundreds of different combinations offer tailored solutions to suit almost any corrosive or abrasive fluid. Because the flowing media does not come into contact with the working components of the valve, total service life is dramatically increased. The combination of inexpensive components, fast, easy in-line maintenance and long service life make KDV Diaphragm Valves an attractive solution for many applications.

KDV Diaphragm Valves are used extensively throughout many industries. In fields such as:
• Chemical Processing
• Mining & Mineral Processing
• Power generation
• Water Treatment & Filtration
• Electroplating
• Steel Production
• Food & Beverage
• Paints & Coatings
• Textiles & Leather
• Semiconductors
• Pharmaceuticals
• Sugar
• Pulp & Paper.

This wide industrial use is directly attributable to the advantages that a KDV Diaphragm Valve delivers.

**BENEFITS**

- Low initial cost. Simple design and low manufacturing complexity provide your application with a low cost, low maintenance, high performance solution.
- Superior performance. “Bubble-tight” shut-off, individually tested to provide a total seal to ANSI Class VI Standards.
- Trouble-free operation. A bonnet design, free of packing and glands, removes the need for periodic adjustment and replacement.
- Excellent throttling characteristics. Reliable flow regulation between 15% to 85% of rated capacity.
- Easy maintenance. Diaphragm replacement can be performed with the valve “in-line” - reducing plant downtime and maintenance costs.
- Clean Design. The body contains no internal cavities or crevices that can trap impurities.
- Self-draining. Installation at the correct angles allow the body to self drain.
- Omni-positional. Will operate equally well in any position and flow direction.
- Position indication. See at a glance if a valve is in the open, shut or partially open position.
- Expandable. A wide choice of bonnets and other accessories are available to refine the performance of a KDV Diaphragm Valve to exactly suit your application.
- Process Automation. A wide variety of automatic actuators are easily installed with the valve “in-line” and without specialist tools.
- Component interchangeability. Genuine KDV components are interchangeable with other internationally recognised products, reducing spare parts inventory and streamlining maintenance.

Users across a wide range of industries have discovered the benefits of KDV Diaphragm Valves.
Higher temperatures will lower the physical properties of the various diaphragm materials, requiring a decrease in working pressure and possibly adversely affecting diaphragm life. Valve body material is also a key consideration for both low and high temperature applications.

In Asia, KDV Straight Through Type diaphragm valves are used in phosphate processing for acidic slurries, in pigment manufacture and in mining for flow control of solids containing media, all ideal applications for full flow style lined valves offering low maintenance costs and zero leakage.
The flexibility of body selection in KDV Straight Through Type Diaphragm Valves can be seen in the table below. With a wide range of base body materials including cast/ductile iron and SS, elastomeric linings, plastic linings, fluoro-polymer coatings and other specialty coatings, our range enables our valves to be optimised to suit many corrosive and abrasive environments.

The majority of body materials can be lined with our coatings, elastomer and plastic linings. The selection of the best body material to suit an application is made based on such variables as: media type, temperature and pressure; frequency of thermal cycling, percentage of solids, particle size profile, required end connections and size.

It is necessary to consider many other variables before finalising a selection. These include:

• Service chemical(s)
• Concentration
• Percentage solids and particle size profile
• Velocity of service
• Proximity of valve to pipe-work direction changes
• Working temperature - minimum/normal/maximum

• Working pressure – minimum/normal/maximum
• Frequency of operation (throttling requirements)

Fluid behaviour differs according variables such as process conditions, temperature, concentration, pressure, nature of the flow, installation & design and site experience and these variables should be taken into account in the application of the above guidelines.

There are many critical services that demand a lined body for maximum chemical or corrosion resistance. KDV Valves offers the above standard linings with many other special linings and coatings available on request. Special linings and coatings are available to suit specific applications where combinations of corrosion and abrasion occur. Not all linings as above are available in all different face to face standards.

We recommend that your selection is confirmed with an Engineer from KDV or an authorised KDV distributor.

KDV bodies can be identified by head number traceability when requested at order and linings are spark tested in accordance with the relevant standards.
Diaphragm Selection and Services

Identification of a valve size can be performed by matching dimensions with those of the diagrams and table below.

<table>
<thead>
<tr>
<th>GRADE</th>
<th>MATERIALS</th>
<th>TEMP °C</th>
<th>TEMP °F</th>
<th>SIZE RANGE</th>
<th>TYPICAL SERVICES</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Natural Rubber</td>
<td>-30 to 90</td>
<td>-22 to 194</td>
<td>1” to 12”</td>
<td>25 to 300</td>
</tr>
<tr>
<td>11</td>
<td>Natural Rubber Composite</td>
<td>-30 to 90</td>
<td>-22 to 194</td>
<td>1” to 8”</td>
<td>25 to 200</td>
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<tr>
<td>20</td>
<td>EPDM/Black</td>
<td>-40 to 130</td>
<td>-40 to 270</td>
<td>1” to 12”</td>
<td>25 to 300</td>
</tr>
<tr>
<td>2F</td>
<td>EPDM/food grade</td>
<td>-30 to 100</td>
<td>-22 to 212</td>
<td>1” to 8”</td>
<td>25 - 200</td>
</tr>
<tr>
<td>30</td>
<td>Butyl Rubber</td>
<td>-20 to 120</td>
<td>-4 to 248</td>
<td>1” to 12”</td>
<td>25 to 300</td>
</tr>
<tr>
<td>40</td>
<td>Nitrile Rubber</td>
<td>-20 to 90</td>
<td>-4 to 194</td>
<td>1” to 12”</td>
<td>25 to 300</td>
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<td>50</td>
<td>Neoprene</td>
<td>-20 to 90</td>
<td>-4 to 194</td>
<td>1” to 12”</td>
<td>25 to 300</td>
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<tr>
<td>60</td>
<td>Hypalon*</td>
<td>-10 to 90</td>
<td>14 to 194</td>
<td>1” to 12”</td>
<td>25 to 300</td>
</tr>
<tr>
<td>70</td>
<td>Viton ® FKM</td>
<td>0 to 120</td>
<td>32 to 248</td>
<td>1” to 6”</td>
<td>25 to 100</td>
</tr>
</tbody>
</table>

• The above temperature data relates to water. For other materials contact your local KDV distributor.
• Diaphragms at maximum temperatures cannot be used satisfactorily at maximum pressures. See pressure/temperature chart on Page 5.

In Europe, Scandinavia and Russia, KDV Straight Through Type diaphragm valves are used in processing of acidic slurries, in mineral processing, and in mining, incorporating manual and automated control systems, for flow control of media containing solids.

Diaphragm Styles

Elastomer Diaphragms:
DN25 + “Screwed Style” - diaphragms are assembled by screwing the diaphragm stud into the corresponding female thread on the compressor.

Assembly of Diaphragms
Screw the threaded stud into the compressor and turn, tightening completely. Rotate back counter-clockwise to align the holes. Bonnet and diaphragm are then ready to be assembled onto the body by tightening the bolts diagonally and evenly. Torque levels for each size can be found in the Installation and Maintenance Manual.
KDV® OVER-CLOSURE PROTECTED BONNET

Bonnet/Operator variations
- Chain-wheel adapted bonnet for valves in elevated positions – fitted with chain-wheel, guides and chain to suit the "drop" required.
- Extension Spindle for valves in inaccessible positions – can be single straight extension or fitted with single/multiple universal joints and/or fitted with key operation for pit environment.
- Sealed bonnet assembly fitted with FPM O-ring spindle seals
- Stainless Steel bonnet assemblies in Non Rising bonnet configuration for environmental corrosion applications with OH&G lockout system as an option. Larger sizes fitted with ball thrust bearing on handwheel.
- Coated bonnets and SS bonnets for environmental corrosive/high temperature services.
- Sliding spindle bonnet assemblies to suit adaptation to specific automation systems – cylinders, diaphragm actuators
- Automation systems – KDV actuators in various configurations to suit control and automated isolation valve applications using pneumatics or electric actuators.
- Normally Closed/Open and Double Acting diaphragm operated pneumatics in various materials – cast iron, stainless steel or steel, fitted with accessories such as limit stops, visual position indication, emergency handwheel over-ride device, mechanical or steel, fitted with accessories such as limit stops, visual position indication, emergency handwheel over-ride device, mechanical or

Overclosure adjustment in five easy steps...
1.Remove handwheel pin.
2. Turn handwheel anti-clockwise one turn.
3. Insert a piece of steel wire.
4. Close valve tightly and remove steel wire.
5. Turn handwheel clockwise until sleeve seats on bonnet rim and re-insert handwheel pin.

INSTRUCTIONS FOR USE
KDV Straight Through Type (ST) Diaphragm Valves are available in hundreds of different size and material combinations so they can be individually tailored to perfectly suit your application. The product code for your valve/ diaphragm combination can be determined using the tables on this page.

1. In each table, locate the description for each option you require and pencil the code for that option in the matrix above using the colour codes or table numbers as a guide.
2. The string of characters that you have entered will be your final product code.

Note: All PTFE are FDA and USP Class VI Approved

Ordering Information

<table>
<thead>
<tr>
<th>TYPE</th>
<th>SIZE</th>
<th>BODY OPTION</th>
<th>DIAPH</th>
<th>BONNET</th>
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<tr>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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</table>

<table>
<thead>
<tr>
<th>1. VALUE TYPE</th>
<th>2. VALUE SIZE</th>
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</thead>
<tbody>
<tr>
<td>1050 &quot;</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>1055 &quot;</td>
<td>1/2&quot;</td>
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<td>1060 &quot;</td>
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<tr>
<td>1065 &quot;</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>1070 &quot;</td>
<td>1/2&quot;</td>
</tr>
</tbody>
</table>

Intructions for Use
1. For the valves in this Pastor offer, use the instructions for use guide to determine the product code for your valve/diaphragm combination.
2. The product code is determined using the tables on this page.
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For a complete range of KDV valves, please refer to our comprehensive KDV catalogue.

For a quotation, please contact your local KDV distributor or KDV Flow Controls Ltd, 15 Highfield Road, Milton Keynes, MK5 8HX, UK.

www.kdvwflow.com
KDV diaphragm valves can be automated using a variety of actuation systems. Pneumatic actuation is achieved by piston/cylinder or diaphragm operation; both can be fitted with a wide range of accessories including:
- solenoid valves
- switch enclosures
- electro-pneumatic positioners
- limit stops
- emergency hand wheel over-rides.

The range offers a low maintenance solution for the control of corrosive and erosive media where repeated control and integration into plant control systems is of paramount importance. KDV electric actuators are available in a wide range of voltages and configurations and can be offered using all world wide brands of valve electric actuators.

A KDV automation/control package is available to suit your specific process conditions, offering tailored features to optimise production and minimise maintenance downtime.