Steel Spool Valves, Mechanically and Manually Operated

Series 79, 81 and 84 mechanically operated spool valves are constructed of precision lapped steel spools and sleeves. Series 79 is a 3 way valve; Series 81 is a 4 way (5 ported) valve, and Series 84 is a manifold mounted 4 way valve. These valves are fitted with a wide variety of operators including pushbuttons, lever operators, cat whiskers, ball and plungers, in addition to several special application types.

Several valve designs use an air piloted assist mechanism to allow for very low actuation forces.

All valves can be mounted via through body holes, and most valves can be nose mounted (through panel) or on accessory brackets.

### Technical Specifications

<table>
<thead>
<tr>
<th>Flow in Bars and Liters per Minute</th>
<th>Operating Pressure:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 to 145 PSI</td>
</tr>
<tr>
<td></td>
<td>Air assist types:</td>
</tr>
<tr>
<td></td>
<td>30 to 145 PSI</td>
</tr>
<tr>
<td>Vacuum:</td>
<td>Not applicable.</td>
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<tr>
<td>Flow Rate:</td>
<td>7 CFM @ 100 PSI</td>
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<tr>
<td></td>
<td>3 CFM @ 45 PSI</td>
</tr>
<tr>
<td>Cv/Kv:</td>
<td>Cv - 0.12</td>
</tr>
<tr>
<td></td>
<td>Kv - 1.8</td>
</tr>
<tr>
<td>Orifice:</td>
<td>2mm</td>
</tr>
<tr>
<td>Connection:</td>
<td>10-32 or M5 ports</td>
</tr>
<tr>
<td>Media:</td>
<td>Filtered Air</td>
</tr>
<tr>
<td>Actuation:</td>
<td>Force depends on</td>
</tr>
<tr>
<td></td>
<td>model. Spring return</td>
</tr>
<tr>
<td>Materials:</td>
<td>Aluminum housing, hardened steel spool and sleeve, Buna N seals, makrolon or zinc end caps.</td>
</tr>
<tr>
<td>Average Mechanical Life:</td>
<td>100 million operations</td>
</tr>
<tr>
<td>Operating Ambient:</td>
<td>-10º C to 70º C (12º F to 160º F)</td>
</tr>
<tr>
<td>Operation:</td>
<td>For air piloted assist versions, supply pressure must be connected to port 1.</td>
</tr>
<tr>
<td>Dimensions - Valve Body (inches) :</td>
<td>3 Way</td>
</tr>
<tr>
<td></td>
<td>Valve</td>
</tr>
<tr>
<td>Height:</td>
<td>1 1/2</td>
</tr>
<tr>
<td>Width:</td>
<td>5/8</td>
</tr>
<tr>
<td>Depth:</td>
<td>1</td>
</tr>
<tr>
<td>Mounting:</td>
<td>(3) 1/8” through body holes or nose mounted. See individual valve types.</td>
</tr>
</tbody>
</table>

(1 Bar = 14.5 PSI; 1 Liter = .03531 cubic feet)
Kuhnke Miniature Valves

Series 79, 81, 84 Spool Valves

79020
Plunger Operated
3 Way

Valve is operated by pressure on plunger. Travel approx. 1/8" for actuation, spring return. Plunger dia. is 3/16", force required – 1 3/4 lbs. Used as end of travel detector or door closed button. Can be panel or bracket mounted in 1/2" dia. hole. Dimension above valve body is 17/32". Weight 2.3 ozs.

81020
Plunger Operated
4 Way

Valve is operated by a small pushbutton. Travel approx. 1/8" for actuation. Momentary (spring return) action. Pushbutton dia. 5/8", force 1 3/4 lbs. Good for general purpose momentary air pressure switching. Can be panel mounted in 1/2" dia. hole. Dimension above valve body is 7/8". Weight 2.4 ozs.

79021
Pushbutton
3 Way

79023
One Way
Roller Lever
3 Way

Used as a pneumatic limit switch or position detector. Actuator travel 3/8" for valve operation. Actuation force approx. 14 ozs. Can be bracket mounted in 1/2" dia. hole. Dimension above valve body is 1 3/16". Max. lever travel is 1/2". Weight 2.7 ozs.

81021
Pushbutton
4 Way

81023
One Way
Roller Lever
4 Way

Roller lever operates valve only in one direction. Can be used as safety valve for limiting travel on machinery. Actuator travel and force same as roller lever (opposite). Dim. above valve body is 1 13/16". Max. lever travel is 1/2". In non actuate position roller moves down 5/16". Can be bracket mounted in 1/2" dia. hole. Weight 2.9 ozs.

Approximate valve body dimensions are 1.5" L (3 way), 2" L (4 way) x 1" H x 5/8" W. Through body mounting holes (3) are 1/8" dia.

See accessories for brackets and renewal parts. For detail dimensions contact factory.
Series 79, 81, 84 Spool Valves

79027
Plunger
Air Pilot Assist
3 Way

81027
Plunger
Air Pilot Assist
4 Way

Valve is actuated by light pressure on plunger. Travel less than 1/16" for actuation. Ideal for detecting small parts. Air consumption - .07 CFM, switching time - 65 ms (at 90 PSI). Actuation force is 0.9 oz. Dimension above valve body is 19/32". Weight 2.2 ozs.

79028
Cat Whisker
Air Pilot Assist
3 Way

81028
Cat Whisker
Air Pilot Assist
4 Way

Actuation caused by deflection of fine spring supported wire. Allows valve to be mounted close to detected unit and provides wiping action. Wire can be bent at top up to 3/8" for specific application. Air consumption - .07 CFM, switching time - 65 ms (at 90 PSI). Actuation force is .02 oz. Dimension above valve body is 2 11/16". Weight 2.4 ozs

79029
Ball Operator
Air Pilot Assist
3 Way

81029
Ball Operator
Air Pilot Assist
4 Way

Valve is actuated by pressure on ball bearing. Travel approx. 3/64" for actuation. Ball rolls with mass as it moves by. Force required to actuate valve is 0.9 oz. Can be used for detecting items on conveyor systems. Air consumption - .07 CFM, switching time - 65 ms (at 90 PSI). Dimension above valve body is 3/4". Weight 2.4 ozs.

79017-03
Valve for Oil-Tight
Pushbuttons
3 Way

81017-03
Valve for Oil-Tight
Pushbuttons
4 Way

Valve is designed for use with standard miniature size (7/8" dia.) pushbutton operators. Enables pneumatic switching to be combined with electromechanical switching on control consoles. Fits Moeller operators, see accessories. Weight (valve only): 2.5 ozs.

Approximate valve body dimensions are 1.5” L (3 way), 2” L (4 way) x 1” H x 5/8” W. Through body mounting holes (3) are 1/8” dia. See accessories for brackets and renewal parts. For detail dimensions contact factory.
Amplifiers can be used to switch line pressure valves from a low pilot pressure signal. A pressure signal applied to the control port operates valve. Pilot signal range - .075 - 1.5 PSI (5 – 100 mbar). Valve operating pressure - 30 to 115 PSI. Weight 3.1 ozs.

Air jet detectors are used for contact sensing of parts and tools. Can be used with delicate components. A stream of air is sent from a nozzle. As an object touches off the nozzle, the stream is blocked causing back pressure and operating the valve. Air consumption - .07 CFM @ 90 PSI. Switching time @ 90 PSI - 65 ms. Weight 2.1 ozs.

The pulse shaper converts a continuous signal into a pulse signal. Ideal for providing count pulses to pneumatic counters or electronic pressure transducers. Can be applied in parallel with working device circuits that have a long on cycle. Operating pressure range is 45 -145 PSI. Duration of pulse - 80-140 Ms @ 115 PSI.