Ideal® vacuum

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# DELTA-P™ VALVE (DPV)

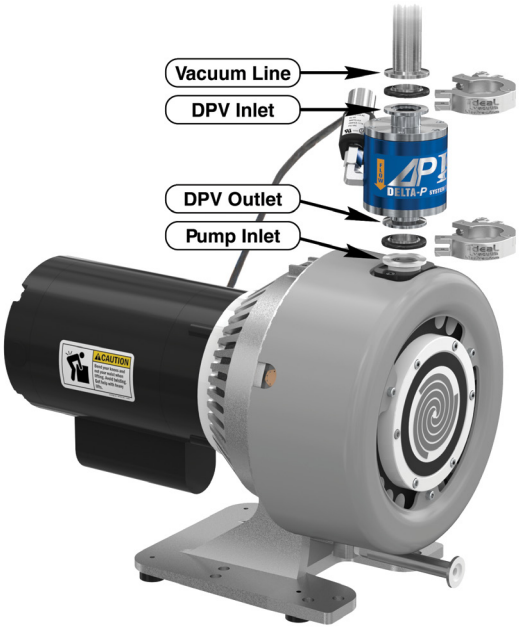
## Anti-Suckback and Vacuum System Isolation Valve

## BROCHURE




## DESCRIPTION

The Delta-P Valve (DPV) is an important component of any rough or high vacuum system. The DPV provides anti-suckback and vacuum system isolation from the mechanical backing pump during a power outage. It prevents backstreaming and the migration of contaminants (e.g., rotary pump oil or scroll pump tip seal particles) into the vacuum system. It also protects a high vacuum pump from damage.




The Delta-P Valve operates on the pressure difference (ΔP) between ambient atmosphere and the roughing/ backing pump's vacuum level.

During a power failure, the DPV closes the roughing line to the vacuum system and vents the roughing pump inlet flange to atmosphere. This prevents major vacuum loss in the vacuum system and stops undesirable material from being swept into the system when the pump restarts.

The DPV is a compact, inline unit which mounts directly on the inlet side of the mechanical pump. It is available in four standard KF flanged sizes and with three solenoid voltage options. DPV closure speed is approximately 25 ms, faster than other isolation valves.

The Delta-P Valve is intended for use with clean, dry air or inert gases. For processes that use or create corrosive or toxic gases, the valve's solenoid breather vent must be replaced with an exhaust line that exits to the facility exhaust.

## FEATURES & FUNCTIONS

- Preserves chamber vacuum pressure during power outages
- Closes automatically upon loss of system power
- Operates on differential pressure between ambient atmosphere and roughing pump's vacuum level
- Isolates high vacuum pump and/or vacuum chamber system from mechanical pump
- Prevents backstreaming and migration of oil or particulate contaminants into the vacuum system
- Automatically re-opens when vacuum is restored
- Requires no additional power source or gases to operate
- Compact design - mounts directly on the inlet flange of the mechanical roughing pump
- Works in any orientation: vertical, horizontal, or inverted
- Four standard NW/KF flange connection sizes available: KF16, KF25, KF40, and KF50
- Three solenoid voltages available: 110 VAC, 220 VAC, and 24 VDC
- Non-restrictive flow for flange sizes smaller than KF-50
- Constructed entirely of vacuum compatible materials in the U.S.A.

## TECHNICAL SPECIFICATIONS

| PARAMETER | MEASURE / TYPE |
|---|---|
| Geometry | Straight, Inline |
| Flanged End | KF-16, KF-25, KF-40, or KF-50 |
| Solenoid Voltage | 110 VAC, 220 VAC, or 24 VDC |
| Temperature Rating | 0° to 100° C (valve)<br>0° to 50° C (solenoid) |
| Close Time | ≈ 25 ms |
| Leak Rate | <1x10-8 atm cc/sec Helium |
| Service Life | >10,000 cycles |
| **Part** | **Material** |
| Valve Body | 6061-T6 Aluminum |
| Flange Ends | 6061-T6 Aluminum |
| Flange End O-Rings | Viton |
| Actuator Cup | 6061-T6 Aluminum |
| Actuator Cup O-Ring | Viton |
| Actuator Slip Rings (bearings) | PTFE (Teflon), Bronze Impregnated |
| Tension Spring | 302 Stainless Steel |
| Spring Stud Anchors | 18-8 Stainless Steel |
| Assembly Hex Screws | 18-8 Stainless Steel |
| **Body** | **Dimensions** |
| Outside Diameter | 2.95 in. (75 mm) |
| Overall Length | 4.2 in. (107 mm), KF-10 to KF-40<br>5.0 in. (127 mm), KF-50 |

## 1.5 CONFIGURATIONS

The Delta-P Valve is available in four (4) standard KF flanged sizes (same flange on both ends), and with three (3) solenoid voltage options. Our part numbers for ordering standard DPV configurations are shown below in Table 2. Flange ends are interchangeable and can be purchased separately if two different flange sizes are needed (i.e., to adapt a KF-40 pump inlet flange to a KF-25 roughing or foreline). Replacement solenoids are also available (see Appendix-Replacement Parts).

| FLANGE | SOLENOID VOLTAGE | | |
|---|---|---|---|
| **SIZE** | **110 VAC** | **220 VAC** | **24 VDC** |
| KF-16 | P1010136 | P1010181 | P1010186 |
| KF-25 | P1010137 | P1010182 | P1010187 |
| KF-40 | P1010138 | P1010183 | P1010188 |
| KF-50 | P1010139 | P1010184 | P1010189 |

Download the Delta-P Manual at: idealvac.com/files/manuals/Idealvac-Delta-P-Manual.pdf

**Ideal Vacuum Products, LLC.**
**5910 Midway Park Blvd NE**
**Albuquerque, NM  87109**

**Phone: (505) 872-0037**
**Fax: (505) 872-9001**
**Web:** idealvac.com