

# High Flow Valves

## High Conductance Vacuum Valves



MKS High Flow Valves (HFVs) increase system uptime due to their high cycle count lifetime of 1,000,000 cycles in clean environments and high conductance which allows for faster system pumping. An edge welded stainless steel bellows prevents outgassing and virtual leaks. The bellows stroke length is optimized to assure maximum conductance. The HFVs are designed to be easily and completely disassembled in the field, lowering the cost of replacing parts.

HFVs can be mounted vertically or horizontally without affecting the isolating seal performance. Their 304 SS vacuum grade, fusion welded, bead blasted body resists corrosion and is designed to have fewer entrapment areas.

HFVs are available with MKS heater solutions which ensure uniform internal temperature profiles to minimize condensation of process gases. An Ultem insulating barrier between the pneumatic actuator and valve body keeps heat inside the valve and away from the actuator. To accommodate process needs for high temperature or chemical resistance, a variety of elastomer seals are offered, including, Viton®, Chemraz®, and Kalrez®. Like all MKS isolation valves the HFV is offered with air solenoids for pneumatic actuation and limit switches for remote indication of the valve's position.

HFV valves are ideally suited for semiconductor manufacturing, flat panel tools, solar tools, coaters and general high flow (large pump line diameter) manufacturing applications.

### Product Features

- Edge welded bellows provide maximum stroke length with high conductance
- Bellows-sealed poppet ensures a minimum of 1,000,000 cycles
- Heatable to 160°C
- 304 stainless steel body
- MF flanges, weld stubs, or other flange styles available
- Multiple elastomer seals available

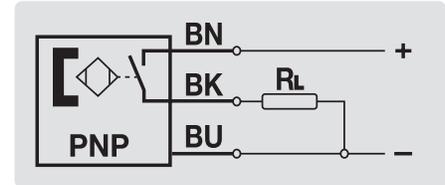


### Key Benefits

- High conductance design supports high flow requirements of large forelines
- High cycle rating increases uptime
- Can be mounted vertically or horizontally to accommodate various footprint requirements

## Specifications

|                                  |  |              |              |              |
|----------------------------------|--|--------------|--------------|--------------|
| <b>Vacuum Range</b>              | Atmosphere to $1.0 \times 10^{-9}$ Torr  |              |              |              |
| <b>Cylinder Air Pressure</b>     | 60-100 psig  |              |              |              |
| <b>Helium Leak Rate</b>          | $1.0 \times 10^{-9}$ std cc/sec  |              |              |              |
| <b>Limit Switch Rating</b>       | 5A - 250 VAC   |              |              |              |
| <b>Position Sensor Type</b>      | <ul style="list-style-type: none"> <li>• Proximity Sensor, Magneto Resistive</li> <li>• PNP, Normally Open Contact, 3-wire</li> <li>• 24 VDC</li> <li>• Cable Length: 2.5 M</li> <li>• Open End Electrical Connection</li> <li>• Position Accuracy: <math>\pm 0.1</math> mm</li> </ul> |              |              |              |
| <b>Single Pole, Single Throw</b> | 5A - 30 VDC  |              |              |              |
| <b>Typical Life</b>              | 1,000,000 cycles*  |              |              |              |
|                                  | <b>NW100</b>   | <b>NW160</b> | <b>NW200</b> | <b>NW250</b> |
| <b>Port Size in. (mm)</b>        | 4.0 (101.6)  | 6.0 (152.4)  | 8.0 (203.2)  | 10.0 (254)   |
| <b>Weight lb. (kg) - Angle</b>   | 12 (5.4)   | 28 (12.7)    | 45 (20.4)    | 55 (24.9)    |
| <b>Closing Time (seconds)**</b>  | 0.300  | 0.630        | 0.750        | 0.750        |



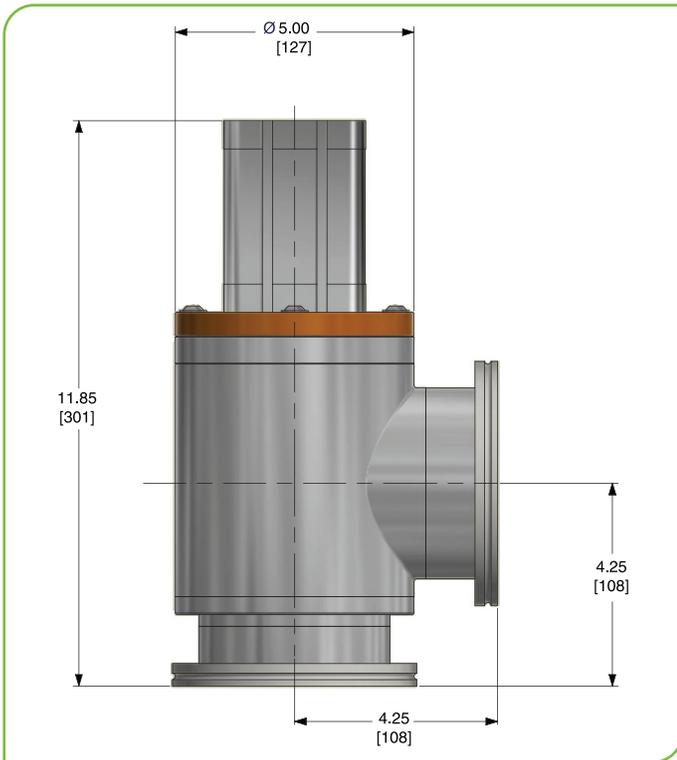
### Notes:

\* 1,000,000 cycles in clean and inert conditions

\*\* With 60 psig pneumatic pressure and included solenoid

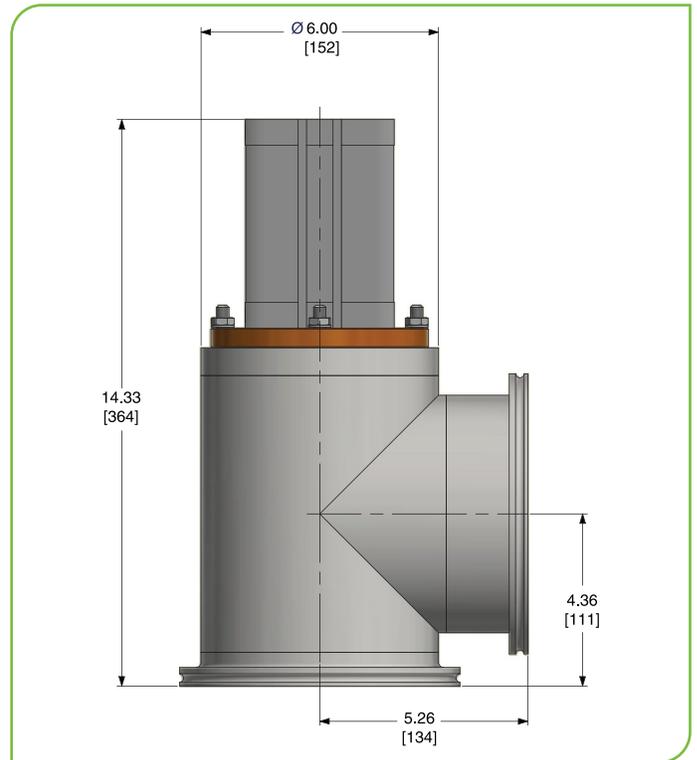
| Ordering Information            | NW100                           | NW160                           | NW200  | NW250   |
|---------------------------------|---------------------------------|---------------------------------|--|---|
| <b>Valve Size (V-XXX-)</b>      | V-100<br>NW 100<br>4" Valve     | V-160<br>NW 160<br>6" Valve     | V-200<br>NW 200<br>8" Valve                  | V-250<br>NW 250<br>10" Valve                            |
| <b>Body Configuration (XX-)</b> | AM<br>Angle Body,<br>MF Flanges | AM<br>Angle Body,<br>MF Flanges | AM<br>Angle Body,<br>MF Flanges              | AM<br>Angle Body,<br>MF Flanges                         |
| <b>Limit Switch (X)</b>         | • L With Limit Switch           |                                 | • N No Limit Switch                          |   |
| <b>Seal Type (X)</b>            | • V Viton®                      |                                 | • K Kalrez®                                  | • Z Chemraz®  |
| <b>Heater (XXX-)</b>            | XXX No Heater                   |                                 |  |   |
| <b>Solenoid (XXX)</b>           | • 12D 12 VDC<br>• 24D 24 VDC    | • 24A 24 VAC<br>• 120 120 VAC   | • 240 240 VAC<br>• T25 1/4" Tube<br>Fittings | • T38 3/8" Tube<br>Fittings<br>• None 1/4" NPT<br>Ports |

Sample part number: V-160-AM-NVXXX. \*Heated options are available. Please consult factory for ordering information.



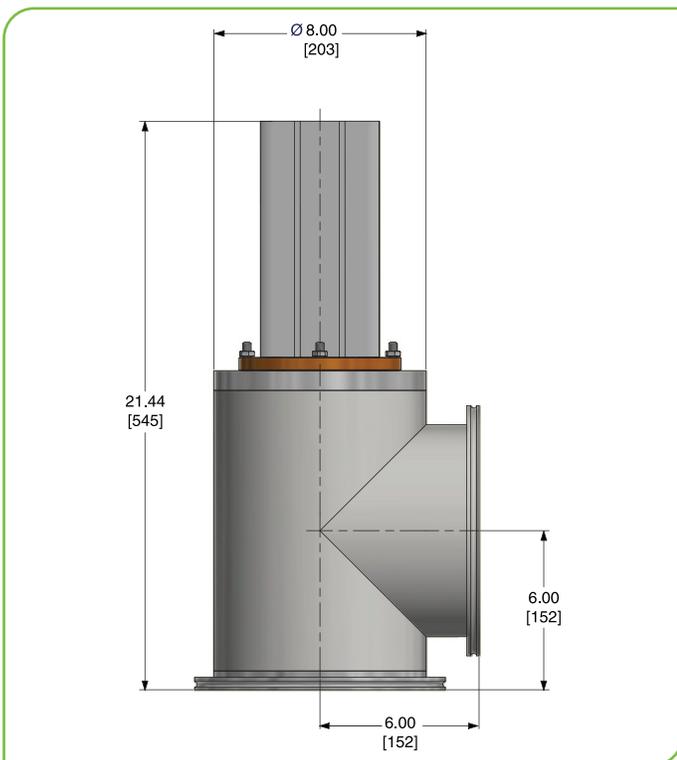
NW100 Angle Dimensional Drawing

Note: Unless otherwise specified, dimensions are nominal values in inches (mm referenced).



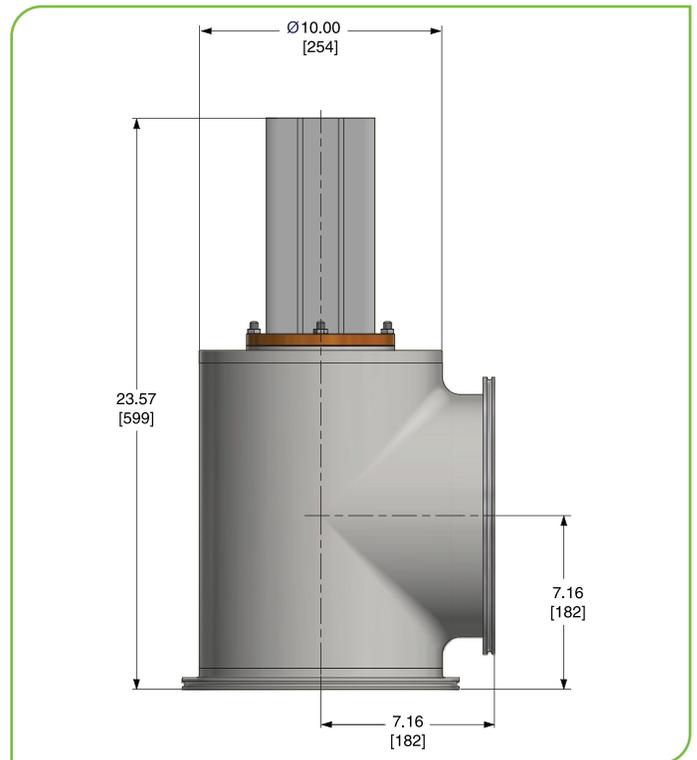
NW160 Angle Dimensional Drawing

Note: Unless otherwise specified, dimensions are nominal values in inches (mm referenced).



NW200 Angle Dimensional Drawing

Note: Unless otherwise specified, dimensions are nominal values in inches (mm referenced).



NW250 Angle Dimensional Drawing

Note: Unless otherwise specified, dimensions are nominal values in inches (mm referenced).

### Spare Parts and Replacements

| Valve Size | Complete Replacement Set* | Bellows       | Actuator    | Nosepiece      | Limit Switch Kit | Service Tool   |
|------------|---------------------------|---------------|-------------|----------------|------------------|----------------|
| • NW100    | • 20025911-001            | • 1084830-001 | • 1084882   | • 20000641-001 | • 100016226      | • 20010240-001 |
| • NW160    | • 100016279               | • 100016258   | • 100016253 | • 100016261    | • 100016226      | • 100016382    |
| • NW200    | • 100016280               | • 100016362   | • 100016358 | • 100016278    | • 100016226      | • 100016383    |
| • NW250    | • 100016281               | • 100016362   | • 100016358 | • 100016365    | • 100016226      | • 100016384    |

\* Includes Actuator, Bellows, Nosepiece, Nosepiece Mating Hardware

### Replacement Seal Kits

| Valve Size | Viton          | Kalrez 9100    | Chemraz XTR    |
|------------|----------------|----------------|----------------|
| • NW100    | • 20025912-001 | • 20025913-001 | • 20025914-001 |
| • NW160    | • 100016282    | • 100016283    | • 100016284    |
| • NW200    | • 100016286    | • 100016287    | • 100016288    |
| • NW250    | • 100016290    | • 100016379    | • 100016380    |

### Replacement Solenoids

| Voltage   | Part Number |
|-----------|-------------|
| • 12 VDC  | • 100016252 |
| • 24 VDC  | • 100016253 |
| • 24 VAC  | • 100016254 |
| • 120 VAC | • 100016255 |
| • 240 VAC | • 100016256 |

\*Solenoids equipped with fittings for 3/8" pneumatic lines

### CRV Heater Options

| XXX                  | HTX                    | HTS                      | XXS                    |
|----------------------|------------------------|--------------------------|------------------------|
| No Heater, No Shield | With Heater, No Shield | With Heater, With Shield | No Heater, With Shield |