



Harsh Process Valves (HV)

Product Specifications

The Harsh Process Valve (HV) from Nor-Cal Products offers best-in-class vacuum system sealing in the toughest and harshest applications. Process by-product generated in many CVD and ALD, as well as furnace reactors, have a tendency to coat downstream components. In the case of standard linear gate valves, this negatively affects the operation of moving parts such as bearings, linkages and roller guide tracks to the point where the valves can freeze up.

The HV's simple and robust design contains no moving parts, except the wedge shaped gate itself. It closes and seals by use of dual O-rings, one on either side of the gate, that are compressed with high force from the pneumatic or manual actuator. High temperatures, an abundance of by-product, process O-ring degradation – none of it matters. The HV is designed to seal.

To aid in the cleaning and servicing of the valve, the HPV features a split body design that separates with the loosening of a few bolts. The entire actuator and gate/shaft assembly can then be removed for decontamination and quick in-situ servicing. The valve body, which stays in the vacuum foreline, has smooth and easy-to-access internal surfaces that make wipe-out and clean-up fast and easy.

Available in five sizes with four different flange types, there is an HV configuration to fit just about every system. The HV valves can also be heated using externally mounted jackets, and are available with options such as position switches & indicators, lock-out-tag-out (LOTO) and a host of different seal materials.

Benefits

- Isolate your vacuum system with confidence
- Keeps working in applications where other valves fail
- Safe and robust design
- Ease of maintenance / reduced PM downtime



Specifications

General

Nominal IDs: DN-50 to DN-160
Helium leak rate
(body): $<1 \times 10^{-9}$ mbar • l/sec
(gate): $<1 \times 10^{-7}$ mbar • l/sec

Materials

Body: 304 Stainless Steel
Bellows: Edge welded AM-350
Seals: O-ring Viton (standard). Other compounds available

Installation

Any mounting orientation

Maximum pressure differential

At opening: 1 bar
Closed: 1.2 bar in either direction

Vacuum range

Viton sealed: $>10^{-9}$ mbar to 1.2 bar

Temperature range

Valve: 5 - 150° C (5-200° C special request)
Actuator: 5 - 100° C
Position Indicator: 5 - 60° C

Actuation

Manual: Visual (included)
Pneumatic: Reed switch (included). 115 VAC or 28 VDC, 20 mA max

Reliability

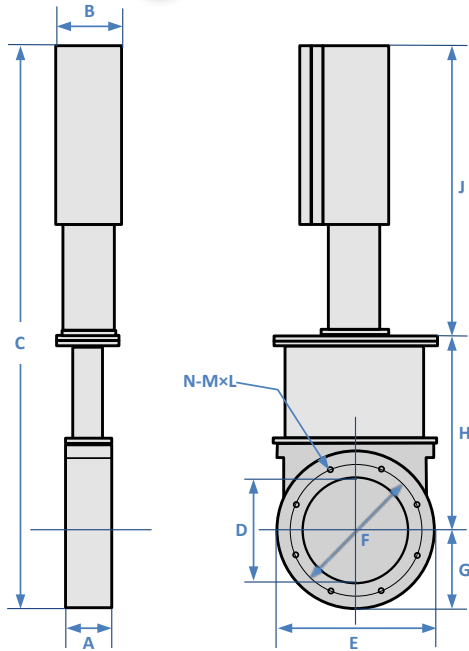
250,000 cycles to first service (process dependent)

Options

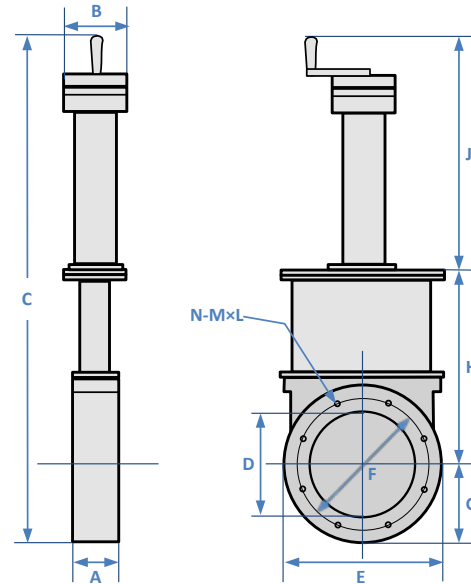
Air solenoids: (120 VAC, 240 VAC, 24 VDC, 24 VAC)
Microswitch position indicator
O-ring compounds
Heater Jackets



Harsh Process Valves (HV) Product Specifications



Pneumatic Harsh Process Linear Gate Valve



Manual Harsh Process Linear Gate Valve

Pneumatic Harsh Process Linear Gate Valve

MODEL NUMBER	DESCRIPTION	A	B	C	D	E	F	G	H	J	N-MxL
HVP-2002-NW	NW-50	2.36 (60.0)	3.22 (81.8)	17.47 (443.7)	2.00 (50.0)	4.35 (110.5)	-	2.49 (63.2)	5.45 (138.4)	9.53 (242.1)	-
HVP-2002-NW-S22	NW-50 with Solenoid	2.36 (60.0)	3.22 (81.8)	17.47 (443.7)	2.00 (50.0)	4.35 (110.5)	-	2.49 (63.2)	5.45 (138.4)	9.53 (242.1)	-
HVP-2502-ISO	ISO-63	2.36 (60.0)	3.22 (81.8)	17.47 (443.7)	2.50 (63.0)	5.12 (130.0)	4.33 (110.0)	2.56 (65.0)	5.45 (138.4)	9.53 (242.1)	8 (M8x1.25)
HVP-2502-ISO-S22	ISO-63 with Solenoid	2.36 (60.0)	3.22 (81.8)	17.47 (443.7)	2.50 (63.0)	5.12 (130.0)	4.33 (110.0)	2.56 (65.0)	5.45 (138.4)	9.53 (242.1)	8 (M8x1.25)
HVP-2502-JFF	JIS-63	2.36 (60.0)	3.22 (81.8)	17.47 (443.7)	2.50 (63.0)	5.12 (130.0)	4.33 (110.0)	2.56 (65.0)	5.45 (138.4)	9.53 (242.1)	8 (M8x1.25)
HVP-2502-JFF-S22	JIS-63 with Solenoid	2.36 (60.0)	3.22 (81.8)	17.47 (443.7)	2.50 (63.0)	5.12 (130.0)	4.33 (110.0)	2.56 (65.0)	5.45 (138.4)	9.53 (242.1)	8 (M8x1.25)
HVP-3002-ISO	ISO-80	2.76 (70.0)	3.22 (81.8)	18.97 (481.8)	3.00 (80.0)	5.71 (145.0)	4.92 (125.0)	2.86 (72.6)	6.15 (156.2)	9.96 (253.0)	8 (M8x1.25)
HVP-3002-ISO-S22	ISO-80 with Solenoid	2.76 (70.0)	3.22 (81.8)	18.97 (481.8)	3.00 (80.0)	5.71 (145.0)	4.92 (125.0)	2.86 (72.6)	6.15 (156.2)	9.96 (253.0)	8 (M8x1.25)
HVP-3002-JFF	JIS-80	2.76 (70.0)	3.22 (81.8)	18.97 (481.8)	3.00 (80.0)	5.71 (145.0)	4.92 (125.0)	2.86 (72.6)	6.15 (156.2)	9.96 (253.0)	8 (M8x1.25)
HVP-3002-JFF-S22	JIS-80 with Solenoid	2.76 (70.0)	3.22 (81.8)	18.97 (481.8)	3.00 (80.0)	5.71 (145.0)	4.92 (125.0)	2.86 (72.6)	6.15 (156.2)	9.96 (253.0)	8 (M8x1.25)
HVP-4002-ISO	ISO-100	2.76 (70.0)	3.97 (100.8)	22.81 (579.4)	4.00 (100.0)	6.50 (165.0)	5.71 (145.0)	3.25 (82.6)	7.70 (195.6)	10.66 (270.8)	8 (M8x1.25)
HVP-4002-ISO-S22	ISO-100 with Solenoid	2.76 (70.0)	3.97 (100.8)	22.81 (579.4)	4.00 (100.0)	6.50 (165.0)	5.71 (145.0)	3.25 (82.6)	7.70 (195.6)	10.66 (270.8)	8 (M8x1.25)
HVP-4002-JFF	JIS-100	2.76 (70.0)	3.97 (100.8)	22.81 (579.4)	4.00 (100.0)	6.50 (165.0)	5.71 (145.0)	3.25 (82.6)	7.70 (195.6)	10.66 (270.8)	8 (M8x1.25)
HVP-4002-JFF-S22	JIS-100 with Solenoid	2.76 (70.0)	3.97 (100.8)	22.81 (579.4)	4.00 (100.0)	6.50 (165.0)	5.71 (145.0)	3.25 (82.6)	7.70 (195.6)	10.66 (270.8)	8 (M8x1.25)
HVP-6002-ISO	ISO-160	2.76 (70.0)	3.97 (100.8)	31.69 (804.9)	6.00 (160.0)	8.86 (225.0)	7.87 (200.0)	4.42 (112.5)	10.66 (270.8)	16.60 (421.6)	8 (M10x1.50)
HVP-6002-ISO-S22	ISO-160 with Solenoid	2.76 (70.0)	3.97 (100.8)	31.69 (804.9)	6.00 (160.0)	8.86 (225.0)	7.87 (200.0)	4.42 (112.5)	10.66 (270.8)	16.60 (421.6)	8 (M10x1.50)
HVP-6002-JFF	JIS-160	2.76 (70.0)	3.97 (100.8)	31.69 (804.9)	6.00 (160.0)	8.86 (225.0)	7.87 (200.0)	4.42 (112.5)	10.66 (270.8)	16.60 (421.6)	8 (M10x1.50)
HVP-6002-JFF-S22	JIS-160 with Solenoid	2.76 (70.0)	3.97 (100.8)	31.69 (804.9)	6.00 (160.0)	8.86 (225.0)	7.87 (200.0)	4.42 (112.5)	10.66 (270.8)	16.60 (421.6)	8 (M10x1.50)

Manual Harsh Process Linear Gate Valve

MODEL NUMBER	DESCRIPTION	A	B	C	D	E	F	G	H	J	N-MxL
HV-2002-NW	NW-50	2.36 (60.0)	2.75 (69.9)	17.65 (448.3)	2.00 (50.0)	4.35 (110.5)	-	2.49 (63.2)	5.45 (138.4)	9.71 (246.7)	-
HV-2502-ISO	ISO-63	2.36 (60.0)	2.75 (69.9)	17.72 (450.1)	2.50 (63.0)	5.12 (130.0)	4.33 (110.0)	2.56 (65.0)	5.45 (138.4)	9.71 (246.7)	8 (M8x1.25)
HV-2502-JFF	JIS-63	2.36 (60.0)	2.75 (69.9)	17.72 (450.1)	2.50 (63.0)	5.12 (130.0)	4.33 (110.0)	2.56 (65.0)	5.45 (138.4)	9.71 (246.7)	8 (M8x1.25)
HV-3002-ISO	ISO-80	2.76 (70.0)	2.75 (69.9)	19.01 (482.7)	3.00 (80.0)	5.71 (145.0)	4.92 (125.0)	2.86 (72.6)	6.15 (156.2)	10.00 (254.0)	8 (M8x1.25)
HV-3002-JFF	JIS-80	2.76 (70.0)	2.75 (69.9)	19.01 (482.7)	3.00 (80.0)	5.71 (145.0)	4.92 (125.0)	2.86 (72.6)	6.15 (156.2)	10.00 (254.0)	8 (M8x1.25)
HV-4002-ISO	ISO-100	2.76 (70.0)	3.50 (88.9)	22.49 (571.3)	4.00 (100.0)	6.50 (165.0)	5.71 (145.0)	3.25 (82.6)	7.70 (195.6)	11.54 (293.2)	8 (M8x1.25)
HV-4002-JFF	JIS-100	2.76 (70.0)	3.50 (88.9)	22.49 (571.3)	4.00 (100.0)	6.50 (165.0)	5.71 (145.0)	3.25 (82.6)	7.70 (195.6)	11.54 (293.2)	8 (M8x1.25)
HV-6002-ISO	ISO-160	2.76 (70.0)	3.50 (88.9)	28.62 (727.0)	6.00 (160.0)	8.86 (225.0)	7.87 (200.0)	4.43 (112.5)	10.66 (270.8)	13.54 (343.8)	8 (M10x1.50)
HV-6002-JFF	JIS-160	2.76 (70.0)	3.50 (88.9)	28.62 (727.0)	6.00 (160.0)	8.86 (225.0)	7.87 (200.0)	4.43 (112.5)	10.66 (270.8)	13.54 (343.8)	8 (M10x1.50)