



# Valve Solutions

WWW.MKSINST.COM

## Jalapeño LoPro™ Valves HEATED COMPACT VACUUM VALVES

Jalapeño valves are specifically designed to withstand internal temperatures as high as 190°C to limit contaminant buildup and reduce system maintenance. MKS Jalapeño LoPro valves are heated with MKS Series heaters. The standard heater for the Jalapeño LoPro valve is 170°C. From room temperature, the heaters typically reach their set temperature in less than 30 minutes. The heaters can be daisy-chained with integral locking connectors. The heaters are wired in parallel and are independently controlled. A power cord is required for every 12 amps drawn by a chain of heaters. The Jalapeño LoPro valve uses up to four heat zones, virtually eliminating any potential for hot and cold spots. Since each heater is designed to uniformly heat a component, there is no need for costly controllers or thermocouples with messy wires. The heaters are made of a 1/2-inch thick silicone foam insulation bonded, using a patented technology, onto a reinforced silicone rubber mat. We have optimized the thickness of the insulation for the highest degree of temperature insulation, while still offering an easy fit into tight places. The heaters' elastic, conforming shape and convenient snaps make installation and removal fast and easy. All materials used in the heaters are suitable for clean room use. The Jalapeño LoPro valve has a smaller profile and is lighter, lower in cost, and easier to maintain than similar competitive valves. With its small footprint, this valve fits as easily into existing vacuum systems as it does into new systems.

Manufactured using superior techniques and materials of high quality, the Jalapeño LoPro valve is extremely durable and dependable. The Jalapeño LoPro valve lifetime can extend to 1,000,000 cycles under clean conditions, greatly increasing your system's uptime. We have optimized the bellows stroke length to assure a longer cycle life while maintaining a high conductance. Another standard feature is a TIG fusion-welded, bead-blasted body made of high grade, corrosion resistant, 304 stainless steel for significantly fewer entrapment areas, resulting in less contaminant build-up. In the event of power or air loss, the Jalapeño LoPro valve will automatically spring to close. For leak-tight operation, elastomer seals are available in Viton®/ Chemraz® combination for typical vacuum operating conditions, or Chemraz® for increased chemical resistance.

Options for the Jalapeño LoPro valve include a single limit switch for remote indication of the valve's position (open or closed) and an air solenoid for electropneumatic control of the valve. LoPro valves with faster actuation times than those listed in the specifications below are available by special request.

The LTA monitor indicates, by LED, if the temperature of one or more heaters in a line has fallen below the heater's lowest set temperature. The monitor includes a relay with normally-open and normally-closed contacts. When all heaters are within their operating temperature range, the monitor's green LED turns on. If the temperature of any heater in the line falls below its operating range, the red LED turns on. If a heater overheats, its thermal fuse opens and the heater temperature falls below the heater's lowest set temperature. The red LED will turn on.



## Features and Benefits

### Improved Process Yield & Performance

- Isolates pump lines and traps downstream
- Reduces particle generation with slow pump downs
- Stops unwanted sublimation of process by-products, heaters keep valve clean
- Reported increase in time between maintenance cycles from 2 weeks to 12 weeks or 20 runs to 145 runs

### New Improved Heater Design

- Tighter temperature control enabled by microprocessor and thermocouple
- Improved reliability of heater control system due to no-arc relay circuit
- Improved temperature uniformity with optimized design of multiple heating zones
- Special temperature settings available on request
- Reduced power consumption
- Low temperature alert option warns when heater is cold

### Enhanced Heater Safety

- UL listed and CE tested and marked for both electrical and thermal safety
- Passes SEMI S9-95 strain relief test of 35 pounds
- Integral thermal fuse
- Ground Fault Equipment Leakage Circuit Interrupter power cord option eliminates shock hazard
- Patented design retains heat and improves thermal safety

### Valve Features

- Square cap design for ease of maintenance
- Compact, low profile design
- Bellows-sealed poppet valve
- Bellows are formed for less particle trapping and a longer cycle life
- Spring-to-close, air-to-open pneumatic valve
- Greater sealing force leads to better seal integrity in contaminated conditions
- High purity, corrosion resistant, 304 stainless steel body
- May easily be accommodated into existing systems

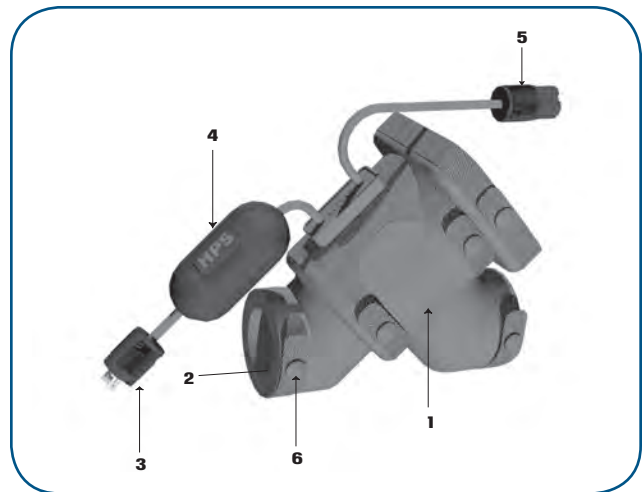
## Applications

Semiconductor processes such as Low Pressure Chemical Vapor Deposition (LPCVD) and aluminum etching, are known for producing condensate on cool surfaces of a vacuum system. This condensation reduces conductance and will eventually flake off as particles, backflowing and contaminating your chamber and system. Consequently, the system must be shut down and the contaminated vacuum components cleaned or even replaced.

Jalapeño LoPro™ valves reduce contamination, increase system uptime and product yield, and decrease scheduled maintenance.

## Heater Features

1. Exterior Heater Surface
2. Interior Heat Mat
3. Cable Lead with Male Twist-Lock Connector
4. Microprocessor
5. Cable Lead with Female Twist-Lock Connector
6. Nylon-capped Metal Snaps

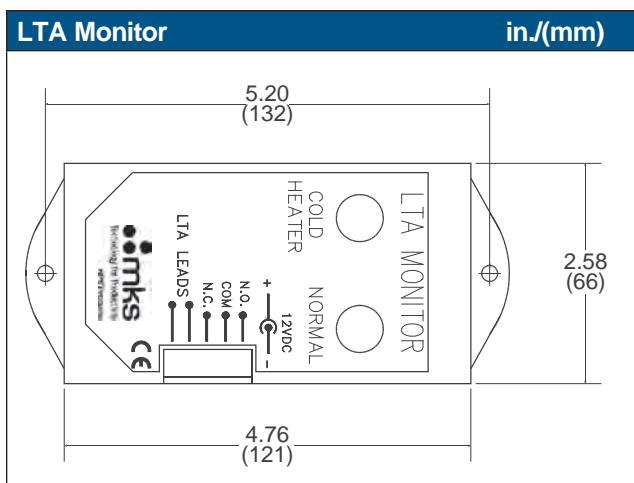


# Specifications

Specifications								
Port Size in. (NW)	Weight ISO-KF, pneumatic lb. / (kg)		Cylinder Volume in. <sup>3</sup> (cm <sup>3</sup> )	Actuation Time at 100 psi msec opening (closing)	Blow-By Pressure Main Valve psia	Heater Current at 120V (amps)		Maximum Internal Spring Closing Pressure psia
	Angle	Inline				Angle	Inline	
1.0 (25)	2.3 (1.0)	2.6 (1.2)	1.2 (20)	40 (90)	80	.48	.57	43
1.5 (40)	3.8 (1.7)	4.0 (1.8)	2.2 (36)	60 (90)	50	.55	.80	60
2.0 (50)	6.0 (2.7)	7.0 (3.2)	6.4 (105)	160 (220)	45	.84	1.17	38

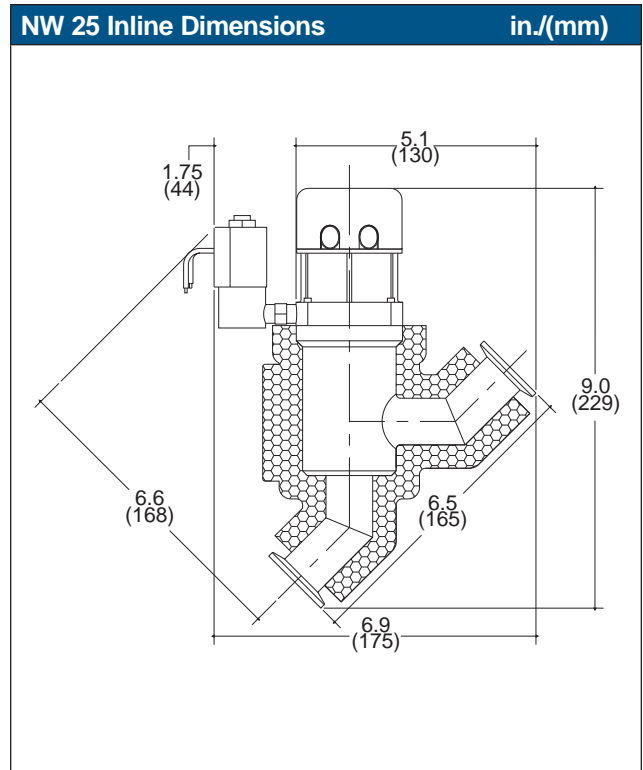
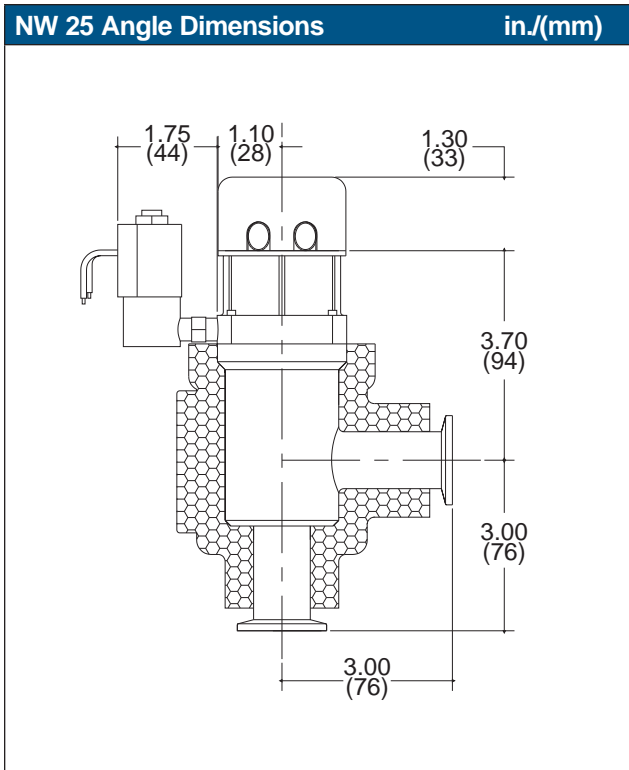
Heater Specifications	
Temperature Nominal Set Point Exterior Range Interior Range	170°C (338°F) 60°-70°C (140°-158°F) 135°-180°C (275°-356°F)
Environment	Indoor use only
Electrical Duty Cycle	100 volts 72% 120 volts 50%
Power Cord Current	12 A maximum
Materials	Molded silicone foam, fiberglass reinforced silicone, Teflon insulated wire
Foam Thickness	0.5 in. (12.7 mm)
Connectors	Midget Twist-Lock, nylon, NEMA ML-1
Weight Range	0.5 to 1.5 lb. (0.23 to .68 kg)
Compliance	CE, UL E52951 2JR

Specifications	
Vacuum Range	Atmosphere to below 10 <sup>-9</sup> Torr
Cylinder Air Pressure	90 psig ± 30 psig
Helium Leak Rate	1.0 x 10 <sup>-8</sup> std cc/sec
Limit Switch Rating Single Pole, Single Throw	5A - 250 VAC 5A - 30 VDC
Typical Life	1,000,000 cycles



LTA Monitor Specifications	
Enclosure	Black plastic
Power Requirements	90-130 VAC input, 12 VDC ±3 VDC output
Power Consumption	0.3 W
Relay Contact Rating	SPDT, 2 A @ 50 VAC resistive, 1 A @ 30 VDC
Input/Output Wiring	1 Thermal switch line IN 2 Thermal switch line OUT 3 Normally closed 4 Common 5 Normally open
Dimensions (L x H x D)	2.58" x 4.76" x 1.46" (inches) 66 x 121 x 37 (mm)
Compliance	CE

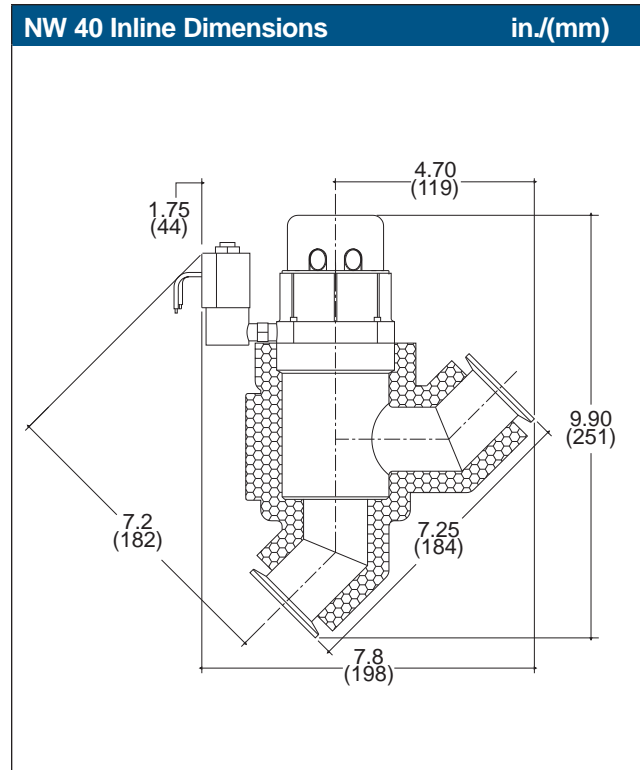
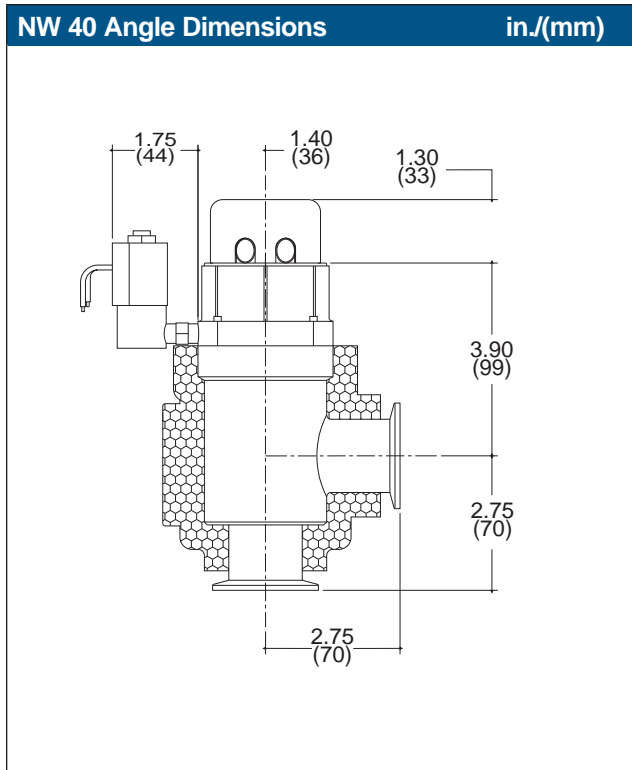




<b>NW 25 Jalapeño LoPro Valve Ordering Information</b>					
Body Configuration	Actuator Type	Limit Switch	Seal Type	Heater	Pneumatic Solenoid Voltage
LPJ1-XX-XX	-X	X	X	XXX	-XXX
Select 1	Select 1	Select 1	Select 1	Select 1	Select 1 or leave blank
<b>LPJ1-25-AK</b> KF 25 Angle  <b>LPJ1-25-IK</b> KF 25 Inline	<b>C</b> Normally Closed	<b>L</b> w/ Limit Switch  <b>N</b> w/o Limit Switch	<b>H</b> Viton® Bonnet, Chemraz® Nose  <b>Z</b> Chemraz® Bonnet and Nose	<b>R6A</b> Angle Heater  <b>R6I</b> Inline Heater  <b>L6A</b> Angle LTA Heater  <b>L6I</b> Inline LTA Heater  <b>XXX</b> Without Heater	<b>12D</b> 12 VDC  <b>24D</b> 24 VDC  <b>24A</b> 24 VAC 50/60 Hz  <b>100</b> 100 VAC 50 Hz  <b>120</b> 120 VAC 50/60 Hz  <b>208</b> 208 VAC 50/60 Hz  <b>240</b> 220 VAC 50/60 Hz  <b>None</b> 1/8" NPT-F
Add the options to the body. For example, LPJ1-25-AK-CLHR6A-120.					

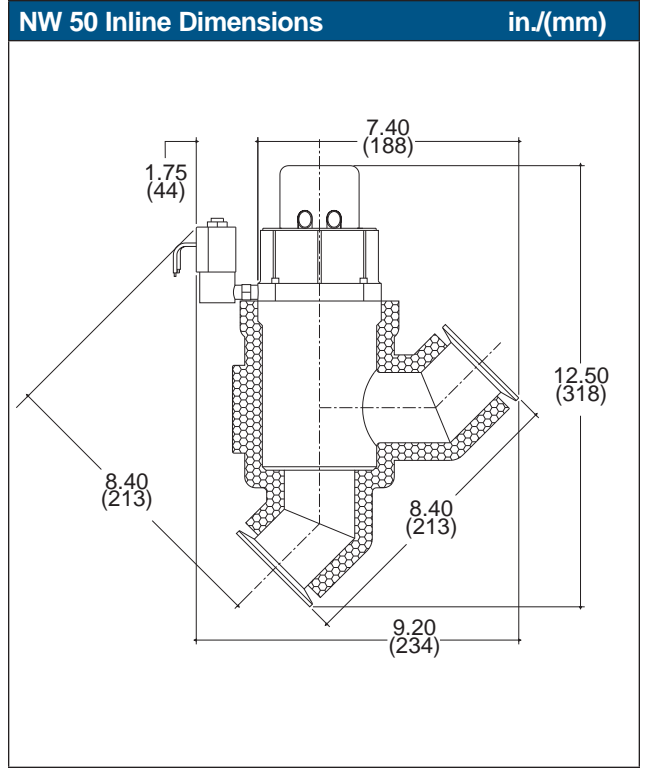
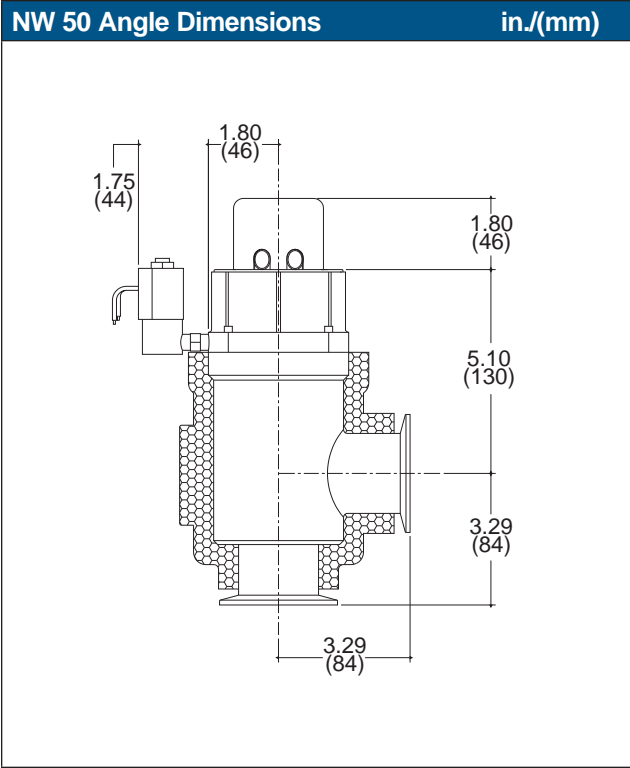


# Ordering Information



NW 40 Jalapeño LoPro Valve Ordering Information					
Body Configuration	Actuator Type	Limit Switch	Seal Type	Heater	Pneumatic Solenoid Voltage
LPJ1-XX-XX	-X	X	X	XXX	-XXX
Select 1	Select 1	Select 1	Select 1	Select 1	Select 1 or leave blank
<b>LPJ1-40-AK</b> KF 40 Angle  <b>LPJ1-40-IK</b> KF 40 Inline	<b>C</b> Normally Closed	<b>L</b> w/ Limit Switch  <b>N</b> w/o Limit Switch	<b>H</b> Viton® Bonnet, Chemraz® Nose  <b>Z</b> Chemraz® Bonnet and Nose	<b>R6A</b> Angle Heater  <b>R6I</b> Inline Heater  <b>L6A</b> Angle LTA Heater  <b>L6I</b> Inline LTA Heater  <b>XXX</b> Without Heater	<b>12D</b> 12 VDC  <b>24D</b> 24 VDC  <b>24A</b> 24 VAC 50/60 Hz  <b>100</b> 100 VAC 50 Hz  <b>120</b> 120 VAC 50/60 Hz  <b>208</b> 208 VAC 50/60 Hz  <b>240</b> 220 VAC 50/60 Hz  <b>None</b> 1/8" NPT-F
Add the options to the body. For example, LPJ1-40-AK-CLHR6A-120.					





<b>NW 50 Jalapeño LoPro Valve Ordering Information</b>					
Body Configuration	Actuator Type	Limit Switch	Seal Type	Heater	Pneumatic Solenoid Voltage
LPJ1-XX-XX	-X	X	X	XXX	-XXX
Select 1	Select 1	Select 1	Select 1	Select 1	Select 1 or leave blank
<b>LPJ1-50-AK</b> KF 50 Angle	<b>C</b> Normally Closed	<b>L</b> w/ Limit Switch	<b>H</b> Viton® Bonnet, Chemraz® Nose	<b>R6A</b> Angle Heater	<b>12D</b> 12 VDC
<b>LPJ1-50-IK</b> KF 50 Inline		<b>N</b> w/o Limit Switch	<b>Z</b> Chemraz® Bonnet and Nose	<b>R6I</b> Inline Heater	<b>24D</b> 24 VDC
				<b>L6A</b> Angle LTA Heater	<b>24A</b> 24 VAC 50/60 Hz
				<b>L6I</b> Inline LTA Heater	<b>100</b> 100 VAC 50 Hz
				<b>XXX</b> Without Heater	<b>120</b> 120 VAC 50/60 Hz
					<b>208</b> 208 VAC 50/60 Hz
					<b>240</b> 220 VAC 50/60 Hz
					<b>None</b> 1/8" NPT-F

Add the options to the body. For example, LPJ1-50-AK-CLHR6A-120.



# Ordering Information

Spare Parts			
Port Size in (NW)	Valve Internals* Chemraz® / Viton® Seals	Valve Internals* Chemraz® Seals	Limit Switch
	Part Number	Part Number	Part Number
1.0 (25)	100010666	100010554	100010154
1.5 (40)	100010667	100010555	100010155
2.0 (50)	100010668	100010556	100010156

\* Includes actuator cap

Replacement Solenoid Valves		
Voltage and Frequency	Watts	Part Number
24 VAC 50/60 Hz	6.0	100008164
24 VDC	7.0	100008163
12 VDC	7.0	100008539
120 VAC 50/60 Hz	7.5	100008165
208 VAC 50/60 Hz	7.5	100008166
220 VAC 50/60 Hz	7.5	100008167

Seal Sets†		
Port Size in (NW)	Chemraz® / Viton® Seal Set	Chemraz® Seal Set
	Part Number	Part Number
1.0 (25)	100010662	100010557
1.5 (40)	100010663	100010558
2.0 (50)	100010664	100010559

† Each seal set includes a seal for both the bonnet and nose piece and fomblin grease.





Jalapeno LoPro Valve - 1/18  
© 2008-2018 MKS Instruments, Inc.  
All rights reserved.

**MKS Instruments, Inc.  
Global Headquarters**

2 Tech Drive, Suite 201  
Andover, MA 01810  
Tel: 978.645.5500  
Tel: 800.227.8766 (in U.S.A.)  
Web: [www.mksinst.com](http://www.mksinst.com)

**MKS Instruments, Inc.  
Valve Solutions**

Six Shattuck Road  
Andover, MA 01810  
Tel: 978.975.2350

MKS products provided subject to the US Export Regulations. Diversion or transfer contrary to US law is prohibited.

Specifications are subject to change without notice. mksinst™ is a trademark of MKS Instruments, Inc. Viton® is a registered trademark of Dupont Co. Chemraz® is a registered trademark of Greene & Tweed Co.