

Jalapeño Vacuum Isolation Valves

Thermal Management System



Jalapeño Vacuum Valves are specifically designed to withstand high internal temperatures to limit process by-product buildup and reduce system maintenance. The valves are specially designed with a thermal barrier between the actuator and the stainless-steel housing, insulating the internal wetted surfaces, greatly improving thermal performance. The Jalapeño Series has a separate thermal barrier located between the valve housing and the valve body. The valves feature spring-to-close, air-to-open pneumatic operation and are available in port diameters ranging from 1 inch to 4 inches. The MKS Jalapeño LoPro™ Series actuator cap is made entirely of a high-quality polymer to provide a superior thermal barrier for the valve housing.

The Jalapeño Vacuum Valves are heated with MKS' Series 49UL heater system. The heater has a set point temperature of 170°C and typically reaches set point

temperature in less than 30 minutes. The heaters can be daisy-chained with integral locking connectors and are available in either polyimide or PTFE-woven materials. The heaters are wired in parallel and independently controlled. A power cord is required for every 10 amps drawn by a chain of heaters. For more information on the MKS Series 49UL system, please visit www.mksinst.com.

MKS proven high temperature valve technology, when combined with advanced heater control methods and new, high quality, high temperature heater materials create a one stop solution for heated process isolation in rough vacuum to high vacuum applications. MKS Jalapeño Vacuum Valves can be used in ALD, CVD, PECVD, MOCVD, LPCVD, Etch, Epitaxy, and Gauge Trees applications.

Product Features

Valve

- Seal type
 - Viton®
 - Chemraz®
- Available flange sizes of NW25, 40, 50, 80, 100
- Spring-to-close, air-to-open pneumatic operation



Key Benefits

- Maintains optimal valve conductance ensuring materials don't solidify and clog the system
- Actuator thermal barrier design improves internal thermal performance and reduces external temperature to safe touch levels
- Formed bellows-sealed poppet valve reduces particle trapping resulting in high cycle life

Selecting the Best Valve for Your Application

When pumping a tool down from atmosphere to vacuum, it is important to select the correct valve to maximize conductance and reduce pump down time. Valves are available in single or two-stage designs. Single stage valves have a large valve opening, allowing for maximum conductance and fastest pump down times. Two-stage valves add an independent soft-pump stage. Designed with a smaller bypass valve opening initially, two-stage valves pump down slowly from atmospheric pressure to a customer determined vacuum pressure during the first stage. In the second stage, the larger main valve opens, allowing for full pumping speed. The slow first stage pump down reduces the potential spread of particles by reducing turbulence.

MKS has Jalapeño Standard and compact, Jalapeño LoPro vacuum isolation valves. The Jalapeño Standard Isolation Valve is available in sizes ranging from NW50 – NW100. These valves are suitable for general vacuum isolation where maximum conductance and reliable operation is required. The Jalapeño Standard Isolation Valves are also available as two-stage designs with an integrated bypass valve that can be used for soft-pumping. The Jalapeño LoPro Isolation Valve is available in sizes ranging from NW25 – NW50. The Jalapeño LoPro design, like our unheated LoPro Valves, provides 1,000,000 cycle life operation, a more compact form factor, and a simplified disassembly process for ease of service. Both the Jalapeño Standard and Jalapeño LoPro valves are available in NW50 size. For applications where high cycle life is desired the Jalapeño LoPro is recommended. For all other applications, the Jalapeño Standard is a suitable option.



The S49UL Thermal Management System provides a complete, integrated Thermal Heater Solution for multiple and custom applications.

Jalapeño Standard Valves

Heater, Single Stage Angle



Flange Size	Amps		Part Number Replace M with 4=PTFE; 5=Polyimide Replace V with 1=120V; 2=240V
	120VAC	240 VAC	
NW50	0.57	0.28	49M020V95-1170
NW80	0.79	0.39	49M030V95-1170
NW100	1.24	0.62	49M040V95-1170

Heater, Single Stage Inline



Flange Size	Amps		Part Number Replace M with 4=PTFE; 5=Polyimide Replace V with 1=120V; 2=240V
	120VAC	240 VAC	
NW50	1.02	0.51	49M020V96-1170
NW80	1.67	0.84	49M030V96-1170
NW100	2.43	1.21	495M40V96-1170

Heater, Two Stage Angle



Flange Size	Amps		Part Number Replace M with 4=PTFE; 5=Polyimide Replace V with 1=120V; 2=240V
	120VAC	240 VAC	
NW50	0.90	0.45	49M020V97-1170
NW80	1.13	0.56	49M030V97-1170
NW100	1.68	0.84	49M040V97-1170

Heater, Two Stage Inline



Flange Size	Amps		Part Number Replace M with 4=PTFE; 5=Polyimide Replace V with 1=120V; 2=240V
	120VAC	240 VAC	
NW50	1.41	0.70	49M020V98-1170
NW80	2.67	1.33	49M030V98-1170
NW100	3.26	1.63	49M040V98-1170

Jalapeño LoPro™ Valves

Heater, Single Stage Angle



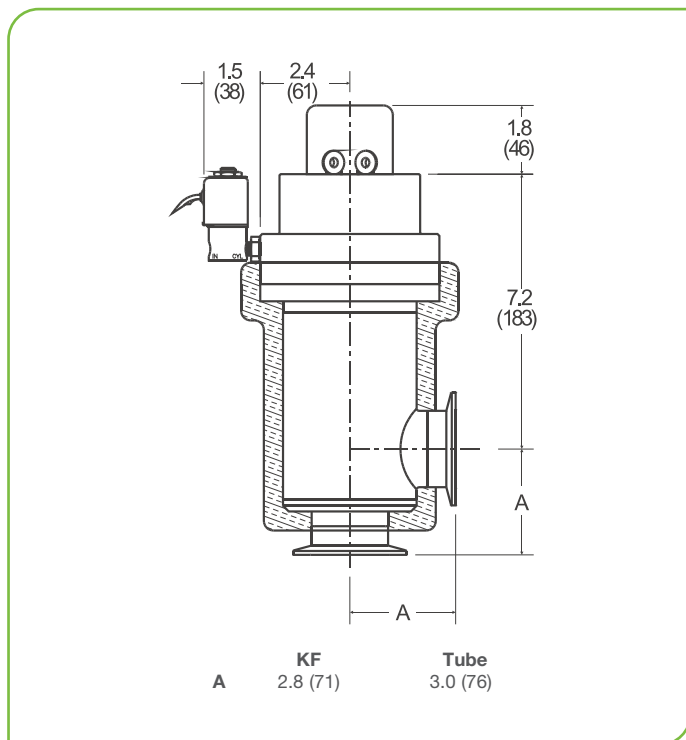
Flange Size	Amps		Part Number Replace M with 4=PTFE; 5=Polyimide Replace V with 1=120V; 2=240V
	120VAC	240 VAC	
NW25	0.50	0.25	49M010V91-1170
NW40	0.58	0.29	49M015V91-1170
NW50	0.67	0.33	49M020V91-1170

Heater, Single Stage Inline

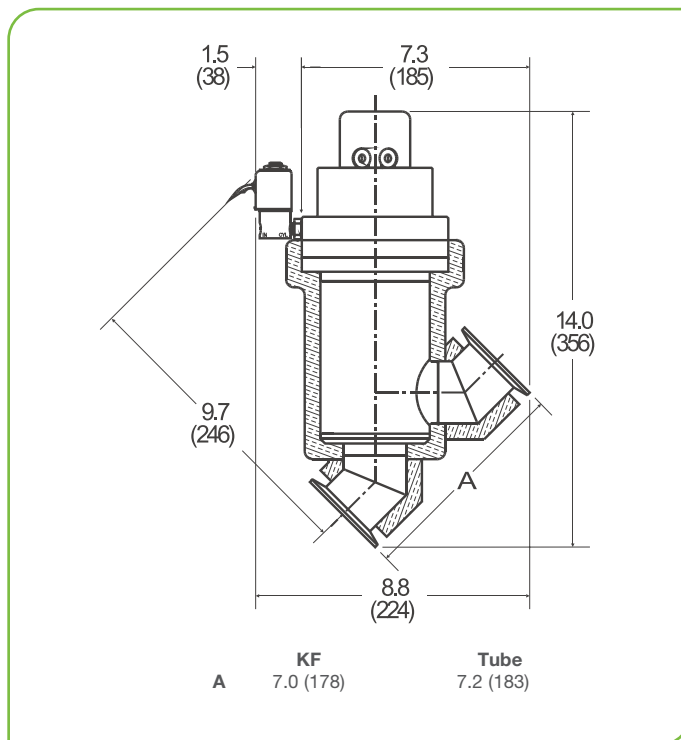


Flange Size	Amps		Part Number Replace M with 4=PTFE; 5=Polyimide Replace V with 1=120V; 2=240V
	120VAC	240 VAC	
NW25	0.52	0.26	49M010V92-1170
NW40	0.70	0.35	49M015V92-1170
NW50	1.02	0.51	49M020V92-1170

NW50 Jalapeño Standard Single Stage Heated Valve



KF50 Angle

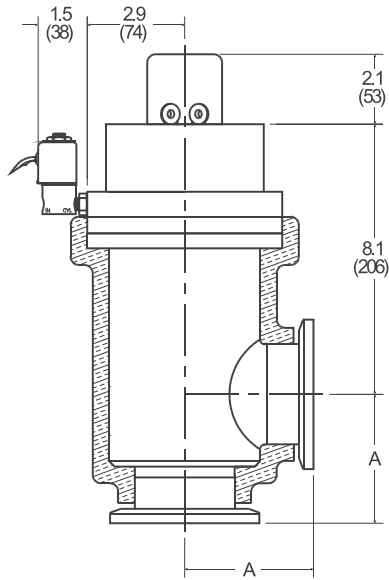


KF50 Inline

Ordering Information

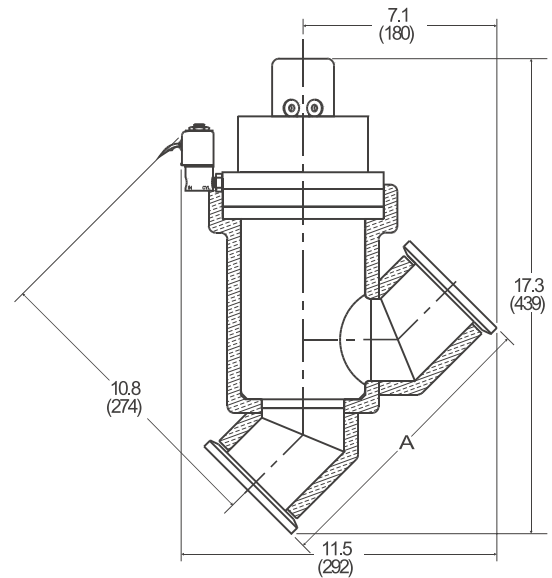
Body Configuration	Limit Switch	Seal Type	Heater Material	Temperature Control	Heater Supply Voltage	Pneumatic Solenoid Voltage
J1-XXX-XX	-X	X	XXX			-XXX
J1-050-AK KF50 Angle	L with Limit Switch	H Viton Bonnet Chemraz Nosepiece	4 PTFE Heater Jacket	9 S49 Controller	1 120 VAC Heater Supply Voltage	None 1/8" NPT-F
J1-050-IK KF50 Inline	N without Limit Switch	Z Chemraz Bonnet Chemraz Nosepiece	5 Polyimide Heater Jacket		2 240 VAC Heater Supply Voltage	12D 12VDC
			NH No Heater Jacket			24A 24 VAC 50/60Hz
						24D 24 VDC
						100 100 VAC 50/60Hz
						120 120 VAC 50/60Hz
						208 208 VAC 50/60Hz
						240 240 VAC 50/60Hz

NW80 Jalapeño Standard Single Stage Heated Valve



A **KF/MF** **Tube**
3.9 (99) 3.3 (84)

KF80 Angle



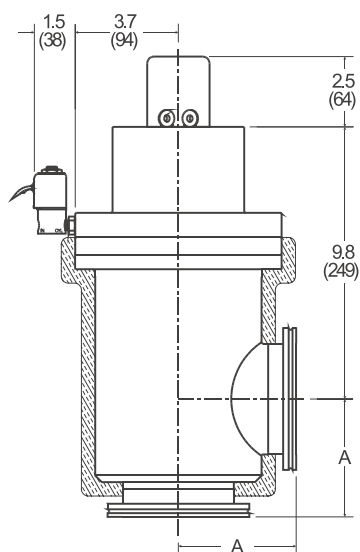
A **KF/MF** **Tube**
10.6 (269) 10.1 (257)

KF80 Inline

Ordering Information

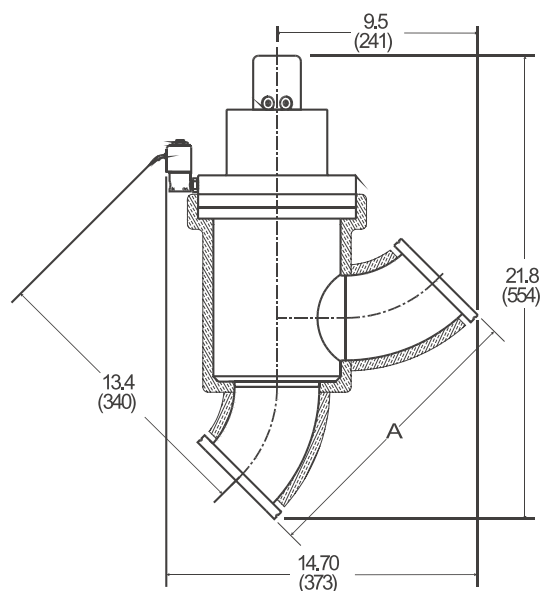
Body Configuration	Limit Switch	Seal Type	Heater Material	Temperature Control	Heater Supply Voltage	Pneumatic Solenoid Voltage
J1-XXX-XX	-X	X	XXX			-XXX
J1-080-AK KF80 Angle	L with Limit Switch	H Viton Bonnet Chemraz Nosepiece	4 PTFE Heater Jacket	9 S49 Controller	1 120 VAC Heater Supply Voltage	None 1/8" NPT-F
J1-080-AM MF80 Angle	N without Limit Switch	Z Chemraz Bonnet Chemraz Nosepiece	5 Polyimide Heater Jacket		2 240 VAC Heater Supply Voltage	12D 12 VDC
J1-080-1K KF80 Inline						24A 24 VAC 50/60Hz
J1-080-1M MF80 Inline						24D 24 VDC
						100 100 VAC 50/60Hz
						120 120 VAC 50/60Hz
						208 208 VAC 50/60Hz
						240 240 VAC 50/60Hz
				NH No Heater Jacket		

NW100 Jalapeño Standard Single Stage Heated Valve



A **KF/MF** **Tube**
4.3 (109) 4.0 (102)

KF100 Angle



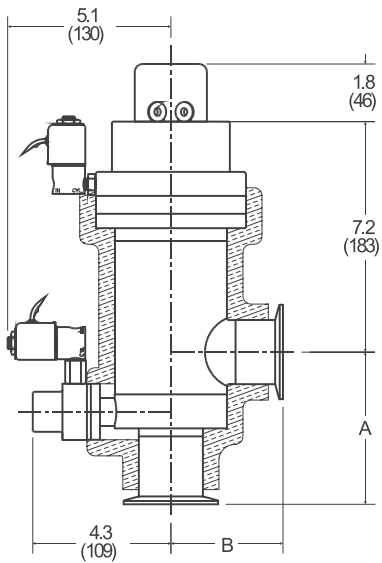
A **KF/MF** **Tube**
13.6 (345) 13.1 (333)

KF100 Inline

Ordering Information

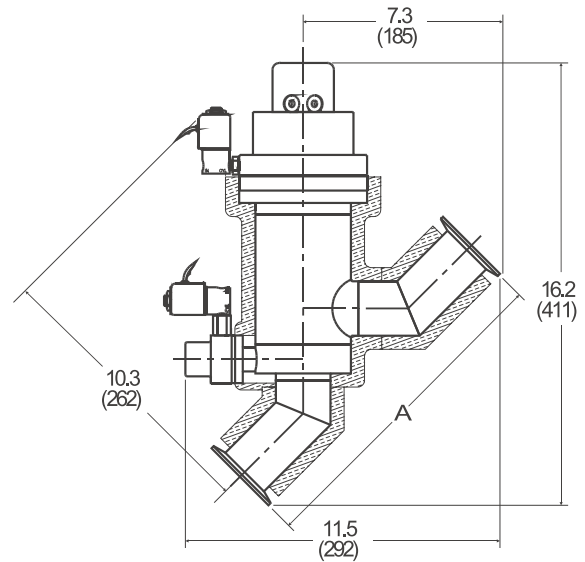
Body Configuration	Limit Switch	Seal Type	Heater Material	Temperature Control	Heater Supply Voltage	Pneumatic Solenoid Voltage
J1-XXX-XX	-X	X	XXX			-XXX
J1-100-AK KF100 Angle	L with Limit Switch	H Viton Bonnet Chemraz Nosepiece	4 PTFE Heater Jacket	9 S49 Controller	1 120 VAC Heater Supply Voltage	None 1/8" NPT-F
J1-100-AM MF100 Angle	N without Limit Switch	Z Chemraz Bonnet Chemraz Nosepiece	5 Polyimide Heater Jacket		2 240 VAC Heater Supply Voltage	12D 12 VDC
J1-100-IK KF100 Inline						24A 24 VAC 50/60Hz
J1-100-IM MF100 Inline						24D 24 VDC
						100 100 VAC 50/60Hz
				NH No Heater Jacket		120 120 VAC 50/60Hz
						208 208 VAC 50/60Hz
						240 240 VAC 50/60Hz

NW50 Jalapeño Standard Two Stage Heated Valve



	KF	Tube
A	4.8 (122)	4.6 (117)
B	3.5 (89)	3.4 (86)

KF50 Angle



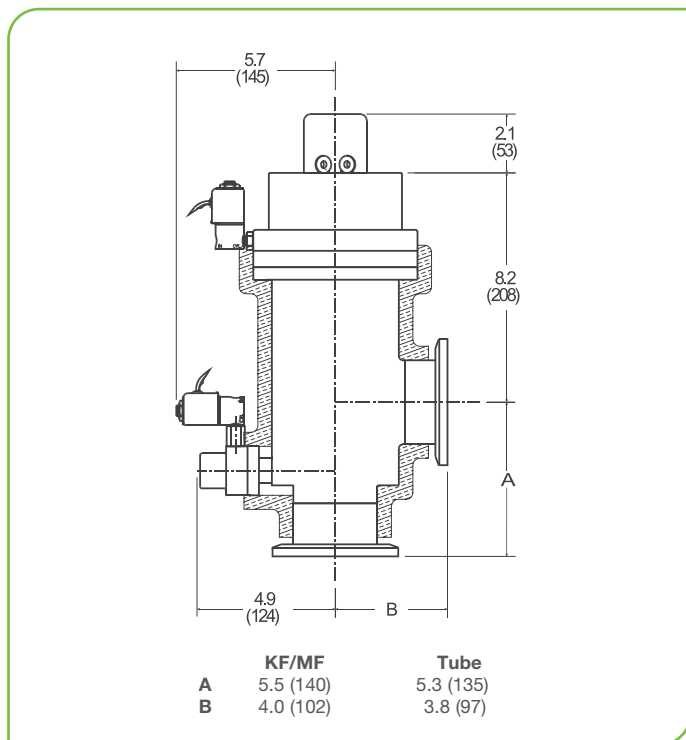
	KF	Tube
A	12.0 (305)	11.7 (297)

KF50 Inline

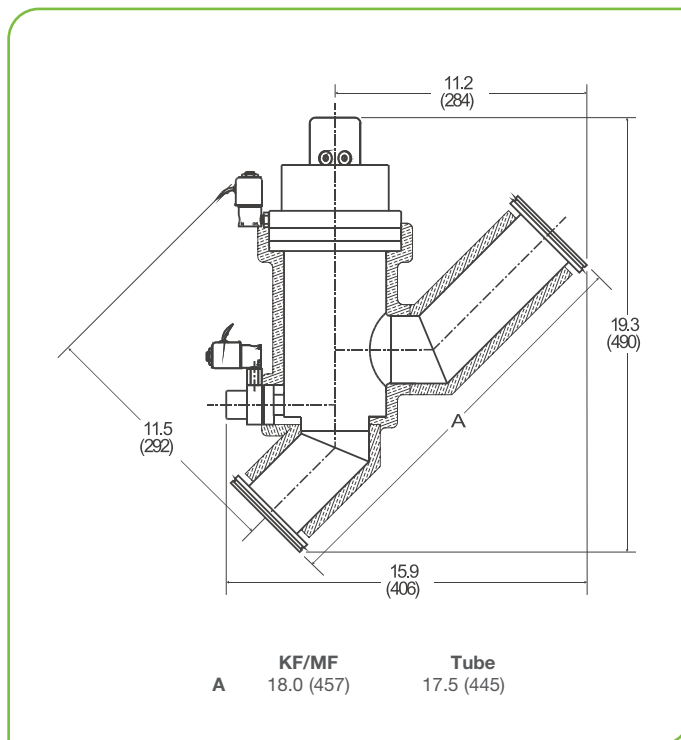
Ordering Information

Body Configuration	Bypass Orifice Size	Bypass Actuator Type	Limit Switch	Seal Type	Heater Material	Temperature Control	Heater Supply Voltage	Pneumatic Solenoid Voltage
					XXX			
J2-XXX-XX	-XXX	-X	X	X	XXX			-XXX
J2-050-AK KF50 Angle	125 0.125"	C Normally Closed	L with Limit Switch	H Viton Bonnet Chemraz Nosepiece	4 PTFE Heater Jacket	9 S49 Controller	1 120 VAC Heater Supply Voltage	None 1/8" NPT-F
J2-050-IK KF50 Inline	225 0.225"	V Thumb Screw M Micrometer Head	N without Limit Switch	Z Chemraz Bonnet Chemraz Nosepiece	5 Polyimide Heater Jacket		2 240 VAC Heater Supply Voltage	12D 12VDC 24A 24 VAC 50/60Hz 24D 24 VDC
					NH No Heater Jacket			100 100 VAC 50/60Hz 120 120 VAC 50/60Hz 208 208 VAC 50/60Hz 240 240 VAC 50/60Hz

NW80 Jalapeño Standard Two Stage Heated Valve



KF80 Angle

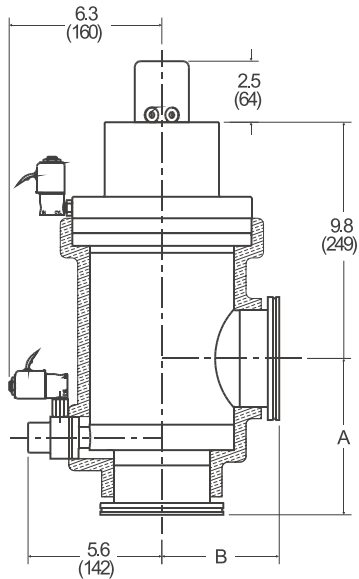


KF80 Inline

Ordering Information

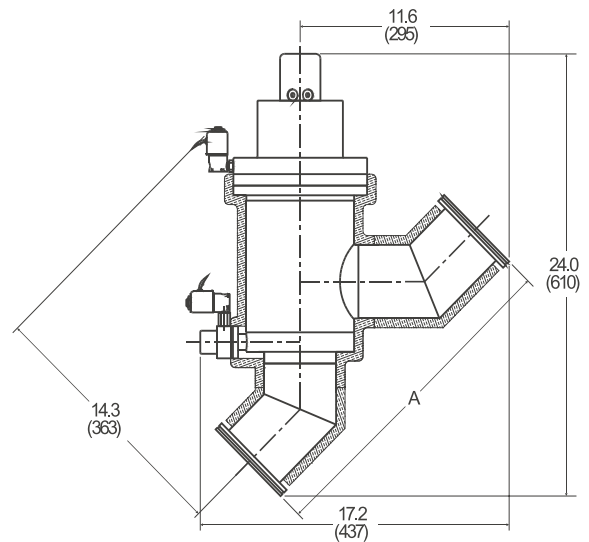
Body Configuration	Bypass Orifice Size	Bypass Actuator Type	Limit Switch	Seal Type	Heater Material	Temperature Control	Heater Supply Voltage	Pneumatic Solenoid Voltage
					XXX			
J2-XXX-XX	-XXX	-X	X	X	XXX			-XXX
J2-080-AK KF80 Angle	125 0.125"	C Normally Closed	L with Limit Switch	H Viton Bonnet Chemraz Nosepiece	4 PTFE Heater Jacket	9 S49 Controller	1 120 VAC Heater Supply Voltage	None 1/8" NPT-F
J2-080-AM MF80 Angle	225 0.225"	V Thumb Screw	N without Limit Switch	Z Chemraz Bonnet Chemraz Nosepiece	5 Polyimide Heater Jacket		2 240 VAC Heater Supply Voltage	12D 12VDC
J2-080-IK KF80 Inline		M Micrometer Head						24A 24 VAC 50/60Hz
J2-080-AM MF80 Inline								24D 24 VDC
								100 100 VAC 50/60Hz
								120 120 VAC 50/60Hz
								208 208 VAC 50/60Hz
								240 240 VAC 50/60Hz
					NH No Heater Jacket			

NW100 Jalapeño Standard Two Stage Heated Valve



	KF/MF	Tube
A	6.5 (165)	6.3 (160)
B	4.9 (124)	4.6 (117)

KF100 Angle



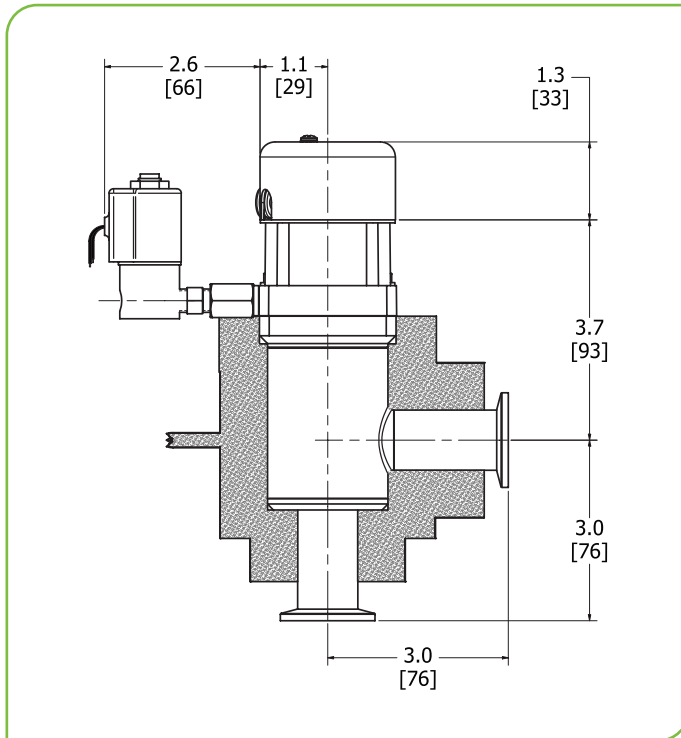
	KF/MF	Tube
A	18.0 (457)	17.5 (445)

KF100 Inline

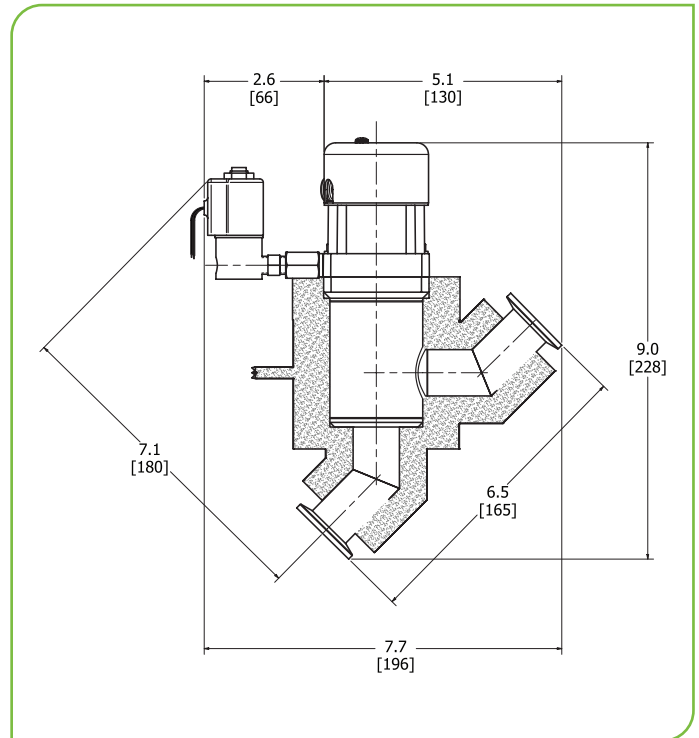
Ordering Information

Body Configuration	Bypass Orifice Size	Bypass Actuator Type	Limit Switch	Seal Type	Heater Material	Temperature Control	Heater Supply Voltage	Pneumatic Solenoid Voltage
					XXX			
J2-XXX-XX	-XXX	-X	X	X	XXX			-XXX
J2-100-AK KF100 Angle	125 0.125"	C Normally Closed	L with Limit Switch	H Viton Bonnet Chemraz Nosepiece	4 PTFE Heater Jacket	9 S49 Controller	1 120 VAC Heater Supply Voltage	None 1/8" NPT-F
J2-100-AM MF100 Angle	225 0.225"	V Thumb Screw	N without Limit Switch	Z Chemraz Bonnet Chemraz Nosepiece	5 Polyimide Heater Jacket		2 240 VAC Heater Supply Voltage	12D 12VDC
J2-100-1K KF100 Inline		M Micrometer Head						24A 24 VAC 50/60Hz
J2-100-AM MF100 Inline								24D 24 VDC
								100 100 VAC 50/60Hz
								120 120 VAC 50/60Hz
								208 208 VAC 50/60Hz
								240 240 VAC 50/60Hz
					NH No Heater Jacket			

NW25 Jalapeño LoPro™ Heated Valve



KF25 Angle

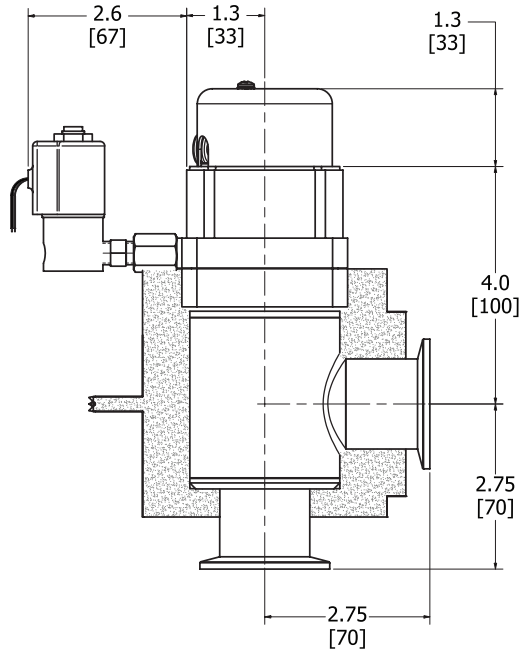


KF25 Inline

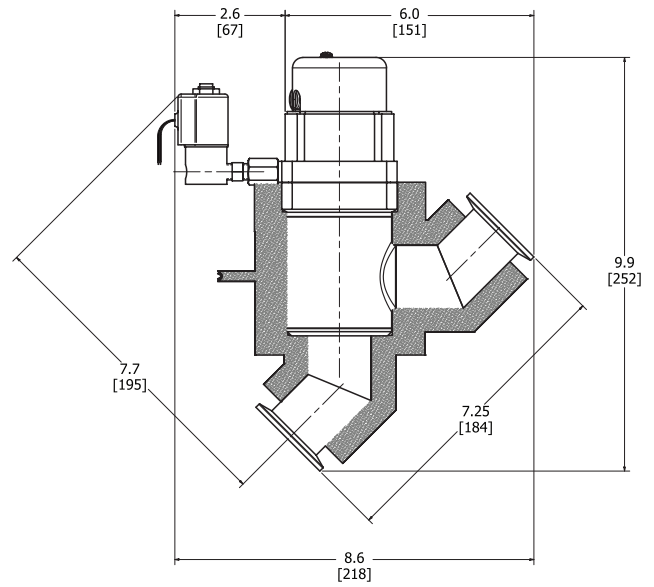
Ordering Information

Body Configuration	Actuator Type	Limit Switch	Seal Type	Heater Material	Temperature Control	Heater Supply Voltage	Pneumatic Solenoid Voltage
LPJ1-XX-XX	-X	X	X	XXX			-XXX
LPJ1-25-AK KF25 Angle	C Normally Closed	L with Limit Switch	H Viton Bonnet Chemraz Nosepiece	4 PTFE Heater Jacket	9 S49 Controller	1 120 VAC Heater Supply Voltage	None 1/8" NPT-F
LPJ1-25-IK KF25 Inline				5 Polyimide Heater Jacket		2 240 VAC Heater Supply Voltage	12D 12VDC
		N without Limit Switch	Z Chemraz Bonnet Chemraz Nosepiece	XXX No Heater Jacket			24A 24 VAC 50/60Hz
							24D 24 VDC
							100 100 VAC 50/60Hz
							120 120 VAC 50/60Hz
							208 208 VAC 50/60Hz
							240 240 VAC 50/60Hz

NW40 Jalapeño LoPro™ Heated Valve



KF40 Angle

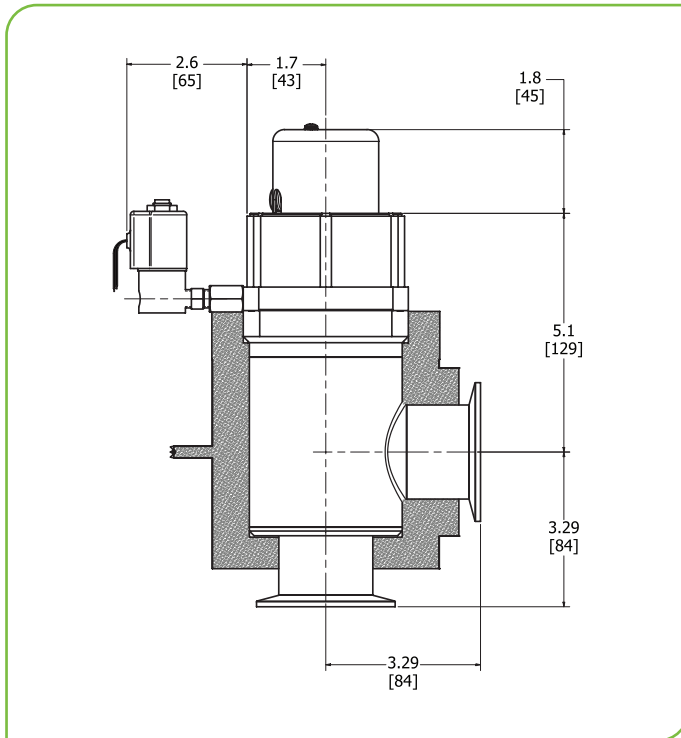


KF40 Inline

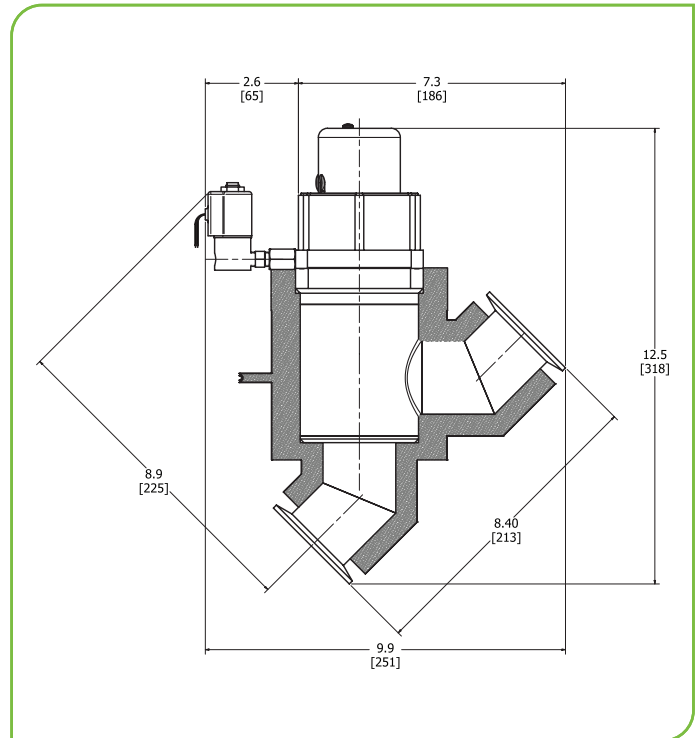
Ordering Information

Body Configuration	Actuator Type	Limit Switch	Seal Type	Heater Material	Temperature Control	Heater Supply Voltage	Pneumatic Solenoid Voltage
				XXX			
LPJ1-XX-XX	-X	X	X	XXX			-XXX
LPJ1-40-AK KF40 Angle	C Normally Closed	L with Limit Switch	H Viton Bonnet Chemraz Nosepiece	4 PTFE Heater Jacket	9 S49 Controller	1 120 VAC Heater Supply Voltage	None 1/8" NPT-F
LPJ1-40-IK KF40 Inline				N without Limit Switch		Z Chemraz Bonnet Chemraz Nosepiece	5 Polyimide Heater Jacket
				XXX No Heater Jacket			24A 24 VAC 50/60Hz
							24D 24 VDC
							100 100 VAC 50/60Hz
							120 120 VAC 50/60Hz
							208 208 VAC 50/60Hz
							240 240 VAC 50/60Hz

NW50 Jalapeño LoPro™ Heated Valve



KF50 Angle



KF50 Inline

Ordering Information

Body Configuration	Actuator Type	Limit Switch	Seal Type	Heater Material	Temperature Control	Heater Supply Voltage	Pneumatic Solenoid Voltage
				XXX			
LPJ1-XX-XX	-X	X	X	XXX			-XXX
LPJ1-50-AK KF50 Angle	C Normally Closed	L with Limit Switch	H Viton Bonnet Chemraz Nosepiece	4 PTFE Heater Jacket	9 S49 Controller	1 120 VAC Heater Supply Voltage	None 1/8" NPT-F
LPJ1-50-IK KF50 Inline				N without Limit Switch		Z Chemraz Bonnet Chemraz Nosepiece	5 Polyimide Heater Jacket
							24A 24 VAC 50/60Hz
							24D 24 VDC
							100 100 VAC 50/60Hz
							120 120 VAC 50/60Hz
							208 208 VAC 50/60Hz
							240 240 VAC 50/60Hz
XXX No Heater Jacket							

Heater Accessories

Power

Description	Volts	Amps	Part Number
Power Kit, 120V, 8ft cable, 5-15P connector	120	10 max	20021379-001
Power Kit, 240V, 8ft cable, L6-15P connector	240	10 max	20021381-001
Power Kit, 120V, 15ft cable, 5-15P connector	120	10 max	20021380-001
Power Kit, 240V, 15ft cable, L6-15P connector	240	10 max	20021382-001

Communications

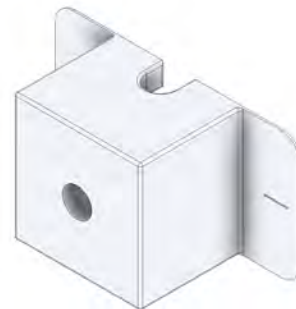
Description	Volts	Amps	Part Number
Communications Kit, 120/240V	120/240	-	20014265-001
Communications Kit, 50 ft cable, flying	120/240	-	20015929-001
LTA Kit	120/240	-	20014267-001

Accessories

Description	Volts	Amps	Part Number
Insulation			
Slow Pump Insulator, Polyimide	-	-	502999-0417
Slow Pump Insulator, PTFE			501999-0211
Speed Straps			
Strap, Heater, Large, Black	-	-	20018033-001
Strap, Speed, Small, Black	-	-	20002133
Controller-to-Controller Extension Cables			
Cable, UL, Ext 12 inch	120/240	-	20003387
Cable, UL, Ext 24 inch	120/240	-	20003388
Cable, UL, Ext 36 inch	120/240	-	20003389
Cable, UL, Ext 48 inch	120/240	-	20003390
Cable, UL, Ext 120 inch	120/240	-	20003610
Cable, UL, Ext, 300 inch	120/240	-	20007170-001
Heater-to-Controller Extension Cables			
Cable, UL, Heater Ext, 12 inch	120/240	-	20008474-001
Cable, UL, Heater Ext, 24 inch	120/240	-	20008476-001
Cable, UL, Heater Ext, 36 inch	120/240	-	20008477-001
Cable, UL, Heater Ext, 48 inch	120/240	-	20008478-001



Polyimide Slow Pump Insulator



PTFE Slow Pump Insulator

Jalapeño Standard and Jalapeño LoPro™ Valve Specifications

Jalapeño Standard Valve Specifications

Port Size in. (NW)	Weight lb. / (kg)				Actuator Cylinder Volume in. ³ (cm ³)	Actuation Time (msec) Opening (Closing)	Blow By Pressure psia	Maximum Internal Spring Closing Pressure psia
	Single Stage		Two-Stage					
	Angle	Inline	Angle	Inline				
2.0 (50)	13.0 (5.9)	16.5 (7.5)	13.8 (6.3)	17.5 (8.0)	13.3 (218)	1,000 (2,000)	45	38
3.0 (80)	19.6 (8.9)	27.5 (12.5)	20.4 (9.3)	28.5 (13.0)	27.6 (453)	2,000 (2,000)	38	40
4.0 (100)	25.5 (11.6)	37.5 (17.0)	26.3 (11.9)	38.5 (17.5)	27.6 (453)	2,000 (2,000)	30	30

Jalapeño Standard and Jalapeño LoPro Valve Specifications

Main Valve

ByPass Valve

Vacuum Range	Atmosphere to below 10 ⁻⁹ Torr	Atmosphere to below 10 ⁻⁹ Torr
Helium Leak Rate	Less than 1.0 x 10 ⁻⁹ std cc/sec	Less than 1.0 x 10 ⁻⁹ std cc/sec
Cylinder Air Pressure	60 to 100 psig	60 to 120 psig
Limit Switch Rating Single Pole, Double Throw	<ul style="list-style-type: none"> • 5A - 250VAC • 5A - 30VDC 	—
Pneumatic Cylinder Displacement Volume	—	0.25 in. ³ (4.1 cm ³)
Approximate Pneumatic Closing Time	—	100 msec
Blow-By Pressure	—	47 psia
Maximum Internal Spring Closing Pressure	—	40 psia

Jalapeño LoPro Valve Specifications

Port Size in. (NW)	Weight lb. / (kg)		Actuator Cylinder Volume in. ³ (cm ³)	Actuation Time (msec) Opening (Closing)	Blow By Pressure psia	Maximum Internal Spring Closing Pressure psia
	Angle	Inline				
1.0 (25)	2.3 (1.0)	2.6 (1.2)	1.2 (20)	40 (90)	80	43
1.5 (40)	3.8 (1.7)	4.0 (1.8)	2.2 (36)	60 (90)	50	60
2.0 (50)	6.0 (2.7)	7.0 (3.2)	6.4 (105)	160 (220)	45	38

Jalapeño Standard and Jalapeño LoPro™ Valve Accessories

Jalapeño Standard Valve Spare Parts

Port Size in (NW)	Main Valve Internals, Chemraz/Viton Seals	Main Valve Internals, Chemraz Seals	Limit Switch	Chemraz/Viton Seal Set	Chemraz Seal Set
	Part Number	Part Number	Part Number	Part Number	Part Number
2.0 (50)	100010658	100010659	100001683	100010643	100010642
3.0 (80)	100010656	100010657	100001684	100010645	100010644
4.0 (100)	100010654	100010655	100003663	100010647	100010646

Bypass Valve Spare Parts

Actuator Type	Internal Rebuild Kits Chemraz/Viton	Internal Rebuild Kits Chemraz	Chemraz/Viton Seal Set	Chemraz Seal Set
	Part Number	Part Number	Part Number	Part Number
Normally Closed Thumb Screw & Micrometer	100010652 100010653	100010650 100010651	100010649 100010649	100010648 100010648

Jalapeño LoPro Spare Parts

Port Size in (NW)	Valve Internals*, Chemraz/Viton Seals	Valve Internals, Chemraz Seals	Limit Switch	Chemraz/Viton** Seal Set	Chemraz Seal Set
	Part Number	Part Number	Part Number	Part Number	Part Number
1.0 (25)	100010666	100010554	100010154	100010662	100010557
1.5 (40)	100010667	100010555	100010155	100010663	100010558
2.0 (50)	100010668	100010556	100010156	100010664	100010559

* Includes actuator cap

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

Replacement Solenoid Valves

Voltage and Frequency	Watts	Part Number
12 VDC	7.0	100008539
24 VDC	7.0	100008163
24 VAC 50/60 Hz	6.0	100008164
100 VAC 50/60 Hz	6.8	1062179
120 VAC 50/60 Hz	7.5	100008165
208 VAC 50/60 Hz	7.5	100008166
220 VAC 50/60 Hz	7.5	100008167