



## Heated Ball Valves

### MANUAL AND PNEUMATIC KF 40 & KF 50 VALVES

The Heated Ball Valve is designed with a heater specifically made for the Ball Valve. Offered in KF 40 & KF 50 sizes, manual and pneumatic, the valves have been designed such that the valve body and actuator are separated by an elongated actuator shaft, thus allowing the entire valve to not only be heated, but insulated from heat loss. The unique ball valve heater covers the entire valve body as well as the heatable stainless steel flange clamps on each end of the valve body. Because the heater can now provide complete coverage of the valve while protecting from heat loss, the temperature stability inside the valve has been maximized.

Ball valves are made of a body, stem, ball, and end caps. The ball is sealed within the body by end caps creating a vacuum tight central cavity. The valve is opened and closed by turning the stem 90° back and forth (1/4 turn). The sealing seat for the ball wipes the ball clean as it is opened and closed. This feature provides the "self-cleaning" action that makes this valve robust in particle-rich effluent streams. Pneumatic actuators are available.

### Features & Benefits

- Heatable to 150°C (200°C intermittent)
- Valve designed for heated and unheated use
- Manufactured from 316L stainless steel
- High conductance; straight through flow
- Particulate resistant ball/seat design lengthens time between maintenance cycles
- Vacuum rating of  $1 \times 10^{-8}$  torr
- "Fail Safe" air-to-open, spring-to-close standard
- 80-120 psig actuator operating air pressure

### Applications

Ball Valves offer straight-through, unimpeded flow with a minimal valve body footprint. Because of their unique design, ball valves are less sensitive than other vacuum valves to particulate contamination and, therefore, are especially useful in dirty vacuum applications. For example, ball valves are almost always used to isolate scrubbers and traps downstream of the rough pumping system.



## Ball Valve Heaters

Ball Valves are specifically designed to withstand internal temperatures as high as 150°C to limit contaminant buildup and reduce system maintenance. Ball valves are heated with MKS Series heaters. The heaters' molded shapes conform to the hardware, minimizing gaps and subsequent heat loss. Using a patented process, silicone foam insulation is bonded to the outside of a reinforced silicone heater mat, resulting in external temperatures that are safe for human contact and meet OSHA safety requirements.

## Series 48 Heaters

Series 48 Heaters offer fully programmable thermal control. All control parameters, including operating set point, high and low temperature alerts, high temperature safety limit, and PID/on-off control, are fully user adjustable. With a modern modular design, options such as digital interface (RS485), front panel control with LED digital display, can be chosen to meet specific user's requirements. UL Listed and CE marked, the Series 48 heaters offer the ultimate thermal control with redundant and resettable overtemperature protection circuitry integrated into the controller.

## Valve Specifications

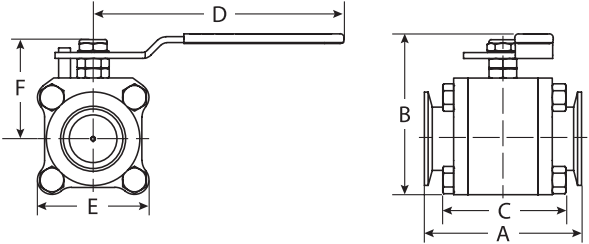
Connection Ports	1.5" & 2.0"
Leak Rate	Less than 1 x 10 <sup>-9</sup> std.cc/sec.
Temperature Range	Bakeable to 150°C
Actuator Operating Pressure	80-120 psig
Materials	
Body	316L stainless steel
Stem Seal	Viton® stem seal standard*
Seat	Teflon® seats standard

\*Other material available

## Heater Specifications

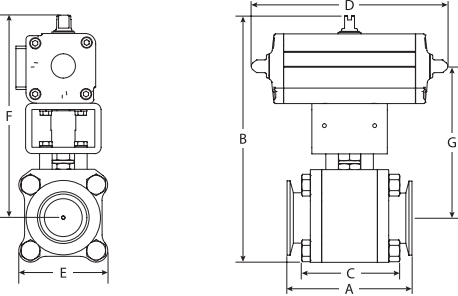
Pre-Set Temperature	150°C (302°F)
Set Points	105°C (221°F)
Exterior Range Temperature (dependent on set point)	Ambient to 70°C (158°F)
Interior Range Temperature	Ambient to 150°C (302°F)
Foam Thickness	0.5 in. (12.7 mm)
Materials	Molded silicone foam, fiberglass reinforced silicone, Teflon insulated wire
Connectors	Molex Mini-Fit Jr.
Weight Range	0.5 to 6.2 lb (0.73 to 2.8 kg)
Compliance	CE, SEMI S2, UL E52951, cUL E52951

Manual Ball Valves										
Valve Size	Flange Type	Ball Port Dia.	Tube OD	A	B	C	D	E	F	Part Number
NW 40	KF	1.25	1.50	4.65	4.50	3.50	8.00	3.20	2.90	100015777
NW 50	KF	1.87	2.00	6.31	5.40	4.30	8.00	4.10	3.50	100016318



Note: Unless otherwise specified, dimensions are nominal values in inches.

Pneumatic Ball Valves											
Valve Size	Flange Type	Ball Port Dia.	Tube OD	A	B	C	D	E	F	G	Part Number
NW 40	KF	1.25	1.50	4.65	9.20	3.50	10.20	3.20	7.70	5.60	100015778
NW 50	KF	1.87	2.00	6.31	10.60	4.30	12.00	4.10	8.60	6.30	100016319



Note: Unless otherwise specified, dimensions are nominal values in inches.



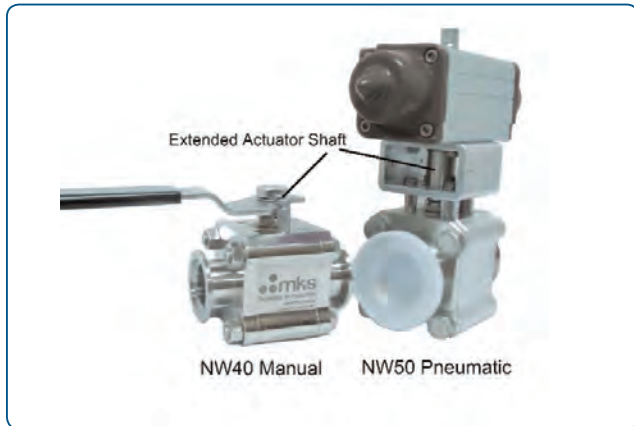
# Series 48 Ordering Information

Series 48 Heaters - Part Number Configurator					
Series 48 Heater Part Number 48XX-XXXX	Controller -1	Temperature Set Point XXX	Control Options -X	Cable Form -X	Cable Length X
9815-0130 Manual, NW 40, 120 V	1	105 105°C	0 Base Controller (Fixed Set Point)	1 Standard Tee	1 Short (For all heaters, except straight sections 13" and longer.)
9815-0131 Pneumatic, NW 40, 120V		150 150°C (Default)	1 Controller w/ Display Module	2 Standard Terminator	2 Long (For straight sections 13" and longer only.)
9815-0230 Manual, NW 40, 240V			2 Controller w/ Comm. Module		
9815-0231 Pneumatic, NW 40, 240V			3 Controller w/ Display & Communications Module		
9820-0201 Manual, NW 50, 120V					
9820-0202 Pneumatic, NW 50, 120V					
9820-0203 Manual, NW 50, 240V					
9820-0204 Pneumatic, NW 50, 240V					

Note: Add the price of the base heater to the price of the options. Sample part number: 9815-0130-1105-2-11. All heaters require two (2) heatable clamps. Power cables are not included with heaters and must be ordered separately. Do not exceed 12 amps draw per power cord.

Series 48 Controllers, Power Cables & Accessories	
Description	Part Number
Base Controller	4800-1150
Display Module	4800-0001
Communications Module	4800-0002
Display & Communications Module	4800-0003
Description	Part Number
Coiled Tee Cable, Short	4800-0011
Coiled Tee Cable, Long	4800-0012
Coiled Terminator Cable, Short	4800-0021
Coiled Terminator Cable Long	4800-0022
High temperature cable ties (package of 12)	100014821
Data cable, 14"	100014853
Data cable, 26"	100014854
Data cable, 38"	100014855
Data cable, 50"	100014856
RS232 to RS485 Converter	100014850
Power cable, 6 ft. (1.83 m), 120 VAC	48PWRCORD01
Power cable, 12 ft. (3.66 m), 120 VAC	48PWRCORD03
Power cable, 120 VAC, with ground fault leakage circuit interrupter, 6 ft. (1.83 m)	48PWRCORD04
Power cable, 120 VAC, with ground fault leakage circuit interrupter, 12 ft. (3.66 m)	48PWRCORD06
Power cable, 240 VAC, with ground fault leakage circuit interrupter, 6 ft. (1.83 m)	48PWRCORD11
Description	Part Number
Heatable Clamp, KF 40 (2 each required for heated applications)	99E1840
Heatable Clamp, KF 50 (2 each required for heated applications)	99E1754
Spare fuse, 12 amps, (quantity of 1)	100006985
Kit, LTA lead, with male & female connector & 10 ft. of wire	100008680
Kit, LTA jumper, with male & female connector & 6 in. of wire	100008683
Low Temperature Alert Monitor, 120V	100010832
Low Temperature Alert Monitor, 240V	100010925





Heatable Ball Valves



Heatable Ball Valve Assembly



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