

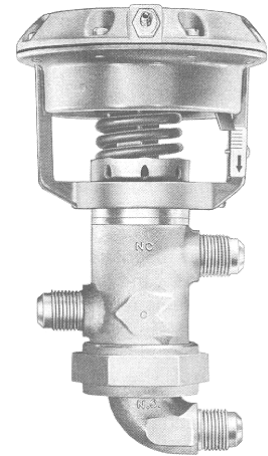
V-4440 Water Valve for Three- & Four-Pipe Systems, Cast Brass 1/2 & 5/8 in. S.A.E. 45° Flared Connections

The V-4440 three-way valve is designed to accurately regulate the flow of hot or cold water in small room air conditioning three- or four-pipe systems. Two models are available; the supply valve with a 4 to 12 PSIG (28 to 84 kPa) spring range, and the return valve with a 6 to 9 PSIG (42 to 63 kPa) spring range.

The V-4440 supply valve has one normally open inlet and one normally closed inlet which are never open at the same time so

there can be no mixing of hot and cold water. The supply valve, therefore, serves a dual purpose. It functions as a switching valve by supplying either hot or cold water, and acts as a control valve by modulating the flow of hot or cold water.

The V-4440 return valve has one inlet and a normally open and a normally closed outlet. This valve modulates within the dead zone of the supply valve to direct hot or cold water through the proper return circuit back to the supply valve.



V-4440 with V-3000 Actuator and Valve Position Indicator

Specifications

Product	V-4440 Three-Way Valve		
Body Rating	250 PSIG (1750 kPa)		
Max Temperature	281F (140°C)		
Max Close-Off Pressure	40 PSIG (280 kPa)		
Body Style & Sizes	3-Way — 1/2 & 5/8 in. Connections (N.P.T.)		
Normal Position	Upper Port	Closed — Control Signal Opens	
	Lower Port	Open — Control Signal Closes	
Control Air Connection	Barbed Fitting for 5/32 or 1/4 in. O.D. Poly tubing		
Max Control Pressure	30 PSIG (210 kPa)		
Spring Ranges (Nominal)	Supply Valve	4 to 12 PSIG (28 to 84 kPa) Modulating; 4 to 6 PSIG (28 to 42 kPa) N.O. Port Closes 6 to 9 PSIG (42 to 63 kPa) Dead Zone 9 to 12 PSIG (63 to 84 kPa) N.C. Port Opens	
	Return Valve	6 to 9 PSIG (42 to 63 kPa)	
Flow Characteristic	Characterized Modulating		
Material	Trim	Stem	Stainless Steel
		Plug	Brass
	Body	Cast Brass with Natural Finish	
	Actuator	Die Cast Aluminum with Enamel Finish	
Ambient Temp. Limits	-10 to 150F (-23 to 66°C)		
Max Storage Temp.	150F (66°C)		
Accessories (Order Separately)	V-9502 Positioner (V-9502-15)		
	Valve Position Indicator (V-3000-10)		

The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

The V-4440 is equipped with a factory installed V-3000 exposed type pneumatic actuator; enclosed actuators are also available, order separately. The V-3000 actuator has a die cast aluminum housing and a molded, synthetic rubber diaphragm that provides a constant effective area through the valve travel. By loosening a single set screw, the complete actuator assembly can be removed, without disturbing the remainder of the valve assembly.

The valve has two modulating plugs which provide a characterized relationship between valve lift and flow at a constant pressure drop.

Operation

Air pressure from a pneumatic controller is applied to the diaphragm of the actuator which moves the piston against the forces of the internal spring and the fluids. The piston will move the valve plugs to a position where the diaphragm pressure

and fluid forces are balanced against the spring force. These fluid forces will cause the operating range to shift from the nominal spring range.

A V-9502 Positioner can be used with this valve where sequential operation is desired or positioning power is required. For adjusting instructions, refer to V-9502 Product Data.

Installation

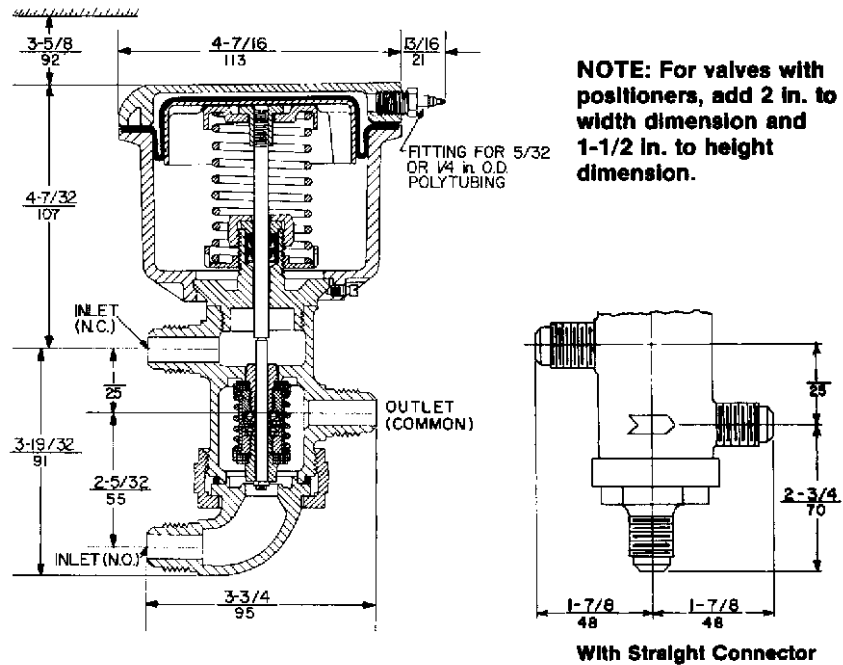
It is recommended that the V-4440 be mounted in an upright position in a conveniently accessible location. Sufficient clearance must be allowed for actuator and trim removal. The V-4440 supply valve must be piped with the flows in the directions indicated by the arrows. The V-4440 return valve should be piped with the flows against the direction indicated by the arrows.

Note: Control air tubing must be disconnected before servicing. Failure to do so may result in personal injury.

Table 1: Nominal Valve Properties

Type	Spring Range PSIG kPa	Size	C _v /k _v Factor		V-4440 Code Number	
			N.O. Seat	N.C. Seat	W/Straight Connector	W/Elbow Connector
Supply	4-12 28-84	1/2	1.4	1.4	1004	1001
			1.2	1.2		
			2.4	2.4	1005	1002
			2	2		
Return	6-9 42-63	1/2	4.1	4.7	—	1003
			3.5	4		
			2.4	2.4	1011	1008
			2	2		
Return	6-9 42-63	5/8	4.1	4.7	—	1009
			3.5	4		
			2.4	2.4	1011	1008
			2	2		

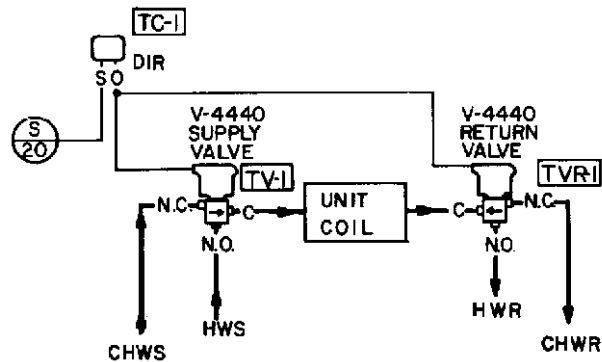
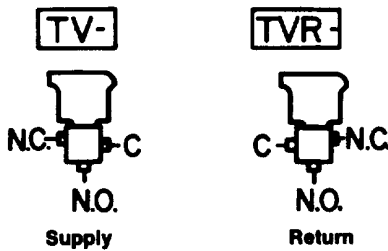
Dimensions in./mm



NOTE: For valves with positioners, add 2 in. to width dimension and 1-1/2 in. to height dimension.

With Straight Connector

Application and Drawing Identification



Typical Application in Four-Pipe System

Table 2: Repair Parts

Item	Code Number	Description
Spring Kits	V-4440-6001*	Spring Kit, 6-9 psig, 11/16 in. stroke for V-4440 (1/2 and 5/8) valve with V-3000-1 or V-3000-2 Act.
	V-4440-6002*	Spring Kit, 4-12 psig, 11/16 in. stroke for V-4440 (1/2 and 5/8) valve with V-3000-1 or V-3000-2 Act.
Reconditioning Kits	V-4440-6003**	Reconditioning Kit, 1/2 in. flare elbow supply valve, 4-12 psig spring, Cv=1.4.
	V-4440-6004**	Reconditioning Kit, 1/2 in. flare elbow supply valve, 4-12 psig spring, Cv=2.4.
	V4440-6005***	Reconditioning Kit, 1/2 in. flare elbow return valve, 6-9 psig spring, Cv=2.4, with V-3000-1 Actuator.
Packing Kit	V-9999-608	Single Pack; contains O-rings, crocus cloth, assembly tool, gland nut liner, guide, extractor/installer, ring pack assembly, follower, grease, and instructions.
		NOTE: For 5/8 in. valve, no kits are available - replace valve.

* Spring Kits contain: spring, upper and lower spring plates, stem extension, lock screw, and instructions.

** Reconditioning Kits contain: valve stem, guide, packing nut, ring pack assembly, centerpiece flare, plugs, discs, V-rings, spring, retainers, holders, O-ring, nut, spacer, adhesive, grease, extractor/installer, and instructions.

*** Reconditioning Kit contains: stem, guide, packing nut, ring pack assembly, bonnet, disc retainer, discs, V-rings, spring, retainer, disc holders, O-ring, nut, grease, spacer, adhesive, extractor/installer.

Note: For actuator repair parts, refer to the appropriate actuator bulletin.



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