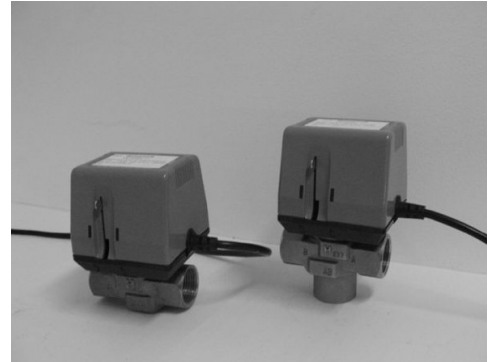


VC4043 SERIES SPRING RETURN VALVES

GENERAL

The VC4043 series Spring Return Valves are used in Heating and Air conditioning systems to control the flow of the heat transfer fluid. The fluid is typically hot or cold water, however treated water(Max.50% Glycol Solutions) applications are also permissible. Spring return VC valve is one type of control valve that can do precise control refer to customer's demands. Spring return actuator has the special function that if the power is off, the valve will return to original position by spring. This is a safe and energy saving function to customers. In addition, this valve is capable of handling greater differential pressures without water-hammer.



Technical Specification

Supply Voltage	220V ±10% 50Hz/60Hz
Label color code	Red
Control signal	On/Of
Power consumption:	Max. 6.5 Watts @ 220V 50Hz Max. 6 Watts @ 220V 60Hz
Motor Noise	53~56db
Nominal Timing	Opens in 35 sec. @ 50 Hz Close time 10 sec Max.

Note: Timing is approximately 20% shorter @ 60 Hz

Electrical Termination	With integral 1 meter (nominal 39") lead wire cable
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Temperature

Ambient Operating	0 to 65 (32 to 150 °F)
Ambient Storage	-40 to +65 (-40 to 150 °F)
Atmosphere	Non-condensing, Non-corrosive, Non-explosive
Fluid temperatures	1 to 95 (34 to 203 °F)
Pressure Differential	Max.4 bar (60 psi)
Pressure Rating	Static: 20 bar (300 psi) Burst: 100 bar (1500 psi)

Valve Material

Body	Bronze
Cartridge	Ryton™ and Noryl™
O-ring seal	EPDM rubber
Stem	Stainless steel
Stem Travel:	10 mm (0.4 inches)

Accessories and Replacement Parts:

40007029-002	Wrench for removing VC valve cartridge
40004802-010	On/Off 2-way VC valve cartridge
40004802-060	On/Off 3-way VC valve cartridge

Table 1. Selection

OS#	Size	Size (in.)	2/3 Way	Cv / Kvs
VC4043AF1000T	DN15	1/2	2	3.0 / 2.6
VC4043AJ1000T	DN20	3/4	2	5.3 / 4.6
VC4043AP1000T	DN25	1	2	5.3 / 4.6
VC4043ME6000T	DN15	1/2	3	3.4 / 2.9
VC4043MH6000T	DN20	3/4	3	7.0 / 6.1
VC4043MP6000T	DN25	1	3	7.7 / 6.7

1. The end connection is BSPP, internal thread.
2. The electrical termination is 1 meter cable.

Table 2. 2-Way Nominal Dimensions (See Fig. 3)

OS#	C		D	
	mm	inches	mm	inches
1/2" BSPP(int.)	98	3-7/8	138	5-7/16
3/4" BSPP (int.)	94	3-11/16	140	5-1/2
1"BSPP(int.)	94	3-11/16	140	5-1/2

Table 3. 3-Way Nominal Dimensions (See Fig. 4)

OS#	C		D	
	mm	Inches	mm	inches
1/2" BSPP(int.)	98	3-7/8	163	6-7/16
3/4" BSPP (int.)	94	3-11/16	157	6-3/16
1"BSPP(int.)	94	3-11/16	163	6-7/16

Fig. 1 - Fluid flow of 2-way valves

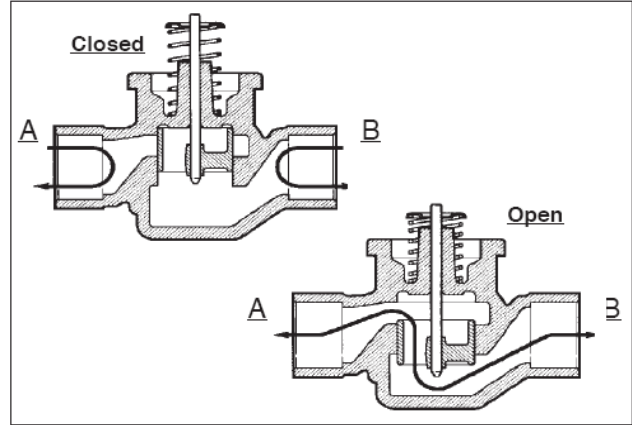


Fig. 2 - Fluid flow of 3-way valves

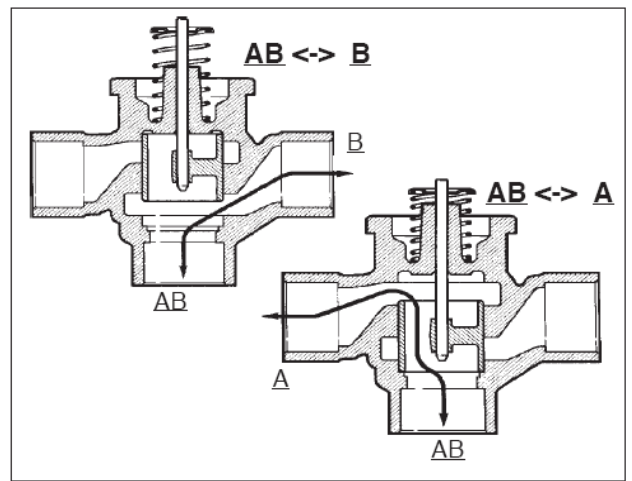


Fig. 3 - 2-Way nominal dimensions in inches and millimetres

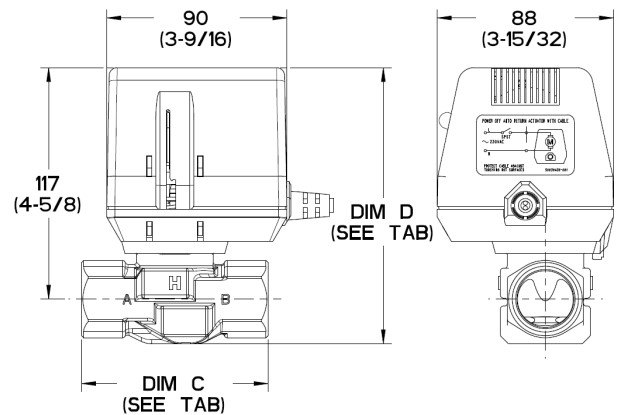


Fig.4 – 3-way nominal dimensions in inches and millimeters

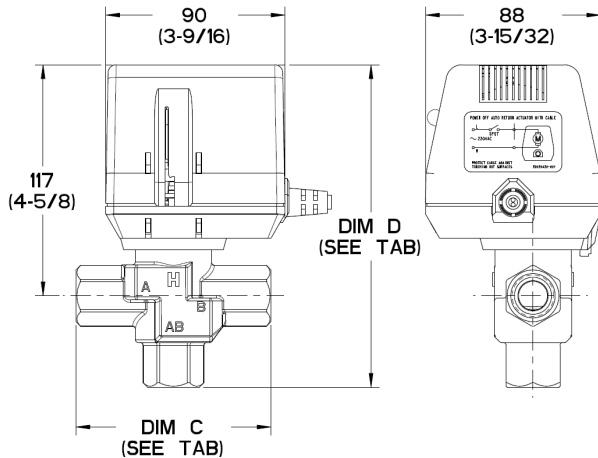
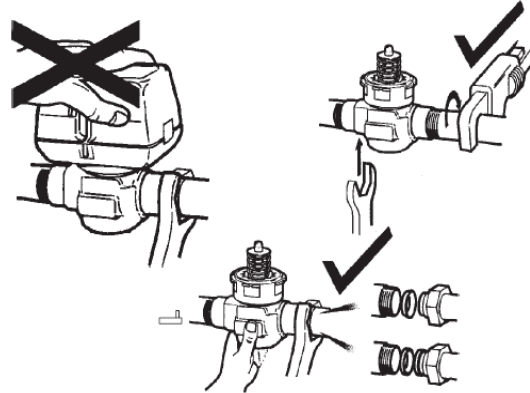


Fig. 5 - Plumbing the VC Valve



INSTALLATION

WHEN INSTALLING THIS PRODUCT:

1. Read these instructions carefully. Failure to follow them could damage the product or cause a hazardous condition.
2. Check the ratings given in the instructions and on the product to make sure the product is suitable for your application.
3. Installer must be a trained, experienced service-person.
4. Always conduct a thorough check-out when installation is completed.
5. While not necessary to remove the actuator from the body, it can be removed for ease of installation. The actuator can be installed in any of the four orientations to suit the most convenient wiring direction. Actuator latching mechanism works only when the lengths of the actuator and the valve body are parallel to each other.
6. An extra 30 mm head clearance is required to remove the actuator.

TO INSTALL REPLACEMENT ACTUATOR

IMPORTANT

Installation of a new actuator does not require draining the system, provided the valve body and valve cartridge assembly remain in the pipeline.

1. Check replacement part number and voltage ratings for match with old device.
2. Disconnect power supply before servicing to avoid electrical shock or equipment damage.
3. Disconnect lead wires to actuator. Where appropriate, label wires for rewiring.
4. The actuator head is automatically latched to the valve. To remove, press up on the latch mechanism with your thumb. It is located directly below the white manual open lever (see figure 6 below). Simultaneously press the actuator down towards the body with moderate hand force and turn the actuator counter-clockwise by 1/8 turn (45 degrees). Lift the actuator off the valve body.

NOTE: The actuator can also be installed at right angles to the valve body but in this position the latch mechanism will not engage.

5. Install the new actuator by reversing the process in (4).
6. Reconnect lead wires.
7. Restore power, and check-out operation.

CAUTION

1. Disconnect power supply before connecting wiring to prevent electrical shock and equipment damage.
2. Never jumper the supply wires or actuator terminals even temporarily. This may damage the thermostat.

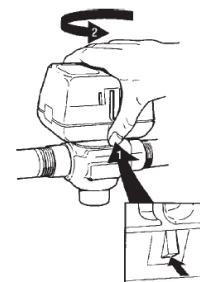
PLUMBING

The valve may be plumbed in any angle but preferably not with the actuator below horizontal level of the body. Make sure there is enough room around the actuator for servicing or replacement.

For use in diverting applications, the valve is installed with the flow water entering through bottom port AB, and diverting through end ports A or B. In mixing applications the valve is installed with inlet to A or B and outlet through AB.

Mount the valve directly in the tube or pipe. Do not grip the actuator while making and tightening up plumbing connections. Either hold valve body in your hand or attach adjustable spanner (38 mm or 1-1/2") across hexagonal or flat faces on the valve body. (Figure 5)

Fig.6-Latch Mechanism to detach Actuator



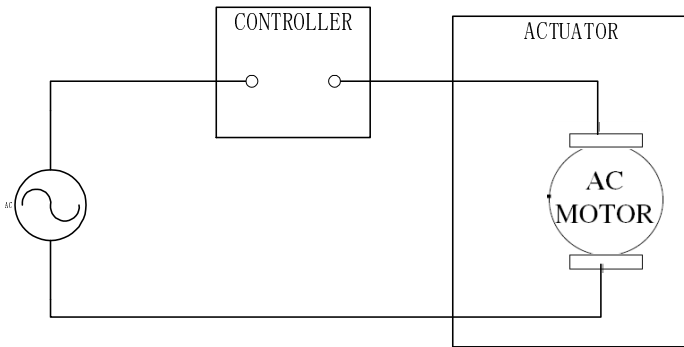
MANUAL OPENER

The manual opener can be manipulated only when in the up position. The "A" port can be manually opened by firmly pushing the manual lever down to the lever holder groove. In this position both the "A" and "B" ports are open. This "manual open" position may be used for filling, venting and draining the system, or for opening the valve in case of power failure. The valve can be restored to the closed position by pushing the manual lever out of the lever holder groove lightly, then the port "A" closed by the spring. The valve and actuator will return to the automatic position when power is restored.

WIRING

See figure 7 for single unit wiring details. Multiple valves may be connected in parallel to a single controller and transformer, up to the current rating of the controller and transformer.

Fig.7 – Wiring of Cable Models for SPST/SPDT controller



OPERATION

WITH SPST/SPDT AC CONTROLLER

(Refer to figure 7)

In the VC spring return, on call for heat/cold from controller, the valve opens. When valve gets fully open position, valve stays open position. After meeting required temperature, controller contacts close and cut off valve's power supply. Then valve back to closed position with spring. In a power failure, valve will back to closed position. When power restore, valve will respond to controller's demand again.

SERVICE

This valve should be serviced by a trained, experienced service technician.

1. If the valve is leaking, drain system *OR* isolate valve from the system. *Do not remove valve body from plumbing.*
2. Check to see if the cartridge needs to be replaced.
3. If the motor or other internal part of the actuator is damaged, replace the entire actuator assembly.

NOTE: Honeywell hydronic valves are designed and tested for silent operation in properly designed and installed systems. However, water noises may occur as a result of excessive water velocity. Piping noises may also occur in high temperature (over 212 ° F [100 ° C]) systems with insufficient water pressure.

IMPORTANT

Do not use boiler additives which are petroleum based or contain mineral oil, hydrocarbons, or ethylene glycol acetate. Compounds which can be used, with minimum 50% water dilution, are diethylene glycol, ethylene glycol and propylene glycol(anti-freeze solutions)

CHECK-OUT

1. Raise the set point of the thermostat above room temperature to initiate a call for heat.
2. Observe all control devices - 2 way valve should open. Port A in 3 way valve should open, and port B should close.
3. Lower the set point of the thermostat below room temperature.
4. Observe the control devices. 2 way valves should close. Port A in 3 way valve should close, and port B should open.

For more information,

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**VC4043 SERIES
SPRING RETURN
VALVES**

Honeywell