

## V4043; V4044 Fan Coil Valves

### PRODUCT DATA



### APPLICATION

These valves consist of an actuator motor and valve assembly for controlling the flow of hot or chilled water in commercial HVAC equipment such as fan coil units, terminal reheat coils and convectors.

#### **IMPORTANT**

*These valves are not for use in systems containing dissolved oxygen.*

### FEATURES

- The V4043 provide 2-position, 2-way straight through control of water
- The V4044 provide 2-position 3-way diverting control of water.
- Compact construction for easy installation.
- Manual opener for valve operation on power failure. Valve returns to automatic position when power is restored.
- Choice of BSPP or flare fitting brass end connections for standard copper tubing.
- Motor can be replaced by removing one screw, without disturbing the valve body or draining the system.
- Complete powerhead may be removed or replaced without breaking the line connections or draining the system.
- All models can be installed without disassembling the valve.
- Fits under the cover of most baseboards.

### SPECIFICATIONS

**Power Supply:** 220 Vac, 50 Hz

**Power Consumption:** 6W

**Timing (nominal):**

On: 12 seconds under power

Off: 6 seconds under spring return

**Flow Characteristics:**

Quick opening for on-off application

**Ambient Temperature:** 1-50 °C

**Fluid Temperature:** 5-94 °C

**Serviced Medium:**

Suitable for hot and chilled water with up to 50% glycol

**Material:**

Valve Body: Forged Brass

V4043; V4044 FAN COIL VALVES

Model	Type	Pipe Connections	Cv	Close-Off Pressure (kPa)	Static Pressure Rating (kPa)
V4043C1354	2-way	1/2" Flare	3.5	136	860
V4043C1362	2-way	3/4" BSPP	8	54	860
V4043C1271	2-way	1" BSPP	10	45	860
V4044C1429	3-way	1/2" Flare	3.5	136	860
V4044C1734	3-way	3/4" BSPP	7	68	860
V4044C1478	3-way	1" BSPP	9.5	54	860
V4043C3046	2-way	1/2" Flare	3.5	136	2000
V4043C3111	2-way	1/2" Flare	2.5	200	2000
V4043C3145	2-way	3/4" BSPP	8	54	2000
V4044C3136	3-way	1/2" Flare	3.5	136	2000

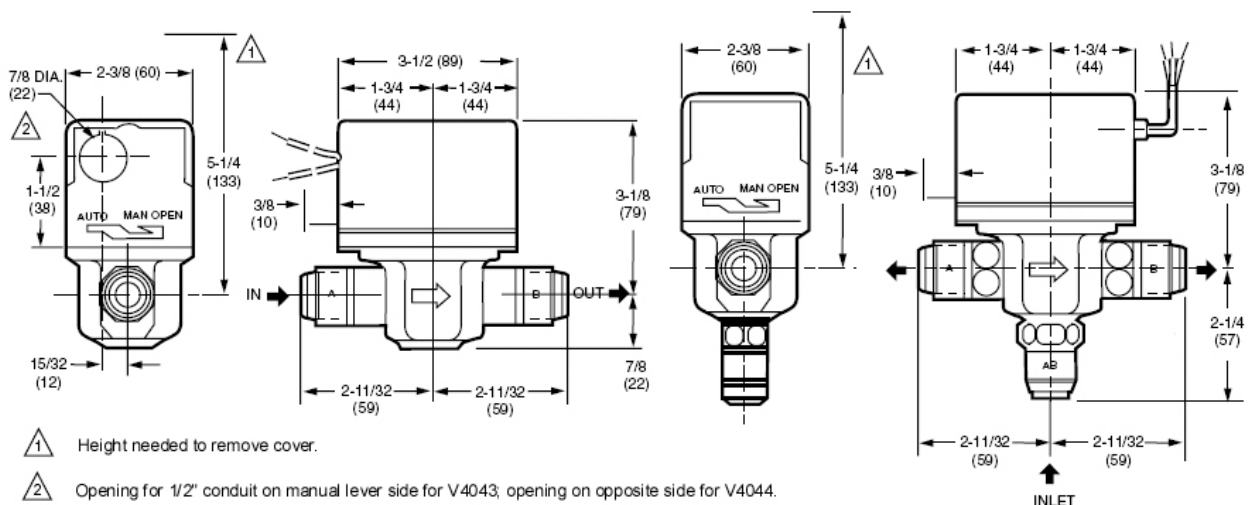
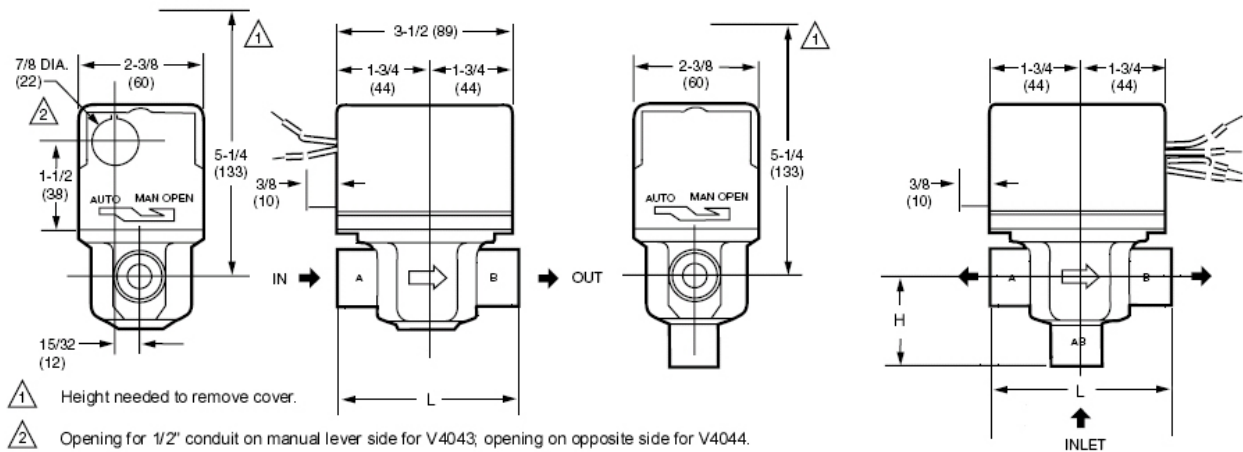


Fig. 1 Dimensions of V4043; V4044 Fan Coil Valves (1/2" Flare connection) in inch (mm)



Pipe Connections	L (mm)	H (mm)
3/4" BSPP	94	48
1" BSPP	94	48

Fig. 2 Dimensions of V4043; V4044 Fan Coil Valves (3/4" and 1" BSPP) in inch (mm)

**How To Find Valve Pressure Drop**

The pressure drop in psi (kPa), equivalent ft (m) of pipe, or feet of water (kPa) can be calculated from Fig. 3 and 4 as follows:

- Calculate the flow rate to heat the zone.
- Determine the Cv (kV) rating of the motorized valve.
- Select the graph corresponding to the Cv (kV) rating (Fig. 3 and 4).
- Determine the pressure drop across the valve using the following procedures for calculating pressure drop.

**Pressure Drop in psi (kPa)**

- Locate the flow rate at the bottom of the graph.
- Draw a line up from the flow rate to the intersection of the curve.
- Draw a line from the intersection to the left edge of the graph to determine the pressure drop in psi (kPa).

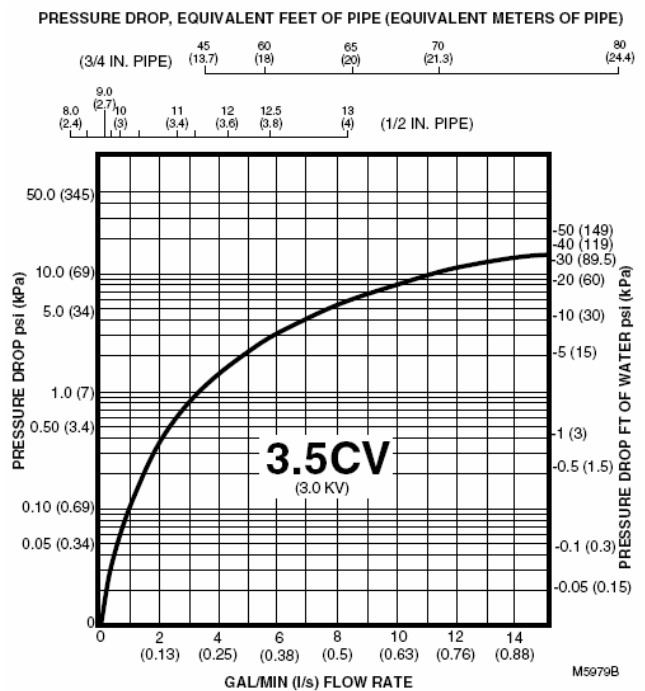
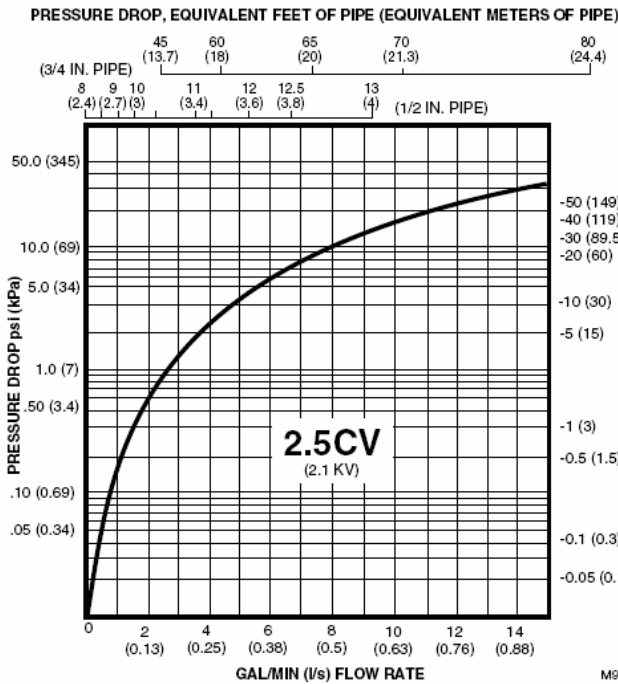
**Pressure Drop in Equivalent ft (m) of Pipe**

NOTE: Both 1/2 and 3/4 in. pipe conversion scales are available for this determination.

- Locate the flow rate at the bottom of the graph.
- Draw a line vertically to the top of the graph. Determine the pressure drop for either the 1/2 or 3/4 in. pipe.

**Pressure Drop in ft of Water (kPa)**

- Locate the flow rate at the bottom of the graph.
- Draw a line up from the flow rate to the intersection of the curve.
- Draw a line from the intersection to the right edge of the graph to determine pressure drop in ft of water (kPa).



**Fig. 3 Flow Characteristics of 2.5 and 3.5 Cv Valves**

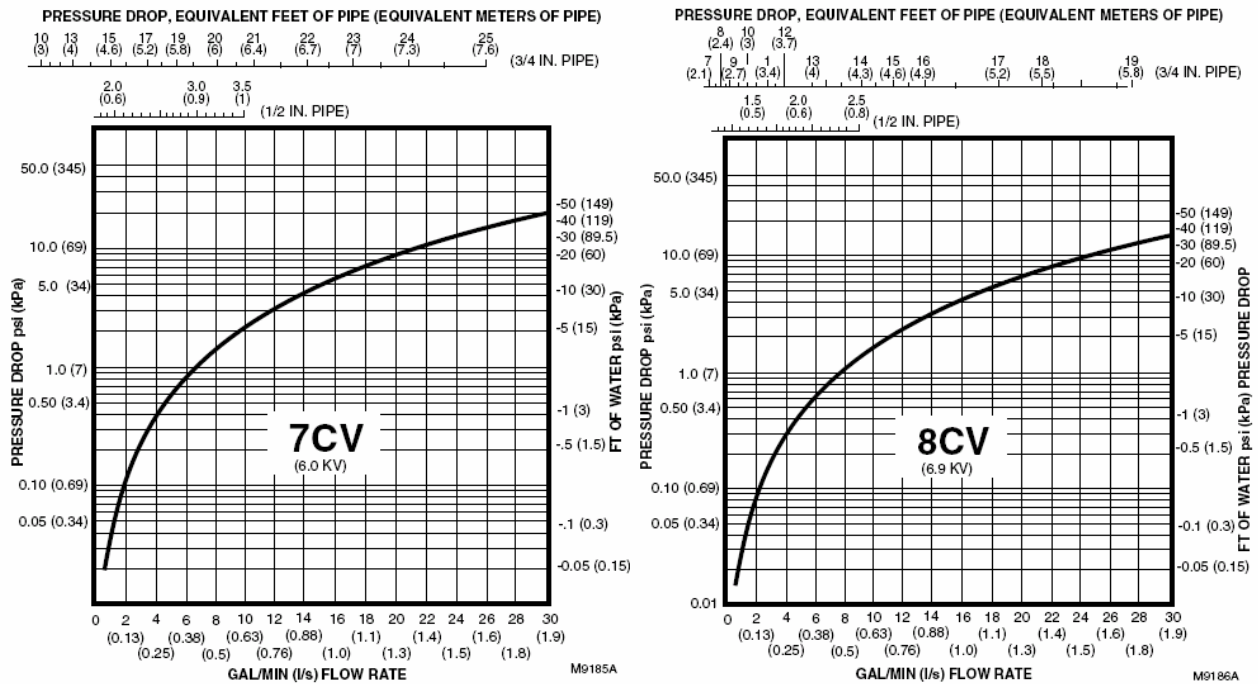


Fig. 4 Flow Characteristics of 7 and 8 Cv Valves

## 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 technician.
4. After installation is complete, check out product operation as provided in these instructions.

## ! CAUTION

1. Disconnect power supply before connecting wiring to prevent electrical shock or equipment damage.
2. Normally it is not necessary to remove the powerhead from the valve body during installation. If the valve must be disassembled, be certain that it is reassembled with the water flow in the direction of the arrow. Reversal of the powerhead results in damage to the gear train.
3. On 24V systems, never jumper the valve coil terminals even temporarily. This can burn out the heat anticipator in the thermostat.

## Mounting

The valve can be mounted in any position on a vertical line. See Fig. 5. If the valve is mounted horizontally; the powerhead must be even with or above the center line of the piping. Make sure to leave enough room above the powerhead to remove the cover for servicing. Make sure that the flow through the valve is in the direction indicated by the arrow stamped on the valve body.

On diverting valves, the three fittings or ports are labeled on the bottom of the valve body casting. See Fig. 1 and 2. Port AB is the inlet port and is open at all times. Port A is closed when the valve is de-energized; port B is open when the valve is de-energized. Refer to the equipment manufacturer instructions to determine which port (A or B) should be connected to the coil bypass.

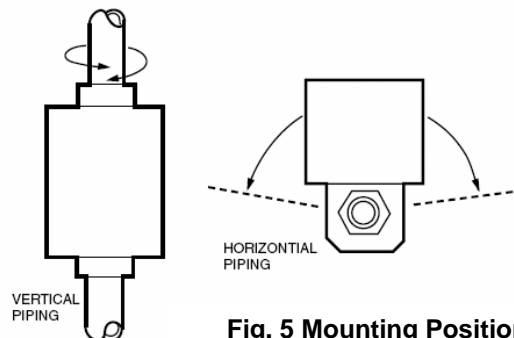


Fig. 5 Mounting Positions

### Wiring

Disconnect the power supply before connecting wiring to prevent electrical shock or equipment damage. All wiring must comply with local codes and ordinances. See Fig. 6 for typical hookups.

### OPERATION

#### Automatic Operation

On a call for heat or cool by the fan coil thermostat, the valve motor operates, opening the valve. When the call ends, the valve closes by integral spring return.

#### Manual Operation

The 2-way normally closed and 3-way motorized valve actuators can be opened manually by lifting the manual opening lever over the stop and pushing slowly and firmly to the MAN. OPEN position. The stop permits the valve to be locked in the open position. The valve returns to automatic position when it is energized.

#### Normally Closed Models

With the manual opener set to AUTO and the actuator energized, the A port is opened as shown in Fig. 7. When the actuator is de-energized, a spring-return mechanism drives the valve to the port A closed position. The valve can also be opened with no electrical power by moving the manual opening lever over the stop and pushing slowly and firmly to the MAN. OPEN position. The stop permits the valve to be locked in an open position. The valve returns to the automatic position.

### CHECKOUT

#### Set to heating mode

1. Raise the setpoint on the thermostat above the room temperature to initiate a call for heat.
2. Observe all control devices—the valve should open.
3. Lower the setpoint on the thermostat below the room temperature.
4. Observe the control devices. The valve should close.

#### Set to cooling mode

1. Lower the setpoint on the thermostat below the room temperature to initiate a call for cooling.
2. Observe all control devices—the valve should open.
3. Raise the setpoint on the thermostat above the room temperature.
4. Observe the control devices. The valve should close.

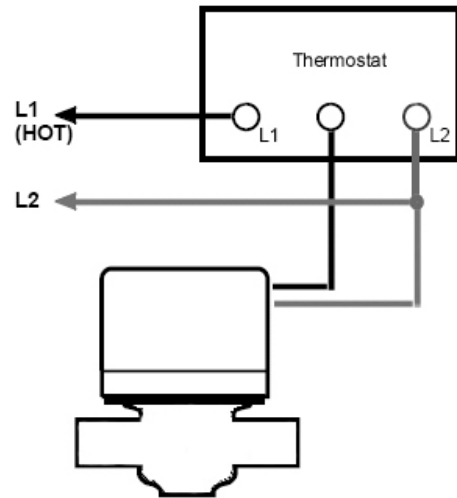


Fig. 6 Typical Wiring for V4043; V4044 Fan Coil Valves

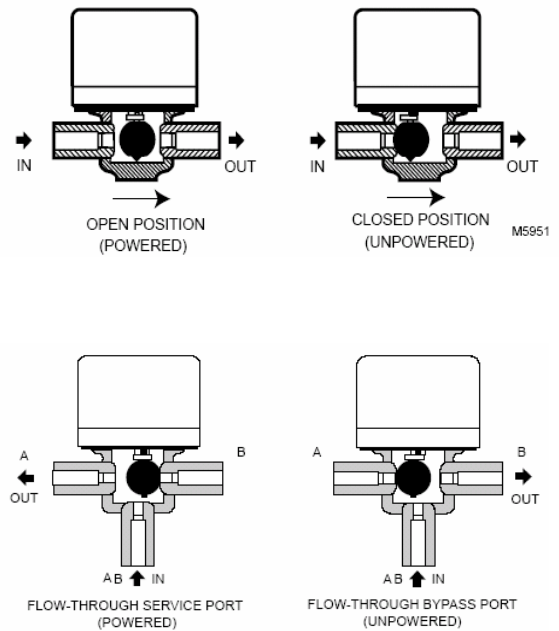


Fig. 7 Actuator Operation for Normally Closed V4043; V4044 Fan Coil Valves

