

V4043A,B,E,J; V4044A,B; V8043A,B,E,F,J; V8044A,B,E Motorized Valves

PRODUCT DATA



FEATURES

- The V4043 and V8043 provide 2-position, straight-through control of water.
- The V4044 and V8044 provide 2-position 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 sweat 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.
- Available with integral auxiliary end switch (V4044B; V8043E,F; V8044E) to permit sequencing of auxiliary equipment.
- V4043E and V8043J provide straight-through control of steam.

APPLICATION

These valves consist of an actuator motor and valve assembly for controlling the flow of hot or cold water, or steam.

IMPORTANT

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

Contents

Application	1
Features	1
Specifications	2
Ordering Information	2
Installation	10
Operation and Checkout	20



SPECIFICATIONS

TRADELINE® Models

TRADELINE® models are selected and packaged to provide ease of stocking, ease of handling, and maximum replacement value. TRADELINE® model specifications are the same as those of standard models except as noted below.

TRADELINE® Models Available:
V8043A,E, and V8043E,F (see Table 1).

Capacity Rating:
3.5 C_v (3.0 kV) nominal. (See Electrical Ratings table in Standard Models section and Table 1.)

Additional Feature:
End switch enclosure included.

Standard Models

Models:
V4043: line voltage, straight-through valves.
V4044: line voltage, 2-position diverting valves.
V8043: low voltage, straight-through valves.
V8044: low voltage, 2-position diverting valves.
See Table 1.

Electrical Ratings
(See Table 1 for Voltage of Specific Models):

Voltage	Amperes	Voltage	Amperes
24	0.320 ^a	220	0.042
100	0.087	240	0.040
120	0.080	277	0.037
208	0.044	—	—

^aMaximum five V8043 Zone Valves per 40 VA transformer.

Changeover Aquastat® Control:
120V, 3.0A with 10.0A inrush.

End Switch:
120V, 4.4A running with 26.4A inrush (60 Hz). Pilot duty 50 VA at 24V.

Timing:
V4043 and V8043: Open or close in 15 seconds maximum.
V4044 and V8044: Divert flow in 30 seconds maximum.

Dimensions:
See Fig. 1.

Manual Opener:
Manual opener (on all except the straight-through, normally open valves) allows opening the valve in case of power failure. Valve returns to automatic position when power is restored.

ORDERING INFORMATION

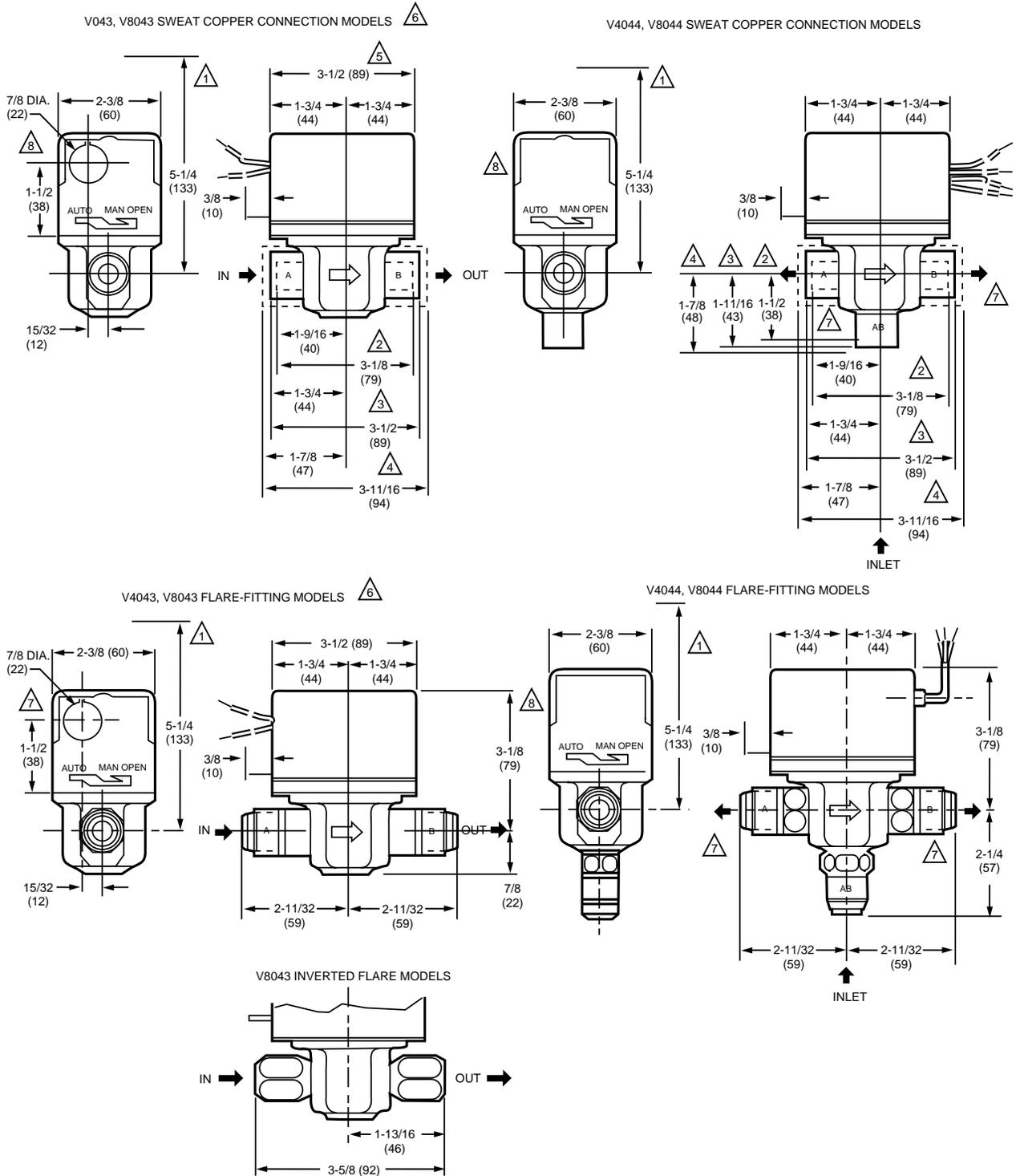
For ordering information when purchasing replacement and modernization products from your TRADELINE® wholesaler or your distributor, refer to the TRADELINE® Catalog or price sheets for complete ordering number, or specify:

1. Order number.
2. Voltage and frequency.
3. Size and type of end connections.
4. C_v (kV) rating.
5. Lead length if different from standard.
6. Replacement parts, if needed.

If you have additional questions, need further information, or want to comment on our products or services, please write or phone:

1. Your local Honeywell Home and Building Control sales office (check white pages of phone directory).
2. Home and Building Control Customer Logistics
Honeywell Inc., 1885 Douglas Drive North
Minneapolis, Minnesota 55422-4386 (612) 951-1000

In Canada—Honeywell Limited/Honeywell Limitee, 155 Gordon Baker Road, North York, Ontario M2H 2C9. International Sales and Service Offices in all principal cities of the world. Manufacturing in Australia, Canada, Finland, France, Germany, Japan, Mexico, Netherlands, Spain, Taiwan, United Kingdom, U.S.A.



- 1 HEIGHT NEEDED TO REMOVE COVER.
- 2 DIMENSIONS FOR 1/2 IN. COPPER TUBING.
- 3 DIMENSIONS FOR 3/4 IN COPPER TUBING.
- 4 DIMENSIONS FOR 1 IN. COPPER TUBING.
- 5 4-7/8 IN. (124) MAX ON V8034F WITH TERMINAL BOARD ENCLOSURE.
- 6 V4034B AND V8043B VALVES THAT ARE NORMALLY OPEN IN THE DE-ENERGIZED POSITION HAVE NO MANUAL LEVER. THE VALVES ALSO HAVE A REVERSED POWERHEAD WHERE THE LEADWIRES EXIT THE POWERHEAD ABOVE THE B (OUTLET) PORT RATHER THAN ABOVE THE A (INLET) PORT.
- 7 REFER TO MOUNTING INSTRUCTIONS.
- 8 OPENING FOR 1/2 IN. CONDUIT ON MANUAL LEVER SIDE FOR V4043, V8043; OPENING ON OPPOSITE SIDE FOR V4044, V8044.

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Fig. 1. Mounting dimensions in in. (mm) of V4043/44, V8043/44 Motorized Valves.

Table 1. Powerhead and Valve Body Specifications

Model	Control Circuit	Flow Capacity Rating		Wire Hookup	Pipe Connections		Valve Body	De-energized Position
		Cv	kV		Type	Size (in.)		
V4043A	120V, 60 Hz	1.0	.86	18 in. (457 mm) leadwires, 1/2 in. conduit opening.	Sweat	1/2	Straight-through	Normally Closed
	120V, 60 Hz	3.5	3.0		Sweat or Flare	1/2		
	120V, 60 Hz	8.0	7.0		Sweat	3/4		
	120V, 60 Hz	8.0	7.0		Sweat	1		
	120V, 60 Hz	3.5	3.0		NPT	1/2		
	120V, 60 Hz	3.5	3.0		NPT	3/4		
	120V, 60 Hz	10.0	8.6		NPT	1		
	208V, 60 Hz	3.5	3.0		Flare	1/2		
	220V, 50 Hz	3.5	3.0		Flare	1/2		
	240V, 50 or 60 Hz	3.5	3.0		Sweat or Flare	1/2		
V4043B	120V, 60 Hz	1.0	.86	18 in. (457 mm) leadwires, 1/2 in. conduit opening.	Sweat	1/2	Straight-through	Normally Open
	120V, 60 Hz	3.5	3.0		Sweat or Flare	1/2		
	240V, 60 Hz	3.5	3.0		Sweat	1/2		
V4043E (steam only)	120V, 60 Hz ^a	Cv not applicable (15 psi [103 kPA] low pressure steam rating).		18 in. (457 mm) leadwires, 1/2 in. conduit opening.	Sweat ^d	1/2	Straight-through	Normally Closed
	208V, 60 Hz				Sweat	1/2		
	240V, 60 Hz				Sweat	1/2		
V4044A	120V, 60 Hz	4.0	3.4	18 in. (457 mm) leadwires, 1/2 in. conduit opening.	Sweat or Flare ^c	1/2	2-position diverting	Port A Normally Closed
	120V, 60 Hz	7.0	6.0		Sweat ^c	3/4		
	120V, 60 Hz	4.0	3.4		Sweat ^e	1/2		
	208V, 60 Hz	4.0	3.4		Sweat	1/2		
	220V, 50 Hz	4.0	3.4		Sweat or Flare	1/2		
	220V, 50 Hz	7.0	6.0		Sweat	3/4		
	240V, 50 Hz	4.0	3.4		Sweat or Flare	1/2		
	240V, 60 Hz	4.0	3.4		Sweat or Flare	1/2		
	277V, 60 Hz	4.0	3.4	24 in. (610 mm) leadwires, 1/2 in. conduit opening.	Sweat	1/2		
V4044B ^{b,c} (bottom inlet)	120V, 60 Hz	4.0	3.4	18 in. (457 mm) leadwires, 1/2 in. conduit opening.	Sweat or Flare	1/2	2-position diverting	Port A Normally Closed
	120V, 60 Hz	7.0	6.0		Sweat	3/4		
	220V, 50 Hz	4.0	3.4		Flare	1/2		

V4043A,B,E,J; V4044A,B; V8043A,B,E,F,J; V8044A,B,E MOTORIZED VALVES

Model	Control Circuit	Flow Capacity Rating		Wire Hookup	Pipe Connections		Valve Body	De-energized Position
		Cv	kV		Type	Size (in.)		
V8043A	24V, 60 Hz	3.5	3.0	18 in. (457 mm) leadwires, 1/2 in. conduit opening.	Sweat or Flare	1/2	Straight-through	Normally Closed
	24V, 60 Hz	3.5	3.0		NPT	1/2		
	24V, 60 Hz	3.5	3.0		Sweat	3/4		
	24V, 60 Hz	8.0	7.0	36 in. (914 mm) leadwires, 1/2 in. conduit opening.	Sweat	3/4		
	24V, 60 Hz	3.5	3.0	18 in. (457 mm) leadwires, 1/2 in. conduit opening.	Sweat	1		
V8043B	24V, 60 Hz	3.5	3.0	18 in. (457 mm) leadwires, 1/2 in. conduit opening.	Sweat	1/2	Straight-through	Normally Open
	24V, 60 Hz	3.5	3.0		Sweat	3/4		
	24V, 60 Hz	3.5	3.0		NPT	3/4		
V8043E	24V, 60 Hz	3.5	3.0	18 in. (457 mm) leadwires and end switch, 1/2 in. conduit opening.	Sweat	1/2	Straight-through	Normally Closed
	24V, 60 Hz	3.5	3.0		Sweat	3/4		
	24V, 60 Hz	3.5	3.0		Sweat	1		
	24V, 60 Hz	8.0	7.0		Sweat	3/4		
	24V, 60 Hz	8.0	7.0		Sweat	1		
	24V, 60 Hz	10.0	8.6		NPT	1		
	24V, 60 Hz	3.5	3.0		NPT	3/4		
	24V, 60 Hz	3.5	3.0		Terminal Board and end switch.	Sweat		
24V, 60 Hz	3.5	3.0	Terminal Board and end switch.	Sweat	3/4	Straight-through	Normally Closed	
24V, 60 Hz	3.5	3.0		Sweat	1			
24V, 60 Hz	8.0	7.0		Sweat	3/4			
24V, 60 Hz	8.0	7.0		Sweat	1			
24V, 60 Hz	8.0	7.0		Sweat	1			
V8043J	24V, 60 Hz ^d	Cv not applicable. (15 psi [103 kPa] low pressure steam rating).		18 in. (457 mm) leadwires, 1/2 in. conduit opening.	^d Sweat	1/2	Straight-through	Normally Open
	24V, 60 Hz				NPT	1/2		
	24V, 60 Hz				NPT	3/4		
V8044A	24V, 60 Hz	4.0	3.4	18 in. (457 mm) leadwires, 1/2 in. conduit opening.	Sweat or Flare ^e	1/2	2-position diverting	Port A Normally Closed
	24V, 60 Hz	7.0	6.0		Sweat	3/4		
	24V, 60 Hz	4.0	3.4	50 in. (1270 mm) stranded leadwires, 1/2 conduit opening.	Sweat	1/2		
	24V, 60 Hz	4.0	3.4	18 in. (457 mm) leadwires, 1/2 in. conduit opening.	NPT	1/2		
	24V, 60 Hz	4.0	3.4		NPT	3/4		

V4043A,B,E,J; V4044A,B; V8043A,B,E,F,J; V8044A,B,E MOTORIZED VALVES

Model	Control Circuit	Flow Capacity Rating		Wire Hookup	Pipe Connections		Valve Body	De-energized Position
		Cv	kV		Type	Size (in.)		
V8044B	24V, 60 Hz ^b	4.0	3.4	18 in. (457 mm) leadwires, 1/2 in. conduit opening.	Sweat	1/2	2-position diverting	Port A Normally Closed
V8044E	24V, 60 Hz	4.0	3.4	18 in. (457 mm) leadwires and end switch, 1/2 in. conduit opening.	Sweat	1/2	2-position diverting	Port A Normally Closed
	24V, 60 Hz	7.0	6.0		Sweat	3/4		

- a 30 in. (762 mm) leads also available.
- b Includes integral changeover Aquastat® Control.
- c 96 in. (2438 mm) leads also available.
- d 30 in. (762 mm) leads also available.
- e Valve available with reduced (2.5 C_v [2.1 kV]) rating on bypass port. Sweat fitting only.

Approvals:

Underwriters Laboratories Inc. Listed: V4043A,B,E; V4044A,B; V8043A,B,E,J; V8044A,B,E: File MH11826, Vol. 1, dated 2-22-88.

Replacement Parts:

Motor Part Numbers (use with V4043, V4044, V8043, V8044):

- 802360JA 24 Vac, 60 Hz, Class A, plated.
- 802360LA 120 Vac, 60 Hz, Class F, plated.
- 802360MA 208 Vac, 60 Hz, Class F, plated.
- 802360NA 220V 50 Hz, 240V 60 Hz, Class F, plated.
- 802360UA 24 Vac, 60 Hz, Class F, plated.

Powerhead (see Table 2):

Includes motor, housing and two mounting screws.

Conversion Kits:

Conversion kits for converting old style (series 1-5) valve bodies to accept 40003916 Powerhead (use with V4043, V4044, V8043, V8044). Includes metal plate with driveshaft and rubber ball, O-Ring and four screws.

- Two-way water valve body: 40003918-006.
- Three-way water valve body: 40003918-007.
- Two-way steam valve body: 40003918-008.

O-Ring Part Numbers:

- 272742A—Includes replacement ball plug, large O-Ring and four screws.
- 272756A—Package of five large O-Rings.

Accessories:

803867A Conduit Cover: Includes 803858 Cover and 803859 Case (for V8043F).

Flow and Temperature Ratings:

Valve Family	Flow Capacity Rating		Maximum Closeoff Pressure		Max Fluid Temperature	Min Fluid Temperature	Max Ambient Temperature
	Cv	kV	psi	kPa			
V4043A,B,E,J	1.0	.86	50	345	240°F (116°C)	40°F (5°C)	125°F (50°C)
	3.5	3.0	20	138	240°F (116°C)	40°F (5°C)	125°F (50°C)
	10.0	8.6	6.5	45	240°F (116°C)	40°F (5°C)	125°F (50°C)
V8043A,B,E,F	3.5	3.0	20	138	200°F (93°C)	40°F (5°C)	125°F (50°C)
	8.0	7.0	8	55	200°F (93°C)	40°F (5°C)	125°F (50°C)
	10.0	8.6	6.5	45	200°F (93°C)	40°F (5°C)	125°F (50°C)
V4044A,B	4.0	3.4	20	138	240°F (116°C)	40°F (5°C)	125°F (50°C)
	7.0	6.0	10	69	240°F (116°C)	40°F (5°C)	125°F (50°C)
V8044A,B,E	4.0	3.4	20	138	200°F (93°C)	40°F (5°C)	125°F (50°C)
	7.0	6.0	10	69	200°F (93°C)	40°F (5°C)	125°F (50°C)
V4043E, V8043J (steam)	—	—	15 ^a	103	240°F (116°C)	40°F (5°C)	125°F (50°C)

Static Pressure Rating of 125 psi (862 kPa) applies to all valves.

^a15 psi low pressure steam.

Table 2. Replacement Powerheads.

Valve Model Number	Part Number	Electrical Connection on Which Side of Manual Lever	Voltage (Vac) and Frequency (Hz)	Current Draw (A)	Type of Electrical Connection	Motor	
V4043A	40003916-022	Same	220/50, 240/60	0.04	18 in (457 mm) leads (conduit opening)	Class F; plated	
	40003916-023	Same	240, 50	0.04			
	40003916-024	Same	120, 60	0.08			
V4043B	40003916-030	Same	240, 60	0.04			
	40003916-031	Same	120, 60	0.08			
	40003916-042	Same	208, 60	0.04			
V8043A	40003916-021	Same	24, 50/60	0.32		Terminal Board	Class A
V8043B	40003916-027	Same	24, 50/60	0.32			
V8043E	40003916-026	Same	24, 50/60	0.32			
V8043F	40003916-048	Same	24, 50/60	0.32			
V4044A	40003916-034	Opposite	240, 50	0.04	18 in. (457 mm) leads (conduit opening)	Class F; plated	
	40003916-035	Opposite	220/50, 240/60	0.04	96 in. (2438 mm) leads (conduit opening)		
	40003916-036	Opposite	120, 60	0.08			
	40003916-047	Same	120, 60	0.08			
V4044B	40003916-039	Opposite	220/50, 240/60	0.04	18 in. (457 mm) leads (conduit opening)		
	40003916-040	Opposite	120, 60	0.08			
	40003916-045	Same	120, 60	0.08			
V8044A	40003916-032	Opposite	24, 50/60	0.32	18 in. (457 mm) leads (conduit opening)	Class A; plated	
	40003916-046	Same	24, 50/60	0.32			
V8044B	40003916-037	Opposite	24, 50/60	0.32	18 in. (457 mm) leads (conduit opening)		
	40003916-044	Same	24, 50/60	0.32			

How to Find Maximum Valve Operating Temperature

The maximum operating temperature for motorized valves depends on the maximum ambient temperature at the valve location, and on the maximum fluid temperature. Using the graph in Fig. 2, find the maximum valve operating temperature as follows:

- A Measure the ambient temperature at the valve and locate that temperature on the ambient temperature scale on the graph.

- B Draw a line from the ambient temperature, parallel with the fluid temperature scale, to the maximum fluid temperature line.
- C Draw a line from that point down to the fluid temperature scale to find the maximum operating temperature. (Note the example shown by the dashed line in Fig. 2.)

To find the maximum ambient temperature for a valve when the fluid temperature is known, reverse the procedure.

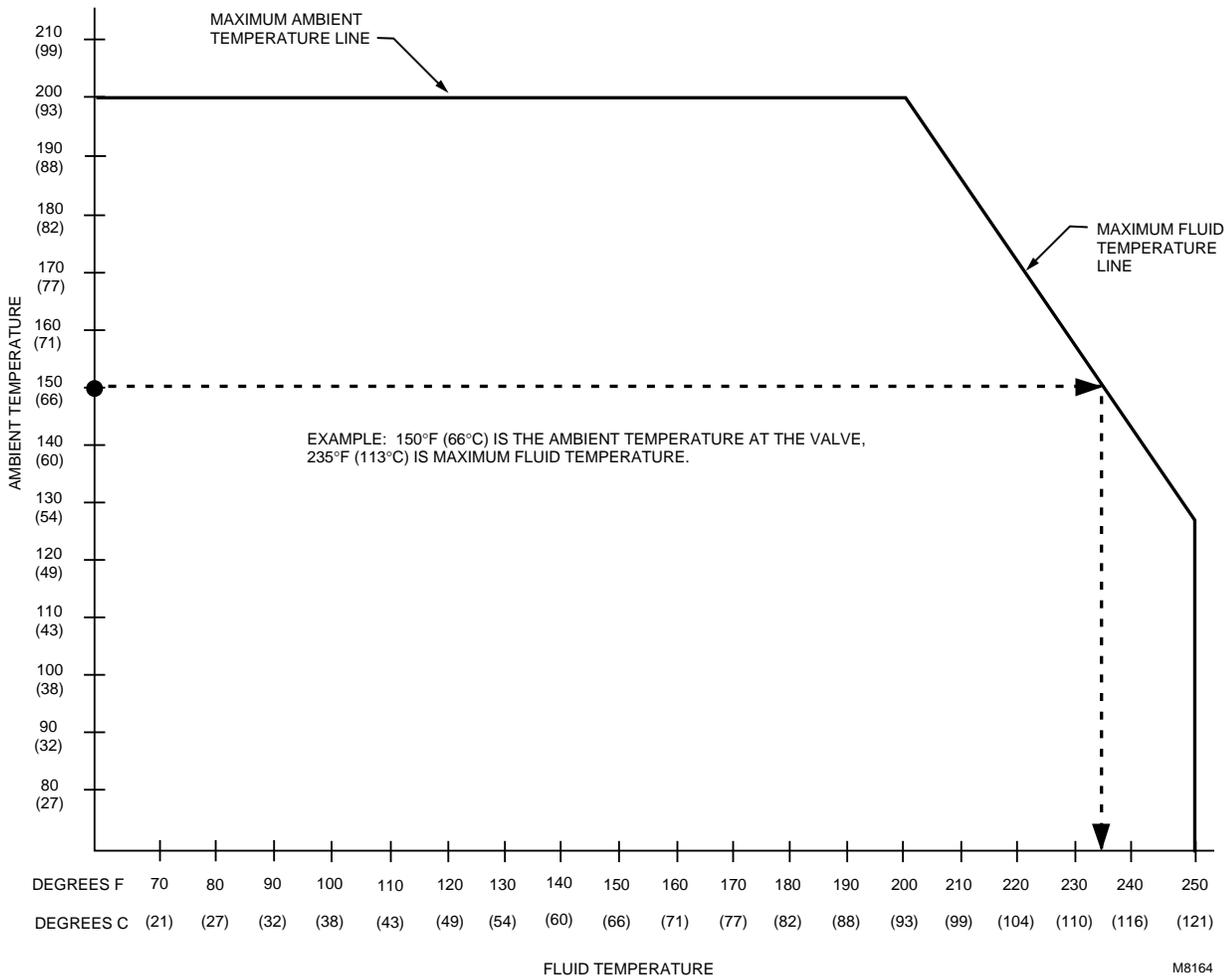


Fig. 2. Maximum temperature characteristics of valves with Class F motors.

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 through 8 as follows:

- A Calculate the flow rate to heat the zone.
- B Determine the C_v (kV) rating of the motorized valve.
- C Select the graph corresponding to the C_v (kV) rating (Fig. 3 through 8).
- D Determine the pressure drop across the valve using the following procedures for calculating pressure drop.

Pressure Drop in psi (kPa)

- A Locate the flow rate at the bottom of the graph.
- B Draw a line up from the flow rate to the intersection of the curve.
- C 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.

- A Locate the flow rate at the bottom of the graph.
- B 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)

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

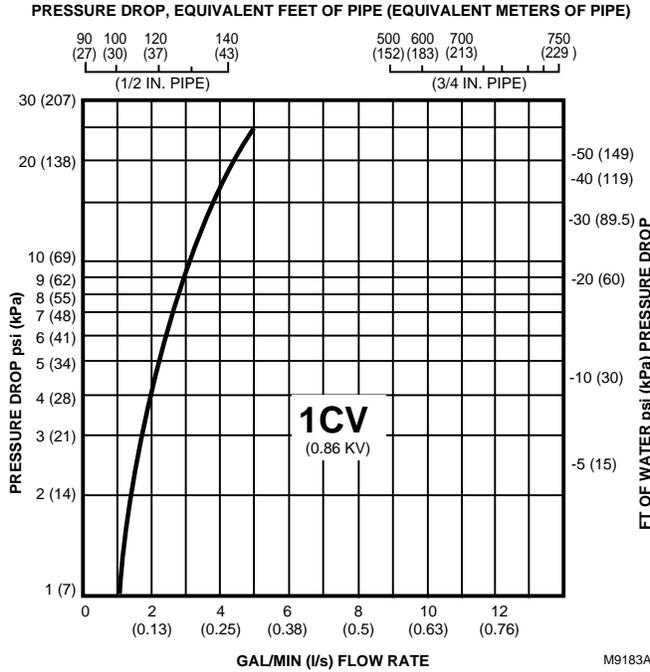


Fig. 3. Flow characteristics of 1 C_V (0.86 kV) flow.

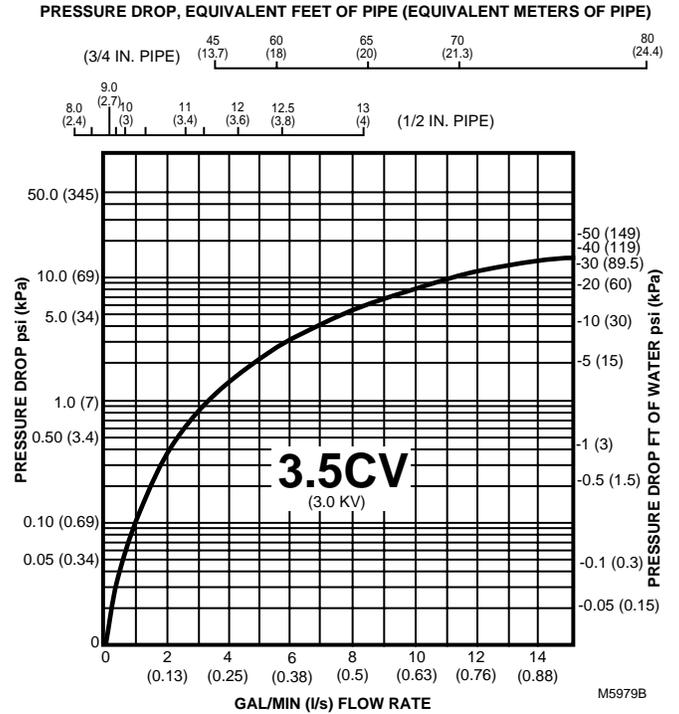


Fig. 5. Flow characteristics of 3.5 C_V (3.0 kV) valve.

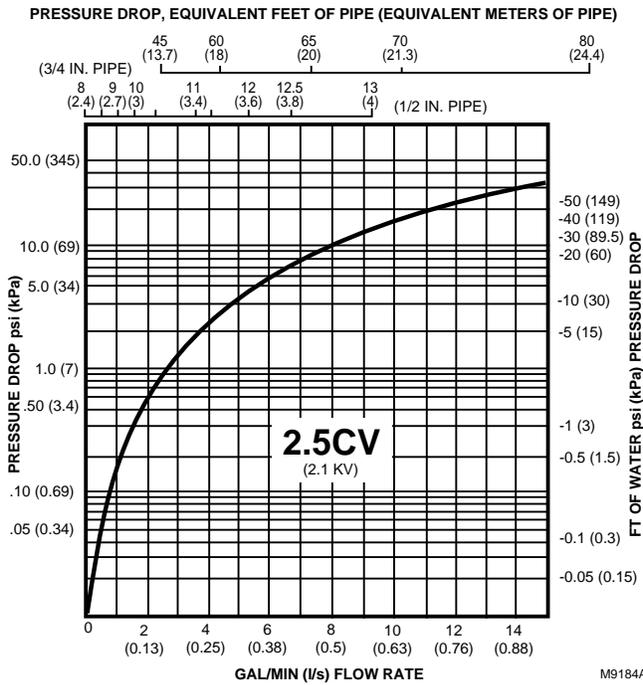


Fig. 4. Flow characteristics of V4043A model with 2.5 C_V (2.1 kv) rating and V4044A and V8044A bypass port (B) with 2.5 C_V (2.1 kv) (reduced) rating.

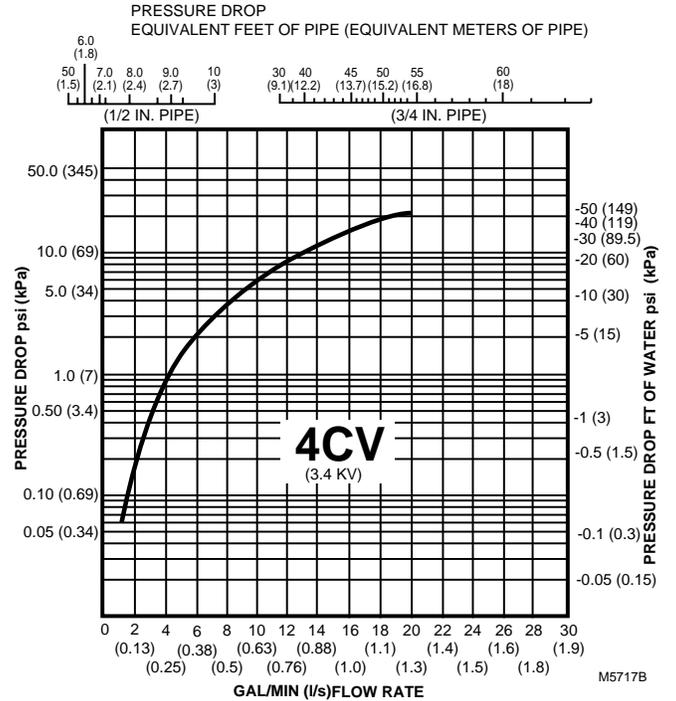


Fig. 6. Flow characteristics of 4 C_V (3.4 kV) valve.