

Hydronic Valves & Actuators

Cartridge Cage Valves - VCZA; VCZB Two-way



Sweat Connection



Inverted Flare Connection

NPT Connections



- Quick open, linear, and equal percentage flow characteristics available
- Bi-directional installation
- 3000-series valves for floating and modulating non-fail safe applications
- 1000-series valves for two-position control
- High close-off rating independent of Cv
- Available with a variety of North American and international pipe fittings
- No tools required for actuator installation or removal
- Actuator removal does not require draining system
- Service is by replacement of cartridge, not valve body
- Cartridge replacement rebuilds valve to factory-new condition

Two-way Cartridge Cage Valves are intended for hydronic applications in a normal indoor environment to control the flow of hot water or chilled water glycol solution to 60% concentration. These valves are designed for zone control of heating/cooling systems, or to control individual fan coil, baseboard radiator or convector applications. Depending on the model selected they can be controlled by SPST or SPDT two position controller, tristate (floating), or modulating proportional controller. For best control, outdoor temperature compensation of supply water temperature is recommended. For trouble-free operation of the product, good installation practice must include initial system flushing, chemical water treatment, and the use of a 50 micron (or finer) system side stream filter(s). Remove all filters before flushing.

Valve Type: Cartridge Cage Valve

Valve Action: Stem up to close A port

Body Pattern: Two-way, straight-through

Controlled Medium: Chilled or hot water with up to 60% Glycol

Maximum Safe Operating Pressure: 300 psi (2068 kPa (20 Bar))

Maximum Differential Pressure Ratings (Close-off): (414 kPa; 60 psi (4 bar))

Fluid Temperature Range: 34°F to 203°F (1°C to 95°C)

Ambient Temperature Range: 32°F to 150°F (0°C to 65°F)

Stem Travel: 0.4 in. (10 mm)

Materials

(Body): Bronze

(Stem): Stainless Steel

(Seat): EPDM O-ring seals on Noryl™ piston

(Cartridge): Ryton™, Noryl™ engineering plastic

(Packing): EPDM rubber

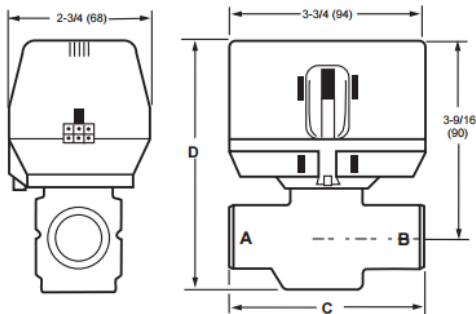
Includes: Cartridge installation wrench

Approvals

Canadian Standards Association: CSA Certified

Accessories: 40007029-002-Wrench for cartridge (included with sweat valves and all replacement cartridges)

Dimensions in inches (millimeters)



PIPE FITTING SIZES	C		D	
	IN.	MM	IN.	MM
3/8" FLARE	3-7/8	98	4-3/8	111
1/2" SWEAT	3-1/2	89		
1/2" FLARE	3-7/8	98		
1/2" INVERTED FLARE				
1/2" NPT (int.)				
3/4" NPT (int.)	3-11/16	94	4-7/16	113
3/4" SWEAT				
1" NPT (int.)				
1" SWEAT				
1-1/4" SWEAT	4-5/16	110	4-5/8	118
1-1/4" NPT (int.)				

NO ADAPTERS

M16839



Hydronic Valves & Actuators

Cartridge Cage Valves - VCZA; VCZB Two-way

Valves with Linear Flow Characteristic

- Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller

Valve Size		Flow Capacity		Timing (sec. min.) when used with VC series Actuator	Connection Type	Actuation	Used with	Part Number
(in.)	DN	(Cv)	(Kv)					
1/2 in.	DN15	3.5 Cv	3.03 kvs	On/Off models with 6 seconds	Sweat	Must be purchased separately	VC actuators, On-Off Type	VCZAA1100
1/2 in.	DN15	3.2 Cv	2.74 kvs	On/Off models with 6 seconds	Inverted Flare			VCZAE1100
3/4 in.	DN20	4.7 Cv	4.0 kvs	On/Off models with 6 seconds	Female NPT			VCZAL1100
3/4 in.	DN20	4.6 Cv	3.9 kvs	On/Off models with 6 seconds	Sweat			VCZAM1100
1 in.	DN25	6.6 Cv	5.7 kvs	On/Off models with 6 seconds	Female NPT			VCZAR1100
1 in.	DN25	6.6 Cv	5.7 kvs	On/Off models with 6 seconds	Female NPT			VCZAS1100
1/2 in.	DN15	3.5 Cv	3.03 kvs	On/Off models with 6 seconds	Sweat			VCZBB1100
1 1/4 in.	DN32	7.0 Cv	6.5 kvs	On/Off models with 6 seconds	Female NPT			VCZBD1100
1 1/4 in.	DN32	7.0 Cv	6.5 kvs	On/Off models with 6 seconds	Sweat			VCZBE1100

Valves with Linear Flow Characteristic

- Characterized cartridge for use with non-fail safe floating and modulating actuators

Valve Size		Flow Capacity		Timing (sec. min.) when used with VC series Actuator	Connection Type	Actuation	Used with	Part Number
(in.)	DN	(Cv)	(Kv)					
1/2 in.	DN15	3.5 Cv	3.03 kvs	2 minutes	Sweat	Proportional non-fail safe, purchase separately	VC6830/VC6831/VC6834; VC6930/VC6931/ VC6934; VC7930/VC7931/VC7934	VCZAA3100
3/4 in.	DN20	4.7 Cv	4.0 kvs	2 minutes	Female NPT			VCZAL3100
3/4 in.	DN20	4.7 Cv	4.0 kvs	2 minutes	Sweat			VCZAM3100
1 in.	DN20	6.6 Cv	5.7 kvs	2 minutes	Female NPT			VCZAR3100
1 in.	DN20	6.6 Cv	5.7 kvs	2 minutes	Sweat			VCZAS3100
1/2 in.	DN15	3.5 Cv	3.03 kvs	2 minutes	Female NPT			VCZBB3100
1 1/4 in.	DN32	7.0 Cv	6.5 kvs	2 minutes	Female NPT			VCZBD3100
1 1/4 in.	DN32	7.0 Cv	6.5 kvs	2 minutes	Sweat			VCZBE3100

Valves with Modified Equal Percent Flow Characteristic

- Characterized cartridge for use with non-fail safe floating and modulating actuators

Valve Size		Flow Capacity		Timing (sec. min.) when used with VC series Actuator	Connection Type	Actuation	Used with	Part Number
(in.)	DN	(Cv)	(Kv)					
1/2 in.	DN15	2.3 Cv	1.98 kvs	2 minutes	Sweat	Proportional non-fail safe, purchase separately	VC6830/VC6831/VC6834; VC6930/VC6931/ VC6934; VC7930/VC7931/VC7934	VCZAA3400
1/2 in.	DN15	0.7 Cv	0.6 kvs	2 minutes	Sweat			VCZAA3500
1/2 in.	DN15	1.3 Cv	1.1 kvs	2 minutes	Sweat			VCZAA3600
1/2 in.	DN15	1.9 Cv	1.64 kvs	2 minutes	Sweat			VCZAA3800
3/4 in.	DN20	3.9 Cv	3.4 kvs	2 minutes	Female NPT			VCZAL3400
3/4 in.	DN20	3.1 Cv	2.6 kvs	2 minutes	Female NPT			VCZAL3800
3/4 in.	DN20	3.9 Cv	3.4 kvs	2 minutes	Sweat			VCZAM3400
1 in.	DN20	4.2 Cv	3.6 kvs	2 minutes	Female NPT			VCZAR3400
1 in.	DN20	4.2 Cv	3.6 kvs	2 minutes	Sweat			VCZAS3400
1/2 in.	DN15	2.3 Cv	1.98 kvs	2 minutes	Female NPT			VCZBB3400
1/2 in.	DN15	0.7 Cv	0.6 kvs	2 minutes	Female NPT			VCZBB3500
1/2 in.	DN15	1.3 Cv	1.1 kvs	2 minutes	Female NPT			VCZBB3600
1/2 in.	DN15	1.9 Cv	1.64 kvs	2 minutes	Female NPT			VCZBB3800

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Hydronic Valves & Actuators

Cartridge Cage Valves - VCZM; VCZN Three-way

Sweat Connection



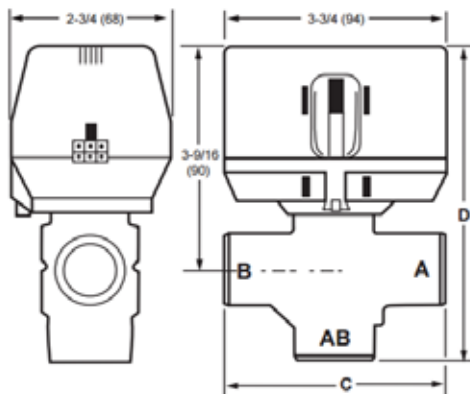
NPT Connection



- Quick open, linear, and equal percentage flow characteristics available
- Mixing or diverting application
- A-AB-B body pattern
- 7000-series valves for floating and modulating non-fail safe applications
- 6000-series valves for two-position control
- High close-off rating independent of Cv
- Available with a variety of North American and international pipe fittings
- No tools required for actuator installation or removal
- Actuator removal does not require draining system
- Service is by replacement of cartridge, not valve body
- Cartridge replacement rebuilds valve to factory-new condition

Two-way Cartridge Cage Valves are intended for hydronic applications in a normal indoor environment to control the flow of hot water or chilled water glycol solution to 60% concentration. These valves are designed for zone control of heating/cooling systems, or to control individual fan coil, baseboard radiator or convector applications. Depending on the model selected they can be controlled by SPST or SPDT two position controller, tristate (floating), or modulating proportional controller. For best control, outdoor temperature compensation of supply water temperature is recommended. For trouble-free operation of the product, good installation practice must include initial system flushing, chemical water treatment, and the use of a 50 micron (or finer) system side stream filter(s). Remove all filters before flushing.

Dimensions in inches (millimeters)



PIPE FITTING SIZES	C		D	
	IN.	MM	IN.	MM
3/8" FLARE	3-7/8	98	5-11/32	136
1/2" SWEAT	3-1/2	89	5-1/8	130
1/2" FLARE	3-7/8	98	5-11/32	136
1/2" INVERTED FLARE	3-7/8	98	5-11/32	136
1/2" NPT (int.)				
3/4" NPT (int.)	3-11/16	94	5-1/8	130
3/4" SWEAT			5-3/16	132
1" NPT (int.)				136
1" SWEAT			5-11/32	
1-1/4" SWEAT	4-5/16	110	5-5/8	142
1-1/4" NPT (int.)				

⚠ NO ADAPTERS

M10540

Valve Type: Cartridge Cage Valve

Valve Action: Stem up to close A port

Body Pattern: Three-way A-AB-B

Controlled Medium: Chilled or hot water with up to 60% Glycol

Maximum Safe Operating Pressure: 300 psi (2068 kPa (20 Bar))

Maximum Differential Pressure Ratings (Close-off): (414 kPa; 60 psi (4 bar))

Fluid Temperature Range: 34°F to 203°F (1°C to 95°C)

Ambient Temperature Range: 32°F to 150°F (0°C to 65°F)

Stem Travel: 0.4 in. (10 mm)

Materials

Body: Bronze

Stem: Stainless Steel

Seat: EPDM O-ring seals on Noryl™ piston

Cartridge: Ryton™, Noryl™ engineering plastic

Packing: EPDM rubber

Approvals

Canadian Standards Association: CSA Certified

Accessories: 40007029-002 Wrench for cartridge (included with sweat valves and all replacement cartridges)

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Hydronic Valves & Actuators

Cartridge Cage Valves - VCZM; VCZN Three-way

Valves with Linear Flow Characteristics

- Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller

Valve Size		Flow Capacity		Timing (sec. min.) when used with VC series Actuator	Connection Type	Actuation	Used with	Includes	Part Number
(in.)	DN	(Cv)	(Kv)						
1/2 in.	DN15	3.7 Cv	3.2 kvs	On/Off models with 6 seconds	Sweat	Must be purchased separately	VC actuators, 2-position, On-Off Type	Cartridge changing tool	VCZMA6100
1/2 in.	DN15	3.8 Cv	3.8 kvs		Flare			-	VCZMC6100
1/2 in.	DN15	3.2 Cv	2.74 kvs		Inverted Flare			-	VCZMD6100
3/4 in.	DN20	6.6 Cv	5.7 kvs		Female NPT			-	VCZMK6100
3/4 in.	DN20	6.6 Cv	5.7 kvs		Sweat			Cartridge changing tool	VCZML6100
1 in.	DN25	8.3 Cv	7.1 kvs		Female NPT			-	VCZMR6100
1 in.	DN25	8.3 Cv	7.1 kvs		Sweat			Cartridge changing tool	VCZMS6100
1/2 in.	DN15	3.7 Cv	3.2 kvs		Female NPT			-	VCZNB6100
1 1/4 in.	DN32	9.0 Cv	7.7 kvs		Female NPT			-	VCZND6100
1 1/4 in.	DN32	9.0 Cv	7.7 kvs		Sweat			Cartridge changing tool	VCZNE6100

Valves with Linear Flow Characteristics

- Characterized cartridge for use with non-fail safe floating and modulating actuators

Valve Size		Flow Capacity		Timing (sec. min.) when used with VC series Actuator	Connection Type	Actuation	Used with	Includes	Part Number
(in.)	DN	(Cv)	(Kv)						
1/2 in.	DN15	3.7 Cv	3.2 kvs	2 minutes	Sweat	Proportional non-fail safe purchase separately	VC6830/VC6831/VC6834; VC6930/VC6931/VC6934; VC7930/VC7931/VC7934	Cartridge changing tool	VCZMA7100
3/4 in.	DN20	6.6 Cv	5.7 kvs		Female NPT			-	VCZMK7100
3/4 in.	DN20	6.6 Cv	5.7 kvs		Sweat			Cartridge changing tool	VCZML7100
1/2 in.	DN15	3.7 Cv	3.2 kvs		Female NPT			-	VCZNB7100
1 1/4 in.	DN32	9.0 Cv	7.7 kvs		Female NPT			-	VCZND7100
1 1/4 in.	DN32	9.0 Cv	7.7 kvs		Sweat			Cartridge changing tool	VCZNE7100

Valves with Linear Flow Characteristics

- Can be controlled by either a low voltage or a line voltage SPDT or SPST or floating controller; characterized cartridge for use with floating and modulating actuators

Valve Size		Flow Capacity		Timing (sec. min.) when used with VC series Actuator	Connection Type	Actuation	Used with	Includes	Part Number
(in.)	DN	(Cv)	(Kv)						
1 in.	DN25	8.3 Cv	7.1 kvs	2 Minutes	Female NPT	Proportional non-fail safe purchase separately	VC6830/VC6831/VC6834; VC6930/VC6931/VC6934; VC7930/VC7931/VC7934	-	VCZMR7100
					Sweat			Cartridge changing tool	VCZMS7100

Valves with Modified Equal Percent Flow Characterized

- Characterized cartridge for use with non-fail safe floating and modulating actuators

Valve Size		Flow Capacity		Timing (sec. min.) when used with VC series Actuator	Connection Type	Actuation	Used with	Includes	Part Number
(in.)	DN	(Cv)	(Kv)						
1/2 in.	DN15	2.7 Cv	2.3 kvs	2 minutes	Sweat	Proportional non-fail safe, purchase separately	VC6830/VC6831/VC6834; VC6930/VC6931/VC6934; VC7930/VC7931/VC7934	Cartridge changing tool	VCZMA7400
1/2 in.	DN15	0.7 Cv	0.6 kvs		Sweat				VCZMA7500
1/2 in.	DN15	1.5 Cv	1.3 kvs		Sweat				VCZMA7600
1/2 in.	DN20	1.5 Cv	1.3 kvs		Sweat			VCZMA7800	
3/4 in.	DN20	4.2 Cv	3.6 kvs		Female NPT			-	VCZMK7400
3/4 in.	DN20	3.2 Cv	2.7 kvs		Female NPT			-	VCZMK7800
3/4 in.	DN20	3.2 Cv	2.7 kvs		Sweat			Cartridge changing tool	VCZML7800
1/2 in.	DN15	2.7 Cv	2.3 kvs		Female NPT			-	VCZNB7400
1/2 in.	DN15	0.7 Cv	0.6 kvs		Female NPT			-	VCZNB7500
1/2 in.	DN15	1.5 Cv	1.3 kvs		Female NPT			-	VCZNB7600

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Hydronic Valves & Actuators

VC Valve Actuators - VC Series Proportional



- Control central heating and cooling, fan coil systems, radiators and convectors. Depending on the model, it can be controlled by a low voltage SPST, or SPDT switch, pulse-width modulated 24 Vac signal, or floating input, modulating controller
- Use with 2-way or 3-way valves
- Double insulated actuator
- Five foot plenum-rated cable
- Quick and easy replacement of moving parts
- Actuator head installation does not require draining the system
- Selectable/switchable electronic fail safe normally open or normally closed
- Available with valve bodies with 1000-series 2-way and 6000-series 3-way cartridges for new construction
- All VC Series actuator-valve combinations provide 60 psi close-off

Actuator Type: Valve

Fail Safe Mode: Stays in place

Cable Entry: Molded strain relief, conduit clamp

Dimensions, Approximate: 2.8 in. high x 3.7 in. wide x 2.7 in. deep (70 mm high x 94 mm wide x 68 mm deep)

Electrical Protection: Double insulated

Ingress Protection Rating: IP40

Frequency: 50 Hz; 60 Hz

Timing (seconds): Nominal Driving @ 60 Hz: 120 sec.

Manual Operation: Lever

Mounting: Direct Coupled

Shaft Adapter Type: Self-alignment

Stroke: 0.4 in. (10 mm)

Close-off: 60 psid

Power Consumption (driving): 6 VA

Supply Voltage: 24 Vac

Materials: Plastic housing

Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

Medium Temperature: 203 F (95 C)

Ambient Temperature Range: 32°F to 150°F (0°C to 65°C)

Temperature Ratings (Shipping): -40°F to +150°F (-40°C to +65°C)

Storage Temperature Range: -40°F to +150°F (-40°C to +65°C)

Weight: 0.84 lb (0.38 kg)

Used with: 3000 Series 2-way and 7000 Series VC valve bodies only

Approvals:

Canadian Standards Association: CSA Certified: LR1322-367

Underwriters Laboratories, Inc: UL Listed 94-5V

Control Signal	Type of Internal Auxiliary Switch	Switch Rating	Cable Entry	Electrical Connections			Part Number
				Type	Length		
					(inch)	(m)	
24 Vac; SP3T (tri-state) Floating	SPDT	2.2A (5 to 110 Vac) 1.0A (110 to 277 Vac) Inductive; Min. DC switching capability: 5mA @ 24 Vac	Molded strain relief, conduit clamp	Plenum-rated Cable	1.5 m	5 ft.	VC6834ZZ11
24 Vac; SP3T (tri-state) Floating	-	-	Molded strain relief	Cable	1 m	39 in.	VC6931ZZ11
24 Vac; SP3T (tri-state) Floating	-	-	Molded strain relief, conduit relief	Plenum-rated Cable	1.5 m	5 ft.	VC6934ZZ11
2 to 10 Vdc	-	-	Molded strain relief	Cable	1 m	39 in.	VC7931ZZ11
2 to Vdc	-	-	Molded strain relief, conduit clamp	Plenum-rated Cable	1.5 m	5 ft.	VC7934ZZ11

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Hydronic Valves & Actuators

VC Valve Actuators - VC Series Two-position



- Control central heating and/or cooling systems, fan coil systems, radiators and convectors. Depending on the model selected, it can be controlled by either a low or line voltage SPST or SPDT controller such as a room thermostat
- Use with 2-way or 3-way valves
- Minimal actuator power consumption
- Quick-connect or one meter cable electrical connections available
- Quick and easy replacement of moving parts
- Actuator head installation does not require draining the system
- On/Off models with six second nominal timing
- Use two-position actuators with 1000 Series 2 way and 6000 Series 3 way VC valve bodies only
- All VC Series actuator-valve combinations provide 60 psi close-off

Actuator Type: Valve
Fail Safe Mode: Stays in place
Cable Entry: Molded strain relief, conduit clamp
Dimensions, Approximate: 2.8 in. high x 3.7 in. wide x 2.7 in. deep (70 mm high x 94 mm wide x 68 mm deep)
External Auxiliary Switches Available:
Electrical Protection: Double insulated
Ingress Protection Rating: IP40
Frequency: 60 Hz
Timing (seconds): Nominal Driving @ 60 Hz: 6 sec.
Manual Operation: Lever
Mounting: Direct Coupled
Shaft Adapter Type: Self-alignment

Stroke: 0.4 in (10 mm)
Maximum Differential Pressure Ratings (Close-off): 60 psid
Materials: Plastic housing
Operating Humidity Range (% RH): 5 to 95% RH, non-condensing
Medium Temperature: 203°F (95°C)
Ambient Temperature Range: 32°F to 150°F (0°C to 65°C)
Temperature Ratings (Shipping): -40°F to +150°F (-40°C to +65°C)
Storage Temperature Range: -40°F to +150°F (-40°C to +65°C)
Weight: 0.75 lb (0.34 kg)
Approvals:
Canadian Standards Association: CSA Certified: LR1322-367
CE: 89-336-ECC, 73/23/EEC
Underwriters Laboratories, Inc: UL Recognized, File #MH11826

Control Signal	Type of Internal Auxiliary Switch	Number of Internal Auxiliary Switch	Switch Rating	Power Consumption (Driving)	Supply Voltage	Cable Entry	Electrical Connections			Used With	Includes	Part Number
							Type	Length				
								(inch)	(m)			
SPDT; Two position	-	0	-	6 VA	24 Vac		Plenum-rated Cable	5 ft	1.5 m	VC Series Valves, 1000 Series 2-way and 6000 Series 3-way	Flexible conduit adapter	VC2114ZZ11
On/Off switch; SPDT	SPDT	1	2.2A (5 to 110 Vac)/1.0A (110 to 277Vac) Inductive; Min. DC switching capability	6 VA	24 Vac	Molded strain relief, conduit clamp	Plenum-Rated Cable	5 ft	1.5 m	VC Series Valves, 1000 Series 2-way and 6000 Series 3-way	3/8 in flex conduit adapter	VC2714ZZ11
Two position; SPST	-	0	-	6 VA	100 to 130V		Cable	39 in	1 m	VC Series Valve	-	VC4011ZZ11
	-	0	-	6 VA	200 to 240V	Molded strain relief	Cable	39 in	1 m		-	VC4013ZZ11
	-	0	-	6 VA	24 Vac		Cable	39 in	1 m		-	VC8111ZZ11
	-	0	-	6 VA	24 Vac	Molded strain relief, conduit clamp	Plenum-Rated Cable	5 ft	1.5 m	VC Series Valves, 1000 Series 2-way and 6000 Series 3-way	Flexible Conduit adapter	VC8114ZZ11
	SPDT	1	2.2A(5 to 110 Vac)/1.0A (110 to 277Vac) Inductive; Min. DC Switching capability: 5 mA @ 24 Vac	6 VA	24 Vac	Molded strain relief	Cable	39 in	1 m	VC Series Valves, 1000 Series 2-way and 6000 Series 3-way		VC8711ZZ11
	SPDT	1	2.2A(5 to 110 Vac)/1.0A (110 to 277Vac) Inductive; Min. DC Switching capability: 5 mA @ 24 Vac	6 VA	24 Vac	Molded strain relief, conduit clamp	Plenum-rated Cable	5 ft	1.5 m	VC Series Valves, 1000 Series 2-way and 6000 Series 3-way	VC Series Valves, 1000 Series 2-way and 6000 Series 3-way	VC8714ZZ11
	SPST	1	2.2A(5 to 110 Vac)/1.0A (110 to 277Vac) Inductive; Min. DC Switching capability: 5 mA @ 24 Vac	6 VA, 3 W standby for thermostat anticipator	24 Vac	Molded strain relief	Cable	39 in	1 m	VC Series Valves, 1000 Series 2-way and 6000 Series 3-way		VC8715ZZ11



Hydronic Valves & Actuators

Globe Valves - Two-Way



- Used for two-position or modulating control of steam and water and glycol solutions (to 50% concentration) in heating or cooling systems
- Not suitable for combustible gases
- Spring-loaded, self-adjusting Teflon™ cone packing
- Direct coupled electric and pneumatic actuators for easy mounting
- Stainless steel stem prevents corrosion which would be injurious to packing
- Valve designs provide equal percentage characteristics of flow for close control of water, and linear characteristic of flow for close control of steam

Size	Capacity	Flow Characteristics	Valve Action	Plug/Ball Materials	Brand	Part Number
3/4"	7.3 C _v	Equal Percentage	Stem down to close (Direct)	Brass	Honeywell	V5011N1057
1"	11.7 C _v	Equal Percentage	Stem down to close (Direct)	Brass	Honeywell	V5011N1065
1 1/4"	18.7 C _v	Equal Percentage	Stem up to close (Reverse)	Brass	Honeywell	V5011N1073
1 1/2"	29.3 C _v	Equal Percentage	Stem down to close (Direct)	Brass	Honeywell	V5011N1081
2"	46.8 C _v	Equal Percentage	Stem down to close (Direct)	Brass	Honeywell	V5011N1099

Globe Valves - Three-Way Threaded



- Used for controlling hot water, cold water and glycol solutions (to 50% concentration) in heating or cooling HVAC systems
- Used for mixing service to direct flow from one or two inlets to a common outlet in two-position or modulating control systems
- Red brass body with NPT threaded connections
- Low seat leakage rate (+/- 0.5 percent C_v)
- Single-loaded, self adjusting packing
- Constant total flow throughout full stem travel
- Accurate positioning to ensure state-of-the-art temperature control
- Suitable for pneumatic or electric/electronic actuation

Size	Capacity	Dimensions	Plug/Stem Materials	Seat Materials	Brand	Part Number
1/2"	4.7 C _v	8 5/16" H, 3 1/4" W, 1 9/16" D	Stainless steel	Stainless steel	Honeywell	V5013N1048
3/4"	7.3 C _v	7 5/16" H, 3 1/4" W, 1 9/16" D	Stainless steel	Bronze	Honeywell	V5013N1055
1"	11.7 C _v	7 5/16" H, 4 1/16" W, 1 9/16" D	Stainless steel	Bronze	Honeywell	V5013N1063
1 1/4"	18.7 C _v	7 5/16" H, 4 3/16" W, 1 9/16" D	Stainless steel	Brass	Honeywell	V5013N1071
1 1/2"	29.3 C _v	7 13/16" H, 4 3/4" W, 1 13/16" D	Stainless steel	Brass	Honeywell	V5013N1089
2"	46.8 C _v	7 13/16" H, 5 1/4" W, 1 13/16" D	Stainless steel	Brass	Honeywell	V5013N1097

NOTE: These Valves Available Through Special Order Only



Q5001D1000 Valve Linkage Available - See Actuators Section

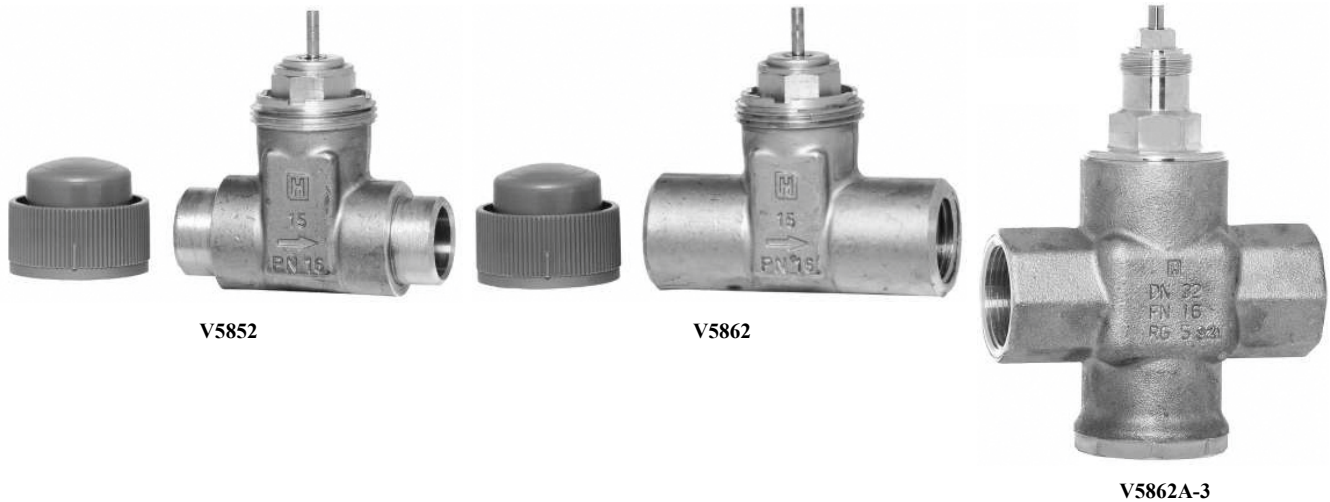
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Hydronic Valves & Actuators

Cartridge Globe Valves - Two Way

- Controls hot and chilled water with up to 50% glycol
- Used on VAV terminal fan coil units, small re-heaters and re-coolers in temperature controllers
- Long stroke allows wider range of control
- Soft valve seat provides low leakage rate
- Inserts for 1/2" & 3/4" are changeable without draining valve when used with an insert replacement tool
- Brass body and stainless steel stem
- Threaded plastic cover allows manual operation

Size	Capacity	Flow Characteristics	Valve Action	Used With	Brand	Part Number
Sweat (Female) Connection Type						
1/2"	1.9 Cv	Equal Percentage	Stem down to close	M6410A1029, M6435A1004, M7410F1000, M7435F1001, MP958	Honeywell	V5852A2056
3/4"	2.9 Cv	Equal Percentage	Stem down to close		Honeywell	V5852A2064
NPT (Female) Connection Type						
1/2"	1.9 Cv	Equal Percentage	Stem down to close	M6410A1029, M6435A1004, M7410F1000, M7435F1001, MP958	Honeywell	V5862A2054
3/4"	2.9 Cv	Equal Percentage	Stem down to close		Honeywell	V5862A2062
1"	5.5 Cv	Linear	Stem up to close	M6410A3017, M6435A3000, M7410F3006, M7435F3007	Honeywell	V5862A3003
1 1/4"	18 Cv	Linear	Stem up to close		Honeywell	V5862A3037
1 1/2"	25	Linear	Stem up to close		Honeywell	V5862A3045



Honeywell

Hydronic Valves & Actuators

Globe Valve Body - 2 Way - Normally Open (Flowrite™ 599 Series)



- Designed to work with either a pneumatic or electronic actuator with a 3/4" stroke
- Recommended for water, low and high pressure steam & glycol solutions up to 50%
- Brass trim
- Direct coupled bonnet
- ANSI Class 250 for normally open action

Connection	Line Size	Cv Rating	Action	Part Number
F x F	1/2"	4	Equal Percentage NO	599-03165
F x F	3/4"	6.3	Equal Percentage NO	599-03166
F x F	1"	10	Equal Percentage NO	599-03167

Globe Valve Body - 3 Way - Mixing (Flowrite™ 599 Series)



- Designed to work with either a pneumatic or electronic actuator with a 3/4" stroke
- Recommended for mixing water supplies of two different temperatures. The upper port is closed in the normal stem up, failed position. The lower port is open in the stem up position.
- Brass trim
- Direct coupled, universal bonnet
- ANSI Class 250

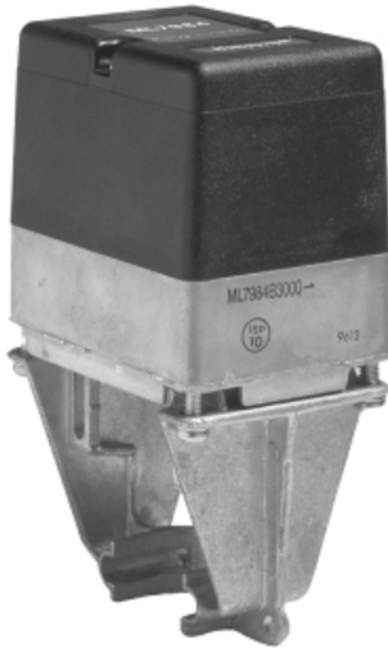
Connection	Line Size	Cv Rating	Action	Part Number
F x F	1/2"	4	Equal percentage for NC position Linear for the NO position	599-03201
F x F	3/4"	6.3	Equal percentage for NC position Linear for the NO position	599-03202
F x F	1"	10	Equal percentage for NC position Linear for the NO position	599-03203

For Pneumatic Actuators That Fit These Valve Bodies Please Refer to Pneumatics In Section A

SIEMENS

Hydronic Valves & Actuators

Direct-Coupled Linear Stroke Valve Actuators - Non-Spring Return



- Self-contained, self-adjusting, linear motorized linkage that mounts directly onto V5011/13 A,B,C,F,G,N two or three way valves, V5045 1/2" to 3" water & steam valve bodies and provides up to 19mm (3/4") of linear travel (stem lift)
- For use with low voltage, 3 wire SPDT Series 20 (on-off), Series 60 (floating) electro-mechanical (dry contacts) or electronic (triac) output controllers. For use with modulating control signals.
- Allows the use of one common transformer power supply for multiple actuators and controllers
- One device for either Vac or Vdc power supply application
- Multipose mounting
- Strong valve seat closing force 710 Newton (160lbs)
- Electronic current sensing provides internal protection and positive full closing force
- Compact size is ideal for unit heaters, fan coil units, narrow ceiling plenums and computer room motorized valve applications
- Non spring return fail safe mode
- Screw terminals
- Compatible with 3 wire or 5 wire control systems
- Field addable auxiliary switches available

Volts	Control Signal	Description	Rated Force		Nominal Drive Time @ 60Hz	Stroke	Used With	Brand	Part Number
			(lbf)	(N)					
24	Floating, SPDT 2 Position	3 or 5 wire operation	160	710	63 Seconds for 3/4" travel	0.75"	V5011, V5013 & V5045	Honeywell	ML6984A4000
24	2-10Vdc, 4-20mA, 135 ohm	Direct/Reverse Acting Switch	160	710	63 Seconds for 3/4" travel	0.75"	V5011F & V5011G	Honeywell	ML7984A4009

Direct-Coupled Linear Stroke Valve Actuator - Non-Spring Return



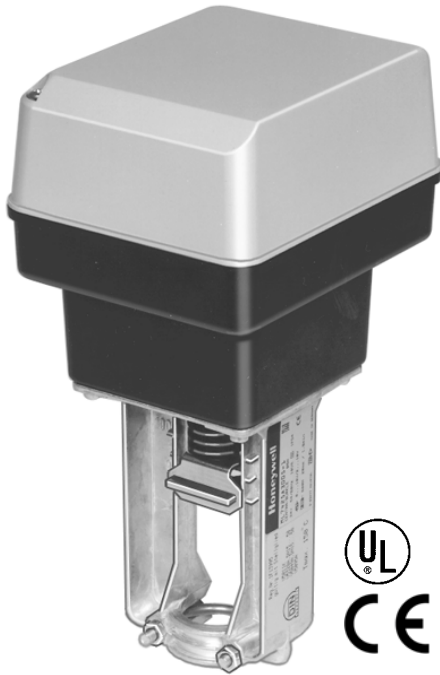
- Direct coupled globe valve actuator provides floating control of chilled water, hot water or steam and mounts directly on VGF, V5011 and V5013 valves
- These high force actuators will operate 1 1/2" to 6" valves
- Easy and quick installation on valves with 1 3/8" bonnet and 3/4" stroke
- No separate linkage required
- No adjustments required on linkage
- Conduit connector standard
- Manual operator
- Maintenance free

Volts	Control Signal	Includes	Rated Force		Nominal Drive Time @ 60Hz	Stroke	Used With	Brand	Part Number
			(lbf)	(N)					
24	Floating, SPDT 2 Position	1/2" Conduit Hub & 1/2" Flexible Conduit Adapter	405	1800	95 sec	3/4"	VGF, V5011, V5013	Honeywell	ML6421A1017

Honeywell

Hydronic Valves & Actuators

Direct-Coupled Linear Stroke Valve Actuators - Spring Return



- Direct coupled globe valve actuator provides floating control of chilled water, hot water and steam; mounts directly on VGF, V5011 and V5013 valves
- These high force actuators will operate 1/2" to 3" valves
- Easy and quick installation on valves with 1 3/8" bonnet and 3/4" stroke
- No separate linkage required
- No adjustments required on linkage
- Accurate valve positioning
- Low power consumption
- Maintenance free
- Internal manual operator

Volts	Control Signal	Includes	Rated Force		Nominal Drive Time @ 60Hz	Stroke	Fail Safe Mode	Used With	Brand	Part Number
			(lbf)	(N)						
24	0-10 VDC / 2-10 VDC	1/2" Conduit Hub & 1/2" Flexible Conduit Adapter	135	600	90 Sec	3/4"	Stem Down on Power Failure	V5011/V5013 Globe Valves/VGF Flanged Globe Valves	Honeywell	ML7425A3013
24	0-10 VDC / 2-10 VDC	1/2" Conduit Hub & 1/2" Flexible Conduit Adapter	135	600	90 Sec	3/4"	Stem Up on Power Failure	V5011/V5013 Globe Valves/VGF Flanged Globe Valves	Honeywell	ML7425B3012

Honeywell