

VGF Flanged Globe Valves

SPECIFICATION DATA



APPLICATION

VGF Flanged Globe Valves are used for 2-position or modulating control of steam, hot water, or chilled water in closed loop HVAC systems. They can be operated by a large variety of electric and pneumatic actuators. Three-way valves are available in mixing or diverting flow patterns.

FEATURES

- **ANSI Class 125 and Class 250 flanged cast iron bodies.**
- **Face-to-face flange dimensions per ANSI/ISA S75.03 standard.**
- **Sizes from 2-1/2 to 6 inches (DN65 to DN150).**
- **Metal-to-metal seating for long life span.**
- **Differential pressure of 175 psi, ANSI Class IV leakage on pressure-balanced models.**
- **Steam inlet pressure up to 100 psig (689 kPa).**
- **Self-adjusting packing.**
- **Equal percentage and linear flow characteristics to ensure precise control in a variety of applications.**

SPECIFICATIONS

Models: See Tables 2 and 3.

Dimensions: See Fig. 1 and 2.

Action:

Mixing valves: Stem up to close port A-AB.
All others: Stem down to close port A-AB.

Controlled Media:

Water up to 50% glycol solution.
Saturated steam (2-way models) up to 100 psig.
Not suitable for open loop systems such as condenser water or potable water.

Valve Body Temperature-Pressure Ratings:

Water: ANSI Class 125 and 250. See Table 1.
Steam: 337°F (170°C); 100 psig (689 kPa).

Flow Capacity: See Table 4.

Stroke and Mounting:

2-1/2 and 3 inch (DN65 and DN80): 3/4 in. (20mm) stroke, 1-3/8 in. bonnet, 1/4-28 UNF stem thread and button.
4 to 6 inch (DN100 to DN150): 1-1/2 in. (38mm) stroke, 1-7/8 in. bonnet, 7/16-20 UNF stem thread, and button.

Maximum Temperature Differential (alternating hot/cold water): 108°F (60°C).

Flow Characteristic:

VGF2_E_: Equal percentage.
VGF2_L_: Linear.
VGF3_EM_ Mixing Valve: Equal percentage port A-AB, Linear port B-AB.
VGF3_LD_ Diverting Valve: Linear.

Rangeability: 50:1.

Close-Off Pressure (maximum):

VGF21_P pressure-balanced: 175 psi (1207 kPa).
All others: Proportional to actuator force.

Leakage Rate (maximum):

VGF21_P pressure-balanced: 0.01% of Cv (ANSI Class IV).
VGF2_S: 0.05% of Cv (ANSI Class III).
VGF31EM and VGF32EM <.05% of CV A to AB (ANSI Class III), <.1% of CV B-AB
VGF31LD and VGF32LD <.05% of CV AB to A (ANSI Class III), <.1% of CV AB-B

Valve Body:

End connections:
Face-to-face flange dimensions per ANSI/ISA 75.03.
Bolt holes conform to ANSI B16.1. VGF3 valves have standard ANSI flange connections on A and AB ports. B ports have lugged connections.



VGFLANGED GLOBE VALVES

Trim:

Seat:

Mixing valve: body integrated (cast iron).

All others: Stainless steel.

Plug: Stainless steel, skirt guided.

Stem: Stainless steel.

Packing: Spring loaded PTFE cone rings.

Table 1. Medium Temperature and Maximum Pressure.

Temperature °F (°C)	System Pressure	
	ANSI Class 125 (VGF21, VGF31)	ANSI Class 250 (VGF22, VGF32)
35 to 130 (2-66)	175 psig (1206 kPa)	400 psig (2758 kPa)
Up to 200 (< 93)	165 psig (1138 kPa)	370 psig (2251 kPa)
Up to 250 (< 121)	150 psig (1034 kPa)	340 psig (2344 kPa)
Up to 300 (< 149)	140 psig (965 kPa)	310 psig (2137 kPa)
Up to 356 (< 180)	125 psig (862 kPa)	280 psig (1931 kPa)

Table 2. VGF2 2-way.

VGF2	Valve, Globe, Flanged, 2-way	
1	ANSI 125	
	ANSI 250	
EP	Equal percent flow, pressure-balanced ^a	
	Equal percent flow, standard	
	Linear flow, pressure-balanced ^a	
	Linear flow, standard ^a	
	2 1/2 in. ports	
30	3 in. ports	
40	4 in. ports	
50	5 in. ports	
60	6 in. ports	

VGF2 1 EP 30 e.g.: 3 in. flanged, equal percent, pressure-balanced, ANSI 125

^a ANSI 125 only

Table 3. VGF3 3-way.

VGF3	Valve, Globe, Flanged, 3-way	
1	ANSI 125	
	ANSI 250	
EM	Equal percent flow, mixing	
	Linear flow, diverting	
LD	2 1/2 in. ports	
	30	3 in. ports
	40	4 in. ports
	50	5 in. ports
	60	6 in. ports

VGF3 2 EM 40 e.g.: 4 in. flanged mixing valve, ANSI 250

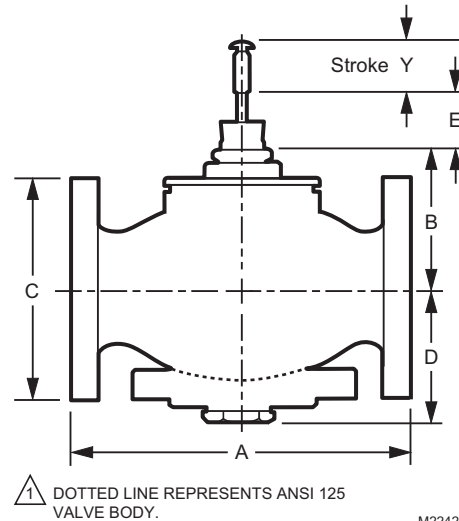


Fig. 1. Dimensions for two-way models in inches (mm) (See Table 4).

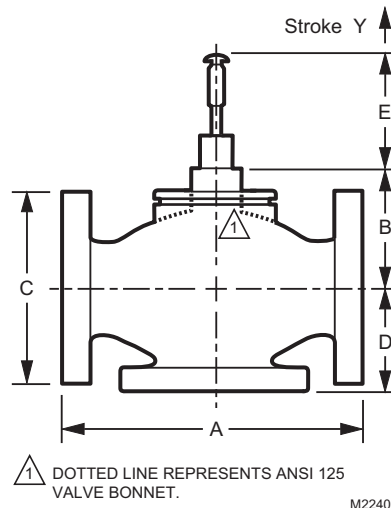


Fig. 2. Dimensions for three-way models in inches (mm) (See Table 4).

IMPORTANT

Valve sizing is important for correct system operation. Undersized valves do not have sufficient capacity at maximum load.

Oversized valves do not have sufficient authority over the load in modulating applications.

Oversized valves can initiate hunting and the seat and throttling plug can be damaged because of the restricted opening. Some variables that must be determined are:

- Medium (steam, water, glycol solution 50 percent maximum) to be controlled.
- Maximum temperature and pressure of the medium at the valve.
- Pressure differential that exists across the valve under maximum load conditions.
- Maximum capacity the valve must deliver.
- Maximum line pressure differential against which the valve actuator must close.

Table 4. Valve Sizes, Flow Capacities, and Dimensions.

Model Number	Size		Cv (kvs)	Dimensions, in. (mm) See Fig. 1 (Two-way Valves) or Fig. 2 (Three-way Valves)					
	in.	DN		A	B	C	D	E ^a	Y (stroke)
2-way valves, ANSI Class 125 Stem down to close. Equal percentage or Linear flow characteristic.									
VG21_S25	2-1/2	65	70 (60)	10-7/8 (276)	4-3/8 (112)	7 (178)	—	3-1/2 (89)	3/4 (19)
VG21_S30	3	80	125 (108)	11-3/4 (298)	6-3/8 (161)	7-1/2 (191)	—		
VG21_S40	4	100	155 (133)	13-7/8 (352)	5-7/8 (150)	9 (229)	—	5-1/4 (133)	1-1/2 (38)
VG21_S50	5	125	320 (275)	15-3/4 (400)	6-3/16 (157)	10 (254)	—		
VG21_S60	6	150	370 (318)	17-3/4 (451)	6-3/16 (157)	11 (279)	—		
2-way valves, ANSI Class 250. Stem down to close. Equal percentage flow characteristic.									
VG22ES25	2-1/2	65	70 (60)	11-1/2 (292)	4-3/8 (112)	7-1/2 (191)	—	3-1/2 (89)	3/4 (19)
VG22ES30	3	80	120 (103)	12-1/2 (318)	6-3/8 (161)	8-1/4 (210)	—		
VG22ES40	4	100	150 (129)	14-1/2 (368)	5-7/8 (150)	10 (254)	—	5-1/4 (133)	1-1/2 (38)
VG22ES50	5	125	320 (275)	16-5/8 (422)	6-3/16 (157)	11 (279)	—		
VG22ES60	6	150	370 (318)	18-5/8 (473)	6-3/16 (157)	12-1/2 (318)	—		
2-way valves, Pressure-balanced, ANSI Class 125. Stem down to close. Equal percentage or Linear flow characteristic.									
VG21_P25	2-1/2	65	70 (60)	10-7/8 (276)	4-3/16 (107)	7 (178)	—	3-1/2 (89)	3/4 (19)
VG21_P30	3	80	115 (99)	11-3/4 (298)	5-7/8 (150)	7-1/2 (191)	—		
VG21_P40	4	100	150 (129)	13-7/8 (352)	5-7/8 (150)	9 (229)	—	5-1/4 (133)	1-1/2 (38)
VG21_P50	5	125	285 (245)	15-3/4 (400)	6-1/8 (156)	10 (254)	—		
VG21_P60	6	150	370 (318)	17-3/4 (451)	6-1/8 (156)	11 (279)	—		
3-way Mixing valves, ANSI Class 125. Stem up to close A-AB.									
VG31EM25	2-1/2	65	70 (60)	10-7/8 (276)	3-15/16 (100)	7 (178)	3-3/4 (95)	4-3/16 (107)	3/4 (19)
VG31EM30	3	80	120 (103)	11-3/4 (298)	3-15/16 (100)	7-1/2 (191)	4-3/8 (111)		
VG31EM40	4	100	150 (129)	13-7/8 (352)	5-8/16 (140)	9 (229)	5-1/8 (130)	6-11/16 (170)	1-1/2 (38)
VG31EM50	5	125	320 (275)	15-3/4 (400)	5-3/8 (137)	10 (254)	5-3/4 (146)		
VG31EM60	6	150	370 (318)	17-3/4 (451)	5-11/16 (145)	11 (279)	6-5/8 (168)		
3-way Mixing valves, ANSI Class 250. Stem up to close A-AB.									
VG32EM25	2-1/2	65	70 (60)	11-1/2 (292)	4-3/8 (112)	7-1/2 (191)	3-3/4 (95)	4-3/16 (107)	3/4 (19)
VG32EM30	3	80	115 (99)	12-1/2 (318)	6-3/8 (161)	8-1/4 (210)	4-3/8 (111)		
VG32EM40	4	100	170 (146)	14-1/2 (368)	5-7/8 (150)	10 (254)	5-1/8 (130)	6-11/16 (170)	1-1/2 (38)
VG32EM50	5	125	320 (275)	16-5/8 (422)	6-3/16 (157)	11 (279)	5-3/4 (146)		
VG32EM60	6	150	370 (318)	18-5/8 (473)	6-3/16 (157)	12-1/2 (318)	6-5/8 (168)		
3-way Diverting valves, ANSI Class 125. Stem down to close AB-A.									
VG31LD25	2-1/2	65	70 (60)	10-7/8 (276)	3-15/16 (100)	7 (178)	3-3/4 (95)	4-3/16 (107)	3/4 (19)
VG31LD30	3	80	120 (103)	11-3/4 (298)	3-15/16 (100)	7-1/2 (191)	4-3/8 (111)		
VG31LD40	4	100	160 (138)	13-7/8 (352)	5-8/16 (140)	9 (229)	5-1/8 (130)	6-11/16 (170)	1-1/2 (38)
VG31LD50	5	125	285 (245)	15-3/4 (400)	5-3/8 (137)	10 (254)	5-3/4 (146)		
VG31LD60	6	150	380 (327)	17-3/4 (451)	5-11/16 (145)	11 (279)	6-5/8 (168)		
3-way Diverting valves, ANSI Class 250. Stem down to close AB-A.									
VG32LD25	2-1/2	65	70 (60)	11-1/2 (292)	4-3/8 (112)	7-1/2 (191)	3-3/4 (95)	4-3/16 (107)	3/4 (19)
VG32LD30	3	80	120 (103)	12-1/2 (318)	6-3/8 (161)	8-1/4 (210)	4-3/8 (111)		
VG32LD40	4	100	160 (138)	14-1/2 (368)	5-7/8 (150)	10 (254)	5-1/8 (130)	6-11/16 (170)	1-1/2 (38)
VG32LD50	5	125	285 (245)	16-5/8 (422)	6-3/16 (157)	11 (279)	5-3/4 (146)		
VG32LD60	6	150	380 (327)	18-5/8 (473)	6-3/16 (157)	12-1/2 (318)	6-5/8 (168)		

^a With stem fully down.

TYPICAL SPECIFICATION

Valve housing shall consist of cast iron and shall be ANSI rated to withstand the pressures and temperatures encountered. Automatic control valves shall have flanged fittings, 2-1/2 in. through 6 in. size.

Valves shall have stainless steel plugs, seats, and stems, and be constructed with replaceable spring-loaded reinforced carbon-filled Teflon packing.

Straight through and diverting valves shall have a maximum seat leakage rate of 0.05% Cv at the control port and shall have 50:1 rangeability or better. Pressure balanced valves shall have a maximum seat leakage rate of 0.01% at 175 psi differential pressure.

All valves shall be provided with either linear or equal percentage contoured throttling plugs for water, glycolwater, or steam service. Three-way valves shall be available in either mixing or diverting configurations.

Valves shall be manufactured by the same company that manufactures the direct coupled linear valve actuators or linkages and rotary actuators.

By using this Honeywell literature, you agree that Honeywell will have no liability for any damages arising out of your use or modification to, the literature. You will defend and indemnify Honeywell, its affiliates and subsidiaries, from and against any liability, cost, or damages, including attorneys' fees, arising out of, or resulting from, any modification to the literature by you.

Honeywell Building Technologies

In the U.S.:

Honeywell

715 Peachtree Street NE

Atlanta, GA 30308

customer.honeywell.com

Honeywell

® U.S. Registered Trademark
© 2019 Honeywell International Inc.
63-1301-02 M.S. Rev. 05-19
Printed in United States