

VG7000 Series

Bronze Globe Valves for Assembly in the Field



VG7000 Series Bronze Control Valve

Description

The VG7000 Series Bronze Valves accurately regulate the flow of water or steam in response to the demand of a controller in heating, ventilating, and air conditioning systems. These valves are available in normally open, normally closed, and three-way mixing configurations. Both electric and pneumatic actuators are available.

Features

- valves available in 1/2 through 2 in. sizes with several styles of electric and pneumatic actuators offers a broad selection to choose from
- complies with ANSI Class 250 (pressure/temperature) standard
- every valve tested for tight shutoff, ensuring occupant comfort and energy conservation
- uses standard Johnson Controls ring pack packing, providing industry-leading reliability and operating life
- complete actuator interchangeability, allowing easy field retrofit or mounting using standardized mounting kits
- all valve sizes available with brass trim or stainless steel trim for use in saturated steam applications up to 100 psig

Specifications

VG7000 Series Valve Bodies, Two-Way and Three-Way			
Service	Steam, Hot Water, and Chilled Water with up to 50% Glycol Solution (Proper water treatment is recommended for long service life; refer to standard VDI 2035.)		
	Cv	Kv	
Valve Body Sizes Available	1/2 in. (DN15)	0.73, 1.8, 4.6	0.63, 1.6, 4
	3/4 in. (DN20)	7.3	6.3
	1 in. (DN25)	11.6	10
	1-1/4 in. (DN32)	18.5	16
	1-1/2 in. (DN40)	28.9	25
	2 in. (DN50)	46.2	40
Stem Travel	1/2 and 3/4 in.	1 and 1-1/4 in.	1-1/2 and 2 in.
Two-Way and Three-Way	5/16 in.	1/2 in.	3/4 in.
	Brass Trim		Stainless Steel Trim
End Connections	NPT, Union Sweat, Globe & Angle		NPT
Materials	Body	Cast Bronze – C84400	Cast Bronze – C83600
	Stem	Stainless Steel	Stainless Steel
	Plug	Brass	Stainless Steel
	Seat	3/4 through 2 in.: Machined from Body 1/2 in.: Brass Seat	Stainless Steel Replaceable Seat
	Disk	EPDM	Stainless Steel
	Packing	Self-Adjusting EPT U-Cups	Spring-Loaded PTFE
Flow Characteristic	Two-Way	Equal Percentage	Equal Percentage
	Three-Way	Linear	Linear
Ratings	Body	ANSI Class 250 ^(a)	ANSI Class 250 ^(b)
	Leakage (Percent of Maximum Flow)	0.01%	0.05%
	Fluid Temperature, Body Only^(c)	35 to 284°F (2 to 140°C)	35 to 338°F (2 to 170°C)
	Maximum Steam Pressure, Saturated Steam	38 psig (262 kPa)	100 psig (690 kPa)
	Maximum Pressure Drop, Valve Open	35 psig	35 psig

(a) 400 psig (2,756 kPa) for fluid temperatures between 35 and 150°F (2 and 66°C); decreasing to 365 psig (2,515 kPa) at 248°F (120°C).

(b) 400 psig (2,756 kPa) for fluid temperatures between 35 and 150°F (2 and 66°C); decreasing to 308 psig (2,122 kPa) at 338°F (170°C).

(c) See recommended actuator tables for ambient limitations due to the actuator.

To Order

Specify the code number from the selection charts on the following pages.

VG7000 Series Bronze Globe Valves for Assembly in the Field (Continued)

Selection Chart: VG7000 Series Valve Bodies

Valve Size	Cv	End Connections						
		NPT	Union Sweat	Union Sweat (3/8 in. Copper Tubing)	Union Sweat (3/4 in. Copper Tubing)	Union Globe	Union Angle	NPT
Two-Way Push-Down-to-Close								
		Brass Trim						Stainless Steel Trim
1/2"	0.73	VG7241CT	VG7281CT	VG7271CT	VG7291CT	VG7251CT	VG7551CT	VG7243CT
1/2"	1.8	VG7241ET	VG7281ET	VG7271ET	VG7291ET	VG7251ET	VG7551ET	VG7243ET
1/2"	4.6	VG7241GT	VG7281GT	VG7271GT	VG7291GT	VG7251GT	VG7551GT	VG7243GT
3/4"	7.3	VG7241LT	VG7281LT	---	---	VG7251LT	VG7551LT	VG7243LT
1"	11.6	VG7241NT	VG7281NT	---	---	VG7251NT	VG7551NT	VG7243NT
1-1/4"	18.5	VG7241PT	VG7281PT	---	---	VG7251PT	VG7551PT	VG7243PT
1-1/2"	28.9	VG7241RT	VG7281RT	---	---	VG7251RT	VG7551RT	VG7243RT
2"	46.2	VG7241ST	VG7281ST	---	---	---	---	VG7243ST
1-1/2"	28.9	3/8 in. "M" Stem Only Available in 1-1/2 and 2 in. NPT Stainless Steel Trim						VG7243RM
2"	46.2							VG7243SM
Two-Way Push-Down-to-Open								
		Brass Trim						Stainless Steel Trim
1/2"	0.73	VG7441CT	VG7481CT	VG7471CT	VG7491CT	VG7451CT	---	VG7443CT
1/2"	1.8	VG7441ET	VG7481ET	VG7471ET	VG7491ET	VG7451ET	---	VG7443ET
1/2"	4.6	VG7441GT	VG7481GT	VG7471GT	VG7491GT	VG7451GT	---	VG7443GT
3/4"	7.3	VG7441LT	VG7481LT	---	---	---	---	VG7443LT
1"	11.6	VG7441NT	VG7481NT	---	---	---	---	VG7443NT
1-1/4"	18.5	VG7441PT	VG7481PT	---	---	---	---	VG7443PT
1-1/2"	28.9	VG7441RT	VG7481RT	---	---	---	---	VG7443RT
2"	46.2	VG7441ST	VG7481ST	---	---	---	---	VG7443ST
1-1/2"	28.9	3/8 in. "M" Stem Only Available in 1-1/2 and 2 in. NPT Stainless Steel Trim						VG7443RM
2"	46.2							VG7443SM
Three-Way Mixing								
		Brass Trim						Stainless Steel Trim
1/2"	0.73	VG7842CT	VG7882CT	VG7872CT	VG7892CT	---	---	VG7844CT
1/2"	1.8	VG7842ET	VG7882ET	VG7872ET	VG7892ET	---	---	VG7844ET
1/2"	4.6	VG7842GT	VG7882GT	VG7872GT	VG7892GT	---	---	VG7844GT
3/4"	7.3	VG7842LT	VG7882LT	---	---	---	---	VG7844LT
1"	11.6	VG7842NT	VG7882NT	---	---	---	---	VG7844NT
1-1/4"	18.5	VG7842PT	VG7882PT	---	---	---	---	VG7844PT
1-1/2"	28.9	VG7842RT	VG7882RT	---	---	---	---	VG7844RT
2"	46.2	VG7842ST	VG7882ST	---	---	---	---	VG7844ST
1-1/2"	28.9	3/8 in. "M" Stem Only Available in 1-1/2 and 2 in. NPT Stainless Steel Trim						VG7844RM
2"	46.2							VG7844SM

Note: All actuators except MP84 Series use the 1/4 in. "T" stem. The MP84 Series pneumatic actuators require the 3/8 in. "M" stem.

VG7000 Series Bronze Globe Valves for Assembly in the Field (Continued)

Selection Chart: Pneumatic Actuators for VG7000 Series Brass Trim Valve Bodies

Actuator Code Number	V-3801-8001			V-3000-8011 Exposed Spring V-3000-8003 Enclosed Spring			MP822C00 (3 to 7) MP822D00 (4 to 8) MP822E00 (9 to 13)	1 and 1-1/4 in.		
							MP823C00 (3 to 7) MP823D00 (4 to 8) MP823E00 (9 to 13)	1-1/2 and 2 in.		
Temperature Range	35 to 248°F (2 to 120°C), 15 psig Saturated Steam			35 to 284°F (2 to 140°C), 38 psig Saturated Steam			35 to 284°F (2 to 140°C), 38 psig Saturated Steam			
Spring Range	3 to 6	4 to 8	9 to 13	3 to 6	4 to 8	9 to 13	3 to 7	4 to 8	9 to 13	
Valve Size	Mounting Kit									
1/2 and 3/4 in.	VG7000-1010	VG7000-1011	VG7000-1012	VG7000-1001	VG7000-1002	VG7000-1003	---	---	---	
1 and 1-1/4 in.	---	---	---	VG7000-1004	VG7000-1005	VG7000-1006	MP8000-6702			
1-1/2 and 2 in.	---	---	---	VG7000-1007	VG7000-1008	VG7000-1009				
Positioner	Not Available			V-9502-90 (V-3000-8011 Only)			V-9502-95			
Size	Cv	Closeoff Pressure								
Two-Way Normally Open										
1/2"	0.73	186	157	84	365	339	191	---	---	---
1/2"	1.8	186	157	84	365	339	191	---	---	---
1/2"	4.6	105	89	48	225	192	108	---	---	---
3/4"	7.3	67	56	30	144	122	69	---	---	---
1"	11.6	---	---	---	90	76	42	279	257	148
1-1/4"	18.5	---	---	---	55	47	26	170	157	90
1-1/2"	28.9	---	---	---	35	30	16	109	100	58
2"	46.2	---	---	---	22	19	11	70	64	37
Two-Way Normally Closed										
1/2"	0.73	37	57	158	100	142	348	---	---	---
1/2"	1.8	37	57	158	100	142	348	---	---	---
1/2"	4.6	18	28	76	49	68	168	---	---	---
3/4"	7.3	11	16	45	29	41	100	---	---	---
1"	11.6	---	---	---	17	25	65	70	96	223
1-1/4"	18.5	---	---	---	10	14	37	40	55	128
1-1/2"	28.9	---	---	---	6	9	23	25	34	79
2"	46.2	---	---	---	4	6	14	16	21	50
Three-Way Mixing										
1/2"	0.73	186 / 37	157 / 57	84 / 158	365 / 100	339 / 142	191 / 348	---	---	---
1/2"	1.8	186 / 37	157 / 57	84 / 158	365 / 100	339 / 142	191 / 348	---	---	---
1/2"	4.6	105 / 18	89 / 28	48 / 76	225 / 49	192 / 68	108 / 168	---	---	---
3/4"	7.3	67 / 11	56 / 16	30 / 45	144 / 29	122 / 41	69 / 100	---	---	---
1"	11.6	---	---	---	90 / 17	76 / 25	42 / 65	279 / 70	257 / 96	148 / 223
1-1/4"	18.5	---	---	---	55 / 10	47 / 14	26 / 37	170 / 40	157 / 55	90 / 128
1-1/2"	28.9	---	---	---	35 / 6	30 / 9	16 / 23	109 / 25	100 / 34	58 / 79
2"	46.2	---	---	---	22 / 4	19 / 6	11 / 14	70 / 16	64 / 21	37 / 50

Note: V-3000-8003 Actuators with enclosed springs are used in applications where the valve is exposed to the public, to prevent pinched fingers. Typical applications include control of hot water or steam radiators.

VG7000 Series Bronze Globe Valves for Assembly in the Field (Continued)

Selection Chart: Pneumatic Actuators for VG7000 Series Stainless Steel Trim Valve Bodies

Actuator Code Number	V-3000-8011 Exposed Spring V-3000-8003 Enclosed Spring			MP821C00 (3 to 7) MP821D00 (4 to 8) MP821E00 (9 to 13)	1/2 and 3/4 in.			MP843C00 (3 to 7) MP843D00 (4 to 8) MP843E00 (9 to 13)	1-1/2 and 2 in.	
				MP822C00 (3 to 7) MP822D00 (4 to 8) MP822E00 (9 to 13)	1 and 1-1/4 in.					
				MP823C00 (3 to 7) MP823D00 (4 to 8) MP823E00 (9 to 13)	1-1/2 and 2 in.					
Temperature Range	35 to 338°F (2 to 170°C), 100 psig Saturated Steam			35 to 338°F (2 to 170°C), 100 psig Saturated Steam			35 to 338°F (2 to 140°C), 100 psig Saturated Steam			
Spring Range	3 to 6	4 to 8	9 to 13	3 to 6	4 to 8	9 to 13	3 to 7	4 to 8	9 to 13	
Valve Size				Mounting Kit						
1/2 and 3/4 in.	VG7000-1001	VG7000-1002	VG7000-1003	MP8000-6701			Not Recommended			
1 and 1-1/4 in.	VG7000-1004	VG7000-1005	VG7000-1006	MP8000-6702						
1-1/2 and 2 in.	VG7000-1007	VG7000-1008	VG7000-1009				MP8000-6703			
Positioner	V-9502-90 (V-3000-8011 Only)			V-9502-95			V-9502-95			
Size	Cv	Closeoff Pressure								
Two-Way Normally Open										
1/2"	0.73	299	255	143	308	308	308	---	---	---
1/2"	1.8	299	255	143	308	308	308	---	---	---
1/2"	4.6	169	144	81	308	308	275	---	---	---
3/4"	7.3	108	92	52	304	304	175	---	---	---
1"	11.6	67	57	32	209	193	111	---	---	---
1-1/4"	18.5	41	35	19	128	118	68	---	---	---
1-1/2"	28.9	---	---	---	82	75	43	165	152	88
2"	46.2	---	---	---	52	48	28	106	97	56
Two-Way Normally Closed										
1/2"	0.73	75	106	261	280	308	308	---	---	---
1/2"	1.8	75	106	261	280	308	308	---	---	---
1/2"	4.6	36	51	126	135	183	308	---	---	---
3/4"	7.3	22	31	75	81	109	252	---	---	---
1"	11.6	13	19	49	53	72	168	---	---	---
1-1/4"	18.5	7	11	28	30	41	96	---	---	---
1-1/2"	28.9	---	---	---	19	25	59	39	53	121
2"	46.2	---	---	---	12	16	37	24	33	76
Three-Way Mixing										
1/2"	0.73	299 / 75	255 / 106	143 / 261	308 / 280	308 / 308	308 / 308	---	---	---
1/2"	1.8	299 / 75	255 / 106	143 / 261	308 / 280	308 / 308	308 / 308	---	---	---
1/2"	4.6	169 / 36	144 / 51	81 / 126	308 / 135	308 / 183	275 / 308	---	---	---
3/4"	7.3	108 / 22	92 / 31	52 / 75	304 / 81	304 / 109	175 / 252	---	---	---
1"	11.6	67 / 13	57 / 19	32 / 49	209 / 53	193 / 72	111 / 168	---	---	---
1-1/4"	18.5	41 / 7	35 / 11	19 / 28	128 / 30	118 / 41	68 / 96	---	---	---
1-1/2"	28.9	---	---	---	82 / 19	75 / 25	43 / 59	165 / 39	152 / 53	88 / 121
2"	46.2	---	---	---	52 / 12	48 / 16	28 / 37	106 / 24	97 / 33	56 / 76

Note: V-3000-8003 Actuators with enclosed springs are used in applications where the valve is exposed to the public, to prevent pinched fingers. Typical applications include control of hot water or steam radiators.

VG7000 Series Bronze Globe Valves for Assembly in the Field (Continued)

Selection Chart: Electric Actuators for VG7000 Series Brass Trim and Stainless Steel Trim Valve Bodies

Actuator Code Number	VA-7150-1001 On/Off (Floating)		VA-7200-1001 On/Off (Floating)		M9216-AGA-2 On/Off (Floating)		VA-4233-AGA-2 Floating		
	VA-7152-1001 0 to 10 VDC Proportional		VA-7202-1001 0 to 10 VDC Proportional		M9216-HGA-2 0 to 10 VDC Proportional		VA-4233-BGA-2 On/Off		
	VA-7153-1001 On/Off (Floating) w/Feedback		VA-7203-1001 On/Off (Floating) w/Feedback				VA-4233-GGA-2 Proportional		
Style	Non-Spring Return				Spring Return				
Temperature Range	Brass Trim: 35 to 284°F (2 to 140°C), 38 psig Saturated Steam Stainless Steel Trim: 35 to 338°F (2 to 170°C), 100 psig Saturated Steam						Brass or Stainless Steel Trim: 35 to 250°F (2 to 121°C) 15 psig Saturated Steam		
Linkage	None		None		M9000-500		None		
Stem Type	Requires "T" Stem								
Size	Cv	Closeoff Pressure							
		Brass Trim	Stainless Steel Trim	Brass Trim	Stainless Steel Trim	Brass Trim	Stainless Steel Trim	Brass Trim	Stainless Steel Trim
Two-Way Push-Down-to-Close									
1/2"	0.73	345	239	---	308	345	308	345	230
1/2"	1.8	345	239	---	308	345	308	345	230
1/2"	4.6	216	135	---	278	345	283	208	130
3/4"	7.3	138	86	---	177	289	180	132	82
1"	11.6	86	54	179	112	182	114	63	39
1-1/4"	18.5	52	33	109	68	111	70	38	24
1-1/2"	28.9	34	21	70	44	71	45	—	—
2"	46.2	21	13	45	28	46	28	—	—
Two-Way Push-Down-to-Open									
1/2"	0.73	345	308	---	308	345	308	345	224
1/2"	1.8	345	308	---	308	345	308	345	224
1/2"	4.6	257	161	---	308	345	308	173	108
3/4"	7.3	153	96	---	197	321	194	103	64
1"	11.6	100	63	209	131	213	131	66	41
1-1/4"	18.5	57	36	120	75	122	75	38	24
1-1/2"	28.9	36	22	74	46	76	46	—	—
2"	46.2	22	14	46	29	47	29	—	—
Three-Way Mixing									
1/2"	0.73	345 / 345	239 / 308	---	308 / 308	345 / 345	308 / 308	345 / 345	230 / 224
1/2"	1.8	345 / 345	239 / 308	---	308 / 308	345 / 345	308 / 308	345 / 345	230 / 224
1/2"	4.6	216 / 257	135 / 161	---	278 / 308	345 / 345	283 / 308	208 / 173	130 / 108
3/4"	7.3	138 / 153	86 / 96	---	177 / 197	289 / 321	180 / 194	132 / 103	82 / 64
1"	11.6	86 / 100	54 / 63	179 / 209	112 / 131	182 / 213	114 / 131	63 / 66	39 / 41
1-1/4"	18.5	52 / 57	33 / 36	109 / 120	68 / 75	111 / 122	70 / 75	38 / 38	24 / 24
1-1/2"	28.9	34 / 36	21 / 22	70 / 74	44 / 46	71 / 76	45 / 46	—	—
2"	46.2	21 / 22	13 / 14	45 / 46	28 / 29	46 / 47	28 / 29	—	—