

599 Series Ball Valve and Actuator Assemblies Selection

Description

This Technical Bulletin aids in the selection of a ball valve and actuator assembly.

Tables 1 and 2 list full-port ball valve product numbers and flow coefficients.

Tables 3 through 10 identify the product numbers for all possible combinations of ball valves and compatible actuators that can be ordered as complete valve assemblies from the factory.

Figure 1 and Table 11, and Figure 2 and Table 12 provide the dimensions for the valve/actuator assembly and the required service envelope.

It is recommended that two-position applications use a full-port ball valve without a flow characterizer. For modulating applications, it is recommended that the ball valve include a flow characterizer.

Example: Selecting a 2-WayBall Valve and Actuator for 2-Position Control

1. Job specifications require a 2-position, normally-open, spring return ball valve in a 1/2 inch (15 mm) supply line size.
2. See Table 4 to locate a full-port valve with a 1/2 inch (15 mm) line size that matches the 1/2 inch (15 mm) supply line size. Select valve product number 599-10307.
3. In Table 4, locate the column for a 2-position normally-open fail safe position actuator with floating control and six-foot wires.
4. In Table 4, locate the row corresponding to the 599-10307 a valve product number. The row/column intersection shows that the valve and actuator assembly product number is 171E-10307.

Example: Selecting a 2-Way Ball Valve and Actuator for Modulating Control

1. Job specifications require a 40 Cv valve with stainless steel ball valve and stem, and 0 to 10 Vdc, fail-in-place actuator for a 1-1/4 inch (30 mm) supply line size.
2. In Table 6, locate the actuator column for a 0 to 10 Vdc actuator. Locate the row corresponding to the 599-10319S valve which has a 40 Cv. The row/column intersection shows that the valve and actuator assembly product number is 171C-10319S.

Use Tables 1 and 2 to determine the effective Cv when using a full-port ball valve where the ball size and the line size may differ.

Table 1. Product Numbers: Two-Way, Full-Port (no Flow Characterizer) Chrome-Plated Ball with Brass Stems or Stainless Steel Ball with Stainless Steel Stems and Flow Coefficients.

Valve Line Size in Inches (mm)	Valve Product Number	Effective (Installed) Cv (Kvs)										
		Supply Line Size in Inches (mm)										
		1/2 (13)	3/4 (20)	1 (25)	1-1/4 (32)	1-1/2 (38)	2 (51)	2-1/2 (63)	3 (76)	4 (102)	5 (127)	6 (152)
1/2 (15)	599-10307 or 599-10307S	10.00 (8.62)	6.94 (5.93)	6.19 (5.29)	--	--	--	--	--	--	--	--
3/4 (20)	599-103011 or 599-10311S	--	25.00 (21.55)	18.66 (15.95)	15.35 (13.12)	--	--	--	--	--	--	--
1 (25)	599-10316 or 599-10316S	--	--	63.00 (54.31)	39.78 (34.00)	33.56 (28.69)	--	--	--	--	--	--
1-1/4 (30)	599-10321 or 599-10321S	--	--	--	100.00 (86.21)	69.19 (59.13)	51.45 (43.98)	--	--	--	--	--
1-1/2 (40)	599-10324 or 599-10324S	--	--	--	--	63.00 (54.31)	55.34 (47.30)	51.00 (43.59)	--	--	--	--
	599-10326 or 599-10326S	--	--	--	--	160.00 (137.93)	93.80 (80.17)	76.34 (65.25)	--	--	--	--
2 (50)	599-10329 or 599-10329S	--	--	--	--	--	100.00 (86.21)	94.30 (80.60)	86.12 (73.61)	--	--	--


= Valve may be oversized.
 = Optimal valve size.
 = Valve may be undersized.

Table 2. Product Numbers: 3-Way, Full-Port (no Flow Characterizer) 3-Way Ball Valves and Flow Coefficients.

Valve Line Size in Inches (mm)	Valve Product Number	Effective (Installed) Cv (Kvs)										
		Supply Line Size in Inches (mm)										
		1/2 (13)	3/4 (20)	1 (25)	1-1/4 (32)	1-1/2 (38)	2 (51)	2-1/2 (63)	3 (76)	4 (102)	5 (127)	6 (152)
1/2 (15)	599-10255	10.00 (8.62)	6.94 (5.93)	6.19 (5.29)	--	--	--	--	--	--	--	--
3/4 (20)	599-10256	--	16.00 (13.79)	13.9 (11.98)	12.4 (10.69)	--	--	--	--	--	--	--
1 (25)	599-10259	--	--	25.00 (21.55)	22.5 (19.40)	21.2 (18.27)	--	--	--	--	--	--
1-1/4 (30)	599-10261	--	--	--	40.00 (34.48)	36.9 (31.81)	33.3 (28.70)	--	--	--	--	--
1-1/2 (40)	599-10264	--	--	--	--	63.00 (54.31)	55.3 (47.67)	51.00 (43.96)	--	--	--	--
2 (50)	599-10267	--	--	--	--	--	100 (86.21)	94.3 (81.29)	86.1 (74.23)	--	--	--


= Valve may be oversized.
 = Optimal valve size.
 = Valve may be undersized.

Table 3. 2-Way Valve Fail-In-Place Assemblies: Chrome-Plated Brass Ball and Stem.

Valve Body Product Number *	Cv (Kvs)	Close-Off Δ P PSI	Line Size Inches (mm)	Fail-in-Place							
											
				Floating				0 to 10 Vdc			
				GDE 131.1P	GLB 131.1P	GDE 131.1Q	GLB 131.1Q	GDE 161.1P	GLB 161.1P	GDE 161.1Q	GLB 161.1Q
				3 foot (.9m) Wires		Conduit Adapter & 6-foot (1.8m) Wires		3 foot (.9m) Wires		Conduit Adapter & 6-foot (1.8m) Wires	
				Actuator Prefix Code							
171A	171B	173A	173B	171C	171D	173C	173D				
599-10300	0.4 (0.34)	200 PSI	1/2 (15)	171A-10300	173A-10300	171C-10300	173C-10300				
599-10301	0.63 (0.54)			171A-10301	173A-10301	171C-10301	173C-10301				
599-10302	1.0 (0.9)			171A-10302	173A-10302	171C-10302	173C-10302				
599-10303	1.6 (1.4)			171A-10303	173A-10303	171C-10303	173C-10303				
599-10304	2.5 (2.2)			171A-10304	173A-10304	171C-10304	173C-10304				
599-10305	4.0 (3.4)			171A-10305	173A-10305	171C-10305	173C-10305				
599-10306	6.3 (5.4)			171A-10306	173A-10306	171C-10306	173C-10306				
599-10307*	10 (8.6)			171A-10307*	173A-10307*	171C-10307*	173C-10307*				
599-10308	6.3 (5.4)		171A-10308	173A-10308	171C-10308	173C-10308					
599-10309	10 (8.6)		171A-10309	173A-10309	171C-10309	173C-10309					
599-10310	16 (14)		171A-10310	173A-10310	171C-10310	173C-10310					
599-10311*	25 (22)		171A-10311*	173A-10311*	171C-10311*	173C-10311*					
599-10312	10 (9.0)		171A-10312	173A-10312	171C-10312	173C-10312					
599-10313	16 (14)		171A-10313	173A-10313	171C-10313	173C-10313					
599-10314	25 (22)		171A-10314	173A-10314	171C-10314	173C-10314					
599-10315	40 (34)		171A-10315	173A-10315	171C-10315	173C-10315					
599-10316*	63 (54)		171A-10316*	173A-10316*	171C-10316*	173C-10316*					
599-10317	16 (14)		171A-10317	173A-10317	171C-10317	173C-10317					
599-10318	25 (22)		171A-10318	173A-10318	171C-10318	173C-10318					
599-10319	40 (34)		171A-10319	173A-10319	171C-10319	173C-10319					
599-10320	63 (54)		171A-10320	173A-10320	171C-10320	173C-10320					
599-10321*	100 (90)		171A-10321*	173A-10321*	171C-10321*	173C-10321*					
599-10322	25 (22)		171B-10322	173B-10322	171D-10322	173D-10322					
599-10323	40 (34)		171B-10323	173B-10323	171D-10323	173D-10323					
599-10324*	63 (54)		171B-10324*	173B-10324*	171D-10324*	173D-10324*					
599-10325	100 (90)		171B-10325	173B-10325	171D-10325	173D-10325					
599-10326*	160 (140)		171B-10326*	173B-10326*	171D-10326*	173D-10326*					
599-10327	40 (34)		171B-10327	173B-10327	171D-10327	173D-10327					
599-10328	63 (54)		171B-10328	173B-10328	171D-10328	173D-10328					
599-10329*	100 (90)		171B-10329*	173B-10329*	171D-10329*	173D-10329*					
599-10330*	160 (140)		171B-10330*	173B-10330	171D-10330	173D-10330					


*Denotes a full-port valve with no flow characterizer insert.

Table 4. 2-Way Valve Fail-Safe Assemblies: Chrome-Plated Ball and Brass Stem (1/2-inch and 3/4-inch).

Valve Body Product Number*	Cv (Kvs)	Close-off ΔP PSI	Line Size Inches (mm)	Fail-Safe							
											
				2-Position GQD121.1P		Floating GQD131.1P		2 to 10 Vdc GQD151.1P			
				N.O.	N.C.	N.O.	N.C.	N.O.	N.C.		
				Actuator Prefix Code							
171H		172H		171J		172J		171K		172K	
599-10300	0.4 (0.34)	200 psi	1/2 (15)	171H-10300	172H-10300	171J-10300	172J-10300	171K-10300	172K-10300		
599-10301	0.63 (0.54)			171H-10301	172H-10301	171J-10301	172J-10301	171K-10301	172K-10301		
599-10302	1.0 (0.9)			171H-10302	172H-10302	171J-10302	172J-10302	171K-10302	172K-10302		
599-10303	1.6 (1.4)			171H-10303	172H-10303	171J-10303	172J-10303	171K-10303	172K-10303		
599-10304	2.5 (2.2)			171H-10304	172H-10304	171J-10304	172J-10304	171K-10304	172K-10304		
599-10305	4.0 (3.4)			171H-10305	172H-10305	171J-10305	172J-10305	171K-10305	172K-10305		
599-10306	6.3 (5.4)			171H-10306	172H-10306	171J-10306	172J-10306	171K-10306	172K-10306		
599-10307*	10 (8.6)			171H-10307*	172H-10307*	171J-10307*	172J-10307*	171K-10307*	172K-10307*		
599-10308	6.3 (5.4)			3/4 (20)	171H-10308	172H-10308	171J-10308	172J-10308	171K-10308	172K-10308	
599-10309	10 (8.6)				171H-10309	172H-10309	171J-10309	172J-10309	171K-10309	172K-10309	
599-10310	16 (14)	171H-10310	172H-10310		171J-10310	172J-10310	171K-10310	172K-10310			
599-10311*	25 (22)	171H-10311*	172H-10311*		171J-10311*	172J-10311*	171K-10311*	172K-10311*			


*Denotes a full-port valve with no flow characterizer insert.

Table 5. 2-Way Valve Fail Safe Assemblies: Chrome-Plated Brass Ball Brass Stem (1-inch to 2-inch).

Valve Body Product Number*	Cv (Kvs)	Close-off ΔP PSI	Line Size Inches (mm)	Fail-Safe							
											
				2-Position GMA121.1P		Floating GMA131.1P		0 to 10 Vdc GMA161.1P			
				N.O.	N.C.	N.O.	N.C.	N.O.	N.C.		
				Actuator Prefix Code							
171E		172E		171F		172F		171G		172G	
599-10312	10 (9.0)	200 psi	1 (25)	171E-10312	172E-10312	171F-10312	172F-10312	171G-10312	172G-10312		
599-10313	16 (14)			171E-10313	172E-10313	171F-10313	172F-10313	171G-10313	172G-10313		
599-10314	25 (22)			171E-10314	172E-10314	171F-10314	172F-10314	171G-10314	172G-10314		
599-10315	40 (34)			171E-10315	172E-10315	171F-10315	172F-10315	171G-10315	172G-10315		
599-10316*	63 (54)			171E-10316*	172E-10316*	171F-10316*	172F-10316*	171G-10316*	172G-10316*		
599-10317	16 (14)			1 1/4 (30)	171E-10317	172E-10317	171F-10317	172F-10317	171G-10317	172G-10317	
599-10318	25 (22)		171E-10318		172E-10318	171F-10318	172F-10318	171G-10318	172G-10318		
599-10319	40 (34)		171E-10319		172E-10319	171F-10319	172F-10319	171G-10319	172G-10319		
599-10320	63 (54)		171E-10320		172E-10320	171F-10320	172F-10320	171G-10320	172G-10320		
599-10321*	100 (90)		171E-10321*		172E-10321*	171F-10321*	172F-10321*	171G-10321*	172G-10321*		
599-10322	25 (22)		1 1/2 (40)		171E-10322	172E-10322	171F-10322	172F-10322	171G-10322	172G-10322	
599-10323	40 (34)			171E-10323	172E-10323	171F-10323	172F-10323	171G-10323	172G-10323		
599-10324*	63 (54)			171E-10324*	172E-10324*	171F-10324*	172F-10324*	171G-10324*	172G-10324*		
599-10325	100 (90)			171E-10325	172E-10325	171F-10325	172F-10325	171G-10325	172G-10325		
599-10326*	160 (140)			171E-10326*	172E-10326*	171F-10326*	172F-10326*	171G-10326*	172G-10326*		
599-10327	40 (34)			2 (50)	171E-10327	172E-10327	171F-10327	172F-10327	171G-10327	172G-10327	
599-10328	63 (54)		171E-10328		172E-10328	171F-10328	172F-10328	171G-10328	172G-10328		
599-10329*	100 (90)		171E-10329*		172E-10329*	171F-10329*	172F-10329*	171G-10329*	172G-10329*		
599-10330*	160 (140)		171E-10330*		172E-10330*	171F-10330*	172F-10330*	171G-10330*	172G-10330*		


* Denotes a full-port valve with no flow characterizer insert.

Table 6. 2-Way Valve Fail-In-Place Assemblies: Stainless Steel Ball and Stem.

Valve Body Product Number *	Cv (Kvs)	Close-Off ΔP PSI	Line Size Inches (mm)	Fail-in-Place							
											
				Floating				0 to 10 Vdc			
				GDE 131.1P	GLB 131.1P	GDE 131.1Q	GLB 131.1Q	GDE 161.1P	GLB 161.1P	GDE 161.1Q	GLB 161.1Q
				3 foot (.9m) Wires		Conduit Adapter & 6-foot (1.8m) Wires		3 foot (.9m) Wires		Conduit Adapter & 6-foot (1.8m) Wires	
				Actuator Prefix Code							
171A	171B	173A	173B	171C	171D	173C	173D				
599-10300S	0.4 (0.34)	200 PSI	1/2 (15)	171A-10300S	173A-10300S	171C-10300S	173C-10300S				
599-10301S	0.63 (0.54)			171A-10301S	173A-10301S	171C-10301S	173C-10301S				
599-10302S	1.0 (0.9)			171A-10302S	173A-10302S	171C-10302S	173C-10302S				
599-10303S	1.6 (1.4)			171A-10303S	173A-10303S	171C-10303S	173C-10303S				
599-10304S	2.5 (2.2)			171A-10304S	173A-10304S	171C-10304S	173C-10304S				
599-10305S	4.0 (3.4)			171A-10305S	173A-10305S	171C-10305S	173C-10305S				
599-10306S	6.3 (5.4)		171A-10306S	173A-10306S	171C-10306S	173C-10306S					
599-10307S*	10 (8.6)		171A-10307S*	173A-10307S*	171C-10307S*	173C-10307S*					
599-10308S	6.3 (5.4)		171A-10308S	173A-10308S	171C-10308S	173C-10308S					
599-10309S	10 (8.6)		171A-10309S	173A-10309S	171C-10309S	173C-10309S					
599-10310S	16 (14)		171A-10310S	173A-10310S	171C-10310S	173C-10310S					
599-10311S*	25 (22)		171A-10311S*	173A-10311S*	171C-10311S*	173C-10311S*					
599-10312S	10 (9.0)		171A-10312S	173A-10312S	171C-10312S	173C-10312S					
599-10313S	16 (14)		171A-10313S	173A-10313S	171C-10313S	173C-10313S					
599-10314S	25 (22)		171A-10314S	173A-10314S	171C-10314S	173C-10314S					
599-10315S	40 (34)		171A-10315S	173A-10315S	171C-10315S	173C-10315S					
599-10316S*	63 (54)		171A-10316S*	173A-10316S*	171C-10316S*	173C-10316S*					
599-10317S	16 (14)		171A-10317S	173A-10317S	171C-10317S	173C-10317S					
599-10318S	25 (22)		171A-10318S	173A-10318S	171C-10318S	173C-10318S					
599-10319S	40 (34)		171A-10319S	173A-10319S	171C-10319S	173C-10319S					
599-10320S	63 (54)		171A-10320S	173A-10320S	171C-10320S	173C-10320S					
599-10321S*	100 (90)		171A-10321S*	173A-10321S*	171C-10321S*	173C-10321S*					
599-10322S	25 (22)		171B-10322S	173B-10322S	171D-10322S	173D-10322S					
599-10323S	40 (34)		171B-10323S	173B-10323S	171D-10323S	173D-10323S					
599-10324S*	63 (54)		171B-10324S*	173B-10324S*	171D-10324S*	173D-10324S*					
599-10325S	100 (90)		171B-10325S	173B-10325S	171D-10325S	173D-10325S					
599-10326S*	160 (140)		171B-10326S*	173B-10326S*	171D-10326S*	173D-10326S*					
599-10327S	40 (34)		171B-10327S	173B-10327S	171D-10327S	173D-10327S					
599-10328S	63 (54)		171B-10328S	173B-10328S	171D-10328S	173D-10328S					
599-10329S*	100 (90)		171B-10329S*	173B-10329S*	171D-10329S*	173D-10329S*					
599-10330S	160 (140)		171B-10330S	173B-10330S	171D-10330S	173D-10330S					


*Denotes a full-port valve with no flow characterizer insert.

Table 7. 2-Way Valve Fail-Safe Assemblies: Stainless Steel Ball and Stem. (1/2-inch and 3/4-inch).

Valve Body Product Number*	Cv (Kvs)	Close-off ΔP PSI	Line Size Inches (mm)	Fail-Safe					
									
				2-Position		Floating		2 to 10 Vdc	
				GQD121.1P		GQD131.1P		GQD151.1P	
				N.O.	N.C.	N.O.	N.C.	N.O.	N.C.
				Actuator Prefix Code					
171H	172H	171J	172J	171K	172K				
599-10300	0.4 (0.34)	200 psi	1/2 (15)	171H-10300	172H-10300	171J-10300	172J-10300	171K-10300	172K-10300
599-10301	0.63 (0.54)			171H-10301	172H-10301	171J-10301	172J-10301	171K-10301	172K-10301
599-10302	1.0 (0.9)			171H-10302	172H-10302	171J-10302	172J-10302	171K-10302	172K-10302
599-10303	1.6 (1.4)			171H-10303	172H-10303	171J-10303	172J-10303	171K-10303	172K-10303
599-10304	2.5 (2.2)			171H-10304	172H-10304	171J-10304	172J-10304	171K-10304	172K-10304
599-10305	4.0 (3.4)			171H-10305	172H-10305	171J-10305	172J-10305	171K-10305	172K-10305
599-10306	6.3 (5.4)			171H-10306	172H-10306	171J-10306	172J-10306	171K-10306	172K-10306
599-10307*	10 (8.6)		171H-10307*	172H-10307*	171J-10307*	172J-10307*	171K-10307*	172K-10307*	
599-10308	6.3 (5.4)		3/4 (20)	171H-10308	172H-10308	171J-10308	172J-10308	171K-10308	172K-10308
599-10309	10 (8.6)			171H-10309	172H-10309	171J-10309	172J-10309	171K-10309	172K-10309
599-10310	16 (14)			171H-10310	172H-10310	171J-10310	172J-10310	171K-10310	172K-10310
599-10311*	25 (22)			171H-10311*	172H-10311*	171J-10311*	172J-10311*	171K-10311*	172K-10311*


*Denotes a full-port valve with no flow characterizer insert.

Table 8. 2-Way Valve Fail-Safe Assemblies: Stainless Steel Ball and Stem (1-inch to 2-inch).

Valve Body Product Number *	Cv (Kvs)	Close-off ΔP PSI	Line Size Inches (mm)	Fail-Safe						
										
				2-Position		Floating		0 to 10 Vdc		
				GMA121.1P		GMA131.1P		GMA161.1P		
				N.O.	N.C.	N.O.	N.C.	N.O.	N.C.	
				Actuator Prefix Code						
171E	172E	171F	172F	171G	172G					
599-10312S	10 (9.0)	200 psi	1 (25)	171E-10312S	172E-10312S	171F-10312S	172F-10312S	171G-10312S	172G-10312S	
599-10313S	16 (14)			171E-10313S	172E-10313S	171F-10313S	172F-10313S	171G-10313S	172G-10313S	
599-10314S	25 (22)			171E-10314S	172E-10314S	171F-10314S	172F-10314S	171G-10314S	172G-10314S	
599-10315S	40 (34)			171E-10315S	172E-10315S	171F-10315S	172F-10315S	171G-10315S	172G-10315S	
599-10316S*	63 (54)			171E-10316S*	172E-10316S*	171F-10316S*	172F-10316S*	171G-10316S*	172G-10316S*	
599-10317S	16 (14)		1 1/4 (30)	171E-10317S	172E-10317S	171F-10317S	172F-10317S	171G-10317S	172G-10317S	
599-10318S	25 (22)			171E-10318S	172E-10318S	171F-10318S	172F-10318S	171G-10318S	172G-10318S	
599-10319S	40 (34)			171E-10319S	172E-10319S	171F-10319S	172F-10319S	171G-10319S	172G-10319S	
599-10320S	63 (54)			171E-10320S	172E-10320S	171F-10320S	172F-10320S	171G-10320S	172G-10320S	
599-10321S*	100 (90)		1 1/2 (40)	171E-10321S*	172E-10321S*	171F-10321S*	172F-10321S*	171G-10321S*	172G-10321S*	
599-10322S	25 (22)			171E-10322S	172E-10322S	171F-10322S	172F-10322S	171G-10322S	172G-10322S	
599-10323S	40 (34)			171E-10323S	172E-10323S	171F-10323S	172F-10323S	171G-10323S	172G-10323S	
599-10324S*	63 (54)			171E-10324S*	172E-10324S*	171F-10324S*	172F-10324S*	171G-10324S*	172G-10324S*	
599-10325S	100 (90)			171E-10325S	172E-10325S	171F-10325S	172F-10325S	171G-10325S	172G-10325S	
599-10326S*	160 (140)			171E-10326S*	172E-10326S*	171F-10326S*	172F-10326S*	171G-10326S*	172G-10326S*	
599-10327S	40 (34)			2 (50)	171E-10327S	172E-10327S	171F-10327S	172F-10327S	171G-10327S	172G-10327S
599-10328S	63 (54)				171E-10328S	172E-10328S	171F-10328S	172F-10328S	171G-10328S	172G-10328S
599-10329S*	100 (90)		171E-10329S*		172E-10329S*	171F-10329S*	172F-10329S*	171G-10329S*	172G-10329S*	
599-10330S	160 (140)		171E-10330S		172E-10330S	171F-10330S	172F-10330S	171G-10330S	172G-10330S	


* Denotes a full-port valve with no flow characterizer insert.

Table 9. 3-Way Valve Fail-in-Place Assemblies: Chrome-Plated Ball and Brass Stem (1-inch to 2-inch).

Product Number *	Cv (Kvs)	Close-off ΔP PSI	Line Size Inches (mm)				
				Fai- In-Place			
				Floating		0 to 10 Vdc	
				Assemblies with 3-foot (.9m) Wires	Assemblies w/ Conduit Adapter & 6-foot (1.8m) Wires	Assemblies w/ 3-foot (.9m) Wires	Assemblies w/ Conduit Adapter & 6-foot (1.8m) Wires
				171A (GDE131.1P) and 171B (GLB131.1P)	173A (GDE131.1Q) and 173B (GLB131.1Q)	171C (GDE161.1P) and 171D (GLB161.1P)	173C (GDE161.1Q) and 173D (GLB161.1Q)
599-10250	0.4 (0.34)	200 psi	1 (25)	171A-10250	173A-10250	171C-10250	173C-10250
599-10251	0.63 (0.54)			171A-10251	173A-10251	171C-10251	173C-10251
599-10252	1.0 (0.9)			171A-10252	173A-10252	171C-10252	173C-10252
599-10253	1.6 (1.4)			171A-10253	173A-10253	171C-10253	173C-10253
599-10254	2.5 (2.2)			171A-10254	173A-10254	171C-10254	173C-10254
599-10255 *	4.0 (3.4)		1 1/4 (30)	171A-10255*	173A-10255*	171C-10255*	173C-10255*
599-10256 *	6.3 (5.4)			171A-10256	173A-10256	171C-10256	173C-10256
599-10257	10 (8.6)			171A-10257	173A-10257	171C-10257	173C-10257
599-10258	6.3 (5.4)			171A-10258	173A-10258	171C-10258	173C-10258
599-10259 *	10 (8.6)			171A-10259*	173A-10259*	171C-10259*	173C-10259*
599-10260	16 (14)		1 1/2 (40)	171A-10260	173A-10260	171C-10260	173C-10260
599-10261 *	25 (22)			171A-10261*	173A-10261*	171C-10261*	173C-10261*
599-10262	10 (9.0)			171B-10262	173B-10262	171D-10262	173D-10262
599-0263	16 (14)			171B-10263	173B-10263	171D-10263	173D-10263
599-10264 *	25 (22)			171B-10264*	173B-10264*	171D-10264*	173D-10264*
599-10265	40 (34)		2 (50)	171B-10265	173B-10265	171D-10265	173D-10265
599-10266	63 (54)			171B-10266	173B-10266	171D-10266	173D-10266
599-10267 *	16 (14)			171B-10267*	173B-10267*	171D-10267*	173D-10267*

*Denotes a full-port valve with no flow characterizer insert.

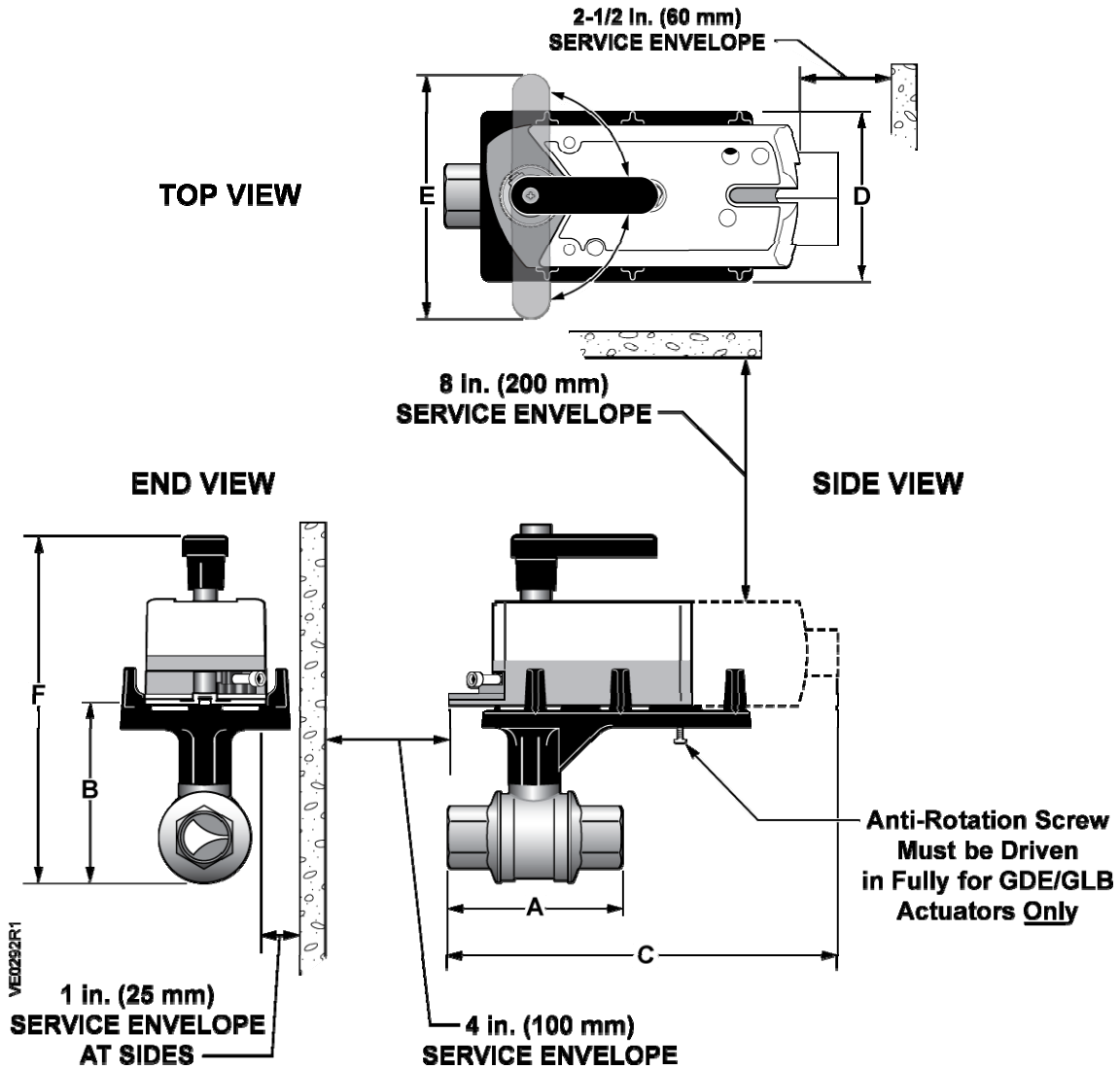
Table 10. 3-Way Valve Fail-Safe Assemblies: Chrome-Plate Ball and Brass Stem.

Product Number *	Cv (Kvs)	Close-off ΔP PSI	Line Size Inches (mm)			
				Fail-Safe		
				2-Position	Floating	0 to 10 Vdc
				171E*** (GMA121.1P)	171F*** (GMA131.1P)	171G*** (GMA161.1P)
599-10250	0.4 (0.34)	200 psi	1 (25)	171E-10250	171F-10250	171G-10250
599-10251	0.63 (0.54)			171E-10251	171F-10251	171G-10251
599-10252	1.0 (0.9)			171E-10252	171F-10252	171G-10252
599-10253	1.6 (1.4)			171E-10253	171F-10253	171G-10253
599-10254	2.5 (2.2)			171E-10254	171F-10254	171G-10254
599-10255	4.0 (3.4)			1 1/4 (30)	171E-10255	171F-10255
599-10256 *	6.3 (5.4)		171E-10256*		171F-10256*	171G-10256*
599-10257	10 (8.6)		171E-10257		171F-10257	171G-10257
599-10258	6.3 (5.4)		171E-10258		171F-10258	171G-10258
599-10259 *	10 (8.6)		171E-10259*		171F-10259*	171G-10259*
599-10260	16 (14)		1 1/2 (40)	171E-10260	171F-10260	171G-10260
599-10261 *	25 (22)			171E-10261*	171F-10261*	171G-10261*
599-10262	10 (9.0)			171E-10262	171F-10262	171G-10262
599-10263	16 (14)			171E-10263	171F-10263	171G-10263
599-10264 *	25 (22)			171E-10264*	171F-10264*	171G-10264*
599-10265	40 (34)		2 (50)	171E-10265	171F-10265	171G-10265
599-10266	63 (54)			171E-10266	171F-10266	171G-10266
599-10267 *	16 (14)			171E-10267*	171F-10267*	171G-10267*

*Denotes a full-port valve with no flow characterizer insert.

***Fail-safe three-way ball valve assemblies fail to A ► AB open and B ► AB closed.

Dimensions



NOTES:

1. Stamping on valve body indicates the ball size, not necessarily the line fitting size.
2. All dimensions are in inches (mm) and weights are in pounds (kg).
3. Dimension D, Depth, is 3-inches (76 mm).
4. Dimension E, Handle, is 4-inches (102 mm).

Figure 1. Two-Way Ball Valve with Actuator Dimensions and Service Envelope.

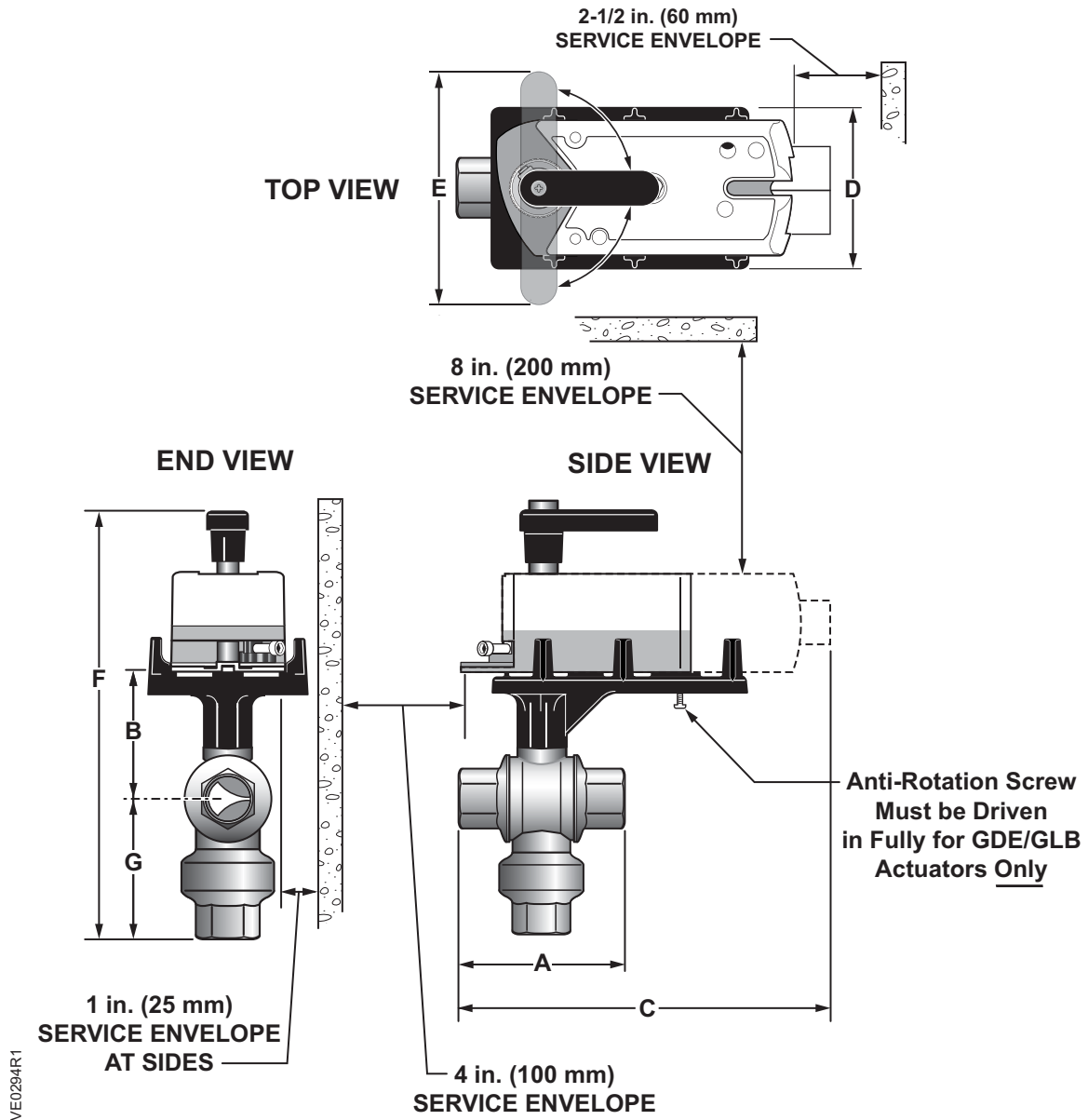
Dimensions, continued

Table 11. Two-Way Ball Valves with Actuator Dimensions and Service Envelope.

Valve Size Inch (Mm)	Cv Range	A Length	C Length * Actuator Codes 171A-D, 173A-D GDE/GLB	C Length * Actuator Codes 171H,J,K GQD	C Length* Actuator Codes 171E,F 172E,F Fail Safe GMA	F Height	Weight (kg)
1/2 (15)	0.4 to 10.0	2-7/16 (61)	6-11/16 (170)	6 (153)	-	7-5/8 (193)	.50 (.23)
3/4 (20)	6.3 to 25	2-3/4 (70)		6 (153)	-	8 (204)	.78 (.35)
1 (25)	10	3 (77)		-	8-3/8 (213)	8 (204)	.97 (.44)
	16	3-1/4 (82)		-	8-3/8 (213)	8-5/15 (212)	1.75 (79)
	40, 63		1.19 (54)				
	25	3-7/8 (98)	7 (178)	-	8-11/16 (221)	8-13/16 (223)	1.19 (.54)
1-1/4 (30)	16	3-3/8(86)	6-11/16 (170)	-	8-7/16 (214)	8-3/8 (213)	1.41 (.64)
	25 to 100	3-11/16 (94)	6-15/16 (176)	-	8-11/16 (221)	8-13/16 (223)	1.81 (.82)
1-1/2 (40)	25, 63	3-5/8 (92)		-	8-7/16 (214)	8-13/16 (223)	1.19 (.54)
	40, 100, 160	3-15/16 (100)	7-1/16 (180)	-	8-3/4 (223)	9-1/4 (235)	2.50 (1.13)
2 (50)	40, 100	4 (102)		-		9-3/8 (238)	
	63	4-5/8 (118)	7-1/2 (190)	-	10-1/16 (255)	4.66 (2.11)	
	160			-		4.69 (2.13)	

* Dimension C is maximum length, measured from the actuator, end fitting, or mounting plate, whichever extends the furthest.

Dimensions, continued



NOTES:

1. Stamping on valve body indicates the ball size, not necessarily the line fitting size.
2. All dimensions are in inches (mm) and weights are in pounds (kg).
3. Dimension D, Depth, is 3-inches (76 mm).
4. Dimension E, Handle, is 4-inches (102 mm).

Figure 2. 3-Way Ball Valve with Actuator Dimensions and Service Envelope.

Dimensions, continued**Table 12. Three-Way Ball Valve with Actuator Dimensions and Service Envelope.**

Line Size In. (mm)	Product Number	A Length	C Length * for GDE/GLB Actuator Codes 171A-D, Codes 173A-D	C Length * for GMA Actuator Codes 171E-G	B Height	G Height	F Height	Weight
1/2 (15)	599-10250 through 599-10255	3-1/2 (89)	7 (178)	7-5/8 (194)	3-1/4 (83)	2-3/8 (60)	9-3/8 (238)	1.60 (0.73)
3/4 (20)	599-10256	2-3/4 (70)	6-1/2 (165)	7-1/8 (181)	3-1/4 (83)	2 (51)	8-3/4 (222)	1.64 (0.74)
1 (25)	599-10257	3 (76)	6-3/4 (171)	7-3/8 (187)	3-3/4 (95)	2-1/2 (64)	9-3/4 (248)	2.26 (1.03)
	599-10258	4-1/2 (114)	7-3/4 (197)	8-3/8 (213)	4 (102)	3-1/4 (83)	10-3/4 (273)	3.56 (1.61)
	599-10259	4-1/2 (114)	7-3/4 (197)	8-3/8 (213)	4 (102)	3-1/4 (83)	10-3/4 (273)	3.56 (1.61)
1-1/4 (30)	599-10260	3-5/8 (91)	7-1/4 (184)	7-7/8 (200)	4 (102)	2-3/4 (70)	10-1/4 (260)	3.50 (1.59)
	599-10261	3-5/8 (91)	7-1/4 (184)	7-7/8 (200)	4 (102)	2-3/4 (70)	10-1/4 (260)	3.50 (1.59)
1-1/2 (40)	599-10262	4-1/2 (114)	7-3/4 (197)	8-3/8 (213)	4 (102)	3-1/4 (83)	10-3/4 (273)	3.56 (1.61)
	599-10263	4 (102)	7-1/4 (184)	7-7/8 (200)	4-1/2 (114)	3-1/4 (83)	11 (279)	5.16 (2.34)
	599-10264	4 (102)	7-1/4 (184)	7-7/8 (200)	4-1/2 (114)	3-1/4 (83)	11 (279)	5.16 (2.34)
2 (50)	599-10265	4 (102)	7-1/4 (184)	7-7/8 (200)	4-1/2 (114)	3-1/4 (83)	11 (279)	5.16 (2.34)
	599-10266	5 (127)	7-3/4 (197)	8-3/8 (213)	5-3/4 (146)	3-3/4 (95)	12-1/4 (311)	8.50 (3.86)
	599-10267	5 (127)	7-3/4 (197)	8-3/8 (213)	5-3/4 (146)	3-3/4 (95)	12-1/4 (311)	8.50 (3.86)

* Dimension C, is maximum length, measured from the actuator, end fitting, or mounting plate, whichever extends the furthest.

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