



599 Series 6-Way Ball Valves

Description

The 599 Series 6-way ball valves couple with the GDE161.1P OpenAir™ Actuator to provide single valve and actuator changeover and control of hot and chilled water for heated/chilled beam applications or any four-pipe system.

Features

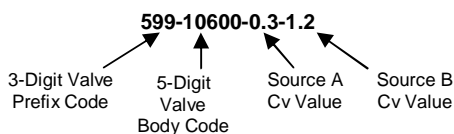
- Control two media sources (hot and chilled water) to a single coil with one valve and actuator.
- Large C_v range (0.3 to 4.7 C_v) for each media source.
- 1/2-, 3/4- and 1-inch line size connections.
- Built-in pressure compensation function.
- Zero leakage - No mixing of hot and chilled water.

Product Numbers

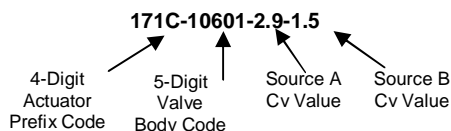
Use the product numbers in Table 1 through Table 3 to order a valve or a valve and actuator assembly. The valve product number consists of a 599 valve prefix code, a hyphen, a 5-digit valve body code, a hyphen, the source A C_v value, a hyphen, and the source B C_v value.

The valve and actuator assembly product number consists of the 171C actuator prefix code, a hyphen, a 5-digit valve body code, a hyphen, the source A C_v value, a hyphen, and the source B C_v value.

Valve Product Number Example:



Valve and Actuator Product Number Example:



Accessories

Part Number	Description
ASK77.3	Mounting bracket for GDE Actuator
599-10660	1/2" Small Tailpieces (6 pack)
599-10662	3/4" Tailpieces (6 pack)
599-10663	1" Tailpieces (6 pack)

Technical Data

Typical Specifications

The 6-way ball valve, using a single actuator, shall switch (changeover) and control two media sources serving a single coil or heating/cooling beam (chilled beam). The 6-way ball valve shall have a linear flow characteristic for both media sources. The valve shall be closed to flow at mid-rotation (45°). The 6-way valves shall be capable of direct connection to 1/2", 3/4" or 1" NPT piping with NPT union female connections.

Valve Specifications

Body material:	Hot pressed brass CW617N
Ball:	Chrome plated brass
Stem:	Stainless steel, blow-out proof
C _v inserts:	Stainless steel
Body pressure rating:	232 psi (PN16)
Maximum differential pressure:	29 psi
Close-off pressure	58 psi (4 bar)
Leakage rate:	0%
Line size:	1/2-inch to 1-inch (15 mm to 25 mm)
Connection:	NPT union, female
Medium temperature range:	41°F to 194°F (5°C to 90°C)
Flow characteristic:	Linear

Actuator Specifications (GDE161.1P)

Operating voltage:	24 Vac
Signal:	0 to 10 Vdc
Failure mode:	Non-spring return (fail-in-place)
Manual override:	Yes
Power consumption:	2 to 30 VA (normal operation)
Run time:	90 seconds
Agency Certification:	
UL	Meets UL 873
cUL	Certified to Canadian Standard C22.2 No. 24.93
Mounting Location	NEMA 1 (Interior only)

Valve and Actuator Assembly

Weight in lb (kg)	599-10600...	6.8 (3.08)
	599-10601...	7.6 (3.45)
	599-10602...	8.4 (3.81)

Additional References:

599 Series 6-Way Ball Valves Technical Instructions (155-803)

OpenAir™ Electric Damper Actuators GDE/GLB Series Non-spring Return Rotary 24 Vac - Modulating Control 0 to 10 Vdc Technical Instructions (155-187P25)

Table 1. 1/2-Inch Valve and Actuator Assemblies.


Valve Body	Line Size, Inch (mm)	Source A C _v Value	Source B C _v Value	Non-Spring Return, 0 to 10V GDE161.1P
				 Actuator Prefix Code 171C
599-10600-0.3-0.3	1/2 (15)	0.3	0.3	171C-10600-0.3-0.3
599-10600-0.3-0.5		0.3	0.5	171C-10600-0.3-0.5
599-10600-0.3-0.8		0.3	0.8	171C-10600-0.3-0.8
599-10600-0.3-1.2		0.3	1.2	171C-10600-0.3-1.2
599-10600-0.3-1.5		0.3	1.5	171C-10600-0.3-1.5
599-10600-0.3-1.9		0.3	1.9	171C-10600-0.3-1.9
599-10600-0.5-0.3		0.5	0.3	171C-10600-0.5-0.3
599-10600-0.5-0.5		0.5	0.5	171C-10600-0.5-0.5
599-10600-0.5-0.8		0.5	0.8	171C-10600-0.5-0.8
599-10600-0.5-1.2		0.5	1.2	171C-10600-0.5-1.2
599-10600-0.5-1.5		0.5	1.5	171C-10600-0.5-1.5
599-10600-0.5-1.9		0.5	1.9	171C-10600-0.5-1.9
599-10600-0.8-0.3		0.8	0.3	171C-10600-0.8-0.3
599-10600-0.8-0.5		0.8	0.5	171C-10600-0.8-0.5
599-10600-0.8-0.8		0.8	0.8	171C-10600-0.8-0.8
599-10600-0.8-1.2		0.8	1.2	171C-10600-0.8-1.2
599-10600-0.8-1.5		0.8	1.5	171C-10600-0.8-1.5
599-10600-0.8-1.9		0.8	1.9	171C-10600-0.8-1.9
599-10600-1.2-0.3		1.2	0.3	171C-10600-1.2-0.3
599-10600-1.2-0.5		1.2	0.5	171C-10600-1.2-0.5
599-10600-1.2-0.8		1.2	0.8	171C-10600-1.2-0.8
599-10600-1.2-1.2		1.2	1.2	171C-10600-1.2-1.2
599-10600-1.2-1.5		1.2	1.5	171C-10600-1.2-1.5
599-10600-1.2-1.9		1.2	1.9	171C-10600-1.2-1.9
599-10600-1.5-0.3		1.5	0.3	171C-10600-1.5-0.3
599-10600-1.5-0.5		1.5	0.5	171C-10600-1.5-0.5
599-10600-1.5-0.8		1.5	0.8	171C-10600-1.5-0.8
599-10600-1.5-1.2		1.5	1.2	171C-10600-1.5-1.2
599-10600-1.5-1.5		1.5	1.5	171C-10600-1.5-1.5
599-10600-1.5-1.9		1.5	1.9	171C-10600-1.5-1.9
599-10600-1.9-0.3	1.9	0.3	171C-10600-1.9-0.3	
599-10600-1.9-0.5	1.9	0.5	171C-10600-1.9-0.5	
599-10600-1.9-0.8	1.9	0.8	171C-10600-1.9-0.8	
599-10600-1.9-1.2	1.9	1.2	171C-10600-1.9-1.2	
599-10600-1.9-1.5	1.9	1.5	171C-10600-1.9-1.5	
599-10600-1.9-1.9	1.9	1.9	171C-10600-1.9-1.9	

Table 2. 3/4-Inch Valve and Actuator Assemblies.


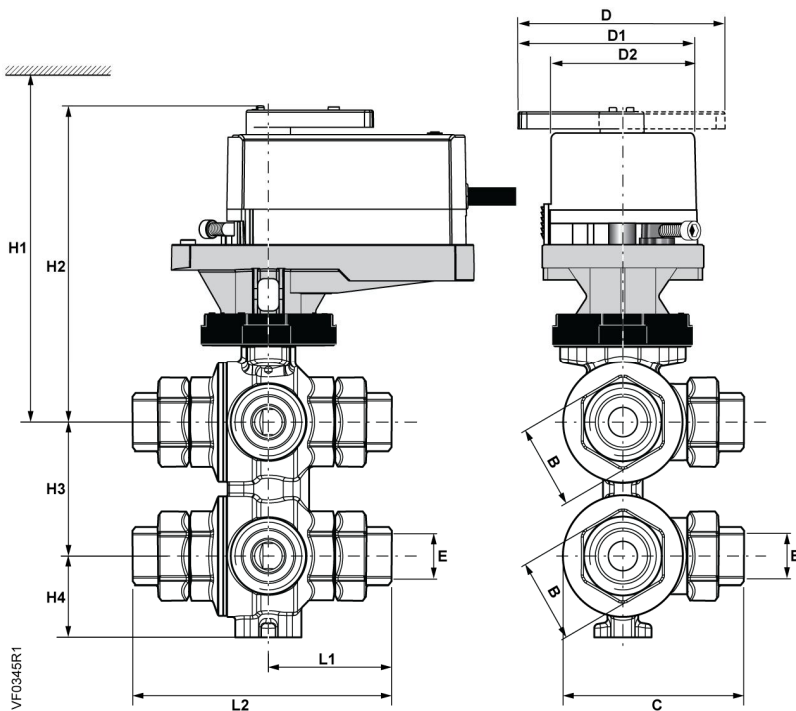
Valve Body	Line Size, Inch (mm)	Source A Cv Value	Source B Cv Value	Non-Spring Return, 0 to 10V GDE161.1P
				
				Actuator Prefix Code 171C
599-10601-0.8-0.8	3/4 (20)	0.8	0.8	171C-10601-0.8-0.8
599-10601-0.8-1.2		0.8	1.2	171C-10601-0.8-1.2
599-10601-0.8-1.5		0.8	1.5	171C-10601-0.8-1.5
599-10601-0.8-1.9		0.8	1.9	171C-10601-0.8-1.9
599-10601-0.8-2.9		0.8	2.9	171C-10601-0.8-2.9
599-10601-0.8-4.0		0.8	4.0	171C-10601-0.8-4.0
599-10601-0.8-4.7		0.8	4.7	171C-10601-0.8-4.7
599-10601-1.2-0.8		1.2	0.8	171C-10601-1.2-0.8
599-10601-1.2-1.2		1.2	1.2	171C-10601-1.2-1.2
599-10601-1.2-1.5		1.2	1.5	171C-10601-1.2-1.5
599-10601-1.2-1.9		1.2	1.9	171C-10601-1.2-1.9
599-10601-1.2-2.9		1.2	2.9	171C-10601-1.2-2.9
599-10601-1.2-4.0		1.2	4.0	171C-10601-1.2-4.0
599-10601-1.2-4.7		1.2	4.7	171C-10601-1.2-4.7
599-10601-1.5-0.8		1.5	0.8	171C-10601-1.5-0.8
599-10601-1.5-1.2		1.5	1.2	171C-10601-1.5-1.2
599-10601-1.5-1.5		1.5	1.5	171C-10601-1.5-1.5
599-10601-1.5-1.9		1.5	1.9	171C-10601-1.5-1.9
599-10601-1.5-2.9		1.5	2.9	171C-10601-1.5-2.9
599-10601-1.5-4.0		1.5	4.0	171C-10601-1.5-4.0
599-10601-1.5-4.7		1.5	4.7	171C-10601-1.5-4.7
599-10601-1.9-0.8		1.9	0.8	171C-10601-1.9-0.8
599-10601-1.9-1.2		1.9	1.2	171C-10601-1.9-1.2
599-10601-1.9-1.5		1.9	1.5	171C-10601-1.9-1.5
599-10601-1.9-1.9		1.9	1.9	171C-10601-1.9-1.9
599-10601-1.9-2.9		1.9	2.9	171C-10601-1.9-2.9
599-10601-1.9-4.0		1.9	4.0	171C-10601-1.9-4.0
599-10601-1.9-4.7		1.9	4.7	171C-10601-1.9-4.7
599-10601-2.9-0.8		2.9	0.8	171C-10601-2.9-0.8
599-10601-2.9-1.2		2.9	1.2	171C-10601-2.9-1.2
599-10601-2.9-1.5		2.9	1.5	171C-10601-2.9-1.5
599-10601-2.9-1.9		2.9	1.9	171C-10601-2.9-1.9
599-10601-2.9-2.9		2.9	2.9	171C-10601-2.9-2.9
599-10601-2.9-4.0		2.9	4.0	171C-10601-2.9-4.0
599-10601-2.9-4.7		2.9	4.7	171C-10601-2.9-4.7
599-10601-4.0-0.8		4.0	0.8	171C-10601-4.0-0.8
599-10601-4.0-1.2		4.0	1.2	171C-10601-4.0-1.2
599-10601-4.0-1.5		4.0	1.5	171C-10601-4.0-1.5
599-10601-4.0-1.9		4.0	1.9	171C-10601-4.0-1.9
599-10601-4.0-2.9		4.0	2.9	171C-10601-4.0-2.9
599-10601-4.0-4.0	4.0	4.0	171C-10601-4.0-4.0	
599-10601-4.0-4.7	4.0	4.7	171C-10601-4.0-4.7	
599-10601-4.7-0.8	4.7	0.8	171C-10601-4.7-0.8	
599-10601-4.7-1.2	4.7	1.2	171C-10601-4.7-1.2	
599-10601-4.7-1.5	4.7	1.5	171C-10601-4.7-1.5	
599-10601-4.7-1.9	4.7	1.9	171C-10601-4.7-1.9	
599-10601-4.7-2.9	4.7	2.9	171C-10601-4.7-2.9	
599-10601-4.7-4.0	4.7	4.0	171C-10601-4.7-4.0	
599-10601-4.7-4.7	4.7	4.7	171C-10601-4.7-4.7	

Table 3. 1-Inch Valve and Actuator Assemblies.

Valve Body	Line Size, Inch (mm)	Source A C _v Value	Source B C _v Value	Non-Spring Return, 0 to 10V, GDE161.1P
				Actuator Prefix Code 171C
599-10602-1.9-1.9	1 (25)	1.9	1.9	171C-10602-1.9-1.9
599-10602-1.9-2.9		1.9	2.9	171C-10602-1.9-2.9
599-10602-1.9-4.0		1.9	4.0	171C-10602-1.9-4.0
599-10602-1.9-4.7		1.9	4.7	171C-10602-1.9-4.7
599-10602-2.9-1.9		2.9	1.9	171C-10602-2.9-1.9
599-10602-2.9-2.9		2.9	2.9	171C-10602-2.9-2.9
599-10602-2.9-4.0		2.9	4.0	171C-10602-2.9-4.0
599-10602-2.9-4.7		2.9	4.7	171C-10602-2.9-4.7
599-10602-4.0-1.9		4.0	1.9	171C-10602-4.0-1.9
599-10602-4.0-2.9		4.0	2.9	171C-10602-4.0-2.9
599-10602-4.0-4.0		4.0	4.0	171C-10602-4.0-4.0
599-10602-4.0-4.7		4.0	4.7	171C-10602-4.0-4.7
599-10602-4.7-1.9		4.7	1.9	171C-10602-4.7-1.9
599-10602-4.7-2.9		4.7	2.9	171C-10602-4.7-2.9
599-10602-4.7-4.0		4.7	4.0	171C-10602-4.7-4.0
599-10602-4.7-4.7		4.7	4.7	171C-10602-4.7-4.7



	599-10600...	599-10601...	599-10602...
Line Size	1/2 (15)	3/4 (20)	1 (25)
B	1.00 (25)	1.50 (38)	
C	3.44 (87)	4.25 (108)	4.50 (114)
D	3.98 (101)		
D1	3.44 (88)		
D2	2.91 (74)		
E	0.50 (15)	0.75 (20)	1.00 (25)
H1	13.75 (349)		
H2	5.75 (146)		
H3	1.75 (45)	2.36 (60)	
H4	1.13 (29)	1.42 (36)	
L1	2.81 (71)	3.31 (84)	3.50 (89)
L2	5.63 (143)	6.63 (168)	7.00 (178)

Figure 1. 6-way Ball Valve with Actuator Dimensions in Inches (Millimeters).

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