



Pressure Independent Control Series 2-Way Valves and Electronic Valve Actuators

Description

The 1/2- to 1-1/4-inch normally closed and 3/4-inch normally open Pressure Independent Control Valves have a 5 mm stroke, and work with the SSD Series Electronic Actuators.

The 1/2-inch normally open valves have a 2.5 mm stroke and also work with SSD Actuators. The 1-1/2 to 2-inch valves have a 6.5 mm stroke, and work with the SQD Series Electronic Actuators. The actuators require a 24 volt power supply to provide floating or 0 to 10 Vdc control.

Typical applications include control of hot or chilled water or water-glycol solutions up to 50% in closed loop systems.

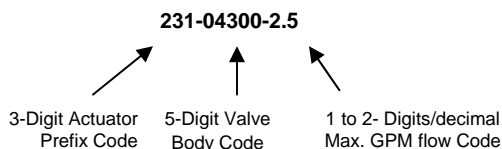
Features

The Pressure Independent Control Valves include a pressure regulator, a flow limiter, and a control valve in a single device.

SSD and SQD actuators have a direct-coupled installation, manual override and visual position indication.

Product Numbers

Use the product numbers in the tables to order the valve and the actuator assembled together. The product number consists of a 3-digit prefix code, a hyphen, a 5-digit code, a hyphen, and a 1 to 2-digit suffix with or without a decimal. The prefix specifies an actuator. The middle code specifies the valve body. The suffix specifies the factory preset maximum GPM flow setting. See **Table 2** through **Table 7**.



Technical Data

Typical Specifications

Flow shall be varied by actuator position. At any given position, flow through the valve shall not vary more that +/-10% due to system pressure fluctuations across the valve in the selected operating range. Valves shall be pressure independent between a differential pressure of 2.3 or 4.6 PSID (depending on valve size) and 58 PSID. Length of stroke shall be consistent and independent of flow setting.

Valve Specifications

Body material:	Brass
Stem:	Stainless steel
Line size:	1/2-inch to 2-inch (15 mm to 50 mm)
Action:	2-Way
Valve body rating:	ANSI 250
Close-off pressure/Leakage rate:	
1/2 and 3/4-inch, NO	200 psi/ANSI Class IV (0.01%)
1/2 to 1-1/4-inch, NC	45 psi/ANSI Class IV (0.01%)
1-1/2 to 2-inch, NC	33 psi/0.05% 50 psi/ANSI Class III (0.1%)
Medium temperature range:	34°F to 250°F (1°C to 120°C)
Flow characteristic:	Linear
Connection:	NPT threaded

Actuator Specifications

Operating voltage:	
SSD81U/SSD81.5U	24 Vac
SSD61U	24 Vac/dc
SSD61.5U	24 Vac
SQD	24 Vac
Frequency:	60 Hz
Power consumption (normal operation):	
SSD81U	0.8 VA
SSD81.5U	2 VA
SSD61U	2.5 VA
SSD61.5U	2 VA
SQD65U	4.5 VA
SQD85.03U	2 VA
Signal:	
SSD81U, SSD81.5U	Floating
SQD85.03U	
SSD61U, SSD61.5U	0 to 10 Vdc
SQD65U	

Run time (in seconds):		Stroke	
	2.5 mm	5 mm	6.5 mm
SSD81U	75	150	—
SSD81.5U	70	125	—
SSD61U	45	90	—
SSD61.5U	15	30	—
SQD85.03U, SQD65U	—	—	43

Force:	
SSD (NSR)	>56 lb (250 N)
SSD (SR)	67 lb (300 N)
SQD	>90 lb (400 N)

Additional References:

Technical Instructions	
PICV Valves	155-774
SSD Actuators	155-773
SQD Actuators	155-777

Agency Certification:	
UL	Meets UL 873
cUL	Certified to Canadian Standard C22.2 No. 24.93
Mounting Location	NEMA 1 (Interior only)



Table 1. Reference: Valve Body Flow Range

Valve Body	Normally Open/Closed	Line Size Inch (mm)	GMP Flow Range
599-04310	Open	1/2 (15)	0.2 to 0.9
599-04311	Open		0.5 to 2.5
599-04300	Closed		0.3 to 2.7
599-04301	Closed		1.0 to 7.5
599-04302	Closed	3/4 (20)	0.5 to 4.5
599-04312	Open		1.0 to 5.8
599-04303	Closed		1.0 to 8.9
599-04304	Closed	1 (25)	1.0 to 8.9
599-04305	Closed	1-1/4 (32)	2.5 to 13.2
599-04306	Closed	1-1/2 (40)	10 to 31
599-04307	Closed	2 (50)	11 to 37

Table 2. 1/2-Inch and 3/4-Inch 2-Way Normally Open Valve and Actuator Assemblies.



Valve Body	Line Size, Inch (mm)	Factory Preset Max. GPM	Non-Spring Return		Spring Return	
			SSD81U Floating	SSD61U 0-10V	SSD81.5U Floating	SSD61.5U 0-10V
						
			Actuator Prefix Code			
			230	231	232	233
599-04310-0.5	1/2 (15)	0.5	230-04310-0.5	231-04310-0.5	232-04310-0.5	233-04310-0.5
599-04311-1		1.0	230-04311-1	231-04311-1	232-04311-1	233-04311-1
599-04311-1.5		1.5	230-04311-1.5	231-04311-1.5	232-04311-1.5	233-04311-1.5
599-04311-2		2.0	230-04311-2	231-04311-2	232-04311-2	233-04311-2
599-04311-2.5		2.5	230-04311-2.5	231-04311-2.5	232-04311-2.5	233-04311-2.5
599-04312-1	3/4 (20)	1.0	230-04312-1	231-04312-1	232-04312-1	233-04312-1
599-04312-1.5		1.5	230-04312-1.5	231-04312-1.5	232-04312-1.5	233-04312-1.5
599-04312-2		2.0	230-04312-2	231-04312-2	232-04312-2	233-04312-2
599-04312-2.5		2.5	230-04312-2.5	231-04312-2.5	232-04312-2.5	233-04312-2.5
599-04312-3		3.0	230-04312-3	231-04312-3	232-04312-3	233-04312-3
599-04312-3.5		3.5	230-04312-3.5	231-04312-3.5	232-04312-3.5	233-04312-3.5
599-04312-4		4.0	230-04312-4	231-04312-4	232-04312-4	233-04312-4
599-04312-4.5		4.5	230-04312-4.5	231-04312-4.5	232-04312-4.5	233-04312-4.5
599-04312-5		5.0	230-04312-5	231-04312-5	232-04312-5	233-04312-5
599-04312-5.5		5.5	230-04312-5.5	231-04312-5.5	232-04312-5.5	233-04312-5.5

Table 3. 1/2-Inch 2-Way Normally Closed Valve and Actuator Assemblies.



Valve Body	Line Size, Inch (mm)	Factory Preset Max. GPM	Non-Spring Return		Spring Return	
			SSD81U Floating	SSD61U 0-10V	SSD81.5U Floating	SSD61.5U 0-10V
						
			Actuator Prefix Code			
			230	231	232	233
599-04300-0.5	1/2 (15)	0.5	230-04300-0.5	231-04300-0.5	232-04300-0.5	233-04300-0.5
599-04300-1		1.0	230-04300-1	231-04300-1	232-04300-1	233-04300-1
599-04300-1.5		1.5	230-04300-1.5	231-04300-1.5	232-04300-1.5	233-04300-1.5
599-04300-2		2.0	230-04300-2	231-04300-2	232-04300-2	233-04300-2
599-04300-2.5		2.5	230-04300-2.5	231-04300-2.5	232-04300-2.5	233-04300-2.5
599-04301-3		3.0	230-04301-3	231-04301-3	232-04301-3	233-04301-3
599-04301-3.5		3.5	230-04301-3.5	231-04301-3.5	232-04301-3.5	233-04301-3.5
599-04301-4		4.0	230-04301-4	231-04301-4	232-04301-4	233-04301-4
599-04301-4.5		4.5	230-04301-4.5	231-04301-4.5	232-04301-4.5	233-04301-4.5
599-04301-5		5.0	230-04301-5	231-04301-5	232-04301-5	233-04301-5
599-04301-5.5		5.5	230-04301-5.5	231-04301-5.5	232-04301-5.5	233-04301-5.5
599-04301-6		6.0	230-04301-6	231-04301-6	232-04301-6	233-04301-6
599-04301-6.5		6.5	230-04301-6.5	231-04301-6.5	232-04301-6.5	233-04301-6.5
599-04301-7		7.0	230-04301-7	231-04301-7	232-04301-7	233-04301-7
599-04301-7.5		7.5	230-04301-7.5	231-04301-7.5	232-04301-7.5	233-04301-7.5

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



Valve Body	Line Size, Inch (mm)	Factory Preset Max. GPM	Non-Spring Return		Spring Return	
			SSD81U Floating	SSD61U 0-10V	SSD81.5U Floating	SSD61.5U 0-10V
						
			Actuator Prefix Code			
			230	231	232	233
599-04302-1	3/4 (20)	1.0	230-04302-1	231-04302-1	232-04302-1	233-04302-1
599-04302-1.5		1.5	230-04302-1.5	231-04302-1.5	232-04302-1.5	233-04302-1.5
599-04302-2		2.0	230-04302-2	231-04302-2	232-04302-2	233-04302-2
599-04302-2.5		2.5	230-04302-2.5	231-04302-2.5	232-04302-2.5	233-04302-2.5
599-04302-3		3.0	230-04302-3	231-04302-3	232-04302-3	233-04302-3
599-04302-3.5		3.5	230-04302-3.5	231-04302-3.5	232-04302-3.5	233-04302-3.5
599-04302-4		4.0	230-04302-4	231-04302-4	232-04302-4	233-04302-4
599-04302-4.5		4.5	230-04302-4.5	231-04302-4.5	232-04302-4.5	233-04302-4.5
599-04303-5		5.0	230-04303-5	231-04303-5	232-04303-5	233-04303-5
599-04303-5.5		5.5	230-04303-5.5	231-04303-5.5	232-04303-5.5	233-04303-5.5
599-04303-6		6.0	230-04303-6	231-04303-6	232-04303-6	233-04303-6
599-04303-6.5		6.5	230-04303-6.5	231-04303-6.5	232-04303-6.5	233-04303-6.5
599-04303-7		7.0	230-04303-7	231-04303-7	232-04303-7	233-04303-7
599-04303-7.5		7.5	230-04303-7.5	231-04303-7.5	232-04303-7.5	233-04303-7.5
599-04303-8		8.0	230-04303-8	231-04303-8	232-04303-8	233-04303-8
599-04303-8.5	8.5	230-04303-8.5	231-04303-8.5	232-04303-8.5	233-04303-8.5	

Table 5. 1-Inch 2-Way Normally Closed Valve and Actuator Assemblies.



Valve Body	Line Size, Inch (mm)	Factory Preset Max. GPM	Non-Spring Return		Spring Return	
			SSD81U Floating	SSD61U 0-10V	SSD81.5U Floating	SSD61.5U 0-10V
						
			Actuator Prefix Code			
		230	231	232	233	
599-04304-1	1 (25)	1	230-04304-1	231-04304-1	232-04304-1	233-04304-1
599-04304-2		2	230-04304-2	231-04304-2	232-04304-2	233-04304-2
599-04304-3		3	230-04304-3	231-04304-3	232-04304-3	233-04304-3
599-04304-4		4	230-04304-4	231-04304-4	232-04304-4	233-04304-4
599-04304-5		5	230-04304-5	231-04304-5	232-04304-5	233-04304-5
599-04304-6		6	230-04304-6	231-04304-6	232-04304-6	233-04304-6
599-04304-7		7	230-04304-7	231-04304-7	232-04304-7	233-04304-7
599-04304-8		8	230-04304-8	231-04304-8	232-04304-8	233-04304-8
599-04304-9		9	230-04304-9	231-04304-9	232-04304-9	233-04304-9

Table 6. 1-1/4 Inch 2-Way Normally Closed Valve and Actuator Assemblies.




Valve Body	Line Size, Inch (mm)	Factory Preset Max. GPM	Non-Spring Return		Spring Return	
			SSD81U Floating	SSD61U 0-10V	SSD81.5U Floating	SSD61.5U 0-10V
						
			Actuator Prefix Code			
		230	231	232	233	
599-04305-3	1-1/4 (32)	3	230-04305-3	231-04305-3	232-04305-3	233-04305-3
599-04305-4		4	230-04305-4	231-04305-4	232-04305-4	233-04305-4
599-04305-5		5	230-04305-5	231-04305-5	232-04305-5	233-04305-5
599-04305-6		6	230-04305-6	231-04305-6	232-04305-6	233-04305-6
599-04305-7		7	230-04305-7	231-04305-7	232-04305-7	233-04305-7
599-04305-8		8	230-04305-8	231-04305-8	232-04305-8	233-04305-8
599-04305-9		9	230-04305-9	231-04305-9	232-04305-9	233-04305-9
599-04305-10		10	230-04305-10	231-04305-10	232-04305-10	233-04305-10
599-04305-11		11	230-04305-11	231-04305-11	232-04305-11	233-04305-11
599-04305-12		12	230-04305-12	231-04305-12	232-04305-12	233-04305-12
599-04305-13		13	230-04305-13	231-04305-13	232-04305-13	233-04305-13

Table 7. 1-1/2- and 2-Inch 2-Way Normally Closed Valve and Actuator Assemblies.

Valve Body	Line Size, Inch (mm)	Factory Preset Max. GPM	Non-Spring Return	
			SQD85.03U Floating	SQD65U 0-10V
				
			Actuator Prefix Code	
			234	235
599-04306-10	1-1/2 (40)	10	234-04306-10	235-04306-10
599-04306-15		15	234-04306-15	235-04306-15
599-04306-20		20	234-04306-20	235-04306-20
599-04306-25		25	234-04306-25	235-04306-25
599-04306-30		30	234-04306-30	234-04306-30
599-04307-15	2 (50)	15	234-04307-15	235-04307-15
599-04307-20		20	234-04307-20	235-04307-20
599-04307-25		25	234-04307-25	235-04307-25
599-04307-30		30	234-04307-30	235-04307-30
599-04307-35		35	234-04307-35	235-04307-35

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