Bell & Gossett
a xylem brand

SUBMITTAL A-609.22E

JOB:	**REPRESENTATIVE:**

UNIT TAG:	ORDER NUMBER:	DATE:
ENGINEER:	SUBMITTED BY:	DATE:
CONTRACTOR:	APPROVED BY:	DATE:

Ultra Setter™ Compact

Pressure Independent Control Valve
1½" - 6"

DESCRIPTION

The Bell & Gossett Ultra Setter is a pressure independent electrically actuated combination tempeature control, balance, and commissioning valve for use in HVAC systems. It feature an externally adjustable GPM dial allowing you to easily set the maximum flow rate. Once the maximum flow has been set, the flow rate is controlled through the use of an external control actuator, and the valve's internal differential pressure regulator maintains the desired flow rate as system pressures fluctuate. The result is more accurate flow control, reduced system energy use, more efficient system operation, and reduced installation and commissioning time.

The Ultra Setter is available with NPT Female Threaded connections in sizes 1-1/2" and 2", and ANSI Class 150# and 250# flange connections in sizes 2½"–6". All models are equipped with two capped ¼" readout valves. They offer a choice of 0–10V Analog modulation and 3–Position Floating actuators from Siemens.

CONSTRUCTION

Valve Body: Ductile Iron
Flow Setting Element: Brass
ΔP Controller:
1½" - 2": PPS 40% Glass
2½" - 6": Stainless Steel
Spring: Stainless Steel
Diaphragm:
1½" - 2": HNBR
2½" - 6": Reinforced EPDM
O-Rings: EPDM

AX Valves
Ball Valve Body/Stem: Brass
NPTM x SWTF Adapter: Brass
Ball: Chrome Plated Brass
Seat: PTFE

MAXIMUM WORKING PRESSURE

1½" - 2": 360 psi (2,500 kPa)
ANSI Class 150#: 175 psi (1,207 kPa)
ANSI Class 250#: 360 psi (2,500 kPa)

TEMPERATURE RANGE

Fluid: 32°F (0°C) to 248°F (120°C)
Ambient: 32°F (0°C) to 131°F (55°C)

CONTROL RANGE

Min: See Page 5-66
Max: 85 PSID

Accuracy

+/- 5%

LEAKAGE RATE

ANSI Class IV

CLOSE OFF PRESSURE

Up To 90 PSID (no actuator only)

For additional actuator information, including construction specifications and operating limits.
please refer to the following manufactuer product literature:
Siemens: N4833, N4501

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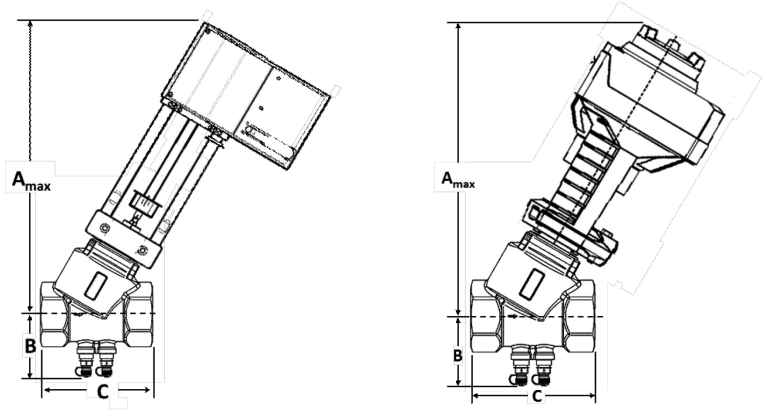
SCHEDULE: ULTRA SETTER™ PRESSURE INDEPENDENT CONTROL VALVES

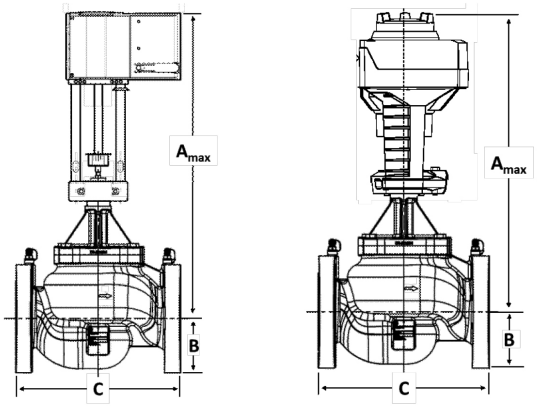
Part Number	Model Number	Flow Range (GPM)	Tagging Information	Quantity
117528	PVC-1-1/2	6 - 42		
117529	PVC-2	6 - 50		
V1000738	PVL-2-1/2L-125	19 - 110		
V1000737	PVL-2-1/2H-125	26 - 154		
V1000740	PVL-2-1/2L-250	19 - 110		
V1000739	PVL-2-1/2H-250	26 - 154		
V1000742	PVL-3L-125	25 - 150		
V1000741	PVL-3H-125	31 - 189		
V1000744	PVL-3L-250	25 - 150		
V1000743	PVL-3H-250	31 - 189		
V1000746	PVL-4L-125	46 - 308		
V1000745	PVL-4H-125	59 - 396		
V1000748	PVL-4L-250	46 - 308		
V1000747	PVL-4H-250	59 - 396		
V1000750	PVL-5L-125	81 - 484		
V1000749	PVL-5H-125	101 - 594		
V1000752	PVL-5L-250	81 - 484		
V1000751	PVL-5H-250	101 - 594		
V1000754	PVL-6L-125	113 - 652		
V1000753	PVL-6H-125	141 - 859		
V1000756	PVL-6L-250	113 - 652		
V1000755	PVL-6H-250	141 - 859		



DIMENSIONS AND WEIGHTS

Model Number	Size	Connection Type	Dimensions* in Inches (mm)			Flow Capacity in GPM (L/hr)		Approx. Weight Lbs.(kg.)
			Amax	B	C	Min.	Max.	
PVC-1-1/2	1-1/2"	NPT Female	14.5 (368)	2.80 (71)	5.43 (138)	6 (1370)	42 (9500)	15.0 (6.8)
PVC-2	2"	NPT Female	15.00 (381)	3.04 (77)	5.43 (138)	6 (1400)	50 (11500)	16.0 (7.3)

*All dimensions +/- 0.125 (3.2 mm) tolerance. Dimensions are subject to change. Not to be used for construction purposes unless certified.



DIMENSIONS AND WEIGHTS

Model Number	Size	Connection Type	Dimensions* in Inches (mm)			Flow Capacity in GPM (L/hr)		Approx. Weight Lbs.(kg.)
			Amax	B	C	Min.	Max.	
PVL-2-1/2L-125	2-1/2″	ANSI Class 125#	19 (505)	3.6 (92)	11.4 (290)	19 (4315)	110 (24985)	41 (19)
PVL-2-1/2H-125	2-1/2″	ANSI Class 125#	19.9 (505)	3.6 (92)	11.4 (290)	26 (5970)	154 (35000)	41 (19)
PVL-2-1/2L-250	2-1/2″	ANSI Class 250#	19.9 (505)	3.6 (92)	11.4 (290)	19 (4315)	110 (24985)	41 (19)
PVL-2-1/2H-250	2-1/2″	ANSI Class 250#	19.9 (505)	3.6 (92)	11.4 (290)	26 (5970)	154 (35000)	41 (19)
PVL-3L-125	3″	ANSI Class 125#	20.6 (522)	3.9 (100)	12.2 (310)	25 (5800)	150 (34020)	57 (26)
PVL-3H-125	3″	ANSI Class 125#	20.6 (522)	3.9 (100)	12.2 (310)	31 (7025)	189 (43035)	57 (26)
PVL-3L-250	3″	ANSI Class 250#	20.6 (522)	3.9 (100)	12.2 (310)	25 (5800)	150 (34020)	57 (26)
PVL-3H-250	3″	ANSI Class 250#	20.6 (522)	3.9 (100)	12.2 (310)	31 (7025)	189 (43035)	57 (26)
PVL-4L-125	4″	ANSI Class 125#	24.9 (632)	4.6 (118)	13.8 (350)	46 (10500)	308 (70000)	107 (49)
PVL-4H-125	4″	ANSI Class 125#	24.9 (632)	4.6 (118)	13.8 (350)	59 (13500)	396 (90000)	107 (49)
PVL-4L-250	4″	ANSI Class 250#	24.9 (632)	4.6 (118)	13.8 (350)	46 (10500)	308 (70000)	107 (49)
PVL-4H-250	4″	ANSI Class 250#	24.9 (632)	4.6 (118)	13.8 (350)	59 (13500)	396 (90000)	107 (49)
PVL-5L-125	5″	ANSI Class 125#	26.2 (665)	5.3 (135)	15.8 (400)	81 (18500)	484 (110000)	154 (70)
PVL-5H-125	5″	ANSI Class 125#	26.2 (665)	5.3 (135)	15.8 (400)	101 (23000)	594 (135000)	154 (70)
PVL-5L-250	5″	ANSI Class 250#	26.2 (665)	5.3 (135)	15.8 (400)	81 (18500)	484 (110000)	154 (70)
PVL-5H-250	5″	ANSI Class 250#	26.2 (665)	5.3 (135)	15.8 (400)	101 (23000)	594 (135000)	154 (70)
PVL-6L-125	6″	ANSI Class 125#	26.9 (682)	5.6 (143)	19.9 (505)	113 (25600)	652 (148000)	212 (96)
PVL-6H-125	6″	ANSI Class 125#	26.9 (682)	5.6 (143)	19.9 (505)	141 (32000)	859 (195000)	212 (96)
PVL-6L-250	6″	ANSI Class 250#	26.9 (682)	5.6 (143)	19.9 (505)	113 (25600)	652 (148000)	212 (96)
PVL-6H-250	6″	ANSI Class 250#	26.9 (682)	5.6 (143)	19.9 (505)	141 (32000)	859 (195000)	212 (96)

*All dimensions +/- 0.125 (3.2 mm) tolerance. Dimensions are subject to change. Not to be used for construction purposes unless certified.

Cv RATINGS AND MINIMUM REQUIRED DIFFERENTIAL PRESSURE

Flow Setting (GPM)	Valve Size 1 1/2"				
	Min (6)	10	20	30	Max (42)
Cv*	5	8	15	19	22
Required Min. ΔP	1.4	1.5	1.8	2.6	3.6

Flow Setting (GPM)	Valve Size 2"					
	Min (6)	10	20	30	40	Max (50)
Cv*	5	8	14	17	20	22
Required Min. ΔP	1.5	1.6	2.1	2.8	4.0	5.2

Flow Setting (GPM)	Valve Size 2 1/2"L					
	Min (19)	25	50	75	100	Max (110)
Cv*	13	17	31	44	54	58
Required Min. ΔP	2.0	2.1	2.6	2.9	3.4	3.6

Flow Setting (GPM)	Valve Size 2 1/2"H			
	Min (26)	50	100	Max (154)
Cv*	13	24	45	54
Required Min. ΔP	4.3	4.5	5.0	8.0

Flow Setting (GPM)	Valve Size 3"L			
	Min (25)	50	100	Max (150)
Cv*	16	32	58	78
Required Min. ΔP	2.3	2.4	3.0	3.7

Flow Setting (GPM)	Valve Size 4"L					
	Min (46)	100	150	200	250	Max (308)
Cv*	28	58	83	104	118	137
Required Min. ΔP	2.8	3.0	3.3	3.7	4.5	5.1

Flow Setting (GPM)	Valve Size 4"H				
	Min (59)	100	200	300	Max (396)
Cv*	29	48	85	106	120
Required Min. ΔP	4.1	4.4	5.6	8.0	10.9

Flow Setting (GPM)	Valve Size 5"L					
	Min (81)	100	200	300	400	Max (484)
Cv*	56	67	126	176	203	215
Required Min. ΔP	2.1	2.2	2.5	2.9	3.9	5.1

Flow Setting (GPM)	Valve Size 5"H					
	Min (101)	200	300	400	500	Max (594)
Cv*	51	100	145	185	200	214
Required Min. ΔP	3.9	4.0	4.3	4.7	6.3	7.7

*Cv is applicable only when the differential pressure across the valve is below the given minimum requirement. When differential pressure is below the minimum requirement, flow can be calculated using the equation $q=Cv^*\sqrt{\Delta P}$, where q is the flow in GPM and ΔP is the differential pressure in PSI.

Cv RATINGS AND MINIMUM REQUIRED DIFFERENTIAL PRESSURE (cont.)

Flow Setting (GPM)	Valve Size 6"L						
	Min (113)	200	300	400	500	600	Max (652)
Cv*	65	114	168	200	236	271	289
Required Min. ΔP	3.0	3.1	3.2	4.0	4.5	4.9	5.1

Flow Setting (GPM)	Valve Size 6"H						
	Min (141)	225	350	475	600	725	Max (859)
Cv*	65	103	158	197	229	255	280
Required Min. ΔP	4.7	4.8	4.9	5.8	6.9	8.1	9.4

*Cv is applicable only when the differential pressure across the valve is below the given minimum requirement. When differential pressure is below the minimum requirement, flow can be calculated using the equation $q=Cv^*\sqrt{\Delta P}$, where q is the flow in GPM and ΔP is the differential pressure in PSI.

ACTUATOR SPECIFICATIONS

Part Number	Manufacturer	Manufacturer Part Number	Normal Position	Fail-Safe Position	Control Signal	Valve Models Actuator Can be Used With
V1000757	Siemens	SAX61.03U	Normally Open	Last Position	DC 0-10V Analog/DC 4-20 mA	All 1-1/2" thru 3"
V1000758	Siemens	SAX81.03U	Normally Open	Last Position	3 Position	All 1-1/2" thru 3"
V1000759	Siemens	SQV91P30	Normally Open	Fail Open	3 Position Floating/0-10V Analog	All 1-1/2" thru 6"
V1000760	Siemens	SQV91P40	Normally Closed	Fail Closed	3 Position Floating/0-10V Analog	All 1-1/2" thru 6"

For additional actuator information, please see Siemens submittals N4833 and N4501.

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ACTUATOR SPECIFICATIONS

B&G Part Number	Manufacturer	Manufacturer Model Number	Fail Position	Control Signal	Valves Actuator Can Be Used With	Manufacturer Data Sheet
V1000645	Siemens	SSA61U	Fail Last Position	0-10 Vdc Modulating	All 1/2" thru 1-1/4"	155-710
V1000646	Siemens	SSA81U	Fail Last Position	3 Position Floating	All 1/2" thru 1-1/4"	155-710
V59062	Siemens	SSD61U	Fail Last Position	0-10 Vdc Modulating	All 1/2" thru 1-1/4"	155-773
V59061	Siemens	SSD81U	Fail Last Position	3 Position Floating	All 1/2" thru 1-1/4"	155-773
V1001958	Siemens	SSD61.5U	Spring Return Fail Open	0-10 Vdc Modulating	All 1/2" thru 1-1/4"	155-773
V1001959	Siemens	SSD81.5U	Spring Return Fail Open	3 Position Floating	All 1/2" thru 1-1/4"	155-773
V1000647	Siemens	SFP71U	Spring Return Fail Open	On/Off	1/2"UL, 1/2"H, and 3/4"L Only	155-321P25
V1001952	Siemens	SFA71U	Spring Return Fail Closed	On/Off	1/2"UL, 1/2"H, and 3/4"L Only	155-321P25
V1000648	Honeywell	M7410F1000	Fail Last Position	0-10 Vdc/2-10 Vdc Modulating	All 1/2" thru 1-1/4"	62-0100
V1000649	Honeywell	M6410A1029	Fail Last Position	3 Position Floating	All 1/2" thru 1-1/4"	62-0100
V1000735	Honeywell	M7435F3007	Spring Return Fail Open	0-10 Vdc/2-10 Vdc Modulating	All 1/2" thru 1-1/4"	62-0100
V1000736	Honeywell	M6435A3000	Spring Return Fail Open	3 Position Floating	All 1/2" thru 1-1/4"	62-0100