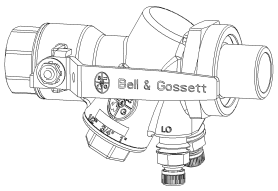
Bell & Gossett
a xylem brand

SUBMITTAL

A-606.16C

JOB:	**REPRESENTATIVE:**	
UNIT TAG:	**ORDER NO.**	**DATE:**
ENGINEER:	**SUBMITTED BY:**	**DATE:**
CONTRACTOR:	**APPROVED BY:**	**DATE:**



Circuit Sentry™

Model AC

Combination Commissioning Valve
& Automatic Flow Limiting Valve

DESCRIPTION

The Bell & Gossett Circuit Sentry™ is a combination automatic flow limiting valve, commissioning valve, and shut-off valve for use in HVAC systems. Valves are furnished with a removable flow limiting diaphragm cartridge to allow easy access for inspection, cleaning or flow rate changes without disturbing the piping. Two 1" pressure / temperature ports and a hanging ID tag for commissioning are standard. A variety of end connections are available on both the fixed and union ends.

CONSTRUCTION

Body: Brass C37710
Ball: Chrome Plated Brass C37710
Ball Seal: PTFE
Stem: Blow-out Proof
O-Rings: EPDM
Cartridge:
"A" Body: Brass 36000
"B" Body: Brass 36000
"C" Body: 304 Stainless Steel
Diaphragm: Reinforced EPDM
Spring: Stainless Steel

MAXIMUM WORKING PRESSURE

400 psig (2,758 kPa)

TEMPERATURE RANGE

-4°F (-20°C) to 250°F (121°C)

CONTROL RANGE

Min: Varies on size and flow. See submittal A-606.22.
Max: 60 psi (414 kPa)

Accuracy

+/- 5%

*See Instruction Sheet V50844

SCHEDULE

VALVE SIZE FIXED END	TAGGING INFORMATION	QUANTITY
½" Sweat Female		
½" NPT Female		
¾" Sweat Female		
¾" NPT Female		
1" Sweat Female		
1" NPT Female		
1L" Sweat Female		
1L" NPT Female		
1¼" Sweat Female		
1¼" NPT Female		
1½" Sweat Female		
1½" NPT Female		
2" R Sweat Female		
2" R NPT Female		
LARGE BODY		
1½" L Sweat Female		
1½" L NPT Female		
2" Sweat Female		
2" NPT Female		
2½" Sweat Female		
2½" NPT Female		

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FLOW RATES

Fixed End Size In. (mm)	FLOW RATES* (GPM)																						
½" (12.7)	0.33	0.5	1	1.5	1.75	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	9	10	11	12	
¾" (19)	0.33	0.5	1	1.5	1.75	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	9	10	11	12	
1" (25.4)	0.33	0.5	1	1.5	1.75	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	9	10	11	12	
1"L (25.4)	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	24	26	28	30	32	
1¼" (31.75)	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	24	26	28	30	32	
1½" (38.1)	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	24	26	28	30	32	
2"R (50.8)	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	24	26	28	30	32	

(cont.)

½" (12.7)	13	14							
¾" (19)	13	14							
1" (25.4)	13	14							
1"L (25.4)	34	36	38	40	42	44	46	48	50
1¼" (31.75)	34	36	38	40	42	44	46	48	50
1½" (38.1)	34	36	38	40	42	44	46	48	50
2"R (50.8)	34	36	38	40	42	44	46	48	50

*B&G recommends following ASHRAE's design criteria for hydronic system piping, flow rates, and friction loss.

Fixed End Size In. (mm)	FLOW RATES* (LPS)																						
½" (12.7)	0.02	0.03	0.06	0.09	0.11	0.13	0.16	0.19	0.22	0.25	0.28	0.32	0.35	0.38	0.41	0.44	0.47	0.50	0.57	0.63	0.69	0.78	
¾" (19)	0.02	0.03	0.06	0.09	0.11	0.13	0.16	0.19	0.22	0.25	0.28	0.32	0.35	0.38	0.41	0.44	0.47	0.50	0.57	0.63	0.69	0.78	
1" (25.4)	0.02	0.03	0.06	0.09	0.11	0.13	0.16	0.19	0.22	0.25	0.28	0.32	0.35	0.38	0.41	0.44	0.47	0.50	0.57	0.63	0.69	0.78	
1"L (25.4)	0.32	0.38	0.44	0.50	0.57	0.63	0.69	0.76	0.82	0.88	0.95	1.01	1.07	1.14	1.20	1.26	1.39	1.51	1.64	1.77	1.89	2.02	
1¼" (31.75)	0.32	0.38	0.44	0.50	0.57	0.63	0.69	0.76	0.82	0.88	0.95	1.01	1.07	1.14	1.20	1.26	1.39	1.51	1.64	1.77	1.89	2.02	
1½" (38.1)	0.32	0.38	0.44	0.50	0.57	0.63	0.69	0.76	0.82	0.88	0.95	1.01	1.07	1.14	1.20	1.26	1.39	1.51	1.64	1.77	1.89	2.02	
2"R (50.8)	0.32	0.38	0.44	0.50	0.57	0.63	0.69	0.76	0.82	0.88	0.95	1.01	1.07	1.14	1.20	1.26	1.39	1.51	1.64	1.77	1.89	2.02	

(cont.)

½" (12.7)	0.82	0.88							
¾" (19)	0.82	0.88							
1" (25.4)	0.82	0.88							
1"L (25.4)	2.14	2.27	2.40	2.52	2.65	2.78	2.90	3.03	3.15
1¼" (31.75)	2.14	2.27	2.40	2.52	2.65	2.78	2.90	3.03	3.15
1½" (38.1)	2.14	2.27	2.40	2.52	2.65	2.78	2.90	3.03	3.15
2"R (50.8)	2.14	2.27	2.40	2.52	2.65	2.78	2.90	3.03	3.15

*B&G recommends following ASHRAE's design criteria for hydronic system piping, flow rates, and friction loss.

FLOW RATES - LARGE BODY

Fixed End Size In. (mm)	FLOW RATES* (GPM)																						
1½"L (38.1)	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	110	120	130	140	150
2" (50.8)	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	110	120	130	140	150
2½" (63.5)	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	110	120	130	140	150

*B&G recommends following ASHRAE's design criteria for hydronic system piping, flow rates, and friction loss.

Fixed End Size In. (mm)	FLOW RATES* (LPS)																						
1½"L (38.1)	0.95	1.26	1.58	1.89	2.21	2.52	2.84	3.15	3.47	3.79	4.10	4.42	4.73	5.05	5.36	5.68	5.99	6.31	6.94	7.57	8.20	8.83	9.46
2" (50.8)	0.95	1.26	1.58	1.89	2.21	2.52	2.84	3.15	3.47	3.79	4.10	4.42	4.73	5.05	5.36	5.68	5.99	6.31	6.94	7.57	8.20	8.83	9.46
2½" (63.5)	0.95	1.26	1.58	1.89	2.21	2.52	2.84	3.15	3.47	3.79	4.10	4.42	4.73	5.05	5.36	5.68	5.99	6.31	6.94	7.57	8.20	8.83	9.46

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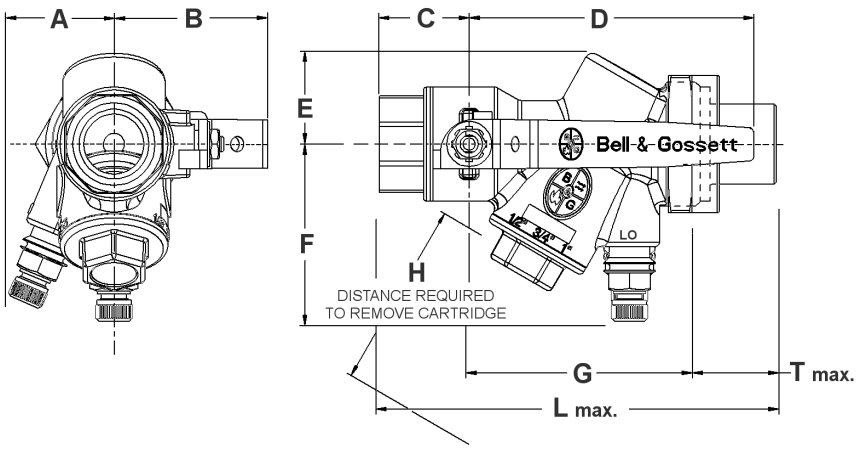

Valve Size Fixed End	Connection Fixed End	DIMENSIONS* INCH (mm)										Approx. Weight Lbs. (kg)
		A	B	C	D	E	F	G	H	T (Max)	L (Max)	
½" (12.7)	Sweat Female	1.42 (36)	1.93 (49)	1.26 (32)	3.74 (95)	1.18 (30)	2.36 (60)	3.03 (77)	1.77 (45)	0.98 (25)	5.27 (134)	2.4 (1.1)
½" (12.7)	NPT Female	1.42 (36)	1.93 (49)	1.18 (30)	3.74 (95)	1.18 (30)	2.36 (60)	3.03 (77)	1.77 (45)	0.98 (25)	5.19 (132)	2.4 (1.1)
¾" (19)	Sweat Female	1.42 (36)	1.93 (49)	1.38 (35)	3.74 (95)	1.18 (30)	2.36 (60)	3.03 (77)	1.77 (45)	0.98 (25)	5.39 (137)	2.4 (1.1)
¾" (19)	NPT Female	1.42 (36)	1.93 (49)	1.18 (30)	3.74 (95)	1.18 (30)	2.36 (60)	3.03 (77)	1.77 (45)	0.98 (25)	5.19 (132)	2.5 (1.1)
1" (25.4)	Sweat Female	1.42 (36)	1.93 (49)	1.46 (37)	3.74 (95)	1.18 (30)	2.36 (60)	3.03 (77)	1.77 (45)	1.69 (43)	6.18 (157)	2.6 (1.2)
1" (25.4)	NPT Female	1.42 (36)	1.93 (49)	1.38 (35)	3.74 (95)	1.18 (30)	2.36 (60)	3.03 (77)	1.77 (45)	1.69 (43)	6.10 (155)	2.6 (1.2)
1L" (25.4)	Sweat Female	1.65 (42)	2.87 (73)	1.85 (47)	5.2 (132)	1.89 (48)	2.95 (75)	4.67 (118.5)	2.46 (62.5)	1.93 (49)	8.45 (214.5)	7.1 (3.2)
1L" (25.4)	NPT Female	1.65 (42)	2.87 (73)	1.67 (42.5)	5.2 (132)	1.89 (48)	2.95 (75)	4.67 (118.5)	2.46 (62.5)	1.93 (49)	8.27 (210)	7.1 (3.2)
1¼" (31.75)	Sweat Female	1.65 (42)	2.87 (73)	1.89 (48)	5.2 (132)	1.89 (48)	2.95 (75)	4.67 (118.5)	2.46 (62.5)	2.09 (53)	8.65 (219.5)	7.1 (3.2)
1¼" (31.75)	NPT Female	1.65 (42)	2.87 (73)	1.65 (42)	5.2 (132)	1.89 (48)	2.95 (75)	4.67 (118.5)	2.46 (62.5)	2.09 (53)	8.41 (213.5)	7.2 (3.3)
1½" (38.1)	Sweat Female	1.65 (42)	2.87 (73)	2.01 (51)	5.2 (132)	1.89 (48)	2.95 (75)	4.67 (118.5)	2.46 (62.5)	2.09 (53)	8.77 (222.5)	7.1 (3.2)
1½" (38.1)	NPT Female	1.65 (42)	2.87 (73)	1.73 (44)	5.2 (132)	1.89 (48)	2.95 (75)	4.67 (118.5)	2.46 (62.5)	2.09 (53)	8.49 (215.5)	7.1 (3.2)
2" R ** (50.8)	Sweat Female	1.65 (42)	2.87 (73)	5.04 (128)	5.2 (132)	1.89 (48)	2.95 (75)	4.67 (118.5)	2.46 (62.5)	2.09 (53)	11.8 (299.5)	9.8 (4.4)
2" R ** (50.8)	NPT Female	1.65 (42)	2.87 (73)	3.36 (85)	5.2 (132)	1.89 (48)	2.95 (75)	4.67 (118.5)	2.46 (62.5)	2.09 (53)	10.12 (256.5)	9.0 (4.1)

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

** 2" Reduced Port

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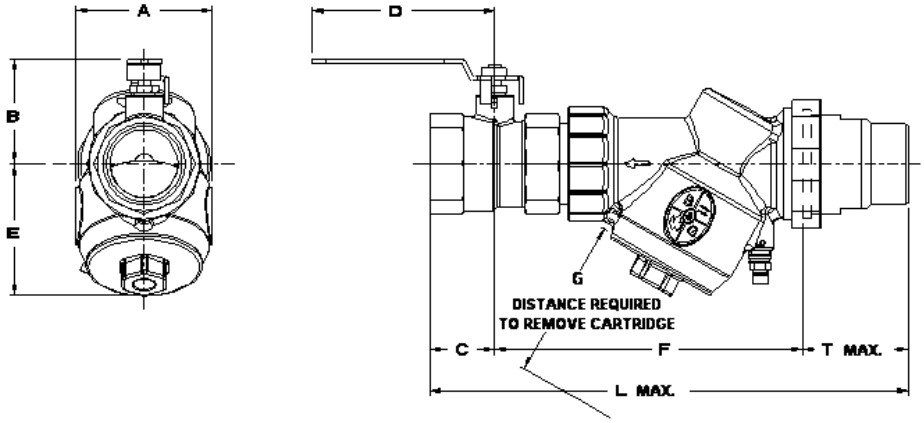

LARGE BODY

Valve Size Fixed End	Connection Fixed End	DIMENSIONS* INCH (mm)									Approx. Weight Lbs. (kg)
		A	B	C	D	E	F	G	T (Max)	L (Max)	
1½" L (38.1)	Sweat Female	4.0 (102)	3.07 (78)	3.15 (80)	5.35 (136)	3.85 (98)	9.0 (228)	4.33 (110)	3.12 (79)	15.27 (387)	16.62 (7.5)
1½" L (38.1)	NPT Female	4.0 (102)	3.07 (78)	4.92 (125)	5.35 (136)	3.85 (98)	9.0 (228)	4.33 (110)	3.12 (79)	17.04 (432)	16.65 (7.6)
2" (50.8)	Sweat Female	4.0 (102)	3.07 (78)	3.35 (86)	5.35 (136)	3.85 (98)	9.0 (228)	4.33 (110)	3.12 (79)	15.47 (392)	16.87 (7.7)
2" (50.8)	NPT Female	4.0 (102)	3.07 (78)	1.96 (50)	5.35 (136)	3.85 (98)	9.0 (228)	4.33 (110)	3.12 (79)	14.08 (357)	17.39 (7.9)
2½" (63.5)	Sweat Female	4.0 (102)	3.07 (78)	2.55 (65)	5.35 (136)	3.85 (98)	10.78 (274)	4.33 (110)	3.12 (79)	16.45 (418)	18.83 (8.5)
2½" (63.5)	NPT Female	4.0 (102)	3.07 (78)	4.33 (110)	5.35 (136)	3.85 (98)	10.78 (274)	4.33 (110)	3.12 (79)	18.23 (463)	19.36 (8.8)

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

TYPICAL SPECIFICATION

Furnish and install as shown on plans with manufacturer recommendations for Model AC automatic flow limiting valves.

VALVE DESIGN AND CONSTRUCTION

Valve shall be factory set and shall limit the design rate of flow to within 5% of the specified GPM over nominal control range up to 60 psi differential. The flow control shall be through cartridge regulator constructed by the product manufacturer. Cartridge regulator flow control areas shall use single hole orifice. Cartridge pressure regulator shall utilize rolling seal separating upstream and downstream pressure of cartridge for control of constant differential pressure across orifice. Cartridge shall be house in "Y" style body design and removable in field for inspection or flow modification. Valve body shall be constructed of de-zincification resistant brass, incorporate integral ball style shutoff valve, rated at 400 psi @ 250F service for water, have union nut and separate tailpiece entry to body, and use o-ring seals.

DESIGN PRESSURE/TEMPERATURE

Valve shall be rated for 400 psig (2,758 kPa) maximum working pressure and have a temperature range of -4°F (-20°C) to 250°F (121°C).

IMPORTANT

When monitoring system flow, care must be exercised to avoid direct skin or eye contact with liquids that may escape. Liquids with temperatures in excess of 120ºF (49ºC) may cause burns.

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