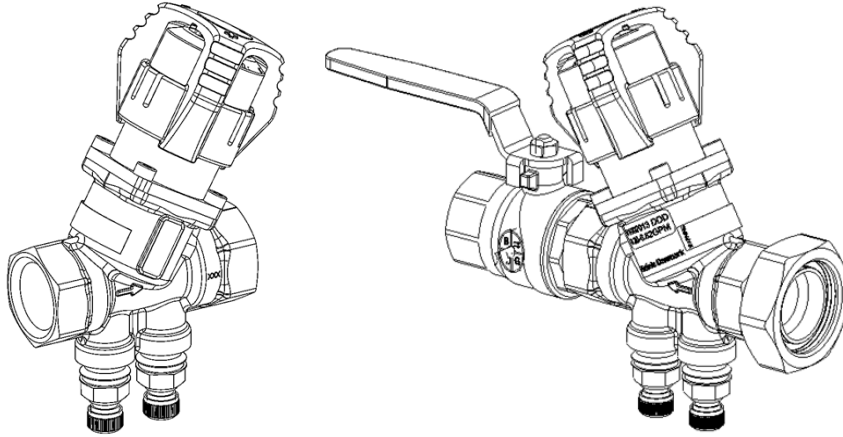


JOB:	REPRESENTATIVE:	
UNIT TAG:	ORDER NO.	DATE:
ENGINEER:	SUBMITTED BY:	DATE:
CONTRACTOR:	APPROVED BY:	DATE:



Circuit Sentry™ Flo-Setter II and Flo-Setter II Model AF

Externally Adjustable
Automatic Balance And
Commissioning Valve

DESCRIPTION

The Bell & Gossett Circuit Sentry™ Flo-Setter II and Circuit Sentry™ Flo-Setter II Model AF are externally adjustable balance and commissioning valves that are used in HVAC systems. They feature a GPM flow setting adjustment dial that allows flow rate to be changed independently of differential pressure without the need to shut down your system. This allows for greater system flexibility and control and minimizes required commissioning time. The GPM adjustment dial is attached to an internal flow setting/differential pressure regulating element that also provides integral isolation/shut-off capability. The valves are also equipped with an external locking handle, two capped 1/4" P/T ports, and feature threaded NPT end connections. Model AF additionally features a hanging ID tag, an optional ball isolation/shut-off valve, and a variety of end connections are available on both the fixed and union ends.

* If optional ball valve selected only

** Model AF Only

CONSTRUCTION

Valve:
Body: Brass (1/2" - 1-1/4")
Ductile Iron (1-1/2" - 2")
Flow Setting: PA6 20% Glass
Spring: Stainless Steel
Diaphragm: HNBR
O-Rings: EPDM
Ball Valve:*
Body/Stem: Brass
Ball: Chrome Plated Brass
O-Ring: EPDM
Seat: PTFE

MAXIMUM WORKING PRESSURE

375 psig (2,585 kPa)
290 psig (2,000 kPa)**

OPERATING TEMPERATURE RANGE

14°F (-10°C) to 250°F (120°C)

CONTROL RANGE (PSI)

Min: See Page 6
Max: 60 psi (414 kPa)

ACCURACY

+/- 5%

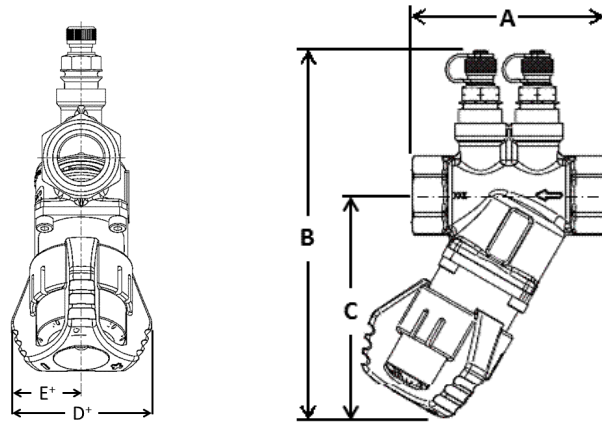
SCHEDULE MODEL: Flo-Setter II

MODEL NUMBER	PART NUMBER	TAGGING INFORMATION	QUANTITY
FS-1/2	117630		
FS-3/4	117632		
FS-1	117643		
FS-1-1/4	117636		
FS-1-1/2	117637		
FS-2	117638		

SCHEDULE MODEL: AF

VALVE SIZE FIXED END	TAGGING INFORMATION	QUANTITY
1/2" Sweat Female		
1/2" NPT Female		
3/4" Sweat Female		
3/4" NPT Female		
1" Sweat Female		
1" NPT Female		
1-1/4" Sweat Female		
1-1/4" NPT Female		
1-1/2" Sweat Female		
1-1/2" NPT Female		
2" Sweat Female		
2" NPT Female		

Flo-Setter II: Model FS



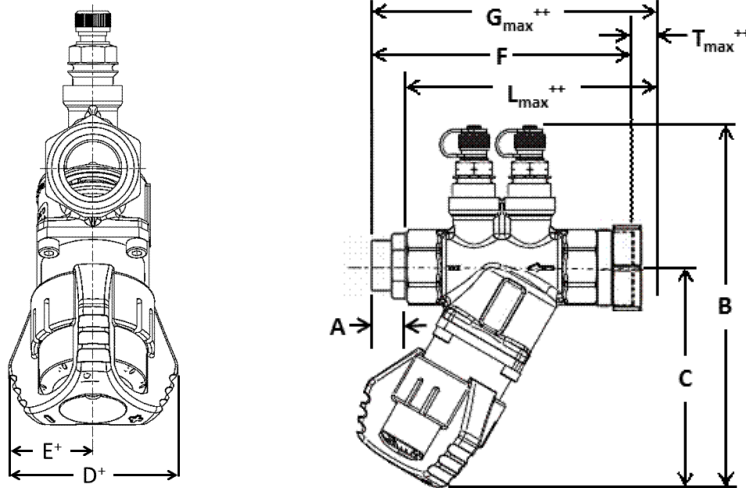
DIMENSIONS AND WEIGHTS

Model Number	Size	Connection Type	DIMENSIONS* IN INCHES (mm)					Flow Capacity in GPM (L/hr)		Approx. Weight Lbs. (kg.)
			A	B	C	D†	E†	Min.	Max.	
FS-1/2	1/2"	NPT Female	2.9 (75)	5.6 (144)	3.4 (87)	2.24 (57)	1.12 (28)	.26 (60)	4.75 (1080)	1.1 (.5)
FS-3/4	3/4"	NPT Female	3.1 (79)	5.6 (144)	3.4 (87)	2.24 (57)	1.12 (28)	.45 (102)	8.50 (1930)	1.3 (.6)
FS-1	1"	NPT Female	3.9 (100)	6.8 (173)	4.3 (110)	2.54 (65)	1.27 (33)	.60 (136)	10.56 (2400)	2.8 (1.3)
FS-1-1/4	1-1/4"	NPT Female	4.0 (104)	7.0 (178)	4.3 (110)	2.54 (65)	1.27 (33)	.88 (200)	22.01 (5000)	3.1 (1.4)
FS-1-1/2	1-1/2"	NPT Female	5.4 (138)	7.9 (201)	5.1 (131)	3.60 (92)	1.80 (46)	3.17 (719)	32.58 (7400)	6.6 (3.0)
FS-2	2"	NPT Female	5.4 (138)	8.1 (207)	5.1 (131)	3.60 (92)	1.80 (46)	3.96 (900)	45.57 (10350)	7.5 (3.4)

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

†Dimension is of maximum width of the handle or the valve body, whichever is greater.

Flo-Setter II: Model AF



DIMENSIONS AND WEIGHTS

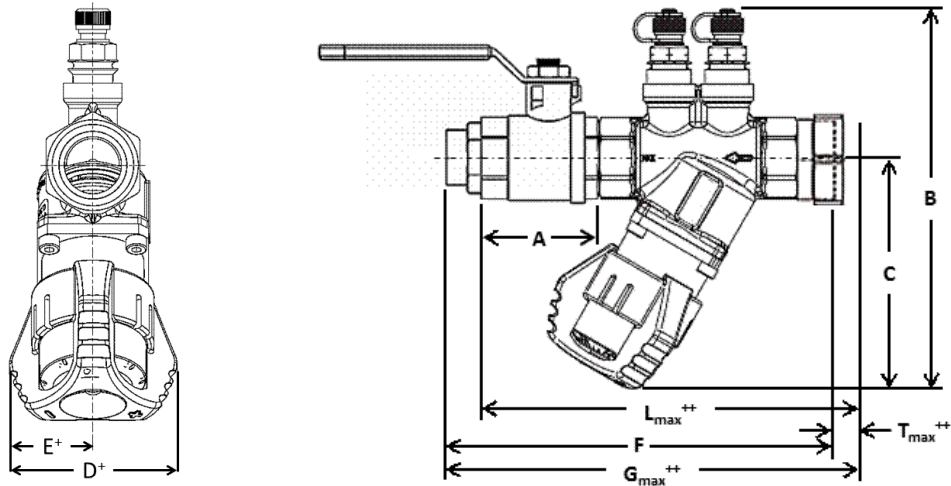
Valve Size Fixed End	Connection Fixed End	DIMENSIONS* IN INCHES (mm)									Flow Capacity in GPM (L/hr)		Approx. Weight Lbs. (kg.)
		A	B	C	D†	E†	F	L _{Max} ‡	G _{Max} ‡	T _{Max} ‡	Min.	Max.	
1/2"	Sweat Female	0.5 (15)	5.6 (144)	3.4 (87)	2.24 (57)	1.12 (28)	4.0 (102)	5.0 (127)	5.5 (142)	1.55 (39)	.26 (60)	4.75 (1080)	1.2 (.5)
	NPT Female	0.5 (15)	5.6 (144)	3.4 (87)	2.24 (57)	1.12 (28)	- (-)	5.0 (127)	- (-)	1.55 (39)	.26 (60)	4.75 (1080)	1.2 (.5)
3/4"	Sweat Female	1.0 (25)	5.6 (144)	3.4 (87)	2.24 (57)	1.12 (28)	4.7 (119)	5.3 (135)	6.5 (160)	1.55 (39)	.45 (102)	8.50 (1950)	1.5 (.7)
	NPT Female	0.5 (15)	5.6 (144)	3.4 (87)	2.24 (57)	1.12 (28)	- (-)	5.3 (135)	- (-)	1.55 (39)	.45 (102)	8.50 (1950)	1.5 (.7)
1"	Sweat Female	1.2 (30)	6.8 (173)	4.3 (110)	2.54 (65)	1.27 (33)	5.5 (142)	6.4 (163)	7.6 (193)	2.00 (51)	.60 (136)	10.56 (2400)	3.1 (1.4)
	NPT Female	1.2 (30)	6.8 (173)	4.3 (110)	2.54 (65)	1.27 (33)	- (-)	6.4 (163)	- (-)	2.00 (51)	.60 (136)	10.56 (2400)	3.1 (1.4)
1-1/4"	Sweat Female	1.2 (30)	7.0 (178)	4.3 (110)	2.54 (65)	1.27 (33)	5.9 (150)	6.7 (170)	7.9 (201)	2.00 (51)	.88 (200)	22.01 (5000)	3.6 (1.6)
	NPT Female	1.2 (30)	7.0 (178)	4.3 (110)	2.54 (65)	1.27 (33)	- (-)	6.7 (170)	- (-)	2.00 (51)	.88 (200)	22.01 (5000)	3.6 (1.6)
1-1/2"	Sweat Female	1.4 (36)	7.9 (201)	5.1 (110)	3.60 (92)	1.80 (33)	8.0 (203)	9.2 (234)	10.6 (269)	2.52 (64)	3.17 (719)	32.58 (7400)	7.6 (3.4)
	NPT Female	1.4 (36)	7.9 (201)	5.1 (110)	3.60 (92)	1.80 (33)	- (-)	9.2 (234)	- (-)	2.52 (64)	3.17 (719)	32.58 (7400)	7.6 (3.4)
2"	Sweat Female	2.0 (51)	8.1 (207)	5.1 (110)	3.60 (92)	1.80 (33)	8.9 (226)	9.7 (246)	11.7 (297)	3.14 (680)	3.96 (900)	45.57 (10350)	8.7 (3.9)
	NPT Female	2.0 (51)	8.1 (207)	5.1 (110)	3.60 (92)	1.80 (33)	- (-)	9.7 (246)	- (-)	3.14 (680)	3.96 (900)	45.57 (10350)	8.7 (3.9)

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

†Dimension is of maximum width of the handle or the valve body, whichever is greater.

‡Includes tailpiece. Measurements of maximum length tailpiece available.

Flo-Setter II: Model AF with optional isolation valve



DIMENSIONS AND WEIGHTS

Valve Size Fixed End	Connection Fixed End	DIMENSIONS* IN INCHES (mm)									Flow Capacity in GPM (L/hr)		Approx. Weight Lbs. (kg.)
		A	B	C	D†	E†	F	L _{Max} ‡	G _{Max} ‡	T _{Max} ‡	Min.	Max.	
1/2"	Sweat Female	1.7 (42)	5.6 (144)	3.4 (87)	2.24 (57)	1.12 (28)	5.7 (140)	6.7 (170)	7.3 (185)	1.55 (39)	.26 (60)	4.75 (1080)	1.6 (.7)
	NPT Female	1.7 (42)	5.6 (144)	3.4 (87)	2.24 (57)	1.12 (28)	5.7 (140)	6.7 (170)	7.3 (185)	1.55 (39)	.26 (60)	4.75 (1080)	1.6 (.7)
3/4"	Sweat Female	2.1 (53)	5.6 (144)	3.4 (87)	2.24 (57)	1.12 (28)	6.8 (174)	7.4 (188)	8.4 (213)	1.55 (39)	.45 (102)	8.50 (1950)	2.0 (.9)
	NPT Female	2.1 (53)	5.6 (144)	3.4 (87)	2.24 (57)	1.12 (28)	- (-)	7.4 (188)	- (-)	1.55 (39)	.45 (102)	8.50 (1950)	2.0 (.9)
1"	Sweat Female	2.5 (63)	6.8 (173)	4.3 (110)	2.54 (65)	1.27 (33)	8.1 (206)	8.9 (226)	10.1 (257)	2.00 (51)	.60 (136)	10.56 (2400)	3.9 (1.7)
	NPT Female	2.5 (63)	6.8 (173)	4.3 (110)	2.54 (65)	1.27 (33)	- (-)	8.9 (226)	- (-)	2.00 (51)	.60 (136)	10.56 (2400)	3.9 (1.7)
1-1/4"	Sweat Female	3.1 (79)	7.0 (178)	4.3 (110)	2.54 (65)	1.27 (33)	9.0 (229)	9.8 (475)	11.0 (279)	2.00 (51)	.88 (200)	22.01 (5000)	5.1 (2.3)
	NPT Female	3.1 (79)	7.0 (178)	4.3 (110)	2.54 (65)	1.27 (33)	- (-)	9.8 (475)	- (-)	2.00 (51)	.88 (200)	22.01 (5000)	5.1 (2.3)
1-1/2"	Sweat Female	3.4 (87)	7.9 (201)	5.1 (110)	3.60 (92)	1.80 (33)	11.4 (292)	12.6 (320)	14.0 (356)	2.52 (64)	3.17 (719)	32.58 (7400)	9.2 (4.3)
	NPT Female	3.4 (87)	7.9 (201)	5.1 (110)	3.60 (92)	1.80 (33)	- (-)	12.6 (320)	- (-)	2.52 (64)	3.17 (719)	32.58 (7400)	9.2 (4.1)
2"	Sweat Female	4.4 (112)	8.1 (207)	5.1 (110)	3.60 (92)	1.80 (33)	12.9 (329)	14.4 (366)	16.1 (409)	3.14 (680)	3.96 (900)	45.57 (10350)	11.9 (5.4)
	NPT Female	4.4 (112)	8.1 (207)	5.1 (110)	3.60 (92)	1.80 (33)	- (-)	14.4 (366)	- (-)	3.14 (680)	3.96 (900)	45.57 (10350)	11.9 (5.4)

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

†Dimension is of maximum width of the handle or the valve body, whichever is greater.

‡Includes tailpiece. Measurements of maximum length tailpiece available.

Cv RATINGS AND MINIMUM REQUIRED DIFFERENTIAL PRESSURE

Valve Size 1/2"											
Flow Setting (GPM)	Min	0.5	1	1.5	2	2.5	3	3.5	4	Max	
Cv	0.35	0.42	0.62	0.97	1.34	1.70	2.02	2.27	2.57	3.01	
Min Required ΔP (psi)	2.03	2.03	2.03	2.04	2.07	2.10	2.15	2.21	2.28	2.47	

Valve Size 3/4"											
Flow Setting (GPM)	Min	1	2	3	4	5	6	7	8	Max	
Cv	0.81	1.05	1.46	2.02	2.64	3.35	3.88	4.39	4.52	4.62	
Min Required ΔP (psi)	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.55	2.78	3.33	3.63

Valve Size 1"												
Flow Setting (GPM)	Min	1	2	3	4	5	6	7	8	9	10	Max
Cv	0.87	1.04	1.47	2.01	2.66	3.31	3.81	4.16	4.57	4.76	4.81	4.86
Min Required ΔP (psi)	2.03	2.03	2.04	2.07	2.13	2.19	2.48	2.76	3.04	3.67	4.42	4.81

Valve Size 1-1/4"												
Flow Setting (GPM)	Min	2	4	6	8	10	12	14	16	18	20	Max
Cv	1.39	1.80	2.64	3.78	5.20	5.99	7.63	8.60	9.73	10.69	11.71	12.60
Min Required ΔP (psi)	2.18	2.19	2.23	2.28	2.34	2.40	2.48	2.59	2.68	2.80	2.92	3.05

Valve Size 1-1/2"												
Flow Setting (GPM)	Min	7	10	13	16	19	21	24	27	30	Max	
Cv	2.95	5.90	8.08	10.46	12.90	14.68	15.70	17.40	18.47	19.73	20.81	
Min Required ΔP (psi)	1.45	1.45	1.45	1.46	1.51	1.64	1.71	1.86	2.07	2.28	2.47	

Valve Size 2"											
Flow Setting (GPM)	Min	5	10	15	20	25	30	35	40	Max	
Cv	3.47	4.16	8.08	11.90	15.16	17.17	19.31	20.87	22.12	23.47	
Min Required ΔP (psi)	1.45	1.45	1.48	1.55	1.70	2.04	2.41	2.87	3.26	3.77	

Typical Specification

Circuit balance valve should be Bell & Gossett Circuit Sentry™ Flo-Setter II valve as shown. Valve flow rate shall be adjustable through use of an external handle with GPM scale. Valve handle shall be rounded and include locking nut to lock handle in place once flow rate is set. Valve shall include integral isolation/shut-off capability without the use of an additional ball valve. Valve shall have two NPT female threaded accessory ports with installed pressure/temperature measurement ports for differential pressure verification.

Valve body shall be brass (1/2" - 1-1/4") or ductile iron (1-1/2" - 2") construction, rated for 375 psi at 250°F service for water. Valve flow control element shall be PA6 20% glass with stainless steel spring and HNBR diaphragm.

Model AF Only: Valve shall include union tailpiece and union nut. (If optional isolation valve is selected.) Valve shall also include ball style isolation valve with brass body and chrome plated brass ball.