

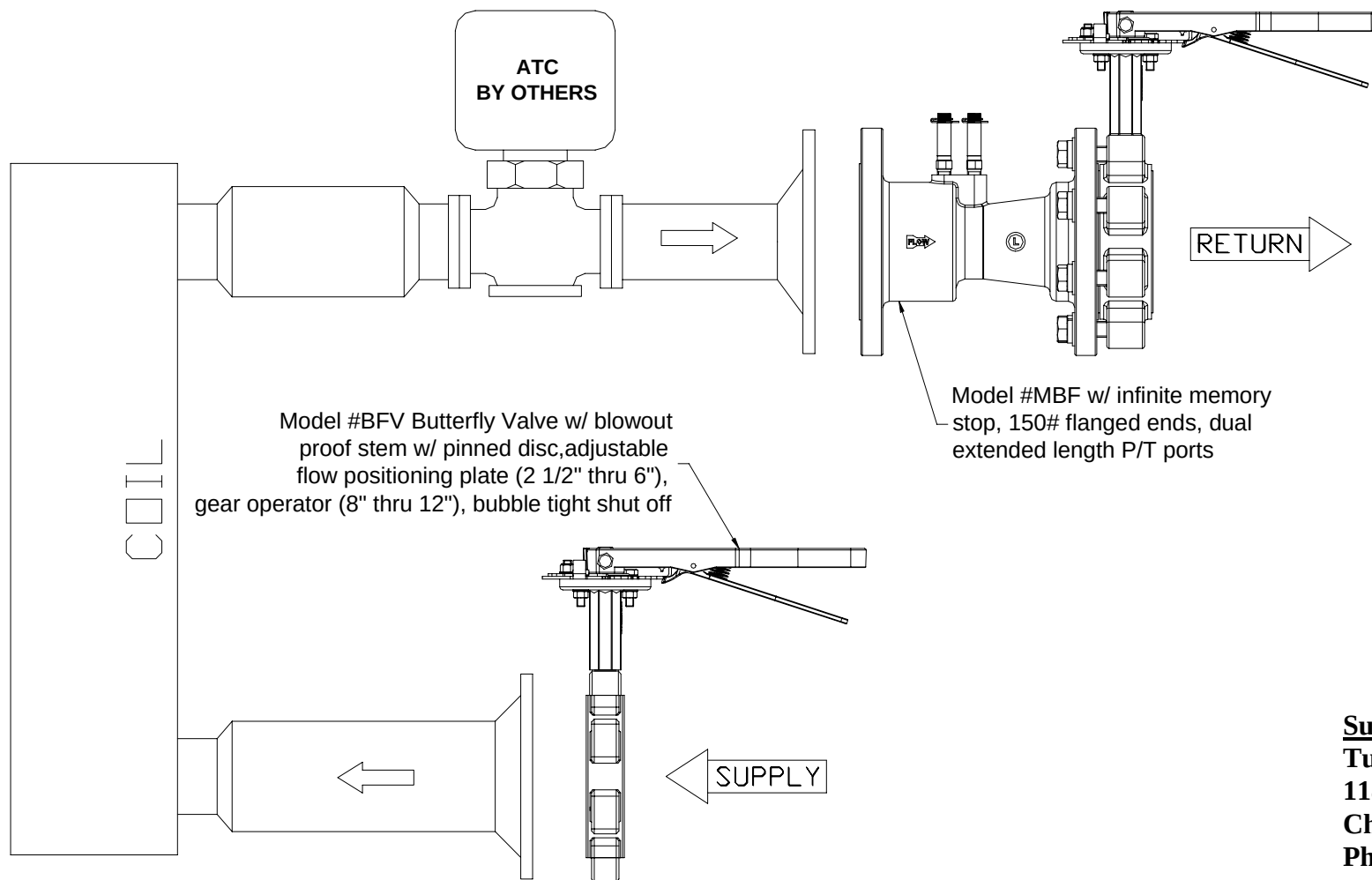
Valve Package (Model #MBF w/BFV)

Job Name: _____

Location: _____

Engineer: _____

Contractor: _____

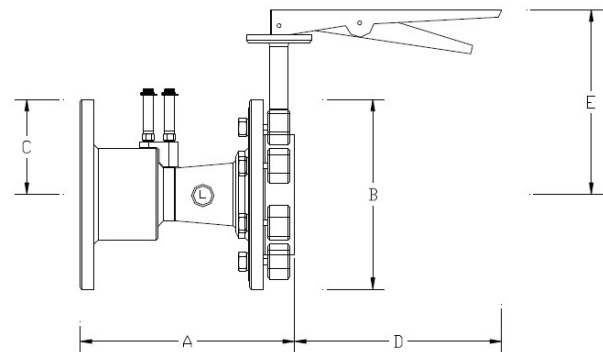


Submitted By:
Tunstall Corporation
118 Exchange Street
Chicopee, MA 01013
Phone: 413-594-8695
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Model MBF Manual Balancing Valve features a cast steel venturi flow element. The precision machined throat provides measurement accuracy of $\pm 3\%$ of flow rate. Mounted on the discharge is a ductile iron lug type butterfly valve with adjustable flow positioning plate. ANSI 150# flanged end connections. Dual extended length Pressure/Temperature ports. Hanging I.D. Tag.



SPECIFICATIONS	
Pressure Ratings:	200 PSI (1380 kPa)
Temperature Ratings:	225°F (107°C)
Accuracy:	$\pm 3\%$ of flow rate
Body Material - Venturi:	Carbon Steel ASTM A-120
Butterfly Valve:	Ductile Iron A536 65-45-12
End Connections:	ANSI 150# Flanged
Flow Element:	Brass Venturi, Permanently installed
Disc:	Aluminum Bronze B148 C954
Stem:	Stainless Steel 416 A582
Seat:	EPDM with Phenolic Backing
Bushing:	Teflon/Fiberglass Backed
Seal:	EPDM
Metering Ports:	Extended Length Pressure/Temperature test ports
Available Options:	"PTV" combination PT & Air Vent



MANUAL

NOMINAL DIMENSIONS & WEIGHTS												
MODEL	SIZE		Flow Range GPM (10"-100")	Cv		A	B	C	D	E	Weight	
	in	mm									lbs	kg
MBF-250	2.5"	65	24.0 - 75.0	116	in	8.75	7.00	4.20	9.12	8.13	32.00	14.51
					mm	222.25	177.80	106.65	231.90	206.50		
MBF-300	3.0"	75	48.0 - 150.0	186	in	9.78	7.50	4.54	9.13	8.38	38.00	17.23
					mm	248.41	190.50	115.29	231.90	212.85		
MBF-400	4.0"	100	85.0 - 260.0	322	in	11.50	9.00	5.02	9.00	9.13	55.00	24.94
					mm	292.10	228.60	127.48	228.60	231.90		
MBF-500	5.0"	125	170.0 - 525.0	630	in	13.13	10.00	5.53	9.00	9.63	79.00	35.83
					mm	333.50	254.00	140.49	228.60	244.60		
MBF-600	6.0"	150	220.0 - 700.0	844	in	14.73	11.00	6.04	8.88	10.13	92.00	41.73
					mm	374.14	279.40	153.39	225.55	257.30		

Dimensions not for construction purposes unless certified by factory.

STANDARD COMPONENTS		
	PT & PTE	Pressure / Temperature test port with brass body, dual durometer EPDM core, PTE Extender, brass cap with O-ring seal and neoprene retainer strap. Accepts standard 1/8" (4mm) gauge adapter or thermometer stem. Rated to 500 PSI (3450 kPa) and 275°F (135°C)
Please reference data sheet #Bulletin-MB-Accessories for optional accessories.		

Differential Pressure Table - Model MBF - 2.50" to 6.00"

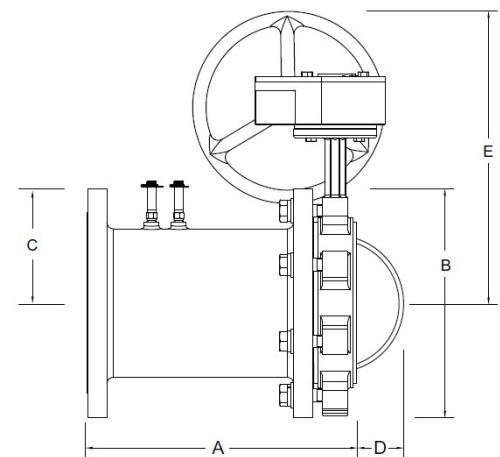
MANUAL

Model MBF / MF, MBG / MG, MP, VF, VG & VW Valves size 2.50" - 6.00"										
Differential Pressure: Inches W.C.										
Flow GPM	Model Size						Flow GPM	Model Size		
	250	300	400	500	600			400	500	600
24.0	10						300.0	123	32	18
26.0	12						325.0	144	38	21
28.0	14						350.0	167	44	24
30.0	16						375.0	191	50	28
32.0	18						400.0		57	32
34.0	20						425.0		64	36
36.0	22						450.0		72	40
38.0	25						475.0		80	45
40.0	28						500.0		89	50
42.0	31						525.0		98	55
44.0	34	8					550.0		108	60
46.0	37	9					575.0		118	66
48.0	40	10					600.0		128	71
50.0	43	11	3				625.0		139	78
55.0	52	13	4				650.0		150	84
60.0	62	15	5				675.0		162	90
65.0	73	18	6				700.0		175	97
70.0	85	21	7				725.0		187	104
75.0	97	24	8				750.0		200	112
80.0	111	27	9				775.0			119
85.0	125	31	10				800.0			127
90.0	140	35	11				825.0			135
95.0	156	39	12				850.0			143
100.0	173	43	14				900.0			161
110.0		52	16	4			925.0			170
120.0		62	20	5			950.0			179
130.0		72	23	6			975.0			189
140.0		84	27	7			1000.0			199
150.0		96	31	8			1100.0			
160.0		109	35	9			1200.0			
170.0		124	39	10			1300.0			
180.0		138	44	12	6		1400.0			
190.0		154	49	13	7		1500.0			
200.0		171	54	14	8					
220.0			66	17	10					
240.0			78	21	11					
260.0			92	24	13					
280.0			107	28	16					
Size	2.50"	3.00"	4.00"	5.00"	6.00"		Size	4.00"	5.00"	6.00"
FF	7.600	15.297	27.104	52.986	70.972		FF	27.104	52.986	70.972
Flow Formulas GPM = FF x ($\sqrt{DP}$) DP = $(GPM/FF)^2$ PPL = DP x 0.12						Notes: 1) Accuracy $\pm$ 3% of flow rate. 2) Repeatability $\pm$ 0.25% of rate. 3) Values in BOLD type represents traditional 10" to 100" sizing range. 4) All valves will function above and below ranges shown. Pressure drop and readability should be taken into account.				

Model MBF Manual Balancing Valve features a fabricated steel venturi flow element. Mounted on the discharge is a ductile iron lug type butterfly valve with gear operator. ANSI 150# flanged end connections. Dual extended length Pressure / Temperature ports. Hanging I.D. Tag.



SPECIFICATIONS	
Pressure Ratings:	200 PSI (1380 kPa)
Temperature Ratings:	225°F (107°C)
Accuracy:	± 3% of flow rate
Body Material - Venturi:	Carbon Steel ASTM A-120
Butterfly Valve:	Ductile Iron A536 65-45-12
End Connections:	ANSI 150# Flanged
Disc:	Aluminum Bronze B148 C954
Stem:	Stainless Steel 416 A582
Seat:	EPDM with Phenolic Backing
Bushing:	Teflon/Fiberglass Backed
Seal:	EPDM
Metering Ports:	Extended Length Pressure/ Temperature test ports
Available Options:	"PTV" combination PT & Air Vent



MANUAL

NOMINAL DIMENSIONS & WEIGHTS											
MODEL	SIZE		Flow Range GPM (10"-100")		A	B	C	D	E	Weight	
	in	mm								lbs	kg
MBF-800	8.0"	203.2	400.0 - 850.0	in	15.88	13.50	6.75	2.72	17.46	145	65.77
				mm	403.35	342.90	171.45	69.15	443.50		
MBF-1000	10.0"	254.0	700.0 - 1400.0	in	17.06	16.00	8.00	3.52	18.72	200	90.71
				mm	433.32	406.40	203.20	89.31	475.50		
MBF-1200	12.0"	304.8	1200.0 - 3600.0	in	19.30	19.00	9.50	4.34	20.63	333	153.05
				mm	490.22	482.60	241.30	110.25	524.00		

Dimensions not for construction purposes unless certified by factory.

STANDARD COMPONENTS		
	PT & PTE	Pressure / Temperature test port with brass body, dual durometer EPDM core, PTE Extender, brass cap with O-ring seal and neoprene retainer strap. Accepts standard 1/8" (4mm) gauge adapter or thermometer stem. Rated to 500 PSI (3450 kPa) and 275°F (135°C)

Please reference data sheet #Bulletin-MB-Accessories for optional accessories.

Cv VALUE (US-GPM @ 1 ΔP) Cv Value when valve is in different opening angle										
MODEL	SIZE	10°	20°	30°	40°	50°	60°	70°	80°	90°
MBF-800	8.0"	3	89	188	408	727	1202	1903	2854	3136
MBF-1000	10.0"	4	151	320	694	1237	2047	3240	4859	5340
MBF-1200	12.0"	5	234	495	1072	1911	3162	5005	7507	8250

Optional features and accessories available for this Macon product are an extra charge, and not included in the standard model price.
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Section: Components Bulletin-MB-MBF-800-1200-0915.03

Differential Pressure Table - Model MBF - 8.00" to 16.00"

Model MBF / MF, MBG / MG Valves Size 8" - 12" / VF, VG & VW Valves Size 8" - 16"

Differential Pressure: Inches W.C.

	Models MBF/MF, MBG/MG VF, VG & VW			Models MBF/MF, MBG/MG, VF, VG & VW	Models VF, VG & VW		
Flow GPM	Model Size		Flow GPM	Model Size			
	800	1000		1200	1400	1600	
400.0	10		1000.0	10			
425.0	12		1100.0	12			
450.0	13		1200.0	14			
475.0	15		1300.0	16	7		
500.0	16		1400.0	19	8		
525.0	18		1500.0	22	9		
550.0	20		1600.0	25	11		
575.0	21		1700.0	28	12		
600.0	23	10	1800.0	32	13		
625.0	25	11	1900.0	35	15	8	
650.0	27	12	2000.0	39	17	9	
675.0	29	13	2200.0	47	20	11	
700.0	32	14	2400.0	56	24	13	
725.0	34	15	2600.0	66	28	16	
750.0	36	16	2800.0	77	33	18	
775.0	39	18	3000.0	88	37	21	
800.0	41	19	3200.0	100	43	24	
825.0	44	20	3400.0	113	48	27	
850.0	47	21	3600.0	127	54	30	
875.0	50	22	3800.0	141	60	34	
900.0	52	24	4000.0	156	67	37	
925.0	55	25	4200.0	172	73	41	
950.0	58	26	4400.0	189	81	45	
975.0	62	28	4500.0		84	47	
1000.0	65	29	4600.0		88	49	
1100.0	78	35	4700.0		92	51	
1200.0	93	42	4800.0		96	54	
1300.0	109	49	5000.0		104	58	
1400.0	127	57	5200.0			63	
1500.0	146	65	5400.0			68	
1600.0	166	74	5600.0			73	
1700.0	187	84	5800.0			78	
1800.0	210	94	6000.0			84	
1900.0		105	6400.0			95	
2000.0		116	6800.0			108	
2200.0		141					
2400.0		168					
Size	8"	10"	Size	12"	14"	16"	
FF	124.78	185.42	FF	320.04	490.29	655.0	

Flow Formulas

$$\text{GPM} = \text{FF} \times (\sqrt{\text{DP}})$$

$$\text{DP} = (\text{GPM}/\text{FF})^2$$

$$\text{PPL} = \text{DP} \times 0.12$$

Notes:

- 1) Accuracy $\pm$ 3% of flow rate.
- 2) Repeatability $\pm$ 0.25% of rate.
- 3) Values in **BOLD** type represents traditional 10" to 100" sizing range.
- 4) All valves will function above and below ranges shown. Pressure drop and readability should be taken into account.

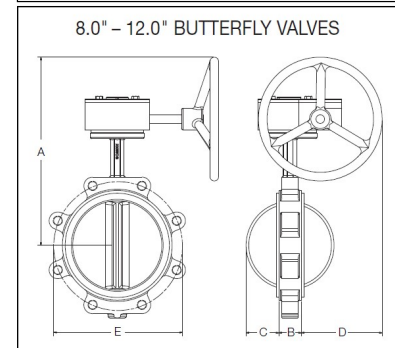
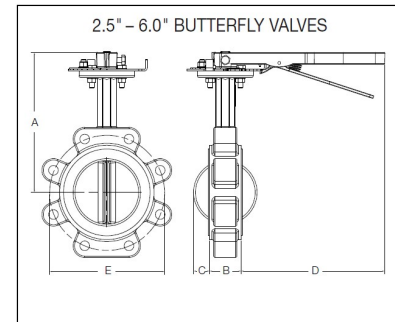
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Section: Components Bulletin-MB-MBF-800-1200-0915.03

Model BVF Butterfly Valves are Lug Type. The heavy duty, one piece body is designed to be installed between all types of ANSI 125 / 150 flanges. Resilient seat provides bubble tight shut off. Blow-out proof stem with pinned disc. Universal mounting flange conforms to ISO-5211. The 2.5" through 6.0" sizes are supplied with an adjustable flow positioning plate. This unique design provides quick and easy setting of the valve flow position, requires less hardware, will not slip and allows the valve to be easily moved to the closed or full open position without disturbing the flow positioning set point. The 8.0" through 12.0" size Butterfly Valves feature a gear operator.



SPECIFICATIONS	
Pressure Ratings:	200 PSIG (13.89 BAR)
Temperature Ratings:	250°F (120°C)
Body Material:	Ductile Iron - ASTM A 536 65-45-12
Disc:	Aluminum Bronze - ASTM B 148 C 95400
Shaft:	Stainless Steel 416 ASTM A582
Seat:	EPDM
Bushing:	Teflon
Seal:	EPDM
Pin:	Stainless Steel

NOMINAL DIMENSIONS & WEIGHTS

MODEL	SIZE		A	B	C	D	E	WEIGHT	
								lbs	kg
BVF-250	in	2.5"	8.15	1.93	0.30	9.27	5.50	11.0	4.99
	mm	65	207	49.1	7.6	235.5	139.7		
BVF-300	in	3.0"	8.39	1.93	0.59	9.27	6.00	11.5	5.22
	mm	80	213	49.1	14.9	235.5	152.4		
BVF-400	in	4.0"	9.13	2.18	0.96	9.15	7.50	17.4	7.89
	mm	100	232	55.3	24.35	232.4	190.5		
BVF-500	in	5"	9.65	2.31	1.27	9.08	8.50	22.5	10.21
	mm	125	245	58.8	32.25	230.6	215.9		
BVF-600	in	6"	10.16	2.33	1.90	9.07	9.50	27.6	12.52
	mm	150	258	59.1	48.3	230.5	241.3		
BVF-800	in	8"	17.17	2.52	2.72	7.97	11.75	50.7	23.00
	mm	200	436	64.1	69.15	202.5	298.4		
BVF-1000	in	10"	18.43	2.83	3.52	7.97	14.25	75.0	34.02
	mm	250	468	71.8	89.30	202.5	361.9		
BVF-1200	in	12"	20.20	3.19	4.34	7.97	17.00	110.5	50.12
	mm	300	513	81.0	110.25	202.5	431.8		

Optional features and accessories available for this Macon product are an extra charge, and not included in the standard model price.

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 Section: Components Bulletin-MB-BVF-0915.03

SHUT OFF
 VALVES

Cv Values - Model BVF - 0.50" to 2.00"

PERFORMANCE Cv VALUES (GPM@1 PSID) - DISC POSITION (DEGREES)									
MODEL	10°	20°	30°	40°	50°	60°	70°	80°	90°
BVF-250	0.2	8	20	37	65	98	144	204	220
BVF-300	0.3	12	22	39	70	116	183	275	302
BVF-400	0.5	17	36	78	139	230	364	546	600
BVF-500	0.8	29	61	133	237	392	620	930	1022
BVF-600	2	45	95	205	366	605	958	1437	1579
BVF-800	3	89	188	408	727	1202	1903	2854	3136
BVF-1000	4	151	320	694	1237	2047	3240	4859	5340
BVF-1200	5	234	495	1072	1911	3162	5005	7507	8250

SHUT OFF
VALVES

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