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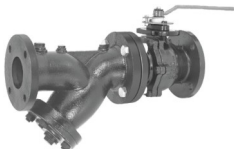
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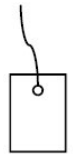
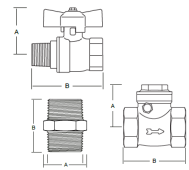
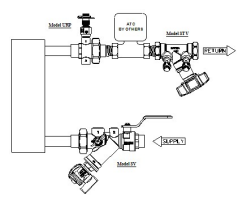
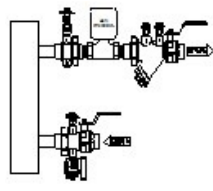
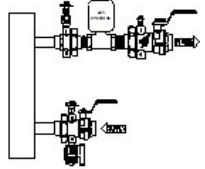


Stainless Steel Ball & Stem



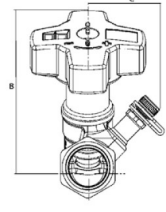
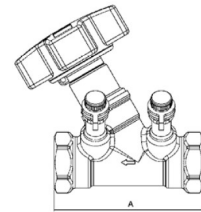
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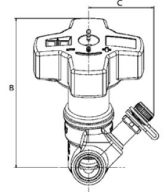
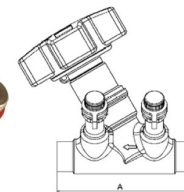
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FEATURES

- Accurate and precise flow measurement
- Accurate and precise flow balancing
- Positive Shut-off
- Offsetting Pressure/temperature ports, Self sealing with optional Drain Kits
- "Y" Pattern Globe style design
- Multi-turn, 360° handwheel with vernier scale and digital readout
- Built in memory stop
- Wide vairyety of accessories available



STV Series



STVL Series

SPECIFICATIONS	
Pressure Ratings:	300 psi (20 Bar)
Temperature Ratings:	-4°F to 248°F (-20°C to 120°C)
Body, Bonnet:	Dezincification Resistant Brass*
End Connections:	STV - Female, NPT STVL - Solder, SWT
Gaskets:	EPDM
Seat Seal	EPDM
Handwheel:	Polyamide Plastic (Blue)

*The use of DZR Brass eliminates the use of dielectric fittings.

NOMINAL DIMENSIONS & WEIGHTS									Valve Selection Guide				
MODEL	SIZE			A Length	B Height	C PIT Offset	WEIGHT		Handwheel Turns		Min. Flow	Nominal Range of Flow	Max. Flow
	in	mm					lbs	kg					
STV-1/2 STVL-1/2	0.50"	15	in	3.39	3.74	1.57	1.2	0.53	10	GPM	0.14	0.5 - 3.8	12.1
			mm	86.11	95	40				LPM	0.52	1.89 - 14.36	45.7
STV-3/4 STVL-3/4	0.75"	20	in	3.54	3.74	1.65	1.3	0.58	10	GPM	0.26	3.8 - 5.5	17.4
			mm	89.92	95	42				LPM	0.98	14.36 - 20.8	65.7
STV-1 STVL-1	1.00"	25	in	4.02	3.78	1.73	1.7	0.77	10	GPM	0.37	5.5 - 9.5	30.0
			mm	102.11	96	44				LPM	1.38	20.8 - 36	113.4
STV-1-1/4 STVL-1-1/4	1.25"	32	in	4.72	3.78	1.85	2.7	1.20	10	GPM	0.60	9.5 - 14	44.6
			mm	119.89	96	47				LPM	2.28	36 - 53	169.0
STV-1-1/2 STVL-1-1/2	1.50"	40	in	5.20	4.25	1.93	3.3	1.50	10	GPM	0.91	14 - 20	66.4
			mm	132.08	108	49				LPM	3.46	53 - 76	251.0
STV-2 STVL-2	2.00"	50	in	STV/6.06 STVL/6.46	4.37	2.09	5.1	2.30	10	GPM	1.52	20 - 33	107.2
			mm	154/164	111	53				LPM	5.76	76 - 125	406.0

FLOW CALCULATIONS

The Minimum Flow is calculated from the minimum recommended pressure drop,
1 ft WG (=3.0 kPa)

The Nominal Flow is from the maximum setting of the valve and the minimum recommended pressure drop,
2 ft WG (=6.0 kPa)

The Maximum Flow is calculated from the maximum setting of the valve and the max pressure drop,
20 ft WG (=60.0 kPa)

Pressure Drop Tables - Series STV / STVL - 0.50" to 2.00"

Series STV & STVL 0.50" - 2.00"

This diagram details the relationship between flow, pressure drop and valve preset points. Use the diagram to select the correct valve size and corresponding handwheel setting to fulfill the application requirements.

Determine the required flow in the circuit (A) and the pressure drop (B). Draw a line between these two values. Read off the corresponding Cv value on the Cv scale.

Determine the valve setting, in handwheel turns, by drawing a horizontal line (D) from the intersection point on the Cv scale to the corresponding valve setting position.

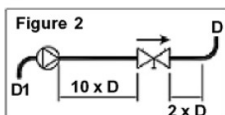
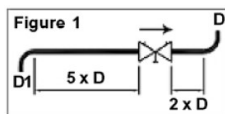
For the highest level of accuracy, it is recommended to choose a valve that has at least 3 open turns.

Example: A 1" valve is required to be open 8 turns for a Cv value of 7.5 at a flow rate of 10 gpm and a pressure drop of 4ft.

Installation Recommendations

Install the valve in the correct flow direction according to the arrow on the valve body and the distance parameters detailed in Figure 1. (Note: D = pipe diameter).

For Series STVL, cover the valve body with a wet



cloth when soldering to prevent premature deterioration of valve components.

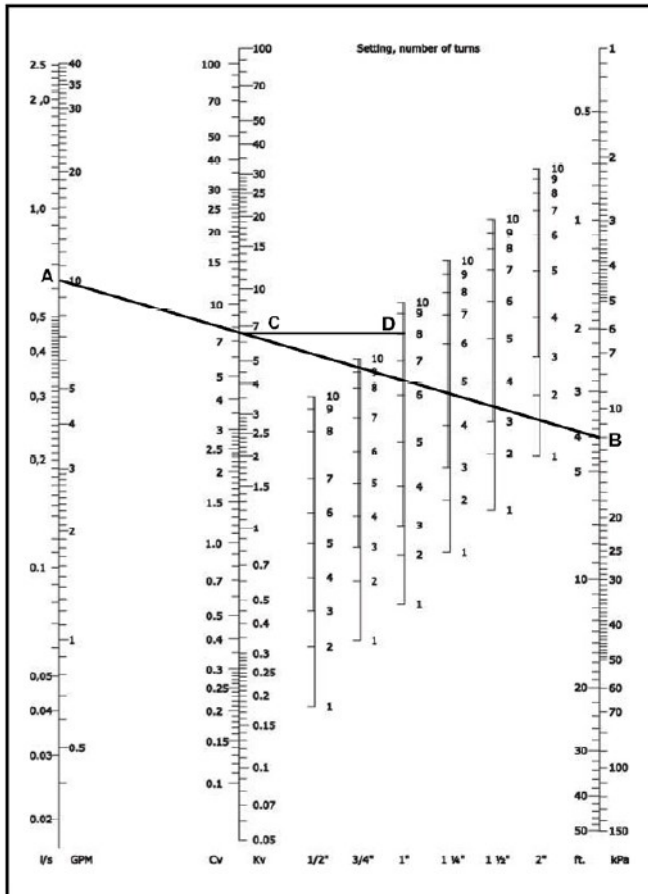
When used with a pump, it is recommended to use a straight length of pipe totaling 10 x D (instead of 5 x D) upstream or downstream to avoid turbulence that will affect the measuring accuracy. See Figure 2.

Turbulence can influence the measurements by up to 20% if this recommendation is not followed.

Flow Measurement & Accuracy

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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Cv Values for Valve Series STV / STVL

Flow coefficient values (Cv's) at various handwheel settings	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
Handwheel Setting	DN 15	DN 20	DN 25	DN 32	DN 40	DN 50
1	0.21	0.39	0.56	0.92	1.39	2.32
1.5	0.29	0.56	0.75	1.28	1.97	3.25
2	0.37	0.70	0.89	1.53	2.38	4.18
2.5	0.44	0.82	1.04	1.80	2.78	5.10
3	0.52	0.96	1.19	2.09	3.25	6.03
3.2	0.56	1.02	1.28	2.26	3.48	6.50
3.4	0.59	1.09	1.39	2.44	3.71	6.96
3.6	0.63	1.16	1.51	2.67	4.06	7.54
3.8	0.67	1.23	1.62	2.90	4.41	8.12
4	0.72	1.31	1.74	3.13	4.76	8.82
4.2	0.77	1.39	1.91	3.42	5.10	9.74
4.4	0.81	1.48	2.09	3.71	5.57	10.70
4.6	0.87	1.58	2.26	4.06	6.03	11.70
4.8	0.93	1.68	2.44	4.41	6.61	12.80
5	1.00	1.80	2.67	4.76	7.19	13.80
5.2	1.07	1.91	2.90	5.16	7.77	15.00
5.4	1.14	2.03	3.19	5.57	8.35	16.00
5.6	1.21	2.16	3.48	5.97	8.93	17.20
5.8	1.28	2.30	3.83	6.38	9.63	18.30
6	1.36	2.44	4.18	6.84	10.30	19.40
6.2	1.44	2.60	4.47	7.25	11.00	20.40
6.4	1.52	2.76	4.76	7.66	11.80	21.50
6.6	1.62	2.96	5.10	8.12	12.50	22.50
6.8	1.74	3.16	5.54	8.58	13.20	23.50
7	1.88	3.36	5.80	9.05	13.90	24.60
7.2	2.06	3.60	6.15	9.51	14.60	25.50
7.4	2.26	3.83	6.50	9.98	15.30	26.40
7.6	2.49	4.06	6.84	10.40	15.90	27.40
7.8	2.73	4.27	7.19	10.80	16.50	28.20
8	2.96	4.47	7.54	11.30	17.10	29.00
8.2	3.13	4.63	7.89	11.70	17.60	29.90
8.4	3.29	4.78	8.24	12.20	18.20	30.70
8.6	3.42	4.93	8.58	12.60	18.80	31.60
8.8	3.54	5.08	8.87	13.00	19.40	32.40
9	3.65	5.22	9.16	13.30	19.80	33.20
9.2	3.77	5.36	9.40	13.70	20.30	33.90
9.4	3.87	5.50	9.63	14.20	20.90	34.60
9.6	3.98	5.64	9.86	14.50	21.50	35.30
9.8	4.06	5.78	10.00	14.80	22.00	36.00
10	4.12*	5.92*	10.2*	15.2*	22.6*	36.5*

* Valve is fully open

The measuring instrument connects to the test ports of the valve and is pre-programmed with Macon Balancing characteristics. The pressure drop and flow readings can be read off the display. If access to a Macon Balancing instrument is unavailable, other industry models are compatible. In addition, the flow can be determined using the pressure drop diagram that is included in the operating instructions with each Macon Balancing valve.

The accuracy is highest when the valve is fully open. Therefore, it is recommended to choose a valve that can be opened at least three turns at the calculated pre-setting value. Figure 3 represents the flow measurement deviation in relation to handwheel turns.

Correction for Liquids

Applies to liquids other than water. Correct the measured flow (q) by the density (Y) according to this formula. See Figure 4.

Sizing a Balancing Valve

When the differential pressure and design flow are known, use this formula to calculate Cv value. See Figure 5.

Memory Stop

1. Set valves to desired position.
2. Turn the inner stem with a 3 mm Allen wrench in a clockwise direction until it stops.

Figure 3

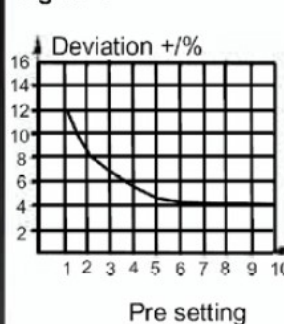


Figure 4

$$\text{Actual Flow} = \frac{q_{CBI}}{\sqrt{Y}}$$

Figure 5

$$C_v = 1.52 \frac{q}{\sqrt{\Delta p}}$$

q in GPM, Δp in Ft. of H₂O

$$C_v = \frac{q}{\sqrt{\Delta p}}$$

q in GPM, $\sqrt{p}$ in PSI

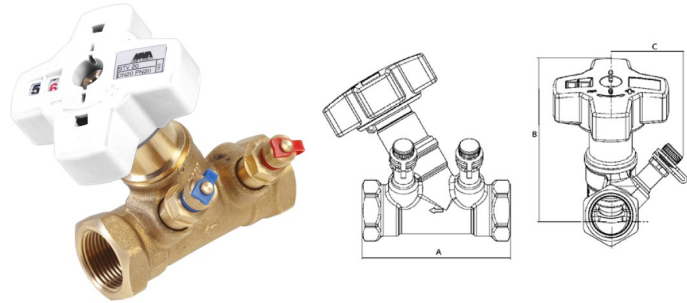
Optional features and accessories available for this Macon product are an extra charge, and not included in the standard model price.

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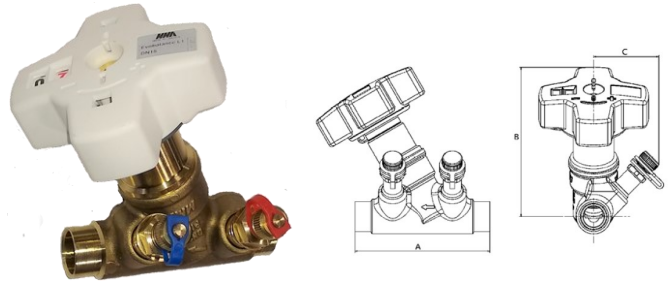


FEATURES

- Accurate and precise flow measurement
- Accurate and precise flow balancing
- Positive Shut-off
- Offsetting Pressure/temperature ports, Self sealing with optional Drain Kits
- "Y" Pattern Globe style design
- Multi-turn, 360° handwheel with vernier scale and digital readout
- Built in memory stop
- Wide variety of accessories available



LL-STV Series



LL-STVL Series

SPECIFICATIONS*

Pressure Ratings:	300 psi (20 Bar)
Temperature Ratings:	-4°F to 248°F (-20°C to 120°C)
Body, Bonnet:	CW724R, CW511L
End Connections:	STV - Female, NPT STVL - Solder, SWT
Gaskets:	EPDM
Seat Seal	EPDM
Handwheel:	Polyamide Plastic (White)

* The wetted surface of this product contacted by consumable water contains less than one quarter of one percent (0.25%) of lead by weight. Certificate of compliance available upon request.

NOMINAL DIMENSIONS & WEIGHTS

MODEL	SIZE			A Length	B Height	C PIT Offset	WEIGHT		Handwheel Turns		Min. Flow	Nominal Range of Flow	Max. Flow
	in	mm					lbs	kg					
LL-STV-1/2 LL-STVL-1/2	0.50"	15	in	3.39	3.74	1.57	1.2	0.53	10	GPM	0.14	0.5 - 3.8	12.1
			mm	86.11	95	40				LPM	0.52	1.89 - 14.36	45.7
LL-STV-3/4 LL-STVL-3/4	0.75"	20	in	3.54	3.74	1.65	1.3	0.58	10	GPM	0.26	3.8 - 5.5	17.4
			mm	89.92	95	42				LPM	0.98	14.36 - 20.8	65.7
LL-STV-1 LL-STVL-1	1.00"	25	in	4.02	3.78	1.73	1.7	0.77	10	GPM	0.37	5.5 - 9.5	30.0
			mm	102.11	96	44				LPM	1.38	20.8 - 36	113.4
LL-STV-1-1/4 LL-STVL-1-1/4	1.25"	32	in	4.72	3.78	1.85	2.7	1.20	10	GPM	0.60	9.5 - 14	44.6
			mm	119.89	96	47				LPM	2.28	36 - 53	169.0
LL-STV-1-1/2 LL-STVL-1-1/2	1.50"	40	in	5.20	4.25	1.93	3.3	1.50	10	GPM	0.91	14 - 20	66.4
			mm	132.08	108	49				LPM	3.46	53 - 76	251.0
LL-STV-2 LL-STVL-2	2.00"	50	in	STV/6.06 STVL/6.46	4.37	2.09	5.1	2.30	10	GPM	1.52	20 - 33	107.2
			mm	154/164	111	53				LPM	5.76	76 - 125	406.0

FLOW CALCULATIONS

The Minimum Flow is calculated from the minimum recommended pressure drop,
1 ft WG (=3.0 kPa)

The Nominal Flow is from the maximum setting of the valve and the minimum recommended pressure drop,
2 ft WG (=6.0 kPa)

The Maximum Flow is calculated from the maximum setting of the valve and the max pressure drop,
20 ft WG (=60.0 kPa)

Pressure Drop Tables - Series LL-STV / LL-STVL - 0.50" to 2.00"

Series LL-STV & LL-STVL 1/2" - 2"

This diagram details the relationship between flow, pressure drop and valve preset points. Use the diagram to select the correct valve size and corresponding handwheel setting to fulfill the application requirements.

Determine the required flow in the circuit (A) and the pressure drop (B). Draw a line between these two values. Read off the corresponding Cv value on the Cv scale.

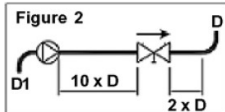
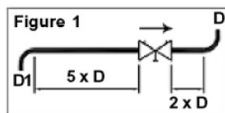
Determine the valve setting, in handwheel turns, by drawing a horizontal line (D) from the intersection point on the Cv scale to the corresponding valve setting position.

For the highest level of accuracy, it is recommended to choose a valve that has at least 3 open turns.

Example: A 1" valve is required to be open 8 turns for a Cv value of 7.5 at a flow rate of 10 gpm and a pressure drop of 4 ft.

Installation Recommendations

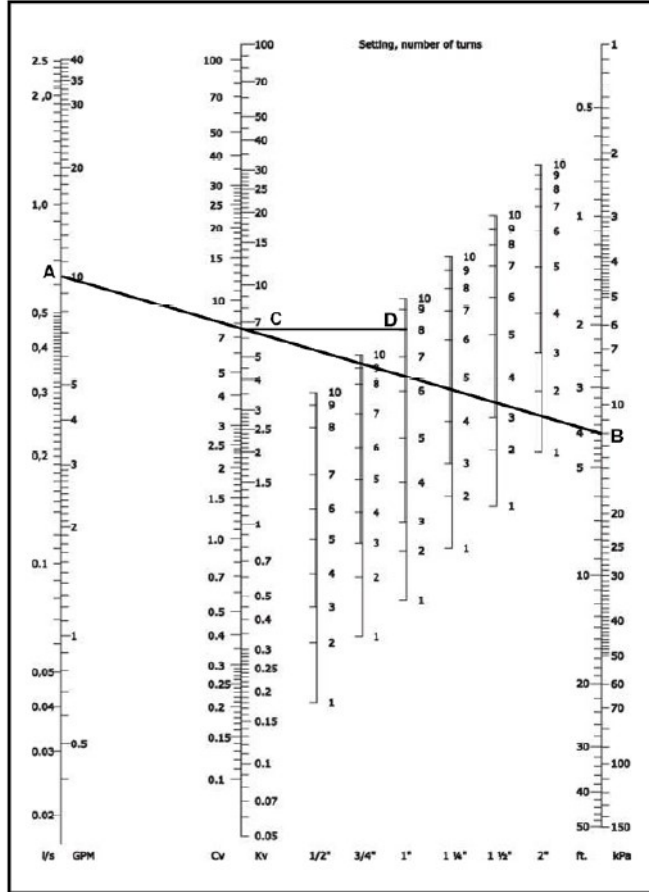
Install the valve in the correct flow direction according to the arrow on the valve body and the distance parameters detailed in Figure 1. (Note: D = pipe diameter).



For Series LL-STVL, cover the valve body with a wet cloth when soldering to prevent premature deterioration of valve components.

When used with a pump, it is recommended to use a straight length of pipe totaling 10 x D (instead of 5 x D) upstream or downstream to avoid turbulence that will affect the measuring accuracy. See Figure 2.

Turbulence can influence the measurements by up to 20% if this recommendation is not followed.



Cv Values for Valve Series LL-STV / LL-STVL

Flow coefficient values (Cv's) at various handwheel settings	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
Handwheel Setting	DN 15	DN 20	DN 25	DN 32	DN 40	DN 50
1	0.21	0.39	0.56	0.92	1.39	2.32
1.5	0.29	0.56	0.75	1.28	1.97	3.25
2	0.37	0.70	0.89	1.53	2.38	4.18
2.5	0.44	0.82	1.04	1.80	2.78	5.10
3	0.52	0.96	1.19	2.09	3.25	6.03
3.2	0.56	1.02	1.28	2.26	3.48	6.50
3.4	0.59	1.09	1.39	2.44	3.71	6.96
3.6	0.63	1.16	1.51	2.67	4.06	7.54
3.8	0.67	1.23	1.62	2.90	4.41	8.12
4	0.72	1.31	1.74	3.13	4.76	8.82
4.2	0.77	1.39	1.91	3.42	5.10	9.74
4.4	0.81	1.48	2.09	3.71	5.57	10.70
4.6	0.87	1.58	2.26	4.06	6.03	11.70
4.8	0.93	1.68	2.44	4.41	6.61	12.80
5	1.00	1.80	2.60	4.76	7.19	13.80
5.2	1.07	1.91	2.97	5.16	7.77	15.00
5.4	1.14	2.03	3.19	5.57	8.35	16.00
5.6	1.21	2.16	3.48	5.97	8.93	17.20
5.8	1.28	2.30	3.83	6.38	9.63	18.30
6	1.36	2.44	4.18	6.84	10.30	19.40
6.2	1.44	2.60	4.47	7.25	11.00	20.40
6.4	1.52	2.76	4.76	7.66	11.80	21.50
6.6	1.62	2.96	5.10	8.12	12.50	22.50
6.8	1.74	3.16	5.54	8.58	13.20	23.50
7	1.88	3.36	5.80	9.05	13.90	24.60
7.2	2.06	3.60	6.15	9.51	14.60	25.50
7.4	2.26	3.83	6.50	9.98	15.30	26.40
7.6	2.49	4.06	6.84	10.40	15.90	27.40
7.8	2.73	4.27	7.19	10.80	16.50	28.20
8	2.96	4.47	7.54	11.30	17.10	29.00
8.2	3.13	4.63	7.89	11.70	17.60	29.90
8.4	3.29	4.78	8.24	12.20	18.20	30.70
8.6	3.42	4.93	8.58	12.60	18.80	31.60
8.8	3.54	5.08	8.87	13.00	19.40	32.40
9	3.65	5.22	9.16	13.30	19.80	33.20
9.2	3.77	5.36	9.40	13.70	20.30	33.90
9.4	3.87	5.50	9.63	14.20	20.90	34.60
9.6	3.98	5.64	9.86	14.50	21.50	35.30
9.8	4.06	5.78	10.00	14.80	22.00	36.00
10	4.12*	5.92*	10.2*	15.2*	22.6*	36.5*

* Valve is fully open

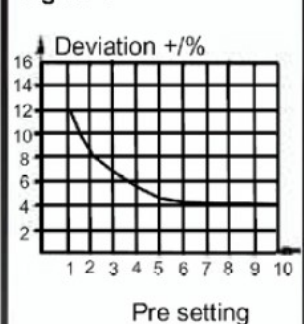
Flow

Measurement & Accuracy

The measuring instrument connects to the test ports of the valve and is pre-programmed with Macon Balancing characteristics. The pressure drop and flow readings can be read off the display. If access to a Macon Balancing instrument is unavailable, other industry models are compatible. In addition, the flow can be determined using the pressure drop diagram that is included in the operating instructions with each Macon Balancing valve.

The accuracy is highest when the valve is fully open. Therefore, it is recommended to choose a valve that can be opened at least three turns at the calculated pre-setting value. Figure 3 represents the flow measurement deviation in relation to handwheel turns.

Figure 3



Correction for Liquids

Applies to liquids other than water. Correct the measured flow (q) by the density (Y) according to this formula. See Figure 4.

Figure 4

$$\text{Actual Flow} = \frac{q_{CB}}{\sqrt{Y}}$$

Sizing a Balancing Valve

When the differential pressure and design flow are known, use this formula to calculate Cv value. See Figure 5.

Figure 5

$$C_v = 1.52 \frac{q}{\sqrt{\Delta p}}$$

q in GPM, Δp in Ft. of H₂O

$$C_v = \frac{q}{\sqrt{\Delta p}}$$

q in GPM, $\sqrt{p}$ in PSI

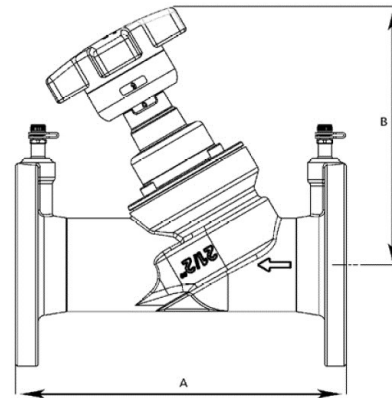
Optional features and accessories available for this Macon product are an extra charge, and not included in the standard model price.

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FEATURES

- Accurate and precise flow measurement
- Accurate and precise flow balancing
- Positive shut-off
- "Y" Pattern Globe style design
- Multi-turn, 360° handwheel with vernier scale and digital readout
- Built in memory stop
- Offsetting Pressure/Temperature ports, Self sealing with optional Drain Kits
- Wide variety of accessories available



SPECIFICATIONS	
Pressure Ratings:	235 psi / 16 bar (PN 16)
Temperature Ratings:	14°F to 248°F (-10°C to 120°C)
Body:	Cast Iron
End Connections:	ANSI 125# Flanged
Gaskets:	EPDM
Seat Seal	PTFE
Handwheel:	Polyamide Plastic

NOMINAL DIMENSIONS & WEIGHTS									Valve Selection Guide			
MODEL	SIZE			A Length	B Height	WEIGHT		Handwheel Turns		Minimum Flow	Nominal Range of Flow	Maximum Flow
	in	mm				lbs	kg					
STVA-2-1/2	2.5"	65	in	11.42	8.94	30.9	14	10	GPM	2.13	33 - 100	318.3
			mm	290	226				LPM	8.07	125 - 378	1205
STVA-3	3.0"	80	in	12.2	9.5	44.1	20	10	GPM	4.19	100 - 117	374.5
			mm	310	241				LPM	15.9	378 - 442	1418
STVA-4	4.0"	100	in	13.78	10.2	57.3	26	10	GPM	6.09	117 - 200	646.8
			mm	350	259				LPM	23.0	442 - 756	2448
STVA-5	5.0"	125	in	15.75	11.73	88.2	40	10	GPM	7.61	200 - 320	1025
			mm	400	298				LPM	28.8	756 - 1210	3879
STVA-6	6.0"	150	in	18.9	12.05	110.2	50	10	GPM	13.7	320 - 440	1447
			mm	480	306				LPM	51.9	1210 - 1663	5477

FLOW CALCULATIONS

The Minimum Flow is calculated from the minimum recommended pressure drop,
1 ft WG (=3.0 kPa)

The Nominal Flow is calculated from the maximum setting of the valve and the minimum recommended pressure drop,
2 ft WG (=6.0 kPa)

The Maximum Flow is calculated from the maximum setting of the valve and the maximum pressure drop,
20 ft WG (=60.0 kPa)

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



Tunstall Corporation
118 Exchange Street · Chicopee, MA 01013
Phone (413) 594-8695 · Fax (413) 598-8109
Section: Components
Bulletin-MB-STVA-1016.02

Pressure Drop Tables - Model STVA - 2.50" to 6.00"

Series STVA 2.50" - 6.00"

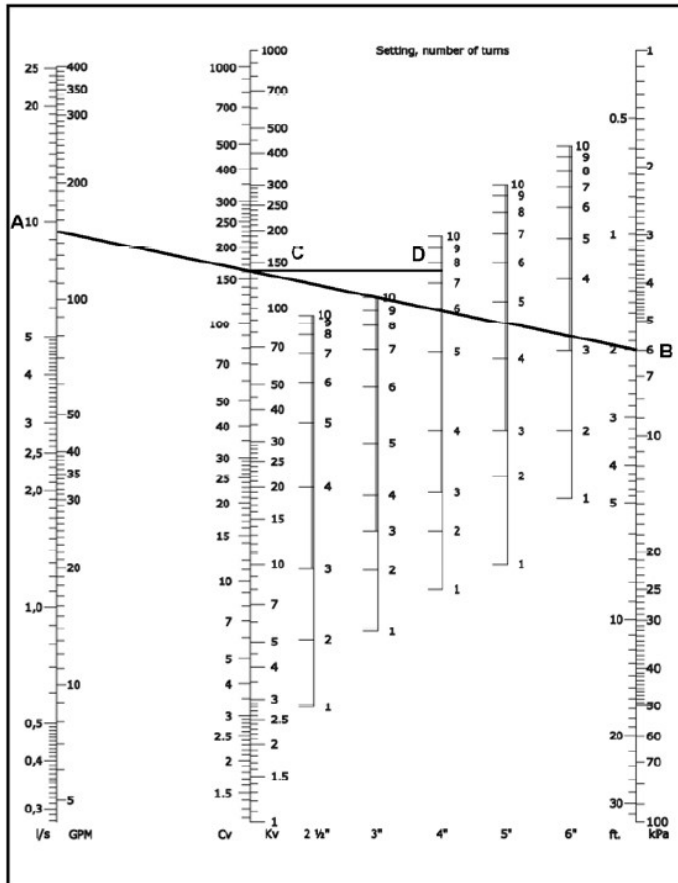
This diagram details the relationship between flow, pressure drop and valve preset points. Use the diagram to select the correct valve size and corresponding handwheel setting to fulfill the application requirements.

Determine the required flow in the circuit (A) and the pressure drop (B). Draw a line between these two values. Read off the corresponding Cv value on the Cv scale.

Determine the valve setting, in handwheel turns, by drawing a horizontal line (D) from the intersection point on the Cv scale to the corresponding valve setting position.

For the highest level of accuracy, it is recommended to choose a valve that has at least 3 open turns.

Example: A 4" valve is required to be open 7.5 turns for a Cv value of 160 at a flow rate of 150 gpm and a pressure drop of 2ft.



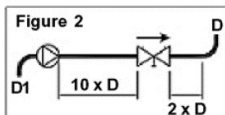
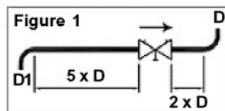
Cv Values for Valve Series STVA

Flow coefficient values (Cv's) at various handwheel settings	2-1/2"	3"	4"	5"	6"
Handwheel Setting	DN 65	DN 80	DN 100	DN 125	DN 150
1	3.20	6.40	9.30	11.60	20.90
1.5	4.60	8.70	12.80	19.70	29.00
2	5.90	11.00	15.70	25.50	38.30
2.5	8.50	13.30	19.10	30.20	53.40
3	11.10	15.70	22.00	38.30	78.90
3.2	13.10	16.60	23.80	42.90	90.50
3.4	15.10	17.50	25.50	48.70	103
3.6	17.40	18.60	29.00	55.70	118
3.8	20.30	19.70	33.60	63.80	135
4	23.20	21.50	38.30	73.10	151
4.2	26.80	23.20	45.20	82.40	164
4.4	30.40	24.90	53.40	91.60	176
4.6	34.00	27.30	61.50	102	189
4.8	37.60	30.70	69.60	113	202
5	41.20	34.20	77.70	123	216
5.2	44.80	38.30	85.80	135	231
5.4	48.40	42.90	94.00	146	246
5.6	52.00	47.60	102	157	260
5.8	55.60	52.20	109	166	273
6	59.20	56.80	115	174	285
6.2	62.60	61.50	122	183	298
6.4	66.10	66.10	129	194	311
6.6	69.60	70.80	135	204	322
6.8	73.10	75.40	140	215	332
7	76.60	79.50	145	225	341
7.2	80.00	83.50	151	235	351
7.4	82.90	87.60	157	246	363
7.6	85.80	91.60	162	255	374
7.8	88.70	95.10	168	264	384
8	91.10	98.60	174	274	394
8.2	93.40	102	180	283	406
8.4	95.70	105	186	292	418
8.6	97.40	108	190	302	428
8.8	99.20	111	194	310	437
9	101	114	197	317	447
9.2	103	116	202	324	456
9.4	104	119	206	331	465
9.6	106	123	211	338	474
9.8	107	125	216	343	484
10	108*	128*	220*	349*	493*

* Valve is fully open

Installation Recommendations

Install the valve in the correct flow direction according to the arrow on the valve body and the distance parameters detailed in Figure 1 (Note: D = pipe diameter).



For Series STVA, cover the valve body with a wet cloth when soldering to prevent premature deterioration of valve components.

When used with a pump, it is recommended to use a straight length of pipe totaling 10 x D (instead of 5 x D) upstream or downstream to avoid turbulence that will affect the measuring accuracy. See Figure 2.

Turbulence can influence the measurements by up to 20% if this recommendation is not followed.

Flow Measurement & Accuracy

The measuring instrument connects to the test ports of the valve and is pre-programmed with Macon Balancing characteristics. The pressure drop and flow readings can be read off the display. If access to a Macon Balancing instrument is unavailable, other industry models are compatible. In addition, the flow can be determined using the pressure drop diagram that is included in the operating instructions with each Macon Balancing valve.

The accuracy is highest when the valve is fully open. Therefore, it is recommended to choose a valve that can be opened at least three turns at the calculated pre-setting value. Figure 3 represents the flow measurement deviation in relation to handwheel turns.

Figure 3



Figure 4

$$\text{Actual Flow} = \frac{q_{CBI}}{\sqrt{\gamma}}$$

Figure 5

$$C_v = 1.52 \frac{q}{\sqrt{\Delta p}}$$

q in GPM, Δp in Ft. of H₂O

$$C_v = \frac{q}{\sqrt{\Delta p}}$$

q in GPM, $\sqrt{p}$ in PSI

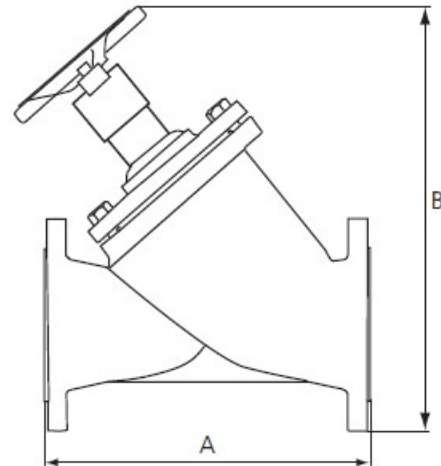
Optional features and accessories available for this Macon product are an extra charge, and not included in the standard model price.

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FEATURES

- Accurate and precise flow measurement
- Accurate and precise flow balancing
- Positive shut-off
- "Y" Pattern Globe style design
- Multi-turn, 360° handwheel with vernier scale and digital readout
- Built in memory stop
- Offsetting Pressure/Temperature ports, self sealing with optional Drain Kits
- Wide variety of accessories available



SPECIFICATIONS	
Pressure Ratings:	235 psi / 16 bar (PN 16)
Temperature Ratings:	14°F to 248°F (-10°C to 120°C)
Body:	Cast Iron
End Connections:	ANSI 125# Flanged
Gaskets:	EPDM
Seat Seal	PTFE
Handwheel:	Polyamide Plastic

NOMINAL DIMENSIONS & WEIGHTS									Valve Selection Guide				
MODEL	SIZE			A Length	B Height	WEIGHT		Handwheel Turns		Minimum Flow	Nominal Range of Flow	Maximum Flow	
	in	mm				lbs	kg						
STVE-0800	8.0”	200	in	23.6	13.5	260	118	11	GPM	30	450 - 750	2415	
			mm	600	343				LPM	114	1703 - 2839	9142	
STVE-1000	10.0”	250	in	28.7	16.0	390	177	11	GPM	47	750 - 1300	4050	
			mm	730	406				LPM	178	2839 - 4921	15330	
STVE-1200	12.0”	300	in	33.5	19.0	490	223	11	GPM	43	1300 - 1600	5115	
			mm	850	483				LPM	163	4921 - 6057	19360	

FLOW CALCULATIONS

The Minimum Flow is calculated from the minimum recommended pressure drop,
1 ft WG (=3.0 kPa)

The Nominal Flow is calculated from the maximum setting of the valve and the minimum recommended pressure drop,
2 ft WG (=6.0 kPa)

The Maximum Flow is calculated from the maximum setting of the valve and the maximum pressure drop,
20 ft WG (=60.0 kPa)

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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Pressure Drop Tables - Model STVE—Sizes 8.00" to 12.00"

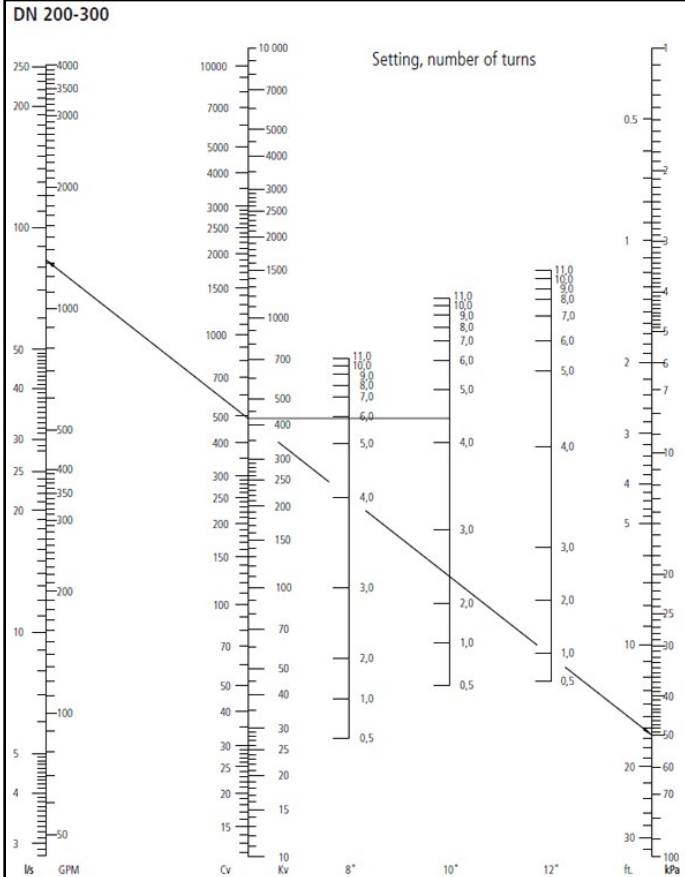
Series STVE 8.00" - 12.00"

This diagram details the relationship between flow, pressure drop and valve preset points. Use the diagram to select the correct valve size and corresponding handwheel setting to fulfill the application requirements.

Determine the required flow in the circuit (A) and the pressure drop (B). Draw a line between these two values. Read off the corresponding Cv value on the Cv scale (C).

Determine the valve setting, in handwheel turns, by drawing a horizontal line (D) from the intersection point on the Cv scale to the corresponding valve setting position.

For the highest level of accuracy, it is recommended to choose a valve that has at least 3 open turns.



Cv Values for Valve Series STVE

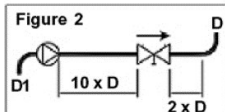
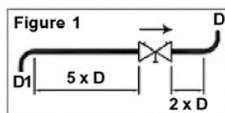
Flow coefficient values (Cv's) at various handwheel settings			
Handwheel Setting	8" DN 200	10" DN 250	12" DN 300
0.5	32	50	52
1	45	72	66
1.5	53	85	83
2	63	101	104
2.5	82	134	127
3	115	189	163
3.5	172	277	234
4	250	399	383
4.5	328	522	578
5	394	628	733
5.5	448	719	848
6	497	802	954
6.5	545	881	1067
7	587	952	1177
7.5	619	1013	1272
8	648	1070	1352
8.5	682	1126	1422
9	716	1182	1486
9.5	745	1234	1549
10	771	1283	1612
10.5	796	1330	1675
11	821	1373	1739

Example: A 10" valve is required to be open 4.3 turns for a Cv value of 500 at a flow rate of 1300 gpm and a pressure drop of 17 ft.

Installation Recommendations

Install the valve in the correct flow direction according to the arrow on the valve body and the distance parameters detailed in Figure 1 (Note: D = pipe diameter).

When used with a pump, it is recommended to use a straight length of pipe totaling 10 x D (instead of 5 x D) upstream or downstream to avoid turbulence that will affect the measuring accuracy. See Figure 2.



Turbulence can influence the measurements by up to 20% if this recommendation is not followed.

Flow Measurement & Accuracy

The measuring instrument connects to the test ports of the valve and is pre-programmed with Macon Balancing characteristics. The pressure drop and flow readings can be read off the display. If access to a Macon Balancing instrument is unavailable, other industry models are compatible. In addition, the flow can be determined using the pressure drop diagram that is included in the operating instructions with each Macon Balancing valve.

The accuracy is highest when the valve is fully open. Therefore, it is recommended to choose a valve that can be opened at least three turns at the calculated pre-setting value. Figure 3 represents the flow measurement deviation in relation to handwheel turns.

Figure 3



Correction for Liquids

Applies to liquids other than water. Correct the measured flow (q) by the density (Y) according to this formula. See Figure 4

Figure 4

$$\text{Actual Flow} = \frac{q_{CB}}{\sqrt{Y}}$$

Sizing a Balancing Valve

When the differential pressure and design flow are known, use this formula to calculate Cv value. See Figure 5

Figure 5

$$C_v = 1.52 \frac{q}{\sqrt{\Delta p}}$$

q in GPM, Δp in Ft. of H₂O

$$C_v = \frac{q}{\sqrt{\Delta p}}$$

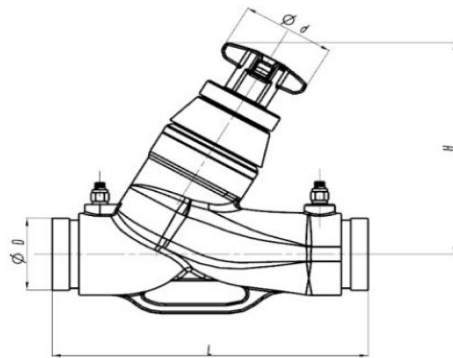
q in GPM, √p in PSI

FEATURES

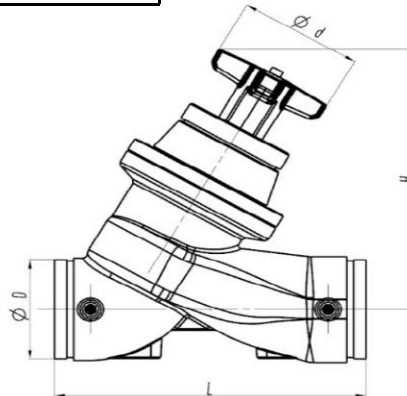
- Accurate and precise flow measurement
- Accurate and precise flow balancing
- Positive shut-off
- "Y" Pattern Globe style design
- Multi-turn, 360° handwheel Built in memory stop

SPECIFICATIONS

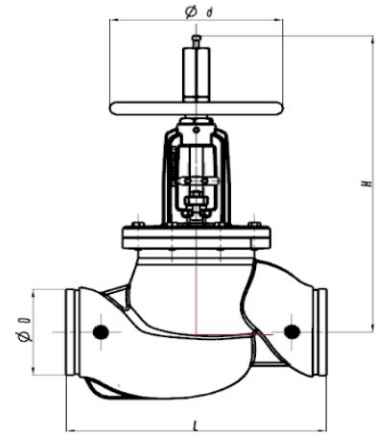
Pressure Ratings:	235 psi / 16 bar (PN 16)
Temperature Ratings:	14°F to 248°F (-10°C to 120°C)
Body:	Ductile Iron
End Connections:	ANSI 300# Grooved
Stem:	Stainless Steel (AISI 420)
Seat Seal	EPDM Perox
Handwheel:	2-1/2" to 6", Polyamide Plastic with 30% Glass Fiber; 8" to 12", Ductile Iron



2-1/2" to 4" (DN 65 to 100)



5", 6" & 8" (DN 125 to 200)



10" to 12" (DN 250 to 300)

NOMINAL DIMENSIONS & WEIGHTS

MODEL	SIZE			L	H	D	Handwheel Diameter d	WEIGHT		Handwheel Turns	Valve Selection Guide	
	in	mm						lbs	kg		Nominal Range of Flow	
STVG-2-1/2	2.5"	65	in	11.42	8.50	2.875	3.35	23.8	10.8	8	39 - 87	148 - 329
			mm	290	216	73.0	85					
STVG-3	3.0"	80	in	12.20	8.86	3.500	3.35	30.9	14.0	8	87 - 125	329 - 473
			mm	310	225	88.9	85					
STVG-4	4.0"	100	in	13.78	13.19	4.500	3.35	60.0	27.2	8	125 - 213	473 - 806
			mm	350	335	114.3	85					
STVG-5	5.0"	125	in	15.75	14.57	5.563	6.18	121.3	55.0	10	213 - 300	806 - 1136
			mm	400	370	141.3	157					
STVG-6	6.0"	150	in	18.90	15.98	6.625	6.18	140.7	63.8	10	300 - 450	1136 - 1703
			mm	480	406	168.3	157					
STVG-8	8.0"	200	in	23.62	30.04	8.625	15.75	218.3	99.0	12	450 - 760	1703 - 2877
			mm	600	763	219.1	400					
STVG-10	10.0"	250	in	28.74	35.12	10.750	15.75	445.3	202.0	12	760 - 920	2877 - 3483
			mm	730	892	273.0	400					
STVG-12	12.0"	300	in	33.46	37.24	12.750	15.75	683.4	310.0	14	920 - 1500	3483 - 5678
			mm	850	946	323.9	400					

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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Flow Coefficient Values - Model STVG - 2.50" to 12.00"

Flow coefficient values (Cv's) at various handwheel settings								
Handwheel Setting	2-1/2" DN 65	3" DN 80	4" DN 100	5" DN 125	6" DN 150	8" DN 200	10" DN 250	12" DN 300
1.00	8	17	24	81	52	126	250	298
1.25	10	20	27	97	56	162	303	346
1.50	12	22	29	113	59	198	354	452
1.75	15	25	32	129	62	233	399	448
2.00	19	27	35	143	66	274	444	499
2.25	24	30	38	158	70	316	480	553
2.50	30	33	31	171	74	360	513	618
2.75	36	36	48	184	78	401	543	682
3.00	42	40	55	197	81	437	574	750
3.25	47	45	64	209	84	466	605	819
3.50	53	51	73	223	87	488	635	887
3.75	57	58	84	235	92	508	668	946
4.00	62	64	95	247	99	528	697	995
4.25	66	71	106	259	111	547	722	1025
4.50	70	77	116	271	124	569	745	1045
4.75	74	84	127	282	138	589	764	1064
5.00	77	90	137	294	150	610	780	1091
5.25	80	97	147	305	158	631	792	1131
5.50	82	104	157	317	164	650	802	1183
5.75	84	110	167	327	169	667	810	1231
6.00	85	115	177	338	175	682	817	1273
6.25	87	121	188	347	183	692	825	1303
6.50	88	125	197	355	194	700	833	1320
6.75	89	128	206	362	211	707	839	1332
7.00	89	131	213	368	233	716	846	1343
7.25	90	133	219	374	261	727	852	1356
7.50	91	134	223	379	292	740	858	1371
7.75	92	135	226	384	323	754	864	1384
8.00	93	136	229	390	349	767	872	1395
8.25				396	369	780	881	1400
8.50				403	382	791	892	1404
8.75				410	394	799	901	1412
9.00				415	408	802	908	1430
9.25				418	424	801	912	1457
9.50				419	444	798	915	1491
9.75				419	466	795	917	1526
10.00				419	489	796	922	1554
10.25						803	929	1567
10.50						813	939	1570
10.75						824	949	1568
11.00						834	960	1565
11.25						840	969	1565
11.50						842	976	1567
11.75						843	983	1571
12.00						843	989	1575
12.25								1578
12.50								1581
12.75								1584
13.00								1588
13.25								1592
13.50								1598
13.75								1605
14.00								1611

Valve is fully open

Correction for Liquids

Applies to liquids other than water. Correct the measured flow (q) by the density (γ) according to this formula. See Figure 4

Sizing a Balancing Valve

When the differential pressure and design flow are known, use this formula to calculate Cv value. See Figure 5

Figure 4
Actual Flow = $\frac{q_{CBI}}{\sqrt{\gamma}}$

Figure 5
 $C_v = 1.52 \frac{q}{\sqrt{\Delta p}}$
 q in GPM, Δp in Ft. of H₂O
 $C_v = \frac{q}{\sqrt{\Delta p}}$
 q in GPM, √p in PSI

Installation Recommendations for GROOVED END VALVE CONNECTIONS

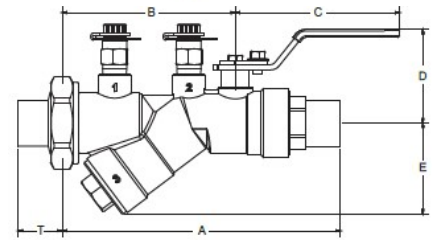
Grease the pipe ends, valve ends and rubber gasket lip with grease, graphite paste or similar grease. Slip the rubber gasket over the pipe end of each joint. Slide the gasket past the grooves. Position the grooved end valve between the pipe ends and slide the gaskets back into the central spanned position.

All products have a flow direction arrow. Make sure that it is pointing in the direction of the flow. Apply grease on the outside of the gasket. Install housing clamps over the gasket - insert bolts and nuts.

Tighten nuts evenly, using socket or other wrench. Tighten so that housing clamps come together evenly. The connection is complete when housing clamps meet metal to metal. Further tightening of bolts is not necessary.

Pre-assemble large diameter multi-segment housing clamps loosely and install them as half-housings. Take up evenly from top to bottom on alternate bolts.

Model AB Automatic Balancing Valve is a combination ball valve, automatic flow control device and union. The removable flow cartridge is factory set to automatically limit the GPM to within +5% of the specified flow. The ball valve has a chrome plated ball, Teflon seats and a blowout proof stem with double EPDM O-ring seals. The union has an EPDM O-ring seal and tailpiece available in MNPT, FNPT, and SWT end connections. Standard features include Memory Stop and Dual Pressure / Temperature Ports.



AUTOMATIC

SPECIFICATIONS

Pressure Ratings:	600 PSI (4140 kPa)
Temperature Ratings:	250°F (121°C)
Accuracy:	± 5% of flow rate
Body Material:	Forged Brass
End Connections:	Fixed End: DZR Brass - SWT & FNPT Brass - Press-End Union End: Brass - SWT, FNPT, MNPT & Press-End
Flow Cartridge:	0.50" to 1.50" - Ultrason® Composite 1.50" to 2" - Stainless Steel
Seals:	EPDM
Ball:	Chrome Plated Brass, 100% positive shut off. <i>Optional 316 Stainless Steel.</i>
Stem:	Brass. <i>Optional 316 Stainless Steel.</i>
Handle:	Full size Zinc Plated lever w/Vinyl Grip
Available Options:	"PTV" combination PT & Air Vent, DV hose end Drain Valve & Extensions.

NOMINAL DIMENSIONS & WEIGHTS

MODEL	SIZE		Cv*		A		B	C	D	E	**T SWT	Flow Range	WEIGHT	
	in	mm			FNPT	SWT							lbs	kg
AB1e-050	0.50"	15	5.5	in	5.28	5.64	3.59	1.97	1.61	1.91	0.83	0.35 to 5.0 GPM	1.78	0.81
				mm	134.10	143.30	91.20	50.10	40.90	48.50	21.08		1.83	0.83
AB1e-075	0.75"	20		in	5.41	5.92	3.59	1.97	1.61	1.91	0.98		1.97	0.89
				mm	137.40	150.40	91.20	50.10	40.90	48.50	24.89			
AB1e-100	1.00"	25		in	5.75	6.21	3.59	1.97	1.61	1.91	0.92			
				mm	146.10	157.70	91.20	50.10	40.90	48.50	23.37			
AB2e-050	0.50"	15	7.0	in	5.71	5.95	3.86	3.66	2.08	2.02	0.83	0.35 to 10.0 GPM	2.09	0.95
				mm	145.16	151.16	98.04	92.99	52.83	51.33	21.08		2.09	0.95
AB2e-075	0.75"	20		in	5.74	6.20	3.86	3.66	2.08	2.02	0.88		5.05	2.29
				mm	146.02	157.48	98.04	92.99	52.83	51.33	22.35		5.05	2.29
AB2e-100	1.00"	25		in	5.96	6.36	3.86	3.66	2.08	2.02	0.92			
				mm	151.51	161.54	98.04	92.99	52.83	51.33	23.37			
AB2e-125	1.25"	32		in	6.14	6.69	3.86	3.66	2.08	2.02	1.43			
				mm	155.96	169.93	98.04	92.99	52.83	51.33	36.32			
AB3-100	1.00"	25	25.0	in	6.98	7.18	5.38	5.03	2.44	3.61	1.41	5.0 to 21.0 GPM	5.05	2.29
				mm	177.29	182.37	136.65	127.76	61.98	91.69	35.81		5.17	2.35
AB3-125	1.25"	32		in	7.06	7.24	5.38	5.03	2.44	3.61	1.43		5.17	2.35
				mm	179.32	183.90	136.65	127.76	61.98	91.69	36.32			
AB3-150	1.50"	40		in	7.06	7.37	5.38	5.03	2.44	3.61	1.17			
				mm	179.32	187.20	136.65	127.76	61.98	91.69	29.72			
AB4-150	1.50"	40	68.0	in	9.59	9.91	7.44	5.66	2.83	3.91	1.17	11.0 to 70.0 GPM	8.63	3.91
				mm	249.60	251.70	189.00	143.60	71.90	99.50	29.72		8.65	3.92
AB4-200	2.00"	50		in	9.59	10.35	7.44	5.66	2.83	3.92	1.50			
				mm	249.60	262.89	189.00	143.60	71.90	99.57	38.10			

* Cv values are for the body only without the cartridge inside.

** Please reference the tailpiece data sheet #Bulletin-MB-TP for other sizes and connections.

Dimensions not for construction purposes unless certified by factory.

Selection Chart - Model AB - 0.50" to 2.00"

STANDARD COMPONENTS

	PT	Pressure/Temperature test port with brass body, dual durometer EPDM core, threaded 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)
	MS	Memory stop with position indicator, zinc coated steel.

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

AUTOMATIC

Model AB Automatic Balancing Valve 0.50" - 2.00"

Flow GPM	2-32 PSID				Flow GPM	2-32 PSID	
	AB1e-	AB2e-	AB3-	AB4-		AB3-	AB4-
	050 075 100	050 075 100 125	100 125 150	150 200		100 125 150	150 200
0.35	x	x			16.00	x	x
0.50	x	x			17.00	x	x
0.66	x	x			18.00	x	x
0.75	x	x			19.00	x	x
0.88	x	x			20.00	x	x
1.00	x	x			21.00	x	x
1.10	x	x			22.00		x
1.30	x	x			24.00		x
1.50	x	x			26.00		x
1.75	x	x			28.00		x
2.00	x	x			30.00		x
2.20	x	x			32.00		x
2.50	x	x			34.00		x
2.65	x	x			36.00		x
3.00	x	x			38.00		x
3.50	x	x			40.00		x
4.00	x	x			42.00		x
4.50	x	x			44.00		x
5.00	x	x	x		45.00		x
6.00		x	x		48.00		x
7.00		x	x		50.00		x
8.00		x	x		52.00		x
9.00		x	x		5 - 60 PSID		
10.00		x	x		54.00		x
11.00			x	x	56.00		x
12.00			x	x	58.00		x
13.00			x	x	60.00		x
14.00			x	x	62.00		x
15.00			x	x	64.00		x
16.00*			x	x	66.00		x
* AB3 and AB4 Flow GPM continues at top of last two columns. NOTE: Lower flows can be used w/adaptor in larger sizes.					68.00		x
					70.00		x

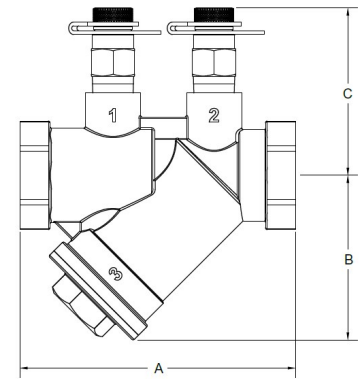
Model AL is a low-lead automatic flow control device. The removable flow cartridge is factory set to automatically limit the GPM to within $\pm 5\%$ of the specified flow.

Standard features include EPDM O-rings and seals, FNPT end connections and dual plugged accessory ports.



LOW LEAD
AUTOMATIC

SPECIFICATIONS	
Pressure Ratings:	400 PSI (2758 kPa)
Temperature Ratings:	250°F (121°C)
Accuracy:	$\pm 5\%$ of flow rate
Body Material:	Naval Brass, C46500 Low-Lead (Max. lead content .25% by weight)
End Connections:	FNPT - Inlet and Outlet
Flow Cartridge(s):	Ultrason [®] Composite
Seals:	EPDM
Available Options:	PL - Low-Lead PT test port PE - Press End Connections



Above shown with optional PL test ports installed.

NOMINAL DIMENSIONS & WEIGHTS

MODEL	SIZE			A	B	C ±	Weight		GPM SETTINGS 2-32 PSID
	in	mm					lbs	kg	
AL-050	0.50”	15	in	3.70	2.15	2.19	1.15	0.52	0.35, 0.5, 0.66, 0.75, 0.88, 1.0, 1.1, 1.3, 1.5, 1.75, 2.0, 2.2, 2.5, 2.65, 3.0, 3.5, 4.0, 4.5, 5.0
			mm	94.10	54.60	55.60			
AL-075	0.75”	20	in	3.84	2.15	2.19	1.17	0.53	0.35, 0.5, 0.66, 0.75, 0.88, 1.0, 1.1, 1.3, 1.5, 1.75, 2.0, 2.2, 2.5, 2.65, 3.0, 3.5, 4.0, 4.5, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0
			mm	97.50	54.60	55.60			
AL-100	1.00”	25	in	4.23	2.15	2.19	1.32	0.60	
			mm	107.40	54.60	55.60			
AL-125	1.25”	32	in	5.31	3.00	2.44	2.82	1.28	5.0, 6.0, 7.0, 8.0, 9.0, 10.0, 11.0, 12.0, 13.0, 14.0, 15.0, 16.0, 17.0, 18.0, 19.0, 20.0, 21.0
			mm	135.00	76.35	62.03			

NOTE: Dimensions not for construction purposes unless certified by factory.

$\pm$ Dimensions with optional "PL" Low-Lead Pressure / Temperature Test Port.

OPTIONAL ACCESSORY COMPONENTS

	PL	Low-Lead Pressure / Temperature test port with brass body, dual durometer EPDM core, 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)
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Please reference data sheet #Bulletin-MB-Accessories for optional accessories.

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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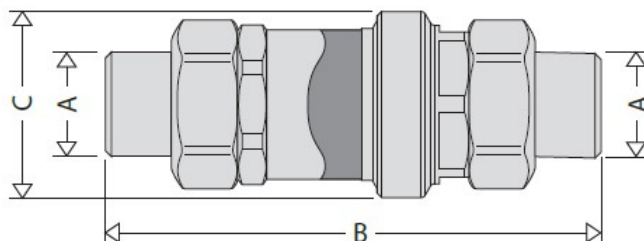


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Section: Components
Bulletin-MB-AL-1016.02

Model Low-Lead AI Automatic Inline Valve is an automatic flow control device. The removable flow cartridge is factory set to automatically limit the GPM to within $\pm 10\%$ of the specified flow. Standard features include Low-Lead, EPDM O-rings and seals, MNPT & SWT end connections.



SPECIFICATIONS	
Pressure Ratings:	232 PSI (1599 kPa)
Temperature Ratings:	250°F (121°C)
Accuracy:	$\pm 10\%$ of flow rate
Body Material:	Low-Lead Brass
End Connections:	MNPT & SWT, Inlet and Outlet
Flow Cartridge: 1/2" to 1"	Ultrason® Composite
Seals:	EPDM



NOMINAL DIMENSIONS & WEIGHTS								
MODEL	SIZE			A	B	C	WEIGHT	
	in	mm					lbs	kg
LL-AI-050M	0.50”	15	in	0.50	4.25	1.56	0.80	0.40
			mm	12.70	107.95	39.69		
LL-AI-075M	0.75”	20	in	0.75	4.81	1.56	0.80	0.40
			mm	19.05	122.24	39.69		
LL-AI-100M	1.00”	25	in	1.00	6.00	1.56	1.00	0.50
			mm	25.40	152.40	39.69		
* <i>Dimensions not for construction purposes unless certified by factory.</i> Reference Differential Control Pressure Ranges graph below for pressure ranges								



PRESSURE DIFFERENTIAL RANGE CHART	
Pressure Differential Control Range (psid)	GPM
2 - 14	0.35, 0.50, 0.66, 0.75, 0.88
2 - 32	1.00, 1.10, 1.30, 1.50, 1.75, 2.00, 2.20, 2.50, 2.65, 3.00, 3.50, 4.00, 4.50, 5.00
4 - 34	6.00, 7.00, 8.00
5 - 35	9.00, 10.00

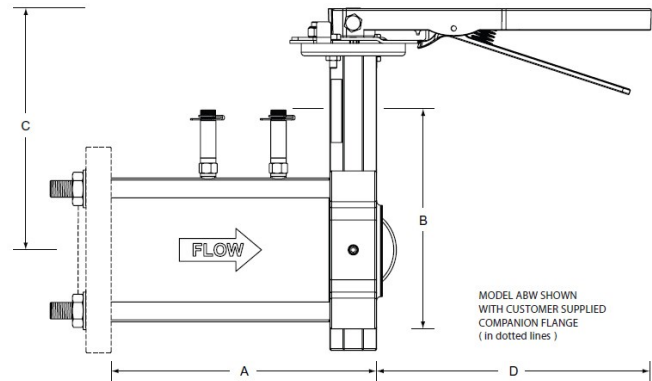
ORDERING CHART		
Item Number	Inlet	Outlet
LL-AI-050M-050M	1/2" MPT	1/2" MPT
LL-AI-050M-050S	1/2" MPT	1/2" SWT
LL-AI-050S-050S	1/2" SWT	1/2" SWT
LL-AI-075M-075M	3/4" MPT	3/4" MPT
LL-AI-075M-075S	3/4" MPT	3/4" SWT
LL-AI-075S-075S	3/4" SWT	3/4" SWT
LL-AI-100M-100M	1" MPT	1" MPT
LL-AI-100M-100S	1" MPT	1" SWT
LL-AI-100S-100S	1" SWT	1" SWT

Model ABW Automatic Balancing Valve incorporates a wafer style cast steel body and lug type butterfly valve. The removable flow cartridge(s) is factory set to automatically limit the GPM to within $\pm 5\%$ of the specified flow. Shipped with Rods and Nuts for use with customer supplied flange. Standard features include Dual Pressure / Temperature Ports.



AUTOMATIC

SPECIFICATIONS	
Pressure Ratings:	200 PSIG (1380 kPa)
Temperature Ratings:	250°F (121°C)
Accuracy:	$\pm 5\%$ of flow rate
Body Material (Wafer):	Cast Steel
Butterfly Valve:	Ductile Iron A536 65-45-12
Disc:	Aluminum Bronze B148 C954
Stem:	Stainless Steel 416 A582
Seat:	EPDM with Phenolic Backing
Bushing:	Teflon/Fiberglass Backed
Seal:	EPDM
End Connections:	ANSI 150# Flanged
Flow Cartridge(s):	Stainless Steel Wear Surfaces with Stainless Steel Springs
Available Options:	"PTV" combination PT & Air Vent



NOMINAL DIMENSIONS & WEIGHTS												
MODEL	SIZE			A	B	C	D	WEIGHT		Max. No. Cartridges	Maximum gpm (lps) Control Range psi (kPa)	
	in	mm						lbs	kg		2-32 (14-221)	5-60 (34-414)
ABW-250	2.5"	65	in	7.50	7.00	7.20	9.00	23.0	13.5	1	80	120
			mm	190	180	185	230				(5.0)	(7.6)
ABW-300	3.0"	80	in	10.60	7.50	7.60	9.00	34.0	18.0	1	135	170
			mm	255	190	195	230				(8.5)	(10.7)
ABW-400	4.0"	100	in	11.70	9.00	8.40	9.00	53.0	29.9	2	270	340
			mm	295	230	215	230				(17.0)	(21.4)
ABW-500	5.0"	125	in	12.30	10.00	8.90	9.00	86.0	39.2	3	405	510
			mm	315	255	225	230				(25.5)	(32.1)
ABW-600	6.0"	150	in	12.40	11.00	9.60	9.00	103.0	46.7	4	540	680
			mm	315	280	245	230				(34.0)	(42.8)
ABW-800	8.0"	200	in	13.40	13.50	10.80	5.00	151.0	68.6	7	945	1190
			mm	340	345	275	130				(59.5)	(75.0)

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.

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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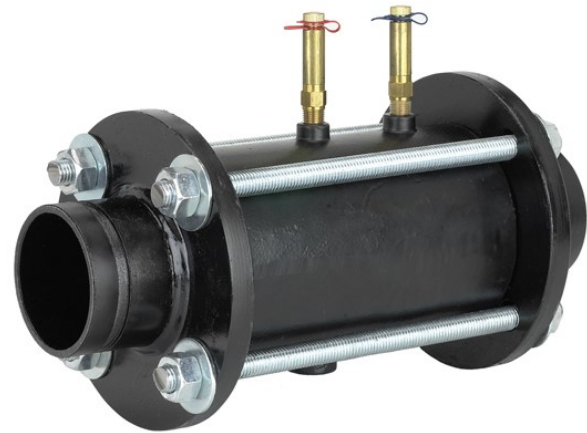


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Section: Components Bulletin-MB-ABW-0915.02

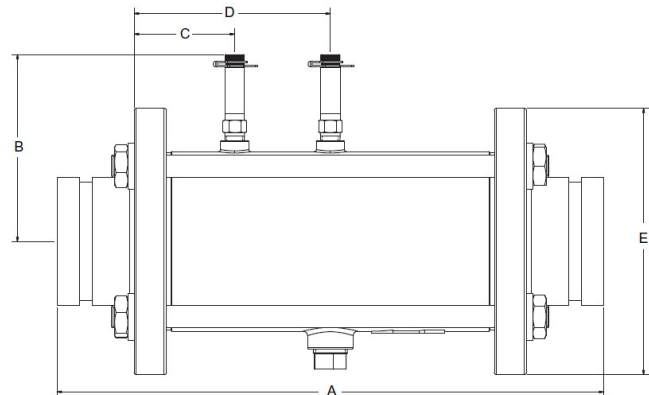
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Model AG Automatic Balancing Valve incorporates a wafer style cast steel body and 300# grooved adaptors. The removable flow cartridge(s) is factory set to automatically limit the GPM to within $\pm 5\%$ of the specified flow. Shipped with Rods and Nuts for use with factory supplied grooved adaptor. Standard features include Dual Pressure / Temperature Ports.



AUTOMATIC

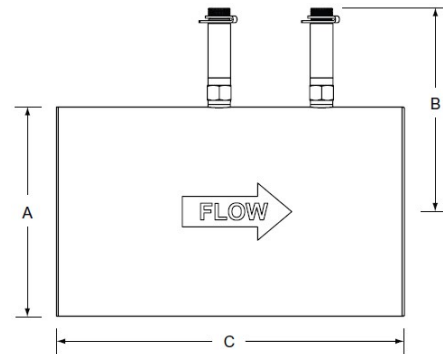
SPECIFICATIONS	
Pressure Ratings:	600 PSIG (4140 kPa)
Temperature Ratings:	250°F (121°C)
Accuracy:	$\pm 5\%$ of flow rate
Body Material (Wafer):	Cast Steel
End Connections:	ANSI 300# Grooved
Flow Cartridge(s):	Stainless Steel Wear Surfaces with Stainless Steel Springs
Available Options:	"PTV" combination PT & Air Vent



NOMINAL DIMENSIONS & WEIGHTS													
MODEL	SIZE			A	B	C	D	E	WEIGHT		Max. No. Cartridges	Maximum gpm (lps) Control Range psi (kPa)	
	in	mm							lbs	kg		2-32 (14-221)	5-60 (34-414)
AW-250	2.5"	65	in	12.07	4.58	2.19	4.29	7.00	24.00	10.89	1	80 (5.0)	120 (7.6)
			mm	306.58	116.33	54.50	108.97	177.80					
AW-300	3.0"	80	in	15.00	5.26	2.75	5.38	7.50	32.84	14.90	1	135 (8.5)	170 (10.7)
			mm	381.00	133.60	69.72	136.65	190.50					
AW-400	4.0"	100	in	15.81	6.22	3.39	7.46	9.00	51.26	23.25	2	270 (17.0)	340 (21.4)
			mm	401.57	158.00	85.99	189.36	228.60					
AW-500	5.0"	125	in	18.25	6.61	3.45	7.04	10.00	58.59	26.58	3	405 (25.5)	510 (32.1)
			mm	463.55	167.90	87.50	178.69	254.00					
AW-600	6.0"	150	in	18.41	7.05	3.22	7.18	11.00	74.00	33.57	4	540 (34.0)	680 (42.8)
			mm	467.61	179.10	81.66	182.25	279.40					
AW-800	8.0"	200	in	23.25	8.00	3.16	5.91	13.50	175.52	79.61	7	945 (59.5)	1190 (75.0)
			mm	590.55	203.20	80.26	150.11	342.90					
AW-1000	10.0"	250	in	23.25	9.30	3.16	4.91	16.00	261.32	118.53	11	1485 (93.6)	1870 (118.0)
			mm	590.55	236.22	80.26	125.48	406.40					
AW-1200	12.0"	300	in	27.38	10.60	3.75	5.75	21.00	367.25	166.47	15	2025 (128.0)	2550 (161.0)
			mm	695.45	269.24	95.25	146.05	533.40					

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.		

Model AW Automatic Balancing Valve incorporates a wafer style cast steel body. The removable flow cartridge(s) is factory set to automatically limit the GPM to within $\pm 5\%$ of the specified flow. Shipped with Rods and Nuts for use with customer supplied companion adaptor. Standard features include Dual Pressure / Temperature Ports.



AUTOMATIC

SPECIFICATIONS	
Pressure Ratings:	600 PSIG (4140 kPa)
Temperature Ratings:	250°F (121°C)
Accuracy:	$\pm 5\%$ of flow rate
Body Material (Wafer):	Cast Steel
End Connections:	Wafer Style
Flow Cartridge(s):	Stainless Steel Wear Surfaces with Stainless Steel Springs
Available Options:	"PTV" combination PT & Air Vent

NOMINAL DIMENSIONS & WEIGHTS											
MODEL	SIZE			A	B	C	WEIGHT		Max. No. Cartridges	Maximum gpm (lps) Control Range psi (kPa)	
	in	mm					lbs	kg		2-32 (14-221)	5-60 (34-414)
AW-250	2.5"	65	in	4.30	4.80	5.82	13.0	5.9	1	80	120
			mm	109	122	148				(5.0)	(7.6)
AW-300	3.0"	80	in	5.00	5.15	8.78	22.0	10.2	1	135	170
			mm	127	131	223				(8.5)	(10.7)
AW-400	4.0"	100	in	6.80	6.00	9.60	35.0	15.9	2	270	340
			mm	173	152	244				(17.0)	(21.4)
AW-500	5.0"	125	in	7.60	6.50	10.00	56.0	25.4	3	405	510
			mm	193	165	254				(25.5)	(32.1)
AW-600	6.0"	150	in	8.50	6.80	10.16	67.0	30.4	4	540	680
			mm	216	173	258				(34.0)	(42.8)
AW-800	8.0"	200	in	11.00	8.00	11.00	81.0	36.7	7	945	1190
			mm	279	203	279				(59.5)	(75.0)
AW-1000	10.0"	250	in	13.30	9.30	11.00	121.0	54.9	11	1485	1870
			mm	338	236	279				(93.6)	(118.0)
AW-1200	12.0"	300	in	15.90	10.60	11.00	157.0	71.2	15	2025	2550
			mm	404	269	279				(128.0)	(161.0)
AW-1400	14.0"	350	in	17.60	11.50	11.00	221.0	100.0	19	2585	3230
			mm	447	292	279				(162.0)	(203.0)
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.											

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

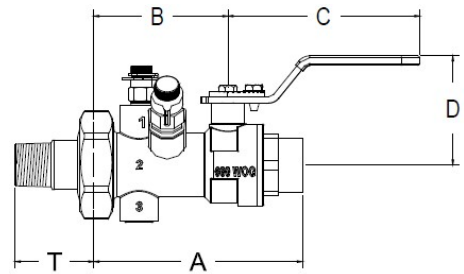
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Model MB is a venturi style manual balancing valve with 100% positive shut-off full port plated ball. Permanently installed venturi section, Teflon seats, double o-ring shaft seals, Pressure/Temperature readout ports, adjustable memory stop with position indicator and union end with o-ring seal. Available with multiple combinations of end connection types and sizes.

SPECIFICATIONS

Pressure Ratings:	600 PSI (4140 kPa)
Temperature Ratings:	250°F (121°C)
Accuracy:	± 3% of flow rate
Body Material:	Forged Brass
End Connections:	Fixed End: DZR Brass - SWT & FNPT Brass - Press End Union End: Brass - SWT, FNPT, MNPT & Press End
Flow Element:	Brass Venturi, Permanently installed
Seals:	EPDM
Seats:	Teflon
Ball:	Chrome Plated Brass. <i>Optional 316 Stainless Steel.</i>
Stem:	Brass. <i>Optional 316 Stainless Steel.</i>
Handle:	Full size Zinc Plated lever w/Vinyl Grip
Memory Stop:	Zinc Plated Steel
Available Options:	"PTV" combination PT & Air Vent, DV hose end Drain Valve & Extensions.



NOMINAL DIMENSIONS & WEIGHTS

MODEL	SIZE		Flow Range GPM (10"-100")	Cv*		A		B	C	D	**T SWT	WEIGHT	
	in	mm				FNPT	SWT					lbs	kg
MB1A-050-L MB1B-050-H	0.50"	15	(L) 0.4 - 1.3 (H) 1.5 - 5.0	2.0	in	4.14	4.50	2.45	2.33	1.64	1.50	1.37	0.62
				5.9	mm	105.14	114.30	62.23	59.18	41.65	38.09		
MB1A-075-L MB1B-075-H	0.75"	20	(L) 0.4 - 1.3 (H) 1.5 - 5.0	2.0	in	4.26	4.79	2.45	2.33	1.64	1.55	1.45	0.66
				5.9	mm	108.20	121.66	62.23	59.18	41.65	39.37		
MB1A-100-L MB1A-100-H	1.00"	25	(L) 0.4 - 1.3 (H) 1.5 - 5.0	2.0	in	4.59	5.04	2.45	2.33	1.64	1.75	1.52	0.69
				5.9	mm	116.58	128.01	62.23	59.18	41.65	44.45		
MB2A-075-L MB2B-075-H	0.75"	20	(L) 1.6 - 5.0 (H) 4.0 - 13.0	7.6	in	4.36	4.93	2.46	3.66	2.08	1.56	1.97	0.89
				13.0	mm	110.74	125.22	62.69	92.99	52.83	39.62		
MB2A-100-L MB2B-100-H	1.00"	25	(L) 1.6 - 5.0 (H) 4.0 - 13.0	7.6	in	4.57	5.22	2.46	3.66	2.08	1.75	2.06	0.93
				13.0	mm	116.07	132.58	62.69	92.99	52.83	44.45		
MB2A-125-L MB2B-125-H	1.25"	32	(L) 1.6 - 5.0 (H) 4.0 - 13.0	7.6	in	4.75	5.30	2.46	3.66	2.08	1.80	2.25	1.02
				13.0	mm	120.64	134.61	62.69	92.99	52.83	45.72		
MB3A-125	1.25"	32	6.7 - 21.0	29.0	in	6.51	7.49	3.48	5.03	2.26	1.80	4.16	1.89
					mm	165.35	190.24	88.39	127.76	57.40	45.72		
MB3A-150	1.50"	40	6.7 - 21.0	29.0	in	6.51	7.76	3.48	5.03	2.26	1.80	4.23	1.92
					mm	165.35	190.24	88.39	127.76	57.40	45.72		
MB4A-200	2.00"	50	15.0 - 50.0	77.0	in	6.57	7.36	4.45	5.66	2.83	1.98	7.10	3.22
					mm	166.90	187.00	113.00	143.60	71.90	50.29		

* Cv values are for the body only.

** Please reference the tailpiece data sheet #Bulletin-MB-TP for other sizes and connections.

Dimensions not for construction purposes unless certified by factory.

STANDARD COMPONENTS

	PT	Pressure / Temperature test port with brass body, dual durometer EPDM core, 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)
	MS	Memory stop with position indicator, zinc coated steel.

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

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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Differential Pressure Table - Model MB - 0.50" to 2.00"

Model MB Venturi Type Balancing Valve 0.50" - 2.00"

Differential Pressure: Inches W.C.

Flow GPM	MB1A- 050-L 075-L	MB1B- 050-H 075-H	MB2A- 075-L 100-L 125-L	MB2B- 075-H 100-H 125-H	MB3A- 125 150	Flow GPM	MB3A- 125 150	MB4A- 200
0.10	1					18.00	71	14
0.20	2					19.00	79	15
0.30	5					20.00	87	17
0.42	10	0.8				21.00	96	19
0.50	14	1.1	1			22.00	106	21
0.75	31	2.3	2			23.00	116	23
1.00	55	4.4	4			24.00	126	25
1.25	86	6.8	6			25.00	137	27
1.35	101	7.9	7	1		26.00	148	29
1.50	124	10	9	1.4		27.00	159	31
2.00	221	17	16	2.5		28.00	171	34
2.25		22	21	3	1.1	29.00	184	36
2.50		27	25	4	1.4	30.00	197	39
3.00		39	36	6	2.0	31.00	210	41
3.50		53	50	8	2.7	32.00	224	44
4.00		70	65	10	3.5	33.00	238	47
4.50		88	82	13	4.4	34.00	253	50
5.00		109	101	15	5.5	35.00	268	53
5.50		132	123	19	6.6	36.00		56
6.00		157	146	22	7.9	37.00		59
6.50		184	171	26	9.2	39.00		65
7.25		229	213	33	11.5	40.00		69
7.50		245	228	35	12.3	41.00		72
8.00				40	14.0	42.00		76
8.50				45	15.8	43.00		79
9.00				50	17.7	44.00		83
9.50				56	19.7	45.00		87
10.00				62	21.9	48.50		101
10.50				68	24.1	55.00		130
11.00				75	26.4	60.00		154
11.50				82	28.9	65.00		181
12.00				89	31.5	70.00		210
12.50				97	34.2	75.00		241
13.00				105	36.9			
14.00				121	42.8			
15.00				139	49.2			
16.00				159	56.0			
17.00				179	63.2			
FF	0.1346	0.479	0.4967	1.2704	2.139	FF	2.139	4.8274

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.

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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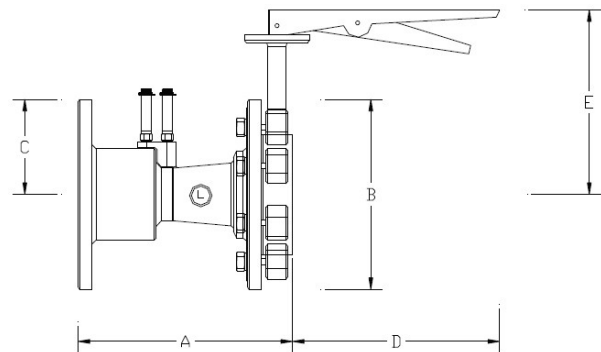


Tunstall Corporation
118 Exchange Street · Chicopee, MA 01013
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Model MBF Manual Balancing Valve features a cast steel venturi flow element. The precision machined throat provides measurement accuracy of $\pm 3\%$ of flow rate. Mounted on the discharge 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"

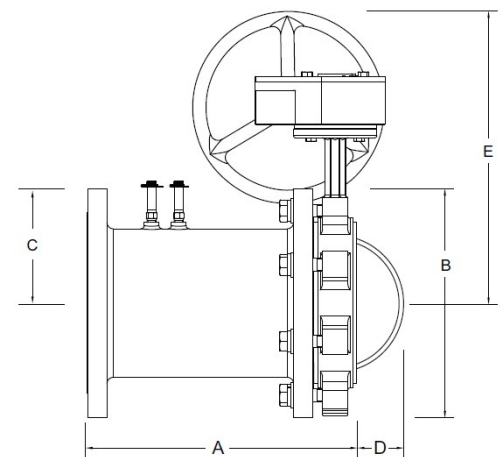
MANUAL

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 ± 3% of flow rate. 2) Repeatability ± 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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Tunstall Corporation
118 Exchange Street · Chicopee, MA 01013
Phone (413) 594-8695 · Fax (413) 598-8109
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.

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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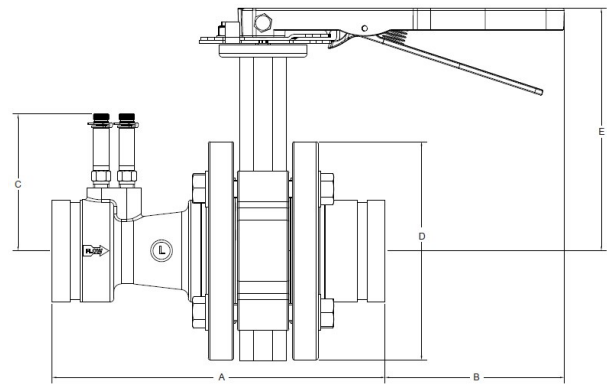
Tunstall Corporation
118 Exchange Street · Chicopee, MA 01013
Phone (413) 594-8695 · Fax (413) 598-8109

Model MG 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.
(Model MBF With Groove x Flanged Adaptors)



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")		A	B	C	D	E	Weight	
	in	mm								lbs	kg
MG-250	2.5"	64	24.0 - 75.0	in	10.87	6.22	4.36	7.00	8.10	23.5	10.66
				mm	276.10	157.99	110.74	177.80	205.74		
MG-300	3.0"	75	48.0 - 150.0	in	11.47	6.17	4.70	7.50	8.34	28.4	12.88
				mm	291.34	156.72	119.38	190.50	211.84		
MG-400	4.0"	100	85.0 - 260.0	in	13.62	5.91	5.18	9.00	9.09	43.0	19.50
				mm	345.95	150.11	131.57	228.60	230.89		
MG-500	5.0"	125	170.0 - 525.0	in	14.64	5.97	5.69	10.00	9.60	73.0	33.11
				mm	371.86	151.64	144.53	254.00	243.84		
MG-600	6.0"	150	220.0 - 700.0	in	17.05	5.21	6.20	11.00	10.11	89.9	40.78
				mm	433.07	132.33	157.48	279.40	256.79		

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

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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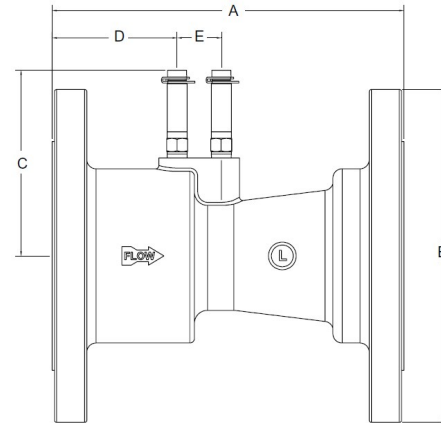
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Tunstall Corporation
118 Exchange Street · Chicopee, MA 01013
Phone (413) 594-8695 · Fax (413) 598-8109
Section: Components Bulletin-MB-MG-0915.02

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

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 ($\sqrt{\text{DP}}$) DP = (GPM/FF) ² PPL = DP x 0.12						Notes: 1) Accuracy ± 3% of flow rate. 2) Repeatability ± 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 VF Venturi Flowmeter features a cast steel venturi flow element. The precision machined throat provides measurement accuracy of $\pm 3\%$ of flow rate. ANSI 150# flanged end connections. Dual extended length Pressure / Temperature ports and Hanging I.D. Tag.



MANUAL

SPECIFICATIONS	
Pressure Ratings:	240 PSI (1655 kPa)
Temperature Ratings:	250°F (121°C)
Accuracy:	$\pm 3\%$ of flow rate
Body Material - Venturi:	Carbon Steel ASTM A-120
End Connections:	ANSI 150# Flanged Optional ANSI 300# Flanged
Metering Ports:	Extended Length Pressure/ Temperature test ports
Available Options:	"PTV" combination PT & Air Vent

NOMINAL DIMENSIONS & WEIGHTS											
MODEL	SIZE		Flow Range GPM (10"-100")		A	B	C	D	E	Weight	
	in	mm								lbs	kg
VF-250	2.5"	65	24.0 - 75.0	in	7.00	7.00	4.20	3.12	0.74	20	9.08
				mm	177.80	177.80	106.65	79.38	18.75		
VF-300	3.0"	75	48.0 - 150.0	in	8.00	7.50	4.54	3.38	0.88	25	11.35
				mm	203.20	190.50	115.29	85.73	24.48		
VF-400	4.0"	100	85.0 - 260.0	in	9.50	9.00	5.02	3.38	1.19	36	16.33
				mm	241.30	228.60	127.48	85.73	30.35		
VF-500	5.0"	125	170.0 - 525.0	in	11.00	10.00	5.53	3.88	1.31	45	20.41
				mm	279.40	254.00	140.49	98.43	33.27		
VF-600	6.0"	150	220.0 - 700.0	in	12.50	11.00	6.04	3.88	1.60	55	24.95
				mm	317.50	279.40	153.39	98.43	40.64		

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

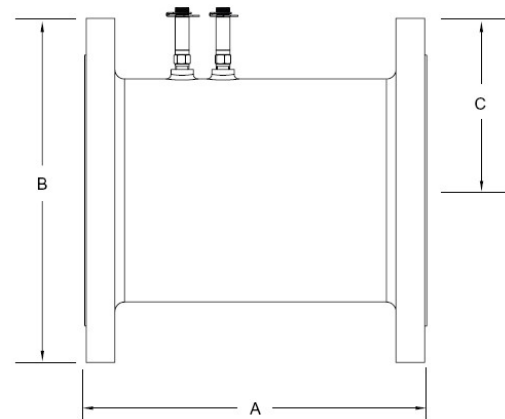
Optional features and accessories available for this Macon product are an extra charge, and not included in the standard model price.
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Differential Pressure Table - Model VF - 2.50" to 6.00"

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 $GPM = FF \times (\sqrt{DP})$ $DP = (GPM/FF)^2$ $PPL = DP \times 0.12$						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.				

Model VF Venturi Flowmeter features a cast steel venturi flow element. The welded steel insert provides measurement accuracy of $\pm 3\%$ of flow rate. ANSI 150# flanged end connections. Dual extended length Pressure/Temperature ports and Hanging I.D. Tag.



MANUAL

SPECIFICATIONS	
Pressure Ratings:	200 PSI (1380 kPa)
Temperature Ratings:	250°F (121°C)
Accuracy:	$\pm 3\%$ of flow rate
Body Material - Venturi:	Carbon Steel ASTM A-120
End Connections:	ANSI 150# Flanged Optional ANSI 300# Flanged
Metering Ports:	Extended Length Pressure/ Temperature test ports
Available Options:	"PTV" combination PT & Air Vent

NOMINAL DIMENSIONS & WEIGHTS									
MODEL	SIZE		Flow Range GPM (10"-100")		A	B	C	Weight	
	in	mm						lbs	kg
VF-800	8.0"	203.2	400.0 - 850.0	in	13.50	13.50	6.75	91.0	41.27
				mm	342.9	342.9	171.45		
VF-1000	10.0"	254.0	700.0 - 1400.0	in	14.50	16.00	8.00	117.5	53.29
				mm	368.3	406.4	203.2		
VF-1200	12.0"	304.8	1200.0 - 3600.0	in	21.00	19.00	9.50	218.0	98.88
				mm	533.4	482.6	241.3		
VF-1400	14.0"	355.6	1600.0 - 4800.0	in	24.00	21.00	10.50	305.0	138.34
				mm	609.6	533.6	266.7		
VF-1600	16.0"	406.4	2200.0 - 6400.0	in	36.00	23.50	11.75	435.0	197.31
				mm	914.4	596.9	298.45		

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 VF - 8.00" to 16.00"

MANUAL

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 GPM = FF x (√DP) DP = (GPM/FF) ² PPL = DP x 0.12			Notes: 1) Accuracy ± 3% of flow rate. 2) Repeatability ± 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.			

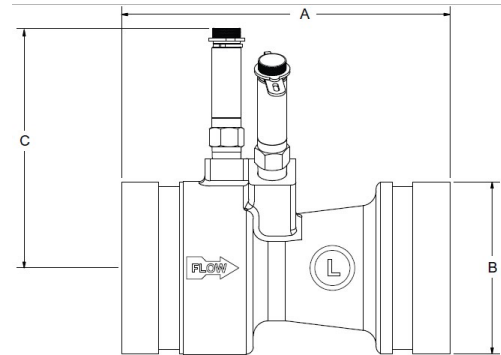
Optional features and accessories available for this Macon product are an extra charge, and not included in the standard model price.
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Model VG/VW Venturi Flowmeter features a carbon steel venturi flow element. The precision machined throats provides measurement accuracy of $\pm 3\%$ of flow rate. Model VG offers Grooved end connections. Model VW offers Weld end connections. Dual extended length Pressure/Temperature ports and Hanging I.D. Tag.



SPECIFICATIONS	
Pressure Ratings:	400 PSI (2758 kPa)
Temperature Ratings:	250°F (121°C)
Accuracy:	$\pm 3\%$ of flow rate
Body Material - Venturi:	2.5" - 6.0" ASTM A-216 Grade WCB 8.0" - 16.0" ASTM A-120
End Connections:	VG = Grooved End Connections VW = Weld End Connections
Metering Ports:	Extended Length Pressure/Temperature test ports
Available Options:	"PTV" combination PT & Air Vent



NOMINAL DIMENSIONS & WEIGHTS

MODEL	SIZE		Flow Range GPM (10"-100")		A	B	C	Weight - VG		Weight - VW	
	in	mm						lbs	kg	lbs	kg
VF-250	2.5"	65	24.0 - 75.0	in	5.50	2.88	4.25	3.39	1.54	3.50	1.59
				mm	139.70	73.15	107.90				
VF-300	3.0"	75	48.0 - 150.0	in	6.00	3.50	4.59	4.91	2.23	5.02	2.28
				mm	152.40	88.90	116.59				
VF-400	4.0"	100	85.0 - 260.0	in	7.50	4.50	5.07	8.27	3.75	8.40	3.81
				mm	190.50	114.30	128.78				
VF-500	5.0"	125	170.0 - 525.0	in	8.75	5.56	5.58	13.02	5.91	13.14	5.96
				mm	222.25	141.22	141.73				
VF-600	6.0"	150	220.0 - 700.0	in	10.25	6.63	6.09	18.78	8.52	18.94	8.59
				mm	260.35	168.40	154.69				
VF-800	8.0"	200	400.0 - 850.0	in	12.50	8.63	7.05	34.00	15.42	29.70	13.47
				mm	317.50	219.20	179.07				
VF-1000	10.0"	250	700.0 - 1400.0	in	13.50	10.75	8.11	54.00	24.49	45.50	20.63
				mm	342.90	273.05	206.00				
VF-1200	12.0"	300	1200.0 - 3600.0	in	12.00	12.75	7.63	54.00	24.49	54.00	24.49
				mm	304.80	323.85	193.80				
VF-1400	14.0"	355	1600.0 - 4800.0	in	19.00	14.00	8.25	72.30	32.79	72.30	32.79
				mm	482.60	355.60	209.55				
VF-1600	16.0"	406	2200.0 - 6400.0	in	26.00	16.00	9.25	144.00	65.31	144.00	65.31
				mm	660.40	406.40	234.95				

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

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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Differential Pressure Table - Model VG/VF - 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 ± 3% of flow rate. 2) Repeatability ± 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.				

Differential Pressure Table - Model VG/VF - 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	7		
425.0	12		1100.0	9		
450.0	14		1200.0	10		
475.0	16		1300.0	12	7	
500.0	18		1400.0	14	8	
525.0	20		1500.0	16	9	
550.0	22		1600.0	19	11	
575.0	25		1700.0	21	12	
600.0	28		1800.0	23	13	
625.0	31		1900.0	26	15	8
650.0	34	8	2000.0	29	17	9
675.0	37	9	2200.0	35	20	11
700.0	40	10	2400.0	42	24	13
725.0	43	11	2600.0	49	28	16
750.0	52	13	2800.0	57	33	18
775.0	62	15	3000.0	65	37	21
800.0	73	18	3200.0	74	43	24
825.0	85	21	3400.0	84	48	27
850.0	97	24	3600.0	94	54	30
875.0	111	27	3800.0	105	60	34
900.0	125	31	4000.0	116	67	37
925.0	140	35	4200.0	128	73	41
950.0	156	39	4400.0	140	81	45
975.0	173	43	4500.0		84	47
1000.0		52	4600.0		88	49
1100.0		62	4700.0		92	51
1200.0		72	4800.0		96	54
1300.0		84	5000.0		104	58
1400.0		96	5200.0			63
1500.0		109	5400.0			68
1600.0		124	5600.0			73
1700.0		138	5800.0			78
1800.0		154	6000.0			84
1900.0		171	6400.0			95
2000.0			6800.0			108
2200.0						
2400.0						
Size	8”	10”	Size	12”	14”	16”
FF	130.61	192.54	FF	371.4	490.29	655.0
Flow Formulas		Notes:				
GPM = FF x (√DP)		1) Accuracy ± 3% of flow rate.				
DP = (GPM/FF) ²		2) Repeatability ± 0.25% of rate.				
PPL = DP x 0.12		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.				

MANUAL

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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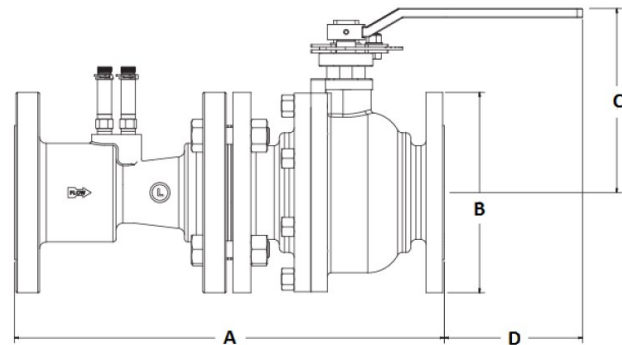
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Bulletin-MB-VG-VW-0915.02

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Model MP is a manual balancing valve with featuring 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 cast steel ball valve with adjustable flow positioning plate. ANSI 150# flanged end connections, Dual Extended length Pressure/Temperature readout ports and Hanging I.D. Tag.



SPECIFICATIONS	
Pressure Ratings:	240 PSI (1655 kPa)
Temperature Ratings:	250°F (121°C)
Accuracy:	$\pm 3\%$ of flow rate
Body Material - Venturi:	Carbon Steel ASTM A-120
End Connections:	ANSI 150# Flanged Optional ANSI 300# Flanged
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	Weight	
	in	mm							lbs	kg
MP-250	2.5"	65	24.0 - 75.0	in	14.61	7.00	6.10	6.50	49.5	22.5
				mm	371.0	180.0	155.0	165.0		
MP-300	3.0"	75	48.0 - 150.0	in	16.12	7.50	7.40	6.00	54.9	24.9
				mm	409.4	190.0	188.0	153.0		
MP-400	4.0"	100	85.0 - 260.0	in	18.64	9.0	8.1	7.8	99.5	45.1
				mm	473.5	230.0	206.0	198.0		
MP-500	5.0"	125	170.0 - 525.0	in	25.14	10.00	10.00	18.00	146.0	66.2
				mm	638.6	255.0	254.0	457.0		
MP-600	6.0"	150	220.0 - 700.0	in	28.14	11.00	11.00	17.50	197.8	89.7
				mm	714.7	280.0	280.0	445.0		

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

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

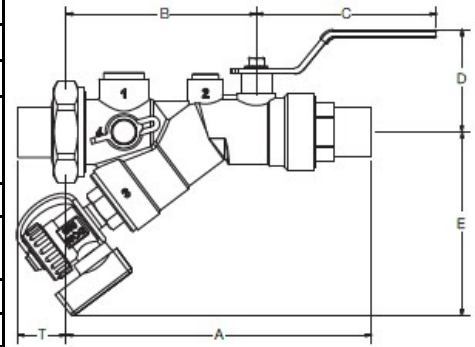
Model MBF / MF, MBG / MG, MP, VF, VG & VW Valves size 2.50" - 6.00"										
Differential Pressure: Inches W.C.										
Flow GPM	Model Size						Flow GPM	Model Size		
	250	300	400	500	600			400	500	600
24.0	10						300.0	123	32	18
26.0	12						325.0	144	38	21
28.0	14						350.0	167	44	24
30.0	16						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 $GPM = FF \times (\sqrt{DP})$ $DP = (GPM/FF)^2$ $PPL = DP \times 0.12$						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.				

Model SV is a combination ball valve, wye strainer and union. The 20 mesh stainless steel strainer is removable for cleaning and inspection. The ball valve has a chrome plated ball with Teflon seats, blowout proof stem with double EPDM O-ring seals. The union has an EPDM O-ring seal and tailpiece available in MNPT, FNPT and SWT end connections.

Standard features include Pressure/Temperature Port, Hose End Drain Valve and plugged Bypass Port.



SPECIFICATIONS	
Pressure Ratings:	600 PSI (4140 kPa)
Temperature Ratings:	250°F (121°C)
Body Material:	Forged Brass
End Connections:	Fixed End: DZR Brass - SWT & FNPT Brass - Press End Union End: Brass - SWT, FNPT, MNPT & Press End
Seals:	EPDM
Ball:	Chrome Plated Brass, 100% positive shut off. Optional 316 Stainless Steel.
Stem:	Brass. Optional 316 Stainless Steel.
Handle:	Full size Zinc Plated lever w/Vinyl Grip
Available Options:	"PTV" combination PT & Air Vent, Automatic Air Vent, Handle and Port Extensions



NOMINAL DIMENSIONS & WEIGHTS														
MODEL	SIZE		A		B	C	D	E	**T SWT	Bypass Port-In	Cv*	Flow Range	WEIGHT	
			FNPT	SWT									lbs	kg
SV1e-050	in	0.50"	4.74	4.88	2.99	2.33	1.73	3.53	0.83	.50	5.5	0.35 to 5.0 GPM	1.90	0.86
	mm	15	120.60	124.05	79.95	59.26	43.94	89.87	21.08					
SV1e-075	in	0.75"	4.77	5.22	2.99	2.33	1.73	3.53	0.98				2.67	1.21
	mm	20	121.36	132.66	79.95	59.26	43.94	89.87	24.89					
SV1e-100	in	1.00"	4.91	5.60	2.99	2.33	1.73	3.53	0.98	.50	7.0	0.35 to 13.0 GPM	2.02	0.92
	mm	25	124.79	142.27	79.95	59.26	43.94	89.87	24.89					
SV2e-050	in	0.50"	5.71	5.95	3.86	3.66	2.08	3.72	0.92	.50	7.0	0.35 to 13.0 GPM	2.57	1.17
	mm	15	145.24	151.33	98.04	93.01	52.83	94.64	23.37					
SV2e-075	in	0.75"	5.75	6.20	3.86	3.66	2.08	3.72	1.43				2.61	1.18
	mm	20	146.10	157.56	98.04	93.01	52.83	94.64	36.32					
SV2e-100	in	1.00"	5.96	6.36	3.86	3.66	2.08	3.72	1.17	.50	7.0	0.35 to 13.0 GPM	2.69	1.22
	mm	25	151.59	161.62	98.04	93.01	52.83	94.64	29.72					
SV2e-125	in	1.25"	6.14	6.69	3.86	3.66	2.08	3.72	1.50				2.92	1.32
	mm	32	156.03	170.00	98.04	93.01	52.83	94.64	38.10					
SV3-100	in	1.00"	8.60	9.44	5.62	5.03	2.26	4.78	1.41	.75	25.0	0.35 to 21.0 GPM	4.54	2.06
	mm	25	218.40	239.80	142.90	127.76	57.40	121.40	35.81					
SV3-125	in	1.25"	8.67	9.66	5.62	5.03	2.26	4.78	1.43				4.54	2.06
	mm	32	220.10	245.30	142.90	127.76	57.40	121.40	36.32					
SV3-150	in	1.50"	8.67	9.91	5.62	5.03	2.26	4.78	1.17	.75	25.0	0.35 to 21.0 GPM	4.44	2.01
	mm	40	220.10	251.70	142.90	127.76	57.40	121.40	29.71					

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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Components - Model SV - 0.50" to 2.00"

NOMINAL DIMENSIONS & WEIGHTS (continued)

MODEL	SIZE		A		B	C	D	E	**T SWT	Bypass Port-In	Cv*	Flow Range	WEIGHT	
			FNPT	SWT									lbs	kg
SV4-150	in	1.50"	9.37	9.91	7.44	5.66	2.83	5.31	1.59	1.25	68.0	22.0 to 70.0 GPM	8.72	3.96
	mm	40	238.00	251.71	188.98	143.76	71.88	134.87	40.38					
SV4-200	in	2.00"	9.56	10.35	7.44	5.66	2.83	5.31	1.50				9.42	4.27
	mm	50	232.16	262.89	188.98	143.76	71.88	134.87	38.10					

* Cv values are for the body only without the screen inside.

** Please reference the tailpiece data sheet #Bulletin-MB-TP for other sizes and connections.

Dimensions not for construction purposes unless certified by factory.

STANDARD COMPONENTS

	PT	Pressure/Temperature test port with brass body, dual durometer EPDM core, threaded 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)
	DV	Drain valve with forged brass body, chrome plated ball, Teflon seats, double EPDM O-ring stem seals, aluminum handle, 3/4" hose connection with cap and plastic retainer strap. Rated to 600 PSI (4140 kPa) WOG and 250°F (121°C)

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

STRAINERS

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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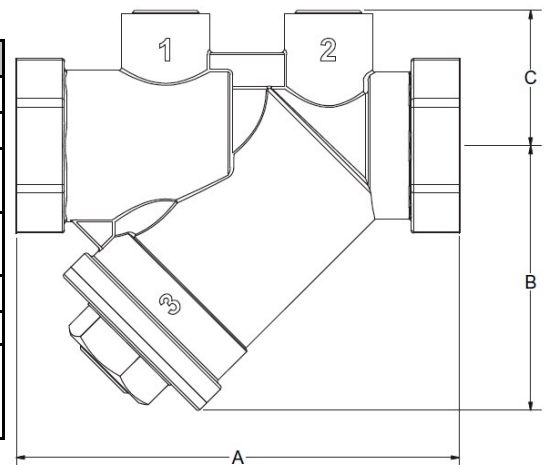


Model SL
0.50" to 2.00" - Low-Lead Strainer
Submittal Data

Model SL is a low-lead wye strainer with dual 0.25" plugged accessory ports and FNPT end connections. The 20 mesh stainless steel strainer is removable for cleaning and inspection.



SPECIFICATIONS	
Pressure Ratings:	400 PSI (2758 kPa)
Temperature Ratings:	250°F (121°C)
Body Material:	Naval Brass, C46500 Low-Lead (Maximum lead content of .25 % by weight)
End Connections:	FNPT, Inlet and Outlet <i>Optional Press End connection.</i>
Seals:	EPDM
Strainer:	20 Mesh Stainless Steel
Available Options:	"PL" Low-Lead Pressure/Temperature Port, "MAV" Manual Air Vent, "DV" Hose End Drain Valve and "PTE" Port Extensions



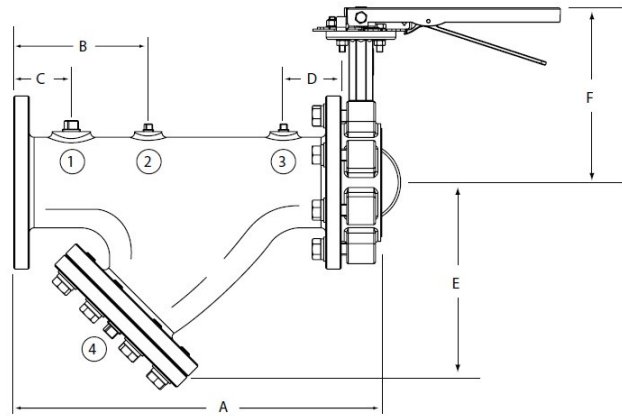
LOW LEAD
STRAINERS

NOMINAL DIMENSIONS & WEIGHTS								
MODEL	SIZE			A	B	C	WEIGHT	
	in	mm					lbs	kg
SL-050	0.50”	15	in	3.70	2.15	1.11	1.03	0.47
			mm	94.10	54.60	28.20		
SL-075	0.75”	20	in	3.84	2.15	1.11	1.05	0.48
			mm	97.50	54.60	28.20		
SL-100	1.00”	25	in	4.23	2.15	1.11	1.20	0.54
			mm	107.40	54.60	28.20		
SL-125	1.25”	32	in	5.31	3.00	1.36	2.70	1.22
			mm	135.00	76.35	34.60		
* <i>Dimensions not for construction purposes unless certified by factory.</i>								
Please reference data sheet #Bulletin-MB-Accessories for optional accessories.								

Model SVF is a combination strainer valve featuring a cast iron wye strainer with removable stainless steel strainer screen, bolted cover with blow down connection and ANSI 125# Flanged End Connections. Mounted on the inlet is a ductile iron lug type butterfly valve. Strainer body features three threaded accessory ports.



SPECIFICATIONS	
Pressure Ratings:	175 PSI (2775 kPa)
Temperature Ratings:	250°F (121°C)
Strainer Body Material:	Cast Iron ASTM A 126 Class B
Screen:	S/S Type 304, ASTM A 167
Screen Opening:	2" - 6" 0.045 perf. 8" - 12" 0.125 perf.
Cover Gasket:	Fiber
End Connections:	ANSI 125# Flanged drilling
Butterfly Valve:	Ductile ASTM A 536 64-45-12
Disc:	Aluminum Bronze ASTM B 148 C 95400
Seat:	EPDM
Bushing:	Teflon Fiberglass Backed
Seal:	EPDM
Stem:	Stainless Steel 416 ASTM A582
Available Options:	"PTV" combination PT & Air Vent and "DV" Drain Valve



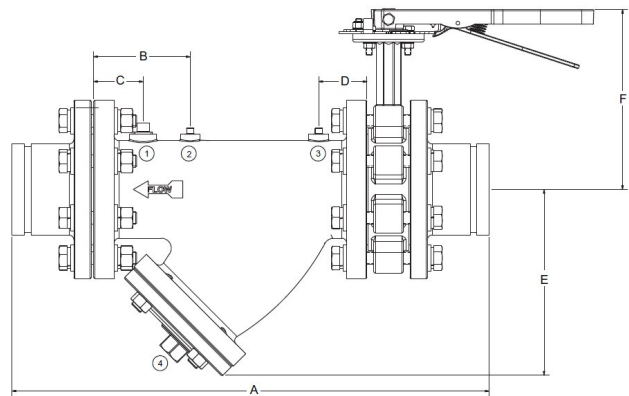
NOMINAL DIMENSIONS & WEIGHTS																
MODEL	SIZE		Cv*		A	B	C	D	E	F	1	2	3	4	WEIGHT	
	in	mm									NPT	NPT	NPT	NPT	lbs	kg
SVF-250	2.5"	65	97.0	in	12.93	5.00	3.00	3.00	7.60	8.15	0.75"	0.25"	0.25"	1.00"	49.0	22.23
				mm	328.42	127.00	76.20	76.20	193.00	207.00						
SVF-300	3.0"	75	170	in	14.00	6.00	3.00	3.00	8.30	8.39	0.75"	0.25"	0.25"	1.00"	58.0	26.31
				mm	355.59	152.40	76.20	76.20	210.80	213.00						
SVF-400	4.0"	100	232	in	16.32	7.00	3.00	3.00	10.10	9.13	0.75"	0.25"	0.25"	1.25"	91.0	41.28
				mm	414.52	177.80	76.20	76.20	256.50	232.00						
SVF-500	5.0"	125		in	20.25	9.00	3.50	3.50	11.90	9.65	0.75"	0.25"	0.25"	1.25"	145.0	65.77
				mm	514.35	228.60	88.90	88.90	302.30	245.00						
SVF-600	6.0"	150		in	22.69	10.00	4.00	4.00	17.40	10.16	0.75"	0.25"	0.25"	1.50"	179.0	81.19
				mm	576.33	254.00	101.60	101.60	442.00	258.00						
SVF-800	8.0"	200		in	26.39	12.00	4.00	4.00	17.40	13.50	0.75"	0.25"	0.25"	1.50"	328.0	148.78
				mm	670.31	304.80	101.60	101.60	441.96	343.00						
SVF-1000	10.0"	250		in	32.08	15.00	5.00	5.00	20.88	14.75	0.75"	0.25"	0.25"	2.00"	530.0	240.40
				mm	814.83	367.50	127.00	127.00	530.35	375.00						
SVF-1200	12.0"	300		in	36.78	17.00	5.00	5.00	23.31	16.50	0.75"	0.25"	0.25"	2.00"	714.0	323.87
				mm	934.21	431.80	127.00	127.00	592.00	419.00						
Dimensions not for construction purposes unless certified by factory.																
Please reference data sheet #Bulletin-MB-Accessories for optional accessories.																
*Cv values are for the body only without the screen inside.																

Model SG is a combination strainer valve featuring a cast iron wye strainer with removable stainless steel strainer screen, bolted cover with blow down connection and ANSI 125# Grooved End Connections. Mounted on the inlet is a ductile iron lug type butterfly valve. Strainer body features three threaded accessory ports.

(Model SVF With Groove x Flanged Adaptors)



SPECIFICATIONS	
Pressure Ratings:	175 PSI (2775 kPa)
Temperature Ratings:	250°F (121°C)
Strainer Body Material:	Cast Iron ASTM A 126 Class B
Screen:	S/S Type 304, ASTM A 167
Screen Opening:	2" - 6" 0.045 perf. 8" - 12" 0.125 perf.
Cover Gasket:	Fiber
End Connections:	ANSI 125# Grooved
Butterfly Valve:	Ductile ASTM A 536 64-45-12
Disc:	Aluminum Bronze ASTM B 148 C 95400
Seat:	EPDM
Bushing:	Teflon Fiberglass Backed
Seal:	EPDM
Stem:	Stainless Steel 416 ASTM A582
Available Options:	"PTV" combination PT & Air Vent and "DV" Drain Valve



STRAINERS

NOMINAL DIMENSIONS & WEIGHTS															
MODEL	SIZE			A	B	C	D	E	F	1	2	3	4	WEIGHT	
	in	mm								NPT	NPT	NPT	NPT	lbs	kg
SG-250	2.5"	65	in	18.96	5.00	3.00	3.00	7.60	8.15	0.75"	0.25"	0.25"	1.00"	65.6	29.8
			mm	481.58	127.00	76.20	76.20	193.00	207.00	0.75"	0.25"	0.25"	1.00"	65.6	29.8
SG-300	3.0"	75	in	19.73	6.00	3.00	3.00	8.30	8.39	0.75"	0.25"	0.25"	1.00"	78.0	35.4
			mm	501.14	152.40	76.20	76.20	210.80	213.00	0.75"	0.25"	0.25"	1.00"	78.0	35.4
SG-400	4.0"	100	in	22.09	7.00	3.00	3.00	10.10	9.13	0.75"	0.25"	0.25"	1.25"	118.6	57.8
			mm	561.08	177.80	76.20	76.20	256.50	232.00	0.75"	0.25"	0.25"	1.25"	118.6	57.8
SG-500	5.0"	125	in	28.38	9.00	3.50	3.50	11.90	9.65	0.75"	0.25"	0.25"	1.25"	179.2	81.3
			mm	720.85	228.60	88.90	88.90	302.30	245.00	0.75"	0.25"	0.25"	1.25"	179.2	81.3
SG-600	6.0"	150	in	30.82	10.00	4.00	4.00	17.40	10.16	0.75"	0.25"	0.25"	1.50"	221.2	100.3
			mm	782.83	254.00	101.60	101.60	442.00	258.00	0.75"	0.25"	0.25"	1.50"	221.2	100.3
SG-800	8.0"	200	in	36.52	12.00	4.00	4.00	17.40	13.50	0.75"	0.25"	0.25"	1.50"	408.2	185.2
			mm	927.61	304.80	101.60	101.60	441.96	343.00	0.75"	0.25"	0.25"	1.50"	408.2	185.2
SG-1000	10.0"	250	in	42.21	15.00	5.00	5.00	20.88	14.75	0.75"	0.25"	0.25"	2.00"	639.6	290.1
			mm	1072.14	367.50	127.00	127.00	530.35	375.00	0.75"	0.25"	0.25"	2.00"	639.6	290.1
SG-1200	12.0"	300	in	48.91	17.00	5.00	5.00	23.31	16.50	0.75"	0.25"	0.25"	2.00"	884.6	401.3
			mm	1242.32	431.80	127.00	127.00	592.00	419.00	0.75"	0.25"	0.25"	2.00"	884.6	401.3

Dimensions not for construction purposes unless certified by factory.

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

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

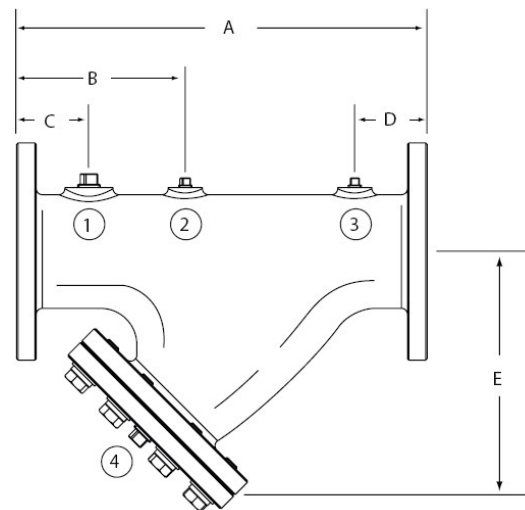
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Model SF is strainer valve featuring a cast iron wye strainer with removable stainless steel strainer screen, bolted cover with blow down connection and ANSI 125# Flanged End Connections. Strainer body features three threaded accessory ports.



SPECIFICATIONS	
Pressure Ratings:	175 PSI (2775 kPa)
Temperature Ratings:	250°F (121°C)
Strainer Body Material:	Cast Iron ASTM A 126 Class B
Screen:	S/S Type 304, ASTM A 167
Screen Opening:	2" - 6" 0.045 perf. 8" - 12" 0.125 perf.
Cover Gasket:	Fiber
End Connections:	ANSI 125# Flanged drilling
Available Options:	"PTV" combination PT & Air Vent and "DV" Drain Valve



NOMINAL DIMENSIONS & WEIGHTS														
MODEL	SIZE			A	B	C	D	E	1	2	3	4	WEIGHT	
	in	mm											lbs	kg
SF-250	2.5"	65	in	11.25	5.00	3.00	3.00	7.60	0.75"	0.25"	0.25"	1.00"	36.0	16.33
			mm	285.75	127.00	76.20	76.20	193.00						
SF-300	3.0"	75	in	12.50	6.00	3.00	3.00	8.30	0.75"	0.25"	0.25"	1.00"	44.0	19.95
			mm	317.50	152.40	76.20	76.20	210.80						
SF-400	4.0"	100	in	14.87	7.00	3.00	3.00	10.10	0.75"	0.25"	0.25"	1.25"	68.0	30.84
			mm	377.79	177.80	76.20	76.20	256.50						
SF-500	5.0"	125	in	17.94	9.00	3.50	3.50	11.90	0.75"	0.25"	0.25"	1.25"	117.0	53.07
			mm	455.60	228.60	88.90	88.90	302.30						
SF-600	6.0"	150	in	20.37	10.00	4.00	4.00	17.40	0.75"	0.25"	0.25"	1.50"	147.0	66.68
			mm	517.50	254.00	101.60	101.60	442.00						
SF-800	8.0"	200	in	24.00	12.00	4.00	4.00	17.40	0.75"	0.25"	0.25"	1.50"	246.0	111.58
			mm	609.60	304.80	101.60	101.60	441.96						
SF-1000	10.0"	250	in	29.50	15.00	5.00	5.00	20.88	0.75"	0.25"	0.25"	2.00"	425.0	192.78
			mm	749.30	367.50	127.00	127.00	530.35						
SF-1200	12.0"	300	in	33.75	17.00	5.00	5.00	23.31	0.75"	0.25"	0.25"	2.00"	568.0	257.64
			mm	857.25	431.80	127.00	127.00	592.00						

Dimensions not for construction purposes unless certified by factory.

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

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

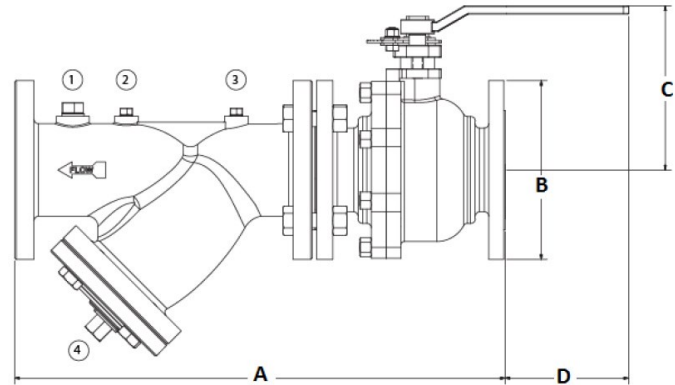
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Model SP is a combination strainer valve with a "Y" (weye) strainer with removable stainless steel strainer screen, bolted cover with blow down connection and ANSI 125# Flanged End Connections. Mounted on the inlet is a cast steel Ball Valve with adjustable flow positioning plate. Strainer body features three threaded accessory ports.



SPECIFICATIONS	
Pressure Ratings:	175 PSI (2775 kPa)
Temperature Ratings:	250°F (121°C)
Strainer Body Material:	2.5" - 4.0" - Ductile Iron 5.0" - 6.0" - Cast Iron ASTM A 126 Class B
Screen:	S/S Type 304, ASTM A 167
Screen Opening:	2.5" - 4.0" - 0.045 perf. 5.0" - 6.0" - 0.125 perf.
Cover Gasket:	2.5" - 4.0" - O-ring 5.0" - 6.0" - Fiber
End Connections:	ANSI 125# Flanged
Butterfly Valve:	Ductile Iron ASTM A 536 65-45-12
Ball Valve Body:	Cast Steel
Ball:	304 Stainless Steel
Stem:	304 Stainless Steel
Seat:	Teflon
End Connections:	ANSI 150# Flanged
Bushing:	Teflon Fiberglass Backed
Seal:	EPDM
Available Options:	"PTV" combination PT & Air Vent and "DV" Drain Valve



STRAINERS

NOMINAL DIMENSIONS & WEIGHTS													
MODEL	SIZE			A	B	C	D	1	2	3	4	WEIGHT	
	in	mm						NPT	NPT	NPT	NPT	lbs	kg
SVF-250	2.5"	65	in	18.70	7.00	6.10	6.50	0.75"	0.25"	0.25"	1.00"	61.6	20.00
			mm	475	180	155	165						
SVF-300	3.0"	75	in	20.48	7.50	7.40	6.00	0.75"	0.25"	0.25"	1.00"	69.4	31.50
			mm	520	190	188	153						
SVF-400	4.0"	100	in	24.00	9.00	8.10	7.80	0.75"	0.25"	0.25"	1.25"	133.2	60.40
			mm	610	230	206	198						
SVF-500	5.0"	125	in	32.08	10.00	10.00	17.00	0.75"	0.25"	0.25"	1.25"	194.0	88.00
			mm	815	254	254	432						
SVF-600	6.0"	150	in	36.00	11.00	11.00	17.50	0.75"	0.25"	0.25"	1.50"	268.0	121.60
			mm	915	279	279	445						
Dimensions not for construction purposes unless certified by factory.													
Please reference data sheet #Bulletin-MB-Accessories for optional accessories.													

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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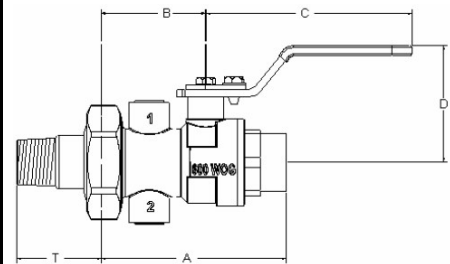


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Model BB Union End Ball Valve is offers shutoff and throttling. The position indicating Memory Stop provides quick and easy flow setting with a single screw adjustment. The ball valve has a chrome plated ball, Teflon seats, a blow-out proof stem with double EPDM O-ring seals and dual plugged accessory ports. The union has an EPDM O-ring seal and tailpiece available in MNPT, FNPT, SWT, Press End & Direct Connect HA connections.



SPECIFICATIONS	
Pressure Ratings:	600 PSI (4140 kPa)
Temperature Ratings:	250°F (120°C)
Body Material:	Forged Brass
End Connections:	Fixed End: DZR Brass - SWT & FNPT Brass - Press End Union End: Brass - SWT, FNPT, MNPT, Optional Press End & Direct Connect HA
Seals:	EPDM
Ball:	Chrome Plated Brass, 100% positive shut-off. Optional 316 Stainless Steel.
Stem:	Brass. Optional 316 Stainless Steel.
Handle:	Full size Zinc Plated lever with Vinyl Grip
Memory Stop:	Zinc Plated Steel with position indicator
Available Options:	"PTV" combination PT & Air Vent, hose end "DV" Drain Valve & Port Extensions



NOMINAL DIMENSIONS & WEIGHTS											
MODEL	SIZE		A		B	C	D	**T MPT	Cv*	WEIGHT	
			FNPT	SWT						lbs	kg
BB1E-050	in	0.50"	3.72	4.08	2.03	3.66	1.61	1.50	6.0	1.15	0.52
	mm	15	94.5	103.6	51.6	93.0	40.9	38.10			
BB1E-075	in	0.75"	3.84	4.37	2.03	3.66	1.61	1.50	6.0	1.19	0.54
	mm	20	97.5	111.0	51.6	93.0	40.9	38.10			
BB2E-075	in	0.75"	3.92	4.49	2.03	3.66	2.08	1.56	9.0	1.22	0.55
	mm	20	99.6	114.0	51.6	93.0	52.8	39.70			
BB2E-100	in	1.00"	4.13	4.53	2.03	3.66	2.08	1.75	9.0	1.70	0.77
	mm	25	105.0	115.1	51.6	93.0	52.8	44.5			
BB3-125	in	1.25"	5.42	6.41	2.37	5.03	2.26	1.80	52.0	3.97	1.80
	mm	32	137.7	162.8	60.3	127.8	57.4	45.72			
BB3-150	in	1.50"	5.42	6.67	2.52	5.65	2.26	1.80	52.0	4.12	1.87
	mm	40	137.7	169.3	64.0	143.6	57.4	45.72			
BB4-200	in	2.00"	5.03	5.82	2.90	5.66	2.83	1.98	96.0	5.68	2.58
	mm	50	127.8	148.8	73.7	143.8	71.9	50.29			

* Cv values are for the body only.

** Please reference the tailpiece data sheet #Bulletin-MB-TP for other sizes and connections.

Dimensions not for construction purposes unless certified by factory.

STANDARD COMPONENTS		
	MS	Memory stop with position indicator, zinc coated steel.
Please reference data sheet #Bulletin-MB-Accessories for optional accessories.		

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

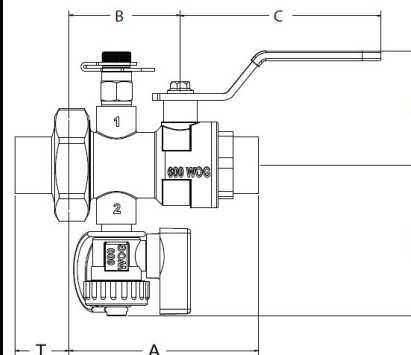
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**SHUT OFF
VALVES**

Model SB Union End Ball Valve offers positive shut-off, pressure/temperature measurement and drain. The ball valve has a chrome plated ball with Teflon seats, blowout proof stem with double EPDM O-ring seals. The union has an EPDM O-ring seal and tailpiece available in MNPT, FNPT, SWT, Press End & Direct Connect HA connections. Standard features include Pressure/Temperature Port and Hose End Drain Valve.



SPECIFICATIONS	
Pressure Ratings:	600 PSI (4140 kPa)
Temperature Ratings:	250°F (120°C)
Body Material:	Forged Brass
End Connections:	Fixed End: DZR Brass - SWT & FNPT Brass - Press End Union End: Brass - SWT, FNPT, MNPT, Optional Press End & Direct Connect HA
Seals:	EPDM
Ball:	Chrome Plated Brass, 100% positive shut-off. Optional 316 Stainless Steel.
Stem:	Brass. Optional 316 Stainless Steel.
Handle:	Full size Zinc Plated lever with Vinyl Grip
Available Options:	"PTV" combination PT & Air Vent

NOMINAL DIMENSIONS & WEIGHTS

MODEL	SIZE		A		B	C	D	E	*T MPT	WEIGHT	
			FNPT	SWT						lbs	kg
SB1E-050	in	0.50"	3.72	4.08	2.03	3.66	1.61	2.53	1.50	1.51	0.68
	mm	15	94.5	103.6	51.6	93.0	40.9	64.3	38.1		
SB1E-075	in	0.75"	3.84	4.37	2.03	3.66	1.61	2.53	1.50	1.55	0.70
	mm	20	97.5	111.0	51.6	93.0	40.9	64.3	38.1		
SB2E-075	in	0.75"	3.92	4.49	2.03	3.66	2.08	2.74	1.56	1.58	0.72
	mm	20	99.6	114.0	51.6	93.0	52.8	69.6	39.7		
SBBE-100	in	1.00"	4.13	4.53	2.03	3.66	2.08	2.74	1.75	2.06	0.93
	mm	25	105.0	115.1	51.6	93.0	52.8	69.6	44.5		
SB3-125	in	1.25"	5.42	6.41	2.37	5.03	2.26	3.12	1.80	4.33	1.96
	mm	32	137.7	162.8	60.3	127.8	57.4	79.3	45.7		
SB3-150	in	1.50"	5.42	6.67	2.52	5.65	2.26	3.12	1.80	4.48	2.03
	mm	40	137.7	169.3	64.0	143.6	57.4	79.3	45.7		
SB4-200	in	2.00"	5.03	5.82	2.90	5.66	2.83	3.51	1.98	6.04	2.74
	mm	50	127.8	148.8	73.7	143.8	71.9	89.2	50.2		

* Please reference the tailpiece data sheet #Bulletin-MB-TP for other sizes and connections.

Dimensions not for construction purposes unless certified by factory.

STANDARD COMPONENTS

	PT	Pressure/Temperature test port with brass body, dual durometer EPDM core, threaded 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)
	DV	Drain valve with forged brass body, chrome plated ball, Teflon seats, double EPDM O-ring stem seals, aluminum handle, 3/4" hose connection with cap and plastic retainer strap. Rated to 600 PSI (4140 kPa) WOG and 250°F (120°C)

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

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

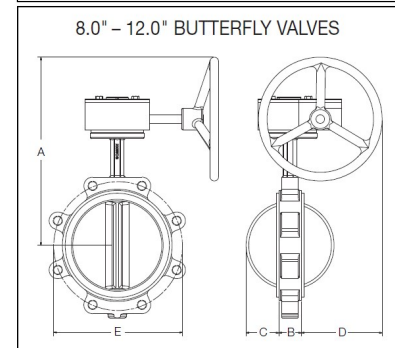
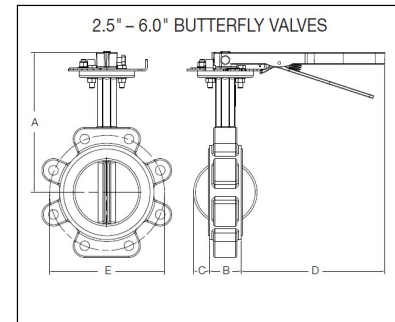
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SHUT OFF
VALVES

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 (13.80 BAR)
Temperature Ratings:	250°F (121°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"	17.44	2.52	2.72	7.97	11.75	50.7	23.00
	mm	200	443	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		

**SHUT OFF
VALVES**

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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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

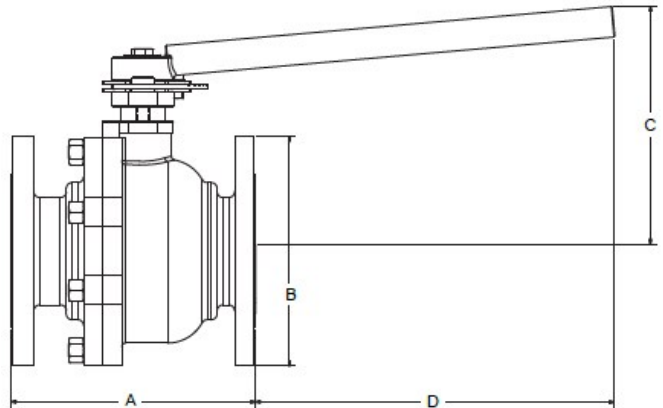
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VALVES**

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Tunstall Corporation
118 Exchange Street · Chicopee, MA 01013
Phone (413) 594-8695 · Fax (413) 598-8109
Section: *Components* Bulletin-MB-BVF-0915.02

Model BP is a cast steel ball valve with ANSI 150# flange end connections. Standard features include stainless steel ball, stem PTFE seats and seals, adjustable flow position memory stop and hanging I.D. tag.



SPECIFICATIONS

Pressure Ratings:	240 PSI (1655 kPa)
Temperature Ratings:	250°F (121°C)
Body Material:	Cast Steel
Ball:	304 Stainless Steel
Stem:	304 Stainless Steel
Seat:	PTFE
End Connections:	ANSI 150# Flanged

NOMINAL DIMENSIONS & WEIGHTS

MODEL	SIZE			A	B	C	D	WEIGHT	
	In	mm						lbs	kg
BP-250	2.5"	65	in	7.48	7.00	6.10	6.50	29.5	13.4
			mm	190	180	155	165		
BP-300	3.0"	80	in	8.00	7.50	7.40	6.00	29.9	13.4
			mm	203	190	188	153		
BP-400	4.0"	100	in	9.00	9.00	8.10	7.80	63.5	28.8
			mm	229	229	206	198		
BP-500	5.0"	125	in	14.01	10.00	10.00	18.00	101	45.8
			mm	356	254	254	457		
BP-600	6.0"	150	in	15.51	11.00	11.00	17.50	142	64.4
			mm	394	280	280	445		

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

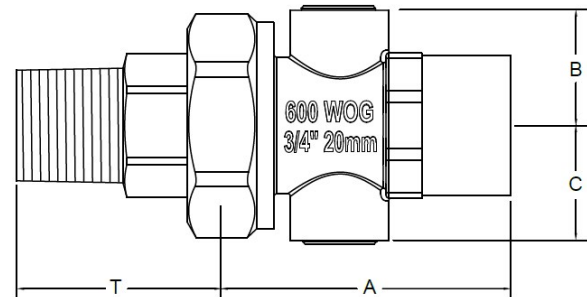
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**SHUT OFF
VALVES**

Model BB Union offers numerous End Connections with two 1/4" plugged accessory ports. The union has an EPDM O-ring seal and Fixed End Connections available in FNPT, SWT and Press End. Tailpiece connections are available in MNPT, FNPT, SWT and Press End.



SPECIFICATIONS	
Pressure Ratings:	600 PSI (4140 kPa)
Temperature Ratings:	250°F (121°C)
Body Material:	Forged Brass
End Connections:	Brass - Fixed End: SWT, FNPT & Press End Union End: SWT, FNPT, MNPT & Press End
Seals:	EPDM
Available Options:	Hose End "DV" Drain Valve

NOMINAL DIMENSIONS & WEIGHTS											
MODEL	SIZE			A			B	C	*T MNPT	WEIGHT	
	in	mm		FNPT	MNPT	SWT				lbs	kg
UB1-038	0.375"	10	in	N/A	N/A	1.86	0.84	0.84	N/A	0.56	0.25
			mm	N/A	N/A	47.29	21.34	21.34	N/A		
UB1-050	0.50"	15	in	1.90	2.25	1.88	0.84	0.84	1.50	0.59	0.27
			mm	48.26	57.23	47.75	21.34	21.34	38.10		
UB1-075	0.75" R SWT	20 SWT	in	1.98	2.19	2.12	0.84	0.84	1.55	0.59	0.27
			mm	50.29	55.65	53.85	21.34	21.34	39.37		
UB1-075	0.75" FNPT	20 FNPT	in	1.98	N/A	2.12	1.08	1.08	1.56	0.82	0.37
			mm	50.29	N/A	53.82	27.43	27.43	39.62		
UB2-100	1.00"	25	in	2.15	N/A	2.28	1.08	1.08	1.75	0.90	0.41
			mm	54.61	N/A	57.91	27.43	27.43	44.45		
UB3-125	1.25"	32	in	2.39	N/A	2.56	1.46	1.46	1.80	1.82	0.83
			mm	60.71	N/A	65.02	37.08	37.08	45.72		
UB3-150	1.50"	40	in	2.39	N/A	2.69	1.46	1.46	1.80	1.91	0.87
			mm	60.71	N/A	68.32	37.08	37.08	45.72		
UB4-200	2.00"	50	in	2.49	N/A	3.03	1.76	1.76	1.98	2.79	1.27
			mm	63.25	N/A	76.96	44.70	44.70	50.29		

* Please reference the tailpiece data sheet #Bulletin-MB-TP for other sizes and connections.

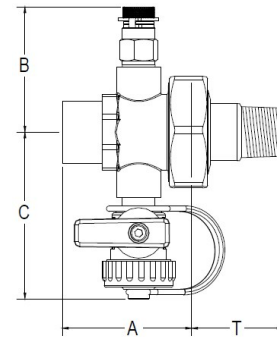
Dimensions not for construction purposes unless certified by factory.

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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Model US Union offers numerous end connections pressure/temperature measurement and drain. The union has an EPDM O-ring seal and tailpiece available in MNPT, FNPT, SWT and Press End connections. Standard features include Pressure/Temperature Port and Hose End Drain Valve.



SPECIFICATIONS	
Pressure Ratings:	600 PSI (4140 kPa)
Temperature Ratings:	250°F (121°C)
Body Material:	Forged Brass
End Connections:	Brass - Fixed End: SWT, FNPT & Press End Union End: SWT, FNPT, MNPT & Press End
Seals:	EPDM
Available Options:	"PTV" combination PT & Air Vent and Port Extensions

NOMINAL DIMENSIONS & WEIGHTS											
MODEL	SIZE			A			B	C	*T MNPT	WEIGHT	
	in	mm		FNPT	MNPT	SWT				lbs	kg
US-038	0.375"	10	in	N/A	N/A	1.86	2.52	1.83	0.75	0.94	0.43
			mm	N/A	N/A	47.29	64.00	46.48	19.05		
US-050	0.50"	15	in	1.90	2.25	1.88	2.52	1.83	1.50	1.04	0.49
			mm	48.26	57.23	47.75	64.00	46.48	38.10		
US-075	0.75" R	20R	in	1.98	2.19	2.12	2.75	2.07	1.55	0.97	0.44
			mm	50.29	55.65	53.85	69.85	52.56	39.37		
US-100	1.00"	25	in	2.15	N/A	2.28	2.75	2.07	1.75	1.39	0.69
			mm	54.61	N/A	57.91	69.85	52.56	44.45		
US-125	1.25"	32	in	2.39	N/A	2.56	3.11	2.45	1.80	2.48	1.18
			mm	60.71	N/A	65.02	78.99	62.23	45.72		
US-150	1.50"	40	in	2.39	N/A	2.69	3.11	2.48	1.80	2.79	1.33
			mm	60.71	N/A	68.32	78.99	60.96	45.72		
US-200	2.00"	50	in	2.49	N/A	3.03	3.43	2.75	1.98	3.77	1.82
			mm	63.25	N/A	76.96	87.12	69.85	50.29		

* Please reference the tailpiece data sheet #Bulletin-MB-TP for other sizes and connections.

Dimensions not for construction purposes unless certified by factory.

STANDARD COMPONENTS

	PT	Pressure/Temperature test port with brass body, dual durometer EPDM core, threaded 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)
	DV	Drain valve with forged brass body, chrome plated ball, Teflon seats, double EPDM O-ring stem seals, aluminum handle, 3/4" hose connection with cap and plastic retainer strap. Rated to 600 PSI (4140 kPa) WOG and 250°F (121°C)

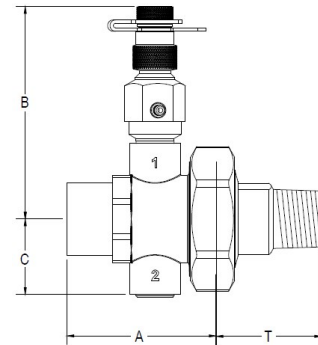
Please reference data sheet #Bulletin-MB-Accessories for optional accessories.

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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Model URP Union offers numerous End Connections pressure/temperature measurement and vent. The union has an EPDM O-ring seal and tailpiece available in MNPT, FNPT, SWT and Press End connections. Standard features include "PTV" Combination PT and Air Vent.



SPECIFICATIONS	
Pressure Ratings:	600 PSI (4140 kPa)
Temperature Ratings:	250°F (121°C)
Body Material:	Forged Brass
End Connections:	Brass - Fixed End: SWT, FNPT & Press End Union End: SWT, FNPT, MNPT & Press End
Seals:	EPDM
Available Options:	"DV" Drain Valve

NOMINAL DIMENSIONS & WEIGHTS											
MODEL	SIZE			A			B	C	*T MNPT	WEIGHT	
	in	mm		FNPT	MNPT	SWT				lbs	kg
URP-038	0.375"	10	in	N/A	N/A	1.88	2.78	0.84	N/A	0.76	0.35
			mm	N/A	N/A	47.68	70.61	21.34	N/A		
URP-050	0.50"	15	in	1.90	2.25	1.88	2.78	0.84	1.50	0.86	0.39
			mm	48.26	57.23	47.75	70.25	21.34	38.10		
URP-075	0.75" R	20	in	1.98	2.19	2.12	2.78	0.84	1.55	0.79	0.36
			mm	50.29	55.65	53.85	70.61	21.34	39.37		
URP-100	1.00"	25	in	2.15	N/A	2.28	3.02	1.08	1.75	1.16	0.53
			mm	54.61	N/A	57.91	76.65	27.43	44.72		
URP-125	1.25"	32	in	2.39	N/A	2.56	3.39	1.46	1.80	2.20	1.00
			mm	60.71	N/A	65.02	86.18	37.08	45.72		
URP-150	1.50"	40	in	2.39	N/A	2.69	3.39	1.46	1.80	2.42	1.10
			mm	60.71	N/A	68.32	86.18	37.08	45.72		
URP-200	2.00"	50	in	2.49	N/A	3.03	3.70	1.76	1.98	3.42	1.55
			mm	63.25	N/A	76.96	94.08	44.70	50.17		

* Please reference the tailpiece data sheet #Bulletin-MB-TP for other sizes and connections.

Dimensions not for construction purposes unless certified by factory.

STANDARD COMPONENTS

	PTV	Combination manual air vent and pressure/temperature test port with brass body, dual durometer EPDM core, blowout-proof stem, side discharge vent with 1/8" (4mm) hose barb, threaded brass cap with O-ring seal and neoprene retainer strap. Accepts standard 1/8" (4mm) gauge adapter or thermometer stem. Rated to 250 PSI (1725 kPa) and 250°F (121°C)
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Please reference data sheet #Bulletin-MB-Accessories for optional accessories.

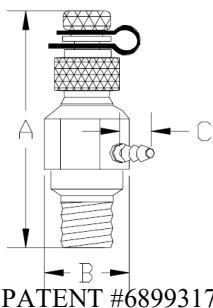
Optional features and accessories available for this Macon product are an extra charge, and not included in the standard model price.

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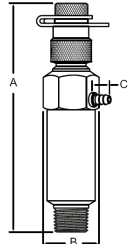


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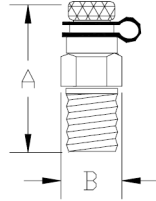
PTV - PRESSURE / TEMPERATURE VENT

 PATENT #6899317	Combination manual air vent and pressure/temperature test port with brass body, dual durometer EPDM core, blowout-proof stem, side discharge vent with 1/8" (4mm) hose barb, threaded brass cap with O-ring seal and neoprene retainer strap. Accepts standard 1/8" (4mm) gauge adapter or thermometer stem. Rated to 250 PSI (1725 kPa) and 250°F (120°C).								
	MODEL	NPT CONN		A	B	C	WRENCH SIZE	WEIGHT	
								lbs	kg
	PTV-025	1/4"	in	1.50	0.84	0.32	3/4"	0.154	0.07
			mm	40	21	9			
PTV-050	1/2"	in	1.50	0.98	0.32	3/4"	0.225	0.10	
		mm	0.98	25	9				

EPTV - EXTENDED PRESSURE / TEMPERATURE VENT

	Extended combination manual air vent and pressure/temperature test port with brass body, dual durometer EPDM core, blowout-proof stem, side discharge vent with 1/8" (4mm) hose barb, threaded brass cap with O-ring seal and neoprene retainer strap. Accepts standard 1/8" (4mm) gauge adapter or thermometer stem. Rated to 250 PSI (1725 kPa) and 250°F (120°C).								
	MODEL	NPT CONN		A	B	C	WRENCH SIZE	WEIGHT	
								lbs	kg
	EPTV-025	1/4"	in	3.60	0.87	0.31	3/4"	0.28	0.12
mm			91	21	8				

PT - PRESSURE / TEMPERATURE PORT

	Pressure/Temperature test port with brass body, dual durometer EPDM core, 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).							
	MODEL	NPT CONN		A	B	WRENCH SIZE	WEIGHT	
	PT-025	1/4"	in	1.36	0.65	9/16"	0.06	0.03
			mm	34	16			
	PT-050	1/2"	in	1.36	1.01	7/8"	0.18	0.08
			mm	34	25			

PTE - PTV / PT EXTENDER

Single and Dual Extender for PTV and PT models, used on insulated piping systems or where extended length is desired. The PTE is installed above the PTV or PT core with an O-ring seal. The PTE can be installed in the field without removing the PTV or PT from the piping system. Brass body with EPDM O-ring seal. Rated to 500 PSI (3450 kPa) and 250 ° F (120 ° C).

MODEL		A	B	WEIGHT	
				lbs	kg
PTE-025 One	in	1.59	0.54	0.90	0.04
	mm	41	14		
PTE-025 Two	in	1.59	0.54	0.90	0.04
	mm	41	14		

EH - EXTENDED HANDLE



EH - Handle Extension, forged brass stem & collar, for extending existing handle 2".

Fits Body Size / Model Series

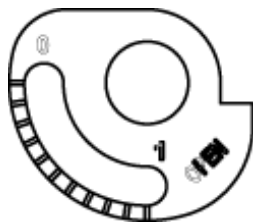
EH-1	EH-2		EH-3
All 1e / 1a / 1b	AB3-100	SV3-100	All 4
All 2e / 2a / 2b	AB3-125	SV3-150	MB3-150
	AB3-150	SV3-200	BB3-150
	BB3-125	MB3-125	SB3-150
		SB3-125	

SH - SHORT LEVER HANDLE



Short lever valve handle, zinc plated steel.

MS - MEMORY STOP



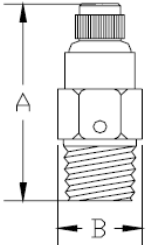
Memory stop, Zinc plated steel with position indicator and position lock screw.
For use with valve handles.

SSBS - STAINLESS STEEL BALL & STEM

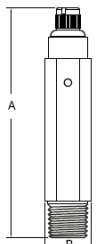


316 Stainless Steel Ball & Stem.
Available in 1/2" - 2"

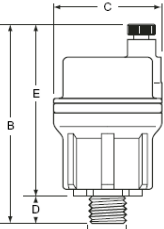
MAV - MANUAL AIR VENT

	Manual air vent with brass body, knurled operator with screwdriver slot, blowout-proof stem, and side discharge vent. Rated to 400 PSI (2760 kPa) and 250°F (120°C).							
	MODEL	NPT CONN		A	B	WRENCH SIZE	WEIGHT	
							lbs	kg
	MAV-025	1/4"	in	1.75	0.625	9/16"	0.80	0.36
			mm	44	16			

EMAV - EXTENDED MANUAL AIR VENT

	Extended manual air vent with brass body, knurled operator with screwdriver slot, blowout-proof stem, and side discharge vent. Rated to 400 PSI (2760 kPa) and 250°F (120°C).							
	MODEL	NPT CONN		A	B	WRENCH SIZE	WEIGHT	
							lbs	kg
	MAV-025	1/4"	in	1.75	0.62	9/16"	0.80	0.36
			mm	44	16			

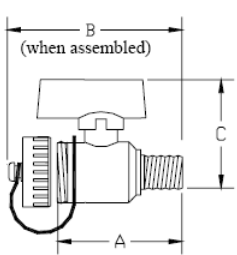
AAV - AUTOMATIC AIR VENT



Automatic air vent with brass body, plastic float, brass seat, and EPDM seal.
Rated to 150 PSI (1035 kPa) and 240°F (115°C).

MODEL	NPT CONN		A	B	C	D	E	WRENCH SIZE	WEIGHT	
									lbs	kg
AAV-025	1/4"	in	0.25	3.62	1.56	0.50	2.62	7/8"	0.31	0.14
		mm	6.35	92	40	13	66	22		

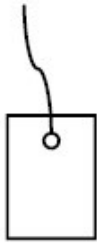
DV - DRAIN VALVE

	Drain valve with forged brass body, chrome plated ball, Teflon seats, double EPDM O-ring stem seals, aluminum handle, 3/4" hose connection with cap and plastic retainer strap. Rated to 600 PSI (4140 kPa) WOG and 250°F (120°C).									
	MODEL	NPT CONN		A	B	C	WEIGHT			
							lbs		kg	
	DV-025	1/4"	in	1.72	2.04	1.37	0.30		0.13	
			mm	44	52	34				
	DV-050	1/2"	in	2.45	2.77	1.46	0.44		0.20	
			mm	61	70	37				

INSULATION - INSULATION

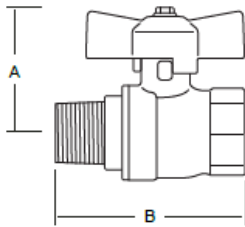
	Balancing Valve Insulation. STV/STVL Series Only									
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HT - HANGING TAG



Hanging Tag, plastic with chain for valve identification.

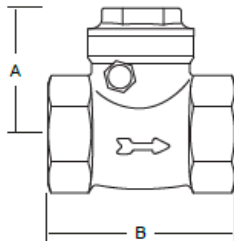
BALL VALVE



Low Lead Threaded Ball Valve, full port, C46500 low lead brass construction, conforms to NSF/ANSI 372, MNPT x FNPT connections, blow out proof stem, EPDM seals.
Rated to 600 PSI (4140 kPa) WOG and 250°F (120°C)

MODEL	NPT CONN		A	B	WEIGHT	
					lbs	kg
BV-050	1/2"	in	1.78	2.40	0.447	0.20
		mm	45.2	61		
BV-075	3/4"	in	1.99	2.76	0.680	0.31
		mm	50.5	70		
BV-100	1"	in	2.14	3.13	1.080	0.49
		mm	54.4	79.5		

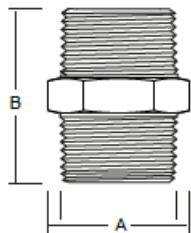
CHECK VALVE



Low Lead Check Valve, swing type, C46500 low lead brass construction, conforms to NSF/ANSI 372, FNPT x FNPT connections.
Rated to 290 PSI (2000 kPa) WOG and 250°F (120°C)

MODEL	NPT CONN		A	B	WEIGHT	
					lbs	kg
CV-050	1/2"	in	1.34	1.81	0.381	0.17
		mm	34	46		
CV-075	3/4"	in	1.48	2.21	0.538	0.24
		mm	37.5	56		
CV-100	1"	in	1.75	2.50	0.860	0.39
		mm	44.5	63.5		

NIPPLE



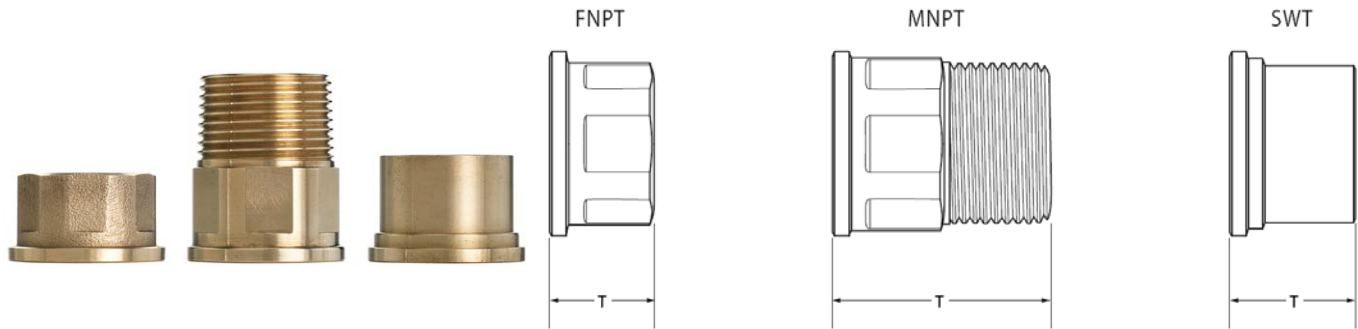
Low Lead Threaded Nipple, C46500 low lead brass construction, conforms to NSF/ANSI 372, MNPT x MNPT connections.
Rated to 600 PSI (4140 kPa) WOG and 250°F (120°C)

MODEL	NPT CONN		A	B	WEIGHT	
					lbs	kg
NP-050	1/2"	in	.87 / .98	1.44	0.117	0.05
		mm	22 / 24.9	36.5		
NP-075	3/4"	in	1.10 / 1.25	1.54	0.170	0.08
		mm	28 / 31.7	39		
NP-100	1"	in	1.38 / 1.47	1.77	0.265	0.12
		mm	35 / 37.2	45		

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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NOMINAL DIMENSIONS									
MODEL	FITS VALVE SIZE	CONN. SIZE		FNPT		MNPT		SWT	
				T		T		T	
		in	mm	in	mm	in	mm	in	mm
TP1-038(*)	1/2", 3/4"R, AB1e, BB1e, SV1e	3/8"	10	N/A	N/A	N/A	N/A	0.75	19.05
TP1-050(*)		1/2"	15	0.83	21.08	1.50	38.10	0.83	21.08
TP1-075(*)		3/4"	20	1.29	32.77	1.55	39.37	0.98	24.89
TP2-038(*)	3/4", 1"R, 1" AB2e, BB2e, SV2e	3/8"	10	N/A	N/A	N/A	N/A	0.75	19.05
TP2-050(*)		1/2"	15	0.83	21.08	1.50	38.10	0.87	22.10
TP2-075(*)		3/4"	20	0.83	21.08	1.56	39.62	0.98	24.89
TP2-100(*)		1"	25	1.40	35.56	1.75	44.45	1.00	23.37
TP3-050(*)	1"H, 1-1/4", 1-1/2", AB3, BB3, SV3	1/2"	15	N/A	N/A	2.13	54.10	N/A	N/A
TP3-075(*)		3/4"	20	0.79	20.07	1.80	45.72	1.28	32.51
TP3-100(*)		1"	25	0.98	24.89	1.80	45.72	1.41	35.81
TP3-125(*)		1-1/4"	32	1.00	25.40	1.80	45.72	1.43	36.32
TP3-150(*)		1-1/2"	40	1.75	44.45	1.80	45.72	1.17	29.72
TP4-100(*)	1-1/2"H, 2", AB4, BB4, SV4	1"	25	N/A	N/A	2.51	63.75	1.98	50.29
TP4-125(*)		1-1/4"	32	N/A	N/A	1.98	50.29	1.49	37.85
TP4-150(*)		1-1/2"	40	1.98	50.29	1.98	50.29	1.59	40.39
TP4-200(*)		2"	50	1.80	45.72	1.98	50.29	1.50	38.10

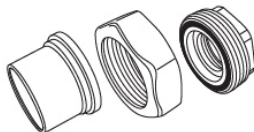
Components - Tailpiece

UA-1 - Union Adapter



Union Adapter UA-1

UA-1-Kit - Union Adapter Kit



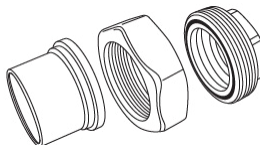
Union Adapter UA-1-Kit

UA-2 - Union Adapter



Union Adapter UA-2

UA-2-Kit - Union Adapter Kit



Union Adapter UA-2-Kit

These hoses have been specially designed for operating conditions in heating and air conditioning, the elastomer is not sensitive to Glycol or water treatment products.

Each hose is made up of several quality components and the special crimping on the ferrule under strict quality control gives this hose security against any leakage.

The special EPDM core meets a fully defined specification: Shore hardness, resistance to ageing, mechanical resistance (elasticity, tensile fracture, stretching), ability to accept chemical agents in contact with the elastomer and non-toxic. ASTM Fire rated hoses meet 25/50 flammability and smoke development classification requirements of codes and specifications when tested by ASTM E 84 method.

HOSES ARE DESIGNED FOR HYDRONIC HEATING/COOLING, NOT FOR GAS.



SPECIFICATIONS

Temperature Ratings:

External Braiding:

Crimping Ferrules:

Core:

End Connections:

Adaptor Connections:

Union Nut:

Tailpiece:

Gasket (1-1/4" & 2"):

All Sizes: 5°F to 230°F

Less than 41°F with use of

Glycol additive

304 Stainless Steel

304 Stainless Steel

EPDM

Brass - CW614N

• 1/2" - 1" MNPT x Male Cone x Hose Adaptor

(Gasket Less Connection)

• 1-1/4" - 2" MNPT x BA-U

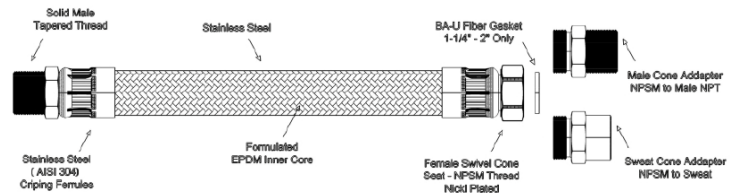
Gasket & Hose Adaptor

Male NPT, Copper SWT

Nickel Plated Brass - CW614N

Brass - CW614N

BA-U Fiber



Specs for Application and Installation

• ON INSTALLATION : Avoid absolutely any tension due to stretching, twisting or torsion during the course of tightening the connectors.

A. Install and tighten the fixed male connector (if applicable)

B. Install and tighten the union adaptor (if applicable)

C. Install and tighten the swivel nut

• Use two spanners in order to screw in the union: One to hold the hexagon of the adaptor. The other to tighten the nut at the same time.

IMPORTANT - Do not re-screw the fixed connector or adaptor after tightening of the swivel nut; this will cause torsion on the flexible hose, with a risk of rapid deterioration. On removal, take the same precautions. If the flexible incorporates two fixed connectors, at least one must be installed on a counter-part fitted with a screw connector.

***BEFORE INSTALLING REFER TO THE INSTALLATION & OPERATION INSTRUCTIONS FOR COMPLETE DETAILS. WARNING: FAILURE TO FOLLOW THE INSTALLATION & OPERATION INSTRUCTIONS COULD RESULT IN IMPROPER INSTALLATION.**

NOMINAL DIMENSIONS

SIZE	MODEL #					
	HCA	HCB	HCC	HCD	HCE	HCF
12" LENGTH	1/2"	3/4"	1"	N/A	N/A	N/A
18" LENGTH	1/2"	3/4"	1"	1-1/4"	1-1/2"	N/A
24" LENGTH	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
36" LENGTH	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
Cv *						
SIZE	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
12" LENGTH	3.3	11.0	20.9	N/A	N/A	N/A
18" LENGTH	3.2	10.7	20.3	37.9	64.4	N/A
24" LENGTH	3.1	9.9	19.5	36.9	61.0	110.7
36" LENGTH	3.0	9.3	18.2	34.7	55.0	100.8

* Note the Cv factor is the flow rate, in GPM, through the hose at 1 PSID.

Max. Operating & Burst Pressure Rating

Size	Operating (PSI)	Burst (PSI)
1/2"	375	1500
3/1"	300	1200
1"	225	900
1-1/4"	200	800
1-1/2"	175	600
2"	150	500

Typical Specifications:

Furnish and install where indicated on plans **Flexible Connectors** as provided by **Macon Balancing**. Hoses shall be temperature rated: 5°F to 230°F. Pressure rated from 375 PSI to 150 PSI based on hose diameter. Constructed specifically for operating conditions in heating and air conditioning with solid brass connectors, stainless steel ferrules, AISI 304 stainless steel braid, and formulated EPDM inner core design to not be sensitive to Glycol or water treatment products. Hoses shall meet 25/50 flammability and smoke development classification requirements of codes and specifications when tested by ASTM E 84 method.

JOB: _____
REP: _____

ENGINEER: _____
CONTRACTOR: _____

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

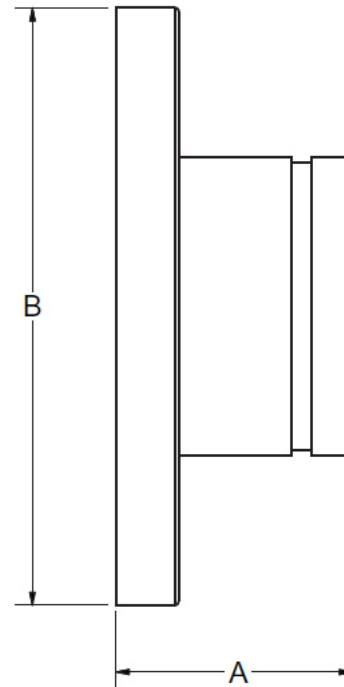
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Model GF is a fabricated Groove x Flanges adaptor. 150# Plate Flange with schedule 40 groove steel pipe section.

SPECIFICATIONS

Pressure Ratings: 200 psig (1380 kPa)
 Temperature Ratings: 250°F (120°C)
 Flange: Steel
 Pipe Section: Steel, Schedule 40
 End Connection: 150# Plate Flange X
 Schedule 40 steel pipe



NOMINAL DIMENSIONS & WEIGHTS							
MODEL	FLANGE PIPE SIZE	A		B		WEIGHT	
		in	mm	in	mm	lbs	kg
GF-250	2.50"	3.00"	76.2	7.00	177.8	8.3	3.76
GF-300	3.00"	3.00"	76.2	7.50	190.5	10.0	4.54
GF-400	4.00"	3.00"	76.2	9.00	228.6	13.8	6.26
GF-500	5.00"	4.00"	101.6	10.00	254.0	17.1	1.76
GF-600	6.00"	4.00"	101.6	11.00	279.4	21.1	9.57
GF-800	8.00"	6.00"	152.4	13.50	342.9	40.1	18.19
GF-1000	10.00"	6.00"	152.4	16.00	406.4	54.8	24.86
GF-1200	12.00"	6.00"	152.4	21.00	533.4	85.3	38.69

FEATURES

- Stainless steel wafer metering station
- For ANSI 125 or ANSI 150 flanges
- Designed according to BS7350
- Tolerance on nominal $K_{vs} \pm 5\%$
- Gost compliant
- Class 125

SPECIFICATIONS

Temperature Ratings:

-15°F to 265°F

Below 32°F only for water with
added anti-freezing fluids

Over 212°F only for water with
added anti-boiling fluids

Body:

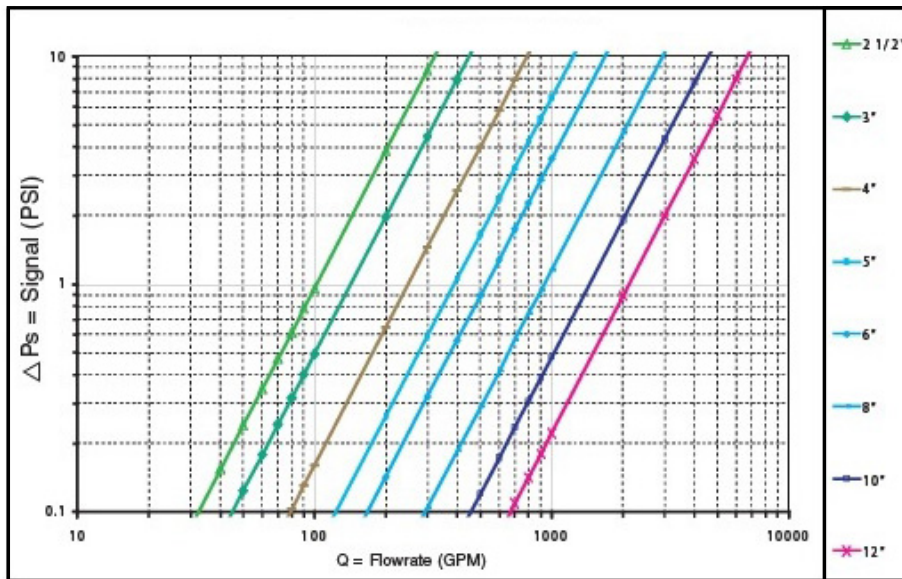
Stainless Steel, AISI 316

Extension:

Stainless Steel, AISI 3161

Test point:

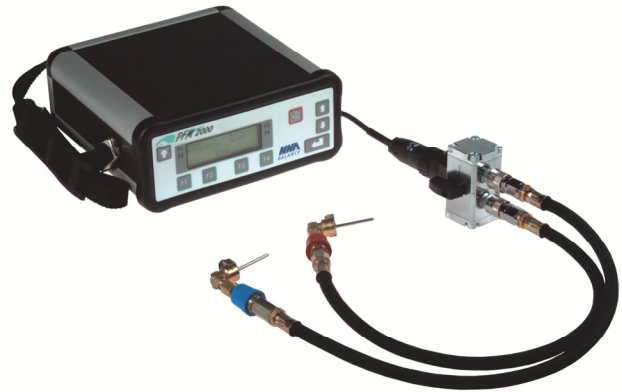
DZR Brass, ASTM C35330



Size	C _{vs}	C _v
2-1/2"	102.0	175.4
3"	142.2	261.6
4"	249.3	426.3
5"	389.5	654.2
6"	530.2	901.4
8"	929.4	1635.9
10"	1444.0	2497.2
12"	2122.6	3693.7

A precision instrument for the measuring and documentation of water flow in heating, cooling and drinking water systems.

PFM-2000 is a meter for pressure and flow measurements across, for example, balancing valves. Valve characteristics for a number of valves from different manufacturers are stored in the PFM-2000's memory. The valve database is updated continuously. Every instrument unit is delivered with a CD-ROM containing demo programs, valve data and manuals.



SPECIFICATIONS

Measuring Range

Pressure Difference: up to 150 kPa,
at total pressure <1000 kPa
Max 2000 kPa
Static Pressure: up to 1000 kPa

Accuracy

Pressure Difference: <10 kPa $\pm$ 0.1 kPa
>10 kPa $\pm$ 1% of
metered value
Flow: As for pressure + the
valve's deviation

Resolution

Pressure Difference: 0.01 kPa,
at total pressure <100 kPa
0.1 kPa,
at total pressure >100 kPa
Static Pressure: 10 kPa
Flow: 0.001 l/s

Environment

Temperature media: -10° C to 100° C
Temperature Storage: -20° C to 60° C
Humidity, not controlled: Max 90% RH

Power Supply

Capacity: 1500mAh
R6 Rechargeable NiMH batteries (6)

Included in Delivery

Meter x 1
Sensor x 1
Cable x 1
Hoses & Connectors x 2
Battery Charger x 1
Durable Case x 1
Allen Key, 3mm x 1
Allen Key, 5 mm x 1
Manual x 1
Program Disc x 1
Calibration Protocol x 1

SPECIFICATIONS

Maximum Pressure Ratings:	500 PSIG (34.7 bar)
Maximum Temperature Ratings:	150°F (66°C)
Gauge:	Aluminum Body, Stainless Steel internals Buna-N-Seals, 2-1/2" Dial Dial ranges - 0 to 50" H ₂ O through 0-100 PSID.
Tubing & Fittings:	Brass
Hoses:	Nitrile Jacket and "Schrader" 1/4" Brass Coupler. Connects with 1/4" 37° Flare Male Fittings.
Filters:	90 Micron Brass (For Replacement Filter Elements, Order Kit No. 98008).

**CAUTION: Severe damage may occur if this test kit is subject to freezing themperaure.
Drain the kit after use.**

For additional information about this test kit or other Macon Balancing products, please contact your local Macon representative or the factory direct.



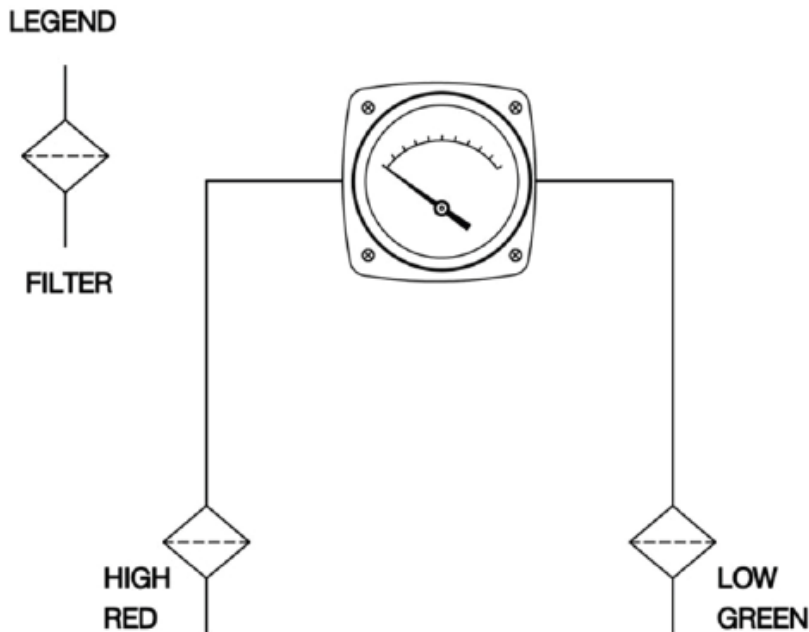
This test kit is equipped with a rugged differential pressure gauge with an accuracy of ± 3 -2-3% full scale (ascending) ideally suited for measuring the pressure drop across various types of equipment (i.e. filters, pumps, balancing valves, etc.).

Components - Model TT841 Test Kit

MODEL TT841 TEST KIT BASIC OPERATING INSTRUCTIONS

1. Connect hoses to test connections:
 - ⇒ red high pressure hose upstream
 - ⇒ green low pressure hose downstream.
2. Open valves on device being tested and read differential (or flow).
3. Upon completion of test close valves, disconnect hoses and store them in test kit case.

NOTE: The 841 Test Kit is equipped with in line filters near the ends of the hoses. If the gauges respond slowly to changes in the differential pressure, the filter elements may be partially plugged. To remedy this, unscrew the two halves of the filter housing and remove brass filter element. It may be cleaned by flushing with mild detergent and water. If, after reassembly, this has not satisfactorily improved the response time a replacement filter element kit #98008 should be installed.



NOTE: This test kit is plumbed for water service. Contact the factory before using on other liquids or gases.

AREAS OF USE

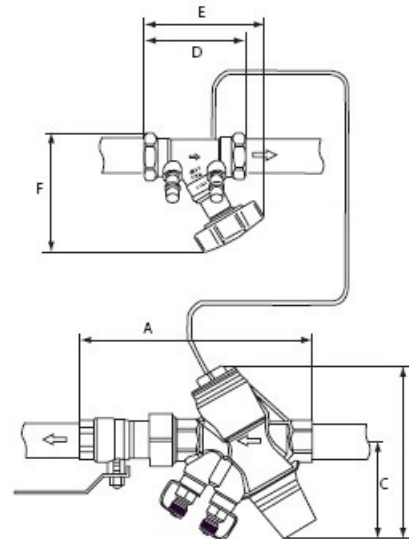
Macon Balancing PVM is used to distribute the flow within different areas in heating and cooling systems.

DESCRIPTION

PVM is a dynamic valve unit developed to regulate pressure drop. A fully open STV mounted on the intake, and a PV differential pressure valve on the return. The pressure-compensating mains control valve ensures problem-free setting of the various mains. The PVM valve is equipped with a signaling circuit, cut-off valve, drain valve and measurement socket as standard.

The PVM valve guarantees 100% differential pressure regulation under all conditions, regardless of whether changes are made in the system.

The valve regulates the system and removes noise problems due to high pressure drop. After setting the valve no further adjustment to the valves is necessary.



SPECIFICATIONS	
Pressure Ratings:	58 PSI
Temperature Ratings:	14°F to 248°F
Body Material:	Brass CW617N
End Connections:	Female, NPT
Gaskets:	EPDM
Handwheel:	Polyamide Plastic
Pressure class :	PN16

NOMINAL DIMENSIONS & WEIGHTS													Valve Selection Guide			
MODEL	SIZE			A	B	C	D	E	F	WEIGHT		Handwheel Turns	Preset Turns	GPM		Min. psi
	in	mm								lbs	kg			Min.	Max.	
PVM-050	0.50"	15	in	6.57	5.83	3.78	3.39	4.37	3.74	5.81	2.64	10	5	0.22	2.65	0.73-4.35 psi
			mm	166.88	148.08	96.01	86.11	111.00	95.00							
PVM-075	0.75"	20	in	6.81	5.94	3.86	3.54	4.49	3.74	4.40	1.99	10	5	0.44	4.44	
			mm	172.97	150.88	98.04	89.92	114.05	95.00							
PVM-100	1.00"	25	in	7.95	6.10	4.02	4.02	4.72	3.78	5.88	2.67	10	8	2.65	11.00	
			mm	201.93	154.94	102.11	102.11	119.89	96.01							
PVM-125	1.25"	32	in	9.25	7.40	4.52	4.72	5.00	3.78	10.02	4.54	10	2	3.08	18.50	
			mm	234.95	187.96	114.81	119.89	127.00	96.01							
PVM-150	1.50"	40	in	10.12	8.11	4.69	5.20	5.47	4.25	13.35	6.05	10	2	4.40	22.00	
			mm	257.05	205.99	119.13	132.08	138.94	107.95							
PVM-200	2.00"	50	in	11.26	6.22	4.96	6.06	5.83	4.37	18.99	8.61	10	2	22.00	66.00	
			mm	286.00	157.99	125.98	153.92	148.08	111.00							

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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Series PVM - 0.50" to 2.00"

SETTING THE VALVE

The valve is easy to set on the knob using a 4 mm Allen key. The setting is read off the pressure drop diagram for each dimension. When presetting the valve, start by screwing the setting to minimum. Then open the valve to the required value according to the diagram. The STV valve is used solely for shutting off and flow measurement, it must not be set in any position other than open.

Presetting

The PVM valve is preset according to the diagram. The curves (the oblique lines that indicate the pressure in the main line) are shown in intervals of 0.73 psi to make it simple to take a reading. The curves can be moved so that the valve setting can be produced if, for example, 1.74 psi is selected in a pipe instead.

Example: We decide to maintain 1.74 psi differential pressure in the main at a flow of 2.2 gpm (2.2 gpm comes from the presetting on the radiators).

From the point where 1.74 psi cuts the horizontal line flow 2.2 gpm) a vertical line is taken down to the x-axis. It is then easy to read off that the valve should be set at approx. 7 turns. The minimum pressure drop will then be 0.28 psi over the valve.

Total pressure drop:

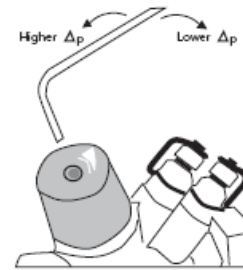
To dimension the pump it will be:

$$\Delta P_s + \Delta P_v = \Delta P$$

$$1.74 + 0.28 = 2.02 \text{ psi}$$

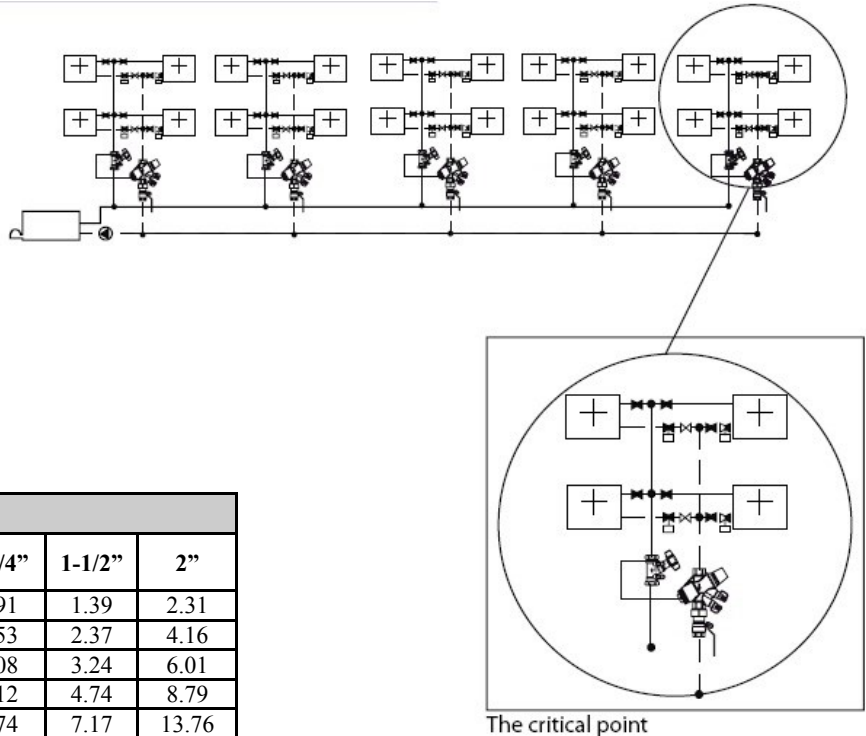
Also include the pipe pressure drop from the valve to the pump.

The pump can subsequently be adjusted optimally by measuring the differential pressure from PF to P- (P pump). To verify the secondary pressure drop calculated, it can be checked by measuring PF to P+ and the result should then be 1.74 psi.



INSTALLATION EXAMPLE

Overview of a heating system with 5 stair-cases with 4 apartments on each one. The critical valve, defined as the valve with the lowest pressure drop as a rule of thumb this will be the valve positioned furthest away from the pump, is used to lower the pump pressure so that the valve achieves the correct pressure. The lowest possible pressure is then obtained in the system. See dimensioning pump pressure.



cv-value of the STV Valve

Number of Turns	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
1	0.21	0.39	0.55	0.91	1.39	2.31
2	0.37	0.69	0.89	1.53	2.37	4.16
3	0.52	0.96	1.19	2.08	3.24	6.01
4	0.72	1.31	1.73	3.12	4.74	8.79
5	0.99	1.79	2.66	4.74	7.17	13.76
6	1.35	2.43	4.16	6.82	10.29	19.31
7	1.87	3.35	5.78	9.02	13.87	24.51
8	2.95	4.45	7.51	11.21	16.99	28.90
9	3.64	5.20	9.13	13.30	19.77	33.06
10	4.10	5.90	10.17	15.14	22.54	36.42

We reserve the right to alter information without notice.

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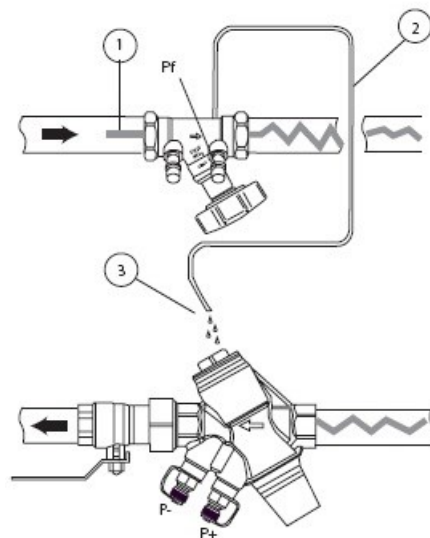
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STANDARD APPLICATION

PVM is fitted in the intake, the signal pipe is to be connected at the low pressure side of the STV valve. The valve can be fitted irrespective of whether it is a straight length of pipe. Bends, tubes etc. can be installed immediately after the valve.

1. Flush the valve before fitting signal pipe
2. Install t-pipe with measurement socket on the STV valve.
3. Install signal pipe, on the t-pipe and flush to ensure that there is no air in the signal pipe.
4. Install the signal pipe on the PVM valve on the return pipe.



DIMENSIONING

Selecting the right valve in an installation requires some data about the system.

- ΔP pump available differential pressure from pump
- ΔP load differential pressure for circulation
- ΔP STVP pressure drop over valve fully open (diagram)
- ΔP PVM pressure drop over the PVM valve (diagram)

Example:

Calculated value for a valve is 6.34 gpm.
7.25 psi is available differential pressure for circulation ΔP load 2.9 psi is required for the main.

We find the minimum differential pressure required for the PVM valve to achieve minimum working pressure in the diagram.

Two valves can deliver 6.34 gpm 1" and 1 1/4".

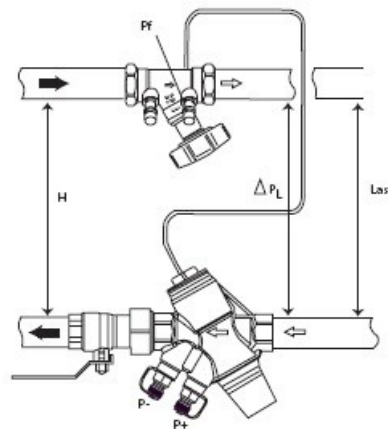
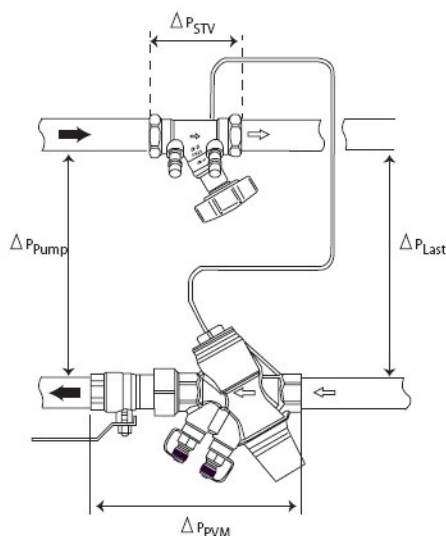
ADJUSTMENT AND MEASURING

When adjusting the differential pressure on the PVM valve, measure and adjust to 10 kPa, making sure at least one radiator valve is slightly open.

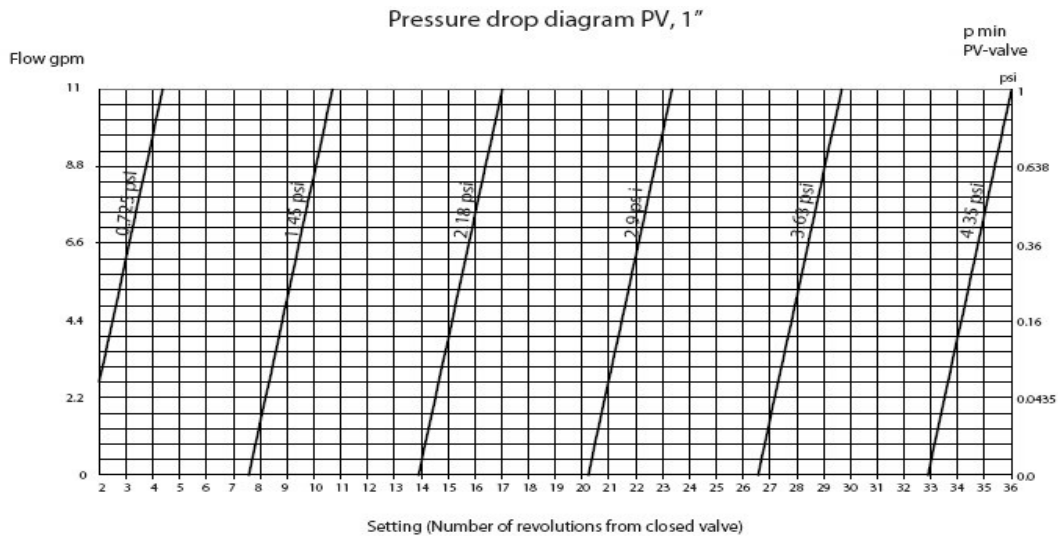
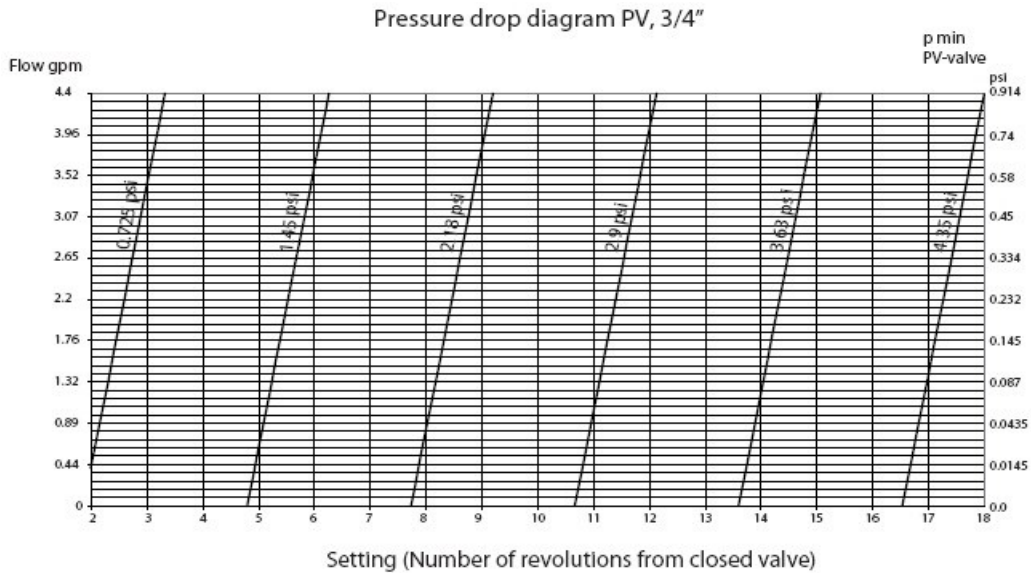
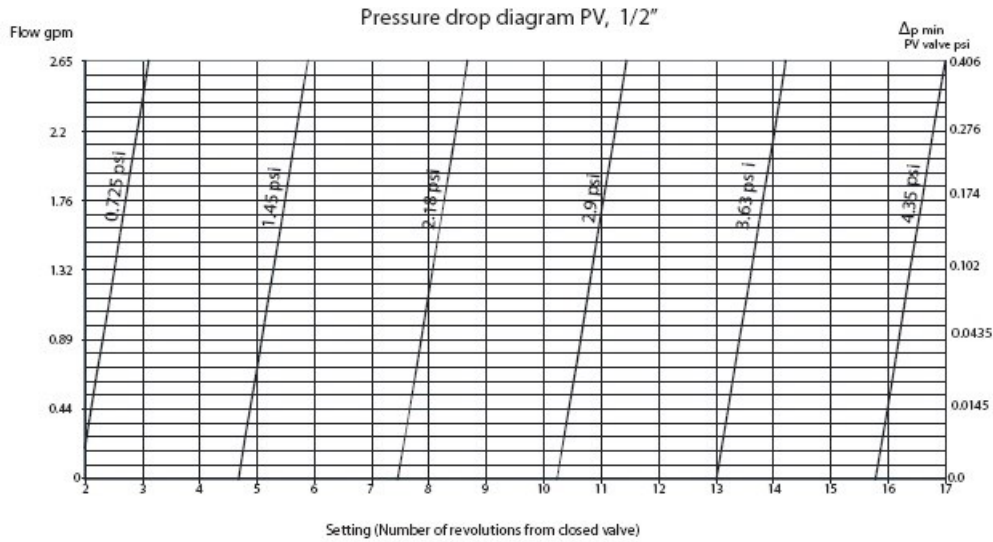
When measuring the flow, use the STV valve and a measuring tool. The STV valve's wheel may be set lower to have a higher differential pressure over the PVM valve. Note that the differential pressure over the STV valve will not be too high so that the min differential pressure over the PVM valve will be too low and the PVM valve will stop regulating. Open the STV valve completely after measuring the flow.

OPTIMIZING PUMP PRESSURE

Lowering to minimum possible pump differential pressure is carried out by measuring at the PVM valve and obtaining at least 1.91 psi, this is the pump's lowest level at which the PVM can be regulated.



Series PVM - 0.50" to 2.00"



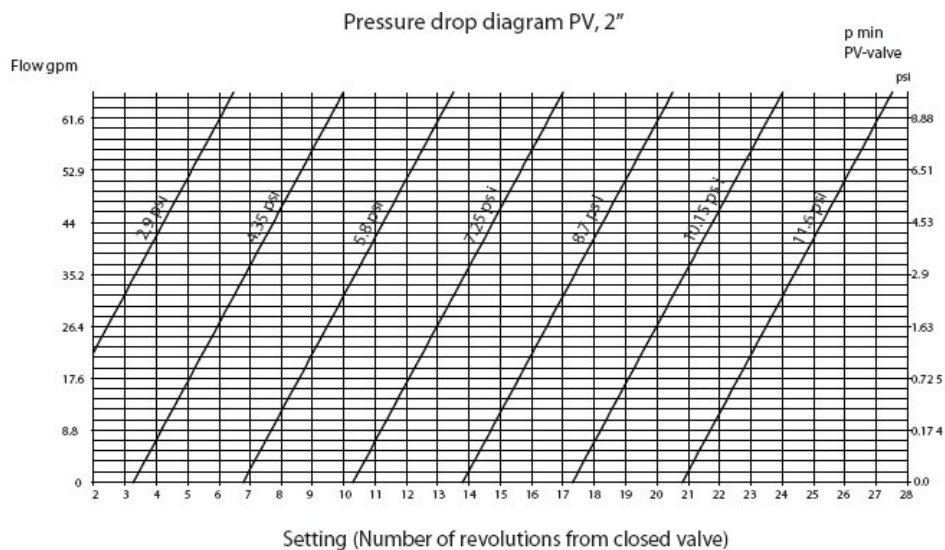
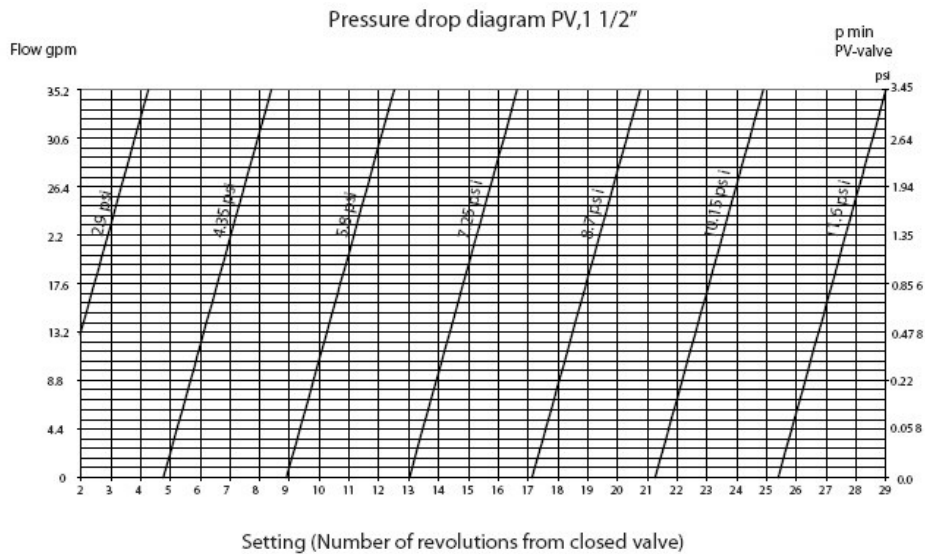
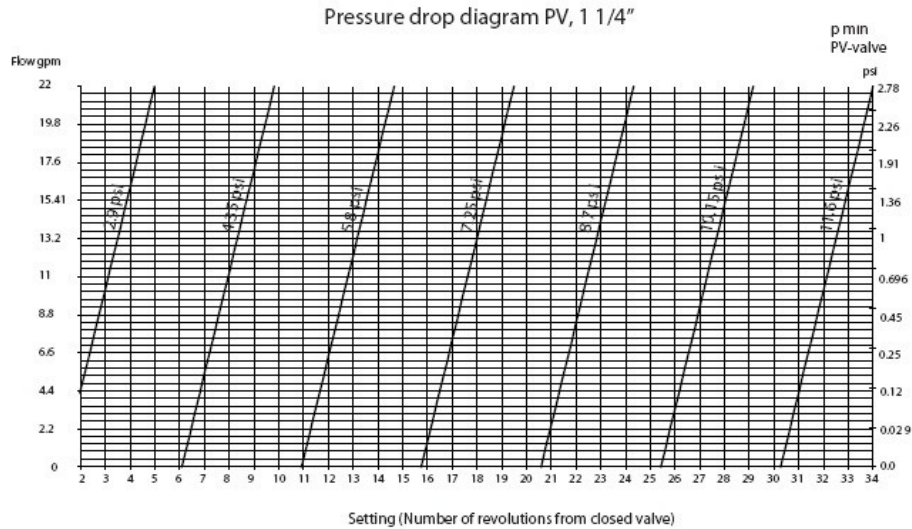
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PRESS. DIFF.
REGULATOR



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