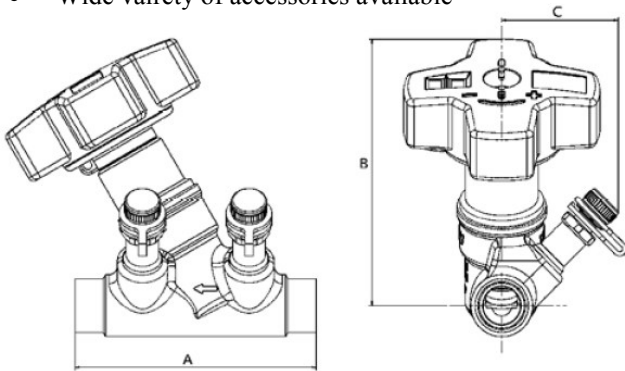


FEATURES

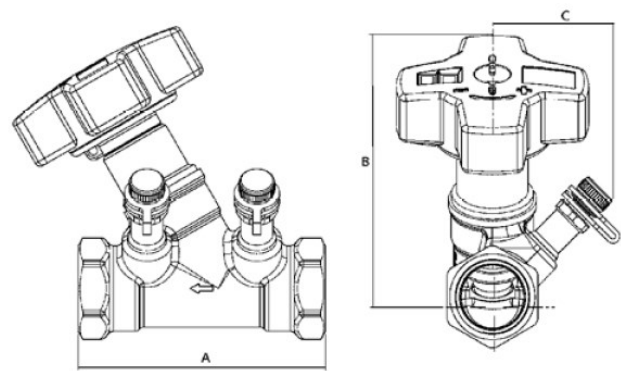
- Accurate and precise flow measurement
- Accurate and precise flow balancing
- Positive Shut-off
- Offsetting Pressure/temperature ports, Self sealing with optional Drain Kits
- “Y” Pattern Globe style design
- Multi-turn, 360° handwheel with vernier scale and digital readout
- Built in memory stop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

SPECIFICATIONS

Pressure Ratings: 300 psil (20 Bar)
 Temperature Ratings: -22°F to 250°F (-30°C to 120°C)
 Body, Bonnet: CW724R, CW511L
 End Connections: STV - Female, NPT
 STVL - Solder, SWT
 Gaskets: EPDM
 Seat Seal: EPDM
 Handwheel: Polyamide Plastic



LL-STVL Series



LL-STV Series

* 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									Valve Selection Guide			
SIZE			A Length	B Height	C PIT Offset	WEIGHT		Handwheel Turns		Minimum Flow	Nominal Range of Flow	Maximum Flow
in	mm					lbs	kg					
1/2"	15	in	3.39	3.74	1.57	1.2	0.53	10	GPM	0.14	0.5 - 3.8	12.1
		mm	86	95	40				LPM	0.52	1.89 - 14.36	45.7
3/4"	20	in	3.54	3.74	1.65	1.3	0.58	10	GPM	0.26	3.8 - 5.5	17.4
		mm	90	95	42				LPM	0.98	14.36 - 20.8	65.7
1"	25	in	4.02	3.78	1.73	1.7	0.77	10	GPM	0.37	5.5 - 9.5	30.0
		mm	102	96	44				LPM	1.38	20.8 - 36	113.4
1-1/4"	32	in	4.72	3.78	1.85	2.7	1.20	10	GPM	0.60	9.5 - 14	44.6
		mm	120	96	47				LPM	2.28	36 - 53	169.0
1-1/2"	40	in	5.20	4.25	1.93	3.3	1.50	10	GPM	0.91	14 - 20	66.4
		mm	132	108	49				LPM	3.46	53 - 76	251.0
2"	50	in	6.06/6.46 STV/STVL	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)

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

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 Section: Components Bulletin-MB-LL-STV-STVL-0816

Pressure Drop Tables - Series LL-STV / LL-STVL

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

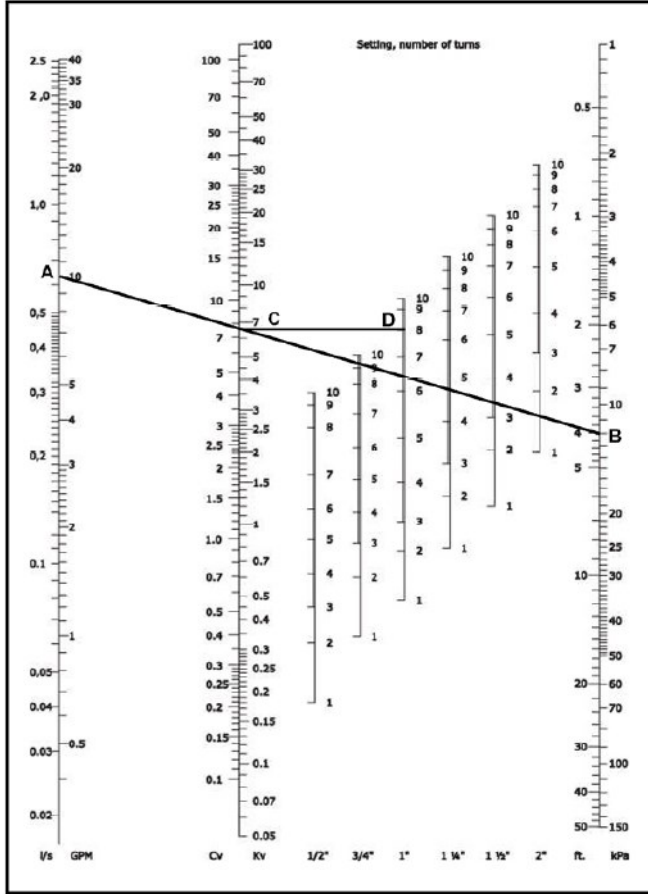
This diagram details the relationship between flow, pressure drop and valve preset points. Use the diagram to select the correct valve size and corresponding handwheel setting to fulfill the application requirements.

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 4ft.



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

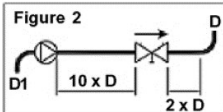
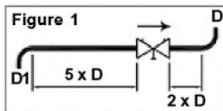
Flow coefficient values (Cv's) at various handwheel settings

Handwheel Setting	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
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

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.

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.

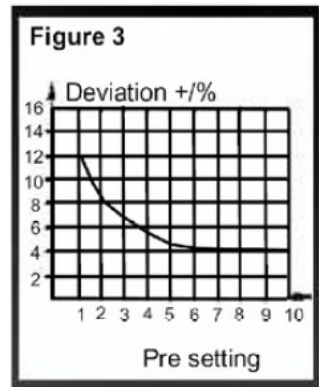


Figure 4

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

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

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.

Memory Stop

1. Set valves to desired position.
2. Turn the inner stem with a 3 mm Allen wrench

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Section: Components

Bulletin-MB-LL-STV-STVL-0816