ASC Engineered Solutions

Fixed Orifice Double Regulating Valve
Fig. Anvil MBV-9510 Series

Fig. MBV-T-9517
Threaded Ends

Fig. MBV-S-9519
Solder Joint Ends

Features

Fixed orifice low lead DZR brass double regulating valve. Intended for HVAC and domestic water use. Threaded F/F (ASME B1.20.1 – NPT) or solder joint ends (ASME B16.22). Design according to BS7350. Tolerance on nominal C_{vs} +3% (test according to BS7350). 300 WOG (Maximum 300psi up to 160˚F. Maximum 150psi at 260˚F.)

Available on following versions:

☐ MBV-T-9517, threaded ends, with test points

☐ MBV-S-9519, solder joint ends, with test points

Working Conditions:

- Water (15˚F to 260˚F)
  below 32˚F only for water with added anti-freezing fluids
  over 212˚F only for water with added anti-boiling fluids

Material Specifications

1. Venturi Insert: Low Lead DZR Brass ASTM C27453

2. Body: Low Lead DZR Brass ASTM C27453

3. Balancing Cone: Low Lead DZR Brass ASTM C27453

4. Gasket Disc: PTFE

5. Disc[1]: Low Lead DZR Brass ASTM C27453

6. Disc O-Ring[1]: EPDM Perox

7. Disc Stem: Low Lead DZR Brass ASTM C27453

8. Stem O-Ring: EPDM Perox

9. Union[1]: Low Lead DZR Brass ASTM C27453

10. Stem: Brass ASTM B124 C37700

11. Bonnet: Low Lead DZR Brass ASTM C27453

12. Stop Spring Ring: Spring Steel

13. Screw: Steel

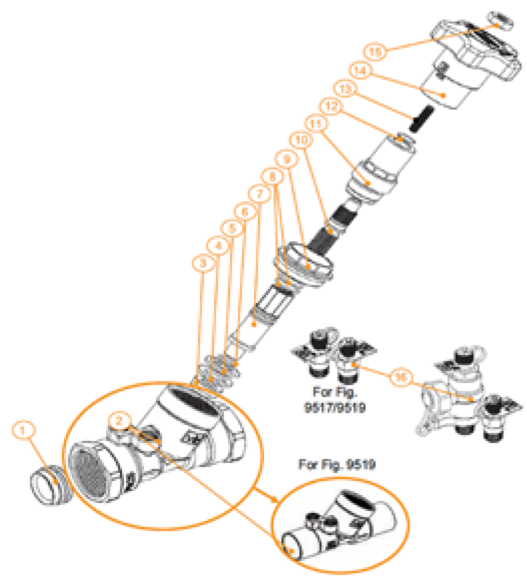
14. Handwheel: ABS (Blue)

15. Nut: Zinc Plated Steel

16. Test Point: DZR Brass[2] ASTM C35330

[1] Only on 1 ¼", 1 ½" and 2"

[2] Test points with EPDM gaskets and polypropylene ties



For additional information on Gruvlok bag and tag coil kit service, contact an ASC Engineered Solutions Representative.

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An ASC Engineered Solution

PROJECT INFORMATION	APPROVAL STAMP
Project:	☐ Approved
Address:	☐ Approved as noted
Contractor:	☐ Not approved
Engineer:	Remarks:
Submittal Date:	
Notes 1:	
Notes 2:	

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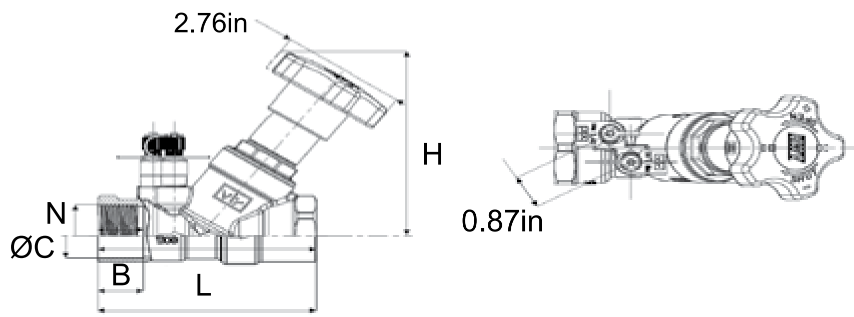
Fig. Anvil MBV-9510 Series



Fixed Orifice Double Regulating Valve

Valve Size	N	øC[1]	H	L[2]	B[2]	Approx. Wt.[2] Each	Flow Range
In./mm	In./mm	In./mm	In./mm	In./mm	In./mm	Lbs./Kg	GPM
U-½ 15	½ - 14 –	0.627-0.631 15.93-16.03	4.06 103.1	3.46/3.74 87.9/95.0	0.71/0.55 18.0/14..0	1.23/1.16 0.56/0.53	0.27-0.71 –
L- ½ 15	½ - 14 –	0.627-0.631 15.93-16.03	4.06 103.1	3.46/3.74 87.9/95.0	0.71/0.55 18.0/14..0	1.23/1.16 0.56/0.53	0.49-1.17 –
½ 15	½ - 14 –	0.627-0.631 15.93-16.03	4.06 103.1	3.46/3.74 87.9/95.0	0.71/0.55 18.0/14..0	1.23/1.16 0.56/0.53	0.98-2.35[3] –
¾ 20	¾ - 14 –	0.877-0.881 22.28-22.38	4.06 103.1	3.78/4.18 96.0/106.2	0.75/0.76 19.1/19.3	1.43/1.34 0.65/0.61	2.19-5.15[3] –
1 25	1 - 11.5 –	1.128-1.131 28.65-28.73	4.06 103.1	3.94/4.57 100.1/116.1	0.89/0.92 22.6/23.4	1.73/1.55 0.78/0.70	4.09-9.56[3] –
1¼ 32	1¼ - 11.5 –	1.378-1.381 35.00-35.08	4.06 103.1	4.63/5.28 117.6/134.1	0.98/0.98 24.9/27.9	2.78/2.53 1.26/1.15	8.56-19.81[3] –
1½ 40	1½ - 11.5 –	1.628-1.632 41.35-41.45	4.06 103.1	5.00/5.90 127.0/149.9	0.98/1.10 24.9/27.9	3.50/3.16 1.59/1.43	12.84-29.80[3] –
2 50	2 - 11.5 –	2.128-2.132 54.05-54.15	4.06 103.1	5.72/6.73 145.3/170.9	1.15/1.35 29.2/34.3	4.80/4.46 2.18/2.02	24.09-55.63[3] –

[1] Tolerance field
[2] Threaded ends/soldering ends
[3] Dimension with VIR actuators, for more details please consult specific technical sheet
[4] Suggested flow range applicability (BS7350)

If used with measuring manometers different from those proposed by Anvil-RWV, please verify that sensibility of the measuring device is compatible with indicated minimum.

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Building connections that last™

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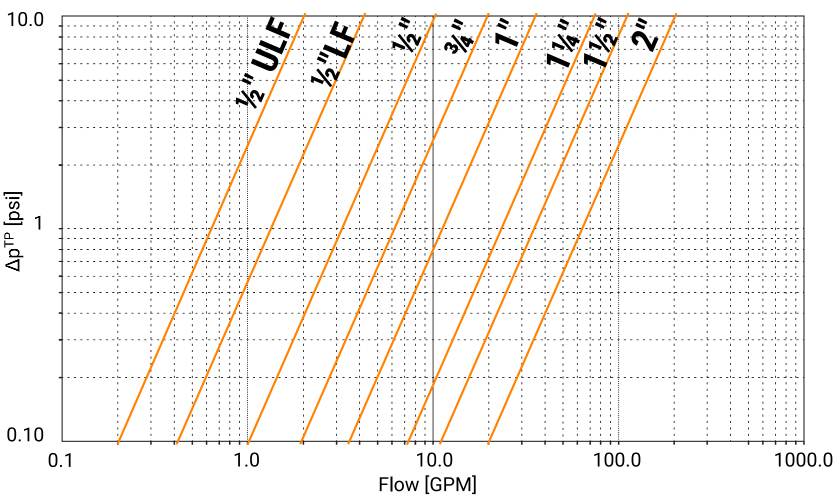
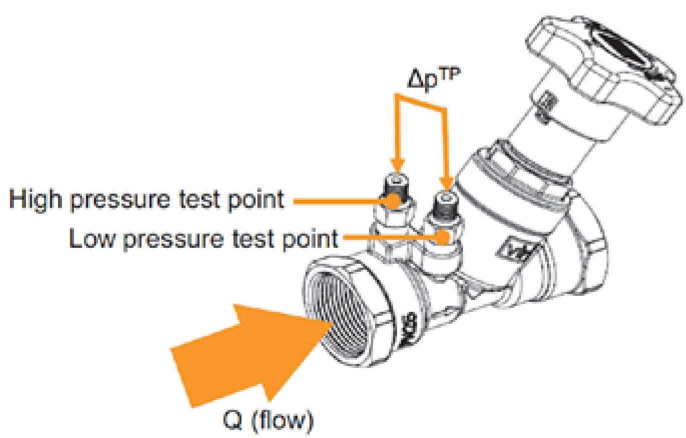
Flow Diagram



½" ULF	C_{vs} venturi 0.64
½" LF	C_{vs} venturi 1.33
½"	C_{vs} venturi 3.24
¾"	C_{vs} venturi 6.16
1"	C_{vs} venturi 11.24
1¼"	C_{vs} venturi 23.41
1½"	C_{vs} venturi 34.95
2"	C_{vs} venturi 63.67



$$Q = C_{VS}^{venturi} \cdot \sqrt{\Delta p^{TP}}$$

Q = flow rate in GPM

Δp = differential pressure signal in psi generated through the pressure test points

C_{VS} = flow coefficient

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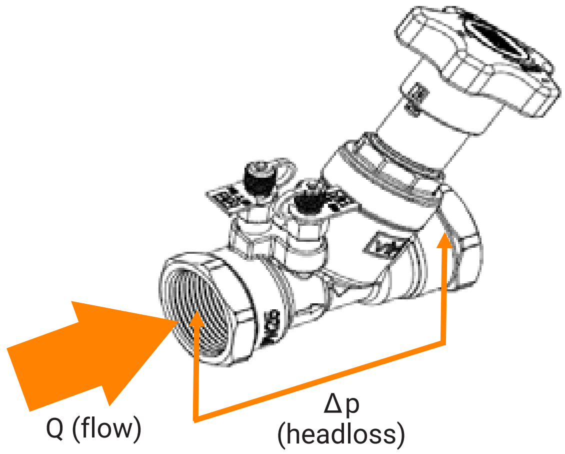
Headloss

$$\Delta p = \left(\frac{Q}{C_V}\right)^2$$

Formula linking flow Q (in GPM) and theoretical valve headloss (pressure drop) Δp (in psi). C_V depends on handwheel position as indicated in table.



Headloss Calculation

Handwheel Position	C_V (GPM/psi$^{0.5}$) U-1/2"	L-½"	½"	¾"	1"	1¼"	1½"	2"
–	GPM/psi	GPM/psi	GPM/psi	GPM/psi	GPM/psi	GPM/psi	GPM/psi	GPM/psi
0.5	0.177	0.160	0.474	0.474	1.70	2.96	3.14	6.20
0.7	0.206	0.186	0.474	0.543	2.00	3.38	3.61	7.56
1.0	0.283	0.287	0.613	0.671	2.42	3.95	4.27	9.65
1.3	0.331	0.394	0.717	0.809	2.82	4.49	4.96	12.19
1.5	0.355	0.440	0.809	0.902	3.12	4.83	5.57	14.30
1.7	0.387	0.501	0.902	0.994	3.48	5.25	6.60	16.64
2.0	0.445	0.586	0.994	1.12	4.13	6.27	8.99	20.17
2.3	0.511	0.669	1.10	1.25	4.83	7.82	12.08	23.35
2.5	0.517	0.696	1.18	1.39	5.28	9.16	14.21	25.12
2.7	0.527	0.743	1.32	1.62	5.63	10.46	16.34	26.66
3.0	0.563	0.828	1.60	2.24	6.09	12.21	18.89	28.72
3.3	0.578	0.864	1.88	2.94	6.49	13.39	20.67	30.57
3.5	0.594	0.891	2.03	3.39	6.64	13.94	21.54	31.72
3.7	0.595	0.925	2.12	3.75	6.80	14.34	22.16	32.86
4.0	0.603	0.953	2.19	4.06	7.10	14.50	22.65	34.36
4.4	0.605	0.985	2.22	4.24	7.21	–	–	–

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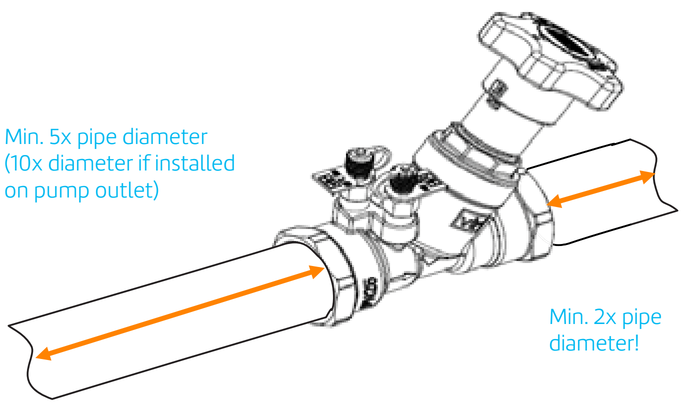
Installation

To obtain the best performances valve must be installed on a pipe with its same nominal size preceded and followed by straight pipe lengths as per figure indications.



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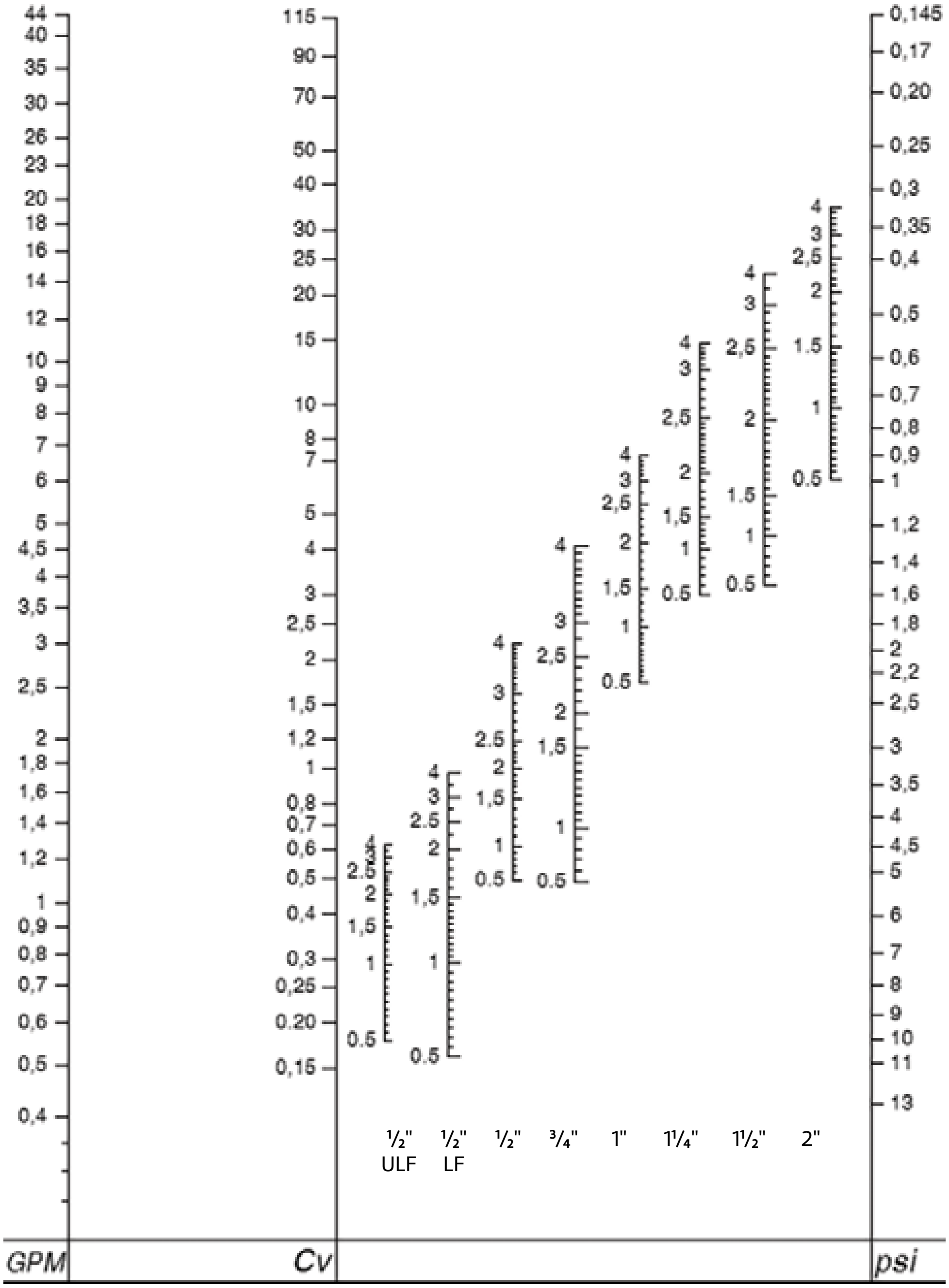
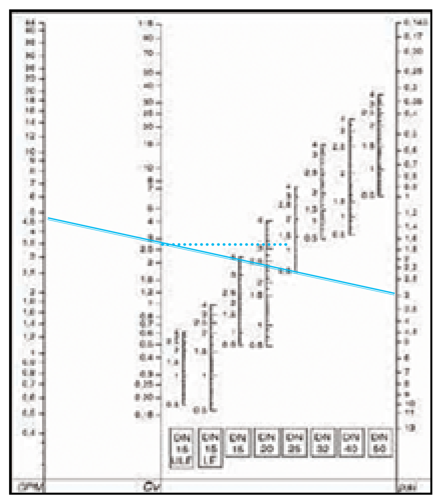
Presetting



Using diagram above, determine the presetting position of the valve with the given design flowrate and headloss:

1. Draw a straight line joining design flowrate and design headloss;
2. Determine design C_V value as intersection of drawn line and C_V axis;
3. Draw a straight horizontal line from intersection previously identified and the specific valve size axis;
4. Intersection determines handwheel position to use for presetting.



In the example for a design flowrate of 5GPM and design Δp 3psi handwheel position of 1.35 is determined for a 1" valve.

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