

FIG. ANVIL MBV-9510 SERIES

Fixed Orifice Double Regulating Valve

FEATURES

Fixed orifice DZR brass double regulating valve. Intended for HVAC 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

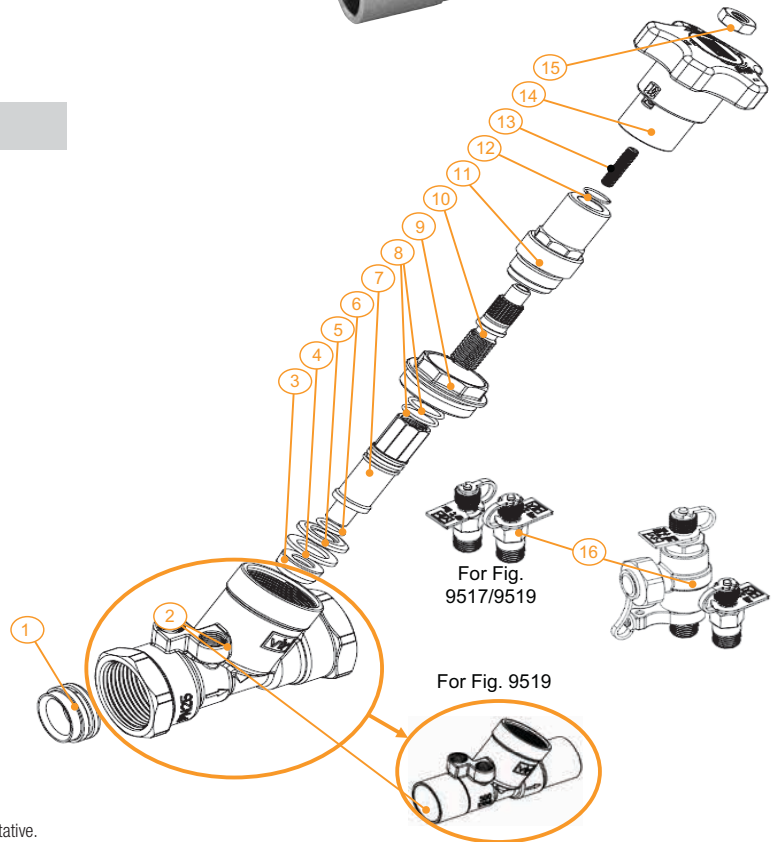


MATERIAL SPECIFICATIONS

1. VENTURI INSERT: DZR Brass
2. BODY: DZR Brass
3. BALANCING CONE: DZR Brass
4. GASKET DISC: PTFE
5. DISC¹: DZR Brass
6. DISC O-RING¹: EPDM Perox
7. DISC STEM: DZR Brass
8. STEM O-RING: EPDM Perox
9. UNION¹: DZR Brass
10. STEM: Brass ASTM B124 C37700
11. BONNET: DZR Brass
12. STOP SPRING RING: Spring Steel
13. SCREW: Steel
14. HANDWHEEL: ABS (Blue)
15. NUT: Zinc Plated Steel
16. TEST POINT: DZR Brass² ASTM C35330

¹ Only on 1 1/4", 1 1/2" and 2"

² Test points with EPDM gaskets and polypropylene ties



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

PROJECT INFORMATION		APPROVAL STAMP	
Project:		<input type="checkbox"/> Approved	
Address:		<input type="checkbox"/> Approved as noted	
Contractor:		<input type="checkbox"/> Not approved	
Engineer:		Remarks:	
Submittal Date:			
Notes 1:			
Notes 2:			

FIG. ANVIL MBV-9510 SERIES

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FIGURE 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-1/2 15	1/2 - 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-1/2 15	1/2 - 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 —
1/2 15	1/2 - 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 —
3/4 20	3/4 - 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 —
1 1/4 32	1 1/4 - 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 —
1 1/2 40	1 1/2 - 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 —

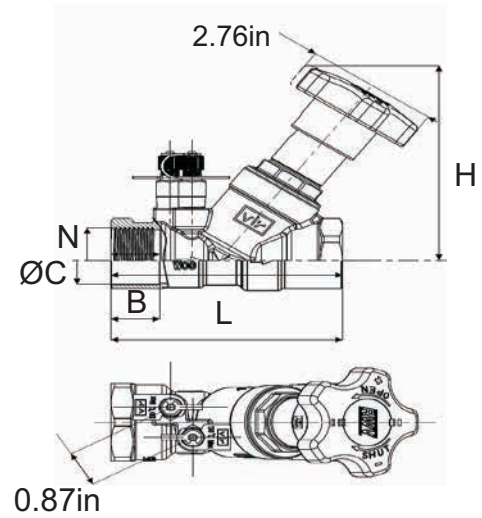
¹ Tolerance field

² Threaded ends/soldering ends

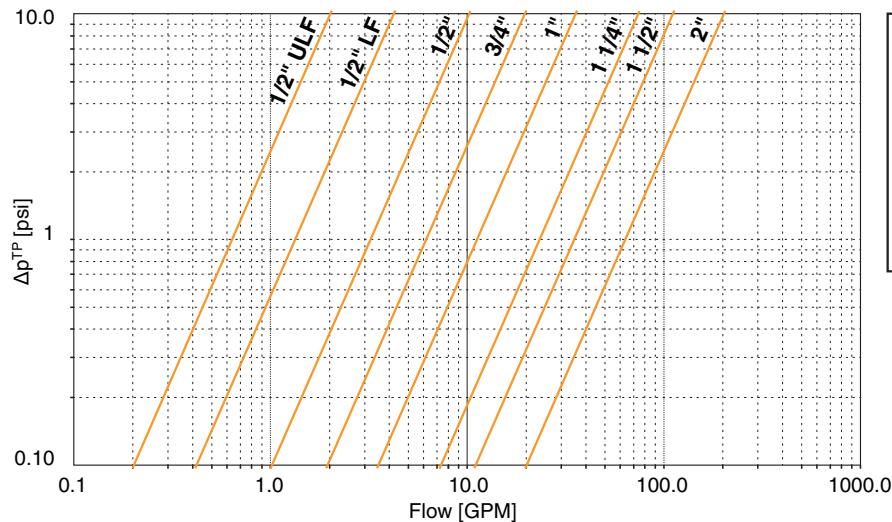
³ Dimension with VIR actuators, for more details please consult specific technical sheet

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.



FLOW DIAGRAM



1/2" ULF	C _{vs} venturi	0.64
1/2" LF	C _{vs} venturi	1.33
1/2"	C _{vs} venturi	3.24
3/4"	C _{vs} venturi	6.16
1"	C _{vs} venturi	11.24
1 1/4"	C _{vs} venturi	23.41
1 1/2"	C _{vs} venturi	34.95
2"	C _{vs} venturi	63.67

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

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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High pressure test point

Low pressure test point

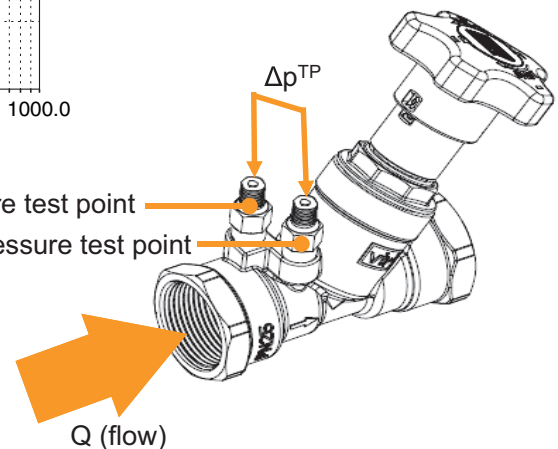


FIG. ANVIL MBV-9510 SERIES

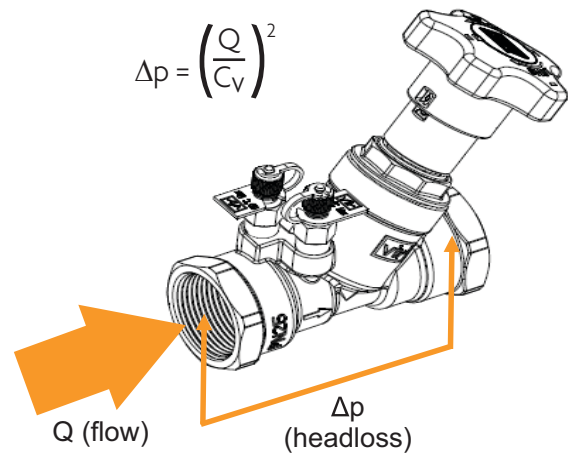
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HEADLOSS

HEADLOSS CALCULATION								
Handwheel Position	C _v (GPM/psi ^{0.5})							
	U-1/2"	L-1/2"	1/2"	3/4"	1"	1 1/4"	1 1/2"	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	–	–	–

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.

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



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.

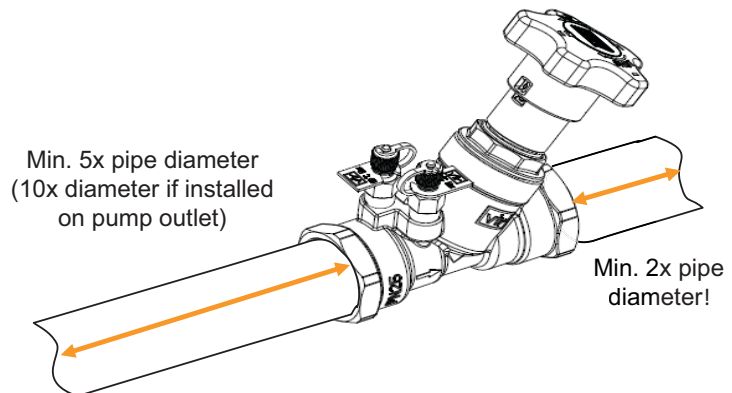
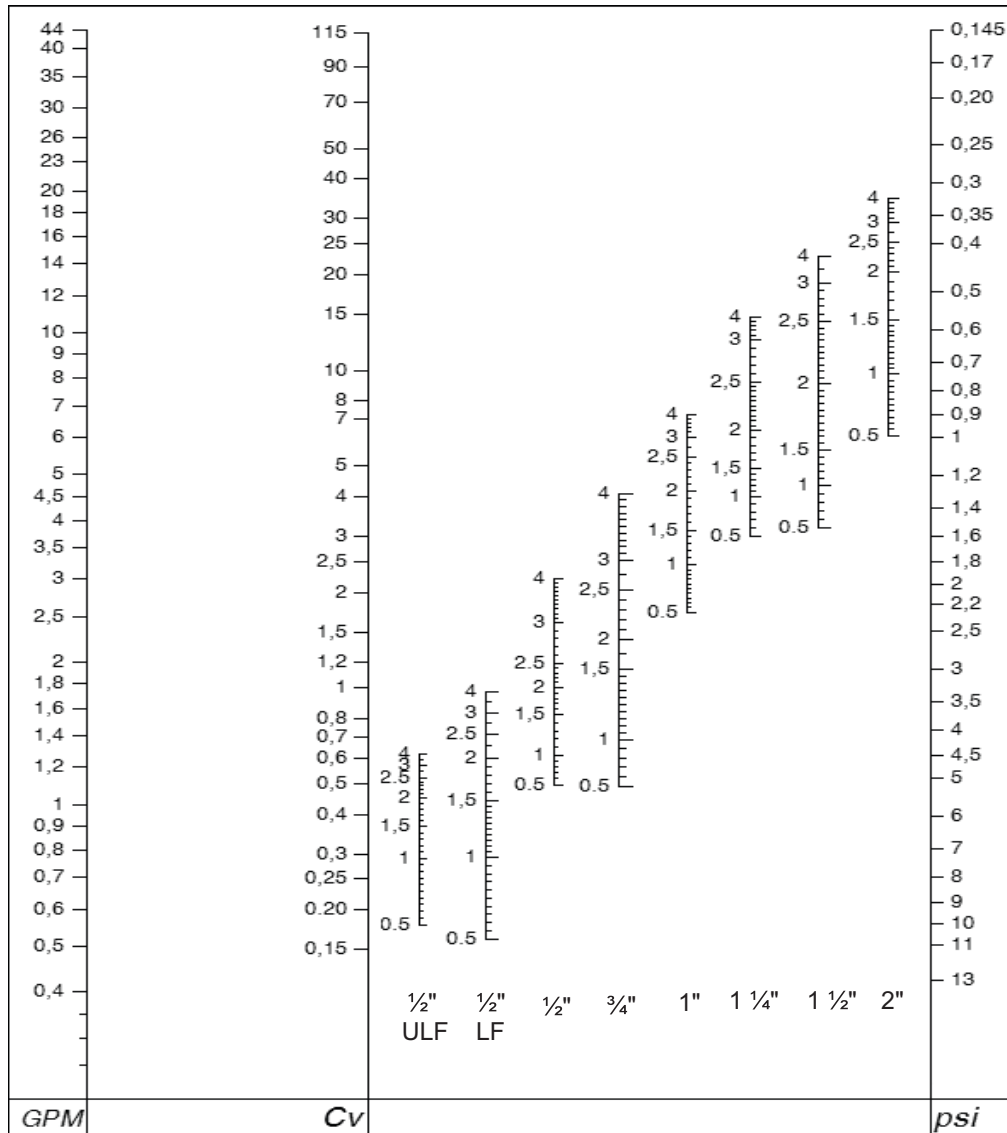


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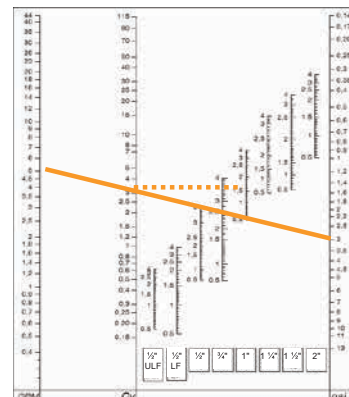
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PRESETTING



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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