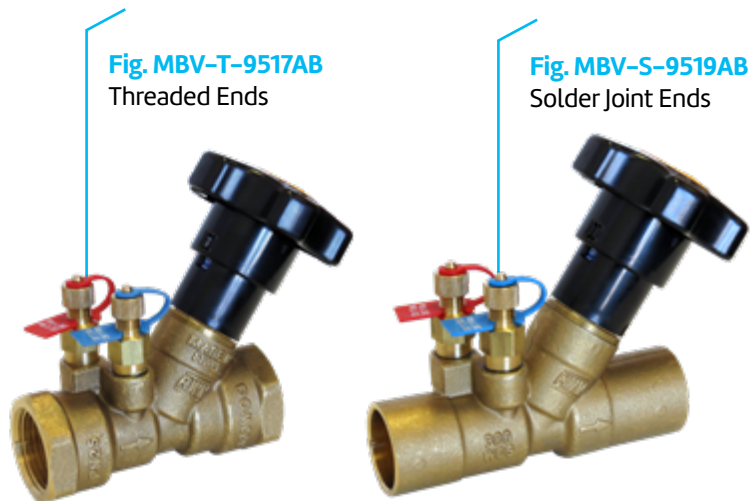


Fixed Orifice Double Regulating Low Lead Valves Fig. Anvil MBV-9510AB Series



- 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 Brass² ASTM C35330

¹ Only on 1 1/4", 1 1/2" and 2"

² Test points with EPDM gaskets and polypropylene ties

Features

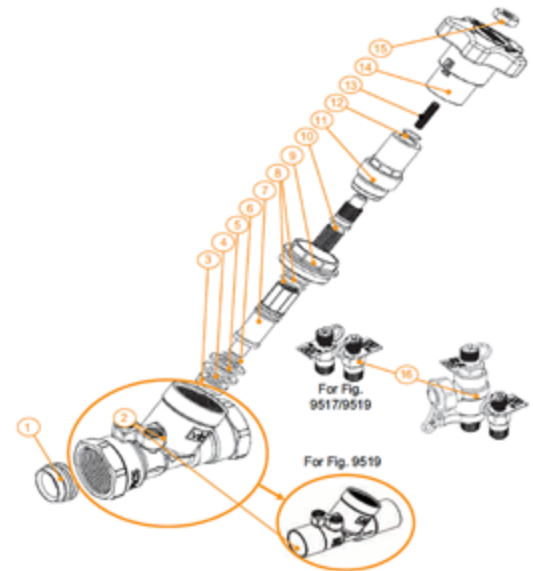
Fixed orifice low lead DZR brass double regulating valve. Intended for HVAC and domestic water use. Threaded F/F (ASME B1.20.1 – NPT) or solder joint ends (ASME B16.22). Design according to BS7350. Tolerance on nominal $C_{vs} \pm 3\%$ (test according to BS7350). 300 WOG (Maximum 300psi up to 160°F.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

Available on following versions:

- MBV-T-9517AB, threaded ends, with test points
- MBV-S-9519AB, 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

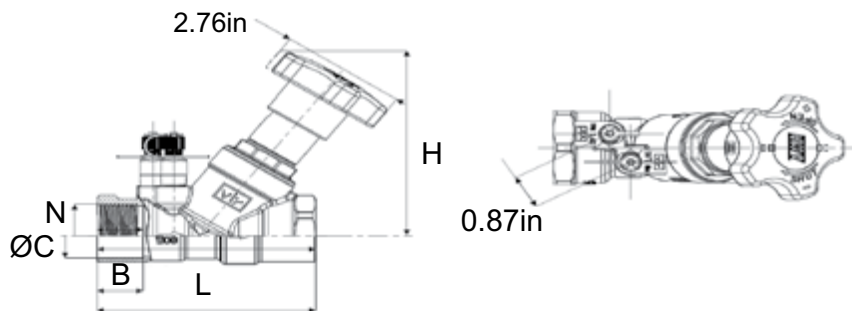
- 1. **Venturi Insert**: Low Lead DZR Brass ASTM C27453
- 2. **Body**: Low Lead DZR Brass ASTM C27453
- 3. **Balancing Cone**: Low Lead DZR Brass ASTM C27453
- 4. **Gasket Disc**: PTFE

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



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

Fixed Orifice Double Regulating Low Lead Valves Fig. Anvil MBV-9510AB Series



Fixed Orifice Double Regulating Low Lead Valves

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.



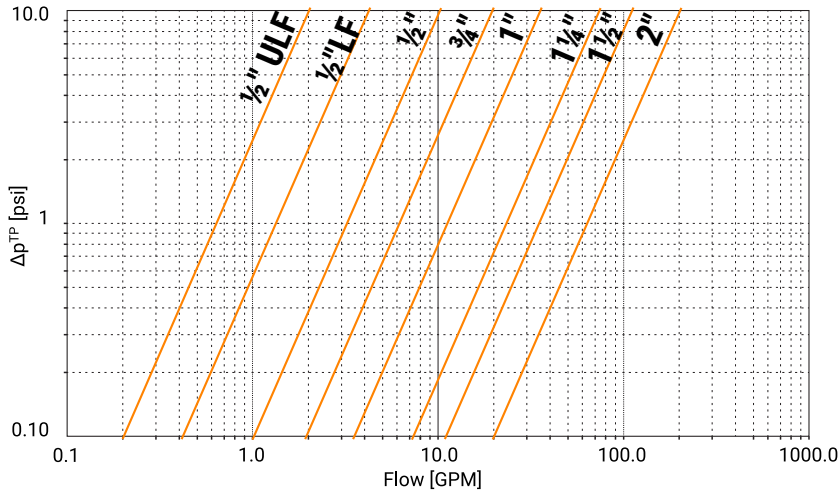
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For additional information on Gruvlok bag and tag coil kit service, contact an ASC Engineered Solutions Representative.

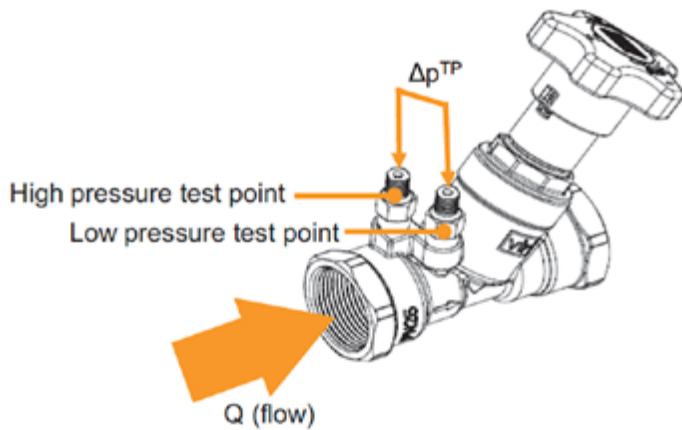
Building connections that last™

Fixed Orifice Double Regulating Low Lead Valves Fig. Anvil MBV-9510AB Series

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



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

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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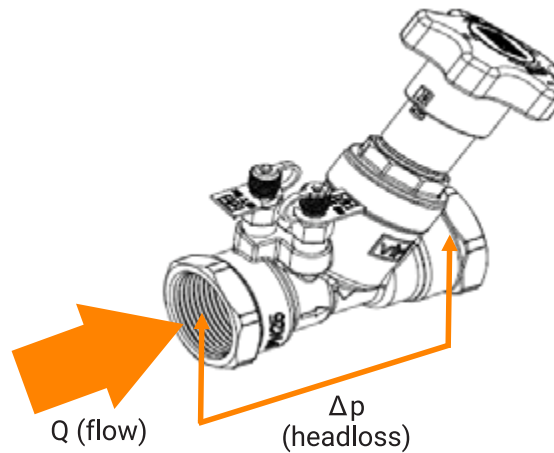
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Headloss

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

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

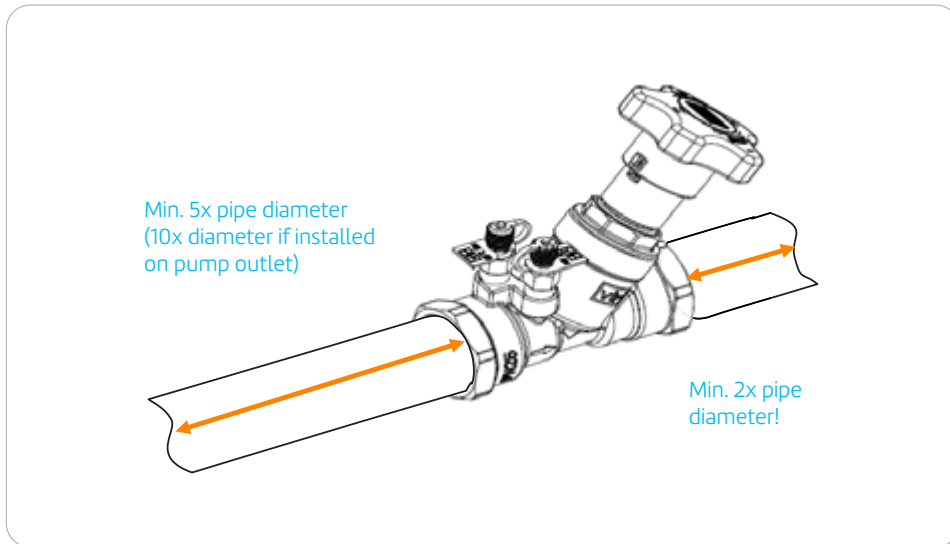
Handwheel Position	C_v (GPM/psi ^{0.5})							
	U-½"	L-½"	½"	¾"	1"	1¼"	1½"	2"
-	GPM/psi	GPM/psi	GPM/psi	GPM/psi	GPM/psi	GPM/psi	GPM/psi	GPM/psi
0.5	0.177	0.160	0.474	0.474	1.70	2.96	3.14	6.20
0.7	0.206	0.186	0.474	0.543	2.00	3.38	3.61	7.56
1.0	0.283	0.287	0.613	0.671	2.42	3.95	4.27	9.65
1.3	0.331	0.394	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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Fixed Orifice Double Regulating Low Lead Valves Fig. Anvil MBV-9510AB Series

Installation

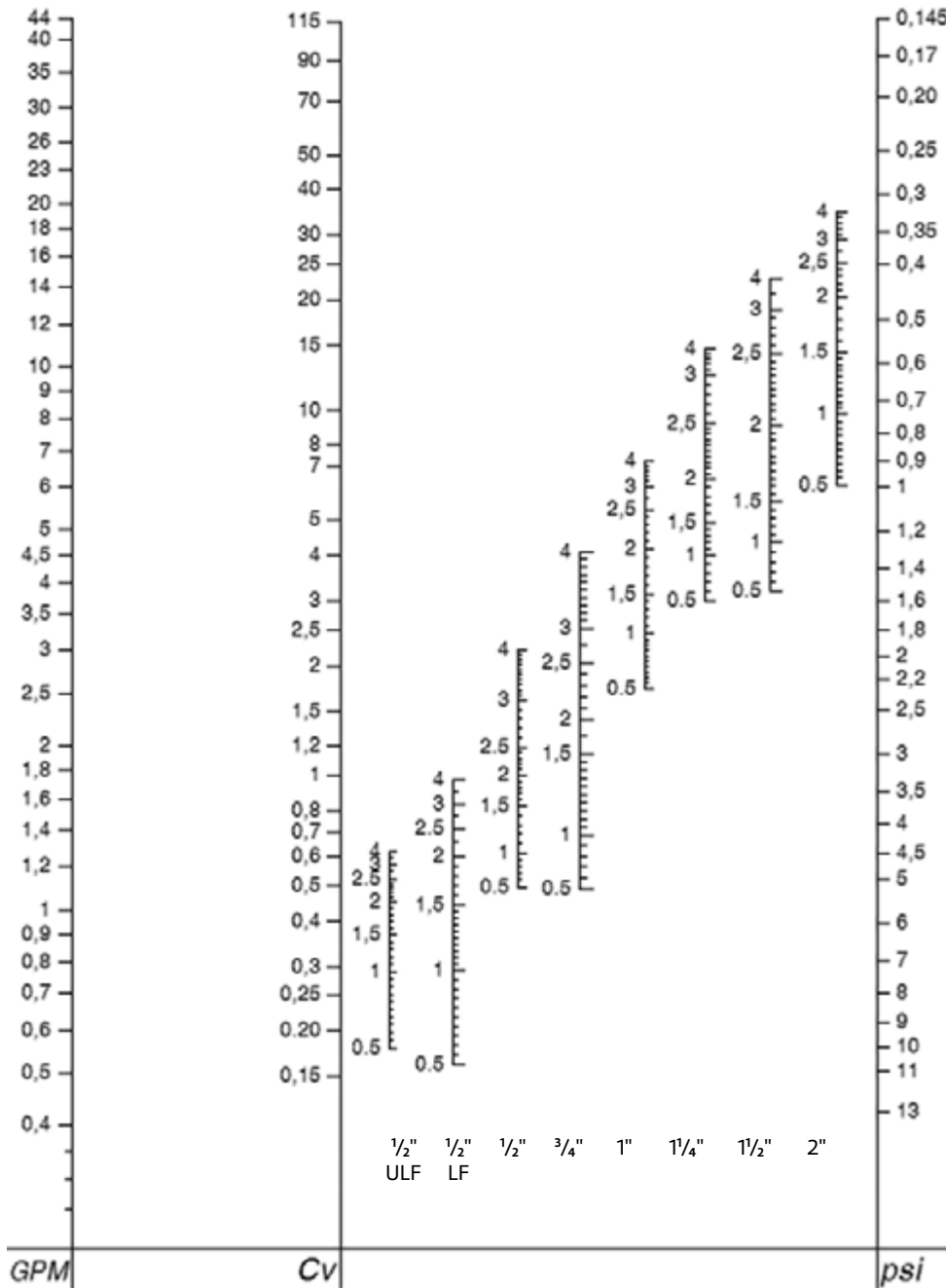
To obtain the best performances valve must be installed on a pipe with its same nominal size preceded and followed by straight pipe lengths as per figure indications.



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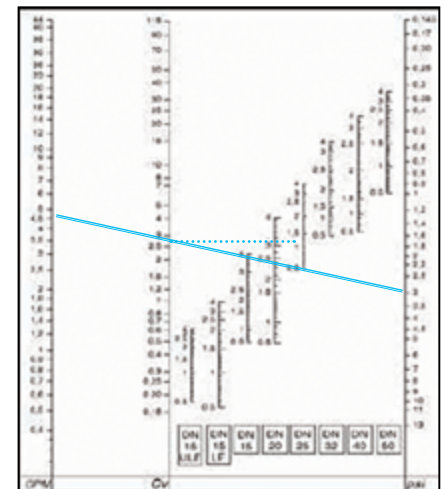
Fixed Orifice Double Regulating Low Lead Valves Fig. Anvil MBV-9510AB Series

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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