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Fixed Orifice Static Balancing Valve

Feature

DZR brass fixed orifice double regulating globe valve
Venturi insert
Positive shut-off with memory stop
Threaded F/F (ASME B1.20.1 - NPT) or solder joint ends (ASME B16.22)
Design according to BS7350
Tolerance on nominal Cvs ±3% (test according to BS7350)
Available in the following versions:
- Fig. 9517, threaded ends, with test points
- Fig. 9519, solder joint ends, with test points

Meet BAA requirement

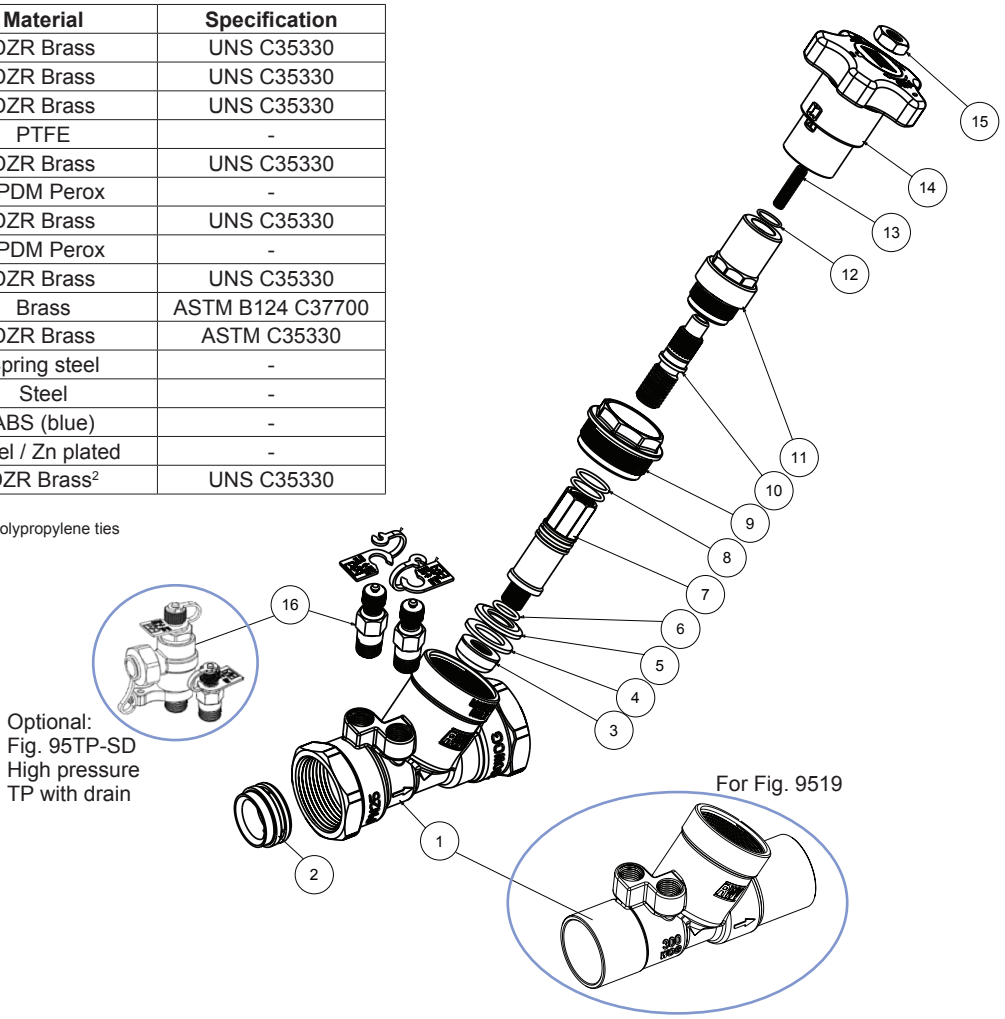
300WOG

Working conditions:
Water: from 15°F to 260°F
- below 32°F only for water with added antifreezing fluids
- over 212°F only for water with added anti-boiling fluids

Material

	Part	Material	Specification
1	Body	DZR Brass	UNS C35330
2	Venturi insert	DZR Brass	UNS C35330
3	Balancing cone	DZR Brass	UNS C35330
4	Gasket disc	PTFE	-
5	Disc[1]	DZR Brass	UNS C35330
6	Disc O-ring[1]	EPDM Perox	-
7	Shutter	DZR Brass	UNS C35330
8	Stem O-ring	EPDM Perox	-
9	Union[1]	DZR Brass	UNS C35330
10	Stem	Brass	ASTM B124 C37700
11	Bonnet	DZR Brass	ASTM C35330
12	Stop spring ring	Spring steel	-
13	Screw	Steel	-
14	Handwheel	ABS (blue)	-
15	Nut	Steel / Zn plated	-
16	Test point	DZR Brass[2]	UNS C35330

[1] Only on 1¼", 1½" and 2"
[2] Test points with EPDM Perox gaskets and polypropylene ties



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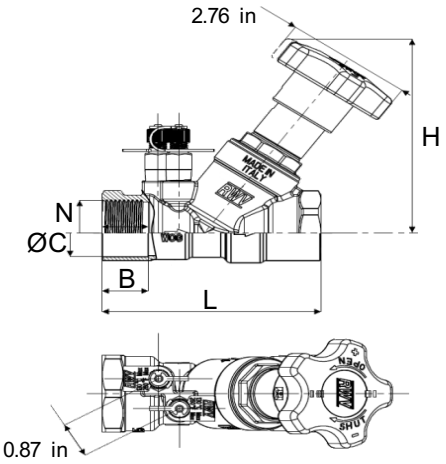
Dimension, Weight

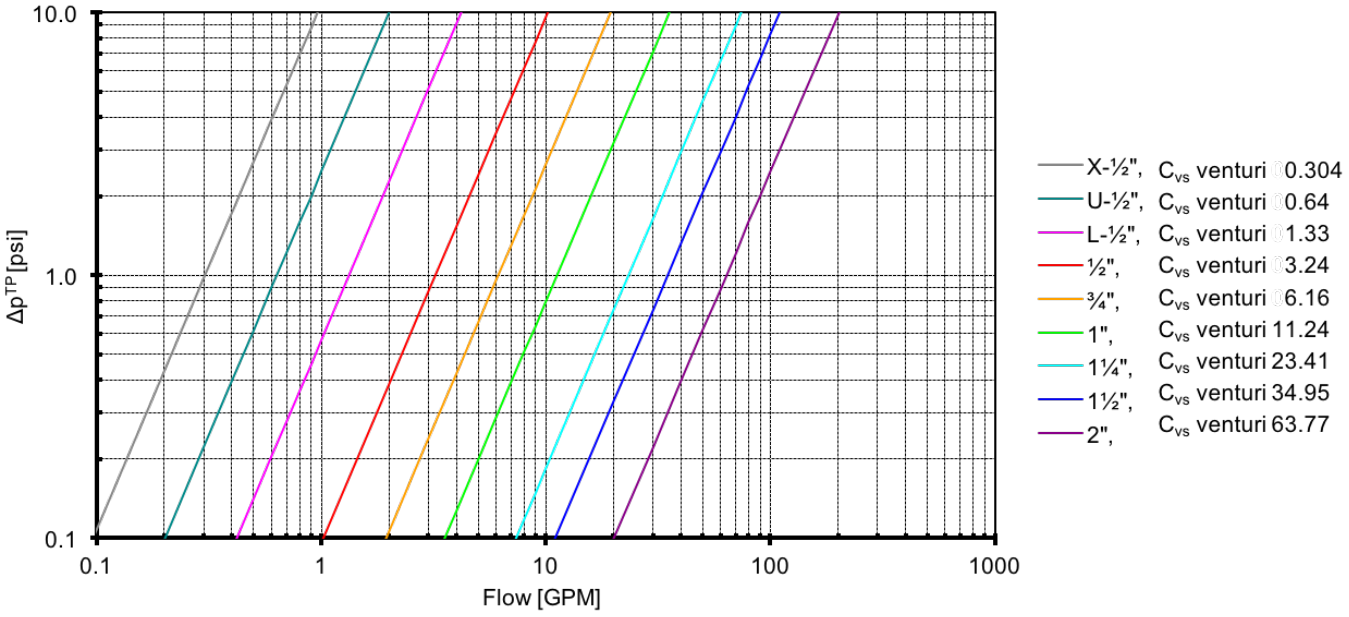
Size	N	ΦC[1] [in]	H [in]	L[2] [in]	B[2] [in]	Weight[2] [lb]	Flow range [GPM]
X-½"	½ - 14 NPT	0.627-0.631	4.06	3.46/3.74	0.71/0.55	1.23/1.16	0.12-0.36
U-½"	½ - 14 NPT	0.627-0.631	4.06	3.46/3.74	0.71/0.55	1.23/1.16	0.27-0.71
L-½"	½ - 14 NPT	0.627-0.631	4.06	3.46/3.74	0.71/0.55	1.23/1.16	0.49-1.17
½"	½ - 14 NPT	0.627-0.631	4.06	3.46/3.74	0.71/0.55	1.23/1.16	0.98-2.35[3]
¾"	¾ - 14 NPT	0.877-0.881	4.06	3.78/4.18	0.75/0.76	1.43/1.34	2.19-5.15[3]
1"	1 - 11.5 NPT	1.128-1.131	4.06	3.94/4.57	0.89/0.92	1.73/1.55	4.09-9.56[3]
1¼"	1¼ - 11.5 NPT	1.378-1.381	4.85	4.63/5.28	0.98/0.98	2.78/2.53	8.56-19.81[3]
1½"	1½ - 11.5 NPT	1.628-1.632	4.94	5.00/5.90	0.98/1.10	3.50/3.16	12.84-29.80[3]
2"	2 - 11.5 NPT	2.128-2.132	5.34	5.72/6.73	1.15/1.35	4.80/4.46	24.09-55.63[3]

[1] Tolerance field
[2] Threaded ends / solder ends
[3] Suggested flow range applicability (BS7350)

If using a measuring manometer different from those proposed by RWV please verify that sensibility of the measuring device is compatible with indicated minimum flow (see flow measurement paragraph)



Flow Measurement

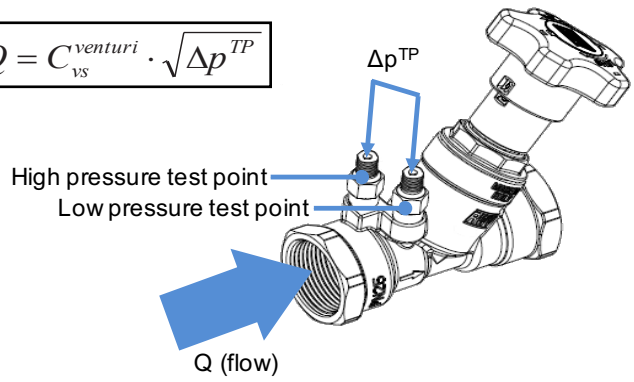


Q = flow rate in GPM

Δp = differential pressure signal generated through pressure test points

Cv = flow coefficient

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

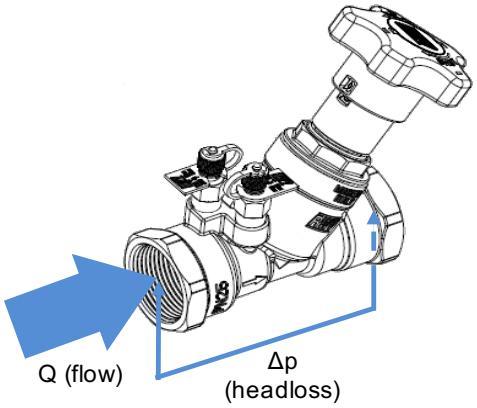


Headloss

Handwheel position	Cv (GPM/psi$^{0.5}$)								
	X-½"	U-½"	L-½"	½"	¾"	1"	1¼"	1½"	2"
0.5	0.061	0.177	0.160	0.474	0.47	1.70	2.96	3.14	6.20
0.7	0.072	0.206	0.186	0.474	0.54	2.00	3.38	3.61	7.56
1.0	0.124	0.283	0.287	0.613	0.67	2.42	3.95	4.27	9.65
1.3	0.169	0.331	0.394	0.717	0.81	2.82	4.49	4.96	12.19
1.5	0.193	0.355	0.440	0.809	0.90	3.12	4.83	5.57	14.30
1.7	0.217	0.387	0.501	0.902	0.99	3.48	5.25	6.60	16.64
2.0	0.250	0.445	0.586	0.99	1.12	4.13	6.27	8.99	20.17
2.3	0.267	0.511	0.67	1.10	1.25	4.83	7.82	12.08	23.35
2.5	0.274	0.517	0.70	1.18	1.39	5.28	9.16	14.21	25.12
2.7	0.280	0.527	0.74	1.32	1.62	5.63	10.46	16.34	26.66
3.0	0.291	0.563	0.83	1.60	2.24	6.09	12.21	18.89	28.72
3.3	0.294	0.578	0.86	1.88	2.94	6.49	13.39	20.67	30.57
3.5	0.299	0.594	0.89	2.03	3.39	6.64	13.94	21.54	31.72
3.7	0.302	0.595	0.92	2.12	3.75	6.80	14.34	22.16	32.86
4.0	0.303	0.603	0.95	2.19	4.06	7.10	14.50	22.65	34.36
4.4	0.305	0.605	0.98	2.22	4.24	7.21	-	-	-

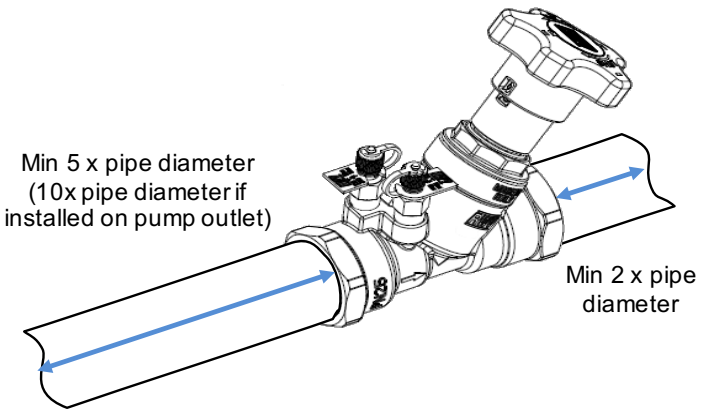
Formula linking flow Q (in GPM) and theoretical valve headloss Δp (in psi). Cv depends on handwheel position as indicated on table.

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



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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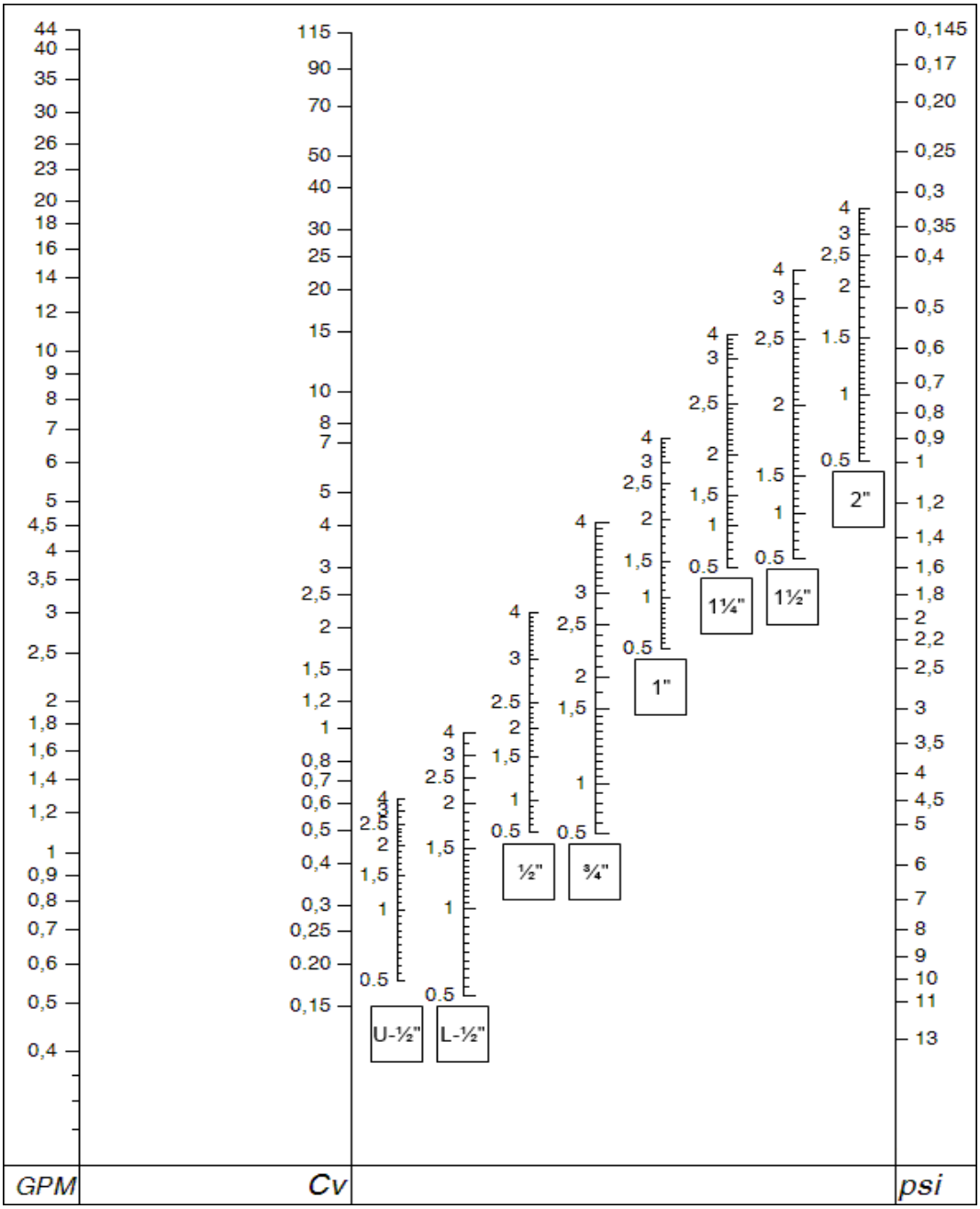
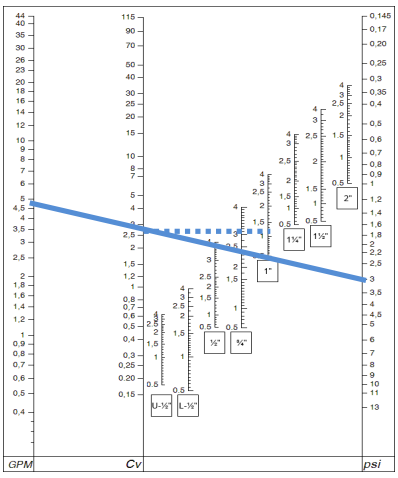
Presetting



Using the diagram above, it is possible to 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 Cv value as intersection of drawn line and Cv 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