

Description

Variable orifice cast iron double regulating valve
Flanges drilled according to ASME B16.1 class 125
Lengths according to EN558-1 series 1 (ex DIN3202 F1)
Alkyd/acrylic single layer waterpaint coating (2000-4000µin)
Tolerance on nominal C_v for completely open valve $\pm 5\%$
With plugged threaded drains ($\frac{1}{4}$ " ISO 7/1Rp) for test points
Provided with test points (given unmounted)
Gost compliant

Class 125

Working conditions:

- Water: 15°F to +250°F
below 32°F only for water with added antifreezing fluids
over 212°F only for water with added anti-boiling fluids

Part List

N.	Part	Material	Norm
1	Body	Cast iron	ASTM A48 class 35B
2	Cone screw	Stainless steel	A2
3	Balancing cone	Composite material	-
4	Gasket disc	EPDM	-
5	Shutter	Composite material	-
6	Shut./bon. O-ring	EPDM	-
7	Body/bon. O-ring	EPDM	-
8	Bonnet ¹	Cast iron	ASTM A48 class 35B
9	Screws	Carbon steel	8.8 A2A
10	Memory stop	DZR Brass	ASTM C35330
11	Mem. stop O-ring	EPDM Perox	-
12	Washer	DZR Brass	ASTM C35330
13	Stem	DZR Brass	ASTM C35330
14	Stem O-ring	EPDM	-
15	Screw	Brass ²	ASTM C27200
16	Bushing O-ring	EPDM	-
17	Bushing	DZR Brass	ASTM C35330
18	Handwheel	Polyamide ³	PA6.6
19	Handwheel screw	Brass ⁴	ASTM C27200
20	Handwheel cap	Polyamide	PA6.6
21	Plug	Steel ⁵	AISI 1035
22	Test point	DZR Brass ⁶	ASTM C35330

¹Two-pieces bonnet (screwed) with EPDM gasket for 2½"

²Two-pieces bonnet with bottom part in ductile iron ASTM A536 80-55-06 and 8.8 A2A steel

³Joint screws for Size≥8"

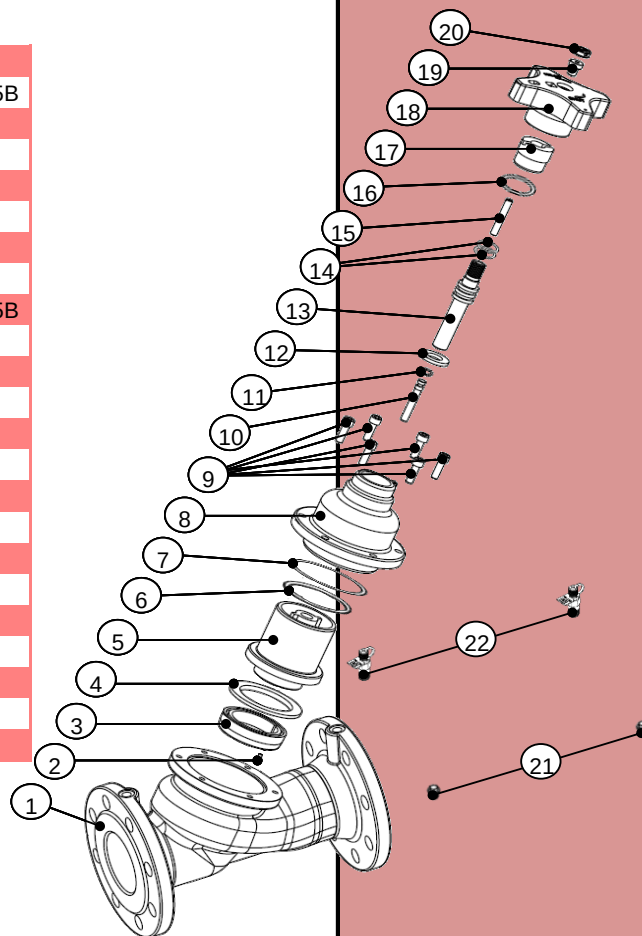
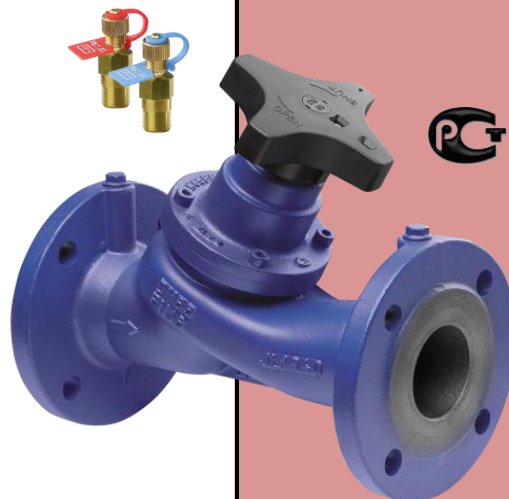
⁴X5CrNi18-10 steel for Size≥8"

⁵CuZn40Pb2 brass screw and washer for Size≥8"

⁶5 A2A steel for Size≥8"

⁷Caps with carbamide rubber gaskets

⁸Test points with EPDM gaskets and polypropylene ties

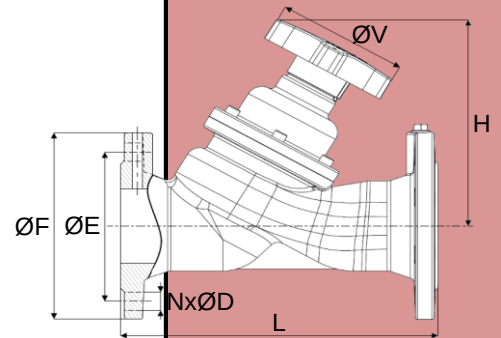


Dimensions

Size	ØF (in)	ØE (in)	NxØD (in)	L (in)	H (in)	ØV (in)	Weight (lb)	Flow range ¹ (GPM)
2½"	7,0	5.50	4x0,75	11,4	8,7	5,1	29.5	47,9-110,2
3"	7,5	6.00	4x0,75	12,2	8,7	5,1	39.2	101,4-243,5
4"	9,0	7.50	8x0,75	13,8	9,4	5,1	50.0	172,0-412,7
5"	10,0	8.50	8x0,87	15,7	9,8	5,1	75.0	267,1-630,1
6"	11,0	9.50	8x0,87	18,9	11,2	5,1	106.9	375,8-902,0
8"	13,5	11.75	8x0,87	23,6	18,9	12,2	252.4	663,5-1592,5
10"	16,0	14.25	12x1,00	28,7	20,7	12,2	350.5	1055,3-2485,0
12"	19,0	17.00	12x1,00	33,5	21,1	12,2	464.1	1492,5-4057,5

¹Suggested 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)



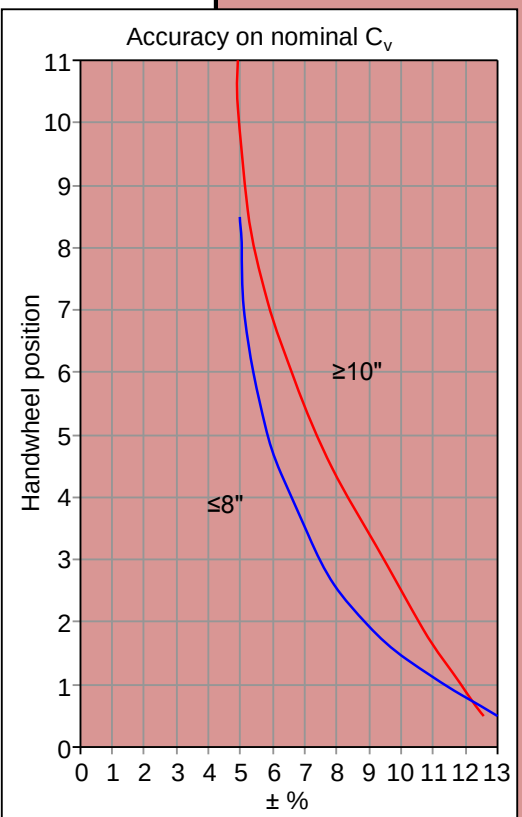
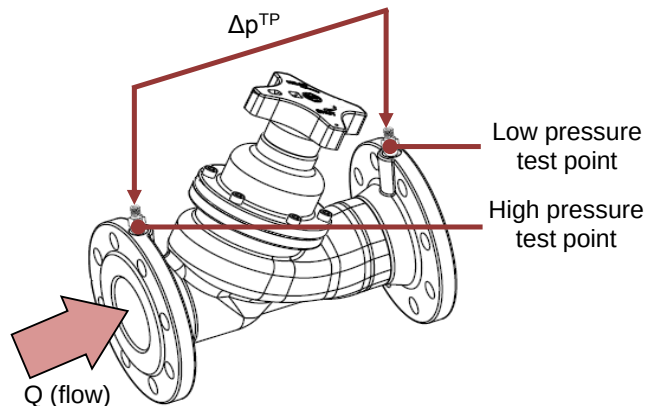
Flow Measurement

Handwheel position	Cv (GPM @ 1psi)							
	2½"	3"	4"	5"	6"	8"	10"	12"
1.0	25.3	9.1	11.1	15.0	17.1	44.6	72.0	66.0
1.5	30.5	11.4	14.8	20.6	22.1	52.7	84.5	83.5
2.0	35.9	13.6	19.2	27.4	34.3	63.1	100.9	103.8
2.5	41.3	16.0	26.5	38.3	59.9	82.3	133.9	127.4
3.0	46.4	19.3	39.3	59.2	96.8	115.5	189.5	162.7
3.5	51.3	25.3	58.4	89.0	152.6	171.8	276.5	233.5
4.0	57.0	36.1	82.5	123.1	212.4	249.9	399.2	383.5
4.5	61.5	53.1	105.1	156.9	253.8	328.2	521.9	578.3
5.0	66.5	75.1	124.2	186.0	285.7	394.5	628.1	733.1
5.5	74.5	91.9	140.6	210.5	316.0	448.2	719.1	847.7
6.0	83.0	103.2	156.1	233.4	344.7	497.2	802.3	953.9
6.5	88.6	111.7	171.2	256.2	371.5	545.3	884.6	1067
7.0	92.9	118.7	184.9	277.2	395.6	586.8	952.3	1177
7.5	97.2	125.1	196.3	295.8	417.0	618.7	1013	1272
8.0	102.7	131.1	205.7	313.1	435.6	648.3	1070	1352
8.5	-	-	213.5	329.6	451.1	682.1	1127	1422
9.0	-	-	-	-	-	716.0	1182	1486
9.5	-	-	-	-	-	745.5	1234	1549
10.0	-	-	-	-	-	771.3	1284	1612
10.5	-	-	-	-	-	795.9	1330	1675
11.0	-	-	-	-	-	820.8	1373	1739

$$Q = C_v \cdot \sqrt{\Delta p^{TP}}$$

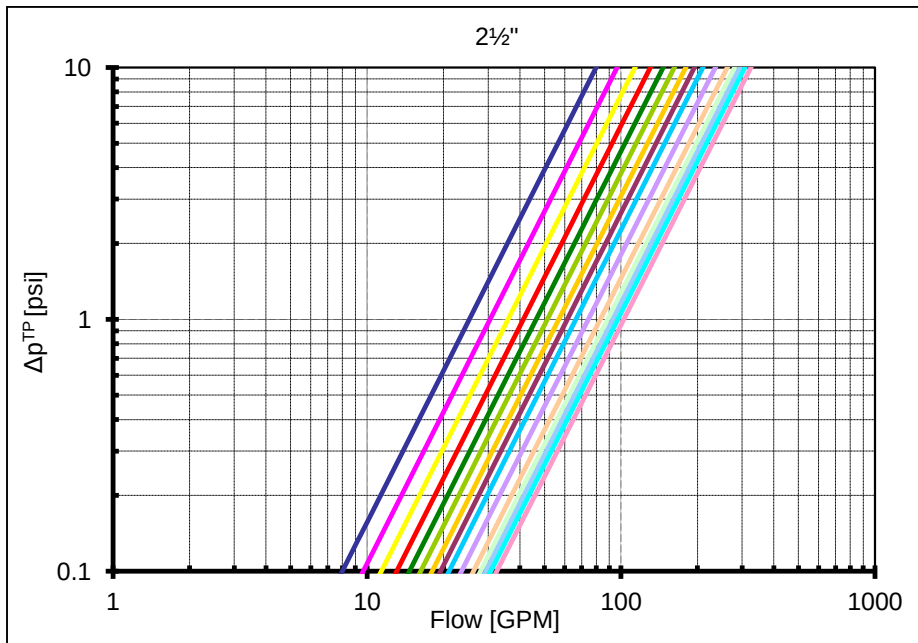
Formula linking flow Q (in GPM) and Δp measured at test points (in psi). C_v depends on handwheel position as indicated on table.

Minimum flow that can be measured for each diameter may be calculated by using in the formula minimum Δp that can be measured by used manometer. Valves are anyway designed for best performances when used on range previously suggested and as indicated by BS7350.



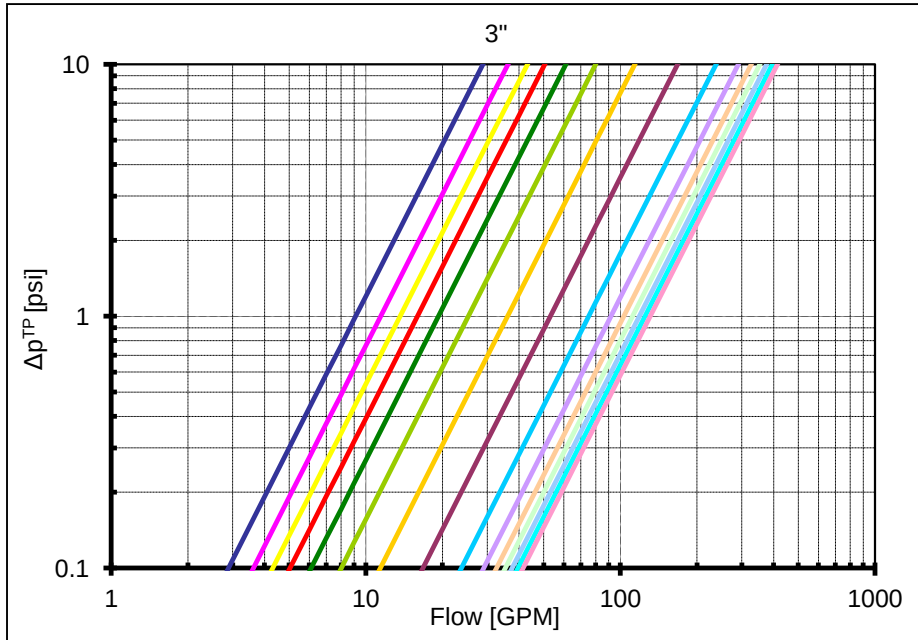
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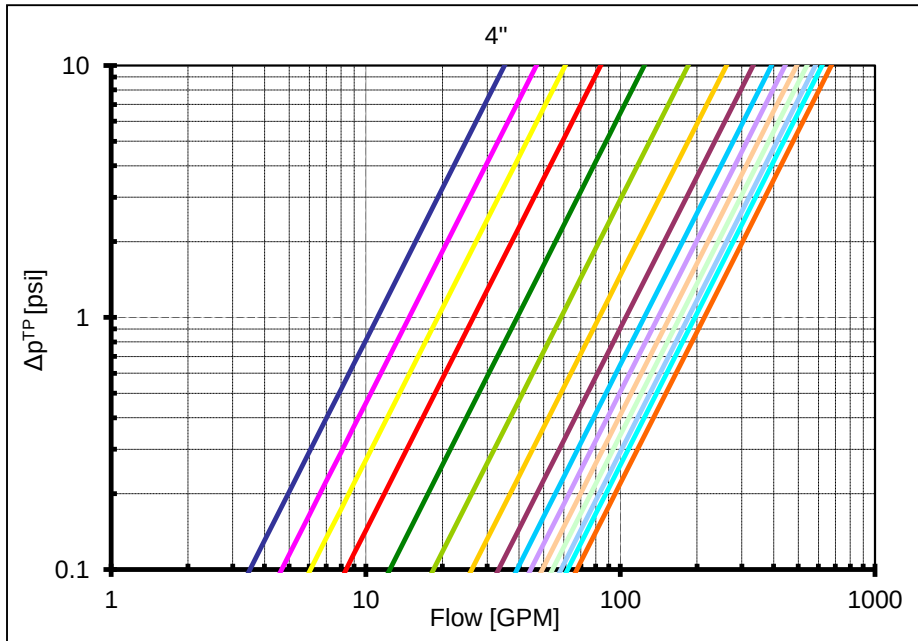
Handwheel position

- 1.0
- 1.5
- 2.0
- 2.5
- 3.0
- 3.5
- 4.0
- 4.5
- 5.0
- 5.5
- 6.0
- 6.5
- 7.0
- 7.5
- 8.0



Handwheel position

- 1.0
- 1.5
- 2.0
- 2.5
- 3.0
- 3.5
- 4.0
- 4.5
- 5.0
- 5.5
- 6.0
- 6.5
- 7.0
- 7.5
- 8.0

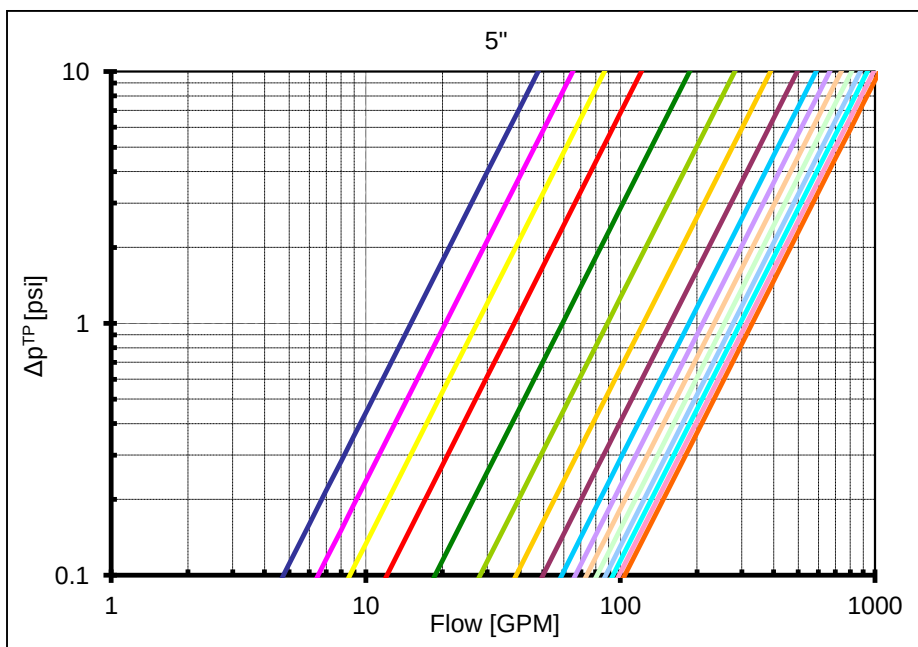


Handwheel position

- 1.0
- 1.5
- 2.0
- 2.5
- 3.0
- 3.5
- 4.0
- 4.5
- 5.0
- 5.5
- 6.0
- 6.5
- 7.0
- 7.5
- 8.5

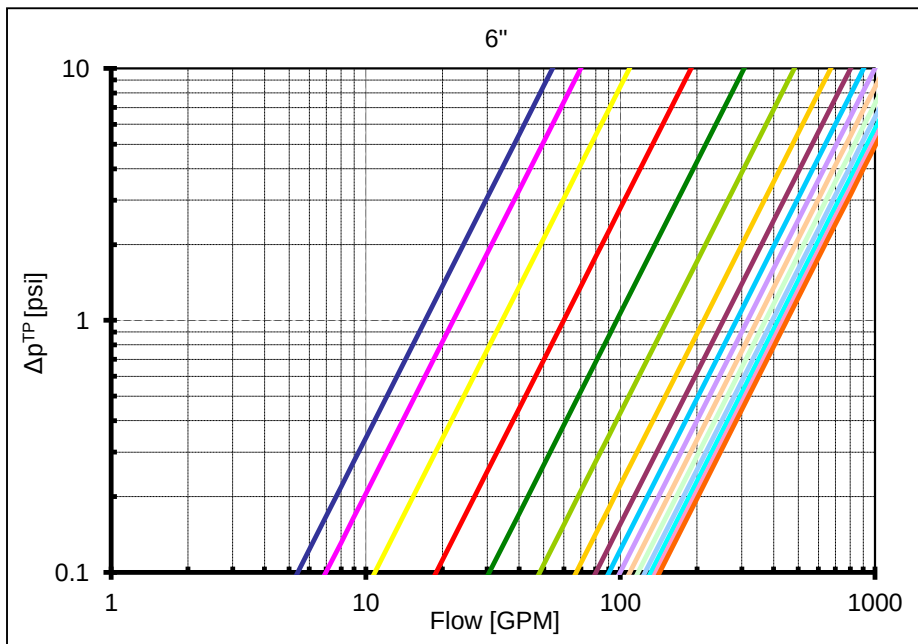
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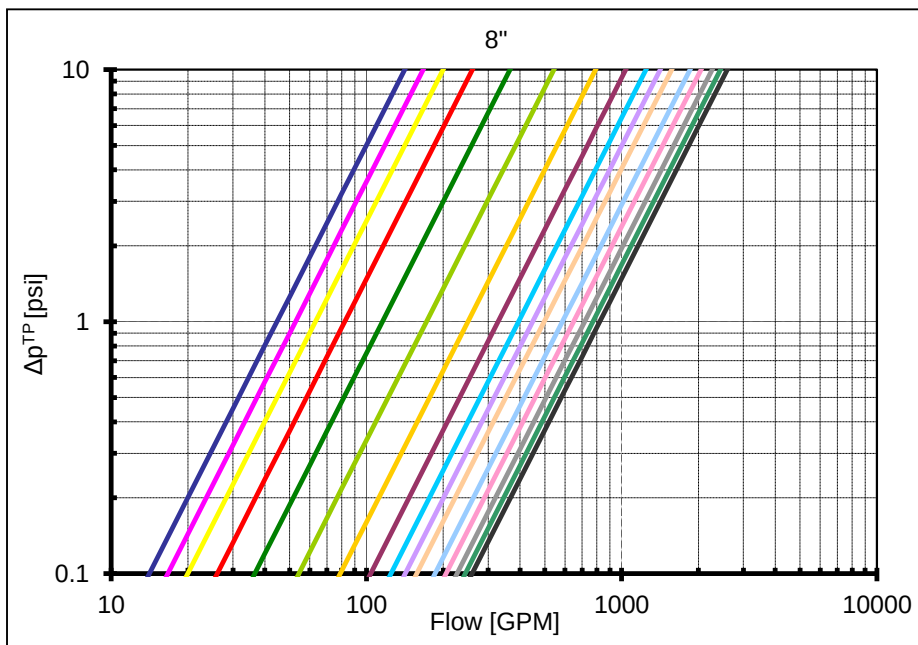
Handwheel position

- 1.0
- 1.5
- 2.0
- 2.5
- 3.0
- 3.5
- 4.0
- 4.5
- 5.0
- 5.5
- 6.0
- 6.5
- 7.0
- 7.5
- 8.0
- 8.5



Handwheel position

- 1.0
- 1.5
- 2.0
- 2.5
- 3.0
- 3.5
- 4.0
- 4.5
- 5.0
- 5.5
- 6.0
- 6.5
- 7.0
- 7.5
- 8.5

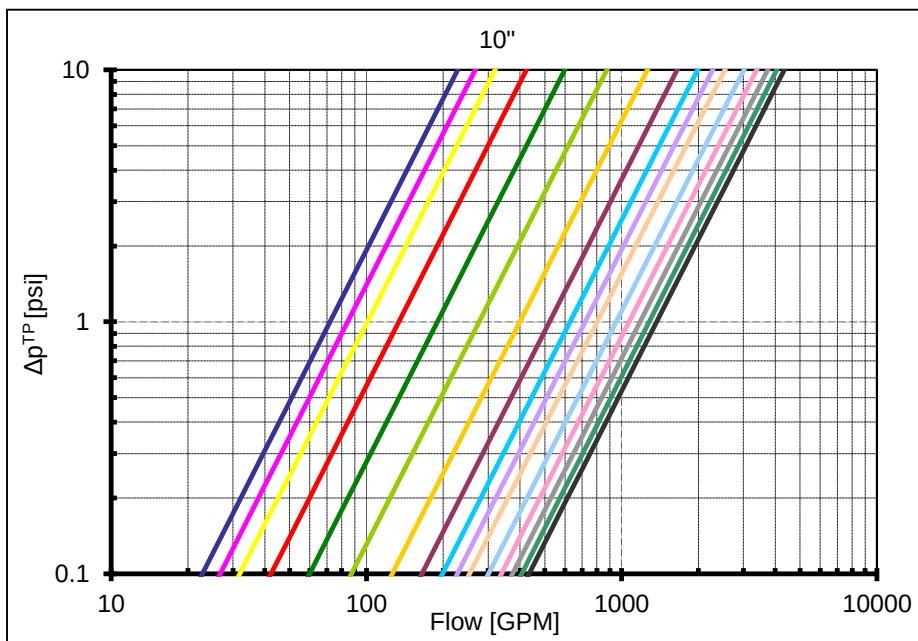


Handwheel position

- 1.0
- 1.5
- 2.0
- 2.5
- 3.0
- 3.5
- 4.0
- 4.5
- 5.0
- 5.5
- 6.0
- 7.0
- 8.0
- 9.0
- 10.0
- 11.0

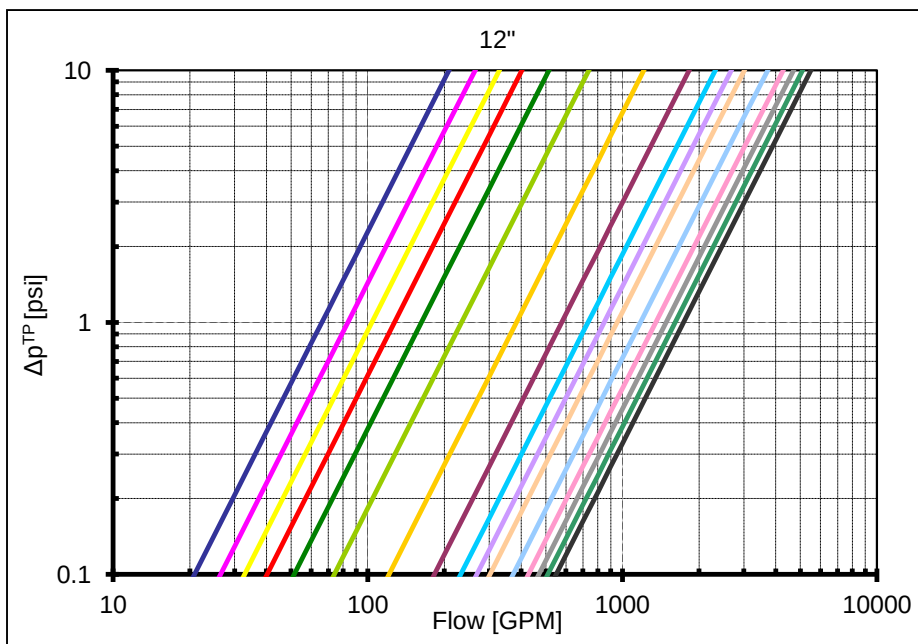
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Handwheel
position

- 1.0
- 1.5
- 2.0
- 2.5
- 3.0
- 3.5
- 4.0
- 4.5
- 5.0
- 5.5
- 6.0
- 7.0
- 8.0
- 9.0
- 10.0
- 11.0



Handwheel
position

- 1.0
- 1.5
- 2.0
- 2.5
- 3.0
- 3.5
- 4.0
- 4.5
- 5.0
- 5.5
- 6.0
- 7.0
- 8.0
- 9.0
- 10.0
- 11.0

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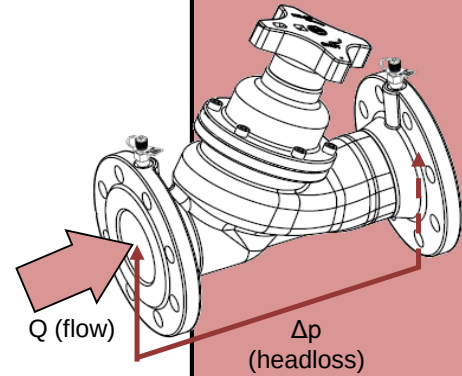
Headloss calculation

Handwheel position	Cv (GPM @ 1psi)							
	2½"	3"	4"	5"	6"	8"	10"	12"
1.0	25.3	9.1	11.1	15.0	17.1	44.6	72.0	66.0
1.5	30.5	11.4	14.8	20.6	22.1	52.7	84.5	83.5
2.0	35.9	13.6	19.2	27.4	34.3	63.1	100.9	103.8
2.5	41.3	16.0	26.5	38.3	59.9	82.3	133.9	127.4
3.0	46.4	19.3	39.3	59.2	96.8	115.5	189.5	162.7
3.5	51.3	25.3	58.4	89.0	152.6	171.8	276.5	233.5
4.0	57.0	36.1	82.5	123.1	212.4	249.9	399.2	383.5
4.5	61.5	53.1	105.1	156.9	253.8	328.2	521.9	578.3
5.0	66.5	75.1	124.2	186.0	285.7	394.5	628.1	733.1
5.5	74.5	91.9	140.6	210.5	316.0	448.2	719.1	847.7
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9.5	-	-	-	-	-	745.5	1234	1549
10.0	-	-	-	-	-	771.3	1284	1612
10.5	-	-	-	-	-	795.9	1330	1675
11.0	-	-	-	-	-	820.8	1373	1739

Copy of the table presented in flow measurement paragraph
 Δp (headloss) approximately equal to Δp^{TP}

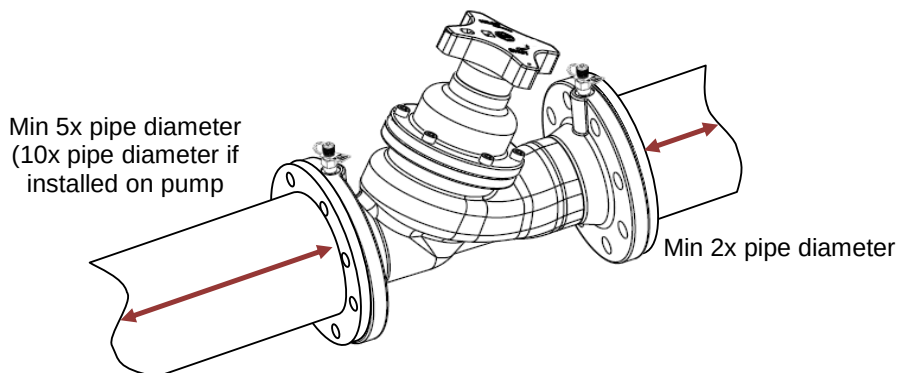
$$\Delta p = \left(\frac{Q}{C_v} \right)^2$$

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



Installation

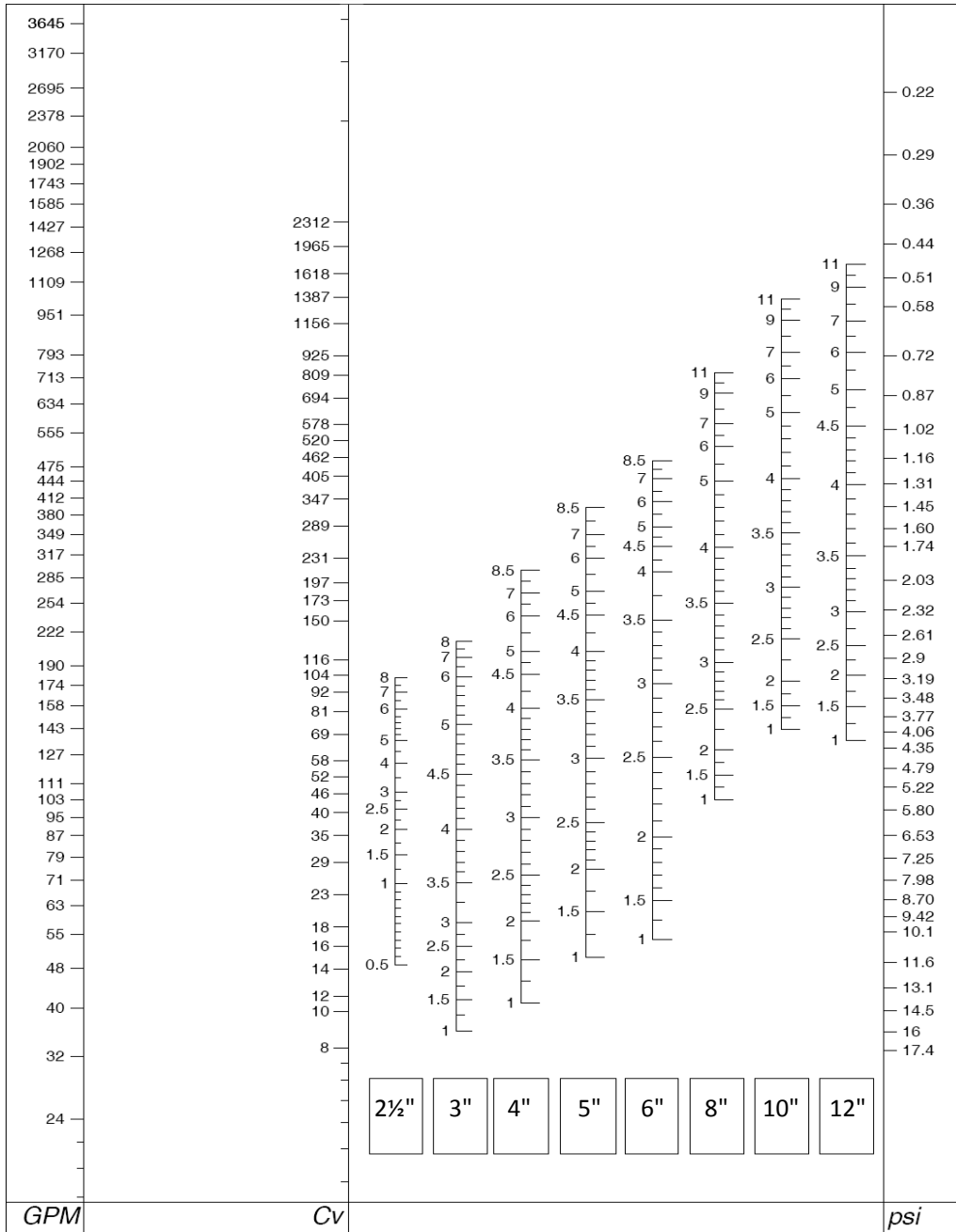
To obtain the best performances valve must be installed on a pipe with its same nominal size preceded and followed by straight pipe lengths as per figure indications.



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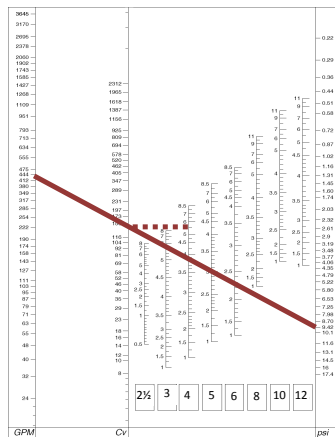
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Presetting



By using diagram above is possible to esteem the presetting position of the valve with 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 440GPM and design Δp 9,4psi handwheel position of 5,6 is determined for a 4" valve

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