FIG. ANVIL CSV-9520AB SERIES
DZR Brass On/Off Terminal Low Lead Balancing Valves

FEATURES

Low lead brass ON/OFF terminal balancing valve for HVAC and domestic water use. Threaded F/F (ASME B1.20.1 - NPI) or solder joint ends (ASME B16.22). Tolerance on nominal C_v for fully open valve + 10% (test according to BS7350). 300 WOG (Maximum 300psi up to 160°F. Maximum 150psi at 260°F.)

Available in following versions:
- ❏ CSV-T-9527AB threaded ends
- ❏ CSV-S-9529AB solder joint ends

Provided with mounted test points. With threaded M30x1.5 connection for linear actuator (Vaurien)

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. **PLUG:** CW510L
2. **BODY:** CW510L
3. **DISC GASKET:** EPDM Perox
4. **GASKET WASHER**[1]**:** CW510L
5. **BALANCE DISC**[2]**:** CW510L
6. **STEM O-RING:** EPDM Perox
7. **SPRING CARTRIDGE:** Brass
8. **SPRING:** Stainless Steel
9. **DISC STEM:** Stainless Steel
10. **STOP RING:** Stainless Steel
11. **WASHER:** Brass
12. **BALANCING STEM:** CW510L
13. **BALANCING STEM O-RING:** EPDM Perox
14. **BONNET O-RING:** EPDM Perox
15. **BONNET:** CW510L
16. **GRADUATED SCALE:** Blue Polypropylene
17. **REG. INDICATOR:** Orange Polyamide
18. **ON/OFF CAP:** Blue Polyamide
19. **TEST POINT/PLUG:** DZR Brass[3]

[1] Clamped to stem for ¹/₂"/³/₄", with brass threaded washer for 1".
[2] In two parts (disc + cone) for ¹/₂"LF
[3] Plug with copper gaskets. Test points with EPDM Perox gaskets and polypropylene ties.

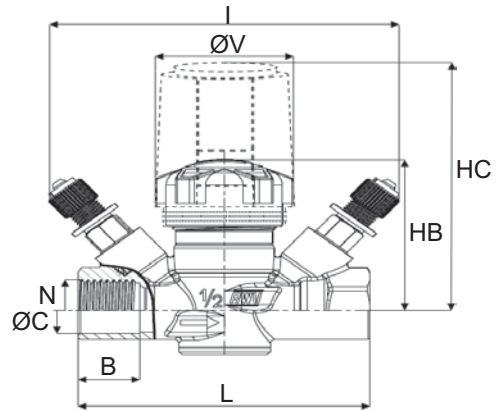For additional information on Gruvlok bag and tag coil kit service, contact an Anvil Representative.
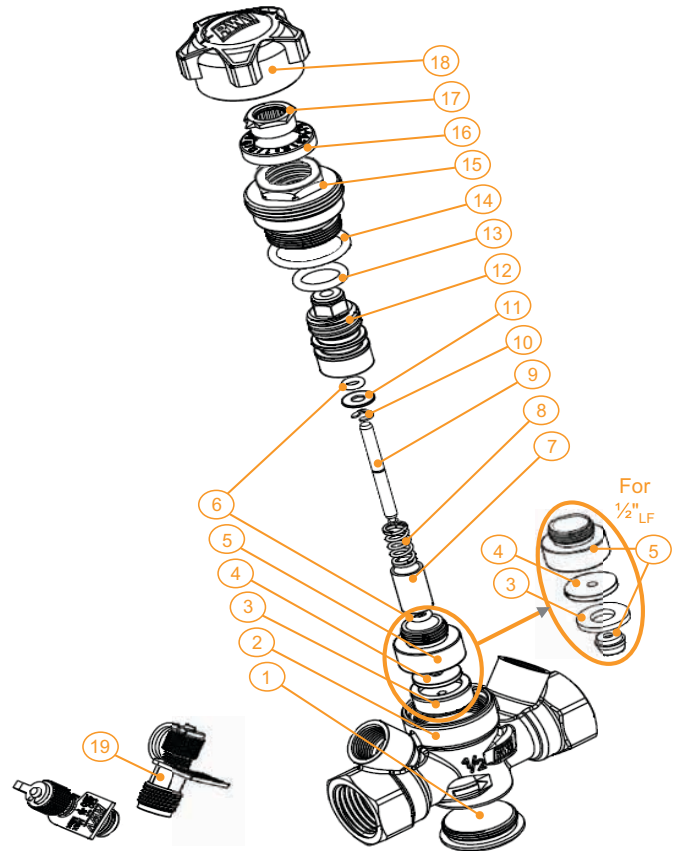
PROJECT INFORMATION	APPROVAL STAMP
Project:	❏ Approved
Address:	❏ Approved as noted
Contractor:	❏ Not approved
Engineer:	Remarks:
Submittal Date:	
Notes 1:	
Notes 2:	

FIG. ANVIL CSV-9520AB SERIES
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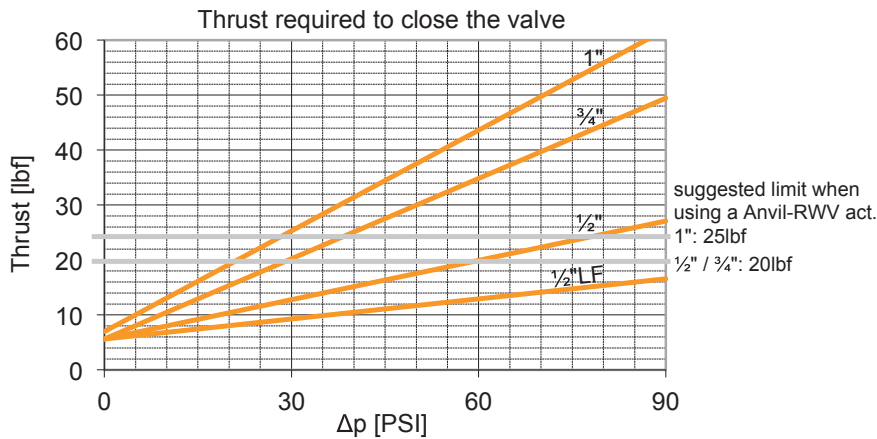| Valve Size	N	øC[1]	L[2]	B[2]	HB	HC[3]	øV	I	Approx. Wt. Each	Flow Range
In./mm	In./mm	In./mm	In./mm	In./mm	In./mm	In./mm	In./mm	In./mm	Lbs./Kg	GPM
½LF	½ - 14	0.627-0.631	3.3/3.9	0.65/0.51	2.0	3.3	1.6	3.9	0.77/0.74	0.49/1.17
15	–	15.93-16.03	83.8/99.1	16.5/13.0	50.8	83.8	40.6	99.1	0.35/0.34	–
½	½ - 14	0.627-0.631	3.3/3.9	0.65/0.51	2.0	3.3	1.6	3.9	0.77/0.74	0.98/2.35[4]
15	–	15.93-16.03	83.8/99.1	16.5/13.0	50.8	83.8	40.6	99.1	0.35/0.34	–
¾	¾ - 14	0.877-0.881	3.5/4.6	0.76/0.78	2.0	3.3	1.6	4.1	0.99/0.99	2.19/5.15[4]
20	–	22.28-22.38	88.9/116.8	19.3/19.8	50.8	83.8	40.6	104.1	0.45/0.45	–
1	1 - 11.5	1.128-1.131	3.9/5.0	0.90/0.92	2.8	4.3	1.6	4.3	1.37/1.27	4.09/9.56[4]
25	–	28.65-28.73	99.1/127.0	22.9/23.4	71.1	109.2	40.6	109.2	0.62/0.58	–

[1] Tolerance field

[2] Threaded ends/soldering ends

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

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


Thrust required to close the valve

suggested limit when using a Anvil-RWV act.
1": 25lbf
½" / ¾": 20lbf

FLOW MEASUREMENT

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

Regulating Position	C_V			
	½"LF	½"	¾"	1"
–	GPM/psi	GPM/psi	GPM/psi	GPM/psi
0.5	0.127	0.578	0.798	1.538
1.0	0.173	0.879	1.237	2.405
1.5	0.220	1.098	1.584	3.121
2.0	0.254	1.260	1.896	3.665
2.5	0.289	1.399	2.197	4.162
3.0	0.335	1.514	2.451	4.509
3.5	0.382	1.607	2.671	4.844
4.0	0.428	1.699	2.856	5.226
4.5	0.486	1.769	3.017	5.491
5.0	0.543	1.838	3.179	5.723
5.5	0.601	1.884	3.306	5.942
6.0	0.659	1.931	3.422	6.127
6.5	0.717	1.965	3.526	6.312
7.0	0.775	2.000	3.619	6.555
7.5	0.832	2.035	3.700	6.740
8.0	0.879	2.058	3.792	6.937
8.5	0.925	2.081	3.873	7.087
9.0	0.960	2.104	3.942	7.145
9.5	0.994	2.116	4.012	7.283

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

Minimum flow that can be measured for each diameter may be calculated by using in the formula minimum Δp that can be measureed by used manometer.

Valves are anyway designed for best performances when used on range previously suggested.
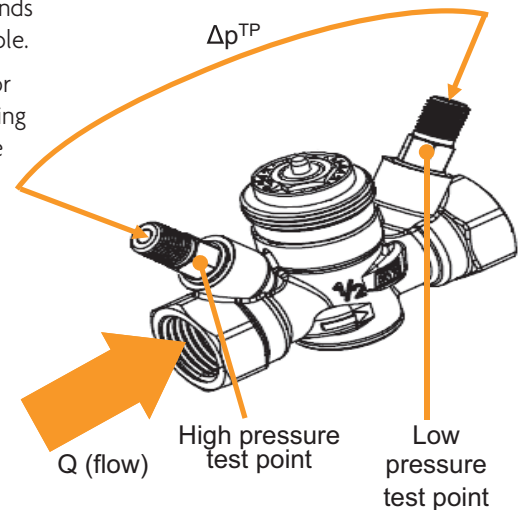
Δp^{TP}

Q (flow)

High pressure test point

Low pressure test point

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

FIG. ANVIL CSV-9520AB SERIES

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Regulating Position

	0.5
	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
	9.0
	9.5
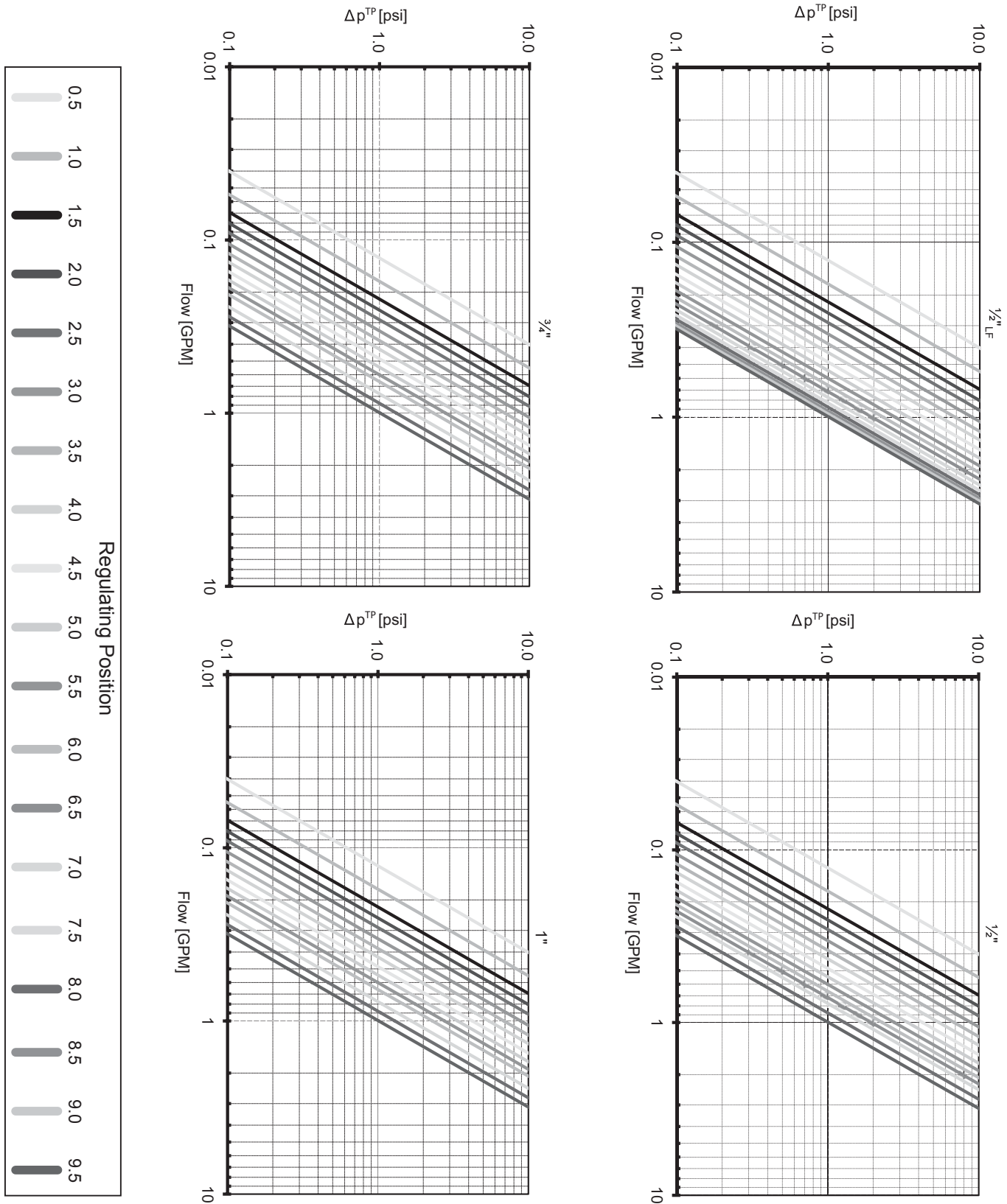
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FIG. ANVIL CSV-9520AB SERIES
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HEADLOSS CALCULATION

Regulating Position	C_V (GPM/psi$^{0.5}$)			
	½"LF	½"	¾"	1"
–	GPM/psi	GPM/psi	GPM/psi	GPM/psi
0.5	0.127	0.578	0.798	1.538
1.0	0.173	0.879	1.237	2.405
1.5	0.220	1.098	1.584	3.121
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3.5	0.382	1.607	2.671	4.844
4.0	0.428	1.699	2.856	5.226
4.5	0.486	1.769	3.017	5.491
5.0	0.543	1.838	3.179	5.723
5.5	0.601	1.884	3.306	5.942
6.0	0.659	1.931	3.422	6.127
6.5	0.717	1.965	3.526	6.312
7.0	0.775	2.000	3.619	6.555
7.5	0.832	2.035	3.700	6.740
8.0	0.879	2.058	3.792	6.937
8.5	0.925	2.081	3.873	7.087
9.0	0.960	2.104	3.942	7.145
9.5	0.994	2.116	4.012	7.283

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

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

Δp (headloss)

Q (flow)
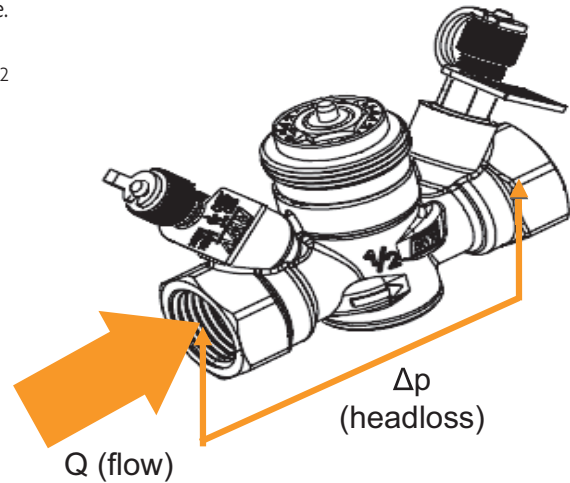
INSTALLATION

Regulation is done by removing the ON/OFF cap and acting on regulation indicator with the provided key. Once desired regulation is obtained, screw on the cap (gently with the only aim to fix it to the valve, do not apply force!)

It's possible at any time to act on the ON/OFF cap to completely close the valve, independently from regulation. To do so, act on the cap screwing it on at full stroke.

Regulation   ON/OFF Cap Fixing   Valve Shut-Off
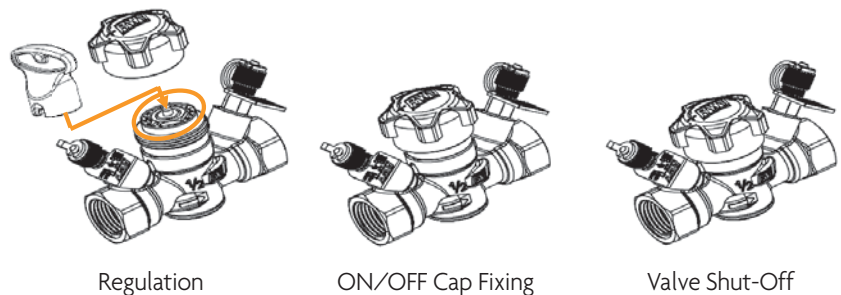
To obtain the best performances valve must be installed on a pipe with its same nominal size preceded and followed by straight pipe lengths as per figure indications.
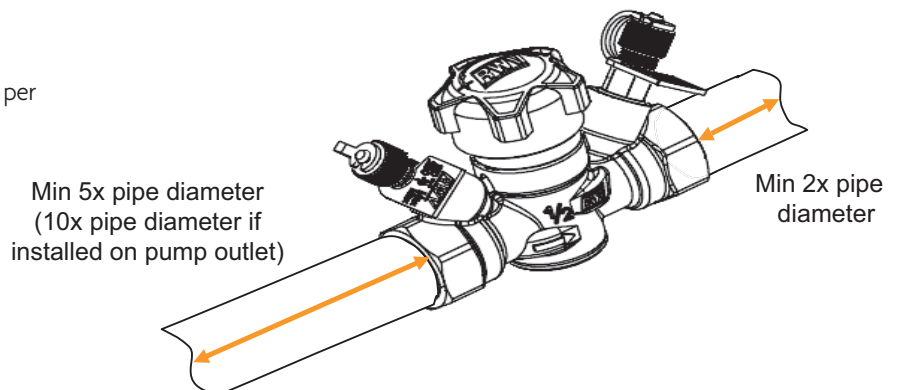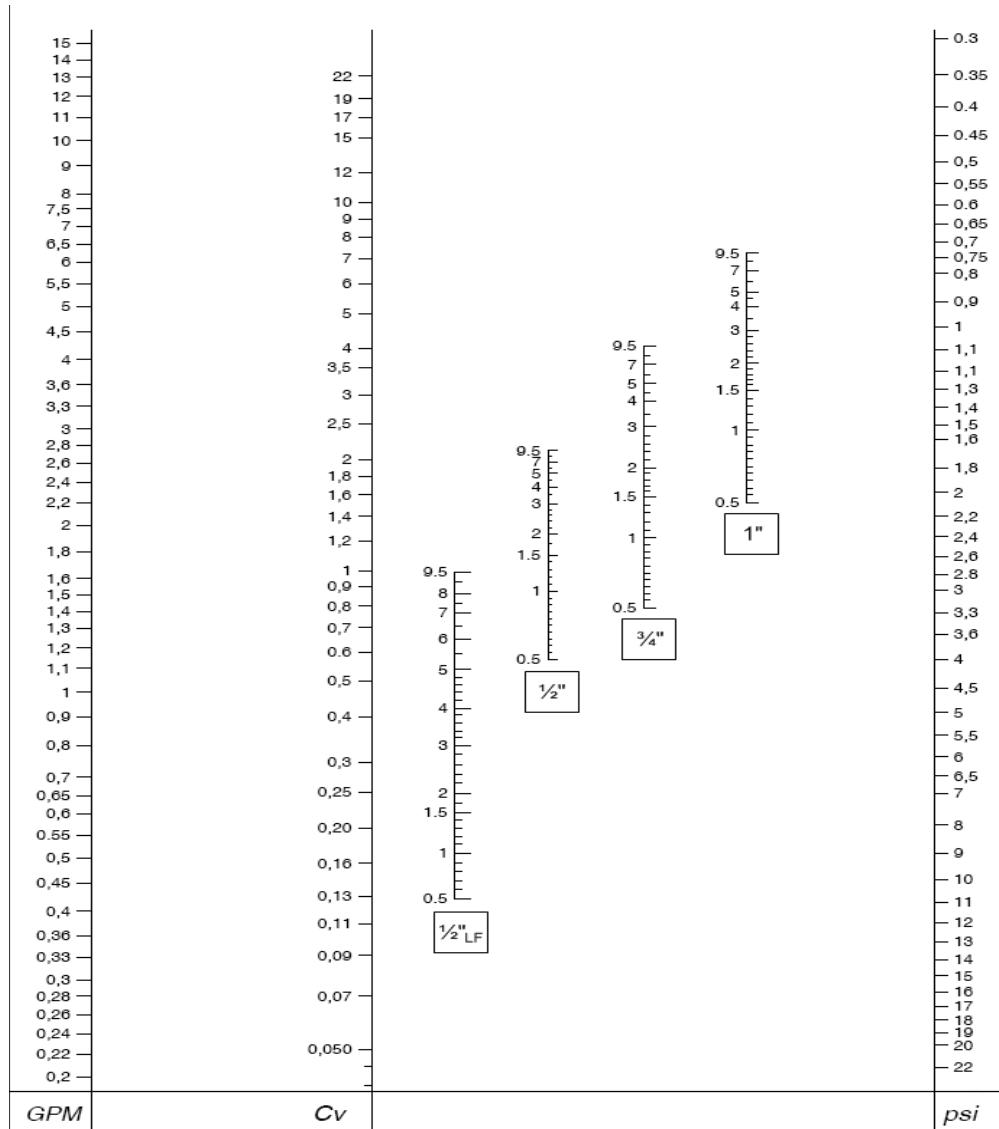
Min 5x pipe diameter (10x pipe diameter if installed on pump outlet)

Min 2x pipe diameter

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# FIG. ANVIL CSV-9520AB SERIES
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PRESETTING

By using diagram above is possible to evaluate 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 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.
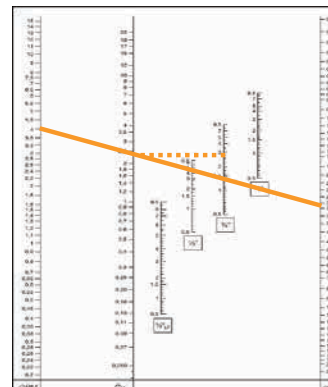
In the example for a design flowrate of 4GPM and desi... Δp 3psi handwheel position of 2.7 is determined for a ... valve

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