

Variable Orifice Ductile Iron Double Regulating Valve PN16

Size 21/2" to 16"

Specifications:

IVAL® Variable Orifice Double Regulating Valves are Y-Pattern globe valves suitable for flow regulation and isolation.

Valves are supplied with test points to enable flow measurement.

Valves conform to requirements of BS 7350 and ends are flanged to BS EN 1092-2.

Features:

- Y-Pattern globe valve with a characterised throttling disc.
- The Double Regulating feature allows the valve to be used for isolation and to be reopened to its pre-set position to maintain required flow rate.
- The valve opening may be set to control flow at a predetermined rate.
- Operation of the valve is by means of a hand wheel incorporating a micrometre device.

Pressure/Temperature Ratings:

Temperature (°C)	-10 to +110				
Pressure (Bar)	16				

Test Pressures:

Each valve is individually hydrostatically tested at the following test:

(HYDRAULIC) Shell: 24 bar - Seat: 17.6 bar

Materials:

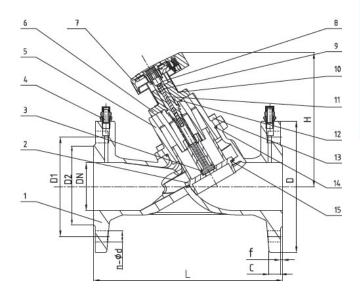
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No.	Description	Material	Specification		
1	Valve Body	Ductile Iron	EN-GJS-450-10		
2	Disc	Brass	EN12164 CW614N		
3	3 Disc Screw Bras		EN12164 CW614N		
4	4 Test Points Br		EN12164 CW614N		
5	Cover	Ductile Iron	EN-GJS-450-10		
6	Gland	Brass	EN12164 CW614N		
7	Handwheel PA GF30, AL		-		
8	Stem	Brass	EN12164 CW614N		
9	O-Ring	VITON	-		
10	Socket Head	Stainless Steel	AISI 304		
11	Adjust Screw	Stainless Steel	AISI 304		
12	2 O-Ring VITON		-		
13	Socket Head	Stainless Steel	AISI 304		
14	O-Ring	VITON	-		
15	Gasket	EPDM	-		

Suitable for water: Below 0°C only for water with added antifreeze fluids, over 100°C only for water with added antiboiling fluids (ethylene glycol or propylene glycol mixtures up to 50% may be used). Not suitable for: gases group 1 & 2, liquids group 1 (Dir. 2014/68/EU)

TECHNICAL DATASHEET





Dimensions:

D	N		Dimensi	No.	Wt.		
Inch	mm	L	Н	D	n-ØL	of Turns	(Kg)
2.5"	65	290	185	185	4-Ø19	8.0	14.72
3"	80	310	225	200	8-Ø19	7.0	17.39
4"	100	350	240	220	8-Ø19	8.0	24.11
5"	125	400	280	250	8-Ø19	7.0	34.87
6"	150	480	300	285	8-Ø23	8.0	46.67
8"	200	600	450	340	12-Ø23	11.0	92.85
10"	250	730	500	405	12-Ø28	12.0	147.18
12"	300	850	828	460	12-Ø26	16.0	194.85
14"	350	980	970	520	16-Ø26	20.0	347.12
16"	400	1,100	1,100	580	16-Ø30	22.0	472.09
		17.00	.,	000	.0 200	22.0	., 2.0,



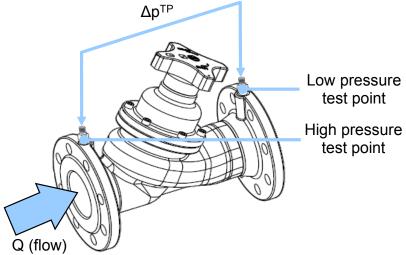
Flow Characteristics:

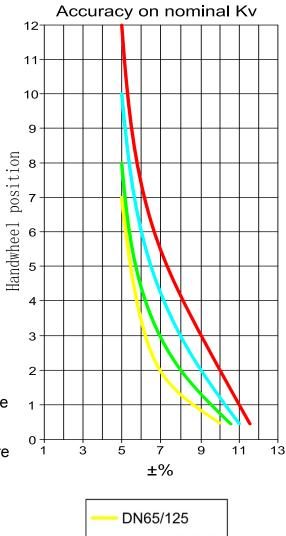
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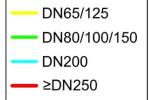
Formula linking flow **Q** (in I/s) and ΔP (in kPa) measured at test points. Kv depends on handwheel position as indicated on table in the next page.

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.

$$Q = \frac{K_{v} \cdot \sqrt{\Delta P^{TP}}}{36}$$









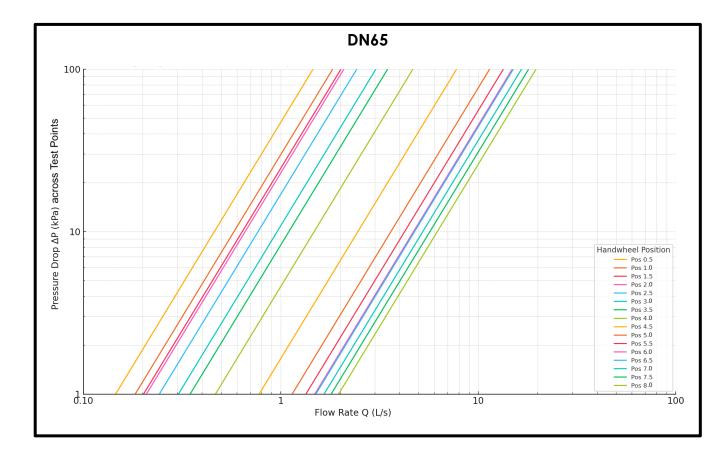


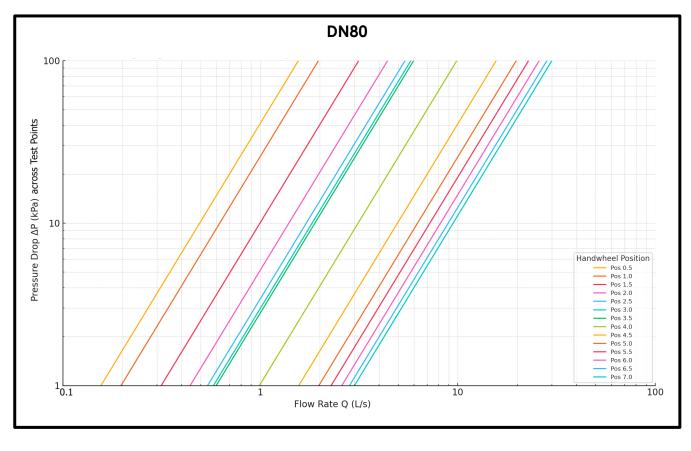
0.5 DN86 DN80 DN100 DN125 DN150 DN200 DN250 DN300 DN300 DN350 DN 0.5 5.25 5.62 6.75 12.53 13.95 16.95 25.56 - <t< th=""><th>Turna</th><th colspan="8">Kv (m3/h @ 1bar)</th><th></th></t<>	Turna	Kv (m3/h @ 1bar)									
1.0 6.60 7.10 9.59 18.10 20.92 23.99 38.35 -	Turns	DN65	DN80	DN100	DN125	DN150	DN200	DN250	DN300	DN350	DN400
1.5 7.27 11.35 13.06 18.65 40.80 26.56 46.39 - <th< th=""><th>0.5</th><th>5.25</th><th>5.62</th><th>6.75</th><th>12.53</th><th>13.95</th><th>16.95</th><th>25.56</th><th>-</th><th>-</th><th>-</th></th<>	0.5	5.25	5.62	6.75	12.53	13.95	16.95	25.56	-	-	-
2.0 7.52 15.90 16.23 22.66 61.63 27.73 70.50 - <td< th=""><th>1.0</th><th>6.60</th><th>7.10</th><th>9.59</th><th>18.10</th><th>20.92</th><th>23.99</th><th>38.35</th><th>-</th><th>-</th><th>-</th></td<>	1.0	6.60	7.10	9.59	18.10	20.92	23.99	38.35	-	-	-
2.5 8.74 19.48 21.53 37.93 78.30 64.89 92.96 - <th< th=""><th>1.5</th><th>7.27</th><th>11.35</th><th>13.06</th><th>18.65</th><th>40.80</th><th>26.56</th><th>46.39</th><th>-</th><th>-</th><th>-</th></th<>	1.5	7.27	11.35	13.06	18.65	40.80	26.56	46.39	-	-	-
3.0 10.92 20.85 31.51 49.94 93.27 103.45 118.13 150 109 12 3.5 12.52 21.54 43.33 61.56 115.67 142.84 137.86 230 129 14 4.0 16.81 35.64 59.78 98.05 176.22 180.70 140.78 300 148 17 4.5 27.99 56.39 88.91 138.35 229.09 235.18 155.16 370 170 20 5.0 41.13 71.26 102.20 157.86 264.37 302.83 218.04 450 207 26 5.5 48.27 82.26 118.78 171.53 295.90 349.95 305.13 535 254 33 6.5 54.21 101.89 150.46 229.62 339.38 451.81 412.42 690 352 44 7.0 59.66 107.92 164.24 246.41 359.75 504.36	2.0	7.52	15.90	16.23	22.66	61.63	27.73	70.50	-	-	-
3.5 12.52 21.54 43.33 61.56 115.67 142.84 137.86 230 129 14.40 4.0 16.81 35.64 59.78 98.05 176.22 180.70 140.78 300 148 17 4.5 27.99 56.39 88.91 138.35 229.09 235.18 155.16 370 170 20 5.0 41.13 71.26 102.20 157.86 264.37 302.83 218.04 450 207 26 5.5 48.27 82.26 118.78 171.53 295.90 349.95 305.13 535 254 33 6.0 53.53 93.14 134.45 201.14 321.68 398.94 367.70 620 302 38 6.5 54.21 101.89 150.46 229.62 339.38 451.81 412.42 690 352 44 7.0 59.66 107.92 164.24 246.41 359.75 504.36 </th <th>2.5</th> <th>8.74</th> <th>19.48</th> <th>21.53</th> <th>37.93</th> <th>78.30</th> <th>64.89</th> <th>92.96</th> <th>-</th> <th>-</th> <th>-</th>	2.5	8.74	19.48	21.53	37.93	78.30	64.89	92.96	-	-	-
4.0 16.81 35.64 59.78 98.05 176.22 180.70 140.78 300 148 17 4.5 27.99 56.39 88.91 138.35 229.09 235.18 155.16 370 170 20 5.0 41.13 71.26 102.20 157.86 264.37 302.83 218.04 450 207 26 5.5 48.27 82.26 118.78 171.53 295.90 349.95 305.13 535 254 32 6.0 53.53 93.14 134.45 201.14 321.68 398.94 367.70 620 302 38 6.5 54.21 101.89 150.46 229.62 339.38 451.81 412.42 690 352 44 7.0 59.66 107.92 164.24 246.41 359.75 504.36 470.32 750 404 51 8.0 70.65 - 188.06 - 407.04 561.53	3.0	10.92	20.85	31.51	49.94	93.27	103.45	118.13	150	109	125
4.5 27.99 56.39 88.91 138.35 229.09 235.18 155.16 370 170 20 5.0 41.13 71.26 102.20 157.86 264.37 302.83 218.04 450 207 26 5.5 48.27 82.26 118.78 171.53 295.90 349.95 305.13 535 254 33 6.0 53.53 93.14 134.45 201.14 321.68 398.94 367.70 620 302 36 6.5 54.21 101.89 150.46 229.62 339.38 451.81 412.42 690 352 44 7.0 59.66 107.92 164.24 246.41 359.75 504.36 470.32 750 404 51 7.5 64.80 - 178.10 - 379.97 547.39 530.14 815 471 59 8.5 - - - - - - - -	3.5	12.52	21.54	43.33	61.56	115.67	142.84	137.86	230	129	148
5.0 41.13 71.26 102.20 157.86 264.37 302.83 218.04 450 207 26 5.5 48.27 82.26 118.78 171.53 295.90 349.95 305.13 535 254 33 6.0 53.53 93.14 134.45 201.14 321.68 398.94 367.70 620 302 36 6.5 54.21 101.89 150.46 229.62 339.38 451.81 412.42 690 352 44 7.0 59.66 107.92 164.24 246.41 359.75 504.36 470.32 750 404 51 7.5 64.80 - 178.10 - 379.97 547.39 530.14 815 471 55 8.0 70.65 - 188.06 - 407.04 561.53 601.35 890 556 66 8.5 - - - - - - - -	4.0	16.81	35.64	59.78	98.05	176.22	180.70	140.78	300	148	171
5.5 48.27 82.26 118.78 171.53 295.90 349.95 305.13 535 254 32 6.0 53.53 93.14 134.45 201.14 321.68 398.94 367.70 620 302 38 6.5 54.21 101.89 150.46 229.62 339.38 451.81 412.42 690 352 44 7.0 59.66 107.92 164.24 246.41 359.75 504.36 470.32 750 404 51 7.5 64.80 - 178.10 - 379.97 547.39 530.14 815 471 59 8.0 70.65 - 188.06 - 407.04 561.53 601.35 890 556 66 8.5 - - - - - - - - - 9.0 - - - - - - - - - -	4.5	27.99	56.39	88.91	138.35	229.09	235.18	155.16	370	170	208
6.0 53.53 93.14 134.45 201.14 321.68 398.94 367.70 620 302 38 6.5 54.21 101.89 150.46 229.62 339.38 451.81 412.42 690 352 44 7.0 59.66 107.92 164.24 246.41 359.75 504.36 470.32 750 404 51 7.5 64.80 - 178.10 - 379.97 547.39 530.14 815 471 59 8.0 70.65 - 188.06 - 407.04 561.53 601.35 890 556 66 8.5 - - - - - 590.88 669.96 - - - 9.0 - - - - - 632.76 725.97 970 784 89 9.5 - - - - - 690.38 843.75 1040 957 11	5.0	41.13	71.26	102.20	157.86	264.37	302.83	218.04	450	207	264
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	16.0	-	-	-	-	-	-	-	1450	1870	2140
18.0 2040 24	17.0	-	-	-	-	-	-	-	-	1960	2280
	18.0	-	-	-	-	-	-	-	-	2040	2410
19.0 2130 25	19.0	-	-	-	-	-	-	-	-	2130	2530
20.0 2200 26	20.0	-	-	-	-	-	-	-	-	2200	2630
21.0 27	21.0	-	-	-	-	-	-	-	-	-	2710
22.0 27	22.0	-	-	-	-	-	-	-	-	-	2780

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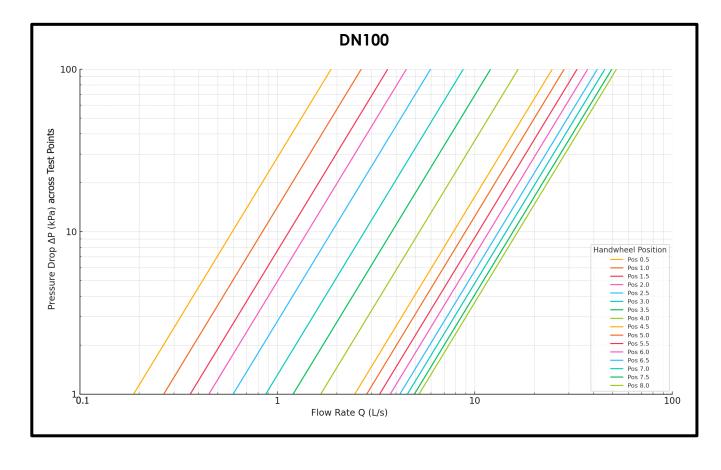


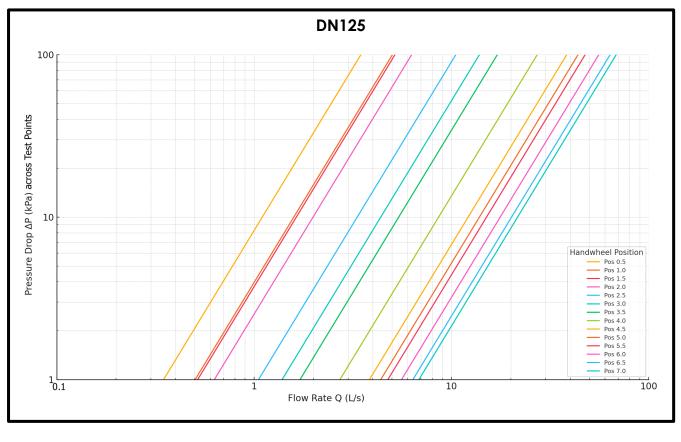






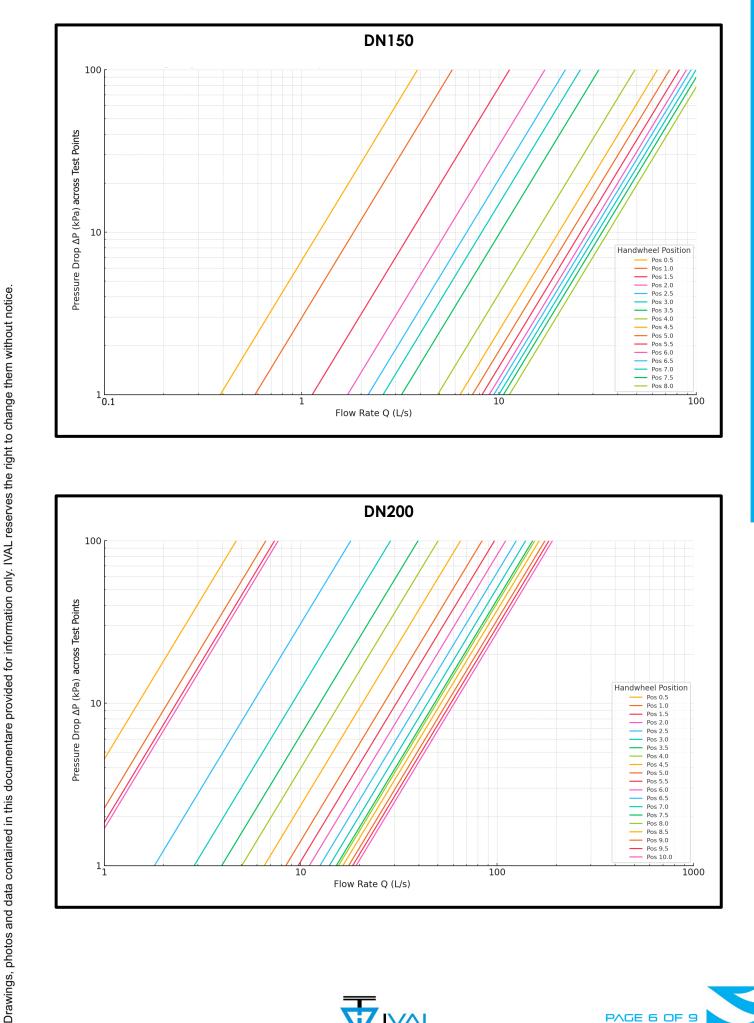


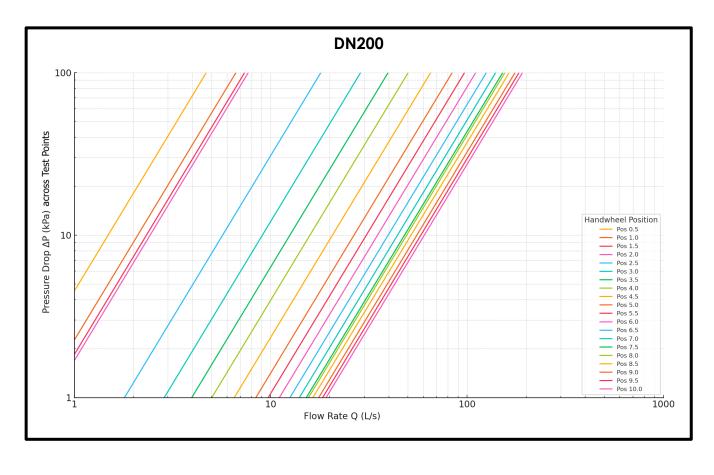






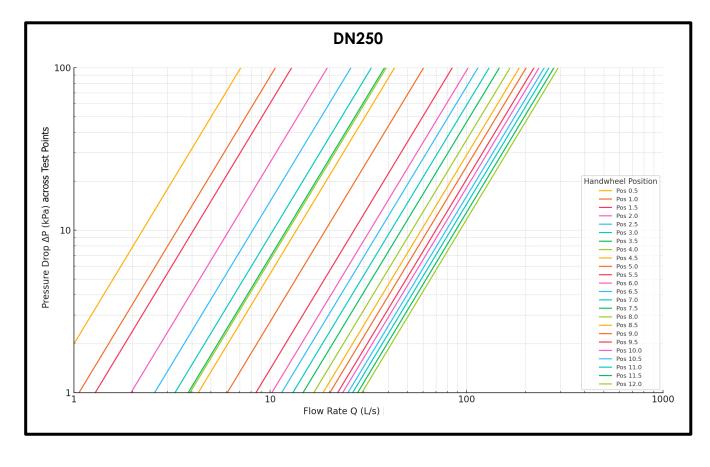


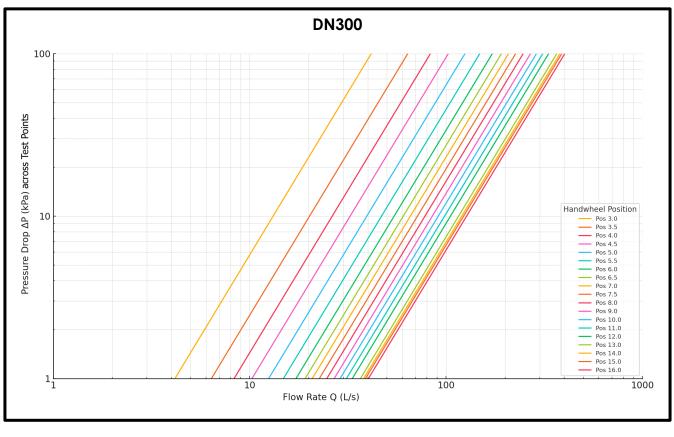








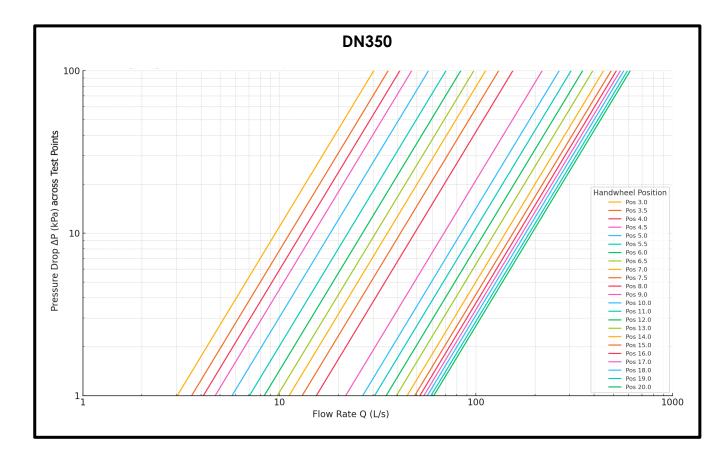


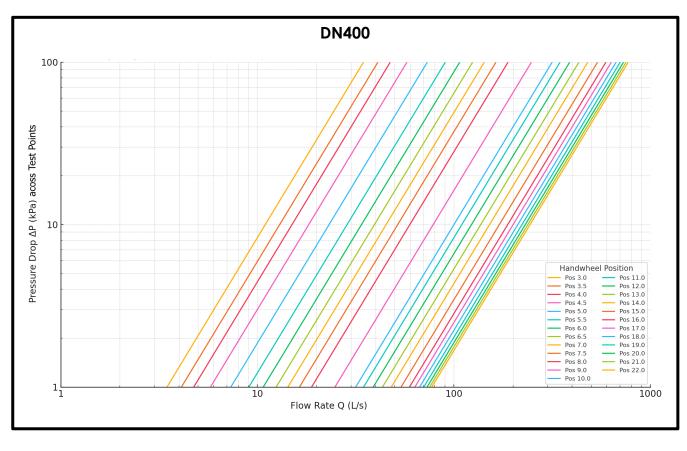


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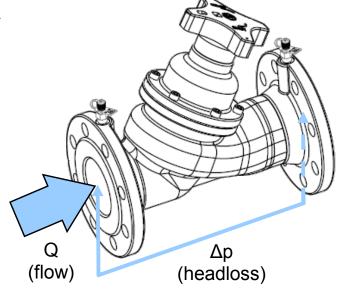


Headloss Calculations:

Formula linking flow **Q** in (I/s) and theoretical valve headloss ΔP in (KPa).

Kv depends on handwheel position as indicated in table.

$$\Delta P = \left(\frac{36 \cdot Q}{K_{v}}\right)^{2}$$



Installation Instructions:

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For optimal performance, the Ductile Iron Double Regulating Valve (DRV) must be installed in accordance with the direction of flow indicated on the valve body. The valve should be in the fully closed position during installation to prevent damage to the internal sealing components caused by overtightening or debris.

It is essential to maintain straight, unobstructed pipe runs of at least **5 pipe diameters upstream** and **2 pipe diameters downstream** of the valve. This ensures a stable flow profile and accurate regulation, particularly when used in conjunction with flow measurement devices. Proper support and alignment of the connected piping must also be ensured to avoid mechanical stress on the valve body.

