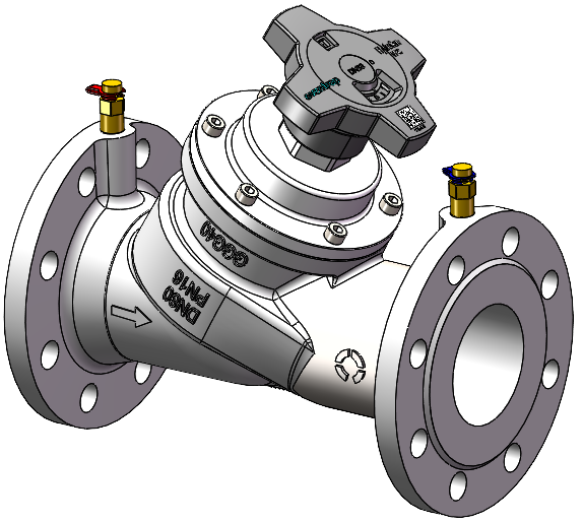
HydroCom VFC, HydroCom VFN

Double regulating valve



⚠ Read this document carefully before installing the double regulating valve.

Installation, commissioning, operating and maintenance must only be carried out by qualified tradesmen.

This document must remain with the user of the system.

Do not touch the valve without safety gloves, it may get very hot during operation.

General information

Information regarding this document

This document serves the installer to install the double regulating valve professionally and to put it into operation.

Other valid documents – manuals of all system components as well as valid technical rules – must be observed.

Application and safety notes

Correct use

Safety in operation is only guaranteed if the valve is used correctly.

Oventrop double regulating valves "HydroCom VFC/VFN" are installed in hot water central heating and cooling water A/C systems with a closed water circuit and serve to achieve a hydronic balancing between the various circuits of the system.

Any use of the valve outside of the above applications will be considered as non-compliant and misuse. Claims of any kind against the manufacturer and/or his authorized representatives due to damages caused by incorrect use cannot be accepted.

The observance of this document is part of the compliance terms.

Possible dangers at the installation location

⚠ WARNING

Heavy valve!

Risk of injury! Suitable transport and lifting devices are to be used. Wear suitable protective clothing (e.g. safety shoes) during installation and use safety devices. External components like handwheels or pressure test points must not be misused for the absorption of external forces, e.g. as connection point for lever tools etc.

Hot or cold surfaces!

Risk of injury! Do not touch the valve without safety gloves. It may get very hot during operation.

Sharp edges!

Risk of injury! Only touch with safety gloves. Threads, bore holes and edges are sharp.

Allergies!

Health hazard! Do not touch the valve and avoid any contact if allergies against the used materials are known.

Small pieces!

Risk of ingestion! Store and install the valve out of reach of children.

The case of an external fire has not been taken into consideration when constructing the valve.

Transport, storage and packaging

Transport inspection

Upon receipt check delivery for any damages caused during transit. Any damage must be reported immediately upon receipt.

Storage

The double regulating valve must only be stored under the following conditions:

- Do not store in open air, but dry and free from dust.
- Do not expose to aggressive fluids or heat sources.
- Protect the valve from direct sunlight and mechanical agitation.
- Storage temperature: -20 °C up to + 60 °C.
- Max. relative humidity of air: 95%

Packaging

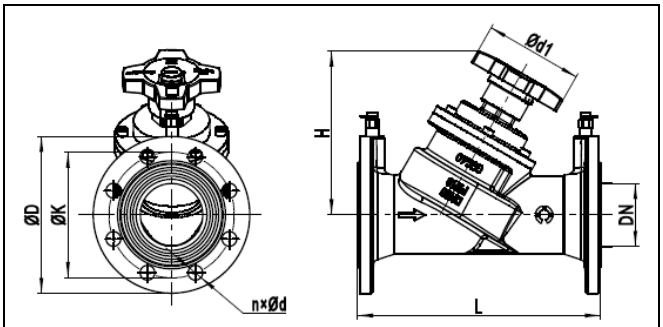
All packaging material must be disposed of in an environmentally friendly way.

Technical data

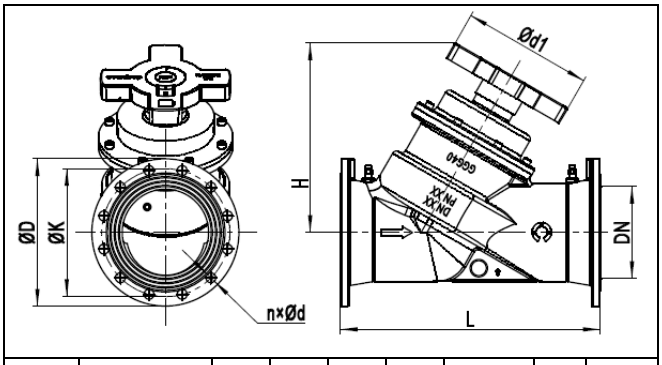
Performance data

Operating temperature:	- 10 °C - 95 °C
Max. operating pressure:	16 / 25 bar
Body and cover material:	GGG40
Seat material:	GGG40
Stem material:	Brass
Sealing material:	EPDM
Handwheel material	PA66+33GF
Medium:	Non-aggressive fluids (e.g. water and suitable water and glycol mixtures according to VDI 2035). Not suitable for steam or oily and aggressive fluids.
Standard:	Length according to DIN EN 558-1 Flanges according to DIN EN 1092-2

Dimensions and weight



Size	Item no.	L	H	ϕD	ϕK	nxϕd	ϕd1	Weight (kg)
PN16 (HydroCom VFC)								
DN50	106260050	230	200	165	125	4×19	125	10
DN65	106260051	290	200	185	145	4×19		16
DN80	106260052	310	210	200	160	8×19		20
DN100	106260053	350	246	220	180	8×19		28
DN125	106260054	400	256	250	210	8×19		38
DN150	106260055	480	286	285	240	8×23		53
PN25 (HydroCom VFN)								
DN50	106240050	230	200	165	125	4×19	125	10
DN65	106240051	290	200	185	145	8×19		16
DN80	106240052	310	210	200	160	8×19		20
DN100	106240053	350	246	235	190	8×23		29
DN125	106240054	400	256	270	220	8×28		40
DN150	106240055	480	286	300	250	8×28		54



Size	Item no.	L	H	ϕD	ϕK	nxϕd	ϕd1	Weight (kg)
PN16 (HydroCom VFC)								
DN200	106260056	600	436	340	295	12×23	300	99
DN250	106260057	730	469	405	355	12×28		146
DN300	106260058	850	511	460	410	12×28		200
PN25 (HydroCom VFN)								
DN200	106240056	600	436	360	310	12×28	300	112
DN250	106240057	730	469	425	370	12×31		163
DN300	106240058	850	511	485	430	16×31		226

Construction and function

The balance is achieved by setting the valve with the handwheel. The calculated flow rate or pressure loss for each individual pipe can be set centrally and be regulated precisely.

The required setting values can be obtained from the flow charts. The flow charts are valid for the installation of the double regulating valve in the supply or the return pipe provided the direction of flow conforms to the arrow on the valve body. All intermediate values are infinitely adjustable.

The Oventrop double regulating valves have two threaded ports which are equipped with the pressure test points for measuring the differential pressure.

Turn handwheel to adjust the setting value, the selected setting can be read off directly.

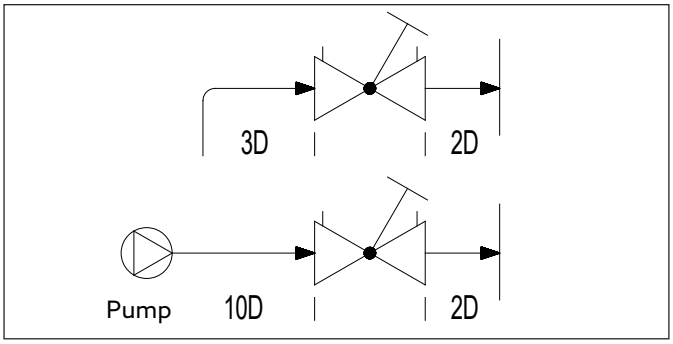
Installation

Before installing the valve, the pipework has to be flushed thoroughly. Installation is possible in any position (horizontal, oblique or vertical, in ascending or descending sections). It is important to note that the direction of flow must conform to the arrow on the valve body and that the valve must be installed with a minimum of L = 3×ϕ of straight pipe in the upstream side and with L = 2×ϕ in the downstream pipe. The double regulating valve can be installed in either the supply or the return pipe.

After installation, the handwheel and measuring connection must be easily accessible.

- Do not use any lubricant or oil when installing the valve as these may destroy the valve seals. If necessary, all dirt particles and lubricant or oil residues must be removed from the pipework by flushing the latter.
- A strainer has to be installed in front of the valve.
- Safeguard from external forces (e.g. impacts, or vibrations)
- Make sure the flange surface of the pipeline is parallel and tighten the flange bolts crosswise.

Once installation is completed, check all installation points for leaks.



HydroCom VFC/VFN installation advice

Operation

Deaeration of the system

Before initial operation, the system has to be filled and bled with due consideration of the permissible working pressures.

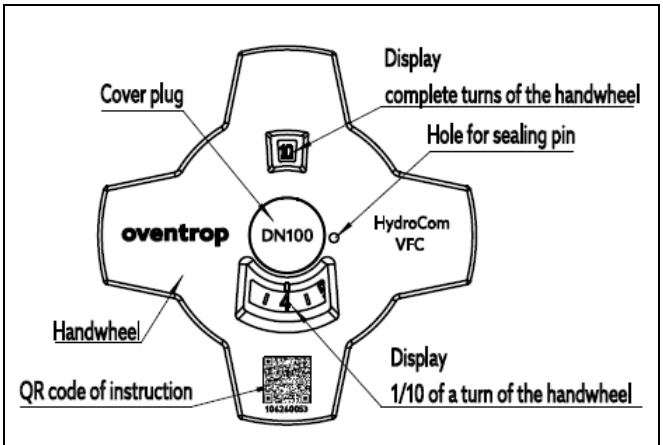
Correction factors for water and glycol mixtures

The correction factors of the antifreeze liquid manufacturers have to be taken into consideration when setting the flow rate.

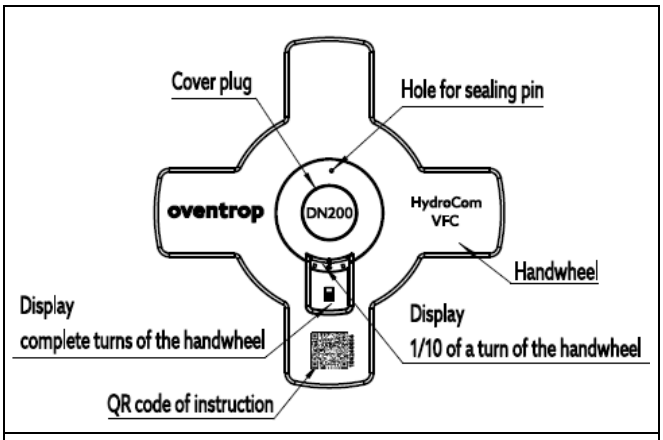
Setting

The setting is adjusted by turning the handwheel.

The complete turns and 1/10th of a turn of the handwheel are shown as the picture below.



The handwheel of DN50-DN150

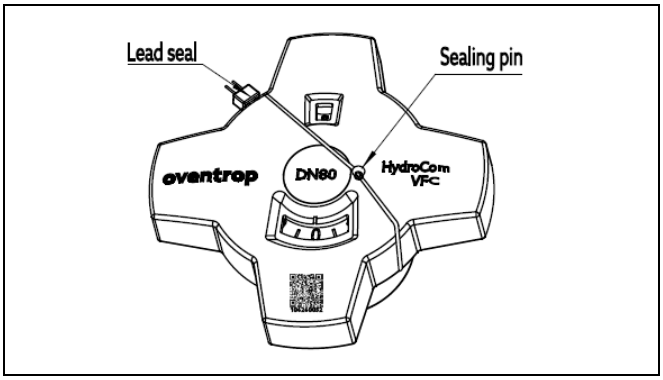


The handwheel of DN200-DN300

Locking the handwheel

The handwheel can be locked in any position (1/10th of a turn).

Insert the sealing pin into the hole above the handwheel (see sketch). The pin can now be locked as illustrated. It is essential that the sealing wire is fitted tightly. If clients need this function, please order the item no. 1089091 (lead seal) and 106245121 (sealing pin).

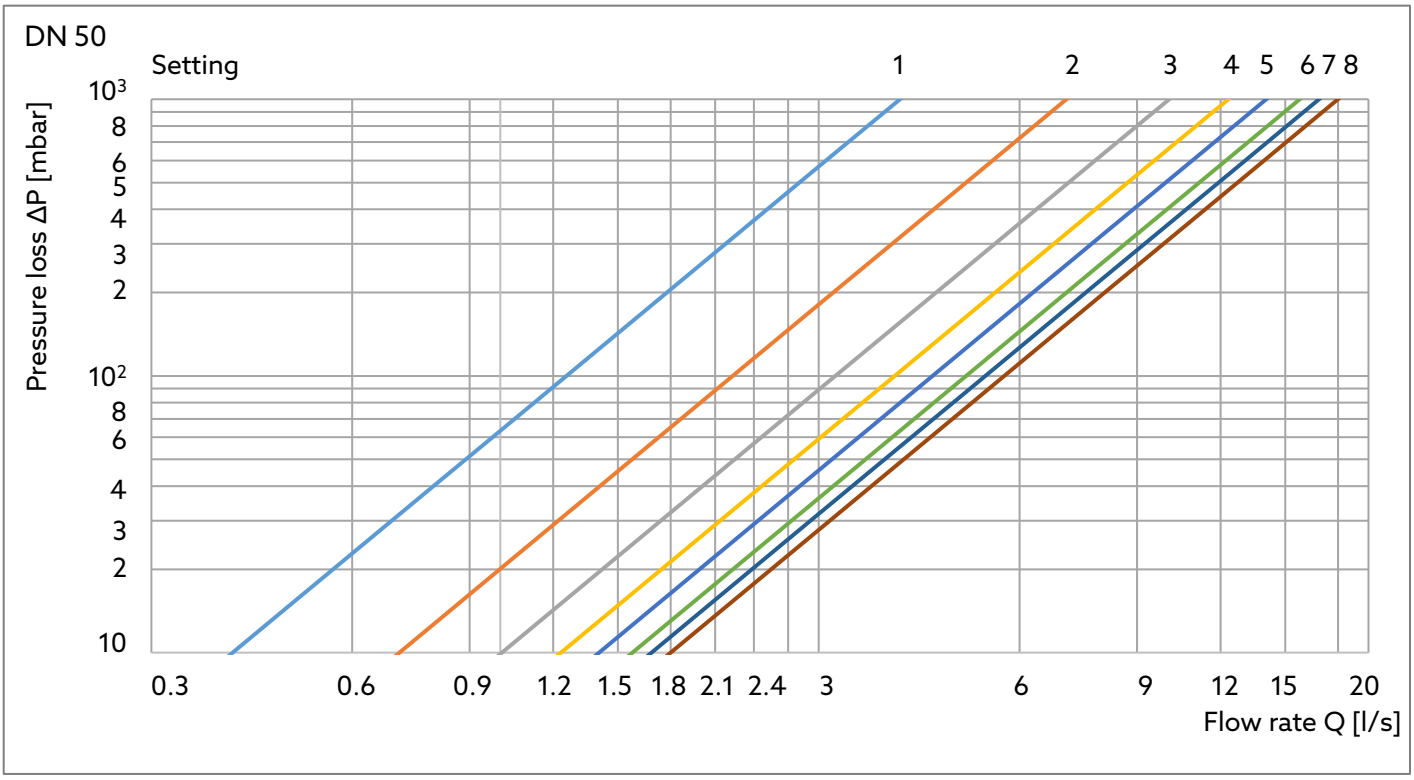


Maintenance

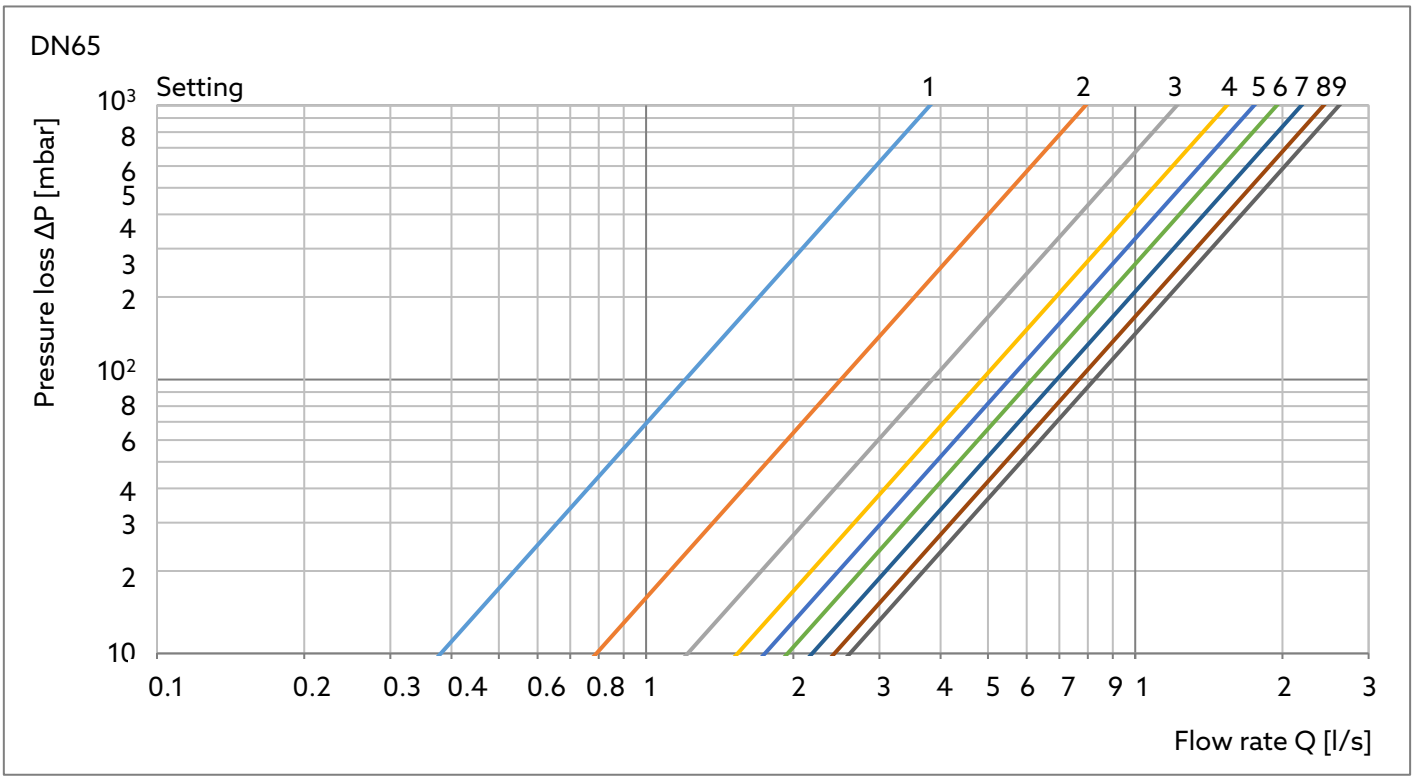
The valve is maintenance-free.

Warranty

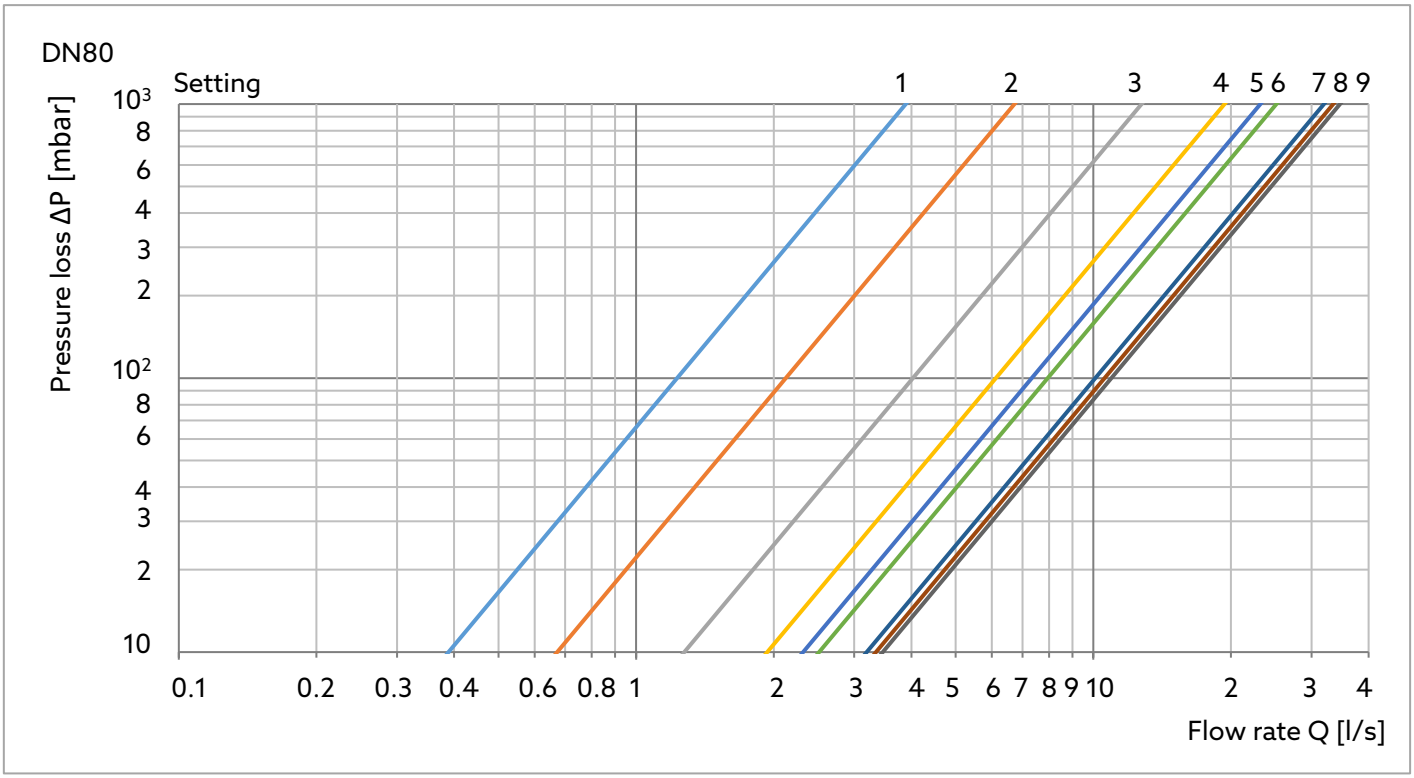
Oventrops warranty conditions valid at the time of supply are applicable.



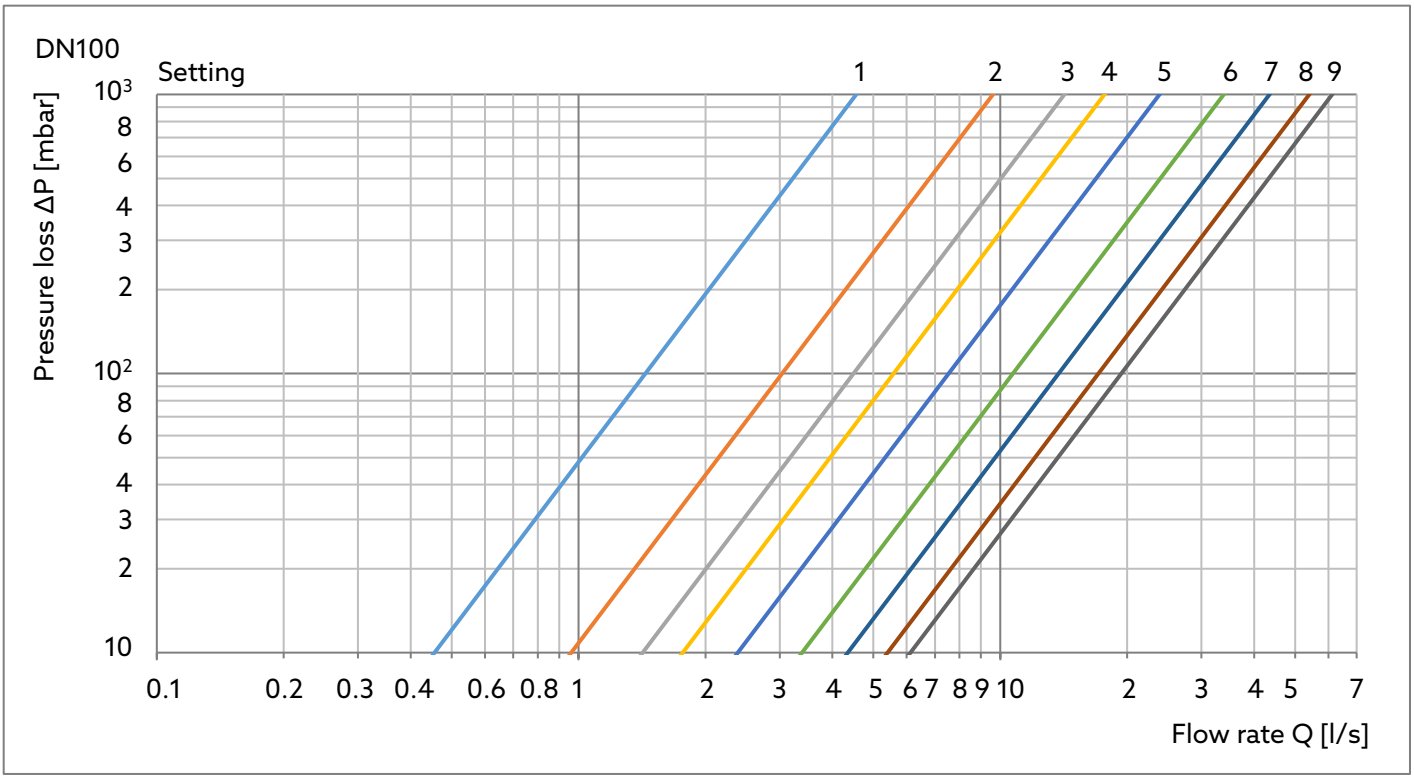
Setting	Kv	Setting	Kv	Setting	Kv	Setting	Kv
1.0	**14.3**	**3.0**	**36.2**	**5.0**	**50.6**	**7.0**	**60.7**
1.1	15.8	3.1	37.0	5.1	51.2	7.1	61.2
1.2	16.8	3.2	38.0	5.2	51.9	7.2	61.8
1.3	17.9	3.3	38.9	5.3	52.6	7.3	62.0
1.4	19.0	3.4	39.8	5.4	53.2	7.4	62.2
1.5	20.1	3.5	40.7	5.5	53.8	7.5	62.7
1.6	21.2	3.6	41.5	5.6	54.4	7.6	63.2
1.7	22.2	3.7	42.1	5.7	55.0	7.7	63.8
1.8	23.4	3.8	42.8	5.8	55.8	7.8	64.0
1.9	24.2	3.9	43.7	5.9	56.3	7.9	64.2
2.0	**25.4**	**4.0**	**44.4**	**6.0**	**56.8**	**8.0**	**64.8**
2.1	26.5	4.1	45.0	6.1	57.3		
2.2	27.8	4.2	45.9	6.2	57.8		
2.3	28.8	4.3	46.4	6.3	58.1		
2.4	29.9	4.4	47.0	6.4	58.5		
2.5	31.0	4.5	47.7	6.5	59.0		
2.6	32.1	4.6	48.2	6.6	59.4		
2.7	33.3	4.7	48.8	6.7	59.8		
2.8	34.2	4.8	49.4	6.8	60.0		
2.9	35.2	4.9	50.0	6.9	60.2		



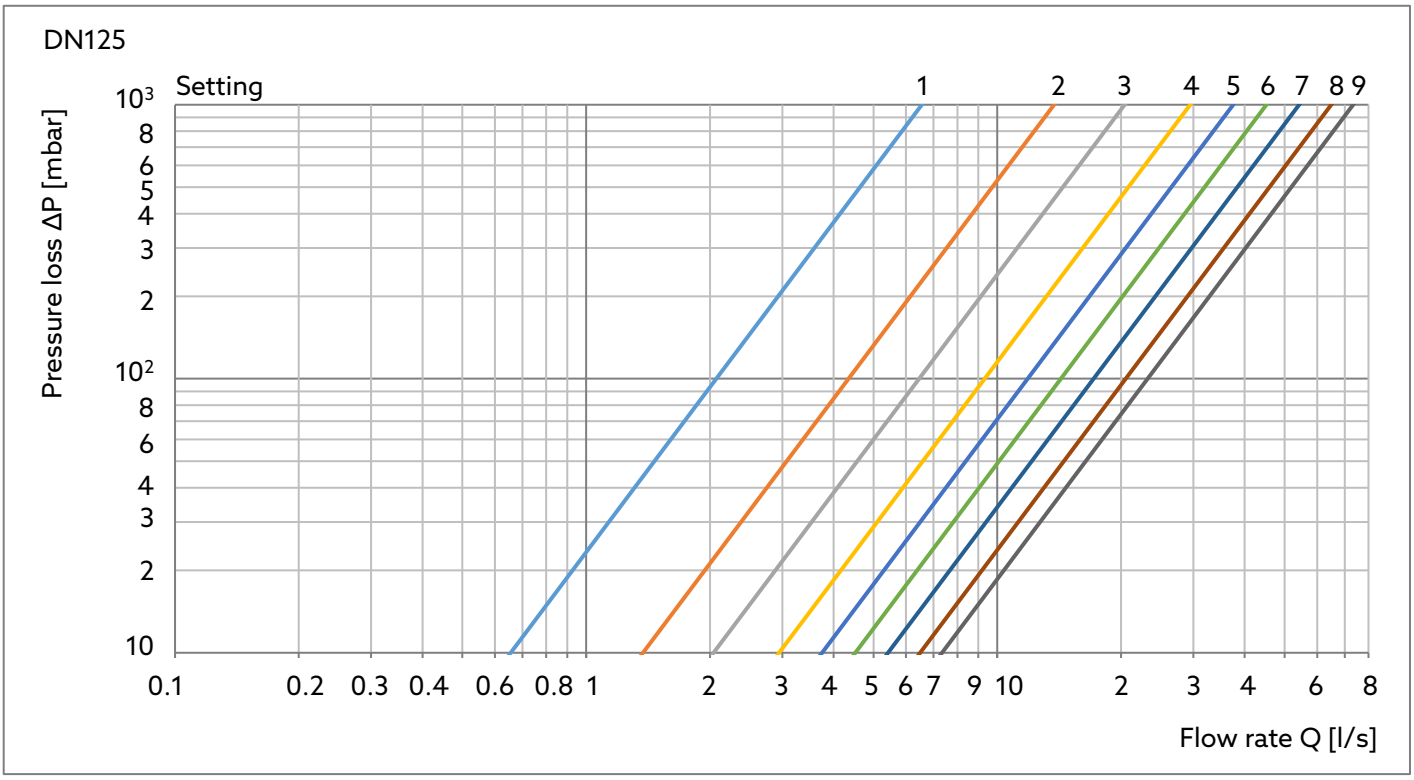
Setting	Kv	Setting	Kv	Setting	Kv	Setting	Kv
1.0	**13.7**	**3.0**	**43.8**	**5.0**	**63.0**	**7.0**	**78.7**
1.1	15.4	3.1	45.0	5.1	63.8	7.1	79.6
1.2	16.3	3.2	46.2	5.2	64.2	7.2	80.4
1.3	18.2	3.3	47.8	5.3	65.0	7.3	81.3
1.4	19.8	3.4	48.8	5.4	65.8	7.4	82.2
1.5	21.0	3.5	50.0	5.5	66.5	7.5	83.0
1.6	22.3	3.6	51.4	5.6	67.2	7.6	84.0
1.7	24.0	3.7	52.2	5.7	68.0	7.7	84.8
1.8	25.7	3.8	53.6	5.8	68.5	7.8	85.8
1.9	27.0	3.9	54.2	5.9	69.5	7.9	86.6
2.0	**28.5**	**4.0**	**55.4**	**6.0**	**70.1**	**8.0**	**87.4**
2.1	30.0	4.1	56.2	6.1	71.0	8.1	88.0
2.2	31.8	4.2	57.1	6.2	71.8	8.2	88.8
2.3	33.0	4.3	58.0	6.3	72.4	8.3	89.6
2.4	34.8	4.4	58.6	6.4	73.6	8.4	90.2
2.5	36.2	4.5	59.7	6.5	74.4	8.5	90.8
2.6	38.0	4.6	60.1	6.6	75.2	8.6	91.6
2.7	39.5	4.7	60.8	6.7	76.0	8.7	92.0
2.8	41.0	4.8	61.7	6.8	77.0	8.8	92.8
2.9	42.2	4.9	62.2	6.9	77.8	8.9	93.6
						9.0	**94.0**



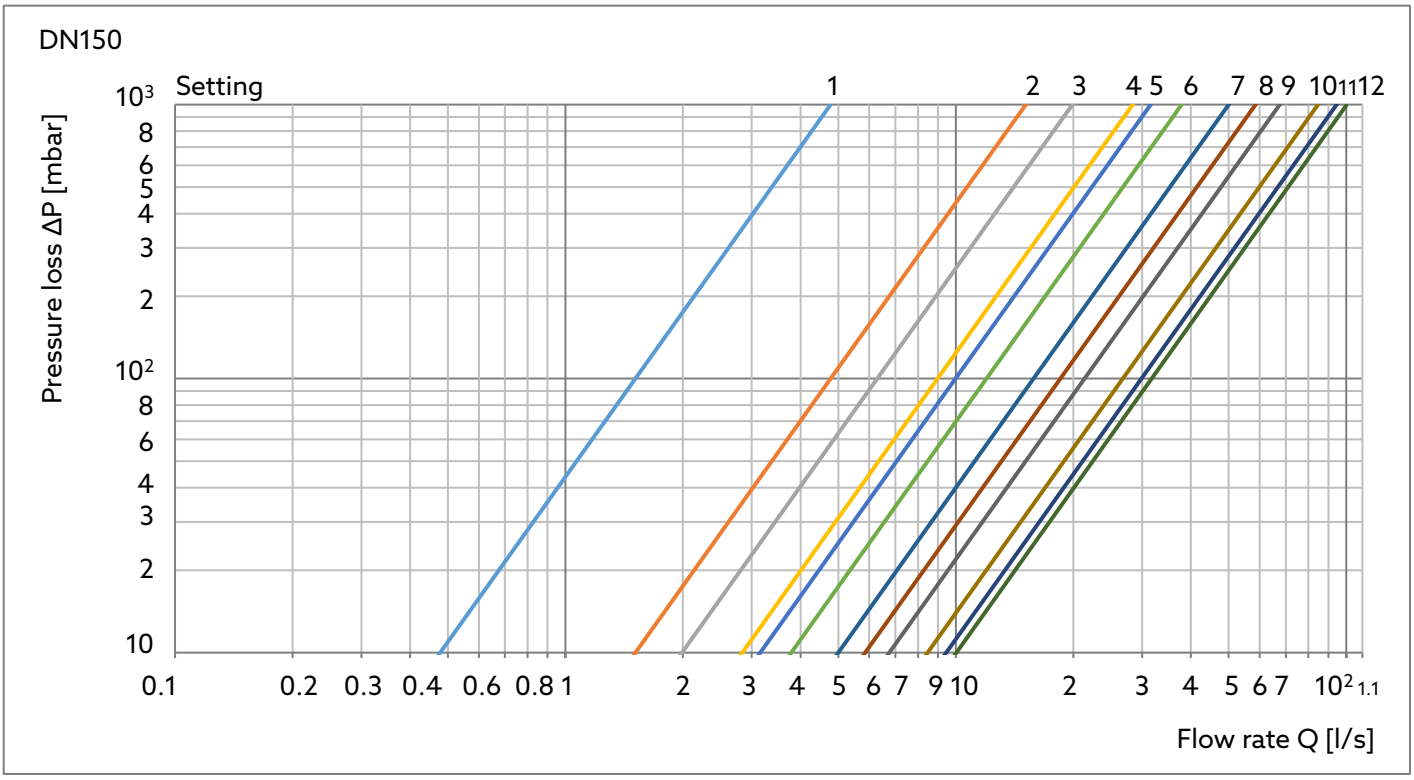
Setting	Kv	Setting	Kv	Setting	Kv	Setting	Kv
1.0	**14.0**	**3.0**	**45.9**	**5.0**	**83.5**	**7.0**	**115.0**
1.1	15.0	3.1	48.2	5.1	84.2	7.1	116.2
1.2	16.0	3.2	50.5	5.2	85.2	7.2	117.5
1.3	17.0	3.3	53.4	5.3	85.7	7.3	118.0
1.4	17.9	3.4	55.8	5.4	86.0	7.4	118.5
1.5	18.5	3.5	58.3	5.5	86.2	7.5	119.0
1.6	19.6	3.6	60.3	5.6	86.7	7.6	119.6
1.7	20.5	3.7	63.5	5.7	87.6	7.7	119.7
1.8	21.7	3.8	65.6	5.8	88.0	7.8	119.9
1.9	22.6	3.9	67.8	5.9	88.7	7.9	120.1
2.0	**24.2**	**4.0**	**69.7**	**6.0**	**90.5**	**8.0**	**120.5**
2.1	25.8	4.1	71.8	6.1	92.3	8.1	121.0
2.2	27.8	4.2	73.2	6.2	94.5	8.2	121.5
2.3	29.8	4.3	74.7	6.3	97.0	8.3	122.0
2.4	32.0	4.4	76.2	6.4	99.8	8.4	122.2
2.5	34.2	4.5	77.8	6.5	102.8	8.5	122.5
2.6	36.4	4.6	79.0	6.6	105.8	8.6	123.0
2.7	39.0	4.7	80.2	6.7	108.3	8.7	123.5
2.8	41.2	4.8	81.7	6.8	111.0	8.8	124.0
2.9	43.5	4.9	82.3	6.9	113.2	8.9	124.3
						9.0	**124.7**



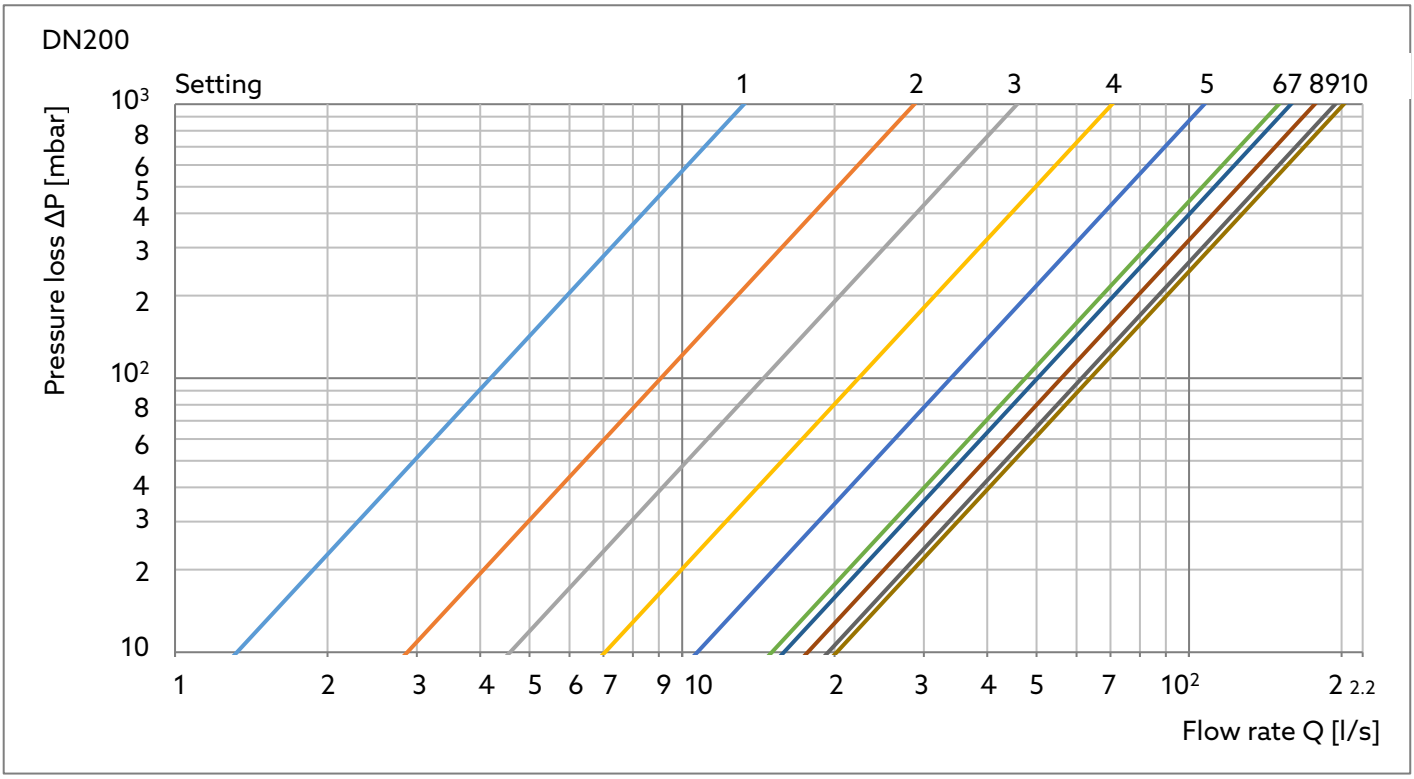
Setting	Kv	Setting	Kv	Setting	Kv	Setting	Kv
1.0	**16.4**	**3.0**	**51.5**	**5.0**	**85.9**	**7.0**	**156.6**
1.1	18.0	3.1	52.4	5.1	88.9	7.1	160.3
1.2	19.9	3.2	53.9	5.2	92.2	7.2	164.1
1.3	21.9	3.3	54.8	5.3	95.9	7.3	168.3
1.4	23.8	3.4	56.0	5.4	99.6	7.4	172.4
1.5	25.6	3.5	57.0	5.5	103.4	7.5	176.2
1.6	27.3	3.6	58.0	5.6	107.0	7.6	180.2
1.7	29.0	3.7	59.2	5.7	110.9	7.7	184.0
1.8	31.0	3.8	60.4	5.8	114.9	7.8	187.8
1.9	32.9	3.9	62.0	5.9	118.2	7.9	191.6
2.0	**34.6**	**4.0**	**63.6**	**6.0**	**122.0**	**8.0**	**194.6**
2.1	36.2	4.1	65.4	6.1	125.5	8.1	197.8
2.2	38.0	4.2	67.3	6.2	128.9	8.2	200.6
2.3	39.9	4.3	69.0	6.3	132.7	8.3	203.4
2.4	41.6	4.4	71.2	6.4	135.8	8.4	205.9
2.5	43.2	4.5	73.4	6.5	139.0	8.5	208.0
2.6	44.9	4.6	75.8	6.6	142.6	8.6	210.8
2.7	46.4	4.7	78.0	6.7	146.0	8.7	213.0
2.8	48.0	4.8	80.2	6.8	149.8	8.8	215.8
2.9	49.8	4.9	83.0	6.9	153.0	8.9	218.0
						9.0	**220.5**



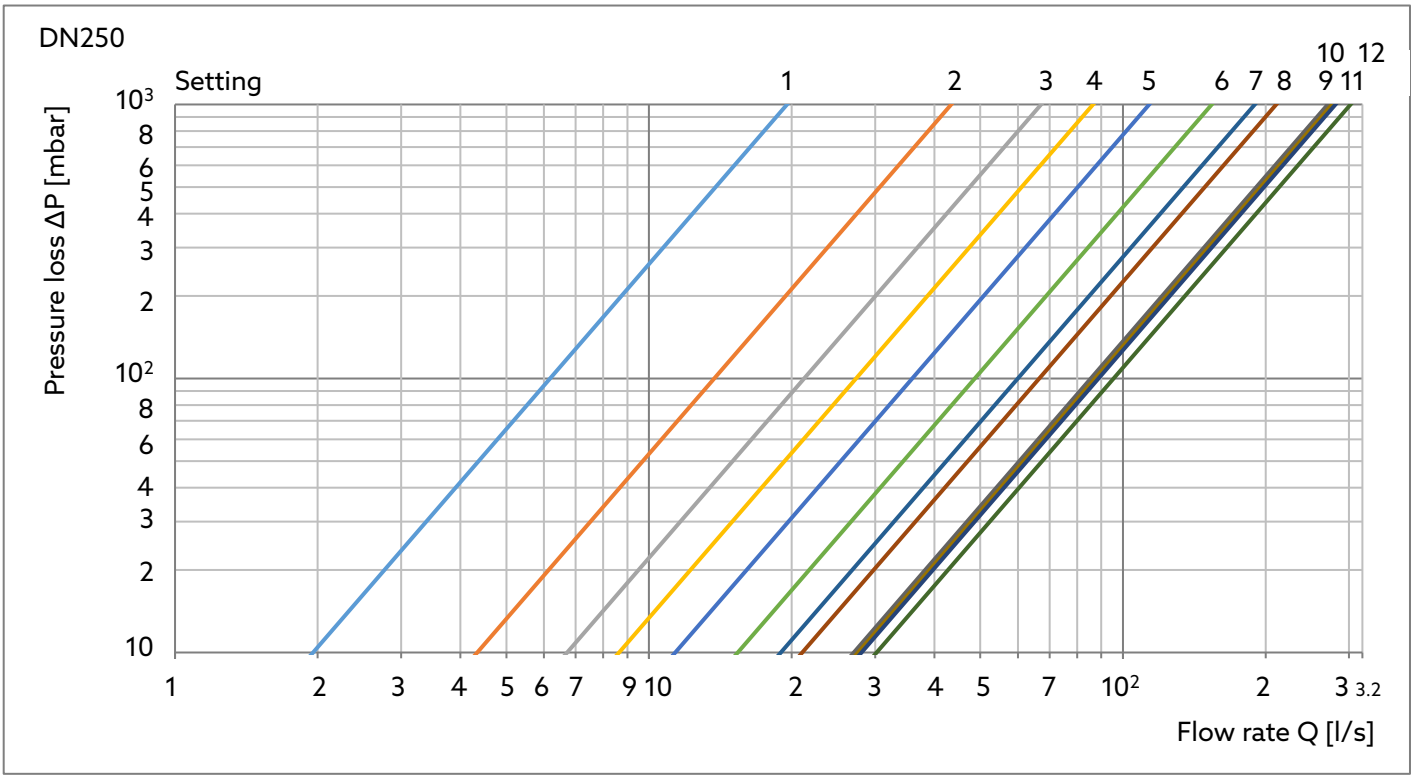
Setting	Kv	Setting	Kv	Setting	Kv	Setting	Kv
1.0	**23.6**	**3.0**	**73.5**	**5.0**	**135.0**	**7.0**	**195.3**
1.1	26.0	3.1	76.2	5.1	137.8	7.1	199.5
1.2	28.5	3.2	79.8	5.2	140.2	7.2	202.8
1.3	31.0	3.3	82.8	5.3	143.2	7.3	206.5
1.4	33.9	3.4	86.0	5.4	146.0	7.4	210.5
1.5	36.2	3.5	89.5	5.5	148.2	7.5	214.5
1.6	39.0	3.6	93.0	5.6	150.8	7.6	218.5
1.7	41.9	3.7	96.1	5.7	154.0	7.7	222.5
1.8	44.2	3.8	99.8	5.8	156.5	7.8	226.2
1.9	46.5	3.9	103.0	5.9	159.8	7.9	230.2
2.0	**49.5**	**4.0**	**106.1**	**6.0**	**162.6**	**8.0**	**233.8**
2.1	51.9	4.1	109.5	6.1	165.8	8.1	237.6
2.2	54.0	4.2	112.0	6.2	168.4	8.2	240.4
2.3	56.3	4.3	115.0	6.3	171.9	8.3	243.8
2.4	58.7	4.4	118.0	6.4	175.0	8.4	246.4
2.5	61.0	4.5	120.6	6.5	178.2	8.5	249.8
2.6	63.5	4.6	123.8	6.6	181.6	8.6	252.5
2.7	65.8	4.7	126.4	6.7	184.6	8.7	255.5
2.8	68.0	4.8	129.8	6.8	188.2	8.8	258.4
2.9	70.5	4.9	132.0	6.9	191.8	8.9	261.5
						9.0	**264.3**



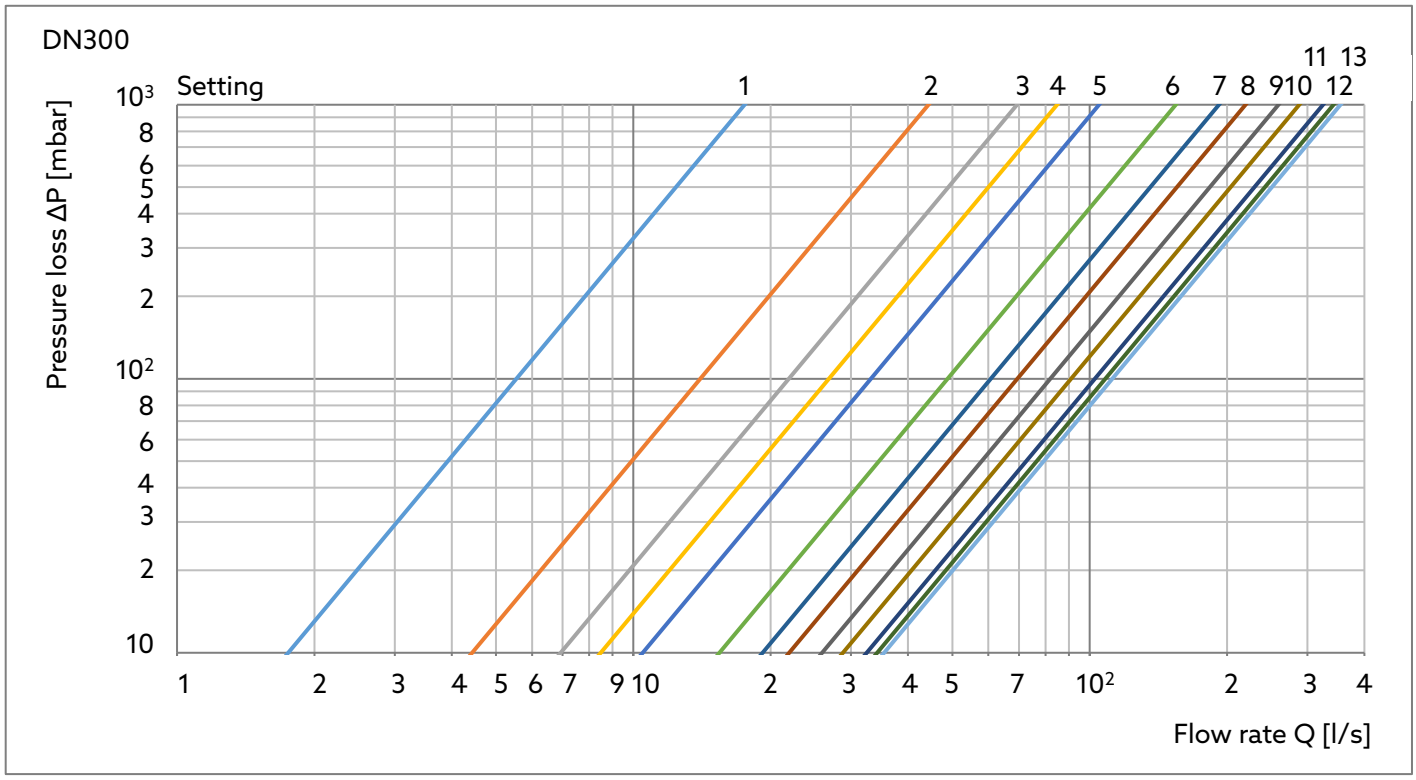
Setting	Kv	Setting	Kv	Setting	Kv	Setting	Kv	Setting	Kv	Setting	Kv
1.0	**17.2**	**3.0**	**71.6**	**5.0**	**113.6**	**7.0**	**180.0**	**9.0**	**243.2**	**11.0**	**340.2**
1.1	20.2	3.1	74.2	5.1	115.5	7.1	183.8	9.1	248.0	11.1	344.0
1.2	23.9	3.2	77.2	5.2	117.4	7.2	187.6	9.2	254.0	11.2	345.6
1.3	27.5	3.3	80.0	5.3	119.0	7.3	190.0	9.3	260.0	11.3	347.8
1.4	31.7	3.4	83.8	5.4	120.8	7.4	193.3	9.4	266.4	11.4	349.9
1.5	35.8	3.5	87.6	5.5	122.8	7.5	196.2	9.5	274.0	11.5	351.8
1.6	39.2	3.6	90.5	5.6	125.6	7.6	199.6	9.6	280.4	11.6	353.8
1.7	44.0	3.7	93.9	5.7	127.8	7.7	201.8	9.7	287.0	11.7	355.8
1.8	47.8	3.8	97.6	5.8	130.0	7.8	204.8	9.8	293.6	11.8	357.6
1.9	51.5	3.9	99.8	5.9	133.5	7.9	207.8	9.9	299.8	11.9	359.6
2.0	**54.4**	**4.0**	**102.2**	**6.0**	**136.4**	**8.0**	**210.9**	**10.0**	**304.8**	**12.0**	**361.3**
2.1	56.9	4.1	104.0	6.1	139.8	8.1	214.0	10.1	307.9		
2.2	59.0	4.2	105.5	6.2	143.8	8.2	216.8	10.2	314.0		
2.3	60.8	4.3	106.8	6.3	148.0	8.3	219.6	10.3	317.9		
2.4	62.2	4.4	107.8	6.4	152.5	8.4	222.2	10.4	321.8		
2.5	63.5	4.5	108.3	6.5	157.8	8.5	225.0	10.5	325.6		
2.6	64.8	4.6	109.2	6.6	162.3	8.6	228.0	10.6	328.2		
2.7	66.0	4.7	110.0	6.7	167.6	8.7	231.5	10.7	331.8		
2.8	67.8	4.8	110.8	6.8	172.0	8.8	234.8	10.8	334.2		
2.9	39.8	4.9	112.0	6.9	175.9	8.9	236.0	10.9	337.6		



Setting	Kv	Setting	Kv	Setting	Kv	Setting	Kv	Setting	Kv
1.0	**47.7**	**3.0**	**164.9**	**5.0**	**385.9**	**7.0**	**571.9**	**9.0**	**699.2**
1.1	53.0	3.1	172.2	5.1	401.5	7.1	576.9	9.1	703.4
1.2	58.2	3.2	180.2	5.2	418.8	7.2	582.8	9.2	706.8
1.3	63.9	3.3	188.2	5.3	436.8	7.3	588.9	9.3	710.0
1.4	69.5	3.4	196.2	5.4	453.5	7.4	595.5	9.4	712.6
1.5	74.6	3.5	204.8	5.5	471.8	7.5	602.7	9.5	715.2
1.6	80.2	3.6	214.0	5.6	487.4	7.6	609.2	9.6	717.4
1.7	86.0	3.7	223.4	5.7	504.6	7.7	616.8	9.7	719.6
1.8	91.8	3.8	232.4	5.8	518.6	7.8	623.5	9.8	722.0
1.9	97.6	3.9	243.6	5.9	530.6	7.9	630.8	9.9	724.6
2.0	**103.4**	**4.0**	**253.8**	**6.0**	**541.3**	**8.0**	**637.2**	**10.0**	**726.9**
2.1	109.2	4.1	265.6	6.1	548.8	8.1	643.8		
2.2	114.8	4.2	277.5	6.2	553.6	8.2	650.6		
2.3	120.8	4.3	290.4	6.3	557.0	8.3	657.1		
2.4	126.2	4.4	303.5	6.4	559.4	8.4	663.8		
2.5	132.1	4.5	317.0	6.5	561.0	8.5	670.8		
2.6	137.8	4.6	331.0	6.6	562.9	8.6	677.0		
2.7	144.0	4.7	344.0	6.7	564.0	8.7	683.0		
2.8	150.8	4.8	358.5	6.8	565.8	8.8	689.0		
2.9	157.8	4.9	372.5	6.9	568.0	8.9	694.6		



Setting	Kv	Setting	Kv	Setting	Kv	Setting	Kv	Setting	Kv	Setting	Kv
1.0	**70.4**	**3.0**	**241.9**	**5.0**	**409.0**	**7.0**	**683.1**	**9.0**	**973.7**	**11.0**	**1010.9**
1.1	78.2	3.1	249.8	5.1	423.2	7.1	691.8	9.1	981.0	11.1	1016.2
1.2	86.4	3.2	256.6	5.2	437.9	7.2	699.2	9.2	984.7	11.2	1022.4
1.3	94.4	3.3	263.4	5.3	452.6	7.3	704.8	9.3	987.2	11.3	1029.6
1.4	103.6	3.4	269.6	5.4	467.4	7.4	710.6	9.4	989.0	11.4	1037.6
1.5	112.0	3.5	275.9	5.5	482.6	7.5	715.4	9.5	990.3	11.5	1044.8
1.6	120.8	3.6	282.2	5.6	497.2	7.6	721.0	9.6	991.2	11.6	1053.9
1.7	129.8	3.7	289.2	5.7	511.5	7.7	727.4	9.7	991.8	11.7	1062.8
1.8	138.8	3.8	296.0	5.8	525.4	7.8	734.8	9.8	992.6	11.8	1071.8
1.9	147.6	3.9	303.8	5.9	539.6	7.9	745.0	9.9	993.0	11.9	1079.8
2.0	**156.3**	**4.0**	**311.3**	**6.0**	**554.2**	**8.0**	**758.0**	**10.0**	**994.0**	**12.0**	**1087.8**
2.1	164.8	4.1	319.9	6.1	567.8	8.1	773.2	10.1	995.6		
2.2	173.8	4.2	329.4	6.2	581.0	8.2	795.0	10.2	996.8		
2.3	182.4	4.3	338.4	6.3	595.3	8.3	817.0	10.3	997.6		
2.4	191.0	4.4	348.0	6.4	609.0	8.4	841.0	10.4	998.2		
2.5	200.0	4.5	358.2	6.5	622.6	8.5	867.0	10.5	999.8		
2.6	208.8	4.6	368.4	6.6	635.5	8.6	895.0	10.6	1000.0		
2.7	217.6	4.7	378.2	6.7	648.6	8.7	919.0	10.7	1001.6		
2.8	225.9	4.8	388.4	6.8	660.8	8.8	939.0	10.8	1003.8		
2.9	233.9	4.9	399.4	6.9	672.4	8.9	959.0	10.9	1006.8		



Setting	Kv	Setting	Kv	Setting	Kv	Setting	Kv	Setting	Kv	Setting	Kv
1.0	**60.3**	**3.0**	**249.5**	**5.0**	**377.5**	**7.0**	**691.2**	**9.0**	**933.3**	**11.0**	**1168.7**
1.1	68.5	3.1	256.2	5.1	390.5	7.1	702.3	9.1	943.6	11.1	1177.8
1.2	77.7	3.2	262.6	5.2	406.0	7.2	712.4	9.2	953.6	11.2	1186.2
1.3	87.7	3.3	268.2	5.3	422.8	7.3	722.1	9.3	963.6	11.3	1193.6
1.4	97.7	3.4	273.9	5.4	440.8	7.4	731.4	9.4	972.8	11.4	1199.8
1.5	107.7	3.5	278.8	5.5	459.8	7.5	740.0	9.5	983.4	11.5	1206.0
1.6	118.2	3.6	283.6	5.6	479.6	7.6	749.6	9.6	992.8	11.6	1211.7
1.7	129.6	3.7	288.0	5.7	499.2	7.7	758.4	9.7	1003.4	11.7	1216.6
1.8	139.6	3.8	293.6	5.8	518.2	7.8	768.3	9.8	1014.0	11.8	1221.8
1.9	149.6	3.9	299.8	5.9	537.0	7.9	778.8	9.9	1024.8	11.9	1226.8
2.0	**159.6**	**4.0**	**305.4**	**6.0**	**555.9**	**8.0**	**790.4**	**10.0**	**1036.6**	**12.0**	**1232.2**
2.1	168.8	4.1	312.0	6.1	568.8	8.1	802.4	10.1	1048.5	12.1	1237.7
2.2	178.4	4.2	317.4	6.2	583.8	8.2	816.2	10.2	1061.8	12.2	1242.2
2.3	188.0	4.3	322.8	6.3	597.6	8.3	829.8	10.3	1076.2	12.3	1247.0
2.4	197.7	4.4	328.0	6.4	611.6	8.4	843.8	10.4	1090.4	12.4	1251.6
2.5	207.6	4.5	334.0	6.5	625.8	8.5	858.8	10.5	1104.6	12.5	1255.5
2.6	216.8	4.6	340.9	6.6	639.6	8.6	873.8	10.6	1118.6	12.6	1259.7
2.7	225.6	4.7	348.0	6.7	654.0	8.7	888.6	10.7	1132.8	12.7	1264.0
2.8	233.8	4.8	356.3	6.8	666.5	8.8	903.8	10.8	1145.8	12.8	1267.8
2.9	242.0	4.9	365.8	6.9	678.8	8.9	918.2	10.9	1157.8	12.9	1271.8
										13.0	**1276.2**