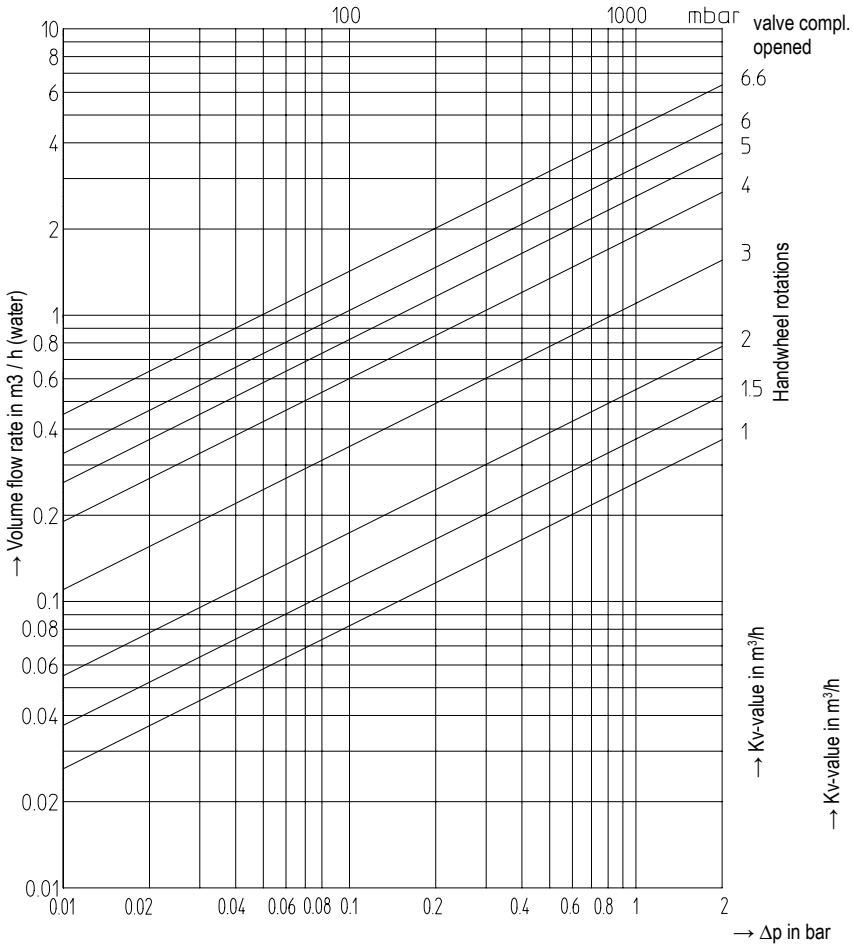


Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa

DN15 / PN16

Handwheel rotations	Zeta-value	Kvs-value
	--	(m³/h)
1	1198	0,26
1,5	592	0,37
2	268	0,55
3	66,9	1,1
4	22,4	1,9
5	12	2,6
6	7,4	3,3
6,6	4	4,5

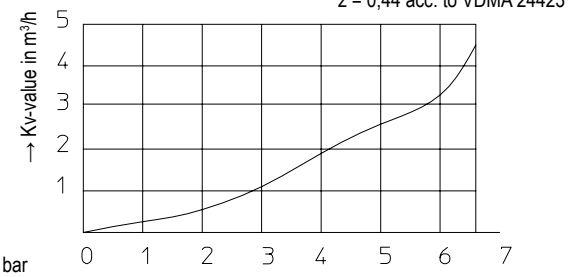
max. permissible differential pressure in throttling function 2,0 bar.

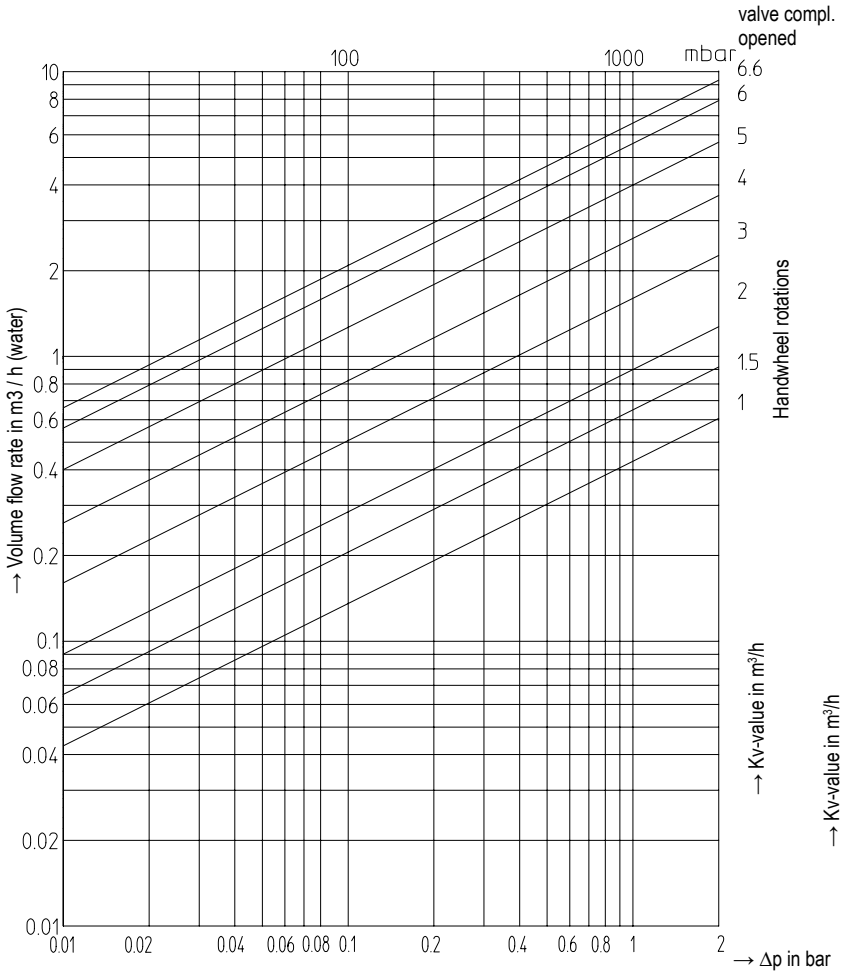
max. permissible flow speed: Liquids ≤ 4 m/s,
Gases on request,
Vapours not permissible

Condition: The flow must be free from cavitation.

Flow characteristic

z = 0,44 acc. to VDMA 24423





Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa

DN20 / PN16

Handwheel rotations	Zeta-value	Kv-value
	--	(m³/h)
1	1384	0,43
1,5	606	0,65
2	316	0,9
3	100	1,6
4	37,9	2,6
5	16	4
6	8,2	5,6
6,6	5,9	6,6

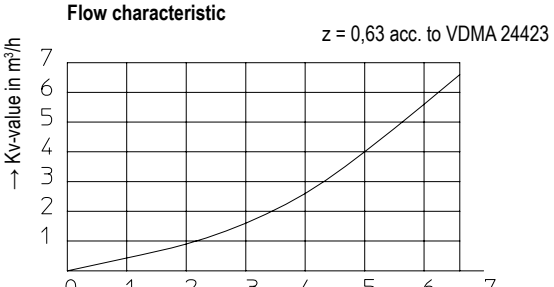
max. permissible differential pressure in throttling function 2,0 bar.

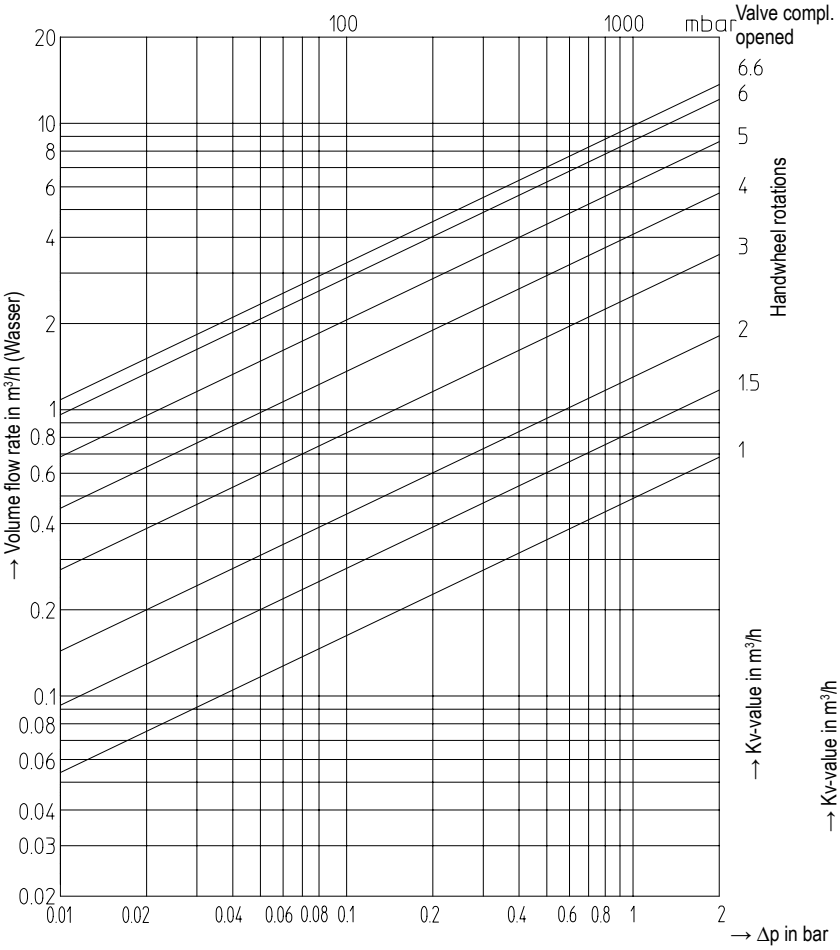
max. permissible flow speed: Liquids ≤ 4 m/s,
Gases on request,
Vapours not permissible

Condition: The flow must be free from cavitation.

Flow characteristic

z = 0,63 acc. to VDMA 24423





Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa

DN25 / PN16

Handwheel rotations	Zeta-value	Kv-value
	--	(m³/h)
1	2603	0,49
1,5	886	0,84
2	370	1,3
3	100	2,5
4	37,2	4,1
5	16,3	6,2
6	8,3	8,7
6,6	6,5	9,8

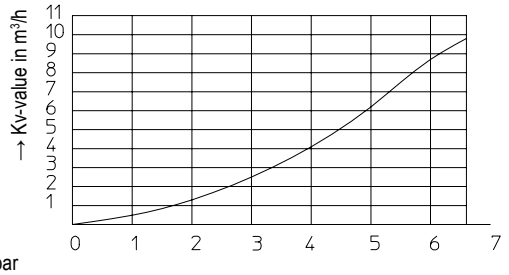
max. permissible differential pressure in throttling function 2,0 bar.

max. permissible flow speed: Liquids ≤ 4 m/s,
Gases on request,
Vapours not permissible

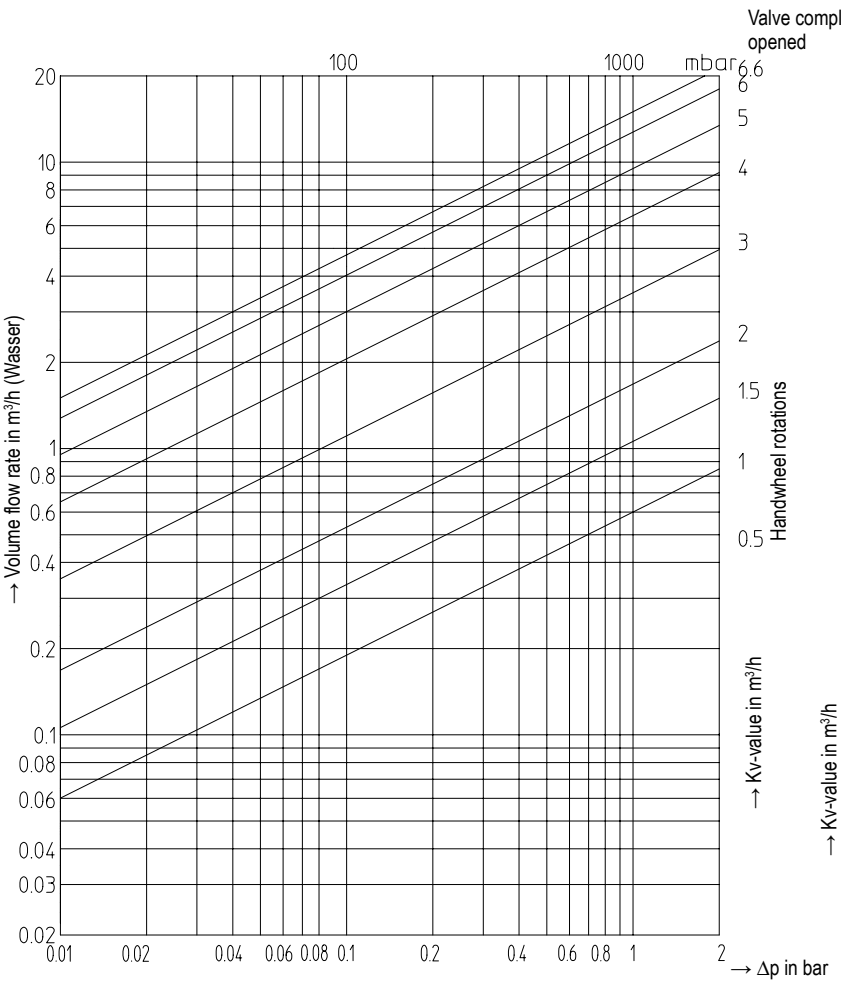
Condition: The flow must be free from cavitation.

Flow characteristic

z = 0,54 acc. to VDMA 24423



→ Handwheel rotations



Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa

DN32 / PN16

Handwheel rotations	Zeta-value	Kv-value
	--	(m³/h)
1	4660	0,6
1,5	1493	1,06
2	594	1,68
3	134	3,54
4	40,2	6,46
5	18,7	9,47
6	10,3	12,75
6,6	7,3	15,1

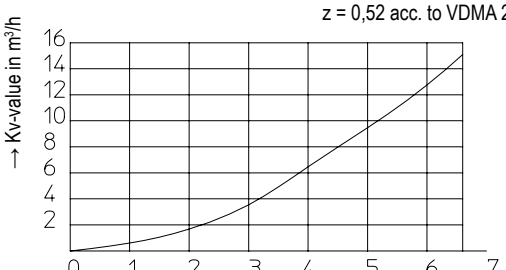
max. permissible differential pressure in throttling function 2,0 bar.

max. permissible flow speed: Liquids ≤ 4 m/s,
Gases on request,
Vapours not permissible

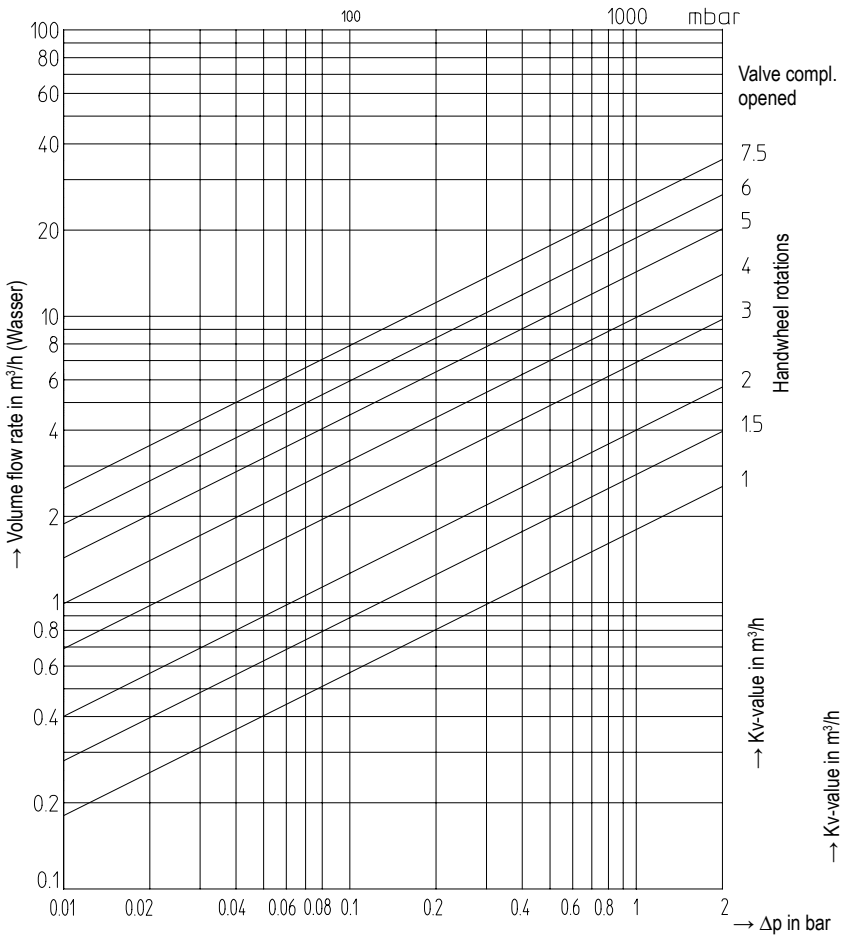
Condition: The flow must be free from cavitation.

Flow characteristic

z = 0,52 acc. to VDMA 24423



→ Handwheel rotations



Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa

DN40 / PN16

Handwheel rotations	Zeta-value	Kv-value
	--	(m^3/h)
1	1264	1,8
1,5	522	2,8
2	256	4
3	86	6,9
4	41,8	9,9
5	20	14,3
6	11,6	18,8
7,5	6,6	24,9

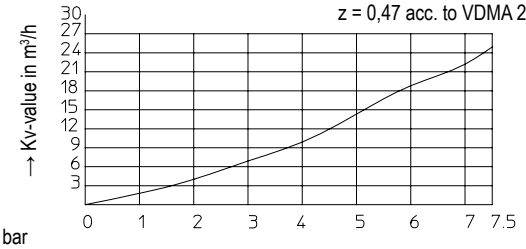
max. permissible differential pressure in throttling function 2,0 bar.

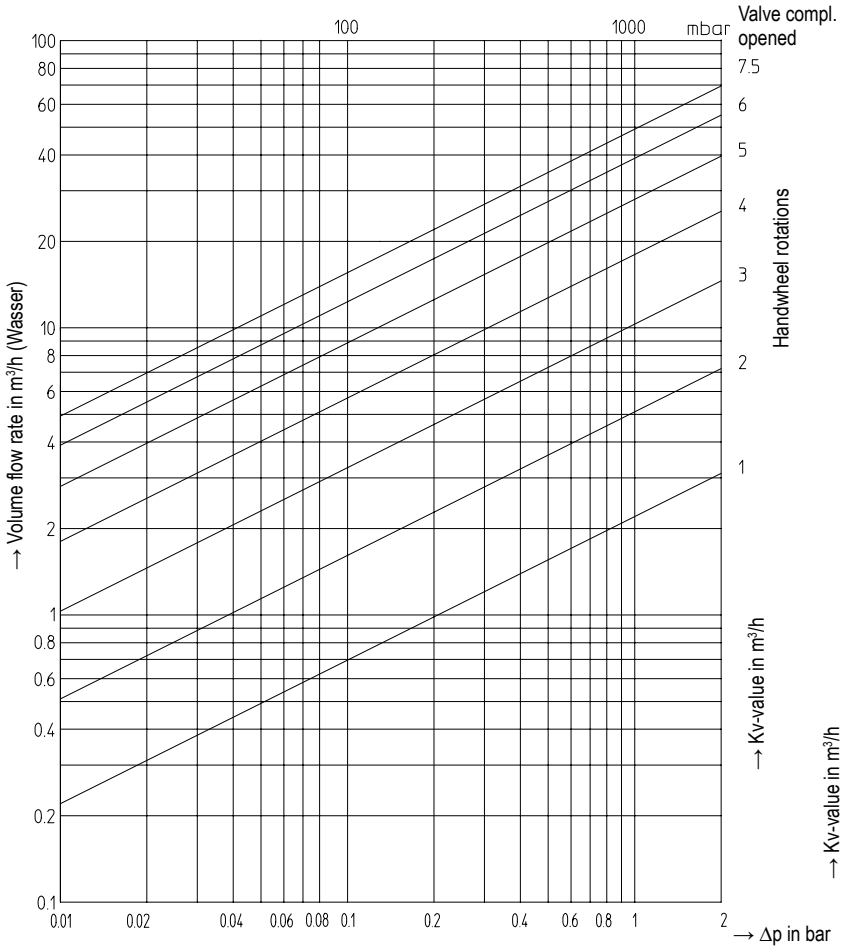
max. permissible flow speed: Liquids ≤ 4 m/s,
Gases on request
Vapours not permissible

Condition: The flow must be free from cavitation.

Flow characteristic

z = 0,47 acc. to VDMA 24423





Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa

DN50 / PN16

Handwheel rotations	Zeta-value	Kv-value
	--	(m^3/h)
1	2066	2,2
2	384	5,1
3	94,3	10,3
4	30,7	18,05
5	12,8	28
6	6,5	39,3
7,5	4,2	48,5

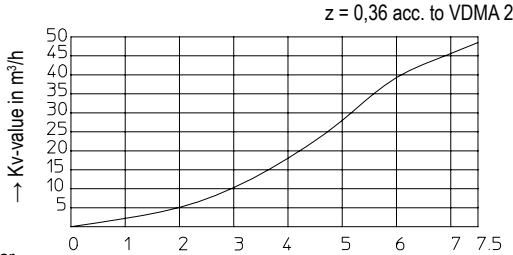
max. permissible differential pressure in throttling function 2,0 bar.

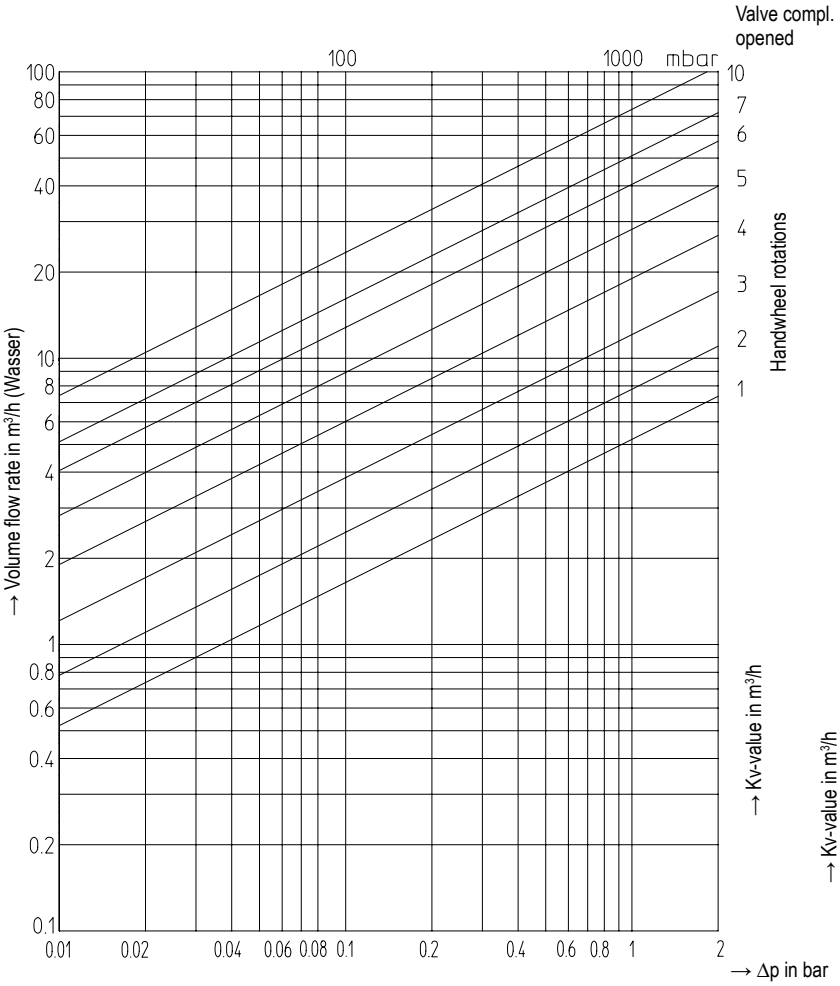
max. permissible flow speed: Liquids ≤ 4 m/s,
Gases on request
Vapours not permissible

Condition: The flow must be free from cavitation.

Flow characteristic

z = 0,36 acc. to VDMA 24423





Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa

DN65 / PN16

Handwheel rotations	Zeta-value	Kv-value
	--	(m³/h)
1	1016	5,3
2	469	7,8
3	195	12,1
4	79	19
5	33,7	29,1
6	16,7	41,3
7	10,5	52,1
10	5,1	74,4

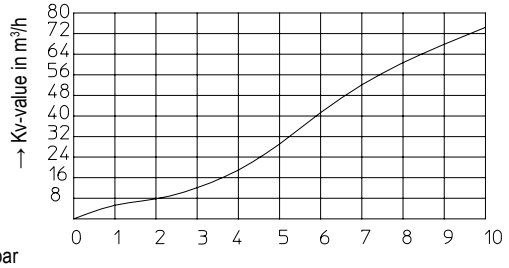
max. permissible differential pressure in throttling function 2,0 bar.

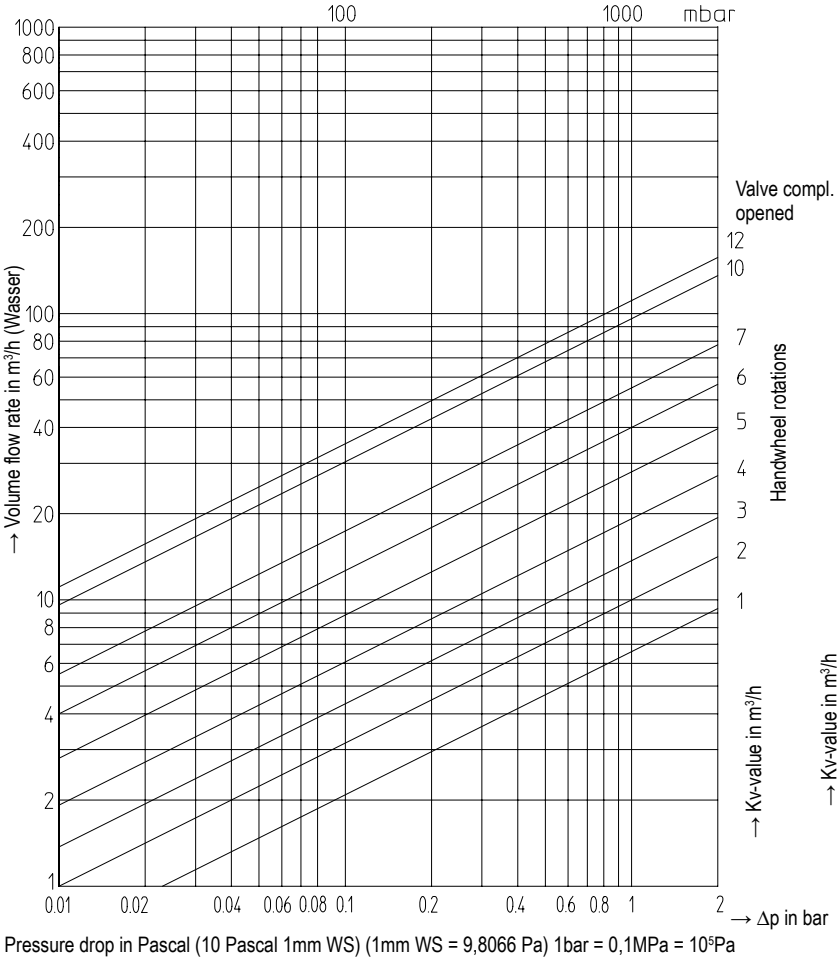
max. permissible flow speed: Liquids ≤ 4 m/s,
Gases on request
Vapours not permissible

Condition: The flow must be free from cavitation.

Flow characteristic

z = 0,30 acc. to VDMA 24423





Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa

DN80 / PN16

Handwheel rotations	Zeta-value	Kv-value
	--	(m³/h)
1	1504	6,6
2	655	10
3	349	13,7
4	178	19,2
5	83	28,1
6	40,2	40,4
7	21,4	55,4
10	7,1	96
12	5,3	111

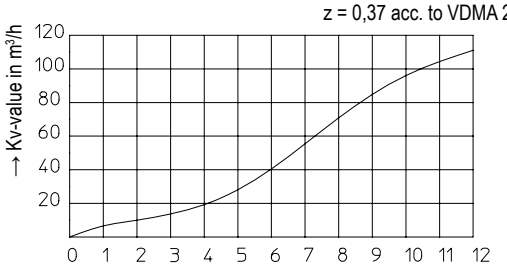
max. permissible differential pressure in throttling function 2,0 bar.

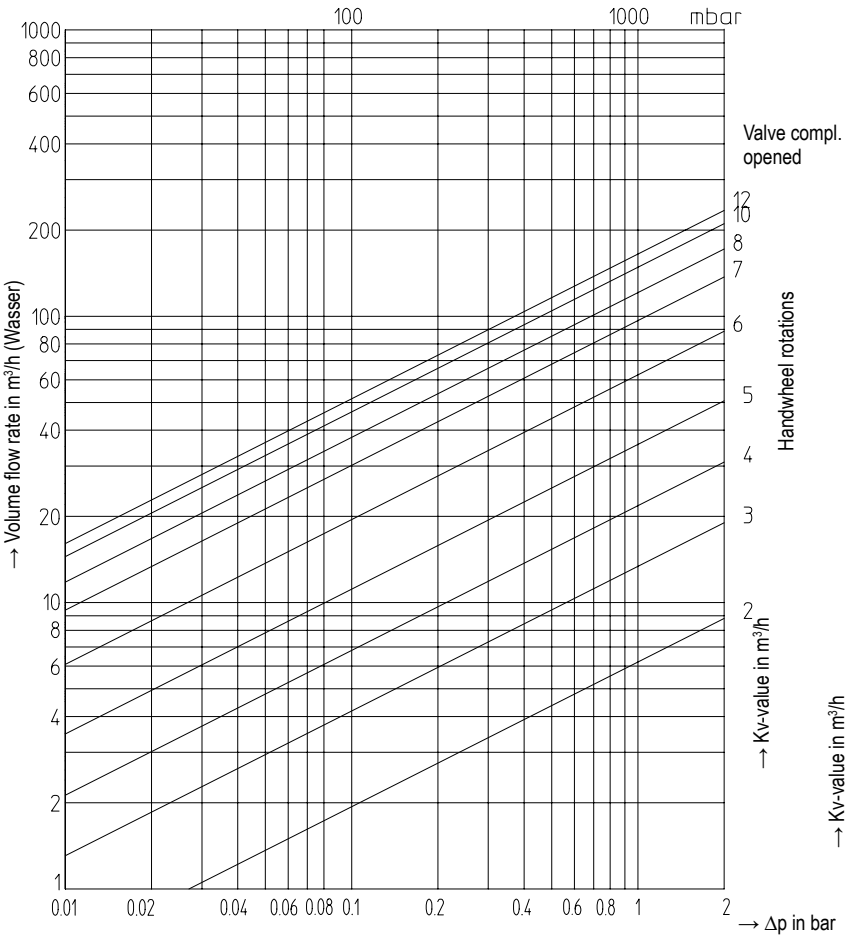
max. permissible flow speed: Liquids ≤ 4 m/s,
Gases on request
Vapours not permissible

Condition: The flow must be free from cavitation.

Flow characteristic

z = 0,37 acc. to VDMA 24423





Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa

DN100 / PN16

Handwheel rotations	Zeta-value	Kv-value
	--	(m³/h)
2	4135	6,22
3	891	13,44
4	337	21,8
5	126	35,7
6	41,1	62,4
7	17,1	96,6
8	10,9	120,9
10	7,27	148,4
12	5,9	165

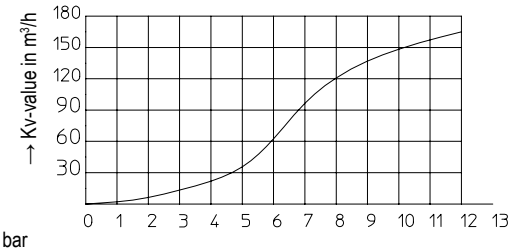
max. permissible differential pressure in throttling function 1,5 bar.

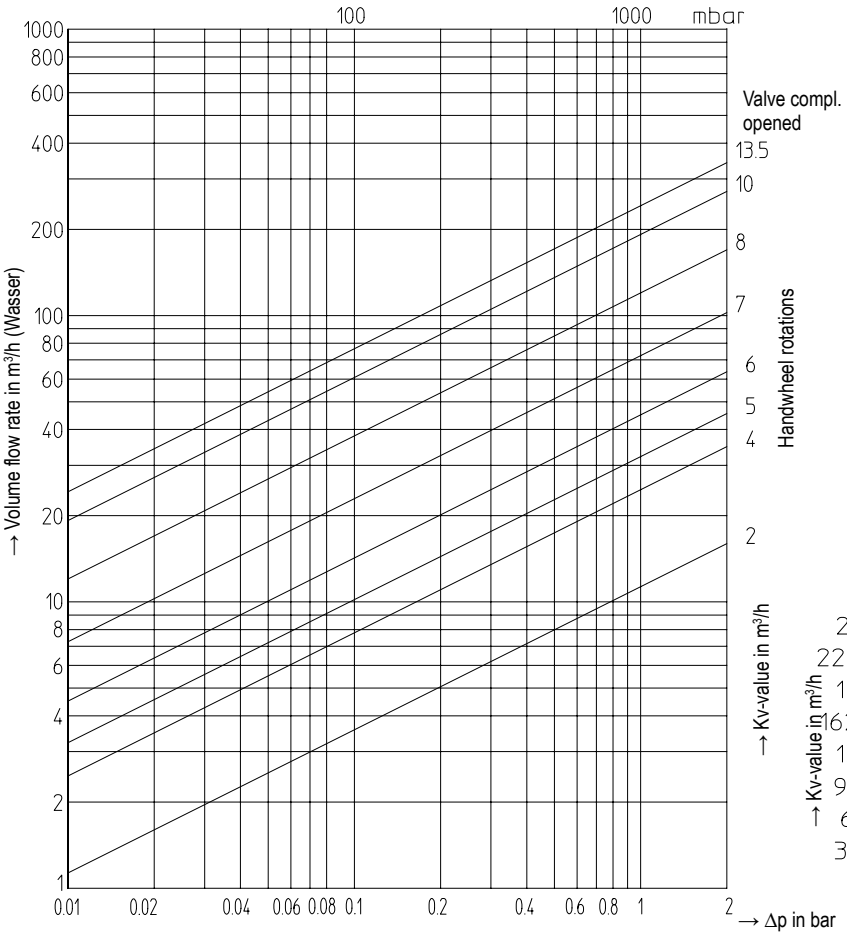
max. permissible flow speed: Liquids ≤ 4 m/s,
Gases on request
Vapours not permissible

Condition: The flow must be free from cavitation.

Flow characteristic

z = 0,27 acc. to VDMA 24423





Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa

DN125 / PN16

Handwheel rotations	Zeta-value	Kv-value
	--	(m³/h)
2	3059	11,3
4	645	24,6
5	374	32,3
6	194	44,9
7	74,3	72,5
8	27,3	119,6
10	10,6	192
13,5	6,7	242

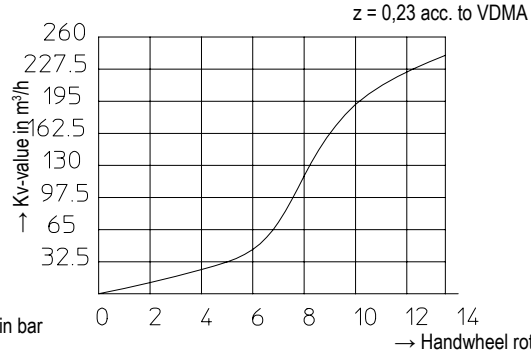
max. permissible differential pressure in throttling function 1,5 bar.

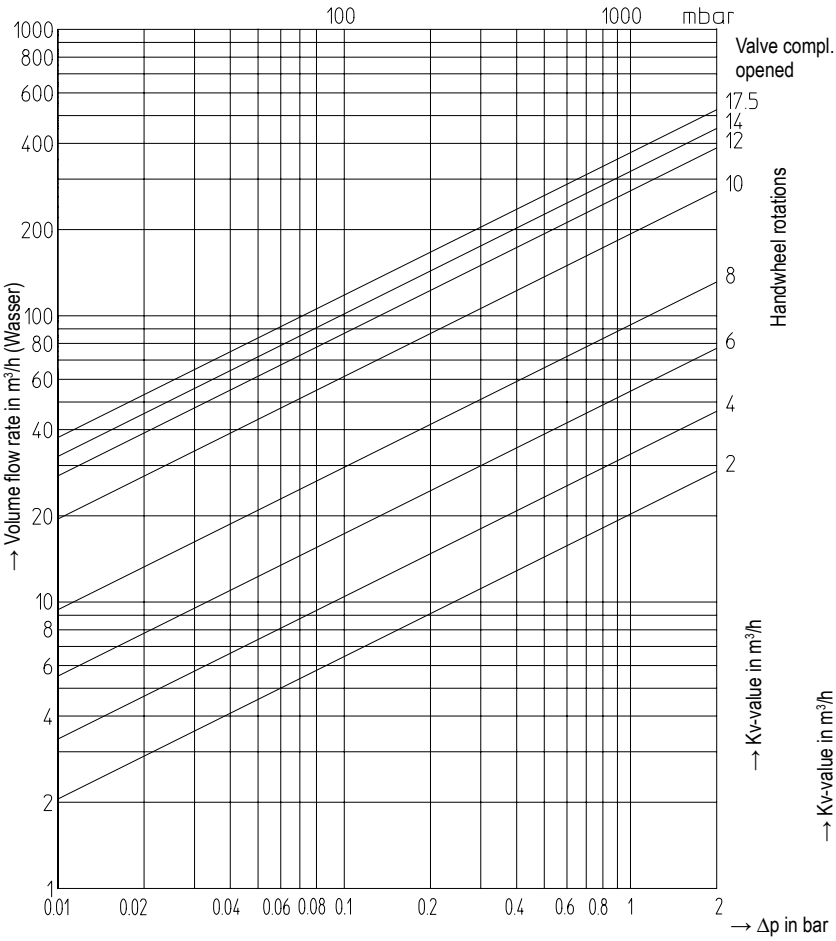
max. permissible flow speed: Liquids ≤ 4 m/s,
Gases on request
Vapours not permissible

Condition: The flow must be free from cavitation.

Flow characteristic

z = 0,23 acc. to VDMA 24423





Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa

DN150 / PN16

Handwheel rotations	Zeta-value	Kv-value
	--	(m³/h)
2	1946	20,4
4	744	33
6	273	54,5
8	93,8	92,9
10	21,7	193
12	10,8	274
14	7,9	320
17,5	5,8	372

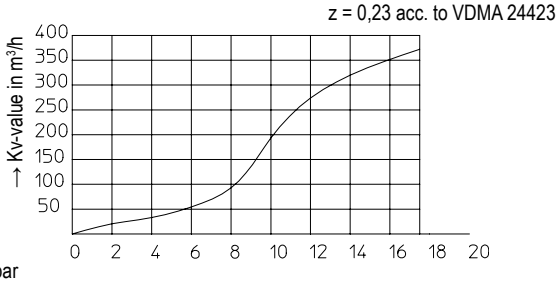
max. permissible differential pressure in throttling function 1,0 bar.

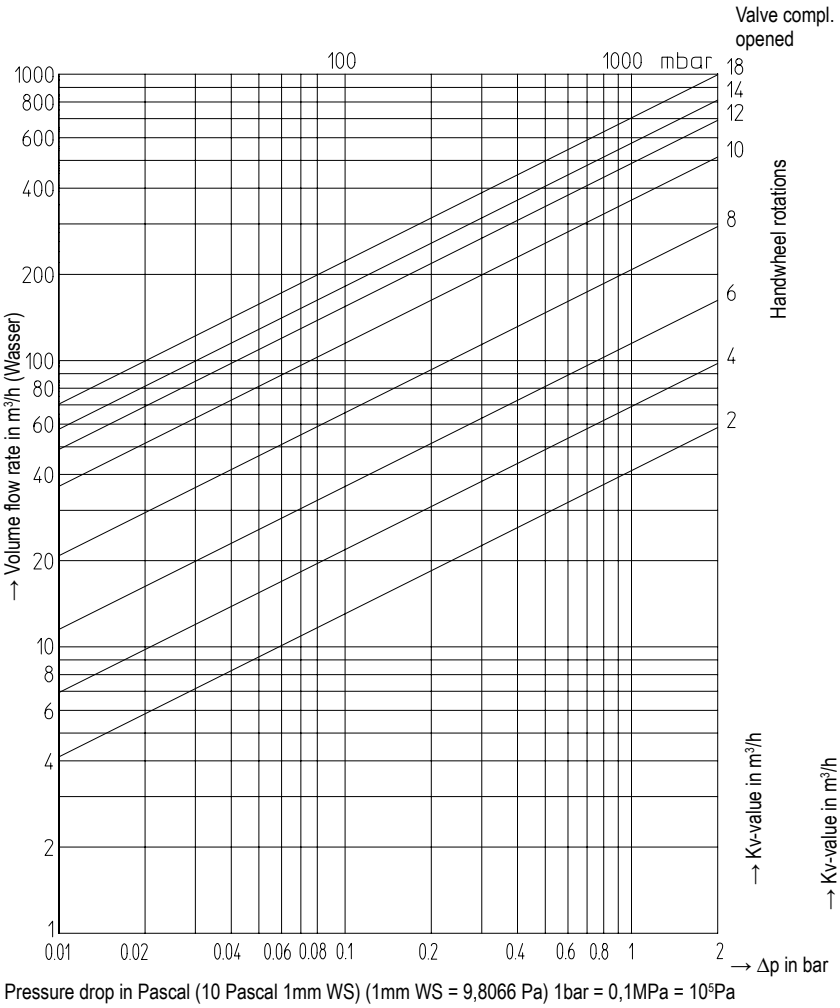
max. permissible flow speed: Liquids ≤ 4 m/s,
Gases on request
Vapours not permissible

Condition: The flow must be free from cavitation.

Flow characteristic

z = 0,23 acc. to VDMA 24423





Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa

DN200 / PN16

Handwheel rotations	Zeta-value	Kv-value
	--	(m³/h)
2	1500	41,3
4	538	69
6	194	115
8	59,2	208
10	19,3	364
12	10,7	489
14	7,7	575
18	5,2	704

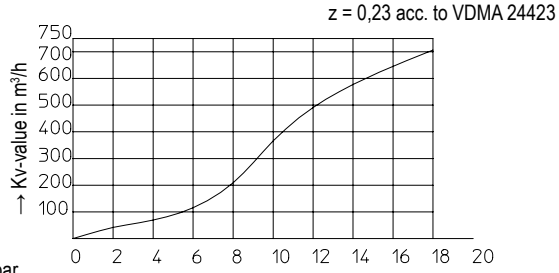
max. permissible differential pressure in throttling function 0,8 bar.

max. permissible flow speed: Liquids ≤ 4 m/s,
Gases on request
Vapours not permissible

Condition: The flow must be free from cavitation.

Flow characteristic

z = 0,23 acc. to VDMA 24423



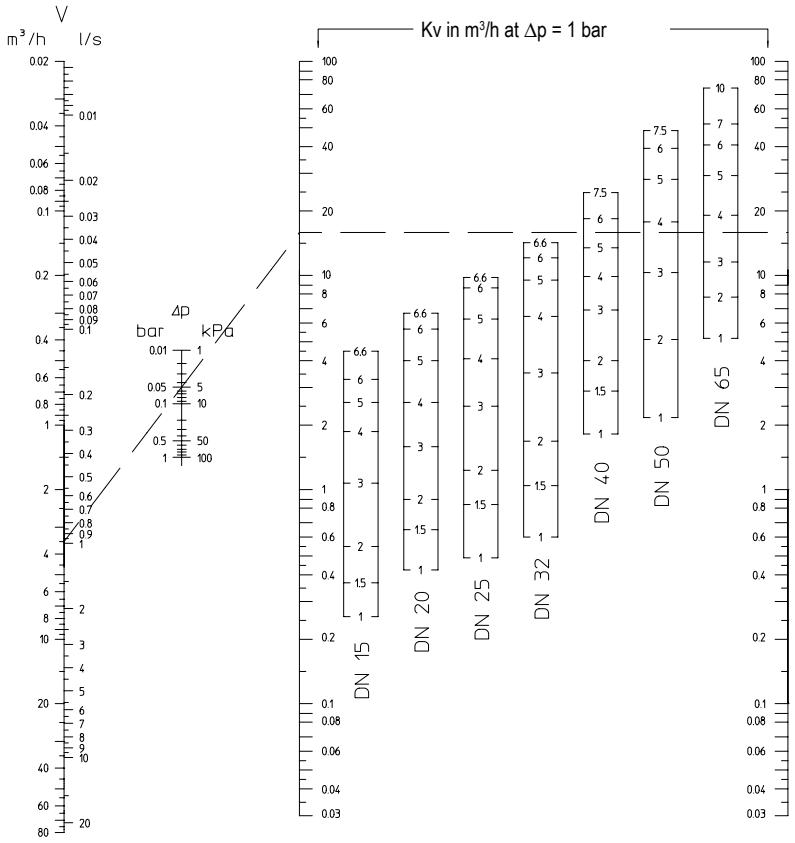
Presetting

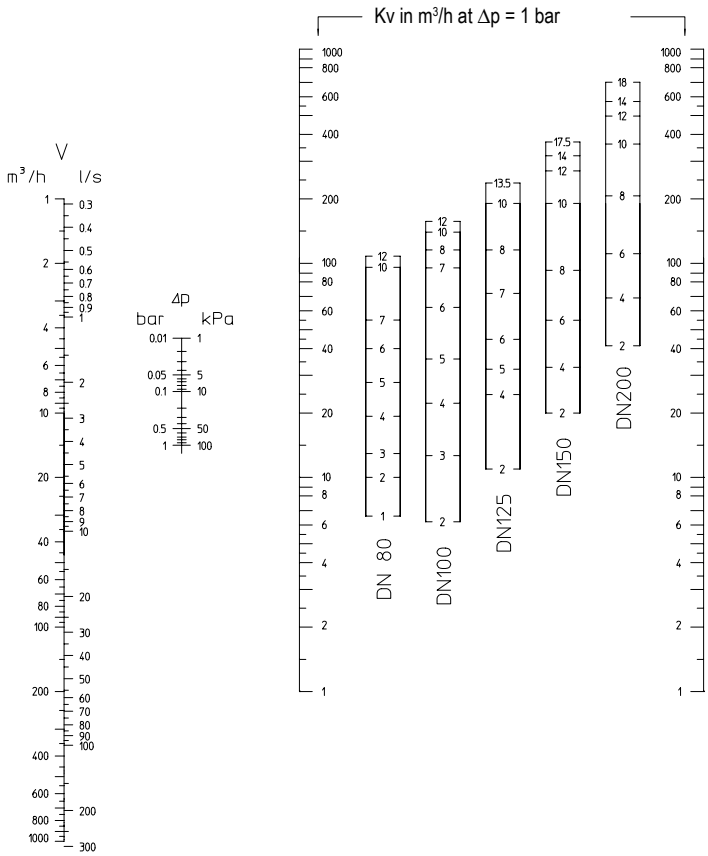
Example:

Presetting for DN40 with **V = 3,5 m³/h** **Δp = 5 kPa**

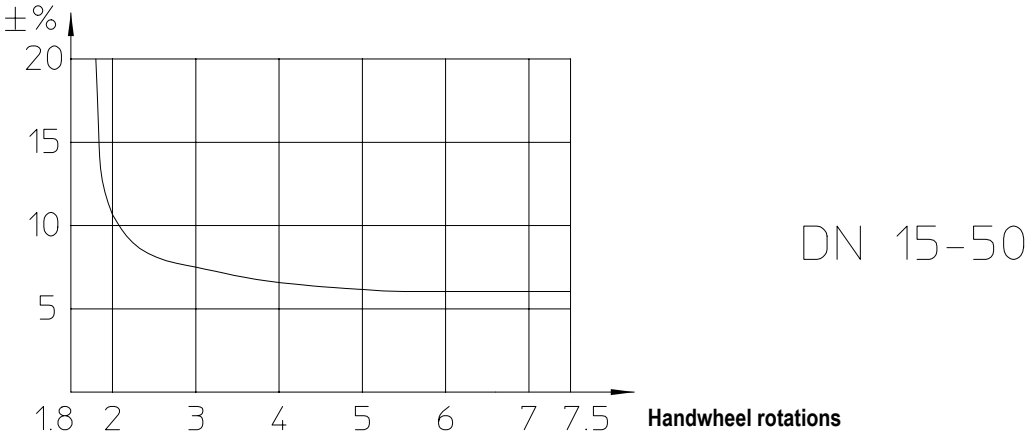
Procedure: Connect the V = 3,5 m3/h point on the line with the Δp point 5 kPa through to the Kv line, then go horizontally to DN 40

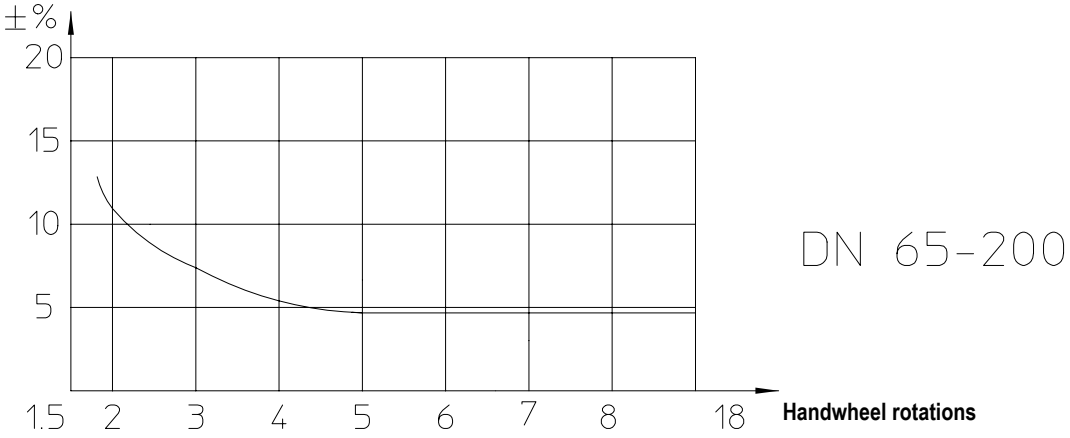
Result: 5,5 Rotations





Flow diagram in dependence from the presetting and the application



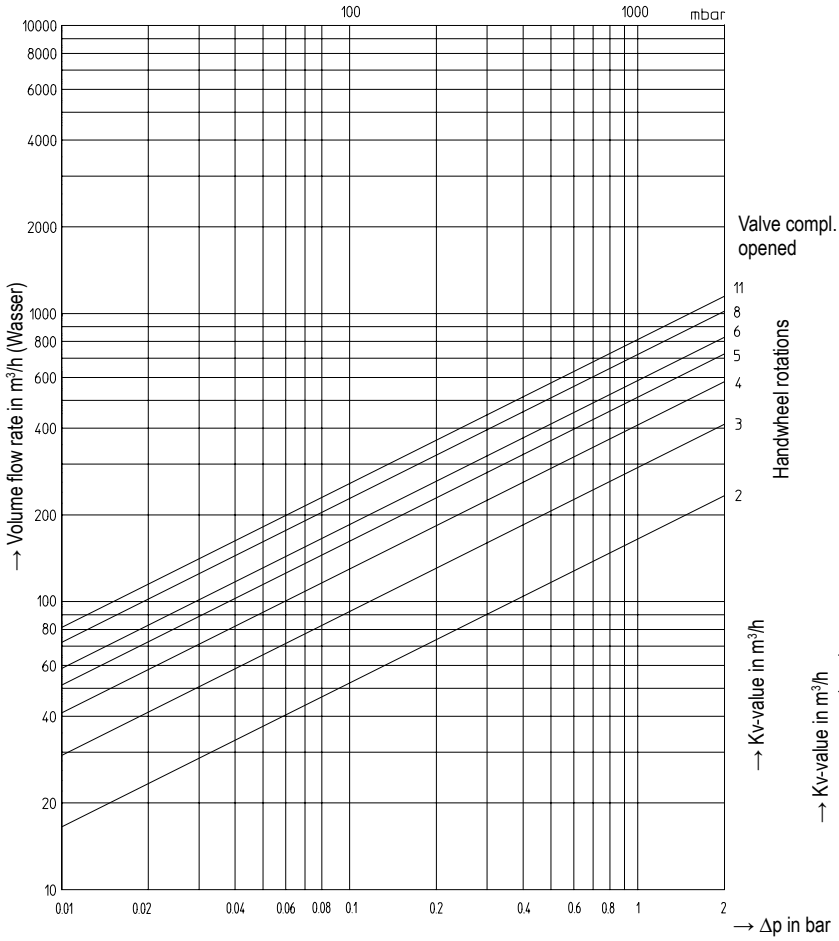


<u>This data is valid for the following application</u>:

- Stable inlet length of a least 6 x DN before the valve, and at least 2 x DN behind the valve.

- When installed directly behind a pump, a stable length of 10 x DN must be observed.

If the above is not observed, and differential pressures below 30 mbar exist, then larger system deviations can occur.



Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa

DN250 / PN16

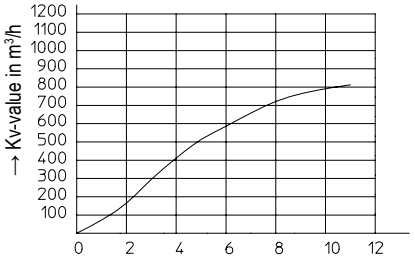
Handwheel rotations	Zeta-value	Kv-value
	--	(m³/h)
2	198	179
3	71,1	297
4	37,2	410
5	23,7	514
6	18,1	587
8	11,7	731
11	9,5	812

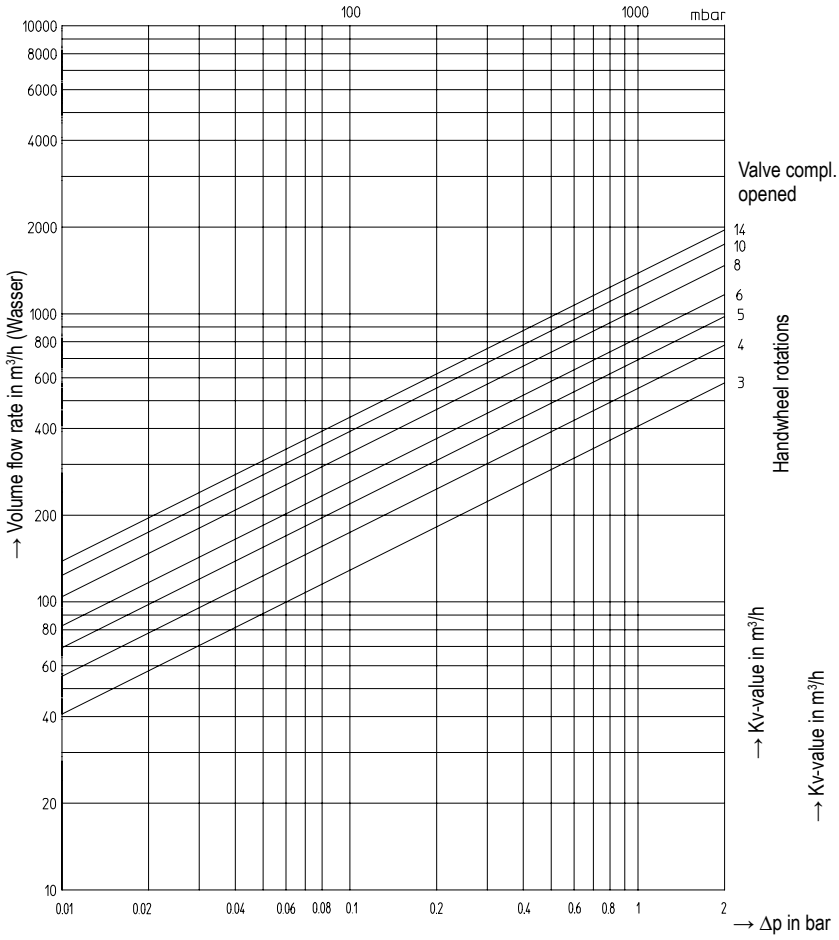
max. permissible differential pressure in throttling function 2 bar.

max. permissible flow speed: Liquids ≤ 4 m/s,
Gas and vapours ≤ 60 m/s

Condition: The flow must be free from cavitation.

Flow characteristic





Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa

DN300 / PN16

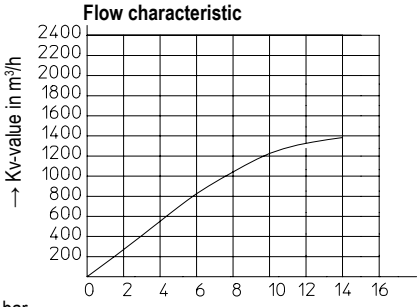
Handwheel rotations	Zeta-value	Kv-value
	--	(m³/h)
3	76,7	411
4	41,3	560
5	26,8	696
6	19	825
8	11,9	1044
10	8,62	1226
14	6,8	1380

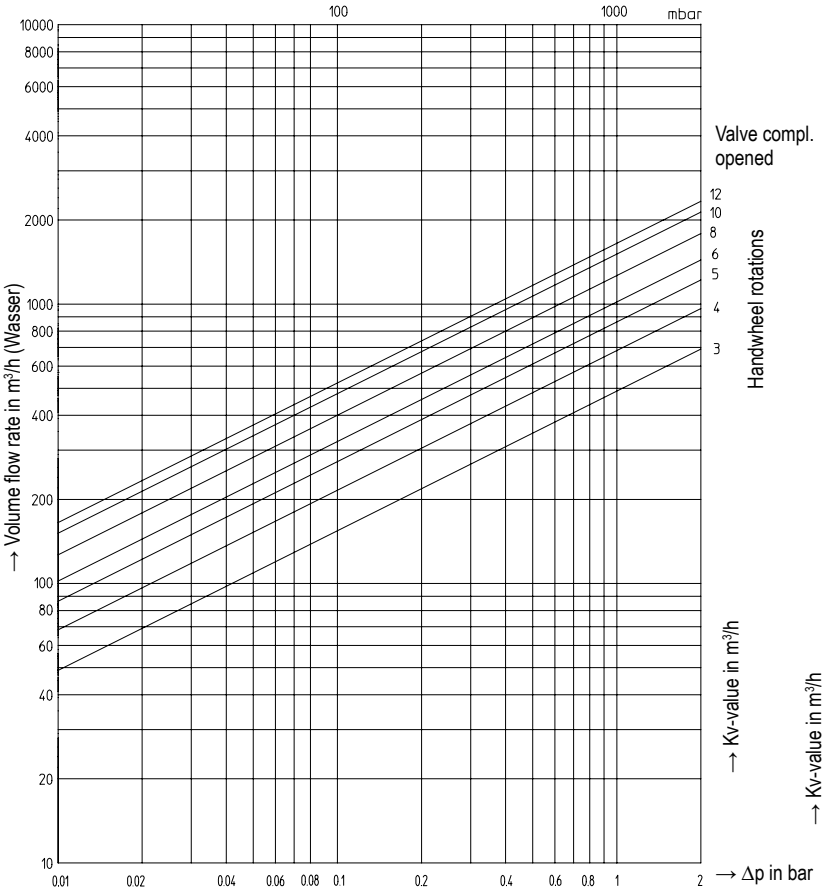
max. permissible differential pressure in throttling function 2 bar.

max. permissible flow speed: Liquids ≤ 4 m/s,
Gas and vapours ≤ 60 m/s

Condition: The flow must be free from cavitation.

Flow characteristic





Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa

DN350 / PN16

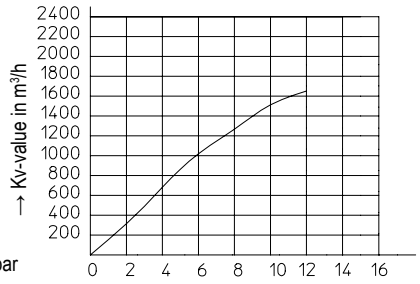
Handwheel rotations	Zeta-value	Kv-value
	--	(m³/h)
3	98	495
4	52,4	677
5	33,2	851
6	23,1	1019
8	17,8	1272
10	10,5	1513
12	8,81	1651

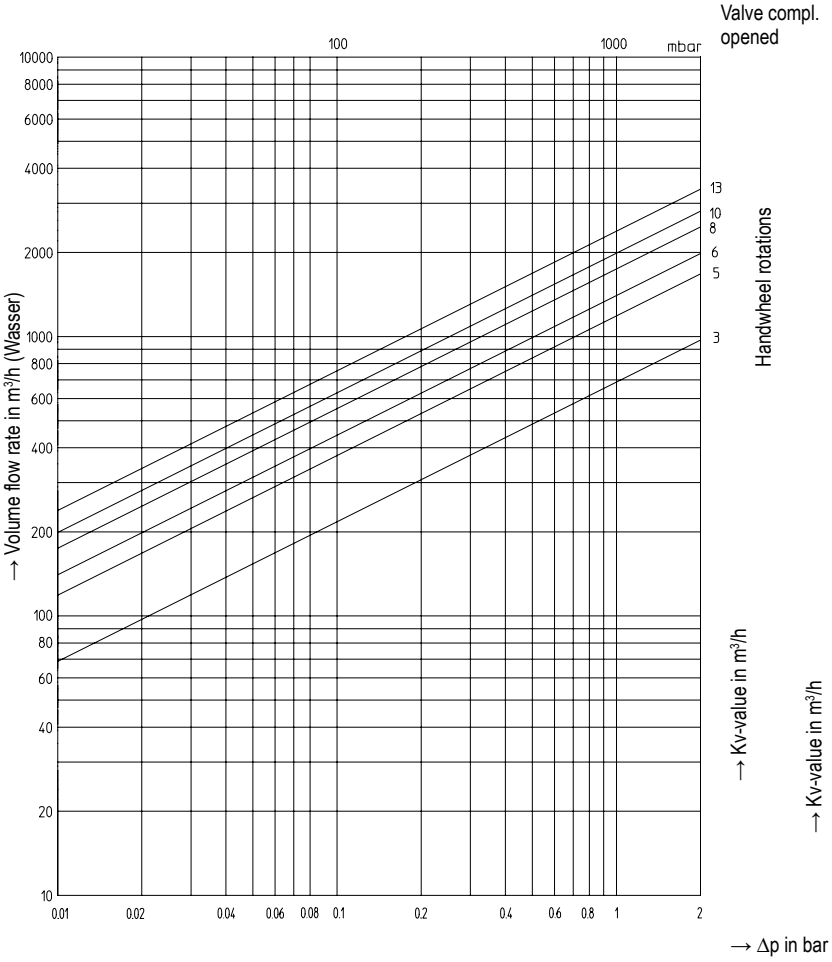
max. permissible differential pressure in throttling function 2 bar.

max. permissible flow speed: Liquids ≤ 4 m/s,
Gas and vapours ≤ 60 m/s

Condition: The flow must be free from cavitation.

Flow characteristic





Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa

DN400 / PN16

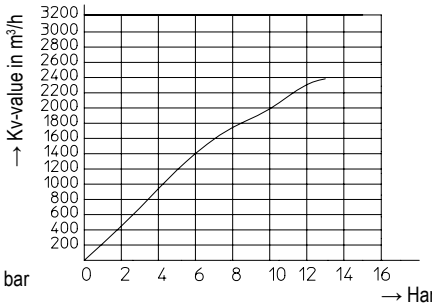
Handwheel rotations	Zeta-value	Kv-value
	--	(m³/h)
3	86	690
5	29,3	1182
6	20,6	1409
8	13,3	1752
10	10,3	1991
13	7,2	2383

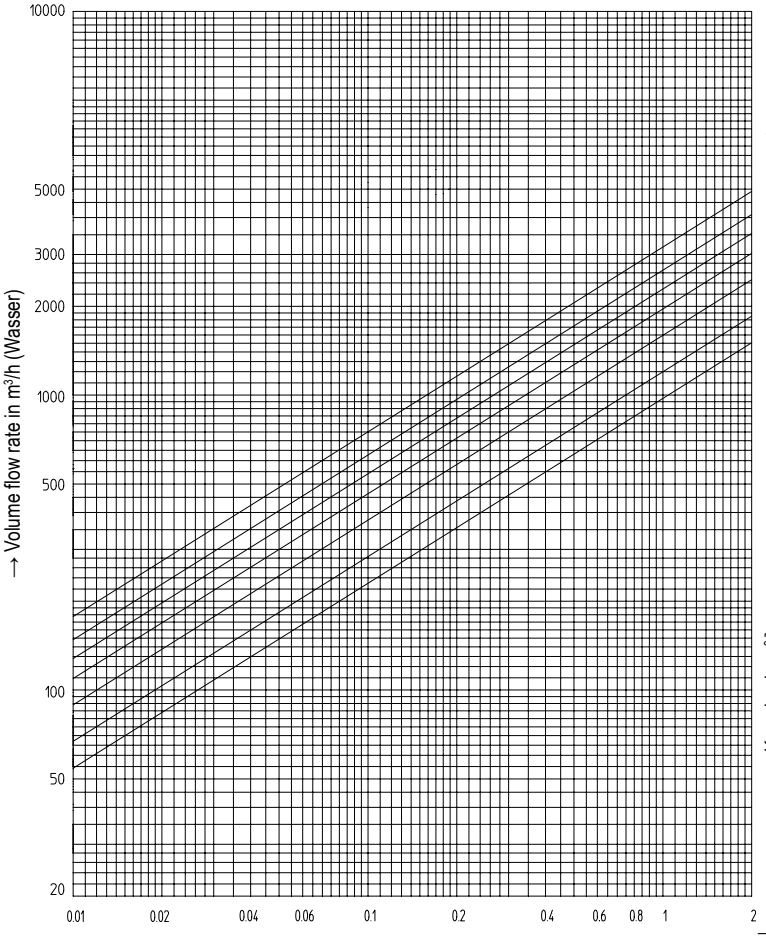
max. permissible differential pressure in throttling function 2 bar.

max. permissible flow speed: Liquids ≤ 4 m/s,
Gas and vapours ≤ 60 m/s

Condition: The flow must be free from cavitation.

Flow characteristic





Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa

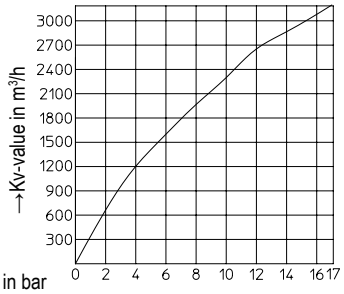
DN500 / PN16		
Handwheel rotations	**Zeta-value**	**Kv-value**
	--	(m^3/h)
3	109,4	956
4	69,4	1200
6	39,4	1594
8	26	1961
10	19	2292
12	14,3	2644
17	9,86	3185

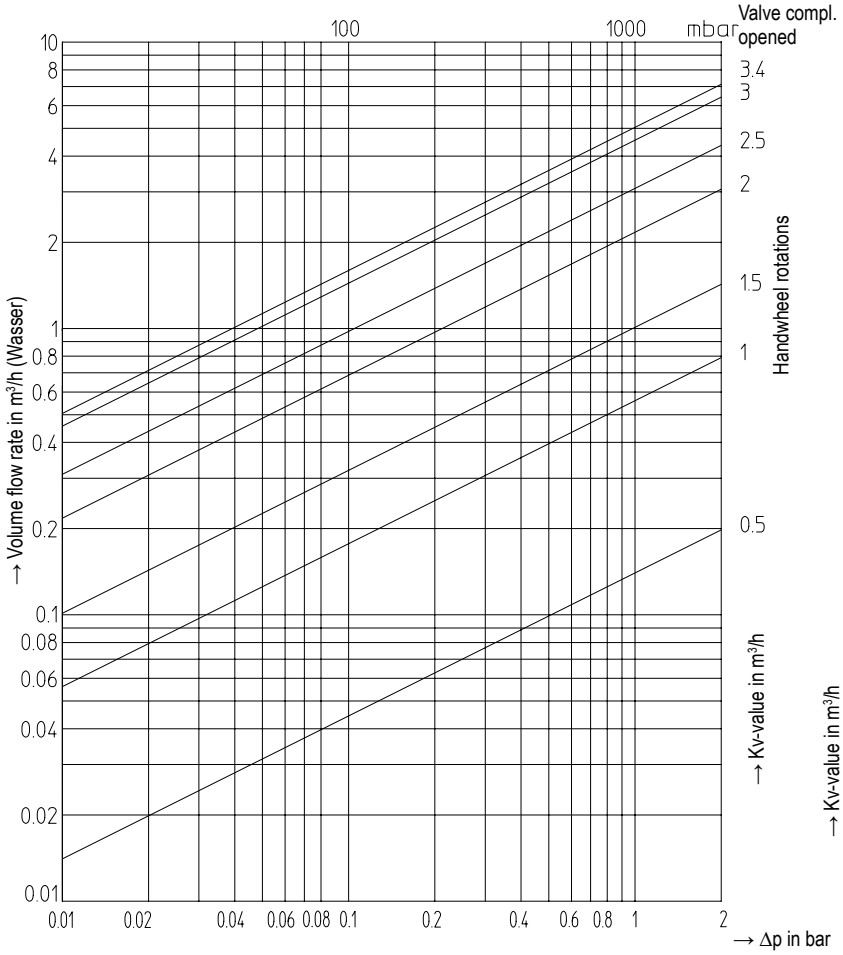
max. permissible differential pressure in throttling function 2 bar.

max. permissible flow speed: Liquids ≤ 4 m/s,
Gas and vapours ≤ 60 m/s

Condition: The flow must be free from cavitation.

Flow characteristic





Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa

DN15 / PN16

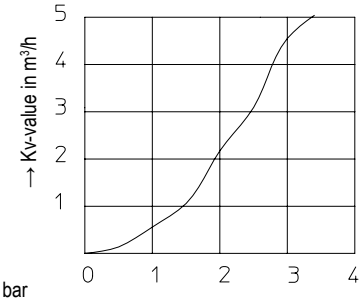
Handwheel rotations	Zeta-value	Kv-value
	--	(m³/h)
0,5	4132	0,14
1	258	0,56
1,5	72,1	1,06
2	17,2	2,17
2,5	8,5	3,09
3	3,9	4,55
3,4	3,2	5,04

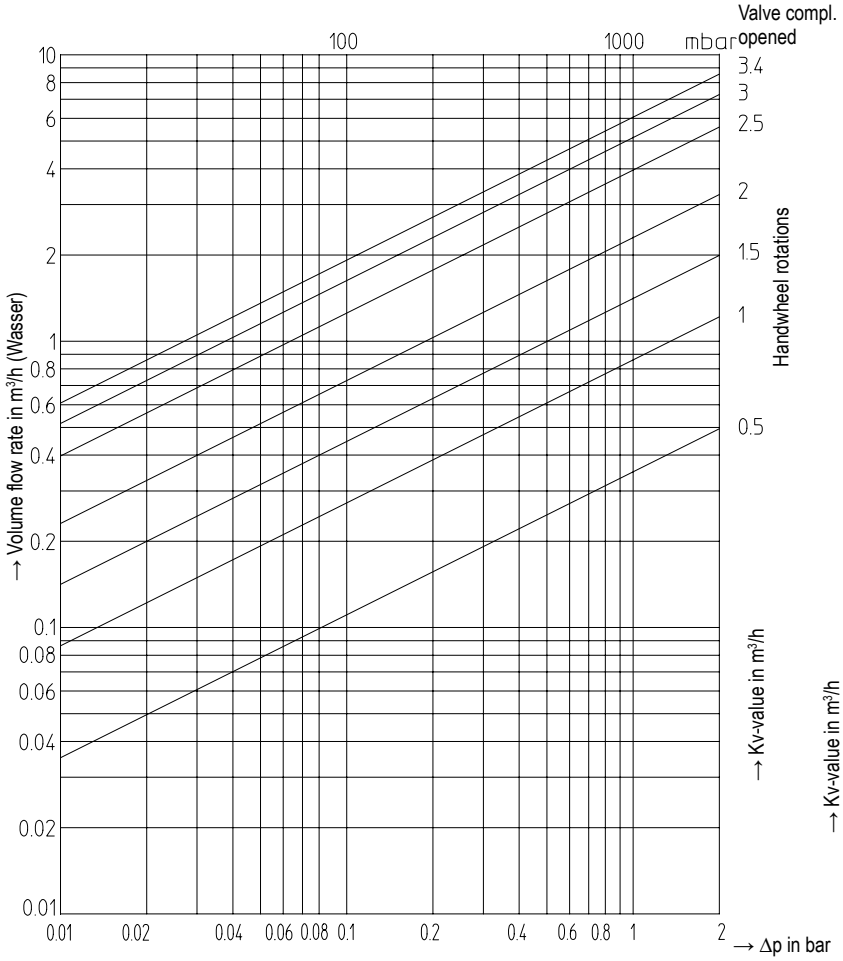
max. permissible differential pressure in throttling function 2,0 bar.

max. permissible flow speed: Liquids ≤ 4 m/s,
Gas and vapours ≤ 60 m/s

Condition: The flow must be free from cavitation.

Flow characteristic





Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa

DN20 / PN16

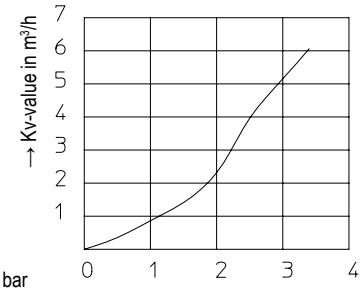
Handwheel rotations	Zeta-value	Kv-value
	--	(m³/h)
0,5	2089	0,35
1	346	0,86
1,5	129	1,41
2	48	2,31
2,5	16,3	3,96
3	9,6	5,15
3,4	7	6,06

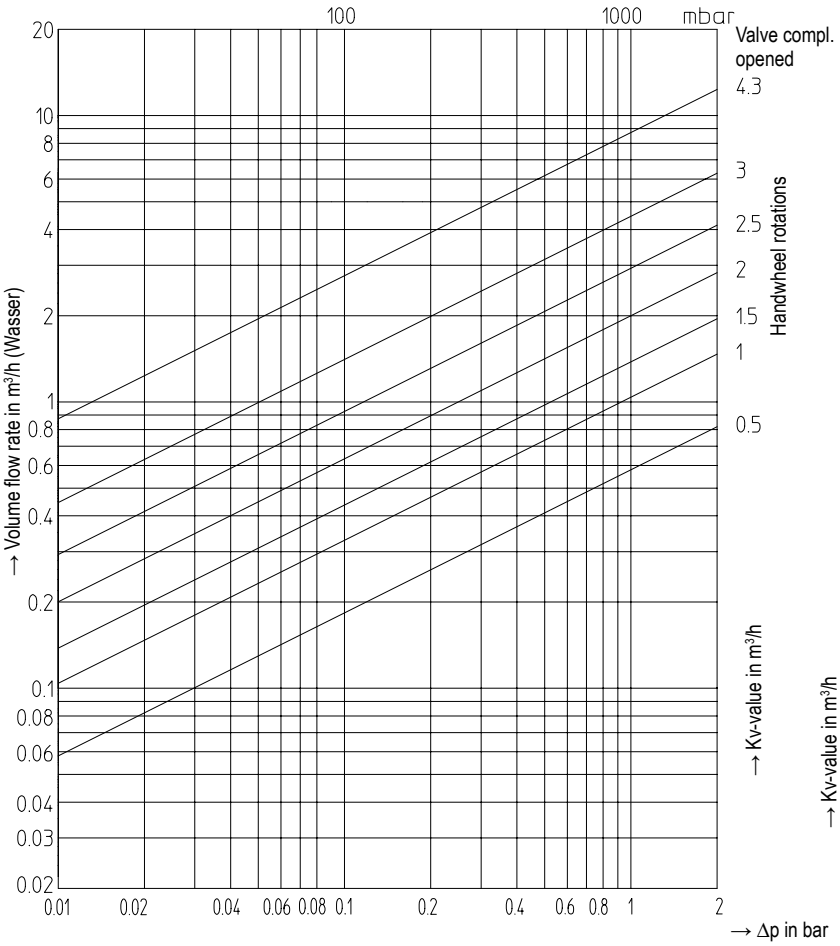
max. permissible differential pressure in throttling function 2,0 bar.

max. permissible flow speed: Liquids ≤ 4 m/s,
Gas and vapours ≤ 60 m/s

Condition: The flow must be free from cavitation.

Flow characteristic





Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa

DN25 / PN16

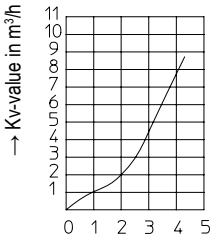
Handwheel rotations	Zeta-value	Kv-value
	--	(m³/h)
0,5	1857	0,58
1	578	1,04
1,5	328	1,38
2	156	2
2,5	72,8	2,93
3	31,6	4,45
4,3	8,2	8,72

max. permissible differential pressure in throttling function 2,0 bar.

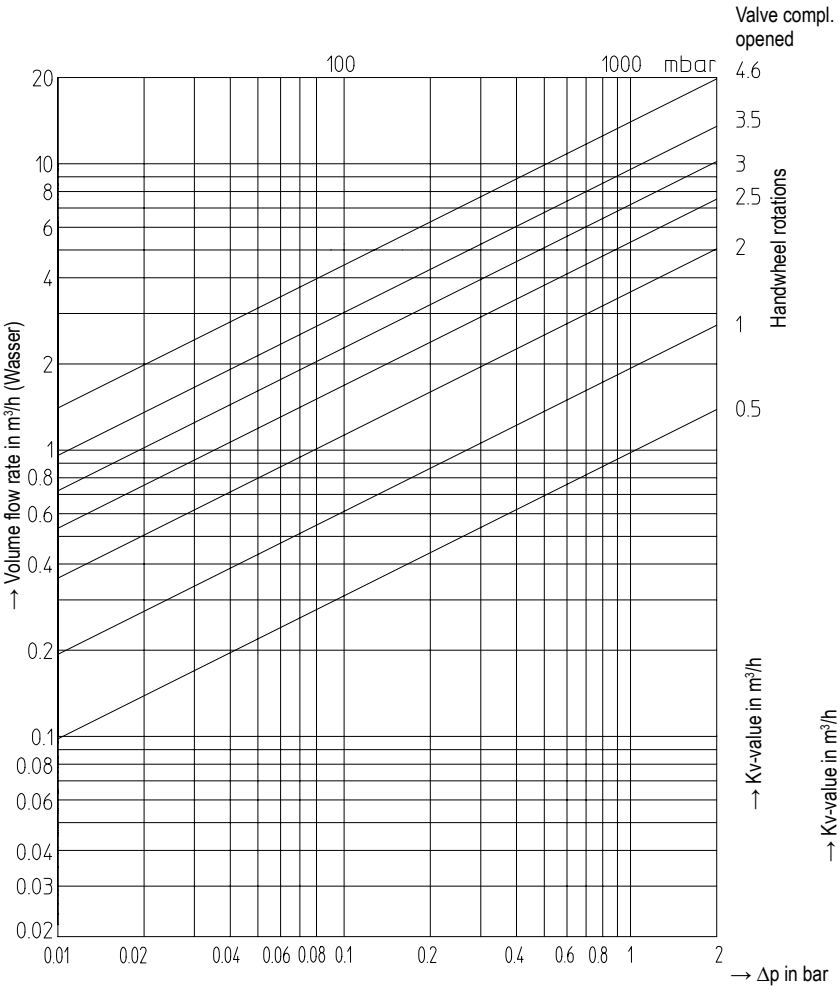
max. permissible flow speed: Liquids ≤ 4 m/s, Gas and vapours ≤ 60 m/s

Condition: The flow must be free from cavitation.

Flow characteristic



→ Handwheel rotations



Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa

DN32 / PN16

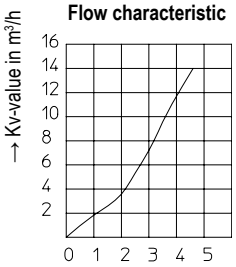
Handwheel rotations	Zeta-value	Kv-value
	--	(m³/h)
0,5	1746	0,98
1	501	1,83
2	132	3,57
2,5	59	5,33
3	32	7,2
3,5	18	9,56
4,6	8,5	14

max. permissible differential pressure in throttling function 2,0 bar.

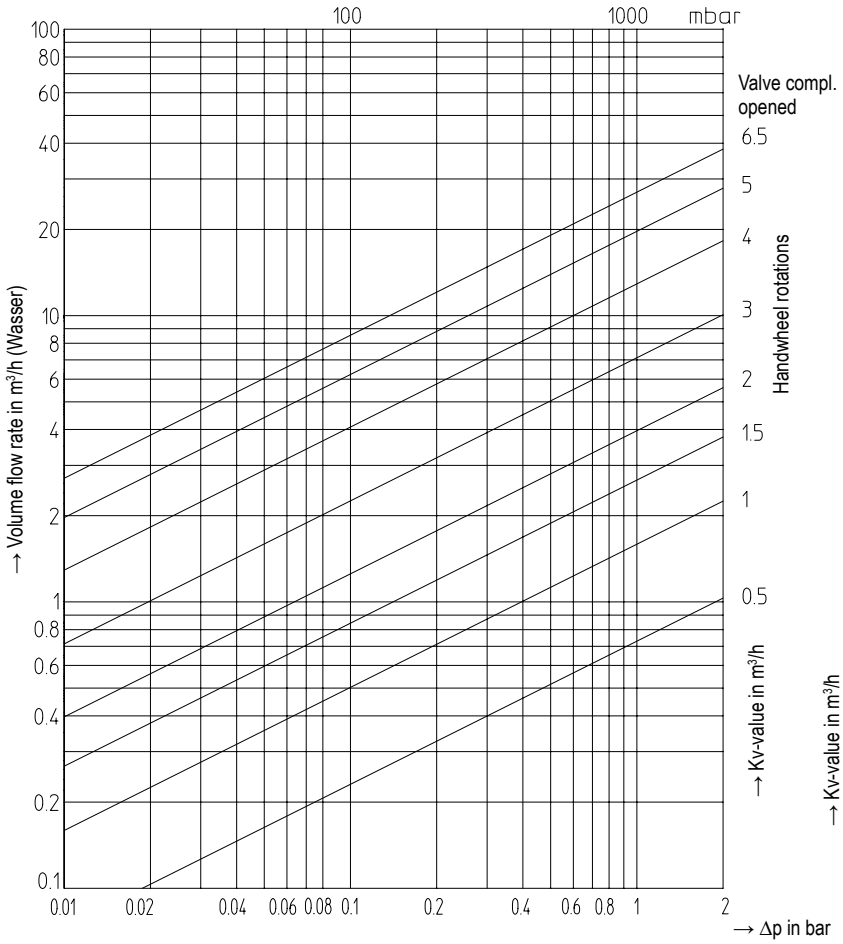
max. permissible flow speed: Liquids ≤ 4 m/s, Gas and vapours ≤ 60 m/s

Condition: The flow must be free from cavitation.

Flow characteristic



→ Handwheel rotations



Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa

DN40 / PN16

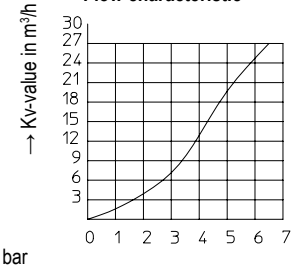
Handwheel rotations	Zeta-value	Kv-value
	--	(m^3/h)
0,5	7686	0,73
1	1620	1,59
1,5	575	2,67
2	265	3,93
3	80,6	7,13
4	24,5	12,9
5	10,5	19,7
6,5	5,6	27

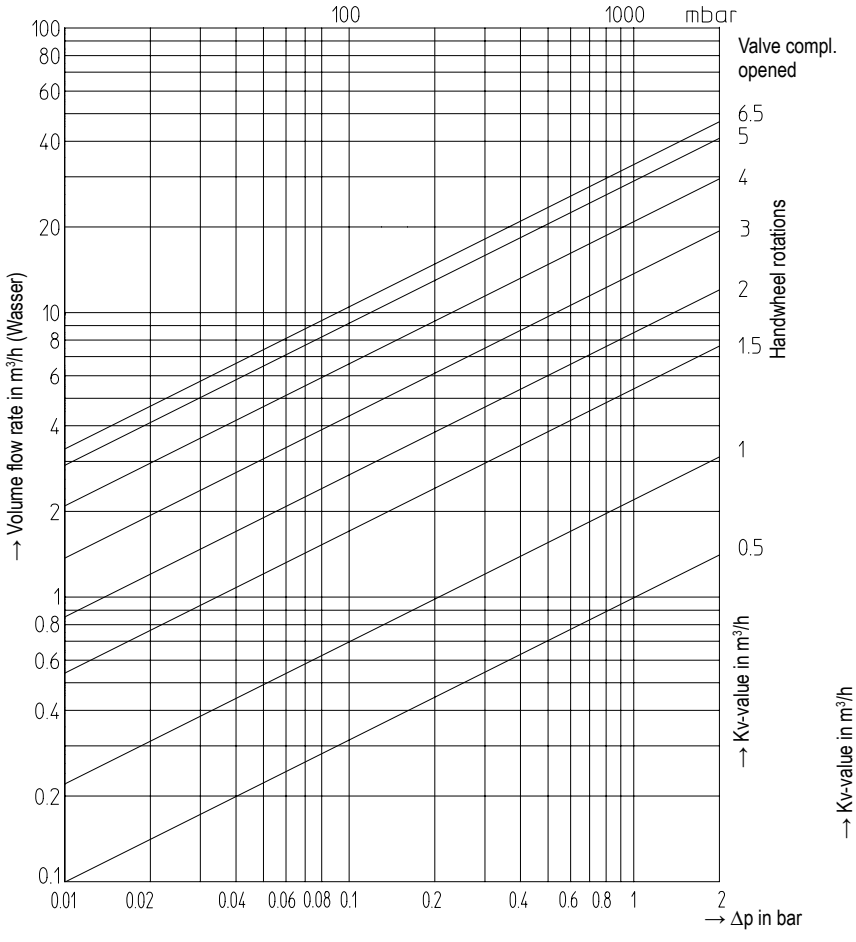
max. permissible differential pressure in throttling function 2,0 bar.

max. permissible flow speed: Liquids ≤ 4 m/s, Gas and vapours ≤ 60 m/s

Condition: The flow must be free from cavitation.

Flow characteristic





Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa

DN50 / PN16

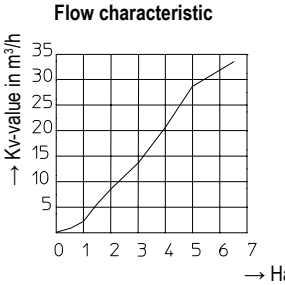
Handwheel rotations	Zeta-value	Kv-value
	--	(m^3/h)
0,5	10203	0,99
1	2085	2,2
1,5	348	5,5
2	137	8,5
3	53,1	13,7
4	22,9	20,9
5	11,9	29
6,5	9,1	33,2

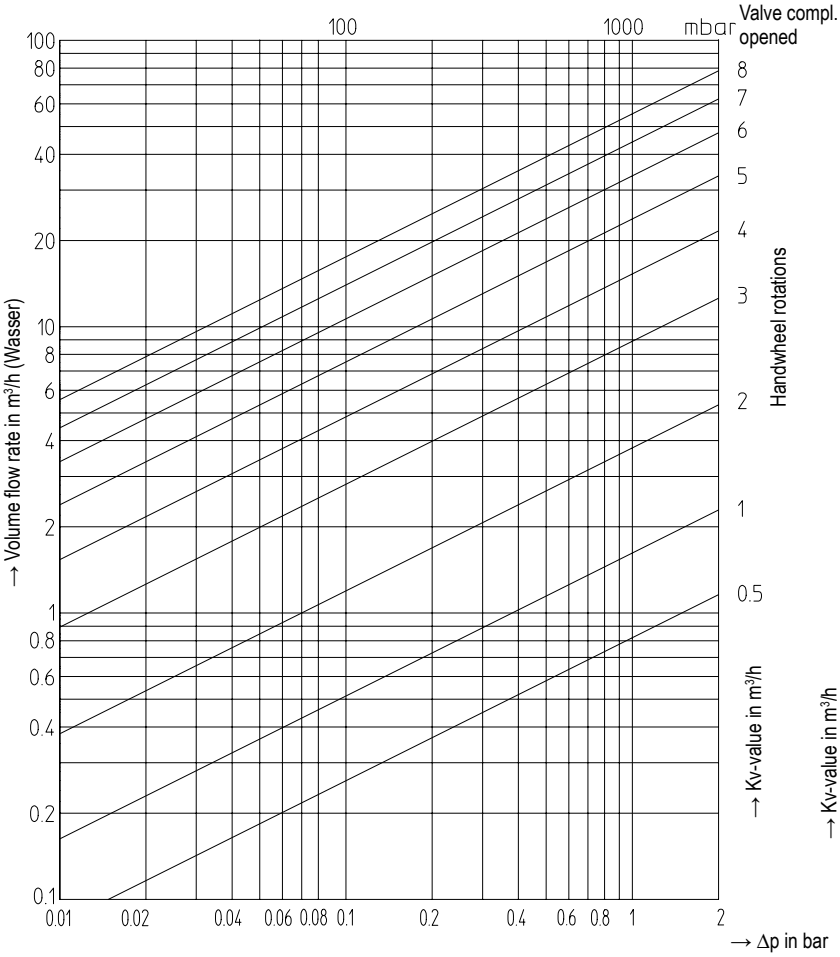
max. permissible differential pressure in throttling function 2,0 bar.

max. permissible flow speed: Liquids ≤ 4 m/s, Gas and vapours ≤ 60 m/s

Condition: The flow must be free from cavitation.

Flow characteristic





DN65 / PN16

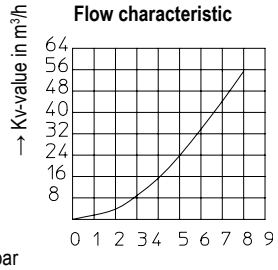
Handwheel rotations	Zeta-value	Kv-value
	--	(m³/h)
0,5	42476	0,82
1	10882	1,62
2	1998	3,78
3	360,5	8,9
4	122	15,3
5	50,4	23,8
6	25,1	33,7
7	14,6	44,2
8	9,3	55,4

max. permissible differential pressure in throttling function 2,0 bar.

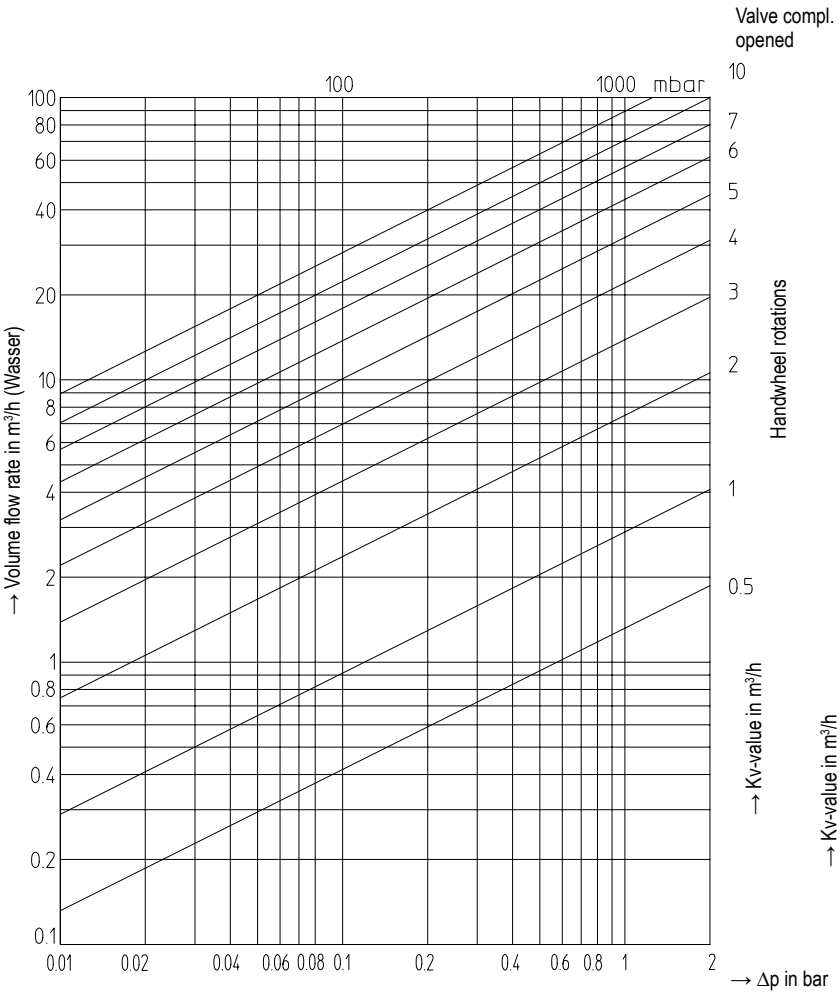
max. permissible flow speed: Liquids ≤ 4 m/s,
Gas and vapours ≤ 60 m/s

Condition: The flow must be free from cavitation.

Flow characteristic



Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa



DN80 / PN16

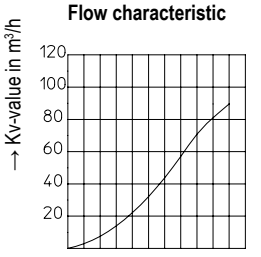
Handwheel rotations	Zeta-value	Kv-value
	--	(m³/h)
0,5	37020	1,32
1	7792	2,9
2	1165	7,5
3	339	13,9
4	134	22,1
5	63,6	32,1
6	34,3	43,7
7	20,2	56,9
8	13,1	70,7
10	8,2	89,5

max. permissible differential pressure in throttling function 2,0 bar.

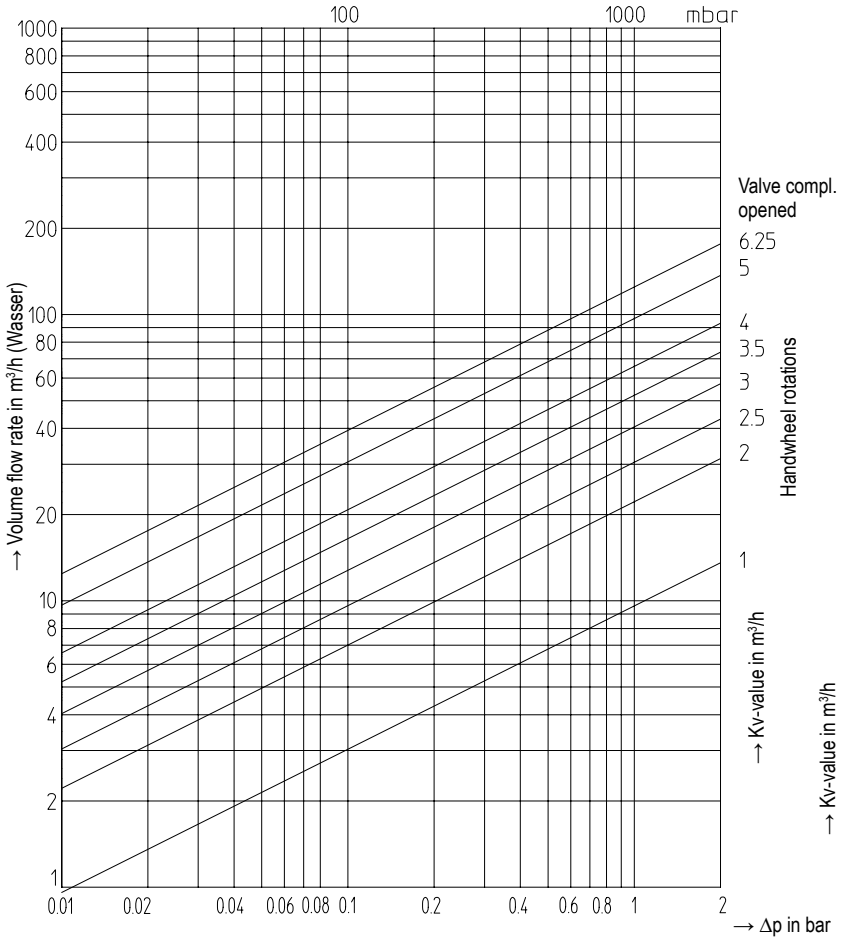
max. permissible flow speed: Liquids ≤ 4 m/s,
Gas and vapours ≤ 60 m/s

Condition: The flow must be free from cavitation.

Flow characteristic



Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa



Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa

DN100 / PN16

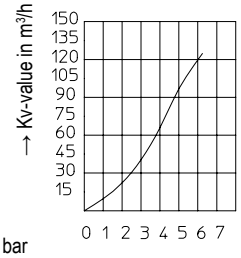
Handwheel rotations	Zeta-value	Kv-value
	--	(m³/h)
1	1739	9,6
2	325	22,2
2,5	172	30,5
3	97,5	40,5
3,5	58,5	52,3
4	36,8	65,9
5	17,1	96,8
6,25	10,2	125

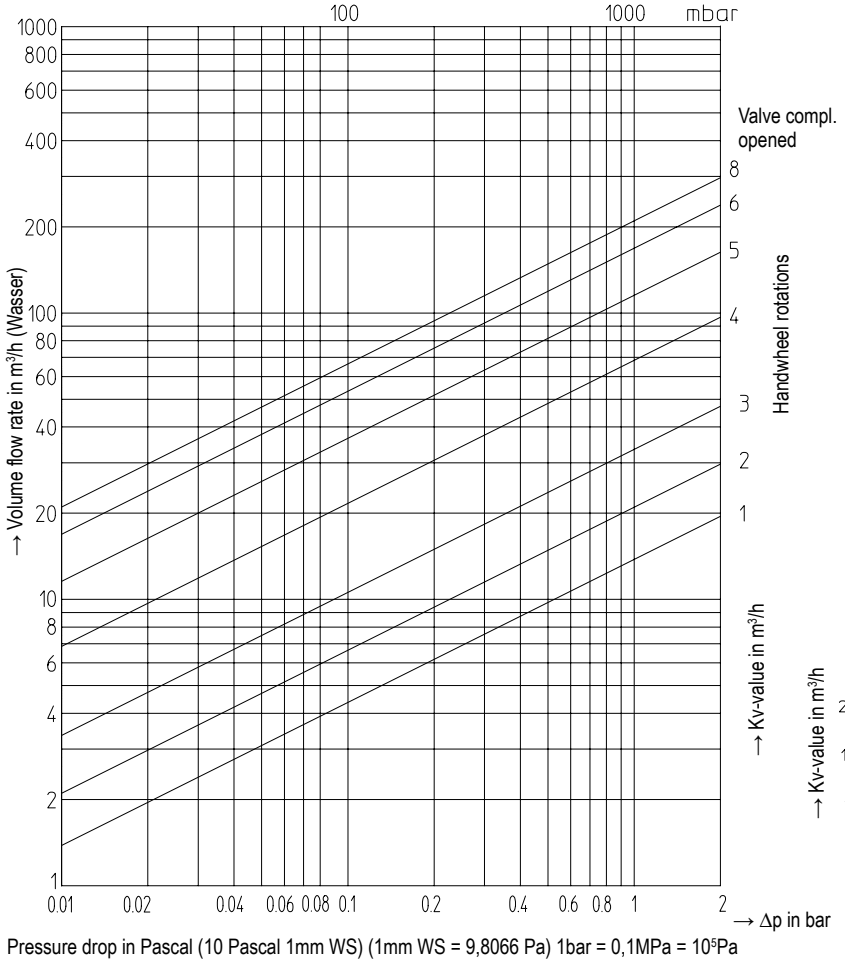
max. permissible differential pressure in throttling function 1,5 bar.

max. permissible flow speed: Liquids ≤ 4 m/s,
Gas and vapours ≤ 60 m/s

Condition: The flow must be free from cavitation.

Flow characteristic





Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa

DN125 / PN16

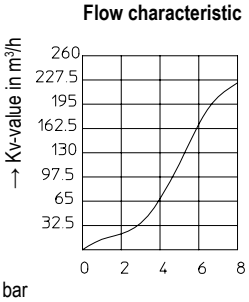
Handwheel rotations	Zeta-value	Kv-value
	--	(m³/h)
1	2036	13,9
2	869	21,2
3	310	35,5
4	83,5	68,4
5	29,3	115,5
6	13,8	168,5
7	9,3	205,4
8	7,8	224

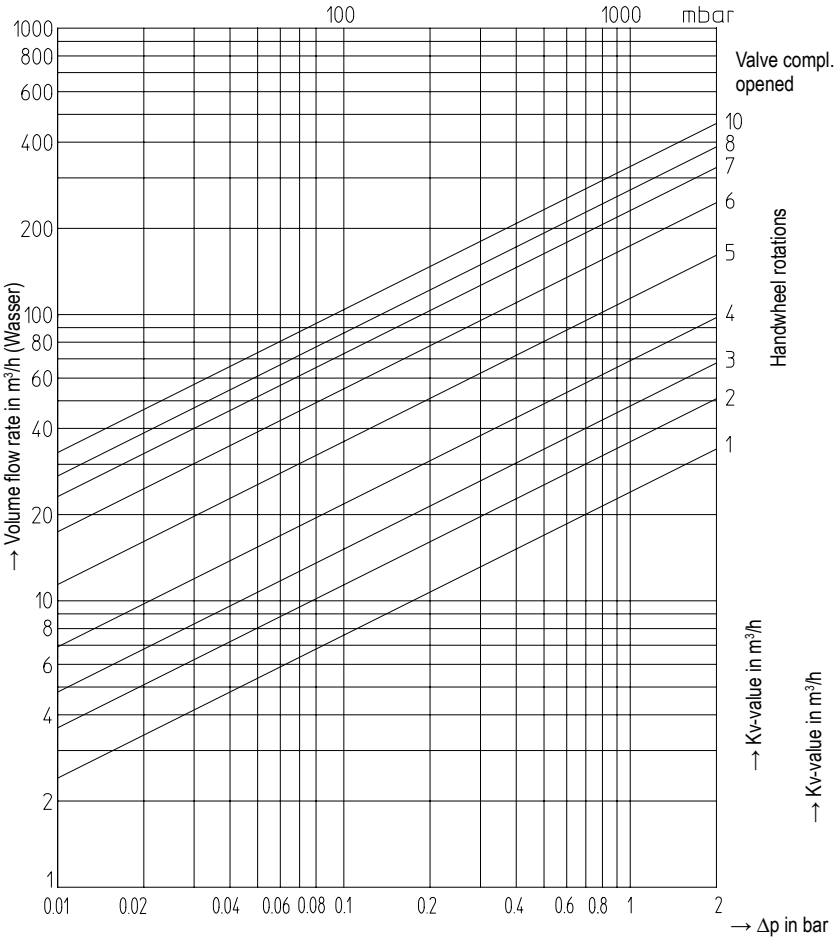
max. permissible differential pressure in throttling function 1,5 bar.

max. permissible flow speed: Liquids ≤ 4 m/s,
Gas and vapours ≤ 60 m/s

Condition: The flow must be free from cavitation.

Flow characteristic





Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa

DN150 / PN16

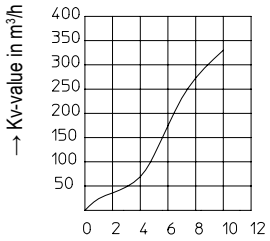
Handwheel rotations	Zeta-value	Kv-value
	--	(m³/h)
1	1406	24
2	632	35,8
3	350	48,1
4	169	69,2
5	62,1	114
6	26,8	174
7	15,2	231
8	10,9	273
10	7,4	330

max. permissible differential pressure in throttling function 1,0 bar.

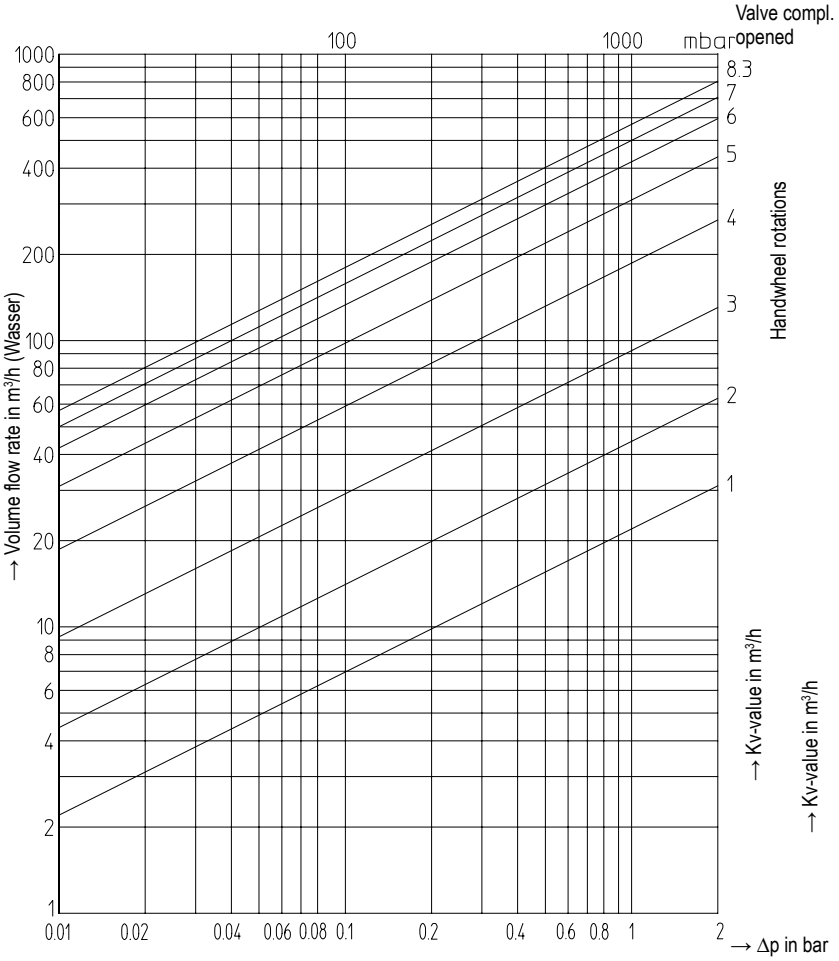
max. permissible flow speed: Liquids ≤ 4 m/s,
Gas and vapours ≤ 60 m/s

Condition: The flow must be free from cavitation.

Flow characteristic



→ Handwheel rotations



Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa

DN200 / PN16

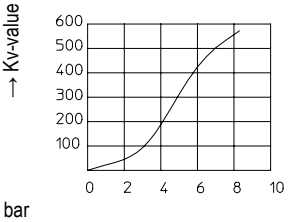
Handwheel rotations	Zeta-value	Kv-value
	--	(m³/h)
1	5289	22
2	1292	44,5
3	300	92,3
4	73,6	186,5
5	26,6	310,1
6	14,4	422
7	10,2	500
8,3	7,9	570

max. permissible differential pressure in throttling function 0,8 bar.

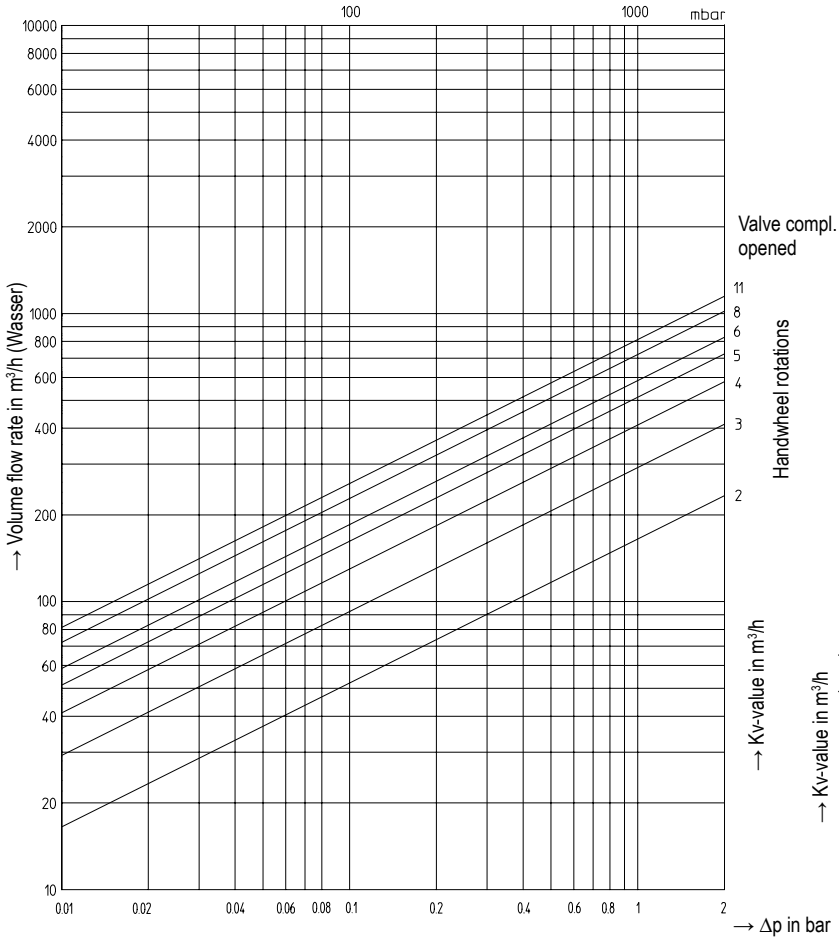
max. permissible flow speed: Liquids ≤ 4 m/s,
Gas and vapours ≤ 60 m/s

Condition: The flow must be free from cavitation.

Flow characteristic



→ Handwheel rotations



Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa

DN250 / PN16

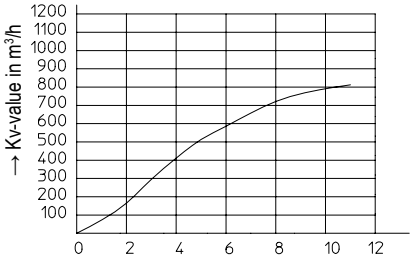
Handwheel rotations	Zeta-value	Kv-value
	--	(m³/h)
2	198	179
3	71,1	297
4	37,2	410
5	23,7	514
6	18,1	587
8	11,7	731
11	9,5	812

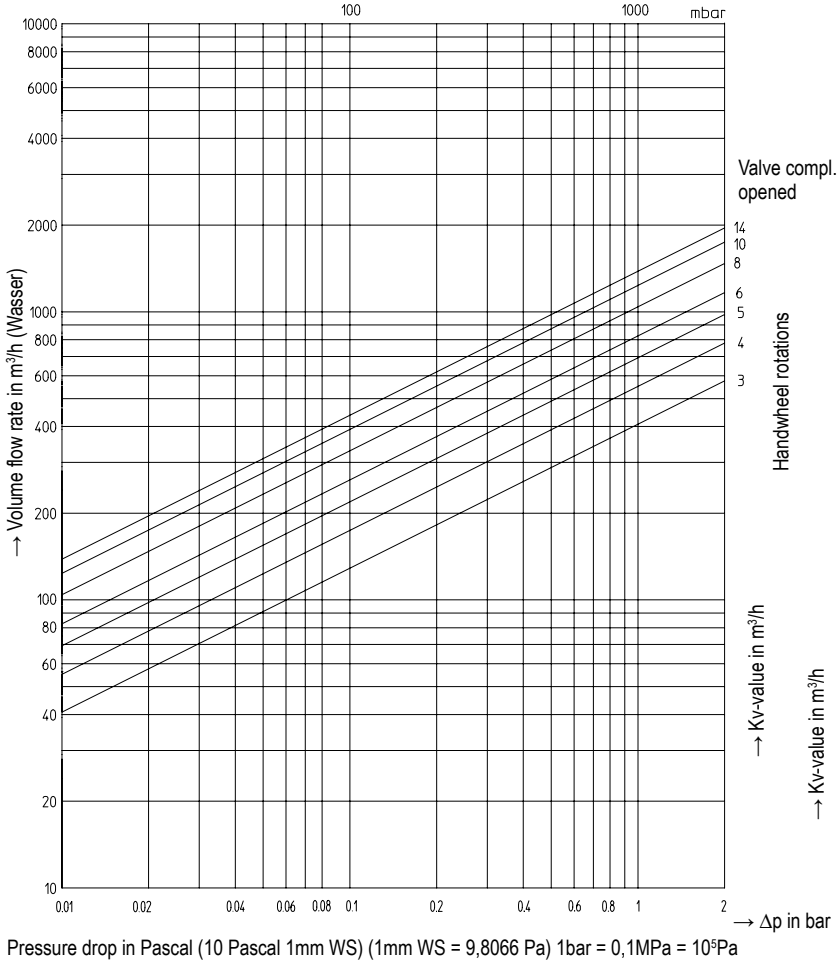
max. permissible differential pressure in throttling function 2 bar.

max. permissible flow speed: Liquids ≤ 4 m/s,
Gas and vapours ≤ 60 m/s

Condition: The flow must be free from cavitation.

Flow characteristic





Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa

DN300 / PN16

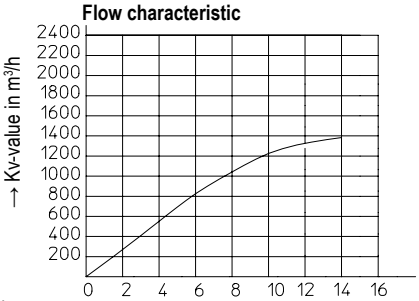
Handwheel rotations	Zeta-value	Kv-value
	--	(m³/h)
3	76,7	411
4	41,3	560
5	26,8	696
6	19	825
8	11,9	1044
10	8,62	1226
14	6,8	1380

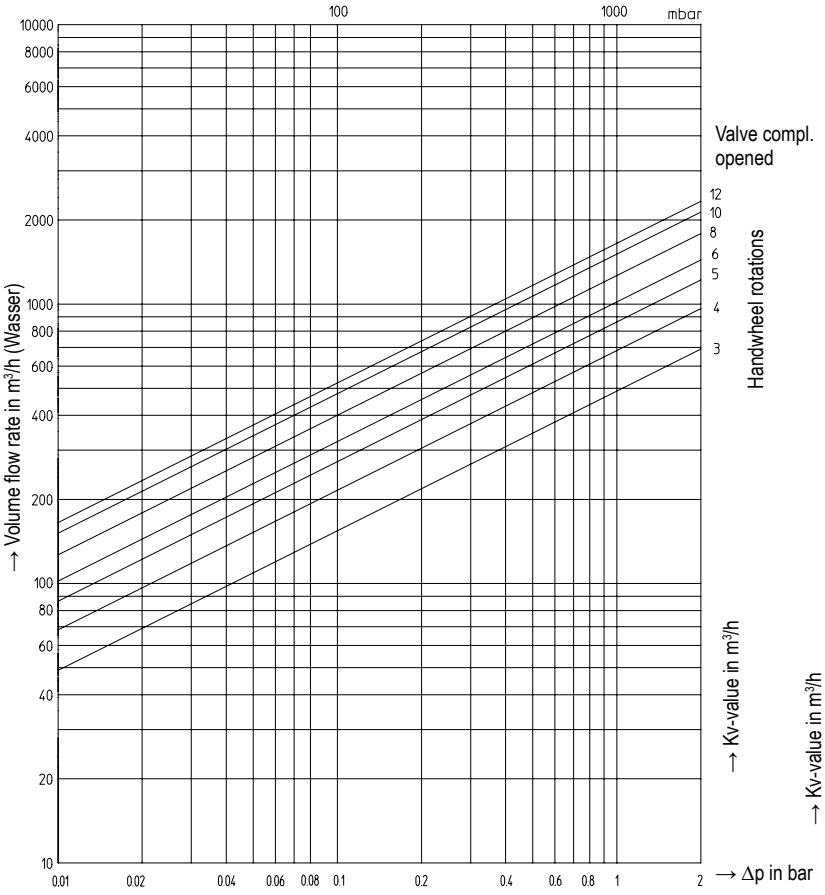
max. permissible differential pressure in throttling function 2 bar.

max. permissible flow speed: Liquids ≤ 4 m/s,
Gas and vapours ≤ 60 m/s

Condition: The flow must be free from cavitation.

Flow characteristic





Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa

DN350 / PN16

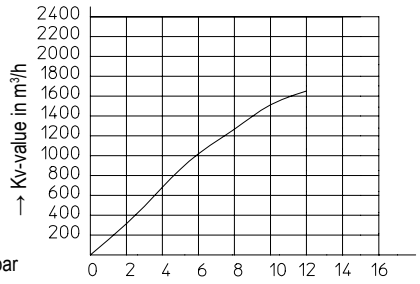
Handwheel rotations	Zeta-value	Kv-value
	--	(m³/h)
3	98	495
4	52,4	677
5	33,2	851
6	23,1	1019
8	17,8	1272
10	10,5	1513
12	8,81	1651

max. permissible differential pressure in throttling function 2 bar.

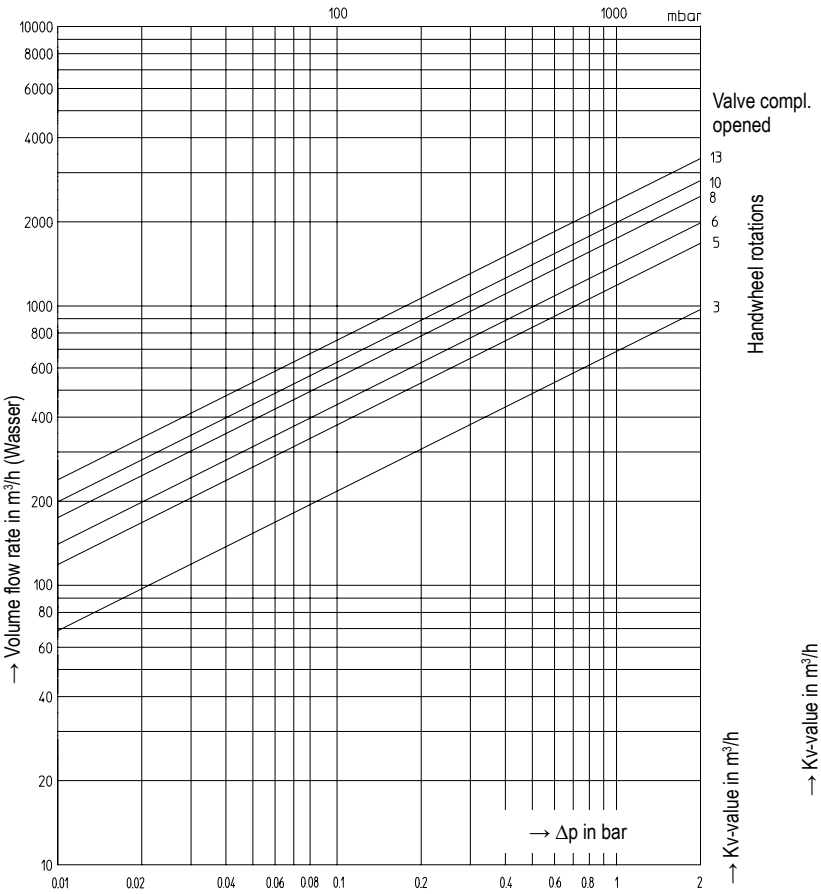
max. permissible flow speed: Liquids ≤ 4 m/s, Gas and vapours ≤ 60 m/s

Condition: The flow must be free from cavitation.

Flow characteristic



→ Handwheel rotations



Pressure drop in Pascal (10 Pascal 1mm WS) (1mm WS = 9,8066 Pa) 1bar = 0,1MPa = 10^5Pa

DN400 / PN16

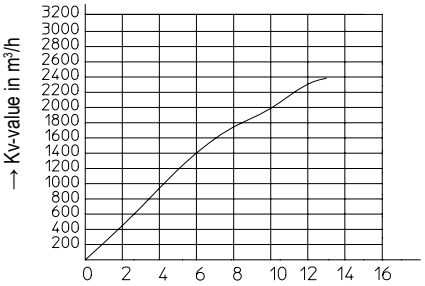
Handwheel rotations	Zeta-value	Kv-value
	--	(m³/h)
3	86	690
5	29,3	1182
6	20,6	1409
8	13,3	1752
10	10,3	1991
13	7,2	2383

max. permissible differential pressure in throttling function 2 bar.

max. permissible flow speed: Liquids ≤ 4 m/s, Gas and vapours ≤ 60 m/s

Condition: The flow must be free from cavitation.

Flow characteristic



→ Handwheel rotations

ARI-Armaturen Albert Richter GmbH & Co. KG, D-33750 Schloß Holte-Stukenbrock,
Tel. +49 52 07 / 994-0, Telefax +49 52 07 / 994-158 or 159 Internet: https://www.ari-armaturen.com E-mail: info.vertrieb@ari-armaturen.com