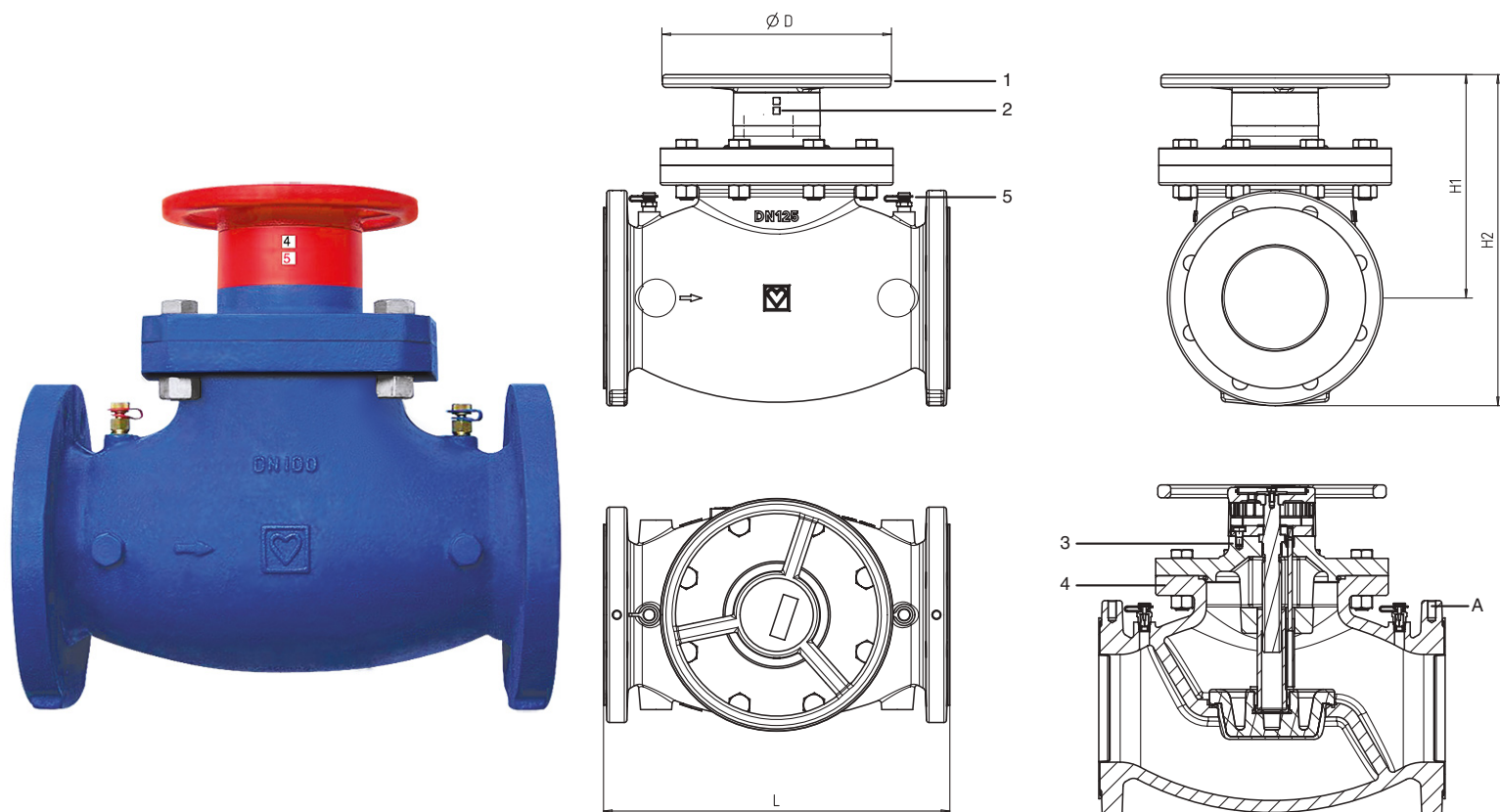


Commissioning valve STRÖMAX - 4218 GF

Standard sheet **4218 GF**

☑ 4218 GF STRÖMAX GF with test points



1. Handwheel
2. Digital display of the presetting levels
3. Valve upper part grey cast iron GJL 250
4. Valve body grey cast iron GJL 250
5. Test points 1/4

Flange dimensions according to EN1092-2

☑ Dimensions in mm, order numbers

Order nr 4218 GF linear characteristic according to BS-7350	DN	L	H1	H2	D	A	kg	PN	kvs
1 4218 80	50	230	169	252	150	-	17	16	34,96
1 4218 81	65	290	186	279	150	-	24	16	66,94
1 4218 82	80	310	208	307	175	M10	30	16	106,78
1 4218 83	100	350	235	344	175	M10	31	16	169,45
1 4218 84	125	400	260	385	265	M10	43	16	255,79
1 4218 85	150	480	310	450	265	M10	62	16	389,54
1 4218 86	200	600	400	569	450	M10	122	16	676,33
1 4218 87	250	730	453	655	450	M10	206	16	1082,72
1 4218 88	300	850	520	783	450	M12	323	16	1784,91
1 4220 87	250	730	453	655	450	M10	206	25	1082,72

Model

4218 GF 4218 GF STRÖMAX GF with test points DN 50 - 300

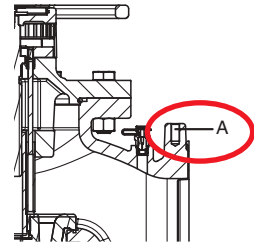
Body of grey cast iron GJL 250 according to EN 1561, flange according to EN 1092, PN 16; length according to ÖNORM EN-558-1, basic series 1; painted blue. Thermostatic upper part of grey cast iron GJL 250. Digital display of the pre-setting levels. Non-rising spindle with triple O-ring seal.

Transport

The valve must not be lifted by the handwheel !!!

Suitable lifting eyes must be used for transporting and lifting the valve!

The valve is delivered from the factory ready for installation. The valve is closed to prevent contamination of the seat during storage and transport. To avoid contamination, the flange covers must remain in place during storage and transport. Storage: temperature -10 ° to + 50 ° C, humidity max. 70%.



Test point

Two test points 1 0284 and presetting marker 1 6517 05 are included. test points can be mounted on top. This arrangement ensures the best accessibility and optimal connection of measuring devices in all installation positions.

Dran valves

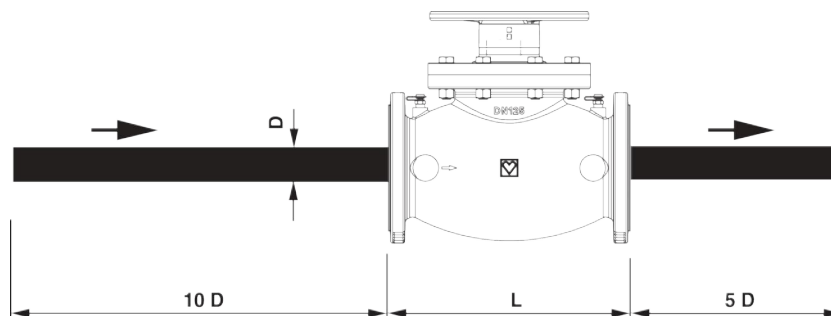
1 0284 2x Test point with drainage, swiveling hose connection, yellow version, hose connection 1 6206 02 must be ordered separately. A boiler fill and drain valve 4119 is used to drain the system.

Application

For hydraulic balancing in heating or cooling systems, regulating and shutting off distribution circuits, heat exchangers, heating and cooling terminals.

Installation

Any installation position. The direction of flow according to the arrow on the housing must be observed. It is recommended to maintain the inlet section of 10x the pipe diameter and the outlet section of 5x the pipe diameter.



Technical data

Max. operation temperature	110 °C
Min. operation temperature	-10 °C
Max. operation pressure	16 bar

Water purity in accordance with the ÖNORM H 5195 and VDI 2035 standards. Ethylene and propylene glycol can be used in a ratio of 25-50 vol. [%] are mixed..

Material

Upper part	Gray cast iron GJL 250 according to EN 1561
Body	Gray cast iron GJL 250 according to EN 1561
Spindle	DN50 - DN100 brass, DN125 - DN300 stainless steel
Regulation spindle	Brass/ stainless steel
Valve cone	Gray cast iron GJL 250 according to EN 1561/ EPDM coated
Counting device	Plastic
O-Ring	EPDM

☑ Characteristic

Flow direction

When installing, observe the direction of flow according to the arrow on the body.

☑ Installation

Due to the non-rising valve spindle, which is arranged perpendicular to the valve axis, optimal accessibility and operability of the valve must be guaranteed for every installation position.

☑ Spindle seal

The spindle seal is made by means of an elastic tripple O-ring and thus ensures tightness and ease of movement in the long term.

☑ Tripple-O-ring

The maintenance-free tripple O-ring seal ensures permanent, secure sealing of the valve spindle and ease of movement when the valve is operated.

☑ Differential pressure measurement

The Strömax GF double regulating and commissioning valve is equipped with two test points: If a suitable measuring device is used, the differential pressure can be measured and the respective flow rate can be determined depending on the setting level. The respective flow rate can also be read directly on the HERZ measuring computers (see device manual).

When using antifreeze, the density of the medium changes, which must be taken into account when measuring differential pressure.

☑ Correction factors

measured differential pressure / factor = actual differential pressure

measured amount of water x 1 / $\sqrt{\text{factor}}$ = actual amount of water

Medium temperature	Correction factor	Medium temperature	Correction factor
- 20 °C	1,98	30 °C	1,163
- 10 °C	1,737	40 °C	1,079
0 °C	1,567	50 °C	1
10 °C	1,412	60 °C	0,947
20 °C	1,281	70 °C	0,912

These correction factors are to be used for measurements with the HERZ differential pressure measuring devices. Intermediate values can be interpolated.

☑ Glycol mixtures

Ethylene and propylene glycol can be used in a ratio of 25-50 vol. [%]. Mixing must take place before filling the system. Failure to comply leads to the exclusion of the guarantee.

☑ Mass flow tolerances

The maximum deviation of the mass flow from the characteristic curves of the double regulating and commissioning valves corresponds to the VDI guidelines.

☑ Preset

The line regulating valve Strömax GF is delivered in the closed position. The default setting allows the maximum possible stroke. The handwheel mechanism is set so that the digital display shows 0.0 when the valve is closed.

☑ Adjustment and fixation

Presetting process

1. Set the required presetting level according to the calculation (digital display on the handwheel)
2. 1/10 of the revolution are the red numbers and the whole revolution are the blue numbers
3. The presetting spindle is located under the cover in the handwheel. This presetting spindle is operated with a slotted screwdriver, 8mm blade. After pre-setting, this spindle is screwed in clockwise as far as it will go. The default setting is now fixed. The preset double regulating and commissioning valve can be shut off at any time or can be set in any position below the fixed setting. The presetting spindle is again protected from unauthorized use by the cover.
4. Mark the set position on the presetting marker or mark the digits by removing the pins and attach them to the valve. It is therefore possible, during service work, to check or reset the presetting originally made when the system was adjusted without the aid of records.

With the STRÖMAX-GF valve, it is possible to set a specific flow value without specifying the setting level using a measuring device. The setting can be carried out with a differential pressure measuring device with the aid of the HERZ setting diagrams. When using a measuring computer, the operating instructions for the device must be observed.

Digital display, factory setting

The factory setting of the digital display is 0.0 when the valve is closed. If the complete handwheel (rotary handle, number wheels, base plate) is removed from the valve or a damaged part has to be replaced, proceed as follows to ensure the correct digital display:

1. Put on the complete upper case and then tighten three Allen screws and four hexagon screws.
2. Turn the valve clockwise to close.
3. If the digital display shows 0.0 in this position, the handwheel is correctly attached.
4. Then the handwheel is mounted on the spindle.
5. Screw in the handwheel fastening screw.
6. The valve can now be set to the desired position.

Test points

The quick Test points 0284 are installed and the presetting marker 1 6517 05 is included.

The HERZ measuring computer has matching couplings 1 0284 00 with which a perfect attachment to the test points is guaranteed.

Warning: The test points may only be opened when a measuring device is connected. There is a risk of injury from hot water that may escape!

Please note that the following flow and setting values for the dimensioning - design - of HERZ Strömax 4218 GMF double regulating and commissioning valves are given. To check preset values and to change the setting after measuring the differential pressure at the valve during operation, separate tables are sent on request.

Equipment

- | | |
|--------------|--|
| 1 6517 05 | Pre-setting marker |
| 1 0276 09 | Emptying valve 1/4 with handle and swiveling hose connection |
| 1 6206 02 | Hose connection |
| 1 0284 00 | Pressure transducer |
| 1 0284 11 | Quick test point, blue + e cap, extended design |
| 1 0284 12 | Quick test point, red + e cap, extended design |
| 1 0284 21 | HERZ test point with emptying, blue cap |
| 1 0284 22 | HERZ test point with emptying, red cap |
| 2 0284 23 | Long quick test point with drainage, blue cap |
| 2 0284 24 | Long quick test point with drainage, red cap |
| 2 0273 09 | Sealing screw 1/4 |
| 1 0284 01 | Quick test point blue |
| 1 0284 02 | Quick test point red |
| 1 0284 03 | Quick test point with pulse line connection blue |
| 1 0284 04 | Quick test point with pulse line connection red |
| 1 0284 10 | Quick test point |
| 1 4218 22-26 | Spare parts set for 4218 GF |

Warning notice

In accordance with the intended use of the fittings, clean processing is required. The introduction of dirt into the fittings is to be avoided. During assembly, make sure that the screws are tightened crosswise.

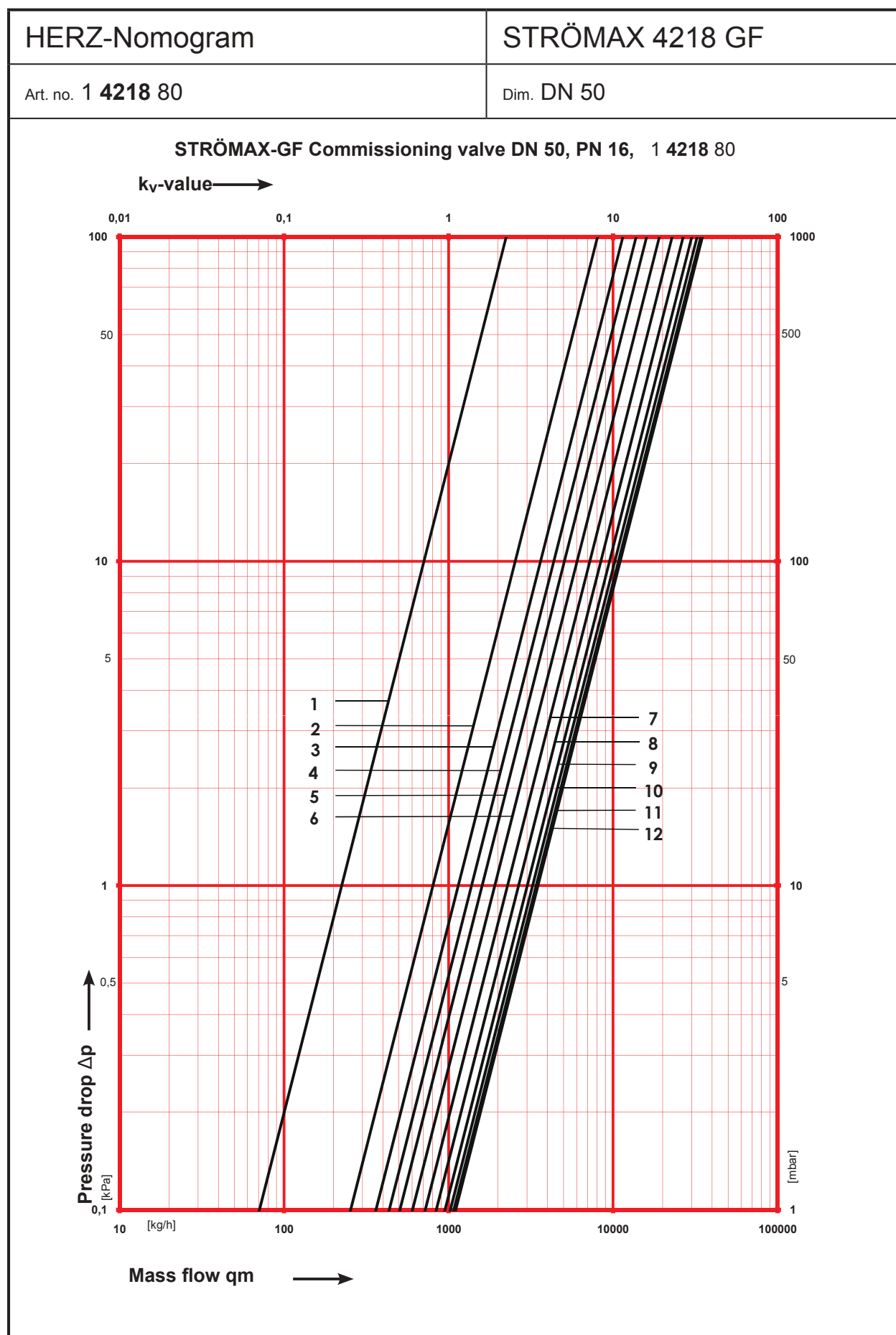
Coating

Primer based on alkyd resins (synthetic resin primer) and contains lead and chromate-free rust protection pigments.

Top coat with epoxy resin. Solvent content is lower than permitted in the VOC Plant Ordinance 2002.

Degree of gloss: matt

Dry layer thickness (TSD): ~ 100 µm



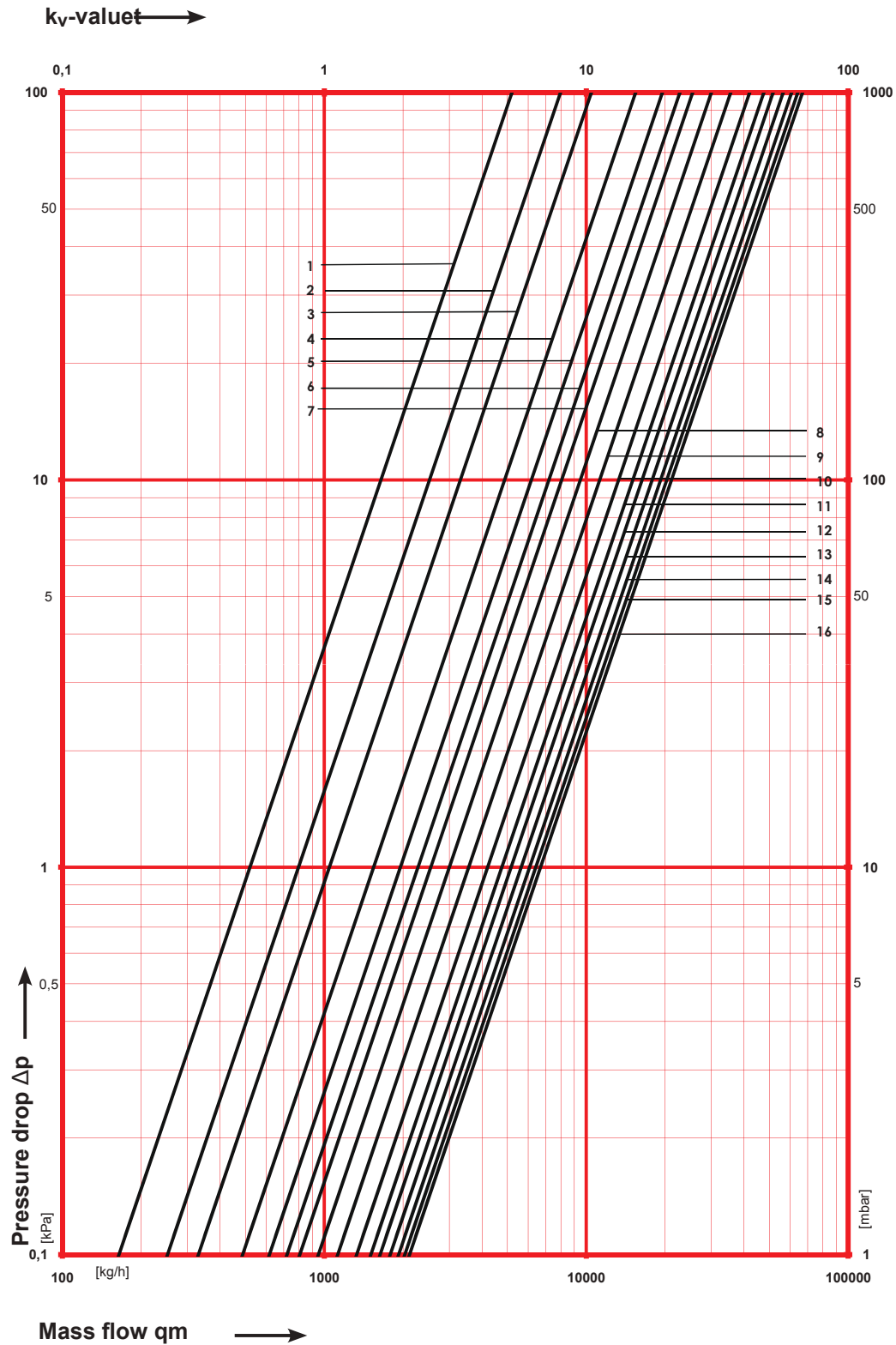
HERZ-Nomogram

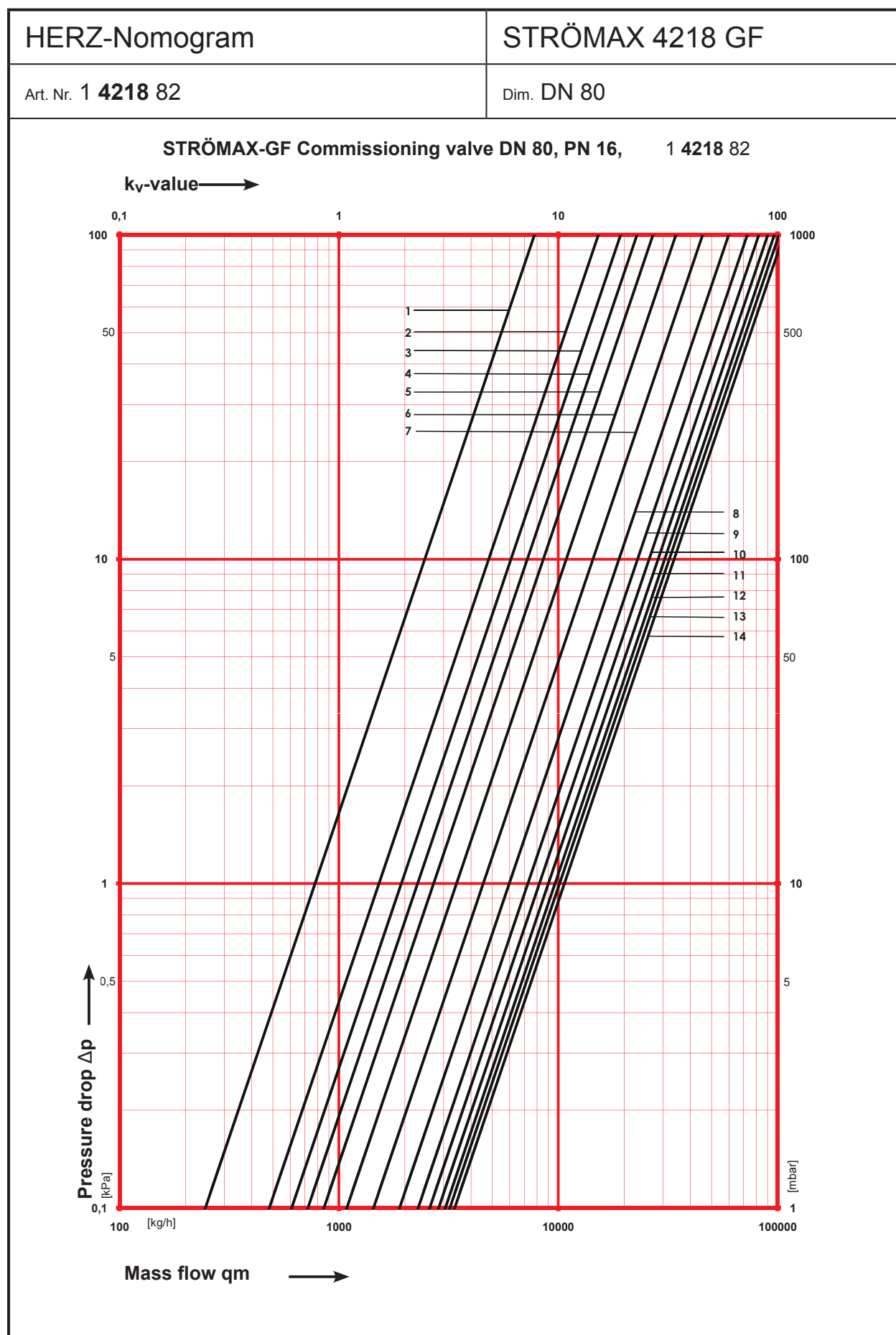
STRÖMAX 4218 GF

Art. Nr. 1 4218 81

Dim. DN 65

STRÖMAX-GF Commissioning valve DN 65, PN 16, 1 4218 81





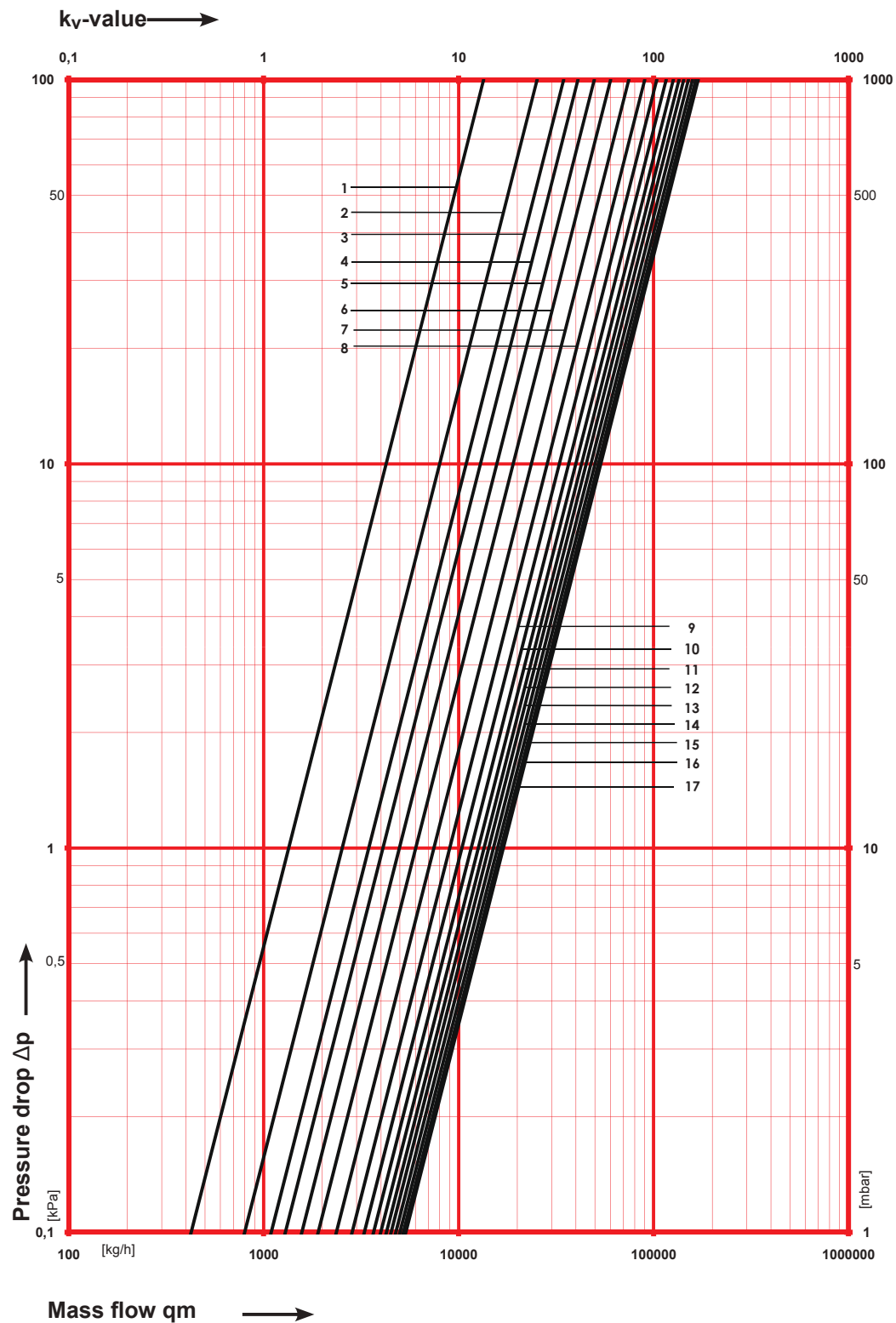
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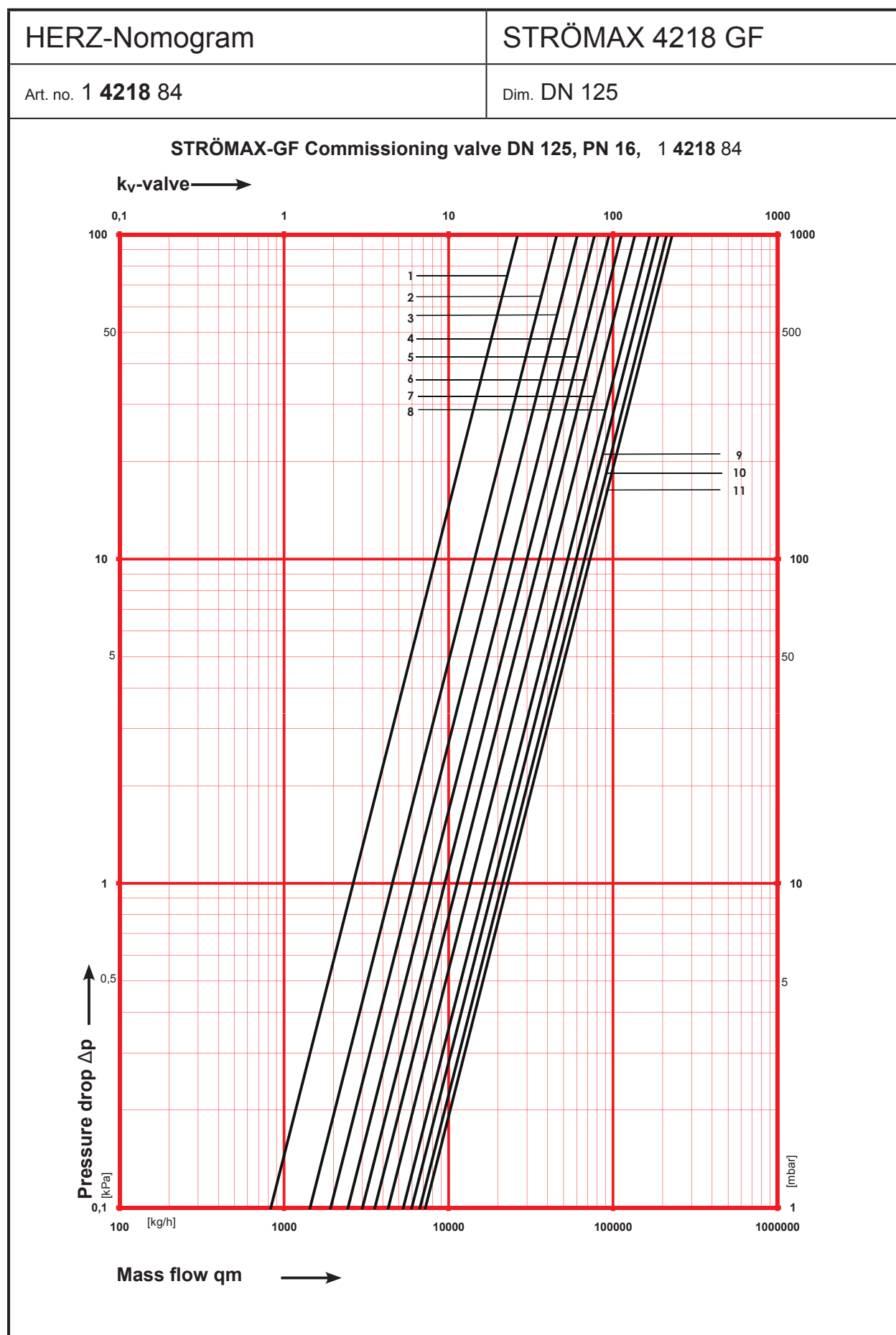
STRÖMAX 4218 GF

Art. no. 1 4218 83

Dim. DN 100

STRÖMAX-GF Commissioning valve DN 100, PN 16, 1 4218 83





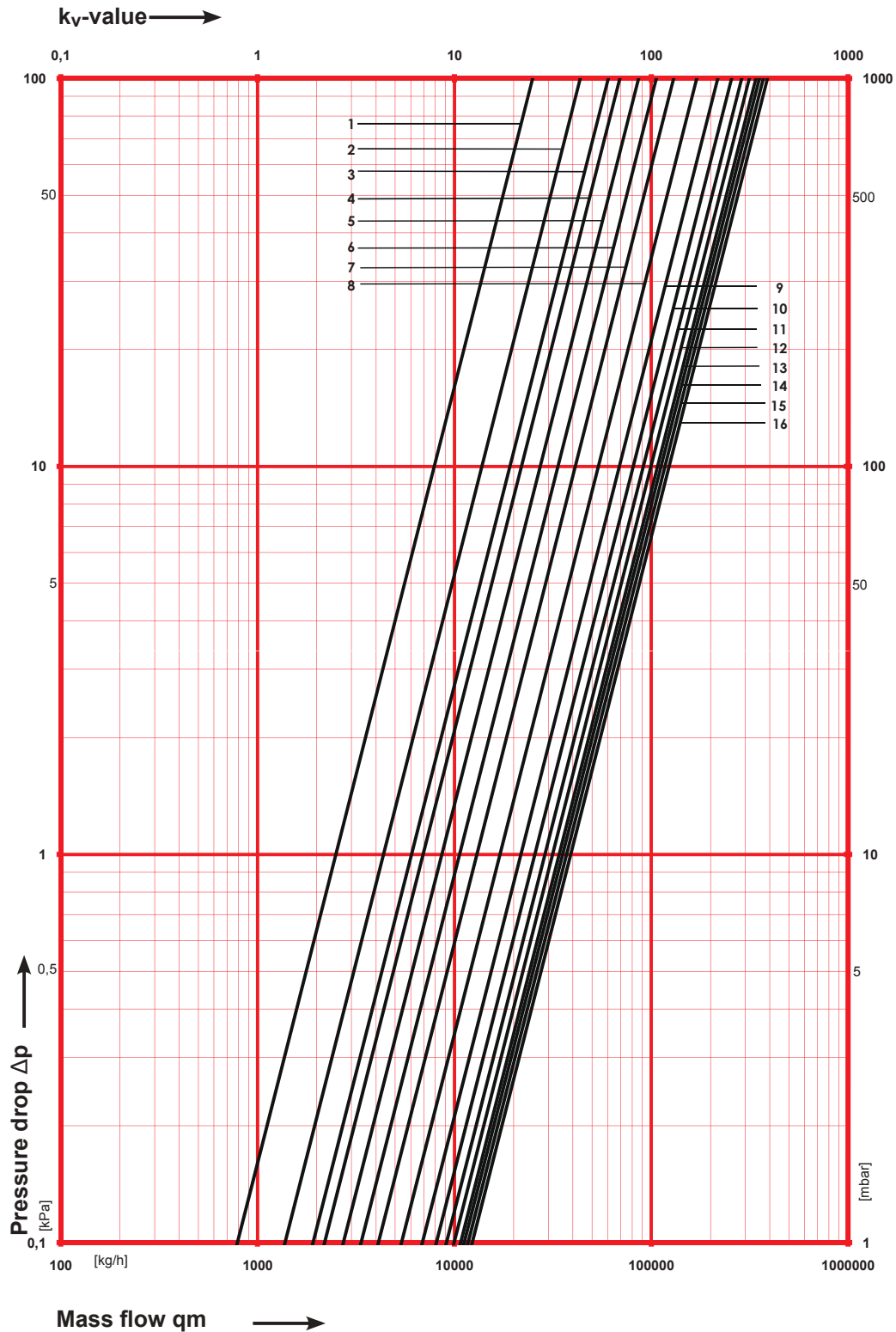
HERZ-Nomogram

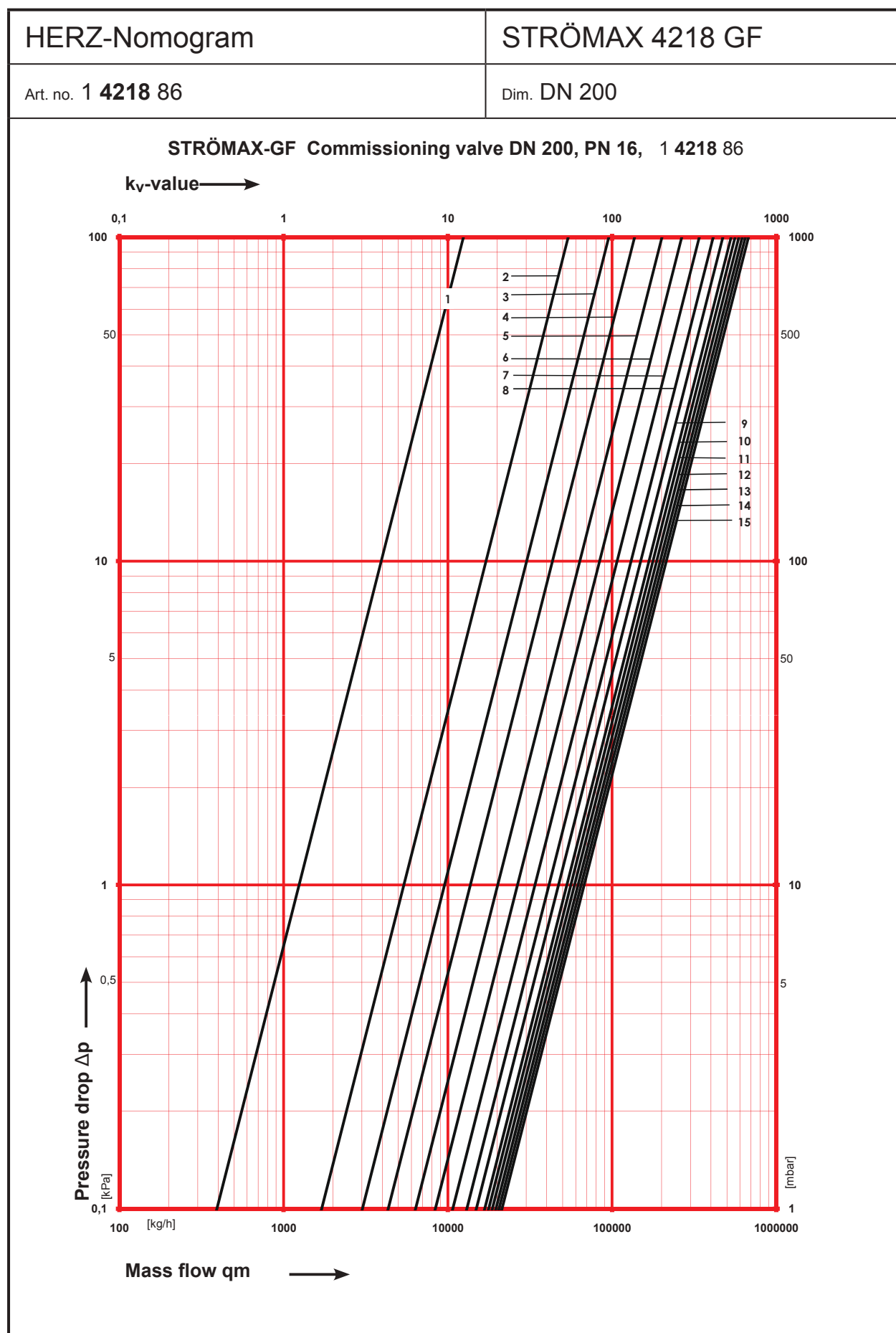
STRÖMAX 4218 GF

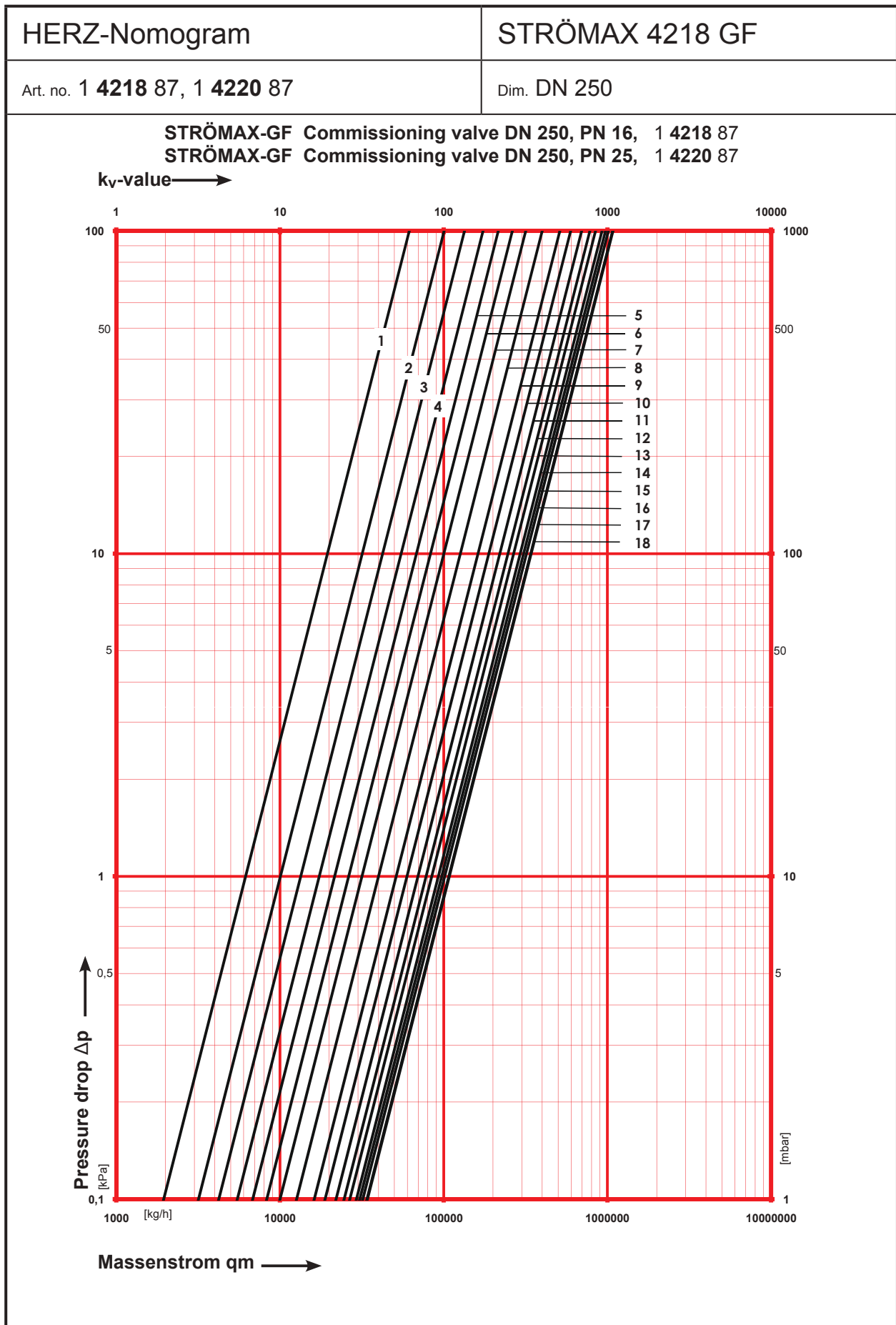
Art. no. 1 4218 85

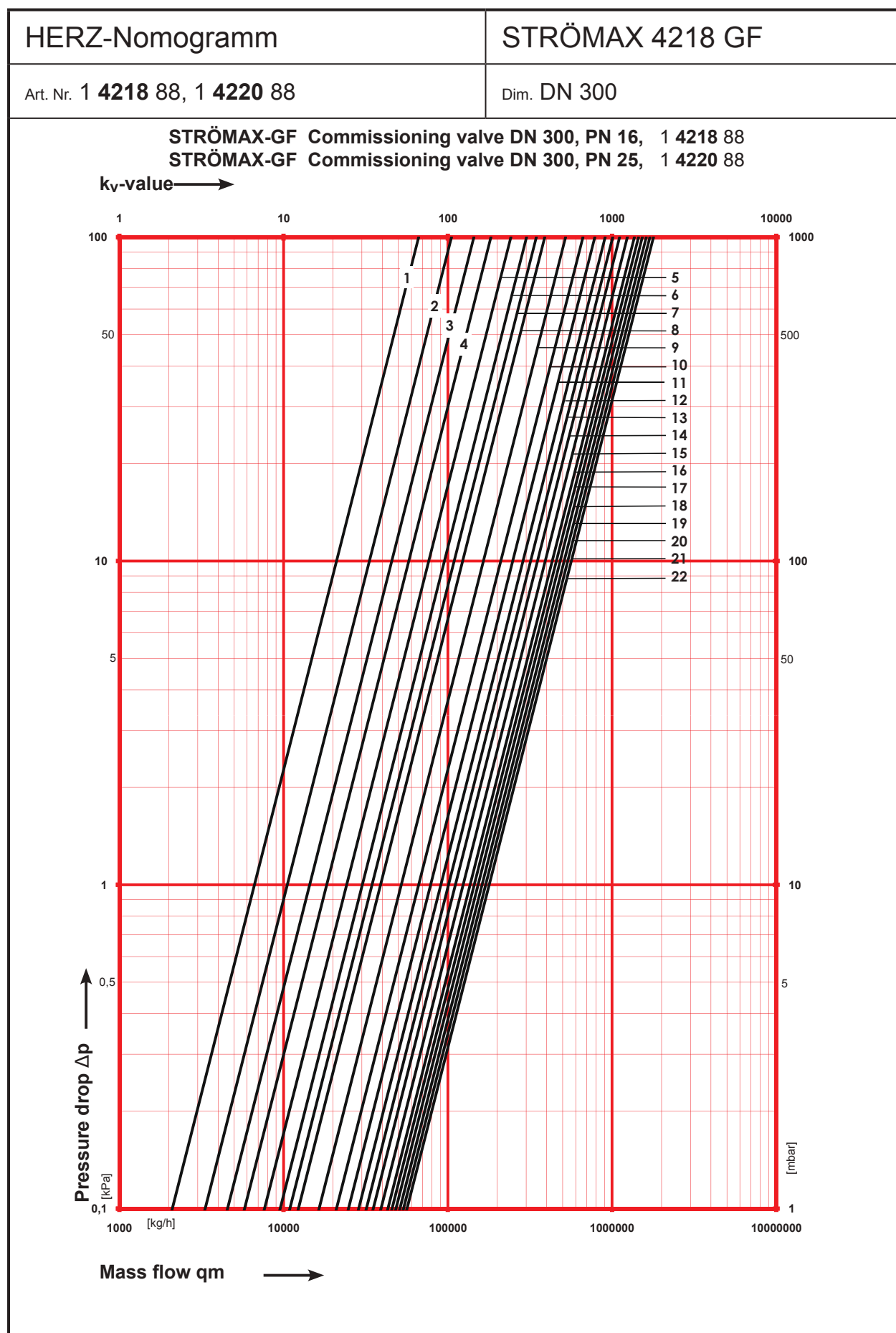
Dim. DN 150

STRÖMAX-GF Commissioning valve DN 150, PN 16, 1 4218 85









HERZ STRÖMAX - GF

DN	50	65	80	100	125	150	200	250	300
Pos.	kv	kv	kv	kv	kv	kv	kv	kv	kv
0,5	0,44	3,7	4,04	7,54	16,72	15,68	4,124	42,13	47,09
0,6	0,44	4	4,79	8,72	18,64	17,54	4,124	46,03	50,97
0,7	0,44	4,3	5,54	9,9	20,56	19,4	4,124	49,93	54,85
0,8	1,04	4,6	6,29	11,08	22,48	21,26	4,124	53,83	58,73
0,9	1,64	4,9	7,04	12,26	24,4	23,12	8,277	57,73	62,61
1,0	2,24	5,2	7,79	13,44	26,32	24,98	12,43	61,63	66,49
1,1	2,84	5,5	8,54	14,62	28,24	26,84	16,583	65,53	70,37
1,2	3,44	5,8	9,29	15,8	30,16	28,7	20,736	69,43	74,25
1,3	4,04	6,1	10,04	16,98	32,08	30,56	24,889	73,33	78,13
1,4	4,64	6,4	10,79	18,16	34	32,42	29,042	77,23	82,01
1,5	5,24	6,7	11,54	19,34	35,92	34,28	33,195	81,13	85,89
1,6	5,84	7	12,29	20,52	37,84	36,14	37,348	85,03	89,77
1,7	6,44	7,3	13,04	21,7	39,76	38	41,501	88,93	93,65
1,8	7,04	7,6	13,79	22,88	41,68	39,86	45,654	92,83	97,53
1,9	7,64	7,9	14,54	24,06	43,6	41,72	49,807	96,73	101,41
2,0	8,04	7,97	15,24	25,28	45,55	43,59	53,96	100,65	105,29
2,1	8,38	8,22	15,64	26,21	47,07	45,28	58,113	103,98	109,17
2,2	8,72	8,47	16,04	27,14	48,59	46,97	62,266	107,31	113,05
2,3	9,06	8,72	16,44	28,07	50,11	48,66	66,419	110,64	116,93
2,4	9,4	8,97	16,84	29	51,63	50,35	70,572	113,97	120,81
2,5	9,74	9,22	17,24	29,93	53,15	52,04	74,725	117,3	124,69
2,6	10,08	9,47	17,64	30,86	54,67	53,73	78,878	120,63	128,57
2,7	10,42	9,72	18,04	31,79	56,19	55,42	83,031	123,96	132,45
2,8	10,76	9,97	18,44	32,72	57,71	57,11	87,184	127,29	136,33
2,9	11,1	10,22	18,84	33,65	59,23	58,8	91,337	130,62	140,21
3,0	11,46	10,46	19,26	34,61	60,74	60,49	95,49	133,92	144,09
3,1	11,69	10,96	19,52	35,23	62,41	61,37	99,643	137,9	147,97
3,2	11,92	11,46	19,78	35,85	64,08	62,25	103,796	141,88	151,85
3,3	12,15	11,96	20,04	36,47	65,75	63,13	107,949	145,86	155,73
3,4	12,38	12,46	20,3	37,09	67,42	64,01	112,102	149,84	159,61
3,5	12,61	12,96	20,56	37,71	69,09	64,89	116,255	153,82	163,49
3,6	12,84	13,46	20,82	38,33	70,76	65,77	120,408	157,8	167,37
3,7	13,07	13,96	21,08	38,95	72,43	66,65	124,561	161,78	171,25
3,8	13,3	14,46	21,34	39,57	74,1	67,53	128,714	165,76	175,13
3,9	13,53	14,96	21,6	40,19	75,77	68,41	132,867	169,74	179,01
4,0	13,8	15,43	22,86	40,89	77,46	69,31	137,02	173,71	182,95
4,1	14	15,83	23,28	41,77	79,19	71,01	143,44	177,89	188,88
4,2	14,2	16,23	23,7	42,65	80,92	72,71	149,86	182,07	194,81
4,3	14,4	16,63	24,12	43,53	82,65	74,41	156,28	186,25	200,74
4,4	14,6	17,03	24,54	44,41	84,38	76,11	162,7	190,43	206,67
4,5	14,8	17,43	24,96	45,29	86,11	77,81	169,12	194,61	212,6
4,6	15	17,83	25,38	46,17	87,84	79,51	175,54	198,79	218,53
4,7	15,2	18,23	25,8	47,05	89,57	81,21	181,96	202,97	224,46
4,8	15,4	18,63	26,22	47,93	91,3	82,91	188,38	207,15	230,39
4,9	15,6	19,03	26,64	48,81	93,03	84,61	194,8	211,33	236,32
5,0	16	19,53	27,05	49,65	94,78	86,33	201,22	215,54	242,25
5,1	16,3	19,83	27,78	50,71	96,57	88,32	207,64	220,26	248,18
5,2	16,6	20,13	28,51	51,77	98,36	90,31	214,06	224,98	254,11
5,3	16,9	20,43	29,24	52,83	100,15	92,3	220,48	229,7	260,04
5,4	17,2	20,73	29,97	53,89	101,94	94,29	226,9	234,42	265,97
5,5	17,5	21,03	30,7	54,95	103,73	96,28	233,32	239,14	271,9
5,6	17,8	21,33	31,43	56,01	105,52	98,27	239,74	243,86	277,83
5,7	18,1	21,63	32,16	57,07	107,31	100,26	246,16	248,58	283,76
5,8	18,4	21,93	32,89	58,13	109,1	102,25	252,58	253,3	289,69
5,9	18,7	22,23	33,62	59,19	110,89	104,24	259	258,02	295,62

6,0	19,1	22,79	34,39	60,27	112,71	106,26	265,48	262,7	301,57
6,1	19,47	23,08	35,5	61,71	115,04	108,64	272,86	268,09	305,96
6,2	19,84	23,37	36,61	63,15	117,37	111,02	280,24	273,48	310,35
6,3	20,21	23,66	37,72	64,59	119,7	113,4	287,62	278,87	314,74
6,4	20,58	23,95	38,83	66,03	122,03	115,78	295	284,26	319,13
6,5	20,95	24,24	39,94	67,47	124,36	118,16	302,38	289,65	323,52
6,6	21,32	24,53	41,05	68,91	126,69	120,54	309,76	295,04	327,91
6,7	21,69	24,82	42,16	70,35	129,02	122,92	317,14	300,43	332,3
6,8	22,06	25,11	43,27	71,79	131,35	125,3	324,52	305,82	336,69
6,9	22,43	25,4	44,38	73,23	133,68	127,68	331,9	311,21	341,08
7,0	22,83	25,49	45,53	74,68	136,05	130,1	339,28	316,64	345,47
7,1	23,23	25,94	46,96	76,21	139,24	134,12	346,66	324,96	349,86
7,2	23,63	26,39	48,39	77,74	142,43	138,14	354,04	333,28	354,25
7,3	24,03	26,84	49,82	79,27	145,62	142,16	361,42	341,6	358,64
7,4	24,43	27,29	51,25	80,8	148,81	146,18	368,8	349,92	363,03
7,5	24,83	27,74	52,68	82,33	152	150,2	376,18	358,24	367,42
7,6	25,23	28,19	54,11	83,86	155,19	154,22	383,56	366,56	371,81
7,7	25,63	28,64	55,54	85,39	158,38	158,24	390,94	374,88	376,2
7,8	26,03	29,09	56,97	86,92	161,57	162,26	398,32	383,2	380,59
7,9	26,43	29,54	58,4	88,45	164,76	166,28	405,7	391,52	384,98
8,0	26,65	30,01	59,85	90,01	167,92	170,26	412,98	399,81	389,29
8,1	26,99	30,57	61,14	91,4	170,02	174,99	418,86	411,12	403,03
8,2	27,33	31,13	62,43	92,79	172,12	179,72	424,74	422,43	416,09
8,3	27,67	31,69	63,72	94,18	174,22	184,45	430,62	433,74	429,15
8,4	28,01	32,25	65,01	95,57	176,32	189,18	436,5	445,05	442,21
8,5	28,35	32,81	66,3	96,96	178,42	193,91	442,38	456,36	455,27
8,6	28,69	33,37	67,59	98,35	180,52	198,64	448,26	467,67	468,33
8,7	29,03	33,93	68,88	99,74	182,62	203,37	454,14	478,98	481,39
8,8	29,37	34,49	70,17	101,13	184,72	208,1	460,02	490,29	494,45
8,9	29,71	35,05	71,46	102,52	186,82	212,83	465,9	501,6	507,51
9,0	30,08	35,6	72,73	103,97	188,92	217,54	471,78	512,88	520,57
9,1	30,32	36,25	73,66	105,16	191,24	221,38	477,66	521,28	533,63
9,2	30,56	36,9	74,59	106,35	193,56	225,22	483,54	529,68	546,69
9,3	30,8	37,55	75,52	107,54	195,88	229,06	489,42	538,08	559,75
9,4	31,04	38,2	76,45	108,73	198,2	232,9	495,3	546,48	572,81
9,5	31,28	38,85	77,38	109,92	200,52	236,74	501,18	554,88	585,87
9,6	31,52	39,5	78,31	111,11	202,84	240,58	507,06	563,28	598,93
9,7	31,76	40,15	79,24	112,3	205,16	244,42	512,94	571,68	611,99
9,8	32	40,8	80,17	113,49	207,48	248,26	518,82	580,08	625,05
9,9	32,24	41,45	81,1	114,68	209,8	252,1	524,7	588,48	638,11
10,0	32,44	42,05	82,07	115,92	212,12	255,9	530,55	596,85	664,16
10,1	32,6	42,61	82,87	116,95	213,79	259,12	533,56	606,81	676,28
10,2	32,76	43,17	83,67	117,98	215,46	262,34	536,57	616,77	688,4
10,3	32,92	43,73	84,47	119,01	217,13	265,56	539,58	626,73	700,52
10,4	33,08	44,29	85,27	120,04	218,8	268,78	542,59	636,69	712,64
10,5	33,24	44,85	86,07	121,07	220,47	272	545,6	646,65	724,76
10,6	33,4	45,41	86,87	122,1	222,14	275,22	548,61	656,61	736,88
10,7	33,56	45,97	87,67	123,13	223,81	278,44	551,62	666,57	749
10,8	33,72	46,53	88,47	124,16	225,48	281,66	554,63	676,53	761,12
10,9	33,88	47,09	89,27	125,19	227,15	284,88	557,64	686,49	773,24
11,0	34,08	47,66	90,17	126,18	228,85	288,11	560,65	696,48	785,36
11,1	34,17	47,06	90,82	127,06		290,8	563,66	704,89	797,48
11,2	34,26	46,46	91,47	127,94		293,49	566,67	713,3	809,6
11,3	34,35	45,86	92,12	128,82		296,18	569,68	721,71	821,72
11,4	34,44	45,26	92,77	129,7		298,87	572,69	730,12	833,84
11,5	34,53	44,66	93,42	130,58		301,56	575,7	738,53	845,96
11,6	34,62	44,06	94,07	131,46		304,25	578,71	746,94	858,08

11,7	34,71	43,46	94,72	132,34		306,94	581,72	755,35	870,2
11,8	34,8	42,86	95,37	133,22		309,63	584,73	763,76	882,32
11,9	34,89	42,26	96,02	134,1		312,32	587,74	772,17	894,44
12,0	34,96	51,63	96,7	134,97		315,05	590,75	780,57	906,57
12,1		52,13	97,17	135,75		317,57	593,76	787,09	916,81
12,2		52,63	97,64	136,53		320,09	596,77	793,61	927,05
12,3		53,13	98,11	137,31		322,61	599,78	800,13	937,29
12,4		53,63	98,58	138,09		325,13	602,79	806,65	947,53
12,5		54,13	99,05	138,87		327,65	605,8	813,17	957,77
12,6		54,63	99,52	139,65		330,17	608,81	819,69	968,01
12,7		55,13	99,99	140,43		332,69	611,82	826,21	978,25
12,8		55,63	100,46	141,21		335,21	614,83	832,73	988,49
12,9		56,13	100,93	141,99		337,73	617,84	839,25	998,73
13,0		56,49	101,38	142,74		340,27	620,86	845,73	1008,97
13,1		56,89	101,92	143,54		341,73	623,63	853,91	1019,21
13,2		57,29	102,46	144,34		343,19	626,4	862,09	1029,45
13,3		57,69	103	145,14		344,65	629,17	870,27	1039,69
13,4		58,09	103,54	145,94		346,11	631,94	878,45	1049,93
13,5		58,49	104,08	146,74		347,57	634,71	886,63	1060,17
13,6		58,89	104,62	147,54		349,03	637,48	894,81	1070,41
13,7		59,29	105,16	148,34		350,49	640,25	902,99	1080,65
13,8		59,69	105,7	149,14		351,95	643,02	911,17	1090,89
13,9		60,09	106,24	149,94		353,41	645,79	919,35	1101,13
14,0		60,77	106,78	150,79		354,84	648,56	927,53	1111,34
14,1		61,11		151,54		356,48	651,33	932	1124,05
14,2		61,45		152,29		358,12	654,1	936,47	1136,76
14,3		61,79		153,04		359,76	656,87	940,94	1149,47
14,4		62,13		153,79		361,4	659,64	945,41	1162,18
14,5		62,47		154,54		363,04	662,41	949,88	1174,89
14,6		62,81		155,29		364,68	665,18	954,35	1187,6
14,7		63,15		156,04		366,32	667,95	958,82	1200,31
14,8		63,49		156,79		367,96	670,72	963,29	1213,02
14,9		63,83		157,54		369,6	673,49	967,76	1225,73
15,0		64,21		158,31		371,26	676,33	972,25	1238,44
15,1		64,48		158,94		373,09		976,4	1251,15
15,2		64,75		159,57		374,92		980,55	1263,86
15,3		65,02		160,2		376,75		984,7	1276,57
15,4		65,29		160,83		378,58		988,85	1289,28
15,5		65,56		161,46		380,41		993	1301,99
15,6		65,83		162,09		382,24		997,15	1314,7
15,7		66,1		162,72		384,07		1001,3	1327,41
15,8		66,37		163,35		385,9		1005,45	1340,12
15,9		66,64		163,98		387,73		1009,6	1352,83
16,0		66,94		164,59		389,54		1013,7	1365,63
16,1				165,08				1018,82	1373,78
16,2				165,57				1023,94	1381,93
16,3				166,06				1029,06	1390,08
16,4				166,55				1034,18	1398,23
16,5				167,04				1039,3	1406,38
16,6				167,53				1044,42	1414,53
16,7				168,02				1049,54	1422,68
16,8				168,51				1054,66	1430,83
16,9				169				1059,78	1438,98
17,0				169,45				1064,89	1447,13
17,1								1066,67	1455,28
17,2								1068,45	1463,43
17,3								1070,23	1471,58

17,4							1072,01	1479,73
17,5							1073,79	1487,88
17,6							1075,57	1496,03
17,7							1077,35	1504,18
17,8							1079,13	1512,33
17,9							1080,91	1520,48
18,0							1082,72	1528,67
18,1								1537,25
18,2								1545,83
18,3								1554,41
18,4								1562,99
18,5								1571,57
18,6								1580,15
18,7								1588,73
18,8								1597,31
18,9								1605,89
19,0								1614,47
19,1								1623,05
19,2								1631,63
19,3								1640,21
19,4								1648,79
19,5								1657,37
19,6								1665,95
19,7								1674,53
19,8								1683,11
19,9								1691,69
20,0								1700,28
20,1								1704,51
20,2								1708,74
20,3								1712,97
20,4								1717,2
20,5								1721,43
20,6								1725,66
20,7								1729,89
20,8								1734,12
20,9								1738,35
21,0								1742,58
21,1								1746,81
21,2								1751,04
21,3								1755,27
21,4								1759,5
21,5								1763,73
21,6								1767,96
21,7								1772,19
21,8								1776,42
21,9								1780,65
22,0								1784,91