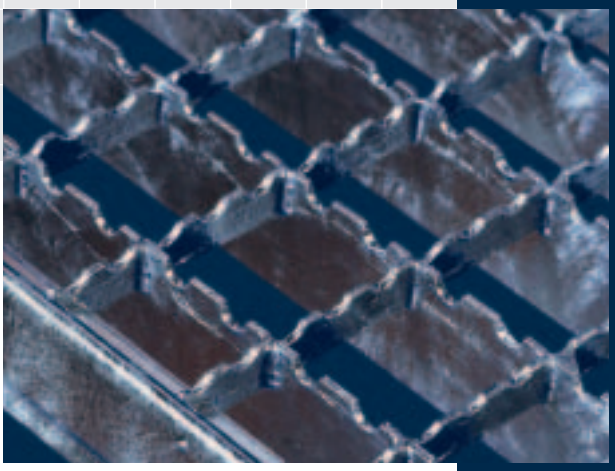
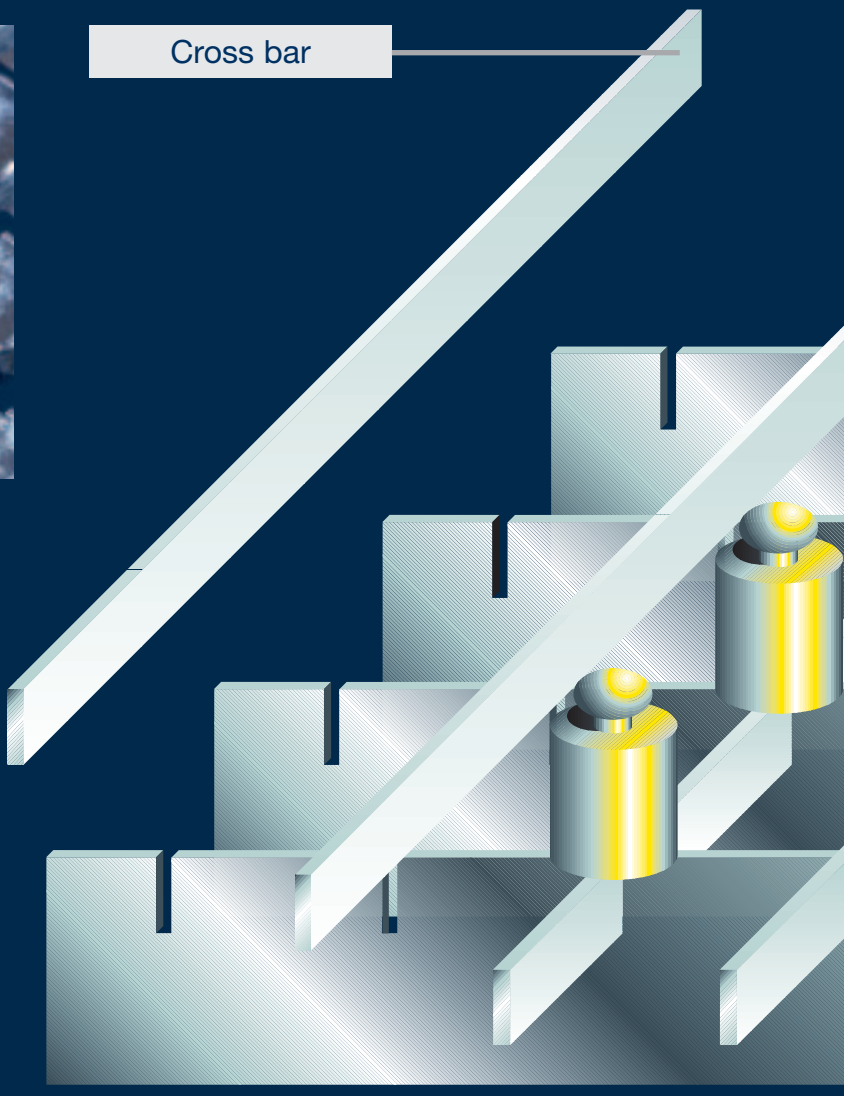
MEISEGrate®

Press Locked Grating

- Ultra Gratings
- Heavy Duty Gratings
- Louvre Gratings
- Full Gratings



For those applications in areas where there is a danger of skidding or slipping, we recommend bearing bars and cross bars in the anti-skid design. Please see pp 36–37.



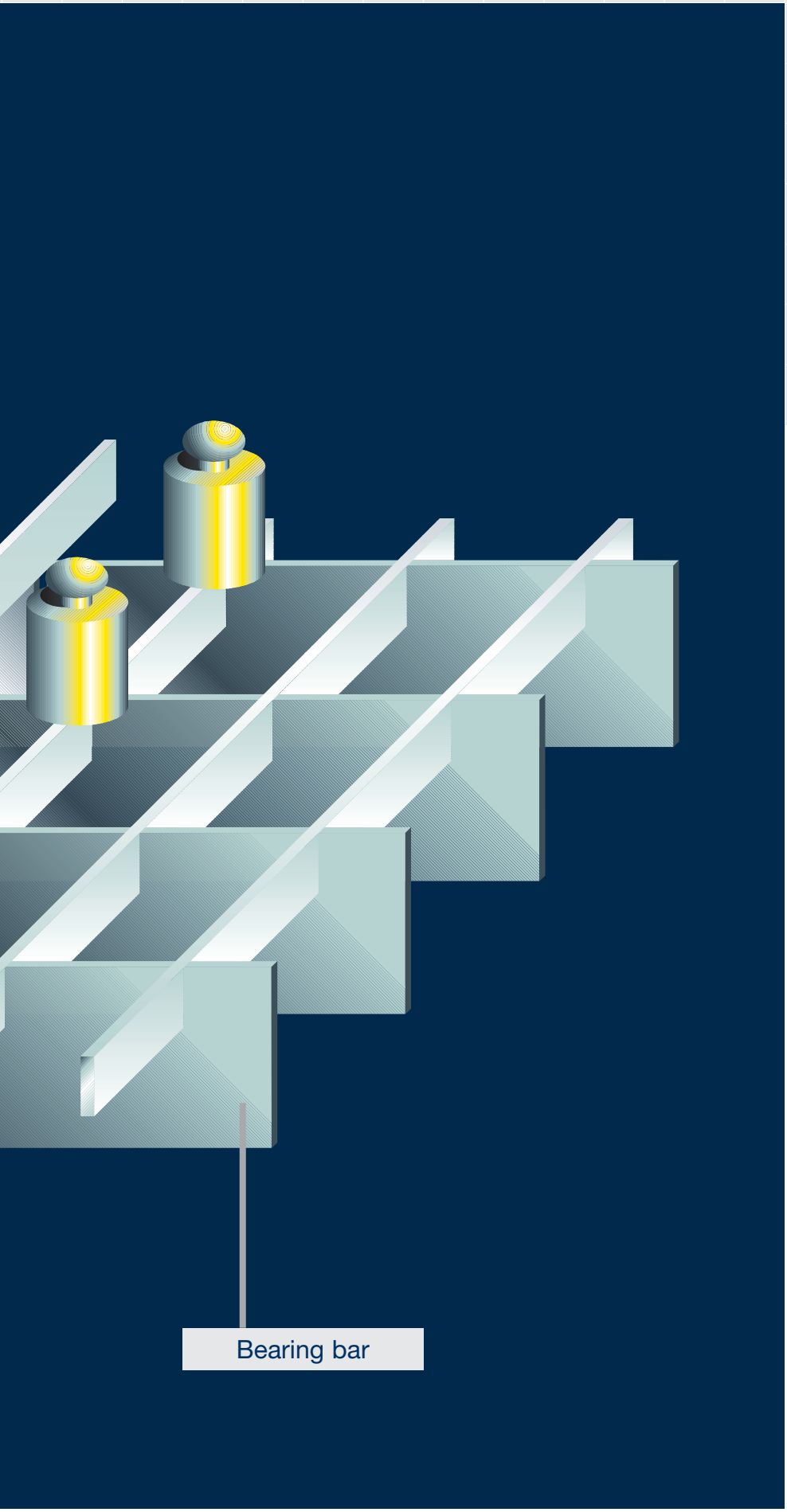
Press Locked Gratings

MeiseGratet press locked gratings are usually made of steel, stainless steel or aluminum. However, other materials can be used if the customer so wishes.

On our computer controlled production lines, the bearing bars are notched and, at the same time, locked with the cross bar at very high pressure.

This particular production method guarantees a uniform precision mesh size.

The edge of the press locked gratings is banded either with T-shaped special section or flat bar. This process – i.e. where the banding is welded at right angles to and flush with the grating surface – is done by an automatic resistance welding, border machine.



Maximum cross bar length

2900 mm bearing bar 2-3 mm

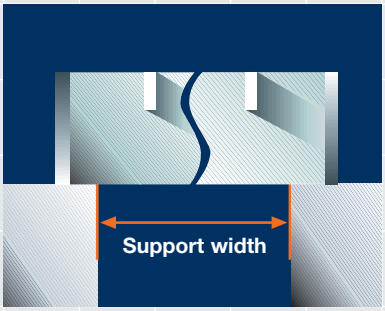
2300 mm bearing bar 4-5 mm

Maximum bearing bar length

Although production method does not set any limits here, in practice the length will be predetermined by statical requirements and unit weights.

End meshing

End meshes opposite one another are the same size. Customised solutions also possible on request.



Note:
We recommend that vehicular access gratings be based on bearing bars with a 4 or 5 mm thickness.

Conversion factor for kg into kN
10 kN ≈ 1 tonne
1 kN ≈ 100 kg

*** Support width =**
clear distance between the supports.

The values shown have been calculated for maximum admissible load rating (deflection 1/200) on the basis of a load carrying area of 200 x 200 mm and a bearing bar spacing of 33.3 mm. To avoid trip up points the maximum deflection should not exceed 4 mm. Please note the ▬ coloured nominal line.

B e a r i n g b a r s [m m]

Support width * [mm]	20 x 2		25 x 2		30 x 2		35 x 2		40 x 2		50 x 2		25 x 3		30 x 3		35
	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P
300	3,58	51,20	5,55	80,00	7,92	115,20	10,68	156,80	13,82	204,80	21,19	320,00	8,33	120,00	11,88	172,80	16,02
400	2,39	28,80	3,70	45,00	5,28	64,80	7,12	88,20	9,22	115,20	14,13	180,00	5,55	67,50	7,92	97,20	10,68
500	1,79	18,43	2,78	28,80	3,96	41,47	5,34	56,45	6,91	73,73	10,60	115,20	4,16	43,20	5,94	62,21	8,01
600	1,43	12,80	2,22	20,00	3,17	28,80	4,27	39,20	5,53	51,20	8,48	80,00	3,33	30,00	4,75	43,20	6,41
700	1,19	9,40	1,85	14,69	2,64	21,16	3,56	28,80	4,61	37,62	7,06	58,78	2,78	22,04	3,96	31,74	5,34
800	0,91	6,30	1,59	11,25	2,26	16,20	3,05	22,05	3,95	28,80	6,05	45,00	2,38	16,88	3,40	24,30	4,58
900	0,71	4,42	1,38	8,64	1,98	12,80	2,67	17,42	3,46	22,76	5,30	35,56	2,07	12,96	2,97	19,20	4,00
1000	0,58	3,23	1,11	6,30	1,76	10,37	2,37	14,11	3,07	18,43	4,71	28,80	1,67	9,45	2,64	15,55	3,56
1100	0,47	2,42	0,92	4,73	1,57	8,18	2,14	11,66	2,76	15,23	4,24	23,80	1,38	7,10	2,36	12,27	3,20
1200	0,40	1,87	0,77	3,65	1,32	6,30	1,94	9,80	2,51	12,80	3,85	20,00	1,15	5,47	1,98	9,45	2,91
1300	0,34	1,47	0,65	2,87	1,12	4,96	1,76	7,87	2,30	10,91	3,53	17,04	0,98	4,30	1,68	7,43	2,64
1400	0,29	1,18	0,56	2,30	0,96	3,97	1,52	6,30	2,13	9,40	3,26	14,69	0,84	3,44	1,45	5,95	2,27
1500	0,25	0,96	0,49	1,87	0,84	3,23	1,32	5,12	1,95	7,65	3,03	12,80	0,73	2,80	1,26	4,84	1,98
1600	0,22	0,79	0,43	1,54	0,74	2,66	1,16	4,22	1,71	6,30	2,83	11,25	0,65	2,31	1,11	3,99	1,74
1700	0,20	0,66	0,38	1,28	0,65	2,22	1,03	3,52	1,52	5,25	2,65	9,97	0,57	1,92	0,98	3,32	1,54
1800	0,18	0,55	0,34	1,08	0,58	1,87	0,91	2,96	1,35	4,42	2,49	8,64	0,51	1,62	0,87	2,80	1,37
1900	0,16	0,47	0,30	0,92	0,52	1,59	0,82	2,52	1,21	3,76	2,32	7,35	0,46	1,38	0,78	2,38	1,23
2000	0,14	0,40	0,27	0,79	0,47	1,36	0,74	2,16	1,09	3,23	2,10	6,30	0,41	1,18	0,71	2,04	1,11

B e a r i n g b a r s [m m]

Support width * [mm]	60 x 4		70 x 4		80 x 4		90 x 4		30 x 5		35 x 5		40 x 5		50 x 5		60
	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P
300	59,93	921,60	79,97	1254,40	102,36	1638,40	127,06	2073,60	19,81	288,00	26,70	392,00	34,56	512,00	52,98	800,00	74,91
400	39,95	518,40	53,31	705,60	68,24	921,60	84,71	1166,40	13,20	162,00	17,80	220,50	23,04	288,00	35,32	450,00	49,94
500	29,96	331,78	39,98	451,58	51,18	589,82	63,53	746,50	9,90	103,68	13,35	141,12	17,28	184,32	26,49	288,00	37,45
600	23,97	230,40	31,99	313,60	40,94	409,60	50,82	518,40	7,92	72,00	10,68	98,00	13,82	128,00	21,19	200,00	29,96
700	19,98	169,27	26,66	230,40	34,12	300,93	42,35	380,87	6,60	52,90	8,90	72,00	11,52	94,04	17,66	146,94	24,97
800	17,12	129,60	22,85	176,40	29,25	230,40	36,30	291,60	5,66	40,50	7,63	55,13	9,87	72,00	15,14	112,50	21,40
900	14,98	102,40	19,99	139,38	25,59	182,04	31,76	230,40	4,95	32,00	6,67	43,56	8,64	56,89	13,25	88,89	18,73
1000	13,32	82,94	17,77	112,90	22,75	147,46	28,24	186,62	4,40	25,92	5,93	35,28	7,68	46,08	11,77	72,00	16,65
1100	11,99	68,55	15,99	93,30	20,47	121,86	25,41	154,23	3,93	20,45	5,34	29,16	6,91	38,08	10,60	59,50	14,98
1200	10,90	57,60	14,54	78,40	18,61	102,40	23,10	129,60	3,29	15,75	4,85	24,50	6,28	32,00	9,63	50,00	13,62
1300	9,99	49,08	13,33	66,80	17,06	87,25	21,18	110,43	2,80	12,39	4,40	19,67	5,76	27,27	8,83	42,60	12,48
1400	9,22	42,32	12,30	57,60	15,75	75,23	19,55	95,22	2,41	9,92	3,79	15,75	5,32	23,51	8,15	36,73	11,52
1500	8,56	36,86	11,42	50,18	14,62	65,54	18,15	82,94	2,10	8,06	3,30	12,81	4,88	19,11	7,57	32,00	10,70
1600	7,99	32,40	10,66	44,10	13,65	57,60	16,94	72,90	1,84	6,64	2,90	10,55	4,28	15,75	7,06	28,13	9,99
1700	7,49	28,70	10,00	39,06	12,79	51,02	15,88	64,58	1,63	5,54	2,56	8,80	3,79	13,13	6,62	24,91	9,36
1800	7,05	25,60	9,41	34,84	12,04	45,51	14,95	57,60	1,45	4,67	2,28	7,41	3,38	11,06	6,23	21,60	8,81
1900	6,66	22,98	8,89	31,27	11,37	40,85	14,12	51,70	1,30	3,97	2,05	6,30	3,03	9,41	5,81	18,37	8,32
2000	6,31	20,74	8,42	28,22	10,77	36,86	13,37	46,66	1,18	3,40	1,85	5,40	2,73	8,06	5,24	15,75	7,89

Load Tables for Press Locked Steel Gratings

Light duty

Medium duty

Vehicle access: trucks up to 3 tonnes in overall weight.

Vehicle access: trucks up to 9 tonnes in overall weight.

Vehicle access: trucks up to 30 tonnes in overall weight.

F_P Point load in kN

F_V uniformly distributed load in kN per sq. m.

x 3	40 x 3		50 x 3		60 x 3		70 x 3		30 x 4		35 x 4		40 x 4		45 x 4		50 x 4	
F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V
235,20	20,74	307,20	31,79	480,00	44,95	691,20	59,98	940,80	15,85	230,40	21,36	313,60	27,65	409,60	34,68	518,40	42,38	640,00
132,30	13,82	172,80	21,19	270,00	29,96	388,80	39,98	529,20	10,56	129,60	14,24	176,40	18,43	230,40	23,12	291,60	28,26	360,00
84,67	10,37	110,59	15,89	172,80	22,47	248,83	29,99	338,69	7,92	82,94	10,68	112,90	13,82	147,46	17,34	186,62	21,19	230,40
58,80	8,29	76,80	12,72	120,00	17,98	172,80	23,99	235,20	6,34	57,60	8,54	78,40	11,06	102,40	13,87	129,60	16,95	160,00
43,20	6,91	56,42	10,60	88,16	14,98	126,96	19,99	172,80	5,28	42,32	7,12	57,60	9,22	75,23	11,56	95,22	14,13	117,55
33,08	5,92	43,20	9,08	67,50	12,84	97,20	17,14	132,30	4,53	32,40	6,10	44,10	7,90	57,60	9,91	72,90	12,11	90,00
26,13	5,18	34,13	7,95	53,33	11,24	76,80	14,99	104,53	3,96	25,60	5,34	34,84	6,91	45,51	8,67	57,60	10,60	71,11
21,17	4,61	27,65	7,06	43,20	9,99	62,21	13,33	84,67	3,52	20,74	4,75	28,22	6,14	36,86	7,71	46,66	9,42	57,60
17,49	4,15	22,85	6,36	35,70	8,99	51,41	12,00	69,98	3,14	16,36	4,27	23,33	5,53	30,47	6,94	38,56	8,48	47,60
14,70	3,77	19,20	5,78	30,00	8,17	43,20	10,90	58,80	2,63	12,60	3,88	19,60	5,03	25,60	6,31	32,40	7,71	40,00
11,80	3,46	16,36	5,30	25,56	7,49	36,81	10,00	50,10	2,24	9,91	3,52	15,74	4,61	21,81	5,78	27,61	7,06	34,08
9,45	3,19	14,11	4,89	22,04	6,91	31,74	9,23	43,20	1,93	7,93	3,03	12,60	4,25	18,81	5,34	23,80	6,52	29,39
7,68	2,93	11,47	4,54	19,20	6,42	27,65	8,57	37,63	1,68	6,45	2,64	10,24	3,90	15,29	4,95	20,74	6,05	25,60
6,33	2,57	9,45	4,24	16,88	5,99	24,30	8,00	33,08	1,47	5,32	2,32	8,44	3,43	12,60	4,62	17,94	5,65	22,50
5,28	2,28	7,88	3,97	14,95	5,62	21,53	7,50	29,30	1,30	4,43	2,05	7,04	3,03	10,50	4,28	14,96	5,30	19,93
4,45	2,03	6,64	3,74	12,96	5,29	19,20	7,06	26,13	1,16	3,73	1,83	5,93	2,70	8,85	3,82	12,60	4,99	17,28
3,78	1,82	5,64	3,49	11,02	4,99	17,23	6,66	23,45	1,04	3,17	1,64	5,04	2,43	7,52	3,42	10,71	4,65	14,70
3,24	1,64	4,84	3,14	9,45	4,73	15,55	6,31	21,17	0,94	2,72	1,48	4,32	2,19	6,45	3,09	9,19	4,19	12,60

x 5	70 x 5		80 x 5		90 x 5		100 x 5		110 x 5		120 x 5		130 x 5		140 x 5		150 x 5	
F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V
1152,00	99,96	1568,00	127,95	2048,00	158,82	2592,00	192,00	3200,00	232,32	3872,00	276,48	4608,00	324,48	5408,00	376,32	6272,00	432,00	7200,00
648,00	66,64	882,00	85,30	1152,00	105,88	1458,00	128,00	1800,00	154,88	2178,00	184,32	2592,00	216,32	3042,00	250,88	3528,00	288,00	4050,00
414,72	49,98	564,48	63,97	737,28	79,41	933,12	96,00	1152,00	116,16	1393,92	138,24	1658,88	162,24	1946,88	188,16	2257,92	216,00	2592,00
288,00	39,98	392,00	51,18	512,00	63,53	648,00	76,80	800,00	92,93	968,00	110,59	1152,00	129,79	1352,00	150,53	1568,00	172,80	1800,00
211,59	33,32	288,00	42,65	376,16	52,94	476,08	64,00	587,76	77,44	711,18	92,16	846,37	108,16	993,31	125,44	1152,00	144,00	1322,45
162,00	28,56	220,50	36,56	288,00	45,38	364,50	54,86	450,00	66,38	544,50	78,99	648,00	92,71	760,50	107,52	882,00	123,43	1012,50
128,00	24,99	174,22	31,99	227,56	39,71	288,00	48,00	355,56	58,08	430,22	69,12	512,00	81,12	600,89	94,08	696,89	108,00	800,00
103,68	22,21	141,12	28,43	184,32	35,29	233,28	42,67	288,00	51,63	348,48	61,44	414,72	72,11	486,72	83,63	564,48	96,00	648,00
85,69	19,99	116,63	25,59	152,33	31,76	192,79	38,40	238,02	46,46	288,00	55,30	342,74	64,90	402,25	75,26	466,51	86,40	535,54
72,00	18,17	98,00	23,26	128,00	28,88	162,00	34,91	200,00	42,24	242,00	50,27	288,00	59,00	338,00	68,42	392,00	78,55	450,00
61,35	16,66	83,50	21,32	109,07	26,47	138,04	32,00	170,41	38,72	206,20	46,08	245,40	54,08	288,00	62,72	334,01	72,00	383,43
52,90	15,38	72,00	19,68	94,04	24,43	119,02	29,54	146,94	35,74	177,80	42,54	211,59	49,92	248,33	57,90	288,00	66,46	330,61
46,08	14,28	62,72	18,28	81,92	22,69	103,68	27,43	128,00	33,19	154,88	39,50	184,32	46,35	216,32	53,76	250,88	61,71	288,00
40,50	13,33	55,13	17,06	72,00	21,18	91,13	25,60	112,50	30,98	136,13	36,86	162,00	43,26	190,13	50,18	220,50	57,60	253,13
35,88	12,50	48,83	15,99	63,78	19,85	80,72	24,00	99,65	29,04	120,58	34,56	143,50	40,56	168,42	47,04	195,32	54,00	224,22
32,00	11,76	43,56	15,05	56,89	18,69	72,00	22,59	88,89	27,33	107,56	32,53	128,00	38,17	150,22	44,27	174,22	50,82	200,00
28,72	11,11	39,09	14,22	51,06	17,65	64,62	21,33	79,78	25,81	96,53	30,72	114,88	36,05	134,83	41,81	156,37	48,00	179,50
25,92	10,52	35,28	13,47	46,08	16,72	58,32	20,21	72,00	24,45	87,12	29,10	103,68	34,16	121,68	39,61	141,12	45,47	162,00

*** Support width =**
clearance between the supports.

The values shown have been calculated for maximum admissible load rating (deflection 1/200) on the basis of a load carrying area of 200 x 200 mm and a bearing bar spacing of 33.3 mm. To avoid trip up points the maximum deflection should not exceed 4 mm. Please note the ▬ coloured nominal line.

Bearing bars [mm]

Support width * [mm]	25 x 2		30 x 2		35 x 2		40 x 2		45 x 2		50 x 2		25 x 3		30
	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P
300	4,39	63,25	6,26	91,08	8,44	123,97	10,93	161,92	13,71	204,93	16,75	253,00	6,58	94,88	9,40
400	2,63	33,75	4,18	51,23	5,63	69,73	7,29	91,08	9,14	115,27	11,17	142,31	3,94	50,63	6,26
500	1,61	17,28	2,77	29,86	4,22	44,63	5,46	58,29	6,85	73,77	8,38	91,08	2,42	25,92	4,15
600	1,10	10,00	1,88	17,28	2,95	27,44	4,37	40,48	5,48	51,23	6,70	63,25	1,64	15,00	2,82
700	0,79	6,30	1,36	10,88	2,14	17,28	3,17	25,79	4,47	36,73	5,58	46,47	1,19	9,45	2,04
800	0,60	4,22	1,03	7,29	1,62	11,58	2,40	17,28	3,39	24,60	4,61	33,75	0,90	6,33	1,55
900	0,47	2,96	0,81	5,12	1,28	8,13	1,89	12,14	2,66	17,28	3,62	23,70	0,71	4,44	1,22
1000	0,38	2,16	0,65	3,73	1,03	5,93	1,52	8,85	2,15	12,60	2,92	17,28	0,57	3,24	0,98
1100	0,31	1,62	0,54	2,80	0,85	4,45	1,25	6,65	1,77	9,46	2,40	12,98	0,47	2,43	0,81
1200	0,26	1,25	0,45	2,16	0,71	3,43	1,05	5,12	1,48	7,29	2,01	10,00	0,40	1,88	0,68
1300	0,22	0,98	0,38	1,70	0,60	2,70	0,89	4,03	1,26	5,73	1,71	7,87	0,34	1,47	0,58
1400	0,19	0,79	0,33	1,36	0,52	2,16	0,77	3,22	1,09	4,59	1,47	6,30	0,29	1,18	0,50
1500	0,17	0,64	0,29	1,11	0,45	1,76	0,67	2,62	0,94	3,73	1,28	5,12	0,25	0,96	0,43
1600	0,15	0,53	0,25	0,91	0,40	1,45	0,59	2,16	0,83	3,08	1,13	4,22	0,22	0,79	0,38
1700	0,13	0,44	0,22	0,76	0,35	1,21	0,52	1,80	0,73	2,56	1,00	3,52	0,20	0,66	0,34
1800	0,12	0,37	0,20	0,64	0,31	1,02	0,46	1,52	0,65	2,16	0,89	2,96	0,17	0,56	0,30
1900	0,10	0,31	0,18	0,54	0,28	0,86	0,42	1,29	0,59	1,84	0,80	2,52	0,16	0,47	0,27
2000	0,09	0,27	0,16	0,47	0,25	0,74	0,38	1,11	0,53	1,57	0,72	2,16	0,14	0,41	0,24

Bearing bars [mm]

Support width * [mm]	40 x 4		45 x 4		50 x 4		60 x 4		70 x 4		80 x 4		90 x 4		35
	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P
300	21,86	323,84	27,42	409,86	33,51	506,00	47,38	728,64	63,22	991,76	80,93	1295,36	100,46	1639,44	21,11
400	14,57	182,16	18,28	230,55	22,34	284,63	31,59	409,86	42,15	557,87	53,95	728,64	66,97	922,19	14,07
500	10,93	116,58	13,71	147,55	16,75	182,16	23,69	262,31	31,61	357,03	40,46	466,33	50,23	590,20	10,55
600	8,74	80,96	10,97	102,47	13,40	126,50	18,95	182,16	25,29	247,94	32,37	323,84	40,18	409,86	7,38
700	6,33	51,59	8,94	73,45	11,17	92,94	15,79	133,83	21,07	182,16	26,98	237,92	33,49	301,12	5,35
800	4,81	34,56	6,78	49,21	9,21	67,50	13,54	102,47	18,06	139,47	23,12	182,16	28,70	230,55	4,06
900	3,77	24,27	5,33	34,56	7,23	47,41	11,84	80,96	15,81	110,20	20,23	143,93	25,11	182,16	3,19
1000	3,04	17,69	4,30	25,19	5,83	34,56	9,90	59,72	14,05	89,26	17,98	116,58	22,32	147,55	2,57
1100	2,51	13,29	3,54	18,93	4,80	25,97	8,15	44,87	12,64	71,25	16,19	96,35	20,09	121,94	2,12
1200	2,10	10,24	2,97	14,58	4,03	20,00	6,83	34,56	10,64	54,88	14,71	80,96	18,26	102,47	1,78
1300	1,79	8,05	2,52	11,47	3,42	15,73	5,81	27,18	9,05	43,16	13,23	64,43	16,74	87,31	1,51
1400	1,54	6,45	2,17	9,18	2,95	12,59	5,00	21,76	7,79	34,56	11,39	51,59	15,45	73,45	1,30
1500	1,34	5,24	1,89	7,46	2,57	10,24	4,35	17,69	6,78	28,10	9,91	41,94	13,84	59,72	1,13
1600	1,18	4,32	1,66	6,15	2,25	8,44	3,82	14,58	5,95	23,15	8,70	34,56	12,15	49,21	0,99
1700	1,04	3,60	1,47	5,13	1,99	7,03	3,38	12,16	5,27	19,30	7,70	28,81	10,76	41,02	0,88
1800	0,93	3,03	1,31	4,32	1,78	5,93	3,01	10,24	4,69	16,26	6,87	24,27	9,59	34,56	0,78
1900	0,83	2,58	1,17	3,67	1,59	5,04	2,70	8,71	4,21	13,83	6,16	20,64	8,60	29,39	0,70
2000	0,75	2,21	1,06	3,15	1,44	4,32	2,44	7,46	3,80	11,85	5,55	17,69	7,76	25,19	0,63

Load Tables for Press Locked Aluminium Gratings

Light duty

Medium duty

Conversion factor for kg into kN
10 kN ≈ 1 tonne
1 kN ≈ 100 kg

F_P Point load in kN

F_V uniformly distributed load in kN per sq. m.

x 3	35 x 3		40 x 3		45 x 3		50 x 3		60 x 3		70 x 3		30 x 4		35 x 4	
F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V
136,62	12,66	185,96	16,39	242,88	20,56	307,40	25,13	379,50	35,53	546,48	47,42	743,82	12,53	182,16	16,88	247,94
76,85	8,44	104,60	10,93	136,62	13,71	172,91	16,75	213,47	23,69	307,40	31,61	418,40	8,35	102,47	11,26	139,47
44,79	6,33	66,94	8,20	87,44	10,28	110,66	12,57	136,62	17,77	196,73	23,71	267,78	5,53	59,72	8,44	89,26
25,92	4,43	41,16	6,55	60,72	8,23	76,85	10,05	94,88	14,21	136,62	18,97	185,96	3,76	34,56	5,91	54,88
16,32	3,21	25,92	4,75	38,69	6,70	55,09	8,38	69,70	11,84	100,37	15,81	136,62	2,72	21,76	4,28	34,56
10,94	2,44	17,36	3,60	25,92	5,09	36,91	6,91	50,63	10,15	76,85	13,55	104,60	2,07	14,58	3,25	23,15
7,68	1,91	12,20	2,83	18,20	3,99	25,92	5,42	35,56	8,88	60,72	11,85	82,65	1,62	10,24	2,55	16,26
5,60	1,54	8,89	2,28	13,27	3,22	18,90	4,37	25,92	7,42	44,79	10,54	66,94	1,31	7,46	2,06	11,85
4,21	1,27	6,68	1,88	9,97	2,65	14,20	3,60	19,47	6,11	33,65	9,48	53,44	1,08	5,61	1,69	8,91
3,24	1,07	5,15	1,58	7,68	2,22	10,94	3,02	15,00	5,12	25,92	7,98	41,16	0,90	4,32	1,42	6,86
2,55	0,91	4,05	1,34	6,04	1,89	8,60	2,57	11,80	4,36	20,39	6,78	32,37	0,77	3,40	1,21	5,40
2,04	0,78	3,24	1,15	4,84	1,63	6,89	2,21	9,45	3,75	16,32	5,84	25,92	0,66	2,72	1,04	4,32
1,66	0,68	2,63	1,00	3,93	1,42	5,60	1,92	7,68	3,26	13,27	5,08	21,07	0,58	2,21	0,90	3,51
1,37	0,60	2,17	0,88	3,24	1,24	4,61	1,69	6,33	2,87	10,94	4,46	17,36	0,51	1,82	0,79	2,89
1,14	0,53	1,81	0,78	2,70	1,10	3,85	1,49	5,28	2,54	9,12	3,95	14,48	0,45	1,52	0,70	2,41
0,96	0,47	1,52	0,70	2,28	0,98	3,24	1,33	4,44	2,26	7,68	3,52	12,20	0,40	1,28	0,63	2,03
0,82	0,42	1,30	0,62	1,93	0,88	2,75	1,20	3,78	2,03	6,53	3,16	10,37	0,36	1,09	0,56	1,73
0,70	0,38	1,11	0,56	1,66	0,79	2,36	1,08	3,24	1,83	5,60	2,85	8,89	0,32	0,93	0,51	1,48

x 5	40 x 5		45 x 5		50 x 5		60 x 5		70 x 5		80 x 5		90 x 5		100 x 5	
F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V
309,93	27,32	404,80	34,27	512,33	41,89	632,50	59,22	910,80	79,03	1239,70	101,16	1619,20	125,57	2049,30	151,80	2530,00
174,33	18,22	227,70	22,85	288,18	27,92	355,78	39,48	512,33	52,69	697,33	67,44	910,80	83,71	1152,73	101,20	1423,13
111,57	13,66	145,73	17,14	184,44	20,94	227,70	29,61	327,89	39,52	446,29	50,58	582,91	62,79	737,75	75,90	910,80
68,60	10,92	101,20	13,71	128,08	16,75	158,13	23,69	227,70	31,61	309,93	40,46	404,80	50,23	512,33	60,72	632,50
43,20	7,92	64,49	11,17	91,82	13,96	116,17	19,74	167,29	26,34	227,70	33,72	297,40	41,86	376,40	50,60	464,69
28,94	6,01	43,20	8,48	61,51	11,51	84,38	16,92	128,08	22,58	174,33	28,90	227,70	35,88	288,18	43,37	355,75
20,33	4,72	30,34	6,66	43,20	9,04	59,26	14,81	101,20	19,76	137,74	25,29	179,91	31,39	227,70	37,95	281,11
14,82	3,80	22,12	5,37	31,49	7,29	43,20	12,37	74,65	17,56	111,57	22,48	145,73	27,90	184,44	33,73	227,70
11,13	3,13	16,62	4,42	23,66	6,01	32,46	10,19	56,09	15,81	89,06	20,23	120,44	25,11	152,43	30,36	188,18
8,58	2,63	12,80	3,71	18,23	5,03	25,00	8,54	43,20	13,30	68,60	18,39	101,20	22,83	128,08	27,60	158,13
6,74	2,23	10,07	3,15	14,33	4,28	19,66	7,26	33,98	11,31	53,96	16,54	80,54	20,93	109,13	25,30	134,73
5,40	1,92	8,06	2,71	11,48	3,69	15,74	6,25	27,20	9,73	43,20	14,24	64,49	19,32	91,82	23,35	116,17
4,39	1,67	6,55	2,36	9,33	3,21	12,80	5,44	22,12	8,47	35,12	12,39	52,43	17,30	74,65	21,69	101,20
3,62	1,47	5,40	2,07	7,69	2,82	10,55	4,78	18,23	7,44	28,94	10,88	43,20	15,19	61,55	20,24	84,38
3,02	1,30	4,50	1,83	6,41	2,49	8,79	4,23	15,19	6,58	24,13	9,63	36,02	13,44	51,28	18,06	70,34
2,54	1,16	3,79	1,64	5,40	2,22	7,41	3,77	12,80	5,87	20,33	8,58	30,34	11,98	43,20	16,10	59,26
2,16	1,04	3,22	1,47	4,59	1,99	6,30	3,38	10,88	5,26	17,28	7,70	25,80	10,75	36,73	14,44	50,39
1,85	0,94	2,76	1,32	3,94	1,80	5,40	3,05	9,33	4,75	14,82	6,94	22,12	9,70	31,49	13,02	43,20

Meshing / Material

2/3 Material

Bearing bar 2 mm	Bearing bar 3 mm	Cross bar	Banding bar
20x2		10x2	T20 or 20x3
25x2	25x3	10x2	T25 or 25x3
30x2	30x3	10x2	T30 or 30x3
35x2	35x3	10x2	T35 or 35x3
40x2	40x3	10x2	T40 or 40x3
45x2	45x3	10x2	T45 or 45x3
50x2	50x3	10x2	T50 or 50x3
60x2	60x3	10x2	T60 or 60x3
	70x3	20x2	70x3
	80x3	20x2	80x3
	90x3	20x2	90x3
	100x3	20x2	100x3

Mesh Width Clearance

Clear mesh width is calculated on the basis of the given mesh spacing and the thickness of the material used.

Example

Spacing of 33.3 x 33.3 / bearing bar 3 mm / cross bar 2 mm = a clearance of 30.3 x 31.3.
In the trade, it is usually called a “30 x 30”.

Standard Mesh Spacings

Bearing bar		Cross bar							
11,1	x	11,1			22,2	33,3			
21,0	x			21,0		33,3			
22,2	x	11,1			22,2	33,3	44,4		66,6
33,3	x	11,1	16,65	21,0	22,2	33,3			66,6
44,4	x	11,1			22,2		44,4		
55,5	x					33,3		55,5	
66,6	x					33,3			66,6

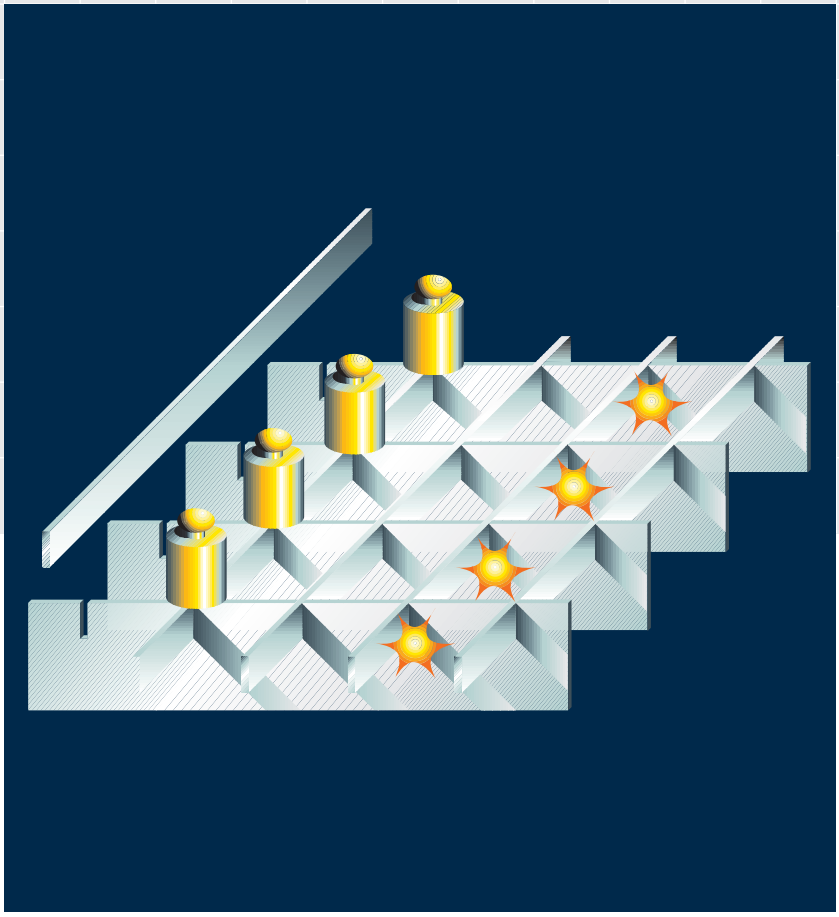
4/5 Material

Bearing bar 4 mm	Bearing bar 5 mm	Cross bar	Banding bar
25x4	25x5	10x3	
30x4	30x5	12x3	
35x4	35x5	12x3	
40x4	40x5	12x3	
45x4	45x5	12x3	
50x4	50x5	12x3	Flat banding bar
	55x5	12x3	in bearing bar
60x4	60x5	12x3	dimension
70x4	70x5	12x3	
80x4	80x5	12x3	
90x4	90x5	12x3	
100x4		12x3	
	100x5	20x3	
	110x5	20x3	
	120x5	20x3	
	130x5	20x3	
	140x5	20x3	
	150x5	20x3	

Standard Mesh Spacings

Bearing bar		Cross bar				
21,0	x		22,2	33,3	44,4	
25,0	x			33,3		
33,3	x	16,65	22,2	33,3		66,6

Other bearing bars up to 200 x 5, cross bars, banding bars and spacings on request.



Ultra-grating

The ultra-grating is a welded and press locked grating. First the cross bars are pressed into the bearing bars, then welded together as well.

This technology provides extra stability even without edge banding.

MeiseGrate produces ultra-gra-ting in standard panels for machine shops and fitter's shops for further processing.

Usual mesh spacing
34.3 x 33.3

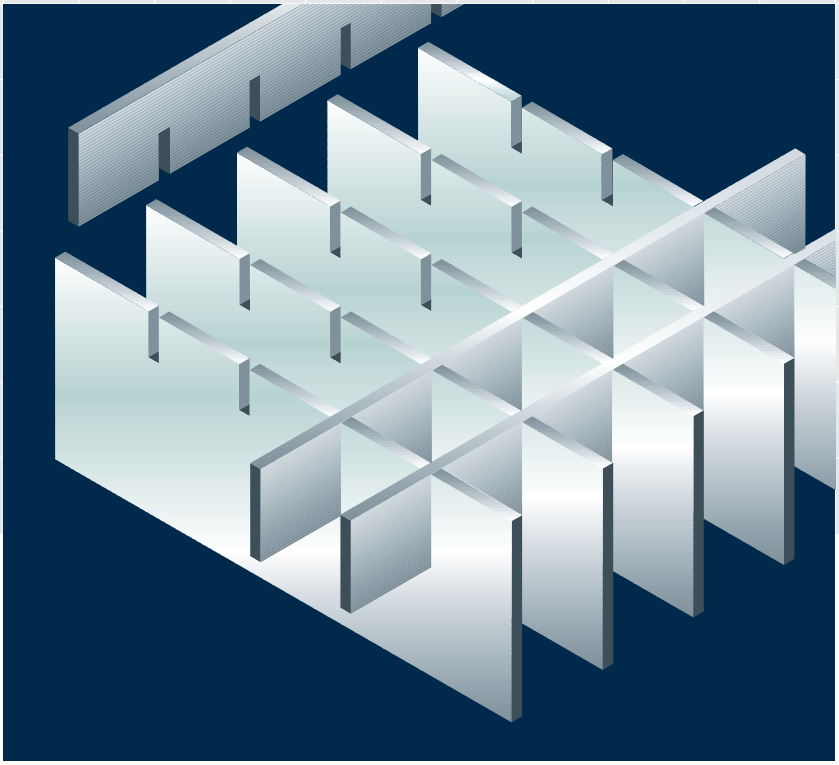
Bearing bar range
25 x 2 mm to 50 x 3 mm

Heavy Duty Gratings

Heavy duty gratings are press locked gratings. The bearing bars and the cross bars are interlocked with one another and then processed at a pressure of 12,000 kN.

Due to their high stability and safety, heavy duty gratings are used where large support widths and high wheel loads are required.

Heavy duty gratings can be also produced in stainless-steel.



Vehicle access: trucks up to 3 tonnes in overall weight.

Vehicle access: trucks up to 9 tonnes in overall weight.

Vehicle access: trucks up to 30 tonnes in overall weight.

Vehicle access: trucks up to 60 tonnes in overall weight.

*** Support width =** clearance between the supports.

F_P Point load in kN

Support width * [mm]	Bearing bars [mm] — Other bearing bars up to 200 x 12 on request.											
	80 x 8	90 x 8	100 x 8	110 x 8	120 x 8	130 x 8	140 x 8	150 x 8	80 x 10	90 x 10	100 x 10	110 x 10
	F_P	F_P	F_P	F_P	F_P	F_P	F_P	F_P	F_P	F_P	F_P	F_P
300	163,84	207,36	256,00	309,76	368,64	432,64	501,76	576,00	204,80	259,20	320,00	387,20
400	122,88	155,52	192,00	232,32	276,48	324,48	376,32	432,00	153,60	194,40	240,00	290,40
500	81,92	124,42	153,60	185,86	221,18	259,58	301,06	345,60	122,88	155,52	192,00	232,32
600	61,44	103,68	128,00	154,88	184,32	216,32	250,88	288,00	102,40	129,60	160,00	193,60
700	43,12	62,21	76,80	116,16	138,24	162,24	188,16	216,00	61,44	77,76	120,00	145,20
800	36,68	51,84	64,00	77,44	110,59	129,79	150,53	172,80	51,20	64,80	80,00	116,16
900	31,92	40,39	54,86	66,38	78,99	108,16	125,44	144,00	39,90	55,54	68,57	82,97
1000	27,31	35,75	44,14	58,08	69,12	81,12	107,52	123,43	35,31	44,69	60,00	72,60
1100	24,58	32,07	39,59	51,63	61,44	72,11	83,63	108,00	31,67	40,08	53,33	64,53
1200	22,34	28,28	35,89	43,42	55,30	64,90	75,26	86,40	27,93	36,34	44,86	58,08
1300	20,48	25,92	32,82	39,71	50,27	59,00	68,42	78,55	25,60	33,23	41,03	52,80
1400	18,90	23,93	30,24	36,59	43,54	54,08	62,72	72,00	23,63	30,61	37,80	45,73
1500	17,55	22,22	27,43	33,92	40,36	47,37	57,90	66,46	21,94	27,77	35,04	42,39
1600	16,38	20,74	25,60	31,61	37,62	44,15	53,76	61,71	20,48	25,92	32,65	39,51
1700	15,36	19,44	24,00	29,04	35,22	41,34	50,18	57,60	19,20	24,30	30,57	36,99
1800	14,46	18,30	22,59	27,33	33,11	38,86	45,07	54,00	18,07	22,87	28,24	34,78
1900	13,65	17,28	21,33	25,81	31,24	36,66	42,52	50,82	17,07	21,60	26,67	32,81
2000	12,93	16,37	20,21	24,45	29,10	34,70	40,25	46,20	16,17	20,46	25,26	31,06

Bearing bar	Cross bar
80x8	15x6
90x8	25x6
100x8	25x6
110x8	25x6
120x8	25x6
130x8	25x6
140x8	40x6
150x8	40x6
80x10	40x8
90x10	40x8
100x10	40x8
110x10	40x8
120x10	40x8
130x10	40x8
140x10	40x8
150x10	40x8
100x12	40x10
110x12	40x10
120x12	40x10
130x12	40x10
140x12	40x10
150x12	40x10
160x12	40x10
170x12	40x10
180x12	40x10
bearing bar length max. 2500 mm	

Production as per DIN 1072

If the gratings you order are for vehicular use, you must give us details in advance - - wheel load, load carrying area, clear span and direction of travel so that we can calculate the grating flooring.

Standard Mesh Spacing				
Bearing bar		Cross bar		
25	x	50		100
50	x	50		100
75	x	50	75	100
100	x	50	75	100

Bridge class	Colour key	Wheel load	Load carrying area
3/3	Vehicle up to 3 t	10 kN	200 x 200 mm
9/9	Vehicle up to 9 t	30 kN	200 x 260 mm
30/30	Vehicle up to 30 t	50 kN	200 x 400 mm
60/30	Vehicle up to 60 t	100 kN	200 x 600 mm

The values shown have been calculated for maximum permissible load rating on the basis of the relevant load carrying area and bearing bar spacing of 50 mm.

Conversion factor for kg into kN
10 kN ≈ 1 tonne
1 kN ≈ 100 kg

120 x 10	130 x 10	140 x 10	150 x 10	100 x 12	110 x 12	120 x 12	130 x 12	140 x12	150 x 12	160 x 12	170 x 12	180 x 12
F_P	F_P	F_P	F_P	F_P	F_P	F_P	F_P	F_P	F_P	F_P	F_P	F_P
460,80	540,80	627,20	720,00	384,00	464,64	552,96	648,96	752,64	864,00	983,04	1109,76	1244,16
345,60	405,60	470,40	540,00	288,00	348,48	414,72	486,72	564,48	648,00	737,28	832,32	933,12
276,48	324,48	376,32	432,00	230,40	278,78	331,78	389,38	451,58	518,40	589,82	665,86	746,50
230,40	270,40	313,60	360,00	192,00	232,32	276,48	324,48	376,32	432,00	491,52	554,88	622,08
172,80	202,80	235,20	270,00	144,00	174,24	207,36	243,36	282,24	324,00	368,64	416,16	466,56
138,24	162,24	188,16	216,00	115,20	139,39	165,89	194,69	225,79	259,20	294,91	332,93	373,25
115,20	135,20	156,80	180,00	82,29	116,16	138,24	162,24	188,16	216,00	245,76	277,44	311,04
86,40	115,89	134,40	154,29	72,00	87,12	118,49	139,06	161,28	185,14	210,65	237,81	266,61
76,80	101,40	117,60	135,00	64,00	77,44	103,68	121,68	141,12	162,00	184,32	208,08	233,28
69,12	81,12	104,53	120,00	57,60	69,70	82,94	108,16	125,44	144,00	163,84	184,96	207,36
62,84	73,75	85,53	108,00	52,36	63,36	75,40	88,49	112,90	129,60	147,46	166,46	186,62
57,60	67,60	78,40	90,00	45,35	58,08	69,12	81,12	102,63	117,82	134,05	151,33	169,66
53,17	62,40	72,37	83,08	42,04	53,61	63,80	74,88	86,84	108,00	122,88	138,72	155,52
47,02	57,94	67,20	77,14	39,18	47,41	59,25	69,53	80,64	92,57	113,43	128,05	143,56
44,03	54,08	62,72	72,00	36,69	44,39	55,30	64,90	75,26	86,40	105,33	118,90	133,30
41,39	50,70	58,80	67,50	34,49	41,73	51,84	60,84	70,56	81,00	92,16	110,98	124,42
39,05	45,83	55,34	63,53	32,54	39,38	46,86	57,26	66,41	76,24	86,74	104,04	116,64
36,96	43,38	52,27	60,00	30,80	37,27	44,36	54,08	62,72	72,00	81,92	92,48	109,78

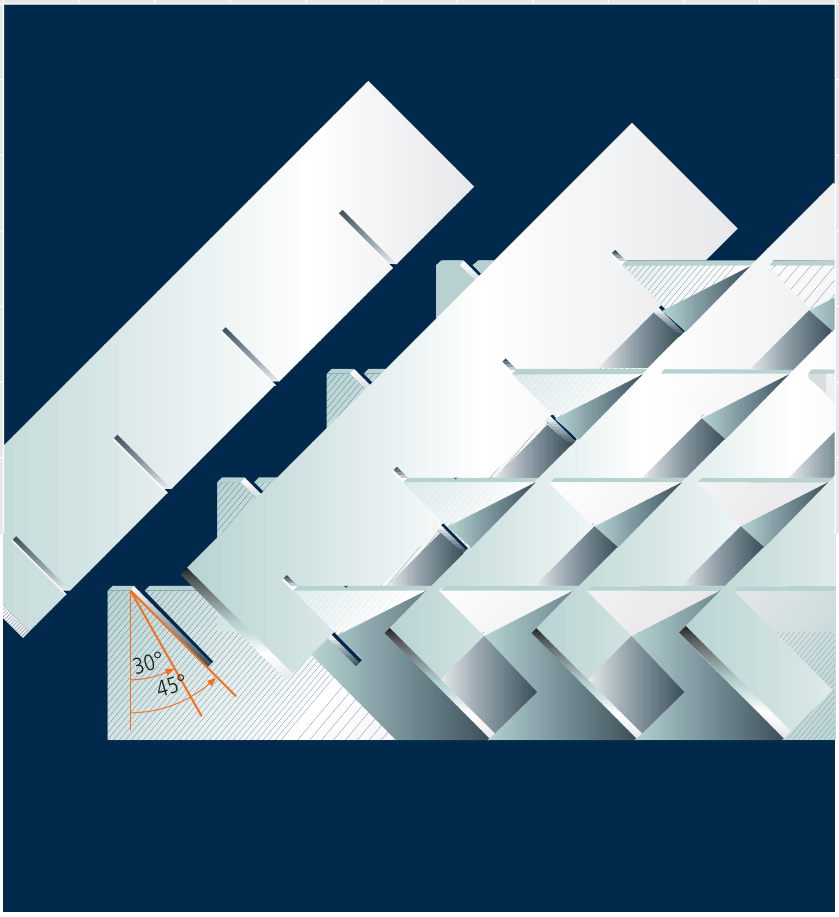
Louvre Gratings

Louvre gratings will always find a use wherever people don't want other people to look through – on bridges, gangways, elevated walkways, ventilation grilles, balconies with sun shield function and building exteriors.

MeiseGrate produces louvre gratings from steel, stainless steel and aluminium. Here the cross bars are inserted into the bearing bars at an angle of 30° or 45° be-fore being pressed.

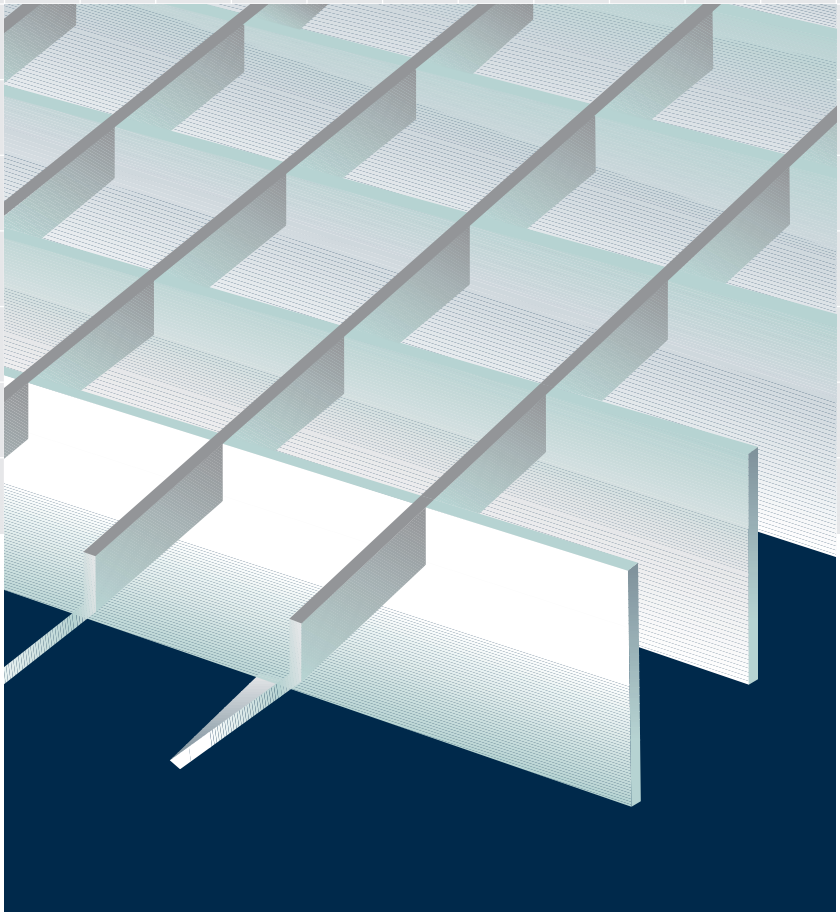
We can also customise our louvres gratings to meet your specific needs, just give us a call!

Louvre grating can be pro-duced to a height of 100 mm.



Material Thickness 2 and 3 mm Cross bar length is maximum 1500 mm		
Bearing bar's 2/3 mm	Transverse bar	Banding bar
25x2 / 25x3		25x3
30x2 / 30x3		30x3
35x2 / 35x3	Cross bar	35x3
40x2 / 40x3	in bearing	40x3
45x2 / 45x3	bar dimension	45x3
50x2 / 50x3	inserted at a	50x3
60x2 / 60x3	30°- 40°	60x3
70x3	angle	70x3
80x3		80x3
90x3		90x3
100x3		100x3

Standard Mesh Spacing				
Bearing bar		Cross bar		
33,3	x	33,3	66,6	99,9
66,6	x	33,3	66,6	
99,9	x	33,3		



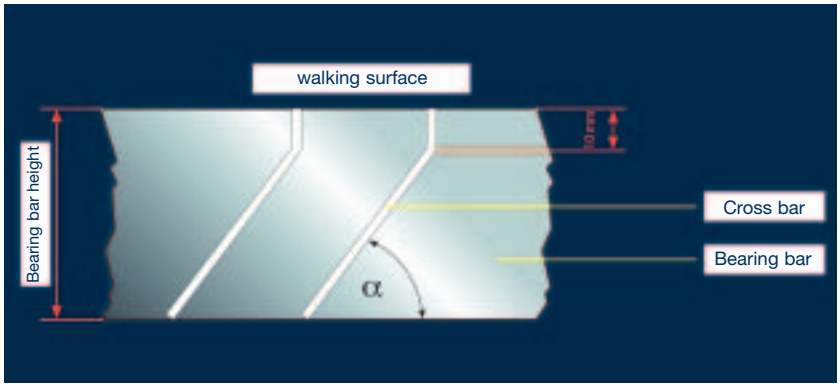
Full press locked louvre grating

The newly developed full press locked louvre grating combines excellent technical qualities with an elegant design and thus offers a variety of new solutions within the current louvre gratings field.

With this grating, civil engineers and architects are given the possibility of realising sun shield constructions, as well as facade constructions or gangways without destroying the architectural concept of the building. Builders and constructors profit from the variable insertion angle of the cross bars, which results in better statical performance and a wider variety in use. Like the press locked grating, the bearing bar is notched only up to 10 mm, which guarantees consistently high load values.

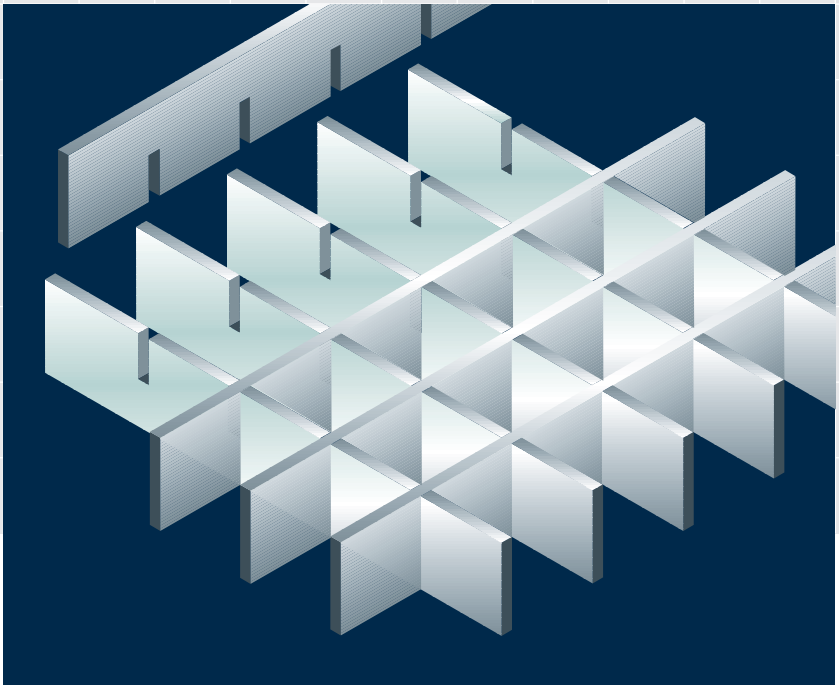
This type of louvre grating represents a highly attractive alternative.

The MeiseGrate "full press lok-ked louvre grating" are available in steel, aluminium or high-grade stainless steel, up to a height of 50 mm. They are also available with serrated bearing bars for use in areas where slip resistance is important.



Construction height	Bearing bars	Cross bar length is maximum 1200 mm					
		30x2	35x2	40x2	45x2	50x2	60x2
25 mm	25x2/3	α = 49°	α = 37°	α = 30°	α = 26°	α = 22°	α = 18°
30 mm	30x2/3		α = 53°	α = 42°	α = 35°	α = 30°	α = 24°
35 mm	35x2/3			α = 57°	α = 45°	α = 39°	α = 30°
40 mm	40x2/3				α = 59°	α = 49°	α = 37°
45 mm	45x2/3					α = 61°	α = 45°
50 mm	50x2/3						α = 53°

Full Gratings



Full gratings are press locked gratings with bearing bars and cross bars of equal height and which have been notched up to half of their height. The bearing bar is the one with the notches on the top.

Full gratings are used for escape and window balconies but they can also be used as a sun shield, as a building exterior, as a honeycomb ceiling, as a ventilation grille and as parapet railings.

MeiseGrate full gratings are available in steel, stainless steel or aluminium. We can manufacture in other materials to meet your needs, just give us a call!

Full gratings can be produced to a height of 100 mm.

Grating length must be less than 1800 mm.

*** Support width =**
clearance between the supports.

F_P individual load in kN

F_V uniformly distributed load in kN per sq. m.

Full Grating (Steel ST 37-2)

Support width * [mm]	Bearing bars [mm]																							
	30 x 2		35 x 2		40 x 2		45 x 2		50 x 2		60 x 2		30 x 3		35 x 3		40 x 3		45 x 3		50 x 3		60 x 3	
	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V
300	2,16	49,06	2,94	66,77	3,85	87,22	4,87	110,38	6,01	136,28	8,65	196,24	3,24	73,59	4,42	100,16	5,77	130,82	7,30	165,57	9,01	204,41	12,98	294,35
400	1,62	27,60	2,21	37,56	2,88	49,06	3,65	62,09	4,51	76,65	6,49	110,38	2,43	41,39	3,31	56,34	4,33	73,59	5,48	93,14	6,76	114,98	9,73	165,57
500	1,54	17,66	2,10	24,04	2,74	31,40	3,47	39,74	4,28	49,06	6,17	70,65	2,31	26,49	3,15	36,06	4,11	47,10	5,20	59,61	6,42	73,59	9,25	105,97
600	1,49	12,26	2,02	16,69	2,64	21,80	3,35	27,60	4,13	34,07	5,95	49,06	2,23	18,40	3,04	25,04	3,97	32,71	5,02	41,39	6,20	51,10	8,92	73,59
700	1,45	9,01	1,97	12,26	2,58	16,02	3,26	20,27	4,02	25,03	5,79	36,04	2,17	13,52	2,96	18,40	3,86	24,03	4,89	30,41	6,04	37,55	8,69	54,07
800	1,36	5,85	1,93	9,28	2,52	12,26	3,19	15,52	3,94	19,16	5,68	27,60	2,04	8,77	2,90	13,92	3,79	18,40	4,79	23,28	5,92	28,75	8,52	41,39
900	1,06	3,65	1,68	5,79	2,48	8,65	3,14	12,26	3,88	15,14	5,59	21,80	1,59	5,47	2,52	8,69	3,73	12,98	4,72	18,40	5,82	22,71	8,38	32,71
1000	0,85	2,39	1,35	3,80	2,01	5,68	2,86	8,08	3,83	11,08	5,52	17,66	1,27	3,59	2,02	5,70	3,01	8,51	4,29	12,12	5,75	16,63	8,27	26,49
1100	0,73	1,64	1,16	2,60	1,73	3,88	2,46	5,52	3,38	7,57	5,75	13,08	1,10	2,45	1,74	3,90	2,60	5,81	3,70	8,28	5,07	11,36	7,63	19,62
1200	0,61	1,15	0,96	1,83	1,44	2,74	2,04	3,90	2,80	5,35	4,85	9,24	0,91	1,73	1,44	2,75	2,15	4,11	3,07	5,85	4,21	8,02	7,27	13,86
1300	0,51	0,84	0,81	1,33	1,21	1,99	1,72	2,83	2,36	3,88	4,08	6,71	0,77	1,26	1,22	2,00	1,81	2,98	2,58	4,24	3,54	5,82	6,12	10,06
1400	0,44	0,62	0,69	0,99	1,03	1,48	1,47	2,10	2,02	2,89	3,49	4,99	0,65	0,93	1,04	1,48	1,55	2,22	2,21	3,16	3,03	4,33	5,23	7,48
1500	0,38	0,47	0,60	0,75	0,89	1,12	1,27	1,60	1,74	2,19	3,01	3,78	0,56	0,71	0,90	1,13	1,34	1,68	1,91	2,39	2,61	3,28	4,52	5,68
1700	0,26	0,29	0,41	0,46	0,61	0,68	0,87	0,97	1,20	1,33	2,07	2,29	0,39	0,43	0,62	0,68	0,92	1,02	1,31	1,45	1,80	1,99	3,10	3,44
2000	0,16	0,15	0,25	0,24	0,38	0,35	0,54	0,51	0,74	0,69	1,27	1,20	0,24	0,22	0,38	0,36	0,56	0,53	0,80	0,76	1,10	1,04	1,91	1,80
2500	0,08	0,06	0,13	0,10	0,19	0,15	0,27	0,21	0,38	0,28	0,65	0,49	0,12	0,09	0,19	0,15	0,29	0,22	0,41	0,31	0,56	0,43	0,98	0,74

Bearing bar 2/3 mm	Cross bar	Banding bar
25x2 /25x3	25x2 /25x3	25x3
30x2 / 30x3	30x2 / 30x3	30x3
35x2 / 35x3	35x2 / 35x3	35x3
40x2 / 40x3	40x2 / 40x3	40x3
45x2 / 45x3	45x2 / 45x3	45x3
50x2 / 50x3	50x2 / 50x3	50x3
60x2 / 60x3	60x2 / 60x3	60x3
70x3	70x3	70x3
80x3	80x3	80x3
90x3	90x3	90x3
100x3	100x3	100x3

Conversion factor for kg into kN
10 kN ≈ 1 tonne
1 kN ≈ 100 kg

The values shown were calculated using a computer model on the basis of a grating width of 1000 mm, a bearing bar spacing of 33.3 mm and a load carrying area of 200 x 200 mm.

Standard Mesh Spacing						
Bearing bar		Cross bar				
11,1	x			33,3		
22,2	x		22,2	33,3	44,4	
33,3	x	11,1	22,2	33,3		66,6
44,4	x		22,2		44,4	66,6
66,6	x					66,6

Escape route for pedestrian access minimum 2.0 kN individual load and 5.0 kN area load

Normal pedestrian access minimum 1.5 kN individual load and 3.5 kN area load

Maintenance staff access only minimum 1 kN individual load

No pedestrian access – snow load only

Bearing bar 5 mm	Cross bar 5 mm	Banding bar
25x5	25x5	
30x5	30x5	The flat banding bar
35x5	35x5	will normally be the
40x5	40x5	same dimension
45x5	45x5	as the bearing bar
50x5	50x5	
60x5	60x5	
70x5	70x5	

Standard Mesh Spacing				
Bearing bar		Cross bar		
33,3	x	33,3	66,6	99,9
66,6	x	33,3	66,6	
99,9	x	33,3		99,9

Aluminium Full Gratings

Support width * [mm]	Bearing bars [mm]																							
	30 x 2		35 x 2		40 x 2		45 x 2		50 x 2		60 x 2		30 x 3		35 x 3		40 x 3		45 x 3		50 x 3		60 x 3	
	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V	F_P	F_V
300	1,41	35,19	1,91	47,89	2,50	62,55	3,16	79,17	3,91	97,74	5,62	140,75	2,11	52,78	2,87	71,84	3,75	93,83	4,75	118,76	5,86	146,61	8,44	211,12
400	1,04	19,79	1,44	26,94	1,87	35,19	2,37	44,53	2,93	54,98	4,22	79,17	1,56	29,69	2,15	40,41	2,81	52,78	3,56	66,80	4,39	82,47	6,33	118,76
500	0,79	12,67	1,25	17,24	1,78	22,52	2,25	28,50	2,78	35,19	4,01	50,67	1,18	19,00	1,88	25,86	2,67	33,78	3,38	42,75	4,17	52,78	6,01	76,00
600	0,63	6,16	1,01	9,78	1,50	14,60	2,14	19,79	2,69	24,44	3,87	35,19	0,95	9,24	1,51	14,67	2,26	21,90	3,21	29,69	4,03	36,65	5,80	52,78
700	0,53	3,32	0,84	5,28	1,26	7,88	1,79	11,22	2,45	15,39	3,77	25,85	0,79	4,99	1,26	7,92	1,88	11,82	2,68	16,83	3,68	23,08	5,65	38,78
800	0,45	1,95	0,72	3,09	1,08	4,62	1,53	6,58	2,10	9,02	3,63	15,59	0,68	2,92	1,08	4,64	1,62	6,93	2,30	9,86	3,15	13,53	5,45	23,38
900	0,35	1,22	0,56	1,93	0,84	2,88	1,19	4,11	1,64	5,63	2,83	9,73	0,53	1,82	0,84	2,90	1,26	4,33	1,79	6,16	2,45	8,45	4,24	14,60
1000	0,28	0,80	0,45	1,27	0,67	1,89	0,95	2,69	1,31	3,69	2,26	6,38	0,42	1,20	0,67	1,90	1,00	2,84	1,43	4,04	1,96	5,54	3,39	9,58
1100	0,24	0,55	0,39	0,87	0,58	1,29	0,82	1,84	1,13	2,52	1,95	4,36	0,37	0,82	0,58	1,30	0,87	1,94	1,23	2,76	1,69	3,79	2,92	6,54
1200	0,20	0,38	0,32	0,61	0,48	0,91	0,68	1,30	0,93	1,78	1,62	3,08	0,30	0,58	0,48	0,92	0,72	1,37	1,02	1,95	1,40	2,67	2,42	4,62
1300	0,17	0,28	0,27	0,44	0,40	0,66	0,57	0,94	0,79	1,29	1,36	2,24	0,26	0,42	0,41	0,67	0,60	0,99	0,86	1,41	1,18	1,94	2,04	3,35
1400	0,15	0,21	0,23	0,33	0,34	0,49	0,49	0,70	0,67	0,96	1,16	1,66	0,22	0,31	0,35	0,49	0,52	0,74	0,74	1,05	1,01	1,44	1,74	2,49
1500	0,13	0,16	0,20	0,25	0,30	0,37	0,42	0,53	0,58	0,73	1,00	1,26	0,19	0,24	0,30	0,38	0,45	0,56	0,64	0,80	0,87	1,09	1,51	1,89
1700	0,09	0,10	0,14	0,15	0,20	0,23	0,29	0,32	0,40	0,44	0,69	0,76	0,13	0,14	0,21	0,23	0,31	0,34	0,44	0,48	0,60	0,66	1,03	1,15
2000	0,05	0,05	0,08	0,08	0,13	0,12	0,18	0,17	0,25	0,23	0,42	0,40	0,08	0,07	0,13	0,12	0,19	0,18	0,27	0,25	0,37	0,35	0,64	0,60
2500	0,03	0,02	0,04	0,03	0,06	0,05	0,09	0,07	0,13	0,09	0,22	0,16	0,04	0,03	0,06	0,05	0,10	0,07	0,14	0,10	0,19	0,14	0,33	0,25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