

CARL ZEISS GRATINGS



(PG) Polychromator gratings

PRODUCT SPECIFICATION

Grooves [mm ⁻¹]	Grating type	Blaze [nm]	Correction range [nm]	Dimensions [mm ²]
2500	geblazed	230	170-290	Ø 64x12
1864	sinus	830	790-880	Ø64x10
1600	geblazed	230	200-400	Ø25x10
1400	geblazed	230	220-530	Ø25x10
1400	geblazed	230	190-315	Ø50x10
1300	sinus	850	700-900	Ø30x8
1221	geblazed	230	200-250	Ø50x8
1220	geblazed	230	200-300	Ø50x10
1220	geblazed	230	200-410	Ø30x8
1100	geblazed	230	190-410	Ø50x10
1000	geblazed	230	190-400	Ø50x10
950	geblazed	230	200-415	Ø32x7
845	geblazed	230	170-410	Ø41x10
845	ion	375	340-720	Ø41x10
700	sinus	1600	1560-1900	Ø90x12
658	geblazed	230	360-740	Ø58x7
600	geblazed	230	190-750	Ø30x8
458	sinus	2400	1800-2300	Ø64x10
355	sinus	1800	1400-2400	Ø64x8.1
324	sinus	380	190-510	Ø67x10
320	geblazed	230	200-900	Ø64x12
320	geblazed	230	200-550	Ø64x12
320	geblazed	230	200-800	Ø30x8
320	geblazed	230	400-720	Ø30x8
258	geblazed	230	190-600	Ø34x7
250	geblazed	230	375-750	Ø34x7
200	geblazed	230	200-415	Ø64x10
200	geblazed	230	190-1050	Ø64x10
163	sinus	560	470-1100	Ø67x10
157	geblazed	230	200-900	Ø50x10
149	geblazed	230	190-820	Ø64x10
149	geblazed	230	200-1100	Ø64x10
110	sinus	3400	3000-5700	Ø64x10

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Grooves [mm ⁻¹]	Gitterfläche [nm]	Diffractive area [mm]	Incidence angle [deg.]	Diffraction angle [deg.]
2500	∅ 55	393	5.1	19.7
1864	∅ 48	168.7	60	37.1
1600	∅ 17	149.7	4	14.5
1400	∅ 18	149.7	25	-6.6
1400	∅ 46	149.7	-2.1	17.6
1300	∅ 24	109.8	39.9	15.6
1221	∅ 37	163.1	-7	21.4
1220	∅ 45	180.3	-17.2	37.4
1220	∅ 26	109.8	-4.2	18.3
1100	∅ 20	193.6	10	22.5
1000	∅ 39	193.6	-5.4	16.9
950	∅ 26	150.7	-9.6	20.9
845	∅ 35	138.1	0	8.3
845	∅ 35	138.1	21	-4.1
700	∅ 80	181.5	May-45	22.3
658	∅ 50	116.3	-10.9	25.2
600	∅ 24	109.8	-5.5	12.1
458	∅ 30	75	20.6	28.1
355	∅ 50	119.1	31.2	-1.3
324	∅ 57	160.8	-3.9	7.4
320	∅ 50	109.8	12	-8.3
320	∅ 50	109.8	-0.1	3.8
320	∅ 26	109.8	10	-6.3
320	∅ 26	109.8	1.8	5.5
258	∅ 27	116.3	-3.5	6.3
250	∅ 28	116.3	0	5.4
200	∅ 50	180.3	-5.6	7.9
200	∅ 50	180.3	-2.6	4.8
163	∅ 57	160.8	-1.6	6
157	∅ 35	163.1	-2.7	4.5
149	∅ 50	181.5	-3.2	4.3
149	∅ 30	181.5	-3.3	5
110	∅ 40	109.8	-8.1	28.1

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Grooves [mm ⁻¹]	Focal lengths [nm]		Dispersion [nm/ mm]	Spectrum length [nm]
	L _A	L _B		
2500	404.3	470.2	0.6	205.9
1864	151.3	183.9	2.1	42.5
1600	159.7	146.6	3.9	50.9
1400	142.8	152.3	4.6	67.3
1400	114.2	163.5	4	31.6
1300	134.4	96.9	7.1	28
1221	157.5	166.2	4.2	11.1
1220	179.1	169.9	3.9	25.4
1220	115.2	106.9	7.1	29.8
1100	200	183.3	4.3	51.1
1000	187.1	200.9	4.6	45.6
950	146.4	149.8	6.2	34.7
845	156	127	9.1	26.5
845	144.8	135.3	8.4	45.2
700	175.5	220.3	5.3	64.5
658	105.2	135.5	9.9	46.8
600	112.9	107.6	14.5	38.5
458	76	87.2	23.6	25.4
355	107.1	118.6	23.8	42
324	158.9	163.2	18.8	17.3
320	105.2	111.8	27.8	25.2
320	113.3	106.5	29.2	12
320	97.6	122.4	25.8	23.4
320	112.2	107.2	28.8	11.1
258	116.2	116.6	32.8	12.5
250	116.3	116.6	34	11
200	182.6	176.9	27.8	7.7
200	186.8	175.6	28.1	30.7
163	159.5	163.5	37.2	17
157	173	157.5	32.8	21.4
149	180.3	182	54.7	11.5
149	178.2	184.5	36	25
110	106.5	115	69.7	44.1

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Grooves [mm ⁻¹]	Tilt angle [deg.]	Resolution [nm]	Order number
2500	19.2	0.2	2645102953224
1864	-7.7	>0.3	2645102260624
1600	-23.9	1.5	2645102951924
1400	-9.8	1.5	1312649
1400	-20.5	0.2	2645102950424
1300	-6.9	>2	1406878
1221	-10	0.3	792005
1220	-5.1	0.9	2645102953324
1220	-17.4	3.4	2645102951224
1100	19.6	0.7	2645102953124
1000	-15.1	1.1	2645102952424
950	-21.6	0.9	792060
845	-7.6	1.6	2645102952924
845	-0.6	3	2645102953024
700	5.6	5	2645102959724
658	13.1	0.7	792003
600	-20.2	7	2645102951324
458	-1.1	3.5	2645102261124
355	-17	>13	2645102260924
324	0.3	1	792017
320	-3.7	7	2645102952624
320	-9.1	3	2645102952624
320	-7.9	3	2645102952724
320	-10.3	2	2645102952724
258	-3.1	2	792011
250	-7.3	1.7	792004
200	1	1.7	2645102950324
200	-3.6	9	2645102950324
163	-3.4	2.7	792015
157	29.2	3.1	1077583
149	-5.6	3.5	2645102952224
149	-9.9	3.2	2645102951824
110	-10.9	>10	2645102959624

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Note:

(1) all imaging gratings are holographically exposed

blazed- sawtooth profile

ion- ion etched sawtooth profile

sine- sinusoidal profile

(2) the efficiency maximum of holographically blazed gratings can vary between 210 and 250nm

(3) adaptable to experimental conditions

(4) given thickness is the center thickness

preferred materials are NBK7 and ZKN7

l.g. - lateral grinded

(5) monochromator difference $D = b - a$

(6) $D = 10^6 \cos b / (L_B * G)$ [nm/mm]

(7) for entrance slit width 50 μ m

(8) see drawing

(9) related to shortest waveleng