



## 1. Plane Ruled Gratings

There are a wide range of ruled master gratings. Typical groove density range of the plane ruled gratings is from 20 lines/mm to 1800 lines/mm. Standard coating is aluminum. On request, MgF<sub>2</sub>, Gold or platinum are also available.

**Note:** The sizes listed in this table are the maximum ruled areas. All gratings can be replicated to a smaller size and directly ordered. If you need a grating area more than ruled areas in the table or other specification, you must contact us in advance.

Catalog Number	Grooves (l/mm)	Blaze Wavelength (μm)	Blaze Angle	Ruled Area (H×W, mm <sup>2</sup> )
R11-001	20	10.0	5.7°	70×90
R11-002	20	10.0	5.7°	63×105
R11-003	50	12.8	18.7°	40×40
R11-004	50	18.0	26.7°	60×63
R11-005	50	10.6	15.4°	65×100
R11-006	75	2.0	4.3°	48×48
R11-007	100	2.5	7.2°	60×60
R11-008	100	2.75	7.9°	64×64
R11-009	100	7.0	20.5°	63×63
R11-010	100	9.0	26.7°	20×20
R11-011	100	9.8	29.3°	20×20
R11-012	100	10.6	32.0°	100×100
R11-013	100	16.0	53.1°	70×130
R11-014	150	2.0	8.6°	55×60
R11-015	150	4.0	17.5°	64×64
R11-016	150	5.3	23.4°	25×25
R11-017	150	6.0	26.7°	64×64
R11-018	150	10.0	48.6°	70×130
R11-019	150	10.6	52.7°	50×50
R11-020	200	1.55	8.9°	38×41
R11-021	200	1.8	10.4°	63×100
R11-022	200	5.0	30.0°	55×55
R11-023	250	0.8	5.7°	64×64
R11-024	300	0.5	4.3°	64×64
R11-025	300	0.6	5.2°	100×100
R11-026	300	0.64	5.5°	64×64
R11-027	300	1.0	8.6°	64×64
R11-028	300	1.5	13.0°	64×64
R11-029	300	1.9	16.6°	64×64
R11-030	300	2.0	17.5°	64×64
R11-031	300	2.4	21.1°	60×60



R11-032	300	2.5	22.0°	64×64
R11-033	300	2.75	24.4°	64×64
R11-034	300	2.8	24.8°	50×50
R11-035	300	3.0	26.7°	50×50
R11-036	300	3.5	32.7°	50×50
R11-037	300	3.8	34.8°	50×50
R11-038	300	4.0	36.9°	50×50
R11-039	300	5.0	48.6°	55×55
R11-040	400	0.43	4.9°	35×50
R11-041	400	0.5	5.7°	50×50
R11-042	400	0.54	6.2°	48×50
R11-043	400	1.5	17.5°	64×64
R11-044	400	2.0	23.6°	64×64
R11-045	450	0.43	5.6°	40×48
R11-046	600	0.25	4.3°	64×64
R11-047	600	0.36	6.2°	50×50
R11-048	600	0.43	7.4°	40×40
R11-049	600	0.5	8.6°	55×64
R11-050	600	0.54	9.3°	85×85
R11-051	600	0.6	10.4°	64×64
R11-052	600	0.63	10.9°	17×44
R11-053	600	0.64	11.1°	70×70
R11-054	600	0.7	12.1°	64×64
R11-055	600	0.72	12.5°	25×25
R11-056	600	0.8	13.9°	20×45
R11-057	600	1.0	17.5°	40×65
R11-058	600	1.06	18.5°	40×65
R11-059	600	1.25	22.0°	64×64
R11-060	600	1.5	26.7°	64×64
R11-061	600	1.6	28.7°	64×64
R11-062	600	2.7	54.1°	20×90
R11-063	1200	0.21	7.2°	64×64
R11-064	1200	0.25	8.6°	64×64
R11-065	1200	0.31	10.7°	64×64
R11-066	1200	0.36	12.5°	55×55
R11-067	1200	0.43	15.0°	53×62
R11-068	1200	0.5	17.5°	102×102
R11-069	1200	0.54	18.9°	70×70
R11-070	1200	0.64	22.6°	100×102
R11-071	1200	0.72	25.6°	50×60
R11-072	1200	0.8	28.7°	50×100
R11-073	1200	1.0	36.9°	50×60



R11-074	1200	1.06	39.5°	100×105
R11-075	1800	0.21	10.9°	64×64
R11-076	1800	0.5	26.7°	50×50
R11-077	1800	0.5	26.7°	30×70
R11-078	1800	0.54	29.1°	30×70
R11-079	1800	0.72	40.4°	30×70

## 2. High Energy Laser Gratings

Laser gratings are used for selected frequency, pulse compression and sampling in laser systems. Now we can rule high energy laser gratings on metal substrate. The maximal dimensions of these gratings are 300×300mm<sup>2</sup>. Three-dimensional configuration of laser gratings by AFM is shown in figure.

**Note:** Such grating must be ordered in advance. Groove density, wavelength and ruled area can be selected. Additionally, we can manufacture concave metal grating with large curvature radius. Several examples of grating specifications are listed in the following table.

Catalog Number	Grooves (l/mm)	Blaze Wavelength (μm)	Blaze Angle	Ruled Area (H×W, mm <sup>2</sup> )
RL11-001	50	10.6	15.4°	100×100
RL11-002	80	10.6	25.1°	100×100
RL11-003	100	10.6	32.0°	100×100
RL11-004	100	9.77	29.2°	100×100
RL11-005	120	10.6	39.5°	100×100
RL11-006	150	10.6	52.7°	100×100
Can order other specifications				

## 3. Wide-band Infrared Gratings

High diffraction efficiency in wide-band can be achieved by optimizing groove shape.

Catalog Number	Grooves (l/mm)	Spectral Region (μm)	Blaze Wavelength 1 (μm)	Blaze Wavelength 2 (μm)	Ruled Area (H×W, mm <sup>2</sup> )
RB11-001	50	2.5-25	4.2	20.6	64×64
RB11-002	100	2.5-20	4.2	19.0	64×64
RB11-003	90.9	4.0-21	6.0	21.0	70×70
RB11-004	90.9	4.0-21	7.0	21.0	70×70
Can order other specifications					

## 4. Echelle Gratings

Typically used in high orders, echelle gratings can provide high dispersion and resolution. Echelle gratings are most often used in applications where high dispersion and resolution are important, such as atomic absorption spectroscopy, laser tuning, and astronomy.

Catalog Number	Grooves (l/mm)	Nominal Blaze Angle	Ruled Area (H×W, mm <sup>2</sup> )
RE11-001	54.5	46°	100×100
RE11-002	79	63.43°	136×260
RE11-003	80	63.43°	50×76
Can order other specifications			

## 5. Plane Holographic Gratings

There are a wide range of holographic master gratings. Typical groove density range of the plane holographic gratings is from 1200 lines/mm up to 4321 lines/mm.

**Note:** The sizes listed in this table are the maximum ruled areas. All gratings can be replicated to a smaller size and directly ordered. If you need a grating area more than ruled areas in the table or other specification, you must contact us in advance.

Catalog Number	Grooves (l/mm)	Spectral Region (nm)	Wavelength of Max. Efficiency (nm)	Ruled Area (H×W, mm <sup>2</sup> )
H11-001	1200	190-800	220	64×64
H11-002	1800	190-1000	250	108×108
H11-003	2400	190-800	250	40×40
H11-004	3600	170-500	190	58×58
H11-005	4321	160-450	170	58×58
Can order other specifications				

## 6. Concave Holographic Gratings for Flat-Field Spectrographs

Aberration corrected flat field gratings are designed to focus a spectrum on a plane surface, making them ideal for use with linear or 2-D array detectors. These gratings are computer-optimized to form near-perfect images of the entrance slit on the detector plane. The relative location of grating to detector is kept fixed.

Catalog Number	Grooves (l/mm)	Spectral Region (nm)	Spectrum Length (mm)	Ruled Area (mm <sup>2</sup> )	L <sub>a</sub> (mm)	$\alpha$
H21-001	489.86	200-800	25.32	30×30	77.36	-6.65°
L <sub>h</sub> (mm)	L <sub>b1</sub> (mm)	L <sub>b2</sub> (mm)	$\beta_1$	$\beta_2$	$\beta_h$	Diffraction Efficiency
64.27	66.98	78.00	12.35°	30.52°	-4°	



Catalog Number	Grooves (l/mm)	Spectral Region (nm)	Spectrum Length (mm)	Ruled Area (mm <sup>2</sup> )	L <sub>a</sub> (mm)	$\alpha$
H21-002	454.31	285-720	25.39	Ø60	130.00	-11.3°
L <sub>h</sub> (mm)	L <sub>b1</sub> (mm)	L <sub>b2</sub> (mm)	$\beta_1$	$\beta_2$	$\beta_h$	Diffraction Efficiency
127.97	130.00	128.00	3.8°	-7.6°	-6.34°	

Catalog Number	Grooves (l/mm)	Spectral Region (nm)	Spectrum Length (mm)	Ruled Area (mm <sup>2</sup> )	L <sub>a</sub> (mm)	$\alpha$
H21-003	217.15	400-950	20.15	Ø50	84.90	-2.5°
L <sub>h</sub> (mm)	L <sub>b1</sub> (mm)	L <sub>b2</sub> (mm)	$\beta_1$	$\beta_2$	$\beta_h$	Diffraction Efficiency
64.00	85.67	111.55	7.5°	14.48°	-40.51°	
Can order other specifications						

## 7. Concave Holographic Gratings for Monochromator

Using aberration-corrected monochromator grating, a single concave grating disperses, collimates and refocuses the light from the entrance slit onto the exit slit. The angle between the incident beam and the selected diffraction beam are fixed. Wavelength scanning is obtained through a simple rotation of the grating. These gratings are computer-optimized to produce high quality images with a minimum of astigmatism and coma.

Catalog Number	Grooves (l/mm)	Wavelength Range (nm)	Blaze Wavelength (nm)	Substrate Radius (mm)	R <sub>a</sub> (mm)	R <sub>b</sub> (mm)	2K	Ruled Area (H×W, mm <sup>2</sup> )
H31-001	1200	200-800	210	112	100	94	61.6°	32×32
H31-002	1200	250-800	250	112	100	94	61.6°	32×32
H31-003	1200	250-800	290	112	100	94	61.6°	32×32
H31-004	1200	200-800	200	224	200	188	61.6°	40×45
Can order other specifications								

## 8. Transmission Gratings

Transmission gratings can be used in teaching spectrometer or as beam splitters. We can replicate transmission gratings from almost any of our plane reflection gratings. The groove densities of transmission gratings including 100l/mm, 200l/mm, 300l/mm, 500l/mm and 1000l/mm are often used.