

# Concave Grating Polychromator Mounting

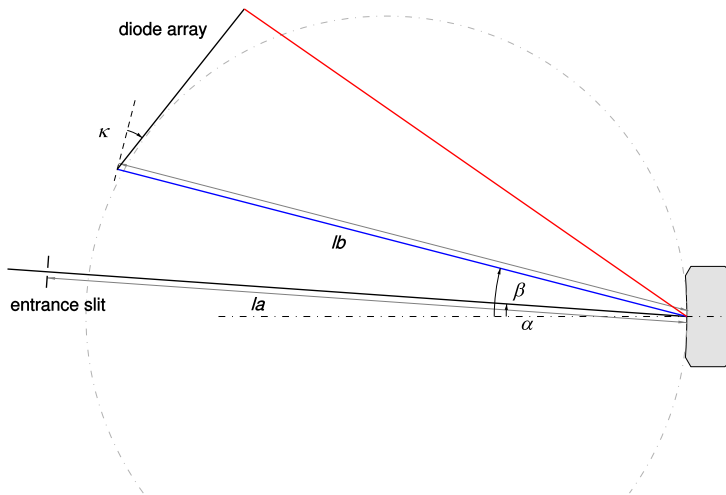


Order number 264510-2951-924

## Grating specification

Groove density	1600 ± 2 l/mm
Groove profile	Blazed
Diffraction grating area	≥ Ø 17 mm
Reflective coating	Aluminum (unprotected)
Grating master type	Holographically recorded
Grating type	Epoxy replica (copy)
Storage and transport temperature	-40 °C ... +60 °C (non-condensing environment)

## Mounting specification (Schematic drawing)



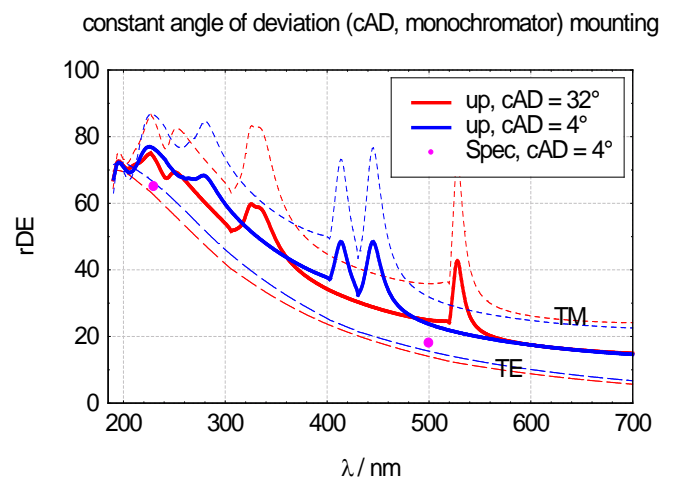
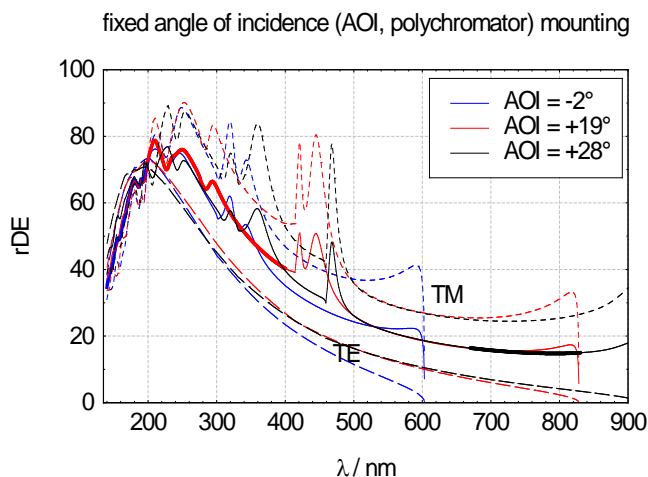
*By historic convention clockwise incident and diffraction angles are positive.*

## Optical grating characteristics

Diffraction efficiency (unpolarized @ cAD = 32°)

230 nm	≥ 65 %
500 nm	≥ 18 %

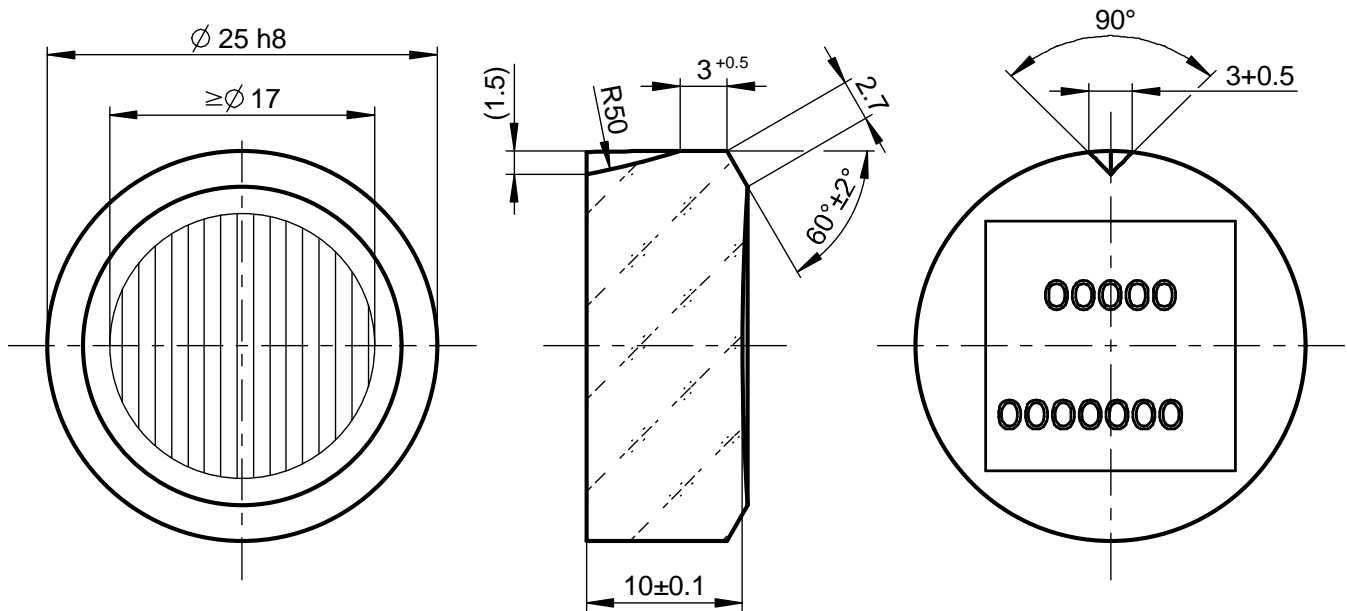
## Typical relative diffraction efficiency (rDE) in first diffraction order



Typical efficiency curves based on rigorous electromagnetic modeling using measured AFM profiles. rDE refers to the ratio between diffracted power from the grating and reflected power from a mirror coated with the same material.

### Blank specification

Material	N-BK7 (optical glass) or Fused Silica (PN 000000-1227-541)
Radius of curvature	149.732 mm
Protective bevel (left surface)	0.5 mm



Application range	140 – 200 nm		200 – 400 nm		670 – 830 nm	
Object distance $l_a$	144.7 mm		159.7 mm		128.8 mm	
Incidence angle $\alpha$	-2.4°		4.0°		28.0°	
Spectrum length	15.8 mm		50.9 mm		62.4 mm	
Reciprocal linear dispersion	3.8 nm/mm		3.9 nm/mm		2.6 nm/mm	
Astigmatism (point image extension)	< 0.3 mm		< 1.65 mm		< 8 mm	
Point image resolution	< 0.08 nm		< 0.95 nm		< 0.14 nm	
Relative aperture	1 : 8.5		1 : 9.4		1 : 7.6	
	$\lambda = 140 \text{ nm}$	$\lambda = 200 \text{ nm}$	$\lambda = 200 \text{ nm}$	$\lambda = 400 \text{ nm}$	$\lambda = 670 \text{ nm}$	$\lambda = 830 \text{ nm}$
Focal distance $l_b$	156.6 mm	—	146.6 mm	—	164.8 mm	—
Diffraction angle $\beta$	15.4°	21.2°	14.5°	34.8°	37.1°	59.2°
Tilt angle $k$ of the detector array	-7.4°	—	-23.9°	—	-15.3°	—

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