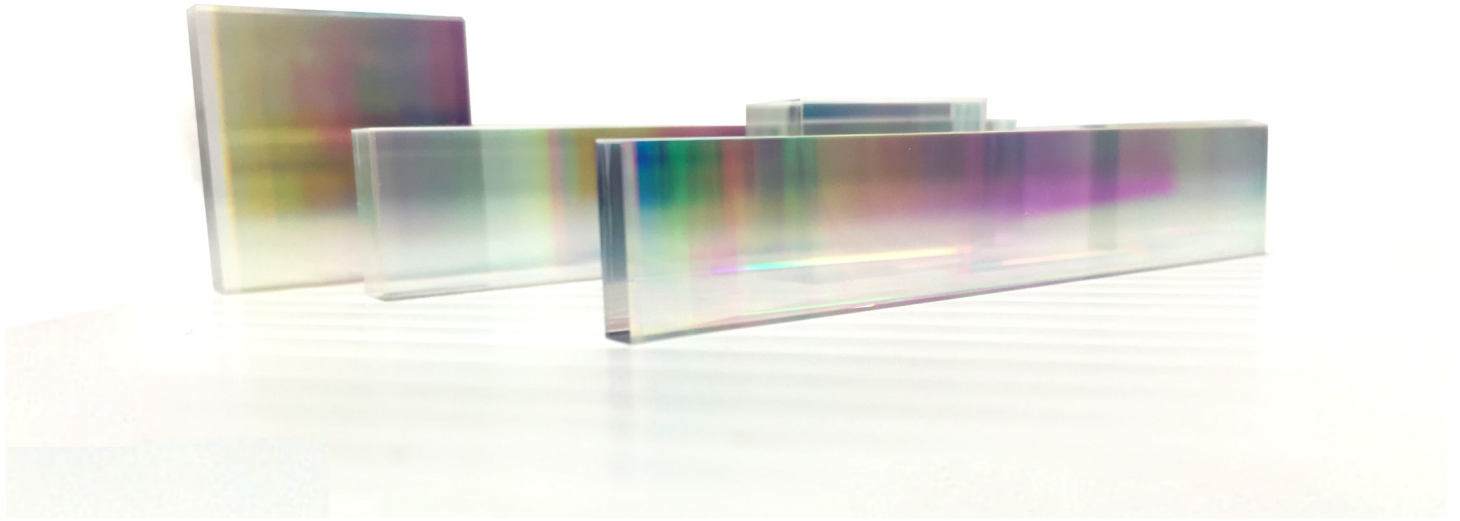


HIGH-EFFICIENCY TRANSMISSION DIFFRACTION GRATING

T-1000-1040 Series

T-1000-1040 series lithographically patterned transmission diffraction grating is designed to be used in demanding industrial applications (spectroscopy, pulse compression and high power beam combining). It is characterized by high efficiency, low polarization sensitivity and high power handling. Gratings produced by Coherent undergo extensive quality assurance, have proven reliability track record and competitively priced.



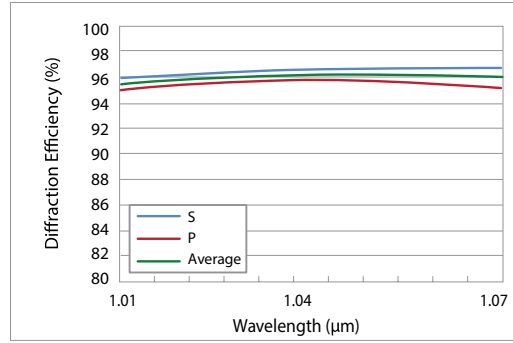
PRODUCT KEY

T - 1000 - 1040 - 31.8x12.3 -94

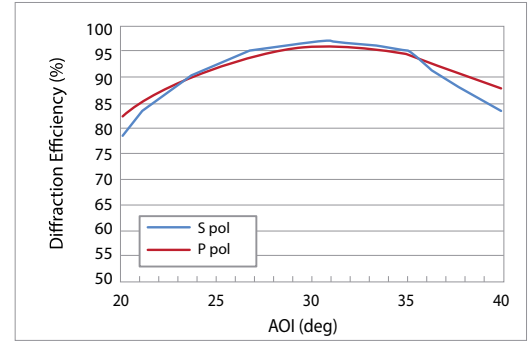
Transmission | Grooves/mm | Central wavelength, nm | Width x Height, mm
Groove || to Height | Min efficiency, %

HIGH-EFFICIENCY TRANSMISSION DIFFRACTION GRATING

The polarization independent transmission grating has 1000 lines/mm and designed to operate near 1040 nm central wavelength at 31.3° angle of incidence (AOI). Extended wavelength range performance and angular sensitivity information is provided below.

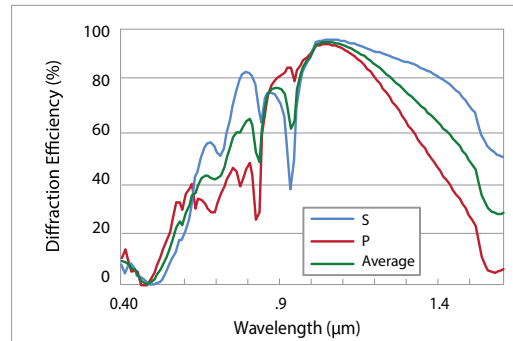


Typical absolute diffraction efficiency at AOI 31.3°*

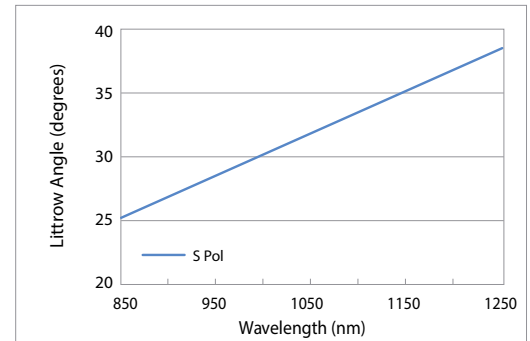


Diffraction efficiency at 1000 nm as a function of AOI *

Extended operational range: The grating may operate over broader wavelength range provided that suitable anti-reflective coating and angle of incidence is used. The plot below shows simulated performance* over extended range assuming fixed input angle (designed Littrow angle of 31.3°), not accounting for AR coating losses. Optimal input angle for each wavelength is shown on the right.



Typical absolute diffraction efficiency at AOI 31.3° *



Optimal input angle for each wavelength (Littrow condition)

* simulated performance shown (for guidance only)

Specifications

Description		
Line Density	1000.0	Lines/mm
Line Density Uniformity	0.001	Lines/mm
Angle of Incidence (AOI) ¹	31.3 ± 1	°
Wavelength Range	1040 ± 20	nm
Optimal polarization ²	Any	
Diffraction Efficiency ³	≥ 94 (average polarization)	%
Dimension tolerances	±0.2 for grating size and width	
Substrate Thickness	0.95 ± 0.05 mm	
Material	Fused silica, dielectric layers	
Scratch/Dig ⁴	60/40 standard, 40/20 and 20/10 custom	

Notes:

¹ Optical grating performance will remain substantially similar over a 5° variation in angle of incidence.

² Worst case in the operational wavelength range for average polarization.

³ As per MIL-PRF-1380B in the clear aperture; no requirements outside of the clear aperture.