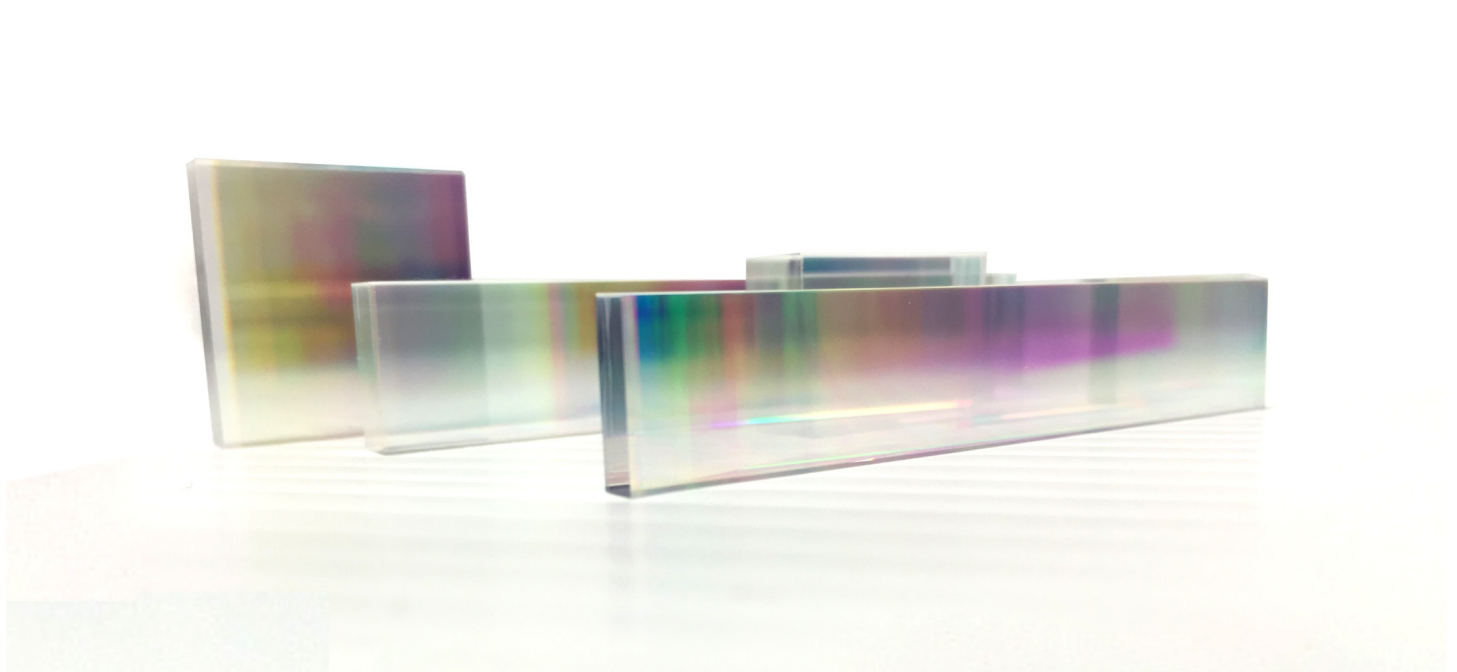


HIGH-EFFICIENCY TRANSMISSION DIFFRACTION GRATING

T-940L Series

T-940L series lithographically patterned transmission diffraction grating is designed to be used in demanding industrial applications (optical telecommunications, spectroscopy, pulse compression, automotive lidar). 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.



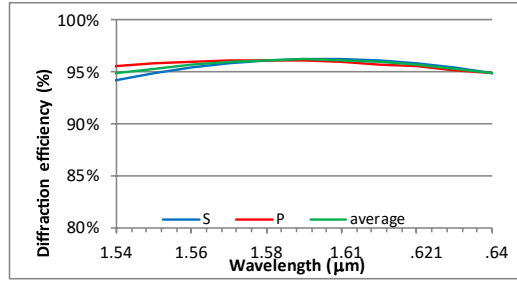
PRODUCT KEY

T - 940L - 27x10 - 92

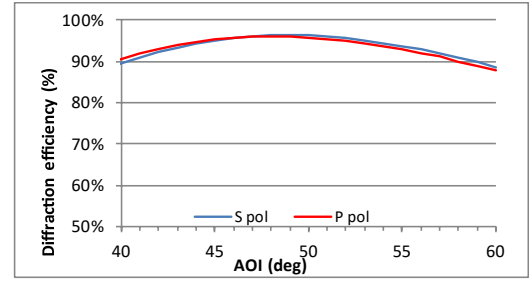
Transmission | Grooves/mm | Telecom band L | Width x Height, mm
Groove || to Height | Min efficiency, %

HIGH-EFFICIENCY TRANSMISSION DIFFRACTION GRATING

The polarization independent transmission grating has 940.07 lines/mm and designed to operate in telecom band (1570 to 1610 nm) at 48.4° angle of incidence (AOI). Extended wavelength range performance and angular sensitivity information is provided below.



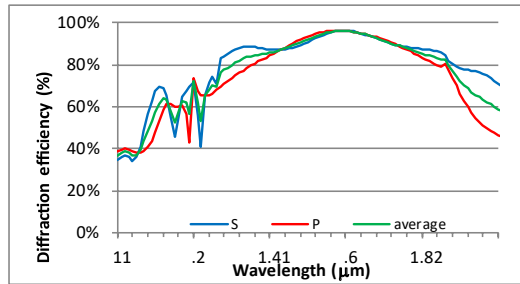
Typical absolute diffraction efficiency at AOI 48.4° *



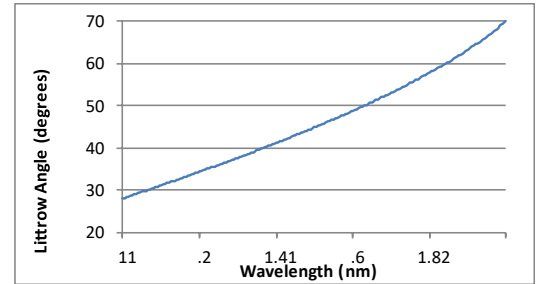
Diffraction efficiency at 1590 nm as a function of AOI *

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 48.4°), not accounting for AR coating losses. Optimal input angle for each wavelength is shown on the right.



Typical absolute diffraction efficiency at AOI 48.4° *



Optimal input angle for each wavelength (Littrow condition)

* simulated performance shown (for guidance only)

Specifications

Description		
Line Density	940.07	Lines/mm
Line Density Uniformity	0.001	Lines/mm
Angle of Incidence (AOI) ¹	48.4 ± 1	°
Wavelength Range	1570 - 1610	nm
Optimal polarization ²	Any	
Diffraction Efficiency ³	≥ 92	%
Polarization Dependent Loss	≤ 0.2	dB
Dimension tolerances	±0.2 for grating size and width	
Substrate Thickness	0.675 ± 0.050 mm	
Material	Fused silica, dielectric layers, no polymers	
Scratch/Dig ⁴	60/40 standard, 40/20 and 20/10 custom	

Notes:

¹ Optical grating performance will remain similar over larger variation in angle of incidence. See plot below.

² S-polarization: electric field vector is parallel to the grating lines; P polarization is orthogonal to S.

³ Worst case in the operational wavelength range for S and P polarization.

⁴ As per MIL-PRF-1380B in the clear aperture; no requirements outside of the clear aperture.