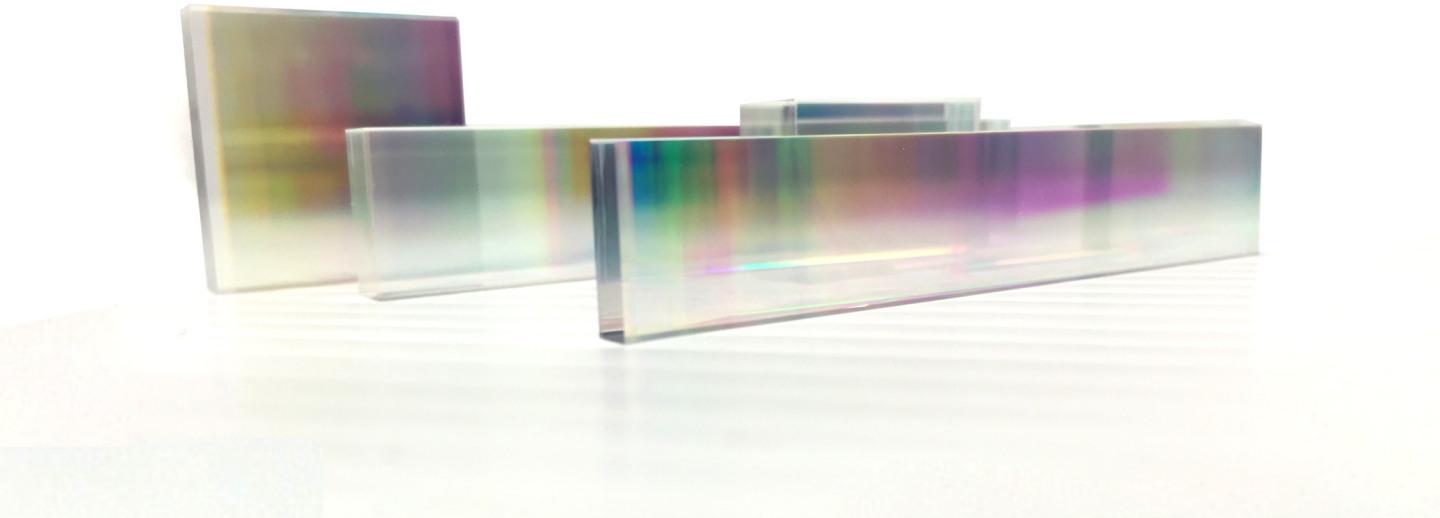
HIGH-EFFICIENCY TRANSMISSION DIFFRACTION GRATING

T-1200-850s Series

The T-1200-850s series lithographically patterned transmission diffraction grating is designed to be used in demanding industrial applications (Raman and other types of spectroscopy, OCT, pulse compression and high power beam combining). It is characterized by high efficiency, low polarization sensitivity, long-term stability and high power handling. The groove density is precise and uniform across the entire grating; the grating is stitch-free for an excellent diffracted wavefront control. Gratings produced by Coherent undergo extensive quality assurance, have proven reliability track record and are competitively priced.



PRODUCT KEY

T - 1200 - 850s - 21.65x15.9 - 94

- T: Transmission
- 1200: Grooves/mm
- 850s: Central wavelength, nm
- 21.65x15.9: Width x Height, mm; Groove || to Height
- 94: Min efficiency, %

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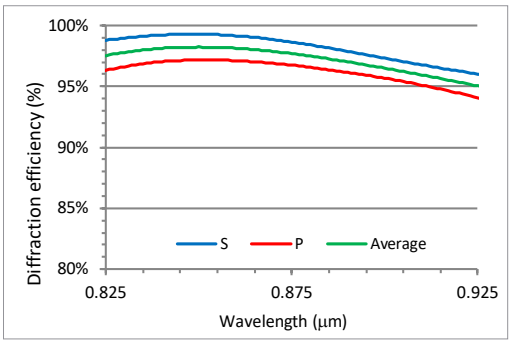
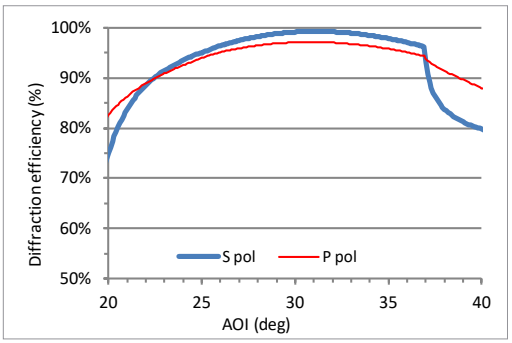
The S-polarization optimized transmission grating has 1208.46 lines/mm and designed to operate near 850 nm central wavelength at 30.7° angle of incidence (AOI). Extended wavelength range performance and angular sensitivity information is provided below.

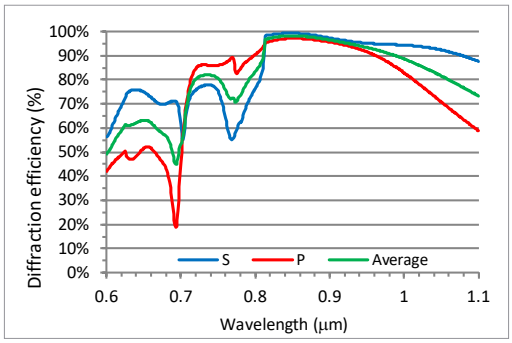


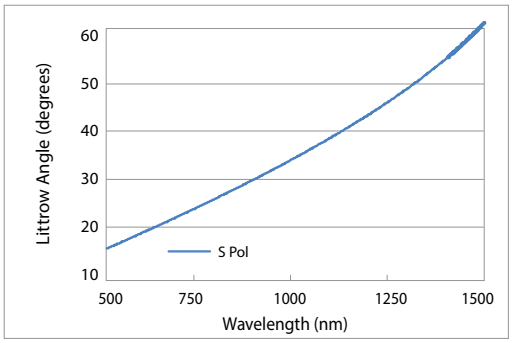
Typical absolute diffraction efficiency at AOI 30.7°*



Diffraction efficiency at 850 nm as a function of AOI *

Extended operational range: The grating may operate over broader wavelength range and for both polarizations provided that suitable antireflective coating and angle of incidence is used. The plot below shows simulated performance* over extended range assuming fixed input angle (designed Littrow angle of 30.7°), not accounting for AR coating losses.





Typical absolute diffraction efficiency at AOI 30.7° *

* Simulated performance shown (for guidance only)

Specifications

Description		
Line Density	1208.46	Lines/mm
Line Density Uniformity	0.001	Lines/mm
Angle of Incidence (AOI) [1]	30.7 ±1	°
Wavelength Range	850 ±20	nm
Optimal polarization [2]	S	
Diffraction Efficiency [3]	>94	%
Diffracted wavefront error @850 nm [4]	0.20	Waves
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 [5]	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.
[2] S-polarization: electric field vector is parallel to the grating lines.
[3] Worst case in the operational wavelength range for optimal polarization.
[4] Within any 25 mm diameter aperture; measured at 650 nm
[5] As per MIL-PRF-1380B in the clear aperture; no requirements outside of the clear aperture.

sales@coherent.com
www.coherent.com