

Original Holographic Diffraction Gratings

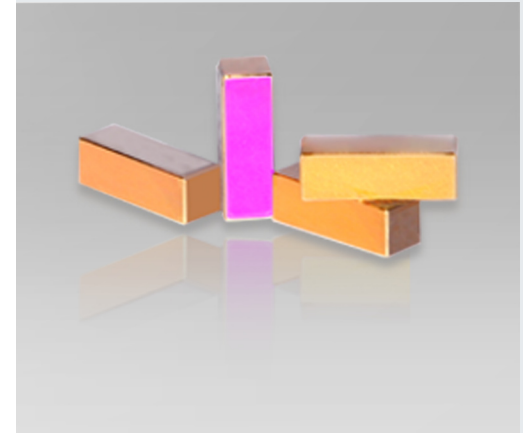
Headwall Photonics offers a broad array of high efficiency holographic diffraction gratings specifically designed for high efficiency, low insertion loss, low scatter, and environmental durability. This performance yields a reduced need for network amplifiers and repeaters resulting in lower cost telecommunications infrastructure deployment. Available in custom sizes for OEM applications with performance tailored for the customer, Headwall offers industry-leading customizable performance with:

- **Low Polarization Dependent Loss (LPDL) 600 & LPDL 900 groove gratings**
- **Low Loss 1100 & Low Loss 1200 groove gratings**

Targeting demanding telecommunication applications such as reconfigurable optical add-drop multiplexers (ROADMs) and wavelength selectable switching, Headwall's "all-original", non-replicated holographic gratings feature the industry's highest optical efficiency, lowest insertion loss, and very low stray light. These holographic gratings are manufactured on planar ULE glass customized to the OEM application. Surpassing Telcordia GR 1221 environmental specifications, Headwall's planar holographic gratings provide highly reliable performance over an extended product life.

Headwall Photonics is the world's largest manufacturer of "original" holographic gratings for end-users and OEM customers.

Application-Specific Solutions For Critical Environments



Applications:

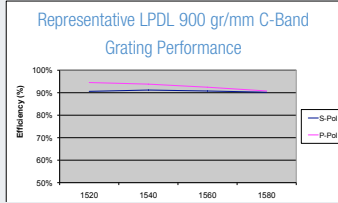
- ROADMs
- Channel Monitoring/Gain Equalization
- Optical Wavelength Switching
- Tunable Lasers
- DWDM/CWDM
- Optical Spectrum Analyzers

Key Benefits:

- Very high optical efficiency >90%
- Extremely low insertion loss
- Very low PDL, less than 0.25 dB
- Very low stray light/noise
- Flat, consistent wavefront
- High energy/laser damage threshold
- Environmentally stable for long deployment life cycle
- Surpasses Telcordia GR1221 standards
- Rapid prototyping with quick ramp to volume

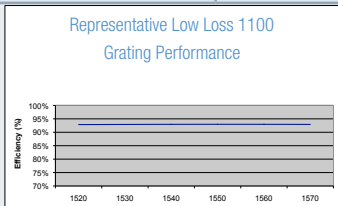
900 Groove/mm Low PDL - Specification Range

Groove Frequency	900 gr/mm +/- 1.0 gr/mm
Wavelength Range, nm	1520 - 1570 nm
Peak Efficiency @ 1520-1570nm	≥ 90% -1st order TM(S) & TE(P) Polarization
Angle of Incidence	Littrow, 44.22 °
Wavefront Flatness	Better than λ/4 @ 632.8nm, RMS
Reflective Coating	Gold
Substrate Material	ULE



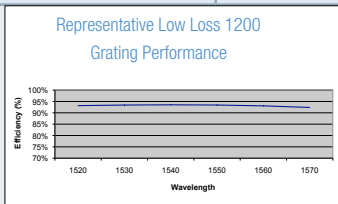
1100 groove/mm Low Loss - High Efficiency TM(S) Polarization

Groove Frequency	1100 gr/mm +/- 2 gr/mm
Wavelength Range, nm	1520 - 1620 nm
Peak Efficiency, TM-pol	≥ 90% (S Polarization)
Angle of Incidence	65-75°
Wavefront Flatness	Better than λ/4 @ 632.8nm, RMS
Reflective Coating	Gold
Substrate Material	ULE



1200 groove/mm Low Loss - High Efficiency TM(S) Polarization

Groove Frequency	1200 gr/mm +/- 2 gr/mm
Wavelength Range, nm	1520 - 1620 nm
Peak Efficiency, TM-pol	≥ 92% (S Polarization)
Angle of Incidence	65-75°
Wavefront Flatness	Better than λ/4 @ 632.8nm, RMS
Reflective Coating	Gold
Substrate Material	ULE



Headwall Photonics manufactures original holographic diffraction gratings and precision spectral modules for wavelength management and spectroscopic measurement for a worldwide base of OEM customers.

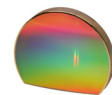
With a high volume, Clean Room manufacturing environment and an ISO 9001:2008 quality certification, Headwall offers a broad portfolio of gratings which are customized for industry-leading, application-specific performance.

Headwall offers accurate modeling, rapid prototyping, and collaborative product design capabilities.

Standard Diffraction Gratings For Telecommunications

Grating Design	Grating Part #	Groove Density	Spectral Range	Size (mm) H x L x T
Low PDL	19350	900 gr/mm	1520 to 1570	9 x 18 x 6
	19487	900 gr/mm	1520 to 1570	11 x 17 x 3
	19426	900 gr/mm	1520 to 1570	12.7x12.7x3
	19494	900 gr/mm	1520 to 1570	20 x 20 x 3
Low Loss	19277	1100 gr/mm	1520 to 1620	8 x 20 x 3
	19305	1100 gr/mm	1520 to 1620	9 x 18 x 6
	19333	1100 gr/mm	1520 to 1620	10 x 28 x 4.5
	19448	1100 gr/mm	1520 to 1620	17 x 43.5 x 6
	19507	1100 gr/mm	1520 to 1620	15 x 60 x 10
Low Loss	19348	1200 gr/mm	1520 to 1620	10 x 16 x 6
	10357	1200 gr/mm	1520 to 1620	10 x 55 x 6
	19474	1200 gr/mm	1520 to 1620	6.5 x 26 x 6

Visit www.HeadwallPhotonics.com for more information on end-user and OEM spectral imaging solutions.



About Headwall Photonics:

Headwall Photonics is the leading designer and manufacturer of imaging spectrometers and spectral instrumentation for industrial, commercial, and government markets. Headwall's high performance spectrometers, spectral engines, and holographic diffraction gratings have been selected by OEM and end-user customers around the world for use in critical application environments. As a pioneer in the development of innovative spectrographs and imaging spectrometers based on optical technologies, Headwall enjoys a market leadership position through the design and manufacture of patented spectral instrumentation that is customized for application-specific performance. Headwall Photonics was formed in 2003 as the result of a management buy-out from Agilent Technologies. For more information please call 978.353.4100 or email us at Information@HeadwallPhotonics.com.



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