

# VPH Gratings for Pulse Compression

Create shorter, more powerful laser pulses



## FEATURES AND BENEFITS

1<sup>st</sup> order diffraction efficiency up to 98%

High transmission over the full spectral band

Low diffracted wavefront distortion, minimal scatter

Uniform diffraction efficiency over the full clear aperture for minimal beam distortion

Ideal for high pulse energy applications

Robust design allows easy cleaning & handling

Maximum optical design flexibility

**Our efficiency & uniformity can take you to higher power.** Wasatch Photonics' enhanced volume phase holographic (VPH) gratings are exceptional for pulse compression and pulse stretching of high power ultrafast lasers. Our ultraclear transmissive gratings have the highest efficiency on the market, with virtually no ghosting or scatter. Unlike surface relief gratings, our gratings can be easily cleaned and handled. Choose from our range of stock gratings, or contact us to discuss custom OEM designs and materials. We are your partner, from small quantity prototyping through to volume production.

Wasatch Photonics can customize VPH gratings  
to your exact size, wavelength, and dispersion needs.  
Contact us to get started!

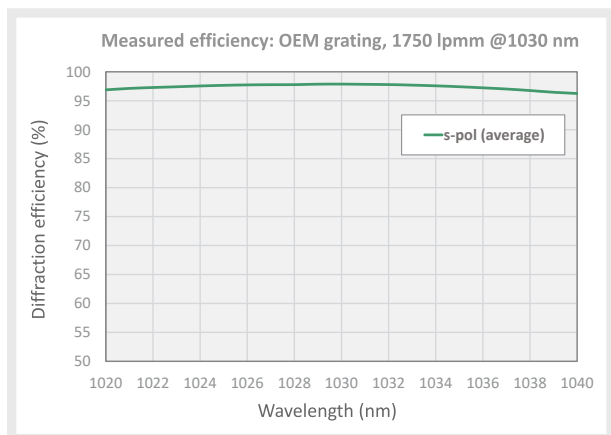


## More efficiency & uniformity; less wavefront distortion.

Our volume phase holographic gratings are unmatched in performance, and offer greater durability than conventional surface relief gratings. Our proprietary process encapsulates the grating structure in a robust package, facilitating handling and easy cleaning. Many designers use transmissive pulse compression cavity designs for their flexible, compact, often folded layouts. Our uniform efficiency, minimal scatter, and low wavefront distortion ensure they get the shortest, cleanest pulses. Choose from our off-the-shelf gratings below for research, or contact us to discuss an ultra-high efficiency design for your next OEM development project or product design, 300-2500 nm.

	WP-800/1030-xx	WP-1250/1030-xx	WP-1800/1030-xx
<b>Nominal Wavelength</b>	980 - 1080 nm	1020 - 1040 nm	1020 - 1040 nm
<b>Diffraction Efficiency*</b>	96-98%*	94-96%*	94-96%*
<b>Spatial Frequency</b>	800 ± 0.5 lines/mm	1250 ± 0.5 lines/mm	1800 ± 0.5 lines/mm
<b>Angle of Incidence</b>	24.3° @ 1030 nm	40.1° @ 1030 nm	68.0° @ 1030 nm
<b>Sizes Available (-xx)</b>	25 x 35 x 4 mm 30 x 45 x 6 mm	30 x 90 x 6 mm	25 x 25 x 6 mm
<b>Wavefront Distortion</b>	< λ/5 rms @ 633 nm over a 25 mm diameter		
<b>Surface Quality</b>	60-40 scratch-dig		
<b>AR Coating</b>	Optimized for the specified wavelength range & AOI		

\* For custom gratings, the minimum efficiency required will determine unit price, and may be up to 98%.



We measure every VPH transmission grating to ensure exceptional 1st order diffraction efficiency. Many other vendors report only theoretical graphs of total diffraction efficiency, which includes diffraction into other orders, and is not truly representative of actual performance.

### OEM SOLUTIONS

At Wasatch Photonics, we understand the processes & metrology needed to manufacture high quality pulse compression gratings in volume, at wavelengths up to 2500 nm. We work collaboratively with our OEM partners on each design and test procedure, establishing customer-specific test fixtures at our site to reduce the burden of inbound testing at your site for guaranteed system-ready performance. We support intensities up to 300 GW/cm<sup>2</sup> (100-200 fs pulses, <50W systems) or up to several kW/cm<sup>2</sup> (continuous wave).

Our skilled staff is ready to meet the needs of your most demanding projects.