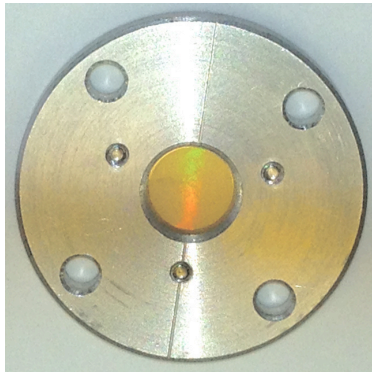


## LINEAR POLARIZERS for CO<sub>2</sub> LASER BEAMS



LP 01

very high contrast

no beam deviation

Lasnix polarizers are precision substrate-free elements to perfectly polarize a CO<sub>2</sub> laser beam. Other beam parameters such as alignment stay unaffected. The polarizers are mounted oriented in lightweight frames for simple installation and ease of use.

The design principle is based on proprietary free-standing metal grid technology introduced by Lasnix in 1984. Extending the traditional Hertz's wire grid polarizer we have tailored the wire shape to obtain a high transmittance in the CO<sub>2</sub> laser region. Furthermore the precise fabrication of the grid spacing routinely guarantees a very high polarization contrast exceeding 10 000 : 1.

Remarkably high power handling up to 30 W c.w. is achieved. Since the grids are freely suspended, i.e. have no substrate, they can not offset the beam in contrast to common substrate-bound polarizers. The polarized transmitted beam passes undeviated even at the upper power

limit. The mode structure and other beam properties, including the divergence and M<sup>2</sup> parameters are fully preserved.

The specified power limits apply to relatively wide beams which fill at least half the specified aperture area in a smooth manner. This corresponds to a fundamental mode having a 1/e<sup>2</sup> beam width of about 2/3 of the aperture diameter. For narrower beams the power limits scale down. For example, the power limit of the polarizer LP 01 of 30 W reduces to 12 W when the 1/e<sup>2</sup> width narrows from 4 to 2 mm.

The polarizer frame has four 2.5 mm mounting holes on a 20 mm diameter circle (28 mm for LP02). Heat sinking to a larger metal structure is required for beam powers above 5 W c.w. When used at off-normal incidence the transmittance begins to decrease at angles exceeding 15°.

### A p p l i c a t i o n s :

polarization purity

polarimetry

heterodyne filtering

beam quality guarantee:

- angular beam deviation ..... < 5 μrad
- wavefront distortion ..... < 1/100 λ
- beam offset ..... < 1 μm
- mode distortion ..... < 0.2 db

Model No.	Wavelength Range μm	Transmittance orientation		Power Limit W	Fluence Limit J/cm <sup>2</sup>	Clear Aperture mm	Length mm	Height mm	Weight g
			⊥						
LP 01	9.8-10.4	> 0.8	< 0.00007	30	1	6	3	25	5
	9.2-10.8	> 0.7	< 0.00007						
LP 02	9.8-10.4	> 0.8	< 0.00007	30	1	12	5	33	14
	9.2-10.8	> 0.7	< 0.00007						

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