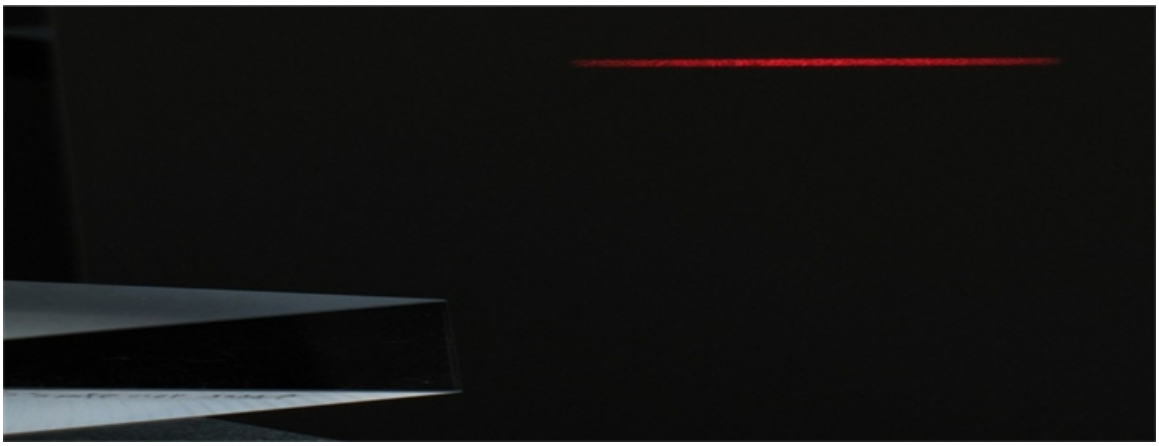
Interferometric Optics

2024 Optics Catalog



Fine optics for research: US designed… made with US materials

Contents

www.interferometricoptics.com
interferometricoptics@gmail.com

Jonesborough, Tennessee 37659, USA

Multiple-Prism Beam Expanders†

M	Number of Prisms	Prisms Height	Exit Aperture	Deployment Configuration††	Dispersion†††
81	2	10 mm	20mm	+ −	$(\partial\phi/\partial\lambda) = 0$ @ 590 nm††††
120	3	10 mm	30 mm	+ + −	$(\partial\phi/\partial\lambda) = 0$ @ 590 nm††††

† Made of fused silica. Detailed angular deployment position of each prism supplied. All beam incidence and beam exit prisms surfaces polished to $\lambda/10$ over 90% . Only the hypotenuse and the exit surfaces are polished. All prism angles are specified within 5 arc min.

†† Simple deployment of the last prism to a positive configuration (+) provides a highly dispersive arrangement.

††† Assumes an original unexpanded beam diameter of 200μm. For $M = 81$ the expanded beam is 16.2 mm and for $M = 120$ the expanded beam is 24 mm.

†††† Quoted dispersion is for deployment in a compensating configuration. Large dispersion values can be obtained by deploying the prisms in an additive configuration.

Note: special designs, for specific *M* factors and optical materials, are available up on request.

Bibliography

F. J. Duarte and J. A. Piper, Dispersion theory of multiple-prism beam expander for pulsed dye lasers, *Optics Communications* **43**, 303-307 (1982)

F. J. Duarte and J. A. Piper, Narrow linewidth high prf copper laser-pumped dye-laser oscillators, *Applied Optics* **23**, 1391-1394 (1984)

F. J. Duarte, Multiple-prism Littrow and grazing incidence pulsed CO_2 lasers, *Applied Optics* **24**, 1244-1245 (1985)

F. J. Duarte, Tunable laser optics: applications to optics and quantum optics, *Progress in Quantum Electronics* **37**, 326-347 (2013)

Multiple-Prism Pulse Compressors†

Number of Prisms	Prism Material	Design λ (nm)	Prism Class	Dimensions†† (mm)
2	Fused silica	620	Near Isosceles	30 mm
2	Fused silica	800	Near Isosceles	30 mm
2	NSF 10	620	Near Isosceles	30 mm
2	NSF 10	800	Near Isosceles	30 mm

† Designed for incidence at the Brewster angle. Detailed angular deployment position of each prism supplied. All beam incidence and beam exit prisms surfaces polished to $\lambda/10$ over 90% . Only the incidence and exit surfaces are polished. All prism angles are specified within 5 arc min.

†† Refers to the incidence and exit surfaces. Prism height (or thickness) is 10 mm.

Special designs for ***Amici Prism*** arrays, for applications in astronomical instrumentation, are also available on request.

Bibliography

F. J. Duarte and J. A. Piper, Dispersion theory of multiple-prism beam expander for pulsed dye lasers, *Optics Communications* **43**, 303-307 (1982)

F. J. Duarte, Generalized multiple-prism dispersion theory for pulse compression in ultrafast dye lasers, *Optics and Quantum Electronics* **19**, 223-229 (1987)

K. Osvay *et al.*, Measurement of non-compensated angular dispersion and the subsequent temporal lengthening of femtosecond pulses in a CPA laser, *Optics Communications* **248**, 201-209 (2005)

F. J. Duarte, Generalized multiple-prism dispersion theory for laser pulse compression: higher order phase derivatives, *Applied Physics B* **96**, 809-814 (2009)

F. J. Duarte, Tunable laser optics: applications to optics and quantum optics, *Progress in Quantum Electronics* **37**, 326-347 (2013)

F. J. Duarte, *Tunable Laser Optics*, 2nd Ed. (CRC, New York, 2015)

F. J. Duarte, *Quantum Optics for Engineers: Quantum Entanglement*, 2nd Edn (CRC, New York, 2024)