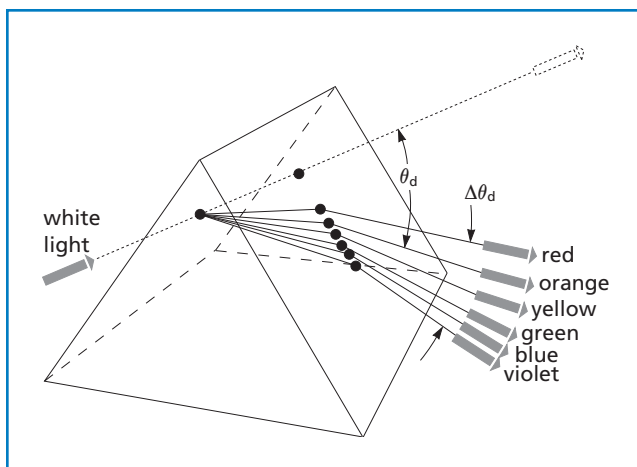


## Equilateral Dispersing Prisms

Equilateral dispersing prisms are used for wavelength-separation applications. A light ray is twice refracted passing through the prism with total deviation denoted by  $\theta_d$  in the figure below. Deviation is a function of refractive index and hence wavelength. Angular dispersion  $\Delta\theta_d$  is the difference in deviation for light rays having different wavelengths, and it varies with prism orientation.

- Reflection losses are minimized for unpolarized rays traveling parallel to the base of the prism. This condition is called minimum deviation.
- Minimum deviation occurs when the ray and wavelength angle of incidence at the entrance surface are equal to the angle of emergence (both angles measured with respect to the surface normals).
- Prisms are available in BK7, F2, and SF10 glass as well as UV-grade fused silica.
- Antireflection coatings help reduce polarization at the prism surfaces by increasing total transmittance.



PEH/PES and EDP equilateral dispersing prisms

# Dispersing Prisms

Do you need . . .

## POST-MOUNTED PRISM HOLDERS

Allows post mounting of prisms up to 50 mm (2 inches) in size and permits precise tilt adjustment in two axes. Please see part numbers 07 TTM 203 and 07 TTM 703.



## MINIATURE PRISM TABLE

This miniature prism table allows tilt adjustment and 360-degree rotation for components of up to 15 mm in size. Please see part numbers 07 TTC 501 and 07 TTD 501.



## Equilateral Dispersing Prisms, Standard

### SPECIFICATIONS:

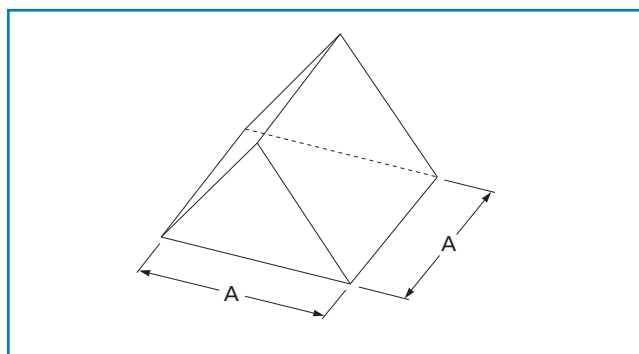
#### Equilateral Dispersing Prisms, Standard

Angle Tolerance, Polished-to-Polished Surfaces	± 3 arc minutes
Surface Flatness	$\lambda/2$ at 632.8 nm over clear aperture
Clear Aperture	90% of edge dimension
Coatings	Optional. Add SLMF_400_700 (single-layer $MgF_2$ ) or HE_415_700 (HEBBAR™ /078).
Surface Quality	60-40 scratch and dig
Dimension Tolerance	± 0.2 mm

### Equilateral Dispersing Prisms, Standard

A (mm)	Material	Clear Aperture (mm)	PART NUMBER	
			FORMER‡	REPLACED BY
25	F2 (Flint)	22.5	01 PEH 010	PEH-25.0-F2
30	F2 (Flint)	27.0	01 PEH 011	PEH-30.0-F2
50	F2 (Flint)	45.0	01 PEH 017	PEH-50.0-F2
25	BK7 (Crown)	22.5	01 PES 001	PES-25.0-C
30	BK7 (Crown)	27.0	01 PES 003	PES-30.0-C
50	BK7 (Crown)	45.0	01 PES 009	PES-50.0-C

‡ Former Melles Griot part number is replaced by new CVI Melles Griot part number.



Equilateral dispersing prisms

## Equilateral Dispersing Prisms, High-Precision

### SPECIFICATIONS:

#### Equilateral Dispersing Prisms, High-Precision

Optical Material	UV-grade fused silica, F2, SF10 or BK7 glass
Surface Figure	$\lambda/10$ @ 633 nm
Surface Quality	10-5 scratch and dig (BK7 glass and UV-grade fused silica) 30-10 scratch and dig (F2 and SF10 glass)
Dimensional Tolerance	+ 0/ - 0.25 mm
Angular Deviation	± 3 arc min
Chamfer	0.35 mm at 45° (typical)
Clear Aperture	≥85% of central dimension
Damage Threshold	15 J/cm <sup>2</sup> , 20 nsec, 20 Hz @ 1064 nm

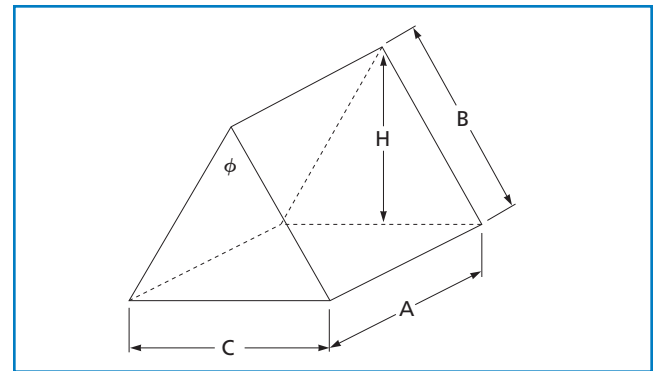
### Equilateral Dispersing Prisms, High-Precision

Optical Material	A (mm)	Refractive Index @ 633 nm	PART NUMBER
BK7	25.0	1.51509	EDP-25.0-C
BK7	30.0	1.51509	EDP-30.0-C
BK7	35.0	1.51509	EDP-35.0-C
BK7	40.0	1.51509	EDP-40.0-C
BK7	45.0	1.51509	EDP-45.0-C
BK7	50.0	1.51509	EDP-50.0-C
BK7	60.0	1.51509	EDP-60.0-C
F2	25.0	1.61655	EDP-25.0-F2
F2	50.0	1.61655	EDP-50.0-F2
F2	60.0	1.61655	EDP-60.0-F2
SF10	60.0	1.72307	EDP-60.0-SF10
Fused Silica	25.0	1.45702	EDP-25.0-UV
Fused Silica	50.8	1.45702	EDP-50.8-UV

## Isosceles Brewster Prisms

Isosceles Brewster angle prisms are designed specifically for intracavity laser applications, usually for specific wavelengths or wavelength ranges. The dispersion of these prisms is less than that of an equilateral prism, but the beam enters and exits the prism near Brewster's angle, minimizing intracavity losses.

- GVD correction prisms for femtosecond systems
- Two sides (AB) optically polished
- Extremely small loss for *p*-polarized beam
- Other dimensions and material available
- A limited stock of LaFN28 & LaKL21 components is still available



Isosceles brewster prisms

### SPECIFICATIONS: Isosceles Brewster Prisms

<b>Optical Material</b>	Suprasil 1, UV-grade fused silica, LaKL21, or SF10 glass
<b>Surface Figure</b>	$\lambda/10$ @ 633 nm
<b>Surface Quality</b>	10-5 scratch and dig (Suprasil 1 and UV-grade fused silica) 30-10 scratch and dig (LaFN28, LaKL21, and SF10 glass)
<b>Dimensional Tolerance</b>	+0/−0.25 mm
<b>Angular Deviation</b>	± 2 arc min
<b>Chamfer</b>	0.35 mm at 45° (typical)
<b>Clear Aperture</b>	≥85% of central dimension
<b>Damage Threshold</b>	Suprasil 1: 15 J/cm <sup>2</sup> , 20 nsec, 20 Hz @ 1064 nm Fused Silica: 15 J/cm <sup>2</sup> , 20 nsec, 20 Hz @ 1064 nm

### Isosceles Brewster Prisms

Optical Material	A (mm)	B (mm)	C (mm)	H (mm)	$\phi$	Refractive Index @ 633 nm	Design Wavelength (nm)	Refractive Index @ Design WL	PART NUMBER
Suprasil 1	7.9	12.7	14.4	10.5	68.7°	1.45702	488	1.46301	IB-10.5-68.7-SS
Suprasil 1	12.7	18.2	20.6	15.0	68.7°	1.45702	488	1.46301	IB-15.0-68.7-SS
Suprasil 1	12.7	23.0	26.0	19.0	68.7°	1.45702	488	1.46301	IB-19.0-68.7-SS
Fused Silica	15.0	15.0	17.0	12.4	69.1°	1.45702	800	1.45332	IB-12.4-69.1-UV
LaFN28	15.0	15.0	14.8	13.0	59.2°	1.76988	800	-	IB-13.0-59.2-LaFN28
LaKL21	15.0	15.0	15.7	12.8	63.0°	1.63821	800	-	IB-12.8-63.0-LaKL21
SF10	15.0	15.0	15.1	13.0	60.6°	1.72307	800	1.7113	IB-13.0-60.6-SF10
SF10	25.0	25.0	25.2	21.6	60.6°	1.72307	800	1.7113	IB-21.6-60.6-SF10