

Hi-Power Glan Taylor Polarizer

FEATURES

- Calcite-air-calcite interface
- Interface cut close to Brewster's angle
- Spectral Range 220-2800nm
- Peak transmission 88%
- Extinction Ratio 10^{-5}
- High peak pulse or high average cw power
- Range of apertures from 7mm - 20mm



PRODUCT DESCRIPTION

This air spaced polarizer is a modification of the original Foucault design, in which the two prisms were cemented. By arranging for the optic axis to lie in the plane of the entrance faces, and for the internal calcite-air-calcite interface to be cut close to Brewster's angle, a considerable increase in transmission is obtained without sacrificing acceptance field angle.



Figure 1. Mounted Glan Taylor

Hi-Power Glan Taylors with two side escape windows have been designed for use with high peak pulse or high average cw power applications.

These high power form polarizers have two polished side surfaces to enable the rejected beams to escape, thus avoiding damage due to excessive heating of the prisms. The provision of two escape directions allows use of this type of polarizer in both directions, e.g. intra cavity gain switching.

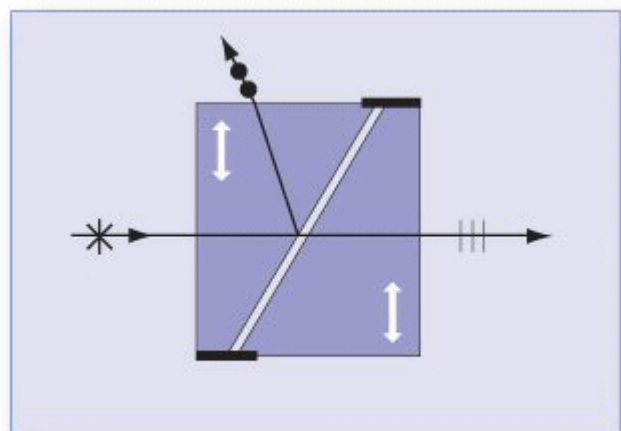
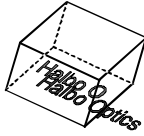


Figure 2. Hi-Power Glan Taylor – Beam Diagram



Hi-Power Glan Taylor polarizers have the internal calcite-air-calcite interface cut close to Brewster's angle to minimise reflection losses at the air gap, maximising through transmission (>88%). The useful field angle varies from 12° @ 220nm to 7.5° @ 2.8um.

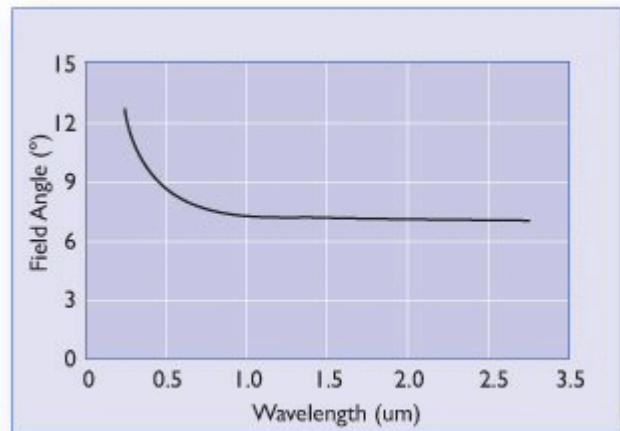


Figure 3. Hi-Power Glan Taylor – Field Angle

The spectral transmission range for hi-power Glan Taylor polarizers is from 220nm to beyond 2.8um.

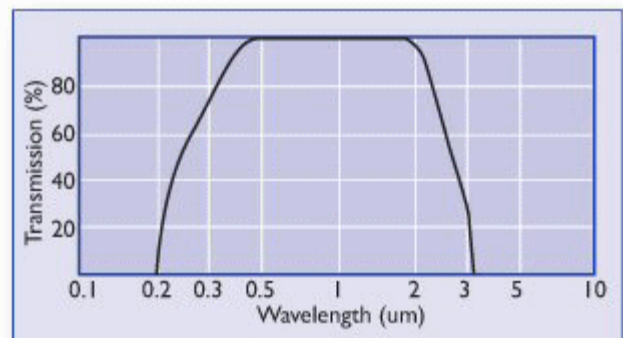


Figure 4. Glan Taylor – Spectral Transmission

Specifications

Model #	Aperture (mm)	Spectral Range (nm)	Peak Trans. (%)	Extinc. Ratio	Beam Dev. (min)	Flatness @Na ₀	Max Peak Power (MW/cm ²)	Max CW Power (W/cm ²)
<i>Hi-Power Glan Taylor Polarizers</i>								
PH7	7	220-2800	88	10 ⁻⁵	<3	lambda/8	200	100
PH10	10	220-2800	88	10 ⁻⁵	<3	lambda/8	200	100
PH12	12	220-2800	88	10 ⁻⁵	<3	lambda/8	200	100
PH15	15	220-2800	88	10 ⁻⁵	<3	lambda/8	200	100
PH20	20	220-2800	88	10 ⁻⁵	<3	lambda/8	200	100

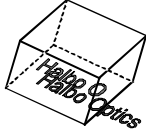
Table 1. Specifications – Hi-Power Glan Taylor Polarizers

Mounts

These polarizers are supplied unmounted as free components unless mounting is specified at the time of ordering. The mount design gives open access to all three beams and facilitates occasional cleaning. To specify mounted polarizers, simply add suffix:

M1 for type 1 mount

RM4 for type 4 rotation mount



Type 1 Mount Dimensions



Figure 1. Mounted Glan Taylor – Type 1

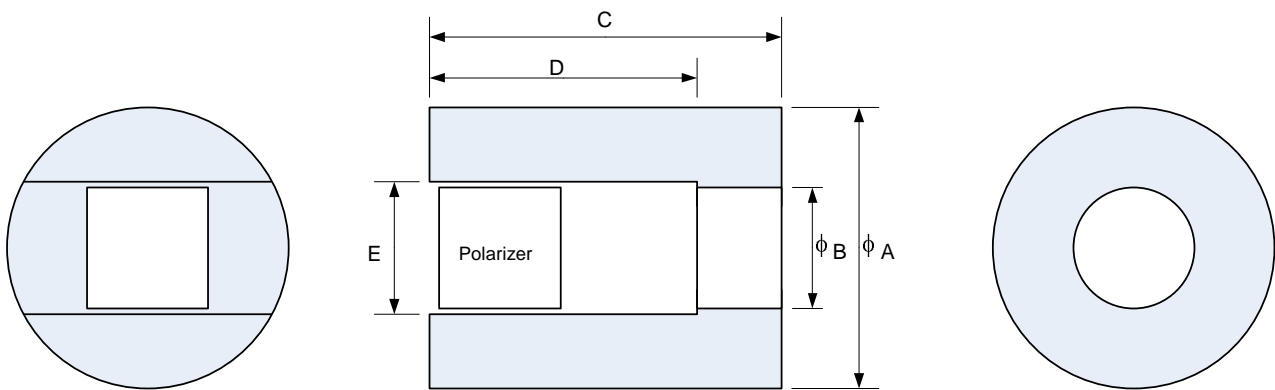
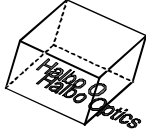


Figure 2. Mount Type 1 Sectional Diagram

		PH7M1	PH10M1	PH12M1	PH15M1	PH20M1
ϕA	max	25.40 (1.000)	25.40 (1.000)	25.40 (1.000)	31.75 (1.250)	38.10 (1.500)
	min	25.35 (0.998)	25.35 (0.998)	25.35 (0.998)	31.70 (1.248)	38.05 (1.498)
ϕB		8.73 (11/32)	11.91 (15/32)	14.29 (9/16)	17.46 (11/16)	22.23 (7/8)
C		29.00 (1.142)	32.00 (1.260)	34.00 (1.339)	38.00 (1.496)	44.00 (1.732)
D		16.00 (0.630)	19.00 (0.748)	21.00 (0.827)	25.00 (0.984)	31.00 (1.220)
E		9.70 (0.382)	12.70 (0.500)	15.20 (0.598)	18.20 (0.717)	23.20 (0.913)

Table 2. Mount Type 1 Dimensions – mm (inches)



Type 4 Rotation Mount Dimensions



Figure 1. Mounted Glan Taylor – Type 4

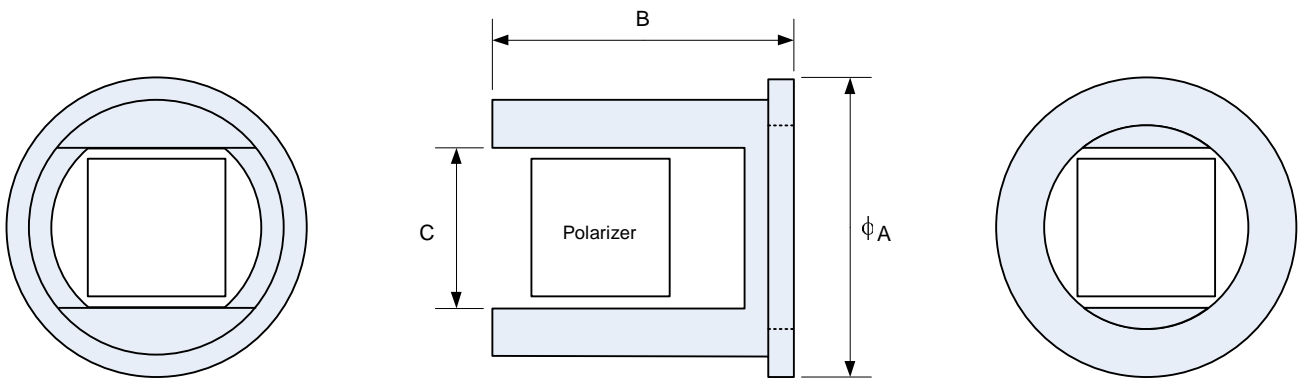


Figure 2. Mount Type 4 Sectional Diagram

	PH7RM4	PH10RM4	PH12RM4	PH15RM4	PH20RM4
ϕA	25.00 (0.984)	25.00 (0.984)	25.00 (0.984)	50.00 (1.969)	50.00 (1.969)
B	18.00 (0.709)	23.00 (0.906)	27.00 (1.063)	32.00 (1.260)	32.00 (1.260)
C	10.00 (0.394)	12.80 (0.504)	16.20 (0.638)	25.40 (1.000)	25.40 (1.000)

Table 1. Mount Type 4 Dimensions – mm (inches)

Mount types 1 and 4 shown, please enquire for custom mounts.