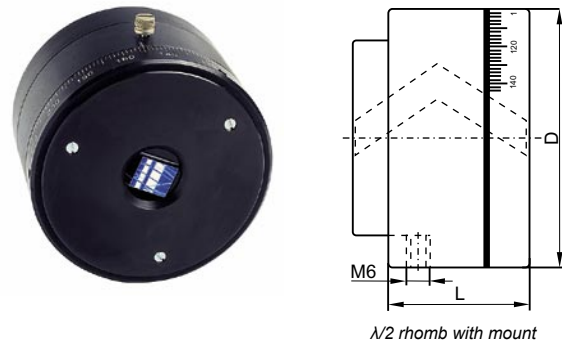
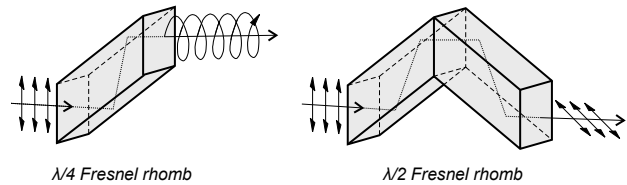


FRESNEL RHOMBS

- Rotate polarization, operates over a wide wavelength range

Due to unequal phase shifts arising in orthogonally polarised components of an incident wave at total internal reflection, Fresnel Rhombs are used to alter the polarisation type of radiation. They are designed so that two full internal reflections inside a rhomb provide $\pi/2$ phase difference between the orthogonally polarised components of radiation. Hence, if there is a 45° angle between the polarisation of the linearly polarised incident plane, the emerging beam is circularly polarised, i. e. the rhomb effect is similar to that of a quarter-waveplate. Therefore, two identical Fresnel rhombs, installed in series, will provide $\pi/2$ phase difference similar to that of a half-waveplate, i. e. the device can rotate the beam polarisation plane by 90° , leaving the beam direction invariable.

Due to the low dispersion of the refractive index of the materials being used Fresnel rhombs are achromatic over a wide spectral range.



SPECIFICATIONS

| | |
|--------------------------|---|
| Material | BK7, UV FS |
| Operating spectral range | BK7: 400–2000 nm UV FS: 210–400 nm |
| Surface quality | 20–10 scratch & dig |
| Surface flatness | $\lambda/10$ @ 633 nm (all polished surfaces) |
| Retardation tolerance | $\pm 2^\circ$ |
| Broad band AR coating | $R < 1\%$ |

| Material | Catalogue number | | Wavelength range, nm | Retardation | Clear aperture, mm | Holder diameter D, mm | Holder length L, mm | Price, EUR mounted / unmounted |
|----------|------------------|-----------|----------------------|-------------|--------------------|-----------------------|---------------------|-----------------------------------|
| | mounted | unmounted | | | | | | |
| BK7 | 480-0210 | 481-0210 | 600–900 | $\lambda/2$ | 10 | 70 | 50 | 659 / 368 |
| | 480-0410 | 481-0410 | 600–900 | $\lambda/4$ | 10 | 70 | 30 | 336 / 186 |
| | 480-0212 | 481-0212 | 400–700 | $\lambda/2$ | 10 | 70 | 50 | 659 / 368 |
| | 480-0414 | 481-0414 | 400–700 | $\lambda/4$ | 10 | 70 | 30 | 336 / 186 |
| UV FS | 480-1210 | 481-1210 | 210–400 | $\lambda/2$ | 10 | 70 | 50 | 782 / 491 |
| | 480-1410 | 481-1410 | 210–400 | $\lambda/4$ | 10 | 70 | 30 | 446 / 296 |

Fresnel rhombs with other dimensions and parameters or coatings as well as unmounted rhombs are available upon request.