# ZERO ORDER AIR-SPACED WAVEPLATES

- **For high power laser application**

Most of the Retardation Plates are available for fast off-the-shelf delivery. Check the availability at **www.eksmaoptics.com**

## HOUSING ACCESSORIES

Polarizer Holders
840-0180
*See page 8.87*

## SPECIFICATIONS

| | |
|---|---|
| Material | Single crystal quartz |
| Optical axis | normal to facet on circumference of retarder |
| Clear aperture | Ø17 mm |
| Ring mount outer diameter | 25.4 +0.0 / -0.2 mm |
| Wavefront distortion | λ/10 @ 633 nm |
| Surface quality | 20-10 scratch & dig (MIL-PRF-13830B) |
| Parallelism | < 10 arcsec |
| AR coating | R < 0.5% |
| Laser damage threshold | 10 J/cm², 10 nsec pulse, 1064 nm |

| Center wavelength, nm | Retardation λ/2 | | Retardation λ/4 | |
|---|---|---|---|---|
| | Catalogue no. | Price, EUR | Catalogue no. | Price, EUR |
| 1064 | 464-4205 | 310 | 464-4405 | 310 |
| 1030 | 464-4208 | 310 | 464-4408 | 310 |
| 800 | 464-4215 | 310 | 464-4415 | 310 |
| 780 | 464-4220 | 310 | 464-4420 | 310 |
| 532 | 464-4230 | 310 | 464-4430 | 310 |
| 515 | 464-4232 | 310 | 464-4432 | 310 |
| 400 | 464-4235 | 310 | 464-4435 | 310 |
| 355 | 464-4240 | 335 | 464-4440 | 335 |
| 343 | 464-4241 | 335 | 464-4441 | 335 |
| 266 | 464-4245 | 345 | 464-4445 | 345 |
| 257 | 464-4246 | 345 | 464-4446 | 345 |

# ACHROMATIC AIR-SPACED WAVEPLATES

Achromatic waveplates are made from two different materials: crystal quartz and magnesium fluoride with highly efficient broadband antireflection coatings in an air spaced design.

Retardation tolerance of our achromatic waveplates is better than λ/100 over the entire wavelength range. The flat response of these waveplates is ideal for use with tunable lasers,multiple laser-line systems and other broad spectrum sources.

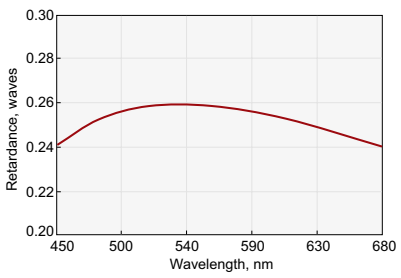
Our achromatic waveplates are available for four wavelength ranges: VIS (450-680 nm), NIR (700-1000 nm), 950-1300 nm, 1200-1650 nm. The waveplates are provided in a black anodized aluminum housing.

## SPECIFICATIONS

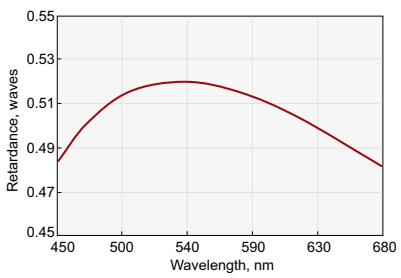
| | |
|---|---|
| Material | Single crystal quartz and $MgF_2$ |
| Clear aperture | Ø12.7 mm |
| Ring mount outer diameter | 25.4 +0.0 / -0.12 mm |
| Ring mount thickness | 8.0 ± 0.2 mm |
| Retardation tolerance | <λ/100 over wavelength range |
| Surface quality | 40-20 scratch & dig (MIL-PRF-13830B) |
| Wavefront distortion | <λ/8 @ 632 nm |
| Parallelism | < 1 arcmin |
| AR coating | R < 0.8% |
| Laser damage threshold | >3 J/cm² , 10 nsec, 1064 nm typical |

| Operating wavelength, nm | Retardation λ/2 | | Retardation λ/4 | |
|---|---|---|---|---|
| | Catalogue no. | Price, EUR | Catalogue no. | Price, EUR |
| 450-680 | 467-4205 | 480 | 467-4405 | 480 |
| 700-1000 | 467-4210 | 480 | 467-4410 | 480 |
| 950-1300 | 467-4215 | 480 | 467-4415 | 480 |
| 1200-1650 | 467-4220 | 480 | 467-4420 | 480 |

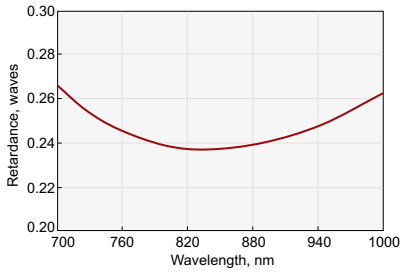
## Retardation Curve samples:



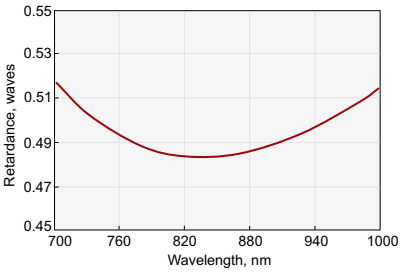

*λ/4 @ 450-680 nm*



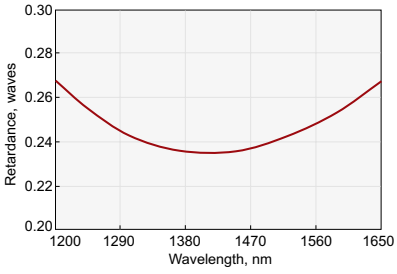

*λ/2 @ 450-680 nm*



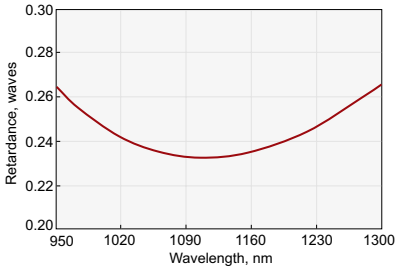

*λ/4 @ 700-1000 nm*



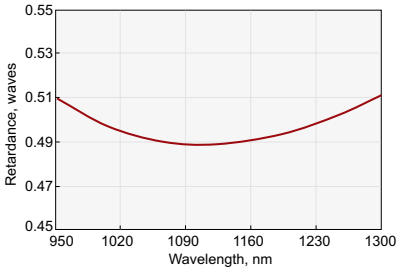

*λ/2 @ 700-1000 nm*



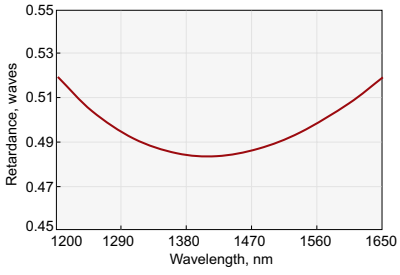

*λ/4 @ 1200-1650 nm*




*λ/4 @ 950-1300 nm*




*λ/2 @ 950-1300 nm*




*λ/2 @ 1200-1650 nm*

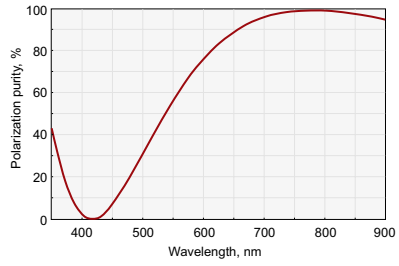
### HOUSING ACCESSORIES

High Precision Rotation
Polarizer, Waveplate
Mount 840-0186

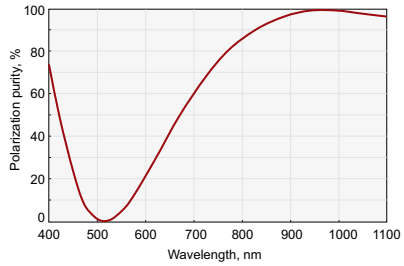
*See page 8.89*

## ZERO ORDER DUAL WAVELENGTH WAVEPLATES

When optical axis is turned by 45 degrees to input polarization, the waveplate rotates polarization of Ti:Sapphire laser fundamental (800 nm) by 90 degrees and the polarization of Ti:Sapphire second harmonic (400 nm) remains the same.




*Polarization purity of zero order dual waveplate. λ/2@800 nm + λ/400 nm*




*Polarization purity of zero order dual waveplate. λ/2@1030 nm + λ/515 nm*

### SPECIFICATIONS

| | |
|---|---|
| Material | Single crystal quartz |
| Optical axis | normal to facet on circumference of retarder |
| Clear aperture | Ø17 mm |
| Ring mount outer diameter | 25.4 +0.0 / -0.12 mm |
| Surface quality | 20-10 scratch & dig (MIL-PRF-13830B) |
| Wavefront distortion | λ/10 @ 633 nm |
| Parallelism | <10 arcsec |
| AR coating | R<0.5% |
| Laser damage threshold: | |
| Optically contacted (465-4211, 465-4212) | >10 mJ/cm², 50 fsec pulse, 800 nm typical |
| Air-spaced (466-4211, 466-4212) | 100 mJ/cm², 50 fsec pulse, 800 nm typical |

| Code | Description | AR coated | Price, EUR |
|---|---|---|---|
| 465-4211 | optically contacted; λ/2@800 nm + λ@400 nm | 800+400 nm | 345 |
| 465-4212 | optically contacted; λ/2@1030 nm + λ@515 nm | 1030+515 nm | 345 |
| 466-4211 | air-spaced; λ/2@800 nm + λ@400 nm | 800+400 nm | 410 |
| 466-4212 | air-spaced; λ/2@1030 nm + λ@515 nm | 1030+515 nm | 410 |

### HOUSING ACCESSORIES

Polarizer Holders
840-0180

*See page 8.87*