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# Laser Retarders

## ZERO-ORDER RETARDERS, Crystalline quartz

These are air-spaced, double plate Retarders. All surfaces are AR coated. These are no more nor less accurate than the multiple-order type under ordinary laboratory conditions. However, these have wider bandwidth and less sensitivity to temperature change than the multiple-order type. These Retardation Plates are within the "zeroeth" order of retardance, that is between (0λ-1λ).

| | |
|---|---|
| **Material** | Crystal quartz |
| **Retardance** | ±½% |
| **Parallel** | 2 seconds |

### Quarter-wave

| Catalog Number & Wavelegth | Bandwidth | Field of View | Temperature Stability (Δϕ/°C) |
|---|---|---|---|
| RZ-¼-193 | ± 1.9 nm | ± 0.4° | 0.00013 |
| RZ-¼-213 | ± 2.1 nm | ± 0.5° | 0.00014 |
| RZ-¼-248 | ± 2.5 nm | ± 0.6° | 0.00018 |
| RZ-¼-266 | ± 2.6 nm | ± 0.6° | 0.00022 |
| RZ-¼-308 | ± 3.1 nm | ± 0.6° | 0.00026 |
| RZ-¼-325 | ± 3.2 nm | ± 0.7° | 0.00029 |
| RZ-¼-351 | ± 3.5 nm | ± 0.7° | 0.00029 |
| RZ-¼-442 | ± 4.4 nm | ± 0.8° | 0.00029 |
| RZ-¼-488 | ± 4.8 nm | ± 0.8° | 0.00029 |
| RZ-¼-514 | ± 5.1 nm | ± 0.9° | 0.00029 |
| RZ-¼-532 | ± 5.3 nm | ± 0.9° | 0.00030 |
| RZ-¼-633 | ± 6.3 nm | ± 1.0° | 0.00030 |
| RZ-¼-670 | ± 6.6 nm | ± 1.0° | 0.00030 |
| RZ-¼-780 | ± 7.7 nm | ± 1.1° | 0.00031 |
| RZ-¼-830 | ± 8.2 nm | ± 1.1° | 0.00031 |
| RZ-¼-852 | ± 8.4 nm | ± 1.1° | 0.00031 |
| RZ-¼-980 | ± 9.7 nm | ± 1.2° | 0.00032 |
| RZ-¼-1053 | ± 10.4 nm | ± 1.3° | 0.00032 |
| RZ-¼-1064 | ± 10.5 nm | ± 1.3° | 0.00032 |
| RZ-¼-1310 | ± 13.0 nm | ± 1.5° | 0.00033 |
| RZ-¼-1480 | ± 14.7 nm | ± 1.6° | 0.00033 |
| RZ-¼-1550 | ± 15.4 nm | ± 1.6° | 0.00034 |
| RZ-¼-1560 | ± 15.4 nm | ± 1.6° | 0.00034 |

*Value assumes a tolerable phase retardation error of 1%

**MANY MORE WAVELENGTHS IN STOCK. IF NOT, WE'LL MAKE IT.**

### Half-wave

| Catalog Number & Wavelegth | Bandwidth | Field of View | Temperature Stability (Δϕ/°C) |
|---|---|---|---|
| RZ-½-193 | ± 1.9 nm | ± 0.6° | 0.00028 |
| RZ-½-213 | ± 2.1 nm | ± 0.7° | 0.00029 |
| RZ-½-248 | ± 2.5 nm | ± 0.8° | 0.00034 |
| RZ-½-266 | ± 2.6 nm | ± 0.8° | 0.00042 |
| RZ-½-308 | ± 3.1 nm | ± 0.9° | 0.00051 |
| RZ-½-325 | ± 3.2 nm | ± 0.9° | 0.00058 |
| RZ-½-351 | ± 3.5 nm | ± 1.0° | 0.00058 |
| RZ-½-442 | ± 4.4 nm | ± 1.1° | 0.00059 |
| RZ-½-488 | ± 4.8 nm | ± 1.2° | 0.00060 |
| RZ-½-514 | ± 5.1 nm | ± 1.2° | 0.00061 |
| RZ-½-532 | ± 5.3 nm | ± 1.3° | 0.00062 |
| RZ-½-633 | ± 6.3 nm | ± 1.4° | 0.00062 |
| RZ-½-670 | ± 6.6 nm | ± 1.4° | 0.00062 |
| RZ-½-780 | ± 7.7 nm | ± 1.6° | 0.00062 |
| RZ-½-830 | ± 8.2 nm | ± 1.6° | 0.00063 |
| RZ-½-852 | ± 8.4 nm | ± 1.7° | 0.00063 |
| RZ-½-980 | ± 9.7 nm | ± 1.8° | 0.00063 |
| RZ-½-1053 | ± 10.4 nm | ± 1.8° | 0.00064 |
| RZ-½-1064 | ± 10.5 nm | ± 1.9° | 0.00064 |
| RZ-½-1310 | ± 13.0 nm | ± 2.1° | 0.00064 |
| RZ-½-1480 | ± 14.7 nm | ± 2.2° | 0.00065 |
| RZ-½-1550 | ± 15.4 nm | ± 2.3° | 0.00065 |
| RZ-½-1560 | ± 15.4 nm | ± 2.3° | 0.00065 |

*Value assumes a tolerable phase retardation error of 1%

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## BROADBAND 1/2-WAVE RETARDERS FOR POLARIZATION ROTATION

A ½-wave retarder will rotate the plane of polarization by an amount that is twice the angle between the retarder axis (the white scribed line on the Cell) and the polarization plane.

This Retarder is a combination of birefringent crystal plates, resulting in broadband phase retardation accurate within 1% across the designated spectrum.

With broadband AR coatings, these Retarders transmit >98%. Mounted in standard Cell.

Aperture is 15 mm.

| Catalog Number | Wavelegth | Field of View | Temperature Stability |
|---|---|---|---|
| RMA-½-NIR1 | 600-950 nm | >±2° | <0.1 nm/°C |
| RMA-½-NIR2 | 780-1170 nm | >±2° | <0.1 nm/°C |
| RMA-½-IR | 1250-1560 nm | >±2° | <0.1 nm/°C |

*Value assumes a tolerable phase retardation error of 1%



| | |
|---|---|
| **Material** | Crystal quartz + $MgF_2$ |
| **Retardance** | ±½% |
| **Parallel** | 2 seconds |

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