# Air Gap Type Waveplates | WPQG

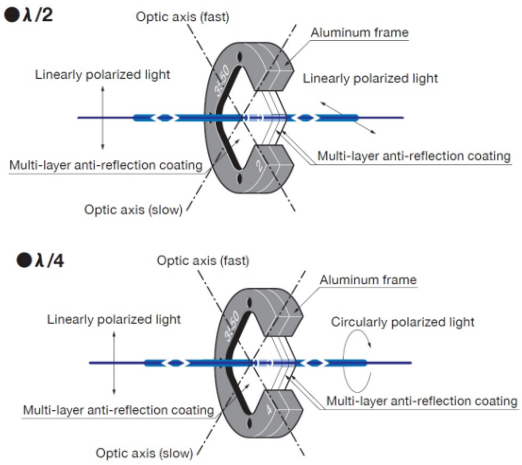
RoHS Catalog Code W3031

**Air spaced two piece waveplates are suitable for use with high-energy lasers (no optical contact occurs).For Nd-YAG lasers and Yb lasers, there is a lineup from fundamental to 4th harmonic.**

- These products utilize birefringence of quartz and give phase difference of λ/4 (π/2, 90°) or λ/2 (π, 180°) to the input beams.
- λ/4 retarders convert linearly polarization to circularly and circularly polarization to linearly. λ/2 retarders convert the direction of polarization arbitrarily.
- Air spaced type waveplates are zero-order (first-order) retardation plates (phase plates) which are assembled from pairs of crystalline quartz plates and are mounted on aluminum frames.
- Custom-made air spaced type waveplates for other wavelengths (248nm, 257nm, 308nm etc.) are also available.


| Common Specifications | |
|---|---|
| Material | Crystalline quartz |
| Material of frame | Aluminum ( Finishing ; Black Anodized) |
| Clear aperture | 15×15mm |
| Surface flatness of substrate | λ/10 |
| Angular deviation of beam | ＜5″ |
| Transmittance | ＞98% |
| Surface Quality (Scratch-Dig) | 20-10 |

## Schematic




## Guide

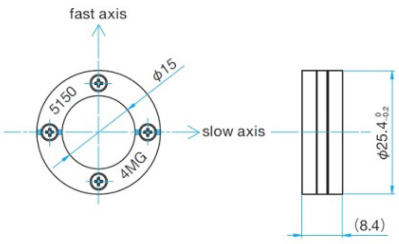
- Please contact our Sales Division for customized products. (Customized on size etc.)

## Attention

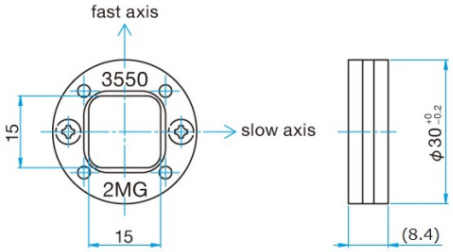
- Unlike multiple-order (higher-order) waveplates that are made from a single quartz plate, the net retardations of zero-order waveplates are almost not affected by temperature change.
- These products can be used for the beams which wavelengths are in +/−1% of rated wavelength.
- The surface flatness is the reflected wavefront distortion of the surface before coating.
- Be sure to wear laser safety goggles when checking optical path and adjusting optical axis.
- Standard thickness of Aluminum frame is 8.4mm (subject to differ without notice).

## Outline Drawing (in mm)

### WPQG-25.4C




### WPQG

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| λ/2 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Part Number** | | Diameter [mm] | Wavelength range [nm] | Clear aperture [mm] | Theoretical retardation [nm] | Retardation tolerance [nm] | Laser Damage Threshold* [J/cm²] |
| **WPQG-25.4C-2570-2M** | NEW | φ25.4 | 257 | φ15 | 128.5 | — | 1.4 |
| **WPQG-25.4C-3430-2M** | NEW | φ25.4 | 343 | φ15 | 171.5 | — | 4 |
| **WPQG-25.4C-5150-2M** | NEW | φ25.4 | 515 | φ15 | 257.5 | — | 4 |
| **WPQG-25.4C-10300-2M** | NEW | φ25.4 | 1030 | φ15 | 515 | — | 10 |
| **WPQG-2570-2M** | NEW | φ30 | 257 | □15 | 128.5 | — | 1.4 |
| **WPQG-2660-2M** | | φ30 | 266 | □15 | 133 | < λ/50 | 1.4 |
| **WPQG-3430-2M** | NEW | φ30 | 343 | □15 | 171.5 | — | 4 |
| **WPQG-3550-2M** | | φ30 | 355 | □15 | 177.5 | < λ/50 | 4 |
| **WPQG-5150-2M** | NEW | φ30 | 515 | □15 | 257.5 | — | 4 |
| **WPQG-5320-2M** | | φ30 | 532 | □15 | 266 | λ/100～λ/200 | 4 |
| **WPQG-10300-2M** | NEW | φ30 | 1030 | □15 | 515 | — | 10 |
| **WPQG-10640-2M** | | φ30 | 1064 | □15 | 532 | λ/200～λ/500 | 7 |

*laser pulse width 10ns, Pulse Repetition-Rate : 20Hz

| λ/4 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Part Number** | | Diameter [mm] | Wavelength range [nm] | Clear aperture [mm] | Theoretical retardation [nm] | Retardation tolerance [nm] | Laser Damage Threshold* [J/cm²] |
| **WPQG-25.4C-2570-4M** | NEW | φ25.4 | 257 | φ15 | 64.4 | — | 1.4 |
| **WPQG-25.4C-3430-4M** | NEW | φ25.4 | 343 | φ15 | 128.5 | — | 4 |
| **WPQG-25.4C-5150-4M** | NEW | φ25.4 | 515 | φ15 | 171.5 | — | 4 |
| **WPQG-25.4C-10300-4M** | NEW | φ25.4 | 1030 | φ15 | 257.5 | — | 10 |
| **WPQG-2570-4M** | NEW | φ30 | 257 | □15 | 64.4 | — | 1.4 |
| **WPQG-2660-4M** | | φ30 | 266 | □15 | 66.5 | < λ/50 | 1.4 |
| **WPQG-3430-4M** | NEW | φ30 | 343 | □15 | 128.5 | — | 4 |
| **WPQG-3550-4M** | | φ30 | 355 | □15 | 88.8 | < λ/50 | 4 |
| **WPQG-5150-4M** | NEW | φ30 | 515 | □15 | 171.5 | — | 4 |
| **WPQG-5320-4M** | | φ30 | 532 | □15 | 133.0 | λ/100～λ/200 | 4 |
| **WPQG-10300-4M** | NEW | φ30 | 1030 | □15 | 257.5 | — | 10 |
| **WPQG-10640-4M** | | φ30 | 1064 | □15 | 266.0 | λ/200～λ/500 | 7 |

*laser pulse width 10ns, Pulse Repetition-Rate : 20Hz



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