



# Gooch & Housego

## Infrared Wave Plate Overview

Gooch and Housego offers a variety of wave plates for the infrared (IR), including multi-order, net zero-order and achromatic assemblies. A short description of each type follows. For your specific requirement, please contact the Gooch and Housego staff.

### Multi-order wave plates

These single-element configurations are the least expensive version we offer. They are fabricated from a single piece of a birefringent IR transmissive material, such as CdS or CdSe, depending upon the wavelength of operation. They provide relatively good retardance accuracy over a limited spectral range. They can be fabricated to a retardance tolerance of  $\pm 5\%$  at a single wavelength. The retardance will be significantly altered if the multi-order waveplate is operated at a wavelength different from the design wavelength.

Multi-order wave plates are a good choice for CO<sub>2</sub> laser wave plates, which will be regularly used at, or very close to, a specific wavelength, such as 10.59  $\mu\text{m}$ .

### Net zero-order wave plates

Net-zero-order wave plates use two crystalline elements of the same material and exhibit reduced sensitivity to variations in wavelength when compared to multiple order wave plates. Net zero order wave plate assemblies will provide good retardance tolerance over a limited range. They are more expensive than multiple order configurations.

### Achromatic wave plates

Achromatic wave plate assemblies use two crystalline elements of differing materials (usually CdS and CdSe) and provide the best (smallest) retardance variation over a range of wavelengths. Achromatic wave plates cost approximately the same as net-zero order waveplate assemblies, but offer smaller changes in retardance over a much larger spectral range than can be demonstrated with net-zero order wave plates.



光技術をサポートする

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