

# Free Space Isolators

## Free space isolation device for blocking reverse transmitted beams

**Free space isolators** are divided into two categories: polarization dependent isolator and polarization independent isolator.

**The polarization dependent isolator**, or Faraday isolator consists of three major parts which are input polarizer (polarized vertically), Faraday Rotator, and output polarizer (aligned at 45° relative to the input polarizer).

**The polarization independent isolator** consists of three main components, which are birefringent crystal (polarizer), Faraday Rotator, half-wave plate. It's usually used for maintaining the stability of optical system effectively in fiber laser system.

CASTECH adopts high quality megneto-optic crystals with low absorption and high extinction ratios, and polarizers with low transmission losses to achieve outstanding performance. Customized free space isolators are available with peak isolation up to 45dB, maximum transmission above 95%, and aperture up to 45mm.

CASTECH's products are produced independently throughout the entire process and can be customized according to customer needs. Refer to the following list for standard products.



### Applications

- Laser precision machining
- Laser sensing systems
- Ultrafast laser system

### Model Number: HPISO-t-p-a-λ-w-h

| Type (t)                  | Power (p) | Aperture (a) | Wavelength (λ) | Wave Plate (w)                     | Housing(h) |
|---------------------------|-----------|--------------|----------------|------------------------------------|------------|
| FS (Free Space)           | 1-500 W   | 2-20 mm      | 355-4500 nm    | C (Contained)<br>N (Not Contained) | A01        |
| DS (Dual Space)           |           |              |                |                                    | A02        |
| AB (Adjustable bandwidth) |           |              |                |                                    | ...        |

### Typical Specifications

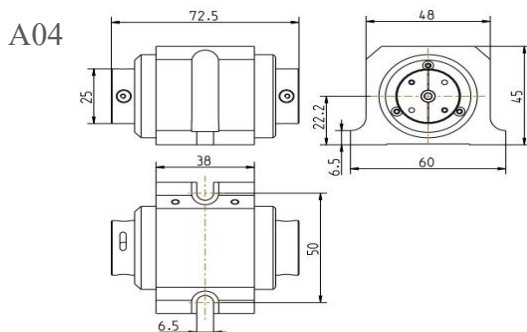
| Aperture | Wavelength   | Withstand power | Transmission      | Peak Isolation      |
|----------|--------------|-----------------|-------------------|---------------------|
| 2-15 mm  | 355-1080 nm  | 100 W           | >93 % *, >90 % ** | >33 dB *, >45 dB ** |
| 2-10 mm  | 1310-3000 nm | 100 W           | >93 %             | >33 dB              |
| 15-20 mm | 600-1080 nm  | 500 W           | >93 %             | >33 dB              |
| 1.5-8 mm | 800-2000 nm  | 10-500 W        | >93 %             | >33 dB              |

Operating temperature range: 10°C-30°C;

\* Only applicable to conventional isolator

\*\*Only applicable to dual-stage isolators

### Housing dimensions(mm):



A41

