

# Acousto-optic Tunable Filters

Accurate, fast, adjustable wavelength selector

The **Acousto-optic tunable filters (AOTF)** are solid-state, electronically addressable, and random-access optical bandpass filters. Diffraction occurs when the acoustic beam and the light beam satisfy specific matching conditions. It can be used to quickly and dynamically select specific wavelengths from a wide spectrum.

We have designed TeO<sub>2</sub>-based slow shear wave AOTF products that deliver optimal performance in each wavelength range to meet most application requirements: operating wavelength of 400-1450 nm, resolution as low as 0.25 nm, and effective aperture up to 10mm. In AOTF, the incident light and diffracted light are orthogonally polarized. Under polychromatic light, two orthogonally polarized  $\pm 1$ -st-order diffracted beams are generated, which users can utilize as needed or couple into optical fibers.

We offer both non-collinear and quasi-collinear AOTF configurations, both enabling rapid wavelength selection. The non-collinear AOTF features a large incident angular aperture, making it suitable for spectral imaging analysis. The quasi-collinear AOTF provide ultra-high resolution, ideal for femtosecond pulse compression systems.

For optimal performance, we recommend using our RF drivers, which support single-channel or multi-channel wavelength output functionality.

CASTECH's AOTFs are fully in-house manufactured and customizable to meet specific needs. Explore our standard product range below.



## Applications

- Ultrafast laser
- Wavelength selection
- Laser wavelength tuning
- Hyperspectral imaging
- Optical communication

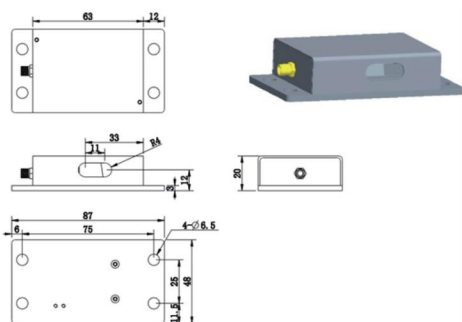
## Model Number: CATF-w-a-mt-f-cn-h

Center Frequency (f)	Aperture (a)	Material (m)	Mode (t)	RF Connector (c)	Number of Connectors (n)*	Housing (h)
041 (40.68 MHz)	010 (1mm)	CQ	C (Compressional)	AF (SMA-F)	D (Double-Input)	A01
...	...	TE	...	...	...	...

## Typical specifications

Wavelength	Aperture	Resolution	Diffraction efficiency	Input/output polarization
450-650 nm	2.5 nm	$\leq 3$ nm	$\geq 85\%$	vertical/horizontal
400-650 nm	2.5 nm	$\leq 5$ nm	$\geq 70\%$	vertical/horizontal
640-1100 nm	2 nm	$\leq 5-10$ nm	$\geq 85\%$	vertical/horizontal
1000-1700 nm	2 nm	$\leq 8$ nm	$\geq 70\%$	vertical/horizontal
400-900 nm	3 nm	$\leq 5$ nm	$\geq 65\%$	horizontal/vertical
430-1450 nm	2.5 nm	$\leq 15$ nm	$\geq 50\%$	horizontal/vertical
420-700 nm	2.5 nm	$\leq 0.5$ nm	$\geq 75\%$	vertical/horizontal
700-1200 nm	2.5 nm	$\leq 1.5$ nm	$\geq 75\%$	vertical/horizontal
1015-1070 nm	2.0 nm	$\leq 0.25$ nm	$\geq 75\%$	vertical/horizontal

E18



C60

