

KO | BRINGING QUALITY INTO FOCUS

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Knight Optical's Interference Bandpass Filters for Gas Sensors

Gas Detection Systems use Interference Bandpass Filters to identify the emission of a type of gas. Different gases emit at a specific wavelength which makes it identifiable when using a relevant Interference Bandpass Filter. These wavelengths are:

- ✓ Carbon Monoxide (CO) @ 4.73µm
- ✓ Nitric Oxide (NO) @ 5.24µm
- ✓ Nitrogen Dioxide (NO₂) @ 6.17µm
- ✓ Sulphur Dioxide (SO₂) @ 7.42µm
- ✓ Hydrogen Chloride (HCl) @ 3.55µm
- ✓ Carbon Dioxide (CO₂) @ 10.7µm

Knight Optical provide a wide range of [interference bandpass filters](#) that can be used with gas detection. The Interference Bandpass Filters would be need to transmit in the infrared region. These would be a customised item, which we are very experienced in. We provide narrow, standard, broadband and extra broadband filters with a high optical density of 4 as standard, however this can be customised for you.

Find out more information on our website regarding our Interference Bandpass Filter offerings and the various other optical components used in Gas Sensors that we can help with.

Our [stock](#) range are typically specified as follows:

Diameter & aperture (mm):	12.5mm ± 0.1 (8.5mm aperture) 25.0mm ± 0.1 (21mm aperture) 50.0mm ± 0.1 (46mm aperture)
Thickness (mm):	≤6.1mm +0/-0.1
Blocking:	<0.01% (OD4) @ 200nm to 1150nm (for filters with CWL less than 380nm) <0.01% (OD5) @ 200nm to 1150nm (for filters with CWL between 380nm and 1064) <0.01% (OD5) @ 200nm to 1850nm (for filters with CWL between 1080nm and 1640)
CWL tolerance (nm):	± 20% of FWHM
HBW tolerance (nm):	± 20% of FWHM
Optimum operating temperature:	23°C
Edge treatment:	Mounted in black anodized aluminium ring
Edge marking format:	In most cases {Knight Optical Part#} - {KOLTD} - arrow in direction of light path
Surface/ coating quality:	80/50 Per Mil-0-13830A

Usable temperature limits: -50°C to +80°C

Design type: Typical 3 cavity design

Assembly: All filters are scribed and hermetically sealed to ensure maximum long-term stability
([information sheet on scribed interference filters](#))

All our Interference Bandpass Filters are fully inspected on their quality in our ISO 9001:2015 certified, state-of-the-art Metrology laboratory, using our Varian Cary 5000 for precise transmission/blocking data, and Starrett AV300 video microscope for high accuracy diameter testing. This allows us to work to the highest [QA standards](#) and meet the tolerance specifications on these **precision components**.

[Contact our technical sales team](#) to discover how Knight Optical's high quality Interference Bandpass Filters bring quality into focus.

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