

Bandpass Filters for Machine Vision

In order to acquire exact images exhibiting minimum background noise, cameras are equipped with bandpass filters. These filters are designed to transmit only the spectral range of the illumination source.

The performance of bandpass filters is affected by several quality features. The highest priority is typically the signal-to-noise ratio, which is not necessarily equivalent to a high transmission within the spectral transmission window. Another quality feature is the amount of back reflection, which can be improved by single substrate designs with additional anti-reflection coatings.

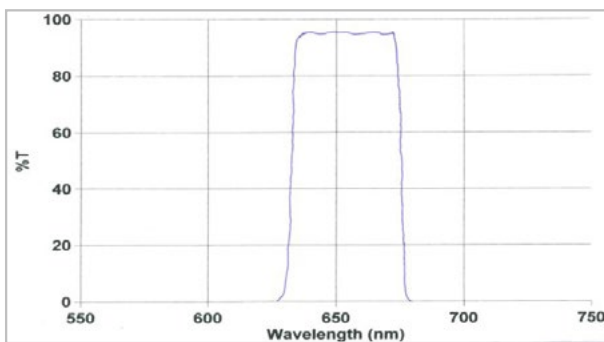
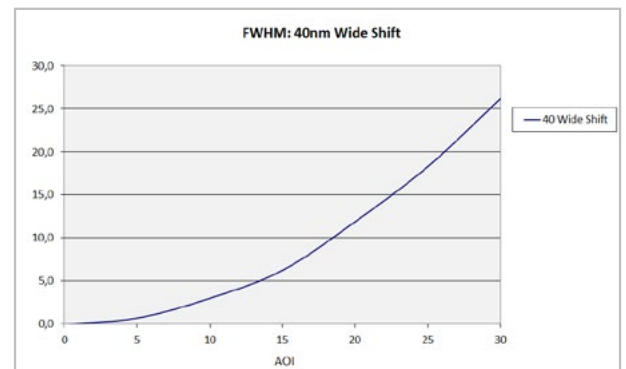
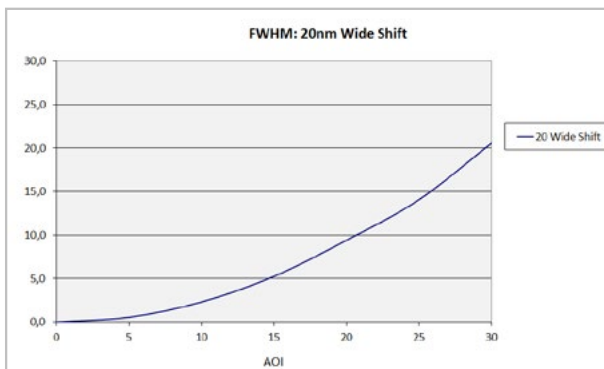
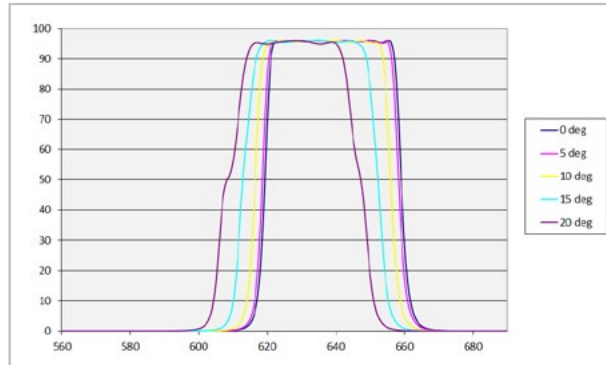
For convenience we are offering a special filter program matching all laser line module wavelengths. Due to their hard-coated substrates, the filters feature insensitive surfaces with minimal ageing.



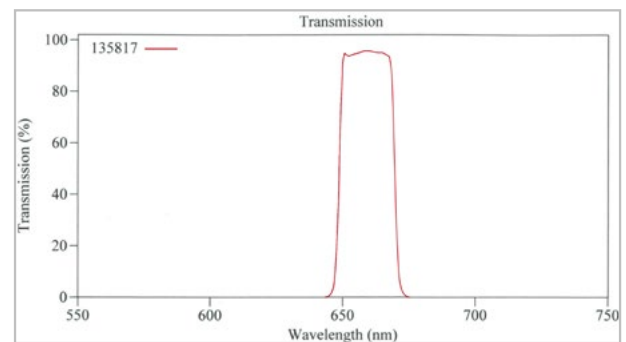
Specifications

| | |
|---------------------|--|
| CWL's | 405 nm, 450 nm, 532 nm, 635 nm, 660 nm, 685 nm and 785 nm (other wavelengths on request) |
| FWHM | 20 nm \pm 3 nm respectively 40 nm \pm 5 nm |
| Transmission | \geq 90% |
| Blocking | \geq OD5, UV to 1100 nm |
| OP temperature | up to 300°C |
| Substrate thickness | 2 mm \pm 0.1 mm (hard coating, single substrate) |
| Standard dimensions | diameter: 24.4 mm unmounted, threaded camera rings in range M22.5 mm to M105 mm (metric size) possible |

The choice of the optimal filter bandwidth depends on factors such as the bandwidth of the laser or the filter blue shift with the angle of incidence, as illustrated in the graphs below.



Typical curve CWL: 660 nm, FWHM: 40 nm



Typical curve CWL: 660 nm, FWHM: 20 nm