



Specifications for Ordering Interference Coatings on Fiber Tips

Omega Optical offers a variety of coatings on fiber tips – including full/partial reflectors, long pass, short pass, band pass, and antireflection designs. The performance of interference coatings depends on the angle-of-incidence (AOI), and that fibers present a distribution of AOIs to the coated tip. Further, Omega’s coated tips are hard oxides and can be easily connected to other fibers such that the filters are immersed in a glass-filter-glass configuration. The numerical aperture (NA) of the chosen fiber, and how the fiber is connected in an application, will influence filter performance. As a result, we request that customers populate the following checklist to help us meet the goals of a given application. All entries, including questions and incomplete entries, are welcome.

Filter Characteristics¹

(circle one) LP SP BP Reflector (full or partial)

Cut-on _____ ± _____

Cut-off _____ ± _____

%T (peak) _____

Attenuation λ range _____

Attenuation OD _____

%R (peak) _____ ± _____

%R λ range _____

Fiber Characteristics²

Numerical aperture (NA) _____

Core diameter _____

Clad diameter _____

Fiber length _____

Single mode or Multimode at the operational wavelength (circle one)

Degree of mode filling (if known) _____

Maximum temperature of jacket _____

Other (PMF, micro-structures, etc)

Notes

- 1 – Steep spectral edges and rigorous blocking specifications lead to designs with high physical thickness. We have found that fiber tips can support up to about 30 microns of material. Thick coatings can allow core to clad leakage. Omega will advise customers regarding the thickness of a proposed filter.
- 2 – Multimode fiber with high NA leads to high AOI. High AOI causes any interference filter to blue shift. The observed spectral performance will be a weighted average of the performance at each angle. These spectral shifts can be both modeled and measured at Omega.
- 3 – Near zero blue shifts occur if a single mode tip is coated and connected to another single mode tip. The number of fibers allowed in one deposition depends on the fiber configuration (connectorized, cleaved, bundled, etc).

Fiber Tip Characteristics³

First end connector (FC, SC, LC, SMA, None)

Second end connector (FC, SC, LC, SMA, None)

If no connector (cleaved, lensed, polished bare ferrule)

Which end(s) are to be coated _____

Fiber Configuration

___ Coated tip operating in air

___ Coated tip connected to an un-coated tip

Number of expected connections and disconnections

Number of fibers to be coated _____

Fiber supplier _____
