



PROFESSIONAL ASTRONOMY

CELEBRATING 50 YEARS ISO 9001:2008 CERTIFIED • SBA REGISTERED SMALL BUSINESS • ITAR REGISTERED • MADE IN THE USA



KEY CAPABILITIES:

- Wavelength range: 190-12,000 nm
- Minimum Bandwidth: 0.10 nm
- Design Considerations: Critical throughput, band-shape and bandwidth requirements
- Size: 2 - 210 mm diameter
- Sets: Matching physical and optical performance attributes
- Materials: Space-flight compatible

COMMON FILTERS:

- Bessell Sets
- Photometric Sets: Bessell, Johnson/Cousins, Stromgren, SDSS, Thuan-Gunn
- Detector Compensation
- Solar Observation : H-alpha, H-beta
- Nebula and Cometary Studies
- NIR Filters: J, H, K, Y, L bands
- Harris R
- Mould R-I

Omega Optical designs and manufactures precision astronomy filters for advanced imaging systems to meet the most demanding spectral requirements. In addition, we offer industry-defined photometric sets. Adhering to the highest image quality standards, our filters are used by astronomers, atmospheric scientists and aerospace companies worldwide. We actively collaborate with industry professionals to maintain and refine our role as the most experienced leader of precision interference filters for cutting-edge science.

Custom Filters

Our ability to customize filters for imaging systems sets us apart from other filter companies. With over 25 deposition chambers in service employing a range of coating technologies from plasma-assisted reactive magnetron sputtering and ion-assisted refractory oxide e-beam systems to physical vapor deposition, we have unequalled coating design flexibility, the most critical capacity for a filter supplier. At left are general guidelines of our capabilities.

Large-Format Filters

The use of CCD and other large format imaging detectors has revolutionized the study of astronomy. As both the size and sensitivity of these sensors have increased, Omega has pushed the envelope of coating technology to meet the need for large format filters. Our designs achieve the highest level of uniformity while maintaining the critical surface quality and transmitted wave-front requirements so critical to precision imaging.

High Spectral Performance

We achieve maximum throughput while adhering to critical band-shape tolerances from the UV to IR. Placement of cut-on/cut-off edges are carefully controlled and optical densities in excess of OD6 ensure optimal signal to noise ratios.

Unparalleled Inventory

We have an extensive inventory on-the-shelf for fast turnaround. This includes many astronomy and specialty filters that can be optimized for your application at a reasonable cost.

Optical Performance

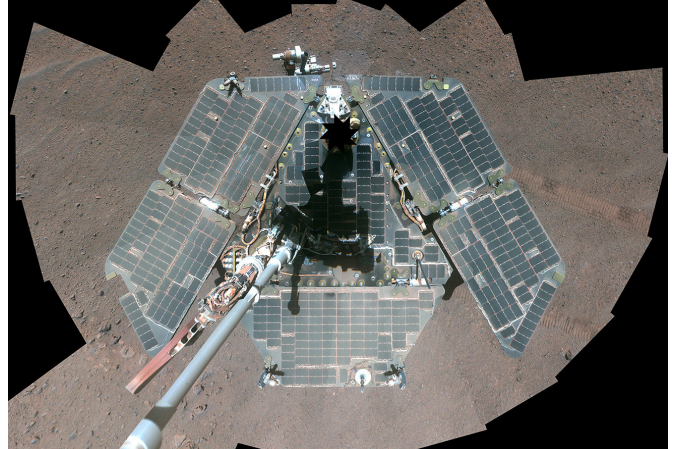
As critical to the spectral performance of our filters is the preparation and care taken in the choice of substrates. Each filter is polished to guarantee optimum image quality.

ASTRONOMY PROJECTS



Hubble Space Telescope (HST)

Omega Optical played a key role as the supplier of interference filters for the Wide Field Planetary Camera 2 (WFPC2) in service from 1993 – 2009 and the WFPC3 installed in 2009. Our contribution of broad-band and medium band filters, covering the ultraviolet to near infrared spectrum, helped extend the world's view to the furthest reaches of space through observations of the Hubble Deep and Ultra-Deep Fields. Closer to home, the now iconic “Pillars of Creation” in the Eagle Nebula, demonstrating star birth in stellar nurseries, was a major achievement in astronomical imaging. We are pleased to have been instrumental in the investigation of countless phenomena from galactic super clusters to intricate nebulas and the first direct observation of an extra-solar planet. We are proud to continue our support as NASA extends its reach to the edge of the visible universe. *Image courtesy of NASA.*



Mars Rovers

Omega Optical's filters continue to explore the Martian landscape on both the Opportunity and Curiosity Rovers and previously on the Spirit Rover. Exclusively Using Omega filters, a total of 3 sensor systems including the Navigation Camera, Hazard Avoidance Camera, and most importantly, the Panoramic Stereo Camera (Pancam) have imaged Mars in unprecedented clarity. Since 2004 the Pancam has delivered high resolution multispectral images using a total of 16 filters divided between two detectors. Among the many mineralogical discoveries, our filters helped prove that water was present on the surface of Mars, furthering the consideration that life may have once existed on the red planet. *Image courtesy of NASA/JPL- Caltech.*

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