

APPLICATION

Professional Astronomy

Overview

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.

Why choose an Omega Filter?

- Wavelength range: 190-12,000 nm
- Size: 2- 210 mm diameter
- Use Omega to design and manufacture **custom filters** that will differentiate your product
- 50 years of engineering services to optimize your filter needs
- Extensive inventory for rapid prototyping and development
- High-volume production
- In house optic shop for custom sizes, shapes and substrates
- USA made, ITAR and ISO registered



ISO 9001:2015 CERTIFIED • ITAR REGISTERED • MADE IN THE USA



Over 25 Coating Chambers

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.

Spectral and Optical 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.

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.

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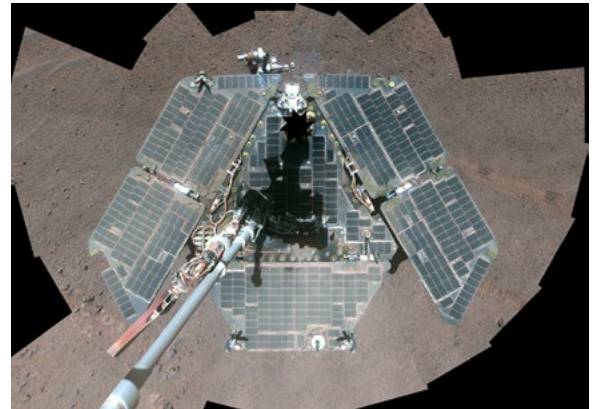
Hubble Space Telescope

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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