

In This Issue

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OPTICAL FILTERS

When every pulse counts

High Precision Rapid Time to Market

September 11, 2008

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September 11, 2008

OPTICAL FILTERS

Catalog, Custom and OEM flexibility

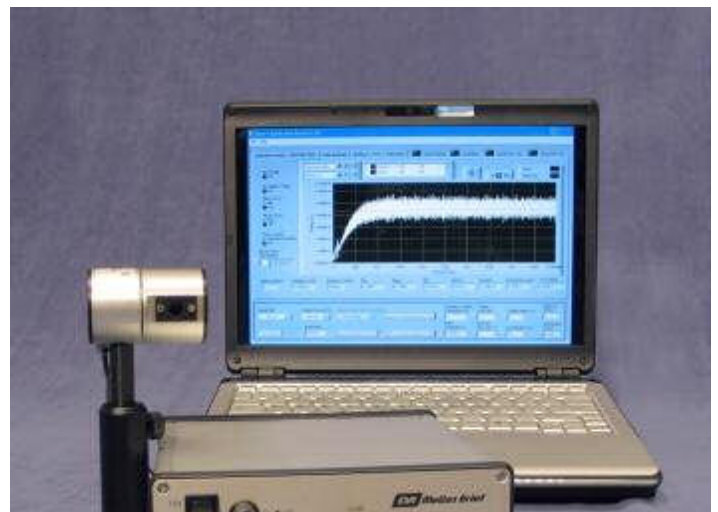
New sputtered coating technology enables CVI Melles Griot to offer a whole new suite of filter products, designed to improve your performance. - Narrowband, broadband, and edge filters for fluorescence, microscopy, flow cytometry, image processing - 5-6 OD blocking while maintaining transmission greater than 98% - Standard and custom designs available Our design and manufacturing flexibility is uniquely situated to offer a range of solutions from high performance to economical products to enable your technology to succeed. Whether you need a single filter, a prototype or OEM quantities we commit ourselves to making your project a success!



May 26, 2009

When every pulse counts

It wasn't long ago that you had no choice but to build your own detector from scratch to try to measure the pulse energy performance of your 100 kHz laser in real time... and you still didn't get accurate pulse to pulse energy. Stop! You don't have to do this anymore. Introducing Mach5: the world's first 100 kHz Digital Joule meter. No more guessing the true real time performance of your pulsed DPSS or Fiber Laser.



July 07, 2009

High Precision Rapid Time to Market

Download your Fab Express paper here!

Globalization and new manufacturing technologies have transformed the optics industry allowing customers more choices, higher precision, better quality, and lower prices for the products they buy. However, lead time improvements for custom optical components have been slow to develop. Optics suppliers usually rationalize their long lead times by pointing to their limited glass availability, long manufacturing cycles, and queue times at different stages of the manufacturing process. In the meantime, time to market is increasingly becoming one of the most important metrics for a competitive manufacturing company's product development process. Often it means the difference between success and failure of the new product launch. Long lead times for obtaining optical components may affect end-user products success at all stages of a product's lifecycle. Despite best efforts of the buyer to plan component purchases in advance, any clerical mistake, MRP system output error, or sudden change in demand can create major disruptions in the production process and result in lost revenue and eroding customer confidence. Most optics suppliers, especially overseas suppliers, simply can't react fast enough to mitigate these risks. Market uncertainties make accurate long-term production planning a challenging, if not impossible, endeavor. In these cases, the inventory and possible cancellation costs associated with committing to blanket orders for components supply counter the benefits in cost reduction, and spot purchases become the most advantageous procurement option. Manufacturers who operate in this mode desperately need agile

suppliers who can meet the demand for quick delivery without exorbitant fees and specification wavers. Advances in high-productivity optics fabrication equipment, particularly CNC systems, enabled significant reduction in the fabrication cycles for low-to-medium-precision optics. However, the ability to produce higher precision products still remains out of reach for the majority of merchant optics manufacturers due to the low productivity and yields of traditional manufacturing methods and business management systems. Also, in many cases the lead time for obtaining higher performance coatings remains long; most optics shops possess only rudimentary (if any) coating capabilities and most specialized coating houses capable of producing high-performance coatings are unable to respond quickly. Splitting the responsibility for quality between multiple suppliers always adds to the overall costs and risks of procuring precision optical elements and systems. As the leading supplier of optical components, CVI Melles Griot acutely understands the need to achieve higher agility to meet its customers' needs. In response, the Rochester Division of CVI Melles Griot introduces its industry-leading Rapid Time to Market (RTM™) manufacturing process for producing custom spherical optical elements, including those requiring the highest achievable optical tolerances. Over the last 30 years, the Rochester division of CVI Melles Griot has developed extensive technical capabilities for manufacturing high precision spherical optical elements and high-performance coating systems to support its advanced optical systems products. These capabilities include:

- Fifteen state-of-the-art, high speed CNC lens generating, polishing, and centering systems
- 40 conventional pitch polishers
- Magneto-Rheological Finishing (MRF™)
- Eight digital phase-measuring interferometers, including a QED Sub-Aperture Stitching Interferometer (SSI™) featuring absolute spherical reference and automatic radius of curvature verification
- Four 48-inch, planetary-type boxcoaters with ion-assisted deposition (IAD), including 193nm optimized Leybold Syrus Pro with APS, the highest performance plasma source available in the industry
- High-performance spectrophotometers including N2DUV purged systems
- Veeco White Light Interferometer RMS Surface Roughness Measuring System
- Class-100 component packaging

Our mission was to develop business processes and manufacturing practices that would allow achieving 2-week lead time for expedited deliveries. We analyzed each step of the business process from quotation to final shipment in order to identify opportunities for cycle time reduction. As a result of this end-to-end manufacturing process analysis, we developed a streamlined process that allows us to achieve industry-leading cycle times for spherical optics manufacturing. The time it takes for a manufacturer to respond to a customer's request-for-proposal is an important element of the total procurement cycle. Through eliminating redundant and non-value producing steps we have been able to develop a robust quotation process capable of responding to a customer inquiry, for a custom spherical optical element, within 2 business days. Similar improvements have been made to the order processing, planning, fabrication, and coating processes. As a result, a 2-4 week lead time for the complete manufacturing of custom, coated spherical optical elements became a reality. One of the most challenging issues in optical fabrication lead time reduction is glass material availability. This issue has been addressed by creating a stock for some commonly used materials and securing a commitment from multiple glass vendors to make their preferred glasses available within 24 hours. As a result of all these efforts, the Rochester division of CVI Melles Griot is now capable of providing expedited delivery for spherical optical elements with the following specifications:

- Diameters: 6–265mm
- Surface Figure Accuracy: to $\lambda/60$ PTV at 633nm
- Surface Finish: to 2 angstrom, 4-5 angstrom typical
- Cosmetic Quality: to 10-5
- Center Thickness Tolerance: to ± 5 micron
- Concentration Tolerance (ETV): to 5 micron
- Radius of Curvature Tolerance: to 2 fringes at 633nm
- Diameter Tolerance: to ± 0.5 micron
- Optical Coating Wavelengths: 193 to 1500nm

These capabilities along with the industry-leading cycle time for spherical optics manufacturing allow CVI Melles Griot to meet the needs of its customers for high-precision rapid-time-to-market optical components. This enables them to gain competitive edge by reducing new product development cycles and achieving production planning flexibility required to react to end-user demand fluctuations.



