



# Defense Honors Manufacturing Technology Achievements

The second annual Defense Manufacturing Technology Achievement Award was presented yesterday at the Defense Manufacturing Conference in Tampa, Fla. Award recipients included government, industry, and university technologists from the Army's Advanced Optics Manufacturing program and the Joint-Service Flexible Manufacture of Microwave Vacuum Devices initiative.

The award recognizes Defense and private sector individuals responsible for developing innovative manufacturing processes that improve the affordability, cycle time, or readiness of Defense weapon systems or components. Delores M. Etter, Deputy Under Secretary of Defense for Science and Technology, presented the award.

The Advanced Optics Manufacturing program developed a multi-axis, computer-controlled optical finishing technology, known as Magnetorheological Finishing (MRF), that provides significant cost savings in the manufacture of precision optical surfaces. Compared to conventional, labor-intensive processing methods, MRF reduces the typical cost of spherical optics from \$100 to \$60, and reduces system weight up to 30 percent. A cost avoidance of more than \$100 million is forecast for application to multiple defense systems (e.g., Stinger, Comanche Daylight Targeting System, Low Cost Precision Kill Missile, Joint Stand Off Weapon, Objective Individual Crew Served Weapon, and Precision Guided Mortar Munition) that use precision optics in target acquisition, identification, surveillance, and communication devices.

The MRF finishing machine is commercially available, and has received industry-wide acclaim, winning two of the optical industry's most prestigious awards for technology innovation and achievement:

the Photonics Circle Excellence Award and the Laser Focus World (LFW) Commercial Technology Achievement Award. Manufacturers of photolithographic optics and several major optics shops in the United States have already installed multiple MRF machines to produce ultra-high precision optics. The program is funded by the Army Manufacturing Technology Program and is managed by the Center for Optics Manufacturing in Rochester, N.Y.

The Flexible Manufacture of Microwave Vacuum Devices program has resulted in significant cost reductions and increased yield in traveling wave tube devices for critical military applications, and improvement of on-shore domestic sources for devices previously imported from Europe.

Microwave devices are used in over half of the current Defense weapon systems. With less than 20 percent overlap between the Defense and commercial markets, there is little opportunity for the Department of Defense to leverage means for commercial-off-the-shelf suppliers to provide cost-effective, state-of-the-art devices.

A government/industry team consisting of representatives from the Army, Navy, Air Force, the American Competitiveness Institute, Communications and Power industries, Northrop Grumman, and Teledyne Electronic Technologies led the initiative. The team worked on manufacturing improvements for devices in critical segments of the power/frequency spectrum.

**Editor's Note:** This information is in the public domain at [www.defenselink.mil/news](http://www.defenselink.mil/news).