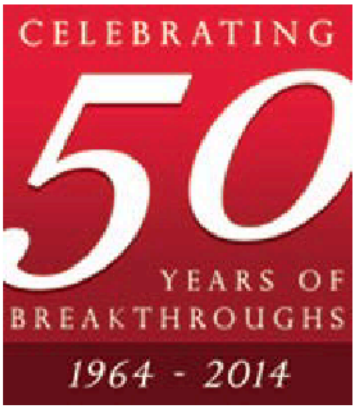
March 12, 2014



Moorestown, NJ March 12, 2014 — Denton Vacuum LLC, a leading global supplier of production scale thin film technology systems, celebrates 50 years (1964-2014) of thin film technology—turning barriers into breakthroughs—for three generations of satisfied customers worldwide.

Denton Vacuum was founded in 1964 by Richard A. Denton, a pioneer and innovator in the vacuum technology and optical films industries. A chemical engineering graduate of MIT, Denton first went to work for General Printing Ink in New York (from which he was awarded his first of nine patents during his career). He entered the thin film technology field when he joined the Frankford Arsenal in Philadelphia in 1941, where Denton advanced the new field of antireflection lens coatings. His expertise led to the rapid creation of a new optical coating production center that made critical contributions to the American effort during WWII.

After the war, Denton founded the Optical Film Engineering Company in Philadelphia, providing optical coating services and producing high vacuum deposition equipment, including that for sample preparation for electron microscopy. A serial entrepreneur, in 1964, Denton founded Denton Vacuum in Cherry Hill, NJ.

Denton, a principal founder of the American Vacuum Society (AVS) and the Delaware Valley Chapter of the AVS, introduced the first commercial chemical optical coatings in North America in the early 1970s. In the 80s, he developed Denton Vacuum's reputation for large-area coating and custom engineering. In 1995, Denton received the Nathaniel Sugerman award from the Society of Vacuum Coaters.

Peter Denton, Richard's son, came to Denton Vacuum in 1977, having spent 3 years in management consulting and 4 years as Vice President Finance and Operations of a high-volume consumer products manufacturer. Peter graduated from MIT in 1967 with a B.S. in electrical engineering and earned his MBA from Harvard Business School in 1969.

Peter, initially in charge of Denton Vacuum's in-house optical coating service business and chemical optical coating division, managed, in 1978, the introduction of Denglas, a broad band anti-reflection coated glass used in the picture framing industry. By 1982, Peter had become President of Denton Vacuum. During the 1980s, Peter led the development of Denton Vacuum's ion-assisted deposition technology for optical coatings and its automation of complex precision optical coating systems. Peter also introduced low-cost, dual side coated anti-glare filters. In 1994, responding to increased demand for Denton Vacuum's products, Peter moved Denton Vacuum to its present 24-acre wooded campus complex with 47,000 square feet of manufacturing, R&D, and office space in Moorestown, N.J.

Peter served 14 years on the Board of Directors of The Society of Vacuum Coaters, playing an instrumental role in the reorganization of the SVC in the mid 1980s in creating technical advisory committees, recruiting corporate sponsors and professional management for the society. In 2000, Peter received the Nathaniel Sugerman award from the Society of Vacuum Coaters.

Denton Vacuum's contribution to the advancement of thin film technology is measured in the numerous Denton patents awarded and innovations realized in the industry, from optical and ophthalmic coatings,

anode grids, ion beams and sources, optical monitors, cathodes, fixtures, shutters and load lock manipulators—all advances in vacuum system performance.

Additionally, Denton paved the way in advancing electron microscopy with its freeze etch and freeze fracture equipment, while providing some of the largest early magnetron sputtering systems for large area glass coating.

Denton's many innovative firsts include:

- Commercial high vacuum system (DV 502 series)
- Magnetron sputtering for biological samples so secondary electrons from the plasma would not damage the sample structure (its Desk V "gold standard" SEM preparation series)
- Durable front surface silver coating for precision optics, telescopes and satellites (Denton Vacuum FSS99 silver coatings)
- Commercially available electron beam guns for optical coating
- Cold cathode ion source for ion assisted deposition (Denton CC-105)
- First and only sol-gel dip coating production facility in the United States for producing broad band anti-reflection coatings for picture framing and artwork, among other precision coating applications

"The legacy of innovation in thin film technology systems instituted by Richard Denton continues at Denton Vacuum today" said Peter Denton, current Board Chairman for Denton Vacuum, LLC, commenting on Denton Vacuum's 50th Anniversary. "Denton has turned barriers in optics, medical and semiconductor devices, sample preparation and vacuum technology into breakthroughs during the course of its first 50 years, and does so today, as seen in our innovations in the areas of precision optics, medical implants and semiconductor devices, among others. "

"More important and remarkable, perhaps, in Denton Vacuum's long, stable and innovative history," Denton continued "remains Denton Vacuum's enduring pursuit to deliver the highest quality products and services in a wide range of capabilities to satisfy our many customers worldwide. We at Denton Vacuum look forward to the next 50 years of innovation and service to the thin film technology community."

About Denton Vacuum: Denton Vacuum transforms barriers into thin-film technology breakthroughs for customers across the globe. With operations in the United States and China, Denton designs and develops systems that precision-coat aerospace components, advanced optics, medical implants, solar cells, semiconductor devices and much more. Fifty years of tireless innovation have produced robust offerings ranging from high-volume production platforms to unique custom-engineered systems. Denton's technology portfolio includes thermal evaporation, e-beam evaporation, ion-beam-assisted evaporation, magnetron sputtering (including reactive sputtering), plasma-enhanced-chemical-vapor deposition (PECVD), ion etch and ion-beam-assisted deposition (IBAD). As a leading source for thin-film technology, Denton also provides value-added services and lifetime support that set new industry standards. See how barriers become breakthroughs by visiting Dentonvacuum.com.

Denton's customers receive more than equipment from Denton—they get a true partner offering a new level of technology support. With Denton Vacuum's Customer Applications Development Center (CADC), customers can develop, test and verify new production processes in a dedicated facility with our expert advice and the right characterization tools—taking as much time as needed without impacting their own plant operations, personnel or resources.

See http://www.dentonvacuum.com/company/news/13/denton-completes-major-precision-optics-program-customer-applications-development-center-reduces-customer-time-to-market for more information.