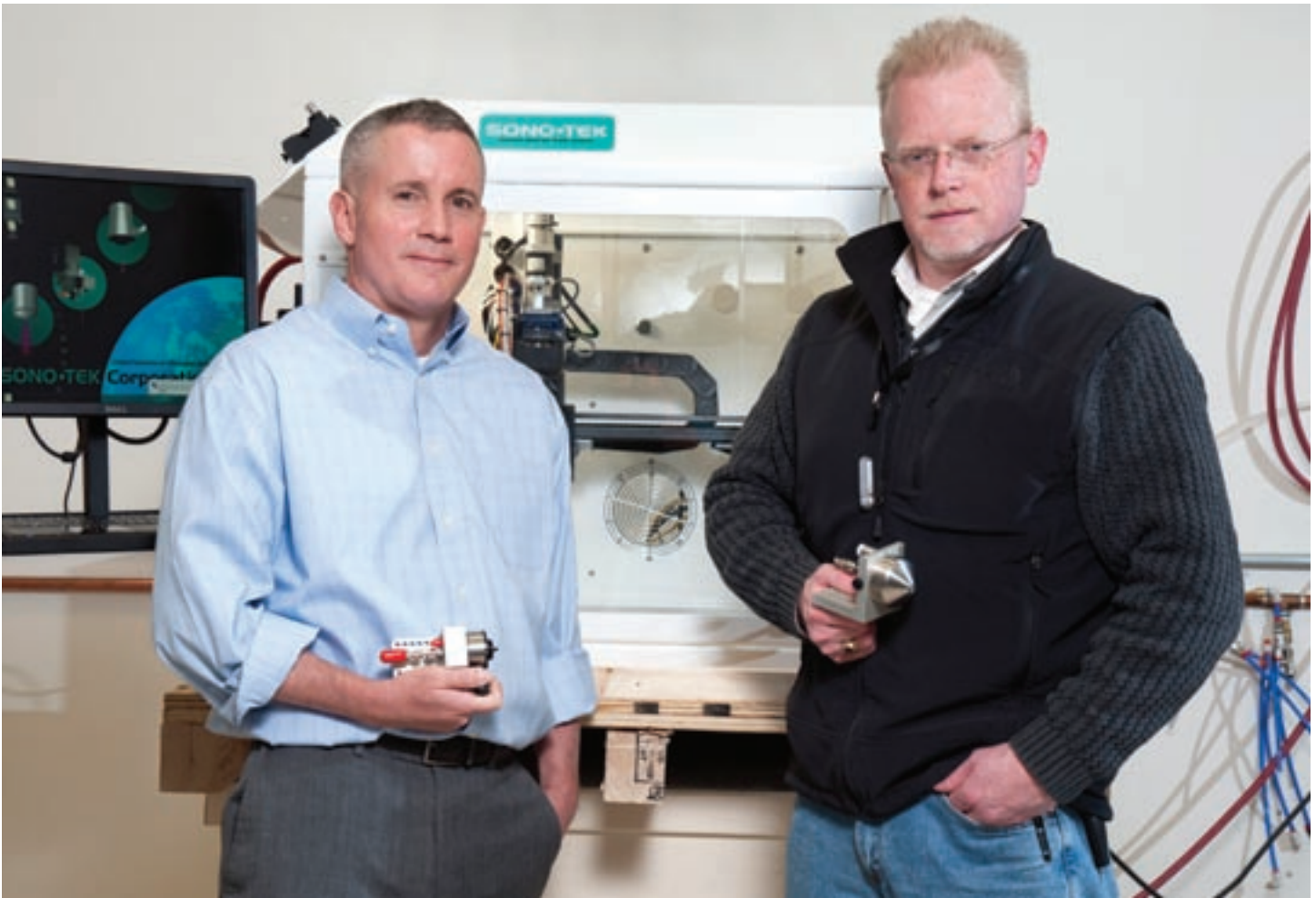


Pioneers in their field

The year 2015 marks an important milestone for Sono-Tek: the company is celebrating the 40th year since its founding.

Sono-Tek has experienced a quadrupling of business over the past decade and expects continued growth over the next five to ten years as more applications go online.



Steve Harshbarger, President of Sono-Tek (left) and Robb Engle, Sono-Tek's Vice President of Engineering,

TO THE UNINITIATED, an “ultrasonic spray system” might sound like an option at the car wash, but manufacturers know it to be an indispensable tool for precisely applying very thin films of materials — often expensive or dangerous—to items on their production line. Sono-Tek Corporation in Milton, New York is the world leader in high performance ultrasonic spray coating technologies. Its systems are employed in the manufacture of printed circuit boards, drug eluting stents and other medical devices, fuel cells, solar cells, and most of the architectural and automotive glass produced in the United States.

Sono-Tek was founded in 1975 by Dr. Harvey L. Berger, Ph.D., the inventor of the ultrasonic nozzle. Dr. Berger, a Hudson Valley native, attended Newburgh Free Academy and graduated from RPI with degrees in advanced physics. During the energy crisis of the early 1970s, while working for ESPEY Manufacturing, Dr. Berger invented an ultrasonic atomizer for use in home heating systems. According to Robb Engle, Sono-Tek's Vice President of Engineering, “These new nozzles had much greater efficiency and reduced oil-waste in home furnaces but, as the energy crisis subsided, the cost of making the device was not equal to the savings it provided. Fortunately, there were other

Sono-Tek Corp. in Milton, New York is the world leader in high performance ultrasonic spray coating technologies.

applications in which the cost was more than justifiable and that provided greater financial returns.”

An early application of the ultrasonic technology was in the medical field where test tubes used in blood collection must be coated with an anticoagulant to preserve the blood until testing. Steve Harshbarger, President of Sono-Tek, explains that this is one of Sono-Tek's mature lines and is complimented by the more recent stent coating equipment. “As a pioneer in this area, Sono-Tek's ultrasonic systems are being used by some of the largest manufacturers of cardiac stents to coat them with drugs to prevent the body from rejecting the stent,” Harshbarger says. “In fact, if you had a stent implanted in the past five years, chances are that it has been coated with a Sono-Tek ultrasonic coating system. Nearly 90 percent of drug eluting stent manufacturers use our equipment.”

“The ultrasonic atomizer uses high frequency sound waves that act on the nozzle tip to create capillary waves in a liquid film,” Engle explains. “Once the amplitude of the capillary waves reaches a critical height, they become too tall to support themselves and tiny droplets fall off the tip of each wave, resulting in atomization. This enables a soft, uniform spray that, combined with nozzles that can shape plumes, is highly efficient.” In fact these nozzles have an efficiency rating of greater than 90 percent, compared to standard nozzles that are less than 50 percent efficient. Areas where this ability is desirable include any manufacturing that requires precision application of materials that are either expensive (such as platinum, carbon nano-tubes, or experimental pharmaceuticals) or



(Above) Sono-Tek engineers are continuously seeking innovations.

(Above left) Sono-Tek has six testing labs worldwide, at corporate headquarters in Milton, N.Y., in Germany, Taiwan, Korea and Japan. In 2014, the company opened a clean-room laboratory in Guangzhou, China, focussed primarily on its medical device coating systems (above, left).

(Below) Different nozzle tips help shape plumes to create the uniform spray most efficient for any coating application.

dangerous (such as acids or hazardous solvents such as chloroform or acetone). This method doesn't clog and provides a consistent uniform coverage. An added bonus is that the process uses very little energy, so it is extremely efficient in both energy consumption and material conservation.

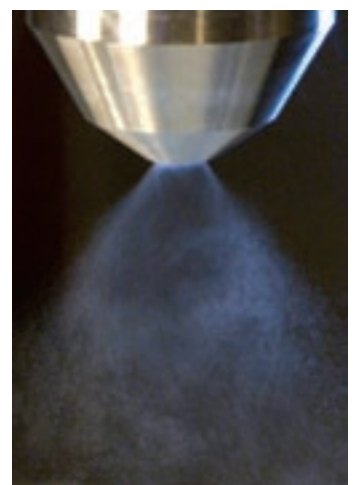
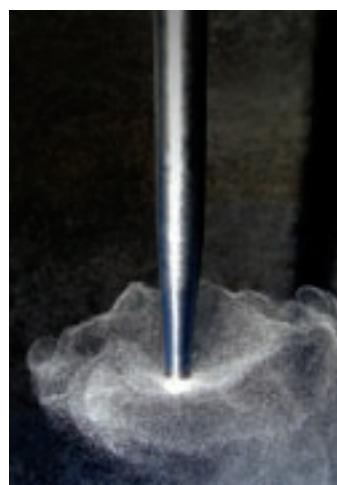
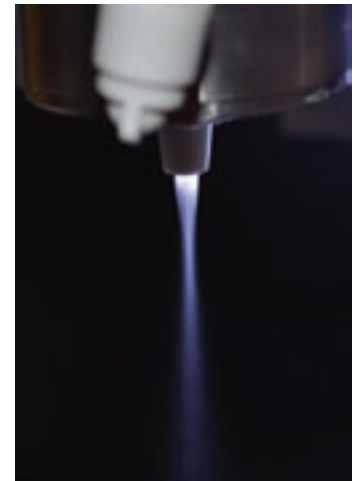
Originally, the company was primarily an equipment provider but, over the last six years, it has evolved into a systems solution provider. This means that when customers buy their machines, Sono-Tek also provides the process knowledge of how to successfully implement and maintain the equipment for their applications. Sono-Tek employs application engineers that are leaders in their field to provide expert knowledge of the how-and-why of the machines and the process.

While Sono-Tek has a number of "mature lines," such as those for blood collection tubes or coating circuit boards, its engineers are continuously working on systems applicable to manufacturing technologies still in development. Nanotechnology, for example, is opening up applications in a wide range of products, from eyeglasses to cell phones. Sono-Tek is continuously involved in cutting edge projects, such as the flexible organic LED displays that the company has been working on since 2002. "Sono-

"If you had a stent implanted in the past five years, chances are that it has been coated with a Sono-Tek ultrasonic coating system. Nearly 90 percent of drug eluting stent manufacturers use our equipment."

Tek needs to always be innovating and in touch with the next breakthrough technology on the horizon," explains Harshbarger. "This is what keeps the company growing and expanding into new markets."

The demand for Sono-Tek products is growing. Over the past 10 years the company's workforce has doubled and, Harshbarger predicts, this growth will continue. The company is currently seeking to fill engineering positions as well as positions in the machining shop (all of the key components used in Sono-Tek's machines are manufactured in-house). The work culture at Sono-Tek encourages employees to solve problems and to continually expand their knowledge base. The company has a strong commitment to promote from within and





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Sono-Tek's MediCoat systems have set the industry standard for ultrasonic coating of implantable stents, providing ultra-thin uniform coatings onto complex geometries, with complete coverage of delicate strut surfaces without webbing.

has hired former interns from SUNY New Paltz and RPI. The company is always on the lookout for innovative and knowledgeable people that want to be part of the latest technological breakthroughs.

Sono-Tek's engineers have a depth in expertise and hands-on knowledge that has made them known as leaders in their field; being a global company, many of its 70 employees are often traveling internationally. The company has six testing labs worldwide, in Germany, Taiwan, Korea, Japan, China as well as the one at the corporate headquarters in Milton, N.Y. The Milton lab has an electron-scanning microscope capable of imaging the surfaces of semiconductor wafers with structures as small as several microns. This equipment was purchased through a New York State grant to TSEC designed to promote public and private partnerships. As a provision of the grant, the equipment is available for use by other New York State companies. "This is the beginning phase of creating a TSEC SMART Lab for precision inspection and measurement. We've already had nearly 40 different companies visit Sono-Tek to use the equipment," says Harshbarger.

As Sono-Tek moves forward, that same drive to create a highly efficient product that motivated Dr. Burger in the 1970s motivates current engineers to develop new applications for ultrasonic nozzles. With a

With a company culture that encourages thinking outside the box and problem solving, Sono-Tek is always looking to the future.

company culture that encourages thinking outside the box and problem solving, Sono-Tek is always looking to the future. Its strict quality control results in products that competitors find difficult, if not impossible, to match. Sono-Tek exports 60 percent of its products overseas, with China being one of its largest markets. The sales department stays on top of trends and listens carefully to feedback from customers to keep Sono-Tek ahead of the game. Perhaps the key to Sono-Tek's success is that everyone at the company works together as efficiently and smoothly as one of its ultrasonic spray nozzles.