Cree soars for customers

BOB CREE, president and co-founder of Addex Inc., a supplier of high-performance components for blown film lines, got into the plastics industry by accident 33 years ago. But the breakthroughs that he and his company achieved were well-planned.

Cree, 60, is an avid pilot who flies across the U.S. and Canada calling on customers. His knowledge of aviation helped him and a colleague to apply airplane wing aerodynamics to a 40-year old industry problem that they eventually developed into the company's Intensive Cooling technology. The technology dramatically increases the output of blown film lines. He shared his experiences with *Plastics Machinery Magazine* senior staff reporter Bruce Adams.

How were you first exposed to the plastics industry?

Cree: My exposure to the plastics industry was accidental. In 1986, after serving as an officer in the U.S. Navy on nuclear-powered submarines, I accepted what I thought would be a transitional job to civilian life. I moved to upstate New York to work for Mobil Chemical's plastic packaging division R&D.

How did you co-found Addex?

Cree: While at Mobil Chemical, I discovered I enjoyed the mystery of the blown film process and developing equipment that made the process better. As time progressed, I could see that the corporate career path was steering me into upper management and would eventually take me away from the hands-on R&D that I loved. If I wanted to continue down a more creative path, I would have to start my own company. Going the OEM route seemed the obvious fit because it would allow me to continue to delve into the science behind the process. In addition, becoming an OEM naturally put me in front of a wide cross-section of blown film processors — so I got to see more and learn more.

What was your inspiration to develop Intensive Cooling?

Cree: The customer and hard work. I had just taken over as president of Addex, and that is when I started to fly myself all over the country to meet with processors from a sales, rather than a technical, perspective. I always asked, "If you had to pick one thing to improve the blown film process, what would that be?" The answer universally was "output rate without sacrificing quality."

CREE, *Page 67*

Just the facts

WHO IS HE: Bob Cree, president and co-founder of Addex Inc.

HEADQUARTERS: Newark, N.Y.

COMPANY FOUNDED: 1989

NUMBER OF EMPLOYEES: 16

EDUCATION: Bachelor of Science degree in physics from Texas A&M University

CREE

Continued from Page 66

Addex engineering manager Bill Randolph also worked for Mobil, and both of us together were exposed to the company's patented, very-high-output systems called Herrington Stacks. These systems delivered high output but at the cost of film quality, due to high vibrations and instability. The systems were eventually abandoned as the industry demands for higher film quality became the norm.

All the patents had long since expired, and Bill and I settled down to study what was happening. We used some hard modeling, pilot line [R&D] time and a lot of sweat, and, eventually, through application of the same science that applies to airplane wing aerodynamics, an idea sparked of how to solve the vibration issues of that 40-year old technology. More development work led to Intensive Cooling.

Did Addex's Intensive Cooling height-adjustable twin-stack system evolve from Intensive Cooling?

Cree: The twin stack is just one form of Intensive Cooling. Originally, Intensive Cooling was a four-element system and the output rates produced were rather extreme — too high for the retrofit market. We further developed Intensive Cooling to work with three elements, then two elements and finally just a single element "down-on-the-die," which is our most popular version of Intensive Cooling today.

The height-adjustable twin stack was designed to serve what turns out to be a relatively small retrofit market segment that can handle the higher output capability. These systems can deliver so much output that you need to build a whole new line that is designed for it. Since Addex no longer builds full lines, these systems have been placed into the hands of other OEMs who are developing the concept of Intensive Cooling for integration into new lines, which can be specifically designed to handle the greater output rates.

What are some important milestones for Addex?

Cree: The first major advancement was bringing the first dedicated microprocessor-based IBC [Internal Bubble Control] system to the market in 1989-1990. After that, we put a lot of effort into studying gauge variation dynamics in blown film and, in the mid-1990s, came out with automatic profile controls that had resolution in excess of 360 zones.

As we developed different equipment targeted toward building full lines, we were inspired by the artwork of M.C. Escher, who used equal but opposite images that perfectly interlaced. This led us to apply the equal and opposite concept in multiple Addex products — the anti-web wanderer, anti-camber features of oscillation hauloff, interlaced flows within each layer of our REDI die, and even eventually Intensive Cooling, which uses airflows that go in opposite directions that then create the vacuum that holds the film and keeps it stable.

To what do you attribute Addex's success?

Cree: Scrappiness. When the industry was at a very low point, we managed to hang together and pull through the economic downturns. We are one of the last few blown film primary equipment OEMs surviving in the U.S. market, and we did that by recognizing the market shift away from selling customized full lines. In our case, we decided to stop selling full lines altogether and instead go vertical in just the cooling segment of the market. We're still here due to our unique new product developments that satisfy customer needs.

Do you hold any patents?

Cree: I personally hold or I am co-inventor on 27 patents with five more currently in application stage. Of these, 29 belong to Addex in blown film, and three are associated with another one of my passions, technical scuba diving. Most of the Addex patents involved co-inventors, such as Bill Randolph on Intensive Cooling, External Gauge Control and earlier ones related to horizontal oscillating hauloffs and our REDI die. In addition, we have patents in IBC control and winding technologies.

What is Addex working to develop now?

Cree: Fully implementing Intensive Cooling technology. We are refining the twin-stack to improve simplification and achieve higher output, and plan to exhibit that at the K show in October. Our next version of controls will integrate a self-diagnostics capability — before a problem occurs, the system will provide significantly enhanced capability for identifying electronic and process problems that will allow better local and remote diagnostics.

How does your passion for flying intersect with your business?

Cree: I started flying in 1978 when I got my private pilot license after high school in Houston. Flying fell by the wayside until a few years ago when I was preparing to take over operations of the business from my semi-retiring partner. I realized I could visit our customers, save time and avoiding the hassles of commercial aviation. I brushed off my logbook, got a fresh flight review and an instrument rating, plus received flight endorsements that would allow me to fly high-performance and complex aircraft. I rented a Cessna 182, Piper Arrow and Mooney 231, using each of them to travel all over the U.S. and Canada. Later, we purchased a 1995 Mooney Bravo, a turbocharged aircraft with technically advanced avionics that's rated for flying into ice because we are based in the Northeast.

Do you have any other hobbies?

Cree: I currently enjoy flying, cave diving, hiking, canoeing and primitive camping. Growing up, I was into amateur radio, model rocketry, playing the clarinet, photography, sailing and astronomy. I've also enjoyed winemaking and building furniture.

How would you like to be remembered?

Cree: As someone who contributed to the advancement of blown film technology, who enjoyed thinking outside the box, a problem solver, with a knack for making things work, a straight shooter, someone who treated people fairly and generously, and was passionate about inventing.