If At First You Don’t Succeed, Dry Again

When it comes to fenestration, the components of today’s energy efficient doors and windows should be made with the same attention to resource management. Recently the Amesbury Group’s Textile Facility, part of its Sealing Solutions Division, completed a compressed air reduction project which will yield a $41,000 annual electricity cost savings in their extrusion department. Yet, replacing compressed air nozzles with a blower-powered air wipe system wasn’t as simple as it first appeared.

The process began when Joe Henry, Engineering Manager at Amesbury Textile in Statesville, North Carolina, was appointed as the Green Corporate Coordinator for Amesbury Group’s manufacturing plants located in Massachusetts, New York, North Carolina, Minnesota, South Dakota, California, and Juarez, Mexico. Divided into sealing, hardware, and extrusion divisions, Amesbury produces window and door components used by fenestration industry leaders like Marvin and Anderson. “We wanted to know what we could do to make our products greener, make the environment greener, and save energy at our facilities,” Henry explains. “Energy, solid waste, and recyclability are our three major initiatives at every facility nationwide.”

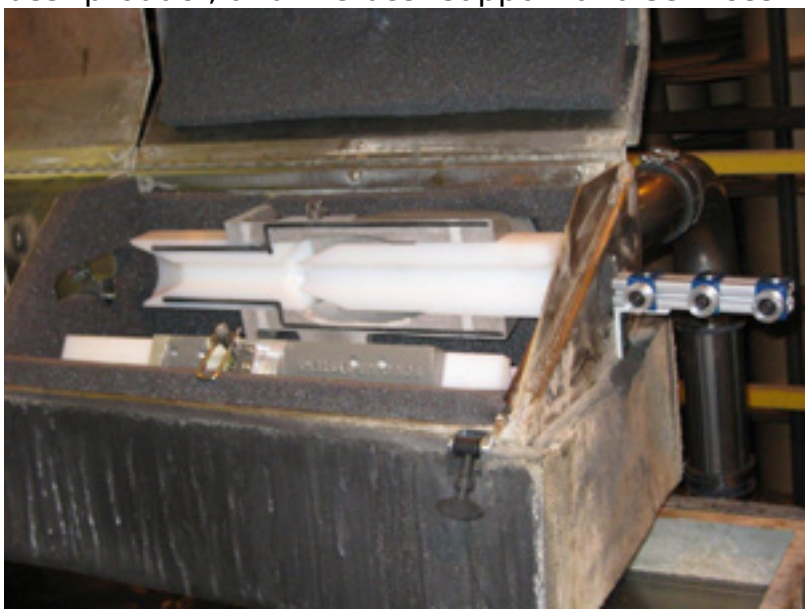
A review of Henry’s own Textile Facility in North Carolina revealed a huge energy drain from the use of compressed air in the blow-off and drying of plastic extrusion window insert. The production process involves running hot plastic through a die to create the desired profile, then extruding it into a quench bath for cooling. The product was then dried by the plant’s 100hp air compressor with its nozzles

configured to provide 360˚ air coverage over the thin, grooved extrusion.

"The compressed air worked, but required nearly 3/4 of our total plant air consumption for just these extruders**,**" says Henry. "We sell by the foot, so by tying the energy use to the footage produced, we calculated that compressed air was costing 13 cents per thousand feet of extrusion."

Henry began to search for alternatives to compressed air and located Sonic Air Systems, Inc. of Brea, California, a designer and manufacturer of high velocity air blower and air knife systems. Coincidentally, Sonic has for many years been supplying blowers and air knife systems to all of the major door and window manufacturers for drying and coating control applications.

The choice of Sonic was the culmination of more than a year's work on the part of Henry's engineering team. "We evaluated multiple suppliers, systems, and equipment as well as worked on understanding the use of energy and how the savings are realized," Henrys says. "Through this analysis, we selected Sonic Air Systems represented by Todd Air Solutions as offering the best engineering, the best product, and the best support and services."

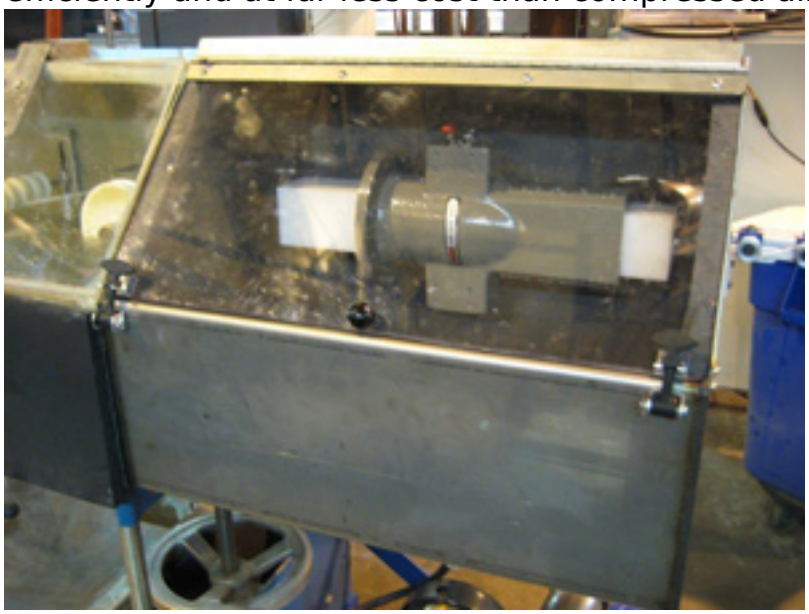


At Henry's request, Sonic's North Carolina representative Tom Todd of Todd Air Solutions visited the Statesville plant where the first Sonic equipment would be installed. Todd, Henry, and the Amesbury engineering team conferred several times at the plant. Henry then visited Sonic's factory in Brea, California, and evaluated its capabilities during one of his routine trips to Bandlock, part of Amesbury's Extruded Products Division. Donna DeRuyter from Sonic accompanied Henry to his Ontario plant to see some of the products and processes.

Space constraints at the North Carolina facility differed from the Ontario site, and Todd and Henry realized that Sonic's blow-off device would need to fit into a small, clamshell-shaped stainless steel enclosure where the compressed air nozzles were presently located. Sonic knew that the Sonic Air Wipe, a device it has provided to wire and cable extruders for 15 years, was much larger than the compressed air wipe, so they elected to quote Sonic XE air knives to meet Amesbury's requirement. Though the compressed air nozzles delivered 360˚ air coverage to

Amesbury's thin, flexible extrusion, Sonic calculated that two Sonic Air Knives and a high velocity 7.5 hp Sonic Blower with a maximum discharge air velocity of 28,000 fpm would work equally well.

A 100 percent performance guarantee is standard for every Sonic drying system. "They stood by it," Henry says. Sonic lab-tested a new custom-sized split Sonic Air Wipe to replace the less costly air knives at no charge to Amesbury. "Henry's engineering crew in Statesville was great to work with and very innovative in trying to fit the proverbial 5 lbs. in a 2 lb. bag," Todd recalls. "They were patient, thorough and Sonic could not have achieved the final success without them." With further modifications at the Textile Facility, the system dried the extrusion completely, efficiently and at far less cost than compressed air.



"We did an ROI analysis, and Sonic did their analysis. Then we compared the results. We wanted to make sure we were very close to each other's estimates. We were," Henry adds. The system will pay for itself in a little over one year, and Sonic's high velocity air solution is on track to save Amesbury Group $41,000 in 2010. By Henry's team's calculations, that works out to a savings of six cents per thousand feet produced. Henry installed the Sonic blower/air knife system in Q4 of 2009. "This is something we can take to every one of our facilities that extrudes."

"Energy and cost savings were number one," Henry says. "I went into this thing to reduce energy by 20 percent, and we are more than that. Management is very excited about the energy savings."

However, there are other benefits of the Sonic system. "With compressed air, you always have small, minute particles of oil and even water in your air. With the blowers, not only do you dry the part, but you remove all oil contaminants. Also, the nozzles that we were using for compressed air were extremely loud, so from a health and safety standpoint, the air wipe is much quieter."

There were a few final tweaks of the system. For example, a switch was made to a hinged air wipe that "made the whole process more user friendly for the operator from a set-up standpoint. If the operator is taking longer to set the machine up, you're not going to be as efficient," Henry says.

Even the plumbing was fine tuned. “Sonic provided a complete system, including the plumbing,” says Todd. “We replaced the original flex hose that was chewing up air flow due to high static with tubing as one final tweak. As an aside, we’re finding more customers want complete and or turnkey systems. I think this may be due to cutbacks in maintenance and engineering personnel. Being able to provide the complete system, including design, is part of the Sonic advantage.”

Soon, the Sonic solution will replace compressed air at more Amesbury Group facilities, starting with Bandlock in Ontario, California, located just 45 minutes from Sonic’s corporate offices, lab and manufacturing center. “Bandlock is currently in testing mode,” Henry adds. It’s a satisfying conclusion for two companies dedicated to the green future of fenestration who were willing to dry, dry and dry again to achieve the goal.

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