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Amesbury Uses New Air Drying System to Save Energy, Money

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Companies

As part of green initiative, the Amesbury Group recently installed a blower-powered air wipe system to dry extruded plastic at its Statesville, N.C., textile facility. The compressed air reduction project is expected to yield \$41,000 annual electricity cost savings in the extrusion department at the plant, with the industry supplier planning to bring in similar equipment at its other facilities around the country.

The process began when Joe Henry, Amesbury Textile's engineering manager, was appointed green corporate coordinator for Amesbury's plants located in Massachusetts, New York, North Carolina, Minnesota, South Dakota, California and Juarez, Mexico. "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 the North Carolina plant revealed a huge energy drain from the use of compressed air in the blow-off and drying of extruded plastic after it comes out of the extruder and goes into a quench bath for cooling. The product had been dried by the plant's 100 hp air compressor with its nozzles configured to provide 360° air coverage over the thin, grooved extrusion.

"The compressed air worked, but required nearly three-quarters of our total plant air consumption for just these extruders," Henry states. That led him to search for alternatives to compressed air, during which he found Sonic Air Systems Inc., a manufacturer of high velocity air blower and air knife systems serving a multitude of industries. Coincidentally, Sonic had also been supplying Blowers and air knife systems to major door and window manufacturers for drying and coating control applications for many years.

"We evaluated multiple suppliers, systems and equipment as well as worked on understanding the use of energy and how the savings are realized," Henry says. Sonic's North Carolina representative, Tom Todd of Todd Air Solutions, visited the Statesville plant where the Sonic equipment would be installed. Space constraints at the facility meant that Sonic's blow-off device would need to fit into a small, clam-shell-shaped stainless steel enclosure where the compressed air nozzles were presently located. Sonic calculated that two of its air knives and a high velocity 7.5 hp blower with a maximum discharge air velocity of 28,000 fpm would work equally well as the compressed air nozzles Amesbury was using to deliver 360° air coverage to its extrusions.



Sonic installed its drying equipment at the end of extrusion line cooling tank in its Statesville plant. Space constraints required the air knives to fit in a clam-shell enclosure (shown open).



The new equipment did not work initially, however, “The compressed air ring formed a circular curtain of air, while our air knives placed on top and bottom just couldn’t dry the sides of the extrusion,” explains Daniel VanderPyl, Sonic president and co-founder. “Also, we neglected to qualify how much tension was on the extrusion. Unlike the drying we do for extruded convers on wire and cable, which is a proven Sonic application, this was soft and flexible rubber with a much lower linear tension. The high velocity of or air knives caused the extrusion to whip around in Amesbury’s clam-shell box which prevented Sonic from achieving a dry extrusion.”

With a performance guarantee offered on its drying systems, Sonic then lab-tested a new custom-sized split Sonic Air Wipe to replaced the less costly air knives at no charge to Amesbury, officials explain. “Joe’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 Amesbury 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 reports. Installed in the fourth quarter of 2009, the system will pay for itself in a little over one year, and is on track to save Amesbury Group \$41,000 in 2010, officials state.

“Energy and cost savings were number one. 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,” Henry adds. “This is something we can take to every one of our facilities that extrudes.”

There are other benefits of the new equipment. “With compressed air, you always have small, minute particles of oil and even water in your air,” Henry notes. “With the blowers, not only do you dry the part, but you remove all oil contaminants. Also, the nozzles that were using for compressed air were extremely loud, so from a health and safety standpoint, the air wipe is much quieter.”