



Dynisco Pressure Transducers Relay Vital Information for Closed Loop Control

One of the fastest growing areas for the use of pressure measurement instrumentation is in the co-extrusion of multi layer barrier structures. Many leading co-extrusion design and manufacturing firms, such as the Cloeren Company, engineer melt pressure transducers into their systems for closed-loop process control.

The Orange, Texas-based Cloeren Company entered the co-extrusion market many years ago with the introduction of its adjustable vane feedblock. During the last few years the company has expanded its engineering expertise beyond feedblock technology to include custom co-extrusion system design, the bulk of which are engineered for flexible packaging applications. The trend in the industry, Cloeren said, is toward thinner films with wider viscosity ranges. Most applications require three-to-five extruders to produce composites ranging from five-to-nine layers.

As polymers and co-extrusion processing systems become more complex, the reliance on pressure measurement has increased dramatically. Cloeren uses Dynisco melt pressure transducers which are integral to closed-loop process control and monitoring.

"The tendency in the industry is to go to SPC control," Cloeren said. "We've developed the know-how to use multiple pressure measurements in a single fluid-line to our advantage in the troubleshooting process. The information relayed by the Dynisco transducers is used to get the line up on-stream faster and the utilization of melt pressure transducers at different points along the line has become integral to our SPC formula."

The Cloeren Company typically place melt pressure transducers at the die to stabilize melt output, at the melt pump to reduce inlet pressure instability, and at the feedblock to balance the layers. The pressure measurements at these points minimize variations in extruder output.

"A seven layer system using five extruders is pretty common in our line of work. We currently have a commercial application in Europe, for example, that's going from 9 layers to 13 layers. The processor is producing flexible packaging that significantly extends shelf life for fresh meat and fish. That line has 9 extruders on it, all of which connect to the

feedblock, and is equipped with approximately 40-45 Dynisco transducers. Some people may think we go overboard measuring points," Cloeren explained, "but the information the transducers provide is vital to producing quality product."

"Each transducer on that line is part of the process control loop. Any variance in pressure signals to the operator that problem exists which must be immediately corrected. As far as this particular customer is concerned, any pressure that's out of tolerance means that their product is out of tolerance."

With 60% of the Cloeren Company's business coming from outside the U.S., the firm requires its system suppliers to have a worldwide service network. The suppliers must also have a proven track record in the plastics industry, and reliability must be solid.

"The criteria we use to judge our suppliers comes down to performance and a shared attitude toward helping our customers," Cloeren remarked. "When we have a customer who's just wasted product, for example, he's backed into a corner and needs immediate help correcting the problem. Our philosophy and that of our suppliers is to solve the problem first and ask questions later."

Cloeren believes in specifying what he considers to be the best components for a co-extrusion system. These components, he acknowledges, significantly add to the cost of an engineered system but are well worth the price in terms of reliability.

"We've tried the majority of the commercially available transducers, and gear pumps in the marketplace," Cloeren noted, "and the suppliers we work with are the most consistently reliable. There are less expensive transducers out there than those made by Dynisco, and less expensive gear pumps out there than those made by Normag (now Dynisco Beringer), but we've found that less expensive generally means less reliable. As a result, we use Dynisco and Normag (Dynisco Beringer) exclusively."

"We go with what we believe is the best and although that may add to the bottom line cost, we're very successful with it. I firmly believe that you get what you pay for."



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