

Automotive Door Seals – Dual Durometer Monitoring and Set-Up Efficiency

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One Top-5 manufacturer of automotive door and window seals employs Profile360 to continuously monitor EPDM extrusions for a luxury car maker with manufacturing in the US.

When a die is installed for a new run, all line set-ups are done according to a prescribed set-up standard. This gets the profile dimensions close to specification, but not nearly close enough to meet the quality requirements. Traditionally, tuning the line to meet specification required trial and error, according to the operator's experience. Checking was done with an off-line optical comparator. Optical comparator results could be easily influenced by handling and deformation of the cross-sectional sample. As a result, considerable time was wasted getting a line in spec. According to the Area Extrusion Engineer, "The unexpected benefit of the on-line system is that we get much faster startups for die-changes. The real-time display allows us to quickly see the results of all equipment changes. The operator can now start up a die and tune it into specification much faster, resulting in less scrap and higher production yield."

Profile360 serves a line that makes dual-durometer door seals. Calipers are set to measure features for each durometer compound. By observing the dimensions of both dense and sponge compounds, the operator can tweak the process by adjusting both extruder speeds and the speed ratio. The bulb diameter is also monitored, and adjusted when necessary by changing the air pressure. The bulb-lean is also checked with a special caliper. According to the operator, "Bulb size and lean can easily fall out of specification due to changes in the equipment and materials. I can get the profile back in spec simply by tweaking the air pressure or mechanical guides."