

EXTRUSION COMPRESSION MOLDING WITH IN-LINE MATERIAL COMPOUNDING FOR INSTRUMENT PANEL RETAINERS

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ABSTRACT

A majority of instrument panels produced globally today consist of a retainer (substrate) manufactured using thermoplastic injection molding process technology. Although injection molding is a very mature and robust process, a relatively new LFT process technology termed extrusion compression molding with in-line material compounding (ECM w/ILC) has demonstrated that, depending on the specific product design and production volume, significant piece cost savings and performance enhancements can be achieved.

In general, the extrusion compression molding process offers the opportunity to minimize molding process cycle time, clamp tonnage, and part wall thickness. In-line material compounding enables the molder to minimize the polymer cost by compounding fiber rovings with a thermoplastic resin at the molding equipment as opposed to purchasing a pre-compounded material from a resin supplier.

Specific to the instrument panel application discussed below, ECM w/ILC offers a substantial reduction in cycle time and material cost, while dramatically improving impact performance relative to glass reinforced materials that are injection molded. Combined with a low molding scrap rate, the opportunity to further reduce nominal part wall thickness, and the ability to fine-tune the material formulation to meet specific product requirements, this technology has demonstrated its attractiveness for application on future instrument panels and other large molded parts.