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Measurement of Pressure Distribution in Partial Thin-Wall Cavity in Ultra-High-Speed Injection Molding

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To visualize resin filling behavior in cavities during ultra-high-speed thin-walled injection molding, the authors propose a method combining the use of a movable cavity block and optical fiber sensors. In this study, instead of using optical fiber sensors, four pressure sensors are installed in the movable block, and the pressure change data of multiple shots is overlapped to measure the changes in pressure distribution. In measurement experiments, pressure distribution was measured in a 0.5 mm thick rectangular cavity with thin walls of 0.2 mm in thickness, and pressure was clarified in the holding pressure and cooling processes following the filling process. In particular, characteristic pressure re-increases at the thin-walled portions during the holding pressure and cooling processes were investigated mainly, and the mechanism reviewed.