MOLD-INTEGRATED MOLDABILITY ENHANCEMENT METHODS OF ULTRA-THIN WALL INJECTION MOLDING PLASTIC ARTICLES

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The need for thinner and lighter-weight parts with high strength has been an important step in the evolution of new technologies. As a result, injection molding of ultra-thin wall polymers and composites has become an increasingly important process for the mass production of thermoplastic parts in applications ranging from mobile electronic including laptop computers, smartphones and tablet devices microelectromechanical systems (MEMS) and biomedical and optical devices [1].

The presented three-plate plastic injection mold is designed to operate with babyplast® 6/12 or 6/10 machines. Mold-integrated, key moldability-enabling technologies and methods have been implemented in order to ensure commercially acceptable molded article quality and industry-fit process efficiency. Vacuum-Assisted Injection Molding (VAIM) and External Induction Heating Temperature Control (EIHTC) are the most important among them.

The goal of this work is to demonstrate how compact tooling together with high-level integration of molding-enhancing technologies can create a balanced paradigm regarding tooling cost, energy costs, process efficiency and overall moldability of ultra-thin wall plastic articles.

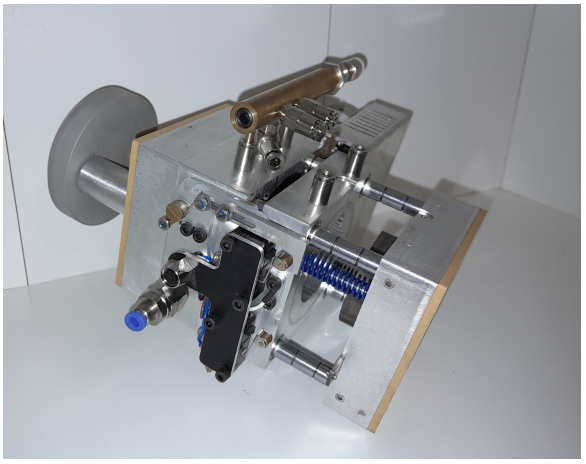

Fig. 1. Three-plate plastic injection mold with VAIM and EIHTC technologies

[1] Shia-Chung Chen, Lih-Sheng Turng and Musa R. Kamal. Advanced Injection Molding Technologies. Carl Hanser Verlag, Munich (2019) p. 349.