Course Introduction

Gas-assisted injection molding process was developed in 1970’s for improvement in surface quality of product and reduction of product warpage, cycle time, clamping forces, material/cost and product weight. The typical procedures begin with a partial or nearly full injection of molten plastic into the mold cavity; then compressed inert gas is injected through a nozzle into the mold cavity. During the gas injection stage, nitrogen is usually used and preferentially flows through the hot core of the thick sections. The molten plastic is replaced and occupied by injected gas. The process ends up with a hollow product so that this molding process not only saves material/cost but has better packing effect. As a result, product defects, such as warpage and sink mark, can be minimized. In addition, process cycle time is reduced since the packing stage is replaced by gas injection stage and cooling time is shorten due to less material used.

Goals

- Understand fluid-assisted injection molding process
- Realize the advantages/disadvantages of fluid-assisted injection molding
- Understand the differences between GAIM, FAIM, and conventional injection molding
- Experience how to use CAE to verify FAIM process
- Find out the benefits of FAIM through real case studies

Course Information

Date: Please refer to official website
Organizer: CoreTech System
Contact: mkt@moldex3d.com
Remark: Small class size of 8-10

Topics

- Introduction to gas-assisted injection molding
- Advantages/Disadvantages of GAIM
- GAIM, FAIM, and conventional injection molding
- CAE analysis and GAIM validation
- Case studies
- Q & A

*The agenda is subject to changes.*
Course Content

The gas-assisted injection molding is capable of flexible design and manufacturing of plastic products once the physics which leads to the various advantages and the inherent difficulties associated with the design and processing is fully understood. This workshop discusses the recent researches and applications of GAIM, also the development of Computer-Aided Engineering (CAE) technology for GAIM. CAE tools can help validate design and offer a complete solution. For example, processing phenomena such as penetration length, core-out ratio, warpage and penetration behavior related to several important factors such as gas pressure and short-shot size, can be predicted via CAE analysis. This powerful tool for design revision and quality improvement allows users to have prevision of potential problems of a design in real time and reduce try-and-error to minimize manufacturing cost. In addition, various technologies for the gas-assisted injection molding process will be reviewed for establishing preliminary design guidelines.

Participants

- Enterprise owner
- Engineer (RD, Manufacturing, Product design, Mold design etc.)
- Mold manufacturer
- Material supplier
- Academic
- Whoever interested in advanced plastic process manufacturing

Instructor

Our professional instructors all hold extensive qualifications and have many years of hands on experience in injection molding industry. A strength of Moldex3D Advanced Molding Technology Workshop program is our committed and highly experienced instructors. Driven by their passion for the injection molding industry, our instructors are specialists in their relative fields with first-hand knowledge of their industry.