CASE STUDY

RHEOLOGICAL CONTROL SYSTEMS™

Beaumont

Revolutionizing Injection Molding

iMARC™ optimizes fill pattern & weld-line for Siemon

iMARC™ IN-MOLD ADJUSTABLE RHEOLOGICAL CONTROL

Benefits of iMARC™

- Control cavity-to-cavity & intra-cavity balance
- Control/Optimize molded-in stress
- Reduce mold approval time
- Creative a universal mold balance for any material or process

SIEMON™

Siemon Corporation was developing a new connector in a single-cavity prototype mold, but it had concerns regarding the weld-line strength in a critical area. To complicate matters, two materials (LCP and PC/ABS) needed to be evaluated utilizing the same gate location and runner design. Working through Tech Tool & Mold, the engineers at Tech recommended Beaumont's adjustable rheological control mold inserts (iMARC™) in order to optimize the filling pattern and the weld-line strength. Initial testing using a conventional runner design produced a gas trap in the middle of the part and a weld-line strength that did no meet minimum part requirements.

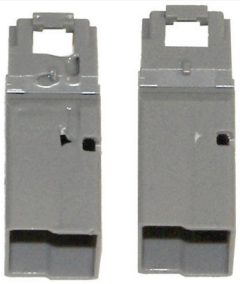


Figure 1: Conventional fill pattern and resulting gas trap

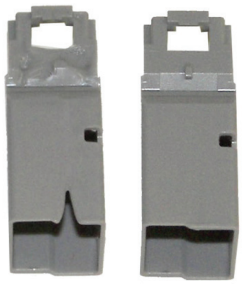
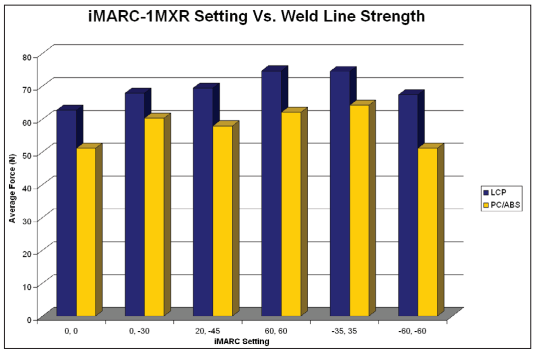


Figure 2: iMARC optimized fill pattern



PROJECT DESCRIPTION:

- Single-cavity prototype mold
- Connector
- PC/ABS or LCP material

PROBLEMS:

- Gas trap during conventional filling
- Weld-line strength
- Critical time-to-market

SOLUTIONS:

- Install iMARC Mold Insert
- Adjust iMARC to achieve desired results

BENEFITS/SAVINGS:

- Fill pattern easily optimized to eliminate gas trap
- Weld-line strength increase of 16% to 20%
- No part or mold redesign required
- Met critical time-to-market deadline

By optimizing the filling pattern using iMARC™, the processor was able to easily move the last place to fill to the parting line of the mold; thereby, eliminating the gas trap condition. Additional adjustments were made to further optimize the filling pattern considering the weld-line strength. The end result was a weld-line strength increase of 16% up to 20%, depending on the material, which allowed the part to surpass all functional testing. Ultimately, the customer was able to meet the critical time-to-market demands for the product while saving time and money by not having to redesign the part or mold.

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