

Troubleshooting a Squish Mold

Problem Definition

1. How many different mold sets are in production?
2. Does the problem occur more or less equally with all mold sets or is it concentrated in one or more?
3. Approximately what is the incidence of the problem?
 - (1) 1%
 - (2) 10%
 - (3) Greater than 10%
4. How long has the problem been going on?
5. Was there a time when you produced close to zero defects?
6. If so, what was different then than now?
7. Is it always the same problem or are there a variety of issues?
8. Is there a representative part that could be sacrificed?
 - (2) Are there any procedures (double checks) in place to help make sure that the operator loads the design amount of glass each time?

Material Flow

1. Core Issues

- (1) Is the core the proper size (L x W)? This is best seen in the sacrificed part. Generally, the core should extend halfway into the side-walls.
- (2) Is the core contoured properly in the corners?
- (3) Can the material flow from under the core and up through it? Generally, the scores alone will not allow enough of the material to pass through to provide uniform flow.

2. Material Introduction Issues

- (1) How is the material introduced? Manually? Equipment?
- (2) Is the amount of material measured? Stroke counter? Graduated container?
- (3) Are there any guidelines in place as to how much material is used below the core versus above?
- (4) How uniformly is the material applied?

3. Press Issues

- (1) Is an air bag press used? If no, how is pressure applied?
- (2) Is a regulator and gauge visible to operator?
- (3) Is it used to increase pressure or is an on/off valve used?
- (4) The recommended technique is to increase the pressure slowly and in steps, allowing the material to reach equilibrium each time before going to the next step. This avoids expelling material prematurely through the path of least resistance and not having it available to fill air voids or dry glass elsewhere.

Glass Loading

1. Design

- (1) What is the laminate schedule?
 - Under the core?
 - Over the core?
 - Do all go up the sidewalls?
 - 1 ½ or 2 ounce? Continuous?
 - Do you tailor V's into corners using a template?
 - If so, are these properly and consistently located? The points of the V's should coincide with the four corners of the finished hatch. Do they?
- (2) What is the intended percentage of glass by weight in the sidewalls?

2. Tooling

- (1) On a trimmed hatch, check the sidewall thickness in 12 places (4 sides times 3 measurements per side). Exclude the gel coat thickness, if possible.
- (2) How do these observations compare to the design thickness?
- (3) How much variation is there in the 12 measurements?
- (4) Are there any "pinch points" with excessive glass loading?
- (5) Is there evidence that pinning the molds would help?

3. Production

- (1) In the sidewall measurements was there any evidence of excessive gel coat thickness particularly due to runs or sags?