Designing Parts for Injection Molding

5 Design Decisions That Impact Cost, Quality, and Manufacturability

Injection molding performs best when parts are designed for manufacturability. Smart design decisions reduce tooling cost, prevent defects, and shorten production timelines.

1. Choose the Right Resin First

Material choice affects durability, appearance, cost, and manufacturability. Selecting the proper resin early helps prevent redesign and performance issues.

2. Maintain Consistent Wall Thickness

Uneven wall thickness causes shrinkage, sink marks, and warping. Uniform walls improve strength, appearance, and mold performance.

3. Use Ribs for Strength

Ribs add structural performance while keeping parts lightweight. Proper rib design prevents sink marks and ensures smooth mold release.

4. Minimize Undercuts

Undercuts complicate mold construction and increase tooling cost. Designing parts that release cleanly reduces manufacturing complexity.

5. Define Surface Finish Early

Finish requirements influence mold machining and cost. Deciding early prevents delays and unexpected tooling expenses.

Smart Design = Faster Production + Lower Cost

Designing for manufacturability from the start improves quality, reduces tooling issues, and helps products reach market faster.

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