



- 1. SPI Mold Surface Finish** — Helps part designers and marketing to understand appearance of final product
- 2. Boss** — Will be weak if too thin and create sinks or voids if too thick
- 3. Thick Section** — Increases part strength, but also increases cycle time, piece price, and risk of shorts or voids
- 4. Ribs** — Provide structure for a product, but will produce sinks on the opposite surface or voids if too thick
- 5. Gussets** — Provide support for a boss, but if we look closely they can improve strength based on material flow



DesignPod

The Design Pod was created to show the effects of both good and poor design practices, which can yield typical molding non-conformities. Understanding how to avoid these poor practices can help minimize design changes, shorten lead times, reduce costs, and improve the quality of plastic injected molded products. Here is a walk-through of each feature of the Design Pod and what to watch out for during the design process.



DesignPod



6. **Snap Features** — Have interference to hold pieces together without fasteners
7. **Living Hinges** — Allow for lid and container to be molded in single cycle, but be aware polymer orientation is key to success
8. **Thickness Changes** — Can reduce cost for material and cycle but beware of backfill and short shots if too thin
9. **By-Passing Shut Off** — Allows for features to be created without expensive slides
10. **Tear Seam** — Found in airbags and requires focus efforts for gating, polymer orientation and cooling
11. **Snap Features** — If the product design allows a hole the feature can be created without complicated slides
12. **Through Holes** — Features where the polymer must flow around can create knit or meld lines, which have decreased strength properties
13. **Intersecting Ribs** — Can create thick wall sections leading to sinks or voids, offsetting them can minimize these non-conformities
14. **Core-Out** — Allows for the consistent thickness to be maintained while reducing the risk of sinks or voids
15. **Ribs Against Flow Direction** — Act like a dam creating a restriction within the cavity
16. **Ribs in Flow Direction** — Help to promote polymer through the cavity
17. **Ribs shape** — Can either cause or prevent short shots or burns; remember: square is bad