



- 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