| **Review Checklist for Plastic Part Design** | |
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| Item | Completed (Y/N) / Risk Mitigation |
| 1. Is the drawing a plastic part drawing or “steel part drawing”? Is this clearly marked on the part drawing?  * A steel part drawing is the plastic part with shrinkage dimensions applied, so that the mold designer does not need to add shrinkage. This is often used when the shrinkages are not uniform around the part |  |
| 1. Is the shrinkage defined? Is there 1 general shrinkage or multiple shrinkages? |  |
| 1. Are part weight and tolerances clearly shown? |  |
| 1. Is all geometry defined? (radii, angles, etc.). Are complicated details called out in blow-ups and section views such that the part design is fully understood? |  |
| 1. Are all negative drafts on the part eliminated? Are all drafts defined, including ribs, bosses and sidewalls? |  |
| 1. Are there any sharp corners on the drawing? If possible, a minimum radius of 0.25 mm (0.010″) should be used on plastic parts. 0.8 mm (0.030″) is the minimum recommended radii as the stress concentration is mostly eliminated above this. |  |
| 1. Are the parting lines and all split lines defined? Are all intentional mismatches between core and cavity shown and defined? |  |
| 1. Has a CAE flow analysis been conducted? Will the part fill and avoid any problematic weld lines and potential voids? Review the L/t ratio (length of flow/thickness) and confirm it is acceptable. |  |
| 1. Are all venting locations shown and vent sizes defined? |  |
| 1. Are all potential pinch points to the flow of the molten plastic eliminated? For example, are all thick sections that may cause „race tracking“ of molten plastic eliminated? |  |
| 1. Are horizontal sections (bottom/stack shoulder) 0.05 mm thicker to account for stack compression and ease of filling? |  |
| 1. Are locations where sinks may occur (like at the end of a rib) called out? Are thick to thin transitions designed correctly to reduce sinks? |  |
| 1. Is the gate position defined and an acceptable gate vestige called out?  * Usually, the acceptable vestige for a valve gate is flush with the molding surface or slightly into the molding surface to prevent interference. Normally acceptable vestiges are around 50–75% of the gate diameter if the gate is a hot tip. Is a dimple needed to hide the gate vestige? |  |
| 1. Is allowable warpage called out? |  |
| 1. Do the parts need to stack and de-nest? If so, is the stacking height shown, and is there a diagram showing the stacking of the parts? |  |
| 1. Are all ribs and bosses shown in plan view, top view and side view? |  |
| 1. For multi-cavity molds, is the cavity numbering identified? |  |
| 1. Are all molding surface finishes defined? |  |
| 1. Is all required engraving shown on the part? For example, does the engraving need to be mirrored on the molding surface? |  |
| 1. Is any geometry to be left off until after the first test? (Pull rings, engraving, etc.) |  |
| 1. For critical dimensions, will the dimension be left “steel-safe” for the first run so that the sizing can be adjusted? |  |
| 1. Have any deviations to standard tolerancing of molding surfaces & fits been noted? |  |
| 1. Has the part drawing been reviewed with the customer and signed off? |  |