

Troubleshooting Guide for Blow Molding

Problem	Possible Causes	Possible Solutions
1. Parison not being blown	Defective blow timer, clogged blow lines, or too sharp pinch-offs	<ul style="list-style-type: none"> • Replace blow timer • Clean blow lines • Stone pinch-offs to create more pinch area • Reset cushion • Clean tooling
2. Parison curling	Mandrel and bushing not flush, bushing too cold, low container weight, or stock resin temperature too low	<ul style="list-style-type: none"> • Remachine tooling • Raise bushing temperature • Check heat controllers • Increase container weight • Increase stock resin temperature • Center mandrel in die • Check screw tip design
3. Drawdown, parison sag/stretch	Too high parison temperature, melt index of resin too high, or mold open time too high	<ul style="list-style-type: none"> • Decrease stock temperature • Increase extrusion pressure/rate • Decrease extrusion back pressure • Use lower melt index resin • Reduce mold open time • Decrease container weight
4. Parison tail sticking to parts	Parison too long	<ul style="list-style-type: none"> • Shorten parison length or increase pinch-off land area to cool compressed tail
5. Rough parison surface/uneven parison thickness	Extrusion speed too fast, cold parison, stock temperature too low, resin melt index too low, loose mandrel, or insufficient venting	<ul style="list-style-type: none"> • Adjust extrusion rate • Increase stock temperature • Use resin with higher melt index • Check mold alignment • Check tool design • Add venting by either sandblasting the mold surface channels or venting the interior of the mold
6. Black specks in containers	Resin hang-up in die, or material contamination	<ul style="list-style-type: none"> • Clean die surface and tooling • Check material for contamination
7. Bubbles/fish eyes	Blow air orifice too small or restricted, low stock temperature, mold temperature too low, tooling damage, or wet and contaminated resin	<ul style="list-style-type: none"> • Check the orifice for restrictions and size • Increase air pressure • Increase melt temperature • Increase mold temperature • Check tooling • Check resin for moisture • Check for contamination • Check for resin lines and/or streamers

8. Streaks	Stock temperature too high, contamination in die head, or degraded material on tooling	<ul style="list-style-type: none"> • Decrease stock resin temperature • Check heat controllers • Clean die head • Check for contamination in material • Clean tooling • Decrease extrusion back pressure • Decrease regrind level • Check design of flow path in die
9. Scratches and die lines	Stock temperature too low, die surface poorly polished, extrusion rate too slow, or damaged tooling	<ul style="list-style-type: none"> • Increase stock temperature • Clean die surface • Increase extrusion rate • Check tooling for damage • Check tooling for burnt materials • Check tooling for contamination
10. Orange peel	Parison temperature too low, sweat on mold surface, or melt index too low	<ul style="list-style-type: none"> • Increase melt temperature • Increase mold temperature • Check mold vent surface • Decrease cycle time • Use higher MFI resin
11. Containers stick in mold	Parison and mold temperature too high, blowing air pressure too low, part wall too thick	<ul style="list-style-type: none"> • Decrease stock temperature • Decrease mold temperature • Increase blowing air pressure • Check mold for damage • Center mandrel in die • Check for contamination in tooling
12. Parts blow-out	Blow-up ratio too large, mold separation, pinch-off too sharp or hot, or parts blow too fast	<ul style="list-style-type: none"> • Use large die • Increase clamp pressure or decrease blow pressure • Provide wider land in pinch-off • Cool mold pinch-off • Use low pressure blow followed by high pressure blow
13. Excessive shrinkage	Stock or mold temperature too high, cooling cycle too short, blowing air pressure too low, or uneven parison wall thickness	<ul style="list-style-type: none"> • Decrease stock temperature • Decrease mold temperature • Check mold cooling • Increase blowing pressure and delay air release • Align mandrel and die • Program parison
14. Poor weld or seal at pinch-off	Stock temperature too low, mold temperature too high, mold closing speed too fast, incorrect design of pinch-off blade, or improper mold venting	<ul style="list-style-type: none"> • Increase stock temperature • Decrease mold temperature • Increase mold closing time • Check pinch-off blade land size • Check pinch-off of mold for clearance and damage • Check mold alignment • Check mold venting

15. Excessive flash

Melt too hot, blowing air pressure too high, clamping mechanism out of adjustment, or excessive material being forced into mold

- Decrease melt temperature
- Decrease extrusion back pressure
- Decrease pre-blow air pressure
- Decrease pre-blow time
- Reset clamp or increase clamp pressure
- Increase recess at pinch-off areas to accommodate more material

16. Warpage

Stock or mold temperature too high, blowing air pressure too low, material density too low, tooling condition, or part wall too thick

- Decrease stock temperature
- Increase cycle time
- Check mold for cooling
- Reduce cycle time to obtain proper mold cooling
- Increase blow air pressure
- Use resin of proper density
- Check tooling design
- Center mandrel
- Decrease container weight