

TROUBLESHOOTING COMMON INJECTION MOLDING PROBLEMS

Short Shot (Parts Not Filling)

Possible Causes

Insufficient injection pressure
Insufficient injection time
Insufficient feed
Unbalanced multiple-cavity mold
Foreign material clogging nozzle and/or gates
Too-low stock temperature
Too-small runners, gates, or vents
Too-low mold temperature
Undersized cylinder heating capacity

Mold Flash

Possible Causes

Too-high injection pressure
Foreign material on mold surface
Low clamping pressure
Too-high mold or stock temperature

Excessive Shrinkage

Possible Causes

Too-short cure time
Too-low pack pressure
Too-high mold or stock temperature
Too-small runners or gates
Poor part design, varying wall thickness

Warping

Possible Causes

Too-hot ejected part
Improperly balanced core and cavity temperature
Inadequate or poor location of knockout mechanism
Overpacking in gate area because of high injection pressure
Molded-in strains because of low stock temperature, too-cold mold
Improper design, non-uniform walls
Improperly balanced multiple gates
Too-long flow, insufficient gates

Brittleness

Possible Causes

Degraded material from cylinder
Contamination
Improper design; inadequate radii at corner, notch, or thread
Use of improper color concentrates (made from another resin)
Voids
Too-low stock temperature
Too-low mold temperature

Flowmarks
Weldlines
Low Gloss
Rough Surface

Possible Causes
Too -low stock temperature
Too-low or nonuniform mold temperature
Too-fast mold fill
Excess mold lubricant
Scratched or dirty mold surface
Too-low injection pressure and packing time
Poor pigment dispersion
Inadequate venting
Improper gate location or design
Excessive moisture on pellets

Sinkmarks

Possible Causes
Insufficient injection pressure
Insufficient dwell time
Poor part design, nonuniform walls, and/or excess wall thickness
Too-high mold temperature
Improperly located designed gate

Erratic Quality

Possible Causes
No cushion or back pressure
Nonuniform feed temperature
Nonuniform cycle
Erratic equipment performance
Unbalanced multiple-cavity layout and runner system
Undersized cylinder; insufficient volumetric and heating capacity

Voids

Possible Causes
Failure to fill mold completely (see Short Shot)
Poor venting of mold, particularly around projections
Improper location of gate
Too-rapid fill rate
Excessive moisture on pellets

Sticking in the Mold

Possible Causes
Overpacking; too-high injection pressure
Polished surface on core
Insufficient knockout action
Surface irregularities in the mold
Insufficient core and wall tapers