



INJECTION MOULDING TROUBLESHOOTING GUIDE

PROBLEM	CAUSE		
	MACHINE	MOULD	MATERIAL
BLACK SPECKS OR STREAKS	Excessive residence time in the barrel	Sprue bush nicked, rough or not seating correctly	Contamination of raw material
	Hang-up of Molten material in the injection barrel or runner system	Burned material caused by improper venting	Wrong material used for particular mould
	Contamination of the injection barrel	Contamination caused by grease or lubricants	Excessive condensate / lubricants on the material
	Degradation due to malfunctioning heater bands or thermocouples	Mould too small for machine size	
	Defective nozzle shutoff mechanism	Gates and runners too small	
	Inefficient Injection conditions		
	Cracked injection cylinder or pitted screw		
	Oil leaking into injection unit		
	Inconsistent process cycle		
BLISTERS	Injection screw rotation (RPM) too high	Mould temperature too low	Use of regrind that is too coarse
	Screw back pressure too low	Improper gate location	Use of highly volatile materials
	Injection speed too high	Insufficient venting	Excessive moisture
	Inadequate or inconsistent cycle time		



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	MACHINE	MOULD	MATERIAL
BLUSH	Injection fill speed too fast		
	Melt temperature too high or too low		
	Injection pressure too low		
	Nozzle diameter too small		
	Nozzle temperature too low		
BOWING	Clamp opens too quickly	Temperature too low	
	Ejector System not level or parallel	Inconsistent mould temperature	
	Cooling time too short	Improper gate location	
	Parts not packed properly	Parts mishandled after ejection	



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BRITTLENESS	Improper injection screw design	Gate and/or runner restrictions	Material too cold
	Cycle time too short	Condensation	Excessive moisture in material
	Excessive packing		Material is degraded
	Excessive back pressure, screw RPM, or injection speed		
	Nozzle too hot		
	Injection pressure too low		
BUBBLES	Injection temperature too high	Improper venting	Excessive moisture
	Injection pressure too low	Section thickness too great	
	Injection forward time too low	Improper runners or gates	
	Insufficient material feed	Mould temperature too low	
	Improper injection temperature profile		
	Excessive injection speed		
	Insufficient back pressure		



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BURN MARKS	Excessive injection speed or pressure	Improper venting (size or location)	Excessive regrind use
	Excessive back pressure	Vents plugged or peened shut	Flow too low
	Screw speed too high	Improper gating (size or location)	Excessive lubricant
	Improper compression ratio of screw		Use of regrind that is too coarse
	Faulty temperature controllers		
	Nozzle too hot		
	Excessive barrel temperatures		
	Nozzle diameter too small		
	Inadequate or inconsistent cycle time		



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CLEAR SPOTS	Barrel temperatures too low		Excessive regrind use
	Back pressure too low		Use of regrind that is too coarse
	Screw speed too low		
	Improper compression ratio of screw		
	Faulty temperature controllers		
	Inadequate or inconsistent cycle time		
CLOUDY APPEARANCE	Barrel temperature too low	Uneven packing	Excessive moisture
	Back pressure too low	Dull finish on mould surface	
	Screw speed too low	Poor mould temperature control	
	Excessive wear between screw and barrel		
	Inadequate or inconsistent cycle time		
CONTAMINATION	Oil leaks and grease drips	Excessive lubrication	Improper regrind usage
	Poor housekeeping		Excessive moisture



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CRACKING	Moulded in stresses	Excessive lubrication	Improper regrind usage
	Cooling cycle too short	Insufficient draft allowance	Excessive moisture
	Inadequate or inconsistent cycle time	Improper ejection	
CRAZING	Moulded in stresses	Excessive gate size	Contaminated material
	Cycle time too short	Mould temperature too low	Excessive moisture
	Inadequate injection speed and/or time	Contaminated mould surfaces	
	Injection barrel temperatures too high	Improper ejection	
DELAMINATION	Injection speed too low	Mould temperature too low	Contaminated regrind
	Inadequate injection cushion	Sharp gate and runner corners	Use of regrind that is too coarse
	Injection hold time too short	Excessive mould release	Foreign materials and/or additives
	Barrel temperatures too low		Excessive moisture



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DISCOLOURATION	Excessive shot size ratio	Improper mould temperature	Contaminated material
	Excessive residence time	Inefficient cooling	
	Barrel temperatures too high	Inadequate venting	
	Nozzle temperature too high		
	Excessive cycle time		
	Improper screw design		
	Excessive or inconsistent cycle time		
FLASH	Excessive injection pressure	Improper split line seal	Excessive mould lubricant
	Excessive residence time	Inadequate mould supports	
	Barrel temperatures too high	Inadequate venting	
	Excessive cycle time	Sprue bushing too long	
	Inadequate clamp pressure		



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	MACHINE	MOULD	MATERIAL
FLOW LINES	Inadequate injection pressure		
	Inadequate residence time		
	Barrel temperature too low		
	Nozzle temperature too low		
	Inconsistent cycle time		
GLOSS (LOW)	Inadequate injection pressure	Mould temperature too low	Improper flow rate
	Inadequate residence time	Gates or runners too small	Inadequate lubrication
	Barrel temperatures too low	Improper gate location	Excessive moisture content
	Nozzle temperature too low	Inadequate venting	
	Excessive feed cushion	Inadequate polishing of mould surfaces	
	Injection Speed too low	Contaminated moulding surfaces	
	Nozzle bore too small		
	Inadequate or inconsistent cycle time		



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	MACHINE	MOULD	MATERIAL
JETTING	Excessive injection speed	Mould temperature too low	Improper flow rate
	Barrel temperature too high or too low	Gates or runners too small	
	Nozzle opening too small	Improper gate location	
	Inadequate nozzle temperature	Excessive gate land length	
KNIT LINES	Barrel temperatures too low	Mould temperature too low	Improper flow rate
	Inadequate back pressure	Gates or runners too small	
	Injection pressure or speed too low	Improper gate location	
		Excessive gate land length	
SHRINKAGE	Barrel temperatures too high	Mould temperature too high	Improper flow rate
	Insufficient injection pressure or time	Gates or runners too small	
	Inadequate cooling time	Improper gate location	
	Insufficient cushion and/or hold time	Excessive gate land length	
	Faulty check valve		



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NON-FILL (SHORT SHOTS)	Insufficient material feed	Mould temperature too low	Improper flow rate
	Barrel temperatures too low	Gates or runners too small	Excessive regrind
	Faulty check ring	Improper gate location	Use of regrind that is too coarse
	Inadequate back pressure	Insufficient venting	Excessive moisture content
	Nozzle too small	Wall section too thin	Non-uniform granule size
	Injection pressure or speed too low	Sprue bushing too long	
	Insufficient injection time	Runner diameter too small	
	Excessive feed cushion	Sprue diameter too small	
	Excessive non-return valve clearance		
	Bridging in feed throat		
	Insufficient press capacity		



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SINK MARKS	Barrel temperatures too high	Mould temperature too high opposite ribs	Improper flow rate
	Insufficient injection pressure or time	Gates or runners too small	Excessive regrind use
	Inadequate cooling time	Improper gate location	Use of regrind that is too coarse
	Insufficient cushion and/or hold time	Excessive gate land length	
	Faulty check valve	Excessive rib thickness	
		Trapped air or gases	
	Unbalanced flow pattern		
SPLAY / SPLASH MARKS	Barrel temperatures too high	Gate too small	Excessive moisture
	Excessive screw rotation speed (RPM)	Obstruction in gate or runner	Contaminated material
	Nozzle too small, too hot, or obstructed	Cracks in mould	
	Excessive shot size		
	Trapped air or gases		
	Improper purging		



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WARPAGE	Inadequate injection pressure or time	Mould temperature too low	Improper flow rate
	Inadequate residence time	Gates or runners too small	
	Barrel temperature too low	Improper gate location	
	Nozzle temperature too low	Uneven mould temperatures	
	Inadequate cycle time	Non-uniform ejection	
	Lack of cushion – under packing		
	Excessive stress buildup		

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Test Values: Unless specified to the contrary, the values given have been established on standardized test specimens at room temperature. The figures should be regarded as guide values only and not as binding minimum values. Kindly note that, under certain conditions, the properties can be affected to a considerable extent by the design of the mould/ die, the processing conditions and the colouring.