

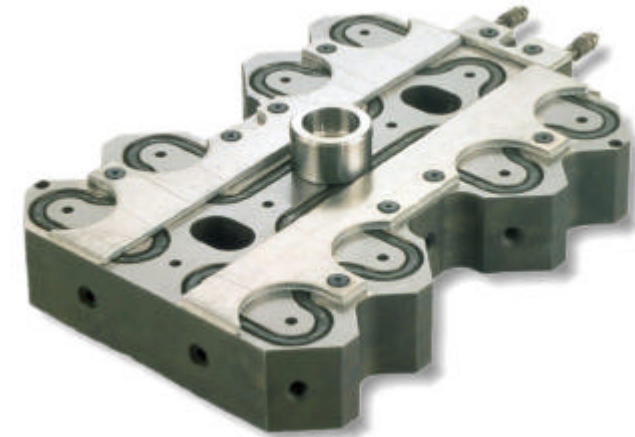
TROUBLESHOOTING GUIDE

This guide covers the most common moulding problems and remedies.

Machine Setting Alterations	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S
Bush / manifold temperature: increase	X	X			X	X			X	X		X		X		X
Bush / manifold temperature: decrease			X	X	X		X	X	X	X		X	X	X		X
Injection pressure: increase	X										X		X		X	
Injection pressure: decrease			X	X			X			X	X				X	
Injection speed: increase	X					X			X	X		X		X		X
Injection speed: decrease			X	X			X		X	X		X		X		
Packing pressure: increase														X		X
Packing pressure: decrease			X	X	X			X								X
Packing time: increase			X	X										X		X
Packing time: decrease	X				X		X				X			X		
Screw back pressure: increase						X				X						
Screw back pressure: decrease			X	X	X							X	X	X		
Melt decompression: increase			X	X	X											
Cooling time: increase			X	X			X						X	X		
Cooling time: decrease	X	X			X	X		X								
Mould temperature: increase	X	X							X	X						X
Mould temperature: decrease			X	X			X				X	X	X			
Damp material—dry it thoroughly			X			X			X							
Insufficient or blocked vents						X	X								X	
Incorrect start-up procedure	X															X

System Faults	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S
Gate diameter too small	X				X	X	X	X	X	X	X		X		X	
Gate diameter too large			X	X	X							X		X		
Gate blocked by contamination	X				X	X	X	X	X	X	X		X		X	
Gate land length excessive	X				X	X	X	X	X	X		X		X		
Heater failed or disconnected	X	X				X										
Thermocouple loose or faulty	X	X	X	X			X	X	X	X		X		X		X
Thermocouple connections reversed			X	X			X	X	X	X		X		X		X
Thermocouple wired to wrong zone	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Temperature controller unsuitable or faulty	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Excessive bush tip-to-mould contact	X				X	X			X					X		X
Insufficient bush tip-to-mould contact			X	X			X									
Heater incorrectly positioned on bush	X	X	X	X	X	X	X	X	X		X			X		X
Bush tip damaged or worn (if fitted)	X				X	X	X	X	X		X					
Machine nozzle orifice too small						X	X		X	X	X		X		X	

SYSTEM OPERATING MANUAL



Please Note: These instructions are given as a general guide. They may need to be adapted to suit your standard operating procedures, or the specific requirements of the part or polymer being moulded.

fast heat

ELECTRICAL WIRING

All manifolds and bushes supplied by Fast Heat are fitted with 240V heating elements and Iron-Constantan (Fe-CuNi, J-Type) thermocouples.

On each heater, the two larger insulated wires are for POWER connection.

The two smaller insulated wires are for THERMOCOUPLE connection.

The most common thermocouple colour codings are:

	Britain	Germany	USA	International
Positive (magnetic)	Yellow	Red	White	Black
Negative (non-magnetic)	Blue	Blue	Red	White

If a rear heater band has been supplied with the nozzle locator, it must be operated from a separate temperature controller, and must not be connected together with any other heater.

TEMPERATURE CONTROLLER

ONLY use recommended temperature control equipment or poor moulding quality and premature heater failure may occur.

Fast Heat Conductor temperature controller features include:

- Automatic moisture sensing and bakeout (intelligent soft-start)
- Automatic faultfinding and diagnostics, to identify any heater or thermocouple faults.
- Automatic switching to the 'learned' % power level in the event of a thermocouple failure.

START UP PROCEDURE—TAKING CARE EXTENDS HEATER LIFE

- Ensure your machine nozzle bore matches the entry bore of the nozzle locator—a mismatch can create a dead-spot, resulting in polymer degradation and poor colour changing.
- Ensure the nozzle radius matches the nozzle locator seating, or melt leakage may result.
- Ensure all heaters are thoroughly baked dry—do not rely on brief 'soft start' systems to do this. If your controller does not have an 'intelligent soft-start', pre-warm the heaters at 85°C for at least 15 minutes to bake out any residual moisture.
- Turn on water lines to stabilise the tool and manifold temperatures.
- Set the required manifold temperature and allow it to heat up until within 10°C of setpoint.
- Now turn on the tip zones and allow to settle at setpoint for 5—10 minutes.
- You are now ready to start moulding.

SETTING MOULDING CONDITIONS

Since starting up a new tool often involves interrupted cycles, it is sometimes necessary to keep gate-area cooling to a minimum until a regular cycle is established, or gate freeze-off may occur. On occasion, the bush temperature may also have to be increased at initial start-up.

It is important to establish a regular cycle so that fine adjustments can be made to temperature, pressure, speed and time settings to produce good quality mouldings. Always make small adjustments one at a time, and wait for several cycles to observe the effects on the mouldings. Avoid cycle interruptions because they disturb this setting process.

SAFETY PRECAUTIONS

To guard against the possibility of injury from hot polymer, do not work on or inspect the mould until the following steps have been taken.

- Step 1: Use melt decompression to depressurise the hot runner system.
- Step 2: Retract the machine nozzle from the hot manifold.
- Step 3: Drop the system temperature by 100°C.

We also recommend the use of goggles and asbestos gauntlets as minimum protection when working on hot manifolds and bushes.

ELECTRICAL SAFETY

This system operates at 240Volts. Ensure there is always an earth connection from the mould to the controller. It is also important to ensure that no water or oil can leak on to the heater elements, thermocouples or wiring.

CYCLE STOPPAGES

In the event of a cycle stoppage exceeding 5 minutes (less with volatile polymers) we recommend the 3 steps described above are taken to prevent polymer degradation.

CHANGING COLOUR

In most cases, new colours can be introduced by simply purging the machine barrel with the new colour, and then moulding the new colour through the system to sweep out the old colour.

Do not purge through the manifold system with the mould open.

Reduction rings are available for some Pinpoint bush types, for faster colour changing.

SHUTTING DOWN

Treat the manifold system as an extension of your machine barrel, and follow the same shut-down procedures, as recommended by the polymer suppliers.

RE-STARTING

Follow the START-UP PROCEDURE and start moulding at normal machine settings. In some cases, it is necessary to briefly increase the bush temperatures and / or reduce gate-area cooling in order to start moulding—reset to normal settings once the cycle is established.

GATE ALTERATION

Refer to the Fast Heat catalogue for gate alteration details.

REPLACING HEATERS & THERMOCOUPLES

Refer to the Fast Heat catalogue for detailed instructions.

TECHNICAL SUPPORT

Contact your Area Representative, e-mail us at tech-support@fastheatuk.com, or phone the Hot Runner Helpline on 01323-647375 ext 32.

TROUBLESHOOTING GUIDE

Key to coding used in tables shown overleaf.

A	Gate freezing off	B	Manifold inlet freezing off	C	Melt drooling from the gate
D	Melt stringing from the gate	E	Gate vestige too high	F	Excessive injection pressure or temperature required to fill cavity
G	Melt burning or degrading	H	Distortion around the gate	J	Surface defects opposite the gate
K	Silver streaks on part	L	Persistent flow lines	M	Persistent flash
N	Sink marks on part	P	Parts sticking	R	Weak weld lines
S	Repeated heater failures				