



Injection moulding - Troubleshooting

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Over the last 50 years the injection moulding industry has produced various trouble shooting guides to act as training material, guides and general information to help solve problems encountered during the injection moulding process.

There have been various attempts at formulating these into a classification of fault and potential cause some of the guides attempt to give possible reasons why the problem has occurred and offer corrective actions to take, very few have used a common-sense approach to actually solving the problem from occurring in the first place.

Let us take an example of a problem from a guide, short shot or incomplete filling of the mould which is a description of the problem that I prefer to use, the guide gives corrective actions to be taken in numerical order.

Suggested remedies for short shot.

- Action 1. Increase shot size.
- Action 2. Increase mould temperature.
- Action 3. Increase material temperature.
- Action 4. Increase hold pressure.
- Action 5. Increase injection speed.
- Action 6. Increase gate cross section.
- Action 7. Increase amount of gates.

The guide does not say at what stage the process is at when taking these actions 1st trial, validation stage, approved for production or in production so I will give them the benefit of the doubt.

If the material, mould and machine have been validated and approved for production by establishing a processing window in which the process was stable, consistent and repeatable within set parameters then any deviance from the process would have been flagged up by the machine.

Common sense to this problem asks WHAT'S CHANGED AND WHY? This should also be applied when none of the above as been undertaken before a mould is put into production.

Injection moulding is a process but quite often it is looked at in its individual parts rather than the whole process therefore the sum of the individual parts each matter as much as the next part.

Do these examples ring any bells.

Material.

If crap goes in crap comes out it is as basic as that, how many times have cost savings on material meant cost increases in rejects or production efficiency.

Moulds.

Poor part design and poor design of the mould will create poor products, people are asked to mould round the problems with the moulds.

Machine.

Poor machine selection will result in inconsistent products, insufficient plasticizing capacity or repeatability will lead to no processing windows and moulding on the edge.

I could put together a list of at least 10 material, mould and machine related items that may affect the filling of the mould before I even considered touching a machine setting because I need to know WHAT'S CHANGED AND WHY?

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