



Cycletime Tips - Automotive

Volume 38: Jetting

Jetting (a.k.a. "worm-tracking") is an unsightly defect seen on a molded part and has the appearance of a "worm" on the part surface. This may occur either at the gate or where the resin flow is restricted elsewhere in the part. While the process method can have some impact on the appearance of this blemish, it will inhibit efficiency.

As the melt enters the cavity, we'd like to see the flow front impinge on the cavity or core (lateral wall) so a radial flow front can form. When the material flow is uninhibited, it can sometimes form a melt strand - which results in several weld lines as the cavity back fills. We all know that weld lines are one of the weaker areas of a part.

In order to combat this via the process, we will be forced to fill substantially slower. If processing doesn't help and relocation isn't an option, increasing the gate size might be your only hope. Always be sure to check your gate land to make sure we don't exceed .75 mm, as this will also encourage jetting as easily as a restrictive gate would. A "jump" gate can also be used to offset some of the jetting concern as well.

When we consider these options, several sources of inefficiency can be seen. First, the slow fill rate difference will be significant enough that your estimated cycle times will be affected (typically a 1-8 second penalty depending on part size). In past Tech Tips, we've reviewed the pitfalls of filling slowly beyond that of simply impacting cycle time. Secondly, if the gate size avenue is pursued, we will be required to have a longer pack and hold time to achieve gate solidification (also affecting overall cycle time).

It's understood that this is all part of the cycle guessing game during the quoting process, but based on our experiences it doesn't hurt to increase awareness. Our goal is to encourage observation of the ideal and when that avenue cannot be pursued, attempt to plan for the fall-out. Please let us know how we can be of service.

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