Electronic Engineering notes on Hot Runner Nozzle Oscillations observation Issues from In-House Prototypes Only.

With the advent of DME Hot Runner Nozzles getting smaller and the new challenges of faster responding Drop/Nozzles, DME Electronics has added a new feature to the SSM1512 which has been known to significantly help with some In-House Prototype testing.

Historically, DME Company has used designs where the heater loads and t/c thermal responses where in a tightly controlled region of operation. The thermal mass was targeted between 20 to 30 Watts per cubic inch of Steel. The thermal couple was located where there was little thermal response lag time and temperature difference between the steel material being heated and the actual heater. This has been known to change on newer prototype versions of Hot Runner Components.

When loads start to oscillate, seen as much as +/- 30 Degrees F, the new SSM1512 controllers with the Gain Cut feature seems to help manage this problem. This is usually found only in Drop/Nozzles. The DSS controller, even though it has Autotuning, seems to not be able to Autotune during these very fast responding loads and defaults to the factory tuning parameters.

The following picture shows the current status of the Gain Cut Feature in the New SSM surface mount Controller. This is for your reference.

Hope this helps clarify this feature. DME Electronics Department.