

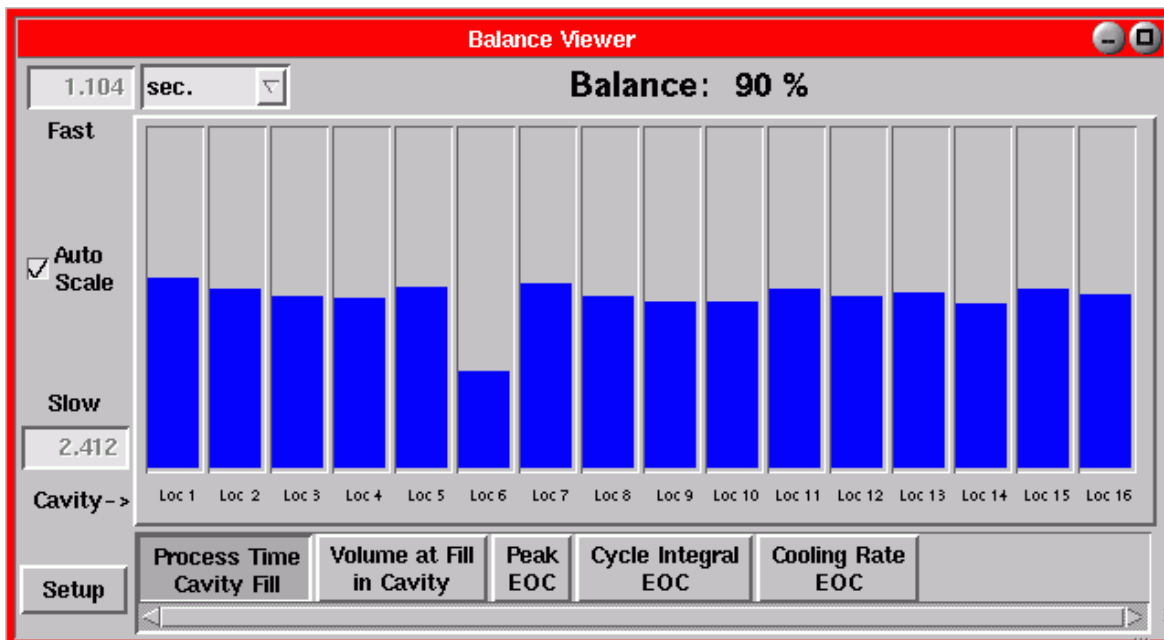
The Value of the Balance Viewer

Injection molds with hot runner manifolds are notorious for being out of balance. To bring a mold into balance a molder typically tries running fill-only parts and adjusting tip temperatures until the parts are about the same size or weight.

If you have cavity pressure or cavity temperature sensors in every cavity of the mold you can use the data to balance the tip temperatures. The eDART™ computes cavity fill times that directly reflect the fill imbalance. You can balance the tip temperatures using those time values on the eDART's Cycle Values or looking at graphs on a Cycle Graph.

However, in practice we find that this is rather difficult. Scanning a long list of numbers or trying to pick out one of many colors of curves on a graph is tedious at best. Beyond 16 cavities it is nearly impossible.

The optional eDART software tool named the “Balance Viewer” makes the visual process of balancing much simpler. You look at the high (fast filling) cavities and lower those temperatures while raising the tip temperatures for the lower bars until they all come into balance.



As you can see from the selection of buttons at the bottom you may also check the balance of other parts of the process: filling and packing, pressurization and mold temperature. If the mold has only temperature sensors (no pressure) you can see the balance of the time to reach the sensor (“Time @ temp...”) and the mold temperature at that point (minimum).

The viewer tool automatically sets up and scales the bars for the number and range of sensors found.

There exist in the market a couple of systems for doing this automatically. We offer this tool as a much lower cost alternative. Furthermore, once a tool is balanced manually any odd behavior, such as material build-up or clogging will not be masked by the automatic control but can create a warning.

About Balancing with Tip Temperatures

Traditionally you will find much debate about whether adjusting tip temperatures to balance mold filling is the “right” way to do it. We have some growing evidence that it probably is more right than not. This is partly because the thermocouple that the temperature controller uses as the target sensor is not actually in the flow channel itself. Nor does it measure the whole profile of the flow channel. By adjusting tip temperatures different than each other for balance you may actually be bringing the true flow channel temperatures closer together.