MeltFlipper® Case Study

Improve profits, part quality, and efficiencies - without purchasing new machinery

Case Study: New equipment is not the answer to your mold filling imbalances

While manufacturing methods, materials, controls and other innovations have come a long way since 1944, many of the same problems faced by plastics processing pioneers still exist, namely achieving consistent quality parts from cavity to cavity within a given shot. Again, and granted, there have been major advances in press technology, but many of the advancements have only increased the ability of processors to consistently produce scrap from shot to shot. This inherently contributes to increased scrap as modern injection molding machines are designed to run faster and faster.

Figure 1 shows the 1944 manual injection molding machine manufactured by Van Dorn. You can readily see that this hand operated Van Dorn machine injects plastic with a simple plunger attached to a 'skipper's' wheel to transfer the speed, and pressure, of the injection process that YOU supply. Naturally, and as compared to today's machines, there is a significant chance for shot-to-shot inconsistencies as well as changes in velocity and therefore viscosity within a given shot. On today's modern machines, the plunger is replaced by reciprocating screws, one of the most innovative advancements in standard injection molding machine design practices. Even with technological advancements in machine design, including the reciprocating screw and all-electric closed loop control, processors still fight filling imbalances and the resulting high scrap rates and process limitations.

Figure 1: 1944 Model 1, Van Dorn manual molding machine

To rectify the imbalances and show the power of MeltFlipper technology, we ran an 8-cavity mold in the 1944 manual molding machine, with the right side of the mold using the MeltFlipper technology and the other half without - so you can readily see the difference that this revolutionary technology can make in your molding operations within a given shot. We then ran the same mold in a 2006 All-Electric injection molding machine and compared the shots made from both machines (see Figure 2).

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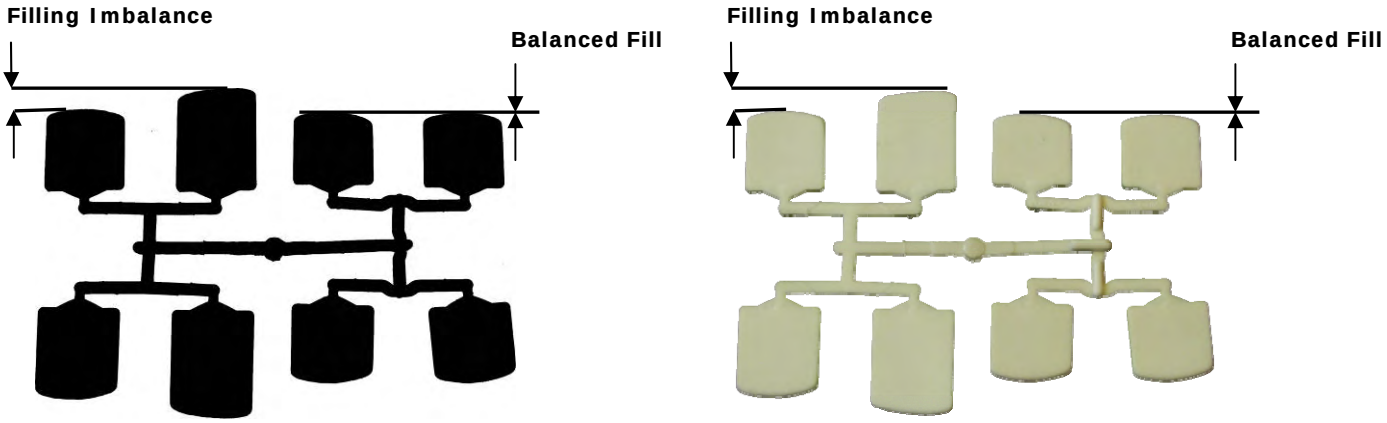

Figure 2: Left - 8-cavity mold short shot from a 2006 All-Electric IMM. The right side of the mold contains MeltFlipper technology and the left side does not (Material = Polycarbonate).

Right - Same 8-cavity mold short shot from a 1944 Manual Plunger IMM. The right side of the mold contains MeltFlipper technology and the left side does not (Material = TPE).

Both presses showed the typical filling imbalance on the left side of the mold without MeltFlipper technology. However, the right side of the mold shows all four cavities filling at the same rate through a balance of material properties achieved with MeltFlipper technology. Sixty-Two (62) years of technological machine advancements, and yet it can do nothing to fix the filling imbalances seen *within* a given shot. That is where MeltFlipper technologies come in.

Thus, if we can successfully apply MeltFlipper technology to a multi-cavity mold within a 1944 manual press and improve product quality and efficiencies, just think of what it can do in combination with modern hydraulic or electric presses? Maybe.....just maybe.....you don't need new equipment, and we can save you hundreds of thousands of dollars in your molding production each and every time on any or all of your machines. Today, in this 21st Century, MeltFlipper technology is to standard runner system designs as the reciprocating screw was and is to standard molding machine designs - a major industry innovation.