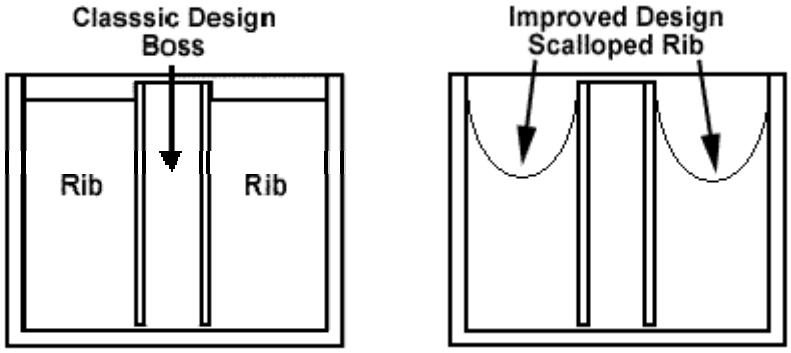
ASHLAND

Cycletime Tips – Automotive

Volume 15: Rib Design for Air Evacuation

During past mold trials, the processor has been challenged with the presence of air entrapment on various stiffening ribs contained in the part design. This can often be addressed by the inefficient practice of reducing the mold-filling rate or via the addition of additional costly vented pins. If a proactive approach is taken, one can predict this at the design review before it occurs. This brief tip is dedicated to the topic of an alternative design for structural ribs within the part.

As the molten material flows into the mold, it tends to take the path of least resistance. As projection design rules are violated regarding rib height, this fact begins to rear its ugly head in the form of what's known as "back-filling". When this occurs, we experience a momentary or permanent hesitation in polymer flow. When the cavity pressure begins to equalize, the flow front might startup again at the point of pause. This symptom is accentuated by air entrapment. Often times, we end up with an area that remains unfilled. The good news is that we can design a rib that will function as well as the classical design, but will encourage the trapped air to move to a parting line vent. Please consider the following roughly sketched sections of this scalloped design.



As can be seen, the air trapped in the scalloped rib is more readily displaced to the parting line and the core pin in this case. This method can be used when joining parallel ribs to the adjacent wall as well. The cost for producing an electrode for the machining of such a rib is arguably more expensive, but in the long run it will pay for itself through more efficient processing. Please let Jim Cardinal or myself know if we can provide more insight.

By Bill Fierens, General Polymers Technical Service – Automotive

local laws and/or regulations involving use, particularly in making consumer products.

The information contained herein is correct to the best of our knowledge. The recommendations or suggestions contained in this bulletin are made without guarantee or representation as to results. We suggest that you evaluate these recommendations and suggestions in your own laboratory prior to use. Our responsibility for claims arising from breach of warrant, negligence, or otherwise is limited to the purchase price of the material. Freedom to use any patent owned by Ashland or others is not to be inferred from any statement contained herein.