



Cycletime Tips - Automotive

Volume 13: New Technology: The Posi-Screw™

Mike Durina (formerly of Spirex), with MD Plastics Incorporated, has been involved with the development of a new screw called the Posi-Melt screw. Mike contacted me and explained that this screw has a more versatile design over most general-purpose designed screws on the market today. This new screw design offers minimized screw recovery time variations, decreases screw recovery times by 35%, lowers melt temperature by 10-15 degrees C, lowers overall cycle times, and increases productivity.

The improved Posi-Melt design uses a technique to disrupt the predictable laminar flow Z-pattern that is typical of a GP design and obtain a shallower than normal metering zone which increases the relative velocity between the barrel and solids bed and enlarges the dissipation. The pumping ability of this new design is claimed to be better than the GP design because of the dominant shallower than normal channel depth.

The mixing of the screw has been addressed by performing a few simple geometric changes that disrupt the laminar flow. Mike further claims that his company has figured out a way to keep the volumetric compression ratio on the low side and yet end up with a shallower than normal metering depth for more efficient heat transfer and an optimal shear rate for maximum melting efficiency.

We will be meeting with Mike, in the near future, to observe and evaluate this new type of screw and will keep you posted on the results. A future letter will explain in detail the benefits of this design. Mike's company address is:

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There are several new screw technologies that have been recently developed. Where we think it might be a good solution for our customers, we post the information for your evaluation. We do not endorse anyone's technology – we just provide the information.

By Jim Cardinal, General Polymers Technical Service – Automotive

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