

# **A New Method to Reduce the Risk of Jetting**

**Dipl.- Ing. Uwe Haupt  
Dipl.- Min. Hartmut Walcher  
Dipl.- Ing. Marko Maetzig  
Arburg GmbH+Co KG  
D-72290 Lossburg, Germany  
Tel.: +49 7446 33 4457  
Fax.: +49 7446 33 3185  
E-Mail: uwe\_haupt@arburg.com**

## **Abstract**

Jetting is a very common problem when molding PIM feedstocks. The high viscosity, the high density and the low compressibility are the sources for this problem.

A common method is to inject against a core, but sometimes part geometry does not allow this.

Alternatively a new method the universal coining procedure can sometimes be applied. When doing universal coining a core is moved forward, and when the feedstock is injected, the injection pressure pushes the core back to the original position. Important is to have a repeatable counter pressure. Parts manufactured with and without universal coining will be shown. Fill studies and material data will prove the effectiveness of the universal coining

## **Introduction**

Powder injection molded parts sometimes show weak sections, inhomogeneous structures, surface marks or even internal bubbles. There are several reasons which can be identified as sources of these defects. These reasons can be weld lines, voids due to shrinkage in the cooling phase, or jetting. Identifying the defect is the first step to find a solution.

### **1. Detecting Jetting,**

The most common way to detect jetting is to run a fill study. During the fill study it is important to keep the same fill rate, same temperatures of mold and material as during production. Therefore the machine has first to run for a while to get into the thermal stabilized state, then during production without stopping the machine some settings need to be changed. The first change is to add a delay so that dosage does not