Ground-Up Management

It's now thirty years since I started working in rotomolding – a time when I was twenty pounds lighter, a little darker, and I had a lot more energy. Many things have clearly changed, and I don't mean just personally. Yes, I'm still fascinated every time I see a machine rotating or a new mold design being used. And yes, the process and mechanisms from within the mold that we've spent the last three decades examining still spark the same curiosity; you really do have to think like a powder particle in order to work out the inner complexities of powder and mold movement. At the same time, though, it sometimes feels like time has stood still.

We've seen changes in materials – mainly progress in terms of the performance of polyethylene materials which have been toughened and modified for moldability and environmental resistance. New materials for rotomolding are interesting and will always receive a warm welcome in my book. However, they are typically expensive, difficult to mold, and initially have limited application which makes them tough to justify in the eyes of most suppliers. In reviewing the materials available today and those being used in the 1960s, it appears that little has actually changed with the exception of these advances in polyethylene. (How many molders do you know who are working commercially with ABS, acetal, acrylic, polybutylene or polystyrene nowadays?). Given that the modern rotomolding process is invented by polyethylene, we may have to wait until the new materials invent their own variation of the process. There are, of course, new bio-based materials available, and various nylons, polycarbonates and polypropylenes have been revamped. Yet they remain somewhat limited in their range of use.

A Modern Twist at Our New Residence

We've seen some changes in equipment; new machines have greatly improved controls, electronics, motors and mechanics. But the essential operations of carousel, turret and rock-and-roll machines have remained essentially the same. The concepts for lean production were firmly established in the semi-continuous nature of the system first developed by McNeil and his contemporaries. Molds are undoubtedly higher-quality with better parting lines and clamping, but they are still thin-walled hollow shells with all the inherent issues of flexibility and manual wear-and-tear. Traditional processes dictate this for heat transfer, and while automated systems have been promoted for many years now, the volumes of production and nature of the businesses which form the rotomolding community have not allowed them to be adopted universally.

Then we have the conditions for operators. When you look at the physical aspects of the process, things have not really changed that much. I wonder what an operator transported from the 1960s would say about the molding processes at a typical molder today compared to what he faced back then? Unfortunately, in most cases I don't think he would notice much difference. The effort, the heat, the noise would still largely be the same – indeed some of the same machines might still be running!

Every molder I know loves to see new ideas and technology, but do they apply everything that is available? The answer is no of course, but it depends on the degree of technology we are talking about. At the highest level there are fully automated molding systems available, direct powder filling, direct mold heating, automated

venting and temperature controls, and robotic part handling. Few molders have taken these innovations up completely due to cost and complexity versus production quantities. At the mid and lower levels, however, there is a lot of technology that can be applied to ease the work for operators – good mold parting line design, temperature cycle controls for thermal expansion, semi-automated powder loading, balanced servicing times, magnetic inserts, off-line mold servicing, safer platforms, forged clamps, good work-station design - or even just better lighting!

The key is to take care of your operators; every investment of time and effort to make the work for operators easier will be repaid many times over. Not just in cycle savings and part quality, but also in employee longevity. It's tough work on a platform, especially in summer months, but rotomolding is dominated by entrepreneurs which means there is very often someone willing to take on work at the lowest common denominator, which unfortunately pushes other molders to keep operations basic, low-cost and sometimes downright crude. Looking in from the outside, it is rarer than I would like to see in rotational molding where successful risk-taking and applied technical ability combine to create an operator-friendly work environment.

Top-Down Management

Here's a challenge for you. How much does your management team really know about the quality of parts that are leaving your plant?

As a consultant I am more often approached after a problem occurs in production than in the planning stages. And more often than not it is amazing how much of a disconnect exists between what management actually knows about the process and what is implemented, even in the best of companies. Many top- and middle-level managers attend conferences and gather books and information on molding and quality, but not all transfer this to the people actually making the parts. As a result many problems in rotomolding follow similar themes in terms of material selection, process control and long-term performance – all over the world. Rotomolding is a simple process on the surface which can actually be quite complex underneath. However, the good news is that there is a lot of experience and information already available which can help you avoid the most fundamental of errors. The most dangerous problems for molders and suppliers are delayed ones - defects or issues molded into parts which will only surface sometime in the future for your customer and will cost you so much more than an effective quality policy. I recommend a lean approach: 'Go See'.