"Down Gauging" – It's a Good Thing

How many of us quote jobs and specify the starting gauge? I would suggest that the majority of custom thermoformers are accustomed to quoting this way. In the case of proprietary thermoformers producing such things as food service items, although the starting gauge is a major factor in the costing of the parts, it is of little interest to the customer because he or she only cares about how well the part performs which would relate only to the thickness of the finished part. So why do custom thermoformers continue to state starting gauge on their proposals?

My point is this. Why should any customer buying thermoformed parts, care about what gauge of raw material we start with. He should only care about how well his part performs. We sell to a wide variety of customers, from the very knowledgeable to the –well lets be kind and say, technically challenged. With the latter we have a duty to explain the process of thermoforming and how the plastic thins during heating and forming. Those who already understand may need to be reminded and shown where the thinning will be most prevalent. In all cases however, we must educate our customers and work with them to determine what the minimum wall thickness should be and in some cases specify the thickness in various places on the part. Once he or she has established these thickness criteria, it should become the specification with no mention of the starting gauge.

Unless we are dealing with a seasoned customer who has already considered wall thickness requirements, most of the time customers will indicate the need for a specific starting gauge. This may be because he or she has a competitive proposal that specifies a starting gauge or the part is existing and because the spec calls for a starting gauge he or she simply assumes that it should continue to be that gauge. If we are not given a material gauge requirement in the RFQ, many of us will be unsure what gauge should be used so we will quote 2 or more. Would it not be more professional to do some homework and quote the part stating a minimum thickness or perhaps even a range of wall thickness measurements throughout the part?

When I bring up this point with those in the industry I am told that the "good" thermoformers do not quote starting gauge. This leads me to believe that what separates the "good" thermoformers from the "not so good" is know-how. That is, knowing how to produce the part with the specified minimum wall thickness requirements using the thinnest possible starting gauge. What do we need to know to be able to produce the part with minimum wall thickness specs and do so with a thinner material than our competition? *Are the lights going on yet?*

Dare I say that, "down gauging" has some negative connotations that relate to using a material gauge that is less than what was quoted because the term "down gauging" is sometimes used when competitive pressures force a need to reduce costs. However if starting gauge is never specified, then we would eliminate any possibility of being accused of such a practice. It is a win – win situation for supplier and customer. The real competitive edge goes to the thermoforming supplier with the most know-how and there-in lies the moral of the story.

We in the SPE are trying to educate thermoformers to be more competitive, more innovative and more successful. Those who work to that end will ultimately prevail. Having the know-how to be able to guarantee a minimum wall thickness with a thinner starting gauge is indeed, a superior way to sell. By using better material, better part design, better tooling or better equipment than our competition, we will get the job and have a much better chance of keeping the job if it gets shopped around by the customer.

One way to produce a thermoformed part in a thinner gauge, while still maintaining a minimum wall thickness is to look at some of the different forming techniques available to us. Many of us have listened to seminars by Bill McConnell or Art Buckel that show techniques such as billow forming or snap-back forming. These methods are designed primarily to provide better material distribution which of course relates to improved wall thickness in the critical areas on the part. Of course in order to utilize these techniques we must build special tooling, have the equipment that allows the extra step in the process and we may have to extend the cycle time a little. However it could result in getting the job because of a more uniform part, a significant reduction in starting gauge and consequently a reduction in material costs.

It is one thing to know what techniques and tooling will improve material distribution and another to predict wall thickness accurately. An experienced tool designer who has the benefit of many years in the job will be able to do so fairly well; however, these people are scarce. There are computer simulation programs available that can assist with this and make the predictions within a few thousandths of an inch. One of these programs could become your best sales tool.

Like most practices that have become routine, modifying our quoting procedures to reflect minimum wall thickness instead of starting gauge will take some effort. It will require us to take more time with the customer to agree on the specs. It will require knowledgeable engineering personnel to determine tool design, process techniques and what gauge material to use. But in my opinion it will make us better thermoformers by putting the responsibility on our engineers to find ways to down gauge while maintaining wall thickness requirements. ■

(Technical Editor's Note: ***Thermoforming 101*** articles are intended not only to educate but also to generate interest in making improvements in our industry and our businesses. I welcome any feedback, positive, negative or otherwise. If I have provoked some dialogue and thought by writing an article like this it is for the good of the industry.)