

Hey, I Can't See Myself in This Pan!

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The Problem:

A major cookware manufacturer came to us looking for a way to eliminate tooling marks on a wide assortment of rectangular stainless steel pans and warmer inserts.

Their existing process – sending the parts overseas for hand buffing – effectively removed the tooling and draw marks, and produced brilliantly polished parts. But, while the labor was relatively cheap, shipping the work out had become too costly and time consuming to continue indefinitely. The company wanted to polish the parts all over, at the rate of four parts per minute.



Herb Tobben creates solutions to customer problems at ZERO's Sample Processing facility.

The Solution:

One major red flag reared its head at the outset of this project – abrasive blasting will never produce the mirror-finish that polishing creates.

Polishing uses friction to wear the high points down to about equal with the low points. The result is a smooth surface that reflects light at an angle reciprocal to the source. Shine a light perpendicular to a flat polished surface and most of it reflects directly back. Shine it at 45 degrees, and most of the light reflects away at 135 degrees, in a relatively tight beam.

Now shine that same light at 45 degrees to an abrasive blasted surface. Most of the light is uniformly scattered.

Even with #12 glass bead, the fine-mesh media we eventually recommended, the best we could hope for on stainless steel was a uniform finish that's only slightly reflective.

My second concern was the "all-over" coverage requirement. We needed a way to grip these relatively light parts to prevent them from flying away during blasting and blow-off.

Clearly, some compromises were in order.

First, we created spring-loaded fixtures to lightly grip the pans at their edges. These left tiny spots untouched by the blast. Then we experimented with different sizes of glass bead. We settled on number 12 based on its ability to erase the tool marks in the time allotted, and leave an aesthetically pleasing finish. We shipped the sample pans – not quite polished and not quite 100-percent covered – back to the customer, along with all our test parameters, and a quote for an automated blast cabinet. We figured that would be the end of it, as the samples we provided did not have a mirror finish.

We were surprised when the customer called, ready to order the complete system. As it turned out, the product managers were willing to sacrifice the bright finish for the lower cost, quicker turnaround, and more reliable production provided by blasting. And, the matte finish proved less likely to show dishwasher spots – a real plus. The small untouched areas created by the fixtures turned into a non-issue.

Since this initial sale several years back, we've presented this process to several manufacturers of stainless steel products.

Many have adopted the technology as is.

A few now use blasting to eliminate tool marks, then buff the parts to create a brighter finish. These companies claim that pre-blasting to get a uniform finish greatly reduces polishing time.

As far as I can tell, there's been no revolt in commercial or residential kitchen over these less-than-shiny pans.

Got a question about shot peening, abrasive blasting, or sample processing? Clemco can help. Call 636 239-8135 or submit your request online at www.clemcoindustries.com.

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