

# Surface finishing— it's all about lookin' good

Herb Tobben  
Technical Services Department, Clemco Industries Corp.



In the last several issues of *The Shot Peener*, my articles have been about blasting applications and the different reasons why customers use blasting in their operations or production lines. The previous articles have been about shot peening, deburring, and cleaning. But what I have always considered one of the more obvious reasons for blasting is finishing.

The term 'surface finishing' is self-explanatory; or so I initially thought. To most people, finish means the end, or that something is complete. Webster's defines the word *finish* as "to bring to a desired or required state; to give (a surface) a desired or particular texture". Interestingly, the latter definition might be construed as surface preparation; because frequently texture is used to improve coating adhesion or the integrity of bonding. And in my experience in the industry, finishing does not always mean the final step in the process.

Blasting as a final process can actually be for peening or cleaning or deburring or finishing to improve the part's appearance before the part is put into service or marketed. So we are talking in circles.

Over the years, I have seen thousands of parts that needed some kind of treatment or a combination of treatments to make the part suitable for the customer's purpose. I consider the process as *finishing* when it stands for blasting to change appearance, to remove sharp edges, or directional lines, or heat scale, or perhaps mold release. The process can also be considered *finishing* when it is done so that the part can be visually or otherwise inspected. It can mean removing excess bonding adhesive from clad aluminum parts or it can mean removing loose burrs prior to assembly. The right surface finish can improve airflow over jet engine vanes and blades.

The process is often referred to as 'bead blasting' because glass bead is so frequently the media of choice. Glass bead blasting works for imparting a smooth uniform matte finish on stainless steel. It can put a non-reflective finish on knife blades for an anti-glare finish. Glass bead blasting creates a fine, satin cosmetic finish on parts in a line for plating. When blasted on the plating rack, the advantage is that

the parts do not have a chance to touch one another after the blast cycle, which eliminates chafing and surface blemishes or shiny spots. Glass beads also give an attractive satin finish to diecast zinc parts. The part that's been bead-blast-finished can be lacquered to capture the neutral satin zinc finish and give it a very durable hard-wearing finish. Bead blasting can be used to finish intricate jewelry where other processes cannot reach into tiny crevices. The finish attained is a smooth, bright, very uniform matte finish.

Some applications call for soft, non-aggressive media. For these applications, plastic media, ground walnut shells and corncob, baking soda or agricultural starch can be used with little or no damage to a ground surface. Loose burr removal and deflashing of molded parts can be accomplished with these gentle media.

The purpose of this article is to inspire readers to consider blasting when faced with a challenge involving the surface of any of the parts they may have. Of course, there are numerous processes that alter a part's surface—chemical etching, vibratory finishing, centrifugal blasting. Each process offers unique advantages; so it may take trying several processes to determine which may be best for your application. And because there are so many variables in the blasting process, like substrate material, type and size of media, blast pressure, blast angle, and distance from the part, you can't automatically rule out blasting until it's been tried. Sometimes customers get an unexpected result—and actually prefer the finish we've achieved over the finish they initially were striving for!

Some of the wide variety of parts that have come in for *finishing* during my tenure in Sample Processing are shown in the adjacent table. They may be steel, stainless steel, titanium, aluminum, or even plastic. They come from industries far and wide. More often than not, they are blasted to achieve an improvement in the way they look—because that's what makes a product attractive to a buyer, and appearance is an important component of the quality equation. Unattractive or discolored parts may function just as well; but they may never be given the chance.

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## **Blasting Application**                      **Blasting Improves Appearance by...**

Aluminum electric cable .....	Imparting non-glare finish
Anti-lock brake parts .....	Removing loose burrs prior to assembly
Automotive head gaskets .....	Removing excess rubber
Beverage containers .....	Removing grind lines; impart uniform finish
Bicycle frames .....	Imparting uniform finish
Brake pads .....	Pre-finishing for bonding
Cigarette lighters.....	Imparting satin finish
Coins (gold) .....	Imparting satin finish
Cookware .....	Removing draw marks
Coolant storage containers ....	Removing grind lines; imparting uniform finish
Diecast parts .....	Removing flow lines & flash
Eyeglass frames.....	Imparting satin, non-glare finish
Firearms .....	Removing machining lines; impart uniform finish
Fireplace bricks .....	Removing discoloration
Food processing .....	Removing texture; eliminate porosity; cost-effective alternative to polishing
Gears .....	Descaling
Glass objects.....	Etching
Golf club heads.....	Imparting satin finish
Helicopter parts .....	Removing excess bonding adhesive
Hot dog warmer rollers.....	Imparting uniform satin finish
Human body parts .....	Texturizing for bone bonding (replacements)
Ice machine parts .....	Descaling; removing grind lines
Jet engine blades .....	Surface smoothing improves airflow
Jewelry .....	Imparting matte finish
Lock parts .....	Imparting satin finish
Log homes .....	Improving appearance in restoration
Microphones.....	Descaling; imparting uniform finish

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## **Blasting Application**                      **Blasting Improves Appearance by...**

Molds .....	Removing release agent
Oxygen cylinders .....	Removing draw marks
Stainless Steel Thermos .....	Removing heat scale
Bottles (interior)	
SLA parts (Rapid Prototyping) .....	Removing 'build' lines
Sheet metal that's been sheared or punched .....	Removing sharp edges
Sprockets .....	Removing scale & loose burrs prior to assembly
Surgical instruments .....	Imparting uniform, non-glare finish
Tools: files .....	Removing directional grind lines
Vehicle wheels .....	Imparting texture
Wrist watches .....	Imparting matte finish
Water meter parts.....	Deflashing
Zirconium plates	Removing stock as alternative to grinding

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Tel. 1-519-753-2226 • Fax. 1-519-759-8472  
E-mail: [vulkan@vulkanshot.com](mailto:vulkan@vulkanshot.com)  
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