

# Quality Finishing: Finishing is a Blast

Some advice and things to think about when doing abrasive blasting

Milt Stevenson, Sr., Anoplate Corporation

At Anoplate, blast finishing can be categorized as strong, mild or very mild. All of the media is delivered using compressed air, and the most commonly used media is glass bead, which would be considered a mild compound. Plastic media is considered very mild and aluminum oxide is more aggressive.

Blast cabinets and rotary tumbling units are available in several departments. One cabinet unit is fitted with an outside rotary table and heavy-duty track leading into the inside of the blast cabinet, for heavy, safe material handling. Occasionally, jobs are too large for Anoplate to handle and the parts, if they can be sand blasted, are farmed out to approved vendors.

At Anoplate, blast finishing is primarily used for cleaning, oxide removal and surface preparation. Occasionally, it is used to put a satin, frosted finish on parts for cosmetic purposes or to blend various imperfections. The latter use could be classified as a finishing operation. Anoplate is not involved with the final application—surface treatment.

The principal category under surface treatment is shot peening, for increased fatigue resistance (aircraft landing gear, for example). Another use for this peening effect is to remove distortion of a part. By directing the blast on the reverse side of a distorted object, an experienced operator can "pull it back" into shape.

Conversely, an operator must exercise extreme care on relatively thin parts that can be cold worked and possibly cause distortion through excess blasting in one area. A great deal of the success of Anoplate's operators is in their ability to blend the variables that are present,

ranging from the type of media, to media size, nozzle angle, and the distance the nozzle is held from the article to, most importantly, the pressure.

One problem Anoplate is constantly confronted with on sand and malleable-type steel castings is the foundry scale present on incoming machined parts. Many customers do not realize that most cleaning cycles for any casting are shorter than cleaning procedures for other metals. It is possible to get into trouble with prolonged cleaning of castings.

Another little known fact is that long acid portions of the cycle can damage the machined areas rapidly. The acid attacks the non-scaled surfaces (machined) much more rapidly than the oxidized portions (scaled). Many heavy scales are quite resistant to acid, and prolonged acid pickling is not a prudent solution.

If acid is not the solution, what is? The short-term approach is to call the customer, explain what you have just read and get permission to glass bead the scale. (Also get permission for the extra charges.) The long-term solution is to get your foundry to remove the scale before you start machining. They have the heavy-duty blast equipment to do the job more cost effectively.

Just what is this equipment that the foundry has and job plating shops do not? Wheel blasting equipment that mechanically propels steel shot by centrifugal action in a wide pattern with lots of force is much more rapid and much more cost effective. Often, this equipment is semi-automated.

However, this new wrinkle on purchasing castings may not be an "easy sell" with your casting house. They are often backed up in this

area and would most likely try to ignore the plater's problem. At least you should check around. At some point it will save you time and money, not to mention delivery, if your plater scraps the parts.

When using glass bead to create a fine, satin cosmetic finish, Anoplate's main success has been with small parts. In some instances, parts are racked up on the plating rack and satin finished just before a shortened cleaning cycle and plating. The advantage of this technique is that the parts do not have a chance to touch one another after the blast cycle, which makes the finish prone to chafing and may cause a blemish or shiny spot.

On larger parts, a slight variation of pressure, distance, shape of the media discharge pattern and operator technique makes it very easy to create a non-uniform finish with the edge patterns. Uniform satin finishes on large flat areas can be extremely difficult to obtain.

There are several reasonable soft, non-aggressive forms of media other than plastic media. Ground walnut shells and corncob along with baking soda and agricultural starch can remove foreign substances with minimal damage to ground surfaces. On occasion burr removal and deflashing of molded parts is a use for this gentle media.

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## About Anoplate

**Anoplate, in Syracuse, New York, offers metal finishing services including plating of copper, nickel, chromium, zinc, cadmium and tin, various types of anodizing of light metals, conversion coatings such as passivate and phosphating, dry film lubrication, small lot painting, and vacuum impregnation.**

**Anoplate's reputation for quality and workmanship, diversity in process offered, and ability to meet rigid specifications has led it to serve a broad base of industries including aerospace, computers, defense, electronics, medical, optics, and recreation.**

**For more information, call Anoplate at (315)471-6143 or visit [www.anoplate.com](http://www.anoplate.com).**