

Mixing it Up

The following article is derived from a recent email exchange between a media manufacturer and Jack Champaigne, President of Electronics Inc. It will be valuable to our readers that have questions on media usage in peening and blast cleaning machines.

MEDIA MANUFACTURER: When someone is charging a new machine for peening purposes, we always suggest a mix of shot that would represent the eventual working mix. We have a customer with a new machine, and they insist that they want to charge their new machine with all one size. What determines the shot discharge size in a peening operation? Is there a specification or is it just the required profile result of the finish that determines when to discharge shot?

JACK: Wow, get me started. The term “working mix” is common for abrasive blast cleaning operations, especially in foundries for the cleaning of castings. A mix of large shot and then addition of grit is often needed for efficient cleaning. I was perplexed by the term “peening purposes”, so I pursued the conversation further.

If the application is for blast cleaning, it is common to have a working mix—for instance, when cleaning castings in a foundry. However, in other applications the customer may wish to use just one size of media if it accomplishes the cleaning efficiently. This eliminates the burden of mixing media in portions trying to maintain a mixture.

If the application is for shot peening, then charging the machine with only one size of media is absolutely required. The type and size of media most likely is contained in a shop order. Going further, the media maintenance rules need to be adhered to. Depending upon the machine’s construction, it may have screen separators to classify the shot automatically and therefore inspections are only required after 40 hours of operation. Without the classifiers, inspections must be done every eight (8) hours of operation. See the chart in Table 5 from SAE spec AMS 2430.

MEDIA MANUFACTURER: I know that the US Military specification 13165 indicates that for cut wire .020, for example, the 40 screen (.0165) indicates that 20% can go through that screen. I don’t really understand that either. What does that mean?

JACK: Inspections for media size are conducted using a stack of sieves with a 100 gram sample of media. Shaking the sieves will cause media to pass through the stack determined by the size of the media and the opening of the sieves. A machine called the Ro-Tap (rotation and tapping) is used

to shake the stack. If you are using cut wire media size 20, then you must meet the requirements of collecting less than 0.5% of media on the sieve #25 and less than 20% passing on the #40 sieve. (Visit <https://wstyler.com/particle-analysis/ro-tap-sieve-shaker> or scan the QR code to learn more about the Ro-Tap.)



For additional information on media inspections, consider enrolling in a workshop or arranging for on-site training by our education division at Electronics Inc. The courses are sanctioned by the FAA for inspectors’ annual recertifications and include training in media, intensity, coverage and use of the Almen strips and gages. ●

**Table Five | SAE specification AMS 2430
In-process media inspection frequency requirements**

Media	Machine with Separator (Hours)	Machine without Separator (Hours)
AMS2431/1 Cast Steel Shot Regular	40	8
AMS2431/2 Cast Steel Shot Hard	40	8
AMS2431/3 Cut Wire Shot Carbon, Regular	80	16
AMS2431/4 Cut Wire Shot Stainless	120	24
AMS2431/5 Peening Balls	20	4
AMS2431/6 Glass Shot	8	Note 1
AMS2431/7 Ceramic Shot	8	4
AMS2431/8 Cut Wire Shot Carbon, Hard	80	16

Notes:

1. Media shall be replaced after two hours of peening. No inspection of outgoing media required. When wet glass shot is used, the entire slurry charge shall be changed at frequent intervals for compliance with this requirement. Fresh shot may be added only once between changes of the entire slurry to maintain the media quality.