Surface Finish

People often ask the question, “Can you improve the micro inch RMS finish of a part by air blasting?” The question is frequently asked because some people believe that air blasting will produce a mirror-like, high polish finish. This is not the case and is never applied where such results are desired. However, the proper choice of abrasives and blasting air pressures can provide for control of surface finish. In addition, surface finish is dependent upon nozzle angle, nozzle distance and the initial finish and final result desired.

Abrasives delivered with air blasting equipment can affect the surface finish of a given part. However, the important point is what type of surface you have to start with. If a part has an initial finish of twenty-five micro inches or greater, you can blast it and obtain a finish of twenty micro inches or less. However, if you receive a part with fifteen to twenty micro RMS finish, you probably cannot improve the finish by blasting. An important exception to this, however, is the case of a part that has a directional finish such as would be obtained by grinding or abrasive belt finishing. In this case, a fine abrasive blast, at relatively low pressure, can effectively blend a directional pattern into a uniform matte surface, including the elimination of scratches and other defects.

There is one other important point and that is where any metal is drilled or punched, it can be expected that a burr will appear on the opposite side to that which the drilling or punching was started. The same is true of a milling cut. If the burr is not too heavy, it is possible that air blasting will eliminate the burr and leave the edge of the hole, or the edge of the milled surface, clean. It has been our general experience that a hard, angular abrasive, such as aluminum oxide, is preferred for this type of work although there are some jobs where glass beads and other abrasives, with less cutting qualities, have done a satisfactory job. If the burr is very heavy it is probable that removal of this burr will not be satisfactory with air blasting due to possible surface damage in the area of the burr.

Unfortunately, we don’t know who wrote this article and therefore cannot give credit for this practical and enlightening series. However, we can thank Ken Dykstra of Precision Automation Inc. for submitting it to us for publication.

Don’t miss the abrasive selection criteria charts that start on page 17.