

Application Considerations

To specify the proper equipment for your application, you should set specific objectives and choose the equipment and materials to achieve these goals.

If you are replacing existing equipment or adding blast cabinets to meet growing needs, you are probably familiar with the benefits of air-blasting, the best media to use, and the type of system you want. However, if you have a new blasting application, you and your Empire distributor should review the following outline before making a final selection.

Cabinet Sizing

Prior to selecting a cabinet, determine the critical characteristics of your workpiece. These factors should include: part size (will the workpiece fit into the cabinet?), accessibility of surfaces to be blasted, orientation requirements, desired operating procedures (manual or automatic), and masking considerations. Normally, a sketch of the part within the cabinet is helpful in determining the most functional cabinet size.

Surface Requirements

To achieve desired results, there is no substitute for actual sample blasting, through which real-world parameters can be defined. The key factors in achieving the “right” surface characteristics are: coverage, duration, pressure and media—all of which are interrelated. Nevertheless, the best final results normally start with the “right” media. General descriptions and characteristics of the most commonly used blast media are provided on the back cover of this catalog.

Generally, fine media do faster work on lighter jobs. Heavy media impact harder for deeper etching or increased “arc heights,” but may lodge in small recesses. Before making a final choice about media, determine how many times the material can be recycled and how reclamation affects your operating costs.

Production Rate

The many variables affecting production rates include: blast system type (suction or pressure); blast media (type, size and quality); blast pressure; distance and angle of guns/nozzles in relation to the workpiece; part size; and operator capabilities. Again, sample blasting is the only true test, but if higher production rates are your objective, take a look at Pro-Finish pressure systems and Ergo-Blast configurations for manual work—or consider automation options.

Reclaimer and Dust Collector

Most Pro-Finish® systems are available with two ventilation options. Dusty, heavy-use or multiple-gun applications usually require additional ventilation for optimum operator visibility and extended equipment life. Dense media require larger blowers for adequate conveying. (See “**Media/Reclaimer Compatibility**” table on page 10.) Systems with exposed dust bags or without reclaimers are not recommended for production applications.

Utilities

Your Pro-Finish system requires electricity and compressed air. Be sure the system you select interfaces properly with the electrical sources in the plant where it will be installed. Standard pre-wiring for 1 horsepower motors is: 115 volt, 60 hertz, 1 phase, 20 amp; for 1½ horsepower motors: 230 volt, 60 hertz, 1 phase, 15 amp; for 2 horsepower motors: 230 volt, 60 hertz, 1 phase, 17 amp; for 5 horsepower motors: 230 volt, 60 hertz, 3 phase, 20 amp. These numbers represent full-amp draws for the dust collector and basic cabinet. Three-phase electrical upgrades can be supplied complete with control transformer for one-source power connection. Three-phase upgrades are also available with more economical dual source. Because field re-wiring can be costly, it is not advisable.

Options

Tailor the system to your application by choosing standard options. If harsh media is selected, you will want to protect your equipment with Empire’s extended-wear components. For light or fine media (200 mesh or less), or humid conditions, consider a vibrating screen and automatic Sure-Flo regulator. When using plastics or walnut-shells, FaStrip® cabinets are recommended.

Review all standard factory options as they relate to material handling, productivity and serviceability with an eye toward getting maximum value from your Pro-Finish system. Because these systems are modular, you can select only the equipment needed. Further upgrading in the field is normally a simple procedure.

Automation

You can customize a Pro-Finish cabinet to run without an operator by incorporating a powered turntable and gun holder. More sophisticated approaches include multiple blast guns, oscillators and a timer package.

Almost every automated Pro-Finish application is different so care should go into visualizing how the part will be processed. If an out-of-round workpiece is rotated on a turntable, areas that come closer to a stationary blast source will experience greater intensity. In addition, recessed regions may be missed and interior surfaces may be hard to reach with standard equipment.

Multiple guns/nozzles not only provide faster cycles through increased coverage, but also “see” more facets on multi-sided parts. Consequently, most automated systems employ multiple guns or nozzles.

Manual touch-up is offered with Pro-Finish systems involving automation because, unlike the human eye, mechanical devices cannot sense where extra blasting might be required. Touch-up can also eliminate the effect of “barberpoling,” which occurs when blast oscillation is slightly faster than part rotation.

One of the final “components” to choose in your automated Pro-Finish system is the cabinet. Picture how much room is needed inside the working enclosure—not only for the workpiece, but also for the guns/nozzles, hoses and all moving mechanisms. Be careful not to under size the cabinet.