



5 POWDER COATING TECHNOLOGIES

To Save Time
and Increase Profit

Time spent cleaning up excess powder from your powder coating booth can be drastically reduced and your company's bottom line can receive a boost when you outfit your new or existing booth with the latest technology.

Powder coating is a messy process, even for the neatest industrial manufacturer or business. Because of the manpower required to clean it up and the high volume of wasted powder, profit margins are sometimes smaller than they could be.

Whether you are a small- or high-production operation, these five technological upgrades have the potential to elevate your shop's powder coating production.

1. FLUIDIZED POWDER BEDS

Due to the shape and contour of parts being powder coated, a 100 percent transfer efficiency is impossible to attain. In fact, a 70 percent transfer efficiency is average for most businesses that powdercoat flat panels, and businesses with complex parts may have transfer efficiencies as low as 30 percent. This equates to a lot of powder waste. For high-production shops, hundreds – or even thousands – of pounds of powder could be wasted each week.



You can reclaim wasted powder by incorporating options such as fluidized beds into your powder booth, saving your business a lot of money and reducing time spent removing wasted powder. This is especially impactful in high-production powder coating facilities or when shops use zinc-rich primer, which is very expensive and extremely heavy.

Fluidized beds are an option on Global Finishing Solutions® (GFS) Powder Collection Modules, which are incorporated into the powder booth. GFS fluidized beds consist of a porous, microscopic white membrane, similar to a plate, that is typically ¼-inch thick, depending on the type of powder. It sits beneath the filters, angled inward at the bottom of the booth. Air is evenly dispersed as it passes through the membrane, and the microscopic pores prevent powder from passing through.

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2. POWDER DRAWERS



Similar to fluidized beds, drawers collect wasted powder so that it can be discarded or reused. Removable drawers are located beneath the filters. When the filters pulse, the powder from the filters drops into the drawers.

Instead of shoveling excess powder off the floor, the drawers can simply be removed from the powder module, similar to pulling a sock drawer out of a dresser, and then the powder can be dumped into a drum and transported for waste or reclaim. The entire process takes only about 15 minutes.

3. PULSE CONTROL TECHNOLOGY

Another technology feature that can improve efficiency in your powder coating operation is pulse control. Incorporated into GFS Powder Collection Modules, pulse control technology provides more consistent airflow and better visibility in the booth. As the filters load with



powder, a magnetic gauge on the side of GFS powder coating booths monitors the booth's pressure drop. Once a preset pressure drop is reached, the filters pulse, allowing powder to fall into the fluidized beds or drawers or onto the floor of the booth.

Pulse control technology keeps filters from excessively loading, so that the air velocity is consistent

and the booth remains between 100 and 125 FPM. With consistent airflow in the booth, powder is not accumulating, which promotes better visibility. Consistent airflow also helps prevent migrant powder, which can cause cross contamination when powder coating with multiple colors, and can collect on tools and equipment outside of the booth.

Another advantage of pulse control technology is minimized filter changes. GFS recommends changing filters in powder coating booths every 12 months. However, in dry climates with low humidity, the powder does not clump into the fibers of the filter media, enabling filter life to be extended.

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4. TRANSFER PUMPS

Excess powder buildup is particularly problematic for shops performing frequent color changes, and may prevent powder from being reused. Shoveling the powder out of the booth between color changes can take one to three hours, depending on the size of the booth and the amount of powder sprayed. That is a significant amount of downtime for production – or extra labor if removing the powder after hours.

Consider adding a transfer pump – supplied by GFS distributors – to your powder coating operation. With a transfer pump, the excess powder from the fluidized bed is dumped into a 55-gallon drum or other waste container. This allows the booth to remain in operation and eliminates the need for someone to shovel out the excess powder. It also allows powder to be reused.

For operations in which powder is reclaimed, a transfer pump can be run through a sieve, filtering the powder to remove foreign objects, debris and heavy sediments. The powder is then transferred to a hopper, where 30 percent reclaimed powder is mixed with 70 percent virgin powder. Some powder is eventually discarded once it becomes too fine.

5. MANUAL VFDs

At 125 FPM, with the settings on a powder gun adjusted to try to prevent film thickness build, the airflow can be counterproductive. Powder can be pulled right out of the gun, without even hitting the part. And wasted powder cuts into your profit margin. To avoid this, some businesses turn off the fan in the booth and powder coat with no airflow. Not only is this hazardous to the powder coater, but clinging powder can result in a big mess.



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“The powder that doesn’t go on the part forms a giant cloud. The powder clings to everything and ends up covering the operator,” said Michael Cook, a powder coating industry expert for GFS.

Controlling airflow in your powder booth – and thus reducing wasted powder and protecting your employees – is much easier with manual VFDs. This is especially useful when powder coating small parts, such as those used in the aerospace and medical industries, or when the thickness of the powder is critical. Resembling a volume knob, a manual VFD on the control panel allows you to easily adjust the airflow in the booth. ■

Adding the latest technology to your powder coating booth saves both time and money, streamlines production and makes your operation more efficient. To speak with someone about integrating one of these technologies into your business, contact a powder coating expert at GFS.



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