Staying Ahead of Demand Keeps This Powder Coating Jobshop Continuously Changing & Expanding

This utility cart frame is one of many items coated by hand application at Powdercoat Services, Inc.

Powdercoat Services, Inc., Anaheim, CA, is a surface finishing jobshop that started operations in 1981. The company has five separate powder coating facilities in the same industrial complex, all custom-designed to accommodate parts that range in size from truck frames to small parts about the size of paper clips. The company processes a high-volume of parts, and has gained a reputation for providing fast service and high-quality finishing at fair prices.

Since starting operations, Powdercoat Services, Inc., has grown from one line to five under the guidance of the founders—Peter L.V. Hutchinson, president, and Michael W. Cravens, vice president.

Cravens manages and operates five separate powder coating plants in the same industrial complex. He has been involved in all system designs and supervised all plant operations since the company began in 1981. Well experienced in powder coating technology, Cravens is also president and owner of Powder Finishing Consultants, Inc., and recently completed a four-part series of educational training videos on powder coating. He is a past president of the Association for Finishing Processes of the Society of Manufacturing Engineers (AFP/SME).

Hutchinson and Cravens have emphasized quality and a quick turn-around time, and as a result, Powdercoat Services, Inc. has grown fast and continues to expand its customer base.

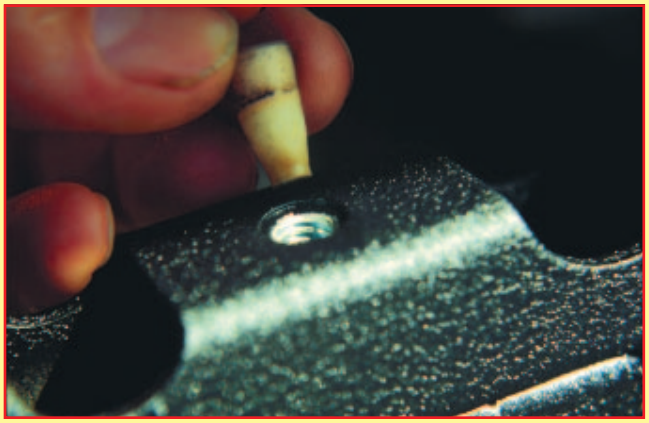
Four conveyor-operated powder coating lines process thousands of parts each hour. A fifth batch system that was completed in 1990 is used to process very large parts. It features an 8-ft by 10-ft by 25-ft long convection oven and an abrasive blasting room. The batch coating line was installed to handle the growing number of diversified shapes and sizes of parts processed. The company processes from 15 to 20 million parts per year.

About the Lines

- The main coating line is capable of processing larger parts on a conveyor-operated system. Color changes can be made easily and quickly to accommodate small orders. The line can also handle poles and masts up to 38-ft long.
- Three mini-coater lines are dedicated to processing smaller parts in high volumes. These systems are flexible and can handle semi-automated or manual coating processes, depending on the configuration and complexity of the parts. One mini-coater line, for example, is designed for efficiently finishing heavier gauge or die cast parts.
- The lines are all conveyorized systems, but can be operated as automatic or manual. About 80 percent of the parts processed are finished manually.
- The company's batch coating facility includes sandblasting capability. It can accommodate parts up to 23-ft long by 8-ft by 7-ft. This line is also used to apply the company's proprietary flame-sprayed aluminum and powder technologies to provide a high degree of functional corrosion protection with a decorative finish. [1]

Cravens says the aluminum powder flame spray process at Powdercoat Services, Inc. was developed in cooperation with the U.S. Navy. A few years ago, Cravens was asked to help the Navy's Corrosion Control Facility in San Diego with some problems it was having with the quality and consistency of its powder coating process. Cravens agreed, and tested a number of different materials

[1] *Alumaseal-90*



Coatings can be prevented on selected areas by masking before processing.

Racking operations for the automatic lines are designed for high-volume production and high-quality results.

and application processes to find more corrosive-resistant coatings. The proprietary flame spray process that is now used by Powdercoat Services, Inc. as a base coat to powder coating for added protection in severely corrosive environments is a result of that initiative.

Applications include steel fence and railing; steel wheels, bumpers, and frames for autos; steel structures, such as store fronts; outdoor steel furniture; and boat trailers, offshore drilling oil rigs and ship hardware in marine applications. The process is just as environmentally friendly as conventional powder coating applications, Cravens points out.

The work is handled by 76 employees, with process lines running two shifts five days a week. All employees are trained at the facility, and training is continuous. Cravens has developed a series of powder coating training programs that are used for that purpose by the company.

Pretreatment

The company uses a four-stage aqueous iron phosphate cleaning and pretreatment system, and an abrasive blasting room. Pretreatment is customized, depending on the type of substrate and application of the part being finished.

Curing

A convection oven is used for all parts, with some parts receiving a combination of gas-fired infrared and convection heat after the coating is applied.

Waste Management

There is very little waste to the powder coating operation, according to Cravens. Unused powder is easily recycled; any material that cannot be reclaimed is non-toxic and easily disposed of as ordinary trash.

What's Ahead?

Cravens says that line Number 6 is already on the drawing board, and will include even more automation and modern features. "Like most businesses today, powder coating technology is changing fast and getting better and better," he says. "We will continue to update and expand as long as there is a need to meet the demands of our customers."

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Advantages Of Powder

There are distinct cost advantages to powder coating compared to solvent paints, according to Cravens. Some of them include:

- The materials are received in a ready-to-use state, eliminating variables involved with mixing.
- Powder spray booths can be cleaned with a simple air jet without the use of solvents, eliminating the need for expensive air pollution control equipment. It also eliminates the fire hazard associated with paint and solvents.
- Recovery system overspray can be collected for reuse with powder. Many liquid paints cannot be reclaimed.
- An average thickness of .001 in.–.003 in. can be obtained in one powder application. Wet spray may require two or three coats to achieve this thickness, which increases the process time and expense when higher film thickness is required.
- Powder coatings are cured at elevated temperatures (350 °F–425 °F) as compared to wet coatings. This generally results in a tougher, more chip-resistant coating.
- Because powder-coated parts are fully cured when they leave the oven, the total processing time is shorter compared to many wet coatings, which have post-cure aging requirements. Total processing time is shorter, resulting in a quicker turn-around.

Preparation is an important part of any powder coating operation. This jet spray water wash cleans parts to be processed at Powdercoat Services, Inc.