

MANUFACTURING

Powder Coating at Laidig

ADDING MORE



Augers lay outside the Powder Coating Station at Laidig Systems, Inc. in Mishawaka, IN.

MISHAWAKA, IN
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Color. It adds life and energy. It makes the dim bright and the dull shine. Paint on a canvass or a wall makes an image come to life. Paint can revive or refresh the life of an object, and in some cases can extend the life by protecting its surface. Painting protects, adds life and adds value. In essence, painting adds more.

At Laidig Systems, adding more is an essential part of the company philosophy. Laidig **IS** more than steel and **IS** more than just the equipment and systems that are sold all over the world. Adding a Powder Coating Process at Laidig is another step in the manufacturing process to ensure the systems and equipment are the best they can be.

All of the parts that are manufactured by Laidig Systems are powder coated. Powder coating is a superior finishing process which, when applied over a properly pretreated part, can last for decades. This alone is an advantage to the Laidig customer, as this process will keep their equipment looking fresh and potentially save them the expense of repainting their equipment. Systems finished with older coating technology are more likely to rust, peel and fade. The powder coating process is a state-of-the-art, electrostatic dry thermo-setting process that ensures a longer lasting finish. The powder coating process is also environmentally friendly requiring no special EPA permits for its use.

Through this process, powder is applied electro statically to each part with a special gun. The powder becomes positively charged as it is sprayed on to negatively grounded parts. The attraction of the positive and negative charge bonds the powder particles to the part as it travels through the oven. Each coated part is heated to the recommended cure temperature whereby the powder essentially melts onto the part. As the part cools the coating becomes a hard, durable "**shell**" protecting the part from its environment.

The Laidig powder coating system includes two independent lines differing by the mode of conveyance and the method of pretreatment. Line 1 makes use of a chain conveyor to move parts through the process. Line 2 is a batch system in which parts are moved on carts rolling on a floor mounted track. A three stage washer pre-treats parts processed on the conveyor system, and an aluminum oxide media blast is used in the batch system. The size, weight, and the expected coating life of the part will determine which process is used.

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Line 1:

The semi-automated conveyor line is over 600 feet long. Each conveyor hook is capable of holding up to 1,200 pounds, and with special attachments, a part weighing up to 4,800 pounds can be conveyed. This line has a three-stage wash for cleaning and protecting the parts. Stage 1 includes a phosphatizing cleaner that is applied to clean and etch the parts. Etching creates an anchor pattern for the coating to adhere to. The second and third stages of this line are used to deactivate the phosphatizing cleaner utilizing reverse osmosis filtered and softened water.

The next step is the drying oven where any remaining water is dried off to prevent flash rusting. After drying, the parts proceed through the manual powder coating process and are conveyed through another oven to cure. Cure oven temperatures range from 300 to 450 degrees Fahrenheit. After the oven, the parts cool down as they are conveyed to the unloading station where they are removed from the conveyor and stored awaiting shipment or assembly.

Line 2:

The Batch Line is made up of three distinct components. The first is a blast booth where 70 mesh grit Aluminum Oxide is used for cleaning. It is beneficial to blast components that have excessive mill scale or rust when powder coatings are used. As with the etching process in Line 1, blasting creates an anchor pattern for the coating to adhere to. The next component is the manually applied powder paint booth, which is identical to the process in Line 1. The last component is the oven. This oven has an opening that is 12 feet wide and 10 feet high, and will accept a part that is 85 feet long.

Laidig performs a variety of tests on the parts to ensure the resulting coating meets or exceeds specifications. Those tests include: **dry film thickness, hardness, gloss, adhesion, and cure.**

Laidig is pleased to be able to offer this technology to all of their customers. Laidig has chosen to utilize powder paint due to its durability and strength. Based on the customer's needs and the specific equipment function, Laidig has the option of utilizing one of two painting lines to ensure the best results. It's Laidig's ability to add **more** value to their products, and another example of how Laidig Systems is "**More Than Steel.**"

