Hangzhou Color Powder coating Equipment co.,ltd
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The process of the coating is like this: The powder is fluidized in the powder hopper. The injectors transport the powder through the hoses to the guns. The guns spray a powder/air mixture onto the workpieces

COLO Powder Coating Systems is a top supplier of powder coating systems and powder coating equipment including manual powder coating equipment, automatic equipment, spray booths,ovens and spare parts for itw gema, wagner, nodrson, kci famous brand in China.

A Brief About Powder Coating

Powder coating is a dry finishing process, using finely ground particles of pigment and resin that are generally electrostatically charged and sprayed onto electrically grounded parts. The charged powder particles adhere to the parts and are held there until melted and fused into a smooth coating in a curing oven. Before coating, the parts to be coated are first pretreated similarly to conventional liquid coated parts. The pretreatment process is normally conducted in series with the coating and curing operations.

There is essentially two common ways of applying powder coating: by electrostatic spray and by fluidized bed powder coating. There are several other processes that have been developed, but they are far less used. These include flame spraying, spraying with a plasma gun, airless hot spray, and coating by electophoretic deposition.

To get an overview of the technology used in the powder coating industry click on the items below:

- pretreatment
- Electrostatic Spray
- Curing

Pretreatment.

Phosphating, or conversion coating, is the application of an iron or zinc phosphate coating to the substrate. Conversion coating can be a very critical part of the pretreatment process, adding significantly to the performance of the finished coating. A phosphate coating converts the metal substrate to a uniform, inert surface, which improves bonding, minimizes the spread of oxidation if the coating is scratched and improves the overall corrosion resistance of the final part.

A conversion coating can be iron, zinc, polycrystalline, chromate, or manganese phosphate film. They are developed on both ferrous (iron based) and non-ferrous surfaces (zinc, aluminum, terne and manganese). Parts are subjected to an acidic bath and a chemical conversion forms a complete film on the part surface, changing the chemical and physical nature of the metal surface.

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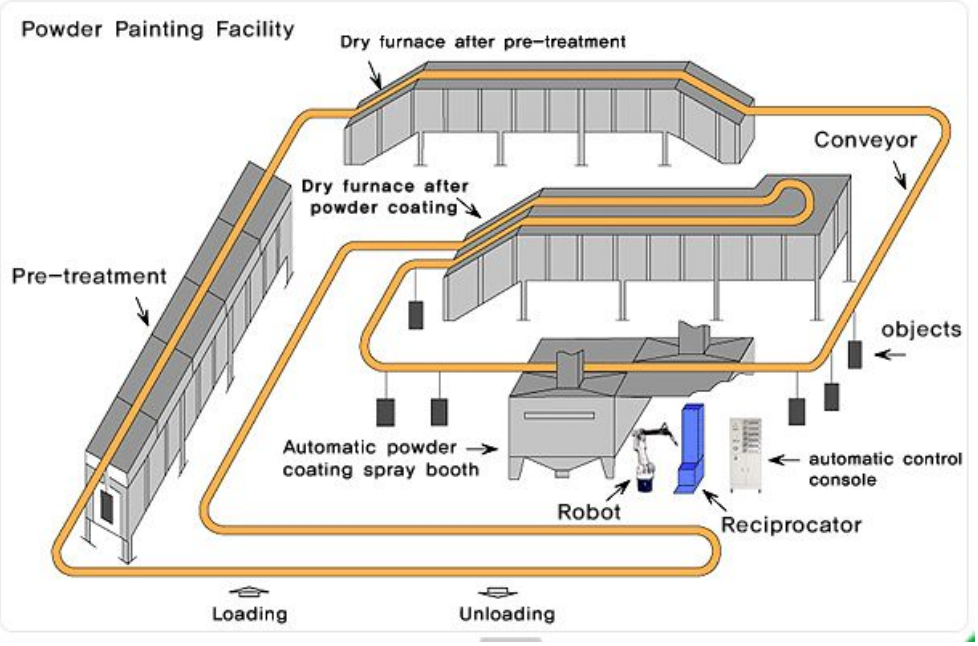
COLO has introduced a big breakthrough in surface treatment: Bonderite NT – a new surface pretreatment which is considerably more efficient, less complicated and more cost-effective than conventional iron phosphating



Electrostatic Spray

Electrostatic spray powder coating uses a powder-air mixture from a small fluidized bed in a powder feed hopper. In some cases, the feed hoppers vibrate to help prevent clogging or clumping of powders prior to entry into the transport lines. The powder is supplied by a hose to the spray gun, which has a charged electrode in the nozzle fed by a high voltage dc power.

Electrostatic powder spray guns direct the flow of powder; control the deposition rate; control the pattern size, shape, and density of the spray; and charge the powder being sprayed .The spray guns can be manual (hand-held) or automatic, fixed or reciprocating, and mounted on one or both sides of a conveyorized spray booth.

Electrostatic spray powder coating operations use collectors to reclaim over-spray. This reclaimed powder is then reused, adding significantly to the powder coating's high transfer efficiency.

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There are various gun designs that mainly differ in the method of applying electrostatic charge to the powder. In some cases, the powder is electrostatically charged by friction. The advantage is that the powder is free to deposit in an even layer over the entire surface of the part, and deposition into recesses is improved. The film thickness is dependent on the powder chemistry, preheat temperature, and dwell time. Film thicknesses of (40 - 60 µm) in case of plain powder (80 – 100 µm) in case of texture can generally be applied on products.

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Curing

When a thermoset powder is exposed to elevated temperature, it begins to melt, flows out, and then chemically reacts to form a higher molecular weight polymer in a network-like structure. This cure process, called cross linking, requires a certain degree of temperature for a certain length of time in order to reach full cure and establish the full film properties for which the material was designed. Normally the powders cure at 200°C (390°F) in 10 minutes. The curing schedule could vary according to the manufacturer's specifications.

The application of energy to the product to be cured can be accomplished by convection cure ovens or infrared cure ovens

Our company website is www.colourspray.com