



CREATIVE POWDER FINISHES

Guidelines for the application of Metallic Creative Finishes

Description and Features

Due to the variety of different metallic grades used in the manufacture of metallic powders coatings a number of application problems can be experienced.

The following is a set of guidelines which could be used to successfully apply these products.

Before starting any job the applicator should ensure the plant and equipment is set up correctly to achieve the desired result. Always coat test panels and assess these against the QC approved panel supplied by the powder manufacturer. If the appearance of the test panels is satisfactory, it is recommended plant settings be recorded before commencement of the production run. If the appearance of the QC test panel cannot be reproduced to commercially acceptable standards then adjustments need to be made to the plant set up.

Guidelines for plant set up:

- Automatic guns provide a better, more even finish than manual guns. Manual guns used for touch up areas are best used prior to the automatic process.
- The speed of the horizontal reciprocators must be kept at or above the level set for solid colours to reduce the possibility of "banding or "striping".
- For manual applications the distance between the gun and the work piece must be kept constant. The closer the gun is to the work piece the more metallic the appearance. It is recommended manually operated guns should be approximately 150mm from the surface of the work.
- It is recommended that "flat" or "slotted" nozzles are used on the automatic guns as a wider spray pattern can be achieved thus reducing the "banding" effect. Manually operated guns can be fitted with either "slotted" or deflector / cone nozzles.
- Always ensure the metallic powder is fluidised properly. The heavier metallic particles should not be allowed to collect near the bottom of the fluidised bed.
- Box feed systems are not generally ideal for the application of metallic powders due to the compaction of the heavier particles.
- KV settings should be kept as normal if possible. Avoid increasing the KV as this may increase the metallic appearance, as well as creating a build-up of metallic particles around the needle causing "spitting" of aluminium on the work face.

Guidelines for problems and solutions

- Picture framing – occurs when there is a heavy build up of powder around the edge of the panel.

Automatic guns – ensure the reciprocators do not “dwell” at the top and bottom of the stroke. Make sure the gap between panels on the conveyor are kept to a minimum.

Manual guns – have a consistent spray action and avoid unnecessary high film builds.
- Spitting – due to a build up of metallic particles around the nozzle and needle. Increase the air pressure into the fluidise bed to ensure good fluidity. Monitor and clean the gun nozzles regularly.
- Striping / banding – caused when the reciprocator speed is too low, the incorrect nozzle is used or if manual application the spraying action is inconsistent. Increase the reciprocator speed and check that gun nozzles are correctly set to provide a wide spray pattern.
- Patchiness / mottle – occurs when the spray action on manually operated guns is inconsistent or the number of automatic guns is insufficient. There should be a minimum of 4 guns per side to provide a consistent appearance. Ensure the distance from the work piece is set at 150mm for manual guns and 200mm for automatic guns and that consistently even film builds are applied.
- Low metallic content – occurs when guns are too far away from the work surface, or the KV is too low. Care needs to be taken in correction of this fault as “orange peel” caused by high film builds or back ionisation can occur.

Many metallic powder coatings are sensitive to atmospheric conditions, heat, moisture or contact with solvents. The effect will be noticed by a discolouring of the powder surface (generally turning black) when handled regularly or exposed to an aggressive environment.

It is recommended Applicators and Specifiers of metallic powder coatings check with the powder manufacturer to determine if the metallic powder is suitable for the situation / application or if a clear coating to protect the metallic particles needs to be applied.



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