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What should you consider when thinking of moving from manual to selective coating?

A typical conformal coating selective robotic spray process consists of a programmable XYZ coordinate platform with a valve or valves attached to a controllable arm, depositing coating onto a printed circuit board (PCB) in areas specified by the programmers of the system.

Technology varies between the platforms and the valves but essentially they achieve the same result. The principle is to deposit coating where you want it, removing the issue of masking which is required in batch processing with dip or spray booths.

This "selective" application genuinely offers in most cases a more cost-effective solution to batch coating. SCH Technologies currently offer both selective robotic spray coating and batch spray & dip coating in our coating service so understand both the advantages and issues selecting a suitable application process.



What do we provide?

SCH Technologies can offer conformal coating services, equipment, consultation and Humiseals great range of conformal coating materials. We will be happy to answer any of your questions and we've got the experience to solve any of your conformal coating headaches. Don't hesitate to contact us with the details on the following page and we'll help to ease the pain of conformal coating.

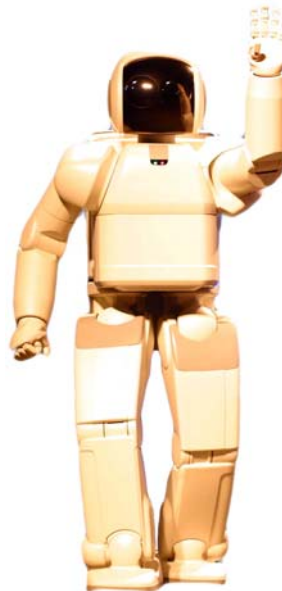


Advantages to be gained include:

- Masking and subsequent de-masking stages can often be minimised or completely eliminated. Consequently, masking mistakes, which can cause expensive stripping and rework, are also largely eliminated.
- The process is infinitely repeatable. A far more controlled coating thickness can be achieved from board to board and from batch to batch.
- The process no longer requires a skilled operator to operate the machinery during application of the coating.
- Finishing is minimised after coating, as there is little or no masking to be removed, tears or lifting in the coating can be minimised.
- Less material is used, since the system only sprays sufficient coating to cover the relevant areas of the board, offering another reduction in cost.

What issues need to be considered before making the move?

- Selective coating does not automatically remove the requirement for masking. There can be several reasons for masking a board during selective spraying, including the requirement to coat extremely close to connectors, which can “wick” coating
- Misaligned components on the PCB can potentially damage the spray heads which are moving along a set pattern on the board and the components themselves be damaged by the heads as they travel.
- Complete board edge coverage can be tricky using a selective spray robot, although it is achievable on some systems.
- Coating of large 3D components is difficult in most cases due to the nature of the heads operating in a vertical plane.
- The edges of a PCB need to be solid enough to be held by the rails of the machine jig, otherwise the board will not be held horizontally.
- In all cases, there is an initial one-off “set up” cost for programming which needs to be amortised over the length of the project.



These issues need to be carefully considered and addressed to ensure a smooth transition from batch to selective coating.

If you have problems with coating adhesion (where the coating runs off components and away from certain areas of a board) when applying coating through any spray process, you can improve the coverage by heating the board. 40-50°C in an oven is sufficient but you must then coat the board immediately.

This heating process causes the coating to stick more readily to the board due to the heat forcing the solvents to evaporate more quickly.

Next issue:

Setting up a conformal coating facility

Last issue:

Are there any IPC standards relating to conformal coating