



The Advantages of Selective Conformal Coating

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Applying conformal coatings to electronics has come a long way since the days of manually coating circuit boards. The extreme accuracy and highly repetitive process of automated conformal coatings is moving the electronics industry towards a more defect-free era for conformal coating. It enables new forms of electronics to become better protected, making it possible for electronics to withstand harsher environments than ever before. The following article is meant to aid in clarifying the advantages of specialty coating systems over manual applications for selective conformal coating.

Why Conformal Coating is important?

Conformal coatings protect electronics from contaminants (e.g. moisture, solvents, oxidation, dendrite growth, tin whiskers, dust, etc.) that could potentially cause them to malfunction or cease to work. The need to protect electronics using conformal coatings is continually increasing. Electronics in general continue to become more complex and expensive, thus raising the need to protect electronics ensuring both proper operation and longevity.

Minimal Labor is Required

Manual dip operations are extremely labor intensive, and consistency becomes a problem as the coating thickness is difficult to control. Taping, masking circuit boards, and then immersion into a coating tank is time consuming and inefficient especially for medium to high volume manufacturing.

Automated high speed fluid dispensing of conformal coating simplifies the coating process. The automated selective conformal coating process requires no taping, masking, or dipping. Conformal coating is accurately dispensed from nozzles in either non-atomized or atomized spray. A non-atomized nozzle produces less overspray and can be either needle dispense valve or spray nozzle. Using a combination of nozzles during a single application process can aid in the prevention of clogging and produce a better end product.

Programmability and Application Consistency

Automated conformal coating machinery makes it possible to apply conformal coating with extremely high dispensing accuracy. Controlled by a computer system, robotics speedily move dispensing nozzles over a stationary circuit board applying conformal coating in precise locations. The application of the coating is directed by software and information pertaining to a board which is preprogrammed and stored on the dispensing systems internal computer. The programs are easy to modify and increase the systems capabilities. Various programs for boards can be stored and quickly accessed by a single dispensing machine. Application consistency increases product throughput and decreases material waste.

Cost-Savings and Safer for Environment

Although the initial cost of automated conformal coating machinery is more expensive than manual systems, the combined increase in product output and decrease in labor costs effectively work to show a quick return on investment.

With the use of proper exhaust and filter systems, automatic applications of conformal coating promote a safer working environment in factories. Off-gassed fumes from coatings containing dangerous VOC's can be controlled, maintained, and captured making a much safer environment for factory workers. It also demonstrates proper stewardship to maintain and care for our local communities and ecosystems.

Automated conformal coatings systems increase manufacturers ability to produce better and more reliable products. It reduces labor costs, reduces material waste, and decreases the risk of product errors by creating a very precise and highly repeatable coat from board to board. It Places coating where desired and keeps it out of areas where it is undesired. Overall, it is safer and a better option for manufacturers wanting to take their business to the next level.

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