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Spotlight Series: How the Future of Conformal Coating is a Leap in Efficiency and Quality

In the electronics manufacturing industry, conformal coating has long been a staple in ensuring the longevity and reliability of circuit boards. This protective layer, similar to varnish, is often applied to electronic products exposed to harsh environments and safeguards against damage from contamination, moisture, dust, and corrosion.

However, traditional methods of applying conformal coating have been labour intensive, time consuming, and as a result, expensive, often requiring manual masking of areas not intended for coating. Masking is akin to painstakingly taping off the trim and windows in a room before painting the walls. On a much smaller scale, of course. But what if there was a way to utilise conformal coating without the need for masking? Continue reading as we uncover the new era of conformal coating technology.

A revolution in conformal coating

We are thrilled to announce the arrival of a new manufacturing technology in the conformal coating area. This technology, known as ProtectoXP, is a game-changer in the industry. Developed by Rehm Thermal Systems, the ProtectoXP system focuses on ease of maintenance, intuitive programming, and highly adaptable technology that effortlessly tailors to meet client specifications.

Thanks to the patented design of Stream-Coat® nozzles, which are just 2.4mm wide and up to 100mm long, the conformal coating can be applied in the tightest spaces and between tall circuitry components with precision. This advancement renders the time consuming and costly process of manual re-coating obsolete.

Procedures for selective application, including dispensing, spraying, jetting, and curtain coating, can be seamlessly adjusted 'on the spot'. The built-in air nozzle precisely delivers the conformal coating with minimal splatter or overspray, creating a uniform film on circuitry that can reach even under or behind nearby component pins and in shadowed areas without needing to angle the applicator manually.

As this new ProtectoXP technology provides the flexibility to switch between different application methods instantly, there's no longer the challenge of dealing with conformal coating in unwanted areas or the requirement for masking and extra set-up time.

Why this new conformal coating technology matters

Not all circuit board parts require conformal coating; components like switches or electrical plug connections must stay uncoated to function correctly. There are several techniques available via ProtectoXP for selective conformal coating application.

ProtectoXP conformal coating technology brings a host of benefits across electrical manufacturing verticals, from defence and aerospace to medical industries, as well as startups developing new products. The first and foremost advantage is the complete and consistent coating on specified areas. This advancement guarantees constant quality control and accelerates production, resulting in cost savings and a high-performing final product.

Moreover, the brilliance of the ProtectoXP system lies not only in its engineered ability to apply the necessary amount of coating evenly and precisely where required but also in its capacity to produce repeatable results for all end uses congruently with minimal intervention. This precision application, automatic needle measurement, which verifies the intended location of the applicators in customisable cycles and software control, ensures consistent coating viscosity regardless of environmental conditions.

Our approach to conformal coating

By employing the ProtectoXP system in a fully automated, closed-loop setup, Extel has brought about a revolution in the conformal coating process. This innovative approach ensures ultra-repeatability and minimal human intervention, enhancing efficiency and quality. [Check out a snapshot of our efficient, six-step conformal coating process at the end of this article.](#)



Requiring minimal human intervention, our in-line process from loading to off-loading ensures consistent, accurate, ultra-repeatable, high-quality results. Our advanced conformal coating process is setting new standards in electronics manufacturing in Australia.

The future has arrived

Previously, the high cost and complex process limited the application of conformal coating primarily to military and safety-critical products. However, advancements in materials and methods have now enabled the conformal coating of consumer electronics products such as tablets, mobile phones, and wearable technologies.

With the introduction of ProtectoXP, Extel Technologies stands ready to extend this advanced conformal coating technology to a broader spectrum of industries. We are committed to providing advice and support to our clients, ensuring they understand the benefits of this new technology and how it can enhance their product quality and production efficiency.

The future of conformal coating is here, transforming how we protect our electronic circuits. Partnering with Extel Technologies and using ProtectoXP ensures a more efficient production process, greater consistency, and high-quality product output.

Get in touch

Combining the latest production methodologies with over 30 years' experience, Extel Technologies can help your business design and produce electronic components that are produced efficiently and perform reliably.

If you'd like to explore more on our advanced technology and how we can assist to transform your products, get in touch with us today.

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About Extel

Extel Technologies provides advanced electronic product design, manufacture and repair for leading local and global brands. Quality accredited to AS9100, ISO9001 and ISO13485 and working to international standards. Their specialist services cover diverse industry sectors including Aerospace & Defence, Commercial & Industrial, Communication & Networks, Green Technology, Medical & Healthcare, Security & Safety, Transportation, Utilities and Wearable Technology.

Conformal Coating Process

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