



Precision Adhesive Solutions for Mission-Critical Systems: Laser Kiss-Cutting

Customer Overview

Sealing Devices' customer is a key provider of essential mission systems to prominent government and military agencies, and defense contractors. Their product applications encompass a wide range of critical systems, including oxygen supply systems vital for life support in challenging environments, advanced weapon systems crucial for defense operations, and sophisticated simulation and motion control systems used in training and operational contexts. These systems are highly engineered and designed to meet stringent performance and reliability standards, making precision and durability paramount in their manufacturing process.

Customer Problem

Our customer initially developed an internal design for a flexible circuit board (FCB) that was only suitable for low-production volumes. They encountered significant challenges during the adhesive installation process on the thin FCB. This process proved highly labor-intensive and posed safety risks, affecting efficiency and worker well-being.

- **Low Production Volume Suitability:** The internal design was only effective for very low production volumes, limiting scalability.
- **Labor-Intensive and Inefficient Process:** The manual installation process required operators to cut and align four to five pieces of adhesive from a narrow roll, resulting in inefficiencies and frequent adjustments due to its labor-intensive nature.
- **Risk of Damage and Precision Issues:** Accurate positioning of adhesive pieces was extremely challenging, heightening the risk of damaging the delicate circuit boards due to frequent handling.
- **Safety Risks and Operator Injuries:** The repetitive handling of small, sharp adhesive pieces posed an elevated risk of injury to operators' fingers, complicating the assembly process and impacting productivity.



Customer Requirements

- Use of 3M 9485PC acrylic transfer tape
- Custom cutting into intricate shapes
- Application onto flexible circuit boards
- Intended for mounting mobile electronic weapon systems

Solution Partner



Addressing the Customer's Challenge with an Industrial Adhesive Solution

The customer approached Sealing Devices with a challenge regarding their current situation with adhesive applications, specifically focusing on the installation of adhesive onto flexible circuit boards. The customer sought to improve their flexible circuit board manufacturing process by addressing issues related to labor-intensive adhesive application methods and enhancing overall efficiency.

Our Applications Engineer, Estimating and Production teams joined forces to craft a customized and advanced adhesive solution.

Rely on our Applications Engineers, who bring extensive product knowledge and expertise to recommend materials and solutions tailored to your specific application needs. Our services encompass design assistance, product recommendations, material testing, failure analysis, in-house tool design, and CAD capabilities.

Sealing Devices' Adhesive Application Solution

The Sealing Devices team began with a damaged sample part provided by the customer. Based on this sample, our Applications Engineering team created a detailed drawing. They proposed using laser kiss-cutting technology to fabricate the adhesive parts into the required intricate shapes, specifically targeting improvements in the flexible circuit board manufacturing process. This approach enabled an easy peel-and-stick application that would streamline the customer's production process. This approach also included material recommendations and a collaborative effort from the entire team to address a complex challenge.

Laser kiss-cutting is a precision manufacturing technique where a laser is used to cut through a material, leaving the finished part on a removable backing layer. This method ensures precise cutting of intricate shapes while maintaining the integrity of the material and allowing for easy removal and application of the finished part.

At Sealing Devices, we utilize cutting-edge technology to fabricate your projects. Our capabilities include a wide range of manufacturing equipment, specialized cutters, 3D models, and more.

Adhesive Application Success

Since 1963, Sealing Devices has been a veteran-owned, ITAR-registered enterprise dedicated to manufacturing, fabricating, and distributing a wide range of sealing solutions, including O-rings, gaskets, EMI shielding materials, custom molded rubber parts, tapes, adhesives, and sealants. Our commitment to innovation is evident through our advanced adhesive applications and laser kiss-cutting technology, designed to exceed expectations and optimize processes. We aim to be your trusted partner for all of your needs. Contact us today to explore how Sealing Devices can help you achieve your goals efficiently and effectively.

