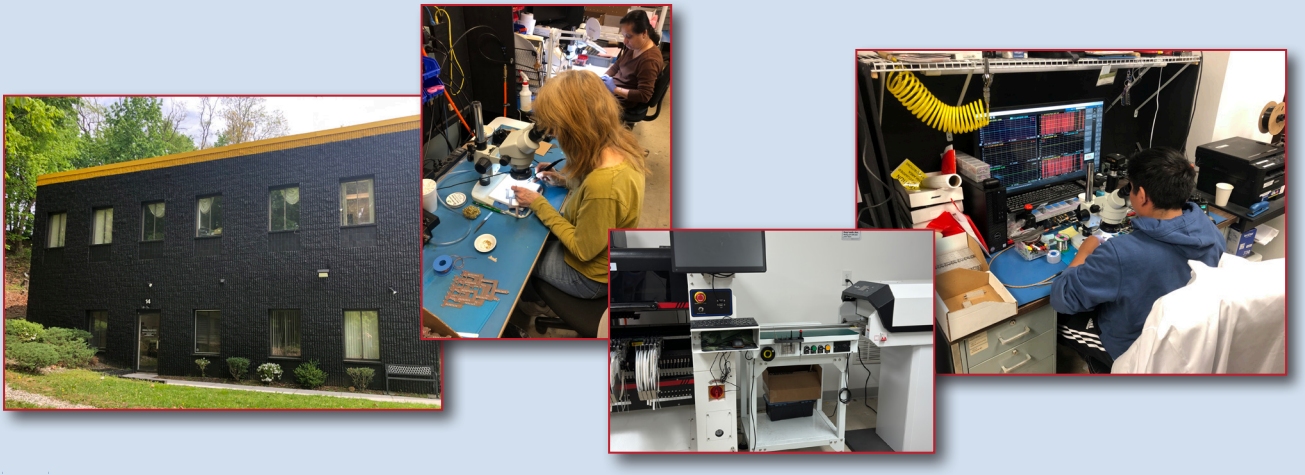
Werbel Microwave: Excellence in Every Product



Ernest Werbel founded Werbel Microwave in 2014. From its origins as a garage start-up in New Jersey, Werbel Microwave has made significant progress in the last 10+ years to become a reliable source for domestically manufactured microwave components. Ernest Werbel remains at the helm as chief engineer and president and continues to define and expand Werbel's COTS and custom products. Werbel Microwave's small size permits close design collaboration and customer service from ideation to production, a point of pride for the company.

Werbel Microwave offers a variety of passive and active microwave products for defense, commercial and test applications, including directional couplers, power splitters, hybrids, bias tees, monopulse comparators and more. Werbel Microwave is ISO 9001:2015 certified and manufactures components using a mix of hand assembly and automation techniques.

The fundamental component of each Werbel Microwave product is hidden within the robust coaxial packaging. Printed circuit boards (PCBs), the essential components for proper RF matching, have extremely tight tolerances that get smaller as frequencies increase. Additionally, tuning and matching often necessitate the precise placement of external resistive chips, creating a consistency concern across different microassemblers and tools. To solve these challenges, Werbel Microwave invested in laser etching instruments, pick and place machines and reflow ovens. Laser etching is more precise than chemical etching, creating straighter lines to enhance RF performance. This is crucial with filter and coupler networks, as the industry increases operating frequencies. The pick and place machines ensure external chips are placed with tight tolerancing, and the reflow ovens create an even bond without damaging the PCB base material. With this equipment, Werbel Microwave achieves consistency and processes hundreds of PCBs per day.

In tandem with PCB design and construction, Werbel Microwave designs and manufactures the housing needed for the final connectorized product. Werbel uses 3D simulation to determine PCB board and housing dimensions, as well as 3D printing for mechanical prototyping. Finally, connectors are attached using precise, computerized screwdrivers for a tight connection.

In addition to processing in-house products, Werbel Microwave offers manufacturing as a service for externally designed boards or finished products. Werbel Microwave maintains a stock of common RF materials to produce prototypes for quick customer testing. This further demonstrates Werbel Microwave's dedication to being more than just a supplier, but a trusted partner.

Before shipping products, Werbel Microwave tests 100 percent of outgoing units to deliver reliable products and peace of mind. In addition to RF testing, Werbel has in-house product qualification testing for harsh environments, including temperature shock, temperature cycling and power handling. Werbel Microwave's facility measures testing success using RF data and thermal imaging. While RF data shows electrical performance following harsh tests, thermal imaging reveals potential internal mechanical strength or damage. Werbel Microwave's capability to perform these tests in-house decreases time to market.

Werbel Microwave continues to serve customers as a trusted supplier and, even more so, a collaborative partner for the defense, commercial and test industries. They remain focused on their mission to deliver excellence in every product.

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