



HELPING ONE OF THE LARGEST AUTOMOTIVE MANUFACTURERS SAVE THEIR REPUTATION AND MILLIONS OF DOLLARS.

A leading automotive manufacturer struggled to find a cost-effective solution to seal cross-drilled holes in transmissions and engines reliably. The problem resulted in customer leakage complaints, high warranty costs and internal rework costs, ultimately costing them millions of dollars and jeopardizing their reputation.

THE CHALLENGE

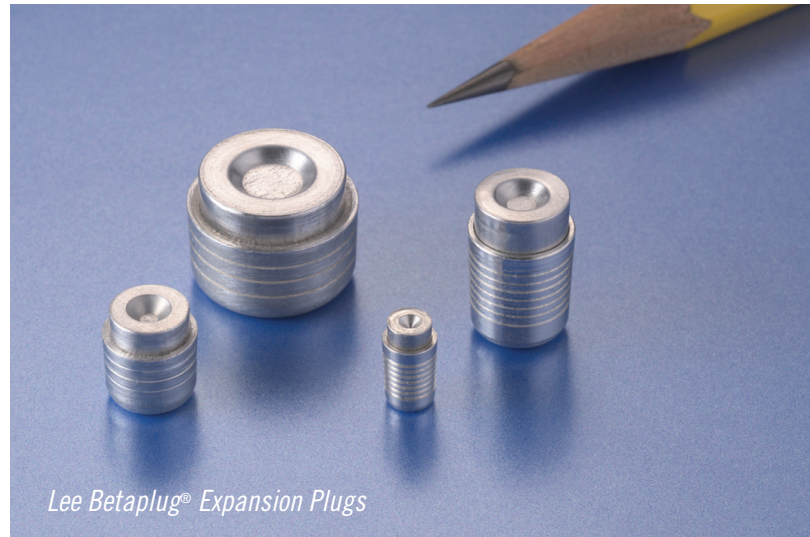
One of the largest automotive original equipment manufacturers (OEM) in the world was conducting a worldwide evaluation of current techniques for sealing cross-drilled passageways in transmissions and engines. The OEM had already employed a variety of plugging technologies in an attempt to find a solution, but all were ultimately unreliable. The warranty repair and environmental cleanup costs associated with the leaking plugs were unacceptable, and their reputation was at risk. In response, the OEM decided to form an internal team to search for a long-term solution.



THE SOLUTION

While The Lee Company team was attending the SAE International show in Detroit, Michigan, the OEM's project head visited Lee's booth to discuss their problem and to learn more about Lee's 70 years of experience in plugging technology. After several discussions with the customer, The Lee Company began the development of a custom plug to solve their issue. The Lee Company team worked with the OEM's engineers to identify the design objectives for a zero-defect sealing device and benchmarked the design against their other technologies. The Lee Company team also introduced the concept of Design of Experiments (DOE) to the OEM and demonstrated its power in helping to solve complex problems.

Through this customer's challenge of finding a 100% reliable seal for cross-drilled holes, The Lee Company developed the Short Betaplug®. The Lee Short Betaplug® was designed to be a pre-assembled, one-piece, tapered expansion plug specifically engineered to seal fluid passages in castings and housings without the use of threads or sealants. The controlled expansion during installation causes the lands and grooves on the O.D. of the plug body to bite into the wall of the fluid passage, creating a leak-tight seal and assuring retention. The unique tapered design eliminates the need for tight manufacturing tolerances and allows the designer to minimize the



wall thickness required around the plug, even for brittle housing materials. The Short Betaplug® is an example of The Lee Company's mission to design and build state-of-the-art products that exceed customers' expectations for utility, performance, and quality. The Lee Company constantly strives to improve the product designs, the manufacturing process, and the quality system. The ultimate goal is zero defects and a satisfied customer.

LEARN MORE ABOUT OUR FLUID CONTROL PRODUCTS DESIGNED FOR THE AUTOMOTIVE INDUSTRY AT LEEIMH.COM/IMH-HANDBOOK

MORE ABOUT THE LEE COMPANY

For over 70 years, The Lee Company has pioneered the design and manufacture of miniature precision fluid control components for a wide range of industries such as aerospace, medical and scientific instrumentation, industrial and automotive. Lee Company products are recognized worldwide for superior quality, reliability and performance. Lee's unique capabilities in miniaturization and engineering expertise keep the company at the forefront of fluid control technology and identify Lee as a leading innovator in the field of fluid handling and control.



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