

VPT Components and MRSI Systems jointly address manufacturing challenges

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VPT Components is one of the largest providers of JAN certified semiconductors along with a full-service facility for the independent, unbiased testing and custom assembly of electronic components. Its product portfolio includes MIL-PRF-19500 qualified Rad Hard NPN and PNP small signal and power switching transistors, SCRs, and MOSFETs along with an extensive offering of Zeners, rectifiers, switching diodes and Schottky products including JANHC and JANKC qualified die. It conducts manufacturing operations in Massachusetts. Over the past decade, VPT has seen a robust growth due to new product offerings, entering sole source markets, and competitive pricing. It also capitalized on an increasing shift towards locally based manufacturing/on-shoring.

Traditionally, VPT has relied upon manual and semi-automated equipment to perform the important die bonding process. But as demand ramped up, it faced operational challenges with this approach. One of these was an unprecedented labor shortage. USA Today states that "Massachusetts tops 5 states with the worst worker shortages."¹ Manufacturing companies struggle to fill their ranks with skilled workers. Even many minimal wage jobs for unskilled labor are left unfilled, so much so that the entry level retail wage has risen in the Greater Boston area from \$15 to \$17 per hour over the past six months. Increasingly, VPT's labor force was stretched thin and was quickly becoming a bottleneck that threatened the growth of the company. Intuitively management believed the solution required fully automating previously semi-automated processes to deliver the bandwidth required. This required sourcing the most appropriate specialized equipment from the global die bonding market. Fortunately, their search for the best partner uncovered another local player, MRSI Systems, a Massachusetts company, and a leading supplier of fully automated, high-speed, high-precision and flexible eutectic and epoxy die bonding systems with close to 40 years of experience serving the defense, aerospace, medical and communication industries.

Working closely with the MRSI team, VPT identified the MRSI-H-TO 1.5µm accuracy automatic die bonder system as the equipment of choice. By using this machine, VPT managed to redeploy a number of operators previously required to meet its die bonding demand to meet the increasing capacity needs from other priority projects. The machine's ability to quickly switch among process recipes, combined with quick-change fixture and tooling, makes switchover between applications fast and easy, ideal for flexible production of high-mix product portfolio.

Automation also helps VPT to meet the challenge of maintaining high quality while lowering cost. MRSI die bonders enables a highly repeatable and highly precise process, resulting in higher yield and throughput. The improved product consistency also allows easier and faster downstream processes. Additionally, use of automation eliminates the costly human errors such as die scratches inevitable in a manual process, further improving the yield.

Both VPT and MRSI foresee a long-term trend towards on-shoring and an ongoing revitalization of the American manufacturing sector. The market for skilled labor in the US will remain tight for years to come. The two companies plan to meet this challenge

¹ USA Today <https://www.usatoday.com/story/money/2021/12/03/worker-shortage-2021-states-most-and-least-severe-labor-deficits/8842300002/?qnt-cfr=1>.