



LASER APPLICATIONS CASE STUDY

KEY PERFORMANCE REQUIREMENTS:

- 80%+ Reflectivity
- Very High Throughput
- Repeatable & Consistent Process



COMPANY

This laser manufacturer is a leading vertically integrated company with a state-of-the-art semiconductor component fab providing fiber-optic networking products. They design and manufacture analog and digital lasers using a proprietary technique, allowing them to build reliable and temperature-tolerant lasers. They support the optical communications market.



CHALLENGE

The manufacturer was planning to launch a new in-house capability, **e-beam evaporation** for laser bar facet AR (anti-reflective) and HR (high-reflective) coating. They had defined three key performance requirements for their system: greater than 80% reflectivity, high throughput and achieving a very repeatable and consistent process.

Since this was a new technology, they wanted to find a collaborative supplier who would act as their partner, providing guidance and insights, rather than a “bucket of parts” integrator who would just quote against a list of specs and requirements that they provided.



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THE OUTCOME

- Positive ROI
- Met COO targets



SOLUTION & PROCESS

The laser manufacturer chose to partner with Denton Vacuum, who had proven their credibility through prior successful coating tool projects with NIST. During the first phase of the e-beam project, Denton's team performed a full assessment of application-specific requirements, leveraging decades of expertise and lessons learned from dozens of previous custom solutions. The laser company relied on Denton to manage the entire system configuration from end to end, including working with any OEM subcontractors for industry-standard parts used in the final system.

The manufacturer's goal of driving high throughput with their new system led both teams through a few collaborative design iterations to achieve the desired result. The partnership approach was definitely paying off.

During system delivery, it was discovered that one part of the tool wasn't meeting design spec. Denton's team immediately assessed the problem and worked to quickly bring that part up to spec and get the manufacturer into production.

RESULTS

The final e-beam deposition solution was exactly what the manufacturer needed, allowing them to expand their capabilities for their customers and consistently deliver to spec at a high throughput. Throughout the process, they had confidence in the fact that their partners at Denton were a responsive and trusted resource, helping them understand industry trends and more clearly define loose performance specs for a technology that they were less familiar with. The laser team was very happy to have worked with Denton, calling it a very positive collaboration that ultimately delivered positive ROI and helped them meet their COO (cost of ownership) targets.

About Denton Vacuum

Denton Vacuum empowers the global optics and R&D markets, helping engineers optimize processes and solve production challenges while improving manufacturing yields and gaining efficiency and throughput. Our continued commitment to research and development of thin film technology, including our proprietary integrated diagnostic systems, enables predictable, repeatable performance in a wide process window.

Interested to learn how a partnership with Denton might help your business?
[Contact us today for an expert assessment of your application.](#)