



Partnerships That Work Case Study

Custom, Precision Reticles Solve Low-Tolerance Demand



Valued Customer
Denz Precision, Inc.

About Denz

Founded in 1970, Denz is built on innovation, flexibility, precision, and quality. Their solution- and customer-centric staff use modern technology to exceed expectations when developing complex products for motion pictures, aerospace, motorsports, automated manufacturing, and more.

Präzisions-Entwicklung DENZ

Background

Denz manufactures precision mechanical parts and equipment for the motion picture business. The team uses reticles and different glass pattern parts for their test equipment. The company has manufactured test equipment for seven years very successfully. Understanding that the precision of the part is essential in the motion picture industry is behind the company's success in manufacturing test equipment over the past seven years. Denz meets its customers' expectations for optical density and quality effectively. Failure is not an option. Today the Denz management team follows the lead set by their founder, who had a defined vision of how products should perform. He was personally involved in the development. He was very exacting in how he looked at it. As a result, Denz is laser-focused on consistently achieving the highest quality.

Casebook Situation

Denz customers are very demanding and expect nothing but the best. Their customers use most of their test equipment for their camera and lens-rental businesses. They evaluate the lenses they rent out for digital film production. Their customers reassess every component after each rental. Every participant along the chain shares the same low tolerance for product deficiency. Every component must be highly accurate and dependable. Before delivery, every product is checked “through its paces” to guarantee longevity and reliability during rough use on set.

Denz required a heavily feature-laden one-inch reticle with a machine flat edge to affix on high-performance cameras and projectors. First, the reticle is put in front of a movie projector to test the lens. Next, the test images are blown up to the size of a feature film to evaluate the lens quality.

Stars, resolution charts, etc., are put in the field of view to check for focus and other parameters to test how the individual lens performs. The camera lens is the most costly and essential part of the camera; there is no room for error. Finding precision-optical suppliers who understand Denz’s unique requirements is not easy. Denz is an innovative company that pushes the envelope of what can be manufactured. Being out front means there is a certain amount of trial. Denz needs partners that can offer solutions on how to get there. Unfortunately, finding that kind of partner is not an easy task.

Resolution

Many challenges are inherent in designing a custom reticle to achieve the precision Denz requires. Several manufacturers told Denz the component they described was impossible to manufacture, nor could they achieve consistent quality. That was a critical obstacle considering Denz needed at least 30-50 components per order. Denz chose to partner with Applied Image because they are problem solvers and accustomed to collaborating on pioneering designs with extreme quality requirements. The Applied Image team helps identify what can be done to achieve the design goals, even recommending another vendor when appropriate.



Implementation

Denz worked through Applied Image’s meticulous discovery and design process, coordinating plans with Applied’s engineering team and technical sales manager. They had a mission to manufacture reticles that evaluators would judge as identical under a microscope by any standard. There would never be a situation where Denz would have to say one reticle is better than the other.

The reticle included a lot of little details. Applied Image’s project manager advised that it would take a lot of imaging time because of the fine detail, but it definitely could be done.



Results

Applied Image ensured the successful development of the high-performance reticle by not asking Denz to lower its standards. Instead, the Denz design team was pleased to have the freedom to pursue their highest goals.

By understanding all sides of the custom design process, the Applied Image team did not pin themselves strictly to initial drawings. This is important in cases, for example, when a customer over-specifies something, which could impact their costs.



They also noted that test projectors have a light source that generates a lot of heat. If the glass isn't heat-resistant enough, it will crack like boiling water in Pyrex glass. So, Applied Image was proactive about recommending materials that would be best suited for that application.



Would you recommend these products and services to others? If so, why or to what type of engineer?

Yes. I'd recommend APPLIED IMAGE with the greatest benefit to those who need a completely custom product. Groundbreaking designs are not a straightforward path. Custom components are typically associated with emerging technologies and highly unique, advanced products; there is an added level of complexity.

Applied Image has been on our radar for 30 years. I worked with their team as an end-user, so I knew their reticles. We decided to give Applied Image a shot, and it worked well. Applied Image has decades of experience working with thousands of project managers like me. We're a small company. So, their established processes and hands-on approach make our lives easier. It doesn't get better than that!

The COVID-19 pandemic knocked the movie production industry on its feet. Within five months, everything has recovered, and we're working on overdrive to keep up with everything coming to us. Having a partner like Applied Image is precisely what we need.

