

# CNC WEST

Volume 39 - Issue 3

**THE MAGAZINE FOR WESTERN METAL WORKING MANUFACTURING**

## AEROSPACE ISSUE

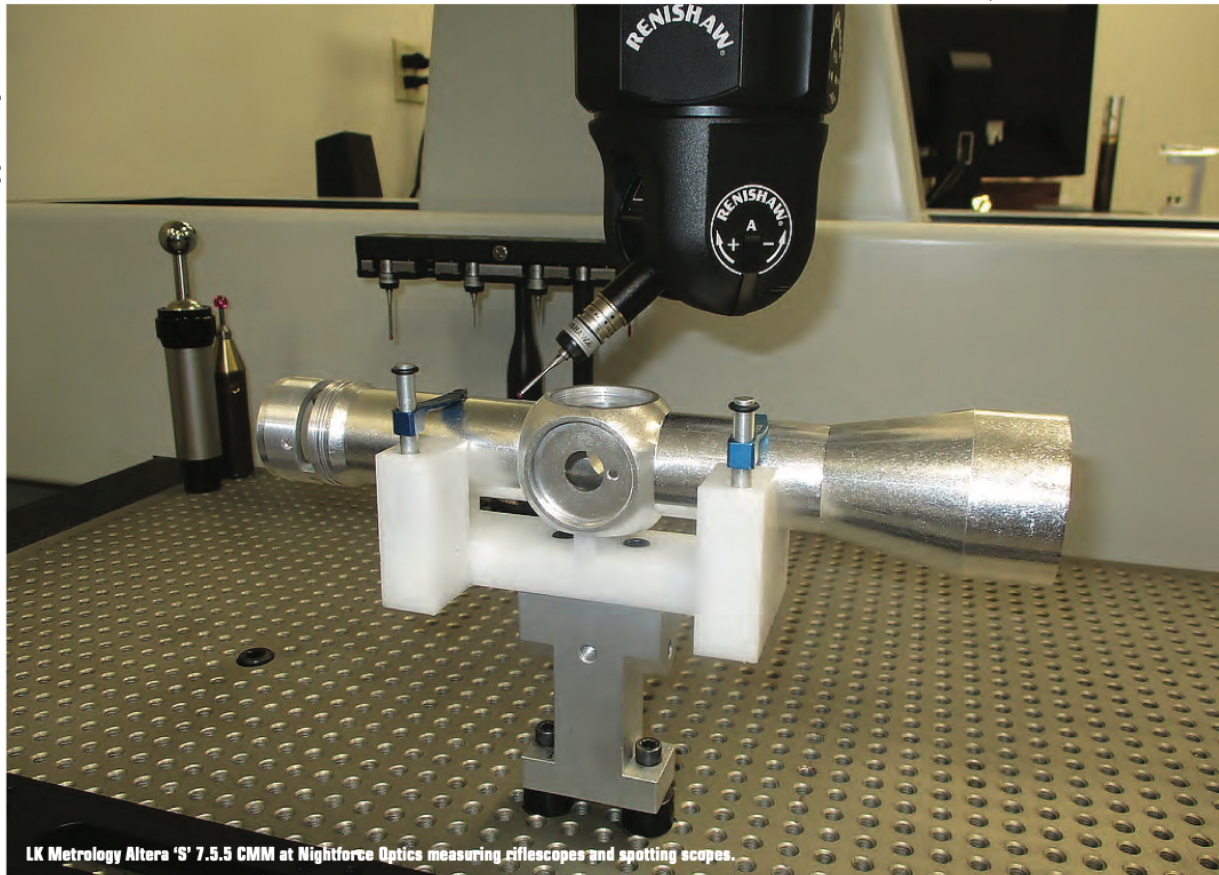


- **M&M MACHINE - AUBURN, CA JOB SHOP EMBRACING 5 AXIS MACHINING**
- **RKL INDUSTRIES INC. MAKING PARTS THAT MAKE A DIFFERENCE**
- **BRINGING 3-D PARTS TO MARS**
- **...Plus Much Much More**

**Now In Our 39th Year**

# NIGHTFORCE® OPTICS SOLIDIFIES CONTINUOUS IMPROVEMENT OF QUALITY

Article & Photos Supplied by Al Hall



LK Metrology Altera 'S' 7.5.5 CMM at Nightforce Optics measuring riflescopes and spotting scopes.

## HIGH-PRECISION IS REQUIRED IN THE MANUFACTURE OF RIFLESCOPES AND SPOTTING SCOPES WHERE REPEATABLE OPTICS ARE CRITICAL.

Nightforce Optics is headquartered in the small town of Orofino, Idaho along the famous Clearwater River. But that is the only small reference that can be said for this twenty-eight-year-old company that jumped into the highly competitive precision shooting market with the goal of building the best riflescopes in the world. That goal has turned into reality as the company continues to excel with advanced manufacturing and testing technologies.

Scott Johnson, quality manager for Nightforce Optics says, "Our approach continues to be designing and building top-of-the-line optics from the ground up. We serve the needs of military special forces, law enforcement agencies, serious competitive shooters and hunters who need the most dependable and best performing optics available. Much of the product line is hand assembled in the Orofino production facility. 100% of these products

undergo a rigorous 70-point quality checklist that tests and verifies that each product meets the highest standards for quality and functional accuracy before leaving the facility".

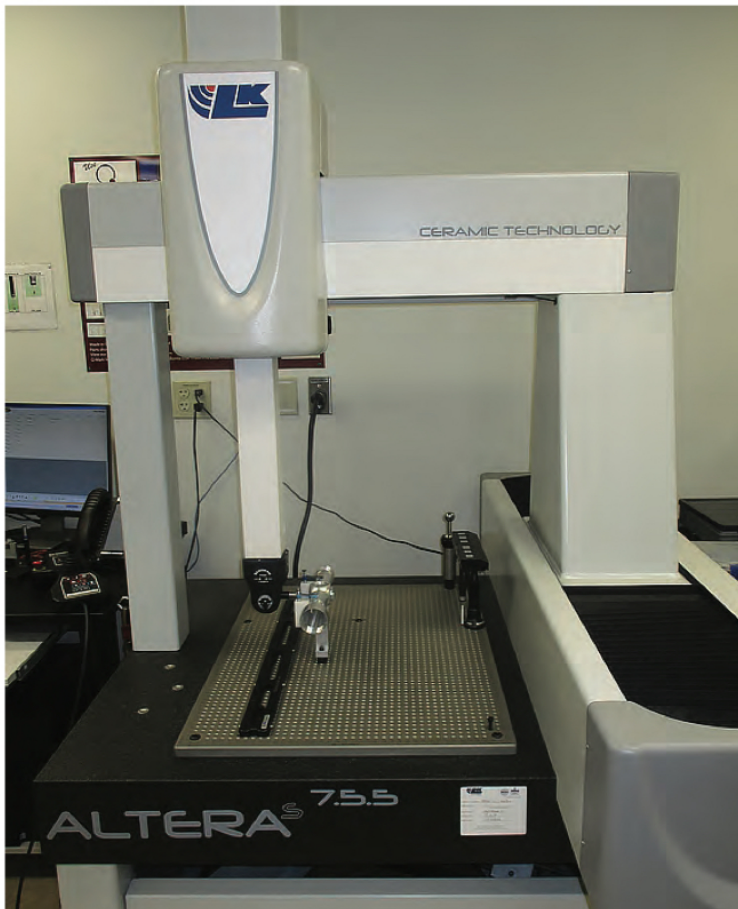
Johnson explains, "Riflescopes have a wide range of precision mating parts that are all crucial to the accuracy and performance of each product. For example, our scope body tubes are made from aerospace aluminum bar stock and machined by specially designed CNC multi spindle lathes. We also use complicated multiple start thread designs with very tight tolerances in adjustment parts that require thorough inspections using custom made calibrated gages to ensure precision in each moving part. In addition, we perform 'first article' inspections that require proper documentation along with in-line inspections during the production run of parts to ensure the parts conform to the design requirements. As the

expanding need for accurate and documented quality inspections is required, you need to have the best measuring equipment.”

Johnson further explains, “When I first came to Nightforce Optics it was obvious we needed to reinforce our Coordinate Measuring (CMM) capabilities. Over the years, CMM technology has vastly improved and we wanted to expand our measuring capabilities. We needed five-axis capability with a Renishaw® PH20 probe head that gave us the throughput that we currently needed for our production requirements. The PH20 probe head gave us the touch-trigger capability for fast, infinite rotary positioning for high-speed point capture with minimal CMM movement. The question then was, whose CMM would be the best fit for us. We talked to a variety of CMM builders and agreed LK Metrology’s Altera ‘S’ 7.5.5 five axis CMM best fit our needs. We needed a modification of the CMM platform to be able to fit it into our temperature-controlled inspection laboratory, and LK Metrology was willing to work with us to meet our needs. They were willing to match a configuration with our stated desires and modify a standard set-up while supplying the necessary accuracies. In the process, LK Metrology demonstrated the CMM Manger software of the CMM and proved its capability with the PH20 probe head.”

The LK Metrology Altera ‘S’ 7.5.5 five-axis CMM is a multipurpose CMM with the most advanced capabilities in a compact CMM class. Innovative multi-sensor-ready technology allows the user to expand the capability to meet customer requirements without expensive controller updates.

In summary, Scott Johnson notes, “Because of recent multi-million-dollar military contracts for riflescopes that Nightforce Optics has acquired as well as continued growth in commercial sales, it looks as if the company will continue expanding even more in the years to come. I’m confident that the good working relationship we have established with LK Metrology will be crucial as well.”



Different riflescope components being measured by the LK Metrology Altera ‘S’ CMM.

