

## Two Customers – One Solution...PECo

**A**erospace gear manufacturers and suppliers know that, just as each instrument in an orchestra must play its part perfectly to achieve harmony, each gear in a drivetrain must mesh smoothly to achieve optimal synchronization. If any gear is even slightly out of synch it ruins the effectiveness of the entire system. Gear manufacturers are responsible for keeping each gear ‘in tune’ – so where do they turn when, despite their best efforts, the system still isn’t working in ‘harmony’?



### October 2008



Gerhardt Gear of Burbank, California ([www.gerhardtgear.com](http://www.gerhardtgear.com)) knew they needed a new CNC gear inspection machine. Their current equipment just wasn’t resolving the problem they were having with gears manufactured for a large east-coast aerospace customer. No matter what they did, the gears continued to be rejected - resulting in rejected gears stacked up all over the shop. The rejected gears had also resulted in

production being down at end user customer sites. With thousands of dollars being lost and calls between top executives occurring daily, the pressure was on to get this resolved and get it resolved quick!

### A Potential Solution

In near-perfect timing, Gerhardt Gear was approached by a representative of the PECo Next Dimension® CNC Gear Measurement System. “As the salesperson explained its functionality, one statement came through loud and clear - the ND300 could check profiles on 64 to 120 DP gears. That really got my attention because that’s what I needed to help solve the problem we were having!” says Mitch Gerhardt. “No other machine can measure leads on 72 DP or above.” With a solution in site, Gerhardt placed the order for a PECo ND300. However, there was still the immediate need to resolve this current problem before the new machine arrived. . .

### In The Meantime. . .

Gerhardt’s customer started looking for a solution on their own – after all, production was down and the pressure was intense. Querying on ‘gear inspection’ in Google got them to the PECo Gear Inspection site [www.gearinspection.com](http://www.gearinspection.com) where they quickly found not only CNC gear measurement systems, but consulting services as well. The engineer placed a call to Brian Slone, PECo’s Business Unit Manager for gear inspection equipment and services. After explaining the problem and urgency for resolution, the engineer asked Slone to fly out to California to inspect and report on their vendor’s gear manufacturing process and then travel to the east coast and do the same with the

customer's incoming inspection and assembly process. After learning that the vendor in question was Gerhardt Gear – a new PECo customer who had just placed their first P.O. – Slone was in a dilemma. "I felt confident I could help this company find a solution, but I also thought there could be a conflict of interest," Slone said. "I thought the best plan of action was to be sure all parties were aware of the whole situation before I made a decision." When Slone called Gerhardt, he learned that the customer had already advised him of the plan. Says Gerhardt, "We were excited by the idea of Brian coming out to help resolve this ongoing problem." Gerhardt Gear prides themselves on quality – in fact, their website even states that "*Other gear manufacturers hire us to inspect and validate the accuracy of their work*" - with that doctrine, this problem was really shaking them up – in addition to resulting in hundreds of gears they weren't getting paid for! Slone confirmed his plans with the engineer and booked a flight to California – all without even asking for a P.O. to cover his expenses or services. "We're proud of our customer service at PECo," said Slone. "I saw a new customer in trouble and knew I wanted to do whatever I could to help solve their problem."

## **In California**



Upon his arrival in California, Slone was met by Gerhardt's Quality Manager, John Kim, who took him directly to the manufacturing site where he spent the next day and a half observing the manufacturing and inspection process, and even inspecting some of the gears himself on Gerhardt's current equipment.

For this project, Gerhardt Gear was responsible for manufacturing three small gears used in a gearbox along with another vendor's fine pitch spur pinion gear.

Next it was off to the east coast to observe the other half of the process.

## **On the East Coast**

Again Slone spent a day observing the process the customer used to inspect incoming gears as well as the testing conducted on the complete mechanism of all four gears in the gearbox. To him it was becoming obvious that there were multiple pieces of the problem – inconsequential on their own but a major line-stopping problem when combined.

## **Back in Dayton**

As part of his analysis Slone brought a complete set of 'good' gears as well as a set of rejected gears back to Dayton with him. In the PECo lab he had each of the gears inspected on the ND300 Gear Measurement Machine that PECo uses to conduct contract inspection services. The gears were inspected for index, helix, profile and tooth thickness. The results confirmed his observations and it was time to get this issue resolved.

## **Problem Identified**

In final analysis, the problem was caused by a pinion gear provided by a new third-party vendor that had a tooth thickness of 0.002” over specifications – an extremely significant amount in this operation. This issue was accentuated by a combination of an improperly sharpened hob at Gerhardt that was causing a profile problem on the gears and an inspection process at the customer site that was unable to provide enough data to pinpoint the issue.

## **Problem Resolved**

Within two weeks of the initial customer contact with PECo, both parties had received Slone’s report and the results of the gear inspection process. With accurate data in hand, each party was able to start taking the appropriate steps to resolve the problem and get production back up and running. Gerhardt Gear was especially thankful to finally receive payment for all the gears they had manufactured!

## **Value Delivered**

As Slone wrapped up this project and presented the invoice for his consulting services and PECo contract inspection, he asked the customer if they were satisfied with the outcome – the customer’s response??? – “Absolutely!”

We asked Gerhardt his opinion of Slone’s skills: “He’s one of the sharpest gear guys I’ve come across – a wide variety of experience. He gave a thorough and fair report to both sides. You probably couldn’t get a better guy to come out and help.”

## **Gerhardt Receives their ND300**

Gerhardt Gear has since received and installed their own PECo ND300 CNC Gear Measurement System and is extremely happy with the unit. Gerhardt says, “We use the PECo all day, every day. It’s easy to program - it’s easier than the Hofler.” With a smile on his face, he says, “Would you believe, the customer is now sending the gears they manufacture to us to check!”



## **About PECo**



The PECo Metrology Systems Division serves the gear manufacturing industry with high-quality, highly accurate gear measurement and inspection equipment as well as contract inspection services and consulting services.

Metrology Systems Division's offering includes the Next Dimension® Analytical Gear Measurement Systems, Hand-Held Gages, Functional Gages, Metrology Services, and Gear Inspection Training and Consultation.

## About Gerhardt Gear



Gerhardt Gear Co., Inc. is among the most technological and advanced gear companies in the world. Their state-of-the-art and modern facility of over 30,000 square feet is equipped for manufacturing a full range of precision gears and splines.

With over 40 years of experience, Gerhardt Gear Company has earned the trust and recognition from such customers as NASA, Boeing, Lockheed, Eaton Aerospace, Parker Hannifin and many others.

Gerhardt is a third-generation, family-owned and managed company.