

Defiance Metal Products Gains Huge Time Savings with the FARO Laser ScanArm



"For Defiance Metal Products, the greatest value has been the time savings," said Layout Tech Mike Hoshock. "The reduced downtime we experience by not waiting on a program to be written or run is a huge improvement over the traditional CMM. Programs that took us over 15 minutes to run on the CMM, can be done in less than five with the FaroArm."

FARO

Defiance Metal Products has been producing quality metal parts for over 65 years. As a full-service precision fabricator of metal parts and assemblies, DMP can handle every stage of the fabricating process on-site – including design and engineering, tool and die making, stamping, forming, CNC work, standard or robotic welding, and coating.

Based in Defiance, Ohio, DMP (www.defiancemetal.com) began operations in 1939. With their great attention to product quality and customer service, they have grown tremendously since their early days as a tool and die shop to become the multi-faceted business they are today. They supply quality metal parts and assemblies to many different industries including the trucking industry, commercial vehicles, military vehicles, commercial HVAC, and many others.



DMP's proven experience and full-service capabilities benefit their customers with reduced lead times that translate into overall cost savings.

PROBLEM

As would be expected with a multi-faceted fabrication facility, the various parts that DMP must measure and inspect everyday are diverse. They routinely work with sheet metal stampings, laser cut metal blanks formed using brake presses, check fixtures, weld fixtures, weldments, and assemblies varying in size from under 2" to over 6' long.

To measure this wide range of parts, DMP used an equally diverse range of measurement tools – everything from height gauges and other hand tools to a CNC (computer numerical controlled) machine. The CNC machine is essentially a smaller CMM that is used as a walk-up station for first-article and layout inspection, for machine tool setup, or as a flexible gauge for manufacturing processes.

Though more convenient and with a faster inspection cycle than a larger traditional CMM, it was not without its own limitations. Some of DMP's larger parts wouldn't fit on the smaller CMM or were too difficult to pull off the floor and take into the CMM lab. This was especially true with many of their weld fixtures which are typically too large to even go into the lab. Also, some of their stampings are very complex and touch probe measuring could not make the repeatable measurements required.

SOLUTION



When searching for a better answer to their various problems, DMP recalled previous experience with FARO and inquired about the FaroArm. The solution they found was the FaroArm® Platinum with a Laser ScanArm® V3 using FARO's CAM2® Measure X software along with PolyWorks® software. Unlike other add-on laser scanners, the V3 is a fully-integrated attachment designed to work with the FaroArm to provide seamless contact and non-contact measurement in one device.

The resulting combination of Arm, Laser Line Probe, and software enables DMP to measure their parts and fixtures in-process instead of taking them to the lab. The laser scanner allows them to check details in stamping that were too difficult or even impossible to check with just a touch probe system.

When doing first-article development, it is easier to show where problems lie when using the color maps in PolyWorks or showing how hole patterns in a part relate to CAD. This was sometimes hard to follow before using a simple printout of the data.

Some of the parts that DMP works with have many complex forms and are difficult to inspect on the floor using traditional methods. Sometimes, to get the development process started, the part was manufactured as close to print as possible by traditional measuring methods. The part was then taken to the lab for CMM programming and measuring. In some instances, they had a known bad part that was already programmed in the fixed CMM, but it was so far out it required constant adjustments all the way through the program to keep it from failing. After doing this a couple of times, it made more sense to use the FaroArm to get the part closer to spec before even using the CMM program.

RETURN ON INVESTMENT

For Defiance Metal Products, quality is truly everyone's business and they continually strive to exceed expectations. They use their FaroArm every day based on the demands of the parts they are working with at the time. The portability and overall ease-of-use of the FaroArm provides them the flexibility they needed in an inspection tool.

They use their FaroArm in prototype settings and the quicker inspection times result in reduced machine downtime.

"Programs that took us over 15 minutes to run on the CMM, can be done in less than five with the FaroArm," said Layout Tech Mike Hoshock. "Motor mount programs take seven minutes on the CMM and less than four with FARO. Probe calibration programs on the CMM take 30 positions and at least 15 minutes, the FaroArm can be calibrated in less than a minute."

Since the FaroArm does not have to deal with CNC moves or with probe changes, programming time is reduced. It also helps to be able to quickly setup alternate alignments to see if the datum is causing any problems.

"For Defiance Metal Products, the greatest value has been the time savings," said Hoshock. "The reduced downtime we experience by not waiting on a program to be written or run is a huge improvement over the traditional CMM."

