

FARO Provides Total Measurement Solution for Large Machine Manufacturer



Tuftco Corporation, an OEM of carpet tufting equipment, has seen an improvement in their alignment by 80% after implementing FARO solutions. Measurements taken using the FARO Laser Tracker, FaroArm® and FARO Gage have also led them to discoveries about their current processes.



Tuftco Corporation, headquartered in Chattanooga, Tennessee, is an Original Equipment Manufacture (OEM) of carpet tufting equipment. It is the only company in the world that can supply a carpet mill with all of the necessary machinery to take yarn from the tufting process all the way through to the finished carpet.

Problem

Weighing 20,000 to 40,000 pounds, a tufting machine is approximately 20 feet wide and has up to 2,000 needles, hooks and knives equally spaced, moving synchronously across the machine. To achieve great carpet and acceptable wear life of these and other drive components, alignment should be maintained within 0.010" across the entire span.

Tuftco needs to ensure that these large machines are level, as well as verify and correct the flatness, straightness, perpendicularity, parallelism, and true position of critical surfaces and drive components such as cams, connecting links, bridges, and bearing housings.



To achieve these measurements, Tuftco was using tools such as dial indicators, precision levels, scales, standard shims, and piano wire. However, these tools provided either relative measurements to non-flat surfaces or required time-consuming and disciplined procedures that were hard to enforce and consistently apply. There was also no recording of the results, and hearsay and exaggeration were not rare.

Solution



Accuracy, repeatability, and support are what led Tuftco to the FARO family of products. The FARO Laser Tracker was chosen to align the frame and drive components during machine assembly as well as evaluate and align their large planing and milling equipment to tolerances that they were not previously able to achieve. Tuftco also chose a FaroArm and FARO Gage to more quickly and accurately check the critical drive components as well as verify smaller tooling fixtures.

"The Laser Tracker combined with the FaroArm and Gage has allowed us to identify flaws or inconsistencies in our assembly and machining processes and redefine them to produce a machine within our required tolerances," commented Paul Beatty, Manager of Tufting Systems Development at Tuftco. "Hard, repeatable, and accurate measurements are recorded and analyzed, and then changes are made."

Tuftco also found the FARO CAM2 software easy to use. The ability to place coordinate systems at key locations and measure relative to them has proven to be very useful. The move function has also worked well locating the Tracker in many positions in order to measure all aspects of the machine.

Return on Investment

After having their FARO equipment for only a short time, Tuftco has already seen an improvement in their alignment by 80%. Measurements taken using the FARO equipment have also led them to discoveries about their current processes.

"Many measurements that were either impossible or impractical are providing excellent insight into our sub-processes and machinery," said Beatty. "This will lead to more consistency in parts, time-savings in rework and assembly, and a more accurate and predictable machine function."

