Measure for Measure

One of the premier developments in surveying technology has been taking place right here in northern Indiana.

Though the expanding technology of laser scanning and laser tracking is more than 20 years old, engineer Mike Falk and his staff at Falk-PLI Engineering and Surveying in Portage has grown its business by changing how industrial machinery measurement and alignment is done.

Instead of conducting machine and equipment alignment or installation via the way it's always been done – tape measures, optics, piano wire and brawn – Falk is utilizing a blend of the most advanced surveying technology and brains to accomplish heavy industrial jobs.

"We're trying to make life simpler and the quality better. We want to work faster and smarter and safer," he said.

It's a matter of evolving the mode of thinking from more error-prone manual, static measurements to more exact, computer-aided measurements.

Falk PLI is winning over its skeptics one project at a time as it reassembles massive equipment parts, particularly in the steel industry where tight dimensional measurements are critical for operation and long-term health of the equipment.

When, for instance, steel rolling equipment doesn't match up with the original specifications, its undergone aging or worn or moved in any way, the operation doesn't run as effectively and ultimately the product quality is negatively impacted. And that's where Falk PLI comes in using a laser tracker to capture 3D measurements very accurately and very quickly – up to 10,000 observations per second and accuracy of within one-thousandth of an inch in 3D. While traditional optical equipment secures data in eight to 12 hours, a laser tracker is capable of completing the same job more accurately in under one hour. Additionally, it's normal for the amount of rework on equipment installation to generate 30 percent additional cost, but thanks to laser surveying equipment that figure drops to less than 1 percent.

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> *- Mike Falk, President of Falk PLI Engineering and Surveying*

The volume of consistent data, the speed, and immense accuracy result in reduced down time, improved productivity, and therefore greater profitability.

Meanwhile, laser scanning allows for the same benefits, by taking measurements on objects – offshore oil rigs and steel furnaces – without physical contact and the ability to capture data in mass quantities. An astounding 500,000 3D readings a second are captured through laser scanning.

In one case, Falk PLI gathered 3D information of steel ductwork in order to replace 9-foot piping at a steel mill, and not once was scaffolding needed to capture the images. As a result of the accurate data collected by the laser scanner, the new piping fit on its first attempt during installation. The traditional process of lifting and adjusting the piping until it fits correctly is altogether eliminated by this safer, faster, and far more reliable procedure.

"Not only are we saving our clients time and money, but by reducing rework we are creating a safer work environment," Falk said.

While much of Falk PLI is centered in northwest Indiana, due to the concentration of nearby steel and oil refining industries, the 11-year-old company made up of 40 employees touts clientele all over North America.

Falk is confident more industrial and commercial operators will turn to laser surveying technology as a more proactive means during the design stage rather than once machinery is installed.

"It's about doing things right the first time," Falk said. "It's a great service if you can design it right so that it works well during fabrication and operation."