

FARO® Vantage^S Laser Tracker Is Key in Canyon Hydro's Long-Term Growth Strategy

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“We’ve just started designing a 25-megawatt Pelton turbine in British Columbia,” says Graves. “Alignment of a system of this size is traditionally done with jigs, lasers, and levels. A laser tracker will help us verify our manufacture and install the equipment with precision, much quicker than with these traditional methods—especially with the physical scale we’re working with.”

Large-part dimensions, tight tolerance specs, and international standards contributed to Canyon Hydro investing in a FARO® Vantage^S Laser Tracker. FARO Technologies is the world’s most trusted source for 3D measurement and imaging solutions.

With 160 m (525ft) of spherical working volume, the FARO Vantage^S has reinvented high-accuracy, large-volume measurement. The Vantage^S provides tremendous value in a complete laser-tracking solution that offers portability, accuracy, and great shop-floor durability.

Quicker, More Accurate Measurement Tools Make It Possible

Headquartered in the little Hamlet of Deming, Washington, Canyon Hydro builds hydroelectric systems producing anywhere from 10 kilowatts up to 25 megawatts. In business for more than 40 years, Canyon Hydro has gained wide recognition with public and independent power producers for highly efficient designs, quality components, and superb customer support. To provide its customers with the most relevant solutions, Canyon Hydro has adopted laser tracker technology to boost the speed and accuracy of fabrication, installations, and alignment of hydroelectric systems.

“Nearly all our projects are custom-designed for a specific site,” says Simon Graves, design engineer at Canyon Hydro. “Each system is designed based on water pressure and flow available.

Projects from Canada to Honduras keep Canyon Hydro’s engineers, technicians, and leaders alert for ways to lean out their processes and enable growth.

“With the Vantage^S, I’d say we could probably do in three hours what it would normally take a day to do. Plus, it’s more accurate. It’s a double win ...

The Vantage^S helps make our services and products much more valuable. The cleaner a job we can do from the start, the more profitable we will be, and the more pleased our customers will be. ”

Simon Graves:, Design Engineer, Canyon Hydro





Benefits in Manufacturing

“During manufacturing, we can measure the positions of our needle nozzles with the FARO tracker, plus the geometry of those nozzles in space with respect to the certain reference features on the housing,” explains Graves. “We’ll then break it down for paint, and when we reassemble it, we’ll use the Vantage^S again to compare the needle positions to our reference surfaces and then make adjustments as needed. It’s a great way to get really high precision with large machines in our manufacturing environment.”



Benefits in Installation

“Time spent during installation is extremely expensive,” admits Graves. “With all the various contractors on site, usually in pretty remote locations that the generator needs to go in, nobody wants to be the one whose equipment is holding up everyone else. These projects require absolute precision and efficiency. With the Vantage^S, we can use the assembly data in the beginning of installation to set ourselves up, and then use it after installation to verify our alignment.”

Benefits in Growth

“There are lots of giant turbines in operation all over the world that are, say, 50 years old and ready for refurbishment,” says Graves. “The market for rebuilding and refurbishment of existing turbines is a growing one for us. There’s a whole generation of aging turbines that are ready for service. So, in addition to building new turbines from scratch, we also manufacture replacement parts for existing turbines and do overhaul services rebuilding powerhouse equipment.”

One of the challenges for this arm of growth is obsolete turbine parts that don’t have documents with dimensional specifications.

“We may not have the history of the machine that needs refurbishing,” explains Graves. “Maybe it’s already been rebuilt five times in its lifetime. Maybe the original manufacturers didn’t build it exactly to their print to start out with. If we don’t have any blueprints or records, we have to go to the site and take measurements so that we know our parts are going to fit. Now, we can use the Vantage^S to measure enough of the old assembly for us to be able to make a replica (or improvement) of it. When we bring the new one to plug it in, everything is going to align correctly.”



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Return on Investment

The ROI for Canyon Hydro investing in laser tracker technology is threefold.

First is time savings – time is money.

“With the Vantage^S, I'd say we could probably do in three hours what it would normally take a day to do,” says Graves. “Plus, it's more accurate. It's a double win.”

The second point of ROI is customer satisfaction – which can lead to increased revenue.

“The main thing with aligning any of our rotating equipment is getting things lined up precisely for the bearings,” explains Graves. “In the case of a Pelton turbine, if the nozzles and runner are not precisely aligned, you lose efficiency.”

The third leg of ROI for Canyon Hydro is customer perception.

“The Vantage^S helps make our services and products much more valuable,” concludes Graves. “The cleaner a job we can do from the start, the more profitable we will be, and the more pleased our customers will be.”

VANTAGE^S

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FARO Vantage^S Laser Tracker.*



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