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Clever people who take the celebrated "simple approach" to problem-solving often stray far from the conventional way of doing things. They have nothing against the tried-and-true, but they're nearly always searching for a more effective way to get things done.

The Most Effective Way — Seatorque Control Systems

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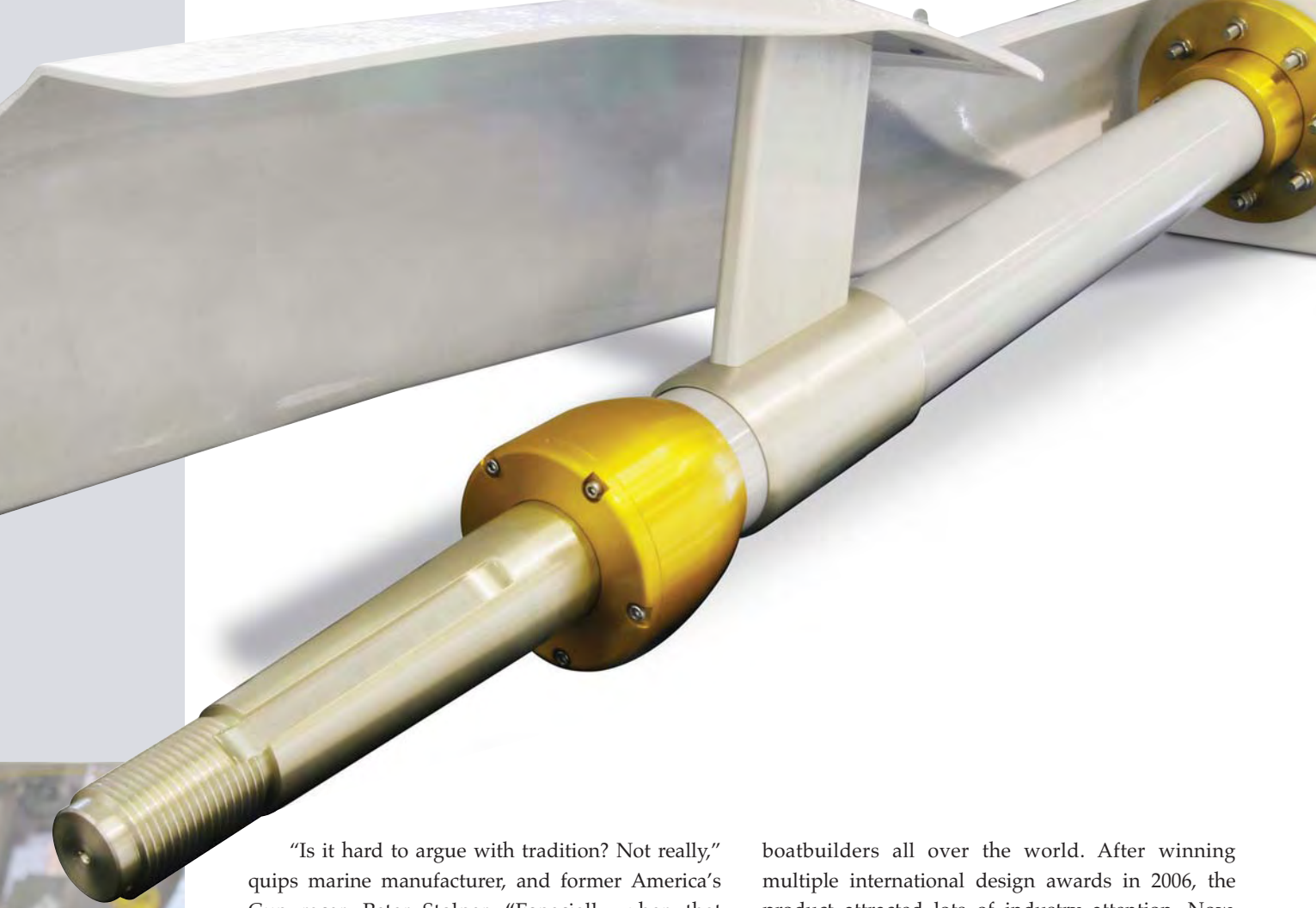

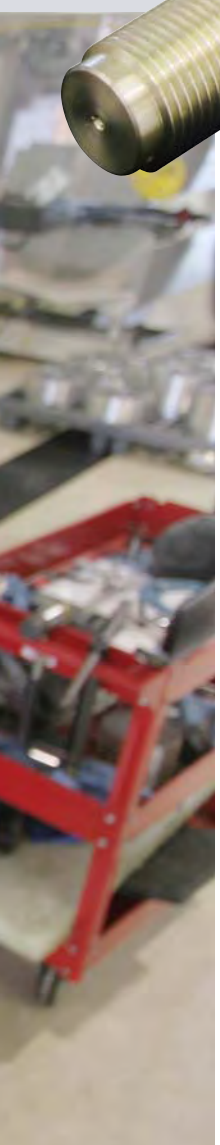

"Is it hard to argue with tradition? Not really," quips marine manufacturer, and former America's Cup racer, Peter Stolper. "Especially when that tradition is an old technology that's had no real development for 200 years!" Peter and his wife Jana recently founded a company to solve a problem that has plagued boatbuilders since the first propeller shaft was tentatively poked through a hull.

To transfer power from an inboard marine engine to a propeller outside in the water, you need a driveshaft – and a watertight hole in the boat for it to pass through. "Packing rope and whale grease was the original technology," notes Peter.

"And with the exception of a few newer materials," adds Jana, "that's still usually the way it's done: A drippy old stuffing box squeezing a hard-to-turn shaft."

The Stolpers had a better, uniquely simple, idea. Armed with a completely-sealed driveline design, Peter and Jana launched Seatorque Control Systems in 2005. Their 10,000-sq-ft shop in the marine manufacturing mecca of Southern Florida produces watertight, enclosed shaft systems that run through low-friction thrust bearings. The power-robbing stuffing boxes are gone. Seatorque markets the innovative bolt-on packages to a growing list of boatbuilders all over the world. After winning multiple international design awards in 2006, the product attracted lots of industry attention. Now, Seatorque's 13 engineers and machinists can barely keep up with demand.

The Stolpers first began making the driveline systems to supply their own boat-building business; Seatorque was their Mechanical Manufacturing Division. "We did it with manual machines, which was traditional for the industry," remembers Jana. "When we transitioned Seatorque into a standalone manufacturer for other OEM builders, we needed to greatly increase production. We added CNC."

The Seatorque shop is built around Haas CNC machines: a TL-3 Toolroom Lathe, a TM-2 Toolroom Mill and an SL-20 turning center with an automatic bar feeder. "It's a good package," Jana notes, "and since we're just getting our feet wet in CNC, Haas has given us a lot of personal attention."

"I studied engineering in the days when 30 percent of your time was devoted to machining," remembers Peter. "We had to know how to make things, rather than just design them. So stepping into CNC has been another learning experience for us. My whole approach is, 'If you don't know anything about something, jump right in.' So, we took a Haas

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school, and a training session with MasterCam®, and started writing programs straight away. It really didn't take long to figure out how to make parts in the most effective way.

"We're now using the Haas machines for just about everything," says Peter. The shop uses 4140 steel billets for couplers, 6061 aluminum billets and bronze castings for the thrust and propeller housings, and precision-ground 22-percent-chrome stainless ("better than surgical!") bar stock for the drive shafts. "What used to take five days to do manually, we do in five hours on this equipment," Peter adds. "So the math is easy."

The volume work in aluminum and bronze is done with standard tooling and flood coolant, holding tolerances down to 5 tenths (0.0005"). "The chrome stainless doesn't require anything too exotic," explains Peter, "but we're moving to the most effective tooling and through-spindle coolant for almost all of our production."

Haas markets their Toolroom series as transitional machines that can be used in either CNC or traditional manual modes, but Seatorque opts to use the relatively uncomplicated equipment for full-on CNC production only. "There's efficiency in simplicity," Jana points out. "They're simple to set up and use, and we bought only Haas CNC machines so we'd have the same controls throughout."

The shop custom-sizes their driveline packages to fit a range of vessels from 37-ft to 200-ft long. "We started under the misconception that that we would be supplying mostly small systems in the beginning," explains Peter, smiling. "It's turned out to be exactly the opposite – we find ourselves at the top of the market! The larger shafts are exceeding our current CNC capacity, so as we continue to expand into the rest of this building complex, we plan to get larger Haas hollow-spindle machines."

Jana and Peter Stolper – Peter Stolper was born in South Africa and raised in the United Kingdom. He first came to the United States in 1982 as a member of the British America's Cup team, the British Victory Syndicate. Though trained as a mechanical engineer, he served as the team's electronics engineer. Peter is a recognized fluid dynamics expert, who holds multiple U.S. and global patents for hull technology and driveline design.

Boat manufacturers are discovering that Seatorque's driveline delivers more propulsion power with less vibration, leakage and maintenance than any other system. But, Peter recalls philosophically: "I originally designed this system just to get around the headache of aligning the driveshaft. As a boatbuilder, you spend all that time aligning to within 4-thousandths of the transmission shaft, and as soon as you put the boat in the water, everything moves! I became convinced that all the people who manufactured traditional marine-shaft components had obviously never tried to build a boat with them!"

"It's the same in a lot of industries," offers Jana. "People overlook the obvious, and stick with tradition." But Seatorque's revolutionary driveline concept is as simple as it is elegant. When asked: "Why hasn't anyone considered something like this before?" Peter replies: "Because it's just too simple!"

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