

Think a Seakeeper is just a flywheel spinning in a casing? Think again. This Seakeeper 9 is comprised of more than 300 pieces.

INSIDE SEAKEEPER

WITH A CLEAR VISION FOR THE FUTURE, SEAKEEPER LOOKS TO CHANGE THE WAY WE GO BOATING FOREVER. **DANIEL HARDING JR.**

Just 30 miles outside Amish country lies the quiet, blue-collar town of Mohnton, Pennsylvania, population 3,000. Surrounded by expansive fields and farms, Mohnton looks like many other post-recession manufacturing towns. Peeling paint hangs from the sides of homes, some with long planks of wood propped between the sidewalk and roof, straining to keep the tired frames in place.

I drive past the town's Main Street traffic light and park the car at a bank. Google Maps promises me that I've arrived at my destination, but it can't be right. It's hard to believe a burgeoning technology company is located in such a small town. I check my phone again. Waze confirms that Seakeeper is located in the turn-of-the-century, red brick building across the street. I walk over to the building; a palm-sized Seakeeper sticker on the front door is the only indication that I'm at the right place.

Seakeeper's newly minted President and CEO Andrew Semprevivo is there to greet me and act as official tour guide of the seldom-seen factory. We don safety glasses—a formality, mostly, since the facility is kept meticulously clean—and venture off.

Semprevivo is a fair shade younger than most of the company's 100 employees, but he walks down a hall lined with gyro enclosure halves with an air of confidence. When he joined the company in a sales role in 2008, he was the eighth full-time employee at Seakeeper, the manufacturer of roll-canceling gyros. He would go on to hold an array of sales positions before becoming the COO in 2017. He was named president and CEO in April after a majority stake in the company was acquired by technology investor Madison Industries.

He greets almost every employee by name as we meander through the former textile mill. We stop to admire a flywheel for the company's newest (and smallest) offering, the Seakeeper 2. One



Seakeeper CEO Andrew Semprevivo moves a flywheel in the company's Mohnton location.



Semprevivo walks the shop floor where he's on a first-name basis with the 100-plus employees; Seakeeper's secret weapon is a loyal workforce (right).

of the few pieces not manufactured in-house, the forged steel flywheel comes from Texas and weighs a modest 200 pounds. The total weight for a Seakeeper 2 is 415 pounds, which seems light for something that will counteract the ocean on boats over 27 feet.

The reason for that, Sempervivo explains, is the vacuum that's created inside the company's famous white spheres. "You have a flywheel spinning at a very high speed [inside the sphere]. We do that in a vacuum, which allows us to keep size, power [requirements] and weight down. And the nature of a gyro is as the gimbal rotates, or in our case the boat rolls, the gyro moves fore and aft and exerts energy to right the boat."

The simplest way to think about it, Sempervivo says, is to imagine you're holding a rod in front of you with your arms extended and there's a bike wheel in the middle. You can easily tilt the rod from side-to-side when the wheel is stationary. But when the wheel is spinning, you'll feel resistance in your arms when you try to tilt it. To understand how Seakeeper works, take that principle and expand it to a much bigger—and more intricate—scale.

There are complicated aspects of building a gyro stabilizer, of course. At this point, I'm trying to figure out how heat is dissipated inside a Seakeeper. What little of the process I'm shown requires a pair of boring machines that make precise cuts down to 1/1,000th of an inch. A sign above an anxious-looking machinist manning one of them reads: "Don't be scared. Be petrified." "The tolerances are like a human hair long ways," says the machinist. "Cut that in

half, and then cut that in half. And then do that 40 times. That's how small these numbers are."

Perhaps the second scariest place in the factory is the area where each Seakeeper is torture-tested before being shipped out. There is a hot and cold room where the units are run in extreme, well, you guessed it, heat and cold. This ensures the units will operate smoothly in locales around the world. Then they're attached to a test bed where each unit is powered up and rocked back and forth for a few hours.

"This is where we program our drives for certain model [gyros]," one tester shouts over the sound of nearly a dozen units being rocked and shaken. Each model needs to meet strict requirements for spool up and wind down times. "After that we'll put it through another wave program where we lock the gyro in place. That program is a little more excessive. We need to make sure the brake system is operating correctly."

That level of testing is just for proven models. When launching a new model like the Seakeeper 2, they'll run it on a simulator continuously for a year before putting it on a demo boat for real-world testing.

Seeing the pounding these units take outside of a hull makes me think of maintenance in a whole new light. Surely, I ask Sempervivo, regular inspection of a unit is a must if you regularly run in rough seas? He shakes his head.

"You should get between 6,000 to 10,000 hours of life from your



“OUR GOAL FROM THE START WAS TO BUILD SOMETHING SO EFFECTIVE IT WOULD CHANGE BOATING FOREVER.”



Flywheels are among the few components not manufactured in Mohnton.

unit,” he explains. “At that point owners have two options. They can replace the entire sphere, and we have an exchange program that removes 25 percent of the upfront cost. Then you’d have a fresh set of bearings, motors and sensors. Or what a lot of people are opting to do is replace the entire unit. Then we’ll take the unit back, remanufacture it and sell it as a refit.”

The company recommends you change the zincs every three to six months and that you flush the glycol from the glycol cooling loop and change the hydraulic fluid every 1,000 hours. Depending on where the unit is located on board, both chores can be handled by savvy owner-operators or captains. And every 2,000 hours you’ll want to change the bushings for the brakes, Semprevivo says. “We have about one hundred and thirty dealers and about twenty direct service techs. For the brakes you would need a dealer or a service tech because you have to purge them.”

At the conclusion of our tour we pile into Semprevivo’s pickup truck and head across town to grab lunch. We pass at least four churches and not much else before settling into the kind of pub where you’re compelled to order a Budweiser and burger and nothing else.

I’m forced to contemplate the question that I had when I first pulled into town. Why Mohnton?

“It wasn’t by design,” Seakeeper Cofounder Shep McKenney tells me on the phone a few days later. “We couldn’t find a machine shop that would take our project on until the Joma Machine Company agreed to build a prototype. We really liked the people [in Mohnton].”

At the time Seakeeper tapped them for a prototype, Joma was creating precision machines for the aerospace industry. The company would go on to build units for Seakeeper until 2010, when it finally realized it could no longer keep up with demand. That’s when Seakeeper officially acquired Joma and with it a rich manufacturing heritage. “The mid-Atlantic used to be an intense manufacturing area,” says McKenney. “During World War II when they had to gear up to make the heavy equipment for the military, that was a concentrated area of production. The tradition of machine tools was centered there.”

Since then, much of the manufacturing in Mohnton and greater Pennsylvania has dwindled. According to Semprevivo, Seakeeper is one of the rare manufacturing companies in the state that is growing. “We’re an example of how you get past legacy products and provide lasting employment,” says McKenney.

Growing—that’s what Semprevivo and the Seakeeper team are focused on. The company recently expanded, adding 12 new production lines to keep up with demand. The facility is now capable of producing about 6,000 units per year. Not one to pat himself on the back, the new CEO has ambitions to double the footprint of the company plant to 200,000 square feet by 2020 and 600,000 square feet by 2025.

He hopes to increase the workforce tenfold by 2028.

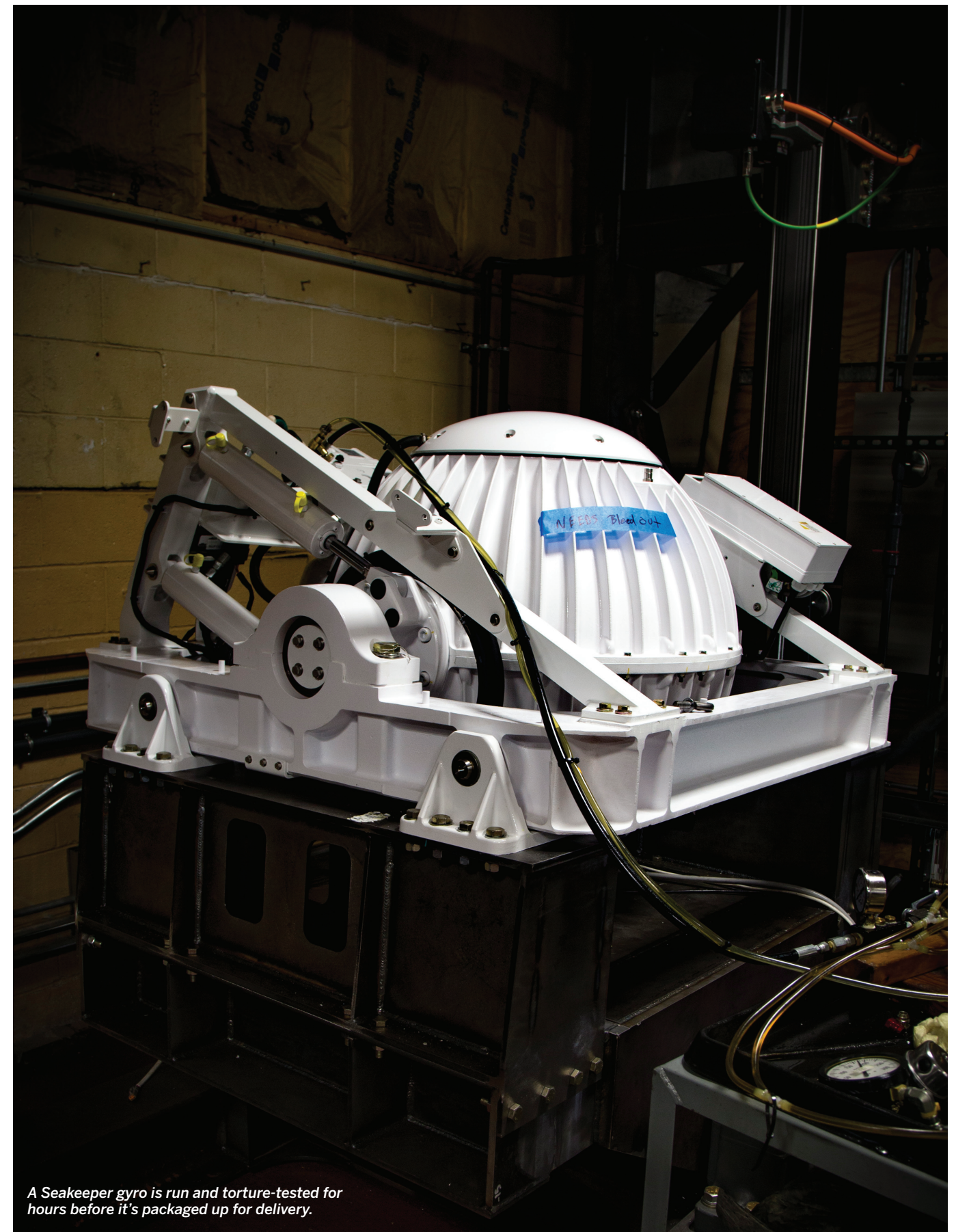
“What is going to be the biggest challenge in growing to that size, besides remembering everyone’s names?” I ask.

“Hiring quality workers with a no-job-is-too-small attitude,” says Semprevivo. “That’s why we’ve been successful so far. If one month we have a lot of orders we’ll have our engineering team in pack out, touching up paint and putting units in crates. Everybody chips in and does whatever is needed.”

By all accounts, Seakeeper seems to be at a tipping point. It began with just a few guys working out of a house; today it’s a corporate giant in the field of at-sea stabilization. The company’s growth seems to be skyrocketing. At press time, Scout and Bertram announced they would be offering SeaKeepers as standard equipment on all new models. More and more, the words “Seakeeper Standard” are appearing on new model spec sheets.

“Our goal from the start was to build something so effective it would change boating forever,” says McKenney. “I think in some period of time, every boat 20 feet and larger will have one. I think when people get on a boat without one, it’ll start rolling and they will wonder what’s wrong. I think it’ll be like 4-cycle outboards or GPS.”

Semprevivo agrees with that assessment and seems focused on making that reality come to life. “I truly believe that if people get aboard an entry-level boat for the first time and there’s no roll, then more people will enjoy and stay in boating. You gotta believe in what you’re doing. This is something that’s creating a whole new industry. One day, people will look back and say ‘remember when boats used to roll?’ We’ll know we were a part of that.” □



A Seakeeper gyro is run and torture-tested for hours before it’s packaged up for delivery.