

Pocket-sized and powerful

Trelleborg's next-generation marine positioning and piloting system, CAT PRO, empowers maritime pilots to be even more precise and efficient.

TEXT DANIEL DASEY PHOTOS TRELLEBORG

Skilled maritime pilots are among the most important professionals on today's waterways. Their work guiding vessels into ports and through congested and dangerous waters increases shipping efficiency, limits the potential for accidents and significantly reduces the need for dredging and its associated environmental impact.

In the past, pilots relied almost entirely on their personal knowledge of the waterways. Now, technology is transforming their working practices. Modern pilots

typically carry navigational-assistance hardware and software with them, which enhances their knowledge of current conditions.

Since 2016, Trelleborg has been a market leader in marine positioning and piloting systems, thanks to its SafePilot system.

Developed in Denmark, SafePilot works in combination with a ship's navigation system to provide the pilot precise information on the vessel's position, the tides, the bottom topography (the physical characteristics of the ocean floor) and any shipping hazards.

A new addition to the SafePilot

range, SafePilot CAT PRO, is setting the bar even higher, providing maritime pilots with vessel-independent GPS data and a host of other new features at an affordable price.

"The CAT PRO brings together many of the best features from across the SafePilot range into a package about the same size as two decks of playing cards," says Tommy Mikkelsen, Managing Director of Trelleborg's marine and infrastructure operation in Denmark. "It's lightweight and easy to use. We have pilots telling us our existing systems help them to work 25 percent more efficiently, and CAT PRO will further enhance accuracy, efficiency and safety."

Mikkelsen explains that when used with Trelleborg's navigation software SafePilot App, CAT PRO allows pilots to visualize the position of a vessel down to one centimeter in real time, giving

How SafePilot CAT PRO works

SafePilot CAT PRO is an advanced marine positioning and piloting system for daily use by maritime pilots. Each unit is about the size of two decks of playing cards and weighs 420 grams.

A pilot will typically carry two CAT PRO units along with a digital tablet when boarding a vessel that needs piloting. One unit calculates the exact position of the ship using GPS, while the other calculates the heading.

Using Trelleborg's navigation software, SafePilot App, the pilot views a live feed on the tablet and provides instructions to tugs to guide the vessel to its destination. The system launched in April 2022.

As well as systems for maritime pilots, the SafePilot range includes solutions for the offshore industry, tug operators, crane operators and ferry and cruise liner captains.



Right: Trelleborg's SafePilot CAT PRO, which consists of CAT PRO units and a tablet, contributes to safety on board.

extraordinary precision during piloting. Through close communication with tugs, guiding of vessels can be on the most efficient route to their destinations, cutting piloting time and helping to reduce turnaround time in port.

Shifting bottom topography and ongoing dredging are features of many waterways. CAT PRO provides pilots with clear images of the current state of the seafloor, reducing the risk of making contact. Advances in battery performance mean the CAT PRO will operate for 30 hours on a full charge, double the life of its predecessors.

A key feature of the CAT PRO is its ability to utilize multiple GPS systems to calculate a vessel's position, enhancing precision. "Previously, systems tracked the American and the Russian systems, GPS and the GLONASS," says Mikkelsen. "But CAT PRO uses every available system, including European, Indian and Chinese, to deliver accuracy down to one centimeter."

The system also includes new safeguards against potential external attacks. "One of the challenges with GPS systems is that they can be gamed or spoofed," says Mikkelsen. "Someone with ill intent can send out a signal that will trick a GPS unit into thinking that it's somewhere else. This could be catastrophic for a ship moving into a port. CAT PRO has the ability to detect this kind of activity and will notify the user."

Another key security feature is CAT PRO's ability to operate fully independent of the piloted ship, Mikkelsen explains. "Other systems tend to plug into the ship's instrumentation, and you also receive data from the GPS," he says. "So, it's a mix of ship and independent data sources. The CAT PRO is different. It's fully independent of the ship. So, if something goes wrong with the ship and it experiences a blackout or the engine goes dead,

the pilot can still keep control of the system. They can talk to the tug operators to navigate the ship into a safe location."

Another benefit of the system is that CAT PRO units are interchangeable. A pilot will typically take two units along with them when boarding a vessel – one for calculating the position of the vessel and the other for its heading, the compass direction in which the craft's bow or nose is pointed. "With all other systems, these two units are different," says Mikkelsen. "We have made the two units the same. The advantages of

this are that you can charge one unit inside while you use the other one outside and from a maintenance and repair perspective, you can mix and match them."

In the future, Mikkelsen expects the SafePilot range to continue embracing new technologies to deliver even greater convenience and practicality to its users. ■



CONTACT

For more information:
tommy.mikkelsen@trelleborg.com

Below: SafePilot works in combination with a ship's navigations system and the new CAT PRO provides vessel-independent GPS data.

