



CASE STUDY

Panasonic TOUGHBOOK plays pivotal role in Danish wind turbine breakthrough

Danish technology company, R&D Test Systems, has developed software that can detect whether bolts within a wind turbine need tightening.

Client: R&D Test Systems

Location: Denmark

Product(s) supplied: **TOUGHBOOK G2 mk3 Standard**

Imagine being responsible for tightening up to 6,000 bolts within a 300-metre high wind turbine. Many of these bolts look identical, but do not necessarily need to be tightened to the same degree. Without knowing this, this could lead to human error, which could have catastrophic consequences.

Engineers have grappled with this problem for as long as wind turbines have been operational. However, Danish company, R&D Test Systems, may have just found the required breakthrough that could revolutionise this process forever.

"Since wind turbines have been producing green energy, measuring the tightness of bolts has proved troublesome. As a result, we have developed an ultrasound-based solution that has the potential to be a game-changer for the business."

Jesper Stokbæk

Specialist

R&D Test Systems

Digitising manual processes

The Bolt-Check solution uses ultrasound technology to measure the conditions of bolted joints. This significantly increases service and maintenance accuracy, and enables engineers to only tighten the bolts that need attention. The cloud-based Bolt-Check solution enables personnel to instantly locate bolts and check their status, vastly reducing the risk of human error and the costs required to maintain wind turbines.

“Our digital solution relies solely on data instead of manual measurements, providing huge potential for cost savings when designing and servicing wind turbines. With today’s manual processes, the industry has an expected 30% margin for human error, with the tightness of some bolts measured by our engineers out by as much as 70%. With the popularity of global wind farms increasing exponentially, this is simply not acceptable. Ultimately, untightened bolts can lead to wind turbines failing to function properly – or in the worst case scenario – collapse,” adds Jesper Stokbæk.





With Bolt-Check, operators can proactively manage service and maintenance, increasing uptime and return on investment. This is crucial in ensuring turbines can continuously produce sustainable energy for as long as possible.

Furthermore, Bolt-Check could help to close the skills gap within the wind turbine industry, with highly skilled workers becoming increasingly difficult to locate. The software and cloud-hosted database are very intuitive and easy to use, with users no longer needing to specialise solely in operating heavy tools.

“The equipment used to tighten the bolts on wind turbines is very expensive, with hydraulic equipment and pumps needing to be transported to offshore wind farms on custom-built ships. When not required, this is a waste of time, money, and resources.”

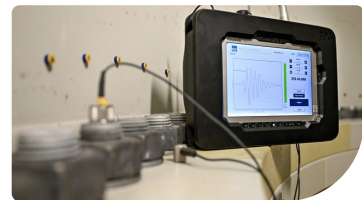
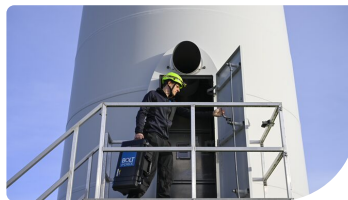
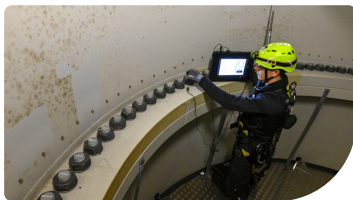
Increase productivity in harsh environments with TOUGHBOOK

The modularity, performance, and ruggedness of Panasonic TOUGHBOOK devices has led R&D Test Systems to choose the TOUGHBOOK G2 2-in-1 detachable tablet for operating the Bolt-Check software. The devices have been procured through Danish communications specialists, Northcom.



"The ability to customise the TOUGHBOOK G2 to our desired specifications is just what we were looking for. We also required a rugged and reliable device could work in the harsh environments of wind farms; the G2 can withstand drops, bumps, vibrations and water splashes, giving us peace of mind that productivity won't be affected. They keep working no matter what, which is absolutely crucial."

Jesper Stokbæk
Specialist
R&D Test Systems



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