

ECS Service GmbH optimises quality assurance of composite pressure vessels with iNOEX technology



The composite pressure vessel industry is faced with the challenge of ensuring the highest quality standards in order to meet the requirements for safety and efficiency in hydrogen storage. With technologies such as the WARP Portable and the WARP Gauge, iNOEX offers powerful tools for precise and reliable quality control. These innovations play a key role in optimising production processes.

ECS Service GmbH, headed by Siegfried Eckert, is one of the leading engineering service providers and stands for pioneering innovations in the field of hydrogen storage. To ensure the highest quality standards, the company relies on state-of-the-art technologies such as the WARP Portable from iNOEX.

The WARP Portable provides fast and accurate wall thickness measurements directly on site - without the use of contact agents. With up to 50 measurements in just 2-3 minutes, it is both efficient and flexible. This speed is particularly important when developing prototypes, especially for OEM sampling, as is often the case at ECS.

One highlight is the ability to detect wall thickness variations at lightning speed - an aspect that is particularly invaluable in prototyping. „It is crucial for us to be able to measure quickly without compromising on accuracy,“ explains Siegfried Eckert. Thanks to the logged time stamps, users can keep track of the results at all times.

The ease of use is particularly appealing to ECS's end customers, who are often new to metrology. „It is amazing how quickly our customers are won over by the technology once they have a chance to try it out for themselves,“ says Eckert. Intuitive operation - the instrument can be operated with one hand - and simple, one-time calibration make it easy to use, even for inexperienced users.

The targeted use of the unit for sampling gives OEMs and end users the opportunity to test the unit directly under real-life conditions - a decisive advantage that rekindles enthusiasm for the WARP Portable time and time again.



Siegfried Eckert (Managing Director of ECS Service GmbH) measuring a liner with the WARP Portable from iNOEX

In addition to the mobility of the WARP Portable, iNOEX's WARP Gauge technology offers a solution for mass production. The WARP Gauge provides automated, high-precision measurement of wall thickness, ovality and other critical parameters of each individual liner. This technology ensures that defective parts are detected and rejected immediately, significantly optimising the production process. „With the WARP Gauge, iNOEX also has a product in its portfolio for mass production that can automatically measure up to 100% of the wall thickness of liners. Each individual liner receives its own quality stamp, which can be used to record the wall thickness or diameter. Irregularities such as ovality, large air bubbles or damage can be detected and faulty liners can be separated,“ explains Eckert. „In this way, we can guarantee that all pressure vessels are safe and reliable.

Another advantage of radar technology is the ability to monitor hot spots in real time, which is particularly important in the field of hydrogen storage, where safety standards are paramount. „With the iNOEX systems, we can react immediately if the wall thickness distribution changes or if material defects occur,” says Eckert. „This saves time, reduces costs and guarantees higher quality”.

The ability to meet standards with this process control can be particularly important in rotomoulding. Here, wall thickness distribution cannot be verified indirectly. For example, if a faulty heating zone is overlooked and the powder is not heated correctly, the wall thickness distribution can deviate significantly from the model. There are 100 reasons that can occur in blow moulding, such as a change in the moisture content of the material or a change in the length of the tube, which can be responsible for a change in the wall thickness distribution. The ability to detect potentially faulty parts immediately saves time, minimises costs and allows up to 100% quality control of each individual liner. This data can be assigned to each individual liner and stored as proof of quality.

The partnership with iNOEX enables ECS Service GmbH to offer its customers the best possible quality solutions. ECS is convinced of iNOEX's precise and innovative technologies and enthusiastically recommends them to others. „Our priority is to provide our customers with the best tools for reliable quality control,” explains Siegfried Eckert. „The ability to precisely monitor and instantly document the quality of each liner is a real added value for our customers and reflects our high standards”.

Overall, the introduction of iNOEX's WARP technologies demonstrates how state-of-the-art measurement technology can revolutionize quality assurance. ECS is not only setting the standard in composite pressure vessel manufacturing, but also ensuring the safe, efficient and accurate production of solutions that meet the highest demands - from prototype development to series production.

