



Press Release

Hannover Messe

Hanover, April 20, 2023

Maximator Hydrogen and Liebherr present efficient solution for mobile H₂ refueling of construction machinery

MAX Mobile Refueler makes CO₂-free drives a reality for the construction sector

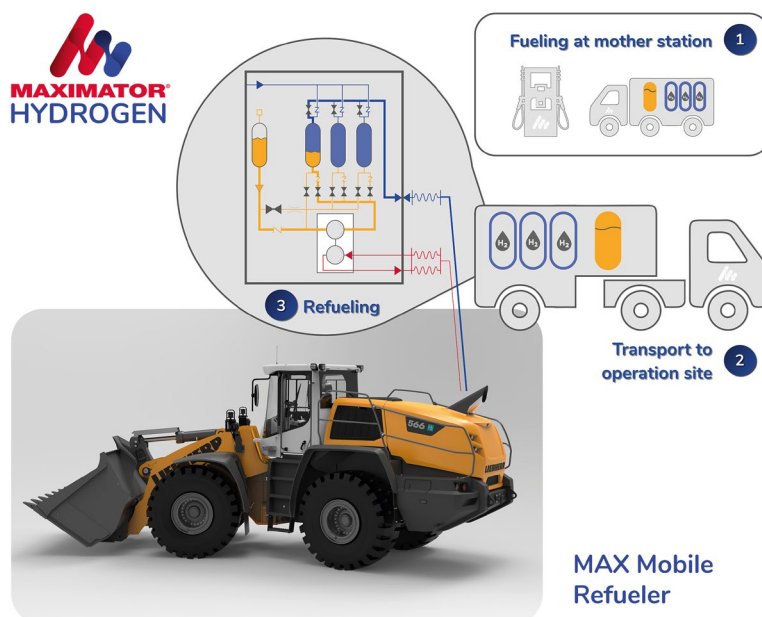
Hanover, April 20, 2023. Maximator Hydrogen GmbH is based in Thuringia, Germany and is one of the leading system suppliers of stationary hydrogen fueling systems. Maximator Hydrogen is now working on a joint project with technology giant Liebherr, one of the largest construction equipment manufacturers in the world, to develop an innovative solution for mobile refueling of high-performance construction and agricultural machinery using hydrogen gas. The companies will be presenting the result of their development at the Hannover Messe 2023: the MAX Mobile Refueler.

Liebherr is taking proactive steps towards meeting European climate targets by offering its customers sustainable, CO₂-free drive solutions for a wide range of vehicles. This is why Liebherr is working on new, efficient drive concepts that rely on open technology. Hydrogen drives are an integral part of this development work. Hydrogen drives have clear advantages over electrical battery-powered systems, particularly for high-performance earth-moving machines, many of which are used in multi-shift operation or in remote locations. These advantages include rapid refueling times and full performance capability paired with low system weights and affordable prices for customers.

"Novel ways of using hydrogen as a key element like we're seeing here with construction equipment show just how versatile this fuel is. We've been collaborating closely from the start to find custom, high-tech solutions and ensure the MAX Mobile Refueler is able to serve the needs of challenging locations with pinpoint precision," says MAXIMATOR Advanced Technology GmbH (MAT) CEO Robert Adler. MAT is headquartered in Vienna, Austria and played a key role in developing the product together with Maximator Hydrogen GmbH.

Their motivation to partner with Liebherr was twofold: first, because large construction machines cannot be refueled at public filling stations in most cases, and second, because it would not be financially viable to build stationary filling stations for the 3,900 quarries and gravel pits in Germany, many of which only operate one or two machines each. This is why Liebherr and Maximator Hydrogen joined forces to work on an efficient and affordable refueling solution. Maximator Hydrogen was able to adapt the Liebherr hydrogen machine tank system to create an entirely new method for refueling vehicles and equipment with hydrogen.

Unlike current mobile refueling systems, the MAX Mobile Refueler only needs to carry the exact amount of hydrogen needed to refuel the construction machinery. Maximator Hydrogen developed a fluid specifically for this purpose that can safely come into direct contact with hydrogen. A pump operated via the construction machine's hydraulic drive uses the fluid to pump the entire amount of hydrogen needed into the construction machine. This makes the solution even more cost effective. "Intelligent technology systems like the Maximator Hydrogen solution are true game changers for us as we work to create more sustainable drive types," explains Hans Knapp, who is responsible for advanced development and drives for wheel loaders at Liebherr Bischofshofen GmbH.



How the MAX Mobile Refueler works

The MAX Mobile Refueler is filled in advance with hydrogen to 700 bar at a public gas or filling station. As a trailer or vehicle-integrated system, the MAX Mobile Refueler is driven directly to the construction machine, which is then fully refueled to 700 bar in under 15 minutes. The smallest version of the MAX Mobile Refueler weighs about 1,000 kg and can refuel about 40 kg of hydrogen (at 700 bar and 15°C (59°F)). The modular system is also expandable. An initial prototype of the MAX Mobile Refueler will be tested in Q1 2024 in cooperation with Liebherr.

For more information, please visit <https://www.maximator-hydrogen.de/en/home/>

Contact Maximator Hydrogen GmbH

Mathias Kurras, CEO Maximator Hydrogen GmbH

Maximator Hydrogen GmbH

Petriblick 2

99734 Nordhausen, Germany

presse@maximator-hydrogen.de / www.maximator-hydrogen.de

Press contact

Kaltwasser Kommunikation

Corinna Schrätz

Laufertormauer 22

90403 Nürnberg

Telephone: 0911 530 63 - 109

Email: maximator@kaltwasser.de

About Maximator Hydrogen

The Maximator Hydrogen GmbH from Nordhausen is a leading supplier and developer of comprehensive system solutions for the entire value chain of hydrogen technologies. With over 170 employees, the company combines unique expertise with the know-how of approximately 700 H2-relevant patents. As a fast and efficient partner for the planning, construction and operation of hydrogen infrastructures for road, rail and marine transport, Maximator Hydrogen, a company of the Schmidt Kranz Group, offers highly reliable and modern hydrogen refueling stations from a single source. With its high performance, flexibility and speed, Maximator Hydrogen is a central partner for specifically tailored hydrogen solutions for large international companies and corporations.

About the company group Liebherr

The company group Liebherr is a family-owned technology company with a broadly diversified product range. The company is one of the largest manufacturers of construction machinery in the world. However, it also offers high-quality, benefit-oriented products and services in many other areas. Today, the Group comprises over 140 companies on all continents. In 2022, it employed more than 51,000 people and generated total consolidated sales of over 12.6 billion euros. Liebherr was founded in 1949 in Kirchdorf an der Iller in southern Germany. Since then, the employees have pursued the goal of convincing their customers with sophisticated solutions and contributing to technological progress.