



Press Information for Hannover Fair

Hannover, 1 June 2022

Hydrogen compression without intermediate storage

Maximator Hydrogen introduces new and highly efficient compressor unit MAX Compression 2.0

Hannover, June 1, 2022. As a spearhead for comprehensive system solutions for the entire value chain of hydrogen technologies, Maximator Hydrogen GmbH is a leading provider of modern and highly reliable H₂ filling stations from a single source. With the compressor MAX Compression 2.0, the company presents its new and highly-efficient compressor generation at the Hannover Fair, which works with the same installation space and optimized energy requirements with up to five times the performance. As a result, the hydrogen can be compressed directly at high pressure for use in fuel cells or combustion engines during refueling and without the intermediate storage that has been the norm until now. Maximator Hydrogen therefore presents a cost-effective and efficient solution for compressing hydrogen for filling stations, storage facilities and pipelines. Delivery of the MAX Compression 2.0 is scheduled for spring 2023.

The heart of the hydrogen filling stations from Maximator Hydrogen are the hydrogen compressor systems that the company has been producing in Nordhausen since 1999 – at that time as the Hydrogen Division under the umbrella of Maximator GmbH. The basis of these compressor systems is a high-pressure compressor, the MAX Compression, with which the hydrogen has been compressed in two stages to produce a usable energy density for fueling vehicles. With the new MAX Compression 2.0, the hydrogen for use in fuel cells or combustion engines can be compressed directly during refueling and without the intermediate storage that has been the norm until now. "This increases the performance and economy of the system by more than 20 percent with a drive power of 75 kilowatts," explains Mathias Kurras, Managing Director of Maximator Hydrogen GmbH. "In addition, the MAX Compression 2.0 can be individually adapted to the needs of the petrol station operator and can, so to speak, grow with the operator's needs."

This is made possible by the exchangeable drive units, which can be expanded from 75 to 250 kilowatts. In addition to a need-based adjustment of the compression capacity, these also allow operators a cost-effective entry into hydrogen technology. In addition, by expanding the drive units, the performance of a hydrogen filling station can be increased fivefold, so that heavy-duty on- and off-road hydrogen filling as well as ship and train filling stations can be efficiently implemented with this technology. Due to the arrangement of the hydraulic pistons and the precise digital synchronization, the new solution not only works more quietly, but also with significantly higher frequencies. The process control also ensures that the piston movement utilizes the maximum compression space.

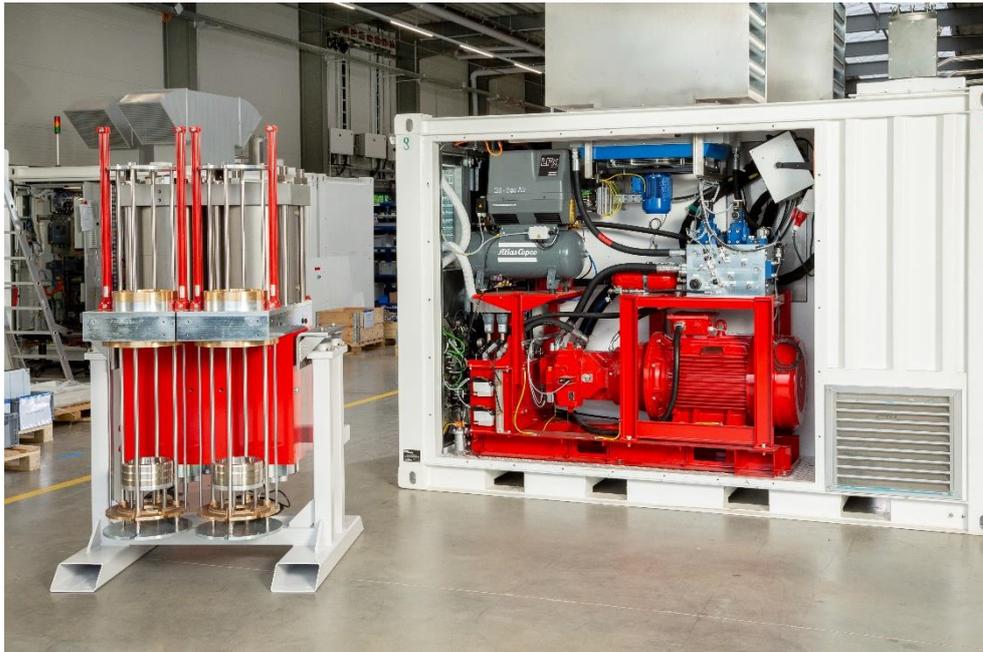
Reduction of operating and maintenance costs thanks to patented H₂ technology 2.0

Like its predecessor, the MAX Compression 2.0 is also equipped with the unique and globally patented Automatic Seal Exchange (ASX) seal change technology. With this, the regularly required replacement of the piston seals in the refueling system, which are subject to increased wear due to contact with hydrogen, takes place automatically and within three minutes. Unwanted downtimes and cost-intensive replacement processes within the hydrogen filling station are therefore reduced to an industry-wide minimum. The ASX function has also been further developed and optimized for the new compressor generation MAX Compression 2.0. The revolver loader from versions 1.0 and 1.5, with which four seals can be automatically exchanged within a truly short service life, was expanded on the basis of a bar magazine for up to 20 interchangeable seals. The automatic changeover times for a seal have also been reduced to 15 seconds.

Concentrated know-how for progress

The Max Compression 2.0 was developed in close cooperation with Bosch Rexroth, development partner and system supplier for the energy-efficient drive of the compressor, and with Maximator Advanced Technology (MAT) from Vienna. The former supplied an electrohydraulic drive solution for demand-based power control, two customized drive cylinder units, as well as the power electronics and digital control technology including software. "The intensive cooperation with Bosch Rexroth and MAT helps us to strengthen and further expand our position as a technology leader in the field of system solutions for hydrogen operation," explains

Kurras. “We are working closely together on innovations that will make our hydrogen filling stations even more efficient. In this way we are making a further contribution to more sustainable infrastructures.”



With the compressor MAX Compression 2.0, Maximator Hydrogen is presenting its new and highly efficient compressor generation at the Hanover Fair, with which the hydrogen for use in fuel cells or combustion engines can be compressed directly at high pressure during refueling and without the intermediate storage that has been customary until now.

For further information please see: <https://www.maximator-hydrogen.de/>
Please see the press kit for Hannover Messe via the following QR code:



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About Maximator Hydrogen

Maximator Hydrogen GmbH, from Nordhausen, is a leading provider and developer of comprehensive system solutions for the entire value chain of hydrogen technologies. With around 100 employees, the company combines unique expertise with the intellectual property of around 700 H₂-relevant patents. As a fast and efficient partner for the planning, construction and operation of hydrogen infrastructure for road, rail and ship traffic, Maximator Hydrogen GmbH offers highly reliable and modern hydrogen filling stations from a single source. With its high performance, flexibility and speed, Maximator Hydrogen GmbH is a key partner for specifically tailored hydrogen solutions for large international companies and corporations.