

CASE STUDY

MEHRER COMPRESSORS IN USE



EASY HYDROGEN FUELLING FOR STUTTGART'S SSB BUS FLEET

In its effort to curb greenhouse gas emissions, the traffic sector plays a pivotal role for the European Union. This is due both to the fact that a considerable portion of emissions is actually anthropogenic and that it is the only sector that, all in all, hasn't shown itself to be successful yet.

A core objective of European climate policy is to increasingly equip classic diesel or petrol engine-driven means of transport such as busses with environmentally- and, above all, climate-friendly drive variants. The plan is for public transport busses to pioneer this engine transformation. The motivation for this is obvious: It helps to improve the air quality and lower the noise level in towns and cities. In addition, it will create a market for zero-emission vehicles while reducing greenhouse gas emissions (CO₂). How do you ensure this reduction in greenhouse gas emissions? When electric busses can drive with hydrogen derived from regenerative sources.

The project

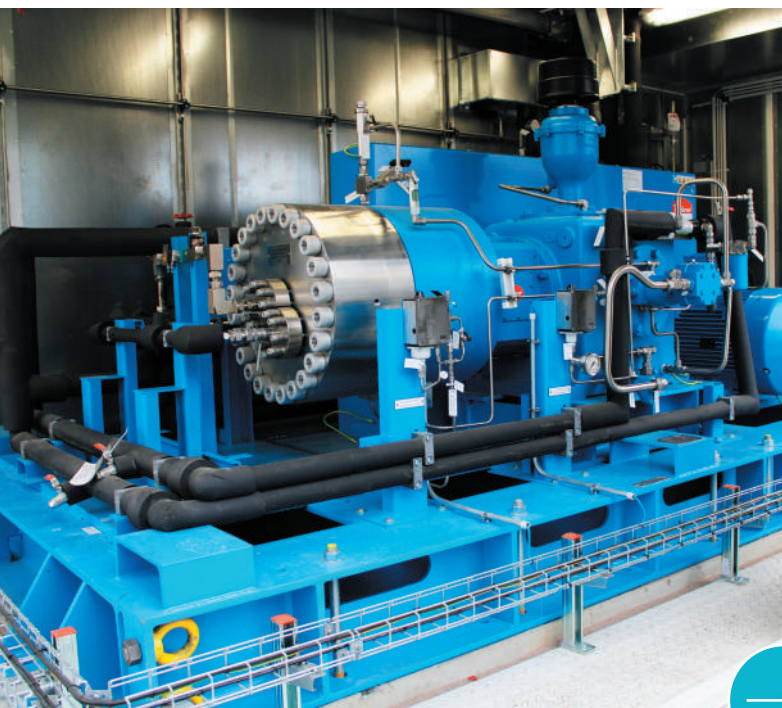
As part of the Clean Vehicle Directive (CVD) and in collaboration with various supporters such as the city of Stuttgart or the CEP (Clean Energy Partnership), Stuttgarter Straßenbahnen AG is testing fuel cell busses to drive sustainable mobility in public transport.

Since 2014, four busses have been in operation; up to ten busses are planned in the longer term. Up until a few months ago, the SSB depot didn't have its own hydrogen fuelling station for its hydrogen-driven busses. The busses used to be fuelled at two third-party fuelling stations, which meant a considerable additional effort for the company. With its hydrogen fuelling station project "WaBe" for short, the Stuttgart operator and a fuelling station manufacturer realised their own H₂ depot fuelling station. The system manufacturer chose Mehreer Compression GmbH with its compressors' reliable and high availability as the fuelling system's core component. The system has now been in daily use for several months and the compressor, including its associated components, work "flawlessly", as Markus Wiedemann, head of the corporate automotive division, assured us in an interview.

Mode of operation

To supply the fuelling station with hydrogen, the variant using a tube trailer was chosen. Hydrogen streams into the internal storage banks for the system to stockpile it. The compressor ensures that the storage banks are resupplied when the pressure is equalised so that there is always hydrogen available for fuelling. There are no plans to directly fuel the busses using the compressor, but technically, it is a viable option. The compressor employed serves to re-supply the system store, a process also possible during the fuelling process.

As soon as the pressure falls below a minimum threshold, the storage bank is automatically resupplied by first filling the high-pressure store which, by streaming over, then fills the medium-pressure and low-pressure storage banks. Once it reaches its full storage capacity, the system automatically switches off. The tanks' filling pressure volume is 40kg. Fuelling is done several times a day with relatively short compressor running cycles. This exacts quite a lot from the compressor, but is safeguarded in particular through Mehrer's optimised compressor diaphragm inflow.



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» We are very happy with the system. We know that this is the start of a new technology, so we have to become familiar with it. Combining two experienced companies placed two reliable partners at our side for our 'WaBe' project. «

Markus Wiedemann
(head of the corporate automotive division)

Hydrogen: The gas of the future

According to VDA, the German Automotive Association, electrifying busses using fuel cells can have a positive impact on the urban emission balance, making city busses a trailblazer in fuel cell technology in the HGV segment. Furthermore, a variety of lorry manufacturers are planning with the gas of the future, so the infrastructure for climate-neutral public transport also has to continue growing.

Without hydrogen mobility, Germany will be unable to reach its target of climate neutrality by 2050. Another bonus of using hydrogen in public transport is its high energy density and easy storing of excess energy.

Mehrer is your competent partner for compressing and transporting hydrogen, because without our compressors, you can neither store nor provide or use the obtained hydrogen. That is why our compressor is at the heart of every hydrogen system.



Mehrer MRE 1300
diaphragm compressor
in daily use

