

Press Release

Green production, practicable storage, a long range and short refuelling times

Bertrandt develops powertrain solutions with hydrogen

(Ehningen, 21 November 2019) Bertrandt is one of the few companies to have both the expertise and the approved facilities to enable it to work with highly reactive hydrogen gas. Its engineers have now presented an example of their expertise by converting the powertrain of a Piaggio Ape from a two-stroke engine to an electric motor with hydrogen fuel cell technology. This example can be transferred to many different vehicle types and is scalable as required.

The discussion about reducing the CO₂ emissions of conventional vehicle powertrains is in full swing. Electric powertrains are being discussed as an environmentally friendly alternative. However, their limited range and long recharging periods present considerable challenges. Hydrogen fuel cell technology offers suitable solutions for this. Vehicles that are entirely or partially powered by hydrogen not only have a longer driving range, but also other advantages. For example, refuelling takes more or less the same time as for petrol or diesel vehicles. Compared to electric energy stored in batteries, hydrogen can be stored for long periods without losses and can be conveniently transported. The outstanding and decisive advantage of the targeted use of fuel cell technology is the fact that hydrogen does not generate pollutants when used and has zero emissions when produced using solar power.

However, there are strict safety regulations that stipulate how this explosive gas is to be handled. Only a small number of companies in the automotive sector have so far been qualified to work with it – and Bertrandt is one of them. “As one of the first engineering service providers to achieve this status, Bertrandt has been given approval to work with this sensitive material at its Munich site. We have successfully qualified the facilities and the employees for this purpose. Three vehicle workplaces are available to us for the testing and further development of this new technology. For example, we can use our in-house hydrogen overflow system to fill and empty hydrogen tanks,” said Thomas Krabatsch, Department Manager Powertrain Development at Bertrandt.

The engineers are illustrating their expertise in this field in an ongoing project: “We removed the internal combustion engine from a Piaggio Ape 50 and installed an electric drive system in its place. In order to increase the range in battery operation, we

Press Release

integrated a range extender powered by a hydrogen fuel cell. This makes it possible to adapt the range as required depending on the volume of the hydrogen tank installed. This concept can be applied to various vehicle types. We are in a very good position to further advance this technology," said Philipp Zimmer, Team Manager Hydrogen Technologies.

This zero-emission powertrain concept provides a solution not only for conventional passenger cars, but also for municipal vehicle fleets, the commercial vehicle sector, aviation, shipping and other sectors.

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