

nanoFlowcell achieves breakthrough in flow cell research

Electric cars with 48-volt flow cell drive are the future

- **Breakthrough in flow cell research: nanoFlowcell develops the first flow cells that can be variably controlled – significant reduction in cost and weight for nanoFlowcell electric drives**
- **nanoFlowcell 48VOLT – the most powerful, most environmentally compatible and most cost-effective EV drive system on the market**
- **La Vecchia sees nanoFlowcell 48VOLT flow cell drive as the upcoming technology standard for electric vehicles**

London und Kilchberg, January 2017 – nanoFlowcell Holdings announced in October 2016 that it has successfully achieved variable controllability for flow cells. Following extensive testing with the QUANTiNO 48VOLT, the company now confirms that the redesigned nanoFlowcell system architecture for electric vehicles is suitable for (series) production. By being able to vary fuel cell control directly and thus dispense with the previously necessary supercapacitors (supercaps), nanoFlowcell Holdings has made important progress in flow cell research, enabling a significant reduction in the cost and weight of drive systems for electric cars.

Following the long sought-after technological breakthrough in directly variable control of flow cells achieved by nanoFlowcell Holdings last October, the redesigned low-voltage flow cell drive without supercapacitors has been undergoing extensive testing in the QUANTiNO 48VOLT. The benefits of the flow-cell based drive technology compared with other electric drive systems i.e. with lithium-ion batteries or hydrogen fuel cells are remarkable, particularly in respect of power, range, environmental compatibility, cost-effectiveness and safety.

“The average range of current electric cars stands around the low three-digit mark, with most far from able to sustain motorway speeds for extended periods. Moreover, no car manufacturer is currently making money with electric vehicles – too expensive to produce and sales incentives too high. With the QUANTiNO, we want to show that electric mobility can be different,” explains Nunzio La Vecchia, Chief Technology Officer of nanoFlowcell Holdings. “The QUANTiNO 48VOLT offers not only the range and speed of a regular car with an internal combustion engine, our flow cell vehicle is also more economical and environmentally friendly than any other electric vehicle on the market. It therefore comes as no surprise that our flow cell drive is making a big impression on expert automotive OEMs – at the end of the day, our nanoFlowcell technology opens up completely new horizons in the field of electric vehicle drives.”

It has previously not been possible to vary the control of flow cells directly, meaning they needed buffer storage, so-called supercapacitors, to be able to manage the flow

of current for regulating driving speed. However, supercapacitors are very expensive and comparatively heavy. The breakthrough with the new low-voltage flow cell drive in the QUANTiNO 48VOLT is that it will no longer require supercapacitors. Electric vehicles driven by nanoFlowcell are not only safe, environmentally compatible and efficient to run, they will also be considerably more cost-effective to produce in future than comparable electric vehicles with a lithium-ion battery or hydrogen fuel cell.

For widespread implementation of electric mobility, these are important technological and economic prerequisites that have so far not been met by any electric vehicle concepts currently on the market.

“We are seeing an extremely high level of interest from the OEM and supplier industries in our flow cell technology and the concept we have developed for a low-voltage flow cell drive,” says La Vecchia. “We are involved in active dialogue with the industry and I can well imagine that we will realise the new concept for the nanoFlowcell® 48VOLT low-voltage drive in a standalone QUANT prototype in collaboration with an industry partner.”

La Vecchia intends to announce more details on the new low-voltage prototype with flow cell drive soon. The company founder and inventor of nanoFlowcell® remains guarded on the status of negotiations with the industry as discussions on the matter have yet to be concluded.

nanoFlowcell® is the product brand used by nanoFlowcell Holdings Ltd for its proprietary flow-cell based energy technology. nanoFlowcell is similar to a combination of battery and fuel cell, requiring for energy storage and conversion only a non-toxic, non-flammable and environmentally compatible electrolyte liquid called bi-ION, developed by nanoFlowcell Research GmbH. The cost of manufacturing the bi-ION electrolyte liquid on an industrial scale is estimated at substantially less than ten cents per litre. The distribution and sale of the electrolyte liquid is straightforward as its product characteristics mean it is not bound by any laborious environmental constraints and could be handled via existing refuelling infrastructures.

Under the **QUANT** brand, nanoFlowcell Holdings Ltd develops prototype vehicles with low-voltage electric drive for the purpose of testing the new flow-cell based nanoFlowcell technology. In 2016, the company demonstrated the potential of an electric vehicle powered by nanoFlowcell mainly with its QUANTiNO 48VOLT technology showcase, a road-legal mid-size sports car with nanoFlowcell low-voltage drive able to run fully electrically for upwards of 1,000 kilometres – with a top speed of 200 km/h and an acceleration from zero to 100 km/h of less than five seconds.

In short, *QUANT powered by nanoFlowcell* is a feasible form of electric mobility that protects the environment without compromises in comfort, performance or cost.

nanoFlowcell Holdings Ltd is an innovative research and development company in the field of flow cell technology and its applications. Besides the prototype development of electric vehicles under the QUANT brand, the company also conducts research into the opportunities for using nanoFlowcell® technology in other sectors and industries.

Further information on nanoFlowcell Holdings Ltd, nanoFlowcell® technology and the QUANT technology showcases can be found at <http://www.nanoflowcell.com>.