

Endurance test shows: flow cells have the potential to become dominant energy for e-mobility

350,000 Fully Electric Kilometres in the QUANTiNO 48VOLT

Zurich/Switzerland, April 2019 -- Are you looking for good reasons why a flowcell makes sense as the energy supplier in an electric car? The QUANTiNO 48VOLT has more than 350,000 of them. That's how many kilometres the nanoFlowcell® test vehicle has covered to date. Every single kilometre driven is testament to the technical stability of the flowcell-based 48-volt low-voltage electric drive. Furthermore, the QUANTiNO 48VOLT with nanoFlowcell® sets itself apart from conventional electric vehicles with lithium-ion batteries or fuel cells when it comes to performance, safety, environmental compatibility and ease of maintenance.

Life is the best teacher: real life vehicle testing

The QUANTiNO 48VOLT has been undergoing real-life endurance testing ever since it was homologated for road use in 2016, covering more than 200,000 kilometres on the road and 150,000 kilometres on a test bed. The total mileage required the regular replacement of consumable parts such as brakes and tyres, as well as a wide assortment of minor repairs. However, although the QUANTiNO 48VOLT is a prototype vehicle that has been subjected to a punishing test regime, its powertrain ran with absolutely no problems throughout the entire duration of the test.

nanoFlowcell® flow battery: reliable and maintenance free

The flowcell installed in the vehicle did not cause a single error alert. Despite the more than 10,000 running hours, neither the membrane nor the two electric pumps showed any signs of wear whatsoever. The nanoFlowcell® system ran virtually maintenance free. Occasional updates to the intelligent control software for the energy management in the QUANTiNO 48VOLT were uploaded, but only to improve system efficiency.

One result of this, for example, is more efficient consumption regulation of the bi-ION® electrolyte. Over the test period so far, the QUANTiNO 48VOLT has returned an average consumption of just 8 kW to 10 kW per 100 kilometres.

E-mobility on the safe side: nanoFlowcell® 48Volt low voltage drive

The endurance test shows the merits of nanoFlowcell® technology for electric vehicles. One feature specific to the nanoFlowcell® is particularly well demonstrated by the QUANTiNO 48VOLT – the entire nanoFlowcell® system operates at low voltages, thus dispensing with expensive and heavy high-voltage components of the kind used in conventional electric vehicles.

At around 600 Euros, the nanoFlowcell® is not only considerably less expensive to mass produce, its structure also has virtually no maintenance requirements. This means a significant reduction in costs incurred by inspection and maintenance. Over and above that,

nanoFlowcell Holdings guarantees an operating life for the nanoFlowcell® of at least 50,000 hours – well beyond the average vehicle lifespan.

“Endurance testing of the QUANTiNO 48VOLT has confirmed our assumptions. The real-life operation of the nanoFlowcell® was almost entirely in line with our calculations,” says Nunzio La Vecchia, developer of the nanoFlowcell® technology and CEO of nanoFlowcell Holdings Ltd. “The endurance test shows that the nanoFlowcell® 48VOLT low-voltage drive in the QUANTiNO 48VOLT is the best performing, most efficient as well as ecologically and economically most innovative energy and drive system for electric vehicles to have been installed to date in a road-legal vehicle.”

nanoFlowcell Holdings is currently working hard on solutions for series-production of the nanoFlowcell® membrane as well as mass production of the bi-ION® electrolyte liquids. The company will issue a status update on the projects in the course of this year.

nanoFlowcell® is the product brand used by nanoFlowcell Holdings Ltd for its proprietary flow-cell based energy technology. With nanoFlowcell® flow cells, regenerative energies become easily available for mobile applications such as electric vehicles for the first time. The flow cell is not charged, but fueled with a non-toxic, non-flammable and environmentally compatible electrolyte liquid called bi-ION®, which could be provided through regular fuel stations. The cost of manufacturing the bi-ION® electrolyte liquid on an industrial scale is estimated at substantially less than ten Euro-cents per litre. Industrial production costs for nanoFlowcell® would be around 600 Euro; the company guarantees a life span for nanoFlowcell® of minimum 50,000 operating hours, which equals to around 1.8 million kilometers in an electric car.

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. During the past months, the company demonstrated the potential of an electric vehicle powered by nanoFlowcell® flow cell mainly with its QUANTiNO 48VOLT technology showcase, a road-legal mid-size sports car with nanoFlowcell® 48VOLT 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 mobile and stationary applications in other sectors and industries.

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