

**The Ultimate Endurance Test:****100,000 Kilometres in the QUANTiNO 48VOLT – 100% Electric and Uncompromising**

- **nanoFlowcell® energy makes no compromises in environmental compatibility, sustainability and practicality**
- **nanoFlowcell® 48VOLT is currently the lightest, inherently safest, most environmentally compatible and cost-efficient drive system for electric vehicles**
- **nanoFlowcell® is an environmentally friendly and forward-looking alternative to lithium-ion battery technology in electric car design**

London / Zurich, August 2017 -- Totally unspectacularly, right in the middle of Zurich city traffic, the QUANTiNO 48VOLT set a milestone for modern electric mobility. The clock on the electric sports car clicked round to 100,000 kilometres.

As the most environmentally friendly and forward-looking technology in the electric mobility sector, the nanoFlowcell®, a flow cell powered by the complementary electrolyte liquid bi-ION, has proven over almost two years now its consistent performance, reliability and ease of maintenance. The endurance test also demonstrates the merits of flow cell technology compared to the lithium-ion batteries currently used in electric vehicles – not on test beds in evenly temperature and dry factory halls, but in the wind and weather of road traffic – in the city as well as out of town and on motorways.

With the nanoFlowcell® 48VOLT drive system in the QUANTiNO 48VOLT, the engineers from nanoFlowcell Holdings are demonstrating that modern electric mobility is not only arriving quietly, but can also realise demands for environmental compatibility, sustainability and practicality without compromise!

After the engineers at nanoFlowcell Holdings succeeded at the end of 2016 in achieving variable control of the energy supply from the flow cell, they were able to dispense with the heavy and costly supercapacitors (supercaps) that previously served as buffer storage for the drive energy.

With its leaner architecture, the new nanoFlowcell 48VOLT drive system is currently not only the most environmentally friendly drive system for electric vehicles, but also the inherently safest, most compact, powerful and cost-effective electric drive system presently offered by the automotive industry. The benefits of the nanoFlowcell 48VOLT low-voltage drive in a competitive comparison have been compiled by market research institute IDTechEX in its report "Power Electronics for Electric Vehicles 2017-2027" (<http://www.idtechex.com/research/reports/power-electronics-for-electric-vehicles-2017-2027-000539.asp>).

"We had hoped that the nanoFlowcell® would reach the 100,000-kilometre mark without going into maintenance mode. But when this really happened, we were absolutely delighted with the resilience of the nanoFlowcell®," says Nunzio La Vecchia, CEO of nanoFlowcell Holdings. "Current test analyses confirm our confidence and it is with complete assurance that we are giving a guarantee of 50,000 operating hours on the nanoFlowcell® hardware. That equates to a theoretical running distance in an electric car of 2.5 million kilometres."

Right now, the nanoFlowcell 48VOLT flow cell system in the QUANTiNO incorporates three membranes along which the bi-ION electric liquid can be guided in order to react with one another. The continuous output of the installed flow cell system stands at 80 to 90 kW. Via a DC/DC transformer, the flow cell supplies a constant feed of controllable low-voltage energy directly to the 80 kW electric motor. This is enough power to accelerate the QUANTiNO 48VOLT from zero to 100 km/h in around five seconds, and sufficiently sustained to be able to maintain a top speed of 200 km/h.

Last December, the QUANTiNO 48VOLT demonstrated what is possible with nanoFlowcell® energy. The electric sports car took just 8:21 hours to cover a distance of 1,000 kilometres, not only maintaining a remarkable traveling speed, but also covering a total distance of 1,401 kilometres with 2x95 litres of electrolyte liquid in its tanks. These are benchmarks unattainable by any other electric vehicle.

However, nanoFlowcell Holdings does not seek to become a vehicle manufacturer, but instead to offer its energy and EV technologies to interested manufacturers in licence form, and to support the industry as a research and development partner with expertise in the field of modern flow cell energy. The use of nanoFlowcell® technology is also not restricted to the automotive sector, as the scalability of the nanoFlowcell® system means the technology can be adapted to a wide variety of applications – such as shipping, rail and air traffic, or as an autonomous or on-grid regenerative energy carrier within an ecologically sustainable energy transition.

La Vecchia regrets that nanoFlowcell Holdings is currently the only research institute in Europe that has specialised in the research and development of modern flow cells, and fear that the European industry and political establishment are missing the opportunity to take a leading role in one of the forward-looking industrial developments of this century. While flow cell technology is generally languishing as a poor relation within the electric mobility sector in Europe, research institutes in the USA are announcing successes in the adaptation of their own flow cell battery technologies for mobile applications.

### **Vehicle data QUANTiNO 48VOLT (2017)**

- Top speed km/h: 200
- Acceleration (0-100 km/h): <5s
- Number of seats: 2+2

### **Motor**

- Maximum power kW (hp): 80 (108)
- Maximum torque (Nm): 200

### **Flow Battery**

- Type: nanoFlowcell® (flow cell)
- Voltage (V): 48
- Capacity (kWh): 85

### **Consumption**

- Fuel type: Electricity
- Energy consumption: 10-12 kWh / 100 km
- Tank volumes (l): 2 x 95
- Range (km): >1,000

- Harmful emissions (g): 0

### Dimensions

- Length (mm): 3,910
- Width (mm): 1,930
- Height (mm): 1.335
- Wheelbase (mm): 3.198
- Kerb weight (kg): 685

**nanoFlowcell®** is the product brand used by nanoFlowcell Holdings Ltd for its proprietary flow-cell based energy technology. nanoFlowcell® is 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>.