THE LINDE GROUP

Press Release

New hydrogen fuelling station with technology from Linde opens in Munich

Munich, 16 July 2015 – Today, the TOTAL Multi-Energy fuelling station in Detmoldstrasse, Munich, opened its doors to drivers of hydrogen-powered fuel-cell cars. Equipped with innovative refuelling technology from Linde, the station is now home to the only public hydrogen fuelling service in the Bavarian state capital.

Linde was commissioned by TOTAL and BMW, which will be the hydrogen station's main user, to install its high-pressure cryogenic hydrogen pumps – also known as cryopumps – at the site in Detmoldstrasse. The technology was developed in-house by Linde and is designed to directly compress cryogenic liquid hydrogen stored at -253 degrees Celsius. "Linde is harnessing its expertise in cryogenic gases to reduce the amount of energy and storage space required at an integrated multi-energy fuelling station," explains Dr Andreas Opfermann, Head of Technology & Innovation at Linde.

Fuel-cell drive technology enables electric cars to be driven over long distances with short refuelling windows and zero tailpipe emissions. Under the umbrella of the Clean Energy Partnership (CEP), the new H_2 fuelling station will, for instance, supply demo fuel-cell cars based on the BMW 5 Series Gran Turismo.

Thanks to Linde's innovative technology, the station can offer two different fuelling technologies at separate pumps. Drivers can choose between industry-standard 700 bar compressed gaseous hydrogen (at -40 degrees Celsius) and cryo-compressed hydrogen at -233 degrees Celsius (pressurised at up to 300 bar). This last technique is suited to the pressurised cryogenic tanks in BMW fuel-cell cars. Linde has already established a strong position in the hydrogen refuelling market with its ionic compressor, which is widely used across the industry. The cryopump further strengthens the Group's position as a technology leader in this field.

To meet rising demand for H_2 infrastructure build-up, Linde opened the world’s first small-scale series production facility for hydrogen fuelling stations at its application centre in Vienna last year.

Linde has also been operating the Linde Hydrogen Center in Unterschleissheim near Munich since 2006. The facility serves as a hydrogen fuelling station (not open to the public), technology test centre, training and demonstration centre.

Having set up approximately 90 hydrogen fuelling stations in 15 countries and having successfully completed over one million refuelling operations, Linde is leading the way in H_2 infrastructure development. With several auto manufacturers currently ramping up to series production, Linde is thus laying important groundwork for the successful roll-out of fuel-cell vehicles.

In the 2014 financial year, The Linde Group generated revenue of EUR 17.047 bn, making it the largest gases and engineering company in the world with approximately 65,500 employees working in more than 100 countries worldwide. The strategy of The Linde Group is geared towards long-term, profitable growth and focuses on the expansion of its international business with forward-looking products and services. Linde acts responsibly towards its shareholders, business partners, employees, society and the environment – in every one of its business areas, regions and locations across the globe. The company is committed to technologies and products that unite the goals of customer value and sustainable development.

Under the "Clean Technology by Linde" label, the company offers a wide range of products and technologies that help to render renewable energy sources financially viable, and significantly slow down the depletion of fossil resources or reduce the level of CO_2 emitted. This ranges from specialty gases for solar module manufacturing, industrial-scale CO_2 separation and application technologies to alternative fuels and energy carriers such as liquefied natural gas (LNG) and hydrogen.

For more information, go to http://www.linde.com/cleantechnology

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