

Media release

New hybrid solutions live at Low Carbon Vehicle Event, Millbrook UK

Oerlikon Graziano and Vocis with their latest EV and HEV transmission technologies at Cenex LCV show

Rivoli, Italy 08 September 2014 – High-performance transmission specialist Oerlikon Graziano, a brand of Oerlikon Drive Systems Segment, together with technical specialist Vocis, will exhibit a whole family of electric and hybrid vehicle transmissions at the LCV Cenex 2014 show, from 10th to 11th September at Millbrook Proving Ground. The exhibition is the UK's Premier Low Carbon Vehicle Event and attracts major stakeholders, key manufacturers, supply chain representatives and government officials. The state-of-the-art transmissions will be accompanied by two demonstrator vehicles used to evaluate and showcase the innovative products.

Star of the line-up will be the company's new **OGeco**, a hybrid power-shifting automated manual transmission (AMT), co-developed with technical specialist Vocis, responsible for the control unit and control software. The OGeco transmission is cost effective, light and efficient, and utilises torque infill to provide near-seamless shifting. Hybrid technology helps to reduce fuel consumption by up to 30 percent, particularly at low speeds, and significantly reduces emissions.

Oerlikon Graziano believes in the use of technology demonstrators to prove the benefits and feasibility of new concepts. The OGeco unit was installed in a high-performance Mercedes-Benz SLS AMG in early 2014 and tested by several European vehicle manufacturers, attracting favourable comments for ease of use and shift quality. The actual car and the **OGeco** will be at this year's LCV show as a static display in **Hall 2, stand C251-C252-C253**, and visitors will be welcome on the stand for a closer look at the vehicle installation or to have any questions answered.

"The **OGeco** concept has been designed to provide torque infill from an electric motor during gear changes, providing the shift refinement of a DCT," says Oerlikon Graziano's Head of Performance Automotive, Paolo Mantelli. "Increased low speed comfort does not compromise the rapid shift time and responsiveness during spirited driving, thanks to a two-speed electric motor transmission solution enabled by a twin-shaft AMT layout. Smooth shifting at low to medium vehicle performance matches current DCT expectations, and the transition to high performance is enabled by significant torque infill to reduce shift shock. Moreover like-for-like simulations supported by vehicle test results have shown a fuel economy advantage between five and eight percent over a wet clutch DCT, due to the lower internal losses and the elimination of any hydraulic cooling requirements".

"**OGeco** is designed for high performance vehicles with transaxle transmission configurations, and is suitable for front- or rear-wheel drive applications", Mantelli continues. "The concept fulfils a full range of hybrid functions, such as electric boost, KERS, EV mode, regeneration of the HV battery directly from the engine and engine cranking, and is fully compatible with all the potential future evolutions of high performance transmissions."

Throughout the two days of the LCV event, a Mercedes Vito Minibus fitted with Oerlikon Graziano **4SED** (4 Speed Electric Drive) will be available for demonstration drives (External display SP-17A-3). The **4SED** is the most elegant solution for a multi-speed transmission when there are two traction machines, and is much simpler than a traditional manual gearbox, having the electric motors connected directly to two independent input shafts, omitting the need for any clutches. Visitors will be allowed to assess the vehicle and to discuss in detail how the gear shifting is managed and other key aspects of the unit.

**Come visit us at Millbrook Proving Ground
Hall 2, stand C251-C252-C253 and External display SP-17A-3**

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About Oerlikon

Oerlikon (SIX: OERL) is a leading high-tech industrial group specializing in machine and plant engineering. The company is a provider of innovative industrial solutions and cutting-edge technologies for textile manufacturing, drive, vacuum, coating, and advanced nanotechnology. A Swiss company with a tradition going back over 100 years, Oerlikon is a global player with around 13,000 employees at around 160 locations in 34 countries and sales of CHF 2.9 billion in 2013. The company invests around CHF 100 million per year in R&D, with over 1,000 specialists working on future products and services. In most areas, the operative businesses rank either first or second in their respective global markets.

About Oerlikon Graziano

Oerlikon Graziano is a global player in power transmission field with more than 60 years of experience. Today the company is focused on the major markets as Off-Highway (Agricultural and Construction), Automotive and Industrial Application. Through its global footprint - in America (USA), Asia (China and India) and Europe (Italy, Russia and UK) – and its innovation, experience and high-tech solutions, Oerlikon Graziano is able to meet the customer needs, providing complete driveline systems as well as single gearing components. Recognized as a technology innovator, it is appreciated for the high quality of its products and services and the unique ability to manage high complexity-challenging time to market programs.

About VOCIS

VOCIS is specialised in Control & Hydraulic System Engineering and Programme Management for the automotive industry. The Company is widely experienced in delivering challenging and high value automotive programmes for a variety of high profile OE customers, Tier One Suppliers and Design Consultancies. More than 180 man years' experience is held in all aspects of mechanical and software control for DCT, AMT, CVT, AT transmissions, EV / Hybrid drive systems and active torque management systems.



 OGeco concept has been designed to provide torque infill from an electric motor during gear changes



The Mercedes Benz SLS AMG Demonstrator vehicle from Oerlikon Graziano and Vocis that showcases the OGeco powertrain



Mercedes Vito Minibus: Fully electric demonstrator vehicle from Oerlikon Graziano and Vocis equipped with the power shifting 4SED transmission

<http://www.oerlikon.com/graziano/>

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