

New modular front-wheel drive hybrid transmission at CTI Berlin

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Oerlikon Graziano presents a paper entitled “Modular P2-P3 Dedicated Hybrid Transmission for 48V and HV applications” at CTI Symposium and Transmission Expo, Berlin, Germany (5th-8th Dec 2016)

Oerlikon Drive Systems Segment’s transmission specialist brand, Oerlikon Graziano offers a novel dedicated hybrid transmission concept, which promises a step forward on the path to electrification, with a compact and elegant package and full hybrid capabilities. This innovative technology will be presented at the 2016 CTI Symposium and Transmission Expo, Berlin, Germany, from 5th-8th December. Oerlikon Graziano will display the wider transmission capability at the stand, including 4SED, 2SED, AVTR, and PTU (power take unit).

Based on existing OGeco transmission architecture, the new patented FWD technology concept can reduce component costs, offer a 40% improvement in acceleration and reduce CO2 emissions by 25% when compared to traditional technologies. It also enables full hybrid functionalities, such as load point shifting, eBoost, KERS, regeneration, hybrid drive and full electric drive.

“As legislature pressures on pollutants emissions push OEMs towards electrification, many hybrid systems add weight and cost for low volume production, still needing to maintain driving enjoyment”, says Gunnar Stein, Chief Technical Officer of Drive Systems Segment Oerlikon Graziano.

There is the question that there is a danger of standard solutions not suiting individual OEMs customer applications and hybrid architectures. Stein continues, “Oerlikon Graziano has a history of developing dedicated solutions optimised for customer specifications. We aim to work with OEMs at early planning stages to take full advantage of the packaging benefits.”

Oerlikon Graziano has applied value engineering and continuous improvement to the OGeco transmission presented at 2012’s CTI Symposium and Transmission Expo resulting in a patented DHT design concept. Stein adds: “The innovative OGeco design enables a reduction of component costs, plus performance advantages, that are predicted to set the benchmark for dedicated hybrid transmissions towards electrification.”

The P2-P3 dedicated hybrid transmission is modular, based on a two-shaft single-clutch concept. Thanks to a link between two main gears of the gearbox and the direct gearing between the electric machine and linked gear system, free-mounted on the primary shaft, there is a very efficient electric path of the transmission. This also offers two different gear ratios between the electric machine and the secondary shaft. The architecture is simple using standard components. Across a wider range of vehicle speeds it offers a fuller performance curve of wheel torque. The innovative system offers the advantages of both gasoline and electrical systems, for example: powershifting-P3, recuperation-P3, cranking-P2, KERS, and standstill charging-P2.

The presentation will talk about progress to date, and the next steps towards implementation and wider adoption of this innovative technology.

Over 15 years of running, the 2016 CTI Symposium and Transmission Expo, has become a key international specialist event on automotive transmissions and drives for passenger cars and commercial vehicles. Last year participants numbered 2,200 from 23 countries including Europe, America and Asia, with over 35% being from non-German speaking countries.

Source: Oerlikon