Smartest Engineers and Technicians of the Future



#2015CECECEMASummit

23 - 24 September, Brussels

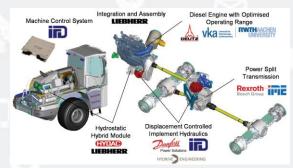
Oliver Koch and Markus Schneider



Green Wheel Loader – reducing fuel consumption through optimized drive technology and innovative operating strategies

The increase of machine productivity and operator comfort as well as the enhancement of energy efficiency and compliance to exhaust emission regulations are currently the main engineering goals of mobile machinery manufacturers.

Within the collaborative research project "TEAM - Green Wheel Loader" a new energy efficient hybrid drive train for a 24ton wheel loader with 200 kW installed engine power is developed in order to demonstrate the potential efficiency use of novel drive improvement bv technology. An optimized diesel engine, a power-split transmission for the travel drive and displacement controlled а attachment drive are coupled with a hydrostatic parallel hybrid system to replace the conventional drive train.











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Benefits of the project:

- Integration of the most efficient drive technology available in one machine
- Novel operating strategy reducing the drivers' influence on machine efficiency
- Testing of the prototype under realistic operating conditions proved the concepts' functionality
- Reference testing of the Demonstrator showed 10% fuel savings compared to an efficient state-of-the-art machine
- Vehicle testing revealed improvement potential regarding operability, control of the diesel engine and drive train layout to further increase fuel efficiency

Project development:

- Team: 11 engineers 4 research assistants, 7 industry representatives
- Timeframe: 02/2012 04/2015
- Cooperation: 6 Companies, 2 Universities (Bosch Rexroth, Danfoss Power Solutions, Deutz, HYDAC, HyDrive Engineering, Liebherr, Aachen University, Dresden University)

Market:

- EU/US construction machinery
- Concept study / pre-competitive research
- Project results are currently transferred to participating companies' R&D departments

Additional information:

"Green Wheel Loader" prototype vehicle available as platform for future R&D activities



