

John Deere transmission eAutoPowr

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Stepless with electro-mechanical power-split

John Deere, in cooperation with Joskin, has unveiled the world's first continuously variable transmission with electro-mechanical power split including an implement interface. The completely new concept was awarded with the only gold medal by the jury of the AGRITECHNICA Innovation Commission.

For the new eAutoPowr, John Deere has completely replaced the hydraulic components with an electric power path. The two brushless electric motors are virtually wear-free and powertrain durability exceeds any other concepts previously offered in the industry. In addition, the maintenance costs are significantly lower.

Another strength is the increased efficiency especially in the partial load range. As a result, the already unique fuel efficiency of the 8R tractors could once again be increased. The driver also benefits from the very fine speed regulation and the better acceleration behavior.

An integrated power management system ensures the transmission of high engine power without overloading the mechanical drive train. The clutch wear is permanently monitored and the clutch is calibrated adaptively.

For driving implements and trailers, the eAutoPowr can provide up to 100 kW of electrical power. There are 700 V DC (DC) or 480 V frequency variable three-phase alternating current (AC) available. Thus eAutoPowr is the first transmission that is offering a cost-effective and efficient electrification solution for intelligent tractor-implement combinations with merged power generation and propulsion.

The tractor slurry tanker combination was developed by John Deere together with Joskin. The 25.5 m³ slurry tanker is equipped with two drive axles, which are powered by a 100 kW electric motor. This motor is powered by a standard AEF ISO socket. The drive axles allow a traction increase and thus a significant slip reduction. This can avoid soil damage.

The additional drive can also be used for other implements and trailers. The technology allows smaller, lighter tractors to pull wider implements and injectors. This increases the productivity, while the investment costs are reduced.

Source: John Deere Walldorf GmbH & Co. KG