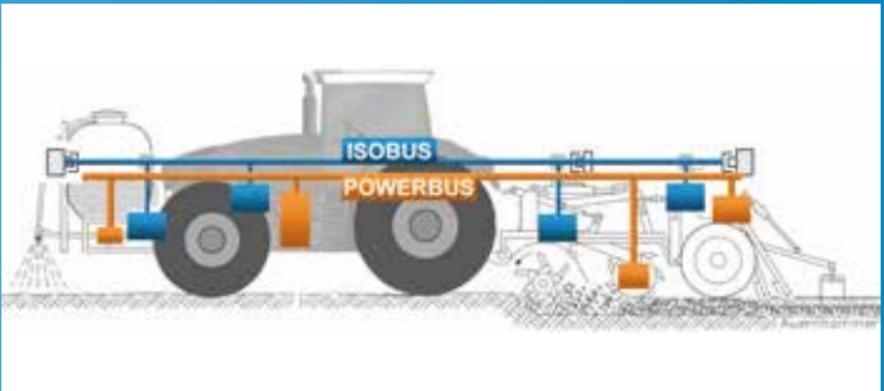


Electrification of agricultural machinery

αδειοδότηση μηχανημάτων
ηλεκτρονικών οχημάτων



Electric drives are becoming increasingly important in agricultural technology. The only thing that has long been missing is a standardized interface for direct and/or alternating current that is able to channel enough power from the tractor to the implement to drive large electric motors.

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At the AEF engineers from numerous companies around the world have been working together to develop a high-voltage power connector to transfer energy between items of equipment produced by different manufacturers using existing ISOBUS communication systems. Work began in 2010 and a standardization procedure is expected to have been established by 2016. The prototype for this kind of interface has been subject to intensive field testing for four years already.



The electric power interface, which is now in the final stage of development, delivers 700 V direct current or three-phase 480 V alternating current. The high-voltage interface supports both AC and DC and can provide up to 150 kW of power. This means that, in the majority of cases, the power of the diesel engine/generator limit the maximum available current. The tractor is increasingly taking on the role of operating station and energy supplier.

In 700 V DC mode, the interface powers attached electric implements that are usually fitted with one inverter per electric motor on the implement.

For the three phase 480-V-AC mode inverters are required on the tractor, again one for each electric motor on the implement. As the speed control of these machines is located on the tractor, the more complex motion sequences will require a high speed communication BUS. This is envisaged in the draft of the AEF AC/DC interface. The existing ISOBUS (ISO 11783) will still be used in this AC/DC high voltage system to enable general communication and control functions between tractor and implement.

