

Modular ZF transmission range: New continuously variable transaxles TMT 09 and TMT 11

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ZF, the leading independent supplier of continuously variable powertrains for agricultural machinery, is now expanding its already very wide power range at the bottom end with the two variants TMT 09 and TMT 11.

For the power range from 65 to 110 hp the requirements for reasonable production costs on one hand and higher efficiency on the other have to be brought together. In order to overcome this problem a completely new transmission concept has been created. The technical complexity has been intentionally reduced to a minimum and the possibilities of intelligent electronic controls have been exploited to a maximum. This ZF strategy enables to produce the functional features of the bigger TERRAMATIC with substantially fewer components. The familiar powershiftable shuttle shift (Power Shuttle), the standstill control (Power Zero) and the continuously variable acceleration from standstill to the maximum speed without interrupting the power flow are mastered by the TMT 09 and TMT 11 just like their big brothers.

The driving speed between 0 km/h to 40 km/h (optionally: 50 km/h) forwards and 0 km/h to 20 km/h in reverse is obtained on the TMT 09 and TMT 11 by a mode selection (Mode I: working mode; Mode II: transport mode) as well as a driving range selection. Both the mode and driving range selections have been completely automated, thereby facilitating continuously variable driving without interruption of the power flow with a minimum of components and a maximum of comfort and functionality.

The completely new continuously variable transmission from ZF was conceived such that a combination with two rear axles of different size (TRA 09 and TRA 11) is possible. This means that it is possible to design vehicles which conform to the current conventions with regard to dimensions and power-to-weight ratio without two different transmission variants arising. In this respect the TMT 09 covers the power range from 65 hp to 90 hp, whereas the power capability of the TMT 11 extends up to 110 hp. With regard to the tractive power and the vehicle mass, although the two TERRAMATIC transaxles line up in the usual standards for this class, this standard is however clearly exceeded in terms of flexibility and functionality.

Optimum efficiency and functional scope with reduced complexity

The low number of components contributes significantly to reduce product costs compared to standard CVT concepts - and this without important losses in functional range and productivity. Also for the TMT 09 and

TMT 11 ZF offers a vehicle controller. This continually monitors all the important operating parameters and controls them according to the driver's demands. Therefore the best possible interplay between the engine, transmission and operating equipment is always ensured. With an integrated pump drive the efficiency of TMT 09/TMT 11 can be further increased by the application of regulated axial piston pumps.

Maximum versatility for use in the most varied applications

The TMT 09 and TMT 11 were designed right from start such that the whole bandwidth of applications in this vehicle segment can be covered. The unlimited number of available transmission ratios from standstill to maximum speed, the uninterrupted power flow, the easy operation and the automatically optimised exploitation of the available power nullifies any restriction with regard to possible applications.

Irrespective of whether a tractor is needed for municipal duties, vineyards, plantations, the house & farm, pastures or forestry – with the continuously variable transaxle from ZF professional users particularly have the possibility of fulfilling their tasks more efficiently, more flexibly and also more comfortably.

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