



ZF-Eccom 5.0: Continuously variable transmission

Most efficient, volume-production power pack for high-tech tractors

The Eccom 5.0 CVT system (fig. 3) which is based on the continuously variable, field-proven ZF transmission system has been designed for the most powerful ag tractors from 400 to 650 HP. Beyond all application benefits best-known from CVTs in standard tractors, the continuously variable, hydrostatic powersplit transmission Eccom 5.0 provides smooth and continuous drawbar pull and an efficient power transfer for large-scale farming applications. For the first time, this technology is now available for high-horsepower 4WD-tractors.

CVTs offer the advantage of a smooth and continuous build-up of drawbar pull and a transfer of the full engine power in the engine speed range with lowest fuel consumption. The widely spread total gear ratio of the Eccom 5.0 combines high tractive forces when setting off in the field with an efficient, fuel-saving on-road travel speed of 40 kph at reduced engine speed. Top travel speeds of 50 kph can be reached as well.

Easy field application

Large 4WD-tractors spend a lot of their operating time in the speed range from 8 to 16 kph - within this speed range the efficiency of the Eccom 5.0 is particularly excellent, making sure that most of the engine power is transferred into tractive power. Unmatched ease of operation allows optimum work output throughout a long-lasting field use, automation of repetitive functions relieve the driver from doing routine jobs. Integrated in a superordinate ZF vehicle / engine / transmission control system, the Eccom 5.0 offers maximum productivity in large-scale farming operations. Infinitely variable ratio setting ensures sensitive and continuous traction build-up when starting from a stop – even on most difficult ground conditions. In case of load variations, the CVT instantaneously responds with ratio changes, so that the engine

can always be kept at its maximum performance and within the speed range for lowest fuel consumption.

Eccom style design

The Eccom 5.0 is based on the design of the ZF Eccom series (fig. 10) that has proven its reliability in more than 30.000 applications. For the first time, the Eccom 5.0 uses a swash plate pump along with a bent axis motor – a combination allowing further upgrading of overall efficiency and still using of field-proven hydrostatic units from high-volume production.

Flexible transmission design

The modular transmission design of the Eccom 5.0 can be flexibly adapted to suit individual vehicle applications and installations. The transmission is connected with the combustion engine and the two axles via cardan shafts. As a standard feature, the front and rear axle are rigidly connected. The optional equipment includes a multi-disk clutch for front axle actuation under load, or a dog clutch for engaging the front axle at standstill. Another option allows fitting of a PTO clutch with integrated PTO brake. The standard equipment features pump drives with flanges for two piston pumps (e.g. auxiliary and steering hydraulics) and for an emergency steering pump .

Custom-tailored electronic controls

A vehicle-engine-transmission controller from ZF production can be optionally integrated. Communication with the control units in the vehicle is implemented via CAN-Bus interface. Combined with automatic tracking, the power-controlled CVT drive line ensures maximum productivity of the vehicle.



Fig.:

- 3.) The new CVT Eccom 5.0 with extended performance range up to 650 HP.
- 10.) Eccom 4.5 continuously variable transmission with performance range up to 500 HP.

Pictures: ZF

Press contact:

Gernot Hein, Head of Marketing and Communications
Tel.: +49 (8 51) 4 94-24 80, Fax: +49 (8 51) 4 94-90 24 80
E-mail: gernot.hein@zf.com

Wolfgang Wohlgemuth, Team Manager Market Communications
Tel.: +49 (8 51) 4 94-27 03, Fax: +49 (8 51) 4 94-90 27 03
E-mail: wolfgang.wohlgemuth@zf.com

The ZF Division Off-Road Driveline Technology and Axle Systems specializes in the development and production of transmissions and axles for agricultural and construction machines as well as axle systems for buses and trucks. With 7,500 employees the division generated a turnover of 1.9 billion euros in 2008.

ZF is a leading worldwide automotive supplier for driveline and chassis technology with approx. 60,000 employees at 119 locations in 25 countries. In 2008 the Group generated a turnover of 12.5 billion euros. ZF is among the top fifteen companies on the ranking list of the largest automotive suppliers worldwide.