



ZF in Graders

- **Applications up to 27 t**
- **Speeds up to 50 km/h**
- **Reduction of oil change intervals**

Transmission

Converter lock-up clutch offers

- Direct drive
- Maximum fuel savings

Axle

Modular and flexible axle system offers all alternatives:

- Complete system
- Axle body with wheel/brake systems
- Axle body with integrated planetary drives

Sensitiveness and pulling power make exact working possible. Graders must adapt to the most varied ground conditions quickly and impressively. Therefore, the main requirements include optimum pulling power for achieving maximum traction. To master difficult conditions in the working routine, smooth movements in conjunction with a high pulling power are decisive for excellent working performance and for overcoming high material resistances.

Overcoming high material resistances is facilitated by ZF systems. Whether it is rough work in establishing building site roads, under laser control when fine grading large areas or in winter operation clearing snow, the grader not only becomes a specialist for a flat substrate, but also for a "clear run" in the cold season. The simple operation and automated ZF transmission technology also enables uncomplicated and exact handling, therefore reducing errors.

The demands on these vehicles are very high: Fast working, precise to the millimeter, with the highest productivity and precision with simultaneous reduction of the operating costs. ZF underlines its system capability with the EFFICIENCY PACKAGE which combines many advantages through its specifically matched components. For the perfect and individual application ZF provides the EFFICIENCY PACKAGE with special



transmission, axle and software options. Along with the mechanical and electronic systems, software components are becoming increasingly important. The construction vehicle becomes an effective and easy-to-use machine only with intelligent software modules which are integrated into the transmission. ZF develops sophisticated on-board electronics to reduce the fault susceptibility to a minimum. This means that specific challenges in workday routine can be better mastered.

ZF EFFICIENCY PACKAGE

The options of the EFFICIENCY PACKAGE give an increase in productivity and in operating and riding comfort. At the same time the operating and maintenance costs for the keeper of the vehicle are reduced. With full utilization of the package features fuel savings of up to 20% can be realized.

In detail the EFFICIENCY PACKAGE offers:

- less fuel consumption
- reduced tire wear
- increased productivity
- reduced oil consumption
- extended oil change intervals
- noise reduction (new EU limit values)
- higher levels of automation
- improved shift quality
- easier operation

ZF Ergopower

The ZF Ergopower has been the subject of on-going development during the last forty years. After more than 200,000 transmissions have been produced, the fully automatic Ergopower transmission can be presented. The transmission fulfils the most varied requirements of the world market. The ZF Ergopower can be installed in graders up to **27 tones**. The drive power lies between **100 kW and 200 kW** depending on the transmission. Furthermore, the shift, manual or automatic as required, has six

standard gears and is characterized by absolutely smooth gear engagement and very low noise in operation. The converter lock-up clutch also provides the direct drive, often regarded as "obligatory" on graders.

MT-G 3000

The ZF MT-G 3000 axle systems are built very robustly and orientated to performance. ZF axle systems cover the top power ratings in the grader world. 125,000 Nm output torque, 27 t vehicle weight and speed ranges up to 50 km/h are no problem for the various drivelines.

The biggest advantage for vehicle manufacturers is however the available kit/delivery system: Depending on the depth of production, ZF alternatively offers the central part of the axle with the differential, with or without planetary drives, additional wheel ends with planetary drives and even a complete system for which the customer only needs to specify the connecting dimensions to the rims.

Best solutions

Continually growing challenges do not allow any compromises. For this reason ZF offers axle and transmission components which in the combination of the axle and transmission achieve the best effects in terms of performance and cost. Not only that – there are increasing advantages for the buyer. The customer receives a thoroughly developed system which has been optimally matched in test runs. In addition, with the shipment of a complete package the transport costs are minimized and also the buyer can depend on a common delivery date. A further advantage is that the buyer only has to deal with one contact person for both units. This improves the mutual flexibility and allows for individual solutions. Consequently, ZF products which are "Made in Germany" offer the best solutions for the best end products.

Fig. 14, 15



Presseinformation
Press Information

Seite 4/4, 25.05.2009

Press Contact:

ZF Passau GmbH
Off-Road Driveline Technology and Axle Systems
Gernot Hein
Head of Marketing & Communications
Tel.: +49 (0) 8 51 4 94-24 80
Fax: +49 (0) 8 51 4 94-90 24 80
Email: gernot.hein@zf.com

ZF Passau GmbH
Off-Road Driveline Technology and Axle Systems
Wolfgang Wohlgemuth
Team Manager Marketcommunications
Tel.: +49 (0) 8 51 4 94-27 03
Fax: +49 (0) 8 51 4 94-90 27 03
Email: wolfgang.wohlgemuth@zf.com

ZF is one of the world's leading automotive industry suppliers specializing in driveline and chassis technologies. With a workforce of 63,000 employees, the company operates 125 plants in 26 countries. To sustain its success with innovative products, ZF invests 5 percent of its annual revenues (over € 625 million from an annual total of € 12.5 billion in 2008) in research and development.

The ZF division Off-Road Driveline Technology and Axle Systems with headquarters in Passau 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 approximately 7,500 employees, the division recorded a turnover of € 1.9 billion in 2008.

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