

Technology that moves. AS Tronic and TC Tronic HD, automated transmission systems for mobile cranes and special vehicles.

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With the AS Tronic automatic transmission family, ZF covers a broad application range for special vehicles. Both AS Tronic for heavy mobile cranes as well as AS Tronic mid for terminal tractors for example are easy to handle, safe, and particularly eco-nomical. The same applies to ZF's TC Tronic, which makes maneuvering with heavy mobile cranes of up to 250 tons significant-ly easier.

The AS Tronic transmission series is the first choice for all internationally leading manufacturers of AT mobile cranes when it comes to automated shifting. Its advantages: easy handling, safety, and fuel savings. While the bigger members of the transmission family, like AS Tronic and TC Tronic, are suited for heavy special vehicles, AS Tronic mid relieves drivers of doing the shifting for medium-weight special vehicles.

AS Tronic

The 12 or 16-speed ZF AS Tronic is available for mobile cranes in direct speed or overdrive transmissions. The main components, including dry clutch, are fully integrated into a light metal alloy housing. There is no need for an additional transmission cooler in the standard vehicle configuration under normal usage when the outside temperature is at max. 40°C. And there is still room for additional safety features. The transmission system is available with the ZF Intarder. Directly connected to the drive wheels, this hydraulic, wear-free high-powered retarder provides consistent braking power during auxiliary braking. The service brakes thus stay cool and provide full power in case of emergency for the protectees.

CAN communication allows for full integration of the Intarder into the vehicle's brake management system. And this kind of safety pays for itself: the service life of the service brakes is increased. Oil changes become less frequent. Both transmission and Intarder share a common oil supply. If the Intarder is deactivated, its heat

exchanger acts as an additional transmission cooler. When the Intarder is switched on, the driver can regulate the braking effect via five steps or, to operate more quickly and economically, can choose among three kinds of automatic operation (Bremsomat; Bremsomatic; Bremsomatic and Tempomat [cruise control]).

But the ZF AS Tronic is able to do more than driving and braking. The transmission can be combined with up to two clutch-dependent or drive-dependent PTOs that can be engaged independently of one another.

AS Tronic mid

The technology of AS Tronic mid is based on the large AS Tronic, the 12 gear steps are shifted pneumatically. In order to cover a wide range of applications, ZF offers AS Tronic mid with low power-to-weight ratio for torque ranges from 800 to 1,600 Nm. In harbors, the medium AS Tronic version is used for example in terminal tractors of well-known manufacturers of these special vehicles.

Even in lightweight classes, it is possible to enjoy the usual comfort of ZF-AS Tronic shifting while achieving high performance in mobile cranes that operate in the middle rpm range on two or three axles.

At 840 or 900 mm in length and 50 or 65 kg in weight, the two ZF-AS Tronic mid variants are both shorter and lighter than the "original" model. The 12-speed transmission works with a direct speed or overdrive ratio. Clutch-dependent or drive-dependent PTOs can be engaged independently of one another via two PTO locations.

TC Tronic HD

The TC Tronic HD (Heavy Duty) was developed by ZF to meet the requirements of engines with continuously increasing horsepower. It also aims at applications in crane trucks and heavy trucks starting from 6 axes (72 tons) and has been designed for torques of up to 3000 newton meters. Like the TC Tronic, also the HD version enables the driver to engage gears in the manual mode, similar to the Tiptronic, or automatically.

For the TC Tronic HD, ZF engineers have combined the AS Tronic with a further developed torque converter clutch: the TC HD (Heavy Duty). Unlike the TC Tronic, this transmission is not equipped with a primary retarder but with a speed-dependent secondary retarder, the ZF-Intarder. The latter is particularly suited for brake operations at speeds higher than 25 km/h. Another distinct feature of the TC Tronic HD is the possibility of maneuvering in open converter operation. A powerful pump for the supply of the hydraulic control unit and the oil circuit as well as a suitably designed cooling unit make sure that the temperature almost never reaches the critical threshold of 130 degrees Celsius. Moreover, the HD variant does not require an additional external oil tank. As the primary retarder has become obsolete, it was possible to integrate the oil supply required for the hydrodynamic torque converter into the housing. Upon request, this tank can be filled with 26.5 liters of the Ecofluid M oil which has also been developed by ZF. On the one hand, this makes the final oil fill easier, and on the other hand, the Ecofluid M features higher mileages and longer oil change intervals which, in turn, leads to improved economy in service.

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