



Versatile and efficient transportation between farm and field with MAN agricultural trucks

Hanover, 10/11/2019

Across the globe, trucks are playing an increasingly important role in agriculture. They are used for transportation between farm, field and warehouse. The MAN agricultural trucks set themselves apart with a high payload, low fuel consumption, excellent driving comfort and the high speed you would expect of a truck. At the AGRITECHNICA 2019 trade fair, MAN will be exhibiting an MAN TGS 18.510 4x4 BLS at its stand D41 in hall 16 as an example of a truck suitably equipped for the needs of the agricultural industry.

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- **MAN agricultural trucks come with range of powerful engines – from 330 hp to 510 hp**
- **MAN trucks are ideal for a range of transport tasks in the agriculture sector**

The agriculture industry is currently trying to overcome a number of significant challenges: climate-induced fluctuating yields, an increase in energy and labour costs, lower prices for agricultural products, and high pressure on productivity. Using trucks helps to make transport tasks more commercially viable. Operators are paying more and more attention to the efficiency and total cost of ownership (TCO) of their fleet, while customers are concerned with the issue of environmental friendliness in the transportation chain. The public and other road users are often more accepting of the common semi-trailer combinations than of tractors with excessively wide and bulky multi-axle trailers.

For economic reasons, areas of cultivated land are increasing in size. More and more goods are being transported across greater distances, and contractors are expanding their operating radius. The increasing number of bio-gas plants is resulting in increased transport volumes for the delivery of corn,

MAN Truck & Bus is one of Europe's leading commercial vehicle manufacturers and transport solution providers, with an annual revenue of some 11 billion euros (2018). The company's product portfolio includes vans, trucks, buses/coaches and diesel and gas engines along with services related to passenger and cargo transport. MAN Truck & Bus is a company of TRATON SE and employs more than 36,000 people worldwide.



grass and grain silage, as well as the movement of fermentation substrate across greater distances. Trucks adapted for the needs of the agriculture industry play out their strengths when it comes to transport tasks. This is something that has come to MAN's attention with the increase in demand for agricultural trucks.

The MAN TGS as an agricultural truck

In most cases, these are semitrailer tractors in the MAN TGS series, pulling trailers specially designed for agricultural use. Depending on the task, switching between push-off trailers, tippers and slurry tanks is light work. Their versatility is wide-ranging; if also equipped with trailer couplings, they can be hitched up with semitrailers or can pull trailers. The all-wheel drive MAN TGS with engageable or permanent front-wheel drive and high design height is a particularly ideal option for combined use on fields, country lanes and roads when travelling between the farm yard, agricultural traders and further-processing locations.

The two-axle MAN TGS 18.510 4x4 BLS semitrailer tractor to be showcased at the exhibition sets itself apart through its configuration specifically designed for the agricultural industry. It comes with wide, ground-conserving agricultural tyres, with the dimensions 445/65 R22.5 at the front and 600/50 R22.5 at the back. This makes it possible to maintain the usual truck width of 2.55 metres. Such wide tyres are able to meet the various requirements placed on them: they protect country lanes and productive land through a low level of pressure being exerted on the ground, whilst maintaining traction on the field with their V-profile, and meet requirements for high transport speeds on the road that are typical of trucks.

Permanent all-wheel drive is the ideal choice for agricultural use. In combination with its wide, ground-conserving agricultural tyres, it shows its strength when crossing over from country lanes to grassy fields and farmland. Transferring loads directly between the machine working on the field and the truck avoids interruptions during harvesting or when working the field, and reduces travel distances. In this way, the combine harvester can empty its grain silo, the slurry spreader can be refilled and the shredder can fill up the semitrailer driving alongside it with grass clippings or corn silage. What's more, not all access routes to silage heaps, slurry tanks or silo storage systems are surfaced. The centre differential in the transfer case with permanent all-wheel drive prevents crop damage, as it creates a balance between front and rear axles when turning corners. For maximum traction, the driver can apply the



differential locks in the longitudinal and then in the transverse direction using just one rotary switch.

With agricultural trucks, you have the option of attaching a trailer support to the end of the frame. This is comprised of a bar coupling with a 38-mm bolt and an 80-mm ball head coupling. It also includes two 50-mm steering balls to pull agricultural trailers with forced steering. Thanks to this configuration, trailers neatly follow the tracks of the tractor vehicle when turning corners. At the rear, there are several connections for the hydraulics and air supply to the trailer brake, and power plugs. There is also a rear-view camera.

The hydraulic system with load-sensing function installed on the MAN TGS controls the supply quantity and pressure of the oil as needed. As a result, full hydraulic power is only available if required. The fact that the hydraulic pump does not have to work continuously with a full load, saves fuel and contributes to the efficiency of the vehicle.

Modifications to MAN semitrailer tractors and chassis for agricultural use are carried out by MAN-certified companies. Depending on the type of task, these include MAN Individual and conversion suppliers qualified by MAN.

In addition to the technical features, there is the option in Germany to approve a vehicle for agricultural or forestry use. The advantages of this include a maximum permissible vehicle width of up to 3.0 metres, exemption from the Sunday driving ban and exemption from having to operate a digital tachograph.

Comfortable workplace for drivers

With just four steps to climb, the cab is easy to access for drivers. There are large windows in the rear wall to allow the driver to see the cargo. Two cameras, including the rear-view camera, transmit images to the large, 7-inch screen of the MAN infotainment system. On the instrument panel, the driver can see all of the important displays and instruments, and the switches are organised into groups based on their function. The rotary switches are designed to be operated in a logical way and prevent the driver from selecting the wrong MAN TipMatic driving programs or activating the locks in the wrong order. The new active, power-assisted steering system MAN ComfortSteering assists the driver. An electric motor boosts the steering torque generated by the driver with a light additional torque depending on the situation at hand, thereby reducing the steering forces and making steering more precise and



comfortable as a whole. Adjusted to the driving speed, the driver will experience smoother steering when manoeuvring, and there is also high tracking stability when driving at higher speeds.

The robust, three-part steel bumper protects the M cab. The step on the left mudguard with a long handrail on the roof makes it easier to see into the tipper or cross over to the semitrailer. The high-mounted winter service lighting and the auxiliary headlights fixed to the bracket on the roof illuminate the area around the vehicle.

A camera monitor system helps the driver to see what is happening alongside the vehicle, supporting the view afforded by the rear-view and kerb mirrors. It is difficult to see what is going on to the right-hand side of a vehicle, so if something critical is about to happen when turning, changing lanes or manoeuvring, the driver needs to be alerted to this as early as possible. There is a monitor enabling the driver to see whether there are any objects, such as cyclists or a smaller vehicle, right next to the cab. Bollards, walls or parked vehicles become more obvious when manoeuvring. On request, MAN Individual can install a camera with a 150° wide-angle lens on the right-hand side of the cab near the edge of the roof. The monitor, which measures 7 inches, is installed inside the cab on the passenger side A-pillar. This means the driver can still see it even when looking into the mirrors on the right. The system is activated automatically whenever the right-hand indicator is switched on. If required, the driver can also activate the system via a switch.

New engines in the MAN TGS

Over the course of 2019, MAN introduced a new range of Euro 6 engines to the market. Furthermore, for non-European markets, MAN has engines in its portfolio that meet the specifications of the emissions standards from Euro 2 through to Euro 5.

MAN has newly designed the 9-litre D15 engine – a 6-cylinder in-line engine with Common Rail injection and a displacement of 9,037 ccm. With the three output levels of 330 hp (243 kW), 360 hp (265 kW) and 400 hp (294 kW), it is installed in the MAN TGS and TGX truck series. Compared with its predecessor, the MAN D20 engine series, it sets itself apart with more power, less weight and better fuel efficiency with a smaller displacement. The engine's light weight is a major advantage. The payload is increased by about 230 kilograms.

The further-developed engines from the D26 engine series now boast 10 hp more power and 100 Nm more torque. As a result, the new output levels in



the Euro 6 emissions standard are 430 hp (316 kW), 470 hp (346 kW) and 510 hp (375 kW). At low and medium speeds in particular – as are common with agricultural trucks – the wear-free MAN PriTarder really demonstrates its brake force. 645 kW is the maximum brake output of the system integrated into the water circuit of the engine.

The TGS 18.510 agricultural truck to be exhibited by MAN has the highest output level, combined with the automated MAN TipMatic 12 gearshift system. The “OFFROAD” gearshift software provided for all-wheel vehicles, and which is activated by turning the gear selector switch to Dx, is specially adapted for driving off-road. It prevents drivers from skipping gears and exhibits shorter shifting times and higher gearshifting speeds, which prevents interruption to traction.

A new feature is the switch position Dp for the “Performance” gearshift program. In situations that require driving agility rather than driving efficiency, its performance-centric gearshift strategy provides quicker gear-changing, faster speed increase and accelerated downshifting in the case of kickdown. Typical situations might include quickly blending into traffic when coming off slip roads or the need for faster transportation speeds between the loading and unloading locations.

Versatile use of MAN TGS agricultural truck all year round

The versatility of the MAN agricultural truck reveals itself in its capacity to be used throughout the year. This provides contractors with a cost-efficient starting point. Once field cultivation and the harvest period in the farming sector have finished, the tyres on the MAN TGS agricultural truck can be changed rapidly. Equipped with tyres that are lower wearing and have greater rolling resistance – and are thus more economical – it performs transport tasks that are primarily carried out on surfaced roads. These might involve pulling a semitrailer for transporting slurry, a tipper trailer for duties commissioned by a building company, or using a snow plough for a municipality in winter service.

Attaching a front mounting plate for the snow plough with the accompanying high-set headlights and turn indicators, as well as the amber revolving beacons on the cab roof, makes it possible for the contractor to use the MAN vehicle economically in the winter, as well.



MAN trucks for the agricultural industry

MAN trucks from any series are suitable for a wide range of transport tasks in the agricultural industry. MAN TGS or TGX semitrailer tractors have tank semitrailer combinations for liquid waste, such as slurry or fermentation substrate, as well as silo vehicle combinations with fertiliser and animal fodder.

Mobile grinding mills and food mixing systems can be seen on MAN TGM and TGS vehicles. The choice of chassis depends on the size of the system and the required PTO output for the grinding plant, the mixing equipment, the screw conveyor and the conveyor belt.

Animals should be transported quickly and in a way that ensures they are protected. The air suspension on the axles of the MAN TGS or TGX protects the delicate cargo. Loading animals over several levels on the body of the truck can lead to a high centre of gravity. To reduce rolling movements, MAN provides a high-load roll stabilisation package. It consists of a stabiliser and X control arm on the rear axle.

Suitable for milk collection transportation are the 3-axle chassis from the TGS series, designed by MAN specifically for the industry. The fittings compartment needs a lot of space on the right-hand side of the frame. That is why MAN has relocated the units fixed there, and the exhaust silencers, battery boxes and fuel tank can now be found on the left-hand side. The steered trailing axle reduces the turning circle. The selection of the high-load roll stabilisation package is also recommended here for improving driving characteristics.

The MAN TGS as a wood chipper truck

Wood chippings are becoming increasingly important. Large, powerful chippers on truck chassis can travel quickly on surfaced roads and forest tracks from one landing site to the next. For the body, the chipper manufacturers use MAN TGS all-wheel vehicles with powerful engines for powering the machine. The new robust D26 engine has 10 hp and 100 Nm more than the predecessor model. Its top power output now reaches 510 hp and 2,600 Nm. Contractors often rely on MAN HydroDrive for transporting the wood chippings. Its engageable, hydraulically powered wheel hub motor is located in the front axle and offers additional traction, as and when required.

The work place for the person operating the crane, chipper and ejection chute is inside the air-conditioned cab, protected from the elements. For this purpose, MAN Individual modifies the cab with large side-wall and rear-wall windows. Inside, the co-driver's seat is placed on a rotating retaining device



on a platform in a way that enables the operator to see their entire working area.

Special model MAN XLION Traction also as MAN agricultural truck

You can tell the special models apart from the XLION logo on the cab doors – available for long-haul transport, and traction and distribution vehicles. The X in the name of this powerful truck stands for “extreme”. On request, you can also have an attractive lion design grace the sides of the cab. The XLION packages combine factory-installed premium, segment-specific equipment with country-specific extras and service packages. They have been put together so that companies benefit from added value and drivers can rest easy in the comfort of their MAN vehicles.

The construction site package is included in addition to the MAN sound system, the LED daytime driving lights and the off-road functionality for the ABS. Among other things, this package contains a more dirt-resistant interior design in the colour Urban Concrete, the air deflector plate under the engine to prevent dust circulation, the driver-side construction step with a long support rail on the roof or the stone guard on the front of the radiator.

MAN offers the XLION special models with special After Sales conditions in the Service Contract Comfort and Comfort Super maintenance contracts. Depending on local requirements, the sales organisations can offer special packages for equipment, financing and maintenance.

All vehicles are equipped with “MAN Essentials” and “MAN ServiceCare” as standard from the MAN Digital Services offering. As well as this, the “MAN Advance” service is added free of charge for the first six months. The service “MAN Compliant” is available for construction vehicles with the same time-limited conditions. “MAN Essentials” forms the basis, transmitting the vehicle position at 15-minute intervals and providing the fleet manager with relevant information for vehicle analysis. With “MAN ServiceCare”, vehicle data for planning maintenance appointments and servicing work is transmitted to the relevant MAN support centre, which helps both parties – the contractor and the workshop – to optimally plan maintenance appointments so as to minimise MAN truck downtimes as far as possible. “MAN Advance” extends the storage period of vehicle data from MAN Essentials from 10 days to 25 months. And finally, “MAN Compliant” helps with the download and archiving of driver card and tachograph data.



Technical data for the MAN agricultural truck exhibited at the MAN stand at the Agritechnica 2019 trade fair

Type	Agricultural semitrailer tractor with permanent all-wheel drive MAN TGS 18.510 4x4 BLS
Wheelbase	3,900 mm
Suspension	Front axle leaf-spring suspension 9.5 t Rear axle air suspension 13.0 t
Design height	High design height
Cab	M with seating for 2 and ladder, three-part steel bumper
Engine	6-cylinder D26 Common Rail in-line engine, emission standard Euro 6 With MAN PriTarder
Displacement	12,419 ccm
Output	510 hp (375 kW) at 1,800 rpm
Torque	2,600 Nm at 930 – 1,350 rpm
Gearbox	MAN TipMatic 2820 OD with Offroad Performance gearshift software
Rear axle	Planetary axle
Axle ratio	i = 4.00
Speed	1.5–89 km/h
Permissible axle loads with agricultural tyres	Front 9,000 kg/rear 10,000 kg
Permissible gross weight	18,000 kg
Permissible gross train weight	40,000 kg (technically 44,000 kg)
Tyres	Front axle 445/65 R 22.5 Rear axle 600/50 R 22.5
Paintwork	Cab Havana metallic brown Rims white aluminium RAL 9006 Frame carmine red RAL 9002



<p>Industry-oriented agricultural equipment</p>	<p>PTO on flywheel side Conversion to agricultural tyres Trailer coupling support on the end of the frame with steering balls Load-sensing hydraulic system Rear-view camera Stainless-steel roof bar with 4 spotlights Winter service lighting</p>
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Captions

	
<p>P_TGS_EOT_Agrartruck-4x4-16.jpg</p> <p>The highest degree of flexibility: with the MAN agricultural truck, it is possible to carry out many tasks throughout the year. Semitrailers can be attached via the fifth-wheel coupling, and agricultural trailers via the trailer and ball coupling on the rear frame.</p>	<p>P_TGS_EOT_Agrartruck-4x4-17.jpg</p> <p>The highest degree of flexibility: with the MAN agricultural truck, it is possible to carry out many tasks throughout the year. Semitrailers can be attached via the fifth-wheel coupling, and agricultural trailers via the trailer and ball coupling on the rear frame.</p>
	<p>P_TGS_EOT_Agrartruck-4x4-18.jpg</p> <p>A typical task for an agricultural truck is the logistics of transporting slurry from the barn to the field or interim warehouse. With its wide, ground-conserving agricultural tyres, the MAN TGS 18.510 can drive across the field right up to the slurry spreader.</p>



P_TGS_EOT_Agrartruck-4x4-19.jpg

A typical task for an agricultural truck is the logistics of transporting slurry from the barn to the field or interim warehouse. With its wide, ground-conserving agricultural tyres, the MAN TGS 18.510 can drive across the field right up to the slurry spreader.



P_TGS_EOD_Agrartruck-4x4-20.jpg

The XLion logo on the cab door clearly shows that it is one of MAN's special models. It is also available in the agricultural truck version.



P_TGS_EOD_Agrartruck-4x4-21.jpg

At the end of the frame of the MAN agricultural truck, a trailer support is also fixed for the fifth-wheel coupling. It consists of a bar coupling, 80-mm ball head coupling and 50-mm steering balls. There are also power and hydraulic connectors, as well as the rear-view camera.



P_TGS_EOT_Agrartruck-4x4-22.jpg

MAN TGS 18.510 4x4 BLS configured for the specific use as an agricultural truck.



<p>P_TGS_EOT_Agrartruck-4x4-27.jpg</p> <p>The industry-specific configuration of the MAN TGS 18.510 agricultural truck includes the wide, ground-conserving agricultural tyres, with the dimensions 445/65 R22.5 at the front and 600/50 R22.5 at the back.</p>	<p>P_TGS_EOT_Agrartruck-4x4-28.jpg</p> <p>The industry-specific configuration of the MAN TGS 18.510 agricultural truck includes the wide, ground-conserving agricultural tyres, with the dimensions 445/65 R22.5 at the front and 600/50 R22.5 at the back.</p>
	<p>P_TGS_EOT_Agrartruck-4x4-29.jpg</p> <p>The industry-specific configuration of the MAN TGS 18.510 agricultural truck includes the wide, ground-conserving agricultural tyres, with the dimensions 445/65 R22.5 at the front and 600/50 R22.5 at the back.</p>
	<p>P_TGS_EOT_Agrartruck-4x4-30.jpg</p> <p>On the road between farm and field: MAN TGS agricultural truck with push-off trailer</p>



<p>P_TGS_EOT_Agrartruck-4x4-31.jpg</p> <p>Harvest time! The MAN TGS agricultural truck with a push-off trailer. The combine harvester transfers the grain from its hopper at the edge of the field.</p>	<p>P_TGS_EOT_Agrartruck-4x4-32.jpg</p> <p>Harvest time! The MAN TGS agricultural truck with a push-off trailer. The combine harvester transfers the grain from its hopper at the edge of the field.</p>
<p>P_TGS_EOT_Agrartruck-4x4-33.jpg</p> <p>With its wide, ground-conserving agricultural tyres, the MAN TGS agricultural truck can drive alongside the shredder on the field. The automated MAN TipMatic gearshift system helps the driver to maintain the same speed and to concentrate on coordinating driving manoeuvres with the shredder.</p>	<p>P_TGS_EOT_Agrartruck-4x4-34.jpg</p> <p>With its wide, ground-conserving agricultural tyres, the MAN TGS agricultural truck can drive alongside the shredder on the field. The automated MAN TipMatic gearshift system helps the driver to maintain the same speed and to concentrate on coordinating driving manoeuvres with the shredder.</p>



	
<p>P_TGS_EOT_Agrartruck-4x4-35.jpg</p> <p>The MAN TGS agricultural truck can be used in a very versatile manner, for example with a push-off trailer for transporting agricultural cargo.</p>	<p>P_TGS_EOT_Agrartruck-4x4-36.jpg</p> <p>The MAN TGS agricultural truck can be used in a very versatile manner, for example with a push-off trailer for transporting agricultural cargo.</p>
	
<p>P_TGS_EOT_Agrartruck-4x4-37.jpg</p> <p>With its wide, ground-conserving agricultural tyres with the dimensions 445/65 R22.5 at the front and 600/50 R22.5 at the back, the MAN TGS agricultural truck can drive the slurry trailer right up to the slurry spreader on the field.</p>	<p>P_TGS_EOT_Agrartruck-4x4-38.jpg</p> <p>With its wide, ground-conserving agricultural tyres with the dimensions 445/65 R22.5 at the front and 600/50 R22.5 at the back, the MAN TGS agricultural truck can drive the slurry trailer right up to the slurry spreader on the field.</p>



	
<p>P_TGS_EOT_Agrartruck-4x4-39.jpg</p> <p>The contracting haulier can use the MAN TGS agricultural truck throughout the whole of the year. For winter service, the truck is fitted with a mounting plate, high-mounted lights and amber revolving beacons.</p>	<p>P_TGS_EOT_skiploder-8x4-01.jpg</p> <p>The MAN TGS roll-off skip loader transports wood chippings. The four-axle vehicle in a three-rear-axle design is very manoeuvrable thanks to the two steered axles.</p>
	
<p>P_TGS_EOT_chipper-6x6-01.jpg</p> <p>The operator of the wood chipper sits in the MAN TGS cab – modified by MAN Individual. There are large windows on the right side and rear wall.</p>	<p>P_TGS_EOT_chipper-6x6-02.jpg</p> <p>Two MAN TGS vehicles work in close collaboration on chipping wood. The shredder blasts the chips into the tipper on the roll-off skip loader.</p>