

profi tractor test

Deutz-Fahr 7250 TIV tractor test:

Too good to be true?

With its 7 Series, Deutz-Fahr has a great model from the get-go in the key power class of 180 to 240 HP. We took a look at what the top model, the 7250 TTV with 174 kW/236 HP rated output (as per ECE-R 120), can do.

Hubert Wilmer

“Really snazzy!” – that was the initial reaction when we first clapped our eyes on the test candidate. Under the hood designed by Giugiaro there’s a Deutz 6-cylinder TCD 6.1 L06 4V with 6.1 l capacity. Fitted with a turbo charger, regulated waste-gate and SCR catalytic converter, it complies with exhaust emissions grade IIIB (Tier 4 i). And according to the brochure, there’s more boost for PTO shaft and transport work (above 20 km/h).

Of course we wanted more details, so we took it to the DLG test centre. And actually... at rated speed without boost, the PTO stub gave us 171 kW/233 HP and a maximum of 181 kW/246 HP! According to Deutz-Fahr, the excellent figures are down to new engine software which has now been introduced to the series and was installed on this test candidate. So there’s much more power available even without boost – great!

So when the boost was released, we got another 8 HP at rated speed and just 5 HP at maximum power. The torque increase of less than 25% (with boost) and the constant power range of less than 20% were noticeable. However, the continuously variable transmission more or less made up for this weakness.

A more important criterion is the diesel consumption. With 243 g/kWh at rated speed and only 229 g/kWh at maximum power, the 7250 TTV is the leader in its league. Even if some of it is 20 g/kWh AdBlue.

The test candidate fared better when running on Powermix: 264 g/kWh (plus 24.2 g/ kWh AdBlue) is a very good figure – and more than 10% less than the average for all tractors tested to date. How about on the road? Here too, the 7250 TTV brought home the bacon. At 40 km/h, its consumption of 514 g/kWh was more than 12% under the average for all candidates. And at 50km/h the figure was 3% under than the average – very good!

We then turned to the continuously variable transmission: We knew the “Smatic” in its original incarnation in the Case IH CVX. It comes with a rear axle from ZF and has four speed ranges which are changed automatically by dog clutches. You scarcely notice this is normal operation. It was only under the heaviest load that the transmission reached its limits and the tractor didn’t move. It was different in front of the DLG brake van: at around 10 km/h, the 7250 TTV reached its maximum tractive power of almost 151 kW – outstanding! Here too, the consumption of 270 g/kWh was OK.

To transfer this power to the ground out in the field, you can fit the 7250 TTV with maximum 1.95 m height rear wheels (e.g. 710/70 R 38). The factory has since come out with an optional wheel weight of 1800 kg.

The transmission is supplied with different final drives and maximum speeds of 40, 50 or 60 km/h. Our HD version achieved 50 km/h at 1,950 rpm (alternative 1,650 rpm). As for operation, we learned

a lot from the 6160.4 TTV (profi 6/2014). So, we can repeat the praise and blame from that issue here.

It starts with the reversing switch (5-stage adjustable) and the speed control. Operating the change of direction from the left below the steering wheel and right from the joystick is great – but unfortunately the stick on the left must be in Neutral if you want to change direction using the button on the right.

But we were more concerned about the engine-transmission controls. When you change direction, the tractor stays still for two seconds before going in the other direction. Or if you've programmed the speed control for, say, 5 km/h, the tractor drives at somewhere between 4.5 and 6.5 km/h under the changing load. The key phrase here is "speed control": As before, you can't oversteer with the stick without changing the stored value. On the other hand, one real highlight is the handbrake with a button in the elbow rest and an electric servomotor. It engages automatically if the tractor stands still for a long period or you turn off the engine (and it engages the trailer brake!). And – even better – it releases automatically when you select a driving direction. The tractor is then raring to go!

The operation of the transmission, however, is more of a pain. It doesn't matter what the different driving modes (manual, automatic, PTO shaft), "Eco" or "Power", or the acceleration setting are – there are a whole lot of interrelationships you have to know about.

For example, in PTO mode you set the engine speed on the terminal and the throttle loses its function. In "Auto" mode, you can't use the engine speed memory function, and in manual mode you can't activate the speed control.

Whilst the 7210 TTV provided four PTO shaft speeds, the two bigger 7230 TTV and 7250 TTV models "only" have three (540E/1,000/1,000E). However, they're easy to change with the button and there's a dry change stub.

The hydraulics have a separate oil circuit with 50 l usable oil and a series axial piston pump with 120 l/min. Our test candidate had the optional 160 l/min pump. The DLG has (via three valves) 152 l/min and usable output of 47.3 kW measured at the connections – excellent!

The valve equipment is also excellent. Four come as standard but you can have up to 7 controllers (5 behind) with time and quantity adjustment, ease of operation and even a lockable float position. According to Deutz-Fahr, the symbols have since been improved and the assignment of valves and levers is clear.

Deutz-Fahr specify a maximum 10 t for the lifting gear. DLG measured a continuous lifting force of 6,800 daN – things can get a bit tight with a very heavy tilling combo, especially in the higher travel range (see graph: “Lifting force and lifting force requirement”).

We liked how easy it was to switch the lower links from a Cat. II to Cat. III spread and the Walterscheid hitch front and rear. We also liked the handy lifting height indicator. And the depth regulator switches intuitively to “wrong”.

Which takes us to the new “MaxiVision” cab. As in the previous series, it has six pillars but inside – like the 6 Series TTV – it’s been completely redesigned. The noise level under load in our test tractor was 76.6 dB(A) – so above average for this class. Deutz-Fahr say the auxiliary drives and the ventilation have since become quieter, there’s an improved insulation package and the lower cab window at the back has double-glazing. And so the operator armrest on the (no longer swivelling!) driver’s seat can no longer damage the delicate side upholstery, the mount has been improved. There’s a lot of praise for the new “MaxCom” joystick. Among other things, it operates the lifting gear, reversing switch, two proportional(!) valves and the speed control. Like the armrest, the stick also has good backlighting. Wish list equipment includes the new “iMonitor2” with 30 cm diagonal touchscreen, and ISOBus capability. Instead of a fairly prominent display of unimportant things such as turbocharge pressure or computer memory capacity, we would have preferred a basic display with info on the engine, transmission, lifting gear and hydraulics. We also think the extra button controls should be on the armrest and not on the console.

And there are other details that Deutz-Fahr can still improve. Let’s start with the nifty but not tight-closing air nozzles above the tiny sweep area of the windscreen wipers and the overly protruding radio installed in the roof. On the other hand, some details are fine, including the small spotlight for the rear hitching area, the ladder lighting and – even more importantly – the new headland management system.

The TTV7250 with its test equipment weighed in at 9,535 kg. A 13.5 t permitted total weight (14.5 t at 40 km/h) leave just 4 t working load. That’s on average. Unfortunately the turning circle is way over average: 14.20 m with 600/70 R 30 tyres. The maximum 2 m track will, however, increase in future. Plus points go to the springing of the Carraro front axle and the brakes. Thanks not least of all to the front disc brakes, the DLG clocked a deceleration of 5.1 m/s². The so-called “fast steering” can only be had with the Agrosky GPS steering system (starting at €13,700). Nevertheless, the ASM powertrain management system with steering angle-dependent switching for all-wheel and locking is standard.

That just leaves maintenance and the prices: 435 l Diesel and 50 l AdBlue are enough for a normal working day. Maintenance intervals of 500 hours for the 15.5 l of engine oil and 1,000 hours for the 67 l transmission and 60 l hydraulic oil are also OK. The 7250 TTV, with its 50 km/h, sprung front axle, compressed air system and front lifting gear costs exactly €158,250 (all prices excl. VAT). Add to this the “iMonitor2” (€3,600) together with ISOBus wiring (€1,600), automatic climate control (€600), the big oil pump (€700) and the front axle brake (€3,000).

Conclusion: The new Deutz-Fahr 7250 TTV is not only good to look at but wins you over with its excellent performance figures and especially its low diesel consumption. Deutz-Fahr can still improve the menu navigation in the large terminal and especially the engine-transmission controls. We liked the operator armrest and enthused about the joystick and comprehensive hydraulic equipment. We’d like more lifting power and a swivelling seat.

Empty 10%		
Idling		
Transport mix overall consumption		
At 40 km/h	514 g/kWh	47 g/kWh
At 50 km/h	525 g/kWh	49 g/kWh
At 60 km/h		

The transport test for the DLG takes place on the public roads. The test candidate completes a circular course (with ballast to measure the PTO output) with a trailer; the measurements are taken three times. The overall result is calculated from the weighted individual results from 50% hill, 40% flat and 10% empty. The yellow base line in the graph represents the individual average value of all tractors previously tested on the road. The length of the bars indicates the extent to which the test candidate was better in percent (green) or worse (red) than the average. The average value for the transport test on the road is currently 613 g/kWh at 40 km/h. The Deutz-Fahr Agrotion 7250 TTV was significantly under the average consumption figure on the flat and on hills; the consumption when empty was a little over the average. At 514 g/kWh at 40 km/h, the overall consumption was 12.3% over the average and at 50 km/h 30% under the average from the previous measurement results.



The engine puts out good performance and is very economical.



The diesel tank holds 435 l, the AdBlue tank 50 l. It can only be filled from the right.

Graphics/photos on magazine page 17:



The new cab makes a good impression on first viewing. At 76.6 dB(A), the noise level is average.



The instrument panel is clear and informative. It swings back with the steering wheel.



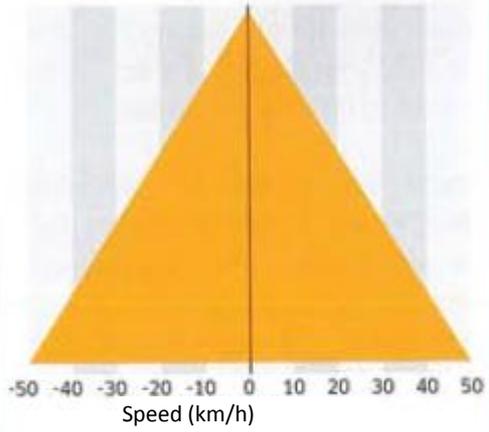
The armrest with the "MaxCom" lever is super. We think the menu structure on the large terminal could be improved.

Gear speeds

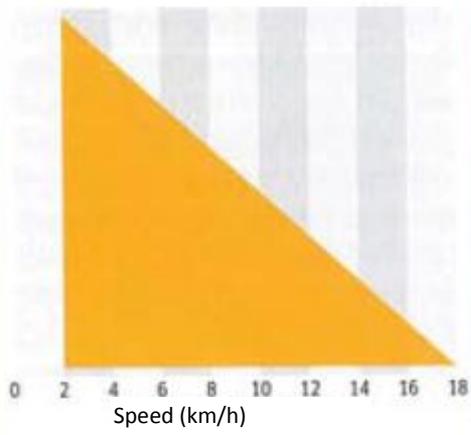
The Smatic transmission is continuously variable travelling forwards and can be ordered with 40, 50 or 60 km/h capability. 50 km/h is reached at 1,750 rpm.



Continuously variable



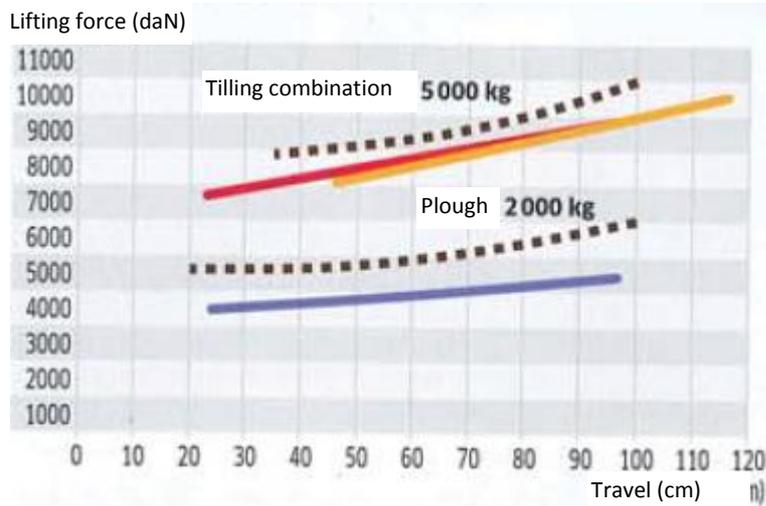
Continuously variable from 4



Graphics/photos on magazine page 18:

Lifting force and lifting force requirement

Deutz-Fahr 7250 TTV: The red curve shows the lifting force (90% of the maximum value) as a continuous force at the coupling points of the lower link. The yellow curve shows the lifting force for short lifting – about 400 daN more with 4.5 cm less travel. However, things can get a bit tight with a very heavy tilling combo, especially in the upper travel range.



-  Front lifting gear: continuous 3,537 daN, travel 72.6 cm
-  Lifting, long: continuous 6,795 daN, travel 74.6 cm
-  Lifting, short: continuous 7,182 daN, travel 70.1 cm



The rear is very clean and has a complete external operating panel. The hydraulic power is very good but the lifting force could be higher.

Photos: Tovornik, Wilmer

Table on magazine page 19:

Technical specifications, measured values, test results Width: 272 cm; Length 559 cm (with front linkage); Height: 317 cm

Deutz-Fahr 7250 TTV

Technical specifications

Engine: 174 kW/236 HP (as per ECE-R 120) at 2,100 rpm; water-cooled, six-cylinder Deutz TCD 6.1 L06, emissions level IIIB (tier 4 i) with SCR Cat and AdBlue, turbocharger and charge-air cooling; 6,057 cm³; 435 l fuel and 50 l AdBlue tank

Transmission: Continuously variable Smatic transmission from ZF with four automatically changing drive ranges, power reversing switch, speed control, 50 km/h (at 1,750 rpm)

Brakes: Rear wet disc brakes, front dry disc brakes; automatic parking brake with spindle motor; compressed air system as standard

Electronics: 12 V, 180 Ah battery, 200 A generator; 3.1 kW/4.2 HP starter

Lifting gear: Cat. III; EHR with lower link adjustment and vibration damping, front power lift and front PTO optional

Hydraulics: Axial piston pump with 160 l/min (120 l/min standard), 200 bar, up to 7 controllers (5 rear/2 front) with time and quantity control; 50 l oil available

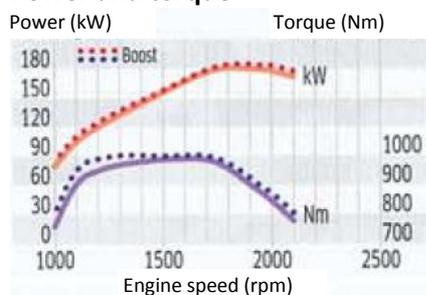
PTO shaft: 540E/1,000/1,000E with change stub, 1 3/8 inch, 6 or 21 chocks, electro-hydraulically switched

Axles and chassis: Flange axle with multi-disc differential lock, like front drive electro-hydraulically switched; Test tyres 600/70 R 30 front, 710/70 R 38 rear

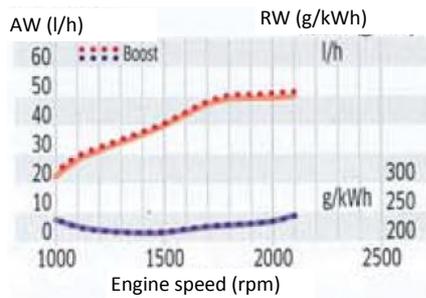
Care and maintenance: Engine oil 15.5 l (change every 500 h); Transmission oil 67 l (every 1,000 h), hydraulic oil 60 l (every 1,000 h)

Price: 50 km/h version with sprung axle, pneumatic cab suspension and front lifting gear €158,250 (excl. VAT); Front PTO shaft €3,000; iMonitor2 €3,600; ISObus wiring €1,600; Agrosky GPS steering from €13,700

Power and torque



Fuel consumption



DLG test centre measured values

PTO power (without/with boost)

Maximum (1,800 rpm)	181.0/184.5 kW
At rated speed	171.1/177.2 kW

Diesel/AdBlue consumption (without/with boost)

At max. power	227+21/229+20 g/kWh
At rated speed	244+18/243+19 g/kWh
Absolute max./nom. (boost)	50.4/51.3 l/h

Torque (without/with boost)

Maximum	991/1,004 (1,700 rpm)
Torque increase	27/25%
Drop in speed	19%
Starting torque	97/100%

Transmission

No. of gears from 4 to 12 km/h	continuous
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Rear lifting force (90% max. oil pressure, corr.)

Bottom/middle/top	6,795/7,897/8,991 daN
Travel under load	74.6 cm (23 to 97.6 cm)

Front lifting force (90% max. oil pressure)

Bottom/middle/top	3,537/2,942/4,509 daN
Travel under load	72.6 cm (24 to 96.6 cm)

Hydraulic power

Operating pressure	203 bar
Max. quantity	152.3 l/min
Max. power	47.3 kW (147 l/min, 192 bar)

Tractive power

Maximum 150.9 kW at 1800 rpm	270 g/kWh
At rated speed 144.8 kW	284 g/kWh

Noise level (under load at driver's ear)

Cab closed/open	76.6/82.9 dB(A)
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Braking rate

Maximum average deceleration 5.1 m/s²
 Pedal pressure 35.3 daN

Turning circle

Without front drive 14.20 m

Test weight

Front axle 3,965 kg
 Rear axle 5,570 kg
 Empty weight 9,535 kg
 Permitted total weight 13,500 kg
 Load capacity 3,965 kg
 Power/weight 50 kg/kW
 Wheelbase 282 cm
 Track width front/rear 200/200 cm
 Ground clearance 48.5 cm

Fuel consumption in diagram

Work range	Power	Speed	g/kWh	l/h
Standard 540 PTO shaft	100%	1,850	229	50.4
Economy 540E PTO shaft	100%	1,580	220	43.8
Standard 1,000 PTO shaft	100%	1,943	232	50.5
Economy 1,000E PTO shaft	100%	1,600	221	44.3
Engine in unregulated range	80%	max.	254	42.8
High power	80%	90%	231	38.9
Transport work	40%	90%	265	22.4
Less power, ½ speed	40%	60%	265	22.5
High power, ½ speed	60%	60%	227	28.8

Test results

Engine +/-

Performance rating 2.9
 Fuel consumption 1.2
 Tractive power/PTO shaft power 1.2

Very good performance figures, average characteristic curve, very economical although extra AdBlue needed; Tractive and PTO power very good

Transmission +/-

Gear spacings/functions 1.7
 Switching capacity 1.2
 Coupling, gas 1.6
 PTO shaft 2.3

Continuous, 60 km/h possible but coordination of speed control and reversing switch need improvement, three PTO shaft speeds

Chassis +/-

Steering	2.3
All wheel and differential lock	1.1
Hand and foot brake	1.3
Front axle/cab suspension	1.3
Weight and load capacity	3.0

Good steering but above-average turning circle, high driver comfort, powerful brakes, average empty weight and load capacity (1 t more at 40 km/h)

Lifting gear/hydraulics ++

Lifting force and travel	2.8
Operation	2.0
Hydraulic power	1.2
Controls	1.7
Connections	1.5

Lifting force average, hydraulic power with large pump very good, very good controls and rear connections

Cab +

Space and comfort	1.3
View	1.4
Heating and ventilation	2.0
Noise level	3.1 ¹⁾
Electrics	2.0
Workmanship	3.0 ¹⁾
Maintenance	2.0

Good space, comfort and view; ¹⁾ Noise level and workmanship of test machine average, both already improved according to manufacturer

Suitability profile	--	-	o	+	++
Basic demands					●
Average demands					●
High demands				●	
Field work				●	
Grassland work				●	
Transport work					●
Front loader work					●
Price	Low		High		
€146,000 to €152,000				●	

Excl. VAT in basic version; Data from profi tractor catalogue 2014

Evaluation:

++ very good, + good, o average, - below average, -- poor

The individual scores by themselves do not necessarily provide an overall mathematical score.

Graphics on magazine page 20:

Further details from our practical test

Not a summary of the overall evaluation but a bulleted list of positive and negative practical details.

Positive

- Battery separation standard
- Two tool boxes (optional), one easily accessible
- Comfort: The passenger seat is comfortable, with cooling compartment underneath for one vertical bottle.*
- Automatic climate control (optional)
- Walterscheid arrester hooks front and rear
- Width: Three mirrors provide excellent view.*
- Lighting on ladder and rear cultivator
- Many storage pockets, some closed
- Lighting: LED day driving lights are stylish – and offer more safety.*

Negative

- You have to get used to the self-cancelling indicators
- Working lights shine into roof
- Inaccessibility: The radio mounted up front in the roof is hard to reach.*
- No simple fuel gauge (since changed)
- Operator armrest wobbly (changed)
- Leaks: The air nozzles are smart but don't seal.*
- Disturbance: The sun roof seals but flaps.*

Practical results: Deutz-Fahr 7250 TTV

Major advance compared to Agrottron 630 TTV

Michael Hofer from 86681 Fünfstetten has 230 hectares of arable land and 800 kW biogas with district heating for some 150 households.

In summer last year we replaced our 2-year-old Agrottron 630 TTV with a 7250 TTV. The tractor has run for around 750 hours since then; about 70% of the time involves transport with a Joskin harvest transport wagon and an 18 m³ tank from Fuchs. The rest of the time, the tractor is out in the field, e.g. in front of a 4-m Horsch cultivator. Compared with its predecessor, the 7250 TTV is a real step forward in terms of quality and operation. Even if the transmission controls are not perfect and you can see where the group has changed, we've had no problems so far and are very satisfied. The tractive power is good and the tractor is very economical: When transporting, it only uses 12-15 litres an hour!

The wheels could be larger

Tim Blohm from 25767 Offenbüttel has a contracting business for agriculture and construction.

We got our 7250 TTV in September last year to replace an Agrottron 630 TTV and have operated it for around 1150 hours since then. The tractor mostly operates in front of a 25 m³ Tridem tank from Peecon, a Strautmann Giga-Vitesse 4001 and a 12-row corn planter. We've also used it to make a gap in the earthworks. It's got an RTK steering system from AgLeader. We're very pleased with the fuel consumption. The new cab is very good, with the new joystick and

the easily programmed headland management system. Unfortunately, the armrest's wobbly and can't be adjusted high enough. We've had a fan motor in the climate control system fail, and after 500 hours of operation, there was a recall because of a sensor in the transmission oil filter. Otherwise it's been running very well so far, with a lot of things better than with its predecessor. Only the wheels could be bigger ex-works. During heavy tractive work, the transmission changes speed really loudly if the driver hasn't changed the speed manually.

Table on magazine page 21:

Three tractors go head-to-head

We compared three tractors that had been tested by profi in the past.

Tractor model Detailed test in	Deutz-Fahr 7250 TTV profi 9/2014	Fendt 828 Vario profi 4/2011	New Holland T7.270AC profi 2/2013
Engine Rated output	174 kW/236 HP (ECE-R 120)	191 kW/260 HP (ECE-R 24)	168 kW/228 HP (ECE-R 120)
Cylinders/Capacity/Emissions level	6/6.1 l/IIIB (Tier 4 i)	6/6.1 l/IIIB (Tier 4 i)	6/6.7 l/IIIB (Tier 4 i)
PTO shaft power max./with boost	181.0/184.5 kW (1,800 rpm)	194.2 kW (1,700 rpm)	167/179.8 kW (1,800 rpm)
...at rated engine speed	171.1/177.2 kW (2,100 rpm)	178.8 kW (2,100 rpm)	146.1/166.4 kW (2,200 rpm)
Manufacturer/Model	Deutz/TCD 6.1 L06	Deutz/TCD 2012 L06	FPT/NEF 6.7 L
Fuel and AdBlue consumption			
Specifically at max. power	227 + 21/229 + 20 g/kWh	219 + 18.8 g/kWh	225 + 21/219 + 18.6 g/kWh
Specifically at rated speed	244 + 18/243 + 19 g/kWh	229 + 20.9 g/kWh	242 + 21.9/240 + 21.1 g/kWh
Absolute at max. power	50.4/51.3 l/h	50.6 l/h	47.0 l/h
Powermix average	264 + 24.2 g/kWh	246 + 22.5 g/kWh	261 + 21.5 g/kWh
Maximum torque	991/1004 Nm (1,400 rpm)	1174 Nm (1400 rpm)	997/1053 Nm (1,500 rpm)
Torque increase	27/25%	44%	57/46%
...with drop in speed	19%	33%	32%
Diesel/AdBlue tank	435/50 l	505/42 l	395/48 l
Transmission Total no. of gears	continuous	continuous	continuous
Load shifting	continuous	continuous	continuous
Gear shifting	continuous	continuous	continuous
Group shifting	continuous	2 groups	continuous
Reversing switch	shiftable under load	shiftable under load	shiftable under load
No. of gears from 4 to 12 km/h	continuous	continuous	continuous
Lifting gear Adjustment type	EHR lower link	EHR lower link	EHR lower link
Bottom/middle/top lifting force	6,795/7,897/8,991 daN	8,343/9,783/9,801 daN	8,121/8,993/9,515 daN
Travel	72.6 cm	82.9 cm	79.8 cm
Hydraulics Operating pressure	203 bar	203 bar	193 bar
Maximum output	152.3 l/min	134.4 l/min	149.4 l/min
Maximum hydraulic power	47.3 kW	40.2 kW	39.2 kW
Usable oil quantity	50 l	80 l	50 l
Tractive power Maximum	150.9 kW	164.7 kW	143.9 kW
...with fuel consumption	270 g/kWh	255 g/kWh	253 g/kWh
Noise level Cab closed	76.6 dB(A)	78.4 dB(A)	75.1 dB(A)
Brakes Average deceleration	5.1 m/s ²	5.3 m/s ²	4.8 m/s ²
...with pedal pressure	35.3 daN	29 daN	36 daN
Turning circle Without 4WD	14.20 m	11.95 m	12.10 m
Test weight	9,535 kg	9,230 kg	8858 kg
...of which on front axle	3,965 kg (42%)	3,620 kg (39%)	3,509 kg (40%)
...on rear axle	5,570 kg (58%)	5,610 kg (61%)	5,349 kg (60%)
Permitted total weight	13,500 kg	14,000 kg	13,000 kg
Load capacity	3,965 kg	4,770 kg	4,142 kg
Power/weight	50 kg/kW	48 kg/kW	53 kg/kW
Basic version excl. VAT Manufacturer's list price	€158,250 (as at September 2014)	€216,500 (as at April 2011)	€160,630 (as at February 2013)