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profi INTERNATIONAL DRIVEN-TESTED-RATED
Fendt 728 Vario

Fendt 728 Vario:

Climb up and be happy?

There's no question that the 728 Gen 7 is a premium tractor – both in terms of its technology and price. Any boxes left to tick? Or is it all just peachy?

The flagship of the Gen 7 range, the 728 Vario has an output of 208kW/283hp, which can be boosted by a further 15kW/20hp. Photos Stefan Tovornik, Hubert Wilmer.

KEEPING IT BRIEF

With a PowerMix result of 242g/kWh, the 728 makes it into the top five, while in the transport test it emerges as the most economical unit tested to date.

You no longer have to change ranges manually. There are four pto speeds and automatic four-wheel drive.

The test machine has a list price of £338,260!

With the Vario 700 Gen 7 range, Fendt has once again appeared to take an engineering lead over its competitors, who had not only caught up on the CVT front, but in some cases surpassed what the German tractor maker had to offer with its smaller six-cylinder tractors. Does the five-model Gen 7 tractor range deserve the hype it has generated? Read on to find out.

AgcoPower with Dynamic Performance

Unlike the familiar Gen 6 700 series, the new line-up is powered by an AgcoPower Core 75 motor, a 7.5-litre Finnish-built unit instead of a Deutz engine. The powerhouse under the 728's hood delivers a rated output of 208kW/283hp at 1,700rpm.

The top model also has what Fendt likes to call Dynamic Performance (DP); think of it as power boost 2.0, which releases its power the moment any of the auxiliaries (radiator fan, air con compressor, etc.) kicks in, even on a stationary machine and regardless of the current pto or ground speed. This adds an extra 15kW/20hp boost on the 728.

Great to know what is potentially on the table, although we were keen to see some cold hard facts for power outputs and fuel consumption from the DLG test bench. The 728 uses the same low-speed concept that we've seen on the higher-powered 900 and 1000 series tractors. The new 700 also has the complex 'Concentric Air System', which relies on a hydraulically powered fan to force air through the radiator package – a system jointly developed with Voith.

Top outputs and consumption rates

On the dyno, the test pointer stopped at 203kW/272hp at rated speed, with a max of 206kW/276hp at 1,500rpm.

With the boost kicking in, the maximum output reached 223kW/299hp – a very good value. This also applies to the maximum torque, which is an impressive 1,364Nm (at 1,300rpm). Logically, however, the increase in torque is very modest, less than 20% (as speed drops by 24%), because there's nearly no extra power. The same goes for a start-off torque of just 101%.

However, courtesy of the tractor's stepless Vario transmission, neither of these factors affects the 728's performance in the field or on the road. The engine is always running in the optimum speed range, and, if the load increases, the gearbox reduces the travel speed – that's it.

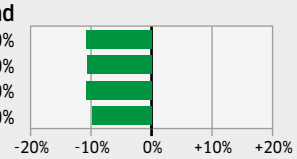
As far as diesel consumption is concerned, a look at the 220g/kWh rate (+ 21.8g/kWh AdBlue) at rated speed and 217g/kWh (+ 21.1g/kWh) at maximum power on the dyno gives us an idea of how frugal the 728 Vario really is. But this characteristic only becomes truly apparent in our practical Powermix measurements: in heavy draft work, pto or mixed work, the test 728 proved to be more economical than our test average. And not just a little bit ... we're talking double digits better.

FENDT 728 VARIO

FUEL CONSUMPTION IN FIELD WORK

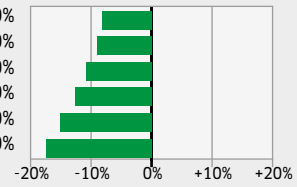
Draft work: On average 251g/kWh

Machine:	Load
Plough	100%
Cultivator	100%
Plough	60%
Cultivator	60%



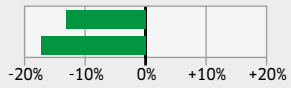
Pto work: On average 237g/kWh

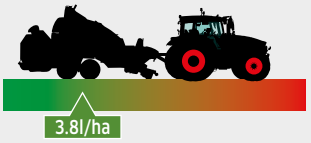
Machine:	Load
Power harrow	100%
Mower	100%
Power harrow	70%
Mower	70%
Power harrow	40%
Mower	40%



Mixed work: On average 242g/kWh

Machine:
Muck spreader
Baler

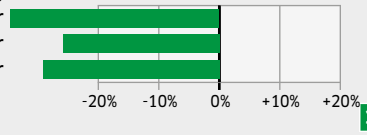




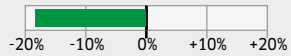
Powermix:
AdBlue: 7.7%

FUEL CONSUMPTION IN TRANSPORT WORK

In flat land:
At 40km/hr
At 50km/hr
At 60km/hr



Uphill:
Maximum incline



Transportmix: AdBlue: 9.9%

In the practical Powermix consumption tests, the Fendt 728 proved to be frugal and very frugal in all cycles and more economical than the average of all tractors tested to date. In the transport tests it emerged as the most economical tractor we have ever tested. Even when doing 60km/hr, consumption is below the current record at 40km/hr.

The air is forced through the cooling pack, and the 7.5-litre AgcoPower motor revs at a frugal 1,700rpm for an eyebrow raisingly low fuel consumption.

The Fendt's overall Powermix rate is a low 242g/kWh (+ 24.2g/kWh AdBlue), a result that places the 728 in the top five of the most frugal tractors we've ever tested.

Fuel economy in road work is even better: 332g/kWh at 40km/hr is 20% less than the average rate, and even 338g/kWh at 60km/hr is still less than the next most economical tractors tested at 40km/hr – awesome.

So, fuel consumption is impressively low. But what about the 728's drawbar power? It will come as no surprise to learn that with a max of 172.5kW/231.3hp and a specific consumption of just 248g/kWh, the 728 Vario also does very well here.

Maximum of 484 litres of diesel on board

Despite all the fuel economy, the operator's happiness is spoilt in one aspect – diesel tank capacity is just 450 litres (+48 l AdBlue). Buyers can opt for a 484-litre version but only if you forgo ever fitting 800/900 tyres. That's not much tank capacity for a tractor in this power bracket – despite all its fuel sipping economy. In addition, AdBlue has to be topped up at every refuelling stop, so that super-compact design has its price.

But back to the drawbar power. The new 700 sports the TA190 VarioDrive transmission, which, just like the TA400 in the 900 and 1000 Vario tractors, no longer has a manual range – about time! We liked the tension-free, auto-controlled all-wheel drive even better; it always worked perfectly in our test conditions.

Other highlights include the optional 60km/hr top speed at 1,450rpm and the automatic parking brake that engages as the operator leaves the seat and disengages when pulling off. Once you've invested the extra £1,056 cost, you'll never have to worry about the handbrake lever again. Also, the lever sits a bit too far forward on the dashboard, so we would definitely recommend ticking the box for this option.

Four pto speeds

As standard, the rear pto offers four speeds (540/540E/1,000/1,000E), something which not all of the 728's competitors can do in this power class. Ideally we would like to see an eco speed for the front pto, too, so that we can fully exploit the fuel saving potential when mowing, for example.

On our test tractor, the swash plate pump delivered a measured 173.3l/min at the rear couplers. A 220l/min version (£963) is listed for those who need more flow. Also, up to 10 optional spools are available (five at the

The cab is nice and quiet at just 69.5dB(A). Visibility is also good, albeit the sunblind and wiper motor do blot the view. And more space would be nice, too.

rear, three mid-mounts and a couple at the front). All (including the rear connectors which have relief levers) share an identical construction to the higher powered tractors. The standard flow rate is 120l/min for each spool; yet up to 170l/min is possible through ¾ inch couplers.

Electronic LS available

The whole thing is rounded off by a separate oil reservoir and up to 80 litres of available oil. Now, the mid-mount spools can be time controlled and operated from the 'Teach In' when the front loader is removed.

Load-sensing has even more unique selling points: not only can the control pressure of the Power Beyond be altered from 20 to 45 bar on the terminal, but implements can be operated with electronically controlled load-sensing.

On the other hand, it is still not possible, for example, to program the timing for spool on/off separately nor to deactivate the float position of the implement control unit on the cross lever during front loader work. And newcomers to the Fendt controls won't immediately fathom the key symbol lighting up red or white (locked/unlocked).

Linkages with suspension

Speaking of unique selling points, it is now also possible on the 600 and 700 Fendt to set the hydraulic suspension on the rear linkage up to 50 bar, just as we've seen on the front linkage. In this way, it's simple to transfer weight from implement to tractor. The hydraulic stabilisers also received top marks from the profi test team – although it's worth noting the mechanical stabilisers work really well, too. We don't like Fendt's decision to only supply the standard front linkage with single-acting rams. If you opt for the more costly double-acting version with suspension (£935), you can safely jack up the tractor using the linkages thanks to an electronic tap.

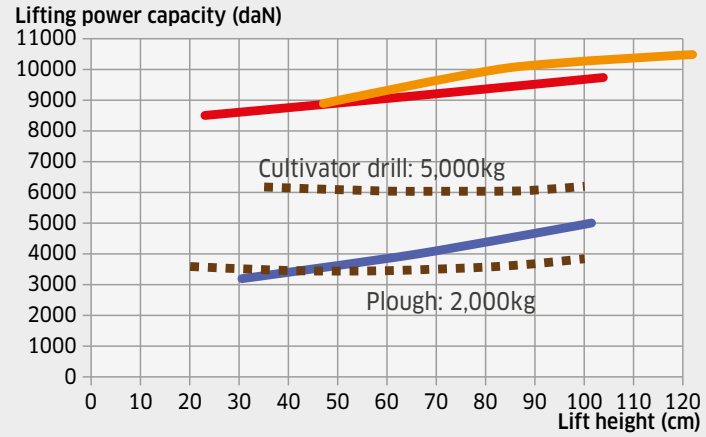
The spokes of the steering wheel interfere less with the display than we thought would be the case, although we still reckon the A-post mounted display used by competitors is a better solution.

The DLG test centre measured a continuous lift force of 8,500daN. This, and a lift range of more than 80cm, means the 728 can cope with all sorts of mounted kit. The lifting aid for the hydraulic top link also deserves a mention because the gas strut assisted rope works well – a genuine back saver.

Cab

The cab is familiar from the 'small' Gen 6 700, but it should be a little more spacious on a tractor of this horsepower to score a

LIFT POWER AND LIFT REQUIREMENT



With a continuous lifting force of more than 8,500daN, the 728 Vario easily lifts any implement it can pull. And a more than 80cm lift height is also very much in tune with its needs.

- Long lift arms: continuous 8,505daN, 80.8cm lift height
- Short lift arms: continuous 8,892daN, 74.9cm lift height
- Front linkage: continuous 3,195daN, 70.9cm lift height

The rear end of the 728 is clutter-free and has plenty of lifting power and hydraulic flow.

'double plus' (like the steps). New details include the tablet holder on the A-post and the wiper on the right-hand window. The only thing missing is a sun blind. Sadly, we were not able to test the new Isringhausen seat with massage function, as it is only available now.

As for the noise level, the DLG measured only 69.5dB(A) at the operator's ear under load. This is so quiet that the drivers noticed the annoying chirping and whistling noise coming from the ventilation system. And outside the cab, the noise from the reversible cooling fan was a problem, as it really 'roars' when it reverses. Luckily, it doesn't reverse automatically on the stationary machine, for example when waiting at traffic lights, so as not to frighten cyclists...

Fendt One

There is not that much to discuss on the Fendt One controls, as we've covered them before. The off-board side of things is still a work in progress. If you do need a software update then this can't be done remotely; the tractor either needs to go to the dealership or at the very least have a site visit from a technician.

More than that, the access to the settings and machine menus etc. is not password-protected. Yet this is important when it will (hopefully) be possible to program in and execute ISObus functions into and from the Teach In system (perhaps even during auto headland at some time in the future). The headland turn itself works well (thanks to new setting parameters), which can't be said of corners etc.!

12.25m turning circle

Moving on to the chassis, the new 700 has active roll stabilisation (FSC) at 60km/hr as standard spec, and the steering cylinders measure a beefy 100mm in diameter instead of 90mm to maintain control when booted with dual wheels. Speaking of duals, a 2.55m stub axle with duo wheel hub is available as an option for the rear wheels.

Another option is the integrated VarioGrip tyre pressure control system with flange-mounted and water-cooled double plunger compressor that supplies 800l/min.

At the same time, Fendt has increased the shutdown pressure to 12.5 bar, which is the typical pressure for lorries. This is to save more space for additional storage tanks. Yet we were even more impressed by the 728's manoeuvrability. Thanks also to the 'pull-in-turn' effect of the automatic all-wheel drive, we measured a turning circle of just 12.25m

The cab climb isn't a problem, whereas the max fuel carrying capacity (484l) might be.

The Fendt One operating system ticks a lot of boxes as long as you like buttons. The cool box by the door is difficult to get at. Overall, the Fendt cab is a pleasant enough place to spend time.

(VF600/70 R30, 1.98m track width) – that's very good!
The tractor is also awarded a 'very good' for its payload – at least the version that is not approved for 60km/hr travel and has a total weight of 14 tonnes (instead of 15 tonnes). With a test weight of 9.3 tonnes, this leaves a healthy payload of 5.7 tonnes – a record-breaking figure.

Another record-breaking detail about the 728 Vario is its price. The list price starts at above £294,000 – and that's for the entry-level machine. For our near full-spec test tractor the price tag is closer to £339,000.

Summary

The new 700 Vario Gen 7 has surprised us by just how good it is with sensationally low fuel consumption along with details such as the linkage suspension control and tension-free, automatic four-wheel drive.
So, apart from the rather hefty price tag, we can turn the question mark in this article's headline to a full and bold exclamation mark – climb up and be happy!

Hubert Wilmer

FURTHER DETAILS FROM OUR FIELD TEST

This is not a summary but a list of positive and less positive details.

⊕ POSITIVE

- ⊕ The engine can also use HVO (hydrogenated vegetable oil)
- ⊕ Air cleaner load indicator
- ⊕ Integrated front and rear cameras
- ⊕ Adjustable wiper field and four intervals

The aid makes lifting the top link a doddle.

The lights have blinds for non-glare operation in summer.

The wiper on the right window has a 97° wiper field.

⊖ NEGATIVE

- ⊖ Rear wiper sits in the field of vision
- ⊖ The coat hook is too small
- ⊖ A front loader bars access to the air cleaner
- ⊖ Horizontal wiper blades collect dust etc.
- ⊖ Closing the bonnet is a pain

The cab filter is difficult to get at for cleaning/maintenance.

Small operator seat swivel range when looking behind.

The toolboxes on the right are not especially well thought out.

FENDT 728 VARIO

Width: 271cm; Length: 548cm; Height: 322cm

Technical data

ENGINE: 208kW/283hp rated power, 223kW/303hp with power boost; water-cooled six-cylinder AgcoPower Core 75 with 7.5-litre displacement, Stage V with DPF, DOC and SCR; 450 litres of diesel, 48 litres of AdBlue

TRANSMISSION: Stepless VarioDrive TA190 transmission with a travel range from 0.02 to 60km/hr, 30km/hr in reverse, powershuttle, cruise control, etc.

BRAKES: Wet rear disc brakes, hydraulically actuated, all-wheel drive, automatic and hydro-pneumatic handbrake, standard air brake system

ELECTRICS: 12V battery, 180Ah; 240amps alternator

LINKAGE: Cat. III; EHR with lower link control, vibration damping, automatic lateral stabilisers, optional front linkage

HYDRAULICS: 165l/min swash plate pump is standard specification (220l/min option); separate oil reservoir and up to 10 double-acting spools with time and flow control; 80 litres available oil

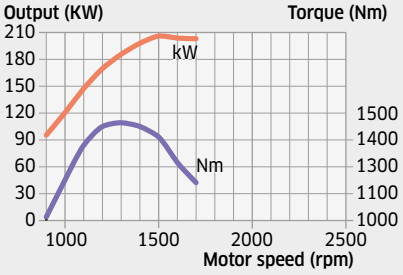
PTO: 540/540E/1,000/1,000E, 1⅜ inch, 6 splines, electrohydraulic engagement, optional front pto

AXLES AND RUNNING GEAR: Planetary axle with multi-disc diff lock, electrohydraulic engagement like front-wheel drive; test tyres 600/70 R30 front, 710/70 R42 rear

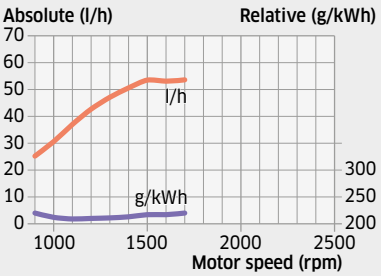
SERVICE AND MAINTENANCE: Engine oil 23 litres (change every 500 hours); gearbox oil 53 litres (2,000 hrs); hydraulic oil 95 litres (2,000 hrs)

PRICES: Base specification £294,015 (prices excl. VAT); "Profi+" test specification £338,260 without front loader (from £18,424)

Power and torque



Fuel consumption



Results from the DLG test station

PTO OUTPUT

Maximum at 1,500rpm	206.0kW
At rated speed	203.1kW

FUEL CONSUMPTION

At max output	217 + 21.1g/kWh
Rated speed	220 + 21.8g/kWh
Absolute max/rated speed	53.5/53.6l/hr

TORQUE

Maximum	1,364Nm (1,300rpm)
Torque rise/speed drop	19.6/24%
Starting torque	101%

TRANSMISSION

No. of gears in 4-12km/hr range	(inf. variable)

REAR LIFT CAPACITIES (90% max oil pressure, corr.)

Bottom/middle/top	8,505/9,108/9,738daN
Lift height under load	80.8cm (23.0-103.8cm)

FRONT LIFT CAPACITIES (90% max oil pressure, corr.)

Bottom/middle/top	3,195/3,996/5,004daN
Lift height under load	70.9cm (30.5-101.4cm)

HYDRAULIC OUTPUT

Operating pressure	199 bar
Maximum flow	173.3l/min
Output	51.4kW (165.4l/min, 186 bar)

DRAWBAR POWER

Max 172.5kW at 1,500rpm	248g/kWh
At rated speed 169.7kW	254g/kWh

NOISE (under load at the driver's ear)

Cab closed	69.5 dB(A)

BRAKING

Max mean deceleration	6.4m/s²
Pedal force	24.2daN

TURNING CIRCLE

with auto front-wheel drive	12.25m

TEST WEIGHT

Front/rear axle	3,590/5,720kg
Kerb weight/gross weight	9,310/14,000kg
Permissible axle load f/r	6,900/11,500kg
Payload	4,690kg (60km/hr)
Power-to-weight ratio	42kg/kW

DIMENSIONS

Wheelbase	290cm
Track width front/rear	198/200cm
Ground clearance	44.7cm

Fuel consumption at typical performance

WORKING AREAS	Output	Speed	g/kWh	l/h
Standard pto shaft 540	100%	1,618	217	53.1
Economy speed pto 540E	100%	1,405	213	50.6
Std. speed pto shaft 1,000	100%	1,649	217	53.2
Economy pto 1,000E	100%	1,432	214	51.5
Engine in top speed range	80%	max	223	43.4
High performance	80%	90%	215	41.9
Transport work	40%	90%	233	22.7
Low output, ½ speed	40%	60%	216	21.2
High output, ½ speed	60%	60%	211	30.9

Test assessment

ENGINE ⊕⊕

Performance characteristics ⊕
Fuel consumption ⊕⊕
Pto output/drawbar power ⊕⊕

Average performance characteristics, but very low fuel consumption, especially in transport work, very good drawbar power/pto output thanks to dynamic power boost.

TRANSMISSION ⊕⊕

Gearbox ratios/functions ⊕⊕
Shifting ⊕⊕
Clutch, throttle ⊕⊕
Pto ⊕⊕

Continuously variable transmission, very good engine-transmission control; only one travel range; automatic four-wheel drive, four pto speeds excellent.

RUNNING GEAR ⊕⊕

Steering ⊕⊕
Four-wheel drive and diff lock ⊕⊕
Hand- and footbrake ⊕⊕
Front axle-/cab suspension ⊕⊕
Weight and payload ⊕/◉

Very good steerability, smallest turning circle, plenty of unladen weight, only average payload (60km/hr), very good brakes.

LINKAGE/HYDRAULICS ⊕⊕

Lift power and lift height ⊕⊕
Operation ⊕⊕
Hydraulic output ⊕
Spool valves ⊕⊕
Hydraulic couplers ⊕⊕

Very good lifting power and operation, spool valves and hydraulic couplers also very good, hydraulic output in standard pump specification is only average.

CAB ⊕

Space and comfort ⊕
View ⊕⊕
Heating and ventilation ⊕
Noise level ⊕⊕
Electrics ⊕⊕
Build quality ⊕⊕
Maintenance ⊕

Good space, comfort and visibility, low noise level at just 69.5dB(A), ventilation and screen in the roof are not optimal.

ABILITY	⊖⊖	⊖	◉	⊕	⊕⊕
Basic standards					●
Average standards					●
High standards					●
Field work					●
Grassland work					●
Transport work					●
Loader jobs					●

PRICE	LOW			HIGH
£245,000 to 250,000				●

Grading: ⊕⊕ very good, ⊕ good, ◉ average, ⊖ below average, ⊖⊖ poor

Individual marks are merely excerpts from our assessments and do not necessarily result in a mathematically conclusive overall mark.

Three tractors in comparison

This is a comparison of three similar hp tractors that have been tested by profi in past magazines

Tractor **Test report in issue**	Fendt 728 Vario profi 3/2024	John Deere 6250R profi 8/2018	Fendt 828 Vario profi 4/2015
Engine Rated output	208kW/283hp (ECE-R 120)	184kW/250hp (97/68 EC)	206kW/280hp (ECE-R 24)
No. of cylinders/capacity	Six/7.5 litres/V	Six/6.8 litres/IV (Tier 4 final)	Six/6.1 litres/IV (Tier 4 final)
Max pto output	NA/206.0kW (1,500rpm)	179.9/193.7kW (1,800rpm)	195.5kW (1,800rpm)/no boost
At rated engine speed	NA/203.1kW (1,700rpm)	157.1/183.5kW (2,100rpm)	193.6kW (2,100rpm)
Manufacturer/model	AgcoPower/Core 75	DPS/PowerTech PSS	Deutz/TTCD 6.1 L6
Fuel and AdBlue consumption			
Specific at max power	217 + 21.1g/kWh	230 + 11.7g/kWh	223 + 9.4g/kWh
Specific at rated speed	220 + 21.8g/kWh	237 + 9.5g/kWh	237 + 9.6g/kWh
Absolute at max power	53.5l/hr	53.3l/hr	52.0l/hr
Average Powermix + AdBlue rates	242 + 24.2g/kWh	257 + 10.8g/kWh	248 + 14.1g/kWh
Max torque	NA./1,364Nm (1,300rpm)	1,060/1,100Nm (1,600rpm)	1,190Nm (1,300rpm)
Torque rise ...	19.6%	48/32%	35%
... as speed drops by	24%	24/24%	38%
Fuel/AdBlue tank capacity	450 (opt. 484)/48 litres	470/25 litres	500/50 litres
Transmission **No. of gears**	Stepless	Stepless	Stepless
Powershift steps	Stepless	Stepless	Stepless
Gear shifts	Stepless	Stepless	Stepless
No. of ranges	Stepless	Stepless	Two ranges
Pto speeds	540/540E/1,000/1,000E	540/540E/1,000 or 540E/1,000/1,000E	540E/1,000 or 1,000/1,000E
No. of gears in 4-12km/hr range	Stepless	Stepless	Stepless
Rear linkage **Control system**	ELC with draft link control	ELC with draft link control	ELC with draft link control
Lift force bottom/middle/top	8,505/9,108/9,738daN	7,353/9,318/10,323daN	7,974/9,684/10,089daN
Lift range	80.8cm	75.5cm	81.6cm
Hydraulics **Operating pressure**	199 bar	205 bar	200 bar
Max oil flow	173.3 l/min	161.1l/min	207.0l/min
Max hydraulic output	51.4kW	42.5kW	58.4kW
Oil reserve	80 litres	80 litres	80 litres
Drawbar power **Max**	172.5kW	166.6kW	164.8kW
At fuel consumption	248g/kWh	252g/kWh	262g/kWh
Noise level **Cab closed**	69.5dB(A)	72.6dB(A)	77.3dB(A)
Brakes **Max mean deceleration**	6.4m/s²	4.8m/s²	5.4m/s²
Pedal force	24.2daN	25.9daN	27.2daN
Turning circle **4WD disengaged**	12.25m (with 4WD)	13.70m	12.00m
Test weight	9,310kg	9,570kg	9,475kg
Front axle	3,590kg (38%)	3,780kg (39%)	3,770kg (40%)
Rear axle	5,720kg (62%)	5,790kg (61%)	5,705kg (60%)
Permissible GVWR	14t (60km/hr); 15t (40/50km/hr)	15,000kg	16,000kg
Payload	4,690kg or 5,690kg	5,430kg	6,525kg
Power-weight ratio	42kg/kW	52kg/kW	45kg/kW
List price (excl VAT) Manufacturer information	£338,260 as at January 2024	£197,904 as at June 2018	£194,205 as at February 2015

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