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SPECIAL REPRINT

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Fendt 724 Vario with FendtOne:

The 'One' and only?

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profi INTERNATIONAL
DRIVEN-TESTED-RATED
Fendt 724 Vario with FendtOne

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Fendt 724 Vario with FendtOne

The curvy cab 700 series has now been on the market for 10 years. Yet, even though it's barely noticeable from the outside, the new FendtOne control system marks the beginning of an exciting era in tractor operation

You will know from reading previous tractor test reports that we have long been impressed by Fendt's in-cab terminal and joystick. They have regularly received top marks, to the point that you can see their influence on several other makes. So, when the firm introduced its new FendtOne concept in 2019, we were a little concerned with our initial encounter, when we thought the replacement items were a bit clunky and sluggish (see profi 6/2020).

Up to then Fendt had done an excellent job of shaping and positioning the buttons on the old-style joystick; even after a short time you could use them blindfolded. The new layout is quite a contrast, with no fewer than eight pretty much identical buttons on the lower part. But we're getting ahead of ourselves. Let's start as we usually do, with what's under the hood.

Still a Deutz motor

To be frank, little has changed: the six-cylinder Deutz TCD6.1L6 still plods along, although it now complies with Stage V emission regs. So, keen to see how its performance compares with not only its competitors but the 724's predecessor in our 5/2013 test with the Stage IIIB version, we headed off to the DLG.

There is not much to shout about here, with the pto producing 152.5kW/204.5hp at rated speed before climbing to 165.0kW/221.3hp at maximum power. Just like the maximum torque and performance characteristics, these figures are a tad below the values achieved almost nine years ago.

Likewise, diesel consumption of 253g/kWh at rated speed and 231g/kWh at max output are only slightly above the sensationally low stats back in 2013. And, since then, Fendt has more than halved AdBlue use.

This is also shown in our more 'hands on' Powermix tests, where the 724 scores an average of 263g/kWh (+11g/kWh of AdBlue). This is higher than the 254+28g/kWh scored by the older 724 SCR but still more than 5% below the average for all the tractors tested up to now.

Things get even better when it comes to road work. The new Fendt is almost 10% (at 40km/hr) and near 7% (at 50km/hr) more economical than the test average.

Stepless in two steps

We can keep it short and sweet with the 724's transmission. The ML180 has proven its worth over time, and it continues to operate in an exemplary manner. When the DLG boffins hitched it up to the brake truck it recorded a maximum drawbar power of 134.2kW/180.0hp, while using 267g/kWh – that's a good result.

Our longstanding Fendt criticism of having to manually switch between field and road ranges still stands, and there is no automatic park brake, while the tractor's handbrake lever is still quite a stretch to the side of the steering console.

Back to the positive, there are four pto speeds that are selected at the touch of a button, as well as neat extra functions such as being able to adjust the engine speed when switching the pto on/off using the mudguard buttons.

Enough lift and oil

Speaking of additional functions, whether its about the lift arm stabilisers, easy Cat II and III changeovers, the ability to secure the lift arms in their uppermost position for maximum clearance over the drawbar of trailed kit or the double-acting linkage – the list of unique selling points on the 700 range is both lengthy and a big attraction.

THE SHORT VERSION

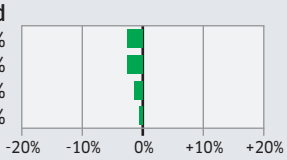
- The FendtOne controls are not yet available on the 800 series.
- Once you've spent a bit of time using the new control layout, you'll soon appreciate it.
- No surprises, there has been a price increase, with the latest 724 listing at £226,669 in base spec.

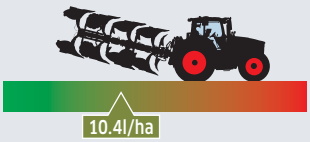
FENDT 724 VARIO

FUEL CONSUMPTION IN FIELD WORK

Draft work: 277g/kWh on average

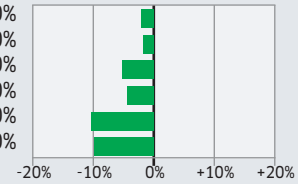
Machine:	Load
Plough	100%
Cultivator	100%
Plough	60%
Cultivator	60%





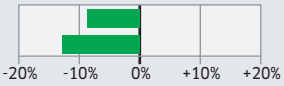
Pto work: 256g/kWh on average

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



Mixed work: 256g/kWh on average

Machine:
Muck spreader
Baler



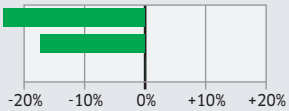
Powermix:

AdBlue: 4.5%

FUEL CONSUMPTION IN TRANSPORT WORK

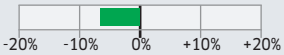
On flat ground:

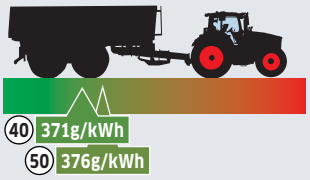
At 40km/hr
At 50km/hr
At 60km/hr



Uphill:

Maximum incline





Transportmix: AdBlue: 4.0%

In heavy draft and pto work, the 724 uses slightly less fuel than our test average. In light and mixed applications, the Vario is sometimes more than 10% better than our mean result. The overall figure is about 5% better than the current test average. Fuel consumption is even lower in transport work. So, overall, the tractor is a pretty impressive performer.

Output and fuel consumption of the Stage V Deutz engine score good marks. Photos: Stefan Tovornik and Hubert Wilmer.

That list can be continued with 64 litres of available hydraulic oil that is kept separate to the transmission and the convenient spool valves with pressure relief levers at the rear. Since our test 724 was kitted out with a front loader we did encounter one problem that you wouldn't expect to find on a high spec tractor. When the loader is coupled and you accidentally try to plug hydraulic hoses into the yellow couplers at the rear on the left, you will be showered with (potentially very hot) oil from the DUDK couplers. Fendt needs to do much better and will hopefully fit an automatic selector to stop this happening.

A new feature is the 3L joystick, which should enable simultaneous operation of the third hydraulic service or, with the next software update, the assignment of ISObus functions on several levels. However, if you don't need these features, you should save your money as the simple cross controller provides much more precise operation of a front loader.

In terms of lift power, the curve rises from around 7,100daN at the bottom to more than 9,500daN at the top. This should be more than enough for all of the implements expected to be hung on a 724. When it comes to oil flow, you have the choice of three swash plate pump options: 109, 152 and 193l/min. Our tractor had the biggest pump which supplied 188.2l/min or 52.2kW of effective hydraulic power at the DLG test station.

Completely new operation...

The cab itself on the 724 has barely changed over the older variant. The access steps, the all-round view and the many practical details, from the large area cleared by the windscreen wiper to the self-cancelling indicators and cable routing into the cab, are all well thought out. The cab is also even quieter than before at only 70.8dB(A).

But things get really exciting with the new FendtOne set-up. As we mentioned earlier, many operators will initially miss the familiar stick, which did its job so well. It is true that first you have to get to grips with the new FendtOne operation. Helping things is the fact that the colours have not changed (orange = drivetrain, yellow = pto, blue = hydraulics, turquoise = TeachIn etc.), and the white and turquoise buttons can be freely assigned.

...with endless possibilities

We also like the 12-inch (previously 10.4in) terminal on the right armrest, with six freely configurable tiles (previously four) as well as a header and footer that never change so it gives you quick access to various functions via the icons at the top (telephone, radio, etc.).

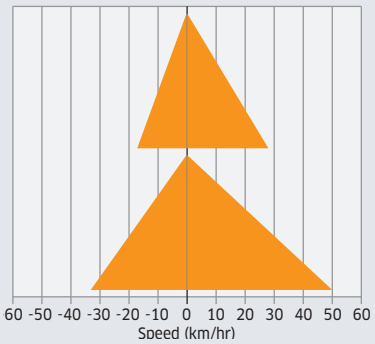
Although the cab of the 724 is already 10 years old, it still ticks all of the boxes. The noise level of our test tractor was just 70dB(A).

A fab display that's unfortunately hidden behind the chunky steering wheel. Indicator stalk and light switch on the powershuttle are great.

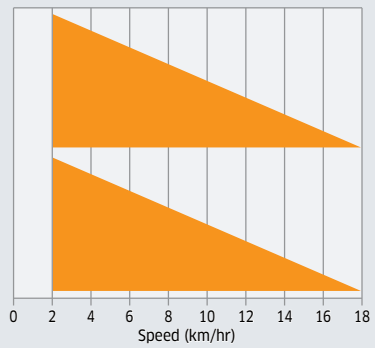
FENDT 724 VARIO

The infinitely variable transmission sticks with just two ranges that you have to manually change. 50km/hr travel speed is reached at 1,500rpm.

Stepless forward and reverse



Stepless in the main speed band



The armrest is completely new on the 724. Also new is the additional display up in the roof, which can be pushed part-way into the roof to improve the to-the-side visibility when on the road.

The sheer number of options is a good reason to set up and save different user profiles and reduce the risk of confusion. Fendt is currently working on making the new software fully ISObus- and TIM-compatible. And we are also happy to open the discussion on whether buttons are needed in a prominent position such as the ones used for TMS and selecting neutral on the transmission. In the same way, competitors get on fine without a button for activating the accelerator pedal separately.

We also like the handy scroll wheel on the joystick that is used to adjust the active cruise control. However, we are not sure what to think of the new dashboard in the form of a 10-inch tablet and the second 12-inch screen, which lowers from the roof.

The dash display is brilliant and logically laid out, but it is always partly hidden by the thick steering wheel, and the layout makes it look like it's a touch screen, which it isn't. Also, the optional roof display is not ideally located for every operator to see it.

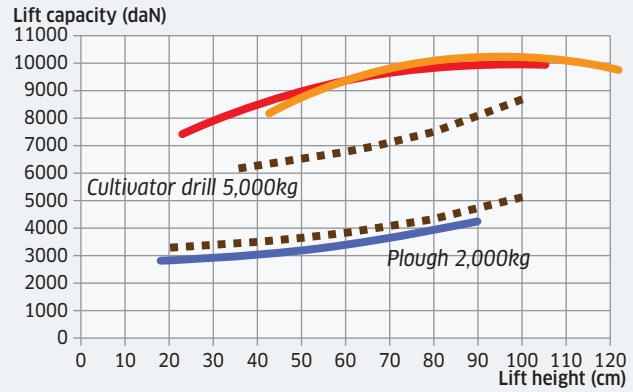
As far as accessing FendtOne from the office computer or tablet, there is currently little to report from users. However, the focus will be on machine and area management as well as planning and documenting jobs and product application rates. We will have more on this in a future issue.

Agile but expensive

An 8.3t kerb weight is considerable, yet the 14t gross weight still provides nearly 5.7t of payload. Great. The brakes also score a 'great' with a measured deceleration rate of 5.8m/s^2. The whole thing is rounded off with a turning circle of just 12.20m (600/60 R30 tyres on a 2.00m track width).

We were quite literally gobsmacked by the list prices for the 724. The entry-level 'Power' version, for example, comes in at £226,669

LIFT POWER AND LIFT REQUIREMENT



Fendt 724 Vario: As the lifting force steadily increases, the tractor has no problems hoisting the heavy cultivator drill. Also, the 724's lift travel is more than 80cm.

Front linkage: continuous 2,691daN; 71.8cm lift height
Long rear lift arms: continuous 7,092daN; 82.3cm lift height
Short rear lift arms: continuous 7,812daN; 79.2cm lift height

Nothing to complain about here – lift power, hydraulic output, lift arm hooks, hydraulic couplers – everything is well thought out.

on the configurator. If you opt for the 'Profi+ Setting 2' spec, with the 3L joystick and the 'Smart Farming' modules for auto-guidance telemetry and ISObus machine control, the tag rises to more than £250,000.

Then there are items such as the front linkage (£3,408), pto (£4,356) and the extra terminal (£2,754). In combination with the Cargo 5X90 front loader for £13,777 and plenty of other spec detail such as automatic climate control (£617), comfort cab suspension (£1,381) etc, you end up with an almost unimaginable list price of £274,246 ... for a 240hp tractor. The infotainment package, for example, lists at more than £1,988, with hands-free kit that's actually worse than the previous version.

The front linkage has the option of a position control and dynamic relief. Front axle suspension is part of the standard package, but the front linkage (£3,408) and pto (£4,356) remain on the options list.

Summary: Even though most 700 series users probably haven't got a lot to complain about when it comes to operating their trusty steed, FendtOne is the next and logical forward step. The combination of on-board and off-board controls will become more important in the future. And, admittedly, after 100 hours in the seat you not only get used to the new way of driving the tractor, but, when you swap to a different machine, you're likely to miss many of the functions and features. One example is Fendt's new linkage control, as previously mentioned, with its two memories and infinite position control.

The 724 is simply superb. Now this is quite a statement ... and not one that we make lightly. However, justifying the price tag is another matter entirely. Our, albeit fully kitted out, test tractor listed at £274,246.

Hubert Wilmer

FURTHER DETAILS FROM OUR FIELD TEST

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

POSITIVE

- Lots more USB and power sockets
- Effective windscreen wiper
- Shuttle controls on the 3L joystick

The back of the comfy passenger seat also serves as a table.

The spools are clearly labelled and convenient to couple up.

The 400-litre fuel tank is generous, and there are decent main steps.

NEGATIVE

- Pins on front linkage don't have a handle
- The chilled cool box only holds bottles on their side
- Tool drawer on the right is impractical
- Cab filter at the rear has poor access

There is an optional door on the right, but the steps are steep.

The handbrake is a stretch.

Uniform controls. The operator needs to look to check, which isn't ideal.

FENDT 724 VARIO

*Width: **254cm**; Length: **578cm** (with front linkage); Height: **312cm***

Technical data

Engine: 174kW/237hp (to ECE-R 120), rated output at 2,100rpm; maximum output 181kW/246hp; water-cooled, six-cylinder Deutz TCD 6.1 L6 with 6.1-litre capacity, Stage V with DPF, DOC and SCR using AdBlue; 400-litre fuel tank capacity and 38-litre DEF tank capacity

Transmission: Continuously variable Vario ML180; 0.02 to 50km/hr, powershuttle, 50km/hr at 1,500rpm

Brakes: Wet disc brakes on rear wheels; selectable four-wheel drive; standard air brake; accumulated hand brake

Electrics: 12V battery, 180Ah, 200amps alternator; starter 4.0kW/5.4hp

Linkage: Cat. IIIN/III; electronic hitch with draft link control, hydraulic stabilisers (optional); front linkage/front pto also optional

Hydraulics: Swash plate pump with 109, 152 or 193l/min (test equipment), 200 bar, up to seven (5+2) electronic timed and flow-controlled valves; separate circuit, 64 litres of available oil

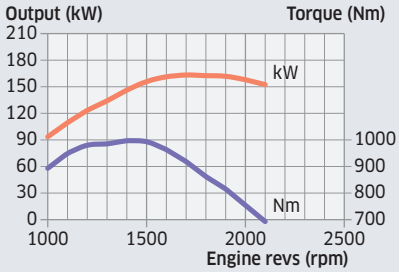
Pto: 540/540E/1,000/1,000E, 1⅜in, six or 21 splines, electro-hydraulic engagement

Axles and running gear: Flanged axle, multi-plate differential locks, electro-hydraulic engagement as for front axle. 600/60 R30 test tyres at front and 710/60 R42 at rear

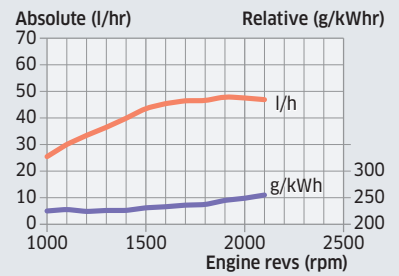
Service and maintenance: 16 litres of engine oil (oil change intervals: 500hrs), 47 litres of transmission oil (2,000hrs), 79 litres of hydraulic oil (1,000hrs), 9.2-litre cooling system

Prices: Base specification £226,669 (excl. VAT); test equipment Profi+ Setting 2 (£252,197) with front linkage (£3,408) and front pto (£4,356) as well as front loader (£13,777). Along with the other extras, this all tots up to £274,246

Output and torque



Fuel consumption



Results from OLG test station

Pto output

Max (1,700rpm)	165.0kW
At rated speed	152.5kW

Diesel/AdBlue consumption

Max output	231+9.6g/kWh
Rated speed	253+9.3g/kWh
Absolute max/at rated	46.5/46.1l/hr

Torque

Max	997Nm (1,400rpm)
Torque rise	44%
Engine speed drop	33%
Start-off torque	128%

Transmission

No. of gears in 4-12km/hr range	Stepless

Rear lift capacities (90% max oil pressure, corr.)

Bottom/middle/top	7,092/9,079/9,504daN
Lift range under load	82.3cm (22.9–105.2cm)

Front lift capacities (90% max oil pressure, corr.)

Bottom/middle/top	2,691/3,119/4,059daN
Lift range under load	71.8cm (18.0–89.8cm)

Hydraulic output

Operating pressure	196 bar
Maximum flow	188.2l/min
Output	52.2kW (180.7l/min, 173 bar)

Drawbar power

Max 134.2kW at 1,700rpm	267g/kWh
At rated speed 129.2kW	301g/kWh

Noise level (under load at driver's ear)

Cab closed	70.8dB(A)

Braking

Maximum mean deceleration	5.8m/s²
Pedal force	27daN

Turning circle

4WD disengaged	12.20m

Test weight

Front/rear axle	3,190/5,140kg
Kerb weight	8,330kg
Axle load f/r	6,000/9,500kg
Gross weight	14,000kg
Payload	5,670kg
Power-weight ratio	48kg/kW

Dimensions

Wheelbase	278cm
Track width front/rear	200/197cm
Ground clearance	47.0cm

Fuel consumption at typical performance

Application	Output	Speed	g/kWh	l/hr
Standard pto shaft 540	100%	1,933	245	48.0
Economy speed pto 540E	100%	1,550	229	45.0
Standard speed pto 1,000	100%	1,900	244	48.3
Economy pto 1,000E	100%	1,520	229	45.0
Engine in top speed range	80%	max	263	38.7
High output	80%	90%	246	36.3
Transport work	40%	90%	272	20.0
Low output, ½ speed	40%	60%	240	17.7
High output, ½ speed	60%	60%	227	25.0

Test assessment

Engine ++

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

Strong power curve, decent overall performance; economical, especially during transport.

Transmission ++

Gear ratios/functions	++
Shifting	+
Clutch, throttle	++
Pto	++

Infinitely variable and perfect speed changes; but ranges still need changing (field/road); very good cruise control, 50km/hr at a low 1,500rpm, four pto speeds.

Chassis ++

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

Good steering, tight turning circle, very good front axle/cab suspension, good brakes on top of that; above-average payload

Linkage/hydraulics ++

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

Lift power and hydraulic output (with optional pump) very good; linkage control is good, too, but the 3L joystick needs improvement; spools and couplers exemplary.

Cab ++

Space and comfort	+
Visibility	+
Heating/ventilation	++
Noise level	++
Electrics	++
Build quality	++
Maintenance	++

Space, comfort and visibility good; noise with only 70.8 dB(A) very good, uniform controls; screen placement in the roof is not optimal for everyone.

Ability	−−	−	○	+	++
Basic standards					●
Average standards					●
High standards					●
Field work					●
Grassland work					●
Transport work					●
Loader jobs					●

Price	Low			High	
£155,000 to £165,000					●

excl. VAT in base specification;
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 724 Vario profi 1/2022	McCormick X7.624 VT profi 9/2021	John Deere 6215R AP profi 3/2018
Engine Rated output	174kW/237hp (ECR-R 120)	161kW/219hp (ISO 14396)	158kW/215hp (97/68 EC)`
No. of cylinders/capacity	6/6.1l/V	6/6.7l/V	6/6.8l/IV (Tier 4 final)
Max pto output	165.0kW (1,700rpm)/no boost	146.3kW(1,900rpm) with boost	152.5/166.9kW (1,800rpm)
At rated engine speed	152.5kW (2,100rpm)/no boost	129.7kW (2,180rpm) with boost	130.6/162.4kW (2,100rpm)
Manufacturer/model	Deutz/TCD 6.1 L6	FPT/NEF 67 BetaPower	DPS/PowerTech PVS
Fuel and AdBlue consumption			
Specific at max power	231+9.6g/kWh	243+29.9g/kWh	240/244+8.8g/kWh
Specific at rated speed	253+9.3g/kWh	264+31.4g/kWh	257/248+7.6g/kWh
Absolute at max power	46.5l/hr	42.9l/hr	48.5l/hr
Average Powermix + AdBlue rates	263+11.0g/kWh	284+32.0g/kWh	284+6.7g/kWh
Max torque	997Nm (1,400rpm)/no boost	814Nm (1,400rpm) with boost	888/915Nm (1,500rpm)
Torque rise ...	44%	43%	50/24%
... as speed drops by	23%	36%	29%
Fuel/AdBlue tank capacity	400/38 litres	350/52 litres	395/20 litres
Transmission No. of gears	Stepless	Stepless	Stepless
Powershift steps	Stepless	Stepless	Stepless
Gear shifts	Stepless	Stepless	Stepless
No. of ranges	2	Stepless	Stepless
Pto speeds	540/540E/1,000/1,000E	540/540E/1,000/1,000E	540/540E/1,000 or 540E/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	7,092/9,079/9,504daN	7,789/8,700/9,101daN	6,075/7,884/9,126daN
Lift range	82.3cm	67.9cm	75.6cm
Hydraulics Operating pressure	196 bar	194 bar	205 bar
Max oil flow	188.2l/min	161.4l/min	165.0l/min
Max hydraulic output	52.2kW	47.3kW	46.1kW
Oil reserve	64 litres	40 litres	55 litres
Drawbar power Max	134.2kW	124.4kW	138.3kW
At fuel consumption	267g/kWh	277g/kWh	265g/kWh
Noise level Cab closed	70.8dB(A)	73.4dB(A)	71.0dB(A)
Brakes Max mean deceleration	5.8m/s²	5.2m/s²	5.4m/s²
Pedal force	27.0daN	37.0daN	34.9daN
Turning circle 4WD disengaged	12.20m	13.30m	12.20m
Test weight	8,330kg	8,840kg	8,510kg
Front axle	3,190kg (38%)	3,670kg (45%)	3,450kg (41%)
Rear axle	5,140kg (62%)	5,170kg (55%)	5,060kg (59%)
Permissible GVWR	14,000kg	13,000kg	13,450kg
Payload	5,670kg	4,160kg	4,940kg
Power-weight ratio	48kg/kW	55kg/kW	54kg/kW
List price (excl VAT): (Manufacturer information)	£226,669 (as at November 2021)	£163,000 (as at July 2021)	£181,501 (as at January 2018)