



Claas Arion 470 CIS+

An agile diesel saver?

The Arion 400 range accounts for around 20% of Claas tractor sales in the UK and Ireland, and, since its 2021 makeover, the range has been topped by the Arion 470 – 107kW/155hp of four-cylinder power in a reasonably lightweight package. There's a lot to like, as we found out during our full tractor test.

The original three-model, 70kW/95hp-86kW/115hp Arion 400 tractor line-up hit the ground in 2010, with an update coming in 2014 to extend the range to six units and hike max power to 104kW/140hp.

Indeed, Claas engineers have been kept busy and on their toes, introducing the latest range-topping Arion 470 as part of the 2021 series

overhaul as it made the move to Stage V – we had a quick look at the main changes in profi 8/2021.

What may come as a surprise, though, is the Arion 400 is actually the most popular range from the French tractor factory with German farmers, who are especially smitten with the new Arion 470. Closer to home, the Arion 400 accounts for 20% of Claas tractor sales

with British and Irish farmers, and within the range it is the 90kW/120hp (maximum power rating) Arion 440 and 100kW/135hp Arion 450 that have proved to be the firm's big bread winners.

So, what's the appeal of the 470? And are we missing a trick? To answer those questions this month's tractor test is on the Arion 400 kingpin.



KEEPING IT BRIEF

The 470 proved to be agile and economical.

The gearbox maxes out at 40km/hr and the payload should be better.

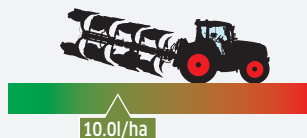
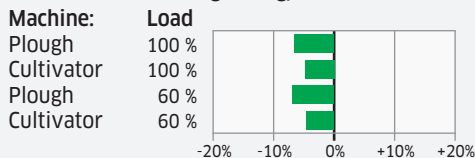
A swash-plate pump is part of the base spec.

The 470 accounts for around 10% of Arion 400 sales in the UK and Ireland.

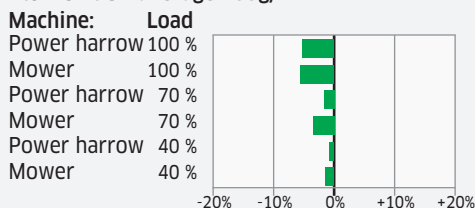
CLAAS ARION 470

FUEL CONSUMPTION IN FIELD WORK

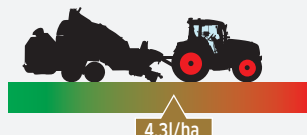
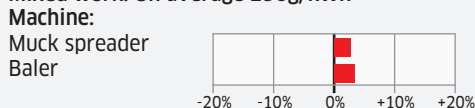
Draft work: On average 264g/kWh



Pto work: On average 265g/kWh



Mixed work: On average 296g/kWh



Powermix:

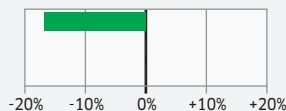
AdBlue: 7.8 %



FUEL CONSUMPTION IN TRANSPORT WORK

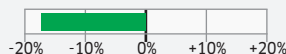
In flat land:

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



Uphill:

Maximum incline



Transportmix: AdBlue: 9.1 %

In the Powermix tests, the Arion 470 proved to be particularly effective in heavy draft work where it is 6% better on fuel than our current average. However, if the hydraulics come into play in mixed work, consumption is 3% above the mean value. When it comes to transport, the plucky Arion is a real fuel sipper, using 16.1% less than the test average.



The four-cylinder FPT motor is quiet and very economical.
Photos: Stefan Tovornik, Hubert Wilmer.

kWh (+25g/kWh AdBlue) during pto work are both brilliant returns. So, it shouldn't come as a surprise that the practical Powermix tests also turn out well for Claas. In almost all of the work categories, the 470 is more or less significantly below the average rate for all of the tractors tested to date.

The 470's Powermix total value is 270g/kWh (+21g/kWh AdBlue), which is 3% below our current average figure. But it's out on the road where the Arion particularly shines: 351g/kWh (+32g/kWh AdBlue) at 40km/hr, meaning this tractor gets through 16% less diesel than all of the tractors we have tested so far.

Despite all of its frugality, we didn't like the behaviour of the fuel gauge: it hardly budes at first and then quickly drops to the halfway mark. And there is no need to fret when the reserve light pings into life; at this point you've used only a modest 135 litres of the 190-litre capacity tank.

Hexashift, not Quadrishift

Our test tractor was equipped with the Claas Hexashift box, which is a £2,455 cost option. Compared to the standard Quadrishift, this transmission has a total of six instead of four powershift steps and thus 24 forward and 24 reverse ratios.

There are only the eight speeds in the main working range of 4 to 12km/hr. To make up for this, the top speed of 40km/hr is reached at a fuel-saving 1,660rpm – handy for long-distance work.

Tops out at 40km/hr

Unlike the larger chassis, four-pot Arion 500, there is no 50km/hr box option for the Arion 400. But there are all kinds of auto functions, including cruise control and a neat brake-to-clutch function that Claas terms SmartStop. While this doesn't make the transmission a CVT, it is a big help for loader work, and it's comfortable thanks to the automatic range changes. We definitely recommend spending the extra cash for the Hexashift, especially if road work is on your job sheet.

Our regular team of test drivers were critical of details such as direction changes using the right-hand controls, as you have to press two buttons on the main joystick to use the shuttle function as well as ensuring that the tractor's steering column lever is in its neutral position. User Instruction is also needed for setting the start gear, the pull-away gear as well as changing the cruise control setting. For such an allrounder, it's just a pity there is no 1,000E speed, and 540E still switches



The cab offers great visibility and decent space, with the 72.9dB(A) noise level OK.

The grippy, leather-clad steering wheel is optional. The dash relays a good amount of information.



off when the engine over-speeds. This makes it impossible to use a slurry mixer or power harrow at 750rpm, for example. A small consolation: there is a basic headland auto shut-off/engage for the pto as the linkage is raised and lowered, which works very well in everyday use.

Swash-plate pump

Instead of a gear pump, as supplied on the Classic variants, the Arion 470 CIS and CIS+ come with a swash-plate pump. Our CIS+ tractor had the 110l/min version (for those wanting yet more hydraulic flow there's even a 150l/min pump option) which

delivered 108.3l/min at the back-end. That's OK, just like the useable hydraulic power of 29.6kW – especially when there is a bigger pump on offer. The 25 litres of removable oil are a bit more of an issue.

As we are discussing options, our particular test candidate was well equipped with four



The joystick is also a cross control – ideal for loader work.

electric spools plus load-sensing couplers at the rear.

The possible combination of electrical and mechanical spool valves will clearly appeal to some owners, and the cross gate lever on the armrest is indispensable.

Staying with Arion's hydraulics, the entry-level ProPilot version operates cables (and is only available as a retrofit); Flexpilot is hydraulic over hydraulic. Our tractor had the more costly electric Electropilot control spec which also opens the possibility of being able to operate the time control for the rear spools – which is handy. Unfortunately, the supplied 470 didn't come with a front loader so we couldn't judge responsiveness of the system.

The protective caps on the spools take a bit of force to open, so leave the kid-gloves at home. We didn't like the activation for the electric spools – if the detent switch lights up green after the engine starts, the valves are already active without having to rock the switch back and forth once. This has now been solved with a software update.

Strong linkage

According to the brochure, the rear linkage on the Arion 470 can hoist 4.7t. In fact, the continuous lift power of 5,000daN was even exceeded when our testers measured the lift performance so it shouldn't have any issues lifting a 4.0t power harrow drill combi. This is good, but it also means the tractor is more than able to exceed the 3.2t payload, but we will get to that later.

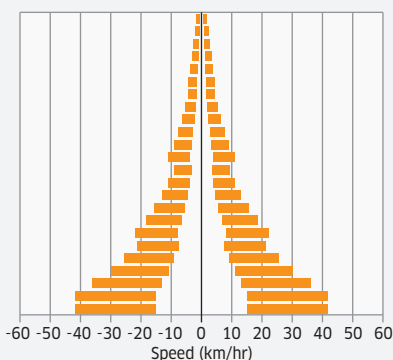
We liked the well laid out lift controls. The lift arms are positioned at a better angle for coupling implements than before, but the lift only has 57.5cm of travel, which is below average for this size of tractor.

CLAAS ARION 470

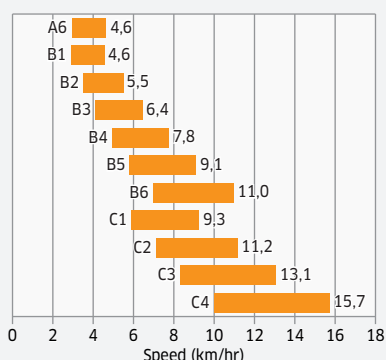
With four ranges and six powershift steps, there are nine gears in the key 4-12km/hr band, but two of them are equally fast.



24/24 forward/reverse



9 ratios in 4-12km/hr band



The armrest also blocks the view of the ELC panel on the side console, although you can also operate the rear linkage from the main joystick which is good.

Cab with a top-notch view

When you step out of the cab, you need to be careful as Claas has moved the narrow steps farther out. If you accidentally step on the curve next to the AdBlue filler cap, you can slip off. Apart from this we only have praise for the tractor's visibility (thanks to the panoramic cab) and space.

The driver comfort is also great, not least because of Claas's optional mechanical cab suspension. In terms of noise levels, the DLG measured a test figure of 72.9dB(A) at the driver's ear under full load – that's OK, too, and beyond reproach.

All of the cab variants (low, panoramic and standard) have a right-hand door, although our German colleagues weren't too happy with the lack of an opening windscreen.

We really liked the informative display on the A-pillar in the CIS+ version. And the same applies to the five freely assignable F keys, which can also be used for ISObus functions. However, the Trimble steering system on our test tractor was not fully integrated so you cannot engage autosteer from the joystick, and you also can't use signals from the tractor to record the coverage map; the engage button is over on the side console. With the complicated operation and lack of audible confirmation tones, there is still enormous potential for improvement here.

Since our test, Claas has started installing the CEMIS 1200 display on the Arion 400, which has been used on the larger models and is said to be better integrated. We look forward to checking this out in a future test.

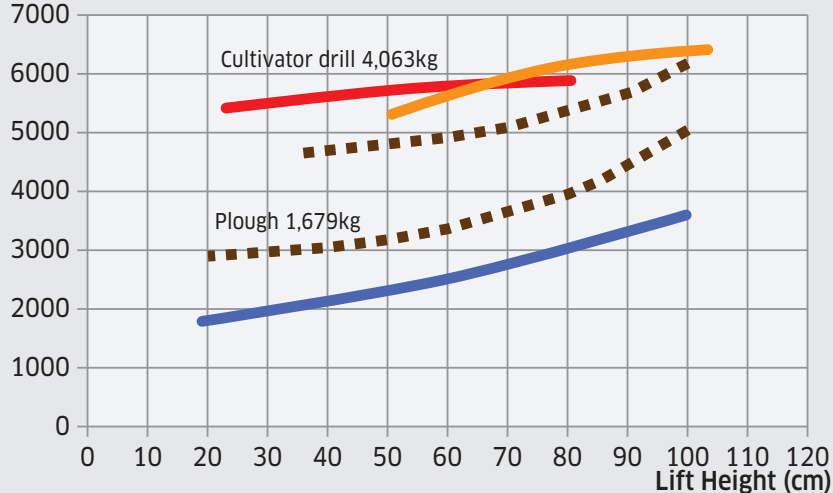
Very manoeuvrable

A turning circle of 10.30m (480/65 R28 on a 195cm track width) is excellent. And the independent suspension set-up on the Carraro front axle is just as convincing, even though there is a total of 22 grease points that need attention every 50 hours – the tractor should definitely have an auto-lube system option. We also liked the grippy leather-clad steering wheel, although it is a bit thick. Straight line stability could be improved.

The full-spec and unladed Arion 470 weighs in at 5,760kg. That's OK, and thanks to the all-up 9.0t gross weight, the 3.2t payload is perhaps pretty good compared to some of its competitors. However, it doesn't tally with the 470's rear lift capacity.

LIFT POWER AND LIFT REQUIREMENT

Lift Capacity (daN)



The continuous lift force is enough to raise any cultivator drill of more than 4.0t. The lift range is short, though, and the payload is not sufficient for this size of tractor.

- Long lift arms: continuous 5,004daN, 57.5cm lift range
- Short lift arms: continuous 4,905daN, 52.7cm lift range
- Front linkage: continuous 1,652daN; 80.7cm lift range



The rear linkage is tidy and the couplers clearly labelled.

How much?

The base spec Arion 470 lists at £101,940. Our tractor had the £2,535 'Premium driver package' which includes the premium seat, automatic climate controls, fridge, radio with Bluetooth and leather steering wheel. It also had cab and front axle suspension as well as the CIS+ colour display on the A-pillar.



Width 285cm; Length 555cm;
Height 350cm

CLAAS ARION 470

TECHNICAL DATA

ENGINE: 103kW/140hp (according to ECE-R 120) rated power at 2,200rpm; water-cooled four-cylinder FPT NEF 4 with 4.5-litre displacement; Stage V with DPF, DOC and SCR; 190-litre fuel tank, 23.5-litre AdBlue tank

TRANSMISSION: Hexashift transmission with four gears and six powershift steps, max 40km/hr at 1,660rpm; powershuttle, auto functions and cruise control

BRAKES: Wet multi-disc brakes at rear, hydraulic actuation; four-wheel engagement; mechanical hand brake; air brake system is standard

ELECTRICS: 12V battery, 180Ah; 200amps alternator, 3.2kW/4.4hp starter power

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

HYDRAULICS: 110l/min, 205 bar variable displacement pump; maximum three mechanical plus two timed and flow-controlled electric spools, 25-litre available oil

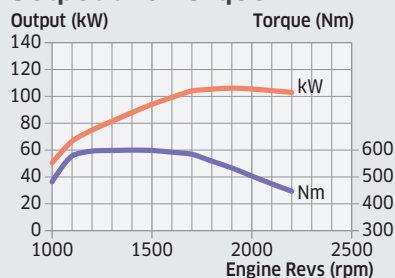
PTO: 540/540E/1,000 (optional ground speed pto), 1½ inch, six spline, electro-hydraulic engagement, optional front pto

AXLES AND RUNNING GEAR: Planetary axle with multi-disc diff lock, electrohydraulic engagement like front-wheel drive; tyres 480/65 R28 (front), 600/65 R38 (rear).

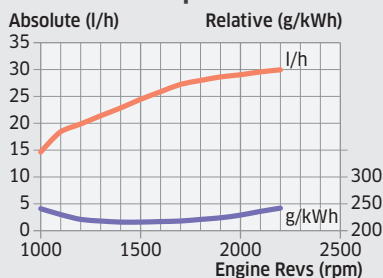
SERVICE AND MAINTENANCE: 10 litres engine oil (500-hour intervals); 30 litres transmission oil (2,000-hour)

PRICES: Basic equipment £101,940 (excluding VAT); test equipment with Hexashift, front axle suspension, GPS ready, front linkage and pto plus mid-mounted spool, etc. £145,270

Output and Torque



Fuel Consumption



DLG TEST STATION RESULTS

PTO OUTPUT (unboosted/boosted)
Maximum at 1,900rpm 106.1kW
At rated speed 102.9kW

FUEL CONSUMPTION
At max output 224+24.8g/kWh
Rated speed 242+25.0g/kWh
Absolute/max rated speed 28.6/30.0l/hr

TORQUE
Maximum 600Nm (1,400rpm)
Torque rise/speed drop 34/36%
Start-off torque 108%

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

REAR LIFT CAPACITIES
(90% max oil pressure, corr.)
Bottom/middle/top 5,004/5,296/5,436daN
Lift height under load 57.5cm (23.0-80.5cm)

FRONT LIFT CAPACITIES
(90% max oil pressure, corr.)
Bottom/middle/top 1,652/2,309/3,325daN
Lift height under load 80.7cm (19.0-99.7cm)

HYDRAULIC OUTPUT
Operating pressure 189 bar
Maximum flow 108.3l/min
Output 29.6kW (97.8l/min, 180 bar)

DRAWBAR POWER
Max 98.1kW at 1,900rpm 243g/kWh
At rated speed 95.2kW 261g/kWh

NOISE (under load at the driver's ear)
Cab closed 72.9dB(A)

BRAKING
Max mean deceleration 4.4m/s²
Pedal force 30.9daN

TURNING CIRCLE
4WD disengaged 10.30m






TEST WEIGHT
Front/rear axle 2,430/3,330kg
Kerb weight/gross weight 5,760/9,000kg
Max axle load f/r 4,600/6,800kg
Payload 3,240kg
Power-weight ratio 51kg/kWh






DIMENSIONS
Wheelbase 253cm
Track width front/rear 195/183cm
Ground clearance 50.5cm







Fuel consumption







| APPLICATION | Out-put | Speed rating | g/kWh | l/hr |
|---------------------------|---------|--------------|-------|------|
| Standard pto shaft 540 | 100% | 1,920 | 228 | 28.6 |
| Economy speed pto 540E | 100% | 1,560 | 216 | 25.0 |
| Standard speed pto 1,000 | 100% | 1,964 | 229 | 29.0 |
| Economy pto 1,000E | 100% | - | - | - |
| Engine in top speed range | 100% | max | 259 | 25.7 |
| High output | 80% | 90% | 235 | 23.4 |
| Transport work | 80% | 90% | 278 | 13.8 |
| Low output, ½ speed | 40% | 60% | 237 | 11.7 |
| High output, ½ speed | 40% | 60% | 223 | 16.6 |









TEST ASSESSMENT

ENGINE  
Performance characteristics 
Fuel consumption 
Drawbar power/pto output 
Good performance characteristics, (very) low consumption, especially during transport. Drawbar power and pto output are also very good courtesy of boost














TRANSMISSION 
Gearbox ratios/functions 
Shifting 
Clutch, throttle 
Pto 
Good powershift transmission with six steps, auto functions and cruise control, no 50km/hr, (only) three pto speeds

AXLES AND RUNNING GEAR 
Steering 
Four-wheel drive and diff lock 
Hand- and footbrake 
Front axle-/cab suspension 
Weight and payload 
Good steering, small turning circle, very good suspension comfort (but lots of grease nipples), effective brakes, but payload could be even higher

LINKAGE/HYDRAULICS 
Lift force and lift range 
Operation 
Hydraulic output 
Spools 
Hydraulic couplers 
Lifting power very good, but lift range is (too) small, good hydraulic output; operation and spools are also good; hydraulic couplers could be better







CAB 
Space and comfort 
View 
Heating/ventilation 
Noise level 
Electrics 
Build quality 
Maintenance 
Space, comfort and visibility OK; noise levels, too. Good control armrest

ABILITY

| |  |  |  |  |  |
|-------------------|---|---|---|---|---|
| Basic standards | | | | |  |
| Average standards | | | |  |  |
| High standards | | | |  | |
| Field work | | | |  | |
| Grassland work | | | | |  |
| Transport work | | | | |  |
| Loader work | | | | |  |

ON-FARM PRICE

£123,500 to £126,000   good  average

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.

FURTHER DETAILS FROM OUR FIELD TEST

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

POSITIVE

- + Toolbox and battery reside under the steps
- + Fuse box easily visible
- + Back mudguards have side and rear rubber edges
- + Impressive speaker sound



There is an air-con coolbox under the comfy passenger seat.



Panoramic roof offers great visibility ... everywhere.



Full accompaniment of external controls, and on both sides too.

NEGATIVE

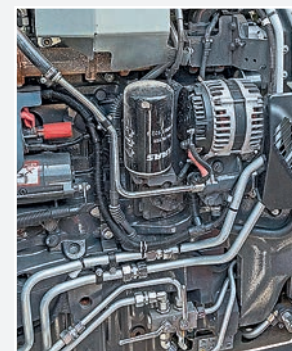
- If you turn the ignition key to the end position, the battery will drain by morning.
- Even when retracted, the mirrors stick out too far.
- Visibility to the rear is limited at the top



The top link holder is not practical.



The filter is difficult to access with an implement attached.



Upright oil filters are a mess to change. Could be better.

Claas UK calls the autosteer option 'GPS Pilot', which for £8,390 gives you integrated steering and ISObus using the CEMIS 1200 screen.

The test 470 model was also equipped with the Hexashift transmission (£2,455), front linkage and pto (£3,040/£3,090). All this, plus the mid-mount valves (£2,675), totals to a list price of £145,270.

If you want to add a front loader, then Claas would normally pair the Arion 470 with the FL120 which is around £7,500.

Summary

In the tractor test, the Arion 470 proved to be not just agile but frugal, too. This said, we still found plenty of room for improvement, from some basic stuff like the

uplicated shuttle controls to more complex items such as better integration of the auto steer system.

Overall, though, it's still a nice place to spend your working day, albeit our test tractor was very well kitted out, resulting in an eyebrow raising final tag of £145,270.

Hubert Wilmer