



# ROAD TESTED

**VOLVO: FM 420 8X4 TIPPER**

**As rising costs force tipper operators to zero in on fuel economy, CM takes Volvo's latest FM 420 8x4 around its Welsh test route to see just how well it performs**

**WORDS: COLIN BARNETT / PHOTOS: TOM CUNNINGHAM**



It doesn't seem long ago that tipper operators were primarily interested in how much work they could squeeze out of a truck. The ability to get that extra load into a day was paramount, and fuel never seemed a high priority. But now it seems that "drive it like you stole it" is turning into "drive it like you own it," not least because of the 20% increase in fuel costs in the past six months.

Against this background, we've taken Volvo's latest FM 8x4 around our Welsh rigid vehicle test route for tippers and distribution vehicles up to 32 tonnes, and in view of the rearranged priorities, we've taken a closer look than previously at fuel costs. Actually, 'previously' is not a helpful word, as testing tippers hasn't been a high priority for manufacturers since the 2009 recession led them all to dispose of their press fleets, almost literally overnight. Up until then, the benchmark fuel figure for a Euro-5 8x4 tipper with around 400hp was around 8.0mpg.

This fifth generation of Volvo FM is new, but it's also not new. Thanks to the pandemic, it's a contender for the title of the most protracted truck launch in history. Although our hands-on experience of the new FM began at Volvo's UK headquarters in September 2020, the first example to be delivered to a British operator was handed over just a few weeks ago.

Given that extended timeline, it's worth recapping on the FM range. Volvo doesn't really do radical restyling, so the FM is more instantly recognisable as one of the family than ever before in its 23-year history. Greater use of modular synergies with the FH means the FM now looks and feels more like a premium product than a high-volume working vehicle. The styling incorporates many of the latest features, both cosmetic and functional, that were introduced on the FH's less radical update at the same time as the FM launch.

Prior to the launch, Volvo's drivelines had already been updated to the then latest Euro-6d level, so there were no major mechanical changes. Engines are 11-litre units with 330, 380, 430 and 460hp

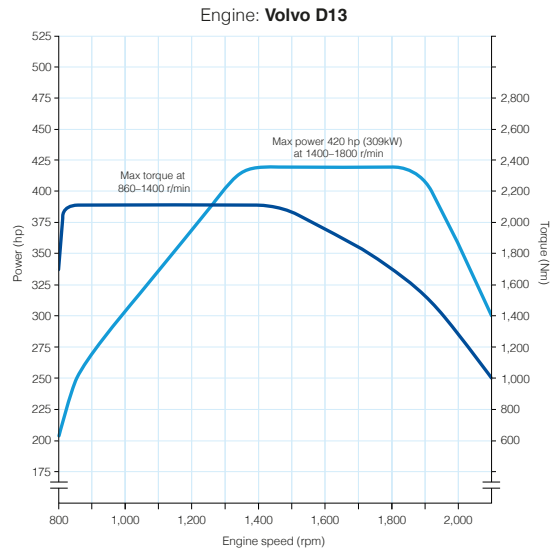




## VEHICLE SPECIFICATION

<b>Manufacturer / Model</b>	Volvo FM 420 8x4 tipper
<b>Cab</b>	Standard height sleeper cab
<b>Engine</b>	Volvo D13K420 in-line 6-cylinder with 4 valves per cylinder and common-rail fuel injection. Euro-6d emissions via EGR and AdBlue selective catalytic reduction (SCR)
<b>Bore x stroke</b>	131 x 158mm
<b>Capacity</b>	12.8 litres
<b>Compression ratio</b>	17.0:1
<b>Maximum power</b>	420hp (309kW) at 1,400-1,800rpm
<b>Maximum torque</b>	2,100Nm (1,696lbfm) at 860-1400rpm
<b>Transmission</b>	I-Shift AT2612F 12-speed automated manual with DRM-BE balanced and economy software package
<b>Gear ratios</b>	14.94-1.00:1; reverse, 17.48-13.73:1
<b>Final drive ratio</b>	2.83:1
<b>Clutch</b>	430mm single dry plate with automated operation
<b>Brakes</b>	Disc brakes, with full EBS and Advanced Emergency Braking
<b>Parking brake</b>	Pneumatically controlled spring brake acting on second and third axles
<b>Secondary brakes</b>	VEB+, combined exhaust/valve compression brake, max 375kW at 2,100rpm
<b>Brake dimensions</b>	First and second axles, 434mm diameter; third axle, 410mm diameter
<b>Chassis</b>	Bolted and riveted ladder frame
<b>Frame dimensions</b>	300 x 90 x 7mm
<b>Body specification</b>	Wilcox Wilcolite insulated aluminium smooth tipping body with Edbro CX14 gear and Dawbarn Wraptor mk.2 sheeting system
<b>Suspension</b>	Front and rear, steel parabolic leaf springs with stabiliser bars
<b>Steering</b>	VDS variable power-assisted recirculating ball
<b>Turns lock-to-lock</b>	5.6
<b>Wheels and tyres</b>	22.5x11.5in Alcoa Dura-Bright wheels with 295/80xR22.5 Michelin 3D XZE (axles 1 & 2), Michelin 3D XDE (axles 3 & 4)
<b>Fuel/AdBlue tank</b>	255 / 57 litres
<b>Electrical system</b>	24V negative earth return
<b>Battery / Alternator</b>	2 x 12V, 225Ah / 110A

“ We even broke the rules of off-road driving by deliberately stopping on the steepest climb ”



## ACCELERATION

<b>Manufacturer / Model</b>	Volvo FM 420 8x4 tipper
<b>0-80kph</b>	36.7sec
<b>32-64kph</b>	15.0sec
<b>48-80kph</b>	20.6sec

**Plenty of poke:** Our test truck's 13-litre 420hp engine provides more low-down torque than the 11-litre version, but weighs slightly more





nominal ratings, and 420, 460 and 500hp ratings with 13-litre capacity. Given some of the FM's intended operating environments, it also has the option of the G13K LNG engines at 420 and 460hp. And of course, you'll soon be able to buy a full-electric FM – but that's getting ahead of ourselves.

And so to our test truck, which is an FM 8x4 in the traditional layout of two steering axles up front and two driving at the rear. The engine is the entry-level 13-litre unit rated at 420hp. Whether to go 11- or 13-litre is down to your operational needs; you can either save 150kg or so of payload for weight-critical jobs or have the greater low-down torque of the bigger unit. Transmission is the standard

12-speed direct-drive I-Shift, driving through a traditional 2.83:1 final drive rather than the longer ratios in vogue for long haul.

Before the test proper, we had a bonus in the form of an off-road session at the Millbrook proving ground as part of Volvo's recent customer demonstration event. The terrain used missed out the most challenging mud pits but the gravel tracks, with some challenging hills to tackle, was still well beyond what most regular 8x4 tippers would be expected to encounter.

### IMPECCABLE BEHAVIOUR

Fully loaded, and with gearbox, diff locks and exhaust brake all in auto modes, there were no issues whatsoever. We even broke the rules of off-road driving by deliberately stopping on the steepest climb, but with hill-start assist and full diff locks engaged, progress was regained without even a hint of wheelspin, while the downhill cruise control kept things in order on the descents. The steel suspension

**NEED TO KNOW**

The Volvo FM is available with a choice of 11-litre engines at 330, 380, 430 and 460hp nominal ratings, or 13-litre units at 420, 460 and 500hp



### TEST WEIGHTS

<b>Manufacturer / Model</b>	Volvo FM 420 8x4 tipper
<b>GVW</b>	32,000kg
<b>GCW</b>	26,000kg
<b>Front axles</b>	16,000kg
<b>Rear axles</b>	21,000kg
<b>Kerbweight (inc 75kg driver)</b>	11,975kg
<b>Body/payload allowance</b>	20,025kg

provided a surprisingly good ride off-road, and was probably more impressive there than on some poorly maintained highway surfaces.

As is our preference, we kept the Volvo Dynamic Steering in Stable mode, which still provides ample assistance while retaining plenty of feel at highway speeds. Except where traffic conditions dictated otherwise, full use was made of the I-See predictive cruise control, but we did reflect on how many tipper



drivers would accept its more leisurely pace rather than use the on-off switch under their right foot. The old E/P switch for economy or power modes has been consigned to history, with this example having the Balanced & Economy software package to manage efficient progress.

It's good to see that the two-stage eco-roll, which knows whether coasting in neutral or over-running in high gear is the most efficient means of making progress, is now becoming the norm. Not that the FM 420 needs much help at 32 tonnes. Apart from the computer's fuel-saving lifts approaching predicted crests, progress was impressive. This was highlighted on the climb up the A40 north of Monmouth, where we normally record the lowest speed achieved on the steepest part. On

### IN-CAB NOISE

<b>Manufacturer / Model</b>	Volvo FM 420 8x4 tipper
<b>Tickover</b>	48.3dB(A)
<b>48kph</b>	55.2dB(A)
<b>64kph</b>	58.5dB(A)
<b>80kph</b>	62.0dB(A)
<b>Max limited speed</b>	63.5dB(A)

### SECURITY

<b>Manufacturer / Model</b>	Volvo FM 420 8x4 tipper
<b>Engine immobiliser</b>	Yes
<b>Alarm</b>	No
<b>Central locking</b>	Yes
<b>Dead-locking</b>	No
<b>Secure bonnet</b>	No
<b>Locking fuel cap</b>	Yes



## AT THE WHEEL

The test truck's cab was the middle choice of the three mainstream options, which comprise standard-height day and sleeper cabs and a high-roof Globetrotter – although niche options such as crewcabs and flat-roof versions are also available. The interior with grey vinyl seats and plum-coloured cloth inserts and stitching may not be to every taste, but it's certainly not dull. The engine hump makes for a cosy driving position, but its sloping stepped sides facilitate cross-cab access.

While that hump could make it difficult to stand upright, the effect is mitigated by the cutaway section above the screen that houses the glass roof panel. This standard sleeper cab has full-width rear lockers which combined with decent external lockers under the bunk should be plenty for a few nights away from home. One downside of the TVG camera system is that its associated DVR equipment steals a large chunk of space in one of the overscreen lockers.

Although the infotainment unit includes DAB radio and two Bluetooth connections, it is disappointing that Apple CarPlay – one of those things that you rapidly become accustomed to – isn't supported. Gadget charging points include three 12V power points and a slightly hard-to-find USB socket around the dash. Two cup-holders and a big bottle-holder are within easy reach.

The single bunk seems comfortable enough although it narrows at the ends, and unfortunately there isn't enough headroom for sitting on it, so you have to take your recreation in the passenger seat. Its surroundings include storage bins at each end and fixed controls for heat, interior lights and roof hatch.

At lower speeds, the cab was impressively quiet, with sound insulation good enough that you could barely hear the left-turn warning alarm, but at motorway speeds, there was some wind roar from the top of the windscreen.

this occasion, though, we swiftly accelerated to the limited speed at the bottom, and the considerable reserves of strength ensured we stayed on it for the entire climb.

External changes apart, the big news in the latest FM and FH is the all-new digital cockpit, the highlight being the thoroughly modern two-screen digital dashboard. Replacing the traditional instrument panel ahead of the steering wheel is the customisable main screen, which provides all of the functions of the traditional analogue dash and can be even more easily reconfigured to display the information of your choice, controlled by the comprehensive multi-function steering wheel.

The secondary screen towards the centre of the cab, which is well enough integrated to prevent it looking like an aftermarket addition, displays features such as the audio, truck-specific TomTom sat-nav, camera views and telematics information from Dynafleet. The lower part of the dashboard still comprises the reassuringly familiar layout of switches and controls as before, apart from the revised I-Shift controller.

### NEED TO KNOW

**The FM's modern, two-screen digital dashboard replaces the traditional instrument panel and is the highlight of the all-new digital cockpit**







## OPERATING COSTS

**Manufacturer / Model** Volvo FM 420 8x4 tipper

**Parts prices:** headlamp £420.39 each

oil filter £74.18

air filter £138.20

front bumper Price not available

mud wing Bodybuilder supplied

windscreen £378.38

turbocharger £1,058.30

**Warranty:** 24 months (1 year International Warranty & 1 year asset care)

**\*Contract maintenance:** Variable – deal specific

**Service points** 82

Given the approach from rival manufacturers who feel touchscreens are ill-matched to firmly suspended trucks, we paid particular note to the ease of use of the Volvo screen and have to report that apart from on particularly poor surfaces – when you should probably be concentrating more on where you’re going anyway – it simply wasn’t an issue.

Volvo is still holding back from joining the mirror camera fraternity, but the new FM doesn’t suffer in the visibility department. Having once been an example of how not to design mirrors, today’s offerings from Gothenburg are in a different league. Well-positioned on slim frames with almost non-existent bezels, they have eliminated blind-spots about as far as is possible. The FM tipper also

**Quietly does it:** At lower speeds the cab was impressively quiet, although there was some wind noise from the top of the windscreen on the motorway sections of our test route

has the option of the tubular metal frames from the more off-highway targeted FMX.

This example has the optional vision door on the passenger side, but one downside of that is that you get no opening window at all on that side. That’s probably even more frustrating than the fact that the driver’s window doesn’t go down much more than halfway. Visibility on this example is further enhanced by an aftermarket 360-degree camera system from TVG, coupled with the factory-fit blind spot system. □

## NEED TO KNOW

**There isn’t a mirror camera option on the FM but its well-designed slimline mirrors do eliminate blind spots as far as possible**

## FUEL CONSUMPTION

**Manufacturer / Model** Volvo FM 420 8x4 tipper



**Overall** 10.72mpg (32.0lit/100 km)

**Motorway** 13.53mpg (25.6 lit/100 km)

**A-roads** 9.85mpg (35.0lit/100 km)

**AdBlue rate** 7.74% of diesel

## AVERAGE SPEED

**Manufacturer / Model** Volvo FM 420 8x4 tipper



**Overall** 62.1kph

**Motorway** 86.2kph

**A-roads** 54.9kph

## HILL CLIMBS

**Manufacturer / Model** Volvo FM 420 8x4 tipper

**Monmouth (A40)** 2min, 20sec

**Wantage (A338)** 1min, 54sec

## VEHICLE DIMENSIONS (MM)

Manufacturer / Model	Volvo FM 420 8x4 tipper
Overall cab width	2,500
Overall length	12,000
Overall height (exc air deflector)	3,280
External cab length	2,155
Internal cab width	2,090
Internal cab length	1,600
Internal cab height (over engine tunnel)	1,100
Step heights	340, 340, 350
Cab floor height	1,030
Engine cover height	505
Wheelbase (OAS)	7,150
Front overhang	1,420
Rear overhang	2,590

## TEST SCORES

Manufacturer / Model	Volvo FM 420 8x4 tipper
Access to cab	★★★★
Bunks	★★★★
Dash layout/controls	★★★★
Driving position	★★★★★
Storage	★★★
Fit and finish (perceived quality)	★★★★★
Visibility	★★★★
Ride comfort	★★★★★
Steering and handling	★★★★
Gearshift	★★★★
Lugability	★★★★★
Braking	★★★★★
Noise	★★★
Performance, engine refinement and gearing	★★★★★
Manoeuvrability	★★★★
Fuel economy	★★★★★★★★
Payload	★★★★★★★★
Cost of ownership	★★★★★★★★

### How we score:

Each of the above scoring criteria has been weighted to reward vehicles that push the boundaries of expectation.

A score of 50% means the test subject has hit our expert's industry-wide basic standard for that class of vehicle, be that on seat comfort, engine performance or fuel economy.



The new FM brings the same level of civilised refinement to the sector that has traditionally only been enjoyed in premium long-haul tractors



# THE MIRROR ROAD TEST VERDICT

With this renewed emphasis on fuel consumption and Volvo's recent strong showing with its artics, you'll be keen to discover how the FM 420 8x4 compared. The only recent result around our Welsh route was from another Volvo – an FH 420 bulk tipper with similar dimensions and aerodynamics to a lock-up garage – and that achieved 8.83mpg, which we felt was pretty good.

As always when a truck returns a fuel figure that seems to push the boundaries, we double-checked the results, and then checked them again. And still the result we're standing by came out at 10.72mpg, including 13.53mpg on the motorway section. Even more impressive was the fact that the FM didn't enjoy the easiest of tests. Although

the weather was fine, the journey was plagued by something in excess of 20 sets of temporary traffic signals. With nothing recent from the competition to compare with, we can't say how much of this fuel result is down to the greatly improved efficiency of all modern trucks, and how much is down to Volvo getting fuel economy optimised, but we'll be generous and say it's a pretty impressive result.

It's not only the operator who wins. While tippers have not always been at the forefront of driver luxury, the new FM brings the same level of civilised refinement to the sector that has traditionally only been enjoyed in premium long-haul tractors.

Overall, the latest version provides a blend of cutting-edge technology, well developed driveline engineering and high build quality that together reinforce the brand's traditional values.

Volvo had already set new benchmarks for both 40-tonne and 44-tonne artics and has done it again for tippers. We look forward to the competition stepping up to meet the challenge.

**FINAL RESULT**  
**86%**