

V O L V O



VOLVO FM 420 LNG 4X2 TRACTOR

Volvo Trucks. Driving Progress

Towards zero emissions

We believe in sustainable transports. Making it happen is one of the greatest challenges facing companies in the mobility industry. For us at Volvo Trucks, energy efficiency and alternative fuels are essential in our strategy to succeed. Our new gas-powered trucks run on LNG, taking us steps ahead and demonstrating our long-term ambition to move towards zero emissions.

VOLVO FM 420 LNG 4X2 TRACTOR

The Volvo FM 420 LNG 4x2 Tractor with gas-powered powertrain is based on the renowned diesel engine technology used in the Volvo FM. And it delivers the same performance – but with up to 20% less CO₂ emissions. The powertrain is unique as it is based on HPDI – High Pressure Direct Injection technology, unlike all other trucks which are based on spark ignition or Otto cycle. This gives Volvo the advantage of better efficiency while maintaining the power and torque curve of the equivalent diesel-powered truck. The Volvo gas powered engine technology

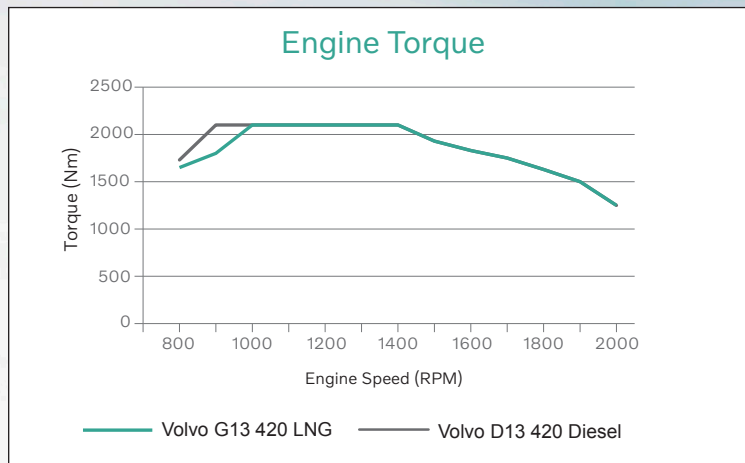
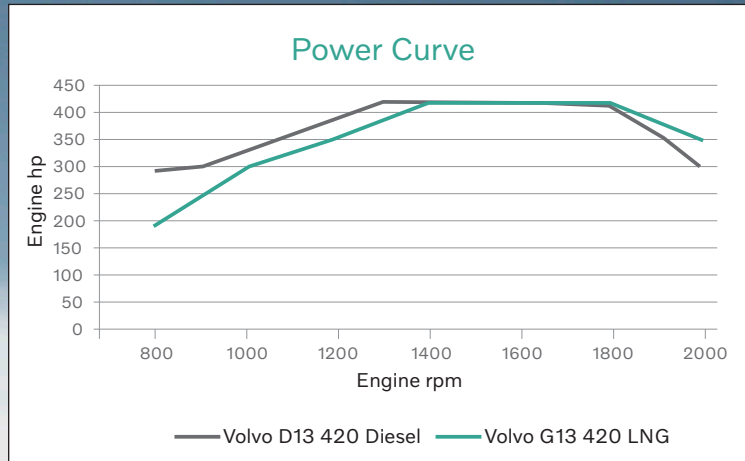
uses a dual layered cryogenic LNG tank with an in-built hydraulic powered high pressure piston pump, sending CNG into the engine at 300 bar. A separate circuit sends a small amount of diesel to the unique injector which uses diesel as a spark plug – initially diesel is injected into the combustion chamber followed by gas. 90-95% LNG and 5-10% diesel is burnt in the engine.

In case you run out of LNG, you can drive the truck to a safe place or the nearest LNG dispensing station on diesel at reduced power and torque.



Same performance, Same driveability
Same productivity.

But 20% less CO₂ with LNG &
100% less CO₂ with BioLNG.





TECHNOLOGY ADVANTAGE

The dual layered cryogenic tank stores 225 kg* of LNG, enough fuel to run the truck for 1000 kms. The unique single receptacle can be used for both venting of Boil-off-gas (BoG) and also for filling LNG.

*at -140°C : Capacity varies with LNG composition & temperature.

Lower fuel costs

Volvo's new Gas-powered trucks offer better fuel efficiency as compared to our diesel-powered equivalents. Also, as LNG is cheaper than diesel, fuel cost is reduced by over 25%.

A competitive advantage

The transport industry faces increasing demands from customers to reduce their emissions. Volvo gas-powered truck gives you a competitive advantage and an opportunity to secure contracts for future business.

Performs like a diesel

The powertrain in our new Gas-powered trucks is based on our renowned engine technology. It offers the same performance and load capacity – but with 20% less CO_2 emissions*.

A solid solution

The engine is the heart of any truck. The new Gas-powered engine is based on our state-of-the-art D13 engine. Efficiency is at par with diesel, as are service intervals, reliability and performance.

A smaller footprint

For companies with sustainability goals our Volvo Gas-powered trucks offer an immediate 20% reduction of CO_2 emissions, compared with diesel-driven trucks. Running on bio-LNG, a reduction of 100% CO_2 is possible.

Comfortable and safe cab

The new FM 420 cab has 1000 litre more cabin space, enhanced thermal insulation, 2dB quieter cab, and excellent internal and external storage space, soft closure of doors, pneumatic suspension and better vibration arresting on air suspended cab and comfortable bunk bed.

Volvo is synonymous with safety. The slim A-pillar, large windscreen and low door lines offer great direct visibility. Tinted windshield helps reduce glare and improved electrically controlled rear view mirrors gives you the best views. Power windows and central door locking secures the truck. Volvo cabs have been subjected to the toughest Swedish crash test. Driver side airbag ensures further passive safety. A roof hatch is provided as an emergency exit.

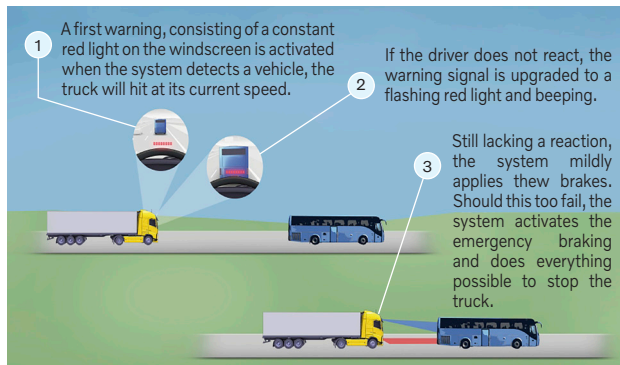


Advanced safety features

Electronic Braking System and Electronic Stability Control gives the driver confidence on all kinds of roads, including wet and slippery conditions. The truck comes with ADAS features such as Lane Departure Warning, Passenger Corner Camera, Driver Alert Support, Lane Keeping Support, Forward Collision Warning with Emergency Brake.

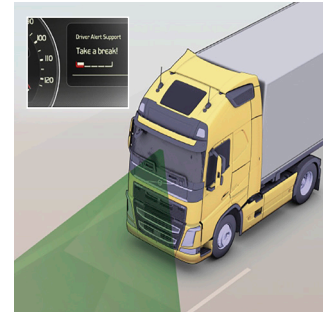
Collision Warning with emergency brake

An advanced emergency braking system is also equipped with an early collision warning. Both radar and a camera are used, which work together to identify and monitor vehicles ahead.



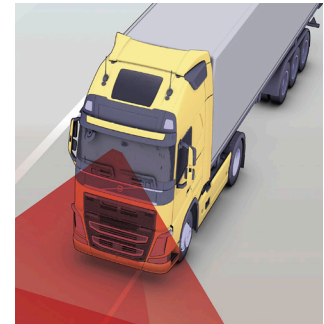
Driver Alert Support - DAS

A support system that alerts the driver if he/she is inattentive or drowsy. The system uses a camera sensor that tracks the truck's position in its lane and also monitors steering wheel movements. If any symptoms of tiredness are detected, the system activates an audio-visual alert.



Lane Keeping Support - LKS

Lane Keeping Support is an active safety system that significantly reduces risk factors in traffic like distraction or tiredness. The system is designed for long-haul operations and monitors the truck's position on the road when it is going over 60 km/h. If the driver unintentionally crosses a road marking the system alerts him by a buzzer.



Convenience redefined

The new FM 420 has the state of the art I-Shift 12 speed automated manual transmission which chooses the best gear in the interest of power and fuel economy. The ergonomically designed new gear control lever fits snugly in palm. Switch between drive modes like economy, standard and performance with the push of a button. With I-Shift, your driver has one less activity to focus on. Add to this, cruise control to maintain speed and downhill cruise

control to control speed while going down the slopes using auxiliary brakes Volvo Engine Brake (VEB+), so as to reduce brake wear. These controls can be activated from 4 kmph. Pre-trip check diagnoses all the vital parameters of the truck and alerts if something needs your attention with pop up message on the driver information display. If not, just turn the ignition and keep rolling.

Ultra-modern displays & controls

The Driver Information Display on the new cabin is a fully digital 12" unit which is dynamic to suit the preferences of the driver. Choose between the classic analogue view or digital, using buttons on the steering wheel. All vital statistics of the truck, alerts, driver timers, alerts etc., become part of the display.

What's more – connect your phone to the truck via bluetooth and drive safe with hands-free comfort. If one

digital screen is not enough, there is an additional 9" touch screen Secondary Information Display. This is a multipurpose unit which can display load indicator, trip meters, driver coaching, camera displays, infotainment etc. The truck is always connected to your monitoring console and Volvo Uptime centre, continuously transmitting vital data. We can remotely upgrade or install new software on the truck.



Technical specifications

ENGINE

Six-cylinder, in-line direct-injection diesel gas engine	
Overhead camshaft with four valves per cylinder	
Electronically regulated common rail fuel injection with unit injectors	
Heavy duty turbocharger and intercooler	
Engine management system with driving information and diagnosis	
Exhaust after treatment by Selective Catalytic Reduction (SCR) technology with additional AdBlue tank	
Exhaust Gas Recirculation (EGR)	
Displacement (litre)	12.8
Bore x stroke (mm)	131 x 158
Compression ratio	17.0 :1
Max. power	420 hp at 1600–1700 r/min
Max. torque	2100 Nm at 905–1400 r/min
Emissions*	BS-VI / Euro 6

*Emission requirements conform to ECE/EEC regulations and AIS 137 as notified by MoRTH vide GSR 889(E) dtd. 16.09.2016 w.e.f 01 April, 2020.

CLUTCH

Power assisted push-type single plate friction disc	
Plate diameter (mm)	430

GEARBOX

I-Shift (Automated range / splitter gearbox)	
Heavy duty transmission oil cooler with additional radiator	
I-Roll, Shift strategy, smart cruise control features for economy driving	
No. of gears	12 Forward + 4 Reverse
Economy, Standard, Performance drive modes	
Gearbox PTO (Optional)	

FRONT AXLE

Heavy duty steerable front axle	
Capacity (kg)	8000

REAR AXLE

Driven single reduction solo axle	
Differential lock - Inter wheels	
Ratio	3.40:1
For heavy duty variant	3.67: 1
Capacity (kg)	13000

SUSPENSION

Front

Parabolic leaf suspension	
Double-action shock absorbers and stabilizers	
No. of leaves	2
for heavy duty variant	3

Rear

Electronically controlled air suspension with 3 driving levels Rubber insulated V-stays and reaction rods, stabilizer & two shock absorbers and a rear-mounted inward-facing roll stabiliser	
No. of air bellows	4
Heavy duty air bellows for heavy duty variant	

WHEELS AND TYRES

Type size	295/80R22.5, Radial tubeless
Wheel rim size	8.25" x 22.5"
Total no. of wheels fitted	6
1 no. spare wheel rim and tyre	

CHASSIS FRAME

'C' channel section side members made of high strength steel. Frame inner liner from end of engine to end of bogie for heavy duty applications variant.	
Depth (mm)	300
Flange width (mm)	90
Section thickness (mm)	8

STEERING

Hydraulic Power Steering	
Tilt & Telescopic adjustable steering wheel	
Steering wheel diameter (mm)	450

FUEL AND ADBLUE TANKS

Dual layered cryogenic LNG tank (left side) (kg)	225
Diesel tank (right side) (litres)	170
AdBlue tank (right side) (litres)	64

EXHAUST SYSTEM

Vertical exhaust outlet on right hand side	
Exhaust Aftertreatment System	

SAFETY FEATURES

Passenger Corner Camera	
Driver Alert Support	
Lane keeping support and Lane departure warning	
Forward Collision warning with Automatic Emergency braking	
Rear view camera (Optional)	

BRAKES

Electronic Brake System (EBS)	
Electronic Stability Program (ESP)	
Hill start aid, Auto hold	
Dual line air brake system	
Z-cam disc brakes with automatic adjustment & ABS	
Electronic parking brake activation	
Spring type parking brake chambers on front and rear axle	
Stationary trailer brake control	

PNEUMATICS

Gear driven, dual cylinder reciprocating air compressor	
Max. compressor capacity (l/min)	900
Electronically controlled Air Production Modulator (APM)	
Total air tank capacity (litres)	101

ELECTRICALS	
System voltage	24 V
Volvo enhanced flooded batteries (2 nos)	
Battery voltage	12 V
Battery capacity	225 Ah
Alternator capacity	110 A
ADR - Adaptation with two switches, one inside cab (Dashboard) and one on cab back. (Only on ADR Tractor)	
7 pol electrical trailer connector	
15 pol electrical trailer connector (ADR certified). (Only on ADR Tractor)	

CABIN	
New FM sleeper cabin fully suspended by four coil springs and shock absorbers	
Crash tested steel welded structure	
Accommodation	1 driver + 1 co-driver + 1 bunk
Cabin tilt angle	70°

Interiors

- 12" fully dynamic digital instrument cluster with Home & Focus views
- Slimmer A-pillar, larger windscreen & lower door lines enhances direct visibility
- Air bag on driver side
- Electrical manually controlled climate unit
- Central door locking and power windows
- Ergonomically designed new dashboard with easy-access stalks, switches & controls
- 9" touch screen Secondary information display
- Air suspended driver's seat with adjustment of fore-aft, height, back rest, lumbar support, shoulder, seat cushion extension, seat tilt
- Cushioned foldable co-driver seat
- Cruise Control + Downhill cruise control
- Red safety belt

Exteriors
Aerodynamically designed with smooth surfaces and rounded corners at the front
Aerodynamic roof air deflector
Cab side air deflectors
New LED heavy duty headlamp unit with higher illumination main beam
Fog light and static cornering light

TELEMATICS

Volvo Connect on-board telematics collects and transmits all the vital statistics and performance parameters of the truck

Performance and health of the truck can be monitored from the convenience of your home

TOOLS AND ACCESSORIES

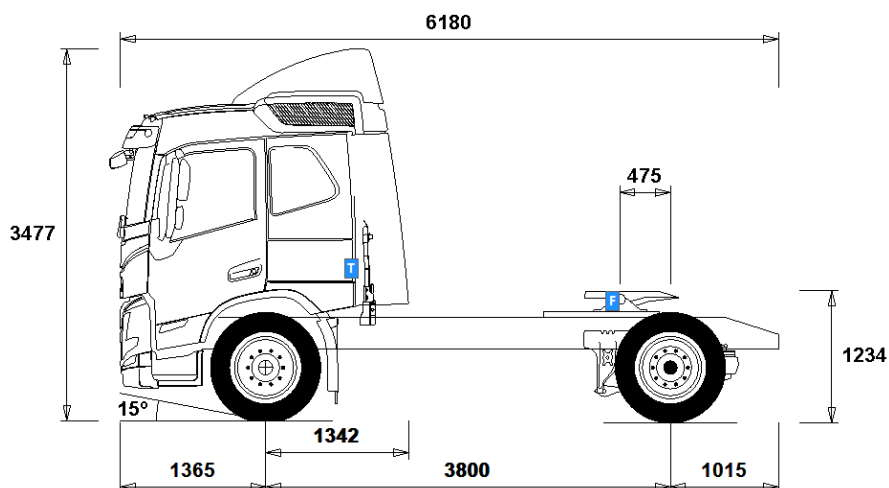
Standard tool kit, first aid kit, two warning triangles, bulb and fuse kit
20 ton hydraulic jack

FIFTH WHEEL COUPLING		
50 mm (2") heavy duty fifth wheel coupling		
Standard kingpin offset (before rear axle)	mm	475
Height from ground (unladen)	mm	1234
Height from ground (laden)	mm	1203

VEHICLE DIMENSIONS, mm (As per CMVR)	
Wheel base mm	3800
Overall length mm	6180
Overall width (without mirrors) mm	2500
Overall height (without deflector) mm	2947
Ground clearance mm	220

VEHICLE WEIGHTS, kg (as per CMVR limits)	
Front axle	7000
Rear axle	12500
GCW with 2 axle trailers	42500
GCW with 3 axle trailer	55000

SPEED LIMIT	
Max. Speed Limited to	80 kmph



Caution: Do not drill or weld on the frame. Note: Volvo has a policy of continual product improvement. The specifications / images shown here are indicative and are subject to change without prior notice. Performance parameters are subject to stability of the vehicle.

VOLVO

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