

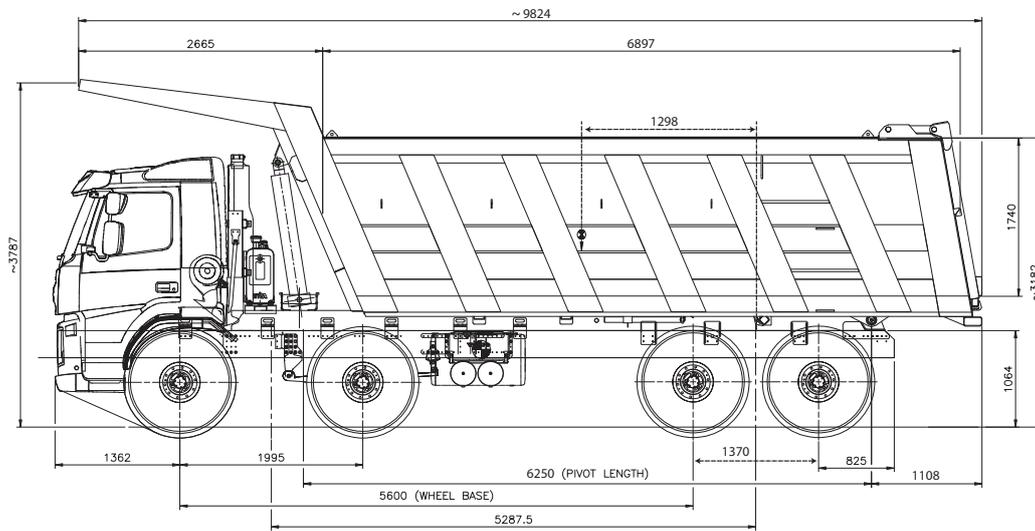


Volvo Trucks. Driving Progress

# FM 400 8X4 TIPPER WITH 29 CU.M COAL BODY



# FM400 8X4



## Dimensions, mm - as per IS 9435

### Tipper

Wheel base (centre of first front axle to centre of the rear-most axle)	6970
Overall Length	9824
Width	2600
Front overhang	1362
Rear overhang	825
Front bumper-to-rear edge of cab	1810
Front track	2020
Rear track	1870
Turning circle diameter	22100
Width over side members	850
Height, ground-to-top of cab	~3800
Pivot length	6250
Minimum ground clearance	285

### Unladen weight, kg (chassis without body-mounted)

Chassis weight, front (twin)	7090
Chassis weight, bogie	3870
Chassis weight, total	10960

### Unladen weight, kg (with body-mounted)

Front axle (twin)	9570
Rear axle, bogie	9670
Total	19240

### Laden weight, kg (limits as per CMVR)

Front axle (twin)	12000
Rear axle, bogie	19000
Gross vehicle weight	31000

## Engine D13A 400

Six-cylinder, in-line direct-injection diesel engine	
Four valves per cylinder	
Overhead camshaft	
Electronically regulated fuel injection with unit injectors	
Heavy Duty Turbocharger and intercooler	
Exhaust pressure governor	
Engine Management System with driving information and diagnosis	
Oil cooler	
Extra fuel filter	
Displacement	12.8 litres
Bore x stroke	131mm x 150 mm
Compression ratio	18.1:1
Max. power	400 HP (294 kW) @ 1400-1800 rpm
Max. torque	2000 Nm @ 1050-1400 rpm
Economy speed range	1050-1600 rpm
Cooling system capacity	38 litres
Oil capacity	33 litres
Emissions	BS III / Euro 3
Emission requirements conform to ECE/EEC regulations and MOST/CMVR/TAP 115/116	

## Clutch CD40B - O

Dual disc plate, drag type & power-assisted	
Clutch fork with spherical bearing	
Large friction area	
Asbestos free linings	
Plate diameter	400 mm
Total frictional surface	3063 sq.cm

## Gearbox-VT2214 B

Synchronized range-change and split-change gearbox with crawler gear

Oil cooler

Force-fed oil lubrication by oil pump

Full-flow oil filter

Gear Shift operation by cable

Casing made of Aluminium

No. of gears 14 forward and 4 reverse

### Gear ratios

	Low split	High split
Crawler	16.86:1	13.51:1
1st	11.13:1	8.92:1
2nd	7.16:1	5.74:1
3rd	4.68:1	3.75:1
4th	2.97:1	2.38:1
5th	1.91:1	1.53:1
6th	1:25.1	1.00:1
Rev low range	15.08:1	12.09:1
Rev high	4.02:1	3.22:1

## Power take-off

Clutch-dependent power take-off with directly mounted hydraulic pump

Used for tipping function when vehicle is stationary

P.T.O. ratio 0.928 of engine rpm

Max. power 30 kW (40.8 HP)

## Final drive - RT 3210HV

Type Tandem bogie with hub-reduction and differential lock between wheels and axles

Ratio 5.41:1

## Front axle

Twin heavy-duty straight front axle with unit bearings on hubs

## Chassis frame

'C' channel section side members made of high-strength steel with full length internal flitch.

Flange width 90 mm

Depth 300 mm

Thickness 8 mm

Internal flitch thickness 5 mm

## Steering

Type ZF 8098

Power steering with adjustable steering wheel provided with steering lock

Maximum Steering Ratio 26.2:1

No. of turns of steering wheel 4.8

Steering wheel diameter 500mm

## Suspension

### Front

Leaf springs with stabilizer

Double-action shock absorbers

No. of leaves I front axle 3 II front axle 3

Spring length 1890 1590

Spring width 100 100

## Rear

Multi-leaf springs with stabilizer

Spring mounting with cushion stops

Axle-mounting with v-stay and reaction rods

Double-action shock absorbers

No. of leaves 11

Spring length 1620 mm

Spring width 90 mm

## Brakes

Dual-line air brake system

Z-cam brakes with automatic adjustments

Asbestos-free brake linings

Braking area front - 4 x 1286 sq.cm

rear - 2 x 2958 sq.cm

System pressure 750 - 850 kpa

Parking brake spring-type on front axle and first drive axle

## Air compressor

Gear-driven, double-cylinder reciprocating air compressor

Max. capacity 900 l/min

## Air tanks

Total air tank capacity 135 litres

Air dryer-fitted

## Wheels and Tyres

Steel-disc wheels attached with 10 bolts

Twin mounted tyres on rear axles

Wheel rim size 8.5" x 20"

Tyre size 12 x 20 Cross Ply

1 no spare wheel rims and tyre

## Fuel tank

Steel circular tank mounted on right-hand side

Capacity 270 litres

## Exhaust system

Chassis mounted silencer with vertical exhaust outlet on the right-hand side

## Electrical equipment

Volvo Maintenance-free batteries 2 x 12V

Voltage 24 V

Battery capacity 170 Ah

Alternator capacity 80 A

## Day cab L1EH1

Cabin length BBC 1810 mm

Cabin width at rear 2490 mm

## Cabin features

### Driver efficiency

- Air-conditioned cab
- Cab-mounting with coil springs and shock absorbers
- In-cab comfort and climate
- Cushioned driver seat
- Driver seat adjustment – longitudinal height-wise and back-rest
- The seat and steering wheel adjustments offered enable short and tall drivers to adjust to their ideal driving position
- Air inlets provided on cab to give effective and draught-free ventilation

- Noise-insulated cab 67 to 70 dB(A) while cruising
- Curved dashboard and position of instruments and controls provide the driver with the best possible view and operation
- Wide-angle construction rear-view mirrors
- Cab tilt angle of 70 deg. improves accessibility around the engine
- Blind spot mirror in frontal area for better visibility

#### Safety

- An impact-and crash-barrier-tested safety cab
- Convenient and safe boarding, wide anti-slip entry / exit footsteps
- Seat belts for driver with reminder functionality

#### Long life

- Cab shell made of high-strength steel. Exposed panels hot-dip galvanized and treated with anti-rust protection
- Cab interior and upholstery provided with vinyl layer

#### Low fuel consumption

- Aerodynamic shape

#### Instruments

Oil pressure gauge, air pressure gauge (2 nos.), engine coolant gauge, rpm meter, speedometer, fuel gauge

#### Engine Management System

Clear display giving structured driver information on operational data, fuel consumption, average speed and for diagnosis purpose

#### Electrical distribution unit

An electrical distribution unit installed in the middle of the dashboard houses all relays and fuses A separate electrical distribution unit for the engagement of accessories and super structure equipment

#### Tools and accessories

Standard tool kit  
Hydraulic jack – 20 tonne capacity  
One front towing anchorage with bayonette- fitting

#### Cab colours

Yellow Orange, Opal Green, Burnt Ochre, Pastel Red, Jaipur Blue, Royal Blue, Navy Blue, Winter White, Volvo Blue, Silver Grey, BlueSkate, NP

#### Performance data (for a GVW of 31 tonnes)

##### Gradeability

**1st gear** (restricted by the friction between the tyre and the road surface) 53%

**Top gear** (@ 45 kmph) 2.7%

**Startability – on an uphill gradient on 1st gear** (restricted by the friction between the tyre and the road surface) 50%

**Economy speed range on top gear** 43 - 66 kmph

**Max. speed (geared)** 87 kmph

**Max. speed (limited)** 45 kmph 55 kmph

Caution: Do not drill or weld on the frame

Note: Specifications indicated are subject to change without notice. Performance parameters are subject to stability of the vehicle. Accessories shown are not part of the standard equipment

#### Tipper body

- Tipper body specially designed for the raw coal transportation
- All-steel welded construction
- Full length sub-frame designed and fixed to the chassis to give optimum support to the chassis while giving flexibility in front and extra rigidity at rear
- Torsionally stiff body is hinged at rear by means of four heavy-duty hinge brackets and a hinge bar
- Body designed for specially raw coal movement
- 8mm high wear resistant and high strength steel floor
- 6mm thick side board and head board of St 52 or equivalent steel
- 5mm thick tail gate of St 52 or equivalent steel with mechanical locking
- Tipping angle of 46° and 260 mm ground clearance
- Automatic front-mounted body clamp (Hyfix) to keep body rattle-free while driving
- Tip stabilizer for extra stabilizing effect while tipping
- Body prop to support the body safely to attend maintenance work under raised body
- Access ladder to climb into tipper body
- Body lifting brackets as standard
- Additional protection to Fuel tank & battery box to prevent damages from falling small stones

#### Body capacity

Struck volume 29 cu.m

#### Body dimensions

Length 9824 mm  
Width 2600 mm  
Height 1740 mm

Unladen height of body from ground 3176 mm(at rear)

Note: Selection of body capacity is based on the density of material

#### Hydraulics

- Hyva make, heavy-duty front mounted 5-stage telescopic tip cylinder with knock-valve
- Direct-mounted hydraulic pump on P.T.O.
- Oil tank capacity 110 litres
- Oil tank with breather filter and return line filter
- Oil level indicator on the tank

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