VOLVO BM 5350 B
UNDERGROUND

Specification Volvo BM Dumptruck 5350 B Underground

The standard Volvo BM 5350 B Articulated Dumptruck is a machine with inherent qualities ideally suited for below ground haulage. The Volvo BM 5350 B Underground is a very special machine for mining and tunneling with all the advantages of the standard model: reliability, manoeuvrability and economy.

Low emission engine

Volvo BM has worked for a long time on low-emission technology. By using an intercooler with carefully controlled combustion, Volvo BM have been able to maintain engine efficiency whilst reducing exhaust emission values. ***Another advantage of using an intercooler is that only about 5 % of the machines power is lost when working at 4.000 metres above sea level.***

Haulage characteristics

The 5350 B Underground is capable of high average speeds and has the tractive power to maintain those speeds on long uphill grades. It also has articulated steering for easy manoeuvrability at load and dump sites.

Comfort

The driver works in a comfortable and spacious cab with room for a passenger. With the cab centrally located over the front axle, the driver is ideally placed for the good allround visibility and directional control so essential when working in the confines of tunnels and drifts. These features, in combination with simple operation, fine responsive controls and an excellent suspension system, enable the driver to maintain optimum performance throughout a long arduous shift.

ENGINE

Volvo TD 70G: 6 cylinder in-line direct injected turbo-charged, 4 cycle diesel engine with overhead valves and wet replaceable cylinder linings.

Type	Direct-injected diesel engine with exhaust-driven turbocharger
Rating	157 kW at 40 rps SAE gross J 270 (213 hp at 3400 rpm)
Rating at flywheel	140 kW at 40 rps DIN 70020* (190 hp at 2400 rpm)

* With cooler fan working at 2400 rpm — normally the cooler fan works at 1200 rpm, which gives 155 kW (210 hp).

Max. torque	705 Nm at 26.7 rps SAE gross J 270 (520 lbf ft at 1600 rpm)
	633 Nm at 26.7 rps DIN 70020 (467 lbf ft at 1600 rpm)
Low idling speed	8.3 rps (500 rpm)
High idling speed	44.5 rps (2675 rpm)
Number of cylinders	6
Cylinder diameter	104.77 mm (4.125 in)
Stroke	130 mm (5.12 in)
Displacement	6.73 dm³ (411 in³)
Compression ratio	15.5:1
Cold start	Richer fuel mixture and preheater
Air filter	Dry air cleaner

Radiator fan:

Mounted on right-hand side.

Type Hydrostatically driven. Stepless speed control, dependent upon coolant temperature.

ELECTRICAL SYSTEM

Voltage	24 V
Battery	135 Ah
Alternator	1260 W
Starter motor	5 kW (6.8 hp)

TRANSMISSION

Torque converter, type:	Single-stage with free wheeling stator and automatic lock-up
Conversion ratio	2.43:1

Gear box

The machine has an automatic and manual gearbox with 10 forward gears and 2 reverse gears distributed in a high and low stage with 5 forward and 1 reverse gear in each.

The high and low gears and 1st gear are manual gears.

Speed (max.)	Low	High
1	5 km/h (3.1 mph)	6 km/h (3.7 mph)
2	9 km/h (5.6 mph)	13 km/h (8.1 mph)
3	12 km/h (7.4 mph)	18 km/h (11.1 mph)
4	21 km/h (13 mph)	34 km/h (21.1 mph)
5	30 km/h (18.6 mph)	46 km/h (28.5 mph)
Reverse	6 km/h (3.7 mph)	9 km/h (5.6 mph)

Drop box

Model	Volvo BM FL652
Type	Drop-box with differential and power take-off in 2 stage design.
Differential lock	100 % locking (dog clutch)
Drive	Continuous drive on front axle and first axle in bogie in all gears

WHEELS

Rim	17.00—25 all wheels
Tyres	20.5—25** radial tyres
Rim	20.00—25
Tyres	25/65—25** radial tyres

Ground pressure: see special table

BRAKE SYSTEM

Driving brakes: Air hydraulic controlled disc brakes on all axles, dual circuit system.

Circuit division	One circuit front axle One circuit bogie
Parking brake	Spring-actuated brake on propeller shaft

AXLES

Fully floating drive axles with planetary gear type hub reduction.

Front axle

Model	Volvo BM AH 54A
Differential lock	100 % locking (dog clutch)

Rear drive axle

Model	Volvo BM AH 54B
Differential lock	100 % locking (dog clutch)

Trailing axle

Make	Volvo BM

STEERING SYSTEM

Make	Volvo BM
Type	Hydromechanical articulated steering with emergency steering

Steering gear	Rack
Turns of wheel between locks	3.4
Steering angle from centreline	45°
Steering cylinders, type	2 double-acting
Hydraulic pumps	See Hydraulic system

HYDRAULIC SYSTEM

Hydraulic pumps, engine-dependent

Type	Variable piston pump
Number	3
Capacity	100 l/min (26 US gal/min., 22 UK gal/min at 2400 rpm)
Working pressure	18.5 MPa (2680 psi)
Drive system:	
Type	Flywheel power take-off
Make	Volvo BM
Number of pump take-offs	Room for 4 power take-offs (3 hydraulic pumps are utilized)
Hydraulic pump, ground-dependent	(for emergency steering)
Type	Variable piston pump
Number	1
Capacity	118 l/min (31 US gal/min., 26 UK gal/min at 2400 rpm)
Working pressure	18.5 MPa (2680 psi)
Location	Drop-box
Filters	2 paper and magnet filters

PNEUMATIC SYSTEM

Compressor:	
Capacity	425 l/min (15 ft³/min) at 2060 rpm
Drive	Gear drive

Outlet for tyre inflation

Automatic anti-freeze pump

Pressure regulator:	
Relief pressure	730—800 kPa (106—116 psi)

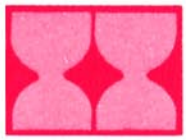
Compressed air reservoir:	
Volume	6+2×30 litres = 66 litres (17.4 US gal, 14.5 UK gal)

TIPPING MECHANISM

Tipping cylinder:	
Type	Single-acting, 6 stage
Tipping time with load	12 s
Lowering time	16 s
Tipping angle	63°
Tipping stop	Automatic

FRAMES

Front and rear frames incorporate closed Volvo BM box sections. These fabrications are designed to absorb stress loadings evenly throughout the frame.



VOLVO BM ON- AND OFF-ROAD SUSPENSION

Front axle
Two rubber cushions with bottoming absorption on each side. Stabilizer. Two shock absorbers on each side.

WEIGHTS

Operating weight (with oils, radiator fluid, full fuel tank, driver, standard body with wear plates and two water tanks).

20.5—25 wheels		Front axle	Bogie	Total weight
Unladen machine,	kg (lb)	8600 (18963)	7300 (16097)	15900 (35060)
Payload,	kg (lb)	—	—	22500 (49604)
Total weight,	kg (lb)	11200 (24696)	27200 (59976)	38400 (84672)

VOLUMES

	Litres	US gal	UK gal
Engine oil, incl. filter total	18.5	4.9	4.1
at change	16	4.2	3.5
Cooling system	30	8.0	6.6
Fuel tank	280	74	62
Gearbox, total	23	6.1	5.1
Drop-box	6	1.6	1.3
Drive-axle, front	35	9.2	7.7
rear	35	9.2	7.7
Hydraulic system	160	42	35
Brake fluid tank	3×0.5	3×0.13	3×0.10
Water tanks	2×225	2×59.4	2×49.5

CAB

Volvo BM safety cab, tested and approved in accordance with ROPS and the impact test method. Meets requirements for trucks, tractors and construction machines. The cab is mounted on rubber pads, which contributes towards extremely low vibration sensations. Filtered air and pressurized cab.

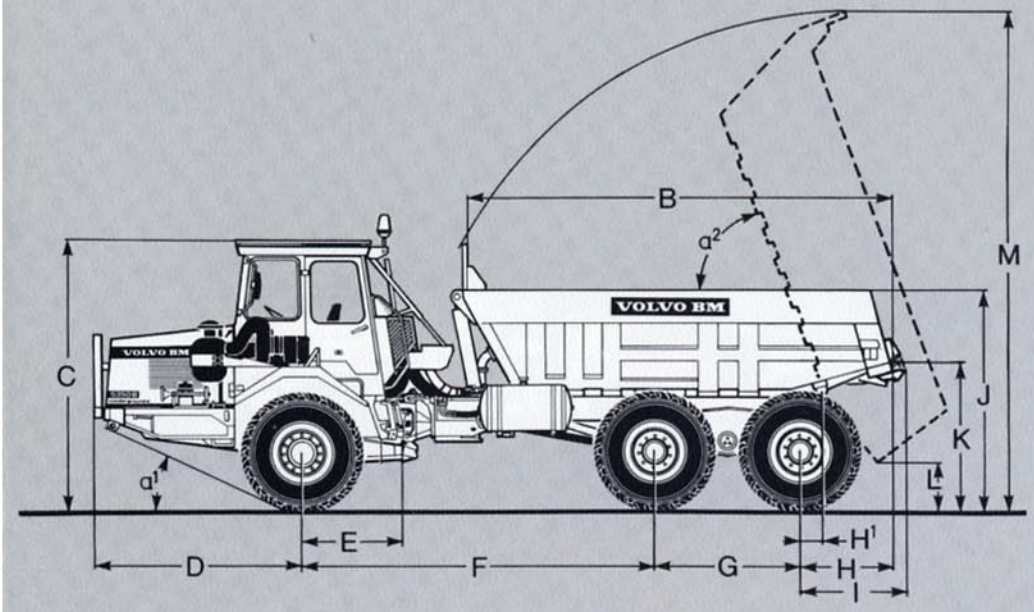
Number of exits:	3 (doors, cab hatch)
Driver's seat	Flameproof upholstery
Extra seat	For rider (optional)
Internal noise level	77 dB (A)

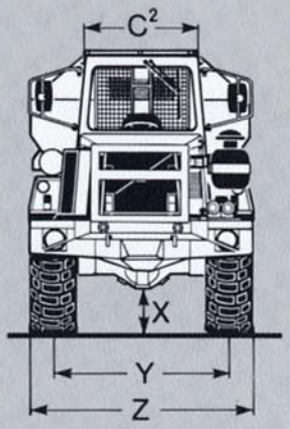
ENGINE: EMISSION VALUES

	HC ppm	NOx ppm	CO ppm	Smoke Bosch
Converter stall	150	1250	250	1.0
High idle	200	100	450	1.0
Low idle	200	200	200	0.1

Specific emission	HC g/hph	NOx g/hph	CO g/hph	HC+NOx g/hph
California 13 test method	0.65	5.93	2.02	6.58
Luleå LU H 8	0.49	6.52	1.32	7.01

***g/hph** = grams per horsepower hour*
***ppm** = parts per million*



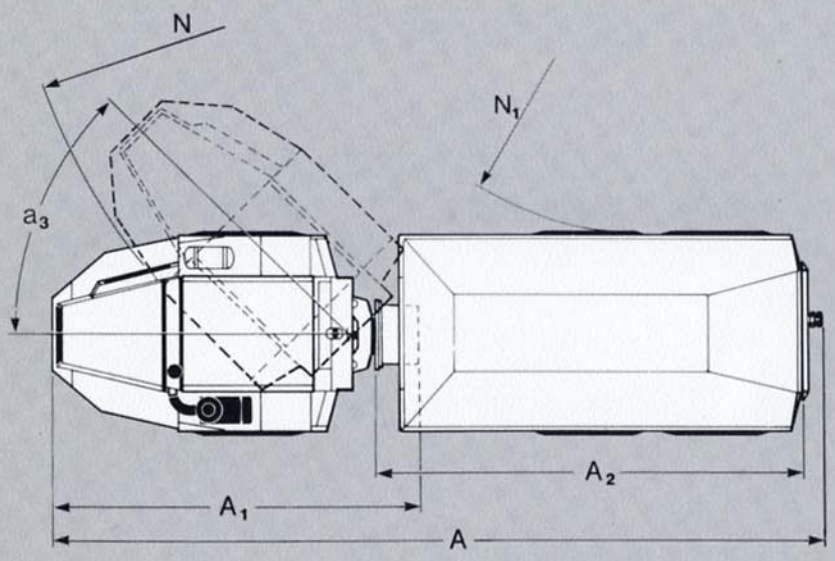


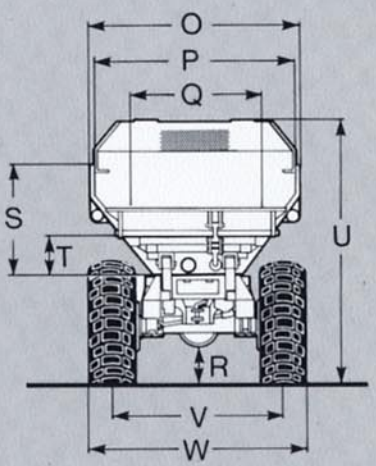
DIMENSIONS 5350 B mm (in)

A = 9605 (378)
A_1 = 4495 (177)
A_2 = 5540 (218)
B = 4955 (195)
C = 3130/3165* (123/125*)
C_2 = 1320 (52)
D = 2515 (99)
E = 1200 (47.2)
F = 4200 (165)
G = 1600 (63.0)
H = 1115 (43.9)
H_1 = 450 (17.7)
I = 1290 (50.8)
J = 2485/2.540* (97.8/100*)

K = 1620/1.675* (63.9/65.9*)
L = —/ 600* (—/23.6*)
L_1 = —/375* (—/14.7*)
Extended body
M = —/6040* (—/238*)
N = 7850 (309)
N_1 = 4250 (167)
O = 2480 (97.6)
P = 2320 (91.3)
Q = 1490 (58.7)
R = 400/450* (15.7/17.7*)
S = 1250 (49.2)
T = 380 (15.0)

U = 3110/3145 (122/124)
V = 1930 (76)
W = 2490 (98) (20.5—25)
2600 (102) (20.5—25)
2740 (108) (25/65—25)
X = 420/435* (16.5/17*)
Y = 1930 (76)
Z = 2490 (98) (20.5—25)
2600 (102) (20.5—25)
2740 (108) (26/65—25)
a_1 = 24.5°
a_2 = 63°
a_3 = 45°
* = Unladen machine
(Tyres 20.5×25 Radial)



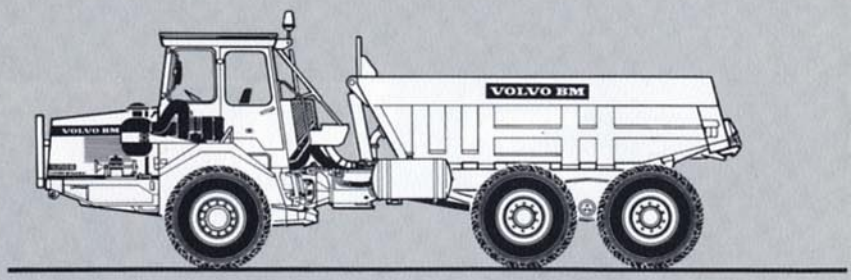


Standard body fitted with wear plates and exhaust gas ducts
(Weight increase 855 kg, 1885 lb)

The standard body with wear plates is designed for use in connection with forced loading of rock or other abrasive material. The wear plates extend the life of bodies used for forced loading and reduce maintenance costs.

The sides and wear plates possess an ultimate yield strength of 90 kgf/mm² and a hardness of 360—440 HB.

The body is designed for exhaust gas heating through ducts along the bottom.



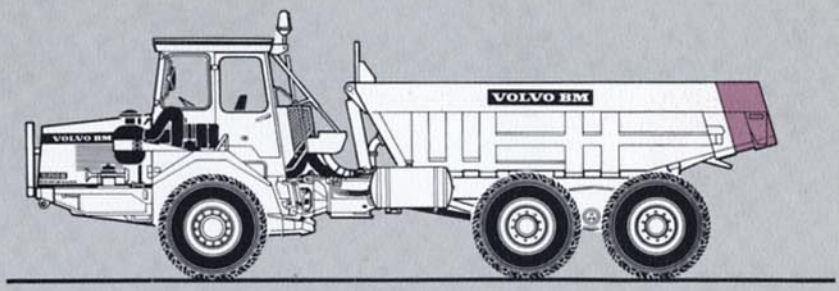
Body volumes (SAE 2.1*)	Without tailboard	With underhung tailboard	With underhung/overhung tailboard
Body volume struck, m³ (yd³)	9.4 (12.3)	9.6 (12.6)	9.9 (12.9)
heaped, m³ (yd³)	12.0 (15.7)	12.5 (16.4)	13.0 (17.0)

Extended body with wear plates and exhaust gas ducts
(Weight increase 1155 kg, 2546 lb)

The body extension is 500 mm (20 in) long. It facilitates tipping into shafts and over tip faces etc. The body extension partly replaces the tailboard. The body extension cannot be combined with the tailboard.

The extended body incorporates wear plates of the same grade as the wear plates for the standard body with an ultimate yield strength of 90 kgf/mm² and a hardness of 360—440 HB.

The body is designed for exhaust gas heating through ducts along the bottom.



Body volumes (SAE 2.1*)	
Elevated struck, m³ (yd³)	10.4 (13.6)
heaped, m³ (yd³)	13.0 (17.0)

**) In the case of bodies with struck volumes of less than 10 m³ (13 yd³), heaped volumes are specified to the nearest 0.5 m³.*

In the case of bodies with struck volumes of 10 m³ (13 yd³) or more, heaped volumes are specified to the nearest m³.

Struck volume is given in m³ (yd³) to one decimal place.

STANDARD EQUIPMENT

SAFETY & COMFORT

- Impact and pressure-tested safety cab (ROPS)
- Heater with defroster and air filter
- Ergonomically designed and adjustable driver's seat
- Safety belt
- Windshield wipers
- Windshield washer
- Rearview mirrors
- Sun visor
- Attachment points for safety belt
- Cigarette lighter and ashtray
- Tinted glass
- Horn
- Lights:
  Headlights, main/dipped/asym.
  parking lights
  reverse lights
  direction indicators
  position lights
  brake lights
  cab lighting
  instrument lighting
- Indicator for air cleaner
- Protective grille for rear window
- Cab roof hatch
- Tool kit
- Speedometer with tachograph
- Anti-theft lock
- Hazard flashers

BODY EQUIPMENT

- Dumptruck body with wear plates

ENGINE & ELECTRICAL SYSTEM

- Low emission engine
- Electric plug outlet
- Main switch
- Electrical system
- Alternator
- Central warning lamp:
  hydraulic oil level, fault in steering system, brake fluid level, brake pressure, anti-freeze level, engine oil pressure, engine overrevs, air filter, charging, gearbox temperature
- Pilot lamps for:
  charging
  main beams
  flashers
  preheating
  longitudinal differential lock
  steering function, ground-dependent pump
- Warning lamps for:
  low hydraulic oil level
  steering function ground-dependent pump
  brake fluid level
  low brake pressure
  parking brake
  engine oil pressure
  engine overrevs
  gearbox temperature
  air filter
- Gauges for:
  air pressure
  engine temperature
  fuel
  speedometer or tachograph

DRIVE COMPONENTS

- Torque converter
- Automatic gearbox
- Automatic Lock-up
- Drop box with high and low gears
- Longitudinal differential lock
- Lateral differential lock
- Tyres 20.5—25**, radials

EXTRA EQUIPMENT

(Standard equipment on certain markets)

- Safety belt
- Compressor horn
- Rotating warning beacon
- Rearview mirror heating
- Extra fuel filter
- Radio
- Extended dumper body with wear plates
- Underhung tailboard
- Working lights, front
- Working lights, rear
- Headlight washers
- Complete tyre inflation kit
- Oil bath air precleaner
- Retarder valve
- Exhaust cooling-cleaning system
- Front protection
- Cab protection plate (FOPS)
- Towing hitch
- Air conditioning
- Heated driver's seat
- Retractable step
- Tachographs
- Dumper body heating (exhaust gas)
- Rider seat
- Automatic fuses

UNDERHUNG TAILBOARD

An underhung tailboard with operating mechanism which automatically opens the tailboard when the body is tipped.

If the tailboard is subjected to excessively high load, a gas spring is released and the tailboard opens. When the load is relieved, the tailboard closes automatically.

A tailboard should always be used for road haulage in order to prevent spillage.

The tailboard cannot be combined with the body extension.

The tailboard increases the weight of the body by 100 kg (220 lb).

Under our policy of continual product improvement, we reserve the right to change specifications and design without notice. The illustrations do not necessarily show the standard version of the machine.

VOLVO BM

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