

# Volvo BM A35C

## 6×6



- **Engine output:**  
SAE J1349 Net  
240 kW (322 hp)
- **Body volume:**  
19 m<sup>3</sup> (25 yd<sup>3</sup>)
- **Load capacity:**  
32 t (35 sh tn)
  
- *Direct-injected, turbo-charged, intercooled Volvo low emission high performance diesel engine.*
- *Electronically controlled, fully automatic powershift transmission. High and low gear ranges.*
- *Variable hydraulic retarder as standard.*
- *One longitudinal and three transverse diff-locks. All with 100% locking capability.*
- *Volvo BM rough terrain suspension, high ground clearance and individually oscillating bogie and front axles.*
- *Low interior noise level.*
- *Adjustable steering wheel.*

**VOLVO BM**

## ENGINE



Volvo 6-cylinder, inline, direct-injected, turbocharged, intercooled 4-cycle low emission diesel engine with overhead valves and wet replaceable cylinder linings.

Meets USA (EPA), California off-road regulation 1996 and European off-road regulation 1997.

**Fan:** Hydrostatic driven, thermostatically controlled radiator fan consuming power only when needed.

Make Model			Volvo TD 122 KAE	
Max power at SAE J1349 Gross	r/s	(r/min)	35	(2100)
	kW	(hp)	245	(328)
Flywheel power at SAE J1349 Net	r/s	(r/min)	35	(2100)
	kW	(hp)	240	(322)
DIN 6271*	kW	(hp)	240	(322)
Max torque at SAE J1349 Gross	r/s	(r/min)	23	(1200)
	Nm	(lbf ft)	1475	(1088)
SAE J1349 Net	Nm	(lbf ft)	1470	(1084)
DIN 6271 **	Nm	(lbf ft)	1470	(1084)
Displacement total	l	(in <sup>3</sup> )	12	(732)
Bore	mm	(in)	130	(5.13)
Stroke	mm	(in)	150	(5.9)
Compression ratio			16:1	

\*) with fan at normal speed. With fan operating at full speed, the flywheel power is 228 kW (306 hp) which corresponds to DIN 70020.

\*\*) with fan at normal speed. With fan operating at full speed, the maximum torque is 1340 Nm (988 lbf ft) which corresponds to DIN 70020.

## ELECTRICAL SYSTEM



Voltage	V	24
Battery capacity	Ah	2x170
Alternator	kW	1.68
Starter motor	kW (hp)	6.6 (8.8)

## SERVICE REFILL CAPACITIES



Crankcase	l	(US gal)	31	(8.2)
Fuel tank	l	(US gal)	360	(95.1)
Cooling system	l	(US gal)	88	(23.2)
Transmission total	l	(US gal)	41	(10.8)
Dropbox	l	(US gal)	8	(2.1)
Hub	l	(US gal)	6	(1.6)
Front axle	l	(US gal)	40	(10.6)
First bogie axle	l	(US gal)	41	(10.8)
Second bogie axle	l	(US gal)	40	(10.6)
Brake hydraulics	l	(US gal)	31	(8.2)
Brake oil tank	l	(US gal)	11	(2.9)
Hydraulic system	l	(US gal)	194	(51.3)
Hydraulic tank	l	(US gal)	175	(46.2)

## DRIVETRAIN



**Torque converter:** Single stage with free-wheeling stator and automatic lock-up in all ranges.

**Transmission:** Electronically controlled, fully automatic planetary transmission with six gears forward and two in reverse.

**Dropbox:** Volvo BM with 2-stage design, power take-off and differential locking.

**Axles:** Volvo BM. 6-wheel drive. All axles have transverse diff-locks with 100% locking capability and fully floating axle shafts with planetary type hub reductions.

**Differential locks:** One longitudinal and three transverse. All with 100% locking capability.

Torque converter		2.63:1
Transmission	Volvo BM	PT 1761
Dropbox	Volvo BM	FL 762
Axles	Volvo BM	AH 63

### Speeds with tyres 26.5 R 25

Low gear forward	1	km/h (mile/h)	5.3 (3.3)
	2	km/h (mile/h)	7.6 (4.7)
	3	km/h (mile/h)	13.8 (8.6)
	4	km/h (mile/h)	19.9 (12.4)
	5	km/h (mile/h)	25.3 (15.7)
	6	km/h (mile/h)	33.6 (20.9)
High gear forward	1	km/h (mile/h)	8.6 (5.3)
	2	km/h (mile/h)	12.4 (7.7)
	3	km/h (mile/h)	22.3 (13.9)
	4	km/h (mile/h)	32.3 (20.1)
	5	km/h (mile/h)	41.0 (25.5)
	6	km/h (mile/h)	54.4 (33.8)
Low gear reverse	1	km/h (mile/h)	8.5 (5.3)
High gear reverse	1	km/h (mile/h)	8.0 (5.0)
	2	km/h (mile/h)	13.8 (8.6)

## SUSPENSION



### VOLVO BM SUSPENSION SYSTEM

**Front axle:** One rubber spring with bottoming absorption on each side. Stabilizer. Two shock absorbers on each side. The front axle is suspended at three points, allowing oscillation in rough terrain.

**Bogie:** Volvo BM's unique rough terrain bogie, which permits individual oscillation between the axles.

## BRAKE SYSTEM



Fully hydraulic disc brakes on all axles. Two circuits. Designed to comply with ISO 3450 and SAE J1473 at gross machine weight.

**Circuit Division:** One for front axle and one for bogie axles.

**Parking brake:** Spring-applied, air-released disc brake on the propeller shaft, designed to hold a loaded machine on a grade up to 18%. When the parking brake is applied, the longitudinal differential is locked. Compressor: Gear-driven by engine transmission.

**Retarder:** Hydraulic, infinitely variable, integrated in transmission as standard.

**For retarding capability incl. retarder, engine and exhaust brake, see graph on page 4.**

## HYDRAULIC SYSTEM



**Pumps:** Four engine-dependent, variable piston pumps mounted on flywheel power take-offs. Ground-dependent hydraulic pump for supplementary steering mounted on dropbox.

**Filter:** Filtration of oil through two paper filters with magnetic cores.

Pump capacity per pump	l/min	(US gal/min)	100	(26.4)
at shaft speed	r/s	(r/min)	34	(2040)
Working pressure	MPa	(psi)	21	(3048)

## CAB



**Volvo BM cab,** tested and approved according to ROPS standard ISO/3471 and SAE J1040/APR 88. Mounted on rubber pads which effectively reduce vibrations. Adjustable steering wheel. Radio/Contronic console in ceiling.

**Heater and defroster:** Filtered air and pressurized cab. Three-speed fan.

**Operator's seat:** Equipped with flameproof upholstery. Extra seat for trainer.

Number of exits	2
Internal sound level acc. to ISO 6394 and at max. speed	dB (A) 76

## STEERING SYSTEM



Hydromechanical articulated steering. 3.4 turns lock-to-lock .

**Cylinders:** Two double-acting steering cylinders.

**Supplementary steering:** Standard. Complies with ISO 5010 standard at total machine weight.

**Steering angle:**  $\pm 45^\circ$

## BODY



**Body:** Hardened and tempered steel body with high impact strength.

**Cylinders:** Two 3-stage, of which one stage is double-acting.

Tipping angle	°		73
Tipping time with load	s		15
Lowering time	s		18
Body, plate thickness			
Sides	mm	(in)	12 (1/2)
Bottom/chute	mm	(in)	16 (5/8)
Headboard	mm	(in)	8 (5/16)
Beams	mm	(in)	8 (5/16)
Yield strength	N/mm <sup>2</sup>	(psi)	1000 (145000)
Tensile strength	N/mm <sup>2</sup>	(psi)	1250 (181000)
Hardness min.	HB		360-440

## WEIGHTS



Operating weight includes all fluids and operator. Standard machine.

### Operating weight:

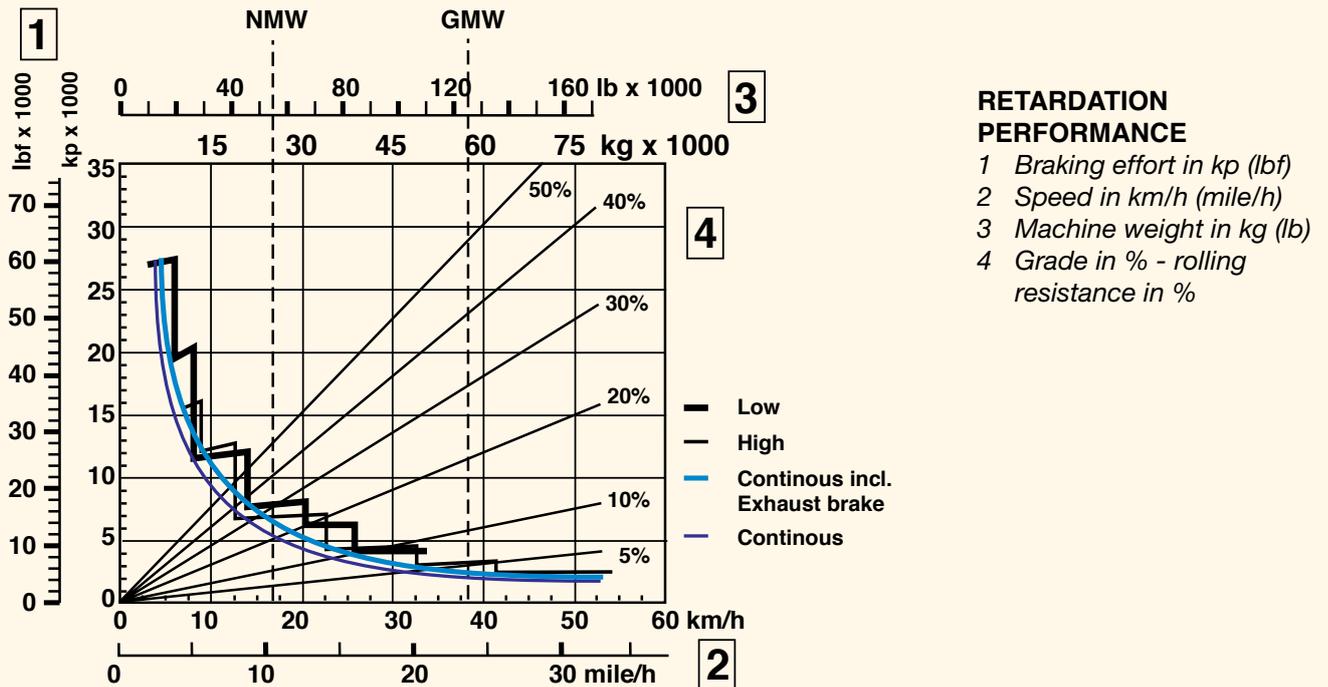
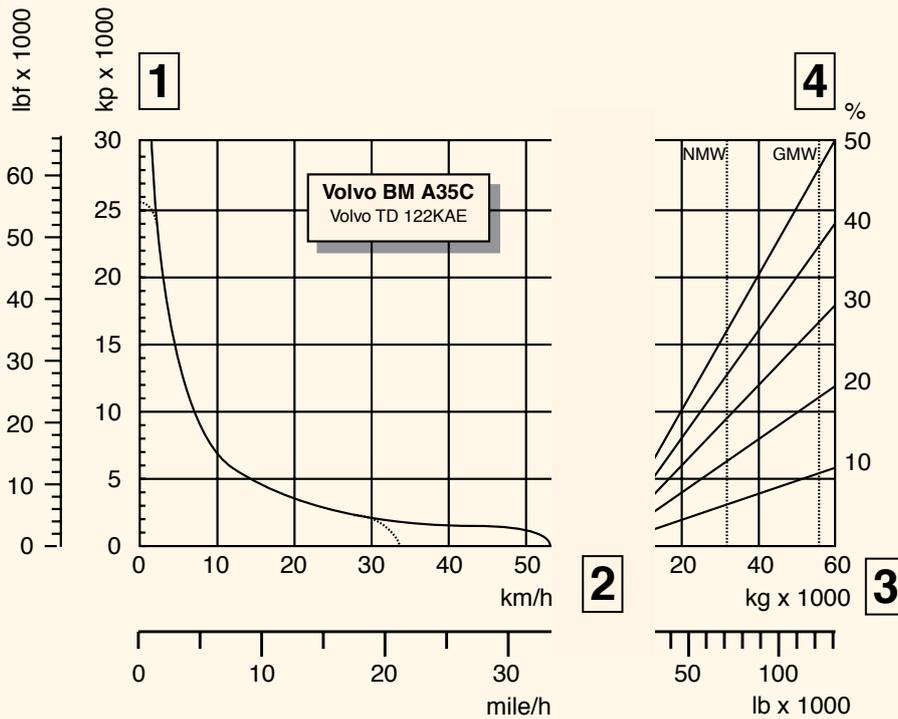
Front	kg	(lb)	13250	(29211)
Rear	kg	(lb)	12450	(27447)
Total	kg	(lb)	25700	(56658)
Payload	kg	(lb)	32000	(70547)
Total weight				
Front	kg	(lb)	16450	(36265)
Rear	kg	(lb)	41250	(90939)
Total	kg	(lb)	57700	(127204)

## GROUND PRESSURE



At 15% sinkage of unloaded radius and specified weights.

Unloaded				
Front	kPa	(psi)	111	(16.1)
Rear	kPa	(psi)	52	(7.5)
Loaded				
Front	kPa	(psi)	138	(20.0)
Rear	kPa	(psi)	174	(25.2)

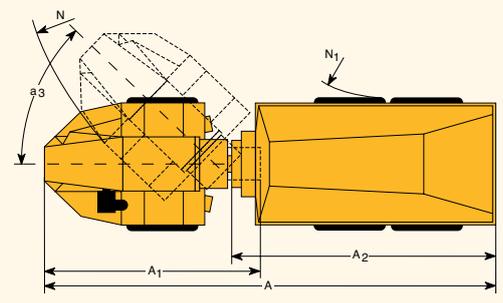
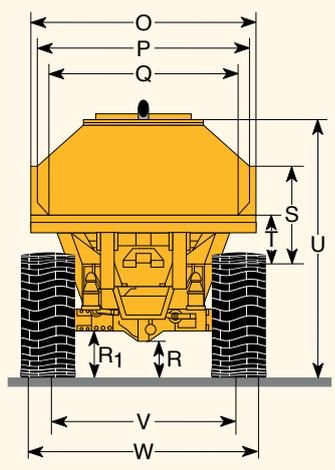
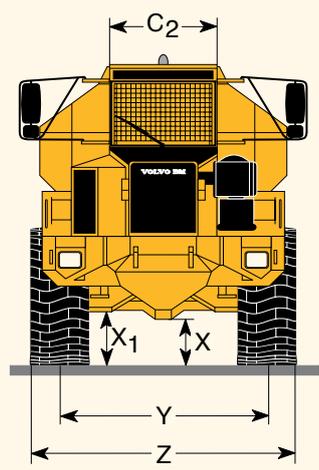
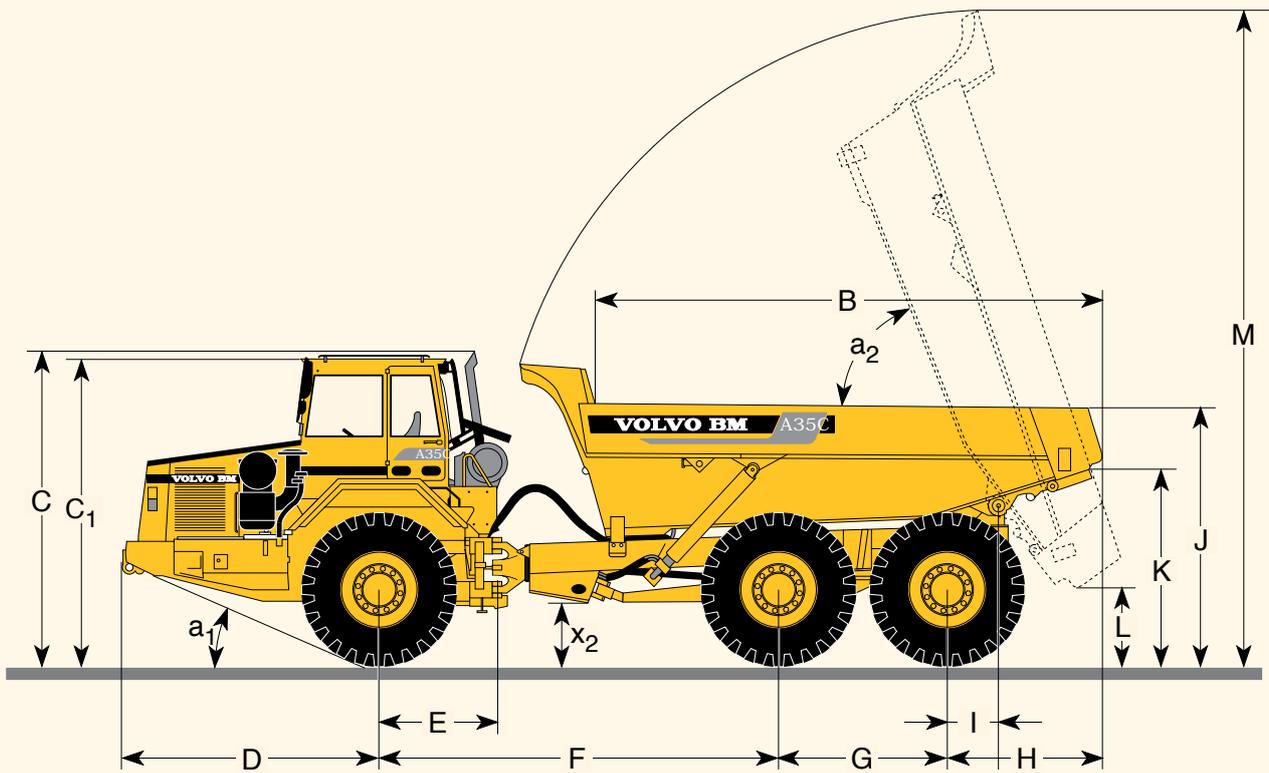


## INSTRUCTIONS

Diagonal lines represent total resistance (grade % **plus** rolling resistance %).  
Charts based on 0% rolling resistance, standard tyres and gearing, unless otherwise stated.

In the retardation chart, the diagonal lines represent the "total resistance" as well (here in downhill grades it is the total extra pushing force), which is the grade in % **minus** the rolling resistance in %.

- Find the diagonal line with the appropriate total resistance on the right-hand edge of the chart.
- Follow the diagonal line downward until it intersects the actual machine weight line, NMW or GMW.
- Draw a new line horizontally to the left from the point of intersection until the new line intersects the rimpull or retardation curve.
- Read down for vehicle speed.



### DIMENSIONS Volvo BM A35C 6x6 (unloaded with 26.5 R 25 tyres)

A	mm (ft in)	10898 (35'9")	F	mm (ft in)	4495 (14'9")	N <sub>1</sub>	mm (ft in)	4300 (14'1")	V	mm (ft in)	2522 (8'3")
A <sub>1</sub>	mm (ft in)	5232 (17')	G	mm (ft in)	1820 (6')	O	mm (ft in)	3006 (9'10")	W	mm (ft in)	3200 (10'6")
A <sub>2</sub>	mm (ft in)	6348 (20'10")	H	mm (ft in)	1624 (5'4")	P	mm (ft in)	2770 (9'1")	X	mm (ft in)	519 (1'8")
B	mm (ft in)	5554 (18'3")	I	mm (ft in)	725 (2'5")	Q	mm (ft in)	2510 (8'3")	X <sub>1</sub>	mm (ft in)	559 (1'10")
C	mm (ft in)	3604 (11'10")	J	mm (ft in)	2922 (9'7")	R	mm (ft in)	570 (1'10")	X <sub>2</sub>	mm (ft in)	696 (2'3")
C <sub>1</sub>	mm (ft in)	3510 (11'6")	K	mm (ft in)	2231 (7'4")	R <sub>1</sub>	mm (ft in)	670 (2'2")	Y	mm (ft in)	2522 (8'3")
C <sub>2</sub>	mm (ft in)	1330 (4'4")	L	mm (ft in)	1054 (3'5")	S	mm (ft in)	1274 (4'2")	Z	mm (ft in)	3200 (10'6")
D	mm (ft in)	2959 (9'8")	M	mm (ft in)	7529 (24'8")	T	mm (ft in)	595 (1'11")	a <sub>1</sub>	°	25
E	mm (ft in)	1270 (4'2")	N	mm (ft in)	8694 (28'6")	U	mm (ft in)	3486 (11'5")	a <sub>2</sub>	°	73
									a <sub>3</sub>	°	45

### LOAD CAPACITY (Body volumes according to SAE 2:1)

Load capacity	kg	(sh tn)	32000	(35)
Body, struck	m <sup>3</sup>	(yd <sup>3</sup> )	14.8	(19)
heaped	m <sup>3</sup>	(yd <sup>3</sup> )	19	(25)
<b>With overhung tailgate (optional)</b>				
Body, struck	m <sup>3</sup>	(yd <sup>3</sup> )	15.2	(20)
heaped	m <sup>3</sup>	(yd <sup>3</sup> )	19.8	(26)

## STANDARD EQUIPMENT

### Safety and comfort

ROPS cab  
Cab heater with filtered fresh air and defroster.  
Ergonomically designed and adjustable operator's seat  
Windshield wipers  
Windshield washers  
Rear view mirrors  
Sun-visor  
Seat belt  
Anti-slip material on hood and fenders  
Cigarette lighter  
Ashtray  
Horn  
Protective grille for rear window  
Hazard flashers  
Tinted glass  
Lights:  
headlights, main/dipped  
parking lights  
direction indicators  
rear lights  
back-up lights  
brake lights  
cab lighting  
instrument lighting

Adjustable steering wheel  
Steering joint locking assembly  
Radio/Contronic console in ceiling  
Speedometer  
Secondary steering

### Engine and electrical system

Low emission engine  
Turbocharger  
Intercooler  
Oil drainage hose  
Alternator  
Preheating  
Battery disconnect switch  
Electrical outlet  
Gauges for:  
air pressure  
engine temperature  
engine revs  
fuel  
hours  
transmission oil temperature  
Pilot lamps for:  
direction indicators  
bogie axles diff-lock  
front axle diff-lock  
longitudinal diff-lock  
lights  
main beam  
preheating

### Warning lamps for:

air filter  
battery charging body up  
brake pressure  
brake fluid level  
coolant level  
engine oil pressure  
engine temperature  
engine-dependent steering pump  
ground-dependent steering pump  
parking brake  
transmission temperature  
Central warning for:  
air pressure  
battery charging  
brake fluid level  
engine oil pressure  
engine overspeed  
engine temperature  
steering function  
transmission temperature

### Cab

Extra seat for trainer

### Drivetrain

Torque converter  
Automatic transmission  
Drop box with high/low range  
Automatic lock-up  
Hydraulic, variable retarder  
Longitudinal diff-lock  
Differential lock front axle  
Differential lock first bogie axle  
Differential lock second bogie axle  
Brake guard

### Body

Body with exhaust ducts

### Tyres

Front: 26.5R25  
Rear: 26.5R25

## OPTIONAL EQUIPMENT

### Service and maintenance

Tool kit with tyre inflation unit

### Engine

Oil-bath aircleaner  
Coolant filter  
Exhaust brake

### Electrical

Work lights, roof-mounted  
Rotating beacon

### Cab

Airsuspended, electrically heated operator's seat  
Electrically heated rear-view mirrors  
Air conditioning  
Contronic display  
Radio installation kit

### Protection

Overhead guards,FOPS  
Mudguards in front of bogie

### Body

Extra front spillguard  
Body heating  
Overhung tailgate  
Wear plates, kit delivery  
Upper side extensions, 200 mm

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

# Volvo Construction Equipment

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English  
ART