



Volvo BM A30

6×6

- *Direct-injected, intercooled, turbo-charged Volvo diesel engine. **Low emission engine as option.***
- *New body design – increased body capacity*
- *Fully automatic powershift.*
- *Hydraulic retarder as standard.*
- *Wide base tyres 30/65R25 as standard.*
- *One longitudinal and three transverse diff locks. All with 100% lock-up.*
- *Volvo BM rough terrain suspension with high ground clearance and individually oscillating bogie and front axle.*
- **Engine output:**
SAE J1349 Net
213 kW (285 hp)
- **Body volume:**
16.5m³ (21.6 yd³)
- **Load capacity:**
27 (30 sh ton)



VOLVO BM

ENGINE



6-cylinder, in-line, direct-injected, intercooled, turbocharged 4-cycle diesel engine with overhead valves and wet replaceable cylinder linings.

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

Make	Volvo			
Model	TD 102 KH			
Max Power at	r/s	(r/min)	36.7	(2200)
SAE J1349 Gross	kW	(hp)	214	(287)
Flywheel power at	r/s	(r/min)	36.7	(2200)
SAE J1349 Net	kW	(hp)	213	(285)
DIN 6271*	kW	(hp)	213	(285)
Max torque at	r/s	(r/min)	23.3	(1400)
SAE J1349 Gross	Nm	(lbf ft)	1150	(848)
SAE J1349 Net	Nm	(lbf ft)	1140	(840)
DIN 6271**	Nm	(lbf ft)	1140	(840)
Displacement total	l	(in ³)	9.6	(585)
Bore	mm	(in)	120	(4.7)
Stroke	mm	(in)	140	(5.5)
Compression ratio	15.0:1			

*) with fan at normal 11.7 r/s (700 r/min). With fan operating at 36.7 r/s (2200 r/min) the flywheel power is 197 kW (264 hp) which corresponds to DIN 70020.

**) with fan at normal 11.7 r/s (700 r/min). With fan operating at 36.7 r/s (2200 r/min) the maximum torque is 1030 Nm (759 lbf ft) which corresponds to DIN 70020.

Optional Volvo **low emission engine** TD 102 KFE. Meets 88/77/EEC in production and California off-road regulation 1996.

Specification:

Max Power at	r/s	(r/min)	36.7	(2200)
SAE J1349 Gross	kW	(hp)	214	(287)
Flywheel power at	r/s	(r/min)	36.7	(2200)
SAE J1349 Net	kW	(hp)	213	(285)
DIN 6271	kW	(hp)	213	(285)
Max torque at	r/s	(r/min)	25.0	(1500)
SAE J1349 Gross	Nm	(lbf ft)	1180	(870)
SAE J1349 Net	Nm	(lbf ft)	1170	(863)
DIN 6271	Nm	(lbf ft)	1170	(863)
Displacement total	l	(in ³)	9.6	(585)
Bore	mm	(in)	120	(4.7)
Stroke	mm	(in)	140	(5.5)
Compression ratio	16.0:1			

SERVICE REFILL CAPACITIES



Crankcase	l	(US gal)	23	(6.1)
Fuel tank	l	(US gal)	360	(95.1)
Cooling system	l	(US gal)	52	(13.7)
Transmission total	l	(US gal)	35	(9.2)
Dropbox	l	(US gal)	5	(1.3)
Hub	l	(US gal)	3	(0.8)
Front axle	l	(US gal)	33	(8.7)
First bogie axle	l	(US gal)	31	(8.2)
Second bogie axle	l	(US gal)	33	(8.7)
Brake hydraulics	l	(US gal)	4x0.5	(4x0.1)
Hydraulic system	l	(US gal)	194	(51.2)
Hydraulic tank	l	(US gal)	175	(46.2)

DRIVETRAIN



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

Transmission: Fully automatic planetary transmission with 6 gears forward and 2 reverse.

Dropbox: Volvo BM single-stage dropbox with power take-off and differential with lock.

Axes: Volvo BM AH 63. 6-wheel drive. All axles have transversal diff-locks with 100% lock-up and fully floating axle shafts with planetary type hub reductions.

Differential locks: One longitudinal and three transverse. All with 100% lock-up.

Torque converter	2.42:1
Transmission	Volvo PT 1661
Dropbox	FL 650B

Speeds with tyres 30/65R25 and 23.5R25

Forward	1	km/h (mile/h)	8.2	(5.1)
	2	km/h (mile/h)	11.9	(7.4)
	3	km/h (mile/h)	21.5	(13.4)
	4	km/h (mile/h)	31.1	(19.3)
	5	km/h (mile/h)	39.5	(24.5)
	6	km/h (mile/h)	52.3	(32.7)
Reverse	1	km/h (mile/h)	7.6	(4.7)
	2	km/h (mile/h)	13.1	(8.1)

ELECTRICAL SYSTEM



Voltage	V	24
Battery capacity	Ah	2x170
Alternator	kW	1.68
Starter motor	kW (hp)	6.6 (8.9)

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, which results in oscillating needed in rough terrain.

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

BRAKE SYSTEM



Dual-circuit system with air-hydraulic disc-brakes, designed to comply with ISO 3450 and SAE J1473 at total machine weight.

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

Compressor: Gear-driven by engine transmission.

Parking brake: Spring-applied disc brake on the propeller shaft, designed to hold a loaded machine on a grade up to 18%.

Retarder: Standard, hydraulic, infinitely variable, integrated in transmission.

Braking effort incl. engine and retarder:

Continuous at	r/s	(r/min)	30	(1800)
Max. power	kW	(hp)	250	(340)
Max. torque	Nm	(lbf ft)	1330	(981)
Intermittent at	r/s	(r/min)	40	(2400)
Max. power	kW	(hp)	300	(408)
Max. torque	Nm	(lbf ft)	1200	(885)

HYDRAULIC SYSTEM



Pumps: Four engine-dependent, variable piston pumps mounted on flywheel power take-offs.

Three of the four take-offs are utilised. 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		100	
	(US gal/min)			(26.4)
at shaft speed	r/s	(r/min)	34	(2050)
Working pressure	MPa	(psi)	19	(2710)

CAB



Volvo BM cab, tested and approved according to ROPS standard ISO/CD 3471 and SAE J1040/APR88. Mounted on rubber pads which effectively reduces vibrations.

Heater and defroster: Filtered air and pressurized cab.

Operator's seat: Flameproof upholstery. Extra seat for trainer.

Number of exits		2
Internal sound level, max	dB (A)	80

STEERING SYSTEM



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

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 single stage double-acting hoist cylinders.

Tipping angle	°	70
Tipping time with load	s	14
Lowering time	s	13
Body, plate thickness		
Front	mm (in)	8 (0.31)
Sides	mm (in)	12 (0.47)
Bottom/chute	mm (in)	14 (0.55)
Yield strength	N/mm ² (psi)	883 (128000)
Tensile strength	N/mm ² (psi)	1226 (178000)
Hardness min.	HB	360-440

WEIGHTS



Operating weight includes all fluids and operator.

Operating weight with 30/65R25 tyres:

Front	kg (lb)	11300 (24916)
Rear	kg (lb)	9600 (21168)
Total	kg (lb)	20900 (46085)
Payload	kg (lb)	27000 (59535)
Total weight		
Front	kg (lb)	15050 (33185)
Rear	kg (lb)	32850 (72434)
		47900 (105620)

A30 equipped with 23.5R25 tyres, subtract 200 kg (440 lb) per axle.

GROUND PRESSURE



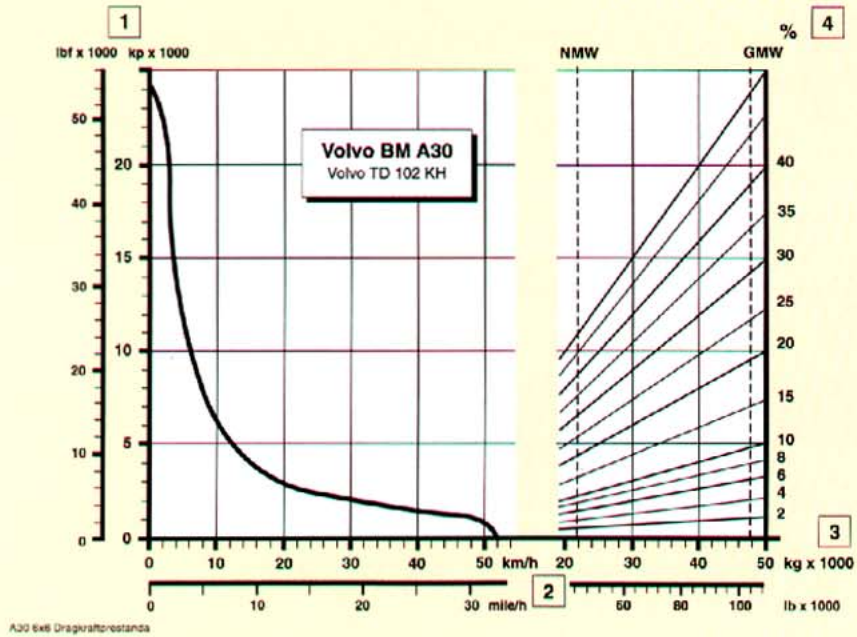
At 15% sinkage of unloaded radius and specified weights.

With 30/65R25 tyres:

Unloaded			
Front	kPa (psi)	92	(13.3)
Rear	kPa (psi)	39	(5.6)
Loaded			
Front	kPa (psi)	123	(17.8)
Rear	kPa (psi)	135	(19.6)

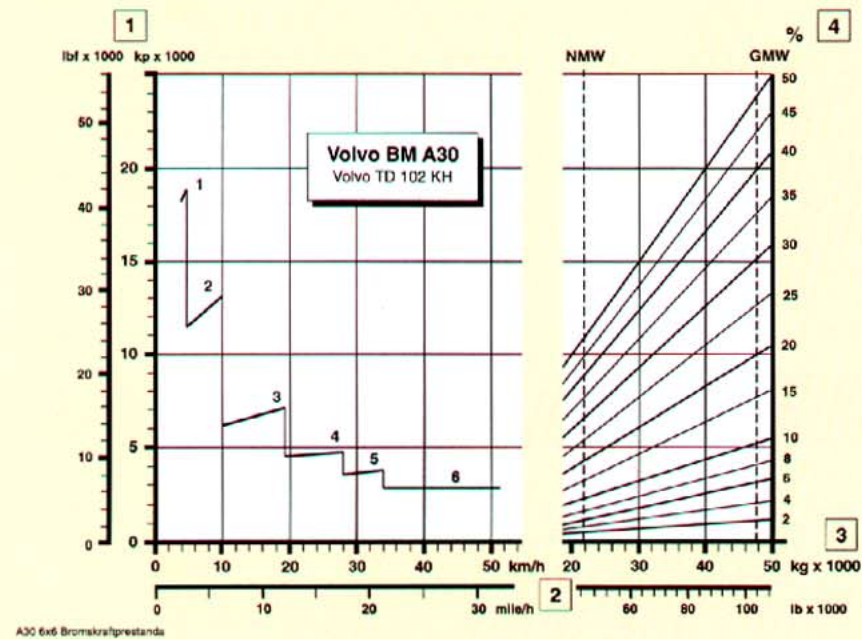
With 23.5R25 tyres:

Unloaded			
Front	kPa (psi)	112	(16.2)
Rear	kPa (psi)	46	(6.7)
Loaded			
Front	kPa (psi)	150	(21.7)
Rear	kPa (psi)	164	(23.8)



RIMPULL

- 1 Rimpull in kp (lbf)
- 2 Speed in km/h (mile/h)
- 3 Machine weight in kg (lb)
- 4 Grade in % + rolling resistance in %.



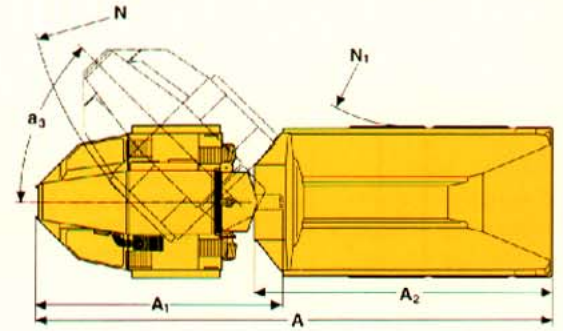
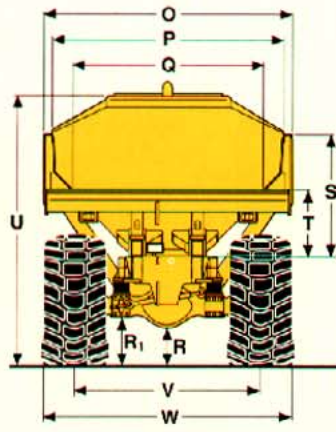
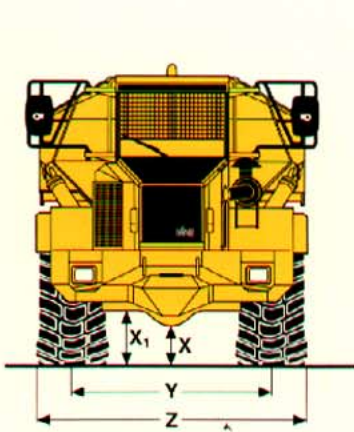
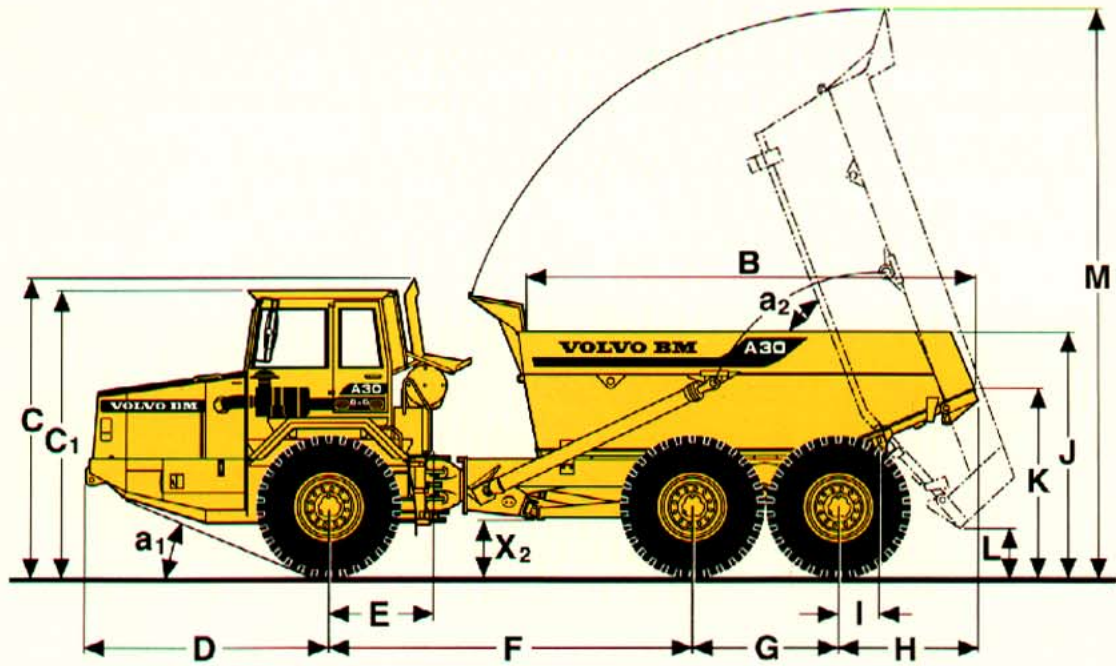
RETARDATION PERFORMANCE

- 1 Braking effort in kp (lbf)
- 2 Speed in km/h (mile/h)
- 3 Machine weight in kg (lb)
- 4 Grade in % - rolling resistance in %

INSTRUCTIONS

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

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



DIMENSIONS Volvo BM A30 6x6 (30/65-25 tyres)

A	mm (ft in)	10200 (33'5")	F	mm (ft in)	4173 (13'8")	N ₁	mm (ft in)	4021 (13'2")	W	mm (ft in)	2980 (9'9")
A ₁	mm (ft in)	4862 (15'11")	G	mm (ft in)	1670 (5'6")	O	mm (ft in)	2932 (9'7")	W*	mm (ft in)	2820 (9'3")
A ₂	mm (ft in)	5856 (19'2")	H	mm (ft in)	1587 (5'3")	P	mm (ft in)	2720 (8'11")	X	mm (ft in)	485 (1'7")
B	mm (ft in)	5167 (16'11")	I	mm (ft in)	439 (1'5")	Q	mm (ft in)	2286 (7'6")	X ₁	mm (ft in)	522 (1'8")
C	mm (ft in)	3410 (11'2")	J	mm (ft in)	2834 (9'3")	R	mm (ft in)	530 (1'9")	X ₂	mm (ft in)	670 (2'2")
C ₁	mm (ft in)	3260 (10'8")	K	mm (ft in)	2180 (7'2")	R ₁	mm (ft in)	567 (1'10")	Y	mm (ft in)	2216 (7'3")
D	mm (ft in)	2770 (9'1")	L	mm (ft in)	594 (1'11")	S	mm (ft in)	1464 (4'10")	Z	mm (ft in)	2980 (9'9")
D ₁	mm (ft in)	2730 (8'11")	M	mm (ft in)	6494 (21'3")	T	mm (ft in)	810 (2'8")	Z*	mm (ft in)	2820 (9'3")
E	mm (ft in)	1210 (3'11")	N	mm (ft in)	8074 (26'6")	U	mm (ft in)	3270 (10'9")	a ₁	°	24.5
						V	mm (ft in)	2216 (7'3")	a ₂	°	70
									a ₃	°	45

* with 23.5R25 tyres

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

Load capacity	kg	(sh ton)	27 000	(30)
Body, struck	m ³	(yd ³)	12.9	(16.8)
heaped	m ³	(yd ³)	16.5	(21.5)

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 fenders and hood
Cigarette lighter
Ashtray
Horn
Protective grille for rear window
Hazard flashers
Tinted glass
Lights:
headlights, main/dipped
parking lights
rear lights
direction indicators

back-up lights
brake lights
cab lighting
instrument lighting
Steering joint locking assembly
Speedometer
Secondary steering
Tool box under operator's seat

Engine and electrical system

Turbocharger
Alternator
Preheating
Battery disconnect switch
Gauges for:
fuel
engine temperature
revolutions and hours
tachometer
brake pressure

Pilot lamps for:
main beam
direction indicators
battery charging
Warning lamps for:
steering function
engine-dependent pump
ground-dependent pump
brake pressure
parking brake
engine oil pressure
transmission failure
transmission temperature
air filter
Central warning:
brake hydraulics
steering function
brake pressure
transmission temperature
battery charging
engine oil pressure

Cab

Extra seat for trainer

Drivetrain

Torque converter
Automatic transmission
Drop box, single stage
Automatic lock-up
Hydraulic retarder, variable
Longitudinal diff-lock
Differential lock front axle
Differential lock first bogie axle
Differential lock second bogie axle

Body

Body with exhaust ducts

Tyres

30/65-25

OPTIONAL EQUIPMENT

Service and Maintenance

Tool kit with tyre inflation unit

Engine

Low emission engine TD102KFE

Electrical

Work lights
Rotating beacon with collapsible mount
Headlights for left-hand traffic

Cab

Radio panel
Electrically heated rear-view mirrors
Air conditioning
Airsuspended electrically heated operator's seat

Protection equipment

Overhead guard, FOPS
Rear mudflaps
Mudguard wideners, front 2.98 m

Body

Body heating
Overhung tailgate, wire
Overhung tailgate, link
Underhung tailgate
Wear plates, separate delivery
Upper side extensions, 200 mm

Tyres

23.5R25

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.

VME Articulated Haulers AB

S-351 83 VÄXJÖ SWEDEN