

# Volvo BM A30C

## 6×6



- **Engine output:**  
SAE J1349 Net  
213 kW (285 hp)
- **Body volume:**  
16,5 m<sup>3</sup> (21,6 yd<sup>3</sup>)
- **Load capacity:**  
27 t (30 sh tn)
  
- *Direct-injected, turbo-charged, intercooled Volvo low emission high performance diesel engine.*
- *Electronically controlled, fully automatic power-shift transmission.*
- *Variable hydraulic retarder as standard.*
- *Wide base tyres 30/65R25 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, in-line, 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

Make Model			Volvo TD 103 KBE	
Max power at	r/s	(r/min)	36.7	(2200)
SAE J1349 Gross	kW	(hp)	216	(289)
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)	16.6	(996)
SAE J1349 Gross	Nm	(lbf ft)	1365	(1007)
SAE J1349 Net	Nm	(lbf ft)	1360	(1003)
DIN 6271**	Nm	(lbf ft)	1360	(1003)
Displacement total	l	(in <sup>3</sup> )	9.6	(585)
Bore	mm	(in)	120	(4.7)
Stroke	mm	(in)	140	(5.5)
Compression ratio			15:1	

\*) with fan at normal speed. With fan operating at full speed, the flywheel power is 199 kW (267 hp) which corresponds to DIN 70020.

\*\*) with fan at normal speed. With fan operating at full speed, the maximum torque is 1190 Nm (878 lbf ft) which corresponds to DIN 70020.

## 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 single-stage, power take-off and 100% differential locking.

**Axles:** Volvo BM. 6-wheel drive. All axles have transversal 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		2.42:1
Transmission	Volvo BM	PT 1663
Dropbox	Volvo BM	FL 650B
Axles	Volvo BM	AH 63

### 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 (8.8)

## 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)	41	(10.8)
Dropbox	l	(US gal)	6	(1.6)
Hub	l	(US gal)	3	(0.8)
Front axle	l	(US gal)	27	(7.1)
First bogie axle	l	(US gal)	28	(7.4)
Second bogie axle	l	(US gal)	27	(7.1)
Brake hydraulics	l	(US gal)	2	(0.5)
Hydraulic system	l	(US gal)	194	(51.3)
Hydraulic tank	l	(US gal)	175	(46.2)

## 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 oscillating in rough terrain.

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

## BRAKE SYSTEM



Air-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 grades 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)	109	(28.8)
at shaft speed	r/s	(r/min)	36	(2160)
Working pressure	MPa	(psi)	19	(2758)

## CAB



**Volvo BM cab**, tested and approved according to ROPS standard ISO/3471 and SAE J1040/APR88. 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 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	(5/16)
Side	mm (in)	12	(1/2)
Bottom/chute	mm (in)	14	(9/16)
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.

### Operating weight with 30/65R25 tyres

Front	kg (lb)	11700	(25794)
Rear	kg (lb)	9800	(21605)
Total	kg (lb)	21500	(47399)
Payload	kg (lb)	27000	(59524)
Total weight			
Front	kg (lb)	15450	(34061)
Rear	kg (lb)	33050	(72862)
Total	kg (lb)	48500	(106923)

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

## GROUND PRESSURE



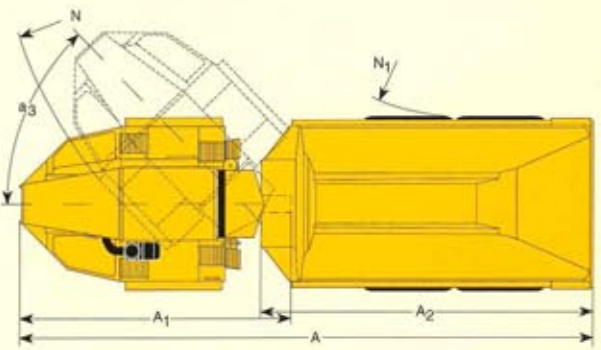
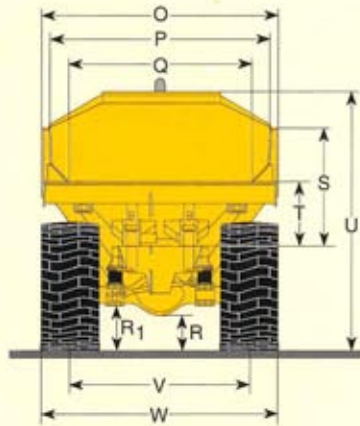
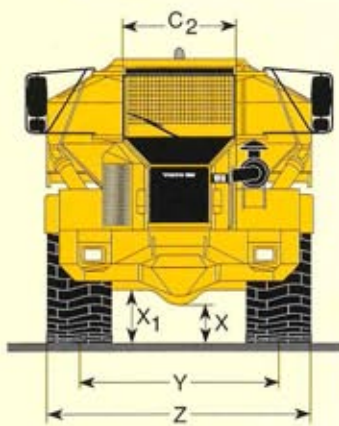
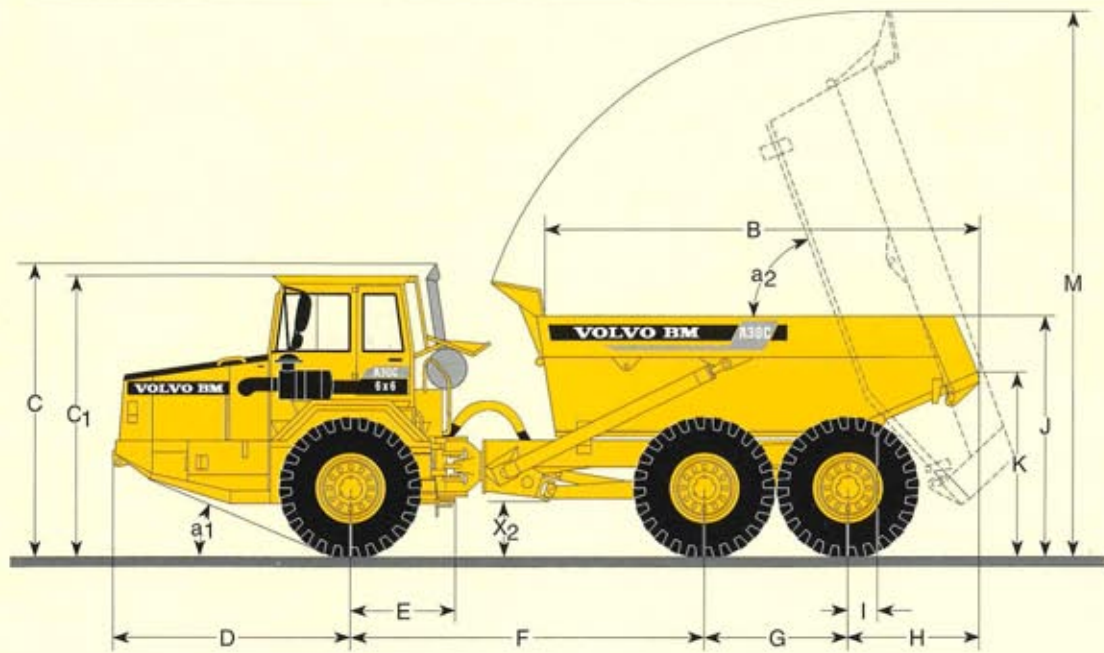
At 15% sinkage of unloaded radius and specified weights.

With 30/65R25 tyres:

Unloaded				
Front	kPa (psi)	94	(13.6)	
Rear	kPa (psi)	40	(5.8)	
Loaded				
Front	kPa (psi)	124	(18.0)	
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)



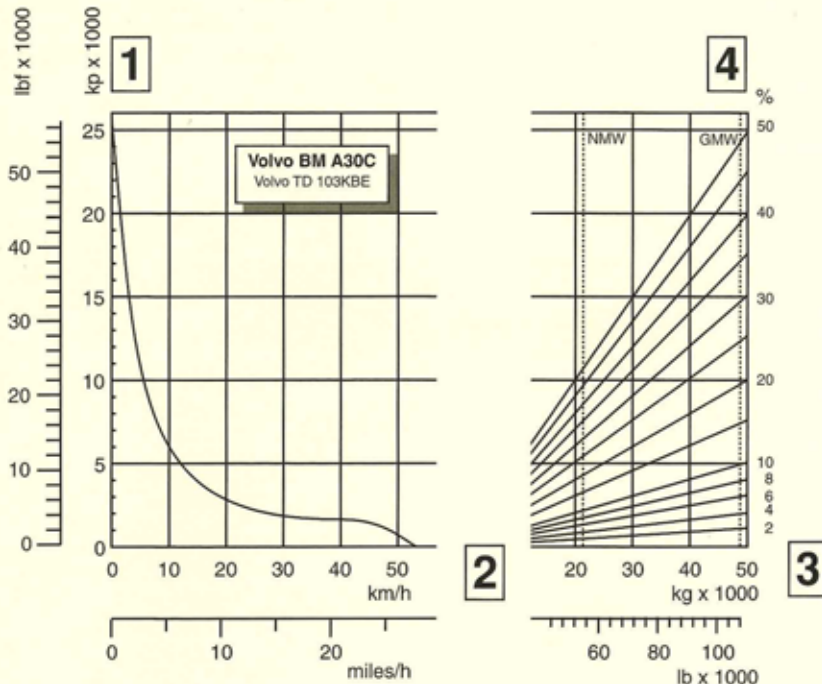
### DIMENSIONS Volvo BM A30C 6x6 (unloaded with 30/65-25 tyres)

A	mm (ft in)	10200	(33'6")	F	mm (ft in)	4173	(13'8")	N <sub>1</sub>	mm (ft in)	4021	(13'2")	W	mm (ft in)	2980	(9'9")
A <sub>1</sub>	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 <sub>2</sub>	mm (ft in)	5856	(19'3")	H	mm (ft in)	1587	(5'2")	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)	430	(1'5")	Q	mm (ft in)	2286	(7'6")	X <sub>1</sub>	mm (ft in)	522	(1'8")
C	mm (ft in)	3410	(11'2")	J	mm (ft in)	2834	(9'4")	R	mm (ft in)	530	(1'9")	X <sub>2</sub>	mm (ft in)	670	(2'2")
C <sub>1</sub>	mm (ft in)	3260	(10'8")	K	mm (ft in)	2180	(7'2")	R <sub>1</sub>	mm (ft in)	567	(1'10")	Y	mm (ft in)	2216	(7'3")
C <sub>2</sub>	mm (ft in)	1331	(4'4")	L	mm (ft in)	594	(1'11")	S	mm (ft in)	1464	(4'10")	Z	mm (ft in)	2980	(9'9")
D	mm (ft in)	2770	(9'1")	M	mm (ft in)	6494	(21'4")	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)	8047	(26'5")	U	mm (ft in)	3305	(10'10")	a <sub>1</sub>	°	23	
								V	mm (ft in)	2216	(7'3")	a <sub>2</sub>	°	70	
												a <sub>3</sub>	°	45	

\*with 23.5R25 tyres

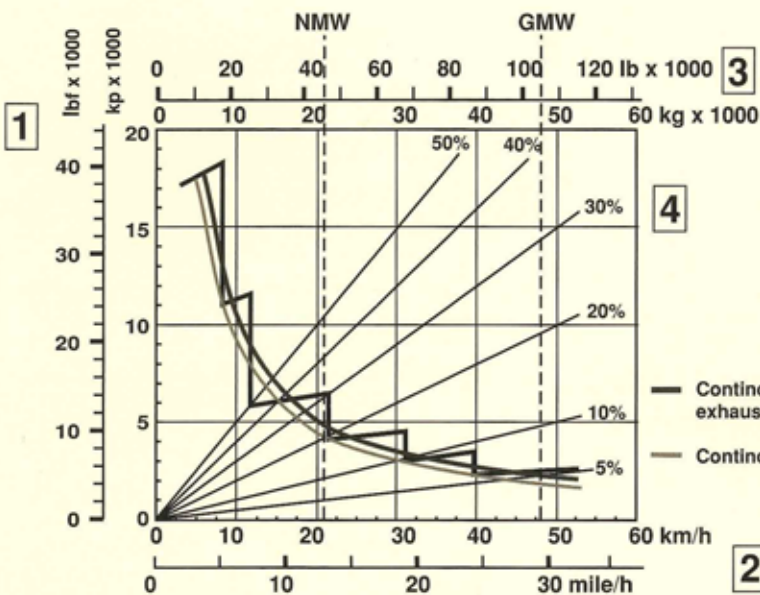
### LOAD CAPACITY (Body volume according to SAE 2:1)

Load capacity	kg	(sh tn)	27000	(30)
Body, struck	m <sup>3</sup>	(yd <sup>3</sup> )	12.9	(16.9)
heaped	m <sup>3</sup>	(yd <sup>3</sup> )	16.5	(21.6)
With overhung tailgate (optional)				
Body, struck	m <sup>3</sup>	(yd <sup>3</sup> )	13.2	(17.3)
heaped	m <sup>3</sup>	(yd <sup>3</sup> )	17.2	(22.5)



### 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.

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 %.

- 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 the intersection until the new line intersects the rimpull or retardation curve.
- D. Read down for vehicle speed.

## STANDARD EQUIPMENT

<p><b>Safety and comfort</b>          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            direction indicators            rear lights            back-up lights            brake lights            cab lighting            instrument lighting</p>	<p>Adjustable steering wheel          Steering joint locking assembly          Radio/Contronic console in ceiling          Speedometer          Secondary steering</p> <p><b>Engine and electrical system</b>          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</p>	<p>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</p> <p>Central warning for:            air pressure            battery charging            brake fluid level            engine oil pressure            engine overspeed            engine temperature            steering function            transmission temperature</p> <p><b>Cab</b>          Extra seat for trainer</p>	<p><b>Drive train</b>          Torque converter          Automatic transmission          Drop box, single stage          Automatic lock-up          Hydraulic variable retarder          Longitudinal diff-lock          Differential lock front axle          Differential lock first bogie axle          Differential lock second bogie axle</p> <p><b>Body</b>          Body with exhaust ducts</p> <p><b>Tyres</b>          30/65-25</p>
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## OPTIONAL EQUIPMENT

<p><b>Service and Maintenance</b>          Tool kit with tyre inflation unit</p> <p><b>Engine</b>          Coolant filter          Exhaust brake</p>	<p><b>Electrical system</b>          Work lights, roof mounted          Rotating beacon with collapsible mount          Headlights for left-hand traffic</p>	<p><b>Cab</b>          Electrically heated rear-view mirrors          Air conditioning          Air suspended electrically heated operator's seat          Contronic display          Radio installation kit</p> <p><b>Protection</b>          Overhead guard, FOPS          Rear mudflaps          Mudguard wideners, front 2.98 m</p>	<p><b>Body</b>          Body heating          Overhung tailgate, wire          Overhung tailgate, link          Underhung tailgate          Wear plates, separate delivery          Upper side extensions, 200 mm          Extra front spillguard</p> <p><b>Tyres</b>          23,5R25</p>
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*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  
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