



# Volvo BM A30

## 6×6



- **Engine output:**  
SAE J1349 Net  
285 hp (213 kW)
- **Body volume:**  
21.6 yd<sup>3</sup> (16.5 m<sup>3</sup>)
- **Load capacity:**  
30 sh ton (27 t)
- *Direct-injected, intercooled, turbo-charged Volvo engine.*  
**Low emission engine**  
*as option.*
- *New body design - increased capacity*
- *Fully automatic powershift.*
- *Variable hydraulic retarder 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 axles*

**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.

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

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

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

Optional Volvo **low emission engine** TD102 KFE.  
Meets California off-road regulation 1996.

### Specification:

Max Power at	2200	r/min	(36.7 r/s)
SAE J1349 Gross	287	hp	(214 kW)
Flywheel power at	2200	r/min	(36.7 r/s)
SAE J1349 Net	285	hp	(213 kW)
DIN 6271*	285	hp	(213 kW)
Max torque at	1500	r/min	(25 r/s)
SAE J1349 Gross	870	lbf ft	(1180 Nm)
SAE J1349 Net	863	lbf ft	(1170 Nm)
DIN 6271 **	863	lbf ft	(1170 Nm)
Displacement total	585	in <sup>3</sup>	(9.6 l)
Bore	4.7	in	(120 mm)
Stroke	5.5	in	(140 mm)
Compression ratio	16.0:1		

## SERVICE REFILL CAPACITIES



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

## DRIVETRAIN



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

**Transmission:** Electronically controlled, fully automatic planetary transmission.

**Dropbox:** Volvo BM dropbox with power take-off and 100% differential locking.

**Axles:** Volvo BM AH 63. 6-wheel drive. All axles have transversal diff-locks and fully floating axle shafts with planetary type hub reductions.

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

Torque converter		2.4:1
Transmission		Volvo PT 1661
Dropbox	Volvo BM	FL 650 B

### Speeds

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

## ELECTRICAL SYSTEM



Voltage	24	V
Battery capacity	2 x 170	Ah
Alternator	1.68	kW
Starter motor	8.9 (6.6)	hp (kW)

## 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



Dual-circuit system with air-hydraulic disc brakes, designed to comply with ISO 3450 and SAE J1473 at gross 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:** Hydraulic, modulated, integrated in transmission as standard.

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

## 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	26.4*/31.2**	US gal/min	(100*/118** l/min)
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at shaft speed	2050	r/min	(34 r/s)
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Working pressure	2710	psi	(19 MPa)
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\* pump 1, 2, 3      \*\* ground-dependent pump

## 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. Three speed fan.

**Operators seat:** Equipped with flameproof upholstery. Extra seat for trainer.

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

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

## WEIGHTS



Operating weight includes all fluids and operator.

Operating weight with 23.5R25 tires:

Front	23596	lb	(10700 kg)
Rear	19848	lb	(9000 kg)
Total	44765	lb	(19580 kg)
Payload	58215	lb	(25680 kg)
Total weight			
Front	31845	lb	(13730 kg)
Rear	71114	lb	(31530 kg)
Total	104300	lb	(46580 kg)

A30 equipped with 30/65R tires, add 440 lb (200 kg) per axle.

## GROUND PRESSURE



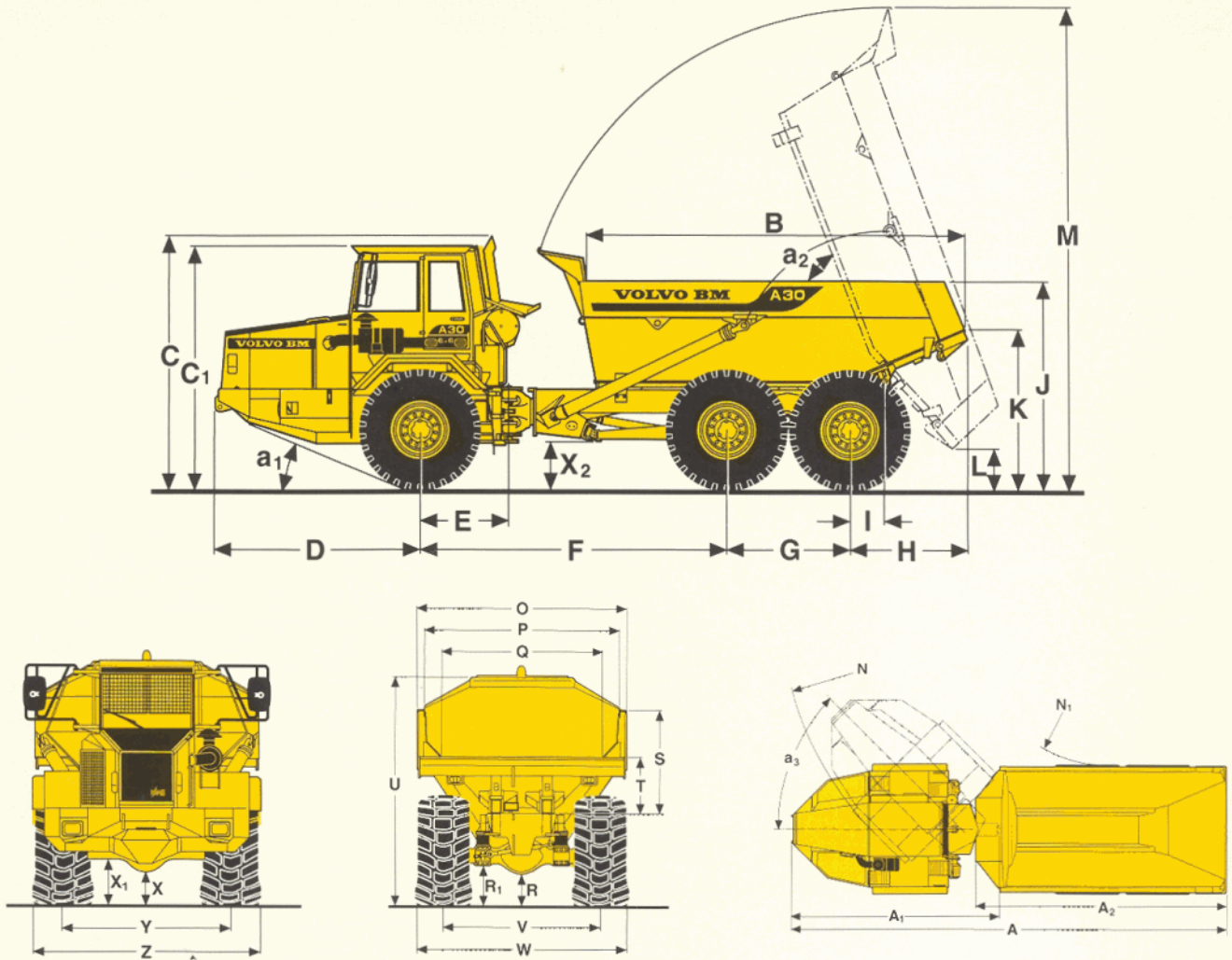
At 15% sinkage of unloaded radius and specified weights.

With 23.5R25 tires:

Unloaded			
Front	16.2	psi	(112 kPa)
Rear	8.7	psi	(46 kPa)
Loaded			
Front	21.7	psi	(150 kPa)
Rear	23.8	psi	(164 kPa)

With 30/65R25 tires:

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



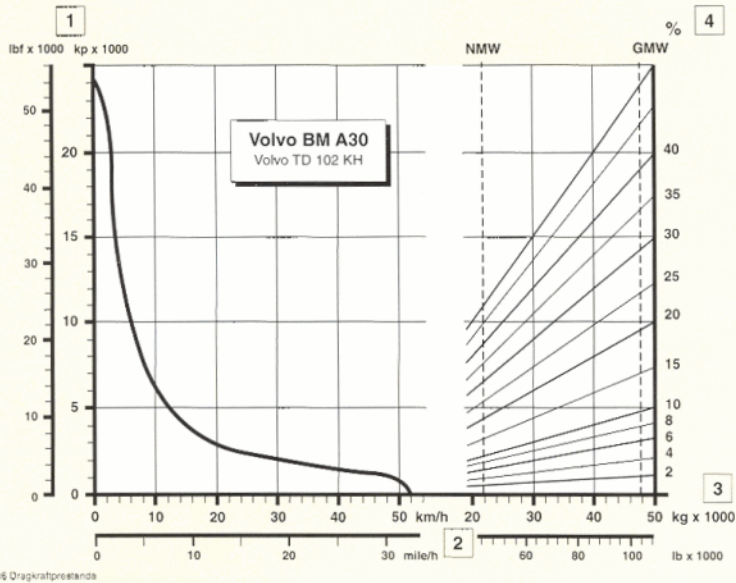
### DIMENSIONS Volvo BM A30 6x6 (23.5R25 tires)

A	33'5" ft in (10200) (mm)	F	13'8" ft in (4173) (mm)	N <sub>1</sub>	13'2" ft in (4021) (mm)	W	9'3" ft in (2820) (mm)
A <sub>1</sub>	15'11" ft in (4862) (mm)	G	5'6" ft in (1670) (mm)	O	9'7" ft in (2932) (mm)	W*	9'9" ft in (2980) (mm)
A <sub>2</sub>	19'2" ft in (5856) (mm)	H	5'3" ft in (1587) (mm)	P	8'11" ft in (2720) (mm)	X	1'7" ft in (485) (mm)
B	16'11" ft in (5167) (mm)	I	1'5" ft in (439) (mm)	Q	7'6" ft in (2286) (mm)	X <sub>1</sub>	1'8" ft in (522) (mm)
C	11'2" ft in (3410) (mm)	J	9'3" ft in (2834) (mm)	R	1'9" ft in (530) (mm)	X <sub>2</sub>	2'2" ft in (670) (mm)
C <sub>1</sub>	10'8" ft in (3260) (mm)	K	7'2" ft in (2180) (mm)	R <sub>1</sub>	1'10" ft in (567) (mm)	Y	7'3" ft in (2216) (mm)
D	9'1" ft in (2770) (mm)	L	1'11" ft in (594) (mm)	S	4'10" ft in (1464) (mm)	Z	9'3" ft in (2820) (mm)
D <sub>1</sub>	8'11" ft in (2730) (mm)	M	21'3" ft in (6494) (mm)	T	2'8" ft in (810) (mm)	Z*	9'9" ft in (2980) (mm)
E	3'11" ft in (1210) (mm)	N	26'6" ft in (8074) (mm)	U	10'9" ft in (23270) (mm)	a <sub>1</sub>	24.5 ° 24.5 °
				V	7'3" (2216) (mm)	a <sub>2</sub>	70 ° 70 °
						a <sub>3</sub>	45 ° 45 °

\* with 30/65R25 tires

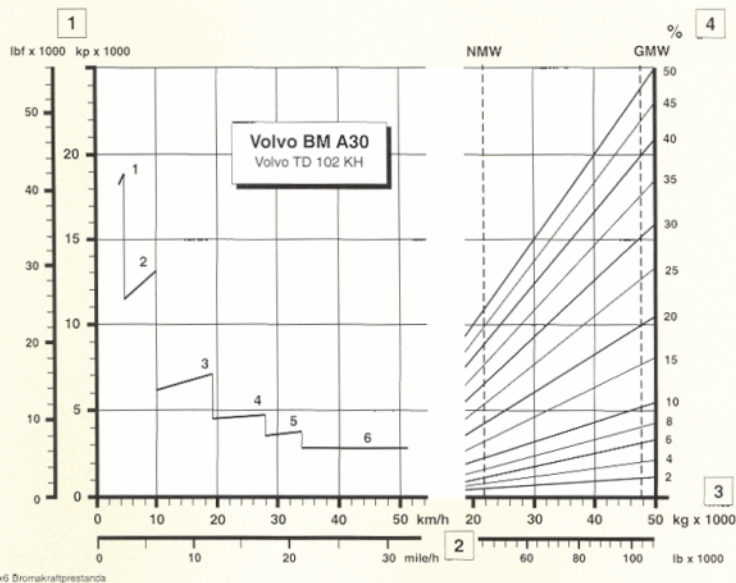
### LOAD CAPACITY (Body volumes according to SAE 2:1)

US body load capacity	30 sh ton	(27000 kg)
Body, struck	16.8 yd <sup>3</sup>	(12.9 m <sup>3</sup> )
heaped	21.6 yd <sup>3</sup>	(16.5 m <sup>3</sup> )



### RIMPULL

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



### RETARDATION PERFORMANCE

- (Exhaust brake + retarder)
- 1 Braking effort in lbf (kp)
  - 2 Speed in mile/h (km/h)
  - 3 Machine weight in lb (kg)
  - 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.

## STANDARD EQUIPMENT

<p><b>Safety and comfort</b>          ROPS/FOPS cab          Cab heater with filtered fresh air and defroster          Ergonomically designed and adjustable operator's seat          Trainer seat          Windshield wipers with interval          Windshield washers          Rear view mirrors          Sun-visor          Seat belt          Cigarette lighter          Ashtray          Horn          Protective grille for rear window          Hazard flashers          Tinted glass          Lights:          headlights, high/low beam          parking lights          rear lights          turn signals</p>	<p>back-up lights          brake lights          cab lighting          instrument lighting          Steering joint locking assembly          Secondary steering          Tool box under operator's seat          Back-up warning alarm</p> <p><b>Engine and electrical system</b>          Turbocharger          Alternator          Cold starting aid:          preheating          fuel mixture enrichment          Battery disconnect switch          Gauges for:          fuel          engine coolant temperature          revolutions and hours          tachometer          speedometer          hourmeter          brake pressure          transmission oil temperature</p>	<p>Pilot lamps for:          preheating          diff locks          main beam          turn signals          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          24V outlet</p> <p><b>Cab</b>          Trainer seat          Safety glass</p>	<p><b>Drivetrain</b>          Torque converter          Fully automatic transmission          Drop box          Automatic lock-up in all ranges          Hydraulic retarder, variable          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>Tires</b>          23.5 R 25</p>
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## OPTIONAL EQUIPMENT

<p><b>Engine</b>          Low emission engine TD102KFE          High capacity air cleaner          Engine block heater</p> <p><b>Electrical</b>          Work lights          Rotating beacon with collapsible mount</p>	<p><b>Cab</b>          Radio panel          Air conditioning          Airsuspended, electrically heated operator's seat</p>	<p><b>External</b>          Mudguard wideners, front, 9'9"          Towing hitch</p>	<p><b>Body</b>          Body heating          Overhung tailgate, wire          Rock liner</p> <p><b>Tires</b>          30/65R25</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.*

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