



Volvo BM A20

6×6



- *Direct injected turbo charged Volvo engine*
- *Automatic powershift transmission*
- *One longitudinal and three transverse diff locks. All with 100 % lock-up*
- *Volvo BM terrain bogie, individually oscillating axles and high ground clearance.*
- **Engine output:**
SAE J1349 Net 137 kW (184hp)
- **Body volume:**
11.5 m³ (15 yd³)
- **Load capacity:**
18.5 t (20 sh ton)

VOLVO BM

ENGINE



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

Make	Volvo			
Model	TD 71 G			
Max power at	r/s	(r/min)	36	(2200)
SAE J1349 Gross	kW	(hp)	148	(198)
Flywheel power at	r/s	(r/min)	36	(2200)
SAE J1349 Net	kW	(hp)	137	(184)
DIN 70020/6271	kW	(hp)	137	(184)
Max torque at	r/s	(r/min)	28	(1700)
SAE J1349 Gross	Nm	(lbf ft)	680	(501)
SAE J1349 Net	Nm	(lbf ft)	640	(472)
DIN 70020/6271	Nm	(lbf ft)	640	(472)
Displacement, total	l	(in ³)	6,73	(411)
Bore	mm	(in)	104,77	(4,125)
Stroke	mm	(in)	130	(5,12)
Compression ratio	15,5:1			

ELECTRICAL SYSTEM



Voltage	v	24		
Battery capacity	Ah	2x140		
Generator rating	kW	1,68		
Starter motor power	kW	(hp)	5,4	(7,2)

SERVICE REFILL CAPACITIES



Crankcase volume	l	(US gal)	24	(6,3)
Fuel tank	l	(US gal)	295	(80)
Cooling system	l	(US gal)	24	(6,3)
Transmission	l	(US gal)	21	(5,5)
Front axle with dropbox	l	(US gal)	42	(11)
First bogie axle	l	(US gal)	29	(7,7)
Second bogie axle	l	(US gal)	29	(7,7)
Hydraulic system	l	(US gal)	170	(44,9)
Hydraulic tank	l	(US gal)	145	(38,3)

DRIVETRAIN



Torque converter: Single stage

Transmission: Automatic powershift transmission with 4 gears forward and 3 reverse.

Dropbox: Volvo BM. Single-stage dropbox with power take-off for ground dependent steering pump, and longitudinal differential (100% lock-up).

Axles: Volvo BM AH54. 6 wheel drive. They are fully floating and have planetary type hub reductions.

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

Torque converter	2,19:1
Transmission	Volvo BM HT132

Speeds

Forward	1	km/h (mile/h)	6	(3,7)
	2	km/h (mile/h)	12	(7,5)
	3	km/h (mile/h)	24	(15)
	4	km/h (mile/h)	34	(21,2)
Reverse	1	km/h (mile/h)	6,5	(4,0)
	2	km/h (mile/h)	13,5	(8,4)
	3	km/h (mile/h)	27	(16,8)

Tires

front	18.00 R 25*
	18.00-25/16
rear	20.5 R 25*
	20.5-25/16

BRAKE SYSTEM



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

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

Parking brake: The parking brake is a spring actuated 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.

Exhaust brake: Exhaust brake with down shifting function in transmission provides good engine brake performance.

Compressor: Driven by engine transmission.

STEERING SYSTEM



Hydromechanical articulated steering. 3,6 lock-to-lock turns.

Cylinders: Two double acting steering cylinders.

Steering angle: $\pm 45^\circ$

Supplementary steering: Ground dependent steering, that meets ISO 5010 at total machine weight, as optional.

BODY



Body: Made of hardened and tempered steel with particularly high impact strength. Wear plates as standard.

Tipping cylinder: One single-acting 5-stage hoist cylinder with automatic tipping stop.

Tipping angle	°	63	
Tipping time with load	s	16	
Lowering time	s	12	
Body			
plate thickness			
front	mm (in)	10	(0,39)
sides	mm (in)	8	(0,31)
bottom	mm (in)	10	(0,39)
chute	mm (in)	10	(0,39)
wear plates	mm (in)	8/6	(0,31/0,24)
Body			
Yield strength	N/mm ² (psi)	640	(92960)
Tensile strength	N/mm ² (psi)	680-900	96800-130700
Wear plates			
Yield strength	N/mm ² (psi)	880	(128000)
Tensile strength	N/mm ² (psi)	1225	(178000)

HYDRAULIC SYSTEM



Pump: Vane pump for steering and tipping mounted on transmission power take-off.

Filtration: Suction line: Strainer. Return line: Replaceable paper filter with magnetic core. Refill: Paper filter.

Pump capacity /pump	l/min (US gal/min)	145 (37)
At shaft speed	r/s (r/min)	41,7 (2500)
Working pressure	MPa (ps)	17 (2465)

WEIGHTS



Service weights include fuel and operator.

Service weight			
Front	kg (lb)	7800	(17200)
Rear	kg (lb)	7650	(16870)
Total	kg (lb)	15450	(34070)
Payload			
Total	kg (lb)	18500	(40790)
Total weight			
Front	kg (lb)	10500	(23150)
Rear	kg (lb)	23450	(51710)
Total	kg (lb)	33950	(74860)

CAB



Volvo BM cab: Tested and approved in accordance with 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: Operator's seat with flameproof upholstery.

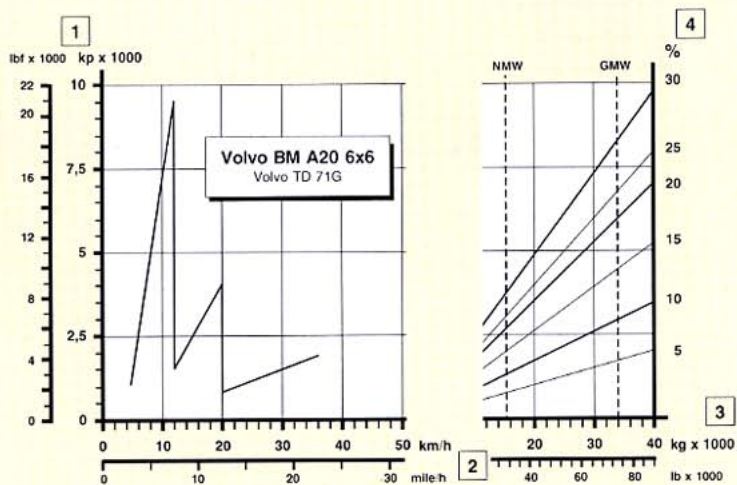
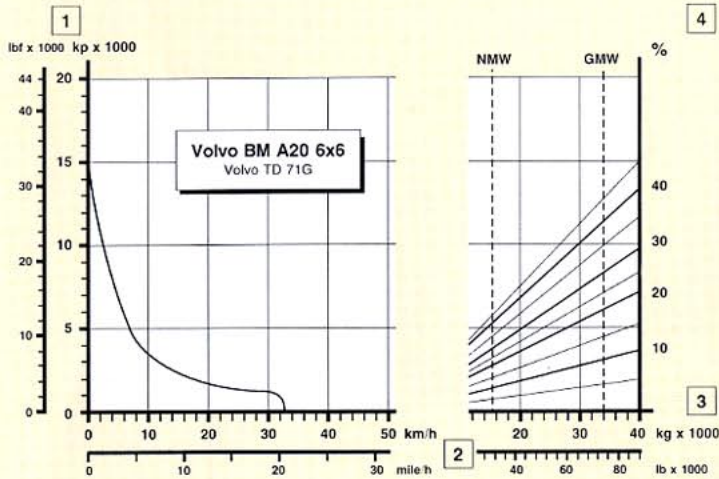
Number of exits incl. door		2
Internal sound level	dB (A)	80

GROUND PRESSURE



At 15% sinkage of unloaded radius and specified weights.

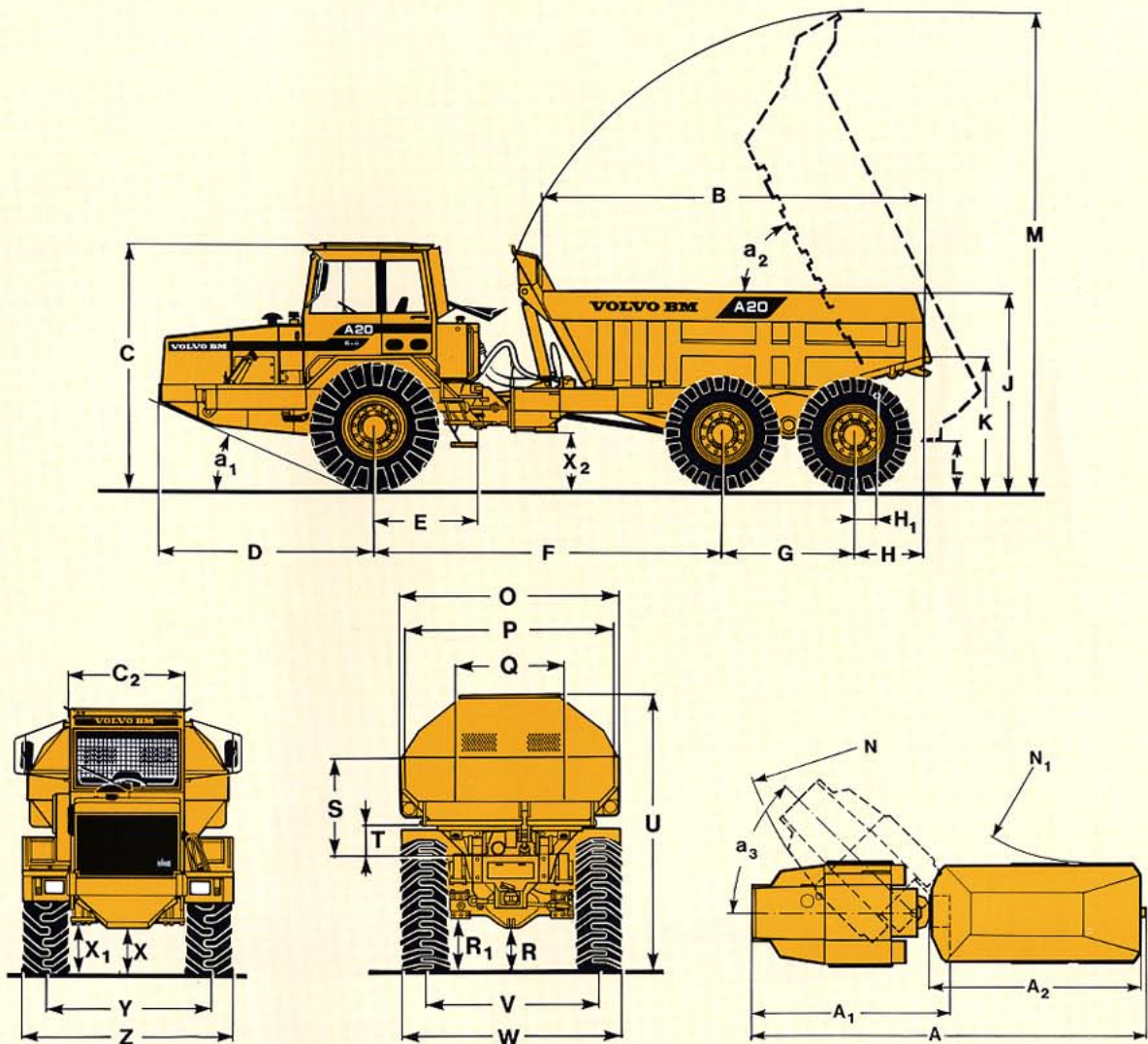
Unloaded			
Front	kPa (psi)	97	(14,0)
Rear	kPa (psi)	47	(6,8)
Loaded			
Front	kPa (psi)	130	(18,8)
Rear	kPa (psi)	153	(22,2)



INSTRUCTIONS

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

- 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 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 A20 6x6

A	mm (ft in)	10044 (32'11")	H	mm (ft in)	1126 (3'8")	O	mm (ft in)	2480 (8'1")	W	mm (ft in)	2490 (8'2")
A ₁	mm (ft in)	5066 (16'7")	H ₁	mm (ft in)	425 (1'5")	P	mm (ft in)	2320 (7'7")	X	mm (ft in)	475 (1'7")
A ₂	mm (ft in)	5537 (18'2")	I	mm (ft in)	1265 (4'2")	Q	mm (ft in)	1500 (4'11")	X*	mm (ft in)	500 (1'8")
B	mm (ft in)	4955 (16'3")	J	mm (ft in)	2394 (7'10")	R	mm (ft in)	397 (1'3")	X ₁	mm (ft in)	627 (2'1")
C	mm (ft in)	3098 (10'2")	J*	mm (ft in)	2450 (8'1")	R*	mm (ft in)	447 (1'5")	X ₂	mm (ft in)	645 (2'1")
C [~]	mm (ft in)	3123 (10'3")	K	mm (ft in)	1620 (5'3")	R ₁	mm (ft in)	567 (1'10")	Y	mm (ft in)	1954 (6'4")
C ₂	mm (ft in)	1500 (4'11")	K*	mm (ft in)	1676 (5'5")	S	mm (ft in)	1155 (3'9")	Z	mm (ft in)	2492 (8'2")
D	mm (ft in)	2809 (9'2")	L	mm (ft in)	600 (1'11")	T	mm (ft in)	396 (1'3")	a ₁	° (ft in)	21
E	mm (ft in)	1280 (4'2")	M	mm (ft in)	6350 (20'10")	U	mm (ft in)	3059 (10')	a ₂	° (ft in)	63
F	mm (ft in)	4322 (14'2")	N	mm (ft in)	7500 (24'7")	U*	mm (ft in)	3115 (10'2")	a ₃	° (ft in)	45
G	mm (ft in)	1650 (5'4")	N ₁	mm (ft in)	4100 (13'5")	V	mm (ft in)	1928 (6'4")			

* = unloaded machine

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

Load capacity	kg	(sh ton)	18500	(20)
Body, struck	m ³	(yd ³)	8,7	(11,4)
heaped	m ³	(yd ³)	11,0	(14,4)
With underhung tailgate				
Body, struck	m ³	(yd ³)	9,0	(11,8)
heaped	m ³	(yd ³)	11,5	(15,0)
With over and underhung tailgate				
Body, struck	m ³	(yd ³)	9,3	(12,2)
heaped	m ³	(yd ³)	12,0	(15,7)

STANDARD EQUIPMENT

<p>Safety and comfort ROPS cab Cab heater with filtered fresh air and defroster Ergonomically designed and adjustable operator's seat Windshield wipers with interval Windshield washers Rear-view mirrors Sunvisor Seat belt Cigarette lighter Ashtray Horn Protective grille for rear window Hazard flashers Tinted glass Lights: headlights main/dipped/asym. parking lights reverse lights direction indicators</p>	<p>back-up lights brake lights cab lightning instrument lightning Steering joint locking assembly</p> <p>Engine and electrical system Turbocharger Alternator Preheating Battery disconnect switch Gauges for: brake pressure fuel engine temperature revolutions and hours Pilot lamps for: main beam direction indicators</p>	<p>Warning lamps for: high engine temperature battery charging brake hydraulics brake pressure parking brake engine oil pressure transmission temperature air filter engine-dependent pump body up</p> <p>Central warning: low brake pressure engine oil pressure transmission temperature brake hydraulics engine-dependent pump</p>	<p>Drivetrain Torque converter Automatic transmission Exhaust brake Longitudinal differential lock Differential lock front axle Differential lock first bogie axle Differential lock second bogie axle</p> <p>Body Body with wear plates and exhaust gas ducts</p> <p>Tyres Front: 18.00 x 25 Rear: 20.5 x 25</p>
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OPTIONAL EQUIPMENT

<p>Service and maintenance Tool kit with tyre inflation unit</p> <p>Engine Engine block heater Low emission version Oil bath air cleaner Exhaust gas cooling with water Oil drainage hose High exhaust outlet</p>	<p>Electrical equipment Work lights Rotating beacon with collapsible mount Speedometer</p> <p>Cab equipment Air condition Radio panel EI heated rear mirrors Airsuspended electrically heated operator's seat</p>	<p>External equipment Towing hitch Collision guard, hood</p> <p>Protection equipment Overhead guard, FOPS Anti slip treads on hood and fenders Mudflaps in front of bogie</p>	<p>Body equipment Body heating Overhung tailgate Underhung tailgate Body extension kit</p> <p>Other equipment Supplementary steering</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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