

VOLVO BM

A 28

6x6



- **Engine output:**
SAE J1349 Net 203 kW (276 hp)
- **Operating weight:**
19,9 t (44 000 lb)
- **Load capacity:**
25,4 t (28 sh ton)
- *Direct-injected, turbocharged Volvo diesel.*
- *Electronically controlled automatic shift.*
- *One longitudinal and three transverse diff locks. All with 100% lock-up.*
- *Front axle with 3-point suspension and effective shock absorption.*
- *Volvo BM terrain bogie, individually oscillating axles and high ground clearance.*

ENGINE



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

Make	Volvo		
Model	TD 102 GA		
Max. power at	r/s (r/min)	36,7	(2200)
SAE J1349 Gross	kW (hp)	203	(276)
Flywheel power at	r/s (r/min)	36,7	(2200)
SAE J1349 Net	kW (hp)	200	(272)
DIN 6271*	kW (hp)	200	(272)
Max. torque at	r/s (r/min)	23,3	(1400)
SAE J1349 Gross	Nm (lbf ft)	1100	(811)
SAE J1349 Net	Nm (lbf ft)	1080	(796)
DIN 6271**	Nm (lbf ft)	1080	(796)
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 180 kW (250 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 (2250 r/min) the maximum torque is 970 Nm (715 lbf ft) which corresponds to DIN 70020.

ELECTRICAL SYSTEM



Voltage	V	24	
Battery capacity	Ah	2x170	
Alternator	W	1540	
Starter motor	kW (hp)	6,6	(8,9)

SERVICE REFILL CAPACITIES



Crankcase	l (US gal)	42	(11,1)
Fuel tank	l (US gal)	360	(95,1)
Cooling system	l (US gal)	88	(23,2)
Transmission total	l (US gal)	45	(11,9)
Dropbox	l (US gal)	8	(2,1)
Hub	l (US gal)	4	(1,1)
Front axle	l (US gal)	39	(10,3)
First bogie axle	l (US gal)	50	(13,2)
Second bogie axle	l (US gal)	39	(10,3)
Brake hydraulics	l (US gal)	11	(2,9)
Brake oil tank	l (US gal)	10	(2,6)
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: Automatic planetary transmission with 6 gears forward and 2 reverse.

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

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

Axles: All axles are manufactured by Volvo BM. They are fully floating and have planetary type hub reductions.

Torque converter	2,36:1
Transmission	Volvo PT 1660

Speeds

forward	1	km/h (mile/h)	8,0	(5,0)
	2	km/h (mile/h)	11,6	(7,2)
	3	km/h (mile/h)	21,7	(13,5)
	4	km/h (mile/h)	32,2	(20,0)
	5	km/h (mile/h)	40,6	(25,2)
	6	km/h (mile/h)	52,2	(32,7)

reverse	1	km/h (mile/h)	6,6	(4,1)
	2	km/h (mile/h)	11,2	(7,0)

Dropbox	Volvo BM FL 650 B
Front axle	AH 54
First bogie axle	AH 54
Second bogie axle	AH 54

Tires

front	23.5 R 25*
rear	23.5 R 25*

SUSPENSION



VOLVO BM SUSPENSION SYSTEM

Front axle: One rubber spring with bottoming absorption on either side. Stabilizer. Two shock absorbers on either side.

BRAKE SYSTEM



Air hydraulic brake system in two circuits with dry disc brakes. Comply with ISO 3450 and SAE J1473 at total weight.

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

Braking effort distribution: 50% front, 50% rear.

Parking brake: Disc brake with its own circuit, acting on the hauler's propeller shaft.

RETARDER

Hydraulic, integrated in transmission.
(Braking effort incl. engine and retarder)

Continuous at	r/s	(r/min)	33,3	(2000)
Max. power	kW	(hp)	250	(340)
Max. torque	Nm	(lbf ft)	1200	(885)
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.

Ground-dependent hydraulic pump for supplementary steering mounted on dropbox.

Filtration: Oil filtration through two paper and magnet filters.

Pump capacity per pump	l/min		100	
	(US gal/min)			(26,4)
at shaft speed	r/s	(r/min)	34	(2050)
Working pressure max.	MPa	(psi)	17	(2466)

CAB



Volvo BM cab: Tested and approved in accordance with ROPS standard ISO 3471/SAE J1040 C. Very low vibrations due to the fact that the cab is mounted on rubber pads.

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

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

Number of exits		2
Internal sound level	dB (A)	79

STEERING SYSTEM



Hydromechanical articulated steering.
3,4 lock-to-lock turns.

Cylinders: Two double-acting steering cylinders.

Supplementary steering: Supplementary steering that meets ISO 5010 at total weight.

Steering angle: $\pm 45^\circ$

BODY



Cylinders: Two 1-stage double-acting cylinders.

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

Tipping angle	°	70
Tipping time with load	s	14
Lowering time	s	11
Body, plate thickness		
front	mm (in)	8 (0,31)
side	mm (in)	12 (0,47)
bottom/chute	mm (in)	14 (0,55)
headboard	mm (in)	8 (0,31)
beams	mm (in)	8 (0,31)
Yield strength	N/mm ² (psi)	883 (128000)
Tensile strength	N/mm ² (psi)	1226 (178000)
Hardness min.	HB	360-440

WEIGHTS



Service weight includes fuel and driver.

Service weight			
Front	kg (lb)	11050	(24365)
Rear	kg (lb)	8900	(19625)
Total	kg (lb)	19950	(43990)
Payload			
Total	kg (lb)	25400	(56000)
Total weight			
Front	kg (lb)	14500	(31970)
Rear	kg (lb)	30850	(68020)
Total	kg (lb)	45350	(99990)

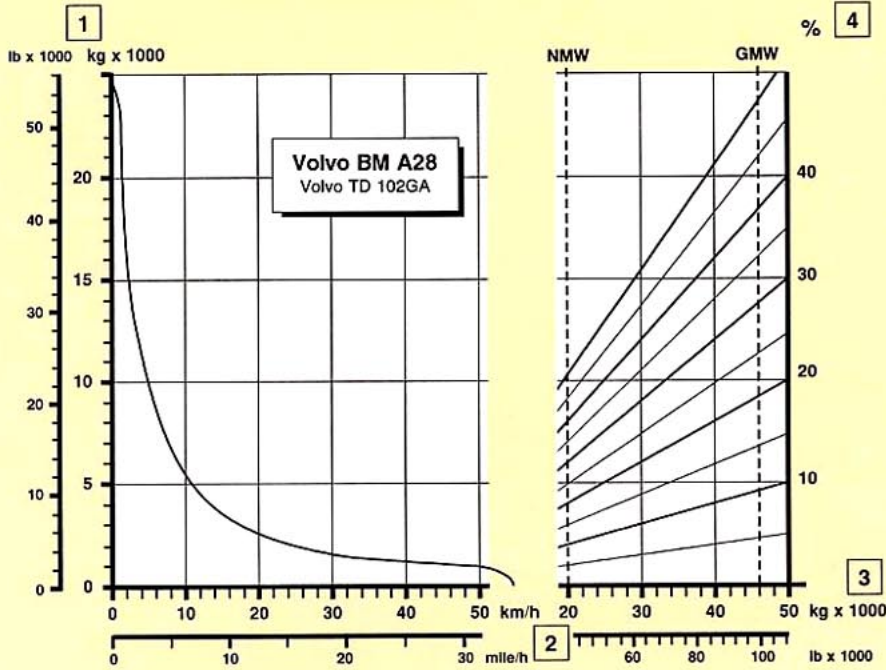
GROUND PRESSURE



At 15% slump of unloaded diameter and specified weights.

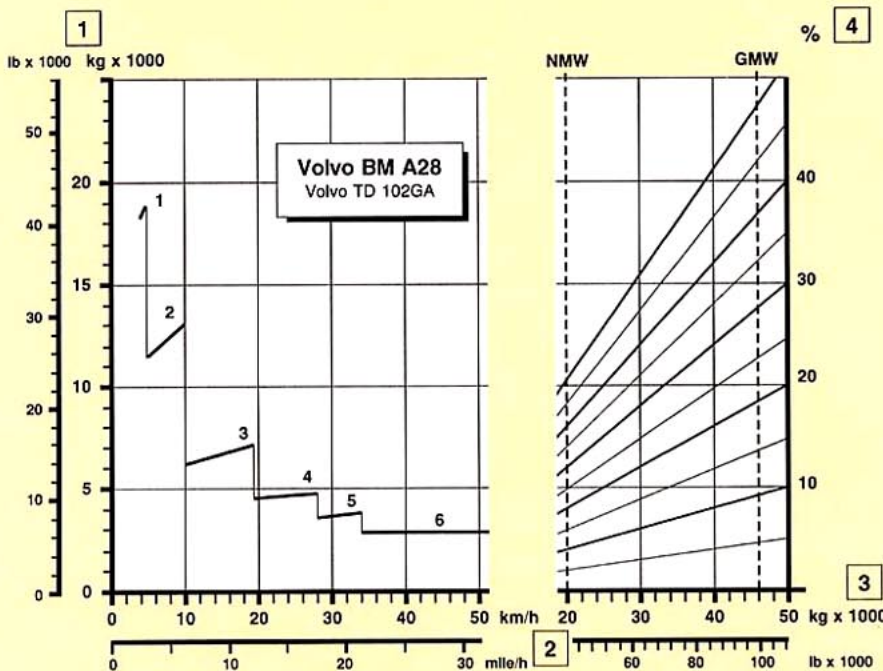
Cone penetrometer value at depth of 250 mm (9,8 in).

Unloaded			
Front	kPa (psi)	112	(16,2)
Rear	kPa (psi)	45	(6,5)
Loaded			
Front	kPa (psi)	148	(21,4)
Rear	kPa (psi)	158	(22,9)
Cone penetrometer value		75	



RIMPULL

- 1 Rimpull in kg (lb)
- 2 Speed in km/h (mile/h)
- 3 Dumper weight in kg (lb)
- 4 Rolling resistance + grade resistance in %



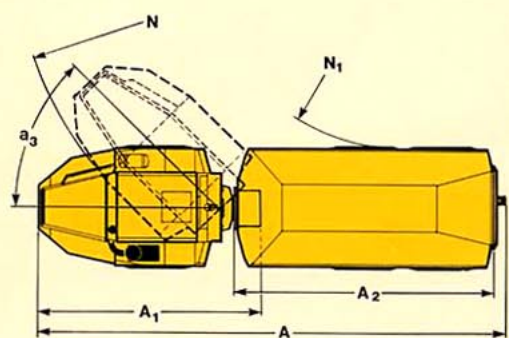
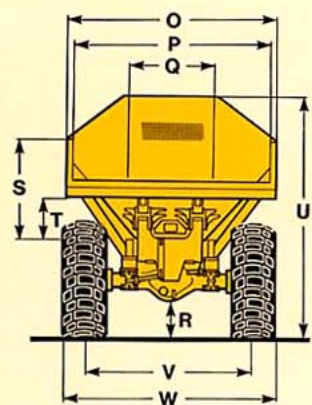
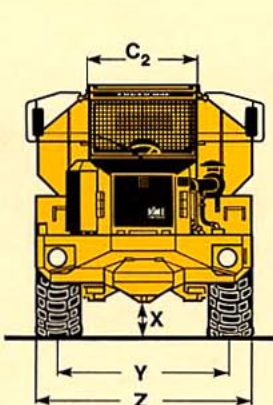
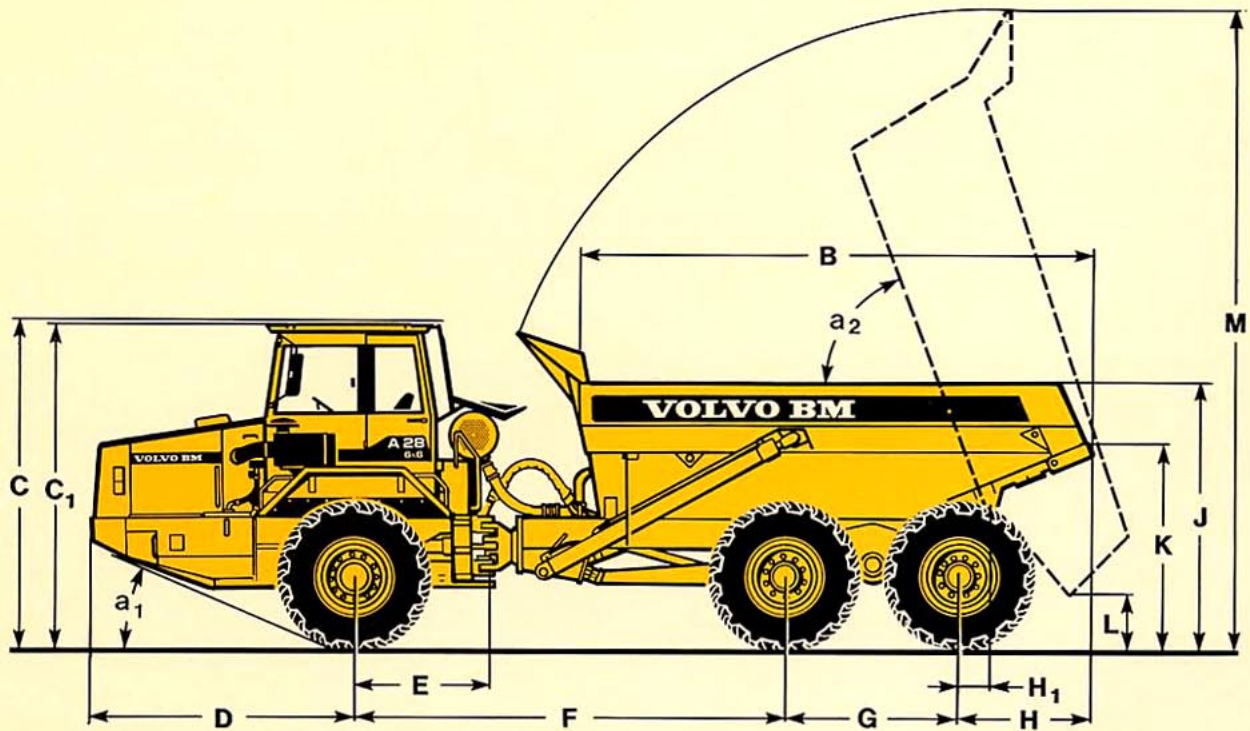
RETARDATION

- 1 Braking effort in kg (lb)
- 2 Speed in km/h (mile/h)
- 3 Dumper weight in kg (lb)
- 4 Rolling resistance - grade resistance in %

INSTRUCTIONS

Diagonal lines represent total resistance. Charts based on 0% rolling resistance.

- A. Find the total resistance on diagonal lines on righthand border of performance or retarder chart.
- B. Follow the diagonal line downward and intersect the NMW or GMW weight line.
- C. From intersection, read horizontally left to intersect the performance or retarder curve.
- D. Read down for machine speed.



DIMENSIONS VOLVO BM A28 6x6

A	mm (ft in)	9892 (32'5")	F	mm (ft in)	4180 (13'9")	N ₁	mm (ft in)	4135 (13'7")	V	mm (ft in)	2150 (7'1")
A ₁	mm (ft in)	4952 (16'3")	G	mm (ft in)	1660 (5'5")	O	mm (ft in)	2700 (8'10")	W	mm (ft in)	2750 (9')
A ₂	mm (ft in)	5587 (18'4")	H	mm (ft in)	1310 (4'4")	P	mm (ft in)	2526 (8'3")	X	mm (ft in)	460 (1'6")
B	mm (ft in)	4907 (16'1")	I	mm (ft in)	440 (1'5")	Q	mm (ft in)	2304 (7'7")	X ₁	mm (ft in)	555 (1'10")
C	mm (ft in)	3336 (10'11")	J	mm (ft in)	2600 (8'6")	R	mm (ft in)	460 (1'6")	X ₂	mm (ft in)	740 (2'5")
C ₁	mm (ft in)	3234 (10'11")	K	mm (ft in)	2071 (6'9")	R ₁	mm (ft in)	567 (1'10")	Y	mm (ft in)	2150 (7'1")
C ₂	mm (ft in)	1500 (4'11")	L	mm (ft in)	834 (2'9")	S	mm (ft in)	1331 (4'4")	Z	mm (ft in)	2750 (9')
D	mm (ft in)	2743 (9')	M	mm (ft in)	6390 (21')	T	mm (ft in)	803 (2'8")	a ₁	°	22,5
E	mm (ft in)	1210 (4')	N	mm (ft in)	7960 (26'1")	U	mm (ft in)	3190 (10'6")	a ₂	°	70
									a ₃	°	45

LOAD CAPACITY Body volumes according to SAE 2:1.

Load capacity	kg (sh ton)	25400 (28)
Body, struck	m ³ (yd ³)	11 (14,4)
heaped	m ³ (yd ³)	14 (18,3)

STANDARD EQUIPMENT

Safety and comfort

ROPS cab
 Cab heater with filtered fresh air and defroster
 Adjustable operator's seat
 Windshield wipers
 Windshield washers
 Rearview mirrors
 Sun visor
 Attachment points for seat belt
 Cigarette lighter
 Ashtray
 Horn
 Protective grille for rear window
 Hazard flashers
 Tinted glass
 Lights:
 headlights
 main/dipped/asym.
 parking lights
 reverse lights
 directional indicators
 brake lights
 cab lighting
 instrument lighting

Tool box
 Steering joint locking assembly
 Speedometer
 Secondary steering

Engine and electrical system

Turbocharger
 Alternator
 Preheating
 Battery disconnect switch
 Electrical outlet
 Gauges for:
 fuel
 engine temperature
 revolutions and hours
 Pilot lamps for:
 battery charging
 main beam
 direction indicators

Warning lamps for:
 steering function
 engine-dependent pump
 ground-dependent pump
 brake pressure
 parking brake
 engine oil pressure
 transmission temperature
 air filter
 engine temperature
 Central warning:
 steering function
 brake pressure
 engine oil pressure
 transmission temperature

Drivetrain

Torque converter
 Automatic transmission
 Drop box
 Automatic lock-up
 Retarder
 Longitudinal diff-lock
 Differential lock front axle
 Differential lock first bogie axle
 Differential lock second bogie axle

Body

Body with exhaust ducts

Tires

Front: 23.5 R 25*
 Rear: 23.5 R 25*

OPTIONAL EQUIPMENT

Electrical equipment

Rotating beacon with collapsible mount *
 Work lights *
 Electrically heated rear-view mirrors *
 Left asymmetrical headlights

Cab

Air conditioning
 Heated operator's seat
 Seat belt
 Radio panel *

Protection equipment

Overhead guard, FOPS

Body

Body heating

External equipment

Rear mudguards

Other equipment

Tool kit
 Oil bath air cleaner

* = Only delivered as kit through Parts Division

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 BM Company

S-63185 ESKILSTUNA SWEDEN

