



# Volvo BM A25C

## 4x4



- *Direct-injected, turbo-charged Volvo **low emission diesel** with intercooler as standard.*
- *Electronically controlled automatic shift. High and low gear ranges.*
- *Hydraulic retarder as standard.*
- *One longitudinal and two transverse diff locks. All with 100% lock-up.*
- *Front axle with 3-point suspension and effective shock absorption.*
  
- **Engine output:**  
SAE J1349 Net  
187 kW (251 hp)
- **Body volume:**  
13.0 m<sup>3</sup> (17.0 yd<sup>3</sup>)
- **Load capacity:**  
22.5 t (25 sh ton)

## **VOLVO BM**

## ENGINE



6-cylinder, in-line, direct-injected, intercooled, turbocharged 4-cycle **low emission diesel engine** with overhead valves and wet replaceable cylinder linings. Meets 88/77/EEC and California off-road regulation 1996.

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

Make	Volvo		
Model	TD 73 KCE		
Max Power at	r/s (r/min)	40	(2400)
SAE J1349 Gross	kW (hp)	190	(255)
Flywheel power at	r/s (r/min)	40	(2400)
SAE J1349 Net	kW (hp)	187	(251)
DIN 6271*	kW (hp)	187	(251)
Max torque at	r/s (r/min)	20	(1200)
SAE J1349 Gross	Nm (lbf ft)	1090	(804)
SAE J1349 Net	Nm (lbf ft)	1080	(796)
DIN 6271**	Nm (lbf ft)	1080	(796)
Displacement total	l (in <sup>3</sup> )	6.73	(411)
Bore	mm (in)	104.77	(4.125)
Stroke	mm (in)	130	(5.12)
Compression ratio		17.7:1	

\*) with fan at normal 15 r/s (900 r/min). With fan operating at 41.7 r/s (2500 r/min) the flywheel power is 174 kW (233 hp) which corresponds to DIN 70020.

\*\*) with fan at normal 15r/s (900 r/min). With fan operating at 41.7 r/s (2500 r/min) the maximum torque is 970 Nm, which corresponds to DIN 70020.

## DRIVETRAIN



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

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

**Dropbox:** Volvo BM with 2-stage design, power take-off and differential with lock-up function.

**Axles:** Volvo BM AH 54 and AH 71. 4-wheel drive. The axles have transversal diff-locks with 100% lock-up and fully floating axle shafts with planetary type hub reductions.

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

Torque converter		2.4:1
Transmission		ZF 5 HP 500
Dropbox	Volvo BM	FL 652

### Speeds

Low gear, forward	1	km/h (mile/h)	6.0	(3.7)
	2	km/h (mile/h)	9	(5.6)
	3	km/h (mile/h)	15	(9.3)
	4	km/h (mile/h)	22	(13.7)
	5	km/h (mile/h)	34	(21.1)
High gear, forward	1	km/h (mile/h)	9	(5.6)
	2	km/h (mile/h)	15	(9.3)
	3	km/h (mile/h)	25	(15.5)
	4	km/h (mile/h)	36	(22.4)
	5	km/h (mile/h)	51	(31.2)
Low gear, reverse	1	km/h (mile/h)	6.5	(4.3)
High gear, reverse	1	km/h (mile/h)	11	(6.8)

## ELECTRICAL SYSTEM



Voltage	V	24
Battery capacity	Ah	2x135
Alternator	kW	1.68
Starter motor	kW (hp)	5 (6.7)

## SERVICE REFILL CAPACITIES



Crankcase	l (US gal)	24	(6.3)
Fuel tank	l (US gal)	280	(74.0)
Cooling system	l (US gal)	37	(9.8)
Transmission total	l (US gal)	16	(4.2)
Dropbox	l (US gal)	6	(1.6)
Front axle	l (US gal)	29	(7.7)
Rear axle	l (US gal)	48	(12.7)
Hydraulic system	l (US gal)	160	(40.2)
Hydraulic tank	l (US gal)	145	(38.3)

## SUSPENSION



### VOLVO BM SUSPENSION SYSTEM

**Front axle:** Two rubber springs 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.

**Rear axle:** No suspension.

## BRAKE SYSTEM



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

**Circuit Division:** One circuit for front axle and one for rear axle.

**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%.

**Exhaust brake:** Standard.

**Retarder:** Hydraulic, integrated in transmission as standard.

### Braking effort incl. engine and retarder:

	max power	kW	(hp)	280	(375)
Continuous					
Intermittent					
	max power	kW	(hp)	357	(478)
	at torque	Nm	(lbf ft)	1420	(1047)
	and speed	r/min		2400	

## HYDRAULIC SYSTEM



**Pumps:** 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 (US gal/min)		100*/118** (26.4*/31.2**)
at shaft speed	r/s	(r/min)	34 (2050)

Working pressure	MPa	(psi)	19.5	(2828)
* 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.

**Operator's seat:** Flameproof upholstery. Extra seat for trainer as option.

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 cylinders.

**Supplementary steering:** Standard. Complies with ISO 5010 standard at total machine weight.

**Steering angle:** ± 45°

## 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		12
Lowering time	s		10
Body, plate thickness			
Front	mm	(in)	10 + 8 (0.70)
Sides	mm	(in)	12 + 8 (0.79)
Bottom	mm	(in)	12 + 8 (0.79)
Chute	mm	(in)	16 + 8 (0.94)
Yield strength	N/mm <sup>2</sup>	(psi)	900 (128000)
Tensile strength	N/mm <sup>2</sup>	(psi)	1250 (178000)
Hardness min.	HB		360-440

## WEIGHTS



Operating weight includes all fluids and operator.

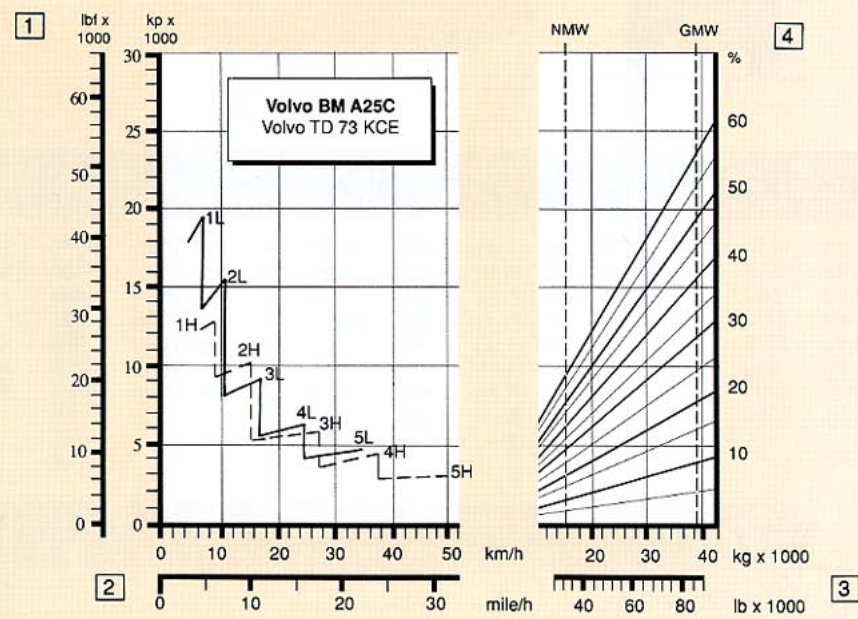
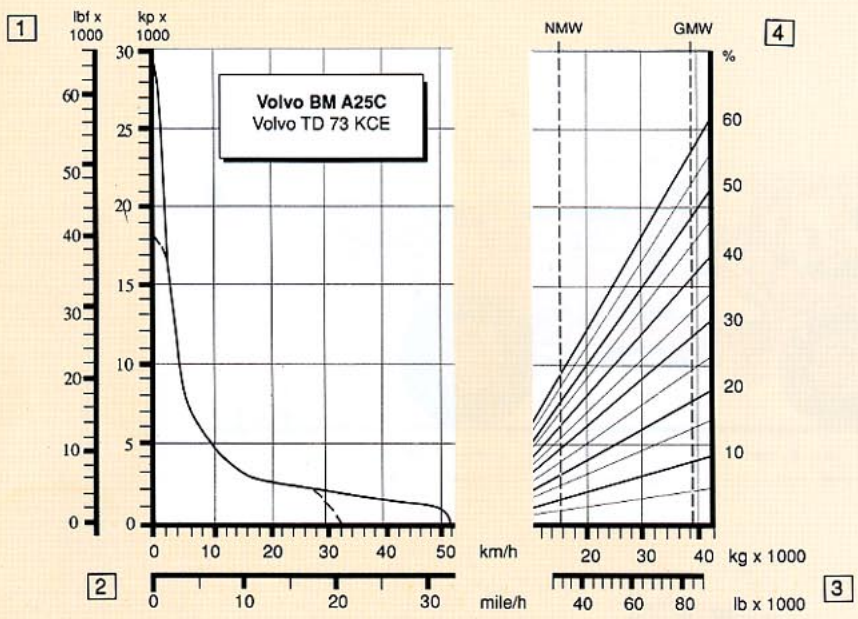
Operating weight				
Front	kg	(lb)	9150	(20172)
Rear	kg	(lb)	6620	(14595)
Total	kg	(lb)	15770	(34767)
Payload	kg	(lb)	22500	(49603)
Total weight				
Front	kg	(lb)	12550	(27668)
Rear	kg	(lb)	25720	(56702)
Total	kg	(lb)	38270	(84370)

## GROUND PRESSURE



At 15% sinkage of unloaded radius and specified weights

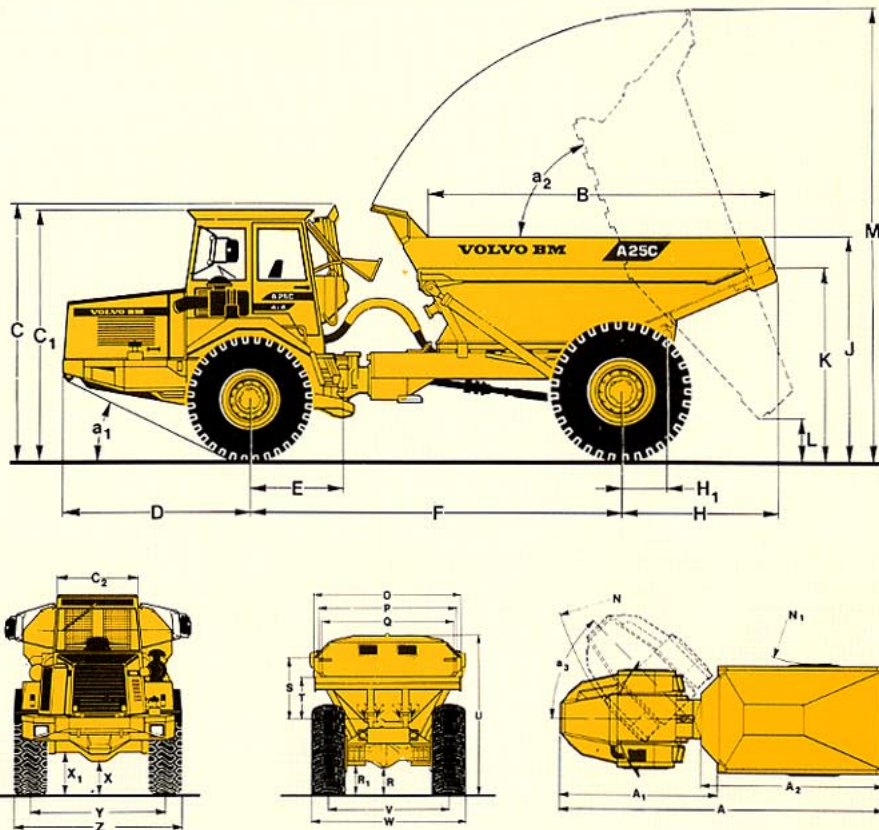
Unloaded				
Front	kPa	(psi)	95	(13.8)
Rear	kPa	(psi)	47	(6.8)
Loaded				
Front	kPa	(psi)	131	(19.0)
Rear	kPa	(psi)	183	(26.5)



**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.

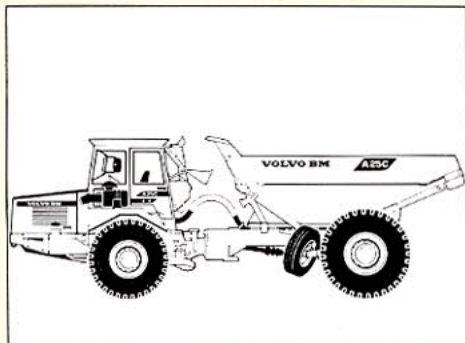


### DIMENSIONS Volvo BM A25C 4x4

A	mm (ft in)	8955	(29'5")	F	mm (ft in)	4650	(15'3")	N <sub>1</sub>	mm (ft in)	3550	(11'8")	V	mm (ft in)	2370	(7'9")
A <sub>1</sub>	mm (ft in)	4495	(14'9")	H	mm (ft in)	1890	(6'2")	O	mm (ft in)	2980	(9'9")	W	mm (ft in)	3180	(10'5")
A <sub>2</sub>	mm (ft in)	4985	(16'4")	H <sub>1</sub>	mm (ft in)	590	(2'1")	P	mm (ft in)	2800	(9'2")	X	mm (ft in)	465	(1'6")
B	mm (ft in)	4500	(14'9")	J	mm (ft in)	2730	(8'11")	Q	mm (ft in)	2680	(8'10")	X <sub>1</sub>	mm (ft in)	590	(1'11")
C	mm (ft in)	3200	(10'6")	K	mm (ft in)	2335	(7'11")	R	mm (ft in)	555	(1'10")	X <sub>2</sub>	mm (ft in)	770	(2'7")
C <sub>1</sub>	mm (ft in)	3110	(10'4")	L	mm (ft in)	650	(2'4")	R <sub>1</sub>	mm (ft in)	695	(2'3")	Y	mm (ft in)	2150	(7'1")
C <sub>2</sub>	mm (ft in)	1320	(4'4")	M	mm (ft in)	5700	(18'5")	S	mm (ft in)	1405	(4'7")	Z	mm (ft in)	2795	(9'2")
D	mm (ft in)	2415	(7'11")	N	mm (ft in)	7500	(24'7")	T	mm (ft in)	1030	(3'5")	a <sub>1</sub>	°	26	
E	mm (ft in)	1200	(3'11")					U	mm (ft in)	3165	(10'5")	a <sub>2</sub>	°	70	
												a <sub>3</sub>	°	45	

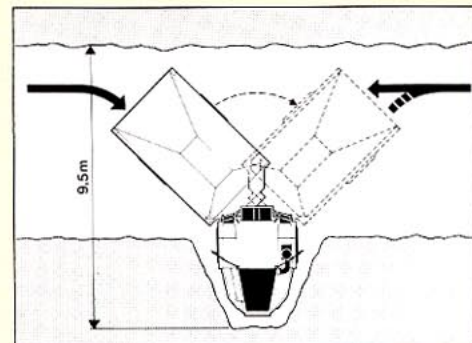
### LOAD CAPACITY (Body volumes according to SAE 2:1)

Load capacity	kg	(sh ton)	22 500	(25)
Body, struck	m <sup>3</sup>	(yd <sup>3</sup> )	10.1	(13.2)
heaped	m <sup>3</sup>	(yd <sup>3</sup> )	13.0	(17.0)



#### Turnaround system. (optional)

This system is hydraulically operated from the cab and makes the machine highly effective in confined spaces



This system enables the machine to easily turn 180° in a width of only 9.5 m (31 ft).

## 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          Ground-dependent secondary steering pump          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, main/dipped            parking lights            rear lights            direction indicators</p>	<p>back-up lights          brake lights          cab lighting          instrument lighting          Steering joint locking assembly          Speedometer          Secondary steering          Tool box under operator's seat          Tyre inflation unit</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:            fuel            engine temperature            revolutions and hours            brake pressure            transmission oil temperature</p>	<p>Pilot lamps for:            main beam            direction indicators            preheating            longitudinal diff-lock            diff-lock, front axle            lights            exhaust brake</p> <p>Warning lamps for:            battery charging            hydraulic oil level            engine-dependent pump            ground-dependent pump            brake pressure            brake fluid level            parking brake            engine oil pressure            transmission temperature            transmission failure            air filter            engine overspeed            body up</p> <p>Central warning:            hydraulic oil level            steering function            brake fluid level            brake pressure            battery charging</p>	<p>engine temperature          engine oil pressure          engine overspeed          transmission temperature</p> <p><b>Drivetrain</b>          Torque converter          Automatic transmission          Hydraulic retarder          Drop box            with high/low gear          Longitudinal diff-lock          Differential lock front axle          Differential lock rear axle</p> <p><b>Body</b>          Body with exhaust ducts and wear plates</p> <p><b>Tyres</b>          Front: 23.5 R 25          Rear: 29.5 R 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>          Extra fuel filter          Oil-bath air cleaner</p> <p><b>Electrical</b>          Work lights          Rotating beacon with collapsible mount          Side direction indicators          Headlights for left hand traffic</p>	<p><b>Cab</b>          Radio panel          Electrically heated rear-view mirrors          Air conditioning          Extra seat for trainer          Airsuspended electrically heated operator's seat          Speedometer, miles</p>	<p><b>Protection</b>          Overhead guard, FOPS          Collision guard, front          Brake protection, front axle</p> <p><b>External</b>          Fender step with protection plate          Mudguard wideners, front, 2.7 m          Rear mudflaps, 2.7 m          Towing hitch          Turn-around system</p>	<p><b>Body</b>          Body heating</p> <p><b>Other</b>          Exhaust gas cleaning</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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