

A 35

6x6

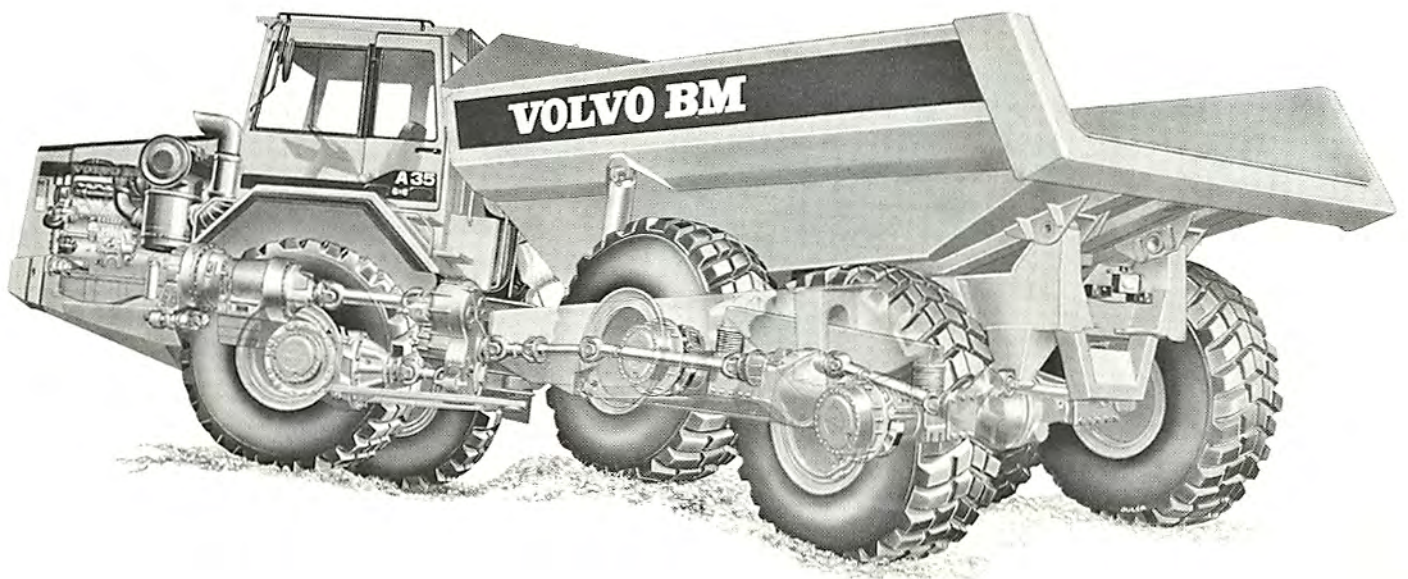


VOLVO BM A35 6x6 - THE HIGH-PRODUCTION ARTICULATED 35 TON DUMPER

The articulated dumper has enjoyed great success due to its productivity and superb off-road performance. As the leading manufacturer of this type of machines we have responded to the rising demand for higher capacity models by developing and producing the new Volvo BM A35 6x6.

The A35 has the same exclusive design features as the rest of our articulated dumper range:

The proven all-terrain bogie, the reliable frame joint and an excellent suspension system. These features, together with six-wheel drive, give the A35 the ability to negotiate very difficult terrain, and it is also highly effective on good construction roads due to its stability and ability to maintain high average speeds.



DRIVETRAIN DESIGNED FOR HIGH AVERAGE SPEEDS AND DIFFICULT TERRAIN

The Volvo BM A35 has a drivetrain in which each part is designed and developed to perfectly match the performance requirements of the machine. The engine is the time-tested 6-cylinder Volvo TD 121 G, further improved to give it the precise power and torque characteristics required for the A35. The engine power is distributed by our new planetary transmission, specially built for dumpers. The transmission combines with the semi-automatic high-low gear unit in the dropbox to provide a total of 8 gears forward and 1 reverse. Automatic lock-up on each gear provides good acceleration while reducing power losses. The transmission also has a built-in retarder which helps make the A35 highly effective on work sites with long downhill grades. In order to fully exploit the tractive force on all six

wheels, the A35 is equipped with both transverse and longitudinal diff-locks. The sum total of all these features is the A35's unmatched ability to negotiate very difficult terrain sections.

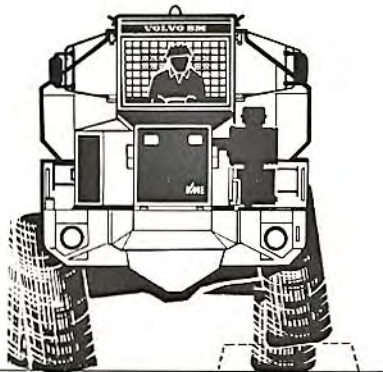
TERRAIN BOGIE

Volvo BM's terrain bogie has ample ground clearance and independent axle suspension. This gives each pair of wheels a high degree of individual movement with good ground contact. This ensures a smooth, "floating" ride over uneven terrain. Volvo BM's bogie design provides optimum distribution of the drive power under all operating conditions.



EFFECTIVE SUSPENSION

Tires, rubber springs, shock absorbers, the cab suspension and the suspended operator's seat all interact to give the Volvo BM A35 excellent driving characteristics both in terrain and on haul roads.



FRAME BUILT TO TAKE THE ROUGH WITH THE SMOOTH

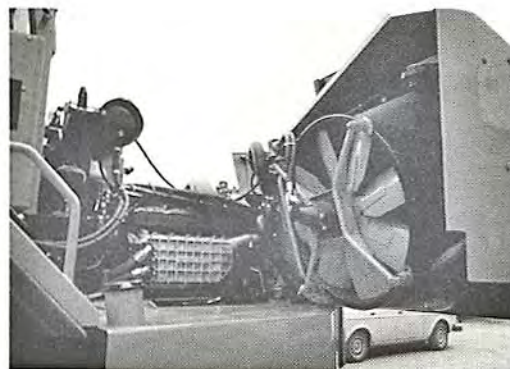
Volvo BM has many years of experience building articulated dumpers. Dumpers that can take plenty of punishment and have the right characteristics for hard crosscountry driving. Because the two frame sections have independent freedom to rotate, it has been possible to make each section of a lightweight fabrication while retaining strength and torsional rigidity. One advantage of this is the reduction of stresses around the frame's articulation joint.

COMFORT

The A35 is built for high average speeds. The cab is therefore designed to ensure that the operator has good visibility and is comfortably seated even when driving at high speed over bumpy surfaces. The cab is very spacious, has a low noise level and is very well arranged for efficient, convenient driving.

SIMPLE SERVICE

Both maintenance and daily service are quick and easy to perform. Daily lubrication involves only a few, easily accessible lube points. The hood can be opened, exposing the engine and related equipment for easy access. Simple service means more operating hours. It also means good economy and greater job satisfaction for the operator.





ENGINE

Volvo TD 121 G: 6-cylinder, in-line, direct-injected turbocharged 4-cycle diesel engine with overhead valves and wet replaceable cylinder linings.

Max. power at	rps	rpm	34	2050
SAE J 1349 Gross	kW	hp	243	330
Flywheel power at				
SAE J 1349 Net / DIN 6271*	kW	hp	240	326
Max. torque at	rps	rpm	21,7	1300
SAE J 1349	Nm	lbf ft	1300	958
SAE J1349 Net / DIN 6271**	Nm	lbf ft	1150	847
Displacement, total	dm ³	in ³	12	732
Bore	mm	in	130,18	5,13
Stroke	mm	in	150	5,9
Compression ratio			14,2:1	

*) with fan at normal 10 rps (600 rpm). With fan operating at 37 rps (2200 rpm) the flywheel power is 223 kW (303 hp) which corresponds to DIN 70020.

**) with fan at normal 10 rps (600 rpm). With fan operating at 37 rps (2200 rpm) the maximum torque is 1150 Nm which corresponds to DIN 70020



ELECTRICAL SYSTEM

Voltage	V		24	
Battery capacity	Ah / No		170 / 2	
Alternator	W		1540	
Starter motor	kW	hp	6,6	8,9



DRIVETRAIN

Torque converter: Single-stage with free-wheeling stator and automatic lock-up.

Transmission: Automatic planetary transmission with 6 gears forward and 1 reverse.

Dropbox: Volvo BM dropbox of 2-stage design 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 reduction.

Torque converter			2,36:1	
Transmission			Volvo PT 1660	
Speeds				
Low gear, forward	1	km / h	mph	5,7 3,5
	2	km / h	mph	8,2 5,1
	3	km / h	mph	14,4 8,9
	4	km / h	mph	20,3 12,6
	5	km / h	mph	25,5 15,8
	6	km / h	mph	32,6 20,2
High gear, forward				
	7	km / h	mph	41,2 25,6
	8	km / h	mph	52,7 32,7
Reverse	1	km / h	mph	8,5 5,3
Dropbox			FL 752	
Front axle, type			AH 63 F	
First bogie axle, type			AH 63 G	
Second bogie axle, type			AH 63 H	



TIRES

Front, radials
Rear, radials

26.5 R 25**
26.5 R 25**



BRAKE SYSTEM

Fully hydraulic disc brakes in two circuits, Comply with ISO 3450 and SAE J1473 at total weight 56 400 kg - 124 300 lb.

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 dumper's propeller shaft.

RETARDER

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

Power and torque at	rps	rpm	33,3	2000
Max. power (continuous)	kW		360	
Max. torque (continuous)	Nm		1200	
Power and torque at	rps	rpm	40	2400
Max. power (intermittent)	kW		450	
Max. torque (intermittent)	Nm		1200	



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 is standard at total weight 56 400 kg - 124 300 lb.

Steering angle: ± 45°



SUSPENSION VOLVO BM SUSPENSION SYSTEM

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



CAB

Volvo BM cab: Tested and approved in accordance with ROPS/FOPS. Standard ISO 3471/SAE J1040 C and FOPS ISO 3449/SAE J 231. 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)	80



WEIGHTS

Service weight includes fuel and driver.

Service weight				
Front	kg	lb	12860	28350
Rear	kg	lb	11540	25450
Total	kg	lb	24400	53800
Payload				
Total	kg	lb	32000	70550
Total weight				
Front	kg	lb	16000	35250
Rear	kg	lb	40400	89050
Total	kg	lb	56400	124300



HYDRAULIC SYSTEM

Pump: 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	dm ³ , l /min	100
	US gal /min	26,4
at shaft speed	rps rpm	34 2050
Working pressure max.	MPa psi	19,0 2710



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	109	15,8
Rear	kPa	psi	49	7,1
Loaded				
Front	kPa	psi	136	19,7
Rear	kPa	psi	172	24,9
Cone penetrometer value			75	



BODY

Cylinders: Two 3-stage cylinders, of which one stage is double-acting.

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

Tipping angle	°	73
Tipping time with load	s	18
Lowering time	s	18
Body, plate thickness		
side	mm in	12 0,48
bottom/chute	mm in	16 0,62
headboard/beams	mm in	8 0,31
Yield strength	kp/mm ² psi	90 128 000
Tensile strength	kp/mm ² psi	125 178 000
Hardness min.	HB	360-440



SERVICE REFILL CAPACITIES

Crankcase	dm ³ (l)	US gal	42	11,1
Fuel tank	dm ³ (l)	US gal	360	95
Cooling system	dm ³ (l)	US gal	88	23
Transmission total	dm ³ (l)	US gal	45	11,8
Dropbox	dm ³ (l)	US gal	8	2,1
Hub	dm ³ (l)	US gal	4	1,1
Front axle	dm ³ (l)	US gal	39	10,3
First bogie axle	dm ³ (l)	US gal	50	13,2
Second bogie axle	dm ³ (l)	US gal	39	10,3
Brake hydraulics	dm ³ (l)	US gal	12	3,2
Brake oil tank	dm ³ (l)	US gal	11	2,9
Hydraulic system	dm ³ (l)	US gal	194	51,2
Hydraulic tank	dm ³ (l)	US gal	175	46,2



LOAD CAPACITY

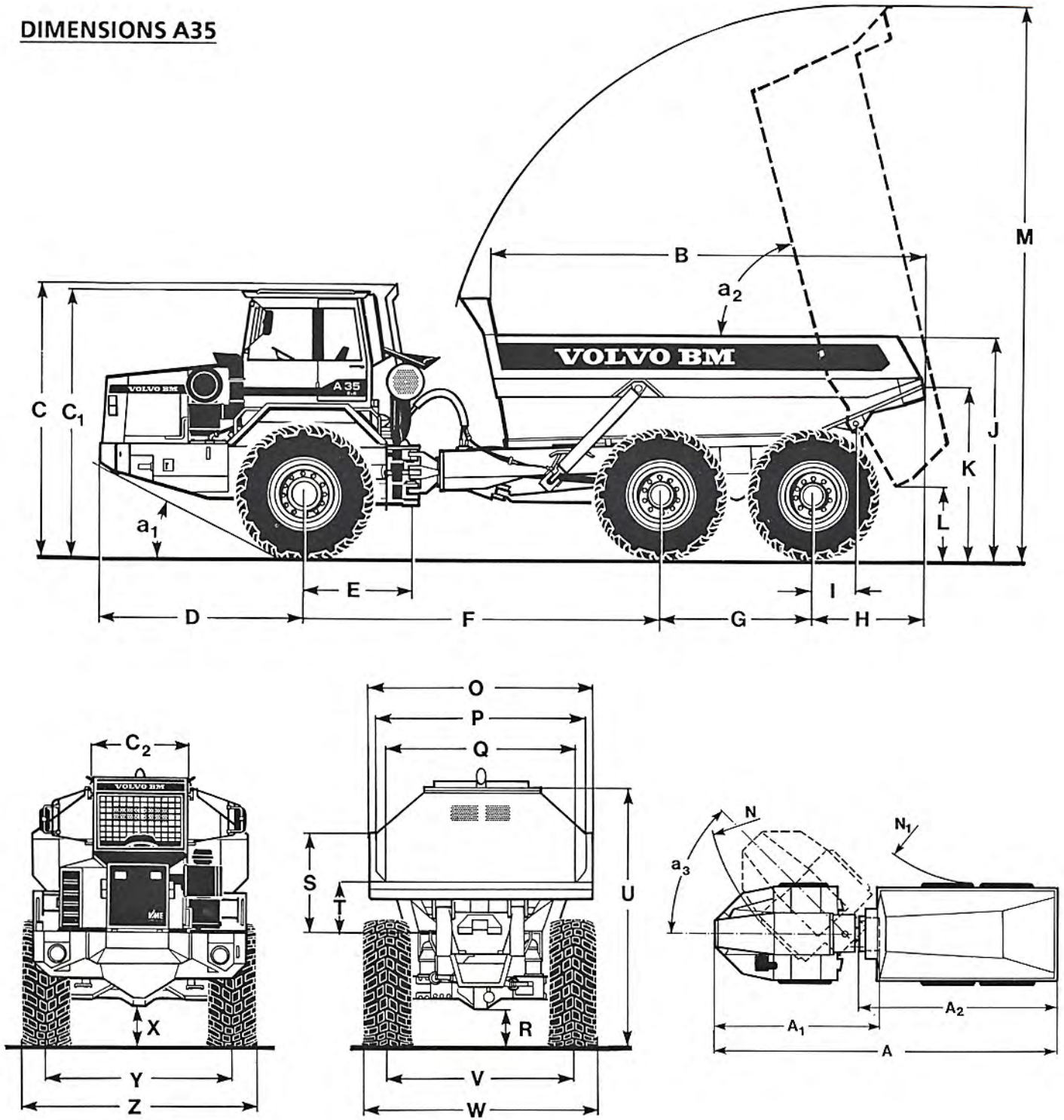
Body volumes according to SAE 2:1

In the case of bodies with struck volumes of less than 10 m³ (13 yd³), heaped volume is given to the nearest whole m³.

Struck volume is given in m³ (yd³) to one decimal place.

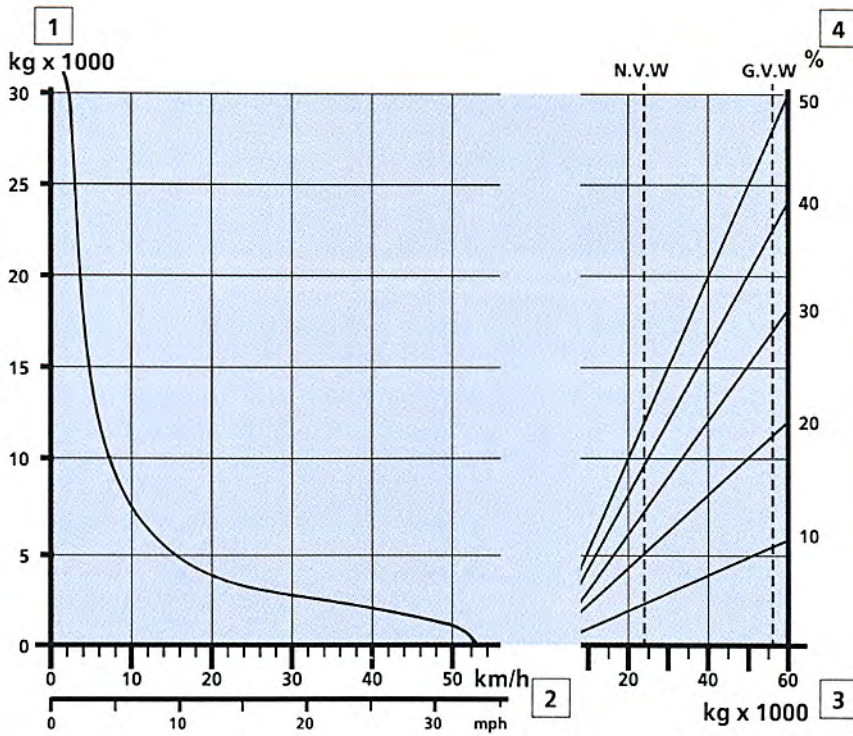
Load capacity	kg	sh tons	32000	35
Body, struck	m ³	yd ³	16	21
heaped	m ³	yd ³	19	24,8

DIMENSIONS A35



* = unloaded machine

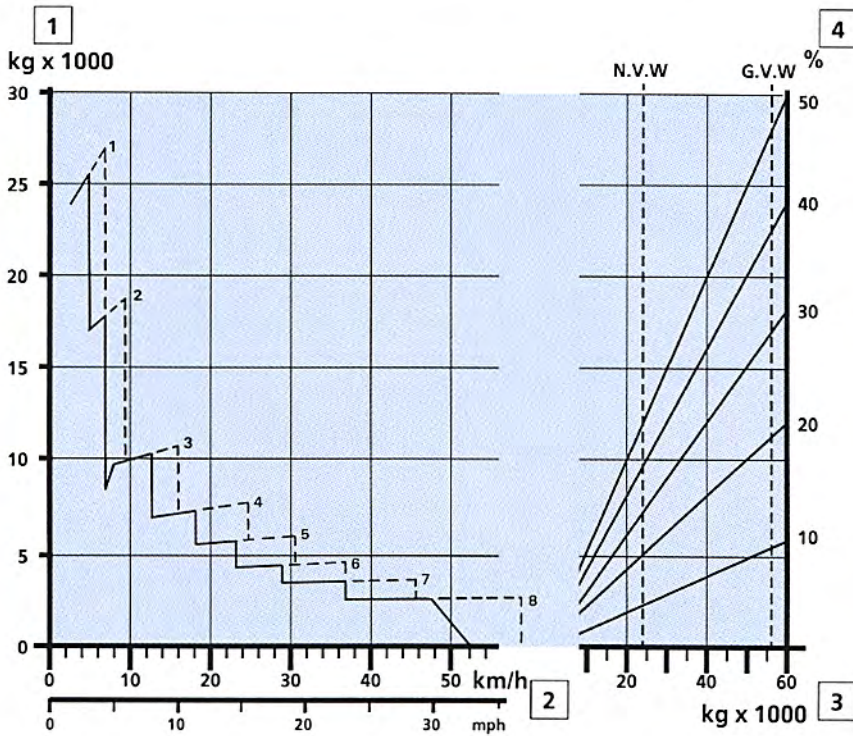
A	mm	ft in	10750	35'1"	H	mm	ft in	1615	5'4"	R	mm	ft in	495	1'7"
A ₁	mm	ft in	5000	16'5"	I	mm	ft in	725	2'5"	S	mm	ft in	1270	4'2"
A ₂	mm	ft in	6250	20'6"	J	mm	ft in	2755	9'	T	mm	ft in	580	1'11"
B	mm	ft in	5540	18'2"	K	mm	ft in	2070	6'4"	U	mm	ft in	3315	10'11"
C	mm	ft in	3490	11'6"	L	mm	ft in	950	3'1"	V	mm	ft in	2520	8'3"
C ₁	mm	ft in	3454	10'4"	M	mm	ft in	7075	23'3"	W	mm	ft in	3200	10'6"
C ₂	mm	ft in	1500	4'5"	N	mm	ft in	8680	28'6"	X	mm	ft in	495	1'7"
D	mm	ft in	2830	9'4"	N ₁	mm	ft in	4300	14'1"	Y	mm	ft in	2520	8'3"
E	mm	ft in	1255	4'1"	O	mm	ft in	2990	9'10"	Z	mm	ft in	3200	10'6"
F	mm	ft in	4480	14'8"	P	mm	ft in	2785	9'2"	a ₁	°		27	
G	mm	ft in	1820	6'	Q	mm	ft in	2560	9'3"	a ₂	°		73	
										a ₃	°		45	



RIMPULL

Rimpull graph based on practically measured values
Dumper weight and ground slope + rolling resistance gives rimpull requirement and speed.

- 1 Rimpull in kg
- 2 Speed in km/h and mph
- 3 Dumper weight in kg
- 4 Rolling resistance + grade resistance in %



RETARDATION

- 1 Braking effort in kg
- 2 Speed in km/h and mph
- 3 Dumper weight in kg
- 4 Rolling resistance - grade resistance in %

INSTRUCTIONS:

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

1. Find the total resistance on diagonal lines on righthand border of performance or retarder chart.
2. Follow the diagonal line downward and intersect the NVW or GVW weight line.
3. From intersection, read horizontally left to intersect the performance or retarder curve.
4. Read down for vehicle speed.

VOLVO BM A35 6x6

STANDARD EQUIPMENT

Safety and comfort

ROPS/FOPS cab
Cab heater with filtered fresh air and defroster
Adjustable sprung operator's seat
Windshield wipers
Windshield washers
Rearview mirrors
Sun visor
Attachment points for seat belt
Seat belt
Trainer seat
Back up warning alarm
Anti-slip material
Cigarette lighter
Ashtray
Horn
Protective grille for rear window
Hazard flashers
Tinted glass
Lights:
headlights
main/dipped/asym.
parking lights
reverse lights

direction indicators
brake lights
cab lighting
instrument lighting
Tool box
Steering joint locking assembly
Speedometer
Supplementary steering

Engine and electrical system

Turbocompressor
Extra fuel filter
Alternator
Preheating
Battery disconnect switch
Electrical outlet
Indicator for air cleaner
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 shift
Drop box
with high/low gear
Automatic lock-up
Retarder
Longitudinal diff-lock
Diff-lock front axle
Diff-lock first bogie axle
Diff-lock second bogie axle

Body

Body with exhaust ducts

Tires

Front: Rear
26.5 R 25** : 26.5 R 25**

OPTIONAL EQUIPMENT

Electrical equipment

Rotating beacon with collapsible mount
Working lights

Cab

Air conditioning

Body

Body heating

Under our policy of continuous 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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