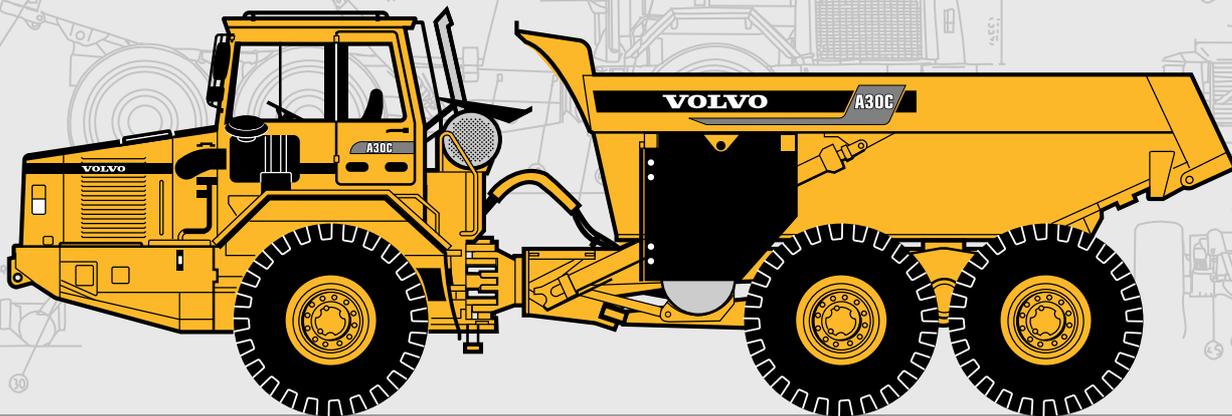


VOLVO ARTICULATED HAULER

A30C

TUNNEL VERSION



- Engine output SAE J1349:
Net 213 kW (285 hp)
Gross 216 kW (289 hp)
- Body volume:
16,5 m³ (21.6 yd³)
- Load capacity:
27 t (30 sh tn)
- Volvo low emission direct-injected, turbocharged, inter-cooled high performance diesel engine.
- Volvo Venturi scrubber exhaust gas treatment system
- Fully automatic powershift transmission, electronically controlled.
- Hydraulic retarder as standard.
- Drop box with longitudinal differential lock.
- 100% lock-up differential locks. One longitudinal and three transverse diff-locks.
- Front axle with three-point suspension and effective shock absorption.
- Volvo terrain bogie, individually oscillating axles and high ground clearance.
- Comfortable ROPS/FOPS cab.
- Low interior noise level.
- Adjustable steering wheel.

VOLVO



ENGINE

Volvo 6-cylinder, in-line, direct-injected, turbocharged, inter-cooled 4-cycle low emission diesel engine with overhead valves and wet replaceable cylinder linings. Meets USA (EPA), California off-road regulation 1996 and European off-road regulation 1997 as well as the regulations of the Ministry of Construction of Japan in force as from April 1, 1996, for tunnel construction use.

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

Make	Volvo
Model	TD103 KBE
Max power at	36,7 r/s (2200 r/min)
SAE J1349 Gross	216 kW (289 hp)
Flywheel power at	36,7 r/s (2200 r/min)
SAE J1349 Net	213 kW (285 hp)
DIN 6271*	213 kW (285 hp)
Max torque at	16,6 r/s (996 r/min)
SAE J1349 Gross	1365 Nm (1007 lbf ft)
SAE J1349 Net	1360 Nm (1003 lbf ft)
DIN 6271**	1360 Nm (1003 lbf ft)
Displacement total	9,6 l (586 in ³)
Bore	120 mm (4.7 in)
Stroke	140 mm (5.5 in)
Compression ratio	18:1

*) with fan at normal speed. With fan operating at full speed, the flywheel power is 199 kW (267 hp) which corresponds to DIN 70020.

**) with fan at normal speed. With fan operating at full speed, the maximum torque is 1190 Nm (878 lbf ft) which corresponds to DIN 70020.



ELECTRICAL SYSTEM

Voltage	24 V
Battery capacity	2x170 Ah
Alternator	1,65 kW (60 A)
Starter motor	6,6 kW (8.8 hp)



SERVICE CAPACITIES

Crankcase	23 l (6.1 US gal)
Fuel tank	360 l (95.1 US gal)
Cooling system	42 l (11.1 US gal)
Transmission total	40 l (10.6 US gal)
Dropbox	6 l (1.6 US gal)
Front axle	29 l (7.7 US gal)
First bogie axle	30 l (7.9 US gal)
Second bogie axle	29 l (7.7 US gal)
Brake hydraulics	2 l (0.5 US gal)
Hydraulic system	194 l (51.3 US gal)
Hydraulic tank	150 l (39.6 US gal)
Venturi water tanks	342 l (90.3 US gal)



DRIVETRAIN

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

Transmission: Electronically controlled, fully automatic planetary transmission with six gears forward and two in reverse.

Drop box: Volvo with single-stage design, power take-off and differential with lock-up function.

Axles: Volvo. 6-wheel drive. All axles have transversal diff-locks with 100% lock-up and fully floating axle shafts with planetary type hub reductions.

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

Torque converter	2,36:1
Transmission	Volvo PT 1663
Dropbox	Volvo FL 650B
Axles	Volvo AH 63

Speeds with tires 30/65R25 and 23.5R25

Forward	
1	8,2 km/h (5.1 mile/h)
2	11,9 km/h (7.4 mile/h)
3	21,5 km/h (13.4 mile/h)
4	31,1 km/h (19.3 mile/h)
5	39,5 km/h (24.5 mile/h)
6	52,3 km/h (32.7 mile/h)
Reverse	
1	7,6 km/h (4.7 mile/h)
2	13,1 km/h (8.1 mile/h)



SUSPENSION

Volvo 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 oscillating in rough terrain.

Bogie: Volvo's unique rough terrain bogie, which permits individual oscillation between the axles.



BRAKE SYSTEM

Air-hydraulic disc brakes on all axles. Two circuits. Designed to comply with ISO 3450 and SAE J1473 at gross machine weight.

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

Parking brake: Spring-applied, air-released disc brake on the propeller shaft, designed to hold a loaded machine on grades up to 18%. When the parking brake is applied, the longitudinal differential is locked.

Compressor: Gear-driven by engine transmission.

Retarder: Hydraulic, infinitely variable integrated in transmission as standard.

For retarding capability incl. retarder, engine and exhaust brake, see graph on page 4.



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: Through two paper filters with magnetic cores.

Pump capacity per pump . . .	109 l/min (28.8 US gpm)
at shaft speed	36 r/s (2160 r/min)
Working pressure	19 MPa (2758 psi)



CAB

Volvo cab, tested and approved according to ROPS standard ISO/3471 and SAE J1040/APR88.

FOPS roof as standard.

Mounted on rubber pads which effectively reduce vibrations.

Adjustable steering wheel.

Radio/Contronic console in ceiling.

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

Operator's seat: Ergonomically designed and adjustable operator's seat with flameproof upholstery.

Trainer seat: Standard

Number of exits	2
Internal sound level acc. to ISO 6394 and at max. speed.	76 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: ± 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	14 s
Lowering time	13 s
Body, plate thickness	
Front	8 mm (0.31 in)
Side	12 mm (0.47 in)
Bottom	14 mm (0.55 in)
Chute	22 mm (0.87 in)
Yield strength	1000 N/mm ² (145 000 psi)
Tensile strength	1250 N/mm ² (181 000 psi)
Hardness min.	360–440 HB



WEIGHTS

Operating weight includes all fluids and operator. Standard machine.

Operating weight with 23.5R25 tires	
Front	11700 kg (25794 lb)
Rear	9800 kg (21605 lb)
Total	21500 kg (47399 lb)
Payload	27000 kg (59524 lb)
Total weight	
Front	15450 kg (34061 lb)
Rear	33050 kg (72862 lb)
Total	48500 kg (106923 lb)

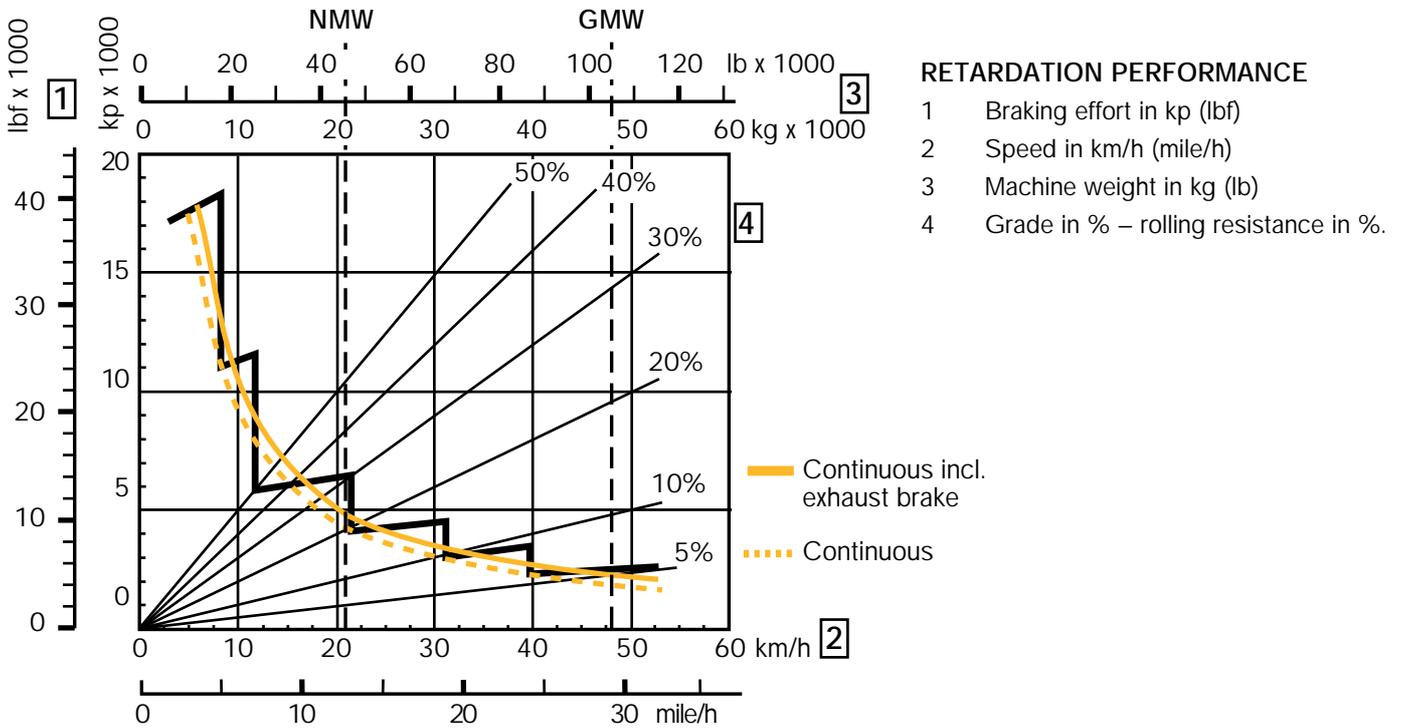
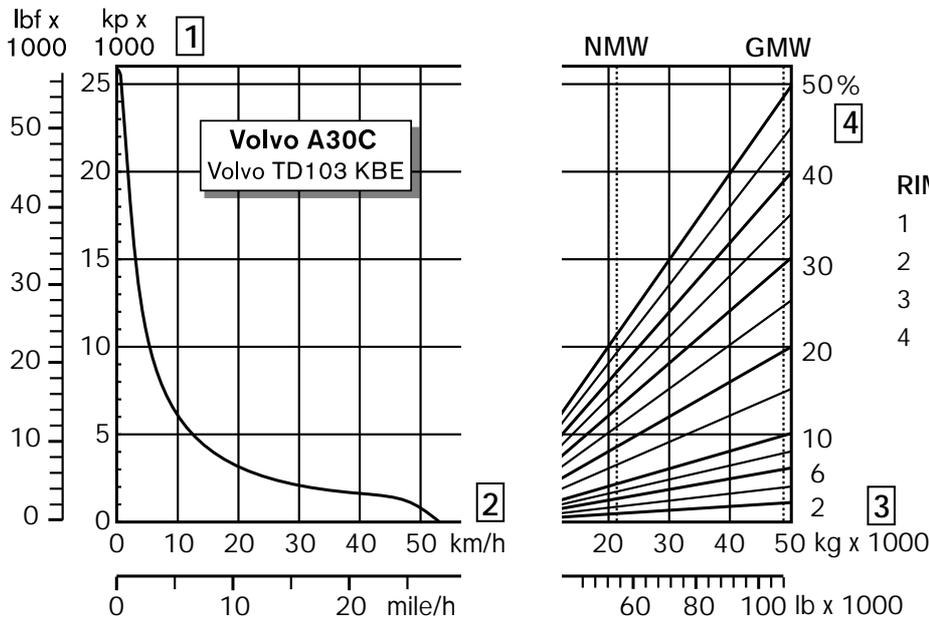
A30C equipped with 30/65R25 tires, add 200 kg (440 lb) per axle.



GROUND PRESSURE

At 15% sinkage of unloaded radius and specified weights.

With tires	30/65R25	23.5R25
Unloaded		
Front	94 kPa (13.6 psi)	112 kPa (16.2 psi)
Rear	40 kPa (5.8 psi)	46 kPa (6.7 psi)
Loaded		
Front	124 kPa (18.0 psi)	150 kPa (21.7 psi)
Rear	135 kPa (19.6 psi)	164 kPa (23.8 psi)



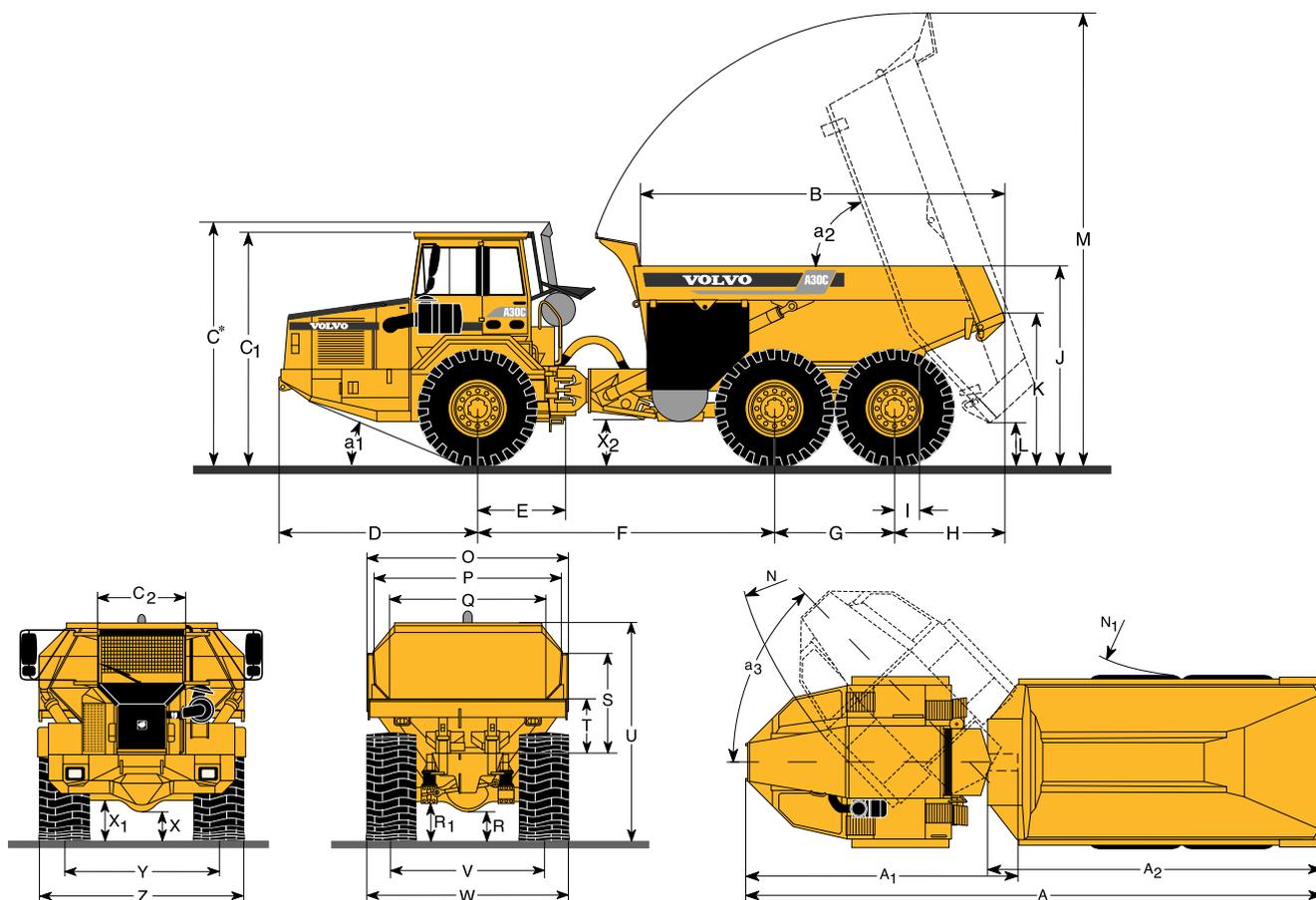
INSTRUCTIONS

Diagonal lines represent total resistance (grade % **plus** rolling resistance %).

Charts based on 0 % rolling resistance, standard tires and gearing, unless otherwise stated.

In the retardation chart, the diagonal lines represent the "total resistance" as well (here in downhill grades it is the total extra pushing force), which is the grade in % **minus** the rolling resistance in %.

- 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 actual machine weight line, NMW or GMW
- Draw a new line horizontally to the left from the point of the intersection until the new line intersects the rimpull or retardation curve.
- Read down for vehicle speed.



DIMENSIONS Volvo A30C 6x6 (Unloaded with 23.5R25 tires)

A	10200 mm (33'6")	D	2770 mm (9'1")	N	8047 mm (26'5")	V	2216 mm (7'3")
A ₁	4862 mm (15'11")	E	1210 mm (4')	N ₁	4021 mm (13'2")	W	2820 mm (9'3")
A ₂	5856 mm (19'3")	F	4173 mm (13'8")	O	2932 mm (9'7")	W*	2980 mm (9'9")
B	5167 mm (16'11")	G	1670 mm (5'6")	P	2720 mm (8'11")	X	485 mm (1'7")
C	3410 mm (11'2")	H	1587 mm (5'2")	Q	2286 mm (7'6")	X ₁	522 mm (1'9")
C*	3802 mm (12'4")	I	430 mm (1'5")	R	530 mm (1'9")	X ₂	670 mm (2'2")
with optional spillguard in upright position		J	2834 mm (9'4")	R ₁	567 mm (1'10")	Y	2216 mm (7'3")
C ₁	3260 mm (10'8")	K	2180 mm (7'2")	S	1464 mm (4'10")	Z	2820 mm (9'3")
C ₂	1331 mm (4'4")	L	594 mm (1'11")	T	810 mm (2'8")	Z*	2980 mm (9'9")
		M	6494 mm (21'4")	U	3305 mm (10'10")	a ₁	23°
					a ₂	70°	
					a ₃	45°	

*) with 30/65R25 tires

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

Load capacity	27000 kg (30 sh tn)		
Body, struck	12,9 m ³ (16.9 yd ³)		
heaped	16,5 m ³ (21.6 yd ³)		
With underhung tailgate (optional)		With wire operated overhung tailgate (optional)	
Body, struck	13,2 m ³ (17.3 yd ³)	Body, struck	13,2 m ³ (17.3 yd ³)
heaped	17,0 m ³ (22.2 yd ³)	heaped	17,2 m ³ (22.5 yd ³)
With over- and underhung tailgate (optional)			
Body, struck	13,2 m ³ (17.3 yd ³)		
heaped	17,2 m ³ (22.5 yd ³)		

STANDARD EQUIPMENT

Safety

ROPS/FOPS cab
Anti-slip material on fenders and hood
Hazard flashers
Horn
Protective grille for rear window
Rear-view mirrors
Rotating beacon with collapsible mount
Seat belt
Secondary steering
Speedometer
Steering joint locking assembly
Windshield wipers with interval
Windshield washers

Comfort

Adjustable steering wheel
Ashtray
Cab heater with filtered fresh air and defroster
Cigarette lighter
Ergonomically designed and adjustable operator's seat
Extra seat for trainer
Radio/Contronic console in ceiling
Sun visor
Tinted glass

Engine

Exhaust brake
Intercooler
Low emission engine
Oil bath air cleaner
Oil drainage hose
Preheating
Turbocharger
Volvo Venturi scrubber

Electric system

Alternator
Battery disconnect switch
Contronic display
Electrical outlet
Kit for radio installation

Gauges for:

- Air pressure
- Engine temperature
- Engine revs
- Fuel
- Hours
- Transmission oil temperature

Lights:

- Headlights for left-hand traffic, main/dipped
- Work lights, roof mounted
- Parking lights
- Direction indicators
- Rear lights
- Back-up lights
- Brake lights
- Cab lighting
- Instrument lighting

Pilot lamps for:

- Direction indicators
- Bogie axles diff-lock
- Front axle diff-lock
- Longitudinal diff-lock
- Lights
- Main beam
- Preheating

Warning lamps for:

- Air cleaner, engine
- Battery charging
- Body up
- Brake pressure
- Brake failure
- Coolant level
- Engine oil pressure
- Engine temperature
- Engine-dependent steering pump
- Ground-dependent steering pump
- Parking brake
- Transmission temperature

Central warning:

- Battery charging
- Brake failure
- Brake pressure (air)
- Body up
- Engine oil pressure
- Engine overspeed
- Malfunction in transmission
- Steering function

Drive train

Torque converter with automatic lock-up
Automatic transmission
Hydraulic variable retarder
Drop box, single stage
Longitudinal diff-lock
Differential lock front axle
Differential lock first bogie axle
Differential lock second bogie axle

Brakes

Air-hydraulic disc brakes
Two circuits
Parking brake on all wheels

Body

Body with exhaust ducts
Extra front spillguard
Wear plate on tail chute

Tires

23,5R25

OPTIONAL EQUIPMENT

Service and Maintenance

Tool kit with tyre inflation unit
Tool box
Central lubrication

Engine

Coolant filter

Cab

Air conditioning
Airsuspended electrically heated operator's seat
Electrically heated rear-view mirrors
Radio

Safety

Fire-extinguisher and first aid cushion

External

Brake protection, front axle
Mudguard wideners, front 2,98 m
Rear mudflaps

Body

Wear plates, separate delivery

Other

Synthetic hydraulic oil (biologically degradable)
Towing hitch

Tires

30/65R25

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

**Volvo Construction
Equipment**