

# VOLVO BM 4600



## *Specification Volvo BM loader 4600*

### HIGH QUALITY

Precision engineered side-arm system manufactured from high grade steel. Symmetrical construction with rugged bearings built to withstand the toughest working conditions and to ensure long life.

Volvo turbodiesel — a no-nonsense, durable, tried-and-tested power pack of proven reliability; manufactured in long production runs.

The 4600 is manufactured using advanced production technology and rigorous quality control to maintain the consistently high standards expected of Volvo BM.

### SAFETY

Volvo BM safety cab — ROPS- and ASS-tested and approved. Very good visibility both all round the machine and over the entire working range of the loader unit. The 4600 is light and responsive. Steering, braking, and transmission systems, are of exclusive design and incorporate sophisticated components.

### HIGH CAPACITY

The well-balanced combination of engine, transmission, and loader unit, provides optimum performance in every phase of the work cycle.

The 4600 is built throughout to meet the tough demands of forced loading. The machine is very easy to service. This means improved maintenance, less downtime, producing greater productivity and profit.







## ENGINE

Volvo TD 100 G: 6-cylinder, in-line, direct-injected, turbo charged, 4 stroke diesel engine with wet replaceable cylinder lining.

Flywheel rating

185 kW at 36.7 rps DIN 70020  
(252 hp at 2200 rpm DIN)

Gross rating

194 kW at 36.7 rps SAE J 270  
(264 hp at 2200 rpm SAE)

Max torque

962 Nm at 23.3 rps DIN 70020  
(709 lbf ft at 1400 rpm DIN)

No. of cylinders

6

Bore

120.65 mm (4.75 in)

Stroke

140 mm (5.5 in)

Displacement

9.6 litres (586 in<sup>3</sup>)

Air cleaning in three stages

1. Cyclone precleaner with automatic ejection through the exhaust
2. Paper filter
3. Catch-all safety filter



## ELECTRICAL SYSTEM

Battery  
Voltage  
Battery capacity  
Alternator  
Starter motor

2 x 12 V (connected in series)  
24 V  
135 Ah  
1260 W (45 A)  
4.5 kW (6 hp)

Central warning lamp for the following functions:

### (For certain markets only)

Engine oil pressure, brake pressure, parking brake, engine temperature, transmission temperature, transmission oil pressure.



## TORQUE CONVERTER

Type Single-stage, single-phase  
Torque multiplication ratio 2.59:1



## TRANSMISSION

Type Power-shift  
Designation HT 170  
Number of gears forward/reverse 4/4

Speeds:  
(tyres 26.5-25)

1. 0— 6.7 km/h (0— 4.2 mph)
2. 0—14.3 km/h (0— 8.9 mph)
3. 0—30 km/h (0—18.6 mph)
4. 0—50 km/h (0—31.1 mph)



## AXLES

Volvo BM Heavy-duty design with planetary hub reductions.

Front axle:	Designation	Volvo BM AH 70
	Differential lock	100 % lock-up (dog clutch)
Rear axle:	Designation	Volvo BM AH 62
	Oscillation	± 15° (500 mm)



## BRAKES

Service brakes: Air over hydraulic operated disc brake, dual system.

Parking brake

Mechanically operated disc brake on output shaft



## TYRES

26.5—25/20



## STEERING

Flow amplified steering

Centre point frame articulation. Two double-acting hydraulic cylinders.

Steering angle

± 37°

Turning radius

6.9 m (22 ft 7 in)

Steering cylinder, bore/stroke

110/423 mm (4.3/16.7 in)

Oil pump, type

Vane pump

Output at 10 MPa (1450 psi) and 2200 rpm

190 l/min (41.8 Imp gal/min)

(36.7 rps)

Relief pressure

14 MPa (2030 psi)



## HYDRAULIC SYSTEM

Pump, type: Vane pump

Output at 10 MPa (1450 psi) and 2200 rpm (36.7 rps)

380 l/min (83.6 Imp gal/min)

Relief pressure

17 MPa (2465 psi)

Oil filter:

Full-flow filtration through filter cartridge with magnetic core

Cylinders:

Lift — bore/stroke

170/1107 mm (6.7/43.6 in)

Tilt — bore/stroke

140/983 mm (5.3/38.7 in)

Control valve:

3-section valve, with built-in relief valve, lifting function has hold for lift and float position. Bucket positioner and boom kick out. The control valve is servoassisted.

Raise

7.8 s

Lower

3 s

Dump

4 s



## SERVICE REFILL

Capacities

Crankcase

Litres

Imp gal

US gal

Fuel tank

31

6.82

8.19

Cooling system

360

79.2

95.1

Hydraulic system, total

50

11

13.2

Hydraulic tank

300

66

79.25

Transmission and torque converter, total

210

46.2

55.5

Front axle differential and hubs

40

8.8

10.56

Rear axle differential and hubs

31

6.82

8.19

Dropbox

7

1.53

1.85



## CAB

Tested and approved as a safety cab in accordance with Article 3 section 8 of the Swedish Environment Protection Act and meets ISO 3471-1980, SAE J 1040c "ROPS" and ISO 3449-1980 SAE

J 231 - Jan 81 "FOPS" and SS/ISO 6055 "Overhead guards for lift-truck". The cab is mounted on four rubber pads and is well insulated and weather-tight. All windows have bronze-tinted glass. The windshield is of laminated safety glass and other windows have tempered glass.

Heater and defroster: Heating element with fresh air heating and 3-speed fan plus defroster for windshield and side windows.

Ventilation

2 air changes/min

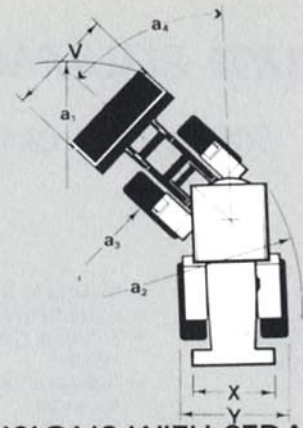
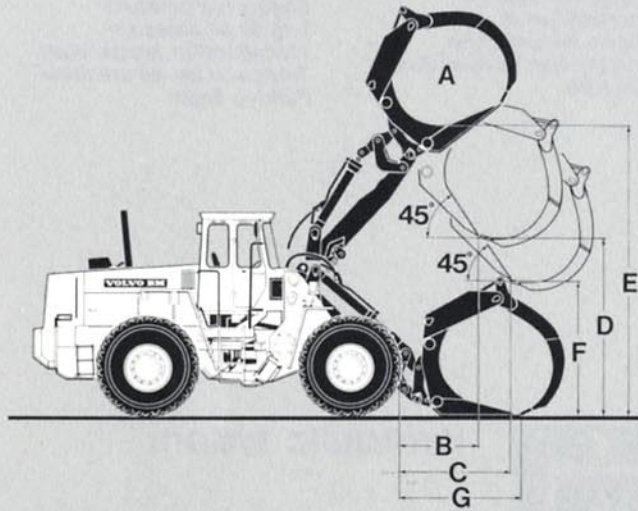
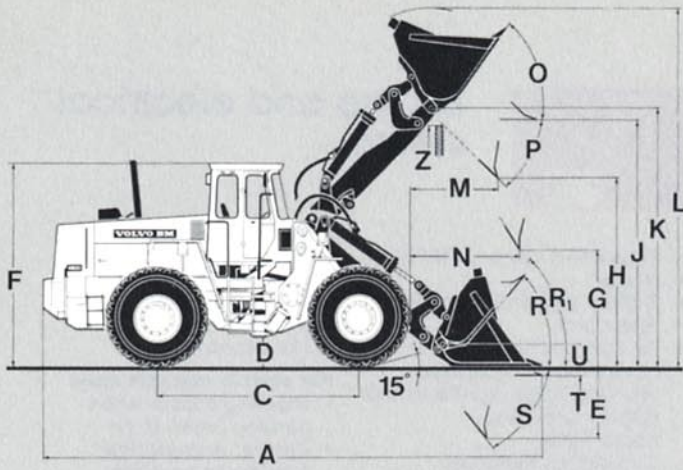
Operator's seat

ISRI GI 6000/515

Mounting for seat belt

Yes





### DIMENSIONS WITH STRAIGHT BUCKET (S-99026)

- A = Listed below
- A = 6700 mm (22') without attachment
- C = 3550 mm (11'8")
- D = 470 mm (1'7")
- E = 1220 mm (4')
- F = 3500 mm (11'6")
- G = 2000 mm (6'7")
- H = Listed below
- J = 4120 mm (13'6")
- K = 4405 mm (14'5")
- L = Listed below
- M = Listed below
- N = Listed below
- O = 55°
- P = 45°
- R = 38°
- R<sub>1</sub> = 44° carry position
- S = 66°
- T = 90 mm (4")
- U = 415 mm (1'2")
- V = Listed below
- X = 2310 mm (7'7")
- Y = 3000 mm (9'10")
- Z = 4000 mm (13'2") bucket
- Z = 4100 mm (13'6") log grapple
- a<sub>1</sub> = sweep radius, listed below
- a<sub>2</sub> = turning radius 6900 mm (22'7")
- a<sub>3</sub> = inner radius 3810 mm (12'6")
- a<sub>4</sub> = steering angle ±37°

### DIMENSIONS WITH LOG GRAPPLE (S-99103 bracket-mounted)

- A = 2,8 m<sup>2</sup> (30 ft<sup>2</sup>)
- B = 1750 mm (5'9")
- C = 2350 mm (7'8")
- D = 3200 mm (10'6")
- E = 5050 mm (16'7")
- F = 2300 mm (7'6")
- G = 2330 mm (7'4")

Operating load at full turn 7100 kg (15653 lb)

Attachment		Bucket pin on	Bucket pin on	Bucket pin on	Bucket hook on	Sorting grapple	Unloading grapple pulpwood
Capacity		3,8 m <sup>3</sup> (5 cu yd)	4,2 m <sup>3</sup> (5,5 cu yd)	4,5 m <sup>3</sup> (6 cu yd)	3,8 m <sup>3</sup> (5 cu yd)	2,8 m <sup>2</sup> (30 ft <sup>2</sup> )	4,1 m <sup>2</sup> (44 ft <sup>2</sup> )
(H) Dump clearance at full lift and 45° discharge	mm (ft in)	3200 (10'6")	3200 (10'6")	3080 (10'1")	3100 (10'2")	3200 (10'6")	3600 (11'10")
(M) Reach at full lift and 45° discharge	mm (ft in)	1150 (3'9")	1150 (3'9")	1280 (4'2")	1250 (4'1")	1750 (5'9")	1250 (4'1")
(N) Reach at 45° discharge and 7 ft high	mm (ft in)	1880 (6'2")	1880 (6'2")	1970 (6'6")	1940 (6'4")	2350 (7'8")	2000 (6'7")
(A) Overall length	mm (ft in)	8200 (26'11")	8200 (26'11")	8380 (27'6")	8350 (27'5")	8675 (28'6")	9225 (30'3")
(L) Overall height with attachment	mm (ft in)	5860 (19'3")	5980 (19'7")	6000 (19'8")	5900 (19'4")	7150 (23'5")	7600 (24'11")
(a <sub>1</sub> ) Clearance circle (over bucket)	mm (ft in)	14900 (48'10")	14900 (48'10")	15160 (49'8")	15000 (49'2")	—	—
(V) Width (over bucket)	mm (ft in)	3200 (10'6")	3200 (10'6")	3200 (10'6")	3200 (10'6")	—	—
Breakout force	kgf (lbf)	15800 (34832)	15800 (34832)	14000 (30864)	14200 (31305)	—	—
Static tipping load, straight	kg (lb)	15300 (33730)	15225 (33565)	15200 (33510)	14200 (31305)	—	—
Static tipping load, 35° turn	kg (lb)	13970 (30798)	13895 (30633)	13850 (30534)	13100 (28880)	—	—
Static tipping load, at full turn, 37°	kg (lb)	13800 (30423)	13725 (30258)	13700 (30203)	12900 (28439)	—	—
Operating load at full turn	kg (lb)	6900 (15212)	6865 (15137)	6850 (15101)	6450 (14220)	7100 (15653)	6900 (15212)
Hydraulic lifting force at ground level	kgf (lbf)	23500 (51808)	23500 (51808)	23200 (51146)	22600 (49824)	—	—
Hydraulic lifting force at max height	kgf (lbf)	10500 (23148)	10500 (23148)	10400 (22928)	10200 (22487)	—	—
Operating weight	kgf (lbf)	21100 (46517)	21175 (46682)	21200 (46737)	21400 (47178)	21000 (46296)	21300 (46958)
Weights distribution front	kg (lb)	9600 (21164)	9700 (21384)	9800 (21605)	10500 (22156)	9779 (21559)	10264 (22628)
Weights distribution rear	kg (lb)	11500 (25353)	11400 (25132)	11400 (25132)	11350 (25022)	11190 (24670)	11005 (24262)

Specifications are based on a machine equipped with all standard equipment, 26.5—25 radial tyres and straight bucket without teeth, as indicated. Wherever applicable specifications are in accordance with SAE Standard J 732 c and J 818 a.

Ca Cl<sub>2</sub> in rear tyres is only recommended for stabilising purposes in timber handling on hard and even ground

Optional tyres	Change in operating weight (kg/lb)	Change in static tipping load at full turn	
		Bolt-and attachment (kg/lb)	Snap-on coupling (kg/lb)
75 % Ca Cl <sub>2</sub> in rear tyres 26.5—25/20	+ 1530 (3373)	+ 2070 (4564)	+ 1820 (4012)



# STANDARD EQUIPMENT



## Safety and comfort

- ROPS safety cab according to SS 783 and ISO 3471
- Heating and ventilation system with defroster and filtered intake air
- Comfort seat
- Rear-view mirrors, external, 2
- Rear-view mirror, interior, 1
- Lights:
  - Headlight high/low beam
  - Parking lights
  - Working lights forward (2) halogen
  - Working lights rear (2) halogen
  - Side marker lights
  - Brake lights
  - Tail lights
  - Cab lighting
  - Instrument lighting
- Mounting for seat belt
- Utility basket in cab
- Pressure gauge for air brake system
- Instrument panel with symbols
- Turn signal indicators
- Hazard flashers
- Sun visor
- Safety start
- Fenders
- Roof hatch
- Windshield wipers, front and rear
- Horn
- Tyre inflation connection
- Ashtray
- Cigarette lighter



## Engine and electrical system

- Inspection lamp outlet 24 V
  - Muffler
  - Battery disconnect switch
  - Alternator
  - Air filter with ejector
  - Gauges and indicators:
    - Working lights, front and rear
    - Battery charging
    - Head lights
    - Turn signal indicator
    - Engine oil pressure
    - Transmission oil pressure
    - Engine temperature
    - Transmission temperature
    - Fuel tank
  - Differential lock
  - Parking brake
  - Low brake pressure
  - Hazard flashers
  - Air filter
  - Hour meter
- For certain markets only:**
- **Warning-buzzer when parking brake is on**
  - **Central warning light:**
    - Low brake pressure
    - Engine temperature
    - Engine oil-pressure
    - Transmission temperature
    - Transmission oil-pressure
    - Parking brake



## Power transmission

- Power-shift transmission
- Differential lock on front axle
- Transmission cut-out valve
- Single lever control
- Tyres 26.5—25/20



## Hydraulic system

- Control valve (3 sections). Servo-operated
- Bucket position indicator
- Bucket positioner and boom kick out
- Vane pumps

# OPTIONAL EQUIPMENT

(Standard equipment on certain markets)

- 24 V inspection lamp
  - Rotating beacon
  - Working lights for attachment (halogen)
  - Front working lights (halogen)
  - Rear working lights (halogen)
  - Protective grilles for front lights
  - Protective grilles for rear lights
  - Seat belt
  - Guard for roof hatch
  - Heater flange
  - Lever interlock
  - First aid storage box
  - Version for Germany
  - Dual brake pedals
  - Road-dependent safety steering
  - Wrench for wheel nuts
  - Air operated parking brake
  - Air operated horn
  - Washers for front and rear windows
  - Air conditioner
  - Air conditioner, tropical version
  - Speedometer
  - Untinted windscreen and windows
  - 3rd hydraulic control
  - 4th and 5th hydraulic controls
  - Oilbath type precleaner
  - Extra fuel filter
  - Electric engine block heater
  - Towing hitch
  - Tyre inflation kit
  - Lifting eyes
  - Tools
- For certain markets only:**
- **Heated operator's seat**
  - **Automatic Power-Shift (APS)**

# VOLVO BM

VOLVO BM AB ESKILSTUNA SWEDEN

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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