4400

VOLVO BM

THE VOLVO BM 4400 —
COMBINATION OF QUA

This machine offers extraordinarily high breakout and lifting forces combined with excellent liftheight and reach, all attributable to the clever computer-designed loader unit geometry. The operator in his comfortable, safe cab, has no difficulty in exploiting the 4400's great potential to the full. He can achieve very fast and highly productive work cycles with full buckets every time, fast emptying and good machine acceleration.

Long term economy and optimum machine utilisation are factors that have been given top priority. Parts stocking, for instance, has been reduced due to high levels of component co-ordination throughout the Volvo BM loader range and routine maintenance has been made simpler with longer intervals between services. These are the things that make the Volvo BM 4400 a very sound investment, because it's built to meet the highest demands for economy and productivity.

A POWERFUL
LITY AND CAPACITY

WELL BALANCED

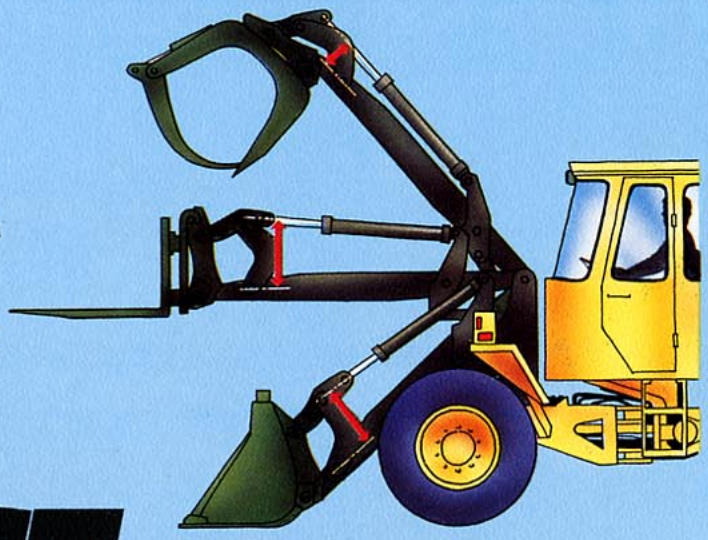
Precision and quality are the hallmarks of the 4400, as they are with all Volvo BM loaders. Engine, axles and transmission are all manufactured by us to ensure perfect matching and precise balance.

Automatic Power Shift

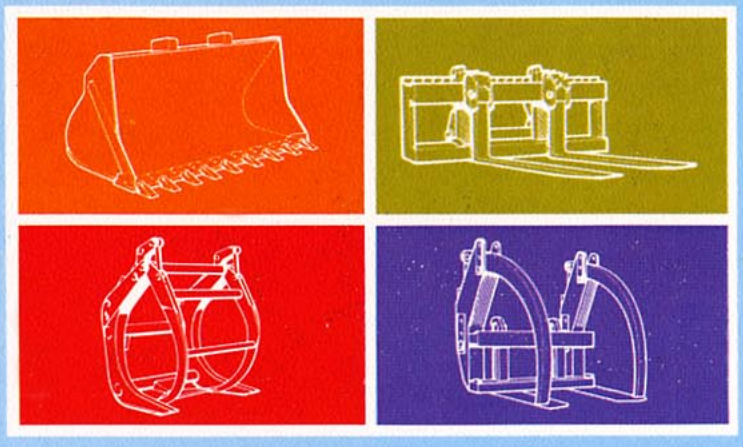
The Volvo BM 4400 is available with automatic power shift as an optional extra. A specially programmed computer will then select the correct gear for every situation. Result: higher capacity and better fuel economy.

LOADER UNIT

The Volvo BM loader unit offers superior performance. The design of the linkage system produces high breakout forces throughout the full working range. This, together with effective bucket angles, long reach and good lifting height, make it easy for the operator to maintain a continuous high capacity performance. The loader unit is precision-built from high-grade materials. The tilt link system incorporates spherical, self-aligning bearings at all high-stress points. All bearings are well sealed and easy to remove for servicing.



CORRECT ATTACHMENT



Volvo BM has always offered a wide range of attachments. Using the right attachment for the material or load to be handled boosts productivity and profitability. To achieve this we have equipped the Volvo BM 4400 with a wide variety of quality attachments, well-matched to the machine and their tasks. Also, the hydraulic attachment bracket makes it easy to switch attachments and jobs very quickly.

SAFETY AND COMFORT

The cab on the 4400 is built to provide the highest standards of comfort available and ease of operation. Operator's seat, levers, controls and instrumentation are thoroughly tested and conveniently located. Large windows provide good all round visibility, and as for safety—it's reassuring to know that the cab is constructed around a heavy-duty steel framework and is tested and approved according to ROPS and FOPS standards.

FLEXIBLE

The machine's generous breakout force comes in handy when working in hard materials ensuring a full bucket every time. At the end of the rollback movement, the bucket accelerates onto a mechanical stop, relocating the heap to the back of the bucket.

Materials handling is one of the machine's strong points. Good lifting height, long reach and parallel side-arm action are ideal attributes for multi-purpose operation.

Reach and lifting height are great assets for such jobs as loading and unloading timber transporters or freight wagons. The generous height and excellent breakout force in the top position permit the work to be carried out swiftly and surely making the 4400 unbeatable in this kind of operation.

The 4400 is also extremely manoeuvrable thanks to its superb steering system and small turning radius.

ENGINE

Volvo TD 60 B: 6-cylinder, in-line, direct-injected, turbo charged, 4-stroke diesel engine with overhead valves and wet replaceable cylinder linings.

Flywheel rating	94 kW at 35 rps DIN 70020 (128 hp at 2,100 rpm DIN)
Gross rating	105 kW at 35 rps SAE J 270 (143 hp at 2,100 rpm SAE)
Max. torque	464 Nm at 26.7 rps DIN 70020 (342 lbf ft at 1,600 rpm DIN) 510 Nm at 26.7 rps SAE J 270 (376 lbf ft at 1,600 rpm SAE)
No. of cylinders	6
Bore	98.43 mm (3.875 in)
Stroke	120 mm (4.724 in)
Displacement	5.48 litres (334 in^3)
Compression ratio	16:1
Air cleaning in three stages	1. Cyclone precleaner with automatic ejection through the exhaust 2. Paper filter with cab-mounted indicator 3. Replaceable catch-all safety filter

ELECTRICAL SYSTEM

Batteries	2×12V (connected in series)
Voltage	24V
Battery capacity	105 Ah
Alternator	1,540 W (55 A)
Starter motor	5.4 kW (7.3 hp)
	For certain markets only
Central warning lamp for following functions:	Engine oil pressure, brake pressure, parking brake, engine temperature, transmission temperature. Service lights of halogen type

TORQUE CONVERTOR

Type	Single-stage
Torque multiplication ratio	2.86:1

TRANSMISSION

Type: Power-Shift
Designation: Volvo BM HT 100

Number of gears forward/reverse 4/4

Speeds: (tyres 20.5–25)	1. 0– 7 km/h 0–1.9 m/s (0–4.3 mph) 2. 0–13 km/h 0–3.6 m/s (0–8.0 mph) 3. 0–28 km/h 0–7.8 m/s (0–17.4 mph) 4. 0–39 km/h 0–10.8 m/s (0–24.2 mph)

AXLES

Fully floating drive shafts with planetary hub reductions.

Front axle:	Designation	Volvo BM AH 55
	Differential lock	100 % lock-up (dog clutch)
Rear axle:	Designation	Volvo BM AH 44E
	Oscillation	±15° (525 mm 20.7 in)

BRAKES

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

Brake area:	Front 396 cm^2 (61 in^2)/wheel Rear 396 cm^2 (61 in^2)/wheel
Air reservoir volume	3×10 litres (3×2.2 UK gal)
Parking brake	Mechanically operated drum brake on output shaft to front axle
Parking brake area	266 cm^2 (41.2 in^2)

TYRES

Alternative	20.5–25/12–L2 20-5-25/16-L3

STEERING

Articulated steering with hydrostatic operation of two double-acting hydraulic cylinders.

Steering angle	±40°
Lock-to-lock turns of wheel	4.25
Steering possible without engine	Yes
Steering cylinder, bore/stroke	80/410 mm (3.3/16.1 in)
Piston rod diameter	36 mm (1.4 in)
Oil pump, type	Piston pump
Output at 10 MPA (1,420 psi) and 2,100 rpm (35 rps)	92 l/min (20.2 UK gal/min)
Relief pressure	15 MPa (2,175 psi)

HYDRAULIC SYSTEM

Pump, type (working hydraulics): Vane pump

Output at 10 MPa (1,450 psi) and 2,100 rpm (35 rps)	210 l/min (46.2 UK gal/min)
Relief pressure	15 MPa (2,175 psi)

Oil filter:

Full-flow filtration through 10 µm filter cartridge with magnetic core.

Hydraulic cylinders:

Type	Double-acting
Lift—bore/stroke	125/980 mm (4.9/38.6 in)
Piston rod diameter	60 mm (2.4 in)
Tilt—bore/stroke	110/830 mm (4.3/32.7 in)
Piston rod diameter	60 mm (2.4 in)

Loader unit:

Control valve: Double-acting 3-spool valve. Lift function has float and raise hold position. Automatic controls for lift and tilt functions with cut-out as standard.

Raise with SAE workload	6.4 s
Lower, without load	3.8 s
Lower, without load, float position	4.0 s
Dump, high/low speed	2.0/4.0 s

SERVICE REFILL CAPACITIES

	Litres	UK gal	US gal
Crankcase	15	3.3	4.0
Fuel tank	195	42.9	51.5
Cooling system	29	6.4	7.7
Hydraulic system, total	150	33.0	39.6
Hydraulic system at change	105	23.1	27.7
Hydraulic tank	105	23.1	27.7
Transmission and torque converter, total	27	5.9	7.1
Front axle differential and hubs	32.6	7.2	8.6
Rear axle differential and hubs	26.4	5.8	7.0
Dropbox	4.3	0.9	1.1

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, ROPS (SS783), ISO 3449-1980 FOPS (SS782) and SS/ISO 6055 "Overhead guards for lift-truck". The cab is mounted on 4 rubber pads and is well insulated and weathertight. All windows have bronze-tinted glass. The windshield is of laminated safety glass, other windows have tempered glass.

Heater and defroster: Heating element with filtered fresh air and 3-speed fan plus defroster for front, rear and side windows.

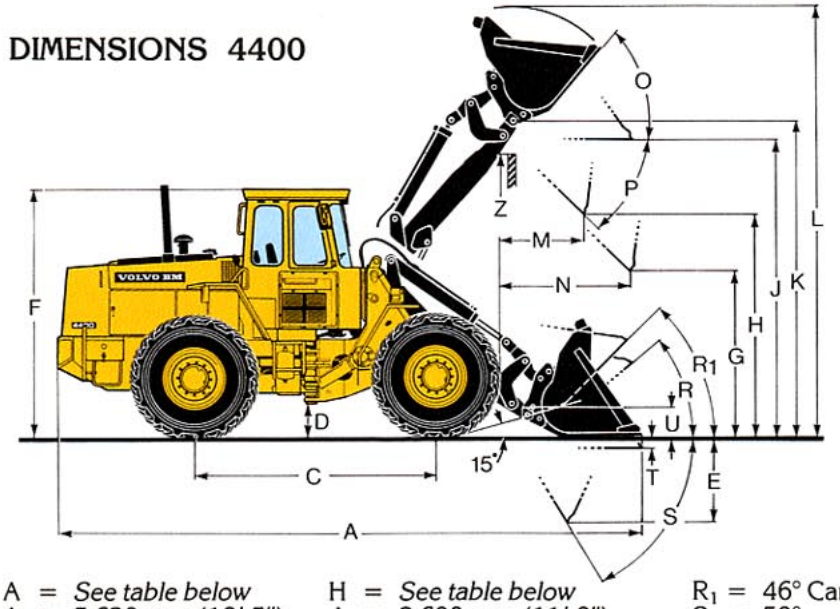
Operator's seat	ISRI GI 6000/575
Mountings for seat belt	Yes

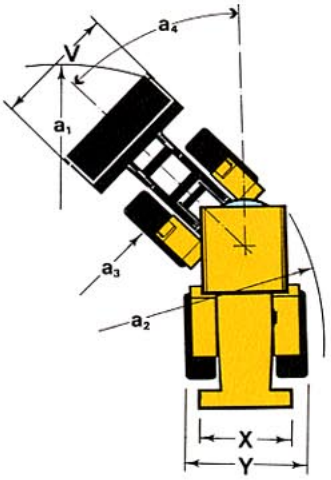
OPTIONAL EQUIPMENT

(Standard equipment on certain markets)

- Heating flange
- Extra fuel filter
- Electrical equipment Norway
- 24 V inspection lamp
- Speedometer and odometer
- Tyres
- 3rd and 4th hydraulic controls
- 3rd hydraulic control
- 4th hydraulic control
- 5th hydraulic control
- Single-acting lifting function
- Extra working lights front (2) halogen
- Extra working lights rear (2) halogen
- Attachment light (1) halogen
- Oil immersion precelaner
- Precleaner, cyclone
- Hydraulic oil cleaner
- Reversing alarm
- Vent window, bronze-tinted
- Lever interlock
- Radio panel without radio
- Air horn
- Tyre inflation kit
- Protective grilles for lights, front and rear
- Intermittent wiper
- Washers for front and rear windows
- Rotating beacon with collapsible mount
- Air conditioning
- Heated operator's seat
- Industrial hitch
- Full-coverage fenders
- Dual brake pedals
- Road dependent safety steering
- Hand brake alarm, ASS94
- Air-operated parking brake
- High altitude version
- Low emission version
- Extractor fan
- Screen for extractor fan
- Screen for blower fan
- Tropical version
- Underground version
- Compactor version
- Passenger seat
- Electric engine block heater, 1,500 W
- Rain guard for exhaust pipe
- Lockable toolbox
- LGF plate
- Hydraulic attachment bracket
- Tool kit, wheel nut wrench kit
- Automatic Power Shift (APS)

DIMENSIONS 4400





A = *See table below*
A = 5,630 mm (18′ 5″) without attachment
C = 2,860 mm (9′ 4″)
D = 430 mm (1′ 5″)
E = 938 mm (3′)
F = 3,015 mm (10′)
G = 2,000 mm (6′ 6″)

H = *See table below*
J = 3,600 mm (11′ 9″)
K = 3,825 mm (12′ 6″)
L = *See table below*
M = *See table below*
N = *See table below*
O = 53°
P = 45°
R = 40°

R_1 = 46° Carry position
S = 59°
T = 75 mm (3″)
U = 370 mm (1′ 3″)
V = *See table below*
X = 1,960 mm (6′ 5″)
Y = 2,490 mm (8′ 2″)
Z = 3,580 mm (11′ 9″)

a_1 = Clearance circle *See table below*
a_2 = Turning radius 5,200 mm (17′)
a_3 = Inner radius 2,680 mm (8′ 10″)
a_4 = Steering angle ±40°

Attachment		Bucket Pin on	Bucket Hook on	Bucket Pin on	Bucket Hook on	Bucket Pin on	Bucket Hook on
Capacity	m^3 (yd^3)	1.9 (2.5)	1.9 (2.5)	2.1 (2.7)	2.1 (2.7)	2.3 (3.0)	2.3 (3.0)
Density	kg/m^3 (lb/yd^3)	1,800 (3,033)	1,800 (3,033)	1,600 (2,596)	1,600 (2,596)	1,500 (2,528)	1,500 (2,528)
(H) Dump clearance at full lift and 45° discharge	mm (ft in)	2,890 (9′ 5″)	2,820 (9′ 3″)	2,820 (9′ 3″)	2,820 (9′ 3″)	2,800 (9′ 2″)	2,730 (9′)
(M) Reach at full lift and 45° discharge	mm (ft in)	1,000 (3′ 3″)	1,060 (3′ 5″)	1,000 (3′ 3″)	1,060 (3′ 5″)	1,090 (3′ 7″)	1,150 (3′ 9″)
(N) Reach at 45° discharge and 7 ft high	mm (ft in)	1,580 (5′ 2″)	1,620 (5′ 3″)	1,580 (5′ 2″)	1,620 (5′ 3″)	1,630 (5′ 4″)	1,670 (5′ 5″)
(A) Overall length	mm (ft in)	6,670 (21′ 9″)	6,770 (22′ 2″)	6,670 (21′ 9″)	6,770 (22′ 2″)	6,800 (22′ 3″)	6,900 (22′ 7″)
(L) Overall height with attachment	mm (ft in)	4,950 (16′ 2″)	5,000 (16′ 4″)	5,060 (16′ 7″)	5,100 (16′ 8″)	5,100 (16′ 8″)	5,150 (16′ 9″)
(a_1) Clearance circle	mm (ft in)	11,240 (36′)	11,300 (37′)	11,240 (36′)	11,300 (37′)	11,320 (37′)	11,380 (37′ 6″)
(V) Width over bucket	mm (ft in)	2,500 (8′ 2″)	2,500 (8′ 2″)	2,500 (8′ 2″)	2,500 (8′ 2″)	2,500 (8′ 2″)	2,500 (8′ 2″)
Breakout force	kgf (lbf)	9,000 (19,840)	8,300 (18,300)	9,000 (19,840)	8,300 (18,300)	8,000 (17,640)	7,300 (16,090)
Static tipping load, straight	kg (lb)	8,050 (17,750)	7,650 (16,860)	8,050 (17,750)	7,650 (16,860)	7,650 (16,860)	7,450 (16,420)
Static tipping load, 35° turn	kg (lb)	7,350 (16,200)	6,950 (15,320)	7,350 (16,200)	6,950 (15,320)	7,150 (15,760)	6,750 (14,880)
Static tipping load at full turn	kg (lb)	7,150 (15,760)	6,750 (14,880)	7,150 (15,760)	6,750 (14,880)	6,950 (15,320)	6,550 (14,440)
Operating load at full turn	kg (lb)	3,575 (7,880)	3,375 (7,440)	3,575 (7,880)	3,375 (7,440)	3,475 (7,660)	3,275 (7,210)
Hydraulic lifting force at ground level	kgf (lbf)	12,700 (28,000)	12,600 (27,780)	12,700 (28,000)	12,600 (27,780)	12,650 (27,890)	12,550 (27,670)
Hydraulic lifting force at max. height	kgf (lbf)	4,950 (10,910)	4,750 (10,470)	4,950 (10,910)	4,750 (10,470)	4,850 (10,690)	4,650 (10,250)
Operating wieght	kg (lb)	11,150 (24,580)	11,350 (25,020)	11,150 (24,580)	11,350 (25,020)	11,250 (24,800)	11,450 (25,240)
Weight distribution front	kg (lb)	4,800 (10,580)	5,150 (11,350)	4,800 (10,850)	5,150 (11,350)	5,000 (11,020)	5,350 (11,790)
Weight distribution rear	kg (lb)	6,350 (14,000)	6,200 (13,670)	6,350 (14,000)	6,200 (13,670)	6,250 (13,780)	6,100 (13,450)

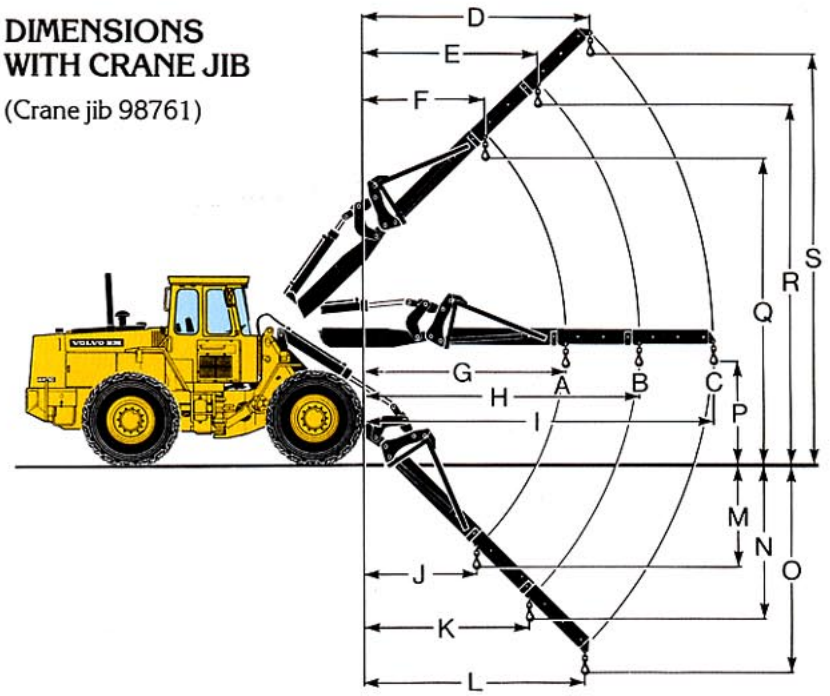
Specifications are based on a machine equipped with a bucket with teeth, as indicated, and 20.5-25-L2 Radial tyres. Wherever applicable, specifications are in accordance with SAE Standard J 732 c, J 742 b and J 818 b.

[1] *$CaCl_2$ in rear tyres is only recommended for stabilizing purposes in log grapple and pallet fork handling on hard and flat ground.*

Alternative tyres	Change in operating weight, kg (lb)	Change in static tipping load at full turn	
20.5–25/16 L3 Cross-ply tyres	– 90 (–198)	– 50 (–110)	– 60 (–132)
2.05–25/12 L2 Cross-ply tyres	–200 (–441)	–115 (–253)	–120 (–265)
75 % $CaCl_2$) in rear tyres	+825 (1820)	+980 (2160)	+950 (2095)

DIMENSIONS WITH CRANE JIB

(Crane jib 98761)

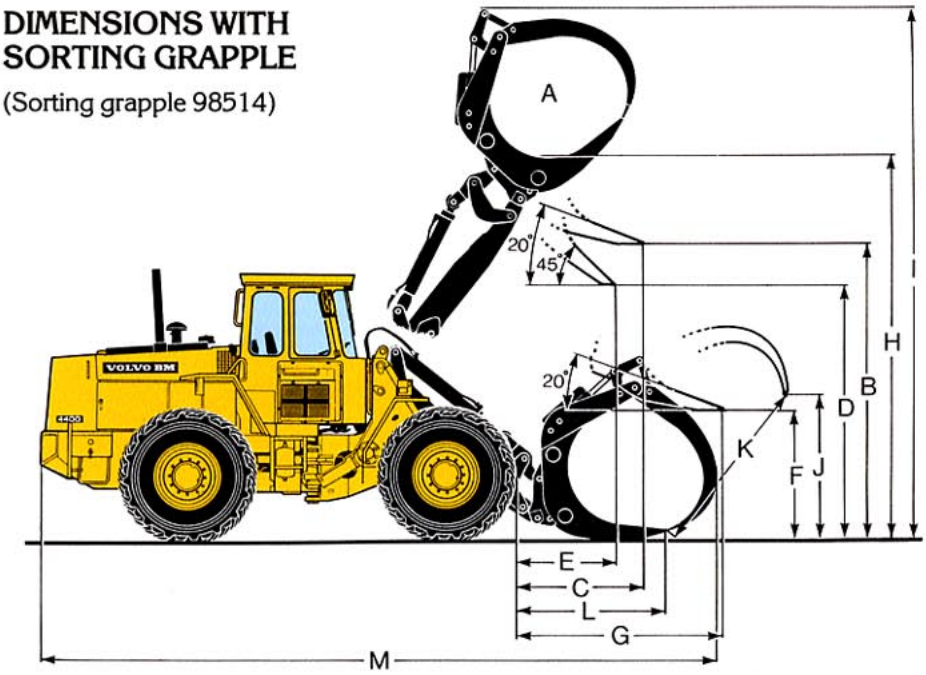


A = 1,725 kg (3,800 lb)
B = 1,500 kg (3,305 lb)
C = 1,095 kg (2,415 lb)
D = 2,715 mm (8′ 11″)
E = 2,111 mm (6′ 11″)
F = 1,545 mm (5′ 1″)
G = 3,250 mm (10′ 8″)
H = 4,310 mm (14′ 2″)
I = 5,440 mm (17′ 10″)
J = 1,565 mm (5′ 2″)
K = 2,200 mm (7′ 3″)
L = 2,885 mm (9′ 6″)
M = 1,910 mm (6′ 3″)
N = 2,755 mm (9′)
O = 3,660 mm (12′)
P = 1,600 mm (5′ 3″)
Q = 5,255 mm (17′ 3″)
R = 6,155 mm (20′ 2″)
S = 7,110 mm (23′ 4″)

Operating weight: 10,730 kg (23,660 lb)

DIMENSIONS WITH SORTING GRAPPLE

(Sorting grapple 98514)

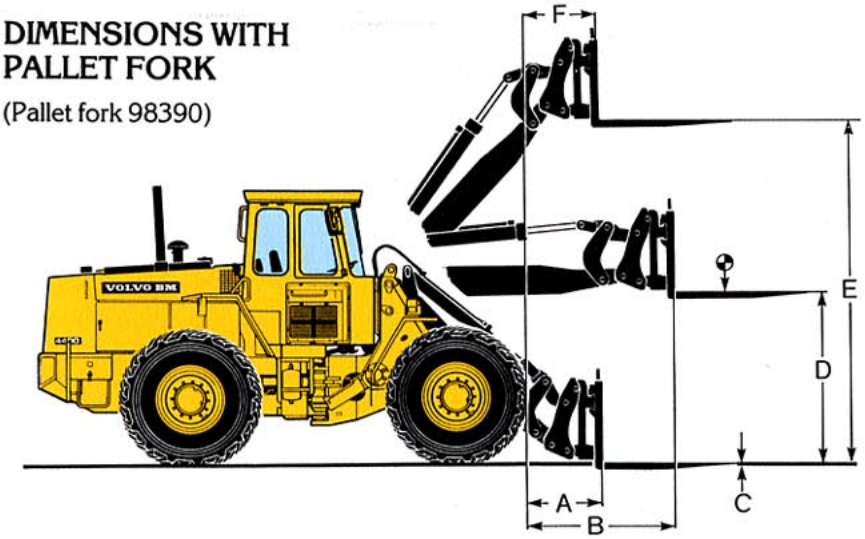


A = 1.4 m^2 (15 ft^2)
B = 3,575 mm (11′ 9″)
C = 1,670 mm (5′ 6″)
D = 3,140 mm (10′ 4″)
E = 14300 mm (4′ 8″)
F = 1,700 mm (5′ 7″)
G = 2,440 mm (8′)
H = 4,310 mm (14′ 2″)
I = 5,830 mm (19′ 2″)
J = 2,700 mm (8′ 10″)
K = 2,640 mm (8′ 8″)
L = 1,680 mm (5′ 6″)
M = 6,730 mm (22′ 1″)

Operating load: 3,600 kg (7,940 lb)
Operating weight: 11,430 kg (25,205 lb)

DIMENSIONS WITH PALLET FORK

(Pallet fork 98390)



Length 1,225 mm (4′)
Fork carriage (98386)
Width 1,500 mm (4′ 11″)
A = 810 mm (2′ 8″)
B = 1,600 mm (5′ 3″)
C = 0 mm
D = 1,870 mm (6′ 2″)
E = 3,690 mm (12′ 1″)
F = 820 mm (2′ 8″)

Max. permissible load 4,700 kg (10,365 lb) at centre-of-gravity distance 600 mm (2 ′)
Operating weight 10,850 kg (23,925 lb)

STANDARD EQUIPMENT

SAFETY & COMFORT

- ROPS and FOPS approved cab
- Cab heating with filtered fresh air intake and defroster
- Safety glass, windshield
- Tinted glass
- Ergonomically designed and adjustable operator's seat
- Rear-view mirrors, external, 2
- Rear-view mirrors, internal, 1
- Lights:
  Headlights high/low asym. halogen
  Parking lights
  Working lights forward (2) halogen
  Working lights rear (2) halogen
  Side marker lights
  Brake lights
  Tail lights
  Cab lighting
  Instrument lighting
- Direction indicators
- Mounting for seat belt
- Seat belt
- Service lights, symmetric
- Utility box in cab
- Pressure gauge for air brake system
- Instrument panel with symbols
- Sun visor
- Safety start
- Fenders
- Hazard flashers
- Windshield wipers, front and rear
- Horn
- Ashtray
- Cigarette lighter
- Lifting lugs
- Tyre inflation outlet

ENGINE & ELECTRICAL SYSTEM

- Fuel gauge
- Temperature gauge, engine
- Temperature gauge, hydraulic transmission
- Hour meter
- Electrical outlet 24 V
- Spark-arresting muffler
- Battery disconnect switch
- Alternator
- Air cleaner with ejector
- Pilot lamps for:
  Working lights front and rear, battery charging, high beam, direction indicators, engine oil pressure, transmission oil pressure, differential lock, parking brake, air brakes, hazard flashers, cold start (heating flange), air cleaner, high-speed tilting

<u>For certain markets only</u>

- Central warning lamp:
  Brake pressure, engine oil pressure, engine temperature, transmission temperature, parking brake

HYDRAULIC SYSTEM

- High and low tilt speeds
- Control valve (three spools) and 3rd hydraulic control's tubing to mid-joint
- Automatic lift and tilt
- Vane pump

POWER TRANSMISSION

- Full Power Shift transmission
- Differential lock (front axle only)
- Transmission cut-out switch
- Single-lever gear control
- Tyres 20.5–25/16

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.

VOLVO BM

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