

# VOLVO BM 4200



## *Specification Volvo BM 4200 Loader*

### **MANOEUVRABLE**

Articulated, compact and light-weight.

The loader unit has very good reach and lifting height, plus excellent parallel side-arm action. Quick gear-shifting and light responsive steering, combined with good allround visibility, make the 4200 extremely agile and manoeuvrable.

### **FLEXIBLE**

A wide range of attachments and hydraulic snap-on coupling — for quick changing to other tasks. Excellent off-road mobility on all types of terrain. Large wheels for low ground pressure.

### **COMFORT & ECONOMY**

The cab has a low sound level and is spacious and well ventilated. High quality in every detail and low fuel consumption give the 4200 excellent operating economy.





## ENGINE

The D 39L engine with direct injection has replaceable cylinder liners, light metal pistons and a crankshaft carried in 5 bearings.

Output flywheel	49 kW at 36.7 r/s, DIN 70020 (67 hp at 2200 r/min DIN)
Output gross	51 kW at 36.7 r/s, SAE J 270 (70 hp at 2200 r/min SAE)
Max. torque	254 Nm at 23.3 r/s DIN 70020 (187 lbf ft at 1400 r/min DIN) 261 Nm at 23.3 r/s SAE J 270 (193 lbf ft at 1400 r/min SAE)
Number of cylinders	4
Bore	98.4 mm (3.9")
Stroke	127 mm (5")
Displacement	3.86 litres (236 cu in)
Compression ratio	16.0:1
Air cleaning in two stages	1. Large replaceable paper filter with indicator in cab 2. Replaceable catch-all filter



## TYRES

Alternatives: 14.9—24/12  
15.5—25/12



## STEERING

Centre-point frame articulation with hydrostatic operation of two double-acting hydraulic cylinders.

Steering angle	± 45°
Number of turns lock-to-lock	5
Steering cylinder, bore/stroke	63/299 mm (2.5/11.8")
Piston rod diameter	28 mm (1.1")
Oil pump, type	Gear pump
Output at 10 MPa (1450 psi) and 36.7 r/s (2200 r/min)	48 l/min (10.6 UK gal/min)
Relief pressure	10 MPa (1420 psi)



## ELECTRICAL SYSTEM

Batteries	2x 12 V (connected in series)
Voltage	24 V
Battery capacity	96 Ah
Alternator	1260 W (45 A)
Starter motor	3 kW (4 hp)
Central warning lamp for the following functions:	Engine oil pressure, brake pressure, parking brake, engine temperature, transmission temperature.



## HYDRAULIC SYSTEM

Pump, type (working hydraulics):  
Gear pump

Output at 10 MPa (1450 psi) and 36.7 r/s (2200 r/min)	103 l/min (22.6 UK gal/min)
Relief pressure	15 MPa (1420 psi)
Oil filter: Full-flow filtration through 10 µm filter cartridge with magnetic core.	
<b>Cylinders:</b>	
Lift: Bore/stroke	100/650 mm (4/25.6")
Piston rod diameter	50 mm (2")
Tilt: Bore/stroke	80/650 mm (3.1/26.2")
Piston rod diameter	40 mm (1.6")



## TORQUE CONVERTER

Type	Single-stage
Torque multiplication ratio	2.85:1

<b>Loader unit:</b>	
Control valve: double-acting mechanically operated 3-section valve, lifting function has hold lock for lift and float position.	
Raise (SAE load)	5.2 s
Lower (without load)	2.9 s
Dump, high/low speed	1.0/1.7 s



## TRANSMISSION

Type: Power-shift  
Designation: HT 50

Number of gears forward/reverse: 6/6

Speeds:	High	Low
(tyres	1. 0—3 km/h 0—1.9 mph	0—7 km/h 0—4.3 mph
15.5—25 or	2. 0—6 km/h 0—3.7 mph	0—13 km/h 0—8.0 mph
14.9—24)	3. 0—16 km/h 0—9.9 mph	0—30 km/h 0—18.6 mph



## SERVICE REFILL CAPACITIES

	Litres	UK gal	US gal
Crankcase	8	1.8	2.1
Fuel tank	95	21	25.1
Cooling system	18	4	4.8
Hydraulic system, total	105	23	27.7
Hydraulic tank	67	14.7	17.7
Transmission and torque converter, total	18	4	4.8
Front axle, differential and hubs	7.5	1.6	2
Rear axle, differential and hubs	7.5	1.6	2



## AXLES

"Free floating" axle shafts with planetary hub reductions.

Front axle:	Designation AH 30
Rear axle:	Designation AH 30
	Oscillation ± 11° (310 mm)



## CAB

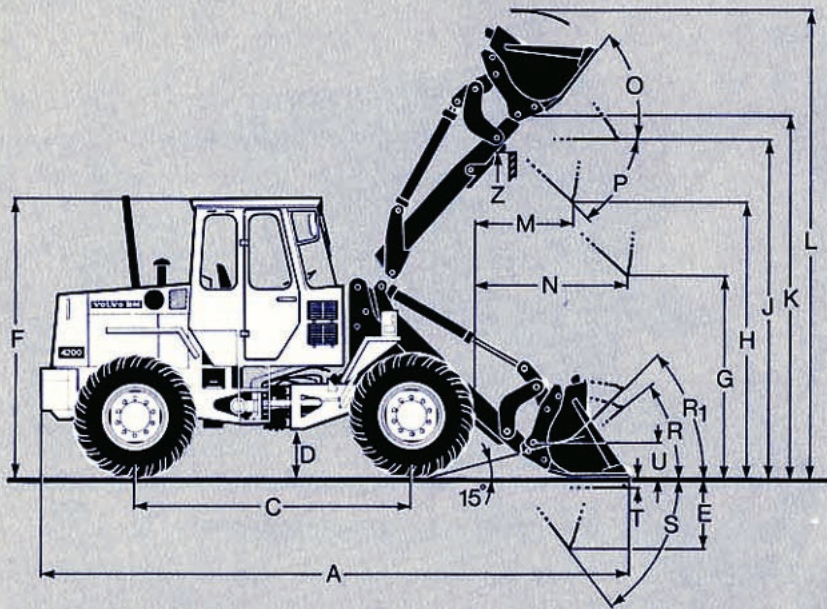
Tested and approved as a safety cab acc. to ISO 3471-1980, SAE J 1040 c "ROPS" and ISO 3449-1980 SAE J 231-Jan 81, "FOPS" and SS/ISO 6055 "Overhead guards for lifttruck". The cab is mounted on four rubber pads and is well insulated and weather-tight. All windows have bronze-tinted glass. The windshield 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 defrosters for front and side windows.



## BRAKES

Service brakes: Air-over-hydraulic, self-adjusting drum brakes.  
Dual circuit system.

Parking brake:	Mechanically operated on output shaft to front axle.
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Specifications are based on a machine equipped with all standard equipment, 14.9-24/12 L2 diagonal tyres and bolted-on straight bucket without teeth. Wherever applicable, specifications and dimensions are in accordance with SAE standard J 732 c and J 818 a.

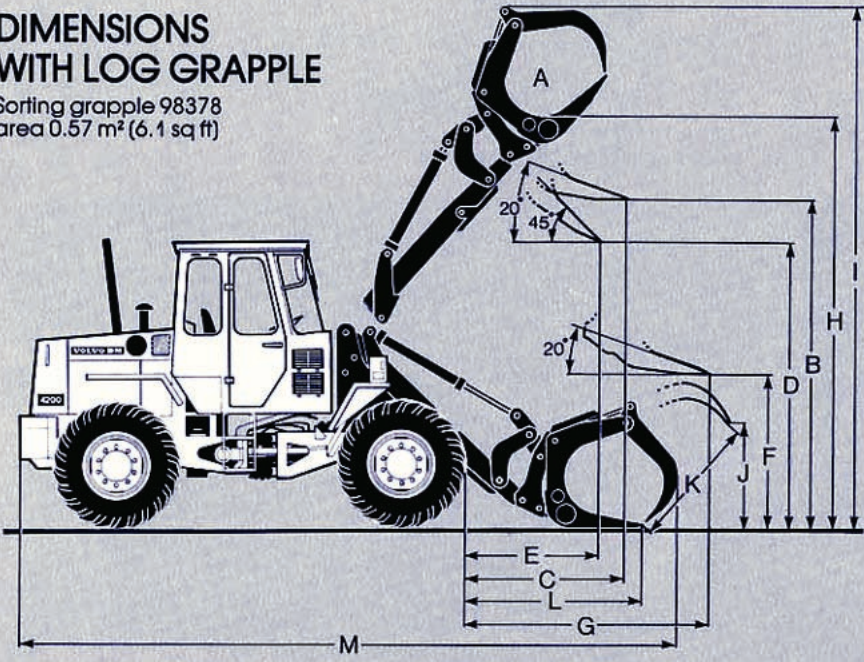
CaCl<sub>2</sub> in rear tyres is only recommended for stabilizing purposes in timber and pallet fork handling on hard and even ground.

**DIMENSIONS**

- A = See table next page
- C = 2725 mm (8' 11")
- D = 380 mm (1' 3")
- E = 580 mm (1' 11")
- F = 2750 mm (9')
- G = 2000 mm (6' 7")
- H = See table next page
- J = 3350 mm (11')
- K = 3570 mm (11' 9")
- L = See table next page
- M = See table next page
- N = see table next page
- O = 51°
- P = 45°
- R = 40°
- R<sub>1</sub> = 44° (carry position)
- S = 53°
- T = 100 mm (4")
- U = 300 mm (1')
- Z = 3200 mm (10' 6") (without outriggers)
- Z<sub>1</sub> = 3350 mm (11') (without outriggers)

**DIMENSIONS WITH LOG GRAPPLE**

Sorting grapple 98378  
area 0.57 m<sup>2</sup> (6.1 sq ft)

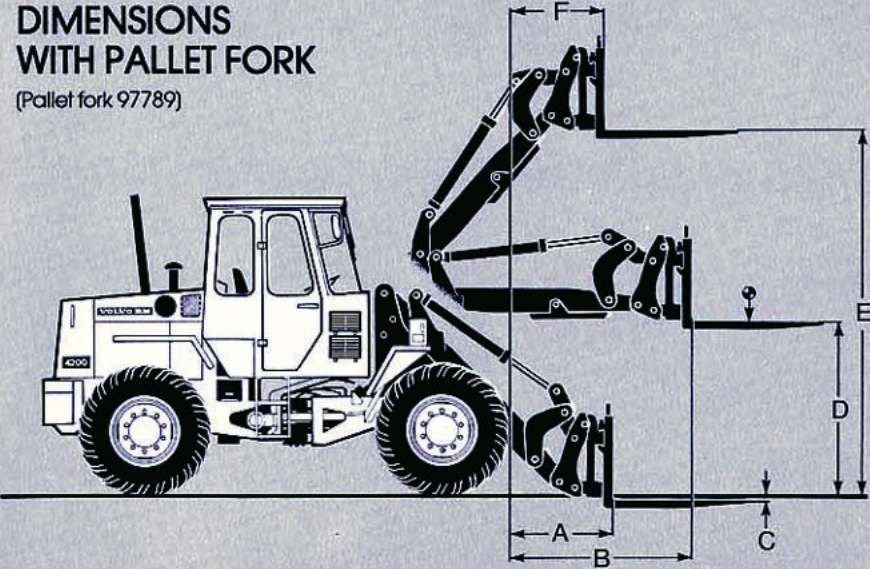


- A = 0.57 m<sup>2</sup> (6.1 sq ft)
- B = 3250 mm (10' 8")
- C = 1210 mm (4')
- D = 2885 mm (9' 5")
- E = 1000 mm (3' 3")
- F = 1530 mm (5')
- G = 2000 mm (6' 7")
- H = 3855 mm (12' 8")
- I = 4860 mm (15' 11")
- J = 1370 mm (4' 6")
- K = 1470 mm (4' 10")
- L = 1300 mm (4' 3")
- M = 6000 mm (19' 8")

Working load:  
1500 kg (3310 lb)  
Service weight:  
5970 kg (13165 lb)

**DIMENSIONS WITH PALLET FORK**

(Pallet fork 97789)

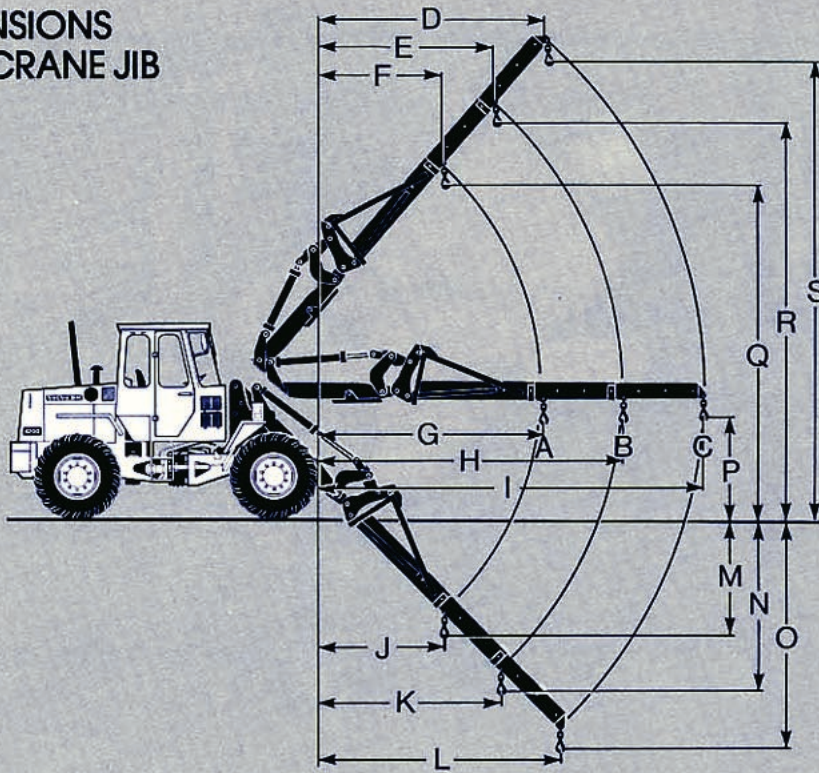


- Pallet fork (97789)  
Length 1225 mm (4')
- Fork frame (97792)  
Width 1500 mm (4' 11")

- A = 650 mm (2' 2")
- B = 1450 mm (4' 9")
- C = 30 mm (1")
- D = 1700 mm (5' 7")
- E = 3400 mm (11' 2")
- F = 670 mm (2' 2")
- Max. permissible load at centre of gravity distance 600 mm (2')
- Industrial fork-lift truck: 2000 kg (4410 lb)
- Terrain fork-lift truck: 1600 kg (3530 lb)
- Service weight: 5735 kg (12645 lb)

# DIMENSIONS WITH CRANE JIB

(97824)

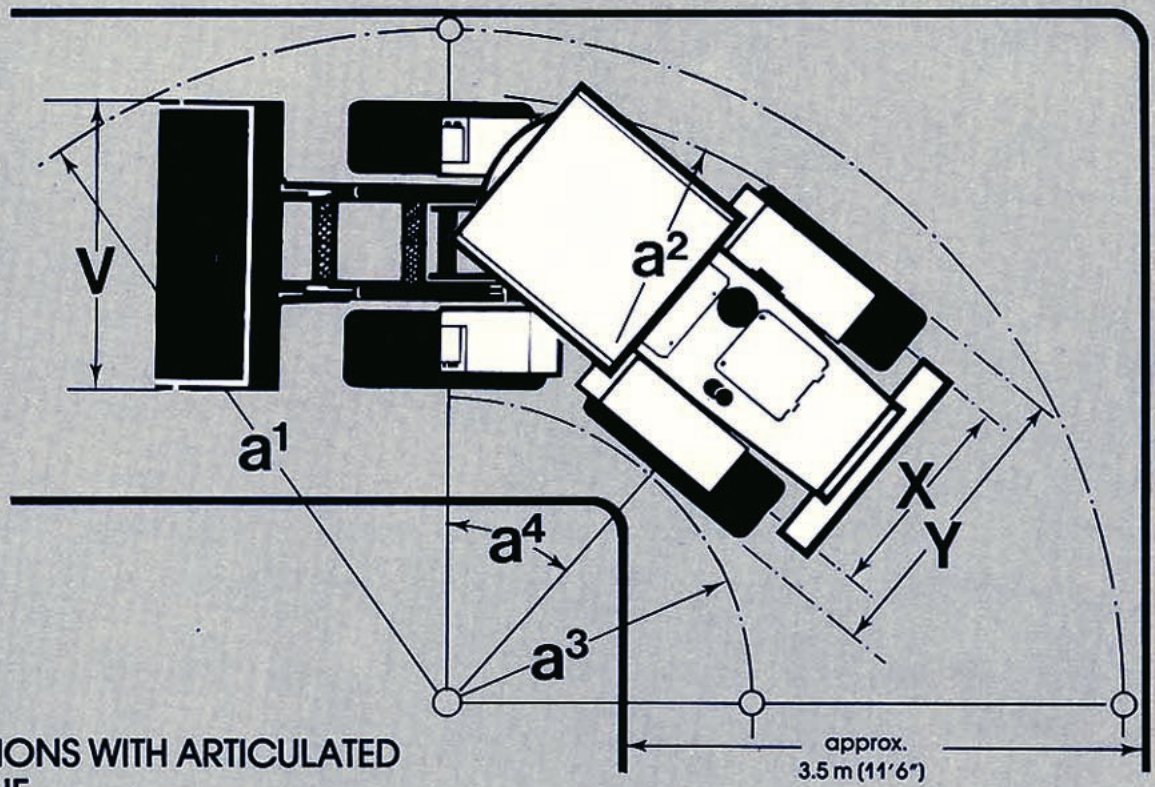


- A = 700 kg (1545 lb)
- B = 525 kg (1160 lb)
- C = 435 kg (960 lb)
- D = 2840 mm (9' 4")
- E = 2180 mm (7' 2")
- F = 1560 mm (5' 1")
- G = 3150 mm (10' 4")
- H = 4215 mm (13' 10")
- I = 5345 mm (17' 6")
- J = 1480 mm (4' 10")
- K = 2140 mm (7')
- L = 2840 mm (9' 4")
- M = 1880 mm (6' 2")
- N = 2720 mm (8' 11")
- O = 3615 mm (11' 10")
- P = 1450 mm (4' 9")
- Q = 4900 mm (16' 1")
- R = 5760 mm (18' 11")
- S = 6680 mm (21' 11")

Service weight:  
5740 kg (12660 lb)

Attachment		Bucket without teeth hook-on	Bucket without teeth hook-on	Grading bucket hook-on	Light materials bucket hook-on
Capacity		0.8 m <sup>3</sup> (1 cu yd)	1.0 m <sup>3</sup> (1.3 cu yd)	1.1 m <sup>3</sup> (1.4 cu yd)	1.8 m <sup>3</sup> (2.4 cu yd)
(H) Dump clearance at full lift and 45° discharge	mm (ft in)	2800 (9' 2")	2720 (8' 11")	2415 (7' 11")	2465 (8' 1")
(M) Reach at full lift and 45° discharge	mm (ft in)	720 (2' 4")	1070 (3' 6")	1120 (3' 8")	1065 (3' 6")
Same from centre of front wheels					
(N) Reach at 2 m (6' 7") and 45° discharge	mm (ft in)	1330 (4' 4")	1470 (4' 10")	1485 (4' 11")	1470 (4' 10")
Same from centre of front wheels					
(A) Overall length	mm (ft in)	5650 (18' 6")	5780 (19')	6150 (20' 2")	6010 (19' 9")
(L) Overall height	mm (ft in)	4340 (14' 4")	4370 (14' 4")	4560 (15')	4890 (16' 1")
(α) Sweep radius	mm (ft in)	4650 (15' 4")	4680 (15' 4")	4710 (15' 6")	4780 (15' 4")
(V) Width (over bucket)	mm (ft in)	2000 (6' 7")	2000 (6' 7")	2000 (6' 7")	2100 (6' 11")
Breakout force	kgf (lbf)	5880 (12960)	4900 (10800)	3200 (7050)	3600 (7940)
Static tipping load, straight	kg (lb)	3400 (7500)	3300 (7280)	2900 (6390)	3100 (6840)
Static tipping load, 35° turn	kg (lb)	3100 (6840)	3000 (6620)	2600 (5730)	2800 (6170)
Static tipping load at full turn	kg (lb)	2900 (6400)	2800 (6170)	2400 (5290)	2600 (5730)
Working load at full turn	kg (lb)	1450 (3200)	1400 (3090)	1200 (2650)	1300 (2870)
Hydraulic lifting force at ground level	kgf (lbf)	5400 (11900)	5300 (11680)	5300 (11680)	5200 (11460)
Hydraulic lifting force at max. height	kgf (lbf)	2550 (5620)	2500 (5510)	2250 (4960)	2300 (5070)
Service weight	kg (lb)	5700 (12600)	5750 (12680)	5790 (12770)	5870 (12940)
Weight distribution front	kg (lb)	3100 (6830)	3130 (6900)	3160 (6970)	3240 (7140)
Weight distribution rear	kg (lb)	2600 (5730)	2620 (5780)	2630 (5800)	2630 (5800)

Optional tyre equipment	Change in basic data		Change in service weight kg (lb)	Change in static tipping load at full turn	
	Width over tyres mm (in)	Ground clearance mm (in)		0.8 m <sup>3</sup> (1.0 cu yd)	1.0 m <sup>3</sup> (1.3 cu yd)
15.5-25/12	+10 mm (0.5")	±0	+400 (+880)	+240 (+530)	+240 (+530)



**DIMENSIONS WITH ARTICULATED MACHINE**

- |                     |                                       |
|---------------------|---------------------------------------|
| V = 2000 mm (6' 7") | Sweep radius $a_1 = 4650$ mm (15' 3") |
| X = 1600 mm (5' 3") | Turning radius $a_2 = 4260$ mm (14')  |
| Y = 1990 mm (6' 6") | Inner radius $a_3 = 2280$ mm (7' 6")  |
|                     | Turning angle $a_4 = \pm 45^\circ$    |



## STANDARD EQUIPMENT



### Safety and comfort

- ROPS cab
- Cab heater with defroster and filtered intake air
- Tinted glass
- Ergonomically designed and adjustable operator's seat
- Rear-view mirrors, external, 2
- Rear-view mirror, internal 1
- Lights:
  - Headlights 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 box in cab
- Pressure gauge for air brake system
- Instrument panel with symbols
- Direction indicators
- Sun visor
- Safety start
- Mudguards
- Roof hatch
- Hazard flashers
- Windscreen wipers, front and rear
- Horn
- Tyre inflation connection
- Ashtray
- Cigarette lighter
- Lifting eyes for shipping
- Attachment bracket with snap-on couplings: Hydraulic lock



### Engine and electrical system

- Fuel gauge
- Temperature gauge, engine
- Temperature gauge, hydraulic transmission
- Hour meter
- Electrical outlet, 24 V
- Battery disconnect switch
- Alternator
- Central warning: Brake pressure, engine oil pressure, engine temperature, transmission temperature, parking brake
- Pilot lamps for: working lights front and rear, battery charging, high beam, direction indicators, hazard flashers, engine oil pressure, hydraulic transmission oil pressure, differential lock, parking brake, air brakes, air cleaner filter, cold start



### Power transmission

- Power shift transmission
- Transmission cut-out valve
- Single lever control
- Tyres 14.9—24/12 or 15.5—25/12



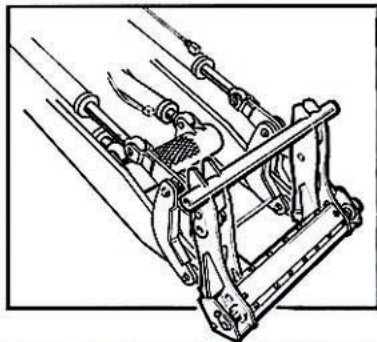
### Hydraulic system

- Control valve (3 sections)
- High and low dumping speeds
- Third hydraulic control
- Gear pump
- Bucket position indicator

## OPTIONAL EQUIPMENT

(Standard equipment on certain markets)

- 24 V inspection lamp
- Wiring, Norway
- Protective grilles for front beams
- Protective grilles for rear beams
- Speedometer/odometer
- Clear cab window glass
- Seat belt
- Left-hand side vent
- 4th hydraulic control
- Tyre inflation kit
- Headlights, symmetrical
- Lockable tool box
- Protective casing for differential housing and front axle
- Single-acting lift function
- Bucket positioner and boom kickout
- Working lights:
  - Front 2 halogen
  - Rear 2 halogen
  - Attachment 1 halogen
- Extended mudguards
- Dual brake pedals
- Electric engine pre-heater
- Industrial towing hitch
- Washers for front and rear windows
- Air conditioner
- Heated operator's seat
- Rotating beacon with collapsible mounting
- Tool kit



### QUICK-CHANGE "SNAP-ON" COUPLING

The Volvo BM 4200 is delivered with snap-on coupling for hydraulic locking. This permits unrestricted use of the many different attachments available.

# VOLVO BM

VOLVO BM AB ESKILSTUNA SWEDEN

*The manufacturers reserve the right to change specification or design without prior notice. Illustrations do not necessarily show the machine in its standard version.*

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