

VOLVO BM

L 120



VOLVO BM L 120

- SPEEDY, POWERFUL, WELL BALANCED

*Loading trucks; feeding crushing and screening plants; load and carry over long distances; dozing and grading - these are operations where the Volvo BM L120 has its rightful place as a speedy and reliable link in an efficient production chain.
The L120 is a very well balanced machine.*

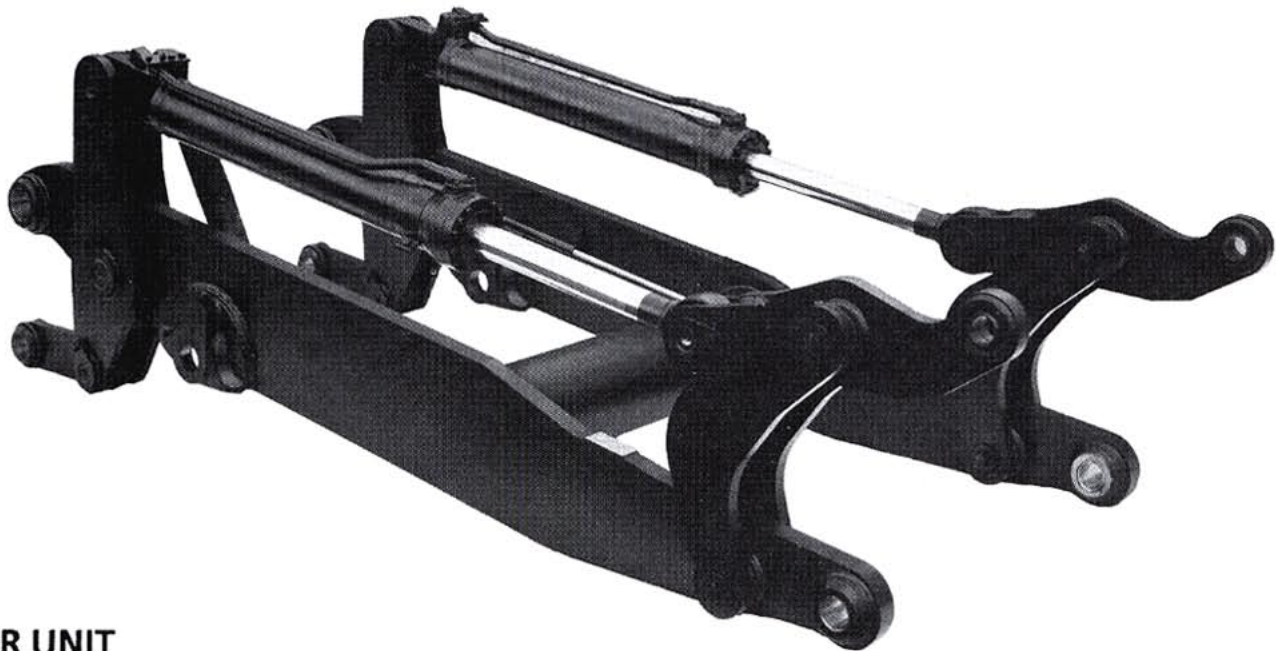
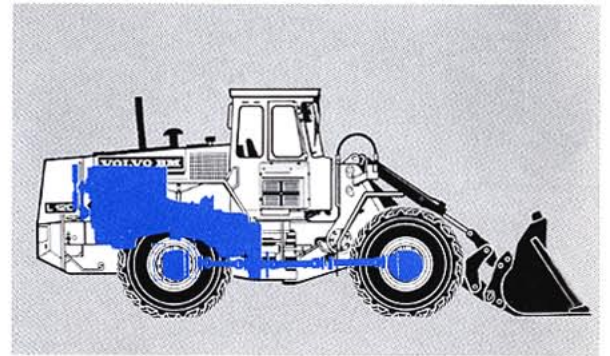
The engine and transmission form a well matched unit, allowing the operator to make full use of the machine's resources from the comfortable cab. The new Volvo BM L120 is therefore a sound investment - built to meet the highest demands on operating productivity and economy.

RELIABLE POWER PACK

Vital components such as the engine, transmission and axles are of our own manufacture. This means that we can ensure consistently high quality and co-ordinated function.

Automatic Power Shift

The Volvo BM L120 has an automatic shift transmission as option. A specially programmed computer takes care of gear selection and ensures that the machine works in the correct gear in all situations.
Result: higher production and better fuel economy.



LOADER UNIT

The Volvo BM L120 has a strongly built loader unit specially designed for heavy-duty production work. The long reach and good lifting height make it easy to maneuver the load over high hoppers and vehicles etc. It is important for a production loader to have good tilt forces in all positions, and the L120 has a linkage geometry which permits this throughout the whole lifting range. Another refinement is on bucket

rollback. The bucket accelerates up against a mechanical stop so that the load in a well filled bucket is moved as far back as possible, thereby increasing machine stability.

CORRECT ATTACHMENTS

Volvo BM can offer a wide range of attachments. By using the right attachment, for different materials and handling applications, both productivity and profitability can be increased. The Volvo BM L120 has therefore been provided with a large selection of high quality attachments specially designed for their particular purposes. The hydraulic attachment bracket (optional equipment) also makes it easy to change quickly from one attachment to another.



HYDRAULIC SYSTEM WITH SUPERIOR HANDLING

The L120 hydraulic system is very well thought-out and incorporates the highest quality components, allowing full simultaneous co-ordination of all control movements.

Important advantages of the servo-assisted system are:

- Very low control lever forces - "fingertip" operation
- Precise control throughout the whole lifting range, even when working with heavy loads
- Precision control of attachments.

SAFETY AND COMFORT

The operator has effective control over the work from the very comfortable and safe cab. Noise levels inside the cab are agreeably low and the efficient heating and ventilation system contributes still further to the high degree of comfort. The control functions in the cab have been designed by ergonomic specialists, which is why Volvo BM loaders are so easy to operate. All operating controls with signals and symbols are logically situated within easy reach and sight of the operator from the comfortable driving seat. And as for safety - the cab is tested and approved according to ROPS and FOPS standards.



PRODUCTIVE

The L120's capacity for hard work combined with its excellent maneuverability, good lifting height and long reach, permits the quick handling of large volumes of material.

Volvo BM's loader unit gives a good tilt force in all positions - even at the top. This is a very important feature when working at timber and pulpwood terminals etc.

The L120 also has a high carrying capacity over long distances. The long wheelbase and good weight distribution of the machine provides stability and high average speeds.





ENGINE

The Volvo TD 71 G is a 6-cylinder, direct-injection, 4-stroke, turbocharged diesel engine with wet, replaceable cylinder liners.

Air cleaning: air cleaning in three stages.

1. Cyclone cleaner with automatic exhaust ejector
2. Paper filter with indicator in cab.
3. Replaceable safety filter

Make		Volvo
Model		TD 71 G
Output, gross, at SAE J 1349	rps (rpm)	36,7 (2200)
	kW (hk)	148 (200)
Flywheel output at SAE J 1349	rps (rpm)	36,7 (2200)
	kW (hp)	140 (190)
DIN 70020/6271	kW (hp)	140 (190)
Max. torque at SAE J 1349 Gross	rps (rpm)	23,3 (1400)
	Nm (lbf ft)	730 (538,4)
SAE J 1349 Net	Nm (lbf ft)	705 (523,7)
DIN 70020/6271	Nm (lbf ft)	705 (523,7)
No. of cylinders		6
Displacement, total	dm ³ l (in ³)	6,7 (409)
Bore	mm (in)	104,77 (4,1)
Stroke	mm (in)	130 (5,1)
Compression ratio		15,5 : 1



ELECTRICAL SYSTEM

The electrical system is well protected with fuses. Pre-wired for extra equipment.

Central warning: (standard on certain markets) Central warning lamp for following functions: engine oil pressure, brake pressure, parking brake, engine temperature, transmission temperature.

Voltage	V	24
Batteries	No. / V	2 / 12
Battery capacity ea.	Ah	140
Cranking capacity ea.	A	800
Reserve capacity ea.	min	270
Alternator rating	W / A	1540 / 55
Starter motor output	kW (hp)	5,4 (7,3)



DRIVETRAIN

Torque converter: single-stage, single-phase.

Transmission: Volvo BM power shift transmission of countershaft type with directional clutch modulation. Four speeds forward and three reverse. Single lever control.

Axles: fully floating half-shafts with planetary type hub reduction gears. One-piece axle housing of ductile iron. Rigid front axle and oscillating rear axle.

Differential: 100% differential lock on front axle. Engagement and disengagement by means of switch on cab floor. Gearing is conventional, hypoid gears.

Hub reduction: Volvo BM manufacture with low-friction roller bearings on each wheel. The hub reduction gears can be removed without having to remove wheels and brakes.

Tires: Alternative tires are available for different working operations.

Torque multiplication		3,2 : 1
Transmission, make		Volvo BM
Model		HT 131
Running speeds		
1, forward/reverse	km/h (mile/h)	7,2 (4,5)
2, forward/reverse	km/h (mile/h)	13,4 (8,3)
3, forward/reverse	km/h (mile/h)	28,3 (17,6)
4, forward	km/h (mile/h)	40,3 (25,0)
Measurement with tires		23.5 R 25*
Front axle, make		Volvo BM
Model		AH 60 G
Rear axle, make		Volvo BM
Model		AH 53 C
Oscillation movement, total	± °	13
	± mm (± in)	450 (18)



BRAKE SYSTEM

The brake system meets requirements according to SAE J 1152, EG 71/320 and ISO 3450.

Service brakes: fully hydraulically operated power disc brakes. Transmission disengagement when braking pre-selected with a switch on the instrument panel.

Secondary: dual-circuit system. Front brake callipers on front axle and one brake calliper on rear axle included in one system and rear brake callipers on front axle and one brake calliper on rear axle in the other.

Parking brake: disc brake on front output shaft of transmission. A warning lamp indicates when the parking brake is applied and ignition is turned on gear lever is in forward or reverse.

Brake friction area		
front/wheel ea.	cm ² (in ²)	810 (126)
rear/wheel ea.	cm ² (in ²)	405 (63)
Reservoirs/accumulators	No.	3
volume, total	dm ³ l (in ³)	1,5 (91,5)
Parking brake area, total	cm ² (in ²)	100 (15,5)



STEERING SYSTEM

Load-sensing hydrostatic articulated steering.

Pump: variable flow axial piston pump fitted to a power take-off on transmission.

System supply: steering system supplied from separate steering pump.

Cylinders: two double-acting cylinders with chromed piston rods.

Steering cylinders, number		2
Bore	mm (in)	80 (3,3)
Piston rod diameter	mm (in)	50 (1,96)
Stroke	mm (in)	440 (17,3)
Working pressure	MPa (psi)	19 (2755)
Flow volume	dm ³ , l/min (US gal /min)	97 (25,6)
at	MPa (psi)	10 (1450)
and engine speed	rps (rpm)	36,7 (2200)



CAB

Tested and approved as safety cab according to the Swedish Working Environment Act section 3, sub-section 8, and meets standards according to ISO 3471-1980, ROPS (SS783), ISO 3449-1980 FOPS (SS782) and SS/ISO 6055 "Overhead guards for fork lift trucks".

The cab is mounted on four rubber pads and is well insulated. The windshield is of laminated safety glass, all other windows being of tempered safety glass.

Heater and defroster: heating element with filtered fresh air and 3-speed fan with defroster outlets for all windows.

Operator's seat: spring suspended, fully adjustable operator's seat.

Emergency exits		3
Ventilation	m ³ /min (cfm)	9,5 (335)
Heating capacity	kW (BTU/h)	11,6 (39600)
Operator's seat		ISRI 6000 / 575



HYDRAULIC SYSTEM

Open center system pilot operated, and filtered breather on reservoir.

Pump: a triple-pump (vane pumps) fitted to a power take-off on transmission

System supply: system supplied from two separate pumps, one large (pump 1) and one small (pump 2). Only the large pump operates when the system pressure exceeds 18 MPa (2610 psi). The servo system is supplied from a separate servo pump.

Valve: double-acting 3 section valve. The control valve is governed by a 3-section servo valve.

Lifting function: the valve has four positions: lifting, neutral, lowering and floating. Disengageable electro-magnetic boom kick-out and ground positioner. Adjustable for all positions between maximum reach and full lifting height as well as ground position.

Tilting function: the valve has three positions: rollback, neutral and forward tilting. Disengageable electro-magnetic bucket positioner adjustable for all desired loading angles.

Cylinders: double-acting.

Filter: full-flow filtering through 10 micron filter cartridge in combination with magnetic core.

Load unit: hydraulic cylinders fitted in line with lifting arms. Good parallel arm action, extremely good emptying angle.

Main pump 1		
Working pressure	MPa (psi)	21,0 (3050)
Flow volume	dm ³ , l/min (US gal /min)	196 (51,8)
at	MPa (psi)	10 (1450)
and engine speed	rps (rpm)	36,7 (2200)
Main pump 2		
Working pressure	MPa (psi)	18 (2600)
Flow volume	dm ³ , l/min (US gal /min)	81 (21,4)
at	MPa (psi)	10 (1450)
and engine speed	rps (rpm)	36,7 (2200)
Servo pump		
Working pressure	MPa (psi)	3,5 (510)
Flow volume	dm ³ , l/min (US gal /min)	20 5,3
at	MPa (psi)	3,5 (510)
and engine speed	rps (rpm)	36,7 (2200)
Lifting cylinder, number		2
Bore	mm (in)	140 (5,51)
Piston rod diameter	mm (in)	70 (2,76)
Stroke	mm (in)	980 (38,58)
Tilting cylinder, number		2
Bore	mm (in)	125 (4,92)
Piston rod diameter	mm (in)	70 (2,76)
Stroke	mm (in)	830 (32,68)
Lifting time (with load, SAE)	s	6,5
Tipping time (with load, SAE)	s	1,5
Lowering time (empty)	s	3,1
Total cycle time	s	11,1



SERVICE REFILL CAPACITIES

Crankcase	dm ³ l (US gal)	22 (5,8)
Fuel tank	dm ³ l (US gal)	215 (56,8)
Cooling system	dm ³ l (US gal)	65 (17,2)
Transmission, total	dm ³ l (US gal)	33 (8,7)
Drop-box	dm ³ l (US gal)	4,7 (1,2)
Front axle, total	dm ³ l (US gal)	37 (9,8)
Rear axle, total	dm ³ l (US gal)	38 (10)
Brake oil tank	dm ³ l (US gal)	12,7 (3,4)
Hydraulic system	dm ³ l (US gal)	255 (67,4)
Hydraulic tank	dm ³ l (US gal)	190 (50,2)

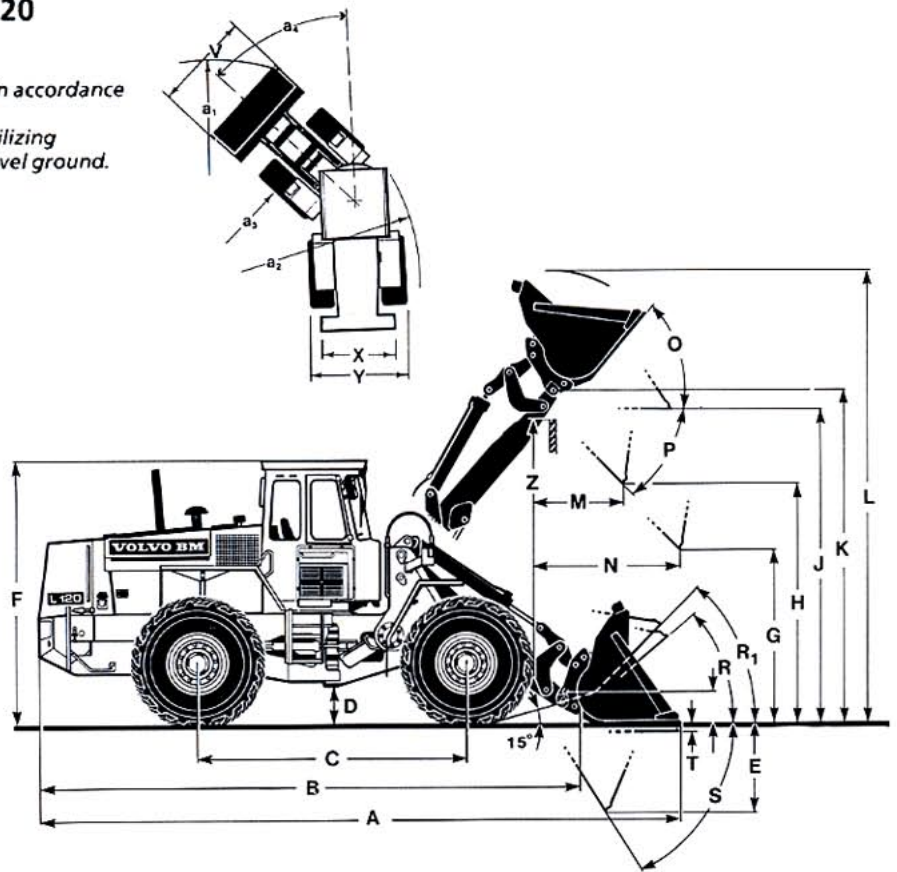
DIMENSIONAL DATA VOLVO BM L120

Tires: 23.5-25 *

Where applicable, specifications and dimensions are in accordance with SAE Standard J 732 c, J 742 b and J 818 b.
Liquid ballast in rear tires only recommended for stabilizing purposes in timber and pallet handling on hard and level ground.

B	mm (ft in)	6370 (20'11")
C	mm (ft in)	3200 (10'6")
D	mm (ft in)	450 (1'6")
F	mm (ft in)	3240 (10'8")
G	mm (ft in)	2000 (6'7")
J	mm (ft in)	3760 (12'4")
K	mm (ft in)	3990 (13'1")
O	°	54
P	°	45
R	°	42
R ₁	°	45
S	°	58
T	mm (ft in)	48 (2")
U	mm (ft in)	340 (1'1")
X	mm (ft in)	2060 (6'9")
Y	mm (ft in)	2680 (8'10")
Z	mm (ft in)	3690 (12'1")
a ₂	mm (ft in)	5740 (18'10")
a ₃	mm (ft in)	3050 (10')
a ₄	±°	40

* Carrying position SAE



Bucket type

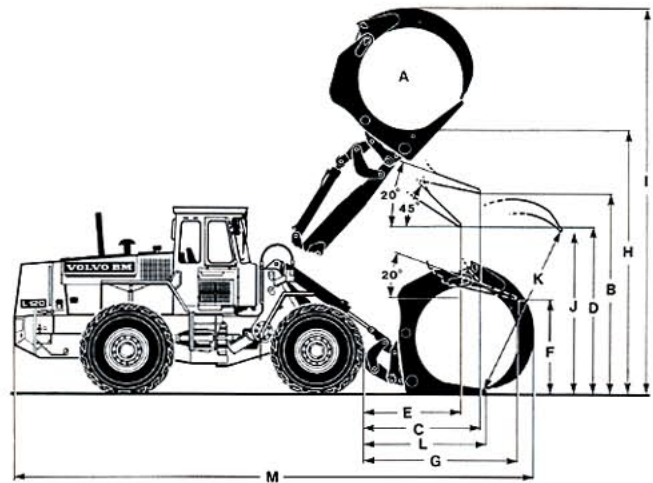
- 1 = Straight without teeth
- R = Hook-On
- D = Pin-On

Order No.		90453	90450	90454	90226	90445	90451
Mounting / Bucket type		D / 1	R / 1	D / 1	R / 1	D / 1	R / 1
Volume, heaped	m3 yd3	2,8 (3,7)	2,8 (3,7)	3,1 (4,1)	3,1 (4,1)	3,3 (4,3)	3,3 (4,3)
Volumetric weight	kg/m3 lb/yd3	1800 (3000)	1800 (3000)	1600 (2700)	1600 (2700)	1500 (1700)	1500 (1700)
Static tipping load, straight	kg lb	5040 (11111)	5040 (11111)	4960 (10935)	4960 (10935)	4950 (10910)	4950 (10913)
at 35° turn	kg lb	12330 (27183)	11880 (25986)	12200 (26896)	11850 (26124)	12 010 (26480)	11660 (25705)
at full turn	kg lb	11030 (24320)	10630 (23440)	10930 (24100)	10600 (23370)	10730 (23660)	10420 (22980)
Breakout force	kN lbf	10650 (23479)	10260 (22619)	10550 (23258)	10230 (22553)	10350 (22820)	10050 (22156)
Hydraulic lifting force at ground level	kp lbf	13770 (30357)	12840 (28307)	13740 (30291)	12830 (28285)	12370 (27270)	11650 (25683)
at max. height	kp lbf	22620 (49868)	22680 (50000)	22680 (50000)	22660 (49956)	22590 (49800)	22640 (49912)
A	mm ft in	8930 (19687)	8770 (19334)	8760 (19312)	8900 (19621)	8790 (19380)	8660 (19092)
L	mm ft in	7660 (25'2")	7740 (25'5")	7660 (25'5")	7740 (25'5")	7780 (25'6")	7860 (25'10")
V	mm ft in	5370 (17'7")	5410 (17'9")	5490 (18')	5530 (18' 2")	5510 (18')	5560 (18'3")
a ₁ clearance circle over bucket	mm ft in	2750 (9')	2750 (9')	2750 (9')	2750 (9')	2750 (9')	2750 (9')
E	mm ft in	12400 (40'8")	12440 (40'10")	12400 (40'8")	12440 (40'10")	12460 (40'10")	12520 (41'1")
H	mm ft in	1070 (3'6")	1140 (3'9")	1070 (3'6")	1140 (3'9")	1170 (3'6")	1240 (4'1")
M	mm ft in	2890 (9'6")	2830 (9'3")	2890 (9'6")	2830 (9'3")	2800 (9'2")	2740 (9')
N	mm ft in	1070 (3'6")	1130 (3'9")	1070 (3'6")	1130 (3'9")	1160 (3'10")	1220 (4')
Weight distribution, front	kg lb	1680 (5'6")	1710 (5'7")	1680 (5'6")	1710 (5'7")	1730 (5'8")	1760 (5'9")
Weight distribution, rear	kg lb	6130 (13514)	6290 (13867)	6160 (13580)	6320 (13933)	6370 (14040)	6460 (14242)
Operating weight	kg lb	9190 (20260) 15320 (33774)	9140 (20150) 15430 (33995)	9180 (20238) 15340 (33818)	9120 (20106) 15440 (34039)	9090 (20040) 15460 (34061)	9100 (20062) 15560 (34281)

Sorting Grapple (90354 Hook-On)

Operating weight	kg (lb)	15830 (34900)
Operating load	kg (lb)	5500 (12125)

A	m ² (ft ²)	2,2 (23,7)
B	mm (ft in)	3500 (11'6")
C	mm (ft in)	1840 (6')
D	mm (ft in)	2890 (9'6")
E	mm (ft in)	1480 (4'10")
F	mm (ft in)	1590 (5'3")
G	mm (ft in)	2650 (8'8")
H	mm (ft in)	4540 (14'11")
I	mm (ft in)	6400 (21')
J	mm (ft in)	2750 (9')
K	mm (ft in)	2960 (9'9")
L	mm (ft in)	1950 (6'5")
M	mm (ft in)	8120 (26'8")



ALTERATION OF DIMENSIONAL DATA						
Tires		23.5 R 25 *	23.5-25/16			
Liquid ballast in rear tires		75 % CaCl ₂	-			
Width over wheels	mm (ft in)	-	± 0			
Ground clearance	mm (ft in)	-	± 0			
Tipping load at full turn	kg (lb)	1380 (3040)				
Operating weight	kg (lb)	1170 (2570)	470 (1036)			

ATTACHMENTS *(for further information please contact your local dealer)*

Buckets

Straight Bucket without teeth	2,8/3,1/3,3 m ³ (3,7/4,0/4,3 yd ³)
Straight Bucket with teeth	2,8/3,1 m ³ (3,7/4,0 yd ³)
Spade Nose Bucket without teeth	2,8 m ³ (3,7 yd ³)
Spade Nose Bucket with teeth	2,8 m ³ (3,7 yd ³)
Light Materials Bucket	5,4/10,0 m ³ (7,1/13,0 yd ³)
High-Dump Light Materials Bucket	4,8/8,8 m ³ (6,3/11,3 yd ³)

Timber grapples

Unloading Grapple	2,2 m ² (23,7 ft ²)
Sorting Grapple	2,2 m ² (23,7 ft ²)
Tree Length Grapple	1,3 m ² (13,9 ft ²)
Hi-Lift Swivel Wood Clamp	0,9 m ² (9,7 ft ²)
Log Pusher	0,7-2,0 m ² (7,5-21,5 ft ²)
Heel Kickout	

Examples of other attachments

Pallet Forks
 Breakout Forks
 Fork Tine Extension
 Pallet Fork with Fork Positioner
 Combination Fork
 Material Handling Arms
 Hydraulic Clamping Grapple
 Asphalt Cutter
 Diagonal Snow Blade

STANDARD EQUIPMENT

Safety & comfort

ROPS and FOPS cab
Cab heating with filtered fresh air intake and defroster
Tinted glass
Ergonomically designed and adjustable driving seat with seat belt
Rear-view mirrors, external, two
Rear-view mirror, internal, one
Lighting:
main headlamps, full-dipped beam/asym. (halogen)
parking lights
working lights, front (two, halogen)
working lights, rear (two, halogen)
side marker lights
brake lights
rear lights
cab lighting
instrument lighting
direction indicators

Utility box in cab
Instrument panel with symbols
Sun visor
Safety start
Mudguards
Hazard warning flashers
Windscreen wipers, front and rear
Horn
Ashtray
Cigarette lighter
Lifting lugs
Lockable tool box
Pressure gauge, brake system
Opening window
Wrist support

Engine & electrical system

Fuel gauge
Electric socket 24 V
Battery disconnection switch
Hour recorder
Alternator
Air cleaner with ejector emptying
Engine temperature gauge
Hydraulic transmission temperature gauge
Control and warning lamps for:
working lights, front/rear charging,
full-beam headlights, direction indicators,
engine oil pressure, hydraulic transmission oil pressure, differential lock, parking brake, brake pressure, hazard warning flashers, air cleaner.

Central warning: (standard on certain markets)

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

Drivetrain

Power Shift transmission
Differential lock (front axle)
Single-lever gear control
Tires, 23.5 R 25 *

Hydraulic system

Control valve (3 sections)
Servo valve (3 sections)
Bucket position indicator
Boom kick-out
Bucket positioner
Ground positioner
Hydraulic oil cooler
Vane pump

OPTIONAL EQUIPMENT

Service and maintenance equipment

Tool kit
Lockable tool box
Wheel nut wrench set
Tyre inflation kit
Engine equipment
Oil-bath pre-cleaner
Cyclone pre-cleaner
Extra fuel filter
Suction fan
Preheating coil
Electric engine heater
Low emission version
High altitude version
Reduced fan speed
Rain guard for exhaust pipe

Electrical equipment

Rotating warning beacon with hinged mounting

Road lights (left-hand asymmetrical halogen)
Extra working lights, front (two, halogen)
Extra working lights, rear, (two, halogen)
Work-dependent parking lights
Attachment light (halogen)
Registration plate light
Reversing alarm

Drivetrain equipment

Automatic Power Shift
Interlock for 4th speed

Cab equipment

Document pocket
Heated driving seat
Air conditioner

Steering wheel, adjustable tilt
Coupled brake pedal
Windscreen washer, front/rear
Intermittent wiper, front
Radio panel without radio
Speedometer and tachometer
Interlock for hydraulic levers
Ventilation window
Place for instructor
Parking-brake alarm, acoustic (ASS 94)

Hydraulic equipment

3rd hydraulic control
3rd and 4th hydraulic control
5th hydraulic control
Single-acting lifting function
Load lowering

External equipment

Extended mudguards
Slow Moving Vehicle sign
Hitch device

Protective equipment

Guards for headlamps
Guards for rear working lights
Guards for tail lights
Screen for pusher fan
Screen for suction fan
Guard for silencer

Other equipment

Compactor version
Back-up steering
Air horn (el)

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 Company

S-631 85 ESKILSTUNA SWEDEN

