



Volvo BM L150



- *Engine output, gross:*
SAE J1349 180 kW (245 hp)
- *Operating weight:*
20.6 t (45 500 lb)
- *Buckets:*
3.5-12.0 m³ (4.6-15.7 yd³)

The high-capacity loader for the tough jobs

- *Torque Parallel Linkage* -
Powerful lift-arm system with:
 - *unique breakout moment*
 - *excellent parallel lift-arm action*
 - *high lift height and long reach*
- *Direct-injected, turbocharged Volvo diesel*
- *Automatic Power Shift*
- *Enclosed wet oil-cooled brakes*
- *Care Cab* - *the cab with great comfort and safety*
- *Contronic* *monitoring system*
- *Precision steering with good stability and maneuverability*
- *Pilot-operated hydraulic system*
- *Hydraulic attachment bracket*

VOLVO BM

ENGINE



Volvo TD 102, 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 particle ejector
2. Paper filter with indicator in cab
3. Safety filter

Make		Volvo	
Model		TD 102	
Output, gross at	r/s (r/min)	35,0	(2100)
SAE J1349 JUN85	kW (hp)	180	(245)
Flywheel output at	r/s (r/min)	35,0	(2100)
SAE J1349 JUN85	kW (hp)	170	(231)
DIN 70020 / 6271	kW (hp)	170	(231)
Max. torque at	r/s (r/min)	20,0	(1200)
SAE J1349 Gross	Nm (lbf ft)	1000	(738)
SAE J1349 Net	Nm (lbf ft)	980	(723)
DIN 70020 / 6271	Nm (lbf ft)	980	(723)
No. of cylinders		6	
Displacement, total	l (in ³)	9,6	(586)
Bore	mm (in)	120,65	(4,76)
Stroke	mm (in)	140	(5,50)
Compression ratio		15:1	

ELECTRICAL SYSTEM



Contronic monitoring system with extended function surveillance. Solid-state electrical distribution box. The electrical system is well-protected by fuses. Prewired for optional equipment.

Central warning:

Central warning lamp for following functions: engine oil pressure, brake pressure, parking brake (buzzer as well), engine temperature (buzzer as well), transmission temperature, transmission oil pressure, temperature front and rear axle/brake cooling, secondary steering (optional equipment)

Voltage	V	24	
Batteries	V	2x12	
Battery capacity	Ah	2x140	
Alternator rating	W / A	1680 / 60	
Starter motor output	kW (hp)	5,4	(7,3)

SERVICE REFILL CAPACITIES



Crankcase	l (US gal)	29	(7,7)
Fuel tank	l (US gal)	339	(89,6)
Cooling system	l (US gal)	65	(17,2)
Transmission, total	l (US gal)	45	(11,9)
Front axle, total	l (US gal)	47	(12,4)
Rear axle, total	l (US gal)	45	(11,9)
Hydraulic system	l (US gal)	245	(64,7)
Hydraulic tank	l (US gal)	165	(43,6)

DRIVETRAIN



Torque converter: Single-stage.

Transmission: Volvo BM power shift transmission of countershaft type with single-lever control. Directional clutch modulation provides faster and smoother shifting between forward and reverse. Shifting system: Volvo BM Automatic Power Shift.

Axes: Fully floating half-shafts with planetary type hub reductions. One-piece cast-steel axle housing. Fixed front axle and oscillating rear axle.

Differential: 100 % differential lock on front axle. Engagement and disengagement by means of switch on cab floor.

Hub reduction: Volvo BM manufacture with low-friction roller bearings on each planet wheel. The hub reduction units can be removed without necessitating removal of wheels and brakes.

Tires: Alternative tires are available for different work operations.

Torque multiplication		2,4 : 1	
Transmission, make		Volvo BM	
Model		HT 201	
Speeds			
forward/reverse			
1	km/h (mile/h)	6,4	(4,0)
2	km/h (mile/h)	11,9	(7,4)
3	km/h (mile/h)	23,5	(14,6)
4F	km/h (mile/h)	34,2	(21,3)
Measurement with tires		23.5 - 25	
Front axle, make		Volvo BM	
Model		AH 70	
Rear axle, make		Volvo BM	
Model		AH 65	
Oscillation	± °	15	
Ground clearance at 15° oscillation	mm (in)	568	(22,4)

BRAKE SYSTEM



The brake system meets the requirements of ISO 3450-1985, SAE J1473 DEC84 and EG 71/320.

Service brakes: Fully hydraulically operated, enclosed wet oil-cooled multi-disc brakes. Transmission disengagement during braking pre-selected via a switch on the instrument panel.

Secondary system: Dual-circuit system with rechargeable accumulators. One circuit or the parking brake fulfills the requirements.

Parking brake: Enclosed wet multi-disc brake built into the transmission. Spring-loaded application. Hydraulic release via a lever to the left of the operator.

Number of discs/wheel		6	
Area/brake pad	cm ² (in ²)	570	(88)
Brake area/wheel	cm ² (in ²)	6839	(1060)
Accumulators, volume, total	l (in ³)	2	(122)
Parking brake, area total	cm ² (in ²)	2583	(400)
Accumulator, volume total	l (in ³)	0,5	(30,5)

STEERING SYSTEM



Load-sensing hydrostatic articulated steering with power amplification.

Pump: Variable-flow axial piston pump mounted on a power take-off on the transmission.

System supply: The steering system is fed from a separate steering pump.

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

Steering cylinders			2	
Bore	mm (in)	90	(3,5)	
Piston rod diameter	mm (in)	50	(2)	
Stroke	mm (in)	418	(16,5)	
Relief pressure	MPa (psi)	21	(3046)	
Max . flow	l/min (US gal/min)	91,4	(24)	
at	MPa (psi)	10	(1450)	
and engine speed	r/s (r/min)	35,0	(2100)	

CAB



Tested and approved according to standards: ROPS (ISO 3471-1989, SAE J1040 APR88), FOPS (ISO 3449-1984, SAE J231 JAN81) and meets standard according to "Overhead guards for rider lift trucks" (ISO 6055-1981) and "Operator Restraint System" (SAE J386 JUN85).

Safety and comfort: The *Care Cab* has convenient boarding steps and a wide door opening. It is lined on the inside with sound-absorbent material and mounted on 4 rubber pads to damp sound and inhibit vibration. Large glazed areas, good all-round visibility. The windshield is curved and made of laminated green-tinted glass. All important operator information is presented clearly visible in front of the operator. Information panel for *Contronic* monitoring system (optional).

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

Operator's seat: Spring-suspended, adjustable operator's seat with lap belt. The seat is hung on a bracket on the rear wall. The force from the lap belt is absorbed by the seat rails.

Emergency exits		3	
Sound level in cab (ISO 6396)			
max.	dB(A)	-	
Ventilation	m ³ /min (ft ³)	10	(353)
Heating capacity	kW (Btu/h)	11	(37500)
Operator's seat		ISRI 6000/575	

HYDRAULIC SYSTEM



Open centre system with pilot-operated hydraulic valve.

Pump: A single pump (vane pump) mounted on a power take-off on the transmission.

System supply: The pilot system is fed from a separate pilot pump, shared by the brake system.

Valve: Double-acting 3-spool valve. The control valve is actuated by a 3-spool pilot valve.

Lift function: The valve has four positions: Raise, neutral, lower and float. Disengageable inductive/magnetic automatic boom kick-out, adjustable for any position between maximum reach and full lift height.

Tilt function: The valve has three positions: Rollback, neutral and dump. Disengageable inductive/magnetic automatic bucket positioner, adjustable to any desired loading angle.

Cylinders: Double-acting.

Filters: Full-flow filtration through 10 µm filter cartridge.

Loader unit: *Torque Parallel Linkage* - with very high breakout force throughout the working range. Good parallel lift-arm action with both level and fully angled-up bucket throughout the lifting range. Lift cylinders mounted in line with lift-arms. Tilt cylinder mounted between lift-arms.

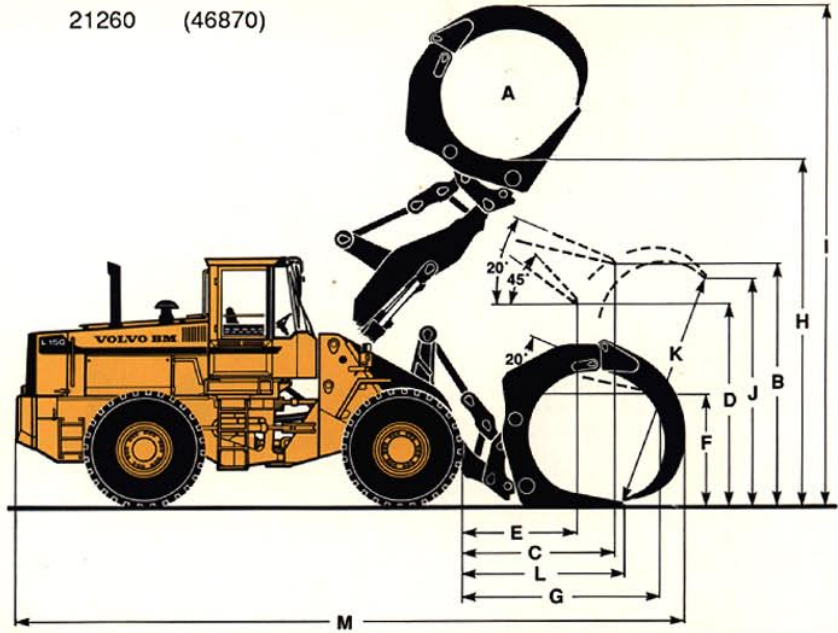
Main pump			
Relief pressure	MPa (psi)	21	(3046)
Flow	l/min (US gal/min)	313,4	(82,8)
at	MPa (psi)	10	(1450)
and engine speed	r/s (r/min)	35,0	(2100)
Pilot pump			
Relief pressure	MPa (psi)	3,0-4,5	(435-652)
Flow	l/min (US gal/min)	25,1	(6,6)
at	MPa (psi)	10	(1450)
and engine speed	r/s (r/min)	35,0	(2100)
Lift cylinders		2	
Bore	mm (in)	170	(6,7)
Piston rod diameter	mm (in)	80	(3,2)
Stroke	mm (in)	789	(31,1)
Tilt cylinder		1	
Bore	mm (in)	250	(9,8)
Piston rod diameter	mm (in)	120	(4,7)
Stroke	mm (in)	452	(17,8)
Raise time *	s	6,7	
Dump time *	s	1,9	
Lower time (empty)	s	3,2	
Total cycle time	s	11,8	

* with load as per ISO 5998 and SAE J818 MAY87

Sorting grapple (91724 hook-on)

Operating weight kg (lb) 21260 (46870)

A	m ² (ft ²)	2,9	(31)
B	mm (ft in)	3580	(11'9")
C	mm (ft in)	2185	(7'2")
D	mm (ft in)	2880	(9'5")
E	mm (ft in)	1720	(5'8")
F	mm (ft in)	1550	(5'1")
G	mm (ft in)	3000	(9'10")
H	mm (ft in)	4925	(16'2")
I	mm (ft in)	7180	(23'7")
J	mm (ft in)	3000	(9'10")
K	mm (ft in)	3280	(10'9")
L	mm (ft in)	2415	(7'11")
M	mm (ft in)	9370	(30'9")



ATTACHMENTS

Buckets

Straight bucket without teeth	3,5/3,9 m ³ (4,6/5,1 yd ³)
Straight bucket with teeth	3,5/3,9 m ³ (4,6/5,1 yd ³)
Spade nose bucket without teeth	3,5 m ³ (4,6 yd ³)
Spade nose bucket with teeth	3,5 m ³ (4,6 yd ³)
Rock bucket	3,2 m ³ (4,2 yd ³)
Light materials bucket	6,5/12,0 m ³ (8,5/15,7 yd ³)
High-dump light materials bucket	6,0/11,0 m ³ (7,8/14,4 yd ³)

Timber grapples

Unloading grapple	2,9 m ² (31 ft ²)
Sorting grapple	2,9 m ² (31 ft ²)
Tree length grapple	1,8 m ² (19 ft ²)
Tropical timber grapple	1,4 m ² (15 ft ²)
Heel/kickout	
Log pusher	

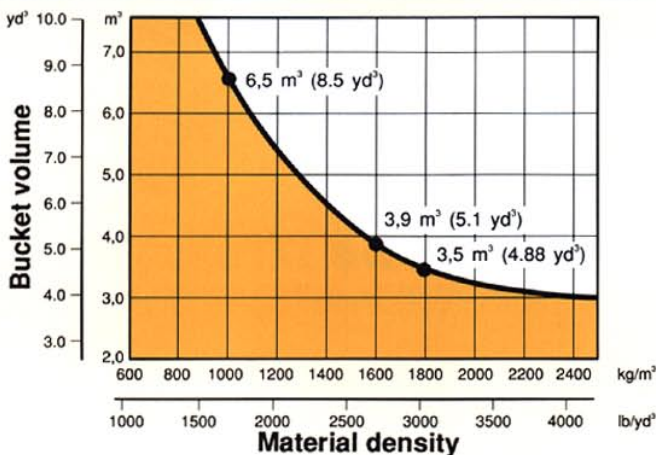
Examples of other attachments

Fork holder	2260 mm (7'5")
Fork tines	1500 mm (4'11")
Combination forks	
Fork attachments with fixed tines	
Materials handling arm	

ALTERATION OF DIMENSIONAL DATA

Tires			26.5-25 XHA L3		Counter- weight 1 375*) (830)	Counter- weight 2 645**) (1420)
Extra counterweight	kg (lb)					
Width over wheels	mm (in)		+ 164 (6,5)			
Ground clearance	mm (in)		+ 75 (3,0)			
Tipping load at full turn	kg (lb)		+ 355 (780)		+ 735 (1620)	+ 1260 (2780)
Operating weight	kg (lb)		+ 445 (980)		+ 375 (830)	+ 645 (1420)

BUCKET SELECTION DIAGRAM



*) Counterweight 1, 375 kg (830 lb) may be used in all handling with tires 23.5-25.

**) Counterweight 2, 645 kg (1420 lb) may only be used for stabilizing purposes within timber and pallet handling on a flat surface with tires 26.5-25. Counterweight 2 replaces hydroinflation of rear tires.

Combination of counterweights 1 + 2 may only be used for stabilizing purposes within timber and pallet handling on a flat surface with tires 23.5-25.

DIMENSIONAL DATA FOR VOLVO BM L150 (pin-on bucket 3,5 m³)

Tires: 23.5 R 25* XHA (L3)

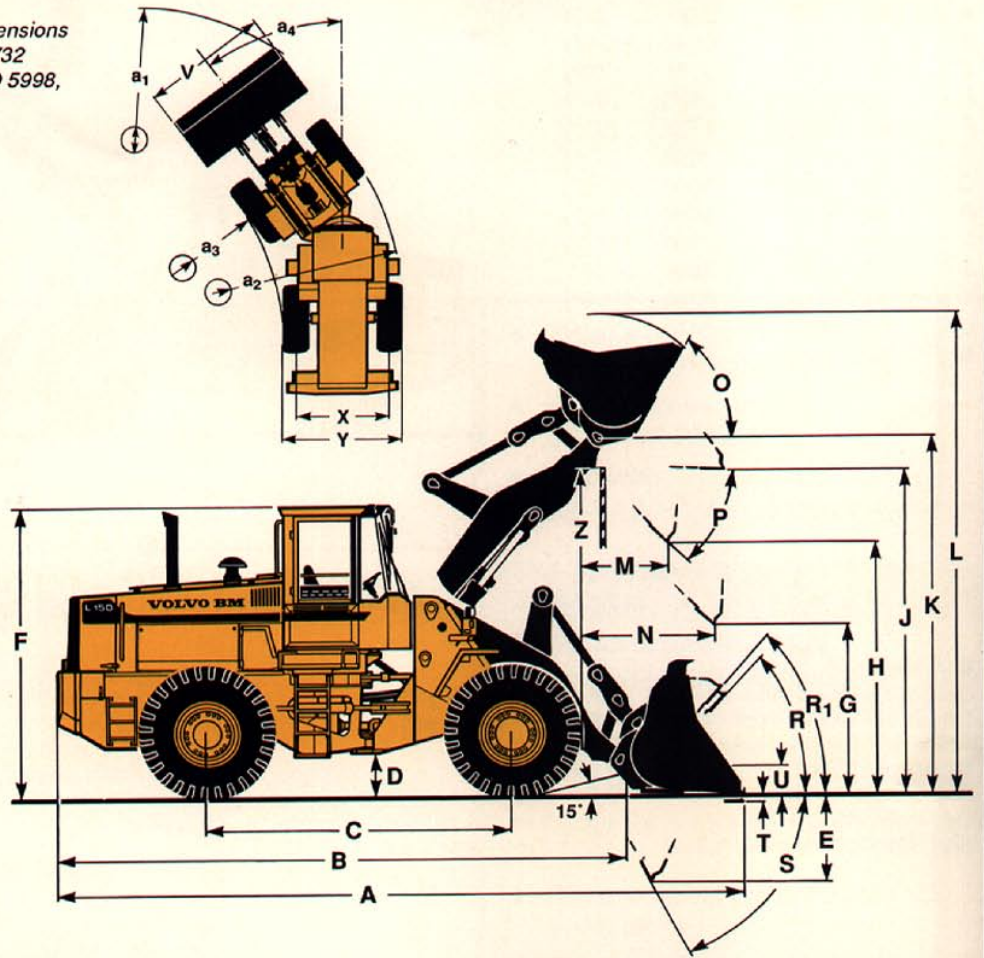
Where applicable, specifications and dimensions are in accordance with ISO 7131, SAE J732 FEB80, ISO 7546, SAE J742 FEB85, ISO 5998, SAE J818 MAY87.

B	mm (ft in)	6695	(22')
C	mm (ft in)	3550	(11'8")
D	mm (ft in)	405	(1'4")
F	mm (ft in)	3485	(11'5")
G	mm (ft in)	2000	(6'7")
J	mm (ft in)	3900	(12'10")
K	mm (ft in)	4275	(14')
O	°	58	
P	°	45	
R	°	46	
R ₁ *	°	48	
S	°	66	
T	mm (ft in)	135	(0'5")
U	mm (ft in)	375	(1'3")
X	mm (ft in)	2200	(7'3")
Y	mm (ft in)	2800	(9'2")
Z	mm (ft in)	3845	(12'7")
a ₂	mm (ft in)	6705	(22')
a ₃	mm (ft in)	3905	(12'10")
a ₄	±°	37	

* Carrying position SAE

Bucket type

- 1 = Straight without teeth
- 2 = Spade nose with teeth
- 3 = Straight with teeth
- R = Hook-On
- D = Pin-On



Order No.		91753	91293	91292	91622	91790	91943
Mounting/Bucket type	D / 3	D / 1	R / 1	D / 1	R / 1	D / 3	D / 3
Volume, heaped	m ³ (yd ³)	3,5 (4,6)	3,5 (4,6)	3,5 (4,6)	3,9 (5,1)	3,9 (5,1)	3,9 (5,1)
Volumetric weight	kg/m ³ (lb/yd ³)	1800 (3000)	1800 (3000)	1800 (3000)	1600 (2700)	1600 (2700)	1600 (2700)
Static tipping load, straight	kg (lb)	15040 (33160)	15135 (33370)	14450 (31860)	14950 (32960)	14320 (31570)	14875 (32795)
at 35° turn	kg (lb)	13365 (29465)	13475 (29710)	12820 (28265)	13290 (29300)	12685 (27965)	13230 (29170)
at full turn	kg (lb)	13170 (29035)	13285 (29290)	12630 (27845)	13095 (28870)	12495 (27550)	13035 (28740)
Breakout force	kN (lbf)	196,6 (44200)	180,7 (40620)	167,1 (37565)	167,7 (37700)	157,1 (35315)	178,1 (40040)
A	mm (ft in)	8040 (26'5")	8180 (26'10")	8265 (27'1")	8270 (27'2")	8355 (27'5")	8180 (26'10")
L	mm (ft in)	5825 (19'1")	5600 (18'5")	5865 (19'3")	5890 (19'4")	5945 (19'6")	5900 (19'4")
V	mm (ft in)	3200 (10'6")	3000 (9'10")	3000 (9'10")	3000 (9'10")	3000 (9'10")	3200 (10'6")
a, clearance circle	mm (ft in)	14870 (48'10")	14580 (47'10")	14625 (48')	14625 (48')	14675 (48'2")	14765 (48'5")
E	mm (ft in)	1110 (3'8")	1230 (4')	1305 (4'2")	1310 (4'4")	1385 (4'7")	1230 (4')
H	mm (ft in)	3130 (10'3")	3040 (10')	2980 (9'9")	2980 (9'9")	2920 (9'7")	3040 (10')
M	mm (ft in)	1150 (3'10")	1245 (4'1")	1305 (4'3")	1305 (4'3")	1365 (4'6")	1240 (4'1")
N	mm (ft in)	1710 (5'7")	1760 (5'9")	1795 (5'11")	1790 (5'11")	1825 (6')	1760 (5'9")
Weight distribution, front	kg (lb)	10525 (23205)	10210 (22510)	10710 (23610)	10425 (22985)	10890 (24010)	10420 (22970)
Weight distribution, rear	kg (lb)	10275 (22660)	10410 (22950)	10225 (22540)	10295 (22695)	10160 (22400)	10295 (22695)
Operating weight	kg (lb)	20800 (45855)	20620 (45460)	20935 (46155)	20720 (45680)	21050 (46410)	20715 (45670)

STANDARD EQUIPMENT

Safety & comfort

ROPS- and FOPS cab
 Cab heating with filtered
 fresh air intake and defroster
 Tinted glass
 Ergonomically designed and
 adjustable operator's seat
 with seat belt
 Rear-view mirrors, external, two
 Rear-view mirror, internal, one
 Lighting:
 headlights,
 full and dipped beam,
 asymmetrical, halogen
 parking lights
 working lights, front
 (two), halogen
 working lights, rear
 (two), halogen
 brake lights
 rear lights
 cab lighting
 instrument lighting
 direction indicators
 Utility box in cab
 File holder
 Instrument panel with symbols
 Sun visor
 Safety start

Lever lock for hydraulic levers
 Mudguards
 Hazard flashers
 Windshield wipers, front and
 rear windows
 Intermittent wipers, front
 Horn
 Ashtray
 Cigarette lighter
 Lifting lugs
 Openable window
 Radio console without radio
 Extended lube points

Engine & electrical system

Contronic monitoring system
 Battery disconnect switch
 Alternator
 Air cleaner with ejector discharge
 Engine temperature gauge
 Hydraulic transmission
 temperature gauge
 Hour recorder
 Fuel gauge

Tell-tale and warning lamps for:
 working lights, front/rear
 charging
 full-beam headlights
 director indicators
 engine oil pressure
 transmission oil pressure
 differential lock
 parking brake
 brake pressure
 hazard flashers
 air cleaner

Central warning (with buzzer):

*Engine oil pressure
 brake pressure
 parking brake
 engine temperature
 transmission temperature
 transmission oil pressure
 temperature front and rear
 axle/brake cooling
 secondary steering (optional)*

Drivetrain

Power Shift transmission
 Automatic Power Shift (APS)
 (4F/3R)
 Differential lock, front axle
 Circulating pump cooling,
 front and rear axle
 Oil cooler, front and rear axle
 Single-lever shift control
 Tires 23.5 R 25*

Hydraulic system

Control valve (3-spool)
 Pilot valve (3-spool)
 Tilt position indicator
 Boom kickout
 Bucket positioner
 Hydraulic oil cooler
 Vane pump

OPTIONAL EQUIPMENT *(Standard on certain markets)*

Service and maintenance equipment

Tool kit
 Wheel nut wrench set
 Lockable tool box

Engine equipment

Electrical engine block heater
 Low-emission version
 Suction fan
 Preheating coil
 Extra fuel filter
 Oil-bath pre-cleaner
 Cyclone pre-cleaner
 High-altitude version
 Fan with reduced speed
 Coolant filter

Electrical equipment

Rotating beacon with collapsible
 mount
 Side marker lights

Left-hand asymmetrical headlights
 (halogen)
 Extra working lights, front
 (two), halogen
 Extra working lights, rear
 (two), halogen
 Attachment lights (halogen)
 Back-up alarm

Transmission equipment

Switch, forward/reverse shifting

Cab equipment

Radio
 Instructor's seat
 Heated operator's seat
 Windshield washers, front/rear
 Dual brake pedals
 Hand accelerator
 Sliding vent window
 Air conditioning

Extra speedometer/tachometer
 Tiltable steering wheel
 Information panel
 Cable, information panel service

Hydraulic equipment

3rd hydraulic control
 Return line, 3rd hydraulic control
 Electrical cable kit for 4th hydraulic
 control
 Hydraulic attachment bracket incl.
 a separate attachment lock
 Boom lowering system
 Boom Suspension System

External equipment

Towing hitch
 Slow Moving Vehicle sign
 Extended mudguards
 Counterweight, 375 kg (830 lb)
 Counterweight, 645 kg (1420 lb)

Protective equipment

Protective grilles for headlights
 Protective grilles for rear working
 lights
 Protective grilles for rear lights
 Screen for suction fan
 Muffler guard

Other equipment

German version (TBG)
 Air horn
 Secondary steering
 Comfort Drive Control (CDC)
 Fueling strainer

Tires

26.5 R 25* recommended in
 timber handling

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.

VME Industries Sweden AB
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