



Volvo BM L150



- **Engine output, gross:**
SAE J1349 180 kW (245 hp)
- **Operating weight:**
20,6-25,4 t (45 500-56 000 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 torque
 - 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
- Precision steering with good stability and maneuverability
- **Contronic** monitoring system
- 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 GC		
Output, gross at	r/s	(r/min)	35,0 (2100)
SAE J1349	kW	(hp)	180 (245)
Flywheel output at	r/s	(r/min)	35,0 (2100)
SAE J1349	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



Conronic 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), transmission hydraulic oil filter.

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)	46 (12,2)
Rear axle, total	l (US gal)	46 (12,2)
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.

Axles: 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.

Tires: Alternative tires are available for different work operations.

Torque multiplication	2,4 : 1		
Transmission, make	Volvo BM		
Model	HT 210		
Speeds			
forward/reverse			
1	km/h (mile/h)	6,4 (4,0)	
2	km/h (mile/h)	11,8 (7,3)	
3	km/h (mile/h)	23,3 (14,5)	
4F	km/h (mile/h)	33,9 (21,1)	
Measurement with tires	26.5 - 25		
Front axle, make	Volvo BM		
Model	AWB 40		
Rear axle, make	Volvo BM		
Model	AWB 40		
Oscillation	± °	15	
Ground clearance at 15°			
oscillation	mm (in)	610 (24,0)	

BRAKE SYSTEM



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

Service brakes: Volvo BM fully hydraulically operated, enclosed wet circulation oil-cooled 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	1		
Area/brake pad	cm ² (in ²)	1750 (271)	
Brake area/axle	cm ² (in ²)	3500 (542)	
Accumulators,	3		
volume, total	l (in ³)	3 (183)	
Parking brake,	1		
area, total	cm ² (in ²)	2583 (400)	
Accumulator,	1		
volume, total	l (in ³)	0,5 (30,5)	

DIMENSIONAL DATA FOR VOLVO BM L150

Pin-on bucket 4,0 m³, 92180
Tires: 26.5 R 25* XHA (L3)

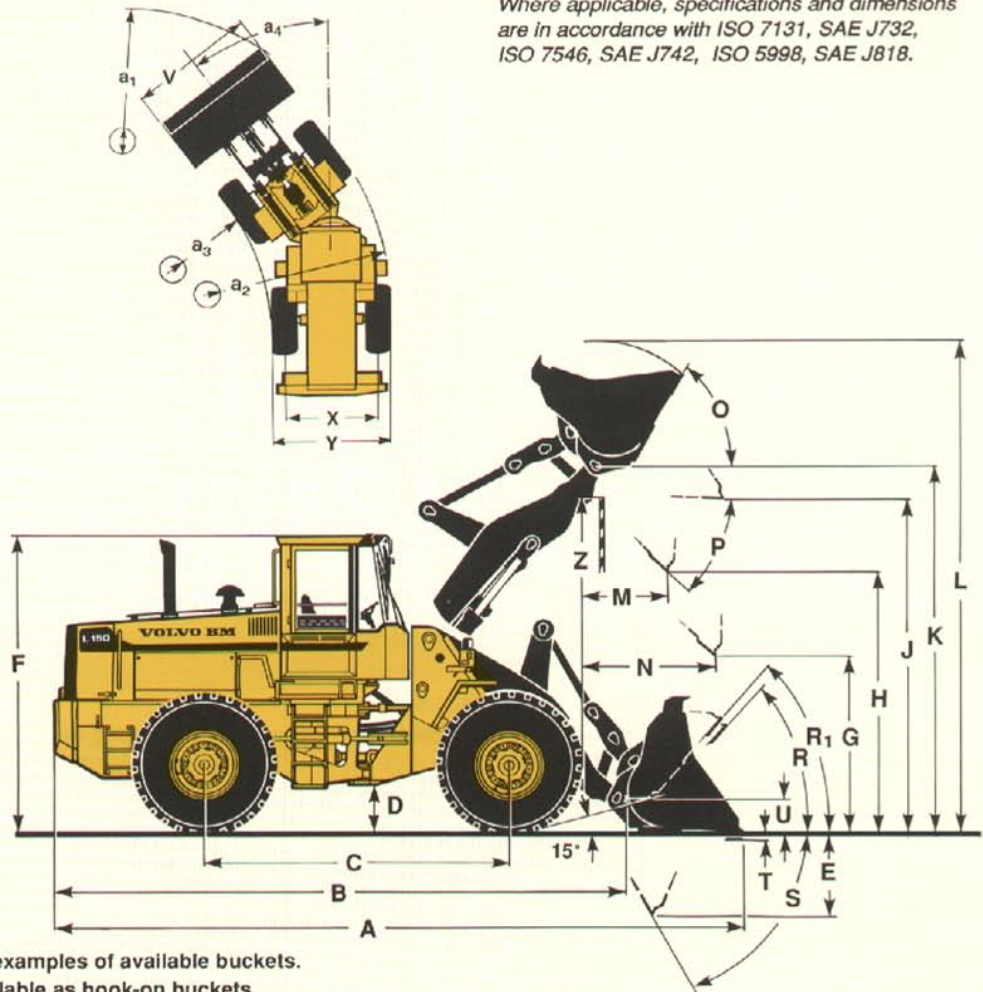
Where applicable, specifications and dimensions are in accordance with ISO 7131, SAE J732, ISO 7546, SAE J742, ISO 5998, SAE J818.

B	mm	(ft in)	6713	(22')
C	mm	(ft in)	3550	(11'8")
D	mm	(ft in)	480	(1'7")
F	mm	(ft in)	3560	(11'8")
G	mm	(ft in)	2135	(7')
J	mm	(ft in)	3945	(12'11")
K	mm	(ft in)	4351	(14'3")
O	°		58	
P	°		45	
R	°		44	
R ₁ *	°		47	
S	°		66	
T	mm	(ft in)	72	(0'3")
U	mm	(ft in)	363	(1'2")
X	mm	(ft in)	2280	(7'6")
Y	mm	(ft in)	2953	(9'8")
Z	mm	(ft in)	3920	(12'10")
a ₂	mm	(ft in)	6781	(22'3")
a ₃	mm	(ft in)	3828	(12'7")
a ₄	± °		37	

* Carrying position SAE

Bucket type

- 1 = Straight without teeth
 - 2 = Spade nose with teeth
 - 3 = Straight with teeth
 - 4) = Edge savers
- R = Hook-on
D = Pin-on



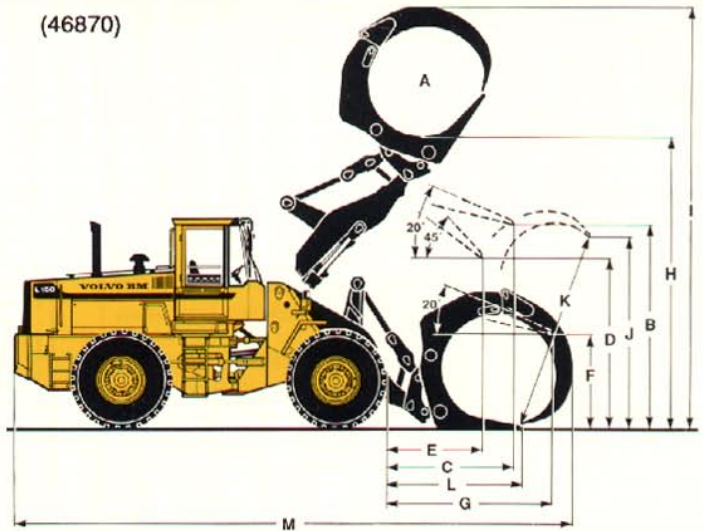
The tables mentioned below show examples of available buckets.
Most of the buckets shown are available as hook-on buckets.
For further information, see the attachment catalogue.

Order No.		92180	92177	92205	91293	91292	91626	91753
Volume, heaped	m ³ (yd ³)	4,0 (5,2)	3,8 (5,0)	4,0 (5,2)	3,7 (4,8)	3,5 (4,6)	3,5 (4,6)	3,5 (4,6)
Mounting/Bucket type		D / 1	D / 1	D / 1	D / 1	D / 1	R / 1	D / 3
Tipping load, straight	kg (lb)	14860 (32760)	15430 (34020)	14855 (32750)	15410 (33970)	15005 (33080)	15570 (34330)	15560 (34310)
at 35° turn	kg (lb)	13170 (29040)	13735 (30280)	13165 (29020)	13715 (30240)	13315 (29360)	13870 (30600)	13870 (30580)
at full turn	kg (lb)	12970 (28600)	13540 (29850)	12970 (28590)	13515 (29800)	13120 (28930)	13680 (30160)	13670 (30140)
Breakout force	kN (lbf)	166 (37320)	178 (40010)	160 (35970)	172 (38670)	172 (38670)	185 (41590)	178 (40010)
A	mm (ft in)	8215 (26'11")	8110 (26'7")	8265 (27'1")	8160 (26'9")	8165 (26'9")	8055 (26'5")	8115 (26'7")
L	mm (ft in)	5895 (19'4")	5895 (19'4")	5945 (19'6")	5945 (19'6")	5825 (19'1")	5825 (19'1")	5890 (19'4")
V	mm (ft in)	3200 (10'6")	3200 (10'6")	3000 (9'10")	3000 (9'10")	3200 (10'6")	3200 (10'6")	3000 (9'10")
a ₁ clearance circle	mm (ft in)	14785 (48'6")	14730 (48'4")	14625 (48'0")	14570 (47'10")	14760 (48'5")	14705 (48'3")	14545 (47'9")
E	mm (ft in)	1210 (4'0")	1125 (3'8")	1255 (4'1")	1170 (3'10")	1170 (3'10")	1085 (3'7")	1135 (3'9")
H	mm (ft in)	3045 (10'0")	3120 (10'3")	3010 (9'11")	3085 (10'1")	3080 (10'1")	3155 (10'4")	3115 (10'3")
M	mm (ft in)	1215 (4'0")	1175 (3'10")	1250 (4'1")	1210 (4'0")	1180 (3'10")	1140 (3'9")	1180 (3'10")
N	mm (ft in)	1805 (5'11")	1795 (5'11")	1825 (6'0")	1815 (5'11")	1785 (5'10")	1770 (5'10")	1795 (5'11")
Operating weight	kg (lb)	21600 (47620)	21290 (46940)	21570 (47550)	21280 (46910)	21470 (47340)	21160 (46650)	21180 (46700)
								21480 (47360)
								21770 (48000)
								21350 (47070)

SORTING GRAPPLE

Operating weight kg (lb) 21260 (46870)

A	m ²	(ft ²)	2,9	(31)
B	mm	(ft in)	3660	(12'0")
C	mm	(ft in)	2120	(6'11")
D	mm	(ft in)	2950	(9'8")
E	mm	(ft in)	1660	(5'5")
F	mm	(ft in)	1620	(5'4")
G	mm	(ft in)	2940	(9'8")
H	mm	(ft in)	5000	(16'5")
I	mm	(ft in)	7250	(23'9")
J	mm	(ft in)	3000	(9'10")
K	mm	(ft in)	3280	(10'9")
L	mm	(ft in)	2290	(7'6")
M	mm	(ft in)	9440	(31')



ATTACHMENTS

Buckets

Straight bucket without teeth	3,5-4,0 m ³ (4,6-5,2 yd ³)
Straight bucket with teeth	3,5/3,8 m ³ (4,6/5,0 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)

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

Timber grapples

Unloading grapple	2,9 m ² (31 ft ²)
Sorting grapple	2,9 m ² (31 ft ²)
General purpose grapple	1,8 m ² (19,4 ft ²)

Examples of other attachments

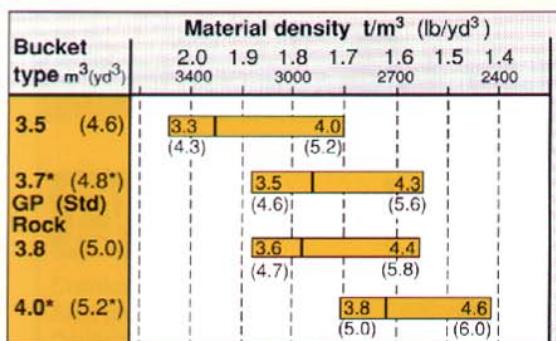
Fork holder	2260 mm (7'5")
Fork tines	1500 mm (4'11")
Combination forks	
Fork attachments with fixed tines	
Materials handling arm	

ALTERATION OF DIMENSIONAL DATA

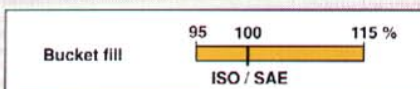
Tires		23.5-25 XHA L3		Counterweight 1	Counterweight 2
Extra counterweight	kg (lb)			375* (830)	600** (1320)
Width over wheels	mm (in)	-164 (6,5)			
Ground clearance	mm (in)	-75 (3,0)			
Tipping load at full turn	kg (lb)	-456 (1005)		+ 735 (1620)	+ 1260 (2780)
Operating weight	kg (lb)	-548 (1210)		+ 375 (830)	+ 600 (1320)

BUCKET SELECTION DIAGRAM

The volume of material handled is often greater than the bucket's ISO/SAE classification. Refer to the Material densities and bucket fill factor table prior to bucket selection.



*) Inclusive edge savers



L150

*) Counterweight 1, 375 kg (830 lb) may be used in all handling.

***) Counterweight 2, 600 kg (1320 lb) may only be used for stabilizing purposes within timber and pallet handling on a flat surface. Counterweight 2 replaces hydroinflation of rear tires.

Combination of counterweights 1+2 may only be used in extreme cases for stabilizing purposes within timber and pallet handling with fork attachments. Only when working on a firm and flat surface.

Material densities and bucket fill factor

Material	Earth	Clay	Sand	Gravel	Rock
Bucket fill %	100-115	110-120	100-110	100-110	75-100
Density t/m ³	1.4-1.6	1.4-1.6	1.6-1.9	1.7-1.9	1.5-1.9
Density lb/yd ³	2400-2700	2400-2700	2700-3200	2900-3200	2500-3200

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	91,4		
	(US gal/min)		(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/CD 3471-1990, SAE J1040), FOPS (ISO 3449, SAE J231), also meets standard according to "Overhead guards for rider lift trucks" (ISO 6055) and "Operator Restraint System" (SAE J386).

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 wind-shield is curved and made of laminated green-tinted glass.

All important operator information is presented clearly in front of the operator. Information panel for *Contronic* monitoring system (optional).

Heater and defroster: Heating element with filtered fresh air and 4-speed fan which gives over pressure and 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)	75	
Ventilation	m ³ /min (ft ³ /min)	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	313,4	
	(US gal/min)		(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	25,1	
	(US gal/min)		(6,6)
at	MPa (psi)	10	(1450)
and engine speed	r/s (r/min)	35,0	(2100)

Lift cylinders

Bore	mm (in)	170	(6,7)
Piston rod diameter	mm (in)	80	(3,2)
Stroke	mm (in)	789	(31,1)

Tilt cylinder

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

STANDARD EQUIPMENT

<p>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</p>	<p>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, right Radio console without radio Extended lube points</p> <p>Engine & electrical system Contronic monitoring system Cable, information panel, service Battery disconnect switch Alternator</p>	<p>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 direction indicators engine oil pressure transmission oil pressure differential lock parking brake brake pressure hazard flashers air cleaner transmission hydraulic oil filter</p> <p>Central warning (with buzzer): <i>engine oil pressure</i> <i>brake pressure</i> <i>parking brake (with buzzer)</i> <i>engine temperature (with buzzer)</i></p>	<p><i>transmission temperature</i> <i>transmission oil pressure</i> <i>temperature front and rear axle/brake cooling (with buzzer)</i> <i>secondary steering (optional)</i> <i>transmission hydraulic oil filter</i></p> <p>Drivetrain Power Shift transmission Automatic Power Shift (APS) (4F/3R) Single-lever shift control Differential lock, front axle Internal circulation brake cooling, front and rear axle Tires 26.5 R 25</p> <p>Hydraulic system Control valve (3-spool) Pilot valve (3-spool) Tilt position indicator Boom kickout Bucket positioner Hydraulic oil cooler Vane pump</p>
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OPTIONAL EQUIPMENT *(Standard on certain markets)*

<p>Service and maintenance equipment Tool kit Wheel nut wrench set Lockable tool box</p> <p>Engine equipment Electrical engine block heater Low-emission version Suction fan Preheating coil Oil-bath pre-cleaner Cyclone pre-cleaner, "Turbo" Coolant filter Radiator, corrosion protected</p> <p>Electrical equipment Rotating beacon with collapsible mount Left-hand asymmetrical headlights (halogen) Loud horn, electrically Extra working lights, front (two), halogen Extra working lights, rear (two), halogen</p>	<p>Attachment lights (halogen) Back-up alarm Light registration plate</p> <p>Transmission equipment Switch, forward/reverse shifting Three speed version</p> <p>Cab equipment Radio Assembly kit, radio (loudspeaker, antenna etc.) Instructor's seat Heated operator's seat Air suspended operator's seat Windshield washers, front/rear Dual brake pedals Hand throttle Sliding vent window Air conditioning Speedometer Tiltable steering wheel Seat belt, retractable Information panel (Contronic): start figuration, setting language and versions, operating hours,</p>	<p>general operating information, stop watch/trip meter, cycle counter, service interval engine electrical system transmission axles/brakes</p> <p>Hydraulic equipment 3rd hydraulic control Return line, 3rd hydraulic control Electrical cable kit for 4th hydraulic control Hydraulic attachment bracket incl. separate attachment locking Boom lowering system Boom Suspension System Biodegradable hydraulic fluid</p> <p>External equipment Towing hitch Covering mudguards Counterweight, 375 kg (830 lb) Counterweight, 600 kg (1320 lb)</p>	<p>Protective equipment Protective grilles for headlights Prot. grilles for rear working lights Protective grilles for rear lights Screen for suction fan Muffler guard Windshield guard Radiator fan cover Radiator cover guard Belly guard front, Belly guard rear Protection guard under cab Valve cover, front frame External noise reduction kit</p> <p>Other equipment German version (TBG) Secondary steering Comfort Drive Control (CDC) Fueling strainer External brake oil cooling system, front and rear axles Loadtronic</p> <p>Tires 30/65 R25 23.5 R25</p>
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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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