



Volvo BM L90C



- **Engine output SAE J1349:**
gross 118 kW (160 hp)
net 113 kW (153 hp)
- **Operating weight: 14,4–16,1 t**
- **Buckets: 2,2–7,0 m³**
- **Torque Parallel Linkage**
 - high breakout torque throughout the working range
 - excellent parallel lift-arm action
- **Volvo low emission engine**
 - with excellent low rpm lugging performance
 - meets all known exhaust emission regulations for off-road vehicles until 2001
- **Volvo BM transmission with APS II**
 - 2nd generation Automatic Power Shift with mode selector
 - optimises performance
- **Fully sealed oil-circulation cooled wet disc brakes, outboard mounted**
- **Care Cab** – pressurized cab with high comfort and safety
- **Contronic** monitoring system
- **Load-sensing** steering system
- **Pilot-operated working hydraulics**
 - Hydraulic attachment bracket (option)

VOLVO BM



SERVICE REFILL CAPACITIES

Contronic monitoring system provides information on machine condition, routine maintenance schedules and minimizes time required for troubleshooting.

Service accessibility: Large, easy-to-open engine access doors with gas struts. Hinged radiator grille and radiator.

Capacities

Fuel tank	210 l	Transmission	33 l
Engine coolant	53 l	Engine oil	16 l
Hydraulic tank	130 l	Axle front/rear	36/41 l



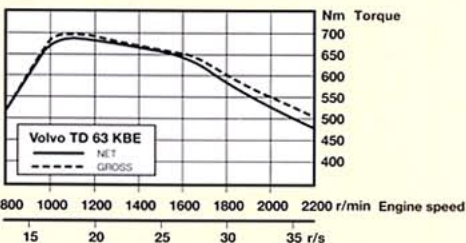
ENGINE

Engine delivers high torque and quick response at low rpm even under full load. The machine can work at low engine speeds, which contributes to good fuel economy, less noise, less wear and longer life.

Engine: Volvo TD 63 KBE, 6-cylinder, in-line, direct-injected, turbocharged, intercooled 4-stroke diesel engine with wet replaceable cylinder liners.

Air cleaning: three-stage.

Engine	TD 63 KBE
Flywheel output at	35 r/s (2100 r/min)
SAE J1349 gross	118 kW (160 hp)
net	113 kW (153 hp)
Max. torque at	18,3 r/s (1100 r/min)
SAE J1349 gross	695 Nm
net	690 Nm
Displacement	5.48 l



ELECTRICAL SYSTEM

Contronic monitoring system with complete information on the status of the machine's various systems is standard. Electrical system with circuit board is well protected by fuses. Prepared for retrofitting of optional equipment.

Central warning: Central warning lamp for the following functions: engine oil pressure, engine coolant temperature (with buzzer), hydraulic oil pressure in transmission, transmission oil temperature, brake pressure, parking brake (buzzer), shut down to idle as standard.

Voltage	24 V
Batteries	2x12 V
Battery capacity	2x105 Ah
Cold cranking capacity, ea	560 A
Reserve capacity, ea	340 min
Alternator rating	1 680 W / 60 A
Starter-motor output	5,4 kW (7,3 hp)



DRIVETRAIN

Drivetrain and working hydraulics well-matched to each other. Dependable design. Quick acceleration boosts productivity. Volvo BM system-compatible design facilitates servicing.

Torque converter: Single-stage

Transmission: Volvo BM Power Shift transmission of countershaft type with single-lever control. Fast and smooth forward/reverse shifting.

Shifting system: Volvo BM Automatic Power Shift (APS II) with mode selector.

Axles: Volvo BM, fully floating axle shafts with planetary-type hub reductions. Cast-steel axle housing. Fixed front axle and oscillating rear axle. 100% differential lock on front axle.

Transmission	Volvo BM HT131
Torque multiplication	2,66:1
Speeds, max forward/reverse	
1	7,1 km/h
2	13,3 km/h
3	27,7 km/h
4 (forward only)	38,2 km/h

Measured with tires	20.5R25* L2
Front and rear axle	Volvo BM / AWB 30
Oscillation, rear axle	±15 °
Ground clearance at	
15° oscillation	505 mm



BRAKE SYSTEM

Simple, reliable system with few parts ensures high availability and safety. Self-adjusting internal oil circulation-cooled disc brakes give long service intervals.

Service brakes: Volvo BM, dual-circuit system with nitrogen-charged accumulators for dead engine braking. Fully hydraulically operated enclosed internal oil circulation-cooled outboard mounted disc brakes. Transmission declutch during braking can be preselected by a switch on the instrument panel. Brake performance test by the Contronic system.

Parking brake: Mechanically operated disc brake on front axle input shaft.

Secondary brake: Either of the service brake circuits or the parking brake fulfills ISO/SAE safety requirements.

Standards: The brake system complies with the requirements of ISO 3450, SAE J1473

Number of discs/wheel	1
Number of accumulators	2
Volume, each	1,0 l

OPERATIONAL DATA VOLVO BM L90C

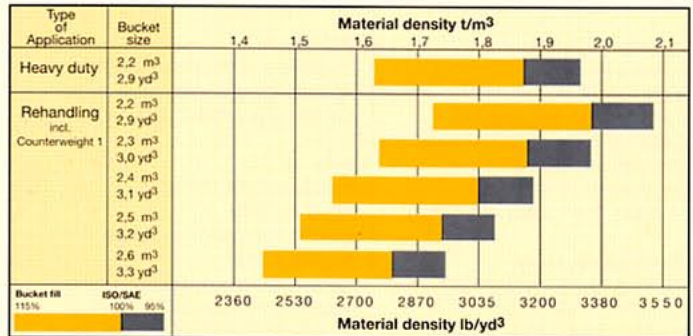
TYPE OF APPLICATION		REHANDLING *						HEAVY DUTY		LIGHT MATERIAL *	
Tires 20.5R25											
Volume, heaped	m ³	2,6	2,6	2,5	2,5	2,4	2,4	2,2	2,2	4,0	–
incl. bolt-on cutting edge	m	2,7	2,7	–	2,6	2,5	2,5	–	2,3	4,1	7,0
Static tipping load, straight	kg	10 780	9 980	10 750	10 050	10 100	10 640	10 250	9 610	9 610	8 980
at 35° turn	kg	9 590	8 840	9 560	8 900	8 950	9 480	9 120	8 530	8 480	7 810
at full turn	kg	9 230	8 490	9 200	8 560	8 610	9 120	8 780	8 200	8 130	7 450
Breakout force	kN	116,4	102,7	118,8	104,5	107,1	122,0	127,6	111,4	85,3	68,5
A	mm	7 400	7 560	7 590	7 540	7 500	7 330	7 500	7 450	7 900	8 330
E	mm	1 120	1 270	1 100	1 250	1 220	1 070	1 020	1 170	1 570	1 910
H	mm	2 730	2 620	2 610	2 640	2 660	2 770	2 670	2 700	2 360	2 070
L	mm	5 290	5 380	5 260	5 350	5 320	5 230	5 180	5 270	5 450	5 650
M	mm	1 230	1 340	1 380	1 330	1 300	1 190	1 320	1 260	1 560	1 790
N	mm	1 690	1 740	1 770	1 730	1 720	1 670	1 740	1 710	1 770	1 790
V	mm	2 650	2 650	2 650	2 650	2 650	2 650	2 650	2 650	2 750	3 000
a ₁ clearance circle	mm	11 970	12 070	12 140	12 060	12 030	11 930	12 080	12 000	12 370	12 860
Operating weight	kg	14 760	15 030	14 780	14 970	14 930	14 690	14 420	14 590	15 160	15 730
Product No.		94554	94553	94647	94649	92431	92585	92432	91849	92687	92683

* Including counterweight 1

BUCKET SELECTION CHART

The volume handled varies with the bucket fill and is often greater than indicated by the bucket's ISO/SAE volume. The table shows optimum bucket choice with regard to the material density.

Material m ³	Bucket fill %	Density t/m ³
Earth	100–115	1,4–1,6
Clay	110–120	1,4–1,6
Sand	100–110	1,6–1,9
Gravel	100–110	1,7–1,9
Rock	75–100	1,5–1,9



SUPPLEMENTAL OPERATING DATA

		Incl. / excl. counterweight 1	Counterweight 2			
Width over tires	mm	–	–			
Ground clearance	mm	–	–			
Operating weight	kg	± 300	+ 500			
Buckets						
Tipping load, full turn	kg	± 500	+ 800			

Counterweight 1 may be used in rehandling and material handling.
Counterweight 2, and combinations of counterweight 1 and 2, may be used within pallet and material arms handling for stabilizing purposes on firm and level ground.

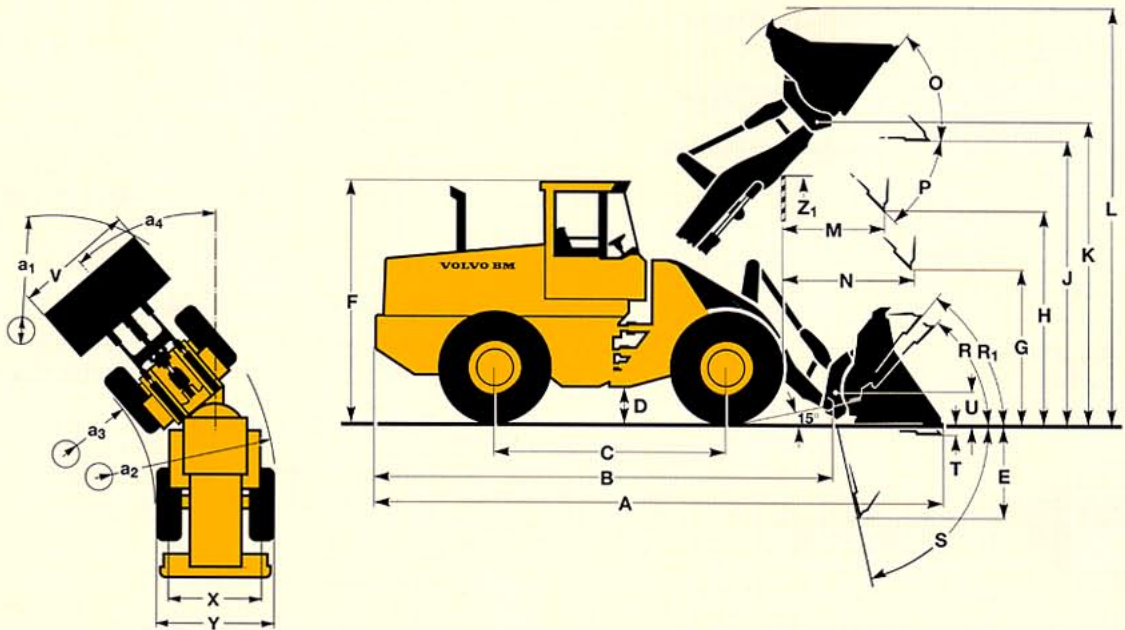
Counterweight 2 replaces hydroinflation of rear tires and must never be combined with tire chains.

OPERATIONAL DATA & DIMENSIONS

Tires: 20.5R25* L2

B	6 050 mm
C	3 000 mm
D	410 mm
F	3 270 mm
G	2 135 mm
J	3 540 mm
K	3 820 mm
O	56 °
P	49 °
R	43 °
R ₁ *	48 °
S	67 °
T	80 mm
U	450 mm
X	1 960 mm
Y	2 490 mm
Z ₁	3 055 mm
a ₂	5 370 mm
a ₃	2 880 mm
a ₄	±40 °

* Carry position SAE

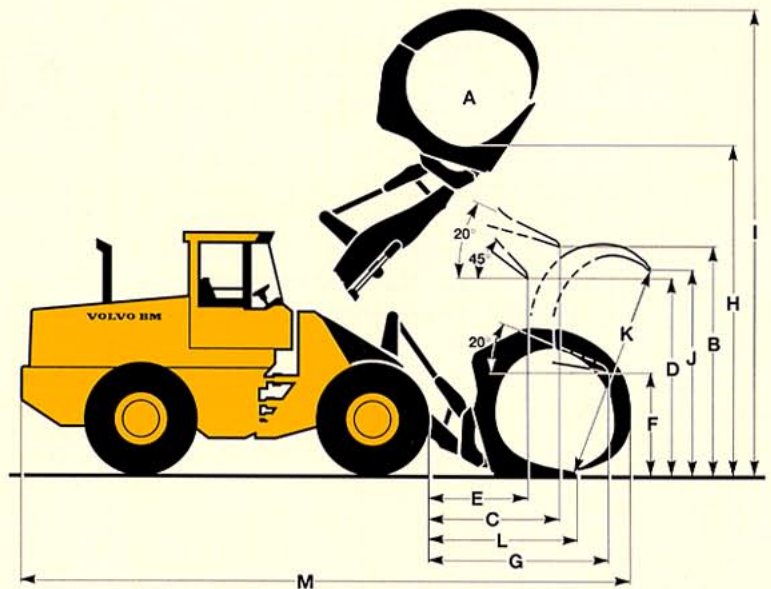


Where applicable, specifications and dimensions are in accordance with ISO 7131, SAE J732, ISO 7546, SAE J742, ISO 5998, SAE J818, ISO 8313.

GRAPPLE (HOOK ON)

Order No: 92743
 Operating weight: 15 850 kg incl. counterweight 1 & 2
 Operating load: 4 800 kg

A	1,8 m ²
B	3 290 mm
C	1 890 mm
D	2 710 mm
E	1 520 mm
F	1 460 mm
G	2 670 mm
H	4 420 mm
I	6 150 mm
J	2 400 mm
K	2 590 mm
L	1 990 mm
M	8 210 mm





STEERING SYSTEM

Low-effort steering gives short work cycle times. Power-efficient system provides good fuel economy, good directional stability and smooth ride.

Steering system: Load-sensing hydrostatic articulated steering.

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

Pump: Variable-flow axial piston pump.

Cylinders: Two double-acting cylinders.

Steering cylinders	2
Bore	70 mm
Piston rod diameter	40 mm
Stroke	419 mm
Relief pressure	21 MPa
Max. flow	91 l/min
Articulation	± 40 °



CAB

Care Cab with easy entry and wide door opening. Lined with sound-absorbent material. Sound- and vibration-suppressing suspension. Good all round visibility, large glass areas. Curved windshield of laminated, green-tinted glass. Ergonomically located controls and instruments permit a comfortable operating position.

Instrumentation: All information important to the operator is readily visible in front of him. Cab display for Contronic monitoring system.

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

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

Standards: Tested and approved according to the following standards: ROPS (ISO/CD 3471, SAE J1040), FOPS (ISO 3449, SAE J231). Complies with "Overhead guards for rider lift trucks" (ISO 6055) and "Operator Restraint System" (SAE J386).

Emergency exits	2
Sound level in cab	
as per ISO 6396,	
max fan position	72 dB (A)
fan position 2	69 dB (A)
Ventilation	10 m ³ /min
Heating capacity	11 kW (37 500 Btu/h)
Air conditioning (optional)	8 kW (27 300 Btu/h)



HYDRAULIC SYSTEM

Open centre hydraulics with highly efficient vane pumps allows precision control even at low rpm's together with quick movements thanks to the high capacity pumps.

Pump: Vane pump fitted to a power take-off on the transmission. The pilot system is supplied from a combined pilot/brake pump.

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

Lift function: The valve has four functions: raise, hold, lower and float. Inductive/magnetic automatic boom kickout can be switched on and off and is adjustable to any position between maximum reach and full lift height.

Tilt function: The valve has three functions: rollback, hold and dump. Inductive/magnetic automatic bucket positioner that can be switched on and off.

Cylinders: Double-acting

Filter: Full-flow filtration through 20 µm (absolute) filter cartridge.

Vane pump	
Relief pressure	22,5 MPa
Flow	202 l/min
at	10 MPa
and engine speed	35 r/s (2100 r/min)

Pilot system

Relief pressure	3,0 MPa
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Cycle times	
Raise*	5,5 s
Dump*	1,9 s
Lower, empty	2,3 s
Total cycle time	9,7 s

* with load as per ISO 5998 and SAE J818



LIFT-ARM SYSTEM

TP Linkage combines high breakout torque throughout the working range with nearly exact parallel lift-arm action. These features together with high lift height and long reach make the lift-arm system equally as good in bucket loading as in work with fork attachments and material handling arms.

Lift cylinder	2
Bore	130 mm
Piston rod diameter	70 mm
Stroke	710 mm
Tilt cylinder	1
Bore	190 mm
Piston rod diameter	90 mm
Stroke	430 mm

STANDARD EQUIPMENT

<p>Engine Air cleaner, dry type, dual element, exhaust aspirated pre-cleaner Coolant level, sight gauge Engine intake manifold preheater Muffler, spark arresting</p> <p>Electrical System 24V – prewired for optional accessories Alternator, 24V, 60 A Battery disconnect switch Fuel gauge Hourmeter Horn, electric Instrument panel with symbols Lights:</p> <ul style="list-style-type: none"> • driving (2 front), halogen with high/low beam • parking lights • stop/tail combination (2 rear) • turn signals with hazard warning switch • working lights, halogen (2 front, 2 rear) • instrument lighting <p>Contronic Monitoring System, ECU Neutral start feature Test function for warning & monitoring lights</p>	<p>Warning & monitoring lights:</p> <ul style="list-style-type: none"> • engine oil pressure • engine coolant temperature • air cleaner restriction • alternator malfunction • working lights • high beam driving lights • direction indicator, hazard <p>Warning flasher:</p> <ul style="list-style-type: none"> • transmission oil pressure • transmission oil temperature • brake system pressure • parking brake applied <p>Central warning (with buzzer):</p> <ul style="list-style-type: none"> • engine oil pressure • engine coolant temperature (buzzer) • transmission oil pressure • transmission oil temperature • brake system pressure <p>Drivetrain Transmission: modulated with single lever control, Automatic Power Shift, and operator controlled declutch Differentials:</p> <ul style="list-style-type: none"> • front 100%, hydraulic differential lock • rear, conventional <p>Tires 20.5R-25* L2 Goodyear</p>	<p>Brake System Wet, internal oil circulation cooled, disc brakes, 4-wheel, dual circuit Brake system, secondary Parking brake alarm</p> <p>Cab ROPS (SAE J10400C) (ISO 3471), FOPS (SAE J 231) (ISO 3449). Acoustical lining Ashtray Cigarette lighter Door lockable (left side access) Heater/defroster/pressurizer 11 kW, 37 500 Btu/h with four speed blower fan Filtered air Floor mat Interior light Interior rearview mirror Mirrors rearview (2), exterior Openable window, right-hand side Safety glass, tinted Seat belt (SAE J386) Seat, heated, ergonomically designed, suspension adjustable Storage compartment Sun visor Windshield wiper, front & rear Intermittent wiper, front Cab access steps and handrails Fenders, front & rear with anti-skid-tape</p>	<p>Hydraulic System Main valve, 3-Spool, pilot operated Pilot valve, 3-spool Vane pump Bucket lever detent Bucket leveler, automatic with position indicator, adjustable boom lever detents Boom kickout, automatic, adjustable Hydraulic control lever safety latch Boom lowering system Hydraulic pressure test ports, Quick connect Hydraulic fluid level, sight gauge Hydraulic oil cooler</p> <p>External Equipment Isolation mounts: cab, engine, gearbox Lifting lugs Side panels, engine hood Steering frame lock Vandalism lock, provision for: batteries, engine oil</p>
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OPTIONAL EQUIPMENT (May be standard in certain markets)

<p>Service and maintenance equipment Tool box Tool kit Air pressure equipment Anti-freeze container Wheel nut wrench kit</p> <p>Engine Coolant filter Extra fuel filter Cold starting aid, engine coolant preheater (220V/1500 W) Pre-cleaner, oil bath type Pre-cleaner, turbo type Radiator, corrosion protected</p> <p>Electrical System Reverse alarm (SAE J994) Attachment lights Working lights front, extra Working lights rear, extra Rotating beacon, amber with collapsible mount Alternator, brushless Head lights assym. left Jump-start connector (Nato) Light, registration plate Side marker lights Contronic display</p>	<p>Shut down to idle at</p> <ul style="list-style-type: none"> • high engine coolant temp • low engine oil pressure • high transm. oil temp <p><i>Parking brake applied and transmission in forward or reverse (buzzer)</i></p> <p>Drivetrain Forward and reverse switch Speed limiter, 3-speed version Limited-slip differentials, front/rear</p> <p>Cab Installation kit for radio Hand throttle Sliding ventilation window Speedometer Air suspended operator's seat Retractable seat belt Air conditioner 8 kW, 27 300 Btu/h Dual service brake pedals Armrest (left) Contronic display Cab filter for asbestos contaminated environment Instructor seat Noise reduction kit, cab Steering wheel, adjustable tilt, telescopic Windshield washer, front & rear</p>	<p>Hydraulic System Hydraulic control, 3rd function Hydraulic control, 4th function Hydraulic single acting lifting function Boom Suspension System Biodegradable hydraulic fluid Hydraulic function 3rd, hydraulic hoses Servo hoses for separate attachment locking Attachment bracket with separate locking system</p> <p>External Equipment Fenders, extended Counterweight 1 Counterweight 2 Fenders, axle mounted Drawbar with pin</p> <p>Other Equipment Comfort Drive Control (CDC) Slow moving vehicle emblem Secondary steering 50 km/h sign Fuel fill strainer Electro-hydraulic operated park brake</p>	<p>Tires 20.5-25 20.5R25*</p> <p>Protective Equipment Protective grids for front running light Protection guard radiator grille Protective grids for rear working lights Window guards for side and rear window Windshield guard Fan protection Protective grids for rear lights Bellyguard rear</p> <p>Attachments Buckets Fork equipment Material handling arm Timber grapples Diagonal snow blade Broom Cutting edge, 3 pc reversible, bolt-on Bucket teeth, bolt-on Bucket spillguard Bale clamp Drum rotator</p>
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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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