



Volvo BM L50B



- **Engine output gross:**
SAE J1349 71.5kW (96 hp)
- **Operating weight:** 7,8 – 9,3 t
- **Buckets:** 1,2 – 3,9 m³
1.6 – 5.1 yd³
- **Torque Parallel Linkage –**
The lift-arm system with:
 - unique breakout torque
 - excellent parallel lift-arm action
 - high lift height and long reach
- **Direct-injection, turbocharged diesel engine**
- **Hydrostatic transmission with kick-down function**
- **Enclosed wet circulation-cooled brakes**
- **Care Cab – the cab with high comfort and safety**
- **Stable and easy-to-operate precision steering**
- **Contronic**
monitoring system
(optional equipment)
- **Pilot-operated hydraulic system**
- **Hydraulic attachment bracket**
(optional equipment)

VOLVO BM

ENGINE



TD40GA: a 4-cylinder, in-line, direct-injection, turbocharged, 4-stroke diesel engine with dry, replaceable cylinder linings.

Air cleaning: Air cleaning in three stages.

1. Multicyclone cleaner with automatic particle ejector
2. Paper filter with indication for clogging
3. Safety filter

Model	TD 40GA			
Flywheel output at	r/s	r/min	36,6	2200
SAE J1349 Netto	kW	hp	68	91
DIN 70020 / 6271Netto	kW	hp	68	91
Max. torque at	r/s	r/min	23,3	1400
SAE J1349 Netto	Nm	lbf ft	363	268
DIN 70020 / 6271Netto	Nm	lbf ft	363	268
No. of cylinders	4			
Displacement	l	in ³	4	244
Bore	mm	in	100	3,94
Stroke	mm	in	127	5
Compression ratio	16:1			

ELECTRICAL SYSTEM



The electrical system is built up around a distribution box and includes the following functions, among others: Kick-down, down-shift protection and central warning.

Central warning: Central warning lamp for the following functions: engine oil pressure, engine temperature, hydrostatic charge pressure, hydrostatic oil temperature, gearbox oil pressure, brake pressure, parking brake, hydraulic oil level.

The Contronic monitoring system can be selected as optional equipment.

Voltage	V	24		
Batteries	V	2x12		
Battery capacity	Ah	2x105		
Alternator	W / A	1680 / 60		
Starter motor	kW	hp	6	8,0

SERVICE REFILL CAPACITIES



Crankcase	l	US gal	11	2,9
Fuel tank	l	US gal	170	44,9
Cooling system	l	US gal	22	5,8
Dropbox	l	US gal	7	1,8
Front axle, total	l	US gal	24	6,3
Rear axle, total	l	US gal	24	6,3
Hydraulic system, total	l	US gal	106	28
Hydraulic tank	l	US gal	65	17,2

DRIVETRAIN



Hydrostatic Transmission: The transmission consists of three parts: hydraulic pump, hydraulic motor (both with variable displacement) and a two-stage VME Power Shift gearbox which is actuated via a kick-down function.

Axles: VME Fully-floating half-shafts with planetary hub reductions. Cast-iron axle housing. Fixed front axle and oscillating rear axle.

Hub reduction: VME manufacture with low-friction roller bearings in each wheel.

Tyres: Alternative tyres are available for different applications.

Running speeds

forward/reverse	km/h	0 – 15,8
low range	mile/h	0 – 9,8
<i>locked max</i>	km/h	0 – 5
<i>deplacement</i>	mile/h	0 – 3,1
high range	km/h	0 – 36,4
	mile/h	0 – 22,6
<i>locked max</i>	km/h	0 – 11
<i>deplacement</i>	mile/h	0 – 6,8

Figures apply with tyres

15.5R 25

Front axle, make

VME

Model

AWB 10

Rear axle, make

VME

Model

AWB 10

Oscillation

± °

12

Ground clearance at 12°

mm

in

365 14,4

oscillation

BRAKE SYSTEM



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

Service brakes: VME with fully hydraulically operated, enclosed, wet, circulation-cooled disc brakes.

Safety system: Dual-circuit system with chargeable accumulators. One circuit, or the parking brake, meets the requirements.

Parking brake: Mechanically operated drum brake.

Number of discs/wheel			1	
Area per brake lining	cm ²	in ²	1750	271,2
Accumulators			3	
volume, total	l	US gal	1,5	0,3
Parking brake, friction area, total	cm ²	in ²	406	62,9

STEERING SYSTEM



Load-sensing hydrostatic articulated steering.

Pump: Axial-flow piston pump with variable flow.

System supply: The steering system has prioritized feed from the machine's load-sensing axial-flow piston pump.

Cylinders: Two double-acting cylinders with chromium-plated piston rods.

Steer cylinder			2	
Bore	mm	in	63	2,48
Piston rod diameter	mm	in	40	1,57
Stroke	mm	in	320	12,59
Relief pressure	MPa	psi	21	3046

CAB



Tested and approved in accordance with the following standards: ROPS ISO/CD 3471, SAE J1040, FOPS ISO 3449, SAE J231, and complies with the requirements for "overhead guards for fork lift trucks" in ISO 6055 and the requirements for operator restraint systems in SAE J386.

Safety and comfort: The *Care Cab* has a convenient boarding ladder and a wide door opening. It is lined with sound-absorbent materials and mounted on four sound- and vibration-damping rubber isolator pads.

Large glazed areas, good all-round visibility. The windscreen is curved and made of laminated green-tinted glass.

All important information is readily visible in front of the operator. Cab display for *Contronic* monitoring system available as optional equipment.

Heater and defroster: 4-speed cab-pressurizing fan, plus defroster for all windows. Heating element with filtered fresh air intake as optional equipment.

Operator's seat: Spring-suspended, adjustable operator's seat with lap belt. The seat is hung on a bracket on the rear wall. The lap belt's force adsorption takes place via the seat tracks.

Emergency exits			3	
Sound level in cab ISO 6396				
max.	dB A		75	
Ventilation	m ³ /min		10	
Heating capacity	kW		11	
Operator's seat		ISRI	6000/575	

HYDRAULIC SYSTEM



Load-sensing pressure-compensated hydraulic system with a single axial-flow piston pump for the working hydraulics, pilot hydraulics,

steering system, brake system and other hydraulic functions.

Pump: The load-sensing axial-flow piston pump adjusts itself to the oil need in the relevant function via indication through a load-sensing line. The flow is routed to the system via a pilot-controlled selector valve. The steering function always has priority.

Valve: Double-acting 2-spool valve. The actuator valve is controlled by a 2-spool pilot valve.

Lift circuit: The valve has four positions: raise, neutral, lower and float. Inductive/magnetic automatic boom kickout can be switched on and off. Adjustable to every position between maximum reach and full lift height.

Tilt circuit: The valve has three positions: rollback, neutral and dump. Inductive/magnetic automatic bucket positioner, which can be switched on and off, sets the desired bucket angle.

Cylinders: Double-acting.

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

Loader unit: *Torque Parallel Linkage* – with high breakout torque throughout the working range. Good parallel lift-arm action throughout the lifting range, both with level and max. angled-up bucket. The lift cylinders are installed in line with the lift arms. The tilt cylinder is installed between the lift arms.

Axial-flow piston pump

Relief pressure	MPa	psi	26,0	3771
Flow	l/min	USgal/min	120	31,7
at	MPa	psi	10	1450
and engine speed	r/s	r/min	36,7	2200

Pilot system

Relief pressure	MPa	psi	3,5	508
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Lift cylinder

Bore	mm	in	90	3,5
Piston rod diameter	mm	in	60	2,3
Stroke	mm	in	669	26,3

Tilt cylinder

Bore	mm	in	125	4,9
Piston rod diameter	mm	in	70	2,8
Stroke	mm	in	434	17,1

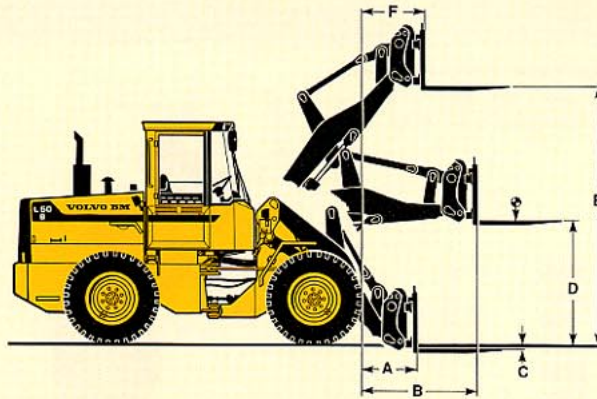
Raise*	s	4,4
Lower*	s	1,1
Lower, empty	s	3,3
Total cycle time	s	8,8

* with load as per ISO 5998 and SAE J818

PALLET FORK, Hook-on

Fork tine order no	97789		
Length	mm	in	1225 48"
Fork tine order no	91177		
Width	mm	in	1500 59"
Max permissible load at load centre distance	kg	lb	3000 6600
	mm	in	600 24"
Operating weight	kg	lb	8500 18700

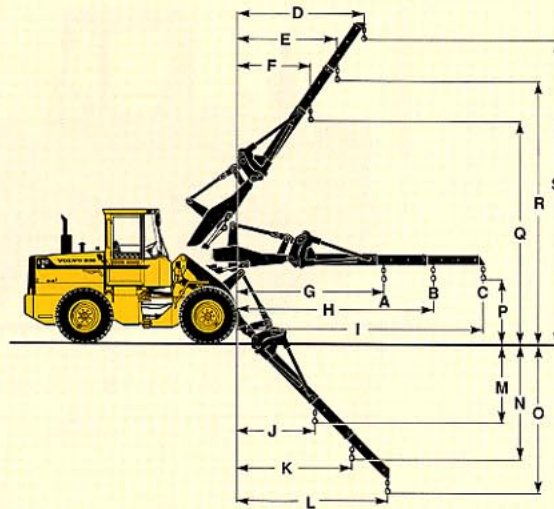
A	mm	ft in	810	2' 8"
B	mm	ft in	1570	5' 2"
C	mm	ft in	0	
D	mm	ft in	1740	5' 8"
E	mm	ft in	3550	11' 8"
F	mm	ft in	740	2' 5"



MATERIAL HANDLING ARM

Operating weight **kg** **lb** **7900** **17420**

A	kg	lb	1120	2470
B	kg	lb	890	1960
C	kg	lb	720	1590
D	mm	ft in	2900	9'6"
E	mm	ft in	2250	7'5"
F	mm	ft in	1660	5'5"
G	mm	ft in	3310	10'10"
H	mm	ft in	4340	14'3"
I	mm	ft in	5470	17'11"
J	mm	ft in	1840	6'
K	mm	ft in	2570	8'5"
L	mm	ft in	3370	11'1"
M	mm	ft in	1770	5'10"
N	mm	ft in	2500	8'2"
O	mm	ft in	3300	10'10"
P	mm	ft in	1440	4'9"
Q	mm	ft in	5030	16'6"
R	mm	ft in	5880	19'3"
S	mm	ft in	6810	12'4"



BUCKET SELECTION CHART

Bucket type ^{m³} (yd ³)	Material density t/m ³ (lb/yd ³)								
	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2
1.2 D (1.6)	1.1 (1.5)		1.4 (1.8)						
1.4 D (1.8)			1.3 (1.7)		1.6 (2.1)				
1.4 R (1.8)			1.3 (1.7)		1.6 (2.1)				
1.5* ^R (2.0)					1.4 (1.9)		1.7 (2.3)		

*) Including edge savers
R = Bracket-mounted (hook-on)
D = Direct-mounted (pin-on)

Bucket fill

95 100 115 %

ISO / SAE

L50B

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

Material densities and bucket fill factors

Material	Soil	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	1,4 - 1,6	1,4 - 1,6	1,4 - 1,6
Density lb/yd ³	2400-2700	2400-2700	2700-3200	2900-3200	2500-3200

CHANGE IN DIMENSIONAL DATA

		15.5-25	17.5 R 25*	17.5-25	Counterweight 1	Counterweight 2
Tyres					-	-
Width over wheels	mm in	+10 +0,4	+90 +3,5	+70 +2,6	-	-
Ground clearance	mm in	-30 -1,2	+20 +0,8	+10 +0,4		
Tipping load at full turn	kg lb	-100 -220	+200 +440	0	+400 +880	+500 +1100
Operating weight	kg lb	-130 -290	+190 +420	0	+170 +370	+235 +520

DIMENSIONAL DATA VOLVO BM L50B

Tyres: 15.5R25*GP2B Good Year

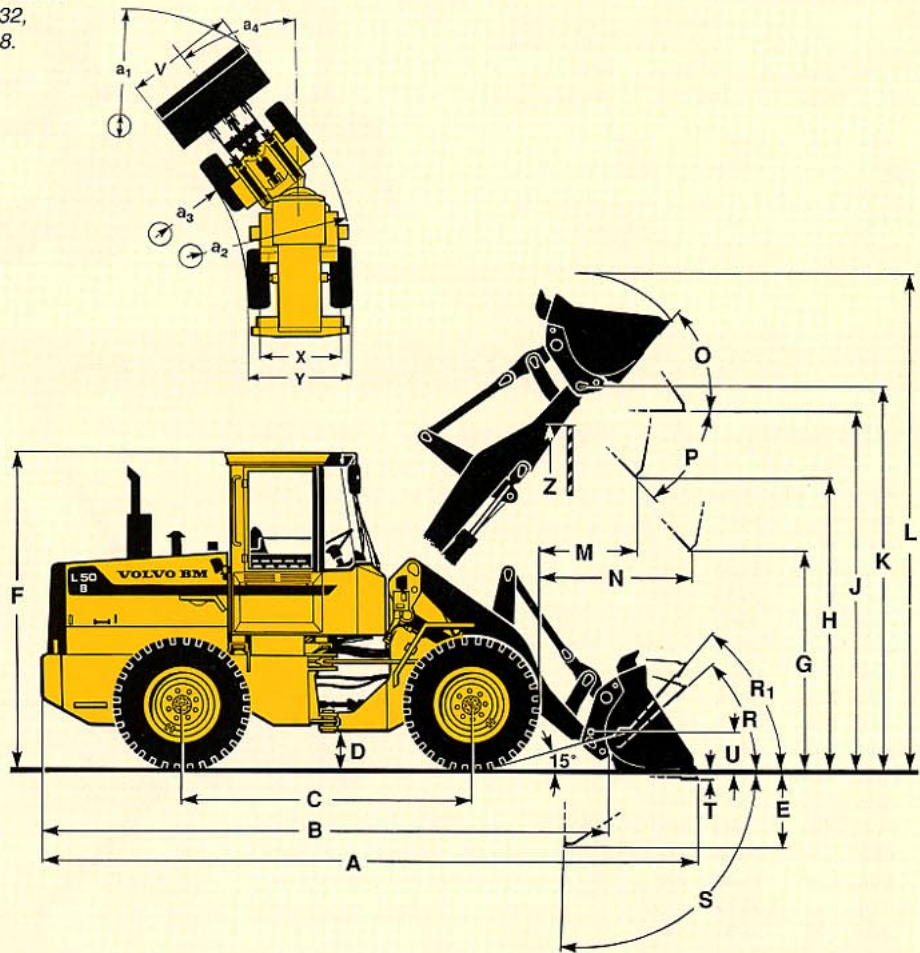
Where applicable, specifications and dimensions are in accordance with ISO 7131, SAE J732, ISO 7546, SAE J742, ISO 5998, SAE J818.

B	mm	ft in	5220	17' 2"
C	mm	ft in	2750	9'
D	mm	ft in	380	1' 3"
F	mm	ft in	3010	9'11"
G	mm	ft in	2135	7'
J	mm	ft in	3460	11' 4"
K	mm	ft in	3710	12' 2"
O	°		52	
P	°		45	
R	°		44	
R ₁ *	°		49	
S	°		90	
T	mm	ft in	80	3"
U	mm	ft in	390	1' 3"
X	mm	ft in	1750	5' 9"
Y	mm	ft in	2140	7' 0"
Z	mm	ft in	3460	11' 4"
a ₂	mm	ft in	4850	15'
a ₃	mm	ft in	2710	8'11"
a ₄	± °		40	

* Carry position SAE

Bucket type

- 1 = Straight bucket without teeth
- 2 = Edge savers
- R = Hook-on
- D = Pin-on



		Standard buckets								Coal Snow	Wood-chips
Best. nr		92170		92190		92168		92188		92315	92316
Mounting / Bucket type		R / 1	R / 1	D / 1	D / 1	R / 1	R / 1	D / 1	D / 1	R / 1	R / 1
Volume, heaped	m ³	1,5	1,4	1,5	1,4	1,3	1,2	1,3	1,2	2,1	3,9
	yd ³	1,9	1,8	1,9	1,8	1,7	1,6	1,7	1,6	2,7	5,1
Static tipping load, straight	kg	4900	5000	5200	5400	5000	5100	5200	5400	4800	4300
	lb	10800	11000	11500	11900	11000	11200	11500	11900	10600	9500
at 35° turn	kg	4400	4600	4600	4800	4500	4600	4700	4800	4200	3800
	lb	9700	10100	10100	10600	9900	10100	10400	10600	9300	8400
at full turn	kg	4200	4400	4500	4700	4300	4400	4500	4700	4100	3700
	lb	9300	9700	9900	10400	9500	9700	9900	10400	9000	8200
Breakout force	kN	60,6	63,8	64,4	68,1	64,2	67,9	68,5	72,7	49,7	37,1
	lbf	13620	14340	14480	15310	14430	15260	15400	16340	11170	8340
A	mm	6380	6300	6320	6250	6320	6250	6260	6190	6560	7030
	ft in	20'11"	20'8"	20'9"	20'6"	20'9"	20'6"	20'6"	20'4"	21'6"	23'8"
L	mm	4730	4730	4700	4700	4700	4700	4680	4680	4900	5360
	ft in	15'10"	15'10"	15'5"	15'5"	15'5"	15'5"	15'4"	15'4"	16'0"	17'7"
V	mm	2300	2300	2300	2300	2300	2300	2300	2300	2380	2500
	ft in	7'7"	7'7"	7'7"	7'7"	7'7"	7'7"	7'7"	7'7"	7'10"	8'2"
a ₁ clearance circle	mm	10800	10760	10780	10730	10770	10730	10740	10700	10990	11390
	ft in	35'5"	35'4"	35'4"	35'2"	35'4"	35'2"	35'3"	35'1"	36'1"	37'4"
E	mm	990	930	930	870	930	870	950	810	1190	1620
	ft in	3'3"	3'1"	3'1"	2'10"	3'1"	2'10"	3'1"	2'8"	3'11"	5'4"
H	mm	2770	2820	2810	2860	2810	2860	2850	2900	2640	2320
	ft in	9'1"	9'3"	9'3"	9'5"	9'3"	9'5"	9'4"	9'6"	8'8"	7'7"
M	mm	1040	1000	990	960	990	960	950	920	1190	1490
	ft in	3'5"	3'3"	3'3"	3'2"	3'3"	3'2"	3'1"	3'0"	3'11"	4'11"
N	mm	1560	1560	1540	1540	1540	1540	1520	1510	1600	1640
	ft in	5'1"	5'1"	5'1"	5'1"	5'1"	5'1"	5'0"	4'11"	5'3"	5'5"
Operating weight	kg	8100	8000	8000	7800	8100	8000	7900	7800	8100	8400
	lb	17900	17600	17600	17200	17900	17600	17400	17200	17900	18500

STANDARD EQUIPMENT

Safety & comfort

ROPS and FOPS cab
Tinted glass
Ergonomically designed and adjustable operator's seat with lab belt
Rear-view mirror, internal, 1
Lighting:
headlamps, full/dipped/asym.(halogen)
parking lights
working lights, rear (2 halogen)
brake lights
rear lights
cab lighting
instrument lighting
direction indicators
Utility box in cab
Ring-binder holder
Instrument panel with symbols

Sun visor
Safety start
Lever lock for hydraulic levers
Hazard warning flashers
Windscreen wipers, front
Horn
Ashtray
Cigarette lighter
Lifting lugs
Openable window, right-hand
Anti-skid-tape

Engine & electrical system

Battery disconnect switch
Alternator
Air cleaner with ejector discharge
Hour counter
Fuel gauge

Control and warning lamps for:
engine oil pressure
engine temperature
air cleaner
charging
working lights, rear
full beam
direction indicators
hazard warning flashers
hydrostatic charge oil pressure
hydrostatic oil temperature
gearbox oil pressure
brake pressure
parking brake
hydraulic oil level

Central warning (with buzzer):

engine oil pressure
engine temperature
hydrostatic charge pressure

hydrostatic oil temperature
hydrostatic oil filter
gearbox oil pressure
brake pressure
parking brake (buzzer)
hydraulic oil level

Drivetrain

Hydrostatic transmission
Hydraulic oil cooler
Single-lever shift control
Circulation cooling brakes, front and rear axle
Tyres 15.5R 25*

Hydraulic system

Main valve (2-spool)
Pilot valve (2-spool)
Axial-flow piston pump

OPTIONAL EQUIPMENT *(Standard on certain markets)*

Service and maintenance equipment

Tool kit
Wheel nut wrench set
Lockable tool box

Engine equipment

Low-emission version
Coolant filter
Engine block heater
Preheating coil

Electrical equipment

Contronic monitoring system
Working lights front, cab
Extra working lights front
Extra working lights rear
Rotating beacon with collapsible mount
Acoustic back-up alarm

Side marker lights
Left-hand asymmetrical running lights
Registration plate lighting

Transmission equipment

Speed control

Cab equipment

Radio
Instructor's seat
Hand throttle
Sliding vent window
Installation kit for radio
Extra speedometer
Heated operator's seat
Heating system for cab
Heater/defroster controls
Air conditioning
Cab ventilation filter
Rear-view mirror, external, 2

Windscreen wiper, rear
Windscreen washers, front/rear
Tiltable steering column
Dual brake pedals
Parking brake alarm
Cab display
Retractable belt

Hydraulic equipment

3rd hydraulic control
4th hydraulic control
Hydraulic attachment bracket including separate attachment locking
Boom Suspension System
Automatic bucket positioner
Automatic boom kickout
Single-acting lift circuit

External equipment

Mudguards
Full-coverage mudguards
Counterweight I
Counterweight II
Towing hitch

Protective equipment

Protective grids for rear working lights

Other equipment

Secondary steering
German version
Comfort Drive Control (CDC)
SMV (Slow Moving Vehicle) sign

Tyres

15.5-25
17.5-25
17.5R 25**

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

S-631 85 ESKILSTUNA SWEDEN