

**VOLVO BM**

# L 90

**Compactor**



- **Engine output:**  
SAE J1349 Net                      107 kW (145 hp)
- **Operating weight:**              15,9 t (35 000 lb)
- **Buckets:**                      1,9-2,5 m<sup>3</sup> (2,5-3,25 yd<sup>3</sup>)

- Direct-injected, turbocharged Volvo diesel
- Servo-assisted hydraulic system

**For levelling and compacting of waste - built for tough duty**

- Breaks up, moves and compacts the waste
- Digs, carries and spreads the cover material
- Trapezoidal or knife-shaped pads
- Large compactor wheels

## ENGINE



The Volvo TD 61 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. Replaceable paper filter with indicator in cab.
3. Replaceable safety filter

Make		Volvo	
Model		TD 61 G	
Output, gross, at	r/s (r/min)	36,7	(2200)
SAE J1349	kW (hp)	115	(156)
Flywheel output at	r/s (r/min)	36,7	(2200)
SAE J1349	kW (hp)	107	(145)
DIN 70020/6271	kW (hp)	107	(145)
Max. torque at	r/s (r/min)	23,3	(1400)
SAE J1349 Gross	Nm (lbf ft)	570	(420)
SAE J1349 Net	Nm (lbf ft)	550	(405)
DIN 70020/6271	Nm (lbf ft)	550	(405)
No. of cylinders		6	
Displacement, total	l (in <sup>3</sup> )	5,48	(334)
Bore	mm (in)	98,43	(3,875)
Stroke	mm (in)	120	(4,724)
Compression ratio		16:1	

## ELECTRICAL SYSTEM



The electrical system is well protected with fuses. Prewired 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	V	2x12	
Battery capacity ea.	Ah	105	
Cranking capacity ea.	A	575	
Reserve capacity ea.	min	170	
Alternator rating	W/A	1540 / 55	
Starter motor output	kW (hp)	5,4	(7,3)

## 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		2	
Bore	mm (in)	80	(3,15)
Piston rod diameter	mm (in)	50	(1,96)
Stroke	mm (in)	410	(16,1)
Working pressure	MPa (psi)	16,5	(2393)
Flow volume	l/min	97	
	(US gal/min)		(25,6)
at	MPa (psi)	10	(1450)
and engine speed	r/s (r/min)	36,7	(2200)

## DRIVE TRAIN



**Torque converter:** single-stage, single-phase.

**Transmission:** Volvo BM power shift transmission of countershaft type with directional clutch modulation. Single lever control.

\* Compaction will normally be done operating in 1:st or 2:nd gear at average speeds 7-8 km/h (4 to 5 mile/h). Machine travel speeds are theoretical and based on a rolling resistance of 4%. Travel speeds will vary depending on ground conditions and type of compactor wheels.

**Axes:** 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 planetary gear. The hub reduction gears can be removed without having to remove wheels and brakes.

Torque multiplication		2,7 : 1	
Transmission, make		Volvo BM	
Model		HT 131	
Running speeds*			
forward/reverse			
1	km/h(mile/h)	5,5	(3,4)
2	km/h(mile/h)	10,5	(6,5)
3	km/h(mile/h)	22,0	(13,7)
With tires		20,5 R 25*	
Front axle, make		Volvo BM	
Model		AH 55 D	
Rear axle, make		Volvo BM	
Model		AH 53 E	
Oscillating movement			
total	± °	15	
Vertical wheel travel	mm (in)	525	(20,70)

## WHEELS

Chopper wheels, Order No		90937	
Drum width	mm (ft in)	640	(2'1")
Drum diameter	mm (ft in)	1200	(3'1")
Pad height	mm (ft in)	140	(5,5")
Number of pads		20	
Trapezoidal pads, Order No		90938	
Drum width	mm (ft in)	640	(2'1")
Drum diameter	mm (ft in)	1200	(3'1")
Pad height	mm (ft in)	140	(5,5")
Number of pads		45	

## BRAKE SYSTEM



The brake system meets requirements according to SAE J1152.

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

**Secondary system:** Parking brake.

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

Brake friction area front/wheel ea.	cm <sup>2</sup>	(in <sup>2</sup> )	405	(62,8)
Accumulators volume, total	l	(in <sup>3</sup> )	1,0	(61)
Parking brake area, total	cm <sup>2</sup>	(in <sup>2</sup> )	100	(15,5)

## CAB



Tested and approved as safety cab according to the Swedish Working Environment Act section 3, subsection 8, and meets standards according to ISO 3471-1980, ROPS (SAE J1040C), ISO

3449-1980 FOPS (SAE J231), SS/ISO 6055 "Overhead guards for fork lift trucks" and SAE J386 Operator Restraint System.

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. Sideways planedamper mounted under operator's seat.

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

## SERVICE REFILL CAPACITIES



Crankcase	l (US gal)	17	(4,5)
Fuel tank	l (US gal)	185	(49)
Cooling system	l (US gal)	53	(14)
Transmission, total	l (US gal)	33	(8,7)
Drop-box	l (US gal)	4,7	(1,2)
Front axle, total	l (US gal)	32,5	(8,6)
Rear axle, total	l (US gal)	38	(10,0)
Brake oil tank	l (US gal)	10	(2,6)
Hydraulic system	l (US gal)	140	(37,0)
Hydraulic tank	l (US gal)	105	(27,7)

## HYDRAULIC SYSTEM



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

**Pump:** two vane pumps fitted to a power take-off on transmission.

**System supply:** working system and pilot system supplied from separate pumps.

**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. Adjustable for all positions between maximum reach and full lifting height.

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

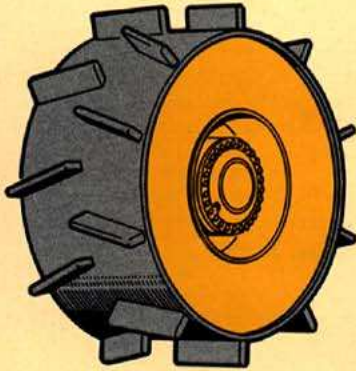
**Cylinders:** double-acting. Boom-tilt cylinders are slightly shorter than the standard L90 loader cylinders for improved protection. Dump height is also reduced from the standard L90 loader.

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

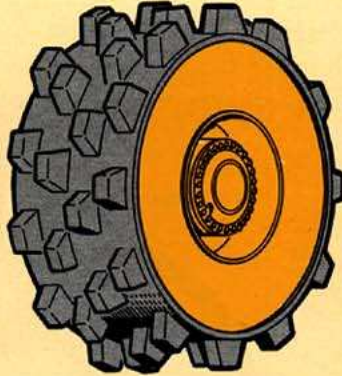
**Load unit:** lift and tilt cylinders fitted in line with lifting arms.

<b>Main pump</b>				
Working pressure	MPa (psi)	19,0	(2755)	
Flow volume	l/min (US gal/min)	168	(44,4)	
at and engine speed	MPa (psi) r/s (r/min)	10	(1450)	
		36,7	(2200)	
<b>Servo pump</b>				
Working pressure	MPa (psi)	3,5	(510)	
Flow volume	l/min (US gal/min)	20	(5,3)	
at and engine speed	MPa (psi) r/s (r/min)	3,5	(510)	
		36,7	(2200)	
<b>Lifting cylinder</b>				
Bore	mm (in)	120	(4,72)	
Piston rod diameter	mm (in)	60	(2,36)	
Stroke	mm (in)	830	(32,68)	
<b>Tilting cylinder</b>				
Bore	mm (in)	110	(4,33)	
Piston rod diameter	mm (in)	60	(2,36)	
Stroke	mm (in)	830	(32,68)	
Lifting time (with load, SAE)	s	5,6		
Tipping time (with load, SAE)	s	1,5		
Lowering time (empty)	s	2,4		
Total cycle time	s	9		

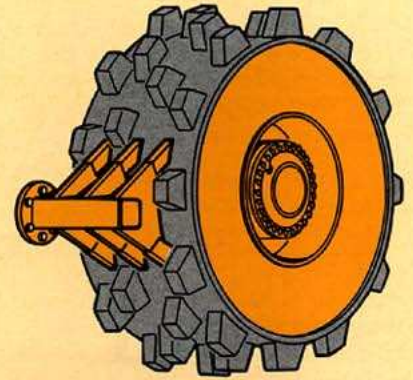
## GROUND PRESSURE



**Chopper wheel**



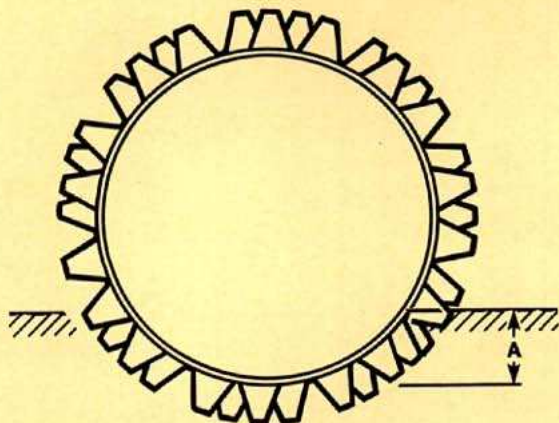
**Trapezoidal pads**



**Cleaners for trapezoidal pads**

		Chopper wheels	
		General purpose bucket	Multi-purpose bucket
Contact area	cm <sup>2</sup> (in <sup>2</sup> )	4240 (657)	4240 (657)
Ground pressure			
Front *	kp/cm <sup>2</sup> (psi)	0,83 (12,0)	0,86 (12,3)
Rear *	kp/cm <sup>2</sup> (psi)	1,05 (15,2)	1,03 (14,6)
Pounds per linear inch	PLI	347	350

\* Wheels sinking into surface. A = 100 mm (4")



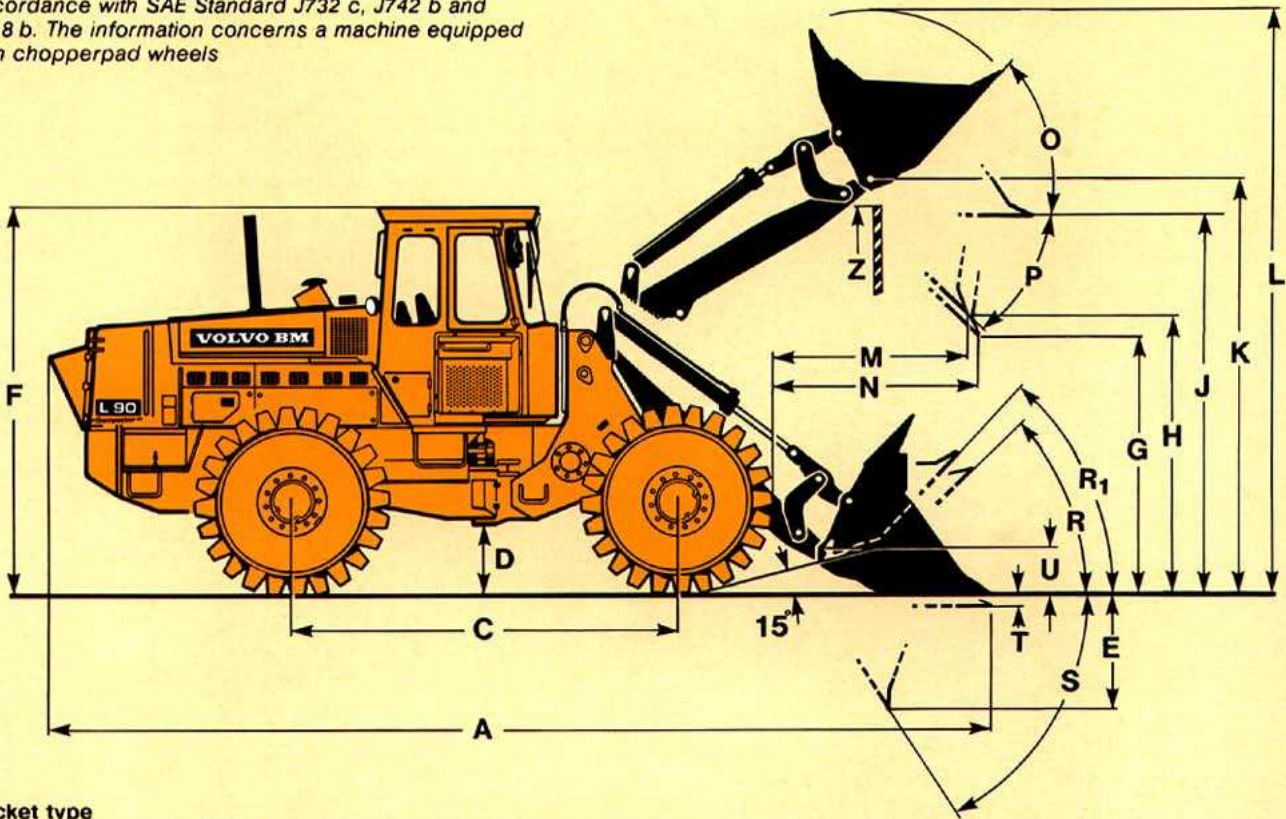
The Volvo BM method of calculating the ground pressure of a compactor in this case involves deducing the projected wheel drum area against the ground at various depths of penetration into the surface, and relating the result to the axle loading of that wheel.

## ALTERATION OF DIMENSIONAL DATA

		Trapezoidal wheels and cleaners	
		90938	
Width over wheels	mm (in)	-	
Ground clearance	mm (in)	-	
Operating weight	kg (lb)	- 80	(-176)

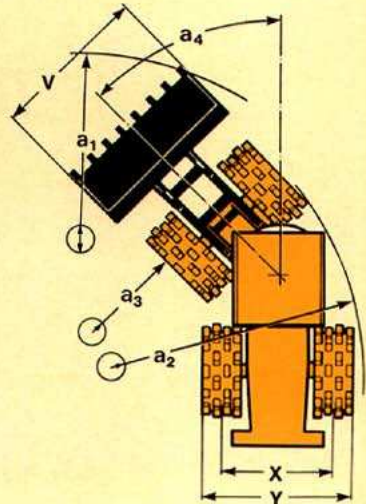
# DIMENSIONAL DATA VOLVO BM L90 Compactor

Where applicable specifications and dimensions are in accordance with SAE Standard J732 c, J742 b and J818 b. The information concerns a machine equipped with chopperpad wheels



### Bucket type

Both buckets are fitted with a high mesh refuse spillguard.  
 1 = General purpose bucket with teeth  
 2 = Multi-purpose bucket with teeth  
 D = Pin-On



Order No.		91031		SP2-35MK5*	
Mounting / Bucket type		D / 1		D / 2	
Volume, heaped	m <sup>3</sup> (yd <sup>3</sup> )	2,5	(3,25)	1,9	(2,5)
Breakout force	kN (lbf)	101,0	(22710)	125,6	(28230)
A	mm (ft in)	7540	(24'9")	7320	(24')
C	mm (ft in)	3000	(9'10")	3000	(9'10")
D	mm (ft in)	440	(1'5")	440	(1'5")
E	mm (ft in)	940	(3'1")	770	(2'6")
F	mm (ft in)	3070	(10'1")	3070	(10'1")
F <sup>-</sup>	mm (ft in)	3250	(10'8")	3250	(10'8")
G	mm (ft in)	2000	(6'7")	2000	(6'7")
H	mm (ft in)	2050	(6'9")	2200	(7'3")
J	mm (ft in)	3060	(10'1")	3020	(9'11")
K	mm (ft in)	3280	(10'9")	3280	(10'9")
L	mm (ft in)	4750	(15'7")	4300	(14'1")
M	mm (ft in)	1540	(5'1")	1340	(4'5")
N	mm (ft in)	1660	(5'5")	1520	(5'0")
O	°	50		42	
P	°	45		45	
R	°	43		35	
R <sub>1</sub> <sup>-</sup>	°	49		40	
S	°	58		62	
T	mm (ft in)	16	(0,6")	19	(0,7")
U	mm (ft in)	450	(1'6")	450	(1'6")
V	mm (ft in)	2850	(9'4")	2850	(9'4")
X	mm (ft in)	2090	(6'10")	2090	(6'10")
Y	mm (ft in)	2730	(9')	2730	(9')
Z	mm (ft in)	3040	(10')	3040	(10')
a <sub>1</sub> clearance circle over bucket	mm (ft in)	12200	(40')	12000	(39'4")
a <sub>2</sub>	mm (ft in)	5490	(18')	5490	(18')
a <sub>3</sub>	mm (ft in)	2760	(9'1")	2760	(9'1")
a <sub>4</sub>	± °	40		40	
<b>Weight distribution</b>					
front	kg (lb)	7000	(15400)	7300	(16100)
rear	kg (lb)	8900	(19600)	8700	(19200)
Operating weight	kg (lb)	15900	(35000)	16000	(35300)

\* Also available as hook on bucket  
<sup>-</sup> Equipped with aircondition  
<sup>-</sup> Carrying position SAE

## STANDARD EQUIPMENT

<p><b>Safety &amp; comfort</b>          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          Sideways planedamper          Rear-view mirrors, external, two          Rear-view mirror, internal, one          Lighting:          main headlamps, full-dipped beam/asym. (halogen)          working lights, front (two, halogen)          working lights, rear (two, halogen)          brake lights          tail lights          cab lighting          instrument lighting          direction indicators (rear)          Attachment light</p>	<p>Instrument panel with symbols          Sun visor          Safety start          Windscreen wipers, front and rear          Horn          Ashtray          Cigarette lighter          Lifting lugs          Pressure gauge, brake system          Opening window          Underbody protection plates          Protection guards for tail lights          Fuel fill protection</p>	<p><b>Engine &amp; electrical system</b>          Fuel gauge          Electric socket 24 V          Battery disconnection switch          Hour recorder          Alternator          Suction fan          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</p>	<p><i>For certain markets only</i>          Central warning lamp for following functions: engine oil pressure, brake pressure, parking brake, engine temperature, transmission temperature.</p> <p><b>Drivetrain</b>          Power Shift transmission (3F/3R)          Differential lock (front axle)          Single-lever gear control          Interlock for 4th speed</p> <p><b>Hydraulic system</b>          Control valve (3 sections)          Pilot valve (3 sections)          Automatic bucket positioner and boom kick-out          Bucket position indicator          Vane pump</p>
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## OPTIONAL EQUIPMENT

*(Standard equipment on certain markets)*

<p><b>Service and maintenance equipment</b>          Tool kit          Wheel nut wrench kit</p> <p><b>Engine equipment</b>          Cyclone pre-cleaner          Extra fuel filter          Preheating coil          Engine block heater          Rain cap          Coolant filter</p> <p><b>Electrical equipment</b>          Rotating beacon          Extra working lights, rear, (two, halogen)          Back-up alarm</p>	<p><b>Cab equipment</b>          File pocket          Heated seat          Air conditioner          Tilttable steering column          Dual brake pedals          Windscreen washer, front/rear          Intermittent wiper, front          Radio panel without radio          Speedometer and tachometer          Lever lock for hydraulic levers          Sliding window          Instructor's seat          Parking-brake alarm, acoustic (ASS 94)          Pressure gauge, engine oil          Voltmeter</p>	<p><b>Hydraulic equipment</b>          3rd hydraulic control          3rd and 4th hydraulic control          Single-acting lifting function          Boom lowering system          Hydraulic attachment bracket</p>	<p><b>Protective equipment</b>          Protection guard for suction fan          Guard for silencer</p> <p><b>Other equipment</b>          High tone horn</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.

# Volvo BM Company

S-63185 ESKILSTUNA SWEDEN

