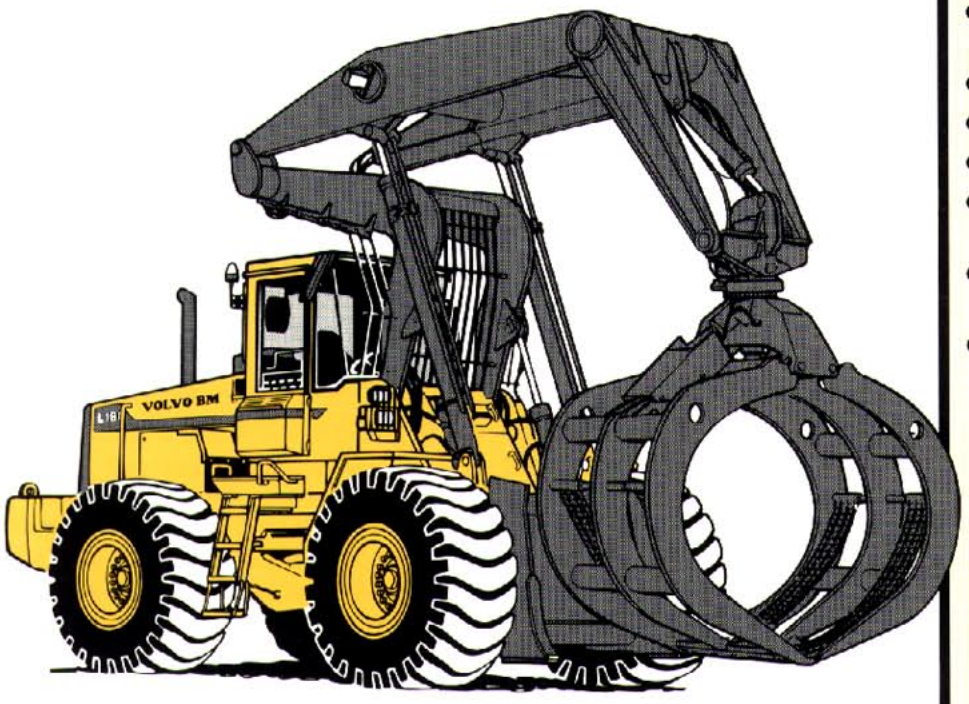
Volvo BM L180
High-lift



- ***Engine: Volvo TD 122***
- ***Operating weight: 30,5 t***
- ***Grapples: 3,2-3,8 m²***

The capacity loader for timber handling

- *Powerful lift-arm system with high lift and long reach gives:*
  - *fast and effective loading and unloading*
  - *higher stacks*
  - *more efficient turnover of stored timber*
- *Rotating grapple, 360°*
- *Grapples suited to various types of work*
- ***Care Cab** – the cab with outstanding comfort and safety*
- ***Contronic** monitoring system*
- *Enclosed wet oil-cooled brakes*
- *Automatic Power Shift*
- *Sturdy and easily operated precision steering*
- *Pilot-operated hydraulic system*
- *Direct-injection turbocharged Volvo diesel – available in a low-emission high-performance version as an alternative*

VOLVO BM

SERVICE

Contronic *monitoring system gives: Information on regular service. Minimized time for fault tracing. Information on the condition of the machine.*

Service accessibility: Large, easy-opening, gas-sprung hatches. Top-hung lift-up radiator grille and tilt-out radiator.
Central lubrication: Long lubrication and oil-change intervals.

Fuel tank	339	l
Hydraulic tank	165	l

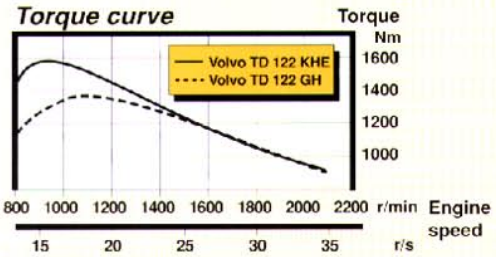
ENGINE

Engine delivering high and uniform torque even at low speeds. Lively acceleration even from low engine speeds and under full load. Low max. speed contributes to better fuel economy, less noise, less wear and longer life.

Engine: Volvo TD 122, a straight, 6-cylinder, direct-injection, turbocharged 4-stroke diesel engine with wet, replaceable cylinder liners.
Air cleaning: three-stage.

Engine	TD 122GH	TD 122KHE*)	
Gross output at	33,3 (2000)	35,0 (2100)	r/s (r/min)
SAE J1349	211 (289)	209 (284)	kW (hp)
Flywheel output at	33,3 (2000)	35,0 (2100)	r/s (r/min)
SAE J1349 and DIN 70020 / 6271	202 (275)	198 (269)	kW (hp)
Max. torque at	18,3 (1100)	15 (900)	r/s (r/min)
SAE J1349 Gross	1390	1580	Nm
Displacement, total	12,0	12,0	l

**) Low-emission high-performance engine*



ELECTRICAL SYSTEM

Reliable and service-friendly. Well protected with fuses. Prepared for subsequent mounting of extra equipment.

Monitoring system: ***Contronic***, giving enhanced function checking.

Central warning: Central warning lamp for the most important functions.

Voltage	24	V	
Batteries	2x12	V	
Battery capacity	2x140	Ah	
Alternator rating	1680 / 60	W/A	
Starter-motor output	6,6	kW	(9,0 hp)

DRIVE TRAIN

Well-matched drive train and working hydraulics. Dependable design. Fast acceleration boosts productivity. System-compatible construction facilitates service.

Torque converter: Single-stage

Transmission: VME power shift transmission of countershaft type with single-lever control. Fast and smooth forward/reverse shift.

Shifting system: Volvo BM Automatic Power Shift (APS).

Axles: VME, fully floating half-shafts with planetary-type hub reduction gears. One-piece cast-steel axle housing. Fixed front axle and oscillating rear axle.

Differential: 100% differential lock on front axle.

Transmission	VME / HT 220	
Torque converter	2,27 : 1	
Speeds forward/reverse		
1	6,5	km/h
2	12	km/h
3	24	km/h
4 (forward only)	35	km/h
Measurement with tires	30/65-29	
Front and rear axles	VME / AWB 40	
Oscillation	±15 °	
Ground clearance at 15° oscillation	610	mm

BRAKE SYSTEM

Simple, reliable system with few parts gives high availability and safety. Self-adjusting wet disc brakes give long service intervals. The brake system is coupled to Contronic for positive monitoring of the brake functions.

Service brakes: VME, dual-circuit system with accumulators. Enclosed wet circulation-cooled disc brakes with all-hydraulic operation. External oil cooling. Transmission disengagement upon braking can be pre-selected.

Parking brake: Enclosed wet disc brake built into transmission. Spring-loaded application. Hydraulic release.

Reserve brake: One of the two circuits or the parking brake will satisfy the safety requirements.

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

GRAPPLES

See ALTERNATIVE EQUIPMENT when choosing grapples

Grapples						
Grip area	m^2	3,2	3,2	3,2	3,5	3,8
Performance						
Working load	kg	8500	8500	8500	8500	8500
Dimensions						
A	mm	5670	5540	5670	5570	5540
B	mm	6560	6490	6560	6490	6490
C	mm	3630	3930	3630	3750	3930
D	mm	2900	3040	2900	3000	3040
E	mm	1220	1460	1220	1320	1460
F	mm	2270	2140	2270	2170	2140
G	mm	1100	1100	1100	1100	1100
BA	mm	5590	5460	5590	5460	5460
BB	mm	6480	6410	6480	6410	6410
BE	mm	550	680	550	650	680
BF	mm	1270	1140	1270	1170	1140
Weight						
Machine weight*)	kg	30400	30450	30600	30500	30600
Item No.		91852	91853	91854	92340	91855

**) Including liquid in rear tires. The pusher increases the machine weight by 800 kg.*

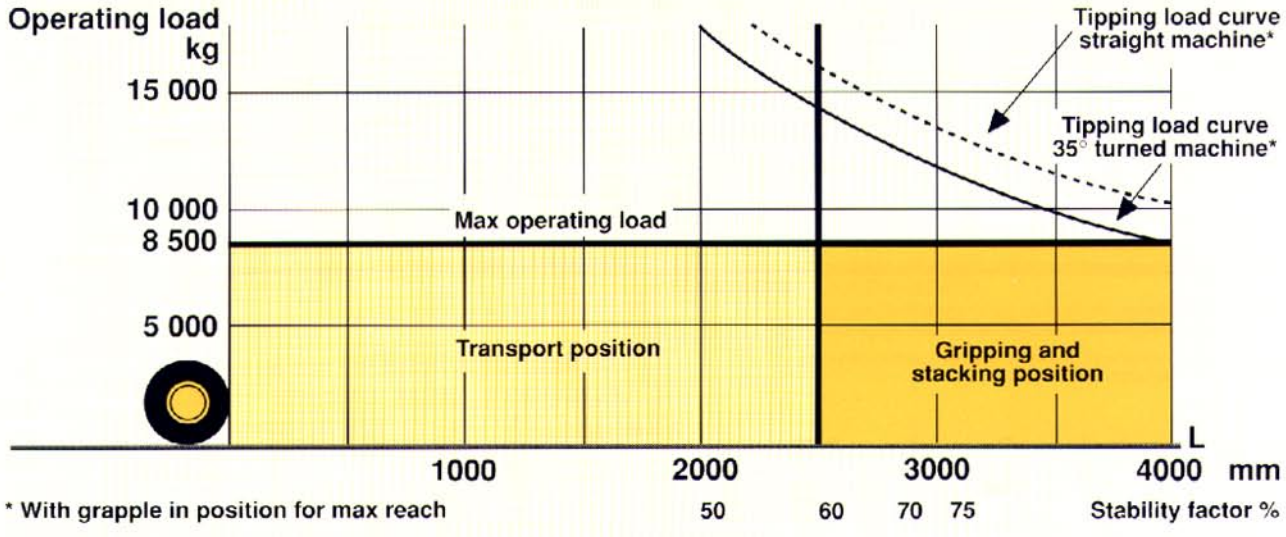
ALTERNATIVE EQUIPMENT*)

92309	Pusher		
92366	Cylinder guard		
91851	Rotator		
91850	Cross-beam		
-	Cross-beam with grapple mounting lowered 350 mm in order to increase dimension E		
91852	Grapple with clinch chain**, std grapple	3,2	m^2
91853	Grapple with clinch chain** suitable for loading/unloading trucks	3,2	m^2
91854	Grapple with hydraulic holding arms suitable for long logs	3,2	m^2
92340	Grapple with clinch chain** suitable for low density or short logs	3,5	m^2
91855	Grapple with clinch chain** suitable for loading/unloading rail freight cars	3,8	m^2

**) A standard-equipped machine does not include grapple, cross-beam or rotator.*

***) The clinch chain consists of double triplex chains.*

OPERATING LOAD DIAGRAM

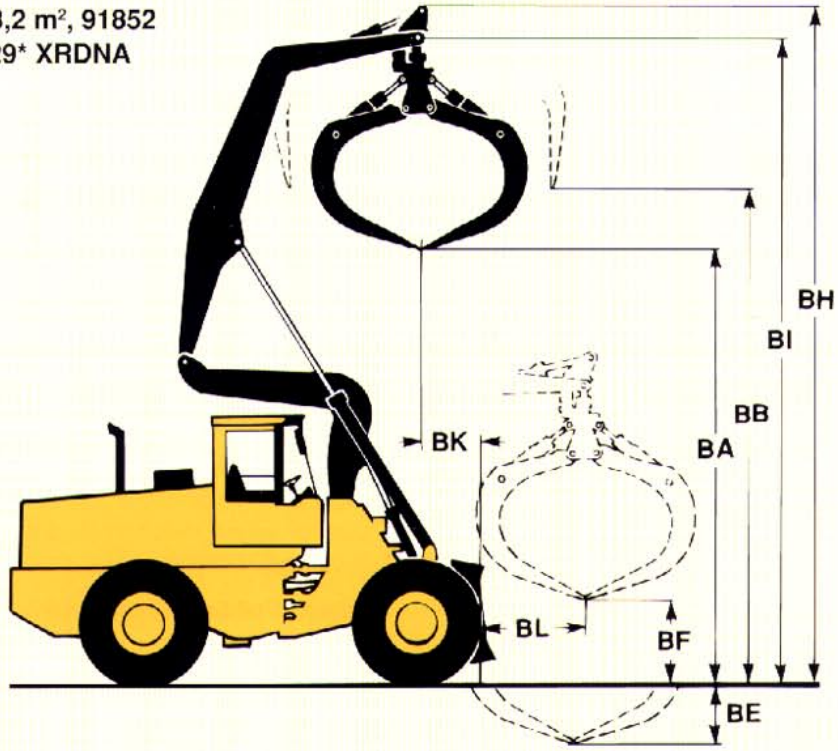


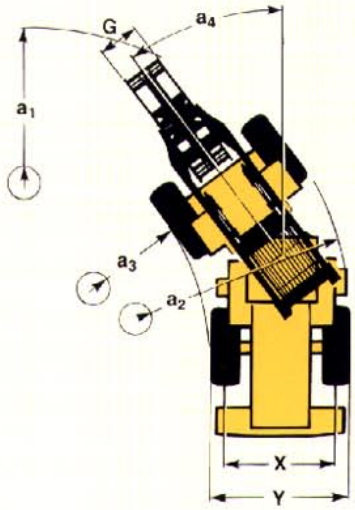
* With grapple in position for max reach

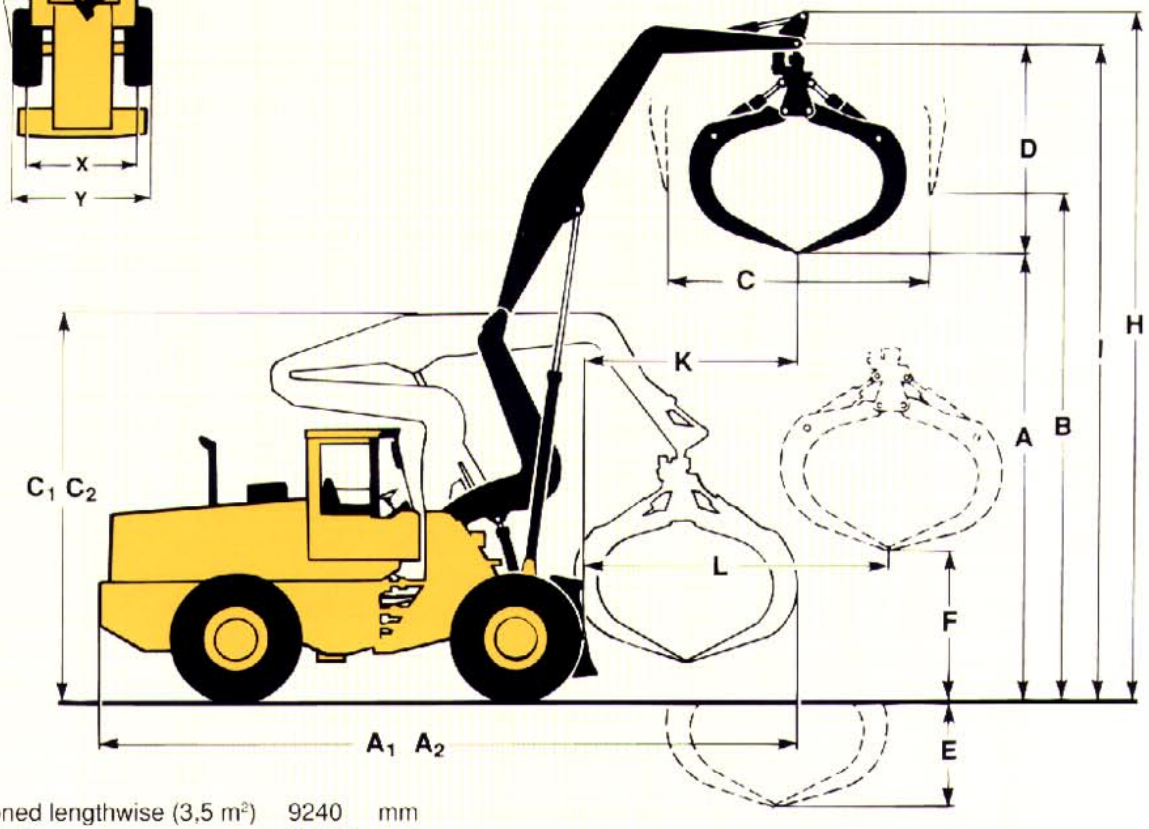
DIMENSIONAL DATA

Rotating grapple, 360°, 3,2 m², 91852
Tires: Michelin 30/65 R 29* XRDNA

H	8960	mm
I	8570	mm
K	2790	mm
L	4000	mm
BH	8850	mm
BI	8490	mm
BK	850	mm
BL	1300	mm
X	2280	mm
Y	3180	mm
a_1	7530	mm
a_2	6780	mm
a_3	3830	mm
a_4	37	± °







A_1	Grapple positioned lengthwise (3,5 m²)	9240	mm
A_2	Grapple angled up	10350	mm
C_1	Grapple positioned lengthwise	4940	mm
C_2	Grapple angled up	4640	mm

STEERING SYSTEM

Prompt response gives short cycle times. Low-power system for good fuel economy. Good course-holding and smooth action.

Steering system: Load-sensing hydrostatic articulated steering with power boost.

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

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

Cylinders: Two double-acting cylinders.

Working pressure	21	MPa
Flow	116,6	l/min
Max. steering angle	± 37	°

CAB

Care Cab *- the easy-entry cab with the wide door opening. Lined with sound-absorbent material. Anti-noise, anti-vibration suspension.*

Good all-round visibility, large glazed areas. Curved windshield of laminated, green-tinted glass.

Ergonomically well-sited controls give improved operating posture.

Instrumentation: All information important to the operator is readily visible in front of him. Information panel for ***Contronic*** monitoring system (extra equipment).

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

Operator's seat: Sprung, adjustable 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 as per ISO 6396, max.	-	dB (A)
Ventilation	10	m^3/min
Heating capacity	11	kW

Tested and approved as per the following standards: ROPS (ISO/CD 3471-1990, SAE J1040), FOPS (ISO 3449, SAE J231). Complies with "Overhead guards for rider lift trucks" (ISO 6055) and "Operator Restraint System" (SAE J386).

HYDRAULIC SYSTEM

High pump capacity gives fast movements. Good control in all working positions, even when working with heavy loads. Precision manoeuvring of attachments.

Hydraulic system: Open centre system with pilot-operated hydraulic valves.

Pump: One double vane pump mounted on a power take-off on the transmission.

Pilot operation: The pilot system is supplied from a separate pump, shared with the brake system. An electric servo-control actuates the two control valves via a servo unit.

Valves: Two pilot-operated 3-spool valves. The *primary control valve* governs: *lift, tilt* and *grapple*. The *secondary control valve* governs: *tilt grapple, rotator* and *pusher* (extra equipment).

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

Main pump

Working pressure			
circuit 1	19	MPa	
circuit 2	14	MPa	
Flow,			
circuit 1	414	l/min	
circuit 2	92	l/min	
at	10	MPa	
and engine speed	36,7	r/s	(2200 r/min)

Pilot pump

Working pressure	3,0-4,5	MPa

Cycle times (without load)

Lift	8,8	s
Lower	7,4	s
Tilt forward	2,9	s
Tilt backward	3,6	s
Grapple opening	2,2	s
Grapple closing	2,8	s

LIFT-ARM SYSTEM

A powerful high-lift arm system with high lift height and long reach. The various attachments can be manoeuvred over a large area from a stationary machine. Grapples suited to various types of work. Good stability while travelling under load permits high average speed.

Cylinders: Double-acting.

STANDARD EQUIPMENT

Service and maintenance equipment
Central lubrication system

Electrical equipment
Contronic monitoring system
Cable, information panel, service
Main switch
Alternator
Temperature gauge, engine
Temperature gauge, hydraulic transmission
Fuel gauge
Lighting:
- headlights, full/dip/assymetrical (halogen)
- parking lights
- working lights, front (two, halogen)
- working lights, rear (two, halogen)
- brake lights
- rear lights
- cab lighting
- instrument lighting
- direction indicator flashers

Hour recorder

Air cleaner with ejector discharge
Horn
Tell-tale lamp for:
- working lights, front/rear
- charging
- full-beam, headlights
- direction indicator flashers
- oil pressure, engine
- hydraulic oil pressure, transmission
- differential lock
- parking brake
- brake pressure
- hazard warning flashers
- air cleaner
- hydraulic oil filter, transmission
- rotating beacon

Central warning (with buzzer):
oil pressure, engine
temperature, engine (with buzzer)
hydraulic oil pressure, transmission
temperature, transmission
hydraulic oil filter, transmission
brake pressure
temperature/brake cooling, front and rear axles (buzzer)
parking brake (buzzer)
secondary steering (optional)

Transmission equipment
Differential lock, front axle
Circulation cooling, brakes, front and rear axles
Power Shift transmission
Automatic Power Shift (APS) (4F/3R)
Single-lever shift control
External oil cooling, brakes, front and rear axles

Tires
30/65 R29*

Cab equipment
ROPS and FOPS cab
Cab heater with filter-equipped fresh-air intake and defroster
Tinted glass
Ergonomically designed and adjustable operator's seat with lap belt
Rear-view mirror, external, 2
Rear-view mirror, internal, 1
Utility box in cab
File holder

Instrument panel with symbol markings
Sun visor
Safety start
Flasher unit, hazard warning
Windshield wiper, front and rear
Intermittent wiper
Ashtray
Cigarette lighter
Opening window, right
Radio panel, without radio

Hydraulic equipment
Control valve (3-spool), 2
Hydraulic oil cooler
Vane pump
Electro-hydraulic servocontrol

External equipment
Mudguards
Cross-beam
Rotator

Other equipment
Lift fittings

OPTIONAL EQUIPMENT *(standard in certain markets)*

Service and maintenance equipment
Tool kit
Wheel-nut wrench kit
Lockable tool box

Engine equipment
Electric engine heater
Low-emission version
Preheating coil
Pre-cleaner, oil-bath type
Coolant filter

Electrical equipment
Rotating beacon, 2
Side marker light
Left-hand asymmetrical headlight (halogen)

Extra working light, front, (two), halogen
Extra working light, rear, (two), halogen
Attachment light (halogen)
Air horn
Acoustic back-up alarm

Cab equipment
Radio
Installation kit for radio (loudspeaker, antenna, etc.)
Instructor's seat
Electrically heated operator's seat
Air-sprung operator's seat
Windshield washers, front and rear
Interlocked brake pedals
Hand throttle
Seatbelt retractible

Sliding vent window
Air conditioning
Speedometer
Tiltable steering wheel
Information panel (Contronic):
- start figuration, setting language and units, operating hours,
- general operating information, stop watch/trip meter, cycle counter, service interval
- engine
- electrical system
- transmission
- axles/brakes

Hydraulic equipment
Boom Suspension System

External equipment
Tow fitting
Slow Moving Vehicle sign
Covering mudguards

Protective equipment
Protective grille for headlight
Protective grille for rear working light
Protective grille for rear light
Muffler guard

Other equipment
German version (TBG)
Secondary steering
Comfort Drive Control (CDC)
Fueling strainer
Pusher
Piston-rod guards

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