

**VOLVO WHEEL LOADER**

# **L90E**



**VOLVO**

# L90E – A PARTNER THAT WORKS AS HARD AS YOU

You work hard every day and you expect your machines to work just as hard. The Volvo L90E wheel loader is a partner you can count on to not only meet, but exceed expectations. The versatility of the L90E makes it a reliable business partner in a wide range of industries. Public authorities and agricultural applications, such as grain handling, rely on its power and production, while operators in glass and paper recycling facilities get the job done with the added ease and maneuverability of the L90E.

Volvo has developed and manufactured wheel loaders for over 50 years. The latest experiences and leading technology have been used in designing the L90E. It is the true all-round machine, giving you countless possibilities to expand your application range. With the Volvo engine and Automatic Power Shift (APS) gearshifting system, you get optimal performance and low fuel consumption in all types of applications. The Torque Parallel Linkage, hydraulic attachment bracket and wide range of Volvo genuine attachments further increase the machine's versatility.

## Get more done

You'll find the L90E a pleasure to operate. In this respect, competing loaders simply can't compete. It's powerful, agile and easy to maneuver. Sitting comfortably in an ergonomically designed seat, you have total control over the machine. Engine and hydraulics respond immediately to your commands. Visibility is panoramic and the air in the cab is always fresh. Both operator and machine get more done with a lot less haste.

## A great deal for your investment

Proven reliability, excellent financing, extremely low fuel consumption and a high trade-in value provide the cornerstones of a safe investment. Add to that outstanding handling and productivity, a market-leading operator environment to protect the person in the machine, quick and simple daily maintenance and modest service requirements.

And what do you get? The most cost-efficient loader in its class, delivering unparalleled profitability — both now and in years to come.

With the L90E, everybody is a winner. Quite simply, a great deal for your money.



## Specifications L90E

Engine: Volvo D6D LA E2  
Max power at  
32,0 r/s **(1,900 rpm)**  
SAE J1995 gross  
122 kW **(166 hp)**  
ISO 9249, SAE J1349 net  
121 kW **(165 hp)**  
Breakout force:  
118,3 kN\* **(26,600 lbf)**  
Static tipping load at full turn:  
9 450 kg\* **(20,840 lb)**  
Buckets:  
2,3 – 7,0 m<sup>3</sup> **(3.0–9.2 yd<sup>3</sup>)**  
Log grapple:  
1,3 – 2,4 m<sup>2</sup> **(14.0–25.8 ft<sup>2</sup>)**  
Operating weight:  
15,0 – 17,0 t **(33,070–37,480 lb)**  
Tires:  
20.5 R25, 650/65 R25

\* Bucket: 2,5 m<sup>3</sup> **(3.3 yd<sup>3</sup>)** straight edge with bolt-on edges.  
Tires: 20.5 R25 L2. Standard boom.



# POWER UP YOUR PRODUCTIVITY

Load more tons per hour with the Volvo L90E. Its powerful engine and the Automatic Power Shift (APS) gear shifting system provide immediate response even in the toughest conditions. And Volvo axles are designed to ensure that the rimpull is there when needed. Torque Parallel Linkage (TP Linkage), load-sensing hydraulics, smooth steering and stable operation help make the L90E a precision performer.

## **Volvo engine delivers rapid response for faster work cycles**

L90E is equipped with Volvo's 6-liter engine, correctly matched to the Volvo transmission, axles and hydraulic system for unbeatable productivity and economy. The electronically-controlled engine transmits high torque at low engine speeds for faster work cycles and fuel efficient operation.

## **Responds to your commands**

The Volvo fully-automatic countershaft transmission provides smooth and effective gear shifting. All the operator has to do is select forward or reverse and APS automatically selects the right gear according to both engine rpm and ground speed. Volvo's in-house engineered axles and drivetrain are well matched and designed for top dependability. And Volvo's oil circulation-cooled wet disc brakes provide smooth, effective braking — and, of course, a long service life.

## **Torque Parallel Linkage — a breakthrough in the industry**

The reliable TP Linkage, Volvo's patented lift-arm system, delivers high and even breakout torque throughout the entire lifting range. The system is exceedingly user-friendly. The operator can easily handle heavy materials and maintain full control in all positions. In addition, TP Linkage provides excellent parallel movement, making it possible for the L90E to perform well in applications where other manufacturers need two different machine types.

## **Hydraulics that make sense**

The Volvo L90E features an intelligent load-sensing system for both the main and steering hydraulics. Two variable piston pumps provide the exact flow and pressure required at any given moment, distributing power when and where it's needed. In addition to rapid response, this system facilitates smoother operation, lower fuel consumption and precise control, even at low rpm.

## **Engine**

- Volvo D6D, a turbocharged, air-to-air intercooled low-emission engine with electronically controlled fuel injection delivers high torque even at low rpm.
- The electronically-controlled hydrostatic fan is only activated when necessary, thus saving fuel.

## **Transmission**

- With Volvo's 3rd generation of APS, the operator can select between four different operating modes, including the new AUTO function, which adaptively chooses the most convenient shifting program for the job at hand, equally weighing the operator's driving habits together with the operating cycle.
- The 3rd generation APS now has fully-automatic shifting 1-4, meaning all the operator has to do is choose forward or reverse.

## **Axles/Brakes**

- The Volvo axles are fully integrated with the drivetrain, delivering superior rimpull.
- Oil circulation-cooled wet disc brakes ensure effective braking and a long service life.
- An electronic brake test in Contronic gives you instant access to the status of the brakes.
- A brake wear indicator on each wheel allows you to easily check the brake pad wear.

## **Steering**

- Load-sensing steering only uses power when it's needed, thereby saving fuel.
- E-series loaders feature an accumulator system, providing stable, smooth steering and greater safety.

## **Frame**

- Rugged frame design for secure mounting of components increases the service life of the machine.
- Volvo's frame joint bearing design is a well-proven concept that's easy to maintain and renowned for its long service life.



#### **TP Linkage**

- Unique patented lift-arm system, which provides two solutions in one: excellent breakout torque and parallel action throughout the entire lifting range.

#### **Load-sensing hydraulics**

- The load-sensing hydraulic system ensures that hydraulic oil is pumped around the system only when and where it's needed. This means greater efficiency and lower fuel consumption.

- Pilot-operated hydraulics allow precise control of the attachments, making life easier, and safer, for the operator.

# AN ALERT OPERATOR IS A PRODUCTIVE OPERATOR

Volvo Care Cab with the Contronic monitoring system reinforces Volvo's reputation as a leader in operator environments and cab comfort. We never forget the operator inside the machine. A comfortable, operator-friendly and safe environment makes the workday easier and more productive.



## **A clean and comfortable workplace**

The right cab climate does wonders for efficiency, keeping operators sharp during long shifts. In fact, all incoming air is filtered in two stages, making this one of the cleanest cabs on the market. Even the recirculated air is filtered. Furthermore, Volvo's state-of-the-art air-conditioning\* provides a pleasant temperature year-round, regardless of outdoor conditions. So even after a long work shift, the air in the cab is still fresh and the operator's mind is still clear.

## **Comfort and productivity go hand-in-hand**

There is a range of comfortable seats, all of them with multiple adjustment functions for optimal individual comfort. All instruments are visible at a glance, and all important information is right in front of the operator. The forward, reverse and kick-down functions are situated both on the lever on the left-hand side of the steering wheel and on the hydraulic console to the right. And thanks to Comfort Drive Control (CDC)\*, you can steer, change directions and kickdown to first gear with easy-to-use controls integrated into the left-hand armrest — an excellent way to combat fatigue and static muscle strain. Furthermore, to avoid monotonous arm movements, you can shift at any time from lever steering to using the steering wheel.

\* Optional equipment

## **Contronic keeps an eye on everything**

Contronic, the highly reliable control and monitoring system from Volvo, continuously monitors the machine's operation and performance. The system is an electronic network made up of three computers. Operating at three levels, the system keeps an eye on the machine's various functions in real-time. If a potential problem should occur, the system generates an immediate warning, making the operator aware of the condition. All operating data is saved and can be used to analyze how the machine performs and also to trace its history since the latest service. The machine's functions can be updated for optimal adaptation to new and changing operating conditions via the Contronic service display tool. With VCADS Pro, it's also possible to check and adjust the machine's functions and performance characteristics.

## **Low noise levels**

Thanks to its ingenious rubber mounting system and heavy-duty insulation, the Care Cab is one of the quietest cabs on the market. By reducing tiresome earfuls and annoying vibrations, the operator will stay sharp throughout the shift. In short, it's a great place to work.

## **Care Cab**

- Unrivalled operator environment with one of the market's best cab filtration systems.
- Pleasant interior with superior finish makes it easy to maintain and keep clean.
- Adjustable seat, armrest, hydraulic lever console and steering wheel for optimal operator comfort and high production.
- Contronic, a superior control and monitoring system, designed to increase safety and productivity.
- All service platforms and entry ladders boast improved anti-slip surfaces. Sloped entry ladder for easy cab access.
- Large windshields, narrow pillars and a sloped engine hood ensure good panoramic visibility, thus further increasing safety.
- Powerful halogen lighting to the front and rear provides good visibility over the entire work area.



# VOLVO'S COMMITMENT TO NATURE AND MANKIND

Quality, safety and care for the environment are Volvo's core values. Indeed, we see our commitment as an integral part of our operation. Few machines have to work in tougher conditions. The ultimate goal is maximized productivity and efficiency for the lowest cost per hour, with minimized environmental impact. For instance, plants and manufacturing processes are certified in accordance with ISO 14001. This is but one example of our tangible commitments and high quality standards. And that's why Volvo customers get one of the most environmentally considerate and dependable wheel loaders on the market.

## **A winner for years to come**

Your Volvo L90E has to be a winner — both in day-to-day and long-term operations, always operating economically with maximum consideration of the environment. The machinery has to be trusted in all aspects. It must deliver the anticipations of productivity and economy. High-quality and easy maintenance are imperative for keeping up the work process. The high-performance, low-emission engine is both good for your business and for the environment.

## **Comfortable and quiet operator's environment**

The operator inside deserves a comfortable, reliable and safe machine to work with. A good environment helps to spare operator, equipment and nature for years to come. The Volvo L90E is a super competitive wheel loader that puts the operator right in the middle, literally speaking. Tedious vibrations and noise have been heavily reduced. If the operator feels comfortable and secure, it's easier to stay attentive.

## **More than 95% recyclable**

The L90E is almost completely recyclable. We see it as a natural step in our commitment. Components such as the engine, transmission and hydraulics are re-engineered and re-used in our Parts Exchange program. The equipment has to be as trustworthy, service-friendly, productive and as cost-effective as possible. Choose this wheel loader for maximum productivity and minimal impact on operator, machinery and environment. Feel free to feel secure in a Volvo L90E.

## **Quality**

- The air is vented from all major components with easy to replace breather filters, used to prevent dirty air from entering the transmission, axles, fuel tank, and hydraulic tank.
- All electrical wires are routed through sturdy conduits, protected from water, dust, and abrasion with rubberized connectors and terminal caps.
- The L90E is designed from the beginning for easy service and maintenance. Easy-access to all components lays the foundation for shorter service and maintenance time and longer life.

## **Safety**

- A dual-circuit service brake system that fulfills all requirements according to ISO 3450, electronic brake test in Contronic and easy to check brake wear indicators are all ways to ensure safe and effective braking.
- Volvo Care Cab is tested and approved according to ROPS ISO 3471 and FOPS ISO 3449 standards.
- Optimized panoramic visibility gives effective control over the entire work area.
- The L90E has steps and platforms that are equipped with anti-slip surfaces and well positioned hand rails.

## **Environment**

- The low rpm, high-performance D6D engine meets all current emission requirements according to stage 2 legislation in Europe and the US.
- The L90E is manufactured in environmentally certified factories according to ISO 14001.
- The L90E is more than 95% recyclable according to material weight.
- Low external and internal sound levels.



# VOLVO L90E IN DETAIL

## Engine

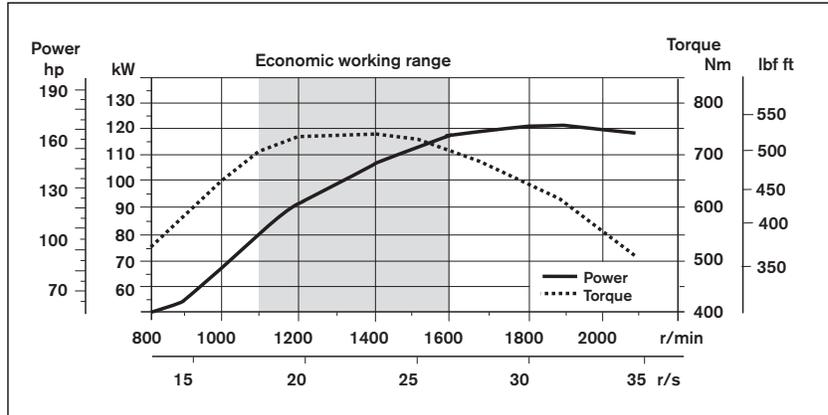
6 liter, 6-cylinder straight turbocharged diesel engine with electronically-controlled unit pumps and conventional injectors. The engine has dry replaceable cylinder liners and replaceable valve guides and valve seats. The throttle application is transmitted electrically from the throttle pedal or the optional hand throttle. Air cleaning: three-stage. Cooling system: Air-to-air intercooler and hydrostatic, electronically-controlled fan.

<b>Engine</b>	Volvo D6D LA E2
<b>Max power at</b>	32,0 r/s (1,900 rpm)
<b>SAE J1995 gross</b>	122 kW (166 hp)
<b>SAE J1349 net</b>	121 kW (165 hp)
<b>Max torque at</b>	23,3 r/s (1,400 rpm)
<b>SAE J1995 gross</b>	739 Nm (545 lbf ft)
<b>SAE J1349 net</b>	732 Nm (540 lbf ft)
<b>Economic working range</b>	1100–1600 rpm
<b>Displacement</b>	5,7 l (348 in <sup>3</sup> )

## Electrical system

Central warning system: Central warning light for the following functions (buzzer with gear engaged): Engine oil pressure, charge-air temperature, fuel temperature, transmission oil pressure, brake pressure, parking brake applied, hydraulic oil level, steering pressure, low coolant level, coolant temperature, transmission oil temperature, hydraulic oil temperature, overspeeding in engaged gear, brake charging, axle oil temperature.

<b>Voltage</b>	24 V
<b>Batteries</b>	2x12 V
<b>Battery capacity</b>	2x110 Ah
<b>Cold cranking capacity, approx</b>	690 A
<b>Reserve capacity, approx</b>	206 min
<b>Alternator rating</b>	1920 W/80 A
<b>Starter motor output</b>	5,4 kW (7.3 hp)



## Drivetrain

Torque converter: single-stage. Transmission: Volvo countershaft transmission with single lever control. Fast and smooth shifting of gears between forward and reverse with Pulse Width Modulation (PWM) valve. Gearshifting system: Volvo Automatic Power Shift (APS) with fully automatic shifting 1-4 and mode selector with 4 different gearshifting programs, including AUTO. Axles: Volvo fully floating axle shafts with planetary hub reductions and cast steel axle housings. Fixed front axle and oscillating rear axle. 100% differential lock on the front axle.

<b>Transmission</b>	Volvo HTE 202
<b>Torque multiplication</b>	2,45:1
<b>Maximum speed, forward/reverse</b>	
1	6,8 km/h (4.2 mph)
2	12,7 km/h (7.9 mph)
3	25,6 km/h (15.9 mph)
4	37,1 km/h (23.1 mph)
<b>Measured with tires</b>	20.5 R25 L2
<b>Front axle/rear axle</b>	Volvo/AWB 25/20
<b>Rear axle oscillation</b>	±13°
<b>Ground clearance at 13° osc.</b>	470 mm (18.5 in)

## Brake system

Service brake: Volvo dual-circuit system with nitrogen charged accumulators. Outboard mounted hydraulically operated, fully sealed oil circulation-cooled wet disc brakes. The operator can select automatic disengagement of the transmission when braking using Contronic. Parking brake: Fully sealed, wet multi-disc brake built into the transmission. Applied by spring force and electro-hydraulically released with a switch on the instrument panel. Secondary brake: Dual brake circuits with rechargeable accumulators. Either one circuit or the parking brake fulfills all safety requirements. Standard: The brake system complies with the requirements of ISO 3450.

<b>Number of brake discs per wheel front/rear</b>	1/1
<b>Accumulators</b>	2x0,5 l (2x0.13 US gal), 1x1,0 l (1x0.26 US gal)
<b>Accumulators for parking brake</b>	1x1,0 l (1x0.26 US gal)

### Steering system

Steering system: Load-sensing hydrostatic articulated steering. System supply: The steering system has priority feed from a load-sensing axial piston pump with variable displacement. Steering cylinders: Two double-acting cylinders.

<b>Steering cylinders</b>	2
<b>Cylinder bore</b>	80 mm (3.2 in)
<b>Piston rod diameter</b>	50 mm (2.0 in)
<b>Stroke</b>	345 mm (13.6 in)
<b>Working pressure</b>	21 MPa (3,046 psi)
<b>Maximum flow</b>	200 l/min (52.8 US gpm)
<b>Maximum articulation</b>	±40°

### Cab

Instrumentation: All important information is centrally located in the operator's field of view on the Contronic monitoring system's display unit. Heater and defroster: Heater coil with filtered fresh air and fan with four speeds. Defroster vents for all window areas. Operator seat: Ergonomic seat with adjustable suspension and retractable seatbelt. The seat is mounted on a bracket, which is mounted on the rear cab wall. The forces from the retractable seat belt are absorbed by the seat rail. Standard: The cab structure is tested and approved according to ROPS (ISO 3471) and FOPS (ISO 3449). The cab meets all requirements according to ISO 6055 (Operator Overhead Protection - Industrial Trucks) and SAE J386 (Operator Restraint System).

<b>Emergency exits</b>	1
<b>Sound level in cab according to ISO 6396</b>	LpA 70 dB (A)
<b>External sound level according to ISO 6395 (Directive 2000/14/EC)</b>	LwA 105 dB (A)
<b>Ventilation</b>	9 m <sup>3</sup> /min (318 ft <sup>3</sup> /min)
<b>Heating capacity</b>	11 kW (37,500 Btu/h)
<b>Air conditioning (optional)</b>	8 kW (27,300 Btu/h)

### Hydraulic system

System supply: One load-sensing axial piston pump with variable displacement. The steering system always has priority. Valves: Double-acting 2-spool valve. The main valve is controlled by a 2-spool pilot valve. Lift function: The valve has four positions including lift, hold, lower and float. Inductive/magnetic automatic boom kick-out can be switched on and off and is adjustable to any position between maximum reach and full lifting height. Tilt function: The valve has three functions including rollback, hold and dump. Inductive/magnetic automatic tilt can be adjusted to the desired bucket angle. Cylinders: Double-acting cylinders for all functions. Filter: Full flow filtration through 20 micron (absolute) filter cartridge.

#### Working pressure maximum

	26,0 MPa (3,771 psi)
<b>Flow at and engine speed</b>	175 l/min (46.2 US gpm) 10 MPa (1,450 psi) 32 r/s (1,900 rpm)
<b>Pilot system</b>	
<b>Working pressure</b>	3,5 MPa (508 psi)
<b>Cycle times</b>	
<b>Raise*</b>	5,4 s
<b>Tilt*</b>	2,1 s
<b>Lower, empty</b>	2,5 s
<b>Total cycle time</b>	10,0 s

\* with load as per ISO 14397 and SAE J818

### Lift arm system

Torque Parallel Linkage (TP Linkage) with high breakout torque and parallel action throughout the entire lifting range.

<b>Lift cylinders</b>	2
<b>Cylinder bore</b>	120 mm (4.7 in)
<b>Piston rod diameter</b>	70 mm (2.75 in)
<b>Stroke</b>	733 mm (28.8 in)
<b>Tilt cylinder</b>	1
<b>Cylinder bore</b>	180 mm (7.1 in)
<b>Piston rod diameter</b>	90 mm (3.54 in)
<b>Stroke</b>	430 mm (16.9 in)

### Service

Service accessibility: Large, easy-to-open service doors with gas struts. Swing-out radiator grille and cooling fan. Possibility to log and analyze data to facilitate troubleshooting.

#### Refill capacities

<b>Fuel tank</b>	205 l (54.1 US gal)
<b>Engine coolant</b>	36 l (9.5 US gal)
<b>Hydraulic oil tank</b>	115 l (30.4 US gal)
<b>Transmission oil</b>	40 l (10.6 US gal)
<b>Engine oil</b>	20 l (5.3 US gal)
<b>Axles front/rear</b>	30/25 l (7.9/6.6 US gal)

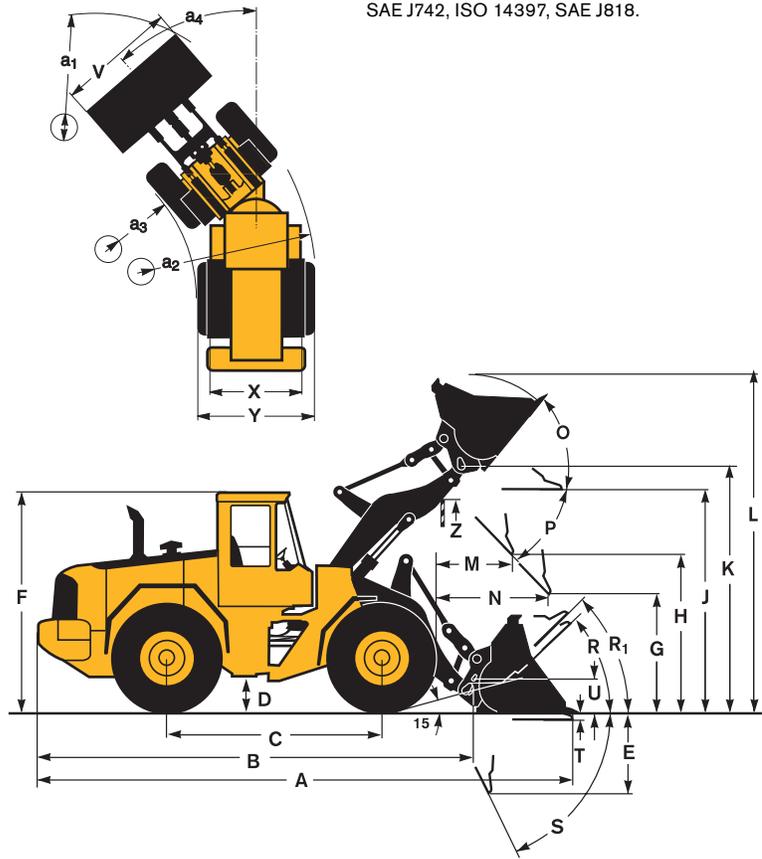
# SPECIFICATIONS

Where applicable, specifications and dimensions are according to ISO 7131, SAE J732, ISO 7546, SAE J742, ISO 14397, SAE J818.

## Tires: 20.5 R25 L2

Standard boom		Long boom	
B	6020 mm 19'9"	6450 mm	21'2"
C	3000 mm 9'10"	—	—
D	400 mm 1'4"	—	—
F	3260 mm 10'8"	—	—
G	2130 mm 7'0"	—	—
J	3650 mm 12'0"	4080 mm	13'5"
K	3960 mm 13'0"	4380 mm	14'4"
O	56 °	57 °	—
P <sub>max</sub>	45 °	—	—
R	43 °	46 °	—
R <sub>1</sub> *	47 °	52 °	—
S	67 °	66 °	—
T	112 mm 0'4.4"	117 mm	0'4.6"
U	430 mm 1'5"	520 mm	1'8"
X	1960 mm 6'5"	—	—
Y	2490 mm 8'2"	—	—
Z	3260 mm 10'8"	3620 mm	11'11"
a <sub>2</sub>	5370 mm 17'7"	—	—
a <sub>3</sub>	2880 mm 9'5"	—	—
a <sub>4</sub>	±40 °	—	—

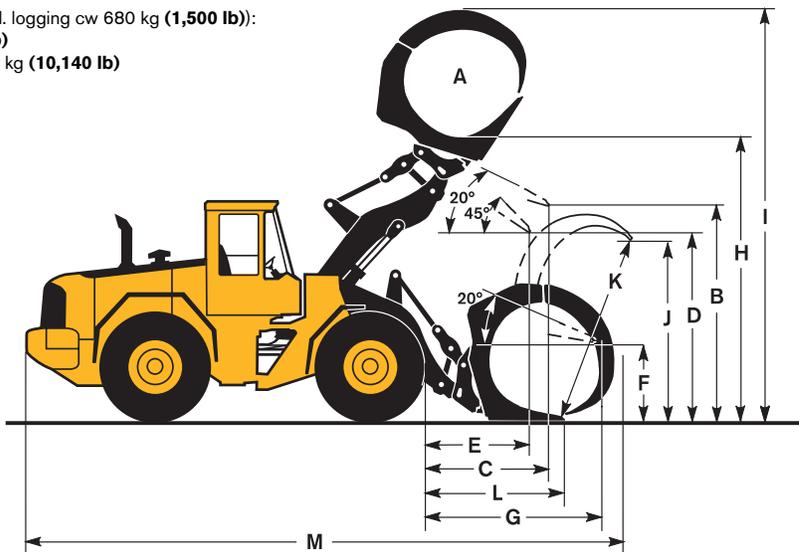
\* Carry position SAE



## Tires: 650/65 R25

A	2,4 m <sup>2</sup>	25,8 ft <sup>2</sup>
B	3420 mm	11'3"
C	1810 mm	5'11"
D	2800 mm	9'2"
E	1430 mm	4'8"
F	1450 mm	4'9"
G	2750 mm	9'0"
H	4530 mm	14'11"
I	6580 mm	21'7"
J	2790 mm	9'2"
K	2990 mm	9'10"
L	2130 mm	7'0"
M	8320 mm	27'3"

Operating weight (incl. logging cw 680 kg (1,500 lb)):  
16 740 kg (36,900 lb)  
Operating load: 4600 kg (10,140 lb)



## Supplemental Operating Data

	Tires 20.5 R25 L2		Standard boom 650/65 R25		Long boom 650/65 R25	
	mm	in	mm	in	mm	in
Width over tires	mm	in	+200	+7.87	+200	+7.87
Ground clearance	mm	in	+10	+0.39	+10	+0.39
Tipping load, full turn	kg	lb	+320	+705	+360	+794
Operating weight	kg	lb	+550	+1,212	+690	+1,520

Tires 20.5 R25 L2	GENERAL PURPOSE					FLAT FLOOR		LIGHT MATERIAL		LONG BOOM	
	 Bolt-on edges	 Bolt-on edges	 Bolt-on edges	 Bolt-on edges	 Bolt-on edges	 Bolt-on edges	 Bolt-on edges	 Bolt-on edges	 Bolt-on edges		
Volume, heaped ISO/SAE	m <sup>3</sup> yd <sup>3</sup>	2,7 3.5	2,7 3.5	2,5 3.3	2,5 3.3	2,3 3.0	2,6 3.4	2,6 3.4	7,0 9.2	4,1 5.4	—
Volume at 110% fill factor	m <sup>3</sup> yd <sup>3</sup>	3,0 3.9	3,0 3.9	2,8 3.7	2,8 3.7	2,5 3.3	2,9 3.8	2,9 3.8	7,7 10.1	4,5 5.9	—
Static tipping load, straight	kg lb	11 230 24,760	10 560 22,280	11 060 24,370	10 650 23,480	10 830 23,880	11 130 24,537	10 460 23,060	9970 21,980	10 260 22,620	-1640 -3,620
at 35° turn	kg lb	9970 21,980	9340 20,590	9820 21,640	9430 20,790	9600 21,160	9880 21,782	9260 20,420	8750 19,290	9060 19,970	-1500 -3,310
at full turn	kg lb	9600 21,160	8980 19,800	9450 20,840	9070 20,050	9240 20,370	9520 21,782	8910 19,640	8390 18,500	8700 19,180	-1450 -3,200
Operating load*)	kg lb	4640 10,220	4340 9,560	4560 10,060	4380 9,660	4460 9,840	4600 10,140	4300 9,490	4050 8,930	4200 9,260	-700 -1,540
Breakout force	kN lbf	113,6 25,540	105,4 23,700	118,3 26,600	109,5 24,620	114,1 25,720	118,9 26,722	109,9 24,710	73,4 16,500	84,9 19,090	+2,0 +450
A	mm ft in	7470 24'6"	7560 24'10"	7410 24'4"	7500 24'7"	7440 24'5"	7410 24'4"	7500 24'7"	8190 26'10"	7890 25'11"	+410 +1'4"
E	mm ft in	1210 4'0"	1300 4'3"	1160 3'10"	1250 4'1"	1190 3'11"	1160 3'10"	1240 4'1"	1860 6'1"	1590 5'3"	-6,0 -0.2"
H**)	mm ft in	2810 9'3"	2750 9'0"	2850 9'4"	2780 9'1"	2820 9'3"	2840 9'4"	2780 9'1"	2340 7'8"	2540 8'4"	+420 +1'5"
L	mm ft in	5420 17'9"	5480 18'0"	5370 17'7"	5420 17'9"	5370 17'7"	5380 17'8"	5440 17'10"	5750 18'10"	5550 18'3"	+420 +1'5"
M**)	mm ft in	1130 3'8"	1210 4'0"	1090 3'7"	1170 3'10"	1130 3'8"	1090 3'7"	1150 3'9"	1680 5'6"	1470 4'10"	-50 -2.0"
N**)	mm ft in	1690 5'7"	1730 5'8"	1680 5'6"	1710 5'7"	1700 5'7"	1540 5'1"	1570 5'2"	1730 5'8"	1740 5'9"	+360 +1'2"
V	mm in	2750 108"	2750 108"	2650 104"	2650 104"	2650 104"	2650 104"	2650 104"	3000 118"	2750 108"	—
a, clearance circle	mmft in	11 960 39'3"	12 010 39'5"	11 840 38'10"	11 880 39'0"	11 850 38'11"	11 840 38'10"	11 880 39'0"	12 590 41'4"	12 190 40'0"	—
Operating weight	kg lb	15 160 33,420	15 510 34,190	15 120 33,330	15 380 33,910	15 340 33,820	15 214 33,555	15 350 33,840	16 060 35,410	15 630 34,460	+250 +542

\*) Rated at Volvo's recommended maximum utilization for L90E.

Note: This only applies to genuine Volvo attachments.

\*\*) Measured to the tip of the bucket teeth or bolt-on edge. Dump height to bucket edge. Measured at 45° dump angle.

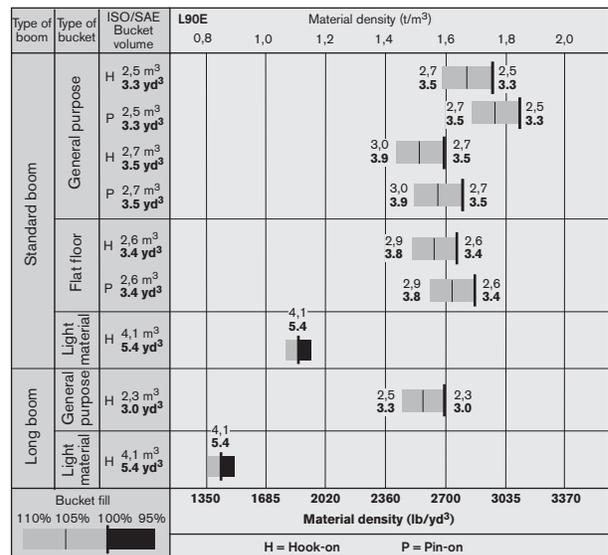
### Bucket Selection Chart

The chosen bucket is determined by the density of the material and the expected bucket fill factor. The actual bucket volume is often larger than the rated capacity, due to the features of the TP Linkage, including an open bucket design, good rollback angles in all positions and good bucket filling performance. The example represents a standard boom configuration.

**Example: Sand and gravel. Fill factor ~ 105%. Density 2,780 lb/yd<sup>3</sup>. Result: The 3.5 yd<sup>3</sup> bucket carries 3.7 yd<sup>3</sup>. For optimal stability always consult the bucket selection chart.**

Material	Bucket fill, %		Material density, t/m <sup>3</sup>		ISO/SAE bucket volume, m <sup>3</sup>		Actual volume, m <sup>3</sup>	
			lb/yd <sup>3</sup>	lb/yd <sup>3</sup>	m <sup>3</sup>	yd <sup>3</sup>	m <sup>3</sup>	yd <sup>3</sup>
Earth/Clay	~ 110		~ 1,80	~ 3,035	2,5	3.3	~ 2,7	~ 3.5
			~ 1,70	~ 2,865	2,6	3.4	~ 2,9	~ 3.8
			~ 1,65	~ 2,780	2,7	3.5	~ 3,0	~ 3.9
Sand/Gravel	~ 105		~ 1,80	~ 3,035	2,5	3.3	~ 2,6	~ 3.4
			~ 1,70	~ 2,865	2,6	3.4	~ 2,7	~ 3.5
			~ 1,65	~ 2,780	2,7	3.5	~ 2,8	~ 3.7
Aggregate	~ 100		~ 1,80	~ 3,035	2,5	3.3	~ 2,5	~ 3.3
			~ 1,70	~ 2,865	2,6	3.4	~ 2,6	~ 3.4
			~ 1,65	~ 2,780	2,7	3.5	~ 2,7	~ 3.5
Rock	≤ 100		~ 1,80	~ 3,035	2,2	2.9	~ 2,2	~ 2.9

The size of rock buckets is optimized for optimal penetration and filling capability rather than the density of the material.



## STANDARD EQUIPMENT

### Engine

Three-stage air cleaner with ejector and inner filter  
Indicator glass for coolant level  
Preheating of induction air  
Muffler, spark arresting  
Fuel filter, extra large with water trap  
Fuel fill strainer  
Coolant filter  
Oil trap

### Electrical system

24 V, prewired for optional accessories  
Alternator, 24 V/80 A  
Exchange battery  
Battery disconnect switch  
Battery boxes, steel  
Fuel gauge  
Hour meter  
Electric horn  
Reverse alarm, self-adjusting  
Instrument panel with symbols  
Lighting:

- Twin halogen front headlights with high and low beams
- Parking lights
- Double brake and tail lights
- Turn signals with flashing hazard light function
- Halogen working lights (2 front and 2 rear)
- Instrument lighting

### Contronic monitoring system

ECU with log and analysis system  
Contronic display  
Fuel consumption  
Outdoor temperature  
Engine shutdown to idle in case of malfunction indication:

- High engine coolant temperature
- Low engine oil pressure
- High transmission oil temperature

Start interlock when gear is engaged  
Brake test  
Test function for warning and indicator lights  
Warning and indicator lights:

- Charging
- Oil pressure engine
- Oil pressure, transmission
- Brake pressure

## OPTIONAL EQUIPMENT

### Service and maintenance

Toolbox, lockable  
Tool kit  
Automatic lubrication system  
Automatic lubrication system, stainless steel  
Automatic lubrication system incl. long boom  
Automatic lubrication system for attachment bracket, cast  
Automatic lubrication system, stainless steel, for attachment bracket, cast  
Refill pump for automatic lubrication system  
Wheel nut wrench kit  
Grease nipple guards  
Oil sampling valve

### Engine equipment

Engine block heater, 120 V  
Engine auto shut down  
Air pre-cleaner, oil-bath type  
Air pre-cleaner, turbo type, one-stage  
Air pre-cleaner, Sy-Klone type, one-stage  
Air pre-cleaner, Sy-Klone type, two-stage  
Fuel filter with water trap and heating  
Hand throttle control  
Radiator, hydraulic oil cooler and fuel cooler, corrosion-protected  
Fan air intake protection, extra close-meshed  
Reversible cooling fan

### Electrical system

Alternator, 80 A, including air filter  
Battery disconnect switch, additional in cab  
Work light, attachments  
Work lights front, extra  
Work lights rear, extra  
Work lights front, on cab, dual  
Work lights front, high intensity  
License plate holder, lighting  
Reverse lights, automatic  
Warning beacon, rotating, collapsible  
Warning beacon, flashing strobe light

### Cab

Installation kit for radio, 11 A, 12 V, left and right in cab  
Installation kit for radio, 20 A, 12 V  
Radio with cassette player  
Radio with CD-player  
Sun blinds, front and rear windows  
Sun blinds, side windows  
Retractable hipbelt, longer and wider than standard  
Air-conditioning  
Air-conditioning with corrosion protected condenser  
Air-conditioning with ATC (Automatic Temperature Control)

- Parking brake
- Hydraulic oil level
- Axle oil temperature
- Primary steering
- Secondary steering (if equipped)
- High beams
- Turn signals
- Rotating beacon (if equipped)
- Preheating coil (if equipped)
- Differential lock
- Coolant temperature
- Transmission oil temperature
- Brake charging
- Level warnings:
  - Coolant level
  - Hydraulic oil level
  - Washer fluid level

### Drivetrain

Automatic Power Shift with operator-controlled disengagement function for transmission cut-out when braking and mode selector with AUTO function  
Fully Automatic Powershift 1-4  
PWM-control between different gear positions  
Forward and reverse switch by lever console  
Differentials: front: 100% hydraulic diff lock, rear: conventional

### Tires

20.5 R25

### Brake system

Wet oil-circulation cooled disc brakes on all four wheels  
Dual brake circuits  
Dual service brake pedals  
Secondary brake system  
Parking brake, el-hydraulic  
Brake wear indicator

### Cab

ROPS (ISO 3471), FOPS (ISO 3449)  
Lock kit, one combination  
Acoustic inner lining  
Ashtray  
Cigarette lighter  
Lockable door  
Cab heating with filter, fresh-air inlet and defroster  
Floor mat

Air-conditioning with corrosion prot. condenser and ATC (Automatic Temperature Control)

Fan for AC condenser  
Ventilation air filter for work in asbestos environment  
Cab air pre-cleaner, Sy-Klone type  
Operator's seat with low backrest  
Operator's seat, air suspended with electrical heating  
Operator's seat, with low backrest and electrical heating  
Operator's seat, air suspended, with high backrest and electrical heating  
Operator's seat, air suspended, heavy-duty (up to 350 lbs)  
Armrest (left) for operator's seat  
Steering wheel knob  
Noise reduction kit  
Rearview camera incl. monitor  
Rearview camera, color, LCD monitor  
Rearview mirrors, electrically heated  
Foot steps, front frame  
Cab ladder, rubber suspended

### Drivetrain

Limited slip rear  
Speed limiter 20 km/h (12.5 mph)  
Speed limiter 30 km/h (18.6 mph)

### Brake system

Parking brake alarm, audible  
Stainless steel brake lines

### Hydraulic system

Single lever control  
Single lever control for 3rd hydraulic function  
3rd hydraulic function  
3rd hydraulic function for long boom  
3rd-4th hydraulic function  
3rd-4th hydraulic function for long boom  
Detent for 3rd hydraulic function  
Boom Suspension System (BSS)  
Single-acting lifting function  
Biodegradable hydraulic fluid  
Attachment bracket, cast, visibility-optimized  
Attachment bracket, side-tilting  
Attachment bracket, side-tilting adapter  
Mounting kit for side-tilting adapter  
Arctic kit, attachment locking hoses  
Arctic kit, pilot hoses and brake accum.  
Separate attachment locking, standard boom  
Separate attachment locking, long boom

### External equipment

Long boom  
Front and rear fenders with wideners for 650/65 R25 tires  
Full fenders for 650/65 R25 and 20.5 R25 tires

Interior light  
Interior rearview mirror  
2 exterior rearview mirrors  
Openable window right-hand side  
Sliding window, right  
Sliding window, door  
Tinted safety glass  
Hip retractable seatbelt (SAE J386)  
Adjustable lever console  
Adjustable steering wheel  
Operator's seat with high backrest and electrical heating  
Storage compartment  
Sun visor  
Beverage holder  
Windshield washers front and rear  
Windshield wipers front and rear  
Interval function for front and rear windshield wipers  
Service platforms with anti-slip surfaces on front and rear fenders  
Speedometer

### Hydraulic system

Main valve, 2-spool  
Pilot valve, 2-spool  
Variable displacement axial piston pumps (3) for:

- working hydraulics
- steering system, pilot hydraulics and brakes
- fan motor

Boom lowering system  
Boom kick-out, automatic, adjustable  
Bucket positioner, automatic with position indicator, adjustable  
Hydraulic oil cooler

### External equipment

Noise and vibration dampening suspension of cab, engine and transmission  
Lifting eyes  
Easy-to-open side panels  
Frame steering, joint lock  
Vandalism lock prepared for batteries and engine compartment  
Tow hitch  
Basic fenders with wideners for 20.5 R25 tires

### Protective equipment

Cover plates, rear frame

### Other equipment

Decals, USA

Mudflaps for full fenders

Delete front fenders and rear fender wideners  
Logging counterweight (with approval)

### Protective equipment

Guards for front headlights  
Guards for tail lights  
Guards for tail lights, heavy-duty  
Guards for side and rear windows  
Guard for radiator grill  
Guards for grease nipple  
Guard for center hinge and rear frame  
Guards for boom cylinder hose and tube  
Guards for wheel/axle seals  
Guard for front windshield  
Cover plate, front frame, heavy-duty  
Cover plate under cab  
Belly guard, front  
Belly guard, rear  
Corrosion-protection, painting of machine  
Corrosion-protection, painting of attachment bracket  
Bucket teeth protection  
Fire suppression system  
Anti-theft device

### Other equipment

Comfort Drive Control, CDC  
Secondary steering  
Sign, slow moving vehicle  
Decals English/Spanish

### Tires

650/65 R25

### Attachments

Buckets:

- Straight with teeth or bolt-on edges
- Spade nose
- High tipping
- Light materials
- Grading
- Refuse tamping bucket

Bolt-on or weld-on bucket teeth  
Cutting edge in three sections, bolt-on, reversible  
Fork equipment  
Material handling arm  
Log grapples  
Snow blade  
Broom  
Sand spreading bucket  
Bale clamp  
Drum rotator



**Boom Suspension System (BSS)\***

BSS utilizes gas/oil accumulators connected to the lift cylinders to absorb shocks and smooth out rough roads for faster cycle times, less spillage and increased operator comfort.



**Automatic Lubrication System\***

Our factory fitted Automatic Lubrication System takes care of greasing while the machine is in operation. This means less downtime for scheduled maintenance and more time for productive work.



**Comfort Drive Control (CDC)\***

CDC significantly reduces repetitive and tiring steering wheel movements. The operator can shift and steer easily with the aid of controls integrated in the left armrest.



**3rd and 4th hydraulic functions\***

Volvo wheel loaders can be equipped with third and fourth hydraulic functions, which are operated with additional control levers. These functions are necessary when there's a need to operate a third and fourth hydraulic function at the same time, such as when using a sweeper attachment or a timber grapple with hydraulic heel kick-out.

\* Optional equipment

**Genuine Volvo attachments**

Genuine Volvo attachments and wear parts, including the new Volvo Tooth System, are designed as an integral part of the loader, making the L90E a swift and versatile machine in a wide range of applications.

**Long boom\***

A long boom gives the extra dump height and reach necessary for loading high trucks or feeders.





Volvo Construction Equipment is different. It's designed, built and supported in a different way. That difference comes from our 170-year engineering heritage. A heritage of thinking first about the people who actually use the machines. About how to help them be safer, more comfortable, more productive. About the environment we all share. The result of that thinking is a growing range of machines and a global support network dedicated to helping you do more. People around the world are proud to use Volvo. And we're proud of what makes Volvo different – **More care. Built in.**



*All products are not available in all markets. Under our policy of continuous 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**

## **Construction Equipment**

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