

Technical Description Wheel Loader

L 554

Tipping load	12270 kg
Bucket capacity	3,5 – 6,0 m³
Operating weight	17,3 t
Engine output	137 kW/186 HP

**Liebherr
Norm Test**
2,4 l/100 t
12,1 l/h



LIEBHERR

The Better Machine.



Engine

Liebherr diesel engine	D 924 TI-E A2	
	4-cylinder, inline engine, watercooled exhaust-turbo charged with intercooler	
Power output according to ISO 9249	137 kW (186 bhp)	at 2000 RPM
Max. torque	802 Nm	at 1200 RPM
Displacement	6,64 litres	
Bore/stroke	122/142 mm	
Air cleaner	Dry type with main and safety element, pre-cleaner, service indicator on LCD display	
Operating voltage	24 V	
Battery	2 x 110 Ah/12 V	
Alternator	Three-phase AC, 28 V/55 A	
Starter motor	24 V/5,4 kW	



Travel gear

Hydrostatic transmission	All-wheel drive
Design	Variable-displacement swashplate pump and axial piston motor in a closed-loop circuit with a 3-stage planetary transmission. Direction of travel is reversed by changing the flow-direction of the variable-displacement pump
Filtering system	Suction-side filter for the closed circuit
Control	By travel and inching pedal. The inching pedal makes it possible to control the tractive and thrust forces steplessly at full engine speed. The Liebherr joystick is used to control forward and reverse travel and select the travel stages
Travel speeds	Stage 1 - 7,5 km/h Stage 2 - 17,0 km/h Stage 2 A (automatic) - 17,0 km/h Stage 3 A (automatic) - 38,0 km/h Forwards and in reverse with tyre size 23.5R25



Axles

All-wheel drive	
Front axle	Fixed
Rear axle	Centre pivot, with 13° oscillating angle to each side. Obstacles up to 530 mm in height can be driven over (with all four wheels remaining in contact with the ground)
Differentials	Automatic limited-slip differentials with 45% locking action in both axles
Final drive	Planetary final drive in the wheel hubs
Track width	2000 mm with all types of tyres



Brakes

Wear-free service brake	Self-locking of the hydrostatic travel drive (acting on all four wheels) and additional pumpaccumulator brake system with wet multi-disc brakes located in the wheel hubs. Two separate brake circuits
Parking brake	Electro-hydraulically actuated spring-loaded brake system on the transmission.
The braking-system meets the requirements of the EC guidelines 91/320.	



Tyres

Available sizes	23.5R25 Tubeless radial or cross-ply tyres on well-base rims
Special tyres	By arrangement with the manufacturer



Steering

Design	"Load-sensing" variable axial piston pump Central pivot with two doubleacting, damped steering cylinders
Angle of articulation	40° (to each side)
Emergency steering	Electro-hydraulic emergency steering system



Attachment hydraulics

Design	"Load-sensing" variable axial piston pump with output control and pressure cutoff
Max. flow	230 l/min.
Max. operating pressure	330 bar
Cooling	Hydraulic oil cooling using thermostatically controlled fan and oil cooler
Filtering	Return-line filter in the hydraulic reservoir
Control	"Liebherr-Joystick" with hydraulic servo control
Lift circuit	Lifting, neutral, lowering and float positions controlled by Liebherr joystick with detent; automatic lifting-limit circuit
Tilt circuit	Tilt back, neutral, dump automatic bucket positioning



Attachments

Geometry	Powerful Z-pattern linkage with tilt cylinder and cast steel crosstube sealed
Bearings	
Cycle time at nominal load	Lifting 5,5 sec. Dumping 2,3 sec. Lowering (empty) 2,7 sec.



Operator's cab

Design	ROPS/FOPS cab resiliently mounted on rear section of vehicle and noise-damped; lockable door with sliding window and 180° opening angle; emergency exit; toughened safety glass windows, tinted; adjustable steering column as standard equipment; ROPS roll-over protection according to DIN/ISO 3471/EN 474-3 and FOPS falling objects protection according to DIN/ISO 3449/EN 474-1
Operator's seat	6 way adjustable seat with seat belt, adjustable for operator's weight
Cab heating and ventilation	With defrosting, fresh-air filter, air-recirculated-air mode and heater supplied from engine's cooling system. Air conditioning is standard equipment



Noise emission

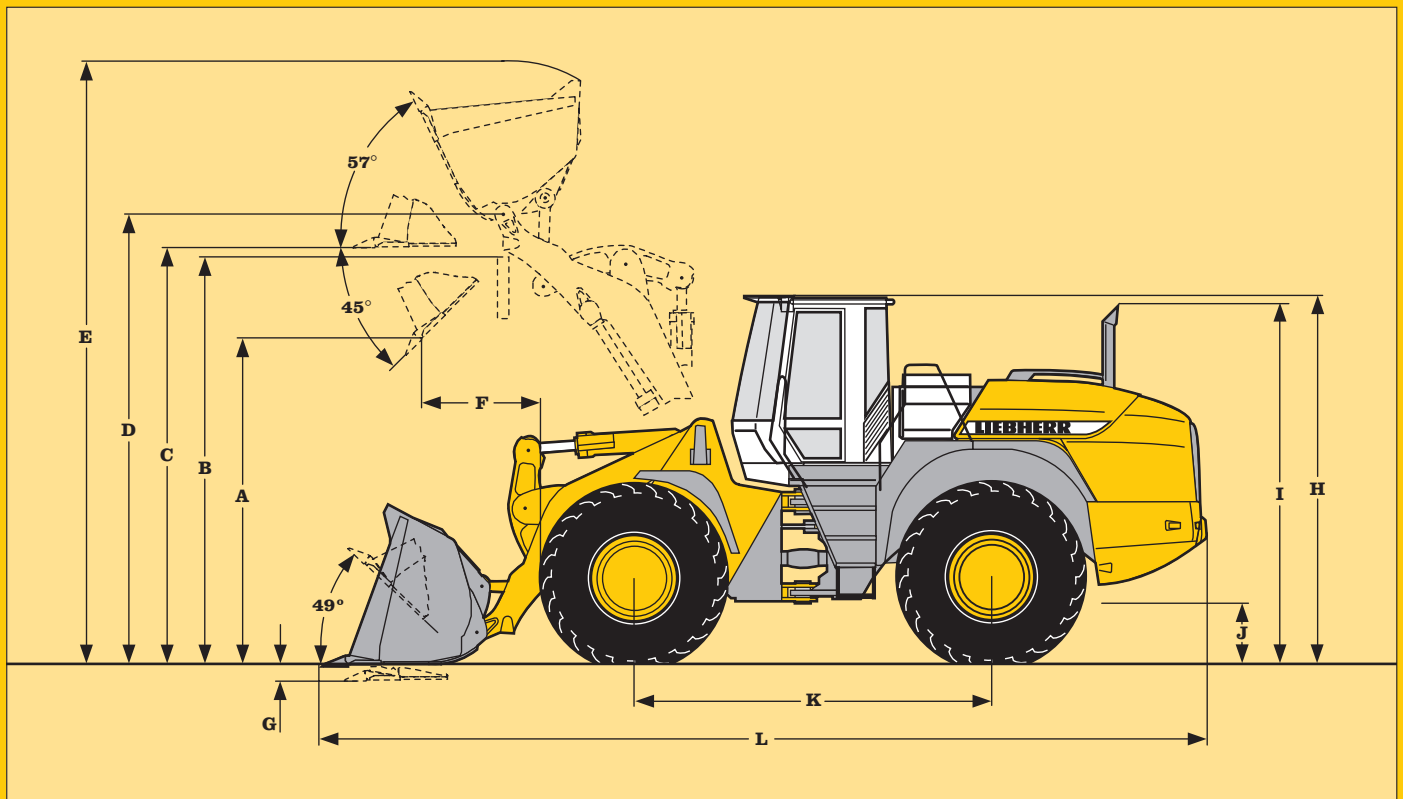
(86/662/EWG)	In the operator's cab	
	Without blower	69 dB(A)
	Max. blower output	73 dB(A)
	Outside cab	105 dB(A)



Capacities

Fuel tank	260 l
Engine oil (including filter change)	16 l
Pump distributor gears	2,5 l
Transmission	21 l
Front axle/wheel hubs	22/13 l
Rear axle/wheel hubs	16,5/11 l
Hydraulic tank	115 l
Hydraulic system, total	220 l

Technical Data



Bucket type		Loading Bucket			
Cutting tools		T		T	
					
Bucket capacity	m ³	3,5		3,8	
Bucket width	mm	2700		2700	
Specific material weight	t/m ³	1,8	1,6	1,6	1,4
A Dumping height at max. lift height and 45° discharge	mm	3085	2930	3015	2880
B Dump-over height	mm	3700	3700	3700	3700
C Max. height of bucket bottom	mm	3920	3920	3910	3920
D Max. height of bucket pivot point	mm	4180			
E Max. operating height	mm	5740	5825	5750	5830
F Reach at max. lift height and 45° discharge	mm	1070	1245	1140	1295
G Digging depth	mm	110	100	110	100
H Height above cab	mm	3355			
I Height above exhaust	mm	3310			
J Ground clearance	mm	530			
K Wheelbase	mm	3150			
L Overall length	mm	8130	8355	8230	8425
Turning circle radius over outside bucket edge	mm	6360	6420	6390	6440
Lifting force (SAE)	kN	180	180	180	180
Breakout force (SAE)	kN	130	110	120	105
Tipping load, straight*	kg	13925	12600	13370	12370
Tipping load, articulated at 35°*	kg	12625	11440	12140	11230
Tipping load, articulated at 40°*	kg	12270	11100	11780	10900
Operating weight*	kg	17300	17620	17350	17700

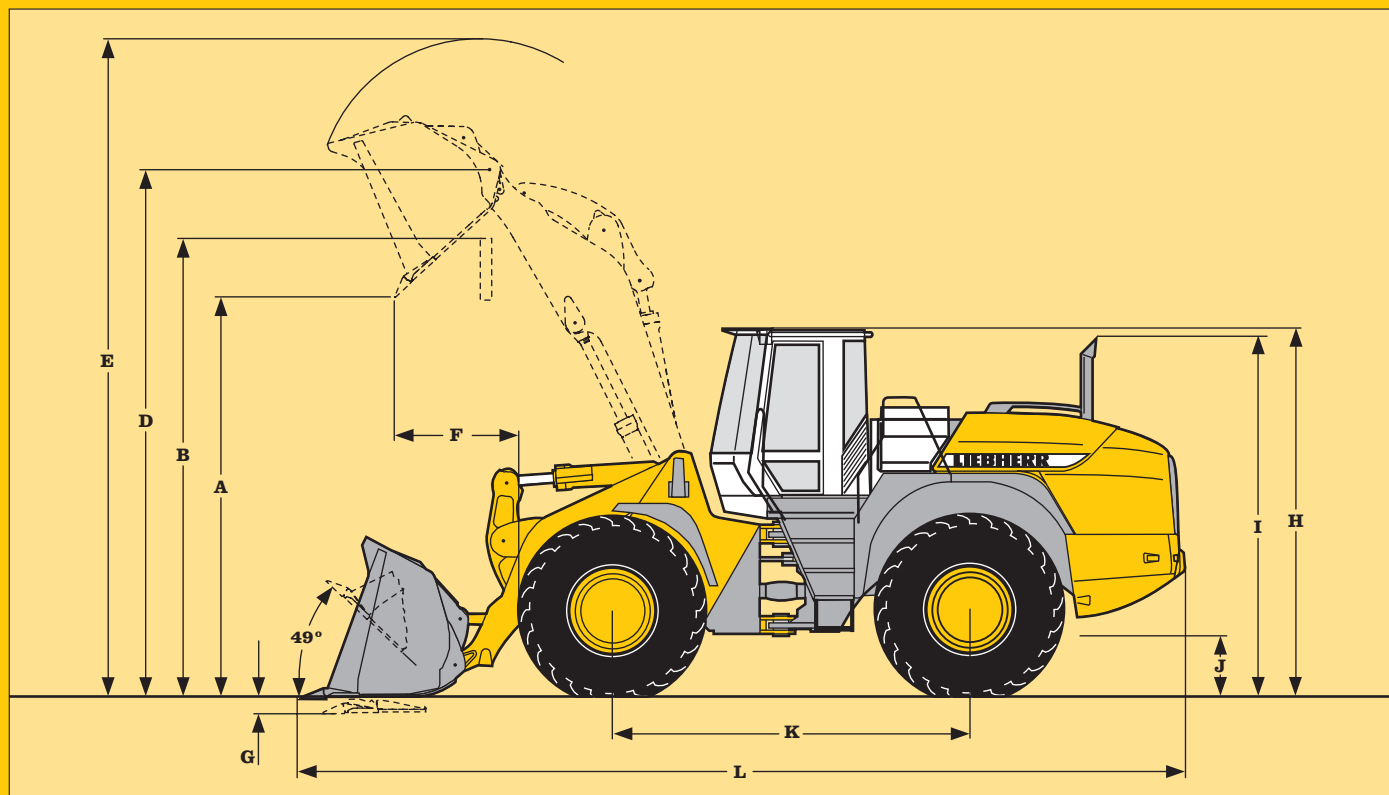
* The figures shown here are valid with Michelin XHA 23.5R25 tyres and include all lubricants, a full fuel tank, the ROPS/FOPS cab and the operator.

Different tyres and optional equipment will change the operating weight and tipping load.

T = Welded-on tooth holder with add-on teeth

Dimensions

High Lift



Bucket type		High Lift	
Cutting tools		T	T
			
Bucket capacity	m ³	3,0	4,0
Bucket width	mm	2700	2700
Specific material weight	t/m ³	1,6	1,2
A Dumping height at max. lift height and 45° discharge	mm	3630	3330
B Dump-over height	mm	4000	4000
C Max. height of bucket bottom	mm	4330	4330
D Max. height of bucket pivot point	mm	4600	4600
E Max. operating height	mm	6040	6250
F Reach at max. lift height and 45° discharge	mm	915	1200
G Digging depth	mm	130	130
H Height above cab	mm	3355	3355
I Height above exhaust	mm	3310	3310
J Ground clearance	mm	530	530
K Wheelbase	mm	3150	3150
L Overall length	mm	8360	8630
Turning circle radius over outside bucket edge	mm	6500	6600
Lifting force (SAE)	kN	130	130
Breakout force (SAE)	kN	125	90
Tipping load, straight *	kg	11180	10530
Tipping load, articulated at 35°*	kg	10155	9570
Tipping load, articulated at 40°*	kg	9850	9280
Operating weight *	kg	17350	17640

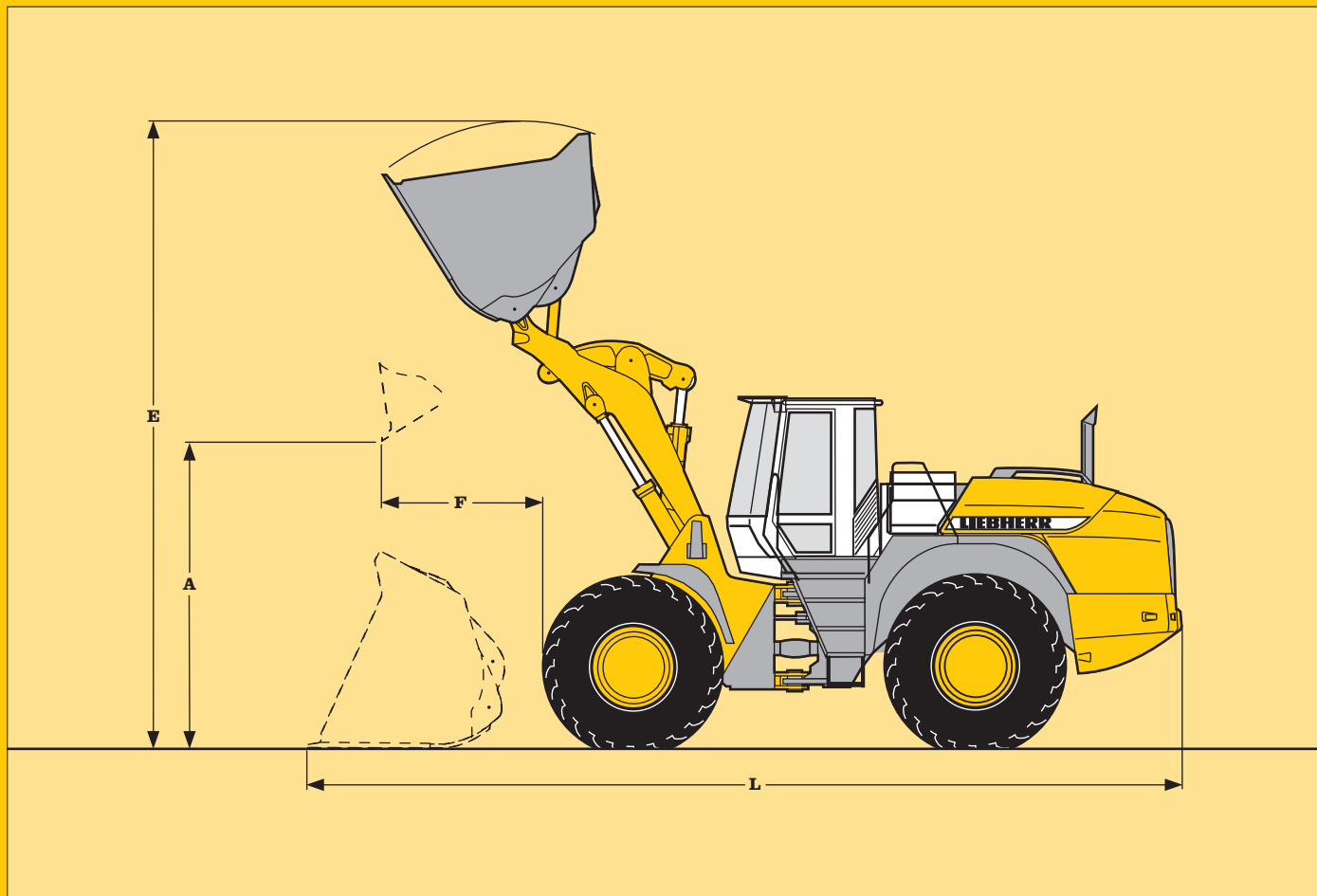
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Attachments

Light material bucket



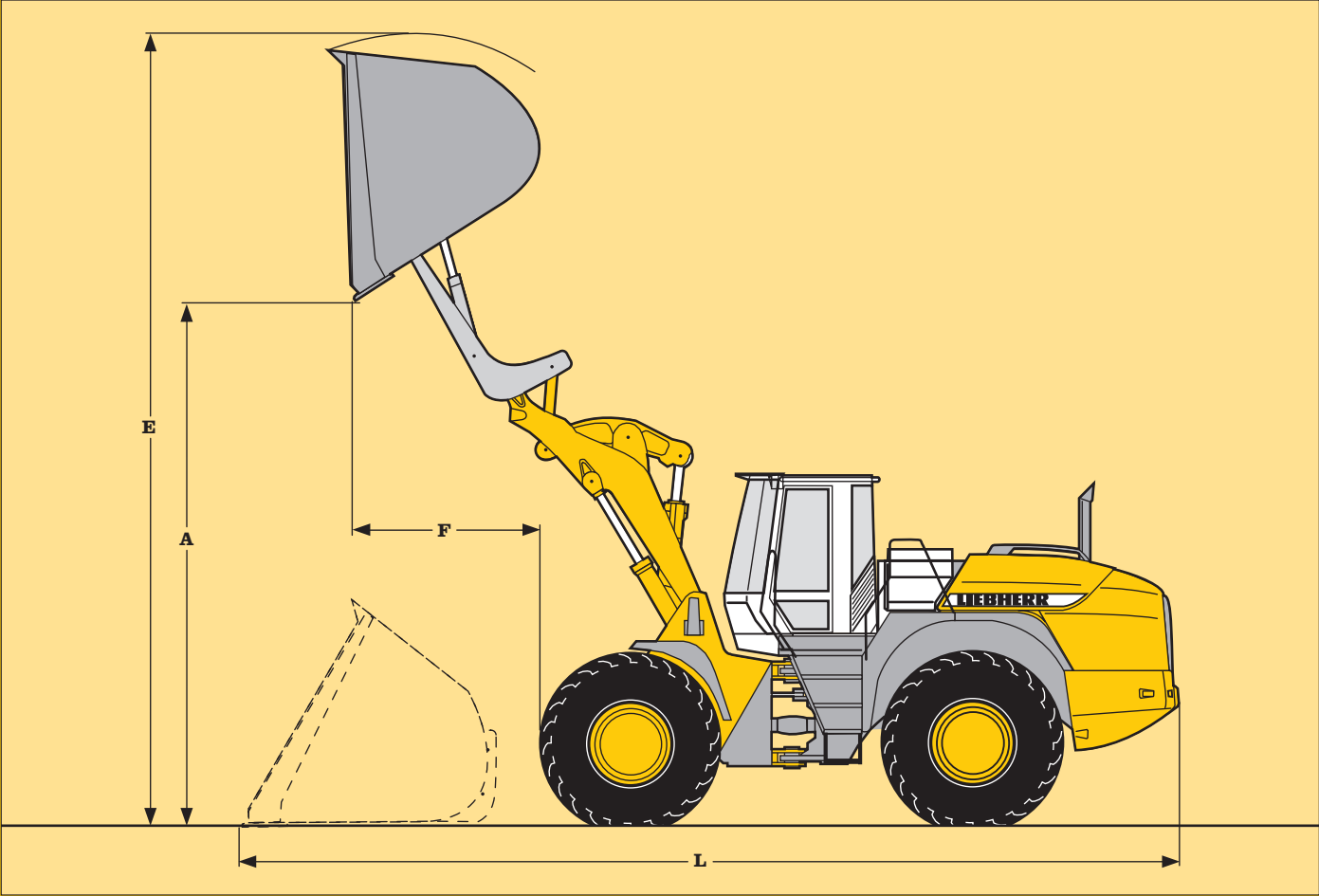
Light material bucket with bolt-on cutting edge

					
Bucket capacity	m³	5,0		6,0	
Bucket width	mm	2950		2950	
Specific material weight	t/m³	1,1	1,0	0,8	0,7
A Dumping height at max. lift height	mm	2855	2755	2715	2630
E Max. operating height	mm	5850	5955	6050	6155
F Reach at maximum lift height	mm	1265	1425	1410	1560
L Overall length	mm	8320	8470	8520	8650
Tipping load, straight*	kg	12570	12200	12280	11910
Tipping load, articulated at 40°*	kg	11080	10750	10820	10490
Operating weight*	kg	17520	17920	17720	18120

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Different tyres and optional equipment will change the operating weight and tipping load.

Attachments

High-dump Bucket



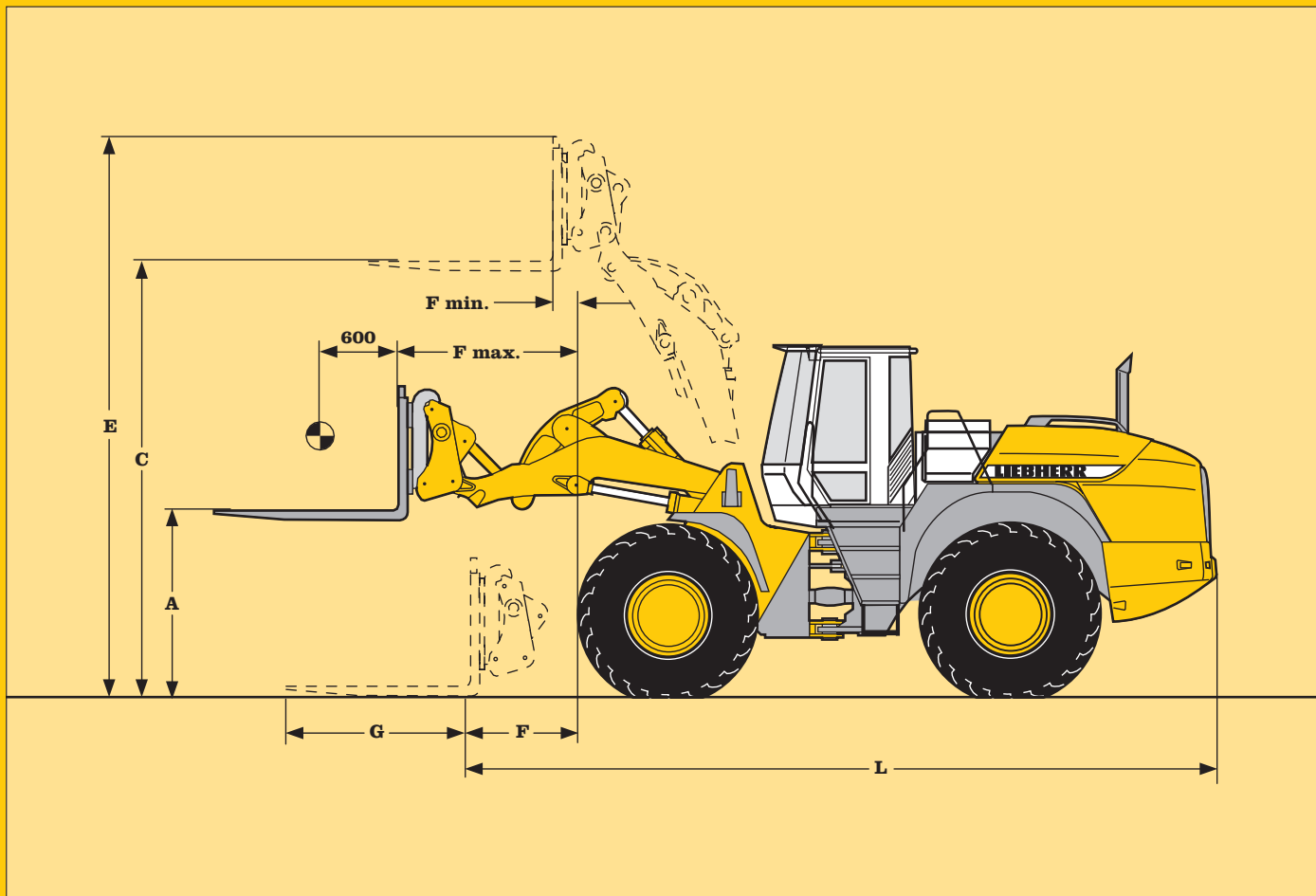
High-dump bucket with bolt-on cutting edge

			
Bucket capacity	m³	4,5	
Bucket width	mm	2700	
Specific material weight	t/m³	1,0	0,9
A Dumping height at max. lift height	mm	4775	4935
E Max. operating height	mm	6790	6950
F Reach at maximum lift height	mm	1745	1865
L Overall length	mm	8850	9050
Tipping load, straight *	kg	10490	10180
Tipping load, articulated at 40° *	kg	9250	8950
Operating weight *	kg	17550	17950

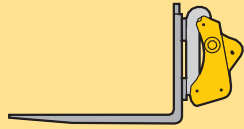
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Different tyres and optional equipment will change the operating weight and tipping load.

Attachments

Fork carrier and fork



Fork carrier and fork

				
Fork carrier with quick change device			Fork carrier and fork FEM IV	
A	Lifting height at max. reach	mm	1780	1780
C	Max. lifting height	mm	3940	3940
E	Max. operating height	mm	4950	4950
F	Reach at loading position	mm	1210	1210
F max.	Max. reach	mm	1805	1805
F min.	Reach at max. lifting height	mm	755	755
G	Fork length	mm	1200	1500
L	Length - basic machine	mm	7080	7080
	Tipping load, straight*	kg	9350	9300
	Tipping load, articulated at 40°**	kg	8175	8125
	Operating weight*	kg	17150	17200

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Different tyres and optional equipment will change the operating weight and tipping load.

** recommended payload (ISO 8313): for uneven ground = 60 % of tipping load (articulated at 40°)
for smooth surfaces = 80 % of tipping load (articulated at 40°)

Attachments

Selection of buckets

Loading buckets																		
3,5 m ³																		
																		
3,8 m ³																		
																		
Light material buckets																		
6,0 m ³																		
																		
t/m ³		0,6		0,8		1,0		1,2		1,4		1,6		1,8		2,0		2,2
ISO/SAE																		

Bulk material densities (t/m³)

Gravel,	moist _____	1,9	Clay and gravel,	dry _____	1,4	Sandstone _____	1,6				
	dry _____	1,6		dry _____	1,4		Slate _____	1,75			
	wet, 6 - 50 mm _____	2,0		wet _____	1,6			Bauxite _____	1,4		
	dry, 6 - 50 mm _____	1,7		Earth,	dry _____				1,3	Gypsum, broken _____	1,8
	crushed stone _____	1,5			wet excavated _____				1,6		Coke _____
Sand,	dry _____	1,5	Topsoil _____		1,1	Slag, broken _____			1,8		
	moist _____	1,8			Weathered rock 50 % rock, 50 % earth _____		1,7		Coal _____		
	wet _____	1,9					Basalt _____	1,95			
Gravel and sand,	dry _____	1,7	Limestone,	hard _____				1,65			
	wet _____	2,0		soft _____				1,55			
	Sand and clay _____	1,6		Clay,		natural _____		1,6			
dry _____		1,4			Limestone,	hard _____		1,65			
wet _____		1,65				soft _____	1,55				

Tyre sizes	Width over tyres mm	Change in vertical dimensions mm	Use
23.5R25 Dunlop PG 120 L5	2610	50	Stone
23.5R25 Michelin X-MINE D2	2670	+ 60	Stone/Scap material
625/70R25 Michelin XLD 70	2620	- 60	Gravel
23.5R25 Michelin XHA	2610	0	Gravel
23.5R25 Michelin XLD D2	2650	+ 35	Stone/Mining spoil
23.5R25 Good Year RL2+	2620	30	Gravel
23.5R25 Good Year GP2B	2620	30	Sand

Basic Machine

	Standard	Optional
Liebherr travel gear	●	
Ride control	●	
Liebherr shock absorbing element		X
Automatic travel mode	●	
20 km/h speed limiting		●
Electronical theft protection		●
Creep speed	●	
Electronic crowding force control	●	
Combined inching-braking system	●	
Multi-disc limited slip differentials in both axles	●	
Air cleaner system with pre-filter	●	
Particle protection for radiator		●
Emergency steering system	●	
Headlights	●	
Tail lights	●	
Working area lights at front	●	
Working area lights at rear	●	
Battery master switch	●	
Pre-heat system for cold starting	●	
Towing hitch	●	
Lockable doors, service flap an engine hood	●	
Toolbox with toolkit	●	
Dust filter system		●
Protective ventilation system		●
Amber beacon		●
Warning device for travel in reverse		X
Exhaust pipe – special steel	●	
Noise suppression package “101”		X
Automatic central lubrication system		●

Operator’s cab

Noise-damped ROPS/FOPS cab with tinted safety glass	●	
Hot-water heater with defroster and recirculated-air system	●	
Adjustable steering column	●	
Liebherr-joystick control	●	
Air conditioning system	●	
Liebherr operator’s seat – adjustable in 6 ways	●	
Air sprung operator’s seat with seat belt		●
Sliding window	●	
Emergency exit	●	
Floor mat	●	
Wash/wipe system for windscreen and rear window	●	
Interior rear-view mirror	●	
Sun visor	●	
Bottle holder	●	
Clothes hook	●	
Storage box	●	
Storage compartment	●	
Plug	●	
Ashtray	●	
Horn	●	
Provision for radio including Loudspeaker		●
Radio set		●
Operator’s package	●	

Instruments and displays for:

Diesel engine pre-heat	●	
Engine oil temperature	●	
Fuel reserve	●	
Timer for hours of operation	●	
Speedometer	●	
Travel speed ranges and gear selected	●	
Forward – reverse Travel	●	
Forward travel	●	
Reverse travel	●	
Speedometer	●	
Rev. counter	●	
Clock	●	

	Standard	Optional
Safety belt		X
Flashing turn indicators	●	
High-beam headlights	●	
Diagnosis system	●	

Warning lights for:

Engine oil pressure	●	
Engine overheat	●	
Parking brake	●	
Hydraulic oil temperature	●	
Air cleaner blockage	●	
Battery charge	●	
Flow through emergency steering system	●	
Road travel		X

Audible warnings for:

Engine oil pressure	●	
Engine overheat	●	
Overheat of hydraulic fluid	●	
Emergency steering system		X

Function keys for:

Air conditioning	●	
Hazard warning flashers	●	
Parking brake	●	
Electronic tractive force adaptation	●	
Creep speed	●	
Ride control	●	
Automatic bucket positioner	●	
Hoist Kick-out	●	
Additional hydraulics	●	
Float position	●	
Headlights	●	
Working lights front	●	
Working lights rear	●	
Road travel	●	
Wash/wipe system for rear window	●	
Amber beacon	●	
Mode switch	●	

Rotary switches for:

Blower	●	
Heater	●	
Fresh air or recirculated air	●	
Adjusting the crowding force counter	●	

Equipment

Z-bar linkage	●	
Parallel linkage		X
Hydraulic servo control of working hydraulics	●	
Automatic bucket positioner – adjustable	●	
Automatic hoist kick out – adjustable	●	
Float position	●	
Loading buckets with and without teeth, or bolt-on cutting edge		●
High-dump bucket		●
Light material bucket		●
Fork carrier and lift forks		●
Hydraulic quick-change device		●
3rd hydraulic control circuit		●
3rd and 4th hydraulic control circuits		●
Comfort control		●

Country-specific versions		●
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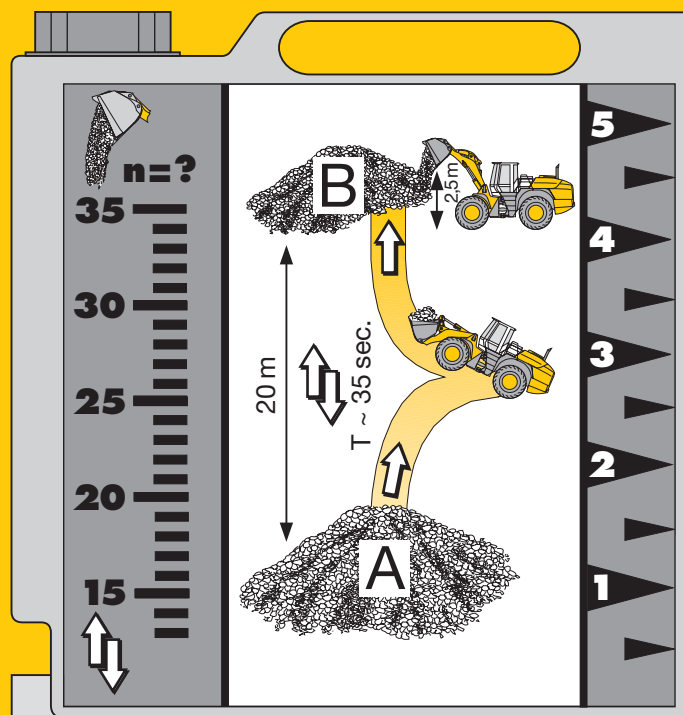
X = Not available

Liebherr wheel loaders – principal data.

Tipping load: Bucket capacity: Operating weight: Engine output:	Stereoloader L 506 	3215 0.8 4810 44/60	Stereoloader L 507 	3465 0.9 4930 46/63	Stereoloader L 508 	3895 1.0 5310 49/67	Stereoloader L 509 	4440 1.1 5510 52/71	kg m³ kg kW/hp
Tipping load: Bucket capacity: Operating weight: Engine output:	Stereoloader L 512 	4615 1.3 7000 59/80	Stereoloader L 514 	5305 1.5 7700 72/98					kg m³ kg kW/hp
Tipping load: Bucket capacity: Operating weight: Engine output:	L 524 	7005 2.0 10100 81/110	L 534 	8625 2.4 12100 100/136	L 538 	9000 2.5 12380 100/136	L 544 	10600 3.0 15300 121/165	kg m³ kg kW/hp
Tipping load: Bucket capacity: Operating weight: Engine output:	L 554 	12270 3.5 17300 137/186	L 564 	15285 4.0 22450 183/249	L 574 	16690 4.5 24220 195/265	L 580 	17850 5.0 24740 195/265	kg m³ kg kW/hp

15/11/00

Environmental protection can help you earn money!



How economical is your wheel loader?

Measuring your wheeled loader's fuel consumption is as easy as this!

Liebherr test method.

Determine the number of working cycles that can be carried out with 5 litres of diesel fuel. The material is picked up from Heap A and carried in a Y movement to Point B, which is 20 m away. The height of the bucket when the material is dumped at Point B should be 2.5 m. These work cycles – each of which lasts for about 35 seconds – are continued until the 5 litres of fuel in the external tank have been used up.

How do you calculate the expected fuel consumption per working hour?

$$\frac{400}{\text{No. of working cycles}} = \text{fuel consumption per working hour}$$

Values for the Liebherr wheel loaders

	Numbers of working cycles	Litres/100 tons	Litres/hour
L 524: 2.0 m³	n = 48	2.9	8.3
L 534: 2.4 m³	n = 40	2.8	10.0
L 538: 2.5 m³	n = 40	2.8	10.0
L 544: 3.0 m³	n = 35	2.6	11.4
L 554: 3.5 m³	n = 33	2.4	12.1
L 564: 4.0 m³	n = 24	2.9	16.7
L 574: 4.5 m³	n = 23	2.7	17.4
L 580: 5.0 m³	n = 22	2.7	18.2

05/12/00

The Liebherr measuring canister set.

Any Liebherr dealer will supply you with the measuring device free of charge or conduct the standard test for you if requested.