Technical Description Stereoloader®

L 514

Tipping Load	**5305 kg**
Bucket Capacity	**1,5 – 2,5 m³**
Operating Weight	**7,7 t**
Engine Output	**72 kW (98 HP)**

LIEBHERR

Technical Data

Engine

Liebherr diesel engine	D 504 T 4-cylinder, inline engine, water-cooled exhaust-turbo charged	
Power output according to ISO 9249	72 kW (98 HP)	at 2400 RPM
Max. torque	395 Nm	at 1400 RPM
Displacement	4,5 litres	
Bore/Stroke	106/127 mm	
Air cleaner	Dry air filter with main and safety element	
Electrical system		
Operating voltage	12 V	
Battery	2 x 88 Ah/12 V	
Alternator	12 V/65 A	
Starter motor	4,8 kW	

Travel Gear

Stepless hydrostatic travel drive

Design	Swash plate type variable flow pump and a variable axial piston motor in a closed loop circuit
Filtering system	Suction-side filter for 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	Speed range 1 – 8,0 km/h Speed range 2 – 30,0 km/h Forward and reverse with tyre size 17.5R25

Axles

Four-wheel drive

Front axle	Fixed Automatic limited-slip differential with 45 % locking action
Steered rear axle	Centre pivot, with 6° oscillating angle to each side. Obstacles up to 400 mm in height can be driven over (with all four wheels remaining in contact with the groud). Automatic limited-slip differnetial with 25 % locking action
Final drive	Planetary final drive in the wheel hubs
Track width	1870 mm with all types of tyres

Brakes

Service brake	Wear free service brake due to hydrostatic travel drive, applied to all four wheels and additional disc brake system on front axle
Parking brake	Hydraulically operated disc brake on front axle

The braking system meets the requirements of the EC guideline 71/320.

Tyres

Available sizes	15.5R25 17.5R25 Tubeless radial or cross-ply tyres on well-base rims
Special tyres	By arrangement with the manufacturer

Steering

Design	Hydraulic servo power steering. Central oscillating frame articulation in combination with rear axle steering, and damper element
Angle of articulation	28° (to each side)
Angle of oscillation	6° (to each side)
Max. pressure	180 bar

Attachment Hydraulics

Design	Gear pump
Max. flow	115 l/min.
Max. pressure	230 bar
Cooling	Hydraulic oil cooling by 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

Attachment

Geometry can be chosen	Powerful Z-pattern linkage with one tilt cylinder, hydr. quick change coupler – optional equipment
	Parallel linkage with two tilt cylin-ders, hydr. quick change coupler – standard equipment
Bearings	Sealed
Cycle time at nominal load	Lifting 4,5 sec.
	Dumping 1,5 sec.
	Lowering (empty) 3,0 sec.

Operator’s Cab

Design	The cab is resiliently mounted on the rear section, with built in ROPS/FOPS structure, tinted safety glass window, 2 doors open out, left door with a sliding window. Adjustable steering column is standard equipment ROPS roll over protection per DIN/ISO 3471/ SAE 1040C FOPS falling objects protection per DIN/ISO 3449/SAE J 231
Operator’s seat	6 way adjustable seat with seat belt, adjustable for operator’s weight
Cab heating and ventilation	With defrosting, fresh-air filter, airrecirculated-air mode and heater supplied from engine’s cooling system. Air conditioning is optional equipment

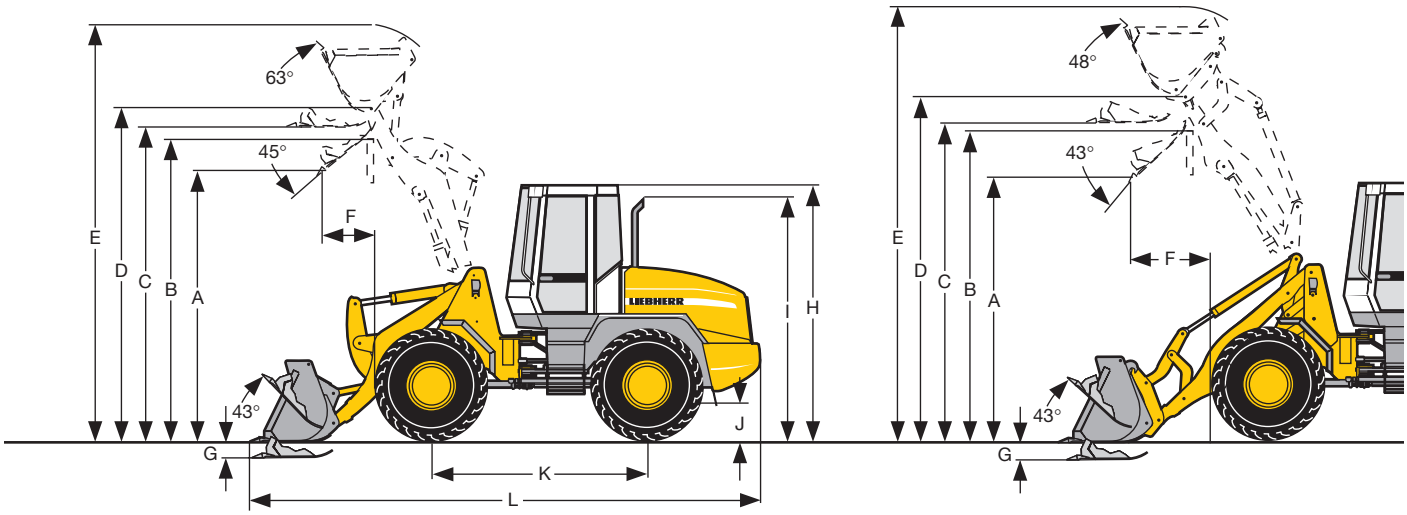
Noise Emission

ISO 6396	In the operator’s cab =	72 dB(A)
2000/14/EC	Outside cab	= 103 dB(A)

Capacities

Fuel tank	140 l
Engine oil (including filter change)	13,3 l
Travel gear and rear axle differential	11 l
Front axle/wheel hubs differential	12,5 l
Rear axle/wheel hubs	0,75 l
Hydraulic tank	65 l
Hydraulic system total	105 l

Dimensions



Loading Bucket

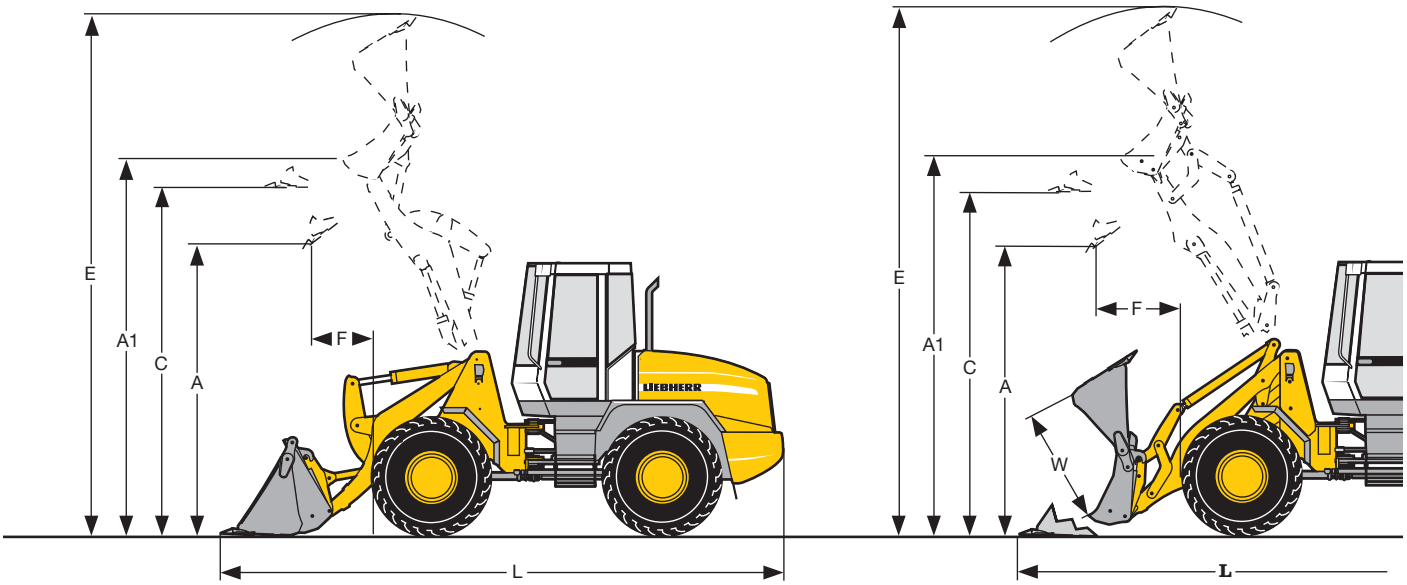
	Geometry		ZK		PK		ZK		PK	
	Cutting tools		T		T		T		T	
	Bucket capacity	m^3	1,5		1,3		1,7		1,5	
	Bucket width	mm	2400		2400		2400		2400	
	Specific material weight	t/m^3	1,8		1,8		1,6		1,6	
A	Dumping height at max. lift height and 45° discharge	mm	2825		3010		2805		2960	
B	Dump-over height	mm	3260		3430		3260		3430	
C	Max. height of bucket bottom	mm	3450		3610		3450		3610	
D	Max. height of bucket pivot point	mm	3680		3860		3680		3860	
E	Max. operating height	mm	4690		4845		4730		4920	
F	Reach at max. lift height and 45° discharge	mm	835		800		880		855	
G	Digging depth	mm	50		45		50		45	
H	Height above cab	mm	3025		3025		3025		3025	
I	Height above exhaust	mm	2690		2690		2690		2690	
J	Ground clearance	mm	385		385		385		385	
K	Wheelbase	mm	2600		2600		2600		2600	
L	Overall length	mm	6160		6335		6225		6415	
	Turning circle radius over outside bucket edge	mm	4445		4535		4465		4565	
	Lifting force (SAE)	kN	88		83		88		83	
	Breakout force (SAE)	kN	77		77		72		72	
	Tipping load, straight*	kg	5530[3]	5675	4780	5240[2]	5615	5870[1]	4735	5185[2]
	Tipping load, articulated at 28°*	kg	5170[3]	5305	4475	4900[2]	5250	5485[1]	4425	4845[2]
	Operating weight*	kg	7500[3]	7720	7830	8130[2]	7755	7905[1]	7860	8160[2]

* The figures shown here are valid with 17.5R25 Good Year GP2B 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.
ZK = Z-bar linkage
PK = Parallel linkage with quick coupler
T = Welded-on tooth holder with add-on teeth

[1] including 150 kg add. counterweight
[2] including 300 kg add. counterweight
[3] The figures are shown here are valid with 405/80R25 Dunlop SP T9 Tyres

Attachment

4 in 1 Bucket



4 in 1 Bucket

	Geometry		ZK**	PK**	
	Cutting tools		T	T	
	Bucket capacity	m³	1,00	1,00	
	Bucket width	mm	2400	2400	
	Specific material weight	t/m³	1,8	1,8	
A	Dumping height at max. lift height and 45° discharge	mm	2785	2980	
A1	Max. dumping height with opened bucket	mm	3885	4025	
C	Max. height of bucket bottom	mm	3445	3605	
E	Max. operating height	mm	5405	5580	
F	Reach at max. lift height and 45° discharge	mm	870	810	
L	Overall length	mm	6235	6375	
W	Max. bucket opening	mm	1150	1150	
	Turning circle radius over outside bucket edge	mm	4475	4545	
	Tipping load, straight*	kg	5110	4575	5025[2)]
	Tipping load, articulated at 28°*	kg	4780	4275	4695[2)]
	Operating weight*	kg	8050	8045	8345[2)]

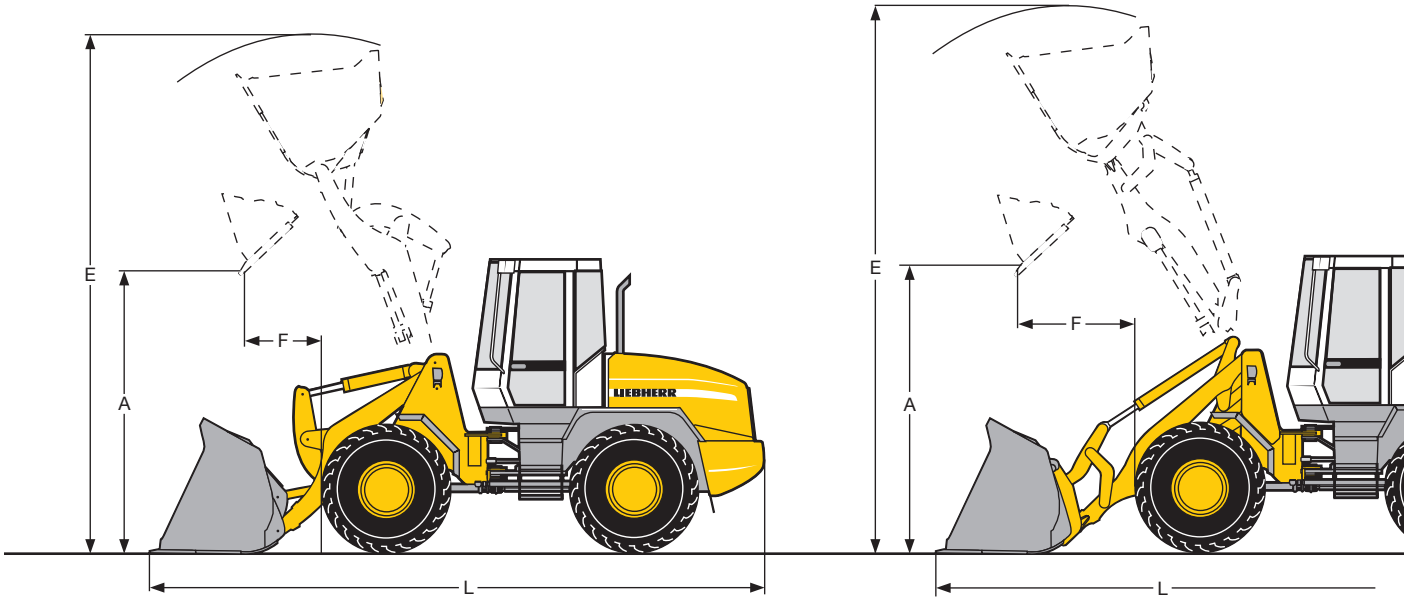
* The figures shown here are valid with 17.5R25 Good Year GP2B tyres and include all lubricants, a full fuel tank, the ROPS/FOPS cab and the operator.
Different tyres and optional equipment will change the operating weight and tipping load.

** Data with quick coupler
ZK = Z-bar linkage
PK = Parallel linkage with quick coupler
T = Welded-on tooth holder with add-on teeth

[2)] including 300 kg add. counterweight

Attachment

Light Material Bucket



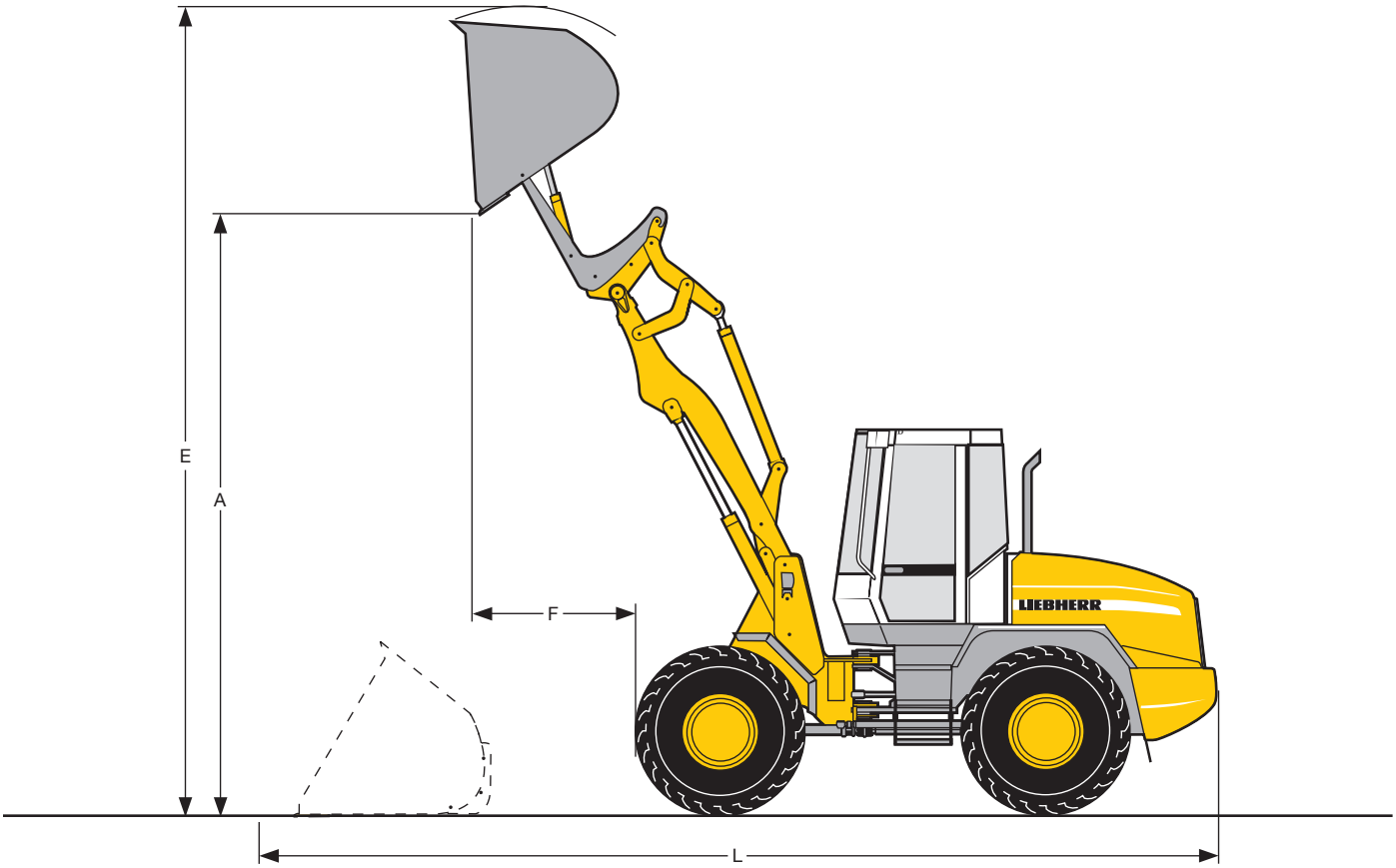
Light Material Bucket
with Bolt-On Cutting Edge


	Geometry		ZK	PK
	Bucket capacity	m^3	2,00	2,00
	Bucket width	mm	2500	2500
	Specific material weight	t/m^3	1,2	1,0
A	Dumping height at max. lift height	mm	2700	2815
E	Max. operating height	mm	4850	5090
F	Reach at maximum lift height	mm	950	980
L	Overall length	mm	6220	6480
	Tipping load, straight *	kg	5350[1)]	4850[2)]
	Tipping load, articulated *	kg	5000[1)]	4530[2)]
	Operating weight *	kg	7920[1)]	8360[2)]

* The figures shown here are valid with 17.5R25 Good Year GB 2B 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.
ZK = Z-bar linkage
PK = Parallel linkage with quick coupler
T = Welded-on tooth holder with add-on teeth
[1)] including 150 kg add. counterweight
[2)] including 300 kg add. counterweight

Attachment

High-Dump Bucket



High-Dump Bucket
with Bolt-On Cutting Edge

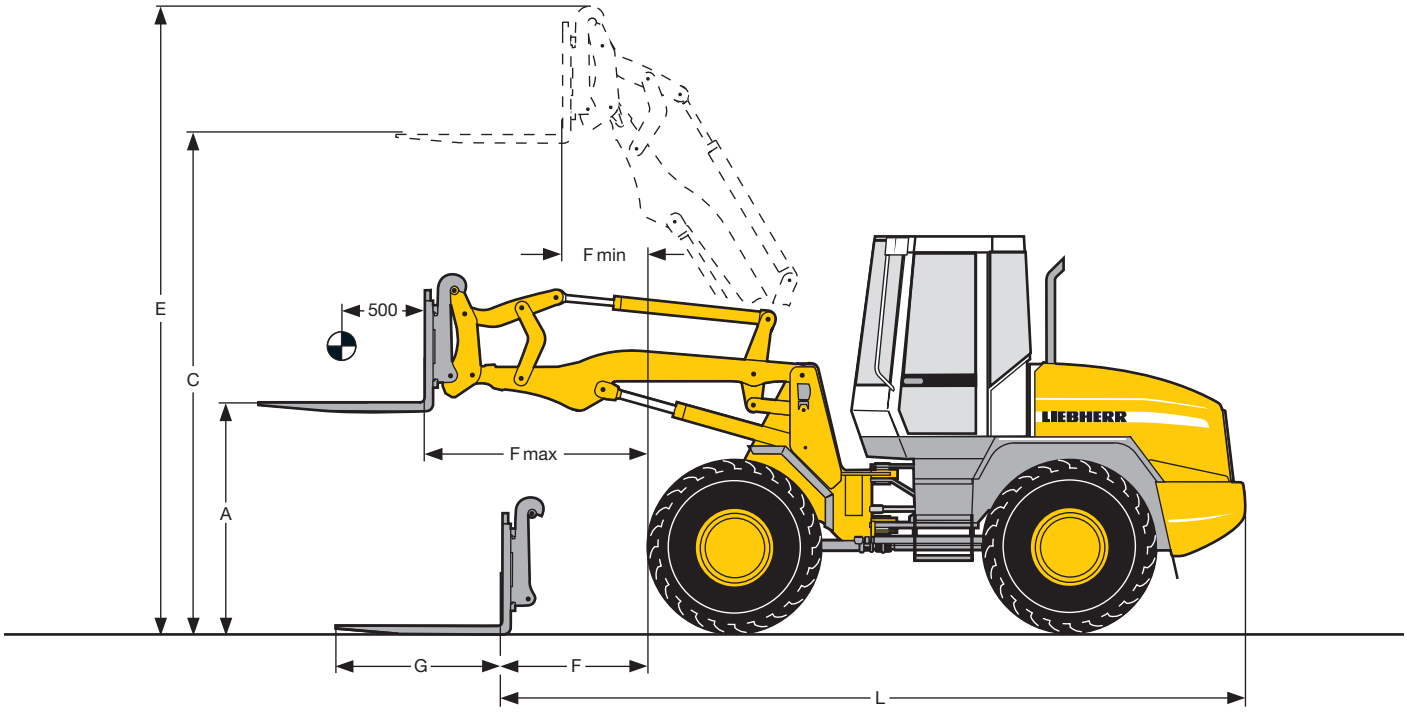
	Geometry		PK	
	Bucket capacity	m^3	2,5	
	Bucket width	mm	2490	
	Specific material weight	t/m^3	0,8	
A	Dumping height at max. lift height	mm	4240	
E	Max. operating height	mm	5950	
F	Reach at maximum lift height	mm	1465	
L	Overall length	mm	6850	
	Tipping load, straight*	kg	3975	4420[2)]
	Tipping load, articulated*	kg	3715	4130[2)]
	Operating weight*	kg	8590	8890[2)]

* The figures shown here are valid with 17.5R25 Good Year GB 2B 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.
ZK = Z-bar linkage
PK = Parallel linkage with quick coupler
T = Welded-on tooth holder with add-on teeth

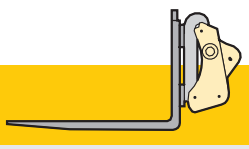
[2)] including 300 kg add. counterweight

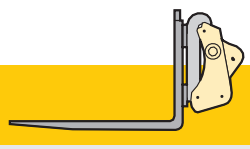
Attachment

Fork Carrier and Fork



FEM III Fork Carrier and Fork
with Quick Change Device





	Geometry		ZK		PK	
A	Lifting height at max. reach	mm	1735		1720	
C	Max. lifting height	mm	3505		3660	
E	Max. operating height	mm	4425		4585	
F	Reach at loading position	mm	810		960	
F max.	Max. reach	mm	1515		1630	
F min.	Reach at max. lifting height	mm	710		640	
G	Fork length	mm	1200		1200	
L	Length – basic machine	mm	5455		5605	
	Tipping load, straight *	kg	4000	4185[1)]	3735	4085[2)]
	Tipping load, articulated **	kg	3740	3910[1)]	3490	3815[2)]
	Operating weight *	kg	7755	7905[1)]	7750	8050[2)]

* The figures shown here are valid with 17.5R25 Good Year GB 2B 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.
ZK = Z-bar linkage
PK = Parallel linkage with quick coupler
T = Welded-on tooth holder with add-on teeth

[1)] including 150 kg add. counterweight
[2)] including 300 kg add. counterweight

Tipping Load

What is tipping load?
Load at centre of gravity of working equipment, so that the wheel loader just begins to tip over the front axle.
This the most unfavourable static-load position for the wheel loader.
Liftings arms horizontal, wheel loader fully articulated at centre pivot.

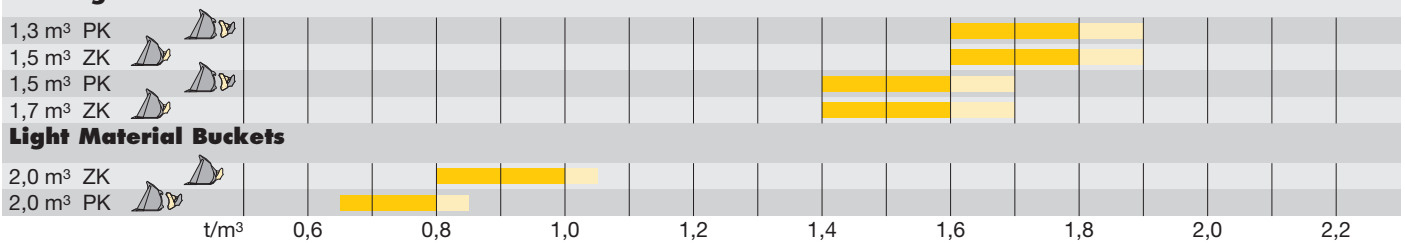
Pay load.
The pay load must not exceed 50 % of the tipping load when articuladed.
This is equivalent to a static stability-margin factor of 2,0.

Bucket capacity.
The bucket volume is determined from the pay load.

$$\text{Pay load} = \frac{\text{Tipping load, articulated}}{2}$$

$$\text{Bucket capacity} = \frac{\text{Pay load (kg)}}{\text{Specific bulk weight of material (t/m}^3\text{)}}$$

Selection of Buckets



Bulk Material Densities and Bucket Filling Factors

	t/m³	%
Gravel, moist	1,9	105
dry	1,6	105
wet, 6–50 mm	2,0	105
dry, 6–50 mm	1,7	105
crushed stone	1,5	100
Sand, dry	1,5	110
moist	1,8	115
wet	1,9	110
Gravel and sand,		
dry	1,7	105
wet	2,0	100
Sand and clay	1,6	110

	t/m³	%
Clay, natural	1,6	110
dry	1,4	110
wet	1,65	105
Clay and gravel,		
dry	1,4	110
wet	1,6	100
Earth, dry	1,3	115
wet excavated	1,6	110
Topsoil	1,1	110
Weathered rock		
50 % rock, 50 % earth	1,7	100
Basalt	1,95	100

	t/m³	%
Granite	1,8	95
Limestone,		
hard	1,65	95
soft	1,55	100
Sandstone	1,6	100
Slate	1,75	100
Bauxite	1,4	100
Gypsum, broken	1,8	100
Coke	0,5	110
Slag, broken	1,8	100
Coal	1,1	110

Tyre Sizes

	Change of operating weight kg	Width over tyres mm	Change in vertical dimensions mm	Use
405/80R25 Dunlop SP T9	– 210	2320	– 10	Garden- and Landscaping
15.5R25 GOOD YEAR GP2B	– 60	2320	– 20	Sand, Gravel
17.5R25 GOOD YEAR GP2B	0	2360	0	Sand, Gravel
15.5R25 Michelin XHA	– 130	2320	– 40	Gravel
17.5R25 Michelin XHA	+ 10	2370	+ 10	Gravel
15.5R25 Michelin X-Mine D2	+ 500	2340	+ 25	Industry, Scrap material

Before operating the vehicle with tire foam filling or tire protection chains, please discuss this with Liebherr-Werk Bischofshofen.

Equipment

Basic Machine

	s	o
Liebherr travel gear	•	
Ride control		•
Liebherr shock absorbing element	•	
Automatic travel mode	•	
20 km/h speed limiting		•
Electronical theft protection		•
Creep speed		x
Electronic crowding force control		x
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		•
Exhaust pipe – special steel		x
Automatic central lubrication system		•

Operator's Cab

	s	o
Cab with reduced height – 90 mm		x
Noise-damped ROPS/FOPS cab with tinted safety glass	•	
Hot-water heater with defroster and recirculated-air system	•	
Adjustable steering column	•	
Liebherr-joystick control		x
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		x
Plug	•	
Ashtray	•	
Horn	•	
Provision for radio including loudspeaker		•
Radio set		•
Operator's package	•	

Instruments for:

	s	o
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		x
Clock	•	
Safety belt	•	
Flashing turn indicators	•	
High-beam headlights	•	
Diagnosis system		x

Warning Lights for:

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

Audible Warnings for:

	s	o
Engine oil pressure	•	
Engine overheat	•	
Overheat of hydraulic fluid	•	
Emergency steering system	•	

Function Keys for:

	s	o
Air conditioning		•
Hazard warning flashers	•	
Parking brake	•	
Electronic tractive force adaptation		x
Creep speed		x
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:

	s	o
Blower	•	
Heater	•	
Fresh air or recirculated air	•	
Adjusting the crowding force counter		x

Equipment

	s	o
Z-bar linkage	•	
Parallel linkage	•	
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	• PK	• ZK
3rd hydraulic control circuit		•
3rd and 4th hydraulic control circuits		•
Comfort control		•
20 km/h speed limiting		•
Automatic acting central lubrication system		•
Country-specific versions		•

14 11.01

S = Standard, O = Option, X = not available, PK = Parallel-Kinematic, ZK = Z-Kinematic

The Liebherr Wheel Loaders

Stereoloader






		L 506	L 507	L 508	L 509	L 512	L 514
Tipping load	kg	32105	3465	3895	4440	4615	5305
Bucket capacity	m³	0,8	0,9	1,0	1,1	1,3	1,5
Operating weight	kg	4810	4930	5310	5740	7000	7700
Engine output	kW/HP	44/60	46/63	49/67	52/71	59/80	72/98

Wheel Loader




		L 524	L 534	L 538	L 544 2plus2
Tipping load	kg	7005	8625	9000	10600
Bucket capacity	m³	2,0	2,4	2,5	3,0
Operating weight	kg	10100	12100	12380	15300
Engine output	kW/HP	81/110	100/136	100/136	121/165




		L 554 2plus2	L 564 2plus2	L 574 2plus2	L 580 2plus2
Tipping load	kg	12270	15285	16690	17850
Bucket capacity	m³	3,5	4,0	4,5	5,0
Operating weight	kg	17300	22450	24220	24740
Engine output	kW/HP	145/198	183/249	195/265	195/265

01.03

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