

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 travel 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 | Fixed | |
| Front 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

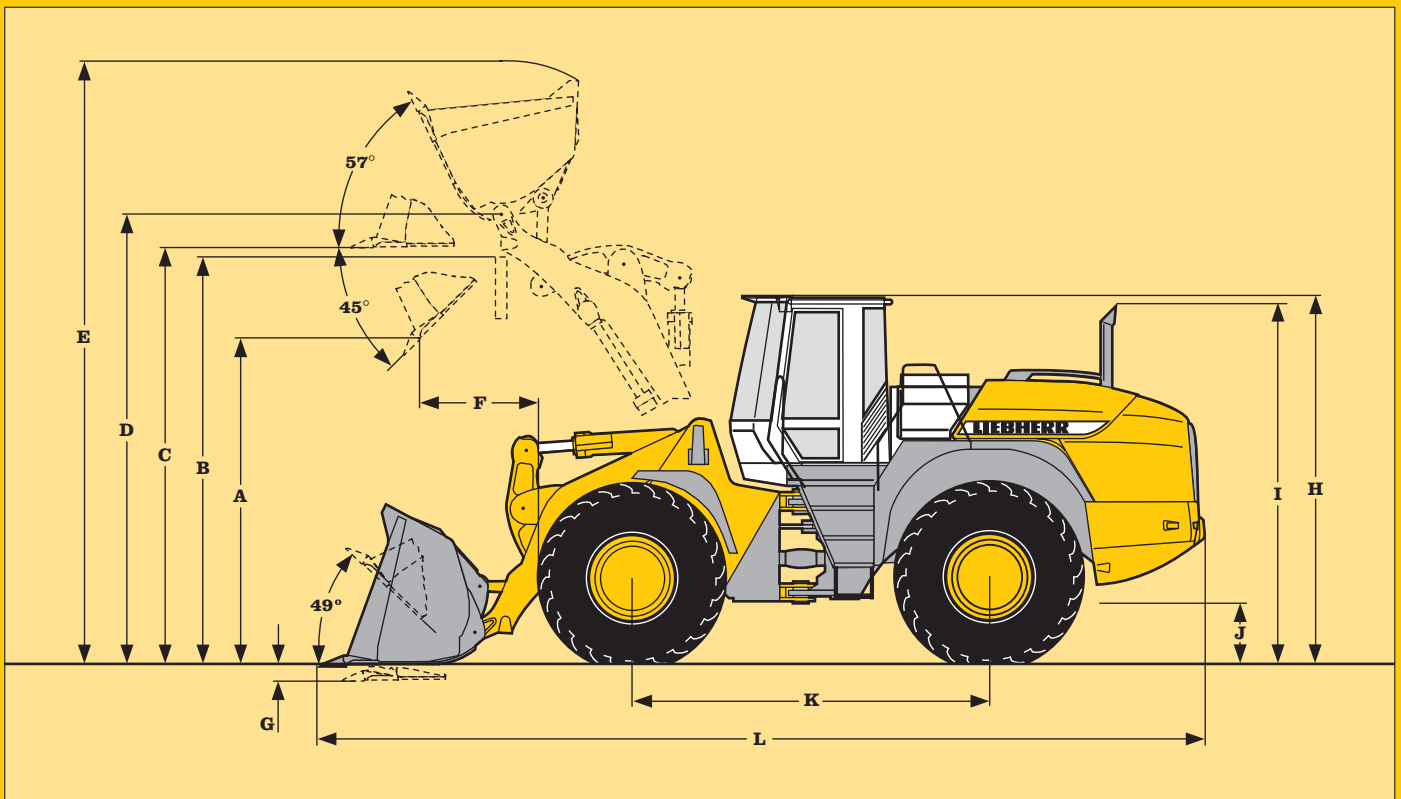
| | | |
|--------------|-----------------------|-----------|
| (86/662/EWG) | In the operator's cab | |
| | Without blower | 69 dB(A) |
| | Max. blower output | 73 dB(A) |
| | Outside cab | 105 dB(A) |







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

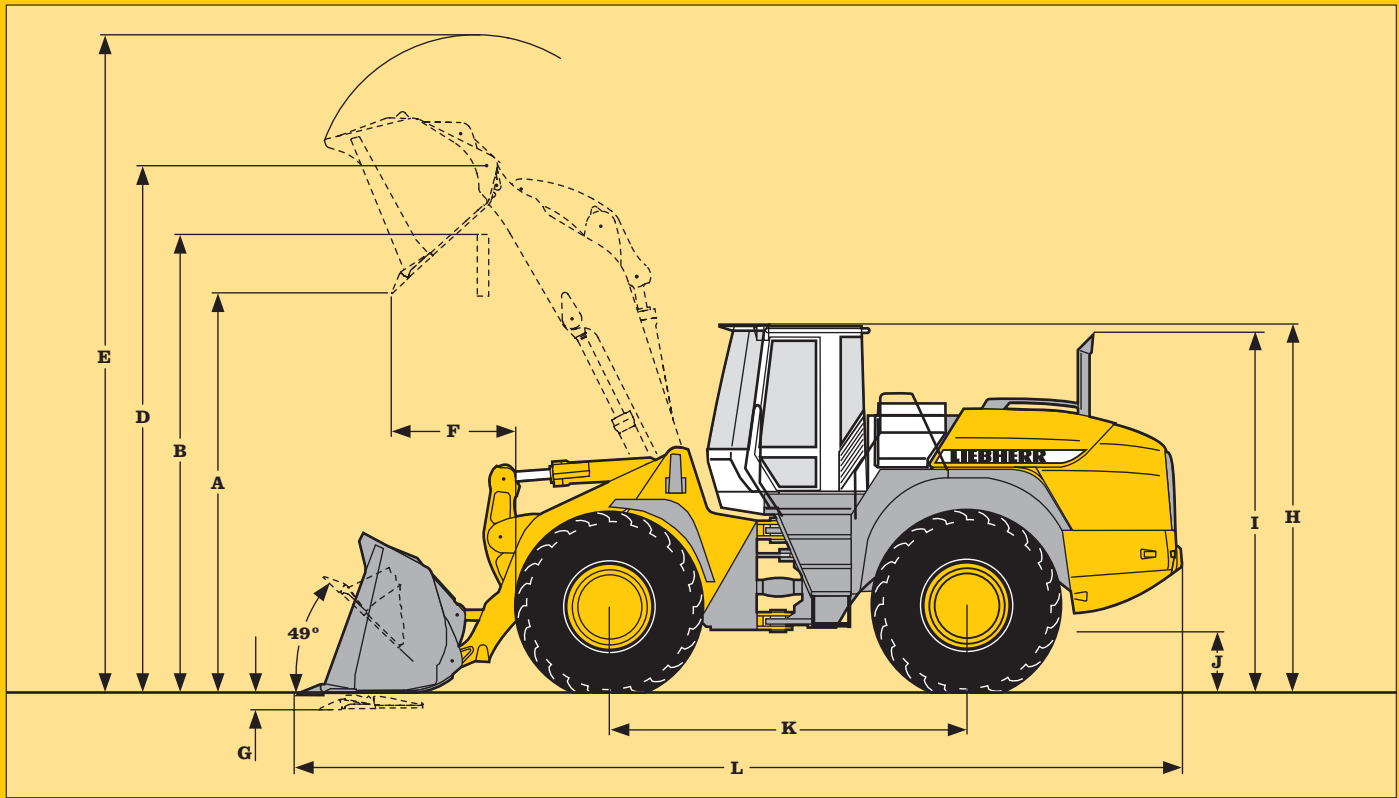




| Bucket type | Cutting tools | Loading Bucket | | | |
|--|------------------|--|--|--|--|
| | | T | | T | |
| | |  |  |  |  |
| Bucket capacity | m ³ | 3,5 | | 3,8 | |
| Bucket width | mm | 2700 | | 2700 | |
| Specific material weight | t/m ³ | 1,8 | 1,6 | 1,6 | 1,4 |
| A Dumping height at max. lift 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 | |
|--|---|---|
| | T | T |
| Cutting tools |  |  |
| Bucket capacity | 3,0 m ³ | 4,0 m ³ |
| Bucket width | 2700 mm | 2700 mm |
| Specific material weight | 1,6 t/m ³ | 1,2 t/m ³ |
| Dumping height at max. lift height and 45° discharge | 3630 mm | 3330 mm |
| B Dump-over height | 4000 mm | 4000 mm |
| C Max. height of bucket bottom | 4330 mm | 4330 mm |
| D Max. height of bucket pivot point | 4600 mm | 4600 mm |
| E Max. operating height | 6040 mm | 6250 mm |
| Reach at max. lift height and 45° discharge | 915 mm | 1200 mm |
| G Digging depth | 130 mm | 130 mm |
| H Height above cab | 3355 mm | 3355 mm |
| I Height above exhaust | 3310 mm | 3310 mm |
| J Ground clearance | 530 mm | 530 mm |
| K Wheelbase | 3150 mm | 3150 mm |
| L Overall length | 8360 mm | 8630 mm |
| Turning circle radius over outside bucket edge | 6500 mm | 6600 mm |
| Lifting force (SAE) | 130 kN | 130 kN |
| Breakout force (SAE) | 125 kN | 90 kN |
| Tipping load, straight * | 11180 kg | 10530 kg |
| Tipping load, articulated at 35°* | 10155 kg | 9570 kg |
| Tipping load, articulated at 40°* | 9850 kg | 9280 kg |
| Operating weight * | 17350 kg | 17640 kg |

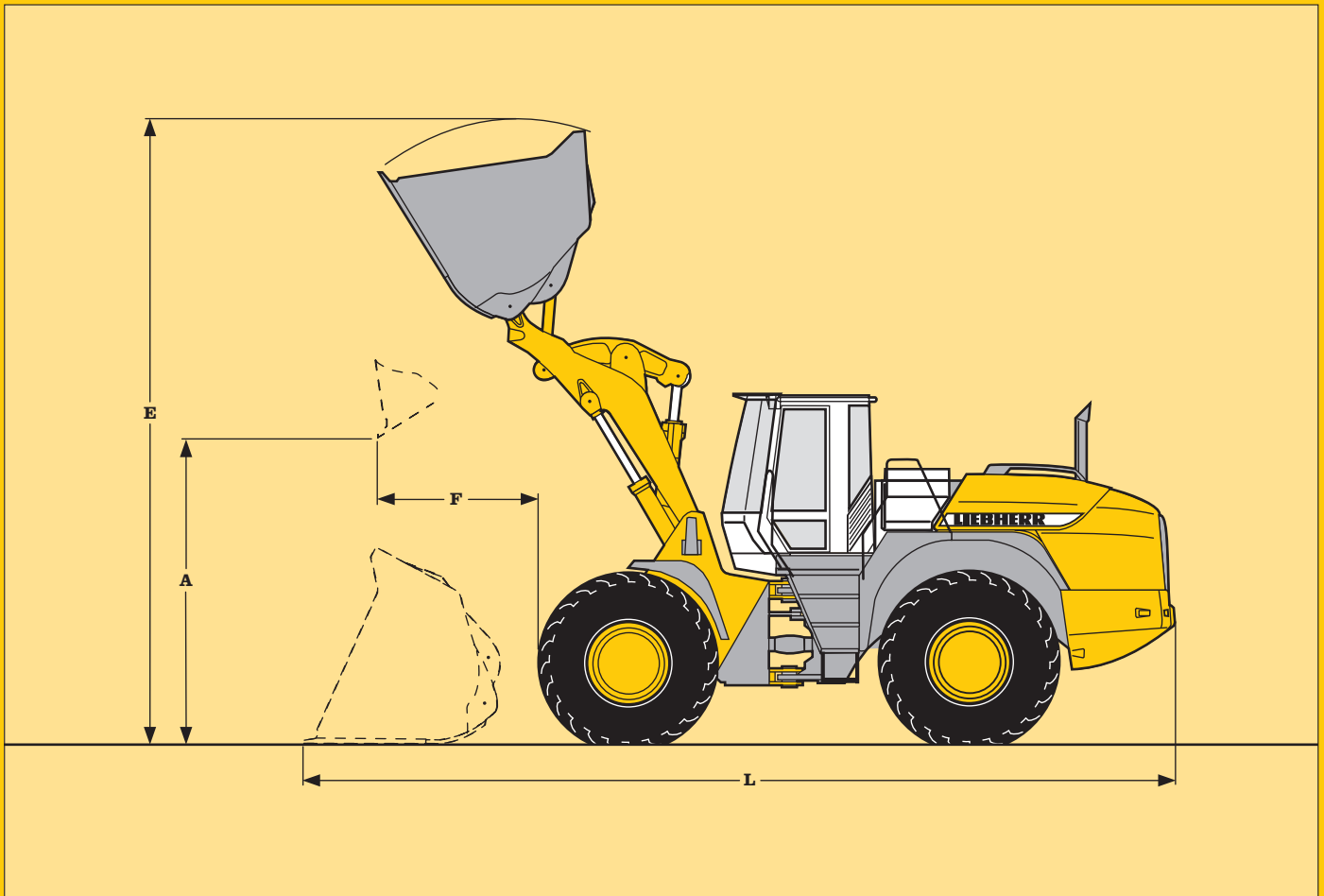
* The figures shown here are valid with Michelin XHA 23.5R25 tyres and include all lubricants, a full fuel tank, the ROPS/FOPS cab and the operator.

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





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

Attachments

Light material bucket



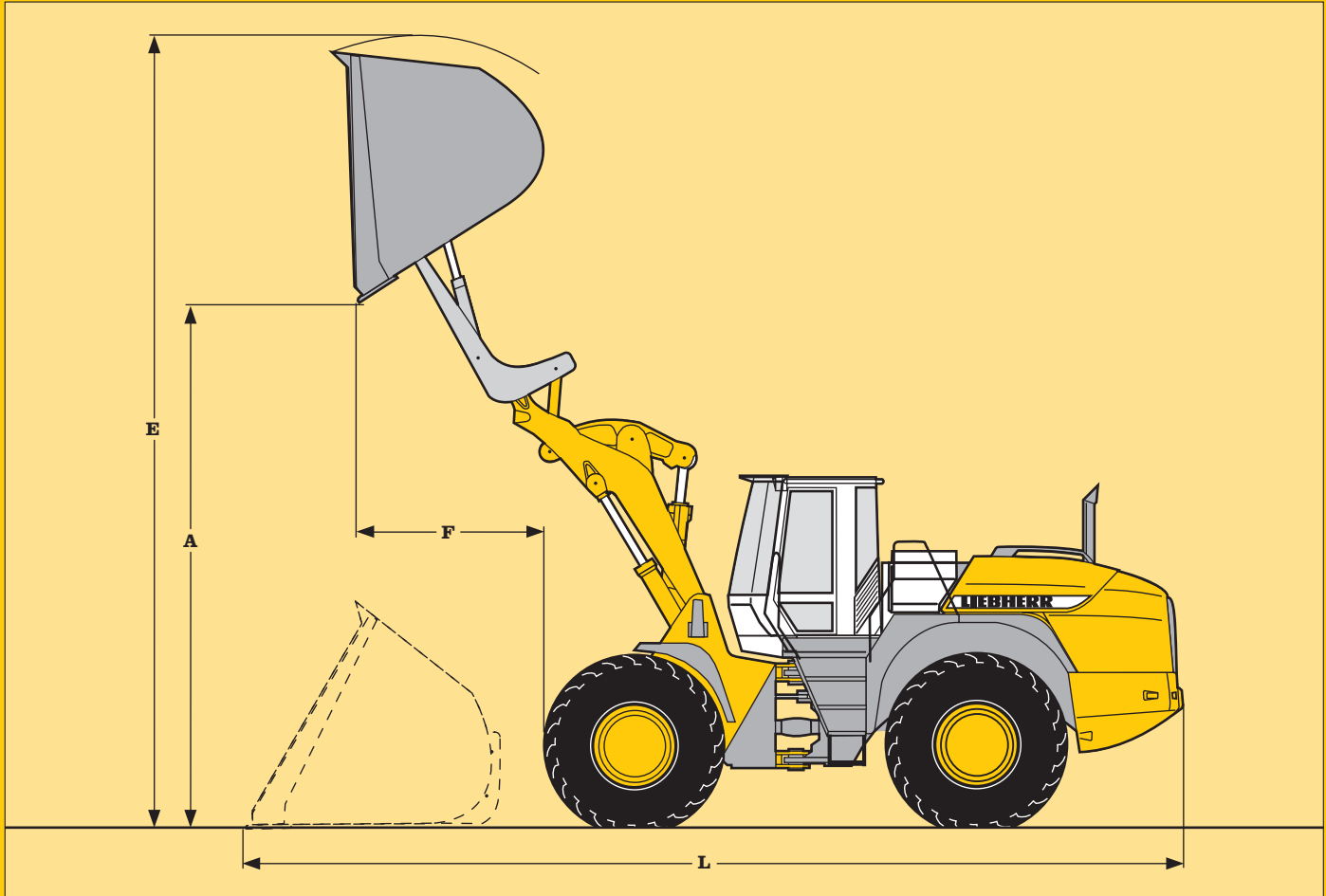
Light material bucket with bolt-on cutting edge

| | |  |  |  |  |
|--------------------------------------|------------------|---|---|---|---|
| Bucket capacity | m ³ | 5,0 | | 6,0 | |
| Bucket width | mm | 2950 | | 2950 | |
| Specific material weight | t/m ³ | 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 |



* 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.

Attachments

High-dump Bucket



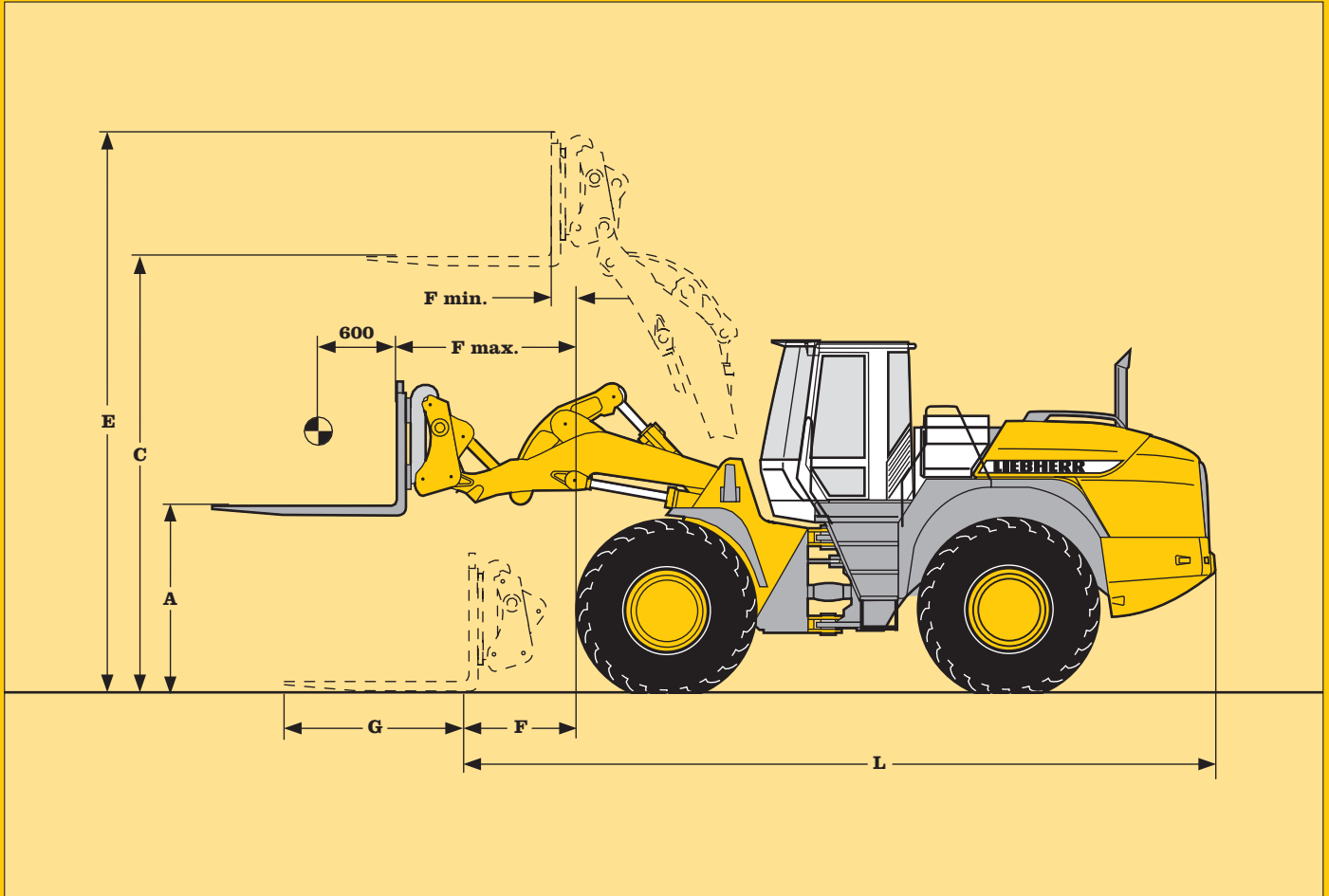
High-dump bucket with bolt-on cutting edge

| | |  |  |
|--------------------------------------|------------------|---|---|
| Bucket capacity | m ³ | 4,5 | |
| Bucket width | mm | 2700 | |
| Specific material weight | t/m ³ | 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 |

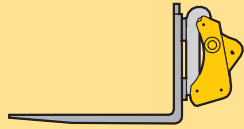
* The figures shown here are valid with Michelin XHA 23.5R25 tyres and include all lubricants, a full fuel tank, the ROPS/FOPS cab and the operator.
Different tyres and optional equipment will change the operating weight and tipping load.

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 |

* 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.

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

| 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

| | Standard | Optional |
|---|----------|----------|
| 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:

| | Standard | Optional |
|---------------------------------------|----------|----------|
| 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:

| | Standard | Optional |
|--|----------|----------|
| 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:

| | Standard | Optional |
|-----------------------------|----------|----------|
| Engine oil pressure | ● | |
| Engine overheat | ● | |
| Overheat of hydraulic fluid | ● | |
| Emergency steering system | | X |

Function keys for:

| | Standard | Optional |
|--------------------------------------|----------|----------|
| 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:

| | Standard | Optional |
|--------------------------------------|----------|----------|
| Blower | ● | |
| Heater | ● | |
| Fresh air or recirculated air | ● | |
| Adjusting the crowding force counter | ● | |

Equipment















| | Standard | Optional |
|---|----------|----------|
| 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 | | ● |
|---------------------------|--|---|

X = Not available

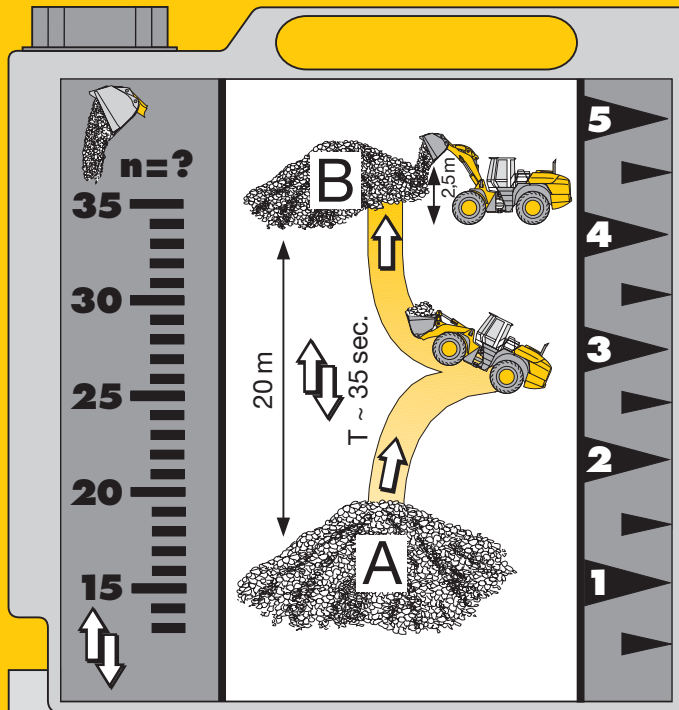
44/54

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 m ³ 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 m ³ 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 m ³ 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 m ³ 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 m ³ | n = 48 | 2.9 | 8.3 |
| L 534: 2.4 m ³ | n = 40 | 2.8 | 10.0 |
| L 538: 2.5 m ³ | n = 40 | 2.8 | 10.0 |
| L 544: 3.0 m ³ | n = 35 | 2.6 | 11.4 |
| L 554: 3.5 m ³ | n = 33 | 2.4 | 12.1 |
| L 564: 4.0 m ³ | n = 24 | 2.9 | 16.7 |
| L 574: 4.5 m ³ | n = 23 | 2.7 | 17.4 |
| L 580: 5.0 m ³ | 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.