

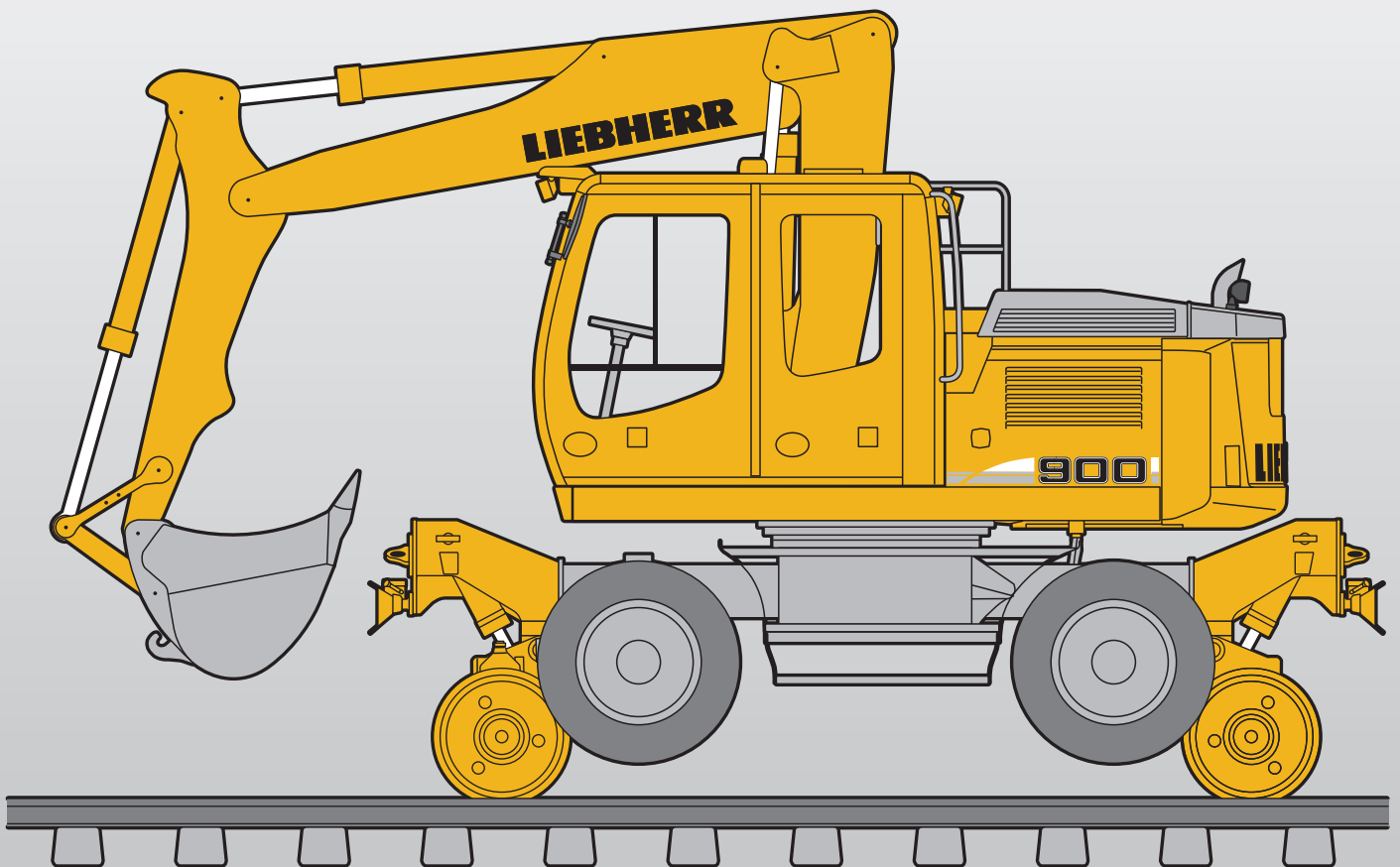
# Railroader

# A 900 C ZW

Litronic®

## Friction Drive

Operating Weight: 21,800 – 25,000 kg  
Engine Output: 105 kW / 143 HP



# LIEBHERR

# Technical Data



## Engine

Rating per ISO 9249	105 kW (143 HP) at 1800 RPM
Model	Liebherr D 934 S according to level IIIA/Tier 3
Type	4 cylinder in-line
Bore/Stroke	122/136 mm
Displacement	6,4 l
Engine operation	4-stroke diesel unit pump system turbo-charged and after-cooled reduced emissions
Cooling system	water-cooled and integrated motor oil cooler
Air cleaner	dry-type air cleaner with pre-cleaner, primary and safety elements
Fuel tank	290 l
Engine idling	sensor controlled
Electrical system	
Voltage	24 V
Batteries	2 x 135 Ah/12 V
Alternator	three phase current 28 V/80 A
Option	Liebherr particle filter



## Hydraulic System

Hydraulic pump	Liebherr, variable displacement, swashplate double pump
Max. flow	2 x 189 l/min.
Max. hydr. pressure	350 bar
Hydraulic pump regulation and control	2 circuit Liebherr-Synchron-Comfort-System (LSC) with electronic engine speed sensing regulation, pressure and flow compensation, load sensing and torque controlled swing drive priority
Attachment priority control	priority LSC circuit for attachments max. 189 l/min.
Additional circuit pump	variable displacement pump
Flow	93 l/min.
Hydr. pressure	290 bar
Hydraulic tank capacity	175 l
Hydraulic system capacity	max. 340 l
Filtration	one main return filter with integrated partial micro filtration (5 µm)
Cooling system	compact cooler, consisting of a water cooler, sandwiched with hydraulic oil cooler, fuel cooler and after-cooler cores and hydrostatically driven fan
Modes	can also be adjusted by the operator to adjust engine and hydraulic performance to match job conditions (Note: All modes provide full max. power)
LIFT	for precise lifting tasks
FINE	for precision work at high speed i.e. grading
ECO	for the most economical and environmentally friendly performance
POWER	for max. output
Super-Finish	additional operator adjustable work speed function for further increased feathering. Applies to all modes and all control functions
RPM adjustment	stepless adjustment of engine output via the RPM
Function menu	ten preadjustable pump flows and pressures for optional attachments



## Hydraulic Controls

Power distribution	via control valves with integrated safety valves, simultaneous and independent operation of travel drive, swing drive and equipment
Flow summation	2 x 189 l/min. for all working movements
Control type	
Attachment and swing	proportional via joystick levers
Travel	proportional via foot pedal
Additional functions	via switch and/or proportional foot pedals



## Swing Drive

Drive	Liebherr swashplate motor with torque control and integrated brake valve
Transmission	Liebherr compact planetary reduction gear
Swing ring	Liebherr sealed single race ball bearing swing ring, internal teeth
Swing speed	0 – 9,0 RPM stepless
Swing torque	46 kNm
Holding brake	wet discs (spring applied – pressure released)
Option	pedal controlled positioning brake



## Operator's Cab

Cab	two-seater, resiliently mounted, sound insulated, tinted windows, front screen lifts up under roof, door with sliding window
Operator's seat	fully adjustable, shockabsorbing suspension, adjustable to operator's weight and size, 6-way adjustable Liebherr seat, extra seat for second person
Joysticks	integrated into adjustable seat consoles. Application of emergency brake and air horn possible by second person
Monitoring	menu driven query of current operating conditions via the LCD display. Automatic monitoring, display, warning (acoustic and optical) and electronic storage of machine, for example, engine overheating, low engine oil pressure or low hydraulic oil level
Safety kit	safety flags, fire extinguisher and ÖCU-bag
Air conditioning	climate control as standard, combined cooler/heater, dust filter in fresh air and recirculation circuits
Noise emission	
ISO 6396	$L_{DA}$ (inside cab) = 73 dB(A)
2000/14/EC	$L_{WA}$ (surround noise) = 100 dB(A)
Sound level in correspondence with "Blue Angel" guidelines.	



## Undercarriage

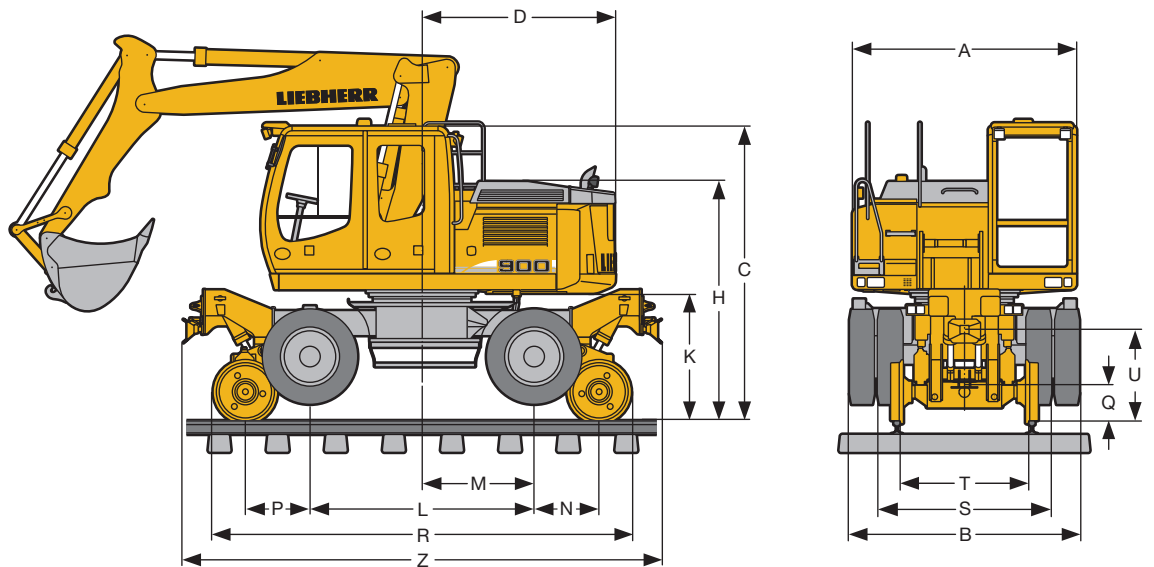
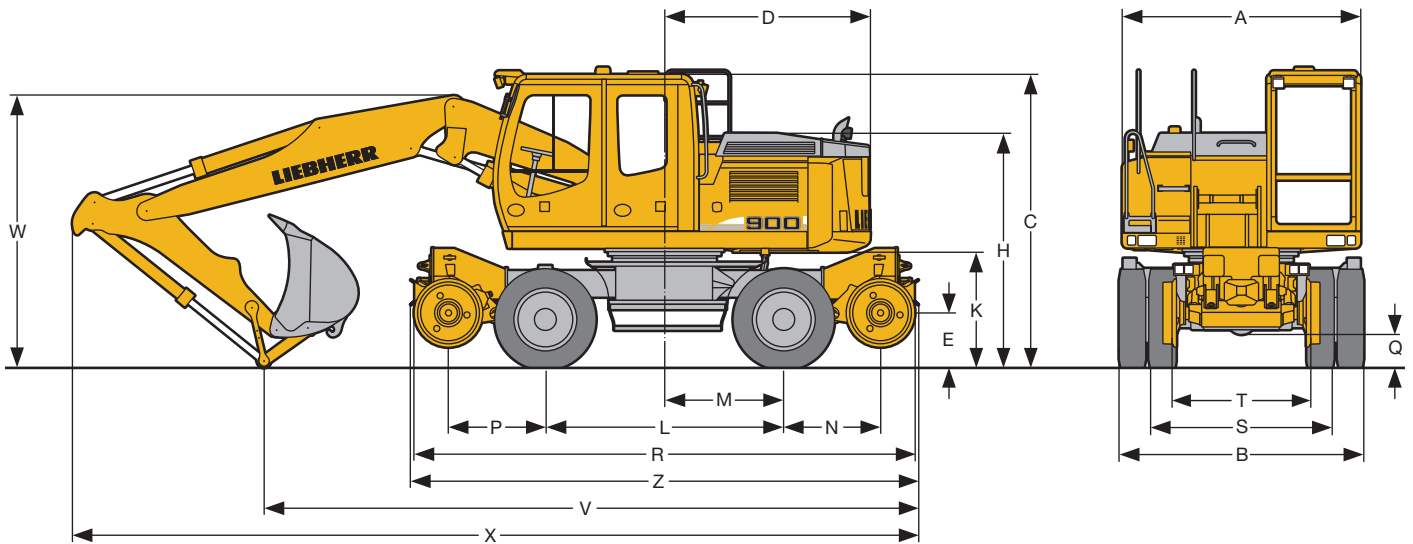
Drive	variable flow swashplate motor with automatic brake valve
Transmission	two speed power shift transmission with additional creeper speed
Travel speed	0 – 2,5 km/h (creeper speed off road) 0 – 5,0 km/h (off road) 0 – 9,0 km/h (creeper speed on road) 0 – 20,0 km/h (road travel)
Axles	40 t excavator axles; automatic or operator controlled front axle oscillation lock
Brakes	wet, maintenance-free multi disc brakes act as travel brakes or digging locks. Spring applied/pressure released parking brake integrated into gearbox
Rail bogie system	rail gear with 650 mm dia wheels, raised and lowered hydraulically
Trailer hitch	"Rockinger" coupling front and rear. Tow bar. Additional trailer coupling at rail gear



## Equipment

Hydraulic cylinders	Liebherr cylinders with special seals and guides and end damping.
Bearings	sealed, low maintenance
Lubrication	Liebherr semi-automatic central lubrication system
Sticks	all sticks prepared for quick hitch stick
Option	Liebherr quick hitch

# Dimensions



	on tyres	mm	on rail	mm
A		2500		2500
B		2565		2565
C		3080		3290
D		2000 (2050, 2160)		2000 (2050, 2160)
E		575		-
H		2465		2675
K		1215		1425
L		2500		2500
M		1250		1250
N		1020		720
P		1020		720
Q		350		405
R		5260		4660
S		1910		1910
T		1435		1435
U		1025		1025
Z		5330		5330

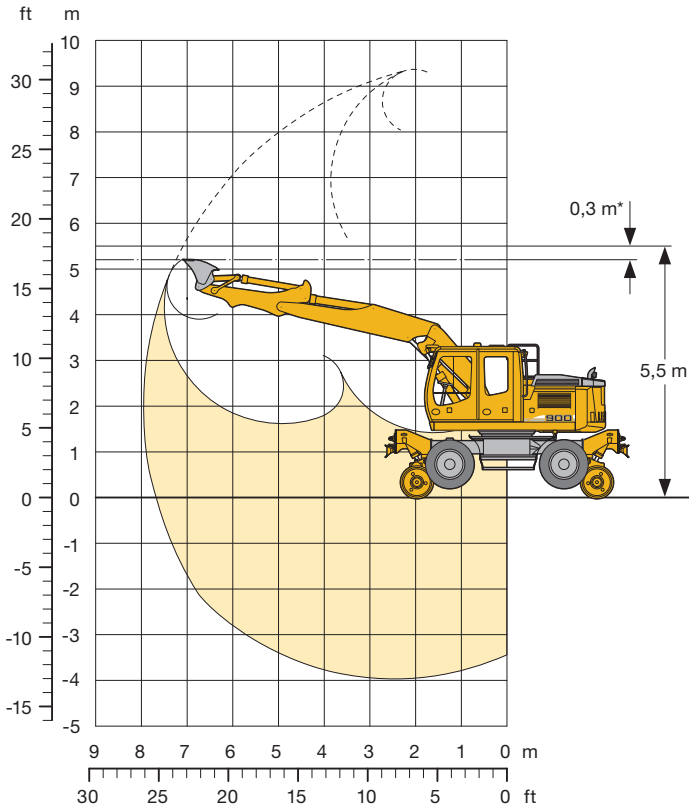
**Tyres 10.00-20**

<b>Hydr. Adjustable Boom 3,40 m</b>	
Stick length	m 1,85
V	mm 6700
W	mm 3000
X	mm 8800

Dimensions are with attachment over steering axle

# Ditchcleaning Attachment

with Hydr. Adjustable Boom 3,40 m



## Digging Envelope

Stick length	m	1,85
Max. digging depth	m	4,00
Max. reach at ground level	m	7,70
Max. dumping height	m	8,00
Max. dumping height under overhead wires	m	4,00
Max. teeth height	m	9,30
Max. digging force	kN	89,5
	t	9,1
Max. breakout force	kN	98,3
	t	10,0
Max. breakout force with ripper bucket		114,0 kN (11,6 t)

## Operating Weight

The operating weight includes the basic machine with 8 tyres plus spacer rings, hydr. adjustable boom 3,40 m, stick 1,85 m and ditch-cleaning bucket 2000 mm/0,65 m<sup>3</sup>.

A 900 C ZW Litronic F.D.	Weight
Tail swing radius 2000 mm	21800 kg
Tail swing radius 2050 mm	22700 kg
Tail swing radius 2160 mm	25000 kg

\* Safety distance to overhead wires

## Ditchcleaning Buckets Machine stability per ISO 10567\* (75% of tipping capacity)

Cutting width mm	Capacity ISO 7451 <sup>1)</sup> m <sup>3</sup>	Weight kg	Tail swing radius 2000 mm		Tail swing radius 2050 mm		Tail swing radius 2160 mm	
			on rail	on tyres	on rail	on tyres	on rail	on tyres
			Stick length (m) 1,85	Stick length (m) 1,85	Stick length (m) 1,85	Stick length (m) 1,85	Stick length (m) 1,85	Stick length (m) 1,85
1600	0,80	445	△	□	□	□	□	□
2000	0,65	388	□	□	□	□	□	□
1600 <sup>2)</sup>	0,80	766	■	□	△	□	□	□
2000 <sup>2)</sup>	0,70	811	■	□	△	□	□	□

\* Indicated loads are based on ISO 10567 and do not exceed 75% of tipping or 87% of hydraulic capacity, max. stick length without quick change adapter, lifted 360° on firm with blocked oscillating axle

<sup>1)</sup> comparable with SAE (heaped)

<sup>2)</sup> with 2 x 50° rotator

□	= ≤ 1,8 t/m <sup>3</sup> max. material weight
△	= ≤ 1,5 t/m <sup>3</sup> max. material weight
■	= ≤ 1,2 t/m <sup>3</sup> max. material weight
▲	= -

# Lift Capacities

with Hydr. Adjustable Boom 3,40 m

## Stick 1,85 m Tail Swing Radius 2000 mm

↑ m	Under-carriage	3,0 m		4,5 m		6,0 m		Max. reach		m
7,5	on rail	7,1	7,4*					4,1	4,8*	4,18
	on tyres	7,4*	7,4*					4,8*	4,8*	
6,0	on rail	6,0*	6,0*	3,9	6,5*			2,5	3,7*	5,80
	on tyres	6,0*	6,0*	5,3	6,5*			3,4	3,7*	
4,5	on rail	6,8	9,5*	3,9	7,1*	2,4	5,8*	1,9	3,3*	6,69
	on tyres	9,3*	9,5*	5,2	6,7	3,3	4,4	2,7	3,3*	
3,0	on rail	6,5	9,4*	3,8	8,2*	2,4	6,1*	1,7	3,2*	7,15
	on tyres	9,0	9,4*	5,1	6,6	3,3	4,4	2,4	3,2*	
1,5	on rail	6,5	11,7*	3,8	8,7*	2,3	6,3*	1,6	3,2*	7,25
	on tyres	8,9	11,7*	5,1	6,6	3,2	4,3	2,3	3,1	
0	on rail	6,0	13,7*	3,5	8,7*	2,2	6,4*	1,7	3,4*	7,02
	on tyres	8,6	12,3	4,9	6,6	3,1	4,1	2,4	3,2	
-1,5	on rail	5,8	14,3*	3,3	9,0*	2,1	5,3*	1,9	4,0*	6,43
	on tyres	8,4	12,1	4,6	6,3	3,0	4,0	2,7	3,6	
-3,0	on rail	5,7	11,8*	3,2	5,8*			3,0	5,2*	4,65
	on tyres	8,2	11,8*	4,5	5,8*			4,3	5,2*	

## Stick 1,85 m Tail Swing Radius 2050 mm

↑ m	Under-carriage	3,0 m		4,5 m		6,0 m		Max. reach		m
7,5	on rail	7,4*	7,4*					4,6	4,8*	4,18
	on tyres	7,4*	7,4*					4,8*	4,8*	
6,0	on rail	6,0*	6,0*	4,4	6,5*			2,8	3,7*	5,80
	on tyres	6,0*	6,0*	5,8	6,5*			3,7*	3,7*	
4,5	on rail	7,5	9,5*	4,4	7,1*	2,8	5,8*	2,2	3,3*	6,69
	on tyres	9,5*	9,5*	5,7	7,1*	3,7	4,8	3,0	3,3*	
3,0	on rail	7,3	9,4*	4,3	8,2*	2,7	6,1*	2,0	3,2*	7,15
	on tyres	9,4*	9,4*	5,6	7,1*	3,7	4,8	2,7	3,2*	
1,5	on rail	7,3	11,7*	4,2	8,7*	2,7	6,3*	1,9	3,2*	7,25
	on tyres	9,7	11,7*	5,6	7,1*	3,6	4,7	2,6	3,2*	
0	on rail	6,8	13,7*	4,0	8,7*	2,5	6,4*	2,0	3,4*	7,02
	on tyres	9,5	13,2	5,4	7,2	3,4	4,6	2,7	3,4*	
-1,5	on rail	6,6	14,3*	3,7	9,0*	2,4	5,3*	2,2	4,0*	6,43
	on tyres	9,3	13,3	5,1	6,9	3,3	4,5	3,0	4,0*	
-3,0	on rail	6,4	11,8*	3,6	5,8*			3,5	5,2*	4,65
	on tyres	9,2	11,8*	5,0	5,8*			4,8	5,2*	

## Stick 1,85 m Tail Swing Radius 2160 mm

↑ m	Under-carriage	3,0 m		4,5 m		6,0 m		Max. reach		m
7,5	on rail	7,4*	7,4*					4,8*	4,8*	4,18
	on tyres	7,4*	7,4*					4,8*	4,8*	
6,0	on rail	6,0*	6,0*	5,3	6,5*			3,5	3,7*	5,80
	on tyres	6,0*	6,0*	6,5*	6,5*			3,7*	3,7*	
4,5	on rail	9,0	9,5*	5,3	7,1*	3,4	5,8*	2,8	3,3*	6,69
	on tyres	9,5*	9,5*	6,7	7,1*	4,4	5,7*	3,3*	3,3*	
3,0	on rail	8,7*	9,4*	5,2	8,2*	3,4	6,1*	2,5	3,2*	7,15
	on tyres	9,4*	9,4*	6,6	8,2*	4,4	5,6	3,2*	3,2*	
1,5	on rail	8,7*	11,7*	5,2	8,7*	3,3	6,3*	2,4	3,2*	7,25
	on tyres	11,3	11,7*	6,5*	8,2	4,3	5,6	3,2*	3,2*	
0	on rail	8,3	13,7*	4,9	8,7*	3,2	6,4*	2,5	3,4*	7,02
	on tyres	11,4	13,7*	6,5	8,3*	4,2	5,5	3,3	3,4*	
-1,5	on rail	8,1	14,3*	4,7	9,0*	3,1	5,3*	2,8	4,0*	6,43
	on tyres	11,2	14,3*	6,2	8,2	4,1	5,3*	3,8	4,0*	
-3,0	on rail	8,0	11,8*	4,6	5,8*			4,4	5,2*	4,65
	on tyres	11,0	11,8*	5,8*	5,8*			5,2*	5,2*	

Height Can be slewed through 360° In longitudinal position of undercarriage Max. reach \* Limited by hydr. capacity

The lift capacities are stated in metric tonnes (t) at the stick end and can be lifted 360° on firm, level supporting surface with locked steering axle. These capacities can be slewed through 360° with the undercarriage in the transverse position. Capacities in the longitudinal position of the undercarriage (+/- 15°) are specified over the steering axle with the stabilisers raised and over the rigid axle with the stabilisers down. The values apply when the adjusting cylinder is in the optimal position. Indicated loads comply with the ISO 10567 standard and do not exceed 75 % of tipping or 87 % of hydraulic capacity, or are limited by the permissible load of the load hook.

In accordance with the harmonised EU Standard EN 474-5, hydraulic excavators used for lifting operations must be equipped with pipe rupture protection devices on the hoist cylinders and an overload warning device.

Please note that the stability will be reduced by approx. 20 % in case of a 100 mm cant and 40 % in case of a 180 mm cant.

# Equipment



## Undercarriage

	S	O
Two circuit travel brake with accumulator	•	
Creeper speed electrically switchable from cab	•	
New tyres	•	
Service free parking brake	•	
“Rockinger” couplings front and rear and tow bar	•	
Safety check valves directly on rail gear cylinders	•	
Rail gear front oscillating, rear fixed	•	
Proportional power steering with mechanical back up	•	
Lashing eyes for transport	•	
Two lockable storage boxes	•	
Additional trailer coupling at rail gear	•	
Two-speed power shift transmission	•	
Rail lighting white/red incl. socket		✕
Tire filling hose on wagon braking system	•	
Choice of tyres	•	
Colouring black, front/rear yellow RAL 1004		✕
Wagon braking system (pneumatic)	•	
Trailer brake system (hydraulic)	•	
Additional counterweight		✕
Intermediate rings for tyres	•	



## Uppercarriage

	S	O
Maintenance-free swing lock brake	•	
Handrails, Non slip surfaces	•	
Maintenance-free swing lock brake	•	
Maintenance-free HD-batteries	•	
Engine hood with gas struts	•	
Sound insulation	•	
Pin lock upper/lower (hydraulic)	•	
Extended tool kit	•	
Electric refuelling pump		•
Colouring yellow RAL 1004		✕
Pedal controlled positioning swing brake	•	
Rear view camera		✕
Special counterweight		✕
Customized colours	•	
Additional working light on counterweight	•	



## Hydraulics

	S	O
Hydraulic tank shut-off valve	•	
Attachment kit	•	
Grab rotation circuit	•	
Pressure cut off	•	
Centralised hydraulic pressure test points	•	
Accumulator for controlled lowering of equipment with engine turned off	•	
Filter with micro filtration (5 µm)	•	
Electronic pump regulation	•	
Stepless mode system (ECO)	•	
Flow compensation	•	
Four mixed modes, can also be adjusted	•	
Bi-pass filter		•
Back up hydraulics in case of engine failure		✕
Bio degradable hydraulic oil		•



## Engine

	S	O
Turbo charger	•	
Unit pump system	•	
After-cooled	•	
Sensor controlled engine idling	•	
Air filter with pre-cleaner main- and safety element	•	
Liebherr particle filter		•



## Operator's Cab

	S	O
Displays for engine operating condition	•	
Hourmeter also readable from outside the cab	•	
Roof window made of bullet-proof glass	•	
All-round adjustable roof vent	•	
Two seater cab	•	
Pressure indication of rail axles on the ZW display	•	
6-way adjustable seat	•	
Seat and consoles independently adjustable	•	
Front screen plane – laminated safety glass	•	
Removable customized foot mat	•	
Speed indication on the ZW display	•	
Dome light	•	
Cab heater with defroster	•	
Air conditioning	•	
Steering wheel lock for rail travel	•	
Steering column adjustable	•	
Independent control of air horn and emergency brake	•	
Preparation for radio installation	•	
Rain hood over front window opening	•	
Wiper/washer for roof window	•	
Wiper/washer for rear window	•	
Door with sliding window	•	
Safety kit UK (fire extinguisher, ÖCU-bag)	•	
Sun roller blind	•	
Wiper/washer front screen	•	
Cigarette lighter and ashtray	•	
Additional working lights	•	
Air suspension operator's seat with heating and head-rest		•
Electric cool box		•
Stereo radio		•
Rotating beacon		•
Auxiliary heating		•
Electronic immobiliser		•



## Equipment

	S	O
Working lights on boom	•	
Pipework for grab on sticks	•	
Sealed bearings	•	
Stick prepared for quick hitch stick	•	
Safety check valves on hoist cylinders	•	
Quick couplings for clamshell lines	•	
SAE-dbl flange connection for all hi-pressure lines	•	
Change over valves for bucket/grab use	•	
Locking mechanism for bucket linkage during grab operation	•	
Semi-automatic central lubrication system	•	
Cylinders with end damping	•	
Height limiter for working under live OLE		•
Free rotating load hook		•
Liebherr range of grabs		•
„Likufix“ intelligent quick hitch system		•
Safety check valves on bucket cylinder		✕
Safety check valves on stick cylinder		✕
Hydraulic or mechanical quick hitch		•
Special paintwork		•
Special buckets and other attachments		•
Rated-capacity-indicator with height and slew limiter		✕
Fully-automatic central lubrication system		•
Additional working lights on stick		•

S = Standard, O = Option, x = Required for UK – necessary for compliance RIS 1530

Options and/or special attachments, supplied by vendors other than Liebherr, are only to be installed with the knowledge and approval of Liebherr to retain warranty.