
A 924 Rail Litronic

LIEBHERR

Railroad excavator



Generation

6

Engine

161 HP (I) / 120 kW

Stage V

Tier 4 Final

Operating weight

48,100 - 55,100 lb

Technical data



Diesel engine

Rating per SAE J1349 / ISO 9249	161 HP (l) (120 kW) at 1,900 rpm
Model	D924 - FPT motor designed for Liebherr
Type	4 cylinder in-line
Bore / Stroke	4.1 / 5.2 in
Displacement	274.6 in ³
Engine operation	4-stroke diesel Common-Rail Turbo-charged and after-cooled Reduced emissions
Air cleaner	Dry-type air cleaner with pre-cleaner, primary and safety elements
Engine idling	Sensor controlled
Electrical system	
Voltage	24 V
Batteries	2 x 135 Ah / 12 V
Alternator	Three-phase current 28 V / 140 A
Stage V	
Harmful emissions values	According to regulation (EU) 2016/1628
Emission control	Liebherr-SCR technology
Fuel tank	66 gal
Urea tank	12 gal
Tier 4 Final	
Harmful emissions values	In accordance with 40CFR1039 (EPA) / 13CCR (CARB)
Emission control	Liebherr-SCR technology
Fuel tank	66 gal
Urea tank	12 gal



Cooling system

Diesel engine	Water-cooled Compact cooling system consisting cooling unit for water, hydraulic oil and charge air with stepless thermostatically controlled fan, fans for radiator cleaning can be completely folded away
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Hydraulic controls

Power distribution	Via control valves with integrated safety valves, simultaneous and independent actuation of chassis, swing drive and equipment
Servo circuit	
Equipment and swing	With electro-proportional joystick levers
Chassis	Electro-proportional via foot pedal, dedicated control and display unit for rail undercarriage operation
Additional functions	Via switch or electro-proportional foot pedals
Proportional control	Proportionally acting transmitters on the joysticks for additional hydraulic functions



Hydraulic system

Hydraulic pump	For equipment and travel drive	2 Liebherr axial piston variable displacement pumps (double construction)
Max. flow		2 x 58 gpm
Max. pressure		5,076 psi / PowerLift 5,439 psi
Hydraulic pump regulation and control		Liebherr-Synchron-Comfort-system (LSC) with electronic engine speed sensing regulation, pressure and flow compensation, torque controlled swing drive priority
Hydraulic tank		34 gal
Hydraulic system		max. 90 gal
Hydraulic oil filter		1 main return filter with integrated partial micro filtration (5 µm)
MODE selection		Adjustment of engine and hydraulic performance via a mode pre-selector to match application, e.g. for especially economical and environmentally friendly operation or for maximum digging performance and heavy-duty jobs
S (Sensitive)		Mode for precision work and lifting through very sensitive movements
E (Eco)		Mode for especially economical and environmentally friendly operation
P (Power)		Mode for high performance with low fuel consumption
P+ (Power-Plus)		Mode for highest performance and for very heavy duty applications, suitable for continuous operation
Engine speed and performance setting		Stepless alignment of engine output and hydraulic power via engine speed Tool Control: 20 pre-adjustable pump flows and pressures for add-on attachments



Swing drive

Drive	Liebherr axial piston motor with integrated brake valve and torque control, Liebherr planetary reduction gear
Swing ring	Liebherr, sealed race ball bearing swing ring, internal teeth
Swing speed	0 - 9.0 rpm stepless
Swing torque	39,828 lbf ft
Holding brake	Wet multi-disc (spring applied, pressure released) Pedal controlled positioning swing brake



Double cabin	ROPS safety cab structure (roll-over protection system for complete operator's cab), shock-absorbing suspension, sound damping insulating, electrically unlockable door, two-piece retractable front windscreen, tinted laminated safety glass, separate window shades for the sunroof window and windscreen, roof window and front windscreen wipers, work headlights integrated in the ceiling, ambient lighting for night operations in addition to interior lighting, access lighting outside, operator's door with a sliding window (can be opened on both sides), large stowing and depositing possibilities, 12 V / 24 V electrical connections
Operator's seat Standard	Air cushioned operator's seat with 3D-adjustable armrests, headrest, lap belt, seat heater, manual weight adjustment, adjustable seat cushion inclination and length and mechanical lumbar vertebrae support
Operator's seat Comfort (Option)	In addition to operator's seat standard: lockable horizontal suspension, automatic weight adjustment, adjustable suspension stiffness, pneumatic lumbar vertebrae support and passive seat climatization with active coal
Operator's seat Premium (Option)	In addition to operator's seat comfort: active electronic weight adjustment (automatic readjustment), pneumatic low frequency suspension and active seat climatization with active coal and ventilator
Two-man operation	Ergonomical co-operator's seat with lap belt as well as signal horn and emergency stop
Arm consoles	Joysticks with control consoles and swivel seat, folding left control console
Operation and displays	Large high-resolution operating unit with touchscreen control, self-explanatory, numerous settings, control and monitoring options, e.g. air conditioning control, fuel consumption, machine and attachment parameters as well as safety functions such as load display, load torque limitation, lift and swivel limitation or virtual wall, separate display for rear view and side view monitoring, dedicated control and display unit for rail undercarriage operation with emergency stop function
Air-conditioning	Complete air-conditioning for operator and co-operator, automatic air-conditioning, recirculated air function, fast de-icing and demisting at the press of a button, air vents can be operated via a menu; recirculated air and fresh air filters can be easily replaced and are accessible from the outside; heating-cooling unit, designed for extreme outside temperatures, sensors for solar radiation, inside and outside temperatures

Undercarriage

Drive	Oversized two speed power shift transmission with additional creeper speed, Liebherr axial piston motor with functional brake valve on both sides
Pulling force	26,300 lbf
Travel speed	0 - 2.2 mph stepless (creeper speed off-road) 0 - 4.3 mph stepless (off-road) 0 - 8.1 mph stepless (creeper speed on-road) 0 - 12.4 mph stepless (road travel) 0 - max. 15.5 or 18.6 mph Speeder (option)
Driving operation	Automotive driving using accelerator pedal, cruise control function: storage of variable accelerator pedal positions, both off-road, on-road and on-rail (country-dependent)
Axles	Manual or automatic hydraulically controlled front axle oscillation lock (country-dependent)
Service brake	Two circuit travel brake system with accumulator; road axle wet and backlash-free disc brake; rail wheels with disc brake (spring applied, pressure released)
Holding brake	Wet multi-disc (spring applied, pressure released)
Wagon braking system	1 circuit compressed air brake for railway wagon Option 2 circuit compressed air brake for trailer 2 circuit hydraulic brake for trailer
Rail undercarriage	Standard gauge 4'8"
Stabilization	Without outriggers



Equipment

Type	High-strength steel plates at highly-stressed points for the toughest requirements. Complex and stable mountings of equipment and cylinders
Hydraulic cylinders	Liebherr cylinders with special sealing and guide system and, depending on cylinder type, shock absorption
Bearings	Sealed, low maintenance



Complete machine

Lubrication	Liebherr central lubrication system for uppercarriage and equipment, automatically
Noise emission	ISO 6396 2000/14/EC
	70 dB(A) = L _{PA} (inside cab) 101 dB(A) = L _{WA} (surround noise)

WARNING

This product can expose you to chemicals including lead and lead compounds, which are known to the State of California to cause cancer and birth defects or other reproductive harm.
For more information go to www.P65warnings.ca.gov.

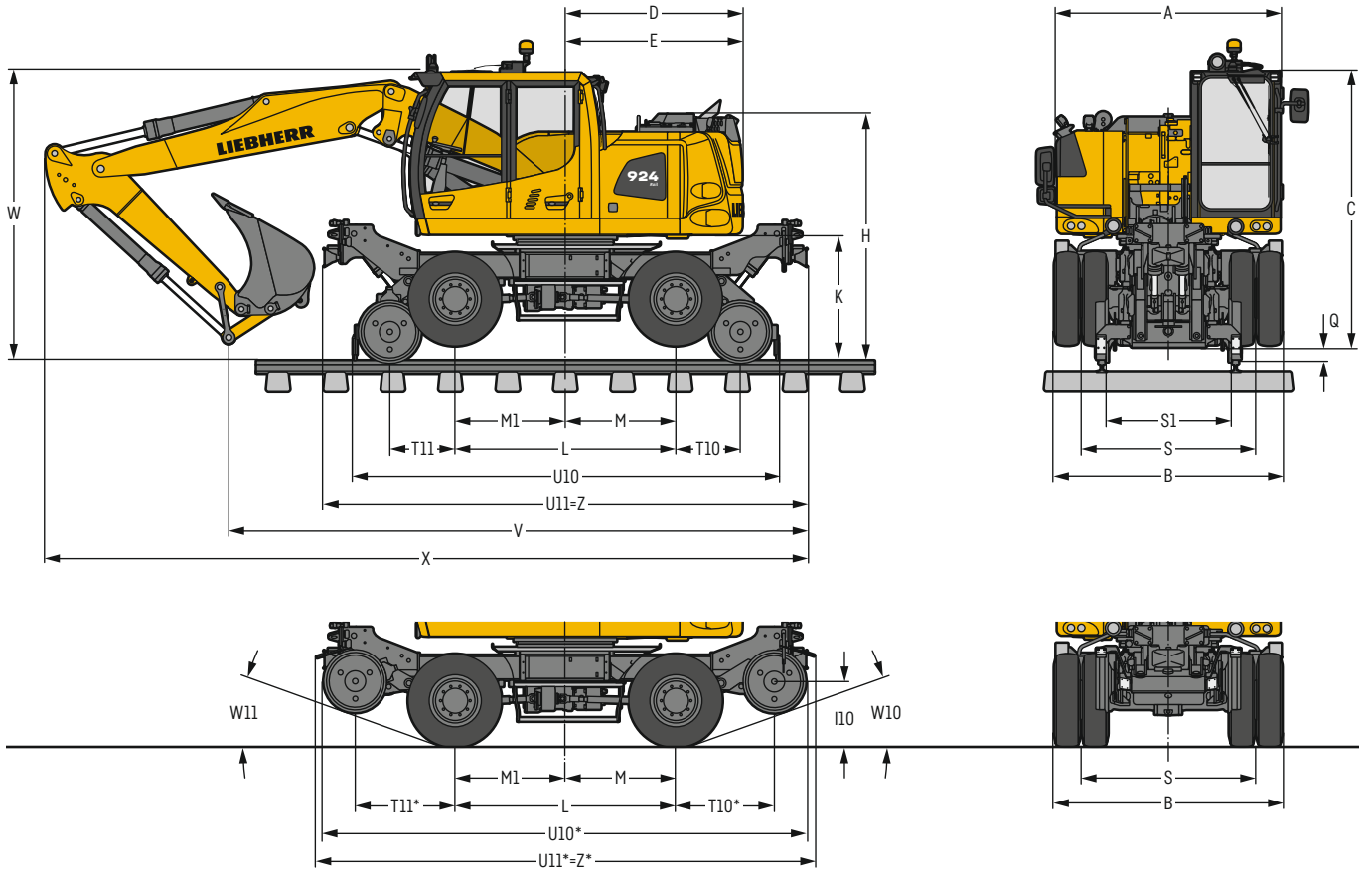
WARNING

Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

- Always start and operate the engine in a well-ventilated area.
- If in an enclosed area, vent the exhaust to the outside.
- Do not modify or tamper with exhaust system.
- Do not idle the engine except as necessary.

For more information go to www.P65warnings.ca.gov/diesel.

Dimensions

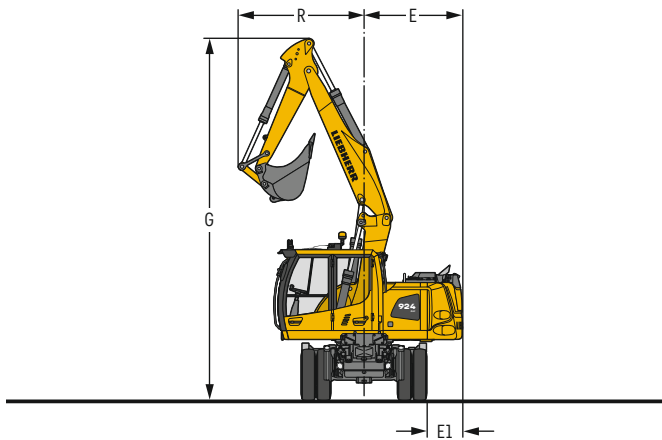


	on tires	ft in	on rail	ft in
A		8' 3"		8' 3"
B		8' 5"		8' 5"
C		10' 1"		10' 8"
D		6'7"/6'11"		6'7"/6'11"
E		6'7"/6'11"		6'7"/6'11"
H		8' 6"		9' 2"
K		4' 1"		4' 8"
L		8' 2"		8' 2"
M		4' 1"		4' 1"
M1		4' 1"		4' 1"
I10		2' 5"		-
Q		1' 2"		6"
S		6' 6"		6' 6"
S1		-		4' 8"
T10		-		2' 5"
T10*		3' 8"		-
T11		-		2' 5"
T11*		3' 8"		-
U10		-		15' 4"
U10*		17'11"		-
U11		-		18'
U11*		18' 6"		-
W10		20°		-
W11		20°		-
Z		-		18'
Z*		18' 6"		-

* Execution required for acceptance Network Rail
E = Tail radius
Tires 10.00-20

	Stick	Two-piece boom 16'7"
	ft in	ft in
V	6'1"	22' 8"
	6'9"	21'10"
	7'5"	21' 4"
W	6'1"	9'10"
	6'9"	10'
	7'5"	10' 2"
X	6'1"	29' 2"
	6'9"	28' 8"
	7'5"	28' 8"

Dimensions are with equipment over steering axle
W = Max. ground clearance including approx. 6" piping



Boom	Stick	G	R	E	E1
	ft in	ft in	ft in	ft in	ft in
Two-piece boom 16'7"	6'1"	24'3"	8'5"	6'7"/6'11"	2'4"/2'9"
Two-piece boom 16'7"	6'9"	24'3"	8'5"	6'7"/6'11"	2'4"/2'9"
Two-piece boom 16'7"	7'5"	24'3"	8'5"	6'7"/6'11"	2'4"/2'9"

Lift capacities

with two-piece boom 16'7", tail radius 6'7"

Stick 6'1"

ft	Undercarriage	10 ft		15 ft		20 ft		ft in
25	on rail	16,0	18,5*			9,9	12,7*	13' 5"
	on tires	18,9*	18,9*			13,5*	13,5*	
20	on rail	15,9	17,0*	8,8	15,1*	5,9	9,7*	18' 8"
	on tires	17,0*	17,0*	12,1	15,0*	8,7	10,0*	
15	on rail	15,4	22,4*	8,9	16,3*	5,4	13,5*	21' 6"
	on tires	21,5	22,2*	12,1	15,0	7,5	9,6	
10	on rail	14,9	22,8*	8,8	18,4*	5,3	14,0*	22'11"
	on tires	20,9	22,3*	12,0	14,8	7,5	9,6	
5	on rail	14,7	27,6*	8,4	19,4*	5,2	14,2*	23' 2"
	on tires	20,7	26,7	11,8	14,8	7,4	9,4	
0	on rail	13,7	30,5*	8,0	19,5*	4,9	14,2*	22' 4"
	on tires	20,3	27,2	11,3	14,6	7,1	9,1	
- 5	on rail	13,3	31,4*	7,4	19,5*	4,8	9,6*	20' 1"
	on tires	19,8	27,0	10,8	14,0	7,0	8,9	
-10	on rail	13,0	22,7*			9,1	14,7*	12'10"
	on tires	19,4	25,1*			11,1	12,7*	

Stick 6'9"

ft	Undercarriage	10 ft		15 ft		20 ft		ft in
25	on rail	17,5*	17,5*			9,0	10,5*	14' 5"
	on tires	15,3*	15,3*			11,0*	11,0*	
20	on rail	15,3*	15,3*	8,9	14,6*	5,6	8,4*	19' 5"
	on tires			12,2	14,6*	8,2	8,6*	
15	on rail	15,5	22,1*	8,9	16,0*	5,5	13,2*	22' 1"
	on tires	21,3*	21,3*	12,1	15,0	7,7	9,7	
10	on rail	14,9	23,8*	8,8	18,1*	5,4	13,8*	23' 6"
	on tires	20,9	23,3*	12,0	14,8	7,7	9,7	
5	on rail	14,8	27,6*	8,5	19,4*	5,3	14,2*	23'10"
	on tires	20,7	26,7	11,9	14,7	7,5	9,5	
0	on rail	13,8	30,5*	8,0	19,5*	5,0	14,3*	22'11"
	on tires	20,4	27,1	11,4	14,6	7,2	9,2	
- 5	on rail	13,3	31,1*	7,5	19,8*	4,8	11,2*	20'10"
	on tires	19,8	27,0	10,8	14,0	7,0	9,0	
-10	on rail	13,0	25,2*			7,5	12,5*	14' 8"
	on tires	19,4	26,6	10,5	13,6*	9,6	11,3*	

Stick 7'5"

ft	Undercarriage	10 ft		15 ft		20 ft		ft in
25	on rail			8,5	10,7*	8,2	9,0*	15'4"
	on tires					9,3*	9,3*	
20	on rail			9,0	14,1*	5,4	7,9*	20'1"
	on tires			12,3	14,1*	7,5*	7,5*	
15	on rail	15,5	20,8*	8,9	15,5*	5,5	12,9*	22'8"
	on tires	18,1*	18,1*	12,1	15,0	7,7	9,8	
10	on rail	14,9	24,4*	8,7	17,8*	5,5	13,6*	24'1"
	on tires	20,9	24,0*	11,9	14,8	7,7	9,7	
5	on rail	14,7	27,4*	8,6	19,2*	5,3	14,1*	24'4"
	on tires	20,7	26,6	11,9	14,7	7,5	9,5	
0	on rail	13,8	30,3*	8,0	19,4*	5,0	14,3*	23'6"
	on tires	20,5	26,9	11,4	14,7	7,2	9,2	
- 5	on rail	13,3	30,9*	7,5	19,9*	4,8	12,3*	21'6"
	on tires	19,8	27,0	10,9	14,1	7,0	8,9	
-10	on rail	12,9	27,2*	7,2	13,8*	6,5	11,0*	16'2"
	on tires	19,4	26,6	10,5	13,6	8,5	10,2*	

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

The lift capacities are stated in lb x 1,000 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. The values apply when the adjusting cylinder is in the optimal position. Indicated loads based on 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 lift hook. Please note that the stability will be reduced by approx. 20% in case of a 3.9° cant and 40% in case of a 7.1° cant.

Lift capacities

with two-piece boom 16'7", tail radius 6'7" (heavy counterweight)

Stick 6'1"

ft	Undercarriage	10 ft		15 ft		20 ft		ft in
25	on rail	16,9	18,5*			10,5	12,7*	13' 5"
	on tires	18,9*	18,9*			6,4	9,7*	
20	on rail	16,9	17,0*	9,4	15,1*			18' 8"
	on tires	17,0*	17,0*	12,8	15,0*	9,2	10,0*	
15	on rail	16,4	22,4*	9,5	16,3*	5,8	13,5*	21' 6"
	on tires	22,2*	22,2*	12,7	15,7	8,0	10,1	
10	on rail	15,9	22,8*	9,4	18,4*	5,8	14,0*	22'11"
	on tires	21,9	22,3*	12,6	15,5	8,0	10,1	
5	on rail	15,7	27,6*	9,0	19,4*	5,6	14,2*	23' 2"
	on tires	21,8	27,1*	12,5	15,4	7,9	9,9	
0	on rail	14,7	30,5*	8,6	19,5*	5,4	14,2*	22' 4"
	on tires	21,5	28,3	12,0	15,4	7,6	9,7	
- 5	on rail	14,3	31,4*	8,0	19,5*	5,2	9,6*	20' 1"
	on tires	21,0	28,5	11,4	14,8	7,4	9,5	
-10	on rail	14,0	22,7*					12'10"
	on tires	20,6	25,1*			11,9	12,7*	

Stick 6'9"

ft	Undercarriage	10 ft		15 ft		20 ft		ft in
25	on rail							14' 5"
	on tires	17,5*	17,5*			9,6	10,5*	
20	on rail	15,3*	15,3*	9,5	14,6*			19' 5"
	on tires			12,9	14,6*	6,1	8,4*	
15	on rail	16,4	22,1*	9,5	16,0*	5,9	13,2*	22' 1"
	on tires	21,3*	21,3*	12,7	15,7*	8,1	10,2	
10	on rail	15,9	23,8*	9,4	18,1*	5,9	13,8*	23' 6"
	on tires	21,9	23,3*	12,6	15,5	8,1	10,2	
5	on rail	15,8	27,6*	9,1	19,4*	5,7	14,2*	23'10"
	on tires	21,8	27,1*	12,6	15,4	8,0	10,0	
0	on rail	14,8	30,5*	8,6	19,5*	5,4	14,3*	22'11"
	on tires	21,6	28,3	12,1	15,5	7,7	9,7	
- 5	on rail	14,3	31,1*	8,1	19,8*	5,2	11,2*	20'10"
	on tires	21,0	28,5	11,5	14,8	7,5	9,5	
-10	on rail	14,0	25,2*					14' 8"
	on tires	20,6	27,2*	11,2	13,6*	10,3	11,3*	

Stick 7'5"

ft	Undercarriage	10 ft		15 ft		20 ft		ft in
25	on rail			9,1	10,7*			15'4"
	on tires					8,8	9,0*	
20	on rail			9,6	14,1*	5,8	7,9*	20'1"
	on tires			12,9	14,1*	5,8	7,4*	
15	on rail	16,5	20,8*	9,5	15,5*	6,0	12,9*	22'8"
	on tires	18,1*	18,1*	12,7	15,3*	8,2	10,3	
10	on rail	15,9	24,4*	9,3	17,8*	5,9	13,6*	24'1"
	on tires	21,9	24,0*	12,5	15,5	8,2	10,3	
5	on rail	15,7	27,4*	9,1	19,2*	5,7	14,1*	24'4"
	on tires	21,7	27,1*	12,5	15,3	8,0	10,1	
0	on rail	14,8	30,3*	8,6	19,4*	5,4	14,3*	23'6"
	on tires	21,7	28,1	12,1	15,5	7,7	9,8	
- 5	on rail	14,2	30,9*	8,1	19,9*	5,2	12,3*	21'6"
	on tires	21,0	28,5	11,6	14,9	7,4	9,5	
-10	on rail	13,9	27,2*	7,8	13,8*			16'2"
	on tires	20,6	28,1	11,2	14,5	9,1	10,2*	

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

The lift capacities are stated in lb x 1,000 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. The values apply when the adjusting cylinder is in the optimal position. Indicated loads based on 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 lift hook. Please note that the stability will be reduced by approx. 20% in case of a 3.9° cant and 40% in case of a 7.1° cant.

Lift capacities

with two-piece boom 16'7", tail radius 6'11"

Stick 6'1"

ft	Undercarriage	10 ft		15 ft		20 ft		ft in
25	on rail	18,5*	18,5*			12,7*	12,7*	13' 5"
	on tires	18,9*	18,9*			13,5*	13,5*	
20	on rail	17,0*	17,0*	11,4	15,1*	7,9	9,7*	18' 8"
	on tires	17,0*	17,0*	15,0	15,0*	10,0*	10,0*	
15	on rail	19,4	22,4*	11,4	16,3*	7,2	13,5*	21' 6"
	on tires	22,2*	22,2*	14,8	16,1*	9,7	12,1	
10	on rail	18,9	22,8*	11,3	18,4*	7,2	14,0*	22'11"
	on tires	22,3*	22,3*	14,6	17,8	9,7	12,0	
5	on rail	18,8	27,6*	11,0	19,4*	7,0	14,2*	23' 2"
	on tires	25,3	27,1*	14,6	17,7	9,5	11,9	
0	on rail	18,0	30,5*	10,6	19,5*	6,8	14,2*	22' 4"
	on tires	25,7	30,5*	14,4	18,1	9,3	11,6	
- 5	on rail	17,6	31,4*	10,0	19,5*	6,7	9,6*	20' 1"
	on tires	25,2	31,2*	13,8	17,6	9,1	10,7*	
-10	on rail	17,3	22,7*			12,3	14,7*	12'10"
	on tires	24,8	25,1*			12,7*	12,7*	

Stick 6'9"

ft	Undercarriage	10 ft		15 ft		20 ft		ft in
25	on rail	17,5*	17,5*			10,5*	10,5*	14' 5"
	on tires	15,3*	15,3*			11,0*	11,0*	
20	on rail	15,3*	15,3*	11,5	14,6*	7,6	8,4*	19' 5"
	on tires			14,6*	14,6*	8,6*	8,6*	
15	on rail	19,5	22,1*	11,4	16,0*	7,3	13,2*	22' 1"
	on tires	21,3*	21,3*	14,9	15,7*	9,8	12,2	
10	on rail	18,9	23,8*	11,3	18,1*	7,3	13,8*	23' 6"
	on tires	23,3*	23,3*	14,6	17,8	9,8	12,1	
5	on rail	18,8	27,6*	11,1	19,4*	7,1	14,2*	23'10"
	on tires	25,3	27,1*	14,6	17,7	9,6	11,9	
0	on rail	18,1	30,5*	10,6	19,5*	6,9	14,3*	22'11"
	on tires	25,6	30,3*	14,5	17,9	9,4	11,7	
- 5	on rail	17,6	31,1*	10,1	19,8*	6,7	11,2*	20'10"
	on tires	25,2	31,0*	13,9	17,6	9,1	11,4	
-10	on rail	17,3	25,2*			10,2	12,5*	14' 8"
	on tires	24,8	27,2*	13,6*	13,6*	11,3*	11,3*	

Stick 7'5"

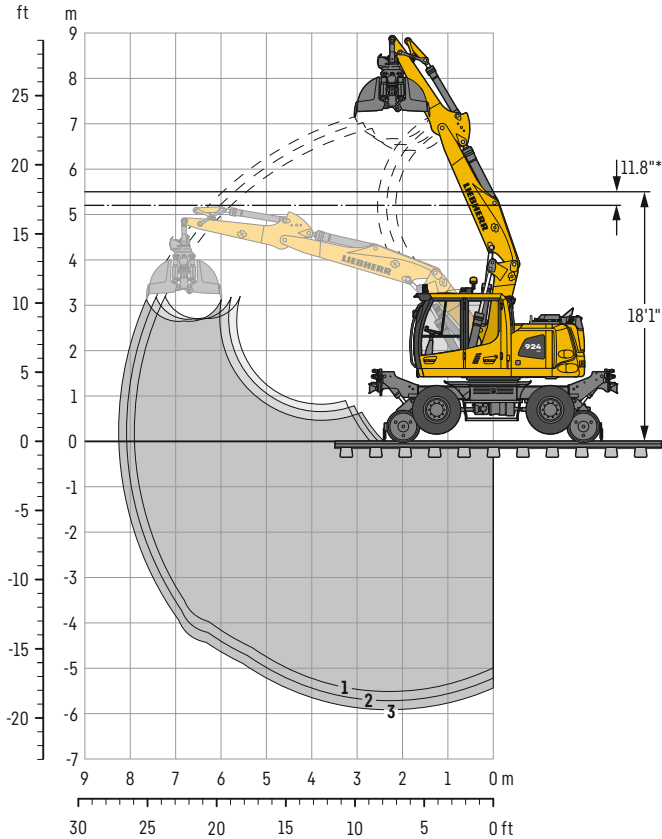
ft	Undercarriage	10 ft		15 ft		20 ft		ft in
25	on rail			10,7*	10,7*	9,0*	9,0*	15'4"
	on tires					9,3*	9,3*	
20	on rail			11,6	14,1*	7,3	7,9*	20'1"
	on tires			14,1*	14,1*	7,5*	7,5*	
15	on rail	19,5	20,8*	11,4	15,5*	7,4	12,9*	22'8"
	on tires	18,1*	18,1*	14,9	15,3*	9,9	12,2	
10	on rail	18,9	24,4*	11,2	17,8*	7,4	13,6*	24'1"
	on tires	24,0*	24,0*	14,6	17,5*	9,9	12,1	
5	on rail	18,7	27,4*	11,2	19,2*	7,2	14,1*	24'4"
	on tires	25,2	27,1*	14,5	17,6	9,7	12,0	
0	on rail	18,1	30,3*	10,6	19,4*	6,9	14,3*	23'6"
	on tires	25,4	30,1*	14,5	17,8	9,4	11,7	
- 5	on rail	17,6	30,9*	10,1	19,9*	6,6	12,3*	21'6"
	on tires	25,2	30,8*	14,0	17,7	9,1	11,4	
-10	on rail	17,3	27,2*	9,8	13,8*	8,8	11,0*	16'2"
	on tires	24,8	28,8*	13,6	15,4*	10,2*	10,2*	

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

The lift capacities are stated in lb x 1,000 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. The values apply when the adjusting cylinder is in the optimal position. Indicated loads based on 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 lift hook. Please note that the stability will be reduced by approx. 20% in case of a 3.9° cant and 40% in case of a 7.1° cant.

Clamshell grab

with two-piece boom 16'7"



* Safety distance to overhead wires

Digging envelope

		1	2	3
Stick length	ft in	6'1"	6'9"	7'5"
Max. digging depth	ft in	17'5"	18'1"	18'8"
Max. reach at ground level	ft in	25'5"	26'1"	26'7"
Max. dumping height	ft in	21'8"	22'2"	22'6"
Max. dumping height under overhead wires	ft in	9'6"	9'6"	9'4"

Operating weight

The operating weight includes the basic machine with 8 tires, two-piece boom 16'7", stick 7'5" and clamshell grab GMZ 22 / 0.39 yd³.

Tail radius	Weight (lb)
A 924 Rail Litronic Friction drive with tail radius 6'7"	50,000
A 924 Rail Litronic Friction drive with tail radius 6'7" (heavy counterweight)	51,400
A 924 Rail Litronic Friction drive with tail radius 6'11"	55,100

Clamshell grabs GMZ 22 Machine stability per ISO 10567* (75% of tipping capacity)

Width of clamshells in	Capacity yd ³	Weight lb	Tail radius 6'7"						Tail radius 6'7" (heavy counterweight)						Tail radius 6'11"					
			on rail			on tires			on rail			on tires			on rail			on tires		
			Stick length (ft in)			Stick length (ft in)			Stick length (ft in)			Stick length (ft in)			Stick length (ft in)			Stick length (ft in)		
1' ¹⁾	0.10	1,488	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
1'8" ²⁾	0.21	1,631	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2' ²⁾	0.26	1,698	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2'4" ²⁾	0.31	1,786	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2'7" ²⁾	0.37	1,852	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
3'3" ²⁾	0.44	1,995	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2' ³⁾	0.39	1,874	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2'7" ³⁾	0.55	2,039	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
3'3" ³⁾	0.71	2,216	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

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

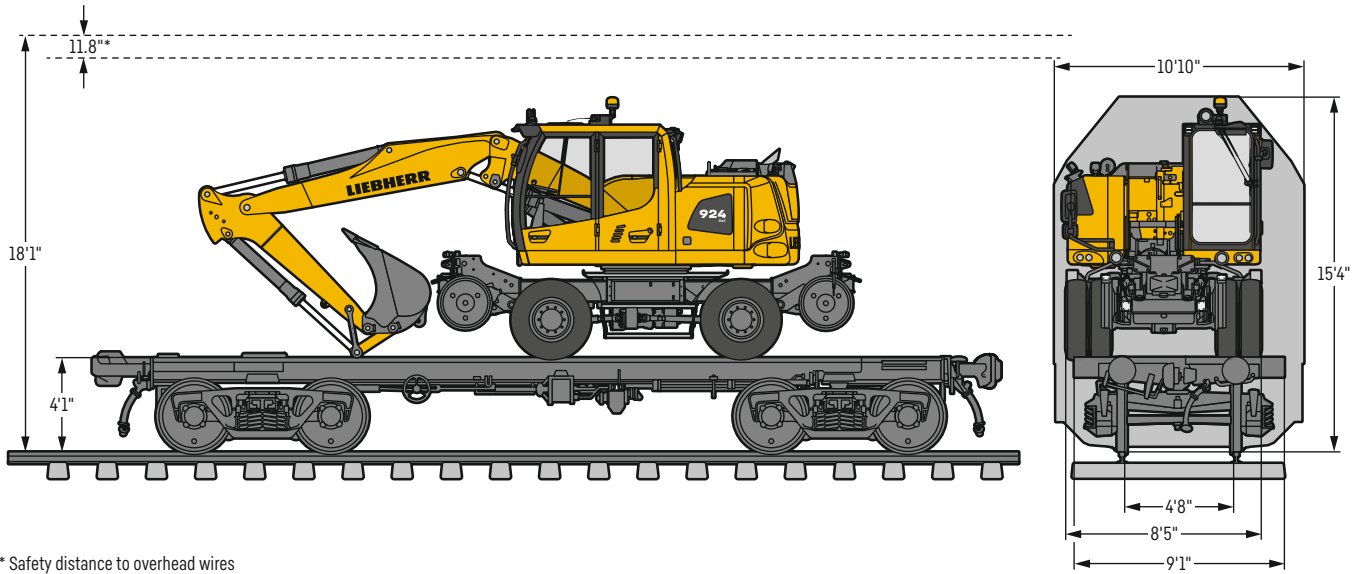
¹⁾ Track construction bucket

²⁾ Combination bucket

³⁾ Clamshell bucket

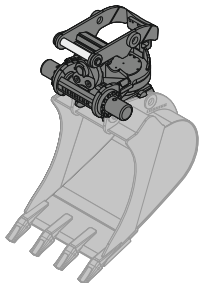
Max. material weight ■ = ≤ 3,034 lb/yd³, ■ = ≤ 2,528 lb/yd³, △ = ≤ 2,023 lb/yd³, - = not authorized

Dimensions for transport



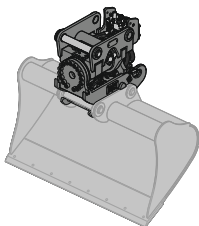
* Safety distance to overhead wires

Attachments



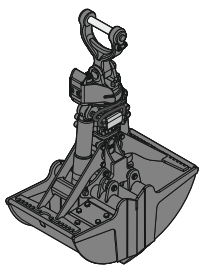
Tilt rotator

Mounting machine side	SW stick mechanical, SWA 33 mechanical, SWA 33 hydraulic, SWA 33 LIKUFIX, SWA 48 mechanical, SWA 48 LIKUFIX						
TR 20							
Mountings attachment side	SW stick mechanical, SWA 33 mechanical, SWA 33 hydraulic, SWA 48 mechanical						
Weight ¹⁾³⁾	lb	1,113 - 1,268					
Rotation	360°						
Tilt	2 x 50°						
TR 25							
Mountings attachment side	SW stick mechanical, SWA 33 mechanical, SWA 33 hydraulic, SWA 48 mechanical, SWA 48 hydraulic						
Weight ¹⁾³⁾	lb	1,411 - 1,554					
Rotation	360°						
Tilt	2 x 50°						



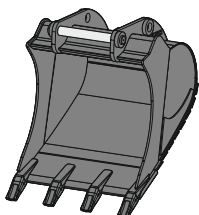
Tilt unit

LiTiU 33							
Mounting machine side	SWA 33 LIKUFIX						
Mountings attachment side	SWA 33 hydraulic, SWA 33 LIKUFIX						
Weight ¹⁾³⁾	lb	838 - 904					
Tilt	2 x 50°						
LiTiU 48							
Mounting machine side	SWA 48 LIKUFIX						
Mountings attachment side	SWA 48 hydraulic, SWA 48 LIKUFIX						
Weight ²⁾³⁾	lb	1,543 - 1,631					
Tilt	2 x 45°						



Clamshell grab GMZ 22 / GMZ 22 HD⁴⁾

Mountings	direct mounting, SW stick mechanical, SWA 33 mechanical, SWA 33 hydraulic, SWA 33 LIKUFIX, SWA 48 mechanical, SWA 48 hydraulic, SWA 48 LIKUFIX						
Clamshell buckets							
Shell width	ft in	1'	1'4"	2'	2'7"	3'3"	
Opening width	ft in	4'11"	4'11"	4'11"	4'11"	4'11"	
Capacity	yd ³	0.18	0.26	0.39	0.55	0.71	
Weight ¹⁾	lb	1,973	2,039	2,260	2,436	2,601	
Track construction buckets							
Shell width	ft in	1'					
Opening width	ft in	3'9"					
Capacity	yd ³	0.10					
Weight ¹⁾	lb	1,797					
Combination buckets							
Shell width	ft in	1'4"	1'8"	2'	2'4"	2'7"	3'3"
Opening width	ft in	4'	4'	4'	4'	4'	4'
Capacity	yd ³	0.16	0.21	0.26	0.31	0.37	0.44
Weight ¹⁾	lb	1,841	1,973	2,083	2,172	2,238	2,381



Backhoe bucket 03

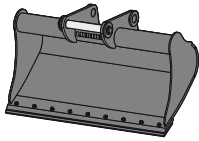
Mountings	direct mounting, SW stick mechanical, SWA 33 mechanical, SWA 33 hydraulic, SWA 33 LIKUFIX, SWA 48 mechanical, SWA 48 hydraulic, SWA 48 LIKUFIX							
Cutting width	ft in	1'	1'4"	1'8"	2'2"	2'9"	3'5"	4'1"
Capacity	yd ³	0.22	0.31	0.42	0.55	0.78	1.05	1.24
Weight ¹⁾	lb	518	573	672	794	915	1,091	1,190

¹⁾ weights based on an attachment in a standard design with the machine SWA 33 LIKUFIX mounting

²⁾ weights based on an attachment in a standard design with the machine SWA 48 LIKUFIX mounting

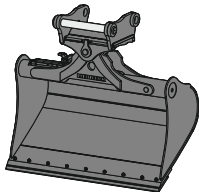
³⁾ depending on the mounting on the attachment

⁴⁾ 44 lb additional weight for HD version



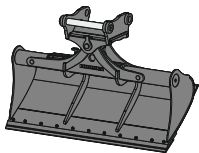
Universal bucket 03

Mountings	SWA 33 mechanical, SWA 33 hydraulic, SWA 33 LIKUFIX, SWA 48 mechanical, SWA 48 hydraulic, SWA 48 LIKUFIX		
Cutting width	ft in	4'11"	
Capacity	yd ³	0.78	
Weight ¹⁾	lb	849	



Tilt bucket 90

Mountings	direct mounting, SW stick mechanical, SWA 33 mechanical, SWA 33 hydraulic, SWA 33 LIKUFIX, SWA 48 mechanical, SWA 48 hydraulic, SWA 48 LIKUFIX		
Cutting width	ft in	4'11"	5'3"
Capacity	yd ³	0.78	1.05
Weight ¹⁾	lb	1,543	1,731
Tilt angle		2 x 50°	2 x 50°



Ditch cleaning bucket

Mountings	direct mounting, SW stick mechanical, SWA 33 mechanical, SWA 33 hydraulic, SWA 33 LIKUFIX, SWA 48 mechanical, SWA 48 hydraulic, SWA 48 LIKUFIX			
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GRL 90

Cutting width	ft in	5'3"	5'3"	6'7"	7'3"
Capacity	yd ³	0.72	1.05	0.65	1.05
Weight ¹⁾	lb	1,510	1,797	1,554	1,852
Tilt angle		2 x 50°	2 x 50°	2 x 50°	2 x 50°

GRL 90 Rail

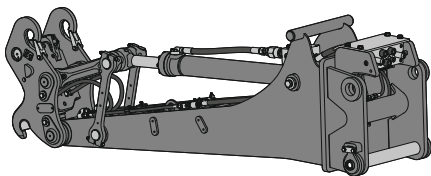
Cutting width	ft in	6'7"	6'7"
Capacity	yd ³	0.92	1.31
Weight ¹⁾	lb	1,808	1,918
Tilt angle		2 x 50°	2 x 50°

GRL rigid 2B

Cutting width	ft in	2'	2'7"	3'3"	3'11"	4'7"	5'3"	5'11"	6'7"
Capacity	yd ³	0.22	0.33	0.39	0.50	0.59	0.65	0.75	0.85
Weight ¹⁾	lb	408	474	540	606	683	772	838	904

GRL rigid Rail

Cutting width	ft in	5'3"	6'7"
Capacity	yd ³	1.05	0.63
Weight ¹⁾	lb	1,036	816



Stick extension LS 12

Mounting machine side	SWA 33 LIKUFIX, SWA 48 LIKUFIX	
Mountings attachment side	SWA 33 mechanical, SWA 33 mechanical LIKUFIX ²⁾ , SWA 33 hydraulic ⁴⁾ , SWA 33 LIKUFIX ^{3) 4) 5)}	
Length	ft in	7'5"
Weight ¹⁾	lb	approx. 1,279 - 1,389

¹⁾ weights based on an attachment in a standard design with the machine SWA 33 LIKUFIX mounting

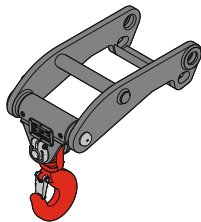
²⁾ attachment with high pressure circuit only possible with the manual switchover tipping cylinder or an extended hydraulic circuit on the carrier machine

³⁾ attachment with high pressure circuit only possible with the electric switchover tipping cylinder or an extended hydraulic circuit on the carrier machine

⁴⁾ 14-pole signal contact strip is required, for example to control and monitor the hydraulic quick coupling system on the stick extension on the attachment side or to transfer electrical signals for the switchover

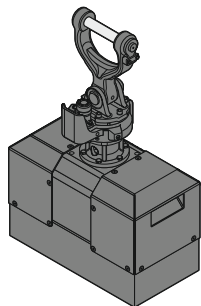
⁵⁾ a socket on the stick above the signal contact strip for the carrier machine is also required for switching between different hydraulic circuits

Attachments



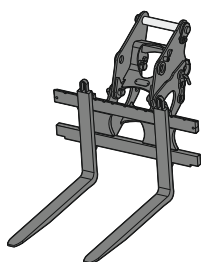
Load lift hook

Mountings		direct mounting, SW stick mechanical, SWA 33 mechanical, SWA 33 hydraulic, SWA 48 mechanical, SWA 48 hydraulic
Max. load	lb	17,637
Rotatable		360°, mechanical
Height to bolting point	ft in	1'8"
Weight ¹⁾	lb	265



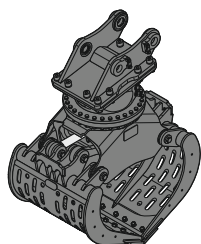
Hydro magnet

Mountings		direct mounting, SW stick mechanical, SWA 33 mechanical, SWA 33 hydraulic, SWA 33 LIKUFIX, SWA 48 mechanical, SWA 48 hydraulic, SWA 48 LIKUFIX
Power	kW	5
Lifting capacity	lb	11,023
Swivel circuit		330°
Overall height to bearing fork	ft in	3'11"
Weight ¹⁾	lb	3,274



Pallet fork

Mountings		direct mounting, SW stick mechanical, SWA 33 mechanical, SWA 33 hydraulic, SWA 33 LIKUFIX, SWA 48 mechanical, SWA 48 hydraulic, SWA 48 LIKUFIX
Max. width pallet fork	ft in	4'1"
Pallet forks length	ft in	3'11"
Lifting capacity (ISO 2328)	lb	5,512
Weight ¹⁾	lb	728



Sorting grab

		perforated	ribbed	closed	perforated	ribbed	closed	perforated	closed	perforated	closed
Mountings		direct mounting, SW stick mechanical, SWA 33 mechanical, SWA 33 hydraulic, SWA 33 LIKUFIX, SWA 48 mechanical, SWA 48 hydraulic, SWA 48 LIKUFIX									
SG 20B											
Shell width	ft in	2'7"	2'7"	2'7"	3'3"	3'3"	3'3"	3'11"	3'11"	4'7"	4'7"
Capacity	yd ³	0.52	0.52	0.65	0.65	0.78	0.78	0.92	0.92	0.92	0.92
Max. closing force	lbf	8,992	8,992	8,992	8,992	8,992	8,992	8,992	8,992	8,992	8,992
Weight ¹⁾	lb	2,017	2,039	2,105	2,138	2,205	2,238	2,293	2,337		
SG 25B											
Shell width	ft in	2'7"	2'7"	2'7"	3'3"	3'3"	3'3"	3'11"	3'11"	4'7"	4'7"
Capacity	yd ³	0.72	0.65	0.72	0.98	0.85	0.98	1.18	1.18	1.44	1.44
Max. closing force	lbf	13,489	13,489	13,489	13,489	13,489	13,489	13,489	13,489	13,489	13,489
Weight ¹⁾	lb	2,579	2,690	2,624	2,723	2,866	2,778	2,866	2,921	3,042	3,120

¹⁾ weights based on an attachment in a standard design with the machine SWA 33 LIKUFIX mounting

Equipment

Undercarriage

Dual-circuit braking system with rail wheel brake, hydraulically	•
Trailer coupling on rolling stock axle	•
Trailer coupling Rockinger, semi-automatic	•
Drive via friction wheel (9B) or rail (9C)	+
Additional ascent laterally, left	+
Additional ascent laterally, right	+
Counterweight at undercarriage	•
Lighting system white / red incl. power socket*	x*
Earthing cable with ball-headed pin	x
Rotating assembly position symmetric	•
Fire extinguisher 13 lb	x
Hydraulic connection for tipping the trailer	+
Parking brake, maintenance-free	•
Tire inflation hose on wagon braking system	+
Rolling stock chassis cylinder pipe fracture safety device	•
Rail undercarriage oscillating steering axle, hydraulically locking, rear rigid	•
Rail undercarriage friction wheel, gauge 4'8"	•
Rail sweeper	•
Protection for oscillating axle cylinders	+
Proportional servo-steering with emergency function	•
Speeder*	+
Two storage compartments	•
Storage compartment with drawer	+
Lashing eyelets for transport	•
Wagon braking system (hydraulic, 2 circuits)	+
Wagon braking system (pneumatic, 1 circuit)	•
Wagon braking system (pneumatic, 2 circuits)	+
Tool equipment, extended	+
Pull rod	x/x*

Upper carriage

Upper carriage rear light, 2 pieces, LED	+
Upper carriage right side light, 1 piece, LED	•
Counterweight (tail swing radius 6'7")	•
Counterweight (tail swing radius 6'7"), heavy	+
Counterweight (tail swing radius 6'11")	+
Refuelling system with filling pump	+
External starting aid (battery connectors)	+
Handrails, non slip surfaces	•
Main battery switch for electrical system	•
Engine hood with gas spring	•
Upper carriage doors, lockable	•
Amber beacon, at upper carriage, LED double flash	+
Signal light DB, halogen	x
Signal light DB, LED	+

Hydraulic system

Shut-off valve between hydraulic tank and pump(s)	•
Pressure test fittings	•
Electronic pump regulation	•
Hydraulic oil filter with integrated microfilter	•
Liebherr hydraulic oil from -4 °F to +104 °F	•
Liebherr hydraulic oil, biologically degradable	+
Liebherr hydraulic oil, specially for warm or cold regions	+
Bypass filter	+
Emergency actuation, electric	x/x*
Switchover clamshell operation and tipping cylinder (not available in combination with LIKUFIX)	•
Switchover high pressure circuit and tipping cylinder	+
Switchover high pressure circuit and two-piece boom	+
Preparation Liebherr hydro-magnet	+

Diesel engine

Fuel anti-theft device	+
Sensor controlled engine idling	•
Liebherr particle filter*	•
Air pre-filter with dust discharge	+
Preheating hydraulic oil	+
Preheating fuel	+
Preheating engine oil	+

Work space limitation

Electronic lift limitation	x/x*
Load torque limitation (RCL)	x/x*
Load torque warning (RCI)	+
Swivel limitation	x
Virtual wall	x*

Equipment

Cab

Storage compartment	•
Cab lights rear, 2 pieces, LED	•
Cab lights front, 2 pieces, LED (under rain cover)	•
Exterior mirror, electrical adjustable, with heating	+
Control elements for signal-horn and emergency brake at co-driver's seat	•
Lighting for cab access	x
Mechanical hour meters, readable from outside the cab	•
Roof window made from impact-resistant laminated safety glass	•
Data logger	•
Two seater cab	•
Circular bubble level	+
Pressure indication of rail axles on the display	•
Driver identification code	+
Driver profile, personalized	•
Operator's seat Standard	•
Operator's seat Comfort	+
Operator's seat Premium	+
Driving alarm (acoustic signal is emitted during travel, can be switched ON / OFF)	+
Fire extinguisher 4 lb	x*
Windscreen retractable (including upper part)	•
Intermittent windscreen wiper with wiper washer	•
Footrest	+
Speed indication on the rail-display	•
Cruise control*	•
Rubber floor mat, removable	•
High pressure circuit, permanent drive	•
Dome light	•
Licence plate holder with light*	+
Coat hook	•
Automatic air conditioning	•
Fuel consumption indicator	•
Electric cooler	+
Steering wheel lock	•
Steering column adjustable	•
LiDAT, vehicle fleet management*/**	•
Emergency exit rear window	•
Positioning swing brake	+
Proportional control	•
Radio Comfort, control via display with handsfree set	+
Preparation for radio installation	•
Rain cover over front window opening	•
ROPS cab	•
Back-up alarm (acoustic signal is emitted traveling backward, can not be switched off)	+
Amber beacon, on cab, LED double flash	+
Windshield wiper with interval switching and washer, roof window	•
Windshield wiper with interval switching and washer, rear window	•
Driver door with sliding window	•
Slipcover for operator seat	+
Right side window and windshield made from laminated safety glass	•
Safety components DB (safety flag, signal horn, warning triangle, warning light)	x
Safety components GB (safety flag)	x*
Sun blind	•
Auxiliary heating, adjustable (week time switch)	+
Power socket 12 V	•
Left control console, folding	•
Electronic immobilizer	+
Cigarette lighter / power socket 24 V	•

Equipment

Alternative connection medium pressure circuit on right side of stick	+
Boom lights, 2 pieces, LED	•
Stick lights, 2 pieces, LED	+
Grab lines for stick with tipping kinematic	+
High pressure circuit 1 incl. unpressurized return line and Tool Control	•
High pressure circuit 2 incl. lines	•
Load holding valve tipping cylinder, both sides	+
Load holding valve tipping cylinder, single-sided	+
Load lug on boom	+
Load lug on stick	+
Leak oil line, additional for attachments	+
Stick prepared for quick coupler stick	•
Medium pressure circuit incl. lines	•
PowerLift	•
Pipe fracture safety valves hoist cylinders	•
Pipe fracture safety valve stick cylinder	•
Hose quick coupling at grab lines	•
Hose protection for LIKUFIX	+
Quick coupling system LIKUFIX-9 SWA 33	+
Quick coupling system LIKUFIX SWA 33	+
Quick coupling system LIKUFIX SWA 48	+
Signal contacts for LIKUFIX, 14-pin	+
Signal contacts for LIKUFIX, 14-pin, with control unit for second SWA	+
Special buckets and other attachments	+
Power socket on stick, commutable (2 circuits)	+
Tool Control, 20 attachment adjustments selectable over the display	•
Tool Management, automatic attachment recognition (in combination with LIKUFIX)	+
Latching for connecting link in grab operation	+
Two-piece boom	•
Offset two-piece boom	+

Complete machine

Machine guidance system	
Preparation	+
Lubrication	
Lubrication undercarriage, manually - decentralized (grease points)	+
Lubrication undercarriage steering axle, manually - centralized (one grease point)	•
Central lubrication system for uppercarriage and equipment, automatically (without quick coupler and connecting link)	•
Centralized lubrication extended for quick coupler	+
Centralized lubrication extended for connecting link	+
Special coating	
DB-coating	x
Special coating undercarriage, uppercarriage, equipment	+
Monitoring	
Rear view monitoring with camera	•
Side view monitoring with camera	•

• = Standard, + = Option, x = Required for acceptance by the German RR (DB), x* = Required for acceptance by the British RR - necessary for compliance RIS 1530

* = country-dependent, ** = optionally extendable after one year

Availability of equipment may differ by country.

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

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