Technical data

Diesel engine

Rating per SAE J1349 / ISO 9249	161 HP (I) (120 kW) at 1,900 rpm
Model	
Stage V / Tier 4 Final	D924 – FPT motor designed for Liebherr
Stage IIIA (compliant)	Cummins QSB4.5
Type	4 cylinder in-line
Bore / Stroke	4.1 / 5.2 in (FPT) 4.2 / 4.9 in (Cummins)
Displacement	274.6 in³
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 (FPT) Three-phase current 28 V / 80 A (Cummins)
Stage V	
Harmful emissions values	According to regulation (EU) 2016/1628
Emission control	Liebherr-SCRT 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
Stage IIIA (compliant)	
Harmful emissions values	In accordance with ECE-R.96 Power Band I
Fuel tank	66 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

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

Cab

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
Axles	Manual or automatic hydraulically controlled front axle oscillation lock
Option	Axle with wheel head width 6'11" and differential lock 100 %
Service brake	Two circuit travel brake system with accumulator; road axle wet and backlash-free disc brake; rail wheels with drum brake
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 guide	Standard gauge 4'8"
Option	Width gauge, narrow gauge type friction drive
Stabilization	Without outriggers
Option	Rear + front outriggers

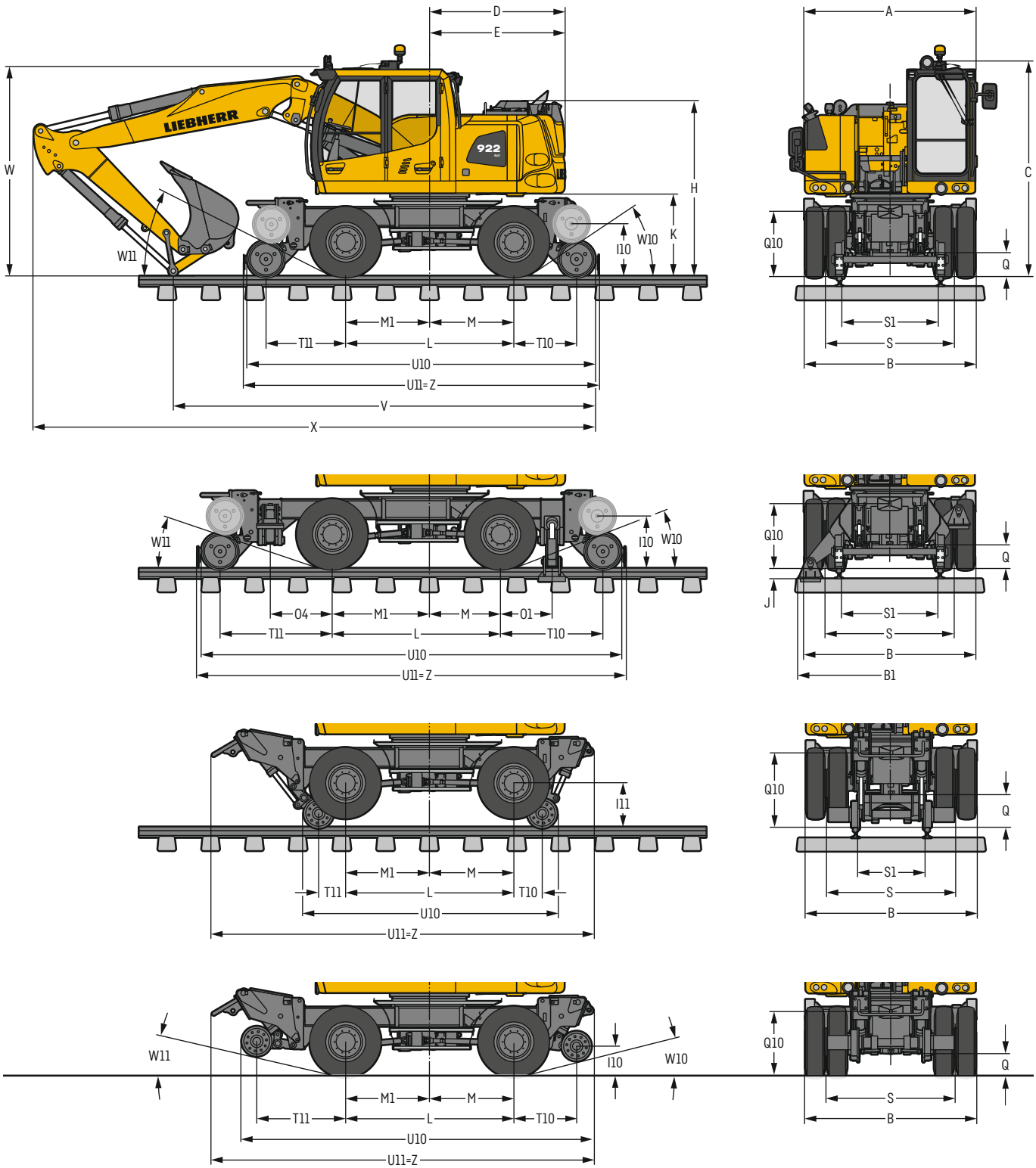
Equipment

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	70 dB(A) = L_{pA} (inside cab)
2000/14/EC	101 dB(A) = L_{WA} (surround noise)

Dimensions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B
V
X
O4
O1
J
B1
I11

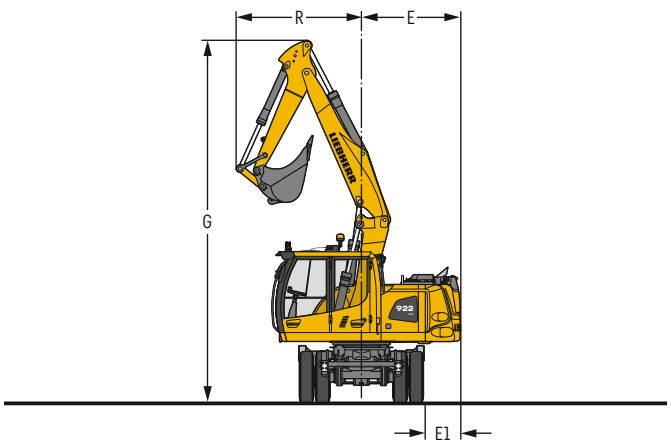
	without outriggers (Asym. / Sym. Rail)	Rear + front outriggers	Narrow gauge (Asym. / Sym. Rail) rail	Narrow gauge (Asym. / Sym. Rail) road
	ft in	ft in	ft in	ft in
A	8' 3"	8' 3"	8' 3"	8'3"
B	8' 4"	8' 4"	8' 4"	8'4"
B1	–	8'10"	–	–
C*	10' 5"	10' 5"	10'11"	10'5"
D	6' 7"	6' 7"	6' 7"	6'7"
E	6' 7"	6' 7"	6' 7"	6'7"
H	8' 6"	8' 6"	9'	8'6"
I10	2' 7"	2' 7"	–	1'5"
I11	–	–	2' 2"	–
J	–	6"	–	–
K	4' 1"	4' 1"	4' 6"	4'1"
L	8' 2"	8' 2"	8' 2"	8'2"
M	3'5" / 4'1"**	3' 5"	3'5" / 4'1"**	3'5" / 4'1"**
M1	4'9" / 4'1"**	4' 9"	4'9" / 4'1"**	4'9" / 4'1"**
O1	–	2' 6"	–	–
O4	–	3'	–	–
Q	7"	7"	5"	1'2"
Q10	3' 2"	3' 2"	3' 8"	3'2"
S	6' 3"	6' 3"	6' 3"	6'3"
S1	4' 8"	4' 8"	3' 3"	–
T10	3' 1"	5'	1' 5"	3'1"
T11	3'10"	5' 6"	1' 4"	4'4"
U10	17'	20' 7"	12' 5"	17'1"
U11	17' 5"	21'	18' 7"	18'7"
W10	33.8°	20.7°	–	15.2°
W11	26.5°	18.8°	–	13.7°
Z	17' 5"	21'	18' 7"	18'7"

* without signal light DB and amber beacon; can be removed for transport
** Symmetric Rail
E = Tail radius
Tires 10.00-20

	Stick	Two-piece boom 16'7"		
		without outriggers (Asymmetric Rail)	without outriggers (Symmetric Rail)	Rear + front outriggers
	ft in	ft in	ft in	ft in
V	6'1"	20' 8"	21' 4"	24' 5"*
	6'9"	19'10"	20' 6"	23' 7"*
	7'5"	21' 6"*	20'	23' 2"*
W	6'1"	9'10"	9'10"	9'10"*
	6'9"	10'	10'	10'*
	7'5"	10' 2"*	10' 2"	10' 2"*
X	6'1"	27' 3"	27'11"	31'*
	6'9"	26' 9"	27' 5"	30' 6"*
	7'5"	26' 9"*	27' 5"	30' 8"*

	Stick	Offset two-piece boom 16'5"		
		without outriggers (Asymmetric Rail)	without outriggers (Symmetric Rail)	Rear + front outriggers
	ft in	ft in	ft in	ft in
V	6'1"	22' 2"	22'10"	24'1"
	6'9"	20'10"	21' 6"	24'7"*
	7'5"	21'10"*	20' 2"	23'5"*
W	6'1"	10' 4"	10' 4"	10'4"
	6'9"	10' 4"	10' 4"	10'4"*
	7'5"	10' 4"*	10' 4"	10'4"*
X	6'1"	27' 3"	27'11"	29'2"
	6'9"	26' 9"	27' 5"	30'6"*
	7'5"	28'10"*	27' 5"	30'6"*

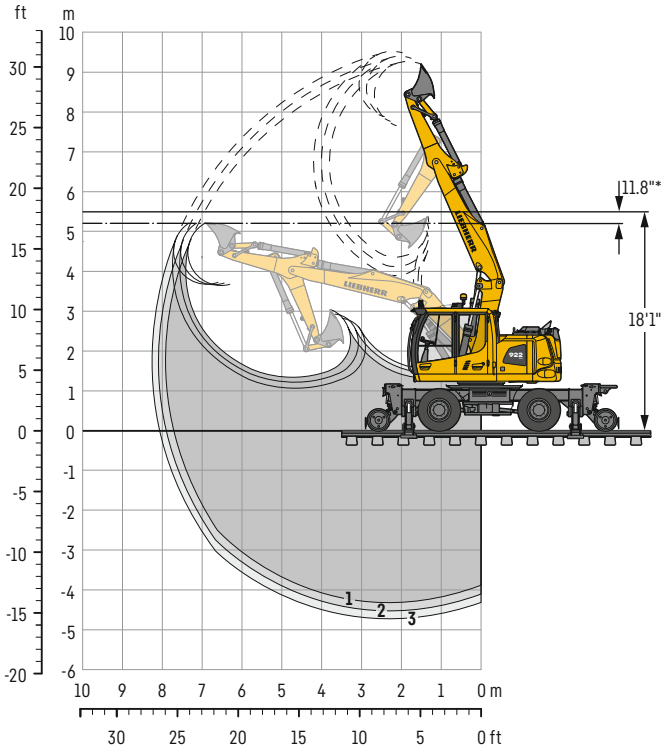
Dimensions are with equipment over steering axle
* Equipment over digging axle for shorter transport dimensions



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"	2'5"
Two-piece boom 16'7"	6'9"	24'3"	8'5"	6'7"	2'5"
Two-piece boom 16'7"	7'5"	24'3"	8'5"	6'7"	2'5"

Ditch cleaning bucket

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	14' 3"	14'11"	15'7"
Max. reach at ground level	ft in	25' 3"	25'11"	26'5"
Max. dumping height	ft in	25' 1"	25' 5"	25'9"
Max. dumping height under overhead wires	ft in	11'11"	12'	12'
Max. teeth height	ft in	30' 4"	30'10"	31'2"
Min. equipment radius	ft in	8' 5"	8' 5"	8'5"

Digging forces

		1	2	3
Max. digging force (ISO 6015)	lbf	24,864	22,975	21,402
	lb	24,910	22,930	21,390
Max. breakout force (ISO 6015)	lbf	22,773	22,773	22,773
	lb	22,710	22,710	22,710

Max. breakout force with ripper bucket 30,259 lbf (30,200 lb)

Operating weight

The operating weight includes the basic machine with 8 tires plus intermediate rings, two-piece boom 16'7", stick 7'5" and ditch cleaning bucket 78.7" / 0.85 yd³.

Undercarriage versions	Weight (lb)
A 922 Rail Litronic without outriggers (Asymmetric Rail)	45,000
A 922 Rail Litronic without outriggers (Symmetric Rail)	45,000
A 922 Rail Litronic with rear + front outriggers	48,700

Ditch cleaning buckets Machine stability per ISO 10567* (75% of tipping capacity)

Cutting width	Capacity ISO 7451[1]	Weight	without outriggers						Rear + front outriggers									Narrow gauge 3'3"					
			on rail			on tires			on rail			on tires			down			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)			Stick length (ft in)		
ft in	yd³	lb	6'1"	6'9"	7'5"	6'1"	6'9"	7'5"	6'1"	6'9"	7'5"	6'1"	6'9"	7'5"	6'1"	6'9"	7'5"	6'1"	6'9"	7'5"	6'1"	6'9"	7'5"
5' 3"[1]	0.65	728	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
5'11"[1]	0.75	794	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	△	■	■	■
6' 7"[1]	0.85	860	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	△	△	△	■	■	■
5' 3"[2]	1.05	1,689	△	△	-	■	■	■	△	△	△	■	■	■	■	■	■	-	-	-	■	■	■
6' 7"[2]	0.92	1,788	△	△	△	■	■	■	■	■	△	■	■	■	■	■	■	-	-	-	■	■	■

* 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] comparable with SAE (heaped)

[2] with 2 x 50° rotator

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