Product Information: Crawler Excavator

R 934

Litronic®



LIEBHERR

Experience the Progress R 934

Safety

- Panoramic visibility with no obstructions and camera on the rear and the right side for enhanced safety
- Tiltable console for easy and safe access to cab
- ROPS-certified cab structure
- Emergency exit via the rear cab window
- Right window and windshield in laminated and tinted glass

Equipment

- · Large choice of sticks
- Safety check valves for hoist and stick cylinders (option)
- Guaranteed maintenance thanks to automatic centralised lubrication system (option)

Maintenance

- Innovative servicing concept, with service points accessible from ground level
- Engine oil, hydraulic oil, fuel and urea (diesel exhaust fluid) levels visible on the display
- New concept for lateral access to uppercarriage and large maintenance platform





Comfort

- Spacious, air-conditioned work space
- Airsprung seat with vertical and longitudinal suspension
- Easy-to-use high resolution 7" colour touchscreen
- Retractable seat belt 3", orange color
- New LED lighting as standard

Engine

- New engine that conforms with the US EPA Tier 4 Final exhaust emissions standard
- Automatic engine idling/automatic engine shut-down after idling

Undercarriage

- Robust, reliable X-frame undercarriage, easy to secure thanks to its integrated eyelets
- Easy maintenance
- Maintenance-free track chains and track rollers with lifetime lubrication
- Extra storage (option)

Technical Data

Engine

Rating	
per SAE J1349	268 HP (200 kW) at 1,800 rpm
per ISO 9249	272 HP (200 kW) at 1,800 rpm
Torque	1,415 Nm at 1,350 rpm / 1,044 lbf ft at 1,350 rpm
Model	Liebherr D944 A7-24
Туре	4 cylinder in-line
Bore	130 mm / 5.1 in
Stroke	150 mm / 5.9 in
Displacement	8.0 I / 488 in ³
Engine operation	4-stroke diesel
	Common-Rail
	Turbo-charged and after-cooler
Exhaust gas treatment	Tier 4 Final
	SCR Filter
	Passive regeneration by thermo management
Cooling system	Water-cooled and oil cooler, after-cooled and fuel
	cooled
Air cleaner	Dry-type air cleaner with pre-cleaner
Fuel tank	729 I / 193 gal
Urea tank	901/ 24 gal
Electrical system	
Voltage	24 V
Batteries	2 x 135 Ah/12 V
Alternator	Three-phase current 28 V/140 A
Engine idling	Sensor controlled

Hydraulic Controls

-				
Power distribution	Via control valves, simultaneous and independent			
	actuation of undercarriage, swing drive and equipment			
Electric servo circuit	Electro-hydraulic control			
Equipment and swing	Proportional via joystick levers			
Travel	 Proportional control via foot pedals or removable 			
	levers			
	 Automatic or manual speed adjustment 			
Additional functions	Proportional regulation via foot pedals or mini-joystick			

Hydraulic System

Hydraulic system	Positive Control hydraulic system. Demand-based,
	double independent pump flows
	Features high system dynamics and sensitivity provided
	by integrated system controlling
	Independent circuit for rotation
Hydraulic pumps	
For equipment and travel drive	Liebherr, variable displacement, swashplate double
	pump
Max. flow	2 x 315 l/min. / 2 x 83 gpm
Max. pressure	380 bar / 5,511 psi
For swing drive	Swashplate pump, closed-loop circuit
Max. flow	205 l/min. / 54 gpm
Max. pressure	400 bar / 5,802 psi
Pump management	Electronic management synchronous to the control
	block
Hydraulic tank	239 I / 63 gal
Hydraulic system	max. 475 l / max. 126 gal
Hydraulic oil filter	1 main return filter with integrated partial micro filtration
	(10 μm / 1,250 mesh)
Cooling system	Compact cooler, consisting of a water cooler, with
	hydraulic oil cooler, gearbox oil cooler, fuel cooler and
	after-cooler cores and hydrostatically driven fan
MODE selection	Adjustment of engine and hydraulic performance via a
	mode pre-selector to match application, e.g. for espe-
	cially economical and environmentally friendly operation
	or for maximum digging performance and heavy-duty
	jobs
Engine speed and	Stepless adjustment of engine output and hydraulic
performance setting	power via engine speed

Swing Drive

Drive	Liebherr swashplate motor with integrated brake valve
	and torque control
Transmission	Liebherr compact planetary reduction gears
Swing ring	Liebherr, sealed race ball bearing swing ring, internal
	teeth
Swing speed	0 – 12.9 rpm stepless
Swing torque	117 kNm / 86,295 lbf ft
Swing torque Holding brake	117 kNm / 86,295 lbf ft Wet multi-disc (spring applied, pressure released)

Operator's Cab

Cab	ROPS safety cab structure (roll-over protection system according to ISO 12117-2:2008) with windscreen, totally or partially retractable (only upper part), under cab roof, LED work headlights integrated in the ceiling, a door with a sliding window (can be opened on both sides), large storing box and several stowing possibilities, shock-absorbing suspension, laminated right hand side
	and roof windows, all windows tinted, separate extensible window shades for the sunroof window and windscreen, cigarette lighter and 24 V plug, 12 V plug, cup holder, mobile phone storage net
Operator's seat	Liebherr-Comfort seat, airsprung with automatic weigh adjustment, vertical and longitudinal seat damping including consoles and joysticks. Seat and armrests adjustable separately and in combination (adjustable in width, height and inclination), seat heating as standard
Arm consoles	Oscillating consoles with seat, tiltable console left
Operation and displays	Large high-resolution operating unit, intuitive, color display with touchscreen, video-compatible, numerous setting, control and monitoring options, e.g. air conditioning control, fuel consumption, machine and attachment parameters
Air-conditioning	Automatic air-conditioning, recirculated air function, fas de-icing and demisting at the press of a button, air vent 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
Noise emission	
ISO 6396	L _{pA} (inside cab) = 72 dB(A)
2000/14/EC	L _{WA} (surround noise) = 105 dB(A)

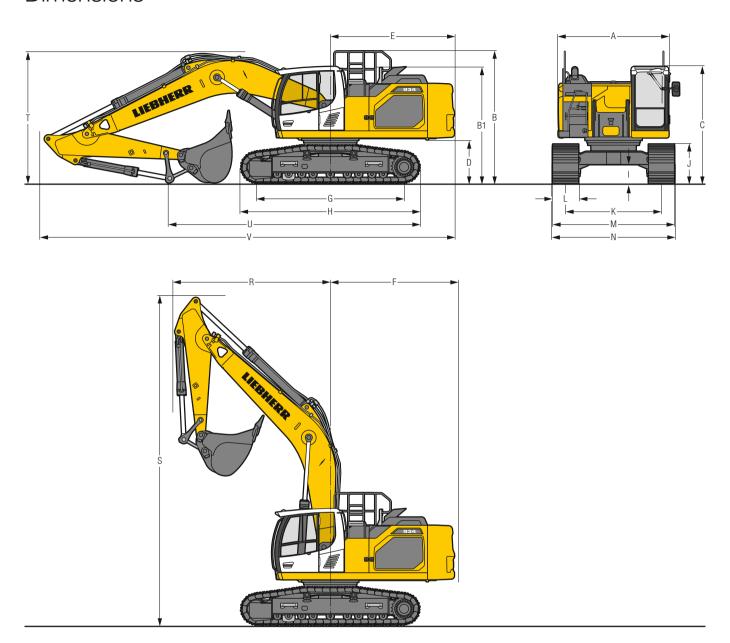
Undercarriage

Liebherr swashplate motor with brake valves on botl
sides
Liebherr planetary reduction gear
Low range 3.3 km/h / 2.1 mph
High range 5.4 km/h / 3.4 mph
325 kN / 73,060 lbf
D7, D7G, maintenance-free
9/2
Sealed and greased
Triple grouser
Wet multi-disc (spring applied, pressure released)
Integrated into travel motor
Integrated

Equipment

a Equipment	
Туре	Combination of resistant steel plates and cast steel components
Hydraulic cylinders	Liebherr cylinders with seal and guidance systems
Bearings	Sealed, low maintenance
Lubrication	Liebherr central lubrication system
Hydraulic connections	Pipes and hoses equipped with SAE split-flange connections
Buckets	Standard equipped with Liebherr tooth system

Dimensions



		LC	mm/ft in
Α	Uppercarriage width		2,990**/ 9'10"**
В	Uppercarriage height		3,570 / 11' 9"
B1	Uppercarriage height (handrails folded)		3,130 /10' 3"
C	Cab height		3,150 / 10' 4"
D	Counterweight ground clearance		1,175 / 3'10"
E	Rear-end length		3,350 / 11'
F	Tail swing radius		3,450 /11' 4"
G	Wheelbase		3,990 /13' 1"
Н	Undercarriage length		4,840 /15'11"
1	Undercarriage ground clearance		495 / 1' 7"
J	Track height		1,055 / 3' 2"
K	Track gauge		2,590 / 8' 6"
L	Track pad width	600/ 24" 700 / 28" 800 / 31"	900 / 35"
M	Width over tracks	3,190/ 10' 6" 3,290 / 10'10" 3,390 / 11' 1"	3,490 / 11' 5"
N	Width over steps	3,190/ 10' 6" 3,190 / 10' 6" 3,390*/ 11' 1"*	3,390* /11' 1"*

^{*} width with removable steps

** without door stop device and spacer

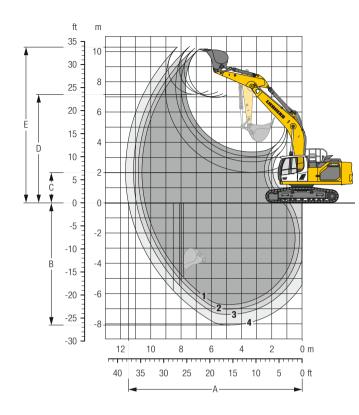
		Stick	Mono boom 6.45 m/21'2"
		length	direct mounting
		m/ft in	mm/ft in
R	Front swing radius	2.60/ 8'6"	4,250/ 13'11"
		2.90/ 9'6"	4,250/ 13'11"
		3.25/10'8"	4,250/ 13'11"
		3.95/ 13'	4,250/ 13'11"
S	Height with boom up		8,900/ 29' 2"
T	Boom height	2.60/ 8'6"	3,550/11' 8"
		2.90/ 9'6"	3,700/ 12' 2"
		3.25/10'8"	3,700/ 12' 2"
		3.95/ 13'	3,400/ 11' 2"
U	Length on ground	2.60/ 8'6"	6,800/ 22' 4"
		2.90/ 9'6"	6,400/ 21'
		3.25/10'8"	5,850/ 19' 2"
		3.95/ 13'	7,850/ 25' 9"
V	Overall length		11,200/ 36' 9"
	Bucket		1.75 m ³ / 2.29 yd³

Transport Dimensions removable elements disassembled

	Stick	Mono boom 6.45 m/21'2"						
	m/ft in		mm/ ft in					
Pad width		600/ 24"	700/ 28"	800/ 31"	900/ 35"			
Transport width		3,190/ 10' 6"	3,290/10'10"	3,390/11' 1"	3,490/ 11' 5"			
Transport length		11,200/ 36'9"						
Transport height	2.60/ 8'6"	3,550/ 11'8"						
	2.90/ 9'6"		3,700/ 12'2"					
	3.25/10'8"		/12'2"					
	3.95/ 13'	3,400/ 11'2"						
Bucket		1.75 m ³ / 2.29 yd ³						

Backhoe Bucket

with Mono Boom 6.45 m/21'2" and Counterweight 5.9 t/13,010 lb



Digging Envelope

without quick coupler		1	2	3	4
Stick length	m/ft in	2.60/ 8' 6"	2.90/ 9' 6"	3.25/10' 8"	3.95/ 13'
A Max. reach at ground level	m/ft in	10.37/ 34'	10.63/34'11"	10.94/ 35'11"	11.48/37'8"
B Max. digging depth	m/ft in	6.73/ 22' 1"	7.03/ 23' 1"	7.38/ 24' 3"	8.08/ 26'6"
C Min. dumping height	m/ft in	3.36/11'	3.06/ 10'	2.71/ 8'11"	2.01/ 6'7"
D Max. dumping height	m/ft in	6.95/ 22'10"	7.02/ 23'	7.15/ 23' 5"	7.17/ 23'6"
E Max. cutting height	m/ft in	10.15/33' 3"	10.21/33' 6"	10.34/33'11"	10.28/33'9"

Forces

without quick coupler		1	2	3	4
Stick digging force (ISO 6015)	kN/ lbf	206/ 46,310	193/ 43,390	179/ 40,240	156/ 35,070
Bucket digging force (ISO 6015)	kN/ lbf	223/ 50,130	223/ 50,130	223/ 50,130	223/50,130
Stick digging force (SAE J1179)	kN/lbf	196/ 44,060	183/41,140	171/38,440	150/33,720
Bucket digging force (SAF J1179	\kN/lhf	197/44.290	197/44.290	197/44.290	197/44.290

Operating Weight and Ground Pressure

The operating weight includes the basic machine with counterweight 5.9 t/13,010 lb, mono boom 6.45~m/21'2", stick 3.25~m/10'8" and bucket $1.75~m^3/2.29~yd^3$ (1,630 kg/3,594 lb).

Undercarriage			LC						
Pad width	mm/ in	600/ 24"	700/ 28"	800/31"	900/ 35"				
Weight	kg/ lb	34,600/ 76,280	34,950/ 77,050	35,300/77,820	35,650/ 78,600				
Ground pressure	kg/cm2/psi	0.67/ 9.5	0.58/8.2	0.52/ 7.4	0.46/6.5				

Optional: counterweight 7.1 t/**15,650 lb**

(counterweight 7.1 t/15,650 lb increases the operating weight by 1,200 kg/2,650 lb and ground pressure by 0.02 kg/cm²/0.3 psi) see load tables on page 11

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

	Cutting width				er ISO 10567* (75% 01	apping outputty)			rcarriage ds 800 mm/31")			
	į	Capacity ISO 7451	Weight ³⁾	Weight ⁴⁾		without qui	ick counter	Stick leng	th (m/ft in)	with quick	k counter	
	mm in	m ³ yd³	kg Ib	kg Ib	2.60 8'6"	2.90 9'6"	3.25 10'8"	3.95 13'	2.60 8'6"	2.90 9'6"	3.25 10'8"	3.95 13'
	with co 1,200	unterwe 1.25	eight 5.9 1,420	t/ 13,010 1,380								
	47"	1.63	3,130	3,040	A	A	A	A	A	A	A	•
	1,350 53"	1.50 1.96	1,530 3,370	1,490 3,290	A	A	A	A	A	A	-	
	1,500	1.75	1,630	1,590	•	-	A	Δ		A		Δ
	59" 1,600	2.29 1.90	3,590 1,700	3,510 1,660	A	A			A	_	^	_
SID	63" 1,650	2.48 2.00	3,750 1,730	3,660 1,690	A	A		Δ	A		Δ	-
,	65"	2.62	3,810	3,730	A	-	Δ	Δ		Δ	Δ	-
	1,600 63"	2.15 2.81	1,770 3,900	1,730 3,810	-	Δ	Δ	-	Δ	Δ	Δ	-
	1,650	2.25	1,810	1,770	Δ	Δ	Δ	_	Δ	Δ	_	_
	65" 1,800	2.94 2.50	3,990 1,900	3,900 1,860						_		
	71"	3.27	4,190	4,100	Δ	Δ	=	-	Δ	-	-	-
	1,200 47"	1.25 1.63	1,510 3,330	1,470 3,240	A	A	A	A	A	A	A	
	1,350 53"	1.50 1.96	1,620 3,570	1,580 3,480	A	A	•	A	A	A	-	
	1,500	1.75	1,730	1,690			-	Δ		A		Δ
(7	59" 1,600	2.29 1.90	3,810 1,800	3,730 1,760					_			Δ.
HDZ	63"	2.48	3,970	3,880	A		Δ	Δ	A	-	Δ	-
	1,650 65"	2.00 2.62	1,830 4,030	1,790 3,950	A		Δ	-	-	Δ	Δ	-
	1,600 63"	2.15 2.81	1,870 4,120	1,830 4,030		Δ	Δ	-	Δ	Δ	_	-
	1,650	2.25	1,910	1,870	Δ	Δ	Δ	_	Δ	Δ	_	_
	65" with co	2.94	4,210	4,120 t/ 15,650		Δ	Δ		Δ	Δ		
	1,500	1.75	1,630	1,590	A	A		A	A	A	•	
	59" 1,600	2.29 1.90	3,590 1,700	3,510 1,660								
	63"	2.48	3,750	3,660	A		A		A		A	Δ
SID.	1,650 65"	2.00 2.62	1,730 3,810	1,690 3,730	•	•	A	Δ		A	-	Δ
7	1,600 63"	2.15 2.81	1,770 3,900	1,730 3,810	-	A	-	Δ	A		Δ	Δ
	1,650	2.25	1,810	1,770	A	-	Δ	Δ	A		Δ	_
	65" 1,800	2.94 2.50	3,990 1,900	3,900 1,860				Δ				
	71"	3.27	4,190	4,100		Δ	Δ	-	Δ	Δ	Δ	-
	1,350 53"	1.50 1.96	1,620 3,570	1,580 3,480	A	A	A	A	A	A	A	
	1,500 59"	1.75 2.29	1,730 3,810	1,690 3,730	A	A		A	A	A		
	1,600	1.90	1,800	1,760	A	•	A				A	Δ
(2	63" 1,650	2.48 2.00	3,970 1,830	3,880 1,790								
HD ^z	65"	2.62	4,030	3,950			A	Δ		A		Δ
	1,600 63"	2.15 2.81	1,870 4,120	1,830 4,030	A	A		Δ	A	-	Δ	Δ
	1,650 65"	2.25 2.94	1,910 4,210	1,870 4,120	A		Δ	Δ		-	Δ	-
	1,800	2.50	2,000	1,960	-	Δ	Δ	_	Δ	Δ	Δ	_
. 1.	71"	3.27	4,410	4,320	7, at maximum reach, ar					4		

^{*} Indicated loads are based on ISO 10567, at maximum reach, and may be swung 360° on firm and even ground 1) Standard bucket with teeth Z 50

 $\text{Max. material weight } \underline{\textbf{A}} = \leq 2.0 \text{ t/m}^3/\textbf{3}, \textbf{400 lb/yd}^3, \underline{\textbf{m}} = \leq 1.8 \text{ t/m}^3/\textbf{3}, \textbf{3000 lb/yd}^3, \underline{\textbf{m}} = \leq 1.65 \text{ t/m}^3/\textbf{2}, \textbf{800 lb/yd}^3, \underline{\textbf{m}} = \leq 1.5 \text{ t/m}^3/\textbf{2}, \textbf{2000 lb/yd}^3, \underline{\textbf{m}} = \leq 1.5 \text{ t/m}^3/\textbf{2}, \textbf{2000 lb/yd}^3, \underline{\textbf{m}} = \leq 1.8 \text{ t/m}^3/\textbf{2}, \textbf{2000 lb/yd}^3, \underline{\textbf{m}} =$

²⁾ HD bucket with teeth Z 50

³⁾ Bucket for direct mounting

⁴⁾ Bucket for mounting to quick coupler

Other buckets available upon request

Lift Capacities with Mono Boom 6.45 m/21'2", Counterweight 5.9 t/13,010 lb and Track Pads 800 mm/31"

carriage	\$ 3	1000) m) ft		5 m 5 ft		.0 m		5 m) m) ft				Under- carriage	13		3.0 m 10 ft		5 m 5 ft		0 m 0 ft		5 m 5 ft) m) ft			
garı			5	ď	5	ď	5	<u> </u>	5	ď	5	<u> 4</u>	5	<u> 4</u>	m ft in	Unde		<u>ہے۔</u>	o 6	5	<u> </u>	5	<u> </u>	5	<u> </u>	5	<u> </u>	5	<u> </u>	ft
	7.5 m	t		_			9.1	9.2*	_		_		7.1	9.1*	6.9		7.5 m	t		_				_				6.6	8.6*	
- 1	25 ft	lb					19,8	20,3*					16,2	20,1*	22'5"		25 ft	lb										15,1	19,0*	23
ı	6.0 m	t					8.8	9.8*	6.1	8.9*			5.6	8.4	7.9		6.0 m	t				8.9	9.3*	6.2	8.6*			5.3	8.0	8
İ	20 ft	lb					19,2	21,2*	13,3	19,6*			12,6	19,1	25'8"		20 ft	lb				19,4	20,3*	13,4	18,8*			12,0	18,1	20
	4.5 m	t			12.8	14.0*	8.3	10.9*	5.9	9.0			4.8	7.3	8.5		4.5 m	t		13.0	13.4*	8.4	10.5*	5.9	9.0			4.6	7.0	
	15 ft	lb			28,0	30,1*	18,1	23,6*	12,9	19,6			10,8	16,5	27'10"		15 ft	lb		28,4	28,7*	18,3	22,7*	12,9	19,7			10,3	15,7	2
-	3.0 m	t			11.4	16.9*	7.7	12.2*	5.6	8.7			4.4	6.8	8.8		3.0 m	t		11.6	16.3*	7.8	11.8*	5.6	8.7	4.2	6.5	4.2	6.5	
ı	10 ft	lb			25,0	36,3*	16,9		12,3	18,9				15,2	28'10"		10 ft	lb		25,4	35,0*		25,6*	12,3	19,0			9,5	14,6	2
	1.5 m	t			10.7	16.5*	7.2	11.7	5.3	8.4			4.3	6.6	8.8		1.5 m	t		10.7	18.0*	7.3	11.7	5.3	8.4	4.1	6.4	4.1	6.3	
ı	5 ft	lb			23,4	39,5*			11,7	18,3				14,8	28'11"	9	5 ft	lb		23,5	38,9*	15,9		11,7	18,3			9,1	14,2	2
	0 m	t			10.5	18.0*	7.0		5.2	8.2			4.4	6.8	8.6	_	0 m	t		10.4	18.1*	1	11.4	5.1	8.2			4.1	6.5	
ŀ	0 ft	lb			22,9	39,1*	15,3	24,9	11,3	17,9				15,2	28'1"		0 ft	lb		22,8	39,2*	15,2	24,8	11,3	17,8			9,3	14,5	2
	-1.5 m		15.0*		10.5	16.9*	6.9	11.3	5.2	8.2			4.7	7.4	8.0		-1.5 m		15.0		17.2*	6.9	11.3	5.1	8.1			4.5	7.0	
ŀ	-5 ft		34,0*			36,6*	15,2		11,3	17,9				16,7	26'4"		-5 ft)* 34,0°		37,3*			11,1	17,7				15,8	2
	-3.0 m			18.4*	10.8	14.8*	7.1	11.5					5.6	8.9	7.1		-3.0 m	t 19.7		10.6	15.3*	6.9	11.4					5.2	8.3	١,
ŀ	-10 ft	-	40,0^	40,0*	-	32,0*	15,4	24,8*						20,1	23'4"			lb 42,9		_	33,2*	15,2	24,8					11,8	18,7	2
ı	-4.5 m -15 ft					11.1* 23,6 *							7.9 18,1	8.6* 18,8 *	5.7 18'7"		-4.5 m	t 15.0	15.0		12.0* 25,6 *	7.3	9.0*					7.1 16,2	8.7* 19,0 *	
ľ	-6.0 m	_			23,0	23,0							10,1	10,0	10 /		-6.0 m	10 32,4	32,2	24,1	25,0							10,2	19,0	-
																	-20 ft	16					'							
T	-20 ft	3.2			-	5 m	6.	.0 m	7.	5 m	9.0) m					tick 3	8.95 r			5 m	6.0	0 m	7.	5 m	9.0) m			in.
T		3.2	3.0	/10 ¹	4.	5 m	1	.0 m		5 m) m) ft					tick 3	8.95 r	n / 13	4.	5 m 5 ft		0 m 0 ft		5 m 5 ft) m) ft			90 -
T	ick 3	3.2	3.0) m) ft	4.	5 ft	1	0 ft	25	5 ft	30) ft	<i>✓</i>		m ft in		tick 3	8.95 r	3.0 m 10 ft	4.	5 ft		O ft							
T	tick 3	8.2	3.0 10) m	4.		2	0 ft					6.1	8.1*	ft in 7.6	Under- carriage S	tick 3	8.95 r	3.0 m 10 ft	4. 1	5 ft	20	O ft	2 :	5 ft 7.1*	30) ft	5.4	6.4*	1
T	7.5 m 25 ft	3.2	3.0 10) m) ft	4.	5 ft	2	0 ft	25 5 6.3	5 ft 8.0*	30) ft	6.1 13,9	17,8*	7.6 24'10"		tick 3	8.95 r	3.0 m 10 ft	4. 1	5 ft	20	O ft	6.4 14,0	7.1* 15,6 *	30 -) ft	12,2	6.4* 14,1 *	2
T	7.5 m 25 ft 6.0 m	8.2 t lb	3.0 10) m) ft	4.	5 ft	2	0 ft	6.3 6.2	8.0* 8.1*	30) ft	6.1 13,9 4.9	17,8* 7.5	7.6 24'10" 8.5		7.5 m 25 ft 6.0 m	8.95 r	3.0 m 10 ft	4. 1	5 ft	20	O ft	6.4 14,0 6.3	7.1* 15,6* 7.3*	30) ft	12,2 4.4	6.4* 14,1* 6.3*	2
T	7.5 m 25 ft 6.0 m 20 ft	8.2 t	3.0 10) m) ft	4.	5 ft	2:	0 ft	6.3 6.2 13,5	8.0* 8.1* 17,8*	30 50	oft E	6.1 13,9 4.9 11,1	7.5 16,9	7.6 24'10" 8.5 27'10"		7.5 m 25 ft 6.0 m 20 ft	8.95 r	3.0 m 10 ft	4. 1	5 ft	20	D ft	6.4 14,0 6.3 13,7	7.1* 15,6* 7.3* 16,0*	30 € 4.5	6.7*	12,2 4.4 10,0	6.4* 14,1* 6.3* 13,9*	2
T	7.5 m 25 ft 6.0 m 20 ft 4.5 m	t	3.0 10) m) ft	4 1! 	12.5*	2	10.0*	6.3 6.2 13,5 5.9	8.0* 8.1* 17,8* 8.7*	30) ft	6.1 13,9 4.9 11,1 4.3	7.5 16,9 6.6	7.6 24'10" 8.5 27'10" 9.1		7.5 m 25 ft 6.0 m 20 ft 4.5 m	t	3.0 m 10 ft	4. 1	5 ft	20 → 5 8.6	9.0*	6.4 14,0 6.3 13,7 6.0	7.1* 15,6* 7.3* 16,0* 7.9*	4.5 4.4	6.7*	12,2 4.4 10,0 3.9	6.4* 14,1* 6.3* 13,9* 6.0	2
T	7.5 m 25 ft 6.0 m 20 ft 4.5 m 15 ft	8.2 t lb	3.0 10) m) ft	4 1! 	12.5* 26,9 *	8.4 18,4	10.0* 21,7*	6.3 6.2 13,5 5.9 12,9	8.0* 8.1* 17,8* 8.7* 18,9*	30 - 4 4.4	6.7	6.1 13,9 4.9 11,1 4.3 9,7	17,8* 7.5 16,9 6.6 14,8	ft in 7.6 24'10" 8.5 27'10" 9.1 29'8"		7.5 m 25 ft 6.0 m 20 ft 4.5 m 15 ft	t	3.0 m 10 ft	4. 1	5 ft	8.6 18,8	9.0* 19,5*	6.4 14,0 6.3 13,7 6.0 13,1	7.1* 15,6* 7.3* 16,0* 7.9* 17,3 *	4.5 4.4 9,5	6.7* 6.7 14,6	12,2 4.4 10,0 3.9 8,7	6.4* 14,1* 6.3* 13,9* 6.0	2
T	7.5 m 25 ft 6.0 m 20 ft 4.5 m 15 ft 3.0 m	t	3.0 10) m) ft	4 1! 	12.5* 26,9* 15.5*	8.4 18,4 7.8	10.0* 21,7*	6.3 6.2 13,5 5.9 12,9 5.6	8.0* 8.1* 17,8* 8.7* 18,9*	4.4 4.2	6.7 6.5	6.1 13,9 4.9 11,1 4.3 9,7 4.0	7.5 16,9 6.6 14,8 6.1	ft in 7.6 24'10" 8.5 27'10" 9.1 29'8" 9.3		7.5 m 25 ft 6.0 m 20 ft 4.5 m 15 ft 3.0 m	t	3.0 m 10 ft	4. 1	5 ft 13.9*	8.6 18,8 7.9	9.0* 19,5* 10.5*	6.4 14,0 6.3 13,7 6.0 13,1 5.6	7.1* 15,6* 7.3* 16,0* 7.9* 17,3*	4.5 4.4 9,5 4.2	6.7* 6.7 14,6 6.5	12,2 4.4 10,0 3.9 8,7 3.6	6.4* 14,1* 6.3* 13,9* 6.0 13,4 5.6	2 2
T	7.5 m 25 ft 6.0 m 20 ft 4.5 m 15 ft 3.0 m 10 ft	t	3.0 10) m) ft	12.5* 26,9* 11.8 25,8	12.5* 26,9* 15.5* 33,3*	8.4 18,4 7.8	10.0* 21,7* 11.4* 24,7*	6.3 6.2 13,5 5.9 12,9 5.6 12,2	8.0* 8.0* 8.1* 17,8* 8.7* 18,9*	4.4 4.2 9,2	6.7 6.5 14,2	6.1 13,9 4.9 11,1 4.3 9,7 4.0 8,9	7.5 16,9 6.6 14,8 6.1 13,7	ft in 7.6 24'10" 8.5 27'10" 9.1 29'8" 9.3 30'7"		7.5 m 25 ft 6.0 m 20 ft 4.5 m 15 ft 3.0 m 10 ft	t	3.0 m 10 ft 10 11 14.00 14.00	4. 1 12.3 26,8	5 ft 13.9* 29,9*	8.6 18,8 7.9 17,3	9.0* 19.5* 10.5* 22,7*	6.4 14,0 6.3 13,7 6.0 13,1 5.6 12,3	7.1* 15,6* 7.3* 16,0* 7.9* 17,3* 8.7 19,0*	4.5 4.4 9,5 4.2 9,1	6.7* 6.7 14,6 6.5 14,2	12,2 4.4 10,0 3.9 8,7 3.6 8,0	6.4* 14,1* 6.3* 13,9* 6.0 13,4 5.6 12,5	* 2
T	7.5 m 25 ft 6.0 m 20 ft 4.5 m 15 ft 3.0 m 10 ft 1.5 m	t	3.0 10) m) ft	12.5* 26,9* 11.8 25,8 10.8	12.5* 26,9* 15.5* 33,3* 17.5*	8.4 18,4 7.8 17,0	10.0* 21,7* 11.4* 24,7*	6.3 6.2 13,5 5.9 12,9 5.6 12,2 5.3	8.0* 8.1* 17,8* 8.7* 18,9* 8.7 19,0 8.3	4.4 4.2 9,2 4.1	6.7 6.5 14,2 6.3	6.1 13,9 4.9 11,1 4.3 9,7 4.0 8,9 3.8	7.5 16,9 6.6 14,8 6.1 13,7 6.0	ft in 7.6 24'10" 8.5 27'10" 9.1 29'8" 9.3 30'7" 9.4	Under- carriage	7.5 m 25 ft 6.0 m 20 ft 4.5 m 15 ft 3.0 m 10 ft 1.5 m	t	3.0 m 10 ft 3.0 m 14.0 7* 35,7	4. 1 12.3 26,8 11.0	13.9* 29,9* 16.4*	8.6 18,8 7.9 17,3 7.3	9.0* 19,5* 10.5* 22,7*	6.4 14,0 6.3 13,7 6.0 13,1 5.6 12,3 5.3	7.1* 15,6* 7.3* 16,0* 7.9* 17,3* 8.7 19,0*	4.5 4.4 9,5 4.2 9,1 4.0	6.7* 6.7 14,6 6.5 14,2 6.3	12,2 4.4 10,0 3.9 8,7 3.6 8,0 3.4	6.4* 14,1* 6.3* 13,9* 6.0 13,4 5.6 12,5 5.4	* 2
T	7.5 m 25 ft 6.0 m 20 ft 4.5 m 15 ft 3.0 m 10 ft 1.5 m 5 ft	t	3.0 10) m) ft	12.5* 26,9* 11.8 25,8 10.8 23,6	12.5* 26,9* 15.5* 33,3* 17.5* 37,9*	8.4 18,4 7.8 17,0 7.2 15,8	10.0* 21,7* 11.4* 24,7* 11.7 25,6	6.3 6.2 13,5 5.9 12,9 5.6 12,2 5.3 11,6	8.0* 8.1* 17,8* 8.7* 18,9* 8.7 19,0 8.3 18,2	4.4 4.2 9,2 4.1 8,8	6.7 6.5 14,2 6.3 13,8	6.1 13,9 4.9 11,1 4.3 9,7 4.0 8,9 3.8 8,5	7.5 16,9 6.6 14,8 6.1 13,7 6.0	ft in 7.6 24'10" 8.5 27'10" 9.1 29'8" 9.3 30'7" 9.4 30'8"		7.5 m 25 ft 6.0 m 20 ft 4.5 m 15 ft 3.0 m 10 ft 1.5 m 5 ft	t	3.0 m 10 ft 14.0° 35,7° 7.0° 16,5°	4. 1 12.3 26,8 11.0 24,0	13.9* 29,9* 16.4* 35,5*	8.6 18,8 7.9 17,3 7.3	9.0* 19,5* 10.5* 22,7* 11.8 25,7*	6.4 14,0 6.3 13,7 6.0 13,1 5.6 12,3 5.3 11,5	7.1* 15,6* 7.3* 16,0* 7.9* 17,3* 8.7 19,0* 8.3 18,2	4.5 4.4 9,5 4.2 9,1 4.0 8,7	6.7* 6.7 14,6 6.5 14,2 6.3 13,7	12,2 4.4 10,0 3.9 8,7 3.6 8,0 3.4 7,7	6.4* 14,1* 6.3* 13,9* 6.0 13,4 5.6 12,5 5.4 12,1	* 2
T	7.5 m 25 ft 6.0 m 20 ft 4.5 m 10 ft 1.5 m 5 ft 0 m	t lb t lb t lb t lb t	3.0	O m O ft	12.5* 26,9* 11.8 25,8 10.8 23,6 10.3	12.5* 26,9* 15.5* 33,3* 17.5* 37,9* 18.0*	8.4 18,4 7.8 17,0 7.2 15,8 6.9	10.0* 21,7* 11.4* 24,7* 11.7 25,6 11.3	6.3 6.2 13,5 5.9 12,9 5.6 12,2 5.3 11,6 5.1	8.0* 8.1* 17,8* 8.7* 18,9* 8.7 19,0 8.3 18,2	4.4 4.2 9,2 4.1	6.7 6.5 14,2 6.3	6.1 13,9 4.9 11,1 4.3 9,7 4.0 8,9 3.8 8,5 3.9	7.5 16,9 6.6 14,8 6.1 13,7 6.0 13,4 6.1	ft in 7.6 24'10" 8.5 27'10" 9.1 29'8" 9.3 30'7" 9.4 30'8" 9.1	Under- carriage	7.5 m 25 ft 6.0 m 20 ft 4.5 m 15 ft 0 m	t	3.0 m 10 ft 10 ft 14.0 7* 35,7 7.0 16,5 16,5 19.9	4. 1 12.3 26,8 11.0 24,0 10.3	13.9* 29,9* 16.4* 35,5* 17.6*	8.6 18,8 7.9 17,3 7.3 15,9 6.8	9.0* 19,5* 10.5* 22,7* 11.8 25,7*	6.4 14,0 6.3 13,7 6.0 13,1 5.6 12,3 5.3 11,5 5.0	7.1* 15,6* 7.3* 16,0* 7.9* 17,3* 8.7 19,0* 8.3 18,2 8.0	4.5 4.4 9,5 4.2 9,1 4.0 8,7 3.8	6.7* 6.7 14,6 6.5 14,2 6.3 13,7 6.1	12,2 4.4 10,0 3.9 8,7 3.6 8,0 3.4 7,7	6.4* 14,1* 6.3* 13,9* 6.0 13,4 5.6 12,5 5.4 12,1 5.5	2
T	7.5 m 25 ft 6.0 m 20 ft 4.5 m 15 ft 3.0 m 10 ft 1.5 m 5 ft	t lb t lb t lb t lb t	3.0) m) ft	12.5* 26,9* 11.8 25,8 10.8 23,6 10.3 22,6	12.5* 26,9* 15.5* 33,3* 17.5* 37,9*	8.4 18,4 7.8 17,0 7.2 15,8 6.9 15,1	10.0* 21,7* 11.4* 24,7* 11.7 25,6	6.3 6.2 13,5 5.9 12,9 5.6 12,2 5.3 11,6 5.1	8.0* 8.1* 17,8* 8.7* 18,9* 8.7 19,0 8.3 18,2 8.1	4.4 4.2 9,2 4.1 8,8	6.7 6.5 14,2 6.3 13,8	6.1 13,9 4.9 11,1 4.3 9,7 4.0 8,9 3.8 8,5 3.9 8,6	7.5 16,9 6.6 14,8 6.1 13,7 6.0	ft in 7.6 24'10" 8.5 27'10" 9.1 29'8" 9.3 30'7" 9.4 30'8"	Under- carriage	7.5 m 25 ft 6.0 m 20 ft 4.5 m 15 ft 3.0 m 10 ft 1.5 m 5 ft	t	3.0 m 10 ft 10 ft 35,7' 7.0'* 7.0' 16,5' 9.9' 22,4'	4. 1 12.3 26,8 11.0 24,0 10.3 22,4	13.9* 29,9* 16.4* 35,5* 17.6* 38,2*	8.6 18,8 7.9 17,3 7.3 15,9 6.8 14,9	9.0* 19,5* 10.5* 22,7* 11.8 25,7* 11.3 24,6	6.4 14,0 6.3 13,7 6.0 13,1 5.6 12,3 5.3 11,5 5.0 10,9	7.1* 15,6* 7.3* 16,0* 7.9* 17,3* 8.7 19,0* 8.3 18,2 8.0 17,5	4.5 4.4 9,5 4.2 9,1 4.0 8,7 3.8 8,3	6.7* 6.7 14,6 6.5 14,2 6.3 13,7 6.1 13,3	12,2 4.4 10,0 3.9 8,7 3.6 8,0 3.4 7,7	6.4* 14,1* 6.3* 13,9* 6.0 13,4 5.6 12,5 5.4 12,1 5.5 12,3	2
T	7.5 m 25 ft 6.0 m 20 ft 4.5 m 10 ft 1.5 m 5 ft 0 m 0 ft	t	3.0. 10 	16,7* 14.5*	12.5* 26,9* 11.8 25,8 10.8 23,6 10.3 22,6 10.3	12.5* 26,9* 15.5* 33,3* 17.5* 37,9* 18.0*	8.4 18,4 7.8 17,0 7.2 15,8 6.9 15,1 6.7	10.0* 21,7* 11.4* 24,7* 11.7 25,6 11.3 24,7	6.3 6.2 13,5 5.9 12,9 5.6 12,2 5.3 11,6 5.1 11,1	8.0* 8.1* 17,8* 8.7* 18,9* 8.7 19,0 8.3 18,2	4.4 4.2 9,2 4.1 8,8	6.7 6.5 14,2 6.3 13,8	6.1 13,9 4.9 11,1 4.3 9,7 4.0 8,9 3.8 8,5 3.9 8,6 4.1	7.5 16,9 6.6 14,8 6.1 13,7 6.0 13,4 6.1 13,6 6.6	ft in 7.6 24'10" 8.5 27'10" 9.1 29'8" 9.3 30'7" 9.4 30'8" 9.1 30'	Under- carriage	7.5 m 25 ft 6.0 m 20 ft 4.5 m 15 ft 3.0 m 10 ft 0 m 0 ft	t	3.0 m 10 ft 10 ft 35,7 7.0 16,5 9.9 14.5	4. 1 12.3 26,8 11.0 24,0 10.3 22,4 10.0	13.9* 29,9* 16.4* 35,5* 17.6*	8.6 18,8 7.9 17,3 7.3 15,9 6.8 14,9 6.6	9.0* 19,5* 10.5* 22,7* 11.8 25,7* 11.3 24,6 11.0	6.4 14,0 6.3 13,7 6.0 13,1 5.6 12,3 5.3 11,5 5.0	7.1* 15,6* 7.3* 16,0* 7.9* 17,3* 8.7 19,0* 8.3 18,2 8.0 17,5 7.8	4.5 4.4 9,5 4.2 9,1 4.0 8,7 3.8 8,3 3.7	6.7* 6.7 14,6 6.5 14,2 6.3 13,7 6.1 13,3 6.0	12,2 4.4 10,0 3.9 8,7 3.6 8,0 3.4 7,7 3.4 7,7	6.4* 14,1* 6.3* 13,9* 6.0 13,4 5.6 12,5 5.4 12,1 5.5 12,3 5.8	3 3 3
T	7.5 m 25 ft 6.0 m 20 ft 4.5 m 15 ft 3.0 m 5 ft 0 m 0 ft -1.5 m	t	3.0 10 16,7* 14.5* 32,9*	16,7** 14.5* 32,9**	12.5* 26,9* 11.8 25,8 10.8 23,6 10.3 22,6 10.3	12.5* 26,9* 15.5* 33,3* 17.5* 37,9* 18.0* 39,1* 17.4*	8.4 18,4 7.8 17,0 7.2 15,8 6.9 15,1 6.7	10.0* 21,7* 11.4* 24,7* 11.7 25,6 11.3 24,7 11.2 24,3	6.3 6.2 13,5 5.9 12,9 5.6 12,2 5.3 11,6 5.1	8.0* 8.1* 17,8* 8.7* 18,9* 8.7 19,0 8.3 18,2 8.1 17,7	4.4 4.2 9,2 4.1 8,8	6.7 6.5 14,2 6.3 13,8	6.1 13,9 4.9 11,1 4.3 9,7 4.0 8,9 3.8 8,5 3.9 8,6 4.1	7.5 16,9 6.6 14,8 6.1 13,7 6.0 13,4 6.1 13,6	ft in 7.6 24'10" 8.5 27'10" 9.1 29'8" 9.3 30'7" 9.4 30'8" 9.1 30' 8.6	Under- carriage	7.5 m 25 ft 6.0 m 20 ft 4.5 m 15 ft 3.0 m 10 ft 1.5 m 5 ft 0 m 0 ft -1.5 m	t lb t l4.0 lb 35,7 t 16,8 t 9.2 lb 22,4 t 14.5 t 14.5 t 14.5 t 14.5 t 15.5 t 16.5 t 1	3.0 m 10 ft 10 ft 35,7' 7.0' 16,5' 9.9' 22,4' 14.5'* 14.5'*	12.3 26,8 11.0 10.3 22,4 10.0 21,9	13.9* 29,9* 16.4* 35,5* 17.6* 38,2*	8.6 18,8 7.9 17,3 7.3 15,9 6.8 14,9 6.6	9.0* 19,5* 10.5* 22,7* 11.8 25,7* 11.3 24,6	6.4 14,0 6.3 13,7 6.0 13,1 5.6 12,3 5.3 11,5 5.0 10,9 4.8	7.1* 15,6* 7.3* 16,0* 7.9* 17,3* 8.7 19,0* 8.3 18,2 8.0 17,5	4.5 4.4 9,5 4.2 9,1 4.0 8,7 3.8 8,3 3.7	6.7* 6.7 14,6 6.5 14,2 6.3 13,7 6.1 13,3	12,2 4.4 10,0 3.9 8,7 3.6 8,0 3.4 7,7 3.4 7,7	6.4* 14,1* 6.3* 13,9* 6.0 13,4 5.6 12,5 5.4 12,1 5.5 12,3	3 3 3
T	7.5 m 25 ft 4.5 m 10 ft 1.5 m 0 ft -1.5 ft -5 ft	t	3.0 10 16,7* 14.5* 32,9* 21.1*	16,7* 14.5* 32,9* 21.1*	12.5* 26,9* 11.8 25,8 10.8 23,6 10.3 22,6 10.3 22,4 10.4	12.5* 26,9* 15.5* 33,3* 17.5* 37,9* 18.0* 39,1* 17.4* 37,7*	8.4 18,4 7.8 17,0 7.2 15,8 6.9 15,1 6.7 14,8	10.0* 21,7* 11.4* 24,7* 11.7 25,6 11.3 24,7 11.2 24,3	25 6.3 6.2 13,5 5.9 12,9 5.6 11,6 5.1 11,1 5.0 10,9 5.0	8.0* 8.1* 17,8* 8.7* 18,9* 8.7 19,0 8.3 18,2 8.1 17,7 8.0 17,5	4.4 4.2 9,2 4.1 8,8	6.7 6.5 14,2 6.3 13,8	6.1 13,9 4.9 11,1 4.3 9,7 4.0 8,9 3.8 8,5 3.9 8,6 4.1 9,3 4.8	7.5 16,9 6.6 14,8 6.1 13,7 6.0 13,4 6.1 13,6 6.6	ft in 7.6 24'10" 8.5 27'10" 9.1 29'8" 9.3 30'7" 9.4 30'8" 9.1 30' 8.6 28'4"	Under- carriage	7.5 m 25 ft 6.0 m 20 ft 4.5 m 15 ft 0 m 0 ft -1.5 m -5 ft	t 14.6. 16. 16. 17. 18. 18. 19.	3.0 m 10 ft 10 ft 35,7 7.0 * 16,5 9.9 1* 22,4 5* 14.5 * 32,7 * 20.4	12.3 26,8 11.0 10.3 22,4 10.0 21,9	13.9* 29,9* 16.4* 35,5* 17.6* 38,2*	8.6 18,8 7.9 17,3 7.3 15,9 6.8 14,9 6.6 14,4 6.5	9.0* 19,5* 10.5* 22,7* 11.8 25,7* 11.3 24,6 11.0 24,0	2: 6.4 14,0 6.3 13,7 6.0 13,1 5.6 5.3 11,5 5.0 10,9 4.8 10,5 4.8	7.1* 15,6* 7.3* 16,0* 7.9* 17,3* 8.7 19,0* 8.3 18,2 8.0 17,5 7.8 17,1	4.5 4.4 9,5 4.2 9,1 4.0 8,7 3.8 8,3 3.7	6.7* 6.7 14,6 6.5 14,2 6.3 13,7 6.1 13,3 6.0	12,2 4.4 10,0 3.9 8,7 3.6 8,0 3.4 7,7 3.6 8,1 4.1	6.4* 14,1* 6.3* 13,9* 6.0 13,4 5.6 12,5 5.4 12,1 5.5 12,3 5.8 13,1	3 3 3
T	7.5 m 25 ft 6.0 m 15 ft 3.0 m 10 ft 1.5 m 0 ft -1.5 m -5 ft -3.0 m	t	3.0 10 -4 14.5* 32,9* 21.1* 45,8*	16,7* 14.5* 32,9* 21.1*	12.5** 12.6** 11.8** 25,8** 10.8** 22,6** 10.3** 22,4** 10.4** 22,7**	12.5* 26,9* 15.5* 33,3* 17.5* 37,9* 18.0* 39,1* 17.4* 37,7* 15.8*	8.44 18,4 7.8 17,0 7.2 15,8 6.9 15,1 6.7 14,8 6.8	10.0* 21,7* 11.4* 24,7* 11.3 24,7 11.2 24,3 11.2	25 6.3 6.2 13,5 5.9 12,9 5.6 11,6 5.1 11,1 5.0 10,9 5.0	8.0* 8.1* 17,8* 8.7* 18,9* 8.7 19,0 8.3 18,2 8.1 17,7 8.0 17,5 8.1	4.4 4.2 9,2 4.1 8,8	6.7 6.5 14,2 6.3 13,8	6.1 13,9 4.9 11,1 4.3 9,7 4.0 8,9 3.8 8,5 3.9 8,6 4.1 9,3 4.8	7.5 16,9 6.6 14,8 6.1 13,7 6.0 13,4 6.1 13,6 6.6 14,7	ft in 7.6 24'10" 8.5 27'10" 9.1 29'8" 9.3 30'7" 9.4 30'8" 9.1 30' 8.6 28'4" 7.8	Under- carriage	7.5 m 20 ft 4.5 m 10 ft 1.5 m 5 ft 0 m - 5 ft - 3.0 m - 3.0 m 1.5 m - 5 ft - 3.0	3.95 r t ib t ib t ib t ib 35,7.1 ib 16,8 t 9.9.22,4 t 143,0 15 32,1 ib 12,0 16 44,3	3.0 m 10 ft 10 ft 35,7 7.0 * 16,5 9.9 1* 22,4 5* 14.5 * 32,7 * 20.4	4. 1 12.3 26,8 11.0 10.3 22,4 10.0 10.1	13.9* 29,9* 16.4* 35,5* 17.6* 38,2* 16.5*	8.6 18,8 7.9 17,3 7.3 15,9 6.8 14,9 6.6 14,4 6.5	9.0* 19,5* 10.5* 22,7* 11.8 25,7* 11.3 24,6 11.0 24,0 11.0	2: 6.4 14,0 6.3 13,7 6.0 13,1 5.6 5.3 11,5 5.0 10,9 4.8 10,5 4.8	7.1* 15,6* 7.3* 16,0* 7.9* 17,3* 8.7 19,0* 8.3 18,2 8.0 17,5 7.8 17,1 7.8	4.5 4.4 9,5 4.2 9,1 4.0 8,7 3.8 8,3 3.7	6.7* 6.7 14,6 6.5 14,2 6.3 13,7 6.1 13,3 6.0	12,2 4.4 10,0 3.9 8,7 3.6 8,0 3.4 7,7 3.6 8,1 4.1	6.4* 14,1* 6.3* 13,9* 6.0 13,4 5.6 12,5 5.4 12,1 5.5 12,3 5.8 13,1 6.6	3 3 3
T	7.5 m 25 ft 6.0 m 20 ft 4.5 m 15 ft 0 m 0 ft 1.5 m 5 ft -3.0 m -10 ft -3.0 m -10 ft	t lb t	3.0 10 16,7* 14.5* 32,9* 21.1* 45,8* 16.6*	16,7* 14.5* 32,9* 21.1*	12.5** 12.6** 11.8* 25,8* 10.8* 23,6* 10.3* 22,6* 10.3* 22,4* 10.4* 22,7* 10.8*	12.5* 26.9* 15.5* 33.3* 18.0* 39.1* 17.4* 37.7* 15.8* 34.2*	8.4 18,4 7.8 17,0 7.2 15,8 6.9 15,1 6.7 14,8 6.8 14,9 7.1	10.0* 21,7* 11.4* 24,7* 11.7 25,6 11.3 24,7 11.2 24,3 11.2 24,5 9.8*	25 6.3 6.2 13,5 5.9 12,9 5.6 11,6 5.1 11,1 5.0 10,9 5.0	8.0* 8.1* 17,8* 8.7* 18,9* 8.7 19,0 8.3 18,2 8.1 17,7 8.0 17,5 8.1	4.4 4.2 9,2 4.1 8,8	6.7 6.5 14,2 6.3 13,8	6.1 13,9 4.9 11,1 4.3 9,7 4.0 8,9 3.8 8,5 3.9 8,6 4.1 9,3 4.8 10,8 6.3	7.5 16,9 6.6 14,8 6.1 13,7 6.0 13,4 6.1 13,6 6.6 14,7 7.6	ft in 7.6 24'10" 8.5 27'10" 9.1 29'8" 9.3 30'7" 9.4 30'8" 9.1 30' 8.6 28'4" 7.8 25'7" 6.6	Under- carriage	7.5 m 25 ft 6.0 m 15 ft 1.5 m 5 ft 0 m 1-15 m -5 ft -4.5 m 1-15 m -5 ft -4.5 m 1-10 ft -4.5 m 1-	3.95 r t ib t ib t ib t ib 35,7.1 ib 16,8 t 9.9.22,4 t 143,0 15 32,1 ib 12,0 16 44,3	8.0 m 110 ft 14.0 m 14.0 m 15.0 m 16.5 m 16.5 m 17.0 m 18.0 m 19.0 m	4. 1 12.3 26,8 11.0 24,0 10.3 22,4 10.0 21,9 10.1 21,9 10.3	13.9* 29,9* 16.4* 35,5* 17.6* 38,2* 16.5* 35,8*	8.6 18,8 7.9 17,3 7.3 15,9 6.6 14,4 6.5 14,3 6.7	9.0* 19,5* 10.5* 22,7* 11.8 25,7* 11.3 24,6 11.0 24,0 11.0 23,9	2: 6.4 14,0 6.3 13,7 6.0 13,1 5.6 5.3 11,5 5.0 10,9 4.8 10,5 4.8	7.1* 15,6* 7.3* 16,0* 7.9* 17,3* 8.7 19,0* 8.3 18,2 8.0 17,5 7.8 17,1 7.8	4.5 4.4 9,5 4.2 9,1 4.0 8,7 3.8 8,3 3.7	6.7* 6.7 14,6 6.5 14,2 6.3 13,7 6.1 13,3 6.0	12,2 4.4 10,0 3.9 8,7 3.6 8,0 3.4 7,7 3.6 8,1 4.1 9,2 5.1	6.4* 14,1* 6.3* 13,9* 6.0 13,4 5.6 12,5 5.4 12,1 5.5 12,3 5.8 13,1 6.6 14,9	3 3 3 3 2
	7.5 m 25 ft 6.0 m 20 ft 4.5 m 15 ft 3.0 m 5 ft 0 m 0 ft -1.5 m -10 ft -3.0 m -10 ft -4.5 m -4.5 m	t lb	3.0 10 16,7* 14.5* 32,9* 21.1* 45,8* 16.6*	16,7* 14.5* 32,9* 21.1*	12.5** 12.5** 11.8 25,8 10.8 23,6 10.3 22,4 10.4 22,7 10.8	12.5* 26.9* 15.5* 33.3* 18.0* 39.1* 17.4* 37.7* 15.8* 34.2*	8.4 18,4 7.8 17,0 7.2 15,8 6.9 15,1 6.7 14,8 6.8 14,9 7.1	10.0* 21,7* 11.4* 24,7* 11.7 25,6 11.3 24,7 11.2 24,3 11.2 24,5 9.8*	25 6.3 6.2 13,5 5.9 12,9 5.6 11,6 5.1 11,1 5.0 10,9 5.0	8.0* 8.1* 17,8* 8.7* 18,9* 8.7 19,0 8.3 18,2 8.1 17,7 8.0 17,5 8.1	4.4 4.2 9,2 4.1 8,8	6.7 6.5 14,2 6.3 13,8	6.1 13,9 4.9 11,1 4.3 9,7 4.0 8,9 3.8 8,5 3.9 8,6 4.1 9,3 4.8 10,8 6.3	17,8* 7.5 16,9 6.6 14,8 6.1 13,7 6.0 13,4 6.1 13,6 6.6 14,7 7.6 17,1 8.6*	ft in 7.6 24'10" 8.5 27'10" 9.1 29'8" 9.3 30'7" 9.4 30'8" 9.1 30' 8.6 28'4" 7.8 25'7" 6.6	Under- carriage	7.5 m 25 ft 6.0 m 15 ft 1.5 m 5 ft 0 m 1-15 m -5 ft -4.5 m 1-15 m -5 ft -4.5 m 1-10 ft -4.5 m 1-	t lib dt lib	8.0 m 110 ft 14.0 m 14.0 m 15.0 m 16.5 m 16.5 m 17.0 m 18.0 m 19.0 m	4. 1 12.3 26.8 11.0 24.0 10.1 10.1 10.1 10.1 10.1 10.3 10.3 10.3 10.3	13.9* 29,9* 16.4* 35,5* 17.6* 38,2* 16.5* 35,8* 14.3*	8.6 18,8 7.9 17,3 7.3 15,9 6.6 14,4 6.5 14,3 6.7	9.0* 19,5* 10.5* 22,7* 11.8 25,7* 11.0 24,0 11.0 23,9 10.9*	2: 6.4 14,0 6.3 13,7 6.0 13,1 5.6 5.3 11,5 5.0 10,9 4.8 10,5 4.8	7.1* 15,6* 7.3* 16,0* 7.9* 17,3* 8.7 19,0* 8.3 18,2 8.0 17,5 7.8 17,1 7.8	4.5 4.4 9,5 4.2 9,1 4.0 8,7 3.8 8,3 3.7	6.7* 6.7 14,6 6.5 14,2 6.3 13,7 6.1 13,3 6.0	12,2 4.4 10,0 3.9 8,7 3.6 8,0 3.4 7,7 3.6 8,1 4.1 9,2 5.1	6.4* 14,1* 6.3* 6.0 13,9* 6.0 13,4 12,1 5.5 12,3 5.8 13,1 6.6 14,9 8.3	3 3 3 3 2

The load values are quoted in tons (t)/lb x 1,000 at stick end (without bucket), and may be swung 360° on firm and even ground. Adjacent values are valid for the undercarriage when in the longitudinal position. Capacities are valid for 800 mm/31" wide track pads. Indicated loads are based on ISO 10567 standard and do not exceed 75% of tipping or 87% of hydraulic capacity (indicated via *). Without bucket cylinder, link and lever the lift capacities will increase by 485 kg/1,070 lb. Lifting capacity of the excavator is limited by machine stability and hydraulic capacity.

Lift Capacities

with Mono Boom 6.45 m/21'2", Counterweight 7.1 t/15,650 lb and Track Pads 800 mm/31"

Stick 2.60 m/8'6" Stick 2.90 m / 9'6" 10 ft 15 ft 20 ft 25 ft 30 ft 10 ft 15 ft 20 ft 25 ft 30 ft m ď --- l ď <u>⊶</u> d ď ď --5 --5 --5 --5 --5 -----5 -5 -5 -5 ft in ft in 9.2* 9.2 7.8 9.1* 8.6* 25 ft lb 20,3* 20,3* 17,8 20,1* 22'5" 16,6 19,0* 23'6" 25 ft lb 9.3* 9.3* 20 ft lb 21,1 21,2* 14,7 19,6* 14,0 19,5* 25'8" 20 ft lb 20,3* 20,3* 14,8 18,8* 13,2 18,6* 26'7" 14 0* 14 0* 92 10.9* 6.5 93 8.0 4 5 m 13.4* 13.4* 92 10.5* 6.6 15 ft lb 30,1* 30,1* 20,0 23,6* 14,3 20,3* 12,0 18,0 27'10" 15 ft lb 28,7* 28,7* 20,1 22,7* 14,3 19,7* 11,5 17,2 28'7' 3.0 m 16.9* 8.6 12.2 5.0 3.0 m 12.9 16.3 8.6 11.8* 10 ft lb 27,8 36,3* 18,7 26,3* 13,6 20,7 11,1 16,7 28'10" 10 ft lb 28,2 35,0* 18,8 25,6* 13,7 20,7 10,6 16,0 29'7" 4.6 7.0 1.5 m 16.5* 8 1 12.8 6.0 92 1.5 m 120 18.0* 8 1 128 6.0 92 90 5ft lb 26,1 39,5* 17,7 27,9 13,1 20.1 10.7 16.3 28'11" 5ft lb 26.2 38,9* 17,7 28,0* 13,1 20,1 10,3 15,6 29'8' 0 m 118 18 0* 7.8 12.5 5.8 90 49 86 0 m11 7 18 1 7.8 12.5 110 168 10.4 16.0 28'11' Λ ft lh 25.6 | 39.1* | 17.1 | 27.3 | 12.7 | 19.7 28'1" n ft lh 25.5 39.2* 17.1 27.2 12.7 19.6 -1.5 m t 15.0* 15.0* 11.8 1.5 m t 15.0* 15.0* 11.7 16.9* 7.8 12.5 5.8 90 8.2 8.0 17 2 124 5.0 -5 ft lb 34.0* 34.0* 25.7 36.6* 17.0 27.1 12.7 19.6 -5 ft lb 34,0* 34,0* 25,5 37,3* 16,9 27,0 12,5 19,5 11.9 18.3 26'4" 11.3 17.4 27'2" -3.0 m t 18.4* 18.4* -3.0 m t 19.7* 19.7* 12.0 14.8* 7.9 6.3 9.2 11.9 15.3* 7.8 11.8 5.9 9.1 -10 ft lb 40.0* 40.0* 26.2 32.0* 17.3 24.8 14.2 20.3* 23'4" -10 ft lb 42.9* 42.9* 25.9 33.2* 17.1 25.6* 13.2 20.0* 24'4" -4.5 m t 15.0* 15.0* 12.0* 12.0* 11.1* 8.7* -4.5 m t 11.1 8.6* 8.6* 5.7 8.1 9.0* 6.1 18,1 19,0* 19'10" -15 ft lb 23.6* 23.6* 18,8* 18,8* 18'7" -15 ft lb 32.2* 32.2* 25.6* 25.6* -6.0 m -6.0 m -20 ft lb -20 ft lb Stick 3.25 m/10'8" Stick 3.95 m / 131 6.0 m 7.5 m 9.0 m 4.5 m 6.0 m 7.5 m 9.0 m Under-carriage Under-carriage 10 ft 20 ft 25 ft 30 ft 10 ft 15 ft 25 ft 30 ft 15 ft 20 ft ď --**-**- 🖢 **--**⇒ 占 --- b ----5 ---, 45 -5 --5 ft in -50 -50 7.5 m 6.9 8.0* 6.7 8.1* 7.1* 59 6.4* 15,3 17,8* 24'10" 25 ft lb 25 ft lb 15,4 15,6* 13,4 14,1* 26'11" 5.0 4.9 20 ft lb 12,4 17,5* 27'10" 20 ft lb 14,9 17,8* 15,1 16,0* 11,1 13,9* 29'8" 12.5* 12.5* 9.3 10.0* 9.0* 9.0* 4.9 7.3 15 ft lb 26,9* 26,9* 20,3 21,7* 14,3 18,9* 10,8 16,2 29'8" 15 ft lb 19,5* 19,5* 14,5 17,3* 10,6 16,0 9,8 14,2* 31'5" 14.0* 14.0* 13.5 13.9* 10.5* 10 ft lb 28,6 33,3* 18,9 24,7* 13,6 20,4* 10,3 15,6 10,0 15,1 30'7" 10 ft | lb | 35,7* | 35,7* | 29,5 | 29,9* | 19,2 | 22,7* | 13,7 19,0* 10,2 15,5 9,0 13,7 32'4" 1.5 m 12.0 17.5* 8.1 12.6* 5.9 9.2 4.6 6.6 9.4 7.0* 7.0* 12.2 16.4* 8.1 11.9* 5.9 3.9 6.0 99 5 ft lb 26,3 37,9* 17,7 27,2* 13,0 20,0 10,0 15,2 9,6 14,7 30'8" lb 16,5* 16,5* 26,7 35,5* 17,8 25,7* 12,9 19,9 9,8 15,1 8,7 13,4 32'5" 11.6 18 N 89 6.9 q q* 11.5 5.6 88 4.5 0 ft | lb | 16.7* | 16.7* | 25.3 | 39.1* | 16.9 | 27.1 12.5 19.5 9.8 15.0 301 O ft lb 22.4* 22.4* 25.2 38.2* 16.8 27.0 12.3 19.3 9.5 14.7 8.7 13.6 31'8" -1.5 m t 115 17 **4*** 7.6 123 5.6 47 86 1.5 m t 14.5* 14 5* 113 17.6* 74 121 55 8.7 43 41 6.5 -5 ft lb 32,9* 32,9* 25,1 37,7* 16,6 26,7 12,3 19,2 10,5 16,2 28'4" -5 ft lb 32.7* 32.7* 24.6 38,2* 16,2 26,4 11,9 18,9 9,3 14,6 9,3 14,4 30'2" -3 0 m t 21 1* 21 1 117 15.8* 7.6 12 1 8 4 7.8 -3 0 m t 20 4* 20 4* 11.3 16.5* 121 54 8.6 -10 ft | lb | 45.8* | 45.8* | 25.4 | 34.2* | 16.7 | 26.1* | 12.4 | 19.4 12.1 18.8 25'7" -10 ft | lb | 46.0* | 46.0* | 24.7 | 35.8* | 16.2 | 26.3 | 11.9 | 18.8 10.5 16.4 27'7' -4.5 m t 19.5* 19.5* -4.5 m t 16.6* 16.6* 12.0 12.9* 7.9 9.8 7.0 8.6* 6.6 11.6 14.3* 7.6 10.9* 5.8 8.4 13,1 18,6* 23'10" -15 ft lb 35,8* 35,8* 26,2 27,6* 17,3 20,8* 15,9 18,8* 21'4" -15 ft lb 42,0* 42,0* 25,3 30,8* 16,5 23,3* -6.0 m -6.0 m 10.2* 10.2 8.1 -20 ft lb -20 ft lb 17,7* 17,7* 17'8" 21.3* 21.3* Height Can be slewed through 360° In longitudinal position of undercarriage Max. reach * Limited by hydr. capacity

The load values are quoted in tons (t)/lb x 1,000 at stick end (without bucket), and may be swung 360° on firm and even ground. Adjacent values are valid for the undercarriage when in the longitudinal position. Capacities are valid for 800 mm/31" wide track pads. Indicated loads are based on ISO 10567 standard and do not exceed 75% of tipping or 87% of hydraulic capacity (indicated via *). Without bucket cylinder, link and lever the lift capacities will increase by 485 kg/1,070 lb. Lifting capacity of the excavator is limited by machine stability and hydraulic capacity.

Available Attachments



Rigid Ditch Cleaning Bucket

GRL 100, for mounting to quick coupler SWA 66						
Cutting width	mm/in	2,200/ 87"	2,400/ 95"			
Capacity	m ³ / yd³	1.65/ 2.16	1.50/ 1.96			
Weight	kg/ lb	546/ 1,200	930/ 2,050			



Tiltable Ditch Cleaning Bucket

GRL 100, 2 x 50° tiltable, for mounting to quick coupler SWA 66											
Cutting width	mm/in	2,000/ 79"	2,000/ 79"	2,000/ 79"	2,200/87"	2,400/ 95"	2,400/ 95"				
Capacity	m^3/yd^3	0.70/ 0.92	1.20/ 1.57	1.45/ 1.90	1.65/ 2.16	0.85/1.11	1.45/ 1.90				
Weight	kg/ lb	1,375/ 3,030	1,520/ 3,350	1,595/ 3,520	1,660/ 3,660	1,475/ 3,250	1,610/ 3,550				



Tilt Bucket

SL 100, 2 x 50° tiltable, for mounting to quick coupler SWA 66									
Cutting width	mm/in	1,600/ 63"	1,600/ 63"	1,700/ 67"	1,800/ 71"	1,800/ 71"			
Capacity	m ³ / yd³	1.45/ 1.90	1.75/ 2.29	1.85/2.42	1.60/ 2.09	1.60/ 2.09			
Weight	kg/ lb	1,520/ 3,350	1,635/ 3,610	1,695/3,740	1,620/ 3,570	1,749/ 3,860			
HD-version						Y			



Clamshells

GMZ 80, earthmoving shell,	for mounting to quick coup	oler SWA 66	
Cutting width	mm/ in	1,200/ 47"	1,400/ 55"
Capacity	m ³ / yd³	1.40/ 1.83	1.70/ 2.22
Weight	kg/ lb	1,452/ 3,200	1,558/ 3,440



Sorting Grab ribbed perforated

-	SG 40, for mounting to quick coupler SWA 66					
	Cutting width	mm/in	1,100/ 43"	1,300/ 51"	1,100/ 43"	1,300/ 51"
	Capacity	m^3/yd^3	1.10/ 1.44	1.40/ 1.83	1.30/ 1.70	1.60/ 2.09
	Weight	kg/lb	2,320/ 5,120	2,895/ 6,380	2,230/ 4,920	2,800/ 6,170

Serial Equipment



Lashing eyes

Sprocket with dirt ejector

Track and carrier rollers, sealed and lifetime-lubricated

Uppercarriage

Access platforms without protruding parts

Anti-skid surfaces

Automatic swing brake lock

DEF tank filling indicator

DEF tank lockable access hatch

Engine coolant level, visible from the cab

Engine hood with gas spring opening Filters accessible from ground level

Handrails

Hydraulic oil level, visible from ground level

Lockable fuel tank can

Lockable service doors

Lockable storage and accessories compartment

Lockable storage box

Main switch electric with timer

Main switch, manual, lockable

Protection grid on radiator fan Safe uppercarriage side access platform

Sound insulation

Swing drive gearbox oil level, visible from the cab

Swing-out radiators

Windshield washer fluid tank, accessible from ground level



Hydraulic System

Dedicated swing circuit

Filter with integrated fine filters

Hydraulic pressure measuring ports Liebherr Positive Control system with 2 independent circuits

Magnetic rod

Pressure accumulator for controlled lowering of equipment with engine turned off



F Engine

Air filter with automatic dust ejector

Automatic engine idling/speed increase, controlled via joystick sensors

Common-Rail injection system Exhaust gas after-treatment system - SCR

Fixed geometry turbocharger

Fuel fine filter Fuel pre-filter and water separator

Intercooler

Power Pack US EPA Tier 4 Final

Stepless adjustable engine speed



Operator's Cab

7" multifunction color touchscreen

Air conditioning, automatic, tri-zone, controlled via display

Armrests adjustable in width, height and inclination Bottle holder

Cab air filters housing, accessible from ground level

Cab door sliding windows

Cigarette lighter

Coat hook

DEF consumption on touchscreen

DEF level on touchscreen

Electric socket in cabin (12 V)

Electric socket in cabin (24 V)

Emergency hammer

Engine oil level on touchscreen

Fuel consumption on touchscreen

Fuel level on touchscreen

Hydraulic oil level on touchscreen

Interior lighting Laminated right hand side window

LiDAT Plus (Liebherr data transfer system)

Mechanical hour meters, visible from ground level

Mobile phone storage net

Movement priority between swing and boom, adjustable via touchscreen

Movement priority for stick-in, adjustable via touchscreen

Bain hood over front window opening

Rearview mirror

Rear view monitoring camera

Rear window emergency exit

Right hand side view monitoring camera

Roll-down sun blinds for windscreen and roof window

ROPS safety cab structure (ISO 12117-2)

Rubber floor mat, fixed on floor and removable

Shortkey button on joystick configurable

Storage box

Storage nets

Storage spaces

Swing braking torque adjustable via touchscreen

Tiltable console left

Tinted windows

Visco-elastic damping

Windscreen wiper and washer

Work mode selector



Equipment

Anti-drift system boom cylinders Anti-drift system stick cylinder

Boom cylinders regeneration

Pipe fracture safety valve for stick cylinder

Pipe fracture safety valves for boom cylinders

Pivot points made of cast steel

SAE split flanges on high pressure lines Stick cylinder regeneration

Fuel priming pump

^{*} optionally extendable after one year

Equipment Standard/Option

Undercarriage

Chain guide 1 piece	•
Chain guide 2 pieces	+
Chain guide 3 pieces	+
Chain guide 4 pieces	+
Chain guide full length	+
Cover and base plate for undercarriage center section	•
Reinforced cover and base plate for undercarriage center section	+
Special painting	+
Steps	•
Steps wide	+
Track pads triple grouser 600 mm/24" / 700 mm/28" / 900 mm/35"	+
Track pads triple grouser 800 mm/31"	•
Tracks, sealed and greased	•
Undercarriage LC	+
Undercarriage storage compartment	+

Hydraulic System

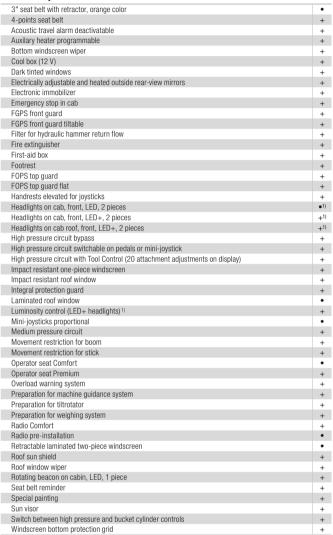
Bypass filter for hydraulic oil	+
Liebherr hydraulic oil	•
Liebherr hydraulic oil, adapted for extreme climate conditions	+
Liebherr hydraulic oil, biodegradable	+

Automatic engine shutdown after idling	+
Engine shut-down with overrun	+
Lighting for engine compartment ¹⁾	+

Uppercarriage

• • •	
Air pre-filter with cyclonical dust trap	+
Boxing ring	+
Centralized lubrication system (automatic)	•
Centralized lubrication system (manual)	+
Counterweight heavy 7.1 t/15,650 lb	+
Counterweight standard 5.9 t/13,010 lb	•
Electric socket on uppercarriage (24 V)	+
Extended tool set including tool box	+
External starting aid (24 V)	+
Fuel anti-theft protection	+
Headlight on uppercarriage, front left, LED+, 1 piece, protection included	+1)
Headlight on uppercarriage, front right, LED, 1 piece, protection included	•1)
Headlight on uppercarriage, front right, LED+, 1 piece, protection included	+1)
Headlight on uppercarriage, lateral left, LED+, 1 piece	+1)
Headlight on uppercarriage, lateral right, LED+, 1 piece	+1)
Headlights on uppercarriage, rear, LED+, 2 pieces	+1)
Lighting for tank area 1)	+
Lighting for uppercarriage access 1)	+
Pre-heating system for fuel	+
Radiator fine mesh protection grid	+
Reflective warning stickers	+
Reversible fan drive	+
Skyview 360°	+
Special painting	+
Tank refilling pump fuel	+
Tool set including storage case	•
Uppercarriage bottom and side protection	+
Uppercarriage bottom closure sheets	•

Operator's Cab



Equipment

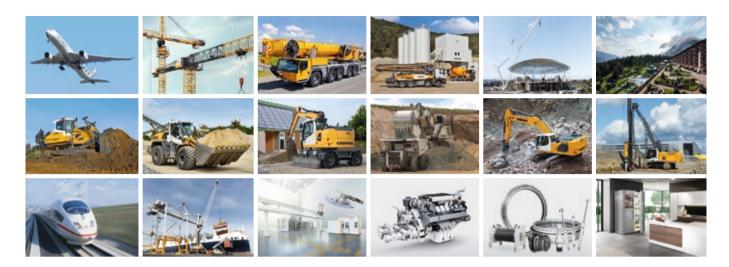
Boom bottom protection	+
Bucket cylinder rod protection	+
Centralized lubrication extended for connecting link	+
Floating boom	+
Headlight guard on boom, right	+
Headlight guards on boom, right and left	+
Headlight on boom, left, LED+, 1 piece	+1)
Headlight on boom, right, LED, 1 piece	●1)
Headlight on boom, right, LED+, 1 piece	+1)
Headlight on stick, bottom, LED+, 1 piece	+1)
LIKUFIX electric signal plug	+
LIKUFIX for quick coupler SWA 66 hydraulic	+
Mono boom 6.45 m/ 21'2"	•
Quick coupler SWA 66 hydraulic	+
Quick coupler SWA 66 mechanical	+
Special painting	+
Stick 2.60 m/ 8'6"	+
Stick 2.90 m/ 9'6"	+
Stick 3.25 m/ 10'8"	+
Stick 3.95 m/13'	+
Stick bottom protection	+
Tool Management	+

• = Standard, + = Option

1) Equipment not individually available, but only as predefined lighting packages Non-exhaustive list, please contact us for further information.

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

The Liebherr Group of Companies



Diverse Product Range

The Liebherr Group is one of the largest construction equipment manufacturers in the world. Liebherr's quality products and services hold a high reputation in many industries. The wide range includes domestic appliances, aerospace and transportation systems, machine tools and maritime cranes.

Exceptional Customer Benefit

Every product line provides a complete range of models in many different versions. With both their technical excellence and superior quality, Liebherr products offer customers the highest benefits in practical applications.

State-of-the-art Technology

Liebherr attributes great importance to the product areas of core technology and components, in order to achieve its consistent, top-quality products. Important modules and components are developed and manufactured in-house, for instance, the entire drive and control technology for the construction equipment and mining trucks.

Worldwide and Family-Owned

Hans Liebherr founded the Liebherr family company in 1949. Since that time, the enterprise has steadily grown to a group of more than 130 companies with more than 46,000 employees located on all continents. The corporate headquarters of the Group is Liebherr-International AG in Bulle, Switzerland. The Liebherr family is the sole owner of the company.

www.liebherr.us