

Technical Description Hydraulic Excavator

A 944 B HD
Litronic®

Machine for Industrial Applications

Operating Weight 106,300 - 116,000 lbs
Engine Output 245 HP (180 kW)



LIEBHERR

Technical Data



Engine

Rating per ISO 9249	245 HP (180 kW) at 2000 RPM
Model	Liebherr D 926 TI-E
Type	6 cylinder in-line
Bore/Stroke	4.8/5.6 in
Displacement	610 cu.in
Engine operation	4-stroke diesel direct injection turbo-charged and after-cooled reduced emissions
Cooling	water-cooled and integrated motor oil cooler
Air cleaner	dry-type air cleaner with pre-cleaner, primary and safety elements
Fuel tank	186 gal
Electrical system	
Voltage	24 V
Batteries	2 x 110 Ah/12 V
Starter	24 V/5.4 kW
Alternator	three phase current 24 V/80 A
Engine idling	sensor controlled



Hydraulic System

Hydraulic pump for attachment and travel drive	Liebherr variable flow, swash plate double pump
Max. flow	2 x 69 gpm
Max. pressure	5075 PSI
Pump regulation	electro-hydraulic with electronic engine speed sensing regulation, pressure compensation, flow compensation, automatic oil flow optimizer, flow summation
Hydraulic pump for swing drive	reversible, variable flow, swash plate pump, closed-loop circuit
Max. flow	32 gpm
Max. pressure	4715 PSI
Hydraulic tank	116 gal
Hydraulic system	180 gal
Hydraulic oil filter	1 full flow filter in return line with integrated fine filter area (5 µm)
Hydraulic oil cooler	compact cooler, consisting of a water, a hydraulic oil cooler and after-cooler
MODE selection	adjustment of machine performance and the hydraulics via a mode selector to match application
LIFT	for lifting
FINE	for precision work and lifting through very sensitive movements
ECO	for especially economical and environmentally friendly operation
POWER	for maximum digging power and heavy duty jobs
R.P.M. adjustment	stepless adjustment of engine output via the r.p.m. at each selected mode



Hydraulic Controls

Power distribution	via monoblock control valve with integrated safety valves
Flow summation	to boom and stick
Closed-loop circuit	for uppercarriage swing drive
Servo circuit	
Attachment and swing	– proportional via joystick levers
Travel	– proportional via foot pedals or removable hand levers
Additional functions	via foot pedals or joystick toggle switch



Swing Drive

Drive system	Liebherr swash plate motor with integrated brake valve
Transmission	Liebherr compact planetary reduction gear
Swing ring	Liebherr, sealed single race ball bearing swing ring, internal teeth
Swing speed	0–6.4 RPM stepless
Swing torque	83,400 lb ft
Holding brake	wet multi-disc (spring applied, pressure released)
Option	pedal controlled positioning brake



Operator's Cab

Cab	built from deep drawn components, resiliently mounted, sound insulated, tinted windows, front window stores overhead, door with sliding window
Operator's seat	shock absorbing suspension type, adjustable to operator's weight, 6-way adjustable seat
Joysticks	integrated into adjustable seat consoles
Monitoring	menu driven query of current operating conditions via the LCD display. Automatic monitoring, display, warning (acoustical and optical signal) and saving machine malfunction data, for example, engine overheating, low engine oil pressure or low hydraulic oil level
Heating system	standard air conditioning, combined cooler/heater, additional dust filter in fresh air/recirculated
Noise emission	
ISO 6396	L _{PA} (inside cab) = 77 dB(A)
2000/14/EC	L _{WA} (surround noise) = 106 dB(A)



Undercarriage

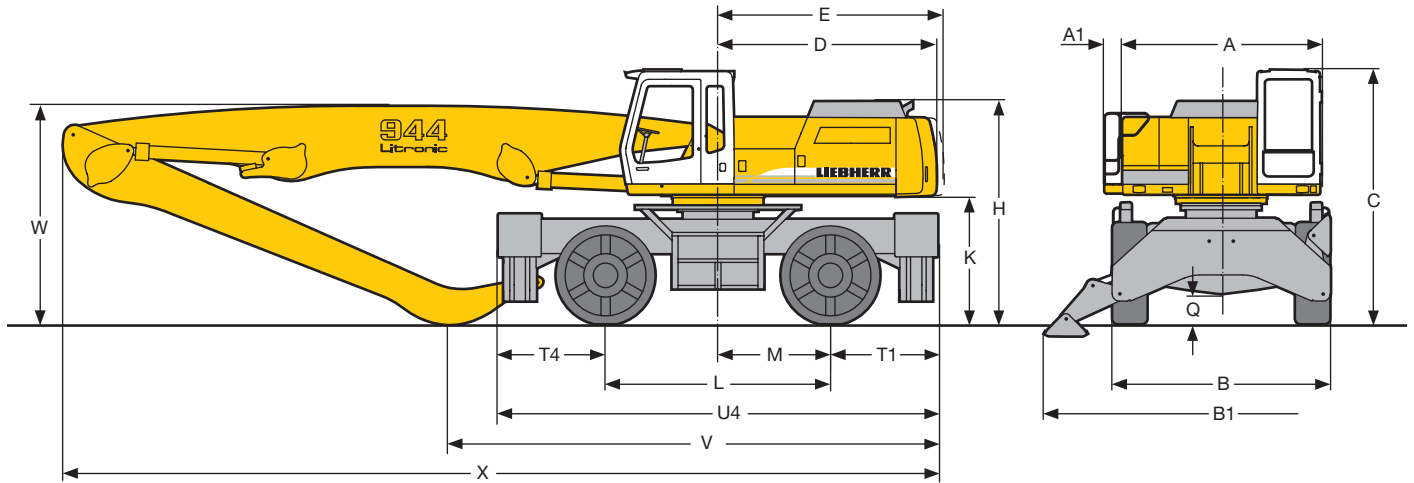
Drive	Liebherr variable flow swashplate motor with automatic brake valves
Travel speed	0–8.7 mph
Axles	154,350 lbs excavator axles; oscillating steering axle with hydraulic lock (in any position)
Brakes	discs brakes hydraulically actuated digging and parking brake
Stabilization	4-point outriggers



Attachment

Type	box-type, combination of resistant steel plates and cast steel components
Hydraulic cylinders	Liebherr cylinders with special seal-system, shock absorbed
Pivots	sealed, low maintenance
Lubrication	easily accessible centralized lubrication
Hydraulic connections	pipes and hoses equipped with SAE split-flange connections

Dimensions



	ft-in
A	9'10"
A1	10"
B	10'10"
B1	17' 6"
C	12' 7"
D	10'10"
E	11' 3"
H	11' 0"
K	6' 3"
L	11' 2"
M	5' 7"

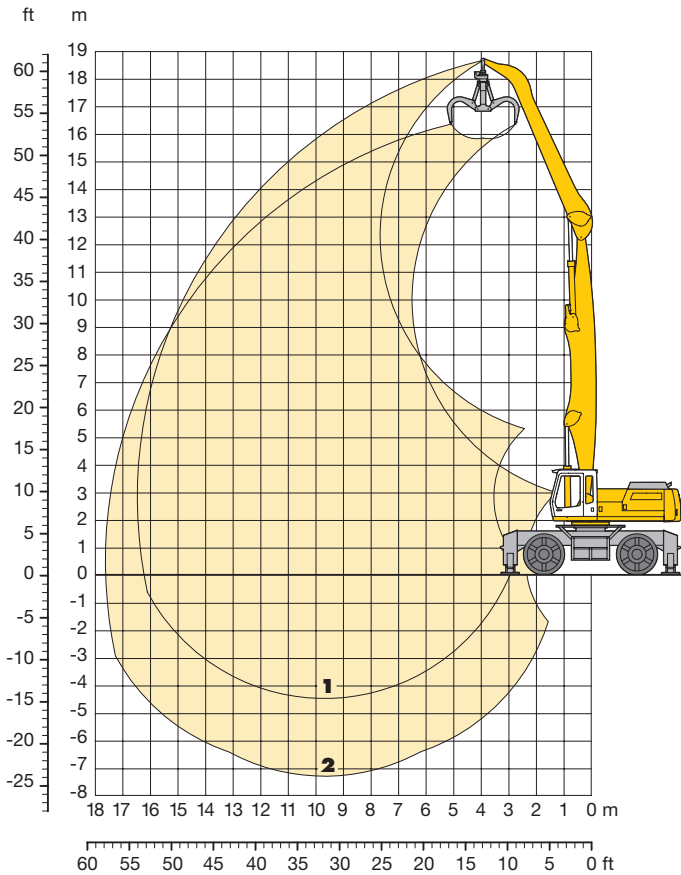
	ft-in
Q	1'6"
T1	5'4"
T4	5'4"
U4	21'9"
V	24'3"
W	11'4"
X	43'9"

E = Tail radius

Solid tires Ø 59", width 21"

Industrial Attachment

with Industrial-Type Straight Boom 31'2"



Attachment Envelope

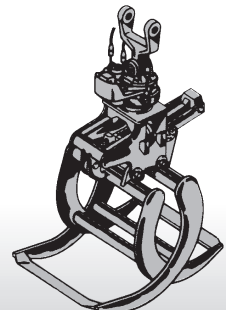
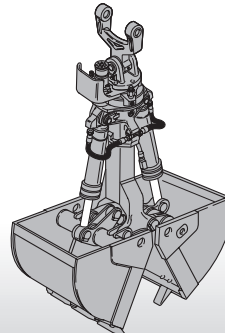
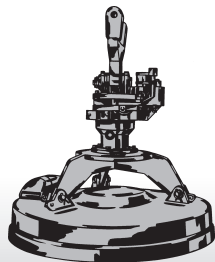
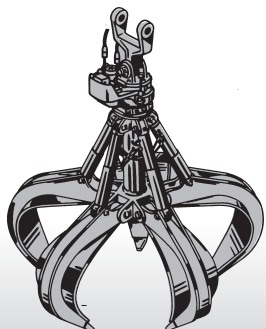
Industrial-type straight boom pinned in rear bearing of boom foot bracket

- 1** with industrial stick 23'11"
- 2** with industrial stick 23'11" and grapple model 70 C

Operating Weight

Operating weight includes basic machine with complete industrial-type attachment:

	Weight
Rigid cab elevation	
Industrial-type straight boom 31'2"	
Industrial stick 23'11"	
Grapple model 69/1.00 cuyd with 4 semi-closed tines	
Piston rod protection	106,300 lbs
Hydraulic cab elevation	
Industrial-type straight boom 31'2"	
Industrial stick 23'11"	
Grapple model 70 C/1.40 cuyd with 5 semi-closed tines	
Piston rod protection	
Catwalk	110,000 lbs



Lift Capacities

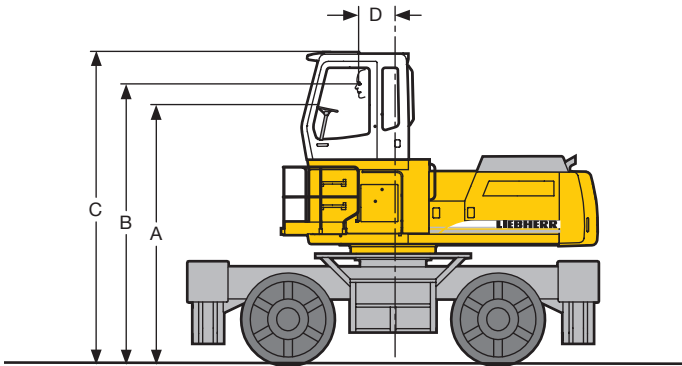
with Industrial-Type Straight Boom 31'2"

Industrial Stick 23'11"

Height (ft)	Undercarriage	Radius of load from centerline of machine (ft)											
		10	15	20	25	30	35	40	45	50			
60	Stabilizers raised 4 pt. outriggers down		27900# (27900#) 27900# (27900#)										
55	Stabilizers raised 4 pt. outriggers down				22200 (23000#) 23000# (23000#)								
50	Stabilizers raised 4 pt. outriggers down				23300 (26300#) 26300# (26300#)	17000 (21400) 22800# (22800#)	12400 (16000) 16600# (16600#)						
45	Stabilizers raised 4 pt. outriggers down				23900 (26000#) 26000# (26000#)	17500 (22000) 22700# (22700#)	13100 (16700) 20200# (20200#)	9800 (12800) 15600# (15600#)					
40	Stabilizers raised 4 pt. outriggers down					17600 (22100) 22600# (22600#)	13300 (16900) 20000# (20000#)	10100 (13100) 17900# (17900#)					
35	Stabilizers raised 4 pt. outriggers down				23700 (26000#) 26000# (26000#)	17400 (21900) 22600# (22600#)	13200 (16800) 20000# (20000#)	10200 (13100) 17900# (17900#)	7900 (10400) 15300 (15900#)				
30	Stabilizers raised 4 pt. outriggers down				23000 (26500#) 26500# (26500#)	16900 (21400) 23000# (23000#)	12900 (16500) 20200# (20200#)	10000 (13000) 17900# (17900#)	7800 (10400) 15300 (15900#)				
25	Stabilizers raised 4 pt. outriggers down			31700 (31700#) 31700# (31700#)	22000 (27400#) 27400# (27400#)	16200 (20700) 23500# (23500#)	12400 (16000) 20400# (20400#)	9700 (12600) 18000# (18000#)	7700 (10200) 15100 (15800#)	6000 (8300) 12500 (13800#)			
20	Stabilizers raised 4 pt. outriggers down		32400# (32400#) 32400# (32400#)	29300 (35000#) 35000# (35000#)	20500 (26300) 28500# (28500#)	15200 (19700) 24000# (24000#)	11800 (15300) 20700# (20700#)	9300 (12200) 18000 (18000#)	7400 (9900) 14800 (15800#)	5900 (8100) 12300 (13600#)			
15	Stabilizers raised 4 pt. outriggers down	76700# (76700#) 76700# (76700#)	40800 (49900#) 49900# (49900#)	26300 (34500) 37100# (37100#)	18800 (24500) 29600# (29600#)	14100 (18500) 24500# (24500#)	11000 (14500) 20900# (20900#)	8800 (11700) 17500 (18000#)	7100 (9600) 14500 (15600#)	5700 (7900) 12200 (13300#)			
10	Stabilizers raised 4 pt. outriggers down		32300# (32300#) 32300# (32300#)	23100 (31200) 38300# (38300#)	16900 (22600) 30100# (30100#)	13000 (17300) 24700# (24700#)	10300 (13800) 20700 (20800#)	8300 (11200) 16900 (17800#)	6700 (9200) 14100 (15200#)	5500 (7700) 11900 (12800#)			
5	Stabilizers raised 4 pt. outriggers down		14400# (14400#) 14400# (14400#)	20500 (28400) 37900# (37900#)	15300 (20900) 29800# (29800#)	12000 (16200) 24400# (24400#)	9600 (13000) 20000 (20400#)	7800 (10700) 16400 (17300#)	6400 (8900) 13800 (14600#)	5300 (7500) 11700 (12000#)			
0	Stabilizers raised 4 pt. outriggers down	5200# (5200#) 5200# (5200#)	13600# (13600#) 13600# (13600#)	18900 (26600) 33200# (33200#)	14200 (19600) 28400# (28400#)	11100 (15400) 23300# (23300#)	9000 (12400) 19300 (19400#)	7400 (10300) 16000 (16300#)	6200 (8700) 13500 (13500#)	5200 (7400) 10700# (10700#)			
- 5	Stabilizers raised 4 pt. outriggers down		15800# (15800#) 15800# (15800#)	18000 (25600) 29900# (29900#)	13400 (18900) 25700# (25700#)	10600 (14800) 21400# (21400#)	8600 (12000) 17800# (17800#)	7100 (10000) 14800# (14800#)	6000 (8500) 11900# (11900#)	5100 (7300) 8700# (8700#)			
- 10	Stabilizers raised 4 pt. outriggers down			17700 (25300) 25400# (25400#)	13000 (18500) 21800# (21800#)	10200 (14400) 18400# (18400#)	8300 (11700) 15400# (15400#)	6900 (9800) 12500# (12500#)	5900 (8400) 9600# (9600#)				

The lift capacities are stated in lbs on the lifting gear's stick tip, and can be lifted 360° on firm, level supporting surface with closed steering axle. Capacities shown in brackets are valid when the undercarriage is in longitudinal position and are established over the steering axle (travel position) with stabilizers raised, and over rigid axle with stabilizers down. Indicated loads are based on ISO 10567 standard and do not exceed 75 % of tipping or 87 % of hydraulic capacity (#). Lift capacities do not include the weight of a grapple, clamshells, magnet or other lifting devices, which must be deducted from the above figures. Lifting capacity of the excavator is limited by machine stability, hydraulic capacity and maximum permissible load of the load hook.

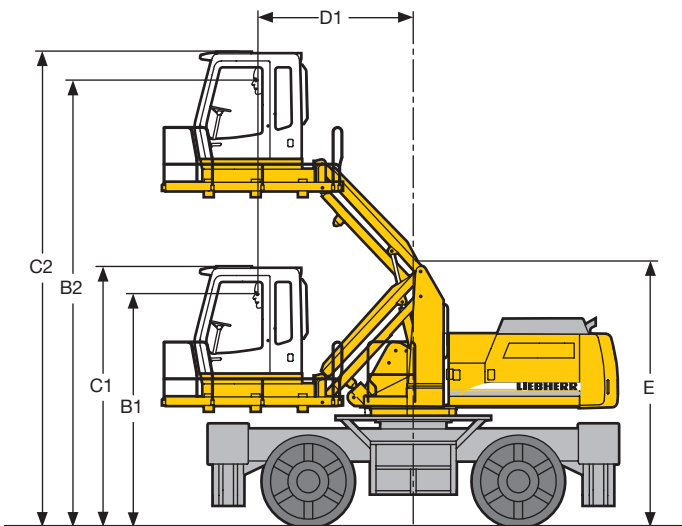
Choice of Cab Elevations and Cab Protections



Rigid Cab Elevation

Height	3'11"
A	13' 7"
B	14' 9"
C	16' 6"
D	1' 5"

A rigid cab elevation has a fixed eye level height. For a lower transport height the shell of the cab can be removed. The overall height is then dimension A.

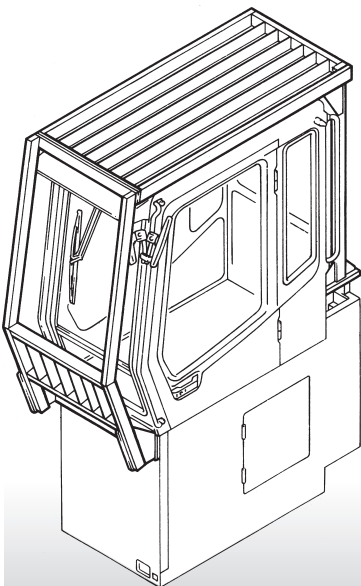


Hydraulic Cab Elevation Parallelogram + intermediate piece 1'2"

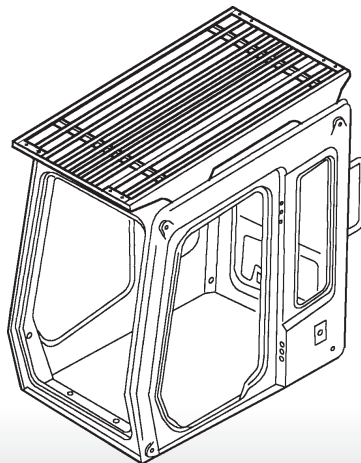
B1	11'11"
B2	23' 2"
C1	13' 8"
C2	24'11"
D1	7'10"
E	13' 9"

The parallelogram cab raiser allows the operator to choose his eye level between dimensions B1 and B2.

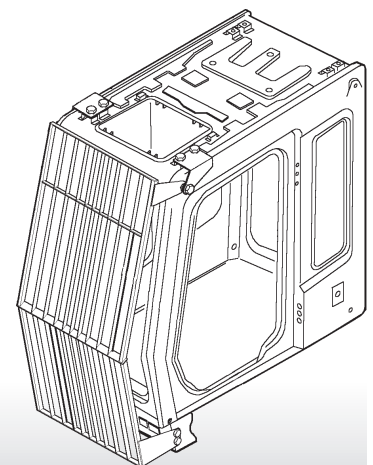
Cab guard for cab



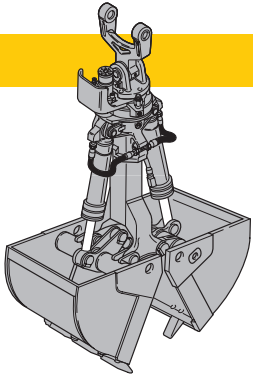
Grille above



Grilles in front



Variety of Tools

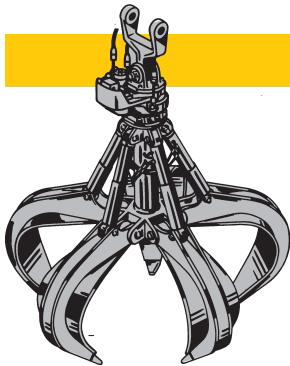


Shells for Loose Material

Clamshell Model 22

Shells for loose material with cutting edge (without teeth)

Cutting width of shells	ft-in	4'11"	4'11"
Capacity	sq ft	20.0	23.7
For loose material, specific weight up to lb/cuyd		2500	2000
Total weight	lbs	5048	5158



Multiple Tine Grapples

open tines

semi-closed tines

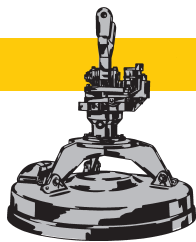
closed tines

		open tines		semi-closed tines		closed tines	
Grapple Model 69	Capacity cuyd	1.00	1.40	1.00	1.40	1.00	1.40
(4 tines)	Weight lbs	2600	2930	3200	3950	3920	4280
Grapple Model 70 C	Capacity cuyd	1.00	1.40	1.00	1.40	1.00	1.40
(5 tines)	Weight lbs	3300	3350	3770	4040	4190	4480



Crane Hook with Suspension

Max. load	lbs	70,560
Height with suspension	ft-in	1'11"
Total weight	lbs	249



Electro Magnets with Suspension

Magnet information on request

Equipment



Undercarriage

	S	O
Two circuit travel brake with accumulator	•	
Travel motor protection		
Outrigger cylinder rod guards		•
Creeper speed electrically switchable from cab	•	
New tires	•	
Service free parking brake	•	
Independent outrigger control		•
Choice of tires		•
Auto check valve directly on each stabilizer cylinder		•
Proportional power steering with mechanical back up	•	
Customized colors		•
Two lockable storage boxes		•
Lockable storage box additional		
Two-speed power shift transmission		



Uppercarriage

	S	O
Electric fuel tank filler pump		•
Maintenance-free swing brake lock	•	
Handrails, Non slip surfaces	•	
Main switch for electric circuit	•	
Engine hood with lift help	•	
Pedal controlled positioning swing brake	•	
Reverse travel warning system		•
Sound insulation	•	
Customized colors		•
Pin lock upper/lower	•	
Maintenance-free HD-batteries	•	
Extended tool kit		•
Lockable tool box	•	
Tool kit		•



Hydraulics

	S	O
Hydraulic tank shut-off valve	•	
Extra hydr. control for hydr. swivel		•
Pressure compensation	•	
Hook up for pressure checks	•	
Pressure storage for controlled lowering of attachments with engine turned off	•	
Filter with partial micro filtration (5 µm)	•	
Electronic pump regulation	•	
Stepless mode system (ECO)	•	
Flow compensation	•	
Four mixed modes, can also be adjusted	•	
Full flow micro filtration		•
Bio degradable hydraulic oil		•
Pressure compensation		
Flow summation	•	
Additional hydraulic circuits		•



Engine

	S	O
Turbo charger	•	
Direct injection	•	
Cold start aid		•
Sensor controlled engine idling	•	
Air filter with pre-cleaner main- and safety element	•	



Operator's Cab

	S	O
Storage tray	•	
Displays for engine operating condition	•	
Mechanical hour meters, readable from outside the cab	•	
Roof hatch		
All-round adjustable roof vent	•	
6-way adjustable seat	•	
Airpressure operator seat with heating and head-rest		•
Seat and consoles independently adjustable	•	
Extinguisher		•
Removable customized foot mat	•	
Dome light	•	
Inside rear mirror	•	
Hydraulic cab elevation		•
Rigid cab elevation		•
Cab heater with defroster		
Cloth hook	•	
Air conditioning	•	
Electric cool box		•
Steering wheel adjustable	•	
Bullet proof window (fixed installation – can not be opened)		•
Stereo radio		•
Preparation for radio installation		•
Rain hood over front window opening	•	
Beacon		•
All tinted windows	•	
Door with sliding window	•	
Optical and acoustical warning if outriggers are not fully retracted		•
Auxiliary heating		•
Sun shade	•	
Sun roller blind		
Electronic drive away lock		•
Wiper/washer	•	
Cigarette lighter and ashtray	•	
Additional flood lights		•



Attachment

	S	O
Flood lights on boom	•	
Hydr. lines for clam operation in stick	•	
Industrial-type gooseneck sticks with remote hydraulic pin puller		•
Sealed pivots	•	
Safety lift hook	•	
Liebherr line of clams	•	
Safety check valves on hoist cylinder	•	
Safety check valves on stick cylinder	•	
SAE-dbl flange connection for all hi-pressure lines	•	
Hose quick connection	•	
Centralized lube points	•	
Manual quick change tool adapter	•	
Customized colors	•	
Special buckets and other tools		
Overload warning device		•
Two way valves for bucket/clam use		
Locking of connections for clam operation		
Cylinders with shock absorber	•	

S = Standard, O = Option

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

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