# Product Information: Crawler Excavator

# **R 960 SME**

Litronic®





# Crawler Excavator R 960 SME Super Mass Excavation

#### Safety

- Panoramic visibility with no obstructions and rear and side view monitoring cameras
- Retractable console for easy and safe access to the cab
- Emergency exit via the rear cab window, whatever the excavator's configuration
- Impact resistant windshield available as an option

#### Equipment

- Reinforced boom and sticks with protection on the inner face for a longer service life
- Larger diameter bucket and stick cylinders, with kinematic systems adapted to handle higher breakout and digging forces
- Different additional protection kits available as an option, for optimum adaptation to each specific application

#### Maintenance

- Maintenance points on the cool side of the engine
- Quick and easy cleaning and visual inspection
- Complementary radiators fitted on hinges
- Engine oil, hydraulic oil, fuel and urea (diesel exhaust fluid) levels visible on the display
- Shut-off valve to quickly and easily interrupt the circulation of oil between the tank and the hydraulic system





#### Comfort

- Spacious, air-conditioned work space
- Airsprung seat with vertical and longitudinal damping
- Userfriendly high resolution 7" colour touchscreen
- New LED lighting as standard

#### Engine

- New engine that conforms with the Stage V European exhaust emissions standard
- Automatic engine idling/speed increase, controlled via joystick sensorssensors in the joysticks

#### Undercarriage

- Higher category excavator undercarriage
- Double grouser, chamfered track pads as standard for heavy duty applications
- Dual-pivot carrier rollers for increased reliability and long-term durability
- Two-tooth sprocket for a longer service life

# **Technical Data**

# Engine

Eligino	
Rating per ISO 9249	250 kW (340 HP) at 1,800 RPM
Torque	2,280 Nm at 1,000 RPM
Model	Liebherr D936 A7
Туре	6 cylinder in-line
Bore	130 mm
Stroke	150 mm
Displacement	10.5
Engine operation	4-stroke diesel Common-Rail, monoturbo
Exhaust gas treatment	Stage V DOC + DPF + SCR Passive regeneration by thermo management
Cooling system	Water-cooled and integrated motor oil cooler, after-cooled and fuel cooled
Air cleaner	Dry-type air cleaner with pre-cleaner, primary and safety elements
Fuel tank	7341
Urea tank	901
Electrical system	
Voltage	24 V
Batteries	2 x 180 Ah/12 V
Starter	24 V/7.8 kW
Alternator	Three-phase current 28 V/140 A
Engine idling	Sensor controlled
Motor management	Connection to the integrated excavator system controlling via CAN-BUS to the economical utilisation of the service that is available

# Hydraulic Controls

The controlling is conducted via the integrated excavator system technology, input and output modules, communicated via the CAN-BUS with the elec-

tronic central unit	
Power distribution	Via control valves in single block with integrated safety valves
Flow summation	To boom and stick
Closed-loop circuit	For uppercarriage swing drive
Servo circuit	
Equipment and swing	Proportional via joystick levers
Travel	<ul> <li>Proportional control via foot pedals or removable levers</li> <li>Speed pre-selection</li> </ul>
Additional functions	Proportional regulation via foot pedals or mini- joystick

# Hydraulic System

Hydraulic pumps	
For equipment	Liebherr, variable displacement, swashplate
and travel drive	double pump
Max. flow	2 x 380 l/min.
Max. pressure	350 bar
For swing drive	Reversible, variable displacement, swashplate
	pump, closed-loop circuit
Max. flow	201 l/min.
Max. pressure	375 bar
Pump regulation	Electro-hydraulic with electronic engine speed
	sensing regulation, pressure compensation,
	flow compensation
Hydraulic tank	380
Hydraulic system	743
Hydraulic oil filter	2 full flow filters in return line with integrated fine
	filter area (5 µm)
Cooling system	Compact cooler for water cooler, after-cooler,
	fuel cooler and transmission pump oil, sand-
	wiched with cooler for oil and condenser of
	air-conditioning with hydrostatically controlled
	fan drives
MODE selection	Adjustment of engine and hydraulic performance
	via a mode pre-selector to match application,
	e.g. for especially economical and environmen-
	tally friendly operation or for maximum digging
	performance and heavy-duty jobs
RPM adjustment	Stepless adjustment of engine output via RPM
	at each selected mode
Tool Control	20 preadjustable pump flows and pressures for
	add-on attachments

Ċ	Swing	Drive

Drive	Liebherr swashplate motor, shockless and anti- reaction
Transmission	Liebherr compact planetary reduction gears
Swing ring	Liebherr, sealed race ball bearing swing ring, internal teeth
Swing speed	0 – 5.8 RPM stepless
Swing torque	160 kNm
Holding brake	Wet multi-disc (spring applied, pressure released)



Operator's Ca	ID
Cab	Windscreen, totally or partially retractable (only upper part), under cab roof, LED work head- lights integrated in the ceiling, a door with a slid- ing window (can be opened on both sides), large storing box and several stowing possibili- ties, shock-absorbing suspension, sounddamp- ing insulating, tinted laminated safety glass, separate window shades for the sunroof win- dow and windscreen, 12 V plug, storage bins, lunchbox, cup holder
Operator's seat	Liebherr-Comfort seat, airsprung with automatic weight adjustment, vertical and longitudinal seat damping including consoles and joysticks. Seat and armrests adjustable separately and in com- bination (adjustable in width, height and inclina- tion), seat heating as standard
Arm consoles	Oscillating consoles with seat, tiltable console left
Operation and displays	Large high-resolution operating unit, intuitive, colour display with touchscreen, video-com- patible, numerous setting, control and monitor- ing options, e.g. air conditioning control, fuel consumption, machine and attachment para- meters
Air-conditioning	Automatic air-conditioning, recirculated air func- tion, 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 out- side temperatures, sensors for solar radiation, inside and outside temperatures The air conditioning system contains fluorinated greenhouse gases
Refrigerant	R134a
Global warming potential	1,430
Quantity at 25 °C*	1,260 g
CO <sub>2</sub> equivalent	1.80 t
Vibration emission**	
Hand/arm vibrations	< 2.5 m/s <sup>2</sup> , according with ISO 5349-1:2001
Whole-body vibrations	< 0.5 m/s <sup>2</sup>
Measuring inaccuracy	According with standard EN 12096:1997
Noise emission	
100 6206	$(incide ach) = 70 dD(\Lambda)$
ISO 6396 2000/14/EC	$L_{pA}$ (inside cab) = 72 dB(A) $L_{WA}$ (surround noise) = 106 dB(A)

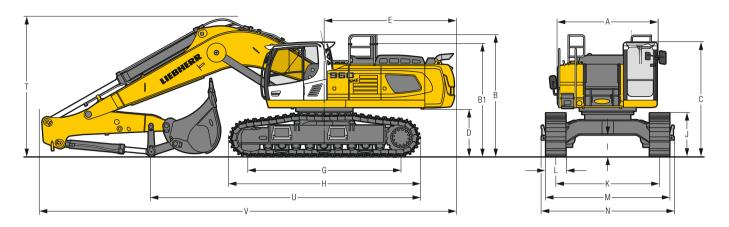
#### Undercarriage

Gauge 3,100 mm
Liebherr swashplate motor with integrated brake valve
Liebherr compact planetary reduction gear
Low range 3.0 km/h High range 3.6 km/h
478 kN
D8K, maintenance-free
9/2
Sealed and greased
Double grouser
Wet multi-disc (spring applied, pressure released)
Integrated into travel motor
Integrated

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	Automatic central lubrication system (except link and tilt geometry)
Hydraulic connections	Pipes and hoses equipped with SAE split-flange connections
Buckets	Standard equipped with Liebherr tooth system

 $^{\ast}$  Valid for standard machine without operator's cab elevation and without height adjustable cab  $^{\ast\ast}$  For the risk assessment according to 2002/44/EC see ISO/TR 25398:2006

## Dimensions



		mm
Α	Uppercarriage width	2,970
В	Uppercarriage height	3,640
B1	Uppercarriage height (handrails folded)	3,390
C	Cab height	3,420/3,615*
D	Counterweight ground clearance	1,440
Е	Rear-end length	3,900
G	Wheelbase	4,575
Н	Undercarriage length	5,695
L	Undercarriage ground clearance	655
J	Track height	1,315
Κ	Track gauge	3,100
L	Track pad width	500 600 750
М	Width over tracks	3,710 3,710 3,850
Ν	Width over steps	3,970 3,970 3,970
* wit	h EODS top guard	

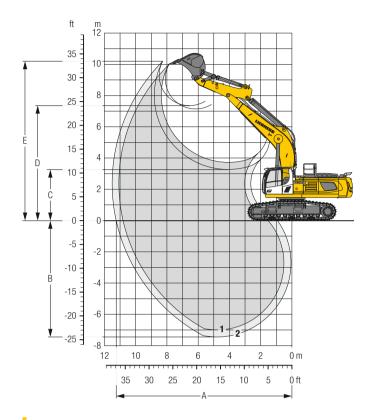
with FOPS top guard

		Stick length m	Mono boom SME 6.70 m direct mounting mm
Т	Boom height	2.35 SME	4,200
		2.80 SME	4,200
U	Length on ground	2.35 SME	8,050
		2.80 SME	7,500
۷	Overall length	2.35 SME	12,400
		2.80 SME	12,400
	Bucket		3.25 m <sup>3</sup>

# Transport Dimensions removable elements disassembled

	Stick	Mono boom SME 6.	70 m	
	m		mm	
Pad width		500	600	750
Transport width		3,970	3,970	3,970
Transport length			12,400	
Transport height	2.35 SME		4,200	
	2.80 SME		4,200	
Bucket			3.25 m <sup>3</sup>	

#### **Backhoe Bucket** with Mono Boom SME 6.70 m and Counterweight 11.0 t



#### **Digging Envelope**

without quick coupler	1	2
Stick length m	2.35	2.80
	SME	SME
A Max. reach at ground level m	10.80	11.25
B Max. digging depth m	7.00	7.45
C Min. dumping height m	3.70	3.25
D Max. dumping height m	7.15	7.35
E Max. cutting height m	10.00	10.20

#### Forces

without quick coupler		1	2
Stick digging force (ISO 6015)	kN	321	288
Bucket digging force (ISO 6015)	kN	350	350
Stick digging force (SAE J1179)	kN	302	273
Bucket digging force (SAE J1179)	kN	304	304

#### **Operating Weight and Ground Pressure**

The operating weight includes the basic machine with counterweight 11.0 t, mono boom SME 6.70 m, stick SME 2.80 m and HD bucket 3.25 m<sup>3</sup> (3,400 kg).

Undercarriage		S-HD			
Pad width	mm	500	600	750	
Weight	kg	60,000	60,700	61,650	
Ground pressure	kg/cm <sup>2</sup>	1.21	1.02	0.83	

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

	Cutting width	Capacity ISO 7451	Weight	SME-E (with track Stick I	dercarriage quipment pads 600 mm) ength (m)
	mm	m <sup>3</sup>	kg	2.35	2.80
_	2,100	3.25	3,400	<b>▲</b>	▲
Ê	2,250	3.50	3,550	<b>A</b>	
-	2,100	3.70	3,500		
2)	1,950	3.00	3,800	<b>A</b>	
Â	2,100	3.25	4,000	<b>A</b>	
Ŧ	2,100	3.50	4,200		

<sup>1</sup> Indicated loads are based on ISO 10567, at maximum reach, and may be swung 360° on firm and even ground
 <sup>1</sup> HD bucket with teeth Z 70 (appropriate for materials above classification 6, according to VOB, Section C, DIN 18300)

<sup>2)</sup> HDV bucket with teeth Z 70 (appropriate for materials above classification 6, according to VOB, Section C, DIN 18300) Other buckets available upon request

Max. material weight  $\blacktriangle = \le 2.0 \text{ t/m}^3$ ,  $\blacksquare = \le 1.8 \text{ t/m}^3$ ,  $\blacksquare = \le 1.5 \text{ t/m}^3$ 

# Lift Capacities with Mono Boom SME 6.70 m, Counterweight 11.0 t and Track Pads 600 mm

age	1	3.0	3.0 m	3.0 m	4.5	5 m	6.0	) m	7.9	5 m	9.0	) m			-	- age	1	3.0	) m	4.5	i m	6.0	) m	7.5	5 m	9.0	) m			
carriage	m			Ľ		ď		Ь		Ŀ		Ŀ		Ŀ	m	Under- carriage	m	5	ď		Ľ		Ľ	5	Ľ		Ľ		Ь	
1	9.0											11.7*	11.7*	6.3		9.0											10.1*	10.1*	6	
	7.5							11.0*	11.0*			11.0*	11.0*	7.6		7.5							10.1*	10.1*			9.2*	9.2*	8	
	6.0					12.5*	12.5*	11.1*	11.1*			10.8*	10.8*	8.5	3.5	6.0							10.5*	10.5*			8.9*	8.9*	1	
	4.5			20.5*	20.5*	14.4*	14.4*	11.9*	11.9*			10.2	10.8*	9.0		4.5			18.6*	18.6*	13.6*	13.6*	11.3*	11.3*	10.2*	10.2*	8.9*	8.9*	9	
	3.0					16.3*	16.3*	12.9*	12.9*	9.9	11.1*	9.5	11.0*	9.2	9.2 운	3.0					15.6*	15.6*	12.4*	12.4*	9.9	10.7*	8.9	9.2*		
	1.5					16.8	17.6*	12.4	13.6*	9.7	11.4*	9.4	11.2*	9.2	<u>-</u>	1.5			13.9*	13.9*	16.9	17.1*	12.4	13.3*	9.6	11.1*	8.8	9.8*	1	
	0			20.2*	20.2*	16.5	17.8*	12.1	13.9*			9.7	11.4*	8.9		0			23.3*	23.3*	16.4	17.7*	12.1	13.8*	9.5	11.3*	9.0	10.8*	1	
	-1.5	19.7*	19.7*	22.2*	22.2*	16.5	17.2*	12.1	13.5*			10.6	11.7*	8.4		-1.5	20.2*	20.2*	23.0*	23.0*	16.3	17.4*	12.0	13.6*			9.7	11.0*	1	
	-3.0	24.3*	24.3*	19.7*	19.7*	15.4*	15.4*					11.7*	11.7*	7.4		-3.0	27.3*	27.3*	20.8*	20.8*	16.0*	16.0*	12.2	12.3*			11.2*	11.2*		
- [	-4.5			15.0*	15.0*							11.0*	11.0*	6.0		-4.5	21.6*	21.6*	16.8*	16.8*	12.7*	12.7*					10.9*	10.9*	1	

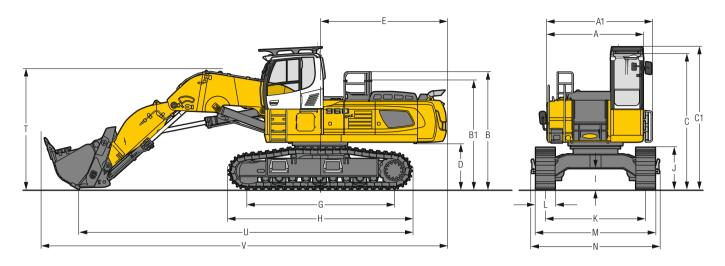
🕻 🌽 Height 🛯 📹 Can be slewed through 360° 🛛 🖞 In longitudinal position of undercarriage 🖉

Max. reach \* Limited by hydr. capacity

The load values are quoted in tons (t) 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 600 mm 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 950 kg. Lifting capacity of the excavator is limited by machine stability and hydraulic capacity.

According to European Standard, EN 474-5: In the European Union excavators have to be equipped with an overload warning device, a load diagram and automatic safety check valves on hoist cylinders and stick cylinder(s), when they are used for lifting operations which require the use of lifting accessories.

## **Dimensions Front Shovel**



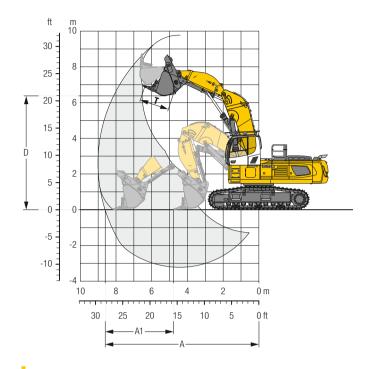
		mm
Α	Uppercarriage width	2,970
A1	Uppercarriage width with catwalks	3,030
В	Uppercarriage height	3,640
B1	Uppercarriage height (handrails folded)	3,390
C	Cab height	4,220
C1	Cab height with FOPS top guard	4,420
D	Counterweight ground clearance	1,440
E	Rear-end length	3,900
G	Wheelbase	4,575
Н	Undercarriage length	5,695

					mm
I.	Undercarriage ground clearance				655
J	Track height				1,315
Κ	Track gauge				3,100
L	Track pad width	50	0	600	750
Μ	Width over tracks	3,71	0	3,710	3,850
Ν	Width over steps	3,97	0	3,970	3,970
Т	Boom height				3,750
U	Length on ground				10,350
V	Overall length				12,450

# Transport Dimensions removable elements disassembled

		Shovel Equipment mm	
Pad width	500	600	750
Transport width	3,970	3,970	3,970
Transport length		12,450	
Transport height		4,420	
Shovel		3.50 m <sup>3</sup>	

## Front Shovel



#### Digging Envelope

A Max. reach at ground level	m	8.60
A1 Max. crowd length	m	3.40
D Max. dumping height	m	6.35
T Bucket opening width	mm	1,650

#### Forces

Max. crowd force	kN	435
Max. crowd force at ground level	kN	275
Max. breakout force	kN	355

#### **Operating Weight and Ground Pressure**

The operating weight includes the basic machine with cab elevation, shovel equipment and front shovel  $3.50\ m^3$  (6,150 kg), level II.

Undercarriage		S-HD		
Pad width	mm	500	600	
Weight	kg	62,150	62,850	
Ground pressure	kg/cm <sup>2</sup>	1.25	1.05	

# S-HD-Undercarriage 6u trapping tra

2,450 3.50 6,150 II 2,450 3.50 6,600 III

Level I: For non-abrasive materials, such as limestone without flint inclusion, shot material or easily breakable rock, i.e., deteriorated rock, soft limestone, shale, etc.

Level II: For pre-blasted heavy rock, or deteriorated, cracked material (classification 3 to 4, accord. to DIN 18300)

Level III: For highly-abrasive materials such as rock with a high silica content, sandstone etc.

Max. material weight  $\blacksquare = \le 1.8 \text{ t/m}^3$ 

## Serial Equipment

#### Undercarriage

Lashing eyes Sprocket with dirt ejector Track and carrier rollers, sealed and lifetime-lubricated Travel motor housing protection Undercarriage S-HD

#### **Uppercarriage**

	Access platforms without protruding parts
	Anti-skid surfaces
	Automatic swing brake lock
	Centralised lubrication system (automatic)
	Counterweight heavy 11.0 t
	DEF tank filling indicator
	DEF tank lockable access hatch
	Engine hood with gas spring opening
	Extended tool set including tool box
	Handrails
	Lockable fuel tank cap with padlock
	Lockable service doors
	Lockable storage box
	Main switch, manual, lockable
	Protection grid on radiator fan
	Sound insulation
	Swing-out radiators

## Hydraulic System

Dedicated swing circuit Filter with integrated fine filters Hydraulic pressure measuring ports Hydraulic tank shut-off valve Magnetic rod

Pressure accumulator for controlled lowering of equipment with engine turned off



Air filter with automatic dust ejector
Automatic engine idling/speed increase, controlled via joystick sensors
Common-Rail injection system
Exhaust gas after-treatment system – DOC + DPF + SCR
Fixed geometry turbocharger
Fuel fine filter
Fuel pre-filter and water separator
Eucl priming pump

- Fuel priming pump Intercooler
- Power Pack EU Stage V
- Stepless adjustable engine speed



## Operator's Cab

7" multifunction colour 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
Footrest
Fuel consumption on touchscreen
Fuel level on touchscreen
Interior lighting
Laminated right hand side window
LiDAT Plus (Liebherr data transfer system) *
Mechanical hour meters, visible from ground level
Movement priority between swing and boom, adjustable via touchscreen
Rain 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
Rubber floor mat, fixed on floor and removable
Storage box
Storage nets
Storage spaces
Tiltable console left
Tinted windows
Visco-elastic damping
Windscreen wiper and washer
Work mode selector

Work mode selector



Anti-drift system boom cylinders
Anti-drift system stick cylinder
Boom bottom protection
Boom cylinders regeneration
Pipe fracture safety valves for boom cylinders
Pivot points made of cast steel
SAE split flanges on high pressure lines
Stick bottom protection
Stick cylinder regeneration

\* optionally extendable after one year

# Equipment Standard/Option

## 🗊 Undercarriage

Chain guide 3 pieces	٠
Chain guide 4 pieces	+
Chain guide full length	+
Reinforced cover and base plate for undercarriage centre section	+
Special painting	+
Steps	•
Track pads double grouser 500 mm, chamfered	+
Track pads double grouser 600 mm, chamfered	•
Track pads double grouser 750 mm, chamfered	+
Travel drive gearbox protection	+
Undercarriage protection plate for drop-ball application	+
Undercarriage protection plate for drop-ball application	+

# Hydraulic System

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

#### Engine

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

#### 🕮 Uppercarriage

Air pre-filter with cyclonical dust trap	+
Boxing ring	+
Catwalk tiltable front left	+
Catwalks tiltable left and right	+
Electric socket on uppercarriage (24 V)	+
Fixed cab riser 800 mm	+
Headlight on uppercarriage, lateral left, LED+, 1 piece	+1)
Headlight on uppercarriage, lateral right, LED+, 1 piece	+1)
Headlights on uppercarriage, front, LED, 2 pieces, protections included	•1)
Headlights on uppercarriage, front, LED+, 2 pieces, protections included	+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	+
Reversible fan drive	+
Skyview 360°	+
Special painting	+
Swing ring and lubrication hoses protection	+
Tank refilling pump fuel	+
Uppercarriage bottom and side protection	+
Wiggins coupling for fuel	+

# Equipment Standard/Option

## Operator's Cab

-		
_	2" seat belt with retractor	•
	3" seat belt with retractor, orange colour	+
	4-points seat belt	+
	Acoustic travel alarm deactivatable	+
	Auxilary heater programmable	+
	Bottom windscreen wiper	+
	Cool box (12 V)	+
	Dark tinted windows	+
	Electrically adjustable and heated outside rear-view mirrors	+
	Electronic immobiliser	+
	Emergency stop in cab	+
	FGPS front guard	+
	FGPS front guard tiltable	+
	Filter for hydraulic hammer return flow	+
	Fire extinguisher	+
	First-aid box	+
	Follow me home	+
	FOPS top quard	+
1	Handrests elevated for joysticks	+
	Headlights on cab, front, LED, 2 pieces	•1)
	Headlights on cab, front, LED+, 2 pieces	+1)
	Headlights on cab roof, front, LED+, 2 pieces	+1)
	High pressure circuit switchable on pedals or mini-joystick	+
	High pressure circuit with Tool Control (20 attachment adjustments on display)	+
1	Impact resistant one-piece windscreen	+
	Impact resistant roof window	+
	Integral protection guard	+
	I aminated roof window	•
	Lighting for cabin access 1)	+
	Luminosity control (LED+ headlights) <sup>1)</sup>	+
1	Medium pressure circuit	+
	Mini-joysticks proportional	+
	Movement restriction for boom	+
	Movement restriction for stick	+
	Operator seat Comfort	•
	Operator seat Premium	+
1	Overload warning system	+
	Radio Comfort	+
	Radio pre-installation	•
	Retractable laminated two-piece windscreen	•
	Roof sun shield	+
	Roof window wiper	+
	Rotating beacon on cabin, LED, 1 piece	+
	Seat belt reminder	+
	Shortkey button on joystick configurable	т •
	Special painting	+
	Supecial painting	+
	Windscreen bottom protection grid	+
1	windor our bottom protoction grid	Ŧ

# Equipment

- =quipmont	
Boom cylinder rods protection	+
Bucket cylinder rod protection	+
Centralised lubrication extended for connecting link	+
Floating boom	+
Headlights on boom, LED, 2 pieces, protections included	●1)
Headlights on boom, LED+, 2 pieces, protections included	+1)
Mono boom SME 6.70 m	+
Pipe fracture safety valve for stick cylinder	+
Preparation for ripper tooth	+
Quick coupler SWA 77 hydraulic	+
Shovel boom 4.20 m	+
Shovel stick 2.78 m	+
Special painting	+
Stick SME 2.35 m	+
Stick SME 2.80 m	+

• = Standard, + = Option <sup>1)</sup> 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.

Notes			

# **The Liebherr Group of Companies**



#### Wide Product Range

The Liebherr Group is one of the largest construction equipment manufacturers in the world. Liebherr's highvalue products and services enjoy a high reputation in many other fields. 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 acknowledged quality, Liebherr products offer a maximum of customer benefits in practical applications.

#### State-of-the-art Technology

To provide consistent, top quality products, Liebherr attaches great importance to each product area, its components and core technologies. Important modules and components are developed and manufactured in-house, for instance the entire drive and control technology for construction equipment.

#### Worldwide and Independent

Hans Liebherr founded the Liebherr family company in 1949. Since then, the family business 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.com