# Crawler Excavator

# R 944 C SME
Litronic®

| | |
|---|---|
| **Operating Weight:** | **43.300 – 43.800 kg** |
| **Engine Output:** | **190 kW / 258 HP** |
| **Bucket Capacity:** | **2.00 – 2.75 m³** |


LIEBHERR

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## Performance

Liebherr crawler excavators feature state-of-the-art technology and high-quality workmanship. The most important components of the drive system are all produced by Liebherr and are perfectly coordinated with one another. The engine generation, as further developed for the “C-series”, assures an effective power delivery, a high degree of efficiency, long life expectancy and complies with the emission standard Stage IIIA / Tier 3.

## Reliability

High demand for performance and quality is consequently converted into landmark solutions to achieve the highest level of dependability and reliability. Liebherr has over 50 years experience in the production of hydraulic excavators and has an unparalleled competence in design and know-how.

## Comfort

In the operator’s station, the operator can look forward to a comfortable workstation that is designed according to the most up-to-date ergonomically know-how. The standard climate control provides a pleasant working environment in all weather conditions.

Liebherr crawler excavators are particularly service-friendly: Maintenance work is simply and quickly accomplished due to well accessible service points.

## Economy

Liebherr crawler excavators stand for maximum productivity. The sensitive excavator controls assure optimal efficiency in the interaction of excavator hydraulics and electronics. A wide selection of attachments and buckets with various dimensions provide the correct choice for every application.

# Experience progress

## Liebherr System Technology

- Key-components such as engine, hydraulic pumps and motors, swing and travel gear boxes as well as electronic elements are developed and produced by Liebherr
- Manufacturing centers for components located in Germany and Switzerland assure a higher quality

## More Productivity

- Additional 3rd pump for swing circuit assures highest priority on swing function and increases productivity
- The on-demand hydrostatic fan drive takes-off only the needed power to reduce fuel consumption

## More Uptime

- Steel casting elements at every pivot point for longer service life
- Two separate pins with casted bell housing for optimal stress-flow
- Innovative concept with latest steelworks for increased reliability
- Centralized lubrication points for reduced maintenance time and less downtime


## Higher Stability

- Upsized undercarriage for better working and driving conditions
- Strengthened frame for increased reliability and long-term durability
- 4-piece track guide as standard for optimal travel performances

## More Profit thanks to ReGeneration Plus

- Quicker attachment lowering, less pressure loss and more safety
- Higher productivity due to optimization and consolidation of the functions “pressureless lowering”, “regeneration” and “load holding valves”
- Less energy consumption resulting in less fuel consumption

## More Operator Comfort

- The automatic air conditioning creates a pleasant operator environment
- Ergonomically designed seat assures comfortable working conditions
- The easily readable color-touch display optimizes the configuration of the machine

## Less Operating Costs

- Electronic engine speed sensing control and maximum output at low engine speed for less fuel consumption
- Conform with Stage IIIA / Tier 3 emission standard and Environmental friendly
- Developed and produced by Liebherr in Switzerland

# Technical Data

## Engine

| | |
|---|---|
| Rating per ISO 9249 | 190 kW (258 HP) at 1,800 rpm |
| Model | Liebherr D 936 L conform with stage IIIA/Tier 3 emission standard. For applications at altitude higher than 3,000 m please contact your local dealer |
| Type | 6 cylinder in-line |
| Bore/Stroke | 122/150 mm |
| Displacement | 10.5 l |
| Engine operation | 4-stroke diesel unit pump system turbo-charged and after-cooled reduced emissions |
| Cooling | water-cooled, fuel cooled and integrated engine oil cooler |
| Air cleaner | dry-type air cleaner with pre-cleaner, primary and safety element, automatic dust ejection |
| Fuel tank | 660 l |
| Standard | sensor controlled engine idling |
| Electrical system | |
| Voltage | 24 V |
| Batteries | 2 x 180 Ah/12 V |
| Starter | 24 V/6.6 kW |
| Alternator | 28 V/80 A |

## Hydraulic System

| | |
|---|---|
| Hydraulic pump for attachment and travel drive | two Liebherr variable flow, swash plate pumps |
| Max. flow | 2 x 303 l/min. |
| Max. pressure | 350 bar |
| Pump regulation | electro-hydraulic with electronic engine speed sensing regulation, pressure compensation, flow compensation, automatic oil flow optimizer |
| Hydraulic pump for swing drive | reversible, variable flow, swash plate pump, closed-loop circuit |
| Max. flow | 205 l/min. |
| Max. pressure | 370 bar |
| Hydraulic tank | 460 l |
| Hydraulic system | 710 l |
| Hydraulic oil filter | 2 full flow filters in return line with integrated fine filter area (5 µm) |
| Hydraulic oil cooler | Cooling unit, consisting of radiators for engine coolant, charge air, fuel and hydraulic oil with hydrostatically controlled fan drive |
| MODE selection | adjustment of machine performance and the hydraulics via a mode selector to match applications |
| ECO | for especially economical and environmentally friendly operation |
| POWER | for maximum digging power and heavy duty jobs |
| LIFT | for lifting |
| FINE | for precision work and lifting through very sensitive movements |
| RPM adjustment | stepless adjustment of engine output via the rpm at each selected mode |
| Tool Control | ten preadjustable pump flows and pressures for add-on tools (option) |

## 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 and speed pre-selection |
| Additional functions | via foot pedals or joystick toggle switch |

## Swing Drive

| | |
|---|---|
| Drive by | Liebherr swash plate motor |
| Transmission | Liebherr compact planetary reduction gear |
| Swing ring | Liebherr, sealed single race ball bearing swing ring, internal teeth |
| Swing speed | 0 – 8 rpm stepless |
| Swing torque | 125 kNm |
| Holding brake | wet multi-disc (spring applied, pressure released) |

## 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, adjustable to operator's weight, 4-way adjustable seat |
| Joysticks | integrated into adjustable seat consoles |
| Monitoring | menu driven query of current operating conditions via the color touch 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 | automatic air conditioning, combined cooler/heater, additional dust filter in fresh air/recirculated |
| Noise emission | |
| ISO 6396 | $L_{pA}$ (inside cab) = 75 dB(A) |
| 2000/14/EC | $L_{WA}$ (surround noise) = 105 dB(A) |

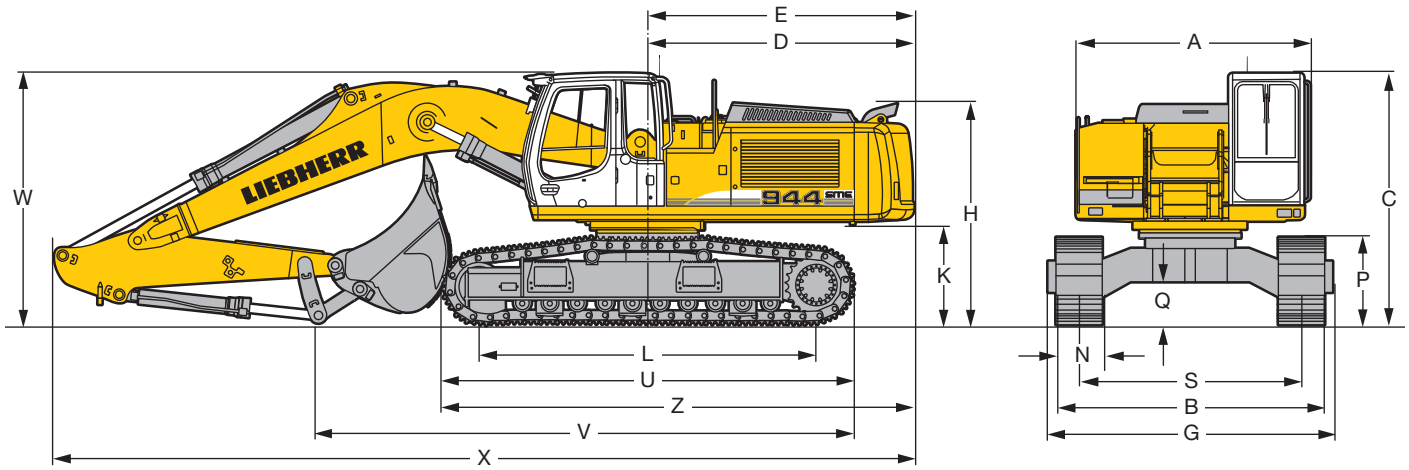
## Undercarriage

| | |
|---|---|
| S-HD | super-HD-undercarriage for extreme and very tough applications, e.g. in quarries |
| Drive | Liebherr swash plate motors with integrated brake valves on both sides |
| Transmission | Liebherr planetary reduction gears |
| Travel speed | low range – 2.8 km/h<br>high range – 4.1 km/h |
| Drawbar pull max. | 326 kN |
| Track components | D 7 G, maintenance-free |
| Track rollers/ Carrier rollers | 10/2 |
| Tracks | sealed and greased |
| Track pads | double or triple grouser |
| Digging locks | wet multi-discs (spring applied, pressure released) |
| Brake valves | integrated into travel motor |

## Attachment

| | |
|---|---|
| Type | combination of resistant steel plates and cast steel components |
| Hydraulic cylinders | Liebherr cylinders with special seal-system and shock absorbers |
| Pivots | sealed, low maintenance |
| Lubrication | easy accessible centralized lubrication points for boom and stick |
| Hydraulic connections | pipes and hoses equipped with SAE split-flange connections |
| Bucket | fitted as standard with 20 t lifting hook and Liebherr tooth system |

# Dimensions

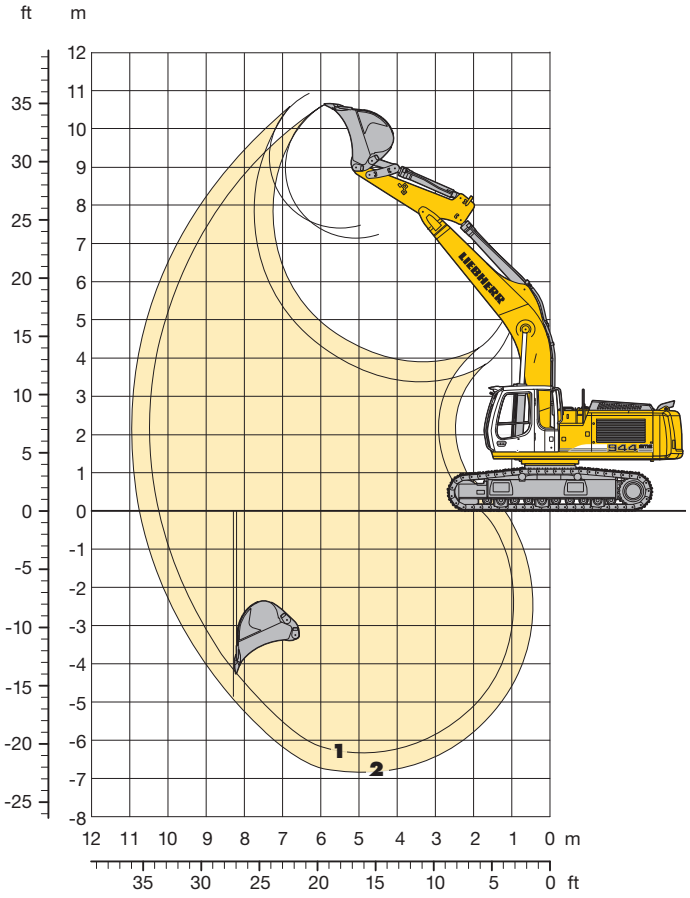



| | mm | |
|---|---|---|
| A | 3,060 | |
| C | 3,275 | |
| D | 3,471 | |
| E | 3,471 | |
| H | 2,895 | |
| K | 1,305 | |
| L | 4,400 | |
| P | 1,170 | |
| Q | 550 | |
| S | 2,900 | |
| U | 5,370 | |
| Z | 6,160 | |
| N | 500 | 600 |
| B | 3,462 | 3,500 |
| G | 3,712 | 3,712 |

| | **Stick Length** | **Mono Boom 6.45 m SME** |
|---|---|---|
| | m | mm |
| V | 2.10 | 7,550 |
| | 2.60 | 7,050 |
| W | 2.10 | 3,250 |
| | 2.60 | 3,350 |
| X | 2.10 | 11,350 |
| | 2.60 | 11,300 |

# Backhoe Bucket

## with Mono Boom 6.45 m SME




## Digging Envelope

| | | 1 | 2 |
|---|---|---|---|
| Stick length | m | 2.10 SME | 2.60 SME |
| Max. digging depth | m | 6.35 | 6.85 |
| Max. reach at ground level | m | 10.25 | 10.75 |
| Max. dump height | m | 7.15 | 7.40 |
| Max. teeth height | m | 10.60 | 10.90 |
| Max. vertical digging depth | m | 4.25 | 4.85 |

## Digging Forces

| | | 1 | 2 |
|---|---|---|---|
| Digging force ISO | kN | 224 | 197 |
| | t | 22.8 | 20.1 |
| Breakout force ISO | kN | 234 | 234 |
| | t | 23.9 | 23.9 |

Max. breakout force with ripper bucket and without quick coupler: 300 kN (30.6 t)

## Operating Weight and Ground Pressure

Operating weight includes basic machine with mono boom 6.45 m SME, stick 2.60 m SME and HD bucket 2.50 m³ (2,040 kg).

| Undercarriage | | S-HD | |
|---|---|---|---|
| Pad width | mm | 500 | 600 |
| Weight | kg | 43,300 | 43,800 |
| Ground pressure | kg/cm² | 0.91 | 0.77 |

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

| | Cutting width mm | Capacity ISO 7451 m³ | Weight kg | S-HD-Undercarriage Stick length (m) 2.10 | 2.60 |
|---|---|---|---|---|---|
| HDV[1] | 1,650 | 2.00 | 2,580 | ○ | □ |
| | 1,650 | 2.25 | 2,700 | ○ | △ |
| | 1,650 | 2.50 | 2,800 | □ | ■ |
| HD[2] | 1,650 | 2.25 | 1,910 | ○ | □ |
| | 1,850 | 2.50 | 2,040 | ○ | △ |
| | 1,850 | 2.75 | 2,150 | □ | ■ |

* Indicated loads are based on ISO 10567 max. stick length, lifted 360° on firm and even ground

[1] HDV bucket for direct fitting with teeth V 51

[2] HD bucket for direct fitting with teeth Z 20

Other buckets available on request

Max. material weight ○ = ≤ 2.2 t/m³, □ = ≤ 2.0 t/m³, △ = ≤ 1.8 t/m³, ■ = ≤ 1.5 t/m³

# Lift Capacities

## with Mono Boom 6.45 m SME

### Stick 2.10 m SME

| m | Undercarriage | 3.0 m | | 4.5 m | | 6.0 m | | 7.5 m | | 9.0 m | | | | m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9.0 | S-HD | | | | | | | | | | | 11.3* | 11.3* | 5.1 |
| 7.5 | S-HD | | | | | 10.5* | 10.5* | | | | | 9.8* | 9.8* | 6.7 |
| 6.0 | S-HD | | | 13.4* | 13.4* | 10.9* | 10.9* | 9.7* | 9.7* | | | 9.3* | 9.3* | 7.7 |
| 4.5 | S-HD | | | 16.1* | 16.1* | 11.9* | 11.9* | 9.5 | 10.0* | | | 8.2 | 9.2* | 8.3 |
| 3.0 | S-HD | | | | | 12.5 | 13.0* | 9.2 | 10.4* | | | 7.6 | 9.2* | 8.6 |
| 1.5 | S-HD | | | | | 12.1 | 13.5* | 9.0 | 10.6* | | | 7.5 | 9.1* | 8.6 |
| 0 | S-HD | | | 15.7* | 15.7* | 11.9 | 13.2* | 8.8 | 10.4* | | | 7.7 | 9.0* | 8.4 |
| -1.5 | S-HD | 12.4* | 12.4* | 14.9* | 14.9* | 11.9 | 12.1* | 8.9 | 9.4* | | | 8.5 | 8.7* | 7.8 |
| -3.0 | S-HD | 12.6* | 12.6* | 12.1* | 12.1* | 9.8* | 9.8* | | | | | 7.9* | 7.9* | 6.9 |
| -4.5 | S-HD | | | | | | | | | | | | | |

### Stick 2.60 m SME

| m | Undercarriage | 3.0 m | | 4.5 m | | 6.0 m | | 7.5 m | | 9.0 m | | | | m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9.0 | S-HD | | | | | | | | | | | 8.6* | 8.6* | 5.8 |
| 7.5 | S-HD | | | | | 9.8* | 9.8* | | | | | 7.6* | 7.6* | 7.3 |
| 6.0 | S-HD | | | | | 10.3* | 10.3* | 9.2* | 9.2* | | | 7.3* | 7.3* | 8.2 |
| 4.5 | S-HD | | | 15.0* | 15.0* | 11.4* | 11.4* | 9.6* | 9.6* | | | 7.2* | 7.2* | 8.8 |
| 3.0 | S-HD | | | 17.7* | 17.7* | 12.6* | 12.6* | 9.3 | 10.1* | 7.1 | 8.6* | 7.0 | 7.4* | 9.1 |
| 1.5 | S-HD | | | 13.1* | 13.1* | 12.1 | 13.3* | 9.0 | 10.5* | 7.0 | 8.6* | 6.9 | 7.9* | 9.1 |
| 0 | S-HD | | | 17.6* | 17.6* | 11.9 | 13.3* | 8.8 | 10.5* | | | 7.1 | 8.5* | 8.8 |
| -1.5 | S-HD | 13.6* | 13.6* | 16.0* | 16.0* | 11.8 | 12.5* | 8.7 | 9.8* | | | 7.7 | 8.3* | 8.3 |
| -3.0 | S-HD | 15.7* | 15.7* | 13.5* | 13.5* | 10.7* | 10.7* | | | | | 7.8* | 7.8* | 7.4 |
| -4.5 | S-HD | | | 9.3* | 9.3* | 6.6* | 6.6* | | | | | 6.4* | 6.4* | 6.1 |

**Height** **Can be slewed though 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 triple grouser 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 they increase by an additional 620 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.

# Standard Equipment

## Undercarriage

- 4-piece track guide at each track frame
- Idler protection
- Lifetime lubricated track rollers
- Track pads D 7 G 600 mm triple grouser
- Tracks sealed and greased
- Two-stage travel motors

## Uppercarriage

- Easy accessible lubrication points
- Engine hood with lift help and mechanical lock
- Handrails, non slip surfaces
- Lockable tool box
- Main switch for electric circuit
- Maintenance-free HD-batteries
- Maintenance-free swing brake lock
- Sound insulation
- Tool kit

## Hydraulics

- Electronic pump regulation
- Filter with integrated fine filter area (5 µm)
- Flow compensation
- Hydraulic tank shut-off valve
- Pressure compensation
- Pressure storage for controlled lowering of attachments with engine turned off
- Pressure test ports
- Stepless work mode selector

## Engine

- After-cooled
- Conform with stage IIIA/Tier 3 emission standard
- Dry-type air cleaner, main and safety element
- Sensor controlled engine idling
- Turbo charger
- Unit pump system with direct injection

## Operator's Cab

- All tinted windows
- Automatic air conditioning with defroster
- Cigarette lighter and ashtray
- Closed storage space
- Cloth hook
- Displays for engine operating condition
- Dome light
- Door with sliding window
- Emergency exit through rear window
- Inside rear mirror
- Load bearing sectional profile structure, covered with deep-drawn panels
- Mechanical hour meters, readable from outside the cab
- MP3 radio with USB and SD-Card support
- Rain hood over front window opening
- Removable floor mat
- Right window made of one piece (without post)
- Roof window, right window and windshield armored
- Seat and consoles independently adjustable (4-way adjustable seat)
- Seat belt
- Storage tray
- Sun roller blind
- Wiper/washer

## Attachment

- 20 t lifting hook on bucket
- Additional bottom protection for stick
- Cylinders with shock absorbers
- Easy accessible centralized lubrication points for boom and stick
- Pipe fracture safety valves for hoist cylinders
- ReGeneration plus
- SAE split flanges on all high pressure lines
- Sealed pivots/O-ring sealant between bucket and stick
- Work light on boom

# Individual Options

## Undercarriage

- 5-piece track guide at each track frame
- Reinforced cover plate and reinforced base plate for center section
- Track pads D 7 G 500 mm double grouser
- Track pads D 7 G 600 mm double grouser
- Track pads D 7 G 500 mm triple grouser
- Travel drive protection

## Uppercarriage

- Arctic kit*
- Rear mirror on counterweight and right side
- Rear view monitoring system with camera
- Tank re-fueling pump
- Uppercarriage protection (down and side)
- Winter kit*

## Hydraulics

- Additional high pressure hydraulic circuits for hammer and/or shear
- Return filter for hammer
- Tool Control

## Engine

- Air pre-filter
- External engine cold starting aid
- Fuel pre-heating system

## Operator's Cab

- 2 additional halogen flood lights (front)
- 2 additional halogen flood lights (rear)
- Acoustic travel alarm
- Air suspension operator seat with heating and head-rest
- Extinguisher
- FGPS Protection
- FOPS Protection
- GPS system
- Warning beacon

## Attachment

- Additional bottom protection for boom
- Additional work light on boom
- Fully-automatic central lubrication system (except link and tilt geometry)
- Hydraulic lines for additional tools
- Liebherr line of buckets
- Mechanical quick coupler
- Overload warning device
- Piston rod protection for bucket cylinder
- Protection for hoist cylinders ReGeneration plus

* = for more details please contact your local dealer

**Options and/or special attachments, 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

### Wide Product Range

The Liebherr Group is one of the largest construction equipment manufacturers in the world. Liebherr's high-value products and services enjoy a high reputation in many other fields. The wide range includes domestic appliances, aerospace and trans - portation 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 application.

### 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 that time, the enterprise has steadily grown to a group of more than 130 companies with over 41,000 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

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