

LiSIM® - Liebherr Simulations

# Solutions for Construction Machines

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# LIEBHERR

# Liebherr Simulations LiSIM® Solutions



## Comprehensive Training Solutions for your Operators

Simulators are globally recognized as a highly effective training method offering numerous advantages. The development of this sophisticated training tool was prompted by Liebherr's extensive experience in crane operator training. Based on the original Litronic® crane control system, LiSIM® is the only realistic virtual solution available on the market for learning the precise and innovative control of Liebherr construction machines.

# Your Advantages at a Glance

## Safety

- Lower risk of accident through training
- No danger for persons or machinery
- Training of appropriate action in case of an emergency
- Training of extreme situations without any actual danger

## Productivity and Efficiency

- Comprehensive training programme
- Training ranges from learning the basics up to increasing productivity
- Training of processes and communication on the jobsite
- Time and cost savings

## Economic Benefits

- No wear and tear on the machine
- The real machine remains productive during training
- Less downtime
- Reduced repair costs
- Long-term benefit through optimally trained operators

### Classroom Solution



### Cabin Solution



### Container Solution



	Weight	Length	Height	Width	Motion System	Display System
<b>Classroom Solution</b>	1.0 t	2.0 m	2.4 m	2.3 m	3-DOF	5 × 55"
<b>Container Solution*</b>	10.0 t	12.2 m	2.6 m	2.4 m	3-DOF	5 × 55"
<b>Cabin Solution</b>	1.7 t	2.4 m	3.3 m	2.3 m	6-DOF	3 × 70" 1 × 55" 1 × 40"

\* Classroom solution housed in a 40' standard container

DOF = Degrees of Freedom

# Components

## LiSIM® - Liebherr Simulations



### Simulating all Aspects of your Job

Wide-ranging functionality is essential for the simulation of daily routines and extraordinary situations that machine operators face in the real world of construction machinery.

Due to the flexibility of the virtual environment, users can run through any load handling situation and simulate harsh environmental conditions when required.

# Each simulation solution is equipped with high standard components.

## **Screens**

The high definition display system is optimized to provide the field view necessary for machine operation. It is mounted either on a steady frame for the classroom/container solutions or directly in the original crane cabin. The number of screens used depends on specific customer requirements.

## **Motion Base (3-DOF or 6-DOF)**

The motion base simulates a realistic feedback according to current machine movements and is equipped with either three or six degrees of freedom. In terms of a mechanical body, the number of degrees of freedom is the possible number of independent movements.

## **Sound**

Surround speakers reproduce the original machine sounds as well as those of a typical construction site environment to provide a fully immersive training experience.

## **Original Liebherr Controls**

The simulation is based on Liebherr's unique control system (Litronic®) with communications protocol. Liebherr supplies the entire set-up of the operator's seat including control levers and control panels, as well as keyboard and touchscreen to control the simulation.

- Control panel with PLC ("Master")
- Control levers
- Foot pedals
- Monitor (touchscreen)

## **Instructor Station**

An instructor station is included as a standard for simulator start-up and the loading of scenarios. It comprises the computer in the rack with two 24" displays, keyboard, mouse and gamepad.

Using the instructor station the trainer can load different scenarios, modify simulation parameters or insert errors and monitor the operator's actions. The instructor can also "fly through" the entire simulation environment to view the operation from any position.

# LiSIM<sup>®</sup> Classroom Solution Characteristics

Designed for easy integration into existing training centres, the seat and controls are mounted on a base and the monitors on a sturdy display frame.

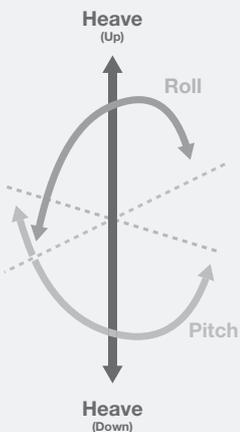
- Easy integration into existing classrooms
- Spacious
- High-standard

## Original Liebherr Equipment

The simulator is equipped with Liebherr's original components and control systems.

## Motion Base

The 3 Degrees of Freedom (DOF) motion base provides a convincingly true to life operating experience.





#### **Simulation Software**

A real-time physics engine realistically simulates the machine, material and surroundings to a very high standard.

#### **High-Resolution Screens**

High-resolution screens allow a wide view of the 3D environment for the crane operator.

#### **Operator Analysis**

In order to ensure an objective assessment of all trainees LiSIM® offers a specially designed analysis tool.

# LiSIM<sup>®</sup> Container Solution Characteristics

The 40 ft. container offers three compartments: the utility room, the simulator area and a briefing room. This compact and fully insulated solution includes a heating and air-conditioning unit as well as appropriate lighting.

- Compact
- Mobile
- Fully equipped



## Customized Training Content

Customized training content is applicable for Liebherr's portfolio of construction machinery, for example crawler cranes, deep foundation machines or duty cycle crawler cranes.

**Worldwide Shipping**

Flexible and easy transport due to CSC (Container Safe Convention) certification

**Worldwide Operation**

High quality heating and air-conditioning systems for use around the world



**Compact and Flexible Training Facility**

Instructor station for the trainer and optional high resolution touchscreen for theoretical training

**Fully Equipped Training Unit**

Completely independent training unit with an enclosed LiSIM® classroom simulator

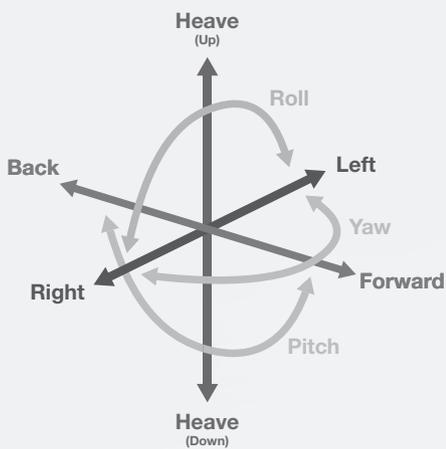
# LiSIM® Cabin Solution Characteristics

Installed in an original Liebherr crane cabin, this impressive solution ensures that the operator becomes familiar with controlling the machine in a real-life environment.

- Authentic
- Multifunctional
- Highly immersive

## Most Realistic Motion Feedback

The 6-DOF (Degrees of Freedom) motion base allows training as in a real-life environment and provides 100% realistic feedback.





**Panoramic View**

The display system covering all cabin windows with high-definition screens allows a wide view, which is extremely important for machine operation.

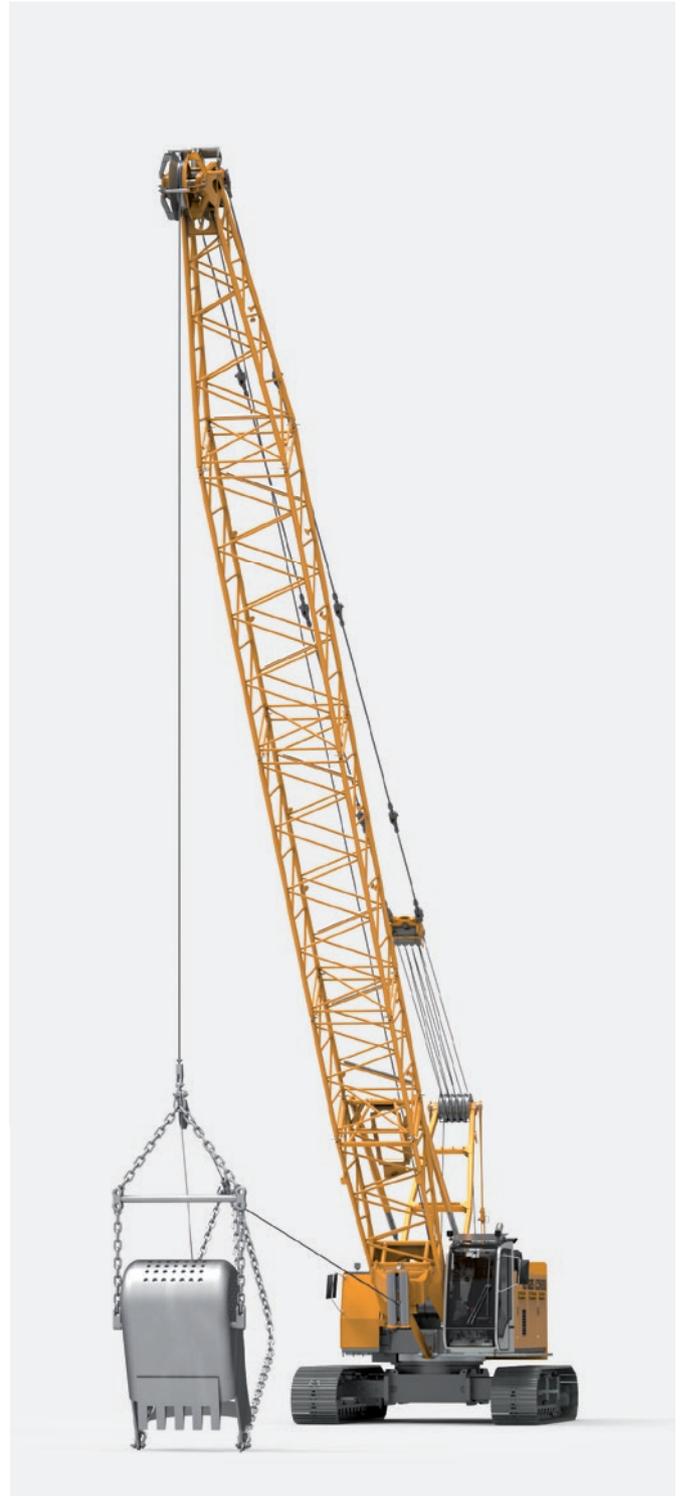
**Authentic Solution**

Original OEM components from Liebherr provide training under realistic conditions.

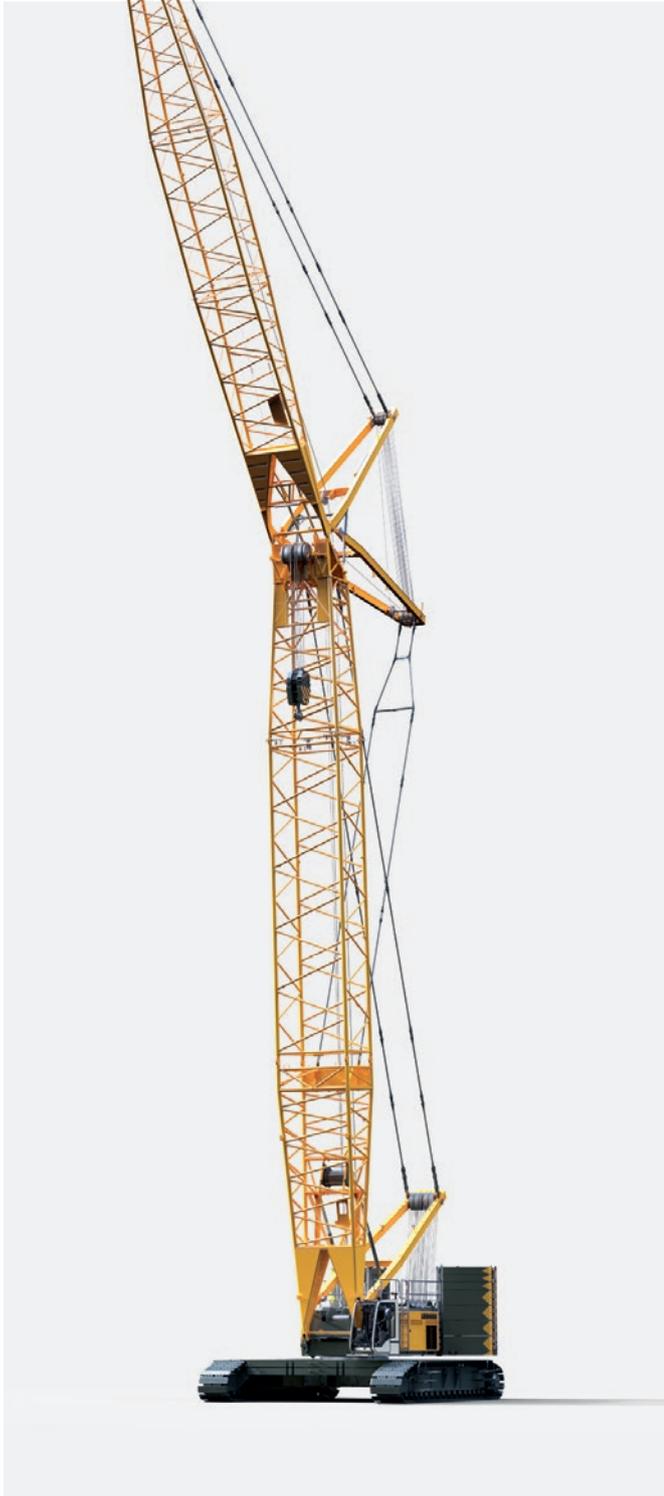
# LiSIM<sup>®</sup> Software Solutions for Construction Machines



Deep foundation work



Material handling



Lifting operations

High quality simulators offered by Liebherr cover all areas of the construction portfolio.

#### **Deep Foundation Work**

The LiSIM® solution is available for the LB 28 in different deep foundation applications including Kelly drilling.

Realistic jobsite conditions offer an excellent way to prepare people for their everyday job. The LB 28 simulator offers a wide range of scenarios starting with basic training up to challenges requiring more experience.

#### **Material Handling**

The Liebherr simulators for material handling include the machine type HS 825 HD in dragline application. Scenarios range from basic challenges such as travelling the machine and loading/unloading a truck, up to dragline applications with varying jobsites, material and difficulties.

#### **Lifting Operations**

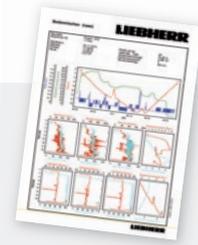
LiSIM® - Liebherr simulators for crawler cranes offer comprehensive scenarios for lifting applications. Different configurations of the LR 1300 are available for a wide range of training. Various virtual jobsites involving different loads and tasks offer a challenging environment to train your personnel on individual levels.

# IT Solutions



**Crane Planner 2.0**  
Import of 3D data + jobsite planning

Optimization



**PDR2**  
Analysis & optimization

Work plan

- Machines & configurations
- Tools & equipment
- Work plan
- Surroundings & digital drilling plan

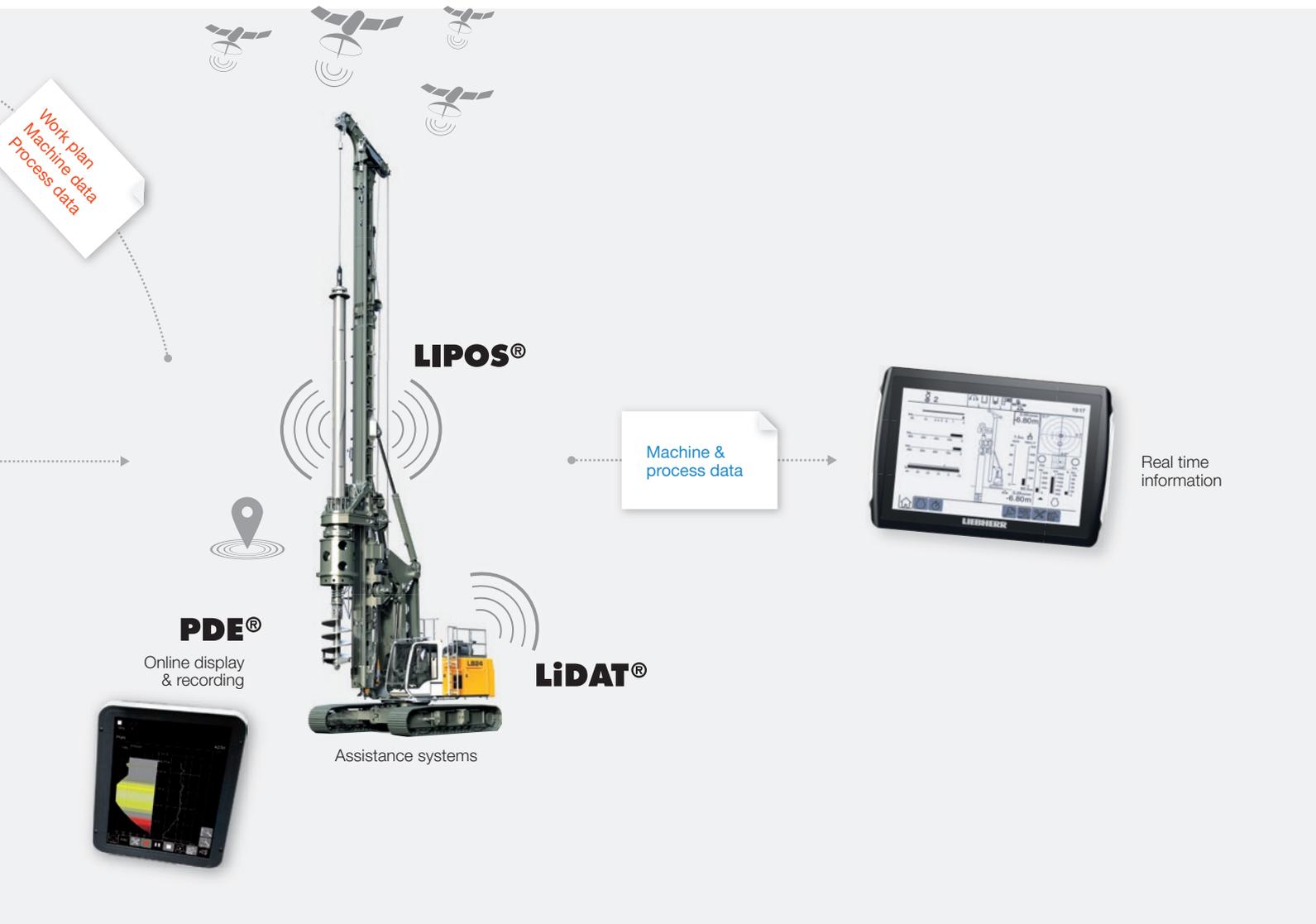
Work plan



**LiSIM®**  
Real time simulation

## Digitization on the Construction Site of Tomorrow

Liebherr has set itself the goal of optimizing the processes carried out on the job-site through networking. In the progression from an experienced machine manufacturer to a full-service provider Liebherr already has a number of IT solutions, which provide substantial support for all those involved in the construction site.



### Crane Planner 2.0

The Crane Planner uses actual data in order to determine the ideal crane for the respective lifting job.

### PDE®/PDR2

Process data recorded with PDE® are imported and summarized in a report by the Process Data Report software PDR2.

### LIPOS®

Machines and working tools can be precisely and efficiently positioned on the jobsite using this positioning system.

### LiDAT®

The data transmission system supplies information about the location and operation of the machine and so makes it possible to efficiently manage and optimally plan operation remotely.

# 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 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 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](http://www.liebherr.com)

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