

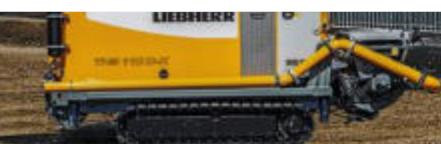
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# Economic and sustainable concrete production

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The Liebherr Solution

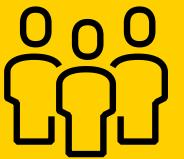
# LIEBHERR



# Agenda

## 01

**Liebherr – a family-run business**



- Structure of the Liebherr group
- Concrete Technology Division

## 02

**How does Liebherr face the challenge for economic and sustainable concrete production?**



- Which challenges are there?
- Liebherr as a full-service provider and companion through the PLC

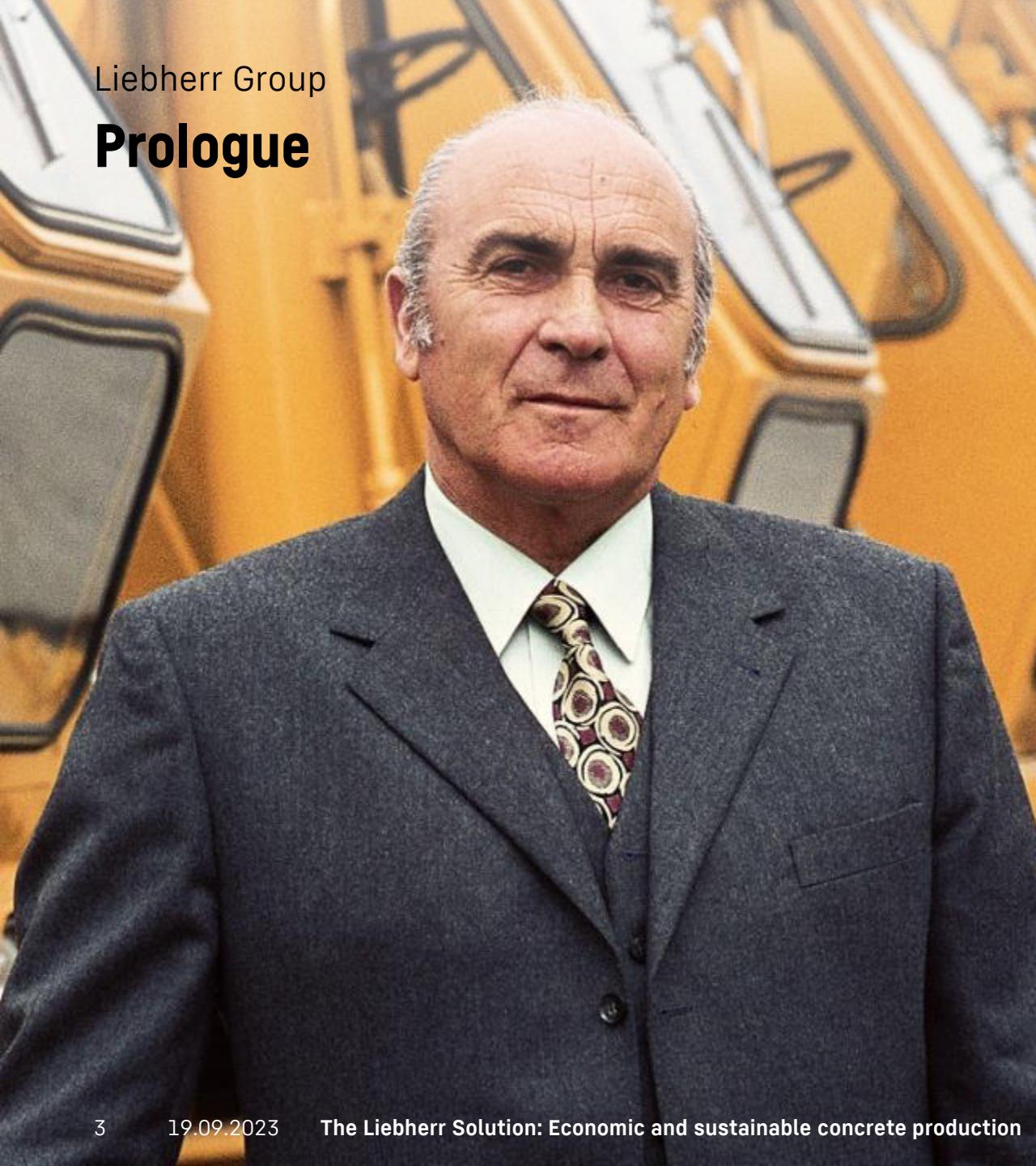
## 03

**What is already done & developed**



- ETM
- New generation of mixing plants
- The construction site of the future – Liebherr digital solutions

## Prologue



***“My life has made me realise that if you are determined to do a good job and fulfil different customer requirements to the best of your abilities, you can also achieve goals that at first seemed almost unimaginable.”***

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**Dr.-Ing. h. c. Hans Liebherr**  
Founder of the Liebherr Group

# Factsheet: Group overview (2022)



# 1949

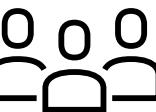
Founded by Hans Liebherr  
in Kirchdorf an der Iller,  
Germany

**13** Product segments



Parent company  
**Liebherr-International AG**  
based in Bulle, Switzerland

**Liebherr is a  
family-run  
technology  
company**



# 51,321

Employees



# 12,589

Turnover in € mio

# 40

Production sites

# >140

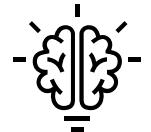
Companies

# A 100% independent family business



From left to right: Jan Liebherr, Stéfanie Wohlfarth, Sophie Albrecht, Philipp Liebherr, Patricia Rüf, Johanna Platt, Isolde Liebherr and Willi Liebherr

# A future-facing company



Pioneering



Leader in R&D



Trend-setting



Average annual **investment of**  
**> € 700 million**



# Responsible leadership

Long-term success

Sustainable development

Stability

Reliability



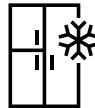
# Strong diversification and decentralised structures



Earthmoving



Concrete technology



Refrigerators and  
freezers



Mining



Maritime cranes



Components



Mobile and  
crawler cranes



Deep foundation  
machines



Hotels



Tower cranes



Aerospace and  
transportation systems



Material handling  
technology



Gear technology and  
automation systems

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- In organisational terms, Liebherr is a **technology company** that is divided into independently operating divisions.
- Each of the 13 product segments is divided into manufacturing, sales and service companies, which are managed and operated by their divisional parent companies.

# Concrete technology division

Liebherr is a full-service provider of concrete technology, with a global presence.

We provide the right solution for any challenge, ensuring that our customers can efficiently produce and transport high-quality concrete.

**2022:**

Turnover of € 253 million  
1,833 employees  
€ 11 million in investment

i



# Production facilities worldwide





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## 02 How does Liebherr face the challenge for economic and sustainable quality concrete production?

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**The Liebherr Solution**

**LIEBHERR**

**Concrete Technology**

## Which challenges are there?

**01**

### Climate neutrality in the EU till 2050

→ Cement production & combustion engines cause lots of CO<sub>2</sub>

**03**

### Rising energy costs

→ It gets more and more expensive to produce concrete

**02**

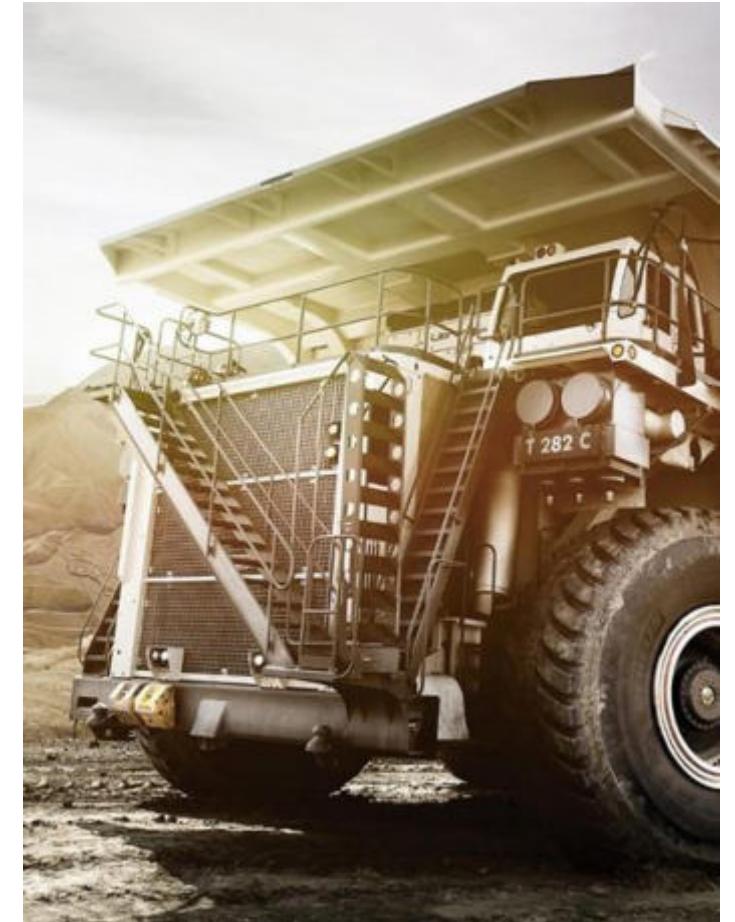
### Finite availability of source materials

→ Mainly aggregates are finite

**04**

### Concrete recipes get more complex

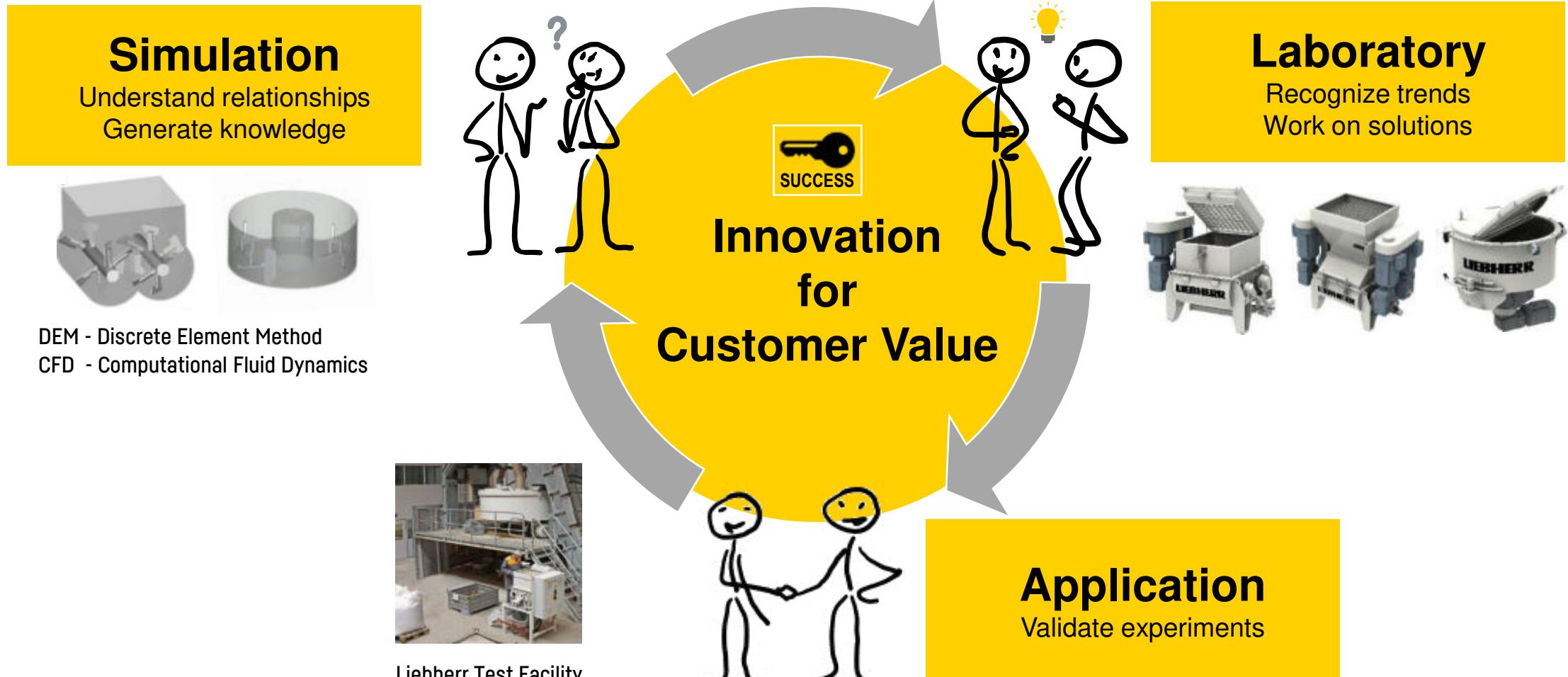
→ Challenging production of concrete and concrete placement



02 How does Liebherr face the challenge for economic and sustainable quality concrete production?

## Liebherr as a full-service provider and companion through the PLC

We help our customers to find the right beton recipe. Therefore we use our three step process:



## The right products for the right recipe: Aggregate storage



### Different types of storage, for different challenges

Up to 16 different aggregates (e.g. recycled aggregates) with a volume up to over 1000 m<sup>3</sup> can be stored



## The right products for the right recipe

### Cement storage

- Liebherr provides storage and feeding solutions for all needed kinds of:
  - Cement
  - Microsilica
  - Fly ash
  - Steel- & polypropylen-fibres
  - Additives (liquid & powder)

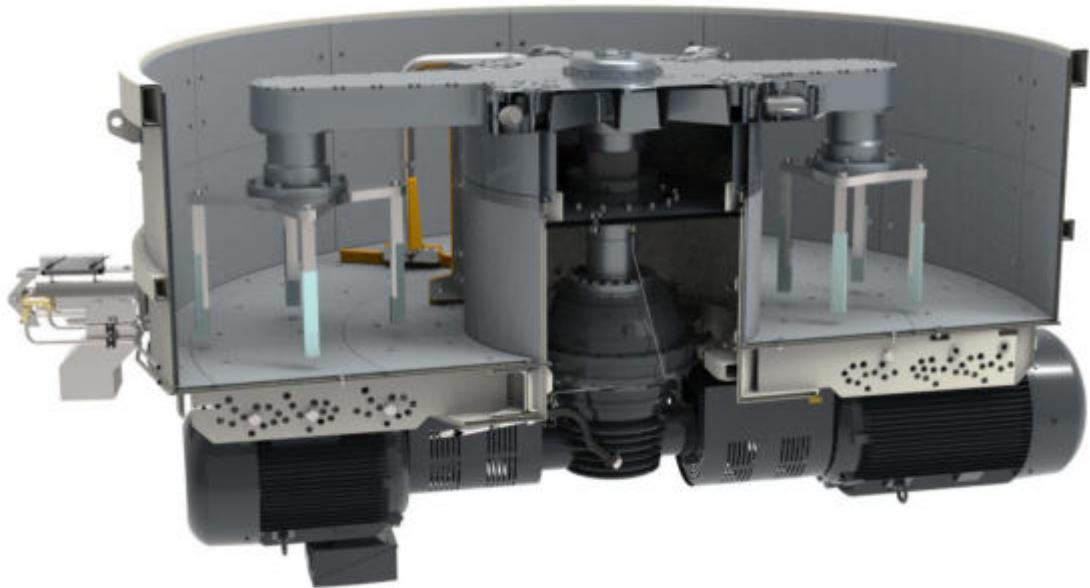
### Only the latest environment-protection technology is used:

- Extremely efficient dust filters
- Leckage protections
- Noise reduced motors
- Noise reduced gearboxes
- Use of frequency converters for less energy consumption



02 How does Liebherr face the challenge for economic and sustainable quality concrete production?

## **The right products for the right recipe: “Heart” and “Brain”**



## The right products for the right recipe: “Heart” → Ring-pan mixer RIV

- 01 Two powerful electric motors and the frequency converters ensure variable speeds for highest flexibility and efficiency
- 02 Patented agitator configuration **NEW** for the best homogenization results in shortest time  
→ Perfect penetration of the mixing material
- 03 Proven ring-channel:  
→ The material cannot flow away
- 04 Best accessibility of the mixer thanks to the well-thought arrangement of the powertrain underneath the mixer  
→ No drives on the top side and therefore optimum accessibility
- 05 Controlled discharge flow thanks to the variable adjustable opening angle (max. 91°) of the closure  
→ Cylinder with an intelligent measuring system
- 06 Up to 3 discharge gates ensure shortest discharge time





Generous mixer gates and testing discharge gate

## Discharge gates of the mixing trough

### Highlights:

- Short discharge times/ short mixing times also among special concretes
- Up to 3 discharge gates for the maximum of flexibility
- Loading of several delivery points is possible, e. g. truck mixer, bucket transport system, cleaning/recycling operations
- discharge gates can be opened in multi-stage → Optimum discharge to the different transportation systems

### Discharge gate for concrete testing (samples)

- Simple concrete testing discharge for the running production control
- Up to 3 discharge gates

# The right products for the right recipe: “Brain” → Litronic MPS III

## – Convenient operation

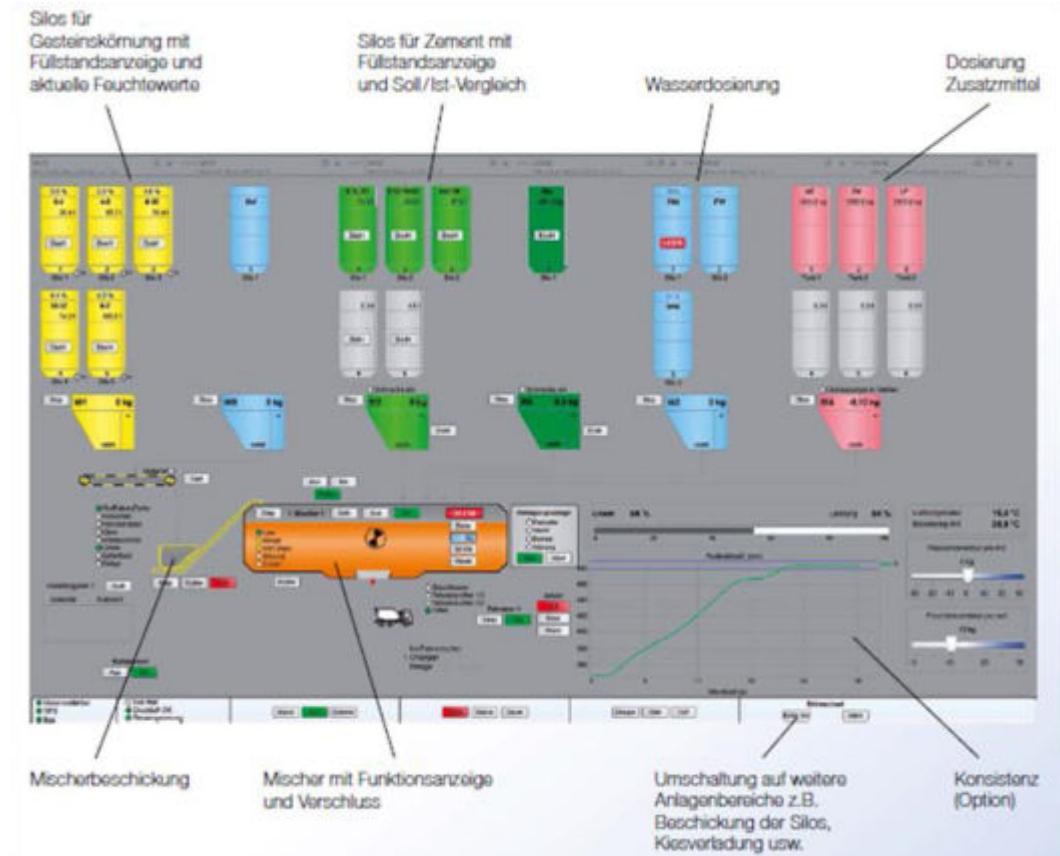
- Operation of the control system via minimum 2 monitors possible
  - Monitor 1: Master data management (material data, screening line, articles, recipes, customers, vehicles, etc.)
  - Monitor 2: Visualization of the process flow (fill levels of the silos, progress of the dosage, progress of the mixing procedure, display of the consistency, manual operation, etc.)

## – Extensive functionalities enable the efficient operation

- Extensive statistical tools for the commercial planning
  - Construction phase statistics, consumption per type of material, production per customer/ site/ type of concrete etc.
  - Analysis tool for monitoring and setting of the dosing accuracy
  - **On the safe side with maximum material saving (set dosing accuracy to 1%, enter threshold per recipe → compliance of the standard)**

## – Individual configuration

- Adjustments for the most different applications → e.g., ready-mixed concrete facilities, prefabricated facilities, dam projects, exceptional mixing plants



02 How does Liebherr face the challenge for economic and sustainable quality concrete production?

## The right products for the right recipe: Liebherr recycling systems





## **03 What is already done & developed**

**The Liebherr Solution**

**LIEBHERR**

**Concrete Technology**

## Hybrid truck mixer - ETM



- Operation of the mixing drum with an electric motor
- Automatic charging of the battery while driving via the diesel engine
- Massive emission reduction on the construction site

## New generation of mixing plants

**A wide range of innovative drive enables the ideal solution for the CO<sub>2</sub>-optimized construction site, depending on the required application**



**01**

### Faster assembly<sup>NEW</sup>

Concrete production  
after shorter time

**02**

### Easy Transport<sup>NEW</sup>

Transport by low-loader  
(max. 3 m width)

**03**

### High output<sup>NEW</sup>

With Liebherr ring-pan  
& twinshaft mixers

**04**

### Intelligent mixing process<sup>NEW</sup>

FC control for process  
optimisation

**05**

### High dosing accuracy

under  $\pm 0.5\%$ <sup>NEW</sup>

Savings up to 7.5 kg  
cement per 1 m<sup>3</sup>

**06**

### Energy efficiency<sup>NEW</sup>

No high power peaks &  
30 % energy saving  
possible

**07**

### Best cleanliness<sup>NEW</sup>

Optimum cleaning with  
LiClean cleaning  
solutions

**08**

### Litronic MPS III Control

Easy concrete production  
with modern tools for  
analysis and networking

## The construction site of the future



- New LICCON control system
- First hydrogen engine
- Emission-free crane operation
- Zero local emissions
- New control concept
- Quiet and low in emissions
- Three low-emission alternative drives
- All-round talent
- Reducing CO2 emissions
- Powerful and silent
- Long-standing experience
- Zero local emissions and significant noise reduction

With our products, technologies and digital solutions, we are already shaping the construction sites and mines of tomorrow. In our construction site of the future, machines work with pioneering drives, low noise and emissions, as well as digitally connected and always close to the needs of our customers.

# Contact Data

**Visit us at booth 63 – Liebherr-Mischtechnik GmbH**

**Rüdiger Dalhoff**

Head of product sales & management plants

[ruediger.dalhoff@liebherr.com](mailto:ruediger.dalhoff@liebherr.com)

+49 7583 949 789

+49 151 18665554

**Oliver Ascherl**

Product manager plants

[oliver.ascherl@liebherr.com](mailto:oliver.ascherl@liebherr.com)

+49 7583 949 498

+49 160 90190560



Thank you.  
Questions?

LIEBHERR