
Economic and sustainable concrete production

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 quality concrete production?



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

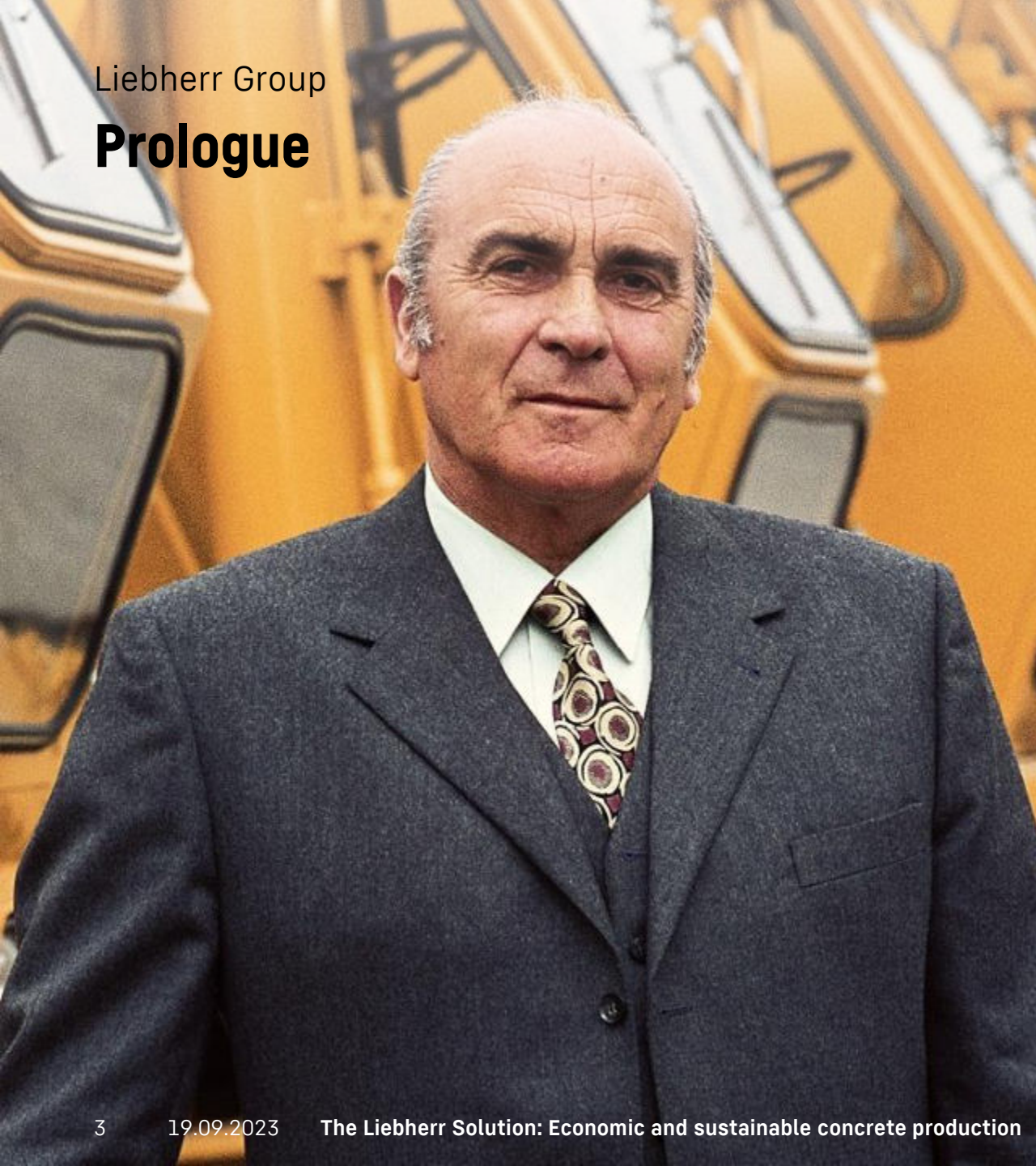
03

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.”

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

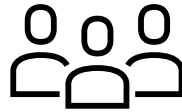


Parent company
Liebherr-International AG
based in Bulle, Switzerland

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

13

Product segments



51,321

Employees

40

Production sites



12,589

Turnover in € mio

>140

Companies

Liebherr Group

A 100% independent family business



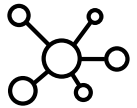
From left to right: Jan Liebherr, Stéfanie Wohlfarth, Sophie Albrecht, Philipp Liebherr, Patricia RUF, Johanna Platt, Isolde Liebherr and Willi Liebherr

Liebherr Group

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



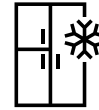
Strong diversification and decentralised structures



Earthmoving



Concrete technology



Refrigerators and freezers



Mining



Maritime cranes



Components



Mobile and crawler cranes



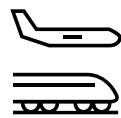
Deep foundation machines



Hotels



Tower cranes



Aerospace and transportation systems



Material handling technology



Gear technology and automation systems

- 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





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

The Liebherr Solution

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Concrete Technology

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

Which challenges are there?

01

Climate neutrality in the EU till 2050

→ Cement production & combustion engines cause lots of CO₂

03

Rising energy costs

→ It gets more and more expensive to produce concrete

02

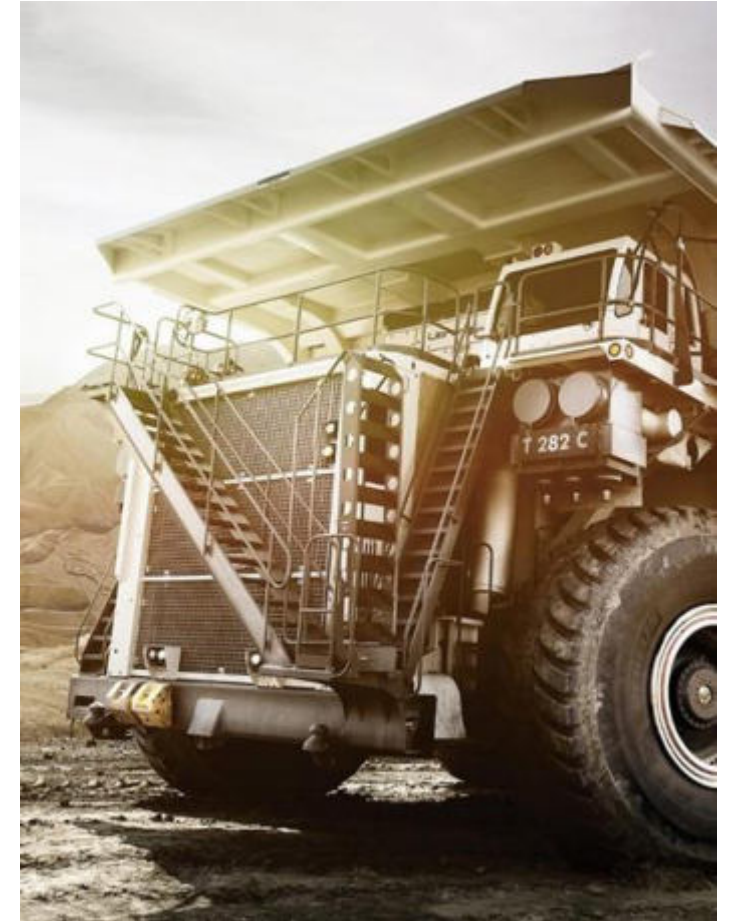
Finite availability of source materials

→ Mainly aggregates are finite

04

Concrete recipes get more complex

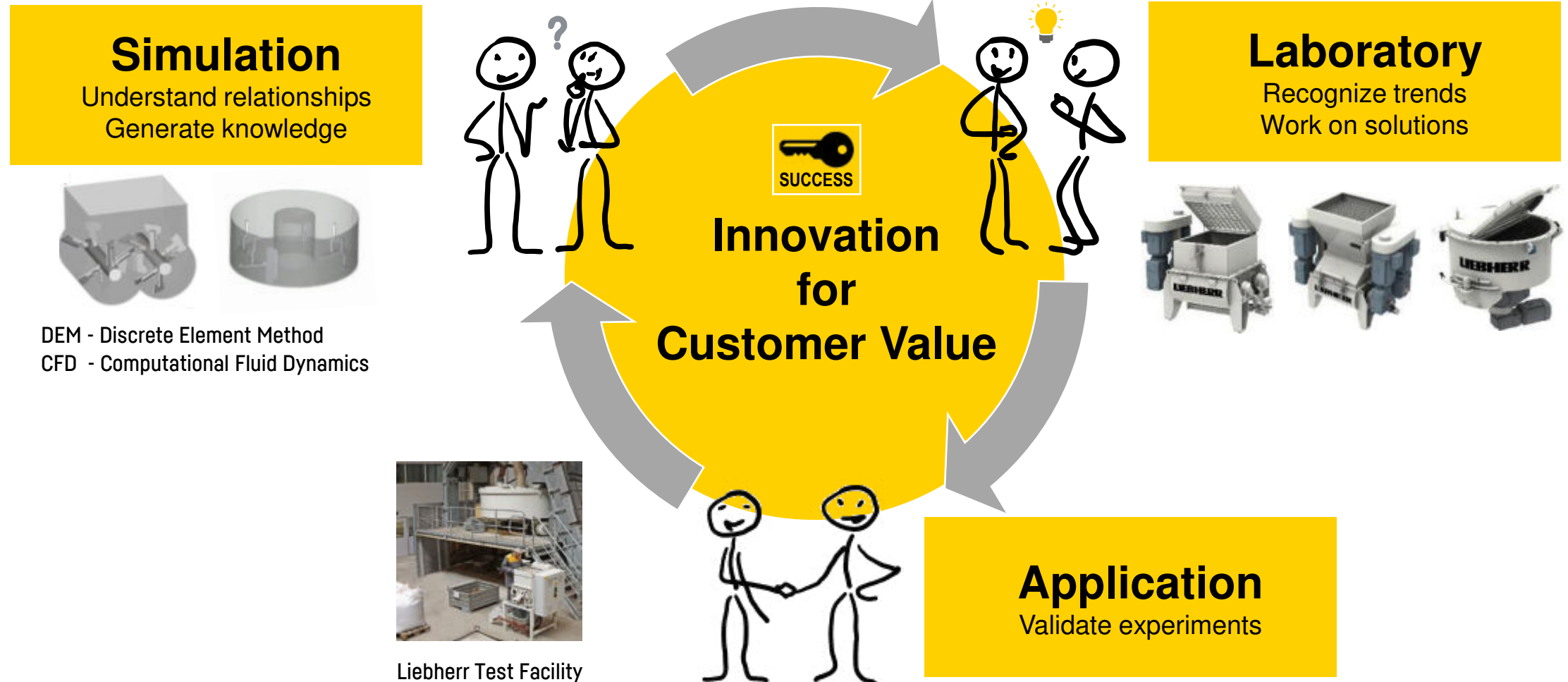
→ Challenging production of concrete and concrete placement



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:



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

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 m³ can be stored



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

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)

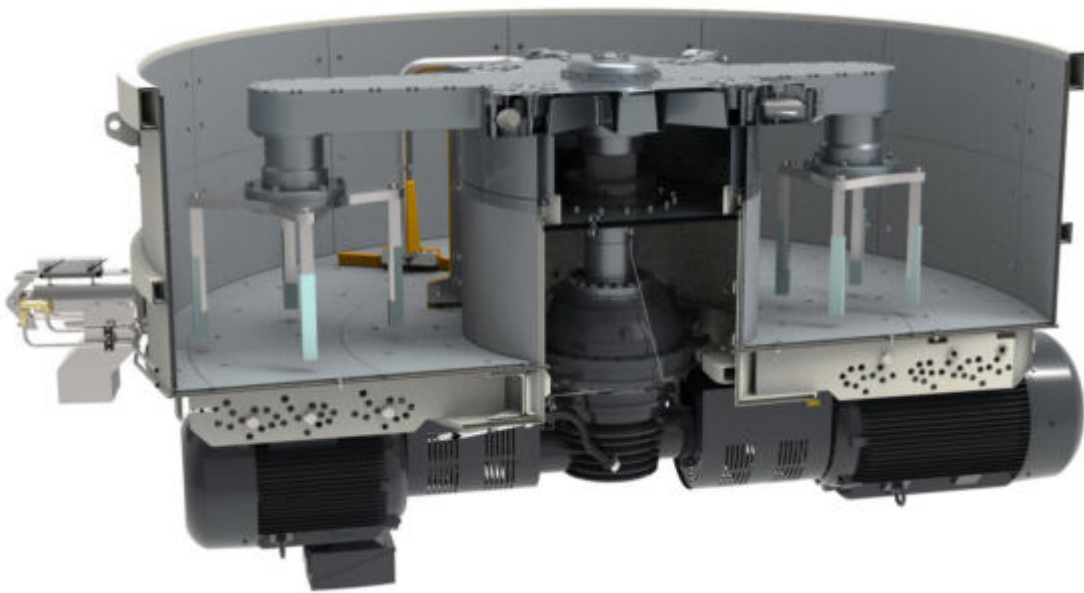
Only the latest environment-protection technology is used:

- Extremely efficient dust filters
- Leakage 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”



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

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 therefor optimum accessibility |
| 05 | Controlled discharge flow thanks to the variable adjustable opening angle (max. 91°) of the closure
→ Cylinder with a intelligent measuring system |
| 06 | Up to 3 discharge gates ensures shortest discharge time |



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

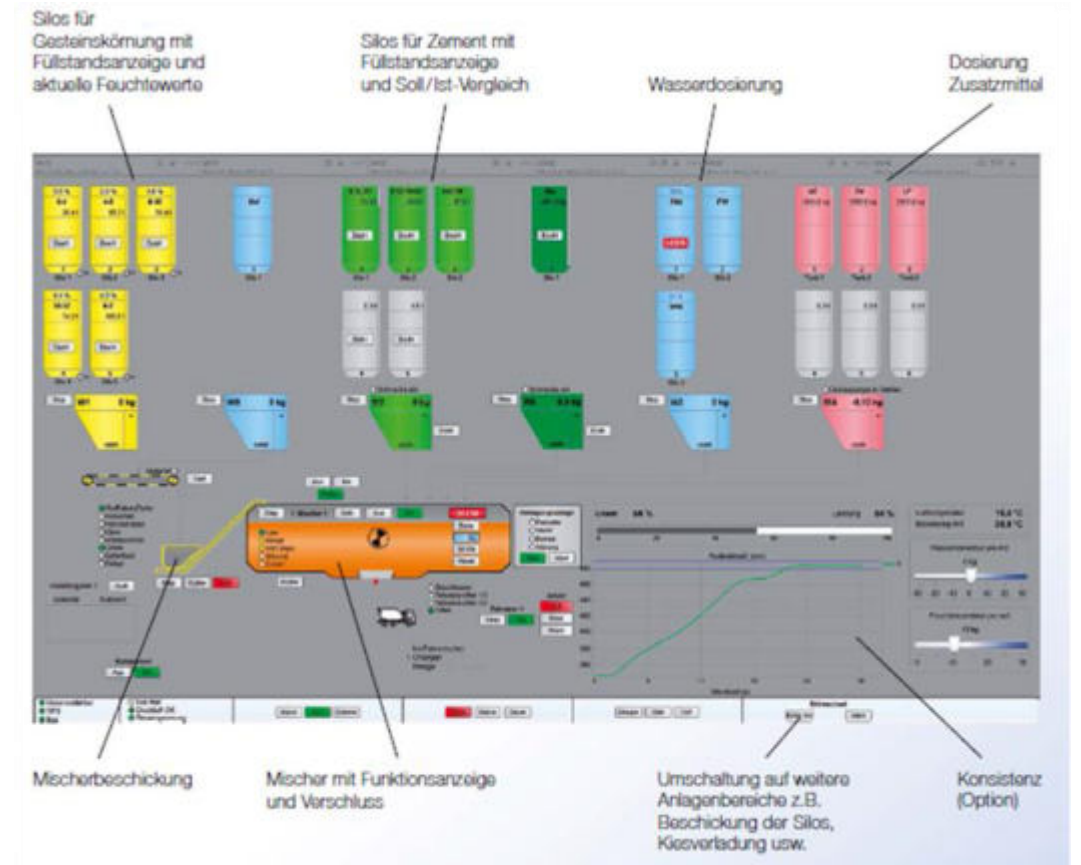


Generous mixer gates and testing discharge gate

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

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

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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 CO₂-optimized construction site, depending on the required application



01

Faster assembly^{NEW}

Concrete production
after shorter time

02

Easy Transport^{NEW}

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

03

High output^{NEW}

With Liebherr ring-pan
& twinshaft mixers

04

**Intelligent mixing
process^{NEW}**

FC control for process
optimisation

05

**High dosing accuracy
under $\pm 0.5\%$ ^{NEW}**

Savings up to 7.5 kg
cement per 1 m³

06

Energy efficiency^{NEW}

No high power peaks &
30 % energy saving
possible

07

Best cleanliness^{NEW}

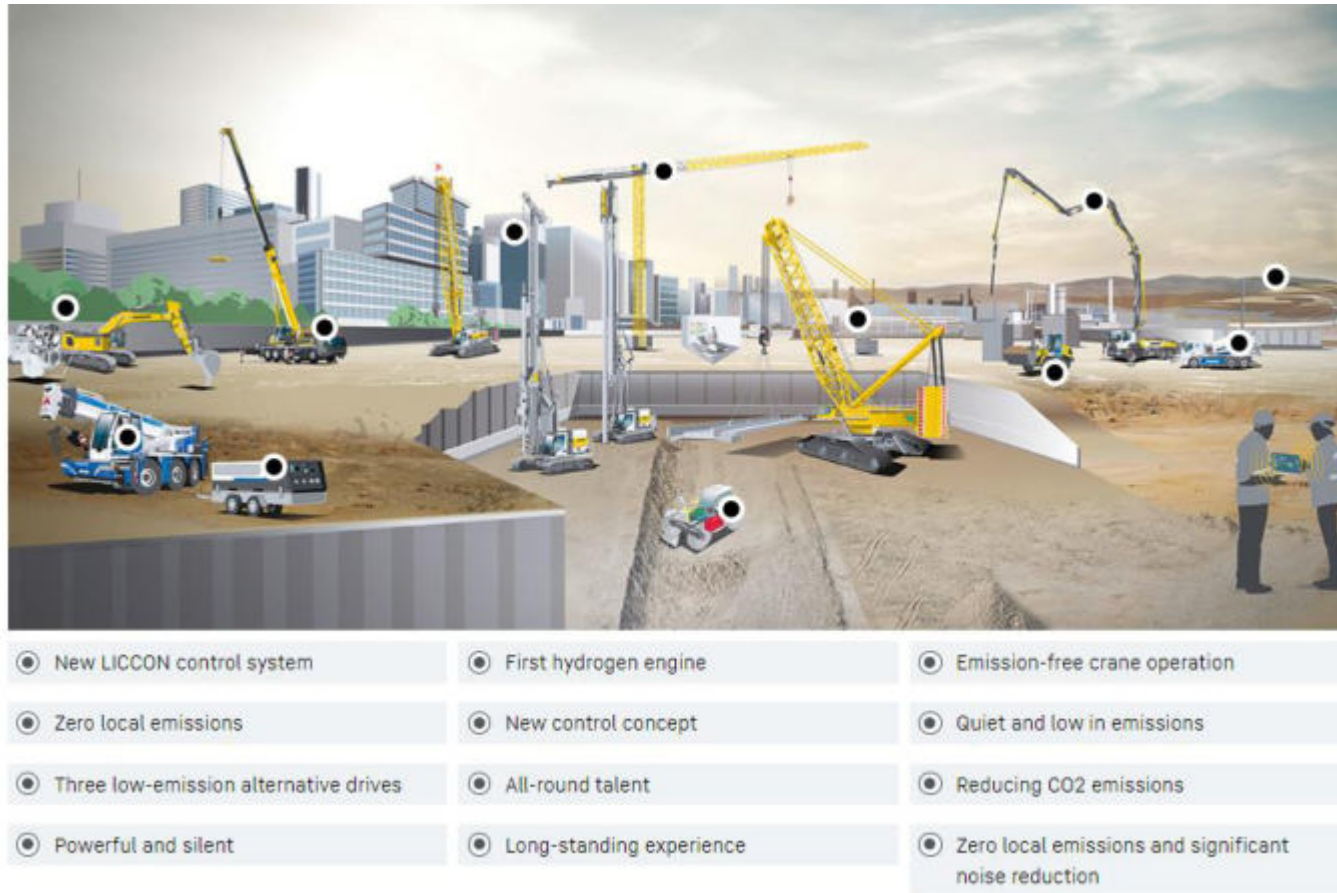
Optimum cleaning with
LiClean cleaning
solutions

08

Litronic MPS III Control

Easy concrete production
with modern tools for
analysis and networking

The construction site of the future



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

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Thank you.
Questions?



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