

LIEBHERR
maritime technologies
for advanced cargo handling

Batumi,
May 18th

Igor Nedelchenko

LIEBHERR

The Liebherr Group

A family business



- Company founded in 1949 by Dr.-Ing. E.h. Hans Liebherr
- The Liebherr Group today: over 130 companies worldwide, more than 41,000 employees and over € 9,2 billion turnover (2015)
- Decentralised structure with straightforward, autonomous corporate units – divisional structure
- Holding company: Liebherr-International AG, Bulle/Switzerland

The Liebherr Group

A family business



- Dr. h.c. Dipl.-Ing. (ETH) Willi Liebherr
President of the Administrative Board
- Dr. h.c. Dipl.-Kfm. Isolde Liebherr
Vice-President of the Administrative Board
- Sophie Albrecht
- Jan Liebherr
- Patricia Rüb
- Stéfanie Wohlfarth


The Liebherr Group

Multifaceted product range



Maritime Cranes

LIEBHERR



Maritime Cranes

Liebherr-MCCtec

For efficient material handling in the maritime sector, Liebherr manufactures a comprehensive array of innovative cranes.

Maritime production network

Facts & figures (2016)



1.4 Mrd. €
Turnover



5,022
Employees



2,441,886
Production hours

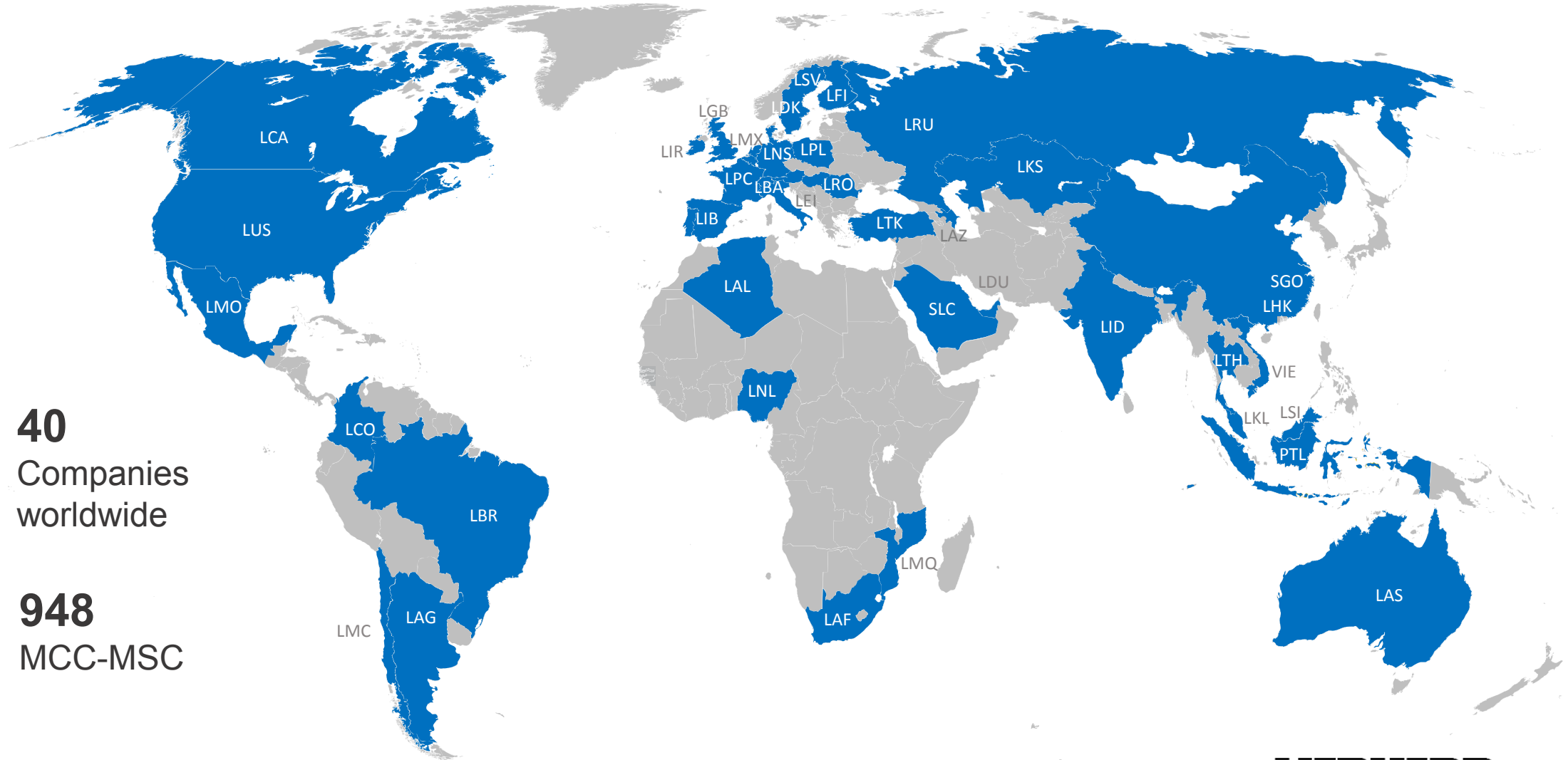


40
Companies worldwide



Liebherr-MCCtec

Subsidiaries (2016)



40
Companies
worldwide



948
MCC-MSK

Maritime Cranes

LIEBHERR

Maritime Cranes

Product range



Gantry cranes & straddle carriers



Stacking: Rubber tyre gantry cranes

- Hoisting height:
Up to 1-over-6 containers
- Gantry span: Up to 8 containers wide
plus truck lane



Stacking: Rail mounted gantry cranes

- Gantry span: 22-70 metres



Stacking: Straddle carriers

- 4 containers high (1-o-3) or 3 high (1-o-2)
- 40.6 tonnes SWL under single lift spreader
- 50 tonnes SWL under twin lift spreader

Mobile harbour cranes



Container handling

- Outreach: ≤ 64 metres (up to 22 container rows across)
- Turnover: ≤ 38 cycles per hour



Bulk handling

- Outreach: Up to Capesize vessels
- Turnover: ≤ 2300 tonnes per hr
- Also available on portals



Heavy lift & project cargo

- Lifting capacity: ≤ 308 tonnes

Port equipment

Fixed & travelling cargo cranes



Travelling cargo cranes

- Economic and space-saving solution for minor sea- and river ports
- Outreach: ≤ 37 metres
- Lifting capacity: ≤ 120 tonnes

Maritime Cranes



Fixed cargo cranes

- Economic and space-saving solution for minor sea- and river ports
- Outreach: ≤ 37 metres
- Lifting capacity: ≤ 200 tonnes

LIEBHERR

Port equipment

Reachstacker



Stacking: LRS 545

- Lifting capacity: 45 / 31 / 16 tonnes
- Stacking capacity: 5 / 5 / 4 containers high
- Power: 230 kW (Emission standard: Stage IV / Tier 4 final)

Port equipment

Container cranes



STS container cranes

- Container handling up to Megamax / Malacca Max vessels
- Outreach: From 8 up to 25 container rows across

Ship cranes

Heavy lift & container operations



CBB: Wire luffing ship cranes

- Outreach: ≤ 42 metres
- Lifting capacity: ≤ 1000 tonnes
- Application: Container handling & heavy lift



CBW: Cylinder luffing ship cranes

- Outreach: ≤ 43 metres
- Lifting capacity: ≤ 90 tonnes
- Application: Container handling & multipurpose



Special design ship cranes

- E.g. CCB
- Turnover: ≤ 50 containers per hour
- Application: Container handling

Bulk handling



CBG: Four-rope grab cranes

- Outreach: ≤ 32 metres (excenter platform: +10 m)
- Lifting capacity: ≤ 45 tonnes
- Turnover: ≤ 1200 tonnes per hr

Maritime Cranes



MPG: Double girder slewing cranes

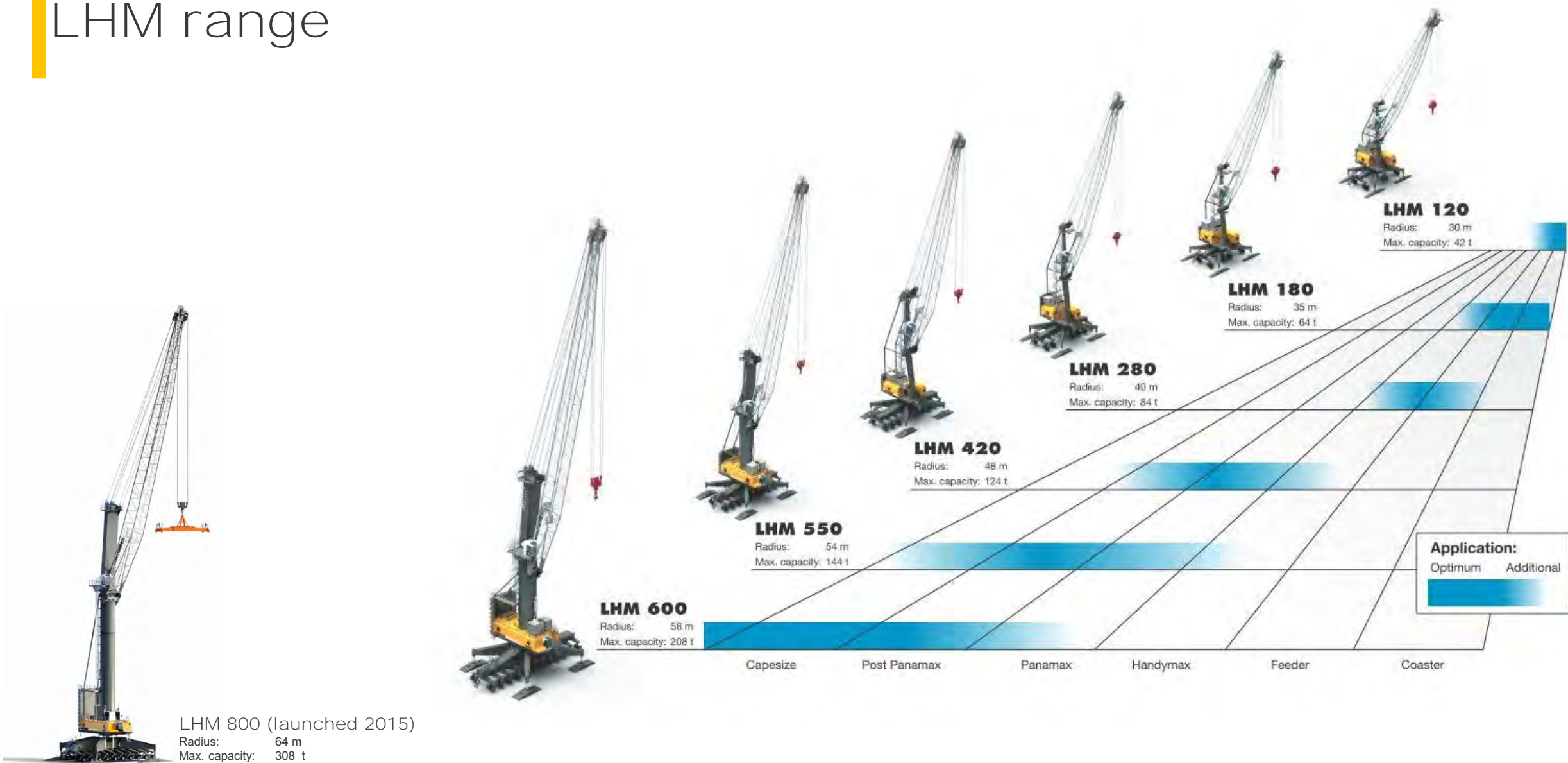
- Outreach: ≤ 38 metres
- Lifting capacity: ≤ 45 tonnes
- Turnover: ≤ 1400 tonnes per hr



LBS: Barge slewing cranes

- Outreach: ≤ 52 metres
- Lifting capacity: ≤ 144 tonnes
- Application: Container & bulk handling

LHM range



LHM lightweight series

LHM 120



- Max outreach: 30 m
- Max capacity: 42 t
- Power Pack: 390 kW

LHM 180



- Max outreach: 35 m
- Max capacity: 64 t
- Power Pack: 390 kW

LHM 280



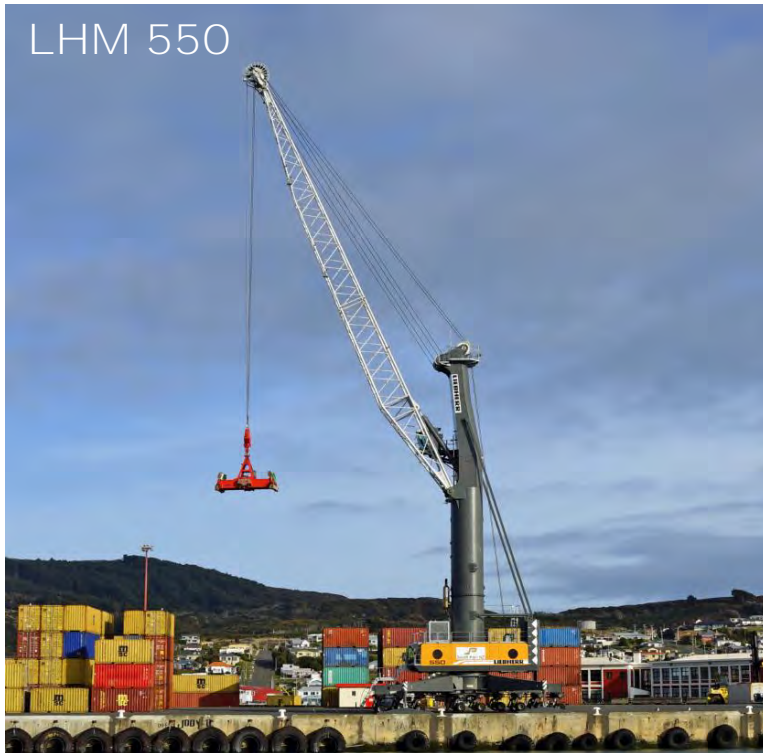
- Max outreach: 40 m
- Max capacity: 84 t
- Power Pack: 390 kW (+Pactronic®)

LHM 420

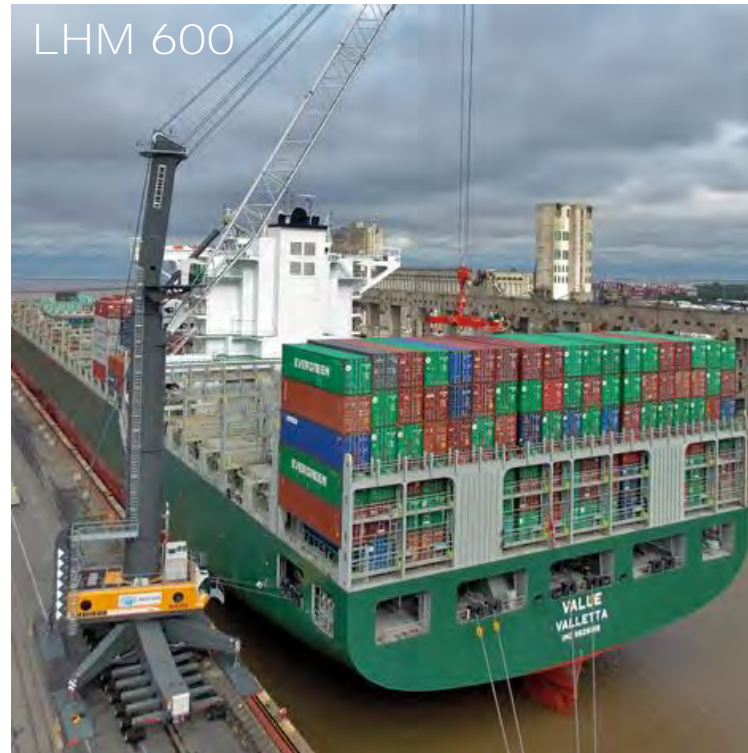


- Max outreach: 48 m
- Max capacity: 124 t
- Power Pack: 750 kW (+Pactronic®)

LHM heavyweight series



- Max outreach: 48 / 54 m
- Max capacity: 144 t
- Power Pack: 750 kW (+Pactronic®)



- Max outreach: 50 / 58 m
- Max capacity: 208 t
- Power Pack: 750 kW (+Pactronic®)
- Optional: High rise version



- Max outreach: 52 / 64 m
- Max capacity: 308 t
- Power Pack: 750 kW (+Pactronic®)
- Optional: High rise version

LHM configurations



- **LPS (Portal Slewing)**
- Space saving
- Rail mounted
- Customized portal



- **LFS (Fixed Slewing)**
- Fixed installation on quayside and jetties
- Space saving
- Economical solution



- **LBS (Barge Slewing)**
- Floating installation
- Transshipment & midstream operations
- Tailor made barges

LHM applications



- **Container handling**

- Outreach: 30 - 64 metres (up to 22 container rows across)
- Turnover: Up to 45 container per hour



- **Bulk handling**

- Bulk handling up to Capesize vessels
- Turnover: Up to 2300 tonnes per hour



- **Heavy lift & general cargo**

- Lifting capacity: Up to 308 tonnes
- Sycratronic®: Up to 616 tonnes



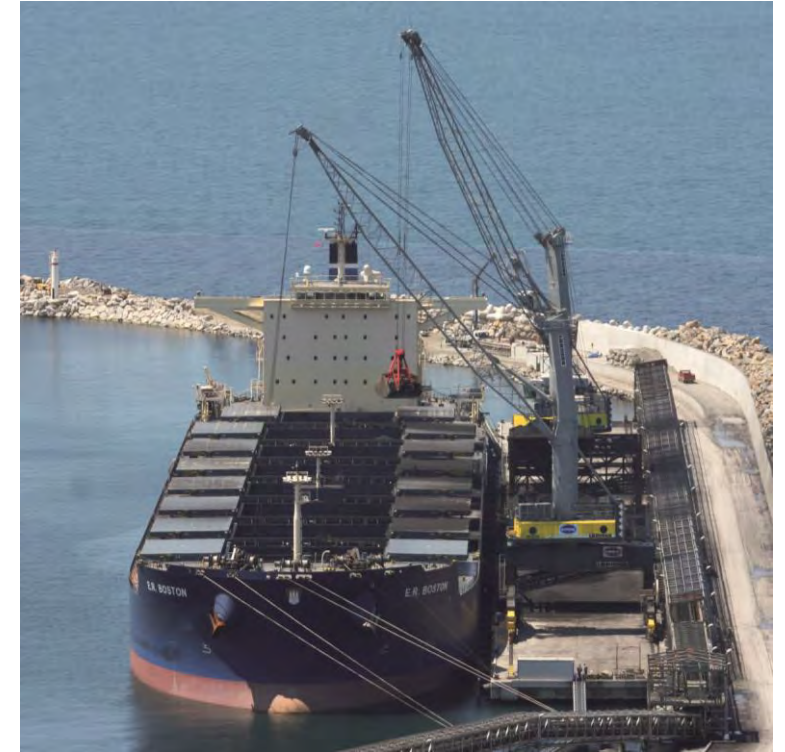
LPS light- & heavyweight series



- LPS cranes combine the fast handling advantages of the LHM crane with the possibility of having cargo access via rails
- Versatility in configuration (hook, spreader, rotator, motor or mechanical grab, etc.)



- For terminals with restricted ground pressures
- For quays where cargoes are delivered directly via railway wagons



- LPS cranes for terminals with limited space availability
- For bulk cargoes to be transported via conveyor systems

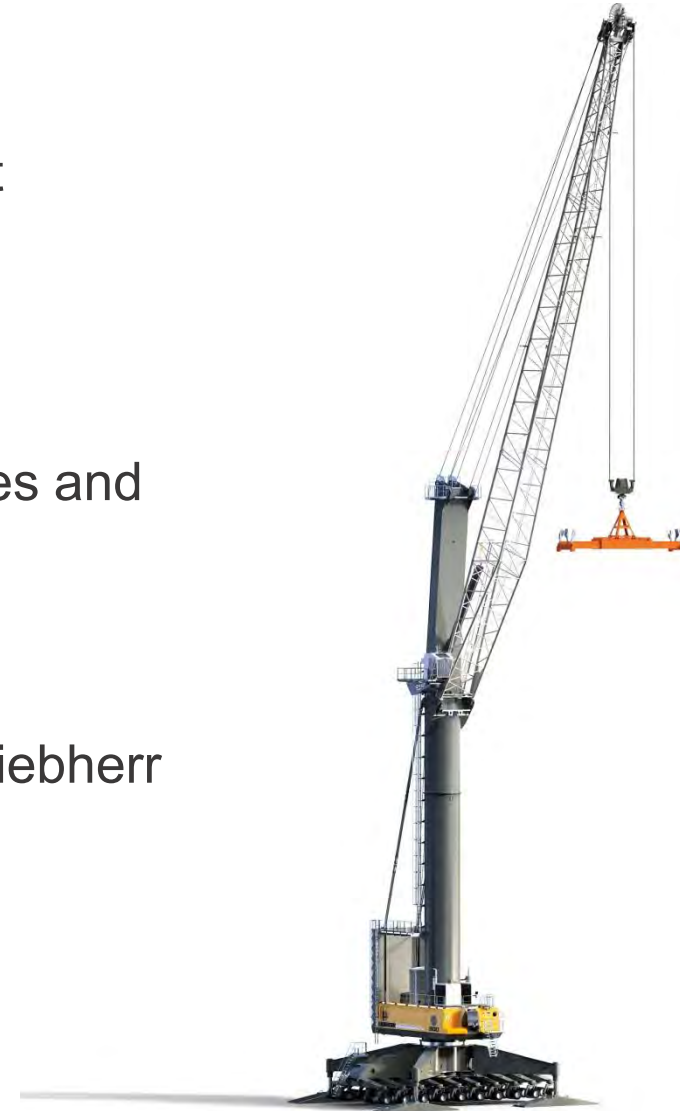


Size does matter.
LHM 800



LHM 800

- Largest mobile harbour crane in the market up to 308 tons capacity
- Mobile solution for ever growing vessel sizes and heavy industrial goods
- Underlines the market leading position of Liebherr Mobile Harbour Cranes



LHM 800

Hoisting height above quay: 52.5 m

Eye level: 40.2 m

Supporting base: 15 x 15 m

Capacity under spreader

Single lift: **41 t @ 64 m**

Twin lift: **50 t @ 58 m**

Max. load per tyre: 6 t

Container Handling

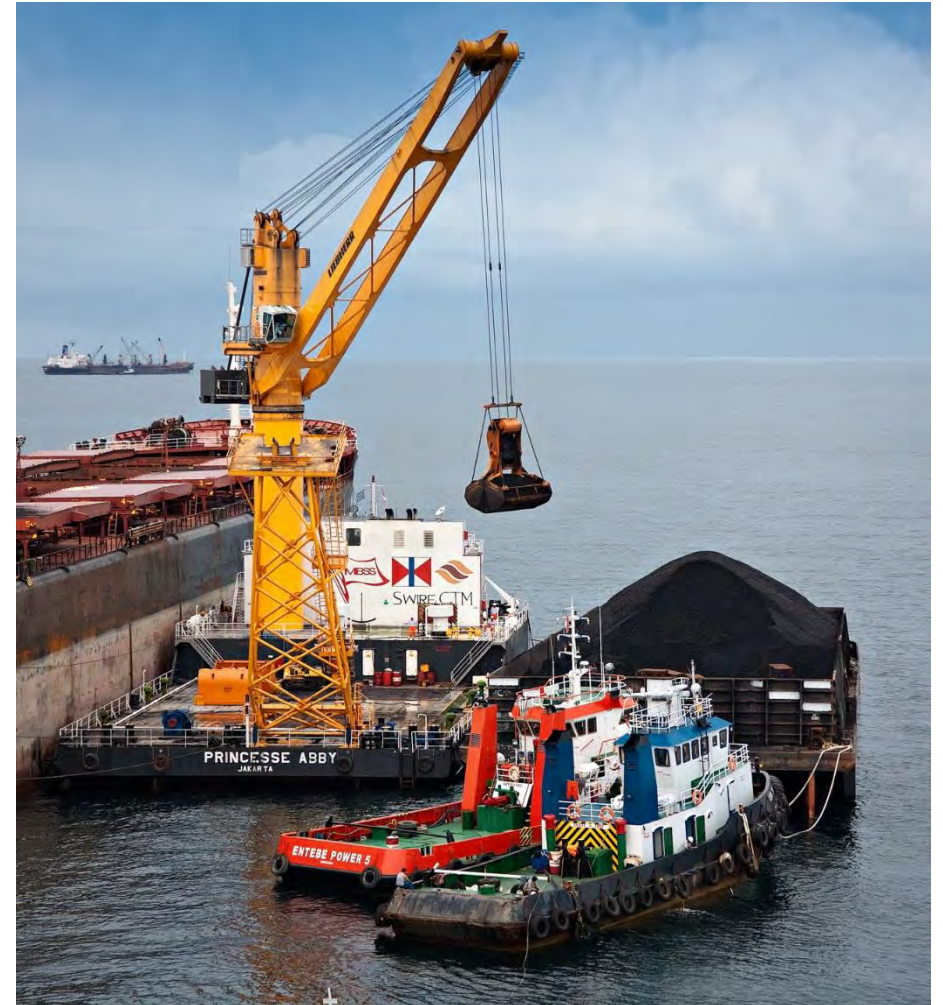
- Maximum outreach 64 m
 - 22 Container rows across
- Vessel size
 - Up to Super Post-Panamax
- Outstanding working speed
 - 120 meters per minute



Ship Cranes in operation



Portal Slewing Cranes



Ship Cranes in operation



Portal Slewing Cranes



Ship Cranes in operation



Portal Slewing Cranes

Transport



- Fully assembled



- Semi assembled



Maritime Technology



Intelligent grabbing

The algorithm-based system detects the properties of the bulk commodities and optimises the grab filling rates at any outreach.

SmartGrip



Hybrid drive

The energy storage system ensures double lifting speeds and a significant reduction in fuel and emissions.

Pactronic



Synchronised lifting

One system, two cranes and only one crane operator: Sycratronic brings the deployed cranes together as one functioning unit.

Sycratronic



Sway-free load

Ongoing calculations anticipate the path of the load. Pendulum movements are compensated for before they develop.

Cycprotronic / Teach-In / Vertical Line Finder



Auto-deceleration

Lowering speed control assistant for less impact on cargo and equipment as well as increased safety.

Soft Touch Down



Crane simulator

Our simulators ensure efficient and realistic operator training for the entire maritime product portfolio.

LiSIM

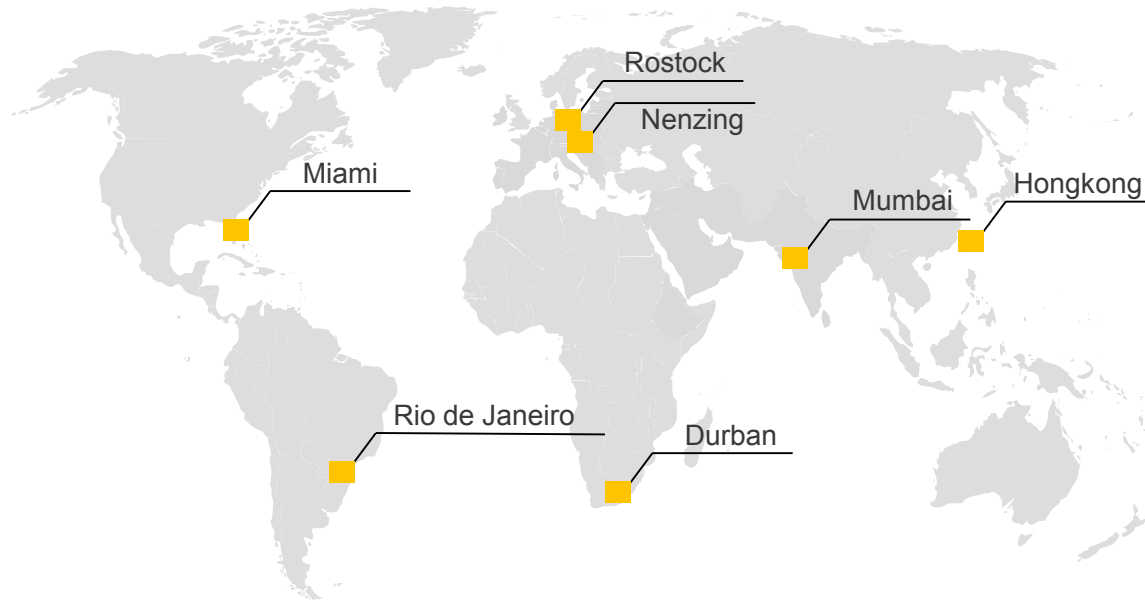


Maritime telematics

Optimise your performance with big data analytics

LiDAT smartApp

Maritime Training Centres



- **Training for crane operators**

- The crane operator can acquire comprehensive theoretical and practical knowledge. This is the foundation for safe and correct operation of the crane.

- **Training for service technicians**

- Our customers' service staff receive comprehensive training on how to maintain Liebherr cranes properly. This gives the customers the skill and knowledge to perform maintenance tasks themselves.

- **Training for fleet park managers**

- The task force leader or fleet park manager receives compact instruction, which is necessary for efficient use of the numerous software packages.



Liebherr simulations

LiSIM®



LiSIM®

- Designed to be easily integrated into customer's training centres
- Installed in an original Liebherr cabin for a real-life environment crane operator training
- This easy-to-transport simulator (fully furnished 40ft container) features an integrated training room



Thank you for your attention