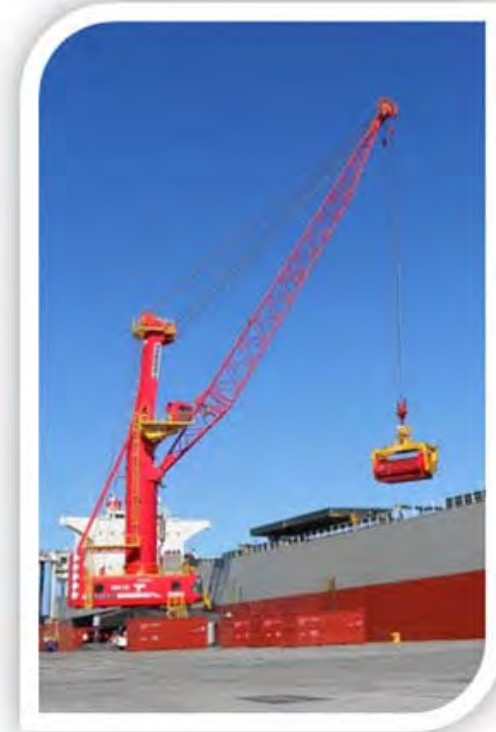


Liebherr

Mobile Harbour Cranes



Presentation Outline

- Company Overview / Business Units
- Range of models for different vessel sizes - New Launch of LHM 800
- Different crane configurations for light-duty utilisation to medium sized ports with heavy duty utilisation
- Equipment upgrade with minimal operations disruption
- Safety features and automation to match increase in demands
- References



LIEBHERR
Maritime Cranes

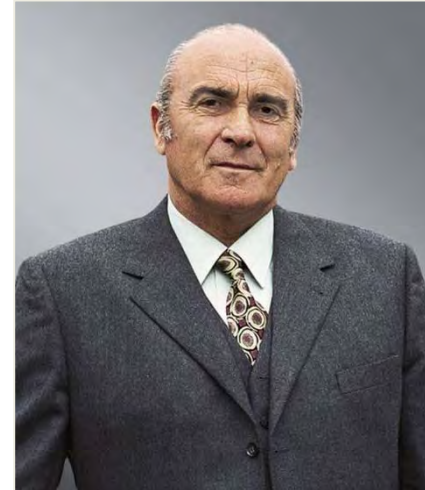
Approx 15 – 20 mins

Liebherr – a Family Business

- Company founded in 1949 by Dr.-Ing. E.h. Hans Liebherr
- The Liebherr Group today: over 140 companies worldwide, over 41,000 employees and about € 8.6 billion turnover (2014)
- Long term orientation with annual investments of approx. € 820 million

(E.g. R&D, building of plants and factories, service stations and increasing presence across national borders, etc..)

- Holding company: Liebherr-International AG, Bulle, Switzerland



Dr. Hans Liebherr



Left to right: Patricia Rüt, Willi Liebherr, Isolde Liebherr, Stéfanie Wohlfarth, Sophie Albrecht and Jan Liebherr

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Liebherr-International AG

Divisional Structure



INTEGRATION OF EXPERTISE

Port / Stacking Equipment



Offshore Cranes



Ship Cranes



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Production Locations – MCCtec GmbH

MCCtec

**Ireland
(LCC)**



**Austria
(LWN)**



**Germany
(MCR)**



**U.K.
(LSW)**



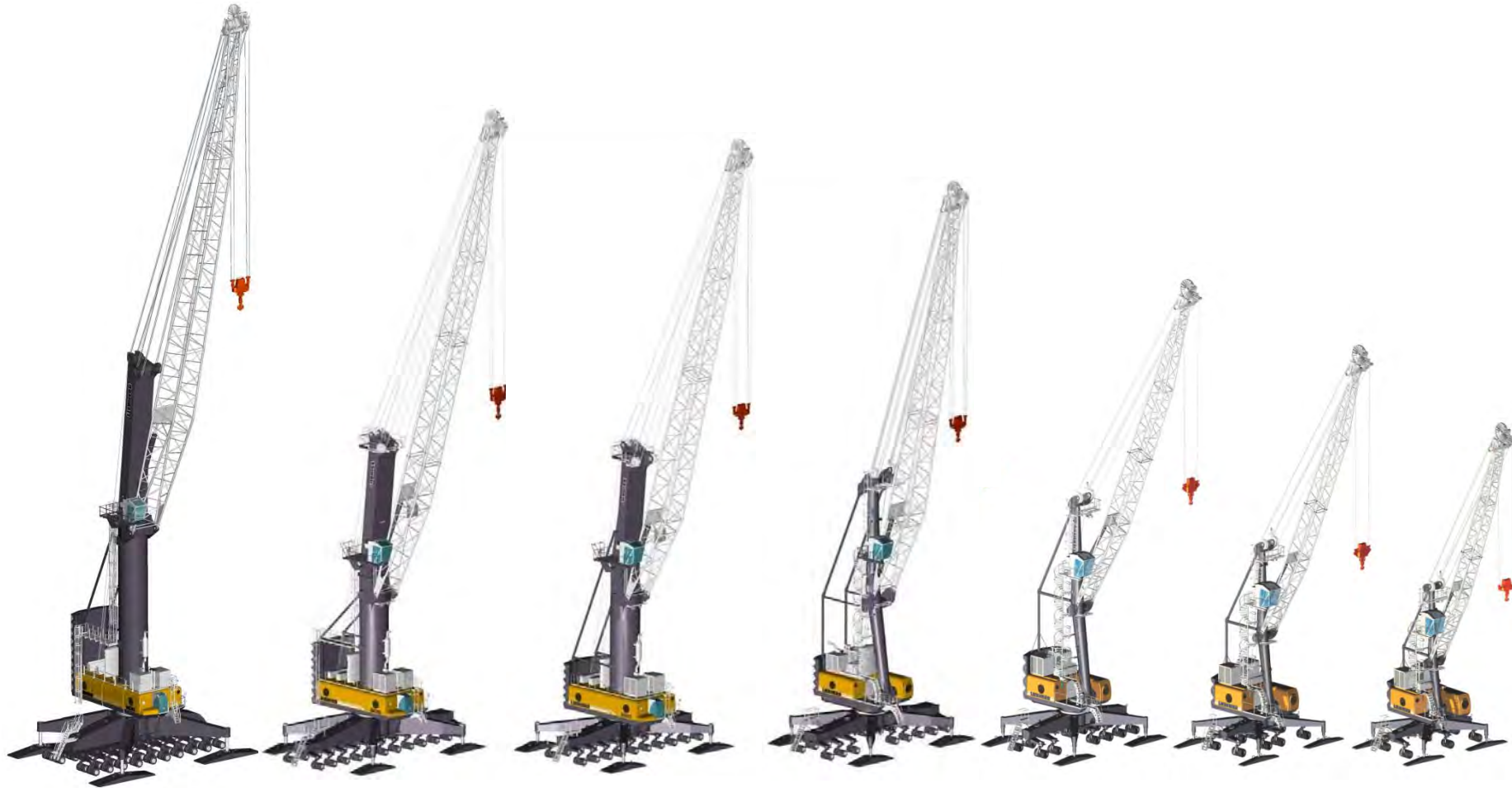
- Turnover: € 1.2 Bill.
- Employees : 4421
- 4 product plants with a total surface of 670,300 m²
- 40 sales and service stations



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The **NEW** LHM Range

(Coping with array of different vessel sizes.....)



LHM800

Capacity - 308 tons
Outreach - 64 m

LHM600

Capacity - 208 tons
Outreach - 58 m

LHM550

Capacity - 144 tons
Outreach - 54 m

LHM420

Capacity - 124 tons
Outreach - 48 m

LHM280

Capacity - 84 tons
Outreach - 40 m

LHM180

Capacity - 64 tons
Outreach - 35 m

LHM120

Capacity - 42 tons
Outreach - 30 m

LIEBHERR

The LHM Range

(Coping with array of different vessel sizes.....)

LHM 120

Max outreach: 30 m
Max capacity: 42 t

Power Pack: 450 kW



LHM 180

Max outreach: 35 m
Max capacity: 64 t

Power Pack: 450 kW



Container: Up to 8 rows
(Feeder Vessels)
Bulk: Up to 800 tph
(Handy-Sized)

LHM 280

Max outreach: 40 m
Max capacity: 84 t

Power Pack: 450 kW / 670 kW



Container: Up to 11 rows
(Handy-Sized Vessel)
Bulk: Up to 1,000 tph
(Handymax)

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The LHM Range

(Coping with array of different vessel sizes.....)

LHM 420

Max outreach: 48 m
Max capacity: 124 t

Power Pack: 670 kW + Pactronic®

Container: Up to 16 rows
(Post Panamax Liner)
Bulk: Up to 1,500 tph
(Panamax Bulk Carrier)



LHM 550

Max outreach: 54 / 48 m
Max capacity: 144 t

Power Pack: 670 kW + Pactronic®

Container: Up to 18 rows
(Post Panamax Liner)
Bulk: Up to 1,800 tph
(Capesize Bulk Carrier)



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The LHM Range

(Coping with array of different vessel sizes.....)



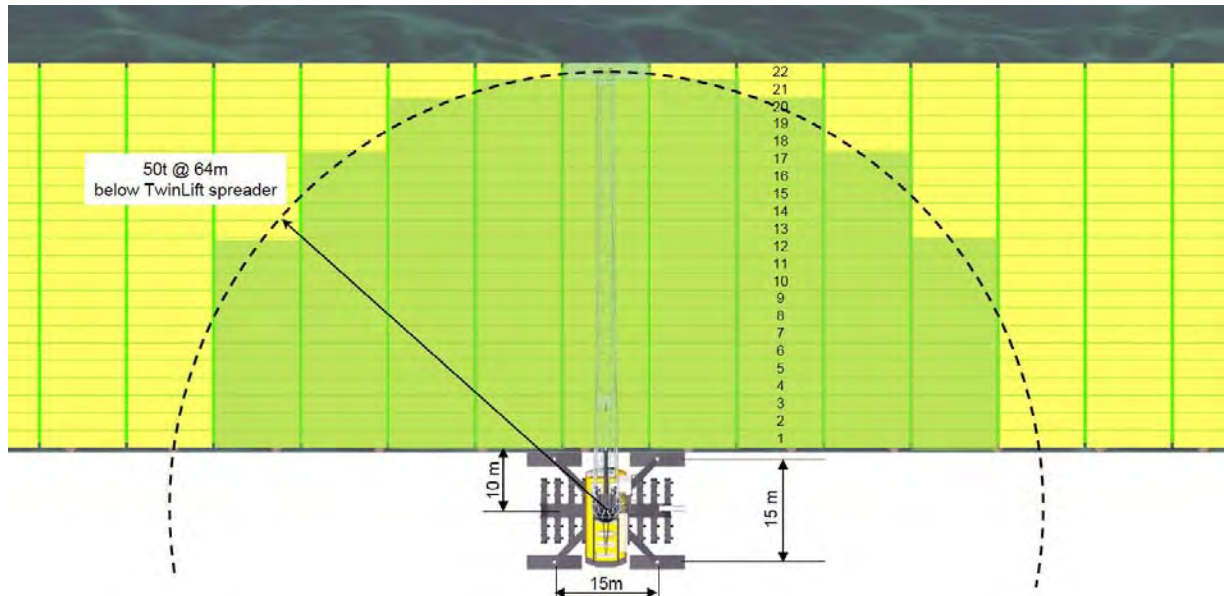
LIEBHERR

New Flagship LHM 800

(Meeting new demand of increasing vessel sizes.....)



- Largest harbour mobile crane in market to date
- Maximum capacity of 308 tonnes
- Maximum radius of 64 metres
- Handles container vessels up to **22 rows** across
- Standard – up to 38 containers per hour (hoist speeds of 120 metres a minute)
- Pactoric hybrid booster - up to **45 containers** an hour
- Highly flexible configurations
- Short delivery time & immediate deployment
- High resale value



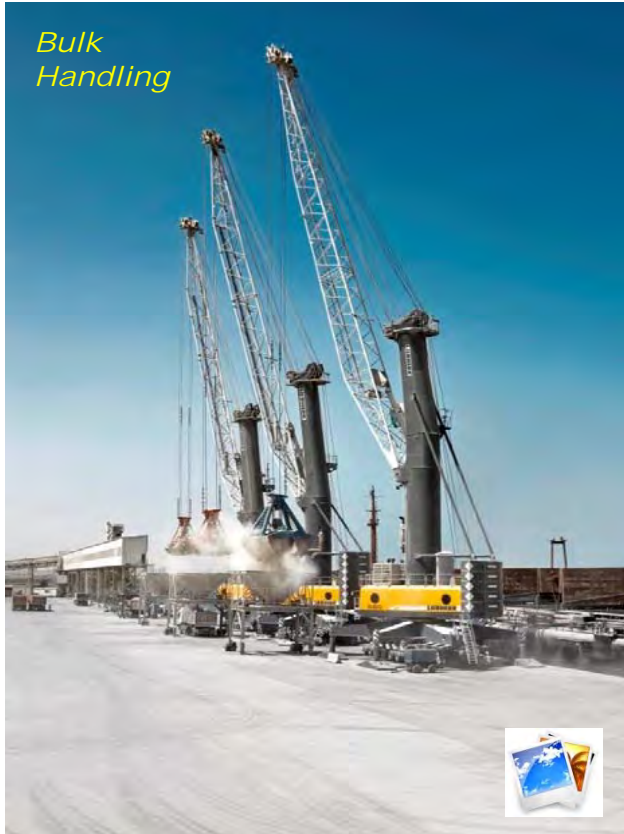
Multi-Applications – Versatile and All-Rounded



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Multi-Applications

(Managing Different Applications with Min Disruption)



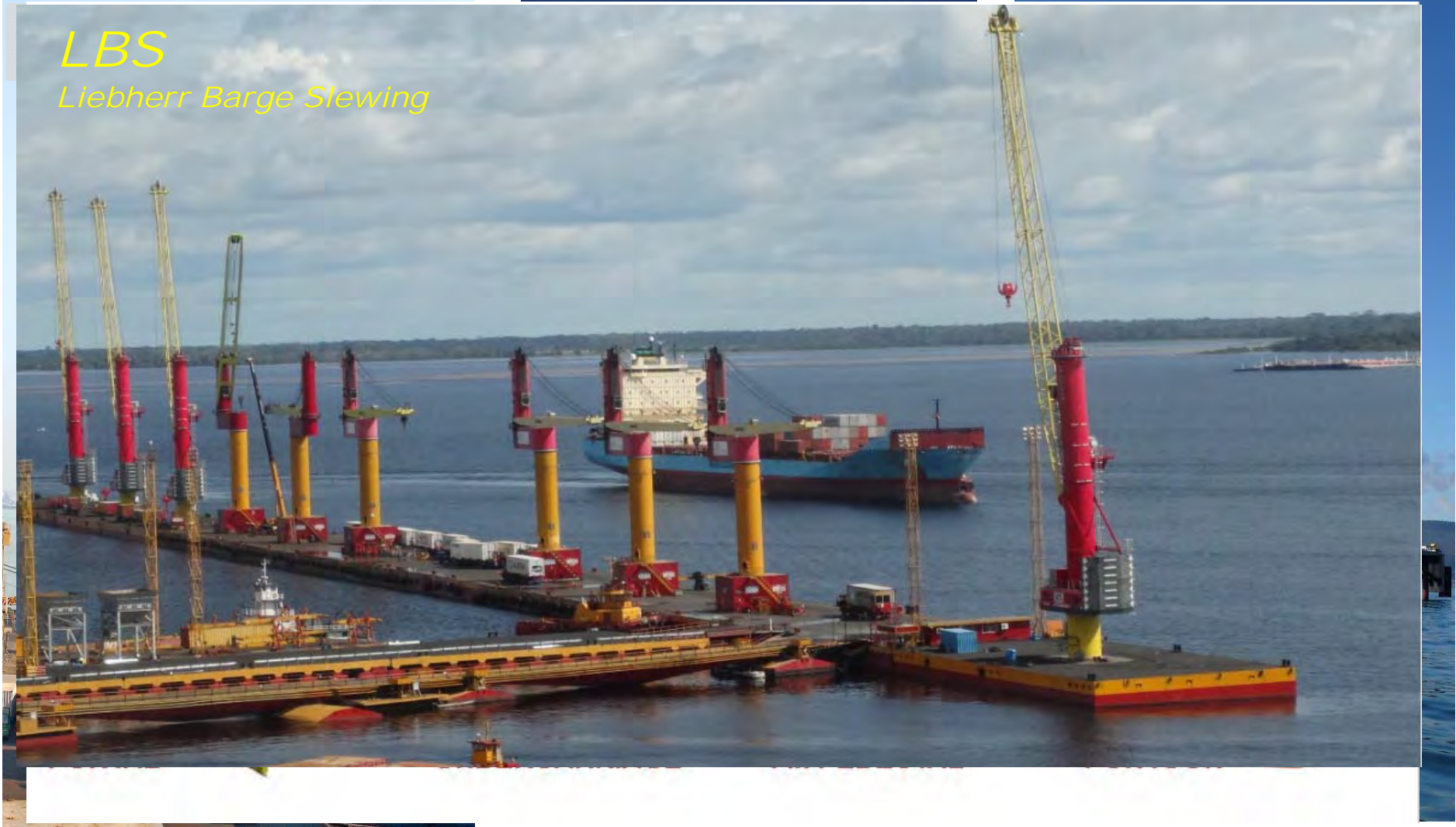
LIEBHERR

Versatile Configurations

(Managing Different Site Conditions...)

LBS

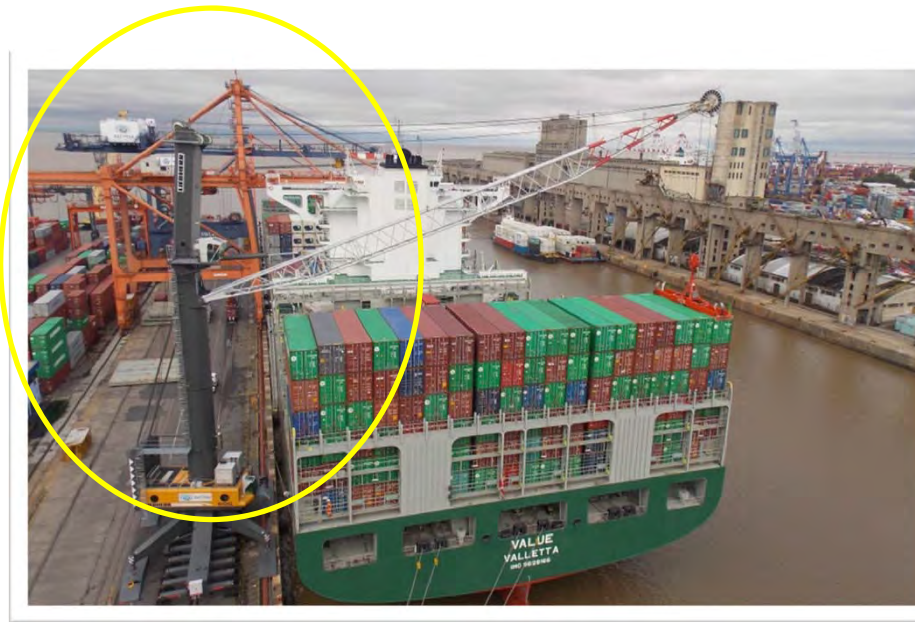
Liebherr Barge Slewing



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Advanced Mobile Solution

(Transition to STS solutions and Re-location)



Alternative or interim solution for STS cranes

- Short delivery Time
- Deployment of multiple LHMs for fast turnover
- Efficiency of 35 – 45 boxes per hour
- LHM 800 with 64 meters to handle up to 22 container rows

Ease of Relocation / Redeployment

- High resale value
- Ease of relocation
- Flexibility to handle other operations

Conventional Practical Training – Site



Conventional Factory Practical Training



Safety Risks

- Potential risks of damaging vessels and equipment
- Requirements for vessel, cargo and port personnel availabilities
- Uncontrolled site and weather conditions

Training Cost

- Interferes with day to day port operations
- Causes expensive downtimes
- Cost of fuel, wear and tear

Liebherr Simulations - LiSIM®

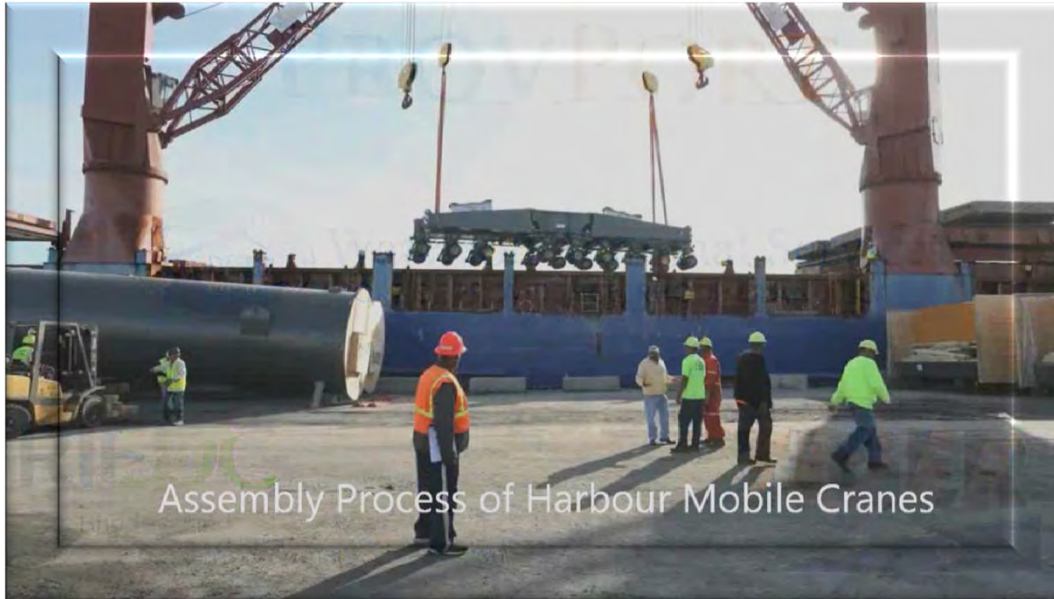
(Virtual Training Solutions)



- Optimize training efficiency, 24/7 availability
- Realistic port & offshore environment, weather and wave
- Original software controls and hardware; realistic training environment
- No running cost and down-time

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Delivery and Assembly



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Pactronic® - Hybrid System

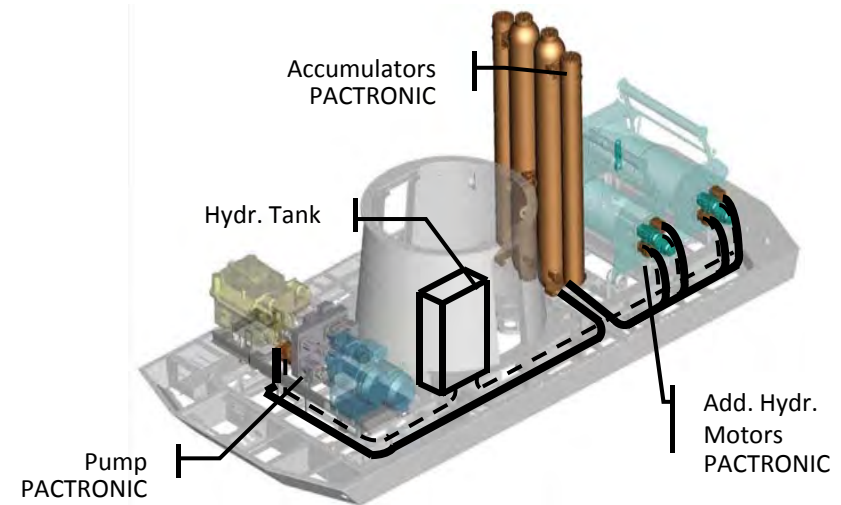


Innovative Solution from Liebherr: Pactronic®

Secondary energy source to drive system

- Use accumulator as energy storage
- Load accumulator during normal operation
- Accumulated energy can be used while hoisting a load

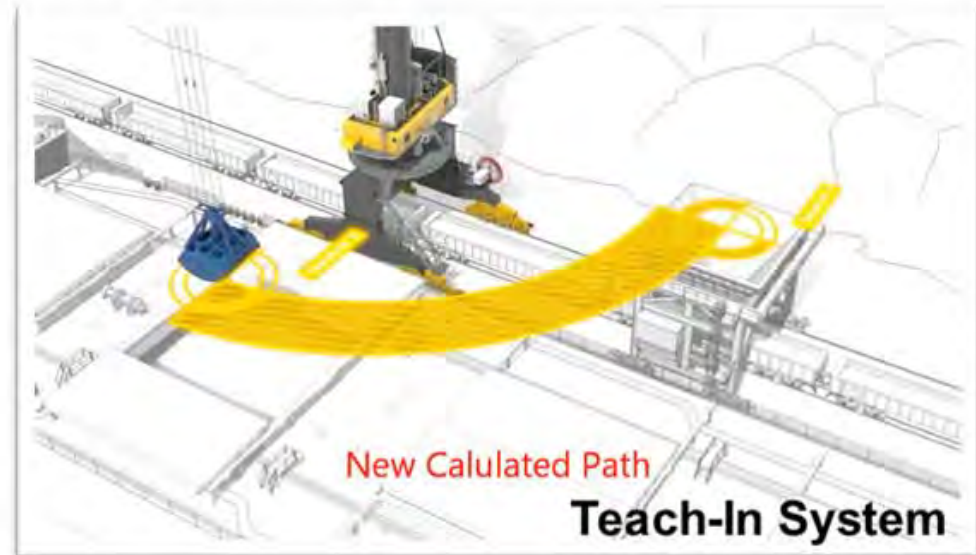
- **30% More Turnover**
- **30% Less Fuel/Energy Consumption**
- **30% Less Emissions**



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Safety Features & Automation

- Anti-Sway System
- Anti-Collision System
- Teach-In System
- Sycratronic System
- Advanced Soft Touch Down
- Etc.....



Population growth by Decade 1974 to 2014

40 Years of Liebherr Mobile Harbour Cranes

2009
2010
2011
2012
2013
2014

1,280 Deliveries
(2014)

By the way....

2014 - Record year for highest number of cranes delivered – 112 units



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at.....*

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