

**LIEBHERR**

**Mobile Harbour Crane**

# Basic Introduction

- For more than 70 years, Liebherr stands for a large, continually developing range of sophisticated products and services. Exceptionally practical, seasoned and proven engineering as well as a consistent high quality level ensure customer benefit in all product areas.

## Mobile and crawler cranes



## Construction machines

# Mining



# Maritime cranes

## **Aerospace and transportation systems**



## **Material handling equipment**

## **Gear technology and automation systems**



## **Refrigeration and freezing equipment**

# Components



## The hotels of the Group



# Maritime cranes

## LHM 425 Mobile Harbour Crane

- The design of the LHM 425 has been optimised for ships in the Post-Panamax class. The Liebherr mobile harbour crane series raises and lowers loads at up to 120 metres per minute. The LHM 425 has a maximum load capacity of 124 tonnes and handles up to 38 containers per hour with its hybrid drive. The versatile crane is also suitable for the efficient handling of bulk cargoes, as well as the safe transportation of general cargoes.

Lifting capacity (max.)	124 t
Jib length	48 m
Total weight	371 t
Hoisting/lowering max.	120 m/min





# LHM 280 Mobile Harbour Crane

- The LHM 280 is absolutely essential in ports for the rapid handling of general and bulk cargoes. With a maximum load-bearing capacity of up to 84 tonnes, it can also handle containers and heavy loads. With an outreach of up to 40 metres, the LHM 280 is primarily suitable for ships up to the Feedermax/Handysize category.

Lifting capacity (max.)	84 t
Jib length	40 m
Total weight	241 t
Hoisting/lowering max.	90 m/min



# The Range

## Heavyweight

### Generation

Generation 2



LHM320-2

LHM400-2



Generation  
3/4/5

**LHM 425**



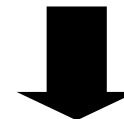
LHM500-2



**LHM 550**



LHM600-2



**LHM 600**

# The Range

Generation

Lightweight ←

→ Heavyweight



**LHM 425**



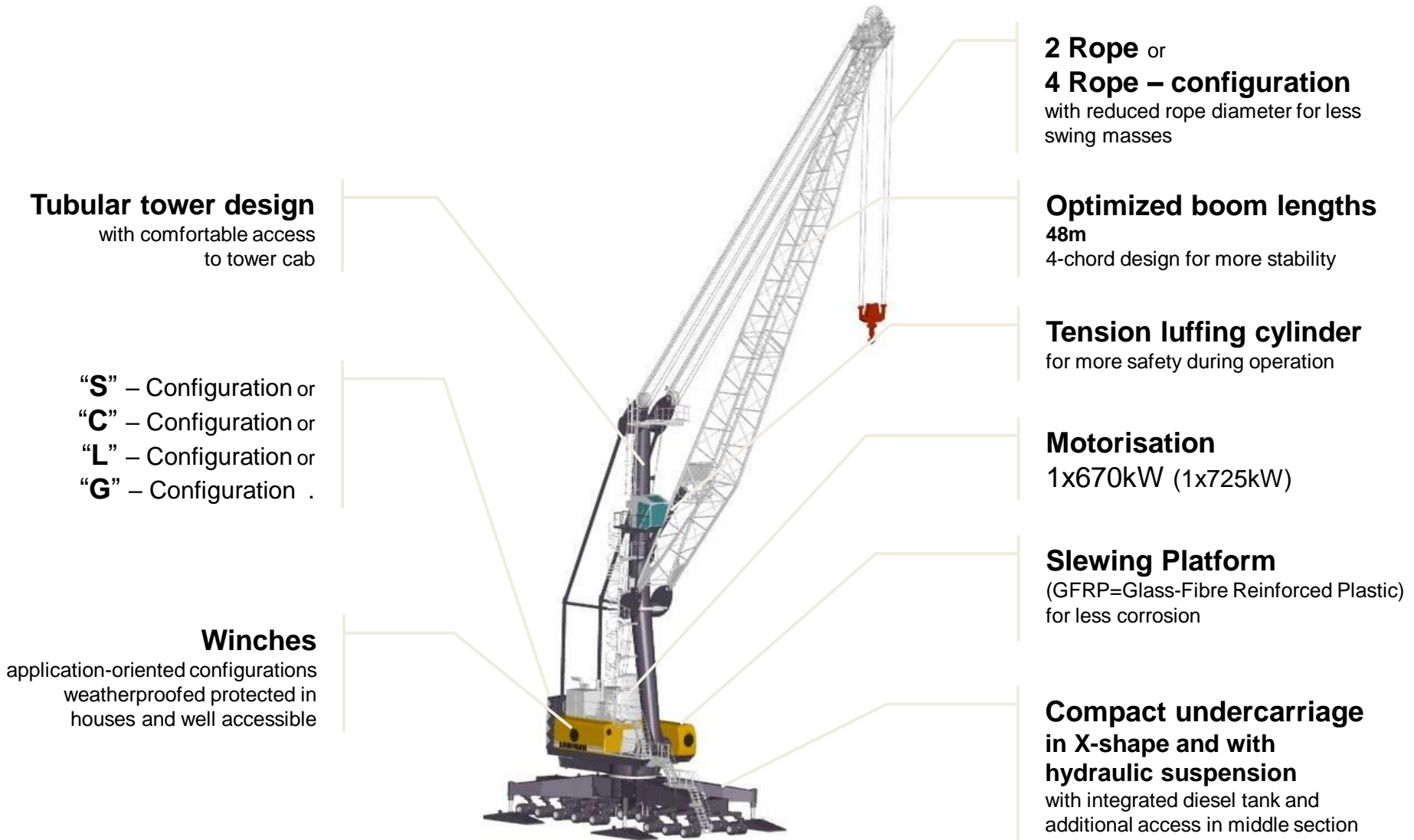
**LHM 550**



**LHM 600**

# LHM 280/425 - Design Overview

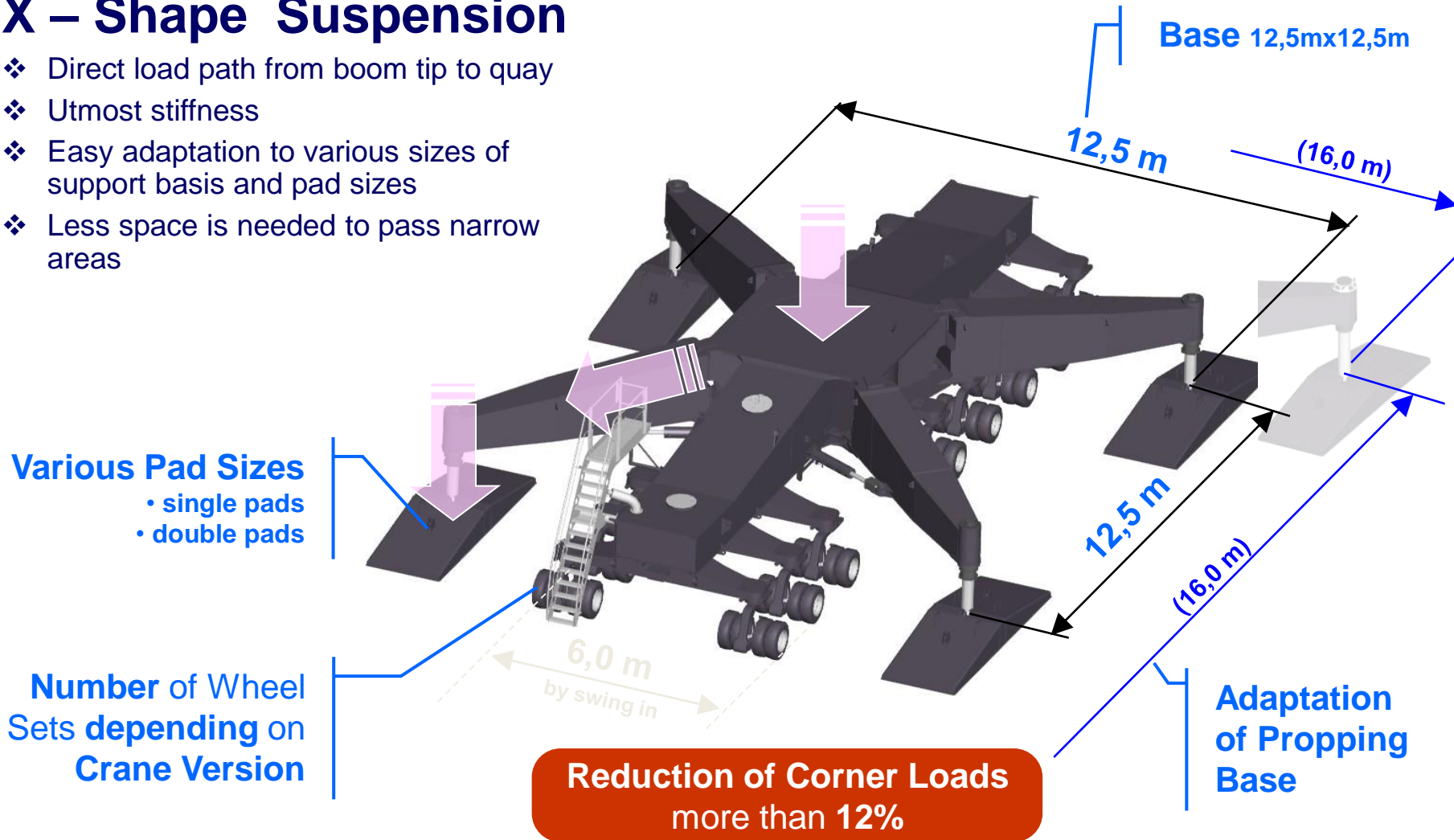
**Generation**



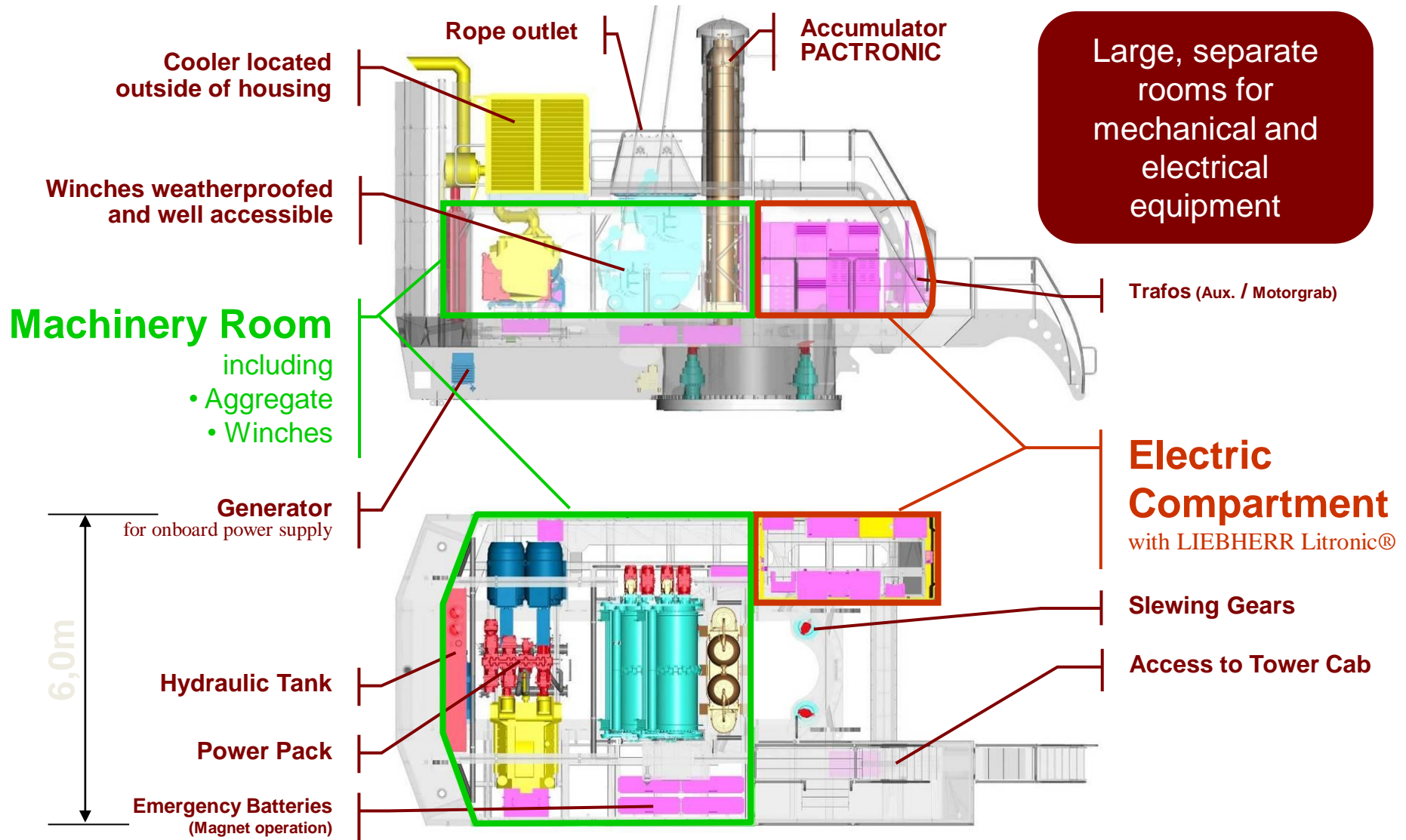
# Propping System

## X – Shape Suspension

- ❖ Direct load path from boom tip to quay
- ❖ Utmost stiffness
- ❖ Easy adaptation to various sizes of support basis and pad sizes
- ❖ Less space is needed to pass narrow areas

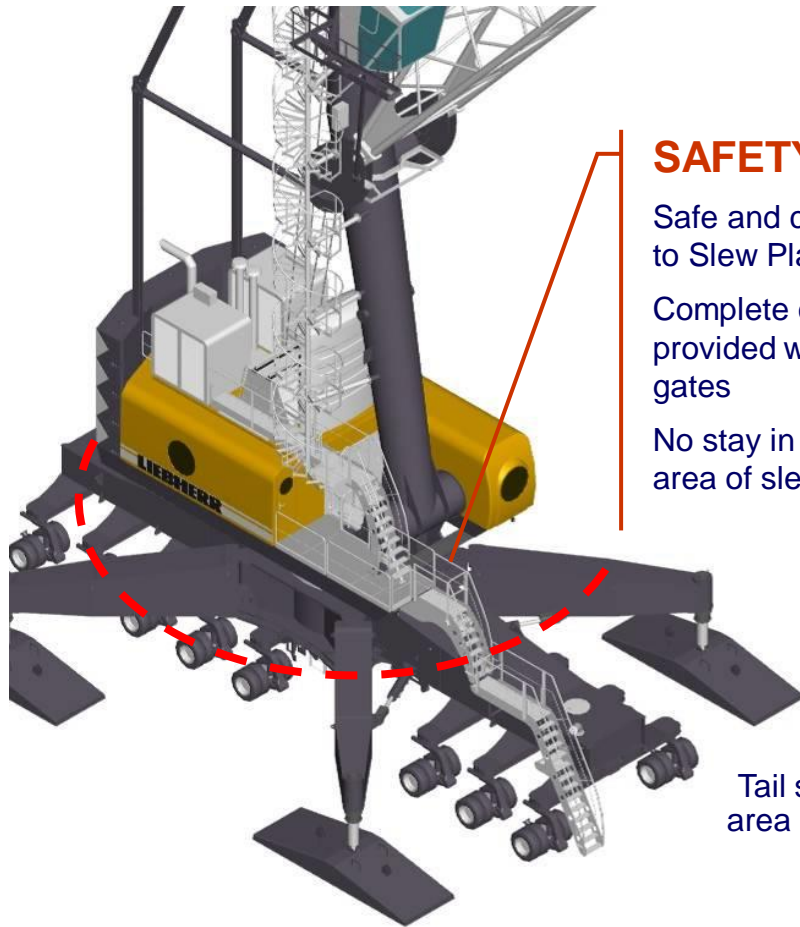


# Slewing Platform Layout





# Slewing Platform Safety



## SAFETY

Safe and comfortable access to Slew Platform

Complete crane access provided with handrails and gates

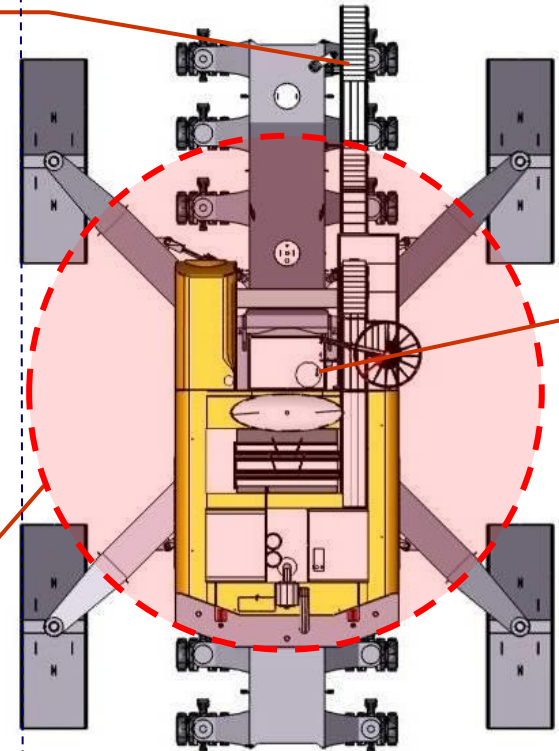
No stay in unprotected swing area of slewing platform

## SAFETY

Tail swing radius within area of supporting pads

## SAFETY

Additional access inside middle part of undercarriage



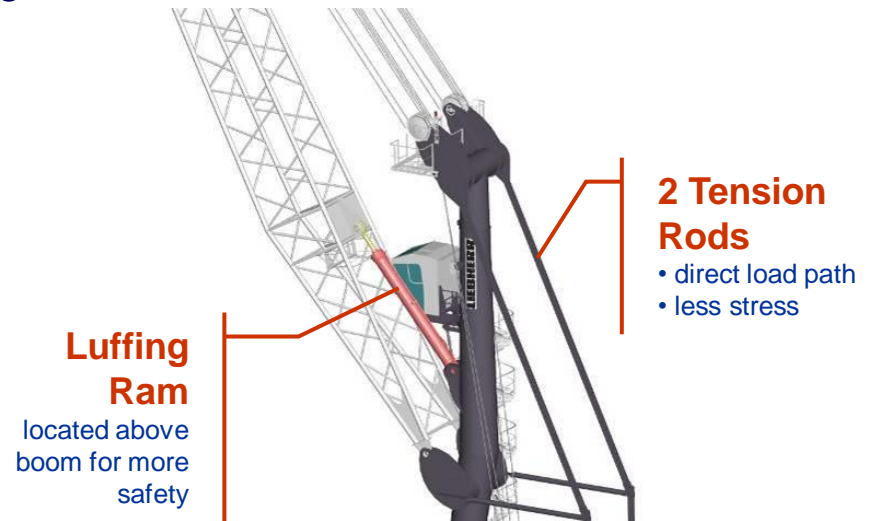
# Tower



**Forward mounted cab on high position**  
⇒ Guarantees optimal view to load

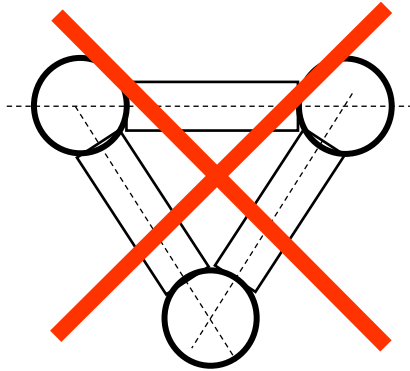
**Tubular Design**  
⇒ High stiffness and torsion resistance

**Comfortable access to tower cab**  
via spiral stairs

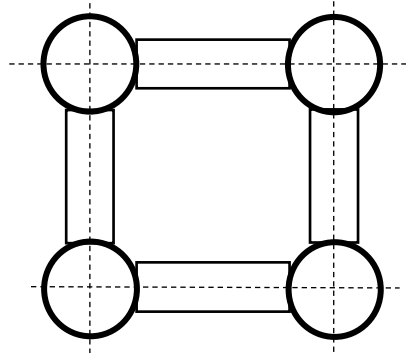


# Boom – 4 chord

3 - chord



4 - chord



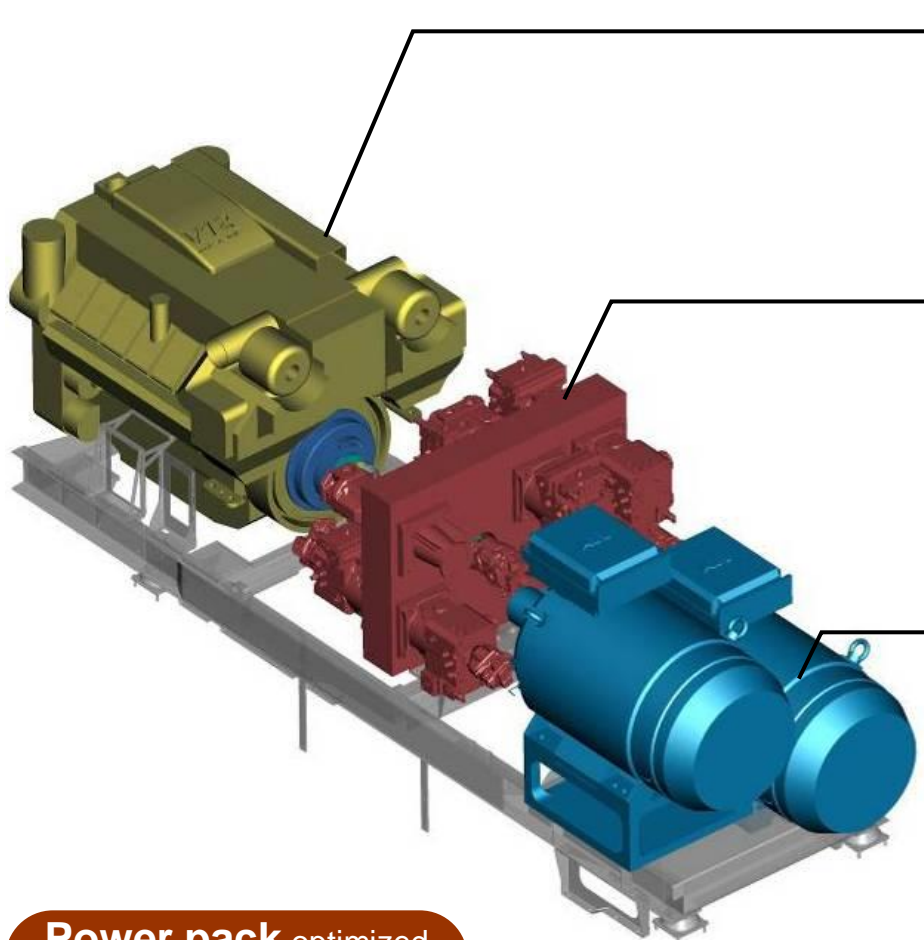
## 4 – chord boom

guarantees

- continuous, straight force flow
- less sensitivity to side forces
- maximum on stability
- lower stresses
- longer boom life time



# Power Pack



## Diesel Motor (optional)

**670kW MAN** (end of 2013 - 725kW LIEBHERR)

- ❖ meets exhaust emission requirements **EPA/CARB Tier 2**
- ❖ no requirements given for **2004/26/EC**

## Hydraulic Aggregate

for hoisting, slewing, luffing, travelling, cooling, generator, Pactronic etc.

- ❖ optimized for **low base load power** (= fuel consumption saving)
- ❖ **same speed** for **50Hz** and **60Hz** in **hoisting, slewing, travelling**
- ❖ **LIEBHERR pumps DPVG**

## E-Motors (optional)

**2x360kW S6-60% or S9 400V/50Hz or 440V/60Hz**

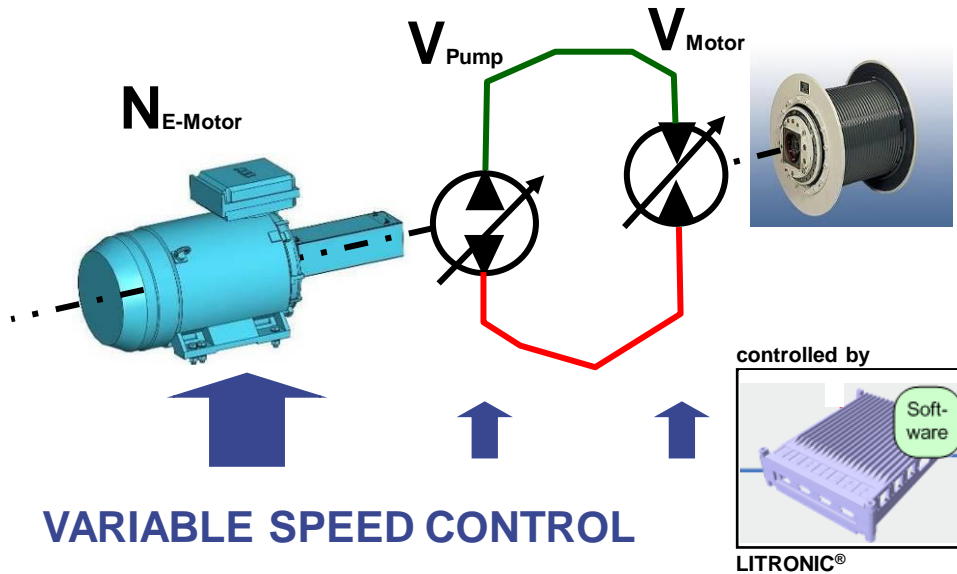
designed to drive with

- ❖ **constant speed** operation with 1500rpm or 1800rpm (standard)
- or
- ❖ **variable speed** operation with 750rpm to 1500 rpm (optional)  
(= **ECO control for E-drive** to save energy consumption)

**Power pack** optimized  
for **standard drive**  
and **PACTRONIC®**

**Same power pack as the LHM550 or LHM600**

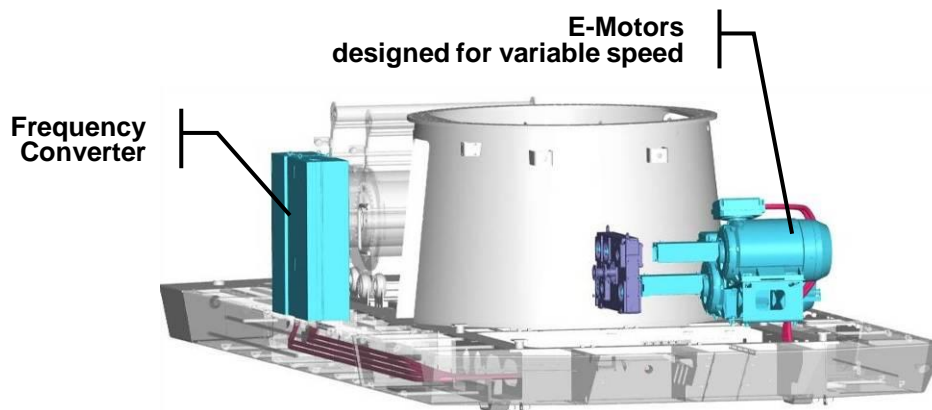
# ECO Control for E-drive



Variable speed technology

## VARIABLE SPEED CONTROL

- 3 parameters to control speed
- parameters are selected for optimum factors of efficiency



Litronic® crane control system automatically calculates the minimum required rpm (revolutions per minute) of E-motor depending on speeds and loads.

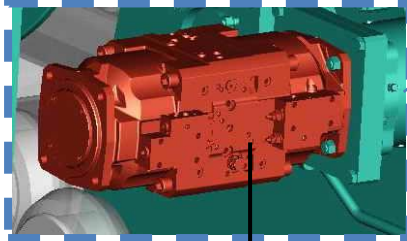


# Hoist Drive

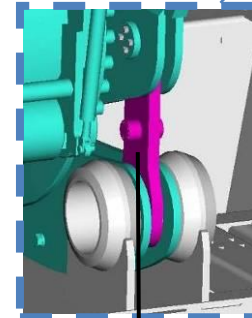
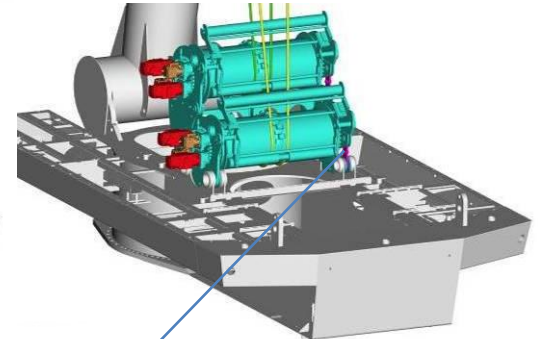
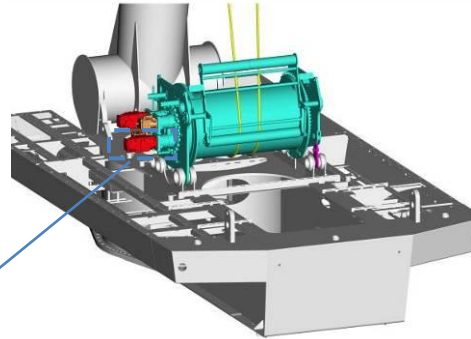
**No HLG** (Heavy Load Gear) required, crane **suitable** for all **heavy spreaders**

2-Rope Configuration

4-Rope Configuration



Double Liebherr  
Variable Displacement Motors  
for wide range of adjustment  
⇒ 0-124t in NLG



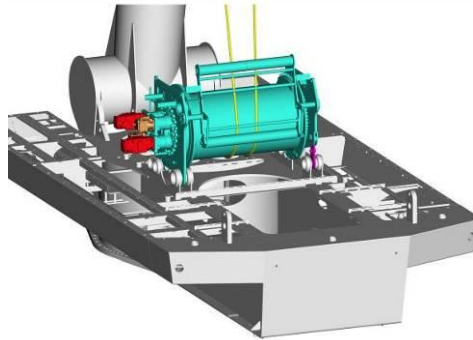
Load Cells  
direct on winches

No longer **oscillating cranks**  
on tower head required

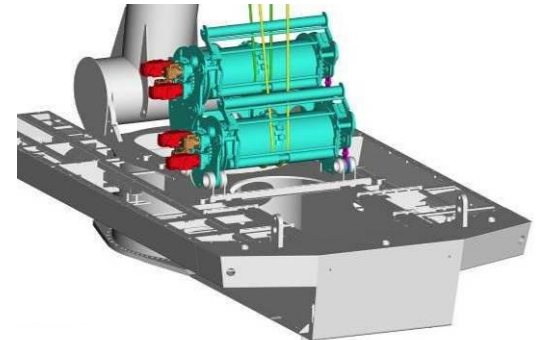


# Winches

**2-Rope Configuration**



**4-Rope Configuration**



**MAX SWL**

**124t**

**84t**

**124t**

**84t**

**WINCH**

**1 x 124t**

**1 x 84t**

**2 x 62t**

**2 x 42t**

**ROPE DIAMETER**

50 mm

44 mm

40 mm

32 mm

**PACTRONIC**

optional



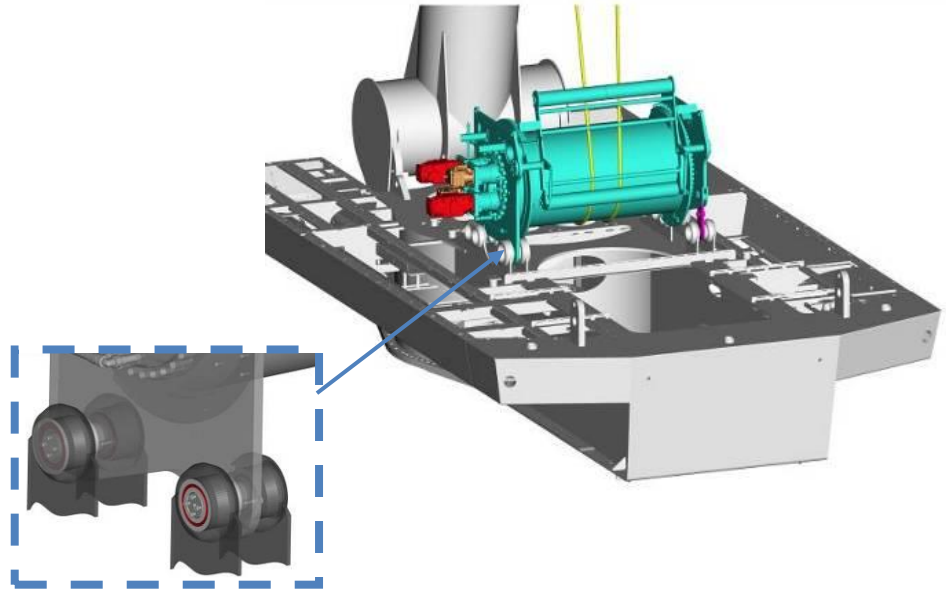
optional



# Noise insulation

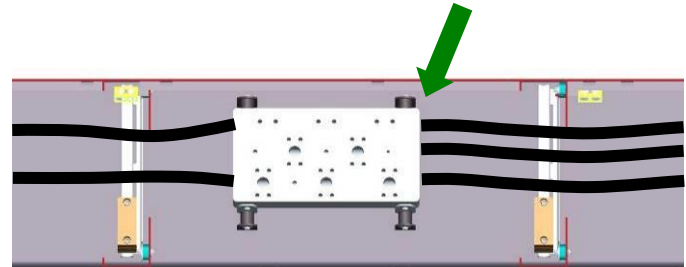
## Elastic Suspension of winches

- less vibrations
- less noise

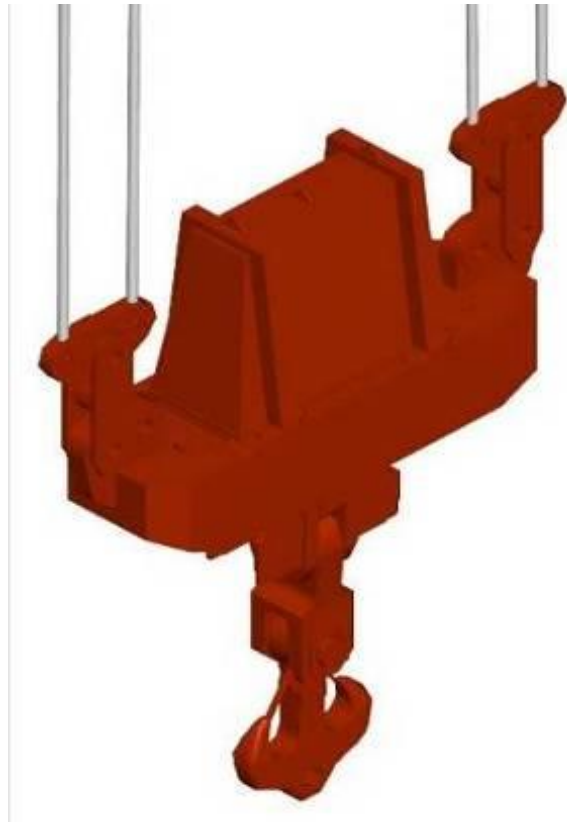


## Elastic Suspension of hydraulic blocks and straps

- less vibrations
- less noise



# Rotator



## Weight reduction of rotator

- 4-rope (124t): 3000kg (4200kg)
  - 2-rope (124t): 3000kg (3600kg)
- ⇒ more net load capacity

## Key advanced of new rotator

- 40% more torque moment
- torque dependent on actual load to prevent rope twisting
- adjustable slew speed
- smooth acceleration and braking

# Crane Versions

124t & 48m



## CRANE CONFIGURATION SUITABLE FOR EACH OPERATION

preferred use

⇒ **General Cargo**

preferred use

⇒ **Container Operation**

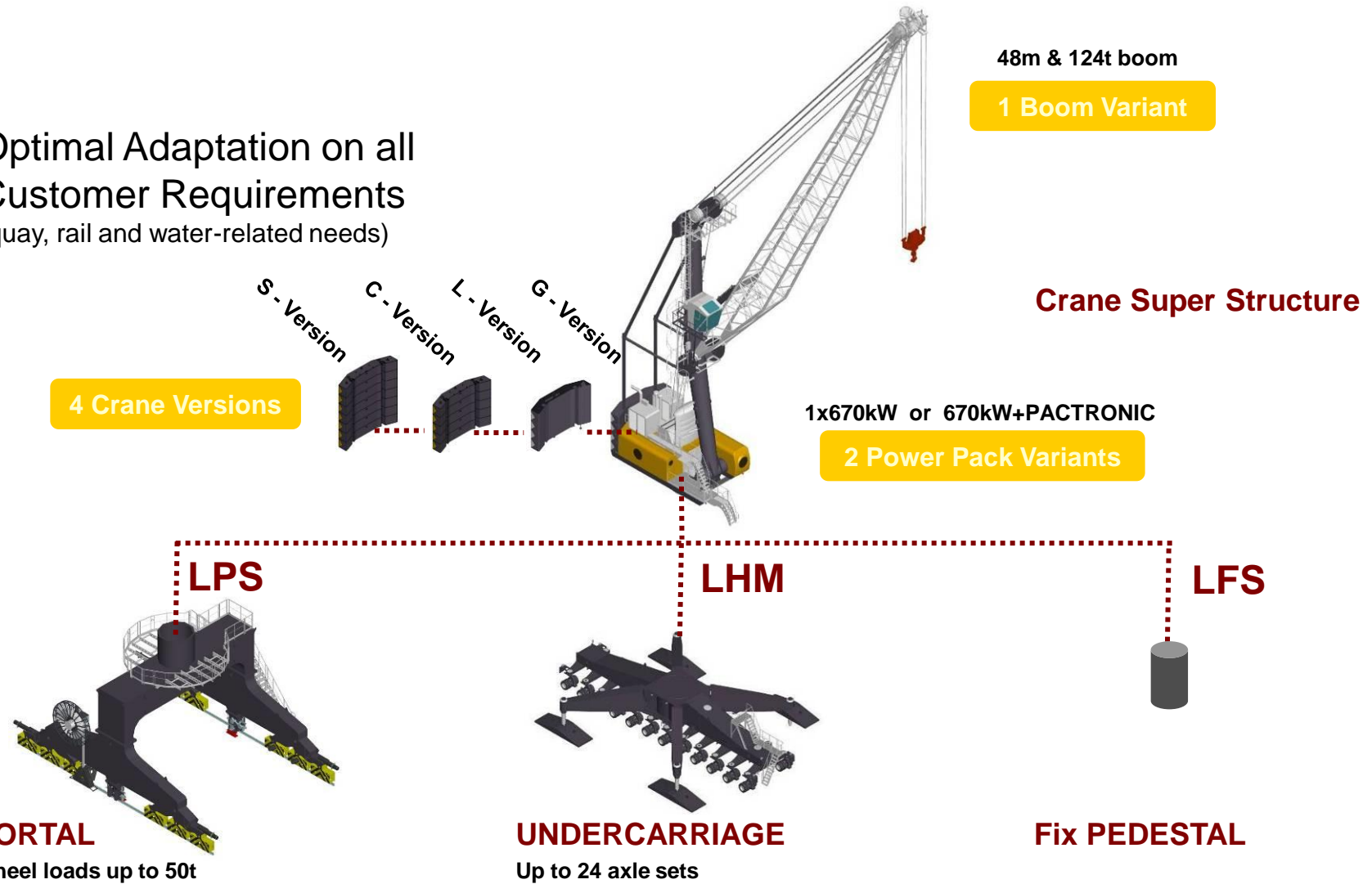
preferred use

⇒ **Bulk Cranes**

Suitable for Crane Versions: **S** / **C** / **L** / **G**

# Variable Configuration

Optimal Adaptation on all  
Customer Requirements  
(quay, rail and water-related needs)



**THANKS FOR YOUR ATTENTION**