

**Mobile Harbour Crane**

**LHM 280**

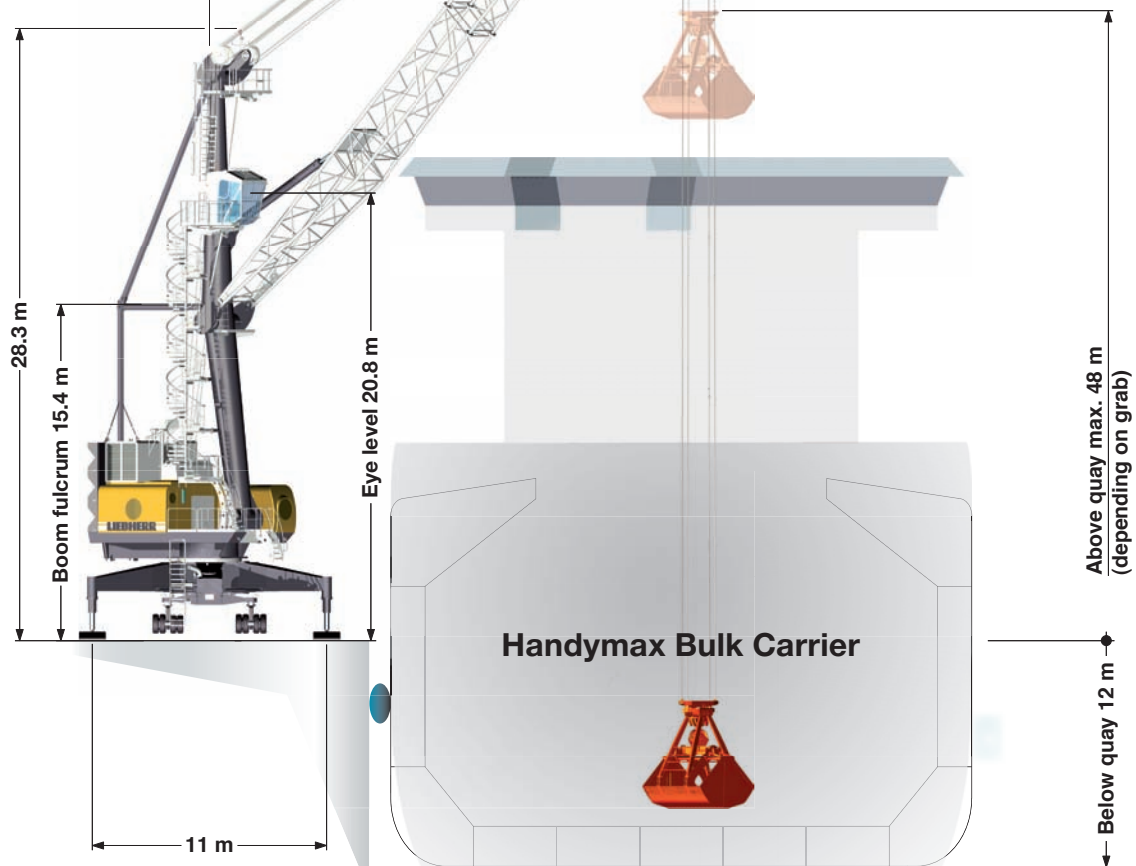
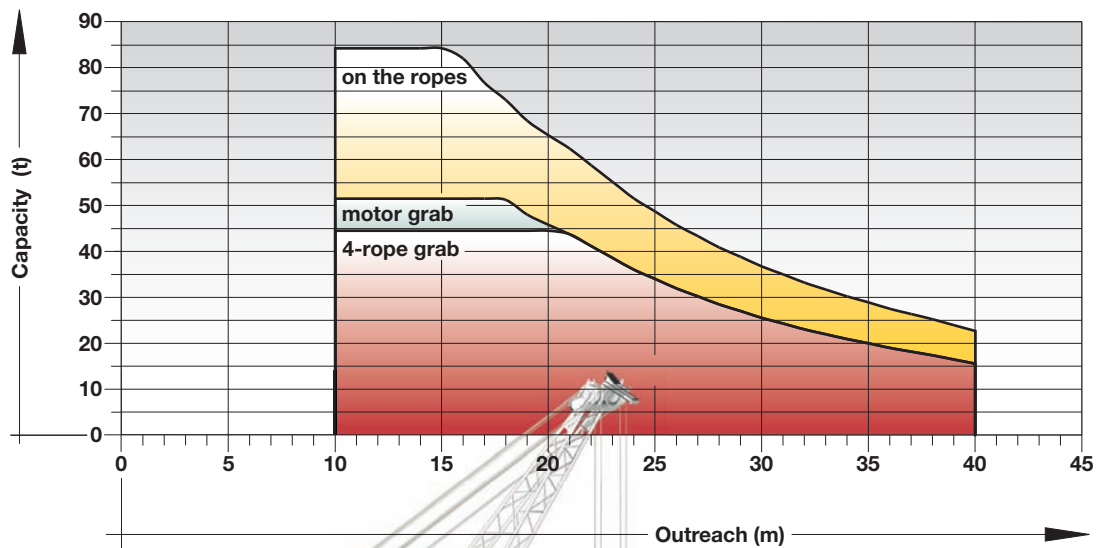


**LIEBHERR**

# Main dimensions

## Bulk operation

Load diagram



# Bulk operation

Maximum crane capacity 84 t

Outreach	Hook operation on the ropes	Grab operation	
		4-rope grab	motor grab
(m)	(t)	(t)	(t)
10	84.0	45.0	52.0
11	84.0	45.0	52.0
12	84.0	45.0	52.0
13	84.0	45.0	52.0
14	84.0	45.0	52.0
15	84.0	45.0	52.0
16	81.8	45.0	52.0
17	76.5	45.0	52.0
18	72.8	45.0	51.7
19	68.3	45.0	48.5
20	65.1	45.0	46.3
21	62.2	44.2	44.2
22	58.6	41.7	41.7
23	55.0	39.1	39.1
24	51.4	36.5	36.5
25	48.5	34.5	34.5
26	45.6	32.4	32.4
28	40.7	29.0	29.0
30	36.6	26.0	26.0
32	33.1	23.5	23.5
34	30.1	21.4	21.4
36	27.4	19.5	19.5
38	25.1	17.9	17.9
40	22.6	16.1	16.1

Weight ramshorn hook 2.7 t  
Weight rotator 2.2 t

Maximum crane capacity 64 t

Outreach	Hook operation on the ropes	Grab operation	
		4-rope grab	motor grab
(m)	(t)	(t)	(t)
10	64.0	35.0	42.0
11	64.0	35.0	42.0
12	64.0	35.0	42.0
13	64.0	35.0	42.0
14	64.0	35.0	42.0
15	64.0	35.0	42.0
16	64.0	35.0	42.0
17	64.0	35.0	42.0
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40	22.6	16.1	16.1

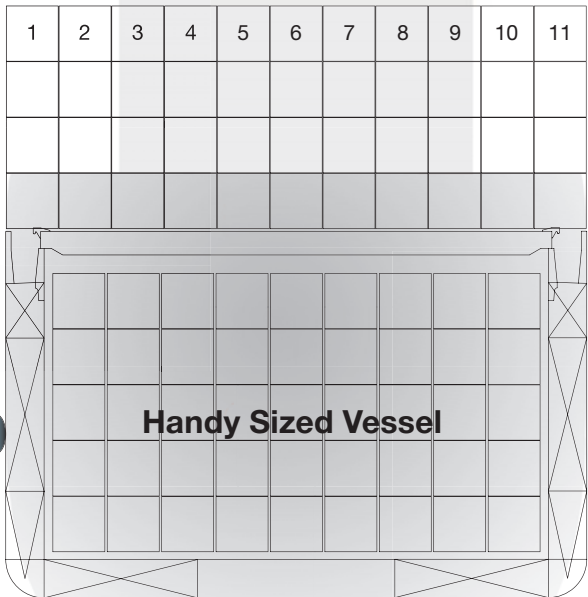
Weight ramshorn hook 2.7 t  
Weight rotator 2.2 t

## Professional bulk handling - Turnover up to 1000 t per hour

The powerful hydrostatic transmission and advanced Liebherr electronics ensure short, productive working cycles during bulk handling.

- During grab operation, hoisting, slewing, and luffing are driven simultaneously at maximized speed to achieve the highest (possible) turnover.
- During grab filling, features such as automatic lowering and hoisting guarantee the optimum filling level of the grab.
- The slack rope monitoring system ensures extended life-time of the ropes and increases operational safety.
- Reverse power is returned to the drive process through closed loop hydraulics which results in reduced fuel consumption.
- The Cycoptronic® anti-sway system automatically compensates for all rotational swing, transverse and longitudinal sway of the load at maximum speeds.
- To provide safe and stress-free working conditions for the operator, Liebherr offers the Cycoptronic® including Teach-In® feature, a semi-automatic system, which pilots the crane from the vessel hatch to the quay without any sway. Especially for bulk operation into hoppers, the Teach-In® system increases turnover and ensures consistent turnover rates during the entire ship unloading.
- Liebherr technology is absolutely resistant to all types of dust and dirt due to the closed hydraulic system and an electronic system which is military proven and tested.
- The airflow needed for cooling hydraulic and engine systems is routed external from the main machinery house. This helps keep the engine room clean and free of debris.

## Container operation



# Container operation

Maximum crane capacity 84 t

Outreach	Hook operation on the ropes	Capacity under 40' spreader	
		automatic	semi-automatic
(m)	(t)	(t)	(t)
10	84.0	41.0	36.0
11	84.0	41.0	36.0
12	84.0	41.0	36.0
13	84.0	41.0	36.0
14	84.0	41.0	36.0
15	84.0	41.0	36.0
16	81.8	41.0	36.0
17	76.5	41.0	36.0
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28	40.7	29.5	35.9
30	36.6	25.4	31.8
32	33.1	21.9	28.3
34	30.1	18.9	25.3
36	27.4	16.2	22.6
38	25.1	13.9	20.3
40	22.6	11.4	17.8

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38	25.1	13.9	20.3
40	22.6	11.4	17.8

Weight rotator 2.2 t

Weight fully automatic (telescopic) spreader 9 t

Weight semi-automatic spreader 1.3 t (20 ft), 2.6 t (40 ft)

## Professional container handling – Turnover up to 35 cycles per hour

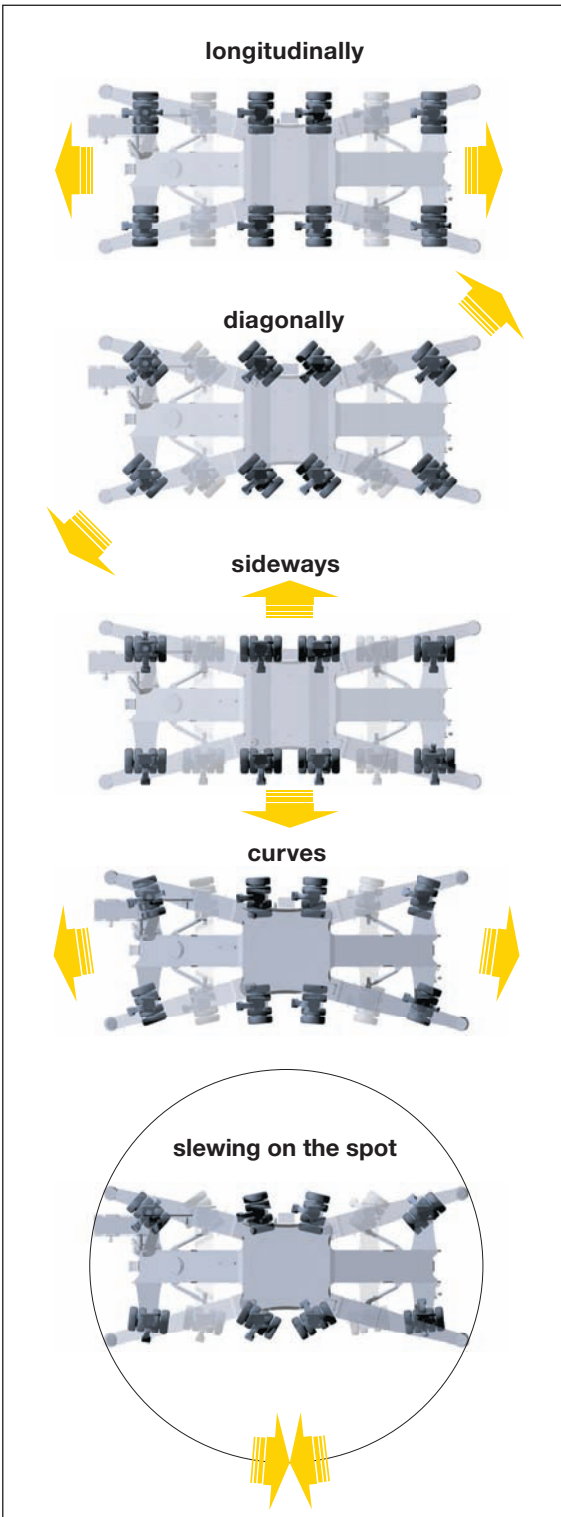
**Precision to perfection: With incredibly short acceleration times for all crane motions, Liebherr is the top performer in container handling.**

- The crane can be fitted with various types of spreaders (fixed or telescopic) connected to the rotator. Manual, semi or fully automatic telescopic spreaders are available for various container sizes.
- Liebherr Cycoptronic® is an accurate, sway-free load motion control system that uses in-house designed software. Cycoptronic® allows for direct load positioning and aids the crane driver in mastering his task. With Cycoptronic® turnover, safety and the confidence of the operator will be improved.
- Safety: The luffing cylinder is positioned above the lattice boom. This eliminates the possibility of any damage to the cylinder through swinging loads or highly stowed rows of containers on board the vessel.
- The Liebherr hydrostatic drive is the most reliable and highest performing drive system for mobile harbour cranes. Independent closed loop hydraulic systems utilize the minimum number of components to guarantee highly responsive, smooth and precise operation while maximizing operational safety.

# Undercarriage

## Mobility

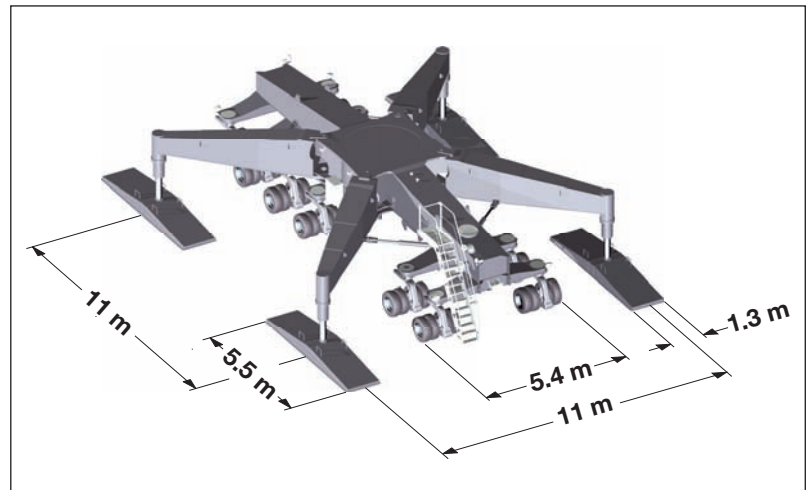
- Outstanding mobility and manoeuvrability
- Curves at any possible radii and even slewing on the spot



Schematic diagram

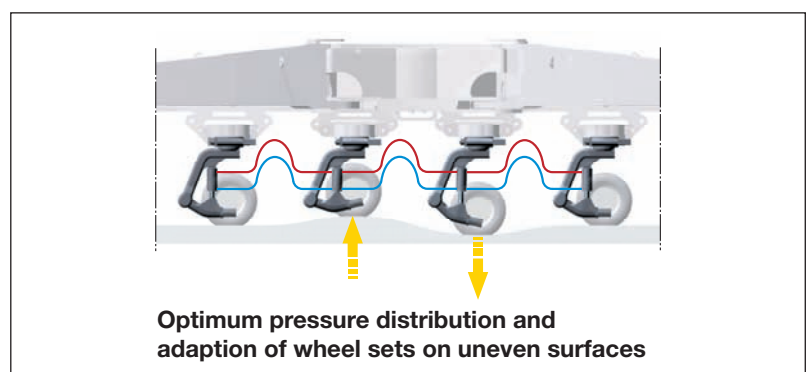
## Modular propping system

- Minimised stress and strain of undercarriage due to cruciform support base which directs the load path from boom tip to quay
- Modular system allows further reduction of quay loads by installing additional axle sets
- Easy adaptation to various sizes of support pads and bases



## Hydraulic load distribution

- Hydraulic suspension avoids overloading of individual wheel sets
- Standard trailer tyres making requisition of spares economical and time-saving
- Increased lifetime of tyres due to individually steerable wheel sets





# Technical data

## Capacity and Classification

	Capacity	Classification
Grab operation	< 36 t	A8
Grab operation	< 45 t	A7
Container	< 55 t	A6
Heavy lift	84 t	A4

## Main dimensions

Min. to max. outreach	10—40 m
Height of boom fulcrum	15.4 m
Tower cabin height (eye level)	20.8 m
Overall height (top of tower)	28.3 m
Overall length of undercarriage	16.2 m
Overall width of undercarriage	5.4 m

## Working speeds

Hoisting / lowering	0 — 90 m/min
Slewing	0 — 1.6 rpm
Luffing	0 — 75 m/min
Travelling	0 — 5.4 km/h

## Propping arrangements

Standard supporting base	11 m x 11 m
Standard pad dimension	4 x 5.5 m x 1.3 m
Standard supporting area of pads	7.15 m <sup>2</sup>
Optional size of supporting pads and bases on request	

## Quay load arrangements

Uniformly distributed load	1.12 t/m <sup>2</sup>
Max. load per tyre	5.02 t
Due to a unique undercarriage design its parameters (pad sizes, supporting base and number of axle sets) can easily be adapted to comply with the most stringent quay load restrictions.	

## Weight

Total weight	approx. 241 t
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## Hoisting heights

Above quay at minimum radius	48 m
Above quay at maximum radius	22 m
Below quay level	12 m

# Optional equipment

1. Cycoptronic® - anti-sway system
2. Teach-In® - semi-automatic point to point system
3. Vertical Line Finder® - diagonal pull preventing system
4. Dynamic Anti-Collision System
5. Synchronizing Crane Control System
6. Economy software - for optimised fuel consumption
7. Modem for data transfer and telediagnosis
8. SCULI® (crane analyzer with various features)
9. Data Recorder
10. Machine Data Recording
11. Video monitoring system
12. Radio remote control
13. Autopropping undercarriage
14. Cyclone air-intake system for the engine
15. Low temperature package
16. Tropical temperature package
17. Customer-specific painting & logo
18. Additional (driven) axle sets
19. Axle sets equipped with foamed tyres
20. Different supporting bases and pad sizes
21. And many more as per customers requirements

# Practical solutions



## Liebherr develops and produces special designs and solutions to meet customer-specific requirements

- The Liebherr Portal Crane, LPS, is an efficient combination of a space-saving portal (mounted on rails) and the proven mobile harbour crane concept. Particularly on narrow quays, individual portal solutions permit (railway) trains and (road) trucks to travel below the portal.
- Liebherr floating cranes, LBS, can be used for transshipment and midstream operation between ocean-going vessels and river barges on different types of waterways, including those having no or few quays. In addition, the LBS solution allows direct cargo transfer from ship to shore – especially when quays reach capacity limits.
- Depending on customer specifications, the LBS range may have varying lifting capacities due to tailor-made design solutions.