

Portal Slewing Crane

LPS 420 E

Maximum lifting capacity

124t

Maximum outreach

48m

Ship size

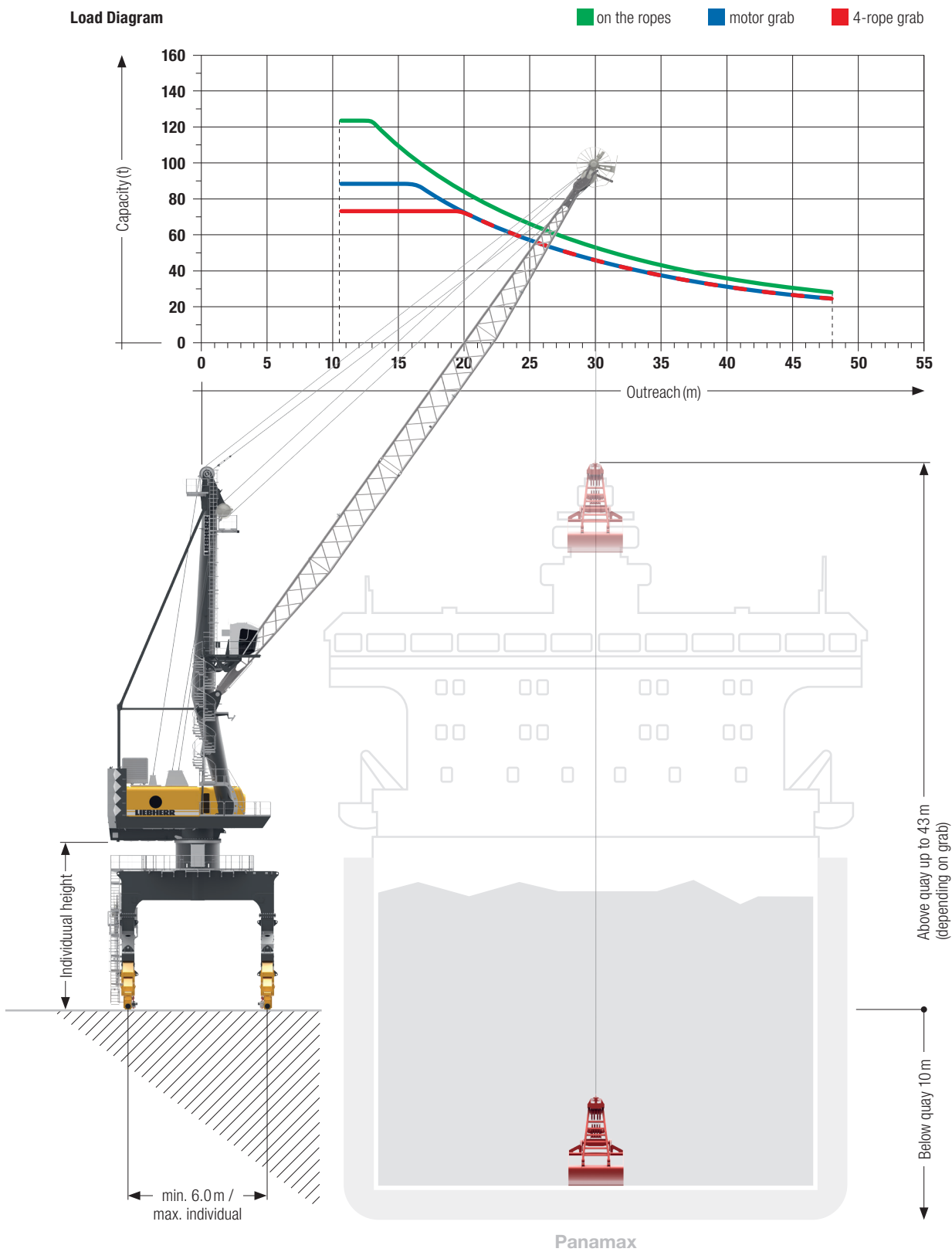
Panamax, Post-Panamax



LIEBHERR

Main Dimensions

Bulk Operation



Lifting Capacities

Bulk Operation

Maximum crane capacity 124 t

Outreach (m)	Hook operation	Grab operation	
	on the ropes (t)	4-rope grab (t)	motor grab (t)
10.5	124.0	75.0	90.0
11	124.0	75.0	90.0
12	124.0	75.0	90.0
13	117.6	75.0	90.0
14	111.5	75.0	90.0
15	105.6	75.0	90.0
16	100.1	75.0	90.0
18	90.0	75.0	81.0
19	85.3	75.0	76.8
20	81.0	72.9	72.9
22	73.1	65.8	65.8
24	66.2	59.6	59.6
26	60.2	54.2	54.2
28	55.1	49.5	49.5
30	50.6	45.5	45.5
32	48.6	42.1	42.1
34	43.4	39.1	39.1
36	40.5	36.5	36.5
38	38.0	34.2	34.2
40	35.7	32.1	32.1
42	33.5	30.2	30.2
44	31.4	28.3	28.3
46	29.3	26.3	26.3
48	27.3	24.5	24.5

Weight ramshorn hook 3.0 t
Weight rotator 3.5 t

Maximum crane capacity 84 t

Outreach (m)	Hook operation	Grab operation	
	on the ropes (t)	4-rope grab (t)	motor grab (t)
10.5	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	84.0	45.0	52.0
18	84.0	45.0	52.0
19	84.0	45.0	52.0
20	81.0	45.0	52.0
22	73.1	45.0	52.0
24	66.2	45.0	52.0
26	60.2	45.0	52.0
28	55.1	45.0	48.9
30	50.6	45.0	45.0
32	48.6	41.6	41.6
34	43.4	38.6	38.6
36	40.5	36.0	36.0
38	38.0	33.8	33.8
40	35.7	31.7	31.7
42	33.5	29.8	29.8
44	31.4	27.9	27.9
46	29.3	26.0	26.0
48	27.3	24.2	24.2

Weight ramshorn hook 3.0 t
Weight rotator 2.5 t

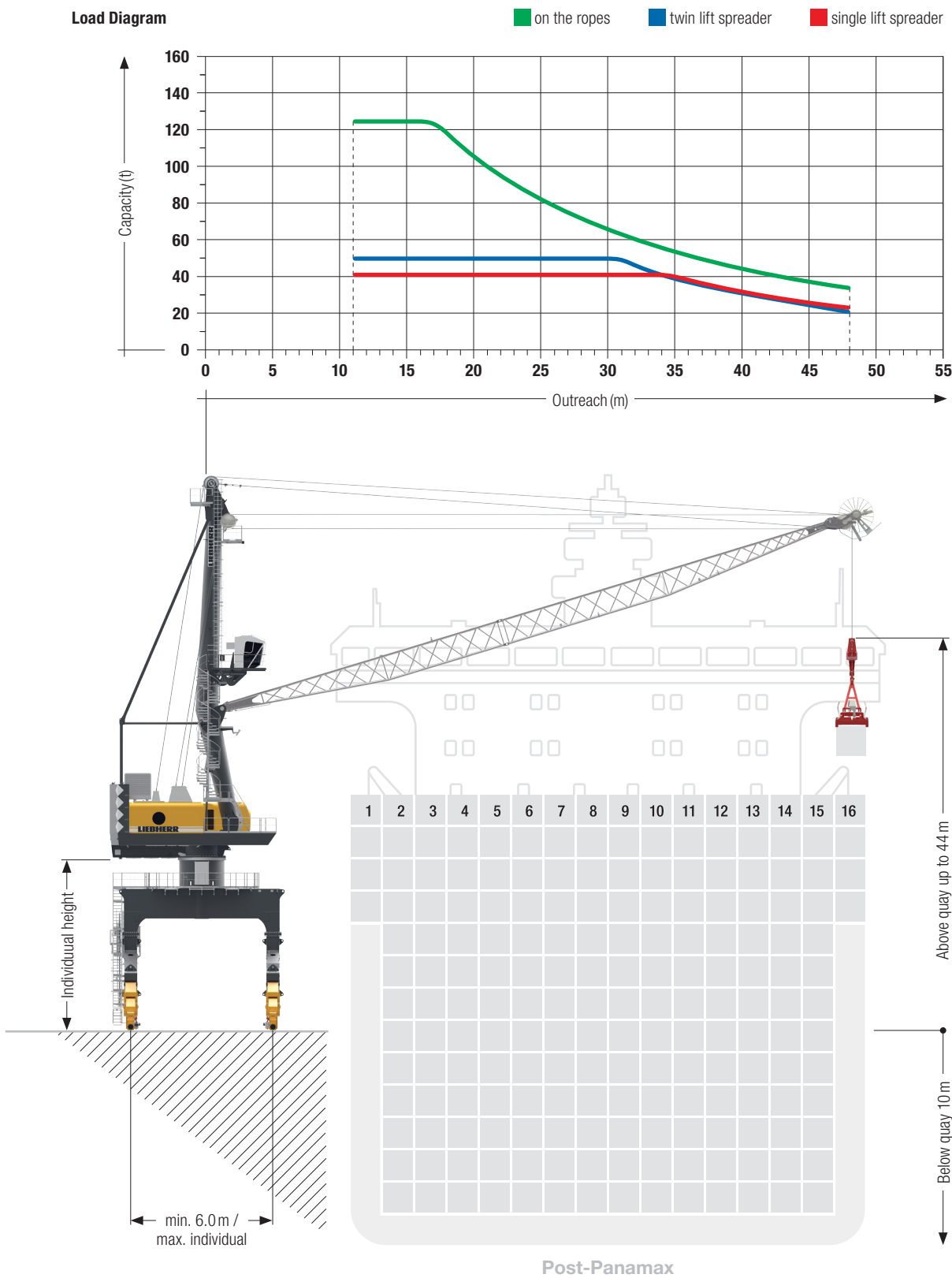
Turnover up to 1,200 t per Hour

The LPS 420 E raises the bar in terms of electrical driven bulk handling performance.

- With a maximum outreach of up to 48 metres ships with a size of up to Panamax class can be served.
- The main components of the E-drive are liquid cooled and the heat is dissipated by heat exchangers.
- The fully closed liquid cooling system in combination with the heat exchanger are installed on top of the slewing platform. According to this, no overpressure unit is necessary to prevent dust coming inside the machinery house, which is a big benefit for cranes working in a dusty environment.
- With a turnover of up to 1,200 tonnes of bulk per hour the new Liebherr electric crane exceeds the average turnover of comparable electric driven cranes in the market.
- Due to the high motor speed spread no gear shifting between normal and heavy load is required. This allows for uninterrupted power transmission from maximum load to maximum speed. Another well welcome side effect is that the noise emission of the planetary gear box is low.

Main Dimensions

Container Operation



Lifting Capacities

Container Operation

Maximum crane capacity 124 t

Outreach (m)	Spreader operation under		Hook operation on the ropes Heavy lift (t)
	Single lift (t)	Twin lift (t)	
11	41.0	50.0	124.0
12	41.0	50.0	124.0
13	41.0	50.0	124.0
14	41.0	50.0	124.0
16	41.0	50.0	124.0
18	41.0	50.0	113.9
20	41.0	50.0	102.5
22	41.0	50.0	92.5
24	41.0	50.0	83.8
26	41.0	50.0	76.2
28	41.0	50.0	69.7
30	41.0	49.9	64.1
32	41.0	45.0	59.2
34	41.0	40.8	55.0
35	40.5	38.8	53.0
36	38.8	37.1	51.3
38	35.6	33.9	48.1
40	32.7	31.0	45.2
42	30.0	28.3	42.5
44	27.3	25.6	39.8
46	24.6	22.9	37.1
48	22.0	20.3	34.5

Weight rotator 3.5 t
Weight fully automatic (telescopic) spreader 9 t
Weight twin lift spreader 10.7 t

Maximum crane capacity 84 t

Outreach (m)	Spreader operation under		Hook operation on the ropes Heavy lift (t)
	Single lift (t)	Twin lift (t)	
11	41.0	50.0	84.0
12	41.0	50.0	84.0
13	41.0	50.0	84.0
14	41.0	50.0	84.0
16	41.0	50.0	84.0
18	41.0	50.0	84.0
20	41.0	50.0	84.0
23	41.0	50.0	84.0
24	41.0	50.0	83.8
26	41.0	50.0	76.2
28	41.0	50.0	69.7
30	41.0	50.0	64.1
32	41.0	46.0	59.2
34	41.0	41.8	55.0
35	41.0	39.8	53.0
36	39.8	38.1	51.3
38	36.6	34.9	48.1
40	33.7	32.0	45.2
42	31.0	29.3	42.5
44	28.3	26.6	39.8
46	25.6	23.9	37.1
48	23.0	21.3	34.5

Weight rotator 2.5 t
Weight fully automatic (telescopic) spreader 9 t
Weight twin lift spreader 10.7 t

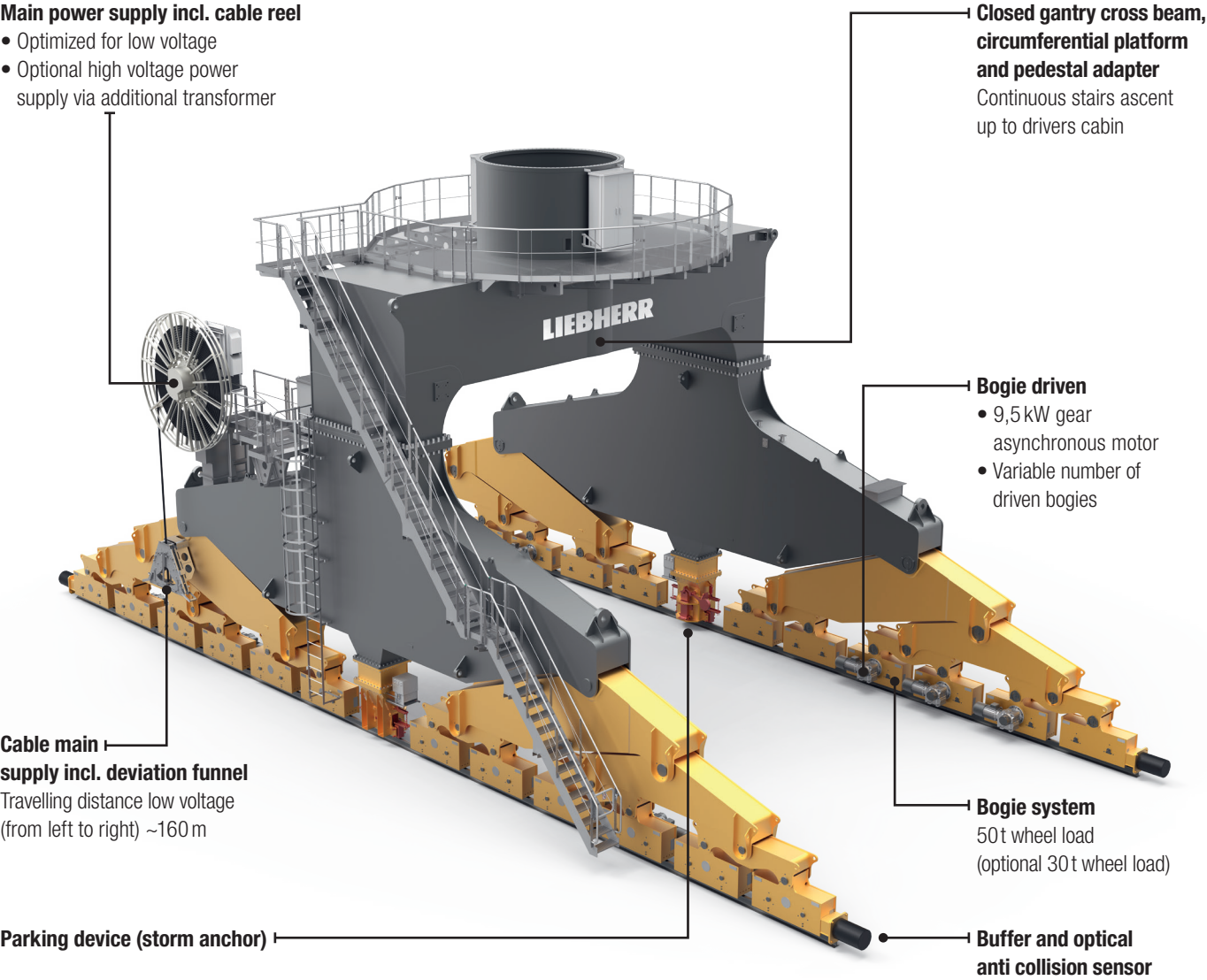
Turnover up to 30 Cycles per Hour

- 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.
 - Productivity is a decisive factor in modern container handling. The LPS 420 E is an ideal solution for ports or intermodal terminals where every container counts. With up to 30 cycles per hour the LPS 420 E is the perfect solution when it comes to container handling performance.
 - Ship sizes up to post-Panamax class are ideally servable for the LPS 420 E.
 - The LPS 420 E is especially optimised for terminals with a power supply ranging from 380 V to 460 V. Thanks to the Liebherr active-front-end frequency converter deviations in the voltage supply can be compensated easily for safe and stable operation.
 - The installed winch motors are characterized by a low moment of inertia which allows absolute precise crane handling and high dynamic performance.

Portal

Main power supply incl. cable reel

- Optimized for low voltage
- Optional high voltage power supply via additional transformer



Features

- Installed power: ~ 8–12 x 9.5 kW
- Travelling speed: 20 m/min
- Designed for travelling with load
- Simultaneous operation of travelling, slewing, luffing

Technical Data

Capacity and Classification

	Capacity	Classification
Four rope grab operation	≤ 46 t	A8
Four rope grab operation	≤ 57 t	A7
Motor grab operation	≤ 46 t	A8
Container operation	≤ 57 t	A7
Heavy lift operation	≤ 124 t	A3
Standard operation	≤ 70 t	A6

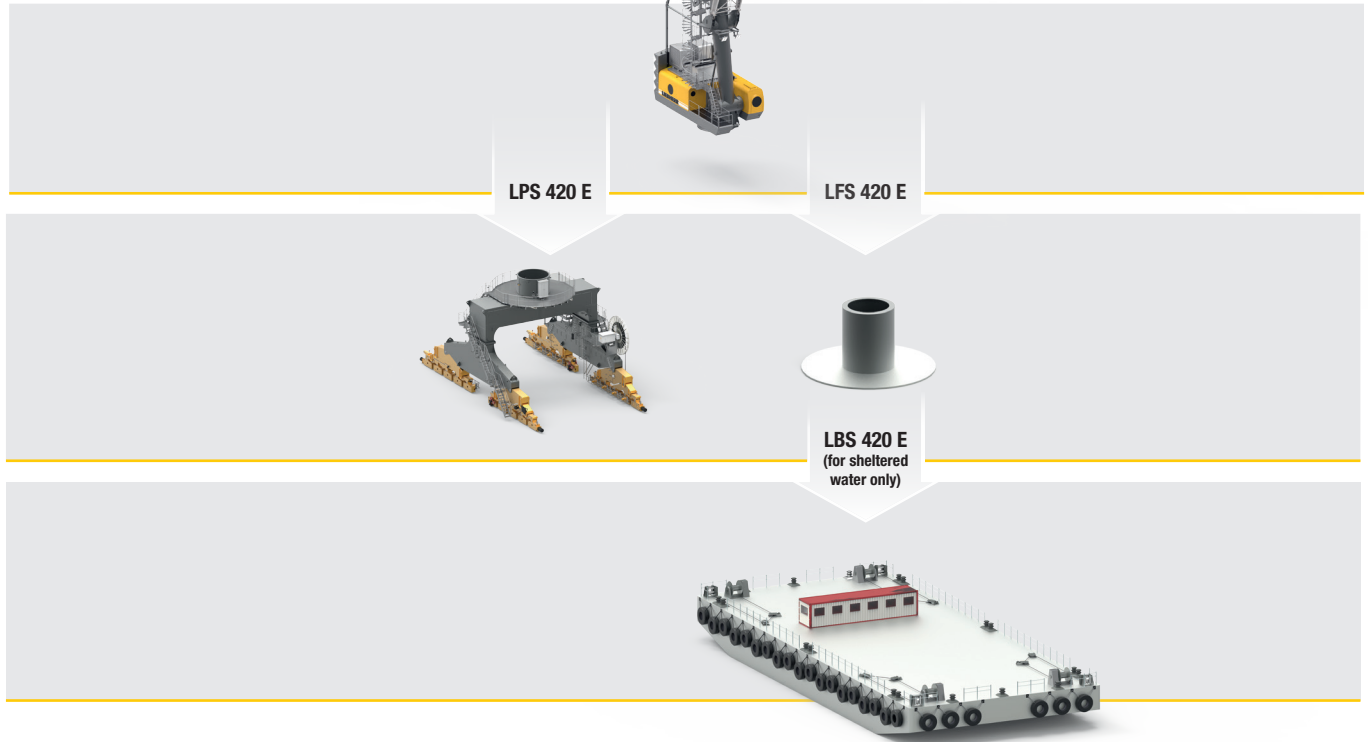
Working Speeds

Hoisting / lowering	0 — 100 m/min
Slewing	0 — 1.6 rpm
Luffing (20 m to 40 m)	24 seconds
Travelling	20 m/min

Hoisting Heights

Above quay at minimum radius	44.0 m
Above quay at maximum radius	29.0 m
Below quay level (approx.)	10.0 m

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 Fixed Slewing Cranes (LFS) are an efficient combination of a mobile harbour crane upper carriage and a fixed pedestal. LFS cranes provide an economical and space-saving solution for the installation on quaysides and jetties, especially where room for manoeuvring is limited and low ground pressure is essential. Additionally LFS solutions are also ideally suited for the installation on crane barges.
- 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.