

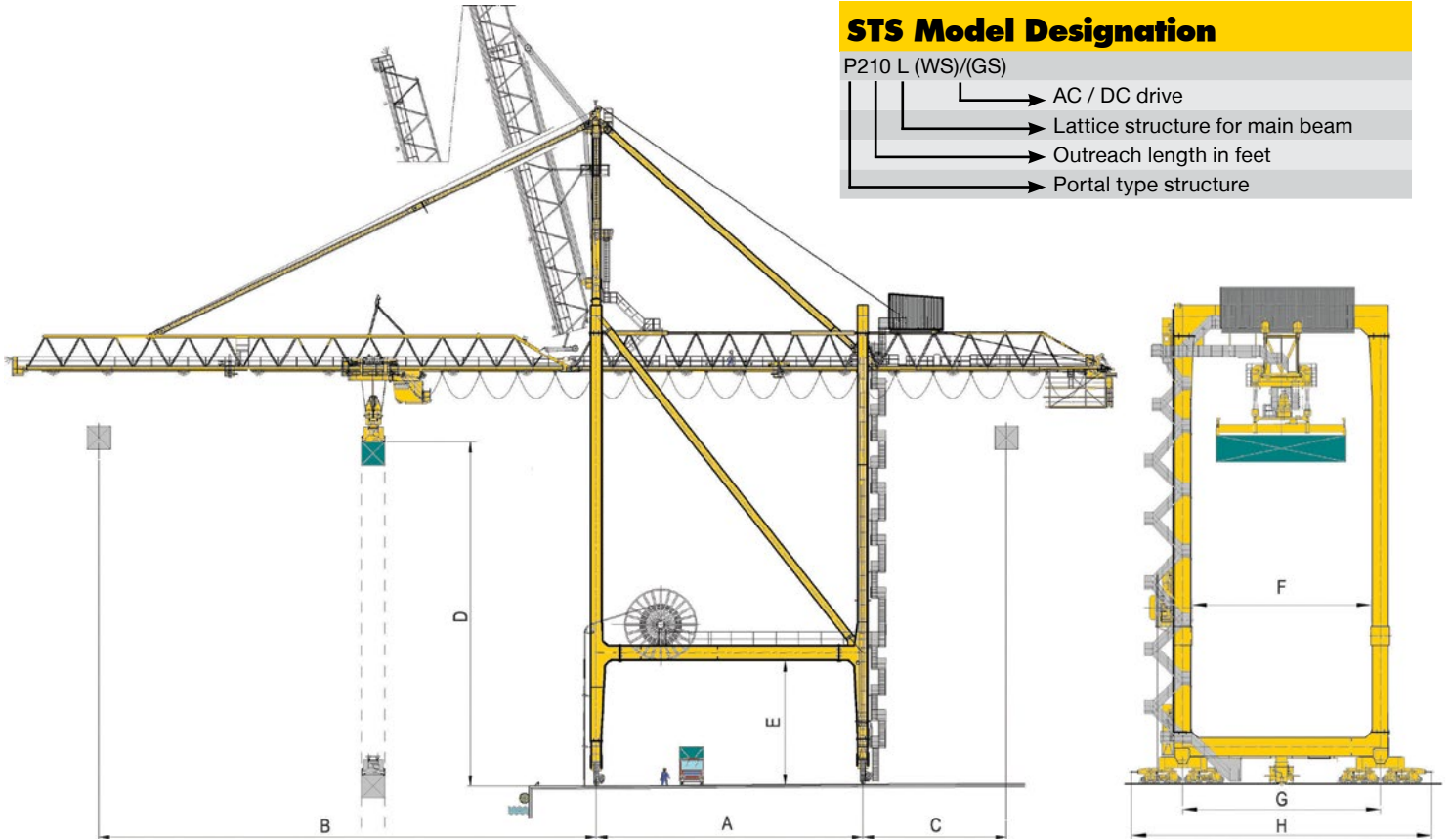
Technical Description Ship to Shore Gantry Cranes

STS



LIEBHERR

Technical Data



Typical Quayside Crane*

A: Gantry span	15 - 35 m
C: Backreach	0 - 25 m
E: Clearance under sill beam	12 - 18 m
G: Travel wheel gauge	18.2 m
H: Buffer to buffer	27 m
Wheel spacing	1 - 2 m
Wheels per corner**	6/12 - Seaside
Wheels per corner**	6/12 - Landside
Max. width trolley & main beam/boom	7.6 m

**Dependant on required wheel loads

Typical Widespan Crane*

A: Gantry span	35 - 50 m
B: Outreach	30 - 40 m
C: Backreach	15 - 30m
D: Lift height	20 - 25 m
SWL	40/50 t single 65 t twin
Hoisting speed	50/125 m/min
Trolley speed	180 m/min
Travel speed	100-140 m/min
Wheel load**	40-50 t per metre

**Based on 8 wheels per corner at 1 m spacing

Typical Design Parameters*

Classification according to F.E.M.	U7-Q2-A7
In service wind speed	72 km/h (20 m/s)
Out of service wind speed	151.2 km/h (42 m/s)
Ambient temperature range	-40° to 50°C
Frequency	50 Hz to 60 Hz
Voltage	3.3 kV to 20 kV

*Other features, dimensions and design parameters also available

Typical Feeder - Panamax Crane*

B: Outreach	30 - 40 m
D: Lift height	24 - 30 m
SWL	40/50 t single 65 t twin
Hoisting speed	50/125 m/min
Trolley speed	150 - 180 m/min
Travel speed	45 m/min
Wheel load**	30 - 45 t per metre

**Based on 8 wheels per corner at 1 m spacing

Typical Post Panamax Crane*

B: Outreach	40 - 45 m
D: Lift height	30 - 35 m
SWL	40/50 t single 65 t twin
Hoisting speed	60/150 m/min
Trolley speed	180 - 210 m/min
Travel speed	45 m/min
Wheel load**	40 - 55 t per metre

**Based on 8 wheels per corner at 1 m spacing

Typical Super Post Panamax/ Megamax Crane*

B: Outreach	46 - 70+ m
D: Lift height	30 - 49 m
SWL	65 t twin 80 t tandem
Hoisting speed	70/175 m/min
Trolley speed	210 - 240 m/min
Travel speed	45 m/min
Wheel load**	60 - 80 t per metre

**Based on 8 wheels per corner at 1 m spacing

Single Beam Lattice Construction



Description

- Single beam of monobox lattice construction for main beam and boom, where the individual members are of box type rectangular section.
- Used on all Liebherr high performance container cranes for over forty years.
- Welded down solid member trolley rails.
- Members of the boom & beam are made from high tensile steel - S355J2+N to DIN 17.

Advantages by Design

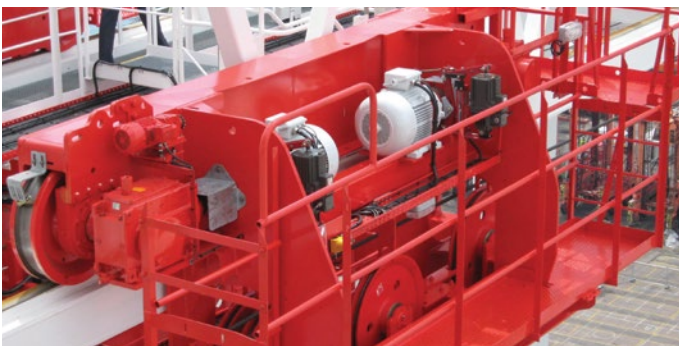
- Reduced crane deflection / structural sway.
- Maximum boom and beam rigidity levels achieved (without a weight penalty while giving considerable increases in operational performance).
- More precise container handling and driver comfort.
- Reduced boom width - Allowing quick and efficient handling of containers, close to the ship's superstructure and on-board ship cranes.
- Ideally suited for eccentrically loaded containers.
- High tensile steel, allows a lighter overall construction and a reduced wind area.
- Reduces overall crane self weight, minimises wheel loads and assists in ensuring crane stability in out-of-service conditions.
- The monobox design ensures that the trolley travel path is parallel throughout, eliminating the possibility of trolley travel deviations and side forces associated with other crane designs.

Boom / Beam Hinge Point

- Unique concept developed over 25 years and refined over that period.
- Hinge point section of the trolley rail has a specially machined profile, bolted into position.
- Low stressed hinge pin connection which is below and close to the rail transition area.
- Designed to provide a shock free transfer from boom to beam and vice-versa, regardless of climatic conditions and with full trolley speed and maximum trolley load.
- Reduces driver fatigue. Improved performance and extends the lifetime of the trolley, wheels, bearings etc.



Self Powered Trolley



Description

- Fabricated structure with machining after welding, to ensure correct alignment of wheels and drive system.
- Easy replacement and alignment of trolley travel wheels.
- Machined pads throughout to aid alignment and dimensional checks.

Advantages by Design

- Fine positioning / inching accuracy. All wheels are direct driven with individual braking systems.
- All components are easily accessible for maintenance.
- Extended trolley wheel lifetime, due to non-skewing trolley and accurate alignment.
- In the event of one motor failing, the trolley can continue working at reduced speed.

Liebherr Ship to Shore Gantry Crane

- The crane structure is trial assembled and all mechanical and electrical equipment is fitted to the steel structure and extensively tested, allowing for extremely short installation and commissioning times.
- Feedback from our customers worldwide consistently show average availability figures of 99.6% being recorded during actual vessel operation.
- On-site erection reduces unnecessary risks associated with fully erect sea transport.
- Sub-components supplied by established reputable European suppliers.
- Separate drives for hoist, travel and trolley, with no need for side shift on the spreader. Allows superior fine positioning and simultaneous motion.
- Liebherr drive systems.
- Worldwide service network.
- Extensive training (in-house and on-site).
- Purpose built state-of-the-art design and production facilities, located in Ireland since 1958.
- Highly skilled and experienced employees with expertise in-house for after sales service.
- Responsibility with Liebherr, eliminating interface and compatibility problems (i.e. structural, mechanical and electrical design, production, commissioning and service).

Other Design & Technical Features

- Optimised joystick / drive response - Key factor in crane performance and productivity.
- Separate drive and control electronics for each hoist motor - Hoist can operate at reduced speed in the event of motor damage or fault.
- Industry leading trim/list/skew system and anti-sag technology - Includes individual rope adjustment.
- Liebherr electronic regulation system - Unrivalled reliability and performance.
- Load sharing of gantry travel motors - Eliminates the possibility of 'crabbing' occurring during gantry travel.
- Motor selection is conservative with high overload capacity - Ensuring extended lifetime.
- Anti-sway hoist rope reeving system - Designed for extended service life.
- Liebherr AC or DC drive control system - Specifically designed for container cranes.
- Electronic fault / condition monitoring and crane management system - Developed specifically by Liebherr Container Cranes Ltd.
- Driver's cabin - Ergonomic, spacious, high visibility, user friendly.

Options

- Emergency drives for hoist, trolley and boom.
- Emergency hoist brakes.
- Energy chain or festoon system.
- Non contact anti-collision system.
- Straddle carrier / truck positioning systems.
- Fault data, remote access between crane and office.
- Remote access between crane and Liebherr office.
- Checkers cabin.
- Curve going gantry travel system.
- Ground level control station for all drives.
- Lashing / hatch cover storage platforms.
- Container recognition systems.
- Vessel stack profiling, optimum travel / hoist path calculated.

