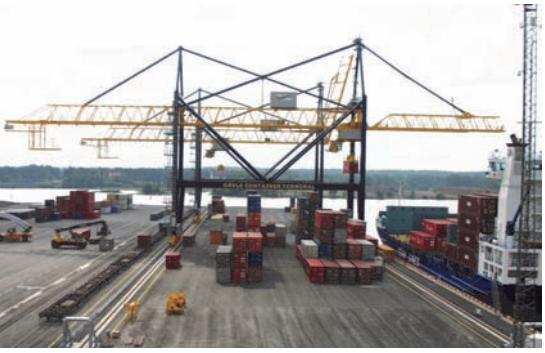
Technical Description
Ship To Shore Gantry Cranes (STS)



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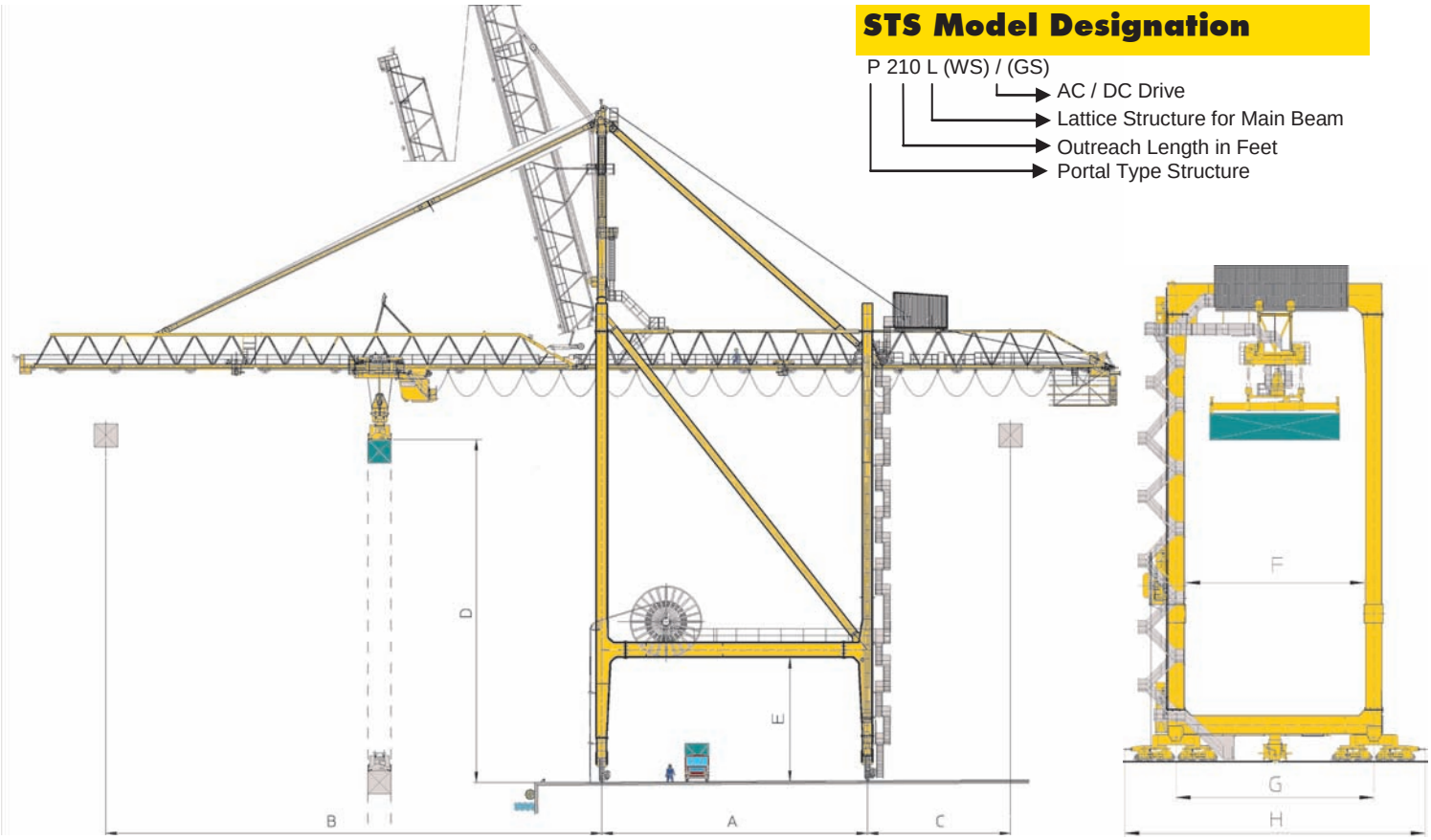
Dimensions



STS Model Designation

P 210 L (WS) / (GS)

- (GS) → AC / DC Drive
- L → Lattice Structure for Main Beam
- 210 → Outreach Length in Feet
- P → Portal Type Structure

Typical Quayside Crane *

A Gantry Span	15.00 - 35.00m
C Backreach	0.00 - 25.00m
E Clearance Under Sill Beam	12.00 - 18.00m
G Travel Wheel Gauge **	18.20m
H Buffer to Buffer	27.00m
Wheel Spacing **	1.00 - 2.00m
Wheels per Corner **	6 / 12 - Seaside
Wheels per Corner **	6 / 12 - Landside
Max. Width Trolley & Main Beam/Boom	7.60m

** Dependant on Required Wheel Loads

Typical WideSpan Crane *

A Gantry Span	35.00 - 50.00m
B Outreach	30.00 - 40.00m
C Backreach	15.00 - 30.00m
D Lift Height	20.00 - 25.00m
SWL Capacity	40/50T Single - 65T Twin
Hoisting Speed	50 / 125 m/min
Trolley Speed	180 m/min
Travel Speed	100 - 140 m/min
Wheel Load per Meter **	40 - 50T Per Meter

** Based on 8 Wheels per Corner at 1.00m Spacing

Typical Design Parameters *

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

Typical Feeder - Panamax Crane *

B Outreach	30.00 - 40.00m
D Lift Height	24.00 - 30.00m
SWL Capacity	40/50T Single - 65T Twin
Hoisting Speed	50 / 125 m/min
Trolley Speed	150 - 180 m/min
Travel Speed	45 m/min
Wheel Load **	30 - 45T Per Meter

** Based on 8 Wheels per Corner at 1.00m Spacing

Typical Post Panamax Crane *

B Outreach	40.00 - 46.00m
D Lift Height	30.00 - 35.00m
SWL Capacity	40/50T Single - 65T Twin
Hoisting Speed	60 / 150 m/min
Trolley Speed	180 - 210 m/min
Travel Speed	45 m/min
Wheel Load **	40 - 55T Per Meter

** Based on 8 Wheels per Corner at 1.00m Spacing

Typical Super Post Panamax / Megamax

B Outreach	46.00 - 69.00m
D Lift Height	35.00 - 49.00m
SWL Capacity	65T Twin - 80T Tandem
Hoisting Speed	70 / 175 m/min
Trolley Speed	210 - 240 m/min
Travel Speed	45 m/min
Wheel Load **	60 - 80T Per Meter

** Based on 8 Wheels per Corner at 1.00m Spacing

* Other Features, Dimensions and Design Parameters Also Available

Single Beam Lattice Construction

Main Beam & Derrick Boom

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 (40) Years
- Welded Down Solid Member Trolley Rails (St60.2 Quality)
- Members of the Boom & Beam are Made from High Tensile Steel S355J2G3 to DIN 17100.

Advantages by Design

- Reduced Crane Deflection / Structural Sway
- Maximum Boom & Beam Rigidity Levels Achieved (Without a Weight Penalty while Giving Considerable Increases in Operational Performance)
- More Precise Container Handling & Driver Comfort
- Reduced Boom Width - Allowing Quick & Efficient Handling of Containers, close to the Ships Superstructure & 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.
  - Eliminating Side Forces Associated with Other Forms of Design.

Boom / Beam Hinge Point

- Unique Concept Developed over 25 Years & 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 Shock-Free Transfer from Boom to Beam & Vice-Versa (Regardless of Climatic Conditions & With Full Trolley Speed and Max. Trolley Load)
- Reduces Driver Fatigue, Improved Performance & Extends the Life-Time of the Trolley, Wheels, Bearings etc.

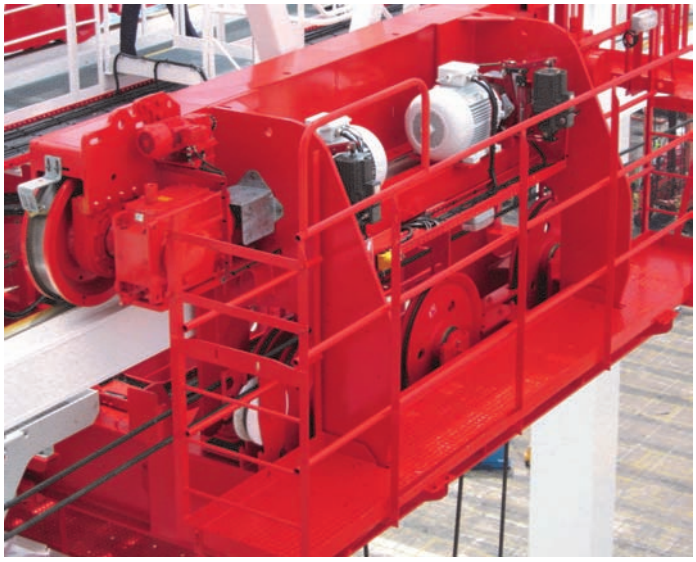
Self Powered Trolley

Description

- Fabricated Structure with Machining after Welding, Ensuring Correct Alignment of Wheels & Drive System.
- Easy Replacement & Alignment of Trolley Travel Wheels.
- Machined Pads Throughout to Aid Alignment and Dimensional Checks.

Advantages By Design

- Fine Positioning / Inching Accurately - 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 & Accurate Alignment)
- In Event of One Motor Failing - The Trolley can Continue Working at reduced speed with 2 Motors.



Liebherr Ship To Shore (Quayside) Crane

- **The Crane Structure is Trial Assembled and All Mechanical & Electrical Equipment is Fitted to the Steel Structure and Extensively Tested.**
  - **Allowing Extremely Short Installation & Commissioning Times.**
- **Feed-Back from Our Customers World-Wide, 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, Trolley (No Need for Side Shift on Spreader)**
  - **Allowing Superior Fine Positioning**
  - **Simultaneous Motion**
- **Liebherr Drive Systems**
- **Worldwide Liebherr Service Network**
- **Extensive Training (In - House and On - Site Following Commissioning)**
- **Purpose Built State-of-the-Art Design & Production Facilities Located in Ireland Since 1958**
- **Highly Skilled & Experienced Employees (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 & productivity
- Separate Drive & Control Electronics for Each Hoist Motor
  - Hoist can operate at reduced speed in the event of motor damage/drive fault
- Industry Leading Trim/List/Skew System & Anti-Snag Technology
  - Includes - Individual rope adjustment
- Liebherrt Electronic Regulation System
  - Unrivalled reliability & performance
- Load Sharing of Long Travel Motors
  - Eliminates the possibility of 'Crabbing' occurring during long travel
- Motor Selection is Conservative with High Overload Capability
  - Ensuring extended lifetime
- Anti-Sway Hoist Rope Reeving System
  - Extensively tested & highly commended by crane operators
- Hoist Rope Reeving System
  - Designed for extended service life
- Liebherr AC or DC Drive Control Systems
  - Specifically Designed for Container Cranes
- Electronic Fault/Condition Monitoring & Crane Management System
  - Developed Specifically for Container Cranes
- Drivers 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 Systems
- Straddle Carrier / Truck Positioning System
- Fault Data Remote Access Between Crane & Office
- Remote Access Between Crane & Liebherr factory
- Checkers Cabin
- Curve Going Long Travel System
- Ground Level Control Station for All Drives
- Lashing / Hatch Cover Storage Platforms
- Container Recognition Systems

* Additional Options Available on Request

STS 04/2012 Subject to change without notice

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