

**KALMAR RTG
- FOR HIGHER PRODUCTIVITY**



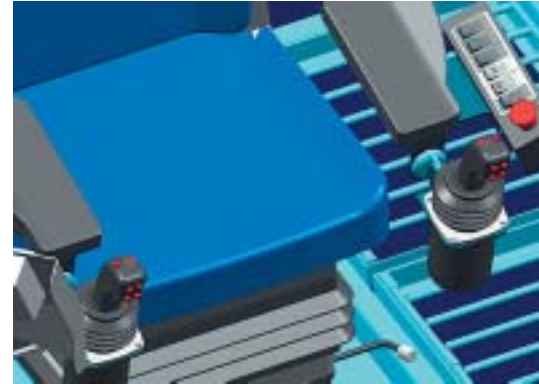
Easy operation built in to ensure productivity

Ergonomic and productive working environment

- Good visibility.
- Easy spotting with stepless controls.
- All controls for routine operation are integrated in the multi-function joy-stick controllers.

Automated functions

- Trolley and hoist motions have smart slowdowns, with a possibility to set the automatic slowdown point for spreader landing.
- Twistlocks are closed automatically when landed on container.
- Spreader is automatically locked to preset container lengths.
- Dynamic load weighing is done automatically during every lift.
- Maximum gantry speed is automatically adjusted according to actual load.



Setting the standards for container handling industry



Zero [0] Emission RTG

High-tech design

Kalmar has developed various automation products for container handling including Smartrail and Remote Crane Monitoring System (RCMS).

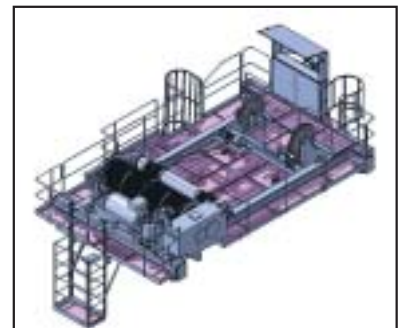
Smartrail, developed and patented by Kalmar, is a GPS-based automatic steering and container position verification system for RTGs providing enhanced productivity and reliability. Smartrail has been in commercial use since 1997 and installed in more than one hundred RTGs.

RCMS enables the operation of a large number of machines to be monitored remotely by a single operator in the terminal control room including also data archiving for detailed analyses.

Environmental awareness

Zero [0] Emission RTG has been developed to keep the environmental impact (noise and pollution) to minimum. The machines are fed by a high-voltage cable and they need to travel extremely precisely in order to follow the cable ducts – something that manual steering can not achieve. These RTGs are equipped with Smartrail for automatic steering.





Reliability built in to minimize down time

Spreader by Bromma

Kalmar RTG spreaders are manufactured by Bromma.

No hydraulics

Simple trolley design with one hoist drum and related machinery. Less parts requiring maintenance. No hydraulics in trolley as standard.

Walk-in-type EE-house

For maximum reliability AC-drives and other electrical equipment are located in weatherproof, insulated, walk-in-type Electrical Equipment House.

Indoor assembly

Kalmar RTG-Cranes are manufactured and assembled indoors by skilled and experienced personnel.



Pre-engineered solutions for all customer applications

Long wheel base

Kalmar's standard High Specification RTG comes with long wheel base meaning good stability. Optimum weight distribution balances the RTG. This means less stress on the runways because the truck lane side where the trolley is during loading and unloading is light. Truck lane side is also silent thanks to the power unit location at the opposite side. Power unit is located on the ground level ensuring easy access for maintenance.

Short wheel base

Kalmar's Short Wheel Base RTG is designed for terminals having narrow cross aisles.

8- Or 16-wheel yard interfaces

Kalmar's unique single sided wheel yokes with final drive in oil bath provide high availability with less maintenance. No vulnerable components at collision level.

Kalmar's 16-wheel design comes with large tyres (16-25.00) and machinery that are located in protected location.

Wide span

Kalmar's Wide Span RTGs extend up to eight plus one wide (8+1) and one over seven high (1 over 7).



State of the Art

• ALL AC-DRIVES • LOW OPERATING COSTS

State of the art design

- All AC-drives
- Classifications according To F.E.M. 1.001 3rd edition
 - Crane group A7
 - Hoist M8
 - Trolley M8
 - Gantry M7
- Bolted machined flange connections
- Reliable mechanisms

Lighting

- Halogen flood lights (Optional high pressure sodium)
 - No external lighting required for working
- Access lights
- Runway lights

EE-House

- Close to the power unit
- Short power cabling
- Optimal weight distribution

Power unit

- Automatic shutdown
- Oil change with hand pump
- Oil collecting pan
- Rubber mountings
- Auxiliary engine-alternator set (optional) provides excellent fuel economy

Advanced dock interface

- Excellent stability
- Long wheel base
- Slim sill beams
- Single sided wheel yokes
 - Easy wheel change
- Trouble free steering with several steering modes
- No vulnerable components at dock level





• SMARTRAIL - COMPATIBILITY • EASY MAINTENANCE • HIGH AVAILABILITY

Trolley

- Sprocket drive with fixed double row chain
- No trolley skewing, no jamming
- Minimum wear of rails and wheels
- No slipping - full performance and positive traction in all conditions
- Precise positioning
- Automation possible
- No hydraulics as standard

Walkways

- Catwalks with galvanised gratings
- Easy access for maintenance
- Uncompromised safety

Cabin

- Easy access
- Ergonomical working environment
- Multifunction controllers
- Good visibility
- Air conditioning (optional)
- Heater (optional)
- Easy window cleaning

Spreader

- High manufacturing volumes
- Light construction
 - Yet 1 million cycles
- Mechanical and electrical Interlocking for twistlocks
- Automatic functions:
 - Centring of micro movements
 - Skew $\pm 5\text{deg.}$ / $\pm 200\text{mm}$
 - (Optional) trim $\pm 3\text{deg.}$
 - Telescoping
 - Twistlock locking
- Hooks for general cargo

Fast working cycles

- Excellent load control
- High speeds
- Sway prevention system

Kalmar Industries

Lifetime Business Partner

Kalmar is a global provider of heavy-duty materials handling equipment and services to ports, terminals and industrial users. We supply handling solutions, which enable our customers to operate with a high level of efficiency and reliability. Every 4th container or trailer transfer at terminals around the world is handled by a Kalmar machine.

Global Operation

Kalmar has production plants in Sweden, Finland, the Netherlands and the USA, 10 sales companies and 50 agents around the world. Today, more than 65,000 Kalmar machines are in operation in environments ranging from sub-zero arctic climates to tropical humidity and heat. Our global experience and understanding of local conditions enable us to serve customers in all corners of the world.

Kalmar Solutions for Full Response

As customers seek to focus more on their core business, Kalmar Solutions offers flexibility and a switch from ownership to equipment availability. Our customer support services include spare parts, field service, financial solutions, service packages, refurbishing, upgrades and Total Fleet Management. Kalmar Solutions not only facilitate better equipment performance and continuous innovations, we also make an impact on your operational revenue growth.

