

KALMAR AUTOMATIC STACKING CRANE





Automatic Stacking Crane

When to Automate

In market areas with high labor costs, labor accounts to more than 50% of overall costs in a terminal. Therefore automation can result in significant savings in overall costs and improved profitability. Automation also makes it possible to go into 24 hrs / 7 days operation at very low or no incremental costs.

Automation Benefits

The benefits of automation are not only limited to lower direct operator labor costs or independency of qualified operators availability. By introducing automation, it is possible to reduce overall operating costs and increase utilization rate of equipment. Automation will also eliminate accident damage and reduce infrastructure costs such as pavement wear, slot markings and lighting.

Automatic Stacking Cranes

It is important to identify the areas that are most suitable for automation and which give the biggest benefits. Automatic stacking cranes are easy to automate and are already widely used in container handling. Automatic stacking cranes can also gradually be introduced to existing handling systems, such as straddle carrier operation.

Kalmar - Experienced Automation System Provider

Kalmar has an extensive experience providing various automated container handling systems. In addition to introducing automated stacking crane terminals and automated straddle carrier terminals, Kalmar has developed Smartrail®, pioneering DGPS-based semi-automation system for yard cranes.



Cost-effective

Automatic stacking crane operation has proved to be cost-effective, when total life time costs are considered. The basic yard crane concept supports unmanned operation; cranes run back and forth along fixed rails enabling exact positioning.

Storage capacity is very high resulting in effective land usage. Up to 10 containers wide stacks can be maintained with little space between the stacks, since no truck lanes or safety margins for gantry drive deviations are needed.

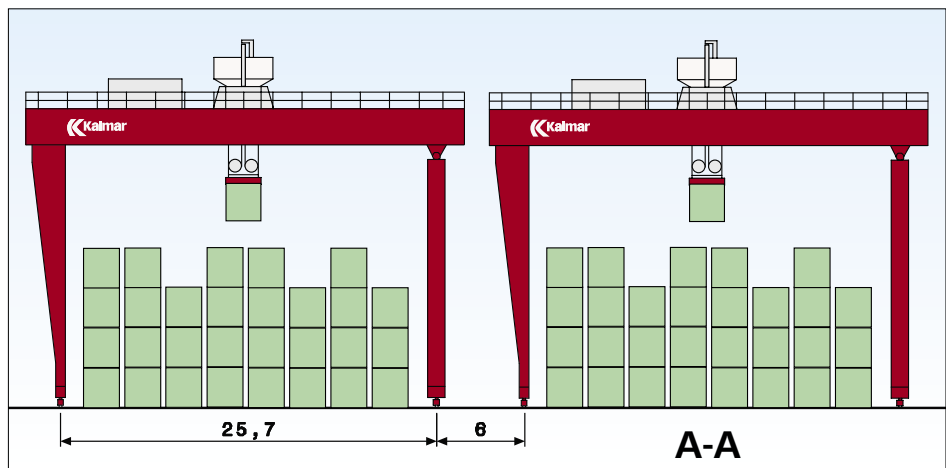
Labour costs are minimal as the Automatic Stacking Crane system operates nearly unmanned. Also human error possibilities are very limited enabling constant quality independent of external factors such as time of day or weather. ASC work always the same efficient way, they do not have bad days.

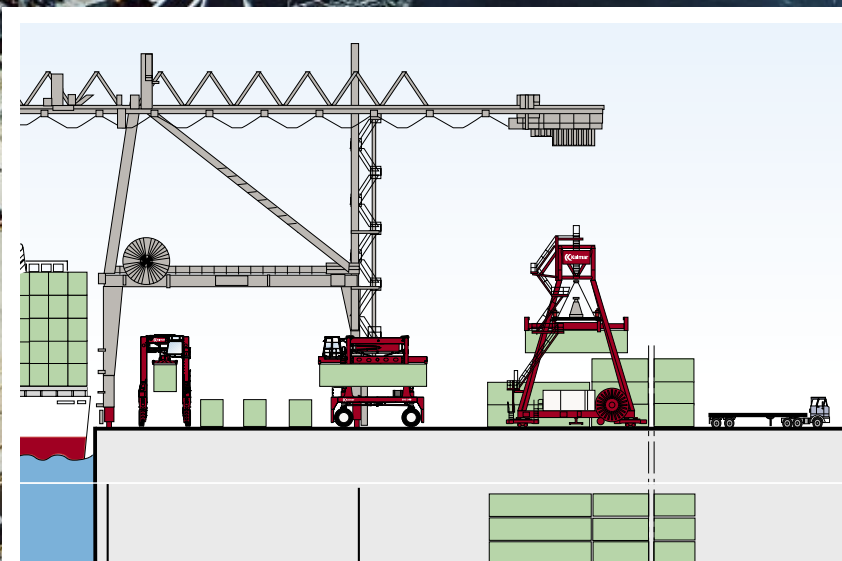
Operational costs can be considerably low compared to other systems, depending on local conditions. ASCs are electrically powered, limiting the need of maintenance to a minimum. With modern AFE-drives, regenerated power can be fed back to the network further lowering energy costs.

Housekeeping can be done effectively during quiet hours maximizing throughput on busy hours.

Maximum Safety and Security

Automatic Stacking Cranes are normally operated within a fenced area with restricted access of personnel. This lowers significantly the possibility of accidents involving human injuries. Security is also enhanced due to the closed area. Environmentally friendly, low noise Automatic Stacking Cranes provide the lowest emission per box of all container handling systems as the cranes themselves produce no exhaust or evaporative emissions.





ASC system minimizes usage of diesel-powered equipment as in addition to stacking, they take care of the in-stack transportation of the containers within the terminal. Also thanks to efficient house-keeping in container stacks the waiting times of street trucks can be minimized. All this results not only in low particle emissions, but also low noise emissions.

Automatic Stacking Crane System

Automatic stacking cranes are used for stacking and in-stack transportation. Automatic stacking cranes leave and pick up containers from a dedicated area at front-end stacks. A similar dedicated area is used also in the landside end of the stacks. Stacks are located at 90 deg angle to the quayside, in order to minimize travelling distances of feeding equipment.

Either Shuttle Carriers®, trailers or AGVs are used to transport the containers from ship-to-shore crane to the front of the ASC stacks. Benefit of Shuttle Carriers® is that they leave and pick up containers directly from the ground under the ship-to-shore crane, thus creating a buffer under the crane.

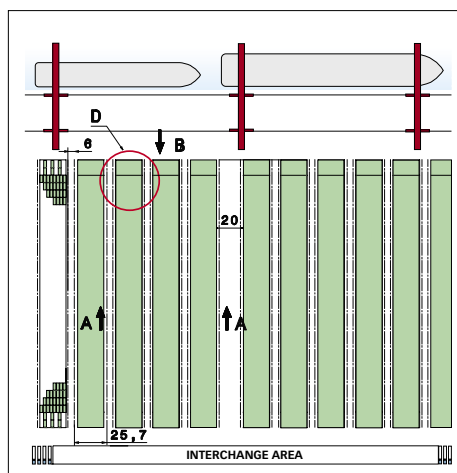
Shuttle Carriers® also leave and pick up containers from a dedicated area at front end of the automatic stacking crane stack, thus creating a similar buffer. This unique concept will maximize ship-to-shore crane

productivity and reduce overall number of equipment required.

Loading and unloading of road trucks can be done either by automatic stacking cranes via remote control, with one operator controlling several straddle carriers, or by Shuttle Carriers®.

ECT Rotterdam operates over 100 Kalmar Automatic Stacking Cranes

Since 1989, ECT Rotterdam has been running an automated terminal operation with Kalmar ASCs. Operation has been extended in many phases totalling now 114 ASCs. At ECT, Kalmar Automatic Stacking Cranes are used to both transporting and stacking the containers 24 hours a day, seven days a week.



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 product supply centres in Finland, Sweden, Malaysia, the Netherlands and the USA, more than 10 sales companies and over 150 dealers 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.

