



Straddle Carriers

for end-to-end
operations



One flexible solution

When you need a single solution for all your container handling needs end-to-end, Kalmar Straddle Carriers provide you with the ultimate flexibility. Not only can Kalmar Straddle Carriers operate effectively in any part of your yard, they can also operate in any shaped yard. Allowing you to optimise the usage of the space you have.

One machine, multiple applications

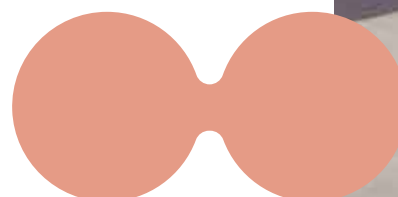
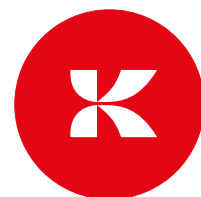
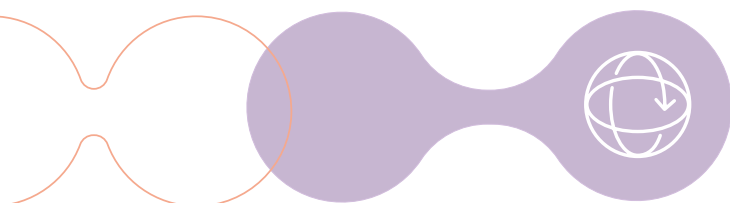
A Kalmar Straddle Carrier can load and unload trucks, work with other cranes, rail exchanges, reefer stacks and move containers between your warehouse or depot and your main yard, allowing you to reduce your OPEX as you can manage all of your handling processes with one machine. Giving you the flexibility to move equipment from task to task, to adapt to the changing needs of your terminal operations. They can be operated manually or be automated using the Kalmar AutoStrad Application powered by Kalmar One.

Decouple your operations

As Kalmar Straddle Carriers can work independently, picking and placing containers on the ground or on existing stacks, they allow you to decouple your operations both on the quayside and landside. Your STS cranes will be able to operate more effectively because their movements are no longer dependent on other pieces of equipment.

Cut your CO₂ emissions

We support our customers' ambitions to become more eco-efficient by providing solutions, such as our Hybrid and Electrically powered Straddle Carriers that will help you reduce your fuel consumption and emissions, optimise cargo flows and cut overall operational costs. Sustainable eco-efficient solutions are the future of cargo and material handling, with new and more advanced technologies helping us do more with less. You can also cut noise, light pollution, and your emissions when you fully automate your operations with an electrically powered Kalmar AutoStrad solution.



Kalmar Straddle Carriers can work independently, they allow you to decouple your operations both on the quayside and landside.

A flexible range for you

Every Kalmar Straddle Carrier for end-to-end operations features a modular design that can be tailored to meet the needs of your business. There are four different models to choose from.

Kalmar Electric Straddle Carrier

The eco-efficient Kalmar Electric Straddle Carrier produces zero emissions at source and provides a flexible solution that can easily be adapted to meet your requirements. You have a choice of battery solutions and charging options plus a range of supportive products that can help to enhance your overall operations.



Kalmar Hybrid Straddle Carrier

The Kalmar Hybrid Straddle Carrier with start-stop technology delivers all the power you're used to, with up to 40% reduction in fuel consumption and up to 50 tonnes less CO₂ emissions per annum than a traditional diesel-electric machine. A regenerative energy system captures electrical braking and spreader-lowering energy, then stores this for re-use in Lithium-ion batteries.



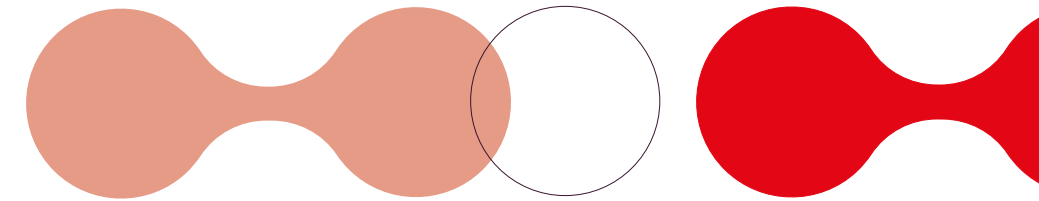
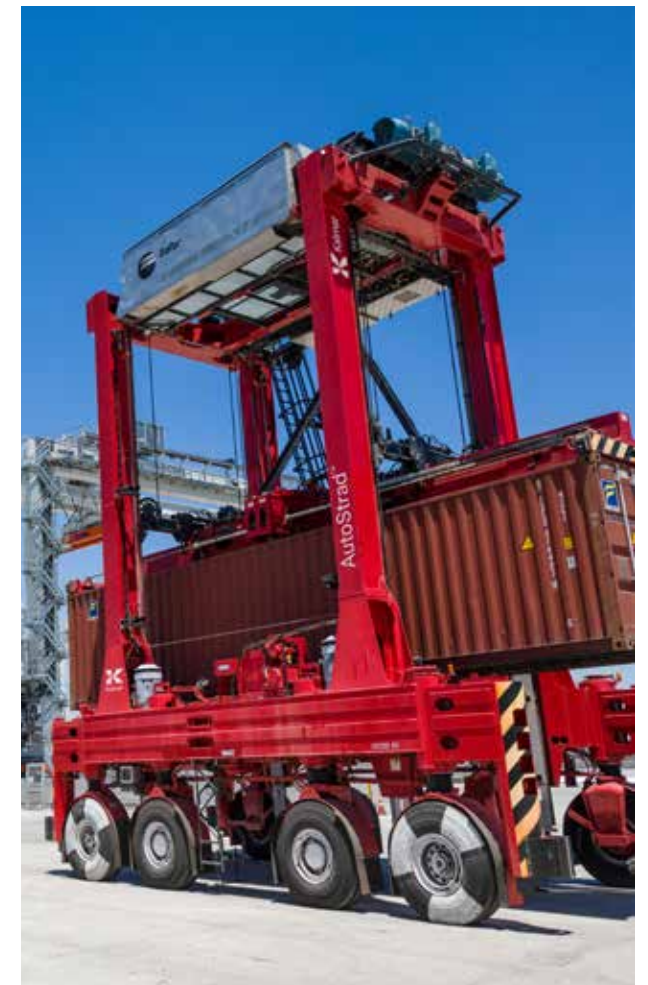
Kalmar Straddle Carrier

The Kalmar Straddle Carrier offers high performance, excellent fuel efficiency, low noise levels and is known for being very reliable. Featuring a diesel-electric drive, this straddle carrier complies with the latest exhaust emission regulations.



Kalmar AutoStrad™

Kalmar AutoStrad™ uses the Kalmar One AutoStrad Application, which is a proven automation solution for container handling. All Kalmar Straddle Carriers can be delivered automation ready, enabling you to automate your entire terminal operations - from the quayside to truck handling.





Why choose a Kalmar Straddle Carrier?

Kalmar Straddle Carriers are highly eco-efficient, productive, reliable and safe to operate.

Extremely eco-efficient

You have a choice of highly efficient drive units. The Kalmar Electric Straddle Carrier produces zero emissions at source and the Hybrid Straddle Carrier can reduce your current emissions by up to 40%, helping you meet ever tougher global emissions standards.

Safer

Kalmar Straddle Carriers feature the strongest frame in the industry, with a streamlined yet extremely rigid design with no external bracing. The structure enables easy access to all key components, which are well protected within the frame. With superior cabin visibility for manual operations, your operators will stay safe and be in control at all times and our entire range of straddle carriers feature active stability control. This system continually monitors the speed, turning radius and spreader position and will slow the machine down automatically when needed. This helps the operator handle the straddle carrier in a safe manner. By using geo-fencing, Kalmar AutoStrads can operate with other equipment, and be charged or serviced safely by creating virtual safe fenced zones. Traditional fencing is still required to separate your automated yard from other parts of your operations if you are operating a Kalmar AutoStrad™.

Highly productive

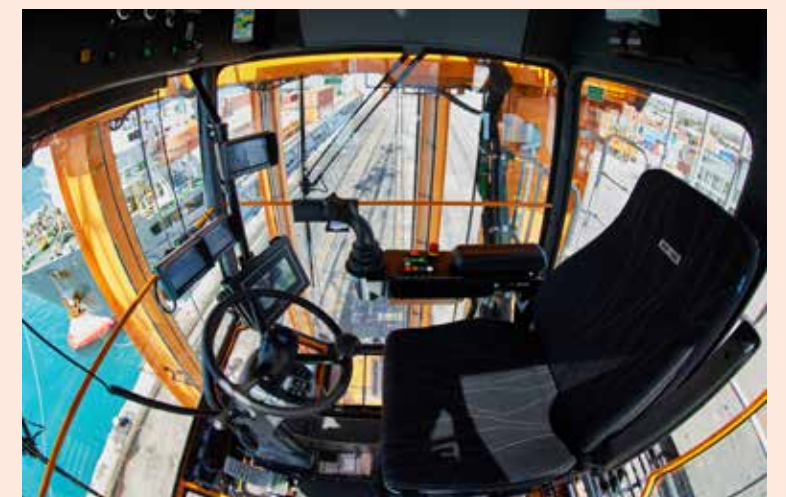
Our range of straddle carriers offers you the highest levels of productivity. You can handle two containers at a time and stack up to four containers high, lifting up to 60 tonnes. A low centre of gravity means that cornering can be done safely at higher speeds, so you can move containers quicker. Our electric and hybrid range also features a rope hoist system with only eight pulleys, making it highly efficient, safer and easier to maintain than other lifting systems. All of our straddle carriers are easy to operate and have servicing intervals of up to 1000 hours. Plus, all servicing points are easily and safely accessible from the top frame.

Robust and reliable

Each Kalmar Straddle Carrier is fitted with a new robust mobile drive which is designed so you can operate reliably in harsh working conditions and they benefit from a redesigned battery system. In addition, we have reduced the complexity of the electrical systems, including the spreader, making the overall system more robust and easier to service and maintain. Maintenance and troubleshooting are further simplified with the addition of new, easily accessible control units, making the task easier for your technicians.

Ergonomic cabin design

To make sure our cabin delivered a superior operating environment it was designed in cooperation with our customers. It features a spacious interior, window contours that minimise night-time reflections, and low cabin noise. Ergonomically designed with an intuitive user interface, dimmable LED lighting and an optional 180 degree electrically adjustable seat, everything is always in easy reach for your operators.



Lower emissions, no compromise on power

Lowering your carbon emissions often means compromising on power, but that doesn't need to be the case.

The Kalmar Hybrid Straddle Carrier is able to reduce your emission by up to 40% by using a regenerative power system coupled with a highly efficient diesel engine that uses less fuel. You will also benefit from lower noise levels as both our electric and hybrid machines are incredibly quiet. Any light pollution can also be dramatically reduced when operating a Kalmar AutoStrad™ as it does not require lights to operate in the dark.

Clean power on the go

Kalmar's FastCharge™ system can charge your Kalmar Electric Straddle Carrier while it is in operation in your yard. No more lengthy re-charging times, as your straddle carriers can now recharge at strategically placed fast-charging stations during normal operations. Typical recharging times are only 30 to 180 seconds at 600 kW. The result? You get faster turnaround times, increased productivity with as high as 90% utility rates, less noise and zero emissions at source.

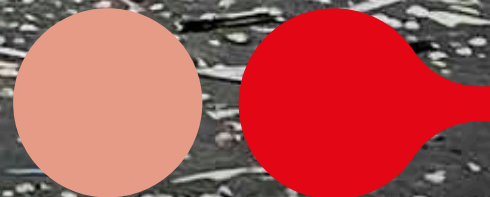
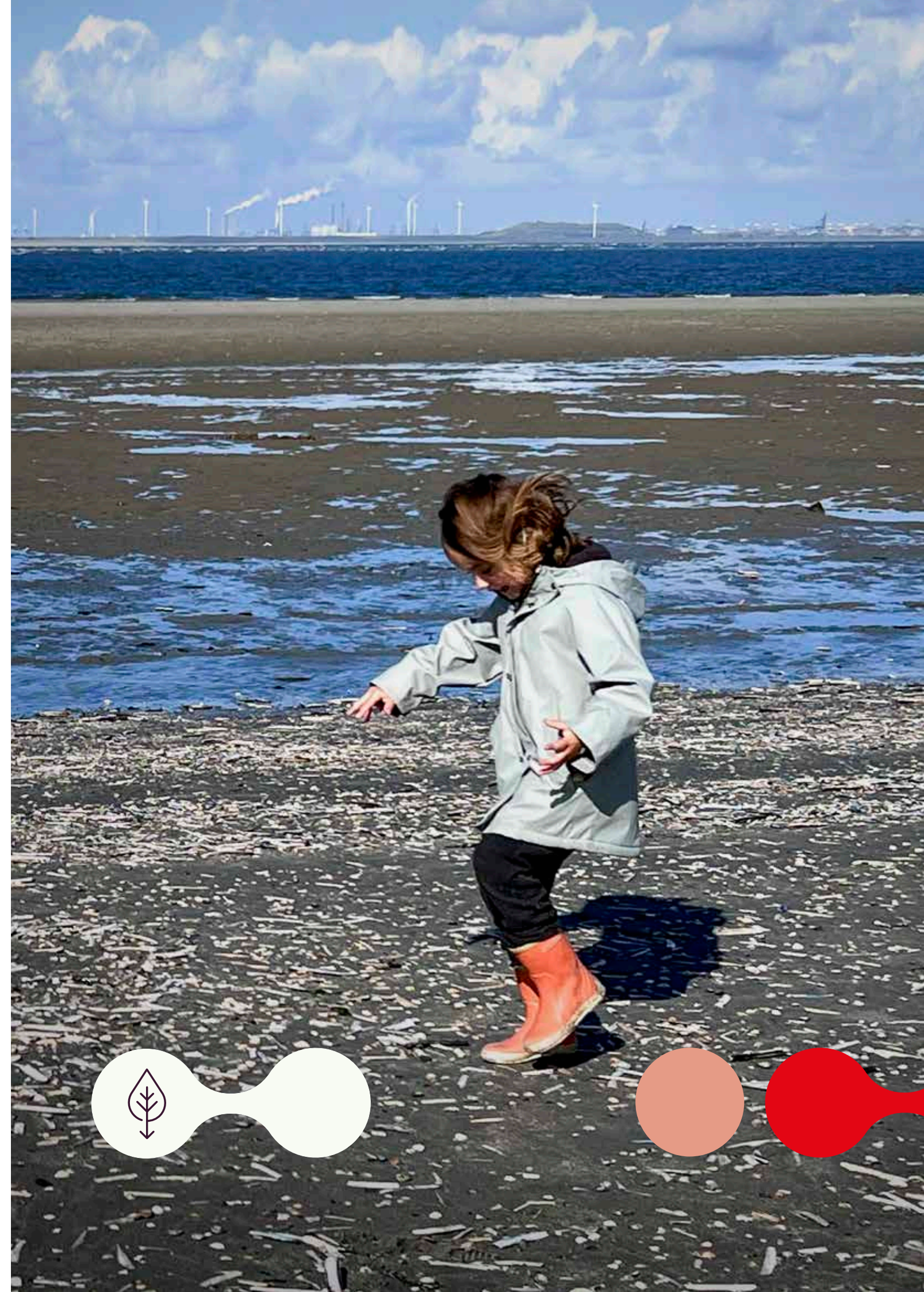


You can also charge your Kalmar Electric Straddle Carriers at a CCS charging point between shifts or when not in operation, 45 minutes of charging provides up to 240 minutes of operating time.



Cut your costs by going electric

Electrically powered straddle carriers are quicker and easier to maintain as they have less moving parts and can cut your fuel bills as electrically powered solutions are usually more cost effective than traditional powered solutions.



The Kalmar Charge Family

Electrically powered solutions are usually available as one size fits all, around which you need to build your business. Not any longer. Now, our electrically powered straddle carriers provide a flexible solution that can easily be adapted and matched to fit your operational requirements.



Battery technology

High Energy Battery.



Net operating time dependent on energy consumption level

High Power Battery.



Net operating time dependent on energy consumption level



Charging time with FastCharge™.

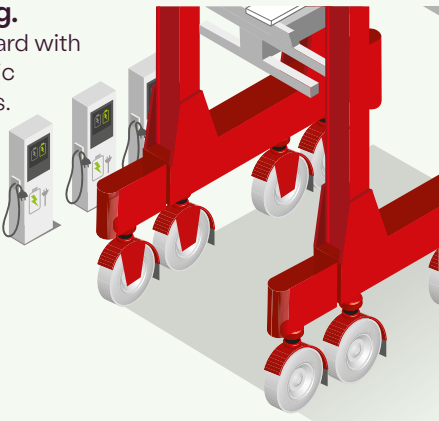


Charging time with FastCharge™.

Charging technology

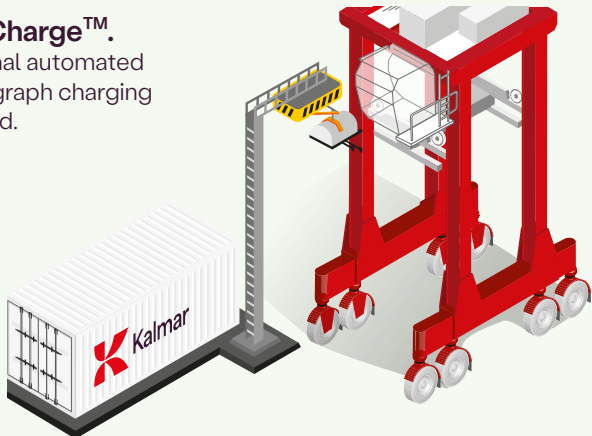
CCS Charging.

Comes as standard with all Kalmar Electric Straddle Carriers.



FastCharge™.

Optional automated pantograph charging method.



Supportive products

Kalmar offers a range of supportive products that can enhance your overall operations.

MyKalmar INSIGHT

Energy Module.

In addition to providing real time operational data of your equipment fleet, the Energy Module allows you to monitor each of your electrically powered straddle carrier's battery charging status and gives greater visibility to charging key performance indicators.

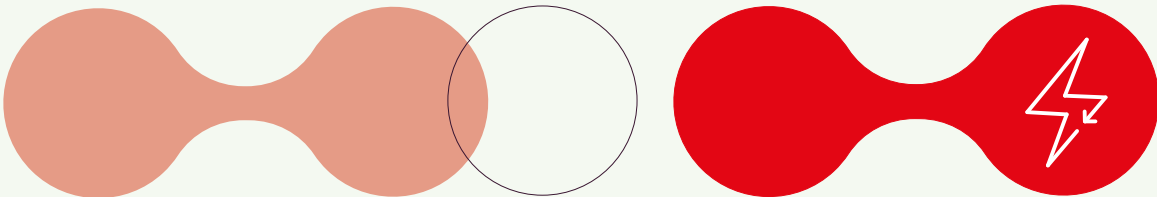
Kalmar One

Fleet Optimiser.

The Kalmar One Fleet Optimiser module provides job scheduling and dispatching in automated terminals. Our Fleet Optimiser is capable of assigning charging tasks for automated equipment to minimise delays and use each charging point as efficiently as possible (only available for AutoStrads).

Kalmar Charge Optimiser.

The Kalmar Charge Optimiser automatically assigns charging tasks to the equipment operator, to avoid queues at charging stations and ensure the highest utilisation rates at your charging points.



AutoStrad™ Application

For end to end operations

Kalmar One

Terminal layer

As a standardised and flexible system, Kalmar One can be integrated with any Terminal Operating System (TOS) and all container handling equipment. Centralised equipment control system functionalities ensure optimal operations between automated equipment and TOS. Full integration between Kalmar equipment and the Navis N4 TOS [and future releases] means less time needed for on-site testing.

Kalmar Cloud Gateway



Remote Services Link

Kalmar Remote Services

Kalmar Key

The equipment and system agnostic Kalmar Key interfaces enable seamless data flow between systems, enabling you to build a holistic view of your data from multiple sources.

Remote Console

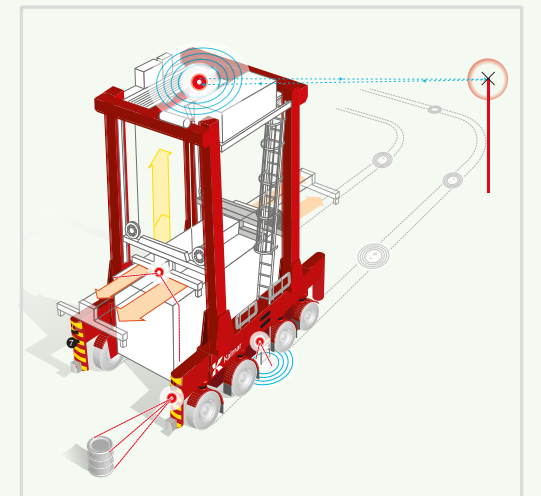
With the ergonomically designed multi-purpose console, you can safely operate multiple equipment efficiently and comfortably from one desk.

Equipment layer

Proven and safe onboard devices and sensors take care of measurements and equipment positioning, ensuring sustainable performance in all weather conditions.

Yard layer

Contains all yard mounted components and systems for a fully or partly automated container terminal including interchange area, reefer mechanics and access control, ensuring safe maintenance with minimum disruptions to operations.



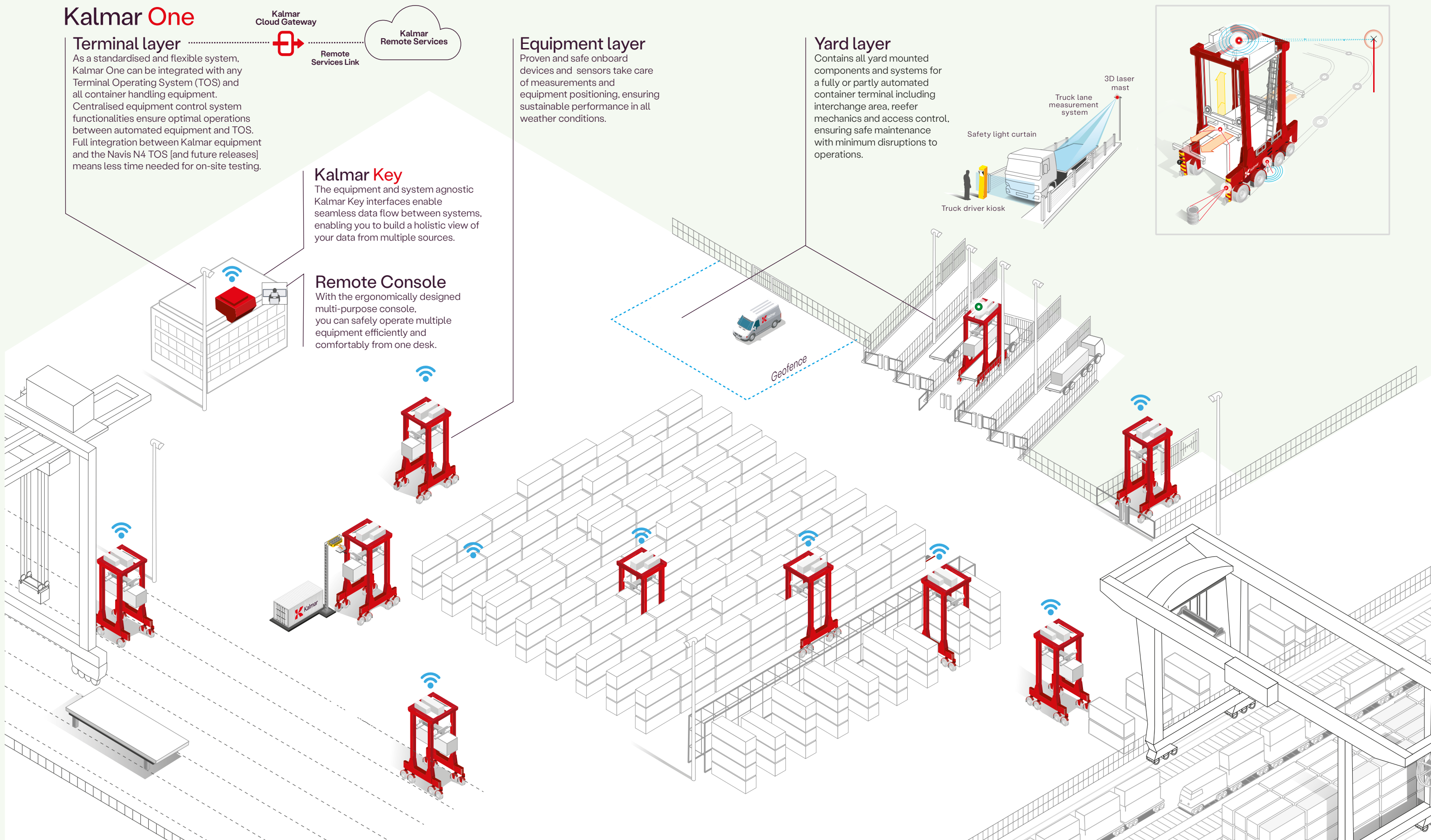
Safety light curtain

Truck lane measurement system

3D laser mast

Truck driver kiosk

Geofence



Kalmar One: automation redefined

Kalmar One automation system is a flexible, scalable and open automation system with proven functionalities and well-established processes that will help you streamline and automate your operations. It offers a standardised open system that is compatible with all types of equipment irrespective of manufacturer, making it quicker, easier and more cost effective to deploy.

Each automated Kalmar equipment application - is powered by Kalmar One. Kalmar One contains automation and software products and modules that are standardised and harmonised for all different application types. Each of these applications has its standard blueprint of Kalmar One products, which allows us to offer and deliver the same proven and tested solutions to all our customers.

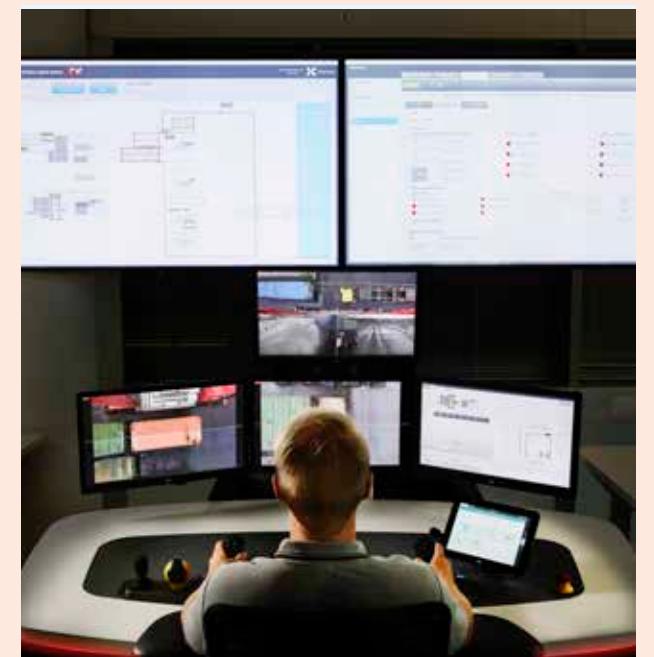
Safety in mixed traffic

Instead of having to create fenced off areas to separate your automated equipment from manual equipment, Kalmar has been a pioneer in the use of geo-fencing, where virtual boundaries are created using local satellite systems or ground based transponders set into the ground to create lanes. This allows for automated equipment to work safely within a designated geo-fenced area. Manually operated equipment would continue to work normally outside of the geo-fenced area and follow standard road markings and signs.

Operate your equipment remotely

The Kalmar One Remote Console has all the required functions, controls, information and guidance enabling your operators to control equipment remotely. It is quick, safe and easy to switch between equipment, allowing your operator to handle several machines at a time. Large format screens provide a clear view of exactly what is happening with each piece of equipment. In addition, the operator can manage semi-automated moves from the console, tracking the movement of each container and then prompting the operator when they need to take over or validate a move. Even if your operations are fully automated the console can be used for exception handling.

The console is ergonomically designed and can be personalised to optimise operator comfort and safety.



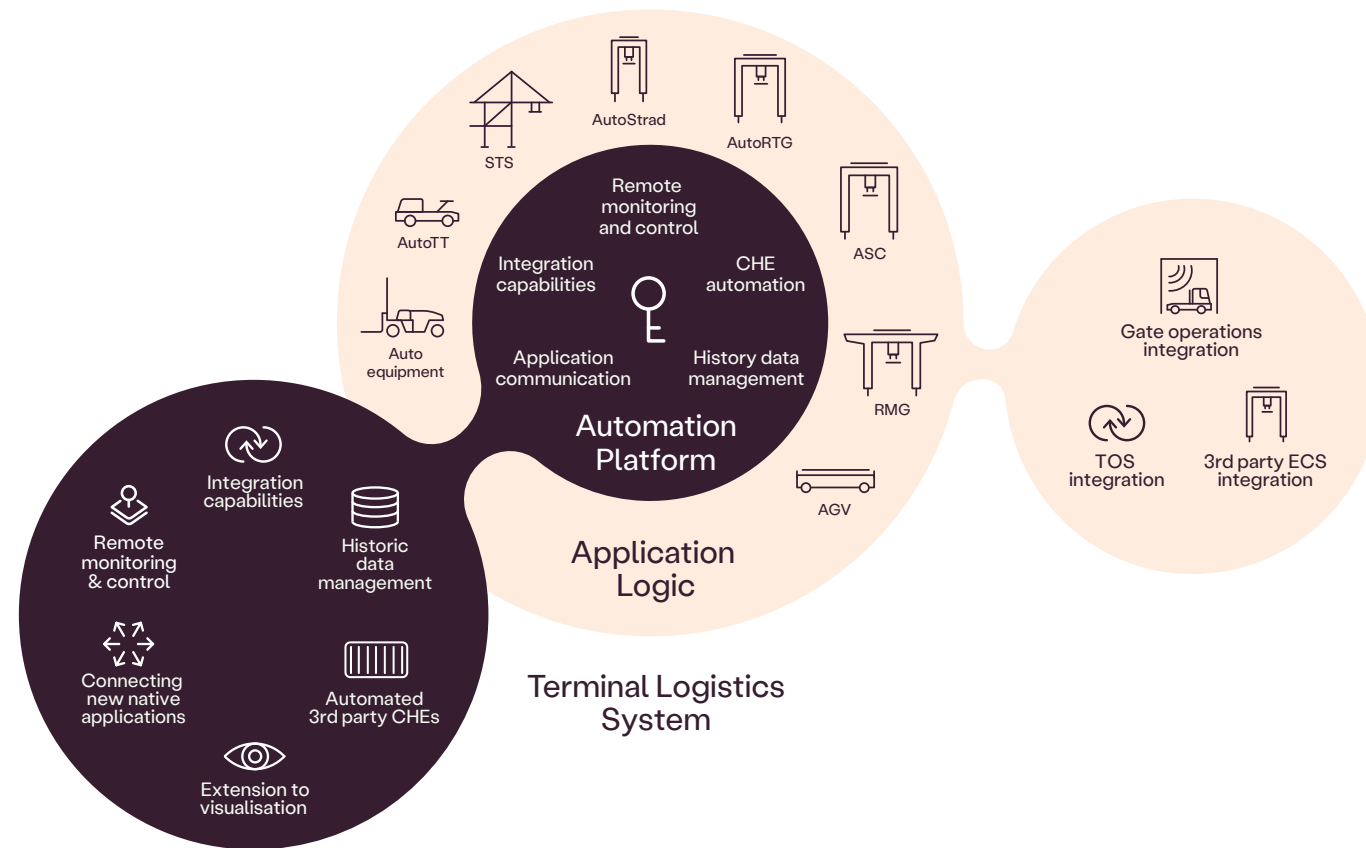
**A flexible, scalable and
open automation system
with proven functionalities.**

Open up your choice

Kalmar Key

Kalmar Key provides a set of open automation interfaces that will allow you to build a complete end-to-end automation solution that is exactly right for your business by using Kalmar One as a common central automation system. With Kalmar Key, you will be able to choose who you work with and adopt an agile way to further develop the capabilities of your equipment and software, potentially with third-party developers.

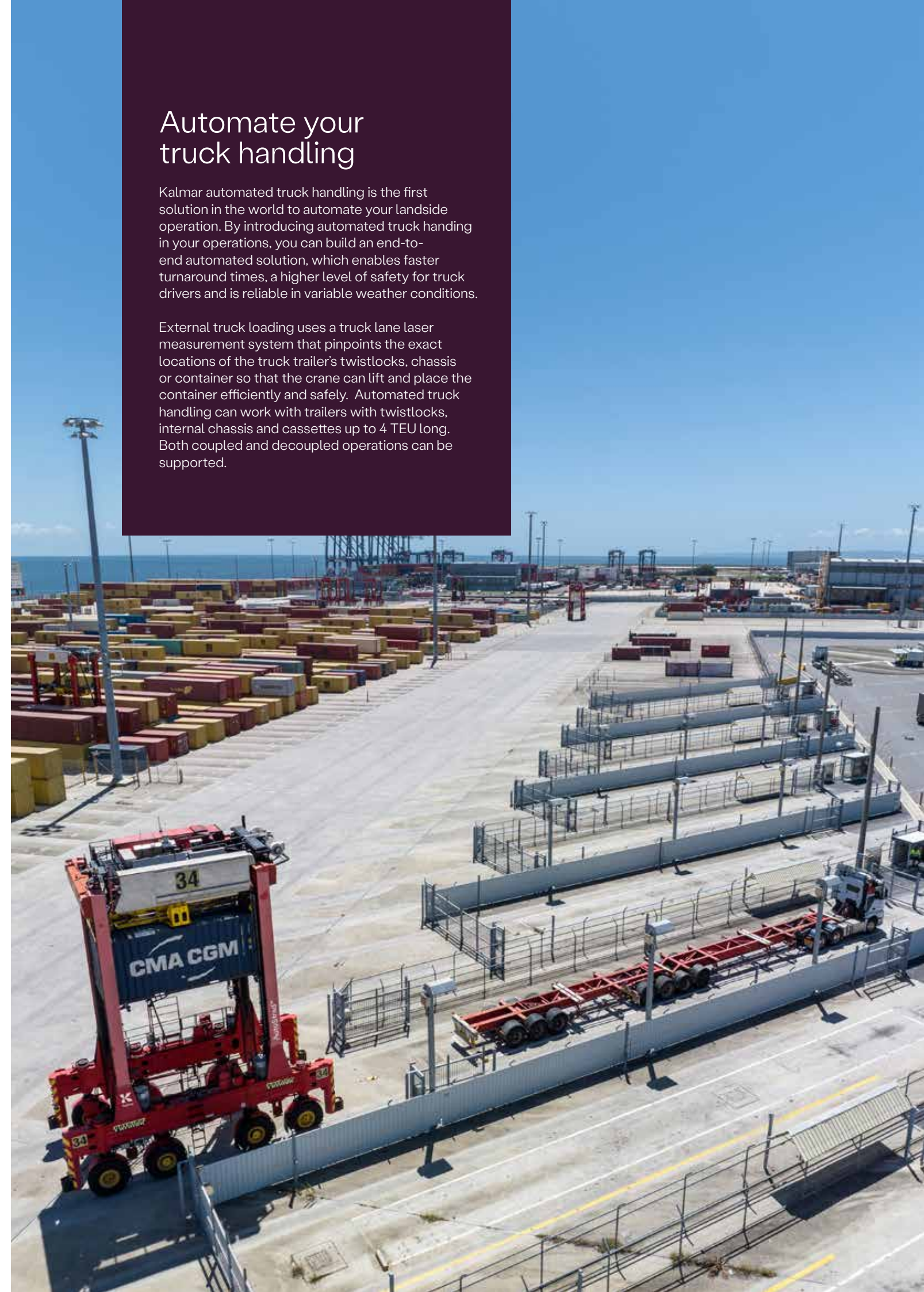
With an equipment-agnostic approach, Kalmar Key enables a vast range of new applications and equipment to be connected for a total automation solution. Additionally, open interfaces enable a holistic view of data from multiple sources, allowing you to optimise your operations continually and with ease. Opening up your possibilities.



Automate your truck handling

Kalmar automated truck handling is the first solution in the world to automate your landside operation. By introducing automated truck handling in your operations, you can build an end-to-end automated solution, which enables faster turnaround times, a higher level of safety for truck drivers and is reliable in variable weather conditions.

External truck loading uses a truck lane laser measurement system that pinpoints the exact locations of the truck trailer's twistlocks, chassis or container so that the crane can lift and place the container efficiently and safely. Automated truck handling can work with trailers with twistlocks, internal chassis and cassettes up to 4 TEU long. Both coupled and decoupled operations can be supported.





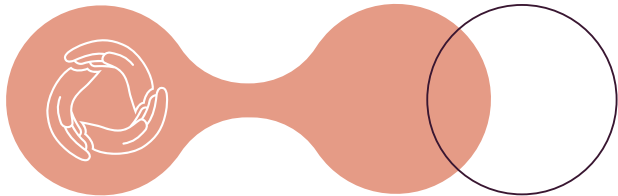
Keep moving with Kalmar Services

To keep your business moving Kalmar Services offers a range of services that can help you keep your equipment moving optimally.

Kalmar Care

Care that keeps your business moving.
With Kalmar Care you get a flexible service that's built around your business. Including, the experience and knowledge of Kalmar's dedicated staff, coupled with transparency and increased predictability of costs.

Kalmar Care is available in three different service models: our two customisable contracts – Essential Care and Complete Care – and our flexible solution On Demand Care.



Service models:



Essential Care

A maintenance solution to keep your equipment in an optimal condition.



Complete Care

A complete service solution providing piece of mind and maximum equipment uptime.



On Demand Care

Top-of-the-line service whenever you need it.

Maintenance Planning	●	●
Preventive Maintenance	●	●
Predictive Maintenance		●
Corrective Maintenance		●
Preventive Spare Parts	●	●
Corrective Spare Parts		●
Lubricants	●	●
MyKalmar	●	●
MyKalmar INSIGHT	●	●
Tyre Maintenance		●
Battery Maintenance		●

● Included ● Optional

Top-of-the-line service
whenever you need it

MyKalmar

Keeping your cargo moving.

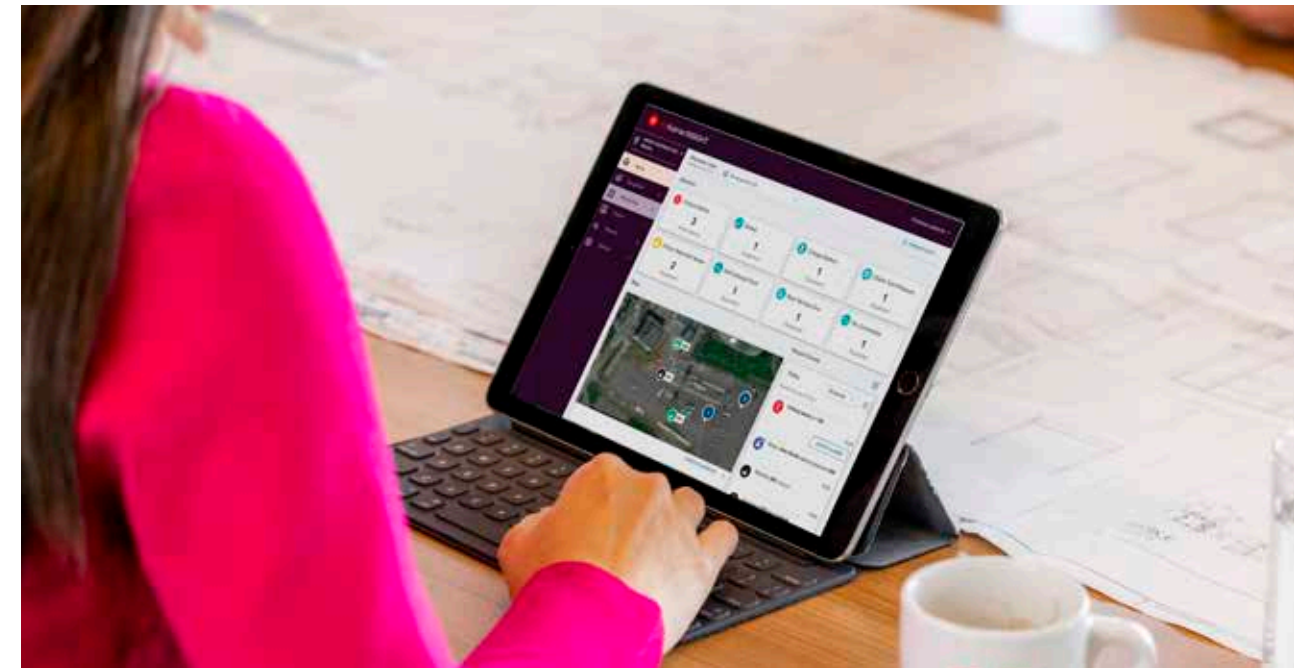
The MyKalmar portal brings together many of Kalmar's digital services into one place. With a single point of access and a user-friendly design you'll benefit from greater visibility and control over your maintenance activities, parts ordering and equipment performance - helping you improve your operational performance, safety and efficiency across your entire fleet.

MyKalmar INSIGHT

Optimise your operations with Insight.

MyKalmar INSIGHT* is a performance management tool for cargo handling, which gives you an easy to use overview of your fleet operations, by aggregating data from multiple sources, including equipment built by other manufacturers. Review your entire fleet activities, schedule maintenance activities and

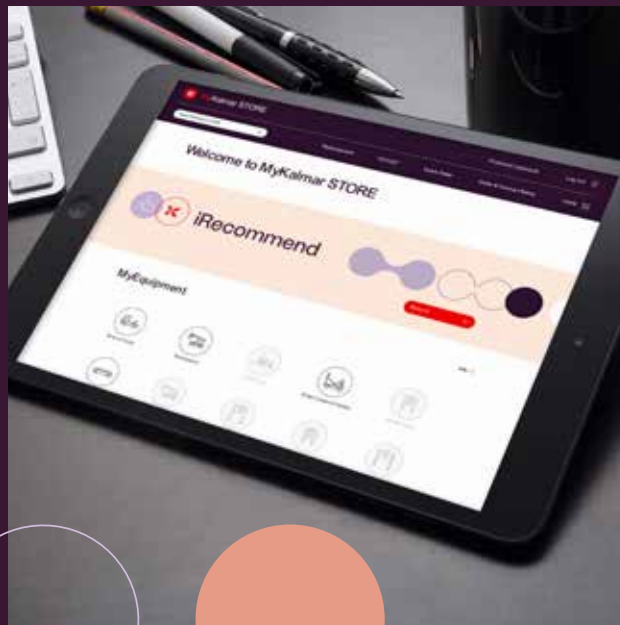
order the required parts automatically. All enabling you to take action on real-time information, that will help improve your overall operations immediately. MyKalmar INSIGHT comes fitted and ready to be activated in all new Kalmar equipment, it can also be retrofitted into existing Kalmar equipment or those built by other manufacturers.



*Installation costs and/or an annual subscription fee may apply.

MyKalmar STORE

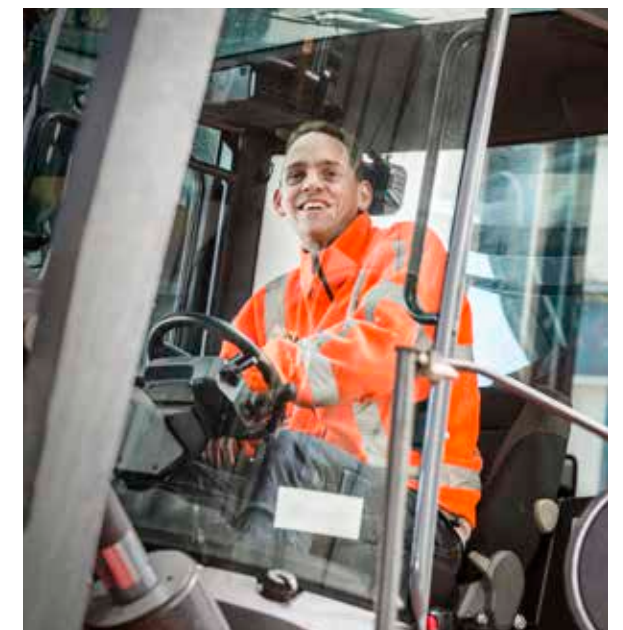
MyKalmar STORE is your one stop shop for all the parts you need which is accessible through MyKalmar. Open 24/7, accessible on any screen and available in different languages. MyKalmar STORE stocks 100s of thousands of Kalmar Genuine Parts at any given time and we can have them delivered quickly to you, no matter where you are in the world. You can search, order and then track your order all through the same application. MyKalmar STORE has been designed to make your life easier.



Kalmar Training

Enhance your skills.

To get the most out of your new machine our training centre offers a range of courses for both your technicians and operators. Operators can be taught how to drive the machine for optimum performance and minimum waste, and to learn what needs to be checked daily for optimal safety. Technicians can be educated with the knowledge they need to keep your new equipment in top condition in a safe way. Courses are a mix of theory and hands-on experience.



Kalmar Automation Support Services

Kalmar offers a range of support services to help keep your automation software running smoothly.

Automation Software Updates, which are done quarterly and ensure your software has the latest fixes and enhancements.

Automation Remote Support, which allows you to address unplanned incidents or interruptions 24/7. On-site Automation Personnel Services, where we can offer additional resources to support your tech team in managing your automation software.

Automation Software Deployment, is a tailored service that can assist your tech team with software updates, on-site deployment and can be extended to cover minor configuration changes to entire system upgrades.

Professional Services offers a vast range of automation support services from process optimisation to emulation services, training or customised automation solutions.



Kalmar Genuine Parts

When the right part matters.
When something needs to be replaced urgently, you need a spare part that meets your exact needs – immediately. Kalmar offers a rapid delivery service for over 50,000 premium-quality genuine parts to anywhere in the world, with installation support if needed.



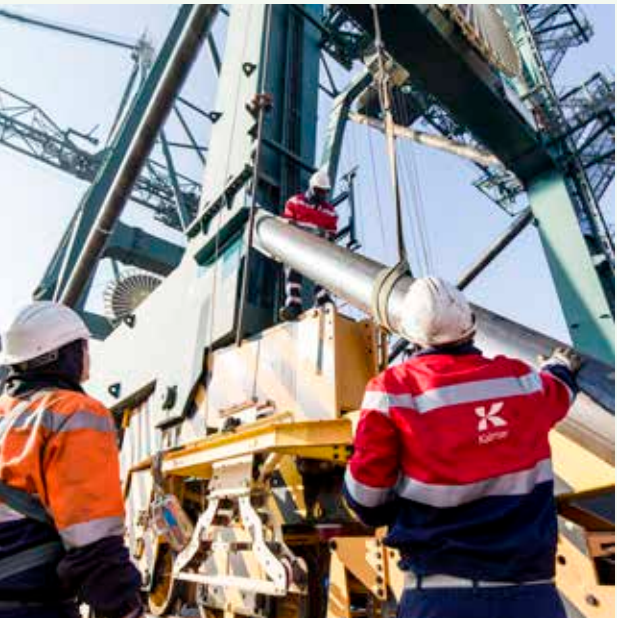
Kalmar Terminal Design Services

Building a new terminal, changing operational mode or renewing your current operations is a demanding and risky task, which is why you want a knowledgeable and experienced partner. Kalmar Terminal Design Services, with over 250 projects delivered globally in the last 15 years, provides a full range of design services to help you realise your ambitions and improve the capacity and flow of cargo through your terminal.



Kalmar Modernisation Services

Kalmar Modernisation Services enables you to upgrade your fleet including Automatic Stacking Cranes (ASC), Rubber Tyred Gantry Cranes (RTGs), Rail Mounted Gantry Cranes (RMGs), Ship to Shore Cranes (STS), and Straddle Carriers and help maximise their performance. With our industry-leading experts and decades-long experience we can help you lower your fleet's total cost of ownership and adapt to your changing operational requirements.





Kalmar

www.kalmarglobal.com

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