



# Kalmar Straddle Carrier

Boosting productivity  
with every container move



# Built on experience

Kalmar is the world leader in straddle carriers. Drawing on over 70 years of experience in keeping customers' cargo on the move, Kalmar straddle carriers are used worldwide whenever fast ship-to-shore operations and high selectivity are essential.

Straddle carriers help optimise terminal productivity by decoupling waterside and landside operations. The speed, reach and flexibility of straddle carriers allow terminals to use a single type of equipment for all container operations. Kalmar straddle carriers can handle loads of up to 60 tonnes and stack containers up to 4-high.

## The industry leader

Kalmar straddle carriers are built on a heritage of over 70 years. To date, over 5,000 units have been manufactured. The first fully automated terminal using Kalmar AutoStrad™ was opened in Brisbane, Australia in 2005.



## Cutting-edge innovation

Kalmar develops energy-efficient, safe and intelligent machinery and automation solutions at its Technology and Competence Centre in Tampere, Finland. The Centre is a unique research facility that simulates port operations and includes an extensive testing area for new equipment and solutions.

# Tailored for every need

Kalmar offers three straddle carrier models to suit your needs. All current models feature modular designs that give the possibility to customise machines based on the specific needs of your terminal.

## Faster, safer, more economical

Kalmar straddle carriers are a product of Kalmar's commitment to research and development that responds directly to customer needs. Featuring state-of-the-art drive technology, significantly decreased fuel consumption, advanced safety features and superior operator ergonomics, Kalmar straddle carriers are ready to meet your demands.

## Future-proofed for automation

Automation is the key element in keeping future terminals competitive. All Kalmar straddle carriers are ready to take advantage of the major benefits offered by port and process automation, from supporting the efficiency achieved by manually operated models to the fully automated AutoStrad carriers.



# Lower fuel consumption, higher performance

Kalmar introduces the world's first real hybrid straddle carrier.

The new Kalmar hybrid straddle carrier is a true leap forward in terminal yard equipment. A regenerative energy system converts electrical braking and spreader lowering energy into electric power that is stored by means of state-of-the-art battery technology.

An automated start-stop system chooses the optimal balance between engine and battery power. This also extends engine and generator lifetimes as well as maintenance intervals. Less frequent servicing and refuelling increases machine availability.

Consuming up to 40% less fuel than existing straddle carriers in the market, Kalmar hybrid straddle carriers offer lifetime value through savings in operational costs.

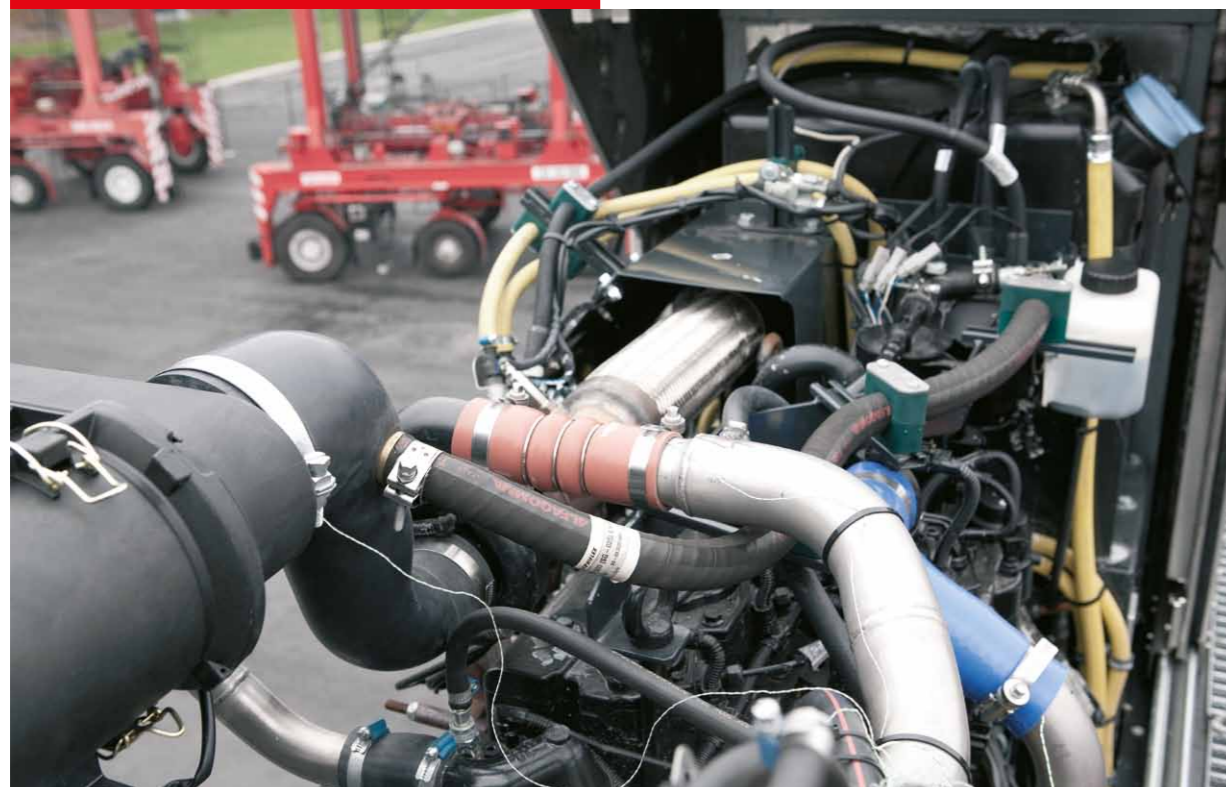
#### Meeting emission regulations

In addition to guaranteeing the best fuel efficiency in the market, the Kalmar hybrid straddle carrier easily meets the most stringent engine emission regulations worldwide. The model emits over 50 tonnes less CO<sub>2</sub> per year than a traditional diesel-electric machine.



#### Fast, silent, economical

The Kalmar hybrid is the quietest and most economical straddle carrier ever built.



## Making your every move count

With its high availability and easy maintenance, the Kalmar hybrid straddle carrier contributes directly to your profitability.

Kalmar hybrid straddle carriers will keep your containers on the move rapidly and reliably, year after year. The hybrid straddle is economical to maintain, with service intervals of up to 1,000 hours. The new energy storage is maintenance-free. All regular maintenance points are easily accessible from the ground or the top frame platform.

#### Superior safety

Kalmar straddle carriers have the strongest frame offered by any manufacturer, featuring a streamlined yet extremely rigid design with no external bracing. All key components are protected within the side frame, yet are easily accessible. With its active torque-based

stability control system, the Kalmar hybrid straddle carrier establishes a new level for safety of operations.

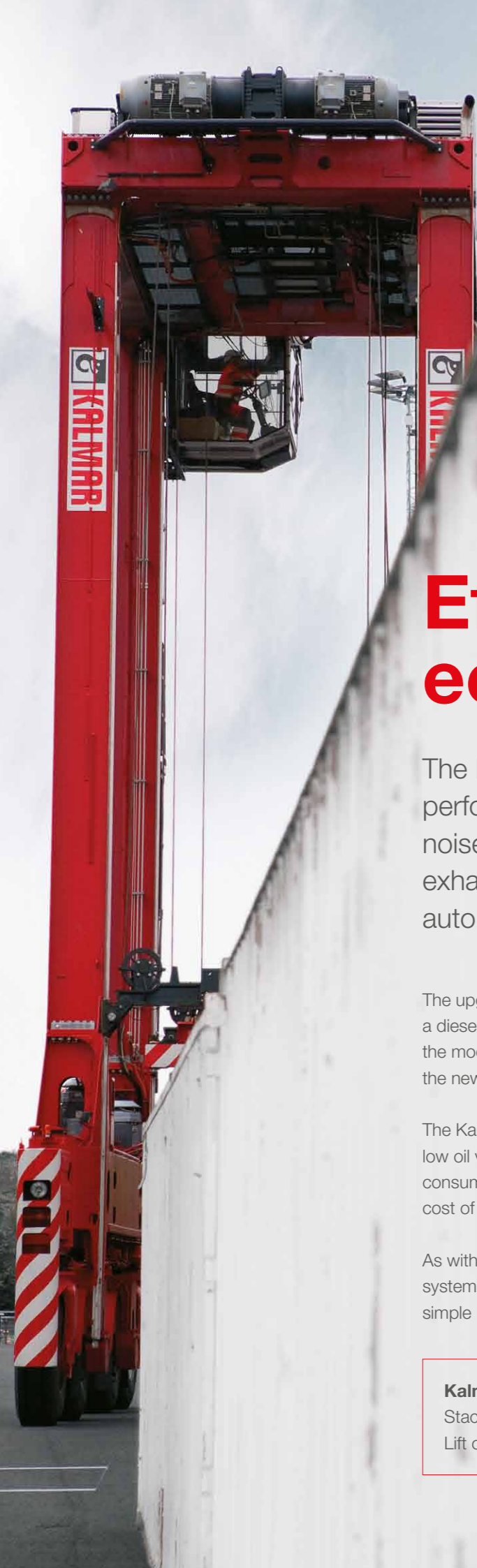
#### All set for automation

Kalmar straddle carriers can be equipped at the factory or retrofitted for any level of automation depending on your needs.

#### Kalmar hybrid straddle carrier

Stacking height ..... 3 or 4 high  
Lift capacity ..... 40/50/60 tonnes





**Heavy lifters**  
For the ultimate in lifting capacity, Kalmar hybrid and electric straddle carriers are available in 3-high and 4-high configurations with up to 60 tonnes maximum loads. This allows smooth and safe twin lifting of even the heaviest containers.

## Efficient and economical

The Kalmar electric straddle carrier offers high performance, excellent fuel efficiency and low noise. The model complies with the latest exhaust emission regulations and can be fully automated.

The upgraded Kalmar electric straddle carrier offers all the latest features in a diesel-electric configuration. With the exception of a different power train, the model range offers exactly the same productivity and safety benefits as the new Kalmar hybrid straddle carrier.

The Kalmar electric straddle carrier features highly reliable hydraulics with low oil volumes. Low noise and exhaust emissions as well as low fuel consumption contribute to sustainability, operator comfort and reduced cost of ownership.

As with the Kalmar hybrid straddle carrier, a reliable winch rope hoist system features a loose rope prevention and indicator system, and offers simple rope installation with only eight pulleys.

**Kalmar electric straddle carrier**  
Stacking height ..... 3 or 4 high  
Lift capacity ..... 40/50/60 tonnes



Kalmar classic straddle carriers have handled more containers than any other machine in the world.

## Industry workhorse

The Kalmar classic model is the world's most widely used straddle carrier. With its proven design, supreme reliability and easy maintenance, the classic straddle carrier continues to deliver value to terminal operators across the globe.

Kalmar classic straddle carriers are easily maintained. Only basic mechanical skills are needed, and all maintenance points are readily accessible from ground level. Like other Kalmar straddle carriers, the classic model is designed for extended service intervals of up to 1,000 hours, keeping downtime to a minimum while maximising equipment utilisation.

**Powerful simplicity**  
The Kalmar classic straddle carrier is powered by two fuel-efficient, powerful diesel engines and reliable, low-noise hydrodynamic transmissions. A low centre

of gravity enables safe cornering at higher speeds, resulting in fast container handling.

The classic model is equipped with Kalmar's patented Smoothlift hoist system that features a single hoist cylinder requiring no brakes or gears.

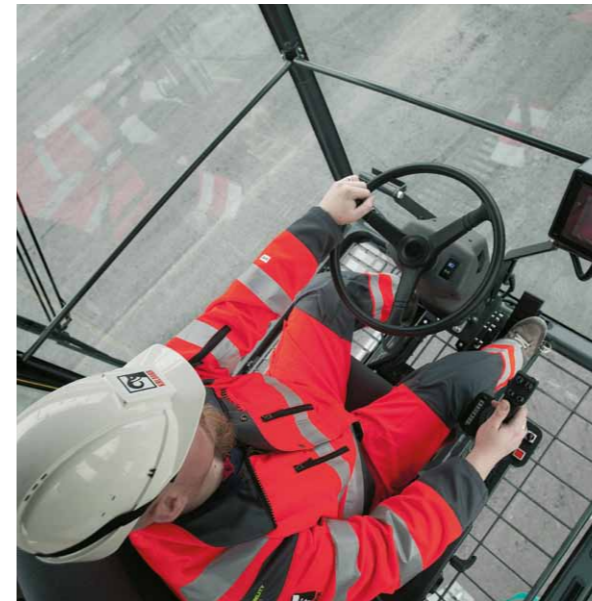
**Kalmar classic straddle carrier**  
Stacking height ..... 3 or 4 high  
Lift capacity ..... 40/50 tonnes



# Technical excellence, driven by your needs



The new Kalmar hybrid and electric straddle carriers offer a wide range of advanced features that boost your productivity, shorten cycle times, improve safety and provide the best operator experience in the industry.



#### **Ergonomic cabin improves productivity and safety**

The newly redesigned cabin for Kalmar hybrid and electric straddle carriers features a more spacious interior as well as a new window geometry that reduces night-time reflections and cabin noise.

The new cabin has been designed together with Kalmar customers. In addition to its intuitive user interface, the cabin features dimmable LED lighting, more ergonomic seating as well as excellent all-around visibility – all factors contributing to ease and safety of operation.

All spreader functions are controlled with the right hand and steering with the left. The operator seat can be rotated electrically to any position within 180 degrees, allowing comfortable driving in all directions.

#### **Active stability control**

Automatic stability control ensures smooth and safe driving by continuously monitoring speed, turn radius and the spreader's position, slowing the vehicle

automatically when needed. The new active stability control is installed as a standard feature on Kalmar hybrid and electric straddle carriers.

#### **Remote connection and monitoring**

All Kalmar straddle carriers can be equipped for remote connections and monitoring, allowing seamless integration with diagnostic applications.

#### **New hybrid drive**

The Kalmar hybrid is the world's first real hybrid straddle carrier. The model features a new power unit platform, a small diesel engine of approximately 70 kW power, a permanent magnet generator and state-of-the-art battery technology.

By utilising mechanical energy from braking and spreader lowering, the system can deliver a remarkable 40% decrease in fuel consumption compared to existing straddle carriers in the market. This not only adds up to significant cost savings for your terminal, but also increases the sustainability of your operations.



## Kalmar SmartPort. Process Automation.

-80% Effort  
SmartLanes

100% Visibility  
SmartMap

0.00 Containers  
Lost  
SmartStack  
& SmartLifts

6,480 More Moves  
SmartRail

10 days Gained  
SmartQuay

46 Hours Saved  
SmartFleet

**Automated Stacking Crane**  
Modularity ensuring robustness and performance

**Auto - Straddle**  
Optimum flexibility in transportation and stacking

**Automated Lashing Platform**  
Improving safety and efficiency

**Auto - Shuttle**  
Decoupling quay and yard crane work cycles

## Kalmar SmartPort Equipment Automation.

### Ready for automation

Although the main issues impacting productivity have likely already been solved at existing terminals, there is still a considerable efficiency improvement possible. Saving mere seconds per activity by easing the work of the operators results in significant yearly savings.

Process automation facilitates exactly that. By capturing information and automating its flow, small incremental improvements are turned into significant productivity gains. This makes process automation an accessible and fast way to get immediate productivity improvements for a relatively small initial investment. Even a partial adaptation of process automation increases productivity and equipment utilisation rates, improves safety and reduces the potential for manual errors.

Kalmar SmartPort is the most comprehensive platform for terminal process automation in the marine industry. SmartPort spans the entire range of automation solutions for terminal operations.

In the yard, SmartStack ensures that through real time automated inventory reporting and management, you will never have to waste time searching for your containers. The hand-off between lifting equipment and trucks is automated through SmartLift, increasing operator productivity and system efficiency. SmartPath increases equipment utilisation rates through position dependent order assignment, ensuring the right straddle carrier for each job.

The fleet of straddle carriers can be monitored remotely with SmartFleet, allowing you to increase the availability and providing optimal equipment efficiency at all times.

### Kalmar AutoStrad™: Multipurpose machine

A fully automated container terminal sets the industry standard for productivity and costs. The automation results in reliable performance as well as vastly improved safety and security.

Kalmar AutoStrad carriers are used for all container handling tasks within a terminal, from serving ship-to-shore cranes to yard stacking and landside operations. As automated straddle carriers have a higher utilisation rate, a smaller fleet is required to achieve the needed terminal throughput.

AutoStrads pick and place containers directly from the ground under the ship-to-shore crane, thus creating a buffer under the crane. Flexible use of buffers enables the crane to support twin lift, tandem lift and dual cycling. AutoStrad operation normally takes place under the ship-to-shore crane backreach, leaving space for manual operation under the crane portal. A fence separates the automated and manual areas.

### Automating existing fleets

All Kalmar straddle carriers integrate seamlessly with SmartPort solutions and can be automated in a cost-efficient way. The automation level of new machines can be customised based on your needs.

# Heavy-duty spreaders with superior features

Bromma, a Cargotec company, is the industry's most experienced spreader manufacturer, known worldwide for crane spreaders of exceptional reliability.

Drawing on 30 years of Bromma's continuous research and development, Kalmar offers spreaders with an unrivalled range of features such as positive physical longitudinal locking for T-beams and hard wiring for all spreader electric functions. Integration with the straddle carrier's safety system ensures secure and fast container handling.

### Single lift spreader

The base spreader on Kalmar straddle carriers is a single-lift 20'-40' spreader with fully floating twist locks.

### Twin lift spreader

The twin lift spreader provides enhanced container handling capacity with minimal service requirements. The twin lift spreader is available in capacities of 20', 40' and 2 x 20' and it is based on the robust 20'-40' spreader.

### Extendable twin lift spreader

The latest addition to the Bromma spreader family is the extendable twin lift spreader with 20'-40'-45' and 2 x 20' measures. It enables 5' of movement in twin handling. This enables, for example, easy access to check the door seals directly beneath a ship-to-shore crane.

# Making sure your business never stops

Defining the right maintenance strategy is a critical decision. Will you choose to run operations yourself or work with a partner?

To which partner you trust the maintenance makes a big difference for your business. We at Kalmar are committed to provide lifetime care to contribute to your long-term success.

### Kalmar Care adopts to your needs

Kalmar Care is our flexible and scalable maintenance service portfolio that allows you to focus your resources on your core business. We have designed it to reduce your operational risks, as you get the flexibility to handle peaks, improve internal cost transparency and maximise the availability of your fleet.

There are four different types of contracts to choose from. With Support Care, we will

support your maintenance process on demand. Essential Care covers agreed maintenance tasks proactively. Complete Care will meet your complete maintenance requirements and with Optimal Care, we take maintenance one step further – we use our knowledge and experience to optimise your business performance.

We also support you with a wide range of parts and logistics services. In addition to maintenance, we perform extensive refurbishment and upgrade projects with experience.

### Global network, local presence

Kalmar provides services for all cargo handling brands. Currently we are present in over 120 countries, with more than 1,500 service professionals supporting more than 1,000 customers worldwide.



Kalmar, part of Cargotec, offers the widest range of cargo handling solutions and services to ports, terminals, distribution centres and to heavy industry. Kalmar is the industry forerunner in terminal automation and in energy efficient container handling, with one in four container movements around the globe being handled by a Kalmar solution. Through its extensive product portfolio, global service network and ability to enable a seamless integration of different terminal processes, Kalmar improves the efficiency of every move. [www.kalmarglobal.com](http://www.kalmarglobal.com)

Kalmar  
Ruskontie 55, PO Box 387  
FI-33101 Tampere, Finland  
tel. +358 20 777 5000  
[kalmar@kalmarglobal.com](mailto:kalmar@kalmarglobal.com)

All information provided herein is provided for information purposes only, without any warranty or guarantee of any kind, express, implied or otherwise. Information is subject to change without prior notice.