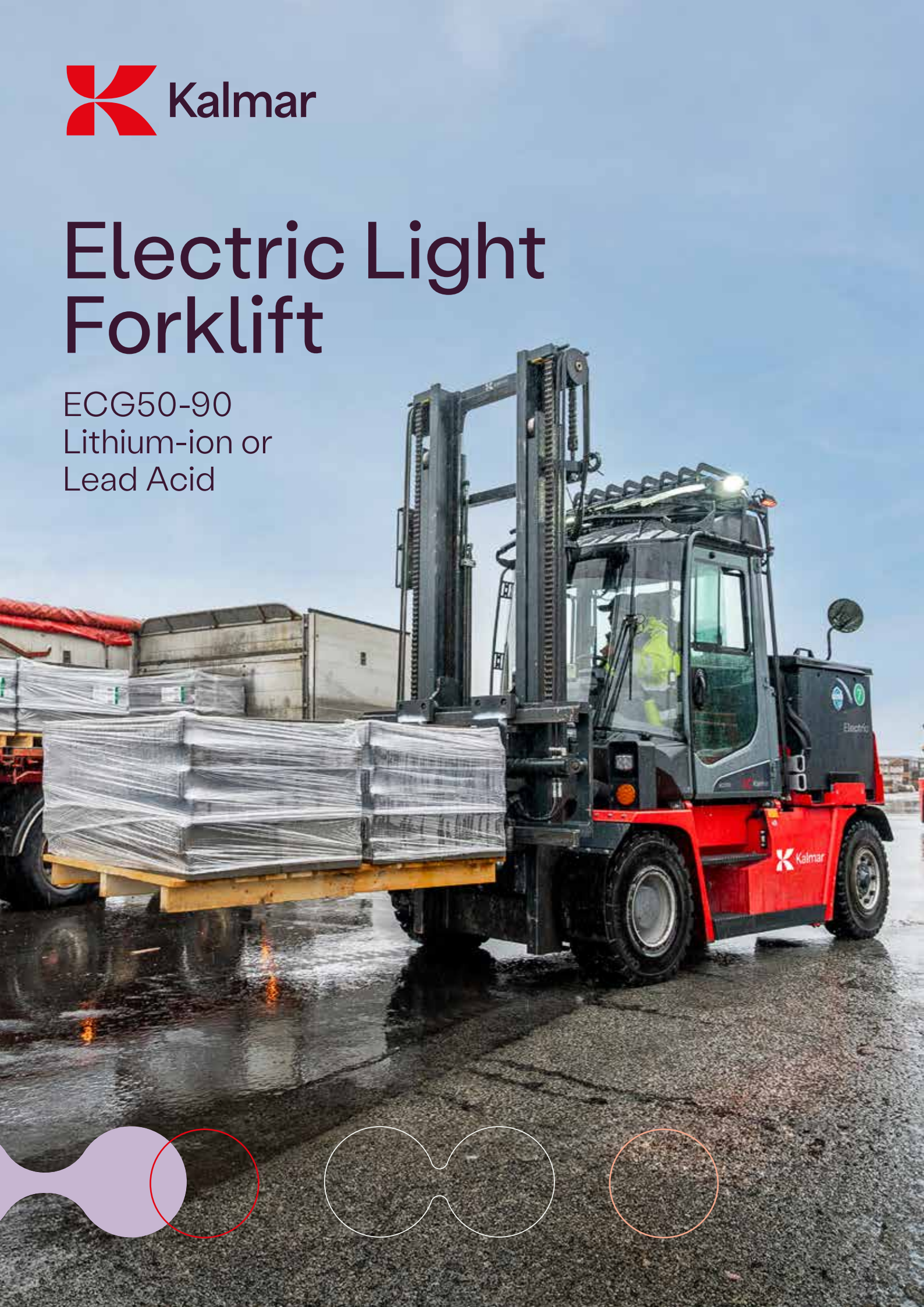
Kalmar

Electric Light Forklift

ECG50-90
Lithium-ion or
Lead Acid



The time is now to go electric

Kalmar's electrically powered 5 - 9 tonne forklift trucks will help improve the eco-efficiency of your operations while maintaining the highest levels of productivity and safety. With a choice of either Lead Acid or Lithium-ion batteries and different charging solutions, we can work with you to design a solution that will deliver for your business.

Eco-efficiency built in

Being electrically powered, your forklift truck will produce zero carbon emission at source, making them cleaner and safer to operate. You can cut your carbon emissions even further by using green energy sources where available or start to generate and use your own power. Getting an electrically powered forklift is only the start of our eco-efficient journey. One that we will be with you every step of the way.

Productive by nature

With an electric powered driveline your drivers will notice a big difference with faster and smoother acceleration and more responsive handling while being able to lift up to 9 tonnes efficiently and safely. Less time will be spent servicing and maintaining the electric powertrain since it has less moving and mechanical parts, plus you will be able to keep it running optimally within a broad range of temperatures.

Safety in focus

Kalmar's range of electrically powered 5-9 tonnes forklift trucks offer highly responsive handling and superior visibility from the cabin, helping to keep your driver safe and in control at all times. Your drivers and co-workers will also benefit from the reduced noise and vibrations with a smooth and quiet electric powertrain. There are also a large range of safety options available that can further enhance the safety of your equipment and the drivers operating them.

A full range

Kalmar has offered an extensive range of electrically powered forklift trucks since 1980 with over 6000 machines sold and now come with a choice between Lead Acid and Lithium-ion battery technology, lifting capacities up to 33 tonnes, different masts and numerous attachments. We can work with you to design a solution that delivers against your exact requirements.

Improve the eco-efficiency of your operations while maintaining the highest levels of productivity and safety.

Our electric portfolio

Kalmar offers an extensive range of electrically powered forklift trucks with lifting capacities from 5-33 tonnes, three different lifting masts and a wide range of specialist attachments: making our electrically powered forklift trucks suitable for a wide variety of material handling tasks.

Battery and Charging Monitoring

Real-time status on battery capacity and health along with charging usage and timing allows for optimised operational planning and usage.

Kalmar Insight*

MyKalmar INSIGHT gives you the ability to monitor your fleet's operational status in real time no matter what type of your equipment you operate.

Additional Energy Storage

You can use additional energy storage units to capture excess power that you may have produced to use at a later time when required instead of buying from the grid.

Charging Post for Li-ion Equipment

Chargers with REMA connectors for 80V resp. 120V charging of ECG50-90 and ECG90-180 ranges, or charging post with high voltage CCS2/CCS1 connector for ECG180-330 range, reachstackers and empty container handlers.

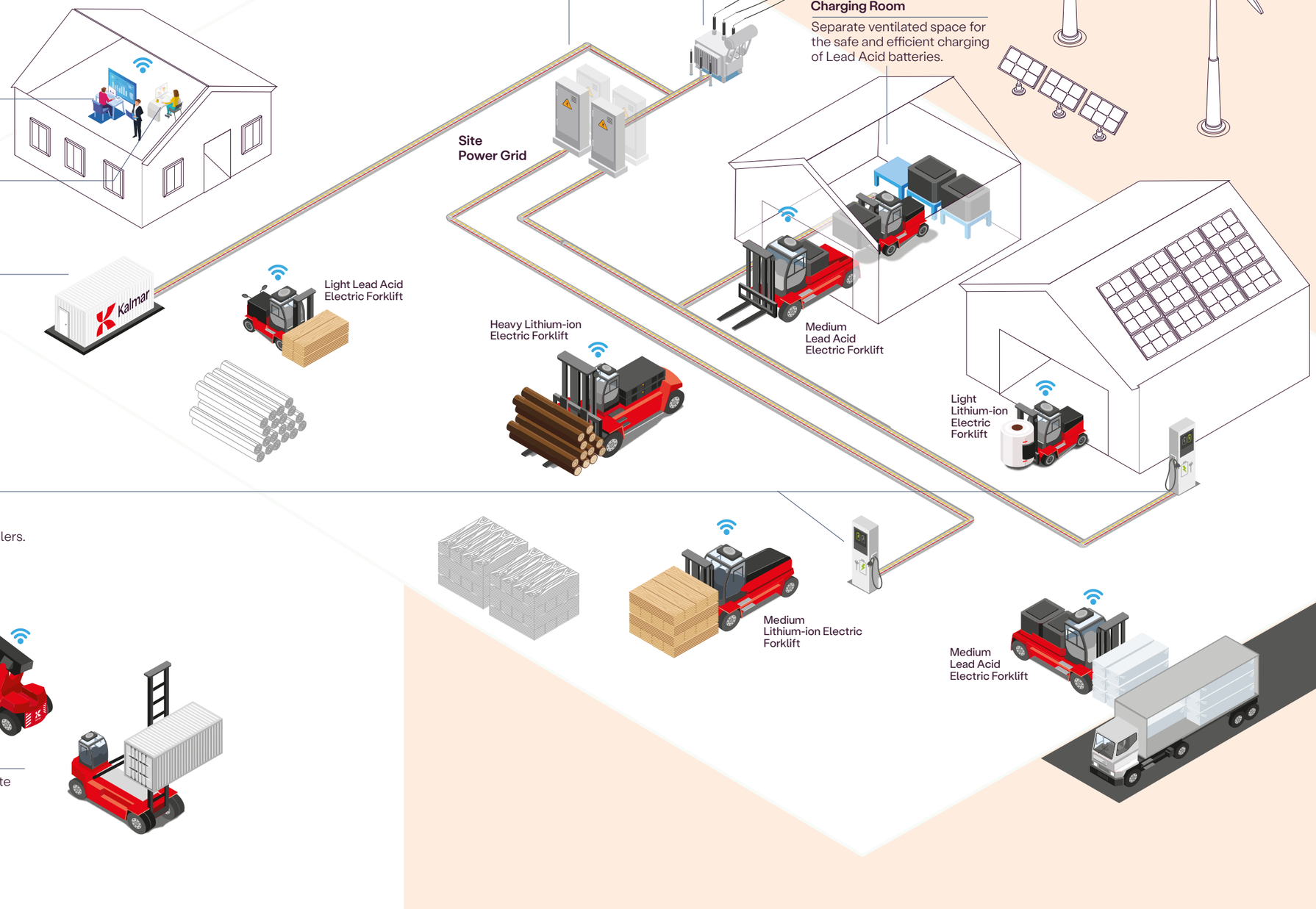
Reachstackers

Kalmar offers a choice of electrically powered reachstackers with a wide range of lifting applications, battery solutions and can handle loads up to 45 tonnes.

Empty Container Handler

Kalmar's range of electrically powered empty container handlers can operate for up to a full shift on a single charge, lifting loads up to 11 tonnes and placing them up to 8+1 high with our double stacker.

*Kalmar Insight access is through a separate subscription agreement.



Great for the environment

What type of battery solution is right for you?
Kalmar offers two types of battery technology to power its forklifts, Lead Acid and Lithium-ion. Here is a chart that demonstrates the difference between the two battery types so you can decide which is the right solution for your operations.

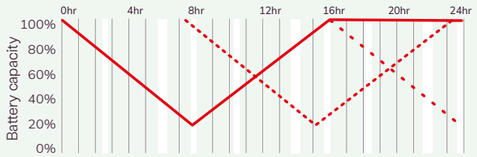
The Lead Acid battery can be charged directly in a safe location without removal, or it may be removed after a shift and fully charged before being refitted onto the forklift. The Lithium-ion battery can be continuously recharged during operational downtime or statutory break.

Lead Acid

Lithium-ion

Charging pattern

Lead Acid discharge/charge cycle



Lithium-ion discharge/charge cycle

Features

Cell lifespan:
- Up to 1,250 - 1,500 cycles (1 cycle = 80% nominal capacity)

Battery efficiency:
- ~ 70 - 80%

Maintenance:
- Requires regular water topping, cleaning, checking for leakages and electrolyte level
- Requires ventilated charging space
- 2 or 3 shift operation possible with exchange batteries. One battery set per shift.

Cell lifespan:
- Up to 3,500 - 5,000 cycles (1 cycle = 80% nominal capacity)

Battery efficiency:
- ~ 90 - 95%

Maintenance:
- No regular maintenance required
- No special requirements for charging space
- Requires time slots for opportunity charging defined by discharging:charging ratio.

Your operations

What is your operational cycle?

8hrs (6-12hrs)

Shift operations:
- 1-shift with 1 battery
- 2-shift with 2 batteries
- 3-shift with 3 batteries.

Charging time
7 - 8 hours

Cooling time
7 - 8 hours

Based on 80% charge.

What is your operational cycle?

8hrs (4-8hrs)

Shift operations:
- 1, 2 or 3 shift with 1 battery
- Opportunity charging and/or overnight charging when possible.

Charging time
~2 hours

Based on 80% charge.

Good for business

Reducing your emission shouldn't come at a cost, it should be beneficial to both the environment and your bottom line.

Kalmar's electric forklift trucks deliver on both accounts. They are just as powerful and efficient as diesel models without producing any harmful carbon emissions. In fact, they produce zero emissions at source, which will help you substantially cut your fuel bills, while improving your environment credentials.

It pays to go electric

With our electrically powered forklift trucks, you will benefit from reduced fuel costs, spend up to 50% less on servicing - as electric machines have less moving parts, require no oil or filter changes and have longer service intervals, both helping to maximise machine availability. Even though electric forklift trucks cost a little more than diesel models, the payback period can be as little as two years. After this time, the savings really start to add up.

Eco-efficiency at work

Reducing the fuel consumption of your equipment also reduces your emissions, which will enhance your environmental reputation and help you meet current and future emissions standards. Together we can shape the future of cargo handling, with safe and eco-efficient solutions that improve your every move.

The power is in your hands

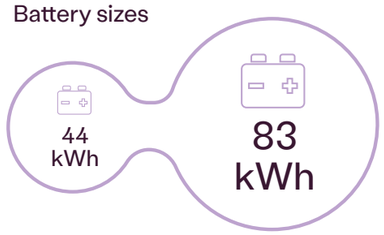
By combining three highly efficient AC-motors [two for the traction drive, each individually connected to the left and right wheel gears, and one for the hydraulic pump] all with direct drive, and no transmission you get a powertrain combination that will deliver on power and productivity while producing zero carbon emissions at source.

This electrically powered solution has been designed to offer a sustainable and highly efficient forklift range, with great performance, high productivity and is safe and smooth to operate with minimised energy losses - giving you more running hours on each charge. Regenerative power from the braking system returns power to the batteries, further enhancing the overall efficiency of the system. You just need to choose the optimal battery solution for your operation; Lead Acid or Lithium-ion.

Lithium-ion

There are two different Lithium-ion batteries available, on the truck wheel base, which can be quickly opportunity charged during operational hours or fully charged overnight.

Battery sizes

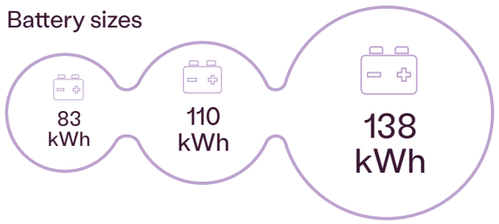


Lead Acid

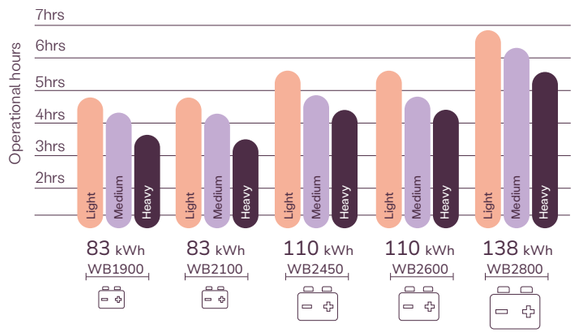
Kalmar's Lead Acid batteries come fully self-contained and can be charged in situ or removed from your forklift and charged in a ventilated charging space. Recharging your Lead Acid batteries normally takes place overnight, if you need to run continuous shifts then you will need to have one set of batteries fitted to your forklift, while the second set charges. Three battery sets would be required for continuous operations across multiple shifts. Lead Acid batteries cannot be opportunity charged during your work cycles.

If you choose a Lead Acid battery solution to power your forklift you have the flexibility to upgrade this to a Lithium-ion solution in the future if required.

Battery sizes



Operational hours per drive cycle

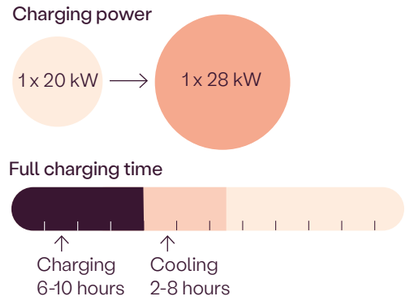


Modular by design

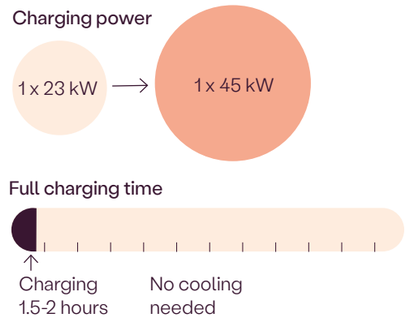
Batteries and chargers are a big part of your overall investment making it critical that you get a solution that is matched to your operational requirements, which is why Kalmar has taken a modular approach to our Lead Acid and Lithium-ion battery and charging solutions.

There are a number of different charging options available for your to choose from.

Lead Acid solution:



Lithium-ion solution:



Kalmar can help you work out which battery option and charging solution is right for your business based on your current work cycles.

Managing your power

With our Lead Acid solution, the Battery Monitoring Unit [BMU] is mounted to the battery and connected to the battery, charger and cloud. This enables the BMU to monitor the current, voltage, water level, temperature and balance between cells.

For the Lithium-ion solution, the Battery Management System [BMS] is mounted within each battery cell, connecting the battery, charger and cloud. This enables the BMS to manage battery charging and all other important parameters.

While the forklift controller redirects regenerative braking energy back into the battery packs.

Data from the BMU / BMS is displayed in Kalmar Insight* allowing you to secure optimal battery use to ensure warranty conditions are met and the longest possible lifetime of the battery can be obtained.

Productive in extreme weather conditions

Our electrically powered forklift trucks can run optimally even in extreme weather temperatures: from -10˚C to 50˚C, with an optimal operating temperature of 20-30˚C.

Thermal Management System

*Kalmar Insight access is through a separate subscription agreement.

Efficient and productive

Buying an electric forklift doesn't mean compromising on power, as electric powertrains provide full torque immediately and are smoother to operate. Making operating cycles shorter, driving up your operational productivity. With extended servicing cycles and improved diagnostic tools your machine will benefit from higher availability rates than the diesel alternatives.

A simpler design

Electric forklifts have less moving parts than diesel models. Without the need to change the starter motor, turbo or fuel filters, servicing and maintenance on the powertrain will take less time and cost up to 50% less. As less parts are required, your parts replacement costs and stock levels will also be substantially reduced.

Optimise your settings

All Kalmar Electric Forklifts have easily adjustable settings from the control panel for:

- acceleration 1-10 (10-100%)
- deceleration 1-10 (10-100%) brake regen.

Reduce energy usage by up to 25%

Kalmar ECO Drive allows you to optimise your truck's performance with three different modes:

Power Mode:

when high performance is required. With full motor power, you will be able to move quickly about, lift and lower at full speed, without compromising on safety.

Normal Mode:

when you need a balance between energy usage and productivity. You can expect slightly lower acceleration and speeds.

Save up to 15%

Economy Mode:

when you need the most efficient energy usage. With reduced acceleration and speeds - your batteries will run for longer.

Save up to 25%

Designed for the driver

Ergonomically designed

Kalmar Electric Forklifts come fitted with our ergonomically designed EGO cabin. With slim line a-pillars, adjustable seating, steering wheel and control panel, your drivers will benefit from a superior operating environment and visibility.

A healthier work environment

Electric forklifts have always been seen as specialist machines for handling sensitive goods, in fact they deliver many additional benefits:

- Less vibrations make handling sensitive goods safer and reduce stress and strain on your operator's body.
- Electric forklifts are extremely quiet, making working indoors less disruptive for both operators and by-standers.
- As electric forklifts produce no exhaust fumes they are safe to operate inside and where other staff are working or sensitive goods are stored.

More comfortable

With a choice of comfortable driver seats, a fault safe pedal system and powerful Electronic Climate Control system with smarter controls your operator will benefit from improved ventilation heating and cooling, plus a cabin with superior comfort and lowest noise level inside and outside.

Easy to operate

Our electrically powered forklift trucks give you a wide choice electric-servo lifting levers, dual lever joystick or single joystick, an electronically adjustable work console and side tilting steering wheel. All designed to make operating your reachstacker easier and more efficient to operate.

Extra smart

Our intuitive user interface combines visibility, sound and touch to create a perfectly balanced operating environment with an intelligent colour display at its heart. Advanced diagnostics, battery status overview and smart settings allow improved operational control and optimal charging planning.

Options

Kalmar has a range of options that make operating your equipment even safer.

Reverse Beeper System. When your staff are working side by side with moving vehicles there is always a safety risk. Installing a reverse beeper system provides a clear acoustic alert when the machine is reversing so personnel can make sure that they are out of harm's way at all times.

Additional lighting. Extra lighting, particularly if you operate your machine at night, as you can bring greater operational visibility and safety for personnel working on the site. You can choose additional LED working lamps on specific positions.

Reverse Warning System. Knowing what's going on behind you is critical when other personnel are present. Rear sensors and a reversing camera relay real-time information to an in-cabin display, alerting the driver to any dangers, increasing personnel and driver safety. You can also add additional cameras e.g. on the front of the machine, on the mast, carriage or forks.

Fire Suppression System. To protect your operator and machine from fire you can fit a Fire Suppression System* to your machine. The system utilises multiple spray nozzles that release a high pressure water mist where the fire has been detected from a re-chargeable water tank. This can be activated manually or automatically through an in-cabin temperature sensor.

Turnable Driver Seat. Rotates 180° for improved safety and visibility when handling and transport large size cargo.

Raised cabin cassette. Lifts up the cabin position with 300 mm, to improve safety and visibility when handling and transport large size cargo.

Mini-steering or Lever-steering. Improves driver safety, performance and ergonomics when operating in confined space with tight manouverings needed.

Kalmar has a range of solutions that will help make your equipment more eco-efficient and sustainable.

Tyre Pressure Monitoring System. Helps to reduce wear and tear on tyres which results in reduced fuel consumption. Bluetooth sensors keep the driver advised of the condition of the tyres continually. Active care of your tyres can result in a 10-40% increase in tyre life.

A range of options that make operating your equipment even safer and more sustainable.

What do you need to lift?

Choose between a wide range of lifting masts, carriages, forks and attachments. We offer complete solutions whereby we assemble the attachment in the factory and integrate it with the forklift's other functions.

Forestry industries

With our 5-9 tonnes electric forklift you will be able to handle most loads indoors or out, including lumber packages, pulp, paper, board and waste. Moving raw materials off trucks or train trays, to moving wood around during the milling process or lifting and moving final goods ready for dispatch.

Metal industry

Our light electric forklift truck can lift metal slabs, plates, coils and pipes up to 9 tonnes in weight, which is made even easier and safer when you have a magnet, a clamp or coil ram fitted to the lifting equipment.

Concrete, energy and heavy industry

Flat round or bulky pre-cast concrete, bricks and other heavy loads for the wind, oil, gas and biomass sectors will be handled with ease.

Logistics and stevedoring

Whether you're moving sensitive goods like fresh fruit and vegetables, pallets filled with goods ready for dispatch or moving empty containers this electric forklift can handle your loads efficiently and safely both indoors and out as it produces no carbon emissions.

Safety fitted as standard

All Kalmar equipment is compliant with EN 1175:2020.

At Kalmar, the safety of people working with our machines is always at the top of our minds, which is why meeting global safety standards is important to us. The safety standard EN 1175:2020, which sets the electrical and electronic component standards for industrial trucks, has been updated to improve the safety of these machines while in operation. This update is valid from April 2023. All Kalmar counter balanced machines, including reachstackers, empty container handlers and forklifts have been updated to meet this new standard to ensure that working with a Kalmar machine is as safe as it can be.

For Kalmar, the safety of your drivers and maintenance staff is of critical importance, which is why our machines come with many more safety features fitted as standard than other machines available in the market.

The features listed here come fitted as standard on all Kalmar machines. You can enhance your employees' safety further by fitting your machine with our additional safety options listed on the following pages.

2-point seat belt. Ensures that your driver is safe and secure while operating our equipment, all Kalmar machines are equipped with an adjustable 2-point seat belt system.

3-point Contact System. Makes sure your drivers are safe when entering or exiting our equipment. All machines are fitted with steps and handles to ensure they can always maintain three points of contact with the vehicle, helping to keep them safe and preventing incidental injuries.

Double brake pedals. To avoid driver leg fatigue, every machine is equipped with dual brake pedals which require only heel to toe movements, allowing the driver to move his foot between the accelerator and brake pedals without having to move their leg.

Steps with anti-slip protection. To reduce the risk of your driver slipping or falling on our equipment, all entering and exiting points are fitted with non-slip surfaces giving them extra grip, so your drivers stay safe.

Control System. All our equipment is fitted with an electronic Control System for monitoring the machine's different functions while in operation, helping to keep your driver fully informed at all times with up-to-date Operating, Event Controlled and Error Code information.

Operating information. Our equipment's Control System provides several operating information menus, which give your operator and maintenance personnel a great insight into the on-going performance of the machine, allowing them to keep it running optimally.

Event controlled information. Provided through the Overload Protection System to warn the driver through the equipment's Control System if their load exceeds the specified safety limits.

Error code information. Should there be any issue with your equipment while in operation, the electronic control system will immediately alert your driver with the appropriate error code, so they know exactly what is going on and can take appropriate action.

Display. Cabins are fitted with a large easy to read display which keeps your drivers fully aware of the machine's on-going performance and any maintenance actions that need to be taken.

Control Breaker System for load handling. All of our equipment is fitted with a Control Breaker System, which automatically shuts down the load handling system should a fault occur, until the fault has been corrected. Keeping your driver, equipment and load safe.

Operator Presence Detection System. Maintains the highest levels of safety for both the driver and pedestrians, as all our equipment is fitted with an alarm or visual indicator that comes on automatically if:

- The driver does not fasten their seat belt while in operation.
- The driver leaves their seat without engaging the parking brake.

In addition, if the driver leaves their seat while the machine is operational, the transmission is automatically shifted to neutral and load-handling functions are disabled.

Engine/transmission Protection and Warning Systems. Warning systems, designed to protect your machine's driveline in case of higher than expected temperatures or a pressure build up, are standard on all equipment, avoiding unnecessary mechanical failures.

External reverse light. For the safety of others, all our equipment is equipped with external reversing lights that help the driver keep everyone informed that they are moving backwards.

LED lights. These come fitted as standard on all our equipment, providing better visibility when working in reduced light than halogen lights.

Neutral start switch. A neutral start switch means your driver can't start his machine while it is in gear, preventing any damage to the driveline and any uncontrolled equipment movements.

Protection against falling objects. Cabin roof windows on all our equipment are fitted with high strength materials which can withstand heavy blows, helping to protect your drivers from falling objects.

Good visibility. Kalmar cabins provide your drivers with excellent visibility, forwards, upwards, sideways and behind them to help them stay safe while in operation.

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.

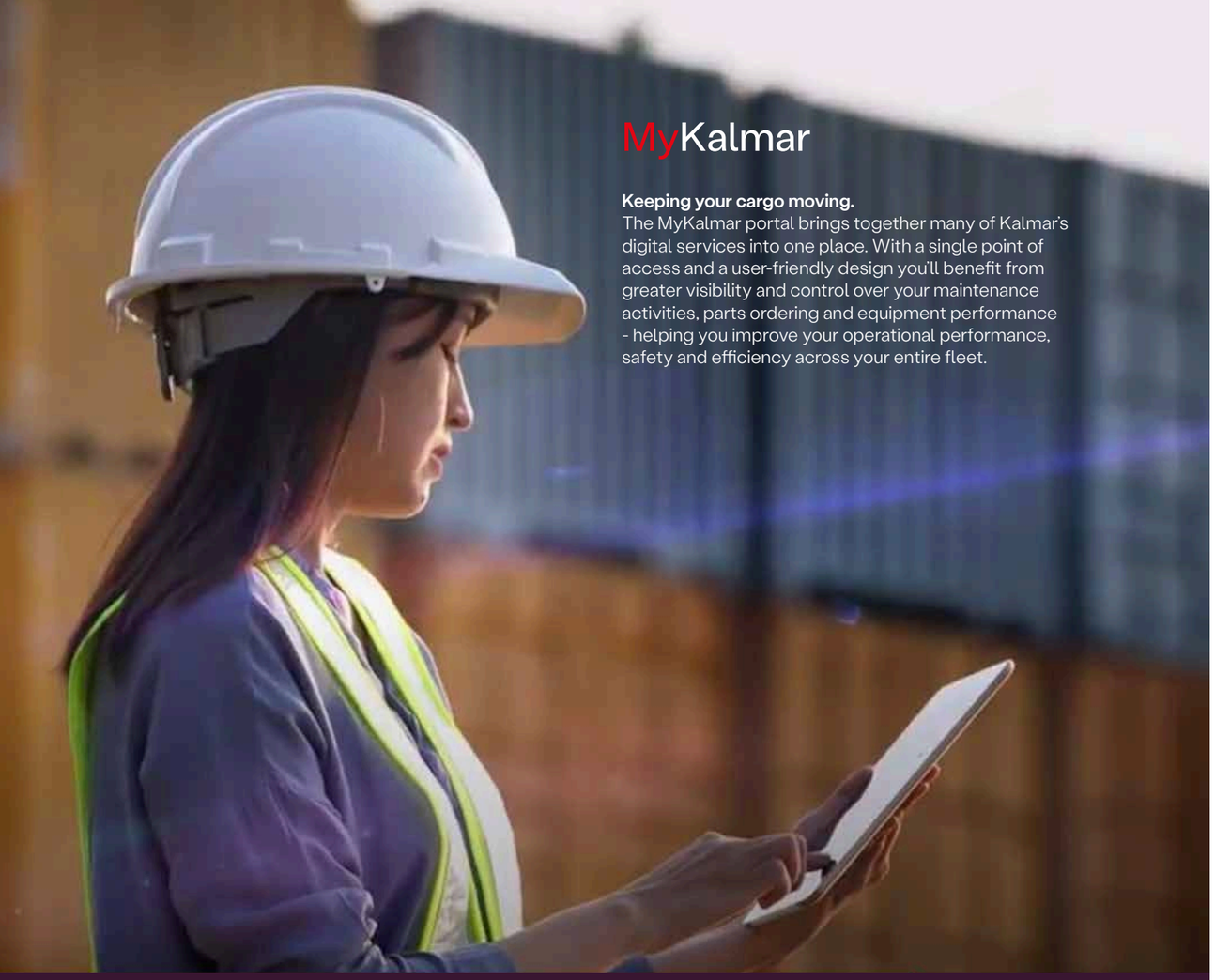
Kalmar Care

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	●	●	Top-of-the-line service whenever you need it
Preventive Maintenance	●	●	
Predictive Maintenance		●	
Corrective Maintenance		●	
Preventive Spare Parts	●	●	
Corrective Spare Parts		●	
Lubricants	●	●	
MyKalmar	○	●	
Kalmar Insight	○	●	
Tyre Maintenance		○	
Battery Maintenance		○	

● Included ○ Optional



MyKalmar

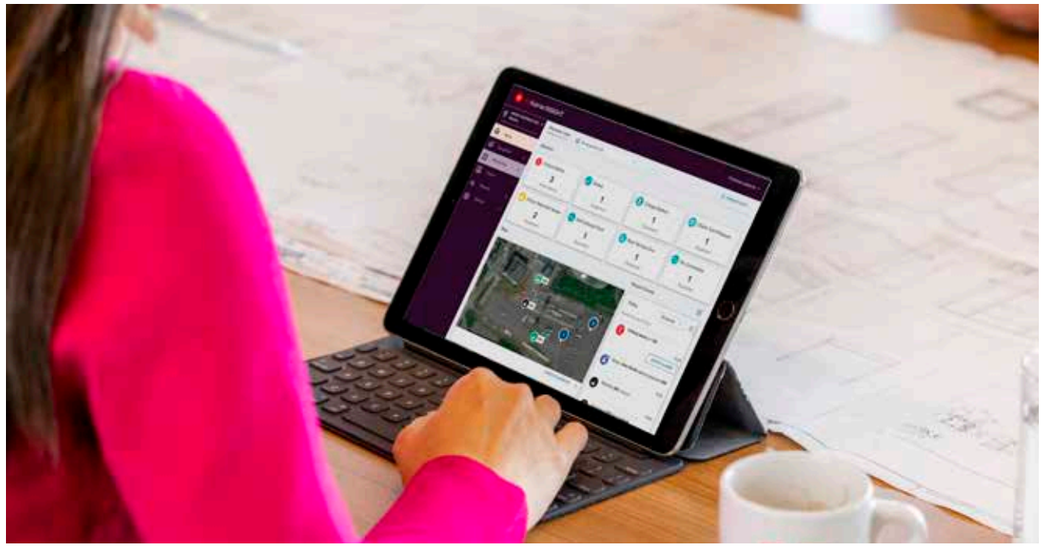
Keeping your cargo moving.
The MyKalmar portal brings together many of Kalmar's digital services into one place. With a single point of access and a user-friendly design you'll benefit from greater visibility and control over your maintenance activities, parts ordering and equipment performance - helping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

MyKalmar 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 100's 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 Insight

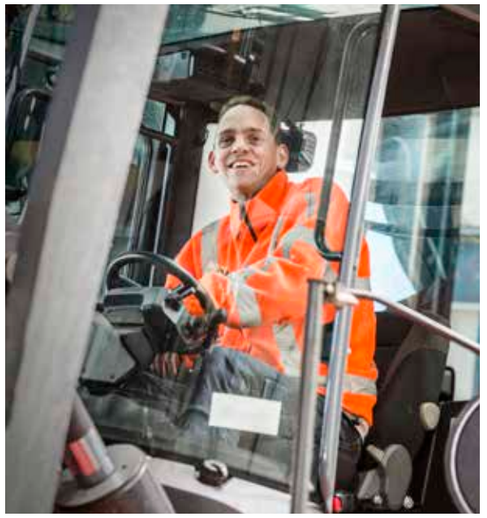
Optimise your operations with Kalmar Insight.
Kalmar Insight* is a performance management tool for cargo handling, which gives you an easy to use overview of your fleet operations, by aggregating data from multiple sources, including equipment built by other manufacturers. Review your entire fleet activities,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

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.



Standard*

Light range ECG50-90L

Norms Standards and Regulations
- Machinery Directive 2006/42/EC
- Safety Industrial Trucks ISO 3691-1 + EN 16307-1
- Safety Low & High Lift Trucks ANSI / ITSDF B56.1
- Stability Masted Forklift Trucks ISO 22915-1, -2
- Electrics / Electronics Safety Standard EN 1175
- Electromagnetic Compatibility Directive 2014/30/EC
- Electromagnetic Compatibility Standard EN 12895
- Noise Emission Directive 2000/14/EC + 2005/88/EC
- Noise Emission Standard EN 12053
- CE-marking (EU/EEA)
- ANSI / ITSDF-marking Forklift Trucks (USA/CAN)
- AS-marking (Australia)
- UKCA-marking (UK)
- Supply of Machinery (Safety) Regulations 2008 (UK)

Chassis
- Strong and durable steel plate heavy-duty chassis
- Powerful front end with hub end drive motors
- Solid tilt cylinder fixations in chassis and mast
- Full access to the entire powertrain with tilting cabin
- Easy access to battery, power distribution and connections
- Very good visibility - forward, up, sideways and rearwards
- Low cabin mounting for easy access on both sides
- Lifting points (front & rear)
- Towing pin through rear counter weight (long handle)

Body
- Strong and protective steel mudguards (front / rear)
- Cabin entrance on both sides with dual side doors
- Long bottom step between rubber flaps (anti-slip)
- Short access steps (1x) up to the cabin (anti-slip)
- Lamp brackets on front mudguards - bolted (2x)
- Basic noise insulation kit of the forklift

Steer Axle (Rear)
- Kalmar steer axle mounted dual pivot bearings
- Steer axle with mechanical side stops
- El-servo power steering with double acting cylinder
- Steer axle with narrow turning radius
- Steer links of "dog-bone type" (easy-to-change)
- Steer angle sensors for safe steering at all speeds

Drive Unit (Front)
- Kessler RO41, dual drive motors, wheel gears & hub reduction
- Drive motor & steer sensors for electronic differential
- Maintenance-free / oil-cooled Wet Disc Brakes (WDB)
- Dual parking brake, spring applied hydraulic release
- High pressure filter (10 µm) for the brakes
- ECG50-55: width over tyres = 1550 mm
- ECG60-90: width over tyres = 2000 mm
- ECG70-6C: width over tyres = 1525 mm

Wheels (Tyres and Rims)
- See Diagonal tyres and rims under Specifications
- ECG50-55 drive: rim 8.00x15" / tyre 315/70x15"
- ECG60-90 drive: rim 6.50x15" / tyre 8.25x15"
- ECG50-55 steer: rim 7.00x15" / tyre 8.15x15"
- ECG60-90 steer: rim 6.50x15" / tyre 8.25x15"
- ECG80-11 steer: rim 6.50x15" / tyre 315/70x15"
- See Super-Elastic tyres and rims under Specifications
- ECG50-55 drive: rim 9.75x15" / tyre 355/65x15"
- ECG60-90 drive: rim 6.50x15" / tyre 8.25x15"
- ECG50-55 steer: rim 7.00x15" / tyre 8.15x15"
- ECG60-90 steer: rim 6.50x15" / yre 8.25x15"
- ECG80-11 steer: rim 6.50x15" / tyre 315/70x15"
- See Cushion-Solid tyres and rims under Specifications
- ECG70-6C drive 28x14x22"" / steer 22x9x16""

Powertrain
- Schabmüller electric asynchron AC-motors (3-phase)
- Dual electric air-cooled drive motors (2 x 17.6 kW)
- Single electric air-cooled pump motor (1 x 42 kW)
- Single electric air-cooled brake pump motor (1 x 2,2 kW)
- Re-generative brake system / energy back to battery
- Electric cooling fan for drive, pump and brake inverters
- Electric motors are protected inside the chassis

Power Electrics (80V)*
- Electric power system voltage 80V
- Power cabinet mounted on chassis
- Electric cabinet mounted on chassis with main parts (LHS)
- Dual power cables with REMA-320 connectors (LA)
- Single power cable with REMA-640 connector (LI)
- Charging standards single REMA-320 charging plug (LA)
- Charging standards single REMA-640 charging plug (LI)

Battery (Lead Acid)
- Capacity: 74 - 138 kWh (930 - 1720 Ah)
- Battery capacity and size depending on wheelbase
- Robust and proven technology, 1200-1500 cycles
- Lead Acid battery (1x), with tray and lid, rear mounted
- Rear steel wall that protect the battery unit
- Ventilated charging cycle with efficiency 70-80%
- Automatic water topping system for battery cells
- Maintenance needed (electrolyte, voltage, cleaning)
- Battery Monitoring Unit (BMU)
- Charging power: 20 or 28 kW per unit (1 unit)
- Power supply: 1x32 or 1x63A (1 charger - 400V/3P)
- Chargers: acid-circulation or pulse charging and BMU
- Battery cycle: drive 8h, charge 8h and cool-down 8h
- Charging: full charge 7.0-9.0h / cool down 2.0-8.0h

Battery (Lithium-ion)
- Capacity: 44 or 83 kWh (576 or 1080 Ah)
- Battery capacity and size depending on wheelbase
- High capacity LFP-technology, 4000-5000 cycle life-span
- Lithium-ion integral Battery Management System
- Rear steel structure that protect the battery unit
- Maintenance-free, need equalization-charging, efficiency 85-90%
- Battery Management System (BMS) with CanBus
- No battery TMS
- Charging power: 23, 36 or 45 kW per unit (1 unit)
- Power supply: 1x63, 2x32 or 2x63A (1 charger - 400V/3P)
- Charging: full charge 1.5-2.0h / break charge 10-30m

Hydraulics
- Power-on-demand, with high lifting speeds
- Parker piston pump (1x)
- Fixed pump for brake oil pressure / accumulator (1x)
- Pressure filter for hydraulics / brakes (1x/10 µm)
- Power steering, power brakes and ORFS-couplings
- Hydraulic tank, breath filter & level glass (125/155 lit)
- Main control valve, steering valve and accumulator
- ECG50-90: Mast tilt angles: FW +6 / BW -9 deg
- ECG70-6C: Mast tilt angles: FW +5 / BW -5 deg

Lifting Mast
- Large selection of mast types and lifting heights.
- Duplex Standard: 2-stage mast of free-visibility design
- Strong, proven and durable lift mast designs
- Heavy-duty mast profiles and strong cross members
- Strong mast wheels, large size bearings and shafts
- Side support guiding unit
- Large size shafts and bearing for mast and tilt fixations

Fork Carriage
- Large selection of carriages types, widths and optionals
- Strong mast wheels, large size bearings and shafts
- Side support guiding unit
- ECG50-55 / 70-6C: Carriage width 1500 mm
- ECG60-90: Carriage width 2000 mm

Forks
- Various fork dimensions, tapering and designs
- Cross sections; from 150 x 60 mm up to 200 x 70 mm
- Full thickness 0-50 mm (no taper) / 50 mm to tip (with taper)

Electrical System (24V)
- Electric cabinet, mounted behind driver
- 2 LED working lights on mast (first cross member)
- 2 LED working lights rear on cabin roof
- 4 directional blinker lights (front / rear)
- 2 tail / 2 brake LED-lights rear in counter weight
- The tail / brake lights are flashing when reversing

Cabin EGO

Structure
- Spacious, modern cabin with great ergonomy level
- Strong profiles, pillars and cross members
- FOPS certified cabin (Fall-Over-Protection-Safety)
- Tiltable cabin with full access to powertrain & hydraulics
- Large window sections, great visibility all directions
- Large dual access doors with air-damper & key-lock (2x)
- Dual doors with access handles

Comfort
- Drivers seat, mechanical spring suspension, high back
- Comfort seat, multiple settings and adjustments & 2-point belt
- Operator presence sensor for the driver safety
- Electric adjustable work console (up-down/fw-rev)
- Work console; lift levers, controls, lamp buttons etc
- Inside rear view mirrors (left + right side)
- Interior lights with fade away function
- Fully adjustable steering wheel incl tilt function
- Power steering wheel with steer knob

Controls
- Electric levers for mast, tilt & forks
- Auto rev-up motors at lifting / tilting / fork position
- Electric accelerator pedal
- Double brake pedals (L + R)
- Lever for spring applied parking brake
- Safety override for hydraulic functions (by code)
- Multi-function lever LHS (parking brake/travel direction switch)
- Combined horn and blinker lever
- Warning - parking brake (on/off) leaving seat

Climate
- EHCV, electronic controlled heating, cooling & ventilation
- Buttons: defrost, re-circ, fan, temperature, AC, driver, floor & roof
- Powerful cabin heater, power 6.0 kW (20.500 Btu)
- Cooling unit (without AC unit - optional)
- High-capacity ventilation unit - max air flow 483 m3/h
- Multiple individual blowers (8x up / 2x down)
- Fresh air and recirculation filter (replaceable)
- Front window: double wipers + washers
- Roof window: single wiper + washer
- Rear window: single wiper + washer
- All windows: interval wiper functions (front, roof & rear)

Information Systems
- Kalmar CanBus controls with 4,3" colour monitor
- Controller DM430E, RAM-mounting on RHS
- Menu controller with toggle wheel & push buttons
- Programmable settings and full monitoring

ECO Drive Modes (EDM)
- Setting of performance, cycle time and consumption
- POWER mode (more performance, cycles and consumption)
- NORMAL mode - default setting (medium performance)
- ECO mode (lower performance, cycles and consumption)

Accelerator / Brake Settings:
- Programmable accelerator power in 10 steps (1-10)
- Accelerator; from soft to fast (low to high energy)
- Programmable brake re-gen power in 10 steps (1-10)
- Brake regeneration; feed energy back to the battery

Operator menu:
- System voltage
- Travelling speed (km/h or mph)
- Combined hydraulic and brake oil temperature
- Clock and date
- Operating time (hour meter)
- Service time indicator (hours)
- Status of heating system & AC system
- Estimated time before empty battery (hour/min)
- Service indicator
- Trip computer / statistics

Various warning lights & signals:
- Charging battery
- Safety system disconnected
- Failure indicator
- Low brake oil pressure
- Low coolant level battery
- Low coolant level electrical components
- High coolant temp battery
- High coolant temp electric components
- Low power battery volt level
- Low/high battery cell temp
- Low/high battery cell volt level unbalanced power battery
- Hydraulic and brake oil temperature
- Low washer fluid level

Fleet Management
- Equipped with telemetric hardware and software for Kalmar Insight

Colour
- Chassis, tanks & mudguards: Red RAL 3000
- Mast, carriages, forks and axles: Black RAL 7021
- Cabin: Iron-Grey RAL 7011
- Rims: Iron-Grey RAL 7011

Documentation & Decals
- Load chart diagram inside cabin
- Machine data sign on chassis (LHS) including load chart
- Warning, tyre pressure & oil pressure stickers
- Lift lever / joystick and function stickers in cabin
- Fuse diagram
- Instruction manual
- Maintenance manual
- Spare parts catalogue

Standard Warranty
- Warranty electric Forklift:12 months / 2.000 hours
- Warranty battery Lead Acid: 36 months / single shift / 750 Discharge Cycles
- Warranty battery Lithium-ion: 36 months / double shift / XY kWh

Options*

Light range ECG50-90L

Chassis/Body
- Models with standard and short wheelbases
- Anti-slip strips: mudguards, tanks & lamp brackets
- Extra mud flaps (front and rear)
- Steel grid lamp protections: fender, mast & rear
- Stacking box for wood stick (LHS or RHS)

Wheels (Tyres and Rims)
- Spare wheels, tyres and rims of various types and brands
- Diagonal, radial and super-elastic tyres types
- Diagonals: Continental
- Radials: Continental RT20 and Michelin XZM
- Super-Elastic (SE): Continental, Soli-Deal and Magnum
- Other brands up on request

Battery (Lead Acid)
- Capacity: 74 - 138 kWh (930 - 1720 Ah)
- 1-shift: 1 battery set (1 battery + 1 charger)
- 2-shift: 2 battery set (2 batteries + 1-2 chargers)
- 3-shift: 3 battery set (3 batteries + 2-3 chargers)
- Quick-change battery fork pockets on battery tray
- Battery combinations depending on energy consumption
- Chargers: acid-circulation or pulse charging and BMU

Hydraulics
- Extra hydraulic function including hoses (per function)
- Push-button hydraulic function via magnet valve
- Quick release couplings "aerogrip" 1/2" (per function)
- Individual fork positioning including 5th hydraulic function
- Hydraulic accumulator for lifting funciton
- Hydraulic accumulator for lifting function "auto on/off"
- Hydraulic oil cooler unit (on LHS)
- Hydraulic oil heater 1 kW (400V, 3-phase, 32A)
- Other mast tilt angles up on request
- Functions for attachments (paper, steel, precast, etc)

Lifting Mast
- Duplex Standard (no FL); lift heights 2.75 - 7.00 m
- Duplex Freelift (50% FL); lift heights 2.75 - 7.00 m
- Triplex Freelift (33% FL); lift heights 4.20 - 7.00 m
- Other lift heights / closed heights upon request

Fork Carriage
- FEM fixed carriage with manual forks
- SS sideshift carriage with manual forks
- SS/FP sideshift + fork position carriage
- SS/FP/CL sideshift + fork position + center levelling
- Standard carriage widths 1.50 up to 2.00 m
- Carriage widths up to 2.60 m (or upon request).
- Attachments: carriage sides, chain brackets & hoses
- Attachment of various brands for factory integration

Forks
- See fork dimensions under Specifications
- Length: 1200 up to 2400 mm in steps
- Width: 150 and 200 mm - wider optional
- Thickness: 60, 65 and 70 mm
- Fork mountings: FEM 4A or roller-bearing-type
- Taper: full thickness 50 mm / taper 50-mm-to-tip
- Taper option: various taperings / short, long or full
- Fork Shaft System; forks, coil ram or attachment
- Forks with chamfer inside/outside (integral or FSS)
- Kissing forks with chamfer inside/outside (integral or FSS)
- Hydraulic levelling fork (up/down) on left fork
- Other fork dimensions and taperings up on request

Electrical System (24V)
- Tuner FM-AM, RDS, MP3, USB, Bluetooth, Stream
- Tuner FM-AM, RDS, MP3, USB, Bluetooth, Stream / DAB
- Power sockets: 2x24V and 2x12V (in door columns)
- Power sockets: 2x24V / 1x12V / 2xUSB 5V
- Electric air pressure horn
- Reverse alarm (beep, white noise, multi-frequency)
- Protection against chain slack (electronics)
- Mast with automatic vertical function (auto-tilt)

Lamps
- 2 extra LED working lights - on front mudguards
- 2 extra LED working lights - in mast (FW)
- 2 extra LED working lights - front on cabin roof
- 2 extra LED working lights - rear on cabin (FW/RW)
- 4 extra LED working lights - rear on cabin (FW/RW)
- 6 extra LED working lights - rear on cabin (FW/RW)
- 1 extra LED working lights - between tilt cylinders incl step
- 2 high/low beam Halogen working lights (repl LED)
- 1 LED rotating warning beacon (on adjustable pole LHS)
- Blue safety light, rearward (when reversing) or forward
- Red safety light, rearward (when reversing) or forward
- Red safety zone light, left and right sides
- Rotating beacon LED, activated via reverse gear

Safety functions
- Over Load System (OLS1) monitors lift + tilt w. speed limit
- Over Load System (OLS3) stops lift + tilt w. speed limit
- Speed limit - default 15 km/h (set by customer)
- Speed limit - default 15 km/h (set by technician)
- Speed limit - at specified load (set by technician)
- Speed limit - at specified lift height (set by technician)
- Tyre pressure monitoring system (TPMS / Bluetooth)
- Alcolock in cabin - Draeger Interlock 7500

Cabin EGO

Structure
- Globetrotter cabin: +200 mm incl roof 12 mm (repl 6 mm)
- Elevated cab 300 mm, extra step, better visibility F+R
- Turnable Driver Seat (TDS180), electric, 180-deg (left)
- Steel grid protection for front window
- Steel grid protection for roof window
- Steel grid protection for AC or ECC unit (roof mounted)
- Steel grid protection for AC or ECC unit (roof mount)
- Door opening holder (left side and / or right side)
- Flat front window, w. steel profiles, tinted & laminated
- Extra reverse mirrors on cabin (2x)
- Extra reverse mirrors on cabin (2x) with heating
- Extra reverse mirrors on front mudguard (2x)
- Extra reverse mirrors on front mudguard (2x) w. heating
- Electric cabin tilt pump (up / down)
- Sliding windows left door and / or right door

Comfort
- Basic EGO seat with optional:
  - Air-cushion with horizontal suspension (repl spring)
  - 3-point safety seat belt (repl 2-point)
  - High seat backrest
  - Headrest for driver seat
  - Extra armrest on left side (adjustable)
  - Seat heating
  - Seat cover in vinyl
  - Leather reinforced seat (LRS), high back, 3p belt and heat
- Optionals - driver seats:
  - Grammer Actimo XL, air-cushion, heat, high back, 2p belt, LRS
  - BeGe 3100, air cushion, air vent, heat, high back, 2p belt, LRS
  - ISRI 6830KA/880, air-cushion, heat, high back, 2p belt, LRS
- Extra trainer seat, foldable with 2-point belt
- Bracket for terminal or monitor, RAM type, RHS (1 or 2)
- Bracket for terminal or monitor, RAM, RHS + LHS (2x)
- Safety seat belt interlock with sensor

Controls
- Travel direction switch on 1st lift lever (F-N-R button)
- Electronic ergonomic joystick incl F-N-R button (EGO)
- Electronic Lever Steering incl F-N-R (with feedback)
- Electronic Miniwheel Steering incl F-N-R (no feedback)

Climate
- Electronic Climate Control, heating, cooling (AC) & ventilation
- Air-Condition, cooling unit, power 14.0 kW (47.700 Btu)
- Tinted windows including laminated front window
- Sun visors front, roof and rear windows

Additional Equipment
- Enhanced Safety Package
  - Speed limit 15 km/h or free (set by technician)
  - Blue safety light backwards via back alarm
  - Rear warning radar (for reverse camera in cabin)
  - Seat belt interlock (active before driving - seatbelt on)
- Semi-automatic fire suppression system (DAFO Forrex)
- Fire extinguisher 6 kg, powder (On battery box)
- Tool kit
- Central greasing system (14-18-24 grease points)
- Tilt indicator of mechanical type
- Tilt indicator of electronic type (in display)
- Electronic weight indicator in cabin control monitor
- Heat protection kit (incl hoses)
- Heat protection mechanical kit
- Additional equipment for roadtraffic (LGF-sign)

Camera safety
- Modular lineup with Full HD solutions (1920x1080p)
- Reverse camera: IR night vision, rear mount
- Mast camera: IR night vision, front mount
- Carriage camera: IR night vision, front mount
- Radar warning sensors (2x), rear mount, beep + indicator
- Monitor 7", Quad, Full HD, max 4 connections
- Monitor 10", Quad, Full HD, max 4 connections
- DVR video recorder, 4 channels, SD-cards (128 GB)
- Coming: 360-deg Birdview Personal Detection

Information Systems
- VDI - Vehicle Data Interface

Fleet Management (Kalmar Insight)
- Kalmar Insight licence (only certified countries)
- Kalmar Insight Driver Monitor (RFID reader + 10 driver tags)
- Kalmar Insight extra driver tags (10 tags)

Colour
- Other RAL colour than standard, chassis
- Special and multiple colours, chassis
- Other colour than standard, striping foil
- Reinforced anti-corrosion protection

Documentation & Decals
- Extra set of documentation
- Workshop manuals
- Load chart lbs/inch in cab & sign "no riders"
- Documentation on memory stick

Training
- Training packages (driver, service, maintenance, software)
- Contact Kalmar Training Centre for more information

Warranty
- Additional Warranty packages available:

- Gold (complete forklift): max 5 year / 10.000h
- Silver (powertrain): max 8 year / 16.000h
- Bronze (structural): max 10 year / 20.000h
- Cobalt (battery): max 8 year / XY kWh

* LA = Lead Acid battery solution.
LI= Lithium-ion solution.
DC = Discharge Cycles.

Not all models, batteries, or options may be available in all markets.

Specifications

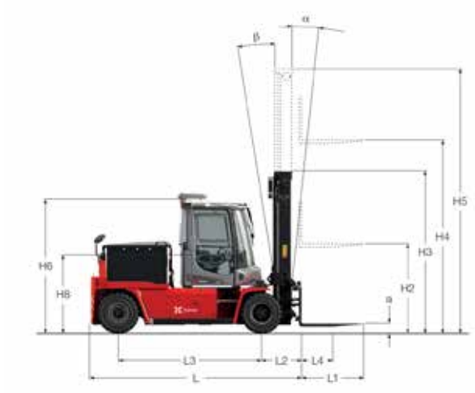
					ECG50-6	ECG55-6	ECG60-6	ECG70-6	ECG80-6	ECG80-6S	ECG80-9	ECG80-9S	ECG80-11	ECG85-9	ECG90-6L	ECG90-6LS	ECG70-6C
MODELS LIFTING CAPACITY		Wheel Types			Full capacity with Pneumatics and with Super-Elastics				Full capacity with Pneumatics and with Super-Elastics		Full capacity with Super-Elastics (or reduced capacity with Pneumatics)						Full capacity with Cushion-Solids
		Models			ECG50-6	ECG55-6	ECG60-6	ECG70-6	ECG80-6	ECG80-6S	ECG80-9	ECG80-9S	ECG80-11	ECG85-9	ECG90-6L	ECG90-6LS	ECG70-6C
		Rated capacity (with SS/FP carriages)		kg	5000	5500	6000	7000	8000	8000	8000	8000	8000	8500	9000	9000	7000
		Load centre distance	L4	mm	600	600	600	600	600	600	900	900	1100	900	600	600	600
FORKLIFT DIMENSIONS		Truck length (to fork face front)	L	mm	3410	3410	3782	3782	3942	3845	4140	3942	4145	4140	4140	3942	3285
		Lost load centre (centre drive axle - fork face)	L2	mm	727	727	727	727	792	792	797	797	802	797	797	797	655
		Wheelbase	L3	mm	2100	2100	2450	2450	2600	2450	2800	2600	2800	2800	2800	2600	1900
	Width[1]	Truck width (over tires)	B	mm	1550		2000		2000		2000		2000		2000		1525
		Roof height cabin (basic forklift)	H6	mm	2590		2590		2590		2590		2590		2590		2525
		Seat height cabin	H8	mm	1440		1440		1440		1440		1440		1440		1375
		Height / width, max (with tilted cabin)	T1 / T2	mm	3020 / 2850		3020 / 3050		3020 / 3050		3020 / 3050		3020 / 3050		3020 / 3050		2680 / 2740
		Track (c-c), front / rear	S1 / S2	mm	1260 / 1265		1500 / 1360		1500 / 1360		1500 / 1360		1500 / 1360		1500 / 1360		1170 / 1170
		Turning radius, outer / inner	R1 / R2	mm	3000 / 115		3390 / 155		3570 / 270	3390 / 155	3740 / 365	3530 / 270	4080 / 920	3740 / 365	3740 / 365	3530 / 270	3060 / 160
		Aisle width min. at 90° driving with forks	A1	mm	5080		5520		5720	5580	6540	6320	7290	6540	5940	5720	5110
		Ground clearance, min - max		mm	160		160		160		160		160		160		120
LIFTING EQUIPMENT	**Duplex Standard**[2]	Lifting height	H4	mm	4000		4000		4000		4000		4000		4000		4000
		Mast height, min	H3	mm	2875		2875		3185		3185		3310		3185		2820
		Mast height, max	H5	mm	5000		5000		5160		5160		5285		5160		4995
		Mast tilt, forward - backward	a – ß	°	6 / 9		6 / 9		6 / 9		6 / 9		6 / 9		6 / 9		5 / 5
	Carriage[3]	Carriage type, functions			Side Shift / Fork Position (SS/FP)		Side Shift / Fork Position (SS/FP)		Side Shift / Fork Position (SS/FP)		Side Shift / Fork Position (SS/FP)		Side Shift / Fork Position (SS/FP)		Side Shift / Fork Position (SS/FP)		Side Shift / Fork Position (SS/FP)
		Sideshift forks, max stroke / at opening (c-c)	V1 – V	mm	300 - 800		300 - 800		375 - 1150		375 - 1150		375 - 1150		375 - 1150		300 - 800
		Forks Position, outside width, min-max.	V	mm	420 - 1400		420 - 1400		420 - 1900		520 - 1900		520 - 1900		520 - 1900		420 - 1400
	Forks[4]	Width x Thickness	b	mm	150 x 60		150 x 60		150 x 60		200 x 65		200 x 70	200 x 65	200 x 65		150 x 60
		Length	l	mm	1200		1200		1200		1800		2200	1800	1200		1200
WEIGHTS (Lead Acid)	**Service weight**[5]	Battery (Lead Acid / standard)		kg	8700	9150	10200	10200	11700	11800	13100	12900	13800	13500	12500	12400	10000
		Without battery		kg	6400	6850	7300	7300	8300	8400	9400	9500	10100	9800	8800	9000	7700
	Axle load front	Unloaded		kg	4400	4400	5000	5000	5700	5550	6550	6000	6700	6550	6400	5900	3850
		At rated load		kg	12600	13400	14250	15800	18000	18100	19400	19200	20100	20200	19900	19700	15450
	Axle load rear	Unloaded		kg	4300	4750	5200	5200	6000	6250	6600	6900	7100	6700	6100	6500	6200
		At rated load		kg	1150	1300	1960	1415	1680	1700	1750	1670	1680	1850	1600	1700	1550
WEIGHTS (Lithium-ion)	**Service weight**[5]	Integral battery (Lithium-ion)		kg	8700	9150	10200	10200	11700	11800	13100	12900	13800	13500	12500	12400	10000
	Axle load front	Unloaded		kg	4400	4400	5000	5000	5700	5500	6550	6000	6700	6550	6400	5900	3850
		At rated load		kg	12600	13400	14250	15800	18000	18000	19400	19200	20100	20200	19900	19700	15450
	Axle load rear	Unloaded		kg	4300	4750	5200	5200	6000	6250	6600	6900	7100	6700	6100	6500	6200
		At rated load		kg	1150	1300	1950	1415	1680	1700	1750	1670	1680	1850	1600	1700	1550
WHEELS (PNE+ SE + CS)	**Wheels**[6]	Number of wheels, front – rear (x = driven)			2x – 2		4x – 2		4x – 2		4x – 2		4x – 2		4x – 2		2x - 2
	Pneumatics	Tyres type / pressure (front - rear)		Mpa	Diagonal - Radial / 1.0 - 0.9		Diagonal - Radial / 1.0 - 0.9		Diagonal - Radial / 1.0 - 0.9		Diagonal - Radial / 1.0 - 0.9		Diagonal - Radial / 1.0 - 0.9		Diagonal - Radial / 1.0 - 0.9		-
		Tyres dimensions, front – rear		tum	315/70x15 ◊ 8.15x15		8.25x15 ◊ 8.25x15		8.25x15 ◊ 8.25x15		8.25x15 ◊ 8.25x15		8.25x15 ◊ 315/70x15	8.25x15 ◊ 8.25x15	8.25x15 ◊ 8.25x15		-
		Rims dimensions, front – rear		tum	8.00x15 ◊ 7.00x15		6.50x15 ◊ 6.50x15		6.50x15 ◊ 6.50x15		6.50x15 ◊ 6.50x15		6.50-15 ◊ 8.00x15	6.50-15 ◊ 6.50x15	6.50x15 ◊ 6.50x15		-
	Super-Elastic	Tyres type / no pressure (front - rear)		Mpa	Super-Elastic (SE)		Super-Elastic (SE)		Super-Elastic (SE)		Super-Elastic (SE)		Super-Elastic (SE)		Super-Elastic (SE)		Cushion-Solid (CS)
		Tyres dimensions, front – rear		tum	355/65x15 ◊ 225/75x15		8.25x15 ◊ 8.25x15		8.25x15 ◊ 8.25x15		8.25x15 ◊ 8.25x15		8.25x15 ◊ 315/70x15	8.25x15 ◊ 8.25x15	8.25x15 ◊ 8.25x15		28x14x22 ◊ 22x9x16
		Rims dimensions, front – rear		tum	9.75x15 ◊ 7.00x15		6.50x15 ◊ 6.50x15		6.50x15 ◊ 6.50x15		6.50x15 ◊ 6.50x15		6.50x15 ◊ 8.00x15	6.50x15 ◊ 6.50x15	6.50x15 ◊ 6.50x15		
AXLES	**Steer axle**	Manufacturer, type - designation			Kalmar steer axle / power steering / double acting single cylinder				Kalmar steer axle / power steering / double acting single cylinder								
	Drive axle	Manufacturer, type - designation			Kessler RO41 dual gear wheel drive units / electronic differential / hub reduction				Kessler RO41 dual gear wheel drive units / electronic differential / hub reduction								
	Service brakes	Type – affected wheels			Oil cooled wet disc brakes (WDB) / drive wheels				Oil cooled wet disc brakes (WDB) / drive wheels								
	Parking brake	Type – affected wheels			Spring activated - hydraulic release / drive wheels				Spring activated - hydraulic release / drive wheels								
HYDR	**Hydraulics**	System type / pump type			Load-sensing / power-on-demand / fixed piston pumps				Load-sensing / power-on-demand / fixed piston pumps								
	Oil pressure	Max working pressure		MPa	14,0	14,5	15,5	17,5	20,0	20,0	20,0	20,0	20,0	21,0	21,5	21,5	17,5
	Oil tank	Oil volume		Lit	125		155		155		155		155		155		155

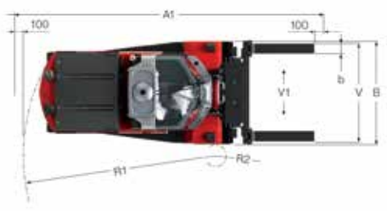
Notes:
1. Width over tires (B): From 1525 to 2000 mm
2. Lift mast heights (H4): Duplex Standard 2.75 - 7.00 m (NFL)
   Duplex Freelift 2.75 - 7.00 m (FFL)
   Triplex Freelift 4.20 - 6.95 m (FFL)
3. Carriage widths (B3): From 1500 to 2600 mm
4. Fork dimensions: Length (l) 1200 to 2400 mm
   Optional fork width x thickness
5. Weights / axle loads: Values with standard configuration.
6. Wheels (tires & rims): Other combinations of wheels are available.

Powertrain

	Models		ECG50-6 ECG55-6	ECG60-6 ECG70-6 ECG80-6S	ECG80-6 ECG80-9S ECG90-6LS	ECG80-11 ECG85-9 ECG90-6L	ECG70-60C
MODELS WHEEL-BASES	Wheelbase	mm	2100	2450	2600	2800	1900
ELECTRIC POWERTRAIN	Motor, manufacturer		Schabmüller Germany				
	Motor, type / model / active cooling[1]		AC motor / asynchronous / air-cooled				
	Motor, speed control type / number of steps		High frequency MOSFET / Stepless				
	Output power - drive motor (at duty class)	kW	2 x 17,6 kW (S2 60 min) / with air cooling[1]				
	Output power - pump motor (at duty class) intermittent	kW	1 x 42 kW (S3 18%) / with air cooling[1]				
	Output power - brake motor (at duty class) intermittent		1 x 2,2 kW (S1) / no cooling				
	Regenerative brake function		Yes / charging of battery				
	Acceleration settings / power programming		In 10 steps (1 - 10)				
	Retardation settings / brake programming		In 10 steps (1 - 10)				
	Energy consumption[2], normal driving, lower duty:	kWh/h	12-14	14-16	14-16	14-16	12-14
	Energy consumption[2], normal driving, medium duty	kWh/h	14-16	16-18	16-18	16-18	14-16
	Energy consumption[2], normal driving, higher duty	kWh/h	16-18	18-20	18-20	18-20	16-18
BATTERY (Lead Acid)	Battery / charger, type - voltage - number of units	V	Lead Acid / 80V / 1+1				
	Nominal energy capacity[3] (min-max) at SOC 100%	kWh	74 / 83	99 / 110	99 / 110	124 / 138	74 / 83
	Useable energy capacity[3] (min-max) at SOC 80%	kWh	59 / 66	79 / 88	79 / 88	99 / 110	59 / 66
	Capacity at 5h discharge, current, min-max	Ah	930 / 1032	1240 / 1376	1240 / 1376	1550 / 1720	930 / 1032
	Battery weight, min-max (per battery)	kg	2300 - 2400	2900 - 3100	2900 - 3100	3700 - 3900	2300 - 2400
	Battery dimensions (W x H x L)	cm	130 x 78 x 85	150 x 78 x 99	150 x 78 x 99	150 x 78 x 119	130 x 78 x 85
	Charging power, min / max (per charger)	kW	20 / 28				
	Charging power supply[4] (per charger)	A	1 x 32 / 1 x 63 CEE				
	Charger / battery connector, type - size		REMA-320 (1x)				
BATTERY (Lithium-ion)	Battery / charger, type - voltage - number of units	V	Lithium-ion (LFP) integral / 77V / 1+1				
	Nominal energy capacity (min-max) at SOC 100%	kWh	44	83	83	83	44
	Useable energy capacity (min-max) at SOC 80%	kWh	35	66	66	66	35
	Capacity at 5h discharge, current, min-max	Ah	576	1080	1080	1080	576
	Charging power[4], max	kW	23 / 36 / 45				
	Charging power socket[4]	A	1 x 63 / 2 x 32 / 2 x 63 CEE				
	Charger / battery connector, type - size		REMA-640 (1x)				

Notes:
1. Normal Speed version: air cooling is optional.
   High Speed version: air cooling is standard.
2. Energy consumption based on duty cycles (intensity):
   Lower duty / Medium duty / Higher duty
3. Battery / charger: multiple brands and performances.
4. Power supply: voltage 380-440 V / 3-phase + NE / 50-60 Hz.



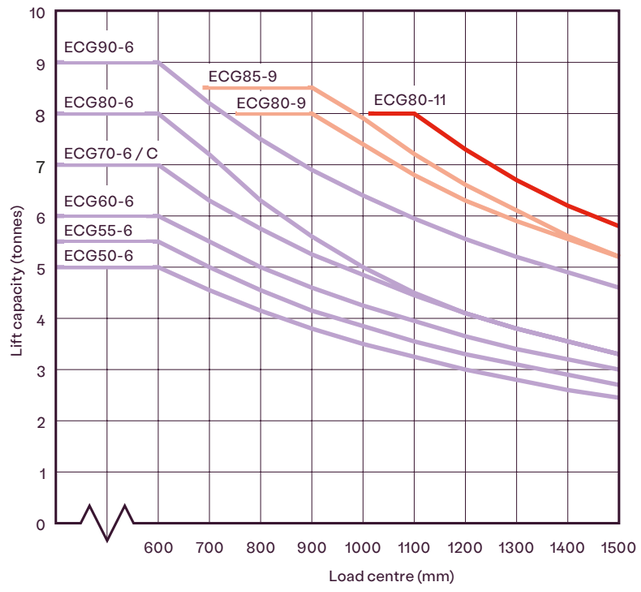


Performance

MODELS				ECG 50-6	ECG 55-6	ECG 60-6	ECG 70-6	ECG 80-6	ECG 80-6S	ECG 80-9	ECG 80-9S	ECG 80-11	ECG 85-9	ECG 90-6L	ECG 90-6LS	ECG 70-60C
SPEEDS	Travel speed (NS[1]), forward - reverse	Unloaded	km/h	18 - 18		17 - 17		17 - 17		17 - 17		17 - 17		17 - 17		15 - 15
		Rated load	km/h	15 - 15		15 - 15		15 - 15		15 - 15		14 - 14		14 - 14		10 - 10
	Travel speed (HS[2]), forward - reverse	Unloaded	km/h	23 - 23		22 - 22		22 - 22		22 - 22		22 - 22		22 - 22		-
		Rated load	km/h	21 - 21		20 - 20		20 - 20		19 - 19		19 - 19		19 - 19		-
	Lifting speed	Unloaded	m/s	0,40		0,32		0,32		0,32		0,32		0,32		0,32
	(70%)	Rated load	m/s	0,35		0,31		0,31		0,31		0,31		0,31		0,31
	Lowering speed	Unloaded	m/s	0,45		0,45		0,45		0,45		0,45		0,45		0,45
		Rated load	m/s	0,50		0,50		0,50		0,50		0,50		0,50		0,50
POWER	Gradeability, max	Unloaded	%	56	53	51	46	41	41	37	37	35	34	38	38	44
		Rated load	%	32	30	28	25	22	22	21	21	20	19	20	20	24
	Gradeability, at 2 km/h	Unloaded	%	42	40	39	36	32	32	29	29	27	26	30	30	33
		Rated load	%	24	23	22	20	17	17	16	16	15	14	16	16	19
	Drawbar pull		kN	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:
1. NS = Normal-Speed version (NS)
2. HS = High-Speed version (HS)

Load Diagram



1. Full capacity with lift height 4.00 m, masts Duplex, Freelift and Triplex, carriage Sideshift / Forkposition (SS/FP) and with / without Fork Shaft System: valid for ECG50-6, 55-6, 60-6, 70-6 and 80-6.

2. Full capacity with lift height 4.00 m, masts Duplex, carriage Sideshift / Forkposition (SS/FP) and without Fork Shaft System: valid for ECG80-9, 80-11, 85-9 and 90-6L.

3. Short and long wheelbase model versions have the same lifting capacity as each other: valid for the ECG80-6/ECG80-6S, ECG80-9/ECG80-9S and ECG90-6L/ECG90-6LS.

Lifting data

We offer a full range of duplex, triplex and free-lift equipment.*

DUPLEX STANDARD (2-stage / NFL)

ECG50-70				ECG80-90				ECG80-11 / 85-9				ECG70-6C			
Lift Height	**Mast Height**		**Free Lift**	**Lift Height**	**Mast Height**		**Free Lift**	**Lift Height**	**Mast Height**		**Free Lift**	**Lift Height**	**Mast Height**		**Free Lift**
H4	H3 min	H5 max	H2	H4	H3 min	H5 max	H2	H4	H3 min	H5 max	H2	H4	H3 min	H5 max	H2
2750	2250	3750	–	2750	2560	3910	–	2750	2685	4035	–	2750	2195	3745	–
3000	2375	4000	–	3000	2685	4160	–	3000	2810	4285	–	3000	2320	3995	–
3250	2500	4250	–	3250	2810	4410	–	3250	2935	4535	–	3250	2445	4245	–
3500	2625	4500	–	3500	2935	4660	–	3500	3060	4785	–	3500	2570	4495	–
3750	2750	4750	–	3750	3060	4910	–	3750	3185	5035	–	3750	2695	4745	–
4000	2875	5000	–	4000	3185	5160	–	4000	3310	5285	–	4000	2820	4995	–
4250	3000	5250	–	4250	3310	5410	–	4250	3435	5535	–	4250	2945	5245	–
4500	3125	5500	–	4500	3435	5660	–	4500	3560	5785	–	4500	3070	5495	–
4750	3250	5750	–	4750	3560	5910	–	4750	3685	6035	–	4750	3195	5745	–
5000	3375	6000	–	5000	3685	6160	–	5000	3810	6285	–	5000	3320	5995	–
5250	3500	6250	–	5250	3810	6410	–	5250	3935	6535	–	5250	3445	6245	–
5500	3625	6500	–	5500	3935	6660	–	5500	4060	6785	–	5500	3570	6495	–
5750	3750	6750	–	5750	4060	6910	–	5750	4185	7035	–	5750	3695	6745	–
6000	3875	7000	–	6000	4185	7160	–	6000	4310	7285	–	6000	3820	6995	–
6500	4125	7500	–	6500	4435	7660	–	6500	4560	7785	–	6500	4070	7495	–
7000	4375	8000	–	7000	4685	8160	–	7000	4810	8285	–	7000	4320	7995	–

DUPLEX FREELIFT (2-stage / FFL 50%)

ECG50-70				ECG80-90				ECG80-11 / 85-9				ECG70-6C			
Lift Height	**Mast Height**		**Free Lift**	**Lift Height**	**Mast Height**		**Free Lift**	**Lift Height**	**Mast Height**		**Free Lift**	**Lift Height**	**Mast Height**		**Free Lift**
H4	H3 min	H5 max	H2	H4	H3 min	H5 max	H2	H4	H3 min	H5 max	H2	H4	H3 min	H5 max	H2
2750	2375	3850	1280	2750	2560	3910	1405	2750	2685	4035	1405	2750	2320	3800	1280
3000	2500	4100	1405	3000	2685	4160	1530	3000	2810	4285	1530	3000	2445	4050	1405
3250	2625	4350	1530	3250	2810	4410	1655	3250	2935	4535	1655	3250	2570	4300	1530
3500	2750	4600	1655	3500	2935	4660	1780	3500	3060	4785	1780	3500	2695	4550	1655
3750	2875	4850	1780	3750	3060	4910	1905	3750	3185	5035	1905	3750	2820	4800	1780
4000	3000	5100	1905	4000	3185	5160	2030	4000	3310	5285	2030	4000	2945	5050	1905
4250	3125	5350	2030	4250	3310	5410	2155	4250	3435	5535	2155	4250	3070	5300	2030
4500	3250	5600	2155	4500	3435	5660	2280	4500	3560	5785	2280	4500	3195	5550	2155
4750	3375	5850	2280	4750	3560	5910	2405	4750	3685	6035	2405	4750	3320	5800	2280
5000	3500	6100	2405	5000	3685	6160	2530	5000	3810	6285	2530	5000	3445	6050	2405
5250	3625	6350	2530	5250	3810	6410	2655	5250	3935	6535	2655	5250	3570	6300	2530
5500	3750	6600	2655	5500	3935	6660	2780	5500	4060	6785	2780	5500	3695	6550	2655
5750	3875	6850	2780	5750	4060	6910	2905	5750	4185	7035	2905	5750	3820	6800	2780
6000	4000	7100	2905	6000	4185	7160	3030	6000	4310	7285	3030	6000	3945	7050	2905
6500	4250	7600	3155	6500	4435	7660	3280	6500	4560	7785	3280	6500	4195	7550	3155
7000	4500	8100	3405	7000	4685	8160	3530	7000	4810	8285	3530	7000	4445	8050	3405

TRIPLEX FREELIFT (2-stage / FFL 33%)

ECG50-70				ECG80-90				ECG80-11 / 85-9				ECG70-6C			
Lift Height	**Mast Height**		**Free Lift**	**Lift Height**	**Mast Height**		**Free Lift**	**Lift Height**	**Mast Height**		**Free Lift**	**Lift Height**	**Mast Height**		**Free Lift**
H4	H3 min	H5 max	H2	H4	H3 min	H5 max	H2	H4	H3 min	H5 max	H2	H4	H3 min	H5 max	H2
4200	2320	5260	1280	4200	2580	6190	1470	4200	2580	6190	1470	-	-	-	-
4450	2410	5510	1370	4450	2670	5330	1560	4450	2670	5330	1560	-	-	-	-
4700	2490	5760	1450	4700	2750	5580	1640	4700	2750	5580	1640	-	-	-	-
4950	2570	6010	1530	4950	2830	5830	1720	4950	2830	5830	1720	-	-	-	-
5200	2660	6260	1620	5200	2920	6080	1810	5200	2920	6080	1810	-	-	-	-
5450	2740	6510	1700	5450	3000	6330	1890	5450	3000	6330	1890	-	-	-	-
5700	2820	6760	1780	5700	3080	6580	1970	5700	3080	6580	1970	-	-	-	-
5950	2910	7010	1870	5950	3170	6830	2060	5950	3170	6830	2060	-	-	-	-
6200	2990	7260	1950	6200	3250	7080	2140	6200	3250	7080	2140	-	-	-	-
6450	3070	7510	2030	6450	3330	7330	2220	6450	3330	7330	2220	-	-	-	-
6950	3240	8010	2200	6950	3500	8080	2390	6950	3500	8080	2390	-	-	-	-

Notes*:
1. All mast heights with standard tyres.
2. The lifting cylinders are mounted behind the mast profiles on Duplex Standard, Duplex Freelift & Triplex Freelift.
   The freelift cylinders are mounted inside the mast profiles on Duplex Freelift and Triplex Freelift.
3. Duplex Heavy-Duty: mast range with additional reinforcements.

Masts

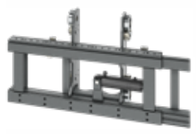
Duplex Standard
Lift height 2750 - 7000 mm

Duplex Freelift
Lift height 2750 - 7000 mm

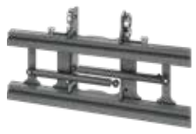
Triplex Freelift
Lift height 4200- 6950 mm

Carriages

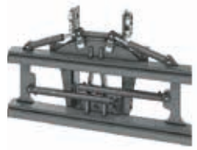
For manual
FEM-forks



For Sideshift
only (SS)



For Sideshift /
Forkposition (SS/FP)



For Sideshift /
Fork position (SS/FP)
and Centre Levelling

Forks

Manual FEM

With roller
bearings (SS/FP)

On Fork Shaft System
with roller bearings
(SS/FP)

With roller bearings
(SS/FP) and fork
levelling

Kalmar

www.kalmarglobal.com

2024-03-24