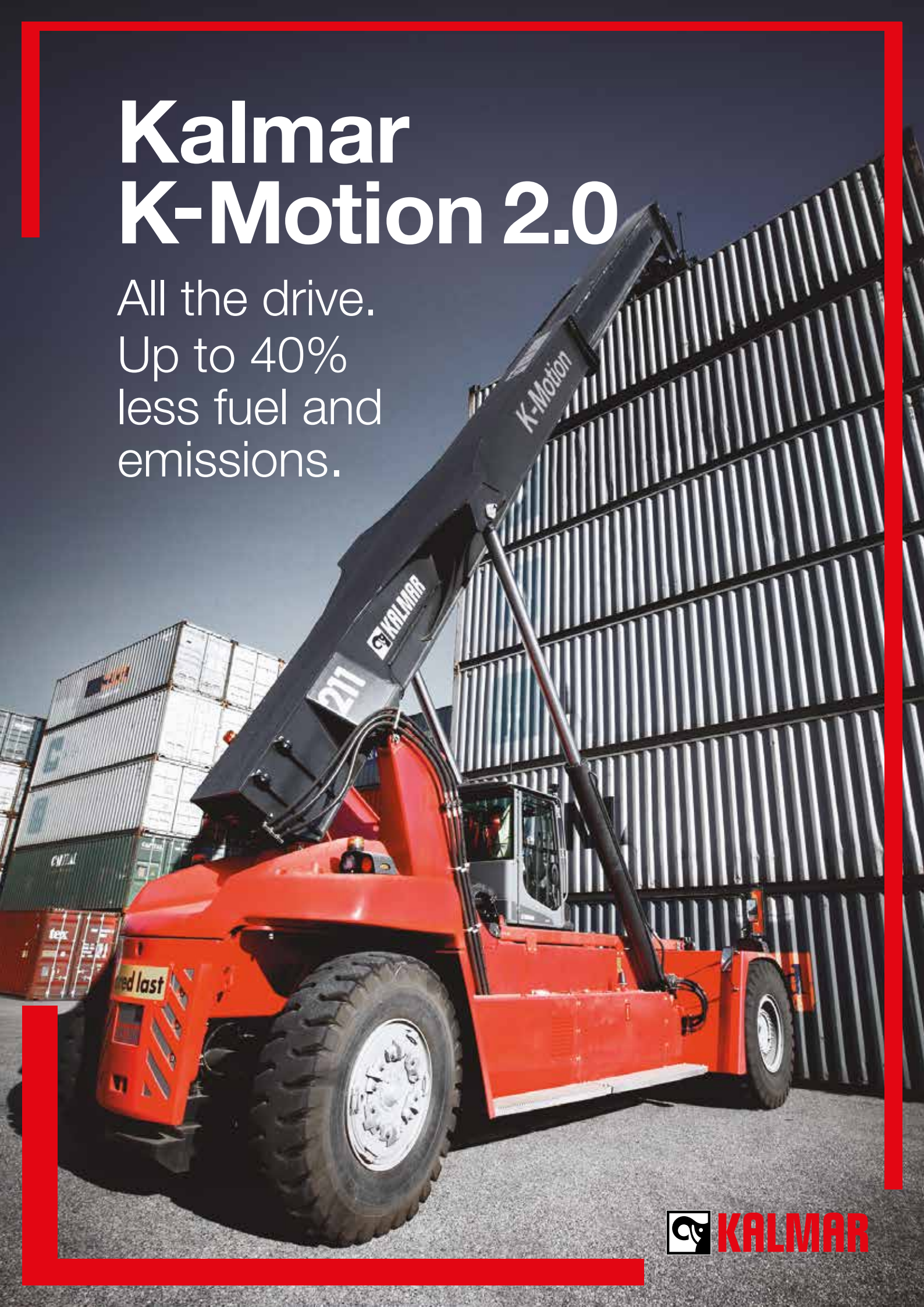
Kalmar K-Motion 2.0

All the drive.
Up to 40%
less fuel and
emissions.



KALMAR

Changing the rules of the game.

For many years, reducing your fuel costs and emissions meant compromising on the operational efficiency of your reachstackers, as more fuel-efficient drivelines often meant less productive machines. No longer. Kalmar has developed a unique drive-train system called K-Motion, which has recently been upgraded to version 2.0.

The upgraded Kalmar K-Motion 2.0
In our current K-Motion 2.0 upgrade you will benefit from lower power consumption when in operation and a much smoother drive. To achieve this:

- We have upgraded the hydraulics with new load sensing functionalities and optimised hydraulics functions
- And have upgraded the machine's operating software so it adapts quickly to different driving styles and applications.

K-Motion 2.0 is available with EU3 and EU4 (EPA Tier 3 and 4F) rated engines and for container, intermodal and industrial handling.

What is Kalmar K-Motion?
K-Motion 2.0 is based on our extensive experience and knowledge of hydrostatic and mechanical drivelines which has allowed us to develop a highly innovative drive-train system for reachstackers.

With Kalmar K-Motion 2.0 you can maintain your expected levels of productivity and reduce your fuel bills and emissions by up to 40%. Your operators will benefit from an improved operating environment and the ability to more precisely control the machine.

How does K-Motion work?
K-Motion is a combination of well proven transmission technologies, hydrostatic and mechanical drives, combined with smart programming, intelligent controls and a small, but highly efficient engine.

This new system operates by splitting the power sources depending on the operational needs of the machine. The hydrostatic slow speed drive, delivers smooth, efficient power while the mechanical high speed drive activates when additional power is needed.

The smart control system splits the power in the most intelligent way to maximise drive and lifting efficiency for every move you make. This allows the machine to operate with a much smaller engine than other reachstackers, giving you dramatically reduced fuel consumption, less noise and much lower emissions.

Kalmar K-Motion 2.0 is good for your business, good for the planet.

Kalmar K-Motion 2.0 can offer your business many benefits:

- Fuel consumption can be reduced by up to 40%.
- Operating noise is greatly reduced for operators and others nearby.
- CO_2 emissions are reduced by up to 40%.
- Ergonomically designed cabin for operational ease.
- Less stress and pressure on the driver's body during operations.

A 30% fuel reduction.

"We have our Kalmar K-Motion connected to Kalmar SmartFleet. Everyday we measure the fuel used in combination with the number of moves made.

We see 30% less fuel consumption when we analyse the figures from the last 3-4 months".

Pascal Vermeulen
Operational and Technical Director of the RBC Terminal, Rotterdam.

Less fuel, less emissions.

Using less fuel will result in a direct reduction in emissions. With Kalmar K-Motion 2.0 you can expect a reduction in fuel consumption of up to 40% in comparison to older reachstackers and up to 20% with modern reachstackers. Reducing your fuel consumption means producing less CO_2 and particulate emissions.

Just the right amount of power.
Kalmar K-Motion's smart programming senses the exact weight of the load being handled. By knowing the precise weight, the system can generate the right amount of power to get the job done, further helping to reduce fuel consumption and emissions.

Further fuel savings can be achieved by installing:

- Automatic Start/Stop functionality
- Automatic Engine Shutdown
- Drive Speed Limitation
- SmartFleet Monitoring
- Eco Drive Modes (EDMs).

With Kalmar K-Motion 2.0 you can expect up to:

40% LESS EMISSIONS

40% LESS CO_2

MUCH LOWER NOISE

Proven in the field.

With over 70 Kalmar K-Motion machines delivered globally we have monitored their performance while operating in the field*. Initial results have shown that fuel consumed, in relation to the work done (load lifted by the distance driven), has been significantly reduced. The reduction in fuel saved has reduced costs and emissions for the operators.

* Data collected from Kalmar K-motion units running in field and compared with over 300 F and G-generation reachstakers equipped with standard drivetrains, both 3A and 4F versions.

Safer and more comfortable.

When you drive your Kalmar K-Motion reachstacker correctly, you will significantly reduce your fuel consumption and emissions by up to 40%.

How you will be benefit from Kalmar K-Motion 2.0:

- Big reduction in fuel consumption
- Big reduction in exhaust emissions
- Big reduction of noise levels, inside and outside cabin
- Increased operation precision and control
- Increased driver comfort with less stresses and strains
- Increased driver efficiency and productivity
- Increased ease of operation.

Kalmar Training Academy.

Driving a Kalmar K-Motion 2.0 reachstacker is different than traditional reachstackers and, to get the most out of it, our training academy offers a range of courses for both your technicians and operators. Operators will be shown how to optimise their driving performance and what needs to be checked on the machine every day. Technicians will be given the knowledge they need to be able to keep your new equipment in top condition. Courses are a mix of theory and hands on experience and can be held at Kalmar or at your site.

Increased safety and efficiency.
Kalmar K-Motion 2.0 uses a continuous variable transmission which provides smoother transition in shifts, drive stops and direction changes. This allows the operator to drive more precisely, resulting in increased safety levels.

Easier to operate.
Kalmar K-Motion reachstackers are much easier to drive than other machines, as their smart programming does a lot of the work for you. Your drivers will no longer need to rev their engines to get the lifting and handling speeds they want, nor will they need to hold the brake pedal continually while lifting and lowering while stationary. This will dramatically reduce the strain and stress on their bodies.

Increased comfort.
Kalmar K-Motion reachstackers come fitted with our ergonomically designed EGO cabin. With slim line b-pillars, adjustable seating, steering wheel and control panel, your driver will benefit from a superior operating environment and visibility. Kalmar K-Motion, with its unique driveline, is quieter and vibrates less than traditional reachstackers, further enhancing driver comfort.

39% reduction in fuel consumption achieved.

Over a three day period it was shown that the Kalmar K-Motion DRG450 used on average 14.5 litres per hour in comparison to the Port of Tauranga's older reachstacker, which used 24 litres per hour. A reduction of over 39%.

"We were looking for reduced fuel consumption and improved operator comfort and control, as well as environmental benefits, such as lower emissions and reduced operating noise and we got them."

Shayne Jenkins
General Manager, Quality Marshalling
Port of Tauranga, New Zealand.

Kalmar Care.

More support.

Making sure your business never stops.

We offer you four different types of service and maintenance contracts, for any brand of equipment. Each is designed to help you improve your operational efficiency, drive productivity and secure financial predictability. The different contract types include a set of standardised service modules that can be tailored to meet your business needs. Opposite is an overview of the four contracts.

When the right part matters.

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

You may also want to consider outsourcing all or part of your spare parts management and inventory control, with Kalmar Parts Care. Kalmar Parts Care makes sure that critical spare parts are always on hand so your equipment downtime is kept at a minimum. Each Kalmar Parts Care plan is based on your operational needs, talk to us today and see how we can lift your parts availability, while reducing your inventory costs.

The four flexible types of service contracts.

Kalmar Support Care
We support your maintenance processes on demand.
- Availability of competent people with the right tools and parts
- Provides additional skills to existing maintenance organisation.

Kalmar Essential Care
We perform your agreed maintenance tasks proactively.
- Availability of competent people with the right tools and parts
- Higher degree of financial predictability
- Reduced operational risk to customer
- Improved availability of machines.

Kalmar Complete Care
We meet your complete maintenance requirements.
- Predictive maintenance planning
- Low operational risk to customer
- Reduced equipment downtime
- Reduced total cost of operation
- Increased operational predictability.

Kalmar Optimal Care
We optimise your business performance.
- Guaranteed availability
- Reduced tied-in capital
- Improved business performance
- Increased peace of mind.

Optimise your reachstacker with SmartFleet.

SmartFleet is a powerful equipment optimisation tool that can help you get more from your fleet. Data is streamed directly from your equipment, analysed and then displayed in an accessible and easy to use graphic interface. You will be able to assess the equipment's key performance data and make suitable changes to your operation processes to improve both efficiency and productivity.

Kalmar SmartFleet enables you to more effectively manage your container handling operations, decreases downtime and improves safety at your site.

There are many standard reports to choose from, including:

- Analyse View
- Map View
- Calendar View
- Report View

Financing options for you.

You may choose to buy your new K-Motion reachstacker outright or consider leasing or renting your equipment. There are a range of leasing and renting options that give you the financial predictability you need and the option to upgrade your equipment after a fixed period.

With our leasing package, you can focus on your core operations, while all your service and maintenance needs are covered. Kalmar can also help you with trading-in your old equipment.

No matter what your service and support needs are, make sure that you speak to your local team first.

The Kalmar container load measurement solution.

The accurate and reliable weighing of containers is an important part of safety at sea and is a mandatory requirement of the new SOLAS (Safety of life at sea) global weighing standards, from July 2016. The Kalmar container load measurement solution allows your machine to automatically measure the precise weight of your container to meet the SOLAS standards.

The Verified Gross Weight of your load is taken directly from your equipment's weighing systems and sent to the display screen in the cabin for recording. It is also possible to send the data to an on-board printer, cloud data service or create a direct connection to your TOS system.

The accuracy of this data has been certified by an independent third party to insure that it is compliant with the SOLAS standards.

K-Motion options.

Start/Stop function. An optional start/stop function can be added to automatically activate and deactivate the machine. In addition to reducing unnecessary emissions and extending the lifespan of components, this makes it possible to achieve up to 10% in fuel savings.

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. Active care of your tyres can result in a 10-40% increase in tyre life and up to a 10% decrease in fuel consumption.

Reverse Warning System (RWS). Knowing what's going on behind you is critical when other personnel are present. Four 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 on the spreaders or on the front of the machine.

Fire Suppression System (FSS). To protect your operator and machine from fire you can fit a FSS 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.

Alco-lock. To ensure that your driver is at their best when operating your equipment, you can install an Alco-lock system. This system makes sure that the driver meets alcohol blood level standards before being able to start the machine, much like a breathalyser.

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.

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:

- 2 or 4 on the front mud guards
- 2, 4 or 6 on the lift boom
- 2 or 4 on the spreader
- 2 more on rear counter weight.

Standard.

Kalmar DRG 420S-450S (S = Container - Top Lift)
Kalmar DRG 450C-450C (C = Intermodal - Combi Lift)
Kalmar DRG 500A-540A (A = Industrial - Tool Carrier)
Kalmar DRG 570Z-600Z (Z = Industrial - Lift Hook)

Norms, Standards and Regulations
- Machinery Directive 2006/42/EC
- Safety Variable Reach Trucks EN 1459+A3
- Safety Low & High Lift Trucks ANSI/ B56.1
- Stability Variable Reach Trucks EN 1459+A3
- CE-marking for trucks within EU/EEA
- ANSI/ITSDF-marking for North America trucks

Chassis
- Wheelbase 6,0 / 6,5 m - in STD, X and XS models
- Strong and durable heavy-duty chassis
- Safe access steps, platform & hand rails (LHS)
- Long bottom access step (on both sides)
- Lifting eyes and anchor points (front & rear)
- Good rear end visibility of the truck
- Towing pin (rear)

Body
- Steps with anti-slip protection
- Rear view mirrors (2x) - rear on front mudguards
- Strong and protective mudguards (front & rear)
- Basic noise insulation for the complete truck

Steer Axle (Rear)
- Kalmar steer axle mounted dual pivot bearings
- Orbitrol power steering with double acting cylinder

Drive Axle (Front)
- Kessler planetary axle with differential drive
- Wide axle for high side stability (4150 mm)
- Oil-cooled Wet Disc Brakes (WDB)
- High pressure filter (10 mµ) for the brakes
- Brake oil tank (140 lit), cooling & breather filter

Wheels (Tyres & Rims)
- Drive and steer tyres 18.00x25"/PR40 (6x), for STD models
- Drive and steer tyres 18.00x33"/PR36 (6x), for X / XS models

Drive Train (CAN-bus)
- Volvo D8 in EU stage 3A (EPA Tier 3)
- Volvo D8 in EU stage 4 (EPA Tier 4 Final)
- 6-cylinder diesel engines with pre-heater, displacement 7,70 Lit
- High power & torque with low fuel consumption
- Engine monitoring and protection system
- Automatic CVT transmission, DRTS R2-RS
- Hydrostatic slow-speed / mechanical high-speed
- Seamless speed shifting and soft directional shifting (FWD - REV)
- Transmission monitoring and reverse protection
- Heavy-duty radiators for engine, transmission, brakes & hydraulics

Load-Sensing Hydraulics
- Load-sensing variable piston pumps
- Pumps for boom, spreader, brakes & steering
- Vane pumps for brake & oil cooling (2x)
- Return filters for the work hydraulics (2x/10 mµ)
- Hydraulic long-life fine filter with by-pass (5 mµ)
- Servo filter for the work hydraulics (10 mµ)
- Pressure filter for the brakes (10 mµ)
- Regeneration high-speed lifting & extension
- Boom end-damping (in-out/up-down/20-40')
- Hydraulic tank (600 lit), cooling, breather filter & ORFS-couplings

Lifting Boom
- Strong, durable box-type boom with guide pads
- Boom with 2 lift cylinders & 1 extension cylinder

Attachment
- S = Top Lift, 45 tons, 20'-40', MPS, TWL + 4 lift hooks
- C = Combi Lift, 45 tons, 20'-30'-40', HPS, TWL, lift legs, 4 lift hooks, length tilt & tilt lock
- A = Tool Carrier, max 65 tons, MPS, TWL (2,5x0,76 m) & 4 lift eyes
- Z = Lift Hook, max 70 tons, dual hook, free rotation & 4 lift eyes
- S-C-A = 4 floating twistlocks, LED indication lamps & 4 LED work lamps
- S-C-A = Safety locking, alignment pins (4x) & sensors (4x)
- S-C-A = Rotation +195/-105 deg (2 motors & 2 brakes)
- S-C-A = Lift hooks for slings on end beams (4x)
- S-A = Mechanical Pile Slope MPS ±5 deg
- C = Hydraulic HPS ±5 deg
- Large sideshift (S-C = ±800 mm / A = ±450 mm)

Electrical System 24V
- Battery box 2x12V (24V) & main power switch
- Electric service box on chassis (LHS)
- 2 LED head lights on front fenders (one beam)
- 2 LED working lights on boom
- 2 LED working lights on front edge cabin
- 2 LED rear lights on fenders (when reversing)
- 2 LED working lights on attachment (S + C + A)
- 2 LED position lights on each side
- 2 LED tail lights / brake LED-lights
- 4 LED blinker lights (front-rear/left-right)
- 2 LED flashing brake lights (when reversing)
- 1 LED rotating warning beacon
- 1 acoustic signal / reverse alarm (in reverse)

Cabin (EGO)
Structure
- Spacious, modern cabin with best ergonomics
- Large windows, good visibility, in all directions
- Manual moveable cabin (stroke 2375 mm)
- Step for roof access
- Instep handle (left side)
- Sliding window on both sides
- Doors with air damper and key lock (L + R)
- Tinted laminated windows

Comfort
- Comfort seat Kalmar, mechanical spring, high back
- Adjustable armrest (RHS) & 2-point safety belt
- Inside rear view mirror (right side)
- Interior lights with fade away function
- Fully adjustable steering wheel incl tilt function
- Fully adjustable colour display
- Electric adjustable operational console with joystick, operational buttons & armrest (RHS)
- Power steering wheel with steer knob
- Electric horn
- LED background light for buttons & switches

Controls
- Joystick (SmartStick) for boom, spreader & forward / reverse
- Auto rev-up accelerator at lifting/extension
- Electric accelerator (SmartPedal) for driving FWD + REV
- Double brake pedals (L + R)
- Button for electronic hand brake (on/off)
- Safety override for hydraulic functions (by code)
- Multi-function lever LHS (horn, gear/direction switch, high/low beam)
- Warning - hand brake (on/off) leaving seat
- Hour meter

Climate
- ECC, electronic climate control, very powerful cooler, heater and ventilator, incl programmable settings.
- Air-condition incl. fresh air and recirculation filter
- Wipers/washers on front, rear and roof windows
- Interval wiper functions on front, rear and roof

Information Systems
- Colour display & automatic fault analysis
- Menu control with toggle wheel & push buttons
- Electronic safety, overload, scale & synchronized lift
- LLMI Longitudinal Load Moment Indicator (Pop-Up Menu)
- LLMC Longitudinal Load Moment Control (Pop-Up Menu)

Operator menu:
=- System voltage
=- Engine rpm
=- Travelling speed (km/h or m/h)
=- Hydraulic oil temperature
=- Transmission oil temperature
=- Engine oil pressure & coolant level
=- Engine oil level
=- Clock and date
=- Load & Load distance (LC)
=- Boom extension & Boom angle
=- Operating time (hours)
=- Service time indicator (hours)
=- Boom angle and Boom extension
=- Electronic weight scale functions
=- Status of Heating, Ventilation and AC system (HVAC)
=- Fuel level (diesel and optional AdBlue)
=- Estimated operating time before empty tank (hour/min)
=- Service indicator
=- Container counter with reset function
=- Trip computer / statistics

Various warning lights & signals:
=- Charging battery
=- Low brake pressure
=- Failure indicator
=- Safety System disconnected
=- high Engine coolant temperature
=- Low Engine coolant level
=- Low Engine oil pressure
=- Preheating Engine
=- Transmission oil temperature
=- Low Fuel level
=- Hydraulic oil temperature

Indicator lamps:
=- Direction indication
=- Parking brake

Colour
- Cabin: Iron-Grey RAL 7011
- Chassis, tanks & mudguards: Red RAL 3000
- Boom, attachment & axles: Black RAL 7021
- Rims: Iron-Grey RAL 7011

Documentation and Decals
- Load chart diagram inside cabin
- Machine data sign on chassis incl. load chart
- Warning, tyre pressure & oil pressure stickers
- Information & joystick stickers
- Fuse diagram
- Instruction manual
- Maintenance manual
- Spare parts catalogue

Options.

Kalmar DRG 420S-450S (S = Container - Top Lift)
Kalmar DRG 450C-450C (C = Intermodal - Combi Lift)
Kalmar DRG 500A-540A (A = Industrial - Tool Carrier)
Kalmar DRG 570Z-600Z (Z = Industrial - Lift Hook)

Chassis
- DRG range in Toplift (S), Intermodal (C) and Industrial handlings (A + Z)
- Wheelbases in 6,0 / 6,5 m - in STD, X and XS models
- Duplex 2-stage booms for S+C+A+Z (H4 = 13,0-17,8 m)

Body
- Anti slip protection on fenders and tanks
- Mud flaps (front or/and rear)
- External rear view mirrors (2x)
- Noise insulation kit for the complete truck

Steer Axle (Rear)
- Steer cylinder space 14 mm (plus 0,50 m radius).
- Wheel nut protection on steer tyres

Wheels (Tyres & Rims)
- Spare wheel and rim 18.00x25"/PR40 (for STD models)
- Spare wheel and rim 18.00x33"/PR36 (for X / XS models)

Drive train
- Volvo TAD-852-VE, 6-inline, 210 kW, 1237 Nm (EU 3A / EPA Tier 3)
- Volvo TAD-872-VE, 6-inline, 210 kW, 1237 Nm (EU 4 / EPA Tier 4F)
- Start/stop function to save fuel
- Automatic engine and ignition stop at idle
- Pre-cleaner air intake incl raised air intake
- Various programmable speed limitations

Load-Sensing Hydraulics
- High pressure filter

Lifting boom
- Duplex 2-stage S5/5 (H4 = 15,1-15,2 m)
- Duplex 2-stage S6/5 (H4 = 16,2-16,3 m)
- Duplex 2-stage S6/6 HC (H4 = 17,7-17,8 m)
- Duplex 2-stage C5/5 (H4 = 14,9-15,0 m)
- Duplex 2-stage A5 (H4 = 15,0-15,1 m)
- Duplex 2-stage Z5 (H4 = 13,0-13,1 m)

Attachment
- Tilt function ±5 deg (FWD/REV), incl tilt lock & speed limit 5 km/h
- Hydraulics Pile Slope HPS ±5 deg (side tilt), incl tilt lock & speed limit 5 km/h
- Rotations stop spreader at ±25 deg (incl override switch)
- Automatic extension 20'-40' incl 30' stop
- Overhigh folding legs OFL = 1600 or 2000 mm (integral)
- Boom nose extension L = 1000 or 1600 mm
- Long boom nose, extension = 1600 mm
- 2 extra lift eyes in centre of spreader (2 x 22,5 ton)
- 4 extra lift eyes in middle part of spreader (4 x 11,25 ton)
- Soft landing with ultrasonic sensor
- Twistlock beam rubber damper, 100 mm extension (noise reduction)
- Extended twistlocks 300 mm
- Side Tilt Spreader 0-55 deg, 45 / 32 tons
- Length Tilt Spreader 0-55 deg, 45 / 32 tons
- Hydraulic door opener - for tilt spreader - on one side
- Coil ram sub frame, STD, 35 tons, ID / OD = 500 / 3000 mm
- Coil ram sub frame, Tool Carrier, 35 tons, ID / OD = 500 / 3000 mm

Electrical System 24V
- Radio with CD/MP3/BT
- Extra sockets 2x24V + 2x12V in cabin door columns
- Extra sockets 2x24V + 2x5V USB's in cabin door columns
- Electric air pressure horn
- Height limitation system for lifting boom
- Load centre limitation for lifting boom
- Speed limitation, please specify km/h
- Container lights, LED 4x, on front mudguards
- Extra working light, LED 2x, on spreader
- Extra working light, LED 2x, on boom
- Electric heated mirrors, front fender/std pos
- Electric heated & adjustable mirrors, front fenders/std pos
- TV-camera with monitor in cab direction rearward (6-7 m)
- Reverse warning system, incl. 4x sensors, TV-camera & monitor
- PPS, personal proximity safety (1 base/1 charger/5 tags)
- Tyre pressure monitoring system (Bluetooth)
- Cabin heater incl 220V outlet
- Diesel powered cabin heater 5 kW
- Alcolock Draeger in cabin

Cabin
Structure
- Hydraulic sliding cabin (stroke 2375 mm), anti-collision function, avoid container / trailer to hit cabin in front position
- Speed limitation depending on cabin position
- Hydraulic elevating cab (stroke 2300 mm)

Comfort
- Seat with air-cushion, heating & 3-point belt
- Head rest for the seat
- Armrest with adjustment (LHS)
- Horizontal dampening/suspension of seat
- Extra trainer seat incl 2-point safety belt (LHS)
- Bracket for terminal and monitor (RHS)
- Writing pad, A4 paper box and reading lamp (RHS)

Controls
- Lever steering incl switch for forward/reverse
- Mini-wheel steering incl switch for forward/ reverse

Climate
- Sun visor front-roof-rear windows (of black net)
- Sun visor roof window (of reflecting film)
- Microfilter in additional to std filter
- AC/ECC switched off when door is open
- Post-heating (break heater function)

Additional Equipment
- Semi-automatic fire suppression system
- Fire extinguisher 6 kg, powder
- Tool kit
- Extra sound insulation - reduction 3 dB(A)
- Lockable fuel cap
- Central greasing (base truck / spreader)
- Filter kit 2000 hrs

Colour
- Other colour than std, chassis
- Reinforced anti-corrosion protection

Documentation and Decals
- Extra set of documentation
- Workshop manuals
- Volvo trouble shooting and repair kit
- Load chart lbs/inch in cab & sign "no riders"
- Documentation on cd or memory stick

Training
- Contact Kalmar Training Centre for training programs
- Working ECO driving

Drivelines.

KALMAR TRUCK MODELS		DRG 420 - 600		DRG 420 - 600	
Engine emission approvals		EU stage 3A	US EPA Tier 3	EU stage 4	US EPA Tier 4-Final
Max emission norm values (NOx-HC-CO-PM)		3.5 - 0.5 - 3.5 - 0.2	3.5 - 0.5 - 3.5 - 0.2	0.4 - 0.19 - 3.5 - 0.025	0.4 - 0.19 - 3.5 - 0.020
Engine brand / series		Volvo Penta / D-8		Volvo Penta / D-8	
Engine model		TAD-852-VE		TAD-872-VE	
Engine after treatment type		No SCR, no AdBlue, no EGR		SCR + AdBlue + cooled EGR	
Engine fuel / type		Diesel / 4-stroke		Diesel / 4-stroke	
Engine design / cylinders		6-inline / common rail		6-inline / common rail	
Engine charger technology		Fixed Geometry Turbo (FGT)		Variable Geometry Turbo (VGT)	
Engine intercooler technology		Intercooler (air-to-air)		Intercooler (air-to-air)	
Engine displacement	(dm3 (in3))	7,700 (470)		7,700 (470)	
Engine bore × stroke	(mm (in))	110 × 135 (4.33 × 5.31)		110 × 135 (4.33 × 5.31)	
Max power @ engine speed	(kW / hp @ rpm)	210 (286) @ 1,600–2,200		210 (286) @ 1,600–2,200	
Max torque @ engine speed	(Nm / lb-ft @ rpm)	1,237 (912) @ 1,000–1,400		1,237 (912) @ 1,000–1,400	
Fuel consumption – average diesel	(L/h / gall/h)	10–15 (2,6–4,0)		10–15 (2,6–4,0)	
Fuel consumption – average AdBlue	(%)	-		1 - 5	
Alternator type – power	(W)	AC – 3,640		AC – 3,640	
Transmission brand / name / model		DANA-Rexroth / K-Motion / R2-RS		DANA-Rexroth / K-Motion / R2-RS	
Transmission clutch type		CVT (Continuous Variable Transmission)		CVT (Continuous Variable Transmission)	
Transmission model		Hydrostatic + Mechanical (Power-Split)		Hydrostatic + Mechanical (Power-Split)	
Transmission speed range (FWD - REV)		Speed range 3 - 2		Speed range 3 - 2	
Drive axle brand / series		Kessler / D102 (WDB)		Kessler / D102 (WDB)	
Service brake / cooling		Wet Disc Brakes with oil cooling		Wet Disc Brakes with oil cooling	
Steer axle brand / series		Kalmar / single cylinder		Kalmar / single cylinder	

Container Handling - Top Lift (S)

Intermodal Handling - Top Lift and Trailer Lift (C)

Industrial Handling - Tool Carrier (A)

Industrial Handling - Lift Hook (Z)

Container Handling.

	KALMAR TRUCK MODELS			DRG 420-60 S5	DRG 450-60 S5	DRG 450-60 S5M	DRG 450-60 S5X	DRG 450-65 S5	DRG 450-65 S5X	DRG 450-65 S5XS	DRG 450-65 S6	DRG 450-65 S6X	DRG 450-65 S6HC	DRG 450-65 S6HCX
MAIN DATA	**Type of handling**			Container handling with Top Lift twistlocks				Container handling with Top Lift twistlocks						
	Lift capacity, row 1-2-3-4 (incl jacks*)	Q1-Q2-Q3	(tons)	42 - 25 - 11	45 - 27 - 13	45 - 30 - 15	45 - 35 - 18	45 - 32 - 16	45 - 38 - 21	45 - 38(41) - 21(29)	45 - 32 - 16 - 8	45 - 38 - 21 - 12	45 - 33 - 18 - 10	45 - 38 - 21 - 12
	Lift capacity, row 1-2-3-4 (incl jacks*), at max height	Q1-Q2-Q3	(tons)	42 - 25 - 11	45 - 27 - 13	45 - 30 - 15	45 - 35 - 18	45 - 32 - 16	45 - 38 - 21	43 - 38(41) - 21(29)	42 - 32 - 16 - 8	43 - 38 - 21 - 12	36 - 32 - 18 - 10	38 - 34 - 21 - 12
	Load centre, from front face of tyres, row 1-2-3-4	L4-L5-L6-L7	(mm)	1,965 - 3,815 - 6,315	1,965 - 3,815 - 6,315	1,965 - 3,815 - 6,315	1,865 - 3,815 - 6,315	1,965 - 3,815 - 6,315	1,865 - 3,815 - 6,315	1,865 - 3,815 - 6,315	1,965 - 3,815 - 6,315 - 8,815	1,865 - 3,815 - 6,315 - 8,815	2,065/2,965 - 3,815 - 6,315 - 8,815	1,965/2,865 - 3,815 - 6,315 - 8,815
	Stacking capacity, in container row 1-2-3-4, of 8'6" / 9'6"			5/5 - 5/4 - 4/3	5/5 - 5/4 - 4/3	5/5 - 5/4 - 4/3	5/5 - 5/4 - 4/3	5/5 - 5/4 - 4/3	5/5 - 5/4 - 4/3	5/5 - 5/4 - 4/3	6/5 - 5/5 - 4/4 - 2/2	6/5 - 5/5 - 4/4 - 2/2	6/6 - 6/5 - 5/4 - 4/3	6/6 - 6/5 - 5/4 - 4/3
	Spreader type, extension stops, locking			Mechanical Pile Slope (MPS) by gravity / 20ft and 40ft / 4 x individual Twistlocks (TWL)				Mechanical Pile Slope (MPS) by gravity / 20ft and 40ft / 4 x individual Twistlocks (TWL)						
	Lost load centre, to front face of tyres	x	(mm)	800	800	800	930	800	930	930	800	930	800	930
	Wheelbase	L3	(mm)	6.000	6.000	6.000	6.000	6.500	6.500	6.500	6.500	6.500	6.500	6.500
WEIGHTS	**Service weight, standard truck**		(kgs)	65.500	67.400	69.400	77.500	69.500	76.300	80.300	70.500	77.500	70.500	77.500
	Axle load, front at load centre L4, unloaded – loaded		(kgs)	34,500 - 96,100	34,600 - 100,600	34,600 - 100,600	35,600 - 101,600	35,000 - 99,400	35,000 - 99,400	38,500 - 109,200	36,000 - 102,500	36,500 - 103,000	36,000 - 102,500	36,500 - 103,000
	Axle load, front at load centre L5, unloaded – loaded		(kgs)	38,900 - 83,300	39,000 - 86,900	39,000 - 92,200	40,200 - 102,900	39,000 - 93,900	39,200 - 105,000	42,800 - 108,600	39,500–94,400	40,200–105,900	39,500–94,400	40,200–105,900
	Axle load, rear at load centre L4, unloaded – loaded		(kgs)	31,000 - 11,400	32,800 - 11,800	34,800 - 13,800	41,900 - 20,900	34,500 - 15,100	41,300 - 21,900	41,800 - 22,400	34,500–13,000	41,000–19,500	34,500–13,000	41,000–19,500
	Axle load, rear at load centre L5, unloaded – loaded		(kgs)	26,600 - 7,200	28,400 - 7,500	30,400 - 7,300	37,300 - 9,600	30,500 - 7,600	37,100 - 9,300	37,500 - 9,700	31,000–8,100	37,300–9,600	31,000–8,100	37,300–9,600
WHEELS	**Tyre type, tyre design**			Pneumatic / Diagonal				Pneumatic / Diagonal						
	Tyres, dimension, PLY-rating, star rating		(in)	18.00x25" / PR40 (E4)	18.00x25" / PR40 (E4)	18.00x25" / PR40 (E4)	18.00x33" / PR36 (E4)	18.00x25" / PR40 (E4)	18.00x33" / PR36 (E4)	18.00x33" / PR36 (E4)	18.00x25" / PR40 (E4)	18.00x33" / PR36 (E4)	18.00x25" / PR40 (E4)	18.00x33" / PR36 (E4)
	Tyre pressure (front + rear)		(MPa)	1.0–1.0	1.0–1.0	1.0–1.0	1.0–1.0	1.0–1.0	1.0–1.0	1.0–1.0	1.0–1.0	1.0–1.0	1.0–1.0	1.0–1.0
	Rim dimension (front + rear)		(in)	13.00x25"	13.00x25"	13.00x25"	13.00x33"	13.00x25"	13.00x33"	13.00x33"	13.00x25"	13.00x33"	13.00x25"	13.00x33"
	Number of wheels, driven / front + rear			4 / 4 + 2	4 / 4 + 2	4 / 4 + 2	4 / 4 + 2	4 / 4 + 2	4 / 4 + 2	4 / 4 + 2	4 / 4 + 2	4 / 4 + 2	4 / 4 + 2	4 / 4 + 2
	Track width (front + rear)	S1 - S2	(mm)	3,030–2,600	3,030–2,600	3,030–2,600	3,030–2,800	3,030–2,600	3,030–2,800	3,030–2,800	3,285–2,600	3,285–2,600	3,285–2,600	3,285–2,600
DIMENSIONS	**Boom type - cylinder design**			Duplex 2-stage boom with 2 x lift cylinders and 1 x extension cylinder				Duplex 2-stage boom with 2 x lift cylinders and 1 x extension cylinder						
	Boom angle, min–max	alfa	(deg)	0–60	0–60	0–60	0–60	0–60	0–60	0–60	0–62	0–62	0–63	0–63
	Boom height, min–max	H3–H5	(mm)	4,600 - 18,200	4,600 - 18,200	4,600 - 18,200	4,700 - 18,200	4,600 - 18,200	4,700 - 18,200	4,700 - 18,300	4,600 - 19,250	4,600 - 19,350	4,600 - 20,800	4,600 - 21,000
	Chassis height – top of boom fixation, max	H2	(mm)	3.925	3.925	3.925	4.025	3.925	4.025	4.025	3.925	4.025	3.925	4.025
	Lift height, min in twistlocks, row 1-2-3-4	H4a	(mm)	1.150	1.150	1.150	1.250	1.150	1.250	1.150	1.250	1.250	1.150	1.250
	Lift height, max in twistlocks, row 1-2-3-4	H4b	(m)	15,1 - 13,2 - 10,4	15,1 - 13,2 - 10,4	15,1 - 13,2 - 10,4	15,2 - 13,3 - 10,4	15,1 - 13,2 - 10,4	15,2 - 13,3 - 10,4	15,1 - 13,2 - 10,4	16,2 - 14,1 - 11,4	16,3 - 14,2 - 11,4	17,7 - 15,5 - 12,9 - 10,4	17,8 - 15,5 - 12,9 - 10,4
	Boom reach stroke		(mm)	7.000	7.000	7.000	7.000	7.000	7.000	7.000	7.700	7.700	8.500	8.500
	Truck height / seat height	H6–H8	(mm)	3,650 - 2,575	3,650 - 2,575	3,650 - 2,575	3,750 - 2,675	3,650 - 2,575	3,750 - 2,675	3,750 - 2,675	3,650 - 2,575	3,750 - 2,675	3,650 - 2,575	3,750 - 2,675
	Overall truck length, without and with boom	L	(mm)	8,015–11,200	8,015–11,200	8,015–11,200	8,115–11,200	8,515–11,700	8,515–11,700	8,615–11,700	8,815–12,000	8,915–12,000	8,815–12,000	8,915–12,000
	Truck width over drive axle	B	(mm)	4.150	4.150	4.150	4.150	4.150	4.150	4.150	4.150	4.150	4.150	4.150
	Spreader width, min–max	Va - Vb	(mm)	6,055–12,185	6,055–12,185	6,055–12,185	6,055–12,185	6,055–12,185	6,055–12,185	6,055–12,185	6,055–12,185	6,055–12,185	6,055–12,185	6,055–12,185
	Spreader sideshift	V1	(mm)	±800 (total 1,600)	±800 (total 1,600)	±800 (total 1,600)	±800 (total 1,600)	±800 (total 1,600)	±800 (total 1,600)	±800 (total 1,600)	±800 (total 1,600)	±800 (total 1,600)	±800 (total 1,600)	±800 (total 1,600)
	Spreader rotation, no. of motors + no. of brakes	beta	(deg)	300 (+195/-105) / 2+2	300 (+195/-105) / 2+2	300 (+195/-105) / 2+2	300 (+195/-105) / 2+2	300 (+195/-105) / 2+2	300 (+195/-105) / 2+2	300 (+195/-105) / 2+2	300 (+195/-105) / 2+2	300 (+195/-105) / 2+2	300 (+195/-105) / 2+2	300 (+195/-105) / 2+2
	Spreader side tilt, tilt angle, tilt power		(deg)	Mechanical Pile Slope (MPS) by gravity / tilt stroke ± 5 / by gravity				Mechanical Pile Slope (MPS) by gravity / tilt stroke ± 5 / by gravity						
	Spreader optional length tilt, tilt angle, locking		(deg)	Optional length tilt / tilt stroke ± 5 / active tilt lock for end-on transport (90 deg)				Optional length tilt / tilt stroke ± 5 / active tilt lock for end-on transport (90 deg)						
	Ground clearance, steer axle – middle – front		(mm)	- / 250 / -	- / 250 / -	- / 250 / -	- / 250 / -	- / 250 / -	- / 250 / -	- / 250 / -	- / 250 / -	- / 250 / -	- / 250 / -	- / 250 / -
	Aisle width, with 20 ft – 40 ft container	A1–A2	(mm)	11,200–13,600	11,200–13,600	11,200–13,600	11,200–13,600	11,600–13,600	11,600–13,600	11,600–13,600	11,600–13,600	11,600–13,600	11,600–13,600	11,600–13,600
	Turning radius, outer with 20 ft – 40 ft container	R1–R3	(mm)	8,100–9,400	8,100–9,400	8,100–9,400	8,100–9,400	8,500–9,400	8,500–9,400	8,500–9,400	8,500–9,400	8,500–9,400	8,500–9,400	8,500–9,400
	Turning radius, inner	R2	(mm)	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200
DRIVE LINE	**Engine type, cylinders, design**			Diesel / 4-stroke / 6-cylinder / EU stage 3A and EU stage 4 (EPA Tier 3 and Tier 4-Final)				Diesel / 4-stroke / 6-cylinder / EU stage 3A and EU stage 4 (EPA Tier 3 and Tier 4-Final)						
	Engine power, torque, displacement		(kW/Nm/dm3)	210 kW (286 hp) at 1600-2200 rpm / 1,237 Nm (912 lb-ft) at 1000 - 1400 rpm / Volume 7,70 dm3 (470 in3)				210 kW (286 hp) at 1600-2200 rpm / 1,237 Nm (912 lb-ft) at 1000 - 1400 rpm / Volume 7,70 dm3 (470 in3)						
	Fuel consumption, average diesel / tank volume		(L/h/dm3)	10 - 15 / 550				10 - 15 / 550						
	Fuel consumption, average AdBlue / tank volume		(%/dm3)	1 - 5 / 35				1 - 5 / 35						
	Alternator, type - power, voltage / capacity		(W/V/Amp)	AC - 3,640 (28 x 130)				AC - 3,640 (28 x 130)						
	Battery voltage / capacity		(V/Ah)	2x12 / 145				2x12 / 145						
	Drive axle type, differential / service brakes			Yes / wet disc brakes				Yes / wet disc brakes						
	Drive axle type, single dry disc parking brake			Yes / hydr. release				Yes / hydr. release						
	Steer axle type, single cylinder / power steering			Yes / Yes				Yes / Yes						
	Travel speed, forward – reverse, unloaded – loaded		(km/h)	26 - 22 / 18 - 16	26 - 22 / 18 - 16	26 - 22 / 18 - 16	26 - 22 / 18 - 16	26 - 22 / 18 - 16	26 - 22 / 18 - 16	26 - 22 / 18 - 16	26 - 22 / 18 - 16	26 - 22 / 18 - 16	26 - 22 / 18 - 16	26 - 22 / 18 - 16
	Gradeability, at max & at 2 km/h, unloaded – loaded		(%)	30 - 18 / 26 - 16	30 - 18 / 26 - 16	30 - 18 / 26 - 16	30 - 18 / 26 - 16	30 - 18 / 26 - 16	30 - 18 / 26 - 16	30 - 18 / 26 - 16	30 - 18 / 26 - 16	30 - 18 / 26 - 16	30 - 18 / 26 - 16	30 - 18 / 26 - 16
	Lifting speed, unloaded - at 70 % of rated load		(m/s)	0.40–0.24	0.40–0.24	0.40–0.24	0.40–0.24	0.40–0.24	0.40–0.24	0.40–0.24	0.40–0.24	0.40–0.24	0.40–0.24	0.40–0.24
	Lowering speed, unloaded – at rated load		(m/s)	0.35–0.40	0.35–0.40	0.35–0.40	0.35–0.40	0.35–0.40	0.35–0.40	0.35–0.40	0.35–0.40	0.35–0.40	0.35–0.40	0.35–0.40
	Drawbar pull / towing capacity, max		(kN)	220	220	220	220	220	220	220	220	220	220	220
OTHERS	**Load sensing hydraulic system / no. of oil tanks**			Yes / dual oil tanks	Yes / dual oil tanks	Yes / dual oil tanks	Yes / dual oil tanks	Yes / dual oil tanks	Yes / dual oil tanks	Yes / dual oil tanks	Yes / dual oil tanks	Yes / dual oil tanks	Yes / dual oil tanks	Yes / dual oil tanks
	Tank volumes of working oil & brake oil		(dm3)	740 (600 + 140)	740 (600 + 140)	740 (600 + 140)	740 (600 + 140)	740 (600 + 140)	740 (600 + 140)	740 (600 + 140)	740 (600 + 140)	740 (600 + 140)	740 (600 + 140)	740 (600 + 140)
	Working pressure boom / spreader		(MPa)	23.0 / 16.0	23.0 / 16.0	23.0 / 16.0	23.0 / 16.0	23.0 / 16.0	23.0 / 16.0	23.0 / 16.0	23.0 / 16.0	23.0 / 16.0	23.0 / 16.0	23.0 / 16.0
	Noise level LpAZ acc. to EN12053, inside cabin		(dB(A))	69-72	69-72	69-72	69-72	69-72	69-72	69-72	69-72	69-72	69-72	69-72
	Noise level LwA acc. to 2000/14/EC, outside cabin		(dB(A))	106-108	106-108	106-108	106-108	106-108	106-108	106-108	106-108	106-108	106-108	106-108
	Towing hook			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Electronic overload, monitoring & safety system			Yes / yes / yes	Yes / yes / yes	Yes / yes / yes	Yes / yes / yes	Yes / yes / yes	Yes / yes / yes	Yes / yes / yes	Yes / yes / yes	Yes / yes / yes	Yes / yes / yes	Yes / yes / yes
	Longitudinal load monitoring info / controls			Yes - LLMI / Yes - LLMC	Yes - LLMI / Yes - LLMC	Yes - LLMI / Yes - LLMC	Yes - LLMI / Yes - LLMC	Yes - LLMI / Yes - LLMC	Yes - LLMI / Yes - LLMC	Yes - LLMI / Yes - LLMC	Yes - LLMI / Yes - LLMC	Yes - LLMI / Yes - LLMC	Yes - LLMI / Yes - LLMC	Yes - LLMI / Yes - LLMC

Intermodal and Industrial Handling.

	KALMAR TRUCK MODELS			DRG 450-60 C5	DRG 450-60 C5X	DRG 450-65 C5	DRG 450-65 C5X	DRG 450-65 C5XS	DRG 500-60 A5	DRG 540-60 A5X	DRG 540-65 A5XS	DRG 570-65 Z5	DRG 600-65 Z5X	DRG 600-65 Z5XS
MAIN DATA	**Type of handling**			**Intermodal Combi Lift / twistlocks container hand ling / bottom lift trailer handling**					**Industrial handling / Tool Carrier for multi-tool**			**Industrial handling / Lift Hook and Lift eyes**		
	Lift capacity, row 1-2-3 (incl jacks*)	Q1-Q2-Q3	(tons)	45 - 25 - 10	45 - 32 - 15	45 - 28 - 13	45 - 34 - 17	45 - 34 (38) - 17 (24)*	50 - 27 - 16 - 11	54 - 32 - 20 - 14	54 - 38 - 25 - 17	57 - 31 - 19 - 14	60 - 38 - 25 - 18	60 - 38 - 25 - 18
	Lift capacity, row 1-2-3 (incl jacks*), at max height	Q1-Q2-Q3	(tons)	42 - 25 - 10	42 - 32 - 15	42 - 28 - 13	43 - 34 - 17	43 - 34 (38) - 17 (24)*	---	---	(54 - 42 - 34 - 23)*	---	---	(60 - 45 - 34 - 24)*
	Load centre, from front face of tyres, row 1-2-3	L4-L5-L6	(m)	1,965 - 3,815 - 6,315	1,865 - 3,815 - 6,315	1,965 - 3,815 - 6,315	1,865 - 3,815 - 6,315	1,865 - 3,815 - 6,315	2,0 - 4,0 - 6,0 - 8,0	2,0 - 4,0 - 6,0 - 8,0	2,0 - 4,0 - 6,0 - 8,0	1,5 - 4,0 - 6,0 - 8,0	1,5 - 4,0 - 6,0 - 8,0	1,5 - 4,0 - 6,0 - 8,0
	Stacking capacity, in container row 1-2-3, of 8'6" / 9'6"			5/5 - 5/4 - 4/3	5/5 - 5/4 - 4/3	5/5 - 5/4 - 4/3	5/5 - 5/4 - 4/3	5/5 - 5/4 - 4/3	-	-	-	-	-	-
	Spreader type, extension stops, locking		(ft)	Hydraulic Pile Slope (HPS) by 4 cylinders / 20ft, 30ft and 40ft / 4 x individual Twistlocks (TWL)					Mechanical Pile Slope (MPS) / 2500 x 760 mm / 4 x Twistlocks + 4 Lift eyes			Dual Lift Hook (free rotation) / 4 fixed Lift Eyes		
	Lost load centre, to front face of tyres	x	(mm)	800	930	800	930	930	800	930	930	800	930	930
	Wheelbase	L3	(mm)	6.000	6.000	6.500	6.500	6.500	6.000	6.000	6.500	6.500	6.500	6.500
WEIGHTS	**Service weight, standard truck**		(kgs)	73.500	81.800	73.500	81.300	83.500	63.000	70.700	75.500	60.500	67.500	68.000
	Axle load, front at load centre L4, unloaded – loaded		(kgs)	41,000 - 107,000	42,000 - 108,000	41,000 - 105,400	42,400 - 106,800	44,500 - 108,900	29,500 - 102,800	29,600 - 108,800	32,500 - 109,800	---	---	---
	Axle load, front at load centre L5, unloaded – loaded		(kgs)	46,700 - 91,100	48,000 - 105,400	46,300 - 93,600	48,000 - 106,800	50,200 - 109,000	---	---	---	---	---	---
	Axle load, rear at load centre L4, unloaded – loaded		(kgs)	32,500 - 11,500	39,800 - 18,800	35,200 - 13,100	38,900 - 19,500	39,000 - 19,600	33,500 - 10,200	41,100 - 15,900	43,000 - 19,700	---	---	---
	Axle load, rear at load centre L5, unloaded – loaded		(kgs)	26,800 - 7,400	33,800 - 8,400	27,200 - 7,200	33,300 - 8,500	39,000 - 8,500	---	---	---	---	---	---
WHEELS	**Tyre type, tyre design**			Pneumatic / Diagonal							Pneumatic / Diagonal			
	Tyres, dimension, PLY-rating, star rating		(in)	18.00 × 25" / PR40 (E4)	18.00 × 33" / PR36 (E4)	18.00 × 25" / PR40 (E4)	18.00 × 33" / PR36 (E4)	18.00 × 33" / PR36 (E4)	18.00 × 25" / PR40 (E4)	18.00 × 33" / PR36 (E4)	18.00 × 33" / PR36 (E4)	18.00 × 25" / PR40 (E4)	18.00 × 33" / PR36 (E4)	18.00 × 33" / PR36 (E4)
	Tyre pressure (front + rear)		(MPa)	1.0–1.0	1.0–1.0	1.0–1.0	1.0–1.0	1.0–1.0	1.0–1.0	1.0–1.0	1.0–1.0	1.0–1.0	1.0–1.0	1.0–1.0
	Rim dimension (front + rear)		(in)	13.00 × 25"	13.00 × 33"	13.00 × 25"	13.00 × 33"	13.00 × 33"	13.00 × 25"	13.00 × 33"	13.00 × 33"	13.00 × 25"	13.00 × 33"	13.00 × 33"
	Number of wheels, driven / front + rear			4 / 4 + 2	4 / 4 + 2	4 / 4 + 2	4 / 4 + 2	4 / 4 + 2	4 / 4 + 2	4 / 4 + 2	4 / 4 + 2	4 / 4 + 2	4 / 4 + 2	4 / 4 + 2
	Track width (front + rear)	S1 - S2	(mm)	3,030–2,800	3,030–2,800	3,030–2,800	3,030–2,800	3,030–2,800	3,030–2,600	3,030–2,800	3,030–2,800	3,030–2,600	3,030–2,800	3,030–2,800
DIMENSIONS	**Boom type - cylinder design**			Duplex 2-stage boom with 2 x lift cylinders and 1 x extension cylinder										
	Boom angle, min–max	alfa	(deg)	0–60	0–60	0–60	0–60	0–60	0–60	0–60	0–60	0–60	0–60	0–60
	Boom height, min–max	H3–H5	(mm)	4,600 - 18,200	4,600 - 18,200	4,600 - 18,200	4,600 - 18,200	4,700 - 18,300	4,600 - 18,200	4,600 - 18,200	4,600 - 18,200	4,600 - 18,200	4,600 - 18,200	4,600 - 18,200
	Chassis height – top of boom fixation, max	H2	(mm)	3.925	4.025	3.925	4.025	4.025	3.925	4.025	4.025	3.925	3.925	4.025
	Lift height, min in twistlocks, row 1-2-3	H4a	(mm)	950	1.050	950	1.050	1.150	1.300	1.300	1.300	1.150	1.150	1.250
	Lift height, max in twistlocks, row 1-2-3	H4b	(m)	14,9 - 13,0 - 10,2	15,0 - 13,1 - 10,3	14,9 - 13,0 - 10,2	15,0 - 13,1 - 10,3	14,9 - 13,0 - 10,2	15,0 - 13,6 - 11,4 - 7,7	15,0 - 13,6 - 11,4 - 7,7	15,0 - 13,6 - 11,4 - 7,7	13,0 - 13,0 - 11,4 - 7,7	13,0 - 13,0 - 11,4 - 7,7	13,0 - 13,0 - 11,4 - 7,7
	Boom reach stroke		(mm)	7.000	7.000	7.000	7.000	7.000	7.000	7.000	7.000	7.000	7.000	7.000
	Truck height / seat height	H6–H8	(mm)	3,650 - 2,575	3,750 - 2,675	3,650 - 2,575	3,750 - 2,675	3,750 - 2,675	3,650 - 2,575	3,750 - 2,675	3,750 - 2,675	3,650 - 2,575	3,650 - 2,575	3,750 - 2,675
	Overall truck length, without and with boom	L	(mm)	8,015–11,200	8,115–11,200	8,515–11,700	8,515–11,700	8,615–11,700	8,015–11,200	8,115–11,200	8,515–11,700	8,515–11,700	8,515–11,700	8,515–11,700
	Truck width over drive axle	B	(mm)	4.150	4.150	4.150	4.150	4.150	4.150	4.150	4.150	4.150	4.150	4.150
	Spreader width, min–max	Va - Vb	(mm)	6,055–12,185	6,055–12,185	6,055–12,185	6,055–12,185	6,055–12,185	2.730	2.730	2.730	6,055–12,185	6,055–12,185	6,055–12,185
	Spreader sideshift	V1	(mm)	±800 (total 1,600)	±800 (total 1,600)	±800 (total 1,600)	±800 (total 1,600)	±800 (total 1,600)	±450 (total 900)	±450 (total 900)	±450 (total 900)	---	---	---
	Spreader rotation, no. of motors + no. of brakes	beta	(deg)	300 (+195/-105) / 2+2	300 (+195/-105) / 2+2	300 (+195/-105) / 2+2	300 (+195/-105) / 2+2	300 (+195/-105) / 2+2	300 (+195/-105) / 2+2	300 (+195/-105) / 2+2	300 (+195/-105) / 2+2	360 / ---	360 / ---	360 / ---
	Spreader side tilt, tilt angle, tilt power		(deg)	Hydraulic Pile Slope (HPS) by 4 cylinders / tilt stroke ± 5 / by hydraulic power					Mechanical Pile Slope (MPS) by gravity / tilt stroke ± 5 / by gravity			---		
	Spreader optional length tilt, tilt angle, locking		(deg)	Standard with length tilt / tilt stroke ± 5 / active tilt lock for end-on transport (90 deg)					Optional length tilt / tilt stroke ± 5 / active tilt lock for end-on transport (90 deg)			---		
	Ground clearance, steer axle – middle – front		(mm)	- / 250 / -	- / 300 / -	- / 250 / -	- / 300 / -	- / 300 / -	- / 250 / -	- / 300 / -	- / 300 / -	- / 250 / -	- / 300 / -	- / 300 / -
	Aisle width, with 20 ft – 40 ft container	A1–A2	(mm)	11,200–13,600	11,200–13,600	11,600–13,600	11,600–13,600	11,600–13,600	11,200–13,600	11,200–13,600	11,600–13,600	11,600–13,600	11,600–13,600	11,600–13,600
	Turning radius, outer with 20 ft – 40 ft container	R1–R3	(mm)	8,100–9,400	8,100–9,400	8,500–9,400	8,500–9,400	8,500–9,400	8,100–8,100	8,100–8,100	8,500–8,500	8,500–8,500	8,500–8,500	8,500–8,500
	Turning radius, inner	R2	(mm)	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200
DRIVE LINE	**Engine type, cylinders, design**			Diesel / 4-stroke / 6-cylinder / EU stage 3A and EU stage 4 (EPA Tier 3 and Tier 4-Final)										
	Engine power, torque, displacement		(kW/Nm/dm3)	210 kW (286 hp) at 1600-2200 rpm / 1,237 Nm (912 lb-ft) at 1000 - 1400 rpm / Volume 7,70 dm3 (470 in3)										
	Fuel consumption, average diesel / tank volume		(L/h/dm3)	10 - 15 / 550										
	Fuel consumption, average AdBlue / tank volume		(%/dm3)	1 - 5 / 35										
	Alternator, type - power, voltage / capacity		(W/V/Amp)	AC - 3,640 (28 x 130)										
	Battery voltage / capacity		(V/Ah)	2x12 / 145										
	Drive axle type, service brakes (on drive wheels)			Yes / wet disc brakes										
	Drive axle type, parking brake			Yes / hydr. release										
	Steer axle type, function			Yes / Yes										
	Travel speed, forward – reverse, unloaded – loaded		(km/h)	26 - 22 / 18 - 16	26 - 22 / 18 - 16	26 - 22 / 18 - 16	26 - 22 / 18 - 16	26 - 22 / 18 - 16	26 - 22 / 18 - 16	26 - 22 / 18 - 16	26 - 22 / 18 - 16	26 - 22 / 18 - 16	26 - 22 / 18 - 16	26 - 22 / 18 - 16
	Gradeability, at max & at 2 km/h, unloaded – loaded		(%)	30 - 18 / 26 - 16	30 - 18 / 26 - 16	30 - 18 / 26 - 16	30 - 18 / 26 - 16	30 - 18 / 26 - 16	30 - 18 / 26 - 16	30 - 18 / 26 - 16	30 - 18 / 26 - 16	30 - 18 / 26 - 16	30 - 18 / 26 - 16	30 - 18 / 26 - 16
	Lifting speed, unloaded - at 70% of rated load		(m/s)	0.40–0.24	0.40–0.24	0.40–0.24	0.40–0.24	0.40–0.24	0.40–0.24	0.40–0.24	0.40–0.24	0.40–0.24	0.40–0.24	0.40–0.24
	Lowering speed, unloaded – at rated load		(m/s)	0.35–0.40	0.35–0.40	0.35–0.40	0.35–0.40	0.35–0.40	0.35–0.40	0.35–0.40	0.35–0.40	0.35–0.40	0.35–0.40	0.35–0.40
	Drawbar pull / towing capacity, max		(kN)	220	220	220	220	220	220	220	220	220	220	220
OTHERS	**Hydraulic system, no. of oil tanks**			Yes / dual oil tanks	Yes / dual oil tanks	Yes / dual oil tanks	Yes / dual oil tanks	Yes / dual oil tanks	Yes / dual oil tanks	Yes / dual oil tanks	Yes / dual oil tanks	Yes / dual oil tanks	Yes / dual oil tanks	Yes / dual oil tanks
	Tank volumes of working oil & brake oil		(dm3)	740 (600 + 140)	740 (600 + 140)	740 (600 + 140)	740 (600 + 140)	740 (600 + 140)	740 (600 + 140)	740 (600 + 140)	740 (600 + 140)	740 (600 + 140)	740 (600 + 140)	740 (600 + 140)
	Working pressure boom / spreader		(MPa)	23.0 / 16.0	23.0 / 16.0	23.0 / 16.0	23.0 / 16.0	23.0 / 16.0	23.0 / 16.0	23.0 / 16.0	23.0 / 16.0	23.0 / 16.0	23.0 / 16.0	23.0 / 16.0
	Noise level LpAZ acc. to EN12053, inside cabin		(dB(A))	69-72	69-72	69-72	69-72	69-72	69-72	69-72	69-72	69-72	69-72	69-72
	Noise level LwA acc. to 2000/14/EC, outside cabin		(dB(A))	106-108	106-108	106-108	106-108	106-108	106-108	106-108	106-108	106-108	106-108	106-108
	Towing hook			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Electronic overload, monitoring & safety system			Yes / yes / yes	Yes / yes / yes	Yes / yes / yes	Yes / yes / yes	Yes / yes / yes	Yes / yes / yes	Yes / yes / yes	Yes / yes / yes	Yes / yes / yes	Yes / yes / yes	Yes / yes / yes
	Longitudinal load monitoring info / controls			Yes - LLMI / Yes - LLMC	Yes - LLMI / Yes - LLMC	Yes - LLMI / Yes - LLMC	Yes - LLMI / Yes - LLMC	Yes - LLMI / Yes - LLMC	Yes - LLMI / Yes - LLMC	Yes - LLMI / Yes - LLMC	Yes - LLMI / Yes - LLMC	Yes - LLMI / Yes - LLMC	Yes - LLMI / Yes - LLMC	Yes - LLMI / Yes - LLMC

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