



# Meet Gloria

The next generation of productivity.

# Kalmar – home of the original reachstacker.

Wherever in the world cargo is on the move, Kalmar is there. As a pioneer and world leader in cargo handling solutions, no one has been working as hard – or as long – at keeping your business ahead of the rest.

Over thirty years ago, in Lidhult, Sweden, we built the world's first commercial reachstacker. Based on the idea that containers could be handled more flexibly, with higher stacking, deeper reach and improved storage capacity, the concept soon became a worldwide success. It marked a new standard in operational efficiency and reliability: one that continues to this day with one of the world's oldest operating reachstackers. Delivered in 1990, it's a machine that is still running strong in Guangzhou, China, after 40,000 hours on the job – and counting.

The industry has come a long way since those early days. Tougher schedules. Tighter margins. Stricter regulations. Driven by these demands, and based on our experience with more than 15,000 machines in more than 160 countries, we've continued to create total solutions

that support some of the toughest jobs in the world. Throughout it all, our focus has remained the same: deliver top-quality, innovative products that strengthen your business every day.

Now, with our latest series of Kalmar reachstackers, generations of hard work are once again paying off for our customers. The result is yet another leap forward in productivity, and our most comfortable, most efficient reachstacker to date.





Drivers call it the next level of performance.

# We call her Gloria.

The G-Generation reachstacker is the outcome of more than a decade of advances in operating efficiency. Through extensive testing with operators, maintenance personnel, production and terminal managers around the world, we were determined to improve every detail to better meet the needs of today's cargo handlers.

The challenges were immense. They involved tackling an endless range of user demands with the help of leading industrial designers, modular components and the latest research into ergonomics, usability and materials science.

The goal, however, was quite straightforward: to create a machine that is reliable enough to build on the success of the F-Generation, but innovative enough to achieve new levels of productivity and safety. A machine that is simply more versatile and more profitable to own.

Meet Gloria – a new reachstacker for a new generation.

# Performance with a panorama view.

At the heart of every great machine lies a great cabin. After all, the more ergonomic and intuitive your workspace is, the more you can get done at the end of the day. This is why we've once again decided to give our operators the most productive operating environment in the industry: the EGO cabin.

## Re-engineered from the inside out.

Safe, comfortable and easier than ever to control, the EGO cabin has been completely re-engineered to have as little as possible between your operators, and the load being handled. Vision is uninhibited. A patented side-tilting wheel enables new steering possibilities. And an improved, ergonomically designed joy-stick stays firmly secured in position for smoother, safer gear changes.

## All eyes ahead.

The EGO cabin brings out the best in any driver. From carefully laid out new controls, pedals and displays to the nearly seamless visibility of the curved windscreen, everything remains in sight and within easy reach – both inside and out. All so you can move more tonnes, more safely, with complete focus on the job ahead.

## Wired for performance.

All G-Generation machines are equipped with the newly developed Kalmar electrical control system, an integrated information system that allows operators, managers and service personnel to monitor nearly every aspect of their machine's performance. It's a wealth of real-time data that amounts to faster, more reliable operations, with less downtime.

## Intuitive Head Up display.

The intuitive integrated Head Up display allows you to monitor your load as symbols shift from green, to yellow, to red, showing the twist-lock and support jacks status. All of this is shown in a discreet, LED-lit unit that's carefully placed to avoid obstructing vision.

## Advanced operator diagnostics.

On top of saving countless hours on manual tasks and equipment checks, the Kalmar Information Display keeps operators better informed about their machine's status from the safety of the driver's position. It simplifies daily checkups and provides valuable statistics such as error history, fuel consumption, distance and operating hours.

Need to perform a daily lights check? You can turn them all on with the press of a button. Concerned about your machine's lubrication? The display will alert you to any warning signs in the central lubrication system, for example if a lubrication point is clogged. Whatever issue may arise, an on-screen code will guide you in your operator's manual. In this way, diagnostics can be performed without ever stepping out of the cab, and without ever again needing assistance to check something as simple as a brake light.



# An elevation in uptime.

The F-Generation reachstacker, already a leader in uptime, has finally met its match. With the G-Generation, we've managed to boost performance once again with improved operator interfaces and newly designed integrated components. The result? Simplified maintenance, fewer faults and a major increase in service intervals.

## Improved component integration

Under the hood, the G-Generation has taken a big leap forward in component integration and construction, thanks to close collaboration between Kalmar's R&D and service staff in the development of the new series. Segmented wires, for instance, make maintenance and replacement simpler. And with fewer exposed components, and therefore less wear on wiring, hydraulics and other connectors, you can keep your machine on the job longer with minimal service stops.

## Proactive monitoring.

With fewer connection points and wires, the new electrical control system ensures fewer faults and dramatically simplifies diagnostics, service and configuration. The electronics are based on a unique distributed and redundant CAN-bus technology, which Kalmar is the only supplier in the world to provide as standard. It automatically locates failures, compensating with backup bus wires and connectors before the fault can affect your machine. Since an individual electrical component and its backup very rarely fail together, the result is a highly reliable self-correcting system.

## Longer service life.

The first service, to be performed after 500 hours rather than today's 50 hours, offers cost savings of more than 10% within 2,000 hours of operation. The first hydraulic oil sample is taken after 4,000 hours and checked again after each additional 1,000 hours, making the span between oil changes

longer than ever before. Other major service intervals – including drive axle oil, servo filter and oil in rotation motor spreaders – have also been doubled, from 500 to 1,000 hours. Combined with a global service and after-sales network that is second to none, these improvements make the G-Generation a frontrunner in non-stop productivity.

## Easy serviceability.

Like the previous F-Generation, top covers on the frame can be quickly removed for easy maintenance of most main components. To further improve service access, the servo filter is now closer to the high-pressure filters beneath the frame, while the fine filter is now outside of the frame. This optimised accessibility is part of an ongoing effort to ensure that every machine we build is as easy to serve as it is to operate.

## Enhanced exterior protection.

In the long run, a more durable exterior is one that pays off. Not just in terms of maintenance costs, but also in added resale value. And the G-Generation is no exception. From improved anchor points for safer transport to faster-folding support jacks, it includes a range of new details designed to boost the lifetime of your machine. For good measure, we've also added thicker paint layers to the exterior and new surface treatment to bolts and screws, providing superior protection against wear, rust and damage in all climates and weather conditions.





# A superior operator experience.

When designing the G-Generation reachstacker, our aim was to raise the operator's experience to new heights of safety, comfort and precision. Years of development and thousands of tests later, the result is an entirely new ergonomic environment – and a totally new driving experience. At the heart of it all is the cabin we call EGO.

### A better cab for better business.

A safe, efficient driver is essential to our customers' success. In fact, it's fundamental to avoiding countless unnecessary costs, from downtime and cargo damage to unfocused and unhealthy drivers. As the leader in ergonomics, we at Kalmar left nothing to chance in creating the best cabin in the market. To do so, we took into account every aspect of driver comfort and performance within our control. This includes improved ergonomic controls and pedals, easy-to-use intuitive interfaces and a wide range of other refinements.

Step into the cabin, and all of these details merge to form a single, naturally productive working environment. Viewed from the adjustable driver's seat, the first thing you may notice is the near absence of blind spots due to subtly profiled beams and a new curved windscreen. Within comfortable reach are a new joystick,

electronically adjustable working console and a patented side-tilting steering wheel, all ergonomically designed to minimise fatigue whilst enabling optimal load handling possibilities.

Surrounding you in the cabin is a seamless operating environment tailor-made for efficient driving, with all instruments and monitors well placed and thoughtfully designed. For added comfort, as in the previous generation, a standard Electronic Climate Control (ECC) system keeps the temperature constant, and the air well circulated and filtered.

The combined effect is a fully controlled workspace that keeps you as an operator safer and more alert – with nothing standing between you and a productive day's work.

### Endless visibility.

A totally new, open cabin design for optimised visibility at all angles. Smart profiles and curved windows combine to give exceptionally strong forward, diagonal and rearward visibility. The sensation is almost like working outdoors.

### G-Generation joystick.

The new joystick with built-in gear knob is designed to improve driving efficiency. It is optimised for maximum lifting capacity and ergonomically enhanced to reduce arm fatigue.

### Adjustable multi-seat.

The fully integrated Kalmar seat has been carefully developed to ensure the best possible comfort and sitting posture for long shifts and demanding operations.

### High-capacity wipers.

With over 90% curved windscreen drying surface, these wipers provide optimal visibility for higher productivity and safety.

### Comfort pedals.

A new, flexible and fail-safe pedal system with adjustable pedal angles for minimal strain on the foot. A floor-based solution with a hanging pedal feel, so you can keep driving hard with less fatigue.

### Climate package.

A complete, flexible climate package that stands up to the high demands of the climate-tested EGO cabin. Large air intakes mean easy filter replacement in the front, whilst well dimensioned and carefully designed components provide superior interior comfort.

### Ergonomic steering wheel.

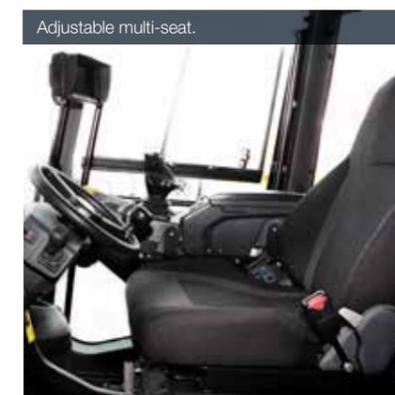
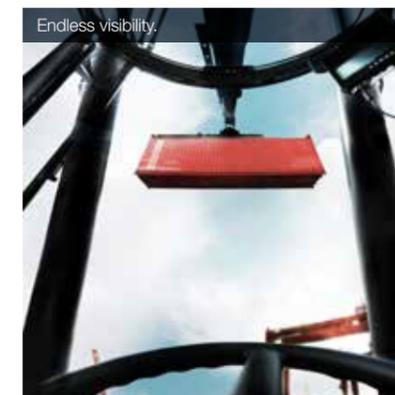
The patented new steering wheel is engineered to reduce stress and increase productivity through carefully tested ergonomic design. It's not only adjustable, but can also be tilted at an angle to the side for comfortable manoeuvring in any situation.

### Work console.

The operator's extended arm, it's easy to adjust, easy to use and simple to understand. Here you'll find all the controls, switches and indicators necessary for efficient operation, in a flexible and ergonomic design. The console consists of clear, well-placed panels as well as controls for data display and machine control systems.

### Intuitive interfaces.

An enormous amount of groundwork has helped to raise the human-machine interface (HMI) to a new level. This includes sight, sound, touch, spatial sense and intuition, all in one logical, balanced and user-friendly design. At the centre of it all is the 3.5" Kalmar Information Display, now in color.





## Reduce waste and lower emissions.

Whether you're striving to save on fuel or meet tough emissions standards, the objectives are the same: to consistently reduce waste and increase operational efficiency. Thanks to a range of smart functions and driver training programmes, operators get all the assistance they need to minimise fuel costs whilst meeting even the strictest environmental regulations.

### Kalmar Eco Drive Modes (EDM).

The G-Generation allows you to choose from among three different driving modes, each optimised to meet the needs of your business. For maximum performance, measured in tonnes moved per hour, choose Power mode. For higher profitability, with up to 10% fuel savings per tonne of cargo, choose Normal mode. And when total cost of operations outweighs the need for performance, Economy mode allows you to save even more fuel per hour, with up to 20% in reduced fuel consumption.

### Automatic engine shutdown.

This optional feature, which can be programmed for any time interval you choose, allows you to decide exactly when your vehicle should shut down when not in motion. Set it for ten seconds, for example, and your engine will automatically turn off after ten seconds of idling. This allows you to effortlessly reduce fuel costs, component wear and environmental impact.

### Optional start/stop function.

An optional start/stop function can also 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.

### Optional tyre pressure monitoring.

Maintaining optimal tyre pressure is an important safety measure. But it's also critical to saving fuel and preserving the condition of your tyres whilst protecting the environment. This is why the G-Generation now offers an optional integrated tyre pressure monitoring system that gives the operator constant updates on the pressure of each individually monitored tyre. It's an effective way to prevent blowouts whilst ensuring that operators have greater control over another key factor in fuel efficiency.

### Efficient LED lighting.

The G-Generation cuts down on significantly on energy consumption. LED lights are now standard features throughout the machine, in all cabin switches and indicator lamps, the boom's rotating beacon, and the twistlock indicators on the boom nose, chassis and Head Up display. Each light has a life span of up to 30,000 hours, which is an exponential increase in efficiency over standard lighting.

### Sharpen your driving skills at the Kalmar Training Academy.

Along with a high-quality machine, skilled drivers are our customers' greatest assets. With the Kalmar Training Academy, we help to make both of these investments more profitable for your business. Operator training courses, which teach safer, more efficient operating skills, can be held anywhere in the world – and even on-site with customers in realistic working environments. In particular, our EcoDriving courses help drivers to extend component life, minimise maintenance costs and reduce fuel consumption by up to 30%. Simply by learning new techniques, every driver can help make a measurable impact on your machine's total cost of operation – for years to come.



## Guaranteed to save you thousands.

Knowing exactly what your fuel costs are going to be each month gives you a greater level of financial predictability, which is why Kalmar is offering a Fuel Saving Guarantee with each of its Eco Reachstackers.

### Guaranteed to deliver.

With an agreed and fixed level of fuel consumption, based on a set of agreed metrics, you'll have complete control over your variable fuel costs. Should the fuel usage levels exceed the guaranteed levels of fuel consumption, Kalmar will compensate you for the additional fuel cost with a one off payment.

The fuel saving guarantee also provides your drivers with specialist training so they can get the most out of the machine. You also get connected with Kalmar Insight, giving you the ability to track and monitor your reachstacker and take immediate actions to optimise its operational efficiency.

Based on months of real operational data collected through Kalmar Insight, you can see the clear reduction in fuel costs and emissions between older machines and our new Kalmar Eco Reachstacker.

### Kalmar Eco Reachstacker

Actual average operating data for 2000 running hours.

**Litres of fuel** 33,270  
**Euro** 41,587  
**Tonnes of CO<sub>2</sub>** 89



Saving you **up to 25%** in fuel costs in comparison to a recent machine.

Saving you **over 40%** in fuel costs in comparison to an older machine.

#### 5 year old machine

**Litres of fuel** 41,068  
**Euro** 51,334  
**Tonnes of CO<sub>2</sub>** 110

#### 10 year old machine

47,145  
 58,932  
 126

Calculations and assumptions: Fuel consumption data has been collected over a six month period using Kalmar Insight with an Eco Reachstacker, a 5 year old and a 10 year old reachstacker operating normally, with comparable idling time. We have used the following metrics for these calculations: 2000 operating hours per year, fuel at 1.25€ a litre and 2680 grams of CO<sub>2</sub> being produced per litre of fuel used.



# Kalmar Care.



# Improve your fleet performance and your business.

## 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 Kalmar Insight.

Kalmar Insight is a performance management tool for cargo and material handling, which gives you a valuable and easy to use overview of your daily operations based on equipment status and performance. Making it quicker for you to take action on relevant information that will help you improve your operations, your equipment's performance and your business.

Kalmar Insight\* comes fitted in all new Kalmar machines and can be retrofitted to existing Kalmar machines or those built by other manufacturers. Kalmar Insight is included when the Eco Reachstacker is chosen with a Fuel Savings Guarantee.

## Financing options for you.

You may choose to buy your new Eco 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.



View each machine's movements as they occur.



Plan your maintenance and spare parts needs.



View each operator's performance in real time.

# Tailor-made solutions for your business.

More ways to get the most from your machine.

The G-Generation is supported by a wide range of customisation options and driver training services.

The basic model of the G-Generation is generously equipped with many new features as standard. In addition to a number of customisable cabin features, you can adapt your G-Generation reachstacker with an endless array of options and attachments for different segment applications.

Based on your specific needs, the G-Generation reachstacker is available with a complete range of standard and customised features, attachments and more.

Your machine can be configured with wheelbases from 6,0 up to 9,25 metre, together with powerful and fuel-efficient drivelines. The G-Generation reachstackers are available for container, intermodal, barge and industrial handling. Whatever your application, our aim is to help adapt your reachstacker for the best possible lifetime utilisation.

Container handling.



Industrial handling.



Intermodal handling.



Trimodal / Barge handling.



Industrial handling reachstacker with tool carrier for slab handling.



## Gloria options.

Kalmar has an extensive list of options available that can help improve operational safety or lower your fuel consumption. You choose which are right for you.

### Kalmar safety options.



#### **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.



**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.

### Kalmar eco-efficiency 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.



#### **Kalmar Speed Limitation System.**

The Kalmar Drive Speed Limitation System automatically restricts the speed at which your equipment can be operated, helping to reduce wear and tear as well as fuel consumption.



#### **Reduced Steering Radius System.**

By reducing the overall steering radius of your reachstacker you will reduce wear and tear, extending the life of your tyres.

# Kalmar Load Measurement System.

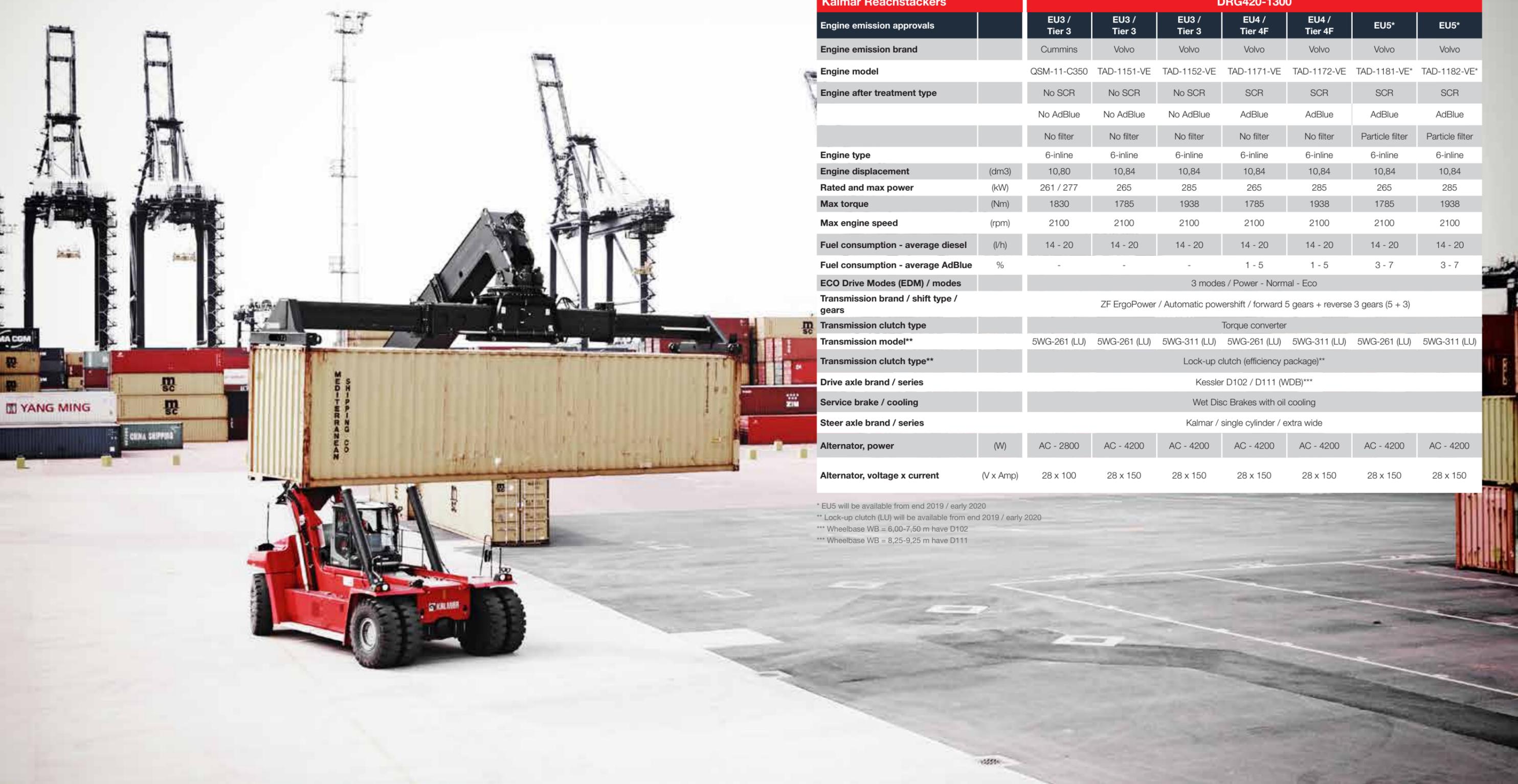


The Kalmar Load Measurement System, which is SOLAS compliant, automatically weights and records the load your machine is handling.

This information can be printed out in the operator's cabin or sent digitally to an external reporting system like Kalmar Insight. This will allow you to review and monitor individual loads, overloading and load distribution.

# Power that's built to last.

The Kalmar G-Generation is equipped with either Volvo or Cummins diesel engines, together with efficient 5-speed transmissions from ZF. Gloria drivetrains are strong, reliable and fuel efficient, they are prepared for EU stage 3A, 4 and 5 and as well as US EPA Tier 3 and 4-Final. Even when using low revs, they supply ample power and torque for rapid acceleration and safer manoeuvrability. The EU5 engines are available from end of 2019.



Kalmar Reachstackers		DRG420-1300						
Engine emission approvals		EU3 / Tier 3	EU3 / Tier 3	EU3 / Tier 3	EU4 / Tier 4F	EU4 / Tier 4F	EU5*	EU5*
Engine emission brand		Cummins	Volvo	Volvo	Volvo	Volvo	Volvo	Volvo
Engine model		QSM-11-C350	TAD-1151-VE	TAD-1152-VE	TAD-1171-VE	TAD-1172-VE	TAD-1181-VE*	TAD-1182-VE*
Engine after treatment type		No SCR	No SCR	No SCR	SCR	SCR	SCR	SCR
		No AdBlue	No AdBlue	No AdBlue	AdBlue	AdBlue	AdBlue	AdBlue
		No filter	No filter	No filter	No filter	No filter	Particle filter	Particle filter
Engine type		6-inline	6-inline	6-inline	6-inline	6-inline	6-inline	6-inline
Engine displacement (dm3)		10,80	10,84	10,84	10,84	10,84	10,84	10,84
Rated and max power (kW)		261 / 277	265	285	265	285	265	285
Max torque (Nm)		1830	1785	1938	1785	1938	1785	1938
Max engine speed (rpm)		2100	2100	2100	2100	2100	2100	2100
Fuel consumption - average diesel (l/h)		14 - 20	14 - 20	14 - 20	14 - 20	14 - 20	14 - 20	14 - 20
Fuel consumption - average AdBlue %		-	-	-	1 - 5	1 - 5	3 - 7	3 - 7
ECO Drive Modes (EDM) / modes		3 modes / Power - Normal - Eco						
Transmission brand / shift type / gears		ZF ErgoPower / Automatic powershift / forward 5 gears + reverse 3 gears (5 + 3)						
Transmission clutch type		Torque converter						
Transmission model**		5WG-261 (LU)	5WG-261 (LU)	5WG-311 (LU)	5WG-261 (LU)	5WG-311 (LU)	5WG-261 (LU)	5WG-311 (LU)
Transmission clutch type**		Lock-up clutch (efficiency package)**						
Drive axle brand / series		Kessler D102 / D111 (WDB)**						
Service brake / cooling		Wet Disc Brakes with oil cooling						
Steer axle brand / series		Kalmar / single cylinder / extra wide						
Alternator, power (W)		AC - 2800	AC - 4200	AC - 4200	AC - 4200	AC - 4200	AC - 4200	AC - 4200
Alternator, voltage x current (V x Amp)		28 x 100	28 x 150	28 x 150	28 x 150	28 x 150	28 x 150	28 x 150

\* EU5 will be available from end 2019 / early 2020  
 \*\* Lock-up clutch (LU) will be available from end 2019 / early 2020  
 \*\*\* Wheelbase WB = 6,00-7,50 m have D102  
 \*\*\* Wheelbase WB = 8,25-9,25 m have D111

# Standard.

Kalmar DRG 420S-450S (S = Container - Top Lift)  
Kalmar DRG 450C-450C (C = Intermodal - Combi Lift)  
Kalmar DRG 500A-650A (A = Industrial - Tool Carrier)  
Kalmar DRG 570Z-1300Z (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

- 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 entire truck

## Steer Axle (Rear)

- Kalmar steer axle mounted dual pivot bearings
- Orbital power steering with double acting cylinder
- Wheel nut protection on steer tyres

## 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)

- Strong wheels (tyres and rims) in 18.00x25", 18.00x33", 21.00x35" and 24.00x35" (6x)

## Drivetrain

- Volvo D11, EU stage 3/4/5 (EPA Tier 3 & 4F)
- Cummins QSM-11, EU stage 3 (EPA Tier 3)
- 6-cylinder diesel engines with pre-heater
- High power & torque with low fuel consumption
- Engine monitoring and protection systems
- Automatic ZF transmissions 5WG-261/5WG-311
- Precise, soft and efficient shifting of both gears and directions with 5 + 3 gears (F/R)
- Lock-Up clutch included from Q4-2019/Q1-2020
- 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

- Top Lift (S), 45 tons, 20-40', MPS, TWL, 4 lift hooks, sideshift and rotation
- Combi Lift (C), 45 tons, 20-30-40', HPS, TWL, 4 lift legs, 4 hooks, end tilt+lock, sideshift & rotation
- Tool Carrier (A), max 65 tons, MPS, TWL (2,50 x 0,76 m), 4 lift eyes, sideshift and rotation
- Lift Hook (Z), max 130 tons, dual hook, free pivot, free rotation and 4 lift eyes (no rotation)
- S-C-A = 4 floating twistlocks, LED indication lamps and 2 LED work lamps
- S-C-A = Safety locking, alignment pins (4x) and sensors (4x)
- S-C-A = Rotation +195/-105 deg (2 motors and 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 good 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 for boom, spreader & forward / reverse
- Auto rev-up accelerator at lifting/extension
- Electric accelerator for driving
- 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, powerful cooler, heater and ventilator
- Air-condition incl. fresh air and recirculation filter
- Wipers/washers; dual wipers on front window, single wipers on 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 functions
- Longitudinal Load Moment Indicator (Pop-Up Menu)
- Longitudinal Load Moment Control (Pop-Up Menu)

## ECO Drive Modes (EDM)

- Power mode
- Normal mode
- Eco mode

## Operator menu:

- System voltage
- Engine rpm
- Travelling speed (km/h or mph)
- Hydraulic oil temperature
- Transmission oil temperature
- Engine oil pressure & coolant level
- Engine oil level
- Clock and date
- Load info (tons) & Load Centre info (mm)
- 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

## Fleet Management

- Equipped with telemetric hardware for Kalmar Insight

## 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

## Warranty

- Kalmar warranty 24 months / 4000 hours

# Options.

Kalmar DRG 420S-450S (S = Container - Top Lift)  
Kalmar DRG 450C-450C (C = Intermodal - Combi Lift)  
Kalmar DRG 500A-650A (A = Industrial - Tool Carrier)  
Kalmar DRG 570Z-1300Z (Z = Industrial - Lift Hook)

## Chassis

- DRG ranges in Toplift (S), Intermodal (C) Tool Carrier (A) and Lift Hook (Z)
- Wheelbases; 6,00 - 7,50 m (Gloria range)
- Wheelbases; 8,25 - 9,25 m (SuperGloria range)

## Body

- Anti slip protection on fenders and tanks
- Mud flaps (front or/and rear)
- External rear view mirrors (2x)
- Noise insulation kit for the entire truck
- Storage boxes (2x) left and right tank

## Steer Axle (Rear)

- Steer cylinder spacer (less tyre wear)

## Wheels (Tyres & Rims)

- Spare wheels, tires and rims for 18.00x25", 18.00x33", 21.00x35" and 24.00x35"

## Drivetrain

- Volvo TAD-1151-VE (265 kW, 1785 Nm, EU3) and ZF 5WG-261 (5+3 gears with Lock-Up)\*
- Volvo TAD-1152-VE (285 kW, 1938 Nm, EU3) and ZF 5WG-311 (5+3 gears with Lock-Up)\*
- Volvo TAD-1171-VE (265 kW, 1785 Nm, EU4) and ZF 5WG-261 (5+3 gears with Lock-Up)\*
- Volvo TAD-1172-VE (285 kW, 1938 Nm, EU4) and ZF 5WG-311 (5+3 gears with Lock-Up)\*
- Volvo TAD-1181-VE (265 kW, 1785 Nm, EU5) and ZF 5WG-261 (5+3 gears with Lock-Up)\*
- Volvo TAD-1182-VE (285 kW, 1938 Nm, EU5) and ZF 5WG-311 (5+3 gears with Lock-Up)\*
- Cummins QSM11-350 (277 kW, 1830 Nm, EU3) and ZF 5WG-261 (5+3 gears with Lock-Up)\*
- Engine heater incl. cab heater
- Engine/hydraulic oil heater, cab heater+interlock
- Start/stop function (to save fuel and emissions)
- Automatic engine and ignition stop at idle
- Pre-cleaner air intake incl raised air intake
- Various programmable speed limitations
- ZF transmission oil heater

## Load-Sensing Hydraulics

- High pressure filter

## Lifting boom

- Duplex 2-stage S5 (5/5, H4 = 15,1-15,2 m)
- Duplex 2-stage S6 (6/5, H4 = 16,1-16,2 m)
- Duplex 2-stage S6H (6/6, H4 = 17,7-17,8 m)
- Duplex 2-stage C5 (5/5, H4 = 14,9-15,0 m)
- Duplex 2-stage A5 (5/5, H4 = 15,0-15,1 m)
- Duplex 2-stage Z (-/-, H4 = 13,0 m)
- Lifting boom outreach cylinder stroke, S5=7,00, S6=7,70 and S6H=8,50 m.

## Attachment

- Tilt function F/R ±5 deg, tilt lock, speed 5 km/h
- Hydraulics Pile Slope, HPS ±5 deg (side tilt), incl tilt lock and speed 5 km/h
- Rotation stop at ±25 deg (incl override switch)
- Automatic extension 20'-40' incl 30' stop
- Barge: Overhigh Folding Legs (L=1.6/2.0 m)
- Barge: extended boom nose (L=1.0/1.6/2.0 m)
- 2 extra lift eyes, centre of spreader (2 x 22.5 T)
- 4 extra lift eyes, middle of spreader (4 x 11.2 T)
- Soft landing with ultrasonic sensor (less noise)
- Twistlock rubber damper (100 mm longer)
- Extended twistlocks 300 mm (250 mm longer)
- Cylinder extension 20'-40' on standard/Tilt/HPS
- WTP Top Lift (Wide Twt Pos), HPS ±5 deg, 30'-35' stop, TWL = 2260-2448 mm

- Big Tilt 0-55 deg, 45 / 32 tons, sideways
- Big Tilt 0-55 deg, 45 / 32 tons, lengthways
- Big Tilt with hydraulic door opener
- Coil ram, 35 tons, coil ID/OD = 500/3000 mm, slave attachment for 20ft or Tool Carrier
- Lift hook (1x) + lift eyes (4x), max 50 tons, slave attachment for 20ft or Tool Carrier
- Various industrial lift units, mounted in slave attachments for 20ft or Tool Carrier

## Electrical System 24V

- Radio with CD / MP3 / Bluetooth
- Extra sockets 2x24V+2x12V (in door columns)
- Extra sockets 2x24V+2x5V USB (door columns)
- Electric air pressure horn
- Height limitation system for lifting boom
- Load centre limitation for lifting boom
- Speed limitation, please specify km/h
- Various speed limitations (with/without load)
- Speed warning at 15km/h
- Speed limitation outside transport mode
- Extra working light, LED 2x, on front mudguards
- Extra working light, LED 4x, on front mudguards
- Extra working light, LED 2x, on spreader
- Extra working light, LED 2x, middle of boom
- Extra working light, LED 4x, front of boom
- Extra reverse light, LED 2x, on rear light bracket
- Extra rotating beacon, LED, in boom nose front
- Extra rotating beacon, LED, right side on CW
- Extra rotating beacon, LED, left side on CW (flash light replacing STD beacon on boom)

- Nato starter socket 24V (1x)
- Colour display TFT-7" (17 cm), inside cabin choose type of camera(s) below:
  - Reverse camera, 1x, rear on counter weight
  - Front chassis camera, 1x, above drive axle
  - Front of outer boom, 1x, facing forward
  - Below inner boom, 1x, facing forward
  - Twistlock cameras, 2x, in spreader end beams
  - Combi legs camera, 2x, facing down on trailer
- Reverse warning system, TFT-7" display, reverse camera, 4 rear sensors
- Forward warning system, TFT-7" display, reverse camera, 4 rear sensors
- Electric heated mirrors, front fender/standard pos
- Electric heated and adjustable mirrors, on front fenders (standard position)
- Remote control unit for spreader and boom
- 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 load hitting cabin
- Hydraulic elevating cab (stroke 2300 mm) position forward on right side
- Speed limitation depending on cabin position
- Extended rear cabin window 100mm

## Comfort

- Seat with air-cushion, heating & 3-p belt
- Seat cover in vinyl
- Head rest for the seat
- Armrest with adjustment (LHS )
- Horizontal dampening/suspension of seat
- Grammer Actimo XL, air-cushion, heat, 3-p belt
- Isringhausen 6830KA/870, air-cush, heat, 3-p belt
- Extra trainer seat incl 2-p safety belt (LHS)
- Bracket for terminal and monitor (RHS)
- Write pad, A4 paper box & reading lamp (RHS)
- Extra rear-view mirror inside cabin

## Controls

- Lever steering incl switch for forward/reverse
- Mini-wheel steering incl F-N-R switch
- Joystick Caldaro Cobra (model F/T generation)
- Override key switch

## Climate

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

## Additional Equipment

- Enhanced Safety Package including:
  - Speed limitation outside transport mode
  - Reverse warning system including sensors, camera and displays in cab
  - Tyre pressure monitoring system
  - Adjustable speed limiter (default 15 km/h)
  - Seat belt interlock (machine will not go in gear if seat belt is off)
- 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 + steering)
- Central greasing (entire spreader)
- Filter kit 2,000 - 4,000 hrs

## Information Systems

- VDI - Vehicle Data Interface

## Fleet Management

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

## Kalmar Load Measurement System

- Semi-automatic weight checking and recording system including time, date and load
- SOLAS compliant (VGM - Verified Gross Mass)

## Colour

- Other RAL colour than standard, chassis
- Special and multiple colours, chassis
- Other colour than standard, striping foil
- 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

- Various training packages, for drivers, service, maintenance, software etc
- Contact Kalmar Training Centre for more information and planning

## Warranty

- Extended warranty 36 months / 6000 hours. (Only valid with spare parts agreements)

# Container handling.

MAIN DATA			DRG420-60S5	DRG450-60S5	DRG450-60S5M	DRG450-60S5X	
	Type of handling		Container handling				
	Lift capacity, row 1-2-3-4	Q1 - Q2 - Q3 - Q4	(tons)	42 - 25 - 12	45 - 27 - 13	45 - 30 - 15	45 - 35 - 18
	Lift capacity, row 1-2-3-4 (with support jacks)	Q1 - Q2 - Q3 - Q4	(tons)	-			
	Load centre, from front face of tyres, row 1-2-3-4	L4 - L5 - L6 - L7	(mm)	1965-3815-6315		1865-3815-6315	
	Stacking capacity, in container row 1-2-3-4 of 8'6" / 9'6"			5/5 - 5/4 - 4/3			
	Lost load centre, to front face of tyres	X	(mm)	835	835	835	935
Wheelbase	L3	(mm)	6000				

WEIGHTS			(kgs)	65500	67400	69400	77500
	Service weight, standard truck		(kgs)	65500	67400	69400	77500
	Axle load, front at load centre L4, unloaded - loaded	(no support jacks)	(kgs)	34500 - 96100	34600 - 100600	34600 - 100600	35600 - 101600
	Axle load, front at load centre L5, unloaded - loaded	(no support jacks)	(kgs)	38900 - 83300	39000 - 86900	39000 - 92200	40200 - 102900
	Axle load, rear at load centre L4, unloaded - loaded		(kgs)	31000 - 11400	32800 - 11800	34800 - 13800	41900 - 20900
Axle load, rear at load centre L5, unloaded - loaded		(kgs)	26600 - 7200	28400 - 7500	30400 - 7200	37300 - 9600	

WHEELS			18x25",PR40/E4	18x25",PR40/E4	18x25",PR40/E4	18x33",PR36/E4
	Tyres, dimension, PLY rating, star rating <sup>1</sup>		18x25",PR40/E4	18x25",PR40/E4	18x25",PR40/E4	18x33",PR36/E4
	Tyre pressure (front - rear)		(MPa)	1,0 - 1,0		
Track width (front - rear)	S1 - S2	(mm)	3030 - 2600	3030 - 2600	3030 - 2600	3030 - 2800

DIMENSIONS			(deg)	0 - 60			
	Boom angle, min - max		(deg)	0 - 60			
	Boom height, min - max	H3 - H5	(mm)	4600 - 18200	4600 - 18200	4600 - 18200	4700 - 18300
	Chassis height - top of boom fixation, max	H2	(mm)	3925	3925	3925	4025
	Lift height, max	H4	(mm)	15100	15100	15100	15200
	Boom reach stroke		(mm)	7000			
	Truck height - seat height	H8	(mm)	2575	2575	2575	2675
	Overall truck length with boom	L	(mm)	11200			
	Truck width over drive axle	B	(mm)	4150			
	Spreader sideshift	V1	(mm)	+/-800 (1600)			
	Spreader rotation		(deg)	+195/-105			
	Ground clearance	min	(mm)	250	250	250	300
	Aisle width with 20'-40' container	A1 - A2	(mm)	11200 - 13600			
Turning radius, outer with 20'-40' container (at 90 degree turn)	R1 - R3	(mm)	8100 - 9400				

DRIVETRAIN			(km/h)	28-22 / 18-16			
	Max travel speed, fw unloaded - rated load / rw unloaded - rated load		(km/h)	28-22 / 18-16			
	Lifting speed, unloaded - 70% of rated load		(m/s)	0,42 - 0,25			
	Lowering speed, unloaded - rated load		(m/s)	0,36 - 0,36			
Drawbar pull / towing capacity <sup>2</sup>		(kN)	316 / 327 / 370				

OTHER			(l)	740 (600 + 140)			
	Tank volumes of working oil & brake oil		(l)	740 (600 + 140)			
	Working hydraulic pressure boom / spreader, max		(MPa)	23 / 16			
	Noise level LpAZ (EN12053), inside cabin <sup>3</sup>		(dB(A))	69 - 71			
Noise level LWAZ (EN12053), outside cabin <sup>3</sup>		(dB(A))	107 - 110				

		DRG450-65S5	DRG450-65S5X	DRG450-65S5XS	DRG450-65S6	DRG450-65S6X	DRG450-65S6H	DRG450-65S6HX	DRG450-65S6HXS
		Container handling							
		45 - 32 - 16	45 - 38 - 21	45 - 38 - 21	45 - 32 - 16 - 9	45 - 38 - 21 - 12	45 - 33 - 18 - 10	45 - 39 - 21 - 13	45 - 39 - 21 - 13
		-	-	45 - 41 - 29	-	-	-	-	45 - 41 - 29 - 18
		1965-3815-6315	1865-3815-6315		2265-3815-6315	2165-3815-6315	2965-3815-6315-8815	2865-3815-6315-8815	
		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	6/6 - 6/5 - 5/4 - 4/3
		835	935	935	835	935	835	935	935
		6500							6500

		(kgs)	69500	77300	80300	70500	77500	73500	82500	83500
Service weight, standard truck		(kgs)	69500	77300	80300	70500	77500	73500	82500	83500
Axle load, front at load centre L4, unloaded - loaded	(no support jacks)	(kgs)	35000 - 99400	36000 - 100400	38500 - 102900	36000 - 102500	36500 - 103000	39000 - 110300	41500 - 112800	42500 - 113800
Axle load, front at load centre L5, unloaded - loaded	(no support jacks)	(kgs)	39000 - 93900	40300 - 106000	42800 - 108600	39500 - 94400	40200 - 105900	41000 - 97600	43800 - 111300	44800 - 112300
Axle load, rear at load centre L4, unloaded - loaded		(kgs)	34500 - 15100	41300 - 21900	41800 - 22400	34500 - 13000	41000 - 19500	34500 - 8200	41000 - 14700	41000 - 14700
Axle load, rear at load centre L5, unloaded - loaded		(kgs)	30500 - 7600	37100 - 9300	37500 - 9700	31000 - 8100	37300 - 9600	32500 - 8900	38700 - 10200	38700 - 10200

		18x25",PR40/E4	18x33",PR36/E4	18x33",PR36/E4	18x25",PR40/E4	18x33",PR36/E4	18x25",PR40/E4	18x33",PR36/E4	18x33",PR36/E4
Tyres, dimension, PLY rating, star rating <sup>1</sup>		18x25",PR40/E4	18x33",PR36/E4	18x33",PR36/E4	18x25",PR40/E4	18x33",PR36/E4	18x25",PR40/E4	18x33",PR36/E4	18x33",PR36/E4
Tyre pressure (front - rear)		(MPa)	1,0 - 1,0						
Track width (front - rear)		(mm)	3030 - 2600	3030 - 2800	3030 - 2800	3030 - 2600	3030 - 2800	3030 - 2600	3030 - 2800

		(deg)	0 - 60	0 - 60	0 - 60	0 - 62	0 - 62	0 - 63	0 - 63	0 - 63
Boom angle, min - max		(deg)	0 - 60	0 - 60	0 - 60	0 - 62	0 - 62	0 - 63	0 - 63	0 - 63
Boom height, min - max		(mm)	4600 - 18200	4700 - 18300	4700 - 18300	4500 - 19250	4600 - 19350	4600 - 20800	4700 - 20900	4700 - 20900
Chassis height - top of boom fixation, max		(mm)	3925	4025	4025	3925	4025	3925	4025	4025
Lift height, max		(mm)	15100	15200	15100	16200	16300	17700	17800	17800
Boom reach stroke		(mm)	7000	7000	7000	7700	7700	8500	8500	8500
Truck height - seat height		(mm)	2575	2675	2675	2575	2675	2675	2675	2675
Overall truck length with boom		(mm)	11700	11700	11700	12000	12000	12700	12700	12700
Truck width over drive axle		(mm)	4150							
Spreader sideshift		(mm)	+/-800 (1600)							
Spreader rotation		(deg)	+195/-105							
Ground clearance		(mm)	250	300	300	250	300	250	300	300
Aisle width with 20'-40' container		(mm)	11600 - 13600	11600 - 13600	11600 - 13600	11900 - 13900	11900 - 13900	12200 - 14200	12200 - 14200	12200 - 14200
Turning radius, outer with 20'-40' container (at 90 degree turn)		(mm)	8500 - 9400	8500 - 9400	8500 - 9400	8500 - 9450	8500 - 9450	8500 - 9450	8500 - 9450	8500 - 9450

		(km/h)	28-22 / 18-16							
Max travel speed, fw unloaded - rated load / rw unloaded - rated load		(km/h)	28-22 / 18-16							
Lifting speed, unloaded - 70% of rated load		(m/s)	0,42 - 0,25							
Lowering speed, unloaded - rated load		(m/s)	0,36 - 0,36							
Drawbar pull / towing capacity <sup>2</sup>		(kN)	316 / 327 / 370							

		(l)	740 (600 + 140)							
Tank volumes of working oil & brake oil		(l)	740 (600 + 140)							
Working hydraulic pressure boom / spreader, max		(MPa)	23 / 16							
Noise level LpAZ (EN12053), inside cabin <sup>3</sup>		(dB(A))	69 - 71							
Noise level LWAZ (EN12053), outside cabin <sup>3</sup>		(dB(A))	107 - 110							

1. 4 + 2 pneumatic / diagonal tyres  
 2. Depending on drivetrain  
 3. Depending on ECO Drive Mode setting

# Container handling.

			DRG450-70S5X	DRG450-70S5XS	DRG450-70S6HXS	DRG450-75S5XS	DRG450-75S6HXS	DRG450-82S5X	DRG450-82S5XS	DRG450-92S5X	DRG450-92S5XS	
MAIN DATA	Type of handling				Container handling							
	Lift capacity, row 1-2-3-4	Q1 - Q2 - Q3 - Q4	(tons)	45 - 41 - 23	45 - 41 - 23	45 - 41 - 23 - 14	45 - 45 - 26	45 - 45 - 27 - 17	45 - 45 - 37 - 24	45 - 45 - 37 - 24	45 - 45 - 41 - 28	45 - 45 - 41 - 28
	Lift capacity, row 1-2-3-4 (with support jacks)	Q1 - Q2 - Q3 - Q4	(tons)	-	45 - 41 - 31	45 - 41 - 31 - 19	45 - 45 - 34	45 - 45 - 35 - 23	-	45 - 45 - 45 - 32	-	45 - 45 - 45 - 35
	Load centre, from front face of tyres, row 1-2-3-4	L4 - L5 - L6 - L7	(mm)	1865 - 3815 - 6315		2865 - 3815 - 6315 - 8815	1865 - 3815 - 6315	2865 - 3815 - 6315 - 8815	2765 - 3915 - 6415 - 8915			
	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	6/6 - 6/5 - 5/4 - 4/3	5/5 - 5/4 - 4/3	6/6 - 6/5 - 5/4 - 4/3	5/5 - 5/5 - 5/5 - 4/4	5/5 - 5/5 - 5/5 - 4/4	5/5 - 5/5 - 5/5 - 4/4	5/5 - 5/5 - 5/5 - 4/4
	Lost load centre, to front face of tyres	X	(mm)									
Wheelbase	L3	(mm)	7000	7000	7000	7500	7500	8250	8250	9250	9250	
WEIGHTS	Service weight, standard truck		(kgs)	78800	80300	84400	82400	86400	104200	105200	106200	107200
	Axle load, front at load centre L4, unloaded - loaded	(no support jacks)	(kgs)	37500 - 100500	39000 - 102000	42600-112000	40000 - 101800	43900 - 111700	52600 - 118300	53600 - 119300	53600 - 119300	54600 - 120300
	Axle load, front at load centre L5, unloaded - loaded	(no support jacks)	(kgs)	41500 - 110300	43000 - 111800	44700-113500	43800 - 117300	46000 - 119500	54900 - 126900	55900 - 127900	55900 - 127900	56900 - 128900
	Axle load, rear at load centre L4, unloaded - loaded		(kgs)	41300 - 23300	41300 - 23300	41800-17400	42400 - 25600	43300 - 20500	51600 - 30900	51600 - 30900	51600 - 33100	51600 - 33100
	Axle load, rear at load centre L5, unloaded - loaded		(kgs)	37300 - 9500	37300 - 9500	39700-11900	38600 - 10100	41300 - 12800	49500 - 22300	49500 - 22300	49500 - 25400	49500 - 25400
WHEELS	Tyres, dimension, PLY rating, star rating <sup>1</sup>			18x33",PR36/E4	18x33",PR36/E4	18x33",PR36/E4	18x33",PR36/E4	18x33",PR36/E4	21x35",PR40/E3	21x35",PR40/E3	21x35",PR40/E3	21x35",PR40/E3
	Tyre pressure (front - rear)		(MPa)	1,0 - 1,0								
	Track width (front - rear)	S1 - S2	(mm)	3030 - 2800								
DIMENSIONS	Boom angle, min - max		(deg)	0 - 60	0 - 60	0 - 63	0 - 58	0 - 61	0 - 47	0 - 47	0 - 47	0 - 47
	Boom height, min - max	H3 - H5	(mm)	4700 - 18300	4700 - 18300	4700 - 20900	4750 - 18400	4750 - 21000	5250 - 19400	5250 - 19400	5250 - 19400	5250 - 19400
	Chassis height - top of boom fixation, max	H2	(mm)	4025								
	Lift height, max	H4	(mm)	15100	15100	17800	15200	17800	15800	15800	15800	15800
	Boom reach stroke		(mm)	7000	7000	8500	7000	8500	8500	8500	8500	8500
	Truck height - seat height	H8	(mm)	2675		2675	2675	2675	2950	2950	2950	2950
	Overall truck length with boom	L	(mm)	12200	12200	13200	12700	13700	14700	14700	15700	15700
	Truck width over drive axle	B	(mm)	4150								
	Spreader sideshift	V1	(mm)	+/-800 (1600)								
	Spreader rotation		(deg)	+195/-105								
	Ground clearance	min	(mm)	300								
	Aisle width with 20'-40' container	A1 - A2	(mm)	12100 - 13600	12100 - 13600	12700 - 14200	12500 - 13600	13100 - 14200	15100	15100	16150	16150
	Turning radius, outer with 20'-40' container (at 90 degree turn)	R1 - R3	(mm)	9000 - 9400	9000 - 9400	9000 - 9450	9400 - 9400	9400 - 9450	11400	11400	12450	12450
DRIVETRAIN	Max travel speed, fw unloaded - rated load / rw unloaded - rated load		(km/h)	28-22 / 18-16		28-22 / 18-16		28-21 / 17-16				
	Lifting speed, unloaded - 70% of rated load		(m/s)	0,42 - 0,25		0,42 - 0,25	0,42 - 0,25	0,42 - 0,25	0,40 - 0,20	0,40 - 0,20	0,40 - 0,20	0,40 - 0,20
	Lowering speed, unloaded - rated load		(m/s)	0,36 - 0,36		0,36 - 0,36	0,36 - 0,36	0,36 - 0,36	0,35 - 0,35	0,35 - 0,35	0,35 - 0,35	0,35 - 0,35
	Drawbar pull / towing capacity <sup>2</sup>		(kN)	316 / 327 / 370		316 / 327 / 370	316 / 327 / 370	316 / 327 / 370	370	370	370	370
OTHER	Tank volumes of working oil & brake oil		(l)	740 (600 + 140)		740 (600 + 140)	740 (600 + 140)	740 (600 + 140)	840 (700 + 140)	840 (700 + 140)	840 (700 + 140)	840 (700 + 140)
	Working hydraulic pressure boom / spreader, max		(MPa)	23 / 16		23 / 16						
	Noise level LpAZ (EN12053), inside cabin <sup>3</sup>		(dB(A))	69 - 71		69 - 71						
	Noise level LWAZ (EN12053), outside cabin <sup>3</sup>		(dB(A))	107 - 110		107 - 110						

1. 4 + 2 pneumatic / diagonal tyres  
2. Depending on drivetrain  
3. Depending on ECO Drive Mode setting

# Intermodal handling.

			DRG450-60C5	DRG450-60C5X	DRG450-65C5	DRG450-65C5X	DRG450-65C5XS	DRG450-70C5X	DRG450-70C5XS	DRG450-75C5XS	DRG450-82C5X	DRG450-82C5XS	DRG450-92C5XS
MAIN DATA	Type of handling		Intermodal handling										
	Lift capacity, row 1-2-3-4	Q1 - Q2 - Q3 - Q4 (tons)	45 - 25 - 10	45 - 32 - 15	45 - 28 - 13	45 - 34 - 17	45 - 34 - 17	45 - 38 - 20	45 - 38 - 20	45 - 43 - 24	45 - 45 - 34 - 21	45 - 45 - 34 - 21	45 - 45 - 38 - 25
	Lift capacity, row 1-2-3-4 (with support jacks)	Q1 - Q2 - Q3 - Q4 (tons)	-										
	Load centre, from front face of tyres, row 1-2-3-4	L4 - L5 - L6 - L7 (mm)	1965 - 3815 - 6315	1865 - 3815 - 6315	1965 - 3815 - 6315	1865 - 3815 - 6315			2765 - 3915 - 6415 - 8915				
	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	5/5 - 5/5 - 4/4	5/5 - 5/5 - 4/4	5/5 - 5/5 - 4/4	5/5 - 5/5 - 4/4
	Lost load centre, to front face of tyres	X (mm)	835	935	835	935	935	935	935	1035	1035	1035	1035
Wheelbase	L3 (mm)	6000	6000	6500	6500	6500	7000	7000	7500	8250	8250	9250	
WEIGHTS	Service weight, standard truck	(kgs)	73500	81800	74100	81300	83500	83300	84800	88400	110000	111000	111000
	Axle load, front at load centre L4, unloaded - loaded	(no support jacks) (kgs)	41000 - 107000	42000 - 108000	41600 - 106000	42400 - 106800	44500 - 108900	43500 - 106500	45000 - 108000	46000 - 107800	59000 - 124700	60000 - 125700	61000 - 126700
	Axle load, front at load centre L5, unloaded - loaded	(no support jacks) (kgs)	46700 - 91100	48000 - 105400	46900 - 94900	48000 - 106800	50200 - 109000	48800 - 112600	50300 - 114100	51000 - 121200	62000 - 134000	63000 - 135000	64000 - 136000
	Axle load, rear at load centre L4, unloaded - loaded	(kgs)	32500 - 11500	39800 - 18800	32500 - 13100	38900 - 19500	39000 - 19600	39800 - 21800	39800 - 21800	42400 - 25600	51000 - 30300	51000 - 30300	51000 - 32500
	Axle load, rear at load centre L5, unloaded - loaded	(kgs)	26800 - 7400	33800 - 8400	27200 - 7200	33300 - 8500	33300 - 8500	34500 - 8700	34500 - 8700	37400 - 10200	48000 - 21000	48000 - 21000	48000 - 24300
WHEELS	Tyres, dimension, PLY rating, star rating <sup>1</sup>		18x25",PR40/E4	18x33",PR40/E4	18x25",PR40/E4	18x33",PR40/E4	18x33",PR40/E4	18x33",PR40/E4	18x33",PR40/E4	21x35",PR40/E3	21x35",PR40/E3	21x35",PR40/E3	
	Tyre pressure (front - rear)	(MPa)	1,0 - 1,0										
	Track width (front - rear)	S1 - S2 (mm)	3030 - 2600	3030 - 2800	3030 - 2600	3030 - 2800	3030 - 2800	3030 - 2800	3030 - 2800	3030 - 2800	3245 - 3300	3245 - 3300	3245 - 3300
DIMENSIONS	Boom angle, min - max	(deg)	0 - 60										
	Boom height, min - max	H3 - H5 (mm)	4600 - 18200	4700 - 18300	4600 - 18200	4700 - 18300	4700 - 18300	4700 - 18300	4700 - 18300	4750 - 18400	5250 - 19400	5250 - 19400	5250 - 19400
	Chassis height - top of boom fixation, max	H2 (mm)	3925	4025	3925	4025	4025	4025	4025	4025	4300	4300	4300
	Lift height, max	H4 (mm)	14900	15000	14900	15000	14900	14900	14900	15000	15600	15600	15600
	Boom reach stroke	(mm)	7000										
	Truck height - seat height	H8 (mm)	2575	2675	2575	2675	2675	2675	2675	2675	2950	2950	2950
	Overall truck length with boom	L (mm)	11200	11200	11700	11700	11700	12200	12200	12700	14700	14700	15700
	Truck width over drive axle	B (mm)	4150										
	Spreader sideshift	V1 (mm)	+/-800 (1600)										
	Spreader rotation	(deg)	+195/-105										
	Ground clearance	min (mm)	250	300	250	300	300	300	300	300	400	300	300
Aisle width with 20'-40' container	A1 - A2 (mm)	11200 - 13600	11200 - 13600	11600 - 13600	11600 - 13600	11600 - 13600	12100 - 13600	12100 - 13600	12500 - 13600	15100	15100	16150	
Turning radius, outer with 20'-40' container (at 90 degree turn)	R1 - R3 (mm)	8100 - 9400	8100 - 9400	8500 - 9400	8500 - 9400	8500 - 9400	9000 - 9400	9000 - 9400	9400 - 9400	11400	11400	12450	
DRIVETRAIN	Max travel speed, fw unloaded - rated load / rw unloaded - rated load	(km/h)	28-22 / 18-16										
	Lifting speed, unloaded - 70% of rated load	(m/s)	0,42 - 0,25										
	Lowering speed, unloaded - rated load	(m/s)	0,36 - 0,36										
	Drawbar pull / towing capacity , max <sup>2</sup>	(kN)	316 / 327 / 370										
OTHER	Tank volumes of working oil & brake oil	(l)	740 (600 + 140)										
	Working hydraulic pressure boom / spreader, max	(MPa)	23 / 16										
	Noise level LpAZ (EN12053), inside cabin <sup>3</sup>	(dB(A))	69 - 71										
	Noise level LWAZ (EN12053), outside cabin <sup>3</sup>	(dB(A))	107-110										

1. 4 + 2 pneumatic / diagonal tyres  
2. Depending on drivetrain  
3. Depending on ECO Drive Mode setting

# Industrial handling.

			DRG500-60A5	DRG540-60A5X	DRG540-65A5X	DRG540-65A5XS	DRG600-75A5X	DRG600-75A5XS	DRG650-92A5X	DRG650-92A5XS	DRG570-65Z	DRG600-65ZX	DRG600-65ZXS	DRG700-75ZX	DRG700-75ZXS	DRG1000-82ZX	DRG1300-92ZX		
MAIN DATA	Type of handling		Tool carrier							Lift hook									
	Lift capacity, load center L4-L7	Q1-Q2-Q3-Q4-Q5 (tons)	50-27-16-11	54-33-20-14	54-38-25-17	54-38-25-17	60-45-29-21	60-45-29-21	65-65-47-34-26	65-65-47-34-26	57-54-31-19-14	60-60-38-25-18	60-60-38-25-18	70-60-45-30-22	70-60-45-30-22	100-100-70-48-36	130-120-85-58-43		
	Lift capacity, load center L4-L7 (incl jacks)	Q1-Q2-Q3-Q4-Q5 (tons)	-	-	-	54-45-34-23	-	60-50-38-27	-	65-65-60-45-34	-	-	60-60-45-34-24	-	70-60-50-39-28	-	-		
	Load centre, from front face of tyres	L4-L5-L6-L7-L8 (m)	2-4-6-8-0							1,5-2-4-6-8									
	Lost load centre, to front face of tyres	X (mm)	835	935	935	935	935	935	1100	1100	835	935	935	935	935	1100	1100		
Wheelbase	L3 (mm)	6000	6000	6500	6500	7500	7500	9250	9250	6500	6500	6500	7500	7500	8250	9250			
WEIGHTS	Service weight, standard truck	(kgs)	63000	72600	74000	76200	77000	78000	99500	100500	61100	70900	72100	74000	75000	110000	110700		
	Axle load, front at load centre L4, unloaded-loaded	(no support jacks) (kgs)	29500-102800	29600-108800	31000-109600	33200-111800	34200-118700	35200-118700	46400-132700	47400-133700	26000-103500	27300-114600	28300-115600	30600-123300	31600-124300	46200-183800	44200-203500		
	Axle load, front at load centre L5, unloaded-loaded	(no support jacks) (kgs)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	Axle load, rear at load centre L4, unloaded-loaded	(kgs)	33500-10200	43000-16300	43000-18400	43000-18400	42800-19300	42800-19300	53100-31800	53100-31800	35100-14600	43600-16300	43600-16300	43400-20700	43400-20700	63800-26200	66500-37200		
	Axle load, rear at load centre L5, unloaded-loaded	(kgs)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
WHEELS	Tyres, dimension, PLY rating, star rating <sup>1</sup>		18x25",PR40/E4	18x33",PR36/E4	18x33",PR36/E4	18x33",PR36/E4	18x33",PR36/E4	18x33",PR36/E4	21x35",PR40/E3	21x35",PR40/E3	18x25",PR40/E4	18x33",PR36/E4	18x33",PR36/E4	18x33",PR36/E4	18x33",PR36/E4	24x35",PR48/E4	24x35",PR48/E4		
	Tyre pressure (front - rear)	(MPa)	1,0 / 1,0							1,0 / 1,0									
	Track width (front - rear)	S1 - S2 (mm)	3030 - 2600	3030 - 2800	3030 - 2800	3030 - 2800	3030 - 2800	3030 - 2800	3030 - 2800	3245 - 3300	3245 - 3300	3030 - 2600	3030 - 2800	3030 - 2800	3030 - 2800	3030 - 2800	3380 - 3300	3380 - 3300	
DIMENSIONS	Boom angle, min - max	(deg)	0 - 60	0 - 60	0 - 60	0 - 60	0 - 58	0 - 58	0 - 47	0 - 47	0 - 60	0 - 60	0 - 60	0 - 58	0 - 58	1 - 42	1 - 42		
	Boom height, min - max	H3 - H5 (mm)	4600 - 18200	4700 - 18300	4700 - 18300	4700 - 18300	4750 - 18400	4750 - 18400	5250 - 19400	5250 - 19400	4600 - 18200	4700 - 18300	4700 - 18300	4750 - 18400	4750 - 18400	5640 - 16500	5640 - 16500		
	Chassis height - top of boom fixation, max	H2 (mm)	3925	4025	4025	4025	4025	4025	4300	4300	3925	4025	4025	4025	4025	4400	4400		
	Lift height, max	H4 (mm)	15150	15250	15250	15250	15250	15250	15950	15950	15300	15400	15400	15400	15400	13000	13000		
	Boom reach stroke	(mm)	7000	7000	7000	7000	7000	7000	8500	8500	7000	7000	7000	7000	7000	7000	7000		
	Truck height - seat height	H8 (mm)	2575	2675	2675	2675	2675	2675	2950	2950	2575	2675	2675	2675	2675	3100	3100		
	Overall truck length with boom	L (mm)	10800	10800	11300	11300	12300	12300	15300	15300	10900	10900	10900	11900	11900	12500	13500		
	Truck width over drive axle	B (mm)	4150	4150	4150	4150	4150	4150	4600	4600	4150	4150	4150	4150	4150	4900	4900		
	Spreader sideshift	V1 (mm)	+/-450	+/-450	+/-450	+/-450	+/-450	+/-450	+/-450	+/-450	-	-	-	-	-	-	-		
	Spreader rotation	(deg)	+195/-105	+195/-105	+195/-105	+195/-105	+195/-105	+195/-105	+195/-105	+195/-105	360 endless	360 endless							
Ground clearance	(mm)	300	300	300	300	300	300	300	300	300	300	300	300	300	400	400			
Turning radius, outer	R1 (mm)	8100	8100	8500	8500	9400	9400	12450	12450	8500	8500	8500	9400	9400	11400	12450			
DRIVETRAIN	Max travel speed, fw unloaded - rated load / rw unloaded - rated load	(km/h)	28-22 / 18-16	28-22 / 18-16	28-22 / 18-16	28-22 / 18-16	28-22 / 18-16	28-22 / 18-16	28-21 / 17-16	28-21 / 17-16	28-5 / 18-5	28-5 / 18-5	28-5 / 18-5	28-5 / 18-5	28-5 / 18-5	28-2 / 17-2	28-2 / 17-2		
	Lifting speed, unloaded - 70% of rated load	(m/s)	0,42 - 0,24	0,42 - 0,24	0,42 - 0,24	0,42 - 0,24	0,42 - 0,24	0,42 - 0,24	0,40 - 0,20	0,40 - 0,20	0,42 - 0,22	0,42 - 0,22	0,42 - 0,22	0,42 - 0,22	0,42 - 0,22	0,40 - 0,20	0,40 - 0,20		
	Lowering speed, unloaded - rated load	(m/s)	0,36 - 0,36	0,36 - 0,36	0,36 - 0,36	0,36 - 0,36	0,36 - 0,36	0,36 - 0,36	0,35 - 0,35	0,35 - 0,35	0,20 - 0,36	0,20 - 0,36	0,20 - 0,36	0,20 - 0,36	0,20 - 0,36	0,20 - 0,35	0,20 - 0,35		
	Drawbar pull / towing capacity, max <sup>2</sup>	(kN)	316 / 327 / 370	316 / 327 / 370	316 / 327 / 370	316 / 327 / 370	316 / 327 / 370	316 / 327 / 370	370	370	316 / 327 / 370	316 / 327 / 370	316 / 327 / 370	316 / 327 / 370	316 / 327 / 370	370	370		
OTHER	Tank volumes of working oil & brake oil	(l)	740 (600 + 140)	740 (600 + 140)	740 (600 + 140)	740 (600 + 140)	740 (600 + 140)	840 (700 + 140)	840 (700 + 140)	840 (700 + 140)	740 (600 + 140)	740 (600 + 140)	740 (600 + 140)	740 (600 + 140)	740 (600 + 140)	840 (700 + 140)	840 (700 + 140)		
	Working pressure boom / spreader, max	(MPa)	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23		
	Noise level LpAZ (EN12053), inside cabin <sup>3</sup>	(dB(A))	69 - 71	69 - 71	69 - 71	69 - 71	69 - 71	69 - 71	69 - 71	69 - 71	69 - 71	69 - 71	69 - 71	69 - 71	69 - 71	69 - 71	69 - 71		
	Noise level LWA (2000/14/EC), outside cabin <sup>3</sup>	(dB(A))	110 - 112	110 - 112	110 - 112	110 - 112	110 - 112	110 - 112	110 - 112	110 - 112	110 - 112	110 - 112	110 - 112	110 - 112	110 - 112	110 - 112	110 - 112		

1. 4 + 2 pneumatic / diagonal tyres  
2. Depending on drivetrain  
3. Depending on ECO Drive Mode setting



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