

Kalmar **K-Motion**

All the power. 40% less fuel.



KALMAR

The world's most efficient drive has arrived.

At Kalmar we always strive to improve our equipment and services to meet demands and stay way ahead of competition. With 30 years' experience and 10,000 reachstackers sold, we also have a highly realistic view of what truly benefits container handling.

Our reachstackers operate in more than 160 countries. Everywhere, now more than ever, terminals are under pressure to increase their capacity, cut costs and improve the footprint of everyday operations. Stricter emission regulations accelerate the need of commercial green technologies.

Vast experience

Within Kalmar we have a long-term commitment to developing efficient sustainable technology. The world's first real hybrid shuttle and hybrid straddle carriers, as well as hydrostatic and electric forklift trucks, are just some of our many successes in the field.

Over the last ten years we have been on a quest to find the best solution for our reachstackers. Besides the obvious sustainability issues, keywords for our R&D were to keep it commercially viable and easy to service.

Now we have arrived at our goal and are happy to be able to present the most efficient way to achieve major savings, increase productivity, reduce fuel consumption and lower emissions with our reachstackers.

Kalmar K-Motion

Kalmar K-Motion is an innovative drive train system with well-proven efficient transmission technologies – hydrostatic and mechanical – in combination with smart programming. Our customer field reports prove fuel and exhaust emission reductions of up to 40%!

The first equipment to be launched with the Kalmar K-Motion technology is the Kalmar Gloria DRG450 6–6.5 m for container and intermodal handling.

Extensive tests were performed on Kalmar Gloria DRG450 in Scandinavia during 2013–2015.

Gloria goes greener.

The Gloria family of reachstackers is the next generation of productivity and performance. It elevates uptime, ergonomics and safety, while reducing fuel consumption and running costs. Kalmar K-Motion is yet another giant leap for the environment and for lifetime value, with huge savings every day.



Kalmar K-Motion gives you a substantial reduction in fuel consumption without compromising drive and lift power.

Increased savings

Our customer field reports prove that fuel savings up to 40% are realistic. The new transmission is based on a power split combination of hydrostatic and mechanical drive technologies. Together with a downsized engine it results in a very efficient drive train. Thus the available engine power is used for what it is intended. Smart programming makes it drive and lift optimally at the same time. This means that the Kalmar K-Motion Gloria runs on considerably fewer litres per hour. Naturally, exhaust emissions are reduced accordingly.

Increased comfort

And at the end of the day, the smaller engine makes less noise than its sisters. The maximum engine speed is 1700 rpms. We have already decreased the number of decibels in our new generation of Gloria reachstackers. With K-Motion the noise is reduced a great deal further, which is much appreciated by drivers and people in the vicinity.

Thanks to the K-Motion continuous variable transmission, shifts, drive stops and directional changes are also smooth and seamless, resulting in improved ergonomics and reduced operator fatigue.

Increased efficiency and productivity

The smart control system splits the power to increase overall drive and lift efficiency. Available engine power is used where it is intended to be used, resulting in improved productivity per litre fuel or per ton CO₂. Kalmar K-Motion also increases precision in both low and high drive speed modes.



The Volvo 8 litre engine offers the latest technology for Stage 4 and Tier 4 emission control and the lowest fuel consumption.

Available in the following Emission levels:

- EU stage 3A / EPA Tier 3
- EU stage 4 / EPA Tier 4 Final

K-Motion is available in the following DRG models:

Container Handling:

- Wheelbase 6.0 and 6.5 m
- DRG 420-60 S5 to DRG 450-65 S6HC XS
- Toplift spreader with twistlocks

Intermodal Handling:

- Wheelbase 6.0 and 6.5 m
- DRG 450-60 C5 to DRG 450-65 C5 XS
- Combilift spreader with both twistlocks and trailer bottomlift

Industrial Handling:

- Wheelbase 6.0 and 6.5 m
- DRG 500-60 A5 to DRG 600-65 Z XS
- Multi-functional Tool Carrier with twistlocks or dual Lift Hook

Efficiency in motion.

Kalmar K-Motion is more than just transmission. It is a complete drive train system that combines a low-speed hydrostatic drive and a high-speed mechanical drive and includes all the software and programming embedded in Gloria.



The smart, highly efficient control system splits the available engine power into drive and lift mode combinations.

Increased efficiency and safety

Low-speed precision and traction is delivered by direct drive from the hydrostatic low-speed design. The high-speed drive is delivered with a highly efficient mechanical drive. As the less efficient torque converter has been replaced by hydrostatic technology, the throttle works as an actual speed throttle. The fine-tuned joystick also delivers more precise driving and achieves increased safety in daily operations. Operators can focus on the task ahead and react quickly, avoiding accidents and damaged cargo.

Easier to operate

Kalmar K-Motion actually requires less effort from the operator, as the drive and lift power split works automatically and there is less need for revving. The reachstacker reacts directly and smoothly to acceleration.

And, of course, operators no longer have to refuel as often.

Well-known equipment

As per usual with Kalmar, all components are proven for lifetime durability, strength and precision. Besides the Kalmar K-Motion system, the components are exactly the same as on other Gloria reachstackers, so operators will feel at home from the start. Service, maintenance and daily inspections are conducted in familiar ways as well.

Kalmar K-Motion uses the latest transmission technologies and a downsized engine, allowing for lower fuel consumption.

World-class TCO.

Reduced running costs and improved productivity, in combination with a high residual value for Kalmar reachstackers, result in an unchallenged lifetime value.

Our focus never changes: premium quality, innovative products that strengthen your business. Kalmar K-Motion delivers on every point.

Savings every day

Substantial fuel savings and increased productivity means that Kalmar K-Motion pays off quickly. To keep track of the fleet and make it easier to discover patterns that can improve efficiency and savings even further, we recommend the optional SmartFleet monitoring system.

Make every move count

When choosing the right machine for you, consider the full value. Kalmar reachstackers excel at reducing

your total cost of ownership. With well-proven quality materials, durable components and sturdy design, the DRG450 Kalmar K-Motion is a profitable choice.

Additional saving options

As in all Gloria reachstackers, an automatic Start-and-Stop function can be included. Also, both an automatic engine shutdown and drive speed limitations can be programmed.

With you for the long run

We are fully prepared to provide rapid support for the entire life cycle of your machine, before it leaves the factory floor. With Kalmar you also

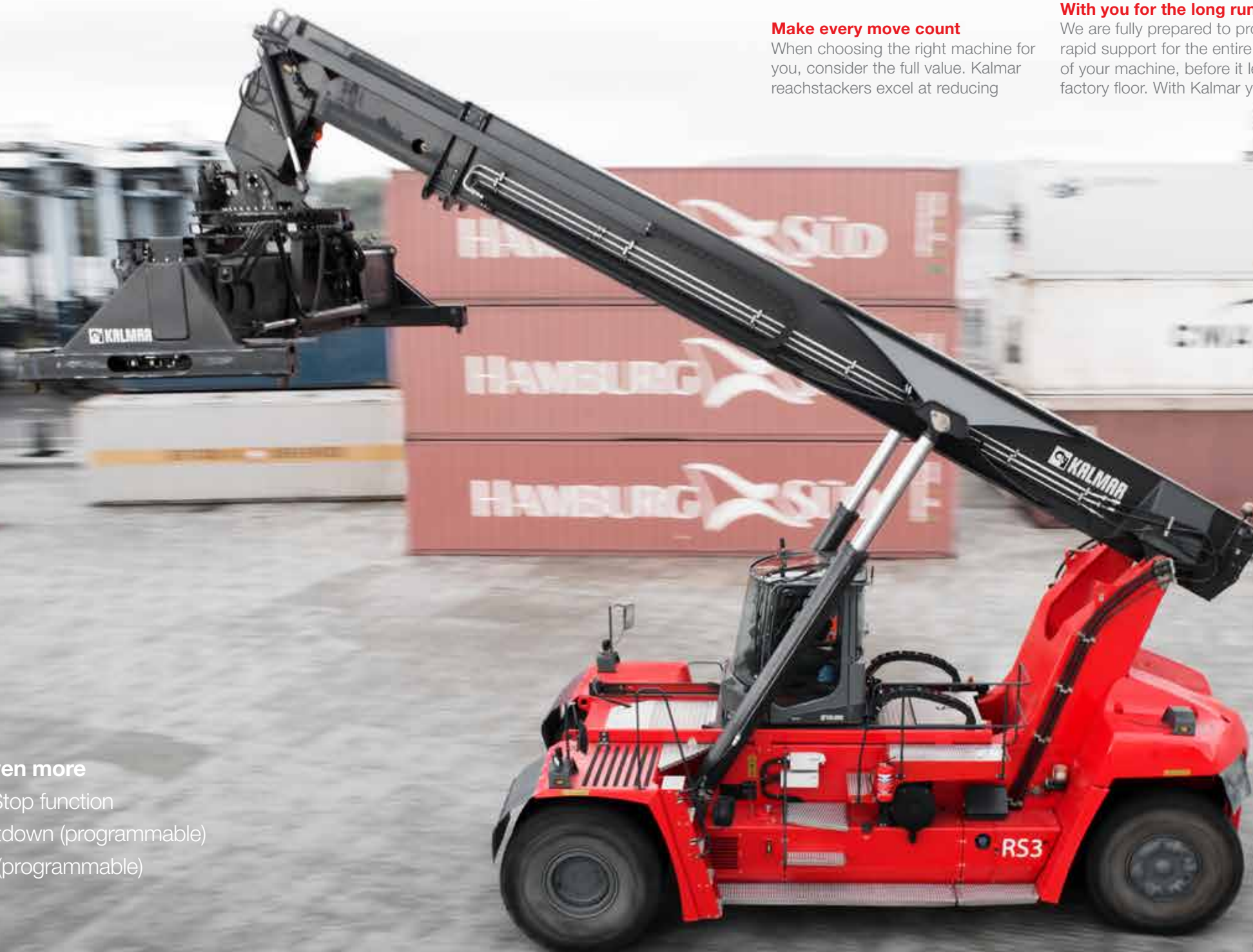
have the industry's most extensive support and after-sales network at your disposal. Our global presence and local service helps to ensure swift response, from spare parts and product support teams, down to individual, local service technicians.

After all, what good is even the best equipment on the market if it is left standing still? Our aim is to protect your investment, which is why our top priority is to minimise the costs of unnecessary downtime. This also helps explain why Kalmar reachstackers consistently maintain one of the highest resale values.

Add options to save even more

- Automatic Start-and-Stop function
- Automatic engine shutdown (programmable)
- Drive speed limitation (programmable)
- SmartFleet monitoring

Sustainable and efficient
– Kalmar K-Motion is the
new efficient way to move
your business ahead.

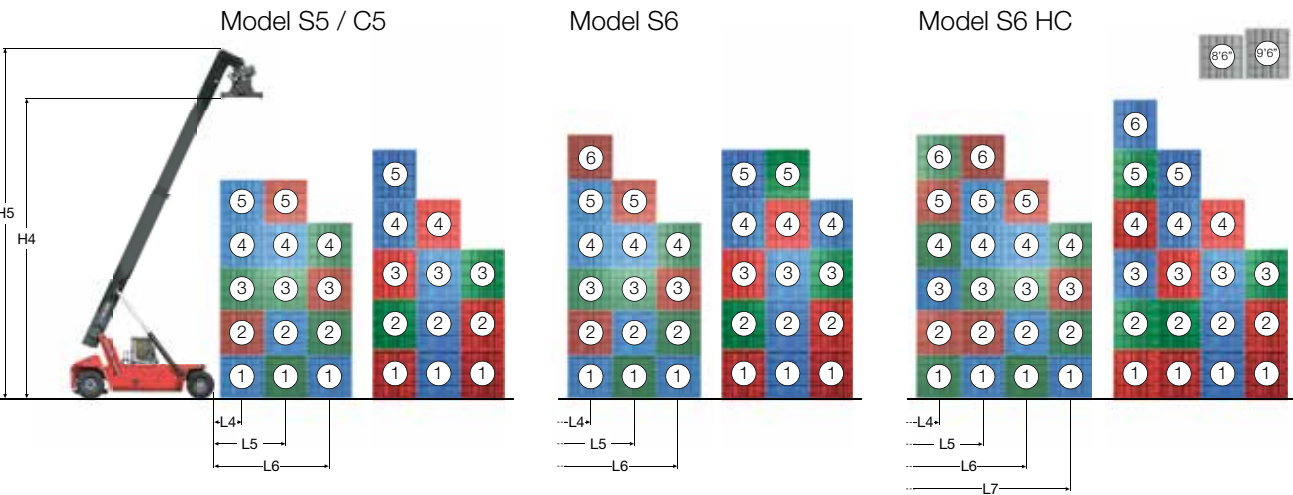


Drivelines.

DRIVE TRAIN	DRG420-600		DRG420-600	
	EU stage 3A	US EPA Tier 3	EU stage 4	US EPA Tier 4-Final
	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
	Volvo Penta / D-8		Volvo Penta / D-8	
	TAD-852-VE		TAD-872-VE	
	No SCR, No AdBlue, No EGR		SCR + AdBlue + Cooled EGR	
	Diesel / 4-stroke		Diesel / 4-stroke	
	6-inline / Common rail		6-inline / Common rail	
	Fixed Geometry Turbo (FGT)		Variable Geometry Turbo (VGT)	
	Intercooler (air-to-air)		Intercooler (air-to-air)	
	Engine displacement (dm³ (in³))	7.700 (470)	7.700 (470)	
	Engine bore x stroke (mm (in))	110 x 135 (4,33 x 5,31)	110 x 135 (4,33 x 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 / gal/h)	10-15 (3,0-4,0)	10-15 (3,0-4,0)	
	Fuel consumption – average adblue (%)	-	2-4	
	Alternator type – power (W)	AC – 3.600	AC – 3.600	
	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 / D81 (WDB)	Kessler / D81 (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	

DRG Range.

DRG Range Guide for Container and Intermodal handling:



Industrial Handling - Tool Carrier (A)



Industrial Handling - Lift Hook (Z)



Container Handling - Top Lift (S)



Intermodal Handling (C)

Technical information – Container handling

MAIN DATA	Type of handling			DRG420-60S5	DRG450-60S5	DRG450-60S5M	DRG450-60S5X	DRG450-65S5	DRG450-65S5X	DRG450-65S56	DRG450-65S5X	DRG450-65S6HC	DRG450-65S6HCX			
	Lift capacity, row 1-2-3-4 (incl jacks*)			Q1-Q2-Q3-Q4	(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	45 – 38 – 21	45 – 33 – 18 – 10	45 – 38 – 21 – 12
	Lift capacity, row 1-2-3-4 (incl jacks*). at max height			Q1-Q2-Q3-Q4	(tons)	40 – 25 – 11	42 – 27 – 13	42 – 30 – 15	43 – 35 – 18	42 – 32 – 16	43 – 38 – 21	43 – 38(41) – 21(29)	42 – 32 – 16	43 – 38 – 21	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	1.865 – 3.815 – 6.315	2.065-2.965 – 3.815 – 6.315 – 8.815	1.965-2.865 – 3.815 – 6.315 – 8.815
	Stacking height, in container row 1-2-3-4, of 8'6" / 9'6"															
	Spreader type / extension stops / locking															
	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	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	Pneumatic / Diagonal	Pneumatic / Diagonal	Pneumatic / Diagonal	Pneumatic / Diagonal	Pneumatic / Diagonal	Pneumatic / Diagonal	Pneumatic / Diagonal	Pneumatic / Diagonal	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	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	Duplex / 2-stage	Duplex / 2-stage	Duplex / 2-stage	Duplex / 2-stage	Duplex / 2-stage	Duplex / 2-stage	Duplex / 2-stage	Duplex / 2-stage	Duplex / 2-stage	Duplex / 2-stage	Duplex / 2-stage	
	Boom angle, min – max			alfa	(deg)	0 – 60	0 – 60	0 – 60	0 – 60	0 – 60	0 – 60	0 – 62	0 – 60	0 – 62	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	4.600 – 18.200	4.600 – 18.200	4.700 – 18.300	4.600 – 19.250	4.600 – 19.350	4.600 – 19.250	4.600 – 19.350
	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	1.250	1.150	1.250	1.250	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	16,2-14,1-11,4-10,0	16,3-14,2-11,4-10,0
	Boom reach stroke				(mm)	7.000	7.000	7.000	7.000	7.000	7.000	7.000	7.000	7.000	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 – 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)	MPS / ±5 / by gravity	MPS / ±5 / by gravity	MPS / ±5 / by gravity	MPS / ±5 / by gravity	MPS / ±5 / by gravity	MPS / ±5 / by gravity	MPS / ±5 / by gravity	MPS / ±5 / by gravity	MPS / ±5 / by gravity	MPS / ±5 / by gravity	MPS / ±5 / by gravity
	Spreader optional length tilt / tilt angle / locking				(deg)	OPT / ±5 / tilt lock	OPT / ±5 / tilt lock	OPT / ±5 / tilt lock	OPT / ±5 / tilt lock	OPT / ±5 / tilt lock	OPT / ±5 / tilt lock	OPT / ±5 / tilt lock	OPT / ±5 / tilt lock	OPT / ±5 / tilt lock	OPT / ±5 / tilt lock	OPT / ±5 / tilt lock
	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-cyl	Diesel / 4-stroke / 6-cyl	Diesel / 4-stroke / 6-cyl	Diesel / 4-stroke / 6-cyl	Diesel / 4-stroke / 6-cyl	Diesel / 4-stroke / 6-cyl	Diesel / 4-stroke / 6-cyl	Diesel / 4-stroke / 6-cyl	Diesel / 4-stroke / 6-cyl	Diesel / 4-stroke / 6-cyl	Diesel / 4-stroke / 6-cyl	Diesel / 4-stroke / 6-cyl	
	Engine power / torque / displacement			(kW/Nm/dm³)	210 / 1.237 / 7,70	210 / 1.237 / 7,70	210 / 1.237 / 7,70	210 / 1.237 / 7,70	210 / 1.237 / 7,70	210 / 1.237 / 7,70	210 / 1.237 / 7,70	210 / 1.237 / 7,70	210 / 1.237 / 7,70	210 / 1.237 / 7,70	210 / 1.237 / 7,70	
	Fuel consumption, average diesel / tank volume			(L/h/dm³)	10-15 / 550	10-15 / 550	10-15 / 550	10-15 / 550	10-15 / 550	10-15 / 550	10-15 / 550	10-15 / 550	10-15 / 550	10-15 / 550	10-15 / 550	
	Fuel consumption, average adblue / tank volume			(%/dm³)	2-4 / 35	2-4 / 35	2-4 / 35	2-4 / 35	2-4 / 35	2-4 / 35	2-4 / 35	2-4 / 35	2-4 / 35	2-4 / 35	2-4 / 35	
	Alternator. type – power / voltage / capacity			(W/V/Amp)	AC – 3.600 / 28 / 130	AC – 3.600 / 28 / 130	AC – 3.600 / 28 / 130	AC – 3.600 / 28 / 130	AC – 3.600 / 28 / 130	AC – 3.600 / 28 / 130	AC – 3.600 / 28 / 130	AC – 3.600 / 28 / 130	AC – 3.600 / 28 / 130	AC – 3.600 / 28 / 130	AC – 3.600 / 28 / 130	AC – 3.600 / 28 / 130
	Battery voltage / capacity			(V/Ah)	2x12 / 145	2x12 / 145	2x12 / 145	2x12 / 145	2x12 / 145	2x12 / 145	2x12 / 145	2x12 / 145	2x12 / 145	2x12 / 145	2x12 / 145	2x12 / 145
	Transmission type, function, safety			CVT	CVT	CVT	CVT	CVT	CVT	CVT	CVT	CVT	CVT	CVT	CVT	CVT
	Transmission, speed range forward – reverse			3 – 2	3 – 2	3 – 2	3 – 2	3 – 2	3 – 2	3 – 2	3 – 2	3 – 2	3 – 2	3 – 2	3 – 2	3 – 2
	Drive axle type, differential / service brakes			Yes / wet disc brakes	Yes / wet disc brakes	Yes / wet disc brakes	Yes / wet disc brakes	Yes / wet disc brakes	Yes / wet disc brakes	Yes / wet disc brakes	Yes / wet disc brakes	Yes / wet disc brakes	Yes / wet disc brakes	Yes / wet disc brakes	Yes / wet disc brakes	Yes / wet disc brakes
	Drive axle type, single / dry disc parking brake			Yes / hydr. release	Yes / hydr. release	Yes / hydr. release	Yes / hydr. release	Yes / hydr. release	Yes / hydr. release	Yes / hydr. release	Yes / hydr. release	Yes / hydr. release	Yes / hydr. release	Yes / hydr. release	Yes / hydr. release	Yes / hydr. release
	Steer axle type, single cylinder / power steering			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
	Travel speed, forward – reverse / unloaded – loaded			(km/h)	25 – 18 / 18 – 18	25 – 18 / 18 – 18	25 – 18 / 18 – 18	25 – 18 / 18 – 18	25 – 18 / 18 – 18	25 – 18 / 18 – 18	25 – 18 / 18 – 18	25 – 18 / 18 – 18	25 – 18 / 18 – 18	25 – 18 / 18 – 18	25 – 18 / 18 – 18	25 – 18 / 18 – 18
Gradeability, at max – at 2 km/h / unloaded – loaded			(%)	30 – 20 / 26 – 16	30 – 20 / 26 – 16	30 – 20 / 26 – 16	30 – 20 / 26 – 16	30 – 20 / 26 – 16	30 – 20 / 26 – 16	30 – 20 / 26 – 16	30 – 20 / 26 – 16	30 – 20 / 26 – 16	30 – 20 / 26 – 16	30 – 20 / 26 – 16	30 – 20 / 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	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	0,35 – 0,40	
Drawbar pull / towing capacity, max			(kN)	220	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	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))	70-71	70-71	70-71	70-71	70-71	70-71	70-71	70-71	70-71	70-71	70-71	
	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	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	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	Yes – LLMI / Yes – LLMC	Yes – LLMI / Yes – LLMC	

Technical information – Intermodal and Industrial handling

MAIN DATA	Type of handling			Intermodal (Combi lift)	Intermodal (Combi lift)	Intermodal (Combi lift)	Intermodal (Combi lift)	Intermodal (Combi lift)	Industrial (Tool Carrier)	Industrial (Tool Carrier)	Industrial (Tool Carrier)	Industrial (Lift hook)	Industrial (Lift hook)	Industrial (Lift hook)
	Lift capacity, row 1-2-3-4 (incl jacks*)	Q1-Q2-Q3-Q4	(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 – 44 – 30 – 21
	Lift capacity, row 1-2-3-4 (incl jacks*). at max height	Q1-Q2-Q3-Q4	(tons)	42 – 25 – 10	42 – 32 – 15	42 – 28 – 13	43 – 34 – 17	43 – 34 (38) – 17 (24)*	-	-	(54 – 42 – 34 – 23)*	-	-	(70 – 50 – 39 – 25)*
	Load centre, from front face of tyres, row 1-2-3-4	L4-L5-L6-L7	(mm)	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 height, 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	-	-	-	-	-	-
	Spreader type / extension stops / locking			HPS / 20+30+40 / TWL	HPS / 20+30+40 / TWL	HPS / 20+30+40 / TWL	HPS / 20+30+40 / TWL	HPS / 20+30+40 / TWL	MPS / - / TWL	MPS / - / TWL	MPS / - / TWL	Dual lift hook	Dual lift hook	Dual lift hook
	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			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			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			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			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			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	Pneumatic / Diagonal	Pneumatic / Diagonal	Pneumatic / Diagonal	Pneumatic / Diagonal	Pneumatic / Diagonal	Pneumatic / Diagonal	Pneumatic / Diagonal	Pneumatic / Diagonal	Pneumatic / Diagonal
	Tyres, dimension / PLY-rating, star rating			18.00 x 25" / PR40 (E4)	18.00 x 33" / PR36 (E4)	18.00 x 25" / PR40 (E4)	18.00 x 33" / PR36 (E4)	18.00 x 33" / PR36 (E4)	18.00 x 25" / PR40 (E4)	18.00 x 33" / PR36 (E4)	18.00 x 33" / PR36 (E4)	18.00 x 25" / PR40 (E4)	18.00 x 33" / PR36 (E4)	18.00 x 33" / PR36 (E4)
	Tyre pressure (front – rear)			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)			13.00x25"	13.00x33"	13.00x25"	13.00x33"	13.00x33"	13.00x25"	13.00x33"	13.00x33"	13.00x25"	13.00x33"	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	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	Duplex / 2-stage	Duplex / 2-stage	Duplex / 2-stage	Duplex / 2-stage	Duplex / 2-stage	Duplex / 2-stage	Duplex / 2-stage	Duplex / 2-stage	Duplex / 2-stage	Duplex / 2-stage
	Boom angle, min–max			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			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			3.925	4.025	3.925	4.025	4.025	3.925	4.025	4.025	3.925	4.025	4.025
	Lift height, min in twistlocks, row 1-2-3-4			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 1-2-3-4			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			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			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	3.750 – 2.675	3.750 – 2.675
	Overall truck length, without – with boom			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			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			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			±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			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			HPS / ±5 / hydraulic	HPS / ±5 / hydraulic	HPS / ±5 / hydraulic	HPS / ±5 / hydraulic	HPS / ±5 / hydraulic	MPS / ±5 / by gravity	MPS / ±5 / by gravity	MPS / ±5 / by gravity	-	-	-
	Spreader optional length tilt / tilt angle / locking			Yes / ±5 / tilt lock	Yes / ±5 / tilt lock	Yes / ±5 / tilt lock	Yes / ±5 / tilt lock	Yes / ±5 / tilt lock	OPT / ±5 / tilt lock	OPT / ±5 / tilt lock	OPT / ±5 / tilt lock	-	-	-
	Ground clearance, steer axle / middle / front			- / 250 / -	- / 300 / -	- / 250 / -	- / 300 / -	- / 300 / -	- / 250 / -	- / 300 / -	- / 300 / -	- / 250 / -	- / 300 / -	- / 300 / -
	Aisle width, with 20 ft – 40 ft container			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			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			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-cyl	Diesel / 4-stroke / 6-cyl	Diesel / 4-stroke / 6-cyl	Diesel / 4-stroke / 6-cyl	Diesel / 4-stroke / 6-cyl	Diesel / 4-stroke / 6-cyl	Diesel / 4-stroke / 6-cyl	Diesel / 4-stroke / 6-cyl	Diesel / 4-stroke / 6-cyl	Diesel / 4-stroke / 6-cyl	Diesel / 4-stroke / 6-cyl
	Engine power / torque / displacement			210 / 1.237 / 7,70	210 / 1.237 / 7,70	210 / 1.237 / 7,70	210 / 1.237 / 7,70	210 / 1.237 / 7,70	210 / 1.237 / 7,70	210 / 1.237 / 7,70	210 / 1.237 / 7,70	210 / 1.237 / 7,70	210 / 1.237 / 7,70	210 / 1.237 / 7,70
	Fuel consumption, average diesel / tank volume			10-15 / 550	10-15 / 550	10-15 / 550	10-15 / 550	10-15 / 550	10-15 / 550	10-15 / 550	10-15 / 550	10-15 / 550	10-15 / 550	10-15 / 550
	Fuel consumption, average adblue / tank volume			2-4 / 35	2-4 / 35	2-4 / 35	2-4 / 35	2-4 / 35	2-4 / 35	2-4 / 35	2-4 / 35	2-4 / 35	2-4 / 35	2-4 / 35
	Alternator, type – power / voltage / capacity			AC – 3.600 / 28 / 130	AC – 3.600 / 28 / 130	AC – 3.600 / 28 / 130	AC – 3.600 / 28 / 130	AC – 3.600 / 28 / 130	AC – 3.600 / 28 / 130	AC – 3.600 / 28 / 130	AC – 3.600 / 28 / 130	AC – 3.600 / 28 / 130	AC – 3.600 / 28 / 130	AC – 3.600 / 28 / 130
	Battery voltage / capacity			2x12 / 145	2x12 / 145	2x12 / 145	2x12 / 145	2x12 / 145	2x12 / 145	2x12 / 145	2x12 / 145	2x12 / 145	2x12 / 145	2x12 / 145
	Transmission type, function, safety			CVT	CVT	CVT	CVT	CVT	CVT	CVT	CVT	CVT	CVT	CVT
	Transmission, speed range forward – reverse			3 – 2	3 – 2	3 – 2	3 – 2	3 – 2	3 – 2	3 – 2	3 – 2	3 – 2	3 – 2	3 – 2
	Drive axle type, differential / service brakes			Yes / wet disc brakes	Yes / wet disc brakes	Yes / wet disc brakes	Yes / wet disc brakes	Yes / wet disc brakes	Yes / wet disc brakes	Yes / wet disc brakes	Yes / wet disc brakes	Yes / wet disc brakes	Yes / wet disc brakes	Yes / wet disc brakes
	Drive axle type, single / dry disc parking brake			Yes / hydr. release	Yes / hydr. release	Yes / hydr. release	Yes / hydr. release	Yes / hydr. release	Yes / hydr. release	Yes / hydr. release	Yes / hydr. release	Yes / hydr. release	Yes / hydr. release	Yes / hydr. release
	Steer axle type, single cylinder / power steering			Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes
	Travel speed, forward – reverse / unloaded – loaded			25 – 18 / 18 – 18	25 – 18 / 18 – 18	25 – 18 / 18 – 18	25 – 18 / 18 – 18	25 – 18 / 18 – 18	25 – 18 / 18 – 18	25 – 18 / 18 – 18	25 – 18 / 18 – 18	25 – 18 / 18 – 18	25 – 18 / 18 – 18	25 – 18 / 18 – 18
	Gradeability, at max – at 2 km/h / unloaded – loaded			30 – 20 / 26 – 16	30 – 20 / 26 – 16	30 – 20 / 26 – 16	30 – 20 / 26 – 16	30 – 20 / 26 – 16	30 – 20 / 26 – 16	30 – 20 / 26 – 16	30 – 20 / 26 – 16	30 – 20 / 26 – 16	30 – 20 / 26 – 16	30 – 20 / 26 – 16
	Lifting speed, unloaded – at 70 % of rated load			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			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			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
Tank volumes of working oil & brake oil			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			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			70-71	70-71	70-71	70-71	70-71	70-71	70-71	70-71	70-71	70-71	70-71	
Noise level LwA acc. to 2000/14/EC, outside cabin			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	

Standard

DRG 420S-450 S (S = Container – Top Lift)
DRG 450C-450 C (C = Intermodal – Combi Lift)
DRG 500A-540 A (A = Industrial – Tool Carrier)
DRG 570Z-600 Z (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 µm) 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 D-8 in EU stage 3A (EPA Tier 3) and EU4 (T4-Final)
- 6-cylinder diesel engines with pre-heater, displacement 7,70 Lit
- High power & torque / 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 (3x)
- Pumps for boom, spreader, brakes & steering
- Vane pumps for brake & oil cooling (2x)
- Return filters for the work hydraulics (2x/10 µm)
- Hydraulic longlife fine filter with by-pass (5 µm)
- Servo filter for the work hydraulics (10 µm)
- Pressure filter for the brakes (10 µm)
- 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/ wear pads
- Boom with 2 lift cylinders & 1 extension cylinder

Attachment

- S = Top Lift, 45 tonnes, 20'-40', MPS, TWL + 4 lift hooks
- C = Combi Lift, 45 tonnes, 20'-30'-40', HPS, TWL, lift legs, 4 lift hooks, length tilt & tilt lock
- A = Tool Carrier, max 65 tonnes, MPS, TWL (2,5x0,76 m) & 4 lift eyes
- Z = Lift Hook, max 70 tonnes, 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)
- 4 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 indicator
- 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

Optional

DRG 420S-450 S (S = Container – Top Lift)
DRG 450C-450 C (C = Intermodal – Combi Lift)
DRG 500A-540 A (A = Industrial – Tool Carrier)
DRG 570Z-600 Z (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 ±2 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 tonnes
- Length Tilt Spreader 0-55 deg, 45 / 32 tonnes
- Hydraulic door opener - for tilt spreader - on one side
- Coil ram sub frame, STD, 35 tonnes, ID / OD = 500 / 3000 mm
- Coil ram sub frame, Tool Carrier, 35 tonnes, 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 center 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
- Postheating (break heater function)

Additional equipment

- Semi-automatic fire suppression system (Forrex)
- 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 Center for training programs
- Working ECO driving





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

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