

Electric evolution

Kalmar ECG50-90
11,000–19,800 lbs capacity

Technical information

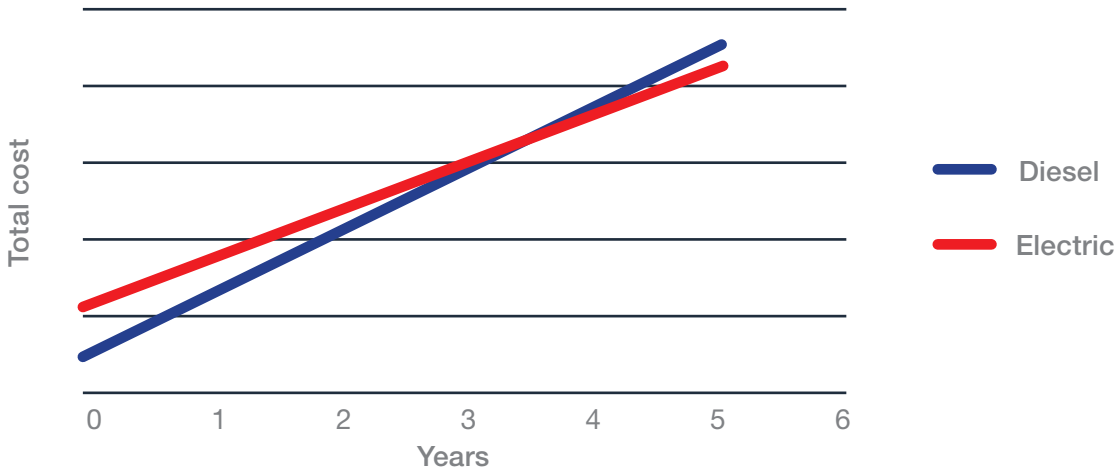


An investment that pays off in the long run

Kalmar’s new electric forklift truck pays off in the long run. With a slightly higher purchase price than a diesel forklift, an electric forklift will reach break even in slightly over three years time. Add substantially lower maintenance costs, and you are looking at very attractive life cycle cost.

Energy costs – electric vs. diesel forklift

Total costs will reach break even in just over three years. Based on 2,500 hours of operation per year, you will reduce total energy costs by 75% when shifting from a diesel forklift to an electric forklift.



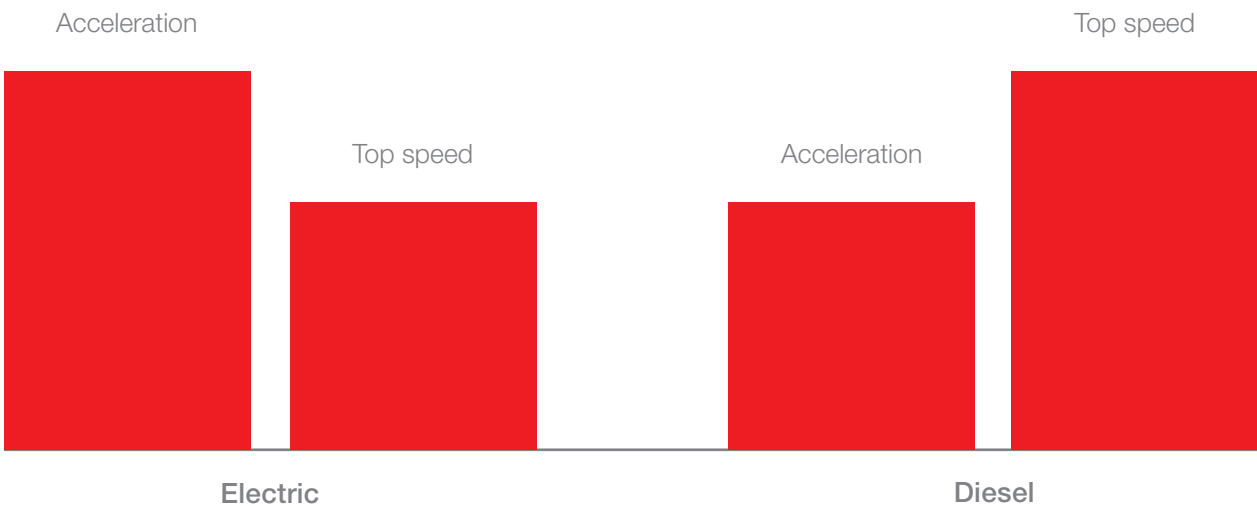
Using a Kalmar Electric Forklift truck pays off in the long run. In just slightly over three years time, Kalmar’s new Electric forklift truck will break even compared to the equivalent Diesel truck.

Note: Calculations are based on 2,500 operational hours per year, a diesel consumption of 2.11 gal/h at \$4/gallon, and electricity use of 17 kWh per hour at \$0.10/hour.

What is better, an electric forklift or a diesel forklift?

It depends on the task at hand and on your driving patterns. An electric forklift gives you full torque immediately, which makes it very fast at short distances.

The diesel forklift, on the other hand, has a higher maximum speed. So for most common driving patterns – with short driving distances and many turns, stops and starts – an electric forklift offers similar or better performance.



The new Kalmar electric forklift outperforms the corresponding diesel forklift at short distances.

Optimized for time or speed?

Sometimes a job must be done fast. Then you need extra power. Sometimes it is more important to make sure your battery power lasts throughout a long shift. Or even necessary, if there is no spare battery pack available.

Optimizing the forklift for maximum battery time, speed or normal driving is set easily by the operator, using Eco Drive Modes.



Eco mode

Optimizes the forklift for maximum battery time.

50/50

Normal mode



Power mode

Optimizes the forklift for maximum speed.

Eco mode extends the forklift’s battery time by 15% compared to Kalmar’s previous electric forklift, the ECF50-90.

Hundreds of options to choose from

You can have your Kalmar forklift truck designed almost exactly as you want it. No other forklift brand offers as many options as Kalmar.

Cabin, lifting equipment and dimensions are only a few of hundreds of options you can choose from to customize your forklift. It is not surprising that most of our machines are delivered custom built.

Cabins

Since its introduction in 2011, Kalmar's EGO cabin has set a new benchmark in driver comfort, visibility and simplicity – and, above all, ergonomics. The cabin is spacious, controls are easy to use and intuitively positioned, and visibility is excellent 360 degrees. The EGO cabin is available in a standard version with windows and an open, overhead-guard version, EGO OHG.

Dimension variants

Choose between eight standard models with capacities from 11,000 to 19,800 lbs. Some models are available in different widths and wheelbases to meet different requirements. A wider version is more stable while a narrower version is easier to manoeuver in tight spaces. See model program below. See also page 10 for a complete set of data for each standard model.



Model program – selectable widths

Model	Wheelbase	Width					
		Single tire mounting			Dual tire mounting		
		61.0"	63.0"	70.8"	72.0"	78.7"	86.6"
ECG50-6	82.6"	Standard				Option	
ECG55-6	82.6"	Standard				Option	
ECG60-6	96.4"		Option	Option		Standard	Option
ECG70-6	96.4"		Option	Option		Standard	Option
ECG80-6	102.3"		Option	Option		Standard	Option
ECG80-9	110.2"				Option	Standard	Option
ECG80-9S	102.3"				Option	Standard	Option
ECG90-6L	110.2"				Option	Standard	Option
ECG90-6SL	102.3"				Option	Standard	Option
ECG80-11	110.2"					Standard	

Selectable widths and wheelbases make it possible to adapt the machine to your needs. A wider machine improves stability, while a narrower is suitable in limited spaces.

- Diagonal, radial or super elastic tires
- Radial or super elastic tires only
- Super elastic tires only

Lifting equipment

We offer a full range of duplex, triplex and free-lift equipment. Based on our long tradition as supplier of heavy forklifts, our lifting equipment is robust and of the highest quality.

Duplex standard, clear view

ECG50-70				ECG80-90			
Lift height	Mast height H3 min.	H5 max.	Free lift H2	Lift height	Mast height H3 min.	H5 max.	Free lift H2
-	-	-	-	108	101	154	-
-	-	-	-	118	106	164	-
-	-	-	-	128	111	174	-
138	103	177	-	138	116	183	-
148	108	187	-	148	120	193	-
157	113	197	-	157	125	203	-
167	118	207	-	167	130	213	-
177	123	217	-	177	135	223	-
187	128	226	-	187	140	233	-
197	133	236	-	197	145	243	-
207	138	246	-	207	150	252	-
217	143	256	-	217	155	262	-
226	148	266	-	226	160	272	-
236	152	276	-	236	165	282	-

Duplex full free lift, clear view

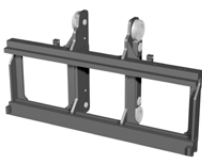
ECG50-70				ECG80-90			
Lift height	Mast height H3 min.	H5 max.	Free lift H2	Lift height	Mast height H3 min.	H5 max.	Free lift H2
-	-	-	-	108	101	154	56
-	-	-	-	118	106	164	61
128	103	171	60	128	111	174	66
138	108	181	65	138	116	183	71
148	113	191	70	148	120	193	76
157	118	201	75	157	125	203	80
167	123	211	80	167	130	213	86
177	128	220	85	177	135	223	91
187	133	230	90	187	140	233	95
197	138	240	95	197	145	243	100
207	143	250	100	207	150	252	105
217	148	260	105	217	155	262	110
226	152	270	109	226	160	272	115
236	157	280	114	236	165	282	120

Triplex full free lift, clear view

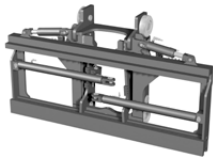
ECG50-70				ECG80-90			
Lift height	Mast height H3 min.	H5 max.	Free lift H2	Lift height	Mast height H3 min.	H5 max.	Free lift H2
195	101	237	60	165	102	210	58
215	108	256	67	185	108	229	65
234	115	276	73	205	115	249	71
254	121	296	80	224	121	269	78
-	-	-	-	244	128	289	84



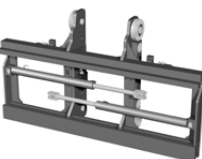
Duplex standard, free visibility Duplex full free lift, free visibility Triplex full free lift, free visibility



Fixed



Center levelling



Fork positioning and sideshift



Sideshift



Forks for manual adjustment



Fork shaft system with separate carriers for each fork



Roller fittings for hydraulic adjustment



Hydraulic levelling

Above pictures are examples.

Lower maintenance costs

No starter, no generator, no turbo, no fuel pump, no water pump. Just to mention a few of the parts you never need to worry about with an electric forklift truck. Designed with few moving parts, the forklift keeps going year after year.

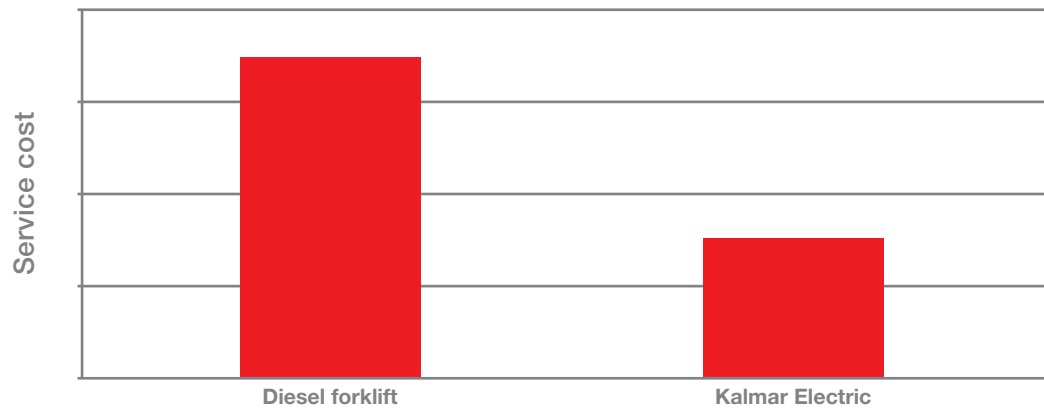
If a problem should occur, it is easily managed. What used to take hours of troubleshooting, is now presented as an error code in a display. This new level of fault handling is possible thanks to an advanced control system that continuously registers operational data.

Many times, operators can solve a problem themselves before it escalates into failure. Repairs are speed up as the service technician will be aware of the problem in advance and can bring the appropriate replacement parts to your site.

High reliability, long intervals between maintenance and fast service combine to ensure the forklift's favorable life cycle cost.



Service costs – Diesel vs. Kalmar electric



Over a driving period of 7,000 hours, the service cost of Kalmar's new electric forklift is more than 50% lower than that of an equivalent diesel forklift with a gearbox. Calculation includes work and parts and is based on Scandinavian price levels.

More productive with Kalmar Smart fleet RMI

Is your truck used efficiently? For how long is it idle during the day? How many times has it been in a collision or overload situation? The new Kalmar Smart fleet RMI system can present lots of data about your truck, both in real time and as statistics. It helps you analyze how the truck is actually used and what can be done to improve operational efficiency.



Some of the functions in Kalmar Smart fleet RMI

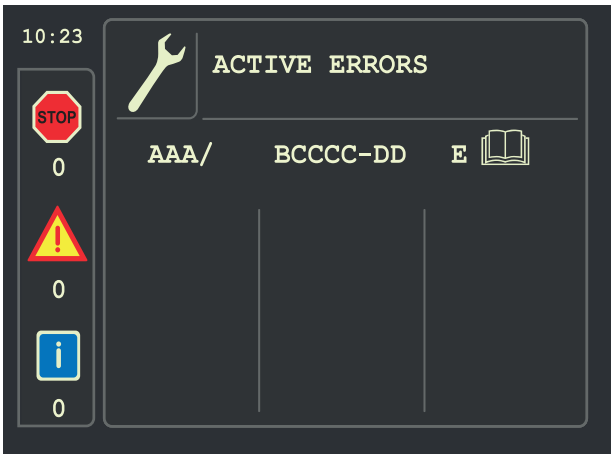
- Real time data
- Statistics
- Map functions
- Event analysis
- Alarm
- Vehicle error codes
- Report functions
- Service handling

A new platform

Kalmar's new electric system will from now on be used in all our new products. Our service engineers will therefore be closely familiar with the system, allowing them to carry out service faster.

See the fault, not the symptom

Error code 1/M6570-5, for example, means there is an open circuit to the heat fan. Before Kalmar's new electric system was introduced, you had to check the fuse, fan control, cable and fan in order to locate this fault. The procedure has now been shortened to nearly nothing.



A fault is presented as an error code consisting of device number (marked AAA in the above chart), component number (BCCCC-DD) and type of error (E).



Gentle to your goods, your people and the world

Driving an electric forklift truck is driving ecologically – no nitrogen oxides, no carbon dioxide, no particles. Going electric is taking a giant leap into building the factory of the future.

An electric forklift is a must have if you are dealing with sensitive goods such as food or pharmaceuticals. But whatever goods you are handling, you will enjoy the clean air that comes from using electric forklifts.

Operators will experience an improved working environment. They are relieved of the vibrations that are always at play with a combustion engine. And even if other machinery continues to make noise, you will no longer need ear protection because of your forklifts.

Look out for the blue light (option)

If you are new to electric forklifts, it may seem strange at first, watching forklifts drive past in silence. Nice as it may be, the forklift's low noise level can actually be a risk. That is why we have introduced a blue safety light to alert people that the forklift is on its way.

Endless visibility

A totally new and spacious cabin design for optimized visibility at all angles. Smart profiles and curved windows combine to provide exceptionally good forward, diagonal and rearward visibility. The sensation is almost like working outdoors and helps improve both efficiency and safety.

Ergonomic steering wheel

The patented new steering wheel is engineered to reduce stress and increase productivity through carefully tested ergonomic design. It is adjustable and can

be tilted at an angle to the side for comfortable maneuvering, especially during reversing.

Comfort pedals

A new, flexible and fail-safe pedal system with adjustable pedal angles for minimal strain on the foot. The floor-based solution, with a hanging pedal feel, lets you drive hard longer with less fatigue.

Work console

The operator's extended arm is easy to adjust, easy to use and easy 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 intuitively placed panels and controls for data display and machine control systems.

Adjustable multi-seat

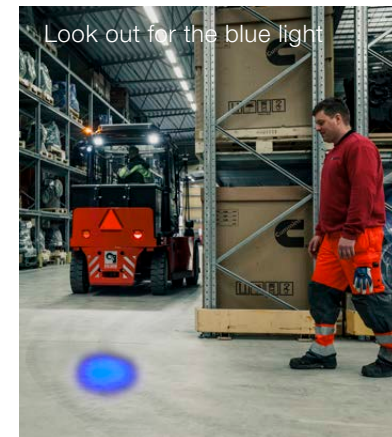
The fully integrated Kalmar seat has been carefully developed to ensure the best possible comfort and sitting posture for long shifts and demanding operations. A rotatable seat is available as option, improving safety if you need to go in reverse due to limited forward visibility when handling bulky goods.

Climate package

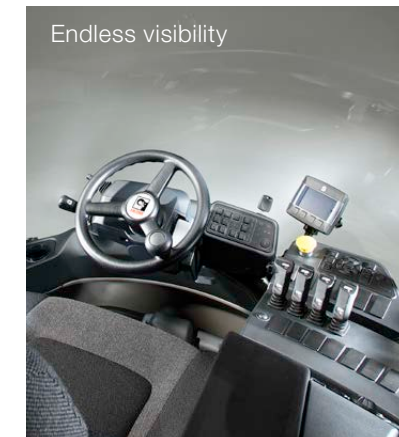
A complete and fully automatic climate package that meets the stringent demands of our climate-tested EGO cabin. Large air intakes mean easy filter replacement at the front, while well dimensioned and carefully designed components provide superior interior comfort.

Intuitive interfaces

Numerous man-hours have been used to take the human-machine interface (HMI) to this new level. This includes sight, sound, touch, spatial sense and intuition, all in one logical, balanced and user-friendly design. At the center is the 3.5" Kalmar Information Display, now in color.



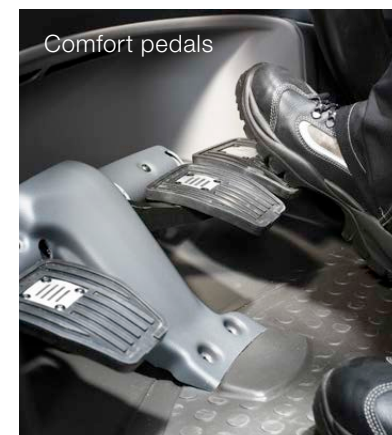
Look out for the blue light



Endless visibility



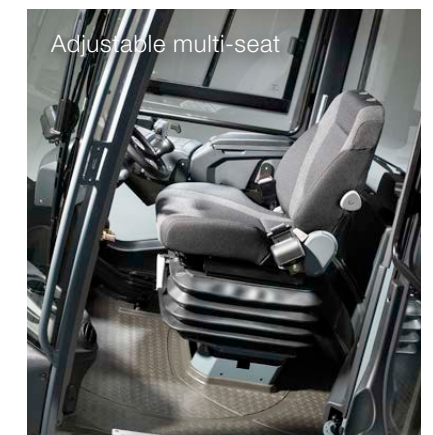
Ergonomic steering wheel



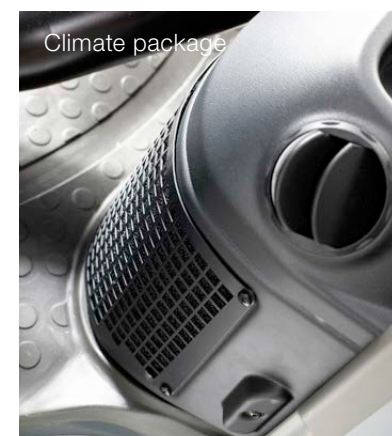
Comfort pedals



Work console



Adjustable multi-seat



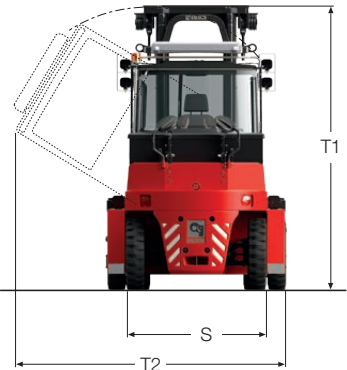
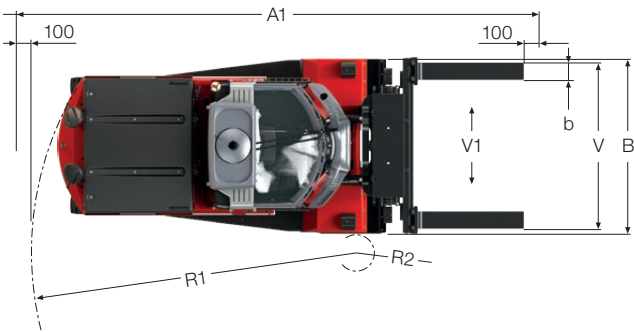
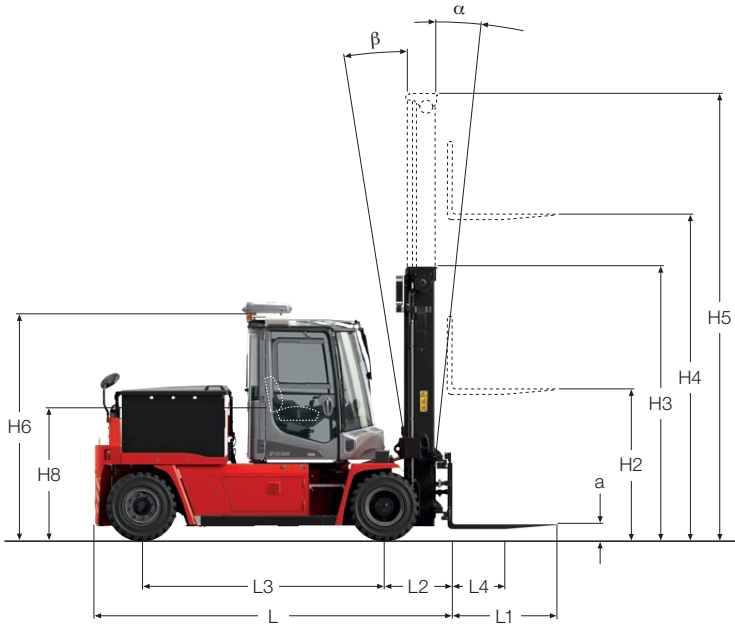
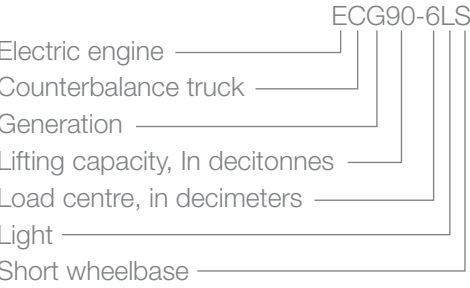
Climate package



Intuitive interfaces

Technical data

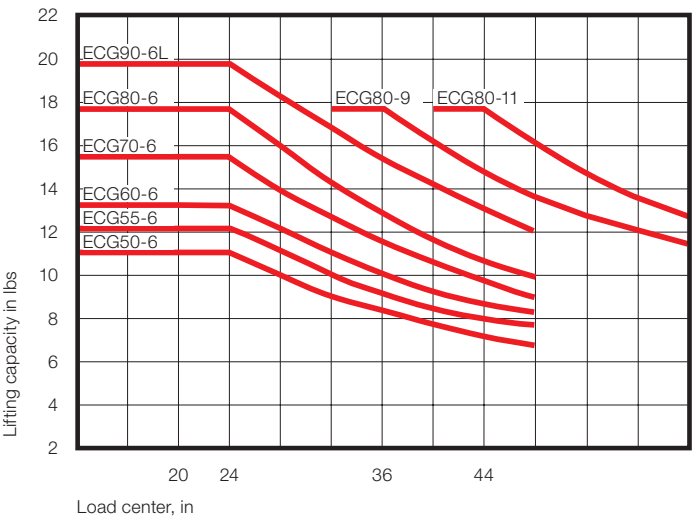
Model designation



Dimensions

				ECG50-6	ECG55-6	ECG60-6	ECG70-6	ECG80-6	ECG80-9	ECG80-9S	ECG80-11	ECG90-6L	ECG90-6LS
Lifting capacity	Rated (lbs)		lbs	11000	12100	13200	15400	17600	17600	17600	17600	19800	19800
	Load center	L4	in	24	24	24	24	24	36	36	43	24	24
Truck dimensions	Truck length	L	in	132,3	132,3	149,2	149,2	159,3	161,2	156,9	161,2	163,0	158,7
	Truck width	B	in	61,0	61,0	78,7	78,7	78,7	78,7	78,7	78,7	78,7	78,7
	Height, base machine, EGO	H6	in	102,0	102,0	102,0	102,0	102,0	102,0	102,0	102,0	102,0	102,0
	Seat height, EGO	H8	in	56,7	56,7	56,7	56,7	56,7	56,7	56,7	56,7	56,7	56,7
	Distance between center of front axle – front face fork arm	L2	in	27,0	27,0	28,7	28,7	31,1	29,5	29,5	29,5	31,3	31,3
	Wheelbase	L3	in	82,7	82,7	96,5	96,5	102,4	110,2	102,4	110,2	110,2	102,4
	Track (c-c), front – rear	S	in	48,8 – 47	48,8 – 47	59,1 – 53,5	59,1 – 53,5	59,1 – 53,5	59,1 – 53,5	59,1 – 53,5	59,1 – 53,5	59,1 – 53,5	59,1 – 53,5
	Turning radius, outer	R1	in	117,7	117,7	131,9	131,9	141,7	145,7	141,7	159,4	145,7	141,7
	Turning radius, inner	R2	in	4,7	4,7	5,9	5,9	9,8	11,8	9,8	33,5	11,8	9,8
	Ground clearance, min.		in	6,3	6,3	6,3	6,3	6,3	6,3	6,3	6,3	6,3	6,3
	Height when tilting cab, max. EGO	T1	in	118,9	118,9	118,9	118,9	118,9	118,9	118,9	118,9	118,9	118,9
	Width when tilting cab, max EGO	T2	in	118,1	118,1	127,0	127,0	127,0	127,0	127,0	127,0	127,0	127,0
Standard duplex mast	Min. aisle width for 90° stacking with forks	A1	in	199,8	199,8	215,7	215,7	228,0	253,9	246,1	275,6	232,1	224,2
	Lifting height	H4	in	137,8	137,8	137,8	137,8	137,8	137,8	137,8	137,8	137,8	137,8
	Mast height, min	H3	in	103,3	103,3	103,3	103,3	115,6	115,6	115,6	120,5	115,6	115,6
	Mast height, max	H5	in	177,2	177,2	177,2	177,2	183,5	183,5	183,5	193,3	183,5	183,5
	Mast tilting, forward – reverse	α – β	°	6 – 9	6 – 9	6 – 9	6 – 9	6 – 9	6 – 9	6 – 9	6 – 9	6 – 9	6 – 9
Forks	Ground clearance, min.		in	6,7	6,7	6,7	6,7	6,7	6,7	6,7	6,7	6,7	6,7
	Width	b	in	5,9	5,9	5,9	5,9	5,9	7,9	7,9	7,9	7,9	7,9
	Thickness	a	in	2,4	2,4	2,4	2,4	2,4	2,6	2,6	2,8	2,6	2,6
	Length of fork arm	l	in	47,2	47,2	47,2	47,2	47,2	70,9	70,9	86,6	47,2	47,2
	Width across fork arms, max.	V	in	55,1	55,1	74,8	74,8	74,8	-	-	-	74,8	74,8
	Width across fork arms, min.	V	in	16,5	16,5	16,5	16,5	16,5	-	-	-	20,5	20,5
	Sideshift. ± at width across fork arms	V1 – V	in	11,8 – 31,5	11,8 – 31,5	14,8 – 45,7	14,8 – 45,7	14,8 – 45,7	-	-	-	-	14,8 – 48,0
Weight	Weight												
	With battery		lbs	18740	19620	19620	21160	23590	25790	26680	27340	24690	25570
	Without battery		lbs	13670	14550	13230	14770	16090	17640	19180	19180	16530	18080
Axle load front	Unloaded		lbs	9920	9920	10140	10140	11460	12130	12130	12130	11680	11680
	At rated load		lbs	27890	29760	30860	34390	38800	40570	40570	41890	42110	42550
Axle load rear	Unloaded		lbs	8820	9700	9480	11020	12130	13670	14550	15210	13010	13890
	At rated load		lbs	1870	1980	1980	2200	2430	2870	3090	3090	2650	2870
Wheels	Wheels/tires	Type, front – rear		Pneumatic Diagonal – Pneumatic Diagonal						Air Radial/SE - Air Radial		SE – SE	Air Radial / Air Radial
Brakes		Dimensions, front – rear	in	315/70-15 – 225/75-15			8,25-15 – 8,25-15			8,25-R15 – 8,25-R15		8,25-15 – 300-15	
Steering		Number of wheels, front – rear (*driven)		2* – 2						4* – 2			
		Pressure	psi	145 – 131			123 – 123			145 – 145		-----	
	Steering system	Type – maneuvering		Hydraulic Servo – Steering wheel									
	Service brake system	Type – affected wheels		Oil cooled disc brakes – Drive wheels									
	Parking brake system	Type – affected wheels		Dry, spring activated disc brakes – Drive wheels									
Misc.	Hydraulic pressure	Max.	psi	2031	2103	2248	2538	2901	2901	2901	2901	3118	
	Hydraulic fluid volume		gal	33	33	41	41	41	41	41	41	41	41

Technical data (continued)



1. Full lifting capacity up to 157” lift height with duplex/duplex freelift/ triplex masts and integrated side-shift/fork positioning carriage for ECG50-6 to ECF90-6L, does not apply to ECG80-9.
2. Full lifting capacity up to 157” lift height with duplex freelifting masts and FEM fork positioning carriage applies only to ECG80-9.

Drivetrain

		ECG50-6	ECG55-6	ECG60-6	ECG70-6	ECG80-6	ECG80-9	ECG80-9S	ECG80-11	ECG90-6L	ECG90-6LS
Drivetrain											
	Drive axle - type	Differential and hub reduction				Differential and hub reduction					
	Drive motor, hourly capacity	hp	2 x 15				2 x 15				
	Speed control, principle - number of steps	High frequency MOSFET, AC - Stepless				High frequency MOSFET, AC - Stepless					
	Pump motor hydraulics, intermittent capacity – duty factor	1 x 56 hp - S3 15%				1 x 56 hp - S3 15%					
	Pump motor brakes, intermittent capacity – duty factor	1 x 5.6 hp - S3 15%				1 x 5.6 hp - S3 15%					
	Pump control, principle - number of steps	High frequency MOSFET, AC - Stepless				High frequency MOSFET, AC - Stepless					
Battery	Dimensions (WxHxL)	in	51x31x33	59x31x39		59x31x47	59x31x47	59x31x39	59x31x47	59x31x47	59x31x39
	Capacity at 5h discharging - voltage	Ah - V	940 - 80	1,240 - 80		1,400 - 80	1,550 - 80	1,240 - 80	1,550 - 80	1,550 - 80	1,240 - 80
	Max charging current	A - V	175 - 80	225 - 80		250 - 80	300 - 80	225 - 80	300 - 80	300 - 80	225 - 80
	Battery weight	lbs	5.070	6.390		7.500	8.160	7.500	8.160	8.160	7.500

Performance, drivetrain

			ECG50-6		ECG55-6		ECG60-6		ECG70-6		ECG80-6		ECG80-9		ECG80-9S		ECG80-11		ECG90-6L		ECG90-6LS	
Performance	Lifting speed	Unloaded	ft/s	1,3	1,3	1,0	1,0					1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	
		At rated load	ft/s	1,1	1,1	1,0	1,0					1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	
	Lowering speed	Unloaded	ft/s	1,5	1,5	1,5	1,5					1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	
		At rated load	ft/s	1,6	1,6	1,6	1,6					1,6	1,6	1,6	1,6	1,6	1,6	1,6	1,6	1,6	1,6	
	Traveling speed, F/R	Unloaded	mph	11	11	11	11					10	9	9	9	9	9	9	9	9	9	
		At rated load	mph	10	10	9	9					9	8	8	8	8	8	8	8	8	8	
	Gradeability, max	Unloaded	%	56	53	51	46					41	37	37	35	38	38	38	38	38	38	
		At rated load	%	32	30	28	25					22	21	21	20	20	20	20	20	20	20	
	Gradeability, at 1.2 mph	Unloaded	%	42	40	39	36					32	29	29	27	30	30	30	30	30	30	
		At rated load	%	25	23	22	20					17	16	16	15	16	16	16	16	16	16	
Drawbar pull			kN	8990	8990	8990	8990					8990	8990	8990	8990	8990	8990	8990	8990	8990	8990	
Noise level, inside*		LpAZ, EGO Cabin	dB(A)	66	66	66	66					66	66	66	66	66	66	66	66	66	66	
		LpAZ, EGO Cabin OHG	dB(A)	78	78	78	78					78	78	78	78	78	78	78	78	78	78	
Noise level, outside**		LwAZ	dB(A)	92	92	92	92					92	92	92	92	92	92	92	92	92	92	

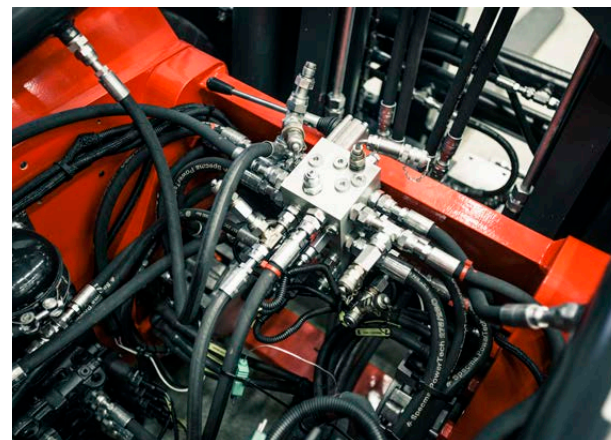
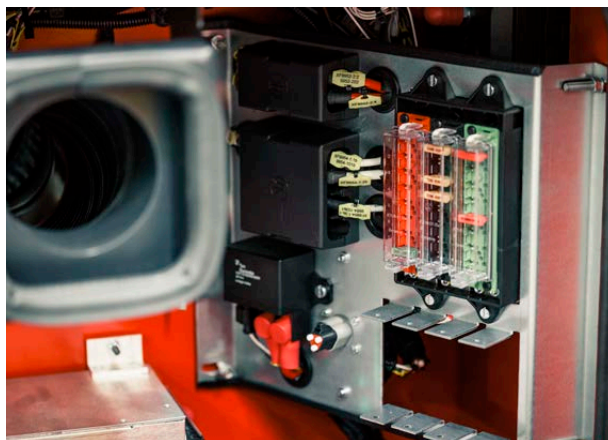
* According to EN12053
** According to 2000/14/EG

Service and support

With Kalmar, you are backed by global support and service network. This ensures short response times for service, support and spare parts throughout the world. Wherever you are, you can trust our network to be there to keep your business moving.

Extensive support network

As our customers, you have our global service and support network always at your disposal. This helps to ensure short response times for everything from spare parts and product support teams down to each individual local service engineer.





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

Kalmar is part of Cargotec. Cargotec's sales totalled approximately EUR 3.2 billion in 2013 and it employs approximately 11,000 people. Cargotec's class B shares are quoted on NASDAQ OMX Helsinki under symbol CGCBV. www.cargotec.com

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