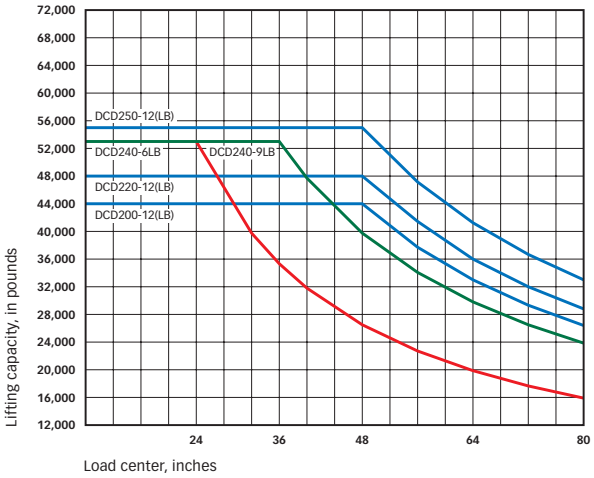
HEAVY LIFT TRUCKS 44,000 – 55,000 LBS

TECHNICAL INFORMATION KALMAR DCD200-250, DIESEL

A range of machines for all your applications

The Kalmar 44,000 – 55,000 lb range offers you a broad choice of alternatives to really help you get the right machine for the right type of work. Kalmar 44,000 – 55,000 lb machines are well proven with robust design, specifically made for the most demanding applications.

This range is a result of a continuous development in practise, and together with its predecessors, these are the most common machines in the world. Every design detail is thoroughly matched against you and your colleagues' demands, so when investing in Kalmar, you are investing in optimal productivity and overall economy.



DCD200-250 models: Full lifting capacity up to 276 inch lift height with duplex/duplex freelift masts, integrated sideshift/fork positioning carriage and forkshaft system.

Full lifting capacity up to 236 inch lift height with triplex freelift masts, integrated sideshift/fork positioning carriage and forkshaft system.

Kalmar 44,000 – 55,000 lb

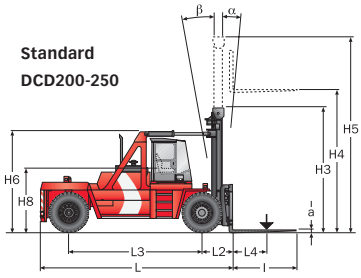
These models are well-proven and primarily dedicated to handling of heavy loads like steel, metal, concrete or stone blocks both at industrial sites and in ports and terminals. It is a comprehensive and versatile range including low-built models. Together with its compact and driver-friendly design these machines offer a productive and flexible resource to any industrial environment.

Capacity and dimensions

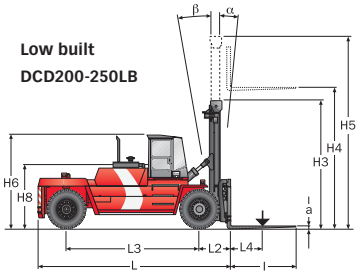
Lifting	Lift capacity	Rated			lb.
		Load center		L4	inch
Dimensions	Truck	Length, to front face of fork arm		L	inch
		Width		B	inch
		Truck height, basic machine, Spirit Delta		H6	inch
		Seat height		H8	inch
		Distance between center of front axle – front face of fork arm		L2	inch
		Wheelbase		L3	inch
		Track (c-c), front – rear		S	inch
		Turning radius	outer	R1	inch
			inner	R2	inch
		Ground clearance, min.			inch
		Max height when tilting cab, Spirit Delta		T1	inch
		Max width when tilting cab, Spirit Delta		T2	inch
		Minimum aisle width for 90° stacking with forks		A1	inch
	Standard duplex mast	Lifting height		H4	inch
		Mast height, min.		H3	inch
		Mast height, max.		H5	inch
		Mast tilting, forward – backward		α – β	°
	Forks	Width		b	inch
		Thickness		a	inch
		Length of fork arm		l	inch
		Width across fork arm, max.		V	inch
		Width across fork arm, min.		V	inch
		Sideshift. ± at width across fork arms		V1 – V	inch
Weight	Service weight				lb.
	Axle load front	Unloaded			lb.
		At rated load			lb.
	Axle load back	Unloaded			lb.
		At rated load			lb.
Wheels, brakes, steering	Wheels/tires	Type			
		Dimensions, front – rear			inch
		Number of wheels, front – rear (*driven)			
		Pressure			psi
	Steering system	Type – maneuvering			
	Service brake system	Type – affected wheels			
	Parking brake system	Type – affected wheels			
Misc.	Hydraulic pressure	Max.			psi
	Hydraulic fluid volume				gal
	Fuel volume				gal

Dimensions – DCD200-250

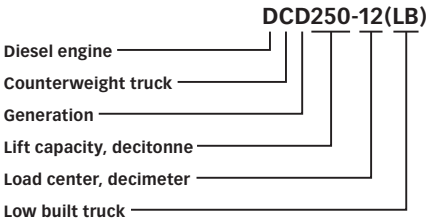
Standard
DCD200-250

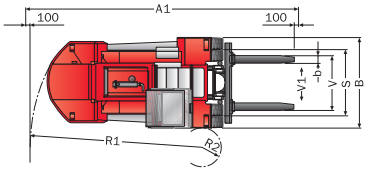


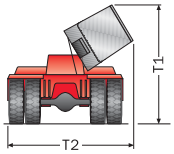
Low built
DCD200-250LB



Model designation





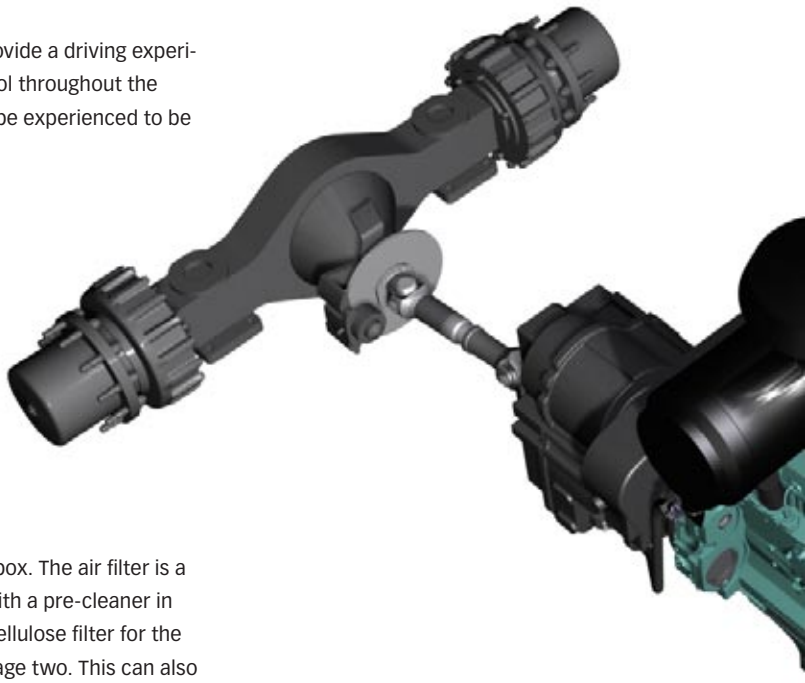


	DCD 200-12	DCD 200-12LB	DCD 220-12	DCD 220-12LB	DCD 240-6LB	DCD 240-9LB	DCD 250-12	DCD 250-12LB
	44000		48000		53000		55000	
	48		48		24	36	48	
	239		239		225		249	
	120		120		120		120	
	136	129	136	129	129		136	129
	85		85		85		85	
	42		42		42		42	
	157		157		144		167	
	87 – 84		87 – 84		87 – 84		87 – 84	
	217		217		201		228	
	22		22		10		18	
	12		12		12		12	
	–	150	–	150	150		–	150
	–	146	–	146	146		–	146
	361		361		345		373	
	197		197		197		197	
	170		170		170		170	
	269		269		269		269	
	5 – 10		5 – 10		5 – 10		5 – 10	
	9.8		9.8		9.8		9.8	
	3.9		4.3		3.9		4.3	
	96		96		96		96	
	102		102		102		102	
	39		39		39		39	
	16 – 71		16 – 71		16 – 71		16 – 71	
	65700		68800		64800	70300	72500	
	31100		33100		33100		34150	
	102000		108600		110100	114500	118500	
	32600		35700		31700	37250	38350	
	7700		8200		7700	8800	9000	
	Pneumatic		Pneumatic		Pneumatic		Pneumatic	
	14.00x24 – 14.00x24		14.00x24 – 14.00x24		14.00x24 – 14.00x24		14.00x24 – 14.00x24	
	4* – 2		4* – 2		4* – 2		4* – 2	
	145		145		145		145	
	Hydraulic servo – Steering wheel							
	Oil cooled disc brakes (Wet disc brakes – Drive wheels)							
	Dry, spring activated disc brake – Drive wheels							
	2611		2176		2321		2393	
	71		71		69		85	
	79		79		61		92	

The base for high performance

We have equipped the Kalmar 44,000 – 55,000 lb range with excellent drivetrains. Engine, gearbox, drive shaft and wet disc brakes – everything has been built and combined into a unit with the highest performance and durability possible.

The new drivetrains provide a driving experience and level of control throughout the work cycle that has to be experienced to be believed.



Powerful low emission engines

We can offer two different power trains. The engines provide high torque even at low revolutions. The engines fall well within the latest emission requirements and they also conform to the new noise power standards.

Tier 3 engines require more powerful cooling than before and the trucks come fitted with an efficient and easy-to-service split cooling system – for air and fuel and coolant to the engine and gearbox. The air filter is a twostage Donaldson with a pre-cleaner in stage one and a finer cellulose filter for the smallest particles in stage two. This can also be replaced by a metallic or dust particle filter as an option. The filter has a high cleaning capacity and is easy to replace.

Electronic controlled transmission

We are using the Dana TE17000 series transmission. The gearbox has integrated electronic control, monitoring and intelligence. The gearbox has built-in reversing lock and modulation, providing safe and smooth gear changing. In addition we also calibrate slipping before delivery to provide the best gearchanging characteristics depending on power train, wheel dimension and drive shaft.

There are two optional grades of “intelligence” to choose: automatic gear-changing and electronic inching with controlled slipping.

The reliable distributed control system

Kalmar's electronic system is a fast, intelligent and stable auxiliary electronic system that makes the truck user-friendly, effective, safe and economical. Kalmar's electrical system has been thoroughly upgraded through development. The installation is more standardized and simplified using CAN -bus technology. Furthermore, updated software and electrical components were implemented to deliver a high level of flexibility, ease of maintenance and durability.

Distance since last service and hours to next service.

The Kalmar 44,000 – 55,000 lb range is equipped, as standard, with a very simple and non-language-specific interface for the information located on the steering wheel display. Information is provided in three areas – diagnostics, operation and alarms. The standard control system monitors the engine and gearbox and gives feedback to the operator in the display. There are plenty of options available, i.e ergonomic functions such as lever and mini steering wheel control.

Drive and steering axle

The steering system is a well proven robust design with a double acting cylinder and a pendulum suspension. The strength and the durability is obvious when you look at the steer axle.

The drive axle has a robust design in order to cope with extreme stresses in tough working environments with heavy loads, high intensity operations and even towing tasks. The drive axle has a two stage reduction to ensure minimum strain on the transmission system- differential and hub reduction.

The axle is fitted with a hydraulic service brake system (Wet Disc Brake). It is also fitted with the dry disc parking brake actuated electronically via switch in the cabin.

The service brake system is of the Wet Disc Brake type, a well-proven system comprised of a set of fixed and a set of rotating oilcooled discs. When the brakes are applied, the discs are pressed together by hydraulic pressure from the brake pedal. This provides an extremely effective and smooth braking system which can cope with heavy stresses over an extended period of time without any risk of overheating or fading.

The system is virtually maintenance free with almost no wear and tear and need for brake adjustments. The heat generated during the braking is transmitted via a cooling circuit which effectively uses the truck's total volume of hydraulic fluid.

Power trains and performance

Drivetrains					Volvo TAD750VE (243 hp) Dana TE17000	Cummins QSB 6.7 (260 hp) Dana TE17000
Drivetrain	Engine	Manufacturer – type designation			Volvo – TAD750VE (Turbo-Intercooler)	Cummins – QSB 6,7 (Turbo-Intercooler)
		Fuel – type of engine			Diesel – 4-stroke	Diesel – 4-stroke
		Rating ISO 3046 – at revs	hp/kW – rpm		243/181 – 2300	260/194 – 2200
		Peak torque ISO 3046 – at revs	lb/ft – rpm		774 – 1500	730 – 1400
		Number of cylinders – displacement		in^3	6 – 436	6 – 409
		Fuel consumption, normal driving		gal/h	3.4-4	3.4-4
	Gearbox	Manufacturer – type designation			Dana TE17000	Dana TE17000
		Clutch, type			Torque converter	Torque converter
		Gearbox, type			Hydrodynamic Powershift	Hydrodynamic Powershift
		Numbers of gears, forward – reverse			3 – 3	3 – 3
	Alternator	Type – power		Amp	AC – 80	AC – 70
	Starting battery	Voltage – capacity		V – Ahr	2×12 – 140	2×12 – 140
	Driving axle	Manufacturer – type			Kessler D91 – Diffrential and hub reduction	Kessler D91 – Diffrential and hub reduction

Volvo TAD750VE					DCD200-12		DCD220-12		DCD 240-6LB	DCD 240-9LB	DCD250-12	
					•	LB	•	LB			•	LB
Performance	Lifting speed	Unloaded		ft/s	1.1	1.1	0.9	0.9	0.9	0.9	0.9	0.9
		At rated load		ft/s	1.0	1.0	0.8	0.8	0.8	0.8	0.8	0.8
	Lowering speed	Unloaded		ft/s	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
		At rated load		ft/s	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
	Traveling speed, forward and reverse	Unloaded		mph	17	17	17	17	17	17	17	17
		At rated load		mph	17	17	17	17	17	16	16	16
	Gradeability	Max.	unloaded	%	78	78	73	73	80	70	67	67
			at rated load	%	38	38	35	35	35	33	32	32
		At 1.2 mph	unloaded	%	52	52	49	49	53	48	46	46
			at rated load	%	28	28	26	26	26	24	23	23
	Drawbar pull	Max.		lbf	137186	137186	137186	137186	137186	137186	137186	137186
Noise	Noise level according to EN12053	LpAZ (inside) Spirit Delta		dB(A)	72	72	72	72	72	72	72	72
	Noise level according to 2000/14/EC*	LwA (outside)		dB(A)	110	110	110	110	110	110	110	110

Cummins QSB 6.7					DCD200-12		DCD220-12		DCD 240-6LB	DCD 240-9LB	DCD250-12	
					•	LB	•	LB			•	LB
Performance	Lifting speed	Unloaded		ft/s	1.1	1.1	0.9	0.9	0.9	0.9	0.9	0.9
		At rated load		ft/s	1.0	1.0	0.8	0.8	0.8	0.8	0.8	0.8
	Lowering speed	Unloaded		ft/s	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
		At rated load		ft/s	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
	Traveling speed, forward and reverse	Unloaded		mph	17	17	17	17	17	17	17	17
		At rated load		mph	17	17	16	16	16	16	16	16
	Gradeability	Max.	unloaded	%	90	90	83	83	92	80	76	76
			at rated load	%	42	42	39	39	39	37	35	35
		At 1.2 mph	unloaded	%	59	59	56	56	61	54	52	52
			at rated load	%	31	31	29	29	28	27	26	26
	Drawbar pull	Max.		lbf	148250	148250	148250	148250	148250	148250	148250	148250
Noise	Noise level according to EN12053	LpAZ (inside) Spirit Delta		dB(A)	74	74	74	74	74	74	74	74
	Noise level according to 2000/14/EC**	LwA (outside)		dB(A)	112	112	112	112	112	112	112	112

* including noise reduction kit
** only for use outside EU (noise reduction kit is not included)

Driving environment for optimal performance

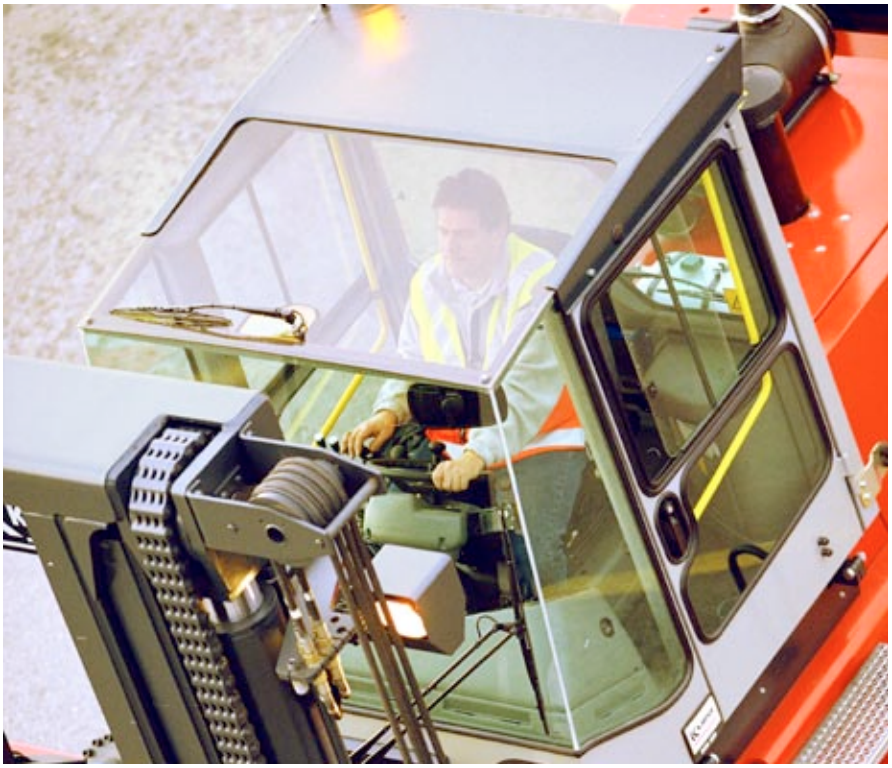
Spirit Delta

Spirit Delta is one of the best designed driving environments available in the industry. Priority has been given to ergonomics for the driver. After a demanding shift in a Spirit Delta, the driver should be alert and attentive, resulting in improved working safety.

The overall design and all the adjustment options mean that the Spirit Delta will benefit every driver. Instruments and control layout allow the driver to see at a glance and have control over all the machine's various functions, while at the same time allowing the driver to work in an efficient and relaxed way.

Comfort with regard to noise level, climate, lighting and accessibility is at the highest level possible.

The operator of the Spirit Delta can have access to Kalmar's range of intelligent efficiency and safety options in one place.



Excellent visibility from operator's position.

Hydraulic or electric servo control by levers.

Spirit Delta with Climate Control System, ECC (option).

Driver's seat with mechanical or air assisted adjustments.

Lifting equipment

The Kalmar 44,000 – 55,000 lb range offers you a comprehensive range and choice of masts, carriages, forks and attachments. Altogether you can specify your machine exactly according to your needs. The lifting equipment is well proven and continuously improved to match the increasing requirements for fast, accurate and safe handling, whatever the application.

Duplex mast
standard, free visibility

Duplex mast
full free lift, free visibility

Masts
All masts are constructed on the free visibility principle and can be supplied with the area controlled free-lift system which, in terms of function, is extraordinarily reliable and secure.

The robust mast profiles of high tensile steel are designed for high stresses and long life. The positioning of profiles improve the visibility from the operator's seat by minimizing obstruction of the field of vision. The cylinders contribute to this as well and are positioned in the "dead" angles of the mast.

The long-life mast wheels are fitted with high quality conical roller bearings.

The standard lifting equipment for all models is the duplex clear view mast.

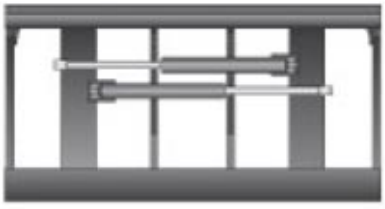
Mast

	Lift height	Mast height		Free-lift
	H4	H3 min.	H5 max.	H2
		DCD200-250		
Duplex, standard, clear view	157	150	229	–
	177	160	249	–
	197	170	269	–
	217	180	288	–
	236	190	308	–
	256	200	328	–
	276	209	347	–
Duplex, full free lift, clear view	157	154	233	79
	177	164	253	89
	197	174	272	98
	217	184	292	108
	236	194	312	118
	256	204	331	128
	276	213	351	138
Triplex, full free lift, clear view	203*	146	274	75
	230	156	303	83
	247	161	321	88
	285	175	362	98
	236	–	–	–
	276	–	–	–
	295	–	–	–

* Note! Lifting height 203 inch only available for LB (low built model).
For other lifting heights, please contact Kalmar.

Fork carriages

The fork carriages are, in most deliveries, supplied with hydraulic side-shift and fork positioning. The carriages are designed for optimal visibility and wider carriages available as an option.



Fork carriage

Forks

The forks are a one-piece forged design manufactured from high tensile steel and fitted with four upper rollers and two lower rollers on each fork. A solution which provides both accurate and smooth fork movements as well as long service life.

To improve handling flexibility and ease of changing between forks and other attachments, a fork shaft system is available. In this case the forks are mounted on a separate fork holder.

Standard roller forks

Fork shaft system

Inverted forks

Attachments

For the Kalmar 44,000 – 55,000 lb models there are a number of attachments available, which considerably extend the traditional forklift truck area of operation.

Attachments like coil rams for steel and metal applications and different toplifts for container handling are also available.

Coil ram

Toplift attachment

A quality machine for optimum overall economy

Reducing operating costs

The Kalmar 44,000 – 55,000 lb range consists of a series of models that have been designed in every aspect to provide long life with minimum downtime. This has been achieved by using technical solutions and components, and by not subjecting the truck to built in stresses that result in unnecessary wear and higher costs.

In addition, we utilize optimized chassis modules, frames, electronically controlled power trains, wet disc brakes, more reliable and more efficient hydraulic systems.

The air filter is easy accessible under the hood.

Daily inspection is simple.

Hole in the hood for fire fighting.

Fast service and maintenance

The Kalmar 44,000 – 55,000 lb range has been designed to provide the best possible access for maintenance. Tilting the cabin (LB version) and opening the engine cover exposes the entire power train with easy accessibility to all vital components and service points.

Parts and service

The final piece that makes the DCD200-250 a pre-eminent team player is parts & service. Kalmar has a truly comprehensive program of service for ownership, rental, and much more.

All machines will need parts and service sooner or later and there is no difference with Kalmar. What differentiates Kalmar is the excellent after market support. Kalmar is well prepared with warehouses in all continents and local distribution centers for parts through either sales companies or dealers. Kalmar's long experience and global presence provide excellent customer service all around the globe.

Safety and the environment

The Kalmar DCD200-250 complies with the following standards:

- ASME B56.1 Part III
- EPA 40 C.F.R. Part 89
- The Machinery Directive 98/37/EC
- The EMC Directive 89/336/EC
- The Noise Emission Directive 2005/88/EC
- The Exhaust Gas Directive 2004/26/EC

Worldwide application knowledge

Handling of loaded 20’ containers with forks.

DCD240-6LB with coil ram in steel operation.

Heavy asymmetrical loads in tough stone operation.

Machine equipped with a tire handling attachment in the mining industry.

Contact information:

Kalmar global partner

Local presence
Kalmar is a global supplier of heavy materials handling equipment and services for ports, terminals, industry and intermodal handling.

Local presence means that we can support our customers throughout the product's life cycle, wherever they are located.

There are 20 Kalmar sales companies that support dealers and agents in 140 countries around the world.

921524-0916/071212 KST Råd & Resultat

Kalmar Industries Corp.
415 E. Dundee St.
Ottawa, KS 66067
Tel: 785 242 2200, Fax: 785 242 8573
www.kalmarind-northamerica.com

Kalmar is part of Cargotec Corporation