MEDIUM FORKLIFT TRUCKS 20,000 – 40,000 LBS.

TECHNICAL INFORMATION
KALMAR DCE90-180, DIESEL.

Kalmar is part of Cargotec Corporation

A TRUCK OFFERING
MANY POSSIBILITIES

The Kalmar 20,000 – 40,000 lb range has a unique driving experience, visibility and handling which, together with high quality, long life and ease of service, provide the conditions for efficient working and excellent overall economy.

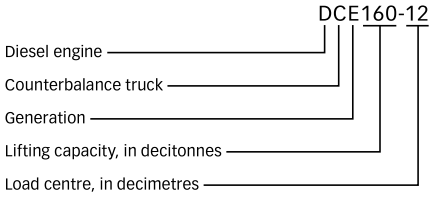
Powerful and durable drivetrains with electronically controlled gear units are perfectly matched with environmentally friendly engines. These machines have well-balanced bodies for optimum dynamic stability and visibility.

The number of options provide an unbelievable driving experience, safety and efficiency.

Design and technical solutions result in increased lifetime and longer service intervals; simplified service and daily inspection, and in addition to all this, a wide selection of high-quality driving environments.

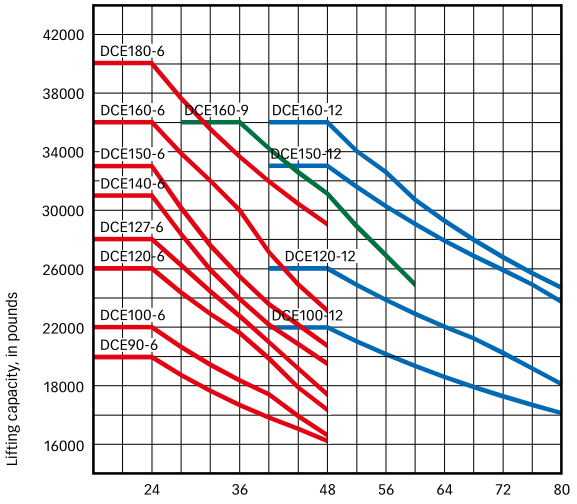
Welcome to the Kalmar 20,000 – 40,000 lb range.

MODEL DESIGNATION

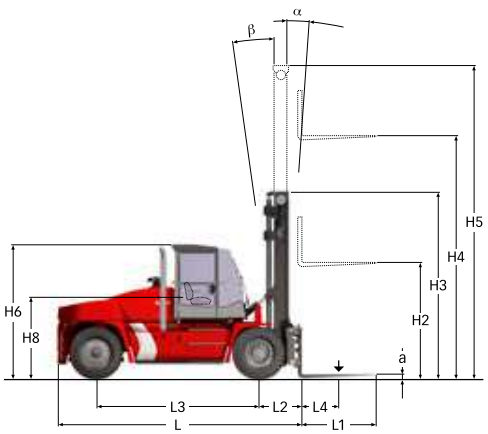


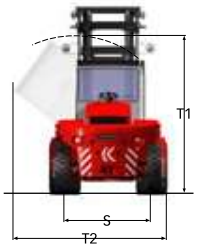
DIMENSIONS					DCE90-6	DCE100-6	DCE120-6	DCE127-6
Lifting	Lift capacity	Rated		lb.	20,000	22,000	26,000	28,000
		Load center	L4	inch	24			
Dimensions	Truck	Length, to front face of fork arm	L	inch	176	186		
		Width	B	inch	98			
		Height, basic machine, Spirit Delta	H6	inch	114			
		Height, basic machine, FlexCab/FlexGuard	H6	inch	118			
		Seat height	H8	inch	70			
		Distance between center of front axle – front face of fork arm	L2	inch	35		35	
		Wheelbase	L3	inch	108	118		
		Track (c-c), front – rear	S	inch	72 – 77			
		Turning radius, outer	R1	inch	156	165		
		Turning radius, inner	R2	inch	3			
		Ground clearance, min.		inch	13			
		Max height when tilting cab (OHG)	T1	inch	133 (136)			134 (137)
		Max width when tilting cab (OHG)	T2	inch	132 (135)			133 (137)
		Min. aisle width for 90° stacking with forks	A1	inch	246	255	255	
	Standard duplex mast	Lifting height	H4	inch	197			
		Mast height, min.	H3	inch	158			159
		Mast height, max.	H5	inch	257			257
		Mast tilting, forward – backward*	$\alpha - \beta$	°	14 – 10			
		Ground clearance, min.		inch	10			
	Forks	Width	b	inch	7.9			
		Thickness	a	inch	2.6		3.2	
		Length of fork arm	l	inch	48			
		Width across fork arms, max.	V	inch	92			
		Width across fork arms, min.	V	inch	22			
		Sideshift ± at width across fork arms	V1 – V	inch	17 – 57			
Weight	Service weight			lb.	33510	34392	35715	36817
	Axle load front	Unloaded		lb.	17196	17857	18298	18298
		At rated load		lb.	47840	50927	58422	60296
	Axle load back	Unloaded		lb.	16314	16535	17417	18519
		At rated load		lb.	5512	5512	4189	4519
Wheels, brakes, steering	Wheels/tires	Type			Pneumatic			
		Dimensions, front – rear/ply		inch	11.00×20/16PR			12.00×20/20PR
		Number of wheels, front – rear (*driven)			4* – 2			
		Pressure		psi	130			
	Steering system	Type – maneuvering			Hydraulic servo – Steering wheel			
	Service brake system	Type – affected wheels			Oil cooled disc brakes (Wet disc brakes) – Drive wheels			
	Parking brake system	Type – affected wheels			Dry, spring activated disc brake – Drive wheels			
Misc.	Hydraulic pressure	Max.		psi	2321	2538		2611
	Hydraulic fluid volume			gal	54	59		
	Fuel volume			gal	28	37		

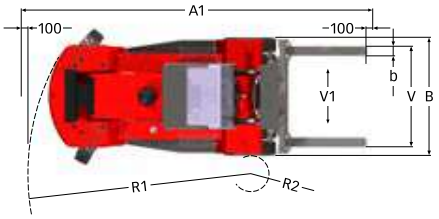
* 14° – 10° with duplex standard mast
10° – 5° with duplex freelift and triplex freelift mast



DCE90-6 to DCE180-6 models:
Full lifting capacity up to 5000 mm lift height with duplex/duplex freelift/triplex masts and integrated sideshift/fork positioning carriage.







DCE140-6	DCE150-6	DCE100-12	DCE120-12	DCE150-12	DCE160-6	DCE160-9	DCE160-12	DCE180-6
31,000	33,000	22,000	26,000	33,000	36,000	36,000	36,000	40,000
24			48		24	36	48	24
196	199	199	209	210	209	209	219	199
100								
115								
119								
70								
36	39	39		39	39	39	39	39
128				138			148	128
73 – 77								
172				188			204	172
5				17			24	5
14								
134 (137)								
133 (137)								
262	265	313	330	330	282	321	345	266
197								
159				165				
257				264				
14 – 10								
10								
7.9		8.7		9.8	7.9	8.7	9.8	8.7
3.2		3.5		3.9	3.2	3.5	3.9	3.5
48		96		96	48	72	96	48
92				93				
22		25		27	24	25	28	25
17 – 57		17 – 59		16 – 60	17 – 58	17 – 59	16 – 60	17 – 59
37258	43652	41006	43431	47179	42329	45415	49384	46518
18519	22708	22046	22267	20723	22046	21164	23149	21605
63714	71981	58863	65257	74516	73193	75398	78925	80689
18739	20944	18960	21164	26455	20283	24251	26235	24912
4409	4740	4189	4630	5732	4409	5291	5732	5512
Pneumatic								
12.00×20/20PR								12.00×20/20PR HD
4* – 2								
130							145	
Hydraulic servo – Steering wheel								
Oil cooled disc brakes (Wet disc brakes) – Drive wheels								
Dry, spring activated disc brake – Drive wheels								
2683	2756	2828	2176	2393	2538			2756
59								
53								

CHOOSE YOU OWN
DRIVING ENVIRONMENT

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.

Visibility has been optimized by the truck's soft design lines. 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.

FLEXCAB AND FLEXGUARD

FlexCab is a robust alternative to the Spirit Delta. FlexCab provides good ergonomics, good visibility and also practical flexibility.

FlexCab can be quickly and simply converted from a complete cabin to an open safety cage with or without windows, side panels and heating system, depending on climate. FlexGuard is the opposite, an open safety cage that can be fitted with windows and doors even after delivery.

The robust body has been designed to provide optimal visibility. This is especially noticeable at the corner posts and roof rails, which have the smallest cross section possible for the benefit of the driver. The visibility is substantial and the distance between the driver seat and the roof has generous space.

Efficient operation is ensured by control and instrument layout and the degree of comfort of the driver seat.

FlexCab

FlexGuard

A COMPLETE PROGRAM OF **LIFTING EQUIPMENT**

Choosing lifting equipment always involves a combination of different requirements – lift height, clearance, free lift, vehicle flexibility, as well as built in functions in the vehicle.

Whatever the requirements, Kalmar has the combination that allows efficient operation and optimum visibility conditions. The mast frame on the Kalmar 90 – 180 series has excellent visibility. Optimized frame and cross bars have been combined with well-placed hoses and hoist chains that are "invisible" during normal operation.

Kalmar can also offer numerous options to improve efficiency and safety, optimum speed (increased lifting speed), lift height pre-set (going directly to the right height), vertical hold (always vertical) and chain-slack elimination.

MAST

	Lift height	Mast height H3 min.	Mast height H5 max.	Free lift H2	Mast height H3 min.	Mast height H5 max.	Free lift H2
		DCE90-140*			DCE100-180**		
Duplex standard, clear view	118	119	178	–	126	185	–
	128	124	188	–	131	195	–
	138	129	197	–	136	205	–
	148	133	207	–	141	214	–
	157	138	217	–	145	224	–
	167	143	227	–	150	234	–
	177	148	237	–	155	244	–
	187	153	247	–	160	254	–
	197	158	256	–	165	264	–
	207	163	266	–	170	273	–
	217	168	276	–	175	283	–
	226	173	286	–	180	293	–
	236	178	296	–	185	303	–
	256	188	316	–	195	323	–
	276	197	335	–	205	342	–
Duplex full free lift, clear view	118	119	178	59	126	185	59
	128	124	188	64	131	195	64
	138	129	197	69	136	205	69
	148	133	207	74	141	214	74
	157	138	217	79	145	224	79
	167	143	227	84	150	234	84
	177	148	237	89	155	244	89
	187	153	247	94	160	254	94
	197	158	256	98	165	264	98
	207	163	266	103	170	273	103
	217	168	276	108	175	283	108
	226	173	286	113	180	293	113
	236	178	296	118	185	303	118
	256	188	316	128	195	323	128
	276	197	335	138	205	342	138
Triplex full free lift, clear view	177	116	234	59	123	244	59
	197	123	254	66	130	263	66
	217	129	274	72	136	283	72
	236	136	293	79	143	303	79
	256	142	313	85	149	322	85
	276	149	333	92	156	342	92

+1 inch on H3 and H5 on the DCE127-6 and DCE140-6
* DCE90-140-6
** DCE150-180-6, DCE160-9, DCE100-160-12

Duplex standard, clear view

Duplex full free lift, clear view

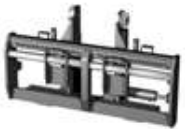
Triplex full free lift, clear view

CARRIAGES

Fixed for manually moveable forks

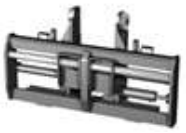
Sideshift

Fork positioning and sideshift



Sideshift pintype

Center leveling (pile slope)



Fork positioning and sideshift pintype

FORKS

Standard forks for manual adjustment

Standard roller forks

Fork shaft system with separate carriers for each fork

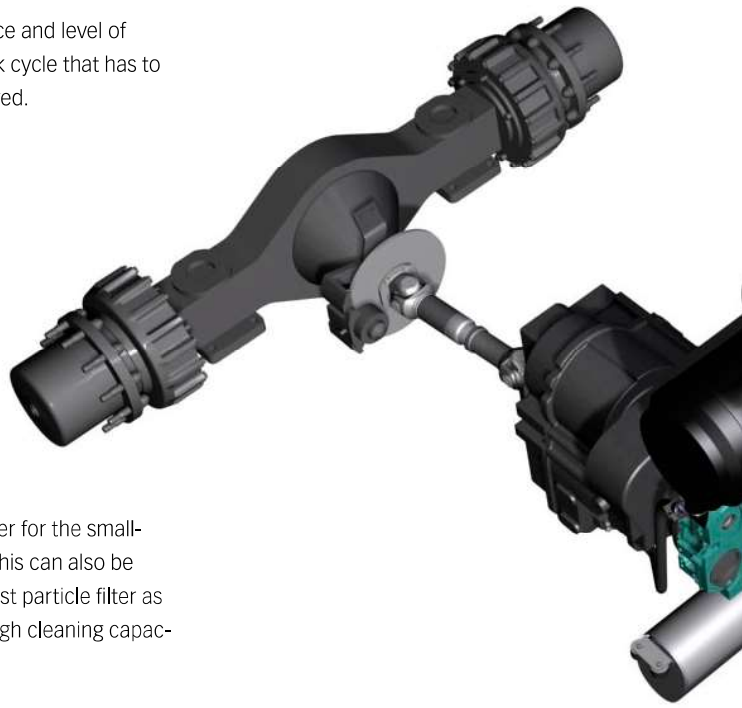
Hydraulic leveling

Pintype

Mechanical leveling

THE MOST INTERESTING
POWER TRAINS ON THE MARKET

We have equipped the Kalmar 20,000 – 40,000 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. Together with the excellent dynamic stability of the 90 – 180 series, this provides a driving experience and level of control throughout the work cycle that has to be experienced to be believed.



LOW EMISSION ENGINES – A REQUIREMENT

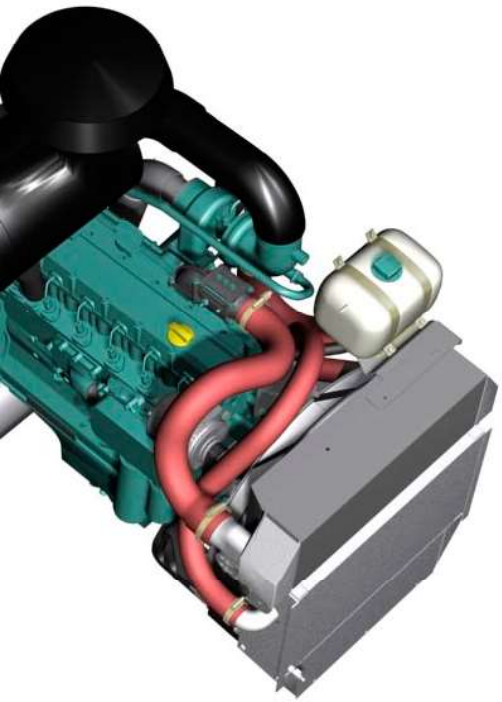
We can offer a number of different power trains. All engines provide high torque even at low revolutions. The engines fall well within the latest emission requirements and they also conform to the new noise power standards (previously noise pressure).

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 two-stage 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.

UNIQUE TRANSMISSION GIVES AN UNBELIEVABLE EXPERIENCE

We are able to offer different gearboxes. The gearboxes have integrated electronic control, monitoring and intelligence. The gearboxes have built-in reversing lock and modulation, providing safe and smooth gear changing. In addition we also optimize slipping electronically before delivery to provide the best gear-changing characteristics depending on power train, wheel dimension and drive shaft.

There are three optional grades of "intelligence" to choose from: automatic gear-changing, optimum drive (for precision driving with entirely independent working hydraulics) and electronic inching with controlled slipping.



KALMAR'S ELECTRONIC SYSTEM GIVES THE TRUCK INTELLIGENCE

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 20,000 – 40,000 lb range is standardly equipped with a very simple and non-language-specific interface for the information 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, from ergonomic functions such as lever and mini steering wheel control, to functions for reduced fuel consumption or increased lifting speed (optimum lift).

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 Brakes). 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 oil-cooled 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. A special filter protects the brakes.

POWER TRAINS AND PERFORMANCE

DRIVE TRAINS – VOLVO					Volvo TAD650VE (197hp) Dana TE13000	Volvo TAD750VE (243hp) Dana TE17000
Drivetrain	Engine	Manufacturer – type designation			Volvo – TAD650VE (Turbo-Intercooler)	Volvo – TAD750VE (Turbo-Intercooler)
		Fuel – type of engine			Diesel – 4-stroke	Diesel – 4-stroke
		Rating ISO 3046 – at revs	hp(kW) – rpm		197(147) – 2300 / 182/ (136) – 2000	243(181) – 2300 / 243(181) – 2000
		Peak torque ISO 3046 – at revs	lb/ft – rpm		553 – 1600	774 – 1500
		Number of cylinders – displacement		in^3	6 – 370	6 – 436
		Fuel consumption, normal driving		gal/hr	2.1-2.9	2.1-2.9
	Gearbox	Manufacturer – type designation			Dana – TE13000	Dana – TE17000
		Clutch, type			Torque converter	Torque converter
		Gearbox, type			Hydro-dynamic Powershift	Hydro-dynamic Powershift
		Numbers of gears, forward – reverse			3 – 3	3 – 3
	Alternator	Type – power		Amp	AC – 80	AC – 80
	Starting battery	Voltage – capacity		V – Ahr	2×12 – 140	2×12 – 140
	Driving axle	Manufacturer – type			Kessler D81 – Diffrential and hub reduction	Kessler D81 – Diffrential and hub reduction
	Noise level	LpAZ (inside*) Spirit Delta		dB(A)	73	74
		LpAZ (inside*) FlexGuard		dB(A)	85	85
		LpAZ (inside*) FlexCab		dB(A)	78	79
		LwA (outside**)		dB(A)	108	110

VOLVO TAD650VE (197 HP)					DCE 90-6	DCE 100-6	DCE 120-6	DCE 127-6	DCE 140-6	DCE 150-6	DCE 100-12	DCE 120-12	DCE 150-12	DCE 160-6	DCE 160-9	DCE 160-12	DCE 180-6
Performance	Lifting speed	Unloaded		ft/s	1.6	1.6	1.3	1.3	1.3	1.5	1.6	1.3	1.3	1.3	1.3	1.3	1.3
		At rated load		ft/s	1.5	1.5	1.2	1.2	1.2	1.2	1.5	1.2	1.2	1.2	1.2	1.2	1.2
	Lowering speed	Unloaded		ft/s	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
		At rated load		ft/s	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
	Traveling speed, forward and reverse	Unloaded		mph	18	18	18	18	18	18	18	18	18	18	18	18	18
		At rated load		mph	17	17	17	17	17	17	17	17	17	17	17	17	17
	Gradeability	Max	unloaded	%	130	121	110	103	93	71	79	72	63	75	67	59	65
			at rated load	%	56	52	45	44	39	34	43	38	32	33	32	30	30
		At 1.2 mph	unloaded	%	74	71	68	64	60	49	53	49	44	51	46	42	45
			at rated load	%	39	37	33	31	28	25	31	28	24	25	24	22	22
	Drawbar pull	Max		lbf	27,200	27,200	27,200	27,200	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000

VOLVO TAD750VE (243 HP)					DCE 90-6	DCE 100-6	DCE 120-6	DCE 127-6	DCE 140-6	DCE 150-6	DCE 100-12	DCE 120-12	DCE 150-12	DCE 160-6	DCE 160-9	DCE 160-12	DCE 180-6
Performance	Lifting speed	Unloaded		ft/s	–	1.6	1.3	1.3	1.3	1.5	1.6	1.3	1.3	1.3	1.3	1.3	1.3
		At rated load		ft/s	–	1.5	1.2	1.2	1.2	1.2	1.5	1.2	1.2	1.2	1.2	1.2	1.2
	Lowering speed	Unloaded		ft/s	–	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
		At rated load		ft/s	–	1.3	1.3	1.3	1.3	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	18	18	18	18	18	18	18	18	18
		At rated load		mph	–	17	17	17	18	17	18	17	17	17	17	17	17
	Gradeability	Max	unloaded	%	–	>120	>120	>120	>120	96	109	97	83	102	89	77	85
			at rated load	%	–	66	58	54	48	42	54	47	39	41	39	37	36
		At 1.2 mph	unloaded	%	–	111	103	96	89	68	75	69	61	72	64	57	62
			at rated load	%	–	50	44	4	38	33	42	37	31	32	31	29	29
	Drawbar pull	Max		lbf	–	32,100	32,100	32,100	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000	31,000

* according to EN12053 ** according to 2000/14/EC

DRIVETRAINS – CATERPILLAR AND CUMMINS				Caterpillar C6.6 (182hp) Dana TE13000	Cummins QSB6.7 (173hp) Dana TE13000	Cummins QSB6.7 (220hp) Dana TE17000
Drivetrain	Engine	Manufacturer – type designation		CAT – C6.6 (Turbo-Intercooler)	Cummins – QSB6.7 (Turbo-Intercooler)	Cummins – QSB6.7 (Turbo-Intercooler)
		Fuel – type of engine		Diesel – 4-stroke	Diesel – 4-stroke	Diesel – 4-stroke
		Rating ISO 3046 – at revs	hp(kW) – rpm	182(136) – 2200	173(129) – 2200	220(164) – 2200
		Peak torque ISO 3046 – at revs	lb/ft – rpm	592 – 1400	590 – 1400	700 – 1500
		Number of cylinders – displacement	in^3	6 – 403	6 – 409	6 – 409
		Fuel consumption, normal driving	gal/hr	2.1-2.9	2.1-2.9	2.1-2.9
	Gearbox	Manufacturer – type designation		Dana – TE13000	Dana – TE13000	Dana – TE17000
		Clutch, type		Torque converter	Torque converter	Torque converter
		Gearbox, type		Hydro-dynamic Powershift	Hydro-dynamic Powershift	Hydro-dynamic Powershift
		Numbers of gears, forward – reverse		3 – 3	3 – 3	3 – 3
	Alternator	Type – power	Amp	AC – 80	AC – 70	AC – 70
	Starting battery	Voltage – capacity	V – Ahr	2×12 – 140	2×12 – 140	2×12 – 140
	Driving axle	Manufacturer – type		Kessler D81 – Diffrential and hub reduction	Kessler D81 – Diffrential and hub reduction	Kessler D81 – Diffrential and hub reduction
	Noise level	LpAZ (inside*) Spirit Delta	dB(A)	73	75	74
		LpAZ (inside*) FlexGuard	dB(A)	85	85	85
		LpAZ (inside*) FlexCab	dB(A)	78	79	79
		LwA (outside**)	dB(A)	108	111	111

CATERPILLAR C6.6 (182HP)				DCE 90-6	DCE 100-6	DCE 120-6	DCE 127-6	DCE 140-6	DCE 150-6	DCE 100-12	DCE 120-12	DCE 150-12	DCE 160-6	DCE 160-9	DCE 160-12	DCE 180-6
Performance	Lifting speed	Unloaded	ft/s	1.6	1.6	1.3	1.3	1.3	1.5	1.6	1.3	1.3	1.3	1.3	1.3	1.3
		At rated load	ft/s	1.5	1.5	1.2	1.2	1.2	1.2	1.5	1.2	1.2	1.2	1.2	1.2	1.2
	Lowering speed	Unloaded	ft/s	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
		At rated load	ft/s	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
	Traveling speed, forward and reverse	Unloaded	mph	19	19	19	19	20	20	20	20	20	20	20	19	19
		At rated load	mph	19	19	18	18	19	19	19	19	18	18	17	17	17
	Gradeability	Max unloaded	%	112	106	98	92	84	65	71	66	58	68	61	55	59
		at rated load	%	52	48	43	40	37	38	40	35	30	31	30	28	28
		At 1.2 mph unloaded	%	73	70	66	63	60	48	53	49	44	50	46	42	45
		at rated load	%	39	37	32	31	28	29	31	28	23	24	23	22	22
	Drawbar pull	Max	lbf	25,600	25,600	25,600	25,600	24,500	24,500	24,500	24,500	24,500	24,500	24,500	24,500	24,500

CUMMINS QSB6.7 (173HP)				DCE 90-6	DCE 100-6	DCE 120-6	DCE 127-6	DCE 140-6	DCE 150-6	DCE 100-12	DCE 120-12	DCE 150-12	DCE 160-6	DCE 160-9	DCE 160-12	DCE 180-6
Performance	Lifting speed	Unloaded	ft/s	1.6	1.6	1.3	1.3	1.3	1.5	1.6	1.3	1.3	1.3	1.3	1.3	1.3
		At rated load	ft/s	1.5	1.5	1.1	1.1	1.1	1.1	1.5	1.1	1.1	1.1	1.1	1.1	1.1
	Lowering speed	Unloaded	ft/s	1.3	1.3	1.3	1.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
		At rated load	ft/s	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
	Traveling speed, forward and reverse	Unloaded	mph	19	19	19	19	19	20	20	20	20	20	20	20	20
		At rated load	mph	17.4	17.4	16.8	16.8	17.4	17.4	17.4	17.4	16.8	16.8	16.8	16.8	16.8
	Gradeability	Max unloaded	%	103	97	90	86	79	61	67	62	55	64	58	52	56
		at rated load	%	49	46	40	38	35	30	38	33	28	30	28	27	26
		At 1.2 mph unloaded	%	65	63	59	57	53	43	47	44	39	45	41	37	40
		at rated load	%	35	33	29	28	25	22	28	25	21	22	21	20	19
	Drawbar pull	Max	lbf	24,700	24,700	24,700	24,700	23,800	23,800	23,800	23,800	23,800	23,800	23,800	23,800	23,800

CUMMINS QSB6.7 (220HP)				DCE 90-6	DCE 100-6	DCE 120-6	DCE 127-6	DCE 140-6	DCE 150-6	DCE 100-12	DCE 120-12	DCE 150-12	DCE 160-6	DCE 160-9	DCE 160-12	DCE 180-6
Performance	Lifting speed	Unloaded	ft/s	–	1.6	1.3	1.3	1.3	1.5	1.6	1.3	1.3	1.3	1.3	1.3	1.3
		At rated load	ft/s	–	1.5	1.2	1.2	1.2	1.2	1.5	1.2	1.2	1.2	1.2	1.2	1.2
	Lowering speed	Unloaded	ft/s	–	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
		At rated load	ft/s	–	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
	Traveling speed, forward and reverse	Unloaded	mph	–	19	19	19	20	20	20	20	20	20	20	20	20
		At rated load	mph	–	19	19	19	20	20	20	19	19	19	19	19	19
	Gradeability	Max unloaded	%	–	>120	>120	>120	>120	89	101	90	78	95	83	72	80
		at rated load	%	–	63	55	52	46	40	51	45	38	39	37	35	35
		At 1.2 mph unloaded	%	–	102	94	89	83	64	71	65	57	67	61	54	59
		at rated load	%	–	47	42	40	36	31	40	35	30	31	30	28	27
	Drawbar pull	Max	lbf	–	31,000	31,000	31,000	31,000	29,900	29,900	29,900	29,900	29,900	29,900	29,900	29,900

A QUALITY MACHINE FOR **OPTIMUM OVERALL ECONOMY**

REDUCING OPERATING COSTS

The Kalmar 90 – 180 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, but not subjecting the truck to built in stresses that result in unnecessary wear and higher costs.

Optimized chassis modules, frames, dynamic stability, electronically controlled power trains, wet disc brakes, more reliable and more efficient hydraulic systems, smart options such as variable piston pumps or optimum lift, and last but not least, an unbelievable driving experience. It is the entire package that determines the quality.

GREATER SERVICE INTERVALS

Service intervals for the Kalmar 20,000 – 40,000 lb range are only after 500 hours of driving. The longer service interval will reduce the operating cost of the machine – and decrease the service downtime.

FAST SERVICE AND MAINTENANCE

The Kalmar 20,000 – 40,000 lb range has been designed to provide the best possible accessibility. Tilting the cabin and opening the engine cover exposes the entire power train with easy accessibility to all vital components and service points.

DAILY INSPECTION

Daily inspections must be simple and easy to carry out. All check points for daily inspection are directly accessible at ground level under the engine cover on the side of the truck. It can all be done in just a few minutes.

OPTIMUM LIFT – LOWER NOISE LEVEL, REDUCED FUEL CONSUMPTION AND LOWER EMISSIONS

The system, which is patented, reduces noise and keeps fuel consumption to a minimum during lifting sequences in the operating cycle by optimizing the engine revolutions compared to the weight of the load, deflection of the mast and the machine speed at the time. The intelligent and microprocessor-controlled optimum lift system is variable and installed in parallel with the standard hydraulic system.

The sliding robalons in the mast and carriage create fewer lubrication points and can easily be adjusted and replaced.

All hydraulic hoses are fitted with ORFS-couplings.

Daily inspection is simple and can be performed from ground level.

The air filter is easily accessible under the hood.

PARTS AND SERVICE

The final piece that makes the DCE90-180 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 centres for parts through either sales companies or dealers. Kalmar's long experience and global presence provide excellent customer service all around the globe.

KALMAR DCE AT WORK

The Kalmar DCE90-180 range is versatile and is proven to be effective for an array of applications around the world. A few examples of these many uses include:

- Wood, Pulp & Paper
- Ports & Stevedoring
- Concrete, Brick & Stone
- Steel, Metal and Engineering
- Automotive
- Mining
- Etc.

SAFETY AND THE ENVIRONMENT

The Kalmar DCE 90-180 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

FOUR REASONS TO **CHOOSE KALMAR.**

1 / COST OVER LIFETIME

Kalmar offers the best cost over lifetime for its customers. Modern and innovative technology together with lasting equipment and comprehensive service ensures Kalmar increases its customers' productivity. Every day.

2 / GLOBAL NETWORK

Kalmar invests in its sales and service network. Thus Kalmar is a reliable and trustworthy supplier with ability to serve demanding customers.

3 / LOCAL SERVICE

Kalmar practices innovative service development. Because of Kalmar's local customer service strategy, Kalmar knows its customers' local conditions, and can provide efficient and effective service in every location.

4 / CONTINUOUS DEVELOPMENT

Kalmar has not stopped at the top, but continuously improves its offering. New services as well as investments in automation and environmentally friendly solutions work for our customers benefit.

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