

Lift trucks 5-9 tonnes

Kalmar DCF60-90L,
DCF50-90H

Technical information

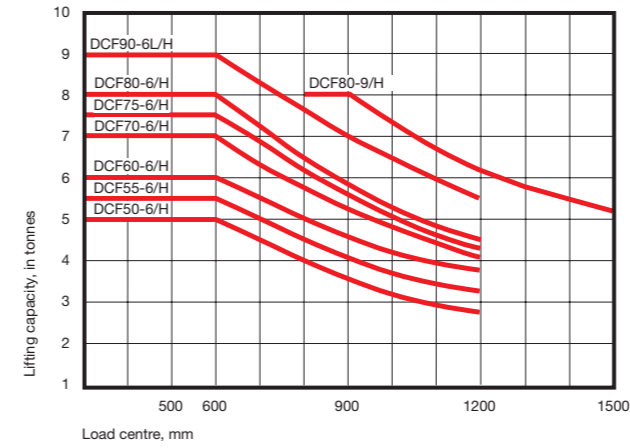
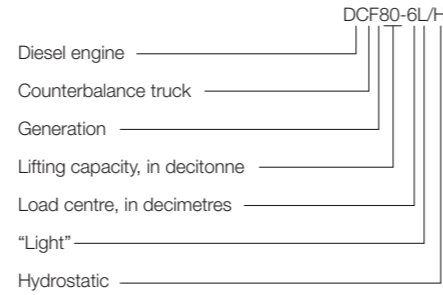


Kalmar Light lift trucks 5 – 9 tonnes

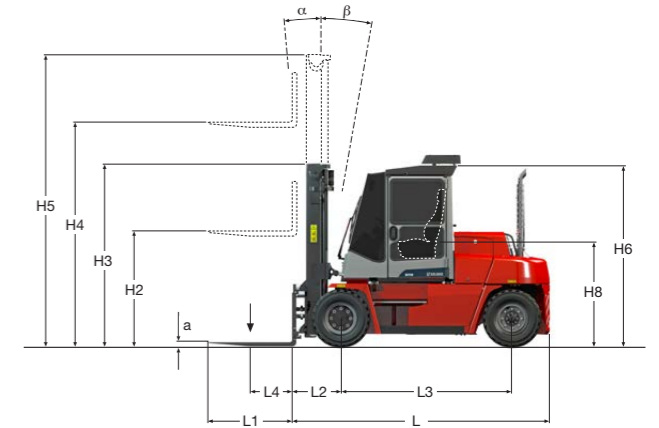
The Kalmar DCF light lift truck is a modern range of diesel fork lift trucks with a 5 – 9 tonnes capacity. The machines are built for reliability and efficiency in demanding industrial applications. The possibilities are endless with the Kalmar light fork lift trucks, they can easily be adapted to meet your own requirements in any type of situation.

The engine has a smooth drive with low noise levels and emissions that meet the environmental requirements. Low fuel consumption, good access with a low service requirement and excellent quality all result in good operational economy.

Model designation

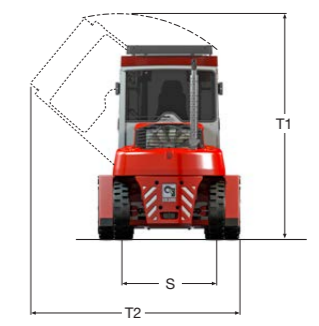
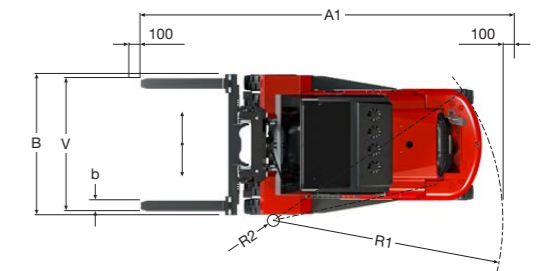


1. Full lifting capacity up to 4 m lifting height with duplex/duplex free lift/triplex mast and fork carriage with side shift/fork positioning. Applies to DCF60-6 to DCF90-6, except for DCF80-9
2. Full lifting capacity up to a lift height of 4 m with duplex mast and FEM fork carriage. Only applies to DCF80-9.



Dimensions

		DCF50-6H	DCF55-6H	DCF60-6/H	DCF70-6/H	DCF80-6/H	DCF80-9/H	DCF90-6L/H
Lifting capacity	Rated (kg)	5000	5500	6000	7000	8000	8000	9000
	Load centre (mm)	L4	600	600	600	600	600	600
Truck	Truck length (mm)	L	3285	3285	3700	3700	3915	4120
	Truck width (mm)	B	1550	1550	2000	2000	2000	2000
Standard duplex mast	Height, basic machine, Spirit Delta (mm)	H6	2590	2590	2590	2590	2590	2590
	Height, basic machine, Spirit Delta Space (mm)	H6	-	-	3290	3290	3290	3290
	Height, basic machine, FlexCab (mm)	H6	2690	2690	2690	2690	2690	2690
	Seat height, Spirit Delta / FlexCab (mm)	H8	1440	1440	1440	1440	1440	1440
	Seat height, Spirit Delta Space (mm)	H8	-	-	1940	1940	1940	1940
	Distance between centre of front axle – front face of fork arm (mm)	L2	645	645	710	710	770	775
	Wheelbase (mm)	L3	2100	2100	2450	2450	2600	2800
	Track (c-c) front – rear (mm)	S	1240 – 1195	1240 – 1195	1500 – 1360	1500 – 1360	1500 – 1360	1500 – 1360
	Turning radius, outer – inner (mm)	R1 – R2	2850 – 120	2850 – 120	3300 – 150	3300 – 150	3500 – 250	3700 – 250
	Ground clearance, min. (mm)		160	160	160	160	160	160
	Height when tilting cab, max. Spirit Delta (mm)	T1	3050	3050	3050	3050	3050	3050
	Width when tilting cab, max. Spirit Delta (mm)	T2	2900	2900	3100	3100	3100	3100
Height when tilting cab, max. Spirit Delta Space (mm)	T1	-	-	3300	3300	3300	3300	
Width when tilting cab, max. Spirit Delta Space (mm)	T2	-	-	3200	3200	3200	3200	
Height when tilting cab, max. FlexCab (mm)	T1	3150	3150	3150	3150	3150	3150	
Width when tilting cab, max. FlexCab (mm)	T2	2950	2950	3150	3150	3150	3150	
Min. aisle width for 90° stacking with forks (mm)		4925	4925	5410	5410	5675	6435	
Forks	Lifting height (mm)	H4	3500	3500	3500	3500	3500	3500
	Mast height, min. (mm)	H3	2625	2625	2625	2625	2935	2935
	Mast height, max (mm)	H5	4500	4500	4500	4500	4660	4660
	Mast tilting, forward – backward* (°)	$\alpha - \beta$	5 – 10	5 – 10	5 – 10	5 – 10	5 – 10	5 – 10
Weight	Ground clearance, min.		170	170	170	170	170	170
	Width (mm)	b	150	150	150	150	200	200
	Thickness (mm)	a	60	60	60	60	65	65
	Length of fork arm (mm)	l	1200	1200	1200	1200	1200	1200
	Width across fork arms, max. – min. (mm)	V	1400 – 420	1400 – 420	1900 – 420	1900 – 420	1900 – 420	-
	Sideshift \pm at width across fork arms (mm)	V1 – V	250 – 910	250 – 910	375 – 1160	375 – 1160	375 – 1160	-
Wheels / tyres	Service weight (kg)		8300	8700	8900	9600	10700	11700
	Axle load front, unloaded (kg)		4400	4400	4600	4600	5200	5300
	Axle load front, at rated load (kg)		12450	13300	14000	15600	17600	18400
	Axle load back, unloaded (kg)		3900	4300	4300	5000	5500	6200
Steering system	Axle load back, at rated load (kg)		850	900	900	1000	1100	1300
	Type, front – rear		Pneumatic – Pneumatic			Pneumatic – Pneumatic		
	Dimensions, front – rear (inch)		315/70 – 15 – 28x9 – 15			8,25x15 – 8,25x15		
	Number of wheels, front – rear (*driven)		2* – 2	2* – 2	4* – 2	4* – 2	4* – 2	4* – 2
Service brake system	Pressure (Mpa)		1,0 – 0,9	1,0 – 0,9	0,85 – 0,85	0,85 – 0,85	0,85 – 0,85	1,0 – 0,85
	Type – manoeuvring		Hydraulic servo – Steering wheel			Hydraulic servo – Steering wheel		
Parking brake system	Type – affected wheels		Oil cooled disc brakes (Wet disc brakes) – drive wheels			Oil cooled disc brakes (Wet disc brakes) – drive wheels		
	Type – affected wheels		Dry, spring activated disc brake – drive wheels			Dry, spring activated disc brake – drive wheels		
Hydraulic pressure	Max. (Mpa)		14,0	14,5	15,5	17,5	20,0	21,5
	Hydraulic fluid volume (l)		125	125	155	155	155	155
Fuel volume (l)			90	90	155	155	155	155
	AdBlue volume (l)		15	15	15	15	15	15



* Mast tilting Duplex: H4 2035-5250 mm = 5 – 10° 5500-6000 mm = 3 – 5°
 Mast tilting Triplex: H4 3060-5250 mm = 5 – 6° 5500-6450 mm = 3 – 6°
 Spirit Delta Space, backward = 5°

Drive train

Engine range

The DCF50-90 is equipped with the new ACGO 44AWI engine that meets the latest EU emission requirements naturally consume less fuel but, equally importantly, they produce fewer vibrations. Casted engine mountings with isolators have been introduced and engine balance axle comes as standard. The 4 cylinder engine is available in to ratings 77kW or 85kW.

SCR engines are optimized for efficient combustion, which provides the fuel efficiency and low particulate emission benefits. To combat the resultant NOx emissions, AdBlue is injected into the exhaust gas. Exhaust gas and AdBlue then enter a catalytic converter, which turns the NOx into harmless nitrogen gas and water vapour. The cleaning process of the catalyst is done automatically by the system during normal driving.



*ACGO 44AWI engine
in display color.
Standard color is grey.

Transmission

The DCF50-90 can be equipped with either a robust and reliable gearbox or with a precise hydrostatic drive.

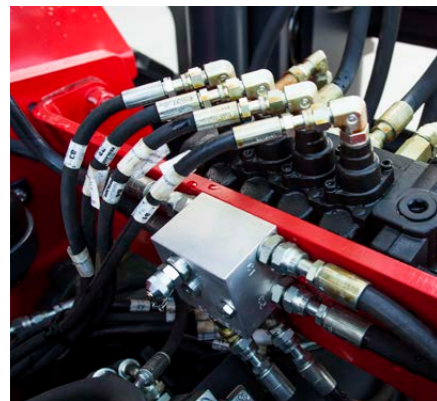
The ZF gearbox has integrated electronic control, monitoring and intelligence this allows comfortable, efficient and safe driving at all speeds and operating lifting equipment with high precision.

The hydrostatic transmission consists of a variable hydraulic pump, which drives a variable hydraulic motor that is in turn directly connected to a conventional drive axle. This provides fully variable transmission with a very high level of reliability and a long lifetime.



The AdBlue tank has a volume of 15 L and is equipped with a level sensor which notifies the driver when its time to fill up the tank. The filling of AdBlue is usually done together with the filling of diesel. The AdBlue tank is heated by engine

coolant and the AdBlue hoses are heated by electricity to prevent freezing in cold climates. (Freezing point of AdBlue -11C). There is no increase in service intervals, no impact on uptime.



Improved cooling capacity

The airflow to the cooler has been changed using a pulling fan to improve the cooling capacity and to direct the hot air away from the engine which also creates a cooler driving environment. The new hydraulically driven fan is temperature controlled and make runs when needed, saving fuel. As an option the airflow can be reversed. This allows for cleaning the filters and engine room when operating in dusty environment such as sawmills: dust can now just be flushed out from the cooler.

Drive train and performance

Drive trains – DCF60-90L

		AGCO 44 AWI-4V (77 kW) with ZF 2WG 94*	AGCO 44 AWI-4V (85 kW) with ZF 2WG 94**
Engine	Manufacturer – type designation	AGCO – 44 AWI-4V	AGCO – 44 AWI-4V
	Fuel – type of engine	Diesel – 4-stroke	Diesel – 4-stroke
	Rating ISO 3046 – at revs (kW/hp – rpm)	77 – 2200	85 – 2200
	Peak torque ISO 3046 – at revs (Nm – rpm)	425 – 1500	450 – 1500
	Number of cylinders – displacement (cm³)	4 – 4400	4 – 4400
	Fuel consumption, normal driving (l/h)	5-7	6-8
Gearbox	Manufacturer – type designation	ZF 2WG 94	ZF 2WG 94
	Clutch, type	Torque converter	Torque converter
	Gearbox, type	Hydrodynamic Powershift	Hydrodynamic Powershift
	Numbers of gears, forward – reverse	2 – 2	2 – 2
Alternator	Type – power (W)	1540	1540
Starting battery	Voltage – capacity (V – Ah)	24 – 75	24 – 75
Driving axle	Manufacturer – type	Differential and hub reduction	Differential and hub reduction

Drive trains – DCF50-90H

		AGCO AWI 44-4V, 77 kW (DCF50-55H) mechanically controlled hydrostatic drive*	AGCO 44 AWI-4V, 85 kW (DCF60-90H) electronically controlled hydrostatic drive**
Engine	Manufacturer – type designation	AGCO – AWI 44-4V	AGCO – 44 AWI-4V
	Fuel – type of engine	Diesel – 4-stroke	Diesel – 4-stroke
	Rating ISO 3046 – at revs (kW/hp – rpm)	77 – 2200	85 – 2200
	Peak torque ISO 3046 – at revs (Nm – rpm)	425 – 1500	450 – 1500
	Number of cylinders – displacement (cm³)	4 – 4400	4 – 4400
	Fuel consumption, normal driving (l/h)	5-7	6-8
Transmission	Type	Hydrostatic with wheel motors – mechanical control	Hydrostatic with drive axle – electronic control
	Hydraulic pump (cm³)	125	75
	Hydraulic engine (cm³)	940	160
Alternator	Type – power (W)	1540	2100
Starting battery	Voltage – capacity (V – Ah)	24 – 75	24 – 75
Driving axle	Manufacturer – type	–	Differential and hub reduction

Performance – DCF60-90L

		DCF60-6		DCF70-6		DCF80-6		DCF80-9		DCF90-6L	
		*	**	*	**	*	**	*	**	*	**
Lifting speed	Unloaded (m/s)	0,40	0,40	0,40	0,40	0,40	0,40	0,40	0,40	0,40	0,40
	At rated load (m/s)	0,30	0,35	0,30	0,35	0,30	0,35	0,30	0,35	0,30	0,35
Lowering speed	Unloaded (m/s)	0,40	0,45	0,40	0,45	0,40	0,45	0,40	0,45	0,40	0,45
	At rated load (m/s)	0,50	0,50	0,50	0,50	0,50	0,50	0,50	0,50	0,50	0,50
Travelling speed, F/R	Unloaded (m/s)	24	24	24	24	23	23	23	23	23	23
	At rated load (m/s)	23	23	23	23	22	22	22	22	22	22
Gradeability, max.	Unloaded (%)	47	77	45	74	43	63	40	57	38	59
	At rated load (%)	26	36	25	36	25	32	23	30	23	29
Gradeability, at 2 km/h	Unloaded (%)	50	65	47	63	41	54	36	50	37	52
	At rated load (%)	25	28	25	27	22	26	19	23	20	24
Drawbar pull	Max. (kN)	45	53	45	53	45	53	45	53	45	53
Noise level, inside	L_{PAZ} , Spirit Delta (dB(A))	69	69	69	69	69	69	69	69	69	69
	L_{PAZ} , Spirit Delta Space (dB(A))	69	69	69	69	69	69	69	69	69	69
	L_{PAZ} , FlexGuard (dB(A))	84	84	84	84	84	84	84	84	84	84
	L_{PAZ} , FlexCab (dB(A))	75	75	75	75	75	75	75	75	75	75
Noise level, outside	L_{WA} (dB(A))	105	105	105	105	105	105	105	105	105	105

* L_{PAZ} according to EN12053 ** L_{WA} according to 2000/14/EC

Performance – DCF50-90H

		DCF50-6H	DCF55-6H	DCF60-6H	DCF70-6H	DCF80-6H	DCF80-9H	DCF90-6H
		*	*	**	**	**	**	**
Lifting speed	Unloaded (m/s)	0,40	0,40	0,40	0,40	0,40	0,40	0,40
	At rated load (m/s)	0,35	0,35	0,35	0,35	0,35	0,35	0,35
Lowering speed	Unloaded (m/s)	0,45	0,45	0,45	0,45	0,45	0,45	0,45
	At rated load (m/s)	0,50	0,50	0,50	0,50	0,50	0,50	0,50
Travelling speed, F/R	Unloaded (m/s)	24	23	23	23	22	22	22
	At rated load (m/s)	24	23	22	22	21	21	21
Gradeability, max.	Unloaded (%)	32	30	72	65	56	50	53
	At rated load (%)	19	18	37	33	29	28	27
Gradeability, at 2 km/h	Unloaded (%)	31	29	70	63	54	48	51
	At rated load (%)	19	18	36	32	28	27	26
Drawbar pull	Max. (kN)	26	26	53	53	53	53	53
Noise level, inside	L_{PAZ} , Spirit Delta (dB(A))	69	69	71	71	71	71	71
	L_{PAZ} , Spirit Delta Space (dB(A))	–	–	71	71	71	71	71
	L_{PAZ} , FlexGuard (dB(A))	84	84	–	–	–	–	–
	L_{PAZ} , FlexCab (dB(A))	75	75	–	–	–	–	–
Noise level, outside	L_{WA} (dB(A))	105	105	106	106	106	106	106

* L_{PAZ} according to EN12053 ** L_{WA} according to 2000/14/EC

Lifting equipment

As lifting equipment plays a vital role in the performance of any forklift, it is important yours match your individual requirements and applications. For instance, careful consideration should be made to factors such as lift height, clearance, free lift, carriage flexibility, etc. in order to optimize operations.

Kalmar offer you a complete range of standard and custom lifting equipment – carriage, fork shaft, forks, levelling, etc – and options to suit your specific lifting and cargo handling requirements.

Lift height, H4	Mast height		H5 max.		Free lift, H2		
*	**	*	**	*	**	*	**
–	2750	–	2560	–	3910	–	–
–	3000	–	2685	–	4160	–	–
–	3250	–	2810	–	4410	–	–
3500	3500	2625	2935	4500	4660	–	–
3750	3750	2750	3060	4750	4910	–	–
4000	4000	2870	3185	5000	5160	–	–
4250	4250	3000	3310	5250	5410	–	–
4500	4500	3120	3435	5500	5660	–	–
4750	4750	3250	3560	5750	5910	–	–
5000	5000	3370	3685	6000	6160	–	–
5250	5250	3500	3810	6250	6410	–	–
5500	5500	3620	3935	6500	6660	–	–
5750	5750	3750	4060	6750	6910	–	–
6000	6000	3870	4185	7000	7160	–	–

* DCF50-55H, DCF60-70, DCF60-70H
** DCF80-90, DCF80-90H

Duplex full free lift, clear view

Lift height, H4	Mast height		H5 max.		Free lift, H2		
*	**	*	**	*	**	*	**
–	2750	–	2560	–	3910	–	1425
–	3000	–	2685	–	4160	–	1550
3250	3250	2620	2810	4350	4410	1530	1675
3500	3500	2750	2935	4600	4660	1655	1800
3750	3750	2870	3060	4850	4910	1780	1925
4000	4000	3000	3185	5100	5160	1905	2025
4250	4250	3120	3310	5350	5410	2030	2175
4500	4500	3250	3435	5600	5660	2155	2300
4750	4750	3370	3560	5850	5910	2280	2425
5000	5000	3500	3685	6100	6160	2405	2550
5250	5250	3620	3810	6350	6410	2530	2675
5500	5500	3750	3935	6600	6660	2655	2800
5750	5750	3870	4060	6850	6910	2780	2925
6000	6000	4000	4185	7100	7160	2905	3050

* DCF50-55H, DCF60-70, DCF60-70H
** DCF80-90, DCF80-90H

Triplex full free lift, clear view

Lift height, H4	Mast height		H5 max.		Free lift, H2		
*	**	*	**	*	**	*	**
4950	4200	2570	2580	6010	5330	1530	1470
5450	4700	2740	2750	6515	5825	1690	1640
5950	5200	2910	2920	7015	6330	1860	1800
6450	5700	3070	3080	7510	6825	2030	1970
6200	–	–	3250	–	7330	–	2140

* DCF50-55H, DCF60-70, DCF60-70H
** DCF80-90, DCF80-90H



Duplex standard, clear view

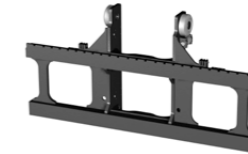


Duplex full free lift, clear view



Triplex full free lift, clear view
Fork carriage for manu-

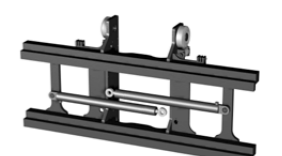
Carriages



Fully adjustable forks
Sideshift carriage

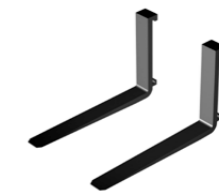


Sideshift and fork positioning carriage



Forks for manual operation
Forks with roller brackets for

Forks



Hydraulic operation



Fork shaft system with separate carriers for each fork



Fork with hydraulic levelling



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 OGCBV. www.cargotec.com

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