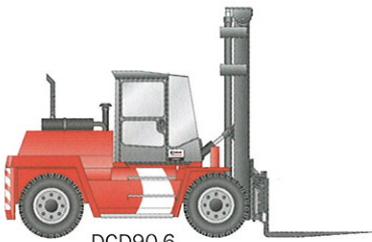
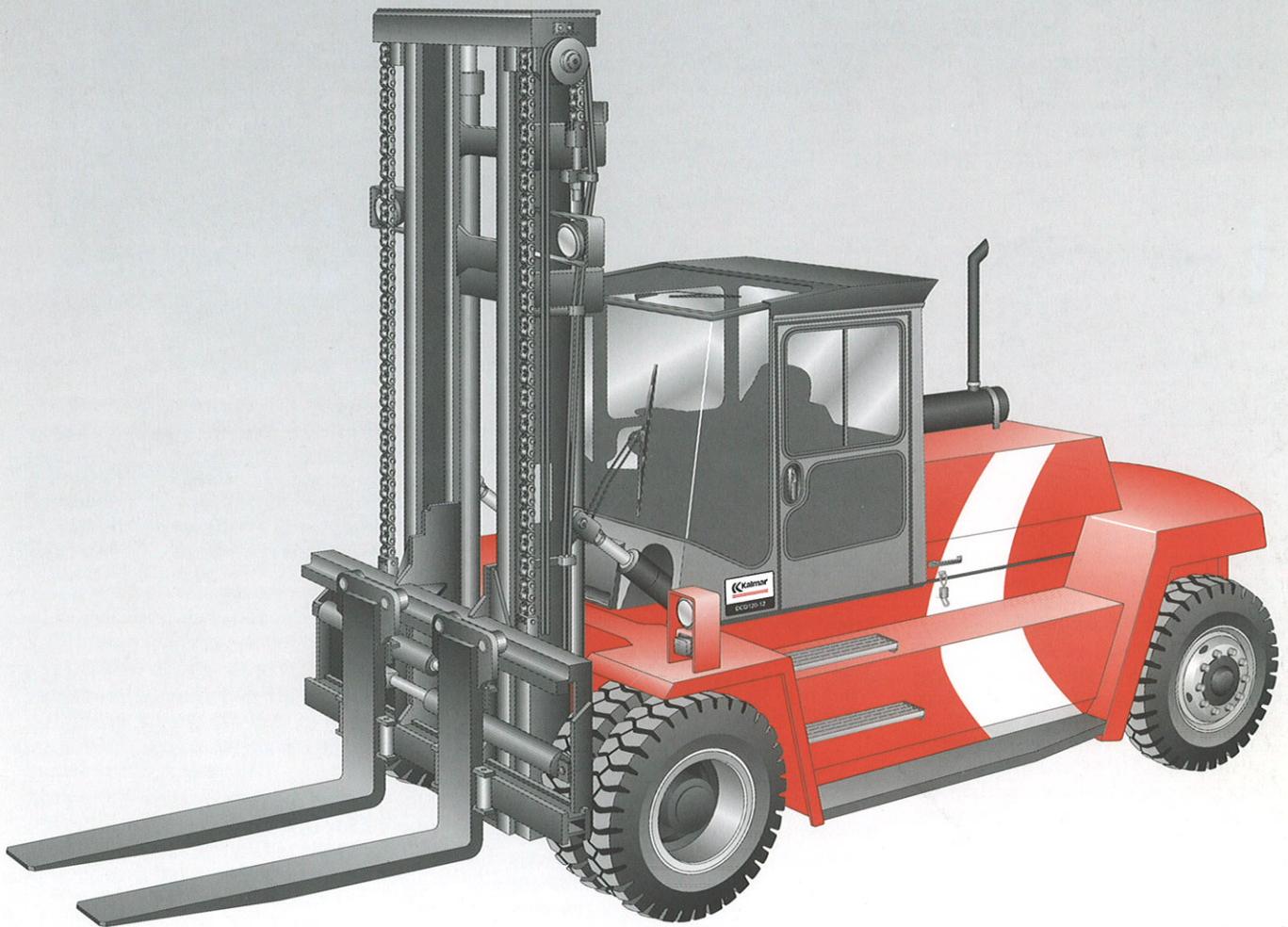


# Technical Information Forklift trucks 9-18 tonnes

Kalmar DCD90-180, diesel



DCD90-6



DCD136-6



DCD160-12

**DCD90-180**

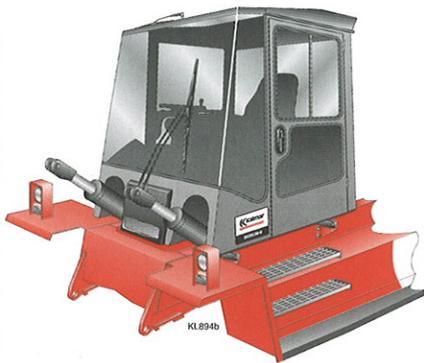
The DCD90-180 with a lift capacity of 9-18 tonnes is the new generation of forklift trucks in the medium segment of Kalmar's comprehensive range of 4-90 ton trucks - a well proven range of trucks incorporating the latest design solutions for optimum productivity and overall economy.

A comprehensive range of optional equipment packages facilitates adaptation to special handling environments and different types of goods.

Type designation:

**DCD100-12**

Diesel engine  
Counter-balance truck  
Generation  
Lift capacity, decitonnes  
Load centre, decimetre

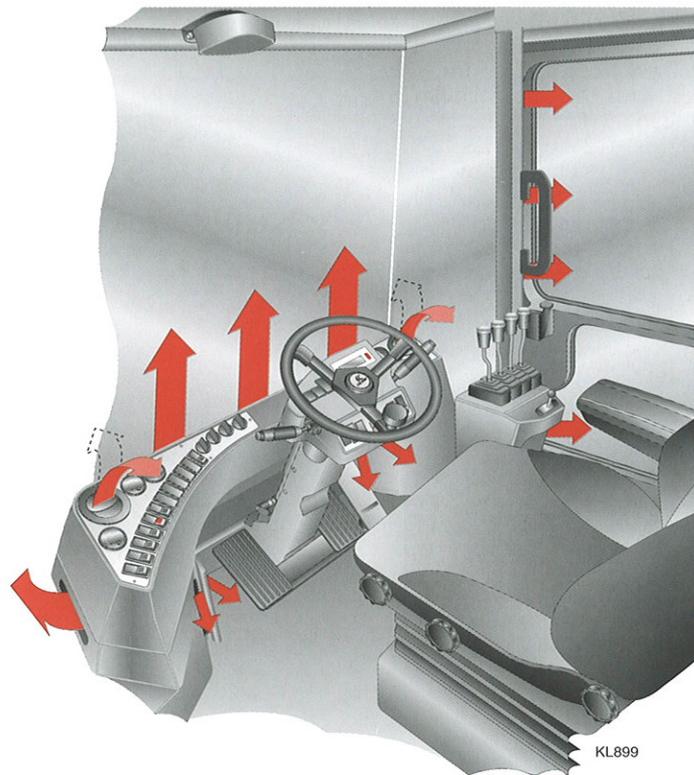
**Operator Environment**

The Spirit Delta cab is of a completely new and modern design that provides the operator with an efficient and safe place of work. The design of the cab is the result of a comprehensive analysis of operators' working conditions providing optimum visibility with large glass areas and no forward corner posts to inhibit the field of vision. The instrument panel is gently rounded and ergonomically designed with an uninhibited clear view of all essential information. Access to the cab is comfortable and secure thanks to the three steps up to the cab and many well located hand rails.

All cabs in the series can be tilted, for optimum service access. Noise and vibration levels are extremely low thanks to the insulated mounting to the chassis. The tilting cylinders operate against the cab which is isolated by means of rubber elements.

The operator's seat, steering wheel and hydraulic controls are all individually adjustable for optimum working position. Two easily operated, ergonomically positioned multi-function levers are provided for gear changing, wind-screen wipers, washers and horn.

An extremely powerful heating/ventilation unit ensures a comfortable cab temperature. An easily replaced fresh air filter cleans the incoming air.



The unit slides out to give easy access for service. As standard, the equipment includes a powerful 3-speed fan for cooling, heating, defrosting and recirculation.

Optional Extras:

- Extra high cab, +200 mm
- Elevated cab, +300 mm
- Overhead guard
- Roof mounted grid protection
- Complete climate control system
- Partially/fully rotatable operator seat

**Instrumentation**

The instrument panel has logically grouped units, all within easy reach.

Standard instrumentation includes warning lamps for battery charging, low engine lubrication oil pressure, low brake pressure, high coolant temperature, high gearbox oil temperature and applied parking brake. In addition, gauges display values for engine coolant temperature, fuel quantity and operating time.

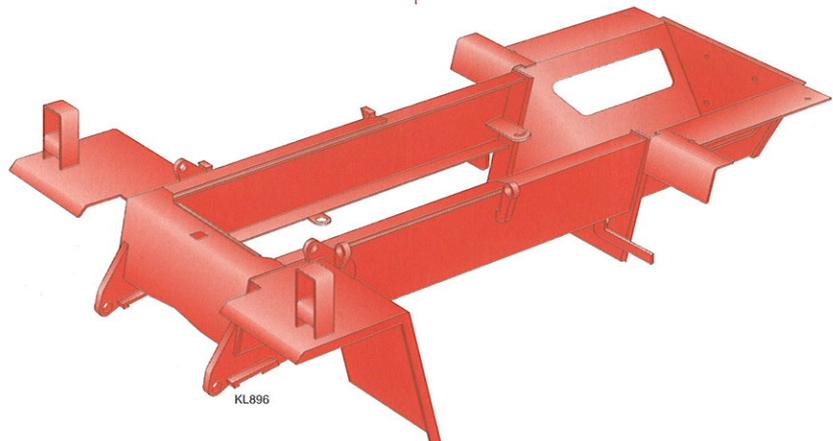
Trucks fitted with ECS monitoring are not normally equipped with warning lamps or gauges. These functions are handled by the ECS which has a single warning lamp and full text display showing current values and any faults that occur.

**Chassis**

The chassis is built of fully welded steel profiles which gives a rigid construction with extremely strong mounting points for the drive axle and lift equipment.

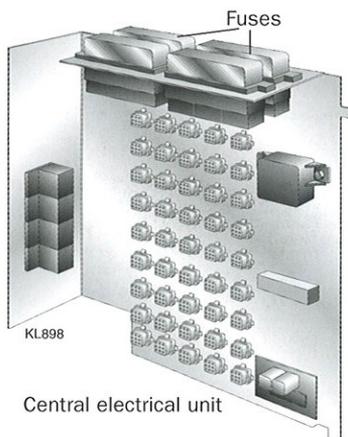
Stress concentrations have been eliminated for optimum tensile strength. The chassis is flexible and is used for a number of different drive line combinations. The space at the rear of the chassis is used for counter-weights, the number of which are adapted to the machine in question.

The chassis has an extremely low profile for good visibility. The tanks are separately constructed and bolted to the chassis in a position that also contributes to good visibility.



**Electrical System**

The electrical system is logically structured, easily serviced and completely coordinated with the other trucks in the Kalmar range. The system is supplied by two 12V batteries connected in series charged by an alternator, with related electronics for rectification and current stabilization. The system provides high power levels even at low engine revs. The electrical fuses, relays and connectors are located in an easily accessible position within a central electrical unit inside the cab, behind the operator's seat.



**ECS (Optional) - Electronic Control System**

Trucks can be equipped with ECS, a state of the art system for optimum operational security and overall economy. The systems consists of a number of modules that can be combined in different ways, depending on the nature of the operations. For example, the following functions are available:

- Automatic gear changing (Load sensing system)
- Lever steering
- Mini-steering
- Monitoring
- Electro-servo

See also separate information about the Kalmar ECS System.

**Engine**

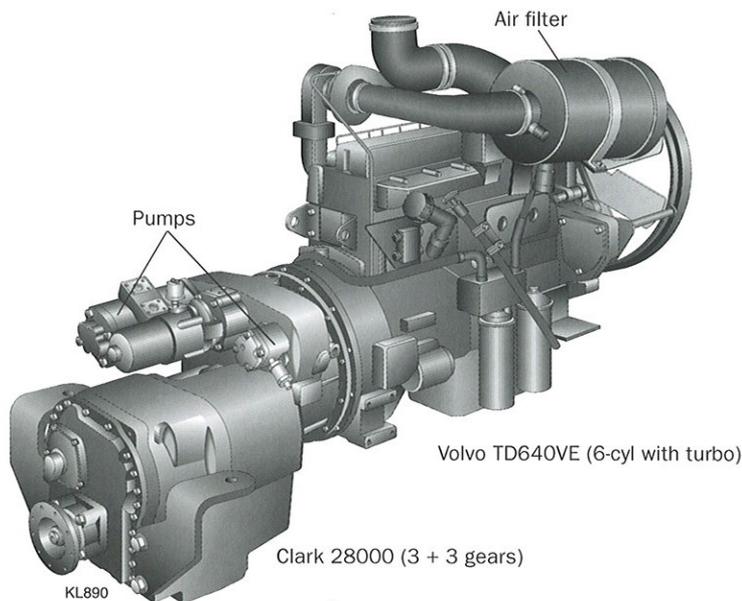
As standard, the DCD90-180 truck is equipped with Volvo's TD640VE diesel engine and as option the DCD90-136 with the Perkins 1006-60T1, both turbo-charged straight six diesel engines adapted to the specialized working requirements of a forklift truck, with high power and torque levels, even at low engine speeds. The engine has low exhaust emission levels and complies with today's stringent legal environmental demands (EU, CARB, EPA).

All engines are characterized by low fuel consumption and low noise and vibration levels.

Alternative engines:

- Perkins 1006-60T2
- Volvo TD730VE
- Volvo TWD731VE
- Scania DI9
- Cummins 6BTA 5.9-C200

See Alternative drive lines table



**Transmission**

All trucks in the series are equipped with Clark's well proven hydro-dynamic transmission systems (3+3), with integrated gearbox and torque converter, for smooth, quick acceleration with a minimum of "clutch-slip".

A number of different transmissions systems are available, depending on the selected engine (see separate combination table). Constant mesh gears and gear changing by hydraulically applied clutches (Powershift) are, however, common to all gearboxes.

Gear changing is electrically achieved via solenoid valves, with three reverse and three forward gears, controlled by means of an easily operated multi-function lever.

**Drive axle**

The Kessler D81 drive axle is of an extremely robust design to be able to cope with tough working environments such as in the paper and pulp industries, saw mills, steel works, ports and terminals.

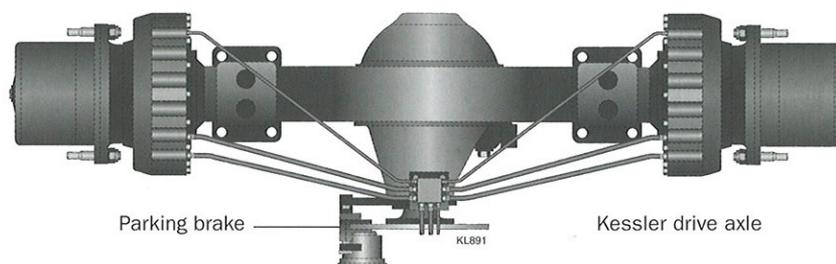
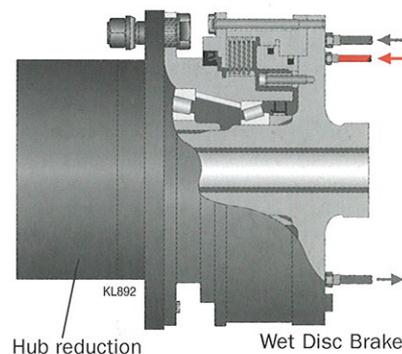
The axle has reduction in two stages - differential and hub reduction - which ensures a minimum of strain on the transmission system. The drive axle is fitted with hydraulic braking system (see Service Brake System).

**Parking Brake System**

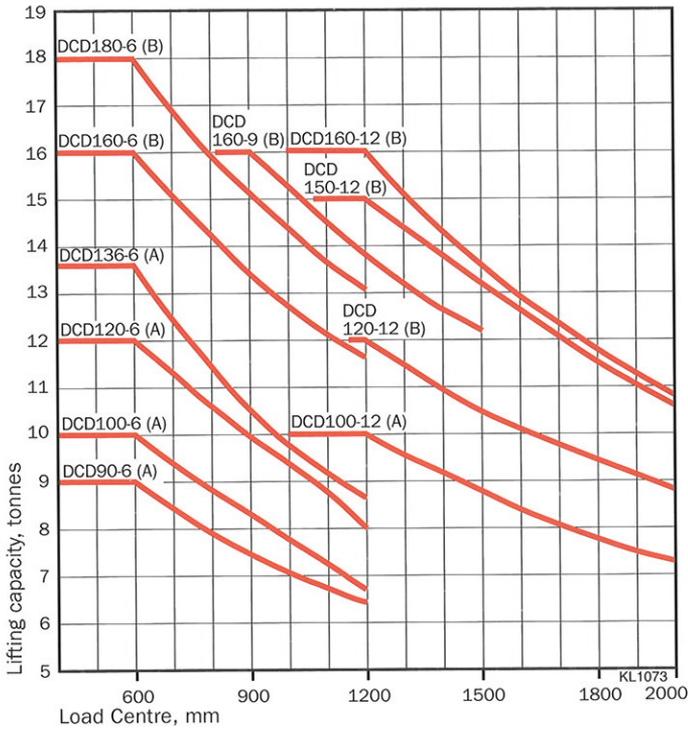
The parking brake system consists of a dry disc brake on the in-going shaft of the drive axle. The disc brake is applied by means of a powerful spring in the parking brake cylinder and is released by means of hydraulic pressure from the parking brake valve in the cab.

**Service Brake System**

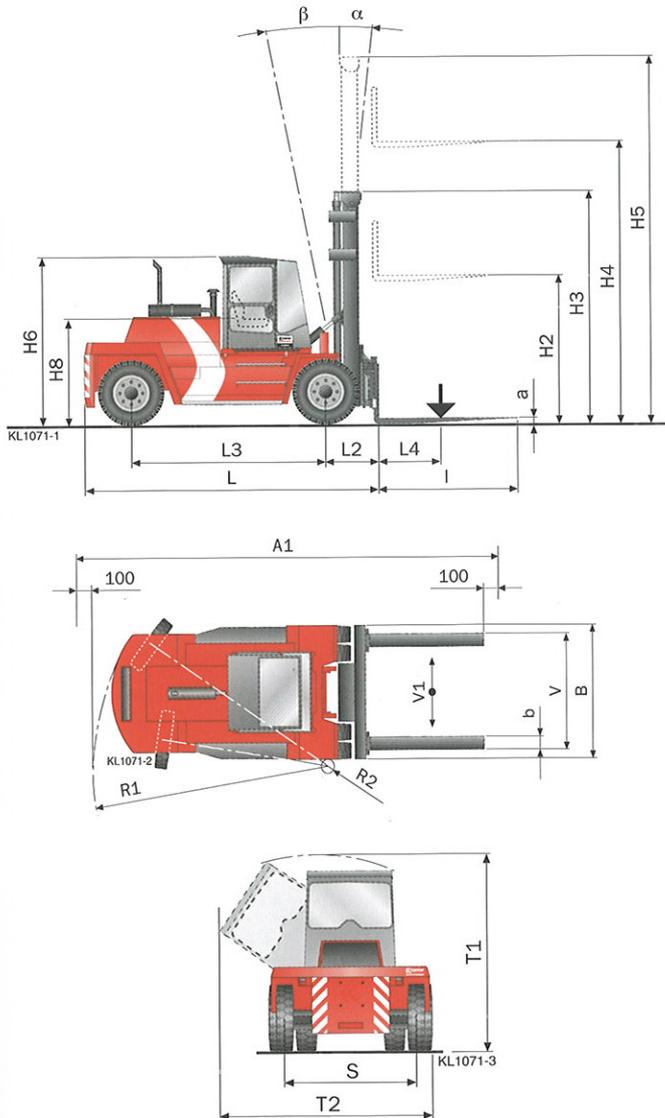
The service brake system is of the Wet Disc Brake type, a system with oil-cooled discs that are alternately fixed to and rotating with the hub. When the brakes are applied, the discs are pressed together by hydraulic pressure from the brake pedal, which provides extremely effective braking. The system is virtually maintenance free and can cope with heavy loads over an extended period of time, with no fade and without the need for brake adjustments. The heat generated during braking is dissipated via a cooling circuit in which the truck's total volume of hydraulic fluid comes into play. A special filter protects the braking system from any impurities.



Load diagramme



A. Perkins engine  
 B. Volvo engine  
 1. DCD90-6 to DCD180-6 models:  
 Full lifting capacity up to 5000 mm lift height with Duplex/Duplex free-lift/Triplex masts and integrated sideshift/fork positioning carriage.



<b>1 Model</b>		<b>Lifting capacity, deciton - Load centre distance, decimetre</b>		
A = Perkins engine B = Volvo engine				
<b>Lifting data</b>	2 Lifting capacity	Rated	kg	
		At max lifting height	kg	
	3 Lifting speed	Unloaded	m/s	
		At rated load	m/s	
<b>Performance</b>	4 Lowering speed	Unloaded	m/s	
		At rated load	m/s	
	5 Driving speed forward/reverse	Unloaded	km/h	
		At rated load	km/h	
<b>Weight</b>	6 Gradient capability	Max, unloaded	%	
		Max at rated load	%	
		At 2 km/h, unloaded	%	
		At 2 km/h, at rated load	%	
<b>Drive system</b>	7 Draw bar pull	Max	kN	
	8 Stability ISO 1074/10525	Yes/No		
	9 Service weight		kg	
	10 Axle load front	Unloaded	kg	
		At rated load	kg	
	11 Axle load back	Unloaded	kg	
		At rated load	kg	
	12 Engine	A. Perkins B. Volvo		
		Manufacturer - type designation		
		Fuel - type of engine		
		Rating ISO 3046 - at revs	kW/hp - rpm	
		Peak torque ISO 3046 - at revs	Nm - rpm	
		No of cylinders - displacement	cm <sup>3</sup>	
		Fuel consumption, normal operation		
		l/h		
13 Alternator		Type - power	W	
14 Starting battery		Voltage - capacity	V - Ah	
15 Gearbox	C. Clark 20000 D. Clark 28000			
	Manufacturer - type designation			
	Clutch, type			
	Gearbox, type			
	No. of gears forward - reverse			
16 Drive axle	Type			
<b>Wheels, brakes, steering</b>	17 Wheels/tyres	Type front and rear		
		Dimensions, front and rear/Ply	inches/number	
		No. of wheels, front - rear (*driven)		
		Inflation pressure	MPa	
<b>Misc.</b>	18 Steering system	Type - maneuvering		
	19 Service brake system	Type - affected wheels		
	20 Parking brake system	Type - affected wheels		
	21 Hydraulic pressure	Max	MPa	
<b>Dimensions</b>	22 Noise level DIN 45635-36	Equivalent noise level in cab (Lm)	dB(A)	
	23 Fuel volume		L	
	24 Hydraulic fluid volume		L	
	25 Minimum aisle width for 90° stacking with forks	A1	mm	
	26 Truck	Truck length without forks	L	mm
		Truck width	B	mm
		Height, basic machine	H6	mm
		Seat height	H8	mm
		Distance between centre of front axle - front face of fork arm	L2	mm
		Wheelbase	L3	mm
Load centre		L4	mm	
Track (c-c) front - rear		S	mm	
Turning radius, outer		R1	mm	
Turning radius, inner		R2	mm	
Ground clearance, min			mm	
Max height when tilting cab		T1	mm	
Max width, tilted cab		T2	mm	
27 Standard duplex mast		Lifting height	H4	mm
	Mast height, min.	H3	mm	
	Mast height, max.	H5	mm	
	Mast tilting, forwards - backwards	$\alpha$ - $\beta$	°	
	Ground clearance, min		mm	
28 Forks	Width	b	mm	
	Thickness	a	mm	
	Length of fork arms	l	mm	
	Width across fork arms, max	V	mm	
	Width across fork arms, min	V	mm	
	Sideshift $\pm$ at width across fork arms	V1-V	mm	

This table relates to trucks fitted with standard equipment, for optional equipment, see separate tables.

1) More powerful engines are available, up to 167 kW/230 hp

2) Stronger gearboxes are available, Clark 32000 (3+3)

3) Semi-solid tyres are available for all models (Super-Elastic)

We reserve the right to alter design and material specifications, without prior notice

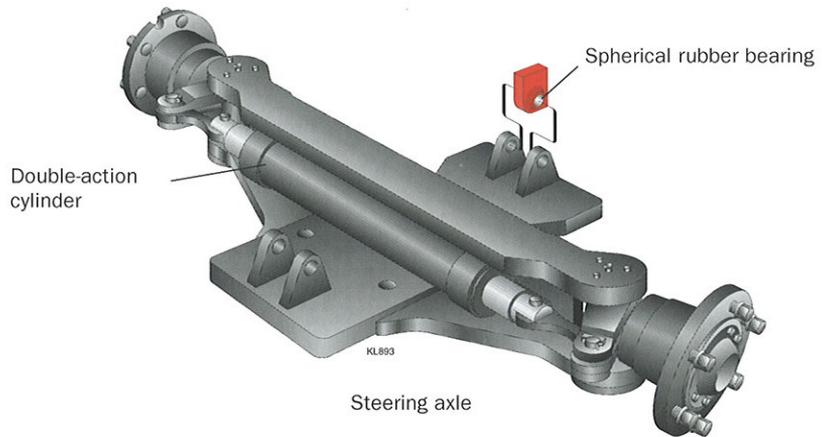
DCD 90-6 A	DCD 90-6 B	DCD 100-6 A	DCD 100-6 B	DCD 100-12 A	DCD 100-12 B	DCD 120-6 A	DCD 120-6 B	DCD 120-12 B	DCD 136-6 A	DCD 136-6 B	DCD 150-12 B	DCD 160-6 B	DCD 160-9 B	DCD 160-12 B	DCD 180-6 B						
9000		10000				12000			13600		15000	16000			18000						
9000		10000				12000			13600		15000	16000			18000						
0.40	0.50	0.40	0.50	0.40	0.50	0.35	0.40		0.35	0.40	0.40	0.40			0.40						
0.35	0.45	0.35	0.45	0.35	0.45	0.30	0.35		0.30	0.35	0.35	0.35			0.35						
0.40		0.40				0.40			0.40		0.40	0.40			0.40						
0.40		0.40				0.40			0.40		0.40	0.40			0.40						
30	30	30	30	30	30	30	30		30	30	30	30			30						
28	30	28	30	28	30	28	30		28	30	30	30			30						
65	133	61	117	40	65	53	95	61	50	85	54	63	57	51	55						
34	54	31	49	24	37	26	41	33	23	36	28	29	28	26	26						
45	89	42	82	30	51	37	71	49	36	65	44	50	46	41	44						
24	43	22	39	18	30	19	33	27	18	29	23	24	23	22	21						
77	111	77	111	73	105	75	109	105	73	105	105	105			105						
Yes																					
13800		14500		18900		15600		19700		16000		21400		19200		20600		22400		21100	
7200		7800		10300		7900		10100		7900		9400		10000		9600		10500		9800	
21100		22800		27000		25900		29600		27800		33800		33200		34200		35800		36600	
6600		6700		8600		7700		9600		8100		12000		9200		11000		11900		11300	
1700		1700		1900		1700		2100		1800		2600		2000		2400		2600		2500	
A.	B.	A.	B.	A.	B.	A.	B.	B.	A.	B.	B.	B.	B.	B.	B.						
A. Perkins - 1006-60T1 (Turbo)								B. Volvo - TD640VE (Turbo) <sup>1)</sup>													
Diesel - 4-stroke								Diesel - 4-stroke													
85/116 - 2300								129/175 - 2400													
465 - 1400								690 - 1400-1500													
6 - 5985								6 - 5480													
5 - 7								7 - 10													
AC - 1260								AC - 1540													
2x12 - 140								2x12 - 140													
C.	D.	C.	D.	C.	D.	C.	D.	D.	C.	D.	D.	D.	D.	D.	D.						
C. Clark - 1207 FT 20302								D. Clark - 13.7HR 28000 <sup>2)</sup>													
Torque converter								Torque converter													
Hydro-dynamic Powershift								Hydro-dynamic Powershift													
3 - 3								3 - 3													
Differential and hub reduction								Differential and hub reduction													
Pneumatic <sup>3)</sup>																					
10.00x20/16PR				12.00x20/20PR		11.00x20/16PR		12.00x20/20PR				12.00x20/20PR HD									
4* - 2																					
0.7	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.0						
Hydraulic-servo - Steering Wheel																					
Oil cooled disc brakes (Wet disc brakes) - drive wheels																					
Dry, spring activated disc brake - drive wheels																					
16.0		17.5		19.5		17.5		15.0		18.5		16.5		17.5		19.0					
70	73	70	73	70	73	70	73	70	73	70	73	70	73	70	73	70	73				
145		205		205		205		205		205		205		205		205					
180		180		220		180		220		220		220		220		220					
6240		6470		7945		6475		8370		6665		8380		7160		7770		8770		6745	
4470		4720		5065		4725		5315		4985		5375		5305		5315		5575		5115	
2465		2465		2530		2480		2530		2530		2530		2530		2530		2530		2600	
2880		2880		2910		2890		2910		2910		2910		2910		2910		2910		2910	
1760		1760		1790		1770		1790		1790		1790		1790		1790		1790		1760	
890		890		985		895		985		905		995		975		985		995		985	
2750		3000		3250		3000		3500		3250		3500		3500		3750		3250		3250	
1840-1960		1840-1960		1855-1960		1840-1960		1855-1960								3500		3750		3250	
600		600		1200		600		1200		600		1200		600		1200		600			
3950		4180		4360		4180		4785		4360		4785		4785		5175		4360			
75		75		125		75		420		125		420		420		600		125			
320		320		350		330		350		350		350		350		350		350			
3395		3395		3425		3405		3425		3425		3425		3425		3425		3425			
3380		3380		3380		3380		3380		3380		3380		3380		3380		3380			
5000		5000		5000		5000		5000		5000		5000		5000		5000		5000			
3990		3990		4185		4000		4185		4020		4185		4185		4185		4185			
6490		6490		6685		6500		6685		6520		6685		6685		6685		6685			
5-10		5-10		5-10		5-10		5-10		5-10		5-10		5-10		5-10		5-10			
240		240		250		250		250		250		250		250		250		250			
200		200		220		200		220		200		250		200		220		220			
65		65		90		70		90		80		100		80		90		90			
1200		1200		2400		1200		2400		1200		2400		1200		1800		2400		1200	
2330		2330		2360		2330		2360		2330		2360		2360		2360		2360		2360	
570		570		640		570		640		570		700		600		700		640		640	
440-1450		440-1450		430-1500		440-1450		430-1500		440-1450		415-1530		440-1480		430-1500		415-1530		430-1500	

### Steering System

The steering system is completely hydraulic and is fed from hydraulic pump 1 (see the hydraulic system diagram), via a priority valve. When the steering wheel is turned, the steering valve transmits a load signal to the priority valve which ensures that the steering system always has sufficient hydraulic pressure.

The steering axle is an extremely robust construction with double-action cylinder.

The pendulum suspension of the axle over powerful, spherical rubber bearings has a long operative lifespan and provides good shock-absorption. The minimal number of parts ensures operational reliability, a minimum of service points and easy maintenance. The steering geometry allows large wheel displacement and thereby, a tight turning circle.



### Hydraulic System

The hydraulic system includes the following sub-systems:

- Working hydraulics
- Service brake system with braking circuit and cooling circuit
- Parking brake system
- Hydraulic servo (standard)
- Steering system

In standard form, the hydraulic system is built around two gear wheel type pumps - one double and one single. The pumps are driven from the outlet of the torque converter. The flow from the pumps is fed to a valve block with a large number of in-built functions (see diagram). The valve block enables easy installation with a minimum number of hydraulic lines/hoses.

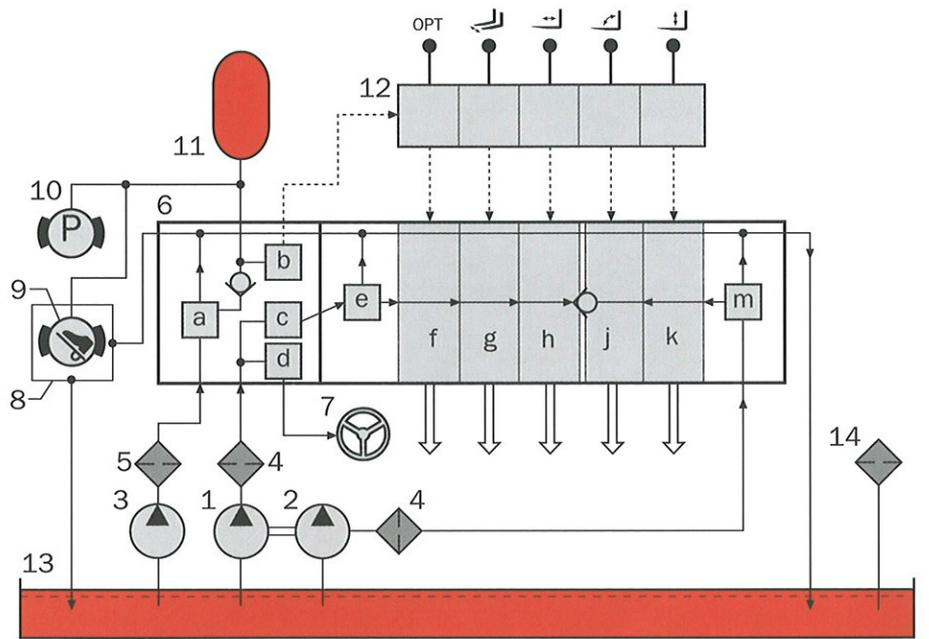
The outer section of the double pump feeds the lift and tilt functions, whilst the inner section feeds other working hydraulic functions. With full extension of the lift function, both sections of the double pump operate to provide maximum lift capacity.

The separate single pump feeds the hydraulic accumulator, which in turn, supplies the brake and servo systems. As a safety measure, the accumulator ensures sufficient brake pressure to be able to brake several times, should the engine temporarily stop.

The excess flow from the pumps is led to the brake cooling circuit to dissipate the heat generated during braking, before being returned to the hydraulic tank.

Optional extras:

- Load sensing variable pumps
- Electro-servo controls
- Piston type accumulator
- Additional hydraulic functions
- Hydraulic joystick



1. Hydraulic pump, working hydraulics, steering system
2. Hydraulic pump, lift/tilt
3. Hydraulic pump, accumulator charging
4. High pressure filter
5. High pressure filter
6. Main valve with double valve block
  - a. Accumulator charge valve  
With fully charged accumulator feed to brake cooling circuit or return to tank
  - b. Feed, servo system
  - c. Priority valve, steering system
  - d. Feed, steering system
  - e. Main pressure limitation valve
  - f. Control valve, LEVELLING
  - g. Control valve, FORK POSITIONING
  - h. Control valve, SIDE-SHIFT
  - j. Control valve, TILT
  - k. Control valve, LIFT
  - m. Main pressure limitation valve
7. Steering system
8. Cooling circuit for service brake system
9. Brake circuit, service brake system
10. Parking brake system
11. Accumulator
12. Servo assisted control levers
13. Hydraulic tank
14. Breather filter, hydraulic tank

Trucks with Perkins engines are equipped with a simpler hydraulic system with only one double pump. One section of the pump feeds the working hydraulics whilst the other section feeds the steering system and charges the accumulator. The main valve is fitted with a valve block, input section and main pressure limitation valve.

**Lift Masts**

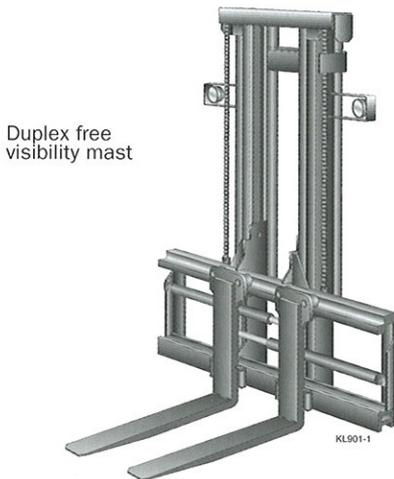
All masts, both duplex and triplex, are constructed on the "free visibility principle" and can be supplied with the area steered free-lift system which, in terms of function, is extremely reliable and secure.

The robust mast profiles are of high tensile steel, dimensioned for minimal obstruction of the field of vision and long service life. The lift cylinders are positioned in the "dead" angles of the mast. All mast wheels are hardened and fitted with high quality bearings.

As standard, trucks are fitted with the duplex free visibility mast.

Optional extras:

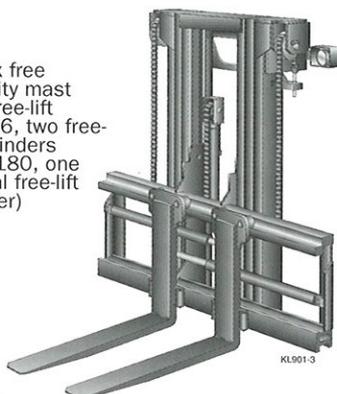
- Duplex free visibility mast with free-lift
- Triplex free visibility mast with free-lift



Duplex free visibility mast



Duplex free visibility mast with free-lift



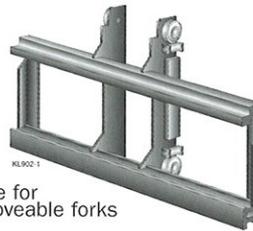
Triplex free visibility mast with free-lift 90-136, two free-lift cylinders (150-180, one central free-lift cylinder)

**Fork Carriages**

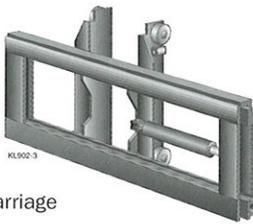
A number of different models of fork carriages are available, all of them with excellent through-vision. The standard model has manually moveable forks. However, the majority of trucks are supplied with hydraulic side-shift and fork positioning.

Optional extras:

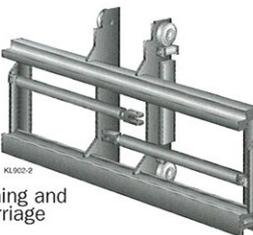
- Fork positioning/side-shift
- Fork positioning/side-shift with levelling
- Fork positioning/side-shift with centre levelling
- Side-shift carriage
- Fork shaft system
- Additional types of clamp attachments
- Coil rams for steel handling



Fork carriage for manually moveable forks



Side-shift carriage



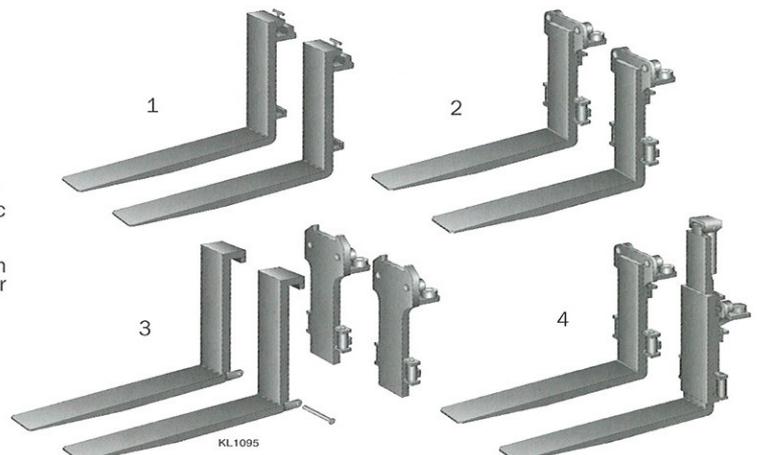
Fork positioning and side-shift carriage

**Forks**

The forks are one-piece forged in high tensile steel. The standard fitting is over hooks on the fork carriage, whilst hydraulically controlled forks are fitted over rollers running on bearings - four upper rollers and two lower support for each fork.

For ease of changing between forks and other attachments, a fork shaft system is available, where the forks are mounted on a separate fork holder.

1. Standard forks for manual manoeuvring
2. Forks with roller fittings for hydraulic manoeuvring
3. Fork shaft system with separate holder for each fork
4. Forks with hydraulic levelling



Lift mast	Lift height H4 mm	Lift mast height		Free-lift H2 mm	Lift mast height		Free-lift H2 mm
		Min 1) H3 mm	Max 1) H5 mm		Min H3 mm	Max H5 mm	
		90-6-136-6			100-12-180-6		
Duplex free visibility	3000	3000	4500	-	3185	4685	-
	3250	3125	4750	-	3310	4935	-
	3500	3250	5000	-	3435	5185	-
	3750	3375	5250	-	3560	5435	-
	4000	3500	5500	-	3685	5685	-
	4250	3625	5750	-	3810	5935	-
	4500	3750	6000	-	3935	6185	-
	4750	3875	6250	-	4060	6435	-
	5000	4000	6500	-	4185	6685	-
	5250	4125	6750	-	4310	6935	-
	5500	4250	7000	-	4435	7185	-
	5750	4375	7250	-	4560	7435	-
	6000	4500	7500	-	4685	7685	-
	6250	4625	7750	-	4810	7935	-
6500	4750	8000	-	4935	8185	-	
6750	4875	8250	-	5060	8435	-	
7000	5000	8500	-	5185	8685	-	
Duplex free visibility, free-lift	3000	3000	4500	1500	3175	4675	1500
	3250	3125	4750	1625	3300	4925	1625
	3500	3250	5000	1750	3425	5175	1750
	3750	3375	5250	1875	3550	5425	1875
	4000	3500	5500	2000	3675	5675	2000
	4250	3625	5750	2125	3800	5925	2125
	4500	3750	6000	2250	3925	6175	2250
	4750	3875	6250	2375	4060	6425	2375
	5000	4000	6500	2500	4175	6675	2500
	5250	4125	6750	2625	4300	6925	2625
	5500	4250	7000	2750	4425	7175	2750
	5750	4375	7250	2875	4550	7425	2875
	6000	4500	7500	3000	4675	7675	3000
	6250	4625	7750	3125	4800	7925	3125
6500	4750	8000	3250	4925	8175	3250	
6750	4875	8250	3375	5050	8425	3375	
7000	5000	8500	3500	5175	8675	3500	
Triplex, free visibility, free-lift	4500	2940	5940	1500	3120	6180	1500
	4750	3025	6190	1580	3205	6435	1580
	5000	3110	6440	1665	3285	6685	1665
	5250	3195	6690	1750	3370	6930	1750
	5500	3280	6940	1830	3450	7180	1830
	5750	3360	7190	1915	3535	7435	1915
	6000	3445	7440	2000	3615	7685	2000
	6250	3530	7690	2080	3700	7940	2080
	6500	3615	7940	2165	3780	8180	2165
	6750	3700	8190	2250	3865	8435	2250
7000	3780	8440	2340	3945	8685	2340	

1) These figures are based on the 120-6 and vary with tyre dimensions. H3 and H5 alter -10 mm for 90-100-6 +20 mm for 136-6

### Service Access

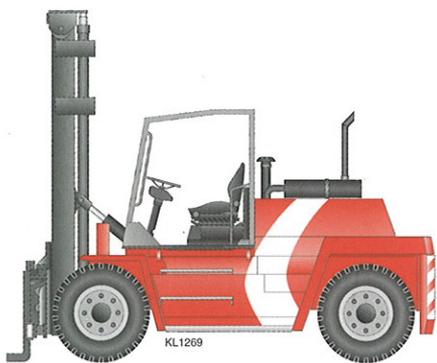
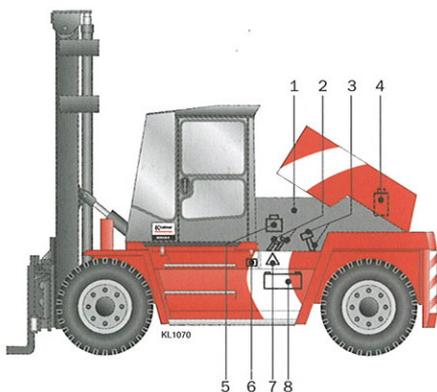
Routine daily service checks contribute to a safer work place and reduce the risk of break-downs.

Daily service checks are made easier thanks to well thought out and grouped service points. The operator can reach all service points without having to climb up onto the truck.

The cab can be tilted by means of a hydraulic cylinder operated by a manual pump. When the cab has been tilted, the gearbox, hydraulic pumps, hydraulic fluid filter, parking brake, main valves, control valves, etc., are readily accessible for service.

The engine hood is divided into three sections - a fixed middle section that bears the silencer and hinged outer sections to each side.

1. Indicator for air filter
2. Gearbox oil, dip-stick and filler cap
3. Engine oil, dip-stick and filler cap
4. Coolant
5. Screen wash liquid
6. Fuel, filler cap
7. Main switch, electrical system
8. Batteries 2x12 V - 140 Ah



Truck with overhead guard.

### Standard equipment

The standard specification of our trucks includes important and vital components that contribute to the efficiency and safety of the truck.

- Robust truck chassis 9-18 ton
- Spirit Delta operator environment with low noise level
- Tilttable cab insulated against vibration
- Powerful ventilation unit with efficient filter
- Roof window of lexan
- Sliding window on the left hand side
- Wash/wipers, front, rear and roof
- Lockable cab doors
- Wide bottom access step and two extra steps on both sides
- Adjustable, shock absorbing, ergonomic operator seat with safety belt
- Three-way adjustable steering console
- Two-way adjustable hydraulic lever console
- Arm support on right hand side
- Environment friendly powerful engines
- Fully dimensioned radiator for engine and oil cooler for gearbox
- Powerful gearboxes with powershift
- Drive axle with oil cooled disc brakes
- Free visibility lift equipment
- Steering axle with double-action cylinder
- Hydraulic system with finger tip control
- Simple, reliable electrical system
- Comprehensive and logically grouped instrumentation
- Accelerator, brake pedal and forward-reverse selector
- Lighting: Working lights, indicators, brake, reversing and positional lights
- Large service hatches and tilttable cab for daily inspections
- Towing pin (manual)
- Complete documentation

### Safety

All Kalmar trucks are CE-marked and are constructed to and comply with the following norms:

- EN1551
- ASME B56.1 (USA, trucks up to 13.6 tonnes)
- EN12895 (EMC test, Europe)

### Optional equipment

A wide range of optional equipment and packages are available for our trucks, to satisfy further specialization and provide added efficiency

- Alternative engines and gearboxes
- Load sensing hydraulic system
- Exterior and interior cab equipment, such as air conditioning, etc.
- Lighting, mirrors and protective grid
- Different types of lift equipment, attachments, exhaust controls, air filters, etc.
- ECS with different types of module
- Catalytic converter and particle filter

### Summary

Kalmar's medium trucks are of a well proven design, manufactured in large volumes for demanding environments such as:

- Timber, paper and pulp industries
- Steel works and foundries
- Concrete industry
- Ports and terminals
- Other heavy industries

A well planned and protected operator environment makes Kalmar's trucks efficient and comfortable working implements.

Readily accessible service points for ease of maintenance.

Alternative drive lines		90-6	100-6	100-12	120-6	136-6	120-12	150-12	160-6	160-9	160-12	180-6
● = Standard ○ = Optional												
<b>Engine</b>	*Turbo **Turbo, intercooler											
Volvo TD640VE*	129 kW/690 Nm	●	●	●	●	●	●	●	●	●	●	●
Perkins 1006-60T1*	85 kW/465 Nm	○	○	○	○	○	○	○	○	○	○	○
Volvo TD730VE*	150 kW/800 Nm		○	○	○	○	○	○	○	○	○	○
Volvo TWD731VE**	167 kW/893 Nm		○	○	○	○	○	○	○	○	○	○
Perkins 1006-60T2*	114 kW/620 Nm	○	○	○	○	○	○	○	○	○	○	○
Scania DI9**	167 kW/930 Nm		○	○	○	○	○	○	○	○	○	○
Cummins 6BTA5.9-C200**	162 kW/814 Nm	○	○	○	○	○	○	○	○	○	○	○
<b>Gearbox with powershift, 3+3 gears</b>												
<b>Clark 13.7HR 28000</b> (Volvo TD640VE, TD730VE, Perkins 1006-60T2, Cummins 6BTA)		●	●	●	●	●	●	●	●	●	●	●
<b>Clark 1207 FT 20302</b> (Perkins 1006-60T1)		○	○	○	○	○	○	○	○	○	○	○
<b>Clark 13.7HR 32000</b> (Volvo TD640VE, TD730VE, Volvo TWD731VE, Scania DI9, Cummins 6BTA)		○	○	○	○	○	○	○	○	○	○	○
<b>Drive axle with Wet Disc Brakes</b>		●	●	●	●	●	●	●	●	●	●	●
<b>Pneumatic tyres</b>		●	●									
	10.00x20"/16PR											
	11.00x20"/16PR				●							
	12.00x20"/20PR					●	●	●	●	●	●	●
<b>Optional: Semi-solid tyres (Super-Elastic)</b>		○	○	○	○	○	○	○	○	○	○	○



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