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CX 20

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CX-M 10

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CX-S 16

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CX-T

## CX Technical data.

Low level Order Picker



This specification sheet to VDI Guidelines 2198 or 3597 gives the technical figures for the standard truck only. Different tyres, other masts, additional equipment etc. could give different figures.

Characteristics	1.1	Manufacturer			STILL	
	1.2	Manufacturer's model designation			CX 20	
	1.3	Drive			Electric	
	1.4	Controls			Order picker	
	1.5	Capacity/load	Q	kg	2000	
	1.6	Load centre	c	mm	1200	
	1.8	Load distance	x	mm	1615	
	1.9	Wheel base	y	mm	2843 <sup>1)</sup>	
	Weights	2.1	Truck weight (inc. battery)		kg	1145
2.2		Axle load laden	drive end/load end	kg	1250/1895	
2.3		Axle load unladen	drive end/load end	kg	880/265	
Wheels   chassis	3.1	Tyres			Polyurethane	
	3.2	Tyre size	drive end	mm	Ø 250 x 100	
	3.3	Tyre size	load end	mm	Ø 85 x 80	
	3.4	Support castors	drive end	mm	Ø 150 x 50	
	3.5	Number of wheels (x = driven)	drive end/load end		1 x 1/4	
	3.6	Track width	drive end	b <sub>10</sub> mm	475	
	3.7	Track width	load end	b <sub>11</sub> mm	348	
Dimensions	4.4	Lift		h <sub>3</sub> mm	130	
	4.8	Seat height/standing height (Platform)		h <sub>7</sub> mm	135	
	4.9	Height of tiller in driving position	min./max.	h <sub>14</sub> mm	1165	
	4.15	Lowered height		h <sub>13</sub> mm	85	
	4.19	Overall length without load		l <sub>1</sub> mm	3805 <sup>1)</sup>	
	4.20	Length including fork backs		l <sub>2</sub> mm	1425 <sup>1)</sup>	
	4.21	Overall width		b <sub>1</sub> mm	800	
	4.22	Fork dimensions		s/e/l mm	61/172/2390	
	4.25	Overall fork width		b <sub>5</sub> mm	520	
	4.32	Floor clearance, centre of wheel-base		m <sub>z</sub>	24	
	4.34	Working aisle width with 800 x 1200 pallet lengthways (b <sub>12</sub> x l <sub>6</sub> )		A <sub>st</sub> mm	4127 <sup>1)</sup>	
4.35	Turning radius		W <sub>a</sub> mm	3046 <sup>1)</sup>		
Performance	5.1	Travel speed	laden/unladen	km/h	9/12.5	
	5.2	Hoist speed	laden/unladen	m/s/s	2.1/1.7	
	5.3	Lowering speed	laden/unladen	m/s/s	1.7/3.2	
	5.7	Gradeability	laden/unladen	%	6/6 <sup>2)</sup>	
	5.9	Acceleration time (over 10m)	laden/unladen	s	6.4/5.2	
	5.10	Service brake			Electromagnetic	
Electric motors	6.1	Drive motor, rating S2 = 60 min		kW	3.0	
	6.2	Hoist motor, rating at S3 = 15%		kW	2.2	
	6.3	Battery to DIN 43531/35/36 A, B, C, No				IEC 254 - 2; B
	6.4	Battery voltage, rated capacity K <sub>5</sub>		V/Ah	24/450	
	6.5	Battery weight ± 5% (depending on manufacturer)		kg	410	
	6.6	Energy consumption to VDI cycle		kWh/h	0,99	
Other	8.1	Drive control			AC-controller	
	8.4	Noise level, at driver's ear		dB (A)	66.5	

1) Gradeability is related to truck geometry

#### Values for turning radius Wa for working aisle width calculation

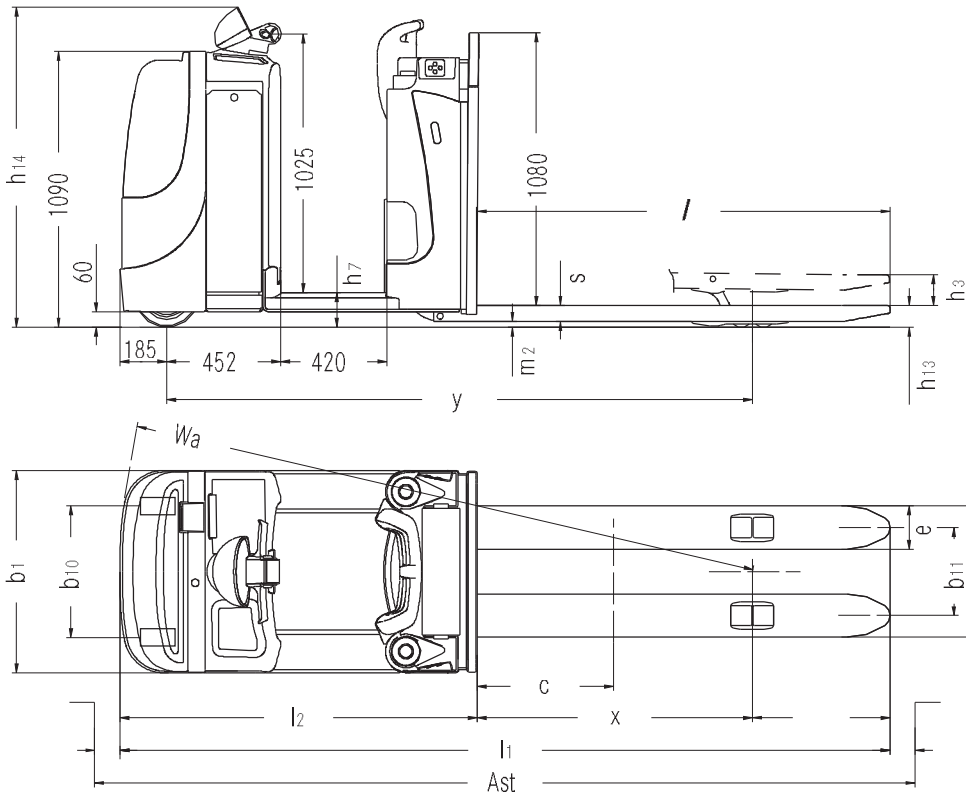
(all values in mm)

Forks length	Distance X	Battery tray	
		450 Ah	600 Ah
1190	1005	2430	2516
1450	1265	2690	2776
1650	1105	2530	2616
2150	1605	3030	3116
2390a)	1845	3270	3356
2390b)	1615	3040	3126
2900	2125	3550	3636
3100	2125	3550	3636

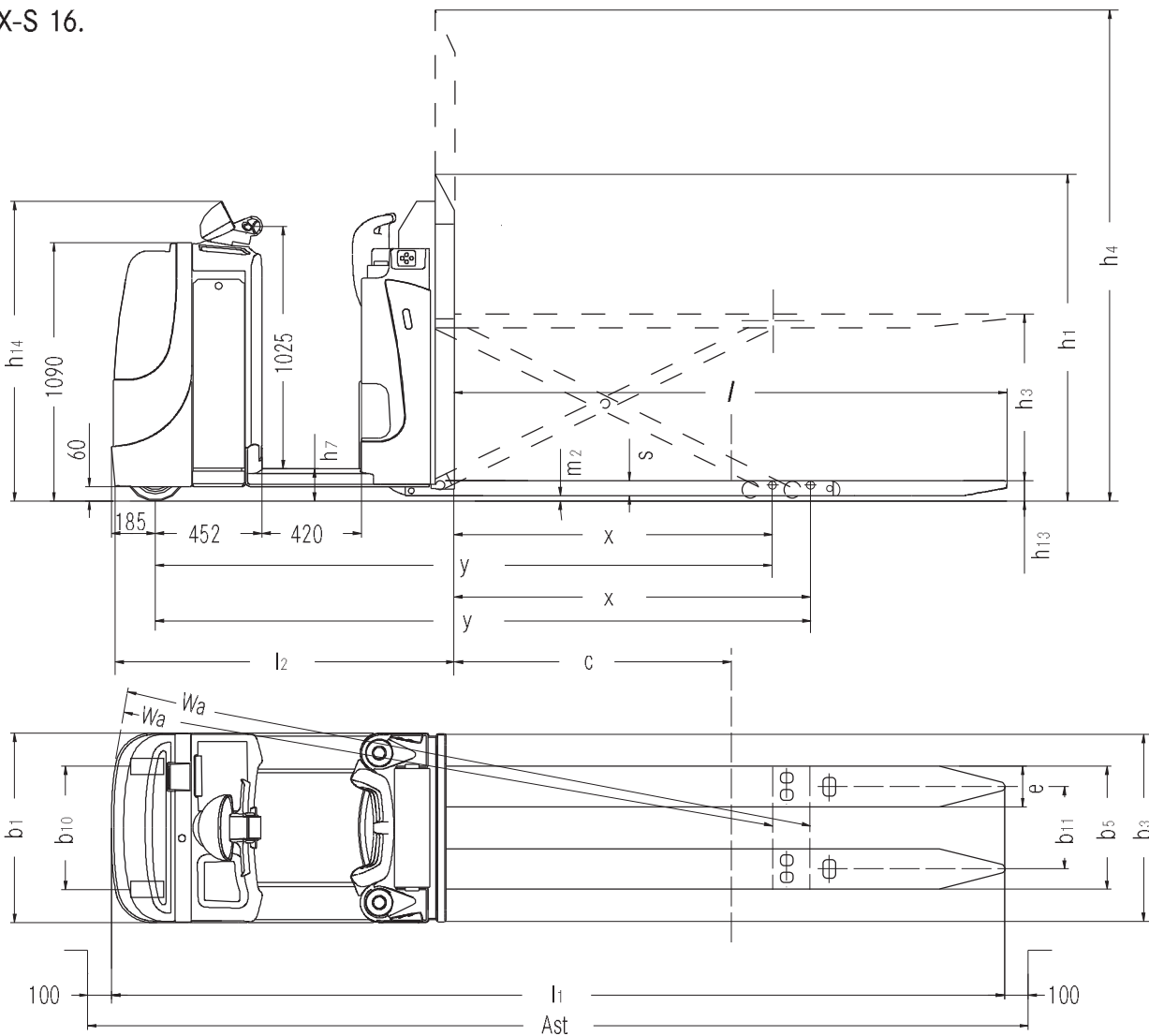
a) Wheelbase suitable for picking up 3 Euro pallets CROSSWAYS

b) Wheelbase suitable for picking up 2 Euro pallets LENGTHWAYS

CX 20 Standard version.



CX-S 16.

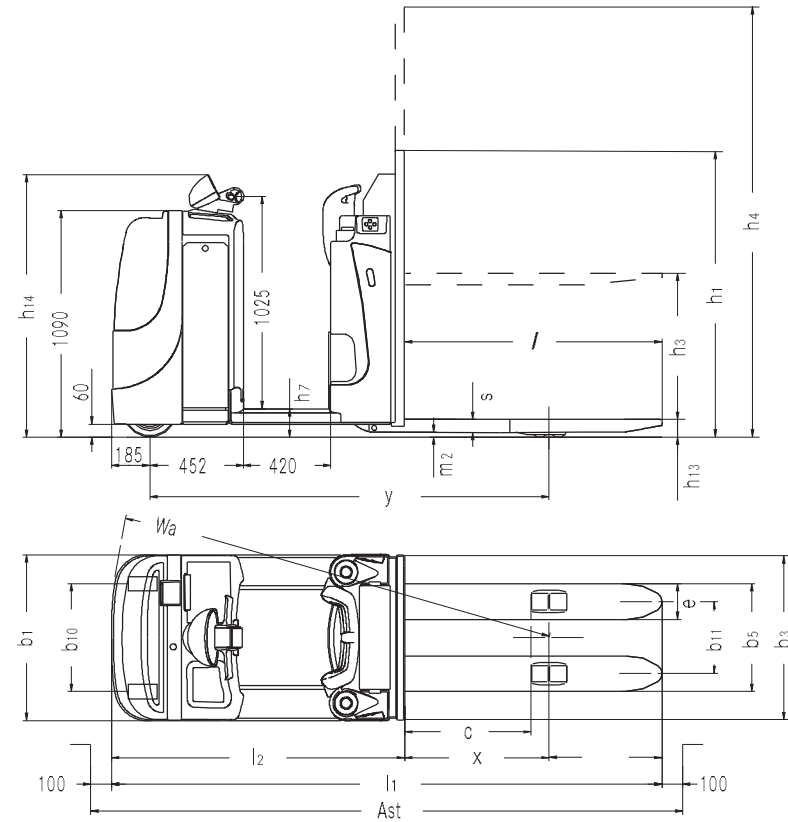


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Different tyres, other masts, additional equipment etc. could give different figures.

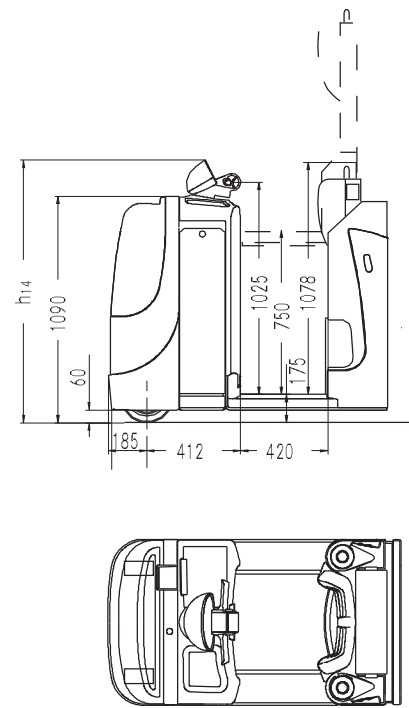
Characteristics	1.1	Manufacturer			STILL	STILL	STILL
	1.2	Manufacturer's model designation			CX-M 10	CX-S 16	CX-T
	1.3	Drive			Electric	Electric	Electric
	1.4	Controls			Order picker	Order picker	Stand-on
	1.5	Capacity/load	Q	kg	1000	1600	-
	1.5.1	Trailing load	Q	kg			4000
	1.6	Load centre	c	mm	600	1200	-
	1.7	Drawbar pull	F		-	-	1600
	1.8	Load distance	x	mm	675	1381 <sup>1)</sup> /1542	-
Weights	1.9	Wheel base	y	mm	1906	2661 <sup>1)</sup> /2822	1195
	2.1	Truck weight (inc. battery)		kg	1218	1476	1170
	2.2	Axle load laden	drive end/load end	kg	868/1350	1202/1874	-
Wheels   chassis	2.3	Axle load unladen	drive end/load end	kg	842/376	1016/460	585/585
	3.1	Tyres			Polyurethane	Polyurethane	C/SE
	3.2	Tyre size	drive end	mm	Ø 250 x 100	Ø 250 x 100	Ø 250 x 100
	3.3	Tyre size	load end	mm	Ø 85 x 80	Ø 82 x 34	Ø 250 x 80
	3.4	Support castors		mm	Ø 150 x 50	Ø 150 x 50	-
	3.5	Number of wheels (x = driven)	drive end/load end		1 x 1/4	1 x 1/8	1 x /2
	3.6	Track width	drive end	b <sub>10</sub> mm	475	475	-
Dimensions	3.7	Track width	load end	b <sub>11</sub> mm	380	356	679
	4.2	Height, mast retracted		h <sub>1</sub> mm	1375	1371	-
	4.4	Lift		h <sub>2</sub> mm	700	700	-
	4.5	Height, mast extended		h <sub>4</sub> mm	2075	2071	-
	4.8	Seat height/Platform height		h <sub>7</sub> mm	136	136	146
	4.9	Height of tiller in driving position	min./max.	h <sub>4</sub> mm	1165	1165	1165
	4.12	Coupling height		h <sub>10</sub> mm	-	-	190/245/300/355/410
	4.15	Lowered height		h <sub>3</sub> mm	86	85	-
	4.17	Coupling length		l <sub>5</sub> mm	-	-	128
	4.19	Overall length without load		l <sub>1</sub> mm	2601	3852	1573
	4.20	Length including fork backs		l <sub>2</sub> mm	1416	1465	-
	4.21	Overall width		b <sub>1</sub> mm	800	800	800
	4.22	Fork dimensions		s/e/l mm	56/184/1190	75/184/2390	-
	4.24	Fork carriage width		b <sub>3</sub> mm	774	784	-
	4.25	Overall fork width		b <sub>5</sub> mm	564	540	-
Performance	4.32	Floor clearance, centre of wheel-base		m <sub>2</sub> mm	29	10	70
	4.33	Working aisle width with 1000 x 1200 pallet crossways		A <sub>st</sub> mm	2951	4141 <sup>1)</sup> /4154	-
	4.35	Turning radius		W <sub>a</sub> mm	2091	2846 <sup>1)</sup> /3007	1390
	5.1	Travel speed	laden/unladen	km/h	8/10.5	8.0/11.0	7.5/13
	5.2	Hoist speed	laden/unladen	m/s/s	5.35/3.45	8.0/4.1	-
	5.3	Lowering speed	laden/unladen	m/s/s	6.0/7.5	5.6/6.3	-
	5.5	Drawbar pull, laden	laden/unladen	N	-	-	1600
	5.6	Max. drawbar pull (5 Min.)		N	-	-	4000
	5.7	Gradeability	laden/unladen	%	-	-	See diagram
	5.8	max. gradeability kB 5		%	-	-	Page 5
5.9	Acceleration time (over 10m)	laden/unladen	s	5.5/4.8	6.4/5.5	-	
5.10	Service brake			Electromagnetic	Electromagnetic	Electromagnetic	
Electric motors	6.1	Drive motor, rating S2 = 60 min		kW	3.0	3.0	3.0
	6.2	Hoist motor, rating at S3 = 15%		kW	2.0	2.0	-
	6.3	Battery to DIN 43531/35/36 A, B, C, No			IEC 254 - 2; B	IEC 254 - 2; B	IEC 254 - 2; B
	6.4	Battery voltage, rated capacity C <sub>s</sub>		V/Ah	24/450	24/450	24/450
	6.5	Battery weight +/- 5% (depending on manufacturer)		kg	410	410	410
	6.6	Energy consumption to VDI cycle		kWh/h	-	-	-
Other	8.1	Drive control			AC-controller	AC-controller	AC-controller
	8.4	Noise level, at driver's ear		dB (A)	73.3	71.2	64.0

1) with forks raised

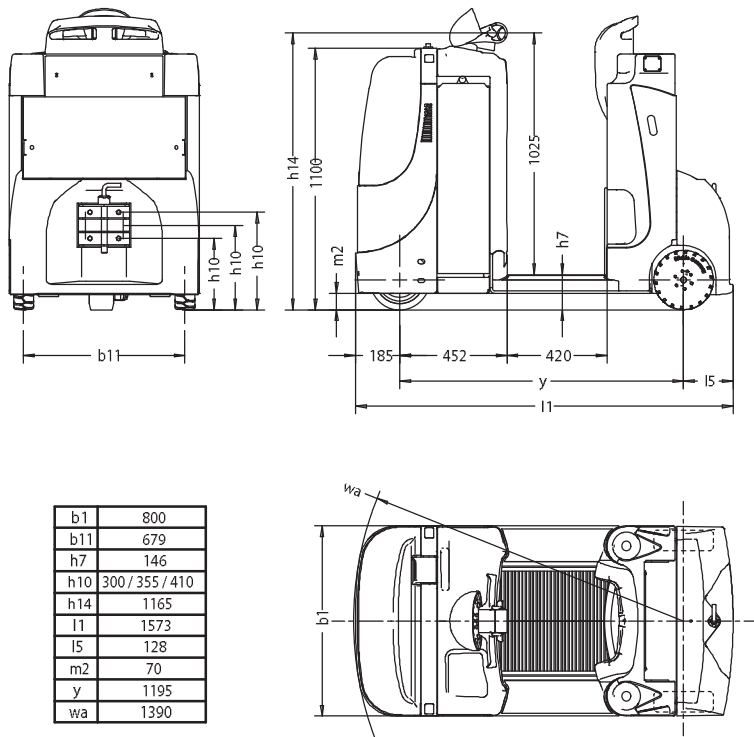
CX-M 10.



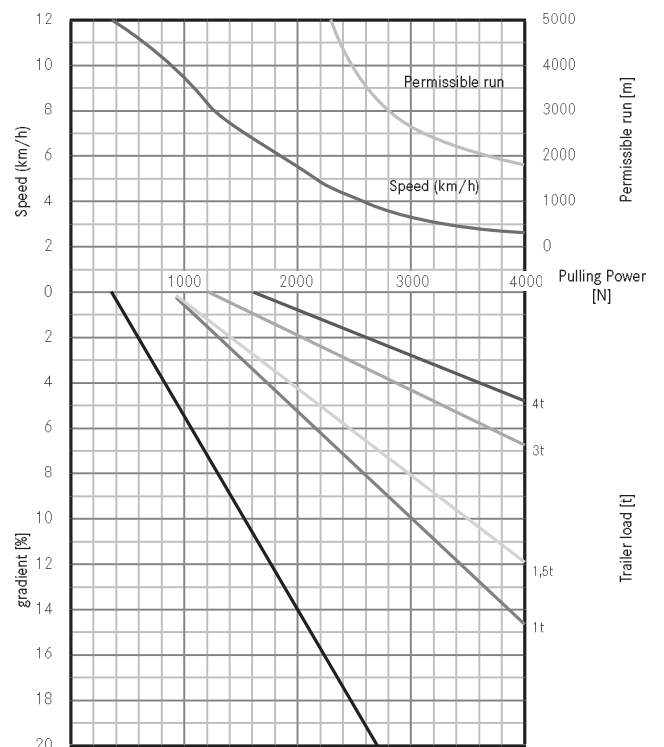
CX 20 with platform lift (optional).



CX-T.



CX-T Performance diagram.



Performance example: On a 2% gradient with a towed load of 4 t, the CX-T can pull this load at a speed of 4.0 km/h for 3500 m uninterrupted, and still brake it. With the load and gradient combination shown a restart can be made on the gradient after a stop. The permissible run per hour is the total run including the return journeys. It is recommended that braked trailers be used when the trailer weight is more than 2.5 t, and for all trailer loads when driving on upward / downward inclines.

### Truck frame.

- Reinforced at the front to act as a collision guard. The working parts of the truck are all easily accessible behind the removable front cover.

### Steering.

- Fully electric steering with automatic return to the neutral position.
- In the centre steering range any unintentional steering movements are electronically damped, to guarantee precise straight-ahead driving without vibrations.
- Automatic speed reduction when driving around curves and side mounted idler support castors give high lateral stability and reduce the effects of centrifugal force.

### Multi-function controls.

The new multi-function control "COCKPIT" contains all the functions for control, operation and monitoring on the CX. Thanks to the ergonomic layout of the buttons, all functions can be reached without changing the grip. The following functions are integrated in the COCKPIT:

- Driving
- Steering
- Lifting and lowering
- Work hour meter
- Discharge battery indicator
- Adjustable driving profiles
- Access control (provided as standard through coded ignition switch)
- Diagnosis (by means of service code)

In addition, COCKPIT provides secure support whilst driving.

### Driver's stand-on platform.

- A fixed but floating (vibration-damping) stand-on platform provides optimal conditions when climbing in and out, due to the low, chamfered entry steps fitted with an anti-slip covering.
- The entire stand-on platform on the CX acts as a deadman switch.
- The back panel of the driver's platform is made of RIM, and has been ergonomically matched to the driver's needs. The padded backrest with shaped side supports offers the greatest comfort and security when driving.
- There are various storage facilities and holders for rolls of film integrated within the driver's compartment.
- A writing surface is available as standard on the CX.

### Drive.

- Powerful, economical and hence cost saving work thanks to the 3.0 kW AC-drive.
- The latest AC-controller generation combined with STILL COCKPIT offer the possibility to adapt the truck's performances at a finger tip, switching from one motor power control mode to another.
- In "ECO" mode ("Turtle" button), the motor is controlled in the lower part of the power curve, which gives standard acceleration and the lowest power consumption. This results in 15% more availability from one battery charge, and thus increased productivity.
- In "BOOST" mode ("Hare" button), the motor is controlled in the upper functional range, providing very high torque/acceleration and higher speeds when loaded. While the availability remains unchanged, the productivity is 25% better than other trucks on the market.
- Within each mode, the drive profile can be further fine tuned (speed, acceleration, braking) to suit the application or the driver's preferences.
- Thanks to the speed sensor looping back to the controller, the CX will start smoothly and accelerate evenly up to maximum travel speed, independently from the load on forks.
- The truck is braked when driving by releasing the COCKPIT drive switch or by plugging. The AC-motor acts as a generator and is used to recover energy when braking.
- When starting on a gradient, or if the drive switch is released or put into neutral, the controller would immediately detect any reversing and activate the disk brake to prevent any uncontrolled rolling back.

### Hydraulic system.

- A compact pump and motor unit with built in oil tank, solenoid valve and maximum pressure valve operates on the lift cylinder with lift cut-out.

### Brake system.

- The brake system uses two independent systems. These are:
- "Soft" braking with energy recovery, activated by releasing the drive switch.
  - Emergency braking takes place when the push-button in the COCKPIT is actuated.
  - Driving is only possible when the driver is on the stand-on platform.

### Battery.

- The battery is easily accessible, and for two or three shift operation, can be changed with a hoist or from the side with integral roller tracks.
- Batteries with a capacity up to 450 Ah or 600 Ah respectively can be accommodated in two different battery trays.

### Platform lift.

- For order picking at the second level.
- With a lifting range of 750 mm it is possible to achieve a platform height of 930 mm (i.e. a picking height of 2,530 mm) above the floor.
- Lifting and lowering by means of two foot-operated buttons integrated in the platform.
- The floating platform mounting absorbs vibrations, reducing the physical stress on the driver.

### Options.

- Unique modular accessory system thanks to multi-functional frame bar (front and rear).
- Adjustable A4 writing surface.
- Prepared for data terminal.
- Additional mounting system for accessories of all types (on request).
- Pedestrian operation through butterfly switch on the COCKPIT and/or through buttons on the backrest.
- Various speed regulators.
- High load backrest.
- Cold store version.
- Battery tray for 600 Ah battery.
- If required, the second order picking level can be reached using a folding step.
- Collision sensor (optional as part of STILL FleetManager)

### Safety.

- Trucks are built to the EC Guidelines 98/37 and carry the CE symbol.
- STILL is certified to ISO 9001.

### CX-M 10 (Mast lift).

- Additional mast lift of 700 mm lift height, with a resulting back-saving picking height of 786 mm above the floor.
- Fork length for 1 Euro pallet lengthways.
- Residual capacity of 1000 kilogrammes (at 600 mm load centre) with mast fully extended.
- Hoisting/lowering as standard using additional buttons on the backrest and on COCKPIT.
- Automatic speed limitation when the load is raised, to ensure stability when driving laden around bends.
- Automatic lowering stop at 400 mm in order to protect the feet.

### CX-S 16 (Scissor-lift).

- Additional mast lift of 700 mm lift height, with a resulting back-saving picking height of 786 mm above the floor.
- Fork length for 2 Euro pallets lengthways.
- The fork dimensions (lowered height, width, the sweep of the tips) have been developed to facilitate the pick-up of all pallet types (Euro, half Euro, Dusseldorf, etc.)
- Residual capacity of 1600 kilogrammes (at 1200 mm load centre) with mast fully extended.
- Hoisting/lowering as standard using additional buttons on the backrest and on COCKPIT.
- Automatic speed limitation when the load is raised, to ensure stability when driving laden around bends.
- Automatic lowering stop at 400 mm in order to protect the feet.

### CX-T (Tractor).

- Trailer load 4000 kg.
- The trailer load and the travel speed depend on the actual gradient (see Performance diagram P.5).
- The standard pin coupler offers five different coupling heights (190/245/300/355/410). Other coupler variants on request (e.g. Rockinger).
- The stability is guaranteed by the wide track.
- The Super Elastic tyres at the rear provide driving comfort when driving over obstacles.

