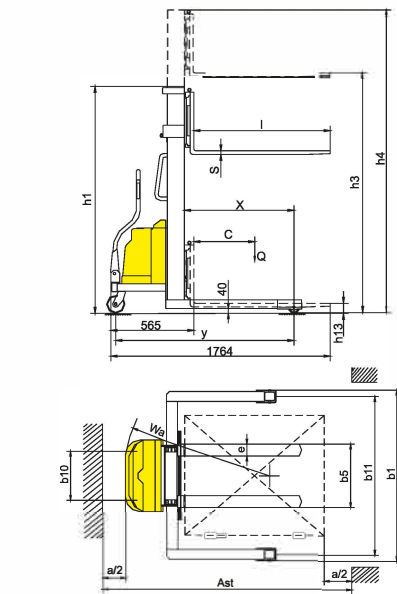
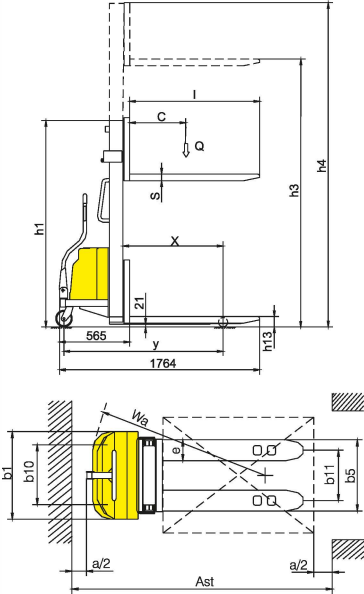


Semi-electric Stacker



Model:
CDD10B/15B

CE
Conforms to EN ISO3691-5
EN1175-1
EN16307-5
Based on Directive 2006/42/EC



Model:
CTD10B/15B



1KG=2.205LB 1INCH=25.40MM

Model		CDD10B	CDD15B	CTD10B	CTD15B
Capacity	Q(kg)	1000	1500	1000	1500
Load centre distance	c(mm)		500		600
Load distance, centre of drive axle to fork	x(mm)		815		800
Lowered fork height	h ₃ (mm)		90		70
Max. lift height	h ₄ (mm)	1600/2500/3000/3300		1600/2500/3000/3300/3500	
Height, mast lowered	h ₁ (mm)	2090/1840/2090/2200		2145/1895/2145/2295/2395	
Height, mast extended	h ₂ (mm)	2090/2997/3497/3797		2145/3052/3552/3852/4052	
Fork dimensions	s/e/l(mm)	60/170/1070(1150)		30/100/1070(1150)	35/100/1070(1150)
Overall width	b ₁ (mm)	722		1132-1532	
Width overall forks	b ₂ (mm)	570/695		200/800	
Aisle width for pallets 800x1200 lengthways	A ₁ (mm)	2188	2258	2142	2212
Turning radius	W ₁ (mm)	1340	1410	1340	1410
Lift speed,laden/unladen	m/s		0.08/0.1		0.08/0.1
Lowering speed,laden/unladen	m/s		0.15/0.12		0.15/0.12
Battery voltage,nominal capacity K5	V/Ah	12/200	24/200	12/200	24/200
Battery weight	kg	60	120	60	120
Battery dimensions l/w/h	mm		250x190x295		250x190x295
Service weight (with battery)	kg	420/480/500/550	580/660/680/700	490/550/570/580/650	580/630/660/680/690

Standard Semi-electric Stacker

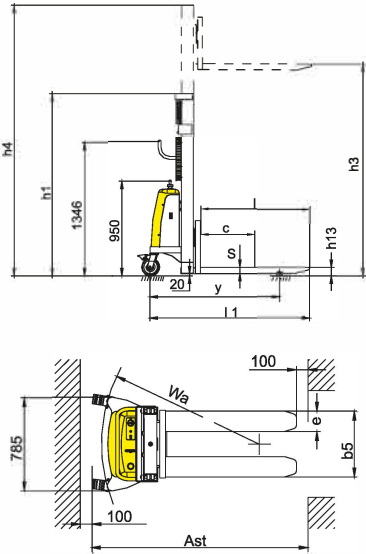
- Compact design with strong European steel construction.
- Simple and convenient lifting operational system.
- Light and easy manual steering system, equipped with a parking brake.
- Smooth control of precise lifting and lowering.
- Special design are available according to customers' requirements.

Remark:

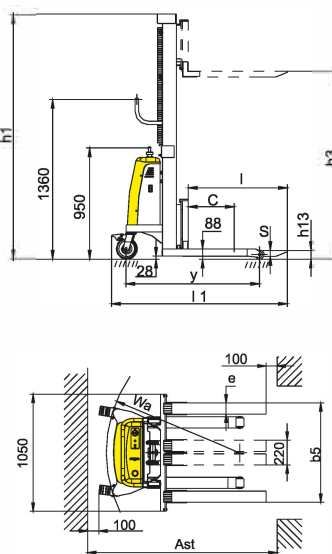
CDD series are with fixed legs & fixed forks.
CTD series are with straddle legs & adjustable forks.



Model:
CDD1016BA



CDD1025BA/CDD1030BA



CDD1016BA



Model:
CDD1025BA
CDD1030BA

1KG=2.205LB 1INCH=25.40MM

Model		CDD1016BA	CDD1025BA	CDD1030BA
Capacity	Q(kg)	1000	1000	1000
Load centre distance	c(mm)	400	500	500
Fork height, lowered	h ₃ (mm)	90	90	90
Height, mast lowered	h ₁ (mm)	2088	1838	2088
Max. lift height	h ₄ (mm)	1600	2500	3000
Height, mast extended	h ₂ (mm)	2088	3088	3588
Overall length	l ₁ (mm)	1505	1728	1728
Fork dimensions	s/e/l(mm)	48/100/850	60/170/1100	60/170/1100
Width overall forks	b ₂ (mm)	200~980	550	550
Aisle width for pallets 800x1200 lengthways	A ₁ (mm)	2020	2140	2140
Turning radius	W ₁ (mm)	1210	1328	1328
Lift speed, laden/unladen	mm/s	80/100	80/100	80/100
Lowering speed, laden/unladen	mm/s		manual control	
Battery voltage, nominal capacity K ₅	V/Ah	12/120	12/120	12/120
Service weight (with battery)	kg	300	370	382

Semi-electric Stacker

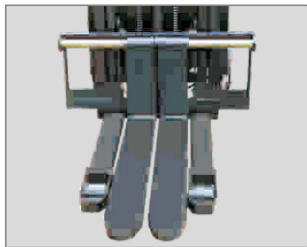


Hot Sale



Model:
CDD10B-III
CDD15B-III

Overall forks



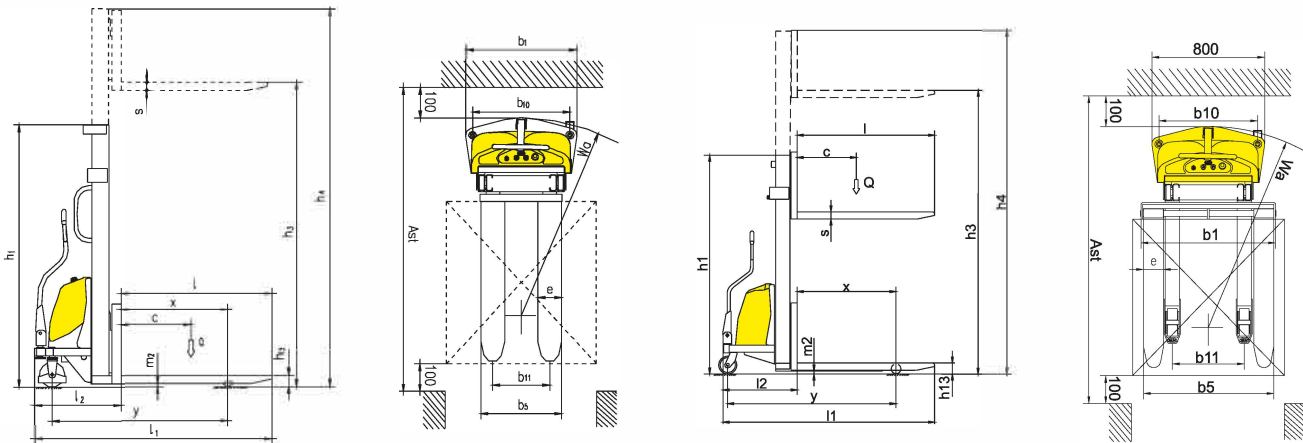
CDDB-III
Adjustable Forks

Super Light

		Overall forks		Adjustable forks	
Model		CDD10B - III	CDD15B - III	CDD10B - III	CDD15B - III
Load capacity	Q(kg)	1000	1500	1000	1500
Load centre distance	c(mm)	500	500	500	500
Load distance, centre of drive axle to fork	x(mm)	802	802	745	745
Tyre size, front	mm	φ 180x50	φ 180x50	φ 180x50	φ 180x50
Tyre size, rear	mm	φ 80x70	φ 80x70	φ 80x70	φ 80x70
Wheels, number front rear(x=driven wheels)		2/2	2/2	2/2	2/2
Fork height, lowered	h ₁₂ (mm)	90		90	
Height, mast lowered	h ₁ (mm)	2090/1840/2090/2240/2340		2090/1840/2090/2240/2340	
Max. lift height	h ₄ (mm)	1600/2500/3000/3300/3500		1600/2500/3000/3300/3500	
Height, mast extended	h ₄ (mm)	2090/3060/3560/3860/4060		2090/3060/3560/3860/4060	
Overall length	l ₁ (mm)	1678	1740	1735	1835
Length to face of forks	l ₂ (mm)	608	670	665	765
Overall width	b ₁ (mm)	800	800	955	955
Fork dimensions	s/b ₂ (mm)	60/170/1070	60/170/1070	60/142/1070	60/142/1070
Width overall forks	b ₂ (mm)	570/695	570/695	295-930	295-930
Aisle width for pallets 800x1200 lengthways	A _{st} (mm)	2267	2347	2267	2347
Turning radius	W ₁ (mm)	1425	1505	1425	1505
Lift speed, laden/unladen	m/s	0.07/0.09	0.07/0.09	0.07/0.09	0.07/0.09
Lowering speed, laden/unladen	m/s	0.1/0.13	0.1/0.13	0.1/0.13	0.1/0.13
Service brake		mechanical	mechanical	mechanical	mechanical
Battery voltage, nominal capacity K ₂	V/Ah	12/120	12/120	12/120	12/120
Battery weight	kg	45	45	45	45
Battery dimensions l/w/h	mm	360x170x250	360x170x250	360x170x250	360x170x250
Service weight (with battery)	kg	355/410/445/475/495	405/475/480/530/550	385/440/475/505/525	435/510/535/560/580

Option of battery for CDD15B-III: 24V/120Ah

CE
Conforms to EN ISO3691-1
EN1175-1
EN16307-1
Based on Directive 2006/42/EC



CDD10B-III / CDD15B-III Overall forks

CDD10B-III / CDD15B-III Adjustable forks

Electric Pallet Truck

Electric Stacker

Order Picker

Narrow Aisle Truck

Electric Tow Tractor

Hand Pallet Truck

Manual Stacker

Lift Table



Model:
CDD10R-E
CDD12R-E

The super light Electric Walkie Stacker with small turning radius which is widely used in small warehouse and super market. Suit for low level stacking and short distance transportation.

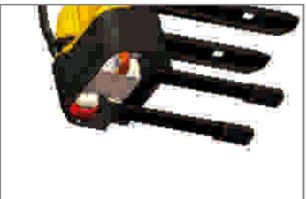


Advantages:

- Back cover is integrated type design , easy to assemble and maintain.
- Use GEL battery free to maintain.
- Built in charger easy to access to power supply.
- Low gravity design , 4 point design , improve the trucks stability.
- This drive unit have small turning , the motor and brake is very easy to replace.
- Compact design and small dimensions , offer excellent visibility.
- The turning radius and aisle width is very small and which is similar with manual stacker.



CURTIS Tiller Head



4 point design, improve the trucks stability.



Floor type drive wheel



Option: Initial lifting with double-pallet function turn to P72

Super Compact



Model: CTD12R-E

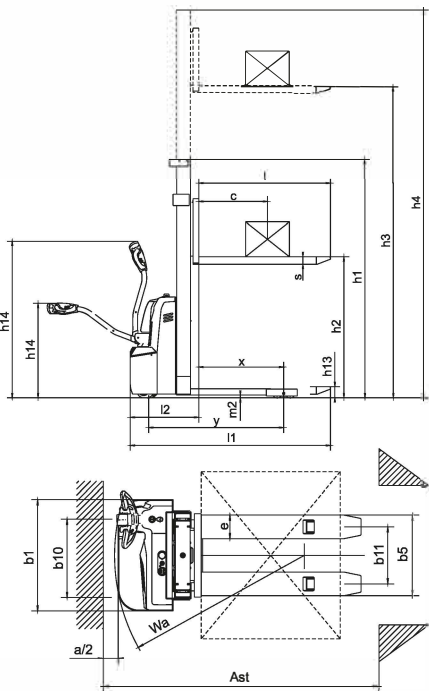
Straddle legs &
Adjustable forks



Hot
Sale

1KG=2.205LB 1INCH=25.40MM

Model		CDD10R-E	CDD12R-E	CTD12R-E
Load capacity	Q(kg)	1000	1200	1200
Load centre distance	c(mm)	600	600	600
Load distance,centre of drive axle to fork	x(mm)	741	741	770
Height,lowered	h ₁ (mm)	90	90	80
Tyre size,front		φ 195×70	φ 195×70	φ 195×70
Tyre size rear		φ 80×70	φ 80×70	φ 98×82
Additional wheels(dimensions)		φ 150x60	φ 150x60	φ 150x60
Wheels,number front rear(x=driven wheels)		1x+1/4	1x+1/4	1x+1/4
Height,max lowered	h ₁ (mm)	2090/1840/2090/2200/2340	2090/1840/2090	2145/1895/2145
Max. lift height	h ₂ (mm)	1600/2500/3000/3300/3500	1600/2500/3000	1600/2500/3000
Height,max extended	h ₂ (mm)	2090/3060/3560/3860/4060	2090/3060/3560	2145/3100/3600
Height of tiller in drive position min./max.	h ₁ (mm)	670/1300	670/1300	670/1300
Overall length	l ₁ (mm)	1748(1668)	1748(1668)	1500
Length to face of forks	l ₂ (mm)	598	598	660
Overall width	b ₁ (mm)	800	800	1132-1532
Fork dimensions	s/e/l(mm)	60×170×1150(1070)	60×170×1150(1070)	40/100/1070(1150)
Width overall forks	b ₂ (mm)	570/695	570/695	200-800
Ground clearance,centre of wheelbase	m ₁ (mm)	26	26	35
Aisle width for pallets 1000x1200 crossways	A ₁ (mm)	2218	2218	2280
Aisle width for pallets 800x1200 lengthways	A ₂ (mm)	2173	2173	2280
Turning radius	W ₁ (mm)	1365	1365	1490
Travel speed, laden/unladen	Km/h	5/6	5/6	5/6
Lift speed, laden/unladen	m/s	0.12/0.22	0.12/0.22	0.12/0.22
Lowering speed, laden/unladen	m/s	0.14/0.14	0.14/0.14	0.14/0.14
Battery voltage,nominal capacity K20	V/Ah	24/105	24/105	24/105
Battery weight	kg	60.8	60.8	60.8
Battery dimensions l/w/h	mm	329×172×214	329×172×214	329×172×214
Service weight (with battery)	kg	460/525/545/560/565	615/640/660	490/555/575





Conforms to EN ISO3691-1
EN1175-1
EN16307-1
Based on Directive 2006/42/EC

AC



Model: CDD10R-ES
CDD12R-ES

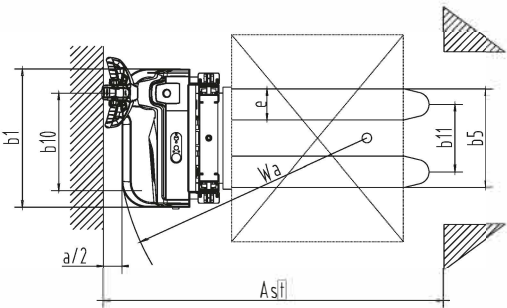
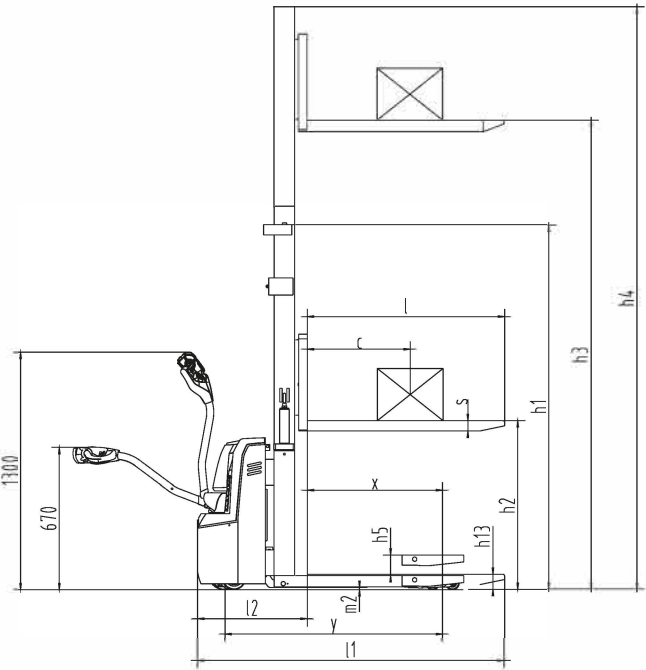
This Light duty type electric stacker CDD10R-E(S) in double –pallet using, support arm lift 1000kgs, and mast lift 1000kg (total load weight max is 1000kg) . Specifically designed for intensive stocking operations at low height warehouse. It is the best solution for smoothly passing in crossing door or dock on uneven ground.

Advantages:

- Compact design and small dimensions , offer excellent visibility .
- The 4- points support structure with side tiller, low center of gravity design with excellent stability.
- Double pallet design: two pallet handled at one time, initial lift of load leg increases ground clearance to negotiate easily ramps, dock levelers and bridge .
- With floor type driving wheel, offer small turning radius, dustproof waterproof motor, easy for maintenance.
- With good ramp braking performance efficient electromagnetic parking brake.
- BDI with low voltage cut off protection device, protect battery and prolong the battery life time .
- Balance wheel height is adjustable, ensure the drive wheel life.
- Low Noise development with quite motor.

1KG=2.205LB 1INCH=25.40MM

Model		CDD10R-ES	CDD12R-ES
Load capacity/rated load	Q(kg)	1000	1200
Load centre distance	c(mm)	600	600
Load distance, centre of drive axle to fork	x(mm)	788	788
Tyre size, front	mm	φ195X70	φ195X70
Tyre size, rear	mm	φ80X70	φ80X70
Additional wheels(dimensions)	mm	φ150X60	φ150X60
Wheels, number front rear(x=driven wheels)		1x+1/4	1x+1/4
Height, mast lowered	h ₁ (mm)	2122/1872/2122/2272	2122/1872/2122
Max. lift height	h ₂ (mm)	1600/2500/3000/3300	1600/2500/3000
Height, mast extended	h ₄ (mm)	2122/3092/3592/3892	2122/3092/3592
Initial lift	h ₃ (mm)	120	120
Overall length	l ₁ (mm)	1709/1789	1709/1789
Length to face of forks	l ₂ (mm)	639	639
Overall width	b ₁ (mm)	800	800
Fork dimensions	s/e/l(mm)	60/180/1070(1150)	60/180/1070(1150)
Width overall forks	b ₂ (mm)	570	570
Aisle width for pallets 1000x1200 crossways	A ₁ (mm)	2286	2286
Aisle width for pallets 800x1200 lengthways	A ₂ (mm)	2224	2224
Turning radius	W ₁ (mm)	1450	1450
Travel speed, laden/unladen	Km/h	4.5/5	4.5/5
Lift speed, laden/unladen	m/s	0.11/0.14	0.11/0.14
Lowering speed, laden/unladen	m/s	0.12/0.12	0.12/0.12
Battery voltage, nominal capacity K20	V/Ah	24/105	24/105
Battery weight	kg	60.8	60.8
Battery dimensions l/w/h	mm	329X172X214	329X172X214
Service weight(with battery)	kg	605/670/690/702	675/740/760



Model:
CDD20M

Triplex Mast

Registered international patent number:
ZL 200610049503.3

Heavy Duty
Lifting Height from
4.5M to 5.8M



Advantages:

- SAFETY AND PRODUCTIVITY:**
- Emergency reversing device.
 - Built-in pressure relief valve protects the truck from overloads.
 - Emergency power disconnect.
 - Low speed switch in the handle.
 - Stepless speed control.
 - Folding rubber platform & guards to keep safe & fatigue free.

- STRUCTURAL:**
- The side located cylinders provides operators a wide view and ensures structural stability.
 - Spring-loaded castors improve lateral stability on uneven floors and enhance truck performance and service life.
 - Imported steel for the mast from Germany.
 - Supporting legs.

- SERVICEABILITY:**
- Low voltage protection setting prolongs the battery use time.
 - CANbus technology reduces wiring complexity and increases reliability.

Remarks:
Heavy duty type Stacker, the full free lifting is only available for lift height from 4.5M to 5.6M.

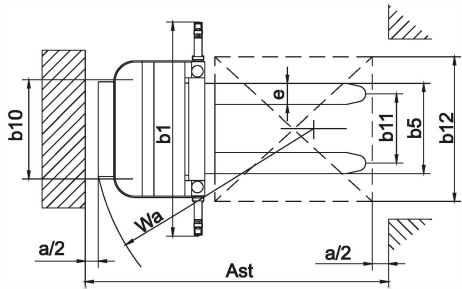
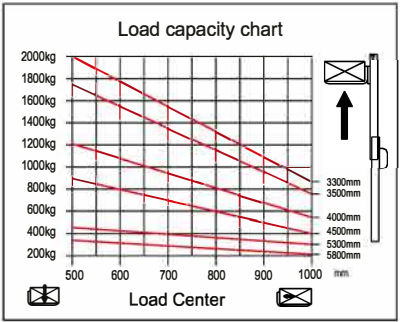
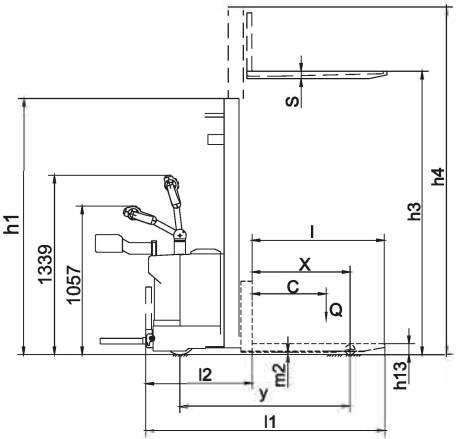
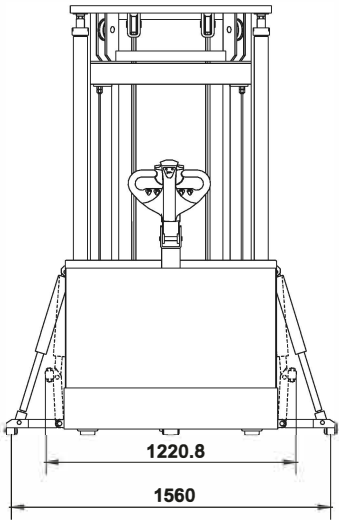
Max lifting height	Free lifting height
4500mm	1620mm
5000mm	1780mm
5600mm	1980mm



Conforms to EN ISO3691-1
EN1175-1
EN16307-1
Based on Directive 2006/42/EC

1KG=2.205LB 1INCH=25.40MM

Model		CDD20M			
Load capacity	Q(kg)	2000	2000	2000	2000
Load centre distance	c(mm)	500	500	500	500
Load distance, centre of drive axle to fork	x(mm)	870	870	870	870
Fork height, lowered	h ₁₂ (mm)	90	90	90	90
Tyre size, front	mm	φ 250x80	φ 250x80	φ 250x80	φ 250x80
Tyre size, rear	mm	φ 80x70	φ 80x70	φ 80x70	φ 80x70
Additional wheels(dimensions)	mm	φ 150x60	φ 150x60	φ 150x60	φ 150x60
Wheels, number front rear(x=driven wheels)		1x+2/4	1x+2/4	1x+2/4	1x+2/4
Height, mast lowered	h ₁ (mm)	2087	2337	2407	2507
Max. lift height	h₃(mm)	4500	5300	5500	5800
Height, mast extended	h ₄ (mm)	5055	5823	6033	6333
Overall length	l ₁ (mm)	1955	1955	1955	1955
Length to face of forks	l ₂ (mm)	805	805	805	805
Overall width	b ₁ (mm)	1220.8-1630	1220.8-1630	1220.8-1630	1220.8-1630
Fork dimensions	s/e/l(mm)	60/170/1070(1150)	60/170/1070(1150)	60/170/1070(1150)	60/170/1070(1150)
Width overall forks	b ₂ (mm)	580/695	580/695	580/695	580/695
Aisle width for pallets 800x1200 lengthways	A ₁₀ (mm)	2401	2401	2401	2401
Turning radius	W ₁ (mm)	1629	1629	1629	1629
Travel speed, laden/unladen	Km/h	4.5/5.6	4.5/5.6	4.5/5.6	4.5/5.6
Lift speed, laden/unladen	m/s	0.09/0.11	0.09/0.11	0.09/0.11	0.09/0.11
Lowering speed, laden/unladen	m/s	0.12/0.09	0.12/0.09	0.12/0.09	0.12/0.09
Battery voltage,nominal capacity K _s	V/Ah	24/275	24/275	24/275	24/275
Battery weight	kg	268	268	268	268
Battery dimensions l/w/h	mm	968x206x505	968x206x505	968x206x505	968x206x505
Service weight(with battery)	kg	1450	1630	1640	1655



Model:
CDDK10
CDDK12
CDDK15

Overall forks

Hot Sale

AC

EPS
(Option)



* photo shown with model
CDDK15-II with free lifting



Initial lifting with double-pallet
function turn to P70



Conforms to EN ISO3691-1
EN1175-1
EN16307-1
Based on Directive 2006/42/EC
Conform to EN Standard 12895
Based on directive: 2014/30/EU (EMC)

Advantages: (CDDK15-I/CDDK15-II)

- ### SAFETY AND PRODUCTIVITY
- AC Motor eliminates carbon brush replacement.
 - Multi-function display with BDI and hour meter.
 - Side way battery is easy to maintain.
 - Damping cushion for low-noise operation.
 - Emergency reversing device equipped handle to keep safe.
 - Auto deceleration function makes operation more safely.
 - Built-in pressure relief valve protects the trucks from overloads, increases the reliability.
 - With brake in handle upright and horizontal position, increasing the safety of the truck.
 - Emergency power disconnect switch.
 - Turtle-shaped low speed switch.
 - Stepless speed control.

- ### OPTIMUM STRUCTURAL DESIGN
- Low barycenter ensures the stable operation.
 - Vertical driving wheel ensures convenient maintenance and small turning radius. Water-proof and dust-proof motor structure, keeps the braking and motor more durable and reliable.
 - The mast and the frame are dividable and exchangeable.
 - Full free lifting, fit for low roof house. (3M lift height truck can enter into a 2M door)

- ### SERVICEABILITY
- Low voltage protection setting prolongs the battery life time.
 - The electronic components' concentrated design simplifies the circuit and makes easily assemble, debug and maintain.
 - CANbus technology reduces wiring complexity and increase reliability.
 - Hall element reduces wear components, resulting in increased component life.

Model	Remarks
CDDK15- I	High configuration with proportional valve
CDDK15- II	Standard configuration
CDDK15- III	Light duty type
CDDK10- III/12- III	Economy type (DC brushless)

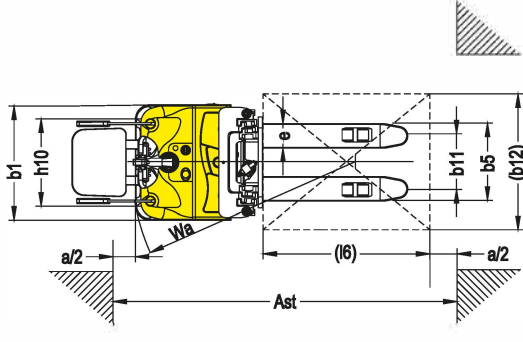
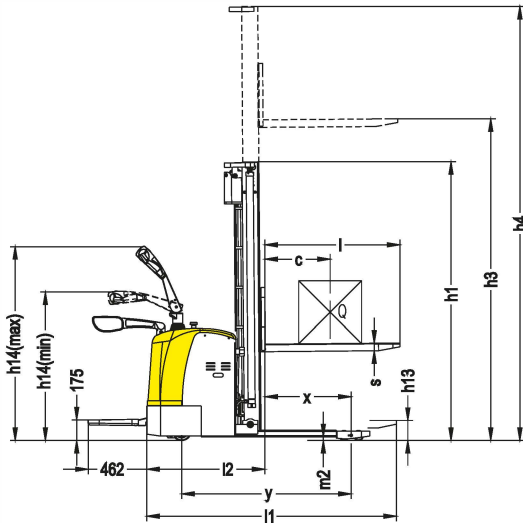
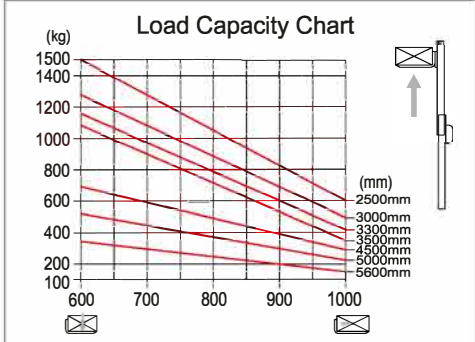
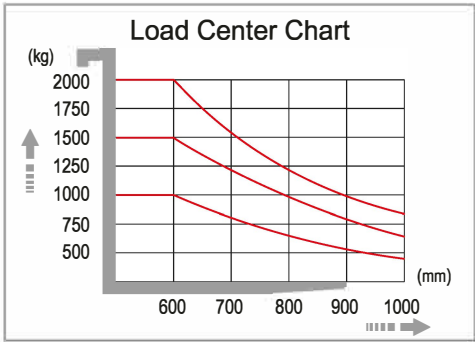
1KG=2.205LB 1INCH=25.40MM

Model		CDDK15- I	CDDK15- II
Load capacity/rated load	Q(kg)	1500	1500
Load centre distance	c(mm)	600	600
Load distance,centre of drive axle to fork	x(mm)	672	672
Fork height, lowered	h ₁₃ (mm)	85	85
Tyre size, front	mm	φ 250x70	φ 250x70
Tyre size, rear	mm	φ 80x84	φ 80x84
Additional wheels(dimensions)	mm	φ 150x60	φ 150x60
Wheels,number front rear(x=driven wheels)		1x+2/4	1x+2/4
Height,mast lowered	h ₁ (mm)	1735/1985/2135/2235/2050/2210/2410	1735/1985/2135/2235/2050/2210/2410
Free lift (option 2500~3500mm)	h ₂ (mm)	1300/1550/1700/1800/1570/1740/1940	1300/1550/1700/1800/1570/1740/1940
Max. Lift height	h ₄ (mm)	2500/3000/3300/3500/4500/5000/5600	2500/3000/3300/3500/4500/5000/5600
Height,mast extended	h ₄ (mm)	2955/3455/3755/3955/5030/5510/6110	2955/3455/3755/3955/5030/5510/6110
Height of tiller in drive position min./max.	h ₁₄ (mm)	1150/1450	1150/1450
Overall length	l ₁ (mm)	2020/2100	2020/2100
Length to face of forks	l ₂ (mm)	950	950
Overall width	b ₁ (mm)	850	850
Fork dimensions	s/e/l(mm)	60/180/1070(1150)	60/180/1070(1150)
Width overall forks	b ₂ (mm)	570/695	570/695
Aisle width for pallets 800x1200 lengthways	A _w (mm)	2515	2515
Turning radius	W _t (mm)	1655	1655
Travel speed,laden/unladen	Km/h	6.5/6.7	6.5/6.7
Lift speed,laden/unladen	m/s	0-0.12/0-0.19	0.11/0.14
Lowering speed,laden/unladen	m/s	0-0.35/0-0.12	0.12/0.12
Battery voltage,nominal capacity K5	V/Ah	24/300	24/240 24/300 (option)
Battery weight	kg	260	220 260
Battery dimensions l/w/h	mm	675x254x540	675x254x500 675x254x540 (option)
Service weight (with battery)	kg	1330/1340/1350/1370/1530/1560/1595	1240/1270/1285/1490/1520/1560/1580 ¹

1. The weight shown is for 240AH battery.

1KG=2.205LB 1INCH=25.40MM

Model		CDDK10- III	CDDK12- III	CDDK15- III
Load capacity/rated load	Q(kg)	1000	1200	1500
Load centre distance	c(mm)	500	500	600
Load distance,centre of drive axle to fork	x(mm)	600	600	697
Fork height, lowered	h ₁₃ (mm)	90	90	90
Tyre size, front	mm	φ 250x70	φ 250x70	φ 250x70
Tyre size, rear	mm	φ 80x70	φ 80x70	φ 80x70
Additional wheels(dimensions)	mm	φ 150x60	φ 150x60	φ 150x60
Wheels,number front rear(x=driven wheels)		1x+2/4	1x+2/4	1x+2/4
Height, mast lowered	h ₁ (mm)	2087/1837/2087/2237	2087/1837/2087/2237	2087/1837/2087/2237
Max. Lift height	h ₄ (mm)	1600/2500/3000/3300	1600/2500/3000/3300	1600/2500/3000/3300
Height, mast extended	h ₄ (mm)	2087/3087/3587/3887	2087/3087/3587/3887	2087/3087/3587/3887
Height of tiller in drive position min./max.	h ₁₄ (mm)	1150/1450	1150/1450	1150/1450
Overall length	l ₁ (mm)	1955	1955	2025
Length to face of forks	l ₂ (mm)	840	840	920
Overall width	b ₁ (mm)	850	850	850
Fork dimensions	s/e/l(mm)	60/170/1070(1150)	60/170/1070(1150)	60/170/1070(1150)
Width overall forks	b ₂ (mm)	570/695	570/695	570/695
Aisle width for pallets 800x1200 lengthways	A _w (mm)	2440	2440	2520
Turning radius	W _t (mm)	1575	1575	1655
Travel speed,laden/unladen	Km/h	6.5/6.7	6.5/6.7	6.5/6.7
Lift speed,laden/unladen	m/s	0.06/0.13	0.06/0.13	0.06/0.13
Lowering speed,laden/unladen	m/s	0.13/0.10	0.13/0.10	0.13/0.10
Battery voltage,nominal capacity K5	V/Ah	24/120	24/120	24/200
Battery weight	kg	90	90	160
Battery dimensions l/w/h	mm	753x178x240	753x178x240	800x254x320
Service weight (with battery)	kg	700/750/780/800	800/850/870/890	840/920/930/945



Electric Rider Stacker



Model:
CDDK20

Heavy Duty



Conforms to EN ISO3691-1
EN1175-1
EN16307-1
Based on Directive 2006/42/EC



Advantages:

- Safety And Productivity**
- AC Motor eliminates replacement of carbon brush.
 - Multi-function display with BDI and hour meter.
 - Side way battery is easy to maintain.
 - Damping cushion for low-noise operation;
 - Emergency reversing device in the handle provides higher safety for the whole operation.
 - Auto deceleration function makes operation more safely.
 - Built-in pressure relief valve protects the trucks from overloads, increases the reliability.
 - Braking applied with handle upright and horizontal position, increasing the safety of the truck.
 - Emergency power disconnect switch.
 - Turtle-shaped low speed switch.
 - Stepless speed control.
 - Supporting legs in both sides for triplex mast (Duplex mast without supporting legs).

- Optimum Structural Design**
- Low center of gravity ensures the stable operation.
 - Vertical driving wheel ensures convenient maintenance and small turning radius. Water-proof and dust-proof motor structure, keeps the braking and motor more durable and reliable.
 - The mast and the frame are dividable and exchangeable.
 - Full free lifting, fit for working in low roof house.
- Serviceability**
- Low voltage protection setting prolongs the battery life time.
 - The electronic components' concentrated design simplify the circuit and makes easy access to assemble, debug and maintain,
 - CANbus technology reduces wiring complexity and increase reliability.
 - Hall element reduces wear components, resulting in increased component life.

* photo shown for CDDK20 triplex mast

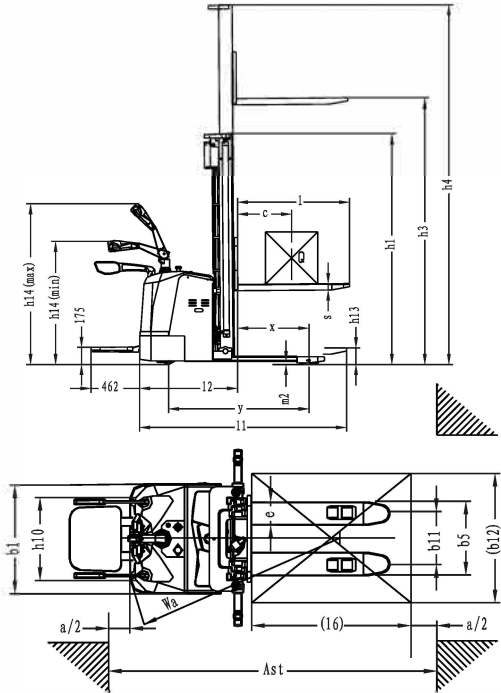
AC

EPS

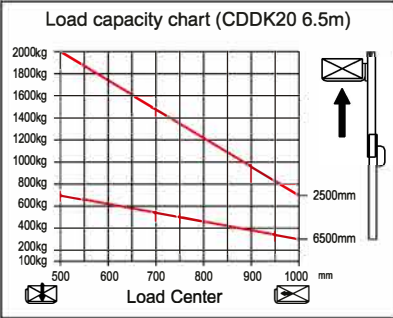
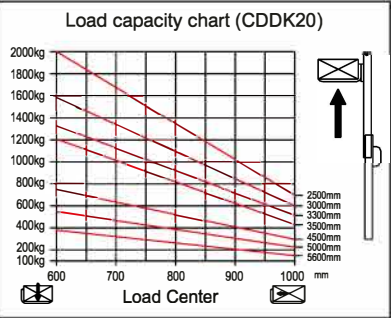
1KG=2.205LB 1INCH=25.40MM

Model		CDDK20	CDDK20(6.5m)
Load capacity	Q(kg)	2000	2000
Load center	c(mm)	600	500
Load distance	x(mm)	672	672
Tyre size, front	mm	φ 250×70	φ 250×70
Tyre size, rear	mm	φ 80×84	φ 80×84
Additional wheels (dimensions)	mm	φ 150×60	φ 150×60
Wheels, number front rear(x=driven wheels)		1x+2/4	1x+2/4
Height, mast lowered	h1(mm)	1735/1985/2135/2235/2050/2210/2410	2710
Free lift	h2(mm)	~ / ~ / ~ / ~ /1570/1740/1940	2240
Max. Lift height	h3(mm)	2500/3000/3300/3500/4500/5000/5600	6500
Height, mast extended	h4(mm)	2955/3455/3755/3955/5030/5510/6110	7050
Height of tiller in drive position min./max.	h14(mm)	1150/1450	1150/1450
Fork height, lowered	h13(mm)	90	90
Overall length	l1(mm)	2020/2100	2100/2180
Length to face of forks	l2(mm)	950	950
Overall width	b1(mm)	850	950
Fork dimensions	s/e/l(mm)	60/180/1070(1150)	60/180/1070(1150)
Width overall forks	b5(mm)	570/695	570/695
Aisle width for pallets 800x1200 lengthways	Ast(mm)	2515	2595
Turning radius	Wa(mm)	1655	1735
Travel speed, laden/unladen	Km/h	5.8/6	5.8/6
Lift speed, laden/unladen	m/s	0.09/0.11	0.09/0.11
Lowering speed, laden/unladen	m/s	0.12/0.11	0.12/0.11
Battery voltage, nominal capacity K5	V/Ah	24/300	24/300
Battery weight	kg	300	300
Battery dimensions l/w/h	mm	675×254×500	675×254×500
Service weight(with battery)	kg	1280/1320/1350/1640/1680/1720/2020	1850

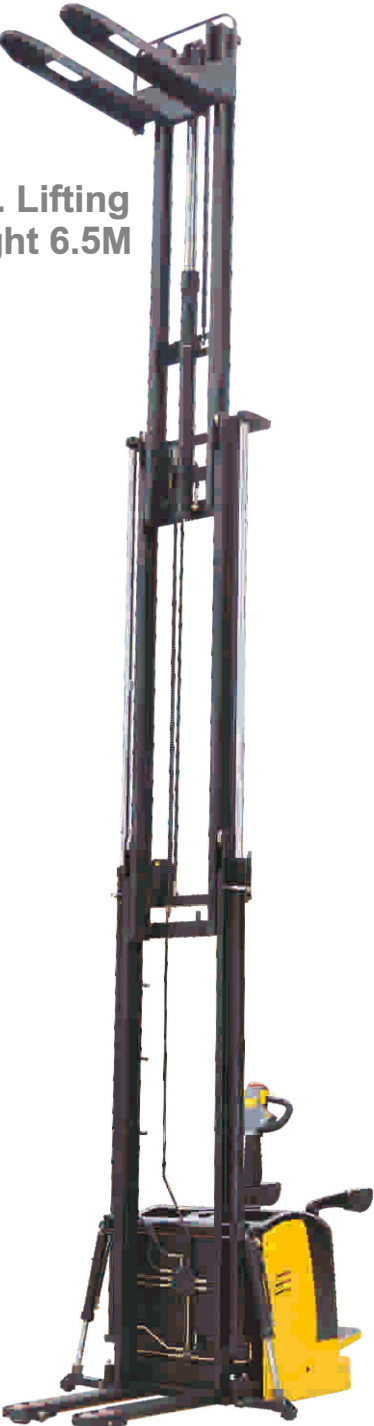
*Option: CDDK20(6.5m) with fork width of 695mm without stabilizer.



CDDK20(6.5M) Special Heavy Duty type Stacker with strong chassis base and high load capacity at high lifting height.



Max. Lifting
Height 6.5M



Electric Pallet Truck

Electric Stacker

Order Picker

Narrow Aisle Truck

Electric Tow Tractor

Hand Pallet Truck

Manual Stacker

Lift Table



Model:
CDDR10
CDDR12
CDDR15

Walkie type electric stacker provides a cost effective solution for applications involving medium lifting storage and short distance pallets transportation.



Conforms to EN ISO3691-1
EN1175-1
EN16307-1
Based on Directive 2006/42/EC
Conform to EN Standard 12895
Based on directive: 2014/30/EU (EMC)



AC



* photo shown with model
CDDR15-II with free lifting

Advantages: (CDDR15-I/CDDR15-II)

STRUCTURAL AND SAFETY:

- Advanced AC control system Intelligentized regenerative brake system.
- Multi-function display with BDI and hour meter etc.
- Emergency reversing device.
- Auto deceleration system utilizes regenerative braking.
- Built-in pressure relief valve protects the trucks from overloads.
- Emergency power disconnect .
- Stepless speed control.
- With lifting limit switch to shut off pump motor at the max. lifting height.
- Vertical drive motor has a small turning radius. The motor structure is water-proof and dust-proof.

SERVICEABILITY:

- CANbus technology reduces wiring complexity and increase reliability.
- Advanced AC control system with brushless motor.
- Auto deceleration system utilises regenerative braking.
- Side-way battery with roll-out system is very convenient for replacement.



CDDR15-III mast



Vertical Drive Wheel



Option: Initial lifting with
double-pallet function
turn to P70



CURTIS Handle
(standard for CDDR-III)



Frei tiller head with one
side lifting button (option)



Germany Tiller Head with
big buttons (Option for
CDDR15-I proportional lifting)

Electric Walkie Stacker

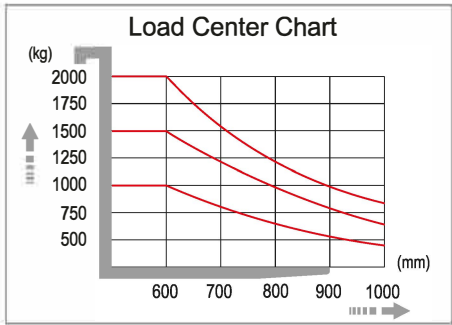
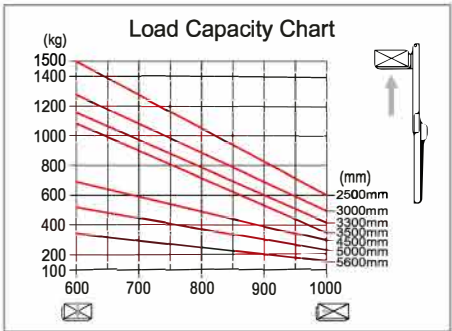


* photo shown with model
CDDR15-III

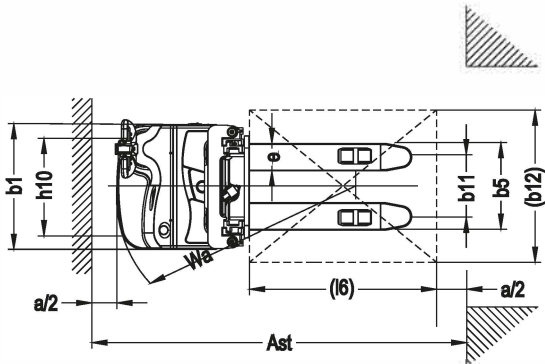
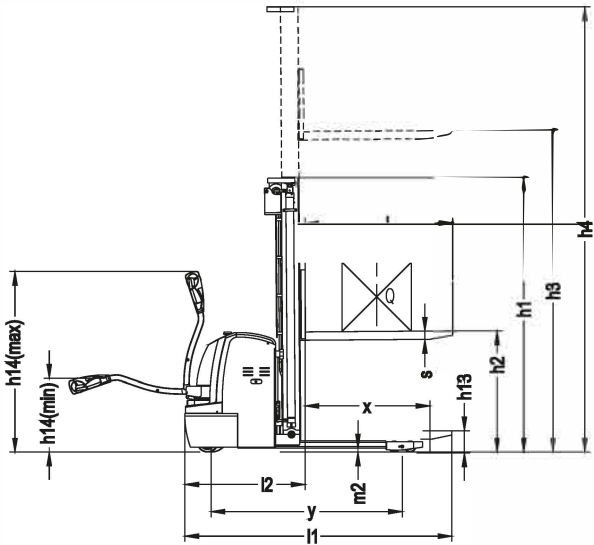
Model	Remarks
CDDR15- I	High configuration with proportional valve
CDDR15- II	Standard configuration
CDDR15- III	Light duty type
CDDR10- III/12- III	Economy type (DC brushless)

Option for CDDR10-III/CDDR12-III :

- 1) AC motor
- 2) CURTIS controller
- 3) Frei Handle



		1KG=2.205LB 1INCH=25.40MM				
Model		CDDR15- I	CDDR15- II	CDDR10- III	CDDR12- III	CDDR15- III
Load capacity	Q(kg)	1500	1500	1000	1200	1500
Load centre distance	c(mm)	600	600	500	500	600
Load distance, centre of drive axle to fork	x(mm)	697	697	697	697	697
Fork height, lowered	h ₁ (mm)	90	90	90	90	90
Tyre size, front	mm	φ 250x70	φ 250x70	φ 250 × 70	φ 250 × 70	φ 250 × 70
Tyre size, rear	mm	φ 80x84	φ 80x84	φ 80 × 70	φ 80 × 70	φ 80 × 70
Additional wheels(dimensions)	mm	φ 150x60	φ 150x60	φ 150 × 60	φ 150 × 60	φ 150 × 60
Wheels, number front rear(x=driven wheels)		1x+1/4	1x+1/4	1x+1/4	1x+1/4	1x+1/4
Height, mast lowered	h ₂ (mm)	1735/1985/2135/2235/2050/2210/2410	1735/1985/2135/2235/2050/2210/2410	2087/1837/2087/2237		
Free lift (option 2500~3500mm)	h ₃ (mm)	1300/1550/1700/1800/1570/1740/1940	1300/1550/1700/1800/1570/1740/1940	~		
Max. lift height	h ₄ (mm)	2500/3000/3300/3500/4500/5000/5600	2500/3000/3300/3500/4500/5000/5600	1600/2500/3000/3300		
Height,mast extended	h ₅ (mm)	2955/3455/3755/3955/5030/5510/6110	2955/3455/3755/3955/5030/5510/6110	2087/3087/3587/3887		
Height of tiller in drive position min./max.	h ₆ (mm)	670/1300	670/1300	670/1300	670/1300	670/1300
Overall length	l ₁ (mm)	1950	1950	1965	1965	2045
Length to face of forks	l ₂ (mm)	878	878	792	792	878
Overall width	b ₁ (mm)	820	820	820	820	820
Fork dimensions	s/b/l(mm)	60/180/1070(1150)	60/180/1070(1150)	60/170/1070(1150)	60/170/1070(1150)	60/170/1070(1150)
Width overall forks	b ₂ (mm)	570/695	570/695	570/695	570/695	570/695
Aisle width for pallets 800x1200 lengthways	A ₁ (mm)	2420	2420	2370	2370	2450
Turning radius	W ₁ (mm)	1575	1575	1525	1525	1605
Travel speed, laden/unladen	Km/h	5.8/6	5.8/6	5.3/5.6	5.3/5.6	5.8/6
Lift speed, laden/unladen	m/s	0-0.12/0-0.19	0.11/0.15	0.06/0.13	0.06/0.13	0.06/0.13
Lowering speed, laden/unladen	m/s	0-0.35/0-0.12	0.12/0.12	0.13/0.10	0.13/0.10	0.13/0.10
Battery voltage,nominal capacity K ₁ (Duplex Mast)	V/Ah	24/300	24/240	24/120	24/120	24/200
Battery voltage,nominal capacity K ₂ (Triplex Mast)	V/Ah	24/300	24/240	~	~	~
Battery weight	kg	260	220	90	90	160
Battery dimensions l/w/h	mm	675x254x545	625x254x500	753x178x240	753x178x240	800x254x320
Service weight(with battery)	kg	1190/1240/1250/1340/1420/1450/1580	1140/1190/1200/1290/1370/1400/1530	730/750/770/795	750/770/790/815	760/810/835/860



Model: CDDR15S

This heavy stacker includes two models with a rated load capacity of 1500kgs. Specifically designed for intensive stocking operations at medium height warehouse. 2000kgs load can be transported using the initial lift function.

Advantages:

- The 4- points support structure with side tiller, low center of gravity design with excellent stability.
- Double pallet design: two pallet handled at one time, initial lift of load leg increases ground clearance to negotiate easily ramps, dock levelers and bridging plates.
- Vertical driving wheel, offer small turning radius, dustproof waterproof motor, easy for maintenance.
- Ac motor without carbon brush, good ramp braking performance, efficient electromagnetic parking brake.
- Free lifting mast with two side cylinders offers wide view for operators.

AC



Conforms to EN ISO3691-1
EN1175-1
EN16307-1
Based on Directive 2006/42/EC
Conform to EN Standard 12895
Based on directive: 2014/30/EU (EMC)

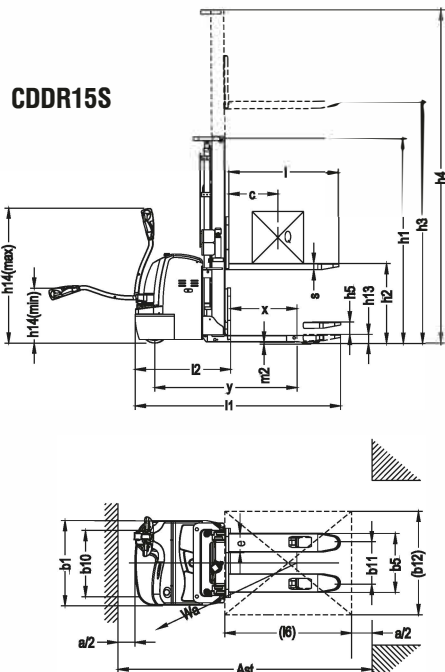
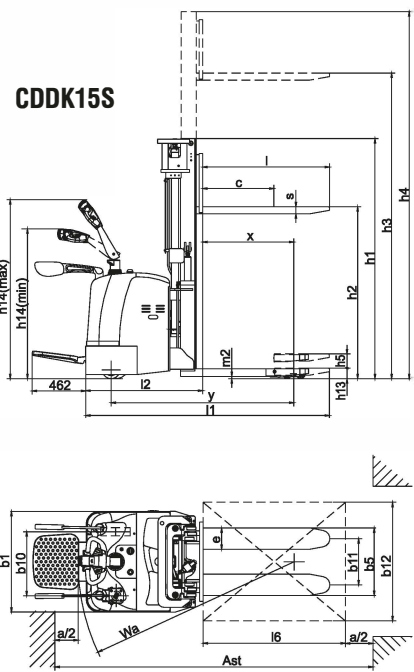
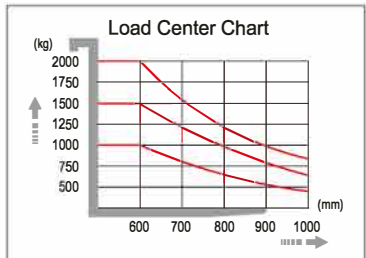
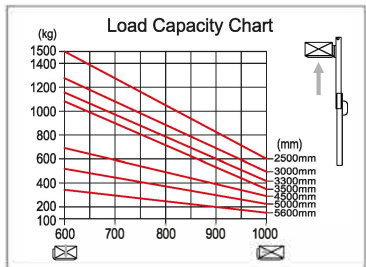
AC

Model: CDDK15S

1KG=2.205LB 1INCH=25.40MM

Model		CDDK15S		CDDR15S	
Load capacity/rated load	Q(kg)	1500	1500	1500	1500
Load centre distance	c(mm)	600	600	600	600
Load distance, centre of drive axle to fork	x(mm)	768	768	697	697
Tyre size, front	mm	Φ250X70	Φ250X70	Φ250×70	Φ250×70
Tyre size, rear	mm	Φ80X70	Φ80X70	Φ80×70	Φ80×70
Additional wheels(dimensions)	mm	Φ150X47	Φ150X47	Φ150×60	Φ150×60
Wheels, number front rear(x=driven wheels)		1x+1/4	1x+1/4	1x+1/4	1x+1/4
Height, mast lowered	h ₁ (mm)	1757/2007/2157/2257	2022/2182/2382	1757/2007/2157/2257	2022/2182/2382
Free lift	h ₂ (mm)	1300/1550/1700/1800	1570/1740/1940	1300/1550/1700/1800	1570/1740/1940
Max. lift height	h ₃ (mm)	2500/3000/3300/3500	4500/5000/5600	2500/3000/3300/3500	4500/5000/5600
Initial lift	h ₄ (mm)	120	120	120	120
Overall length	l ₁ (mm)	2058	2058	1982	1982
Length to face of forks	l ₂ (mm)	988	988	878	878
Overall width	b ₁ (mm)	850	850	820	820
Fork dimensions	s/e/l(mm)	60/180/1070(1150)	60/180/1070(1150)	60/180/1070(1150)	60/180/1070(1150)
Width overall forks	b ₂ (mm)	570/650	570/650	570/650	570/650
Aisle width for pallets 800x1200 lengthways	A ₀ (mm)	2575	2575	2500	2500
Turning radius	W _t (mm)	1665	1665	1575	1575
Travel speed, laden/unladen	Km/h	6.2/6.5	6.2/6.5	5.8/6	5.8/6
Lift speed, laden/unladen	m/s	0.11/0.14	0.11/0.14	0.11/0.14	0.11/0.14
Lowering speed, laden/unladen	m/s	0.12/0.12	0.12/0.12	0.12/0.12	0.12/0.12
Battery voltage, nominal capacity K ₂	V/Ah	24/240	24/300	24/240	24/240
Battery weight	kg	220	260	220	220
Battery dimensions l/w/h	mm	675X254X500	675X254X500	675×254×500	675×254×500
Service weight(with battery)	kg	1260	1260	1205	1205

1. With initial lift.
2. Calculated with height 3000mm, fork 1070mm.



Model:
CDDRD10
CDDRD12

Single Column Walkie
Stacker with wide view
mast and low service
weight, mainly used in very
confined warehouses and
double decker workshops
suit for indoor and outdoor
using and short-distance
traveling operation.
Particularly for low-force
withstanding floors.



Advantages:

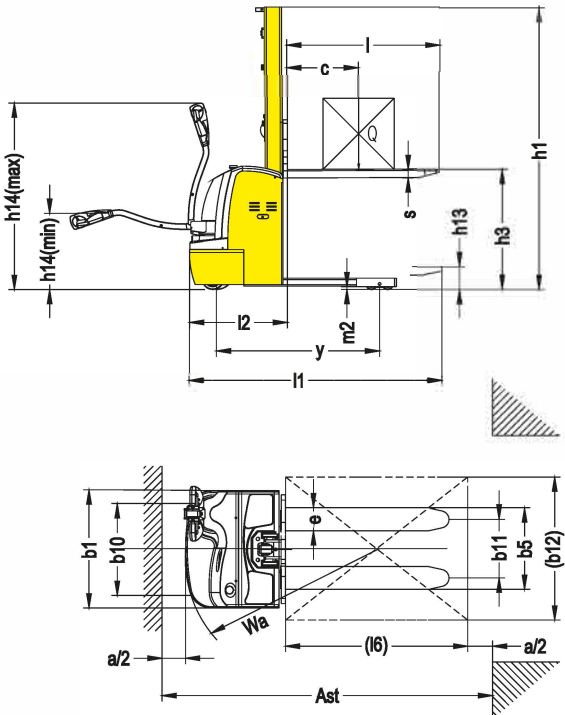
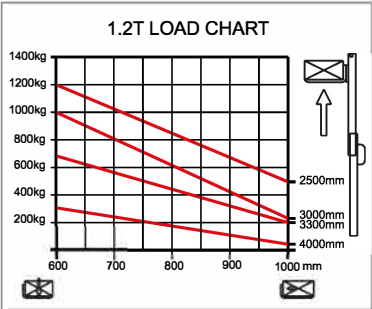
- Safety and productivity :**
- DC brushless motor with high transmission efficiency, have good ramp starting performance.
 - Low center of gravity, good stability and smooth running.
 - Small minimum turning radius and excellent steering operating performance.
 - With Anti-shock device, greatly reduce the noise.
 - The Multi function display instrument with BDI and working hours.
 - Using the built-in charger easy to access for charging battery.
 - Adopting Integrated electrical system, wiring easy to maintain.
 - Environmental & maintenance-free GEL battery.
 - Single Column mast with wide view for operation.
 - Emergency brake function improve the safety operation.
 - Low-voltage protection function.



Conforms to EN ISO3691-1
EN1175-1
EN16307-1
Based on Directive 2006/42/EC
Conform to EN Standard 12895
Based on directive: 2014/30/EU (EMC)

1KG=2.205LB 1INCH=25.40MM

Model		CDDRD10	CDDRD12
Capacity	Q(kg)	1000	1200
Load center	c(mm)	600	600
Front hanging distance	x(mm)	630	630
Tyre size, front	mm	φ250×70	φ250×70
Tyre size, rear	mm	φ80×70	φ80×70
Additional wheels(dimensions)	mm	φ150×60	φ150×60
Wheels, number front rear(x=driven wheels)		1x+1/4	1x+1/4
Height, mast lowered	h ₁ (mm)	1980/2330	1980/2330
Max. lift height	h ₂ (mm)	1600/1950	1600/1950
Height, mast extended	h ₃ (mm)	1980/2330	1980/2330
Height of tiller in drive position min./max.	h ₄ (mm)	670/1300	670/1300
Height, lowered	h ₅ (mm)	90	90
Overall length	l ₁ (mm)	1780/1860	1780/1860
Length to face of forks	l ₂ (mm)	708	708
Overall width	b ₁ (mm)	820	820
Fork dimensions	s/e/l(mm)	60/170/1070(1150)	60/170/1070(1150)
Width overall forks	b ₂ (mm)	570	570
Aisle width for pallets 800x1200 lengthways	A ₀ (mm)	2220	2220
Turning radius	W ₀ (mm)	1338	1338
Travel speed,laden/unladen	Km/h	5.3/5.6	5.3/5.6
Lift speed,laden/unladen	m/s	0.11/0.19	0.11/0.19
Lowering speed,laden/unladen	m/s	0.16/0.11	0.16/0.11
Battery voltage,nominal capacity K20	V/Ah	24/85	24/105
Battery weight	kg	48	50
Battery dimensions l/w/h	mm	255×165×230	255×165×230
Service weight (with battery)	kg	600	620



Model:
CPD15R

AC
EPS
option

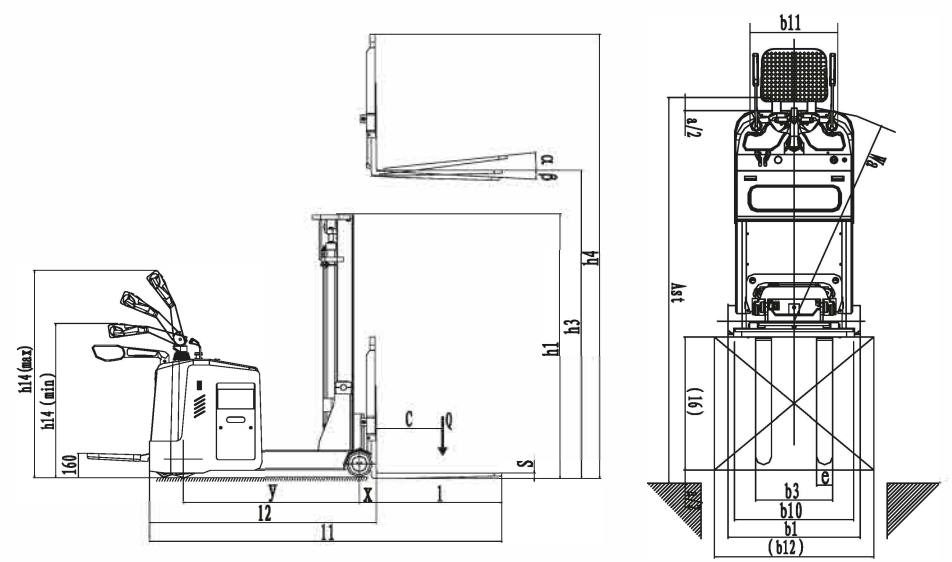
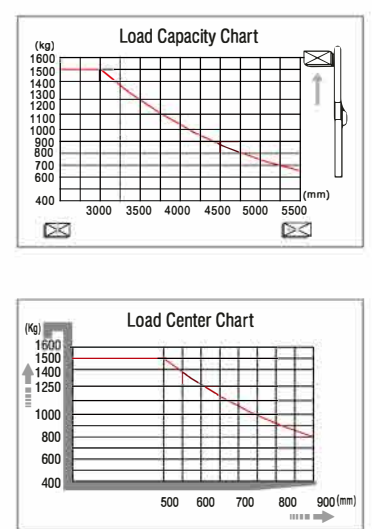


Advantages:

- STRUCTURAL**
 - Two lifting cylinders placed on outer sides of the mast.
 - Germany imported special steel mast.
 - Vertical driving wheel, driving efficiency, easy installation & maintenance.
 - Compact structure and low gravity.
- SAFETY AND EFFICIENCY**
 - AC frequency conversion traction motor: compact structure, good performance, regenerative braking and easy maintenance.
 - Tilting system forks easy for loading and stacking.
 - High Storage battery ensures strong and long-lasting power.
 - Meter with BDI, prolonging the battery's using time.
 - The braking system combines magnetic brake and regenerative break, greatly prolongs the using life of friction plate.
 - With emergency stop switch and electricity lock button, and multi-valve controlling levers, ergonomic for operation .
 - The adjustable regulator valve can adjust the lowering speed of the masts.
- EASY MAINTENANCE**
 - Magnet suction battery cover, easy for installation and maintenance.
 - AC controlling system, low noise, less maintenance.

1KG=2.205LB 1INCH=25.40MM

MODEL		CPD15R(EPS)	CPD15R
Load capacity	Q(kg)	1500	1500
Load center	c(mm)	500	500
Load distance	x(mm)	130	130
Tyre size, front	mm	Φ280×100	Φ250×70
Tyre size, rear	mm	Φ200×100	Φ200×100
Balance wheel dimension	mm	—	Φ150×60
Wheels, number front rear(x = driven wheels)	mm	1x/2	1x+2/2
Forks, tilt forward/back	°	3/6	3/6
Height, mast lowered	h ₁ (mm)	1735/1985/2235/1895/2085/2235/2435	1735/1985/2235/1895/2085/2235/2435
Free lift (option)	h ₂ (mm)	0 / 0 / 0 /1400/1500/1670/1870	0 / 0 / 0 /1400/1500/1670/1870
Max. lift height	h ₃ (mm)	2500/3000/3500/4000/4500/5000/5600	2500/3000/3500/4000/4500/5000/5600
Height, mast extended	h ₄ (mm)	3500/4000/4500/5000/5500/6000/6600	3500/4000/4500/5000/5500/6000/6600
Height of tiller in drive position min./max.	h _{1a} (mm)	1160/1460	1160/1460
Overall length	l ₁ (mm)	2660	2660
Length to face of fork	l ₂ (mm)	1700	1700
Overall width	b ₁ (mm)	990	990
Fork dimension	s/e/l(mm)	35/100/950(1070)	35/100/950(1070)
Width overall forks	b ₃ (mm)	220-680	220-680
Aisle width for pallets 800x1200 lengthways	A _s (mm)	3120	3120
Turning radius	W ₁ (mm)	1600	1600
Travel speed, laden /unladen	Km/h	6.8/7	6.8/7
Lifting speed, laden /unladen	m/s	0-0.12/0-0.16	0-0.12/0-0.16
Lowering speed, laden /unladen	m/s	0-0.45	0-0.45
Battery voltage , nominal capacity K5	V/Ah	24/280	24/280
Battery weight	kg	300-360	300-360
Battery dimensions (L/W/H)	mm	812x270x535	812x270x535
Service weight(with battery)	kg	2030	2030



Counterbalanced Electric Stacker



Advantages:

- STRUCTURAL**
 - Long handle structure makes it steering light and flexible.
 - Two lifting cylinders placed on outer sides of the mast.
 - Germany imported special steel mast.
 - Vertical driving wheel, driving efficiency, easy installation & maintenance.
 - Compact structure and low gravity.
- SAFETY AND EFFICIENCY**
 - AC frequency conversion traction motor: compact structure, good performance, regenerative braking and easy maintenance.
 - Tilting system forks easy for loading and stacking.
 - High Storage battery ensures strong and long-lasting power.
 - Meter with BDI, prolonging the battery's using time.
 - The braking system combines magnetic brake and regenerative break, greatly prolongs the using life of friction plate.
 - With emergency stop switch and electricity lock button, and multi-valve controlling levers, ergonomic for operation .
 - The adjustable regulator valve can adjust the lowering speed of the masts.
- EASY MAINTENANCE**
 - Magnet suction battery cover, easy for installation and maintenance.
 - AC controlling system, low noise, less maintenance.

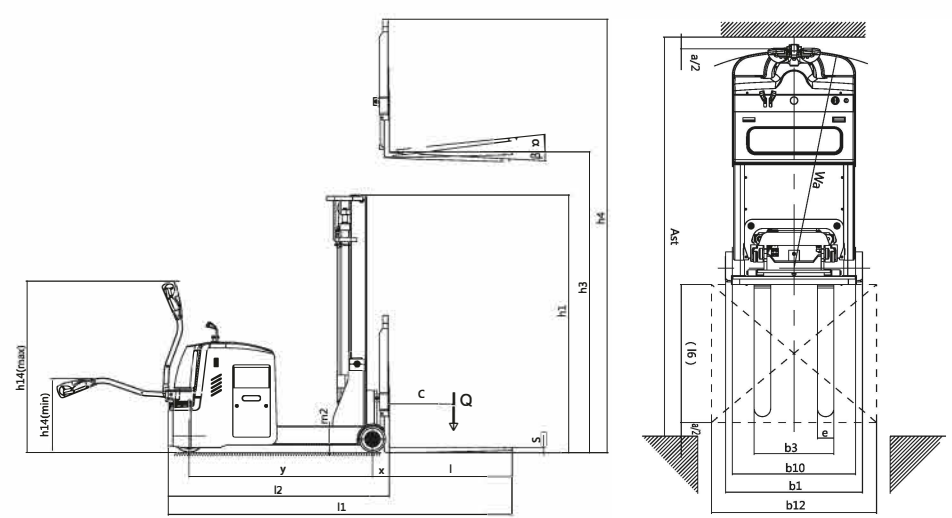
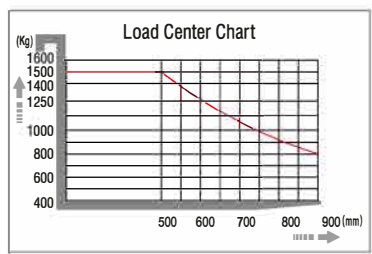
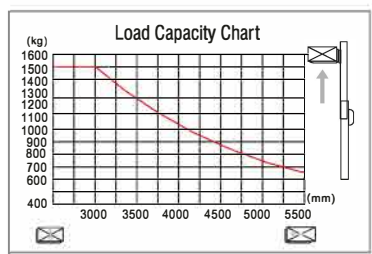
Model:
CPD15W

AC



1KG=2.205LB 1INCH=25.40MM

MODEL		CPD15W
Load capacity	Q(kg)	1500
Load center	c(mm)	500
Load distance	x(mm)	130
Tyre size, front	mm	Φ250×70
Tyre size, rear	mm	Φ200×100
Balance wheel dimension	mm	~
Wheels, number front rear(x = driven wheels)	mm	1x/2
Forks, tilt forward/back	°	3/6
Height, mast lowered	h ₁ (mm)	1735/1985/2235/1895/2085/2235/2435
Free lift (option)	h ₂ (mm)	0 / 0 / 0 /1400/1500/1670/1870
Max. lift height	h ₃ (mm)	2500/3000/3500/4000/4500/5000/5600
Height, mast extended	h ₄ (mm)	3500/4000/4500/5000/5500/6000/6600
Height of tiller in drive position min./max.	h ₅ (mm)	730/1360
Overall length	l ₁ (mm)	2650
Length to face of fork	l ₂ (mm)	1700
Overall width	b ₁ (mm)	990
Fork dimension	s/e/l(mm)	35/100/950(1070)
Width overall forks	b ₂ (mm)	220-680
Aisle width for pallets 800x1200 lengthways	A ₀ (mm)	3070
Turning radius	W ₀ (mm)	1570
Travel speed, laden /unladen	Km/h	5.8/6
Lifting speed, laden /unladen	m/s	0-0.12/0-0.16
Lowering speed, laden /unladen	m/s	0-0.45
Battery voltage , nominal capacity K5	V/Ah	24/280
Battery weight	kg	300-360
Battery dimensions (L/W/H)	mm	812x270x535
Service weight (with battery)	kg	2080



Electric Pallet Truck
Electric Stacker
Order Picker
Narrow Aisle Truck
Electric Tow Tractor
Hand Pallet Truck
Manual Stacker
Lift Table

Counterbalanced Electric Reach Stacker



Model:
CQD12R
CQD15R
Mast Reach Type

AC
EPS
option

CE
Conforms to
EN ISO3691-1:2012
EN1175-1:1998/A1:2010
EN16307-1:2013

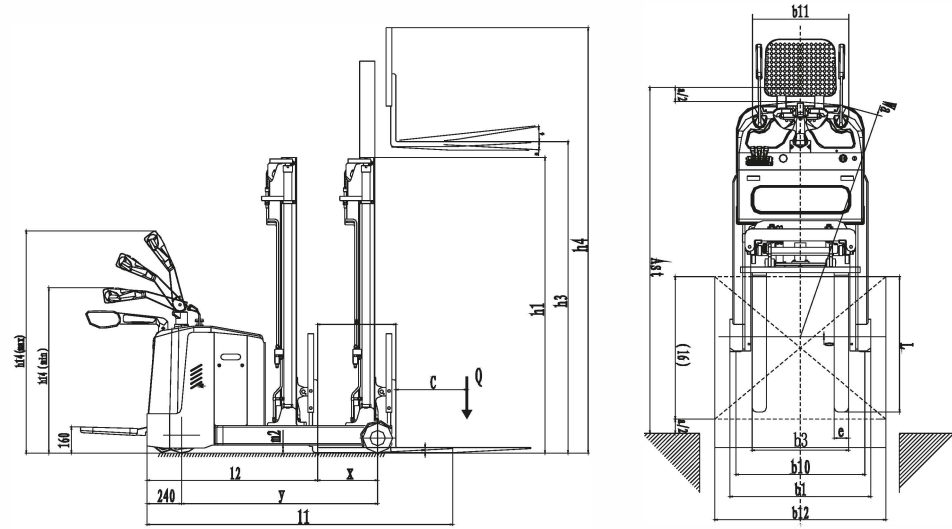
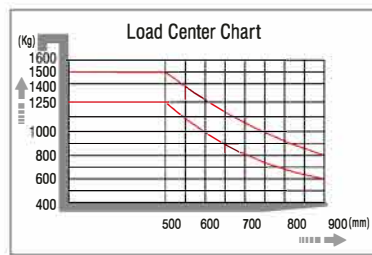
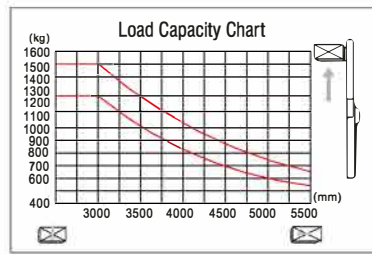
Advantages:

- STRUCTURAL**
- Two lifting cylinders placed on outer sides of the mast.
 - Germany imported special steel mast.
 - Vertical driving wheel, driving efficiency, easy installation & maintenance.
 - Compact structure and low gravity.
- SAFETY AND EFFICIENCY**
- AC frequency conversion traction motor: compact structure, good performance, regenerative braking and easy maintenance.
 - Tilting system forks easy for loading and stacking.
 - High Storage battery ensures strong and long-lasting power.
 - Meter with BDI, prolonging the battery's using time.
 - The braking system combines magnetic brake and regenerative break, greatly prolongs the using life of friction plate.
 - With emergency stop switch and electricity lock button, and multi-valve controlling levers, ergonomic for operation .
 - The adjustable regulator valve can adjust the lowering speed of the masts.
- EASY MAINTENANCE**
- Magnet suction battery cover, easy for installation and maintenance.
 - AC controlling system, low noise, less maintenance.



		1KG=2.205LB 1INCH=25.40MM	
Model		CQD12R	CQD15R
Load capacity	Q(kg)	1250	1500
Load center	c(mm)	500	500
Load distance	x(mm)	430	520
Tyre size, front	mm	Φ250x70	Φ250×70
Tyre size, rear	mm	Φ210x85	Φ210×85
Balance wheel size	mm	Φ150x60	Φ150×60
Wheels, number front rear(x = driven wheels)		1x+2/2	1x+2/2
Forks, tilt forward/back	°	3/6	3/6
Height, mast lowered	h ₁ (mm)	1820/2070/2320/1920/2080/2250/2420	1880/2118/2400/1953/2128/2298/2495
Free lift (option)	h ₂ (mm)	0 / 0 / 0 /1386/1550/1720/1886	0 / 0 / 0 /1280/1480/1600/1870
Max. lift height	h ₃ (mm)	2500/3000/3500/4000/4500/5000/5500	2500/3000/3500/4000/4500/5000/5600
Height, mast extended	h ₄ (mm)	3300/3800/4300/4800/5300/5800/6300	3500/4000/4500/5000/5500/6000/6600
Height of tiller in drive position min./max.	h ₅ (mm)	1160/1460	1160/1460
Overall length	l ₁ (mm)	2150	2250
Length to face of fork	l ₂ (mm)	1200	1240
Overall width	b ₁ (mm)	990	990
Fork dimension	s/e/l(mm)	35/100/950(1070/1150)	35/100/950(1070/1150)
Fork carriage width	b ₂ (mm)	220-680	220-680
Reach distance	l ₃ (mm)	560	650
Aisle width for pallets 800x1200 lengthways	A ₀ (mm)	2650	2750
Turning radius	W ₁ (mm)	1650	1750
Travel speed, laden/unladen	Km/h	6.8/7	6.8/7
Lifting speed, laden/unladen	m/s	0-0.13/0-0.16	0-0.13/0-0.16
Lowering speed, laden/unladen	m/s	0-0.45	0-0.45
Battery voltage, nominal capacity K5	V/Ah	24/240	24/240
Battery weight	kg	260-320	260-320
Battery dimensions (V/W/H)	mm	825x213x590	825×213×590
Service weight(with battery)	kg	1800	2140

* Option battery 270Ah.



Electric Pallet Truck
Electric Stackler
Order Picked
Narrow Aisle Truck
Electric Tow Tractor
Hand Pallet Truck
Manual Stackler
Lift Table

Model:
CQDH12A-I
CQDH15A-I

Multi-valve Control



Advantages:

- Compact structure are specially suit to use in very narrow Aisle warehouse.
- Low gravity, ensure safety operation.
- With disassemble type platform and protection arm.
- Use hydraulic type multi-valve to control I lifting/lowering , fork reach , fork tilting.
- Use Handle to control the truck forward and backward.
- The mast and frame are dividable and exchangeable.
- With small turning radius , with good operation performance.
- Multi function display with BDI and hour meter.
- Single Scissor fork reach distance is 500mm. Option of double reach can reach 1200mm (Option for CQDH15A)

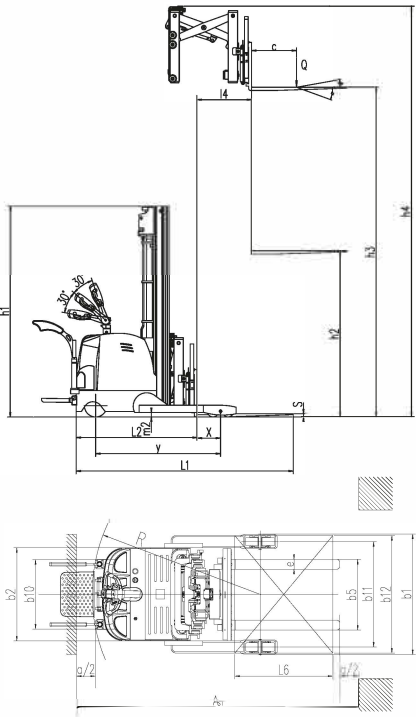
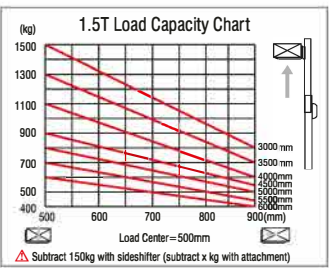
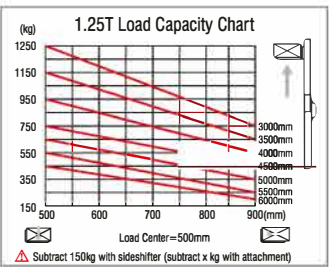
AC

EPS
option

1KG=2.205LB 1INCH=25.40MM

Model		Single scissor	
		CQDH12A-I	CQDH15A-I
Load capacity/rated load	Q(kg)	1250	1500
Load centre distance	c(mm)	500	500
Load distance,centre of drive axle to fork	x(mm)	365(double mast)/353(triple mast)	287(double mast)/315(triple mast)
Tyre size,front	mm	φ 250x80+150x62	φ 250x80+150x62
Tyre size,rear	mm	φ 150x82x2	φ 125x82X4
Wheels,number front rear(x=driven wheels)		1x+2/2	1x+2/4
Forks, tilt forward/back	°	2/5	2/5
Height,mast lowered	h ₁ (mm)	1853/2103/2353/2603/2163/2323/2483	1869/2119/2369/2619/2179/2341/2499
Free lift	h ₂ (mm)	~ / ~ / ~ / ~ /1575/1700/1825	~ / ~ / ~ / ~ /1575/1700/1825
Max. lift height	h ₃ (mm)	2500/3000/3500/4000/4500/5000/5500	2500/3000/3500/4000/4500/5000/5500
Height,mast extended	h ₄ (mm)	3381/3881/4381/4881/5381/5881/6381	3381/3881/4381/4881/5381/5881/6381
Overall length	l ₁ (mm)	2327/2327/2327/2327/2340/2340/2340	2364/2364/2364/2364/2384/2384/2384
Length to face of forks	l ₂ (mm)	1257/1270	1289(double mast)/1314(triple mast)
Overall width	b ₁ /b ₂ (mm)	1166-1266/950	1200-1300/950
Fork dimensions	s/a/l(mm)	35/100/1070	35/100/1070
Reach distance	l ₃ (mm)	500	500
Aisle width, with pallet 1000x1200 crosswise	A ₁ (mm)	2731 ¹ /2740 ²	2742 ¹ /2767 ²
Aisle width for pallets 800x1200 lengthways	A ₂ (mm)	2783 ¹ /2794 ²	2806 ¹ /2830 ²
Turning radius	W ₁ (mm)	1658	1613 ¹ /1647 ²
Travel speed,laden/unladen	Km/h	4.5/5 / 4.8/5	4.8/5
Lift speed,laden/unladen	m/s	0.12/0.15	0.095/0.12
Lowering speed,laden/unladen	m/s	0.27/0.2	0.2/0.15
Battery voltage,nominal capacity k5	V/Ah	24/320	24/320(460)
Battery weight	kg	285	285(360)
Battery dimensions	mm	812x270x535	812x270x535
Service weight(with battery)	kg	1800/1850/1900/1900/1950/2000/2050	2250/2300/2350/2350/2500/2550/2600

1. For duplex mast 2000-4000mm
2. For triplex mast 4500-5500mm



Model: CQDH15A-II CQDH20A-II Magnetic Valve Control

Advantages:

- STRUCTURAL**
- Reach stacker with very compact design, have different option with platform or without platform.
 - Low gravity, ensure safety operation.
 - Water proof and dust proof motor structure, keeps the braking and motor more durable and reliable.
 - Multi function display with BDI, hour meter and fault code.
 - Vertical driving wheel ensures convenient maintenance and small turning radius.
 - The mast and frame are dividable and exchangeable.

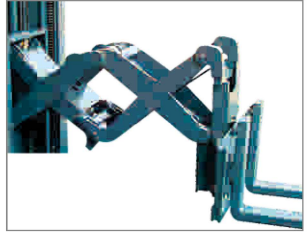
- SAFETY AND EFFICIENCY**
- Advanced AC drive motor eliminates replacement of carbon brush, with good ramp starting performance.
 - Use Germany Frei handle to control driving speed, lifting/lowering speed, sideshift, fork reach and tilting.
 - Cylinder have safety explosion proof valve, to avoid fork dropping suddenly when oil tube is broken. ensure the safety of operator.
 - Automatic speed deceleration when lifting height is up 1.8M.
 - Mast with micro switch limit the cylinder lifting height, avoid mast shock problems.
 - Low voltage protection setting prolongs the battery life. (while battery less 20% only can drive no lifting)
 - Option EPS power steering system, makes steering more light an reliable.

- SERVICE ABILITY**
- Platform and protection arm are disassembled, easy maintenance.
 - The electronic components concentrated simplifies the circuit and makes easily assemble and access.
 - Battery equipped with protect device, the trucks will automatic cut off power will when battery is under charging.

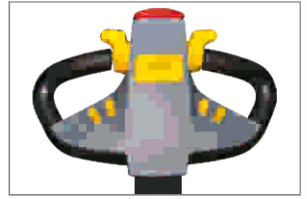


AC

EPS option



Option: Double scissors forks



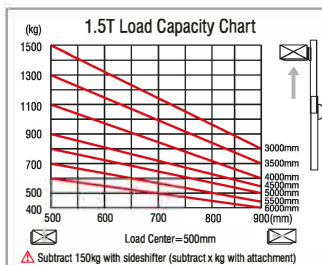
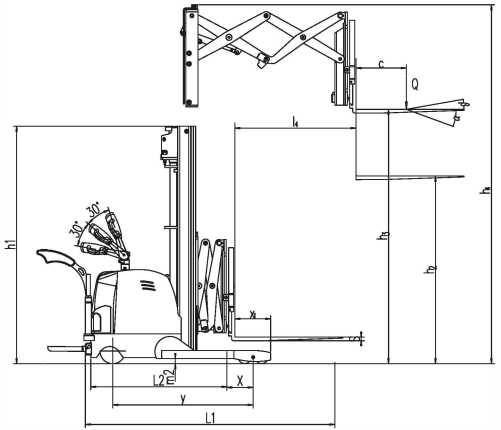
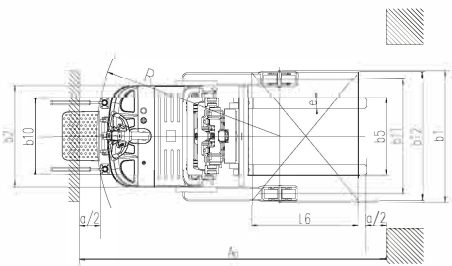
Standard Frei Tiller Head

CQDH15A-II /CQDH20A-II with platform

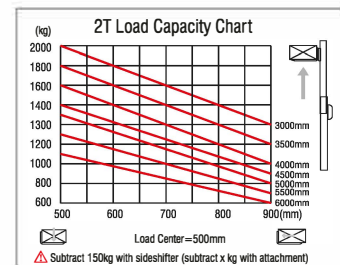
1KG=2.205LB 1INCH=25.40MM

Model		Single scissor		Double scissor	
		CQDH15A-II	CQDH20A-II	CQDH15A-II	CQDH20A-II
Load capacity/rated load	Q(kg)	1500	2000	1000	1000
Load centre distance	c(mm)	500	500	500	500
Load distance,centre of drive axle to fork	x(mm)	287(double mast)/315(triple mast)	265(double mast)/262(triple mast)	150	182/178
Tyre size,front	mm	φ 250x80 + 150x62	φ 250x80 + 150x62	φ 250x80 + 150x62x2	φ 250x80 + 150x62x2
Tyre size,rear	mm	φ 125x82X4	φ 125x82X4	φ 125x82X4	φ 125x82X4
Wheels,number front rear(x=driven wheels)		1x+2/4	1x+2/4	1x+2/4	1x+2/4
Forks, tilt forward/back	°	2/5	2/5	2/5	2/5
Height,mast lowered	h ₁ (mm)	1869/2119/2369/2619/2179/2341/2499	1875/2125/2375/2625/2185/2345/2505	2125/2375/2625/2185/2345/2505	
Free lift	h ₂ (mm)	~ / ~ / ~ / ~ /1575/1700/1825	~ / ~ / ~ / ~ /1575/1700/1825	~ / ~ / ~ /1575/1700/1825	
Max. lift height	h ₃ (mm)	2500/3000/3500/4000/4500/5000/5500	2500/3000/3500/4000/4500/5000/5500	3000/3500/4000/4500/5000/5500	
Height,mast extended	h ₄ (mm)	3381/3881/4381/4881/5381/5881/6381	3397/3897/4397/4897/5397/5881/6397	4035/4535/5035/5535/6035/6535	
Overall length	l ₁ (mm)	2364/2364/2364/2364/2384/2384/2384	2550/2550/2550/2550/2574/2574/2574	2635 ³ / 2655 ⁴	2535 ³ / 2557 ⁴
Length to face of forks	l ₂ (mm)	1289 ¹ / 1314 ²	1480 ¹ / 1504 ²	1565 ³ / 1585 ⁴	1393 ³ / 1417 ⁴
Overall width	b/b ₂ (mm)	1200-1300/950	1200-1300/950	1232/950	1232/950
Fork dimensions	s/s ₁ (mm)	35/100/1070	40/100/1070	35/100/1070	40/100/1070
Reach distance	l ₃ (mm)	500	500	1200	1200
Aisle width, with pallet 1000x1200 crosswise	A ₁ (mm)	2837 ¹ / 2871 ²	2928 ¹ / 2950 ²	2693 ³ / 2713 ⁴	2890 ³ / 2916 ⁴
Aisle width for pallets 800x1200 lengthways	A ₂ (mm)	2806 ¹ / 2830 ²	2996 ¹ / 3019 ²	3067 ³ / 3087 ⁴	2972 ³ / 2996 ⁴
Turning radius	W ₁ (mm)	1613 ¹ / 1647 ²	1779 ¹ / 1799 ²	1743 ³ / 1763 ⁴	1679 ³ / 1699 ⁴
Travel speed,laden/unladen	Km/h	4.8/5	4.8/5	4.8/5	4.8/5
Lift speed,laden/unladen	m/s	0.095/0.12	0.095 ³ 0.08 ⁴ / 0.12	0.095/0.12	0.1/0.17
Lowering speed,laden/unladen	m/s	0.2/0.15	0.2/0.15	0.2/0.15	0.2/0.13
Battery voltage,nominal capacity k5	V/Ah	24/320(460)	24/490(525)	24/320	24/490
Battery weight	kg	285(360)	380	285	380
Battery dimensions	mm	812x270x535	774x332x580	812x270x535	774x332x580
Service weight(with battery)	kg	2250/2300/2350/2350/2500/2550/2600	2450/2500/2550/2550/2700/2750/2800	2330/2380/2380/2530/2580/2630	2530/2580/2580/2730/2780/2830

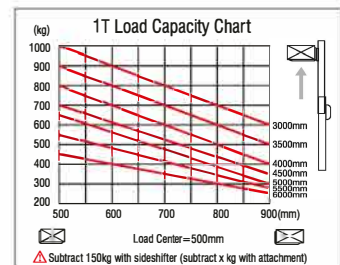
- 1. For duplex mast 2000-4000mm
- 2. For triplex mast 4500-5500mm
- 3. For duplex mast 3000-4000mm
- 4. For triplex mast 4500-5500mm
- 5. lift speed with sideshift
- 6. lift speed without sideshift



CQDH15A-II (single scissor)



CQDH20A-II (single scissor)



CQDH15A-II/CQDH20A-II (double scissor)



Electric Reach Stacker



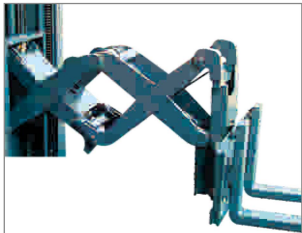
Model:
CQDH15A-II
CQDH20A-II

Magnetic Valve Control

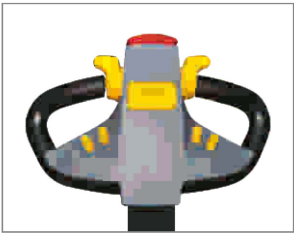
AC
EPS
option



No foot pedal & guard



Option: Double scissors forks

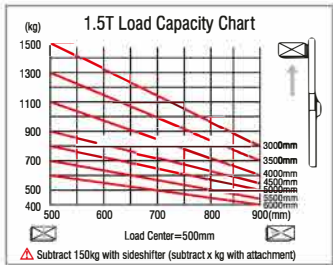
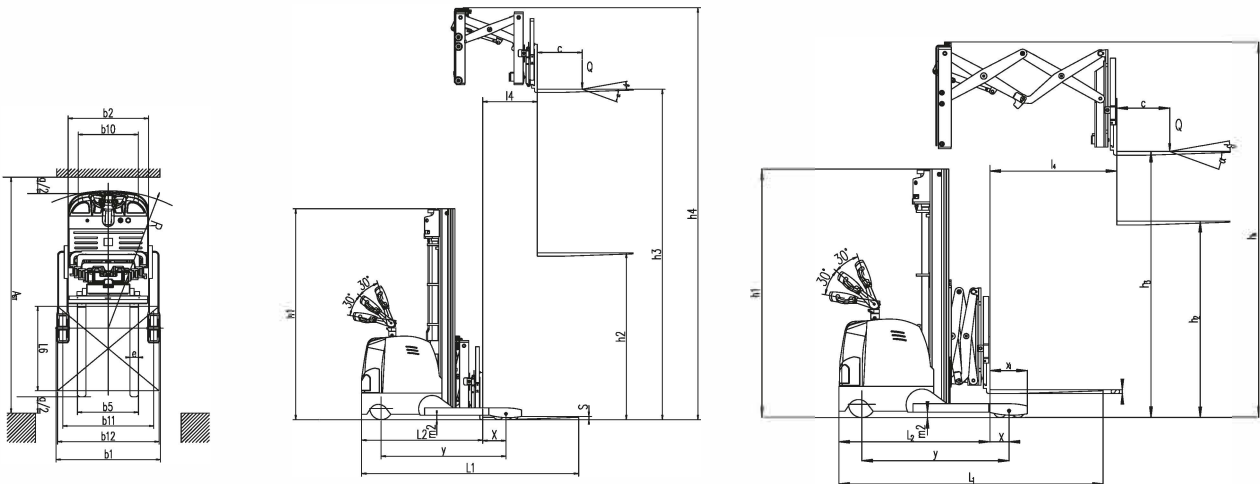


Frei Tiller Head

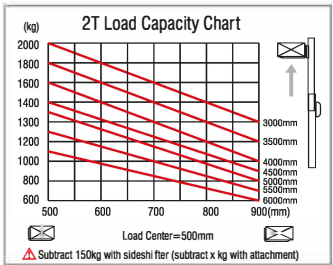
CQDH15A-II /CQDH20A-II without platform

1KG=2.205LB 1INCH=25.40MM

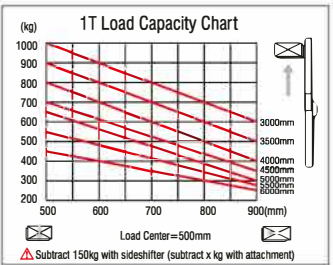
Model		CQDH15A-II (single scissor)		CQDH20A-II (single scissor)		CQDH15A-II (double scissor)		CQDH20A-II (double scissor)	
Load capacity/rated load	Q(kg)	1500		2000		1000		1000	
Load centre distance	c(mm)	500		500		500		500	
Load distance,centre of drive axle to fork	x(mm)	269/248		265/262		150		182(duplex mast) 178(triplex mast)	
Tyre size,front	mm	φ 250x80		φ 250x80		φ 250x80+150x62x2		φ 250x80+150x62x2	
Tyre size,rear	mm	φ 125x82X2		φ 125x82X2		φ 125x82X4		φ 125x82X4	
Wheels, number front rear(x=driven wheels)		1x+2/4		1x+2/4		1x+2/4		1x+2/4	
Forks, tilt forward/back	°	2/5		2/5		2/5		2/5	
Height,mast lowered	h ₁ (mm)	1619/1869/2119/2369/2619	2179/2341/2499/2669	1625/1875/2125/2375/2625	2185/2345/2505	2125/2375/2625	2185/2345/2505	2125/2375/2625	2185/2345/2505
Free lift	h ₂ (mm)	1575/1700/1825/2000		1575/1700/1825		~ / ~ / ~	1575/1700/1825	~ / ~ / ~	1575/1700/1825
Max. lift height	h ₃ (mm)	2000/2500/3000/3500/4000	4500/5000/5500/6000	2000/2500/3000/3500/4000	4500/5000/5500	3000/3500/4000	4500/5000/5500	3000/3500/4000	4500/5000/5500
Height,mast extended	h ₄ (mm)	2881/3381/3881/4381/4881	5381/5881/6381/6881	2897/3397/3897/4397/4897	5397/5897/6397	4035/4535/5035	5535/6035/6535	4035/4535/5035	5535/6035/6535
Overall length	l ₁ (mm)	2389	2430	2450	2474	2535	2555	2535	2557
Length to face of forks	l ₂ (mm)	1319	1360	1380	1404	1465	1485	1393	1417
Overall width	b ₁ /b ₂ (mm)	1220/950	1300/950	1220/950	1300/950	1232/950		1232/950	
Fork dimensions	s/e/l(mm)	35/100/1050		40/100/1050		35/100/1070		40/100/1070	
Reach distance	l ₃ (mm)	500		500		1200		1200	
Aisle width, with pallet 1000x1200 crosswise	A ₁ (mm)	2733	2770	2828	2850	2593	2613	2890	2916
Aisle width for pallets 800x1200 lengthways	A ₂ (mm)	2800	2840	2896	2919	2967	2987	2972	2996
Turning radius	W _s (mm)	1588	1608	1879	1899	1643	1663	1679	1699
Travel speed,laden/unladen	Km/h	4.8/5		4.8/5		4.8/5		4.8/5	
Lift speed,laden/unladen	m/s	0.095/0.12		0.08(no side shift)/0.095/0.12		0.095/0.12		0.1/0.17	
Lowering speed,laden/unladen	m/s	0.2/0.15		0.2/0.15		0.2/0.15		0.2/0.13	
Battery voltage,nominal capacity k5	V/Ah	24/320(460)		24/490(525)		24/320		24/490	
Battery weight	kg	285(360)		380		285		380	
Battery dimensions	mm	812x324x535 / 812x324x575		774x332x580 / 776x334x580		812x270x535		774x332x580	
Service weight(with battery)	kg	2250/2250/2300/2350/2350	2500/2550/2600/2650	2450/2450/2500/2550/2550	2700/2750/2800	2330/2380/2380	2530/2580/2630	2530/2580/2580	2730/2780/2830



CQDH15A-II (single scissor)



CQDH20A-II (single scissor)



CQDH15A-II/CQDH20A-II (double scissor)



Semi-electric Straddle Stacker



Model:
CTD10B-III
CTD15B-III

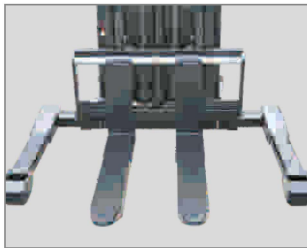
Straddle legs &
Adjustable forks

Advantages:

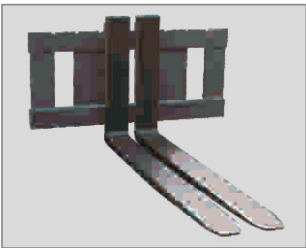
- Handle-castor chain assist steering system greatly reduces the labor intensity.
- Equipped with explosion-proof valve, against of sudden drop of forks and prevent operator from harm.
- Over-discharge protection device greatly prolongs the battery life time.
- Overall type adjustable forks, which can be lowered to the same level of the legs.
- Chain connect side wheel and handle , easy for steering .
- Easy operating foot brake.



Chain Assist Steering System



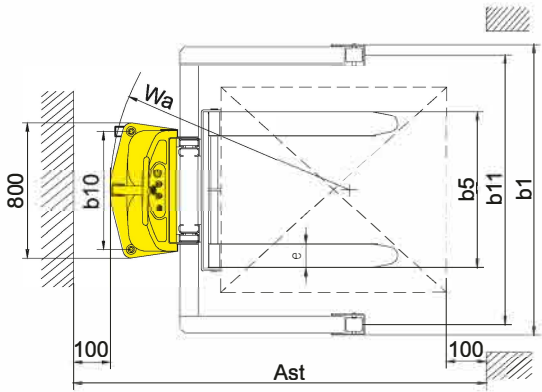
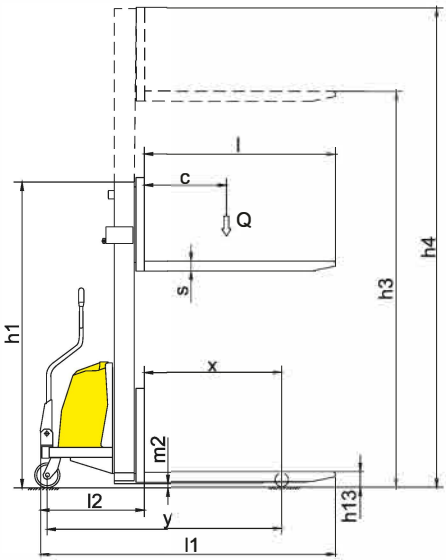
CTDB-III
Straddle legs & adjustable overall forks



CTDB-III
Straddle legs & adjustable forged forks

1KG=2.205LB 1INCH=25.40MM

Model		Overall forks		Forged forks	
		CTD10B - III	CTD15B - III	CTD10B - III	CTD15B - III
Load capacity	Q(kg)	1000	1500	1000	1500
Load centre distance	c(mm)	500	500	500	500
Load distance, centre of drive axle to fork	x(mm)	770	770	770	770
Tyre size, front	mm	φ 180x50	φ 180x50	φ 180x50	φ 180x50
Tyre size, rear	mm	φ 98x82	φ 98x82	φ 98x82	φ 98x82
Wheels, number front rear(x=driven wheels)		2/2	2/2	2/2	2/2
Fork height, lowered	h ₀ (mm)	90		80	
Height, mast lowered	h ₁ (mm)	2145/1895/2145/2395		2145/1895/2145/2395	
Max. lift height	h ₂ (mm)	1600/2500/3000/3500		1600/2500/3000/3500	
Height, mast extended	h ₃ (mm)	2145/3100/3600/4100		2145/3100/3600/4100	
Overall length	l ₁ (mm)	1735	1835	1735	1835
Length to face of forks	l ₂ (mm)	665	765	665	765
Overall width	b ₁ (mm)	1132-1532	1132-1532	1132-1532	1132-1532
Fork dimensions	s/b ₁ (mm)	60/142/1070	60/142/1070	35/100/1070	35/100/1070
Width overall forks	b ₂ (mm)	295-930	295-930	200-800	200-800
Aisle width for pallets 800x1200 lengthways	A _{st} (mm)	2267	2347	2362	2442
Turning radius	W _t (mm)	1425	1505	1520	1600
Lift speed, laden/unladen	m/s	0.07/0.09	0.07/0.09	0.07/0.09	0.07/0.09
Lowering speed, laden/unladen	m/s	0.1/0.13	0.1/0.13	0.1/0.13	0.1/0.13
Service brake		mechanical	mechanical	mechanical	mechanical
Battery voltage, nominal capacity K ₂	V/Ah	12/120	24/120	12/120	24/120
Battery weight	kg	45	90	45	90
Battery dimensions l/w/h	mm	360x170x250	360x170x250	360x170x265	360x170x265
Service weight (with battery)	kg	405/460/495/545	455/525/530/600	420/475/490/510	470/536/550/580



Electric Rider Straddle Stacker



Advantages:

SAFETY AND PRODUCTIVITY

- AC Motor eliminates replacement of carbon brush.
- Multi-function display with BDI and hour meter.
- Side way battery is easy to maintain.
- Damping cushion for low-noise operation;
- Emergency reversing device in the handle provides higher safety for the whole operation.
- Auto deceleration function makes operation more safely.
- Built-in pressure relief valve protects the trucks from overloads, increases the reliability.
- Braking applied with handle upright and horizontal position, increasing the safety of the truck.
- Emergency power disconnect switch.
- Turtle low speed switch.
- Stepless speed control.

OPTIMUM STRUCTURAL DESIGN:

- Low center of gravity ensures the stable operation.
- Vertical driving wheel ensures convenient maintenance and small turning radius. Water-proof and dust-proof motor structure, keeps the braking and motor more durable and reliable.
- The mast and the frame are dividable and exchangeable.



Model:
CTDK10
CTDK12
CTDK15

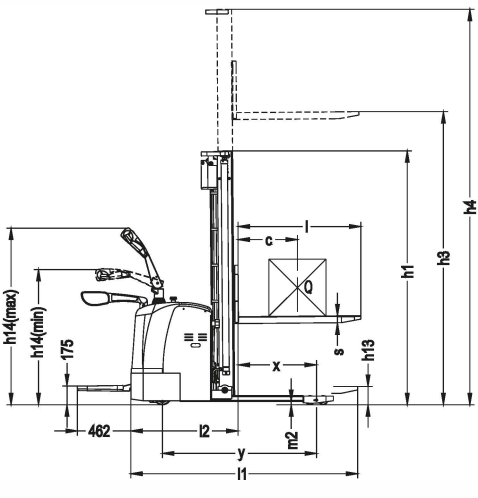
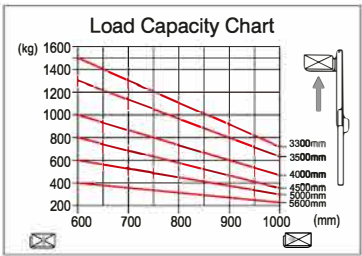
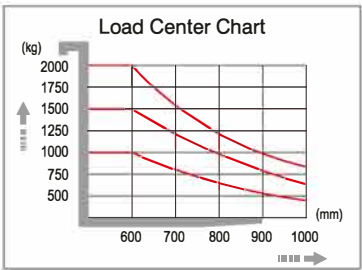
Straddle legs
& adjustable
forks

AC

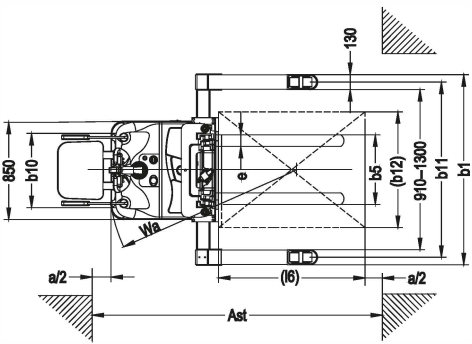
EPS
(Option)

* photo shown with model
CTDK15-II with free lifting

		1KG=2.205LB		1INCH=25.40MM		
Model		CTDK15- I	CTDK15- II	CTDK10- III	CTDK12- III	CTDK15- III
Load capacity/rated load	Q(kg)	1500	1500	1000	1200	1500
Load centre distance	c(mm)	600	600	600	600	600
Load distance,centre of drive axle to fork	x(mm)	677	677	795	795	795
Fork height, lowered	h ₂ (mm)	70	70	70	70	70
Tyre size,front	mm	φ 250 × 70	φ 250 × 70	φ 250 × 70	φ 250 × 70	φ 250 × 70
Tyre size rear	mm	φ 80 × 84	φ 80 × 84	φ 98 × 82	φ 98 × 82	φ 98 × 82
Additional wheels(dimensions)	mm	φ 150 × 60	φ 150 × 60	φ 150 × 60	φ 150 × 60	φ 150 × 60
Wheels,number front rear(x=driven wheels)		1x+2/4	1x+2/4	1x1/4	1x1/4	1x1/4
Height,mast lowered	h ₁ (mm)	1805/2055/2205/2305/2120/2280/2480	1805/2055/2205/2305/2120/2280/2480	2145/1895/2145/2295		
Free lift (option 2500~3500mm)	h ₂ (mm)	1300/1550/1700/1800/1570/1740/1940	1300/1550/1700/1800/1570/1740/1940	~		
Max. lift height	h ₃ (mm)	2500/3000/3300/3500/4500/5000/5600	2500/3000/3300/3500/4500/5000/5600	1600/2500/3000/3300		
Height,mast extended	h ₄ (mm)	3025/3525/3825/4025/5080/5560/6160	3025/3525/3825/4025/5080/5560/6160	2145/3145/3645/3995		
Height of tiller in drive position min./max.	h ₅ (mm)	1150/1450	1150/1450	1150/1450		
Overall length	l ₁ (mm)	2020/2100	2020/2100	1975	1975	2055
Length to face of forks	l ₂ (mm)	962	962	890	890	970
Overall width	b ₁ (mm)	1170-1560	1170-1560	1182-1582	1182-1582	1182-1582
Fork dimensions	s/e/l(mm)	35/100/1070(1150)	35/100/1070(1150)	35/100/1070(1150)	35/100/1070(1150)	35/100/1070(1150)
Width overall forks	b ₂ (mm)	200-800	200-800	200-800	200-800	200-800
Aisle width for pallets 800x1200 lengthways	A _s (mm)	2545	2545	2490	2490	2570
Turning radius	W _t (mm)	1695	1695	1625	1625	1705
Travel speed,laden/unladen	Km/h	6.5/6.7	6.5/6.7	6.5/6.7(AC)	6.5/6.7(AC)	6.5/6.7(AC)
Lift speed,laden/unladen	m/s	0-0.12/0-0.19	0.11/0.14	0.06/0.13	0.06/0.13	0.06/0.13
Lowering speed,laden/unladen	m/s	0-0.35/0-0.12	0.12/0.12	0.13/0.10	0.13/0.10	0.13/0.10
Battery voltage,nominal capacity K5	V/Ah	24/300	24/240(24/300)	24/120	24/120	24/200
Battery weight	kg	260	220(260)	90	90	160
Battery dimensions l/w/h	mm	675x254x500	675x254x500(540)	753x178x240	753x178x240	800x254x320
Service weight (with battery)	kg	1260/1285/1300/1310/1360/1380/1400	1200/1225/1240/1250/1300/1320/1340	650/700/730/750	660/710/740/760	780/830/840/850



Model	Remarks
CTDK15- I	High configuration with proportional valve
CTDK15- II	Standard configuration
CTDK15- III	Light duty type
CTDK10- III/12- III	Economy type (DC brushless)



Electric Walkie Straddle Stacker



Model:
CTDR10
CTDR12
CTDR15

Straddle legs with adjustable forks

AC

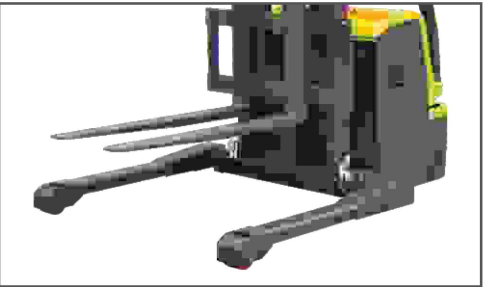
Advantages: (CTDR15-I/CTDR15-II)

STRUCTURAL AND SAFETY:

- Advanced AC control system intelligentized regenerative brake system.
- Multi-function display with BDI and hour meter.
- Emergency reversing device.
- Auto deceleration system utilizes regenerative braking.
- Built-in pressure relief valve protects the trucks from overloads.
- Emergency power disconnect switch.
- Stepless speed control.
- With lifting limit switch to shut off pump motor at top max. lifting height.
- Small turning radius standing drive motor system, water-proof and dust-proof motor structure.

SERVICEABILITY:

- CANbus technology reduces wiring complexity.
- Side-way battery with roll-out system, convenient for replacement.



Model	Remarks
CTDR15- I	High configuration with proportional valve
CTDR15- II	Standard configuration
CTDR15- III	Light duty type
CTDR10- III/12- III	Economy type (DC brushless)

* photo show with model CTDR15-III with duplex mast

		1KG=2.205LB		1INCH=25.40MM		
Model		CTDR15- I	CTDR15- II	CTDR10- III	CTDR12- III	CTDR15- III
Load capacity/rated load	Q(kg)	1500	1500	1000	1200	1500
Load centre distance	c(mm)	600	600	500	500	600
Load distance,centre of drive axle to fork	x(mm)	677	677	795	795	795
Fork height, lowered	h ₁ (mm)	70	70	70	70	70
Tyre size, front	mm	φ 250×70	φ 250×70	φ 250×70	φ 250×70	φ 250×70
Tyre size, rear	mm	φ 80×84	φ 80×84	φ 98×82	φ 98×82	φ 98×82
Additional wheels(dimensions)	mm	φ 150×60	φ 150×60	φ 150×60	φ 150×60	φ 150×60
Wheels,number front rear(x=driven wheels)		1x+1/4	1x+1/4	1x1/4	1x1/4	1x1/4
Mast height lowered	h ₁ (mm)	1805/2055/2205/2305/2120/2280/2480	1805/2055/2205/2305/2120/2280/2480	2145/1895/2145/2295		
Free lift (option 2500—3500mm)	h ₂ (mm)	1300/1550/1700/1800/1570/1740/1940	1300/1550/1700/1800/1570/1740/1940	~		
Max. lift height	h ₃ (mm)	2500/3000/3300/3500/4500/5000/5600	2500/3000/3300/3500/4500/5000/5600	1600/2500/3000/3300		
Mast height extended	h ₄ (mm)	3025/3525/3825/4025/5080/5560/6160	3025/3525/3825/4025/5080/5560/6160	2145/3145/3645/3995		
Height of tiller in drive position min./max.	h ₅ (mm)	670/1300	670/1300	670/1300	670/1300	670/1300
Overall length	l ₁ (mm)	1980	1980	2015	2015	2095
Length to face of forks	l ₂ (mm)	915	915	890	890	970
Overall width	b ₁ (mm)	1170-1560	1170-1560	1182-1582	1182-1582	1182-1582
Fork dimensions	s/e/l(mm)	35/100/1070(1150)	35/100/1070(1150)	35/100/1070(1150)	35/100/1070(1150)	35/100/1070(1150)
Width overall forks	b ₂ (mm)	200-800	200-800	200-800	200-800	200-800
Aisle width for pallets 800x1200 lengthways	A _s (mm)	2465	2465	2420	2420	2500
Turning radius	W _t (mm)	1610	1610	1575	1575	1655
Travel speed,laden/unladen	Km/h	5.8/6	5.8/6	5.3/5.6	5.3/5.6	5.8/6(AC)
Lift speed,laden/unladen	m/s	0~0.12/0~0.19	0.11/0.14	0.06/0.13	0.06/0.13	0.06/0.13
Lowering speed,laden/unladen	m/s	0~0.35/0~0.12	0.12/0.12	0.13/0.10	0.13/0.10	0.13/0.10
Battery voltage,nominal capacity K _s	V/Ah	24/300	24/240	24/120	24/120	24/200
Battery weight	kg	260	220	90	90	160
Battery dimensions l/w/h	mm	675x254x500	675x254x500	753x178x240	753x178x240	800x254x320
Service weight (with battery)	kg	1090/1210/1230/1250/1415/1460/1500	1040/1160/1170/1200/1375/1410/1450	760/780/800/825	780/800/820/845	940/960/980/1005

