



**NPP16N2**  
**NPP18N2**  
**NPP20N2**

**NPP16PD**

**NPP20N2R**  
**NPP20N2E**

# PEDESTRIAN POWER

## **SPECIFICATIONS**

**PEDESTRIAN POWER PALLET TRUCKS** 24V, 1.6 - 2.0 TONNES





# IDEAL FOR EFFICIENT LOADING, UNLOADING AND SHUTTLE APPLICATIONS

TAKING MOST OF THE LEGWORK OUT OF PEDESTRIAN PALLET HANDLING, THE NPP RANGE IS IDEAL FOR BOTH HORIZONTAL MOVEMENTS AND VEHICLE LOADING/UNLOADING. ITS INDUSTRY-LEADING PERFORMANCE INSPIRES CONFIDENCE AND BOOSTS PRODUCTIVITY IN ANY APPLICATION.



The NPP16N2 is an ideal all-round machine for light handling applications and is small enough to be used on a mezzanine floor or transported in the back of a goods vehicle. The NPP18N2 and NPP20N2 add greater capacity for heavier loads and more intensive work.



The NPP16PD pedestrian double pallet handler boosts productivity by carrying two pallets simultaneously (one above the other). It is ideal for loading and unloading on dock levellers, picking and refilling, and transporting loads over short distances in warehouses, supermarkets and production areas.



The NPP20N2R is equipped with a foldable platform for occasional use when driving over longer distances. The spacious platform of the NPP20N2R, with suspension for a comfortable ride, is easy to get on and off, and also offers good ground clearance.



The NPP20N2E is equipped with lifting forks (735 mm height) that offer an ergonomic position for loading and unloading items with minimal physical strain.

## LOWER COST OF OWNERSHIP

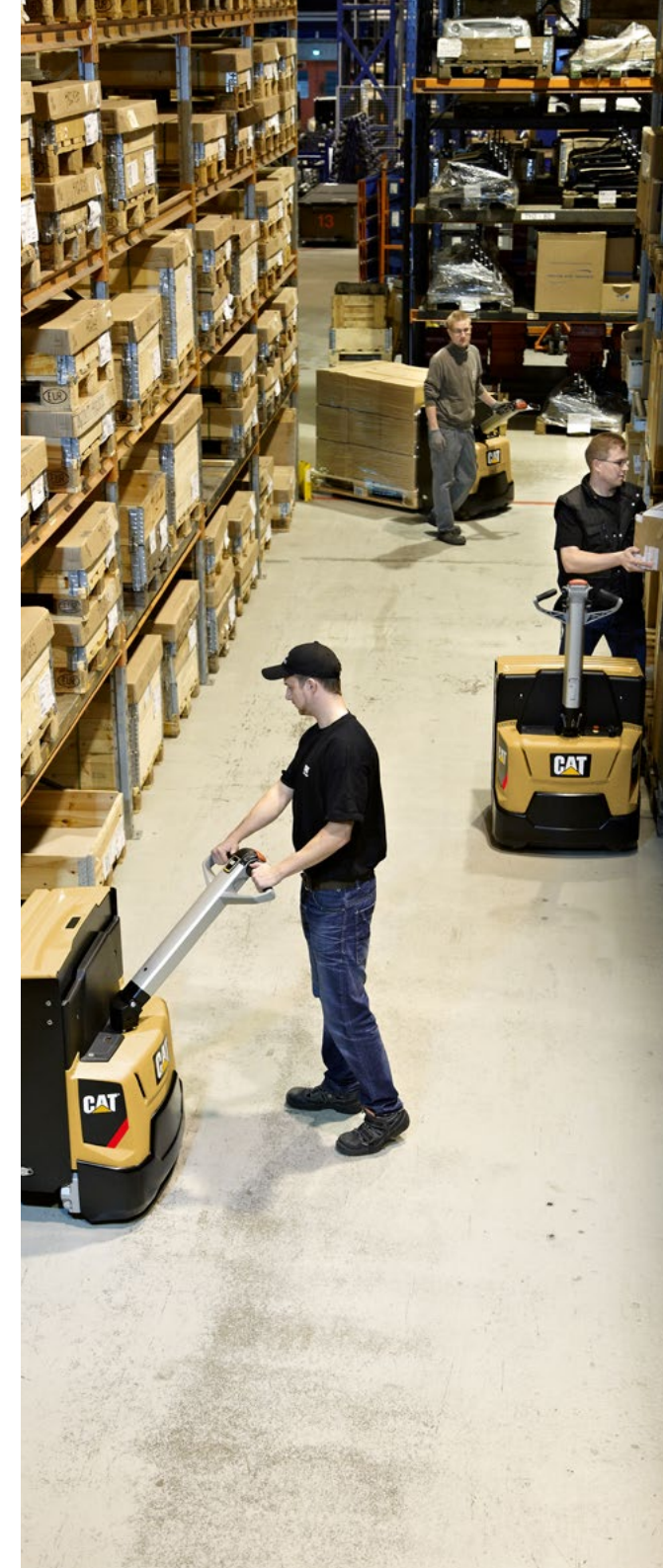
- Sturdy chassis construction and endurance-tested forks provide enhanced robustness and durability even in the toughest conditions.
- Sealed chassis and waterproof electrics resist moisture, dirt and corrosion - increasing uptime, cutting maintenance costs and prolonging truck life.
- Easy access to critical truck components allows faster fault diagnosis and speedier maintenance, reducing downtime still further.
- Integrated drive and lift system features fewer components than previous models, reducing scope for breakdown.
- Closed battery compartment with steel cover protects battery against impacts, postponing costly battery replacement.
- Standard battery sizes allow interchangeability with other brands.

## UNMATCHED PRODUCTIVITY

- Ergonomic tiller arm helps keep operators fresh with comfortable controls.
- Increased maximum lift height suits even steep ramps and loading docks, making this an ideal truck for both horizontal pallet movements and vehicle loading/unloading.
- Advanced AC programmable controller lets users prioritise between faster performance and smoother handling, ensuring the most appropriate settings for the job.
- Rounded fork tips make for accurate and effortless pallet entry, speeding up handling cycles and preventing pallet or load damage.
- The NPP20N2R, with a maximum speed of 6 km/h, is equipped with a foldable platform for occasional use when driving over longer distances.
- The double pallet handler, NPP16PD, can carry two pallets simultaneously (one above the other) for higher productivity with no need for wider passage space.

## SAFETY AND ERGONOMICS

- Latest tiller arm design permits comfortable operating position with optimum hand protection.
- Super-quiet oil-filled transmission helps keep noise levels low.
- Optional large lift and lower levers allow easy, one-handed control, even with gloves.
- Linked suspension castor wheels ensure highest possible truck stability.
- The spacious platform of the NPP20N2R, with suspension for a comfortable ride, is easy to get on and off, and also offers good ground clearance.
- The NPP20N2E is equipped with lifting forks (735 mm height) that offer an ergonomic position for loading and unloading items with minimal physical strain.
- Patented 4-point Friction Force suspension on NPP16PD double pallet handler ensures constant drive wheel pressure on uneven surfaces, for greater stability, traction and control of steering.
- Offset tiller arm on NPP16PD double pallet handler allows operator to walk alongside and improves visibility.



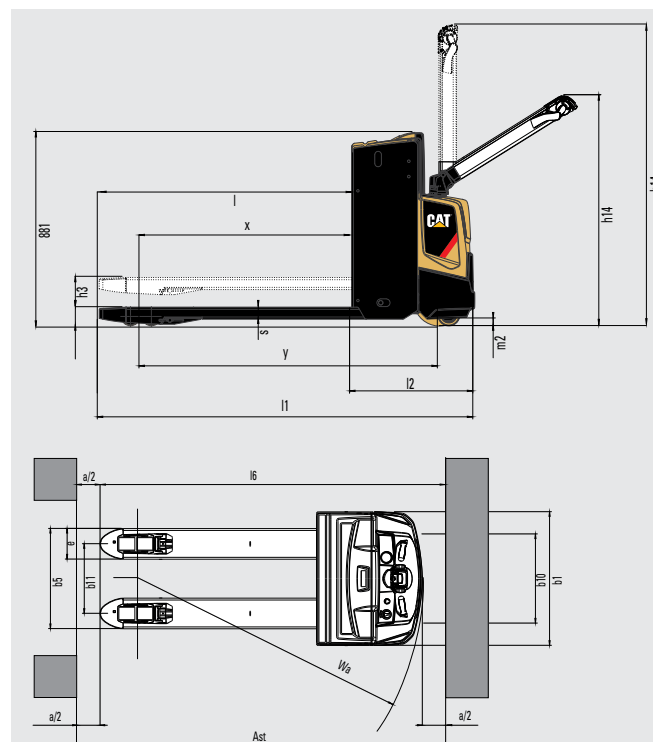
# STANDARD EQUIPMENT AND OPTIONS

	NPP16N2	NPP18N2	NPP20N2	NPP16PD	NPP20N2R	NPP20N2E
<b>GENERAL</b>						
LED battery discharge indicator, no hour meter	●	●	●	—	●	●
Micro-computer incl. hour meter and battery indicator with cutout (ATC T4)	—	—	—	●	—	—
PIN code login 100 codes	—	—	—	●	—	—
PIN code login 4 codes	○	○	○	—	○	○
Offset tiller arm with display and keypad	—	—	—	●	—	—
Chill store design, down to 1°C, with rust-protected axles	—	—	—	●	—	—
Electric on/off valve for lifting and lowering, controlled by rocker switch on tiller head	●	●	●	●	●	●
Polyurethane drive wheel or rubber	—	—	—	●	—	—
Initial lift	—	—	—	●	—	●
Single or tandem load wheels Polyurethane	●	●	●	●	●	●
Li-ion batteries	—	—	—	○	—	—
<b>ENVIRONMENT</b>						
Cold store design, 0°C to -35°C	○	○	○	○	○	○
Hot operating condition modification, >30°C	○	○	○	—	○	○
<b>DRIVE AND LIFT CONTROLS</b>						
Heavy duty tiller head - with key switch entry	—	—	—	○	—	—
Tiller in line with chassis contour	—	—	—	○	—	—
Tiller up drive	●	●	●	○	●	●
Fingertip levers on tiller arm, lift & lowering	○	○	○	●	○	○
<b>WHEEL OPTIONS</b>						
Polyurethane traction and load wheels	●	●	●	●	●	●
Power friction traction wheel	○	○	○	○	○	○
Tandem Polyurethane load wheels	○	●	●	●	●	●
Single Polyurethane load wheels	○	●	●	●	●	●
Non-marking drive wheel	—	—	—	○	—	—
Anti-static drive wheel	—	—	—	○	—	—
<b>OTHER OPTIONS</b>						
Rubber foot protection	—	—	—	○	—	—
Diselectric band	—	—	—	○	—	—
Key switch	●	●	●	—	●	●
Capacity 2000kg on straddles	—	—	—	○	—	—
Piezo buzzer instead of standard horn	—	—	—	○	—	—
Load backrest	○	○	○	○	○	○
Special RAL colour	○	○	○	○	○	○
Inbuilt charger 30A	○	○	○	—	○	○
Sideways battery change, 250Ah and 375Ah battery only	—	○	○	—	○	—
Battery changing device	—	○	○	—	○	—
Accessory rack	○	○	○	—	○	○
Working light	○	○	○	—	○	○



Characteristics		
1.1	Manufacturer	
1.2	Manufacturer's model designation	
1.3	Power source	
1.4	Operator type	
1.5	Load capacity	Q (kg)
1.6	Load centre distance	c (mm)
1.8	Load wheel axle to fork face (forks lowered)	x (mm)
1.9	Wheelbase	y (mm)
2.0 Weight		
2.1	Truck weight without load, with maximum battery weight	kg
2.2	Axle loadings with nominal load & maximum battery weight, drive / load side	kg
2.3	Axle loadings without load & with maximum battery weight, drive / load side	kg
3.0 Wheels, Drive Train		
3.1	Tyres: PT = Power Thane, Vul = Vulkollan, P = Polyurethane, N = Nylon, R = Rubber drive / load side	
3.2	Tyre dimensions, drive side	(mm)
3.3	Tyre dimensions, load side	(mm)
3.4	Castor wheel dimensions (diameter x width)	(mm)
3.5	Number of wheels, load / drive side (x = driven)	
3.6	Track width (centre of tyres), drive side	b10 (mm)
3.7	Track width (centre of tyres), load side	b11 (mm)
4.0 Dimensions		
4.2a	Height	h1 (mm)
4.3	Free lift	h2 (mm)
4.4	Lift height	h3 (mm)
4.5	Height with mast extended	h4 (mm)
4.6	Initial lift	h5 (mm)
4.8	Seat or stand height	h7 (mm)
4.9	Height of tiller arm / steering console (min/max)	h14 (mm)
4.15	Fork height, fully lowered	h13 (mm)
4.19	Overall length	l1 (mm)
4.20	Length to fork face	l2 (mm)
4.21	Overall width	b1/b2 (mm)
4.22	Fork dimensions (thickness, width, length)	s / e / l (mm)
4.25	Outside width over forks (minimum / maximum)	b5 (mm)
4.32	Ground clearance at centre of wheelbase, (forks lowered)	m2 (mm)
4.33c	Working aisle width (Ast) with 1000 x 1200 mm pallets, load crosswise, platform up/down	Ast (mm)
4.34a	Working aisle width (Ast) with 800 x 1200 mm pallets, load lengthwise	Ast (mm)
4.34b	Working aisle width (Ast3) with 800 x 1200 mm pallets, load lengthwise	Ast3 (mm)
4.34c	Working aisle width (Ast) with 800 x 1200 mm pallets, load lengthwise, platform up/down	Ast (mm)
4.35	Turning radius	Wa (mm)
5.0 Performance		
5.1	Travel speed, with / without load	km / h
5.2	Lifting speed, with / without load	m / s
5.3	Lowering speed, with / without load	m / s
5.7	Gradeability, with / without load	%
5.9	Acceleration time (10 metres) with / without load	s
5.10	Service brakes (mechanical / hydraulic / electric / pneumatic)	
6.0 Electric motors		
6.1	Drive motor capacity (60 min. short duty)	kW
6.2	Lift motor output at 15% duty factor	kW
6.3	Battery to DIN	
6.4	Battery voltage/capacity at 5-hour discharge	V / Ah
6.5	Battery weight	kg
8.0 Miscellaneous		
8.1	Type of drive control	
10.7	Level of noise at the ear level of the driver according to EN 12 053:2001 and EN ISO 4871 in work LpAZ	dB (A)
10.7.1	Level of noise at the ear level of the driver according to EN 12 053:2001 and EN ISO 4871, drive/lift/idle LpAZ	dB (A)
10.7.2	Whole-body vibration (EN 13 059:2002)	
10.7.3	Hand-arm vibration (EN 13 059:2002)	

Cat Lift Trucks	Cat Lift Trucks	Cat Lift Trucks
NPP16N2	NPP18N2	NPP20N2
Battery	Battery	Battery
Pedestrian	Pedestrian	Pedestrian
1600	1800	2000
600	600	600
960	960	960
1360	1424	1424
431	502	634
635 / 1396	806 / 1496	864 / 1770
332 / 99	381 / 121	475 / 159
Vul / Vul	Vul / Vul	Vul / Vul
230 x 70	230 x 70	230 x 70
85 x 90	85 x 75	85 x 75
100 x 40	100 x 40	100 x 40
2 + 1 x / 2	2 + 1 x / 4	2 + 1 x / 4
480	480	480
355 / 375 / 495	355 / 375 / 495	355 / 375 / 495
135	135	135
-	-	-
-	-	-
1050 / 1372	1050 / 1372	1050 / 1372
85	85	85
1648	1712	1712
498	562	562
720	720	720
55 / 165 / 1150	55 / 165 / 1150	55 / 165 / 1150
520 / 540 / 660	520 / 540 / 660	520 / 540 / 660
30	30	30
1694	1758	1758
6.0 / 6.0	6.0 / 6.0	6.0 / 6.0
0.035 / 0.045	0.035 / 0.045	0.04 / 0.06
0.05 / 0.05	0.05 / 0.05	0.05 / 0.05
10.0 / 20.0	10.0 / 20.0	10.0 / 20.0
Electric	Electric	Electric
1.0	1.0	1.0
0.8	0.8	1.2
24 / 150	24 / 250	24 / 250 - 375 <sup>1)</sup>
151	212	212-294
Stepless	Stepless	Stepless
62 / 69 / 0	62 / 69 / 0	65 / 67 / 0
-	-	-
< 2.5	< 2.5	< 2.5



#### NPP16/18/20N2

Ast =  $Wa - x + l6 + 200$

Ast = Working aisle width

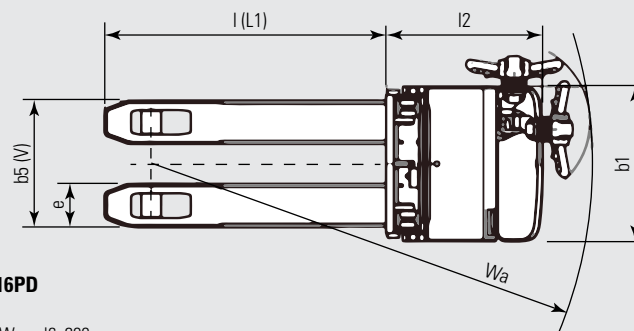
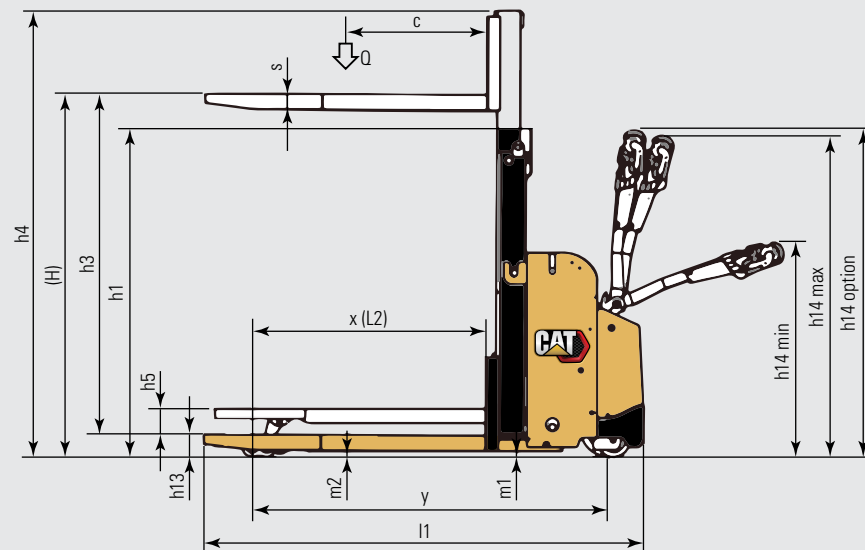
Wa = Turning radius

a = Safety clearance (200 mm)

l6 = Pallet length

1) With 375Ah battery the l2 dimension increases 72mm

Characteristics			
1.1	Manufacturer		Cat Lift Trucks
1.2	Manufacturer's model designation		<b>NPP16PD</b>
1.3	Power source		Battery
1.4	Operator type		Pedestrian
1.5	Load capacity	Q (kg)	1600 / 800 + 800
1.6	Load centre distance	c (mm)	600
1.8	Load wheel axle to fork face (forks lowered)	x (mm)	990
1.9	Wheelbase	y (mm)	1510
2.0 Weight			
2.1	Truck weight without load, with maximum battery weight	kg	800
2.2	Axle loadings with nominal load & maximum battery weight, drive / load side	kg	990 / 1410
2.3	Axle loadings without load & with maximum battery weight, drive / load side	kg	590 / 210
3.0 Wheels, Drive Train			
3.1	Tyres: PT = Power Thane, Vul = Vulkollan, P = Polyurethane, N = Nylon, R = Rubber drive / load side		Vul / Vul
3.2	Tyre dimensions, drive side	(mm)	230 x 70
3.3	Tyre dimensions, load side	(mm)	85 x 99
3.4	Castor wheel dimensions (diameter x width)	(mm)	140 x 60
3.5	Number of wheels, load / drive side (x = driven)		1 x + 1 / 4
3.6	Track width (centre of tyres), drive side	b10 (mm)	382
3.7	Track width (centre of tyres), load side	b11 (mm)	355
4.0 Dimensions			
4.2a	Height with mast lowered	h1 (mm)	1400 / 1550
4.3	Free lift	h2 (mm)	-
4.4	Lift height	h3 (mm)	1700 / 2000
4.5	Height with mast extended	h4 (mm)	2145 / 2445
4.6	Initial lift	h5 (mm)	120
4.8	Seat or stand height	h7 (mm)	
4.9	Height of tiller arm / steering console (min/max)	h14 (mm)	913 / 1368
4.15	Fork height, fully lowered	h13 (mm)	90
4.19	Overall length	l1 (mm)	1864
4.20	Length to fork face	l2 (mm)	664
4.21	Overall width	b1/b2 (mm)	660
4.22	Fork dimensions (thickness, width, length)	s / e / l (mm)	65 / 185 / 1200
4.25	Outside width over forks (minimum / maximum)	b5 (mm)	540
4.32	Ground clearance at centre of wheelbase, (forks lowered)	m2 (mm)	25
4.33c	Working aisle width (Ast) with 1000 x 1200 mm pallets, load crosswise, platform up/down	Ast (mm)	NA
4.34a	Working aisle width (Ast) with 800 x 1200 mm pallets, load lengthwise	Ast (mm)	2532
4.34b	Working aisle width (Ast3) with 800 x 1200 mm pallets, load lengthwise	Ast3 (mm)	2290
4.34c	Working aisle width (Ast) with 800 x 1200 mm pallets, load lengthwise, platform up/down	Ast (mm)	
4.35	Turning radius	Wa (mm)	1880
5.0 Performance			
5.1	Travel speed, with / without load	km / h	5.6 / 6
5.2	Lifting speed, with / without load	m / s	0.10 / 0.20
5.3	Lowering speed, with / without load	m / s	0.12 / 0.12
5.7	Gradeability, with / without load	%	6 / 19
5.9	Acceleration time (10 metres) with / without load	s	7.94 / 6.76
5.10	Service brakes (mechanical / hydraulic / electric / pneumatic)		Electric
6.0 Electric motors			
6.1	Drive motor capacity (60 min. short duty)	kW	1.3
6.2	Lift motor output at 15% duty factor	kW	2.35
6.3	Battery to DIN		no
6.4	Battery voltage/capacity at 5-hour discharge	V / Ah	24 / 150 - 230
6.5	Battery weight	kg	140 - 215
8.0 Miscellaneous			
8.1	Type of drive control		Stepless
10.7	Level of noise at the ear level of the driver according to EN 12 053:2001 and EN ISO 4871 in work LpAZ	dB (A)	74.6 +/- 0.7
10.7.1	Level of noise at the ear level of the driver according to EN 12 053:2001 and EN ISO 4871, drive/lift/idle LpAZ	dB (A)	
10.7.2	Whole-body vibration (EN 13 059:2002)		
10.7.3	Hand-arm vibration (EN 13 059:2002)		



## NPP16PD

Ast = Wa-x+l6+200

Ast = Working aisle width

Wa = Turning radius

a = Safety clearance (200 mm)

l6 = Pallet length

## Mast Performance and Capacity

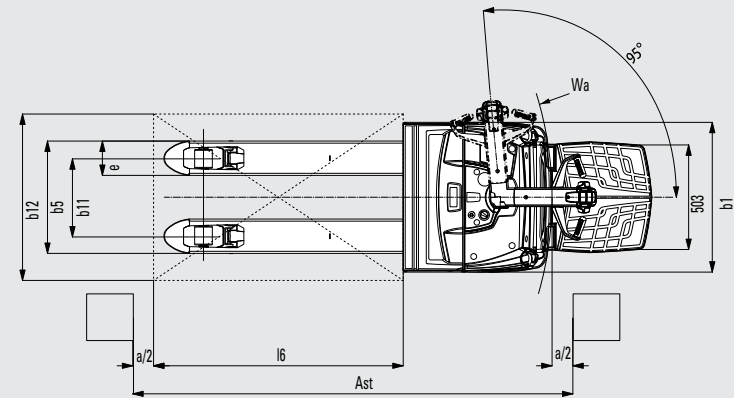
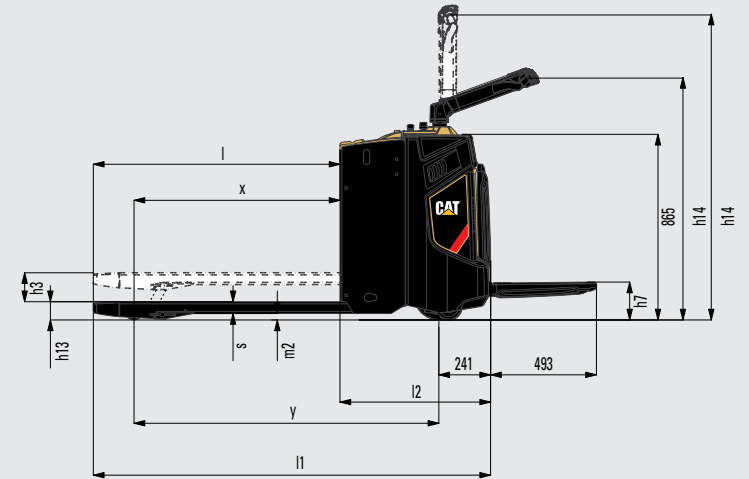
- h1 Height with mast lowered
- h2 Standard free lift
- h3 Lift height
- h4 Height with mast raised
- h5 Full free lift
- Q Lifting capacity, rated load
- c Load centre (distance)

NPP16PD			
Mast Type	h3+h13 mm	h1* mm	h2+h13 mm
Duplex Without Free Lift (DS)	1790	1400	NA
	2090	1550	NA

\* h1 closed mast height includes polycarbonate finger protection. Mast height excl. Finger protection is 1343mm / 1493mm



Characteristics					
1.1	Manufacturer		Cat Lift Trucks		
1.2	Manufacturer's model designation		<b>NPP20N2R</b>		
1.3	Power source		Battery		
1.4	Operator type		Pedestrian / Stand-on		
1.5	Load capacity	Q (kg)	2000		
1.6	Load centre distance	c (mm)	600		
1.8	Load wheel axle to fork face (forks lowered)	x (mm)	960		
1.9	Wheelbase	y (mm)	1421		
2.0 Weight					
2.1	Truck weight without load, with maximum battery weight	kg	595		
2.2	Axle loadings with nominal load & maximum battery weight, drive / load side	kg	890 / 1705		
2.3	Axle loadings without load & with maximum battery weight, drive / load side	kg	470 / 125		
3.0 Wheels, Drive Train					
3.1	Tyres: PT = Power Thane, Vul = Vulkollan, P = Polyurethane, N = Nylon, R = Rubber drive / load side		Vul / Vul		
3.2	Tyre dimensions, drive side	(mm)	230 x 70		
3.3	Tyre dimensions, load side	(mm)	85 x 75		
3.4	Castor wheel dimensions (diameter x width)	(mm)	125 x 55		
3.5	Number of wheels, load / drive side (x = driven)		2 + 1 x / 4		
3.6	Track width (centre of tyres), drive side	b10 (mm)	480		
3.7	Track width (centre of tyres), load side	b11 (mm)	375		
4.0 Dimensions					
4.4	Lift height	h3 (mm)	135		
4.6	Initial lift	h5 (mm)	-		
4.8	Seat or stand height	h7 (mm)	172		
4.9	Height of tiller arm / steering console (min/max)	h14 (mm)	1180 / 1350		
4.15	Fork height, fully lowered	h13 (mm)	85		
4.19	Overall length	l1 (mm)	1854 / 2346		
4.20	Length to fork face	l2 (mm)	702 / 1195		
4.21	Overall width	b1/b2 (mm)	720		
4.22	Fork dimensions (thickness, width, length)	s / e / l (mm)	50 / 165 / 1150		
4.25	Outside width over forks (minimum / maximum)	b5 (mm)	540		
4.32	Ground clearance at centre of wheelbase, (forks lowered)	m2 (mm)	30		
4.33c	Working aisle width (Ast) with 1000 x 1200 mm pallets, load crosswise, platform up/down	Ast (mm)	1920 / 2400		
4.34c	Working aisle width (Ast) with 800 x 1200 mm pallets, load lengthwise, platform up/down	Ast (mm)	2120 / 2600		
4.35	Turning radius	Wa (mm)	1680 / 2160		
5.0 Performance					
5.1	Travel speed, with / without load	km / h	6.0 / 6.0		
5.2	Lifting speed, with / without load	m / s	0.03 / 0.05		
5.3	Lowering speed, with / without load	m / s	0.07 / 0.08		
5.7	Gradeability, with / without load	%	9.0 / 20.0		
5.10	Service brakes (mechanical / hydraulic / electric / pneumatic)		Electric		
6.0 Electric motors					
6.1	Drive motor capacity (60 min. short duty)	kW	1.0		
6.2	Lift motor output at 15% duty factor	kW	1.2		
6.4	Battery voltage/capacity at 5-hour discharge	V / Ah	24 / 250 - 375 1)		
6.5	Battery weight	kg	212-294		
8.0 Miscellaneous					
8.1	Type of drive control		Stepless		
10.7.1	Level of noise at the ear level of the driver according to EN 12 053:2001 and EN ISO 4871, drive/lift/idle LpAZ	dB (A)	63 / 78 / 0		
10.7.2	Whole-body vibration (EN 13 059:2002)		0.9		
10.7.3	Hand-arm vibration (EN 13 059:2002)		< 2.5		



#### NPP20N2R: with folding platform

Ast = Wa-x+l6+200

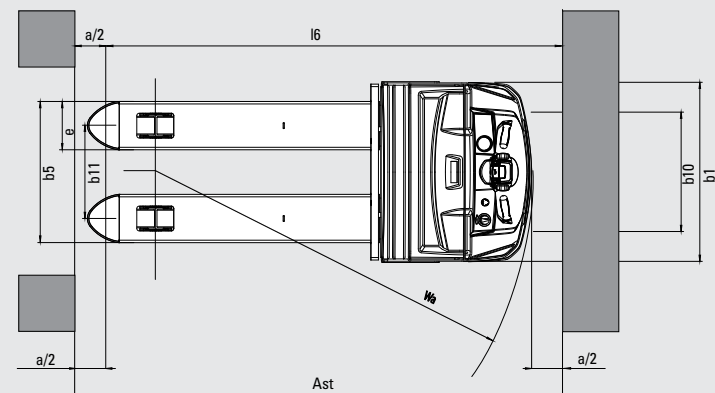
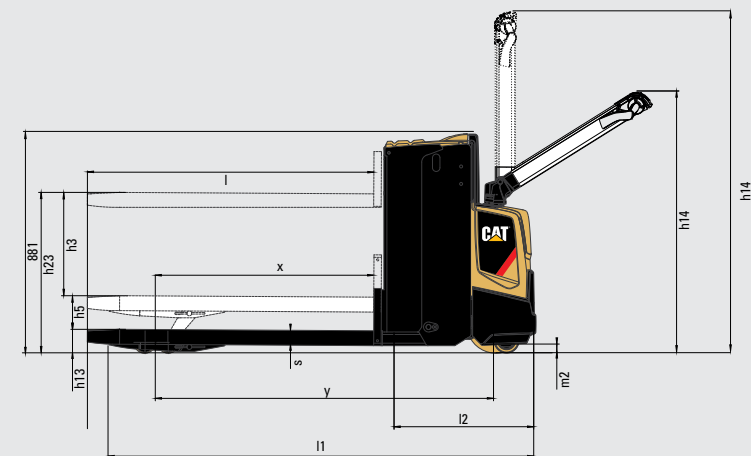
Ast = Working aisle width

Wa = Turning radius

a = Safety clearance (200 mm)

l6 = Pallet length

Characteristics					
1.1	Manufacturer		Cat Lift Trucks		
1.2	Manufacturer's model designation		<b>NPP20N2E</b>		
1.3	Power source		Battery		
1.4	Operator type		Pedestrian		
1.5	Load capacity	Q (kg)	2000 / 700		
1.6	Load centre distance	c (mm)	600		
1.8	Load wheel axle to fork face (forks lowered)	x (mm)	875		
1.9	Wheelbase	y (mm)	1509		
2.0 Weight					
2.1	Truck weight without load, with maximum battery weight	kg	579		
2.2	Axle loadings with nominal load & maximum battery weight, drive / load side	kg	770 / 1809		
2.3	Axle loadings without load & with maximum battery weight, drive / load side	kg	419 / 160		
3.0 Wheels, Drive Train					
3.1	Tyres: PT = Power Thane, Vul = Vulkollan, P = Polyurethane, N = Nylon, R = Rubber drive / load side		Vul / Vul		
3.2	Tyre dimensions, drive side	(mm)	230 x 70		
3.3	Tyre dimensions, load side	(mm)	85 x 75		
3.4	Castor wheel dimensions (diameter x width)	(mm)	100 x 40		
3.5	Number of wheels, load / drive side (x = driven)		2 + 1 x / 4		
3.6	Track width (centre of tyres), drive side	b10 (mm)	480		
3.7	Track width (centre of tyres), load side	b11 (mm)	375		
4.0 Dimensions					
4.4	Lift height	h3 (mm)	135 / 735		
4.6	Initial lift	h5 (mm)	135		
4.8	Seat or stand height	h7 (mm)	-		
4.9	Height of tiller arm / steering console (min/max)	h14 (mm)	1050 / 1372		
4.15	Fork height, fully lowered	h13 (mm)	90		
4.19	Overall length	l1 (mm)	1780		
4.20	Length to fork face	l2 (mm)	653		
4.21	Overall width	b1/b2 (mm)	720		
4.22	Fork dimensions (thickness, width, length)	s / e / l (mm)	50 / 195 / 1150		
4.25	Outside width over forks (minimum / maximum)	b5 (mm)	570		
4.32	Ground clearance at centre of wheelbase, (forks lowered)	m2 (mm)	30		
4.33c	Working aisle width (Ast) with 1000 x 1200 mm pallets, load crosswise, platform up/down	Ast (mm)	1874		
4.34c	Working aisle width (Ast) with 800 x 1200 mm pallets, load lengthwise, platform up/down	Ast (mm)	2074		
4.35	Turning radius	Wa (mm)	1526		
5.0 Performance					
5.1	Travel speed, with / without load	km / h	6.0 / 6.0		
5.2	Lifting speed, with / without load	m / s	0.11 / 0.14		
5.3	Lowering speed, with / without load	m / s	0.13 / 0.12		
5.7	Gradeability, with / without load	%	9.0 / 20.0		
5.10	Service brakes (mechanical / hydraulic / electric / pneumatic)		Electric		
6.0 Electric motors					
6.1	Drive motor capacity (60 min. short duty)	kW	1.0		
6.2	Lift motor output at 15% duty factor	kW	1.2		
6.3	Battery to DIN				
6.4	Battery voltage/capacity at 5-hour discharge	V / Ah	24 / 150		
6.5	Battery weight	kg	151		
8.0 Miscellaneous					
8.1	Type of drive control		Stepless		
10.7.1	Level of noise at the ear level of the driver according to EN 12 053:2001 and EN ISO 4871, drive/lift/idle LpAZ	dB (A)	59 / 60 / 0		
10.7.2	Whole-body vibration (EN 13 059:2002)		-		
10.7.3	Hand-arm vibration (EN 13 059:2002)		< 2.5		



#### NPP20N2E: with lifting forks

Ast = Wa-x+l6+200

Ast = Working aisle width

Wa = Turning radius

a = Safety clearance (200 mm)

l6 = Pallet length



# LI-ION BATTERIES

## CONSIDER THE BENEFITS OF LI-ION BATTERY TECHNOLOGY ON THE NPP16PD MODEL



**Like all components on Cat® lift trucks, batteries are carefully chosen and specified for optimum compatibility with each individual truck and its application requirements. As a leader in forklift development, we are ready to adopt new component technologies as soon as they become genuinely cost-effective.**

At present, the needs of most lift trucks are still met optimally by lead-acid batteries, but in some cases lithium-ion (Li-ion) batteries now offer a realistic alternative. This is especially true in high-energy, multi-shift, 24/7 operations.

In view of the improved performance and affordability of today's Li-ion batteries, we have introduced them as an option. They will be offered on particular trucks, whenever they make economic and practical sense for you and your business.



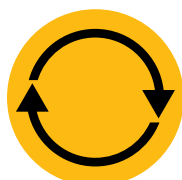
**LONGER  
LIFE**



**HIGHER  
EFFICIENCY**



**LONGER  
RUNTIME**



**CONSISTENT  
PERFORMANCE**



**FASTER  
CHARGING**



**NO  
MAINTENANCE**



**INBUILT  
PROTECTION**

### Will Li-ion work for you?

Li-ion batteries offer tremendous advantages over traditional lead-acid batteries. The big question is whether those benefits are sufficient – in your situation – to justify the large difference in purchase price. To answer this, you must consider their total cost of ownership (TCO). The key factors are summarised below.

### Li-ion cost savings compared to lead-acid

These include savings on energy, equipment, labour and downtime.

- Longer life – 3 to 4 times lead-acid lifespan – reduces overall battery investment
- Higher efficiency – energy losses during charging and discharging are around 30% lower, so electricity consumption is reduced
- Longer runtime – thanks to higher energy capacity, lower losses and more efficient recovery of current from regenerative braking
- Consistently high performance – with a more constant voltage curve – maintains greater truck productivity, even toward the end of a shift
- Faster charging and opportunity charging – full charge within 1 to 2 hours – enables top-ups during short breaks, without damaging the battery or shortening its lifespan
- No battery changing – fast opportunity charges enable continuous operation with just one battery and minimise the need to buy, store and maintain spares
- No maintenance – the battery stays on board the truck for charging and there is no need for top-ups or electrolyte checks
- No gas – avoids the space, equipment and running costs of a battery room and ventilation system
- Inbuilt protection – intelligent battery management system (BMS) automatically prevents excessive discharge, charge, voltage and temperature, as well as virtually eliminating application errors

# LI-ION BATTERIES

## CONSIDER THE BENEFITS OF LI-ION BATTERY TECHNOLOGY ON THE NPP16PD MODEL



### Li-ion extra costs compared to lead-acid

Li-ion battery purchase prices are higher – although they are coming down as production volumes increase. You may also need to invest in extra charging points and electrical infrastructure to support them.

### Further advantages of Li-ion compared to lead-acid

Money should not be your only consideration. Li-ion batteries also have important safety and environmental benefits.

- Greater safety – no explosive gas, acid spills or regular battery lifting
- Smaller carbon footprint – better efficiency means less energy consumption, while longer life lowers the requirement for manufacture of additional batteries



### Cat lift trucks with Li-ion

The necessary LIBAT option can be built into new trucks or retrofitted to your existing fleet using a fast and easy conversion kit. LIBAT ensures perfect integration of the Li-ion battery and lift truck. Along with the necessary cabling and connections, it includes a battery lock.

For extra peace of mind, Li-ion batteries come with the option of a service contract, full warranty and feedback on battery status. Data collected by the battery's inbuilt battery management system (BMS) is uploaded and analysed to help the dealer advise you on its condition and usage. The report may, for example, indicate a need for changes in your practices to improve efficiency and battery life.

Batteries and chargers with different capacities are available. Your dealer will identify the best combination for your needs.

NPP16PD LI-ION BATTERY AND CHARGER	
Battery capacity, Ah	104
Charger capacity, A, 4 hour*	25

\*Built-in charger.

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NOTE: Performance specifications may vary depending on standard manufacturing tolerances, vehicle condition, types of tyres, floor or surface conditions, applications, or operating environment. Trucks may be shown with non-standard options. Specific performance requirements and locally available configurations should be discussed with your Cat lift trucks Dealer. Cat Lift Trucks follows a policy of continual product improvement. For this reason, some materials, options and specifications could change without notice.



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