



**NPV20N3**  
**NPV25N3**

**NPF20N3R**  
**NPF25N3R**

**NPF20N3S**  
**NPF25N3S**

# PLATFORM POWER

## **SPECIFICATIONS**

**PLATFORM POWER PALLET TRUCKS 24V, 2.0 - 2.5 TONNES**



# UNIQUELY PRODUCTIVE AND COMFORTABLE

PROVIDING INNOVATIVE ANSWERS TO THE CHALLENGES OF LOADING/ UNLOADING, SHORT OR LONG TRANSPORT AND EVEN ORDER PICKING, NPV/NPF PLATFORM POWER PALLET TRUCKS OFFER TOP-CLASS PRODUCTIVITY AND COMFORT. THEIR ADVANCES IN TRACTION, DAMPING, STABILITY AND ERGONOMIC CONTROL ENSURE FAST, CONFIDENT AND SAFE OPERATION, WHATEVER THE CONDITIONS.



Models are available with foldable or fixed platforms, 2.0 or 2.5 tonne load capacities and a choice of three chassis lengths. They can also be equipped for Li-ion or lead-acid battery use. NPV20N3 and NPV25N3 folding platform versions feature fold-up/fold-down protective side bars.



Side entry fixed platform versions NPF20N3S and NPF25N3S are well suited to order picking and other internal applications. While all NPV and NPF models have comfortable damping, the fixed platforms also offer optional electric adjustment according to the operator's weight and preference.



Rear entry fixed platform versions NPF20N3R and NPF25N3R are ideal for loading and unloading operations. Their options include automatic slowdown/stopping, for safety, if the operator's foot is outside the platform.



Unprecedented solutions include the *ProRide+* system, which simultaneously maximises traction, damping and stability, even on slippery, wet or irregular surfaces and when cornering. The class-leading *emPower* ergonomic tiller head with user-friendly controls and a choice of steering technologies enables rapid, precisely controlled action.



## LOWER COST OF OWNERSHIP

- Fully weather-protected and impact-resistant tiller head is sealed to IP65 standard and reinforced for high durability.
- Sealing of connectors, sensors and other key components combines with robust construction, protected display location, shock and accident avoidance, long service intervals and fast access features – including removable motor cover – to reduce maintenance needs and improve uptime.
- Standard display includes BDI (battery discharge indicator) to help prevent damaging deep discharge and support optimal timing of battery changes.
- Multifunctional display option offers clear information on truck and battery condition, faults and actions, and enables setting of operator IDs and PIN code access to avoid unauthorised truck use.
- Compatibility of parts reduces stock-related costs for servicing of these and other Cat trucks.

## UNMATCHED PRODUCTIVITY

- Fully integrated Li-ion technology makes continuous operation possible, without battery changes, using fast opportunity charging during short breaks. (Buyers can choose between Li-ion and lead-acid truck versions.)
- Compact dimensions – this range includes the market's shortest heavy-duty pallet trucks – combine with easy, accurate handling to allow quick manoeuvring, even in tight spaces.
- Market-leading lift height (220 mm) makes work easier on steep ramps and loading docks.
- Exceptional levels of comfort, control, traction and stability keep operators alert, confident and productive, however intense their workload.
- Three performance modes are selectable to suit individual users and applications: Pro for advanced operators and intensive operations; ECO to blend low energy consumption with high productivity; Easy for learners and sensitive goods handling. (These are only available with multifunctional display option.)
- Latest AC drive motor technology delivers higher torque and easier controllability, for top-class performance.
- Proportional lift/lower control via rocker buttons enables quick, smooth and fine-tuned fork movements.

## SAFETY AND ERGONOMICS

- Unique *ProRide+* system is a milestone advance in power pallet truck development which solves the age-old problem of how to combine effective traction, damping and stability.
- Unique floating drive unit design works with additional friction force from the hydraulic system to maximise drive wheel pressure and traction, so wheelspin on slippery floors is prevented and braking performance optimised.
- Unique castor wheel design uses variable damping to minimise shocks and vibration, even on rough surfaces, and features a locking function which maintains stability during turns, with or without loads.
- Best-in-class *emPower* ergonomic tiller head gives easier access to controls with a unique design that achieves the optimum distance between hand and lift/lower buttons.
- Ergonomically designed tiller head operating features include optimised handle shape and cross-section, large hand space, enlarged horn and lift/lower buttons, and an optimally angled throttle wheel with seven convenient finger positions.
- Dual controls allow easy reach with either hand and can be used accurately even when operator is wearing gloves.
- Tiller-type power steering via a short tiller arm features a hydraulic damper and works without physical connection to the drive wheel – avoiding transmission of bumps, twists and turns, while enabling comfortable, controlled, precise manoeuvring. (Available on folding platform and rear-entry fixed platform models.)
- Comfort Steering via a tiller head without arm – as on an electric scooter – maximises power-steered control and precision, with the aid of a damper, while avoiding shock, vibration, strain and fatigue in the operator's hands, wrists and arms. (Available on fixed platform models.)
- Mechanical steering option provides a long tiller arm for a simple, low-effort manoeuvring solution in less intense work environments. (Only available on folding platform models.)
- Electronic steering technology automatically adjusts sensitivity according to steered angle and truck speed, and gives resistance and feedback, for controlled travel and full confidence. (On power-steered trucks.)
- Cornering control automatically slows truck down when turning, to maintain safe motion. (On power-steered trucks.)

- High-comfort damping on both folding and fixed platforms minimises impacts on the knees, especially, and acts progressively with increasing operator weight, while ergonomic controls and steering further reduce effort and fatigue.
- Unique electrically adjustable damping option on fixed platform models is optimised for each operator's weight and preference at the touch of a button, providing a cost-effective increase in comfort.
- Protective side bars on folding platform models are high-positioned, cushioned, comfortable, and shock-resistant, and are deployed quickly and simply – with one hand – to help avoid falls and defend against impacts.
- Fixed platform models give extra protection and comfort, with low step height and a choice of rear and side entry barrier designs.
- Optional foot protection system automatically slows/stops the truck if foot is outside platform. (Rear entry fixed platform models.)
- Rugged build includes compact but heavy-duty chassis, integrated bumper and cast-iron platform to resist deformation and protect the operator.

# STANDARD EQUIPMENT AND OPTIONS

	NPV20N3	NPV25N3	NPF20N3R	NPF25N3R	NPF20N3S	NPF25N3S
<b>GENERAL</b>						
Micro-computer incl. hour meter and battery indicator.	●	●	●	●	●	●
Standard display incl. hour meter and battery indicator	●	●	●	●	●	●
Foldable platform	●	●	—	—	—	—
Fixed platform, rear entry	—	—	●	●	—	—
Fixed platform, side entry	—	—	—	—	●	●
Mechanical tiller arm	●	●	—	—	—	—
Power tiller arm	○	○	●	●	—	—
Comfort tiller arm	—	—	○	○	●	●
Crossway pallet indication on forks and marking on fork tips	●	●	●	●	●	●
Chill store design, down to -10°C	●	●	●	●	●	●
Speed regulated lift motor	●	●	●	●	●	●
On/off valve for lowering, controlled by rocker switch on tiller head	●	●	●	●	●	●
Vulkollan drive wheel	●	●	●	●	●	●
Tandem load wheels vulkollan	○	●	●	●	●	●
Single load wheel	●	—	—	—	—	—
Closed pallet entry/exit	○	○	○	○	○	○
Quick release of battery lock	○	○	○	○	○	○
Battery rollers	○	○	○	○	○	○
Li-ion batteries*	○	○	○	○	○	○
Lead-acid batteries	○	○	○	○	○	○
<b>ENVIRONMENT</b>						
Cold store design, 0°C to -30°C	○	○	○	○	○	○
<b>DRIVE AND LIFT CONTROLS</b>						
Heavy duty tiller head - with key switch entry	●	●	●	●	●	●
Tiller up drive	○	○	—	—	—	—
<b>WHEEL OPTIONS</b>						
Vulkollan	●	●	●	●	●	●
Tractothan	○	○	○	○	○	○
Super grip	○	○	○	○	○	○

## FULL LI-ION\* BATTERY INTEGRATION

Full integration of Li-ion battery communication on Cat platform power pallet trucks enables all battery-related information to be presented clearly via the truck's inbuilt full-colour display.

Li-ion battery option is available in selected regions.



# STANDARD EQUIPMENT AND OPTIONS (CONTINUED)

	NPV20N3	NPV25N3	NPF20N3R	NPF25N3R	NPF20N3S	NPF25N3S
<b>OTHER OPTIONS</b>						
Power steering	○	○	●	●	●	●
Multifunction display incl. BDI & Hourmeter, PIN code log in (100 codes) and graphic icons	○	○	○	○	○	○
Load backrest	○	○	○	○	○	○
Multi purpose tray	○	○	○	○	○	○
Key switch entry	●	●	●	●	●	●
12V DC power socket	○	○	○	○	○	○
5V USB socket	○	○	○	○	○	○
Equipment bar	○	○	○	○	○	○
Writing desk incl. RAM C holder	○	○	○	○	○	○
Equipment bar holder RAM system size C	○	○	○	○	○	○
Equipment bar holder RAM system size C, 2 pcs	○	○	○	○	○	○
Equipment bar holder RAM size D	○	○	○	○	○	○
Working lights LED	○	○	○	○	○	○
Increased drive speed with/without load 10.5/12.5 km/h (only in combination with power steering)	○	○	○	○	○	○
Active Spin Reduction	○	○	○	○	○	○
Special RAL colour	○	○	○	○	○	○
Battery creep	○	○	○	○	○	○
Battery level audible warning	○	○	○	○	○	○
Service alarm	○	○	○	○	○	○
Automatic log off	○	○	○	○	○	○
Revert to low speed at log off	○	○	○	○	○	○
Revert to low speed at operator absent	○	○	○	○	○	○



## CHASSIS AND BATTERY DIMENSIONS

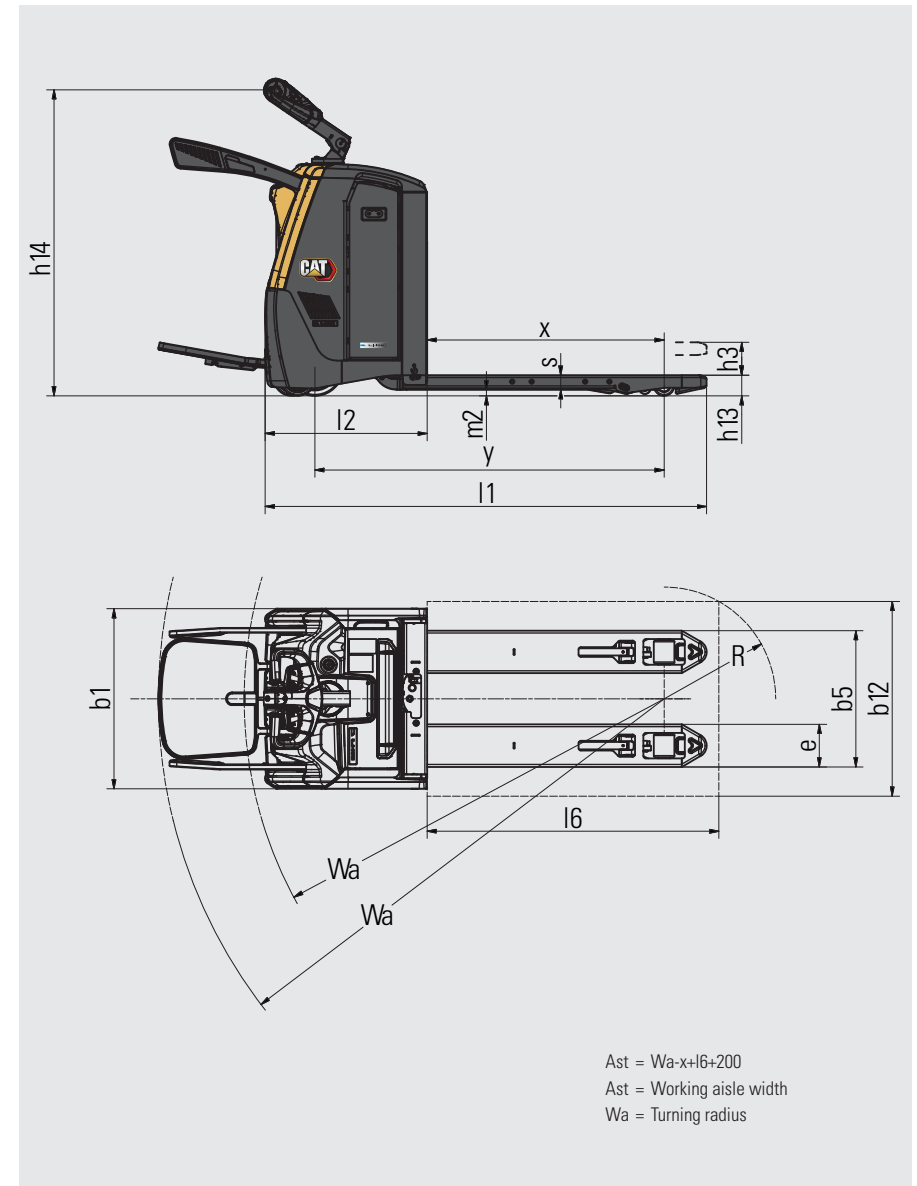
Chassis			Battery 24 V type		Battery capacity, Ah	Battery compartment			Cell type	Weight of battery, kg	Approximate weight of truck, kg
Mini	Junior	Senior	Lead-acid	Li-ion		Lift out	Steel rollers	Fixed			
●			●		240 – 300	●	○		BS - British standard	250 / 300	500
				●	222			●	Prismatic NMC		
	●		●		270 - 375		●		DIN	285 / 350	505
					280 - 400	●	○		BS - British standard		
				●	296 / 370			●	Prismatic NMC	350 / 470	510
		●	●		420 - 600	●	○		BS - British standard		

Chassis			NPV20/25N3				NPF20/25N3(R)(S)		Truck width b, mm
			Truck length l, (l=1150) mm		AST, mm (1 x EU-pallet lengthwise)		Truck length l, (l=1150) mm	AST, mm (1 x EU-pallet lengthwise)	
Mini	Junior	Senior	Platform up	Platform down	Platform up	Platform down	Platform rear or side entry		
●			1880	2256	2299	2652	2292	2692	740
	●		1960	2336	2379	2732	2372	2772	740
		●	2024	2400	2443	2796	2436	2836	740

● Standard ○ Option



Characteristics				Cat Lift Trucks	Cat Lift Trucks
1.1	Manufacturer			NPV20N3 <sup>9)</sup>	NPV25N3 <sup>9)</sup>
1.2	Manufacturer's model designation			Battery	Battery
1.3	Power source			Pedestrian/stand-on	Pedestrian/stand-on
1.4	Operator type			2000	2500
1.5	Load capacity	Q (kg)		600	600
1.6	Load centre distance	c (mm)		975	975
1.8	Load wheel axle to fork face (forks lowered)	x (mm)		1437	1437
1.9	Wheelbase	y (mm)			
Weight					
2.1b	Truck weight without load, with maximum battery weight	kg		750	750
2.2	Axle loadings with nominal load & maximum battery weight, drive / load side	kg		1015 / 1742	1128 / 2129
2.3	Axle loadings without load & with maximum battery weight, drive / load side	kg		570 / 187	570 / 187
Wheels, Drive Train					
3.1	Tyres: PT = Power Thane, Vul = Vulkollan, P = Polyurethane, N = Nylon, R = Rubber drive / load side			Vul / Vul	Vul / Vul
3.2	Tyre dimensions, drive side	(mm)		235 x 75	235 x 75
3.3	Tyre dimensions, load side	(mm)		85 x 75	85 x 75
3.4	Castor wheel dimensions (diameter x width)	(mm)		150 x 60	150 x 60
3.5	Number of wheels, load / drive side (x = driven)			4 / 1 x +2	4 / 1 x +2
3.6	Track width (centre of tyres), drive side	b10 (mm)		520	520
3.7	Track width (centre of tyres), load side	b11 (mm)		b5 - 175	b5 - 175
Dimensions					
4.4	Lift height	h3 (mm)		135	135
4.8	Seat or stand height	h7 (mm)		171	171
4.9	Height of tiller arm / steering console (minimum./maximum.)	h14 (mm)		1099 / 1512	1099 / 1512
4.15	Fork height, fully lowered	h13 (mm)		85	85
4.19	Overall length	l1 (mm)		1880 / 2256	1880 / 2256
4.20	Length to fork face	l2 (mm)		730 / 1106	730 / 1106
4.21	Overall width	b1/b2 (mm)		740	740
4.22	Fork dimensions (thickness, width, length)	s / e / l (mm)		60 / 175 / 1150	60 / 175 / 1150
4.25	Outside width over forks (minimum / maximum)	b5 (mm)		560	560
4.32	Ground clearance at centre of wheelbase (forks lowered)	m2 (mm)		25	25
4.33c	Working aisle width (Ast) with 1000 x 1200 mm pallets, load crosswise, platform up/down	Ast (mm)		2472 / 2825	2472 / 2825
4.33d	Working aisle width (Ast3) with 1000 x 1200 mm pallets, load crosswise, platform up/down	Ast3 (mm)		1953 / 2306	
4.34c	Working aisle width (Ast) with 800 x 1200 mm pallets, load lengthwise, platform up/down	Ast (mm)		2358 / 2711	
4.34d	Working aisle width (Ast3) with 800 x 1200 mm pallets, load lengthwise, platform up/down	Ast3 (mm)		2153 / 2506	
4.35	Turning radius	Wa (mm)		1666 / 2019	1666 / 2019
Performance					
5.1	Travel speed, with / without load	km / h		10 / 10 <sup>7)</sup>	10 / 10 <sup>7)</sup>
5.2	Lifting speed, with / without load	m / s		0.07 / 0.09	0.06 / 0.09
5.3	Lowering speed, with / without load	m / s		0.12 / 0.09	0.11 / 0.09
5.7	Gradeability, with / without load	%		14 / 22	11 / 22
5.9	Acceleration time (10 metres) with / without load	s		6.1 / 5.3	6.5 / 5.3
5.10	Service brakes (mechanical / hydraulic / electric / pneumatic)			Electric	Electric
Electric motors					
6.1	Drive motor capacity (60 min. short duty)	kW		2.4	2.4
6.2	Lift motor output at 15% duty factor	kW		2.2	2.2
6.4	Battery voltage/capacity at 5-hour discharge	V / Ah		24 / 222 <sup>10)</sup> -300	24 / 222 <sup>10)</sup> -300
6.5	Battery weight	kg		250 - 300	250 - 300
6.6b	Energy consumption according to VDI 60 cycle	kWh / h		0.4	0.42
Miscellaneous					
8.1	Type of drive control			Stepless	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)		62	64



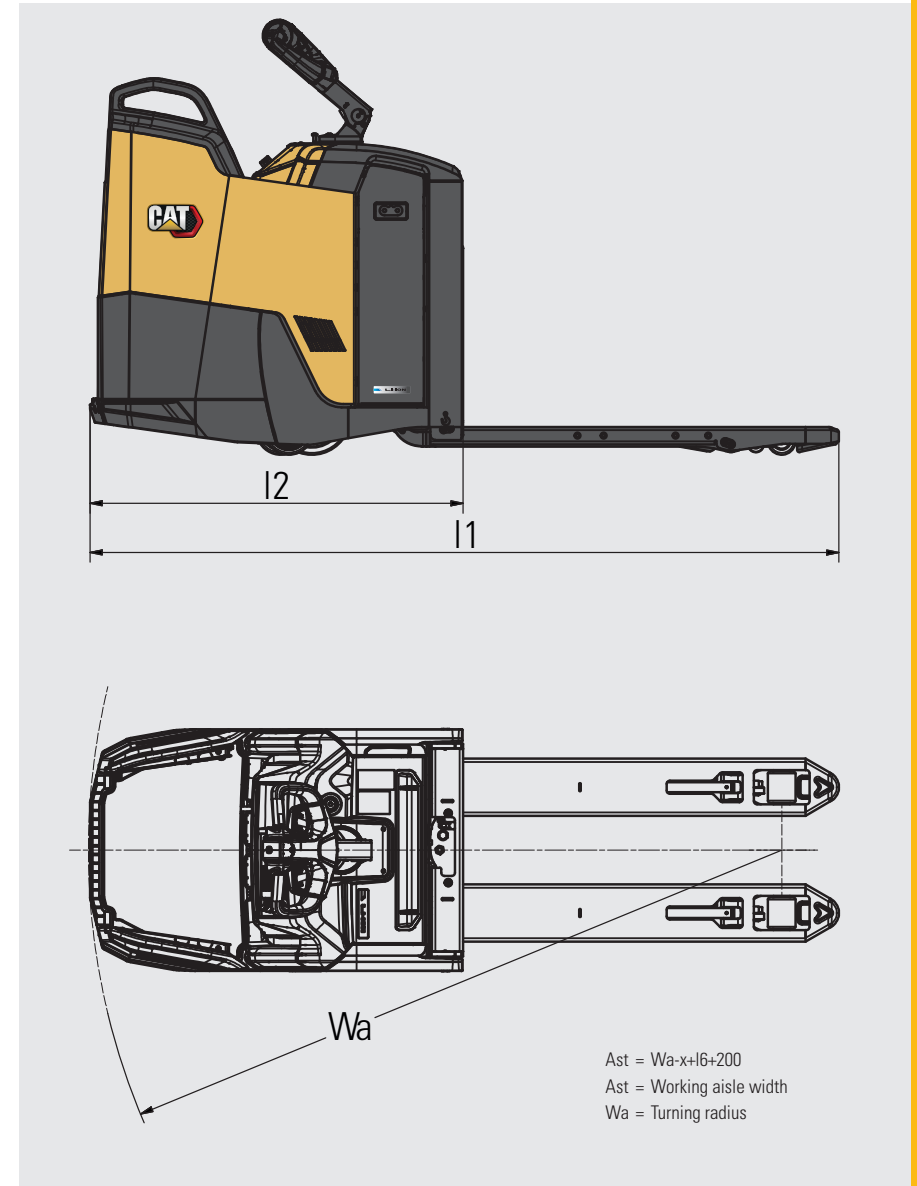
7) 10.5 / 12.5 km/h with power steering and tandem wheels

8) Comfort Steering

9) Different chassis sizes to accompany various battery capacities are optional. Optional chassis sizes may influence truck dimensions. Please refer to the Chassis and Battery tables or ask your dealer for full details.

10) Shows Li-Ion capacity; Lead Acid battery 240Ah

Characteristics				Cat Lift Trucks	Cat Lift Trucks
1.1	Manufacturer			<b>NPF20N3R</b> <sup>9)</sup>	<b>NPF25N3R</b> <sup>9)</sup>
1.2	Manufacturer's model designation			Battery	Battery
1.3	Power source			Stand-on	Stand-on
1.4	Operator type			2000	2500
1.5	Load capacity	Q (kg)		600	600
1.6	Load centre distance	c (mm)		975	975
1.8	Load wheel axle to fork face (forks lowered)	x (mm)		1437	1437
1.9	Wheelbase	y (mm)			
Weight					
2.1b	Truck weight without load, with maximum battery weight	kg		820	820
2.2	Axle loadings with nominal load & maximum battery weight, drive / load side	kg		1216 / 1691	1270 / 2110
2.3	Axle loadings without load & with maximum battery weight, drive / load side	kg		648 / 169	648 / 169
Wheels, Drive Train					
3.1	Tyres: PT = Power Thane, Vul = Vulkollan, P = Polyurethane, N = Nylon, R = Rubber drive / load side			Vul / Vul	Vul / Vul
3.2	Tyre dimensions, drive side	(mm)		235 x 75	235 x 75
3.3	Tyre dimensions, load side	(mm)		85 x 75	85 x 75
3.4	Castor wheel dimensions (diameter x width)	(mm)		150 x 60	150 x 60
3.5	Number of wheels, load / drive side (x = driven)			4 / 1x+2	4 / 1x+2
3.6	Track width (centre of tyres), drive side	b10 (mm)		520	520
3.7	Track width (centre of tyres), load side	b11 (mm)		b5 - 175	b5 - 175
Dimensions					
4.4	Lift height	h3 (mm)		135	135
4.8	Seat or stand height	h7 (mm)		170	170
4.9	Height of tiller arm / steering console (minimum./maximum.)	h14 (mm)		1119 / 1428	1119 / 1428
4.15	Fork height, fully lowered	h13 (mm)		85	85
4.19	Overall length	l1 (mm)		2292	2292
4.20	Length to fork face	l2 (mm)		1141	1141
4.21	Overall width	b1/b2 (mm)		740	740
4.22	Fork dimensions (thickness, width, length)	s / e / l (mm)		60 / 175 / 1150	60 / 175 / 1150
4.25	Outside width over forks (minimum / maximum)	b5 (mm)		560	560
4.32	Ground clearance at centre of wheelbase (forks lowered)	m2 (mm)		25	25
4.33a	Working aisle width (Ast) with 1000 x 1200 mm pallets, load crosswise	Ast (mm)		2865	2865
4.33b	Working aisle width (Ast3) with 1000 x 1200 mm pallets, load crosswise	Ast3 (mm)		2346	2346
4.34a	Working aisle width (Ast) with 800 x 1200 mm pallets, load lengthwise	Ast (mm)		2751	2751
4.34b	Working aisle width (Ast3) with 800 x 1200 mm pallets, load lengthwise	Ast3 (mm)		2546	2546
4.35	Turning radius	Wa (mm)		2059	2059
Performance					
5.1	Travel speed, with / without load	km / h		10 / 10 <sup>7)</sup>	10 / 10 <sup>7)</sup>
5.2	Lifting speed, with / without load	m / s		0.07 / 0.09	0.06 / 0.09
5.3	Lowering speed, with / without load	m / s		0.12 / 0.09	0.11 / 0.09
5.7	Gradeability, with / without load	%		13 / 15	11 / 22
5.9	Acceleration time (10 metres) with / without load	s		6.1 / 5.3	6.5 / 5.3
5.10	Service brakes (mechanical / hydraulic / electric / pneumatic)			Electric	Electric
Electric motors					
6.1	Drive motor capacity (60 min. short duty)	kW		2.4	2.4
6.2	Lift motor output at 15% duty factor	kW		2.2	2.2
6.4	Battery voltage/capacity at 5-hour discharge	V / Ah		24 / 222 <sup>10)</sup> -300	24 / 222 <sup>10)</sup> -300
6.5	Battery weight	kg		250 - 300	250 - 300
6.6b	Energy consumption according to VDI 60 cycle	kWh / h		0.4	0.42
Miscellaneous					
8.1	Type of drive control			Stepless	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)		62	64



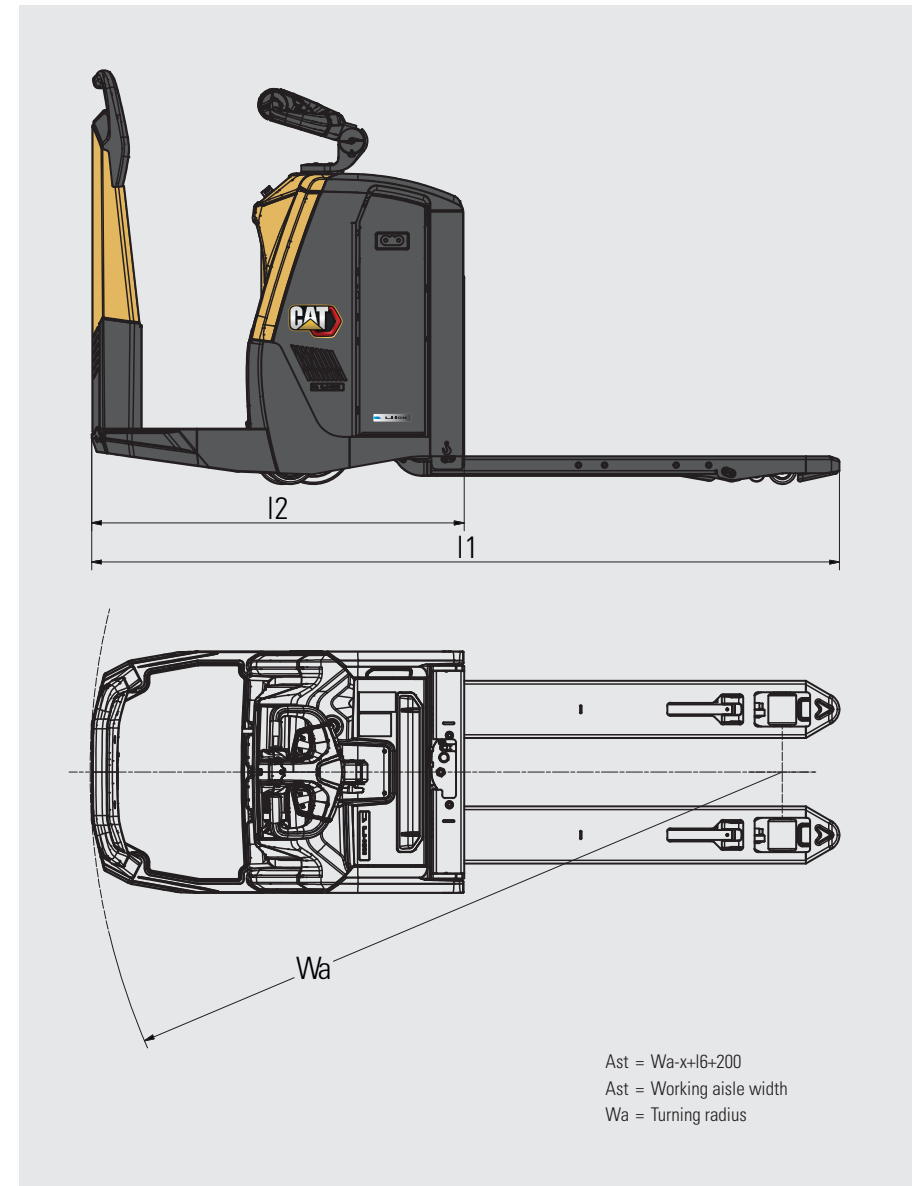
7) 10.5 / 12.5 km/h with power steering and tandem wheels

8) Comfort Steering

9) Different chassis sizes to accompany various battery capacities are optional. Optional chassis sizes may influence truck dimensions. Please refer to the Chassis and Battery tables or ask your dealer for full details.

10) Shows Li-Ion capacity; Lead Acid battery 240Ah

Characteristics				
1.1	Manufacturer			Cat Lift Trucks
1.2	Manufacturer's model designation			<b>NPF20N3S</b> <sup>9)</sup>
1.3	Power source			Battery
1.4	Operator type			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)		975
1.9	Wheelbase	y (mm)		1437
<b>Weight</b>				
2.1b	Truck weight without load, with maximum battery weight	kg		800
2.2	Axle loadings with nominal load & maximum battery weight, drive / load side	kg		1202 / 1688
2.3	Axle loadings without load & with maximum battery weight, drive / load side	kg		634 / 166
<b>Wheels, Drive Train</b>				
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)		235 x 75
3.3	Tyre dimensions, load side	(mm)		85 x 75
3.4	Castor wheel dimensions (diameter x width)	(mm)		150 x 60
3.5	Number of wheels, load / drive side (x = driven)			4 / 1x+2
3.6	Track width (centre of tyres), drive side	b10 (mm)		520
3.7	Track width (centre of tyres), load side	b11 (mm)		b5 - 175
<b>Dimensions</b>				
4.4	Lift height	h3 (mm)		135
4.8	Seat or stand height	h7 (mm)		170
4.9	Height of tiller arm / steering console (minimum./maximum.)	h14 (mm)		1130 / 1297 <sup>8)</sup>
4.15	Fork height, fully lowered	h13 (mm)		85
4.19	Overall length	l1 (mm)		2292
4.20	Length to fork face	l2 (mm)		1141
4.21	Overall width	b1/b2 (mm)		740
4.22	Fork dimensions (thickness, width, length)	s / e / l (mm)		60 / 175 / 1150
4.25	Outside width over forks (minimum / maximum)	b5 (mm)		560
4.32	Ground clearance at centre of wheelbase (forks lowered)	m2 (mm)		25
4.33a	Working aisle width (Ast) with 1000 x 1200 mm pallets, load crosswise	Ast (mm)		2865
4.33b	Working aisle width (Ast3) with 1000 x 1200 mm pallets, load crosswise	Ast3 (mm)		2346
4.34a	Working aisle width (Ast) with 800 x 1200 mm pallets, load lengthwise	Ast (mm)		2751
4.34b	Working aisle width (Ast3) with 800 x 1200 mm pallets, load lengthwise	Ast3 (mm)		2546
4.35	Turning radius	Wa (mm)		2059
<b>Performance</b>				
5.1	Travel speed, with / without load	km / h		10 / 10 <sup>7)</sup>
5.2	Lifting speed, with / without load	m / s		0.07 / 0.09
5.3	Lowering speed, with / without load	m / s		0.12 / 0.09
5.7	Gradeability, with / without load	%		13 / 15
5.9	Acceleration time (10 metres) with / without load	s		6.1 / 5.3
5.10	Service brakes (mechanical / hydraulic / electric / pneumatic)			Electric
<b>Electric motors</b>				
6.1	Drive motor capacity (60 min. short duty)	kW		2.4
6.2	Lift motor output at 15% duty factor	kW		2.2
6.4	Battery voltage/capacity at 5-hour discharge	V / Ah		24 / 222 <sup>10)</sup> -300
6.5	Battery weight	kg		250 - 300
6.6b	Energy consumption according to VDI 60 cycle	kWh / h		0.4
<b>Miscellaneous</b>				
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)		62



7) 10.5 / 12.5 km/h with power steering and tandem wheels

8) Comfort Steering

9) Different chassis sizes to accompany various battery capacities are optional. Optional chassis sizes may influence truck dimensions. Please refer to the Chassis and Battery tables or ask your dealer for full details.

10) Shows Li-Ion capacity; Lead Acid battery 240Ah



# CAT® LI-ION BATTERIES

## TIME TO SWITCH?



Lithium-ion (Li-ion) battery technology is now available as an option in almost all Cat® electric counterbalance and warehouse truck ranges. While lead-acid batteries remain a popular choice for our customers, and still have much to offer, they present various challenges which Li-ion can overcome.

Perhaps the most noticeable change when switching to Li-ion is the use of opportunity charging. Instead of exchanging batteries between shifts, you can simply plug into a fast charger during short breaks and keep the same battery going 24/7. This, together with other efficiency, environmental and safety benefits, makes Li-ion a very appealing alternative.



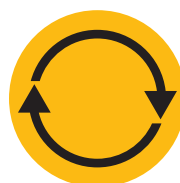
**LONGER  
LIFE**



**HIGHER  
EFFICIENCY**



**LONGER  
RUNTIME**



**CONSISTENT  
PERFORMANCE**



**FASTER  
CHARGING**



**NO BATTERY  
CHANGING**



**NO DAILY  
MAINTENANCE**



**INBUILT  
PROTECTION**

### Cat Li-ion advantages over lead-acid

Switching to Li-ion requires a higher initial investment, but this should be viewed against Li-ion's ongoing 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 up to 30% lower, so electricity consumption is reduced
- **Longer runtime** – thanks to more efficient battery performance and use of opportunity charges, which can be given at any time without damaging the battery or shortening its lifespan
- **Consistently high performance** – with a more constant voltage curve – maintains greater truck productivity, even toward the end of a shift
- **Faster charging** – enables full charge in as little as 1 hour with the fastest chargers
- **No battery changing** – fast opportunity charges – 15 minutes for several hours of extra runtime – enable continuous operation with just one battery and minimise the need to buy, store and maintain spares
- **No daily maintenance** – the battery stays on board the truck for charging and there is no need for water top-ups or electrolyte checks
- **No gas** – or acid spills – 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 misuse

Batteries and chargers with different capacities are available. Your dealer will identify the best combination for your needs. You should also ask your dealer about optional 5-year warranties, subject to annual check-ups, which give extra peace of mind.

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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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