DEPENDABLE PRODUCTIVITY

NSP10N3
NSP12N3
NSP14N3
NSP16N3
NSP12N3I
NSP14N3I
NSP16N3I
NSP10N3R
NSP12N3R
NSP14N3R
NSP16N3R
NSP12N3IR
NSP14N3IR
NSP16N3IR
NSP16N3S
NSP16N3SR

SPECIFICATIONS

PEDESTRIAN AND FOLDING PLATFORM STACKER TRUCKS 24V, 1.0 - 1.6 TONNES

CAT®

YOUR PERFECT SHORT SHUTTLE PARTNER

THIS RANGE OF STACKERS, INCORPORATING ALL THE LATEST TECHNOLOGY, IS DESIGNED FOR SHORT SHUTTLE APPLICATIONS AND STACKING UP TO 5.4 METRES. WITH A WIDE CHOICE OF PEDESTRIAN AND FOLD-DOWN PLATFORM MODELS, YOU WILL FIND A RELIABLE AND PRODUCTIVE WORKHORSE FOR ANY WAREHOUSE.

Energy-saving programmable drive options, robust construction and high resistance to water and dirt reduce running costs and boost productivity. Maintenance needs are minimised by an integrated drive and lift system, with fewer components, and quick access to all major truck parts.

Smooth and precise control characteristics and a comfortable operating position, with a user-friendly tiller arm and excellent visibility through the mast, ensure a satisfying user experience. Height-adjustable castor wheels and high-strength masts help to maximise stability.

Models with a small fold-down platform are available at 1.0, 1.2, 1.4 and 1.6 tonne capacities to take the legwork out of longer distances.

LOWER COST OF OWNERSHIP

- Latest AC technology keeps energy consumption and maintenance costs to bare minimum.
- Sturdy chassis construction and endurance-tested forks provide enhanced robustness and reliability even in the toughest conditions.
- Closed 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, squeezing downtime still further.
- Integrated drive and lift system features fewer components than previous models, reducing scope for breakdown.
- Closed compartment with steel cover protects battery against impact, postponing costly battery replacement.
- Standard battery size allows interchangeability with other brands.

UNMATCHED PRODUCTIVITY

- AC motor results in very precise drive control, making life easier for truck operators.
- Standard multifunctional (LCD) display offers clear information on truck and battery condition.
- Class-leading, patented, ergonomic *emPower* tiller head helps keep operators fresh with comfortable, easy-to-use controls.
- Z-tiller arm / offset arm is available for loading in tight spaces such as lorries.
- Excellent drive and traction characteristics suit intensive work over short and medium distances.
- Distance of the load wheels from the rear frame has been optimised for increased stability.
- Advanced programmable controller lets users prioritise between faster performance and smoother handling with lower energy consumption, prolonging shift life.
- Rounded fork tips make for accurate and effortless pallet entry, speeding up handling cycles and preventing pallet or load damage.
- Truck can be driven with tiller arm in vertical position (tiller up drive) in ultra-lowspeed 'tortoise' mode to maximise manoeuvrability in tight spaces.
- Narrower truck body makes handling operations in confined areas much easier.
- NSP10-16N3/N3I/N3S models feature an offset tiller arm so the operator can walk alongside, clear of the truck, for convenience and safety.
- N3R models feature fold-down driver platform that prevents operator fatigue over longer distances.
- N3R models' folding platform stays down when lowered, saving time when operators go to remount.
- NSP16N3 and N3R models fitted with the optional side stabilisers achieve impressively greater lifting capacity at higher stacking heights - even compared to stackers with heavier rated capacities.
- N3I initial lift models let operator raise mast and forks, increasing ground clearance to protect truck and load when working on ramps.
- N3I initial lift models can carry two pallets simultaneously using the initial lift on the support forks.
- N3S straddle models allow wider loads and closed, bottom-boarded pallets to be handled with ease, using forged forks to lift straight from the floor.

SAFETY AND ERGONOMICS

- Latest tiller arm design permits comfortable operating position with optimum hand protection.
- Large lift/lower rocker buttons are part of a unique, patented tiller head design with optimum distance between hand and controls, allowing easy one-handed operation even when wearing gloves.
- High-strength masts reduce load movement to a minimum.
- Slim mast profiles and careful hydraulic hose arrangements make for excellent forward visibility.
- Super-quiet oil-filled transmission helps keep noise levels low.
- Height-adjustable castor wheel eliminates play and raises load stability.
- Speed-regulated lifting and a proportional valve for lowering are standard on all models to provide precise, smooth, safe and productive handling.

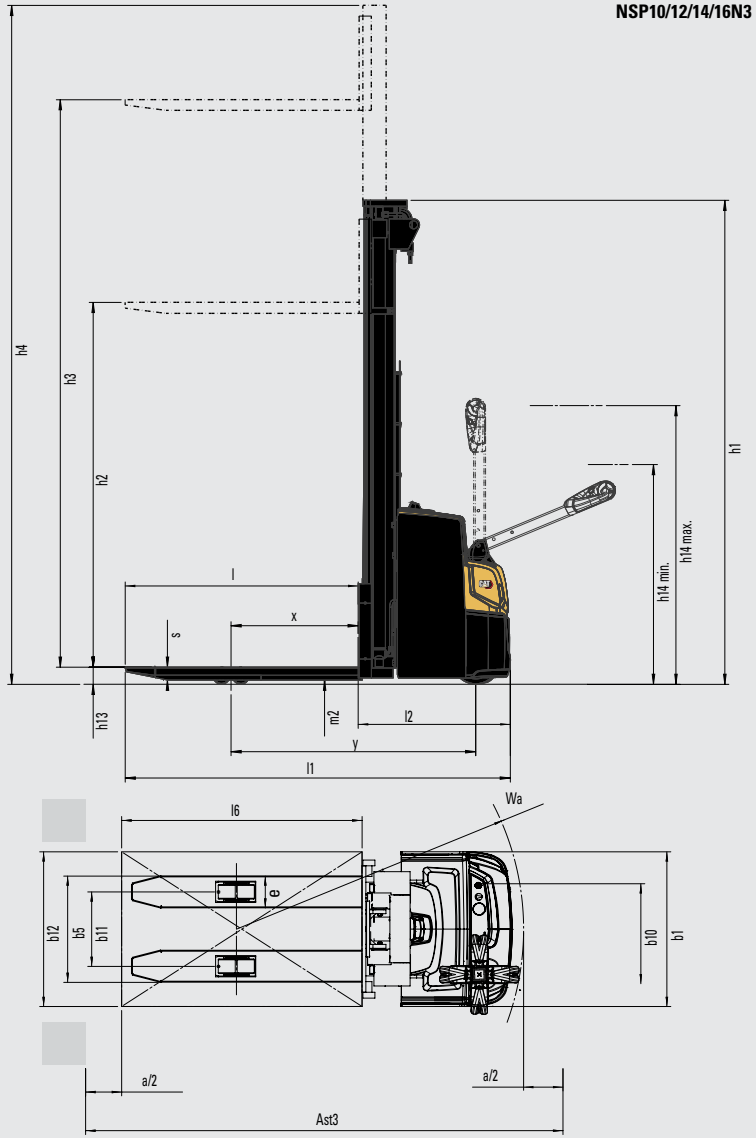
STANDARD EQUIPMENT AND OPTIONS

	NSP10N3(R)	NSP12N3(I)	NSP14N3(I)	NSP16N3(I)	NSP12N3(I)R	NSP14N3(I)R	NSP16N3(I)R	NSP16N3S	NSP16N3SR
GENERAL									
Multifunctional display, including hour meter and BDI	●	●	●	●	●	●	●	●	●
Key switch entry	●	●	●	●	●	●	●	●	●
PIN code login 5 codes	○	○	○	○	○	○	○	○	○
Offset tiller arm (not available for R models)	●	●	●	●	●	●	●	●	●
Speed-regulated lifting and proportional valve for lowering, controlled by rocker switch on tiller head	●	●	●	●	●	●	●	●	●
Initial lift (standard for I models only)	–	●	●	●	●	●	●	–	–
Adjustable width between straddle load legs; 900mm - 1300mm	–	–	–	–	–	–	–	●	●
Sideways battery change (250Ah battery only)	–	○	○	○	○	○	○	○	○
Battery changing trolley, for 2 batteries (lead-acid)	–	○	○	○	○	○	○	○	○
Li-ion batteries	○	○	○	○	○	○	○	○	○
ENVIRONMENT									
Continuous use, +5°C to +25°C	●	●	●	●	●	●	●	●	●
Cold store design, 0°C to -35°C	○	○	○	○	○	○	○	○	○
DRIVE AND LIFT CONTROLS									
Hydraulic side stabilisers for enhanced residual capacity (not available for I models)	–	–	–	○	–	–	○	–	–
Centred steering position, with Z-shaped tiller arm (not available for R models)	○	○	○	○	○	○	○	○	○
Tiller up drive	●	●	●	●	●	●	●	●	●
WHEEL OPTIONS									
Vulkollan® drive wheel	●	●	●	●	●	●	●	●	●
Power friction traction wheel	○	○	○	○	○	○	○	○	○
Single load wheels Vulkollan®	●	●	–	–	●	–	–	–	–
Tandem load wheels Vulkollan®	○	○	●	●	○	●	●	●	●
OTHER OPTIONS									
Speed reduction 0.5km/h above 1000mm lift, duplex and triplex masts without free lift	–	○	○	○	○	○	○	○	○
Speed reduction 0.5km/h above free lift, duplex and triplex masts with free lift	–	○	○	○	○	○	○	○	○
Built-in charger 30A, for lead-acid batteries	○	○	○	○	○	○	○	○	○
Special RAL colour	○	○	○	○	○	○	○	○	○
Load backrest, 1300mm	○	○	○	○	○	○	○	○	○
Accessory rack	○	○	○	○	○	○	○	○	○
List bracket / writing desk, A4 size	○	○	○	○	○	○	○	○	○
Computer rack, 10-16" size	○	○	○	○	○	○	○	○	○

● Standard ○ Option

	Characteristics						
1.1	Manufacturer			Cat Lift Trucks	Cat Lift Trucks	Cat Lift Trucks	Cat Lift Trucks
1.2	Manufacturer's model designation			**NSP10N3**	**NSP12N3**	**NSP14N3**	**NSP16N3**
1.3	Power source			Battery	Battery	Battery	Battery
1.4	Operator type			Pedestrian	Pedestrian	Pedestrian	Pedestrian
1.5	Load capacity	Q	(kg)	1000	1200	1400	1600
1.6	Load centre distance	c	(mm)	600	600	600	600
1.8	Load wheel axle to fork face (forks lowered)	x	(mm)	700	750	750	750
1.9	Wheelbase	y	(mm)	1215	1330 [1]	1330	1330 [2]
	Weight						
2.1b	Truck weight without load, with maximum battery weight		kg	730	1020	1020	1095
2.2	Axle loadings with nominal load & maximum battery weight, drive / load side		kg	612 / 1128	810 / 1410	845 / 1580	930 / 1171
2.3	Axle loadings without load & with maximum battery weight, drive / load side		kg	534 / 196	730 / 295	730 / 295	790 / 311
	Wheels, Drive Train						
3.1	Tyres: PT = Power Thane, Vul = Vulkollan, P = Polyurethane, N = Nylon, R = Rubber drive / load side			Vul / Vul	Vul / Vul	Vul / Vul	Vul / Vul
3.2	Tyre dimensions, drive side		(mm)	230 x 70	230 x 70	230 x 70	230 x 70
3.3	Tyre dimensions, load side		(mm)	85 x 90	85 x 90	85 x 75	85 x 75
3.4	Castor wheel dimensions (diameter x width)		(mm)	125 x 60	125 x 60	125 x 60	125 x 60
3.5	Number of wheels, load / drive side (x = driven)			2 / 1x + 1	2 / 1x + 1	4 / 1x + 1	4 / 1x + 1
3.6	Track width (centre of tyres), drive side	b10	(mm)	515	515	515	515
3.7	Track width (centre of tyres), load side	b11	(mm)	385	385	385	385
	Dimensions						
4.2b	Height	h1	(mm)	see tables	see tables	see tables	see tables
4.3	Free lift	h2	(mm)	see tables	see tables	see tables	see tables
4.4	Lift height	h3	(mm)	see tables	see tables	see tables	see tables
4.5	Height with mast extended	h4	(mm)	see tables	see tables	see tables	see tables
4.6	Initial lift	h5	(mm)	-	-	-	-
4.9	Height of tiller arm / steering console (min/max)	h14	(mm)	865 / 1420	865 / 1420	865 / 1420	865 / 1420
4.15	Fork height, fully lowered	h13	(mm)	90	90	90	90
4.19	Overall length	l1	(mm)	1835	1900 [1]	1900	1900 [2]
4.20	Length to fork face	l2	(mm)	685	750 [1]	750	750 [2]
4.21	Overall width	b1/b2	(mm)	800	800	800	800
4.22	Fork dimensions (thickness, width, length)	s / e / l	(mm)	56 / 186 / 1150	56 / 186 / 1150	56 / 186 / 1150	56 / 186 / 1150
4.24	Fork carriage width	b3	(mm)	750	750	750	750
4.25	Outside width over forks (minimum / maximum)	b5	(mm)	570	570	570	570
4.26	Inner width of support legs	b4	(mm)	-	-	-	-
4.32	Ground clearance at centre of wheelbase, (forks lowered)	m2	(mm)	20	20	20	20
4.33c	Working aisle width (Ast) with 1000 x 1200 mm pallets, load crosswise, platform up/down	Ast	(mm)	2329	2422 [1]	2422	2422 [2]
4.33d	Working aisle width (Ast3) with 1000 x 1200 mm pallets, load crosswise, platform up/down	Ast3	(mm)	1958	2022 [1]	2022	2022 [2]
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)	2298	2374 [1]	2374	2374 [2]
4.34d	Working aisle width (Ast3) with 800 x 1200 mm pallets, load lengthwise, platform up/down	Ast3	(mm)	2158	2222 [1]	2222	2222 [2]
4.35	Turning radius	Wa	(mm)	1458	1572 [1]	1572	1572 [2]
	Performance						
5.1	Travel speed, with / without load		km / h	6.0 / 6.0	6.0 / 6.0	6.0 / 6.0	6.0 / 6.0
5.2	Lifting speed, with / without load		m / s	0.15 / 0.30	0.16 / 0.33	0.14 / 0.33	0.15 / 0.32
5.3	Lowering speed, with / without load		m / s	0.29 / 0.32	0.46 / 0.35	0.45 / 0.35	0.43 / 0.34
5.7	Gradeability, with / without load		%				
5.8	Maximum gradeability with / without load		%	8 / 15	8 / 15	8 / 15	8 / 15
5.9	Acceleration time (10 metres) with / without load		s				
5.10	Service brakes (mechanical / hydraulic / electric / pneumatic)			Electric	Electric	Electric	Electric
	Electric motors						
6.1	Drive motor capacity (60 min. short duty)		kW	1.0	1.0	1.0	1.0
6.2	Lift motor output at 15% duty factor		kW	2.2	2.2	2.2	3.2
6.3	Battery to DIN						
6.4	Battery voltage/capacity at 5-hour discharge		V / Ah	24 / 150	24 / 150 - 250 [5]	24 / 250	24 / 250 - 375 [5]
6.5	Battery weight		kg	151	151 - 212	212	212 - 288
6.6a	Energy consumption according to EN16796		kWh / h	0.46	0.76	0.77	0.77
	Miscellaneous						
8.1	Type of drive control			Stepless	Stepless	Stepless	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)	64.8	64.1	64.1	64.1
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)			< 2.5	< 2.5	< 2.5	< 2.5

NSP10/12/14/16N3



1. With the 150 Ah battery this dimension decreases by 64 mm
2. With the 375 Ah battery this dimension increases by 72 mm
3. Forged forks hooked on FEM2A fork carriage
4. In-field adjustable width of wide straddle support legs
5. With the larger batteries several dimensions increase (see notes #1-2)

Ast = Working aisle width

Ast3 = Working aisle width (b12 <1000mm)

Ast = $Wa + \sqrt{(l6 - x)^2 + (b12 / 2)^2} + a$

Ast3 = Wa + l6 -x + a

Wa = Turning radius

l6 = Pallet length (800 or 1000mm)

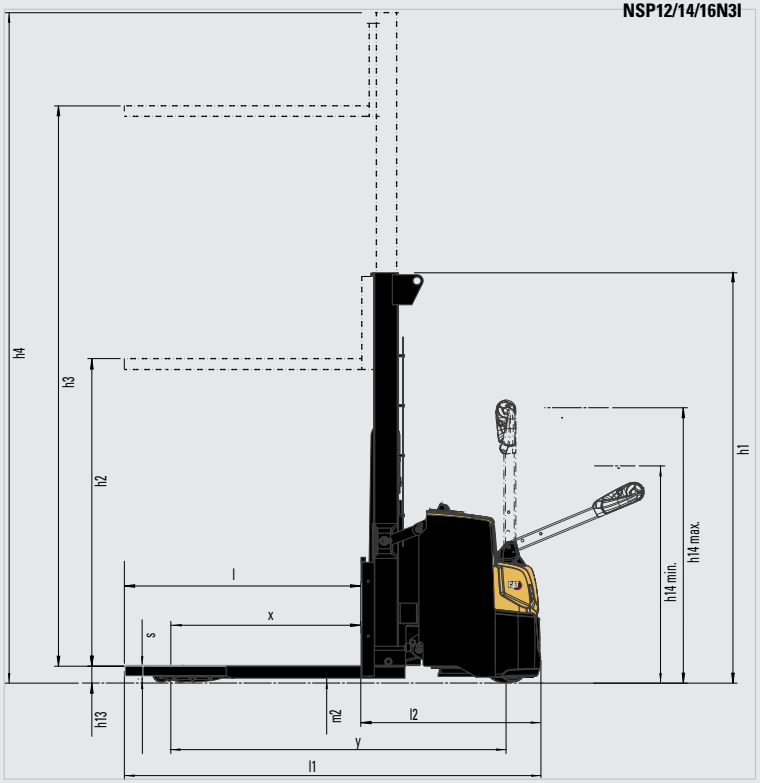
x = Load wheel axle to fork face

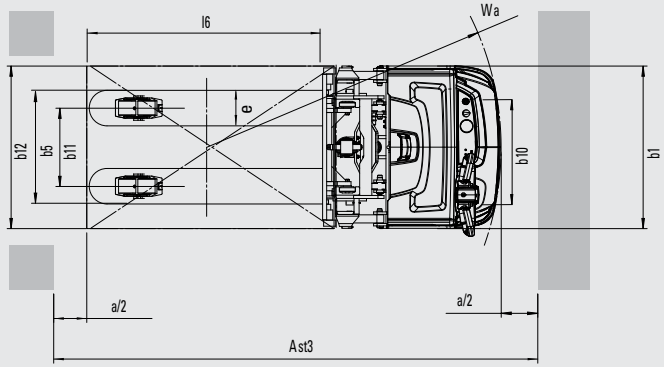
b12 = Pallet width (1200 mm)

a = Safety clearance = 2 x 100mm

	Characteristics					
1.1	Manufacturer			Cat Lift Trucks	Cat Lift Trucks	Cat Lift Trucks
1.2	Manufacturer's model designation			**NSP12N3I**	**NSP14N3I**	**NSP16N3I**
1.3	Power source			Battery	Battery	Battery
1.4	Operator type			Pedestrian	Pedestrian	Pedestrian
1.5	Load capacity	Q	(kg)	1200	1400	1600
1.6	Load centre distance	c	(mm)	600	600	600
1.8	Load wheel axle to fork face (forks lowered)	x	(mm)	925	925	925
1.9	Wheelbase	y	(mm)	1610	1610	1610 [2]
	Weight					
2.1b	Truck weight without load, with maximum battery weight		kg	1095	1095	1171
2.2	Axle loadings with nominal load & maximum battery weight, drive / load side		kg	1060 / 1230	1105 / 1390	1205 / 1561
2.3	Axle loadings without load & with maximum battery weight, drive / load side		kg	780 / 315	780 / 312	840 / 328
	Wheels, Drive Train					
3.1	Tyres: PT = Power Thane, Vul = Vulkollan, P = Polyurethane, N = Nylon, R = Rubber drive / load side			Vul / Vul	Vul / Vul	Vul / Vul
3.2	Tyre dimensions, drive side		(mm)	230 x 70	230 x 70	230 x 70
3.3	Tyre dimensions, load side		(mm)	85 x 90	85 x 75	85 x 75
3.4	Castor wheel dimensions (diameter x width)		(mm)	125 x 60	125 x 60	125 x 60
3.5	Number of wheels, load / drive side (x = driven)			2 / 1x + 1	4 / 1x + 1	4 / 1x + 1
3.6	Track width (centre of tyres), drive side	b10	(mm)	515	515	515
3.7	Track width (centre of tyres), load side	b11	(mm)	385	385	385
	Dimensions					
4.2b	Height	h1	(mm)	see tables	see tables	see tables
4.3	Free lift	h2	(mm)	see tables	see tables	see tables
4.4	Lift height	h3	(mm)	see tables	see tables	see tables
4.5	Height with mast extended	h4	(mm)	see tables	see tables	see tables
4.6	Initial lift	h5	(mm)	110	110	110
4.9	Height of tiller arm / steering console (min/max)	h14	(mm)	865 / 1420	865 / 1420	865 / 1420
4.15	Fork height, fully lowered	h13	(mm)	90	90	90
4.19	Overall length	l1	(mm)	2010	2010	2010 [2]
4.20	Length to fork face	l2	(mm)	855	855	855 [2]
4.21	Overall width	b1/b2	(mm)	800	800	800
4.22	Fork dimensions (thickness, width, length)	s / e / l	(mm)	56 / 186 / 1150	56 / 186 / 1150	56 / 186 / 1150
4.24	Fork carriage width	b3	(mm)	750	750	750
4.25	Outside width over forks (minimum / maximum)	b5	(mm)	570	570	570
4.26	Inner width of support legs	b4	(mm)	-	-	-
4.32	Ground clearance at centre of wheelbase, (forks lowered)	m2	(mm)	20	20	20
4.33c	Working aisle width (Ast) with 1000 x 1200 mm pallets, load crosswise, platform up/down	Ast	(mm)	2653	2653	2653 [2]
4.33d	Working aisle width (Ast3) with 1000 x 1200 mm pallets, load crosswise, platform up/down	Ast3	(mm)	2123	2123	2123 [2]
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)	2533	2533	2533 [2]
4.34d	Working aisle width (Ast3) with 800 x 1200 mm pallets, load lengthwise, platform up/down	Ast3	(mm)	2323	2323	2323 [2]
4.35	Turning radius	Wa	(mm)	1848	1848	1848 [2]
	Performance					
5.1	Travel speed, with / without load		km / h	6.0 / 6.0	6.0 / 6.0	6.0 / 6.0
5.2	Lifting speed, with / without load		m / s	0.16 / 0.33	0.14 / 0.33	0.15 / 0.32
5.3	Lowering speed, with / without load		m / s	0.46 / 0.35	0.45 / 0.35	0.43 / 0.34
5.7	Gradeability, with / without load		%			
5.8	Maximum gradeability with / without load		%	8 / 15	8 / 15	8 / 15
5.9	Acceleration time (10 metres) with / without load		s			
5.10	Service brakes (mechanical / hydraulic / electric / pneumatic)			Electric	Electric	Electric
	Electric motors					
6.1	Drive motor capacity (60 min. short duty)		kW	1.0	1.0	1.0
6.2	Lift motor output at 15% duty factor		kW	2.2	2.2	3.2
6.3	Battery to DIN					
6.4	Battery voltage/capacity at 5-hour discharge		V / Ah	24 / 250	24 / 250	24 / 250 - 375 [5]
6.5	Battery weight		kg	212	212	212 - 288
6.6a	Energy consumption according to EN16796		kWh / h	0.76	0.77	0.77
	Miscellaneous					
8.1	Type of drive control			Stepless	Stepless	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)	64.1	64.1	64.1
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)			< 2.5	< 2.5	< 2.5

NSP12/14/16N3I





1. With the 150 Ah battery this dimension decreases by 64 mm
2. With the 375 Ah battery this dimension increases by 72 mm
3. Forged forks hooked on FEM2A fork carriage
4. In-field adjustable width of wide straddle support legs
5. With the larger batteries several dimensions increase (see notes #1-2)

Ast = Working aisle width

Ast3 = Working aisle width (b12 <1000mm)

Ast = $Wa + \sqrt{(l6 - x)^2 + (b12 / 2)^2} + a$

Ast3 = Wa + l6 -x + a

Wa = Turning radius

l6 = Pallet length (800 or 1000mm)

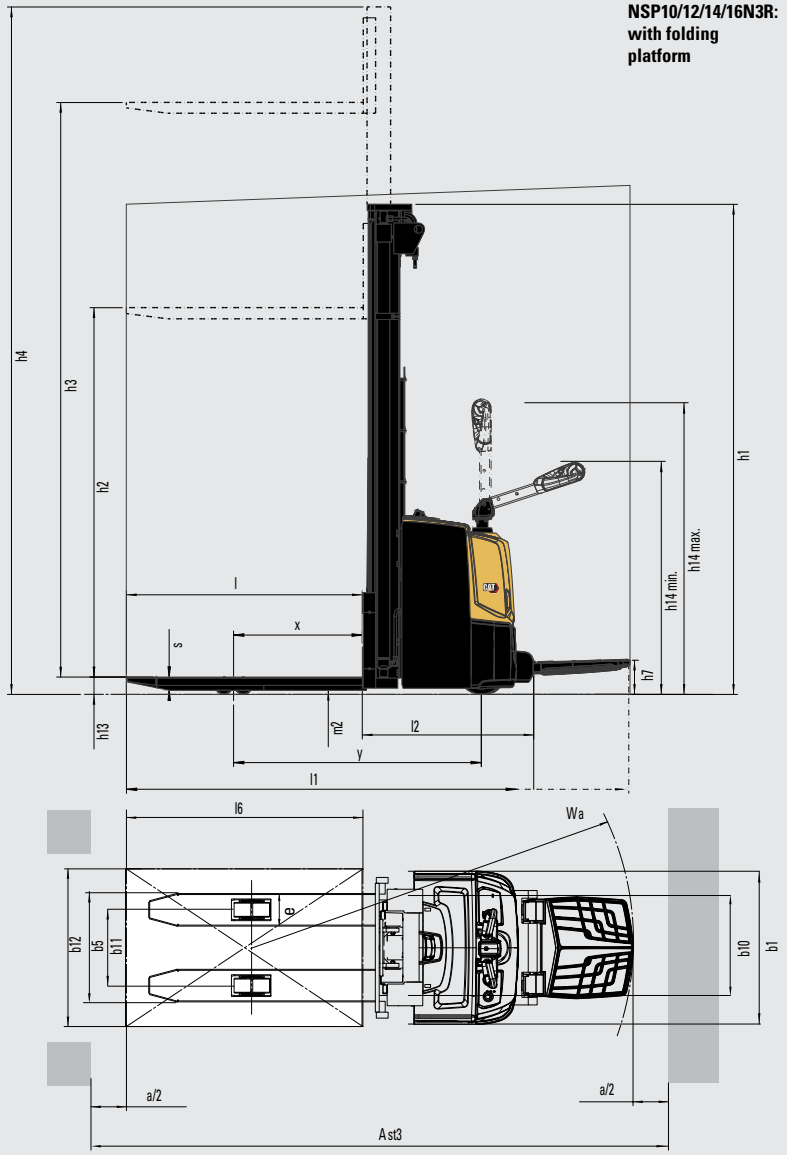
x = Load wheel axle to fork face

b12 = Pallet width (1200 mm)

a = Safety clearance = 2 x 100mm

	Characteristics						
1.1	Manufacturer			Cat Lift Trucks	Cat Lift Trucks	Cat Lift Trucks	Cat Lift Trucks
1.2	Manufacturer's model designation			**NSP10N3R**	**NSP12N3R**	**NSP14N3R**	**NSP16N3R**
1.3	Power source			Battery	Battery	Battery	Battery
1.4	Operator type			Pedestrian / Stand-on	Pedestrian / Stand-on	Pedestrian / Stand-on	Pedestrian / Stand-on
1.5	Load capacity	Q	(kg)	1000	1200	1400	1600
1.6	Load centre distance	c	(mm)	600	600	600	600
1.8	Load wheel axle to fork face (forks lowered)	x	(mm)	700	750	750	750
1.9	Wheelbase	y	(mm)	1215	1330 [1]	1330	1330 [2]
	Weight						
2.1b	Truck weight without load, with maximum battery weight		kg	860	1100	1100	1176
2.2	Axle loadings with nominal load & maximum battery weight, drive / load side		kg	715 / 1155	840 / 1400	860 / 1580	990 / 1795
2.3	Axle loadings without load & with maximum battery weight, drive / load side		kg	640 / 220	860 / 320	740 / 295	860 / 320
	Wheels, Drive Train						
3.1	Tyres: PT = Power Thane, Vul = Vulkollan, P = Polyurethane, N = Nylon, R = Rubber drive / load side			Vul / Vul	Vul / Vul	Vul / Vul	Vul / Vul
3.2	Tyre dimensions, drive side		(mm)	230 x 70	230 x 70	230 x 70	230 x 70
3.3	Tyre dimensions, load side		(mm)	85 x 90	85 x 90	85 x 75	85 x 75
3.4	Castor wheel dimensions (diameter x width)		(mm)	125 x 60	125 x 60	125 x 60	125 x 60
3.5	Number of wheels, load / drive side (x = driven)			2 / 1x + 1	2 / 1x + 1	4 / 1x + 1	4 / 1x + 1
3.6	Track width (centre of tyres), drive side	b10	(mm)	515	515	515	515
3.7	Track width (centre of tyres), load side	b11	(mm)	385	385	385	385
	Dimensions						
4.2b	Height	h1	(mm)	see tables	see tables	see tables	see tables
4.3	Free lift	h2	(mm)	see tables	see tables	see tables	see tables
4.4	Lift height	h3	(mm)	see tables	see tables	see tables	see tables
4.5	Height with mast extended	h4	(mm)	see tables	see tables	see tables	see tables
4.8	Seat- or stand height	h7	(mm)	175	175	175	175
4.9	Height of tiller arm / steering console (min/max)	h14	(mm)	1155 / 1550	1155 / 1550	1155 / 1550	1155 / 1550
4.15	Fork height, fully lowered	h13	(mm)	90	90	90	90
4.19	Overall length	l1	(mm)	1955 / 2435	2020 / 2500 [1]	2020 / 2500	2020 / 2500 [2]
4.20	Length to fork face	l2	(mm)	805 / 1285	870 / 1350 [1]	870 / 1350	870 / 1350 [2]
4.21	Overall width	b1/b2	(mm)	800	800	800	800
4.22	Fork dimensions (thickness, width, length)	s / e / l	(mm)	56 / 186 / 1150	56 / 186 / 1150	56 / 186 / 1150	56 / 186 / 1150
4.24	Fork carriage width	b3	(mm)	750	750	750	750
4.25	Outside width over forks (minimum / maximum)	b5	(mm)	570	570	570	570
4.26	Inner width of support legs	b4	(mm)	-	-	-	-
4.32	Ground clearance at centre of wheelbase, (forks lowered)	m2	(mm)	20	20	20	20
4.33c	Working aisle width (Ast) with 1000 x 1200 mm pallets, load crosswise, platform up/down	Ast	(mm)	2449 / 2929	2542 / 3022 [1]	2542 / 3022	2542 / 3022 [2]
4.33d	Working aisle width (Ast3) with 1000 x 1200 mm pallets, load crosswise, platform up/down	Ast3	(mm)	2078 / 2558	2142 / 2622 [1]	2142 / 2622	2142 / 2622 [2]
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)	2418 / 2898	2494 / 2974 [1]	2494 / 2974	2494 / 2974 [2]
4.34d	Working aisle width (Ast3) with 800 x 1200 mm pallets, load lengthwise, platform up/down	Ast3	(mm)	2278 / 2758	2342 / 2822 [1]	2342 / 2822	2342 / 2822 [2]
4.35	Turning radius	Wa	(mm)	1578 / 2058	1692 / 2172 [1]	1692 / 2172	1692 / 2172 [2]
	Performance						
5.1	Travel speed, with / without load		km / h	6.0 / 6.0	6.0 / 6.0	6.0 / 6.0	6.0 / 6.0
5.2	Lifting speed, with / without load		m / s	0.15 / 0.30	0.16 / 0.33	0.14 / 0.33	0.15 / 0.32
5.3	Lowering speed, with / without load		m / s	0.29 / 0.32	0.46 / 0.35	0.45 / 0.35	0.43 / 0.34
5.7	Gradeability, with / without load		%				
5.8	Maximum gradeability with / without load		%	8 / 15	8 / 15	8 / 15	8 / 15
5.9	Acceleration time (10 metres) with / without load		s				
5.10	Service brakes (mechanical / hydraulic / electric / pneumatic)			Electric	Electric	Electric	Electric
	Electric motors						
6.1	Drive motor capacity (60 min. short duty)		kW	1.0	1.0	1.0	1.0
6.2	Lift motor output at 15% duty factor		kW	2.2	2.2	2.2	3.2
6.3	Battery to DIN						
6.4	Battery voltage/capacity at 5-hour discharge		V / Ah	24 / 150	24 / 150 - 250 [5]	24 / 250	24 / 250 - 375 [5]
6.5	Battery weight		kg	151	151 - 212	212	212 - 288
6.6a	Energy consumption according to EN16796		kWh / h	0.75	0.77	0.78	0.78
	Miscellaneous						
8.1	Type of drive control			Stepless	Stepless	Stepless	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)	64.6	64.0	64.0	64.0
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)			0.8	0.8	0.8	0.8
10.7.3	Hand-arm vibration (EN 13 059:2002)			< 2.5	< 2.5	< 2.5	< 2.5

NSP10/12/14/16N3R: with folding platform



1. With the 150 Ah battery this dimension decreases by 64 mm
2. With the 375 Ah battery this dimension increases by 72 mm
3. Forged forks hooked on FEM2A fork carriage
4. In-field adjustable width of wide straddle support legs
5. With the larger batteries several dimensions increase (see notes #1-2)

Ast = Working aisle width

Ast3 = Working aisle width (b12 <1000mm)

Ast = $Wa + \sqrt{(l6 - x)^2 + (b12 / 2)^2} + a$

Ast3 = Wa + l6 -x + a

Wa = Turning radius

l6 = Pallet length (800 or 1000mm)

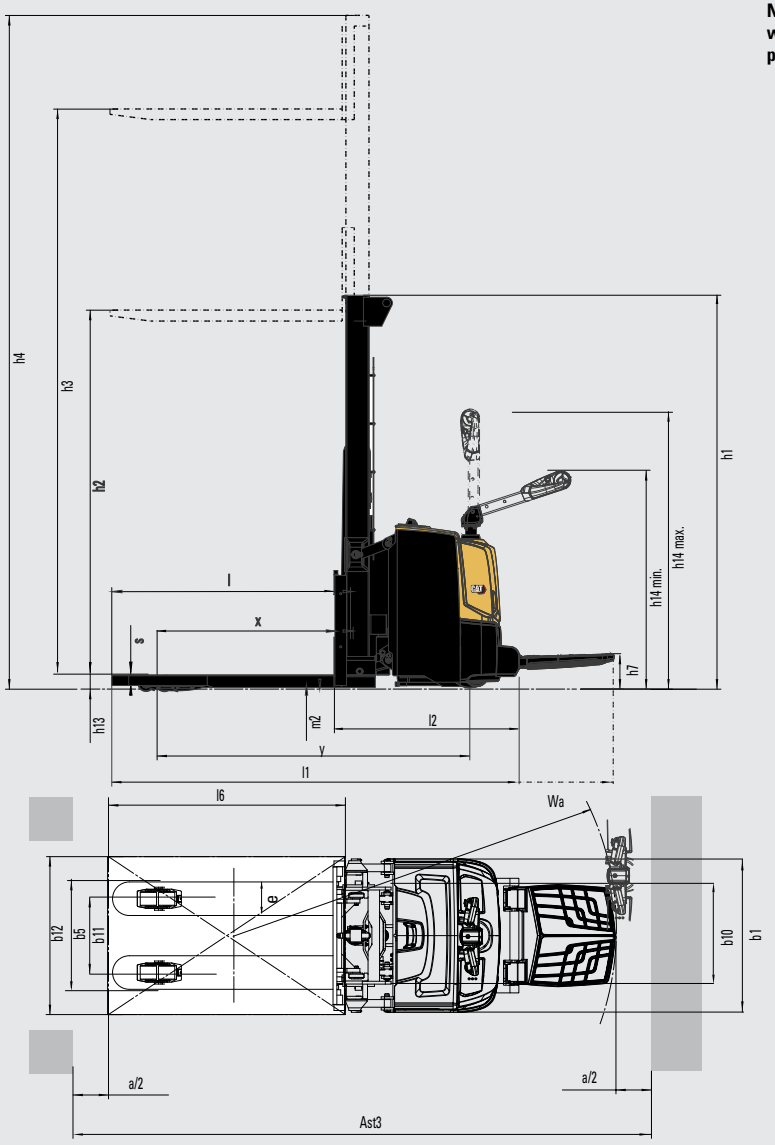
x = Load wheel axle to fork face

b12 = Pallet width (1200 mm)

a = Safety clearance = 2 x 100mm

	Characteristics					
1.1	Manufacturer			Cat Lift Trucks	Cat Lift Trucks	Cat Lift Trucks
1.2	Manufacturer's model designation			**NSP12N3IR**	**NSP14N3IR**	**NSP16N3IR**
1.3	Power source			Battery	Battery	Battery
1.4	Operator type			Pedestrian / Stand-on	Pedestrian / Stand-on	Pedestrian / Stand-on
1.5	Load capacity	Q	(kg)	1200	1400	1600
1.6	Load centre distance	c	(mm)	600	600	600
1.8	Load wheel axle to fork face (forks lowered)	x	(mm)	925	925	925
1.9	Wheelbase	y	(mm)	1610	1610	1610 [2]
	Weight					
2.1b	Truck weight without load, with maximum battery weight		kg	1175	1175	1251
2.2	Axle loadings with nominal load & maximum battery weight, drive / load side		kg	1030 / 1350	1115 / 1460	1263 / 1588
2.3	Axle loadings without load & with maximum battery weight, drive / load side		kg	840 / 335	840 / 335	903 / 348
	Wheels, Drive Train					
3.1	Tyres: PT = Power Thane, Vul = Vulkollan, P = Polyurethane, N = Nylon, R = Rubber drive / load side			Vul / Vul	Vul / Vul	Vul / Vul
3.2	Tyre dimensions, drive side		(mm)	230 x 70	230 x 70	230 x 70
3.3	Tyre dimensions, load side		(mm)	85 x 90	85 x 75	85 x 75
3.4	Castor wheel dimensions (diameter x width)		(mm)	125 x 60	125 x 60	125 x 60
3.5	Number of wheels, load / drive side (x = driven)			2 / 1x + 1	4 / 1x + 1	4 / 1x + 1
3.6	Track width (centre of tyres), drive side	b10	(mm)	515	515	515
3.7	Track width (centre of tyres), load side	b11	(mm)	385	385	385
	Dimensions					
4.2b	Height	h1	(mm)	see tables	see tables	see tables
4.3	Free lift	h2	(mm)	see tables	see tables	see tables
4.4	Lift height	h3	(mm)	see tables	see tables	see tables
4.5	Height with mast extended	h4	(mm)	see tables	see tables	see tables
4.6	Initial lift	h5	(mm)	110	110	110
4.8	Seat- or stand height	h7	(mm)	175	175	175
4.9	Height of tiller arm / steering console (min/max)	h14	(mm)	1155 / 1550	1155 / 1550	1155 / 1550
4.15	Fork height, fully lowered	h13	(mm)	90	90	90
4.19	Overall length	l1	(mm)	2125 / 2605	2125 / 2605	2125 / 2605 [2]
4.20	Length to fork face	l2	(mm)	975 / 1455	975 / 1455	975 / 1455 [2]
4.21	Overall width	b1/b2	(mm)	800	800	800
4.22	Fork dimensions (thickness, width, length)	s / e / l	(mm)	56 / 186 / 1150	56 / 186 / 1150	56 / 186 / 1150
4.24	Fork carriage width	b3	(mm)	750	750	750
4.25	Outside width over forks (minimum / maximum)	b5	(mm)	570	570	570
4.26	Inner width of support legs	b4	(mm)	-	-	-
4.32	Ground clearance at centre of wheelbase, (forks lowered)	m2	(mm)	20	20	20
4.33c	Working aisle width (Ast) with 1000 x 1200 mm pallets, load crosswise, platform up/down	Ast	(mm)	2777 / 3257	2777 / 3257	2777 / 3257 [2]
4.33d	Working aisle width (Ast3) with 1000 x 1200 mm pallets, load crosswise, platform up/down	Ast3	(mm)	2247 / 2727	2247 / 2727	2247 / 2727 [2]
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)	2657 / 3137	2657 / 3137	2657 / 3137 [2]
4.34d	Working aisle width (Ast3) with 800 x 1200 mm pallets, load lengthwise, platform up/down	Ast3	(mm)	2447 / 2927	2447 / 2927	2447 / 2927 [2]
4.35	Turning radius	Wa	(mm)	1972 / 2452	1972 / 2452	1972 / 2452 [2]
	Performance					
5.1	Travel speed, with / without load		km / h	6.0 / 6.0	6.0 / 6.0	6.0 / 6.0
5.2	Lifting speed, with / without load		m / s	0.16 / 0.33	0.14 / 0.33	0.15 / 0.32
5.3	Lowering speed, with / without load		m / s	0.46 / 0.35	0.45 / 0.35	0.43 / 0.34
5.7	Gradeability, with / without load		%			
5.8	Maximum gradeability with / without load		%	8 / 15	8 / 15	8 / 15
5.9	Acceleration time (10 metres) with / without load		s			
5.10	Service brakes (mechanical / hydraulic / electric / pneumatic)			Electric	Electric	Electric
	Electric motors					
6.1	Drive motor capacity (60 min. short duty)		kW	1.0	1.0	1.0
6.2	Lift motor output at 15% duty factor		kW	2.2	2.2	3.2
6.3	Battery to DIN					
6.4	Battery voltage/capacity at 5-hour discharge		V / Ah	24 / 250	24 / 250	24 / 250 - 375 [5]
6.5	Battery weight		kg	212	212	212 - 288
6.6a	Energy consumption according to EN16796		kWh / h	0.77	0.78	0.78
	Miscellaneous					
8.1	Type of drive control			Stepless	Stepless	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)	64.0	64.0	64.0
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)			0.8	0.8	0.8
10.7.3	Hand-arm vibration (EN 13 059:2002)			< 2.5	< 2.5	< 2.5

NSP12/14/16N3IR: with folding platform



1. With the 150 Ah battery this dimension decreases by 64 mm
2. With the 375 Ah battery this dimension increases by 72 mm
3. Forged forks hooked on FEM2A fork carriage
4. In-field adjustable width of wide straddle support legs
5. With the larger batteries several dimensions increase (see notes #1-2)

Ast = Working aisle width

Ast3 = Working aisle width (b12 <1000mm)

Ast = $Wa + \sqrt{(l6 - x)^2 + (b12 / 2)^2} + a$

Ast3 = Wa + l6 -x + a

Wa = Turning radius

l6 = Pallet length (800 or 1000mm)

x = Load wheel axle to fork face

b12 = Pallet width (1200 mm)

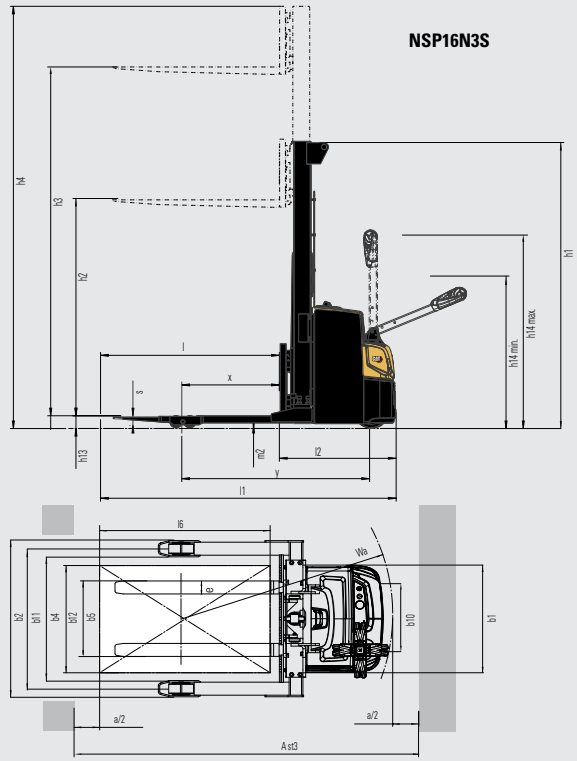
a = Safety clearance = 2 x 100mm

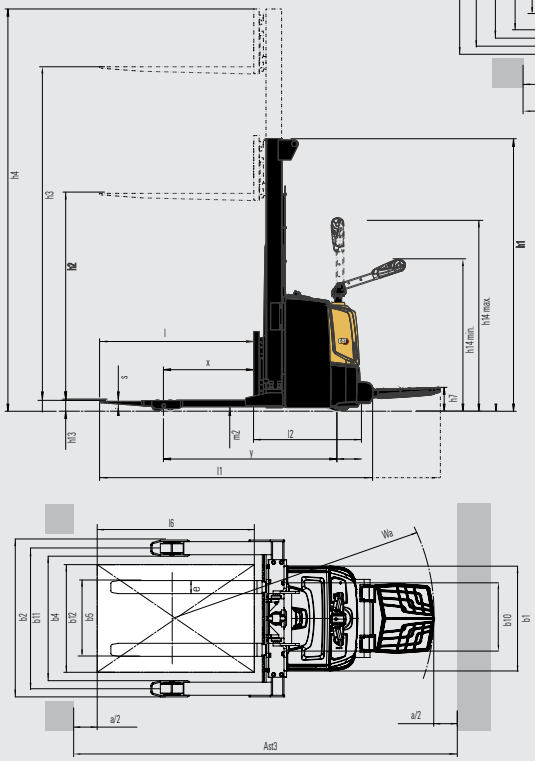
	Characteristics				
1.1	Manufacturer			Cat Lift Trucks	Cat Lift Trucks
1.2	Manufacturer's model designation			**NSP16N3S**	**NSP16N3SR**
1.3	Power source			Battery	Battery
1.4	Operator type			Pedestrian	Pedestrian / Stand-on
1.5	Load capacity	Q	(kg)	1600	1600
1.6	Load centre distance	c	(mm)	600	600
1.8	Load wheel axle to fork face (forks lowered)	x	(mm)	750	750
1.9	Wheelbase	y	(mm)	1395 [2]	1395 [2]
	Weight				
2.1b	Truck weight without load, with maximum battery weight		kg	1364	1516
2.2	Axle loadings with nominal load & maximum battery weight, drive / load side		kg	1106 / 1885	1246 / 1880
2.3	Axle loadings without load & with maximum battery weight, drive / load side		kg	953 / 411	1081 / 435
	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)	230 x 70	230 x 70
3.3	Tyre dimensions, load side		(mm)	85 x 75	85 x 75
3.4	Castor wheel dimensions (diameter x width)		(mm)	125 x 60	125 x 60
3.5	Number of wheels, load / drive side (x = driven)			4 / 1x + 1	4 / 1x + 1
3.6	Track width (centre of tyres), drive side	b10	(mm)	515	515
3.7	Track width (centre of tyres), load side	b11	(mm)	1025-1425	1025-1425
	Dimensions				
4.2b	Height	h1	(mm)	see tables	see tables
4.3	Free lift	h2	(mm)	see tables	see tables
4.4	Lift height	h3	(mm)	see tables	see tables
4.5	Height with mast extended	h4	(mm)	see tables	see tables
4.6	Initial lift	h5	(mm)	-	-
4.8	Seat- or stand height	h7	(mm)	-	175
4.9	Height of tiller arm / steering console (min/max)	h14	(mm)	865 / 1420	1155 / 1550
4.10	Height of support legs	h8	(mm)	84	84
4.15	Fork height, fully lowered	h13	(mm)	85	85
4.19	Overall length	l1	(mm)	1965 [2]	2085 / 2565 [2]
4.20	Length to fork face	l2	(mm)	815 [2]	935 / 1415 [2]
4.21	Overall width	b1/b2	(mm)	800 / 1150 - 1550 [4]	800 / 1150 - 1550 [4]
4.22	Fork dimensions (thickness, width, length)	s / e / l	(mm)	40 / 100 / 1150 [3]	40 / 100 / 1150 [3]
4.24	Fork carriage width	b3	(mm)	980	980
4.25	Outside width over forks (minimum / maximum)	b5	(mm)	260-900 [3]	260-900 [3]
4.26	Inner width of support legs	b4	(mm)	900-1300 [4]	900-1300 [4]
4.32	Ground clearance at centre of wheelbase, (forks lowered)	m2	(mm)	20	20
4.33c	Working aisle width (Ast) with 1000 x 1200 mm pallets, load crosswise, platform up/down	Ast	(mm)	2487 [2]	2607 / 3087 [2]
4.33d	Working aisle width (Ast3) with 1000 x 1200 mm pallets, load crosswise, platform up/down	Ast3	(mm)	2087 [2]	2207 / 2687 [2]
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)	2439 [2]	2559 / 3039 [2]
4.34d	Working aisle width (Ast3) with 800 x 1200 mm pallets, load lengthwise, platform up/down	Ast3	(mm)	2287 [2]	2407 / 2887 [2]
4.35	Turning radius	Wa	(mm)	1637 [2]	1757 / 2237 [2]
	Performance				
5.1	Travel speed, with / without load		km / h	6.0 / 6.0	6.0 / 6.0
5.2	Lifting speed, with / without load		m / s	0.15 / 0.32	0.15 / 0.32
5.3	Lowering speed, with / without load		m / s	0.43 / 0.34	0.43 / 0.34
5.7	Gradeability, with / without load		%		
5.8	Maximum gradeability with / without load		%	8 / 15	8 / 15
5.9	Acceleration time (10 metres) with / without load		s		
5.10	Service brakes (mechanical / hydraulic / electric / pneumatic)			Electric	Electric
	Electric motors				
6.1	Drive motor capacity (60 min. short duty)		kW	1.0	1.0
6.2	Lift motor output at 15% duty factor		kW	3.2	3.2
6.3	Battery to DIN				
6.4	Battery voltage/capacity at 5-hour discharge		V / Ah	24 / 250 - 375 [5]	24 / 250 - 375 [5]
6.5	Battery weight		kg	212 - 288	212 - 288
6.6a	Energy consumption according to EN16796		kWh / h	0.77	0.78
	Miscellaneous				
8.1	Type of drive control			Stepless	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)	64.1	65.1
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)			-	0.8
10.7.3	Hand-arm vibration (EN 13 059:2002)			< 2.5	< 2.5

Ast = Working aisle width
Ast3 = Working aisle width (b12 <1000mm)
Ast = $Wa + \sqrt{(l6 - x)^2 + (b12 / 2)^2} + a$
Ast3 = Wa + l6 -x + a
Wa = Turning radius
l6 = Pallet length (800 or 1000mm)
x = Load wheel axle to fork face
b12 = Pallet width (1200 mm)
a = Safety clearance = 2 x 100mm

1. With the 150 Ah battery this dimension decreases by 64 mm
2. With the 375 Ah battery this dimension increases by 72 mm
3. Forged forks hooked on FEM2A fork carriage
4. In-field adjustable width of wide straddle support legs
5. With the larger batteries several dimensions increase (see notes #1-2)

NSP16N3S





NSP16N3SR:
with folding platform

NSP10N3/10N3R				
Mast Type	h3+h13 mm	h1 mm	h4 mm	h2+h13 mm
S	1500	1980	1980	1500
D	2500	1775	3000	195
	2900	1975	3400	195
	3300	2175	3800	195

NSP12/14/16N3 / NSP12/14 /16N3R				
Mast Type	h3+h13 mm	h1 mm	h4 mm	h2+h13 mm
S	1500	1950	1950	1500
DS	2500	1835	3000	200
	2900	2035	3400	200
	3300	2235	3800	200
	3600	2385	4100	200
	4300	2735	4800	200
DEV	2500	1775	2940	1355
	2900	1975	3340	1555
	3300	2235	3800	1755
	3600	2385	4100	1905
	3700	2435	4200	1955
	4300	2735	4800	2255
TR	4100	1955	4640	-
	4300	2020	4840	-
	4700	2153	5240	-
	5400*	2385	5940	-
TREV	4100	1955	4640	1475
	4300	2020	4840	1540
	4700	2153	5240	1673
	5400*	2385	5940	1905

NSP12/14/16N3I / NSP12/14/16N3IR				
Mast Type	h3+h13 mm	h1 mm	h4 mm	h2+h13 mm
S	1500	2055	2055	1505
DS	2500	1940	3105	200
	2900	2140	3505	200
	3300	2340	3905	200
	3600	2490	4205	200
	4300	2840	4905	200
DEV	2500	1940	3105	1360
	2900	2140	3505	1560
	3300	2340	3905	1760
	3600	2490	4205	1910
	3700	2540	4305	1960
	4300	2840	4905	2260
TR	4100	2060	4745	-
	4300	2125	4945	-
	4700	2260	5345	-
	5400*	2490	6045	-
TREV	4100	2060	4745	1480
	4300	2125	4945	1545
	4700	2260	5345	1673
	5400*	2490	6045	1910

NSP16N3S / NSP16N3SR				
Mast Type	h3+h13 mm	h1 mm	h4 mm	h2+h13 mm
S	1500	2030	2030	1500
DS	2500	1915	3080	195
	2900	2115	3480	195
	3300	2315	3880	195
	3600	2465	4180	195
	4300	2815	4880	195
DEV	2500	1915	3080	1355
	2900	2115	3480	1555
	3300	2315	3880	1755
	3600	2465	4180	1905
	3700	2515	4280	1955
	4300	2815	4880	2255
TR	4100	2035	4720	-
	4300	2100	4920	-
	4700	2233	5320	-
	5400	2465	6020	-
TREV	4100	2035	4720	1475
	4300	2100	4920	1540
	4700	2233	5320	1753
	5400	2465	6020	1905

Mast Performance and Capacity

*	=	only NSP14-16N3R & NSP14-16N3(I)R
S	=	Simplex
D	=	Duplex without free lift (middle cylinder)
DS	=	Duplex without free lift (side cylinders)
DEV	=	Duplex mast with free lift
TR	=	Triplex without free lift
TREV	=	Triplex mast with free lift
h3+h13	=	Lifting height
h1	=	Lowered mast height
h4	=	Raised mast height
h2+h13	=	Free lift

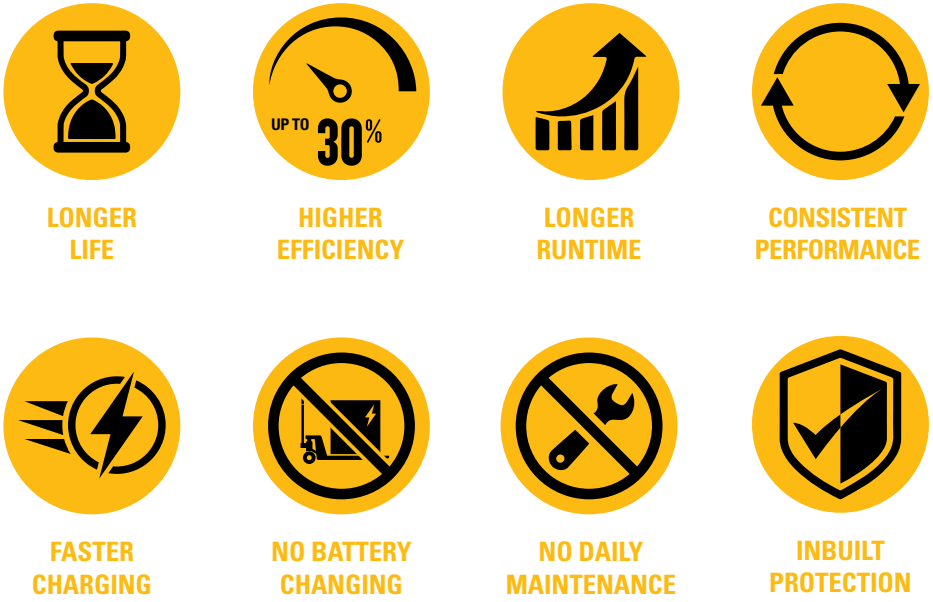
LI-ION BATTERIES

TIME TO SWITCH?

LiION BATTERY TECHNOLOGY

Lithium-ion (Li-ion) battery technology is available in the 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.



Cat Li-ion advantages over lead-acid

Li-ion is an investment which should be viewed against 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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