

LiION
BATTERY TECHNOLOGY



NSS16N2
NSS16N2I
NSS16N2S

NSS20N2
NSS20N2I
NSS20N2S

COST-EFFECTIVE FLEXIBILITY

SPECIFICATIONS

SIT-ON STACKERS 24V, 1.6 - 2.0 TONNES



DRIVE UP YOUR PRODUCTIVITY – DRIVE DOWN THE COST

PUT YOUR OPERATOR IN THE DRIVING SEAT OF A CAT® SIT-ON STACKER AND BOOST YOUR THROUGHPUT. ITS ERGONOMIC DESIGN IS GREAT FOR INTENSIVE STACKING AND INTERNAL TRANSPORT – HOWEVER LONG THE DISTANCES OR SHIFTS. COMPACT AND MANOEUVRABLE, WITH LIFTS UP TO 7 METRES, THIS FLEXIBLE AND ECONOMICAL SOLUTION ALSO INCREASES STORAGE DENSITY.



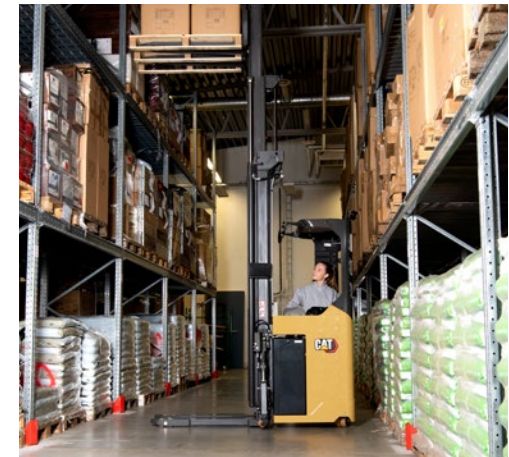
Sit-on stackers are faster and more compact than platform trucks – with no stops to fold or unfold platforms and sidebars. They rival many reach trucks for lifting – at a lower price and in tighter spaces. So why not narrow your aisles, raise your racking and use your warehouse more fully?



The driver is comfortably seated in a quiet, low-vibration, ergonomically equipped compartment. Fully contained and protected within the truck's robust structure, he or she can work quickly and confidently, hour after hour. Stress, strain and fatigue are minimised. Extra comforts include the option of electrically adjustable floor height.



User-friendly controls include fingertip hydraulic levers, with an adjustable armrest, and a positionally adjustable mini steering wheel. The truck's easy and precise manoeuvring and load handling are ideal for a variety of applications and tasks. They include general warehouse work, as well as material flow in factories.



Advanced drive, lifting, lowering and steering systems make every action fast and smooth. Automated stability aids optimise speeds to match activities, ensuring safe but quick operation. For non-stop productivity and the highest levels of efficiency, you can choose Li-ion battery power.

LOWER COST OF OPERATION

- Robust construction and component sealing minimises damage and wear, even in demanding multi-shift operations.
- Multifunctional display option with onboard diagnostics encourages correct use of truck and speeds up maintenance.
- PIN code identification prevents unauthorised use, while choice of PRO, ECO and EASY modes matches truck performance to operator experience and application. (Only with multifunctional display option.)
- Easy, fail-safe battery lock avoids delays and accidents at exchanges.
- Fast maintenance access features, including a swing-out seat, combine with low servicing requirements and long service intervals to reduce downtime.
- Availability of fully integrated Li-ion battery increases battery efficiency, runtime and lifespan, while minimising maintenance needs, for even lower total cost of operation (TCO).
- Advanced motors, regenerative braking and efficient mast designs save on energy and hydraulic oil consumption.
- High levels of component sharing maximise parts availability – and reduce downtime, stock and carbon costs – across the Cat stacker and power pallet ranges.

UNMATCHED PRODUCTIVITY

- Broad range of models, variants and specialised options gives class-leading adaptability to different applications, for optimum productivity, ergonomics and safety.
- Advanced AC motor and control technology enables fast, smooth and precise driving, lifting and lowering.
- Integrated functionality saves time by allowing simultaneous control of drive speed, mast/fork movements and side stabiliser deployment.
- Side stabilisers (optional) increase residual capacity for high lifting.
- Progressive electric power steering automatically adjusts sensitivity according to speed, for high precision in tight manoeuvres and high stability when travelling fast and straight.
- Automatic cornering control reduces maximum travel speed according to steering angle, to ensure quick but safe, stable and confident turns.
- Creep speed feature maintains high load capacity for lifts above 1.7 m by automatically limiting travel to 5 km/h when forks reach that height. (Speed-cut height varies in wide straddle models.)
- With Li-ion battery, performance is enhanced and fast opportunity charging is possible, via easily accessible connector, for continuous operation without battery changes.
- With lead-acid battery, an optional plug on the machine housing allows quick and easy charging without disconnecting the battery.
- Initial lift (I) models give additional ground clearance and may be used for double pallet handling – with one load on the support legs and one on the forks.

- Wide straddle (S) models allow lowering of forks to the floor, between widely spaced support legs, for handling of closed-base pallets and other carriers without open fork spaces or pockets.
- Wide straddle structure simplifies fitting and use of specialised attachments such as roll clamps, spikes and rotators, giving even greater application flexibility.
- Wide straddle variant specifications include choice of standard (855 or 1055 mm) or customised straddle widths, and smaller or larger chassis/capacity, for optimum matching with applications.
- Wide straddle legs have tandem wheels and a low-profile design, slightly angled downward toward their end point, for improved drive-in and ground clearance and better performance on gradients.
- Fork shape is tapered on the underside as well as pointed at the tip, to avoid sticking, for easier and faster pallet entry and exit even while turning at the same time. (On wide straddle models, fork tips are slightly pointed and tapered.)
- Extensive mast choice includes duplex and triplex versions with a range of standard and custom lift heights, to match applications perfectly.
- Powerful and quiet hydraulic motor is smoothly governed by stepless, speed-regulated lifting and lowering control, for quick but safe and accurate fork positioning and movement.
- Level Assistance System (LAS) option: gives a highly intuitive way of stopping at, or bypassing, pre-set heights. (Not on 1.6 tonne wide straddle model.)
- Laser fork positioning guide option aids accuracy in placing forks at correct level. (Not on wide straddle models.)
- Weight and height indicators can be optionally included in the display. (Height indication not available on 1.6 tonne wide straddle model.)
- 360-degree steering option allows truck to turn and move in opposite direction, without stopping, in one smooth manoeuvre – for substantial time gains, especially in complex layouts and highly repetitive handling cycles.

SAFETY AND ERGONOMICS

- Enclosed operator position ensures all-round protection by heavy-duty chassis, integrated bumper, overhead guard pillars and roof.
- Comfortable operator compartment minimises strain and tiredness with low step-in height, unobstructed floor, comfortable, adjustable suspension seat, minimal vibration and plenty of space for drivers of all sizes.
- Electrically adjustable floor height option combines with adjustment of armrests and seat to give the perfect fit for each driver.
- Adjustable mini steering wheel on floating armrest allows a relaxed operator posture, proven to reduce neck/back strain and risk of RSI, and quickly folds up for easy entry/exit.
- Midi steering wheel option offers adjustable column length and angle, and folds up for easy entry/exit.
- Height-adjustable armrest comfortably supports wrist while positioning hand ideally to operate fingertip hydraulic levers and other controls simultaneously.
- Hand-operated direction switch option offers alternative to switching via pedal.

- Clear all-round, forward and fork-tip view is achieved through careful design of mast, fork carriage, overhead guard, pillars and chassis, and by low-reflection surfaces.
- Extra overhead guard options include panoramic, transparent, polycarbonate roof for high upward visibility and additional protection from falling objects.
- Effective mast and fork carriage damping ensures soft landings, smooth stage transitions and rattle-free travel – allowing comfortable load handling and driving with maximum performance throughout long shifts.
- Low-noise specification includes quiet, temperature-controlled fans and speed-regulated lift pump motors, for a pleasant operator environment.
- Working aids include large tool storage compartment on engine panel and accessible from outside truck – plus holders for smaller equipment, phone and drinks.
- Intuitive multifunctional display option keeps drivers fully informed and is optimally positioned and angled for clear viewing.



STACKER WITH TELESCOPIC FORKS

We also have a telescopic fork (TF) model. This is specialised for double-deep racking systems but also has many other uses. Like handling long loads or reaching across lorry cargo areas. It can act as a reach truck, a four-point straddle stacker, a pallet truck and an order picker. See our separate NSS12N2TF spec sheet for further information.

EVERYONE'S A WINNER

Unprecedented levels of component sharing within the Cat® stacker and power pallet portfolio bring additional gains. Fixes are faster, with minimal downtime. Less stock investment is needed. And fewer service van and parts delivery journeys mean a smaller carbon footprint. Everyone wins!

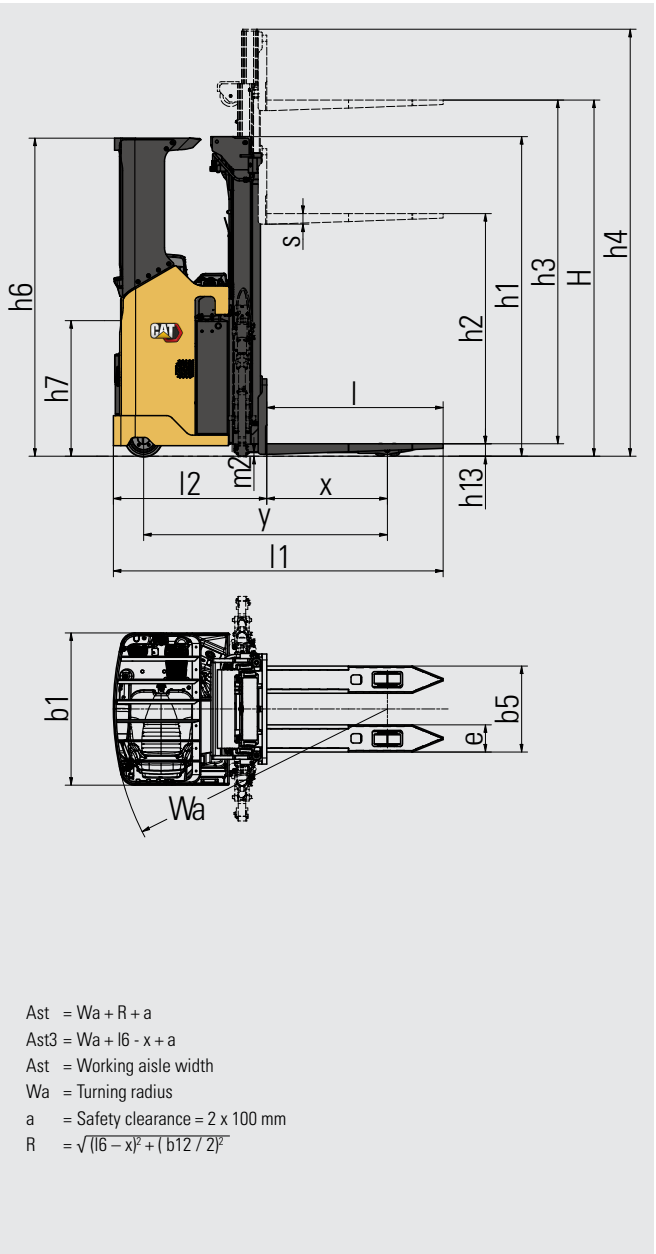
STANDARD EQUIPMENT AND OPTIONS

	NSS16N2	NSS16N2I	NSS20N2	NSS20N2I	NSS16N2S	NSS20N2S
GENERAL						
Regular narrow straddle legs for handling of open load carriers	●	●	●	●	—	—
Initial lift for double load handling	—	●	—	●	—	—
Wide straddle legs for handling of both open and closed load carriers	—	—	—	—	●	●
Telescopic forks for extended reach in handling of e.g. double-deep stacking and closed load carriers	—	—	—	—	—	—
Standard display incl. hour meter and battery indicator (BDI)	●	●	●	●	●	●
Key switch entry	●	●	●	●	●	●
Electric power steering, with mini or midi steering wheel	●	●	●	●	●	●
Automatic straight steering at start-up	●	●	●	●	●	●
Adaptive cornering control	●	●	●	●	●	●
Speed-regulated lift motor and proportional valve for lowering	●	●	●	●	●	●
Tandem load wheels Vulkollan	●	●	●	●	●	●
Overhead guard (OHG)	●	●	●	●	●	●
Adjustable armrest, right side	●	●	●	●	●	●
Adjustable steering wheel, all directions	●	●	●	●	●	●
Storage compartment under armrest and by left side of seat	●	●	●	●	●	●
Ergonomic reach-truck-class, fully adjustable fabric-clad seat	●	●	●	●	●	●
Battery on rollers	●	●	●	●	●	●
POWER SOURCE						
Li-ion batteries *	○	○	○	○	○	○
Lead-acid batteries	○	○	○	○	○	○
ENVIRONMENT						
Chill store design, down to -10°C	●	●	●	●	●	●
Cold store design, 0°C to -30°C	○	○	○	○	○	○
DRIVE AND LIFT CONTROLS						
Mini steering wheel with floating armrest	●	●	●	●	●	●
Midi steering wheel	○	○	○	○	○	○
Finger-tip controls for lifting/lowering	●	●	●	●	●	●
Hands-free direction control (HFDC), in accelerator foot pedal	●	●	●	●	●	●
Hand-operated direction control (HODC)	○	○	○	○	○	○
360-degree steering	○	○	○	○	○	○
Reversed steering	○	○	○	○	○	○
WHEEL OPTIONS						
Vulkollan	●	●	●	●	●	●
Tractothan	○	○	○	○	○	○
Super Grip	○	○	○	○	○	○
OTHER OPTIONS						
Side stabilisers	○	○	○	○	—	—
High-performance lift motor system 8.0 kW AC	○	○	○	○	○	○
Electrically adjustable floor height, 70 mm	○	○	○	○	○	○
Vinyl-clad seat	○	○	○	○	○	○
Heated seat, fabric or vinyl	○	○	○	○	○	○
Multifunctional display incl. BDI and hour meter, PIN code login (100 codes) and graphic icons	○	○	○	○	○	○
Load backrest 1200 mm	○	○	○	○	○	○
Key switch entry (in combination with multifunctional display)	○	○	○	○	○	○
Laser positioning guide	○	○	○	○	—	—
Load weight indicator	○	○	○	○	—	○
Lift height indicator	○	○	○	○	—	○
Level Assistance System (LAS)	○	○	○	○	—	○
Video camera and monitor	○	○	○	○	—	○
Panoramic ProVision roof	○	○	○	○	○	○
12V DC Power Socket	○	○	○	○	○	○
5 V USB socket	○	○	○	○	○	○
Accessory rack	○	○	○	○	○	○
Writing desk incl. RAM C holder	○	○	○	○	○	○
Equipment holder RAM system size C	○	○	○	○	○	○
Equipment holder RAM system size C, 2 pcs	○	○	○	○	○	○
Equipment holder RAM size D	○	○	○	○	○	○
Working lights LED	○	○	○	○	○	○
Floor spot warning, red or blue	○	○	○	○	○	○
Increased drive speed 12 km/h, in load trailing direction	○	—	○	—	—	—
Special RAL colour	○	○	○	○	○	○

● Standard ○ Option

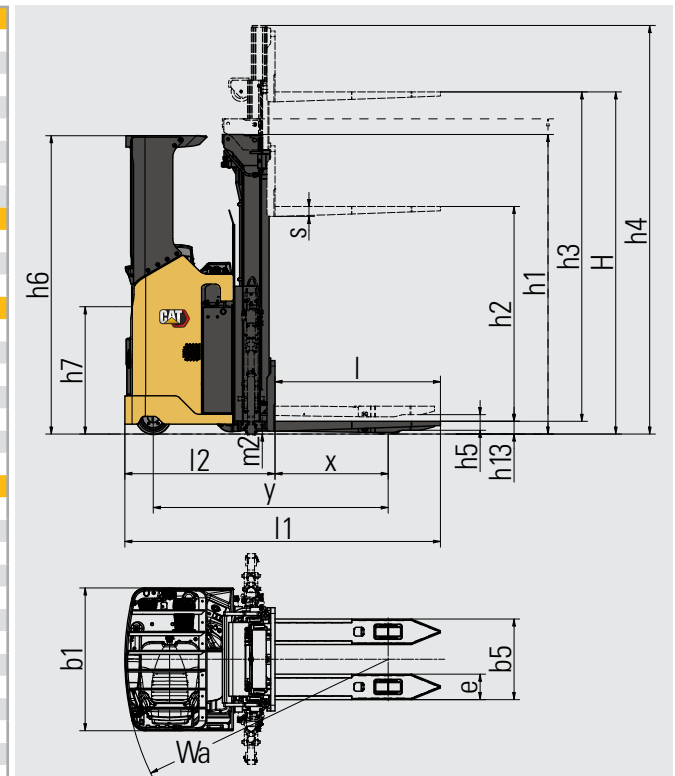
* Li-ion battery option is available in selected regions

Characteristics			Cat Lift Trucks	Cat Lift Trucks
1.1	Manufacturer		NSS16N2	NSS20N2
1.2	Manufacturer's model designation		Battery	Battery
1.3	Power source		Sit-on	Sit-on
1.4	Operator type		1600	2000
1.5	Load capacity	Q (kg)	600	600
1.6	Load centre distance	c (mm)	800	800
1.8	Load wheel axle to fork face (forks lowered)	x (mm)	1616 ¹⁾	1665 ¹⁾
1.9	Wheelbase	y (mm)		
Weight				
2.1b	Truck weight without load, with maximum battery weight	kg	1866	2127
2.2	Axle loadings with nominal load and maximum battery weight, drive / load side	kg	1466/2000	1690/2438
2.3	Axle loadings without load and with maximum battery weight, drive / load side	kg	1306/560	1490/638
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)	250 x 105	250 x 105
3.3	Tyre dimensions, load side	ø (mm)	85 x 70	85 x 70
3.4	Castor wheel dimensions (diameter x width)	(mm)	150 x 55	150 x 55
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)	706	706
3.7	Track width (centre of tyres), load side	b11 (mm)	402	392
Dimensions				
4.2a	Height with mast lowered	h1 (mm)	see tables	see tables
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)	-	-
4.7	Height to top of overhead guard	h6 (mm)	2110	2110
4.8	Seat or stand height	h7 (mm)	966	966
4.10	Height of support legs	h8 (mm)	80	83
4.15	Fork height, fully lowered	h13 (mm)	89	90
4.19	Overall length	l1 (mm)	2189 ¹⁾	2238 ¹⁾
4.20	Length to fork face	l2 (mm)	1019 ¹⁾	1068 ¹⁾
4.21	Overall width	b1 (mm)	1010	1010
4.22	Fork dimensions (thickness, width, length)	s / e / l (mm)	70 / 180 / 1170	70 / 195 / 1170
4.25	Outside width over forks (minimum/maximum)	b5 (mm)	570	570
4.32	Ground clearance at centre of wheelbase, (forks lowered)	m2 (mm)	25	23
4.34a	Working aisle width (Ast) with 800 x 1200 mm pallets, load lengthwise	Ast (mm)	2584 ²⁾	2632 ²⁾
4.34b	Working aisle width (Ast3) with 800 x 1200 mm pallets, load lengthwise	Ast3 (mm)	2419	2466
4.35	Turning radius	Wa (mm)	1819 ²⁾	1866 ²⁾
Performance				
5.1	Travel speed, with/without load	km / h	10/10	9/9
5.2	Lifting speed, with/without load	m / s	0.16 / 0.32	0.12 / 0.22
5.3	Lowering speed, with/without load	m / s	0.44 / 0.41	0.33 / 0.30
5.8	Maximum gradeability with/without load	%	6.7/6.7	5.9/5.9
5.10	Service brakes (mechanical/hydraulic/electric/pneumatic)		Electric	Electric
Electric motors				
6.1	Drive motor capacity (60 min. short duty)	kW	2.7	2.7
6.2	Lift motor output at 15% duty factor	kW	4.0	4.0
6.4	Battery voltage/capacity at 5-hour discharge	V / Ah	24 / 375 - 775	24 / 375 - 775
6.5	Battery weight	kg	330 - 620	330 - 620
6.6a	Energy consumption according to EN 16796 cycle	kWh / h	0.85 ³⁾	0.85 ³⁾
Miscellaneous				
8.1	Type of drive control		AC	AC
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)	<70 dB(A)	<70 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)		



1) When SN/BC775 then add 104 mm
 2) Dimensions vary depending on battery carriage and mast type
 3) Varies according to configuration and actual usage pattern

Characteristics			Cat Lift Trucks	Cat Lift Trucks
1.1	Manufacturer		NSS16N2I	NSS20N2I
1.2	Manufacturer's model designation		Battery	Battery
1.3	Power source		Sit-on	Sit-on
1.4	Operator type		1600	2000
1.5	Load capacity	Q (kg)	600	600
1.6	Load centre distance	c (mm)	800	800
1.8	Load wheel axle to fork face (forks lowered)	x (mm)	1661 ¹⁾	1720 ¹⁾
1.9	Wheelbase	y (mm)		
Weight				
2.1b	Truck weight without load, with maximum battery weight	kg	2015	2294
2.2	Axle loadings with nominal load and maximum battery weight, drive / load side	kg	1571/2045	1806/2488
2.3	Axle loadings without load and with maximum battery weight, drive / load side	kg	1411/605	1606/688
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)	250 x 105	250 x 105
3.3	Tyre dimensions, load side	ø (mm)	85 x 70	85 x 70
3.4	Castor wheel dimensions (diameter x width)	(mm)	150 x 55	150 x 55
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)	706	706
3.7	Track width (centre of tyres), load side	b11 (mm)	390	375
Dimensions				
4.2a	Height with mast lowered	h1 (mm)	see tables	see tables
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)	110	110
4.7	Height to top of overhead guard	h6 (mm)	2110	2110
4.8	Seat or stand height	h7 (mm)	966	966
4.10	Height of support legs	h8 (mm)	87	87
4.15	Fork height, fully lowered	h13 (mm)	93	93
4.19	Overall length	l1 (mm)	2233 ¹⁾	2293 ¹⁾
4.20	Length to fork face	l2 (mm)	1063 ¹⁾	1123 ¹⁾
4.21	Overall width	b1 (mm)	1010	1010
4.22	Fork dimensions (thickness, width, length)	s / e / l (mm)	70 / 180 / 1170	70 / 195 / 1170
4.25	Outside width over forks (minimum/maximum)	b5 (mm)	570	570
4.32	Ground clearance at centre of wheelbase, (forks lowered)	m2 (mm)	20	20
4.34a	Working aisle width (Ast) with 800 x 1200 mm pallets, load lengthwise	Ast (mm)	2627 ²⁾	2685 ²⁾
4.34b	Working aisle width (Ast3) with 800 x 1200 mm pallets, load lengthwise	Ast3 (mm)	2461	2520
4.35	Turning radius	Wa (mm)	1861 ²⁾	1920 ²⁾
Performance				
5.1	Travel speed, with/without load	km / h	9/9	9/9
5.2	Lifting speed, with/without load	m / s	0.16 / 0.32	0.12 / 0.22
5.3	Lowering speed, with/without load	m / s	0.44 / 0.41	0.33 / 0.30
5.8	Maximum gradeability with/without load	%	26.6/26.6	25.6/25.6
5.10	Service brakes (mechanical/hydraulic/electric/pneumatic)		Electric	Electric
Electric motors				
6.1	Drive motor capacity (60 min. short duty)	kW	2.7	2.7
6.2	Lift motor output at 15% duty factor	kW	4.0	4.0
6.4	Battery voltage/capacity at 5-hour discharge	V / Ah	24 / 375 - 775	24 / 375 - 775
6.5	Battery weight	kg	330 - 620	330 - 620
6.6a	Energy consumption according to EN 16796 cycle	kWh / h	0.85 ³⁾	0.85 ³⁾
Miscellaneous				
8.1	Type of drive control		AC	AC
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)	<70 dB(A)	<70 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)		



$$Ast = Wa + R + a$$

$$Ast3 = Wa + l6 - x + a$$

$$Ast = \text{Working aisle width}$$

$$Wa = \text{Turning radius}$$

$$a = \text{Safety clearance} = 2 \times 100 \text{ mm}$$

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

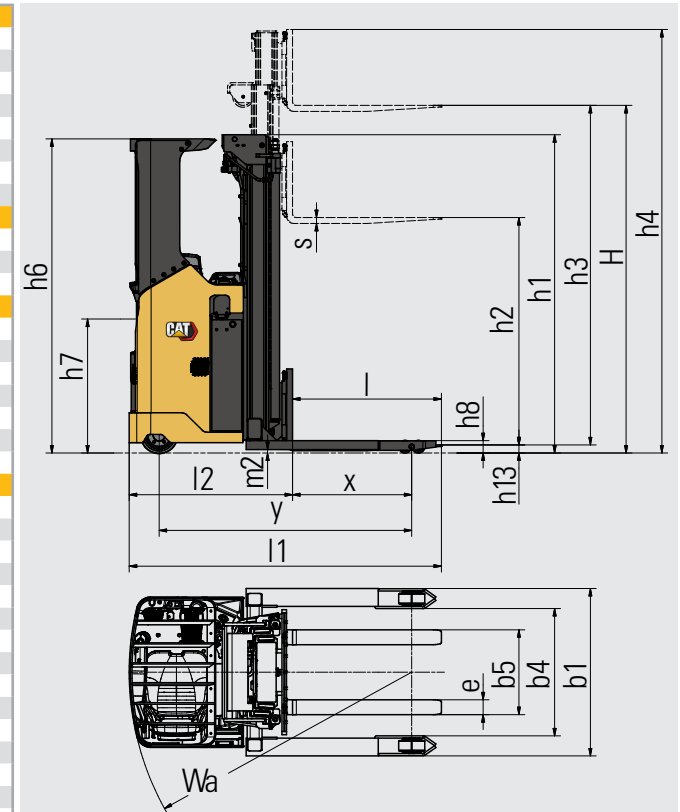
1) When SN/BC775 then add 104 mm

2) Dimensions vary depending on battery carriage and mast type

3) Varies according to configuration and actual usage pattern

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)
Weight		
2.1b	Truck weight without load, with maximum battery weight	kg
2.2	Axle loadings with nominal load and maximum battery weight, drive / load side	kg
2.3	Axle loadings without load and with maximum battery weight, drive / load side	kg
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	ø (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)
Dimensions		
4.2a	Height with mast lowered	h1 (mm)
4.2b	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)
4.7	Height to top of overhead guard	h6 (mm)
4.8	Seat or stand height	h7 (mm)
4.10	Height of support legs	h8 (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 (mm)
4.22	Fork dimensions (thickness, width, length)	s / e / l (mm)
4.23	Fork carriage to DIN	
4.24	Fork carriage width	b3 (mm)
4.25	Outside width over forks (minimum/maximum)	b5 (mm)
4.26	Inner width of support legs	b4 (mm)
4.32	Ground clearance at centre of wheelbase, (forks lowered)	m2 (mm)
4.33a	Working aisle width (Ast) with 1000 x 1200 mm pallets, load crosswise	Ast (mm)
4.34b	Working aisle width (Ast) with 800 x 1200 mm pallets, load lengthwise	Ast (mm)
4.35	Turning radius	Wa (mm)
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
5.8	Maximum gradeability with/without load	%
5.9	Acceleration time (10 metres) with / without load	s
5.10	Service brakes (mechanical/hydraulic/electric/pneumatic)	
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
6.6a	Energy consumption according to EN 16796 cycle	kWh / h
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, 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
NSS16N2S	NSS20N2S
Battery	Battery
Sit-on	Sit-on
1600	2000
600	600
800	800
1656 ²⁾	1696 ²⁾
1715	2077
1361 / 1955	1654 / 2423
1201 / 515	1454 / 623
Vul / Vul	Vul / Vul
250 x 105	250 x 105
85 x 70	85 x 70
150 x 55	150 x 55
4 / 1x + 2 ¹⁾	4 / 1x + 2 ¹⁾
706	706
985 / 1185	985 / 1185
see tables	see tables
see tables	see tables
see tables	see tables
see tables	see tables
see tables	see tables
2110	2110
966	966
92	92
50	55
2207 ²⁾	2247 ²⁾
1057 ²⁾	1097 ²⁾
1115 / 1315 ⁶⁾	1115 / 1315 ⁶⁾
40 / 100 / 1150	40 / 100 / 1150
FEM 2/A	FEM 2/A
840	840
316 / 773	316 / 773
855 / 1055 ⁶⁾	855 / 1055 ⁶⁾
35	35
2584	2623
2584	2623
1663	1702
8.0 / 8.0	8.0 / 8.0
0.24 / 0.40	0.19 / 0.37
0.45 / 0.30	0.50 / 0.42
7.2 / 7.2	7.0 / 7.0
7.0 / 6.0	7.5 / 6.5
Electric	Electric
2.7	2.7
8.0 ⁵⁾	8.0 ⁵⁾
DIN-cells	DIN-cells
24 / 465 ⁶⁾	24 / 465 ⁶⁾
330-410 ⁶⁾	330-410 ⁶⁾
0.87 ⁷⁾	0.87 ⁷⁾
AC	AC
<70	<70
See instruction handbook	See instruction handbook
See instruction handbook	See instruction handbook



$$\begin{aligned} \text{Ast} &= \text{Wa} + \text{R} + \text{a} \\ \text{Ast3} &= \text{Wa} + \text{l6} - \text{x} + \text{a} \\ \text{Ast} &= \text{Working aisle width} \\ \text{Wa} &= \text{Turning radius} \\ \text{a} &= \text{Safety clearance} = 2 \times 100 \text{ mm} \\ \text{R} &= \sqrt{(\text{l6} - \text{x})^2 + (\text{b12} / 2)^2} \end{aligned}$$

- *) All dimensional values, weights and measures, varies according to configuration
- 1) 4-point design with twin assembly drive side castor wheels
 - 2) When Senior (BC775) chassis add +104
 - 3) Telescopic forks reach travel, optional reach 450-1000
 - 4) Standard motor, not sufficiently tested with the 8.0 kW heavy-duty option yet
 - 5) With heavy-duty lift motor, standard is 4.0
 - 6) With Senior chassis, 24V / 560-775Ah and 460-620 kg
 - 7) Ref. test value with 8.0 kW lift motor, varies according to model, config and usage pattern
 - 8) There are two standard straddle/support legs widths available to choose from (ref. b1/b4)

NSS16N2				
Mast Type Narrow	h3+h13	h1	h4	h2+h13
	mm	mm	mm	mm
TFV / DEV	3600	2350	4105	1849
	4200	2650	4705	2149
	4500	2800	5005	2299
DTFV / TREV	4800	2150	5332	1669
	5400	2350	5932	1869
	5700	2450	6232	1969
	6300	2650	6832	2169
	7000	2883	7532	2402

NSS16N2I				
Mast Type Initial lift	h3+h13	h1	h4	h2+h13
	mm	mm	mm	mm
TFV / DEV	3600	2355	4112	1853
	4200	2655	4712	2153
	4500	2805	5012	2303
DTFV / TREV	4800	2155	5339	1673
	5400	2355	5939	1873
	5700	2455	6239	1973
	6300	2655	6839	2173
	7000	2888	7539	2406

NSS20N2				
Mast Type Narrow	h3+h13	h1	h4	h2+h13
	mm	mm	mm	mm
TFV / DEV	3600	2350	4108	1850
	4200	2650	4708	2150
	4500	2800	5008	2300
DTFV / TREV	4800	2150	5335	1670
	5400	2350	5935	1870
	5700	2450	6235	1970
	6300	2650	6835	2170
	7000	2883	7535	2403

NSS20N2I				
Mast Type Initial lift	h3+h13	h1	h4	h2+h13
	mm	mm	mm	mm
TFV / DEV	3600	2355	4113	1853
	4200	2655	4713	2153
	4500	2805	5013	2303
DTFV / TREV	4800	2155	5339	1673
	5400	2355	5939	1873
	5700	2455	6239	1973
	6300	2655	6839	2173
	7000	2888	7539	2406

NSS16-20N2S				
Mast Type Wide straddle	h3+h13	h1	h4	h2+h13
	mm	mm	mm	mm
160 TFV / DEV	3600	2350	4110	1815
	4200	2650	4710	2115
	4500	2800	5010	2265
200 DTFV / TREV	4800	2150	5335	1635
	5400	2350	5935	1835
	5700	2450	6235	1935
	6300	2650	6835	2135
	7000	2883	7535	2368

Mast Performance and Capacity

- DS Duplex with clear-view mast
- DEV Duplex with full free lift
- TREV Triplex with full free lift
- h3+h13 Lifting height
- h1 Lowered mast height
- h4 Raised mast height
- h2+h13 Free lift



LI-ION BATTERIES

TIME TO SWITCH?



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.



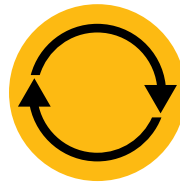
**LONGER
LIFE**



**HIGHER
EFFICIENCY**



**LONGER
RUNTIME**



**CONSISTENT
PERFORMANCE**



**FASTER
CHARGING**



**NO BATTERY
CHANGING**



**NO DAILY
MAINTENANCE**



**INBUILT
PROTECTION**

Cat Li-ion advantages over lead-acid

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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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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