



NSR12N2  
NSR16N2  
NSR16N2I  
NSR20N2

# COST-SAVING CAPABILITIES

**SPECIFICATIONS**

**STAND-IN STACKERS 24V, 1.2 - 2.0 TONS**



# STEP IN AND SAVE

THE SMARTER CHOICE. THESE WORLD-CLASS STAND-IN STACKERS WILL HELP REDUCE YOUR TOTAL COST OF OWNERSHIP (TCO). HOW? BY BOOSTING PRODUCTIVITY, LOWERING FLEET AND LABOR COSTS, AND INCREASING STORAGE DENSITY. IDEAL FOR LONG AND SHORT INDOOR TRANSPORT, ORDER PICKING AND STACKING UP TO 7 METERS.



More compact and rapidly maneuverable than a platform stacker, their advanced drive, lifting, lowering, steering and stability systems help to make every operation faster and smoother. Specifically in narrow aisle applications, you can get the job done quicker, with fewer trucks and fewer operators.



Stand-in stackers allow you to optimize your valuable warehouse space by making aisles narrower and racking higher. Fulfilling multiple roles, including order picking, they offer similar lifting capabilities to many reach trucks but at lower prices and in tighter spaces.



Enclosed within the truck's robust structure and combined with the automated speed and stability aids, operators work quickly and confidently. Furthermore, the operator compartment is vibration-free, comfortable, quiet and very easy to enter and exit.



Ergonomic controls help to provide comfort, job satisfaction and productivity – while helping to minimize stress, strain and fatigue. They also include a fully adjustable (up/down, forward/back) steering console, for an optimized driving position and armrest-mounted features for simultaneous control of drive and hydraulic functions.

## LOWER COST OF OWNERSHIP

- Robust construction and component sealing helps to minimize damage and wear, even in demanding multi-shift operations.
- Multifunctional display option with onboard diagnostics helps to promote proper use of truck and helps to speed up maintenance.
- PIN code identification helps to prevent unauthorized use while choice of PRO, ECO and EASY modes matches truck performance to operator experience and application. (Only with multifunctional display option.)
- Easy battery lock helps to avoid delays during battery changes.
- Quick componentry access, low servicing requirements and long service intervals help to reduce downtime.

## UNMATCHED PRODUCTIVITY

- 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 stabilizer deployment.
- Side stabilizers (optional) help to increase residual capacity for high lifting.
- Progressive electric power steering automatically adjusts sensitivity according to speed for excellent maneuverability and high stability.
- Automatic cornering control helps to reduce maximum travel speed according to steering angle to help ensure quick, stable and confident turns.
- Creep speed feature helps to increase load capacity for lifts above 1.7 m by automatically limiting travel to 5 km/h when forks reach this height.
- Tapered forks and angled fork tips allow for faster pallet entry with less risk of pallet or product damage.
- High ground clearance helps to avoid poor performance on ramps or uneven floors.
- Initial lift (I) on the NSR16N2I helps to provide additional ground clearance and may be used for double pallet handling – with one load on the support legs and one on the forks.

- Level assistance system option helps to provide a quick and simple way for operators to choose between stopping at each pre-set height or bypassing it.
- Laser fork height indicator option helps operators with accuracy in placing forks at correct racking level.
- Ergo forks trailing control option allows for speed adjustment from a more convenient position for operators standing in the direction of travel with forks trailing.
- 360-degree steering option allows for smooth turning without stopping to change direction.

## AWARENESS AND ERGONOMICS

- Enclosed operator compartment helps to provide all-round protection via heavy-duty chassis, integrated bumper, overhead guard pillars and overhead guard.
- Comfortable operator compartment helps to minimize strain and fatigue with a low step-in height, fully floating floor, outstanding levels of vibration damping, cushioned backrest, and ample space.
- Optical presence sensor helps to reduce stress and fatigue by allowing operator to make small foot movements and stance adjustments without accidentally activating automatic braking.
- Fully adjustable steering wheel allows for different driving positions depending on travel direction.
- Adjustable armrest comfortably helps to support wrist while positioning hand in the ideal position to operate the thumbwheel throttle, fingertip hydraulic levers and other controls simultaneously.
- Clear all-round visibility and fork-tip view is achieved through careful design of mast, fork carriage, overhead guard, pillars and chassis.
- Low-noise specification includes quiet, temperature-controlled fans and speed-regulated lift pump motors for a pleasant operator work environment.
- Ample storage available under the armrest, accessible from outside of the truck. Additional storage space available for smaller equipment, phone, cups, and a writing desk with paper clamp.
- Intuitive multifunctional display option helps to keep drivers fully informed and is optimally positioned and angled for clear viewing.

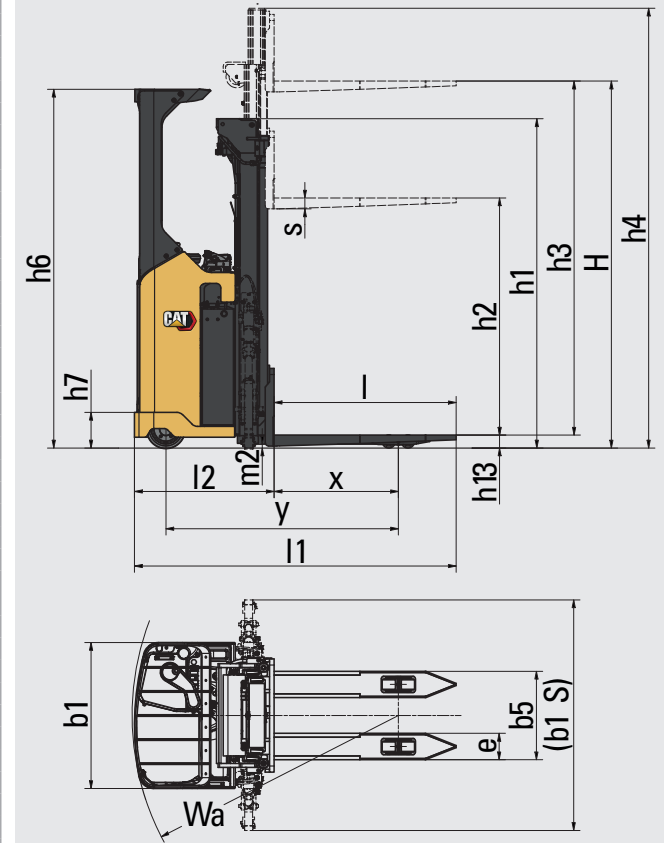


# STANDARD EQUIPMENT AND OPTIONS

	NSR12N2	NSR16N2	NSR16N2I	NSR20N2
<b>GENERAL</b>				
Standard display incl. hour meter and battery indicator	●	●	●	●
Key switch entry	●	●	●	●
Electric power steering	●	●	●	●
Speed-regulated lift motor and proportional valve for lowering	●	●	●	●
Tandem load wheels Vulkollan	●	●	●	●
Overhead guard	●	●	●	●
Adjustable armrest	●	●	●	●
Adjustable steering wheel	●	●	●	●
Storage compartment under armrest	●	●	●	●
Writing desk with paper clip	●	●	●	●
Battery rollers	●	●	●	●
Initial lift	—	—	●	—
Chill store design, down to -10°C	●	●	●	●
<b>POWER SOURCE</b>				
Lead-acid batteries	○	○	○	○
<b>ENVIRONMENT</b>				
Cold store design, 0°C to -30°C	○	○	○	○
<b>DRIVE AND LIFT CONTROLS</b>				
Height-adjustable steering wheel	●	●	●	●
Fingertip controls for lifting/lowering	●	●	●	●
<b>WHEEL OPTIONS</b>				
Vulkollan	●	●	●	●
Tractothan	○	○	○	○
Super grip	○	○	○	○
<b>OTHER OPTIONS</b>				
Side stabilisers	—	○	○	○
Ergo forks trailing control , EFTC	○	○	○	○
360-degree steering	○	○	○	○
Multifunctional display incl. BDI and hour meter, PIN code login (100 codes) and graphic icons	○	○	○	○
Foldable seat	○	○	○	○
Load backrest	○	○	○	○
Key switch entry (in combination with multifunctional display)	○	○	○	○
Laser positioning guide	—	○	○	○
Load weight indicator	○	○	○	○
Lift height indicator	—	○	○	○
Level assistance system LAS	—	○	○	○
Loading assistance	—	○	○	○
Panoramic ProVision roof	○	○	○	○
12V DC power socket	○	○	○	○
5V USB socket	○	○	○	○
Accessory rack	○	○	○	○
Writing desk incl. RAM C holder	○	○	○	○
Accessory rack holder RAM system size C	○	○	○	○
Accessory rack holder RAM system size C, 2 pcs	○	○	○	○
Accessory rack holder RAM size D	○	○	○	○
Working lights LED	○	○	○	○
Increased drive speed	○	○	○	○
Special RAL colour	○	○	○	○

● Standard    ○ Option

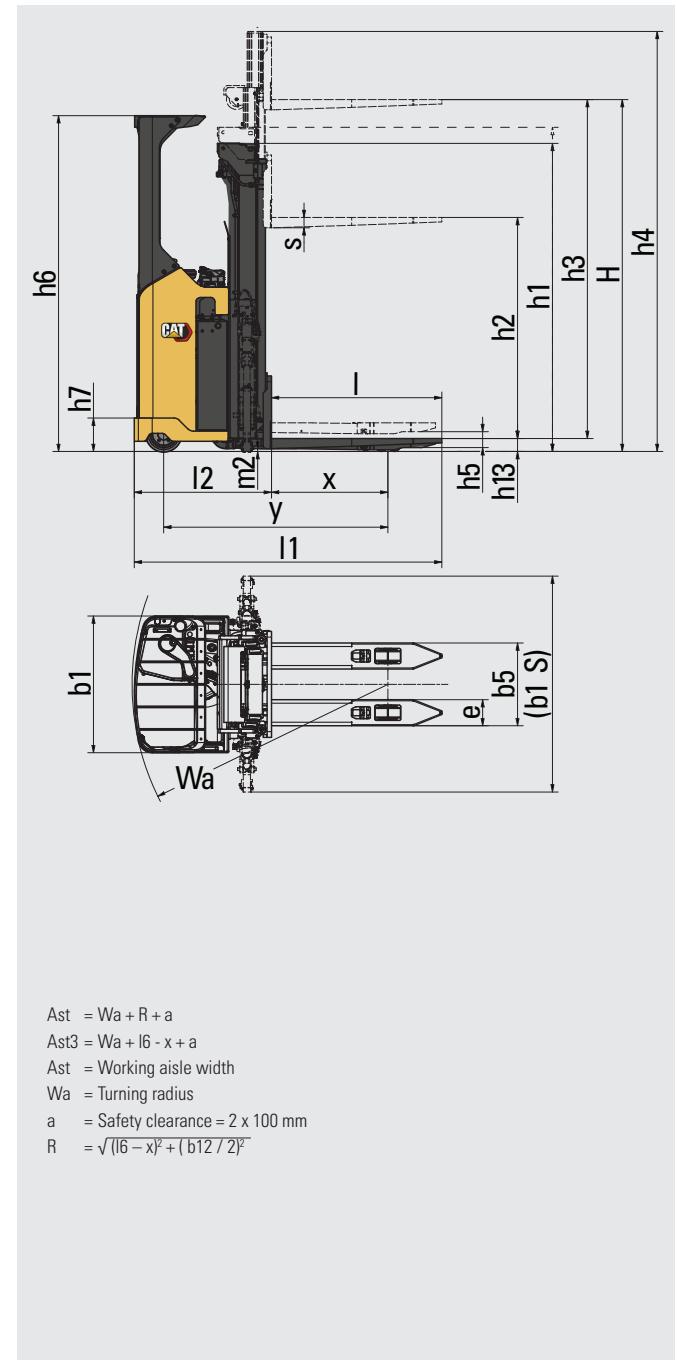
Characteristics			Cat Lift Trucks	Cat Lift Trucks	Cat Lift Trucks
			<b>NSR12N2</b>	<b>NSR16N2</b>	<b>NSR20N2</b>
1.1	Manufacturer				
1.2	Manufacturer's model designation				
1.3	Power source		Battery	Battery	Battery
1.4	Operator type		Stand-in	Stand-in	Stand-in
1.5	Load capacity	Q (kg)	1250	1600	2000
1.6	Load center distance	c (mm)	600	600	600
1.8	Load wheel axle to fork face (forks lowered)	x (mm)	800	800	800
1.9	Wheelbase	y (mm)	1422 <sup>1)</sup>	1496 <sup>1)</sup>	1545 <sup>1)</sup>
Weight					
2.1a	Truck weight with load, with maximum battery weight	kg	2682	3356	4018
2.1b	Truck weight without load, with maximum battery weight	kg	1432	1756	2018
2.2	Axle loadings with nominal load & maximum battery weight, drive / load side	kg	1127/1555	1389/1967	1613/2405
2.3	Axle loadings without load & with maximum battery weight, drive / load side	kg	1002/430	1229/527	1413/605
Wheels, drive train					
3.1	Tires: PT = Power Thane, Vul = Vulkollan, P = Polyurethane, N = Nylon, R = Rubber drive / load side		Vul / Vul	Vul / Vul	Vul / Vul
3.2	Tire dimensions, drive side	(mm)	250 x 105	250 x 105	250 x 105
3.3	Tire dimensions, load side	ø (mm)	85 x 70	85 x 70	85 x 70
3.4	Castor wheel dimensions (diameter x width)	(mm)	150 x 55	150 x 55	150 x 55
3.5	Number of wheels, load / drive side (x = driven)		1 x + 2 / 4	1 x + 2 / 4	1 x + 2 / 4
3.6	Track width (center of tires), drive side	b10 (mm)	662	662	662
3.7	Track width (center of tires), load side	b11 (mm)	402	402	392
Dimensions					
4.2a	Height with mast lowered	h1 (mm)	see tables	see tables	see tables
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)	-	-	-
4.7	Height to top of overhead guard	h6 (mm)	2310	2310	2310
4.8	Seat or stand height	h7 (mm)	230	230	230
4.10	Height of support legs	h8 (mm)	82	80	83
4.15	Fork height, fully lowered	h13 (mm)	89	87	90
4.19	Overall length	l1 (mm)	1995 <sup>1)</sup>	2069 <sup>1)</sup>	2118 <sup>1)</sup>
4.20	Length to fork face	l2 (mm)	825 <sup>1)</sup>	899 <sup>1)</sup>	948 <sup>1)</sup>
4.21	Overall width	b1/b2 (mm)	940	940	940
4.22	Fork dimensions (thickness, width, length)	s / e / l (mm)	70 / 180 / 1170	70 / 180 / 1170	70 / 195 / 1170
4.25	Outside width over forks (minimum / maximum)	b5 (mm)	570	570	570
4.32	Ground clearance at center of wheelbase, (forks lowered)	m2 (mm)	32	25	23
4.33a	Working aisle width (Ast) with 1000 x 1200 mm pallets, load crosswise	Ast (mm)	2475 <sup>2)</sup>	2548 <sup>2)</sup>	2593 <sup>2)</sup>
4.33b	Working aisle width (Ast3) with 1000 x 1200 mm pallets, load crosswise	Ast3 (mm)	2043 <sup>2)</sup>	2116 <sup>2)</sup>	2161 <sup>2)</sup>
4.34a	Working aisle width (Ast) with 800 x 1200 mm pallets, load lengthwise	Ast (mm)	2409 <sup>2)</sup>	2481 <sup>2)</sup>	2527 <sup>2)</sup>
4.34b	Working aisle width (Ast3) with 800 x 1200 mm pallets, load lengthwise	Ast3 (mm)	2243 <sup>2)</sup>	2316 <sup>2)</sup>	2361 <sup>2)</sup>
4.35	Turning radius	Wa (mm)	1643 <sup>2)</sup>	1716 <sup>2)</sup>	1761 <sup>2)</sup>
Performance					
5.1	Travel speed, with / without load	km / h	10.0 / 10.0	10/10	9/9
5.2	Lifting speed, with / without load	m / s	0.21 / 0.37	0.15/0.32	0.12/0.22
5.3	Lowering speed, with / without load	m / s	0.55 / 0.41	0.45/0.42	0.33 / 0.30
5.8	Maximum gradeability with / without load	%	9.0/9.0	6.7/6.7	5.9/5.9
5.10	Service brakes (mechanical / hydraulic / electric / pneumatic)		Electric	Electric	Electric
Electric motors					
6.1	Drive motor capacity (60 min. short duty)	kW	2.7	2.7	2.7
6.2	Lift motor output at 15% duty factor	kW	4.0	4.0	4.0
6.4	Battery voltage/capacity at 5-hour discharge	V / Ah	24 / 375-775	24 / 375-775	24 / 375-775
6.5	Battery weight	kg	330-610	330-610	330-610
6.6a	Energy consumption according to EN16796	kWh / h			
Miscellaneous					
8.1	Type of drive control		AC	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)	67.3	67.3	67.3
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)	71.5/68.9/53.3	71.5/68.9/53.3	71.5/68.9/53.3



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

1) When SN/BC775 then add 104 mm.  
 2) Dimensions vary depending on battery carriage and mast type. Ast dimensions available in table on page 7.

Characteristics			
1.1	Manufacturer		Cat Lift Trucks
1.2	Manufacturer's model designation		<b>NSR16N2I</b>
1.3	Power source		Battery
1.4	Operator type		Stand-in
1.5	Load capacity	Q (kg)	1600
1.6	Load center distance	c (mm)	600
1.8	Load wheel axle to fork face (forks lowered)	x (mm)	800
1.9	Wheelbase	y (mm)	1541 <sup>1)</sup>
Weight			
2.1a	Truck weight with load, with maximum battery weight	kg	3506
2.1b	Truck weight without load, with maximum battery weight	kg	1906
2.2	Axle loadings with nominal load & maximum battery weight, drive / load side	kg	1494/2012
2.3	Axle loadings without load & with maximum battery weight, drive / load side	kg	1334/572
Wheels, drive train			
3.1	Tires: PT = Power Thane, Vul = Vulkollan, P = Polyurethane, N = Nylon, R = Rubber drive / load side		Vul / Vul
3.2	Tire dimensions, drive side	(mm)	250 x 105
3.3	Tire dimensions, load side	ø (mm)	85 x 70
3.4	Castor wheel dimensions (diameter x width)	(mm)	150 x 55
3.5	Number of wheels, load / drive side (x = driven)		1 x + 2/ 4
3.6	Track width (center of tires), drive side	b10 (mm)	662
3.7	Track width (center of tires), load side	b11 (mm)	390
Dimensions			
4.2a	Height with mast lowered	h1 (mm)	see tables
4.2b	Height	h1 (mm)	see tables
4.3	Free lift	h2 (mm)	see tables
4.4	Lift height	h3 (mm)	see tables
4.5	Height with mast extended	h4 (mm)	see tables
4.6	Initial lift	h5 (mm)	110
4.7	Height to top of overhead guard	h6 (mm)	2310
4.8	Seat or stand height	h7 (mm)	230
4.10	Height of support legs	h8 (mm)	87
4.15	Fork height, fully lowered	h13 (mm)	93
4.19	Overall length	l1 (mm)	2113 <sup>1)</sup>
4.20	Length to fork face	l2 (mm)	943 <sup>1)</sup>
4.21	Overall width	b1/b2 (mm)	940
4.22	Fork dimensions (thickness, width, length)	s / e / l (mm)	70 / 180 / 1170
4.25	Outside width over forks (minimum / maximum)	b5 (mm)	570
4.32	Ground clearance at center of wheelbase, (forks lowered)	m2 (mm)	20
4.33a	Working aisle width (Ast) with 1000 x 1200 mm pallets, load crosswise	Ast (mm)	2591 <sup>2)</sup>
4.33b	Working aisle width (Ast3) with 1000 x 1200 mm pallets, load crosswise	Ast3 (mm)	2159 <sup>2)</sup>
4.34a	Working aisle width (Ast) with 800 x 1200 mm pallets, load lengthwise	Ast (mm)	2525 <sup>2)</sup>
4.34b	Working aisle width (Ast3) with 800 x 1200 mm pallets, load lengthwise	Ast3 (mm)	2359 <sup>2)</sup>
4.35	Turning radius	Wa (mm)	1759 <sup>2)</sup>
Performance			
5.1	Travel speed, with / without load	km / h	9.0 / 9.0
5.2	Lifting speed, with / without load	m / s	0.15 / 0.32
5.3	Lowering speed, with / without load	m / s	0.45 / 0.42
5.8	Maximum gradeability with / without load	%	10.0/16.0
5.10	Service brakes (mechanical / hydraulic / electric / pneumatic)		Electric
Electric motors			
6.1	Drive motor capacity (60 min. short duty)	kW	2.7
6.2	Lift motor output at 15% duty factor	kW	4.0
6.4	Battery voltage/capacity at 5-hour discharge	V / Ah	24 / 375-775
6.5	Battery weight	kg	330-610
6.6a	Energy consumption according to EN16796	kWh / h	0.878
Miscellaneous			
8.1	Type of drive control		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)	67.3
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)	71.5/68.9/53.3



1) When SN/BC775 then add 104 mm.

2) Dimensions vary depending on battery carriage and mast type. Ast dimensions available in table on page 7.

NSR12N2				
Mast Type	h3+h13	h1	h4	h2+h13
	mm	mm	mm	mm
DS	3290	2157	3720	159 (h2=70)
	3590	2307	4020	159 (h2=70)
	4190	2607	4620	159 (h2=70)
DEV	3290	2157	3720	1726
	3590	2307	4020	1876
	4190	2607	4620	2176

NSR16N2 - NSR20N2				
Mast Type	h3+h13	h1	h4	h2+h13
	mm	mm	mm	mm
DEV	3600	2350	4105	1847
	4200	2650	4705	2147
	4500	2800	5005	2297
TREV	4800	2150	5332	1667
	5400	2350	5932	1867
	5700	2450	6232	1967
	6300	2650	6832	2167
	7000	2883	7532	2400

NSR16N2I				
Mast Type	h3+h13	h1	h4	h2+h13
	mm	mm	mm	mm
DEV	3600	2355	4112	1853
	4200	2655	4712	2153
	4500	2805	5012	2303
TREV	4800	2155	5339	1673
	5400	2355	5939	1873
	5700	2455	6239	1973
	6300	2655	6839	2173
	7000	2888	7539	2406

## 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

AST dimensions, VDI2198 (4.34a)						
Basic capacity (kg)		1250	1600	2000		
Chassis / Battery carriage		Junior / BC 465	Junior / BC 465	Senior / BC 775	Junior / BC 465	Senior / BC 775
Mast type	Initial lift					
Duplex	No	2409	N/A	N/A	N/A	N/A
Duplex with free lift	No	2409	2481	2583	2527	2631
Triplex with free lift	No	N/A	2481	2583	2527	2631
Duplex	Yes	2486	N/A	N/A	N/A	N/A
Duplex with free lift	Yes	2486	2525	2626	2556	2684
Triplex with free lift	Yes	N/A	2525	2626	2556	2684

AST dimensions, Ast3 (4.34b)						
Basic capacity (kg)		1250	1600	2000		
Chassis / Battery carriage		Junior / BC 465	Junior / BC 465	Senior / BC 775	Junior / BC 465	Senior / BC 775
Mast type	Initial lift					
Duplex	No	2243	N/A	N/A	N/A	N/A
Duplex with free lift	No	2243	2316	2417	2361	2465
Triplex with free lift	No	N/A	2316	2417	2361	2465
Duplex	Yes	2320	N/A	N/A	N/A	N/A
Duplex with free lift	Yes	2320	2359	2460	2390	2518
Triplex with free lift	Yes	N/A	2359	2460	2390	2518



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