Order Picker

SEMI-AUTOMATED

Capacity 2.0–2.5 t | Series 1115–4587

Productive co-drivers

→ Semi-automated driving modes increase picking efficiency by up to 20 percent
→ Eliminating the need to step on and off the vehicle reduces operator walking distances
→ Increased operator concentration increases picking performance and reduces errors
→ Two driving modes „walk with me“ and „continuous“ cover most customer applications
→ More efficient through partial automation without having to change existing processes

TECHNICAL DATA (According to VDI 2198)

Characteristics	1.1	Manufacturer		LINDE	LINDE	LINDE	LINDE	LINDE
	1.2	**Manufacturer's type designation**		**N20 B SA**	**N20 SA**	**N25 SA**	**N20 C SA**	**N25 C SA**
	1.2a	Series		1115-00	1115-00	1115-00	4587	4587
	1.3	Power unit		Battery	Battery	Battery	Battery	Battery
	1.4	Operation		Order Picker	Order Picker	Order Picker	Order picker	Order picker
	1.5	Load capacity / Load	Q (t)	2.0	2.0	2.5	2.0	2.5
	1.6	Load centre distance	c (mm)	600	600	1200	1200	1200
	1.8	Axle centre to fork face	x (mm)	900 / 970 [1) 2)]	900 / 970 [1) 2)]	1.775 / 1.845 [1) 2)]	1615 [14)]	1615 [14)]
	1.9	Wheelbase	y (mm)	2.609 / 2.717 [2) 3) 4)]	2.609 / 2.717 [2) 3) 4)]	2.609 / 2.717 [2) 3) 4)]	2717 [14) 15)]	2717 [14) 15)]
Weights	2.1	Service weight	(kg)	953 [5)]	953 [5)]	996 [5)]	1268 [14)]	1293 [14)]
	2.2	Axle load with load, front / rear	(kg)	1.303 / 1.650 [5)]	1.303 / 1.650 [5)]	1.503 / 1.993 [5)]	1210 / 2058	1278 / 2515
	2.3	Axle load without load, front / rear	(kg)	821 / 132 [5)]	821 / 132 [5)]	841 / 155 [5)]	987 / 281	996 / 297
Wheels / Tyres	3.1	Tyres rubber, SE, pneumatic, polyurethane		R+P / P	R+P / P	R+P / P	P / P	P / P
	3.2	Tyre size, front		Ø 254 × 102	Ø 254 × 102	Ø 254 × 102	Ø 254 × 102	Ø 254 × 102
	3.3	Tyre size, rear		Ø 85 × 80	Ø 85 × 80	Ø 85 × 80	Ø 85 × 100	Ø 85 × 80
	3.4	Auxiliary wheels (dimensions)		2x Ø 140 × 50	2x Ø 140 × 50	2x Ø 140 × 50	Ø 150 × 50	Ø 150 × 50
	3.5	Wheels, number front / rear (x = driven)		1x + 1 / 2 (1x + 1 / 4) [6)]	1x + 1 / 2 (1x + 1 / 4) [6)]	1x + 1 / 2 (1x + 1 / 4) [6)]	1x - 1 / 2	1x - 1 / 4
	3.6	Track width, front	b10 (mm)	491 [2)]	491 [2)]	491 [2)]	474	474
	3.7	Track width, rear	b11 (mm)	355 (375 / 395 / 515) [2)]	355 (375 / 395 / 515) [2)]	355 (375 / 395 / 515) [2)]	348 (368 / 388 / 498)	348 (368 / 388 / 498)
Dimensions	4.4	Lift	h3 (mm)	115	115	115	130	130
	4.8	Seat height relating to SIP / stand height	h7 (mm)		-	-	130	130
	4.9	Height drawbar in driving position min. / max.	h14 (mm)				1258 [16)]	1258 [16)]
	4.15	Height, lowered	h13 (mm)	85 [7)]	85 [7)]	85 [7)]	85	85
	4.19	Overall length	l1 (mm)	2.500 [2) 8)]	2.500 [2) 8)]	3.750 [2) 8)]	3860 [15)]	3860 [15)]
	4.20	Length to fork face	l2 (mm)	1.350 [2) 4)]	1.350 [2) 4)]	1.350 [2) 4)]	1470 [15)]	1470 [15)]
	4.21	Overall width	b1 / b2 (mm)	790 [2)]	790 [2)]	790 [2)]	822	822
	4.22	Fork dimensions DIN ISO 2331	s / e / l (mm)	55 × 165 × 1.150 [2)]	55 × 165 × 1.150 [2)]	55 × 165 × 2.400 [2)]	61 (78 max) / 172 / 2390	61 (78 max) / 172 / 2390
	4.25	Fork spread	b5 (mm)	520 (540 / 560 / 680) [2)]	520 (540 / 560 / 680) [2)]	520 (540 / 560 / 680) [2)]	520 (540 / 560 / 670)	520 (540 / 560 / 670)
	4.32	Ground clearance, centre of wheelbase	m2 (mm)	160 / 30 [1) 9)]	160 / 30 [1) 9)]	160 / 30 [1) 9)]	24 / 154 [17)]	24 / 154 [17)]
	4.33	Load dimension b12 × l6	b12 × l6 (mm)	800 × 1.200	800 × 1.200	2 × 800 × 1.200	-	-
	4.34	Aisle width predetermined load dimensions	Ast (mm)	2.950 [4) 10) 11)]	2.950 [4) 10) 11)]	4.067 [4) 10) 11)]	See table in linde world	See table in linde world
	4.34.1	Aisle width for pallets 1000 × 1200 crossways (fork raised)	Ast (mm)	-	-	-	See table in linde world	See table in linde world
	4.34.2	Aisle width for pallets 800 × 1200 crossways (forks raised)	Ast (mm)	-	-	-	See table in linde world	See table in linde world
	4.35	Turning radius	Wa (mm)	2.250 / 2.320 [1) 4)]	2.250 / 2.320 [1) 4)]	3.125 / 3.195 [1) 4)]	3083 [14)] / 2975 [14) 15) 17)]	3083 [14)] / 2975 [14) 15) 17)]
Performance	5.1	Travel speed, with / without load	(km / h)	10 / 12 [12)]	10 / 12 [12)]	10 / 12 [12)]	9 / 12 [18)]	9 / 12 [18)]
	5.1.1	Travel speed, with / without load, backwards	(km / h)	10 / 10 [12)]	10 / 10 [12)]	10 / 10 [12)]	8 / 11	8 / 11
	5.1.2	Travel speed, with / without load, backwards	(km / h)	6	6	6	6	6
	5.2	Lifting speed, with / without load	(m / s)	0.060 / 0.070 [5)]	0.060 / 0.070 [5)]	0.060 / 0.070 [5)]	0.070 / 0.111	0.064 / 0.089
	5.3	Lowering speed, with / without load	(m / s)	0.060 / 0.080 [5)]	0.060 / 0.080 [5)]	0.060 / 0.080 [5)]	0.084 / 0.067	0.068 / 0.066
	5.8	Maximum climbing ability, with / without load	%	16.0 / 13.0	16.0 / 13.0	14.0 / 13.0	7.0 / 12.0 [19) 20)]	7.0 / 12.0 [19) 20)]
	5.9	Acceleration time, with / without load	s	5.8 / 4.5	5.8 / 4.5	5.8 / 4.5	6.1 / 4.8	6.4 / 4.8
	5.10	Service brake		Electric / hydraulic	Electric / hydraulic	Electric / hydraulic	Electromagnetic	Electromagnetic
Drive	6.1	Drive motor rating S2 60 min	(kW)	3	3	3	3	3
	6.2	Lift motor rating at S3 15 %	(kW)	1.2 / 15%	1.2 / 15%	1.5 / 15%	2.2 / 5%	2.2 / 5%
	6.3	Battery according to DIN 43531 / 35 / 36 A, B, C, no		43 535 / 3 PzS	43 535 / 3 PzS	43 535 / 3 PzS	no	no
	6.4	Battery voltage / rated capacity (5 h)	(V) / (Ah)	24 / 345-375	24 / 345-375	24 / 345-375	24 / 345 - 465	24 / 345 - 465
	6.5	Battery weight (± 5 %)	(kg)	272 / 315 [5) 13)]	272 / 315 [5) 13)]	272 / 315 [5) 13)]	402	402
	6.6	Power consumption according to VDI cycle (EN 16796 *)	(kWh / h)	0.5	0.5	0.48	0.45*	0.48*
	6.6.1	CO_2 equivalent emissions	(kg / h)	-	-	-	0.2	0.3
	6.7	Turnover output according to VDI 2198	(t / h)	136.0	136.0	162.5	129.0	157.0
	6.8	Turnover efficiency according to VDI 2198	(kwh / h)	1.46	1.46	1.43	1.9	2.2
Others	8.1	Type of drive unit		LAC	LAC	LAC	AC control	AC control
	10.7	Sound pressure level LpAZ (at the driver's seat)	(dB(A))	< 85	< 85	< 85	< 70	< 70

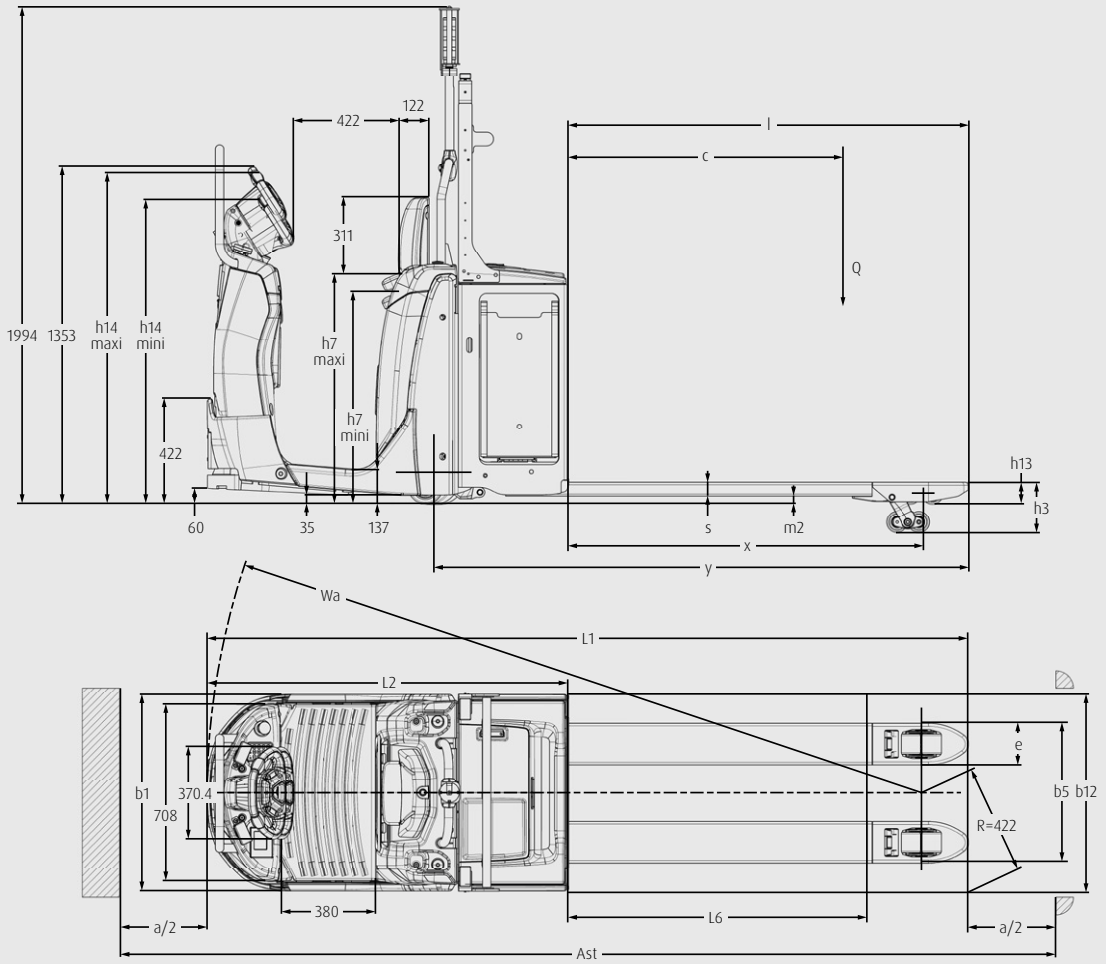
N20 SA (1115)

1) Forks upraised / lowered
2) (± 5 mm)
3) With / without Initial lift
4) Values for 3 PzS batteries. 4 PzS battery = tabled values + 100 mm
5) (± 10%)
6) Figures in parenthesis with tandem load wheels
7) (-0 / +5 mm)
8) ± 0 mm = 3 PzS lateral; +100 mm = 3 PzS vertical and 4 PzS lateral; +150 mm = 4 PzS vertical.
9) (± 2 mm)
10) Including a 200 mm (min.) operating aisle clearance.
11) Forks upraised
12) (± 5%)
13) Min. / max.

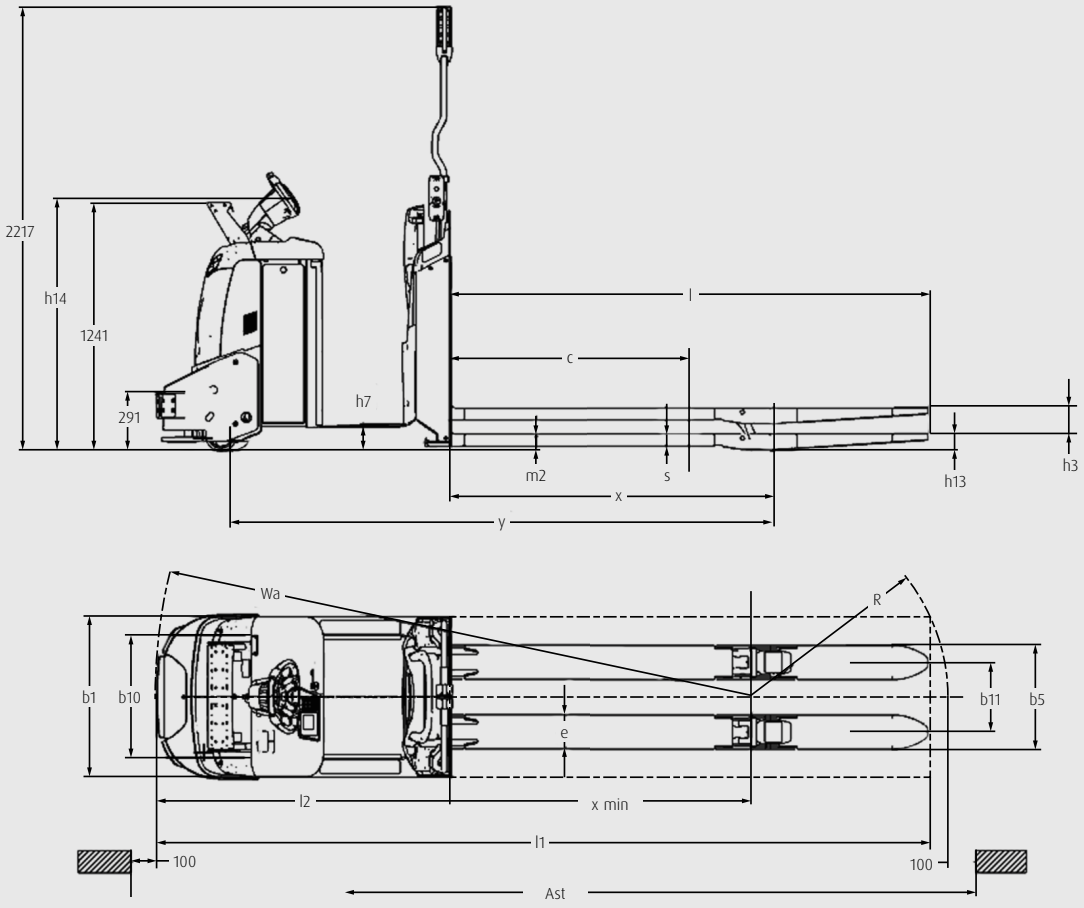
N20 C SA (4587)

14) With forks lenght 2390 mm / x = 1615 mm / pull bar version; for other forks dimension see table below
15) With tray 4 Pz or Li-ION + 114 mm
16) With tiller adjustment option, h14 setting range = +89 mm / -19 mm
17) With load arms or forks raised
18) Traction speed unladen until 14 km / h available as optional
19) On rounded edge slope with forks / arms raised, if possible
20) For the geometric limit on unrounded edge slope, see table below

N20 SA



N20 C SA



STANDARD AND OPTIONAL EQUIPMENT

	Model / Equipment	N20 B SA	N20 SA	N25 SA	N20 C SA	N25 C SA
Safety	Front casted bumper with integrated safety scanner	●	●	●	●	●
	Low-mounted high level safety scanner	●	●	●	●	●
	Automatic speed reduction when cornering	●	●	●	●	●
	Lighting pole (mounted on rear accessory support)	●	●	●	●	●
	Linde BlueSpot™	○	○	○	○	○
	Front LED light	○	○	○	○	○
	Additionnal emergency buttons located in the rear part	●	●	●	●	●
	Key switch	●	●	●	●	●
	Log in PIN code	○	○	○	○	○
Operation / Load Handling	Follow-me function with walk-with-me mode	●	●	●	●	●
	Stop&Go function with continous driving mode	●	●	●	●	●
	Rear initial lift control	○	○	○	○	○
	Initial lift electrical stop sensor	●	●	●	●	●
	Low speed if initial lift low	○	○	○	○	○
	Load backrest	○	○	○	○	○
	Remote control	○	○	○	○	○
	Remote control charger	○	○	○	○	○
Digitalisation	Linde connect: desk	○	○	○	○	○
	ac: access control (PIN or RFID)	○	○	○	○	○
	dt: crash detection	○	○	○	○	○
	an: usage analysis	○	○	○	○	○
	Linde connect: cloud	○	○	○	○	○
	Basic Package (trouble codes, operating hours, truck mapping)	○	○	○	○	○
	Data Transmission (WiFi or Online)	○	○	○	○	○
Workplace	Fully suspended operator compartment	–	●	●	–	–
	Damped platform option	–	–	–	○	○
	Height adjustable Linde Steering Wheel	○	○	○	○	○
	Knee protection	●	●	●	○	○
	Basic rounded display	●	–	–	–	–
	Multifunction coloured display hour meter, maintenance indication, battery discharge indicator and internal fault code indication	–	●	●	●	●
	Height adjustable backrest including foldable seating support	○	○	○	○	○
	Accessory support front	○	○	○	○	○
	Accessory support rear (includes central pole for N20 series)	●	●	●	●	●
	Support data terminal and power supply cable 24 V	○	○	○	○	○
	Support clipboard DIN A4 and support for scanner	○	○	○	○	○
	Shrink wrap pole	○	○	○	○	○
	Rear lower storage	○	○	○	–	–
Attachement / Forks	Fork carriage up to 680 mm (depending on model)	○	○	○	○	○
	Fork length up to 3100 mm (depending on model)	○	○	○	○	○
	Overhang up to 1000 mm (depending on model)	–	–	–	○	○
Axles and Tyres	Drive wheel Heavy Duty	●	●	●	●	●
	Drive wheel High Grip	○	○	○	○	○
	Single / tandem load wheels polyurethane (greasable)	○	○	○	○	○
	Standard castor wheel	●	●	●	●	●
Drive and Brake-System	Power assisted steering	●	●	●	●	●
	3 kW AC motor (maintenance free)	●	●	●	●	●
	Electromagnetic braking system	●	●	●	●	●
	Battery compartment, vertical change 3 PzS (300 Ah / 375 Ah) and 4 PzS (480 Ah / 620 Ah)	–	–	–	●	●
	Battery compartment, lateral battery change 3 PzS (345 Ah / 375 Ah) and 4PzS (460 Ah / 500 Ah), including ergonomic lever and metal rollers	●	●	●	○	○
	Battery compartment, side change 3 PzS (345 Ah / 465 Ah) and 4 PzS (460 Ah / 620 Ah), including ergonomic lever and metal rollers	○	○	○	○	○
	Battery compartment, Li-ION battery (205 Ah / 410 Ah) including side plug for opportunity charging	○	○	○	○	○
	Li-ION 24 V-Chargers	○	○	○	○	○
Service	CAN bus technology	●	●	●	●	●
	Rack configurations and End-of an aisle stop adjustments	●	●	●	●	●

● Standard equipment ○ Optional equipment – Not available

CHARACTERISTICS

Linde BlueSpot™ and bumper including safety scanner

Safety

→ Various safety systems prevent personal accidents and collisions in semi-automated operation
→ Safety scanner at the front of the vehicle also detects obstacles that suddenly appear in front of the order picker
→ Four antennas determine the relative position of the operator
→ Special protection on the bumper prevents feet from getting under the vehicle
→ Pole-mounted lights indicate current driving mode and warn when remote control and vehicle are not coupled
→ Vehicle independently maintains distance from racking and stops at the end of the aisle to prevent accidents

Ergonomic remote

Ergonomics

→ Semi-automated operation eliminates the need to repeatedly step on and off the vehicle and prevents fatigue
→ Activation of the semi-automated modes is intuitive, safe and easy via remote control
→ In “walk with me” mode, the operator can choose from three different positions that activate the vehicle’s onward travel to provide the ideal walking path to the pallet

Walk with me or Stop and Go function

Handling

→ In “walk with me” mode, the vehicle follows the operator while picking on one side of the rack, eliminating the walk from the operator’s platform to the pallet
→ In “continuous” mode, the drive is activated via the remote control and enables convenient order picking on both sides of the rack
→ Ultra-wideband connection between the vehicle and the remote control ensures precise localization of the operator and exact reaction of the vehicle to the operator’s movements
→ Semi-automatic operation is deactivated as soon as the operator drives the vehicle himself

Computerized diagnostic

Service

→ Easy cleaning of the safety scanner
→ Vehicle display, lamp post and laser display always provide information on current vehicle status
→ Linde diagnostic tool and CAN bus connection enable simple diagnostics in the event of a repair
→ Simple setup of the semi-automatic system to application conditions such as aisle width or rack length

Presented by:

Linde Material Handling GmbH
Carl-von-Linde-Platz | 63743 Aschaffenburg | Germany
Phone + 49 6021 99 0 | Fax + 49 6021 99 1570
www.linde-mh.com | info@linde-mh.com

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