

Standard Equipment/Optional Equipment

Standard Equipment

Safe, comfortable operator compartment with unique “U” shaped platform linking: scoop seat, platform and console	Adjustable scoop seat
Power assisted steering with variable steering resistance	Adjustable console and twin grip steering control
Positive steering (drive wheel) feedback	CAN bus technology
Automatic and adjustable speed reduction when cornering	Multifunction backlit instrument display: Safety alarm, maintenance check indicator, battery charge level, hourmeter
3 kW AC motor (maintenance free)	Cushion rubber drive and load wheels
Automatic electric braking	Single position hook (300 mm) or supplied with 4 mounting bolts for local fitting of towing device
Electromagnetic emergency brake	Vertical battery change (3 or 4 PzS)
Key switch or log-in PIN code	Horn
Dedicated work station (with storage compartments)	Protection to –10°C
Removable storage compartment/bin under scoop seat	
Fixed front clipboard	

Optional Equipment

Manually operated hook with pull cable (300 mm)	Wet grip drive wheel & cushion load wheels
3 position tow hook 290/345/400 mm	Vertical battery change 5 PzS
Towing attachment control (Forward/backward)	Side battery change (3 or 4 PzS)
Removable storage compartment/locker under the scoop seat	Fixed battery stand for side battery change (2 battery stands)
Support for data terminal, clipboard and barcode reader (Pack n°2)	Linde Connected Solutions: ac:access control, an:usage analysis, dt:crash detection
Front and rear working lights (LED)	
Flashing beacon	Other options available on request
Polyurethane drive wheel & cushion rubber load wheels	
Non-marking cushion rubber drive & load wheels	

Li-ION technology	Li-ION batteries
Fast Full Charge	fits in 3 PzS compartment (P30 C ION, P50 C ION) with 9kWh (24V/410Ah)
Opportunity Charging	
Fast Intermediate Charging	Li-ION charger
Maintenance Free	optimized 24V-Charger v255: full charging time in 2h40min (9,0 kWh)
Long Lifetime	
Good performance in Cold Store	



Safety

The design of the tractors ensure that the operator remains well within the truck contours while driving. The ergonomic twin grip steering control incorporates a wrap-around hand guard and the front steel bumper ensure excellent safety for both operator and machine.

Performance

The P 30 C & P 50 C are compact tow tractors particularly suited to towing applications in narrow aisles. Due to their compact nature the operator has direct access to the towing attachment located at the rear. They share common components and are both powered by a 3 kW AC motor. The P 30 C and P 50 C can tow 3,000 kg and 5,000 kg respectively.

Comfort

The unique design of the operator’s compartment offers a high level of comfort. In addition to an adjustable scoop seat and console/steering control, these tow tractors provide a unique suspended and damped “U” shape platform. This links the 3 main point of contact between operator and machine: scoop seat, platform and console and provides a superior driving experience over long travel distances or uneven floors.

Reliability

The robustness of the steering control, the strong towing mounting and the high quality steel chassis ensure reliable operation over long periods of time. Highly durable electronic components also contribute to increased truck life. Extensive testing in the heaviest applications confirm the tractors’ reliability.

Service

Efficient in operation and highly cost effective. CAN bus connections enable all truck data to be accessed for service inspection. Service intervals of 1,000 operating hours ensure high uptime. Easy accessibility to all components and the use of maintenance free AC motors contribute to fast service times.

Features

Driving system

- Standard truck converted in to a robotic truck
- Dual driving mode - automatic/manual
- Navigation laser, safety front scanner, 3D camera, embedded computer, emergency stop buttons, light and sound warning indicators

Standard truck

- all benefits from standard truck
- Standard manoeuvrability
- No rollback on uphill starting
- Standard serviceability

Operations management

- Stand alone or WMS/ERP directed
- Supervisor software for task and smart traffic management
- Various task triggers such as call buttons, sensors, PLCs, supervisor software...

User interface

- Ergonomically designed console incorporates steering control, clipboard, emergency isolator CAN bus plug and Linde Digital Information Display (hourmeter, battery discharge indicator, warning and information display)
- Adjustable in height, the console provides controls and instrumentation all within easy reach



Geoguidance navigation

- Innovative infrastructure-free technology (no reflectors)
- Relies on existing structural features (walls, columns, racks...
- Real time mapping and localization
- Seamless integration in existing layouts, gradual extension or global deployment



AC Motor

- Powerful, smooth 3 kW at 100% performance
- Moisture and dust-proof motor, maintenance-free
- Maximum speed of 8 km/h, whether the truck is laden or unladen

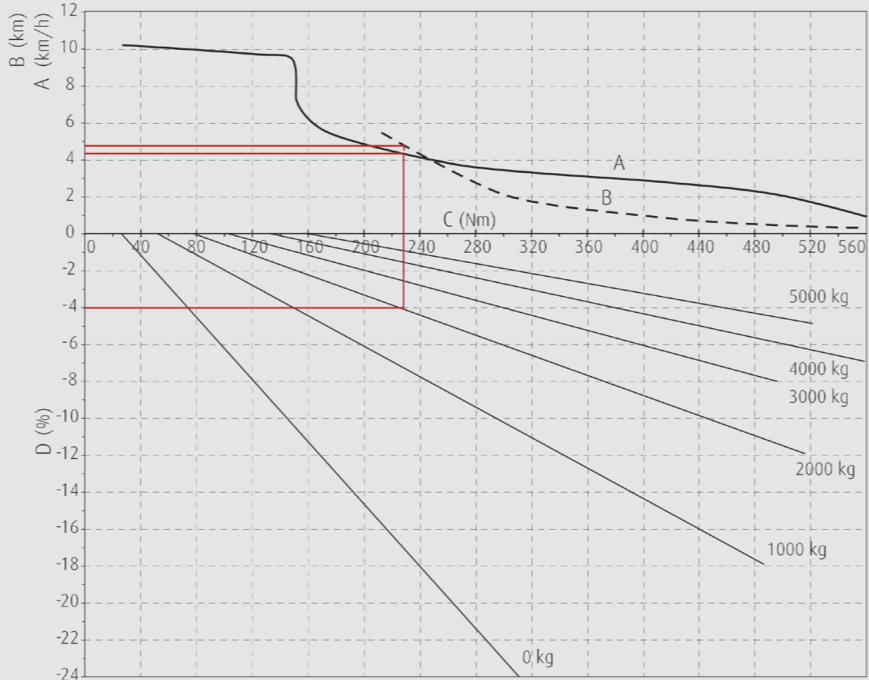
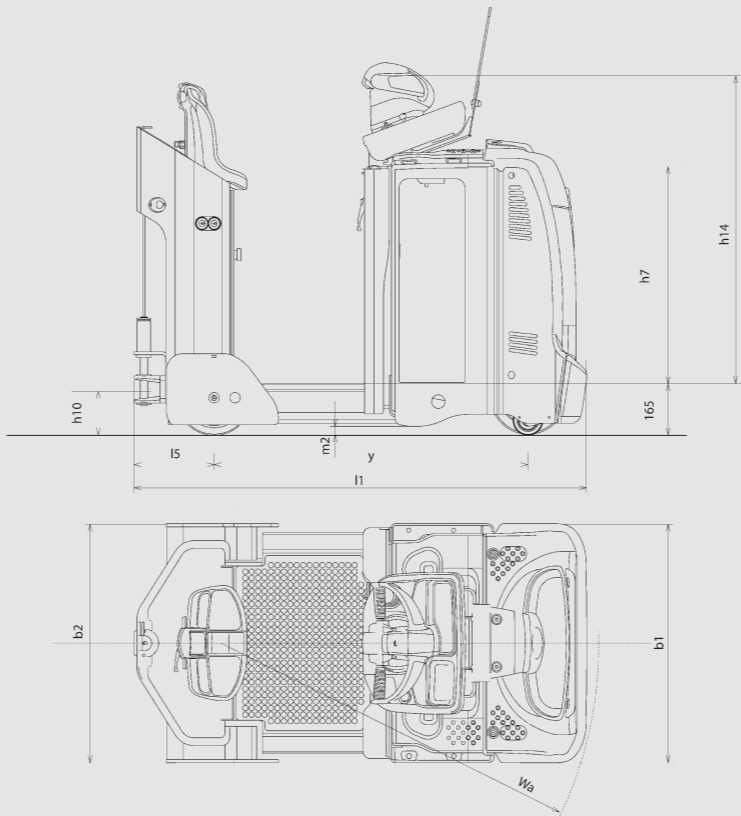


Comprehensive energy solutions

- Range of Lead Acid batteries from 2,13kWh to 8,88 kWh (375-625Ah)
- Battery locking system for side change option secures battery compartment and assists the battery change
- Li-ION battery with 9,0 kWh (410Ah)

Technical Data according to VDI 2198

Characteristics	1.1	Manufacturer		LINDE	LINDE
	1.2	Model designation		P30C / [P30C ION]	P50C / [P50C ION]
	1.2a	Series		1190-00	1190-00
	1.3	Power unit		Battery	Battery
	1.4	Operation		Stand on	Stand on
	1.5	Load capacity/Load	Q (t)	3.0	5.0
	1.7	Rated tractive force	F (N)	1800	1800
	1.9	Wheelbase	y (mm)	1050 ¹⁾	1050 ¹⁾
Weights	2.1	Service weight	(kg)	1020 [1157] ^{2) 3)}	1020 [1157] ^{2) 3)}
	2.3	Axle load without load, front/rear	(kg)	584 / 436 [662 / 495] ⁴⁾	584 / 436 [662 / 495] ⁴⁾
Wheels/Tyres	3.1	Tyres rubber, SE, pneumatic, polyurethane		V+P/P ⁵⁾	V+P/P ⁵⁾
	3.2	Tyre size, front		Ø 254 x102	Ø 254 x102
	3.3	Tyre size, rear		2x Ø 250 x 80	2x Ø 250 x 80
	3.4	Auxiliary wheels (dimensions)		2x Ø 100 x 40	2x Ø 100 x 40
	3.5	Wheels, number front/rear (x = driven)		1x + 2 / 2	1x + 2 / 2
	3.6	Track width, front	b10 (mm)	544 ¹⁾	544 ¹⁾
	3.7	Track width, rear	b11 (mm)	675 ¹⁾	675 ¹⁾
Dimensions	4.8	Height of seat/stand on platform	h7 (mm)	710 / 910	710 / 910
	4.9	Height of tiller arm in operating position, min/max	h14 (mm)	1020 / 1120	1020 / 1120
	4.12	Towing coupling height	h10 (mm)	300 / 290 / 345 / 400	300 / 290 / 345 / 400
	4.19	Overall length	l1 (mm)	1500 ^{6) 1)}	1500 ^{6) 1)}
	4.21	Overall width	b1/b2 (mm)	790 / 790 ¹⁾	790 / 790 ¹⁾
	4.32	Ground clearance, centre of wheelbase	m2 (mm)	40	40
	4.35	Turning radius	Wa (mm)	1230 ⁷⁾	1230 ⁷⁾
Performance	4.36	Minimum pivoting point distance	b13 (mm)	-	-
	5.1	Travel speed, with/without load	(km/h)	10 / 10 ⁸⁾	8 / 8 ⁸⁾
	5.5	Tractive force, with/without load	(N)	1800	1800
	5.6	Maximum tractive force, with/without load	(N)	4000	4000
	5.7	Climbing ability, with/without load	(%)	5.0 / 24.0	<3.0 / 24.0
	5.8	Maximum climbing ability, with/without load	(%)	8.0 / 24.0	5.0 / 24.0
	5.9	Acceleration time, with/without load	(s)	6.7 / 4.6	6.5 / 4.6
Drive	5.10	Service brake		Electro-magnetic	Electro-magnetic
	6.1	Drive motor, 60 minute rating	(kW)	1.2	1.2
	6.3	Battery according to DIN 43531/35/36 A,B,C,no		43535/B [Li-ION]	43535/B [Li-ION]
	6.4	Battery voltage/rated capacity (5h)	(V/Ah)	24/ 345/375 [24/ 410] ²⁾	24/ 345/375 [24/ 410] ²⁾
	6.5	Battery weight (± 5%)	(kg)	287 [151]	287 [151]
	6.6	Power consumption according to VDI cycle	(kWh/h)	0.95	1.16
	8.1	Type of drive control		LAC	LAC
Others	8.4	Noise level at operator's ear	(dB(A))	< 70	< 70
	8.5	Towing coupling, design/type, DIN 15 170		--	--
1) (± 5 mm) 2) Figures in [] with Li-ION battery see line 6.4 3) Figures with battery, see line 6.4/6.5. 4) (± 10%) 5) Solid rubber + polyurethane / polyurethane			6) ±10mm with hook 7) ± 0 mm = 3 PzS lateral; + 100 mm = 3 PzS vertical and 4PzS lateral; + 150 mm = 4 PzS vertical; + 225 mm = 4 PzS vertical 8) (± 5%)		



a	Distance (km)
b	Speed (km/h)
c	Gradient (%)
d	Torque on the drive wheel (Nm)



The example shows illustrates:

A tractor towing 2 t load, operating on a ramp of 4%.
Max. travelling speed reachable = 4,3 km/h, length of the ramp = 4,9 km