Standard Equipment/Optional Equipment

Standard Equipment

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

Optional Equipment

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

Li-ION technology
- Fast Full Charge
- Opportunity Charging
- Fast Intermediate Charging
- Maintenance Free
- Long Lifetime
- Good performance in Cold Store

Li-ION batteries
- fits in 3 PzS compartment (P30 C ION, P50 C ION) with 9kWh (24V/410Ah)

Li-ION charger
- optimized 24V-Charger v255: full charging time in 2h40min (9,0 kWh)

Electric Tow Tractor with Platform Capacity 3000 kg and 5000 kg
P 30 C, P 50 C

SERIES 1190

Linde Material Handling

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

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

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, senssors, PLCs, supervisor software...

Smart safety
- Real time speed-adaptive detection fields
- Unique dynamic cornering detection fields
- Autonomous decision-making capability with 3D camera
- Natural cohabitation with operators and other trucks

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)

Subject to modification in the interest of progress. Illustrations and technical details could include options and not binding for actual constructions. All dimensions subject to usual tolerances.

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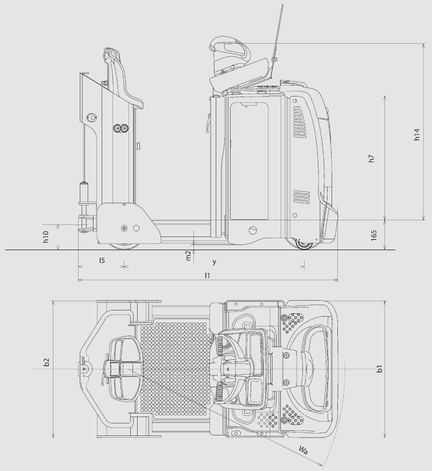
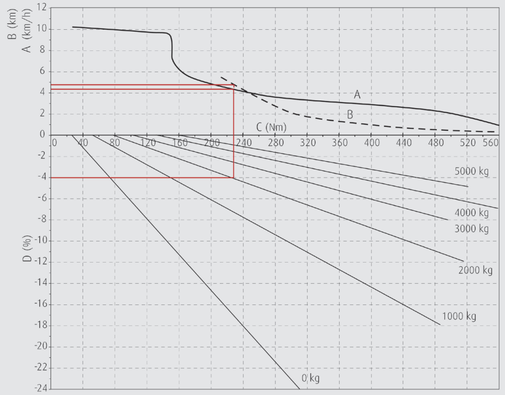
Printed in Germany 104.e.20416.indd.ki

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]
	4.36	Minimum pivoting point distance	b13 (mm)	-	-
Performance	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
	5.10	Service brake		Electro-magnetic	Electro-magnetic
Drive	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
Others	8.1	Type of drive control		LAC	LAC
	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