



Logistic Train Solutions

LT10 – LT20 C|B|BM

Capacity 1.0 t – 2.0 t | Series 8970-01

Variable Allrounder

- Efficient solution for bundling ground-level transports of large quantities of materials over long distances
- Flexible combination of different frame variants for transporting different loads and goods
- The frames offer maximum versatility and flexibility, especially for hall-to-hall transports
- Frames available with Linde trolleys or adaptable to customer-supplied load carriers

TECHNICAL DATA (according to VDI 2198)

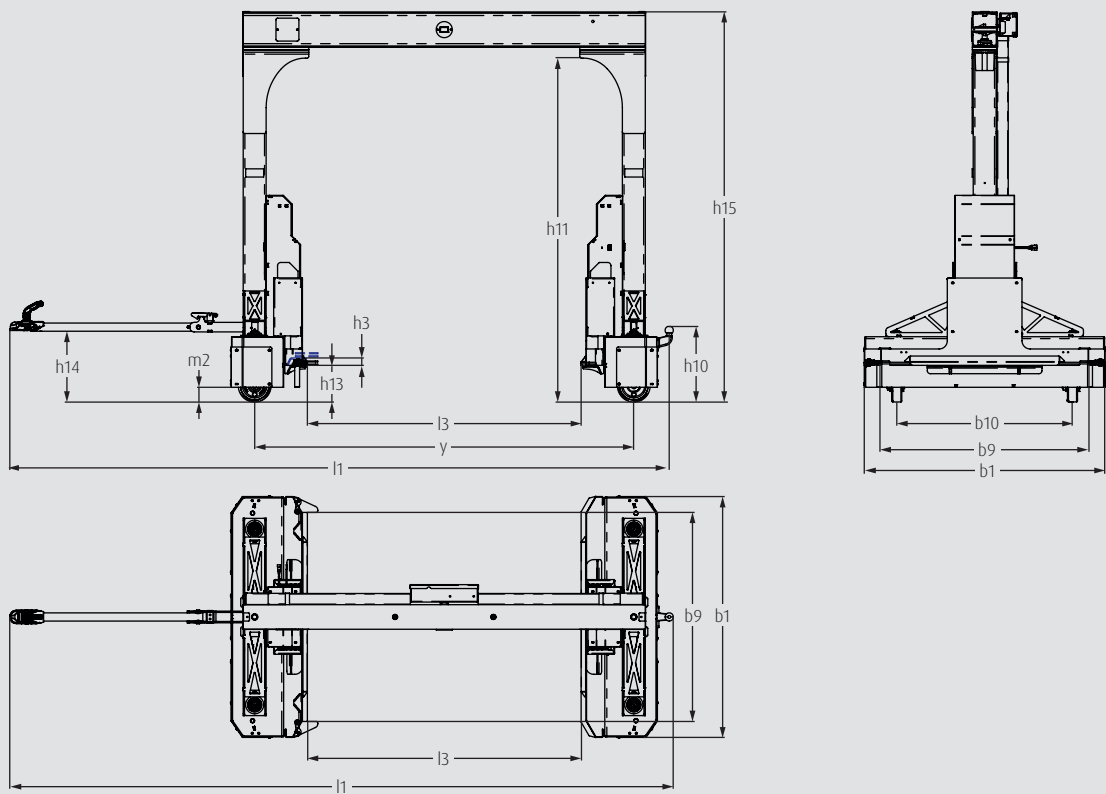
For simplicity, representative models are shown. Ask your local contact person for the final data, which may vary depending on the customer-specific scope and configuration.

Characteristics	1.1	Manufacturer (abbreviation)		Linde MH	Linde MH	Linde MH	Linde MH	Linde MH
	1.2	Manufacturer's type designation		LT10 B ⁹⁾	LT10 BM ⁹⁾	LT16 BM ⁹⁾	LT10 C ¹⁰⁾	LT20 C ¹⁰⁾
	1.2a	Series		8970-01	8970-01	8970-01	8970-01	8970-01
	1.5	Rated capacity/rated load	Q (t)	1.0	1.0	1.6	1.0	2.0
	1.9	Wheelbase	y (mm)	2314	2614	2614	2514	2514
Weight	2.1	Service weight	kg	740	910	944	922	942
Tyres/chassis	3.1	Tyres: solid rubber, superelastic, pneumatic, polyurethane		Polyurethane	Polyurethane	Polyurethane	Polyurethane	Polyurethane
	3.2	Tyre size, front		Ø 200 × 50	Ø 200 × 50	Ø 200 × 60	Ø 200 × 50	Ø 200 × 60
	3.3	Tyre size, rear		Ø 200 × 50	Ø 200 × 50	Ø 200 × 60	Ø 200 × 50	Ø 200 × 60
	3.5	Wheels, number front/rear (x = driven wheels)		2/2	2/2	2/2	2/2	2/2
	3.6	Tread, front	b10 (mm)	1072	1072	1072	1132	1132
Dimensions	3.7	Tread, rear	b11 (mm)	1072	1072	1072	1132	1132
	4.2.1	Overall height	h15 (mm)	2386	2386	2386	529	529
	4.4	Lift	h3 (mm)	60/50 ²⁾	60/50 ²⁾	60/50 ²⁾	50	50
	4.4a	Lift function		Electric	Electric	Electric	Electric	Electric
	4.9	Height drawbar in driving position min./max.	h14 (mm)	442	442	442	442	442
	4.12	Coupling height	h10 (mm)	461	461	461	461	461
	4.13	Loading height, unladen	h11 (mm)	2100	2100	2100	-	-
	4.15	Height, lowered	h13 (mm)	219	219	219	219	219
	4.16	Length of loading surface	l3 (mm)	1670	1970	1970	2000	2000
	4.17	Overhang	l5 (mm)	1351	1351	1351	1321	1321
	4.18	Width of loading surface	b9 (mm)	1276	1276	1276	1268	1268
	4.19	Overall length	l1 (mm)	3980	4280	4280	4280	4280
	4.21	Overall width	b1/b2 (mm)	1470	1470	1470	1664	1664
	4.25	Fork spread	b5 (mm)	70	70	70	240	240
	4.26	Distance between wheel arms/loading surfaces	b4 (mm)	1670	837 - 1617 ⁸⁾	837 - 1617 ⁸⁾	2000	2000
	4.32	Ground clearance, centre of wheelbase	m2 (mm)	47	47	47	44	44
	4.33	Load dimension b12 × l6	b12 × l6 (mm)	1260 × 1660 ³⁾	2x 860 × 1260/ 1x 1260 × 1660 ⁹⁾	2x 860 × 1260/ 1x 1260 × 1660 ⁹⁾	2x 860 × 1260/ 1x 1260 × 1660 ⁹⁾	2x 860 × 1260/ 1x 1260 × 1660 ⁹⁾
	4.34	Aisle width predetermined load dimensions	Ast (mm)	6500 ⁴⁾	6500 ⁴⁾	6500 ⁴⁾	7000 ⁴⁾	7000 ⁴⁾
	4.34b	Aisle width, 90° curve	Ast1 (mm)	3500 ⁴⁾	3500 ⁴⁾	3500 ⁴⁾	4000 ⁴⁾	4000 ⁴⁾
	4.35	Turning radius	Wa (mm)	2750 ⁴⁾	2750 ⁴⁾	2750 ⁴⁾	3000 ⁴⁾	3000 ⁴⁾
Performance data	5.1	Travel speed, laden/unladen	km/h	15	15	15	15	15
	5.2	Lifting speed, laden/unladen	m/s	0.011/0.015	0.011/0.015	0.011/0.015	0.011/0.015	0.011/0.015
	5.7	Gradeability, laden/unladen	%	7.0 ⁵⁾	7.0 ⁵⁾	7.0 ⁵⁾	7.0 ⁵⁾	7.0 ⁵⁾
	5.10	Service brake		without	without	without	without	without
Electric engine	6.2	Lift motor rating at S3 15%	kW	0.24	0.24	0.24	0.24	0.24
Additional data	10.8	Towing coupling, design/type, DIN		Ø 50 ⁶⁾	Ø 50 ⁶⁾	Ø 50 ⁶⁾	Ø 50 ⁶⁾	Ø 50 ⁶⁾

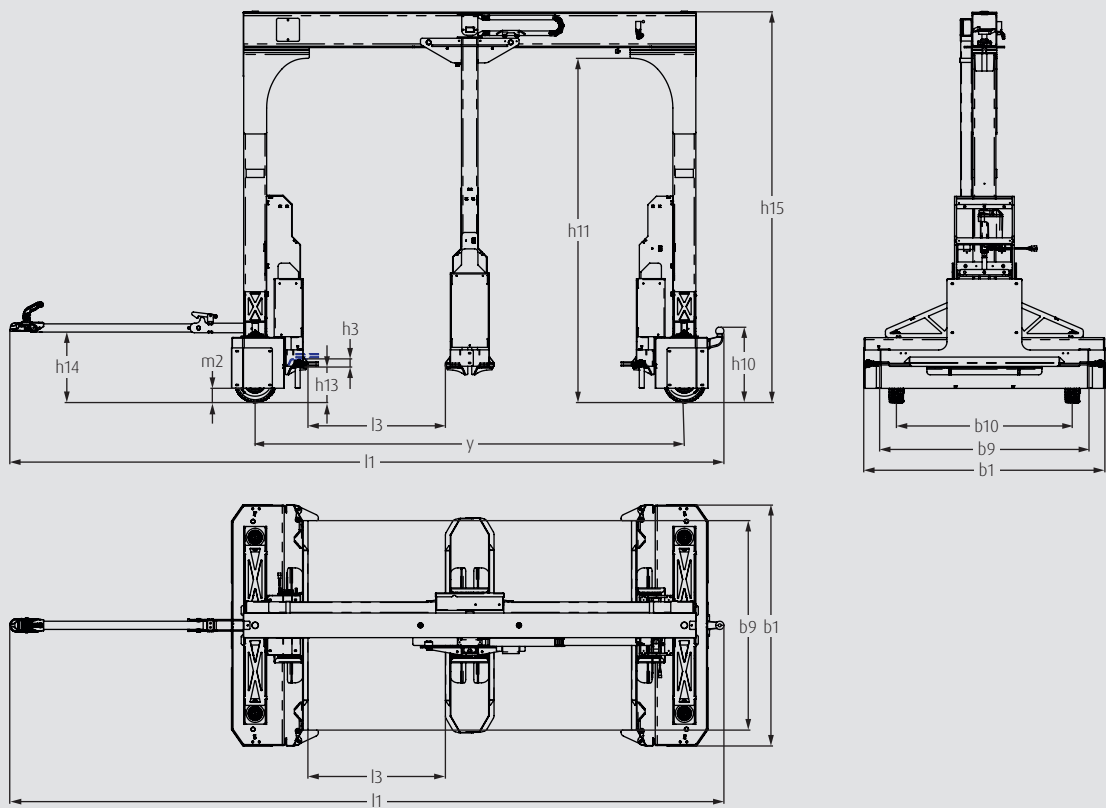
- 1) Frame design for transport of one Linde trolley TR1600 × 1200 with one frame
- 2) Lifting profiles first extend 60 mm horizontally from the trailer frame and are then raised 50 mm vertically (free lift = 16 mm)
- 3) Loading surface dimensions b9 × l3 of Linde trolley TR1600 × 1200 = 1210 × 1610 mm (outer dimensions b1 × l1 incl. fang corners = 1260 × 1660 mm)
- 4) In combination with P60 - P80 and two frames. Ast values = incl. safety distance of 1000 mm (a/2 = 500 mm on each side)
- 5) In case of gradients the max. allowed speed is 6 km/h. Up to 7% ramp possibility to operate the frames without driving a radius. Ramps beyond this value needs to be reviewed in detail
- 6) Ball head coupling

- 7) Frame design for transport of either two Linde trolleys TR1200 × 800 or one Linde trolley TR1600 × 1200 with one frame (includes one movable middle support)
- 8) Movable middle support in central position: l3 = 837 mm; movable middle support on side stop: l3 = 1617 mm
- 9) Loading surface dimensions b9 × l3 of Linde trolley TR1200 × 800 = 810 × 1210 mm (outer dimensions b1 × l1 incl. fang corners = 860 × 1260 mm)/ Loading surface dimensions b9 × l3 of Linde trolley TR800 × 600 = 630 × 820 mm (outer dimensions b1 × l1 incl. fang corners = 680 × 870 mm)
- 10) Frame design for transport of two Linde trolleys TR1200 × 800 with one frame

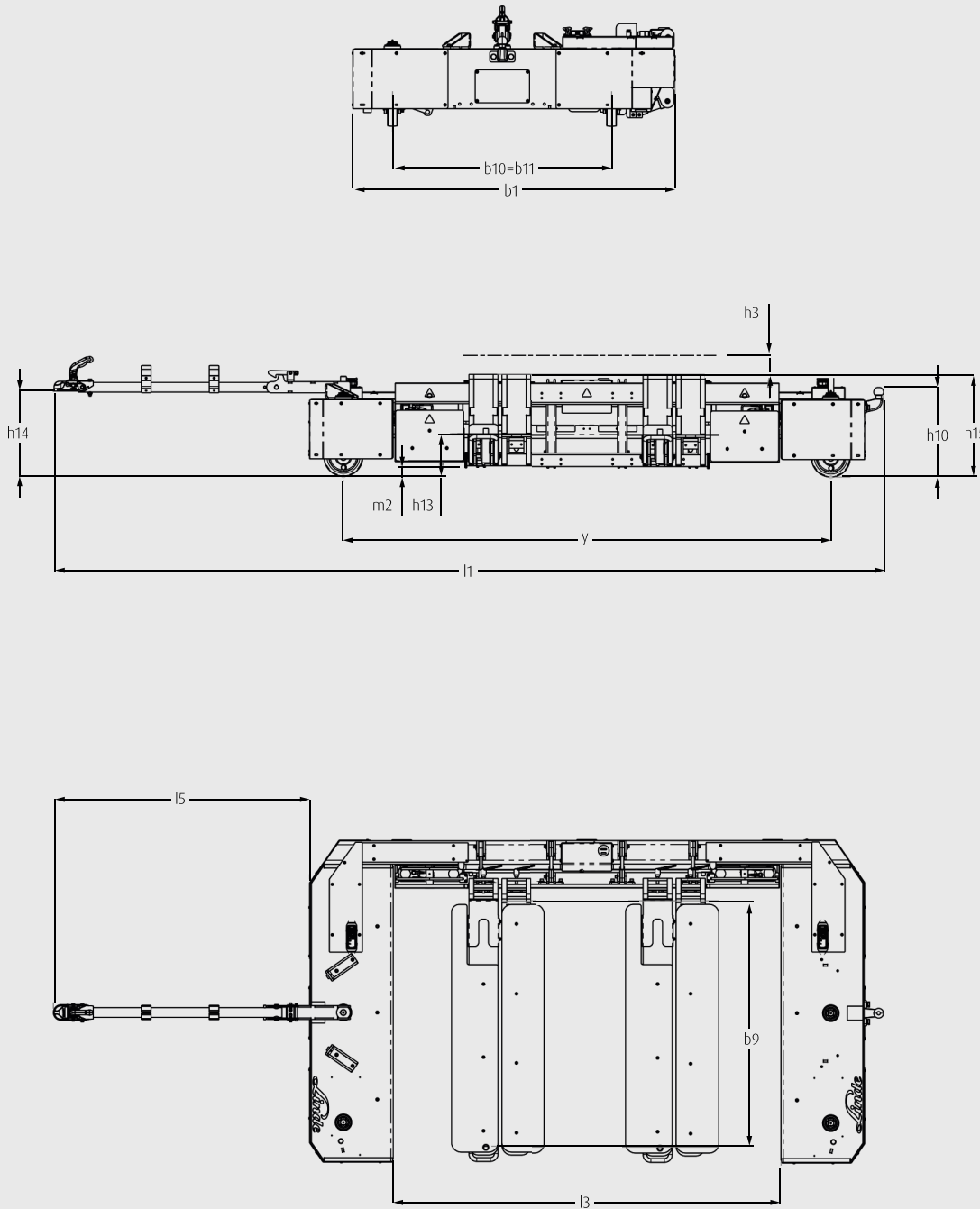
LT10 B



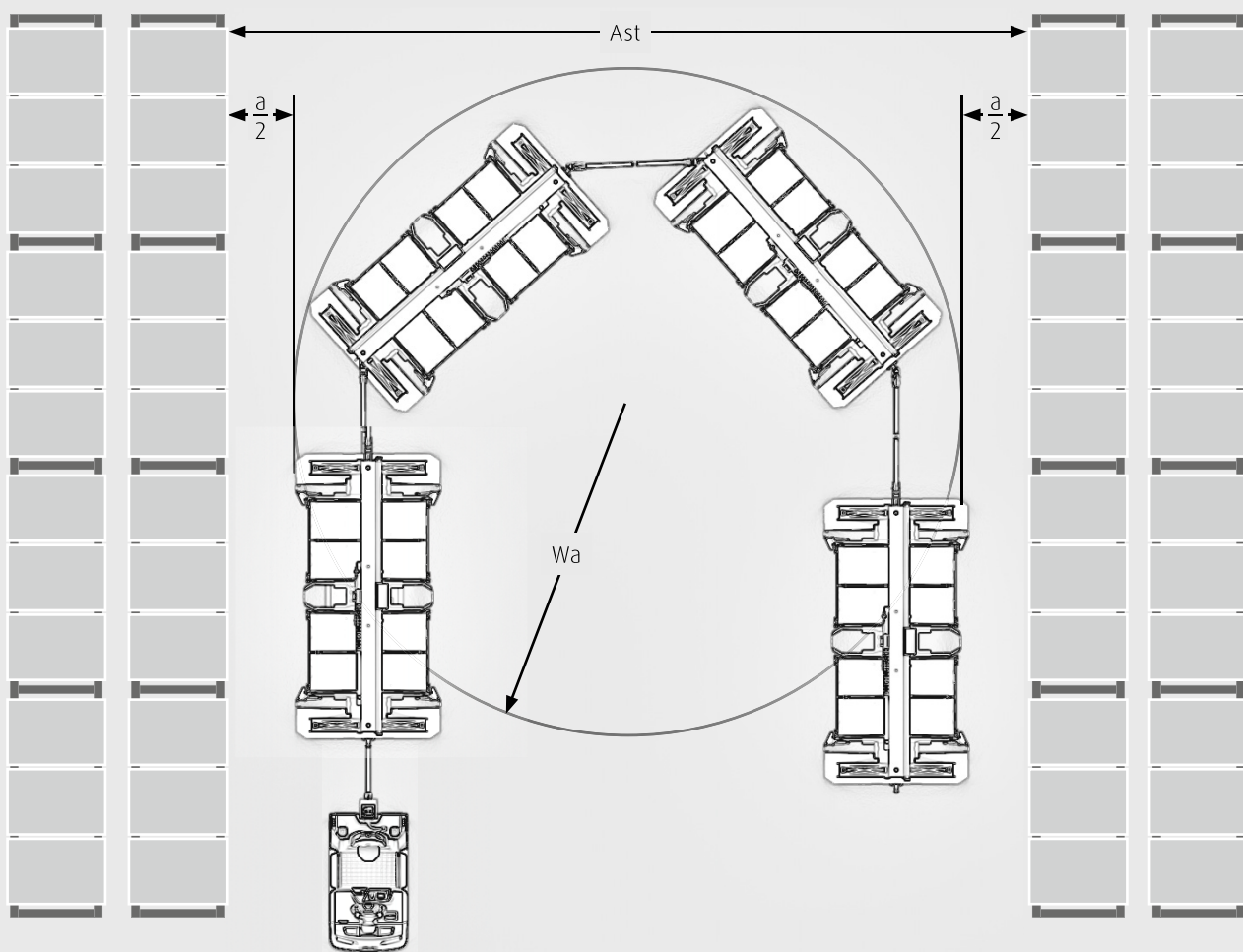
LT10 BM | LT16 BM



LT10 C | LT20 C



AST

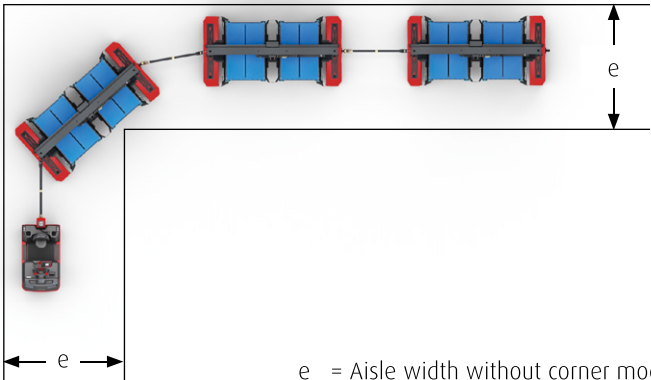


EXAMPLES OF AISLE WIDTHS

Frame type	Frame size	Total frames per train	Total loads per train	Total train length/mm	e/mm ¹⁾	e2/mm ¹⁾	e3/mm ¹⁾	d/mm	e4/mm ²⁾³⁾⁴⁾
LT10 B	1x TR1600 × 1200	1	1	5476 ²⁾ /5830 ³⁾	2400	2400	2400	3000	3350
		2	2	9476 ²⁾ /9830 ³⁾	2400	2400	2400	3000	3350
		3	3	13476 ²⁾ /13830 ³⁾	2600	2600	2600	3000	3350
LT10 BM / LT16 BM	2x TR1200 × 800/ 1x TR1600 × 1200 ⁴⁾	1	2/1 ⁵⁾	5776 ²⁾ /6130 ³⁾	2500	2500	2500	3000	3750
		2	4/2 ⁵⁾	10076 ²⁾ /10430 ³⁾	2500	2500	2500	3000	3750
		3	6/3 ⁵⁾	14376 ²⁾ /14730 ³⁾	2700	2700	2700	3000	3750
LT10 C / LT20 C	2x TR1200 × 800	1	2	5676 ²⁾ /6030 ³⁾	3000	3000	3000	3000	3950
		2	4	9876 ²⁾ /10230 ³⁾	3000	3000	3000	3000	3950
		3	6	14076 ²⁾ /14430 ³⁾	3200	3200	3200	3000	3950

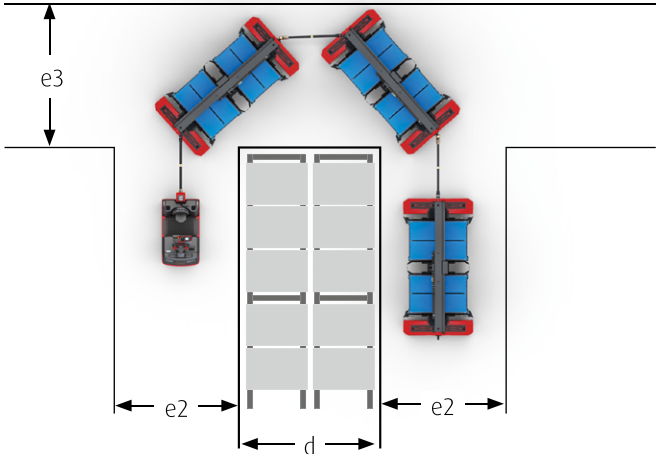
- 1) Without oncoming traffic and without a safety space. We recommend to add a safety space of 1000 mm (a/2 = 500 mm on each side).
Recommendation: The longer the train, the larger the required safety distance to mitigate any potential uncertainties arising from driver operation
- 2) In combination with tow tractor P60 C of series 4595 (standard frame configuration). Remark: Values are calculated; final values may differ slightly
- 3) In combination with tow tractor P80 of series 1191 (standard frame configuration). Remark: Values are calculated; final values may differ slightly
- 4) Recommendation: e4 = a + b + c. Without oncoming traffic and without overtaking
- 5) Chassis type for transport of either two Linde trolleys TR1200×800 or one Linde trolley TR1600×1200 with one frame by moving the middle support completely to the side

90° CURVES

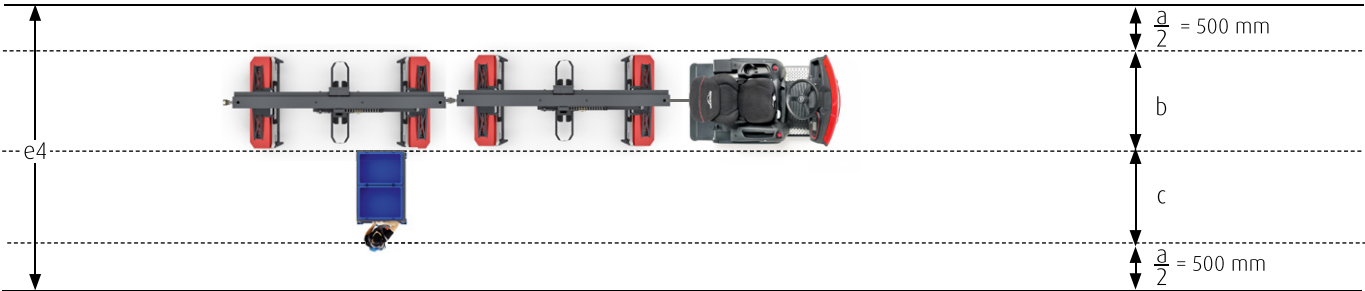


- e = Aisle width without corner modification
- e2 = Aisle width before/after a 180° curve
- e3 = Aisle width when negotiating a 180° curve
- d = Distance between aisles

180° CURVE (SAMPLE AISLE CHANGE)



LOADING & UNLOADING ZONES



- e4 = Required aisle width for loading and unloading process
- a = Added margin + added for handling
- b = Width of logistic train incl. play
- c = Trolley dimensions incl. play

LOGISTIC TRAIN SYSTEM OVERVIEW



TOW TRACTORS

P20



P40 – P60 C | P40 C B



P60 – P80



P120 – P350



FRAMES

M-Frames

W-Frames



LT06 M



LT10 M

LT10 M for 2xTR



LT10 W



LT10 W for 3xTR

WX-Frames



LT10 WX

Ch-Frames



LT16 Ch

BMh-Frames



LT16 BMh

C-Frames



LT10 C

LT20 C

B-Frames



LT10 B

BM-Frames



LT10 BM

LT16 BM

TROLLEYS

TR-Trolleys

with modular racking structures

BR-Trolleys

with modular racking structures



TR800 × 600

TR1200 × 800

TR1200 × 1000

TR1600 × 1200



BR1200 × 800

BR1200 × 1000

LT = Logistic Train **M** = M-type frame **W** = W-type frame **WX** = W-type frame with scissor tow bar system

Ch = C-type frame, hydraulic version **BMh** = Bridge-type frame with middle support, hydraulic version **C** = C-type frame

B = Bridge-type frame **BM** = Bridge-type frame with middle support **TR** = Trolley **BR** = BaseRunner Trolley

STANDARD AND OPTIONAL EQUIPMENT

Manufacturer's type designation/equipment		LT10 B	LT10 BM	LT16 BM	LT10 C	LT20 C
Safety	Mechanical load protection with automatic locking after insertion	●	●	●	●	●
	Travel prevention with lowered frames and deactivated lowering function during travel	●	●	●	●	●
	Two-axle design with central load space and wide wheelbase for high driving safety	●	●	●	●	●
	Patented lifting mechanism of forks with tilt function for continuous ground clearance	—	—	—	●	●
	Weather protection with one or two openings to secure loads in outdoor applications (RAL 7021)	○	○	○	○	○
	Labelling of weather protection (safety features or customer logo)	○	○	○	○	○
	Anti-slip mat for forks and lifting profiles	○	○	○	○	○
	Penetration protection (2×) between frames	○	○	○	○	○
Service	Emergency switches in customer specific design	○	○	○	○	○
	5.7" touch display on tow tractor: Condition of all connected frames visible at a glance	●	●	●	●	●
	Maintenance-free and electrically monitored lifting motors	●	●	●	●	●
	Hour meter to match service intervals with tow tractor	●	●	●	●	●
	Coupling ball hook with backlash-free coupling system	●	●	●	●	●
Operation/load handling	Frame specific spare parts list available through scanning of QR-code on nameplate	●	●	●	●	●
	Loading and unloading at ground level	●	●	●	●	●
	One-sided load handling with trolleys while loading	●	●	●	●	●
	Both-sided load handling with trolleys while loading	●	●	●	—	—
	Both-sided load handling with pallets while loading and unloading (upon request)	○	○	○	—	—
	Pull out of trolley from frame while unloading in direction of operator	●	●	●	●	●
	Push-through-option: Push out of load from frame while unloading in both directions	○	○	○	—	—
	Fork ejection mechanism with ergonomic support of operator while unloading	—	—	—	●	●
	Middle support: Movable by hand for flexible handling (grid = 20 mm)	—	●	●	—	—
	Opening on left side in driving direction ¹⁾	●	●	●	●	●
	Opening on right side in driving direction ¹⁾	●	●	●	○	○
	Opening height 2100 mm ²⁾	○	○	○	○	○
	Linde trolleys in various designs for the insertion into logistic train frames	○	○	○	○	○
	Frame size for 1x Linde trolley TR1200×800	○	—	—	○	—
	Frame size for 1x Linde trolley TR1200×1000	○	—	—	○	—
	Frame size for 1x Linde trolley TR1600×1200	●	●	●	●	—
	Frame size for 2x Linde trolleys TR1200×800	—	●	●	○	●
	Frame size for 2x Linde trolleys TR1200×1000	—	○	○	○	○
	Frame size for 2x Linde trolleys TR800×600/1x Linde trolley TR1200×800 ³⁾	—	○	○	—	—
	Frame size for 2x Linde trolleys TR1200×800/1x Linde trolley TR1600×1200 ³⁾	—	●	●	○	○
Electronics	Further frame sizes according to customer specific trolleys upon request	○	○	○	○	○
	Electrical lifting powered by low-noise motors ⁴⁾	●	●	●	●	●
	Lift height of 50 mm: Raising of load by 35 mm after free lift	●	●	●	●	●
	Lift height of 80 mm: Raising of load by 65 mm after free lift	○	○	○	—	—
	Lift height of 100 mm: Raising of load by 85 mm after free lift	—	—	—	○	○
	Lifting control unit centrally on tow tractor within touch display (splash-proof)	●	●	●	●	●
	Decentralized control units in frames (I/Os; IP67 protection)	●	●	●	●	●
Workplace	Modular plug-and-play connectors between frames and to tow tractor (IP66 protection)	●	●	●	●	●
	Lifting mode selection on touch display between simultaneous and single lifting mode	●	●	●	●	●
	Automatic mode: All frames lifted/lowered as soon as driver steps into/out of tow tractor	●	●	●	●	●
	Manual mode: To be lowered/lifted frame can be selected manually on touch display	●	●	●	●	●
Attachment /forks	Lifting activation directly on frame (upon request)	○	○	○	○	○
	Fork-pairs: Centered lifting of trolley with wide support surface for safe pick-up	—	—	—	●	●
	Lateral adjustment of fork positions (manually with additional tools)	—	—	—	●	●
	Pair of lifting profiles: Lateral lifting of trolley (middle support equipped with additional pair)	●	●	●	—	—
Tyres	Patented 2-step-lifting (horizontal and vertical) for flexible handling with lifting profiles	●	●	●	—	—
	Polyurethane wheels (PU; shore 75) 200×50 - non-marking (colour: red)	●	●	—	●	—
	Polyurethane wheels (PU; shore 92) 200×60 - non-marking (colour: light brown)	○	○	●	○	●
	Superelastic wheels (SE) 250×85 with suspension - weakening of vibrations (colour: black)	○	○	—	○	—
Drive System	Superelastic wheels (SE) 250×130 with suspension - weakening of vibrations (colour: black)	○	○	○	○	○
	Mechanical 4-wheel-steering: Smallest turning circles and high directional stability without pulling out	●	●	●	●	●
	Frame compatibility: Using of LT C, LT B and LT BM within one tugger train	●	●	●	●	●
Lighting	Compatibility to Linde tow tractors P40 C/P60 C, P60/P80, P120-P350 with dedicated preparation	○	○	○	○	○
	Rotating beacon incl. LED lamp - visibility of the frame in dark areas	○	○	○	○	○
	Rear lights (2×) - winker, tail lights, brake lights and license plate light (ISO 1724)	○	○	○	○	○

● Standard equipment ○ Optional equipment — Not available

- 1) On the LT10 C and LT20 C, the opening side can be changed afterwards by a service technician by repositioning the tiller
- 2) The bridge-frame is not raised after the lifting process is initiated; only the load-handling devices including their brackets are raised.
With a lifting height of 50 mm, we therefore recommend a maximum load height including trolley of 1950 mm. With a lifting height of 80 mm, we recommend a maximum load height including trolley of 1920 mm
- 3) Flexibility: Handling either two small trolleys or one large trolley with a single frame. On the LT C this is achieved by a special load-handling and locking solution. On the LT BM this is enabled by sliding the middle support to the lateral stop
- 4) LT10 C: two lifting motors; LT20 C: four lifting motors; LT10 B: two lifting motors; LT10 BM: three lifting motors; LT16 BM: four lifting motors

CHARACTERISTICS



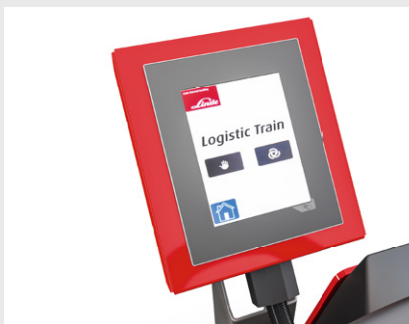
Fork unlocking device with ergonomic fork ejection mechanism on LT C



Middle support on LT BM: Movable against the driving direction



Optional safety package: Weather protection, suspended SE-wheels, rotating beacon and rear lights



Touch display on tow tractor: Selection of lifting mode and information about condition of connected frames

Ergonomics

- Ideal support of the driver with load handling at ground level and convenient control of the lifting function with different modes
- Fork ejection mechanism on C-Frames and push-through-option on Bridge-Frames for ergonomic support during handling of also heavy loads
- Simple and quick coupling of frames via plug and play
- Low-noise trains with electrical lifting function reduce acoustic stress

Handling

- Precise maneuverability and smallest turning radius thanks to the 4-wheel-steering which is perfectly matched to the frame size
- Fast lifting function when getting on and off simplifies and accelerates loading and unloading
- Movable middle support for highest flexibility with different load sizes
- Patented lifting profile mechanism with 2-step-lifting ensures flexible adaption to trolleys and pallets as well as a smooth loading and unloading
- Prepared for automation through standardized interfaces

Safety

- Mechanical load protection on all frames with automatic locking after insertion protects the transport goods and accelerates the loading process
- High directional stability and tipping stability without pull out of the frames
- Start-up interlock with lowered frames and deactivated lowering function during travel prevent accidents
- Patented lifting mechanism of forks with tilt function for continuous ground clearance of raised trolleys even at highest payloads
- Optional: Weather protection, robust SE-wheels and different lighting options for outdoor applications

Service

- Hour meter and visualisation on touch display allow impeccable registration of the condition of all frames
- Maintenance-free lift motors and virtually wear-free connection minimise service costs
- Low maintenance and good maintenance accessibility thanks to the two-axle design
- Frame specific spare parts list available through scanning of QR-code on nameplate

Presented by:

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



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