

LTX Technical Data Electric Tractor and Transporter

LTX 20

LTX-T 04

LTX 50/Li-Ion

LTX 50 iGo systems

LTX-T 06/Li-Ion



Li-Ion
INSIDE

iGo systems



IFOWY AWARD
intralogistics robot
of the year 2019

first in intralogistics



		STILL	STILL	STILL	STILL
Distinguishing marks	1.1 Manufacturer	LTX 20	LTX-T 04	LTX 50/Li-Ion	LTX-T 06/Li-Ion
1.2 Manufacturer's type designation		Electric	Electric	Electric	Electric
1.3 Drive		Stand-on	Stand-on	Stand-on	Stand-on
1.4 Operation					
1.5 Load capacity/load	Q	kg	-	400	-
1.5.1 Towing capacity	Q	kg	2000	1000	5000
1.7 Rated drawbar pull	F	N	-	-	1000
1.9 Wheel base	y	mm	907	1487	1133 ^{2,3}
2.1 Service weight (incl. battery)		kg	620 ³	755 ³	1223
2.3 Axle load without load	drive end/load end	kg	325/295	415/340	607/616
3.1 Tyres			Solid rubber/superelastic	Solid rubber/superelastic	Solid rubber/superelastic
3.2 Tyre size	drive end	mm	Ø 230 x 75	Ø 230 x 75	Ø 254 x 102
3.3 Tyre size	load end	mm	2 x Ø 250 x 80	2 x Ø 250 x 80	Ø 250 x 85
3.4 Additional wheels (dimensions)		mm	2 x Ø 100 x 40	2 x Ø 100 x 40	100 x 40
3.5 Number of wheels (x = driven)	drive end/load end		1x2/2	1x2/2	1x2/2
3.6 Track width	drive end/load end	mm	418/484	418/484	580/620
4.7 Height to top of overhead guard (cabin)	h ₆	mm	-	-	2245 ^{3,5}
4.8 Stand height/seat height	min./max. h ₇	mm	754/1044	794/1084	150 ³ /905/1094
4.9 Height drawbar/steering wheel in driving position	min./max. h ₁₄	mm	1178/1278	1218/1318	1270 ^{3,6}
4.12 Coupling height	h ₁₀	mm	167	173	190/245/300/355/410
4.13 Loading height	h ₁₁	mm	-	271	-
4.17 Overhang length	l ₅	mm	243	531	422
4.19 Overall length	l ₁	mm	1305	2172	1300 ⁶
4.21 Overall width	b ₁ /b ₂	mm	600	600/636	800
4.32 Ground clearance, centre of wheel base	m ₂	mm	40	80	70 ³
4.35 Turning radius	W _a	mm	1080	1660	1480 ^{2,3}
5.1 Driving speed	laden/unladen	km/h	8/8	8/8	8/14
5.1.1 Driving speed, backwards	laden/unladen	km/h	3/3	3/3	6/6
5.5 Traction S2 = 60 min	laden/unladen	N	400	400	1000
5.6 Maximum traction S2 = 5 min	laden/unladen	N	2000	2000	3400 ⁷
5.8 Maximum gradeability	laden/unladen	%	5/10	5/10	See diagram
5.9 Acceleration time	laden/unladen	s	4/4	4/4	7.1/5.1
5.10 Service brake			Electromagnetic	Electromagnetic	Electromagnetic
6.1 Driving motor, power S2 = 60 min		kW	1.5	1.5	3
6.3 Battery according to DIN 43531/35/36; A, B, C, no			No	No	No
6.4 Battery voltage/nominal capacity K _s		V/Ah	24/200	24/200	24/345-465
6.5 Battery weight ±5%		kg	185	185	402
6.6 Energy consumption according to DIN EN 16796		kWh/h	1.21 ⁸	1.35 ⁸	1.4 ⁹
6.7 Turnover output		t/h	-	-	475
6.8 Turnover output according to VDI 2198		t/kWh/h	-	-	123
8.1 Type of driving control			AC control	AC control	AC control
10.7 Sound pressure level (driver's ear)		dB(A)	75	75	<70

¹ In combined application

² With tray 54 or Li-Ion +114 mm

³ With ground clearance m₂ = 100 mm: two additional wheels b₁₀ = 580 mm, y = 1150 mm (with tray 54 or Li-Ion +114 mm), h₇ = 180 mm, h₁₄ = 1300 mm, W_a = 1497 mm (with tray 54 or Li-Ion +114 mm)

⁴ ±10%

⁵ Optional equipment

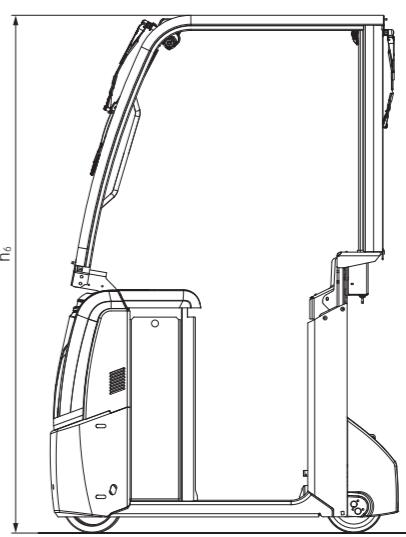
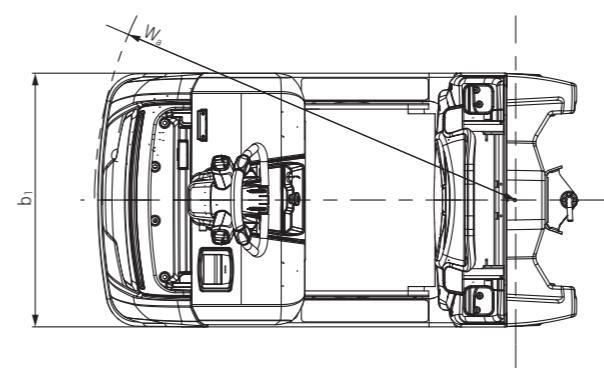
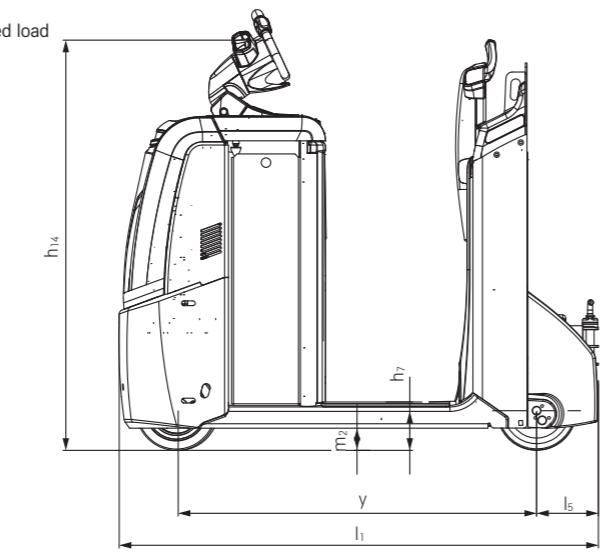
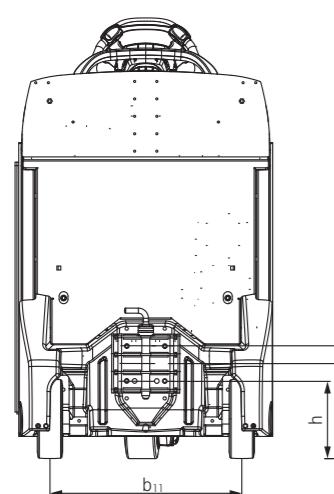
⁶ With tiller adjustment option, h₁₄ setting range = +89 mm/-19 mm

⁷ With lead-acid battery; with lithium-ion battery = 1750 N

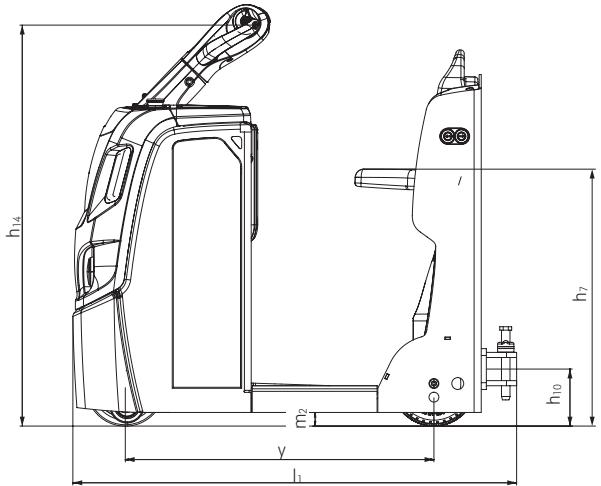
⁸ According to VDI cycle

⁹ According to DIN EN 16796

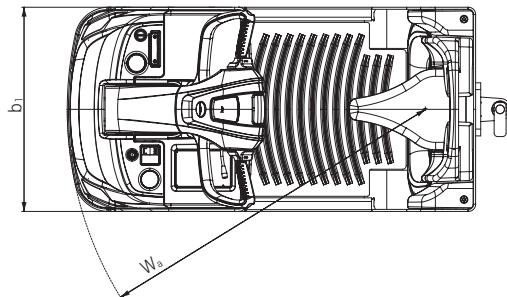
¹⁰ With 0.6 t load on board/with 0.6 t load on board + 2 t towed load/with 5 t towed load



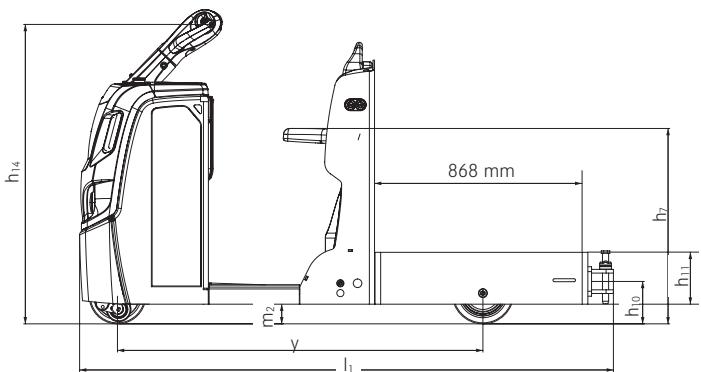
LTX Electric Tractor and Transporter
Technical Drawings



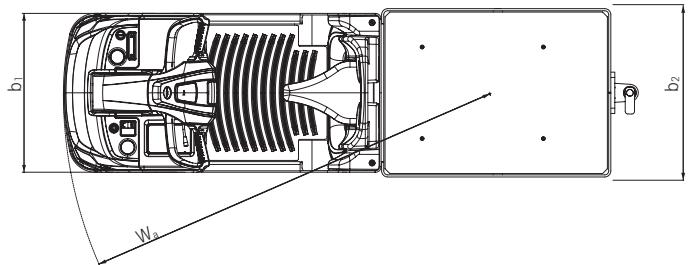
Side view LTX 20



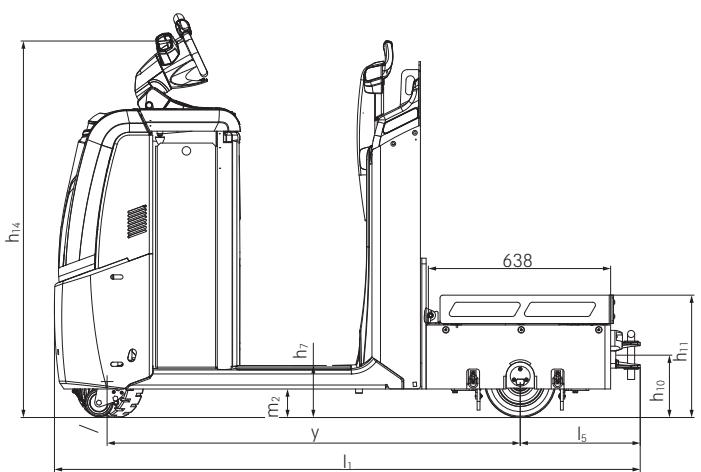
Top view LTX 20



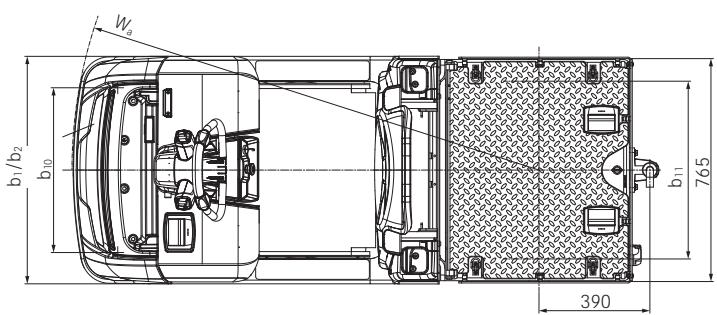
Side view LTX-T 04



Top view LTX-T 04

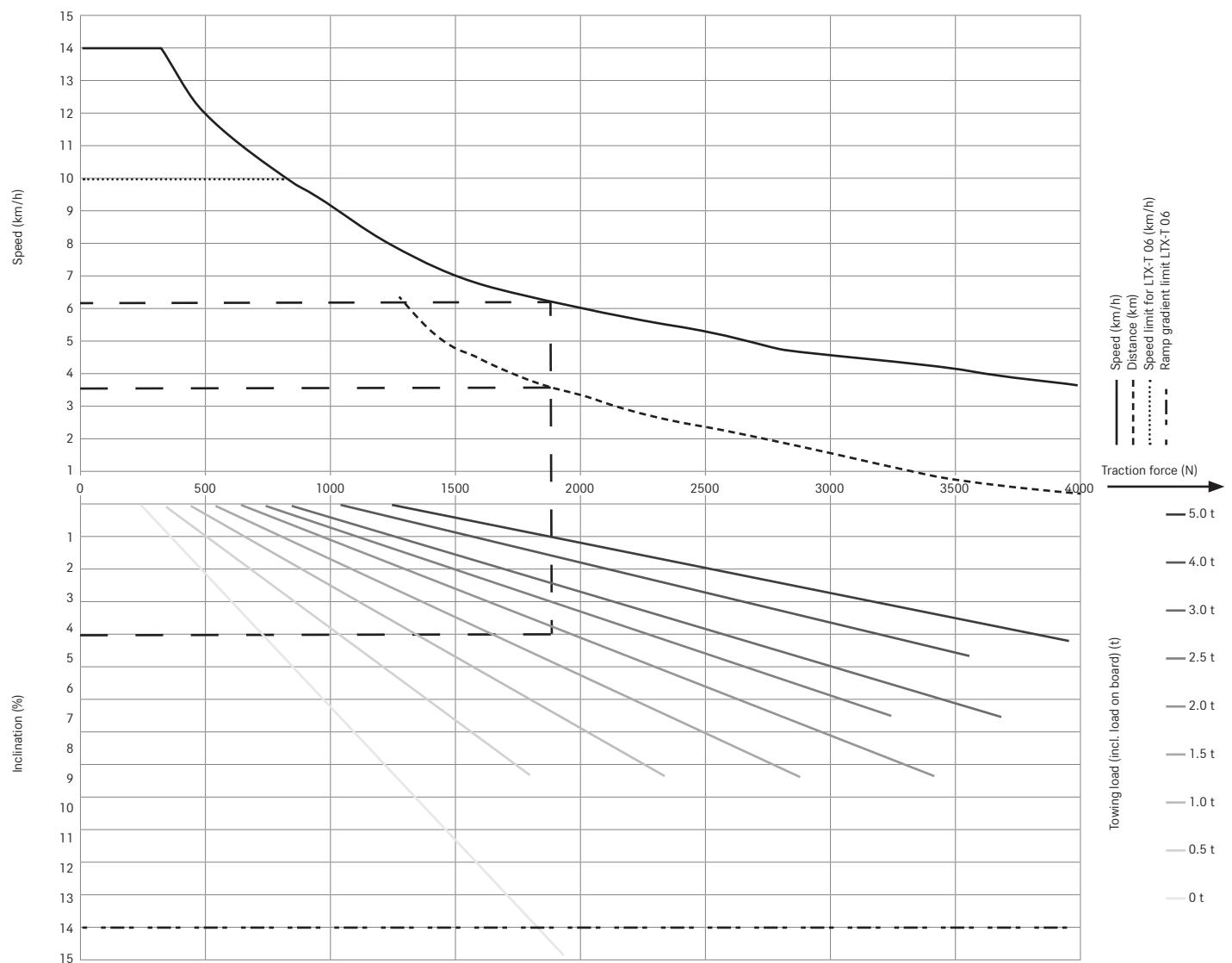


Side view LTX-T 06



Top view LTX-T 06

LTX Electric Tractor and Transporter Performance Diagram LTX 50 and LTX-T 06



This example shows:

- towing load of 2,000 kg
- gradient of 4%
- maximum speed of 6.3 km/h
- gradient length 3.7 km

Important: Only braked trailers should be used with a trailer weight of more than 2.5 t and for any use of trailers on gradients.



LTX in tugger train operation

LTX Electric Tractor and Transporter Detailed Photos LTX 20 and LTX 50



Fast release of coupling from driver's seat¹



Fold-out seat for long driving distances¹



Driver cabin features intuitive controls¹



Pedestrian mode for efficient order picking¹



Height-adjustable steering for different drivers¹



Optional LED daytime running lights for best visibility and improved safety at work²



Flexible applications thanks to various connection options for tugger train elements and trailers²



Optional folding seat for more comfort over longer trips²

¹ Example shown here is the LTX 20 // ² Example shown here is the LTX 50

LTX Electric Tractor and Transporter Detailed Photos LTX 50, LTX-T 06 and LTX 50 iGo systems



Unique STILL Easy Drive steering wheel for optimised driver control and operation of all functions without changing grip²



Optional accessory bar for versatile application options and many equipment options including flash lights and working lights²



Excellent vehicle visibility thanks to optional Safety Light and Safety Light 4Plus for maximum driver safety²



Flexible use: Transport vehicle with trailer coupling³



Storage surface with lashing eyelets for up to 600 kg³



Storage compartment in the transport platform³



360° personal protection provided by integrated safety laser scanners in the LTX 50 iGo systems



Automatic movement of the LTX 50 iGo systems through the warehouse thanks to the automation box and navigation laser

² Example shown here is the LTX 50 // ³ Example shown here is the LTX-T 06

LTX Electric Tractor and Transporter

LTX 50 iGo systems

Extremely high safety standards: improved transport quality and no risk of injury or damage to people, forklift trucks, warehouse equipment and goods thanks to the smart safety functions

Outstanding process standards: picking errors and empty runs are avoided, increasing the transport quality

Maximum availability: efficient transport control and IT integration enable fleets to be put to optimal use around the clock

Excellent cost-effectiveness and efficiency: automation sequences are developed in line with your specific customer processes along with a transparent and optimised continual material flow

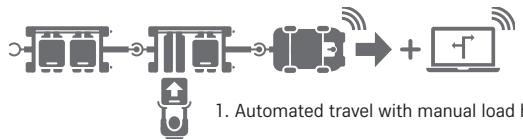


Automated transport solutions

Intralogistics transportation is already automated to a large extent and this trend is growing. Plenty of processes have been putting driverless transport systems to use with success for some time now. Examples include loading and unloading, long-distance transport, production supply and preparation for loading. Automated tugger train systems fall under the category of driverless transport systems. They are most typically used in cases where relatively long stretches of traditional long-distance transport routes are covered by driverless systems and/or the handling of heavy loads needs to be incorporated into tugger train supply routes within production. And yet automated tugger trains

can be used for more than just driverless long-distance transport applications. After all, the efficient use of available resources in a way that adds value is what automation is all about. The automotive sector is a clear forerunner in the use of automated tugger train systems, although a cross-industry trend is emerging. Port and hospital logistics applications as well as bulk manufacturers, assembly lines in series production and companies operating in the fields of recycling, retail and logistics also look set to use automated tugger trains or tugger train solutions in future.

There are three levels of automation when it comes to tugger trains, depending on the process step:



1. Automated travel with manual load handling



2. Manual travel with automated load handling



3. Automated travel combined with automated load handling

The LTX 50 iGo systems combines automated travel with automated load handling, making it ideal for production supply amongst other applications.

Advantages of automated tugger trains

Automation solutions in logistics are not a temporary trend. They are setting the course for future processes. The advantages of an automated tugger train are plain to see: Damage to forklift trucks, warehouse equipment and goods is minimised. There is no risk of accidents involving people thanks to the smart safety functions. Just-in-time or just-in-sequence deliveries to the necessary locations and the fact that materials and carriers can be supplied and removed with absolute precision as a result, mean that delivery frequencies can be increased. Smart software integrated into automated tugger trains and precise navigation make faulty processes a thing of the past. The flow of goods is optimised without any sign of picking errors, empty

runs or goods mix-ups. All of our driverless transport systems comply with the necessary requirements (including the Machinery Directive and ISO 3691-4) and they are fitted with tried-and-tested sensor devices. The following safety features are also included: a safety laser scanner that detects people and objects in the travel path; visual and acoustic warning systems (triggered, for example, when there is a change in the direction of travel); and an emergency stop button that can be used to bring the forklift truck to an immediate standstill. The different levels of automation are easy to scale. A route that has been automated once can be adapted, expanded and even combined with other automated solutions without much extra time and effort.

LTX Electric Tractor and Transporter

Intelligence at work

Ease of work: low entry and large foot space

Suitable for compact working areas: very agile and compact
(600 mm vehicle width)

Multi-functional: available as tractor or transporter



LTX 20/LTX-T 04

Intelligence at work - and good-looking as well. The LTX 20 compact tractor by STILL stands out not only due to its high functionality but in particular through its carefully conceived design. And design means much more than superficial optics: For example, the ergonomic back rest with folding seat makes work both relaxing and back-friendly. Apropos work - this is something this lean tractor can do better than any other: Highly compact and agile, it pulls heavy loads of up to 2 tons with a convincing acceleration performance. The precise steering allows drivers to handle loads safely at all times.

With a width of only 600 mm, the LTX 20 can be quickly and safely manoeuvred even in the narrowest of aisles. It is therefore ideal for tugger train solutions in lean production or for baggage handling at airports, but also many further areas of application. For instance, the LTX 20 is ideal for moving laundry in hospitals or transporting materials for repair and maintenance work of all kinds - because the transport version LTX-T 04 can move up to 400 kg directly on the vehicle's rear.

High handling capacity thanks to maximised towing load of up to 5,000 kg and speeds of up to 14 km/h

Best ergonomics thanks to optional pneumatically-damped driver's station and adjustable STILL Easy Drive steering wheel

Suitable for narrow aisles thanks to compact dimensions



LTX 50/LTX-T 06

Reliable on-time delivery sequences are one of the LTX 50's specialities. Deployed as a tugger train, the future-proof electric tractor can tow trailers with overall weights of up to 5,000 kg down narrow aisles with absolute precision at your production facilities. Thanks to the top speed of up to 14 km/h even long trips can be covered in the shortest possible time. This makes for an efficient and lean production, reduces internal traffic volumes and saves money. Drivers are happy to use the unique STILL Easy Drive steering wheel with an integrated display.

The controls are arranged in an intelligent fashion so that they can be comfortably operated with either hand without changing grip. In addition, the precise and smooth electrical steering with automatic centring keeps the vehicle always on track. Work comfort may be enhanced with the optional pneumatically-damped driver stand platform with foldable seat and height-adjustable back rest. High battery capacities make the LTX 50 a real long-distance runner - the optional Li-Ion technology even allows you to benefit from round-the-clock availability. As transport version, the LTX-T 06 tows 5,000 kg; with an additional load of up to 600 kg it tows 2,000 kg in combined application.

LTX Electric Tractor and Transporter

Extensive Equipment

Power

- Powerful, reliable, low maintenance: modern three-phase drive motors
- Strong handling performance: high towing loads of 2,000 to 5,000 kg
- Fast goods transport: speeds of up to 14 km/h with the LTX 50 and up to 8 km/h with the LTX 20
- Always available: optional lateral battery changes and the Li-Ion battery option for the LTX 50 allows fast charging and simple intermediate charging
- High performance: pedestrian mode saves mounting and dismounting
- With the LTX-T 06 up to 600 kg additional load possible

Precision

- Intuitive control of all functions without changing grip: innovative STILL Easy Drive steering wheel on the LTX 50
- Precision coupling: fast and safe thanks to full visibility of the trailer coupling
- Shock-free and safe goods transport: precision acceleration and steering behaviour plus optional pedestrian mode
- The ideal driving programme for any application
- The software-based transport controls for the LTX 50 iGo systems enable fleets to be put to optimum use, whilst guaranteeing a high level of process reliability, traffic management, visualisation of truck movements, battery charge status monitoring and a drop in the rate of errors - The flow of materials and information is always reliable and displayed comprehensively and transparently

Ergonomics

- Standing comfortably: modern, sprung and damped driver stand platform; for the LTX 50 even an optional adjustable pneumatically-damped stand-on platform
- More comfort over long trips: folding seat for more travel comfort
- Fatigue-free working: low vehicle entry simplifies mounting and dismounting
- Generous driver cabin with storage space
- Easily loadable transporter: cargo area height from 271 mm on the LTX-T 04
- The option to manually operate STILL's automated series-produced trucks, such as the LTX 50 iGo systems, affords greater flexibility and ensures that processes, material flow and ease of access to goods can be guaranteed at all times

Compactness

- Narrow design: extremely compact and agile for working in tight spaces
- Down the narrowest aisles: very small turning radius enables application in narrow aisles

Safety

- High safety and accident prevention: high visibility of the vehicle thanks to optional LED daytime running lights, Safety Light and Safety Light 4Plus
- Versatile and flexible access control with FleetManager 4.x
- High safety on curvy routes: steering angle dependent Curve Speed Control
- Prevention of impact damage: versatile collision protection options
- Improved transport quality and no risk of injury or damage to people, forklift trucks, warehouse equipment and goods thanks to the smart safety functions of the LTX 50 iGo systems

Environmental Responsibility

- A glowing example: long service life and energy-saving LED lamps
- Sustainable: over 95 per cent of all materials used are recyclable
- Low energy costs at the touch of a button: efficiency mode Blue-Q on the LTX 50
- Minimised noise emissions due to very quiet driving motor

LTX Electric Tractor and Transporter Equipment Variants



		LTX 20	LTX-T 04	LTX 50	LTX-T 06
Driver cabin	Shelf in driver cabin, load side	●	●	○	○
	Driver's station with narrow back rest	—	—	○	○
	Knee pads	●	●	○	○
	Height-adjustable steering wheel	●	●	○	○
	Damped stand platform	●	●	●	●
	Pneumatic damped stand platform	—	—	○	○
	Pneumatically damped stand platform with coupled folding seat	—	—	○	○
Additional accessories	Folding seat	●	●	○	○
	Accessory bracket drive side - low	○	○	○	○
	Accessory bracket drive side - high with cross piece	—	—	○	○
	Accessory bracket load side - low	—	—	○	○
	Accessory bracket load side - high with cross piece	—	—	○	○
	Adjustable DIN A4 writing pad	—	—	○	○
	12 V car power socket	—	—	○	○
	Pedestrian mode via butterfly switch on steering wheel/lateral push buttons	—	—	○	○
	Pedestrian mode via push buttons on side of back rest	○	○	○	○
	Refrigeration model for up to -30 °C in alternation	—	—	○	○
	Foil roller holder, drive/load side	—	—	○	○
	MMS prepared	—	—	○	○
	Data transmission, Bluetooth	—	—	○	○
	Data transmission, GPRS	—	—	○	○
Battery system	Hydraulic function for STILL tugger train elements - control using contact switches	—	—	○	—
	Hydraulic function for STILL tugger train elements - operation by switch	—	—	○	—
	Battery compartment for 200 Ah, craneable	●	●	—	—
	Battery compartment for 200 Ah, lateral change	○	○	—	—
	Battery compartment for 345-465 Ah, craneable	—	—	●	●
	Battery compartment for 345-465 Ah, lateral change	—	—	○	○
	Battery compartment for 560-620 Ah, craneable	—	—	○	○
	Battery compartment for 560-620 Ah, lateral change	—	—	○	○
	Battery compartment Li-Ion battery 205-410 Ah	—	—	○	○
	Adapter tray for alternative batteries	—	—	○	○
Frame	On-board charger	○	○	○	○
	Ground clearance 40 mm	●	○	—	—
	Ground clearance 70 mm	—	—	●	—
	Ground clearance 80 mm	○	●	—	—
	Ground clearance 100 mm	—	—	○	●
	Rubber protection, bottom	—	—	○	○
	Steel guard, low	—	—	○	○
	Steel guard, high	—	—	○	○
	Steel guard and rubber protection, low	—	—	○	○
Safety	FleetManager: shock detection, reports	—	—	○	○
	Rear view mirror	○	○	○	○
	Warning signal when reversing	○	○	○	○
	Flashlight	○	○	○	○
	Safety Light/Safety Light 4Plus front	—	—	○	○
	LED daytime running lights	○	○	○	○
	Key access	●	●	●	●
Tyres	PIN code access	—	—	○	○
	FleetManager access	—	—	○	○
	Super elastic tyres, load side	●	●	●	●
	Super elastic tyres, non marking, load side	○	○	—	—
	Solid rubber tyres, load side	○	○	—	—
	Solid rubber tyres, non marking, load side	○	○	○	○
	Polyurethane tyres, load side	—	—	○	○
	Solid rubber drive wheel	●	●	●	●
	Solid rubber drive wheel, treaded	—	—	○	○
	Solid rubber drive wheel, non marking	○	○	—	—
Drive	Polyurethane drive wheel	○	○	○	○
	Polyurethane drive wheel, treaded	—	—	○	○
	Super elastic drive wheel	—	—	—	—
	Maintenance-free three-phase drive motor	●	●	●	●
	Fully encapsulated dirt and dust proof components	●	●	●	●
Trailer coupling for STILL tugger trains	One-stage trailer coupling	●	●	○	○
	Three-stage trailer coupling	○	○	●	—
	Rockinger coupling	—	—	○	○

● Standard ○ Optional — Not available



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STILL is certified in the following areas: Quality management, occupational safety, environmental protection and energy management.

