

Original operating instructions

Electric lifter - KetLift4Box

Item no. 4001.00-xxxx

KET-LIFT 4BOX



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1 Introduction

1.1 Content

These operating instructions describe the safe use of the electric lifter Ket-Lift4Box. It contains important safety instructions that must be observed.

The operating instructions must be made available to all persons who work on and with the KetLift4Box.

The operating instructions must always be complete and in a clearly readable condition.



Please read these operating instructions carefully and observe the safety instructions!

Depending on the design or modification status of the product, differences may occur compared to these operating instructions.

1.2 Other applicable documents

- Operating instructions Automatic sensors

1.3 Scope

- These operating instructions apply to the electric lifting device "KetLift4Box" with item number 4001.00-xxxx.

1.4 Conformity and directives

The KetLift4Box complies with the following EC directives:

- 2006/42/EC (MRL)
- 2011/65/EU (RoHS)
- 2014/30/EU (EMV)*

1.5 Warnings and symbols used

In these assembly instructions, the following danger levels are used, which include the possible dangerous situations and important safety instructions:



DANGER!

Dangerous situation resulting in death.



WARNING!

Potentially dangerous situation resulting in death or serious, irreversible injuries.



CAUTION!

Dangerous situation with minor or moderate injuries.



INFO!

Possible harmful situation with damage to the product or the environment.

2 Safety



Read the safety instructions and information on safe handling in these assembly instructions carefully before starting work.

Keep these operating instructions in a safe place and pass them on to others if necessary.

It is very important for your safety that you understand and follow all the safety information.

Non-observance of the safety instructions can lead to danger to the life and health of persons and to considerable damage to property.

2.1 Personnel - qualification and obligations



Information:

Authorized and qualified persons may only perform all handling activities with the KetLift4Box.

The competent and qualified persons must:

- ... be familiar with the applicable accident prevention regulations and safety instructions in the technical documentation and be able to apply them.
- ... have been trained and instructed in accordance with the rules of behaviour in the event of a malfunction.
- ... have the physical and mental capabilities to handle the KetLift4Box safely.

2.2 Obligations of the operator

Every person who works with the KetLift4Box has a responsibility for their own safety and health:

- Make sure that only authorized and qualified persons handle the KetLift4Box!
- Avoid unsafe and dangerous work with and on the KetLift4Box.
- Report all safety issues when handling the KetLift4Box to a supervisor immediately.
- Have maintenance and safety checks performed only by qualified persons or the manufacturer.

2.3 General safety instructions

Observe the following general safety instructions during all activities using the KetLift4Box:



DANGER!

Risk of electric shock due to damaged live electrical equipment.

- Do not perform any activities if the electrical equipment is damaged.



DANGER!

Electrical hazard due to liquids entering the KetLift4Box.

- Avoid liquids getting into the KetLift4Box.



WARNING!

Danger of being pulled in, caught or gripped by the rotary motion of the spindle drive system.

- Do not interfere with moving parts during operation.



WARNING!

Danger of parts falling over or down.

- Ensure that the KetLift4Box is standing stable.
- For 200 kg loads, we recommend fixing the base plate to the floor.
- Make sure that the load has a tight fit on the forks.
- Do not use the device as a hand truck / pallet truck.



WARNING!

Risk of crushing and impact due to the lifting movement.

- Make sure that there are no living beings or objects in the danger zone of the KetLift4Box.



WARNING!

Risk of breakage due to incorrect installation or non-observance of the operating data.

- Observe all safety instructions and information in these operating instructions during installation, start-up and operation.



WARNING!

Danger from a falling load in case of incorrect attachment.

- Observe all instructions for securely loading the KetLift4Box.



WARNING!

Danger from uncontrolled movements due to dirty automatic sensors.

- Keep the automatic sensors clean.
- Check the switching function of the sensors before each use.



CAUTION!

Risk of cut injuries from dangerous surfaces.

- Wear suitable protective gloves.



CAUTION!

Risk of tripping and falling due to the base plate and the transport rollers.

- Pay attention to the risk of tripping due to the step on the base plate and the transport rollers.



Emergency stop

- There is an emergency stop on the lifting column and on the hand switch. In dangerous situations, press one of the two buttons immediately.
- After pressing the emergency stop button on the hand switch, the movement of the KetLift4Box is stopped immediately. Please note that the KetLift4Box is **NOT** electrically released.
- After pressing the emergency stop button on the lifting column, the movement is stopped and the KetLift4Box is electrically released. Please note, that there may be residual voltage in the system for up to 5 minutes.
- Before resetting the emergency stop button, the reason for the hazardous situation must be eliminated.
- To reset the emergency stop button, turn the actuator on the hand switch to the left or right until it pops back. The actuator on the lifting column is unlocked by pulling it back.

Automatic sensors



- Do not look directly into the sensors!
- Keep the automatic sensors clean.
- Contamination can cause incorrect signals and therefore uncontrolled movements.
- Check the switching behavior before each use, see chapter "Maintenance"
- Please observe the operating instructions of the manufacturer included within the scope of delivery!

Safety zone

- The safety zone is located from the floor to a height of 120 mm above the base plate.
- The safety zone can only be entered in manual mode.



Avoid ingress of liquids

- When cleaning the location of the KetLift4Box, prevent liquids from getting into the casing.
- The guide and spindle drive system as well as the hand-held control unit can be damaged by liquids entering them.
- If liquids enter electrical equipment, there is a risk of an electrical short circuit or malfunction.



2.4 Use

2.4.1 Intended use

The electrically powered box lifting device KetLift4Box is designed to lift loads of up to 200 kg to an ergonomic working height using its integrated motorized spindle drive system. The dimensions of the load, preferably in the form of boxes, crates or similar containers, must be suitable for the load handling device. Other loads must be designed in such a way that they sit securely on the forks and cannot slip. The loads can be moved manually or automatically in sensor mode. No persons or animals may be moved. The KetLift4Box is intended for indoor industrial use.

2.4.2 Foreseeable misuse

Ketterer is not liable for damage to property, personal injury or possible consequential damage in the event of misuse.

Misuse can be:

- Disregard of the permitted operating data and instructions for use.
- Use in outdoor areas.
- Disregard of the installation instructions.
- Lifting and lowering living beings (e.g. persons or animals).
- Operation within the danger zone.
- Use as a hand truck / pallet truck.

2.5 Residual risks

Despite all actions taken to integrate safety in the design, the safety devices and the supplementary safety instructions, residual risks cannot be completely eliminated.

You can reduce residual risks by observing the safety instructions and the intended use.

Residual risks can be:

- Risk of cuts on dangerous surfaces.
- Risk of tripping and falling due to the base plate and the transport rollers.
- Risk of crushing or impact due to the lifting motion.
- Danger due to uncontrolled movements of the KetLift4Box due to overloading.
- Danger due to lack of maintenance or failure to carry out maintenance work as well as mechanical and electrical inspections.
- Danger from unsecured loads due to incorrect loading.

3 Product information

3.1 Description of the KetLift4Box



The KetLift4Box consists of a powerful electric spindle drive system that can lift loads weighing up to 200 kg to an ergonomic and safe working height.

Standard scope of delivery:

- 1 lifting column with:
 - Hand switch control unit
 - Base plate
 - Transport rollers

Accessories:

- Fork with steel tines in standard version
- Fork with steel tines in customized design

3.2 Technical data / operating conditions

<i>Variant</i>	<i>QUICK</i>	<i>STRONG</i>
Dimensions lifting column (l / w / h)	150 mm x 160 mm x 1215 mm	
Dimensions base plate (l / w / h)	560 mm / 640 mm / 20 mm	
Tare weight	60 kg	65 kg
Maximum loads	100 kg	200 kg
Max. travel	approx. 815 mm	
Minimum height	approx. 115 mm	
Maximum height	approx. 925 mm	
Maximum lifting speed	20 mm/s	10 mm/s
Operating mode	Jog mode or automatic mode	
Duty cycle	1 minute ON / 5 minutes OFF	
Temperature range	+ 5°C up to + 40°C	
Humidity	max. 90% rF 20°C	
Supply voltage	230 V AC; 1 L, N, PE; 50 Hz	
Protection class	IP 00	
Mains cable	Protective contact connection cable	

4 Transport / Unpacking / Storage



Observe the general safety instructions (2.3)!



Danger from falling or tipping parts.

- Do not stand under suspended loads.
- secure the KetLift4Box with a second person when unpacking.

WARNING!

Transport:

- During transport, the KetLift4Box must be protected from dust, shocks and moisture.
- Keep the KetLift4Box within the temperature range of - 25°C to + 55°C during transport.
- Lift heavy parts only with the help of a second person or use a suitable lifting device.
- Never lift the KetLift4Box by the lifting forks.
- Remove or secure all moving parts before moving the KetLift4Box.
- To move the KetLift4Box, hold it by the two handles.
Note: Tilting the KetLift4Box during moving produces a force of approx. 20 kg.
- Do not use the device as a hand truck / pallet truck.

Unpacking:

General instructions:

- Do not use sharp objects to remove the packaging.
- Remove all packaging components completely.
- Dispose of all packaging components in accordance with the disposal regulations applicable in the country of use.

Storage:

- Protect the KetLift4Box from dust, shock and moisture during storage.
- Maintain the temperature range - 15°C to + 70°C and the humidity of max. 70 % rH during storage.

5 Installation and electrical connection



Observe the general safety instructions (2.3)!

Danger of electric shock due to incorrect installation or damage to live electrical equipment.

- Carry out the mechanical assembly before the electrical connection.
- Check all electrical equipment for damage before the electrical connection.
- Before the electrical connection, check whether the voltage supply is suitable and protected by a differential current circuit breaker (RCD) with a rated current of 30 mA.



DANGER!

Danger of falling objects.

- Do not stay in the danger zone of loads.
- Always lift heavy components with a second person or with suitable lifting equipment.
- Observe the assembly instructions.
- Use suitable personal protective equipment such as protective gloves and safety shoes during assembly.



WARNING!

Preparatory activities:

- Inspect the KetLift4Box for damage to the exterior of the mechanical and electrical components.
- Remove all packaging components.
- Select a firm, stable and level surface for the KetLift4Box.

5.1 Setting up the KetLift4Box

- Select an installation place with a level, solid surface.

5.1.1 Bolting the base plate

The base plate should be bolted to the substrate to further increase stability (recommended for 200 kg load):

- Select an installation place with level, non-cracked concrete floor and suitable bolt anchors.
- Before drilling, be sure to double-check the correct dimensions of the marked drilling pattern using the drawing in the annex.

5.2 Electrical installation



- Only carry out the electrical connection when the device is not loaded.
- Before connection, check that the mains voltage complies with the manufacturer's specifications.
- Make sure that fuses and a residual current circuit breaker (RCD) with a rated residual current of 30 mA protect the power supply.
- Plug the power supply cable into a suitable socket.



- Plug the automatic sensors "S1" and "S2" into the sockets on the lifting column according to their labeling.
- Make sure that you do not damage the pins when plugging them in.
- Tighten the screw connection of the sensor plug hand-tight.
- Make sure that the sensor cables are not pinched or damaged.

6 Initial Start-up



Observe the general safety instructions (2.3)!



Danger due to incorrect assembly or function.

- Do not stay in the danger zone of the KetLift4Box.
- Carry out an unloaded cycle for initial start-up.

WARNING!

Initial start-up activities:

- Before initial start-up, make sure that all mechanical and electrical installation work has been carried out correctly.
- Before initial start-up, check that all packaging components have been removed.

For initial start-up, perform a complete lifting motion without a load in manual mode and test both emergency stops for correct function:



- Set the main switch to "EIN".
- Press the "ON" button on the hand switch.
- Press the "MANUAL" button on the hand switch for manual operation.
- Carry out a function test by moving to the lowest position by pressing the Down "↓" button. The control unit recognizes the end position by moving to the limit switch.
- Then move the hand-held pendant to the top position by pressing the Up button "↑".
- The lifting movement is stopped automatically when the upper end position is reached.
- Check the function of the emergency stop buttons. After pressing the emergency stop, the KetLift4Box must not be able to be moved.
- If one of the emergency stops is not working, cancel the initial start-up and contact the manufacturer.

7 Operation



Observe the general safety instructions (2.3)!

The following operating are part of the KetLift4Box:

- Moving in manual mode

The KetLift4Box is moved up or down in manual mode, loaded or unloaded, using the hand switch.

- Moving in automatic mode

The KetLift4Box is moved up or down via the sensors in automatic mode, loaded or unloaded.

- Holding mode

- The KetLift4Box is switched on and ready for operation, but only holds the load in one position and does not move.

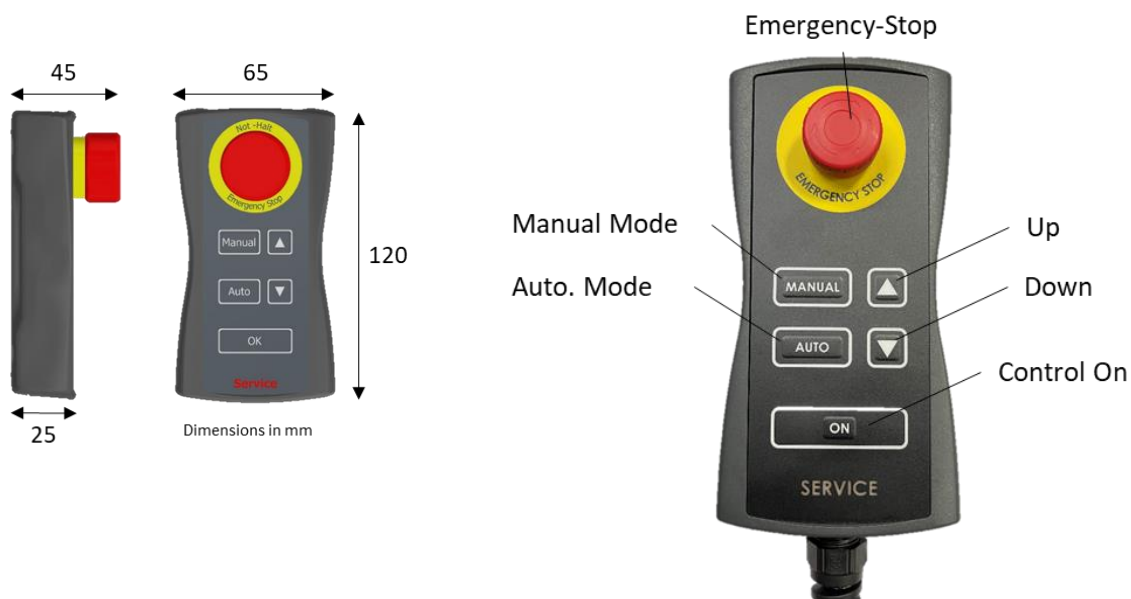
7.1 Danger zone of the KetLift4Box

- The danger zone applies to all operating modes.
- Define a suitable danger zone around the KetLift4Box. This depends on the environment of the installation site. Mark the danger area with suitable tools.
- The danger zone around the KetLift4Box should be large enough to ensure that no persons or objects can be damaged during operation. Define the danger zone so that no crushing, impact or shearing points can occur.
- No persons or objects may be present in the danger zone during operation.
- Observe the minimum distances for avoiding crushing of body parts in DIN EN ISO 13854.
- In an emergency, immediately press one of the emergency stops. Observe the notes on the emergency stops in chapter 2.3.

7.2 Loading the KetLift4Box

- Only load the KetLift4Box with suitable loads. Preferably standard KLT boxes.
- The load must sit securely on the forks; it must not slide, tip or shake.
- Do not exceed the maximum permissible load of the KetLift4Box.

7.3 Hand switch



- You can attach the hand switch to the housing of the KetLift4Box using the integrated magnetic holder. Make sure that the cable is not damaged.

7.4 Operation in manual mode



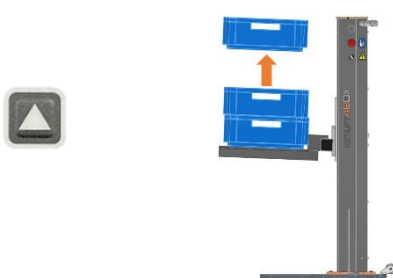
- Set the main switch to "EIN".
 - Press the "ON" button on the hand switch.
- Press the "MANUAL" button on the hand switch.
- Move up or down by holding the Up "↑" or Down "↓" button on the hand switch. The movement stops when the button is released.

7.5 Operation in automatic mode



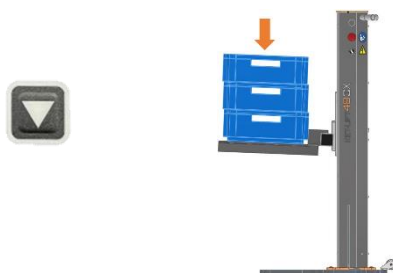
- Adjust the sensors to your desired working height by loosening the knurled screws.
- Set the main switch to "EIN".
- Press the "ON" button on the hand switch.
- Press the "AUTO" button to select the automatic modes. The "↑", "↓" and "AUTO" buttons light up.

The following modes are available:



Semi-automatic - Destacking

- Activate mode using the Down button "↓".
- The KetLift4Box automatically moves up to sensor height when a load is removed. When the upper end position is reached, the control unit switches to manual mode.



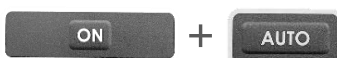
Semi-automatic - Stacking

- Activate mode using the "↑" button.
- The KetLift4Box automatically moves down to sensor height when a load is placed on top. When the lower limit switch reaches the safety height of 120 mm, the control unit switches to manual mode. It can only be moved further down in manual mode.



Fully automatic - Automatic Stacking and Destacking

- Activate mode via the "AUTO" button.
- The KetLift4Box automatically moves up to sensor height when a load is removed and automatically moves down to sensor height when a load is added. The change between stacking and destacking is recognized automatically. When the upper or lower limit switch is reached, the control unit switches to manual mode.



Set-down mode

- Activate mode by pressing the "ON" + "AUTO" buttons simultaneously.
- The KetLift4Box moves down to a height of 120 mm to the safety zone. The movement can be stopped with the Up "↑", Down "↓" or "MANUAL" button.

8 Maintenance



Observe the general safety instructions (2.3)!



DANGER!

Risk of electric shock from live electrical equipment.

- All electrical tests and maintenance may only be performed by a qualified electrician in accordance with generally accepted electrical engineering standards.



WARNING!

Danger of unexpected start-up due to unauthorized restart during maintenance.

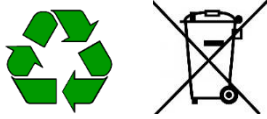
- Secure the KetLift4Box against unauthorized restarting.

Notes on maintenance:

- Qualified and trained persons may only carry out maintenance work.

Subject	Periods	Inspections
Lifting column / hand switch	Before any use	Check for visible damage and correct function.
Automatic-Sensors	Before any use	Check the automatic sensors before each use. Perform the test in manual mode: Test the sensor switching by holding your hand in front of the sensor at a distance of approx. 10 cm. If the sensor switches correctly, the signal light on the sensor lights up.
Mains cable	Before any installation	Check for visible damage to the cable and strain relief.
End position	Every 3 months	Load free test! Approaching the safety zone: Switch-Off at approx. 120 mm height. Approaching the lower end position: Switch-off at approx. 100 mm. Approaching the upper end position: Switch-off at approx. 1.100 mm.
Emergency-Stop	Every 3 months	Load free test! Check of the function of the emergency stop button by actuation and unlocking.
Electrical equipment Ordinance on Industrial Safety and Health	Observe the regulations on the operation of electrical equipment in the country of use.	

9 Disposal



For efficient and resource-saving recycling, remove the following components before disposal and dispose of them in the best possible way:

- Base plate

The disposal of the KetLift4Box (mechanical and electrical machine parts, operating materials) is subject to the local disposal regulations and the environmental protection laws in the country of use.

Do not dispose any components of the KetLift4Box with household waste.

10 Service / Repair



In case of service, repair or spare part orders, please contact the manufacturer:



B. Ketterer Söhne GmbH & Co. KG

Bahnhofstraße 20

78120 Furtwangen / Germany

Phone: +49(0)77 23 / 6569 - 10

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Internet: www.ketterer.de

11 Troubleshooting



Observe the general safety instructions (2.3)!



DANGER!

Risk of electric shock due to live electrical equipment.

- Have all electrical maintenance and tests performed by a qualified electrician only.

Malfunction	Possible cause	Possible Solution
KetLift4Box cannot be moved	Voltage supply missing	Connect and check power supply
	Emergency stop activated	Reset emergency stop
	Fuse in the Power distribution has triggered	Maintenance by a qualified electrician
	Mains cable is damaged	Maintenance by a qualified electrician
	Mechanical blockage	Switch off, de-energize, remove mechanical blockage
	Mains voltage missing	Check mains voltage, restore power supply
	Motor is too hot e.g. duty cycle exceeded	Allow motor to cool down
Motor runs but the spindle does not move	Gear wheel or spindle damaged	Send KetLift4Box for repair
KetLift4Box cannot lift the full load (120 kg)	Power supply damaged	Have mains power supply checked
	Motor damaged	Send KetLift4Box for repair
Motor runs too slowly or not with full power	Power supply damaged	Have power supply checked



For all other malfunctions, please contact the manufacturer:

B. Ketterer Söhne GmbH & Co. KG
 Bahnhofstraße 20
 78120 Furtwangen

Phone: +49(0)77 23 / 6569 – 10

E-Mail: info@ketterer.de

Please have the following information ready:

- Nameplate data
- Type and extent of malfunction

12 Annex

- **Drilling pattern of the base plate**

Use this drawing of the base plate to check your marked drilling pattern (drawing not true to scale).

