PLANETA
Hoists and winches since 1861

EN: Translated version of the original instructions

Monorail-combination trolley

LHT-H (500 - 10.000) kg
LHT-G (500 - 20.000) kg

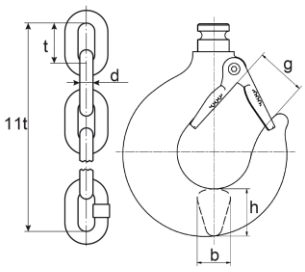
Dear customer,
Thank you for purchasing our device. We appreciate your trust in our brand and hope that you are satisfied with your purchase. We are happy to help in the case of questions or problems. Enjoy your new device!

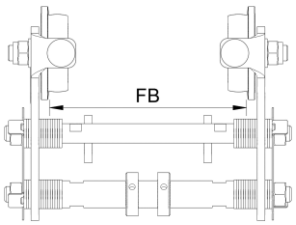
Please read these instructions carefully before use and keep them in a safe place.

Please note the serial number and flange width before initial use.

serial number: _____

lower hook:
g=_____ mm
b=_____ mm
h=_____ mm
load chain:
d=_____ mm
t=_____ mm
11t=_____ mm
flange width:
FB= mm





first edition 08-2024 (Version 1)
PLANETA-Hebetechnik GmbH
Resser Str. 17 | 44653 Herne | Germany

LEEA Full Member · GKS RAL Gütezeichen Kranservice · TÜVRheinland Zertifiziert · Management System ISO 9001:2015 ISO 14001:2015 SCC**:2011 · www.tuv.com ID 9105039001 · 22 PAP

Table of contents

1 Introduction

1.1 General information

Read these instructions carefully before use and keep them in a safe place.

These instructions provide information on proper commissioning, intended use and safe and efficient operation and maintenance. The operating instructions are an integral part of the product. The illustrations shown in these operating instructions are for basic understanding and may differ from the actual design.

Fitters, operators and maintenance personnel must observe in particular the operating instructions and the documentation provided by the employers' liability insurance association.

Please observe their local regulations and rules. Information on safety, installation, operation, testing and maintenance from these operating instructions must be made available to the appropriate persons. Make sure that these operating instructions are available in close proximity to the product during the period of use of the product.

1.2 Information on the manufacturer

Name:	PLANETA-Hebetechnik GmbH	E-Mail:	info@planeta-hebetechnik.de
Addresse:	Resser Str. 17 | 44653 Herne | Germany	Phone:	49-(0)-2325-9580-0

1.3 CE declaration and declaration of incorporation

A ready-to-use machine with all its associated safety devices has a CE declaration of conformity and is labelled with a CE mark. Incomplete machines are supplied without a CE mark and only contain a Declaration of Incorporation in accordance with the current Machinery Directive.

1.4 Copyright

1.5 Warranty

The warranty is contractually regulated (see General Terms and Conditions or contract).
Warranty and liability claims for personal injury and damage to property are excluded if these are due to one or more of the following causes:

- Improper use of the device.
- Improper operation and maintenance of the device and improper commissioning.
- Failure to follow the instructions in the operating instructions.
- Unauthorized structural changes to the device.
- Disasters caused by foreign bodies and force majeure.
- Inadequate monitoring of equipment parts that are subject to wear and tear.
- Improperly performed repairs.
- Wear parts are not covered by liability for defects.
- We reserve the right to make technical changes to the device in the context of improving the performance characteristics and further development.

1.6 Definitions

For the purposes of this document

Qualified professional:	A qualified professional is a person who has specific knowledge, skills and experience in a particular field. These professionals usually have formal training or relevant work experience that qualifies them for their job. They are able to perform complex tasks independently and responsibly and bring a high level of expertise to the job. Qualified professionals are employed in various fields such as engineering, medicine, IT, crafts, education, management and many others.
Competent person:	Qualified persons for testing are persons who have the required specialist knowledge due to their technical training, knowledge and experience as well as their recent professional activity. The exact requirements for qualification are specified in the relevant regulations and codes of practice. As a rule, these are specialists for occupational safety, experts for the inspection of work equipment or persons with comparable qualifications. However, the exact qualification and competence depends on the type and scope of the inspection. It is important to ensure that the person appointed has the necessary expertise and can carry out the inspection properly.
Expert:	An expert is a "recognised competent person" who, due to his professional training and experience, has knowledge in the field of the work equipment to be tested and is familiar with the relevant state occupational health and safety regulations, regulations of the employers' liability insurance association and generally recognised rules of technology. This competent person must regularly inspect and assess work equipment of the appropriate design and regulations. This qualification is granted by approved inspection bodies.
Electronic specialist:	An electronic specialist is a person who has specific knowledge and skills in the field of electronics. He is able to install, maintain and repair electronic equipment.
Hoist:	Hoist is the generic term for all equipment used to move or lift weights (loads).
Device:	A device is a technical appliance or machine designed to perform a specific function or task. It can be operated electronically, mechanically or manually and consists of various components that work together to achieve the desired result.
Crane:	A crane is a lifting device that can lift loads with a load-bearing device and also move them in one or more directions.
Lifting equipment:	Lifting equipment is equipment that is permanently attached to the hoist, e.g. ropes, chains, lifting beams, grabs, crane hooks, tongs. They are permanently installed in the hoist and are used to take up slings, load handling attachments or loads.

2 Safety

2.1 Safety information

Most accidents when handling technical equipment are due to disregard of basic safety rules. Recognising a possible hazard can prevent an accident before it occurs.

Disregarding the safety instructions can result in death or serious injury. As the manufacturer of the appliance, we cannot foresee all possible circumstances that may contain potential hazards. Consequently, the safety instructions in this manual are not all-inclusive.

The appliance must not be used in any way that deviates from the considerations in this manual. All applicable safety regulations and protective measures at the place of use must be observed, including site-related regulations and protective measures at the workplace.

Information, descriptions and illustrations in this manual are based on information available at the time of writing.

2.2 Regulations and directives

Please take into account the current rules and regulations in your country. The guidelines listed here may not apply to every single device or machine.

Table 1 European directives & regulations

European directives & regulations	
Regulation-2023/1230 EU L165/1	Machinery Product Ordinance
Directive- 2014/34/EU L 96/309	ATEX-Directive**
Directive-2014/53/EU 02014L0053	Funkanalgen-Directive*
Directive-2014/30/EU	EMV-Directive*
Directive-2012/19/EU L197/38	WEEE-Directive*
Directive-94/62/EG 01994L0062	Packaging -Directive
Directive-2011-65/EU L174/88	RoHS-Directive*
Regulation-1907/2006 L136/3	REACH-Regulation

*These listed directives only apply to motor-driven devices or those equipped with an RFID chip.
** These listed directives only apply to equipment used in potentially explosive atmospheres.

2.3 Personal protective equipment

Appropriate work clothing must be worn for each task.
For safety reasons, operators and other persons in the immediate vicinity of the machine must wear personal protective equipment (PPE). There are different types of protective equipment that must be selected according to the requirements of the working environment. The chapter "Symbols, command signs and signal words" lists the Personal Protective Equipment that must be worn as a minimum.

2.4 Duties of care and requirements

The requirements for safeguarding safety and health have been met. However, this safety can only be achieved in operational practice if all necessary measures are taken. The operator of the device must plan these measures and control their execution. The operator is responsible for safe operation. The operator must ensure that the operating and maintenance personnel are instructed in good time before any work is carried out with or on the equipment. Due to the risk of injury caused by e.g. getting caught or pulling in, these personnel are not allowed to wear loose clothing, open long hair or jewelry, nor rings. Persons under the influence of drugs, alcohol or drugs that affect their ability to react must not carry out any work with or on the product. The user must have the necessary instruction and experience, as well as any necessary tools, to be able to carry out work on and with the device. Personnel to be trained may only work on the component under the supervision of an experienced person. The user must also have sufficient physical and mental abilities.

It is essential to follow the safety instructions for the device, as failure to do so can result in serious injury or even death. As a manufacturer, we cannot anticipate all potential hazards, so the safety instructions in this guide are not all-encompassing. No work may be carried out if the relevant information has not been read and understood. The user is responsible for ensuring the safety of himself and others in the event of deviations from the work equipment, actions, working methods or working techniques suggested by the manufacturer.

2.5 Intended and non-intended uses

2.5.1 Intended uses

A monorail hoist equipped with an integrated pulley is a special type of hand-operated crane used in industrial, commercial and construction applications. This device is intended for lifting, lowering and moving loads horizontally along a steel beam. The intended use of such a device can be described in detail as follows.

The monorail hoisting chassis is a specialized lifting and transportation system that is mainly used to move and lift loads along a single steel beam safely and precisely. It is equipped with an integrated pulley that allows for controlled lifting and lowering of loads and is secured by a brake to prevent accidental lowering. Thanks to its compact design, the monorail hoist is particularly suitable for use in confined working environments where larger crane systems would be impractical. The simple, hand-operated operation requires no special training and allows intuitive use, while the robust design ensures a long service life and low maintenance requirements. Its high adaptability allows it to be mounted on different rails or beams, which means that it can be used flexibly in a wide variety of working environments. Especially in rooms with low ceilings, the lifting chassis offers an efficient solution, as the available space is used optimally.

Summary in bullet points:

- Function: Moves and lifts loads along a steel beam, equipped with an integrated pulley.
- Safety: Braking system prevents unintentional lowering of loads.
- Compact design: Ideal for confined working environments where larger crane systems cannot be used.
- Easy Operation: Manually operated, requires no special training, intuitive use.
- Robust and durable: Designed for daily use in industrial environments, low maintenance requirements.
- Adaptable: Mounting on different rails or beams possible, suitable for interiors, workshops, machine environments.
- Efficient use of space: Particularly suitable for low ceiling heights, as height gain is maximised by the pulley.

It is the responsibility of the user or operator to ensure that the monorail hoist is used in accordance with the applicable regulations and standards. Improper or improper use can pose an increased risk of accidents and damage. Therefore, the monorail hoist landing gear should only be used for its intended purposes and within its load capacity and specification limits. It is recommended to contact recognized professionals or experts in crane and lifting technology for accurate information and advice that complies with local regulations.

2.5.2 Non-intendend uses

Uses that are contrary to their intended purpose are those in which the above-mentioned device is not used in accordance with the intended conditions of use and safety regulations. These include, but are not limited to:

- Overload: Do not lift loads that exceed the maximum load weight specified by the manufacturer.
- Improper fastening of the load: use of the above-mentioned device without proper fastening of the load, which can lead to an increased risk of accidents.
- Improper load handling: Use of unsuitable or damaged slings for load handling.
- Careless operation: Careless or improper operation of the lifting chassis, e.g. without prior control of the environment.
- Inclined lifting: Lifting loads with an inclined sling or with non-centred load pick-up.
- Use in an environment with explosive or flammable materials: The above equipment without a specification change must not be used in areas where explosive or flammable materials are present, as this can lead to dangerous situations.
- Use in an environment with strong vibration or shock: The above device should not be used in environments with strong vibration or shock, as this may cause damage to the device.
- Use in an environment with harsh chemicals: The above equipment must not be used in areas where harsh chemicals are present, as this may cause corrosion and damage to the equipment.
- Improper maintenance and inspection: Neglecting regular maintenance and inspection of the above equipment can lead to malfunctions and safety risks.
- Use without proper training and qualification: Persons operating the above equipment must have the necessary training and qualifications to ensure that it is used properly.
- Use without proper monitoring during operation: The above device must be constantly monitored during operation to ensure that it is working properly and does not show any signs of wear or damage.
- Use without appropriate safety distances from other work areas or obstacles: The above equipment should always be used at a sufficient distance from other work areas or obstacles to avoid collisions or other accidents.
- Use without proper safety precautions: The above equipment should always be used with the necessary safety precautions in mind, such as wearing personal protective equipment or setting up barriers in the work environment.
- Use without adequate protection against accidental fall of the load: The above-mentioned device must always be equipped with appropriate safety devices to prevent the load from falling unintentionally.
- Tampering or Modifications: Any manipulation or modification of the above device without the manufacturer's permission may result in safety issues and void the warranty.
- Use for passenger transport: The above-mentioned device is not designed for the transport of passengers and must therefore not be used for this purpose.
- Use without proper verification of the load-bearing capacity of the suspension point: Before using the above-mentioned device, it should always be checked whether the suspension point can safely support the load.

Please note that the above examples of improper use of the above-mentioned device are only excerpts and do not fully cover all possible scenarios. They are only intended as a guide to give you an overview of potential risks. It is important to emphasize that the responsibility for the safe use of the above-mentioned equipment lies with the user or operator.

2.6 Symbols, Bid Signs, and Signal Words

This instruction manual contains a large number of mandatory and warning signs that are intended to provide the user with important information and instructions. These signs are used to identify potential hazards and take appropriate precautions. However, it is important to note that not all characters contained in this instruction manual may be accurate or significant. The use of certain signs depends on various factors, such as the specific model, application or local regulations. It is therefore imperative that the user reads the instructions carefully and identifies the relevant signs that apply to their specific situation. It is recommended to contact the manufacturer or authorized professionals in case of ambiguity for a correct interpretation of the signs. Please note that this owner's manual may not cover all possible hazards or situations. It is the User's responsibility to assess their environment and take appropriate measures to ensure their own safety and the safety of others.

Information
This icon indicates important information.

Danger
This symbol warns of an imminent danger to the health and life of people. Ignoring such a warning will result in serious injury, possibly fatal.

Warning
This symbol warns of situations that can potentially endanger people's health and lives. Ignoring such a warning can lead to serious injury, possibly resulting in death.

Suspended load warning
It is forbidden to be under a suspended and/or moving load. This is life-threatening!

Warning of entrapment
Risk of entrapment and cuts on hands and fingers, legs and other limbs. Sufficient personal protective equipment must be worn.

Warning of counter-rotating rollers
There is a considerable danger due to the risk of pulling in rotating parts. Objects such as clothing or body parts can be severely damaged or injured.

Warning of obstacles on the ground
Pay attention to surrounding objects or machine parts on the ground, as there is a risk that you could trip or slip.

Warning of sudden loud noise
Watch out for sudden loud noises, as they could affect your hearing. Protective measures such as wearing hearing protection may be necessary to prevent hearing damage.

Warning of skin-incompatible or corrosive substances
Attention, there is a risk of skin irritating or injurious substances. Therefore, it is necessary to wear appropriate workwear.

Warning about electricity
Only experienced electricians and competent persons may open enclosures and shields marked with this symbol. Before commissioning, all cables must be connected according to the instructions and without damage and the entire system must be able to be switched off with the main switch.

Explosive Atmosphere Warning
Warning of an area where explosive atmospheres may occur.

Use head protection
This sign indicates that a safety helmet must be worn in a certain area. This can be the case, for example, on construction sites or in factories.

Use handguards
This mandatory sign indicates that gloves should be worn in a certain area to ensure protection.

Use protective clothing
This sign indicates that protective clothing must be worn in a certain area. This can be the case, for example, on construction sites or in factories.

Wear hearing protection
This sign indicates that hearing protection must be worn in a certain area to minimize the risk of hearing damage.

Use foot protection
This sign indicates that safety shoes must be worn in a certain area. This can be the case, for example, on construction sites or in factories.

2.7 Hazards according to DIN EN ISO 12100

The following hazards may occur when handling the device.
Please note that the following types of hazards and examples of how to use the device are only excerpts and do not fully cover all possible scenarios. They are only intended as a guide to give you an overview of potential risks. It is important to emphasize that the responsibility for the safe use of the above-mentioned devices lies with the user or operator.

2.7.1 Mechanical hazards

Various mechanical hazards can occur when handling stationary combination monorails. Here are some examples:

- Crushing and shearing hazards: Body parts can become trapped between moving parts of the crane (e.g. between the load and solid objects or between the trolley and the hoist). Crushing can also occur on the lifting or walking mechanisms, especially if sufficient distance is not observed.
- Impact hazards: Moving parts, such as the trolley or the load, can be moved at high speed and bump into people.
- Risk of falling: If the device is not properly mounted or is overloaded, there may be a risk that the device will detach from the carrier and fall, which can lead to injury.
- Risk of tripping, slipping and crushing: If the struck load is not carried out by means of a "pushing movement", it can happen that the user stumbles or falls over objects lying around. If the user is also moving backwards, it can happen that the user is either run over or trapped by the load.
- Overload hazard: If a monorail is loaded beyond its maximum load capacity, there is a risk of breakage or damage to the device, which can lead to accidents.
- Uncontrolled movements: If the device is not properly controlled or technical defects occur, uncontrolled movements can occur, which can lead to accidents.
- Risk of tipping: If the load is not evenly distributed or the monorail is operated improperly, it can tip over and endanger people nearby.
- Lack of maintenance: If monorails are not regularly maintained and checked, signs of wear and tear can occur, which can lead to equipment failure and thus pose a hazard.

2.7.1 Material and/or substantial hazards

Various mechanical hazards can occur when handling stationary combination monorails. Here are some examples:

- Hazardous or toxic substances: When handling the equipment, loads containing hazardous or toxic substances may be transported. If these substances leak or are released, there is a risk of injury or poisoning to people nearby.
- Explosive materials: Transporting explosive materials with the device can pose a significant hazard. Improper handling or accidental dropping of such loads can lead to explosions and endanger both people and property.
- Heavy or unstable material: Handling heavy or unstable material can lead to increased danger. For example, if a heavy load is not lifted properly or shifts during transport, it can cause accidents and injure people.
- Chemical hazards: Contact with certain chemicals or aggressive cleaning agents can attack or damage the material.
- Material fatigue: Repetitive stress can cause fatigue and associated structural weaknesses.
- Corrosion: Moisture and aggressive environments can lead to corrosion and thus material weakening.
- Wear and tear: Mechanical stress can cause wear and tear that can affect the performance and safety of the device.
- Material defects: Manufacturing defects or material defects can cause unexpected failures.

2.7.2 Acoustic hazards

When handling combination monorails in conjunction with hoists, various hazards can arise due to acoustic noise. Here are some examples:

- Hearing damage: The operation of lifting equipment can result in significant noise pollution that can damage hearing. Long-term exposure to high noise levels can lead to permanent hearing damage.
- Communication difficulties: Due to the loud noise level, communication and understanding between employees can be difficult. This can lead to misunderstandings or mistakes and compromise security.
- Distraction: Noise can be distracting and affect employee concentration. This can lead to errors in the operation of the hoist or carelessness, which in turn increases the risk of accidents.
- Stress and fatigue: Continuous noise can cause stress and lead to fatigue. This can affect job performance and increase the risk of errors or accidents.
- Interference with warning signals: In a noisy environment, audible warning signals or alarm signals may not be heard, which can lead to a delayed response to potential hazards.

2.8 Residual risks

2.8.1 General residual risks

When handling the device, different residual risks can occur in different phases of life. Although it is impossible to completely eliminate all risks, residual risks can be minimized by various measures. Here are some ways to avoid residual risks:

- Risk assessment: Conduct a thorough risk assessment to identify potential hazards and assess their likelihood and impact. This allows you to take targeted measures to minimize risks.
- Technical protective measures: Use technical protective measures such as protective devices, emergency stop switches or safety systems to shield or control sources of danger.
- Organizational measures: Implement organizational measures such as clear work instructions, employee training, regular maintenance and inspections, and compliance with safety standards and regulations.
- Personal Protective Equipment (PPE): Provide appropriate PPE and ensure that employees use and maintain it correctly.
- Training and awareness-raising: Regular training for employees to educate them about potential hazards and provide them with the necessary knowledge and risk prevention skills.
- Continuous improvement: Regularly review your security measures and procedures to identify and improve potential vulnerabilities.
- Collaborate with experts: Consult professionals such as safety engineers or occupational health and safety experts to conduct an informed risk assessment and recommend appropriate risk mitigation measures.

It is important that all employees are actively involved in the identification and mitigation of residual risks. Through a holistic safety approach, residual risks can be minimized and a safe workplace can be guaranteed.

2.8.2 General Types of Residual Risks:

There are different types of residual risks that can persist despite all security measures. Here are some examples:

- Accepted risks: These are risks that are considered acceptable due to their low probability or impact. They can occur, for example, when all possible risk mitigation measures have been taken, but a residual risk remains.
- Unforeseen risks: In any situation, there is always some uncertainty and unpredictability. Unforeseen risks can arise when new sources of danger or unexpected events arise for which no specific safety precautions have been taken.
- Human error: Despite training and guidance, human error can occur, whether through negligence, inattention, or misjudgment. This can lead to residual risks, as not all employees always act correctly.
- Technical defects: Although machines and systems are regularly maintained and checked, there is always the risk of technical defects or failures, which can lead to residual risks.
- External influences: External factors such as weather conditions, natural disasters, or human error can create residual risks that are beyond the company's control.
- Change in the work environment: As the work environment or working conditions change, new risks may arise that may require additional protective measures.

It is important to note that residual risks cannot be completely avoided. It is best to take all possible measures to mitigate risk and to continuously train and sensitize employees to keep the residual risk as low as possible.

3 Assembly, installation and commissioning

3.1 General information

Installation and maintenance work may only be carried out by persons who are familiar with it and have been commissioned by the operator to install and maintain it. These persons must be familiar with the relevant accident prevention regulations, such as DGUV 52, DGUV 54, etc., and must have been instructed accordingly, as well as have read and understood the operating and assembly instructions drawn up by the manufacturer.

In accordance with the Ordinance on Industrial Safety and Health, monorails with integrated hoists are subject to certain acceptance procedures before they are put into operation for the first time. This acceptance must be carried out by a test expert if the combination of monorail and hoist can achieve a load capacity of more than 1,000kg or if two movements are operated by force. However, if the load capacity is less than 1,000kg and either both or only one movement is force-driven, the removal can be carried out by a qualified person instead. There is an exception to the obligation to accept before the first commissioning if the crane is already delivered ready for operation and either proof of type approval (type examination) or a declaration of conformity is available.

It should be noted that the above regulations may not apply universally and may differ depending on the country or the respective installation regulations. Therefore, it is of great importance to ensure that all relevant national rules and regulations for the installation and operation of the device are complied with.

Before assembling and commissioning the device, it is necessary to pay attention to several points:

1. Make sure that the device meets the required specifications, such as load capacity, beam flange width, etc.
2. Inspect the device for possible damage in transit.
3. Immediately after unpacking your device, write down the essential device information such as serial number and carrier flange width in the table provided for this purpose (see cover sheet).
4. Check the location where you want to install the device. Also, consider the height and access routes for installation.
5. Make sure that all safety precautions have been taken to prevent accidents. Check that the equipment has the necessary safety features such as emergency stop switches, overload protection, and safety couplings.
6. Make sure that all parts are properly assembled and that all connections are secure and tight.
7. If the appliance is electrically operated, make sure the electrical connection is properly installed and complies with local regulations. Also, check if the power supply is sufficient to run the devices.
8. Before commissioning, perform a thorough inspection of the equipment to ensure that it is working properly. Check all functions, such as the movement and braking (if electrically operated) to make sure they are working properly.
9. Make sure that the operators of the equipment have the necessary knowledge and skills to operate them safely. Where appropriate, provide training to ensure operators have the necessary knowledge.

It is important to follow all safety regulations and guidelines to avoid accidents and injuries. If you are unsure, you should contact the manufacturer or a professional for more information and assistance.

3.2 Notes on the overload protection

The unit has an adjustable overload protection as standard. This protects the unit by ensuring that you cannot lift more than the preset friction lock allows. The overload protection is set to approx. 125% nominal load at the factory.

Only persons authorised by (PLANETA-Hebetechnik GmbH) may set the manual overload protection. The exact steps for the correct setting of the mechanical overload protection are described in additional instructions.

If a mechanical overload protection is set incorrectly, various problems can occur:

Overload: If the overload protection is set too low, it can trip during normal operating conditions and interrupt operation unnecessarily. This can lead to loss of production and losses.

Damage to equipment: If the overload protection is set too high, it may overload the machine or equipment. This can cause damage to the equipment that is expensive to repair or replace.

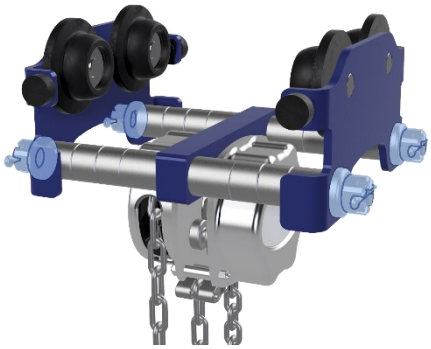
Safety risk: An incorrectly set overload fuse can also be a safety risk. If the fuse does not blow in time, this can lead to overheating, fires or other dangerous situations.

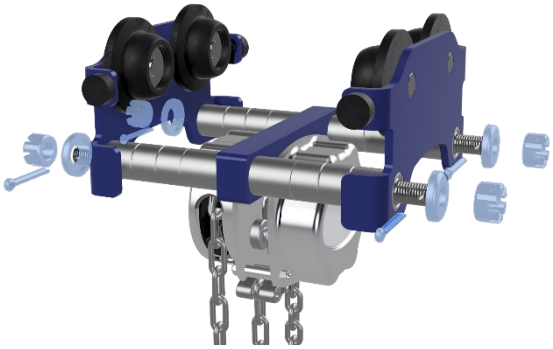
3.3 Trolley assembly

To install a monorail trolley correctly, you must first ensure that one of the two ends of the beam is freely accessible. If not, you must position the monorail trolley on the carrier track from below and assemble it. Extreme care must be taken during the entire process to avoid damage and injury. To assemble the monorail trolley correctly, carry out the following steps in sequence.
Note: All LHT trolleys are always supplied with the largest or maximum flange width.

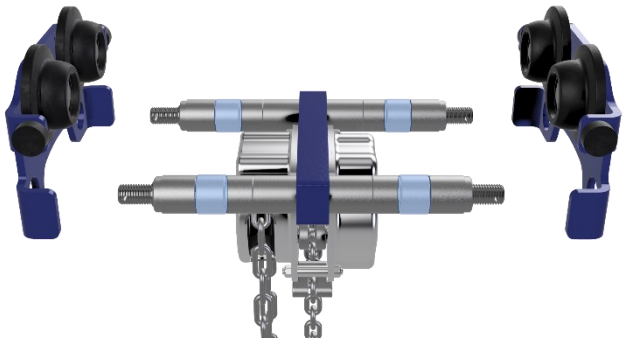
Assembly instructions:
Start by measuring the average width of the steel beam and the distance between the rollers. Make a careful note of the narrowest and widest point of the flange width of the beam so that you can remove or add the corresponding number of spacer discs precisely later.

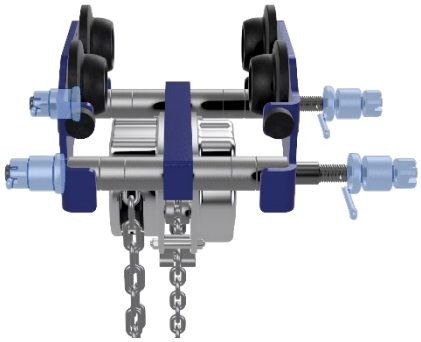
First remove all locking pins and then loosen the castellated nuts, turning them anti-clockwise. Then remove the respective bottom discs by pulling them off.



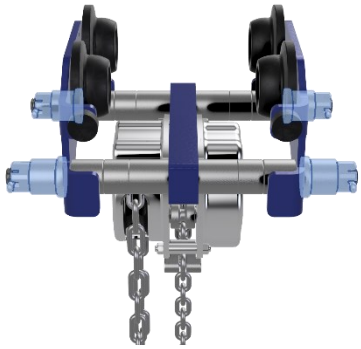


To set the track width of your monorail undercarriage correctly, first remove both sides of the undercarriage and then remove or add the correct number of spacer discs. Make sure that there is an air gap of about 2 mm per side between the wheel flange and the beam flange. This air gap allows the running gear a certain amount of play, which compensates for temperature and thickness tolerances of the beam. This is to ensure that the monorail trolley can travel smoothly along the beam.





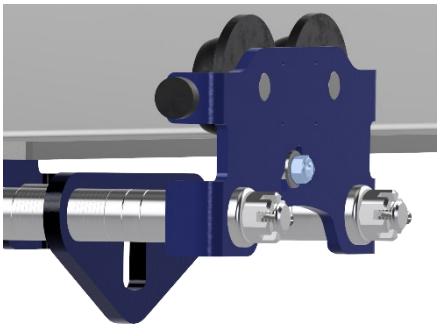
Now carry out the steps described above in reverse order. Ensure that the previously removed spacers are correctly positioned between the castellated nut and the spacer disc (see illustration below). Tighten the total of four hexagon nuts and make sure that the hole pattern matches. Finally, insert a new split pin into the holes provided and bend the ends over. This step is crucial to ensure that the castle nuts cannot come loose either by themselves or due to vibrations. By fastening the castellated nuts correctly and inserting the split pin properly, you ensure the safety and stability of the entire assembly. Ensure that all fastening elements are firmly and securely tightened to ensure reliable operation.

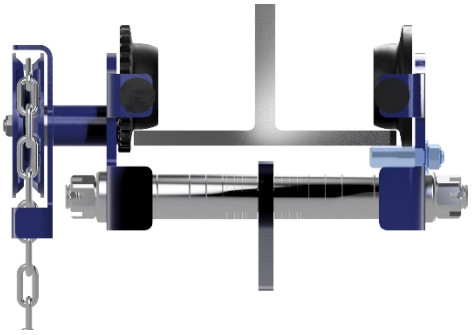


3.4 Adjustment of the anti-tipping device

In order to be able to properly adjust the anti-tilt device of the monorail chassis, the following steps must be carried out one after the other.

Loosen the nut and move the anti-tilt bolt towards the steel beam. Make sure to maintain a distance of about 2 mm between the bottom of the steel beam and the anti-tilt bolt to avoid grinding on the beam and ensure smooth operation. Then tighten the nut with a hand force of about 10 Nm to tighten it tightly, but not excessively. If you want to be on the safe side, use the correct tightening torque of the respective screw.





4 Product description

4.1 Area of application

Manually operated monorail hoists are used in numerous industrial and commercial areas where lifting and moving loads is required. They are particularly useful in manufacturing and assembly plants, where they transport components, materials or workpieces. In warehouse and logistics centres, they facilitate incoming and outgoing goods as well as internal logistics. They are also indispensable in maintenance and repair environments, such as machine shops or car repair shops. In metalworking and mechanical engineering, they support the handling and assembly of heavy components. In the construction industry, they are used for interior design and in the installation of elevators. They are also important in event and stage technology, for example in the construction of stages or trade fair stands. Smaller workshops and craft businesses use them to transport heavy materials, and they also contribute to the safe handling of hazardous substances in the chemical industry. In shipbuilding and port operations, they are used to load and unload heavy cargo, while in art and museum facilities they enable the safe transport of sensitive works of art. Overall, manually operated monorail lifting undercarriages offer a cost-efficient and flexible solution for a wide range of lifting and transport tasks, especially where motorized alternatives are not required or desired for safety reasons.

- Manufacturing and assembly systems: Transport of components, materials, workpieces.
- Warehouse and logistics: incoming and outgoing goods, internal logistics.
- Maintenance and repair: Use in machine shops, car repair shops.
- Metalworking and mechanical engineering: Handling and assembly of heavy components.
- Construction industry: interior fittings, installation of elevators.
- Event and stage technology: construction of stages, trade fair construction.
- Smaller workshops and craft workshops: woodworking, transport of heavy materials.
- Transport of hazardous materials: use in the chemical industry, laboratory environments.
- Shipbuilding and port operations: assembly in ships, loading and unloading of cargo.
- Art and museum logistics: Safe transport of works of art and exhibits.

4.2 Ambient conditions

The environmental conditions for the operation of manually operated monorail hoists must be carefully maintained to ensure safety and ensure optimal performance of the equipment. The ideal temperature range is between -20°C and +50°C to avoid material fatigue or malfunction. A relative humidity between 30% and 85% is suitable, although care should be taken to ensure that no condensation occurs, as this can cause corrosion. Direct sunlight should be avoided as it can lead to overheating and material fatigue. In case of unavoidable outdoor use, UV-resistant materials should be used. The steel beam on which the lifting gear runs should be as horizontal and level as possible, with a maximum gradient of 1% to prevent uncontrolled movement of the lifting chassis. Heavy wind loads and extreme weather conditions require special care, and the operation of the lifting gear should be stopped in high winds. Dust and dirt should be avoided as much as possible, as they can affect the mechanics. When used in the vicinity of corrosive substances, special protective measures such as corrosion-resistant coatings are necessary. Compliance with these conditions is crucial for the safety and longevity of the lifting chassis.

- Temperatur: -20°C bis +50°C
- Humidity: 30% to 85%, avoid condensation
- Sun exposure: Avoid direct sun, UV protection outdoors
- Slope of the steel girder: Horizontal if possible, maximum 1% gradient
- Wind and weather: Avoid strong winds and extreme weather conditions, protect against moisture
- Dust and dirt: Clean environment preferred, dust protection if necessary
- Chemical stresses: avoid contact with corrosive substances, use protective coatings

The device can be designed on request specifically for use in other situations, such as:

- in dusty environments and/or in high humidity,
- in the offshore sector and/or under corrosive conditions,
- in potentially explosive environments (EX environments),
- in the food industry,
- at extremely high or low temperatures,

4.2.1 Committee of Use

In particular, the following are not permitted:
for tearing off stuck loads as well as inclined pull when the device cannot align itself with the load.

- used as for passenger transport.
- Use in event and production facilities for scenic representation when people are under suspended load.

4.3 Typenschild/s

A nameplate with product-specific information is attached to the device.
The nameplate may differ from the illustration below.

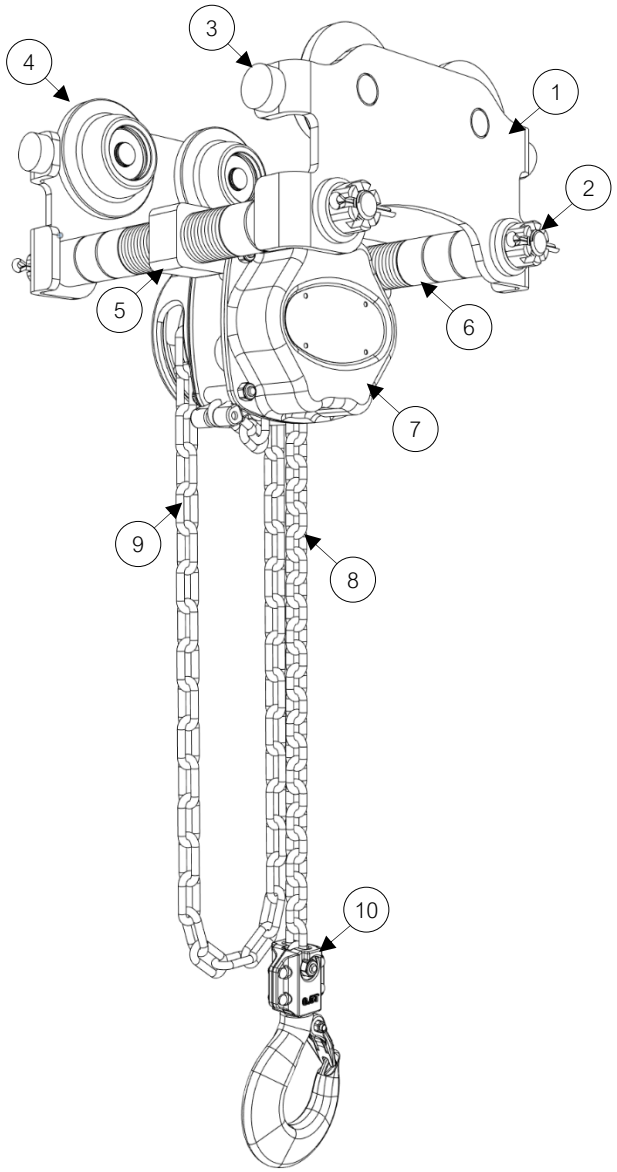
Standard	ATEX
	

In accordance with DIN EN 13157 Chapter 7.1.3 and Chapter 7.4.3, all lifting trolleys must have a permanently affixed marking in a clearly visible place with the following information:

Name and address of the manufacturer,
Series or type designation,
Serial number
Load capacity (load capacity on the cover and on the lower block),
Dimensions and quality of the load chains,
Year of construction.

4.4 Schematic representations

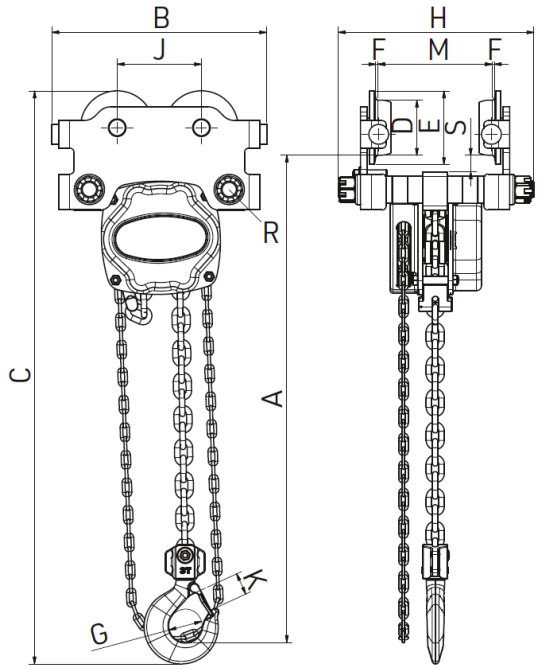
LHT-H / LHT-G

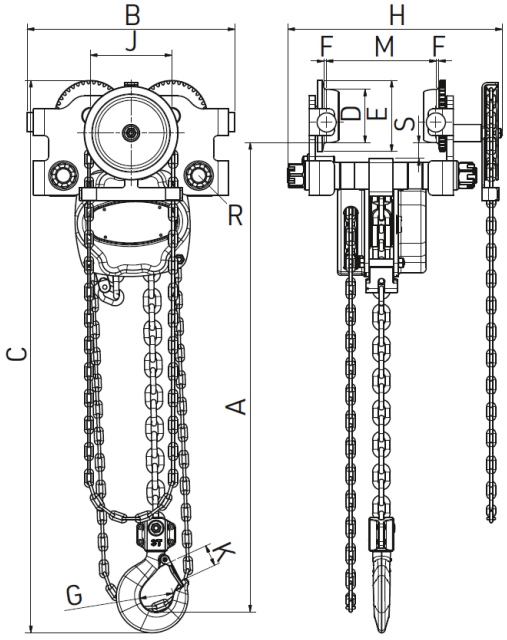


1	Side	6	Lifting bolts + spacers
2	Crown nut + safety pin	7	Spur Wheel Pulley
3	Rubber Bumper	8	Load chain
4	Impellers	9	Hand Chain
5	Transom	10	Load hook + hook jaw safety device

4.5 Specifications

LHT-H / -EX	LHT-G / -EX





TYPE LHT-H / LHT-G /-EX		005L	010L	015L	020L	030L	050L	100L	200L
Carrying capacity	kg	500	1.000	1.500	2.000	3.000	5.000	10.000	20.000
Lifting	m	3	3	3	3	3	3	3	3
Number of chain strands		1	1	1	1	1	2	3	8
Chain size	mm	5 x 15	6 x 18	8 x 24	8 x 24	10 x 30	10 x 30	10 x 30*	10 x 30
Min. height (A)	mm	266	316	356	361	427	583	769	974
Carrier flange width min. – max. (M)	mm	50 – 203	64 – 203	88 – 203	88 – 203	100 – 203	114 – 203	124 – 203	136 – 203
Min. curve radius	mm	0,85	1	1,1	1,1	1,3	1,4	2	3,5
Reel path for 1m stroke	mm	29,5	39,4	60,8	60,8	96,7	193,3	290	386,7
Reel path for 1 m travel LHT-G	m	3	3,6	4,7	4,7	5,7	6,3	8	10,6
measure H min. LHT-H	mm	298	314	325	325	355	381	388	–
measure H min. LHT-G	mm	342	363	374	374	403	428	445	498
B	mm	238	288	338	338	390	472	476	564
C	mm	352	420	487	487	566	745	940	1165
D	mm	54	67	80	80	100	109	133	170
And	mm	78	96	111	111	133,5	145	176	228
F	mm	3	3	3	3	4	4	4	4
G	mm	Ø 38	Ø 44	Ø 50	Ø 50	Ø 63	Ø 60	Ø 75	Ø 120
J	mm	102	112	131	131	153	168	194	234
K	mm	24	28	31	31	40	40	48	96
R	mm	Ø 20	Ø 24	Ø 29	Ø 29	Ø 34	Ø 39	Ø 44	Ø 59
S	mm	23	24	28	28	26	28	50	55
Weight with 3 m stroke LHT-H	kg	13,5	22	42	42	56	82	143	331
Weight with 3 m stroke LHT-G	kg	14,8	23,5	43,7	43,7	58	85	148	353

* Grade 100 / chain bag (plastic) on request.

4.6 Hook dimensions

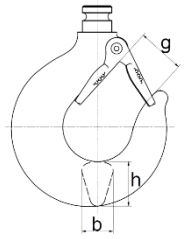
Table 2 Hook dimensions

Carrying capacity [t]	Internal width g [mm]	Hakengrund Ø [mm]	Hook width b [mm]	Hook height h [mm]
0,5	23	35	11	17
1,0	30	44	15	23
1,5	31	48	22	31
2,0	34	50	22	31
3,0	40	59	26	37
5,0	47	68	33	46
10,0	61	91	43	59
20,0	65	97	50	69

The table dimensions are theoretical dimensions without tolerance specifications.
The forged carrying or load hooks may have permissible tolerances due to the production. We advise you to enter the values g, b and h in the fields provided before the first commissioning. These noted values are the starting values for the later recurring tests.

It should be noted that the above dimensions of the hooks do not apply to the ATEX products in the medium and high range. An additional coating with a thickness of about 300 microns is applied to these hooks.

Max. permissible expansion of the hook: 10%
Max. wear of the hook: 5%



4.7 Chain Dimensions

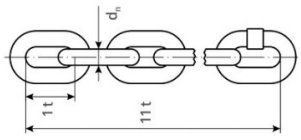
Table 3 Chain Dimensions

Dimensions	Diameter dn[mm]	Chain pitch 1t [mm]	Chain pitch 11t [mm]
5,0 x 15,0	5	15	165
6,0 x 18,0	6	18	198
8,0 x 24,0	8	24	264
10,0 x 30,0	10	30	300
10,0 x 30,0*	10	30	300

* Grade 100 when executed

The table dimensions are theoretical dimensions without tolerance specifications.
The forged load chains may have permissible tolerances due to the manufacturing process. We remind you to enter the values dn, 1t and 11t in the fields provided before the first commissioning.
These noted values are important for the later recurring checks.

Max. external elongation of a limb >3%, which corresponds to an internal elongation of 5%
Max. wear of a link in one place >10%



5 Operation

5.1 General protective measures and rules of conduct

When handling monorail lifting chassis, i.e. hand-operated cranes, it is important to observe certain protective measures and rules of conduct to ensure the safety of operators and the environment.

Manual monorail lifting undercarriages must be regularly inspected for visible damage and wear, with maintenance carried out in accordance with the manufacturer's specifications and legal regulations. Only trained and instructed persons are allowed to operate the lifting trolleys to ensure safe handling. The maximum load capacity must not be exceeded under any circumstances and it is important that suitable and approved load handling devices are used.

Careful planning of loads and safety measures is essential. This includes the exact determination of the weight to be lifted, the selection of the appropriate sling and the consideration of the lifting capacity of the crane beam. In addition, the operating conditions, such as weather, subsoil and environment, should also be taken into account. The work area must be clearly cordoned off and marked to prevent unauthorized access. Only authorized personnel are allowed to enter the danger area.

The working environment must be free of obstacles to allow safe work, and areas below the load should be cordoned off to minimise the risk of falling objects.

During operation, slow and controlled movements are essential to maintain stability. Jerky movements and oscillations of the load must be avoided. The operator should always maintain direct visual contact with the load. Manual monorail hoists are intended exclusively for the transport of loads and not people.

A sufficient safety distance from the load and the chassis must be maintained in order to prevent injuries. In addition, clear communication between the people involved should be ensured to avoid misunderstandings.

Clear communication between all parties involved is crucial. Hand signals, radios, or other means of communication should be used to ensure that each step of the lifting process is coordinated. All parties involved must wear appropriate personal protective equipment, including helmets, safety shoes, gloves and possibly hearing protection. Equipment should be checked regularly and kept in good condition.

All operators should be familiar with the emergency measures in order to be able to react quickly and safely in an emergency. These measures and rules of conduct help to increase safety when handling monorail lifting gears and to prevent accidents.

Compliance with these protective measures and codes of conduct is crucial to ensure the safety of all employees and prevent accidents on the construction site.

5.2 Key information in bullet points:

- Regular inspection and maintenance of the lifting undercarriages.
- Operation only by trained and instructed persons.
- Maximum load capacity must not be exceeded.
- Use of suitable and approved load handling devices.
- Keep the working environment free of obstacles.
- Block off areas below the load.
- Slow and controlled movements during operation.
- Avoidance of vibrations and jerky movements.
- Maintain direct visual contact with the load.
- No carriage of persons.
- Keep a safe distance from the load and the chassis.
- Clear communication between people involved.
- Familiarity with emergency responses.

These measures are essential to create a safe working environment and protect the health and safety of everyone involved.

5.3 Before and during operation

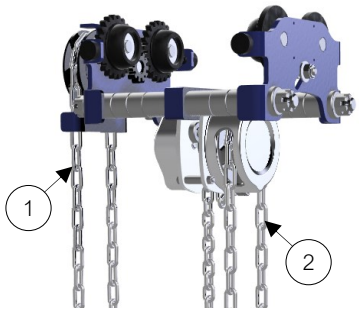
Before and during the operation of a manually operated crane, such as a lifting chassis, several safety and technical aspects must be considered to ensure the safety of employees and the integrity of the equipment. Here are the key points to keep in mind:

1. Understanding the Owner's Manual: Before operating, it is necessary to ensure that the owner's manual and the technical specifications of the lifting gear are fully understood and followed.
2. Risk assessment: A risk assessment should be carried out before each operation to identify possible risks and determine appropriate protective measures.
3. Compliance with safety regulations: All work must be carried out in accordance with the applicable safety regulations and standards.
4. Qualified personnel: Only qualified and trained personnel are allowed to operate the crane. Employees should be familiar with handling heavy loads as well as the specific hazards.
5. Inspection of the operating level: The condition of the steel beams on which the lifting chassis is mounted should be carefully checked to ensure stability, especially with very heavy loads. It is important that the steel beams are free of any dirt, debris or damage that could interfere with the movement of the crane. In addition, the beams must run horizontally to ensure even load distribution and safe operation.
6. Inspection of the crane: Before each use, the crane should be checked for visible damage, cracks, deformations or signs of wear. Regular inspections by qualified specialists are required.
7. Inspection of hoists: The load capacity of the hoists and slings used must be checked to ensure that they correspond to the load and are approved for the intended use.
8. Regular inspection of the equipment: The hoists and slings used must be suitable for the crane's load capacity and must be inspected regularly.
9. Inspection of safety devices: All possible safety devices, such as load indicators and overload protections, must be checked for their functionality.
10. Secure fastening: It is necessary to ensure that the load is properly and securely attached to the crane hooks before the lifting operation begins.
11. Attention to the lifting capacity: The maximum lifting capacity of the crane must not be exceeded. The load must be evenly distributed to avoid overloading individual points. Anchor points should be correctly positioned and secured.
12. Consider dynamic forces: Dynamic forces generated when moving heavy loads must be taken into account during planning and execution.
13. Study of the work environment: The work environment must be examined for potential sources of danger, such as loose objects that could slip or fall over during the lifting process.
14. Keeping the danger zone clear: The area around and under the load must always be kept free of people and obstacles in order to minimise the risk to people in the event of an accident.
15. Securing the work area: The work area around the crane must be secured and closed to unauthorised persons. There must be enough space to move the load safely.
16. Consideration of weather conditions: Weather conditions such as strong winds must be taken into account as they can affect the stability of the load.
17. Communication: Clear and effective communication between the crane operator, the instructor and other people involved is essential. Hand signals and radios should be used for coordination.
18. Inform stakeholders: Before the lifting process begins, all persons involved must be informed of the planned steps and safety measures to ensure coordinated and safe execution.
19. Documentation: All lifting operations should be documented, including the type of load, weight, and position. Maintenance and inspection protocols must be updated regularly.
20. Contingency plans: Contingency plans must be in place to respond quickly to incidents such as load crashes or technical failures. All employees should be familiar with these procedures.

These measures ensure safe and efficient operation of the manually operated crane and help minimize the risk of accidents and damage. Please note that the above examples are only excerpts and do not fully cover all possible scenarios. They serve only as a guide.

5.4 Operation of a manual monorail lifting chassis

A manual monorail lifting chassis, which is used as a crane for transporting heavy loads along a steel beam, is characterized by its simple design and flexible applications. The operation is carried out in two main movements: the traversing movement along the steel beam and the lifting movement for lifting or lowering the load. These movements are controlled manually, either by a hand chain or by direct action on the load. The operation is described in detail below:



Traversing movements:
1) Traversing movement (horizontal) *only with gear-controlled monorail lifting chassis
2) Hubbewegung (vertical)

5.4.1 Traverse movement (horizontal)

5.4.1.1 Gear-controlled monorail lifting chassis:

In a gear-controlled monorail lifting chassis, the traversing movement along the rail is realized with the help of a hand chain. This chain is connected to a gear gearbox that controls the movement of the chassis.
The operator pulls the hand chain to move the undercarriage either forward or backward along the steel beam. The transmission in the gearbox transmits the movement smoothly and in a controlled manner, allowing for precise positioning of the load.

5.4.1.2 Simple monorail lifting chassis

In a simple monorail lifting chassis without gearbox control, the travel movement is carried out by direct action on the load. The operator pushes or pulls the load directly on the load hook, on the load chain or on the load itself to move the undercarriage along the rail. This method requires fewer mechanical components but offers less precision and control compared to a gear-controlled system. Therefore, caution is required, especially with heavier loads, in order to avoid uncontrolled movements.

5.4.2 Hubbewegung (vertical)

The lifting movement, i.e. the lifting and lowering of the load, is always controlled by the reel chain of the integrated chain hoist. The chain hoist is an essential part of the lifting chassis and is used to transfer the tractive force to the load chain. The operator pulls on the reel chain, which sets the hoist's sprocket in motion. This rotary movement is converted into an upward or downward movement of the load chain via the hoist, depending on the direction of tension on the reel chain. To lift the load, the operator pulls the reel chain in one direction, which pulls the load chain in and lifts the load. To lower the load, the operator pulls the reel chain in the opposite direction, which releases the load chain and moves the load downwards.

5.4.3 Important notes on operation

- Safety: Before starting the work, it must be ensured that no people are in the danger area. All movements should be performed slowly and in a controlled manner to avoid swaying or swinging the load.
- Load bearing: The load must be securely and stably attached to the load hook before the lifting process begins. Improper fastening can lead to load drops and serious accidents.
- Control of movement: During movement, the operator should always maintain control of the hand chain or load to ensure safe and smooth movement.
- Avoidance of overload: The permissible load capacity of the lifting chassis must not be exceeded. Before each lifting operation, the weight of the load must be checked.

Compliance with these operating instructions and safety guidelines ensures that the manual monorail hoist is operated efficiently and safely. A well-trained operator is able to precisely position the loads while minimizing the risks to themselves and others.

6 Storage and transport

6.1 General information about storage

The following points should be observed when storing the unit:

1. location: The storage location should be dry, well ventilated and protected from direct sunlight. Moisture can cause corrosion, while direct sunlight can weaken the materials.
2. cleanliness: The units should be cleaned before storage to remove dirt, dust and other contaminants. This prevents corrosion and increases the life of the units.
3. securing: The appliance should be stored securely to prevent accidents or damage. It should be stored on stable and secure shelves or racks to prevent it from tipping over or falling down.
4. maintenance: Before storage, the unit should be serviced to ensure that it is in good working order. This may include checking wearing parts, refilling lubricants or replacing damaged parts.
5. labelling: The unit should be clearly labelled for easy identification and accessibility. This facilitates storage and access to the unit when needed.
6. documentation: it is important to document all relevant information about the unit, including maintenance records, repairs and inspections. This allows for better tracking and planning for future operations.
7. training: persons responsible for storing the equipment should have the proper training and knowledge to ensure that the equipment is stored properly and does not pose a hazard.

It is important to follow the manufacturer's specific instructions and take extra precautions, if necessary, to ensure the safety and longevity of the winches, hoists and pulling equipment.

6.2 General information about transport

The device should be transported correctly to avoid accidents and damage. Here are the steps to follow before, during and after transporting the device:

6.2.1 Before transport:

1. Inspect the device for visible damage or wear.
2. Make sure that the device has been properly maintained and that all safety precautions are in place.
3. Check the load capacity of the device and make sure it is suitable for the intended transport.
4. Make sure all instruction manuals and safety instructions are available.

6.2.2 During transport:

1. Use appropriate means of transport, such as forklifts or cranes, to move the equipment.
2. Make sure the device is properly secured to prevent it from slipping or falling during transport.
3. Keep the device in a stable position and avoid abrupt movements or vibrations.
4. Make sure that no people are standing near the device or could be in danger.

6.2.3 After transport:

1. Check the device again for any visible damage or wear that may have occurred during transit.
2. Perform a thorough inspection to ensure that all parts and components are intact.
3. Follow maintenance instructions according to local and legal regulations to keep the device in good condition.
4. Store the device in a suitable place away from weather conditions and damage.

It is important to follow these steps carefully to ensure safety when transporting equipment and to avoid possible damage or accidents.

7 Maintenance

7.1 General information

Persons responsible for inspection and maintenance of the unit should have appropriate expertise and experience. As a rule, these are qualified specialists, such as mechanical engineers, electrical technicians or mechanics.

When inspecting and maintaining the unit, it is essential to ensure compliance with applicable safety regulations. This includes, among other things:

- Regular inspection of the equipment for wear, damage or malfunctions.
- Checking the load-bearing capacity and load-bearing capacity of the equipment.
- Checking the safety devices, such as emergency stop switches or overload fuses.
- Checking the electrical connections and wiring.
- Visual inspection of ropes, chains or belts for damage or wear.
- Lubrication and maintenance of moving parts.
- Documentation of the inspections and maintenance carried out.

It is important that inspection and maintenance is carried out by qualified personnel to ensure the safety of the equipment and the health of the users.

7.2 Maintenance

Maintenance is the umbrella term for all work steps that are intended to ensure the functionality of machines and systems. Maintenance therefore includes inspection, servicing and repair. This also includes work steps such as improvement and weak point analysis. The entire maintenance process is regulated by DIN 31051.

7.2.1 Inspection

Inspection is a part of maintenance and refers to the regular inspection of a machine to ensure its proper condition, functionality and safety. Components, assemblies and equipment are examined for signs of wear, visual inspections are carried out and actual values are compared with target values. The goal is to determine the progress of wear and tear and determine the reasons for it. The inspection, also known as periodic testing, is carried out by a qualified person at predefined intervals, depending on environmental influences and machine utilization. The results of the inspection have consequences for the further handling and use of the plant.

7.2.2 Maintenance

During maintenance, work takes place on the machine. The target state is restored. Maintenance work is intended to delay the progression of wear and tear or, in the best case, to prevent it altogether. All actions taken should be recorded in a protocol. Regularly carried out and documented maintenance maintains the warranty claim and increases the resale value of a machine or system. Normally, the interval between two maintenance is one year.

7.2.3 Restoration

If a defective component is discovered and replaced during maintenance work, this is a repair measure. The target state, i.e. perfect, functional operating behaviour, is restored. Through inspections and maintenance, the machine is observed, cared for and wear is inhibited. After a certain period of time, however, even when a machine is used as intended, wear-and-tear damage often occurs. Repairs must be carried out immediately after the damage has been discovered. The defective parts are either repaired or replaced, depending on the situation and costs. Entire assemblies can also be replaced. At the end of the day, operability and functional safety must be restored. All repair measures must also be entered in the maintenance log.

7.2.4 Spares

Damaged components that need to be replaced due to wear and tear or faulty conditions during maintenance or repair should be replaced by a qualified person. Only original fasteners, spare parts and accessories according to the manufacturer's spare parts list are to be used. Only these parts are covered by the warranty. Any liability of the manufacturer is excluded for damage caused by the use of non-original parts and accessories.

Incorrect or faulty spare parts can lead to damage, malfunction or total failure of the device.
lead.

If you have any questions or order spare parts, please have the factory or order number (test book, load plate on the device) ready. Providing this data ensures that you receive the correct information or the required spare parts.

7.3 Legal framework

In Germany, inspections on machines are carried out by qualified personnel. The exact requirements and qualifications for inspection personnel may vary depending on the type of machine and the specific regulations. The legal basis for carrying out inspections on machinery in Germany is set out in various laws and regulations, including:

- Industrial Safety Ordinance (BetrSichV): The Industrial Safety Ordinance regulates the safety and protection of employees when using work equipment, which also includes machinery. It contains general requirements for the testing and maintenance of machinery.
- Technical Rules for Operational Safety (TRBS): The TRBS provide recommendations and information on the implementation of the Industrial Safety Ordinance. They contain, among other things, information on the requirements for inspection personnel and their qualifications.
- Employers' liability insurance associations (BGV): The employers' liability insurance associations issue regulations to ensure the safety and health protection of employees in certain sectors or areas of activity. These regulations may also include requirements for inspection personnel.

The specific requirements for inspection personnel may vary depending on the type of machine. In some cases, special training or certification may be required to be allowed to conduct inspections. It is recommended to consult the relevant regulations and technical rules in order to determine the specific requirements for inspection personnel. In addition, the manufacturer's specifications and recommendations can also contain important information on the qualifications of inspection personnel.

Attention: In order to be allowed to test electronic components, the person qualified to test must either have completed vocational training in electrical engineering or have another sufficient electrotechnical qualification. Suitable vocational training includes, for example, electronics technician in various disciplines or a degree in electrical engineering.

If an inspection check is not performed or is performed incorrectly, various negative consequences can occur. Here are some possible impacts:

- Security risks: If these checks are not performed or are flawed, potential security risks may be missed or not addressed. This can lead to accidents, injuries or damage.
- Operational disruptions: Periodic inspections can also be used to identify and remedy potential failures or malfunctions at an early stage. If these tests are not performed or are faulty, failures or malfunctions may occur, which may affect operations and lead to production losses or delays.
- Legal consequences: In some industries, periodic inspections are required by law. If these checks are not carried out properly, it can lead to legal consequences, such as fines, liability, or even criminal prosecution.
- Costs: If periodic inspections are not performed or are faulty, additional costs may be incurred. This can be caused, for example, by repairs, spare parts or the loss of production time.

During an inspection of equipment, various aspects are examined to ensure that the equipment is functioning properly and complies with applicable safety standards. The exact examinations may vary depending on the type of device and the specific requirements, but in general, the following points are checked:

- Visual inspection: Checks if the device is externally damaged, such as cracks, deformations or signs of wear.
- Functional test: The hoist is tested for its functionality by loading and moving it. This involves verifying that all parts are working properly and that there are no unusual noises or vibrations.
- Load Capacity Testing: The maximum load capacity of the hoist is checked to ensure that it meets the required standards. This can be done by load testing or by checking the manufacturer's specifications.
- Inspection of safety devices: All safety devices of the hoist are checked to ensure that they are working properly. These include, for example, overload protection, brakes and safety hooks.
- Checking the instruction manual and marking: It is checked that the hoist is provided with an up-to-date instruction manual and the necessary markings.

It is therefore extremely important to carry out regular inspections to ensure safety, prevent damage and ensure smooth operation. If any damage or defects are found, appropriate repairs or replacements should be carried out before the device is used again. These checks should be carried out in accordance with the manufacturer's recommendations and applicable regulations.

7.4 Inspection and maintenance interval

The intervals for inspections and maintenance of the device depend on the duration of use and the operational stress. As a rule, short, regular inspections and maintenance are recommended to ensure the proper functioning of the device and to detect possible problems at an early stage. For some equipment, an annual inspection may be sufficient, while others may require maintenance every six months or even more often. National law and regulations must be complied with in any case. In addition, regular maintenance such as lubricating moving parts, checking wear parts, and cleaning the device should also be performed. The following information is provided as a guideline.

Table 4 Types of use of the device

Types of use	
Normal use / operation:	Use with randomly distributed loads within the nominal load limit or with uniform loads below 65% of the maximum load capacity for a maximum of 15% of the operating time.
Difficult use / operation:	Application in which the equipment is operated within the nominal load limit and which goes beyond normal use.
Tough use / operation:	Application in which the equipment is operated under normal or difficult conditions with abnormal operating conditions.

Table 5 Intervals depending on the type of use of the device

Intervals depending on the type of use	
Daily Inspection:	by the operator or other designated persons prior to daily operation.
Frequent Inspection:	by the operator or other specified persons at intervals determined by the following criteria: • Normal use: monthly • Difficult operation: weekly to monthly • Hard work: daily to weekly There is no need to keep records.
Periodic inspection:	by designated persons at intervals determined by the following criteria: • Normal use: annually • Difficult assignment: every six months • Hard work: quarterly Records shall be kept for the continuous assessment of the condition of the equipment.

7.5 Inspection and maintenance plan

As part of our efforts to ensure the safety and functionality of the device, we would like to provide you with important information about the minimum test criteria for the periodic tests. These test criteria are intended as a guideline and should be carefully considered during each recurring audit to minimise potential risks.

7.5.1 Visual inspections

o.B: no objection B: Objections n.r.: not relevant

Document Type / Component	o.B.	B.*	n.r	Remark / Defect
Operating Manual(s)				
Declaration(s) of Conformity				
Risk assessment(s)				
Apparently/A. Profbuch				
Markings (nameplate)				
Enclosures & Protective Covers				
Bearings				
Connecting and screwing elements				
Serving elements (Hookskets/Handrad)				
Load chain				
Load chain end stop / load chain attachment				
Load chain guide				
Load chain storage				
Suspension (Traverse)				
Hook Harness / Hook Bottle				
Braking system and brake elements				
Side Signs				
Impellers				
Rubber Bumper				
Gears and pinions				
Load and spacer bolts				

7.5.2 Functional tests

o.B: no objection B: Objections n.r.: not relevant

Component / Type of Functional Test	o.B.	B.*	n.r	Remark / Defect
Serving elements (Bedienhebel / Heels)				
Function without load				
Function under rated load (maximum load)				
Function under overload (overload protection test) *				

*only applies to devices that are equipped with an overload protection.

7.5.3 Lubrication

All mechanically moving parts should be thinly coated regularly with a creeping lubricant. Gearboxes and transmission components should also be coated regularly with a lubricant. Here we recommend the use of a lubricant of class EP2. Exception: Brake parts must not be lubricated! When not in use, hang the device in a dry place. Please note that safe and flawless operation is only guaranteed when original spare parts are used. If you would like to have the device checked or repaired under warranty, please send the device in assembled condition. Unfortunately, we can no longer accept warranty claims when disassembled devices are sent in

Table 6 Lubricant

Delivery Company	Designation
FUCHS LUBRITECH	Stabylan 2001
FUCHS LUBRITECH	Stabylan 5006
FUCHS LUBRITECH	Ceplattyn 300 (Graphitpaste)
Klüber Lubrication München KG	Klüberoil CA 1-460
Klüber Lubrication München KG	Klüberoil 4UH 1-1500
CASTROL	Optimol Viscogen KL300

8 Troubleshooting and fault rectification

8.1 Faults

If there is a malfunction during use with the unit, the following steps should be taken:

1. Immediately stop use and check the cause: Stop use immediately to avoid further damage or accidents. Examine the unit carefully to identify the cause of the malfunction. Check the gears, chain and other components for damage, wear or blockages.
2. Remedy the malfunction and restore functionality: Depending on the type of malfunction, various measures may be necessary. For example, remove foreign objects or dirt that are blocking the unit. If there is wear or damage, parts may need to be replaced or repaired. In the case of serious malfunctions, you should call in a specialist to carry out the repair. Make sure that the unit functions properly after the malfunction has been corrected. Re-check all components to make sure they are properly assembled and in good condition.
3. Safety check: Before using the unit again, carry out a safety check to ensure that it is safe and reliable. Check the load bearing capacity, fixing points and all safety devices.

It is important that only trained personnel repair or perform maintenance on the unit to prevent further damage or accidents.

8.2 Causes of disruption and measures

The table below provides a summary of the main disorders and checkpoints for each symptom. Please note that this is not a comprehensive list of all possible disorders.

Table 7 Causes of disruption and measures

Disturbance	Possible cause of error	Test point(s)
Load is not lifted	Stuck of the load	Releasing the load
	Brake pads worn out	Carry out maintenance and replace brake pads
	Lastkette verereht	Align load chain
	Defective chain, gearbox or sprockets	Perform maintenance and replace defective parts with original spare parts
	pawl not properly engaged	Check the pawl and replace it if necessary
	pawl spring not available	Perform maintenance and replace defective parts with original spare parts
Load is difficult to lift	Dirty chains, gears or sprockets	Carry out maintenance, lubricate chains, gears and sprockets
	Defective chain, gearbox or sprockets	Perform maintenance and replace defective parts with original spare parts
Load is lifted with interruptions	Latch spring not present or defective	Perform maintenance and replace defective parts with original spare parts
Load is not moved over the entire stroke	Haken verkantet, Kette verdreht	Bring the hook and chain into the correct position
Brake remains closed (clamped)	the load hook was pulled against the housing and is clamped there	Release hook, attach load again, lower load, unhook load
Load is not released	Brake too hard	Release the brake
	Brake soiled by rust	Replace rusty parts and carry out periodic inspections
Load drops piece by piece when released	Foreign objects between the brake discs	Remove foreign objects, clean the surface. If there are grooves on the surface, replace the brake disc.
Load drops when releasing	Missing, incorrect installation or wear of the brake discs	Replace or install brake discs correctly
Trolley runs hard or not at all	Running track of steel girder dirty	Cleaning the running track
	Raceway of steel girder has notches	Waiting for a career
	Drive pinion dirty or blocked	Clean and grease the drive, replace worn parts if necessary
	Hand chain twisted or blocked	Place the hand chain properly

9 Decommissioning and disposal

9.1 Decommissioning and disposal

The device should be taken out of service and/or disposed of if it stops working or is irreparably damaged. This can also be the case if the device is outdated and needs to be replaced with a newer version. It is important that disposal is carried out in accordance with local regulations and laws to avoid environmental damage. In some cases, devices can also be recycled or reused instead of simply throwing them away. When not in use, store the device in a dry place. Please note that only if original spare parts are used can a safe and flawless operation be guaranteed. If you would like to have the device checked or repaired as part of the warranty, we ask you to send the device in its assembled condition. Unfortunately, we can no longer recognise warranty claims when disassembled devices are sent in. Please note that electronic waste, electronic components, lubricants and other auxiliary materials are subject to hazardous waste treatment and may therefore only be disposed of by approved specialist companies. National disposal regulations must be observed with regard to the environmentally sound disposal of the machine. Further information can be obtained from the relevant local authority.

10 Documents and Annexes

10.1 Spares LHT-H / LHT-G 500 – 20.000kg

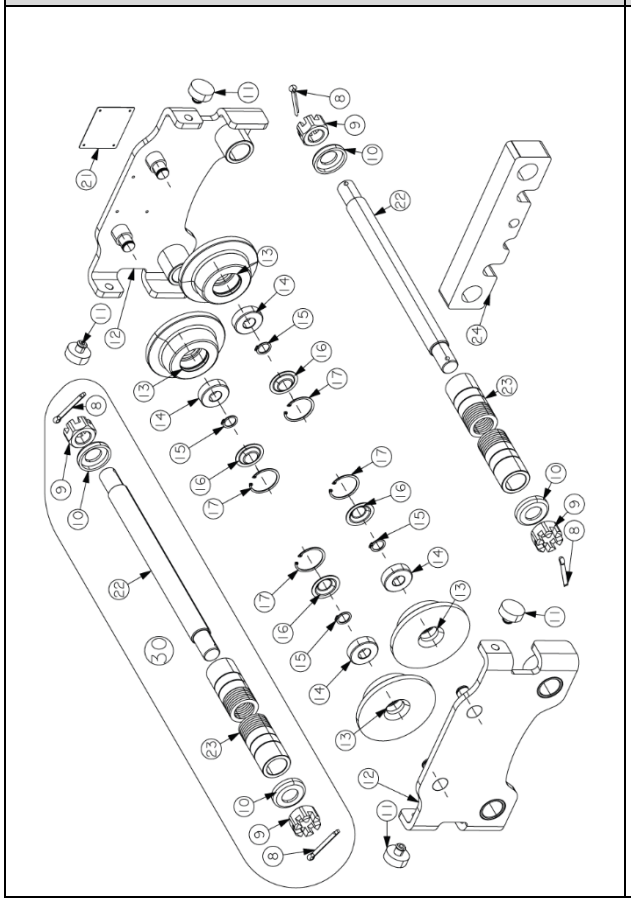
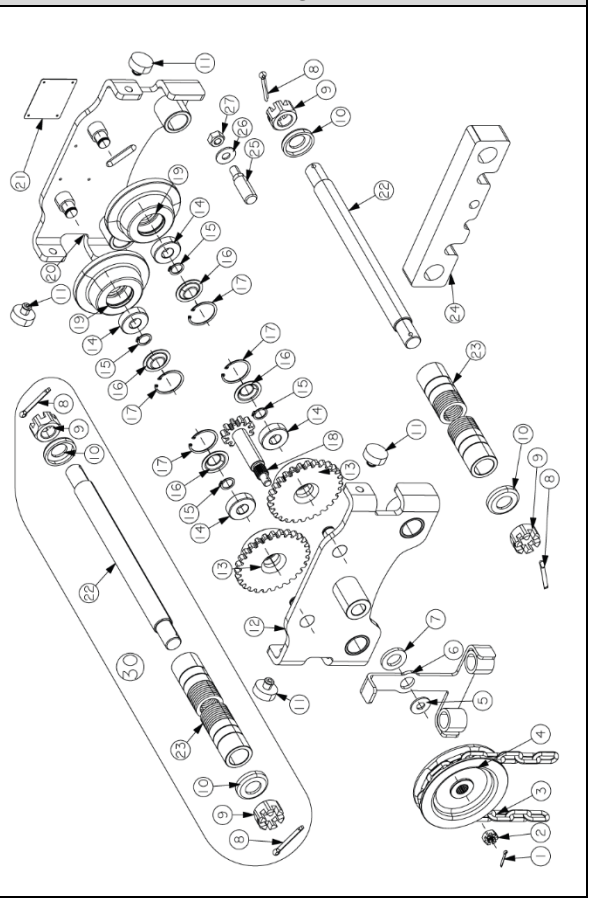
LHT-H	LHT-G
	

Table 8 Spares LHT-H / LHT-G 500kg –20.000kg

Pos.	Number	Description
1	1	LST/LHT Splint Crown Nut
2	1	LST/LHT Crown Nut Reel Drive
3	1	Hand Chain 5x25mm
4	1	LST/LHT hand sprocket
5	1	LST/LHT Lens
6	1	LST/LHT manual chain guide
7	1	LST/LHT Spacer
8	4	LST/LHT Splint Crown Nut
9	4	LST/LHT Crown Nut
10	4	LST/LHT Spacer
11	4	LST/LHT Rubber Puffer
12	1	LST-G Set Side Plate Drive Side Parts: 12, 13(2x), 14(2x), 15(2x)16(2x), 17(2x),
18	1	LST/LHT-G Drive Pinion
20	1	LST-G Set Side Plate Parts: 14(2x), 15(2x)16(2x), 17(2x), 19(2x), 20
21	1	Nameplate
22	2	LST/LHT-H/-G Bearing bolts up to 203mm
23	2	LST/LHT-H/-G Set Spacers up to 203mm
24	1	LST-H/-G Suspension Eye
25	1	Set Bolt Anti-Tilt Protection Parts 25, 26, 27
30	2	LST-H/-G Set of lifting bolts up to 203mm, parts 8(2x), 9(2x), 10(2x), 22, 23
31	2	LST-H/-G Set of lifting bolts up to 305mm, parts 8(2x), 9(2x), 10(2x), 22, 23
32	1	PTM / GTM/PTS & GTS/LST/LHT impact rivets

CE

EU DECLARATION OF CONFORMITY (Original)

Within the meaning of Regulation (EU) 2023/1230 according to Annex V, Part A and Annex VI Internal Production Control (Module A)

We hereby declare,
PLANETA-Hebetechnik GmbH on own responsibility,
that the machine, with the following information, complies with the relevant essential health and safety requirements of EU Regulation 2023/123 and the relevant harmonised standards in its design and design as well as in the version placed on the market by us.

We confirm that the special technical documentation for this complete machine has been prepared in accordance with Annex V Part A. These documents will be made available to the market surveillance authorities via our documentation department upon request.

The declaration of conformity loses its validity if changes or additions are made to the machine that have not been agreed with us. Likewise, the declaration expires if the machine is not used in accordance with the use cases described in the operating instructions or if the prescribed periodic inspections are not carried out. It is important to note that this declaration of conformity does not include any assurance of properties. Therefore, the safety instructions and instructions of the product must be carefully observed.

The product below is considered a complete machine if all the components necessary for operation are in place and the product can be operated properly without any additional modifications or adjustments after assembly at the point of use. Furthermore, the product must meet all relevant safety requirements and be provided with the necessary compliance documents as well as a mark confirming compliance with the applicable legal requirements. If this is not the case, the declaration of conformity loses its validity.

Machine Information:

Machines / Product Type:	Monorail combination trolley
Machines / Product name:	LHT-H / LHT-G
Function:	Vertical & horizontal moving of loads
Serial number:	2300001-1 ... 29999999-99 / 6000000001-6999999999
Carrying capacity:	500kg ... 20.000kg
Year of construction:	2024

The following legal regulations and regulations have been taken into account and complied with:

Regulation (EU) 2023/1230 L165/1	Machinery Product Ordinance
Regulation (EC) No 1907/2006 L136/3	REACH Regulation
Directive 2014/53/EU 02014L0053	Radio Channeling guideline
Directive 2014/30/EU	EMC Directive*
Directive 2014/35/EU	Low Voltage Directive**
Directive 2012/19/EU L197/38	WEEE Directive*
Directive 94/62/EC 01994L0062	Packaging Guideline
Directive 2011-65/EU L174/88	RoHS Directive*

*The listed legal provisions only apply if the above-mentioned machine contains electronic or radio-capable components.

** Directive 2014/35/EU is complied with in accordance with Chapter 1.5.1. of Regulation (EU) 2023/1230 with regard to its protection objectives and applies to power-driven machinery.

The following harmonised standards have been taken into account and complied with:

DIN EN ISO 12100:2011-03	Safety of machinery -
BS EN ISO 12100:2011-03	General Design Principles Risk Assessment and Risk Mitigation
DIN EN ISO 20607:2019-10	Safety of machinery –
BS EN ISO 20607:2019-10	Operating Instructions General Design Principles
DIN EN 13157:2010-07	Cranes–
BS EN 13157:2010-07	Safety Hand-Operated Cranes

Place and date on which the declaration of conformity was issued:
Resser Str. 17 | 44653 Herne | Germany, 01.08.2024

Philipp J. Hadem

On behalf of Philipp J. Hadem
(CE Coordinator)

10.3 Declaration of Conformity of an incomplete Machine

EU DECLARATION OF INCORPORATION(Original)

Within the meaning of Regulation (EU) 2023/1230 in accordance with Annex V, Part B and Annex VI Internal Production Control (Module A)

We hereby declare,
PLANETA-Hebetechnik GmbH on own responsibility,
that the machine, with the following information, complies with the relevant essential health and safety requirements of EU Regulation 2023/123 and the relevant harmonised standards in its design and design as well as in the version placed on the market by us.

We confirm that the special technical documentation for this incomplete machine has been prepared in accordance with Annex V Part B. These documents will be made available to the market surveillance authorities via our documentation department upon request.

The declaration of conformity loses its validity if changes or additions are made to the machine that have not been agreed with us. Likewise, the declaration expires if the machine is not used in accordance with the use cases described in the operating instructions or if the prescribed periodic inspections are not carried out. It is important to note that this declaration of conformity does not include any assurance of properties. Therefore, the safety instructions and instructions of the product must be carefully observed.

The product below is considered an incomplete machine according to the Machinery Directive 2006/42/EC and the Machinery Regulation 2023/123 if it does not contain all the components necessary for operation and requires additional modifications or adjustments after assembly at the point of use in order to be able to operate properly. In addition, the product is considered incomplete if it does not meet all relevant safety requirements and does not have the necessary CE marking, which certifies compliance with the applicable legal requirements.

Machine Information:

Machines / Product Type:	Monorail combination trolley
Machines / Product name:	LHT-H / LHT-G
Function:	Vertical & horizontal moving of loads
Serial number:	2300001-1 ... 29999999-99 / 6000000001-6999999999
Carrying capacity:	500kg ... 20.000kg
Year of construction:	2024

The following legal regulations and regulations have been taken into account and complied with:

Regulation (EU) 2023/1230 L165/1	Machinery Product Ordinance
Regulation (EC) No 1907/2006 L136/3	REACH Regulation
Directive 2014/53/EU 02014L0053	Radio Channeling guideline
Directive 2014/30/EU	EMC Directive*
Directive 2014/35/EU	Low Voltage Directive**
Directive 2012/19/EU L197/38	WEEE Directive*
Directive 94/62/EC 01994L0062	Packaging Guideline
Directive 2011-65/EU L174/88	RoHS Directive*

*The listed legal provisions only apply if the above-mentioned machine contains electronic or radio-capable components.

** Directive 2014/35/EU is complied with in accordance with Chapter 1.5.1. of Regulation (EU) 2023/1230 with regard to its protection objectives and applies to power-driven machinery.

The following harmonised standards have been taken into account and complied with:

DIN EN ISO 12100:2011-03	Safety of machinery -
BS EN ISO 12100:2011-03	General Design Principles Risk Assessment and Risk Mitigation
DIN EN ISO 20607:2019-10	Safety of machinery –
BS EN ISO 20607:2019-10	Operating Instructions General Design Principles
DIN EN 13157:2010-07	Cranes–
BS EN 13157:2010-07	Safety Hand-Operated Cranes

Documents and Annexes
The commissioning of the incomplete machine will be prohibited until the incomplete machine complies with the provisions of EU Regulation 2023/123 and the EC declaration of conformity according to Annex V Part A is available.

Place and date on which the declaration of conformity was issued:
Resser Str. 17 | 44653 Herne | Germany, 01.08.2024

Philipp J. Hadem

On behalf of Philipp J. Hadem
(CE Coordinator)

11 Notes

Notes