

Original instructions

STILL portal frame

Routenzug-



CE

first in intralogistics

0510

89708011526 EN -

Address of manufacturer and contact details

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Rules for the operating company of industrial trucks

In addition to these operating instructions, a code of practice containing additional information for the operating companies of industrial trucks is also available.

This guide provides information for handling industrial trucks:

- Information on how to select suitable industrial trucks for a particular area of application
- Prerequisites for the safe operation of industrial trucks
- · Information on the use of industrial trucks
- Information on transport, initial commissioning and storage of industrial trucks

Internet address and QR code

The information can be accessed at any time by pasting the address **https://m.still.de/vdma** in a web browser or by scanning the QR code.







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Foreword

General

General

Issue date and topicality

The issue date of these operating instructions can be found on the title page.

STILL makes continuous efforts to enhance and improve its trucks. These instructions are therefore subject to change, and any claims based on the information and/or illustrations contained in these operating instructions cannot be asserted.

If you require technical support for the Trolley-Mover, please contact the authorised service centre.

Have a good trip, your partner

STILL GmbH

Berzeliusstr. 10

22113 Hamburg, Germany

Copyright and trademark rights

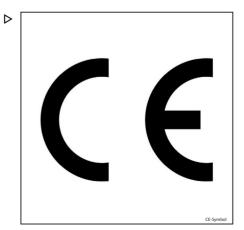
These instructions must not be reproduced, translated or made accessible to third parties —including as excerpts—except with the express written approval of the manufacturer.

CE labelling

The manufacturer uses CE labelling to indicate that the STILL portal frame complies with the standards and regulations valid at the time the STILL portal frame was placed on the market. Compliance is confirmed by the issue of an EC declaration of conformity. The CE labelling is attached to the nameplate (identification plate).

An unauthorised structural change or addition to the STILL portal frame can compromise safety, thus invalidating the EC declaration of conformity.

The EC declaration of conformity must be carefully stored and made available for presentation to the relevant authorities at any time.





Information about the documentation

Copyright and trademark rights

These instructions must not be reproduced, translated or made accessible to third parties —including as excerpts—except with the express written approval of the manufacturer.

Explanation of signal terms used

A DANGER

Indicates procedures that must be strictly adhered to in order to prevent the risk of fatalities.

WARNING

Indicates procedures that must be strictly adhered to in order to prevent the risk of injuries.

A CAUTION

Indicates procedures that must be strictly adhered to in order to prevent material damage and/or destruction.



For technical requirements that require special attention.



ENVIRONMENT NOTE

To prevent environmental damage.

Terms and definitions

STILL portal frame

The STILL portal frame is a device for picking up loads. It is designed for picking up trolleys. The trolleys are raised by an integral lifting device. The trolleys must be lifted to ensure safe transportation with low levels of noise.



Information about the documentation

Trolley

A trolley is a roller platform that can be used to transport a wide range of loads such as pallets, crates, etc.

Trolleys of various dimensions can be used, adapted to the respective load.



Environmental considerations

Packaging

When the TrolleyMover is delivered, certain parts are packaged to provide protection during transport. This packaging must be completely removed prior to initial commissioning.



The packaging material must be disposed of properly after delivery of the TrolleyMover.

Disposing of units

It may be necessary to exchange units as part of maintenance work. This may result in the need to dispose of replaced units.

A STILL portal frame is composed of different materials. In accordance with regional or national regulations, each of these materials must undergo

- Disposal
- Treatment
- Recycling



We recommend working with a waste management company when disposing of hazardous materials.



Environmental considerations



2

Introduction

Using the STILL portal frame

Intended use

The trailers are used to move and lift the loads specified on the nameplate.

The following must also be taken into account:

- The operating instructions for the tow tractor
- Other specific national regulations.

Changes to components may be made only with the approval of the manufacturer.

Roadways

Roadways must be sufficiently firm, level and free from objects. Drainage channels, level crossings and similar obstacles must be evened out and, if necessary, ramps must be provided so that trucks can drive over these obstacles with as few bumps as possible.

Trailers may only be used on roadways that do not have excessively sharp bends, excessively steep gradients or excessively narrow or low entrances. Gradients must not exceed the values given in the operating instructions and must have a surface with sufficient grip. The top and bottom of the gradient must feature smooth and gradual transitions to prevent the load from scraping the ground and the undercarriage from being damaged.

The permitted area load and point load of the roadways must not be exceeded. There must be a sufficient distance between the highest points of the tugger train or the load and the fixed elements of the surrounding area. Hazardous areas on roadways must be secured or indicated by the customary road traffic signs and, if applicable, by additional warning signs.

Damage and defects

Damage or other faults on the trailers must be reported to the supervisor immediately. Trailers that are not safe to operate must not be used until they have been properly repaired.



Using the STILL portal frame

Improper use

A DANGER

High risk of property damage, injury and death.

Avoid improper use.

A DANGER

Risk of explosion in at-risk areas and areas where there is a risk of fire!

The trailers are not equipped for use in areas where there is a risk of fire or explosion.

 Do not drive into areas where there is a risk of fire or explosion!

WARNING

Serious injuries

It is not permitted to transport people on the trailers or trolleys.

The trailers are not permitted for use on public roads and are not equipped for road use.

The following list serves by way of example and does not claim to be exhaustive.

In addition, it is not permitted:

- · To stack/unstack on slopes
- · To step onto the trough
- · To exceed the maximum load capacity
- To distribute the load in such a manner that more than 70% of the load is carried on any one trailer
- To travel at a speed greater than 15 km/h
- To use the machine where the application condition have not been adapted, e.g. in areas with excessively low floor load capacity, insufficient overhead clearance etc.

The operating company or driver, and not the manufacturer, is liable if the trailers are used in a manner that is not permitted.



Residual risk

Residual risk

Residual dangers, residual risks

Despite careful working and compliance with standards and regulations, the possibility of other risks occurring when using the Trolley-Mover cannot be entirely excluded.

The TrolleyMover and all other system components comply with current safety requirements. Nevertheless, even when the Trolley-Mover is used for its proper purpose and all the instructions specified here are followed, some residual risk cannot be excluded.

A residual risk cannot be excluded even beyond the narrow limits of the danger area that the TrolleyMover itself represents. Persons in the area around the TrolleyMover must exercise a heightened degree of awareness so that they can react immediately in the event of any malfunction, incident or breakdown etc.

WARNING

All personnel working in the vicinity of the Trolley-Mover must be instructed regarding the dangers that arise through use of the TrolleyMover.

In addition, attention must be drawn to the safety regulations in these operating instructions.

Risks can include:

- Escape of consumables due to leakages, rupture of lines and containers etc.
- Risk of accident when driving over difficult ground such as gradients, very smooth or uneven surfaces, or with poor visibility etc.
- Falling or tripping when loading or unloading the Trolleys into or out of the frame using the TrolleyMover
- Human error disregarding safety regulations.
- Risk caused by unrepaired damage.
- Risk caused by insufficient maintenance or testing.
- Risk caused by using the wrong consumables.
- · Risk caused by exceeding testing intervals



The manufacturer is not held responsible for accidents involving a TrolleyMover caused by the operating company's intentional or negligent failure to comply with these regulations.

Danger to employees

According to the German workplace safety ordinance (BetrSichVO) and labour protection law (ArbSchG), the operating company must determine and assess hazards during operation, and establish the occupational health and safety measures required for employees. The operating company must therefore draw up the appropriate company directive (Section 6 ArbSchG) for the operation and make it available to the driver. These operating instructions for the STILL portal frame do not constitute a company directive. A responsible person must be appointed.

The construction and equipment of the STILL portal frame correspond to the Machinery Directive 2006/42/EC and are therefore marked with the CE labelling. However, the operating company must select the type and equipment of the portal frame such that they comply with the local provisions for deployment.

The result must be documented (Section 6 ArbSchG). When deployment of the portal frame involves similar hazard situations, the results may be summarised. This summary is designed to help to meet the requirements of these regulations. The summary specifies the primary hazards that, in the event of non-compliance, are the most frequent cause of accidents. If other major hazards are present as a result of the specific operating conditions, these hazards must also be taken into consideration.

The conditions of use for the STILL portal frame are broadly similar in many plants, meaning that the hazards can be summarised in one overview. Information provided on this subject by the relevant employers' liability insurance association or national authorities must be observed.



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Residual risk

Stability

Stability is guaranteed if the trailer is used according to its intended purpose.

The following actions may jeopardise stability:

- · Cornering at excessive speeds
- Loading and unloading on ascending and descending gradients
- Driving with loads where the centre of gravity of the load is usually higher than 400 mm
- Turning on and driving diagonally across descents or ascents
- Driving on descents or ascents with the load on the downhill side
- Driving with loads that protrude beyond the outer edges of the trailer
- · Driving with a swinging load
- · Driving over ramp edges or steps



Safety

Operating company

The operating company is the natural or legal person who uses the STILL portal frame or on whose authority the STILL portal frame is used.

The operating company must ensure that the STILL portal frame is used only for its proper purpose and in compliance with the safety regulations set out in these operating instructions.

The operating company must ensure that all users understand the safety information in these operating instructions.

The operating company is responsible for the scheduling and correct performance of regular safety checks.

It is recommended that these checks comply with national performance specifications.

Competent person

A competent person is defined as a service engineer or a person who fulfils the following requirements:

- A completed vocational qualification that demonstrably proves their professional expertise This proof is to consist of a vocational qualification or a similar document
- Professional experience indicating that the competent person has gained practical experience of industrial trucks over a proven period during their career. During this time, this person has become familiar with a wide range of symptoms that require checks to be carried out, such as based on the results of a hazard assessment or a daily inspection.
- Recent professional involvement in the field of the industrial truck test in question and an appropriate further qualification are essential. The competent person must have experience of carrying out the test in question or of carrying out similar tests. Moreover, this person must be aware of the latest technological developments regarding the industrial truck being checked and the risks being assessed.



Basic principles for safe operation

Warning regarding non-genuine parts

The original parts and accessories are designed specifically for the STILL portal frame. Please note that parts and accessories not supplied by the manufacturer have also not been tested or approved by the manufacturer.

A CAUTION

Installation and/or use of non-genuine parts may therefore adversely affect the design features of the STILL portal frame and thus impair active and/or passive driving safety.

Before installing non-genuine parts, we recommend that approval is obtained from the manufacturer. The manufacturer accepts no liability for any damage caused by the use of non-genuine parts and non-approved accessories.

Modifications and retrofitting

Changes to the STILL portal frame that will adversely affect stability, load capacity and safety systems, among other things, must not be made without the manufacturer's approval.

The STILL portal frame may only be converted with the written approval of the manufacturer. Approval from the relevant authority must be obtained where applicable.

Damage and defects to safety systems

The operator must report any damage or other defects to the STILL portal frame to the supervisory personnel immediately.

A STILL portal frame that is not functional or safe to drive must not be used until it has been properly repaired.



Safety regulations for handling consumables

Handling consumables

ENVIRONMENT NOTE

Consumables must be handled properly and in accordance with the manufacturer's instructions.

- Consumables must be stored only in containers that comply with the applicable regulations and at the locations stipulated
- Do not allow flammable consumables to come into contact with hot objects or naked flames
- When topping up consumables, use only clean containers
- Observe the manufacturer's instructions relating to safety and disposal
- Avoid spillages
- Remove any spilled fluid immediately with a suitable binder and dispose of it according to the applicable regulations.
- Old and contaminated operating material must be disposed of in accordance with the applicable regulations.
- · Comply with the statutory provisions
- Before performing lubrication work, carefully clean the area around the part in question
- Dispose of used spare parts in an environmentally responsible manner

Disposing of units

It may be necessary to exchange units as part of maintenance work. This may result in the need to dispose of replaced units.

A STILL portal frame is composed of different materials. In accordance with regional or national regulations, each of these materials must undergo

- Disposal
- Treatment
- Recycling



Safety regulations for handling consumables

We recommend working with a waste management company when disposing of hazardous materials.



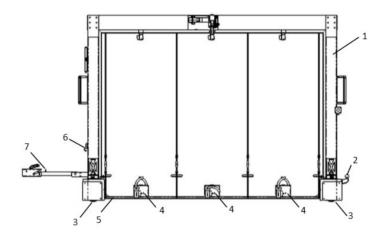
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Overviews

Overview

Overview

Overview



- Framework construction allows loading and unloading on both sides 1
- 2 3 Ball neck
- Four PU wheels

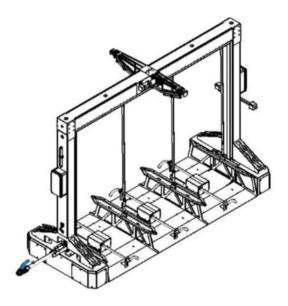
- Locking mechanism Load pick up by means of a trough Tiller locking mechanism Tiller with towing ball coupling
- 4 5 6 7



Description

Description

Technical description



Trailer types

 STILL portal frame With lifting device and load pick up for trolleys.
 With mechanical steering.

Design

The trailers operate very quietly thanks to the use of low-noise components such as lifting devices, protective devices and the towing ball coupling. The operating devices on the trailers are also arranged to suit ergonomic requirements and are easily accessible for the driver and operator.





Description

General advantages of the STILL portal frame

 Flexibility through the use of different tow tractors: Maximum total train weight of up to 6000

Maximum total train weight of up to 6000 kg.

- Additional securing of the trolleys with an interlock.
- · Solid frame construction.
- All-wheel steering for a small turning radius and a high level of tracking stability
- STILL Portalrahmen for picking up trolleys from both sides.

Trailers with lifting device

- Warp-resistant, low-noise lift drive:
- · Lifting system with load pick up for trolleys
- Lifting and lowering centrally from the tow tractor is possible:
 - On the tow tractor using the operating unit.
- · Low-maintenance lifting concept.

Towing ball coupling and towbar

Play-free towing ball coupling produces no noise

Operating unit on the tow tractor

 Individual and safe lifting and lowering function via additional control buttons with indicator lights on the tow tractor

Error detection

- · Visually and audibly on the tow tractor
- · Visually on the trailer

Electrical drive unit interlock

• Active safety measure provided by electrical drive unit interlock that prevents users from driving off with the load lowered.

Special equipment

- Installation of an EMERGENCY off on the frame
- · ESD conductivity via ESD wheels
- Lighting



Description

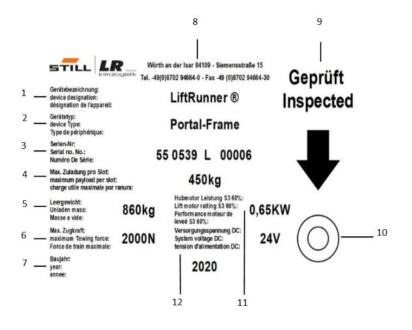
- Rotating beacon



Labelling points

Labelling points

Identification plate



- 1 Device designation
- 2 3 Device type
- Serial no.
- 4 Max. load
- 5 Tare weight
- 6 Supply voltage DC

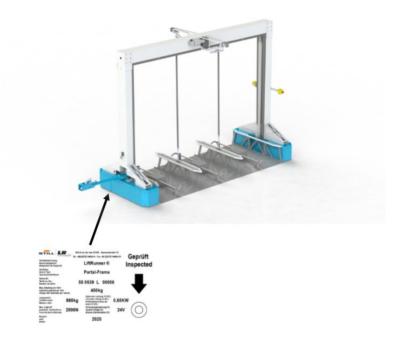
- 7 Year of manufacture
- 8 Manufacturer contact
- 9 Confirmation of inspection
- 10 Inspection sticker
- Lift motor power rating 11
- 12 Drive power rating



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Labelling points

Position of the identification plate



The identification plate is located in the centre of the front axle casing below the tiller.



Operation

Service plan before initial commissioning

Chassis frame
Check the wheels for damage and cleanliness
Check the mounting of the towbar
Check the towing device
Electrics
Check the connecting cable

Assembling the tugger train

The tugger train is formed from a suitable tow tractor and a number of trailers.

The tow tractor must provide the following:

- An approved towing device for the towing ball couplings on the trailers
- · The power supply to the trailers
- The operating unit for the electrical lifting equipment on the trailers
- The on-off switch for switching off the energy supply to the trailers

WARNING

Risk of accident due to excessively long tugger train and overloading of the tow tractor.

- Determine the maximum permissible length by carrying out test drives at all places of use.
- Select a suitable tow tractor.
- Observe the performance parameters of the relevant tow tractor.
- Once assembled, have the tugger train approved by the safety officer.

The maximum number of trailers depends on the local conditions and various specifics pertaining to the tugger train. If there are more than three trailers, it is possible that the rear trailers will no longer be sufficiently guided. The rear trailers may break off due to inertia forces when braking and when travelling on slopes.

The entire towed weight must not exceed 6000 kg.

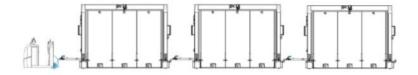


The following properties must be the same on all trailers:

· Wheel sizes

The wheel sizes and variants determine the overall heights of the trailers. If the wheel sizes on a train vary, pulling and compression forces arising when driving are not exerted evenly on the towbars. The train becomes unstable.

Example of train composition



The heaviest trailer must always be the first trailer coupled to the tow tractor. Subsequent trailers must be attached to the train in descending order of weight.

To use the trailers in a logistically sensible manner, the route should be selected so that the first set-down point can be supplied by the very last trailer and the last set-down point can be supplied by the first trailer.

The following is to be observed for trucks with an electrical lifting device:

- The weight distribution must be considered when coupling the trailers.
- Always keep the entire logistic train in view.

Pre-shift checks

Chassis frame

Check the wheels for damage and cleanliness



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Check the mounting of the towbar

Check the towbar locking mechanism

Checking the steering system

Check protective devices (locking mechanisms etc.)

Electrics

Check exposed cables for damage

Check the connection assemblies and interlocks

Operating device

Check the on-off switch on the tow tractor for switching off the energy supply

Check the display for function and cleanliness



General information

A DANGER

Risk of accident as a result of failing to adapt trucks and driving style!

If a tow tractor that can travel faster than 14 km/h is used, the maximum speed of the tow tractor must be limited to 14 km/h in order to guarantee safe operation of the trailers.

Adapt trucks and driving style to the local conditions.

The maximum speed of the logistic train is dependent on:

- The tractive power and braking performance of the tow tractor
- · The number of trailers to be moved
- · The load
- The roadway conditions (radius of curves, ground conditions)
- · The ability of the driver

It must be possible to bring the logistic train to a standstill in any driving situation, without endangering people in the process.

A WARNING

The logistic train cannot be controlled during reverse travel!

Due to the large number of trailers, controlled reverse travel is not possible. The trailers could break off in the process.

- Never drive the logistic train backwards.



🛦 WARNING

There is a risk of injuries to third parties when driving off in an uncontrolled manner!

Depending on the tow tractor, the steering angle may not be recognised. If the logistic train is parked with the steering at an angle, under certain circumstances this may not be detected by the next driver. In this scenario, the logistic train may not always start moving in the desired direction. This may result in injury.

- Do not park the logistic train with the steering at an angle.
- The steering angle must only ever be corrected when driving forward.

WARNING

Risk of accident from parked train!

The logistic train and the individual trailers must not be parked on inclined planes, on curves, at junctions or on paths.

- Only park the logistic train/trailer in places that are approved by the safety officer and are marked.
- Secure the logistic train/trailer to prevent it from rolling away.
- Secure the logistic train/trailer against unauthorised use.

A WARNING

Risk of accident on ascending and descending gradients!

The maximum driving speed on ramps is 3 km/h.

Requirements for driving speed reduction on ascending and descending gradients must be determined by the operating company based on the operating conditions.

The driving speed must be agreed with the responsible safety officer and adapted for the local conditions and the application conditions.

- Observe the parameters of the tow tractor.
- Observe the operating instructions for the tow tractor.
- Perform a test drive.

It is important to note that the tyres are designed only for indoor use.



Driving

A DANGER

Risk of accident!

People must not stand in the danger area of the train.

If part of the logistic train cannot be observed, safely brake the logistic train.

In general, the following principles apply:

- Accelerate slowly.
- Brake slowly.
- Reduce speed before and during cornering.
- Avoid abrupt steering movements.
- Note increased braking distance caused by laden trailers.
- Secure the load.

Coupling

Trailers may only be coupled to tow tractors equipped with a suitable towing device.

The towing device and tow tractor must be approved for the relevant towed load.

The tow tractor must be equipped with an approved ball neck for towing ball couplings that is free of wear.



Operation

Checking the ball neck for wear

 Remove the protective cap (1) and stow away safely.

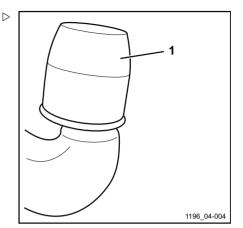
WARNING

Risk of impact on the ball neck!

The protective cap cushions against any potential collisions with parts of the body.

In addition, the protective cap protects the ball neck against dirt and water.

- Push the protective cap onto the ball neck when the towing device is not being used.

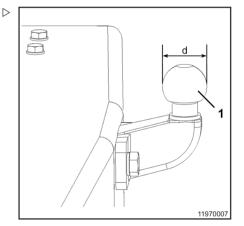


 Measure the diameter (d) of the ball on the ball neck (1).

If the diameter (d) is less than 49 mm:

- Do not use the towing device.
- Notify your service partner.

The diameter of the ball when new is 50 mm ± 0.3 mm; a diameter of 49 mm indicates the ball is worn.





Locking the tiller

A WARNING

Risk of crushing and risk of impact by the tiller!

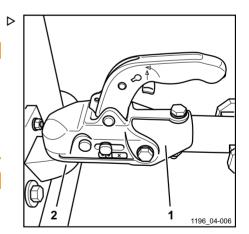
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There is a risk of crushing and impact from colliding with the tiller.

- Wear protective gloves.
- Only grasp the tiller using the handhold (2) provided.
- Fold the tiller (1) up to lock it in position.
- Attach the hook that is mounted on the upright stirrup tube to the eyelet that is on the tiller (3).
- To release, hold the tiller by the handhold
 (2) and release the tiller from the lock.

The tiller is released.

 Slowly guide the tiller downwards using the handhold (2).



Coupling the trailer

A WARNING

Risk of impact due to the trailer rolling away!

The tow tractor and trailer must always be on a level surface and in line with one another when coupling and uncoupling trailers.

- Select a suitable location for coupling and uncoupling.
- Secure the trailer to prevent it from rolling away.



WARNING

Risk of crushing and risk of impact by the tiller!

There is a risk of crushing and impact from colliding with the tiller.

- Wear protective gloves.
- Only grasp the tiller using the handhold (3) provided.
- Actuate the parking brake on the tow tractor.
- Actuate the on-off switch on the tow tractor.



Operation

3

Operation

- Release the tiller.
- Position the opened towing ball coupling on the ball neck (2).
- Press the tiller down using the handhold until the towing ball coupling (1) is securely locked.

Secure locking is indicated when the indicator ▷ bolt is in line with the area marked "+" on the towing ball coupling.

Symbol	Meaning		
+	Towing ball coupling closed		
x	Towing ball coupling open		
_	Towing ball coupling or ball neck worn		

The symbols may vary depending on the manufacturer of the towing ball coupling. It is recommended to have only genuine spare parts fitted by your service partner.

A DANGER

Risk of fatal injury from trailers coming loose!

When coupling, the ball neck must securely engage with the towing ball coupling on the trailer and lock in place.

- Check that the ball neck is securely locked in the towing ball coupling.
- In the event of a malfunction or if the towing ball coupling is worn, do not put the logistic train into operation.

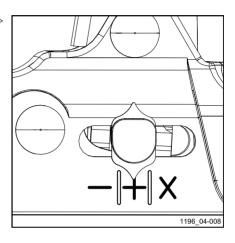
Uncoupling

WARNING

Risk of impact due to the trailer rolling away!

The tow tractor and trailer must always be on a level surface and in line with one another when coupling and uncoupling trailers.

- Select a suitable location for coupling and uncoupling.
- Secure the trailer to prevent it from rolling away.





- Actuate the parking brake on the tow tractor.
- Switch off the tow tractor.
- Actuate the emergency off switch on the tow tractor.
- Secure the trailer to prevent it from rolling away.

A CAUTION

Risk of component damage!

The power supply cables must not be damaged and must not be placed on the ground.

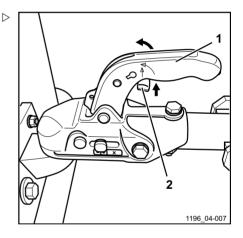
- Place the power supply cable securely on the trailer, ensuring that the plug faces downward and is protected against the ingress of water.
- Push down the catch (2) and keep it held down.



WARNING

Risk of crushing and risk of impact at the towbar!

- Wear protective gloves.
- Only grasp the tiller using the handhold (1) provided.
- Grasp the tiller (1) using the handhold (2) and pull upwards.

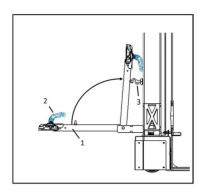




3

Operation

Ensure that the tiller locks in the upper position (3).



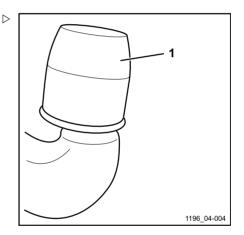
Push the protective cap (1) back onto the ball neck.

A CAUTION

Risk of losing the dongle!

If not all of the trailers have been uncoupled, the dongle must be connected to the last trailer.

- Always connect the dongle to the very last trailer.
- Securely store the dongle when not in use. Connect to the tow tractor if necessary.
- In the event that the dongle is lost or damaged, contact your service partner.





Working with the STILL portal frame

Loading trailers and trolleys

A WARNING

Risk of accident posed by trolleys!

Only trolleys that can safely hold the load to be transported may be used.

The trolleys must not extend beyond the dimensions of the trailer.

Tipping mechanisms on the trolleys may cause the load to move in an uncontrolled manner. This may also occur if the trolleys are not correctly loaded.

If the trolley is not fully rolled into the trailer and secured, it may roll out or tip over when being lifted.

- Only use approved trolleys that are suitable for use with the trailers.
- Observe the payload of the trolleys.
- Push trolleys fully into the trailers and secure.

A WARNING

Risk of accident from protruding or inadequately secured load!

Protruding loads may catch on objects and cause the logistic train to tip over.

Inadequately secured loads may have a negative effect on driving stability due to slipping while cornering. Incorrectly laden trailers may break off.

- Do not transport protruding loads.
- Secure loads sufficiently.
- Use suitable devices.



A WARNING

Risk of crushing when loading and unloading.

- Wear personal protective equipment.

WARNING

Risk of impact and crushing injuries!

Injuries may be sustained if people stand between the load and the trailer.

- Ensure that there are no people present in the danger area when loading and unloading.
- Position safety look-outs.



Operation



4

Disposal

Disposing of units

Disposing of units

It may be necessary to exchange units as part of maintenance work. This may result in the need to dispose of replaced units.

A STILL portal frame is composed of different materials. In accordance with regional or national regulations, each of these materials must undergo

- Disposal
- Treatment
- Recycling



We recommend working with a waste management company when disposing of hazardous materials.



5

Transport

Transport

Transport

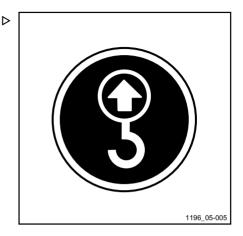
The trailer is only intended to be transported from the manufacturer to the operating company. If subsequent transportation is required for reasons such as maintenance or repair, the following note must be observed.

A DANGER

Risk of fatal injury due to loads being secured incorrectly!

If trailers are to be transported, they must be hooked on/lashed at suitable points. These points are marked accordingly.

- Only hook on or lash trailers at marked points.







Repairs

Service plan: monthly

	Carried out	
	√	×
Depending on use, ambient conditions and driving style, the following service plan must be carried out at least once a month.		
Preparatory tasks		
If necessary, clean the trailer		
Load lift system		
Check the locking lips on the fork arms		
Check the lifting and lowering functions		
Chassis frame		
Clean and lubricate the pivot joints		
Mechanical four-wheel steering		
Clean and lubricate the tiller		
Clean and lubricate the steering chains		
Measure the diameter of the ball on the ball neck		
Electrics		
Check that the displays are working correctly		

Service plan: every three months

	Carrie out	əd
	✓	×
Depending on use, ambient conditions and driving style, the following service plan must be carried out at least once every three months.		
Preparatory tasks		
If necessary, clean the trailer		
Check that all screws and nuts are fully intact and securely fitted		
Trailer construction		
Check the chassis for cracks		
Clean the exterior of the lift motor and check that it is in good working order.		



	Carried out	
	1	×
Check that the tow coupling is operating correctly		
Chassis frame		
Clean and lubricate the pivot joints		
Mechanical four-wheel steering		
Clean and lubricate the tiller		
Check the chain tension		
Clean and lubricate the steering chains		
Check the mountings of all steering elements		
Check tensioning pieces and steering chains for wear		
Measure the diameter of the ball on the ball neck		
Electrics		
Check that the displays are working correctly		
Check the power supply cables and their locking mechanisms		
Load lift system		
Check the lifting and lowering functions		
Check that the lubrication points are present and replace if necessary		
Check the mountings of the lift motor		
Final checks		
Perform a visual inspection of the general condition of the chassis		
Perform a test drive		

Service plan: every six months

	Carried out ✓ ×	
Depending on use, ambient conditions and driving style, the following service plan must be carried out at least once every six months.		
Preparatory tasks		
If necessary, clean the trailer		
Check that all screws and nuts are fully intact and securely fitted		
Check load-bearing parts for cracks and corrosion		



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	Carri out	ed
	✓	x
Trailer construction		
Check the chassis for cracks		
Clean the exterior of the lift motor and check that it is in good working order.		
Check that the tow coupling is operating correctly		
Chassis frame		
Clean and lubricate the pivot joints		
Check the load rollers for wear and ease of movement		
Mechanical four-wheel steering		
Clean and lubricate the tiller		
Check the chain tension		
Clean and lubricate the steering chains		
Check the mountings of all steering elements		
Check tensioning pieces and steering chains for wear		
Measure the diameter of the ball on the ball neck		
Electrics		
Check that the displays are working correctly		
Check the power supply cables and their locking mechanisms		
Load lift system		
Check the lifting and lowering functions		
Check that the lubrication points are present and replace if necessary		
Check the mountings of the lift motor		
Final checks		
Perform a visual inspection of the general condition of the chassis.		
Perform a test drive		

Service plan - Annual

	Carrie out	əd
	 ✓ 	×
Depending on use, ambient conditions and driving style, the following service plan		
must be carried out at least once a year.		



	Carried out	
	✓	×
Preparatory tasks		
If necessary, clean the trailer		
Check that all screws and nuts are fully intact and securely fitted		
Check load-bearing parts for cracks and corrosion		
Trailer construction		
Check the chassis for cracks		
Check welded seams for cracks (visual inspection)		
Clean the exterior of the lift motor and check that it is in good working order.		
Check that the tow coupling is operating correctly		
Chassis frame		
Clean and lubricate the pivot joints		
Check the load rollers for wear and ease of movement		
Mechanical four-wheel steering		
Clean and lubricate the tiller		
Check the chain tension		
Clean and lubricate the steering chains		
Check the mountings of all steering elements		
Check tensioning pieces and steering chains for wear		
Measure the diameter of the ball on the ball neck		
Electrics		
Check that the displays are working correctly		
Check the power supply cables and their locking mechanisms		
Load lift system		
Check welded seams for cracks (dye penetration test)		
Check the lifting and lowering functions		
Check that the lubrication points are present and replace if necessary		
Check the lift motor mountings		
Final checks		
Perform a visual inspection of the general condition of the chassis		
Perform a test drive		



Cleaning the trailer

A CAUTION

6

Risk of short circuit if water penetrates the electrical system!

The electrical system must be de-energised before cleaning the trailer.

- Before cleaning the trailer, press the on-off switch.

High-pressure cleaners and other products with a strong degreasing effect must always be used with great care. Such cleaners can penetrate even sealed, maintenance-free bearings and dilute the lubricating grease. This causes the lubricating grease to lose its lubricating properties. These bearings cannot be lubricated by hand and may be permanently damaged by these cleaning methods.

A CAUTION

Risk of wear or damage to the machine!

If a cleaning device is used on trailers with electrically operated lifting equipment, never aim the water jet directly at electrical circuits, motors or insulating panels.

 Protect at-risk components from water by covering with e.g. foil.

If using compressed air, first remove stubborn dirt with a cold cleaning solvent. Lubricating nipples must be clean to ensure that no dirt can penetrate into the components to be lubricated. After cleaning, the trailers must be dried.



The more often a trailer is cleaned, the more frequently the trailer requires lubrication.



A CAUTION

Water in electric motors can cause corrosion!

If, despite taking all of these safety precautions, water enters the motors on a trailer with electrically operated lifting equipment, the motor must be handed over to the service partner for repair. To prevent corrosion and therefore damage, the motor must be dried using its own heat or using compressed air.

- If water has penetrated the motor on a trailer, the trailer must not be put into operation.
- Contact your service partner regarding the repair.



Electrical equipment

6

Electrical equipment

Checking the condition of cables and electrical connections

Checking the condition of cables and electrical connections

 Observe the following instructions for working on the electrical equipment.

A DANGER

Risk of injury from electric shock!

The power supplied to the trailer is low in voltage. Nevertheless, malfunctions may occur if there is a fault in the electrical system for the tow tractor. For safety purposes, all work on the electrical system must be carried out when the system is in a de-energised state.

- Disconnect the power supply.

WARNING

Risk of crushing from lifting device!

If the power supply is not disconnected, this can lead to the lifting device starting up accidentally.

A WARNING

Risk of cable fire!

The cables mounted on the trailers are tested and selected for their specific purpose and for the application at hand. Replacing or repairing the cable can lead to cable fires and, as such, to burns. Repairs must only be performed by your service partner.

- Always check the plug and cable for damage.

A WARNING

Risk of cable fire!

If the current load exceeds permissible levels, e.g. through the use of more than four trailers, cable fires may occur.

- Use a maximum of four trailers.



WARNING

Risk of component damage!

Oxidised connections and damaged cables may result in a loss of voltage and a rise in temperature and could cause malfunctions.

- In the event of defects, do not put the trailer/logistic train into operation until the defect has been rectified.
- Check that electrical connections are securely mounted and check for signs of oxidation.
- Check the connection assemblies for the energy supply are intact and check the function of the locking mechanism.
- Check the contacts.
- Check the cable and ensure it is mounted securely.
- Check the cable insulation for wear.
- Report any defects identified to your service partner.



Possible sources of errors

Possible sources of errors

Possible sources of errors

If, despite observing all measures for initial commissioning and residual risks, the logistic train does not function correctly, this may be due to the following sources of errors:

- Battery and battery charge level of the tow tractor
- · Loose or oxidised connection assemblies
- · Active drive unit interlock
- · All lifting devices must be raised.

If the driving behaviour of the logistic train changes or if unusual noises develop, the following causes are possible:

- · Slipped load
- Material wedged in the collision protection or under the trailer/tow tractor
- · Material wedged on the load rollers
- · Material wedged on the lifting devices
- · Worn load rollers
- Worn holding fixtures or bearings on the load rollers
- · Worn components on the lifting device

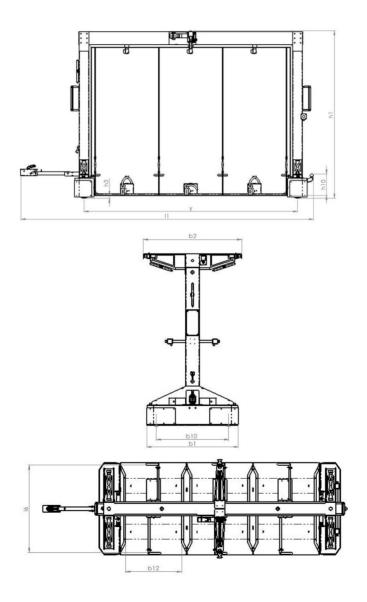


7

Technical data

Technical data for STILL portal frame

Technical data for STILL portal frame





Technical data for STILL portal frame

Key o	Key data			
1.1	Manufacturer		STILL	
1.2	Model		C-Frame	
1.2a	Series		Portal frame	
1.5	Load capacity/load	Q (t)	1.35	
1.6	Load centre of gravity	c (mm)	-	
1.8	Load distance	x (mm)	-	
1.9	Wheelbase	y (mm)	3260	

Weight			
2.1	Net weight	(kg)	860

Whee	Wheels, chassis frame			
3.1	Tyres: solid rubber, super elastic (SE), pneumatic, polyurethane		Polyurethane	
3.2	Front tyre size	(mm)	Ø 200 x 50	
3.3	Rear tyre size	(mm)	Ø 200 x 50	
3.5	Number of front/rear wheels (x = driven)		2/2	
3.6	Front track width	b10 (mm)	1067	

Basic o	Basic dimensions			
4.1	Lift mast/fork carriage tilt, forwards/back- wards	a/b (°)	-	
4.2	Height with lift mast retracted	h1 (mm)	2557	
4.4	Lift	h3 (mm)	40	
4.4a	Lifting function		-	
4.5	Height with lift mast extended	h4 (mm)	-	
4.12	Coupling height	h10 (mm)	370	
4.15	Height when lowered	h13 (mm)	-	
4.19	Overall length	l1 (mm)	4464	
4.21	Overall width	b1/b2 (mm)	1350/1455	
4.21.6	Load length	l6 (mm)	1287	
4.21.7	Load width	b12 (mm)	823	
4.22	Fork arm dimensions	s/e/l (mm)	-	
4.25	Min./max. fork exterior distance	b5 (mm)	-	



Technical data for STILL portal frame

Basic dimensions									
4.31	Ground clearance with load below lift mast	m1 (mm)	-						
4.35	Turning radius	Wa (mm)	-						
4.36	Smallest pivot point distance	b13 (mm)	-						

Perfor	mance data		
5.2	Lifting speed with/without load	(m/s)	-
5.3	Lowering speed with/without load	(m/s)	-
5.7	Climbing capability with/without load	(%)	4
5.10	Service brake		Nil
6.2	Lift motor, power rating at S3: 15%	(kW)	-
8.5	Tow coupling, type/diameter	(mm)	Ball coupling/Ø 50



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Possible sources of errors.

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