Original instructions

Pallet stacker

EXV 10 Basic
EXV 10 / 10i
EXV 12 / 12i
EXV 14C / 14iC

first in intralogistics

45728043002 EN - 09/2022 - 01

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.

Address of manufacturer and contact details ▷

STILL GmbH
Berzeliusstraße 10
22113 Hamburg, Germany
Tel. +49 (0) 40 7339-0
Fax: +49 (0) 40 7339-1622
Email: info@still.de
Website: http://www.still.de

1 Introduction

2 Safety

1

Introduction

Forklift data

We recommend that you record the principal forklift data in the following table so that they are available if required by the sales network or authorised service centre.

Type	
Serial number	
Date of delivery	

General information

- This manual contains "Original Instructions" provided by the manufacturer.
- The "operator" is defined as the person driving the forklift.
- The "user" is the physical or legal person who has the forklift truck used by the operators.
- For correct use of the truck and in order to avoid accidents, the operator is obliged to read, understand and apply the contents of this manual and the plates and stickers applied to the truck.
- This manual must be stored carefully and remain on board the truck for quick consultation.
- The manufacturer assumes no responsibility for any accidents to persons or damage to things due to failure to observe the contents of this manual and the plates and stickers applied to the truck.
- The forklift may not be put to any use other that than indicated in this manual.
- The forklift must be used by appropriately trained operators only. For the necessary operator training, contact the authorised sales network.
- Persons working near the forklift must also be instructed in the risks associated with use of the forklift.
- In the interests of clear information, some illustrations in this manual show the forklift without the safety equipment (guards, panels, etc.). The forklift may not be used without safety equipment.

How to Consult the Manual

There is a table of contents at the beginning of the manual for ease of use. The manual is divided into chapters with specific topics. The name and title of the chapter are given at the top of each page The following is found at the bottom of each page: the type of manual, the identifying code, the language and the manual version.

Some general information is provided in this manual. Please only consider the information relevant for your specific forklift.

The following symbols have been used to highlight some parts of this manual.

⚠ DANGER

Failure to observe the instructions highlighted with this symbol may jeopardise safety.

⚠ CAUTION

Failure to observe the instructions highlighted with this symbol may cause damage to the forklift and, in some cases, result in warranty invalidity.

ENVIRONMENT NOTE

Failure to observe the instructions highlighted with this symbol may cause environmental damage.

NOTE

This symbol is used to provide additional information.

Date of edition and latest update of this manual

The publication date of these operating instructions is printed on the cover sheet.

The manufacturer makes continuous efforts to improve its industrial trucks, and therefore reserves the right to implement changes and to accept no claims concerning the information provided in this manual.

To receive technical assistance, please contact the service centre authorised by your closest manufacturer.

Copyright and trademark rights

Delivery of the forklift and documentation

Ensure that the truck has all of the options requested and that it has been delivered with the following documentation:

- Original instructions
- Declaration of conformity

If the truck has been delivered with a traction battery and/or a battery charger, ensure that these products conform to the order and that the corresponding operating and maintenance manuals are included, as well as the declaration of conformity for the battery charger.

If there is applied equipment or other equipment or devices, ensure that these products conform to the order and that the corresponding operating and maintenance manual and the corresponding declaration of conformity (if required by the applicable regulations) are included.

All of the above documentation must be kept for the entire operational life of the truck. In the event that the documentation is lost or damaged, contact the authorised sales network for copies of the original documentation.

Spare parts list

You can request to download the spare parts list by copying and pasting the address **https://sparepartlist.still.eu** into a web browser or by scanning the QR code shown to the side.

On the web page, enter the following password: **Spareparts24!**

On the next screen, enter your email address and truck serial number to receive an email with the link and download the spare parts list.

Conformity marking

The manufacturer uses the conformity marking to document the conformity of the industrial truck with the relevant directives at the time of placing on the market:

- CE: in the European Union (EU)
- UKCA: in the United Kingdom (UK)
- EAC: in the Eurasian Economic Union

The conformity marking is applied to the nameplate. A declaration of conformity is issued for the EU and UK markets.

An unauthorised structural change or addition to the industrial truck can compromise safety, thus invalidating the declaration of conformity.

conformity symbols

Declaration that reflects the content of the declaration of conformity

Declaration

STILL GmbH
Berzeliusstraße 10
22113 Hamburg Germany

We declare that the specified machine conforms to the most recent valid version of the directives specified below:

Industrial truck type	**corresponding to these operating instructions**
Model	**corresponding to these operating instructions**

– "Machinery Directive 2006/42/EC" [1)]
– "Supply of Machinery Safety Regulations 2008, 2008 No. 1597" [2)]

Personnel authorised to compile the technical documents:

See declaration of conformity

STILL GmbH

[1)] For the markets of the European Union, the EU candidate countries, the EFTA States and Switzerland.
[2)] For the United Kingdom market.

The declaration of conformity document is supplied with the industrial truck. The declaration shown explains the conformity with the provisions of the EC Machinery Directive and the Supply of Machinery Safety Regulation 2008, 2008 No. 1597.

An unauthorised structural change or addition to the industrial truck can compromise safety, thus invalidating the declaration of conformity.

The declaration of conformity must be carefully stored and made available to the responsible authorities if necessary. It must also be

handed over to the new owner if the industrial truck is sold on.

Technical service and spare parts

For scheduled maintenance and any repairs to the forklift, contact only the authorised service network.

The authorised service network has personnel trained by the manufacturer, original spare parts and the tools necessary to carry out maintenance and repairs.

Servicing by the authorised service network and the use of original spare parts maintain the technical characteristics of the forklift over time.

Only original spare parts provided by the manufacturer may be used for forklift maintenance and repairs. The use of non-original spare parts invalidates the warranty and renders the user responsible for any accidents due to the inappropriateness of the non-original parts.

Type of use

"Normal use conditions" of the forklift are understood as:

- lifting and/or transport of loads using forks with weight and load centre within the values provided (see Chapter 6 - Technical Data).
- transport and/or lifting on smooth, flat and compact surfaces;
- transport and/or lifting of stable loads uniformly distributed on the forks;
- transport and/or lifting with the load centre approximately on the forklift's median longitudinal plane.

⚠ DANGER

The forklift must not be used for other purposes.

Any other use renders the user solely responsible for injury/damage to persons and/or objects and voids the warranty.

The following scenarios are examples of incorrect use of the forklift truck:

- Transport on uneven (irregular or non-compact) surfaces
- loads that exceed the weight and/or load centre limits;
- transporting non-stable loads;
- transporting loads not equally distributed on the forks;
- transporting swinging loads;
- transporting loads whose load centre is considerably displaced with respect to the forklift's longitudinal median plane;
- transporting loads of dimensions such as to block the view of the operator when driving;
- transporting loads piled so high that they could fall onto the operator;
- travelling with a load over 300 mm off the ground;
- transporting and/or lifting people;
- Pushing loads
- moving upwards or downwards on a slope with the load facing downwards;
- turning at high speed;
- turning and/or moving sideways on slopes (upwards or downwards);
- colliding with stationary and/or mobile structures;

⚠ DANGER

Improper use of the forklift could cause it and/or at the load to overturn.

Working conditions

The truck has been designed and built for internal transport.

The truck must not be used outside the climatic conditions indicated below:

- Maximum ambient temperature: +40°C
- Minimum ambient temperature: +5°C

- Altitude up to 2000 m
- Relative humidity between 30% and 95% (without condensation).

⚠ CAUTION

Do not use the truck in dusty environments.

Using the truck in environments with high concentrations of salty air or water could cause problems with the truck and cause corrosion of metallic parts.

If the truck must be used in conditions outside of the limits indicated or, in any case, under extreme conditions (extreme weather, cold-storage rooms, presence of strong magnetic fields etc.), appropriate equipment and/or usage precautions are necessary. Contact the authorised sales network for information.

⚠ DANGER

The truck must not be used in environments where there is a risk of explosion and the truck must not be used to handle explosive loads.

Trucks that must operate in environments where there is a risk of explosion or trucks that must handle explosive loads require the appropriate equipment, which must be accompanied by a specific declaration of conformity that replaces that of the standard truck, and by the corresponding operating and maintenance manual.

Contact the authorised sales network for further information.

Modifications to Forklift

No modifications may be made to the forklift, otherwise the EC certificate and the warranty will become invalid, with the exception of:

- Assembly of the options, only if provided by the manufacturer
- Assembly of applied equipment, only if provided by the manufacturer

⚠ WARNING

Before installing optional or additional equipment, please exclusively contact the sales network authorised by the manufacturer.

⚠ DANGER

If the forklift is equipped at the factory or later with devices that emit non-ionising radiation (such as radio transmitters, RFID players, data terminals, scanners, etc), the compatibility of such devices must be verified with the presence of operators using medical devices (such as heart pacemakers).

Applied equipment

To apply additional equipment after purchasing, you must contact the sales network authorised by the truck manufacturer, which will:

- verify feasibility
- install the equipment
- add a label with the new residual capacity
- provide documentation on the equipment (operating and maintenance manual and declaration of conformity)

⚠ CAUTION

The truck user must be trained in the operation and correct use of the equipment

The user must check that the equipment is working correctly before use.

User obligations

Users must comply with applicable local legislation governing forklift use and maintenance.

Environmental considerations

Disposal of components and batteries

The truck is composed of different materials. If components or batteries need to be replaced and disposed of, they must be:

- disposed of,
- treated or
- recycled in accordance with regional and national regulations.

NOTE

The documentation provided by the battery manufacturer must be observed when disposing of batteries.

ENVIRONMENT NOTE

We recommend working with a waste management company for disposal purposes.

Packaging

During delivery of the truck, certain parts are packaged to provide protection during transport. This packaging must be removed completely prior to initial start-up.

ENVIRONMENT NOTE

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

2

Safety

Safety guidelines

General Precautions

NOTE

Some safety regulations to be followed when using the forklift are listed below. These regulations integrate those in the manual "**Rules for approved use of industrial vehicles**".

General Safety Rules

- Only allow qualified, trained and authorized personnel to use the forklift.
- Do not install equipment on the forklift unless supplied or indicated by the manufacturer.
- Maintain the forklift in full working efficiency in order to limit any type of risk to the minimum.
- Do not use the truck with bonnets or doors open or with guards removed.
- The data plates found on the forklift must be kept in good condition and replaced if damaged.
- Carefully read and follow all of the safety indications found on the forklift.
- Make sure that the forklift has sufficient overhead clearance.
- Do not park the forklift in front of fire-fighting devices or fire escapes or anywhere that it blocks traffic.
- If the forklift shows signs of failure or breakage and there is reason to consider it unsafe, stop, park it, and notify the maintenance manager.
- Maintain appropriate distances from high voltage overhead cables. Comply with the safety distances established by the competent authorities.
- Never raise the load using just one fork.
- Place the load on the fork carriage or in such a way that the centre of gravity of the load is as close as possible to the fork carriage.
- The load must be placed on the fork arms so that the centre of gravity falls lengthwise on the mid point between the fork arms.
- Do not drive with loads off-centre laterally with respect to the forklift's median axis. Lack of compliance with this regulation can compromise forklift stability.
- Make sure that the surface on which the load rests is able to support its weight.
- Always use safety clothing compliant with current regulations and any personal protective equipment that may be applicable.
- Do not travel on loose or hilly ground or on steps.
- Do not drive with loads raised more than 300 mm from ground level.
- Do not turn or stack on slopes.
- Reduce speed on slopes.
- Do not overload the forklift beyond the capacity limits indicated on the capacity plates.
- Individuals under the influence of drugs and alcohol are not permitted to use the truck.
- The operator may not use an MP3 player or any electrical device that may distract their attention from the surrounding work environment.

Flooring requirements

The work floor must be even and free of holes or dips, which can be difficult to get around. Any steps must be equipped with ramps to prevent impacts with the wheels, which affect the entire structure of the truck.

⚠ CAUTION

Passing over cracks or damaged parts of the floor with the truck is prohibited. Dirt and any objects in the work path must be removed immediately. The employer must ensure that the flooring requirements are met. For this reason, the manufacturer cannot be held liable for any damage to the truck (especially to wheels, hubs etc.) caused by use on unsuitable surfaces.

Battery connection cables

⚠ CAUTION

Using sockets with NON-ORIGINAL battery connection cables can be dangerous (see purchase references in the parts catalogue)

Requirements for the traction-battery charging area

When the traction battery is being charged, the area must be sufficiently ventilated in order to dilute or eliminate the gases produced (in compliance with current national regulations).

Safety Regulations Relative to Forklift Use

- The operator must familiarize himself with the forklift to be able to better describe any defects and assist maintenance personnel. The operator, trained and authorized to use the forklift, must be familiar with the controls and performances of the forklift.
- Any defect (squeaking, leaks, etc.) must be promptly reported because, if neglected, it could cause more serious failures/defects.
- Carry out the inspections indicated in the chapter on "Daily Inspections".

ENVIRONMENT NOTE

Report any oil and/or battery fluid leaks: they are dangerous and highly polluting.

⚠ CAUTION

If you notice a burning smell, stop the forklift and turn off the engine, then disconnect the battery.

Safety guidelines relating to operating materials

Rules for handling and disposing of operating materials

ENVIRONMENT NOTE

Improper use and disposal of operating and cleaning materials can cause serious damage to the environment.

Always use and handle the operating materials in a suitable manner and follow the manufacturer's instructions for the product's use.

Keep the operating materials only in containers intended for this purpose and in a location that satisfies the requirements.

The operating materials may be flammable, so avoid contact with hot objects or open flames.

When topping up the operating materials, only clean containers should be used.

Follow the manufacturer's safety and disposal instructions regarding the operating and cleaning materials.

Do not disperse oils or other operating liquids! Any spilt liquid must be immediately collected and neutralised with a binding material (such as an oil binder) and then disposed of in accordance with current regulations.

Always comply with anti-pollution regulations!

Before carrying out work that involves lubrication, filter replacement or hydraulic equipment interventions, the area in question must be thoroughly cleaned.

The replaced parts must always be disposed of in accordance with the anti-pollution laws.

Oils

- Avoid contact with skin.
- Do not inhale oil vapours.
- Wear appropriate personal protective equipment during truck maintenance operations (gloves, goggles etc.) to prevent the oil from coming into contact with your skin.

ENVIRONMENT NOTE

The used oils and relative filters contain substances that are hazardous to the environment and they must be disposed of according to current regulations. We advise you to contact the authorised service network.

⚠ DANGER

The penetration in the skin of hydraulic oil that has leaked under pressure from the forklift's hydraulic system is dangerous. If this type of lesion should occur, contact a doctor immediately.

⚠ DANGER

Small high pressure jets of oil can penetrate the skin. Look for any leaks using a piece of cardboard.

Battery acid

- Do not inhale the vapour: it is poisonous.
- Wear appropriate personal protective equipment to prevent contact with the skin.
- Battery acid is corrosive: if it should come into contact with your skin, rinse abundantly with water.
- Explosive gas mixtures can form when charging the battery; therefore, the rooms in which the battery is charged must be in compliance with the specific regulations on the subject (e.g. EN 62485-3 etc.).
- DO NOT smoke or use open flames and lights within a 2-m radius of the charged battery or in the battery charging area.

NOTE

For more information, consult the specific battery manual that comes with the battery.

ENVIRONMENT NOTE

The batteries contain substances that are hazardous to the environment. The replacement and disposal of the life-expired battery must be carried out as required by law. We advise you to contact the authorised service network that is equipped for eco-friendly disposal in accordance with current regulations.

Residual risk

Residual dangers, residual risks

Despite careful use and compliance with standards and regulations, the possibility of other risks occurring when using the truck cannot be entirely excluded.

The truck and all other system components comply with current safety requirements. Nevertheless, even when the truck is used for its proper purpose and all instructions are followed, some residual risks cannot be excluded.

Even outside the defined danger areas of the truck, residual risk cannot be excluded. Persons in this area around the truck 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 persons that are in the vicinity of the truck must be instructed regarding the risks that arise through use of the truck.

In addition, we draw your attention to the Safety Guidelines in these operating instructions.

Risks can include:

- Escape of consumables due to leakages, rupture of lines and containers etc.
- Risk of accidents when driving on ramps or in conditions of poor visibility, etc.
- Falling, tripping etc. when moving the truck, especially in wet or icy conditions or when consumables are leaking.
- Fire and explosion risks due to batteries and electrical voltages.
- Human error resulting from failure to observe the safety guidelines.
- Unrepaired damage or defective and worn components.
- Insufficient maintenance and testing
- Use of incorrect consumables
- Maintenance intervals exceeded

The manufacturer shall not be held responsible for accidents involving the truck caused by the failure of the operating company to comply

with these regulations either intentionally or due to negligence.

Stability

The stability of the truck has been tested in accordance with up-to-date technical regulations and is guaranteed if the truck is used correctly and in line with the intended purpose. These standards only take into account the static and dynamic tipping forces that can arise during use in accordance with the operating standards and intended purpose. In extreme cases there is a risk of exceeding the moment of tilt due to improper use or incorrect operation, which will affect stability.

The risks caused by improper use, and which are therefore prohibited, may include:

- loss of stability due to unstable or sliding loads etc.;
- turns at excessive speeds;
- moving with the load raised;
- moving with a load that is projecting to the side (e.g. side shift);
- turning and driving diagonally across slopes;
- driving on slopes with the load pointing downhill;
- oversized loads;
- swinging loads;
- steps or ramp edges.

⚠ WARNING

These risks are caused by improper use.

Improper use (e.g. swinging loads, transporting liquids etc.) is PROHIBITED unless specifically approved in writing by the manufacturer.

Electromagnetic radiation

The limit values for the truck's electromagnetic emissions and immunity are those set out in the EN 12895 standard.

If an electric and/or electronic device is subsequently attached to the outlet of the product ex-works, this could affect the truck's electromagnetic compatibility and thereby invalidate the original certificate. Any electric and/or electronic attachments must be installed in accordance with technical regulations by specially trained personnel. In any case, the manufacturer CANNOT be held liable for the truck malfunctioning or for any injuries and/or damage inflicted on objects and/or persons as a

result of modifications made to the original product ex-works.

Non-ionised radiation

If the truck is equipped at the factory or later with devices that emit non-ionising radiation (such as radio transmitters, RFID players, data terminals, scanners, etc.), the compatibility of such devices must be verified with the presence of operators using medical devices (such as heart pacemakers).

Noise

Sound pressure level in driver's seat	L_{pAZ} < 70 dB (A)
Uncertainty factor	K_{pA}=4 dB (A)

The value is determined in a test cycle in accordance with Harmonised European Standard EN 12053 and declared according to EN ISO 4871 with weighted time percentages of the Transport, Lifting and Idling modes.

⚠ CAUTION

The value expressed above can be used to compare forklift trucks of the same category. This cannot be used to determine the noise level in workplaces (daily personal noise exposure). Noise values that are lower or higher than those indicated above can occur during actual truck use, for example following different operating modes, different environmental conditions and additional noise sources.

Vibrations

Vibrations to which the hands and arms are exposed

The following value is valid for all truck models:

- $\bar{a}_w < 2.5\ m/s^2$

NOTE

It is mandatory to specify the hand-arm vibrations, even where the values do not indicate any danger, as in this case.

⚠ CAUTION

The value expressed above can be used to compare forklift trucks of the same category. It cannot be used to determine the operator's daily exposure to vibrations during real operation of the truck; these vibrations depend on the conditions of use (floor conditions, method of use etc.) and therefore daily exposure must be calculated using data from the place of use.

Safety tests

Regular safety inspection of the truck ▷

Safety inspection based on time and extraordinary incidents

The operating company must ensure that the truck is checked at least once a year, or following noteworthy incidents.

As part of this inspection, a complete check of the technical condition of the truck must be performed with regard to accident safety. In addition, the truck must be thoroughly checked for damage that could potentially have been caused by improper use. A test log must be created. The results from the inspection must be retained until a further two inspections have been carried out.

The inspection date is indicated by an adhesive label on the truck.

– Arrange for the service centre to perform periodic safety inspections on the truck.

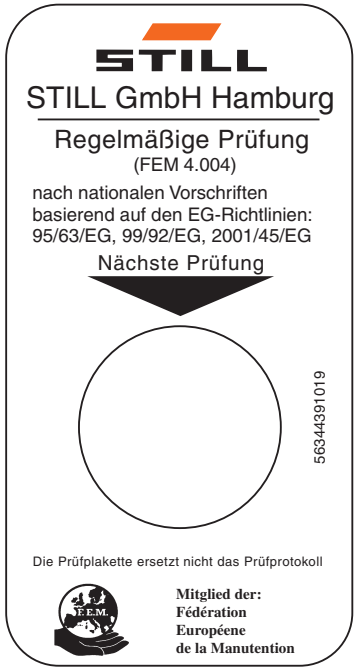
– Observe guidelines for checks carried out on the truck in accordance with FEM 4.004.

The operator is responsible for ensuring any defects are remedied without delay.

– Contact your service centre.

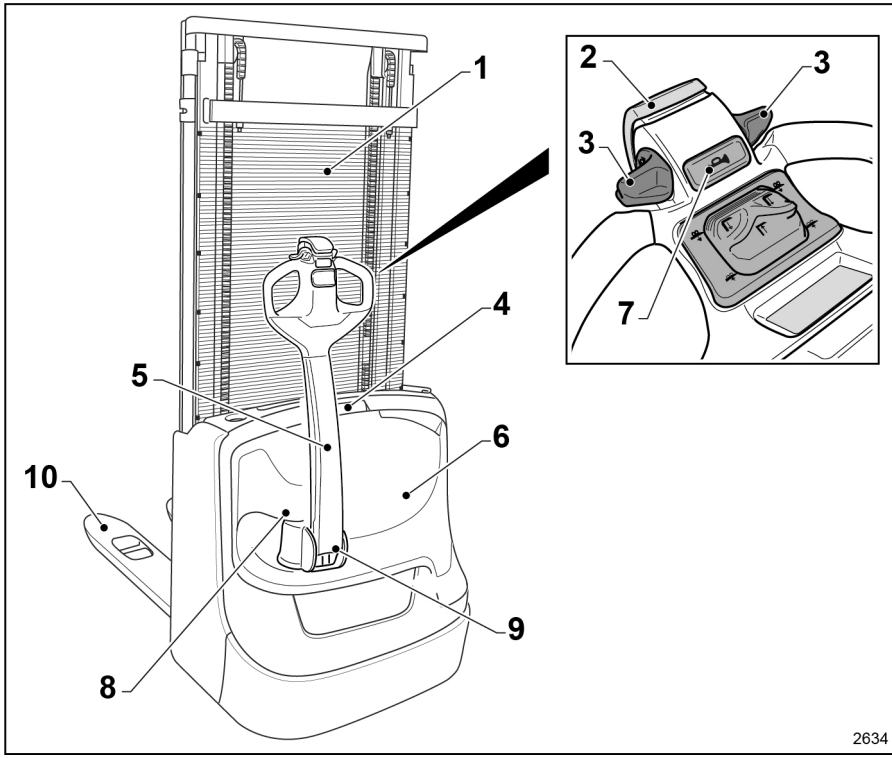
NOTE

Observe the national regulations for your country!



Safety devices

Main safety devices for the truck



The operator must be aware of the following safety devices:

1 Protective screen
2 Anti-crush safety function
3 Braking by releasing the drive control throttle
4 Emergency shutdown button
5 OptiSpeed tiller
6 Protective guard
7 Horn
8 Electromagnetic brake
9 Truck braking when the tiller reaches the upper end position and the lower end position
10 Automatic reduction of driving speed with forks raised approximately 500 mm above the ground (only available on 1400 kg version)

NOTE

These devices must be checked daily, as described in Chapter 4.

Damage, defects and misuse of safety devices

The driver must report any damage or other defects to the truck or attachment immediately to the supervisory personnel.

Trucks and attachments that are not functional or safe may not be used until they have been properly repaired.

Do not remove or deactivate safety devices and switches.

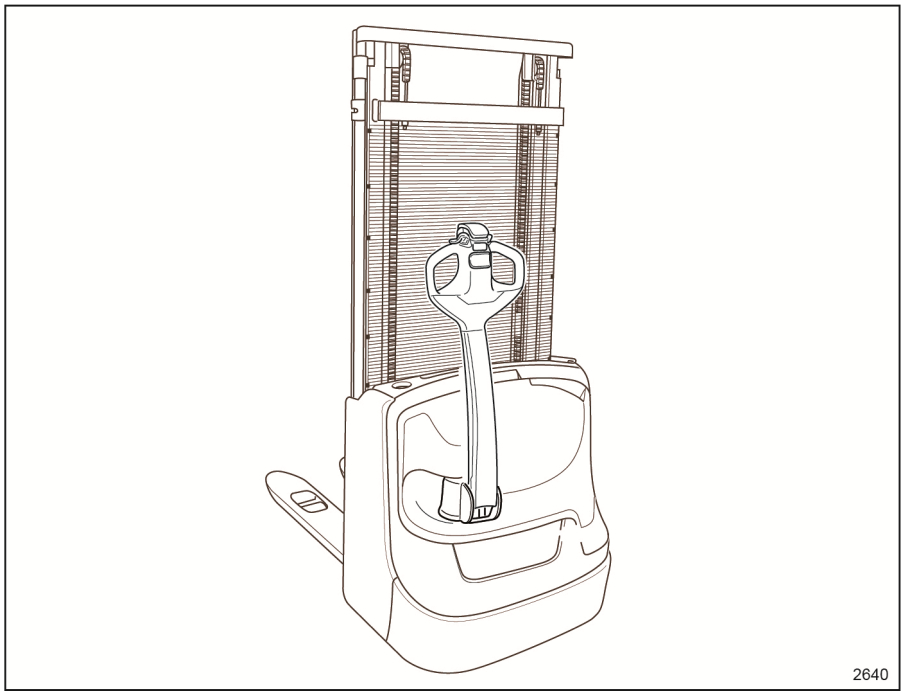
Fixed set values may only be changed with the approval of the manufacturer.

Work on the electrical system (e.g. connecting a radio, additional headlights etc.) is only permitted with the manufacturer's written approval. All electrical system interventions must be documented.

3

Overview

Technical description



EXV10 Basic, EXV10, EXV12 and EXV12 i, EXV14C and EXV14iC trucks are designed to handle and stack pallets with a maximum weight of 1000 kg (EXV10 Basic and EXV10), 1200 kg (EXV12 and EXV12 i) and 1400 kg (EXV14C and EXV14iC) inside shops, storage areas and factories.

General features

- The steering motor operates the drive wheel using a reduction gear unit
- Asynchronous steering motor, 1.2 kW
- Starting and accelerating without jerking
- Regenerative braking
- Speed of 6 km/h even when fully loaded

Lifting

Nominal load:

- EXV10 Basic and EXV10: 1000 kg
- EXV12 and EXV12 i: 1200 kg
- EXV14C and EXV14iC: 1400 kg

Pump unit:

- EXV10 Basic: power 2.2 kW
- EXV10: power 1.5 kW
- EXV12 - EXV12i - EXV14C - EXV14iC: power 3.2 kW

Types of lift mast:

- "Simplex" mast (E): non-telescopic with central cylinder
- "Telescopic" mast (TE): two-stage telescopic mast without free lift and two lateral cylinders

- "NiHo" mast: two-stage telescopic mast with free lift, lateral chains and two lateral cylinders plus a central cylinder
- "Triplex" mast (TR): three-stage telescopic mast with free lift, lateral chains and two lateral cylinders plus a central cylinder

Driving

A long, robust and ergonomic tiller allows the operator to drive the truck easily.

The tiller is used to activate the following controls:

- Steering
- Drive control throttles
- Horn
- Fork lifting and lowering buttons
- Anti-crush safety push button
- Truck braking when the tiller reaches the upper end position and the lower end position

For safety reasons, when the tiller is released a gas spring automatically returns it to the initial position.

Braking system

Braking:

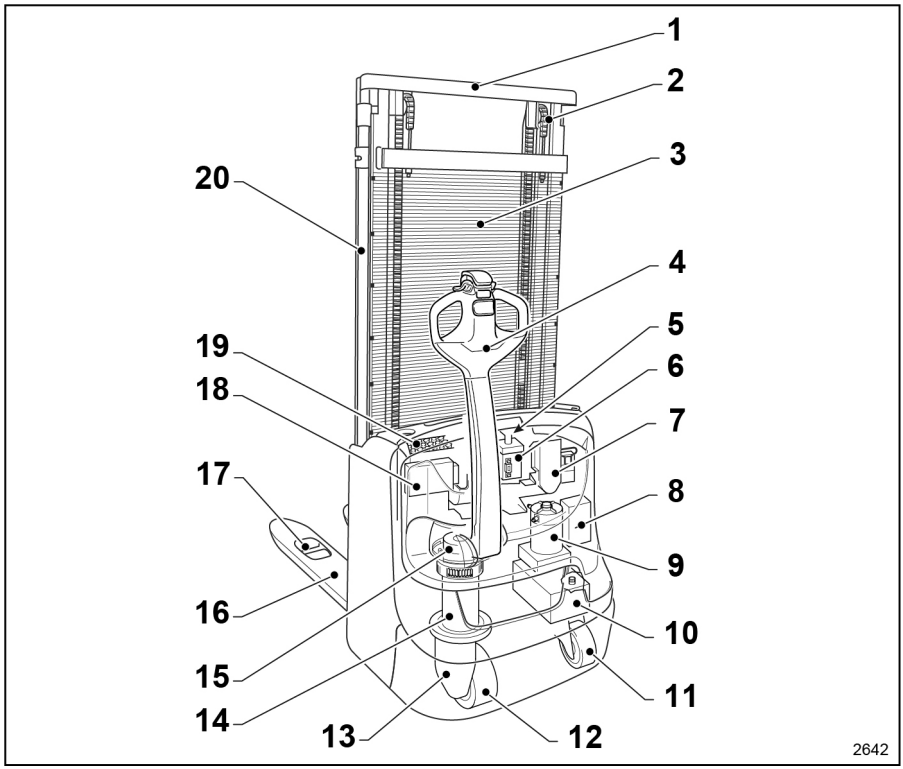
- counter-current, upon accelerator release
- counter-current, by changing the direction of movement
- counter-current, controlled by the belly safety switch
- electromagnetic safety device, controlled by the emergency shutdown handle
- electromagnetic safety device, controlled by the release of the tiller.
- electromagnetic safety device, controlled when the tiller arm reaches the lower end position
- electromagnetic parking, applied when the power supply is cut

On-board equipment

The on-board equipment includes:

- a glove compartment for storing adhesive tape, gloves,pens etc.,
- a removable clipboard for attaching lists and documents in A4 format
- an emergency shutdown button located on the chassis
- an hour meter/discharge indicator

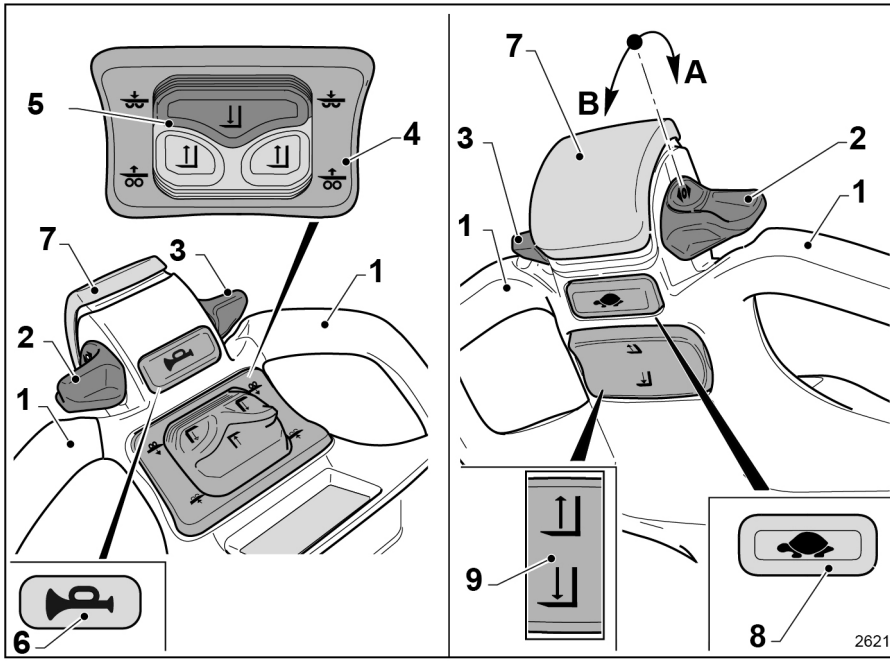
Overview



1	Mast	11	Pivoting wheel
2	Chains	12	Drive wheel
3	Protective screen	13	Reduction gear unit
4	Tiller	14	Traction motor
5	Emergency off switch	15	Brake
6	Fuse holder	16	Fork
7	Battery socket	17	Load rollers
8	Built-in battery charger (if present)	18	Electronic panel
9	Pump motor	19	Battery
10	Hydraulic oil tank	20	Lift cylinder

Instruments and controls

Tiller controls



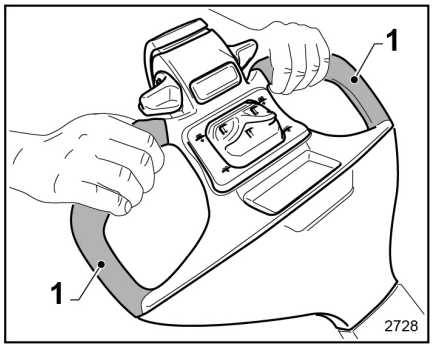
1 Tiller head handles
2 and 3 Drive control throttles
4 Straddle (optional) or fork control button
5 Fork lifting/lowering proportional control button
6 Horn button
7 Belly switch
8 Multifunction button
9 Fork lifting/lowering button

NOTE

The following controls are active with the truck switched on and the operator in the correct working position. This does not include the use of the multifunction button (8), which allows operation of the controls even when the tiller is in the vertical position.

– **(1) Tiller head handle**

- Areas designed for holding the tiller head during use.

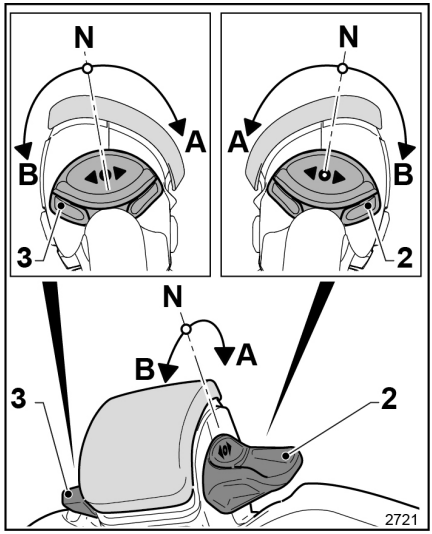


– **(2 - 3) Drive control throttles**

- When the throttle (2 o 3) is turned in direction (A), the truck starts moving in the direction of the forks.
- When the throttle (2 o 3) is turned in direction (B), the truck starts moving in the direction of the operator.
- The operator can adjust the truck's speed of travel by turning the drive control throttles (2 - 3):

  - The more the drive control throttles (2 - 3) are turned in relation to the neutral position (N), the faster the truck's speed of travel.

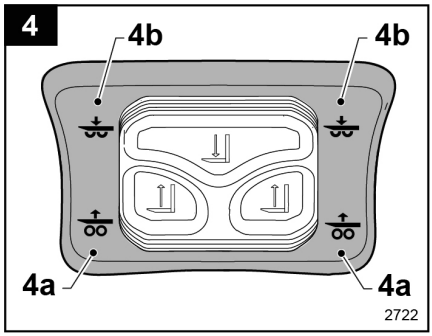
  - The less the drive control throttles (2 - 3) are turned in relation to the neutral position (N), the slower the truck's speed of travel.
- To stop the truck from moving, turn the drive control throttles (2 - 3) until they reach the neutral position (N).



– **(4) Straddle (optional) or fork (standard version) control button**

The button (4) can have two different functions:

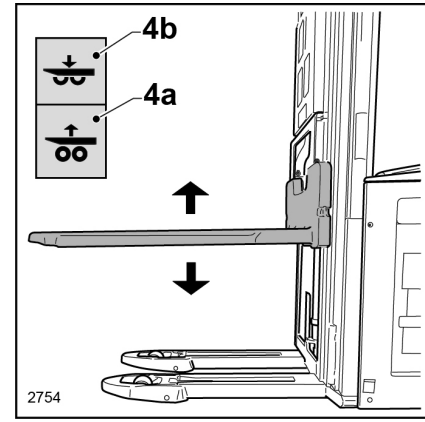
- If the truck is the standard version, the button functions as a fork lifting/lowering control.
- If the truck is equipped with the straddles initial lift (Initial lift) option, the button functions as a straddle lifting/lowering control.



NOTE

- *The button (4) is active only when the tiller is tilted to the working position.*
- *The button (4) can be activated when the tiller is in the vertical position only if you hold down the multifunction button (8) and then press on the symbol (4a) or (4b).*
- *Please refer to the instructions on the multifunction button (8) for more information.*
- *Fork or straddle movement can be stopped at any time by releasing the button (4). The forks or the straddles will stop in the position reached.*

– **Description of the fork lifting/lowering version**: ▷



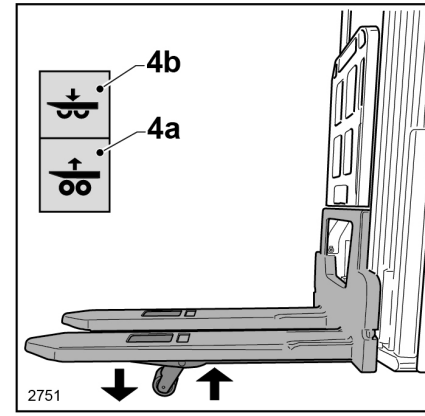
(4a) Fork lifting

- Press the button (4) on the symbol (4a) to lift the forks and reach the maximum height.

(4b) Fork lowering

- Press the button (4) on the symbol (4b) to lower the forks.
- When the forks are fully lowered, a reduction in the fork lowering speed is automatically triggered just before the end of the stroke(soft landing).

– **Description of straddle lifting/lowering version:** ▷



NOTE

- *The straddle lifting function increases the ground clearance, meaning that the truck can be used on uneven ground or slopes.*

(4a) Straddle lifting

- Press the button (4) on the symbol (4a) to raise the straddles.

(4b) Straddle lowering

- Press the button (4) on the symbol (4b) to lower the straddles.

⚠ DANGER

Risk of crushing feet. Be careful not to put your feet under the straddles while using the straddle or fork initial lowering function.

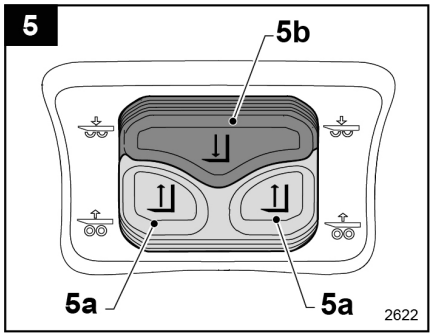
NOTE

- *For safety reasons, straddle lowering (4a) is disabled when the tiller is in the vertical position even when the multifunction button (8) is held down.*

– **(5) Fork lifting/lowering proportional control button** ▷

The operator can adjust the speed of the forks by turning the button (5):

- The more the button is turned, the faster the forks are raised/lowered.
- The less the button is turned, the slower the forks are raised/lowered.



NOTE

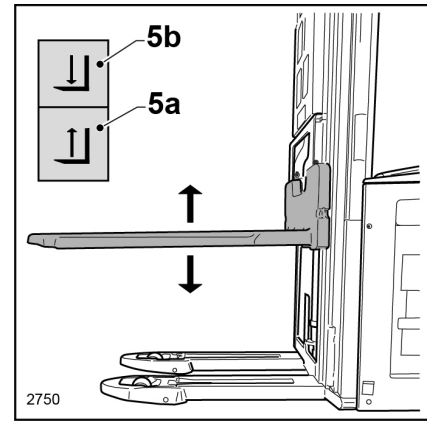
- *The button (5) is active when the tiller is tilted to the working position.*
- *The button (5) can be activated when the tiller is in the vertical position only if you hold down the multifunction button (8) and then press on the symbol (5a) or (5b).*
- *Please refer to the instructions on the multi-function button (8) for more information.*
- *Fork movement can be stopped at any time by releasing the button (5). The forks will stop in the position reached*

– **(5a) Fork lifting**

- Press the button (5) on the symbol (5a) to lift the forks and reach the maximum height.

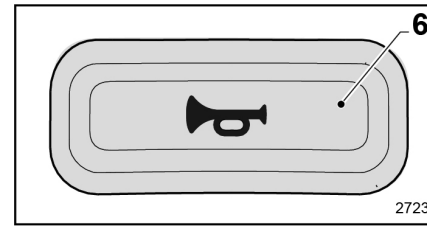
– **(5b) Fork lowering**

- Press the button (5) on the symbol (5b) to lower the forks.
- When the forks are fully lowered, a reduction in the fork lowering speed is automatically triggered just before the end of the stroke(soft landing).



– **(6) Horn button**

- Press the button (6) to operate the horn. This device allows the driver to signal their presence when necessary.



– **(7) Belly switch**

⚠ CAUTION

Risk of the load falling off the forks.

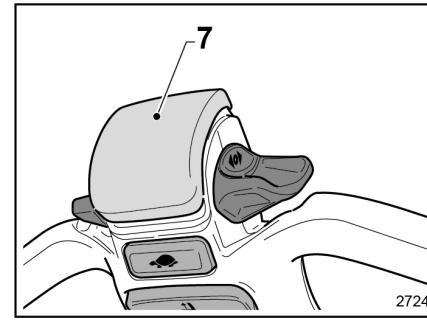
Recommendation: When manoeuvring with a load on the forks, do not deliberately press the button (7) if the operator is NOT in a dangerous situation.

Description:

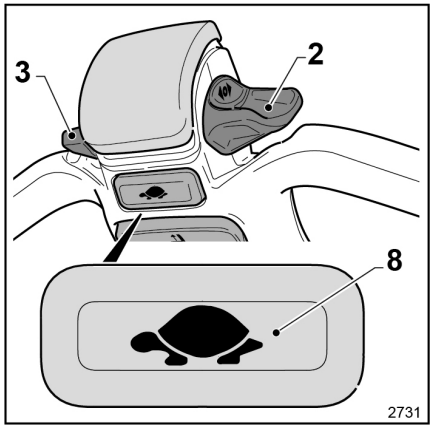
- The button (7) is a particularly useful safety feature in narrow areas. When the truck is moving toward the operator, the button (7) prevents the operator from being crushed between a wall/obstacle and the tiller head.

Operation:

- If the button (7) comes into contact with the operator's body, the truck automatically reverses (from moving toward the operator to moving toward the forks).
- When it reverses direction, the truck moves at creep speed for a few seconds, and when the operator releases the button (7) the truck stops.



– **(8) Multifunction button**



The button (8) has several possible functions:

- To enable operation of the drive and fork lifting controls when the tiller is in the vertical position (usually when the tiller is in the vertical position, these controls are deactivated and the truck's parking brake is applied). This function is ideal for manoeuvres in tight spaces.
- To allow the user to choose their preferred driving performance.

Forward/reverse travel of the truck with the tiller in the vertical position

- Keep the button (8) pressed and then turn the throttle (2 -3) in the required direction. The truck will move in the required direction in creep speed.

⚠ DANGER

Danger of crushing for the operator and/or truck collision. The creep speed function is automatically cancelled when the tiller is tilted to the standard working position. Turn the drive control slightly to adjust the speed of the truck. This prevents the truck from moving at too high a travel speed, especially towards the operator.

For fork lifting/lowering with the tiller in the vertical position

- See the explanation of the button (4, 5, 9).

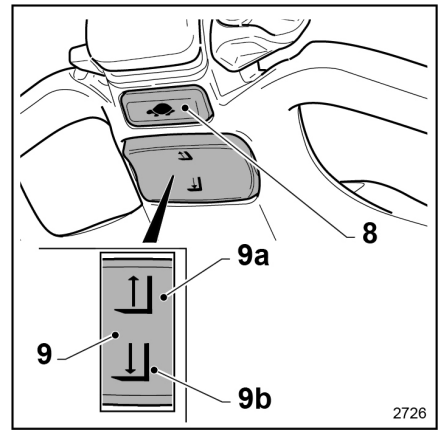
For straddle lifting/lowering (if option is present) with the tiller in the vertical position

- See the explanation of the button (4).

Choice of truck driving performance

- Pressing the button (8) twice in quick succession will allow you to choose from the available driving performance options. Each time you press the button (8) twice in succession, a different level of driving performance is selected. For example, you can choose whether to use maximum performance (hare icon illuminated) or reduced performance (tortoise icon illuminated). The icon corresponding to the level of performance selected will be illuminated on the display. For more information, please refer to the display section.

– **(9) Fork lifting/lowering button** ▷



NOTE

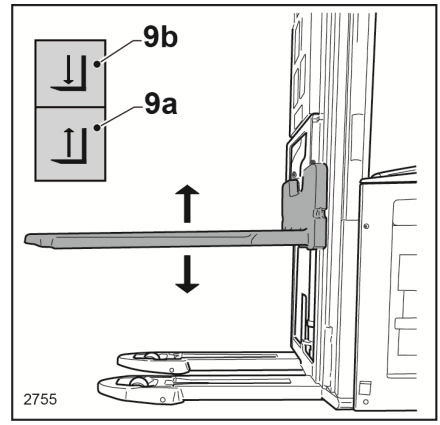
- *The button (9) is used to lift/lower the forks only when using the tiller in the vertical position. The button (9) is only activated with the tiller in the vertical position when combined with use of the multifunction button (8).*
- *The button (9) is NOT active when the tiller is tilted to the working position.*
- *Fork movement can be stopped at any time by releasing the button (9) or the button (8). The forks will stop in the position reached.*

– **(9a) Fork lifting** ▷

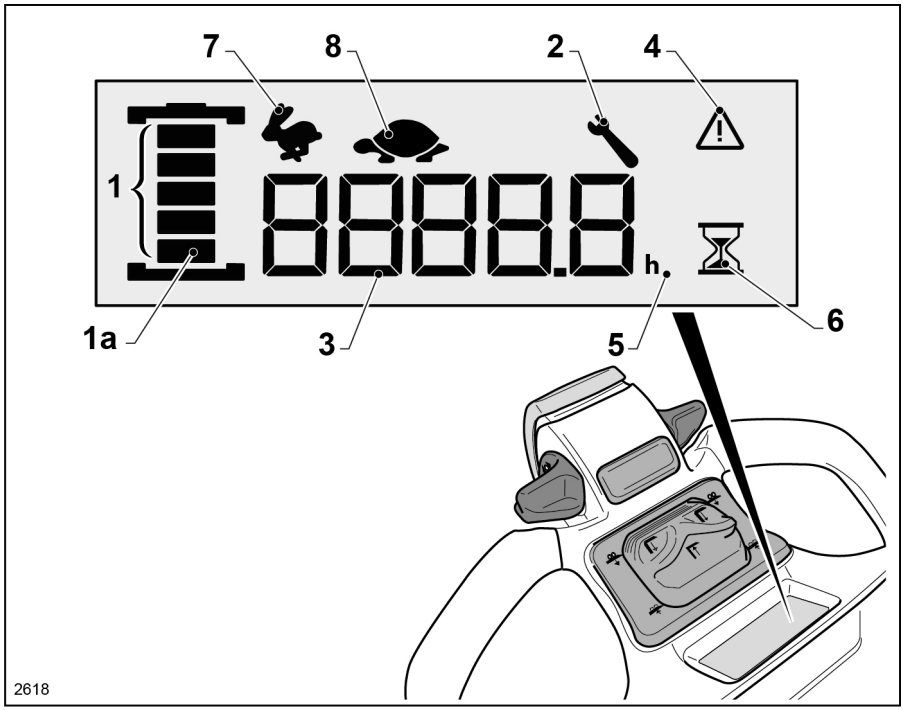
- Hold down the button (8) and then press the button (9) on the symbol (9a) to lift the forks and reach the maximum height.

– **(9b) Fork lowering**

- Hold down the button (8) and then press the button (9) on the symbol (9b) to lower the forks.
- When the forks are fully lowered, a reduction in the fork lowering speed is automatically triggered just before the end of the stroke(soft landing).



Display



(1) Battery charge level indicator.

- Battery fully charged: all five bars are displayed. As the battery discharges, the number of bars on the display gradually decreases.
- Battery with charge reduced to approximately 20%:

  - If you are using a lithium battery, the last bar (1a) stays on with a steady light.

  - If you are using another type of battery (e.g. lead battery), the last bar (1a) stays on with a flashing light. Charging the truck is recommended.

  - Charging the truck battery is recommended.
- Battery with charge reduced to approximately 10%:

- If you are using a lithium battery, only the last bar (1a) stays on with a white flashing light.
- If you are using another type of battery (e.g. lead battery), only the last bar (1a) stays on with a red steady light.
- With less than 10% residual charge, truck performance may become restricted. For example, reduction of the maximum speed or blocking of fork lifting.
- Charge the truck battery immediately.

- Battery completely empty:
  - Only the last bar (1a) stays on with a red flashing light.
  - Charge the truck battery immediately.

- **(2)** Service interval
- Flashing indicator light: Warns that the service interval is approaching. Contact the technical service centre for more information.
- Indicator light on continuously: Service overdue. Contact the technical service centre.
- **(3)** Hour meter or alarm code
  - At start-up, the total operating hours for the truck are displayed in the field (3).
  - Then during use, the remaining operating hours are displayed in the field (3).
  - In the event of an alarm, the alarm code is displayed in the field (3). Please refer to the next section for more information on alarms.
- **(4)** Alarm indicator light
  - The truck may have various problems. The alarm code appears in the field (3) on the display.
  - Please refer to the next section for more information on alarms.
- **(5)** Units of measurement:
  - When the "h" icon is on this indicates that the value shown on the display is expressed in working hours.
- **(6)** The icon (6) indicates that the value displayed in the field (3) relates to the truck's total operating hours. This is normally displayed when the truck is switched on.
- **(7)** Hare icon
  - When the icon (7) is on, truck performance is at a maximum.
- **(8)** Tortoise icon

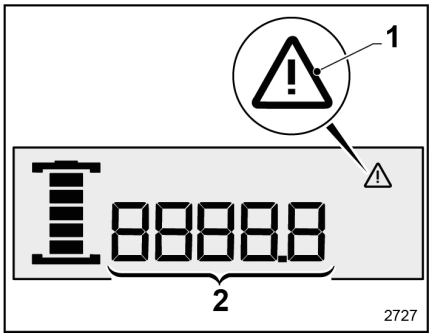
- When the icon (8) is on, truck performance is automatically reduced and restricted.

NOTE

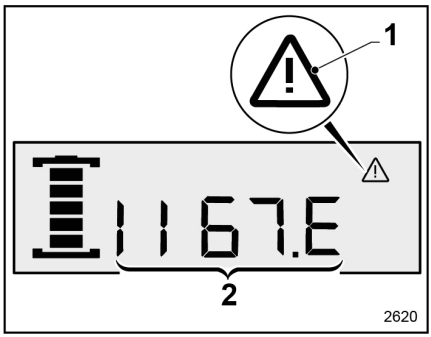
- *For each performance level, the corresponding icon (7, 8) is switched on when this level is activated and switched off when it is deactivated.*
- *Only one of the performance modes (7, 8) can be activated at once.*

Alarms

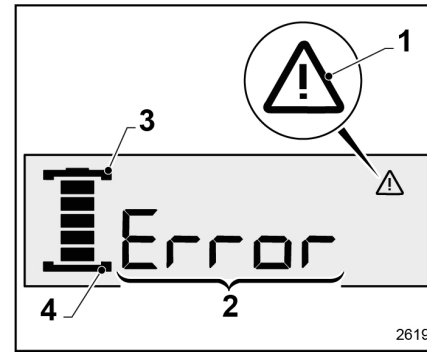
– **Incorrect switch-on sequence**. The alarm indicator light (1) lights up on the display and standard information (e.g. the number of operating hours) remains displayed in field (2). The alarm indicates that the operator has performed an incorrect switch-on sequence. The operator must release all of the controls (tiller, throttles etc.) and then wait a moment before using the truck again. If the alarm reoccurs, switch the truck off and on again.



– **Generic alarm**. The alarm indicator light (1) lights up on the display and an error code appears in field (2). The alarm indicates that the truck may have various problems. Switch the truck off and on again. If the alarm appears again at start up, contact the technical service centre. In the meantime, park the truck in a safe and suitable place.



– **Specific alarm relating to charging via the on-board battery charger (if present)**. The alarm indicator light (1) lights up on the display. Field (2) displays `Error` and the segments (3 and 4) flash. The alarm indicates that the truck has problems with charging via the on-board charger. Switch the truck off and on again. If the alarm appears again at start up, contact the technical service centre.



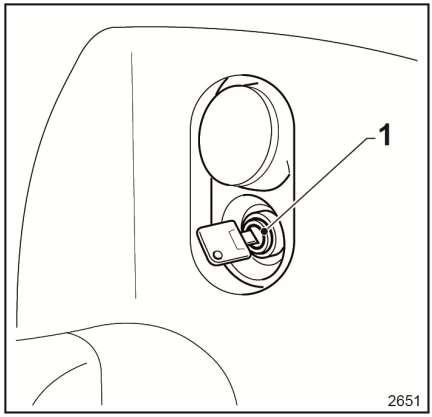
Controls for switching on and switching off

Switching on and switching off are performed using:

- the key switch (standard version)
- or the "Digicode" numerical keypad (optional version)

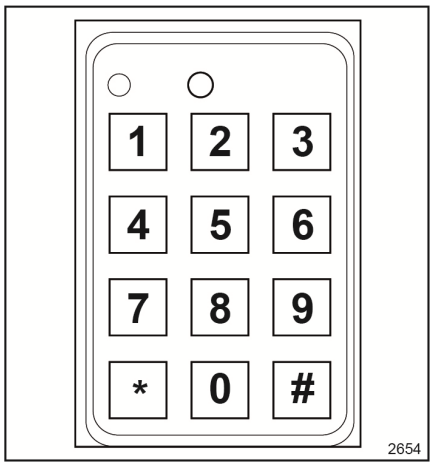
Standard version with key ▷

- Turn the key to position "I" to start the truck.
- Turn the key to position "0" to switch off the truck.



Version with "numerical keypad" (optional) ▷

– Start the truck by following the procedure in the relevant section "Numeric keypad — Start-up using a PIN (option)"

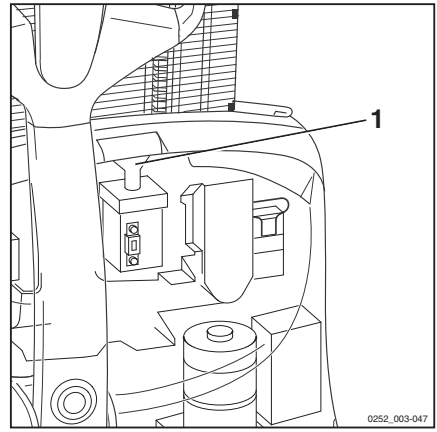


Emergency stop handle

– Pressing the emergency stop handle (1) will lock all the functions on the truck. ▷
– To restore the operating conditions, eliminate the causes of the emergency, then release the tiller in the rest position and unlock the emergency stop handle by lifting it.

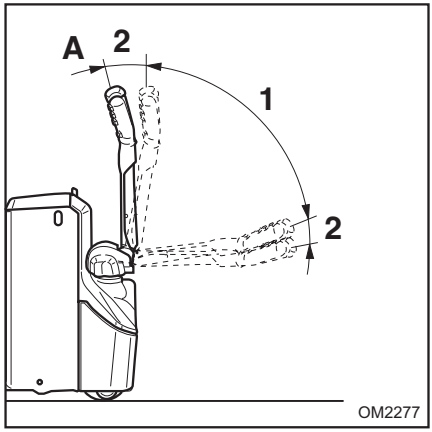
⚠ DANGER

This button must be used only in emergencies; the repeated use of this device may cause problems with the electronic equipment or breakdowns.



Tiller positions

Position the tiller in accordance with the truck functions ▷



With the truck stopped, the two following tiller positions are available:

- **Position (1) = working position.**
  In this position, the operator can begin travel using the throttle.
  In this position, the operator can begin lifting or lowering the forks using the appropriate button.
  In this position, the operator can raise or lower the straddles; for versions with straddle initial lift only.
- **Position (2) = braking position.**
  In this position the drive is locked and the parking brake is engaged.

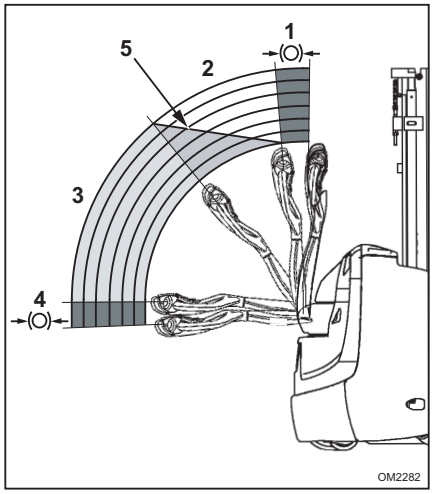
NOTE

- *In this position, lifting and lowering of the forks and straddles, if fitted, is blocked.*

NOTE

When the tiller is released, it automatically returns to position (A), the braking position.

OptiSpeed tiller (if present) ▷



The different work zones of the tiller depending on the tilt are explained below:

- In zone (1), the brake is applied and the truck cannot be moved.
- In zone (2), the maximum authorised speed varies according to the tilt of the tiller. The reference (5) represents the curve of the speed inside zone (2).
- In zone (3), the truck can reach its maximum speed. The traction speed is proportional to the angular position of the throttle.

In zone (4), the brake is applied and the truck cannot be moved.

⚠ WARNING

During use, tilt the tiller and gradually change the speed of the throttle in accordance with the above.

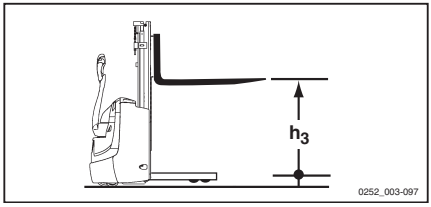
Types of lifting masts

Your truck may be fitted with one of the following masts:

- Simplex
- Telescopic
- NiHo
- Triplex

Simplex

When the "lift" button is pressed, the fork carriage is raised to the height h3 by the central cylinder via a chain.

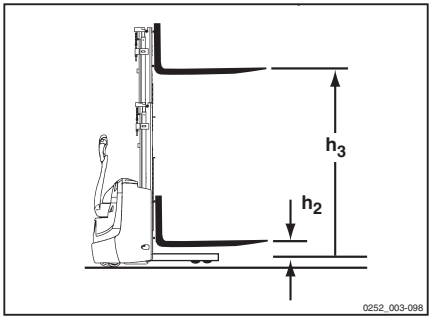


Telescopic

When the "lift" button is pressed, the internal mast is raised by the lateral cylinders and drives the fork carriage (h3) via the chains (the lifting speed of the fork carriage is twice that of the internal mast).

⚠ CAUTION

In locations with a low ceiling, be aware that the load height may be greater than the mast height.



NiHo

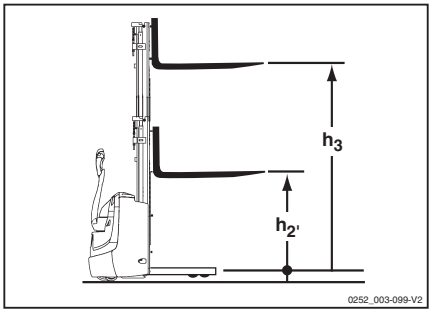
When the "lift" button is pressed, the fork carriage is raised to the top of the internal mast (h2') by the central cylinder, then the lateral cylinders raise the internal mast up to the maximum height (h3).

NOTE

During lifting, the internal mast is never higher than the fork carriage.

⚠ CAUTION

In locations with a low ceiling, be aware that the load height may be greater than the mast height.

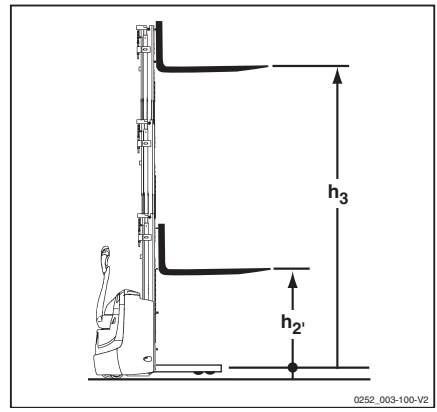


Triplex

The function is identical to that of the NiHo mast, but has a greater lift height with the same mast height.

⚠ CAUTION

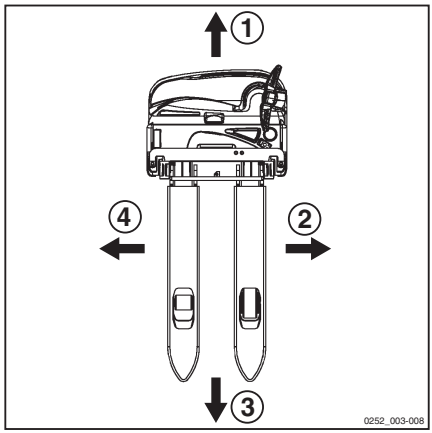
In locations with a low ceiling, be aware that the load height may be greater than the mast height.



Definition of directions

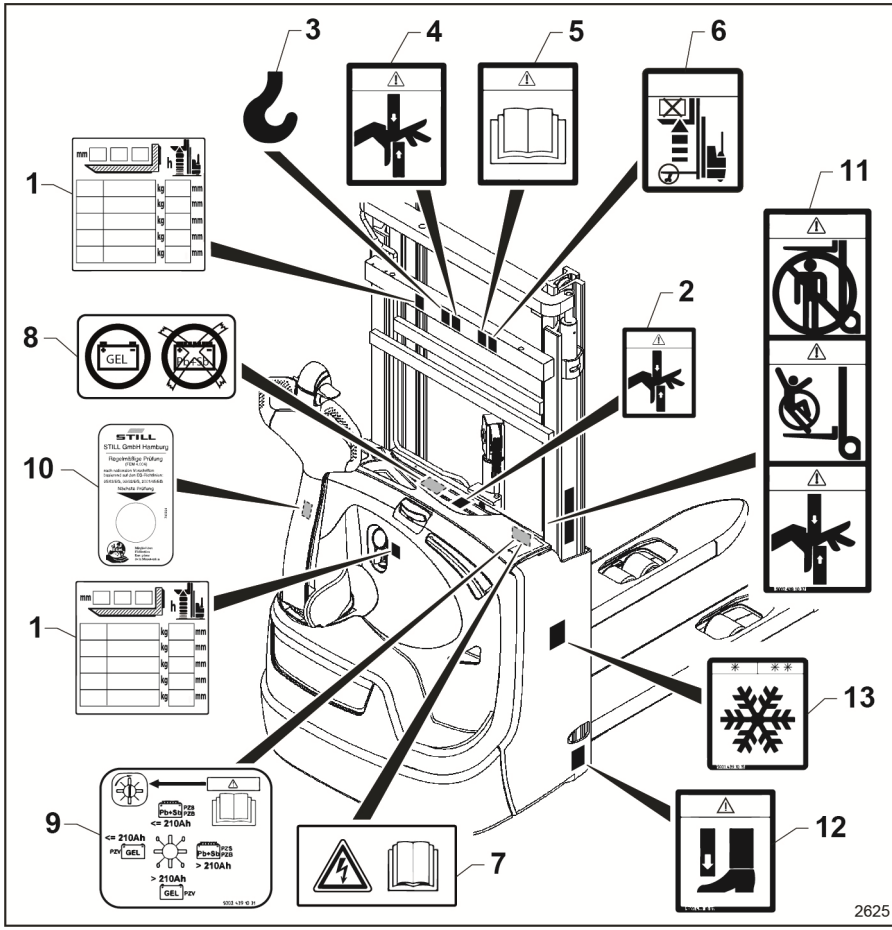
Direction of movement defined by the regulations:

- Forward travel (1) (preferred direction of travel)
- Right (2)
- Reverse travel (3)
- Left (4)



Markings

Location of labels



1	"Truck capacity diagram" label	8	Version set up for gel batteries
2	"Danger of crushing hands" label	9	"On-board battery charger" label
3	"Hook" symbol	10	Annual testing label (Germany only)
4	"Danger of crushing hands" label	11	Warning label
5	"Operating and maintenance manual" label	12	"Danger of crushing feet" label (only on version with straddle initial lifting function "i")
6	"Lifting danger" label (only on version with straddle initial lifting function "i")	13	"Cold store" label (on cold store version only)
7	"Operating and maintenance manual" label		

Description of labels

(1) This label indicates the permissible load on the forks depending on load centre of gravity and lift height.

(2) This symbol appears on the battery hood and indicates the danger of crushing and/or cutting hands while opening and/or closing the battery hood around the entire perimeter of the hood. Take care when operating.

(3) This label indicates where to attach the truck's lifting hook.

(4) This symbol appears on the lift mast and indicates danger of cutting due to the mast's moving parts.

(5) This label indicates that you should consult the operating and maintenance manual before using the truck and before carrying out any maintenance work.

(6) This label is present only on the version with initial lift (i). The label indicates that it is prohibited to lift a load more than 1500 mm from the ground while the straddles are raised. To lift a load more than 1500 mm from the ground, the straddles must be on the ground.

(7) This label indicates that you should consult the specific operating and maintenance manual for the on-board battery charger.

(8) This symbol, where present, indicates that the truck is set up for the gel battery version. Do not use other types of battery.

(9) This label is present only on the version with the on-board battery charger. The label highlights the possibility of choosing the charging curve.

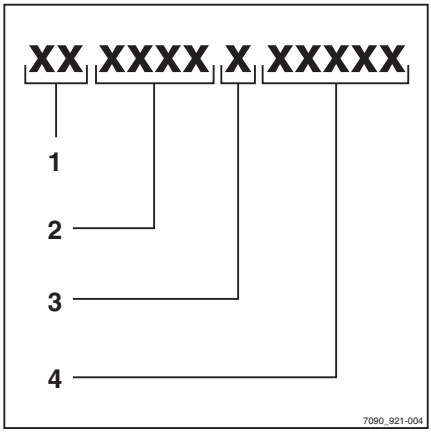
(10) This label is present only on trucks sold in Germany. The label indicates the date of the truck's periodic safety inspection.

(11) This symbol appears on the lift mast and indicates danger of cutting due to the mast's moving parts, that carrying people on the truck is prohibited and that standing or passing under the raised forks is prohibited.

(12) This label is present only on the version with initial lift (i). The label indicates the danger of crushing feet under the straddles.

(13) This symbol, where present, indicates that the truck is set up as the cold store version (optional).

Serial number ▷



NOTE

Please quote the truck's serial number for all technical questions.

The serial number contains the following information:

1 Production location

2 Type

3 Year of production

4 Sequential number

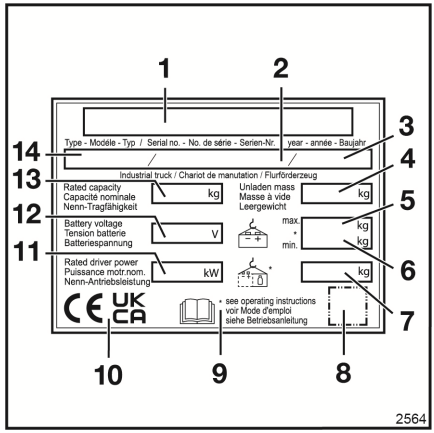
Nominal value designation plate ▷

⚠ DANGER

Danger! To avoid compromising the stability of the truck, it is strictly forbidden to use batteries that weigh less than the minimum weight (11) indicated on the designation plate.

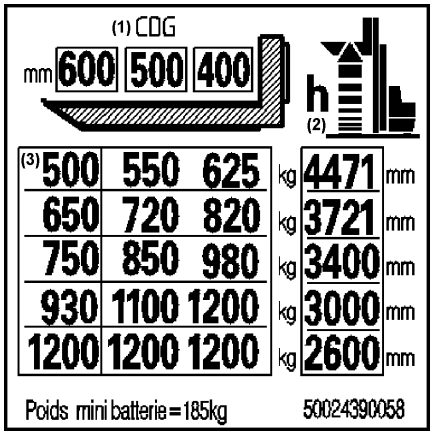
NOTE

- *Please indicate the serial number for all technical enquiries.*
- *The EAC mark may also be located near to the nameplate.*
- *In addition to the UKCA mark, trucks sold in the United Kingdom will also have a label identifying the importer.*
- *On trucks sold for airports in the United Kingdom, the designation plate will read Aircraft ground support equipment instead of Industrial truck.*



1 Manufacturer
2 Production number
3 Year of manufacture
4 Unladen weight (without battery) in kg
5 Maximum battery weight in kg
6 Minimum battery weight in kg
7 Additional weight (ballast) in kg
8 QR code
9 For more detailed information, please refer to the technical data in the operating manual.
10 In this zone, there may be one or more marks including: the CE mark; the UKCA mark for the United Kingdom market; the EAC mark for the Eurasian Economic Union market.
11 Nominal power in kW
12 Battery voltage in V
13 Rated capacity in kg
14 Model

Capacity plate



– The identification plate indicates the following data:

- **(1) CDG** = distance "C" from the centre of gravity of the load on the forks to the fork carriage (in mm)
- **(2) h** = lift height of the forks from the ground (in mm)
- **(3)** = maximum permissible loads "Q" (in kg)

⚠ WARNING

The illustrations are only examples.

Only the values stated on your truck's plate should be taken into consideration.

⚠ DANGER

The values indicated on the capacity plate refer to compact and homogeneous loads and must not be exceeded - otherwise the stability of the truck and the load-bearing capacity of the structures may be compromised.

⚠ DANGER

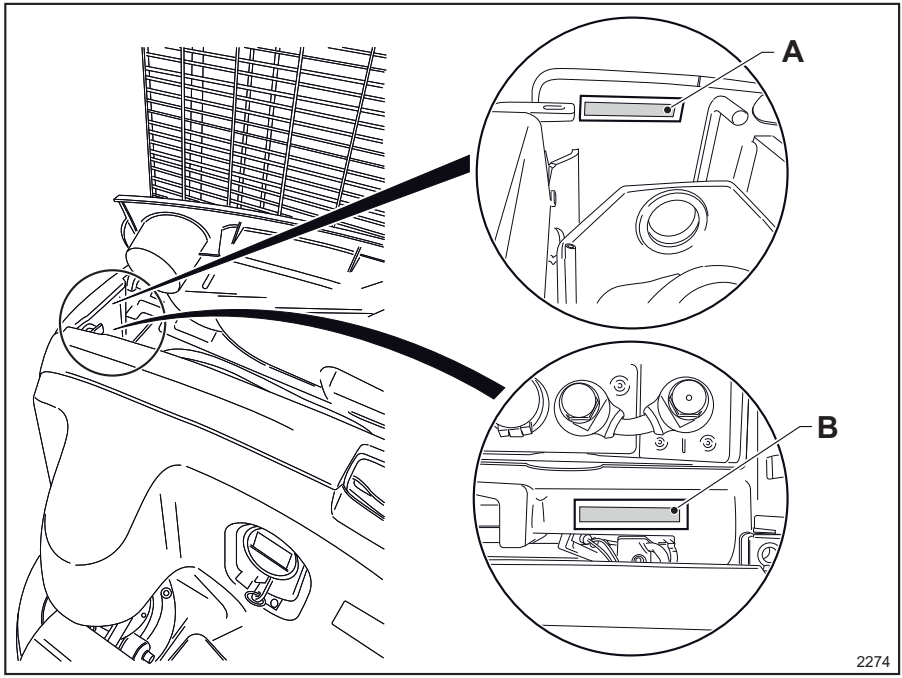
Risk of accident when forks are changed:

If the forks are changed and a different type of forks to the original forks is fitted, the residual load capacity changes.

When forks are changed, a new residual capacity plate must be affixed.

If a truck is supplied without forks, the residual capacity plate for standard forks is affixed (see chapter 6 "Technical Data").

Chassis frame labelling



The truck's serial number is marked on the chassis frame .

The serial number is located in the following places:

- **A** for standard versions of the truck
- **B** for models with initial lift capability

Options and variants

List of optional fittings

List:

- Forks of various gauges
- Load backrest, height 1000 mm
- Various types of tyre for the drive wheel
- Guard plate in transparent polycarbonate
- Access authorisation via Digicodesystem
- Lift height indicator
- Footwell protection for activities in confined spaces
- Cold storage room version
- Set of cables
- Fleetmanager
- Built-in rectifier
- LED battery electrolyte level indicator
- Lift lock at predefined heights, unlockable via appropriate confirmation button (only for 1400 kg version).
- Truck speed limited automatically with load at h3>1500 mm (only for 1400 kg version)
- Battery removal roller unit (only for 1400 kg version)

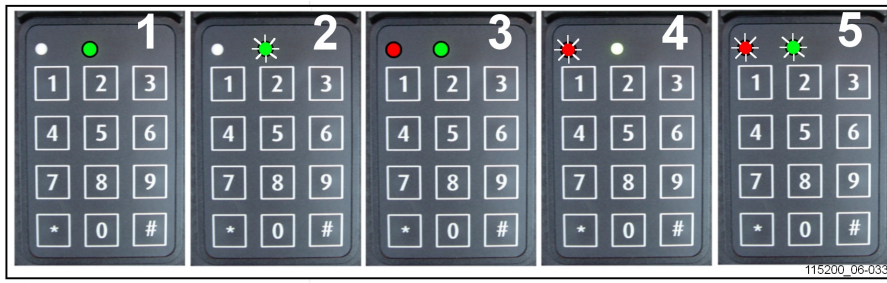
⚠ CAUTION

Contact the technical service network authorised by the manufacturer for information on the assembly of the options.

NOTE

Contact the authorised sales network for more information.

Numeric keypad — Start-up using a PIN (option)



1 SWITCH ON (operating mode)
2 SWITCH OFF and awaiting code
3 Programming mode active
4 Faulty key or incorrect code
5 Delay of automatic switch-off

OPERATING MODE			
Operation	Key	LED	Warning
ON	[*][1][2][3][4][5][#] (by default)	○ red off ● continuous green (1)(correct PIN) ● red flashing ○ green off (4)(PIN incorrect)	[1][2][3][4][5] default PIN code
OFF	[#] (3 seconds)	○ red off ● green flashing (2)	Turn off the truck

PROGRAMMING MODE — to be carried out with the truck switched off (2)			
Operation	Key in	LED status	Warning
THE ADMINISTRATOR CODE IS IMPORTANT FOR ALL DIGICODE SETTINGS	[*][0][0][0][0][0][0][0][0][#] (by default)	● continuous red ● continuous green (3)	Once the diodes have been switched off, the electronic key automatically reverts to "operating mode"
New operator code	[*][0][*][4][5][6][7][8][#]	○ red off ● green flashing (2) (code accepted)	Example of a new operator code: 45678
Allocating operator codes	[*][2][*][5][4][3][2][1][#]	○ red off ● green flashing (2) (code accepted)	*2*: operator reference 10 options from 0 to 9
Deleting operator codes	[*][2][*][#]	○ red off ● green flashing (2) (deletion accepted)	*2*: operator reference (between 0 and 9)
Modifying administrator codes	[*][*][9][*][1][2][3][4][5][6][7][8][#]	○ red off ● green flashing (2) (code accepted)	

PROGRAMMING MODE — to be carried out with the truck switched off (2)			
Restoring the initial administrator code			To reactivate the default administrator code (00000000), please contact your agent or nearest dealer.
Activating the automatic switch-off	[*][*][2][*][1][#]	● red flashing ● green flashing (5) (5 s before switch-off)	The power supply switches off automatically after 10 min. (600 s by default) if the truck is not being used.
Setting the delay of the automatic switch-off	[*][*][3][*][6][0][#]	○ red off ● green flashing (2) (value accepted)	Example: automatically switches off after 1 min. (60 s) if not used. Minimum setting = 10 s / maximum = 3000 s
Deactivating the automatic switch-off	[*][*][2][*][0][#]	○ red off ● green flashing (2) (command accepted)	

Stand-by

NOTE

The stand-by function is only available with the Digicode option.

To prolong battery life, the truck can be put into energy-saving mode when it is not in use.

After a certain period of downtime, the truck switches off.

This time period can be configured between 0 and 10 minutes. This function is disabled by default.

Timeout can be adjusted. Contact the Technical Service Department authorised by the manufacturer.

Battery electrolyte level indicator LED (optional) ▷

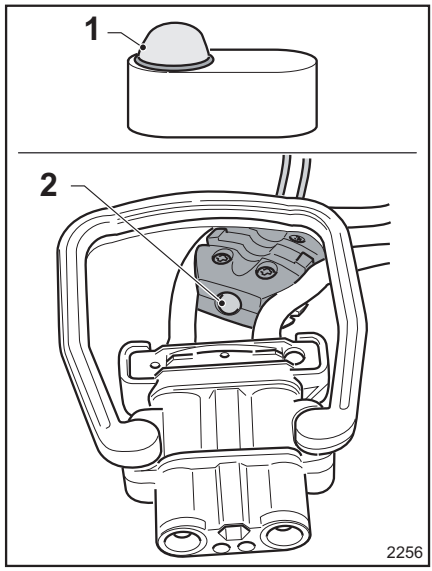
There are two versions of the LED:

- 1) Located on the battery
- 2) Located next to the battery plug.

The LED indicates whether it is necessary to top up the distilled water in the battery.

Operation:

- If the LED (1) or (2) is green, there is a sufficient level of electrolyte in the battery. The battery must not be topped up with distilled water.
- If the LED (1) or (2) is red, there is an insufficient level of electrolyte in the battery. The battery must be topped up with distilled water.



4

Use

Authorised and safe use

Intended use of the trucks

⚠ CAUTION

This machine is intended for the transport of loads packed on pallets or in industrial containers designed for this purpose, as well as for placing pallets into and removing pallets from stock.

The dimensions and capacity of the pallets or containers must be adapted to the load being transported to ensure stability.

The table of characteristics and performance attached to this user manual gives you some of the information you need to check that the equipment is suitable for the work being carried out.

Any specific usage must be authorised by the site manager; an analysis of the potential risks associated with this usage will enable him to put in place any necessary additional safety measures.

Safety instructions relating to use of the truck

Behaviour when driving

The operator must obey the same rules within the plant as on the road. The operator must drive at a speed appropriate for the driving conditions. For example, the operator should drive slowly around corners, when entering and travelling through narrow passageways, when driving through swing doors, at blind spots, or on uneven surfaces. The operator must always maintain a safe braking distance from vehicles and persons in front of him and must always have the truck under control. The operator must avoid sudden stops, making fast U-turns and overtaking other vehicles in potentially dangerous areas or areas with poor visibility.

⚠ WARNING

Driving the truck while sitting down is prohibited.

Please remember the following:

- Drive the truck as described in the "Operator positions" section.
- The truck must not be used as a stepladder.
- The truck has not been designed to transport anyone other than the operator and must not be used for this purpose.
- The operator must always stay within the truck clearance.
- Stay in the safety area (working area defined by the manufacturer).

NOTE

Using a telephone or radio in the truck is permitted, but avoid using these devices when driving as they may distract you.

People in the danger area

Before starting the truck and while you are working, ensure that no one is in the danger area. If people are in danger, warn them well in advance. Stop working with the truck immediately if the people do not leave the danger area despite the warnings.

⚠ DANGER

Risk of injury! There is a risk of physical injury inside the danger area. Danger of death from falling loads!

Do not stand on the forks!

Standing or walking under the forks is strictly forbidden, even when they are not loaded!

Danger area

The danger area is the area in which people are in danger from the forklift truck movements, from its work equipment and from its load lifting devices (e.g. accessories) or from the load. The danger area also includes areas in which a load could fall or in which work equipment could lower or fall.

Traffic route conditions

The surface of traffic routes must be sufficiently level, clean and clear of objects. Drainage channels, railway crossings and other similar

obstacles must be levelled and, if necessary, fitted with ramps so that the truck can cross without jolting.

There must be sufficient distance between the highest part of the truck or the load and the surrounding fixed installations. The height depends on the lift height and the dimensions of the load. Refer to the technical characteristics.

Regulations regarding the traffic routes and the manoeuvring areas

Only traffic routes authorised by the operator or his agent may be used. Traffic routes must be free of obstacles. Loads may only be unloaded and stored in places designed for this purpose. The operator or his agent must ensure that no unauthorised person approaches the working area.

Hazards

Hazards on the traffic routes must be signalled by standard road signs or possibly by additional warning notices.

Transporting and lifting the truck

Transporting the truck

The forklift is normally transported by road and rail. If the forklift's dimensions exceed the max. clearance size allowed, it is transported disassembled. The sales network is in charge of the disassembly and reassembly operations. The forklift must be secured to the transport means during transport using appropriate restraint systems. Block the wheels with wedges to prevent even the slightest movement.

Transport

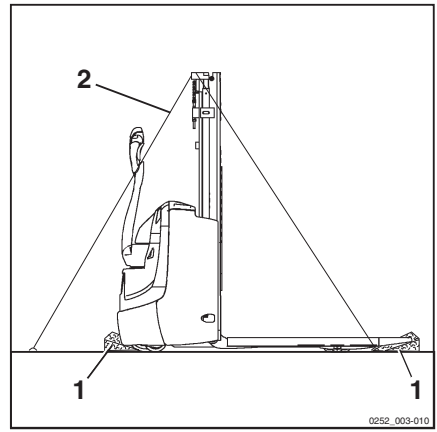
– Disconnect the battery connector.

Chocking the truck

– Secure the truck against rolling and sliding with chocks (1).

Lashing down the truck

– Attach the lashing ropes (2) to the mast.



Climatic Conditions for Transport and Storage

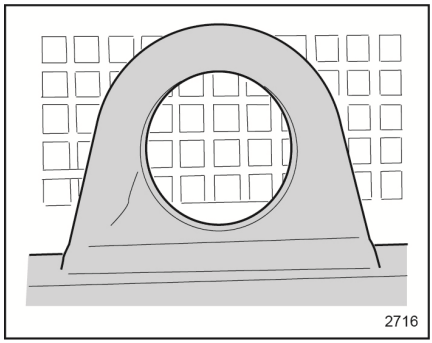
The forklift must be protected from atmospheric agents during transport and storage.

Loading and unloading the truck

To load and unload the truck, use a loading bridge or a lift (with a slope and structural strength that are compatible with the performance and weight of the truck as stated by the manufacturer, and which must be suitably positioned and anchored). See the relevant section. Alternatively, a crane or a bridge crane may be used.

The truck must be suitably protected against the weather during transport and storage.

Lifting with a crane or a bridge crane ▷



⚠ CAUTION

Always switch off the truck and disconnect the battery.

Never attach or sling the truck by the tiller or other points not designed for this.

– Thread the rope sling through the special eyelet on the mast (designed for lifting the truck with its battery). The lifting capacity of the hook and the rope sling must be sufficient to bear the weight of the truck (with its battery). The position is indicated by a hook symbol.

⚠ DANGER

Use a crane with a suitable lifting capacity for the weight of the truck, which is indicated on its data plate. Also take into account the weight of the battery fitted (if applicable) by referring to the relevant identification plate. Lifting operations must be performed by qualified personnel. DO NOT stand within the crane's radius of action or near the truck. Do not stand in the danger area below suspended loads. Use NON-METALLIC rope slings. Use safety hooks. Make sure that the lifting capacity of the rope slings is suitable for the weight of the truck with its battery.

⚠ DANGER

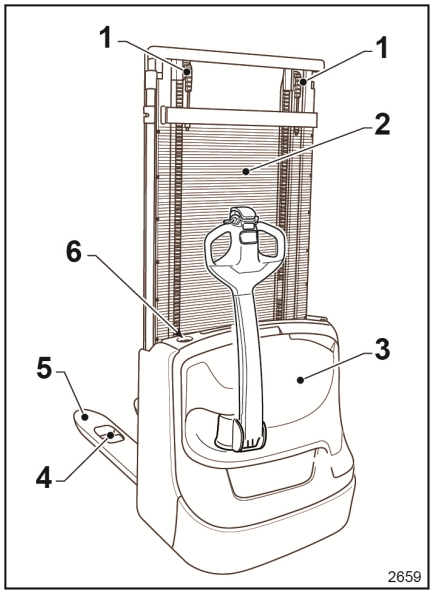
The rope slings should be long enough so as to not graze the casings or any additional equipment during lifting. Use a lifting beam if necessary. The rope slings must be pulled vertically.

Breaking-In

This type of forklift does not require special breaking-in operations.

Checks and operations prior to use

List of checks prior to start-up ▷



⚠ WARNING

Damage or other faults on the truck or attachments (special equipment) can result in accidents.

If damage or other faults are noticed on the truck or attachments (special equipment) during the following checks, do not use the truck until it has been properly repaired. Do not remove or disable the safety systems and switches. Do not change the pre-set values.

⚠ CAUTION

Only use the truck if all of the covers are fitted correctly and the covers and doors are closed correctly.

⚠ CAUTION

Perform checks on a flat surface. Make sure that there are no people or objects in the test zone in front of and/or behind the truck.

⚠ CAUTION

Drive very slowly during the operational tests.

Ensure that the vehicle is in good working condition prior to start-up. These checks supplement and do not replace the scheduled maintenance operations.

- Check the area under the forklift truck for leaking consumables.
- Check the condition of the forks (5) and other load-carrying equipment to ensure that they show no noticeable damage (e.g. bends, cracks, significant wear).
- Check that the uncovered sections of hydraulic lines and hoses are in good condition and check them for leaks.
- The guard grille or plastic screen (2) must be intact and properly secured.
- Do not restrict the field of vision. Ensure the visible areas specified by the manufacturer are observed.
- Attachment parts (special equipment) must be properly secured and function according to their operating instructions.

- Replace damaged or missing stickers in compliance with the marking position table.
- The roller track rails must be coated with a visible film of grease.
- Check that the wheels (traction, load) are in good condition. The wheels must not show any sign of damage or heavy wear. They must be correctly attached.
- Check that there are no objects, twine etc. blocking the operation of the wheels and load rollers (4).
- Check that the horn works correctly.
- The battery hood (6) must be securely closed.
- Make sure that the hood (3) is present and properly attached.
- Check that the chains (1) are undamaged and evenly and adequately tensioned.
- Visually check that the various parts of the truck are in good condition and correctly positioned;
- Make sure that the anti-crush safety push-button works correctly;
- Check that the buttons and throttle/s on the tiller are working correctly;
- Make sure that the buttons and throttle automatically return to their correct position after release
- Check that the battery plug/outlet is correctly positioned and intact.
- Check that the start/stop key works correctly.
- Check that the truck brakes and stops when the throttle is released.
- Check that the truck brakes and stops when the tiller is released.
- Check that the electromagnetic brake works effectively.
- Check that the tiller automatically returns to the vertical position with relative emergency braking.
- Check the battery electrolyte level and density as indicated in the battery instructions;
- Check that the battery wiring is intact;
- Check that the battery lock system is operating correctly (only for trucks designed for side removal of the battery). Check that the battery is locked in place.
- Check that the automatic speed reduction system works correctly with forks raised ap-

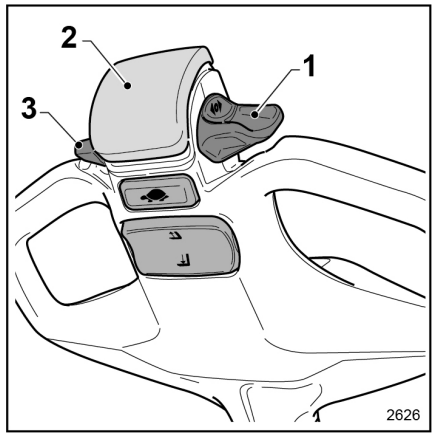
proximately 500 mm above the ground. (only available on 1400 kg version)

⚠ DANGER

If you notice any malfunctions or if you have any doubts about the correct operation of the truck, DO NOT use the truck, but call the manufacturer's authorised service network.

Checking the anti-crush protective device

Anti-crush protective function



The truck moves in reverse when the anti-crush button (2) is pressed.

If the truck is being operated in narrow areas such as a lift, the operator may hit the wall if care is not taken. The operator could be injured by the tiller if this occurred and the truck was not fitted with an anti-crush device.

The truck automatically shifts into reverse when the anti-crush device on the tiller head comes into contact with the driver's body. When the operator moves away from the anti-crush device, the truck stops, even if forward travel is selected again.

Normal operation may be resumed after releasing the throttles.

Checking the anti-crush protective device

⚠ WARNING

Ensure that the test zone is free of people and objects, both in front of and behind the truck.

– Operate the throttle (1) or (3) for forward travel.

The truck moves forward.

– Activate the anti-crush protective device (2).

⚠ WARNING

The truck stops and shifts into fast reverse.

– Release the anti-crush protective device.

The truck will come to a stop.

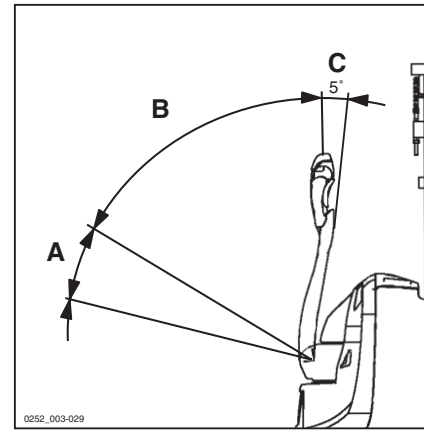
Checking the brake ▷

⚠ CAUTION

Perform this check on a flat surface.

– While driving, tilt the tiller in areas (C) and (A) to test brake response.

In these two areas, the truck is stopped and the drive unit is no longer powered. Releasing the tiller in driving area (B) sends the tiller into the area (C) and cuts traction.



Checking the emergency stop

– Drive slowly forwards.

– Press emergency stop button (1).

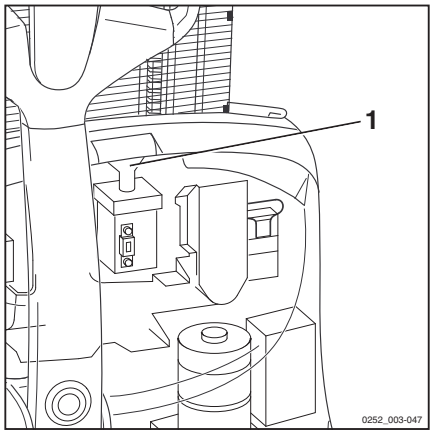
The truck stops.

– Pull the emergency stop button (1).

The truck is functional.

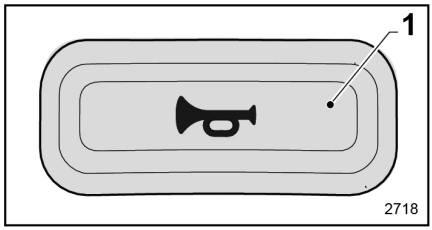
NOTE

Ensure the stabilising wheels are correctly adjusted. This influences braking effectiveness.



Checking the horn

– Operate the horn switch (1). The horn should sound.



Ergonomic dimensions

From the correct driving position, operators must be able to reach and operate all the controls in the truck and also the safety/emergency devices. Furthermore, they must have good visibility to ensure that loads are picked up correctly, as well as adequate control over the truck while driving.

Consequently, the truck has been designed in accordance with the EN ISO 3411 standard:

- Operator height (including shoes) between 1550 mm and 1905 mm.
- Operator weight between 51.9 kg and 114.1 kg.

Operators whose physical characteristics differ from those specified above may have difficulty using the truck correctly. Driving ergonomics may also be sub-optimal for these operators.

In any case, Directive 2009/104/EC of the European Parliament and of the Council states that "the employer shall take the measures necessary to ensure that the work equipment made available to workers in the undertaking or establishment is suitable for the work to be carried out or properly adapted for that purpose and may be used by workers without impairment to their safety or health".

"In selecting the work equipment which he proposes to use, the employer shall pay attention to the specific working conditions and characteristics and to the hazards which exist in the undertaking or establishment, in particular at the workplace, for the safety and health of the workers, and any additional hazards posed by the use of the work equipment in question".

⚠ WARNING

Trucks with a protective roof (optional): Risk of head injuries.

There must be sufficient space for the tallest operator not to hit their head on the bottom part of the roof.

Operator position

Operator's position for version without platform

The driving position is in pedestrian version (driving on "the ground"). The operator should drive the truck using the driving and lifting controls located on the helm head.

⚠ DANGER

All other positions should be considered incorrect and dangerous.

⚠ DANGER

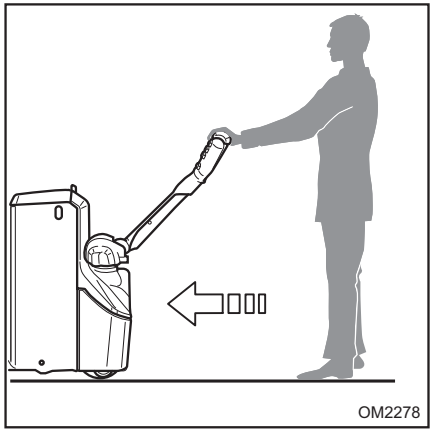
Sitting on the truck is strictly prohibited.

⚠ DANGER

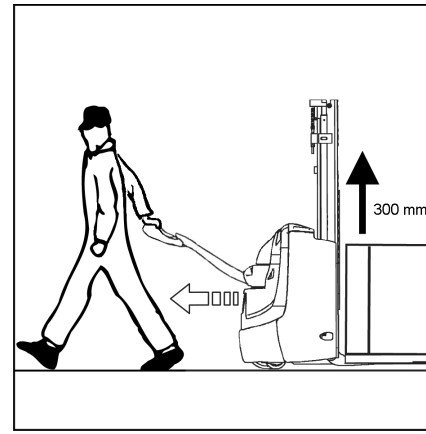
Risk of feet being crushed.

Ensure that your feet are sufficiently far away from the truck chassis.

– Recommended position for pick-up and deposit of the load. ▷



– Recommended position when in gear (preferential gear) ▷



Driving

Driving safety instructions

Behaviour when driving

The operator must obey the same driving rules within the plant as on the road. The operator must drive at a speed appropriate for the driving conditions. For example, the operator should drive slowly around corners, when entering and travelling along narrow aisles, when driving through swing doors, at blind spots or on uneven surfaces. The operator must always maintain a safe braking distance from other vehicles and persons in front of him and must always have full control of the truck. The operator must avoid sudden stops, fast U-turns and overtaking other vehicles in potentially dangerous areas or areas with poor visibility.

Driving the truck while seated is prohibited.

During operation in pedestrian mode:

- Never sit on the truck to drive it.
- The truck must not be used as a stepladder.
- The truck was not designed to transport people and must not be used for this purpose.
- The operator must always stay within the truck clearance.
- Stay in the safety area (working area defined by the manufacturer).

Use of a telephone or radio in the truck is permitted, but avoid using these devices when driving as they may distract you.

Visibility when driving

The driver must look in the direction of travel and have a clear view of the route travelled on. He must always ensure that the way is clear, particularly when reversing. When transporting goods that obstruct visibility, the truck must be driven with the load trailing. If this is not possible, a guide must walk ahead of the truck. In this case, the truck may only be driven at walking pace and with the utmost caution. The truck must be stopped immediately when eye contact with the guide is lost.

Before driving

People in the hazard area

Before starting the truck and while you are working, ensure that no-one is in the hazard area. If anyone is in the hazard area, warn them well in advance. Stop manoeuvring the truck immediately if people remain in the hazard area despite the warnings.

⚠ WARNING

Risk of injury! There is a risk of physical injury inside the hazard area.

Do not stand on the forks!

⚠ DANGER

Danger of death from falling loads!

Climbing on or walking under the forks is strictly prohibited, even when they are not loaded.

Hazard area

The hazard area is the area in which people are in danger from the movement of the forklift truck, its work equipment and its lifting devices (e.g. accessories) or load. The hazard area also includes areas in which a load could fall or in which work equipment could lower or fall.

Traffic route conditions

The surface of traffic routes must be sufficiently level, clean and clear of fallen objects. Drainage channels, railway crossings and other similar obstacles must be levelled and, if necessary, fitted with ramps so that the truck can cross without jolting.

Maintain sufficient distance between the highest part of the forklift truck or load and surrounding fixed installations. The height depends on the lift height and the dimensions of the load. Refer to the technical characteristics.

Rules regarding the traffic routes and the manoeuvring areas

Only drive in approved areas. Traffic routes must be free of obstacles. Loads may only be unloaded and stored in places designed for this purpose. The operator or his representative must ensure that no unauthorised person accesses the working area.

Hazards

Hazards on traffic routes must be signalled by means of road signs or possibly by additional warning notices.

Starting the truck

- Carry out all of the daily checks to be performed by the operator.
- Pull the emergency shutdown handle.
- Place the tiller in the vertical position.
- To start the truck, turn the ignition key. If the truck has a numeric keypad rather than a key, insert the appropriate PIN code.
- Check the display for any indicator lights.
- Check the battery charge status on the display and replace or charge the battery if necessary.

Behaviour in emergencies

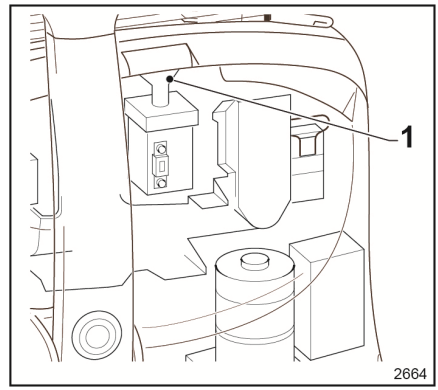
In an emergency, all functions on the truck can be shut down.

– Push the emergency shutdown button (1). The truck will come to a stop.

– To restart the truck, release the emergency shutdown button by pulling on it.

⚠ CAUTION

This protective device must only be used in an emergency.



Selecting the drive mode

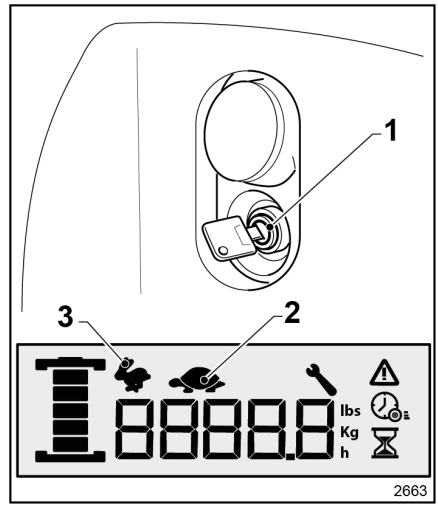
– Turn the switch key (1) to the required position.

NOTE

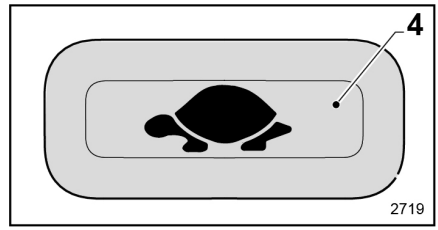
The truck has three drive modes.

Position (2) "Tortoise": slow acceleration and deceleration

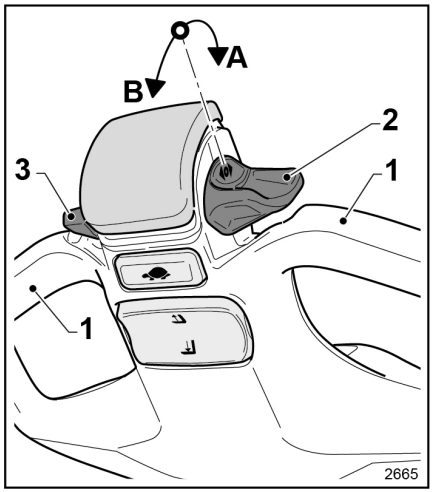
Position (3) "Hare": maximum acceleration and deceleration



– To switch between modes, press the button (4) twice in quick succession and the active mode will appear on the display.



Truck travel



– Hold one of the tiller handles (1) on one side.

– Lower the tiller.

NOTE

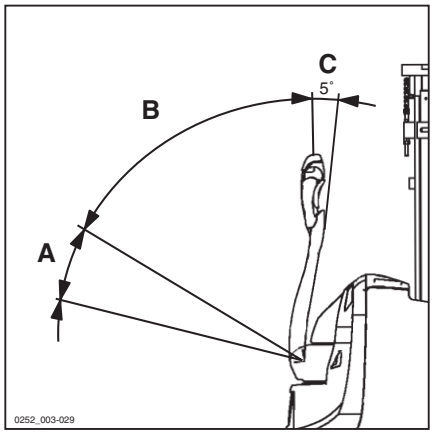
The truck is only in the drive position in the (B) zone. In the lower (A) zone or the upper (C) zone, the mechanical brake is applied and the traction motor is switched off.

NOTE

For details on driving a truck equipped with the "OptiSpeed" option, see the relevant section.

NOTE

One of the travel throttles (2) or (3) on the tiller can be operated with the right or left hand. Always operate the travel throttle slowly, as the truck responds instantly. Abrupt starting or braking or reversing the direction of travel should be avoided at all costs.



Forward travel

– Turn the throttle (2) and (3) towards "A".

– The speed increases with the movement of the throttle. The speed is limited to 4 or 6 km/h depending on the mode selected.

– Reduce the angle of rotation of the control throttle compared to the neutral position to brake the truck electrically.

Reverse travel

– Turn the throttle (2) and (3) towards "B".

– The speed increases with the movement of the throttle. The speed is limited to 4 or 6 km/h depending on the mode selected.

– Reduce the angle of rotation of the control throttle compared to the neutral position to brake the truck electrically.

Reversing the direction of travel

Reverse direction without a load on the forks

- To reverse direction when travelling without a load on the forks, turn the drive control throttle in the opposite direction to the direction of travel. The truck will stop with energetic but gradual braking and will start to move again in the opposite direction.

Reverse direction with a load on the forks

- To reverse direction with a load on the forks, put the drive control throttle in the neutral position and wait for the truck to stop.
- Then turn the drive control throttle in the opposite direction of travel to the previous one.

⚠ CAUTION

The operator must regulate the travel control by adapting truck braking to the type of load being carried in order to avoid losing the load.

Truck brake systems

⚠ WARNING

The condition of the floor surface considerably affects the braking distance of the truck.

A slippery floor will increase the braking distance of the truck. The operator must consider this factor while driving.

While driving, braking can be performed in the following ways:

- By turning the travel controls, which allows two different types of braking

  For more gradual deceleration, the operator can manually reduce the angle of rotation of the travel controls compared to the neutral position (service braking).

  For more rapid deceleration, the operator can turn the travel control beyond the neutral position in the opposite direction to the direction of travel.
- Braking using the tiller

Braking using the travel controls

Description of decelerating and stopping the truck by manually reducing the angle of rotation of the travel controls compared to the neutral position (service braking)

- While holding the tiller head firmly at the designated points, reduce the angle of rotation (applies to both forward travel and reverse travel) of the travel controls compared to the neutral position. This will gradually reduce the travel speed of the truck. The truck will come to a stop (zero speed) when the travel control is put in the neutral position

Description of braking achieved by turning the travel control beyond the neutral position in the opposite direction to the direction of travel

- When driving the truck, turn the travel control beyond the neutral position in the opposite direction to the truck's direction of travel. The truck will decelerate more forcefully but will come to a gradual stop. When the truck stops (zero speed), put the travel control in the neutral position. Caution: If you do not put the travel control in the neutral position, the truck will resume travel in the opposite direction. For more information, see also the section ⇒Chapter "Reversing the direction of travel", Page 77

⚠ CAUTION

In dangerous situations, always brake using the service brake.

⚠ CAUTION

Risk of load tipping. Do not use braking by reversing when driving **with** a load on the forks.

⚠ CAUTION

The operator must regulate the travel control by adapting truck braking to the type of load being carried in order to avoid losing the load.

⚠ WARNING

To ensure an adequate level of safety when driving the truck, the travel controls must be operated and/or turned manually during both the acceleration phase and the deceleration phase, and when stopping the truck.

The automatic return of the travel controls to the neutral position is not to be considered as a feature of normal driving for the truck. The automatic return of the travel controls is only to ensure that they return to the neutral position in any situation where unintentional operations that fall outside of the truck's proper and intended use may occur.

Braking using the tiller

Braking using the tiller can be performed in the following ways:

- During travel, push the tiller to the upper end position. The truck will decelerate very sharply to a stop.
- During travel, push the tiller to the lower end position. The truck will decelerate very sharply to a stop.
- During travel, release the tiller. The tiller will automatically return to the upper end position. The truck will decelerate very sharply to a stop.

⚠ WARNING

The condition of the floor surface considerably affects the braking distance of the truck.

The operator must consider this factor while driving.

Parking brake

- When the traction control throttle is released, the truck stops using the electromagnetic brake when its speed approaches 0 km/h or when the tiller returns to the vertical position

Parking and stopping the truck

⚠ WARNING

Do not park the truck on a slope.

Never leave the truck with the forks raised.

– Park in pre-arranged and designated areas.

– Lower the forks to the ground.

– Turn off the truck using the start/stop key. If the Digicode option is fitted, turn off the truck by pressing the # button for two seconds.

– Press the emergency stop button.

⚠ DANGER

Park the truck in such a way that it does not obstruct passageways and/or render unusable emergency equipment (e.g. fire extinguishers and fire hydrants).

Forklift Use in Cold-Storage Rooms.

A truck specifically equipped for cold-storage rooms must be used when working at **temperatures below +5°C**.

A truck equipped for working in cold climates and cold-storage rooms may be used:

- Up to -5°C for **continuous service**
- From -5°C to -32°C for **non-continuous service**

⚠ CAUTION

The truck must always be switched off and parked outside the cold area/cold-storage room.

⚠ CAUTION

If the truck has been working in environments at temperatures below -5°C and it is taken outside the cold-storage room, let it stand either for a sufficiently long time to allow any condensation to evaporate (at least 30 minutes) or a sufficiently short time to prevent the formation of any condensation (less than 10 minutes).

Avoid the formation of ice on the truck!

⚠ CAUTION

Never enter the cold-storage room when condensation has formed on the truck!

Lifting

Lifting

⚠ WARNING

Risk of injury!

The safety instructions must be strictly adhered to.

It is strictly forbidden to touch or stand in the vicinity of moving parts (e.g. lifting device, pushing devices, work installations, load lifting devices).

⚠ WARNING

Risk of crushing feet.

Keep your feet clear of the straddles.

– All of the buttons for moving the forks and the straddles are described in the "Instruments and controls" section of Chapter 3.

Moving the load

Safety guidelines for handling loads

⚠ WARNING

Closely observe the following instructions before picking up loads. Never touch or stand on moving parts of the truck (e.g. lifting devices, equipment or devices for picking up loads).

⚠ WARNING

Risk of crushing hands and feet when using the lift.

When using the lift, keep hands and feet away from moving parts.

⚠ DANGER

It is not permitted to go under the forks. It is not permitted to transport or lift people on the forks.

If there are people under or on top of the forks, do not move the truck. Do not move the forks and do not drive the truck.

⚠ DANGER

Risk of accident when forks are changed:

If the forks are changed and a different type of forks to the original forks is fitted, the residual load capacity changes.

When forks are changed, a new residual capacity plate must be affixed.

If a truck is supplied without forks, the residual capacity plate for standard forks is affixed (see chapter 6 "Technical Data").

⚠ DANGER

Wear protective footwear. Always keep a suitable distance between your feet and the truck.

Risk of crushing feet when manoeuvring the truck.

⚠ CAUTION

The transport of persons or passengers is strictly prohibited.

⚠ CAUTION

Driving or turning with the forks raised above approximately 300 mm from the ground is prohibited.

It is only allowed at reduced speed when depositing a load and/or picking up a load from shelving.

–

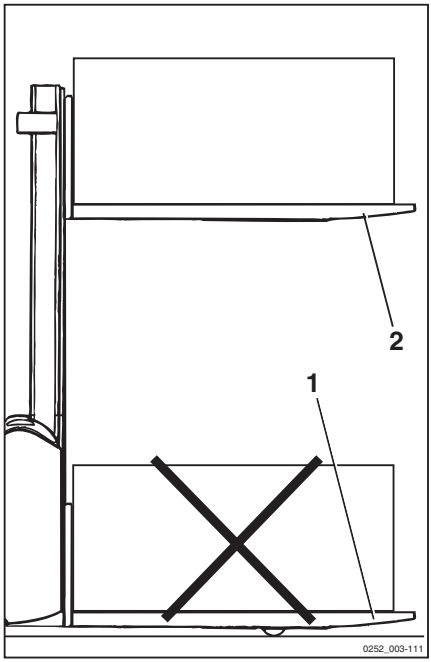
⚠ CAUTION

Pallet condition

Insert the forks into the pallets from the correct side, i.e. the open side, as shown in the illustration (insertion from all sides permitted only with the EXP model).

Ensure that the pallet is in good condition before commencing any operation.

–



⚠ CAUTION

It is not permitted to transport loads on the straddles (1).

Loads may only be transported on the forks (2).

Carrying loads on the straddles is only permitted for the EXV-D range of trucks, which are designed to perform the double pallet stacker function. [Querverweisfehler: Ziel mit ID='Doppio_stoccatore' nicht gefunden!]

⚠ DANGER

Before picking up the load, make sure that its dimensions and weight fall within the truck specifications, as indicated in the "TECHNICAL DATA" chapter.

⚠ DANGER

The loads must be arranged so that they cannot slip or overturn and fall to the ground. In order to guarantee load stability, make sure that the load is balanced and centred on the forks.

⚠ DANGER

Standing or walking under the raised load is strictly prohibited. Make sure that nobody stands under the raised load and in the truck's area of operation.

⚠ CAUTION

Do not touch nearby loads or loads beside or in front of the load being handled

Arrange loads with a small space between them to prevent them coming into contact with one another.

⚠ DANGER

Never leave the truck with the forks raised whether loaded or not.

⚠ WARNING

When lifting the load pay attention to the dimensions of the column and the load.

Do not strike the ceiling, the shelving, loads or other objects in the vicinity during collection operations.

⚠ CAUTION

Risk of loss of stability.

When removing the load from the shelf, do not use the initial lift control (if the truck has one) in order to maintain maximum stability and avoid any risk of tipping the truck. This operation is prohibited both when picking up and when depositing the load on the shelf.

NOTE

Further information on the general rules of truck use and taking up and depositing loads is provided in the "Safety Regulations for Industrial Forklift Use" manual attached to this manual.

Checks to be carried out before lifting a load ▷

⚠ WARNING

Never exceed the capacity of the truck. This capacity is based on the centre of gravity and the lift height of the load.

Comply strictly with the load diagram! It is not permitted to increase the capacity by adding extra weight to the truck. Never exceed the maximum loads shown! Otherwise, the stability of the truck can no longer be guaranteed.

Transporting people in order to increase the capacity of the truck is prohibited.

.

Example	
Weight of load to be lifted:	1200 kg (3)
Distance between the load centre of gravity/fork carriage:	600 mm (1)
Permissible lift height:	2600 mm (2)

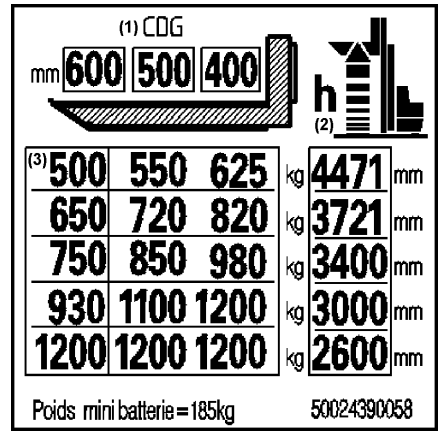
⚠ WARNING

The illustrations are only examples.

Only the values stated on your truck's plate should be taken into consideration.

⚠ WARNING

If small items are being transported or if the load exceeds the height of the fork carriage, a load protective guard must be installed to prevent the items from falling on the operator.



(1) CDG = distance "C" from the centre of gravity of the load on the forks to the fork carriage (in mm)
(2) h = lift height of the forks from the ground (in mm)
(3) Maximum permissible loads "Q" (in kg)

Picking up the load

Load pick up from the ground

– Approach the load with caution and with as much precision as possible.
– Lower the forks and the straddles so that they can easily be inserted into the pallet.
– Slowly insert the forks at the centre of the load to be lifted.

⚠ CAUTION

Insert the fork without bumping into either the shelving or the load.

– Insert the forks as far as possible below the load. If possible, the forks should be inserted far enough in that the load is resting against the fork carriage. The load centre of gravity must be centred between the forks.

⚠ DANGER

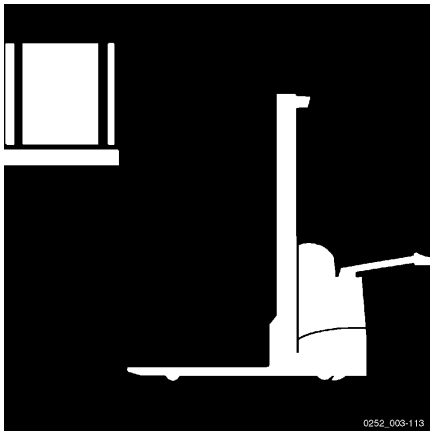
Pay attention to the part of the forks protruding from the load to be lifted.

Do not strike the wall, the shelving or other loads and/or objects behind the load to be picked up.

– Lift the load a few centimetres from the ground and read the "Transporting loads" section.

Load pick up from shelving.

– Approach the shelving at moderate speed. Use the drive control throttles to gradually slow down and stop the truck perpendicular to the shelving with the tiller in the braking position. ▷



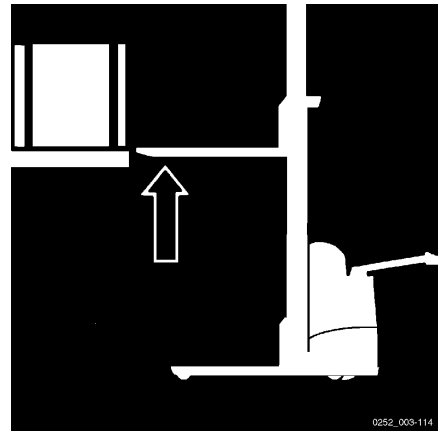
– Check that there is sufficient space between the forks and the shelving.

– Raise the forks until you reach the correct fork insertion height. ▷

– Move the truck slowly forwards to insert the forks into the load.

⚠ CAUTION

Insert the fork without bumping into either the shelving or the load.

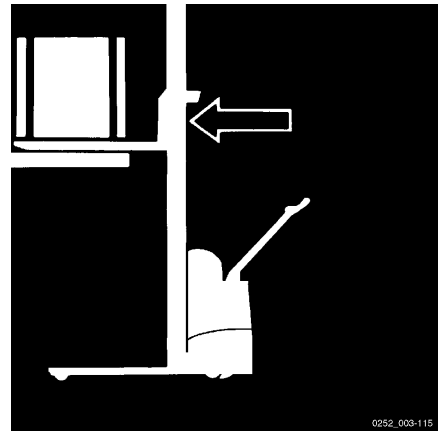


– Insert the forks as far as possible below the load. If possible, the forks should be inserted far enough in that the load is resting against the fork carriage. The load centre of gravity must be centred between the forks. ▷

⚠ DANGER

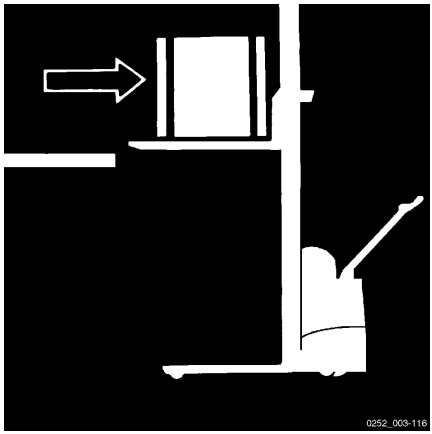
Pay attention to the part of the forks protruding from the load to be lifted.

Do not strike the wall, the shelving or other loads and/or objects behind the load to be picked up.



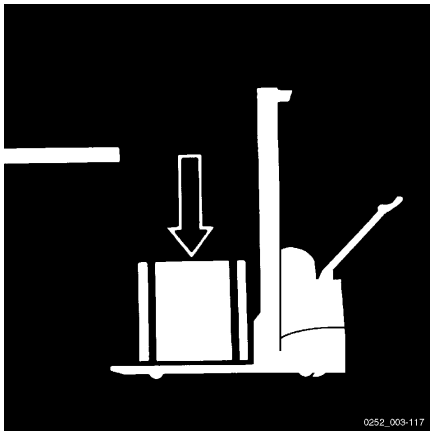
– Raise the load a few centimetres until it is resting fully on the forks. If the load is stable and secure on the forks, proceed with the following steps. In the event of uncertainty and/or a load that is not properly secure or stable, lower the forks and place the load back on the shelving.

– Put the tiller in the driving position. Look behind to check that the way is clear. Turn the throttle in the direction of travel towards the operator and drive very slowly and carefully in a straight line away from the shelves. Brake gradually. ▷



– Check that there is sufficient space between the forks and the shelving.

– Lower the load to the transport position, approximately 300 mm from the ground, and read the "Transporting loads" section. ▷

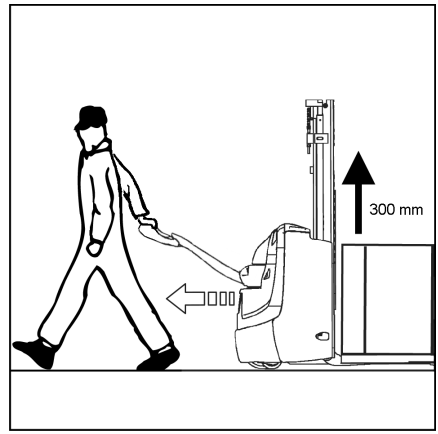


Transporting loads ▷

As a general rule, loads must be transported one by one (e.g. pallets). Transporting several loads at once is only authorised:

- If the safety requirements are met
- On the orders of the supervisor in charge

The operator must ensure that the load is properly packaged. The operator can only move loads that have been properly packaged and are safe and secure.

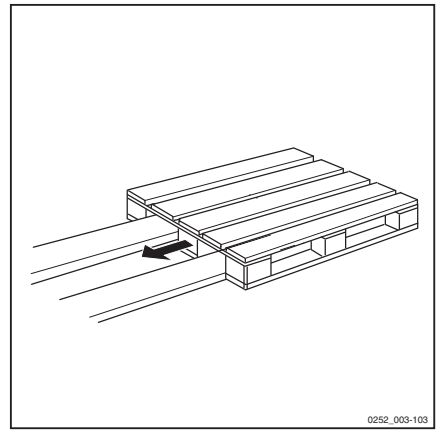


⚠ WARNING

Always drive forwards for optimum visibility.

– Only travel in the direction of the forks when depositing a load, as visibility in this direction is restricted.

If the load height or dimensions are likely to obstruct the operator's view, a second person on foot must assist with manoeuvres in order to warn the driver of any obstacles. In this case, driving is only authorised at walking speed and with the greatest care. Stop the truck immediately if you lose contact with the person accompanying you.

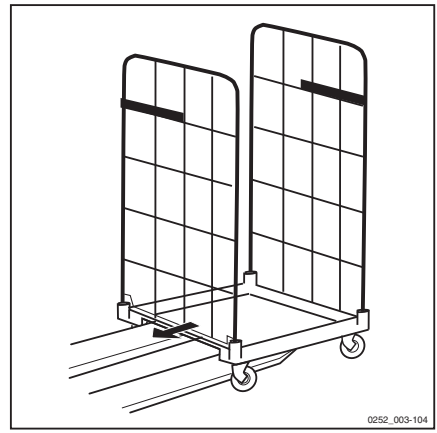


⚠ DANGER

Lower or raise the load until there is sufficient ground clearance (approximately 300 mm).

Never transport loads with forks raised to greater heights as the truck and the load being carried may become unstable.

Do not allow the load, the pallets or the container to trail along the floor.



⚠ DANGER

When travelling and transporting the load, be aware of the side clearance of the load, particularly when cornering.

Avoid hitting shelving and objects in your path.

⚠ DANGER

Danger of load tipping over

Avoid sudden starts and stops.

Approach corners slowly and carefully.

Setting down loads on shelving

⚠ DANGER

Pay attention to the part of the forks protruding from the load to be set down.

Do not strike the wall, the shelving or other loads and/or objects behind the load to be picked up.

⚠ DANGER

Driving or turning with the fork carriage in the raised position is prohibited.

This is only allowed at very slow speed when setting down a load and/or picking one up from shelving.

– Approach the shelving at moderate speed. Use the drive control throttles to gradually slow down and stop the truck perpendicular to the shelving with the tiller in the braking position.

– Check that there is sufficient space between the forks and the shelving.

– Raise the forks until you reach the correct fork insertion height.

– Move the truck slowly forwards to set down the load.

– Lower the load until it is resting properly on the racking.

– After setting down the load, lower the forks without touching either the shelving or the load.

– Put the tiller in the driving position. Look behind to check that the way is clear. Turn the throttle in the direction of travel towards the operator and drive very slowly and carefully in a straight line away from the shelves. Brake gradually.

– Check that there is sufficient space between the forks and the shelving.

– Lower the forks to the ground.

Depositing a load on the ground

- Approach the load deposit area.
- Lower the fork arms until the load is deposited in the required area, then free the forks from any contact with the pallet or container.
- Look behind you before backing up the truck
- Check that the truck's path is free of any objects, people and obstacles of any type
- Look behind you and proceed very slowly to fully extract the forks from the load

⚠ DANGER

Risk of injury and crushing for the operator! Risk of damage to the truck and the goods

During the entire load placement operation, be careful not to hit any obstacles. You must maintain an adequate safety distance from obstacles (e.g. other pallets, protruding objects, shelving etc.).

⚠ DANGER

Never leave the truck with the forks raised, whether loaded or not.

Driving on slopes

Instructions

Before approaching a slope with the truck, the operator must check and verify the following:

- When driving the truck up or down slopes, you must not exceed the values indicated for slopes in the "Technical data" paragraph. The reported values represent the maximum theoretical slope that the truck can handle with and without a load. The operator must keep in mind that the actual values could be lower depending on the wear on the truck or its parts, the shape of the slope's edges and the traction between the truck's wheels and the surface of the slope
- The surface of the uphill or downhill slope is clear of objects and sufficiently lit
- The surface of the uphill or downhill slope must not be slippery; it must provide adequate grip for the truck. Consider the ambient conditions
- The operator must ensure that the load or parts of the truck do not come into contact with the ground at the upper and lower ends of the slope

⚠ WARNING

Risk of tipping and accident

Reduce speed and drive slowly and carefully on uphill and downhill slopes.

⚠ DANGER

Risk of tipping

When driving up or down slopes, do not turn, reverse and/or travel diagonally.

⚠ WARNING

When travelling on a slope with a load on the forks, the load on the forks must be facing uphill.

⚠ DANGER

Risk of accident and falling

Keep the truck at the required safety distance from the edges of uphill and downhill slopes.

⚠ CAUTION

In certain cases, driving with the forks pointing towards the top of the slope is permitted, even if the truck is not loaded.

In these cases, drive with the utmost care and avoid turning until all of the wheels are on a flat surface.

⚠ DANGER

Risk of accident

Do not park on a slope. If, in an emergency, you have to do so, apply the parking brake and block the wheels with wheel chocks.

Using the truck on a lift

Using the truck on lifts is only allowed if the lift has sufficient capacity (check the maximum weight of the truck including the traction battery), and only with appropriate authorisation.

Slowly drive the truck onto the lift load-first.

Secure the truck in the lift so that no part of the truck comes into contact with the walls of the lift. A minimum distance of 100 mm from the walls of the lift must always be observed.

⚠ WARNING

The truck must be correctly immobilised so that it cannot move inadvertently.

⚠ CAUTION

Personnel accompanying the truck onto the lift may only enter the lift once the truck is secure, and they must exit the lift first after transit.

Using the truck on the loading bridge and inside a container

⚠ DANGER

Risk of accident

Before driving on to a loading bridge, the operator must check that the bridge has been properly assembled and secured, and that it has sufficient load capacity.

You must drive onto the loading bridge slowly and carefully.

The operator must check that the vehicle to be loaded or unloaded is sufficiently secure so that it will not move and that it is suitable to support the stress created by the truck.

The lorry driver and the forklift operator must agree on the time of departure of the lorry.

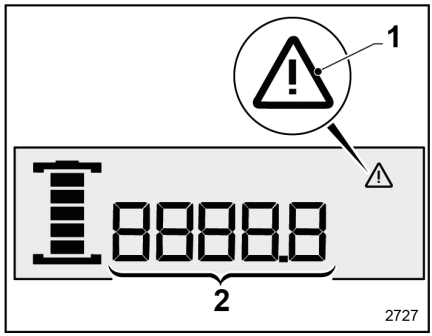
Towing trailers

The forklift is not qualified to tow trailers.

Fault displays

Alarm codes

If there are any alarms, the indicator light (1) on the display will illuminate, and the alarm code will appear in the field (2). Please contact the technical service centre.



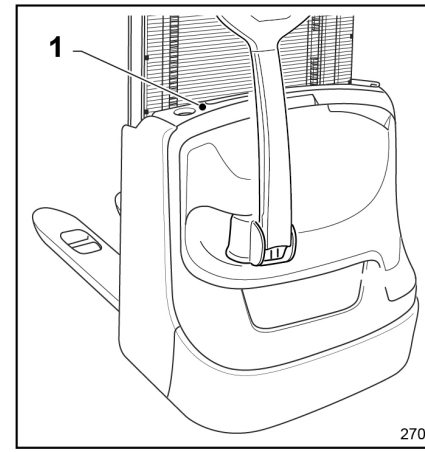
Charging the battery

Opening/closing the battery compartment

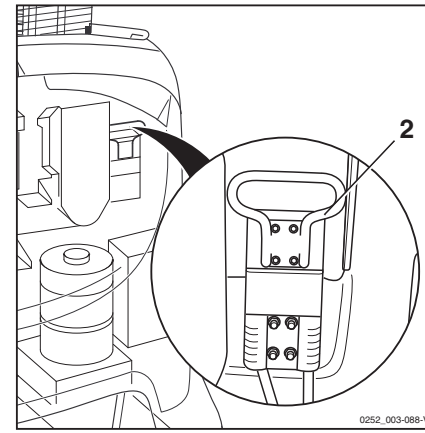
Opening

– Park the truck.

– Lift the cover (1).



– Disconnect the battery connector (2).



Closing

⚠ WARNING

Risk of crushing.

Ensure that there is nothing between the battery cover and the edge of the chassis when closing the cover.

– Connect the battery connector.

– Close the battery hood.

Charging the battery (using an external battery charger)

⚠ CAUTION

Charge the battery with the truck turned off and the battery hood open.

You can only remove the plug from the socket when the truck is switched off.

⚠ DANGER

The battery must be charged in rooms that comply with applicable regulations. Refer to the battery and battery charger manuals to see the charging procedures, level checks etc., checking the battery type (gel, lead etc.) and making sure of the voltage and current delivered. Excessive currents can damage the battery and cause dangerous situations. As regards safety precautions, follow the instructions given in the battery manual and those included in the "Safety guidelines" of this manual. Before recharging, the battery cables and the battery charger cables must be checked for damage and replaced if necessary. Do not place objects on the battery during charging.

- Access the upper part of the battery, open the battery hood and hold the hood open.
- Connect the battery outlet to the battery charger to begin charging
- Turn on the external battery charger
- After the battery charging operation is completed, switch off the battery charger
- Unplug the battery charger
- Plug the battery in again
- Close the battery hood

NOTE

Refer to the battery operating instructions for more information.

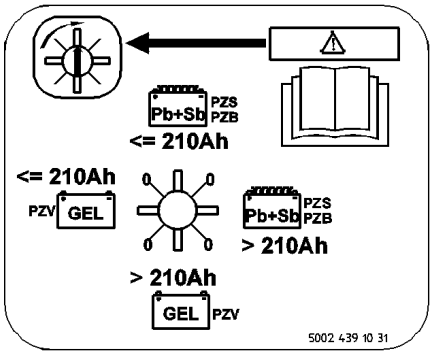
Charging curve selector (only with on-board charger)

The curve is selected using the selector located on the front face of the charger. The curve selector is protected by a cap.

⚠ CAUTION

Risk of premature damage to the battery!

It is essential to select the correct type of battery on the selector.



The four thin lines indicate neutral positions. The charger does not flow and the two LEDs flash simultaneously to indicate that no curve has been selected.

The four thick lines indicate the four charging curves:

- open lead-acid battery with a capacity below 210 Ah,
- open lead-acid battery with a capacity greater than 210 Ah,

- gel battery with a capacity below 210 Ah,
- gel battery with a capacity greater than 210 Ah.

Recharging the battery using the on-board battery charger (optional)

⚠ CAUTION

Charge the battery with the truck turned off and the start key removed.

⚠ DANGER

The battery must be charged in rooms that comply with applicable regulations. Refer to the battery and battery charger manual for the charging procedures, level checks etc., and check the battery type (gel, lead etc.) and the voltage and current delivered. Excessive currents can damage batteries and cause dangerous situations. As regards safety precautions, follow the instructions given in the battery manual and those included in the "Safety guidelines" of this manual.

⚠ DANGER

If the truck is fitted with an on-board battery charger, connecting the battery to an external battery charger is strictly prohibited.

⚠ CAUTION

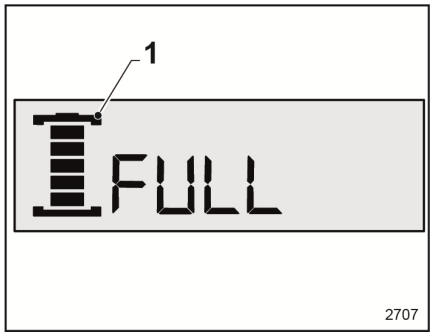
Make sure that the mains supply voltage complies with the battery charger's working voltage.

⚠ DANGER

The electrical system must comply with the current national regulations.

– Pull out the battery charger plug from the truck. Connect the plug to the mains socket.

– The display lights up and the charging status display (1) lights up. The segments move to indicate the charging status.
– When the battery is fully charged, all of the segments of the display (1) are illuminated and "FULL" is displayed.
– Disconnect the plug from the mains socket and store it in the relevant part of the truck.



Battery type

Trucks can be fitted with different types of battery. Observe the instructions on your battery type plate, as well as the specifications defined in the chapter "Technical data".

⚠ WARNING

The weight and size of the battery influence the stability of the truck.

The new battery must comply with the weight shown on the truck identification plate. Install the battery precisely and in accordance with technical regulations.

⚠ CAUTION

Be careful not to damage any wiring when replacing the battery.

Preparation

Maintenance personnel

The battery may only be changed by specially trained personnel, in accordance with the manufacturer's instructions for the battery, the battery charger and the truck. The maintenance instructions for the battery must be observed.

Fire prevention measures

⚠ WARNING

Do not smoke or use a naked flame when handling batteries. In the area designated for parking the truck to re-charge the battery or battery charger, there should be no flammable materials or substances that can cause sparks within a radius of at least 2 metres. The charging area must be well ventilated. Keep a fire extinguisher at hand.

Safe parking

Park the truck securely before carrying out work on the battery. The truck can only be operated when the battery cover is closed and the battery outlet is inserted. If the truck is enabled for side removal of the battery, the truck can only be operated once the battery is fixed in place properly using the battery locking system.

Servicing the battery

The lids of the battery cells must be kept dry and clean. Any leakage of battery acid must be neutralised immediately. Terminals and soldering lugs must be clean and lightly greased with pole grease.

Using the truck with extension leads

⚠ DANGER

Use of the truck with extensions is only permitted with a maximum extension length of 3 m.

5

Maintenance

General Information

To keep your forklift in good condition, carry out the servicing indicated regularly, within the times indicated and using the consumption materials provided for that purpose, as specified on the following pages. Please make sure that you keep a record of work done; this is the only way for the guarantee to remain valid.

Maintenance is divided into:

- Regular Service (scheduled by the user)
- Planned maintenance (to be performed by the service network authorised by the manufacturer)

⚠ DANGER

Planned maintenance and repairs must be performed by the service network authorised by the manufacturer in order to keep the machine in perfect condition and compliant with technical specifications.

NOTE

Contact the authorised service network for a maintenance contract appropriate to your forklift.

⚠ CAUTION

Maintenance intervals are defined for standard use. In the following cases, it is necessary to reduce the interval between the various scheduled maintenance operations: in the event of use in dusty or salty environments, extremely high or low ambient temperatures, high levels of air humidity, particularly intense and heavy-duty uses, and specific national regulations for trucks or individual components.

Preliminary maintenance operations

Do the following before performing maintenance operations:

- Position the truck on a flat surface and make sure that it cannot move accidentally
- Fully lower the forks
- Switch off the truck

⚠ DANGER

Before performing any intervention on the electrical system, disconnect the battery outlet from the relative plug.

Regular Service

Cleaning the Forklift

Cleaning depends on the type of use and the workplace. Should the truck come into contact with highly aggressive elements such as salt water, fertilizers, chemical products, cement, etc., it should be cleaned as carefully as possible after every work cycle. It is preferable to use cold compressed air and detergents. Use water-dampened rags to clean the parts of the body.

⚠ CAUTION

Do not clean the truck with direct jets of water; DO NOT use solvents and petrols that could damage parts of the truck.

Lubricating and cleaning the lifting chains

NOTE

Turn off the truck and perform the preliminary maintenance operations

Lubricating the lifting chains

To ensure that the chains operate correctly, make sure that they are always sufficiently lubricated.

⚠ WARNING

Lubricant reduces friction and protects the chain from oxidation caused by the environment.

If lubricant is not used or if it is insufficient, the chains will be noisier (squeaking etc.) and performance will be reduced.

– For chain lubricant specifications, see the section "Supply table" in chapter 6. Alternatively, contact the sales network authorised by the manufacturer.
– Using a clean brush, spread a thin layer of lubricant along the entire length of the chain. Lubricate the chain both inside and outside. This will help the lubricant to penetrate the links of the chain.
– If dirt has accumulated on the chain, thoroughly clean the lifting chains before lubricating them (see the following instructions).

Cleaning the lift chains

⚠ WARNING

There is a risk of accident!

Load chains are safety components.

The use of cold/chemical cleaning agents or fluids that are corrosive or contain acid or chlorine can damage the chains and is therefore prohibited.

– Follow the manufacturer's guidelines before using a cleaning agent.

– Place a collection vessel under the lift mast.
– Clean with paraffin derivatives, such as benzine.
– Dry the chain with a clean cloth and then lubricate the chain.

ENVIRONMENT NOTE

Dispose of fluid that has been spilled or collected in the collection vessel in an environmentally-friendly manner. Follow applicable current regulations

Maintenance plans

Maintenance plans

Key to symbols in table:

- ▲ = Every 1000 hours or at least every 12 months (whichever comes first), unless local regulations require more frequent intervention.

ENVIRONMENT NOTE

During maintenance operations, follow the instructions provided in the "Safety guidelines relative to operating materials" section in "Chapter 2".

Servicing work every 1000 hours
Transmission
Reduction gear: check that it is correctly mounted
Reduction gear: check for any oil leakage
Drive motor: check that it is correctly mounted
Forks
Check condition of forks
Grease the rods and levers
Check the bushes and levers
Steering/wheels
Steering: visually inspect the mounting of the tiller
Steering unit bearing: grease (if there is a lubrication nipple)
Wheels
Wheels and rollers: check for any damage, foreign matter or signs of wear
Wheels: check that they are at the correct tightness
Rollers: check that they are correctly mounted
Brake
Electromagnetic brake: check for signs of wear and any adjustment
Check the truck braking
Electrical system
Battery: check the battery condition and that it is correctly mounted
Battery: check the condition of the cables and sockets
Battery: service the battery according to the manufacturer's instructions
On-board charger (if present): clean
On-board charger (if present): check that it is operating correctly

Servicing work every 1000 hours
Truck cables and connectors: check the condition and position
Electrical components: clean
Test the insulation between the chassis and the electric motors
Test the insulation between the chassis and the electronic control
On-board charger (if present): earthing and isolation circuit tests
Hydraulic system
Pump unit: check the general condition
Pump unit: check the wear of the lifting motor brushes
Hydraulic system: check the oil level
Hydraulic system: check for any leakage from cylinders and hydraulic fittings
Hydraulic system: check the condition of the pipe lines
Load lift system
Mast: check that it is in good condition
Mast: lubricate the sliding tracks of the mast profiles
Mast: check that it is correctly mounted
Lift cylinders, chains, rollers and end stops: check the condition, mounting and operation
Lifting chain: check chain adjustment and maintenance ▲ (clean, adjust, grease)
Fork holder: check that the fork holder is in good condition, is correctly mounted and is operating correctly
Protective device: check that the anti-shearing protective guard is in place, is in good condition and is correctly mounted
Mobile chassis: check that the fork holder is in good condition, is properly mounted and is operating correctly

Additional servicing work every 3000 hours
Hydraulic system
Replace the hydraulic oil and the hydraulic oil filter
Load lift system
Lift mast maintenance: check the lateral and axial clearance of the bearings

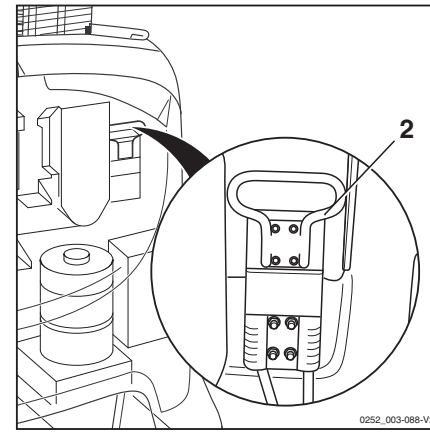
Additional servicing work every 6000 hours
Transmission
Replace the reduction gear unit oil

Fuses

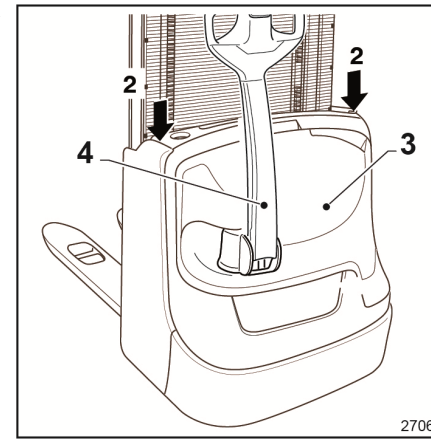
⚠ CAUTION

Danger of electric shock

– Before carrying out any work on the electrical system, the battery (2) must be disconnected.

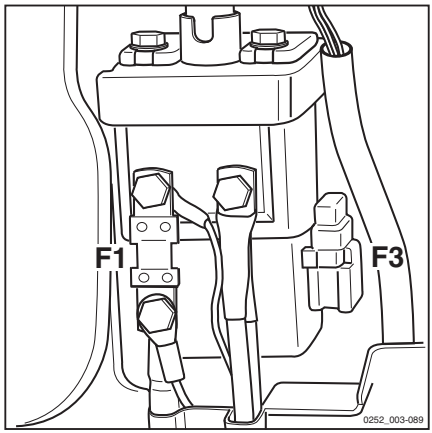


– Remove the two screws (2).



– Check the condition of the following fuses: ▷

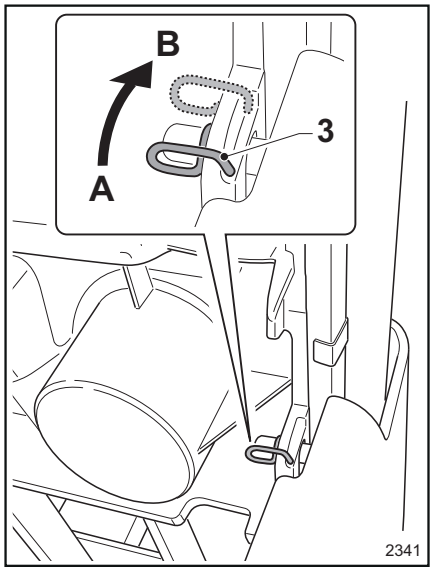
F1 300-A main fuse
F3 7.5-A main fuse



Replacing the battery from above for trucks with 1000 kg and 1200 kg capacity

– Before replacing the battery, carry out the preliminary operations for maintenance: park the truck on a flat surface, switch off the truck and then press the emergency off button.

– Remove the battery hood: open the battery hood, turn the clasp upwards (3) until it reaches the (B) position and then remove the hood by sliding it off sideways.



– Disconnect the socket from the battery male connector.

⚠ CAUTION

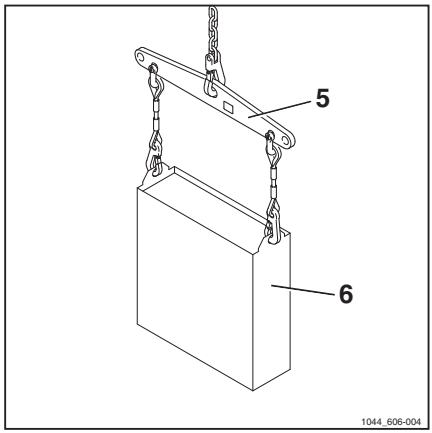
To decide which type of battery to use, check the battery characteristics provided in the "TECHNICAL DATA" chapter.

⚠ DANGER

Danger to life!

Use a crane with a suitable lifting capacity for the weight of the battery. Lifting operations must be performed by qualified personnel. DO NOT stand within the crane's radius of action or near the truck. Do not stand in the danger area below suspended loads. Use NON-METALLIC slings. Make sure that the lifting capacity of the slings is suitable for the weight of the battery. The rope slings must be pulled vertically. To prevent short circuits, it is recommended that batteries with polar terminals or unprotected connections be covered with a rubber mat.

– Attach the lifting device (5) correctly to the battery (6) (see the user manual of the lifting device). Insert the safety hooks of the sling into the appropriate battery slots. The entire sling must be suitably sized according to the weight of the battery.



– Lift the battery using a hoist that is suitably sized for the weight of the battery. Keep a sufficient safety distance between the battery and the truck to avoid damage to the truck. The hooks must be positioned so that they cannot fall on the battery cells when the lifting device is slackened.

– Replace the battery and refit it by following the steps in reverse order.

⚠ CAUTION

When closing the battery hood, take care to correctly position the cables of the battery male connector so as not to damage them.

– Reinstall the battery hood removed earlier, open the battery hood, turn the clasp downwards (3) until it reaches the (A) position, then close the battery hood.

Replacing the battery from above for trucks with 1400 kg capacity

– Before replacing the battery, carry out the preliminary operations for maintenance: park the truck on a flat surface, switch off the truck and then press the emergency off button.

⚠ WARNING

Open the battery hood: turn the clasp on the hood and then hold the hood with your hand as it opens.

The hood has a spring to make it open on its own. Keep your face, any objects and other parts of your body away from the opening radius of the hood.

– Disconnect the socket from the battery male connector.

⚠ CAUTION

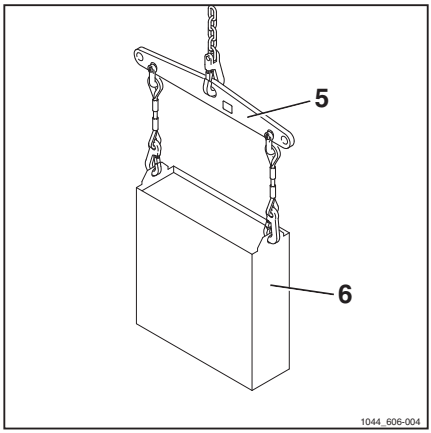
To decide which type of battery to use, check the battery characteristics provided in the "TECHNICAL DATA" chapter.

⚠ DANGER

Danger to life!

Use a crane with a suitable lifting capacity for the weight of the battery. Lifting operations must be performed by qualified personnel. DO NOT stand within the crane's radius of action or near the truck. Do not stand in the danger area below suspended loads. Use NON-METALLIC slings. Make sure that the lifting capacity of the slings is suitable for the weight of the battery. The rope slings must be pulled vertically. To prevent short circuits, it is recommended that batteries with polar terminals or unprotected connections be covered with a rubber mat.

– Attach the lifting device (5) correctly to the battery (6) (see the user manual of the lifting device). Insert the safety hooks of the sling into the appropriate battery slots. The entire sling must be suitably sized according to the weight of the battery.



– Lift the battery using a hoist that is suitably sized for the weight of the battery. Keep a sufficient safety distance between the battery and the truck to avoid damage to the truck. The hooks must be positioned so that they cannot fall on the battery cells when the lifting device is slackened.

– Replace the battery and refit it by following the steps in reverse order.

⚠ CAUTION

When closing the battery hood, take care to correctly position the cables of the battery male connector so as not to damage them.

– Close the battery cover by following the steps in reverse order.

Battery replacement for version with side removal

⚠ DANGER

Before changing the battery, park the truck. Ensure that the truck is on a level surface and cannot move accidentally.

Ensure that the unlocked battery cannot slide off and fall onto the ground. Risk of crushing hands and feet!

– Turn off the truck and perform preliminary maintenance operations.

– Raise the battery compartment cover.

– Disconnect the outlet from the battery plug

– Remove the rubber battery retainers.

– Place the manufacturer-approved battery side-removal roller unit next to the truck; position it so that it is still and stable; adjust the height of the roller unit so that it is level with the underside of the battery at the battery compartment.

– Open the latch of the battery retainer to unlock it.

⚠ DANGER

"Risk of crushing hands!" The battery must be removed by a single operator only. The operator must follow the operating instructions given in this section, positioning himself on the same side as the battery side-removal roller unit.

– Pull the battery outwards, sliding it along the rollers on the truck frame and positioning it on the previously prepared external roller unit. Close the roller unit battery retainer.

⚠ DANGER

Use a crane of suitable lifting capacity to lift the battery. Lifting operations must be performed by qualified personnel. DO NOT stand within the crane's radius of action or near the truck. Securely attach the battery using NON-METALLIC slings. Make sure that the lifting capacity of the slings is suitable for the weight of the battery.

– Move the roller unit to align the truck's battery compartment with the new battery to be fitted.
– Open the roller unit battery retainer.
– Change the battery and refit it by following the above steps in reverse order.

NOTE

To decide which type of battery to use, check the battery characteristics provided in the "TECHNICAL DATA" chapter.

⚠ CAUTION

Before using the truck, check that the latch is closed correctly as it acts as a battery retainer and must hold the battery in place.

⚠ CAUTION

When closing the battery cover, take care to position the cables of the battery plug correctly so as not to damage them.

Decommissioning

General Information

The operations to be performed for "**Temporary decommissioning**" and "**Permanent decommissioning**" are listed in this chapter.

Forklift Towing

The forklift may not be towed in the case of breakdown.

The forklift must be lifted with due caution, as described on the preceding pages.

Temporary Putting Out of Commission

The following operations must be performed when the forklift is not going to be used for a long time:

- Clean the forklift as indicated in the "**Maintenance**" chapter and put it in a dust-free and dry room. -
- Lower the forks.
- Lightly grease all of the unpainted parts with oil or grease.
- Perform the lubrication operations indicated in the maintenance chapter.
- Remove the battery and put it in a room where there is no danger of freezing. Charge the battery at least once a month.
- Raise the forklift so that the wheels do not touch the ground; otherwise, the wheels will become flat at the point of contact with the floor.
- Cover the forklift with a **NON**-plastic sheet.

Checks and Inspections After a Long Period of Inactivity

⚠ DANGER

Perform the following operations before using the forklift:

- Clean forklift truck thoroughly.
- Check the battery charge level and reassemble it in the forklift, making sure to spread Vaseline on the terminals.
- Lubricate all of the parts provided with lubricating nipples and the chains.
- Carry out the fluid level checks.
- Perform all of the functional maneuvers of the forklift and of its safety devices both loaded and unloaded.

⚠ DANGER

Follow the instructions provided in the maintenance chapter for the operations indicated previously.

Permanent Putting Out of Commission (Demolition)

The forklift must be demolished in compliance with local legislation. Contact the authorised service network or authorised companies to scrap the forklift according to local legislation.

DANGER

Disassembly of the forklift for scrapping is extremely hazardous.

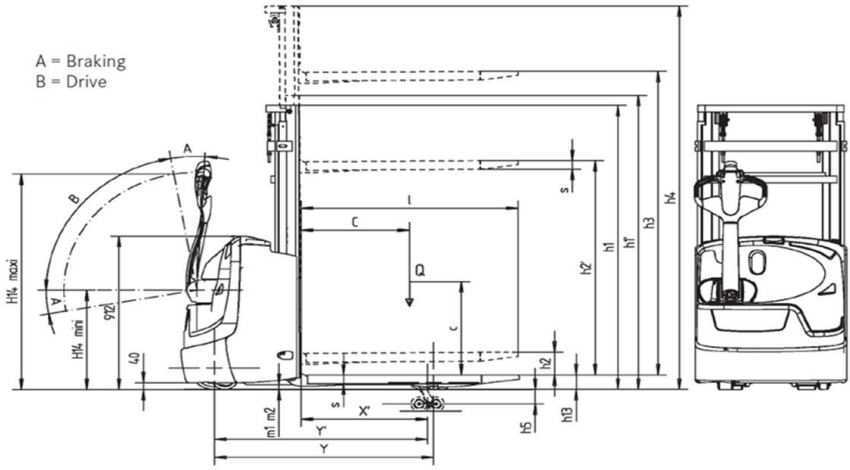
ENVIRONMENT NOTE

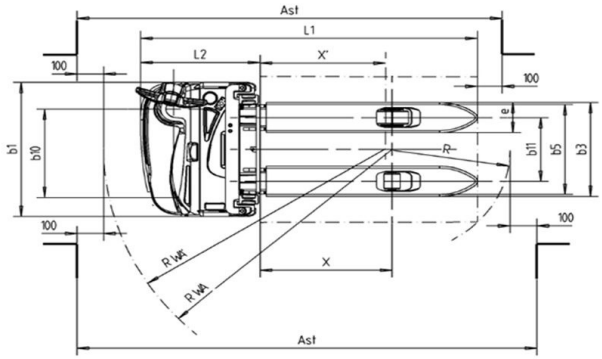
In particular, batteries, fluids (oils, fuels, lubricants, etc, electrical and electronic components and rubber components must be disposed of in compliance with specific local legislation for each type of material.

6

Technical data

Overall dimensions





Ast According to FEM

Ast According to VDI

Datasheet (VDI) EXV 10 Basic and EXV 10

CHARACTERISTICS				EXV 10 Basic	EXV 10	
				Simplex	Telescopic	NiHo
1.3	Drive: electric, diesel, petrol, LPG			Electric		
1.4	Drive type: manual, pedestrian, ride-on standing, ride-on seated, order picking			Pedestrian		
1.5	Capacity/Load	Q (kg)		1000		
1.6	Centre of gravity	c(mm)		600		
1.8	Load distance from load wheel axle	x (mm)		715 (2)	695 (2)	
1.9	Wheelbase	y (mm)		1157		

WEIGHTS				EXV 10 Basic	EXV 10	
				Simplex	Telescopic	NiHo
2.1	Tare weight (with battery)	kg		708 (5)	788 (6)	
2.2	Load per laden axle, drive side/load side	kg		617/1091	654/1134	
2.3	Load per unladen axle, drive side/load side	kg		518 / 190	572 / 216	

WHEELS				EXV 10 Basic	EXV 10	
				Simplex	Telescopic	NiHo
3.1	Tyres			Solid rubber	Polyurethane	
3.2	Drive wheel sizes	Øxl (mm)		Ø230 x 75		
3.3	Wheel sizes, load side	Øxl (mm)		1xØ85x100		
3.4	Stabiliser wheels (sizes)	Øxl (mm)		Ø140x54		

WHEELS				EXV 10 Basic	EXV 10	
				Simplex	Telescopic	NiHo
3.5	Number of wheels, drive side/load side (x = drive wheel)			1x-1/2		
3.6	Drive side track width	b10 [mm]		518		
3.7	Load side track width	b11 [mm]		380	340/380/500	

DIMENSIONS				EXV 10 Basic	EXV 10	
				Simplex	Telescopic	NiHo
4.2	Height with lift mast retracted	h1 (mm)		see mast table		
4.3	Free lift	h2 (mm)		see mast table		
4.4	Lift	h3 (mm)		see mast table		
4.5	Height with mast removed	h4 (mm)		see mast table		
4.9	Height of tiller in driving position, min/max.	h14(mm)		740 / 1230		
4.15	Height of forks when lowered	h13 (mm)		86		
4.19	Overall length unladen	l1 (mm)		1768	1788	
4.20	Length including shoulder of forks	l2 (mm)		618 (2)	638 (2)	
4.21	Total width	b1 (mm)		800		
4.22	Fork dimensions	s/e/l (mm)		65/180/1150 (2)		
4.24	Frontal width	b3 (mm)		534		

DIMENSIONS				EXV 10 Basic	EXV 10	
				Simplex	Telescopic	NiHo
4.25	Outside fork spread	b5 (mm)		560	520/560/680	
4.32	Ground clearance at the middle of the distance between forks	m2 (mm)		30		
4.33	Working aisle with pallet 1000 x 1200 b12, x, l6 (fork insertion 1200)	Ast3 (mm)		2285	2294	
4.34	Working aisle with pallet 800 x 1200 b12, x, l6 (fork insertion 800)	Ast3 (mm)		2249	2265	
4.35	Turning radius	Wa (mm)		1420		

PERFORMANCE				EXV 10 Basic	EXV 10	
				Simplex	Telescopic	NiHo
5.1	Travel speed	km/h		6.0/6.0		
5.2	Lifting speed, laden/unladen	m/s		0.12 / 0.16	0.11 / 0.23	0.11 / 0.2
5.3	Lowering speed, laden/unladen	m/s		0.23 / 0.23	0.3 / 0.28	0.31 / 0.25
5.7	Max. surmountable gradient KB 5', with/without load	%		5 / 10		
5.9	Acceleration time, with/without load (over 10 metres)	s		8 / 7		
5.10	Service brake			Electromagnetic		

ELECTRIC MOTOR				EXV 10 Basic	EXV 10	
				Simplex	Telescopic	NiHo
6.1	Traction motor, performance KB 60'	kW		1.2		
6.2	Lifting motor, performance 15% ED	kW		2.2 / 5%	1.5 / 7%	
6.3	Battery type in accordance with DIN 43 531/35/36 A, B, C, no			no		
6.4	Voltage/Nominal capacity	V/Ah		24V / 180Ah		

ELECTRIC MOTOR				EXV 10 Basic	EXV 10	
				Simplex	Telescopic	NiHo
6.5	Battery weight (±5%)	(kg)		195		
6.6	Energy consumption according to VDI cycle	kWh / h		0.72	0.72	

OTHER				EXV 10 Basic	EXV 10	
				Simplex	Telescopic	NiHo
8.1	Type of drive control			AC Control		
8.4	Noise level at driver's ears (± 2.5 dB)	dB(A)		65		

1) The suffix "i" in the type of model = straddle initial lift function

2) Also available for Simplex, Telescopic and NiHo columns are front fork holders with thickness s = 60 mm with different " x" values (-44 mm for Simplex/-35 mm for Telescopic and NiHo) and "l2" (+44 mm/+35 mm). The version with forks s = 60 mm is the only version intended for gauge b5 = 680 mm (only with forks l = 1000 mm) and for Triplex columns

3) Straddles lowered

4) Straddles raised

5) Weight and constraint on the axles for configurations with Simplex column, h1 = 2390 mm

6) Weight and constraint on the axles for configurations with Telescopic column, h1 = 1940 mm

7) Weight and constraint on the axles for configurations with NiHo column, h1 = 1940 mm

8) Weight and constraint on the axles for configurations with Telescopic column, h1 = 1696 mm

9) Weight and constraint on the axles for configurations with NiHo column, h1 = 1696 mm

Masts

	Simplex		Telescopic					
	EXV 10 Basic		EXV 10					
h1	1940	2390	1490	1690	1940	2140	2390	2590
h1'	–	–	1565	1765	2015	2215	2465	2665
h2	1462	1912	–	–	–	–	–	–
h2'	–	–	150	150	150	150	150	150
h3	1462	1912	2024	2424	2924	3324	3824	4224
h4	–	–	2502	2902	3402	3802	4302	4702

h1 initial lift = h1 (standard) + 6 mm

	NiHo					
	EXV 10					
h1	1490	1690	1940	2140	2390	2590
h1'	–	–	–	–	–	–
h2	1012	1212	1462	1662	1912	2112
h2'	–	–	–	–	–	–
h3	2024	2424	2924	3324	3824	4224
h4	2502	2902	3402	3802	4302	4702

h1 initial lift = h1 (standard) + 6 mm

Datasheet (VDI) EXV 12 and EXV 12 i

EXV 12

CHARACTERISTICS			EXV 12		
			Telescopic	NiHo	Triplex
1.3	Drive: electric, diesel, petrol, LPG		Electric		
1.4	Drive type: manual, pedestrian, ride-on standing, ride-on seated, order picking		Pedestrian		
1.5	Capacity/Load	Q (kg)	1200		
1.6	Centre of gravity	c (mm)	600		
1.8	Load distance from load wheel axle	x (mm)	695 (2)		638
1.9	Wheelbase	y (mm)	1157		

WEIGHTS			EXV 12		
			Telescopic	NiHo	Triplex
2.1	Tare weight (with battery)	kg	788 (6)		935 (7)
2.2	Load per laden axle, drive side/ load side	kg	671/1317		690/1445
2.3	Load per unladen axle, drive side/ load side	kg	572 / 216		651 / 284

WHEELS			EXV 12		
			Telescopic	NiHo	Triplex
3.1	Tyres		Polyurethane		
3.2	Drive wheel sizes	Øxl (mm)	Ø230x75		
3.3	Wheel sizes, load side	Øxl (mm)	1xØ85x100		
3.4	Stabiliser wheels (sizes)	Øxl (mm)	Ø140x54		
3.5	Number of wheels, drive side/load side (x = drive wheel)		1x-1/2		
3.6	Drive side track width	b10 (mm)	518		
3.7	Load side track width	b11 (mm)	340/380/500		380

DIMENSIONS			EXV 12		
			Telescopic	NiHo	Triplex
4.2	Height with lift mast retracted	h1 (mm)	see mast table		
4.3	Free lift	h2 (mm)	see mast table		
4.4	Lift	h3 (mm)	see mast table		
4.5	Height with mast removed	h4 (mm)	see mast table		
4.9	Height of tiller in driving position, min/max.	h14 (mm)	740 / 1230		
4.15	Height of forks when lowered	h13 (mm)	86		
4.19	Overall length unladen	l1 (mm)	1788		1845
4.20	Length including shoulder of forks	l2 (mm)	638 (2)		695
4.21	Total width	b1 (mm)	800		
4.22	Fork dimensions	s/e/l (mm)	65/180/1150 (2)		60/180/1150
4.24	Frontal width	b3 (mm)	534		710
4.25	Outside fork spread	b5 (mm)	520/560/680		560
4.32	Ground clearance at the middle of the distance between forks	m2 (mm)	30		
4.33	Working aisle with pallet 1000 x 1200 b12, x, l6 (fork insertion 1200)	Ast3 (mm)	2294		2321
4.34	Working aisle with pallet 800 x 1200 b12, x, l6 (fork insertion 800)	Ast3 (mm)	2265		2310
4.35	Turning radius	Wa (mm)	1420		

PERFORMANCE			EXV 12		
			Telescopic	NiHo	Triplex
5.1	Travel speed	km/h	6.0/6.0		
5.2	Lifting speed, laden/unladen	m/s	0.15 / 0.3	0.15 / 0.26	
5.3	Lowering speed, laden/unladen	m/s	0.4/0.3	0.29 / 0.31	
5.7	Max. surmountable gradient KB 5', with/without load	%	5 / 10		

PERFORMANCE			EXV 12		
			Telescopic	NiHo	Triplex
5.9	Acceleration time, with/without load (over 10 metres)	s	8.3/7		
5.10	Operating brake		electromagnetic		

ELECTRIC MOTOR			EXV 12		
			Telescopic	NiHo	Triplex
6.1	Traction motor, performance KB 60'	kW	1.2		
6.2	Lifting motor, performance 15% ED	kW	3.2 / 10%		
6.3	Battery type in accordance with DIN 43 531/35/36 A, B, C, no		no		
6.4	Voltage/Nominal capacity	V/Ah	24V / 180Ah		
6.5	Battery weight (±5%)	kg	195		
6.6	Energy consumption according to VDI cycle	kW/h	1		

OTHER			EXV 12		
			Telescopic	NiHo	Triplex
8.1	Type of drive control		AC Control		
8.4	Noise level at driver's ears (± 2.5 dB)	dB (A)	65		

EXV 12 i [1]

CHARACTERISTICS			EXV 12 i		
			Telescopic	NiHo	Triplex
1.3	Drive: electric, diesel, petrol, LPG		Electric		
1.4	Drive type: manual, pedestrian, ride-on standing, ride-on seated, order picking		Pedestrian		
1.5	Capacity/Load	Q (kg)	1200		
1.6	Centre of gravity	c (mm)	600		
1.8	Load distance from load wheel axle	x (mm)	780 [2][3]		723 [3]
1.9	Wheelbase	y (mm)	1362 [3]/1291 [4]		

WEIGHTS			EXV 12 i		
			Telescopic	NiHo	Triplex
2.1	Tare weight (with battery)	kg	909 (8)		1056 (9)
2.2	Load per laden axle, drive side/ load side	kg	802/1307		818/1438
2.3	Load per unladen axle, drive side/ load side	kg	643 / 266		710 / 346

WHEELS			EXV 12 i		
			Telescopic	NiHo	Triplex
3.1	Tyres		Polyurethane		
3.2	Drive wheel sizes	Øxl (mm)	Ø230x75		
3.3	Wheel sizes, load side	Øxl (mm)	1xØ85x100		
3.4	Stabiliser wheels (sizes)	Øxl (mm)	Ø140x54		
3.5	Number of wheels, drive side/load side (x = drive wheel)		1x-1/2		
3.6	Drive side track width	b10 (mm)	518		
3.7	Load side track width	b11 (mm)	380		

DIMENSIONS			EXV 12 i		
			Telescopic	NiHo	Triplex
4.2	Height with lift mast retracted	h1 (mm)	see mast table		
4.3	Free lift	h2 (mm)	see mast table		
4.4	Lift	h3 (mm)	see mast table		
4.5	Height with mast removed	h4 (mm)	see mast table		
4.6	Initial lift	h5 (mm)	130		
4.9	Height of tiller in driving position, min/max.	h14 (mm)	740 / 1230		
4.15	Height of forks when lowered	h13 (mm)	86		
4.19	Overall length unladen	l1 (mm)	1907		1964
4.20	Length including shoulder of forks	l2 (mm)	757 (2)		814

DIMENSIONS			EXV 12 i		
			Telescopic	NiHo	Triplex
4.21	Total width	b1 (mm)	800		
4.22	Fork dimensions	s/e/l (mm)	65/180/1150 (2)		60/180/1150
4.24	Frontal width	b3 (mm)	534		710
4.25	Outside fork spread	b5 (mm)	560		
4.32	Ground clearance at the middle of the distance between forks	m2 (mm)	20 (3)/150 (4)		
4.33	Working aisle with pallet 1000 x 1200 b12, x, l6 (fork insertion 1200)	Ast3 (mm)	2469 (3)/2426 (4)		2490 (3)/2452 (4)
4.34	Working aisle with pallet 800 x 1200 b12, x, l6 (fork insertion 800)	Ast3 (mm)	2409 (3)/2392 (4)		2452 (3)/2437 (4)
4.35	Turning radius	Wa (mm)	1629 (3)/1558 (4)		

PERFORMANCE			EXV 12 i		
			Telescopic	NiHo	Triplex
5.1	Travel speed	km/h	6.0/6.0		
5.2	Lifting speed, laden/unladen	m/s	0.15 / 0.3	0.15 / 0.26	
5.3	Lowering speed, laden/unladen	m/s	0.4/0.3	0.29 / 0.31	
5.7	Max. surmountable gradient KB 5', with/without load	%	7/15		
5.9	Acceleration time, with/without load (over 10 metres)	s	8.4 / 7.5		
5.10	Operating brake		electromagnetic		

DRIVE			EXV 12 i		
			Telescopic	NiHo	Triplex
6.1	Traction motor, performance KB 60'	kW	1.2		
6.2	Lifting motor, performance 15% ED	kW	3.2 / 10%		
6.3	Battery type in accordance with DIN 43 531/35/36 A, B, C, no		no		
6.4	Voltage/Nominal capacity	V/Ah	24V / 225Ah		
6.5	Battery weight (±5%)	kg	200		
6.6	Energy consumption according to VDI cycle	kW/h	1		

OTHER			EXV 12 i		
			Telescopic	NiHo	Triplex
8.1	Type of drive control		AC Control		
8.4	Noise level at driver's ears (± 2.5 dB)	dB (A)	65		

1) The suffix "i" in the type of model = straddle initial lift function

2) Also available for Simplex, Telescopic and NiHo columns are front fork holders with thickness s = 60 mm with different " x" values (-44 mm for Simplex/-35 mm for Telescopic and NiHo) and "l2" (+44 mm/+35 mm). The version with forks s = 60 mm is the only version intended for gauge b5 = 680 mm (only with forks l = 1000 mm) and for Triplex columns

3) Straddles lowered

4) Straddles raised

5) Weight and constraint on the axles for configurations with Simplex column, h1 = 2390 mm

6) Weight and constraint on the axles for configurations with Telescopic column, h1 = 1940 mm

7) Weight and constraint on the axles for configurations with NiHo column, h1 = 1940 mm

8) Weight and constraint on the axles for configurations with Telescopic column, h1 = 1696 mm

9) Weight and constraint on the axles for configurations with NiHo column, h1 = 1696 mm

Masts

	Telescopic					
	EXV 12/EXV 12 i					
h1	1490	1690	1940	2140	2390	2590
h1'	1565	1765	2015	2215	2465	2665
h2	-	-	-	-	-	-
h2'	150	150	150	150	150	150
h3	2024	2424	2924	3324	3824	4224
h4	2502	2902	3402	3802	4302	4702

h1 initial lift = h1 (standard) + 6 mm

	NiHo						Triplex	
	EXV 12/EXV 12 i							
h1	1490	1690	1940	2140	2390	2590	1690	1940
h1'	-	-	-	-	-	-	-	-
h2	1012	1212	1462	1662	1912	2112	1212	1452
h2'	-	-	-	-	-	-	-	-
h3	2024	2424	2924	3324	3824	4224	3636	4386
h4	2502	2902	3402	3802	4302	4702	4118	4868

h1 initial lift = h1 (standard) + 6 mm

Datasheet (VDI) EXV 14C and EXV 14iC

EXV 14C

CHARACTERISTICS			EXV 14C		
			Telescopic	NiHo	Triplex
1.3	Power unit: electric, diesel, petrol, LPG		Electric		
1.4	Drive type: manual, pedestrian, stand-on, seated, order picker		Pedestrian		
1.5	Load capacity	Q (kg)	1400		
1.6	Load centre	c (mm)	600		
1.8	Load distance, centre of drive axle to fork	x (mm)	721		697
1.9	Wheelbase	y (mm)	1322		

WEIGHT			EXV 14C		
			Telescopic	NiHo	Triplex
2.1	Service weight (with battery)	kg	1042 (5)		1174 (6)
2.2	Axle load with load, drive side/load side	kg	813/1629		868/1707
2.3	Axle load without load, drive side/ load side	kg	736/307		816/359

WHEELS			EXV 14C		
			Telescopic	NiHo	Triplex
3.1	Tyres		Polyurethane		
3.2	Drive wheel sizes	Øxl (mm)	Ø230 x 75		
3.3	Wheel sizes, load side	Øxl (mm)	1xØ85x100		
3.4	Stabiliser wheels (sizes)	Øxl (mm)	Ø140 x 54		
3.5	Wheels number, drive side/load side (x = drive wheel)		1x-1/2		
3.6	Track width, drive side	b10 [mm]	518		
3.7	Track width, load side	b11 [mm]	380		

DIMENSIONS			EXV 14C		
			Telescopic	NiHo	Triplex
4.2	Height of mast, lowered	h1 (m m)	see mast table		
4.3	Free lift	h2 (m m)	see mast table		
4.4	Lift	h3(m m)	see mast table		
4.5	Height of mast, extended	h4 (m m)	see mast table		
4.9	Height of tiller arm in driving posi-tion, min/max	h14 (mm)	740 / 1230		
4.10	Height of the load rollers	h8 (mm)	80		
4.15	Fork height, lowered	h13 (mm)	86		
4.19	Overall length without load	l1 (mm)	1927 (9)		1951 (9)
4.20	Length to fork face	l2 (mm)	777		801
4.21	Total width	b1 (mm)	800		
4.22	Fork dimensions	s/e/ l (mm)	75 to 55 / 182 / 950 to 1150		
4.24	Fork carriage width	b3 (mm)	780		

DIMENSIONS			EXV 14C		
			Telescopic	NiHo	Triplex
4.25	Fork spread	b5 (mm)	560 680		
4.32	Ground clearance, centre of wheelbase	m2 (mm)	30		
4.34	Aisle width with pallets 800 x 1200	Ast3 (mm)	2397 (10)		2416 (10)
4.34.1	Aisle width with pallets 1000 x 1200	Ast3 (mm)	2435 (10)		2445 (10)
4.35	Turning radius	Wa (mm)	1573 (10)		

PERFORMANCE			EXV 14C		
			Telescopic	NiHo	Triplex
5.1	Forward travel speed	km/h	6.0/6.0		
5.1.1	Reverse travel speed	km/h	6.0/6.0		
5.2	Lifting speed, with/without load	m/s	0.14 / 0.25		
5.3	Lowering speed, with/without load	m/s	0.34 / 0.26	0.34 / 0.19	0.29 / 0.19
5.8	Climbing ability KB 5', with/without load	%	5/10		
5.9	Acceleration time, with/without load (10 metres)	s	8/7		
5.10	Service brake		electromagnetic		

ELECTRIC MOTOR			EXV 14C		
			Telescopic	NiHo	Triplex
6.1	Traction motor, S2=60 min	kW	1.2		
6.2	Lifting motor, S3=15%	kW	3.2 10%		
6.3	Battery acc. to DIN 43 531/35/36 A, B, C, no		DIN 43535-B(11) - No(12)		
6.4	Voltage/Nominal capacity	V/Ah	24/250 (11) - 24/315 (12)		
6.5	Battery weight (±5%)	kg	212 (11) - 263 (12)		
6.6	Energy consumption acc. to VDI cycle	kW/h	1.14		

OTHER			EXV 14C		
			Telescopic	NiHo	Triplex
8.1	Type of drive control		AC		
10.7	Noise level at operator's ear	dB(A)	67		

EXV 14iC

CHARACTERISTICS			EXV 14iC		
			Telescopic	NiHo	Triplex
1.3	Power unit: electric, diesel, petrol, LPG		Electric		
1.4	Drive type: manual, pedestrian, stand-on, seated, order picker		Pedestrian		
1.5	Load capacity	Q (kg)	1400		
1.6	Load centre	c (mm)	600		
1.8	Load distance, centre of drive axle to fork	x (mm)	721 (1) / 641 (2)		697 (1) / 617 (2)
1.9	Wheelbase	y (mm)	1336 (1) (3) / 1256 (2) (3) - 1381 (1) (4) / 1301 (2) (4)		

WEIGHT			EXV 14iC		
			Telescopic	NiHo	Triplex
2.1	Service weight (with battery)	kg	1048(7)		1180(8)
2.2	Axle load with load, drive side/load side	kg	872/1576(1)		925/1655(1)
2.3	Axle load without load, drive side/ load side	kg	742/307(1)		820/360(1)

WHEELS			EXV 14iC		
			Telescopic	NiHo	Triplex
3.1	Tyres		Polyurethane		
3.2	Drive wheel sizes	Øxl (mm)	Ø230 x 75		
3.3	Wheel sizes, load side	Øxl (mm)	1xØ85x100		
3.4	Stabiliser wheels (sizes)	Øxl (mm)	Ø140 x 54		
3.5	Wheels number, drive side/load side (x = drive wheel)		1x-1/2		
3.6	Track width, drive side	b10 [mm]	518		
3.7	Track width, load side	b11 [mm]	380		

DIMENSIONS			EXV 14iC		
			Telescopic	NiHo	Triplex
4.2	Height of mast, lowered	h1 (mm)	see mast table		
4.3	Free lift	h2 (mm)	see mast table		
4.4	Lift	h3(mm)	see mast table		
4.5	Height of mast, extended	h4 (mm)	see mast table		
4.6	Initial lift	h5 (mm)	130		
4.9	Height of tiller arm in driving position, min/max	h14 (mm)	740 / 1230		
4.10	Height of the load rollers	h8 (mm)	80		
4.15	Fork height, lowered	h13 (mm)	86		
4.19	Overall length without load	l1 (mm)	1940(3) (9) - 1985(4) (9)		1964(3) (9) - 2009(4) (9)
4.20	Length to fork face	l2 (mm)	790 (3) - 835(4)		814 (3) - 859(4)
4.21	Total width	b1 (mm)	800		
4.22	Fork dimensions	s/e/l (mm)	75 to 55 / 182 / 950 to 1150		
4.24	Fork carriage width	b3 (mm)	780		
4.25	Fork spread	b5 (mm)	560 - 680		
4.32	Ground clearance, centre of wheelbase	m2 (mm)	20		
4.34	Aisle width with pallets 800 x 1200	Ast (mm)	2410 (1) (3) (10)/2398 (2)(3)(10) - 2453(1)(4)(10)/2441(2)(4)(10)		2429 (1) (3) (10)/ 2418 (2)(3)(10) - -2472(1)(4)(10)/ 2461(2)(4)(10)
4.34.1	Aisle width with pallets 1000 x 1200	Ast (mm)	2448 (1) (3) (10)/2410 (2)(3)(10) - 2491(1)(4)(10)/2453(2)(4)(10)		2458 (1) (3) (10)/ 2423 (2)(3)(10) - -2501(1)(4)(10)/ 2466(2)(4)(10)
4.35	Turning radius	Wa (mm)	1586 (1)(3)(10)/1511 (2)(3)(10) - 1629(1)(4)(10)/ 1554(2)(4) (10)		

PERFORMANCE			EXV 14iC		
			Telescopic	NiHo	Triplex
5.1	Forward travel speed	km/h	6.0 / 6.0		
5.1.1	Reverse travel speed	km/h	6.0 / 6.0		
5.2	Lifting speed, with/without load	m/s	0.14/0.25		
5.3	Lowering speed, with/without load	m/s	0.34 / 0.26	0.34 / 0.19	0.29 / 0.19
5.8	Climbing ability KB 5', with/without load	%	7/15		
5.9	Acceleration time, with/without load (10 metres)	s	8/7		
5.10	Service brake		electromagnetic		

TRANSMISSION			EXV 14iC		
			Telescopic	NiHo	Triplex
6.1	Traction motor, rating KB 60'	kW	1.2		
6.2	Lift motor, rating 15% ED	kW	3.2 / 10%		
6.3	Battery acc. to DIN 43 531/35/36 A, B, C, no		No		
6.4	Voltage/Nominal capacity	V/Ah	24/225 (13) - 24/315 (14)		
6.5	Battery weight (±5%)	kg	200 (13) - 249 (14)		
6.6	Energy consumption acc. to VDI cycle	kW/h	1.14		

OTHER			EXV 14iC		
			Telescopic	NiHo	Triplex
8.1	Type of drive control		AC		
10.7	Noise level at operator's ear	dB(A)	67		

1) Fork arms lowered

2) Fork arms raised

3) Battery compartment 68

4) Battery compartment 66

5) Tele mast h1' = 1990 mm, battery compartment 112, forks = 560x01150 mm

6) Triplex mast h1 =1915 mm, battery compartment 112, forks = 560x1150 mm

7) Tele mast h1' = 1990 mm, battery compartment 68, forks = 1150 mm

8) Tele mast h1' = 1915 mm, battery compartment 68, forks = 1150 mm

9) With forks = 1150 mm; with forks = 950 mm -200 mm

10) Acc. to VDI 2198 - 2012 for trucks with or without fork initial lift, with forks = 1150 mm and with tiller arm in working position and fully rotated; with tiller arm fully rotated anti-clockwise - 30 mm

11) Battery compartment 112 (vertical removal)

12) Battery compartment 65 (vertical removal)

13) Battery compartment 68 (vertical removal)

14) Battery compartment 66 (vertical removal)

Mast type		**Tele**						
Height - mast lowered	h1 (mm)	1415	1665	1915	2115	2365	2565	2815
	h1' (mm)	1490	1740	1990	2190	2440	2640	2890
Free lift	h2 (mm)	-	-	-	-	-	-	-
	h2 (mm)*	150	150	150	150	150	150	150
Lift height	h3 (mm)	1844	2344	2844	3244	3744	4144	4644
Height - mast raised	h4 (mm)**	2364	2864	3364	3764	4264	4664	5164

* with increased mast height h1'

** + 566 mm with load backrest (height from forks 1000 mm)

Mast type		NiHo					
Height - mast lowered	h1 (mm)	1415	1665	1915	2115	2365	2565
	h1' (mm)	-	-	-	-	-	-
Free lift	h2 (mm)	895	1145	1395	1595	1845	2045
	h2 (mm)*	-	-	-	-	-	-
Lift height	h3 (mm)	1844	2344	2844	3244	3744	4144
Height - mast raised	h4 (mm)**	2364	2864	3364	3764	4264	4664

* with increased mast height h1'

** + 566 mm with load backrest (height from forks 1000 mm)

Mast type		Triplex			
Height - mast lowered	h1 (mm)	1665	1915	2065	2265
	h1' (mm)	-	-	-	-
Free lift	h2 (mm)	1145	1395	1545	1745
	h2 (mm)*	-	-	-	-
Lift height	h3 (mm)	3516	4266	4716	5316
Height - mast raised	h4 (mm)**	4036	4786	5236	5836

* with increased mast height h1'

** + 566 mm with load backrest (height from forks 1000 mm)

Supply table

Supply table for standard trucks

Element to be supplied	Lubricants
Hydraulic system	HLF 32
Reduction gear	FUCHS TITAN SUPER GEAR SAE 80W-90
General and mast lubrication	TUTELA MP02
Chain lubrication	STRUCTOVIS EHD

Supply table for cold-storage trucks

Element to be supplied	Lubricants
Hydraulic system	EQUIVIS XV32
Reduction gear	FUCHS TITAN SUPER GEAR SAE 80W-90
General and mast lubrication	STATERMELF EP2
Chain lubrication	STRUCTOVIS FHD

Eco-design requirements for electric motors and variable speed drives

All motors in this industrial truck are exempt from Regulation (EU) 2019/1781 because these motors do not meet the description given in Article 2 "Scope", Item (1) (a) and because of the provisions in Article 2 (2) (h) "Motors in cordless or battery-operated equipment" and Article 2 (2) (o) "Motors designed specifically for the traction of electric vehicles".

All variable speed drives in this industrial truck are exempt from Regulation (EU) 2019/1781 because these variable speed drives do not meet the description given in Article 2 "Scope", Item (1) (b).

STILL GmbH

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