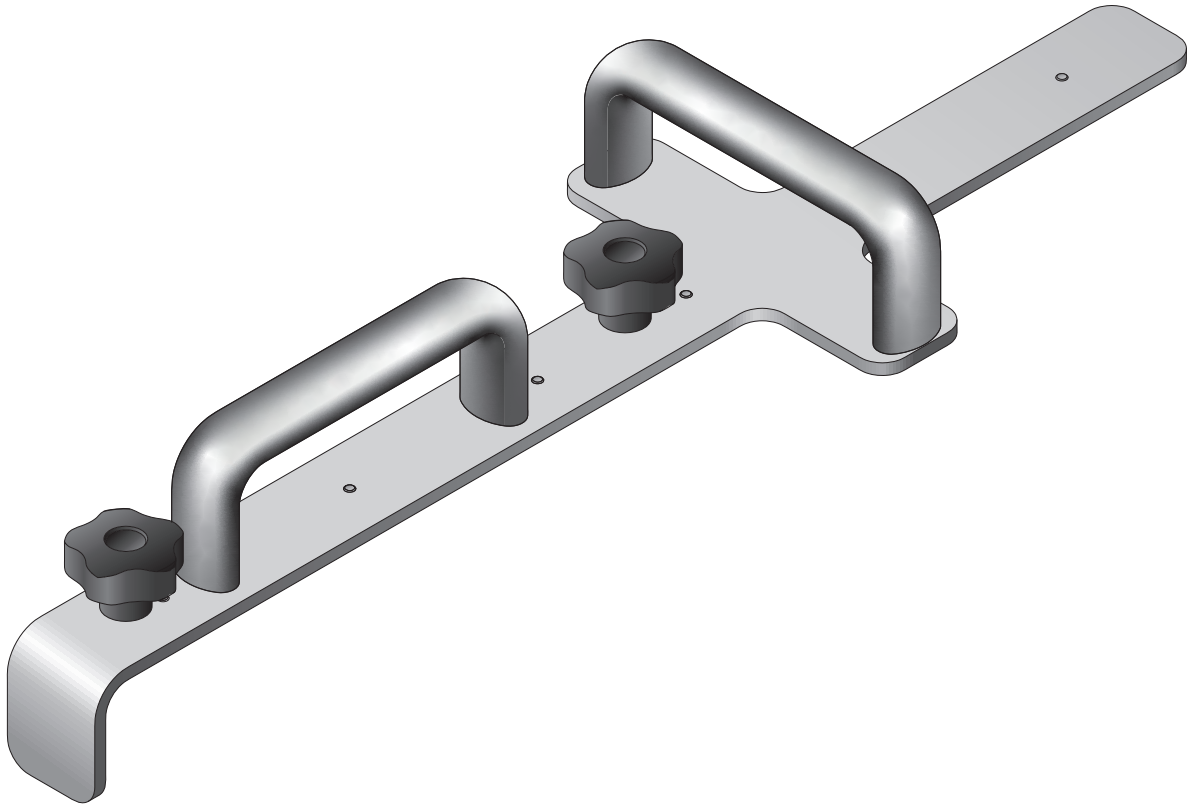




Commeo esaMLD

Carrying aid for esbL energy storage blocks
Instruction manual

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1 About these operating instructions

This document describes how to use the esaMLD carrying aid when installing, removing and disposing of Commeo lithium-ion energy storage blocks (esbL) for Commeo battery systems (HV/48V system).

These operating instructions contain all the information required for safe and effective use of the carrying aid in industrial or commercial applications.

- Read these instructions carefully before using the carrying aid.
- Keep these operating instructions close to the carrying aid so that the required information can be quickly found when necessary.

1.1 Intended audience

These operating instructions are intended exclusively for trained personnel and electricians who install, remove and dispose of Commeo battery systems and have the relevant specialist knowledge.

1.1.1 Trained personnel

Trained personnel must have the following qualifications:

- Training in dealing with hazards and risks when using Commeo energy storage blocks
- Knowledge of handling and sources of danger during transport, storage and disposal of lithium-ion batteries
- Knowledge of and compliance with this document and the documentation related to the product, including all safety instructions

1.1.2 Qualified electricians

Qualified electricians must have the following qualifications in addition to the qualifications for trained personnel:

- Training for the installation and commissioning of electrical equipment
- Knowledge of and compliance with applicable technical connection conditions, standards and directives
- Additional qualification "Live working"

1.2 Other applicable documents

- Commeo HV-L system operating instructions

1.3 Glossary

Term	Explanation
esbL	Energy storage block

2 Explanation of symbols

2.1 Symbols in the instructions

The device described in this manual contains residual dangers that cannot be prevented by design. Warnings in this manual and on the device indicate these residual dangers and describe how dangerous situations can be avoided.



WARNING!

Safety notice: Non-compliance may result in death or serious injury.



CAUTION!

Safety notice: Failure to comply may result in injury.



NOTICE!

Note: Non-compliance can lead to material damage and impair the function of the device.

3 Safety

The manufacturer accepts no liability for damage in the following cases:

- Damage to the product due to mechanical influences
- Changes to the product without the express permission of the manufacturer
- Use for purposes other than those described in the instructions
- Disregard of the installation conditions
- Maintenance or repair of the carrying aid by untrained or unqualified personnel

3.1 General safety instructions



WARNING!

- Observe the safety instructions in this document.
- Only qualified and authorised personnel from suitable companies certified by Commeo may use the carrying aid to perform the following work on Commeo energy storage blocks and battery systems:
 - Installation
 - Maintenance
 - Repair
 - Removal
- Wear safety clothing (safety shoes, protective gloves) when installing or removing the energy storage blocks. Follow the installation, maintenance and dismantling instructions.



CAUTION!

- Never replace energy storage blocks while the battery system is in operation.

4 Intended use

The carrying aid is intended for commercial use only.

The carrying aid may only be used for fitting and removing esbL energy storage blocks (e.g. esbL44) from esrL 800 and esrL 1000 energy storage racks. For fitting and removing the energy storage blocks using the carrying aid, 2 persons with one carrying aid each are required.

5 Improper use

The following applications, for example, are not considered to be in accordance with the intended use:

- Handling loads other than esbL energy storage blocks
- Sliding the carrying aid to a hoist
- Handling deformed or significantly soiled energy storage blocks.
- Handling energy storage blocks with a defective or incorrectly attached carrying aid

6 Technical description

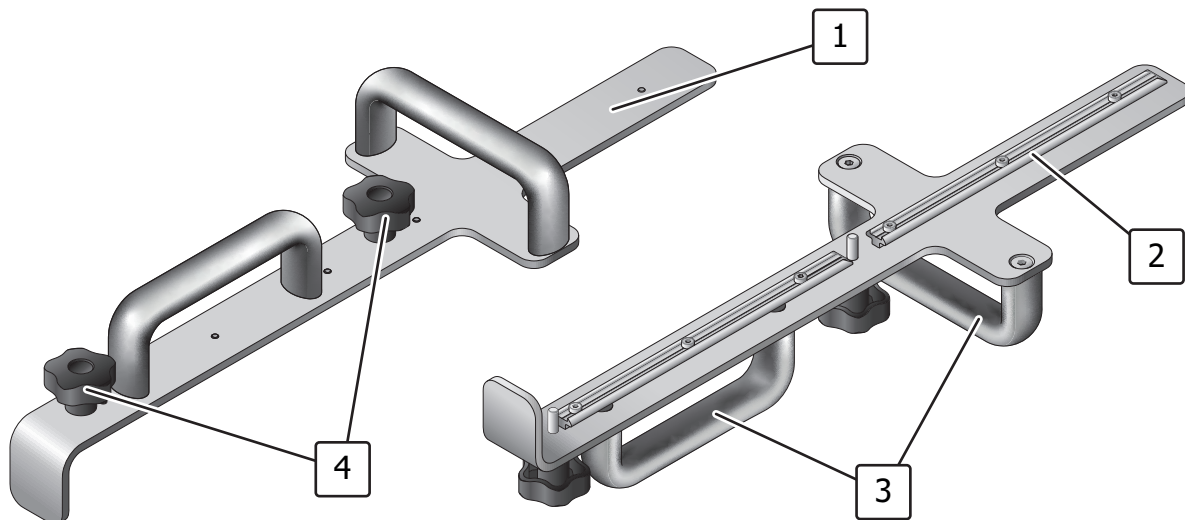


Fig. 1: Carrying aid

Item	Description
1	Steel bracket
2	T-rail
3	U-handle
4	Star grip

The T-rails on the bottom of the carrying aid fit into the T-slots provided in the centre of all long sides of the esbL energy storage block housing. The carrying aid can be attached to the top or sides of the esbL energy storage block.

7 Scope of delivery

Designation	Value
Carrying aid	2

8 Storing the carrying aid

Storage conditions:

Designation	Value
Temperature	-20 °C to +45 °C
Max. relative humidity	< 80 %, non-condensing

➤ Store the carrying aid in a dry place and avoid direct sunlight.

9 Using the carrying aid

9.1 Safety

**WARNING!****Danger from falling load**

- The carrying aid must not be deformed, and the T-rails and U-handles must be properly fastened.
- The esbL energy storage block to be lifted must be clean and free of deformation, the housing screw connections must be tight.
- Before using the carrying aid, make sure that the T-rails of the module holder are fully inserted and the star grip is tightened. Check: The T-rails must not have any play in the T-slots.
- **Do not** strike the carrying aid against lifting gear.
- Wear safety shoes with protective toe caps when handling esbL energy storage blocks.

**CAUTION!****Impairment due to (repeated) overexertion**

There is a risk of injury when manually lifting / lowering esbL energy storage blocks.

- Always use the carrying aids in pairs.
- Use the carrying aids on opposite surfaces.
- Use lifting gear whenever possible. An electric lifting device for equipping control cabinets is available from Commeo.
- Take note the weight of the esbL energy storage blocks. Use your legs when lifting and lowering the esbL energy storage blocks if no lifting equipment is available.
- Do not perform lifting activities with the carrying aid for more than one hour per day.
- Take a 10-minute break between two lifting operations.

9.2 Attaching the carrying aid to the esbL energy storage block

The carrying aid can be used on both the smooth and ribbed sides of the esbL energy storage block housings.

- Screw on the star grips of the carrying aids so that the screws at the bottom do not protrude further than the T-rails.

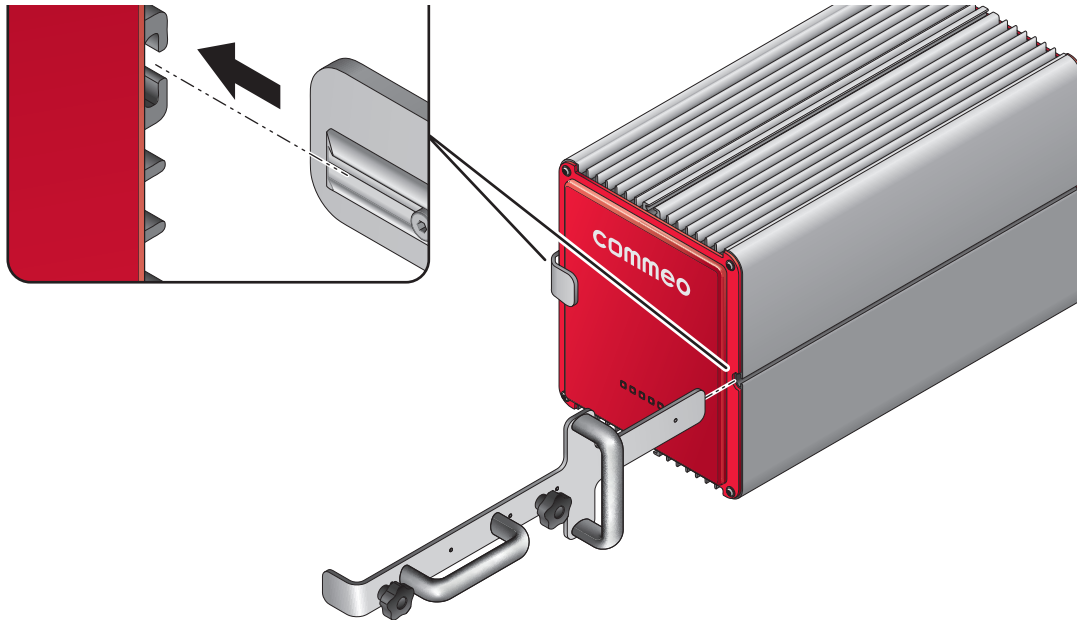


Fig. 2: Inserting the T-rail into the T-slot

- Insert the T-rails into the T-slots on the sides of the esbL energy storage block housings.

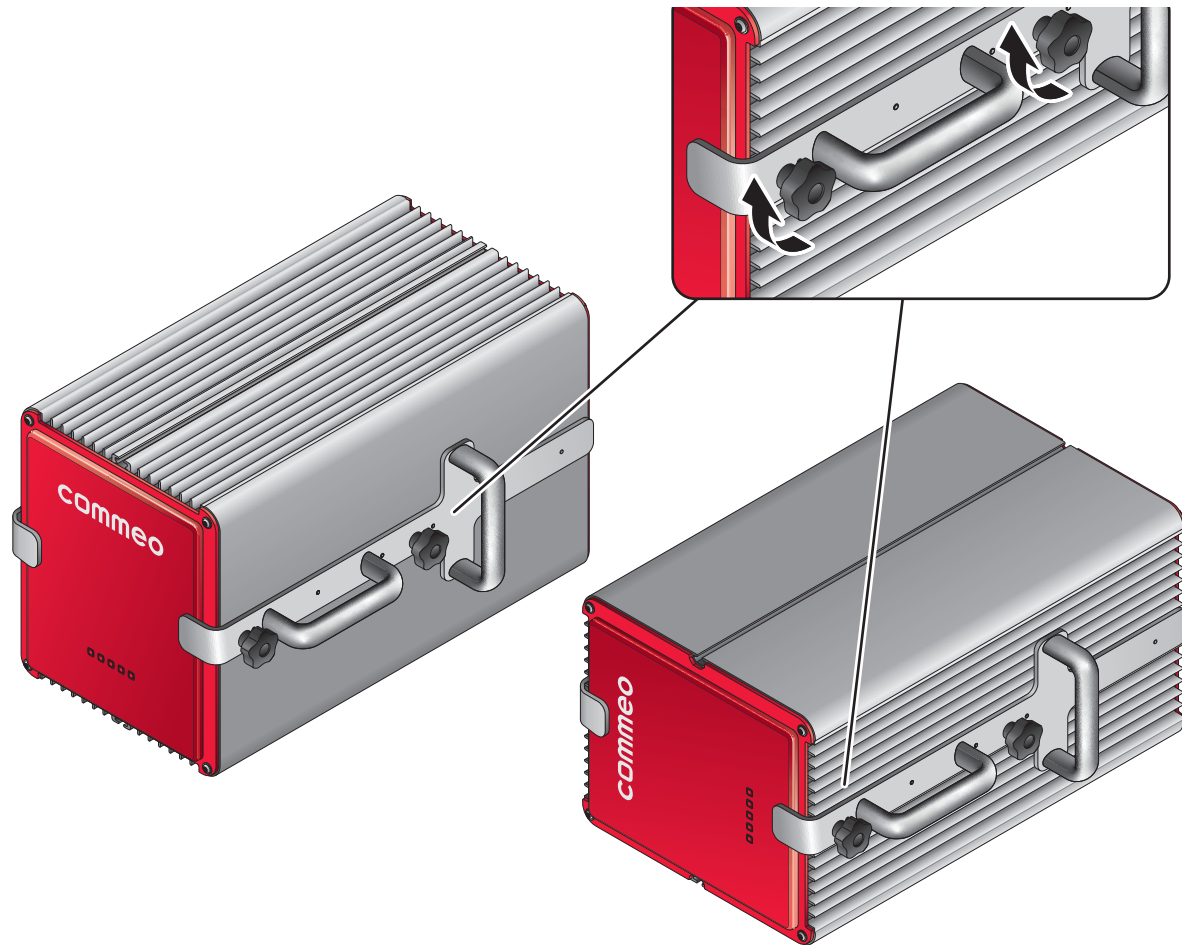


Fig. 3: Picking up an energy storage block in the positions for an 1000 mm energy storage rack (left) and 800 mm energy storage rack (right)

- Insert the carrying aid as far as it will go into the T-slot on the upper side of the housing of the esBL energy storage block to be lifted.
- Tighten the star grip by hand.

9.3 Using the carrying aids

- Lift the energy storage block with both carrying aids and transport it to the required destination.

9.4 After use

- Loosen the star grips.
- Pull the carrying aids out of the T-slots.

10 Maintenance



NOTICE!

Material damage and loss of production due to faulty maintenance!

- Carry out maintenance and inspection work properly and in due time to avoid material damage to the system and loss of production.

10.1 Checking individual parts

Maintenance interval	Activity
Before each use	➤ Visual inspection of the steel bracket, the U-handles and the star grips for deformation or cracking. ➤ Replace cracked or worn U-handles / star grips. ➤ Do not use the carrying aid if the steel bracket is bent.
Monthly	➤ Inspect the T-rails for scratches and wear. ➤ Replace the T-rails if full-surface contact with the T-slots of the esbL energy storage blocks is no longer possible.

10.2 Checking screw and rivet connections

Required tools: Wrench / bits for hex socket screws in the following sizes:

- 2.5 mm
- 4 mm

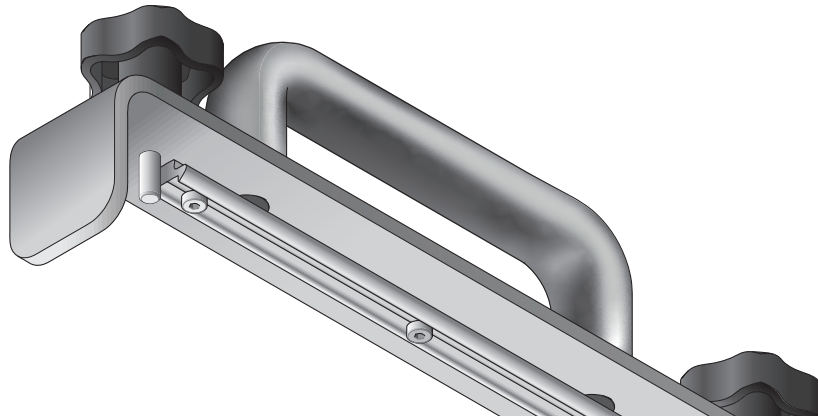


Fig. 4: Access to the screw connections

Maintenance interval	Activity
Daily / before each use	➤ Visually and manually check that the U-handles and T-rails are tightly fitted. ➤ Manually check the star grips to ensure that they can move freely. ➤ Do not use the carrying aid if the U-handles or T-rails are loose or the star grips are difficult to move.
Monthly	➤ Tighten the countersunk screws in the U-handles to torque $M = 8.5 \text{ Nm}$. ➤ Attach the T-rails with the cylinder head screws (torque $M = 3 \text{ Nm}$). ➤ Do not use carrying aids with deformed or overtightened threads.

10.3 Spare parts

The U-handles, star grips and screws are available as spare parts from specialist dealers.

The steel bracket and the T-rails can be obtained from Commeo.

11 Cleaning and care



CAUTION!

Injuries, material damage and loss of production due to defective parts!

The material of the U-handles and the star grip is not resistant to trichloroethylene, perchloroethylene and acids.

- Do **not** use any cleaning agents containing trichloroethylene or perchloroethylene.
- Do **not** use acid-based cleaning agents.



NOTICE!

Injuries, material damage and loss of production due to incorrect fit!

- Clean the T-rail of the carrying aid and check that it is firmly seated so that it can lie fully against the mating contour of the T-slot of the energy storage block.

Cleaning interval	Activity
Daily / after each use	➤ Wipe all parts with a lint-free cloth. ➤ Vacuum the gap between the T-rail and the steel bracket or wipe it out with the tip of a cloth or a non-shedding brush.
As required	➤ Wipe off stubborn dirt with a lint-free cloth moistened with a mild, alkaline cleaning agent. If necessary, dismantle the T-rail to do this (chapter "Checking screw and rivet connections" on page 11).

12 Disposal



All waste and scrap metal must be disposed of separately in accordance with the applicable local regulations.

The following parts and operating materials must be disposed of:

- Send used metals for recycling.
- Send oils and lubricants as well as plastic and rubber parts for recycling.

13 Technical data

13.1 Carrying aid

Length	506 mm
Width	150 mm
Height	105 mm
Unladen weight	approx. 1.5 kg
Load capacity when using 2 carrying aids	approx. 55 kg

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