ORIGINAL OPERATING INSTRUCTIONS

SLSM

SYSTEM MANUAL
INSTALLATION MANUAL
MAINTENANCE MANUAL

EN | V1.03 | DCL 117

TABLE OF CONTENTS

1 DOCUMENT HISTORY

Material number	Version	Issue	Description/changes
-	1.01	09/2018	First issue
-	1.02	12/2024	Adaptation of corporate design, Adaption chapter Disposal
-	1.03	04/2025	Adaption of chapter warranty conditions, Adaptation of torque fastening screw current collector

2 GENERAL

2.1 About these instructions

These operating instructions enable the safe and efficient handling of our VAHLE products. This document is an integral part of the installation and must be kept accessible to operating and maintenance personnel in the immediate vicinity. The basic requirement for safe working is compliance with all specified safety instructions and instructions. This documentation does not give instructions for operating the plant/machine in which our system is integrated. In addition, the local accident prevention regulations and general safety regulations for the use of the system apply. Diagrams are for basic understanding and may deviate from the actual version.

2.2 Symbols

Safety instructions in this manual are identified by symbols. Each safety instruction begins with a signal word that indicates the severity of the hazard. The various types of warnings and safety instructions and their structure are explained below.

DANGER!

The source of the hazard is described here.

This combination of a symbol and a signal word indicates an immediately dangerous situation that will result in death or serious injury unless avoided.

► The actions to prevent the hazard are identified here.

DANGER!

The source of an electrical hazard is described here.

This combination of a symbol and a signal word indicates an immediately dangerous situation related to electricity that will result in death or serious injury unless avoided.

► The actions to prevent the hazard are identified here.

WARNING!

The source of the hazard is described here.

This combination of a symbol and a signal word indicates a potentially dangerous situation that may result in death or serious injury unless avoided.

► The actions to prevent the hazard are identified here.

CAUTION!

The source of the hazard is described here.

This combination of a symbol and a signal word indicates a potentially dangerous situation that may result in light or moderate injury unless avoided.

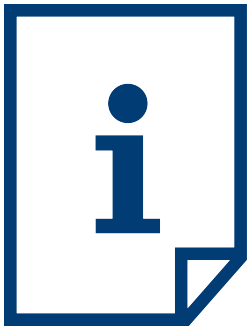
► The actions to prevent the hazard are identified here.

NOTICE!

The source of the hazard is described here.

This combination of a symbol and a signal word indicates a potentially dangerous situation that may result in property or environmental damage unless avoided.

► The actions to prevent the hazard are identified here.



NOTICE!

This indicates a reference to another place in this text or another document.

This combination of a symbol and a signal word indicates a reference to another place in this text or in a different document.

► The places in the text or references to other documents are identified here.

TIPS AND RECOMMENDATIONS!

► Simple tips and recommendations from our long years of experience are provided here.

2.3 Copyright protection

2.4 Disclaimer

The information in this document has been compiled in consideration of applicable standards and regulations, accepted rules of engineering, as well as our years of knowledge and experience.

The manufacturer shall not be liable for damages resulting from:

- Failure to observe the technical documentation
- Uses other than the intended use
- Use by personnel without the required training
- Unauthorized modifications or technical changes
- Use of non-approved spare parts or accessories

The actual scope of delivery may vary from the descriptions and images in this document in case of custom versions, the selection of additional order options, or due to latest technical changes.

The obligations agreed in the supply contract, the general terms and conditions and the terms and conditions of delivery, and the laws and regulations applicable at the time the contract was signed all apply.

We reserve the right to make technical changes to improve the usability and for further development.

2.5 Customer service

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Country of origin: Germany

2.6 Warranty

2.6.1 Warranty terms and conditions

The information in this document has been compiled in consideration of applicable standards and regulations, accepted rules of engineering, as well as our accumulated years of knowledge and experience.

The warranty period and the scope of the warranty are defined in the terms of the contract and the general terms and conditions of delivery of Vahle GmbH & Co. KG.

Our general terms of warranty and delivery are published on our website. www.vahle.de

⚠ WARNING!

No liability in case of unauthorized changes, modifications, or accessories!

Changes or modifications to the delivered product require the permission of the manufacturer. Genuine spare parts and manufacturer-approved accessories provide safety. The use of non-approved parts voids any liability of the manufacturer.

► Always consult the manufacturer first!

The warranty immediately expires in particular f one or several of the following situations arise(s):

- If the product is modified in whole or in part without permission of Vahle.
- If the operator independently performs repairs during the warranty period or has repairs performed by third parties.
- If the product has been handled or maintained inappropriately.
- If parts are used that are not original parts approved by Vahle.
- If the information in this documentation is not observed.
- If in this context applicable directives and standards are not complied.

3 SAFETY INSTRUCTIONS

3.1 Safety

This section gives an overview of all important safety aspects relating to the protection of personnel as well as the safe use and fault-free operation. Other, task-specific safety instructions can be found in the sections on the individual phases of the product's life.

DANGER!

Failure to observe the safety instructions may result in risks to life and health!

3.2 Intended use

Intended use

The charge contacts are intended for charging moving shuttles which travel over the bar with the built-in current collector.

- Ambient temperature: - 30 °C to +55 °C
- Air humidity: RH 95% (non-condensing)
- Service life of the charging contacts until replacement: 6 years
- Travel speed: Max. 4.0 m/s
- Acceleration: 1.0 m/s²
- Transitions/year: Approx. 1,000,000
- Voltage: 0 to 48VDC
- Max. current load: 40A, 60A peak
- Automatic shut-off of the charging current by the power supply units when raising or lowering the charging contacts
- Only for indoor systems
- Length of the charging contact max. 5 m. Longer charging contacts on request

Foreseeable misuse

- Incorrect installation
- Insufficient air gap in relation to surrounding, possibly conductive parts
- Insufficient maintenance
- Temperature range exceeded

3.3 General risks

The following section describes residual risks that arise even if the product is used as intended. Observe the safety instructions listed here in the other sections of these instructions to reduce the risk of injuries or damage to property and equipment and to avoid dangerous situations.

Do not change or modify the system inappropriately!

⚠ WARNING!

Risk of death from improper replacement or removal!

Errors during the removal or replacement of components may cause life-threatening situations or significant property damage

► Observe the safety instructions before beginning any removal work.

3.3.1 Danger from electrical energy

Perform the following safety work in accordance with VDE 0105-100 (this work must be carried out by a qualified electrician, see section "2 Safety").

Disconnect

Required isolating distances must be established.

Secure against re-switching

During work, a prohibition sign must be attached reliably on switching handles or drives of switches, control units, pressure and sensing devices, safety parts, circuit breakers that have been used to unlock a system part or that can be used to connect electricity. If this is not possible, then the clearly associated prohibition sign must be nearby. Existing mechanical interlocking devices against restart must be used for manually operated switches.

Determine that the system is de-energized

Absence of voltage is to be determined at or as close as possible to the work site at all poles. Absence of voltage must be checked with a voltage tester immediately before and after use.

Grounding and short-circuiting

Parts on which work will be performed at the work place must first be grounded and then short circuited. Grounding and short-circuiting must be visible from the workplace. Deviating from the above, it is permitted to ground and short-circuit near the work place if this is required due to the local conditions or for safety reasons. Devices for grounding and short-circuiting must always first be connected with the grounding system or the ground electrode and afterwards with the parts to be grounded. Grounding and short circuiting may be waived in certain low-voltage systems (see VDE 0100-100).

Cover or block adjacent live parts

Before starting work, check whether it is appropriate to make adjacent parts voltage-free.

DANGER!

Danger of death due to electrical current!

Contact with live parts can result in life-threatening injuries.

► Make sure that the relevant components are not live or under voltage, and that there is no unauthorized approximation.

3.4 Responsibilities of the operating company

Definition of the operating company

The owner is listed in the order confirmation and has the following owner obligations:

Owner obligations

The system is put to commercial use. The owner of the system is therefore subject to laws and regulations on workplace health and safety. In addition to the safety instructions in this document, the safety, accident prevention, and environmental regulations for the system's field of application must be followed. The following applies in particular:

- The owner ensures protection against electric shock (contact protection).
- The owner must inform himself about applicable workplace health and safety regulations and conduct a risk assessment for additional hazards that may arise from the special operating conditions at the installation site. These must be implemented as facility instructions for the operation of the system.
- Over the entire time, the owner has to verify that the instructions drafted by him for the operation of the system conform to the current state of applicable regulations and adapt the instructions as necessary.
- The owner must clearly define responsibilities for the installation, operation, maintenance, and cleaning of the system.
- The owner must ensure that all employees who handle the system have read and understood the operating instructions. The owner is also required to provide training periodically and instruct personnel about the risks.

The owner is also responsible for ensuring that the system is always in good technical condition. The following therefore applies:

- The owner must ensure that the maintenance intervals described in this documentation are observed.
- Control and safety devices provided by the owner for the operation of the system must be checked for completeness and functional safety.
- The owner must ensure that assembly and installation comply with EN 60204.
- The owner must ensure that all components are de-energized in the event of an emergency off. This applies in particular to the parallel busbar.

3.5 Personnel requirements

3.5.1 Qualifications

The tasks described in this manual present various requirements to the qualifications of the persons performing them.

⚠ WARNING!

Hazard in case of insufficient qualification of personnel!

Insufficiently qualified persons are unable to judge the risks when working on the system, which puts them and others at risk of severe or fatal injuries.

- ► All work must be performed by qualified personnel only.
- ► Insufficiently qualified personnel must stay out of the work area.

Operator

The operator has been instructed by the owner about the tasks assigned to him and the risks of inappropriate actions. An operator may perform tasks that go beyond normal operation only if this is indicated in the instructions and the owner has expressly assigned him with such a task.

Electrically qualified person (see VDE 0105-100)

Due to their professional training, knowledge, experience, and knowledge of the relevant standards and regulations, professional electricians are able to carry out work on electrical installations and to independently recognize and avoid possible hazards. The professional electrician has been specifically trained for his/her professional working environment and is conversant with the relevant standards and regulations.

Qualified personnel

Qualified personnel are able, based on their technical training, knowledge, experience, and familiarity with applicable regulations, to perform the assigned tasks and independently detect and avoid potential hazards.

Instructed personnel

The instructed person has been instructed by the owner about the assigned tasks and the risks of inappropriate actions. Such persons must also have read and understood these safety instructions and observe them during their work.

This may need to be confirmed by the customer/user with a signature.

3.6 Personal protective equipment

Every person who is instructed to work on the system or in the vicinity of the system (support personnel) must wear personal protective clothing/equipment for the suitable type of their work. Personal protective equipment has the purpose of protecting personnel against hazards to their health and safety at work. The owner is responsible for ensuring that protective equipment is worn.

Personal protective equipment is described below:

Safety shoes

Safety shoes protect against falling parts as well as against slipping.

Protective goggles

Protective goggles protect against flying particles and liquid sprays.

Helmet

Helmets protect against falling or flying parts and materials.

Gloves

Gloves protect hands against chafing and abrasion, cuts and punctures, as well as against contact with hot surfaces.

Protective work clothes

Work clothing is close fitting and resistant to tearing, with close-fitting sleeves and without any projecting parts. It is designed to protect against being caught by moving parts of machinery. However, it must not reduce mobility. Do not wear rings, necklaces, or other jewelry. Long hair must be covered (cap, hat, hairnet, or similar). Fall-arrest equipment, face protection, and hearing protection according to DGUV Regulation 112-189.

Hearing protection

To protect against severe and permanent hearing loss.

Breathing protection

To protect against severe and chronic conditions of the airways.

3.7 Safety devices

⚠ WARNING!

Danger from non-functional safety devices!

Non-functional or disabled safety devices cause a risk of severe injuries or even death.

► Before beginning any work, verify that all safety devices are functional and installed properly.

► Never disable or override safety devices.

In addition to locally applicable safety regulations, the following safety instructions must be observed.

The following accident prevention regulations (UVV; Germany) and the new Accident Prevention Regulations – Principles of Prevention (DGUV Regulation 1; Germany) must always be observed.

3.8 Conduct in case of danger or accident

Precautions:

- Have first-aid equipment (first-aid kit, blankets, etc.) and fire extinguisher ready.
- Maintain free access for emergency services vehicles.

Conduct in case of accident:

- Secure site of accident and call first-aid personnel.
- Alert emergency services.
- Provide first aid.

3.9 Signage

The following symbols and instruction signs are located in the work area. They relate to the immediate environment in which they are installed.

DANGER!

Danger of death due to electrical current!

Contact with live parts can result in life-threatening injuries.

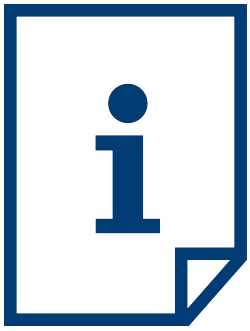
► Make sure that the relevant components are not live or under voltage, and that there is no unauthorized approximation.

WARNING!

Danger from illegible signs!

Over time, labels and signs can get dirty or can become unreadable in other ways, which means that the dangers are not identified and that operating instructions cannot be followed.

► Always keep all safety, warning, and operating instructions in a legible condition.



NOTICE!

Follow instructions!

Only use the designated product after this documentation has been completely read and understood.

4 TECHNICAL DATA

Technical specifications		
Power supply, 2 poles	[V DC]	48
Traveling speed	[m/s]	4
Acceleration	[m/s^2]	1
Charging current	[A]	40 (60 peak)
Operating temperature	[° C]	- 30 to + 55

5 LAYOUT AND FUNCTION

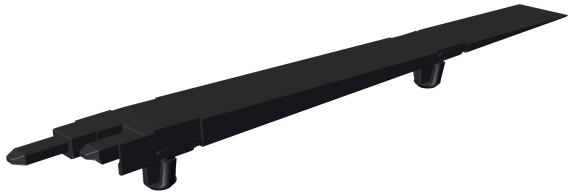
5.1 Brief system description

The SLSM system is distinguished by its compact construction which makes it ideal for installation in the guide rail. The system continues to offer the following properties:

- Modular structure for variable system lengths
- High advance rates for optimal utilization of system efficiency
- Extremely wear-resistant ramp elements for long service life
- Can be traveled on both sides for loading positions even in the lane
- High charging currents (up to 100 amps with 2 feed terminals) Ideal for loading systems with 24/48 volt applications.

5.2 Assembly overview

Access ramp



Access ramp AFR-265-SLSM-2-100		
ID no.		0590708/00
Length [mm]		265
Width	[mm]	30
Height	[mm]	12
Incline	[°]	2.6
Grating hanging	[mm]	50

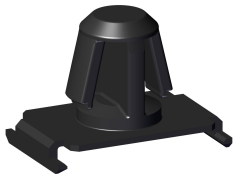
Feed terminal

Feed terminal ES-SLSM-2-100		
ID no.		0590706/00
Number of poles:		1x +pole 2x –pole
Max. current	[A]	50 at 100 % duty cycle
Length	[mm]	400
Width	[mm]	30
Height	[mm]	12
Grating hanging	[mm]	50
Asymmetrical structure		
Mechanical reverse polarity protection (for two consecutive feed terminals)		
Screwing technology for rail fastening		
Connection type: Flat plug connection 6.3 x 0.8 mm		

Contact rail

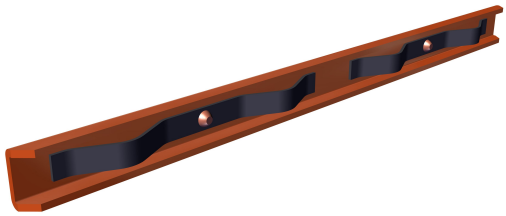
Contact rail KS-SLSM-2-100		
ID no.		0590707/00
Max. current	[A]	100 for 100 % duty cycle (for 2 50 A feed terminals)
Length	[mm]	400
Width	[mm]	30
Height	[mm]	12
Grating hanging	[mm]	50
Screwing technology for rail fastening		

Hanger



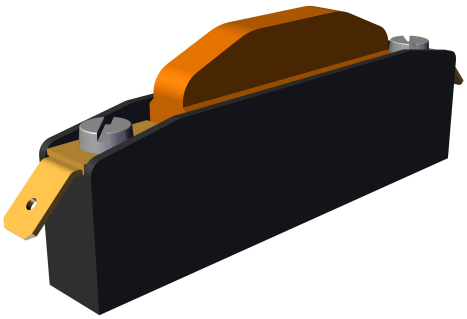
Hanger AH-SLSM-4-13,5	
ID no.	0590709/00
Plate thickness [mm]	4

Plug connector



Plug connector VM-STV-100-SLSM		
ID no.		0590710/00
Max. current	[A]	100 at 100 % duty cycle
Length	[mm]	120
Width	[mm]	8
Height	[mm]	3.5 (3.6 with spring)
Beryllium springs are riveted		

Current collector



Current collector ONST 25		
ID no.		0590711/00
Max. current	[A]	25 at 100 % duty cycle
Application pressure	[N]	5
Length	[mm]	78
Width	[mm]	11
Installation height	[mm]	31
With 25 A 100 % duty cycle, use of both flat connectors (6.3 x 0.8 mm)		

6 COMMISSIONING

6.1 Safety instructions for commissioning

⚠ WARNING!

Risk of injury in case of improper operation!

Improper operation may result in serious injury or property damage.

- ► Observe the safety instructions from section “3 Safety instructions.”
- ► Are all acceptance reports available? (initial startup)
- ► Are there no people in the danger zones?
- ► Was the assembly performed completely according to instructions?
- ► Have excess materials, tools and auxiliary devices been cleared from the danger zones?
- ► Has the electrical system been powered up by an authorized electrically trained person (see section “3 Safety instructions”)

⚠ WARNING!

Danger to unauthorized persons!

Unauthorized persons who do not meet the requirements described here do not know the dangers in the respective work area.

- ► Keep unauthorized persons away from the work area.
- ► If in doubt, speak to people and expel them from the work area.
- ► Interrupt the work as long as the unauthorized persons are in the work area.

⚠ WARNING!

Hazard in case of insufficient qualification of personnel!

Insufficiently qualified persons are unable to judge the risks when working on the system, which puts them and others at risk if severe or fatal injuries.

- ► All work must be performed by qualified personnel only
- ► Insufficiently qualified personnel must stay out of the work area

⚠ WARNING!

Risk of injury from falling parts!

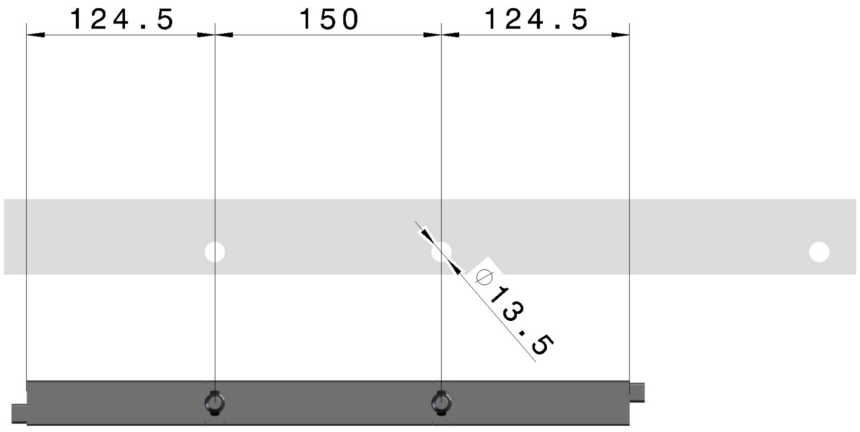
In case of improper use (faulty assembly, misuse, failure to perform maintenance, etc.), there is a risk of parts falling down.

- ► Wear a helmet
- ► Perform regular maintenance

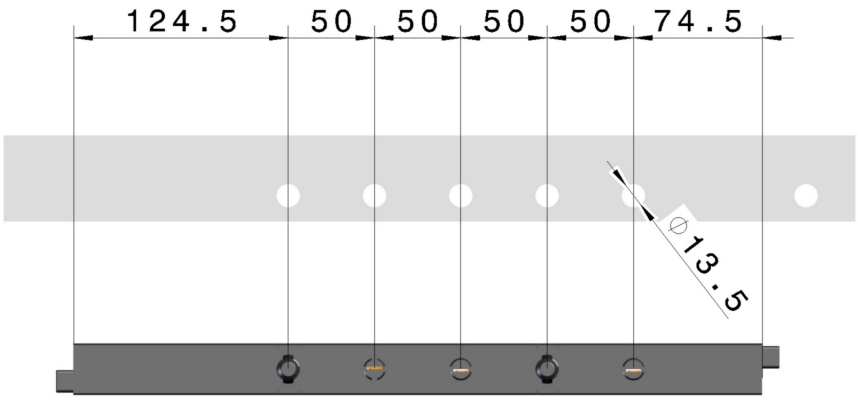
6.2 Installation

6.2.1 Hanger preparation

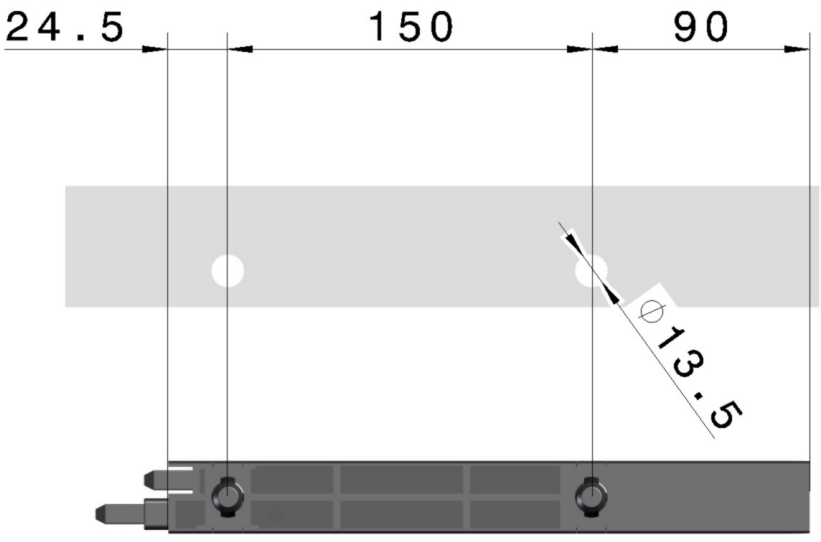
Hole pattern of contact rail



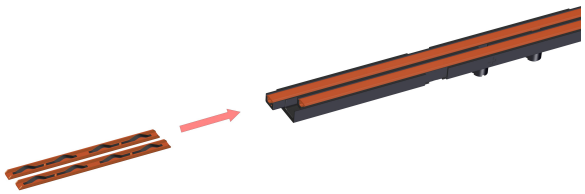
Hole pattern of feed terminal



Hole pattern of access ramp



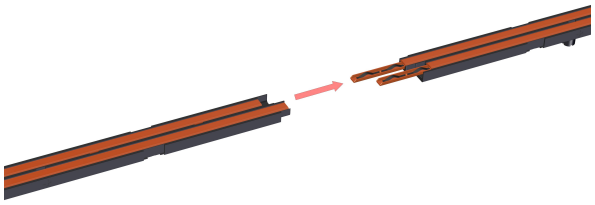
6.2.2 Installation system



Inserting plug connector

Assembly steps:

1. Push two plug connectors halfway into the contact bar / feed terminal.



Connecting contact bars / Connecting feed terminals

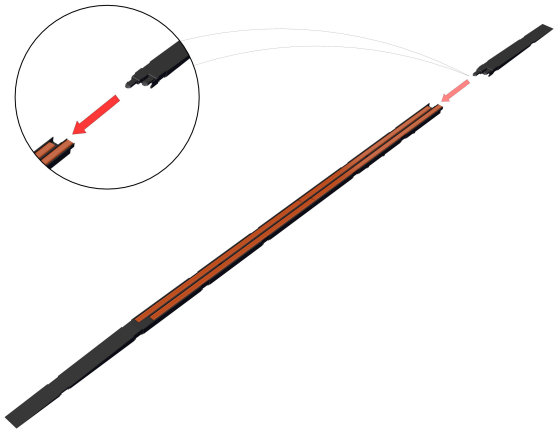
Assembly steps:

1. Connect the next contact bar / feed terminal with the plug connectors, without leaving a gap between the housings.
2. Repeat the steps until the desired number of contact bars and feed terminals has been reached.

NOTICE!

Observe the polarity indicators on the feed terminals and contact bars. Mechanical reverse polarity protection is only available for two consecutive feed terminals.

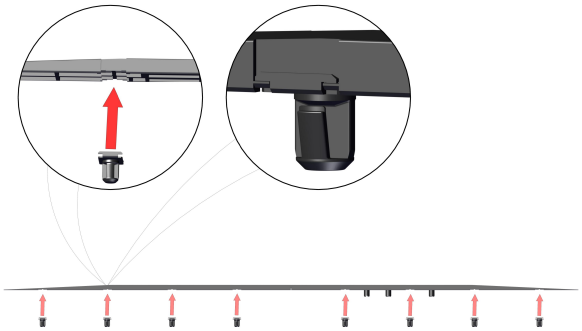
► Align the contact bars with the feed terminals so that the + and - markers are located on the same side.

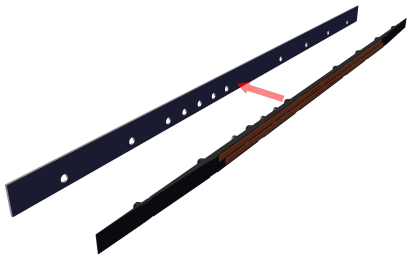


Attaching access ramps

Assembly steps:

1. Attach the access ramp at the beginning and the end.





Attaching the system

Requirements:

✓ The hole pattern is prepared according to side 20.

Assembly steps:

1. Clips the hangers in the bar so that they audibly engage.
2. Place the bars on the hangers in the prepared bore holes.

Connection

Assembly steps:

1. Attach the flat plug to the + or - pole.
2. The additional - pole can be used for grounding the steel structure.

6.2.3 Installing current collector

Requirements:

✓ The support component for the current collector has been prepared. Observe the installation dimension of the current collector (see Current collector page 18)

✓ Customer-side cabling

Required tools:

⚒ Screwdriver

Assembly steps:

1. Attach the current collector to the support component. Secure the M5 fastening screw of the current collector using a tight-ening torque of 2.2 Nm.
2. Attach the flat plug.

7 MAINTENANCE

7.1 Safety information about repairs

DANGER!

Before beginning any work, ensure that the system is free of voltage and remains so for the duration of the work. Observe the safety instructions in the section 3 Safety instructions!

WARNING!

Risk of injury due to improperly performed maintenance work!

Improper maintenance can result in serious personal injury or property damage.

- ► Ensure that there is sufficient clearance before starting work.
- ► Pay attention to order and cleanliness in the workplace!
- ► Follow the procedure according to3.3 General risks before starting work.

WARNING!

Danger due to insufficiently qualified persons!

Insufficiently qualified persons cannot assess the risks involved in operating the system and expose themselves and others to the risk of serious or fatal injuries.

- ► Have all work performed only by persons qualified for the task.
- ► Inadequately qualified persons should be kept away from the work area.

CAUTION!

Tripping hazard due to protruding parts

There is a tripping hazard during the work.

- ► Watch out for steps and holes in the floor when walking inside the work area and the danger zone. There must be no loose objects in the work area.

CAUTION!

For maintenance and cleaning work where graphite contact dust may get into the ambient air, breathing protection must be used:

- ► Breathing protection mask acc. to EN 149, min. protection level FFP3.
  Vahle product ID: 10017880
- ► Never blow out the mask with compressed air.
- ► Use suction with filter class H (retrofitting of HEPA filter required).
- ► Do not eat, drink or smoke during work.

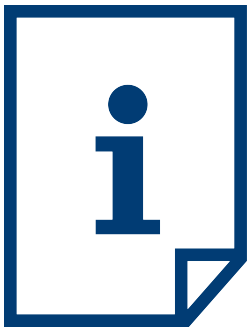
The main aim of this section is to maintain the system's target condition and operational capability. By avoiding malfunctions and unplanned downtimes, regular maintenance can increase the utilization rate. Efficient planning of maintenance work and material is a prerequisite. In order to carry out safe maintenance by appropriately trained personnel, the following instructions must be observed:

DANGER!

Danger of death due to electrical current!

Contact with live parts can result in life-threatening injuries.

► Make sure that the relevant components are not live or under voltage, and that there is no unauthorized approximation.



NOTICE!

The inspection and maintenance work listed in the technical documentation must be performed and documented regularly

(location, spare part, task performed, date, name of inspector)

► System fault elimination may only be carried out by trained, qualified, and authorized persons.

Date	Name	Maintenance/servicing work	Instructions given by	Signature

7.2 Rail maintenance

Interval	Service/monitoring tasks	Personnel
Daily	• Check safety equipment and operating behavior of the system.	Operator
Monthly	• Visual inspection of general condition. Also take note of expansion of the conductor rails and of burn marks. Replace damaged burnt parts. • Check mechanical and electrical connections, particularly on the feeds and tighten if necessary (in doing so observing the prescribed torques)	Technician/electrically qualified person
If necessary	• Remove dust deposits (e.g. carbon brush dust, coupler wear debris) and other particle deposits if necessary. • Remove any small burns or discoloration caused by corrosion on the contact surface by scouring with a non-woven abrasive. **Do not use a powered brush.** Replace the conductor rail if it is not possible to remove the burn marks.	Technician/electrically qualified person

In case of damage to the conductor rails, the associated components such as current collectors must be inspected for damage.

7.3 Current collector maintenance

Interval	Service/monitoring tasks	Personnel
Daily	• Check safety equipment and operating behavior of the system.	Operator
Monthly	**Mechanical checks** • Check mobility of joints, bearings, and hinge pins. Inspection for mechanical damage of any type. **Electrical checks** • Check for wear of graphite contacts, firm seat of all contact screws and cable attachments. • Clean oxidized contact screws and cable ends and restore the protection of these locations. • Carbon brushes should be replaced in good time so that the mounts of the carbon brushes do not grind on the contact surface, or the outer edges of the cover plate touch the conductor rail. • Inspection of the wear limit on the carbon brush.	Technician/electrically qualified person

In case of damage to the conductor rails, the associated components such as current collectors must be inspected for damage.

Replacing the current collector

Requirements:

✓ The system is switched off and the power supply is disconnected.

Work steps:

1. Pull out the power cable.
2. Remove the current collector.
3. Install the new current collector.
4. Install the connecting cable.
5. Clean the contact surfaces of the carbon brush.

8 TRANSPORT AND STORAGE

8.1 Safety instructions for transport and storage

NOTICE!

Damage due to improper transport or storage. Improper transport or storage may cause significant property damage!

- ► Storage temperature: 0 °C to +45 °C
- ► Storage location: Indoors, dry, no exposure to chemicals.
- ► Do not expose to direct sunlight.
- ► Exercise caution and observe the symbols on the packaging while unloading the pieces at delivery or during transport on the facilities.

8.2 Transport inspection

Check the delivery for completeness and transport damage upon receipt!

If any external damage is found:

- Refuse delivery or accept delivery only conditionally.
- Note the scope of the damage in the transport documents or on the carrier's delivery note.

NOTICE!

The delivery may be damaged during transport!

Report all defects as soon as they are found. Claims for damages can only be made during the applicable period.

- ► Document and report the defects found.

8.3 Storage

NOTICE!

When storing plastic parts, the plastic must be kept moist in order to maintain its properties.

9 DISASSEMBLY AND DISPOSAL

9.1 Disassembly

DANGER!

Risk of fatal injuries from electrical current!

Contact with electrically live components may result in fatal injuries.

► Ensure that the relevant components are not live and protected against unauthorized access.

WARNING!

Risk of death through faulty exchange and disassembly!

Errors during the removal or replacement of components may cause life-threatening situations or significant property damage

► Observe the safety instructions before beginning any removal work.

CAUTION!

All accessories must be checked for wear.

Only parts in a perfect condition may be used again.

► Only genuine VAHLE replacement parts may be used.

During replacement it is essential to observe the instructions in chapter 3.3.1 .

- Switch off the system and secure it against being switched back on.
- Physically disconnect the entire power supply from the system.
- Loosen and remove all connections.

NOTICE!

The individual components of the system must be completely replacement in case of damage.

For spare parts, see 5.2 Assembly overview

9.2 Disposal

General

Current national regulations on site are decisive for disposing of/recycling components, machines and systems.

NOTICE!

Dangers from incorrect disposal/operator's responsibility

Risk of environmental damage/loss of valuable raw materials

- ► Incorrect disposal can lead to environmental damage.
- ► **Electronic waste is hazardous waste!**
- ► The most current, valid guidelines, laws and regulations of the respective economic area or country in which components are disposed of/recycled apply.
- ► The product operator is responsible for proper disposal/recycling.
- ► Old electrical devices contain valuable raw materials. **These must not be disposed of in residual waste!**

Disposal instructions

Individual product parts to be disposed of must be separated, depending on their nature. Currently valid local regulations must be observed.
Overview of parts / subassemblies that must be disposed of separately:

- Electronic waste (circuit boards)
- Batteries and accumulators
- Plastic
- Sheet metal
- Copper
- Aluminum

Information about the WEEE Directive (2021/19/EU)

The WEEE Directive does **not** apply to the products described **because the products fall under the exception under Article 2 "Scope."** Products described are used in large industrial tools, stationary large systems and mobile machines that are not intended for road traffic and are made available and designed exclusively for professional use (B2B).

Manufacturer's obligation to provide information

(according to ElektroG, Germany)

Options for returning, disposing of and recycling old devices

- The most current, valid guidelines, laws and regulations apply locally.
- The operator, as a professional user of the products, is responsible for properly disposing of or recycling (old) products.
- Contact a recycling or disposal company specializing in electronic waste.

Note on data protection

- The operator or his employees must ensure compliance with data protection on their **own responsibility**.
- Personal data present on the assembly to be disposed of or stored in the assembly must be removed by the operator or securely and permanently deleted -> **operator's own responsibility**.
  - **Data on the assembly**: stickers, labels, etc.
  - **Data stored in the assembly / device**: electronically stored data, etc.

Meaning of the symbol "crossed-out garbage can with black bars"

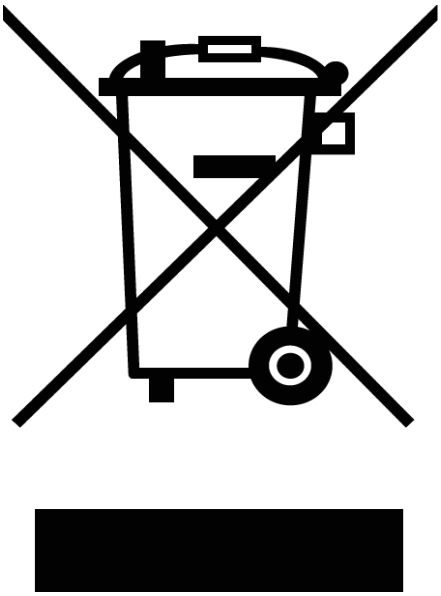


Fig. 9-1 Symbol

- Symbol according to WEEE Directive 2012/19/EU or ElektroG (Germany)
- The symbol is attached to the name plate where possible. Otherwise, the symbol can be found on the product packaging.
- Meaning of the symbol:
  - Symbol for the separate collection of electrical and electronic equipment
  -> The product must not be disposed of as unsorted waste,
  but must be taken to separate collection points for disposal/recycling.
  -> The black bar under the symbol indicates that after August 13, 2005,
  the product was placed on the market

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