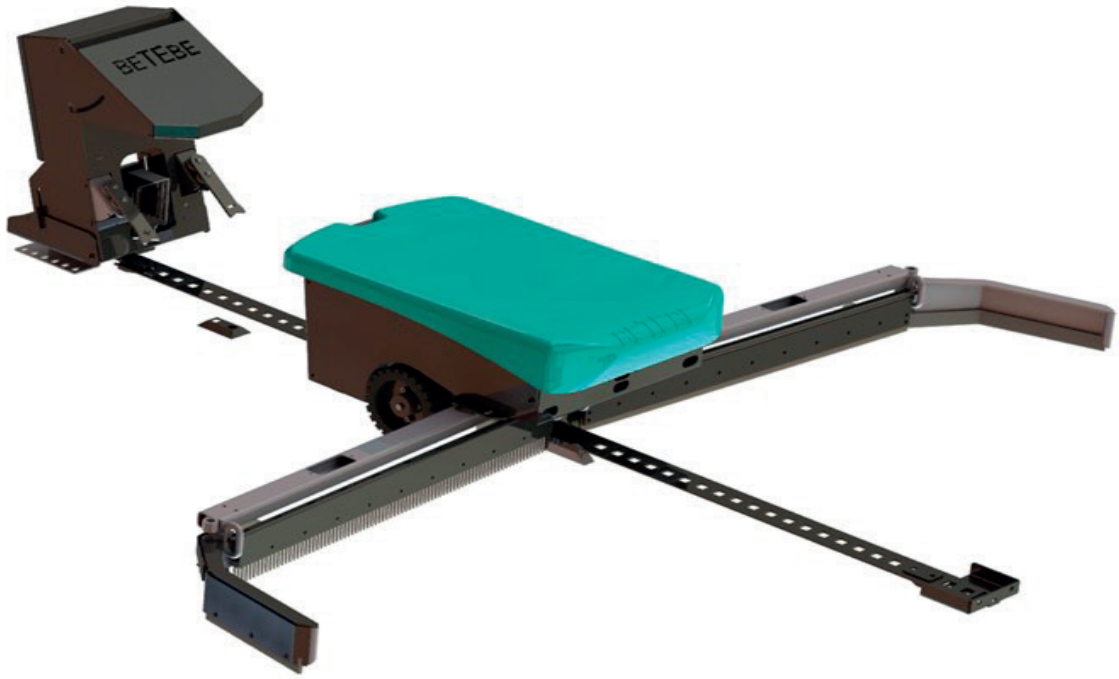
OPERATING INSTRUCTIONS

BETEBE
Die saubere Lösung

SmartScraper



Version 2.0 - Software 5.8.1 / 04/2025

BETEBE
Die saubere Lösung

OPERATING INSTRUCTIONS

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2 Foreword

2.1 Information about the instructions

We reserve the right to make changes to the data and illustrations contained in this manual as a result of technical developments. Reprints, translations and reproductions in any form, even in part, require the written consent of the manufacturer.
These instructions are included in the scope of delivery.

- The manual must be kept within easy reach and must remain with the device even if it is sold.
- This manual is not subject to any change service. The current version can be obtained directly from the manufacturer.

2.2 manufacturer's address

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2.3 Safety

2.3.1 Operator's duty of care

The product was designed and manufactured taking into account a risk analysis and after careful selection of the harmonised standards to be complied with, as well as other technical specifications. This ensures maximum safety.
However, this safety can only be achieved in operational practice if all necessary measures are taken. It is the operator's duty of care to plan these measures and monitor their implementation. The operator must ensure the following:

- The instructions must always be legible and available in full at the place of use of the product.
- All persons carrying out work on the product must be able to consult the instructions at any time.
- The instructions in the chapter 'Basic safety instructions' must be observed.
- The statutory regulations must be observed.
- The product may only be used for its intended purpose.
- The product may only be operated in perfect and functional condition In particular, the safety devices must be checked regularly to ensure that they are in good working order.
- The work to be carried out may only be performed by a suitably qualified person!
- These persons must receive regular training in all relevant aspects of occupational safety and environmental protection and be familiar with the instructions and in particular the safety instructions contained therein.
- Trainee operating personnel may initially only work on the product under the supervision of an experienced person. Completion and successful must be confirmed in writing.
- Safety signs, labels and stickers attached to the product must be replaced immediately if they become illegible or are lost!
- Unauthorised persons (e.g. children) must not be allowed to enter hazardous areas. Pedestrian traffic is not permitted in the working area of the slide gate system.

2.3.2 Explanation of the safety symbols used

Safety symbols draw attention to the importance of the accompanying texts.

Pictogramm	Signalword	significance	Consequences of failing to observe safety instructions
	**Danger!**	imminent danger to persons	death or serious injury
	Warning!	potentially very dangerous situations for people	death or serious injury
	Caution!	Potentially dangerous situations for people	minor injuries
	**Stop!**	possible damage to property	Damage to the machine or its surroundings
	**Note!**	Useful information or tip. (If you follow it, it will make it easier for you to operate the machine.)	

2.3.3 Basic safety instructions

Note!
Warnings about specific residual risks are provided in the relevant chapters!

- The operation and maintenance of equipment for large livestock farms involves risks. For your own safety, carefully read and follow the instructions (especially the 'Safety' section)!
- Do not open or dismantle equipment – risk of injury!
- Do not remove any protective devices – risk of injury!
- When using third-party products, it is essential to also observe the warnings in the safety data sheets and operating instructions provided by the product manufacturer!
- Observe noise protection measures!
- Do not stand under suspended loads!
- Always keep the control system locked. Access is only permitted to authorised persons!
- When working on the control system during installation, commissioning, maintenance, cleaning or repair, disconnect the control system completely from the power supply!
- Safety devices must not be taken out of operation!
- Protect voltage-carrying and high-voltage components from moisture. Never aim water jets or high-pressure cleaners at them!

2.3.4 personnel qualification

All persons who perform work or activities in connection with the product must carefully read, understand and follow the instructions!
All work on electrical equipment and electrical connections must only be carried out by trained electricians. In addition, special qualifications are required for the following activities:

- Transport
- Assembly
- Operation
- Maintenance/servicing
- Troubleshooting
- Repairs
- Decommissioning

Note!
If special qualifications are required for certain tasks, these are described in the relevant sections.

3 Description

3.1 Intended use

The SmartScraper is designed for use in agricultural applications (primarily dairy farms). Its intended use is exclusively for scraping and cleaning solid floors and slatted floors within stables.
Any other use is considered improper handling, whereby the risk of resulting damage shall be borne solely by the user.
Compliance with the manufacturer's instructions for use is an absolute prerequisite for the proper operation of the BETEBE SmartScraper.

Danger!
It is forbidden to remain in the danger zone of the system! Prevent children from staying near the manure removal system.

Warning!
During repair or maintenance work, the power supply plug must be disconnected from the control unit.

The BETEBE SmartScraper may only be put into operation if it is in perfect condition. Therefore, check the entire system regularly.
Repairs or modifications may only be carried out by authorised persons.
Only use original spare parts for replacement or repair.

Warning!
The electrical installation in the stable must comply with the applicable regulations. Please contact the relevant authorities for information on the applicable requirements.

Warning!
After commissioning the system, the thrust force value must be checked at regular intervals (at least monthly) and adjusted if necessary.
The value should be reduced as far as possible so that the system can safely detect obstacles and animals and react accordingly.
The value depends on:

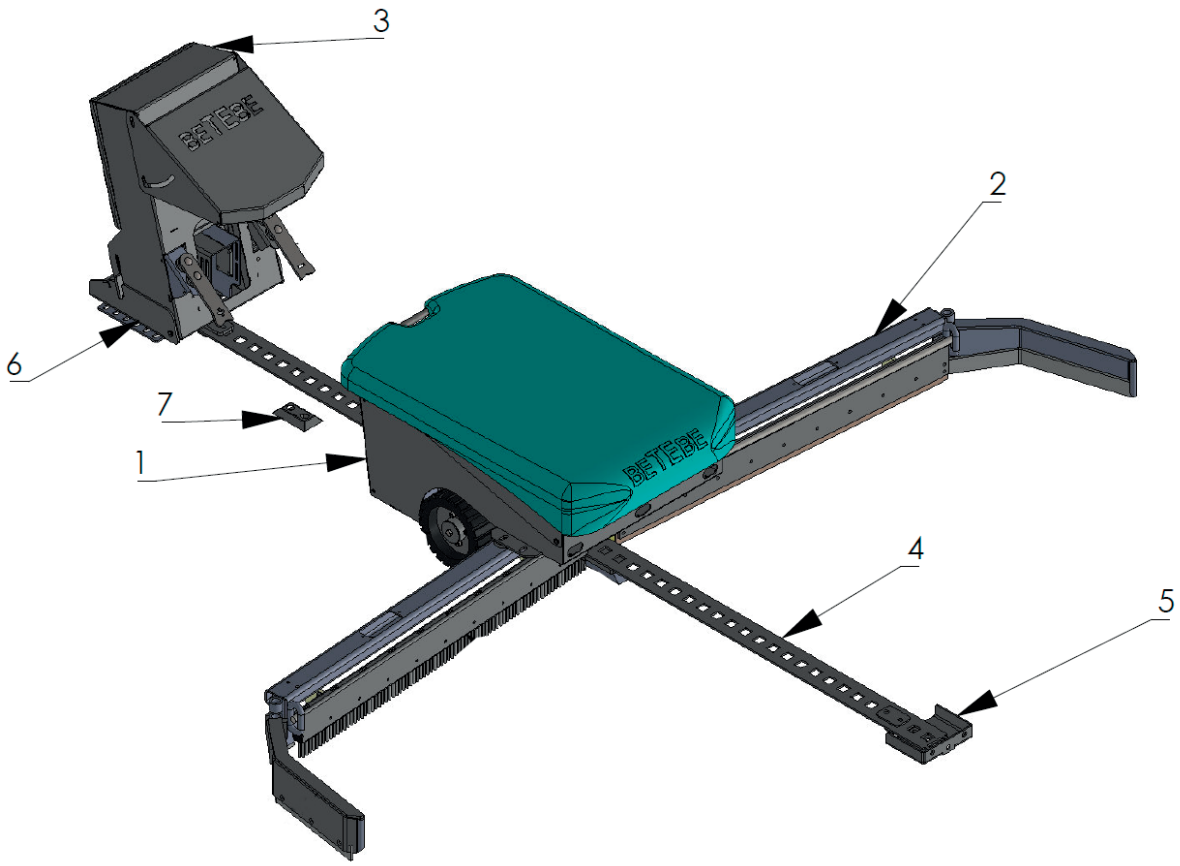
- local conditions
- weather conditions
- feed used

Accordingly, the thrust value varies from barn to barn and also throughout the year.

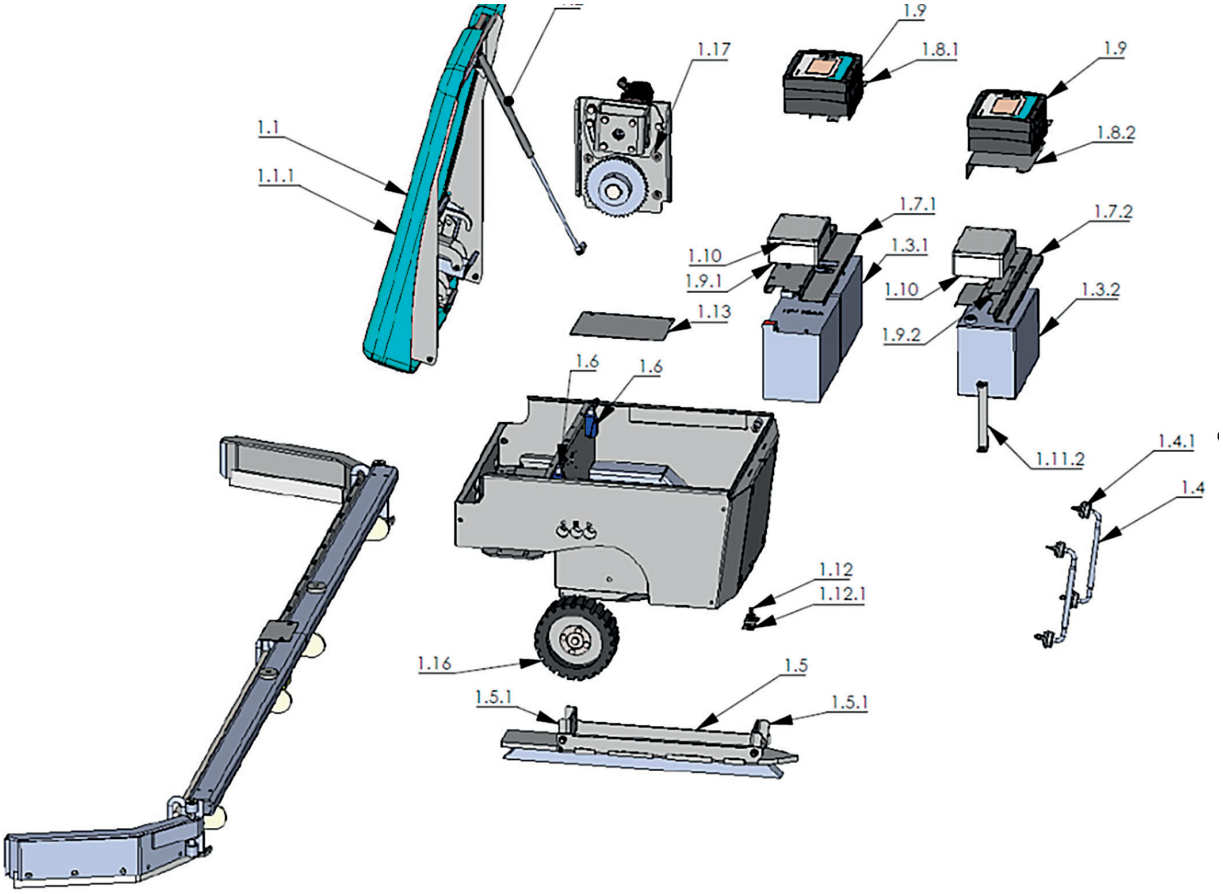
3.2 Changes to the product

Unauthorised modifications to the product may adversely affect its safety, service life and/or function. Any modifications not described in the product documentation are not permitted. For safety reasons, do not make any unauthorised modifications! All planned modifications must be approved in writing by the manufacturer. Unauthorised modifications to the product will void the warranty and may invalidate the enclosed declaration of conformity or installation. Declaration of conformity or installation.

3.3 Product structure

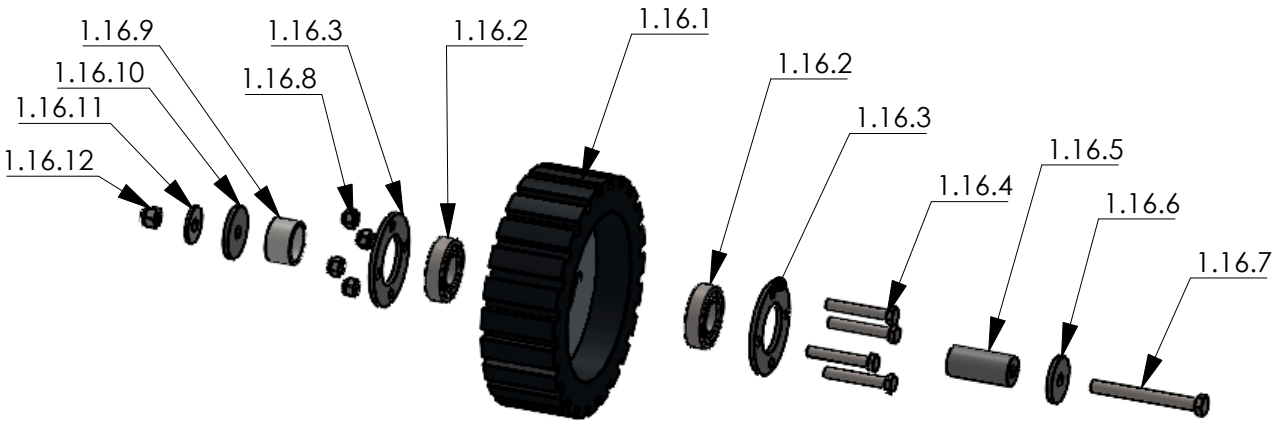


Nr.	designation	Article Nr.
1	body (case)	
2	slider	
3	rear charging station	SMSC-5500
4	Perforated rail per running metre	SMSC-1300
5	Wall mounting for perforated rail	
6	Clamping station, including screws, adhesive dowels	SMSC-1610
7	Magnet (encapsulated in holder) incl. dowel	SMSC-1410

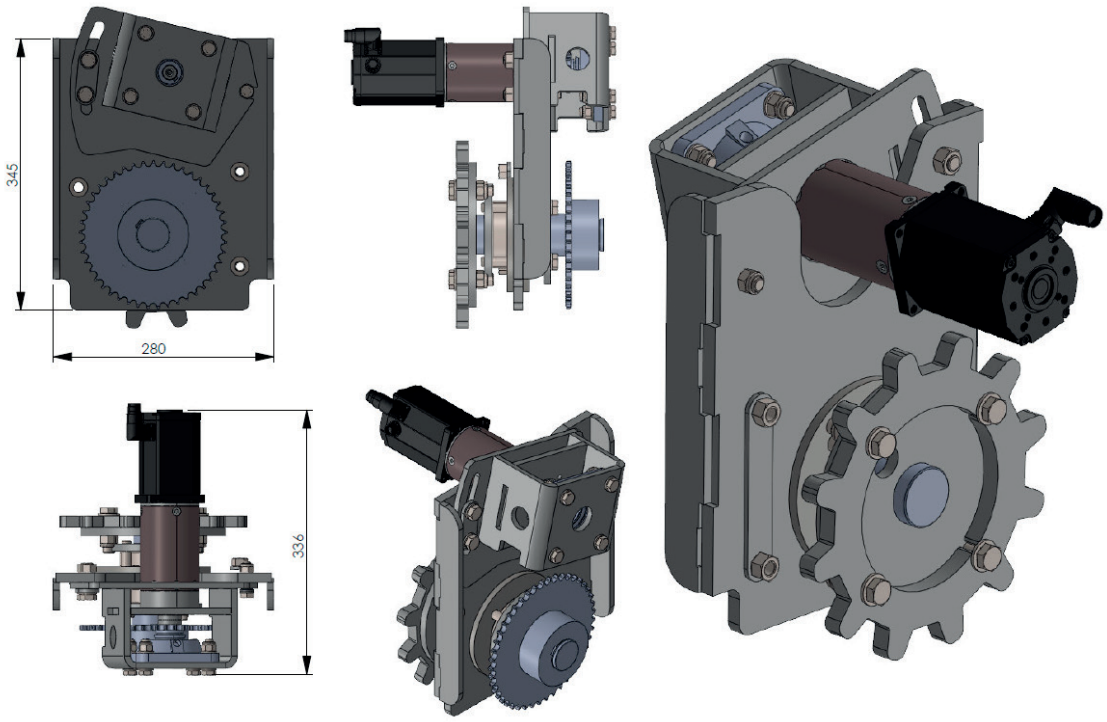


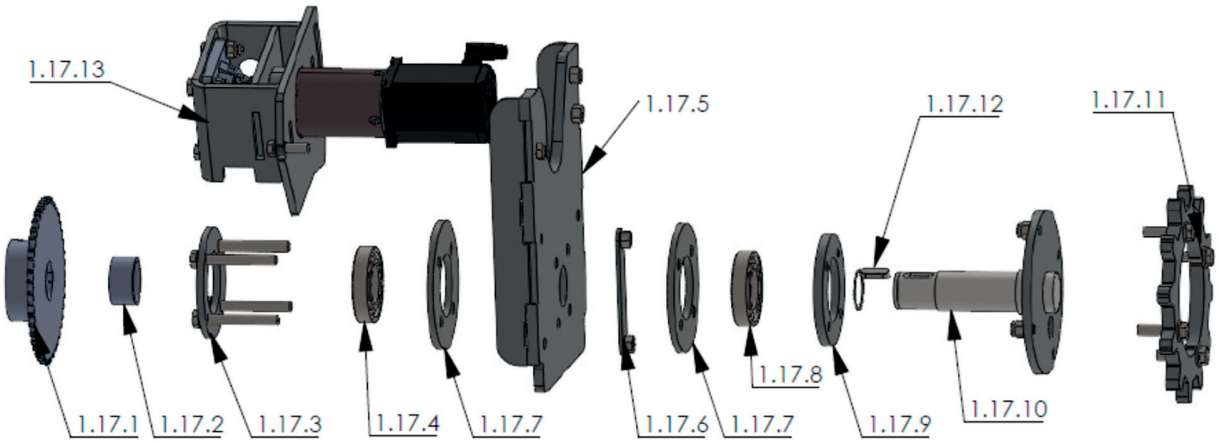
Nr.	designation	Article Nr.
1.1	Bonnet completely without gas pressure spring	SMSC-1050
1.1.1	Bonnet (GRP)	SMSC-1055
1.2	gas pressure spring	SMSC-1130
1.3.1	Battery (rechargeable battery) Black 12V	SMSC-5101
1.3.2	rechargeable battery 24V	SMSC-5105
1.4	charging contact	SMSC-1365
1.4.1	Isolator	SMSC-1380
1.5	Guide rail 879 mm, including screws	SMSC-1352
1.5.1	guide rail holder	SMSC-1340
1.6	Roller switch/hood switch	SMSC-5210
1.7.1	Battery terminal plate for 2x12V battery	SMSC-1520
1.7.2	Battery terminal plate fo 1x12V battery	SMSC-1525
1.8.1	control plate	SMSC-1510
1.8.2	control plate	SMSC-1515
1.9	Control with touch display including WLAN router	SMSC-5010
1.9.1	Mounting plate for electrical connection box	SMSC-1540
1.9.2	Mounting plate for electrical connection box	SMSC-1545

1.10	Electrical connection box (without circuit board)	SMSC-5200
/	Sensor circuit board	SMSC-5201
1.11.2	Battery (24V) mounting	SMSC-1530
1.12	Magnetsensor SmartScraper	SMSC-5220
1.12.1	sensor mount	SMSC-1420
1.13	Cover plate for drive gear	/



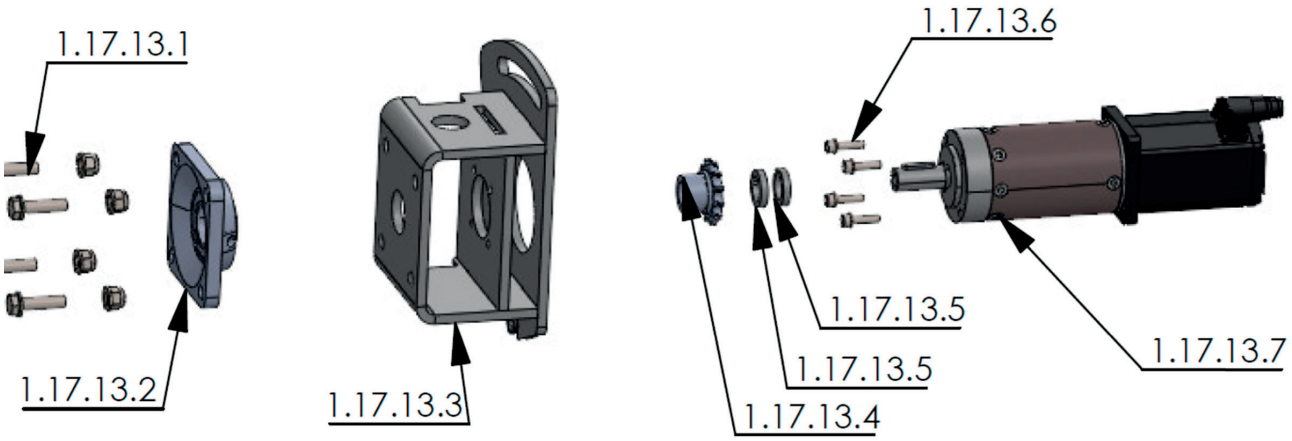
Nr.	designation	Article Nr.
1.16.1	wheel / support wheel	SMSC-3150
1.16.2 (2x),	Mounting and bearing set for wheel/support wheel	SMSC-3250
1.16.3 (2x),		
1.16.4,		
1.16.5,		
1.16.6,		
1.16.7,		
1.16.8,		
1.16.9,		
1.16.10,		
1.16.11,		
1.16.12		
1.16.2 (2x)	Bearing set for wheel/support wheel	SMSC-3270



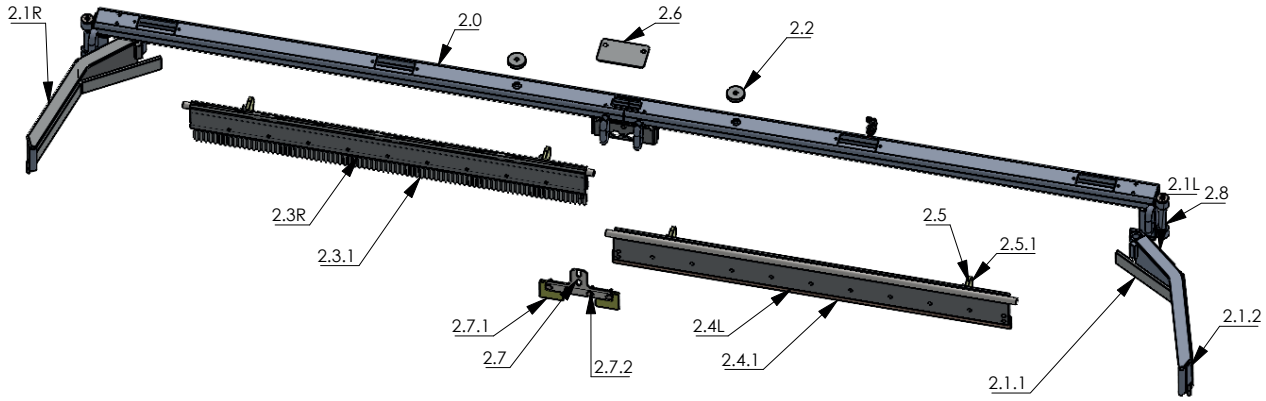


Nr.	designation	Article Nr.
1.17.1	Large chain wheel Z=45 incl. grub screws	SMSC-3320
1.17.2	spacer sleeve	/
1.17.3, 1.17.4, 1.17.7(2x), 1.17.8, 1.17.9	Bearing and bearing clamp set for drive shaft	SMSC-3310
1.17.4, 1.17.8	Bearing set for drive shaft	SMSC-3315

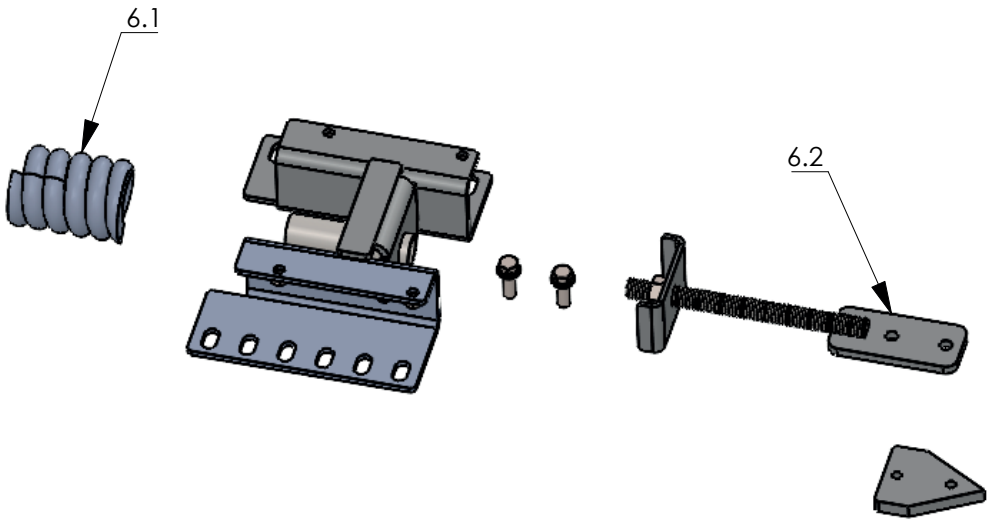
1.17.5	drive flange plate	/
1.17.6	Fastening clamps	/
1.17.7	distancering	/
1.17.8	deep groove ball bearing VA	/
1.17.9	Threaded mounting ring	/
1.17.10, 1.17.12	Drive shaft with flange, including key and retaining ring	SMSC-3300
1.17.11	Drive gear with fastening material	SMSC-3110
1.17.12	Key and retaining ring for drive shaft	SMSC-3321
1.17.13	Drive motor with mounting bracket	SMSC-3400
1.17.14	Chain complete with chain lock (60 chain links) (not shown above)	SMSC-3120



Nr.	designation	Article Nr.
1.17.13	Drive motor with mounting bracket	SMSC-3400
1.17.13.1	Screw set for support bearings	SMSC-3420
1.17.13.2	Support bearing motor	SMSC-3410
1.17.13.3	engine mount	/
1.17.13.4	Small gear wheel Z=12	SMSC-3430
1.17.13.5	distance spacer	/
1.17.13.6	Fastening screws for drive motor	/
1.17.13.7, 1.17.13.5	Drive motor BG75 with incremental encoder signal	SMSC-5040



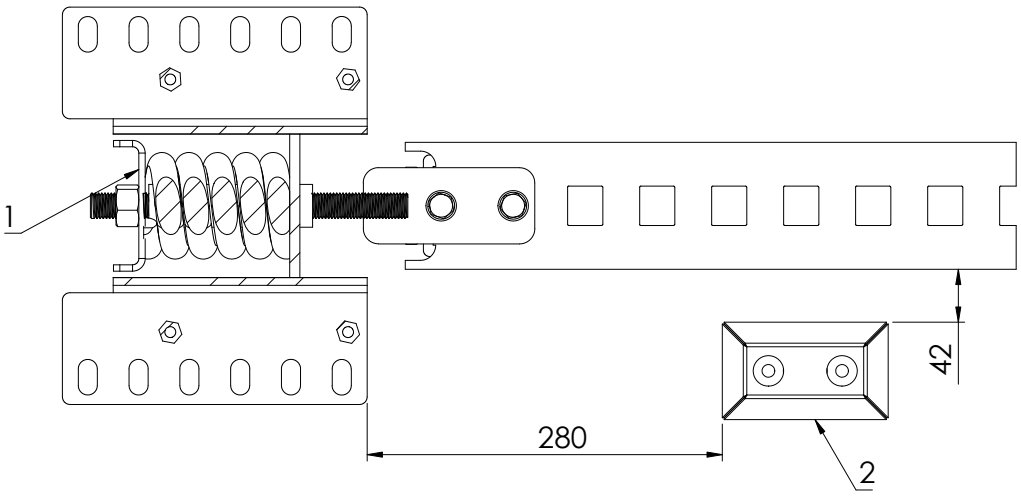
Nr.	designation	Article Nr.
2.0	Slider body for SMSC up to 2.5 m	SMSC-2000
	Surcharge sliding door body f. SMSC per 1 cm >2.5 m - 4.0 m	SMSC-2010
2.1L	Outer paddle, left side, complete	KES-1320L
2.1R	Outer paddle, right side, complete	KES-1320R
2.1.1	Folding slide valve outer paddle rubber (white)	KES-1370
2.1.2	Fastening set for outer paddle rubber	KES-1370B
2.2	Spacer for slide fastening	SMSC-2110
2.3R	Inner paddle with brush, complete, right	/
2.3L	Inner paddle with brush, complete, left	/
2.3.1	Brush strip per running metre	KES-1385
2.4L	Inner flap with rubber on the left	/
2.4R	Inner flap with rubber on the right	/
2.4.1	Folding slide rubber (white) roll 3250x50x8 mm	KES-1350
2.5	Klappschieber-Rückfahrgummi	KES-1333
2.5.1	Fixing kit for reversing rubber	KES-1333B
2.6	Safety cover slide	SMSC-2020
2.7	rail cleaning lip	SMSC-2210
2.7.1	Replacement rubber rail lip	SMSC-2211
2.7.2	Screw set for rubber lip	SMSC-2212
2.8	Replacement bolt Ø 20 mm	KES-1040



Nr.	designation	Article Nr.
6	Clamping station, complete, including screws and adhesive dowels	SMSC-1610
6.1	Tension spring for SMSC	SMSC-1615
6.2	Clamping screw for clamping station, including nut and clamping plate	SMSC-1620

3.3.1 Magnetsensor

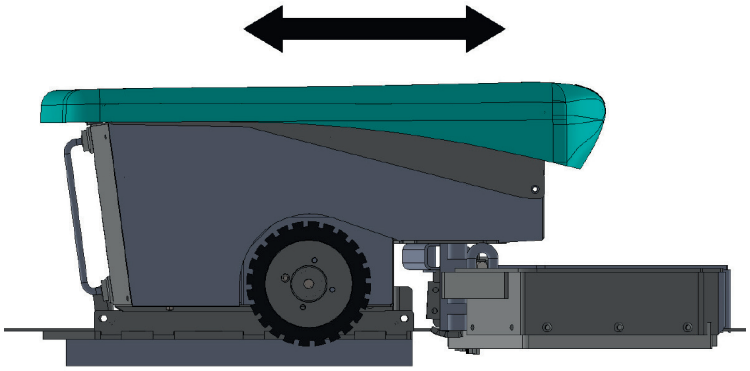
A magnetic sensor is located in the machine in the bottom of the chassis behind the batteries.
A magnet is located where the charging station is attached.
This magnet defines the exact position where the machine is charged. The contacts of the charging station should be deflected by approx. 4 cm to ensure reliable contact.
This position is also the reference point for the system.
The position of the charging station is not always 0. When using a side charging station, the position can be anywhere in the aisle.
If it is not possible to align the installation precisely, the position can be corrected in the software using an 'offset'.



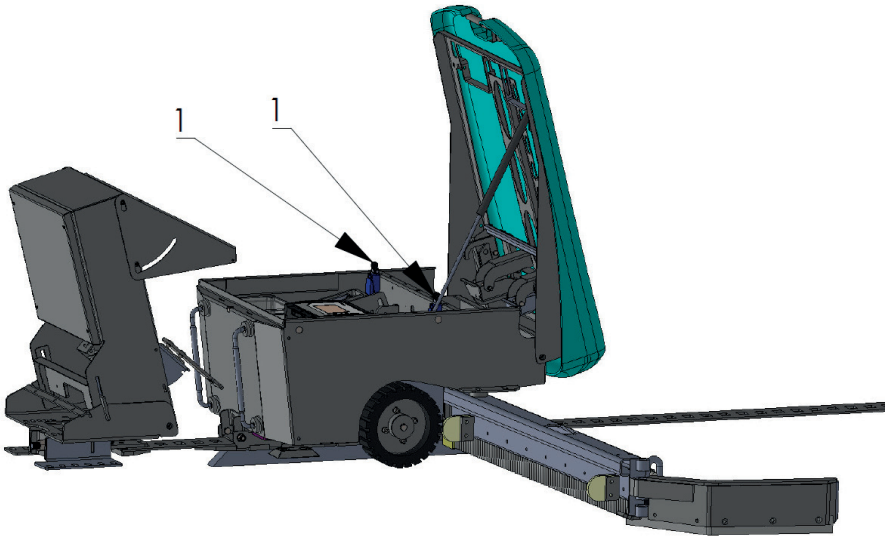
The ideal position for mounting the magnet is shown in the diagram above. These dimensions apply to a SmartScraper with rear charging station.

3.3.2 Safety shut-off hood

The hood is equipped with a safety shut-off device. As soon as the hood is deflected longitudinally for an adjustable delay time, the system reacts as if the thrust force had been exceeded. This system operates independently of load and can be triggered by a young animal as well as by a fully grown cow.

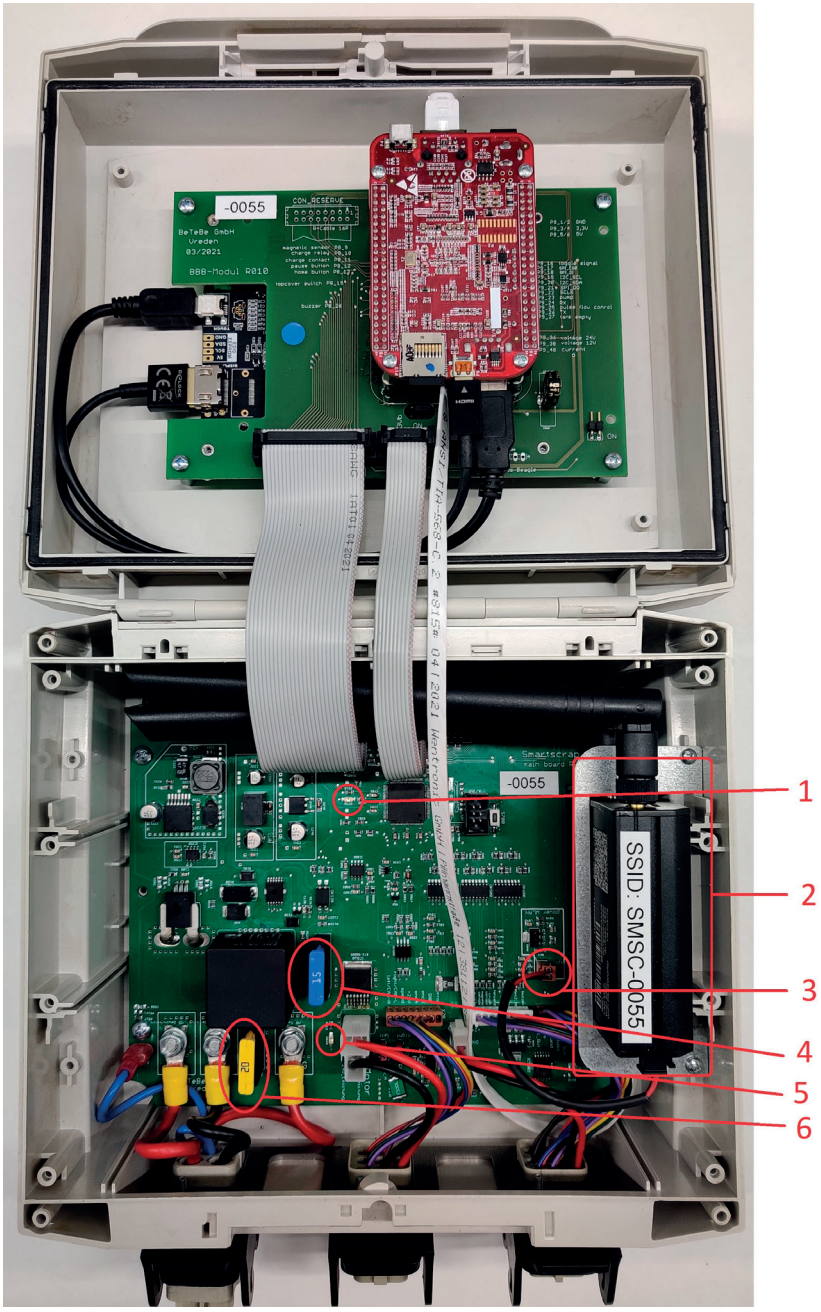


Inside the machine there are two roller switches Pos.1 which are triggered when the hood is deflected.



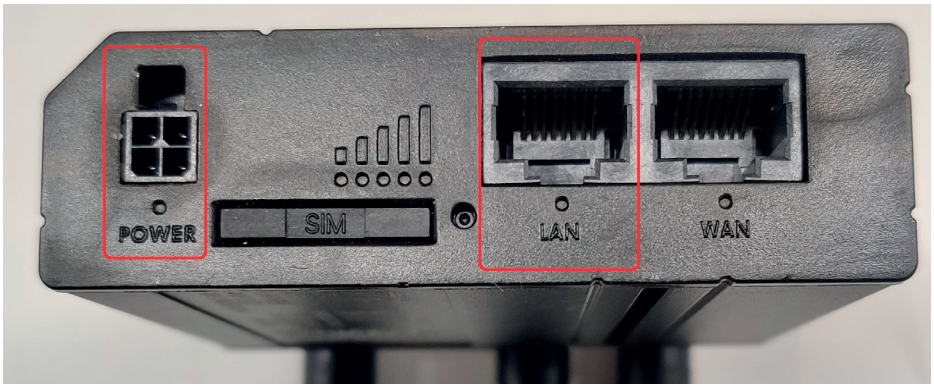
3.3.3 Control system structure

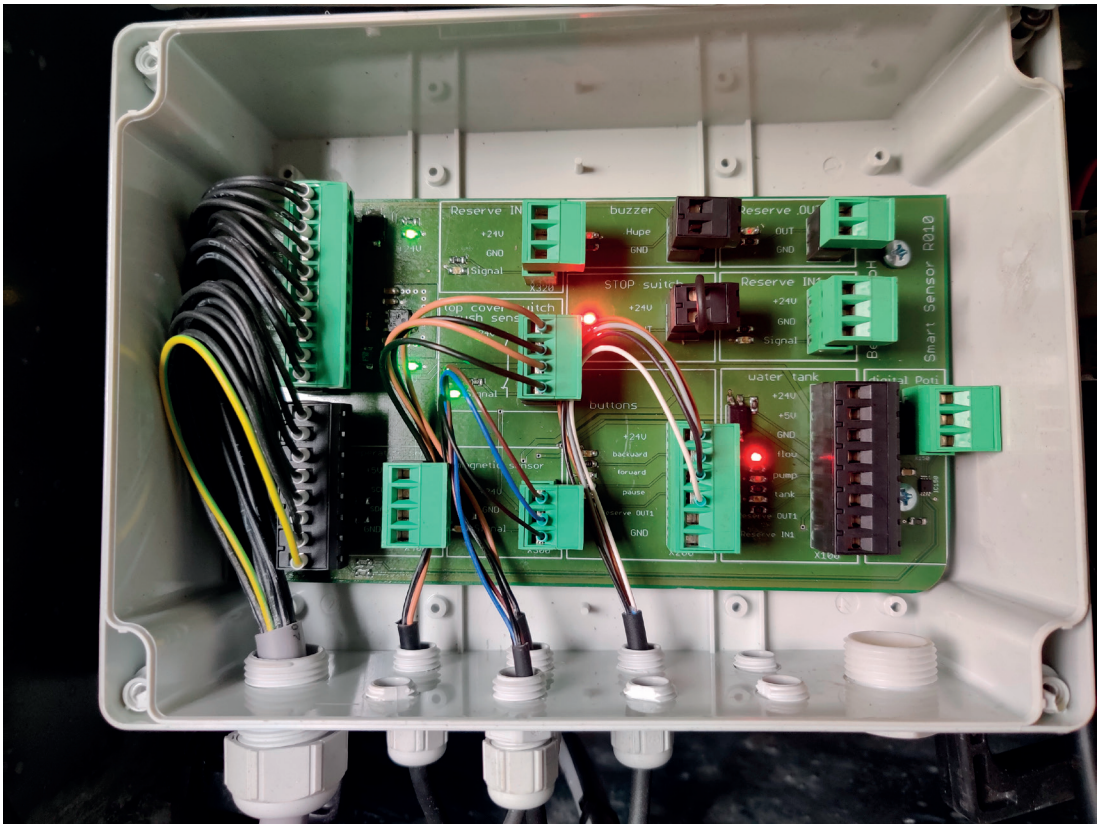
Pos. Nr.	Function
1	Control system structure
	An LED in the background flashes during boot-up.
	After booting, the LED lights up continuously.
2	Pauses automatic operation; press again to end pause
3	Restarting the browser in which the application is displayed
4	lockable with screwdriver
5	Open the control panel by pressing
6	Power supply connector
7	Motor connector plug
8	Connection plug for sensors



Pos.Nr.	Part	Function
1	Status indicator LED Processor	Status indicator for the processor (flashes 1x per sec)
2	Router	enables access to control via external WLAN
3	power supply connector	Power supply for the router
4	Motor fuse 15A	Protection of the control system and motor against excessive motor current
5	LED motor voltage	Motor voltage status indicator
6	Charging current fuse 20A	protects the control system from excessive charging current

The router must be connected to the main processor via the LAN connection.
The power supply cable must be connected to POWER and plugged into the circuit board (see image of the inside of the control unit, item no. 3).

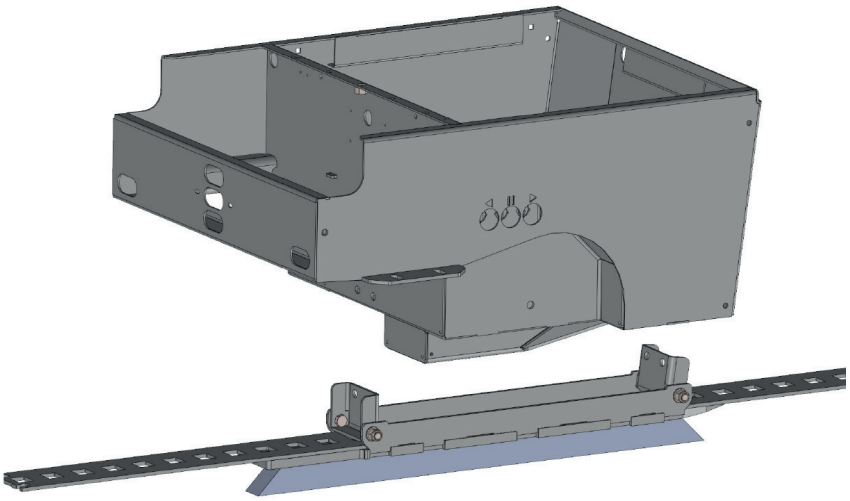




The sensor board uses LEDs to indicate the current status of the inputs and outputs.

3.3.4 Guide rail / perforated rail

The SmartScraper moves along a perforated rail. A guide rail permanently connected to the SmartScraper grips this perforated rail. Preferably, the walkway has a guide groove.



3.3.5 Buttons for dead man's control

These three buttons are accessible from the outside and have the following functions:

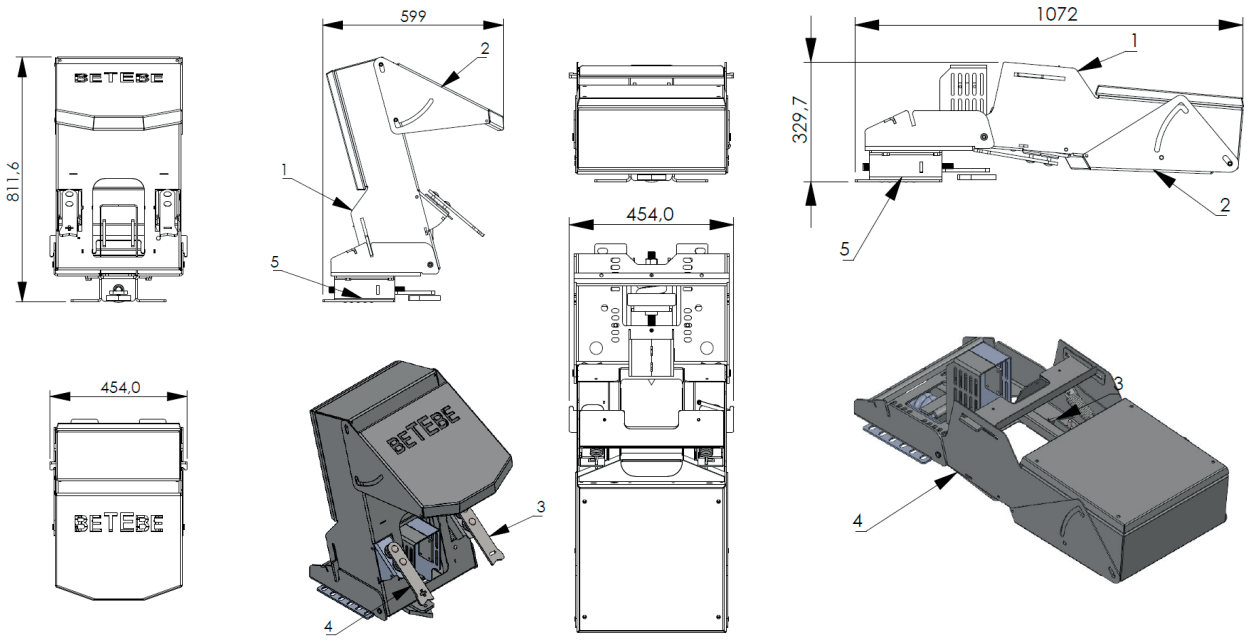
Forward-button	In manual mode, the machine runs in dead man's mode in the ‘forward’ direction as long as the button is pressed. In automatic mode, the machine can be moved in the ‘forward’ direction when it is stationary. Repeatedly pressing the button increases the speed.
Pause-button	This button can be pressed during the pushing process to pause the machine. The pushing process will continue at the next start time.
back-button	In manual mode, the machine operates in dead man's mode and moves in the ‘back’ direction as long as the button is pressed. In automatic mode, the machine can be moved in the ‘back’ direction when it is stationary. Pressing the button repeatedly increases the speed.

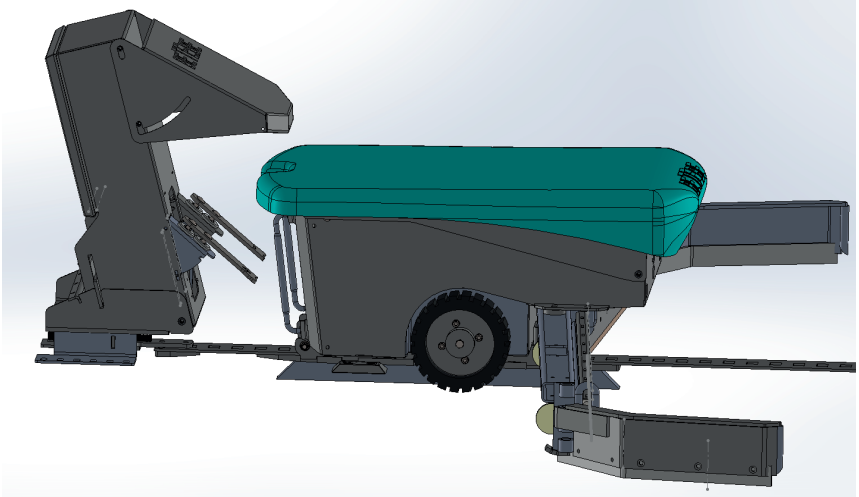
3.3.6 charging station

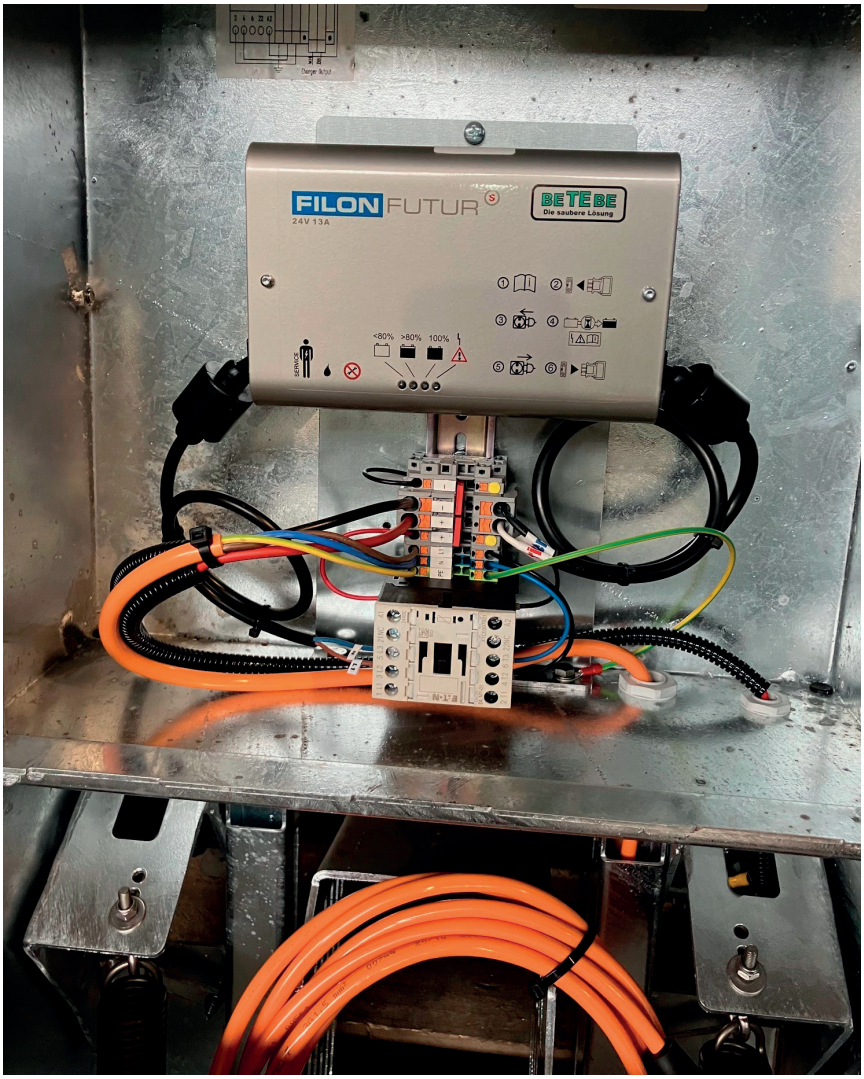
A rear charging station and a side charging station are available for the SmartScraper.

3.3.6.1 rear charging station

The rear charging station is mounted on the clamping station of the perforated rail. The charging station can be tilted to allow vehicles to drive over it. The rear charging station can only be mounted at the start of the aisle, as the SmartScraper has its charging contacts at the rear.

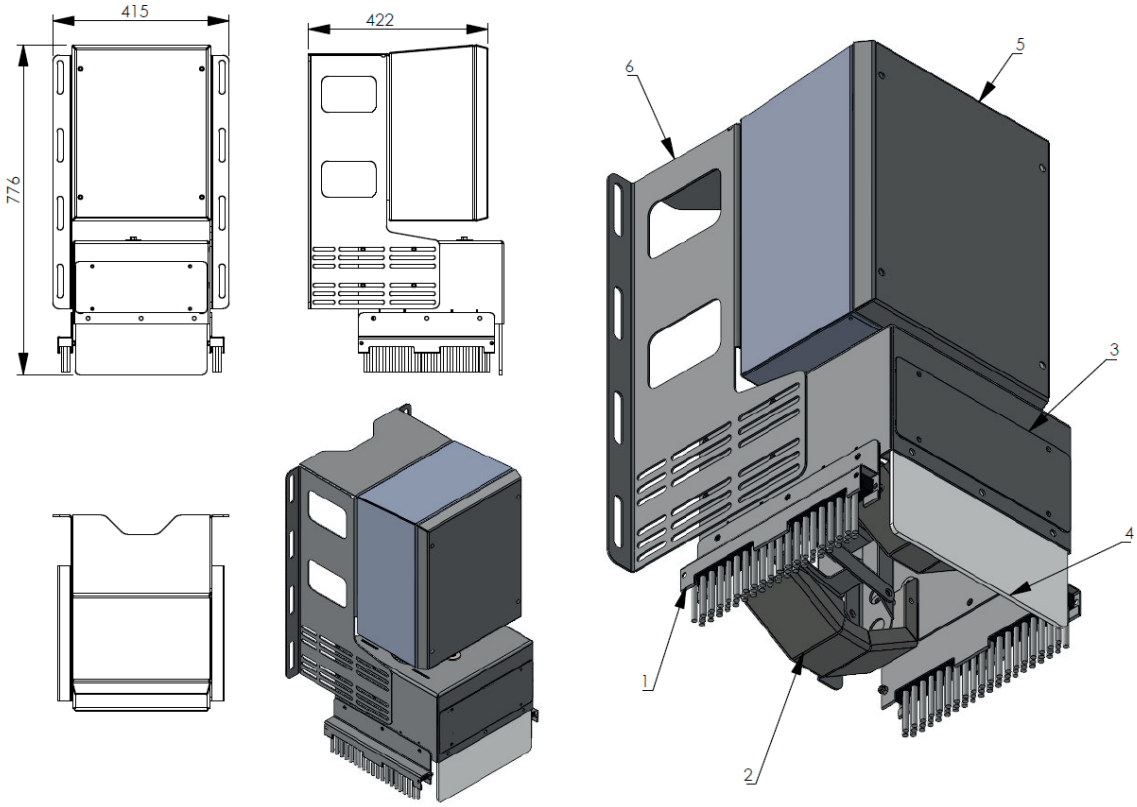






3.3.6.2 side charging station

The side charging station can be installed at any position in the aisle. It can be mounted either on the wall or on an optional floor console. When installing the side charging station directly above a drop chute, care must be taken to ensure that the slider is guided over the drop area via 'rails'. Otherwise, the slider may become caught or sink sideways into the drop chute. This means that contact with the charging contacts is no longer guaranteed.
The greater the distance between the side charging station and the ends of the aisle, the more the slider with the perforated rail can drift to one side. This means that the charging contacts are no longer approached properly/centrally. To avoid this, the aisle must either be equipped with a guide groove or the aisle must be mechanically tapered in this area. This is the only way to ensure reliable approach to the charging station. A distance of ~2m from the ends of the aisle is considered unproblematic.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422
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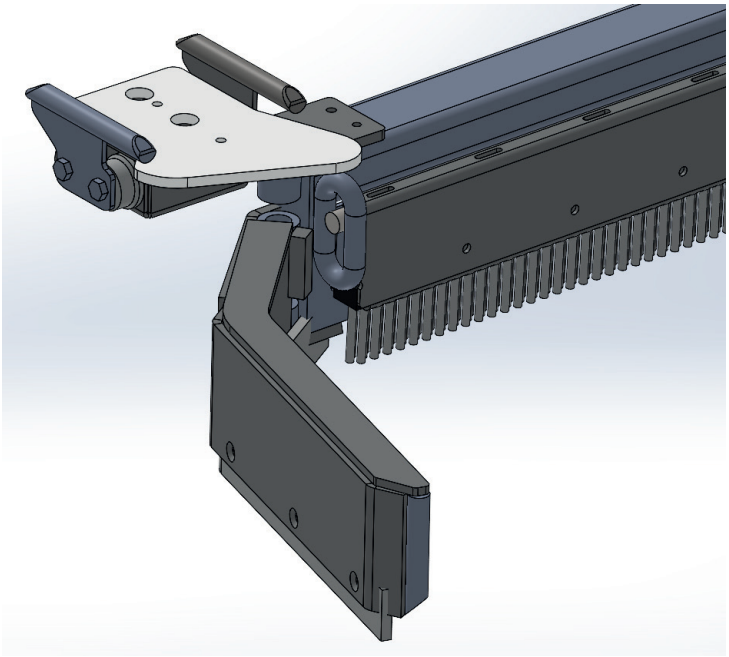
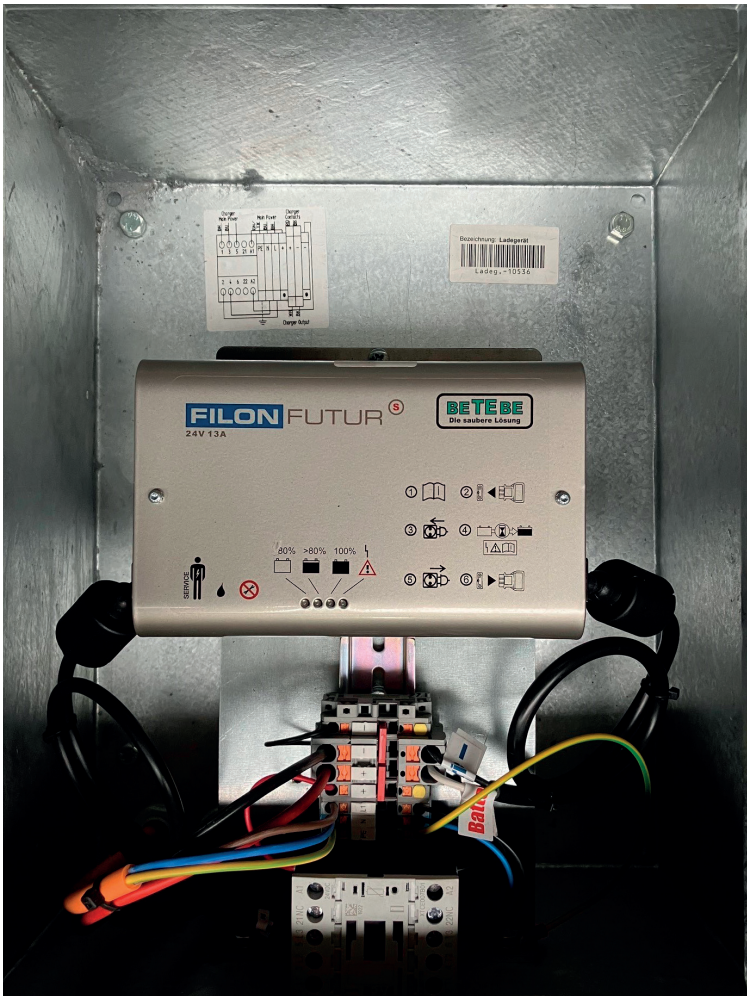
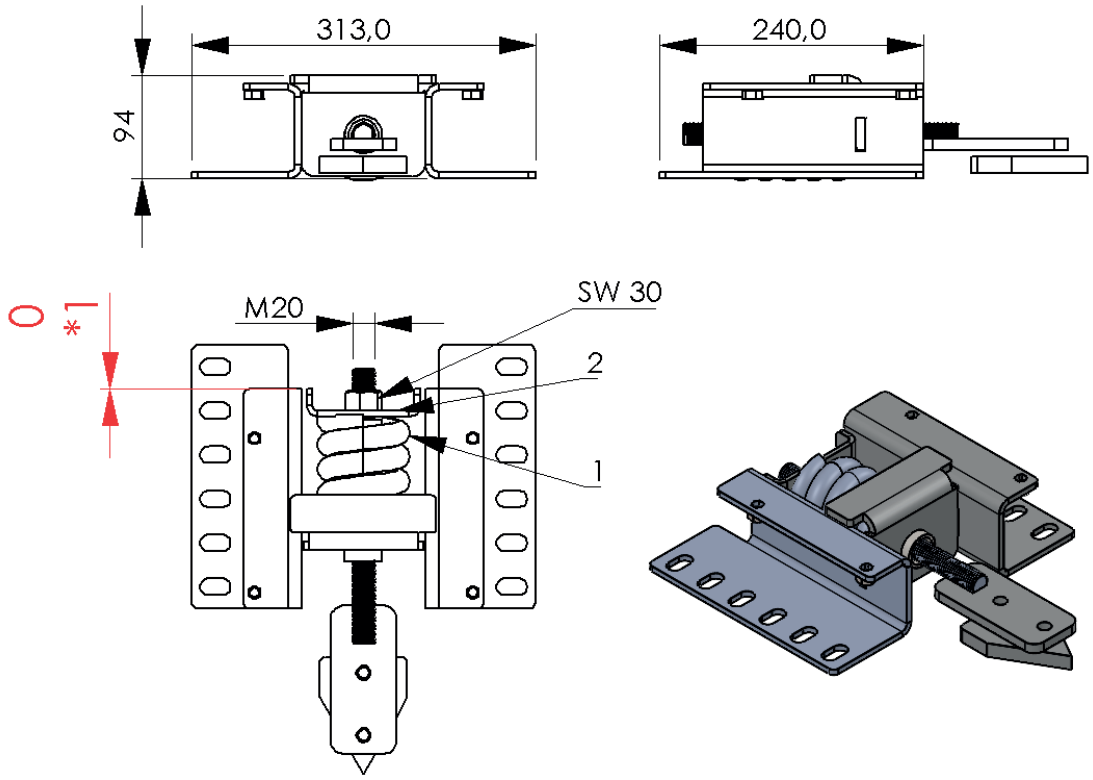




Nothing should get caught when the slider is moved towards the charging station. The charging contacts (position 2) are deflected upwards. The protective rubber (position 4) should be 5 mm away from the arm of the slider. There are numerous adjustment options for setting the correct position of the charging contacts in relation to the charging contacts of the slider.
After a reference run, the charging contacts must be aligned both longitudinally and laterally with each other.

3.3.7 tensioning station

The perforated rail is tensioned using the tensioning station.
The compression spring (item 1) should be preloaded as shown in the picture. The legs of the U-profile (item 2) are flush with those of the floor bracket (see dimension *1). The compression spring must not be compressed to the block.



4 Transport

4.1 Special personnel qualifications for transport

Transport may only be carried out by qualified persons in compliance with the safety instructions. A national driving licence for self-propelled work machines, forklift trucks and other industrial trucks must be available.

4.2 Safety instructions for transport

To avoid damage to property and/or life-threatening injuries to persons,
the following must be observed:

- Protruding sharp edges can cause cuts.
- Suspended loads can fall, posing a risk to life. Do not stand under suspended loads!
- Components stacked too high can tip over or fall down.

4.3 storage conditions

When storing the delivered goods, the storage location must provide protection against:

- Moisture
- Frost
- External damage (impacts, blows, rodents, etc.)
- Direct sunlight

Remove shrink wrap and adhesive tape from the product during prolonged temporary storage.
Batteries must be disconnected from the control unit. This is done by disconnecting the power supply connector from the control unit.
Batteries discharge themselves. To avoid deep discharge, batteries must be recharged at least every 4 months.

4.4 Information on the disposal of packaging material

After unpacking, handle the packaging material appropriately and dispose of it properly in accordance with applicable local regulations on waste disposal or waste recycling.

5 Assembly

5.1 Special personnel qualifications for assembly

Installation may only be carried out by qualified persons in accordance with the safety instructions.

5.2 Safety instructions for assembly

To avoid damage to property and/or life-threatening injuries to persons, it is essential to observe the following:

- During installation, observe national standards and regulations where applicable!
- Check for transport damage before installation. Do not use any damaged components!
- Install the control system outside the area where livestock is present!
- For devices with 24 V DC voltage, the power supplies specified by the manufacturer and approved for the devices must be used, as otherwise personal and building protection cannot be guaranteed!

Special hazards during installation:

- Live cable ends and components can cause injury through electric current.
- Electronic components can be damaged by electrostatic charge.

Warning!
Only touch the circuit boards at the edges and avoid electrostatic charges, e.g. from clothing.

- Before working on electrical systems or equipment (components, housings, etc.), they must be disconnected from the power supply. Secure existing main or emergency stop switches with a lock to prevent them from being switched back on and put up a warning sign.
- There is a risk of injury from sharp-edged components that are still exposed and accessible.

5.3 Quick assembly/installation guide

Electrical connection
Observe the regulations and connection conditions of the local electricity supply company (EVU) when connecting the machine to the mains.
All work on the electrical connections may only be carried out by qualified electricians. Connect the charging station's mains cable to a socket that is suitable for the power rating.
Observe local regulations.

Step 1: Mounting the tensioning station at the start of the aisle
The floor should be concrete and not constructed as a point foundation.
Due to the subsequent tensioning of the perforated rail and the additional forces when pushing, shear forces of 30,000 N are exerted. We recommend using at least 4 M12 adhesive anchors.

Step 2: Lay out and weld the perforated rail
The perforated rail must lie straight in the aisle. The weld seams may protrude 2 mm upwards. The weld seams must not protrude downwards.

Step 3: Position the guide rail of the SmartScraper correctly aligned below the perforated rail.

Step 4: Attach the perforated rail to the end of the aisle.
Be sure to use 2 M12 adhesive dowels.

Step 5: Mount the SmartScraper on the guide rail.

Step 6: Mount the charging station on the clamping station.

Step 7: Mount the magnet in front of the charging station.

Step 8: Clamp the perforated rail.

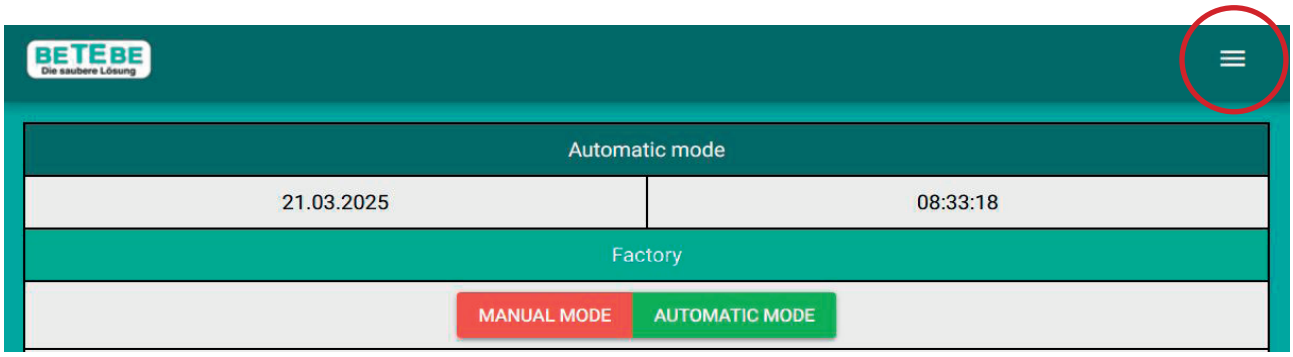
Step 9: Connect the charging station to the local power supply.

Step 10: Switch on and move the SmartScraper
It is essential to ensure that the machine does not get caught.
Pay particular attention to the weld seams of the perforated rail, the slide valves and the outer paddles.

Step 11: Set the lane length, start times, etc.

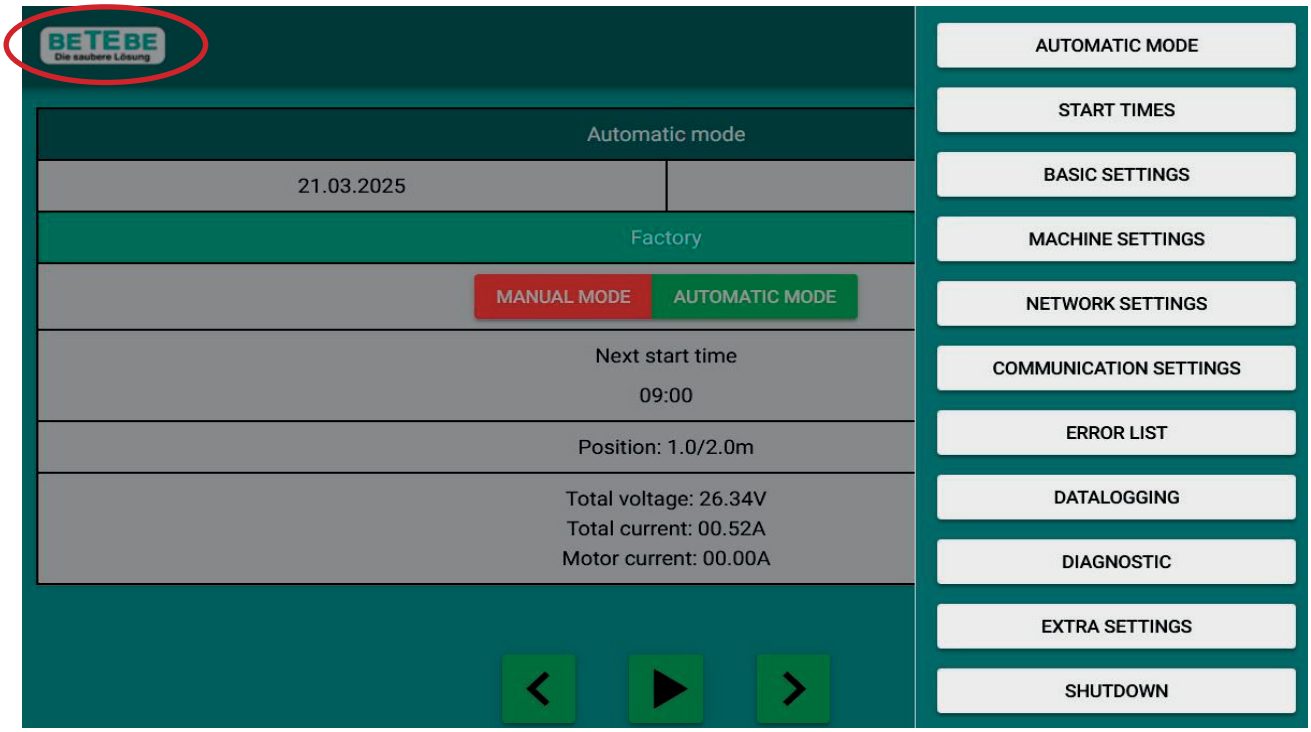
6 Control and display elements

6.1 Overview of the menu structure



Main menu: Tap the three lines (top right) to display the menu.

You can see the date, the time, the freely selectable name of the control and whether the device is in manual or automatic mode.



Menu tree: Here you can access the individual menu items.

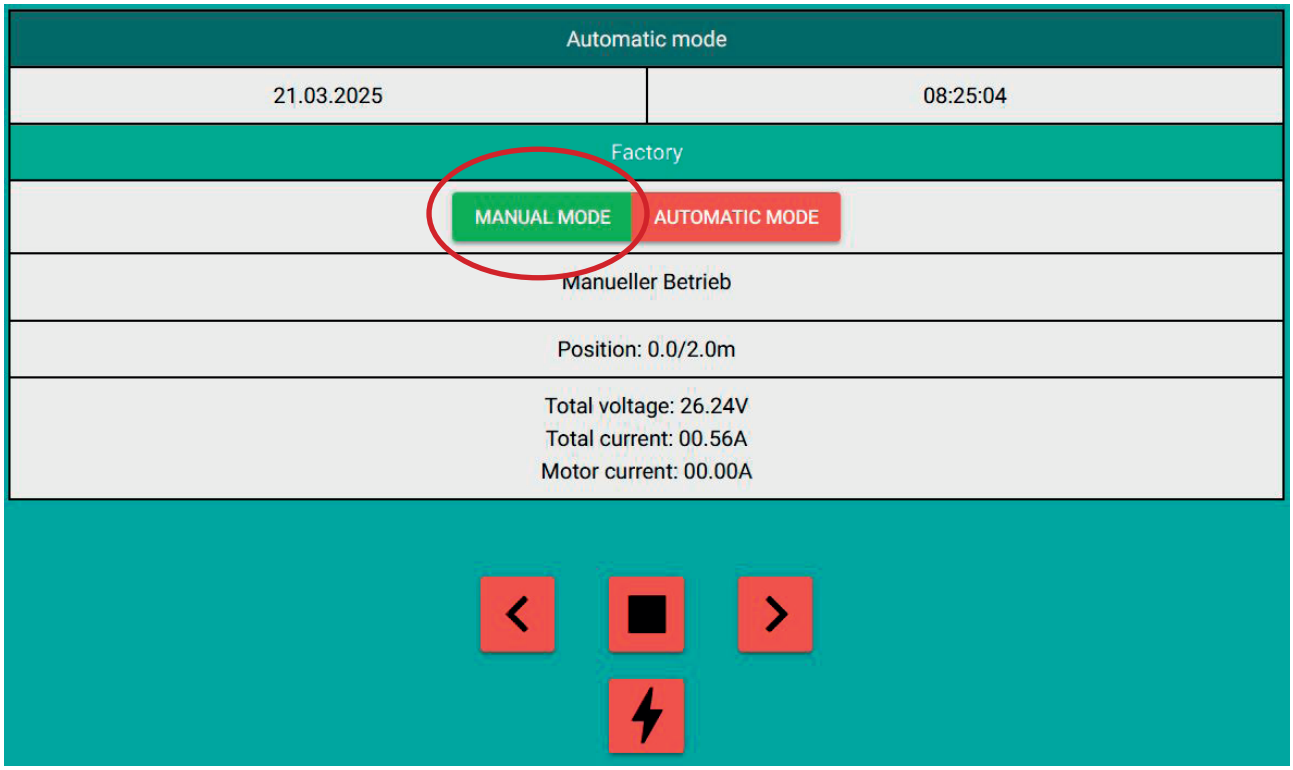
Notice!
An ⓘ symbol appears occasionally on the right-hand side of the individual settings. Clicking on it displays an information text in English.

BETEBE logo: Clicking on the BETEBE logo immediately returns the device to automatic mode.

7 Functions

7.1. automatic operation

7.1.1 Manual operation

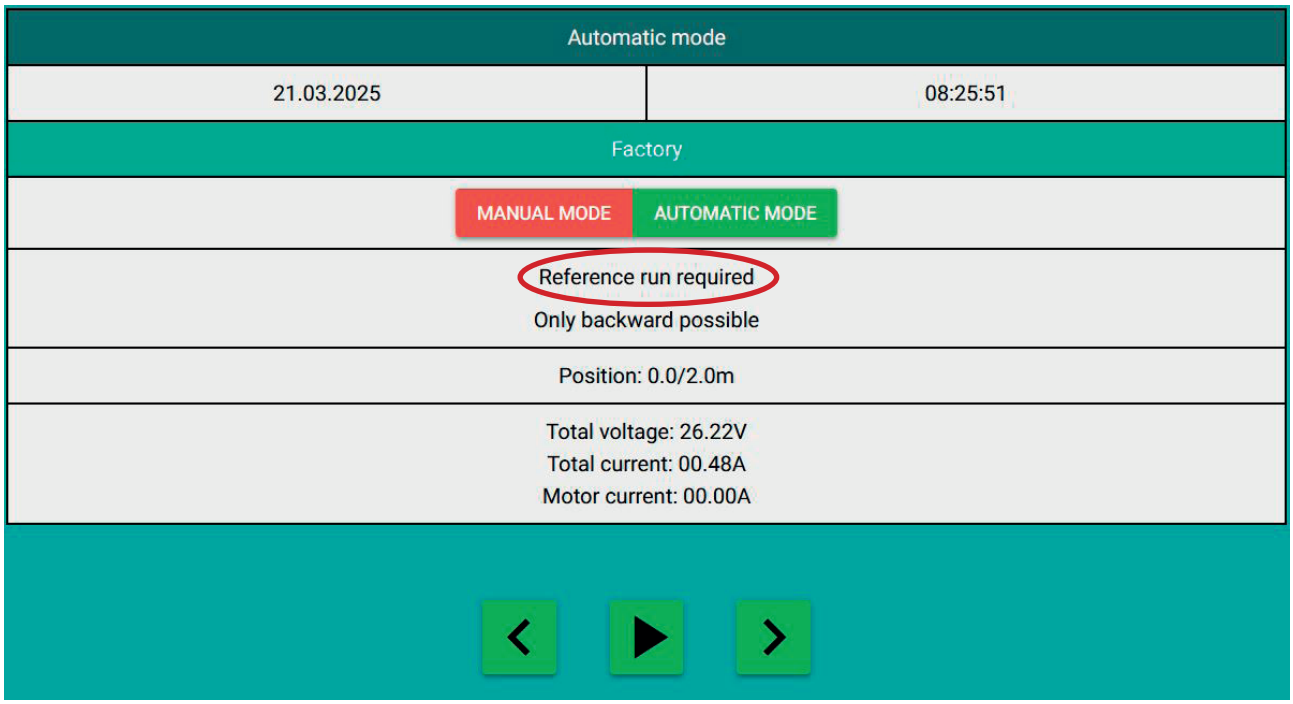


Manual mode is activated and automatic mode is deactivated.
No start time is processed and the batteries are not charged!

ATTENTION!
Do not use the robot in this mode permanently.

←: Control operates as long as pressed, direction 'Back'
■ : Any movement of the SMSC is stopped.
→: Control operates as long as pressed, direction 'Forward'
↯: Charging contact is activated (if the SMSC is at the charging station, it will be charged)

7.1.2 reference run

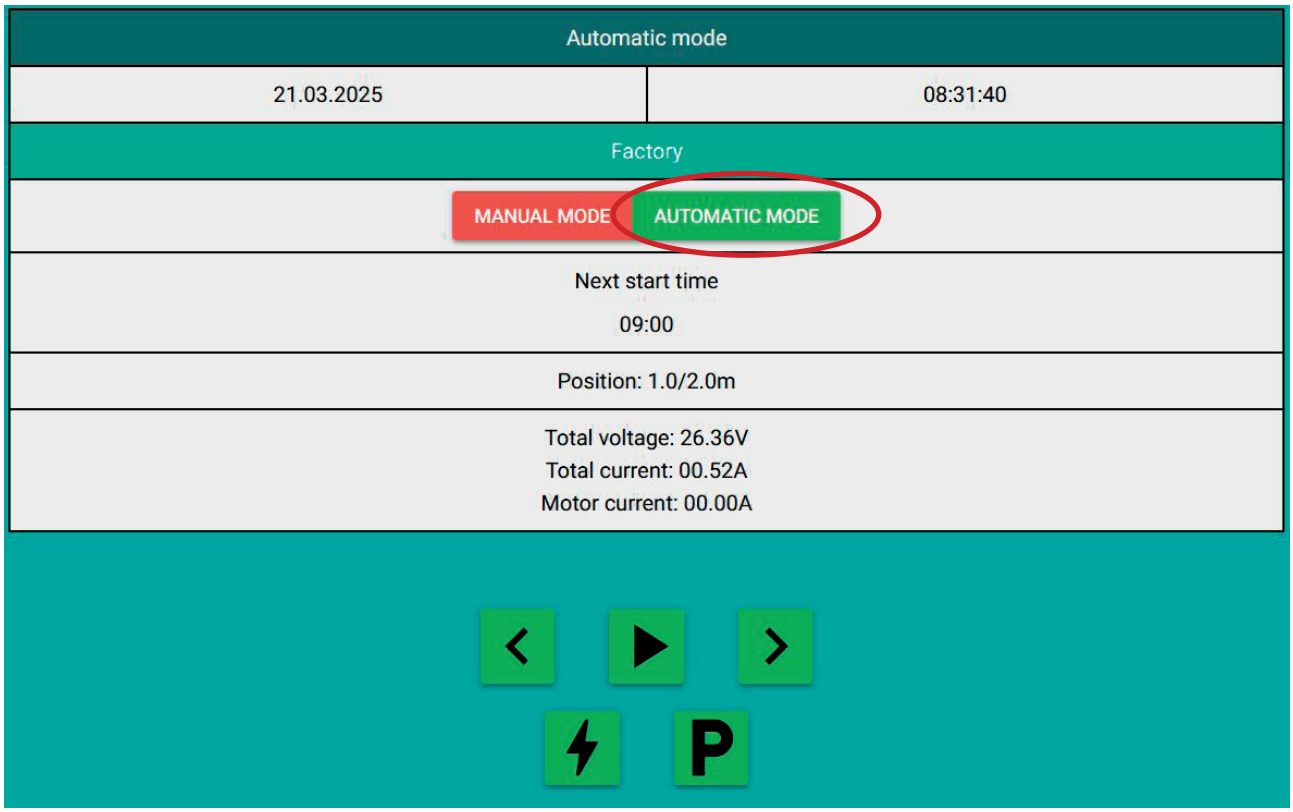


The reference run serves to define the position of the SmartScraper on the aisle and must be started manually after each restart of the machine (by pressing the middle button or the arrow keys on the side loader).

Notice!
The reference run must always be carried out in the direction of the charging station! Pay particular attention to the correct direction when using the side charging station!

Warning!
The reference run may only be carried out under supervision!

7.1.3 automatic operation



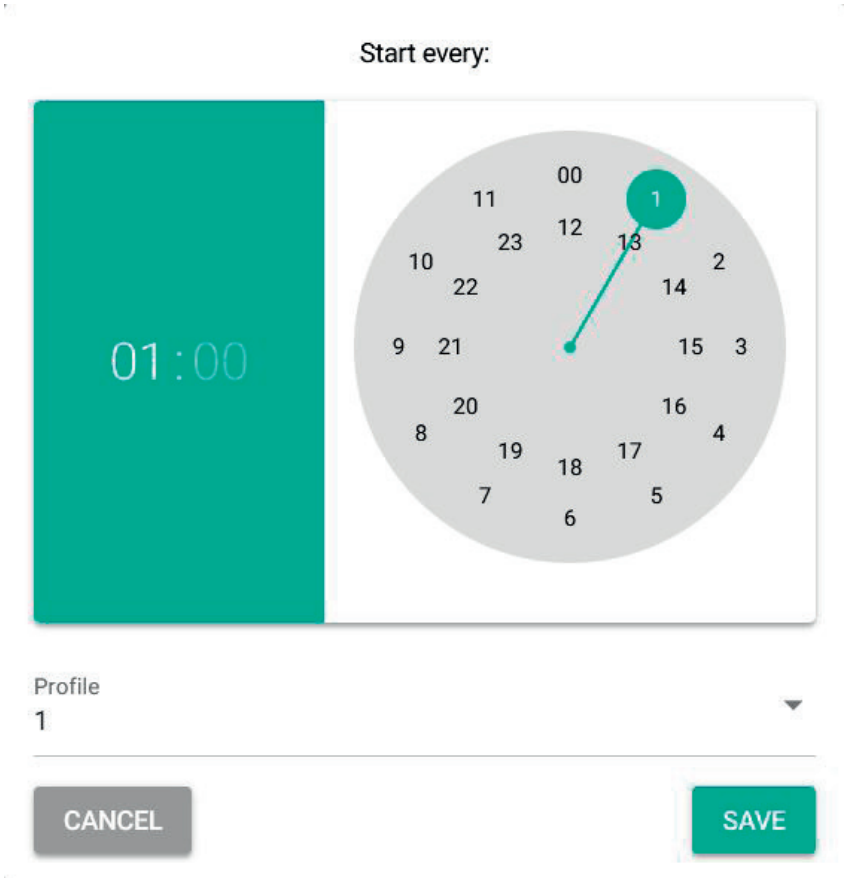
Automatic mode is activated / manual mode is deactivated.
In automatic mode, the system moves off fully automatically and also returns to the charging station automatically.
The next start time is displayed.
Using the middle button (▶) the slider manually processes a sequence.
While driving, the SMSC can be stopped using the middle button.
The arrow buttons can also be used to move the SMSC manually, but it will start moving again at the next start time.
P button: The robot moves to the parking position (see Parking position) and starts again at the next start time.
↯: SMSC automatically drives to the charging station and charges until the next start time.

7.2 starting times

The start times are linked to a profile.
The start time specifies when which profile is to be run.
The profile specifies whether sub-areas, parking positions, etc. are to be run.

Important!
Always press ‘Save’ after making changes.

7.2.1 starting times



Automatic creation of start times with profile details.
Each start time can be edited manually by clicking on it.

7.2.2 Profiles

Number of trips: How often the SMSC should clean the floor.
Sub-areas (see 7.4.3): Whether only sub-area 1 or sub-area 2 or both should be cleaned.
Move to parking position (see 7.4.4): Whether the parking position should be moved to.
Water/urease (see 7.3.3): Whether water or urease should be applied or not.

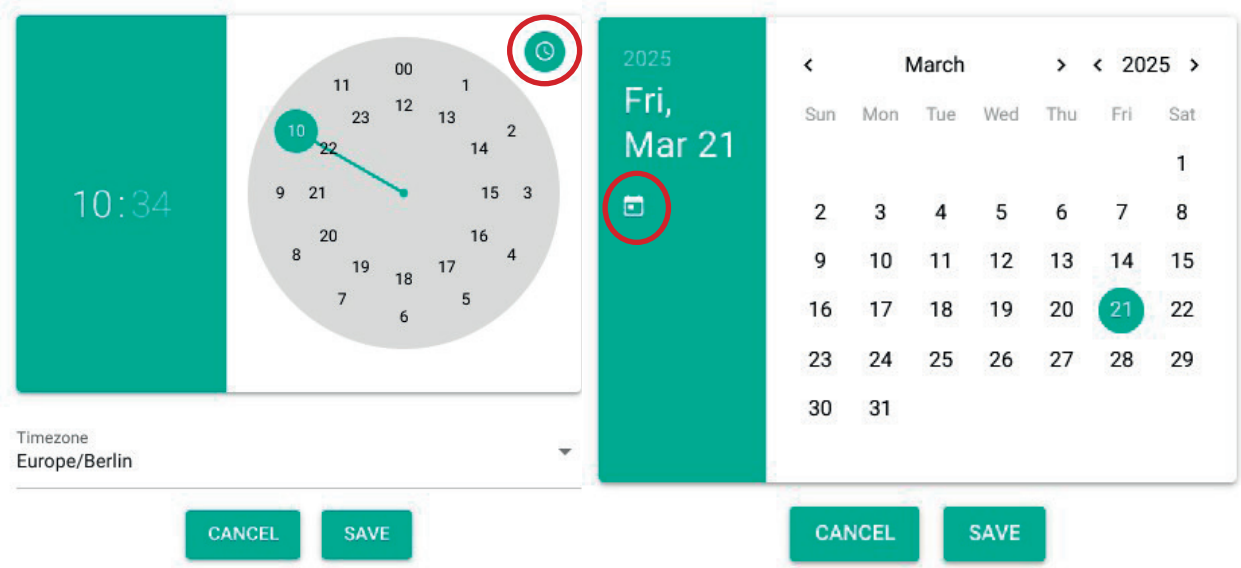
7.3 basic settings

Important!
Always press 'Save' after making changes.

7.3.1 Name, language & charging type

Name: Appears in automatic mode. Simplifies the assignment of controls
Language: German, English, Dutch, Italian and French are currently available
charging type: Rear loader or side loader (see chapter on charging stations)

7.3.2 Time & Date



Time zone can be set if necessary.
Symbol at top right: When accessing the device with a smartphone or computer, the system time is taken from the smartphone or computer.
Calendar symbol below month: System date (similar to time).

7.3.3 additional functions

Water: Activates settings and diagnostic functions for water spraying under Additional functions and Diagnostics.
Urease: Activates settings and diagnostic functions for urease spraying under Additional functions and Diagnostics.
WIFI DIO: Activates settings and diagnostic functions for the use of WIFI DIOs under Additional functions and Diagnostics.

7.3.4 Save settings to USB stick

A storage medium for transferring settings to another control system is included in the scope of delivery.
Procedure: Save settings, eject medium, remove medium, insert medium into new control system, apply settings.

7.3.5 linking

Enter a name and an internet address.
The link is visible in automatic mode.
This is useful if you have several devices and they are integrated.

7.4 system settings

Important!
Always press ‘Save’ after making changes.

7.4.1 gang length (step length)

The positions of the start of the aisle, the charging station and the end of the aisle are defined here.
The start of the aisle is always position 0. The end of the aisle is the set aisle length. The position of the charging station can only be entered for side loaders.

The position of the charging station is always where the magnet is mounted. The magnet is also the reference point that must be approached first after restarting the control system.

If the magnet cannot be mounted precisely, the position of the charging station can be offset.
The lane length can be entered manually or determined automatically by driving down the lane.

7.4.2 Thrust and speed

Speed:
Rotational speed of the drive in rpm.

Thrust force in /10A:
This value must be exceeded for the control system to respond to an obstacle.

Aggressiveness in seconds:
To prevent the control system from responding immediately to an obstacle, the thrust force must exceed the limit value for a period of time ‘>aggressiveness’.

Attempts to start up in the event of an obstacle:
The scraper should not immediately switch to fault mode if an obstacle interrupts the scraping process. The SmartScraper attempts to start up several times in the event of an obstacle.

7.4.3 sub-areas

A corridor can be divided into sections if, for example, it is not always necessary to clean the entire corridor. This can be combined with the start times.

7.4.4 Parkposition

Position at which the robot waits until the next start time.

7.5 network settings

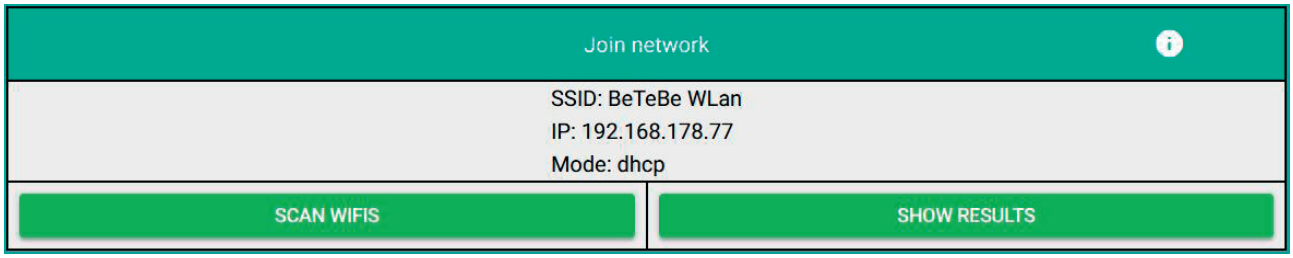
Important!
Always press ‘Save’ after making changes.

7.5.1 Open WebApp

To connect your smartphone to the control unit, you must first scan the left QR code and then the right QR code.

7.5.2 Join the network

The control unit can be integrated into a network.
First press ‘Search for WLANs’ and then ‘Show results’.
Select the desired network.
Select one of the two connection modes
Static: Enter the password, the desired static IP address, netmask, gateway and DNS.
DHCP: Enter the password..



Join networkYou will then see the name (SSID) of the network, the IP address and the connection mode of the controller.

7.5.3 Router restart

Attention!
Please only restart the router in consultation with BETEBE.

Restarts the internal router of the control unit.

7.5.4 Change IP network range

Attention!
Please only restart the router in consultation with BETEBE.

Changes the IP network range to avoid potential collisions with a home network.

7.5.5 remote access

If the SmartScraper is connected to the local WiFi network, it is possible to activate remote access to a BETEBE server. This allows an initial diagnosis to be made remotely if the system is not working properly.
The IP address of the built-in SIM card is displayed. This IP address may be requested by the BETEBE service representative.

Attention!
Only start the connection when prompted to do so by BETEBE.

7.6 communication settings

The control system can be configured to send information via the Internet. To use these services, the machine must be connected to your local Wi-Fi network. These notifications can be sent via email or push message.

Important!
Always press ‘Save’ after making changes.

7.6.1 Mail server settings

Service must be activated. Enter a recipient email address.
You can have a test message sent to you.

7.6.2 Messenger settings

Service must be activated.
To use this service, you need the third-party software 'Pushover'.
www.pushover.net
The software must be installed and configured. First, create an account.
After successfully logging in to the website www.pushover.net, you need to create an 'API token'.
If you use multiple SmartScrapers, you should create a separate API token for each machine. This will make it easier to sort incoming notifications later.
Enter your user key and an API token.
You can have a test message sent to you.

7.7 error list

A list of all errors. Useful menu item for starting troubleshooting.
The date, time, direction of travel, position in metres and a description of the error are logged.
The list can be downloaded as a CSV file.
The following errors may occur:

error	
Crushsensor was activated	
Motorcurrent over limit	
Charging station not reached	
Voltage under critical limit. Controller will shutdown now	
Voltage under limit. Return to charging station	
Voltage under limit. Ignore starttime	
Unable to charge	
Tank empty	
Tretmist. Startpoint not reached	
DMB not reachable	
DMB failure	
Refuel with Water not successful	
Refuel with Urease not successful	
Pump not working. Can´t refuel with Urease	

7.8 Datalogging

Each start time is recorded in a list. A list contains all trips from a month.
The day, start time, duration, whether water or urease is applied, and whether there was an error are logged. Different months can be selected and downloaded as a CSV file. This is useful for providing proof of cleaning.

7.9 diagnostic functions

Used to check the sensors.

7.9.1 Sensors

Magnetsensor: Required for referencing
hood switch: Normally closed contact (displays a '1' when not activated)
level sensors for filling levels:
Only displayed when water is activated.
Temperature: Wird nur angezeigt, wenn Wasser aktiviert ist. Ab 3°C aktiviert sich der Winterbetrieb und der Wassertank wird zum Frostschutz geleert.

7.9.2 actuators

Charging relay button: Pressing the button activates the charging relay.

Warning!
Pressing the button applies the voltage from the batteries to the charging contacts!

chargingcontact: Check that the charging fuse is working properly. If the charging relay is activated but the charging contact remains at '0', the fuse is defective.

7.9.3 Tasten

Home button (control): Used to check the Home button on the control panel
Pause button (control): Used to check the pause button on the control panel
Forward button: Used to check the forward button on the left-hand slider
Taste Pause: Used to check the pause button on the slider on the left
Back button: Used to check the reverse button on the left-hand slider

7.9.4 Water

Pump button:	Pressing the button activates the pump.
Flow:	The flow rate is between 8-10 Hz.
Electricity:	The pump flow is measured.
No Water:	If the flow sensor does not measure any flow, the control counts 20 seconds and then switches off the pump for protection. Afterwards, the time must be reset, otherwise the pump will not start again.

7.9.5 Urease

'Prepare urease' button:	Sends the signal 'Prepare urease' to the DMB.
'Robot docked' button:	Sends the signal 'Robot docked' to the DMB
Refuelling complete:	Receives the signal 'Refuelling completed' from the DMB
malfunction:	Receives the fault signal from the DMB

7.9.6 WiFi DIO

Button Channel 0:	Switches the output of Channel 0
Input Channel 0:	Receives the signal from input channel 0
Button Channel 1:	Switches the output of Channel 1
Input Channel 1:	Receives the signal from input channel 1

7.9.7 Systeminformations

The following information is displayed here:
Serial number of the control unit
Software version of the mainboard
Software version of the computer
Operating system version of the computer
Firmware version of the router

7.9.8 operating hours

The operating hours are displayed here.

7.10 additional settings

Important!
Always press 'Save' after making changes.

7.10.1 tread manure

This is where the treadmill function is activated or deactivated and the area is set. An adjustable area in which the robot does not go into fault mode during the pushing process, but interrupts the pushing process at this point and then reverses.

7.10.2 Database

A database runs continuously in the background and records all relevant data locally for one year. If problems arise with the SMSC, the database is a great help in troubleshooting. The database can be deactivated or deleted entirely.

Note
The data logging records cannot be accessed directly on the device. This is only possible via BETEBE.

7.10.3 Water

Settings for spraying water or urease:
Pump variant: The correct pump must be set.
Caution! Only change in consultation with BETEBE.
Pump speed: The amount of water or urease applied can be varied by adjusting the pump speed.
Filling station position: Position that the SMSC drives to for refuelling.

Note!
Winter mode can be disabled here.

7.10.4 Urease

Settings for spraying urease.
Sets the IP address of the DMB unit and the number of the robot on the DMB unit.

7.10.5 WIFI DIO

Settings for external potential-free contacts.
Specifies in which direction, at which position and for how long the contacts should switch.

8 connections

Warning!
All electrical work and connections must be carried out by a qualified electrician!
Any interference with electrical systems by untrained persons is prohibited and can be fatal!
The applicable local regulations must be observed at all times!

9 maintenance

If necessary, please contact an authorised dealer/manufacturer.

9.1 Special personnel qualifications for maintenance

Maintenance work may only be carried out by qualified personnel in compliance with the safety instructions. See also chapter: Personnel Qualification

9.2 Safety instructions for maintenance

To avoid property damage and/or life-threatening injuries to people, please observe the following:

Warning!
During repairs or maintenance work, the system must be de-energized and secured against being switched back on!

Warning!
Use only genuine spare parts / genuine wear parts / genuine accessories.
The manufacturer accepts no liability for damage to persons, animals, or products resulting from the use of third-party products.

- All maintenance steps must be carried out in the specified order.
- The maintenance work prescribed in the manual must be carried out on time.
- All warning notices and warning labels must still be present and legible.
- Replace all defective components immediately.
- The maintenance work area and access to the work area must be secured.
- No unauthorized persons may be present in the work area.
- There is an increased risk of injury if the device is operated manually without safety equipment.
- Incorrectly wired connections can destroy the electrical/electronic components.
- Only touch circuit boards by the edges and avoid electrostatic discharge (e.g., from clothing). Electrostatic discharge can damage electrical/electronic components.

9.3 Clean the area at the beginning and end of the corridor.

The area at the end and beginning of the aisle must be regularly cleared of bedding material. Especially below the perforated rail, the bedding material becomes compressed, which can prevent the scraper from reaching its end positions or the charging point.

The area below the slotted rail and between the slotted rail and the magnetic holder is clogged and must be cleared.

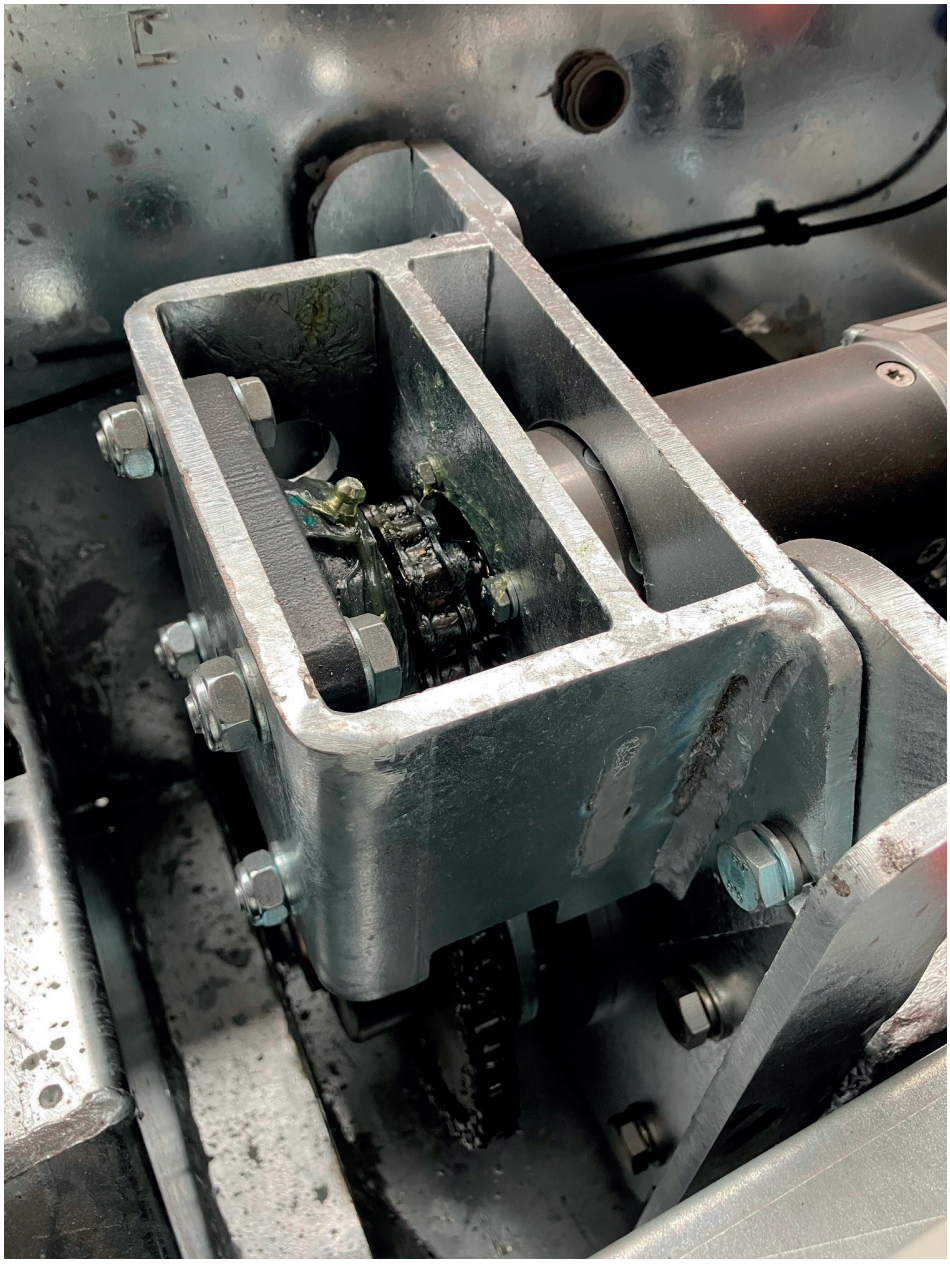
In these two images, the critical area is clean again, thus eliminating a cause of the malfunction.

9.4 Cleaning the charging contacts

The charging contacts on the machine and on the charging station must be cleaned regularly with a wire brush.

9.5 greasing the bearings

The bearing needs to be regreased regularly every 4 weeks.
The chain also needs to be tensioned and greased regularly every 4 weeks.



10 Decommissioning

10.1 Safety instructions for decommissioning

To avoid property damage and/or life-threatening injuries to people, please observe the following:

- All work steps must be carried out in the specified order.
- First, secure the work area for decommissioning.
- Ensure environmentally sound disposal of the equipment.

Note
For more information on this topic, see the chapter:
Safety
Read and follow the instructions carefully.

10.2 Specific hazards during decommissioning

- Spilled lubricants, solvents, and preservatives can cause burns upon direct skin contact.
- Improperly stored components can fall or tip over.
- There is a risk of injury from exposed, sharp-edged components/tools/…

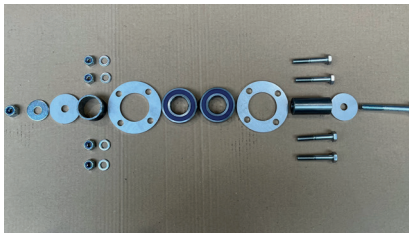
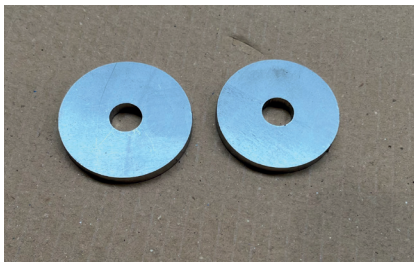
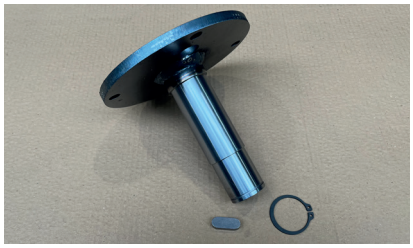
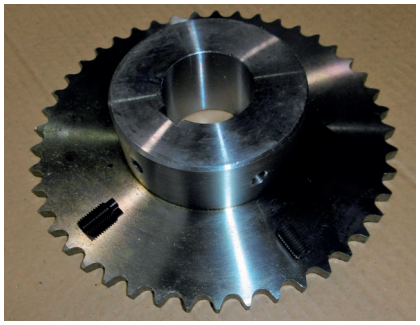
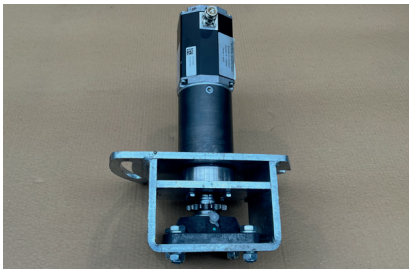
10.3 Decommissioning

Before dismantling the system correctly and safely, the following steps must be observed:

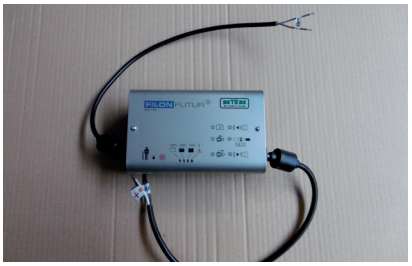
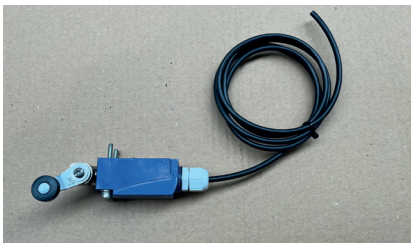
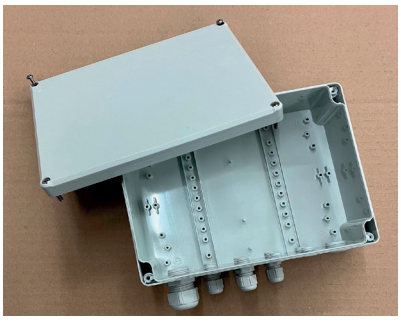
- Disconnect the entire system from the power supply.
- Disconnect the power supply lines.
- Disconnect all cables.
- Dismantle the frost protection device.

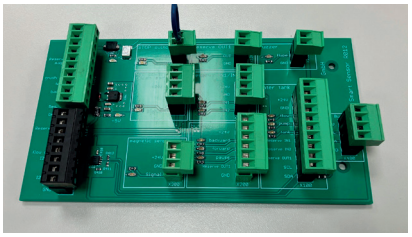
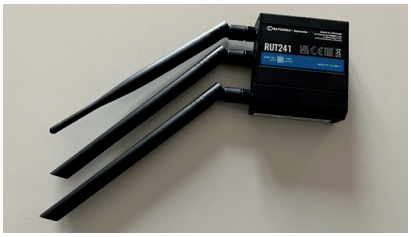
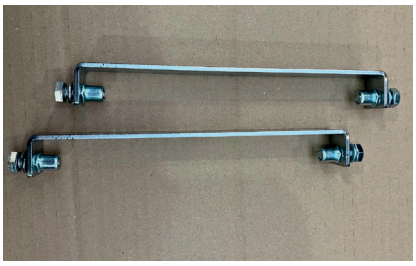
After decommissioning, handle all components properly and dispose of them correctly in accordance with applicable local regulations for waste disposal and recycling.

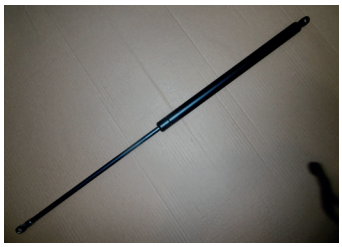
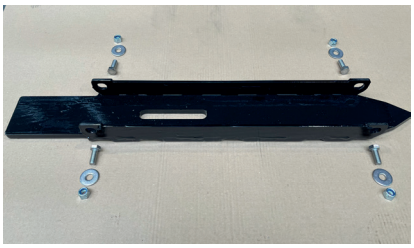
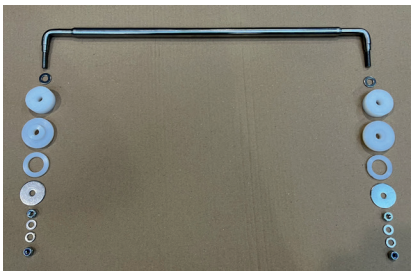
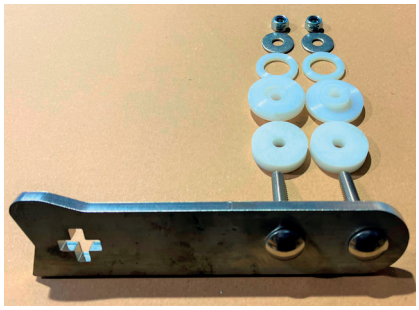
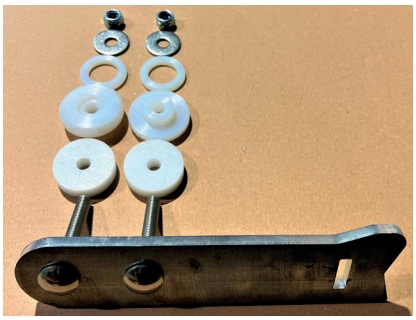
11 spare parts

 SMSC-3110	 SMSC-3150	 SMSC-3250
 SMSC-1300	 SMSC-3270	 SMSC-3280
 SMSC-3290	 SMSC-3300	 SMSC-3310
 SMSC-3315	 SMSC-3320	 SMSC-3321
 SMSC-3400	 SMSC-3410	 SMSC-3420

 SMSC-3430	 SMSC-3120	

 SMSC-2100	 SMSC-5040	 SMSC-5101
 SMSC-5210	 SMSC-5220	 SMSC-5010
 SMSC-5045	 SMSC-5105	 SMSC-5200

		
SMSC-5201	SMSC-5225	SMSC-5012
		
	SMSC-1410	SMSC-1530

		
SMSC-1130	SMSC-1340	SMSC-1352
		
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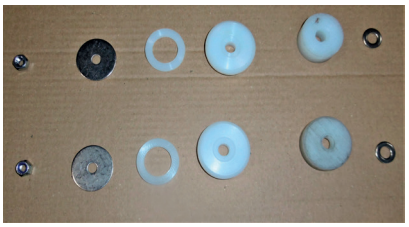
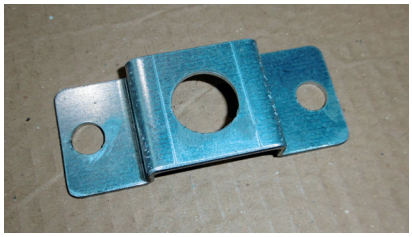
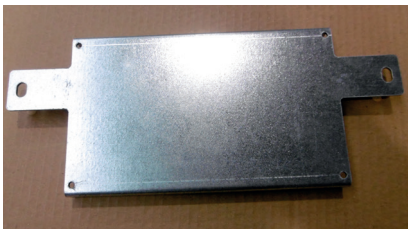
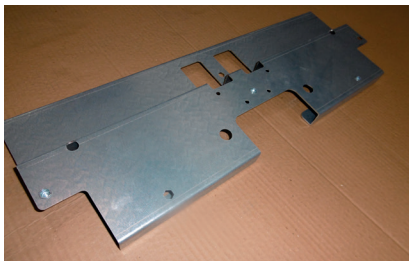
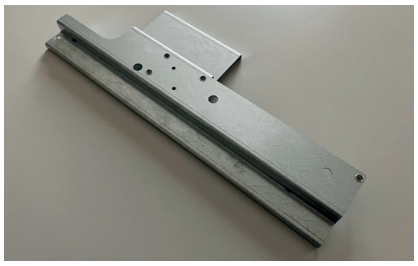
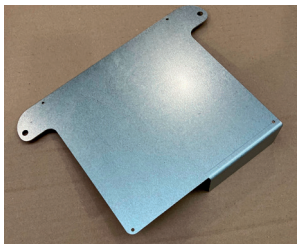
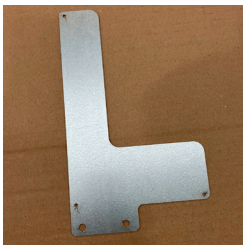
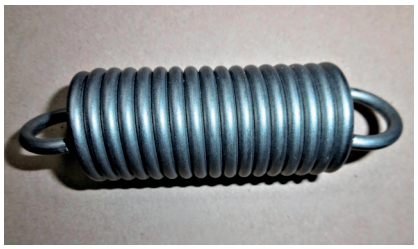
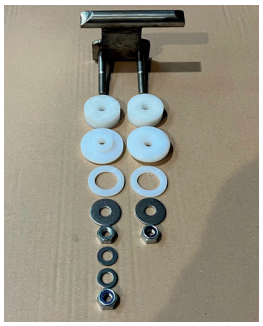
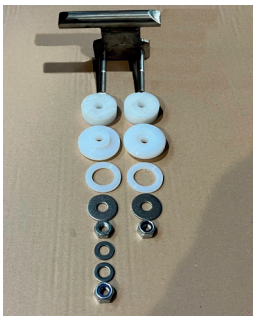
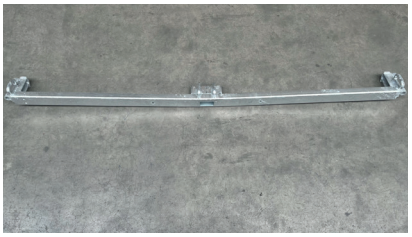
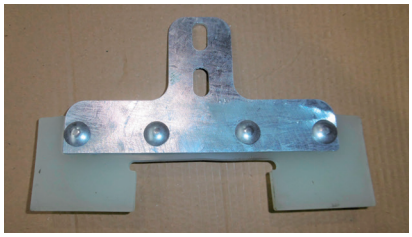
 SMSC-1380	 SMSC-1540	 SMSC-1420
 SMSC-1510	 SMSC-1520	 SMSC-1525
 SMSC-1515	 SMSC-1545	 SMSC-1710
 SMSC-1720	 SMSC-1800	 SMSC-1850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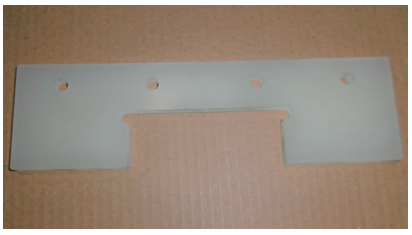		
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	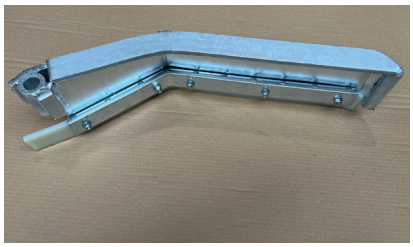	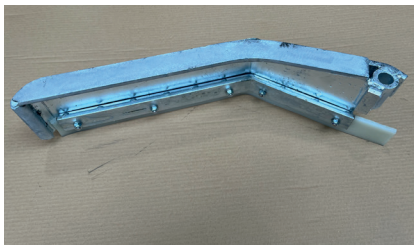
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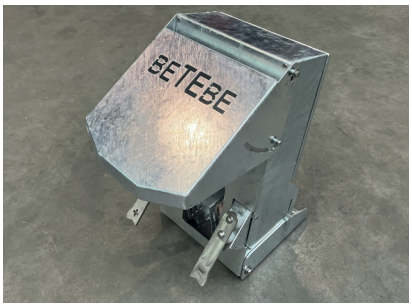
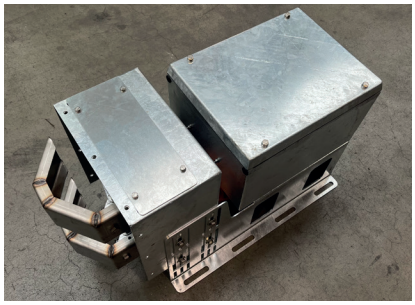
KES-1385		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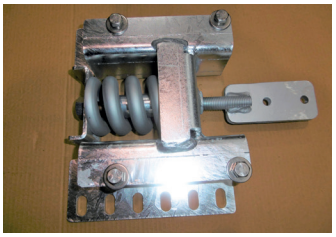		
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	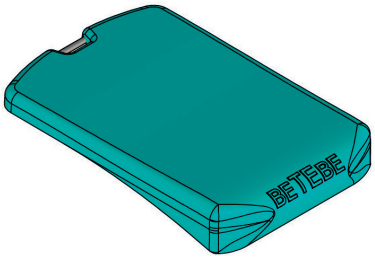	
SMSC-1050	SMSC-1055	

12 Certificate of instruction

SmartScraper – Operation/Maintenance/Repair

operator	
Installation location	
Person authorized to give instructions	
skilled worker	
Expert	
employee	
employee	
employee	
employee	
employee	
employee	

Date:

.....
Signature of the instructor

13 Notes

14 Attachments to this document

- Declaration of Conformity
- Circuit Diagram

13 EG-Declaration of Conformity

Warranty certificate

Serial Number SmartScraper/Control: _____/_____

Charging station serial number: _____

Delivery date: _____

EG-Declaration of Conformity

(gem. Maschinenrichtlinie 2006/42/EG, Anhang II A)

We hereby confirm that the machine described below, due to its design and construction, as well as in the version we have placed on the market, complies with the provisions of the marked directives - including any amendments thereto applicable at the time of this declaration.

Manufacturer:	**BETEBE** GmbH / Max-Planck-Str. 21 / 48691 Vreden / Germany
Description of machine:	manure removal system
Function:	Mucking out stables
Typ/Modell:	SMSC
SerialNr.:	
Year of construction:	

Applicable guidelines, standards, and specifications:

1. EC Directives• Machinery Directive 2006/42/EG

(The protection objectives of the Low Voltage Directive 2006/95/EC were complied with in accordance with Annex I, No. 1.5.1 of the Machinery Directive 2006/42/EC.)

2. Applied harmonized standards, in particular:

(A complete list of the applied standards can be found in the risk assessment documentation)

- DIN EN ISO 12100 Machine safety; general design principles; risk assessment and risk reduction
- DIN EN ISO 13857 Machine safety; safety distances to prevent reaching danger points with upper and lower limbs
- DIN EN 60204-1 Safety of machinery - Electrical equipment of machines, Part 1: General requirements

Vreden, 30.11.2023
(Location and date of the exhibition)

BETEBE GmbH
Max-Planck-Str.21

D-48691 Vreden
Ralf Bennink
Authorized representative for technical documentation

Managing Director

BETEBE

Die saubere Lösung

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Max-Planck-Str. 21
48691 Vreden

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Tel.: 0 25 64 / 95 00 29