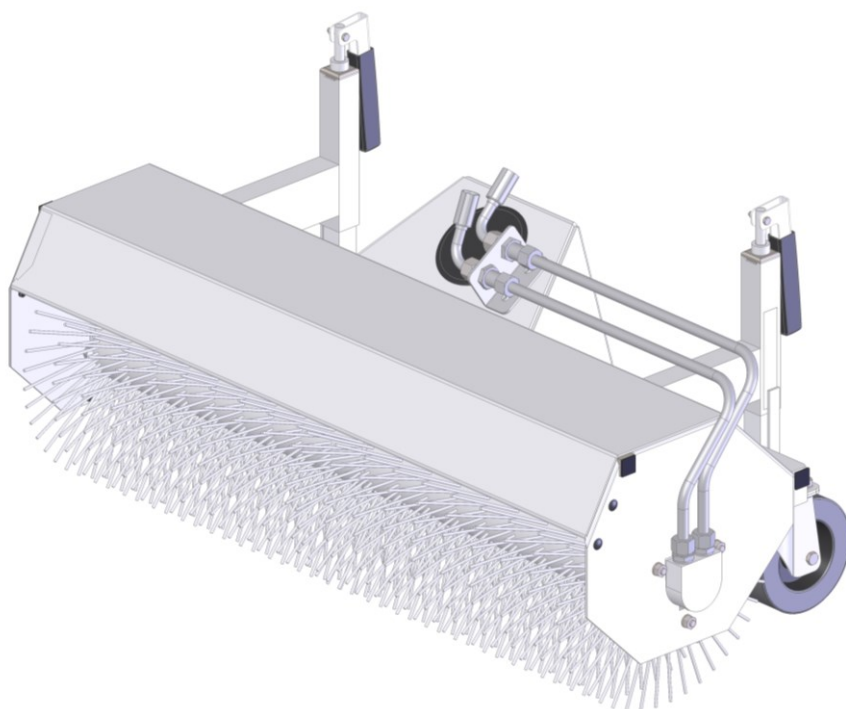




Original operating instructions

Front sweeper
EFKM 32 / EFKM 37



Order number: B00029 | from machine no.

| Rev: R02 | Status: 03.2024

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1 Introduction

Dear Customer,

Thank you for choosing a quality product from Kersten.

This product was manufactured using the most modern manufacturing processes and extensive quality assurance measures, because our goal is only achieved when you are satisfied with your device.

Before using this machine or attachment for the first time, please read this operating manual completely and carefully.

If you do not understand any information in this safety data sheet or the product-specific installation or operating instructions, please contact your sales representative or the machine manufacturer directly.

Please keep this manual handy so that you can refer to it for important information and instructions when required.

We hope you enjoy your Kersten device



Dipl.-Ing. (FH) Robert Bosch

2 About this manual

The machine or the attachment is subject to technical progress. All information, illustrations and technical details are current at the time of publication. The manufacturer reserves the right to make changes in the interests of technical progress at any time.

Therefore, no claims can be derived from the information and illustrations in this booklet.

2.1 Before commissioning



Since self-propelled work equipment and attachments can pose a significant risk of accidents and dangers if not used properly, it is essential that you receive instruction from qualified and authorized personnel when using the Kersten work equipment for the first time. The best way to familiarize yourself with its basic functions and handling is to choose a clear, level area for your first trip.

- **This will reduce the risk of accidents for you or others!**

For further information or in case of any difficulties, please contact the dealer, importer or the manufacturer directly.

- **Be sure to read the safety instructions on the following pages!**
- **Please read the operating instructions before use!**
- **Please pass on all safety instructions to other users!**

2.2 Notes on this manual

- On counts are marked with eye-catching points.

Example:

- text
- text

- Instructions are marked according to the order in which they are to be carried out.

Example:

1. Text
2. Text

3 Safety instructions for attachments

The most important safety instructions in this manual cannot cover all possibilities. It goes without saying that common sense and caution are factors that are not built into a machine, but must be brought by the person who uses and maintains the machine.

To keep the risk of accidents as low as possible, please note the following subsections.

3.1 Intended use



- The sweeper is designed for the usual or common use in the area of area maintenance for sweeping on paved areas, sidewalks and facilities
- Any use beyond this is considered improper. The manufacturer is not liable for any resulting damage; the operator alone bears the risk.
- Proper use also includes compliance with the operating, maintenance and servicing conditions specified by the manufacturer.
- The sweeper may only be used, maintained and repaired by persons who are familiar with it and are informed of the dangers.
- The relevant accident prevention regulations as well as other generally accepted safety and occupational health rules must be observed.
- Unauthorized modifications to the machine will result in the manufacturer being exempt from liability for any resulting damage.

3.2 General safety and accident prevention regulations

3.2.1 Basic rules



- In addition to the information in this operating manual, please observe the generally applicable safety and accident prevention regulations!
- The tool must not be operated by persons under 16 years of age, even under adult supervision! Children and young people should be instructed not to play with it.
- Only trained personnel or persons may use this machine!
- When using public transport, please observe the relevant regulations!
- The user's clothing should fit tightly. Avoid loose clothing and wear sturdy shoes or safety shoes!
- Only work in good visibility and lighting conditions!
- The warning and information signs provided provide important information for safe operation; observance is for your own safety!
- Be careful with rotating tools! Keep a safe distance!
- Be careful with tools that trail behind. Before working on them, wait until they have come to a complete stop!
- There are crushing and shearing points on driven parts!
- Driving behavior, steering and braking ability, as well as tipping behavior are influenced by attached or coupled equipment and load. For this reason, only attachments approved by the manufacturer may be used. The working speed must be adapted to the respective conditions.
- Unauthorized modifications that endanger the operational safety of the machine are prohibited!
- Before each use, check the machine for operational safety!
- Never remove or modify protective devices!
- Never go under the unsecured device for repairs or inspection!

3.2.2 Working and danger area



- The user is responsible to third parties in the work area!
- It is forbidden to stay in the danger zone of the machine!
- Before switching on the machine and starting off, check the immediate area. Pay particular attention to children and animals. Make sure you have sufficient visibility!
- Before starting work, foreign objects must be removed from the surface to be treated. During work, watch for other foreign objects and remove them in good time.
- When working in enclosed areas, the safety distance from the edge must be maintained to avoid damaging the machine or brushes.
- When working in the immediate vicinity of public roads and paths, these should be approached lengthways rather than across them, as this will minimise the risk of injury to third parties from objects falling out.
- When working on public roads and squares or in their immediate vicinity, information and danger signs must be put up to attract the attention of third parties.

3.2.3 Before starting work



- Before starting work, please familiarize yourself with all the equipment and operating elements and their function and ensure that all protective devices are properly installed and in the protective position. It is too late to do this during work!

3.2.4 During operation



- Never leave the control station while driving!
- Do not leave the operating position until the sweeping roller has come to a standstill!
- Do not make any adjustments to the sweeper during operation – risk of accident!
- The transport of persons and objects is prohibited!
- If the sweeper attachment has caught a foreign object and is blocked, for example, the engine must be switched off and the sweeper attachment cleaned using a suitable tool! Always switch off the engine and remove the spark plug connector when working on or cleaning the attachment! Please observe the safety instructions for the self-propelled device.
- If the self-propelled implement is damaged, switch off the engine immediately and have the damage repaired.

3.2.5 Leaving the machine

- By using wheel chocks, the machine is secured against rolling away when leaving.
- Secure the device against unauthorized use!
- Never leave the device unattended while it is in operation!

3.2.6 Screw connections and tires



- When working on the wheels, make sure that the device is parked safely and secured against rolling away!
- Check nuts and bolts regularly to ensure they are tight and tighten if necessary.
- Repair work on the tires may only be carried out by specialists and with suitable assembly tools!
- If the tire pressure is too high there is a risk of explosion!
- Check the air pressure regularly.

3.2.7 Coupling and uncoupling of attachments



- Only couple and uncouple attachments when the engine and power take-off are switched off.
- When changing attachments and their parts, use suitable tools and wear gloves.
- When assembling and dismantling, place the necessary support devices in the appropriate position and ensure sufficient stability.
- Secure the self-propelled work machine and attachment against rolling away (wheel chocks).
- There is a risk of injury (crushing) when coupling attachments. Particular caution is required.
- Couple attachments correctly and secure them in the prescribed places.

3.2.8 Maintenance, cleaning and repair work



- Only carry out maintenance and cleaning work when the drive is switched off and the engine is stopped!
- If protective devices and work tools are subject to wear, they must be checked regularly and replaced if necessary.
- Only use original spare parts from the manufacturer, as these meet the technical requirements and thus minimize the risk of accidents!
- Cleaning work with the high-pressure cleaner should be carried out in such a way that the water jet is not directed directly at bearings, rotating parts, grease nipples, shaft seals, wheel hubs, etc. After each cleaning with the high-pressure cleaner, the lubrication points must be re-greased. Failure to do so will void the warranty!
- Check that the moving parts move smoothly and re-grease if necessary!
- After maintenance and cleaning work, be sure to reinstall the protective devices and put them into the protective position!
- To avoid the risk of fire, keep the machine clean!
- Check nuts and bolts regularly to ensure they are tight and tighten if necessary.
- When carrying out maintenance, cleaning and repair work on the raised device, always ensure that it is secured using suitable support elements!



- Before carrying out repair work, ensure that the hydraulic system is depressurized, as fluids under pressure can penetrate the skin and cause serious injuries! Therefore, seek medical attention immediately - risk of infection!
- Repairs may only be carried out by qualified personnel.
- Check hydraulic hose lines at regular intervals for damage and aging and replace if necessary.
- When carrying out welding work on the tractor or the attached device, disconnect the battery.
- Repair work such as welding, grinding, drilling, etc. must not be carried out on the load-bearing and other safety-related parts such as frames, axles, etc.!

3.3 Pictograms used

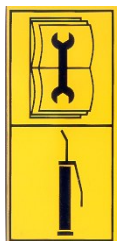
Explanation of the pictograms used:



Before commissioning, read and observe the operating instructions and safety information.



Never open or remove protective devices when the engine is running!



Observe instructions in the technical manual. Lubrication point!



Only touch machine parts when they have come to a complete standstill.



Danger from flying parts when the engine is running – keep a safe distance!

4 Disposal

The devices must be disposed of in accordance with the applicable municipal, city or country regulations.

Depending on the material, you can dispose of the parts as residual waste, hazardous waste or for recycling. Kersten Arealmaschinen GmbH does not take responsibility for disposal.

5 Guarantee

A sales notice is included with the device, which, among other things, determines the start date of the guarantee period. If you sell the device, please fill out the sales notice completely and send it back to us within 14 days. If guarantee claims are made without us having received a sales notice, the guarantee will not be processed.

Warranty claims should be submitted immediately, but no later than six weeks after the damage occurs, stating the purchase details, otherwise the warranty will not be processed. Complaints must be confirmed by Kersten Arealmaschinen GmbH. Wear parts are excluded from the warranty. Furthermore, the warranty is void if the machine is used improperly, if no or incorrect maintenance work is carried out, if unauthorized operating materials are used and if non-original spare parts are used.

6 Recommendations

6.1 Lubricants

For "open" lubrication points or nipple points we recommend **Bio-lubricating oil** or **Bio-grease**. By using bio-lubricants you are acting ecologically correctly, protecting the environment and promoting the health of people, animals and plants.

6.2 Maintenance and repair

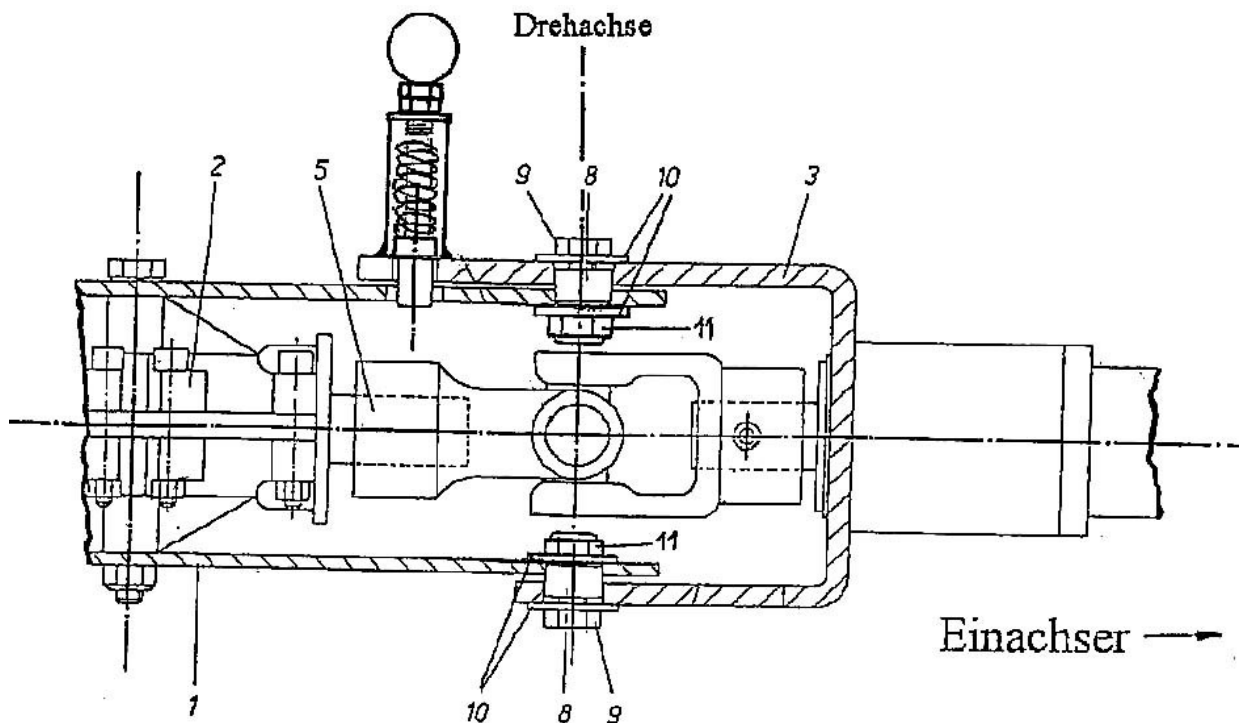
Your dealer has trained mechanics who carry out professional maintenance and repairs. You should only carry out major maintenance and repairs yourself if you have the appropriate tools and knowledge of machines and combustion engines.

7 Assembly

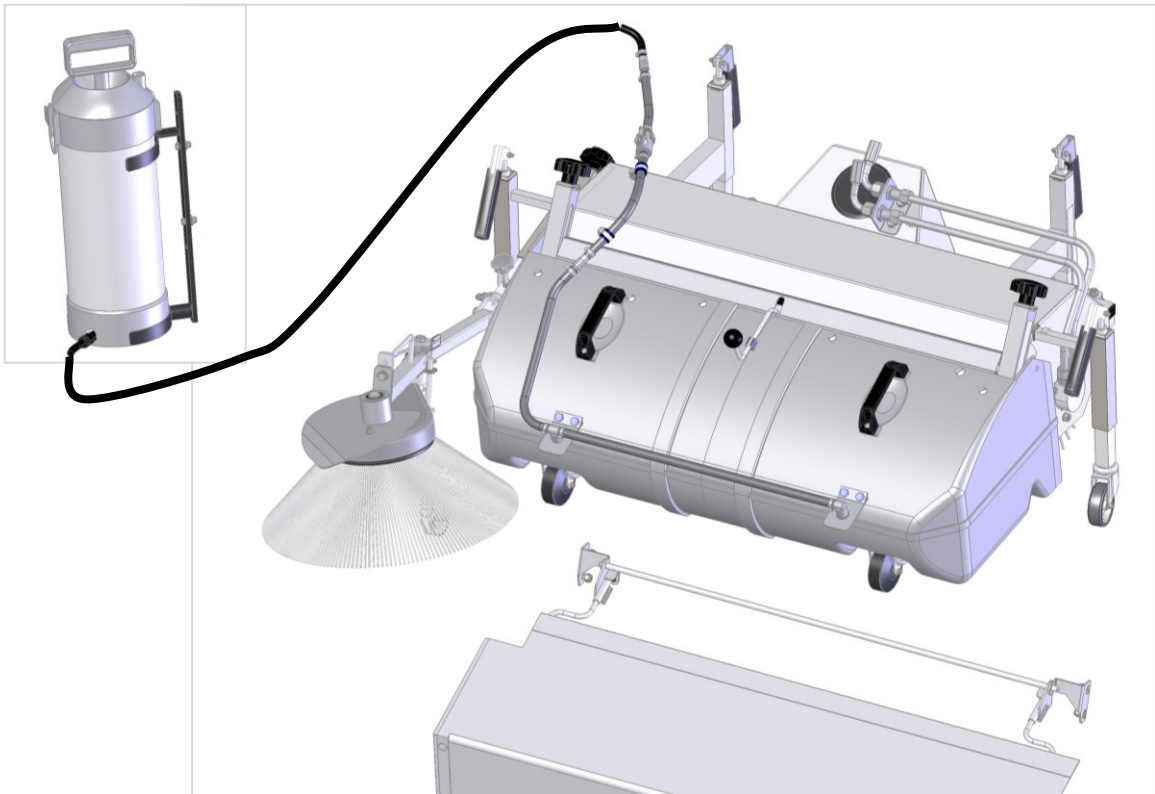
7.1 Installation instructions for the sweeper connection

Switch off the single-axle vehicle and remove the ignition key before assembling or disassembling the attachment sweeper.

1. Slide the mount (3) with pre-assembled universal joint onto the gearbox holder (1) the sweeper.
2. If necessary, loosen the gear box to make it easier to mount the holder (3).
3. Make sure that the gear shaft and the universal joint groove match.
4. The two supplied 13.5 mm long bushings in the holes of the gearbox holder (1) until it stops.
5. Now mount the supplied screw M10 x 35mm on the top, Body washer, bushing, body washer and lock nut.
6. Likewise on the underside of the mount.
7. The universal joint (5) must not be fixed on the gearbox side, otherwise a Swiveling the sweeper is not possible.
- 8th. Now attach the mount to the single-axle vehicle.

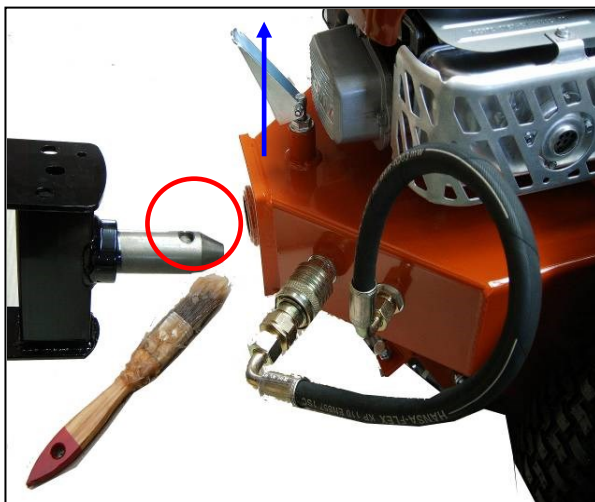


7.2 Mounting attachments



Before mounting or dismantling the attachment, switch off the drive unit and remove the spark plug connector.

The mounting bushing and the mounting tube must be clean and freshly greased.



- Pull up the locking bolt.
- Insert the receiving tube into the
Slide onto the base unit's receiving socket.
- Then engage the locking bolt.
- Now insert the two hydraulic hoses.
- To dismantle, follow the steps in reverse order make.

Fig.1

When removing the attachment, the hydraulic lock **put on circulation**, to protect the hydraulic locks from contamination (see Fig. 1).

7.3 Installation of dirt collection container

Screw the two guide rails onto the front right and left sides of the sweeper base housing using two screws and nuts each.

Tilt the container locking lever upwards. Hook the locking rod into the two guide rails on the right and left of the base housing. Fold the locking lever downwards and place it in the rod holder (Fig. 2).

Use the rotary handles on the two guide rails to bring the collection container to an even distance of 4 cm from the ground, paying attention to the scale! Depending on the wear and tear on the sweeping roller, the dirt collection container must be adjusted.

Danger: Never lift the sweeper with a full container!

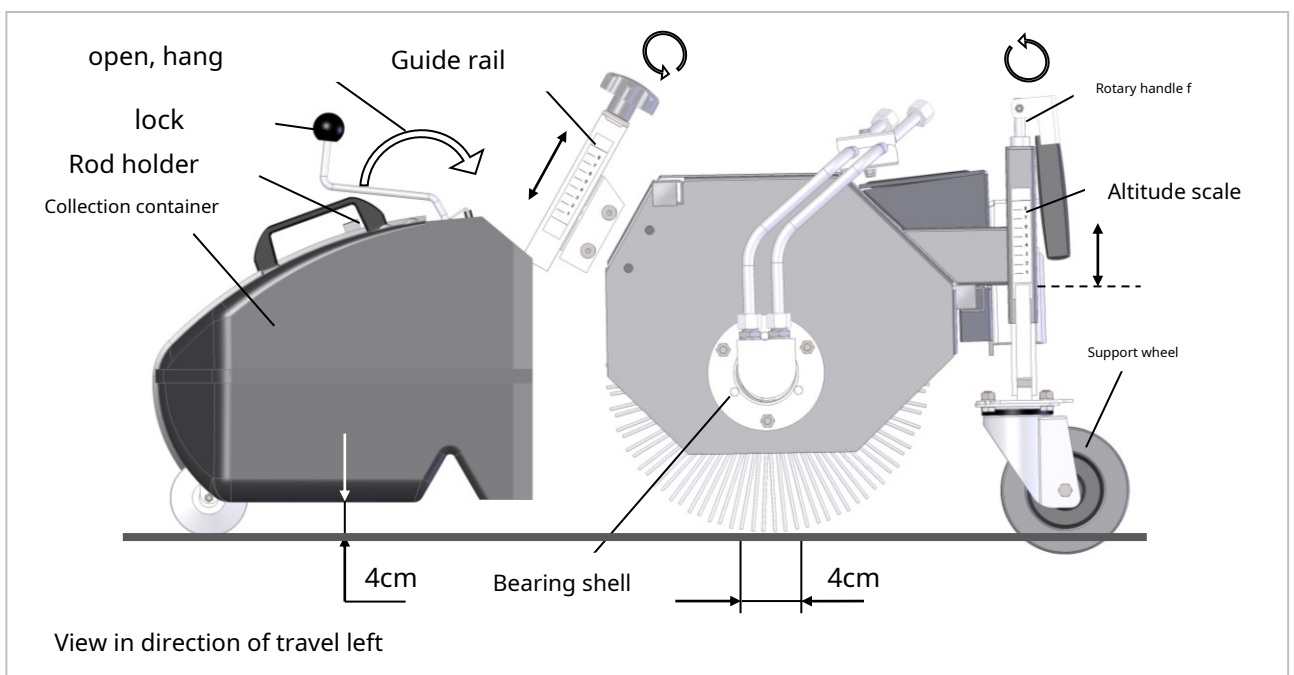


Fig.2

7.4 Assembly of side brush

When installing for the first time, first pull the tension rod out of the sweeper on the right and push the enclosed spring ring and the pulley onto it instead of the K-disk. Put everything together into the sweeper. Now screw the mounting plate onto the right side plate with four screws, spring rings and nuts (see 4 x A). Mount the front side brush arm at "B" on the extension of the mounting plate with an M10 x 50 screw, washer and lock nut.

Place the V-belt around the pulley inside the mounting plate. Make sure that at "C" = "white V-belt pulley" the back of the V-belt is against the pulley! Tighten the V-belt by turning the handle E until there is a gap of around 5 mm between the handle and the pipe.

A notice:

The sheet metal above the side brush serves as impact protection with the torsion spring.

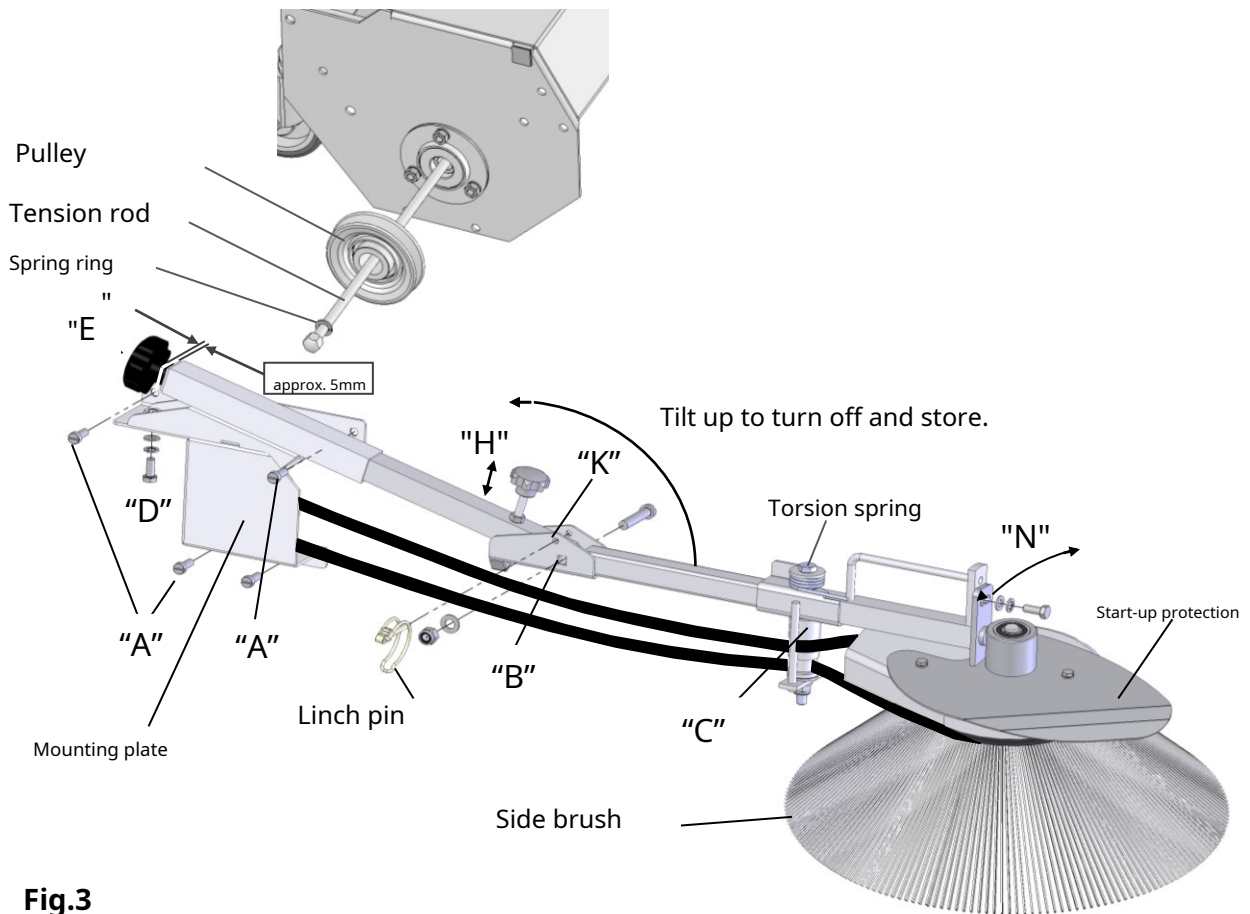


Fig.3

7.5 Installation of water sprinkler system

On the EFKM 32 / EFKM 37, two water nozzles are mounted on the dirt collection container housing at a distance of approximately 500 mm from each other, i.e. each 250 mm from the center of the collection container (see Fig. 4).

For each water nozzle retaining plate, two holes with a diameter of 8.5 mm and a distance of 30 mm from each other must be drilled on the collecting tank. The bend in the retaining plates should be flush with the edge at the bottom front. Each retaining plate is mounted with 2 M8 x 16 mm screws, spring washers and nuts (see Fig. 4).

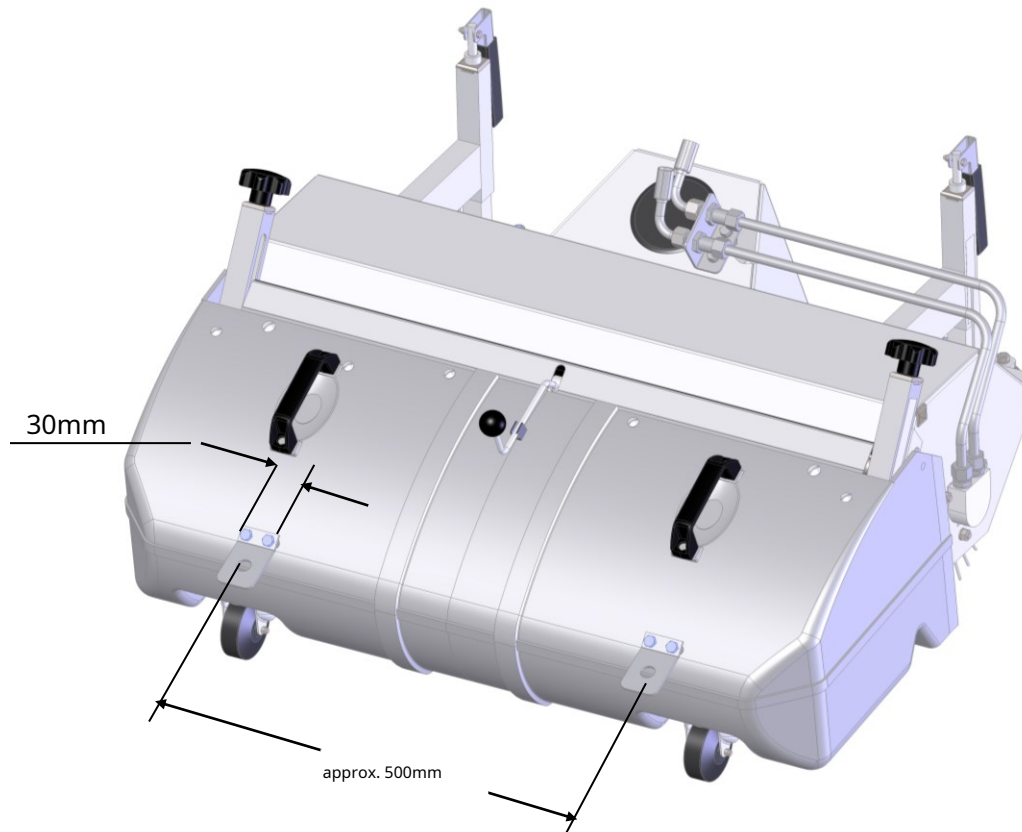


Fig.4

8 Operation

8.1 Operating instructions for the sweeper

Using the rotary handles, adjust the two support wheels so that the sweeping roller leaves a stripe of about 4 cm on the ground. Make sure that both sides are set the same according to the marking on the scale! (see Fig. 5)

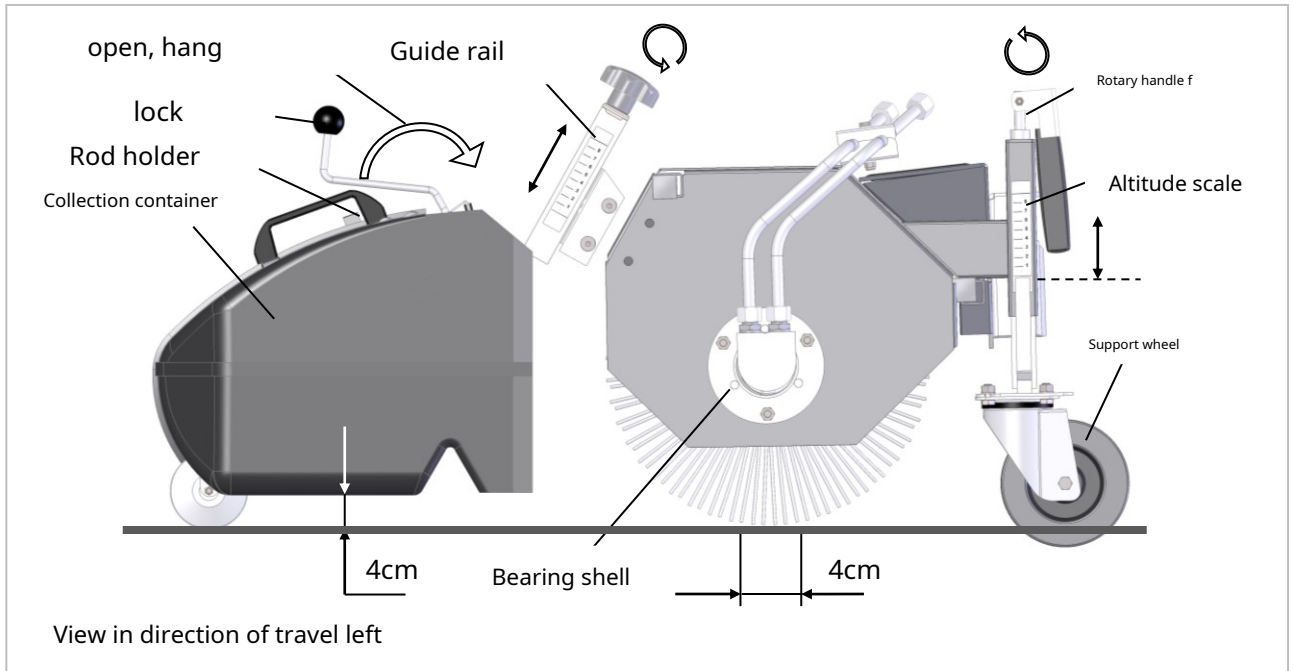


Fig.5



Fig.6

After uncoupling the sweeper, the hydraulic hoses must be put into circulation.

8.2 Container setting

Use the rotary handles on the two guide rails to bring the collection container to a uniform distance of 4 cm from the ground - pay attention to the scale! (see Fig. 5)

Danger:

Never lift the sweeper with a full container!

8.3 Side brush adjustment

Adjustment options for the side brush

"H" = Height adjustment of the side brush by turning the star grip with threaded rod

"N" = The angle of inclination of the side brush can be changed by screwing on the slot, e.g. for sweeping in gutters etc.

"K" = if the side brush is temporarily not needed for sweeping, remove the linch pin at "K" and tilt the front side brush arm upwards until the linch pin below the tube can secure this rest position in "K". (Fig.7)

Easy disassembly of the side brush

To remove, unscrew the screw, spring ring and disk at "D" and push the side brush arm completely forward. Guide the V-belt out to the side next to the pulley.

For assembly

First put the V-belt back on, then screw the side brush arm at "D".

Sketch without scale!

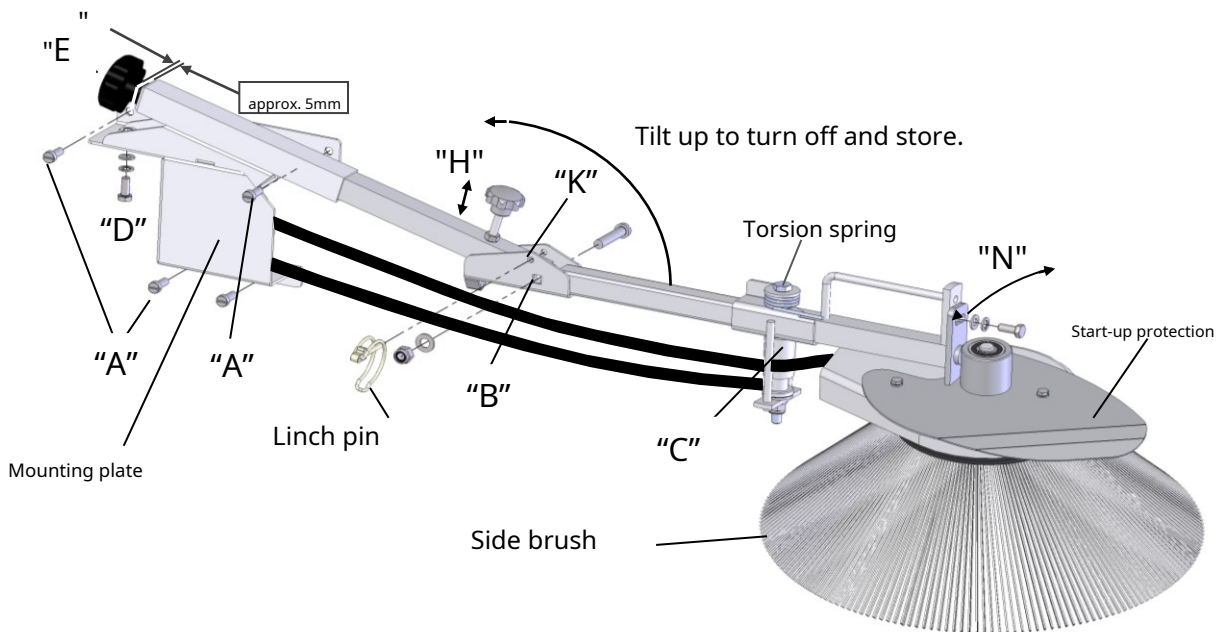


Fig.7

9 maintenance

9.1 General maintenance instructions



- Failure to observe this may result in personal injury or damage to the machine. Check all safety-relevant parts before using the machine.
- The machine must undergo regular maintenance.
- Repair, maintenance and cleaning work as well as the elimination of malfunctions should only be carried out when the attachment is uncoupled. To do this, also disconnect the hydraulic connection to the single-axle vehicle.
- During all work, the machine must be secured against rolling away or tipping over by suitable measures.
- Check nuts and bolts regularly to ensure they are tight and tighten if necessary.
- Only use original spare parts from the manufacturer!
- After the first 5 hours of operation, check all screw and bolt connections.
- After all work has been completed, all removed protective devices must be properly reinstalled.

- Oil or lubricate all moving parts. *

9.2 Daily check

- Check that the tools are firmly seated.
- Before each use, check the safety elements and moving parts for wear.
- Perform a test run before each use.
- Clean the device after each use.

9.3 Maintenance after 20 operating hours or longer downtime

- The moving parts of the device must be greased or oiled at regular intervals and always at the beginning and end of the season.
- There are grease nipples in the wheel mounts and in the bearing bolt of the connecting mount; these should be greased regularly.
- Grease the attachment holder regularly.

9.4 Storage

If the machine is not used for a long period of time, the following measures are recommended:

1. Carry out cleaning

2. Check the function of all parts

3. Check that all screws and bolts are tight and tighten them if necessary.

4. Replace worn or damaged components, only use original Kersten spare parts!

5. Re-lubricate lubrication points (=> grease nipples)

6. Place machine under

- To avoid corrosion, protect the machine from the effects of the weather. Do not store the machine in damp rooms, stables or fertilizer stores.

7. Cover the machine with a cloth or similar.

9.5 Malfunctions and their elimination



This chapter describes in more detail the most important faults that can occur during operation of the sweeper. Faults that require more extensive intervention should always be rectified by your specialist workshop.

Disturbance:	Possible causes:	Remedy:
Hydraulic motor does not rotate	Combustion engine is not running.	Start the combustion engine.
	Hydraulic power take-off not engaged.	Hydraulic auxiliary drive on the single-axle tractor.
	Hydraulic hoses not connected.	Connect hydraulic hoses.
	Hydraulic plug connection not engaged.	Check the hydraulic plug connection and if necessary insert it until it clicks into place.
	No hydraulic fluid in the hydraulic tank.	Refill hydraulic fluid in the hydraulic tank of the two-axle tractor.
Brushes come not on tour	Speed on the single-axle vehicle set too low.	Increase the speed of the single-axle tractor.
	Hydraulic fluid level too low.	Refill hydraulic fluid in the hydraulic tank of the two-axle tractor.
	Leakage in the hydraulic hoses. Replace hydraulic hoses.	
	Leakage at the Hydraulic connectors.	Disconnect the hydraulic plug connection and plug it back in until it clicks into place. If leakage persists, check the hydraulic plug connection and replace it if necessary.
	Leakage at the Hydraulic screw connection.	Loosen the hydraulic screw connection slightly, move the hose slightly and tighten the hydraulic screw connection again.
	Contact pressure on the work surface is too great.	Raise the machine so that the load on the brushes is reduced.
Height adjustment stiff	Threaded spindle dirty.	Release the lever and unscrew the support wheel. Clean and grease the spindle and support wheel.
	Mount dirty, adjustment screws screwed in too far.	Remove dirt from the receiving bushing and the receiving tube and then re-grease.
Sweepings remain lay/ does not sweep clean	Driving speed too high Brush speed too high/too low	Re-adjust the sweeping roller height

9.6 Installation of the sweeping roller

On the right-hand side in the direction of travel, remove the tension rod from the sweeper base housing. Loosen the three screws on the bearing shell and pull off the bearing. Remove the drive tube, insert the brush roller (in two parts) into the machine so that the 145 mm round recess faces to the right towards the hydraulic motor (see Fig.7). Then reassemble the drive tube with the bearing and the tension rod in reverse order.

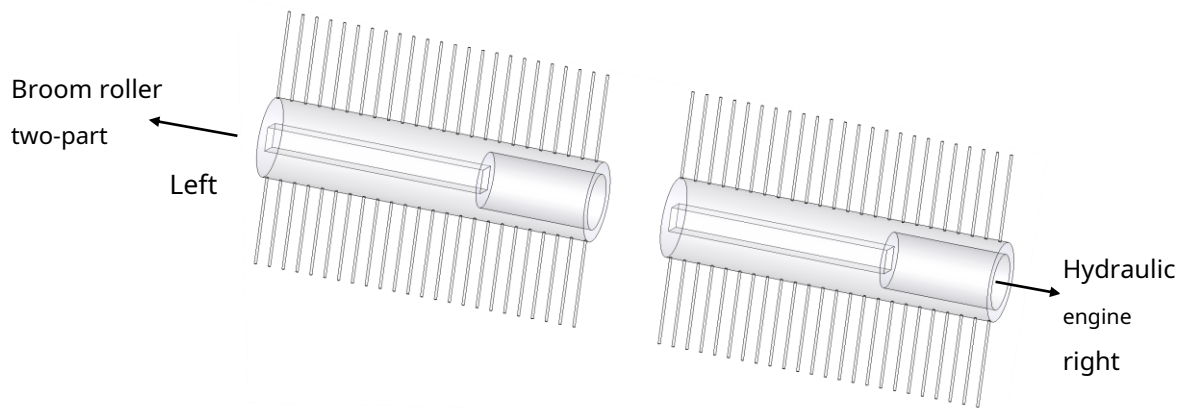


Fig.7

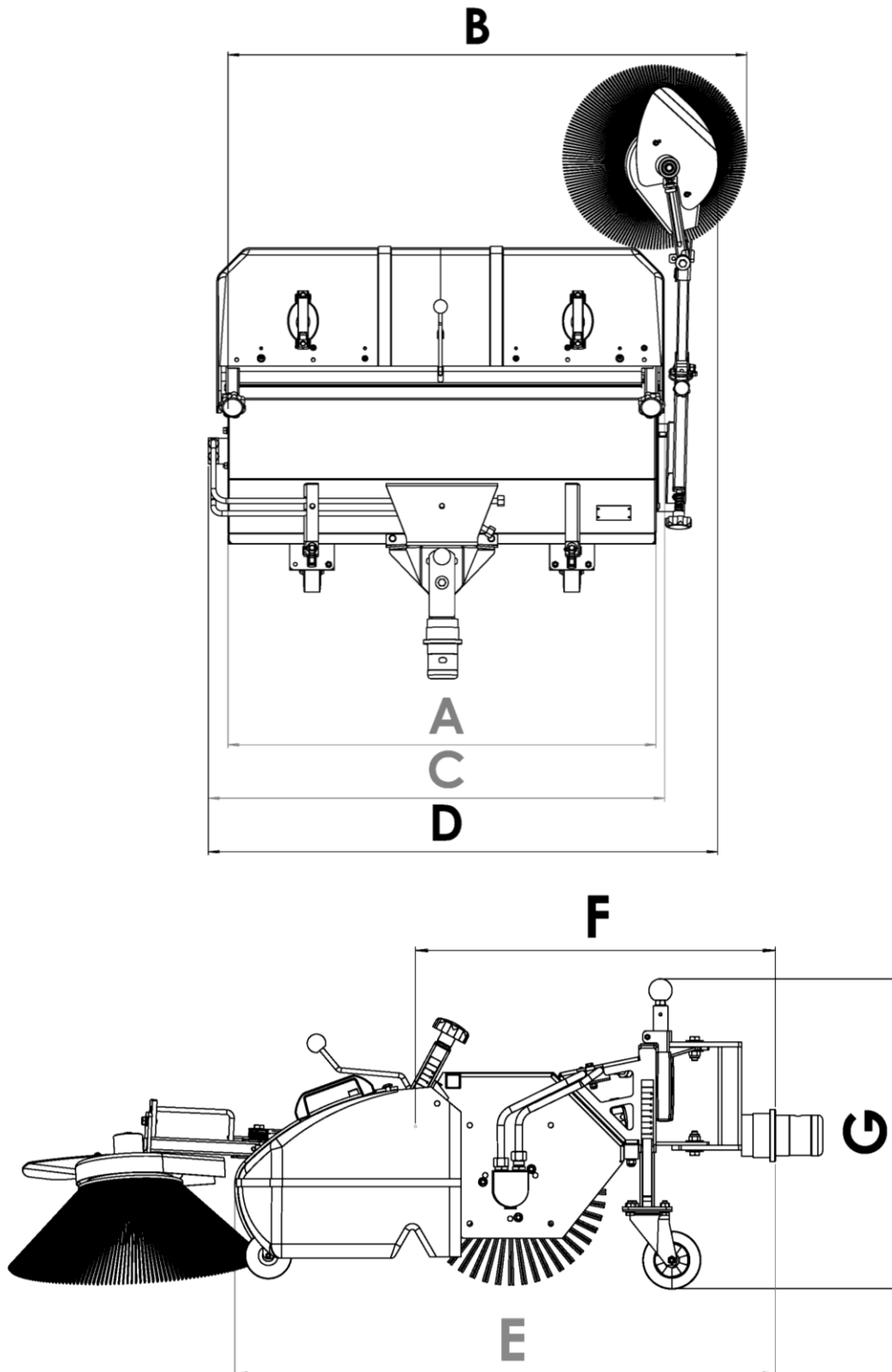
10 Technical data

10.1 Sweeper

	EFKM 08232	EFKM 09032	EFKM 10032	EFKM 10037	EFKM 11537	EFKM 12537
Dimensions:						
A: Working width straight; without side brush [cm]	82	90	100	100	115	125
B: Working width straight; with side brush [cm]	106	114	124	122	137	147
Working width diagonal [cm]	73	80	89	89	102	110
C: Passage width straight; without side brush [cm]	88	96	106	108	123	133
D: Passage width straight; with side brush [cm]	100	108	118	120	135	145
E: Length; incl. SSB [cm]	83	83	83	94	94	94
F: Length; without SSB [cm]	53	53	53	63	63	63
G: Height [cm]	56	56	56	54	54	54
Brush diameter [cm]	32	32	32	37	37	37
Swivel angle [degrees]	30	30	30	30	30	30
Weights:						
Basic machine [kg]	48	50	52	52	54	56
Collection container [kg]	13	14	15	15	16	17
Side brush [kg]	10	10	10	10	10	10
Volume:						
Collection container [ltr]	65	69	75	75	85	92

10.2 Dimension sheet

Dimensions for working width a see Table 10.1.



Technical changes reserved! -

11 EC – Declaration of Conformity

We the
Kersten Arealmaschinen GmbH
Empeler Strasse 95
D-46459 Rees

declare that the product

Front sweeper

EFKM 08232; EFKM 09032; EFKM 10032

EFKM 10037; EFKM 11537; EFKM 12537

complies with all relevant provisions of the EC Machinery Directive 2006/42/EC.

The machine is also in compliance with all relevant provisions of
the following EC Directives:

Pressure Equipment Directive 2014/68/EU

Furthermore, the following standards were applied:

DIN EN ISO 12100:2011-03

Mr. Dipl. Ing. (FH) Robert Bosch, Empeler Straße 95, D-46459 Rees, is
authorized to compile the technical documentation.

Rees, 27.03.2024



Dipl. Ing. (FH) Robert Bosch
Managing Director