



# User manual

## STENSBALLE Sweeping-Suction System FSA

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STENSBALLE manufactures quality machines for professional users.

The warranty period on our machines is 12 months from the purchase date, and covers any material or manufacturing defects.

Any parts that have suffered damage as a result of material and production faults will be replaced by GMR maskiner a/s at no extra charge.

Consequential damage and wearing parts will not be replaced.

**PLEASE NOTE!**

To maintain warranty, the Dealer is obliged to fill in and return the “Registration for use” below to GMR maskiner a/s, not later than one month after delivery to the end user.

A condition for any processing of claims is that this “Registration for use” is submitted timely.

This can be done via our website [www.gmr.dk](http://www.gmr.dk)

or by completing and scanning/submitting the coupon below to:

GMR maskiner a/s  
Saturnvej 17  
8700 Horsens, Denmark  
[stensballe@gmr.dk](mailto:stensballe@gmr.dk)

**Registration for use:**

Machine number	<input type="text"/>
Model	<input type="text"/>
Delivery date	<input type="text"/>
End user	<input type="text"/>
Address	<input type="text"/>
Dealer	<input type="text"/>



## EC declaration of conformity

**Manufacturer:** GMR maskiner a/s  
Saturnvej 17, 8700 Horsens, Denmark  
Tel.: +45 7564 3611

hereby declares that

**machine:** Stensballe  
**machine no.:** \_\_\_\_\_  
**date:** \_\_\_\_\_

**is in conformity with the applicable requirements of:**

Order of 10 June 2013 implementing Directive 2006/42/EC of the European Parliament and of the Council as amended, as well as the EMC Directive 2004/108/EC as amended.

**Standards applied:**

DS/EN ISO 12100:2 011 Safety of machinery - General principles for design  
- Risk assessment and risk reduction.

**Signature:**   
Peter Thomsen  
Factory Manager

## Introduction

For safety reasons and to take full advantage of the Sweeping-Suction System, you should read the user manual before starting to use the machine. You can find technical information and spare parts on [www.gmr.dk](http://www.gmr.dk).

Contact your dealer if in doubt.

Use only original Stensballe parts in your machine. To order original parts, contact your dealer or GMR maskiner a/s directly.

This user manual includes an illustrated spare parts list. Read the introduction to the spare parts list before ordering spare parts.

When ordering spare parts:

Always remember to state machine type and machine number, and spare part number.

Your STENSBALLE Sweeping-Suction System is fully assembled and tested at the factory, and ready for use.

## Safety warnings

Please note the following safety warnings found in this user manual:



### **WARNING**

#### **Risk of personal injury or death**

A technical procedure or similar which may be hazardous and result in personal injury or death.



### **CAUTION**

#### **Damage to machinery or accessories**

A technical procedure or similar which may result in damage to the machinery or accessories.



### **NOTE**

#### **Important information**

A very important technical procedure or similar.

### Packaging

The plastic packaging that the mower is supplied in, is made from polythene (PE), which can be recycled. The packaging should therefore be disposed of at your nearest recycling centre.

### Never:

- allow staff who are unversed in using the machine to operate the machine without supervision
- use the machine without the safety devices fitted by GMR maskiner a/s
- allow any person into the defined work area of the machine
- carry out setting/adjustment of the machine while the tractor engine is switched on
- carry out repair or maintenance work while the tractor is switched on
- place a full collection tank on the support legs

### Always:

- after every 10 hours of operation check whether nuts and bolts are still tight
- ensure that you are familiar with the tractor
- ensure that assistants and other staff are not inside the machine's work area while the machine is in operation
- stop the tractor, disconnect the power and remove the key prior to any adjustment, maintenance or repair of the machine
- ensure that the collection tank is completely empty before it is removed from the tractor

## Description

Stensballe Sweeping-Suction System Type FSA is a universal sweeping-suction system that fits onto a large number of tractor types. Sweeping-Suction System Type FSA is designed as a front carriage with a brush system and collection mouthpiece fitted to the tractor's front lifter and a frame with a collection tank fitted to the tractor's back/engine part. The frame carries a water tank with an electric pump so that material can be moistened to reduce dust.

- FSA/V is a vacuum system where the blow wheel is located at the top of the collection tank and sucks air and material through the pipe to the collection tank. The brush system at the front and the suction apparatus in the collection tank are both powered by the tractor's hydraulics.
- As the blow wheel is only able to suck air out of the tank, the blow wheel is not exposed to much wear and tear. The vacuum system is often used where sand, gravel and inorganic material need to be collected. If it is used for wet leaves, problems may arise in transporting the material through the pipe.
- The suction mouthpiece has a hydraulic flap for larger items and larger amounts of material.

## Traktormodel

The sweeping-suction system is specially adapted to each individual tractor model and may only be fitted on the model for which it is designed. If you are in doubt about whether the system can be used on your tractor, please contact your dealer.

**Frame for collection tank**

The collection tank comes with separate supporting legs fitted with wheels. These must be fitted and set before the tank can be fitted on the tractor.

- Unpack the collection tank and supporting legs.
- If the assembly requires special fittings in order to fit the collection tank on the tractor, these will be included. They should be mounted on the tractor prior to the next point.
- Measure the height from the ground to the assembly holes on the tractor where the collection tank is to be fitted.
- Screw the supporting legs as far as they will go and place their holders across these so that they are approx. 10 cm lower than the assembly holes on the tractor.
- Tighten the holders around the supporting legs.
- Place the straps securely in the frame of the collection tank and lift it up so that the supporting legs can be fitted.
- Remember to secure the rivets with split pins.
- Lower the collection tank to the ground.

**The collection tank is now ready to fit onto the tractor**

- Adjust the spindles for the supporting legs so that the frame on the collection tank can pass freely over the back of the tractor.
- Push the collection tank in over the tractor or reverse carefully over the collection tank. This must never be carried out when the collection tank is full!
- Adjust the location of the tank so that it fits over the tractor's assembly fittings.
- Carefully lower the tank with the spindle handles in both supporting legs.
- Attach the frame on the collection tank to the tractor and remove the supporting legs. (Remember to insert rivets and split pins before the supporting legs are put away).
- Fit the quick-acting couplings for the tip cylinders and the pipes for the blow wheel engine.
- Connect the water pump to the electricity supply.
- Start the tractor's engine and activate the hydraulic valve to empty the tank. Let the cylinder work between the outer positions a couple of times in order to remove air from the system and check that emptying takes place freely and unobstructed.

### Front carriage

- Unpack the front carriage and place it on a level, stable surface.
- Drive the tractor right up to the front carriage and fit it to the front lifter.
- Fit quick-acting couplings to operate the collection brushes, the central brush and the tri-arm lifting cylinder (accessory).

### Suction pipe and water pipe

- Fit any pipe holders that may be included on the tractor.
- Fit the pipe in the suction mouthpiece and the collection tank and ensure that it is led unobstructed around the tractor so that the tractor can turn fully both right and left without the pipe becoming jammed or damaged. It may be necessary to try several times until you find the correct positioning of the pipe.
- Connect the water pipe to the connector piece on the front carriage.



**WARNING**

**Risk of personal injury or death**

Never enter the area into which the collection tank swings.



**WARNING**

Danger of jamming fingers

**Basic setting for the brush system**

(carried out when brushes are stationary)

- Set the mirror so that you can see the front flap from the driver's seat. Activate the hydraulics for the front flap and let the cylinder work between the outer positions while checking that the system works freely and unobstructed.
- Pull the brush arms out against the side stop. Adjust the side stops until the distance between the side brushes is slightly smaller than the suction mouthpiece.
- Set the side brushes with the top bars so that they tilt slightly forwards and thereby sweep with the front half of the brushing area and so that they rest lightly on the ground. The pressure on the ground is adjusted with the vertical bolt at the bottom of the side brush fork arm. Remember to secure with lock nuts.
- If the brush heads are now tilted so that the brush does not touch the ground on both sides, these can be adjusted with the setting screws between the carrier arm and engine console. Remember to secure with lock nuts.
- Set the spring bearing so that the brush touches the ground lightly with two brush sections simultaneously.
- Start the tractor, put the front lifter in floating position and activate the hydraulics for the front brushes. Check that the brushes are rotating freely and unobstructed. If the side brushes are correctly set, they will automatically seek outwards towards the swing stop.
- Increase the engine revolutions to the correct operational level.
- The speed of the central and side brushes can be set with the volume regulators on the front carriage.
- Set the central brush to 100-125 rpm and the side brushes to 55-75 rpm. On the machine for Holder Multipark there is only one volume regulator which sets the speed for the central brush. Start by sending the full volume of oil into the brush system and then adjusting the speed of the central brush on the volume regulator. Subsequently the speed of the side brushes can be set on the tractor's volume regulator - see the user manual for the tractor.
- Test-drive for a short distance with the brushes rotating without activating the suction system – remember to set the front lifter in floating position.
- If unswept streaks remain between the side brushes and the central brush, the brushes must be readjusted.
- If the material from the side brushes is thrown further inwards than to the central brush, the brush speed for the side brushes should be reduced.



**NOTE**

Always ensure that the front lifter is in floating position when you operate your sweeping-suction system.

**Third arm with additional brush**  
(accessory)

If your sweeping-suction system was delivered with an additional, third arm, you should set this so that it sweeps in material for the side brush on the right. The setting is the same as for Arms 1 and 2.

**Connection**

- Connect the hydraulic pipes to a hydraulic output with floating position.
- Release the lock holding the brush in transport position.
- Activate the hydraulic valve for brush rotation and let them run idle fast.
- Set the hydraulics for the third arm in floating position. When the brush hits the ground, it will, if it is correctly set, automatically seek outwards towards the stop in the outer position. If this is not the case, tilt the brush so that it brushes on the front half of the brushing area.
- Activate the hydraulic valve and the brush will then draw towards the middle and lift up into transport position.
- Repeat a couple of times to empty the hydraulic system of any air.
- When the brush is not being used and during transport, the brush must be held in place by the lock.

**Setting suction speed**

- Start the tractor and let it run idle. Then activate the hydraulic valve for the suction engine. Increase engine revolutions to operational level.
- Use the volume regulator to set the blow wheel to rotate at between 3450 and 3650 rpm.

Activate the hydraulic output to the brush system and test-drive the brushes and suction system for a short distance.

If the central brush does not sweep clean, it may be because the driving speed is too high, the brush pressure against the ground is incorrect or the central brush is rotating at the wrong speed. If material accumulates at the end of the brushes, the brush speed is probably too low and should be increased. If material accumulates along the width of the brush, the brush pressure may be incorrect or the brush may be rotating so fast that it throws material to the back of the brush.

## The water system

The water system supplies both brushes and collection tank with atomised water to reduce dust. Two valves are fitted. One to adjust the amount of water to the front carriage and one for circulation back to the water tank so that the pump is not damaged by too much pressure if you wish to use atomisation in the tank without using water for the brushes. If the weather permits work without water atomisation, the pump must be stopped. Never drive with closed taps. The pump pressure is 2 bar.

- Fill up with water.
- Ensure that both the taps to the water pipe to the front carriage and to the circulation are fully open.
- Turn on the pump and wait for the water to appear in both collection tank and brush nozzles. If no water appears for the collection tank, the circulation valve must be turned down until water comes out of the nozzles.
- Adjust the tap for the brushes so that the required volume of water is present.
- Then adjust the circulation tap so that the required atomisation in the collection tank is present.
- Switch off the pump.



### CAUTION

If you disconnect the suction apparatus from the front carriage and use manual suction apparatus, the circulation valve must be opened to prevent too much pressure on the water.

If the pump is used for a longer period of time, the pump engine may malfunction.

When the brushes, suction apparatus and atomisation system have been adjusted, the sweeping-suction system is ready for use.

Driving speed should be adapted to prevailing conditions. A speed of between 0.5 and 4 km/h is standard.



**CAUTION**

Note that your sweeping-suction system takes up a lot of space both at the front and at the back/upwards. Be aware that the pipe may easily catch on surrounding objects.



**NOTE**

Always ensure that the front lifter is in floating position when you drive your sweeping-suction system.

**Emptying the collection tank**

As the collection tank fills up gradually, the system loses suction power. This means that the suction pipe may become blocked. Empty the tank and 'exercise' the suction pipe while the suction apparatus is operating so that you can empty it before it becomes blocked.

Carefully reverse up to the location or container where you wish to empty the tank.

Activate the hydraulic valve to empty the collection tank. The lid on the tank opens and closes automatically when the tank is again in its operational position.

**Emptying the filter**

The collection tank has an internal filter that filters leaves before they reach the blow wheel. This filter can be operated externally using the handle on the left side of the collection tank. The filter will automatically be in the closed position when the sweeping-suction system is used.

The handle on the left side of the collection tank is used to do a lighter cleaning of the filter.

The filter element is inserted into the filter holder and can easily be removed. Raise the collection tank to the upper position, opening the lid. Remove the two splitters holding the filter element and remove the filter. Clean the filter, reinsert it and secure it again with the splitters. When the collection tank is lowered to the working position again, the filter will be back in place.

**Malfunction**

Your sweeping-suction system is a robust working tool that will, if maintained on a regular basis, operate without great risk of malfunction. Malfunction may however occur if power partially or completely fails - and the system may become blocked if it is overloaded.

Symptom	Cause	Remedy
Suction is reduced	Engine revolutions are too low	Increase engine revolutions to the prescribed operational levels
	Collection tank is full	Empty the collection tank
	Filter is blocked	Clean the filter
	Pipe is blocked	Exercise the pipe while the suction apparatus is active. Switch off water supply, if necessary
Brushes are not sweeping clean	Brushes are worn	Adjust the brush pressure so that the brushes press harder against the ground.
The system produces disproportionate amounts of dust	Material is very dry and contains fine sand	Add more water to the front and collection tank
Water supply stops	Tank is empty	Add water to tank
	Power supply fails	Clean the plug and reconnect it
	Nozzles are blocked	Separate the nozzles and clean them
	Pump has failed	Replace pump

The sweeping-suction system is cleaned with a water hose with standard water pressure - **do not use a high-pressure cleaner!**



**CAUTION**

Do not clean with a high-pressure cleaner



**Front carriage and brush system**

- Start the tractor and activate the suction system.
- Wash down the brush system and front carriage with a hose.
- Flush water through the suction mouthpiece and let it clean the mouthpiece and suction pipe. If large amounts of water accumulate in the suction pipe, 'exercise' it to empty it again.

**Collection tank**

- The collection tank is cleaned with a hose with standard water pressure - do not use a high-pressure cleaner!
- Start the tractor, activate the hydraulic valve to empty the collection tank and let the collection tank go into emptying position.
- Stop the tractor and remove the key before leaving the driver's seat.
- Wash out the collection tank with a hose. The lifting cylinders are secured with pipe rupture valves which allow the collection tank to lower slowly if a pipe should rupture.



**WARNING**

Never enter the area into which the collection tank swings.

When you have finished using the sweeping-suction system, it can be dismantled.

### **Dismantling the front carriage**

- Drive to the location in which you wish to place the front carriage.
- Adjust the brush pressure setting screws on the side brushes and the nut for the central brush and lift the brushes free of the ground.
- If the system is fitted with a third arm, bring this into transport position and secure it with the lock. By taking the front cylinder rivet for the swing cylinder out, the brush can be turned in over the brushes so it takes up less space. Remember to replace the cylinder rivet again. The cylinder can be brought over to the right side of the swivel pin and the rivet can then be replaced.
- Dismantle all hydraulic pipes and put on protection caps on the quick-acting couplings so that you avoid dirt in the hydraulic system. Store the pipes sensibly on the front carriage.
- Release the suction pipe from the suction mouthpiece and the collection tank and store it.
- Release the lock for the lifting system, lower the lifter and drive away.

### **Dismantling the collection tank**

- Check that the collection tank is completely empty.
- Reverse the tractor to the location where you wish to place the collection tank.
- Find the supporting legs and fit them in the profiles on the frame.
- Adjust the supporting legs against the ground so that they relieve the tractor lightly.
- Dismantle all hydraulic pipes and electrical plugs.
- Put on protection caps on quick-acting couplings and store the pipes sensibly.
- Remove the bolts that hold the frame to the tractor and raise the collection tank with the supporting legs.
- Replace the bolts.
- Start the tractor and carefully drive away from the collection tank.

### **Storage**

To store your sweeping-suction system optimally we recommend that you pull all hydraulic cylinders into their inner position so that the piston rod is not visible. Thereby corrosion and subsequent leaks are avoided.

Store your sweeping-suction system in a dry, ventilated area so that you will be able to use your system for a long time.

## Lubrication

As your sweeping-suction system is exposed to sand and dust, it is very important that you ensure that you lubricate the system thoroughly at short and regular intervals.

### Daily lubrication:

- wheel bushes (lubricated with grease)

### Weekly lubrication:

- wheel hubs (lubricated with grease)
- all other hubs are lubricated with grease
- moving connections are lubricated with oil.



#### WARNING

Working with grease and oil can be injurious to health.

Comply with safety directions on the grease and oil containers/packaging.

## Screens

The blow wheel is screened off in order to prevent accidents during operation of the machine. All screens **must** be intact. If screens are damaged or worn, they should be replaced or repaired by the dealer.



#### WARNING

The machine must not under any circumstances be used without the removable screens as this may be life-threatening.

The machine has below mentioned labels/signs. These **must** appear on the machine and must, if defective, be replaced by new signs.  
New signs can be obtained from the factory if you contact your dealer.

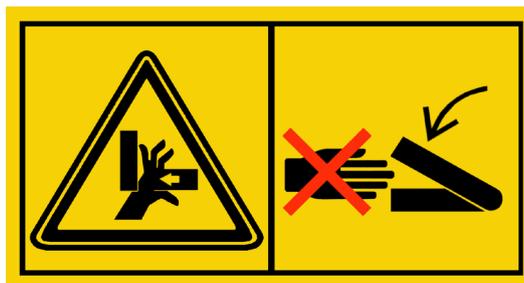
**Warning signs**



Read the manual before using the machine



Rotating brushes



Danger of jamming fingers



Crane hook

### Type plate

The machine is equipped with a type plate with an engraved machine number. The first two digits of the machine number indicate the year of manufacture. The machine number is unique to the particular machine, and GMR maskiner a/s will always be able to refer back to that machine if the number is quoted.

This plate also states the weight of the machine in kg and its power requirement in kW.



### CE labelling

The label indicates that the machine complies with the EC Machinery Directive, the year of manufacture and the manufacturer's website.

## Service

It is the dealer's responsibility to deliver the machine (and assemble if required), to start it on delivery or first use, and to instruct the operator about the use and maintenance of the machine (including tightening nuts and bolts).

The dealer is also obliged to make sure that the user manual and spare parts list is delivered to the customer and that the registration for use is completed correctly and sent to GMR maskiner a/s no later than 1 month after delivery to the user. (See page 3)

## Claims

The warranty period on GMR machines is 12 months from the purchase date, and covers any material or manufacturing defects. These parts will be replaced by GMR maskiner a/s free of charge. Consequential damage and wear and tear will not be replaced.

Any components which are not manufactured by GMR maskiner a/s are included under the terms of the warranty to the extent authorised by the supplier of the parts in question.

GMR maskiner a/s reserves the right to assign a claim of this kind to the relevant supplier and not to reach a decision until the relevant supplier has responded.

The following must be observed when working on a claim:

- report the claim to GMR maskiner before the repair is started
- agree a time period with GMR maskiner for qualified technicians to carry out the repair
- any labour costs will only be approved at a fixed net price.

If GMR maskiner a/s has not authorised repair work in advance, any invoice submitted for repair work will not be approved.

At GMR maskiner a/s' request, before the claim can finally be handled, any parts that were replaced must be sent carriage paid to the factory.

GMR maskiner a/s retains the exclusive right to determine the extent to which a part shall be replaced or repaired.

The warranty does not cover:

- normal wear and tear or damage which has resulted from inadequate maintenance.
- damage caused by collision.
- non-compliance with the product's technical specifications or if the product is used for a purpose other than that described in the ser manual.

If the product is altered or if non-original spare parts are used, all rights under the warranty will be rendered void.

The purchaser does not have the right to require that design changes on future models are implemented in a pre-existing machine.

**In the event  
of a complaint**

Complaints must be registered directly with GMR maskiner a/s. Complete a complaint report, stating the machine type, production number and date of its delivery to the customer, and send it to us. This is done via the dealer login on our website [www.gmr.dk](http://www.gmr.dk). If questions arise about claims on imported machines, we reserve the right to present the claim to the manufacturer before making any decision about whether the claim can be accepted.

Our machinery is subject to the EC Machinery Directive and quality assured within the European Union. We make every effort to comply with these requirements and do our utmost to supply high quality machinery.

Horsens, 01.06.2017  
GMR maskiner a/s





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[www.gmr.dk](http://www.gmr.dk)

