DK GB DE SE FR

GMR
Care for the ground

User manual

STENSBALLE / NESBO snow ploughs

GMR maskiner a/s
DK-8700 Horsens
T. +45 75 64 36 11
www.gmr.dk

NESBO A/S
DK-9550 Mariager
T. +45 98 58 44 00
www.nesbo.dk

Registration of Use

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

GMR maskiner a/s
Saturnvej 17
8700 Horsens, Denmark
stensballe@gmr.dk

Registration for use:

Machine number	
Model	
Delivery date	
End user	
Address	
Dealer	

EC declaration of conformity

Manufacturer: **GMR maskiner a/s**

Saturnvej 17, 8700 Horsens, Denmark

Tel.: +45 7564 3611

hereby declares that

machine: **Stensballe / NESBO**

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

Peter Thomsen
Factory Manager

Introduction

For safety reasons and to take full advantage of the snow plough, you should read the user manual before starting to use the machine. You can find detailed technical information about each type of snow plough and spare parts on www.gmr.dk.

Contact your dealer if in doubt.

Use only original Stensballe / NESBO spare parts in your snow plough. 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, provide us with the machine type, machine number and spare part number for the part that you wish to have delivered.

Your Stensballe / NESBO snow plough is fully assembled and tested at the factory, and ready for use.

Snow ploughs described in this user manual

This user manual applies to all Stensballe / NESBO snow ploughs. Any differences in the use and operation of the various types are listed and described.

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.

Safety instructions

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Never allow

- unauthorised persons to use the machine unattended.
- people to stand close to the machine while it is in use.
- repairs or maintenance while the engine is running.

Always ensure that

- nuts and bolts are tightened after 10 hours of operation.
- you are well acquainted with the tool carrier.
- no one is standing in the snow plough's working area when in use.
- you comply with the requirements stated for the use of your snow plough.

Packaging

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

Tractor selection

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Snow ploughs described in these operating instructions

This user manual applies to all types of Stensballe and NESBO snow ploughs. Any differences in the use and operation of the various types are described in the manual.
Variable Stensballe snow ploughs have the type designation FSV, variable NESBO snow ploughs have the type designation PS / K (for combi ploughs)

	Straight blades	Variable around vertical axis
Stensballe	FS	FSV
NESBO	PS	PS / K

All types of Stensballe and NESBO snow ploughs are designed to fit on tractors with a standard front assembly, i.e. 3-point hitch, A-frame coupling, or mini loader.

Tractor selection

[divided up on website according to HP (1 kW = 1.36 HP)]

Tractor/model overview:

Lightweight tractors 14–21 kW (up to 30 HP)

Stensballe	NESBO
FS1300L, 1300 VL, FS1500 L, FS 1600 VL, FS 1700, FS 1300 VL, FS 1600 VL	PS 1300, PS 1300 LK, PS 1600 LK

Light and medium weight tractors 22–40 kW (from 31–55 HP)

Stensballe	NESBO
FS 1300 M, FS 1300 MK, FS 1300 P, FS 1500 M, FS 1500 MK, FS 1500 V, FS 1500 P, FS 1700 M, FS 1700 MK, FS 1700 V, FS 1700 P	PS 1500, PS 1500 MK, PS 1750, PS 1750 MK

Medium and heavyweight tractors 40–70 kW (56 HP and greater)

Stensballe	NESBO
FS 2000 P, FS 2200 P	PS 2200 P, PS 2100 MK, PS 2500 P, PS 2400 MK, PS 2900 P, PS 2800 MK, PS 3200 P

NOTE
If you have a custom-built snow plough, it will be engineered at the factory for use with the same tractor weight as the standard snow plough closest to your machine.

E.g. In terms of performance, a custom-built PS 1300 MK will be closest to a standard PS 1500 MK, i.e. it will be engineered for use with a lightweight tractor.

Standard use

Snow ploughs are designed for clearing snow and must be fitted on the front of the tractor. To adjust the snow plough's position, the tractor must have either 1 or 2 dual hydraulic connection(s).

GMR maskiner a/s guarantees the design and function of the machine with standard use. GMR maskiner a/s disclaims all liability for any damage caused to the machine as a result of incorrect use, or irresponsible or incorrect handling.

Safety warnings

The snow plough may only be fitted to the tractor by a person who is competent to do so.

Only individuals who have been trained in how to drive the tractor may use or manoeuvre the snow plough or tractor.

Noise

Under certain operating conditions, snow ploughs may produce noise depending on the surface (asphalt, etc.), but the machines do not make a significant difference to noise levels.

The noise level is determined by the tool carrier. Depending on the type of tool carrier used, the noise level will be in the range 74–85 dB(A). Typical values are usually stated in the tool carrier user manual.

If the driver finds the noise uncomfortable when operating the machine, GMR maskiner a/s recommends that the driver should wear ear protection.

Handling

The snow plough is designed for easy handling during maintenance work. The snow plough must always be placed and handled on a firm, level surface. A non-variable snow plough can rest on the blade and supporting leg. If set to operate as a V-plough or wedge plough, a variable snow plough is reasonably stable and can rest only on the blade.

WARNING
When raising the snow plough, people in the vicinity must remain at a safe distance of at least 2–3 m from the snow plough, as unintentional movements by the snow plough may result in personal injury.

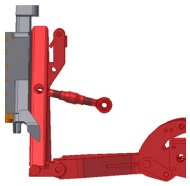
To lift the snow plough using a crane, use a secure lifting strap around the central frame.
If maintenance work is to be carried out on the snow plough while it is raised, it must be adequately supported before anyone moves under the machine.

Fitting the snow plough to the tool carrier

To fit to snow plough to the tool carrier, manoeuvre the tool carrier so that it is perpendicular to the snow plough. Remember to ensure that the snow plough uses the same coupling system as your tool carrier.

A-frame:

- Lower the male section on the tool carrier and manoeuvre it in under the female section on the snow plough.
- Raise the male section and lock it in place.
- Stop the engine.
- Connect the hydraulic hoses used to swing the snow plough to the tool carrier using the snap couplings.
- The snow plough is now ready for use.



3-point tractor hitch:

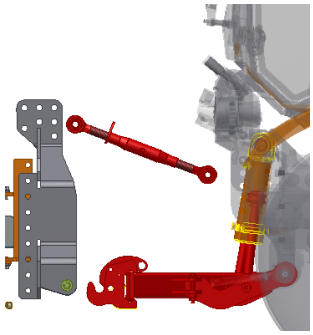
- Lower the hitch arms and manoeuvre the tool carrier until it is perpendicular to the snow plough.
- Stop the engine and connect the hitch arms to the snow plough.
- Connect the top bar to the snow plough.
- Connect the hydraulic hoses used to swing the snow plough to the tool carrier using the snap couplings.
- The snow plough is now ready for use.

Basic settings

Once the machine is fitted to the tool carrier, you can adjust the machine.

Top bar position

The top bar must be fitted so that the top bar eye on the tractor side is fitted lower than the top bar eye on the machine side (relative to ground level).
This ensures that the machine will be raised correctly.
If this is impossible due to the design of the machine/tool carrier, you can order a bracket from your dealer to add extra height to the snow plough.



NOTE
If the top bar is not fitted in accordance with the above, the snow plough will tip forwards when raised/lowered.

Adjusting the top bar

For best results and to prevent uneven wear on the blade, the top bar *must* be adjusted regularly so that the hitch frame and main beam are vertical when the snow plough is operating.

WARNING
Risk of personal injury or death
Never use the hitch unless people are at a safe distance, as this can be hazardous.

CAUTION
Remember to ensure that the hydraulic hoses are attached so that they cannot come into contact with moving parts.

NOTE
Hydraulic hoses are supplied in standard lengths.

Hoses must only be shortened by the dealer.

Other hitch systems

If your tool carrier has a different hitch system to those described in this manual, you should follow the tool carrier manufacturer's instructions carefully when fitting the snow plough.

If the snow plough is not compatible with your tool carrier, contact the dealer.

Snow plough settings

Once the machine is fitted to the tool carrier, you can adjust the machine before use.

- After fitting the snow plough to the tool carrier, adjust the top bar so that the snow plough's mounting frame remains vertical during operation.

This will also mean that the snow blade is at the same height when swung to both sides.

NOTE
It is very important that the pivot joint is vertical. If not, the snow plough will wear unevenly and clear snow ineffectively.

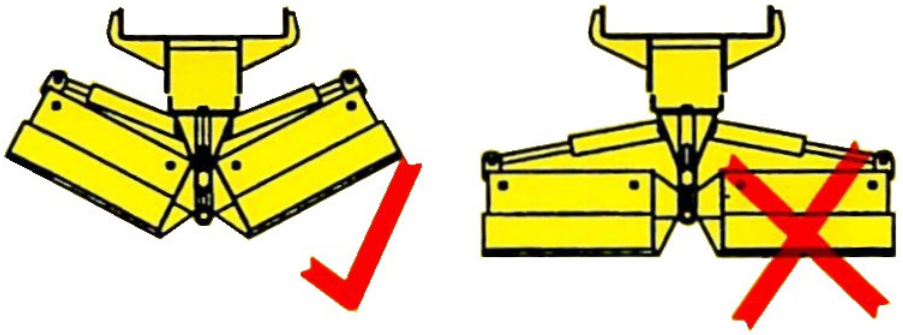
Start the engine. Raise the snow plough from the ground and stop the engine.

The height of the skids is adjusted using tools. The higher the skids are positioned, the deeper/harder the snow plough will plough.

Angling the snow plough

The tractor's hydraulic system can be used to adjust the angle of the snow plough. A non-variable snow plough should be set as a diagonal plough (right or left). A variable snow plough can be set as a diagonal plough (right or left), wedge plough or V-plough.
When used as a V-plough, snow can only be cleared over short distances because the snow accumulates in front of the snow plough.

The snow plough must never be used with the blades perpendicular to the tool carrier's direction of travel.



Snow plough swing failure

If the snow plough cylinder fails, disengage the hydraulic control handle immediately. Stop the engine before leaving the cab.

Failure may be due to leaks in the hydraulic hoses or cylinder. Exercise extreme caution when inspecting for leaks.

There may also be a fault in the tractor's internal hydraulic system.

If this is the case, contact your dealer.

Using the snow plough

The snow plough is solely designed to clear snow. It is not designed to move any other material.

Before operating the machine

Inspect the area if you are not familiar with it!

If you do not know the area, check it before clearing snow to avoid collision with solid objects. A collision with a solid object that is concealed in snow (e.g. a fire hydrant or drain cover) may cause irreparable damage to the snow plough or the solid object in question.

NOTE
It is very important that the pivot joint is vertical. If not, the snow plough will wear unevenly and clear snow ineffectively.

Release springs and collision-protection flaps

As a minimum, the snow plough is fitted with springs which tip the whole blade assembly forwards if it collides with a fixed obstacle. The snow plough can also be fitted with collision-protection flaps which are individually released backwards in case of a collision.

If the springs or collision-protection flaps are activated, stop the tool carrier immediately and then drive free from the overload position.

- Investigate whether the machine has collided with an obstacle.
- If so, carefully drive around the obstacle.
- If the overload is due to an excessive volume of snow in front of the snow plough, continue but attempt to push/shift a smaller amount of snow than before the overload activated the collision-protection flaps.

CAUTION
If the object does not hit the snow plough blade, e.g. the top edge or the collision-protection flaps, the springs will not be triggered and the snow plough could be damaged or the driver could be injured.

NOTE
If the snow plough is set in the wedge plough position and the point of the wedge meets an obstacle, only one of the two central collision-protection flaps will be released. If both of the central collision-protection flaps collide, this may cause irreparable damage to the snow plough.

WARNING
Always drive carefully, particularly if you are not familiar with the terrain.

NOTE
The snow plough is not designed for levelling terrain and must not be used as a levelling shovel.

NOTE
If the collision-protection flaps are activated, stop the tool carrier immediately to avoid any damage.

Detaching the implement

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Removing the snow plough from the tractor

Before removing the snow plough from the tool carrier, position it on firm, level ground so that the snow plough can stand unconnected to anything.

- If the snow plough has a supporting leg, fold it out.
- If the snow plough is a variable model, it should be set as a wedge plough.
- Lower the snow plough to the ground.
- Disconnect the hydraulic hoses and fit the protective caps to protect the hoses from impurities.

A-frame system

- Open the locking system to release the male section from the female section.
- Start the tool carrier and lower the hitch to release the male section.
- Reverse the tool carrier free of the snow plough.

3-point tractor hitch

- Release the top bar and detach the snow plough.
- Remove the lock pins from the hitch arm eyes to disconnect from the snow plough.
- Reverse the tool carrier free of the snow plough.

WARNING
Never use the hitch unless people are at a safe distance, as this can be hazardous.

Maintenance and storage

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Storage

Your snow plough should be cleaned thoroughly if it will not be used for some time.

Lubricate the snow blade with oil to prevent rust. Good lubrication also ensures the snow blade will glide more easily through snow.

Take good care of your snow plough and store it in an area with low air humidity, protected from rain and snow.

Service and maintenance

The snow plough is relatively easy to maintain because it has only a few moving parts.

After the first 10 hours of operation:
Tighten *all* of the nuts and bolts on the snow plough.

At intervals of 50 hours of operation:
Tighten all of the nuts and bolts on the snow plough.

Lubricate the pivot joint (which swings the snow plough from side to side), as well as the cylinder pivot points and pivot joints on the collision-protection flaps.

Replacing the rubber or steel edge

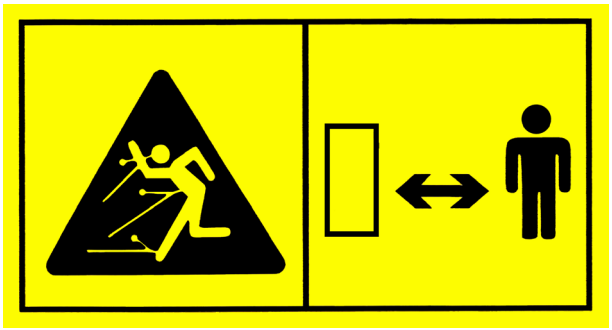
The snow plough is fitted at the factory with a rubber or steel edge. Procedure for turning or replacing the steel/rubber edge:

1. Keep the snow plough attached to the tool carrier and park the tractor on a level surface (cement floor). Check that the snow plough's central axle is perpendicular to the floor.
2. Remove the steel/rubber edge.
3. Fit a new steel/rubber edge or turn the old edge if possible. Do not tighten the bolts.
4. Adjust the snow plough so that the blade is straight.
5. Ensure that the steel/rubber edge is flat relative to the level floor and then tighten the bolts.
6. Check the angle of the steel/rubber edge relative to the floor. Lock in position by tightening the counter nuts.
7. When angling the snow plough, check that the steel/rubber edge remains level with the floor. Adjust using the top bar if necessary.

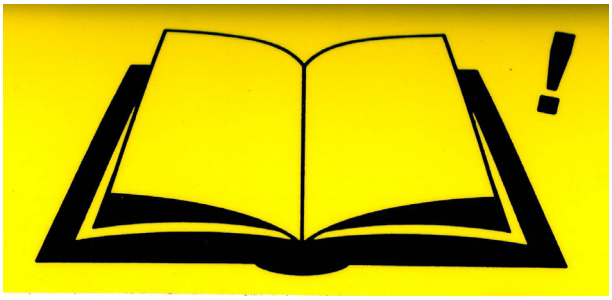
Warning labels

The machine is equipped with the following plates/labels. They must be attached to the machine and be clearly visible. New labels/plates can be ordered from the dealer.

Ejection hazard



Read the user manual before use

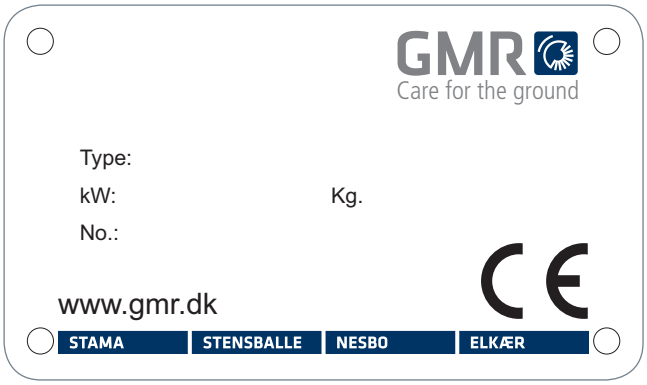


Do not pressure clean

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.

Customer services and claims

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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 ser 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.
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

GMR

Care for the ground

Saturnvej 17
DK-8700 Horsens
www.gmr.dk

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