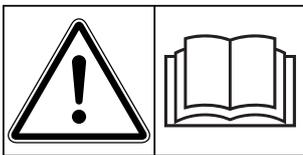
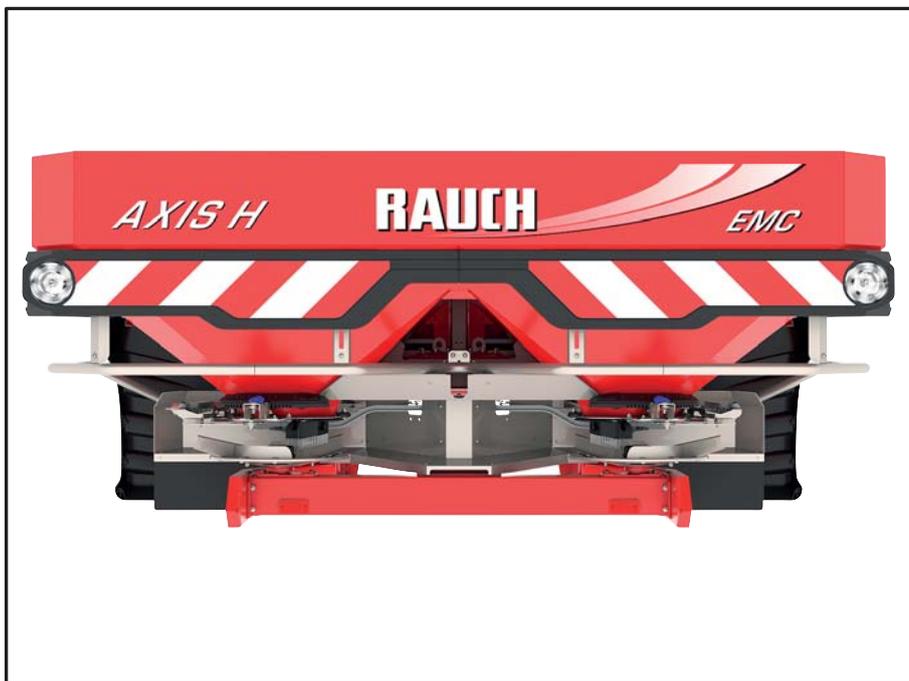




INSTRUCTION MANUAL



**Please read carefully
before using the ma-
chine.**

Keep for future reference.

This instruction manual/assembly instruction is to be considered as part of the machine. Suppliers of new and second-hand machines are required to document in writing that the instruction manual/assembly instruction was delivered with the machine and handed over to the customer.



30.2 EMC
30.2 EMC + W
50.2 EMC + W

AXIS H

Original instructions

5901562-**b**-en-0119

Preface

Dear Customer,

By purchasing the mineral fertiliser spreader of the AXIS H EMC series you have shown confidence in our product. Thank you very much! We want to justify this confidence. You have purchased a powerful and reliable machine.

However, in case unexpected problems arise: Our customer service team is always there for you.



Please read this operator's manual carefully before commissioning the row fertiliser and follow the advice given.

This operator's manual gives detailed instructions on the operation of the machine, as well as valuable information about its assembly, maintenance, and care.

This manual may also describe equipment that is not included in your machine.

Please note that damage caused by incorrect operation or improper use is not covered by warranty claims.

NOTE

Please enter the type and serial number as well as the year of construction of your machine here.

You can find this information on the nameplate and/or the frame.

Please always state this information when ordering spare parts or accessories, and in case of complaints.

Type

Serial number

Year of construction

Technical improvements

We are continuously improving our products. Therefore, we reserve the right to make any improvements and changes to our machine that we consider necessary without notice. This constitutes no obligation to make such improvements or changes on machines that have already been sold.

We will be pleased to answer any other questions that you might have.

Yours sincerely

RAUCH

Landmaschinenfabrik GmbH

Preface

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Terms/conditions of warranty	
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1 Intended use

The mineral fertiliser spreaders of the AXIS H EMC series may only be used in accordance with the stipulations of the present operator's manual.

The mineral fertiliser spreaders of the AXIS H EMC series are constructed in accordance with their intended use.

They may only be used for the application of dry, granular and crystalline fertilisers, seeds and slug pellets.

Any use beyond these specifications is considered as contrary to the intended use. The manufacturer shall not assume any liability for any damages resulting in this respect. The risk is solely carried by the operator.

The intended use also comprises the compliance with the operating, maintenance and repair conditions prescribed by the manufacturer. Only genuine spare parts made by the manufacturer may be used as replacements.

The mineral fertiliser spreaders of the AXIS H EMC series may only be used, maintained and repaired by people who are familiar with the characteristics of the machine and who are aware of the risks.

The instructions regarding the operation, service and safe handling of the machine as described in this operator's manual and as declared by the manufacturer in the form of warning signs and pictorial warnings on the machine must be strictly followed during operation.

Moreover, the relevant accident prevention regulations and any other generally recognised safety, occupational health, and road traffic regulations must be strictly observed when using this machine.

Any unauthorised modifications to the mineral fertiliser spreader of the AXIS H EMC series are inadmissible. The manufacturer will not assume any liability for damages occurring as a result of such modifications.

In the following chapters, the mineral fertiliser spreader is referred to as "**machine**".

Foreseeable misuse

With the warning notes and pictorial warnings attached to the mineral fertiliser spreader of the AXIS H EMC series, the manufacturer points out foreseeable misuse. Observe these warning notes and pictorial warnings to avoid using the mineral fertiliser spreader of the AXIS H EMC series in a way not intended in the operator's manual.

2 User instructions

2.1 About this operator's manual

This operator's manual is an **integral part** of the machine.

The operator's manual contains important information for a **safe, appropriate** and economic **use** and **maintenance** of the machine. Adherence to this operator's manual helps to **avoid risks**, to reduce repair costs and downtime, and to increase the machine's reliability and service life.

The complete documentation, comprising this operator's manual and any other documents provided, must be kept in an easily accessible location close to where the machine is used (e.g. in the tractor).

If the machine is sold, the operator's manual must also be passed to the new owner.

The operator's manual is intended for the operator of the machine and anyone involved in operating and maintaining it. It must be read, understood, and applied by all persons entrusted with the following work on the machine:

- Operation,
- Maintenance and cleaning,
- Repairing faults.

In particular, the following is to be observed:

- The chapter on safety,
- The warning instructions in the text of the individual chapters.

The **operator's manual does not replace** your **own responsibility** as the operator and operating personnel of the control unit.

2.2 Structure of the operator's manual

The operator's manual is divided into six key areas in terms of content:

- User instructions
- Safety instructions
- Machine data
- Instructions on the operation of the machine,
 - Transportation
 - Commissioning
 - Spreading operation
- Instructions on detecting and rectifying faults
- Maintenance and repair instructions

2.3 Notes on text descriptions

2.3.1 Instructions and procedures

Steps that the operator must carry out are shown as a numbered list.

1. Instruction for action step 1
2. Instruction for action step 2

Instructions involving only one step are not numbered. The same applies for action steps that do not have a specific sequence.

A bullet is placed in front of these instructions:

- Handling instruction

2.3.2 Listings

Listings without a specific sequence are shown with bullet points (level 1) and dashes (level 2):

- Property A
 - Point A
 - Point B
- Property B

2.3.3 References

References to other text passages in the document are indicated with section number, headline text and page number:

- **Example:** See also Chapter [3: Safety, page 5](#).

References to other documents are indicated as note or instruction without exact chapter or page number:

- **Example:** Please also observe the instructions contained in the manual for the universal drive shaft.

3 Safety

3.1 General Information

The chapter **Safety** contains basic warning notes as well as working and traffic safety instructions for the usage of the installed machine.

The adherence to the instructions in this chapter is a prerequisite for the safe handling and trouble-free operation of the machine.

There are additional warnings in the other chapters of this operator's manual, which must also be observed. The warning instructions are given before the text for the relevant actions.

Warning notes on the supplier components can be found in the respective supplier documentation. These warning instructions must also be observed.

3.2 Significance of warnings

The warning instructions in this manual have been structured according to the degree of danger and the probability of their occurrence.

Danger signs and symbols inform the user about other construction-related and unavoidable residual risks that may be encountered when operating the machine. The warning notes used are structured as follows:

Signal word	
Symbol	Explanation

Example

▲ DANGER	
	<p>Risk to life if warning is not observed</p> <p>Description of the danger and possible consequences.</p> <p>Ignoring these warnings will result in very serious or even fatal injury.</p> <p>▶ Measures to prevent the danger.</p>

Warning severity level

The degree of danger is indicated by the signal word. The levels are classified as follows:

▲ DANGER



Type and source of danger

This warning warns of a danger posing an immediate threat to the health and life of persons.

Ignoring these warnings will result in very serious or even fatal injury.

- ▶ Always observe the measures described to prevent this danger.
-

▲ WARNING



Type and source of danger

This warning warns of a possible dangerous situation for the health of persons.

Ignoring these warnings will result in very serious injury.

- ▶ Always observe the measures described to prevent this danger.
-

▲ CAUTION



Type and source of danger

This warning warns of a potentially dangerous situation for personal health or of material and environmental damage.

Ignoring this warning can result in injuries and damage to the product or the general area.

- ▶ Always observe the measures described to prevent this danger.
-

NOTICE

General information containing application tips and particularly useful information, but which constitutes neither warnings nor hazards.

3.3 General information on the safety of the machine

The machine is constructed in accordance with the state of the art and the recognized technical regulations. However, its usage and maintenance may cause danger to the health and life of the operator or third parties and/or the impairment of the machine and other material assets.

For this reason, the machine may only be operated

- when it is in a proper and roadworthy condition,
- in awareness of safety and dangers.

Therefore, it is imperative that you have read and understood the contents of the operator's manual. You must be familiar with the applicable accident protection regulations and the generally accepted regulations for safety, occupational health, and road traffic, and apply these rules as required.

3.4 Instructions for the operator

It is the operator's responsibility that the machine is used as intended.

3.4.1 Personnel qualifications

Before starting any work on or with the machine, all persons who are involved in operation, maintenance or service must have read and understood this operator's manual.

- The machine may only be operated by instructed personnel authorized by the owner.
- Persons who are apprentices, in training or under instruction may only work on the machine under the supervision of an experienced person.
- Only qualified maintenance staff may implement maintenance and service work.

3.4.2 Instruction

Distribution partners, works representatives or employees of the manufacturer will instruct the operator regarding the operation and maintenance of the machine.

The owner must ensure that newly recruited operating and maintenance personnel are instructed to the same extent and with the same care with regard to the operation and repair of the machine in compliance with this operator's manual.

3.4.3 Accident prevention

Safety and accident prevention regulations are governed by law in every country. The operator of the machine shall be responsible for the compliance with these regulations applicable in the country of use.

The following instructions must also be observed:

- Never let the machine run without supervision.
- Do not ride on the machine while it is working or being transported (**no passengers**).
- Do **not** use machine parts as steps.
- Always wear tight fitting clothes. Do not wear work clothes with belts, loose threads or other items that could snag.
- Follow the manufacturer's warning notes when handling chemicals. You may have to wear personal protective equipment (PPE).

3.5 Information on operational safety

Only use the machine in an operational safe state. Avoid hazardous situations.

3.5.1 Parking the machine

- Only park the machine with the hopper empty and on horizontal, solid ground.
- If the machine is parked alone (without tractor), open the metering slides completely. The return springs of the single-acting slide actuation are released.

3.5.2 Filling the machine

- Only fill the machine when the motor of the tractor is stopped. Remove the ignition key in order to ensure that the motor cannot be started.
- Use suitable auxiliary equipment for filling the machine (e.g. front-end loader, feed screw conveyor).
- Fill the machine no higher than the top-edge. Check the fill level, e.g. through the viewing window in the hopper (depending on the model).
- Only fill the machine with the protective grid closed. This way, faults during spreading caused by lumps in the spreading material or other foreign bodies are prevented.

3.5.3 Checks before start-up

Check the operating safety of the machine before the first and every subsequent commissioning.

- Are all safety devices at the machine installed and functioning?
- Are all fasteners and load-bearing connections tightly installed and in good condition?
- Are the spreading disks and their fixings in good condition?
- Are the protective grids in the hopper closed and locked?
- Is the test dimension of the protective grid lock within the proper range? See [figure 9.7](#) on [page 101](#).
- Is the hazard zone of the machine **clear** of persons?

3.5.4 Hazard zone

Flying spreading material may cause serious injury (e.g. to the eyes).

When persons are present between the tractor and the machine, there is a great hazard caused by the tractor rolling away or machine movements which may have fatal consequences.

The following figure displays the hazard zones of the machine.

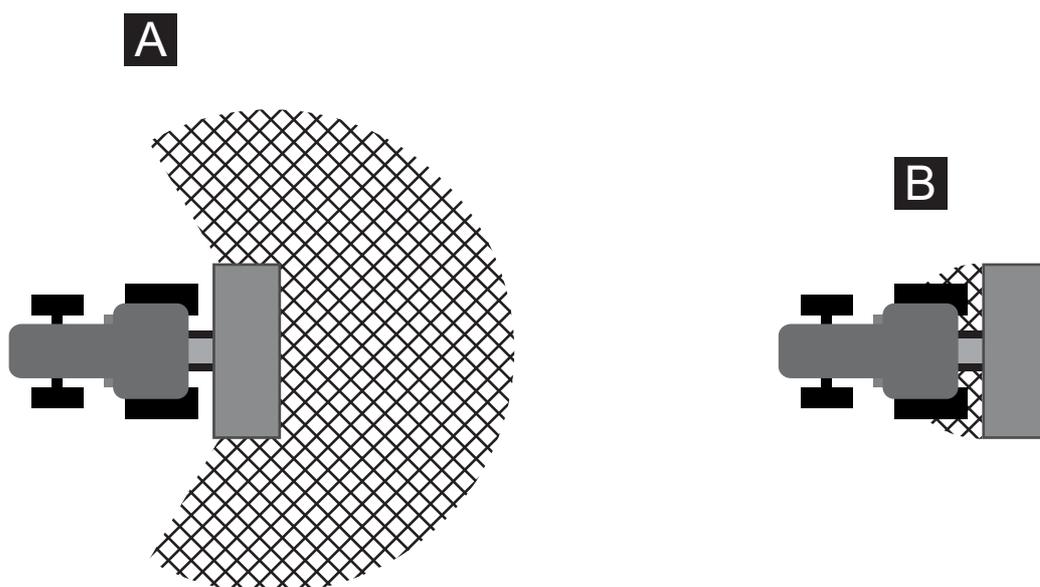


Figure 3.1: Hazard zones around attachment units

[A] Hazard zone in spreading operation

[B] Hazard zone when coupling/de-coupling the machine

- Ensure that no persons are present in the spreading range [A] of the machine.
- Immediately stop the machine and the tractor if persons are present in the hazard zone of the machine.
- When actuating the hydraulic lift, ensure that nobody is present in the hazard zone [B].

3.5.5 Operation

- If the machine malfunctions, stop the machine immediately and secure it. Have the fault repaired immediately by qualified technicians.
- Never climb onto the machine while the spreader unit is running.
- Only operate the machine with the protective grid in the hopper closed. During operation, the protective grid **must neither be opened nor removed**.
- Rotating machine components can cause serious injury. For this reason, ensure that you avoid any contact between body parts or clothes and rotating components.
- Do not deposit any external parts (such as screws, nuts) in the spreader hopper.
- Ejected spreader material may cause serious injury (e.g. to the eyes). For this reason, ensure that nobody is present in the spreading area of the machine.
- If the wind speed is too high, stop the spreading operation because the specified spreading range cannot be guaranteed under such conditions.
- Never climb onto the machine or the tractor when it is situated beneath high-voltage electrical power lines.

3.6 Use of fertiliser

An inappropriate selection or usage of the fertiliser may lead to severe personal injury or environmental damages.

- When selecting the fertiliser, inform yourself about its effects on persons, the environment, and the machine.
- Please follow the instructions of the fertiliser manufacturer exactly.

3.7 Hydraulic system

The hydraulic system is under high pressure.

Fluid escaping under high pressure can cause serious injuries and environmental damage. The following instructions must be observed to prevent danger:

- Always operate the machine below the permissible maximum operating pressure.
- Depressurise the hydraulic system **before** any **maintenance work**. Turn the tractor motor off. Secure it against reactivation.
- When looking for leaks, wear **protective glasses** and **protective gloves at all times**.
- In the case of injury in connection with hydraulic oil, **consult a physician immediately** as severe infections may occur otherwise.
- When connecting the hydraulic hoses to the tractor, ensure that the hydraulic system is **depressurised**, both on the tractor and the machine side.
- Attach the hydraulic hoses of the tractor and the spreader hydraulic systems only with the prescribed connections.
- Prevent any contamination of the hydraulic circuit. Always suspend the couplings in the brackets provided. Use the dust caps. Clean the connections before joining them.

- Regularly check the hydraulic components and hydraulic hose lines for mechanical defects, e.g. cuts and abrasions, contusions, bends, tears, porosity etc.
- Even when stored correctly and used within approved load limits, hoses and hose couplings are subject to a natural ageing process. This limits their storage and service life.

The service life of the hose lines may not exceed 6 years, including a possible storage time of maximally 2 years.

The date of manufacture of the hoses is indicated on the hose coupling in month and year

- Replace hydraulic hoses if damaged or aged.
- Replacement of hydraulic hoses must meet the technical requirements of the equipment manufacturer. In particular, note the different maximum pressure ratings of replacement hoses.

3.8 Maintenance and repair

Maintenance and service work involves additional hazards that do not occur during operation of the machine.

- Any maintenance and service work is to be conducted with increased alertness at all times. Work particularly thoroughly and cautiously.

3.8.1 Qualifications of maintenance staff

- Welding and work on the electrical and hydraulic systems is to be carried out by qualified technicians only.

3.8.2 Wear parts

- The maintenance and service intervals described in the present operator's manual are to be strictly adhered to at all times.
- Furthermore, the maintenance and repair intervals of the supplier components must also be complied with. See the supplier documentation for the relevant intervals.
- We recommend that you have the condition of the machine checked after each season by your specialist dealer, paying particular attention to its fixing components, safety-relevant plastic components, hydraulic system, metering parts and spreader vanes.
- Spare parts must at least comply with the technical standards specified by the manufacturer. The technical standards can be guaranteed by using genuine spare parts.
- Self-locking nuts are designed to be used only once. Always use new self-locking nuts to fasten components (e.g. when replacing spreading vanes).

3.8.3 Maintenance and service work

- **Always switch off the tractor engine** before all cleaning, maintenance and service work and when troubleshooting. **Wait until all rotating parts of the machine have come to a standstill.**
- Make sure that **no unauthorised person** can start the machine. Remove the ignition key of the tractor.
- Before any maintenance and service work, separate the current supply between tractor and machine.
- Disconnect the power supply before working on the electrical system.
- Check that the tractor with the machine is correctly parked. Park the spreader with an empty hopper on level, solid ground and secure it to prevent it from moving.
- Before carrying out any maintenance and service work, depressurise the hydraulic system.
- Never remove any clogging in the spreader hopper with your hand or foot, but use suitable tools for this purpose. In order to avoid clogging, only fill the hopper when the protective grid is mounted.
- Before cleaning the machine with water, steam or other cleaning agents, cover all components that must not get wet (e.g. bearings, electrical connections).
- Regularly check nuts and screws for their tight seat. Retighten loose connections.

3.9 Safety in traffic

When driving on public streets and roads, the tractor with the attached machine must comply with the road traffic regulations of the respective country. The owner and driver are responsible for compliance with these regulations.

3.9.1 Checks before driving

The pre-departure check is an important contribution to road safety. Before every trip, check compliance with the operating conditions, traffic safety, and the regulations of the country of operation.

- Is the permissible total weight complied with? Note the permitted axle load, the permitted braking load, and the permitted tyre load capacity; [See also "Axle load calculation" on page 39.](#)
- Is the machine attached appropriately?
- Could fertiliser be lost while travelling?
 - Check the level of the fertiliser in the hopper.
 - The metering slides must be closed.
 - The ball valves must also be closed on single-acting hydraulic cylinders.
 - Switch off the electronic control unit.
- Check the tyre pressures and the function of the tractor brake system.
- Does the lighting and marking of the machine comply with the regulations of your country with respect to driving on public roads? Make sure to make the fittings according to the regulations.

3.9.2 Transportation drive with the machine

Handling, steering, and braking performance of the tractor are affected by the attached machine. For example, an excessive weight of the machine will reduce the weight on the tractor's front axle and affect its steering.

- Be aware of the changed driving behaviour.
- When driving, always ensure that there is sufficient visibility. If vision is restricted (e.g. when reversing), another person is required to direct the driver.
- Observe the permissible maximum speed.
- Avoid sudden turns when driving uphill or downhill or across a slope. Due to the changed centre of gravity, there is a danger of overturning. Special care is to be particularly applied when driving on uneven, soft ground (e.g. when entering fields, kerbs).
- Arrest sideways movement of the lower link of the three-point linkage to prevent the machine from swinging.
- Passengers are prohibited on the machine during the drive and operation.

3.10 Safety equipment on the machine

3.10.1 Position of safety equipment

AXIS H 30.2 EMC/AXIS H 30.2 EMC + W

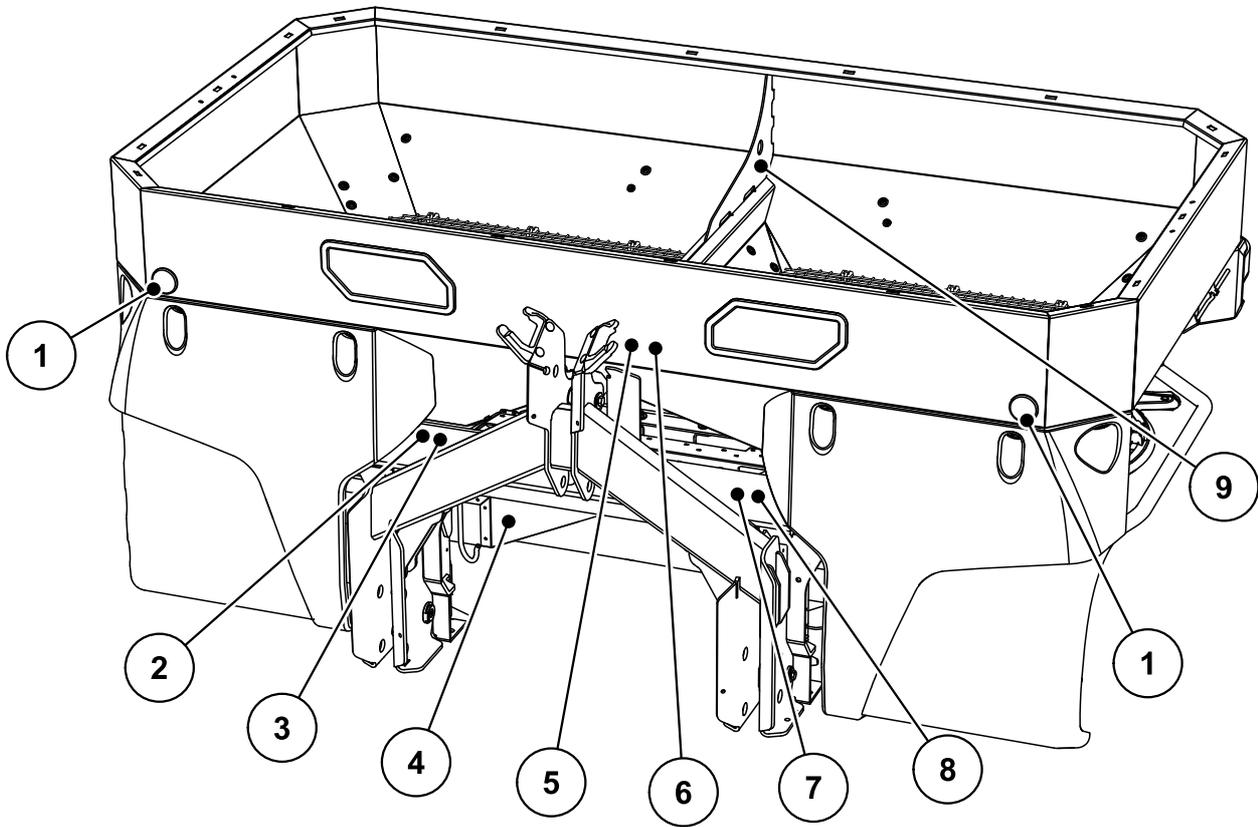


Figure 3.2: Safety equipment, warning and instruction stickers, front

- [1] White reflectors in front
- [2] Nameplate
- [3] Serial number
- [4] Spreading disc cover
- [5] Warning: read operator's manual
- [6] Warning: ejection of material
- [7] Instructions: maximum payload
- [8] Instructions: KS/LS switching
- [9] Instructions: Suspension points inside the hopper

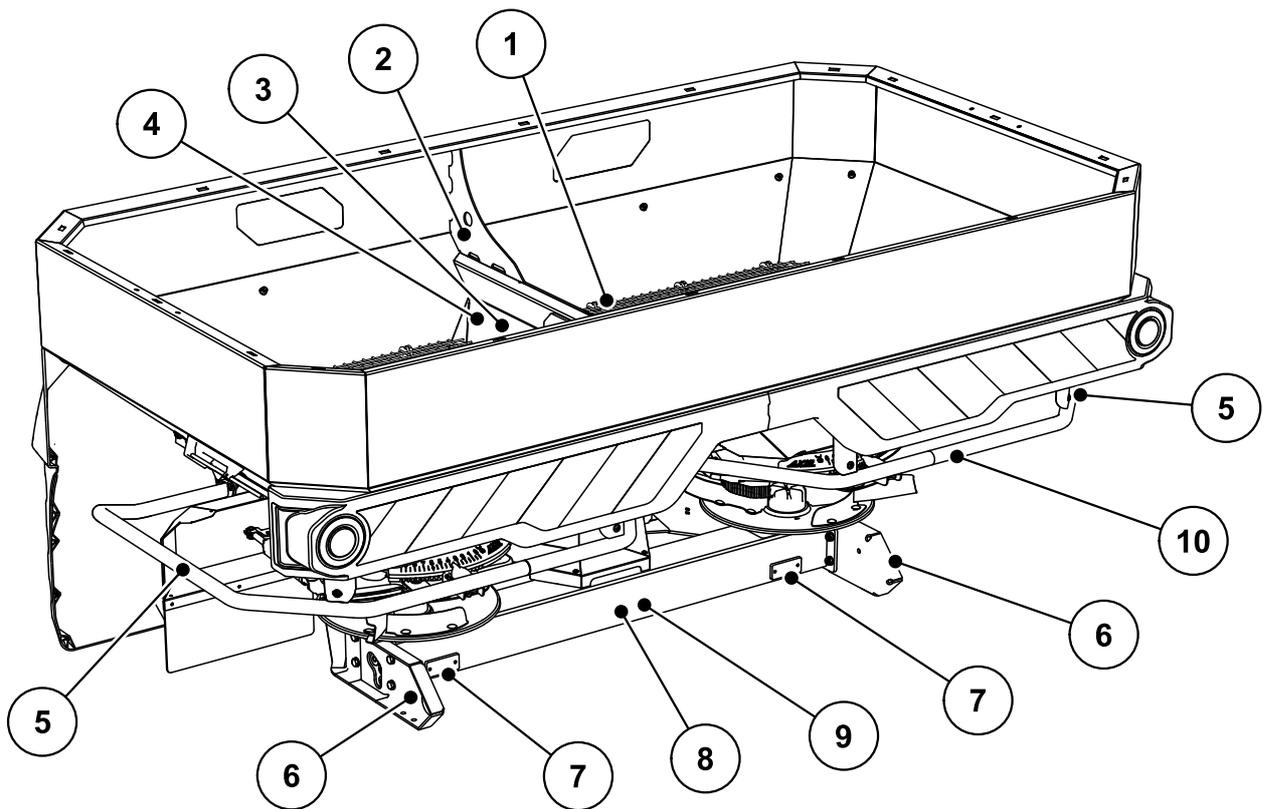


Figure 3.3: Safety equipment, warning and instruction stickers, rear

- [1] Protective grid in hopper
- [2] Suspension points inside the hopper
- [3] Protective grid lock
- [4] Instructions: protective grid lock
- [5] Deflector bracket
- [6] Yellow side reflectors
- [7] Red reflectors
- [8] Warning: remove ignition key
- [9] Warning: moving parts
- [10] Instructions: no climbing

AXIS H 50.2 EMC + W

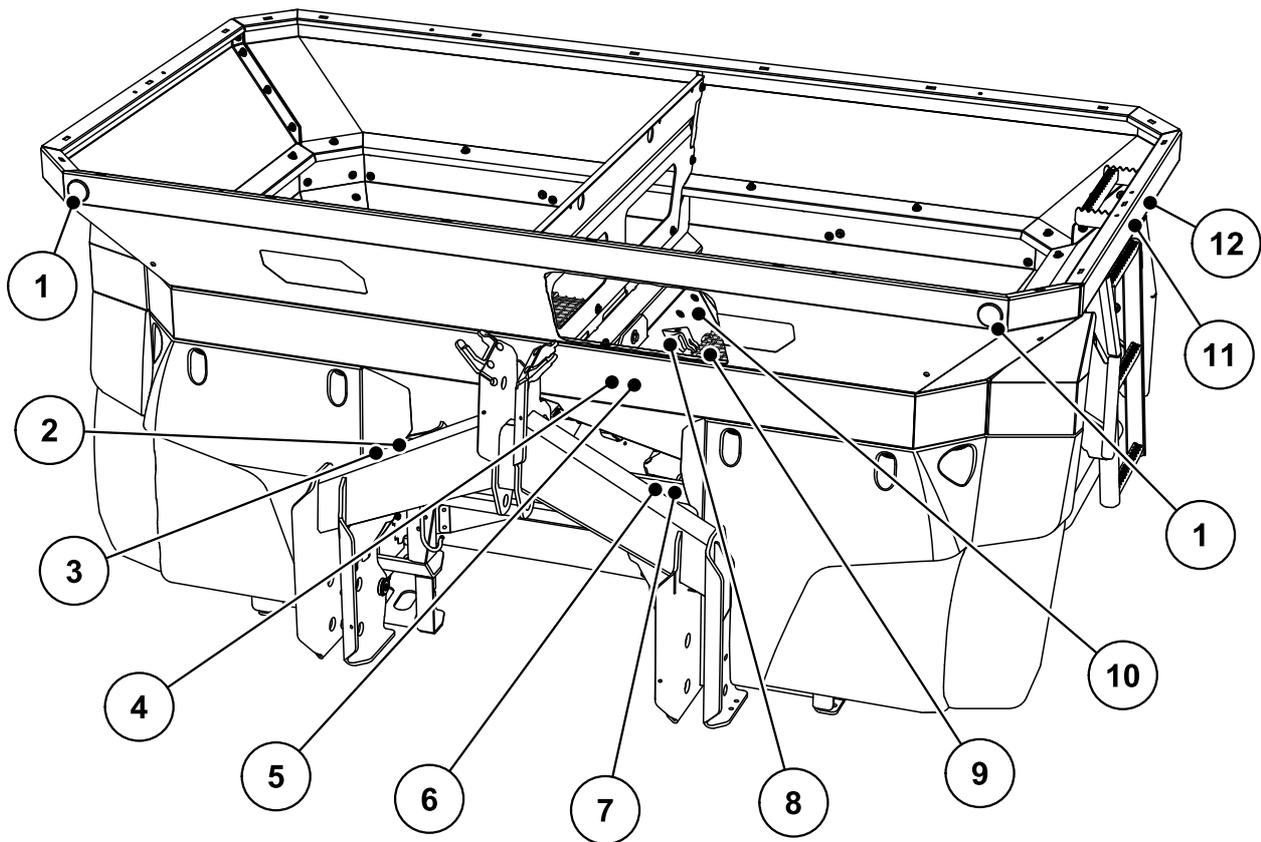


Figure 3.4: Safety equipment, warning and instruction stickers, front

- [1] White reflectors in front
- [2] Nameplate
- [3] Serial number
- [4] Warning: read operator's manual
- [5] Warning: ejection of material
- [6] Instructions: maximum payload
- [7] Instructions: KS/LS switching
- [8] Protective grid lock
- [9] Protective grid in hopper
- [10] Instructions: protective grid lock
- [11] Instructions: steps
- [12] Warning: passenger transport prohibited

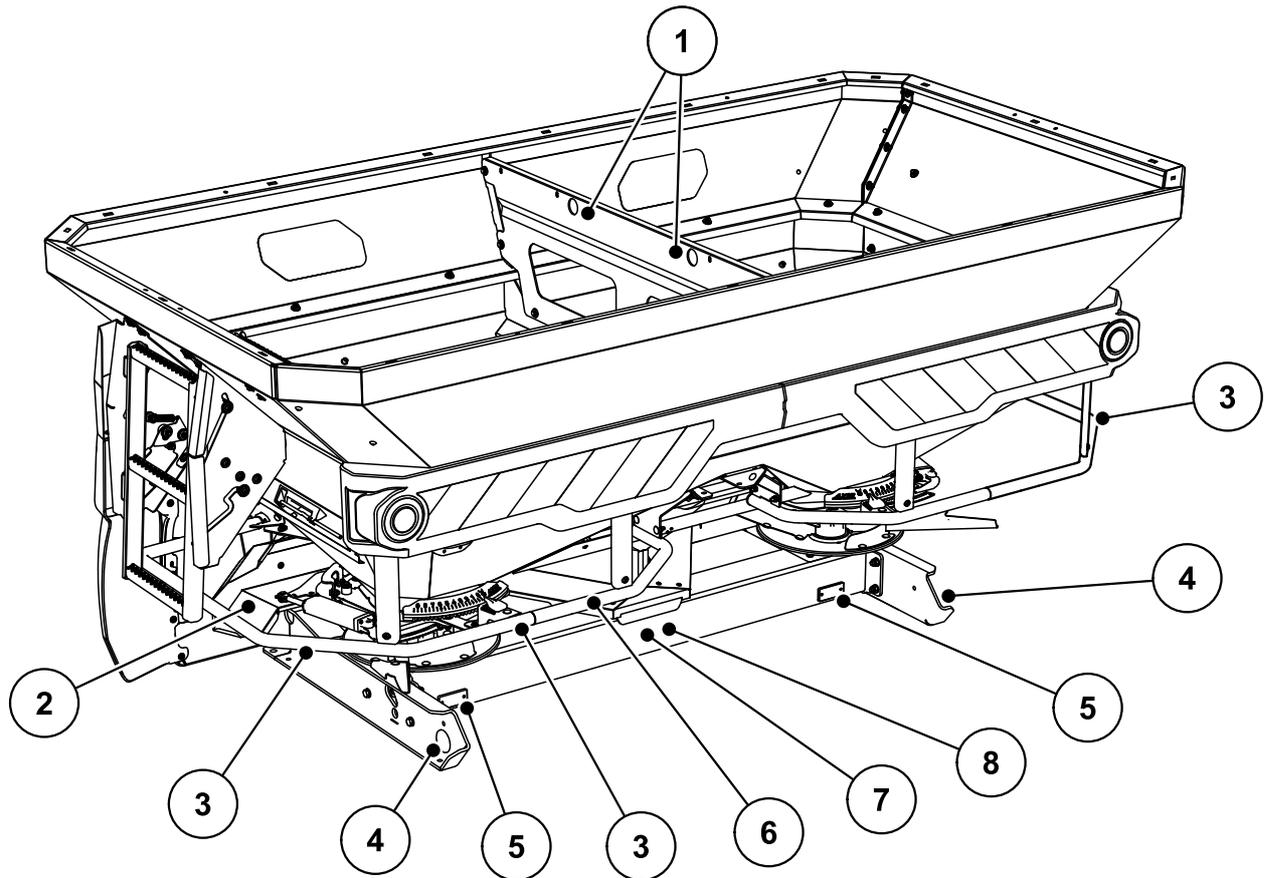


Figure 3.5: Safety equipment, warning and instruction stickers, rear

- [1] Instructions: Suspension points inside the hopper
- [2] Spreading disc cover
- [3] Instructions: no climbing
- [4] Yellow side reflectors
- [5] Red reflectors
- [6] Deflector bracket
- [7] Warning: moving parts
- [8] Warning: remove ignition key

3.10.2 Function of the safety equipment

The safety equipment is designed to protect your health and life.

- Before working with the machine, ensure that the safety equipment is functional.
- Only operate the machine when the safety equipment is functional.
- Do **not** use the deflector bracket to climb up on the machine. It is not designed for this. There is a risk of falling.

Name	Function
Protective grid in hopper	Prevents body parts from being caught by the rotating agitator. Prevents body parts from being cut off by the metering slider. Prevents faults during spreading caused by lumps in the spreading material, large stones or other large objects (screening effect).
Protective grid lock	Prevents the inadvertent opening of the protective grid in the hopper. Engages mechanically if protective grid is closed properly. Can only be opened by using a tool.
Deflector bracket	Protection against getting caught by the rotating spreading discs from behind and from the side.
Spreading disc cover	Protection against getting caught by the rotating discs from the front. Prevents the fertiliser from being ejected towards the front (in the direction of the tractor/workstation).

3.11 Warning and instruction stickers

There are various warning and instruction stickers affixed to the machine (for the position of said stickers on the machine see [3.10.2: Function of the safety equipment, page 18](#)).

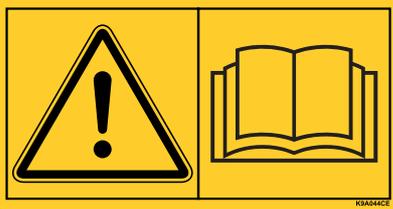
The warning and instruction stickers are components of the machine. They must not be removed or modified. Missing or illegible warning and instruction stickers must be replaced immediately.

If new components are installed during repairs, the same warning and instruction stickers that were on the original parts must be placed on the new parts.

NOTICE

The correct warning and instruction stickers can be obtained from the spare parts service.

3.11.1 Warning stickers

	<p>Read the operator's manual and warning messages.</p> <p>Read and observe the operator's manual and warning messages before commissioning the machine.</p> <p>The operator's manual explains in detail how to operate the spreader and contains valuable information on operation, care and maintenance.</p>
	<p>Danger due to ejection of material</p> <p>Danger of injury to the whole body caused by ejected spreading material</p> <p>Before commissioning, instruct all people to leave the hazard zone (spreading range) of the machine.</p>
	<p>Danger due to moving parts</p> <p>Risk of body parts being cut off</p> <p>It is prohibited to reach into the danger area of the rotating spreading discs or the agitator.</p> <p>Switch off the engine and remove the key before carrying out any maintenance, repair and adjustment work.</p>
	<p>Danger of crushing due to moving parts</p> <p>Risk of body parts being cut off</p> <p>It is prohibited to reach into the hazard zone of the metering slide.</p> <p>Switch off the engine and remove the key before carrying out maintenance, repair and adjustment work.</p>
	<p>Remove the ignition key.</p> <p>Before carrying out any repair and maintenance work, shut off the engine and remove the ignition key.</p>
	<p>Taking a passenger is prohibited</p> <p>Risk of slipping and injury. Do not climb on the machine during spreading and transport.</p>

	<p>Crushing hazard between the tractor and the machine</p> <p>There is a crushing hazard that may result in fatal injury for persons standing between the tractor and the machine when the tractor approaches or the hydraulic system is actuated.</p> <p>The tractor may brake too late or not at all because of inattention or faulty operation.</p> <p>Ensure that nobody is present in the hazard zone between the tractor and the machine.</p>
	<p>Risk of injury from the hydraulic system</p> <p>Hot fluids and fluids escaping under high pressure may cause severe injury.</p> <p>They can also penetrate the skin and cause infections.</p> <p>Depressurise the hydraulic system before carrying out any maintenance work.</p> <p>When looking for leaks wear protective glasses and gloves at all times.</p> <p>In case of injury in connection with hydraulic oil, immediately seek medical attention!</p> <p>Observe the documentation provided by the manufacturer.</p>

3.11.2 Instruction stickers

	<p>Steps</p> <p>Climbing on the retracted steps is prohibited.</p> <p>Only climb on the steps when they are extended.</p> <p>Only travel on the road with the steps retracted.</p>
	<p>Suspension points inside the hopper</p> <p>Labelling of the bracket for fixing the hoisting gear</p>
	<p>Lubrication point</p>
	<p>Protective grid lock</p> <p>The grid is automatically locked when the protective grid in the hopper is closed properly. It can only be unlocked by using a tool.</p>
	<p>Maximum payload (depending on model)</p>

	<p>KS/LS switching</p> <p>Screw in the adjustment screw until reaching a stop, LS mode.</p> <p>Unscrew the adjustment screw until reaching a stop, KS mode.</p>
	<p>Instructions on the dirt deflector interlock</p>
	<p>Fertiliser chart app</p> <p>For Android / IOS with DiS (fertiliser identification system) function</p> <p>With QR code for quick installation</p>

3.12 Homologation sign

NOTICE

When delivering your machine, ensure that all necessary signs are present.

- Depending on the country of destination, additional signs can be attached to the machine.



Figure 3.6: Nameplate

- [1] Manufacturer
- [2] Serial number
- [3] Maschine
- [4] Type
- [5] Empty weight

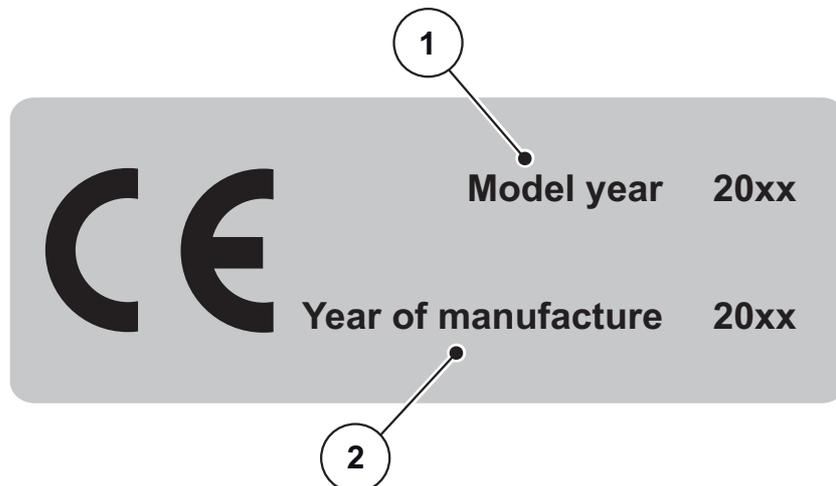


Figure 3.7: CE Homologation

- [1] Model year
- [2] Year of construction

3.13 Reflector

The machine is factory-fitted with passive front, back and side labelling (for an illustration of the positioning on the machine, see chapter [3.10.1: Position of safety equipment, page 14](#)).

4 Technical data

4.1 Manufacturer

RAUCH Landmaschinenfabrik GmbH

Landstraße 14

D-76547 Sinzheim

Phone: +49 (0) 7221 / 985-0

Fax: +49 (0) 7221 / 985-200

Service Centre, Technical Customer Service

RAUCH Landmaschinenfabrik GmbH

Postfach 1162

D-76545 Sinzheim

Phone: +49 (0) 7221 / 985-250

Fax: +49 (0) 7221 / 985-203

4.2 Description of the machine

Use the machines of the AXIS H EMC series in accordance with chapter [„Intended use“ on page 1](#).

The machine consists of the following assemblies.

- 2-chamber hopper with agitators and discharges
- Frame and coupling points
- Drive elements (drive shaft and transmission)
- Metering elements (agitator, metering slide, scale for the spreading volume)
- Elements for adjusting the working width
- Safety equipment; see [„Safety equipment on the machine“ on page 14](#).

4.2.1 Assembly overview AXIS H 30.2 EMC

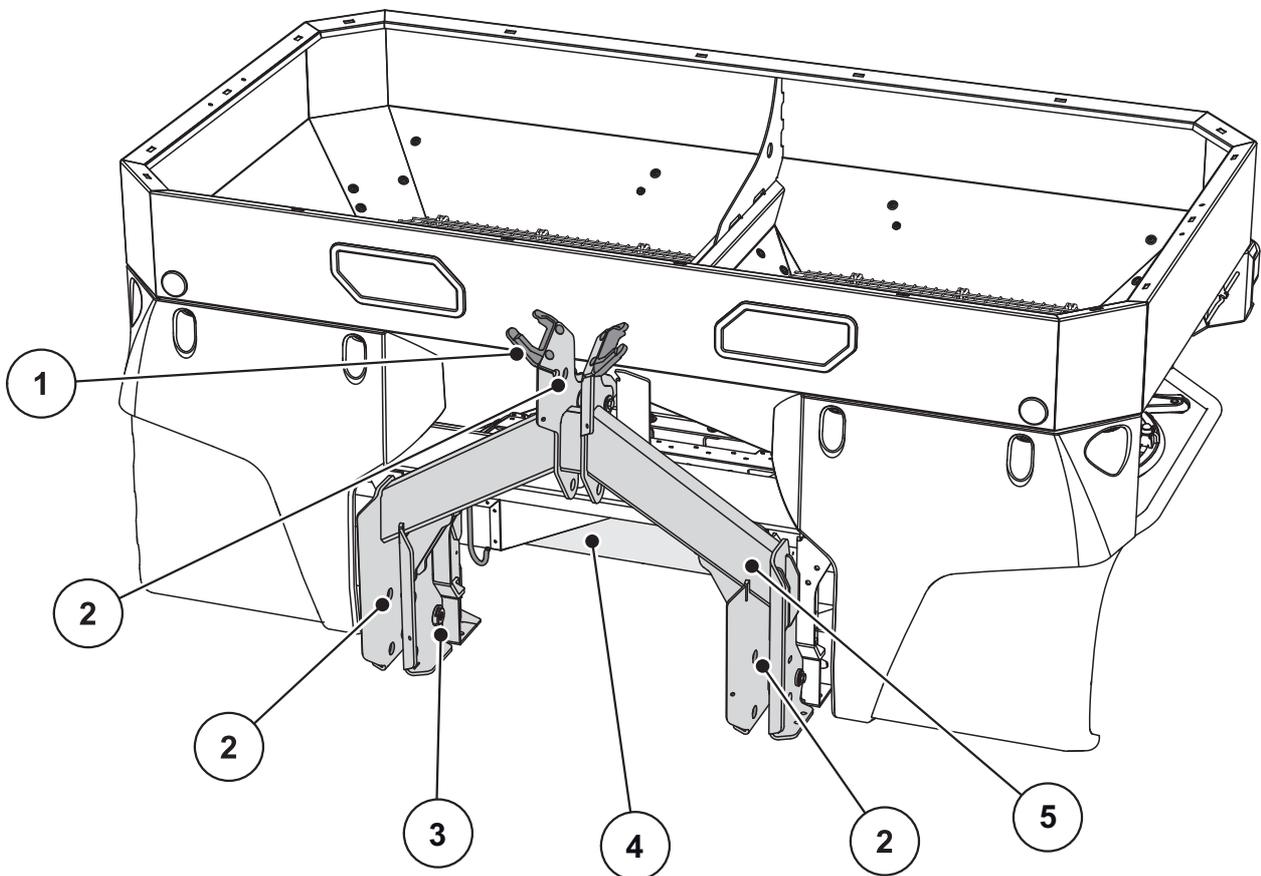


Figure 4.1: Assembly overview: Example: AXIS H 30.2 EMC, front

- [1] Hose and cable tray
- [2] Coupling points
- [3] Weigh cells (depending on model)
- [4] Hydraulics panel for H EMC function
- [5] Frame or weigh frame (depending on model)

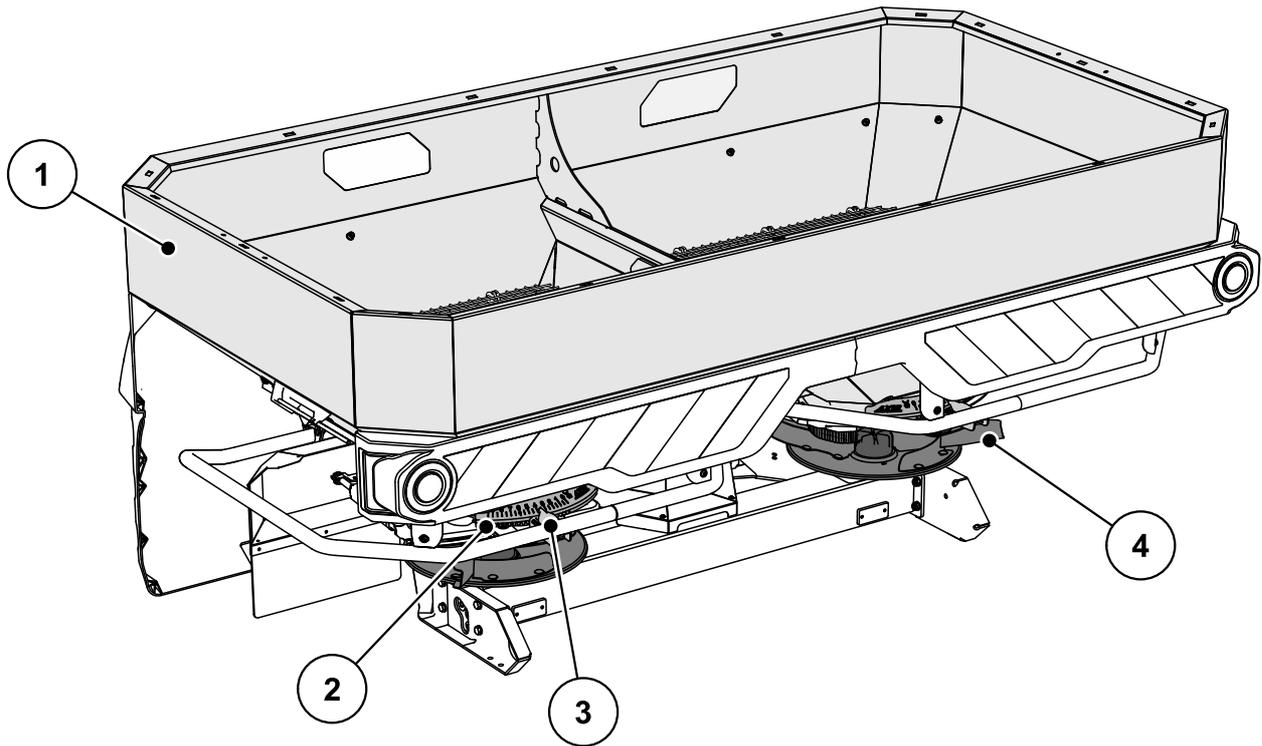


Figure 4.2: Assembly overview: Example: AXIS H 30.2 EMC - rear

- [1] Hopper: Inspection window, filling level scale (depending on model)
- [2] Scale for the spreading volume (left/right)
- [3] Drop point adjustment centre (left/right)
- [4] Spreading disc (left/right)

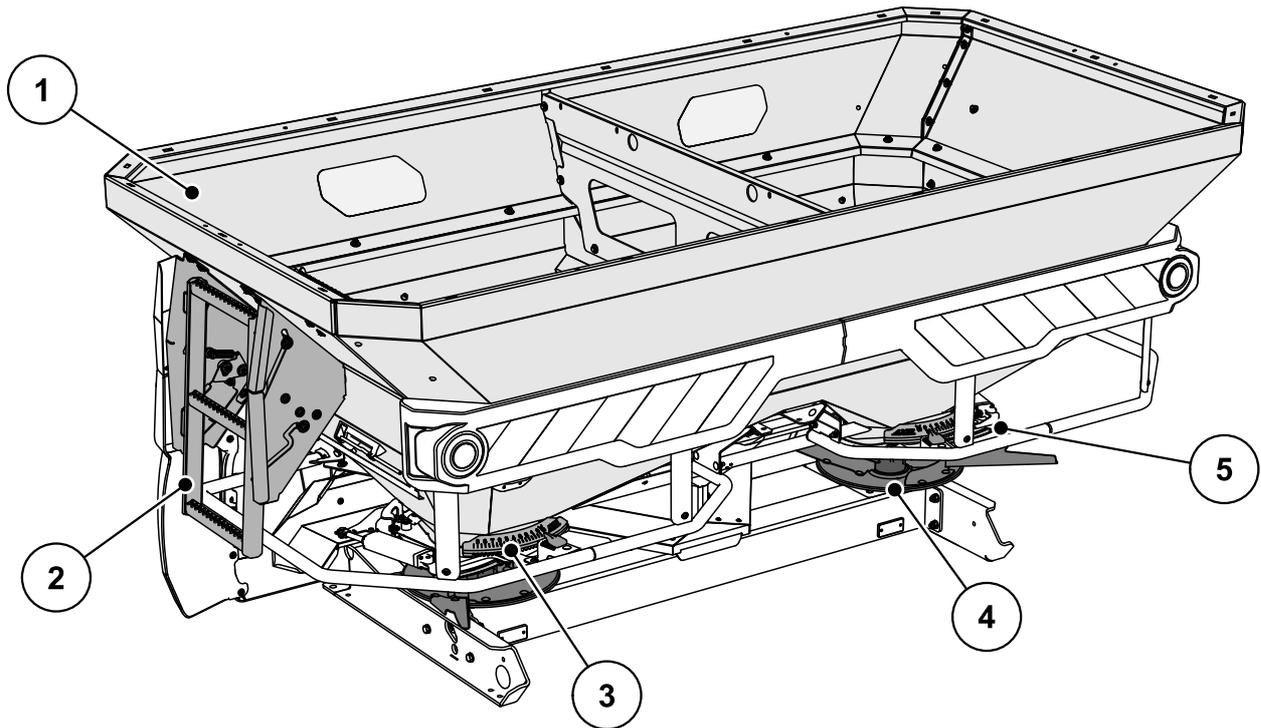


Figure 4.4: Assembly overview AXIS H 50.2 - Rear

- [1] Hopper: Inspection window, filling level scale (depending on model)
- [2] Steps
- [3] Drop point adjustment centre (left/right)
- [4] Spreading disc (left/right)
- [5] Scale for the spreading volume (left/right)

4.2.3 Hydraulics panel for H EMC function

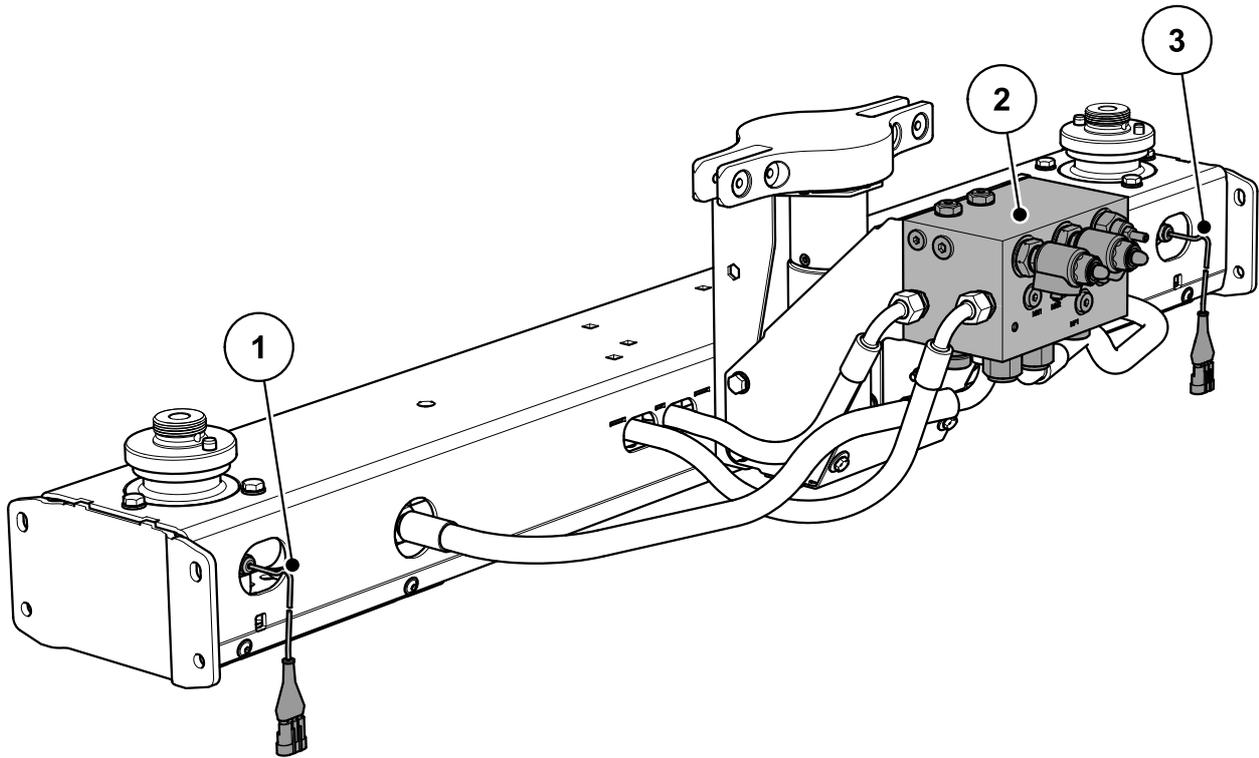


Figure 4.5: Mass flow control by measuring the torque of the spreading discs:
AXIS H 30.2/50.2 EMC

- [1] Torque / speed sensor, right (direction of travel)
- [2] Hydraulic block
- [3] Torque / speed sensor, left (direction of travel)

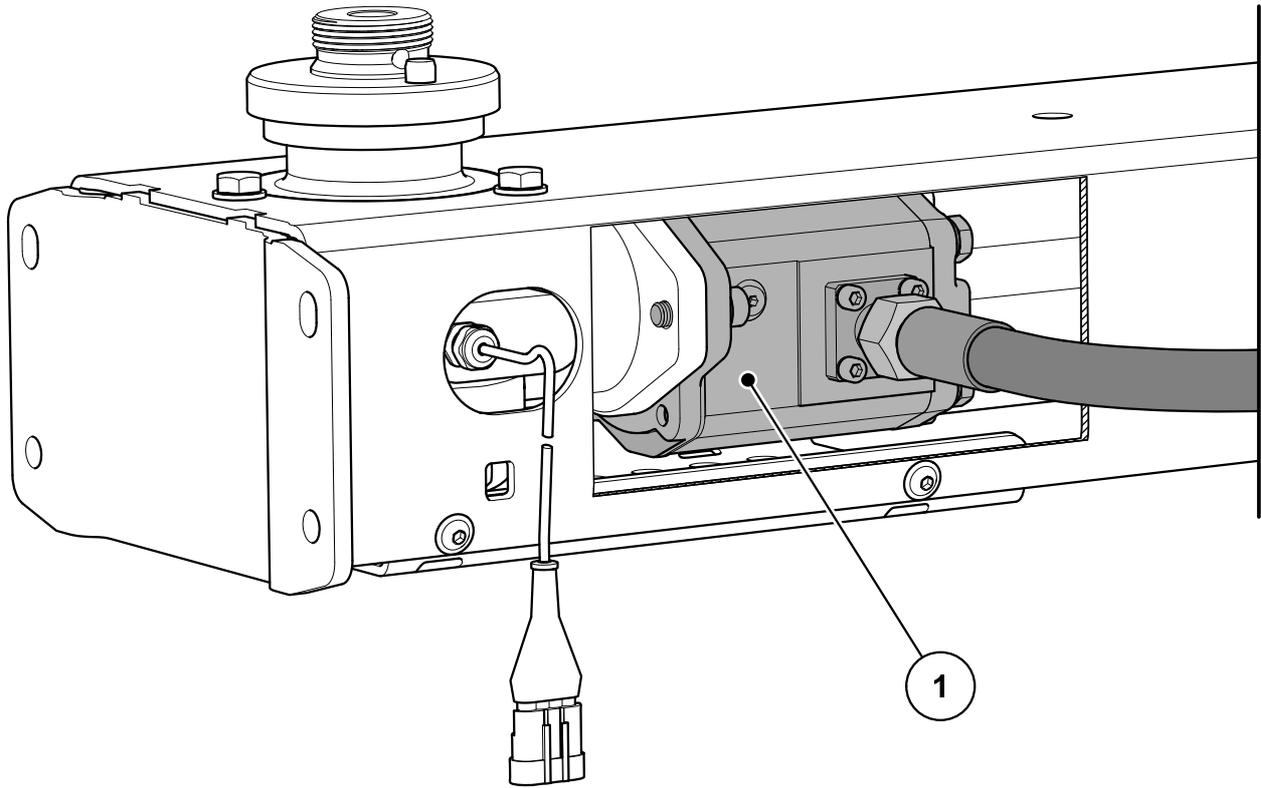


Figure 4.6: Hydraulic motor for spreading disc drive

[1] Hydraulic motor

4.2.4 Agitator

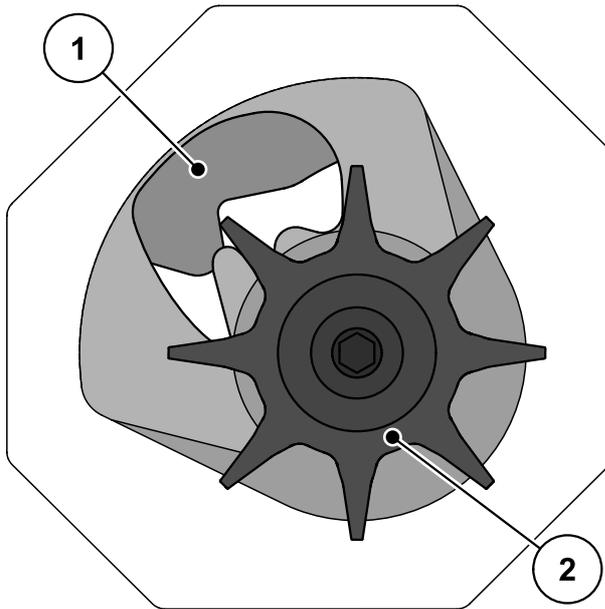


Figure 4.7: Agitator

- [1] Metering slide
- [2] Agitator

4.3 Machine data

4.3.1 Versions

Type	AXIS H 30.2 EMC	AXIS H 30.2 EMC + W AXIS H 50.2 EMC + W
Spreading depending on forward speed	•	•
Electrical drop point setting	•	•
RPM control	•	•
EMC - Mass flow control	•	•
VariSpread (2 electrical drop point actuators)	•	•
Weigh cells		•

4.3.2 Technical data of basic equipment

Dimensions:

Data	AXIS H 30.2 EMC	AXIS H 30.2 EMC + W	AXIS H 50.2 EMC + W
Overall width	240 cm	240 cm	290 cm
Overall length	141.5 cm	145.0 cm	161.0 cm
Filling height (basic machine)	107 cm	107 cm	131 cm
Distance between centre of gravity and lower link point	65.5 cm	72.5 cm	74.5 cm
Filling width	230 cm	230 cm	270 cm
Working width ¹	12 - 42 m	12 - 42 m	18 - 50 m
Hopper capacity	1,400 l	1,400 l	2,200 l
Mass flow ² max.	500 kg/min	500 kg/min	500 kg/min
Hydraulic pressure max.	210 bar	210 bar	210 bar
Hydraulic performance	50 l/min	50 l/min	65 l/min
Sound pressure level ³ (measured in the closed driver's cab of the tractor)	75 dB(A)	75 dB(A)	75 dB(A)

1. Working width depending on fertiliser and disc type
2. Max. mass flow depending on fertiliser type
3. Since the sound pressure level of the mineral fertiliser spreader can only be determined when the tractor is running, the actual measured value is greatly dependent on the tractor type being used.

Weights and loads:

NOTICE

The empty weight (mass) of the mineral fertiliser spreader varies depending on the feature package and attachment combination. The empty weight (mass) indicated on the nameplate relates to the standard version.

Data	AXIS H 30.2 EMC	AXIS H 30.2 EMC + W	AXIS H 50.2 EMC + W
Empty weight	355 kg	415 kg	710 kg
Payload max.	3200 kg		4200 kg

4.3.3 Technical data of the extensions

For machines of the AXIS H EMC series, various extensions are available. The capacity, dimensions and weights may change depending on the selected feature package.

NOTICE

The maximum payload must not be exceeded by the combination of extensions.

Extension	AXIS H 30.2 EMC, AXIS H 30.2 EMC + W					
	L603	L800	L1500	XL1103	XL1300	XL1800
Change in capacity	+ 600 l	+ 800 l	+ 1,500 l	+ 1,100 l	+ 1,300 l	+ 1,800 l
Change in filling height	0	+ 26 cm	+ 50 cm	+ 24 cm	+ 38 cm	+ 52 cm
Extension size max.	240 x 130 cm			280 x 130 cm		
Extension weight	30 kg	45 kg	75 kg	60 kg	65 kg	85 kg
Description	3-sided	4-sided	4-sided	3-sided	4-sided	4-sided

Extension	AXIS H 50.2 EMC + W	
	GLW1000	GLW2000
Change in capacity	+ 1000 l	+ 2000 l
Change in filling height	+ 22 cm	+ 44 cm
Extension size max.	290 x 150 cm	
Extension weight	52 kg	86 kg
Description	4-sided	4-sided

4.4 List of available accessories

NOTICE

We recommend that you have the extra equipment fitted and mounted on the basic machine by your supplier or an authorised service centre.

4.4.1 Extensions

You can increase the capacity of the basic equipment by fitting a hopper extension.

The extensions are bolted to the standard hopper.

NOTICE

An overview of the extensions can be found in chapter [4.3.3: Technical data of the extensions, page 34](#).

4.4.2 Hopper cover

A hopper cover can be fitted to protect the spreading material from rain and moisture.

The hopper cover is screwed both to the main hopper as well as to the additionally mounted hopper extensions.

Hopper cover	Application
AP-L 25.2, foldable	<ul style="list-style-type: none"> Standard unit Extensions: L603¹, L800, L1500
AP-XL 25.2, foldable	<ul style="list-style-type: none"> Extensions: XL1103¹, XL1300, XL1800
AP-L 50.2, foldable	<ul style="list-style-type: none"> Extensions: GLW1000, GLW2000

1. A supplementary hopper cover is necessary for this extension.

4.4.3 Hopper cover supplement

For the hopper extensions L603 and XL1103, supplementary covers are required in addition to the hopper cover.

Hopper cover supplement	Application
APE-L 25, foldable	<ul style="list-style-type: none"> Extension: L603
APE-XL 25, foldable	<ul style="list-style-type: none"> Extension: XL1103

4.4.4 Electrical remote control of the hopper cover AP drive

With this remote control, you can electrically fold in and out the hopper cover from the cabin of the tractor.

4.4.5 Auxiliary lighting

The machine can be fitted with auxiliary lighting.

Lighting	Application
BLF 25.2/50.2	<ul style="list-style-type: none">● Front lighting● with warning sign● for wide extensions
BLF 15.2	<ul style="list-style-type: none">● Front lighting● without warning sign● for wide extensions

NOTICE

The lighting mounted ex works depends on the country of use of the attachment.

- Contact your dealer/importer if you need rear lighting.
-

NOTICE

Attachments are subject to the lighting regulations specified in the traffic regulations. Observe the traffic regulations of your country.

- Observe the traffic regulations of your country.
-

4.4.6 Steps

The steps support entering the hopper of the AXIS H 30.2 EMC fertiliser spreader, in particular with XL extension (mounted on the left).

Additional steps can be mounted at the right side of the AXIS H 50.2 EMC fertiliser spreader.

NOTICE

The steps **must never** be used during the spreading operation!

- Before starting the spreading operation, the steps are to be folded in at all times.
-

4.4.7 Stabilising rollers with bracket ASR 25

For parking and manually moving the empty mineral fertiliser spreader.

The stabilising rollers consist of two turning wheels in front and two non-turning wheels at the rear without wheel lock.

4.4.8 GSE 30 limited border spreading unit (only for AXIS H 30.2 EMC)

Limits the spreading width (either towards the left or right) to a range between approx. 0 m and 3 m from the centre of the tractor to the outer edge of the field. The metering slide that points to the field edge is closed.

- Fold the border spreading unit downwards for border spreading.
- The border spreading unit must be hinged up again before the two-sided spreading can be started.

4.4.9 GSE 60 limited border spreading unit (only for AXIS H 50.2 EMC)

Limits the spreading width (either towards the left or right) to a range between approx. 0 m and 3 m from the centre of the tractor to the outer edge of the field. The metering slide that points to the field edge is closed.

- Fold the boundary spreading unit downwards for boundary spreading.
- The limited border spreading unit must be hinged up again before starting two-sided spreading.

4.4.10 Hydraulic remote control FHD 30-60 for GSE 30 and GSE 60

This remote control is used from the tractor cabin to hydraulically swing the limited border spreading unit into position or to swing it from limited border spreading position into the two-sided spreading position.

For operating the FHD 30-60 hydraulic remote control, a double-acting control valve is required.

4.4.11 Dirt deflector extension SFG-E 30 (only for AXIS H 30.2 EMC)

If the protective function of the SFG 30 dirt deflector is not sufficient, the SFG-E 30 dirt deflector extension can be mounted additionally.

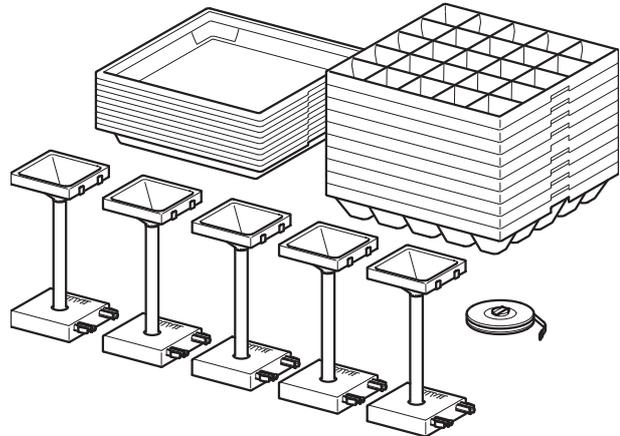
4.4.12 Spreader vane set Z14, Z16, Z18

This set of spreading vanes is used for spreading anti-slug pellets. The anti-slug bait spreader vane replaces the short spreading vane on the right and left spreading disc.

Set	Application
Z14	● Spreading disc S4
Z16	● Spreading disc S6
Z18	● Spreading disc S8

4.4.13 Practice test kit PPS5

For checking the cross-distribution in the field.



4.4.14 Fertiliser identification system DiS

Fast and uncomplicated determination of spreader settings when working with unfamiliar fertilisers.

4.4.15 Hydraulic pressure filter

For long and fault-free operation of hydraulic components.

4.4.16 Fertiliser chart booklet

The newest fertiliser charts can now be accessed at all times online or via the fertiliser chart app.

However, if you need a printed version of the fertiliser charts, you can order them from your dealer/importer.

4.4.17 SpreadLight operating lights

Only for machines with an electronic control unit (ISOBUS-Terminal)

The SpreadLight special equipment supports the user in visually checking the individual spreading functions during the spreading operation in the dark.

The SpreadLight special equipment consists of an intensive LED light and is targeted onto the spreading compartments. Potential incorrect settings or blocks in the metering slides are immediately recognized.

Additionally, they allow the user to more quickly react to objects or danger zones in the external spreading area which are hard to detect, especially in the event of large working widths, when it is dark.

▲ CAUTION



Danger of blinding

When travelling in public road traffic, the SpreadLight operating lights may blind other road users.

- ▶ Always switch off the operating lights before travelling on a public road.

5 Axle load calculation

⚠ CAUTION



Risk of overload

Mounted units on the front or rear three-point linkage must not cause the approved total weight to be exceeded. The front axle of the tractor must be loaded with a minimum weight of 20 % of the empty weight of the tractor at all times.

- ▶ Before using the machine, ensure that these conditions are met.
- ▶ Implement the following calculations or weigh the tractor-machine combination.

Calculation of total weight, axle loads and tyre load capacity as well as of the required minimum ballast weights.

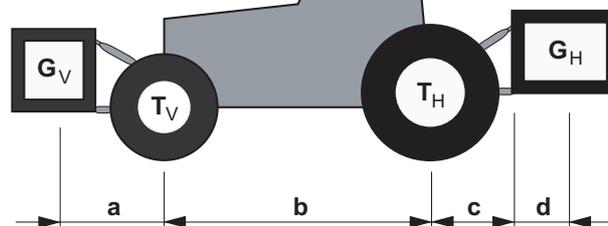


Figure 5.1: Loads and weights

You will need the following data for the calculation:

Character [unit]	Meaning	Calculation by (table footer)
T_L [kg]	Empty weight of the tractor	[1]
T_V [kg]	Front axle load of the empty tractor	[1]
T_H [kg]	Rear axle load of the empty tractor	[1]
G_V [kg]	Total weight of front-mounted unit/front ballast	[2]
G_H [kg]	Total weight of rear-mounted unit/rear ballast	[2]
a [m]	Distance between centre of gravity of front-mounted unit / front ballast and centre of front axle	[2], [3]
b [m]	Wheel base of the tractor	[1], [3]
c [m]	Distance between centre of rear axle and centre of lower link ball	[1], [3]
d [m]	Distance between centre of lower link ball and centre of gravity of rear-mounted unit / rear ballast	[2]

[1] See operator's manual of the tractor

[2] See price list and/or operator's manual of the unit

[3] To be measured

Rear-mounted unit and/or front-rear combinations

Calculation of the minimum ballast front $G_{V \min}$

$$G_{V \min} = \frac{(G_H \cdot (c + d) - T_V \cdot b + 0,2 \cdot T_L \cdot b)}{a + b}$$

Enter the calculated minimum ballast requirement in the table.

Front-mounted unit

Calculation of the minimum ballast rear $H_{H \min}$

$$G_{H \min} = \frac{(G_V \cdot a - T_H \cdot b + 0,45 \cdot T_L \cdot b)}{b + c + d}$$

Enter the calculated minimum ballast requirement in the table.

If the front-mounted unit (G_V) is lighter than the minimum ballast at the front ($G_{V \min}$), the weight of the front-mounted unit must be increased to at least the weight of the minimum front ballast.

Calculation of the actual front axle load $T_{V \text{tat}}$

$$T_{V \text{tat}} = \frac{(G_V \cdot (a + b) + T_V \cdot b - G_H \cdot (c + d))}{b}$$

Enter the calculated actual front axle load as well as the admissible front axle load specified in the tractor's operator's manual in the table.

If the rear-mounted unit (G_H) is lighter than the minimum ballast at the rear ($G_{H \min}$), the weight of the rear-mounted unit must be increased to at least the weight of the minimum rear ballast.

Calculation of the actual total weight G_{tat}

$$G_{\text{tat}} = (G_V + T_L + G_H)$$

Enter the calculated actual total weight as well as the admissible total weight specified in the tractor's operator's manual in the table.

Calculation of the actual rear-axle load $T_{H \text{tat}}$

$$T_{H \text{tat}} = (G_{\text{tat}} - G_{V \text{tat}})$$

Enter the calculated actual rear axle load as well as the admissible rear axle load specified in the tractor's operator's manual in the table.

Tyre load capacity
Enter double the value (two tyres) of the admissible tyre load capacity (for example, see the tyre manufacturer's documentation) in the table.

Axle loads table:

	Actual value according to calculation	Admissible value according to operator's manual	Twice the admissible tyre load capacity (two tyres)
Minimum ballast front / rear	<input type="text"/> kg	—	—
Total weight	<input type="text"/> kg	\leq <input type="text"/> kg	—
Front axle load	<input type="text"/> kg	\leq <input type="text"/> kg	\leq <input type="text"/> kg
Rear axle load	<input type="text"/> kg	\leq <input type="text"/> kg	\leq <input type="text"/> kg

The minimum ballast must be mounted on the tractor as an attachment or as ballast weight.

The calculated values must be less than or equal to the admissible values.

6 Transportation without tractor

6.1 General safety instructions

Read the following instructions before transporting the machine:

- If no tractor is used, the machine may only be transported with an empty hopper.
- The work may only be carried out by suitable, trained and expressly authorised personnel.
- Suitable means of transportation and lifting equipment (e.g. crane, forklift truck, lifting tackle ...) are to be used.
- Determine the transportation route early, and remove possible obstacles.
- Check that all safety and transportation devices are fully operational.
- Secure all danger areas appropriately, even if they only exist briefly.
- The person responsible for transportation must ensure that the machine is transported appropriately.
- Unauthorised persons are to be kept away from the transport route. The areas concerned must be cordoned off.
- Cautiously transport the machine and handle it with care.
- Make sure that allowance is made for the centre of gravity. If necessary, adjust the lifting tackle so that the machine is correctly suspended.
- Transport the machine to the final destination as close to the ground as possible.

6.2 Loading and unloading, parking

1. Determine the weight of the machine.
Details are provided on the nameplate.
If applicable, also take the weight of mounted special equipment into account.
2. Carefully lift the machine with suitable lifting equipment.
3. Carefully set the machine down on the loading platform of the transport vehicle or on solid ground.

7 Commissioning

7.1 Accepting the machine

When accepting the machine, please check the completeness of the delivery.

The standard equipment includes

- 1 mineral fertiliser spreader of the AXIS H EMC series
- 1 AXIS H EMC operator's manual
- 1 fertiliser chart (on paper or CD),
- 1 calibration kit comprising chute and calculator,
- Lower link and upper link pins,
- 1 spreading disc set (according to order)
- 1 agitator
- Protective grid in hopper
- 1 ISOBUS machine control unit

Please also check any optional equipment that you ordered.

Check for any shipping damage or missing parts. Have any shipping damage confirmed by the forwarding agent.

NOTICE

When receiving the machine, check that all attached components are correctly and securely tightened.

The right-hand spreading disc and left-hand spreading disc must be mounted facing the direction of travel.

If in doubt, contact your dealer or the factory directly.

7.2 Tractor requirements

To ensure a safe and correct use of the machine of the AXIS H EMC series, the tractor must meet the necessary mechanical, hydraulic, and electrical requirements.

- Oil supply: **max. 210 bar**, single or double-acting valve (depending on equipment)
- Hydraulic performance depending on machine type: **45 - 65 l/min**, constant flow or load sensing system,
- Free return **min. internal diameter of 18 mm**,
- On-board voltage: **12 V**,
- Three-point linkage, category II (AXIS H 30.2 EMC).
- Three-point linkage, category III (AXIS H 50.2 EMC).

7.3 Attaching the machine to the tractor

7.3.1 Requirements

⚠ DANGER



Danger to life due to inattention or faulty operation.

There is a crushing hazard that may result in fatal injury for persons standing between the tractor and the machine when the tractor approaches or the hydraulic system is actuated.

The tractor may brake too late or not at all because of inattention or faulty operation.

- ▶ Ensure that nobody is present in the hazard zone between the tractor and the machine.

Check the following specific requirements:

- Are both the tractor and the machine in a reliable condition?
- Does the tractor comply with the mechanical, hydraulic, and electrical requirements?
 - See [“Tractor requirements” on page 45.](#)
- Do the attachment categories of the tractor and the machine match (if necessary, consult your dealer)?
- Is the machine securely positioned on level and solid ground?
- Do the axle loads conform to the stipulated calculations?
 - See [“Axle load calculation” on page 39](#)

Position of the distance washers (only for AXIS H 50.2 EMC, category III)

Ensure the correct position of the distance washers [2] included in the scope of delivery on each side of the lower link ball [1].

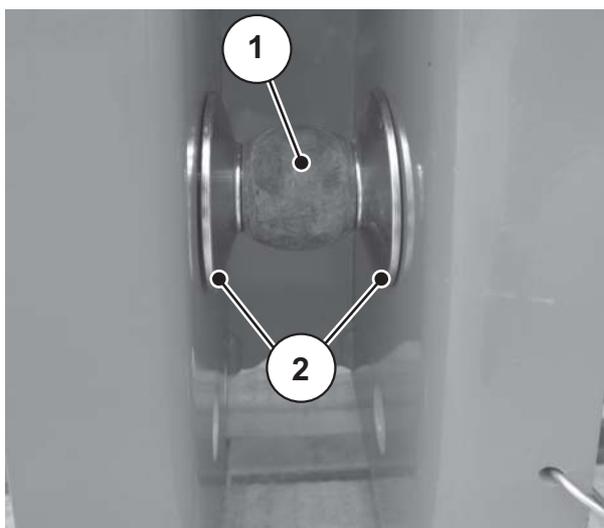


Figure 7.1: Position of the distance washers when installing the machine (AXIS H 50.2 EMC, category III)

7.3.2 Attachment

⚠ DANGER**Danger to life due to inattention or faulty operation.**

There is a crushing hazard that may result in fatal injury for persons standing between the tractor and the machine when the tractor approaches or the hydraulic system is actuated.

The tractor may brake too late or not at all because of inattention or faulty operation.

- ▶ Ensure that nobody is present in the hazard zone between the tractor and the machine.

The machine is installed at the three-point linkage (rear power lift) of the tractor.

NOTICE

Always use the **upper coupling points** of the machine for normal fertilising and late fertilising. See [figure 7.2](#).

- The lower coupling points on the machine which are meant for the lower links of the tractor should be used **only in exceptional circumstances** in late fertilising. See [7.4: Presetting the mounting height, page 51](#).

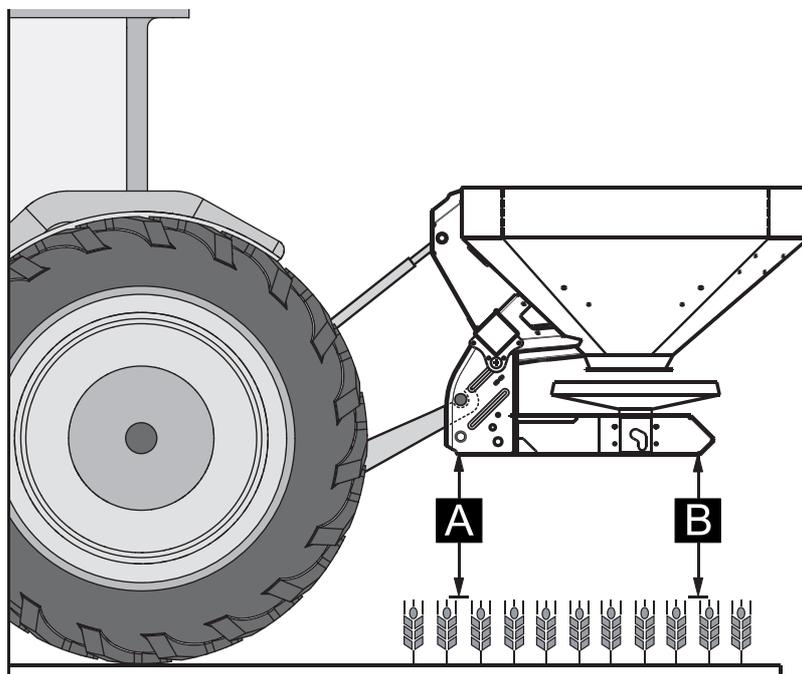


Figure 7.2: Mounting position

Mounting instructions

- **Only AXIS H 30.2 EMC:** The machine can be connected to a tractor with category III linkage only with category II clearance. Use reducing sleeves.
 - The bottom and upper link pins must be secured with linch pins or spring clips.
 - Attach the machine according to the values in the fertiliser chart. This guarantees the correct cross-distribution of the fertiliser.
 - Any oscillating movements during spreading are to be avoided. Make sure that the machine does not have too much sideways play.
 - The lower link arms of the tractor are to be braced by means of stabilising struts or chains.
1. Start the tractor.
 2. Move the tractor to the machine.
 - Do not latch the lower link hooks into place yet.
 - Make sure there is enough space between the tractor and the machine in order to be able to connect the drives and control elements.
 3. Switch the tractor motor off. Remove the ignition key.

NOTICE

The machine can be connected to various hydraulic systems.

- Hydraulic systems with constant flow pump (delivery condition)
Hydraulic systems with variable pump without external load sensing connection (constant flow operation)
- Hydraulic systems with variable pump with external load sensing connection (Power Beyond)

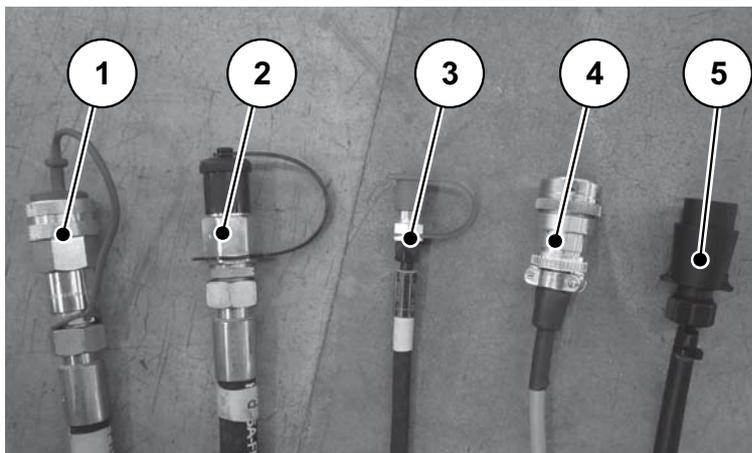


Figure 7.3: Mineral fertiliser spreader connection lines

- [1] Free return
- [2] Pressure line
- [3] Load sensing signal line
- [4] ISOBUS connector plug
- [5] Lighting cable

NOTICE

The hydraulic line connections are form-fit. Always connect suitable connectors. The connections and coupling heads of the lines must be clean.

4. Setting the hydraulic operating mode:

a) Constant flow (delivery condition)

- Connect the free return line [1] and the pressure line [2] with BG3 male couplings with the respective tractor couplings.
- The adjustment screw is unscrewed up to the limit stop at the hydraulic block.
- The adjustment screw is secured with a counter nut.
- The load sensing line [3] is not in use. Safely store the hose on the cable tray of the machine.

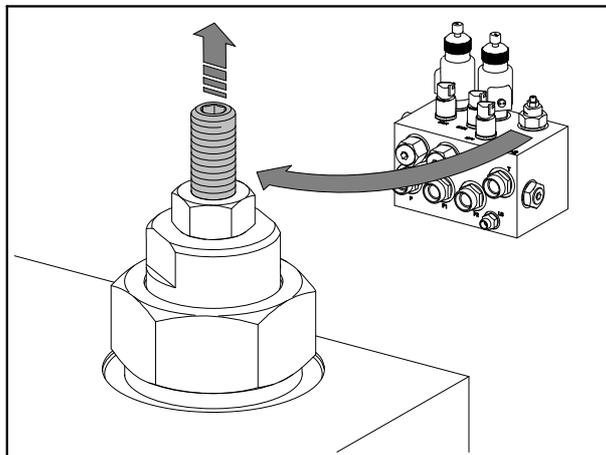


Figure 7.4: Untightened adjustment screw at the hydraulic block for KS

b) Load sensing operation (Power Beyond)

- Release the counter nut of the adjustment screw at the hydraulic block.
- Completely screw in the adjustment screw at the hydraulic block.
- Tighten the counter nut.
- Fit the pressure line [2] with a BG4 male coupling. The BG4 male coupling is supplied with the machine.
- Connect the free return line [1], the pressure line [2] and the load sensing line [3] to the respective tractor couplings.

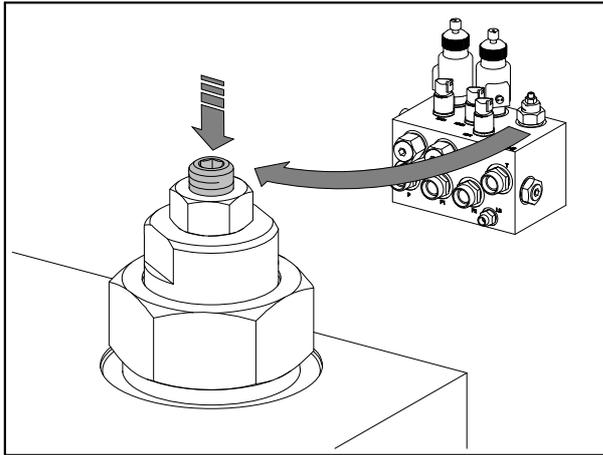


Figure 7.5: Set the adjustment screw at the hydraulic block for LS

5. Connect the ISOBUS connector plug [4] to the ISOBUS coupler socket at the rear of the tractor.
6. Connect the lighting cable [5].

NOTICE

The machines of the AXIS H EMC series are equipped with an electronic metering slide actuator.

The electric slide actuation is described in a separate operator's manual for the electronic controls. This operator's manual is an integral part of the electronic control unit.

7. From the tractor cab, connect the lower link hooks and the upper link to the designated coupling points; please refer to the operator's manual of the tractor.

NOTICE

We recommend using lower link hooks together with a hydraulic upper link for safety and comfort. See [figure 7.2](#).

8. Check the tight seat of the machine.
9. Carefully raise the machine to the desired lifting height.
10. Preset the mounting height according to the fertiliser chart. See [7.7.2: Settings as per fertiliser chart, page 61](#).

7.4 Presetting the mounting height

7.4.1 Safety

⚠ DANGER



Risk of being crushed under the falling-down machine

If the upper link halves are accidentally rotated totally apart from each other, it may happen that the upper link cannot compensate for the tractive forces of the machine. This may result in the machine abruptly tilting over backwards or falling down.

This can lead to severe personal injury. Machines can be damaged.

- ▶ When extending the upper link, always observe the maximum admissible length specified by the tractor or upper link manufacturer.
- ▶ Ensure that nobody is present in the hazard zone of the machine.

⚠ WARNING



Risk of injury from rotating spreading discs!

The distribution unit (spreading disc, vanes) may catch and pull-in body parts or objects. Contact with the distribution unit may injure, crush or cut off body parts.

- ▶ Maximum admissible mounting heights at front (V) and rear (H) are to be complied with at all times.
- ▶ Ensure that nobody is present in the hazard zone of the machine.
- ▶ Never remove deflectors mounted on the hopper.

General instructions before setting the mounting height

- We recommend that you choose the highest coupling point on the tractor to connect the upper link, particularly for high lifting heights.

NOTICE

Always use the **upper coupling points** of the machine for normal fertilising and late fertilising.

- The lower coupling points on the machine which are meant for the lower links of the tractor should be used **only in exceptional circumstances** in late fertilising.

7.4.2 Maximum admissible mounting height at front (V) and rear (H)

The **maximum** admissible mounting height (**V + H**) is measured **from the ground** to the lower edge of the frame.

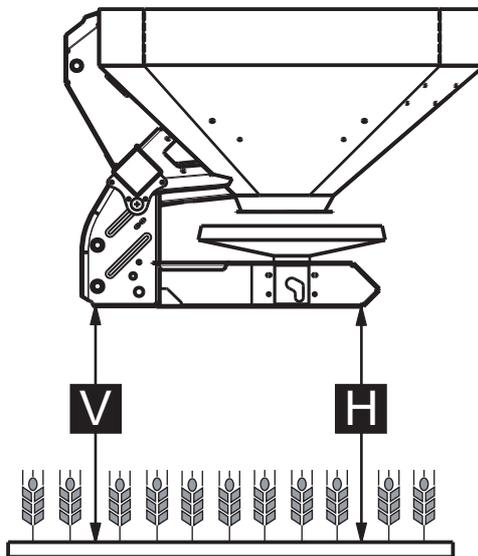


Figure 7.6: Maximum admissible mounting height V and H during normal and late fertilising

The maximum admissible mounting height depends on the following factors:

- Normal fertilisation or late fertilising.

Machine type	Maximum admissible mounting height			
	during normal fertilising		during late fertilising	
	V [mm]	H [mm]	V [mm]	H [mm]
AXIS H 30.2 EMC	1040	1040	950	1010
AXIS H 30.2 EMC + W				
AXIS H 50.2 EMC + W	990	990	900	960

7.4.3 Mounting heights A and B according to fertiliser chart

The mounting heights in the fertiliser chart (**A and B**) are always measured in the field from the top of the **crop height** to the bottom edge of the frame.

NOTICE

The values of A and B can be taken from the **fertiliser chart**.

Setting the mounting height during normal fertilisation

Requirements:

- The machine is installed at the highest connecting point of the upper link at the tractor.
- The lower link of the tractor is installed at the **upper coupling point of the lower link** of the machine.

Proceed as follows when determining the mounting height (in normal fertilisation):

1. Determine the mounting heights **A and B** (above crop height) from the fertiliser chart.
2. Compare the mounting heights **A and B** plus the crop height with the maximum admissible mounting heights at the front (V) and rear (H).

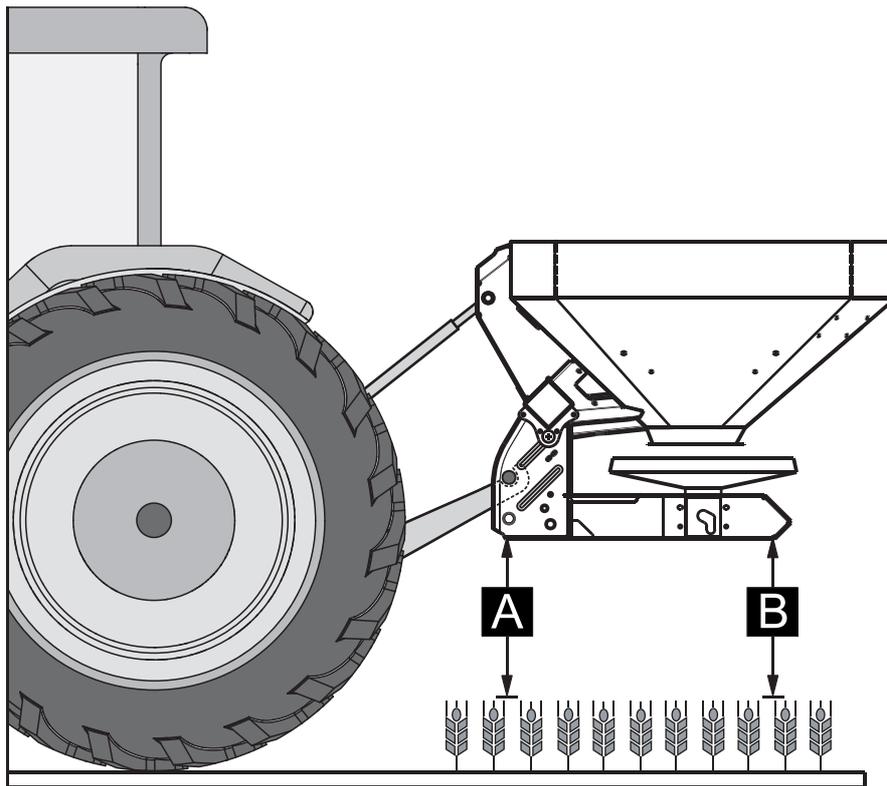


Figure 7.7: Mounting position and height during normal fertilisation

The following applies:

	AXIS H 30.2 EMC, AXIS H 30.2 EMC + W	AXIS H 50.2 EMC + W
A + crop height \leq V	Max. 1040 mm	Max. 990
B + crop height \leq H	Max. 1040 mm	Max. 990

3. If the maximum admissible mounting height of the machine is exceeded in the normal fertilisation mode, or if the mounting heights A and B cannot be reached: The machine is to be mounted according to the **late fertilising** values.

Setting the mounting height during late fertilising

Requirements:

- The machine is installed at the highest connecting point of the upper link at the tractor.
- The lower link of the tractor is installed at the **upper coupling point of the lower link** of the machine.

Proceed as follows when determining the mounting height (in late fertilising mode):

1. Determine the mounting heights **A** and **B** (above crop height) from the fertiliser chart.
2. Compare the mounting heights **A** and **B** (plus the crop height) with the maximum admissible mounting heights at the front (V) and rear (H).

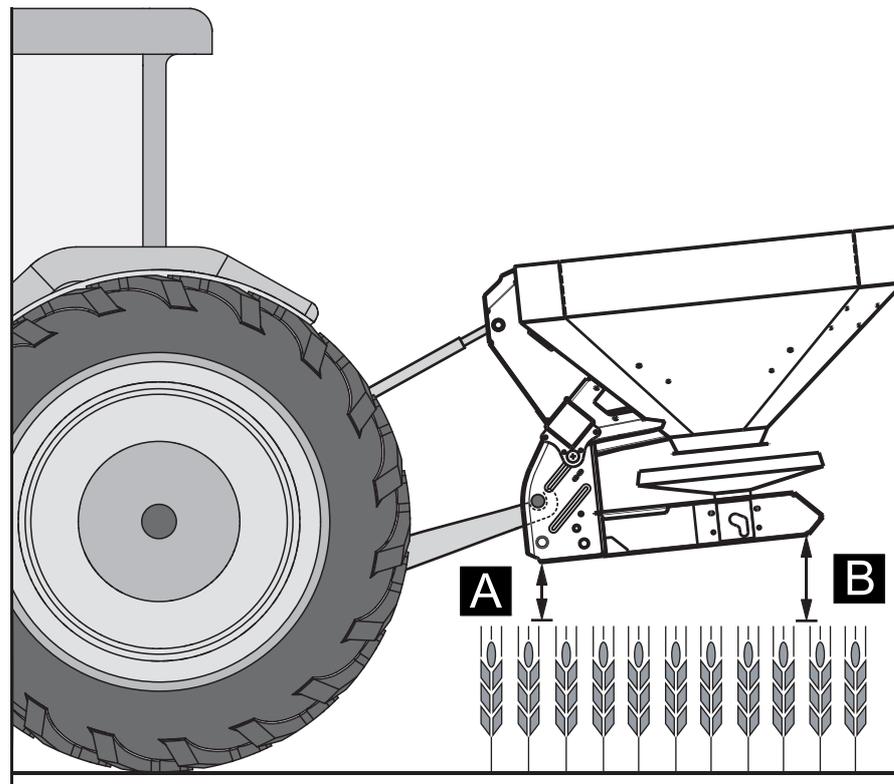


Figure 7.8: Mounting position and height during late fertilising

The following applies:

	AXIS H 30.2 EMC, AXIS H 30.2 EMC + W	AXIS H 50.2 EMC + W
A + crop height ≤ V	Max. 950 mm	Max. 900
B + crop height ≤ H	Max. 1,010 mm	Max. 960

- If the lifting height of the tractor is insufficient for setting the required mounting height: use the lower coupling point on the lower link of the machine.

NOTICE

Make sure that the **maximum admissible length** specified by the upper link or tractor manufacturer is not exceeded.

- Please observe the instructions in the operator's manual provided by the tractor and upper link manufacturer.

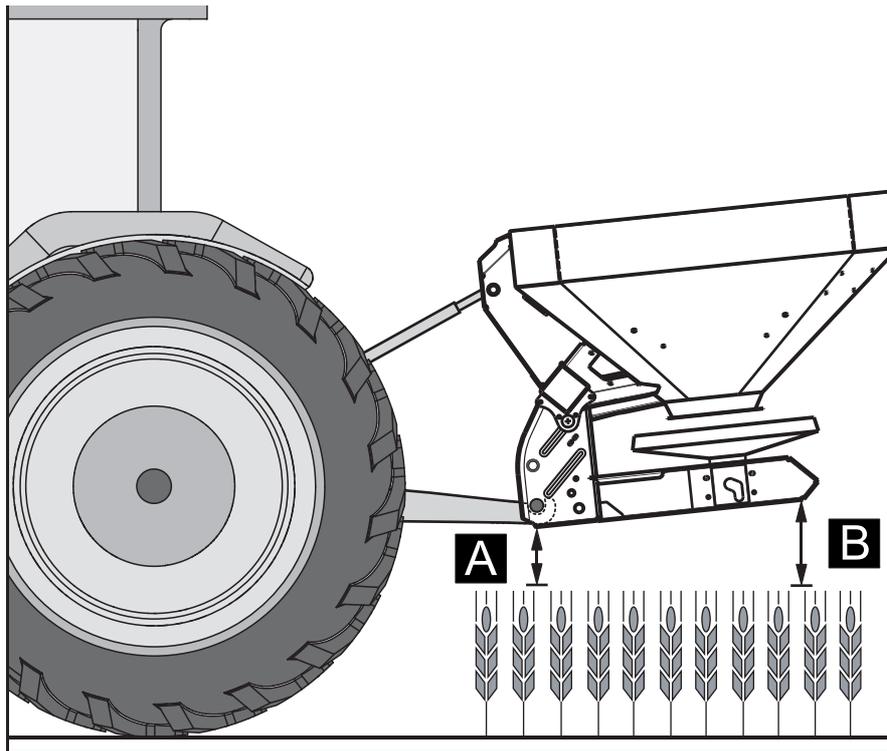


Figure 7.9: Machine mounted to the lower coupling point of the lower link

The following applies:

	AXIS H 30.2 EMC AXIS H 30.2 EMC + W	AXIS H 50.2 EMC + W
A + crop height ≤ V	Max. 950 mm	Max. 900
B + crop height ≤ H	Max. 1,010 mm	Max. 960

7.5 Using the steps

7.5.1 Safety

Always keep in mind that troubleshooting involves additional hazards in case you are climbing into the hopper.

Use the steps with extra care. Work particularly thoroughly and cautiously.

Observe the following instructions in particular:

- Turn the tractor motor off and wait until all moving parts have stopped moving. Take the ignition key out.
- Only use the steps when the machine is lowered.
- Only use the steps if they are folded out.
- Do not climb over the hopper cover into the hopper.
- Use the handle on the hopper cover.
- Only climb into the empty hopper.

⚠ DANGER



Risk of injury due to moving parts in the hopper

There are moving parts in the hopper.

The rotating agitator can cause injury to hands and feet.

- ▶ Turn off the agitator.
- ▶ Climb into the hopper **only** for troubleshooting purposes.
- ▶ The protective grid may **only** be opened for maintenance purposes or in the event of a fault.

7.5.2 Folding out the steps

Before folding out the steps:

- Disengage the PTO shaft.
- Turn the tractor motor off.
- Lower the fertiliser spreader.

Please follow the following instructions for folding out steps.

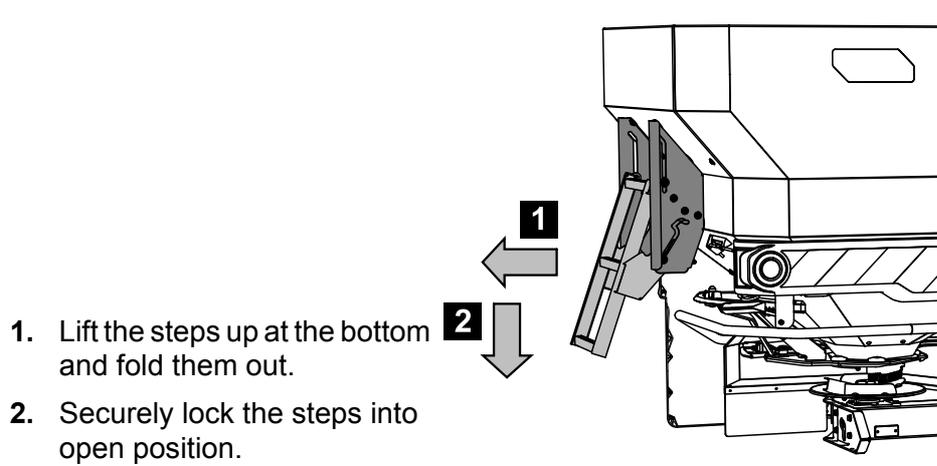


Figure 7.10: Folding out the steps

7.5.3 Folding in the steps

Before every trip and during spreading operation:

- Fold in the steps.

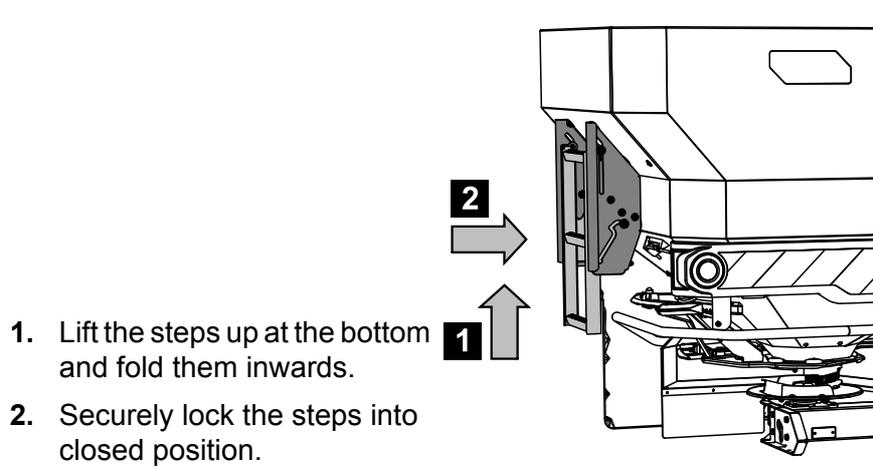


Figure 7.11: Folding in the steps in closed position

7.5.4 Using the steps securely

Use hand grips when climbing onto the machine.

- Only use latched and folded-out steps.
- Without hopper cover on machine, use the side wall of the hopper as hand grip in order to securely climb onto the machine.
- If the machine is equipped with a hopper cover, use the hand grip on the hopper cover in order to securely climb onto the machine.

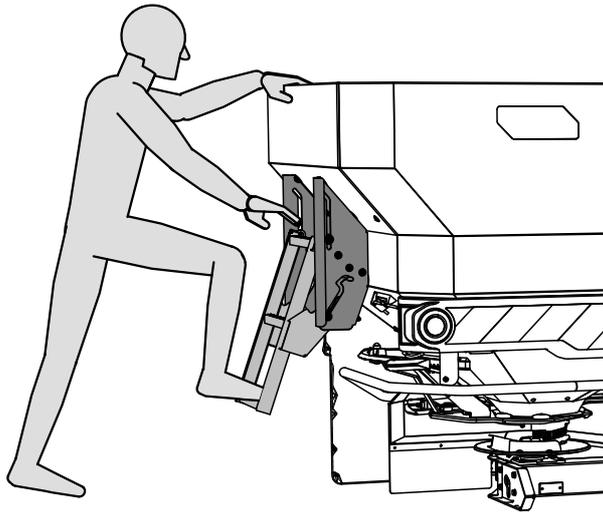


Figure 7.12: Climbing onto the machine without hopper cover

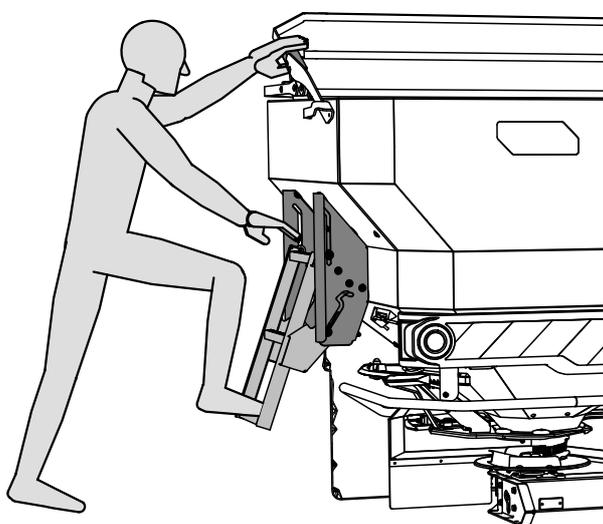


Figure 7.13: Climbing onto the machine with hopper cover

7.6 Filling the machine

⚠ DANGER



Danger of injury from running engine

Working on the machine while the engine is running may result in serious injuries caused by mechanical components and escaping fertiliser.

- ▶ Switch the tractor motor off.
- ▶ Remove the ignition key.
- ▶ Ensure that nobody is present in the hazard zone.

⚠ CAUTION



Inadmissible overall weight

If the permissible total weight is exceeded, this will affect the operating and road safety of the vehicle (machine and tractor) and may cause serious damage to the machine and the environment.

- ▶ Before you start filling, calculate the amount you can load.
- ▶ Comply with the permissible overall weight.

Instructions on filling the machine:

- Close the metering slide and, if applicable, the ball cocks (versions K/R).
- **Only** fill the machine when it is attached to the tractor. Make sure that the tractor is standing on level and solid ground.
- Secure the tractor against rolling away. Apply the handbrake.
- Turn the tractor motor off.
- Remove the ignition key.
- For filling heights of more than 1.25 m, fill the machine by means of suitable auxiliary equipment (e.g. front loader or screw conveyor).
- Fill the machine up to the edge maximally.
- Check the filling level e.g. with the steps being folded out or by means of the inspection window in the hopper (depending on type).

Filling level scale (not for weighing spreaders)

A filling level scale is installed in the hopper to monitor the filling level.

This scale can be used to estimate how long spreading can continue until you must refill the hopper.

7.7 Using the fertiliser chart

7.7.1 Information on the fertiliser chart

The values in the fertiliser chart have been determined on the RAUCH test system. The used fertiliser materials have been purchased from the fertiliser manufacturers or from dealers. Experience shows that, due to storage, transportation and other reasons, the fertiliser materials at your disposal - even with identical specification - might exhibit a different spreading behaviour.

This means that the machine settings specified in the fertiliser charts may result in a different spreading volume and a poorer fertiliser distribution.

Therefore, observe the following instructions:

- Check the working width of the fertiliser distribution with a practice test kit (optional equipment).
- Only use fertilisers listed in the fertiliser chart.
- Contact us if you do not find a particular fertiliser type in the fertiliser chart.
- Observe the setting values exactly. Even a slightly incorrect setting may adversely affect the spreading pattern.

When using urea, particular attention is to be paid to the following:

- Due to a great number of fertiliser imports, urea is available in a wide variety of different qualities and grain sizes. It may therefore be required to adjust the settings of the spreader.
- Urea is more sensitive to wind and absorbs more moisture than other fertilisers.

NOTICE

The operator is responsible for making the correct spreader adjustments according to the fertiliser material in use.

The manufacturer of the machine points out specifically that they do not accept any liability for subsequent damage resulting from incorrect spreader adjustments.

7.7.2 Settings as per fertiliser chart

The mounting height, fertiliser drop point, metering slide adjustment, spreading disc type and disc speed can be determined for optimum spreading from the **fertiliser chart** depending on the fertiliser type, working width, application rate, forward speed and fertilisation method.

Example of field spreading during normal fertilising:

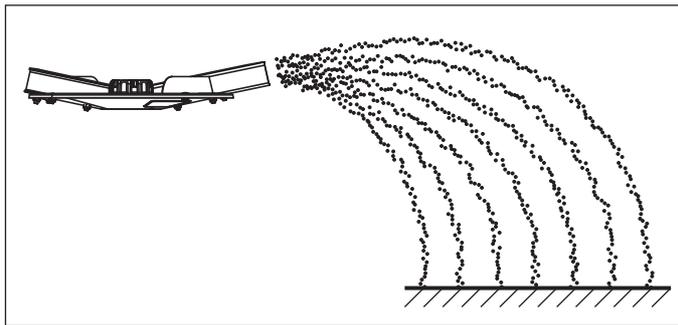


Figure 7.14: Field spreading during normal fertilising

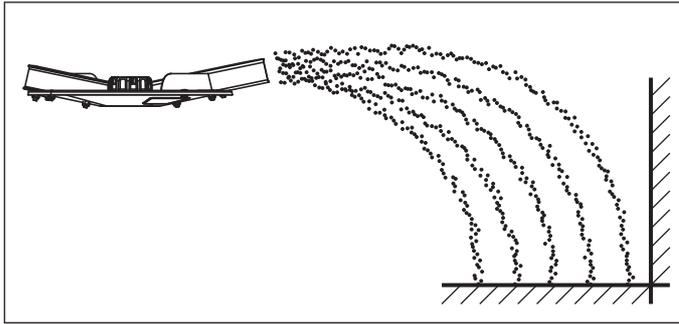
During field spreading in normal fertilisation mode, a symmetrical spreading pattern is produced. If the spreader is correctly set (see information in the fertiliser chart), the fertiliser is evenly spread over the field.

Specified parameters:

Type of fertiliser:	KAS BASF
Application rate:	300 kg/ha
Working width:	24 m
Forward speed:	12 km/h

The following settings are to be applied to the machine according to the fertiliser chart:

- Mounting height: 50/50 (A = 50 cm, B = 50 cm)
- Drop point: 6
- Metering slide adjustment: 180
- Spreading disc type: S4
- Spreading disc speed: 900 rpm

Example of limited border spreading during normal fertilising:**Figure 7.15:** Limited border spreading during normal fertilising

During limited border spreading in normal fertilisation mode, almost no fertiliser goes beyond the field boundary. Underfertilisation at the field boundary must be accepted in this case.

Specified parameters:

Type of fertiliser:	KAS BASF
Application rate:	300 kg/ha
Working width:	24 m
Forward speed:	12 km/h

The following settings are to be applied to the machine according to the fertiliser chart:

- Mounting height: 50/50 (A = 50 cm, B = 50 cm)
- Drop point: 6
- Metering slide adjustment: 180 left, 150 right¹
- Spreading disc type: S4
- Spreading disc speed: 900 rpm
- Limited border spreading disc speed: 600 rpm

1. Recommended application rate reduction of 20% on the limited border spreading side

Example of full border spreading during normal fertilising:

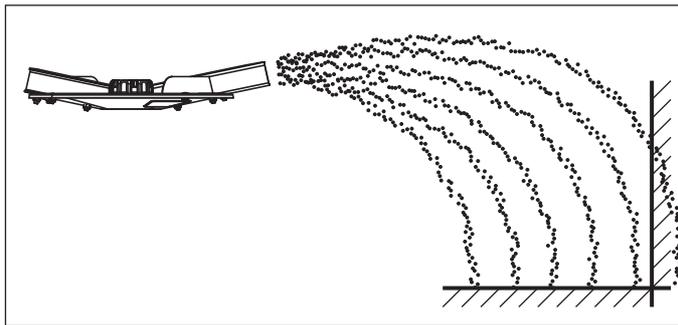


Figure 7.16: Full border spreading during normal fertilising

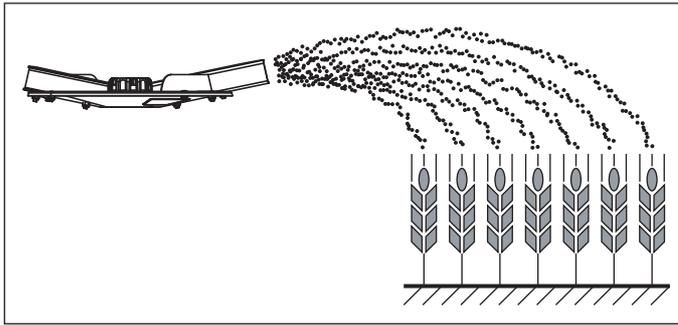
Full border spreading in normal fertilisation mode refers to a spreading process in which a bit more fertiliser lands beyond the border of the field. Therefore, there is just a slight underfertilisation at the field boundary.

Specified parameters:

Type of fertiliser:	KAS BASF
Application rate:	300 kg/ha
Working width:	24 m
Forward speed:	12 km/h

The following settings are to be applied to the machine according to the fertiliser chart:

- Mounting height: 50/50 (A = 50 cm, B = 50 cm)
- Drop point: 6
- Metering slide adjustment: 180
- Spreading disc type: S4
- Spreading disc speed: 900 rpm
- Limited border spreading disc speed: 600 rpm

Example of field spreading during late fertilising:**Figure 7.17:** Field spreading during late fertilising

During field spreading in late fertilising mode, a symmetrical spreading pattern is produced. If the spreader is correctly set (see information in the fertiliser chart), the fertiliser is evenly spread over the field.

Specified parameters:

Type of fertiliser:	KAS BASF
Application rate:	150 kg/ha
Working width:	24 m
Forward speed:	12 km/h

The following settings are to be applied to the machine according to the fertiliser chart:

- Mounting height: 0/6 (A = 0 cm, B = 6 cm)
- Drop point: 6.5
- Metering slide adjustment: 90
- Spreading disc type: S4
- Spreading disc speed: 900 rpm

Example for limited border spreading during late fertilising:

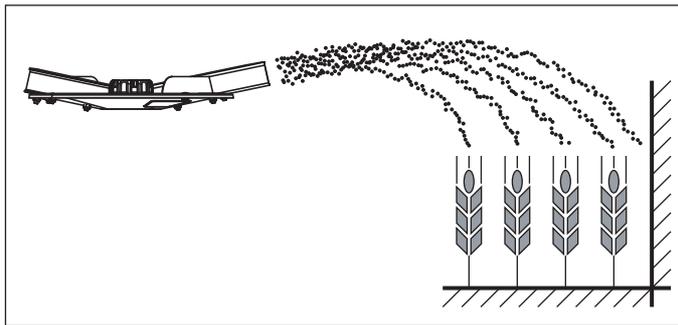


Figure 7.18: Limited border spreading during late fertilising

During limited border spreading in late fertilising, almost no fertiliser goes beyond the field boundary. Underfertilisation at the field boundary must be accepted in this case.

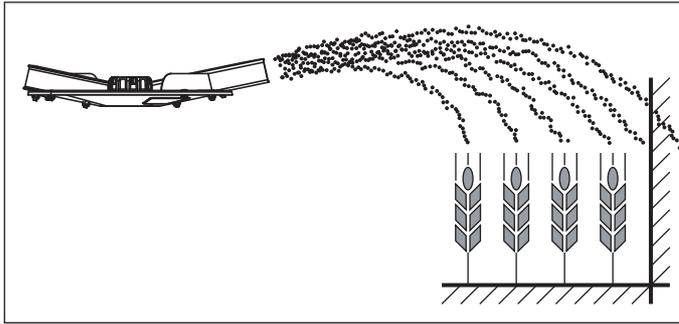
Specified parameters:

Type of fertiliser:	KAS BASF
Application rate:	150 kg/ha
Working width:	24 m
Forward speed:	12 km/h

The following settings are to be applied to the machine according to the fertiliser chart:

- Mounting height: 0/6 (A = 0 cm, B = 6 cm)
- Drop point: 6.5
- Metering slide adjustment: 90 left, 72 right¹
- Spreading disc type: S4
- Spreading disc speed: 900 rpm
- Limited border spreading disc speed: 600 rpm

1. Recommended application rate reduction of 20% on the limited border spreading side

Example for full border spreading during late fertilising:**Figure 7.19:** Full border spreading during late fertilising

Full border spreading during late fertilising mode refers to a spreading process in which a bit more fertiliser lands beyond the border of the field. Therefore, there is just a slight underfertilisation at the field boundary.

Specified parameters:

Type of fertiliser:	KAS BASF
Application rate:	150 kg/ha
Working width:	24 m
Forward speed:	12 km/h

The following settings are to be applied to the machine according to the fertiliser chart:

- Mounting height: 0/6 (A = 0 cm, B = 6 cm)
- Drop point: 6.5
- Metering slide adjustment: 90
- Spreading disc type: S4
- Spreading disc speed 900 rpm
- Limited border spreading disc speed: 600 rpm

7.8 Setting the GSE limited border spreading unit optional equipment

The border spreading unit limits the spreading width (either towards the left or right) to a range of between approx. 0 m and 3 m from the centre of the tractor track to the outer edge of the field.

- Close the metering slide that points to the edge of the field.
- Fold the limited border spreading unit downwards for boundary spreading.
- The border spreading unit must be folded up again before starting the two-sided spreading.

NOTICE

The settings for the border spreading unit refer to the **spreading disc working towards the inside of the field.**

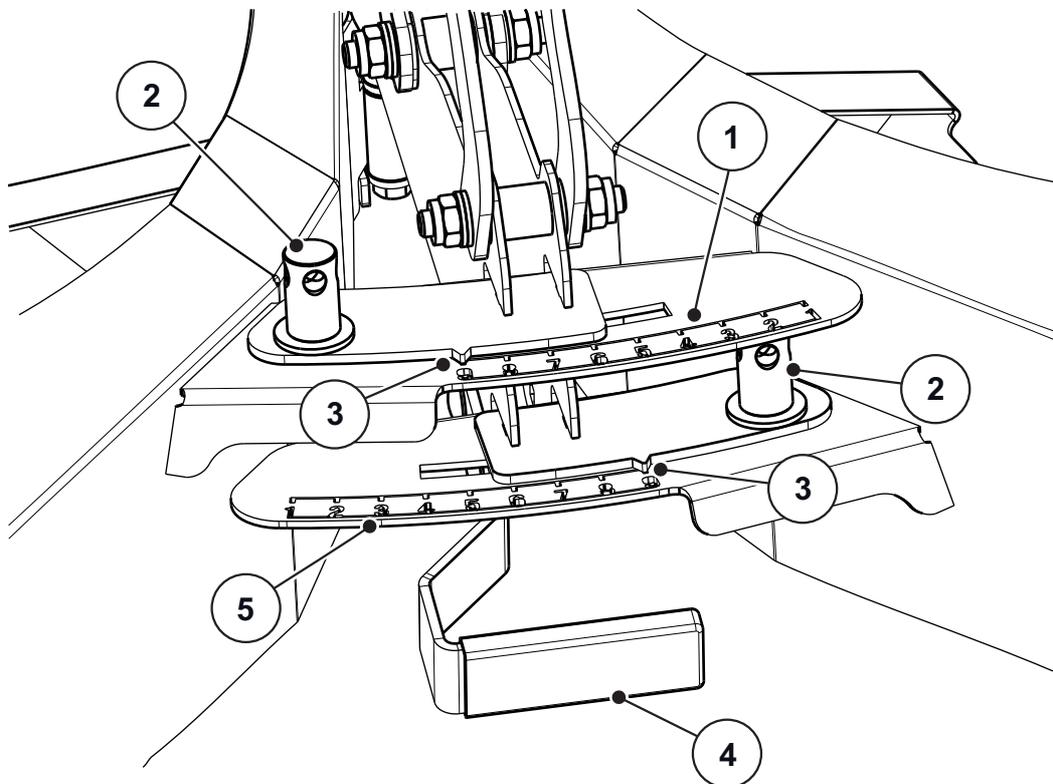


Figure 7.20: Setting the border spreading unit

- [1] Numeric scale, left side
- [2] Adjustment nut for numeric scale
- [3] Indicator
- [4] Hand grip
- [5] Numeric scale, right side

1. The position of the pointer [3] is to be obtained from the assembly instruction manual included in the scope of delivery.
2. Loosen the adjustment nut [2] for the numeric scale using the adjustment lever of the machine.
3. Slide the numeric scale so that the pointer is directed to the value determined. Use the hand grip [4] for this purpose.

4. Loosen the adjustment nut [2] for the numeric scale using the adjustment lever of the machine.

Correcting the spreading distance

The specifications in the provided assembly manual are standard values. If there are deviations in the fertiliser quality, it may be necessary to correct the setting.

- To **decrease** the spreading distance, move towards the spreading disc.
- To **increase** the spreading distance, move away from the spreading disc.

7.8.1 Setting the limited border spreading unit

Limited border spreading operation is prepared according to the **fertiliser type** and **working width** for spreading.

NOTICE

The setting values for limited border spreading can be found in the fertiliser chart.

Correcting the spreading distance

The values in the fertiliser chart are standard values. If there are deviations in the fertiliser quality, it may be necessary to correct the setting.

- To **decrease** the spreading distance relative to the fertiliser chart setting: Decrease **limited border spreading disc speed**.
- To **increase** the spreading distance relative to the fertiliser chart setting: Increase **limited border spreading disc speed**.
- To **decrease** the spreading distance relative to the fertiliser chart setting: Select **earlier drop point**.
- To **increase** the spreading distance relative to the calibration chart setting: Select **later drop point**.

NOTICE

Limited border spreading at working widths of 12 - 50 m:

For an optimal spreading pattern, it is recommended that the material output be reduced **by 20 %** on the limited border spreading side.

7.9 Settings for unlisted fertiliser types

The settings for fertiliser types not listed in the fertiliser chart can be calculated using the practice test kit (optional equipment).

NOTICE

For calculating the settings for unlisted fertiliser types, please also see the supplementary manual for the practice test kit.

To check the spreading unit settings **quickly**, we recommend the layout for **one passage**.

To determine the spreading unit settings more **accurately**, we recommend the layout for **three passages**.

7.9.1 Requirements and conditions

NOTICE

The requirements and conditions apply to both one passage and three passages.

Observe these conditions to ensure that the results are as accurate as possible.

- Conduct the test on a **dry day, with no wind**, so the weather will not influence the result.
- We recommend that you use a testing area that is horizontal in both directions. The tracks must **not** have any significant **cavities** or **heights** since this may distort the spreading pattern.
- Carry out the test either on freshly mown grass or on a field with low vegetation (max. 10 cm).

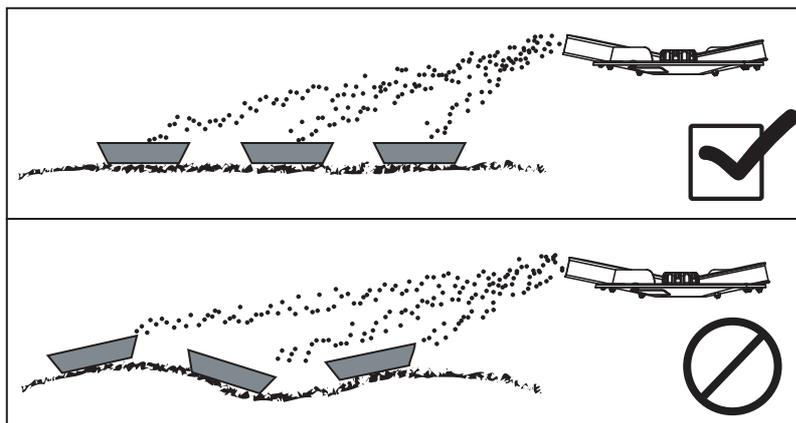


Figure 7.21: Layout of the collecting vessels

- Make sure that the collecting vessels are placed on level ground. Collecting vessels set at an angle can cause measuring errors (see image above).
- Adjust and lock the metering slides on the right and left-hand side (see [8.4: Adjusting the application rate, page 77](#)).

7.9.2 Running one passage

Layout:

NOTICE

We recommend the layout plan up to a spreading width of **24 m**. A layout plan for greater working widths is attached to the PPS5 practise test kit.

- Length of testing area: 60 to 70 m

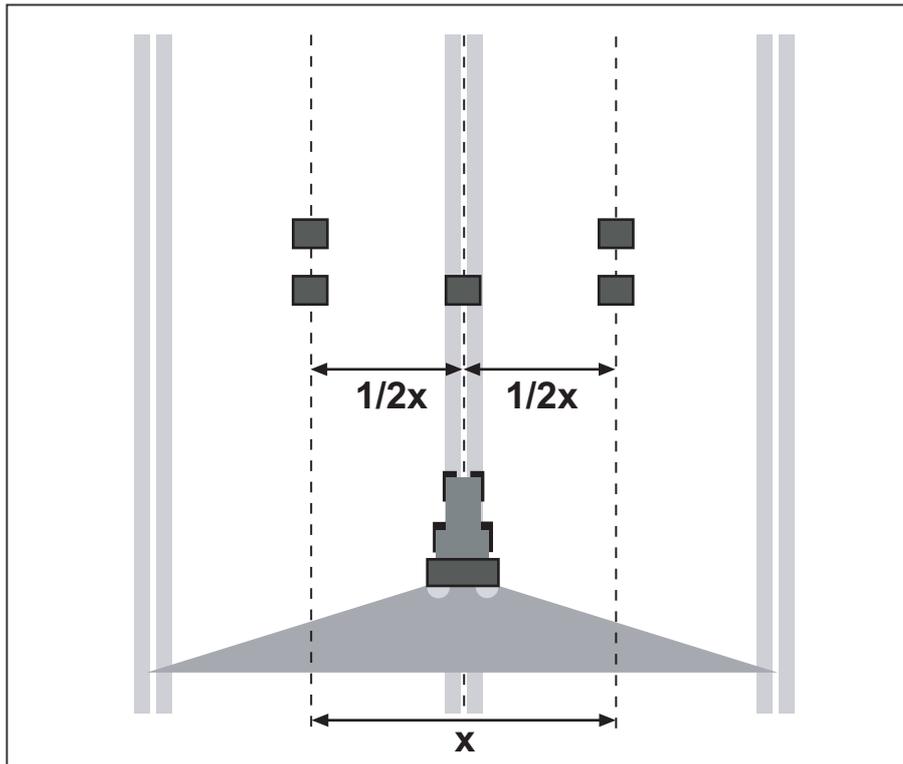


Figure 7.22: Layout for one passage

Preparing one passage:

- Choose a similar fertiliser from the fertiliser chart and adjust the spreader accordingly.
- Set the mounting height of the machine as specified in the fertiliser chart. Make sure that the mounting height includes the top edge of the trays.
- Check the spreading elements (spreading discs, spreader vanes, outlet) for correct functioning and completeness.
- Place two collecting vessels one after another at a distance of **1 m** in the overlap zones (between the tramlines) and one collecting vessel in the track (according to [figure 7.22](#)).

Run the spreading test with the open position that has been decided on for operation:

- Forward speed: **3 to 4 km/h**.
- Open the metering slide **10 m in front of** the collecting vessels.
- Close the metering slides approx. **30 m behind** the collecting vessels.

NOTICE

If the quantity collected in the collecting vessels is insufficient, repeat the passage.

Do not change the adjustment of the metering slides.

7.9.3 Running three passages

Layout:

NOTICE

We recommend the layout plan up to a spreading width of **24 m**. A layout plan for greater working widths is attached to the PPS5 practise test kit.

- Width of testing area: 3 x tramline distance
- Length of testing area: 60 to 70 m
- The three tracks must be parallel. If you are running the test without drilled tramlines, the paths must be measured using a tape measure and marked (e.g. with rods).

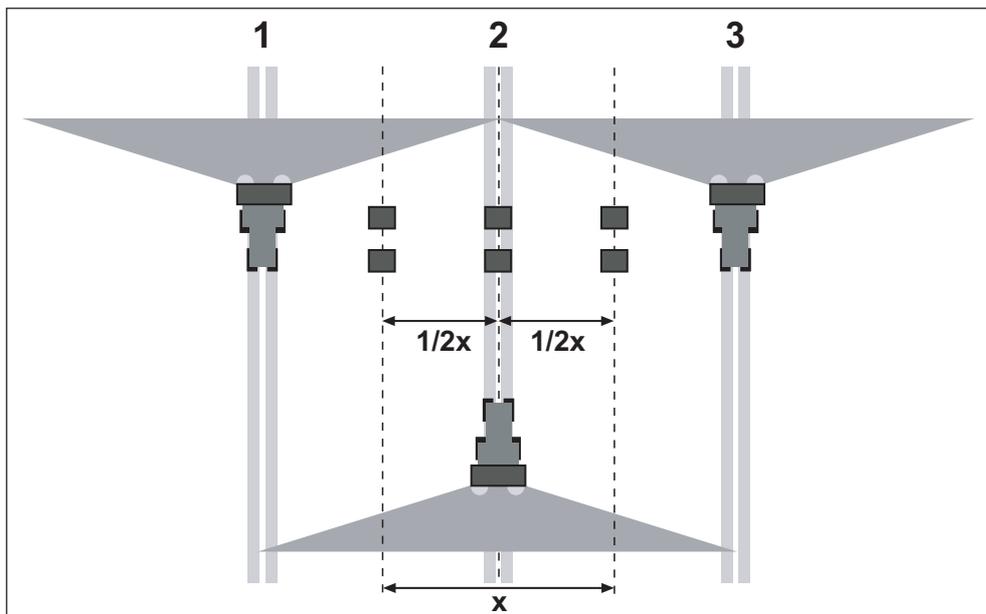


Figure 7.23: Layout for three passages

Preparing three passages:

- Choose a similar fertiliser from the fertiliser chart and adjust the spreader accordingly.
- Set the mounting height of the machine as specified in the fertiliser chart. Make sure that the mounting height includes the top edge of the trays.
- Check the spreading elements (spreading discs, spreader vanes, outlet) for correct functioning and completeness.
- Place two collecting vessels each, one after another, at a distance of **1 m** in the overlap zones and in the centre track (according to [figure 7.23](#)).

Run the spreading test with the open position that has been decided on for operation:

- Forward speed: **3 - 4 km/h**.
- Spread along the tramlines 1-3 one after the other.
- Open the metering slide **10 m in front of** the collecting vessels.
- Close the metering slides approx. **30 m behind** the collecting vessels.

NOTICE

If the quantity collected in the collecting vessels is insufficient, repeat the passage.

Do not change the adjustment of the metering slides.

7.9.4 Evaluate the results and correct if necessary

- Pool the contents of the collecting vessels placed one after another and pour them into the measuring tubes from the left-hand side.
- The quality of the horizontal spreading pattern can be read off the three measuring tubes.

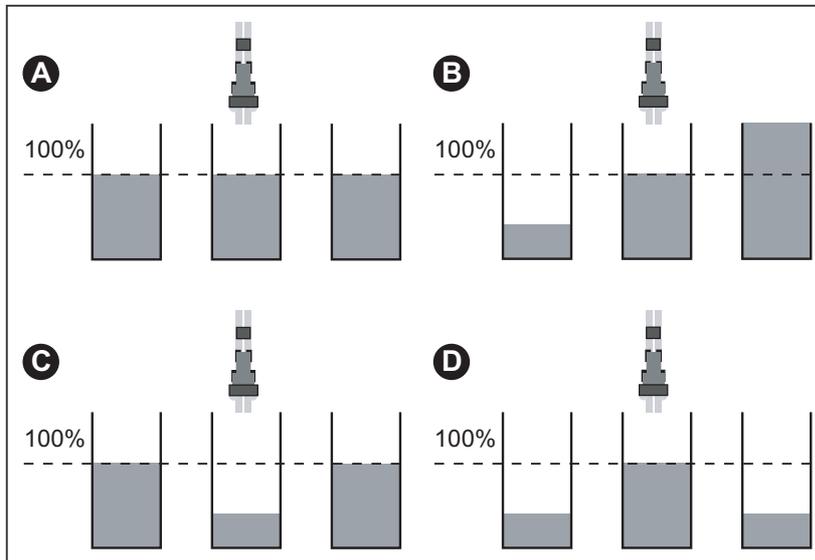


Figure 7.24: Possible results of pass

- [A] All tubes contain the same amount.
- [B] Asymmetrical fertiliser distribution
- [C] Too much fertiliser in the overlap zone
- [D] Too little fertiliser in the overlap zone

Examples of spreader setting corrections:

Test result	Fertiliser distribution	Action, test
Case A	Even distribution (admissible deviation ± 1 scale line)	Adjustments are correct.
Case B	Fertiliser quantity decreases from right to left (or vice versa).	Are the same drop points set on the right and left side? Is the metering slide setting on the left and right side the same? Tramline distances the same? Tramlines parallel? Was there a strong side wind during the test?
Case C	Too little fertiliser in the centre.	Select earlier drop point setting (e.g. change drop point from 5 to 4).
Case D	Too little fertiliser in the overlap zones.	Select later drop point setting (e.g. change drop point from 8 to 9).

8 Spreading operation

⚠ DANGER



Danger of injury from running engine

Working on the machine while the engine is running may result in serious injuries caused by mechanical components and escaping fertiliser.

- ▶ Switch the tractor motor off.
- ▶ Remove the ignition key.
- ▶ Ensure that nobody is present in the hazard zone.

8.1 General information on spreading operation

The modern technology and design of our machine and exhaustive, continuous testing in the factory's dedicated test facilities are the prerequisites for a perfect spreading pattern.

Despite the fact that we have manufactured the machine with utmost diligence, deviations in the application rate or possible faults cannot be excluded, even when complying with the intended use.

This may be caused by the following:

- Changes in the physical characteristics of the fertiliser (e.g. deviating grain size distribution, varying density, grain form and surface, treatment, sealing, humidity)
- Clumping and moist fertiliser
- Clogging or bridging (e.g. through foreign particles, moist or inappropriate fertiliser)
- Drifting caused by wind (in the case of excessive wind speed, cancel the spreading work)
- Uneven terrain
- Wear of wear parts
- Damages caused by external influences
- Insufficient cleaning and corrosion protection
- Incorrect drive speed and forward speed
- Incorrect machine settings

Please ensure the correct settings of the machine. Even a minor deviation from the correct setting may lead to a significant impairment of the spread pattern. Therefore, before each operation and during operation, check the correct functioning of your machine and ensure that the application accuracy is sufficient.

Particularly hard types of fertiliser (e.g. calcium ammonium nitrate, kieserite) increase wear.

Always use the protective grid included in the scope of delivery in order to avoid clogging e.g. caused by foreign particles or clumping fertiliser.

Claims for damage other than to the extension mineral fertiliser spreader AXIS H EMC itself will not be accepted.

This also means that no liability will be accepted for damage resulting from spreading errors.

8.2 Instructions regarding the spreading operation

The intended use of the machine includes complying with the prescribed process stipulated by the manufacturer. **Spreading operation** therefore always includes **preparation** and **cleaning/maintenance-related** activities.

- Carry out spreading operations as described below.

Preparation

- Attach the spreader to the tractor [Page 46](#)
- Close the metering slide
- Pre-set the mounting height [Page 51](#)
- Fill with fertiliser [Page 60](#)
- Set the application rate [Page 77](#)
- Set the working width [Page 78](#)
 - Select the correct spreading disc
 - Set the drop point [Page 81](#)

Spreading

- Travel to the spreading location
- Check the mounting height [Page 81](#)
- Switch on the hydraulic system¹
- Activate spreading disc start
- Open the slide and start spreading
- Finish spreading and close the slide
- Discharge residual material [Page 90](#)

Cleaning/maintenance

- Open the metering slide
- Remove the spreader from the tractor
- Cleaning and maintenance [Page 93](#)

1. For the load sensing system, the hydraulic circuit of the accessory equipment is always under pressure.

8.3 Using the fertiliser chart

NOTICE

Please observe chapter [7.7: Using the fertiliser chart, page 61](#).

8.4 Adjusting the application rate

NOTICE

The machine of the AXIS H EMC series is provided with an electric metering slide actuator for adjusting the application rate.

The electronic metering slide actuator is described in a separate operator's manual of the electronic machine control unit. This operator's manual is an integral part of the electronic machine control unit.



Figure 8.1: Scale for setting the spreading quantity

NOTICE

The spreading quantity is adjusted and controlled by the electronic machine control unit.

- See also the operator's manual of the electronic control unit.

8.5 Setting the working width

8.5.1 Selecting the correct spreading disc

Various spreading discs are available for implementation of the working width depending on the fertiliser type.

	S1	S4	S6	S8	S10	S12
Spreading width in m	12 - 18	18 - 28	24 - 36	30 - 42	36 - 48	42 - 50
AXIS 30.2 EMC	•	•	•	•		
AXIS 30.2 EMC + W	•	•	•	•		
AXIS 50.2 EMC + W	•	•	•	•	•	•

There are two different, permanently installed spreader vanes on each spreading disc. The spreader vanes are marked according to their model.

⚠ WARNING



Risk of injury from rotating spreading discs!

The distribution unit (spreading disc, vanes) may catch and pull-in body parts or objects. Contact with the distribution unit may injure, crush or cut off body parts.

- ▶ Maximum admissible mounting heights at front (V) and rear (H) are to be complied with at all times.
- ▶ Ensure that nobody is present in the hazard zone of the machine.
- ▶ Never remove deflectors mounted on the hopper.

Spreading disc type	Spreader vanes Spreading disc left	Spreader vanes Spreading disc right
S1 VxR plus (coated)	S1-L-220-VxR-left S1-L-320-VxR-left	S1-R-220-VxR-right S1-R-320-VxR-right
S4 VxR plus (coated)	S4-L-200 VxR S4-L-270 VxR	S4-R-200 VxR S4-R-270 VxR
S6 VxR plus (coated)	S6-L-255 VxR S6-L-360 VxR	S6-R-255 VxR S6-R-360 VxR
S8 VxR plus (coated)	S8-L-390 VxR S8-L-380 VxR	S8-R-390 VxR S8-R-380 VxR
S10 VxR plus (coated)	S10-L-340 VxR S10/S12-L-480 VxR	S10-R-340 VxR S10/S12-R-480 VxR
S12 VxR plus (coated)	S12-L-360 VxR S10/S12-L-480 VxR	S12-R-360 VxR S10/S12-R-480 VxR

8.5.2 Removing and mounting spreading discs

⚠ DANGER

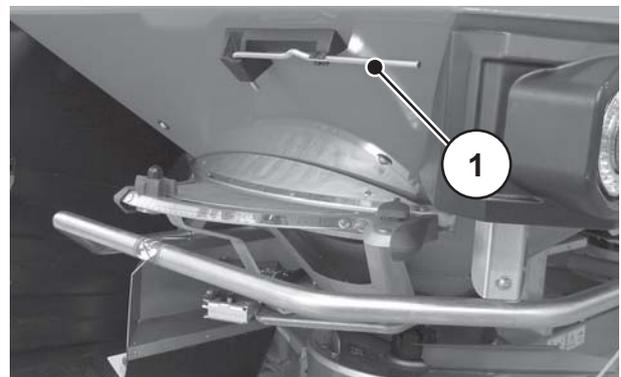


Danger of injury from running engine

Working on the machine while the engine is running may result in serious injuries caused by mechanical components and escaping fertiliser.

- ▶ **Never** mount or dismount spreading discs while the engine is running or the PTO shaft of the tractor is rotating.
- ▶ Switch the tractor motor off.
- ▶ Remove the ignition key.

Removing the spreading discs



- [1] Adjustment lever
(hopper, left side according to
direction of travel)

Figure 8.2: Adjustment lever

Proceed for both sides (left and right) as follows.



1. Remove the adjustment lever from the bracket.
2. Use the adjustment lever to loosen the cap nut of the spreading disc.

Figure 8.3: Loosen the cap nut

3. Unscrew the cap nut.
4. Remove the spreading disc from the hub.
5. Put the adjustment lever back into the specified bracket.



Figure 8.4: Unscrew the cap nut

Mounting the spreading discs

Requirements:

- PTO and tractor engine are switched off and locked to prevent unauthorised starting.

Mount the left spreading disc on the left side in the direction of travel and the right spreading disc on the right side in the direction of travel. Make sure that the left and right spreading discs are not reversed.

The following procedure is for mounting the left-hand spreading disc. Mount the right-hand spreading disc according to these instructions as well.

1. Put the left spreading disc onto the left spreading disc hub.
The spreading disc must be evenly placed on the hub (if required, remove dirt).

NOTICE

The pins on the spreading disc holders have different positions on the left and right side. The correct spreading disc is the one that fits precisely into the spreading disc holder.

2. Carefully position the cap nut (do not tilt).
3. Tighten the cap nut with approx. 38 Nm.

NOTICE

The cap nuts have an internal catching mechanism that prevents them from coming loose. The catching mechanism must be noticeable while tightening, otherwise, the cap nut is worn and must be replaced.

4. Check that there is clearance between the spreader vanes and the outlet by turning the spreading discs by hand.

8.5.3 Adjusting the drop point

NOTICE

The machine of the AXIS H EMC series is equipped with an electronic drop point adjustment.

Electronic drop point control is described in a separate operator's manual of the electronic control unit. This operator's manual is an integral part of the electronic machine control unit.

With the selection of the spreading disc type, a particular range for the working width is defined. By altering the drop point, the working width can be accurately set and adjustments to different fertiliser types can be made.

You can set the drop point via the upper scale plate.

- **Adjusting in the direction of smaller numbers:** The fertiliser is ejected sooner. This results in spreading patterns for smaller working widths.
- **Adjusting in the direction of larger numbers:** The fertiliser is ejected later and spread more towards the outside into the overlap zones. This results in spreading patterns for larger working widths.



Figure 8.5: Adjustment centre for drop point

8.6 Checking the mounting height

NOTICE

Check if the preset mounting height is correct while the hopper is full.

- Take the mounting height setting values from the fertiliser chart.
- Observe the maximum admissible mounting height.
- See also ["Presetting the mounting height" on page 51](#).

8.7 Setting the disc speed

NOTICE

Take the correct disc speed from the fertiliser chart and enter the value at the machine operating terminal.

8.8 Spreading fertiliser

8.8.1 Requirements

Before starting the work, ensure that all preconditions for a secure and economically reasonable spreading are fulfilled.

Particular attention is to be paid to the following points:

- Are the tractor and machine safe for operation?
- Are there persons present on the machine or in the spreading area? Instruct them to leave the hazard zone.
- Do the environmental conditions allow for hazardless spreading? Particular attention is to be paid to excessive wind speed.
- Do you know the terrain and are you aware of potentially hazardous spots?
- Are you using the correct fertiliser?
- Have you entered the desired application rate at the control unit, in the **fertiliser setting** menu?
- Has the hydraulic system of the tractor been switched on?
 - ▷ Spreading can be started.

8.9 Spreading in the headlands

In order to achieve a good fertiliser distribution in the headlands, a precise arrangement of the tramlines is essential.

Limited border spreading

During limited border spreading in the headlands (disc speed reduction, drop point adjustment and application rate reduction).

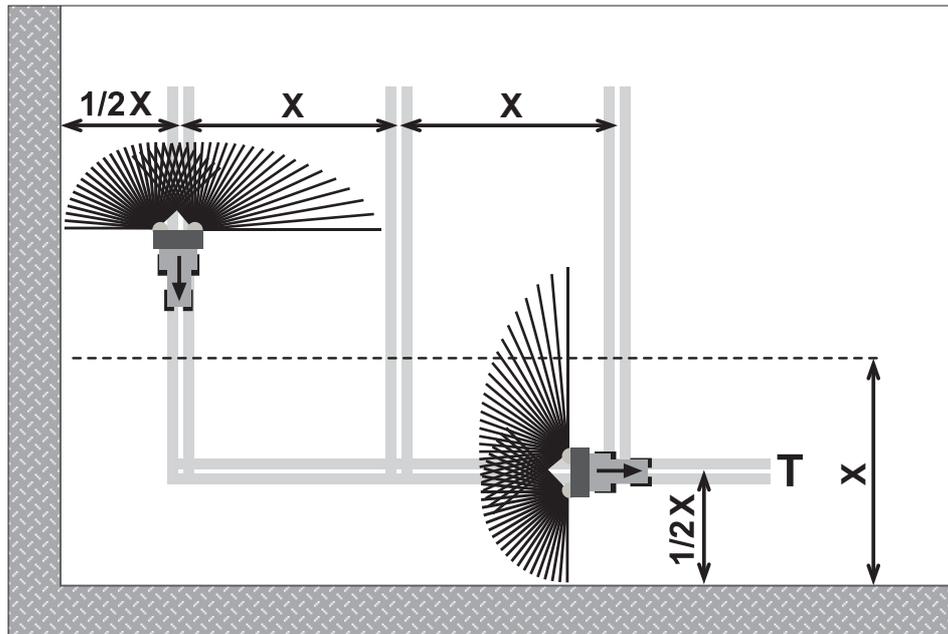


Figure 8.6: Limited border spreading

[T] Headlands tramline
[X] Working width

- Place the headlands tramline [T] at a distance of half the working width [X] from the edge of the field.

Normal spreading in or out of the headlands tramline

NOTICE

If a GPS system and an ISOBUS machine control unit are applied for operation of the machine, make sure that the machine control unit software supports the **OptiPoint** function.

The **OptiPoint** function calculates the optimal switching-on and switching-off point for spreading in the headlands based on the settings in the mineral fertiliser spreader.

- You can skip the information in the present paragraph since the **OptiPoint** function assumes these settings.
- Please refer to the operator's manual of the respective control unit.

If you continue spreading in the field after headlands tramline spreading:

- Switch off limited border spreading.

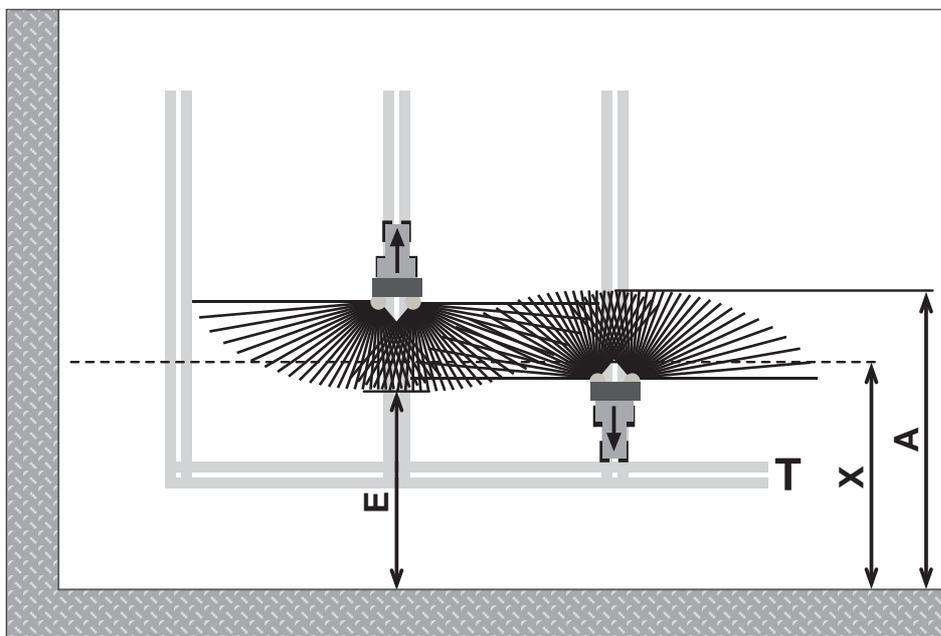


Figure 8.7: Normal spreading

- [A] End of spreading fan when spreading in the headlands tramline
- [E] End of spreading fan when spreading in the field
- [T] Headlands tramline
- [X] Working width

The metering slides open or close at different distances to the field border of the headlands when travelling backwards and forwards.

Driving out of the headlands tramline

- **Open** the metering slides if the following requirement is met:
 - The end of the spreading fan on the field [E] is at approx. half of the working width + 4 to 8 m from the field boundary of the headlands.

The tractor is then located at different distances in the field, depending on the spreading distance of the fertiliser.

Driving into the headlands tramline

- Close the metering slides **as late as possible**.
 - The end of the spreading fan should ideally lie on the field [A] at a distance of approx. 4 to 8 m further than the working width [X] of the headlands.
 - This cannot always be achieved, depending on the spreading distance of the fertiliser and the working width.
- Alternatively, drive beyond the headland tramline, or lay out a 2nd headland tramline.

Follow these instructions in order to ensure an environmentally friendly and economical working method.

8.10 Spreading with section control (VariSpread)

With the spreading width assistant VariSpread, you can reduce the spreading width and the application rate in parallel, up to four times per side. You can spread on wedge-shaped fields with high precision.

NOTICE

- Each section can be gradually reduced or increased in 4 steps manually.
- With the help of SectionControl, each section can be increased or reduced to virtually any size with up to 50 steps in automatic mode.
- Section control is possible from the outside to the inside or vice versa.

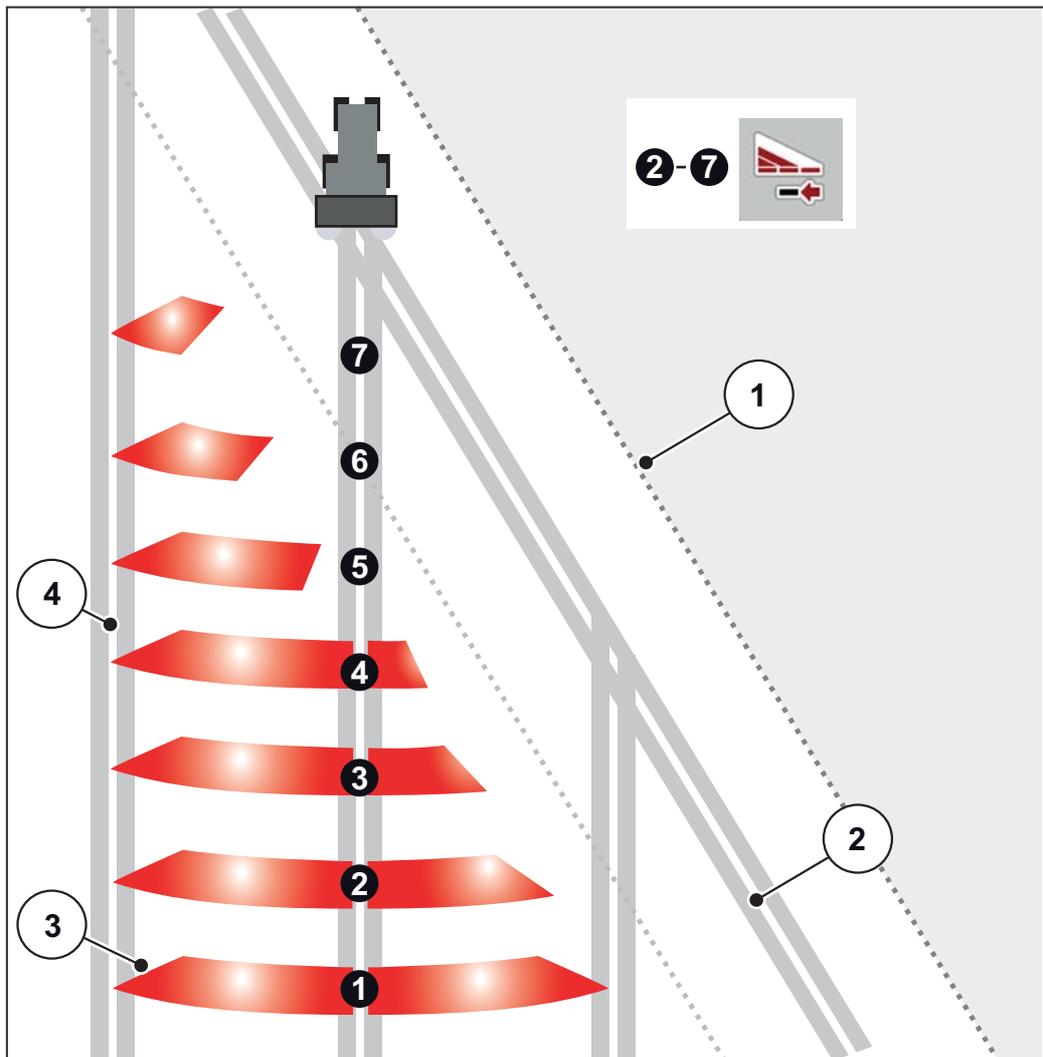


Figure 8.8: Automatic section control

- [1] Field border
- [2] Headlands tramline.
- [3] Spreading fans 2 to 7: Section reduction on the right side for AXIS.2
- [4] Tramline in the field

NOTICE

The VariSpread compatible machine is equipped with two electrical drop point actuators. Via the ISOBUS machine control unit, the settings of the sections can be defined to achieve accurate spreading results during spreading operation in wedge-shaped fields.

- For further information on possible section settings, refer to the operator's manual of the electronic control unit (AXIS H ISOBUS).

8.11 Faults and possible causes

▲ WARNING



Risk of injury when rectifying faults inappropriately

Delayed or incorrect repairs by unqualified personnel may result in severe personal injury as well as in damages to the machine and the environment.

- ▶ Any faults occurring must be repaired **immediately**.
- ▶ Only carry out repairs yourself if you have the appropriate **qualifications**.

Troubleshooting requirements

- Switch off the PTO and the tractor engine and lock them to prevent unauthorised starting.
- Put down the machine on the ground.

NOTICE

Please take particular note of the warnings in chapters [3: Safety, page 5](#) and [9: Maintenance and repair, page 93](#), before correcting any faults.

Fault	Possible cause/action
Uneven fertiliser distribution	<ul style="list-style-type: none"> ● Drop point incorrectly adjusted. Correct the setting.
Too much fertiliser in the tractor track	<ul style="list-style-type: none"> ● Check spreader vanes and outlets and replace faulty parts immediately. ● The fertiliser has a smoother surface than the fertiliser that was tested for the fertiliser chart. Select later drop point setting (e.g. from 4 to 5). ● Disc speed too low. Correct speed.
Too much fertiliser in the overlap area	<ul style="list-style-type: none"> ● The fertiliser has a rougher surface than the fertiliser that was tested for the fertiliser chart. Select earlier drop point setting (e.g. from 5 to 4). ● Disc speed too high. Correct speed.

Fault	Possible cause/action
<p>Spreader application higher on one side than the other.</p> <p>Hopper empties unevenly during normal spreading.</p>	<p>Fertiliser bridging above the agitator</p> <ul style="list-style-type: none"> ● Remove fertiliser until the height of the protective grid on the affected side. ● Break up accumulated fertiliser with a wooden stick through the bars of the protective grid. <p>Outlet blocked</p> <ul style="list-style-type: none"> ● See blockages of the metering openings <p>Defective agitator</p> <ul style="list-style-type: none"> ● Remove fertiliser until the height of the protective grid on the affected side. ● Open the metering slide and break up accumulated fertiliser with a wooden stick through the bars of the protective grid so that the remaining fertiliser can run out of the outlet. ● Check the functionality of the agitator drive. See chapter 9.8: Checking the agitator drive, page 103. <p>Metering slide set incorrectly</p> <ul style="list-style-type: none"> ● Empty the hopper of remaining fertiliser. See chapter 8.12: Discharging residual material, page 90. ● Check metering slide setting. See chapter 9.10: Metering slide adjustment, page 107.
<p>Irregular fertiliser feed to spreading disc</p>	<p>Fertiliser bridging above the agitator</p> <ul style="list-style-type: none"> ● Remove fertiliser until the height of the protective grid on the affected side. ● Break up accumulated fertiliser with a wooden stick through the bars of the protective grid. <p>Outlet blocked</p> <ul style="list-style-type: none"> ● See blockages of the metering openings <p>Defective agitator</p> <ul style="list-style-type: none"> ● Remove fertiliser until the height of the protective grid on the affected side. ● Open the metering slide and break up accumulated fertiliser with a wooden stick through the bars of the protective grid so that the remaining fertiliser can run out of the outlet. ● Check the functionality of the agitator drive. See chapter 9.8: Checking the agitator drive, page 103.
<p>Spreading discs are fluttering.</p>	<ul style="list-style-type: none"> ● Check cap nuts for tight fit and check threads.
<p>Metering slide opens with difficulty or not at all.</p>	<ul style="list-style-type: none"> ● Metering slides do not move easily. Check for smooth slide movement, check the lever and the joints, and improve if necessary.

Fault	Possible cause/action
Agitator not working.	<ul style="list-style-type: none"> ● Check agitator drive. See 9.8: Checking the agitator drive, page 103
Blockage of the metering openings due to: fertiliser clumps, damp fertiliser, miscellaneous impurities (leaves, straw, sack residues)	<ul style="list-style-type: none"> ● Clear blockages. Proceed as follows: <ol style="list-style-type: none"> 1. Park tractor, remove ignition key. 2. Open metering slide. 3. Place collecting vessel underneath. 4. Remove spreading discs. 5. Clean the outlet from below with a wooden pole or the adjustment lever and push through the metering opening. 6. Remove any foreign objects in the hopper. 7. Install spreading discs, close metering slides.

8.12 Discharging residual material

▲ WARNING



Risk of injury due to rotating machine components

Rotating machine components (universal drive shaft, hubs) may catch and pull-in body parts or objects. Contact with rotating machine components may cause bruises, abrasions and crushing injuries.

- ▶ Always stay outside the area of rotating hubs while the machine is running.
- ▶ When the drive shaft is rotating, the metering slides are to be operated from the tractor seat **at all times**.
- ▶ Ensure that nobody is present in the hazard zone of the machine.

To maintain the value of your machine, discharge the hopper immediately after every use.

NOTICE

If the machine is connected to an electronic control unit, a message is displayed indicating that the drop point is temporarily set to 0 during discharge of residual material.

Please observe the operator's manual of the electronic control unit.

Instructions for completely discharging the residual material:

Small quantities of spreading material may remain in the mineral fertiliser spreader when discharging residual material normally. If you wish to discharge the residual material completely (e.g. at the end of the spreading season, when changing spreading material), please proceed as follows:

1. Empty the hopper until no more spreading material is discharged (normal discharge of residual material).
2. Switch off the tractor engine and the machine control unit and secure them to prevent unauthorised starting. Remove the ignition key of the tractor.
3. Remaining fertiliser can be removed during machine cleaning with a soft water jet; [See also "Machine cleaning" on page -98.](#)

8.13 Parking and unhitching the machine

The machine can be securely parked on the frame or the stabilising rollers (optional equipment).

⚠ DANGER



Crushing hazard between the tractor and the machine

Persons standing between the tractor and the machine while they are being parked or unhitched are in lethal danger.

- ▶ Ensure that nobody is present in the hazard zone between the tractor and the machine.

Requirements for parking the machine:

- Only park the machine on level, solid ground.
- Only park the machine when the hopper is empty.
- Relieve the load on the coupling points (lower / upper link) before removing the machine.
- Store the hydraulic hoses and electric cables in the dedicated brackets.



Figure 8.9: Storage of cables and hydraulic hoses

[1] Bracket for hoses and cables

9 Maintenance and repair

9.1 Safety

NOTICE

Please note the warnings in chapter [3: Safety, page 5](#).
Take **particular note of the instructions** in the section [3.8: Maintenance and repair, page 11](#).

Maintenance and service work involves additional hazards that do not occur during operation of the machine.

For this reason, any maintenance and repair work is to be conducted with increased alertness at all times. Work particularly thoroughly and cautiously.

Observe the following instructions in particular:

- Welding and work on the electrical and hydraulic systems is to be carried out by qualified technicians only.
- There is a **risk of tipping** when working at the lifted machine. Always secure the machine using suitable supports.
- Always use **both** eyebolts in the hopper for lifting the machine with hoisting gear.
- There is a **risk of crushing and shearing at power-operated components (adjustment lever, metering slide)**. Make sure that there is no one in close proximity to the moving parts during maintenance.
- Spare parts must at least comply with the technical standards specified by the manufacturer. This is assured only with original spare parts.
- Before starting any cleaning, maintenance, or repair work, and when troubleshooting, switch off the tractor's engine and wait until all moving parts of the machine have come to a stop.
- By controlling the machine with an operating unit, additional risks and hazards due to externally operated components may arise.
 - Disconnect the power supply between the tractor and the machine.
 - Disconnect the power supply cable from the battery.
- **ONLY an instructed and authorised workshop** may carry out any repair work.

9.2 Wear parts and screw connections

9.2.1 Checking wear-prone parts

Wear-prone parts are: **spreader vanes, agitator head, outlet, hydraulic hoses** and all plastic parts.

Plastic parts are subject to a certain ageing process even under normal spreading conditions. Plastic parts are e.g. **protective grid locks, connecting rod**.

- Inspect wear parts regularly.

Replace these parts if they show signs of wear, deformation, holes or ageing. Otherwise, the spreading pattern will not be correct.

The durability of wear parts depends, among other things, on the material being spread.

9.2.2 Checking the bolted joints

Bolted joints have been tightened to the specified torque and locked at the factory. Vibrations and shocks, in particular during the initial operating hours, can loosen bolted joints.

- With new machines, all screw connections are to be checked for their tight seat after approx. 30 operating hours.
- Check all the bolted joints regularly for tightness, and definitely before the start of the spreading season.

Some components (e.g. spreader vanes) are mounted with self-locking nuts. When mounting these components **always use new self-locking nuts**.

9.3 Checking the screw connections of the weigh cells (version W)

The machine is equipped with 2 weigh cells and a tie rod. These elements are fixed by means of screw connections.

Check the screw connections for the weigh cells and the tie rod for tightness on both sides of the machine:

- before every spreading season
- also during the spreading season if necessary.

Checking:

1. Tighten the screw connection with a torque wrench (Tightening torque = **300 Nm**).

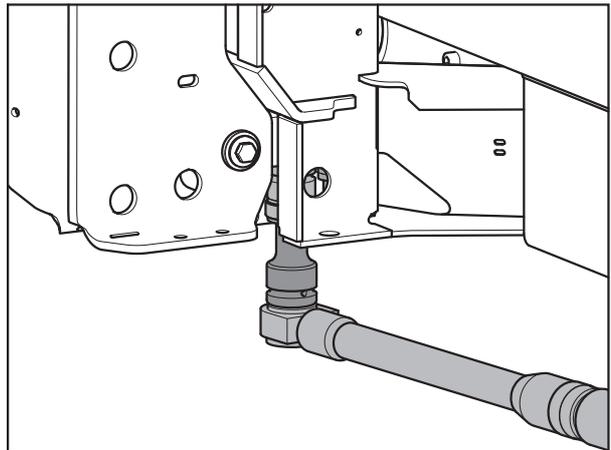


Figure 9.1: Fastening the weigh cells (on the left side of the direction of travel)

2. Tighten the screw connection [1] with a torque wrench (Tightening torque = **65 Nm**).

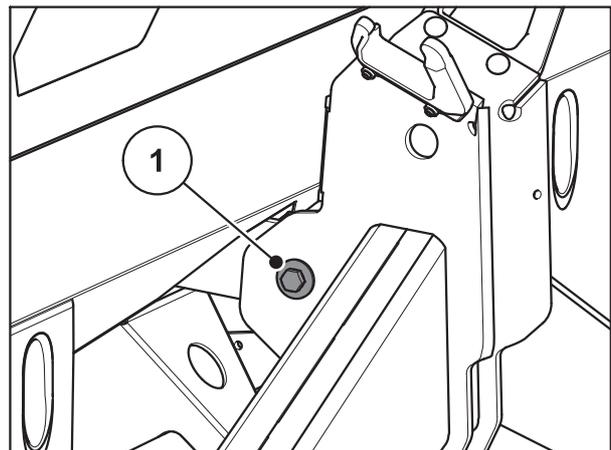


Figure 9.2: Fastening the tie rod at the weigh frame

3. Tighten the screw connection with a torque wrench (Tightening torque = **65 Nm**).

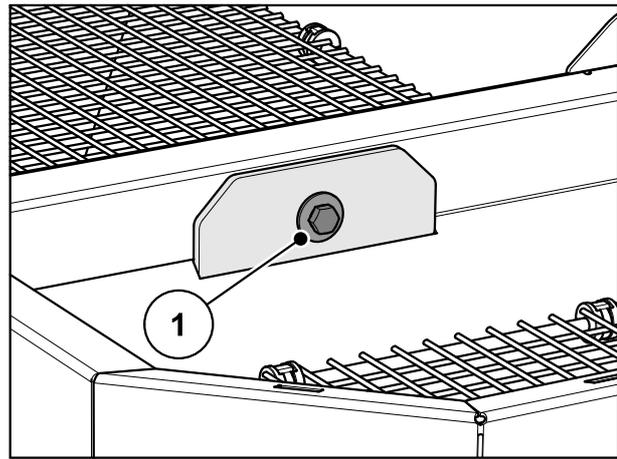


Figure 9.3: Fastening the tie rod at the hopper

NOTICE

After tightening the screw connections using the torque wrench, the weighing cells must be tared anew. Please follow the instructions in the chapter "Machine tare" of the operator's manual of the control unit.

9.4 Maintenance plan

This chapter specifies the maintenance tasks to be undertaken.

NOTICE

Notes on the lubrication and lubrication intervals are provided in chapter [9.14: Lubrication plan, page 116](#).

9.4.1 Maintenance

Assembly	Task	Note
Safety equipment	Check function before driving	Page 100
Hydraulic system	Check for damages/leaks	Page 110
Screw connections	<ul style="list-style-type: none"> Regularly check tightness Check condition retighten as necessary 	Page 94
Wear parts	Regularly check condition and replace as necessary	Page 94
Entire fertiliser spreader	Clean	Page 98
Protective grid mounting in hopper	Is the protective grid in place? Check function and adjust the protective grid lock as necessary	Page 100
Spreading disc	Check condition and replace the spreading disc or apply corrosion protection as necessary	
Spreading vane	Check condition and replace the spreading vane or apply corrosion protection as necessary	Page 105
Spreading disc hub	Check the position and clearance to the agitator and correct as necessary	Page 102
Agitator	Check function of eccentric drive, check connecting rods for tightness and damage, check locking direction and free running of agitator heads, check agitator fingers for wear	Page 103
Metering slide	Check the correct metering slide opening and adjust as necessary. Recalibrate the metering slide test points of the electronic control unit.	Page 107
Drop point setting	Check the correct drop point setting and adjust as necessary. Recalibrate the drop points of the electronic control unit.	Page 109
Transmission drive	Check filling levels, change oil, check speed sensor	Page 115
Pressure filter	Check pressure filter for dirt, check hydraulic hoses and screw connections and replace as necessary	Page 113
Hydraulic hoses	Check hydraulic hoses and screw connections and replace as necessary	Page 112

9.5 Machine cleaning

We recommend cleaning the machine immediately after every use with a **gentle water jet** in order to maintain its value.

To facilitate cleaning, the protective grids in the hopper can be folded up (see chapter [9.6: Opening the protective grid in the hopper, page 100](#)).

The following instructions must be observed when cleaning:

- Clean the outlets and the area of the slide guide from below only.
- Only clean oiled machines at washing points fitted with an oil separator.
- When cleaning with high-pressure water, never aim the jet directly at warning signs, electrical equipment, hydraulic components, and sliding bearings.
- Take particular care when cleaning hydraulic components like the control block, hose screw connections or the transmission unit.

9.5.1 Disassemble the dirt deflector

The dirt deflector can be removed for easy cleaning.

- Use the adjustment lever on the machine. See [figure 8.2, Page 79](#).

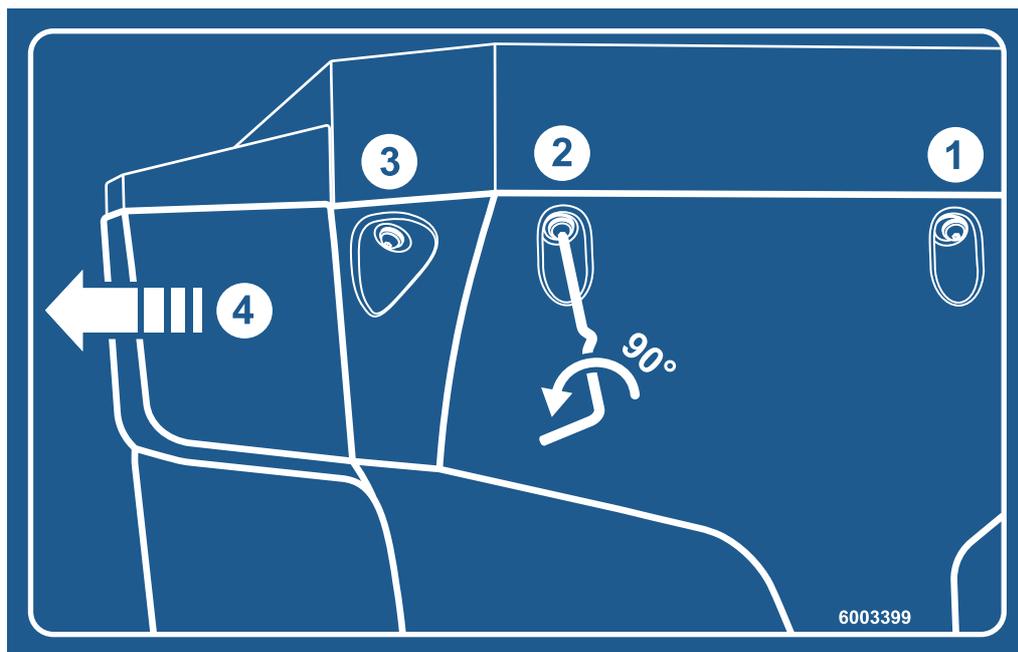


Figure 9.4: Dirt deflector instruction sticker

1. Open the 3 quick release closures on the left- and the right-hand dirt deflector
2. Move the dirt deflector to the outside.
3. Put the dirt deflector down and store it in a safe place.

9.5.2 Dismounting the dirt deflector

1. Move the dirt deflector laterally to the inside until it latches in the bracket.
2. Screw the 3 quick release closures on the left- and the right-hand dirt deflector together with the adjustment lever of the machine.
3. Put the adjustment lever back into the specified bracket.

9.5.3 Care

After cleaning, we recommend treating the **dry** machine, **especially the coated spreading vanes and stainless steel parts** and **hydraulic components** like the control block, hydraulic hoses and transmission unit with an environmentally friendly anti-corrosion agent.

A suitable polishing kit can be ordered from authorised dealers for use in treating rust spots.

9.6 Opening the protective grid in the hopper

▲ WARNING



Risk of injury due to moving parts in the hopper

There are moving parts in the hopper.

There is a risk of injury to hands and feet during commissioning and operation of the machine.

- ▶ It is important that the protective grid is installed and locked before commissioning and operating the machine.
- ▶ The protective grid may **only** be opened for maintenance purposes or in the event of a fault.

The protective grids in the hopper lock automatically by means of a protective grid lock.

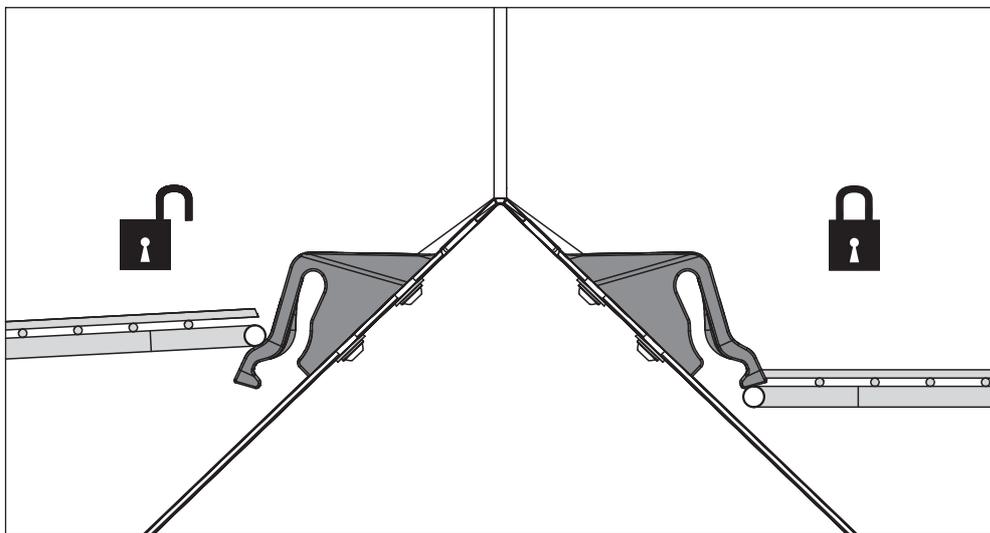
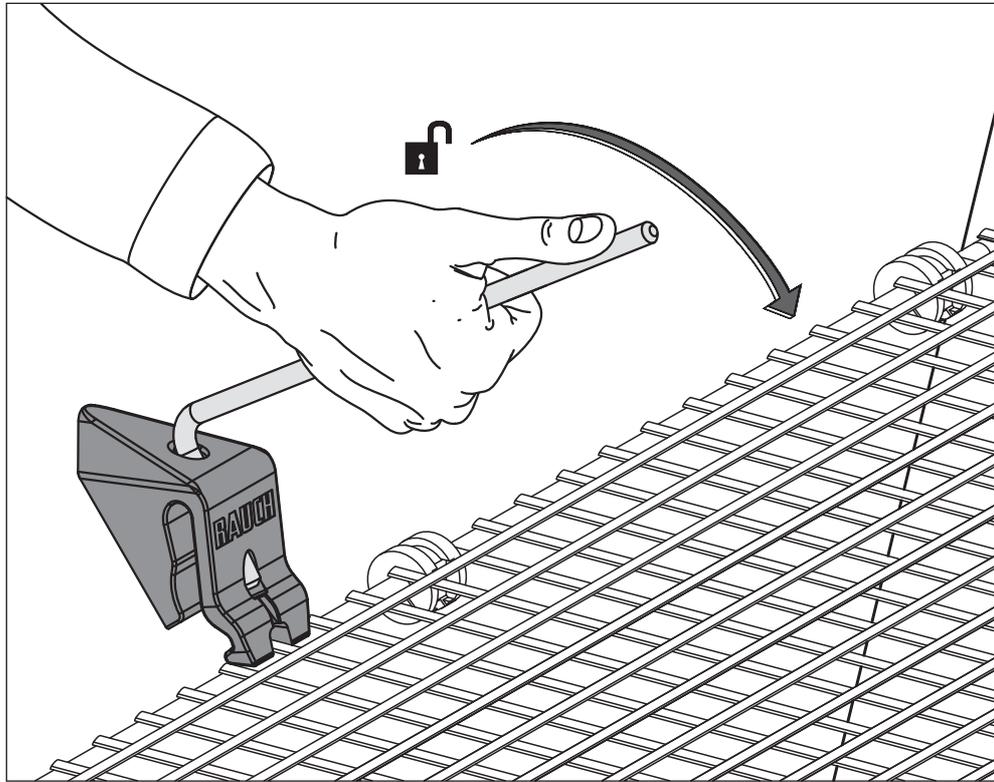


Figure 9.5: Protective grid lock open/closed

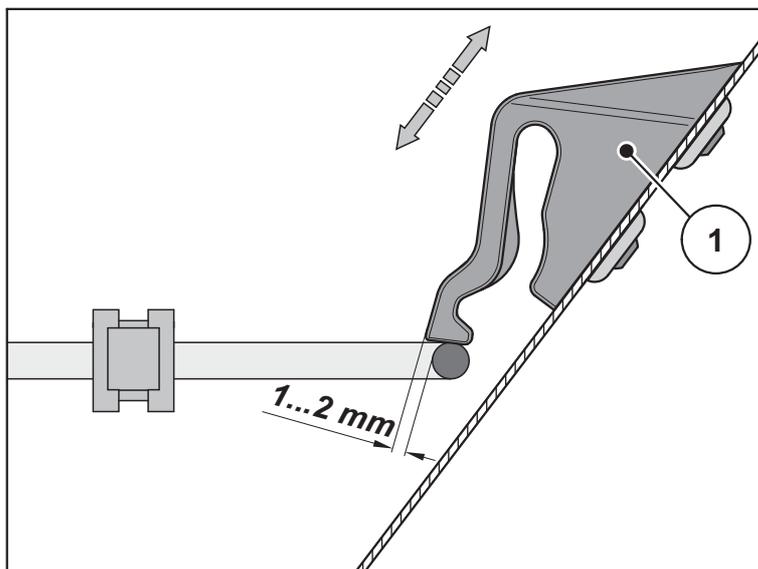
In order to avoid an inadvertent opening of the protective grid, the protective grid lock can only be released by using a tool (e.g. by means of the adjustment lever).

Before opening the protective grid:

- Disengage the PTO shaft.
- Lower the machine.
- Turn the tractor motor off. Remove the ignition key.

**Figure 9.6:** Open the protective grid lock

- Execute a regular function check of the protective grid lock. See figure below.
- Immediately replace defective protective grid locks.
- If required, correct the setting by moving the protective grid lock [1] up/down (see figure below).

**Figure 9.7:** Test dimension for functional check of the protective grid lock

9.7 Checking the position of the spreading disc hub

The spreading disc hub must be centred exactly under the agitator.

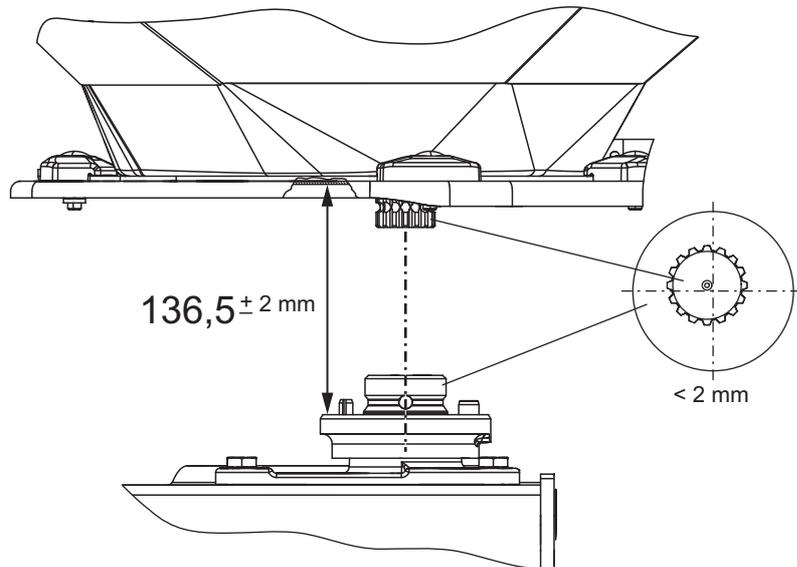


Figure 9.8: Checking the position of the spreading disc hub

Requirements:

- The spreading discs are removed (see “Dismounting spreading discs” subsection).

Testing the centring:

1. Use suitable equipment to check that the spreading disc hub and agitator are centred (e.g. straight edge ruler, protractor)
 - ▷ The axes of the spreading disc hub and of the agitator must be aligned. They may deviate from each other by a maximum of **2 mm**.

If this tolerance is exceeded, please contact your dealer or authorised specialist workshop.

Checking the distance:

2. Measure the gap between the upper edge of the spreading disc hub and the lower edge of the agitator.
 - ▷ The distance must amount to **136.5 mm** (admissible tolerance ± 2 mm).

If this tolerance is exceeded, please contact your dealer or authorised specialist workshop.

9.8 Checking the agitator drive

NOTICE

There is a **left-** and a **right-hand** agitator. Both agitators rotate in the same direction as the spreading discs.

The agitator must operate at a constant RPM in order to ensure an even flow of the fertiliser.

- Agitator RPM: **15 - 20** rpm.

In order to attain the correct agitator speed of **15-20** rpm, the agitator requires the resistance of the spreading material inside it. This is the reason why it is entirely possible that even with a fully functional agitator, the correct RPM cannot be attained or that the hopper seasaws, when the hopper is empty.

If the RPM **with full hopper** are outside of this range, the agitator needs to be checked for wear and tear.

Checking the functions of the agitator

Requirements

- The tractor is parked.
- The ignition key has been removed.
- The machine is parked on the ground.

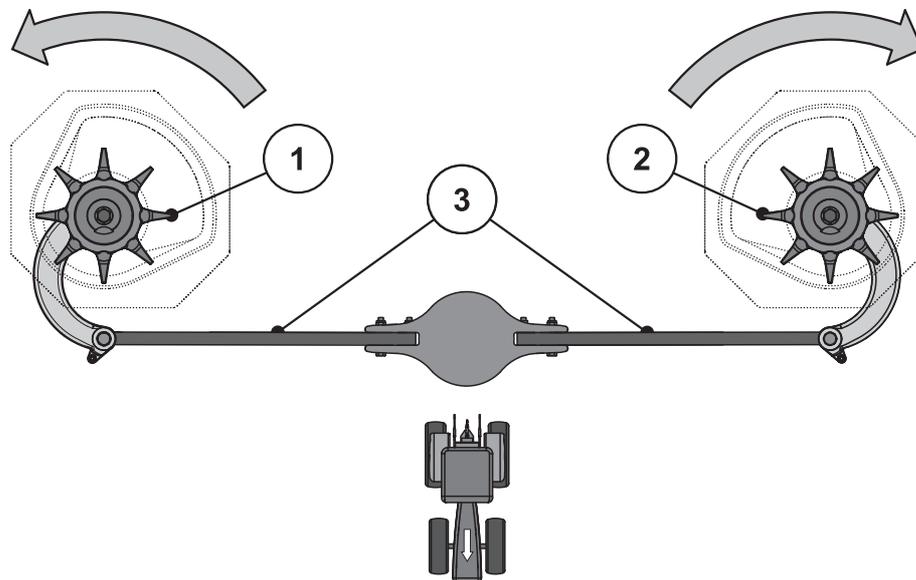


Figure 9.9: Checking the agitator drive

- [1] Right side agitator head (in direction of travel)
 [2] Left side agitator head (in direction of travel)
 [3] Connecting rods
 Arrows: Rotational direction of spreading discs

1. Check the connecting rods.
 - Connecting rods may not show any cracks or other signs of damage.
 - Check pivoting bearing for wear and tear.
 - Check safety element functions at all joints.
 2. Manually turn the agitator head **into the rotational direction of the spreading disc**. See [figure 9.9](#).
 - The agitator head must be able to turn.
 - ▷ If the head does not turn, replace the agitator head.
 3. Turn the agitator head manually or with the help of an oil filter belt forcefully **against the rotational direction of the spreading disc**. See [figure 9.9](#).
 - The agitator head should not turn.
 - ▷ If the head can be turned, replace the agitator head.
- ▷ **If the checkup does not identify a cause, please contact your authorised specialist workshop for further inspections.**

Checking the agitator head for wear and tear:

- Check the fingers of the agitator head for wear.
 - ▷ The length of the fingers must not be less than the **wear range (Z)**.
 - ▷ The fingers must not be bent.

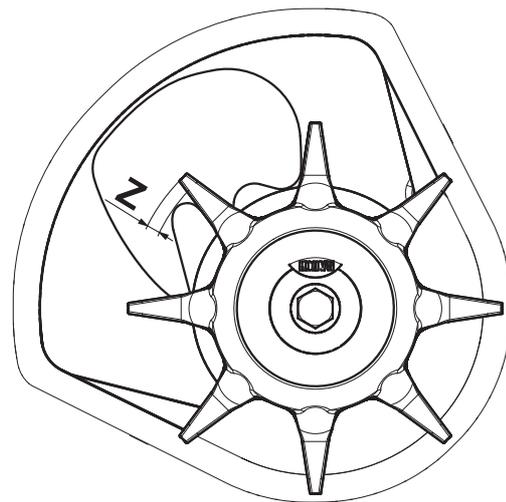


Figure 9.10: Agitator head wearing zone

9.9 Wurfflügel wechseln

Verschlossene Wurfflügel austauschen.

NOTICE

Lassen Sie verschlossene Wurfflügel **nur** von Ihrem Händler bzw. Ihrer Fachwerkstatt tauschen.

Voraussetzung:

- Die Wurfscheiben sind ausgebaut (Siehe Abschnitt „Wurfscheiben demonstrieren und montieren“).

Bestimmung Wurfflügeltyp:

⚠ CAUTION



Übereinstimmung der Wurfflügeltypen

Typ und Größe der Wurfflügel sind auf die Wurfscheibe angepasst. Falsche Wurfflügel können Schäden an der Maschine und der Umwelt verursachen.

- ▶ NUR die für die entsprechende Scheibe zugelassenen Wurfflügel montieren.
- ▶ Beschriftung am Wurfflügel vergleichen. Typ und Größe des neuen und des alten Wurfflügels müssen identisch sein.

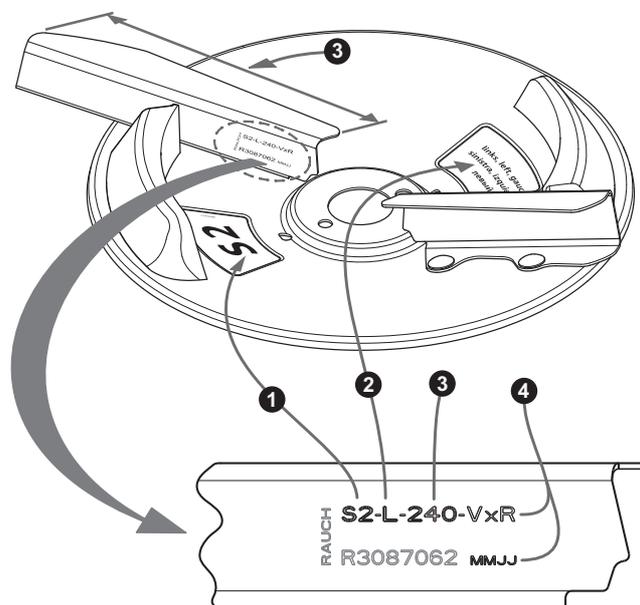


Figure 9.11: Beschriftung Wurfscheibe

- [1] Wurfscheibentyp
- [2] Streuerseite
- [3] Länge der Wurfflügel
- [4] Beschichtung

Wechsel Wurfflügel:

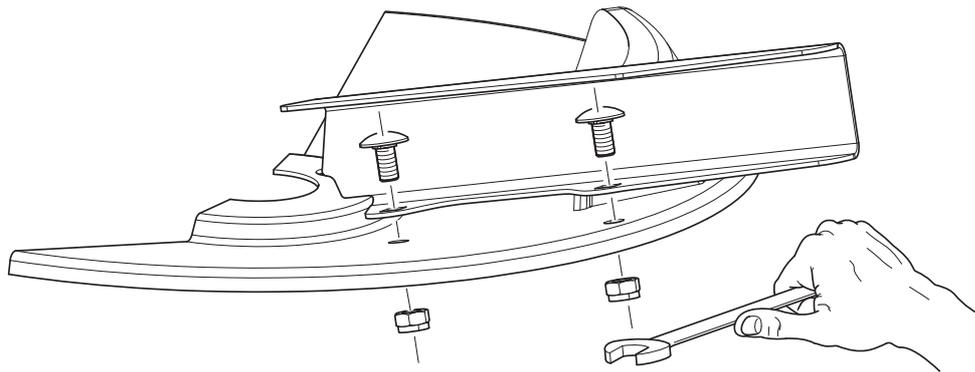


Figure 9.12: Schrauben Wurfflügel lösen

1. Die selbstsichernden Muttern am Wurfflügel lösen und Wurfflügel abnehmen.
2. Den neuen Wurfflügel auf die Wurfscheibe aufsetzen. Auf den richtigen Wurfflügeltyp achten.

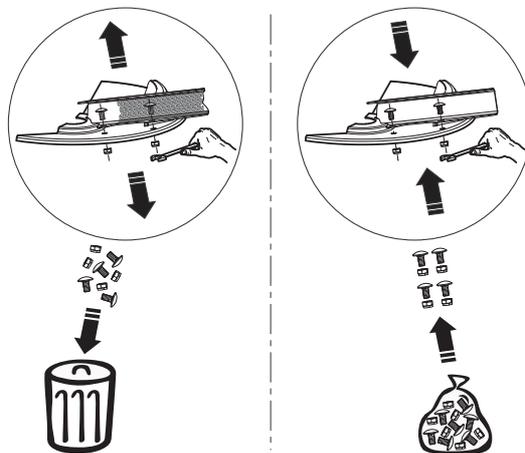


Figure 9.13: Neue selbstsichernde Muttern verwenden

3. Wurfflügel anschrauben (Anzugsdrehmoment: **20 Nm**). Dazu **immer neue selbstsichernde** Muttern verwenden.

9.10 Metering slide adjustment

Check that the metering slides open smoothly before every working season and during the season, if necessary.

▲ WARNING



Danger of crushing and shearing due to components operated by an external force

When working on power-operated components (adjusting lever, metering slides), there is a crushing and shearing risk.

Pay attention to the shear point of the metering slide opening and the metering slide during all adjustment work.

- ▶ Switch the tractor motor off.
- ▶ Remove the ignition key.
- ▶ Disconnect the power supply between the tractor and the machine.
- ▶ Never actuate the hydraulic metering slide during adjustment work.

Requirements:

- The actuator is disengaged.

Check (e.g. left side of machine):



1. Insert a lower link pin with a diameter of **28 mm** centrally into the metering opening.

Figure 9.14: Lower link pin in metering opening

2. Push the metering slide against the pin, and lock it in this position by tightening the setscrew.
- ▷ **The stop on the lower scale plate (metering scale) is positioned at the scale value 85. If the position is not correct, readjust the scale.**

Adjustment:

The metering slide is in the position of step 2 (lightly pressed against the pin).

3. Loosen the fastening screws on the scale of the lower scale plate.

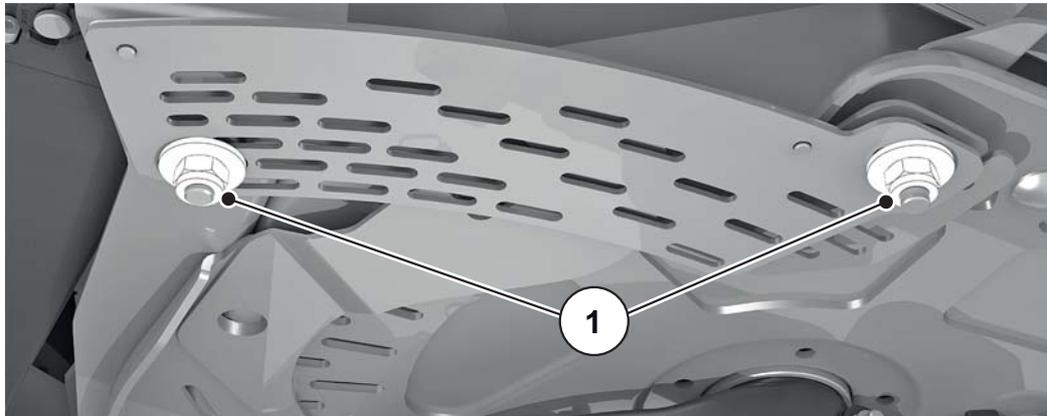


Figure 9.15: Scale mounting screws

4. Adjust the scale in such a way that the **scale value 85** lies exactly under the pointer element.



Figure 9.16: Metering slide pointer on position 85

5. Tighten the scale again.
6. Repeat working steps 1 - 4 for the right metering slide.

NOTICE

Both metering slides must open **evenly** and to the same extent. Therefore, always check both metering slides.

NOTICE

After scale correction of the electronic metering slide actuators, the metering slide test points in the ISOBUS machine control unit have to be checked as well.

- Please observe the operator's manual of the ISOBUS machine control unit.
 - In case of deviations, please contact your dealer or an authorised specialist workshop for adjustment.
-

9.11 Checking the drop point

By altering the drop point, the working width can be accurately set and adjustments to different fertiliser types can be made.

Check the setting of the drop point at the start of each working season, and during the season if necessary (in case of uneven fertiliser spreading distribution).

NOTICE

Normally, the drop point must be set to the **same** position on both sides. During full and limited border spreading, the working width and spreading disc speed can be adjusted on one or both sides by means of the drop point. Therefore, always check both settings.

NOTICE

For adjustment of the drop point settings, please contact your dealer or an authorised specialist workshop.

9.12 Maintenance of the hydraulic system

The hydraulic system of the AXIS H EMC mineral fertiliser spreader consists of the following components:

- Hydraulic block with oil supply from the tractor,
- Hydraulic motors,
- Connection hoses.

Within the hydraulic circuits, the drive components and the control elements are all connected with each other via hydraulic lines.

During operation, the hydraulic system of the mineral fertiliser spreader is subject to high pressure. During operation, the temperature of the oils in the system is approx. 90 °C.

⚠ WARNING



Risk of injury due to the hydraulic system

Hot fluids and fluids escaping under high pressure may cause severe injury.

- ▶ Before starting any work, the hydraulic system is to be depressurised.
- ▶ Switch off the tractor engine and secure the tractor against restart.
- ▶ Let the hydraulic system cool down.
- ▶ When searching for leakage, wear protective goggles and protective gloves at all times.

⚠ WARNING



Risk of infection caused by hydraulic oils

Hydraulic oils escaping the system under high pressure may penetrate the skin and cause infections.

- ▶ In case of injury in connection with hydraulic oil, immediately seek medical attention!
-

▲ WARNING**Environmental pollution due to unsuitable disposal of hydraulic and gear oil**

The hydraulic and gearbox oils are not entirely biodegradable. Therefore, oil must be prevented from entering the environment in an uncontrolled manner.

- ▶ Collect/dam escaped oil with sand, earth or other absorptive material.
- ▶ Collect hydraulic and gear oil in a suitable container provided for the purpose, and dispose of it in accordance with the local statutory requirements.
- ▶ Oil must be prevented from spilling and draining into the sewers.
- ▶ The ingress of oil into the sewage system must be prevented by building dams made of sand and/or earth or by other suitable damming means.

9.12.1 Checking hydraulic hoses

Hydraulic hoses are subject to extreme stress and aging. They may only be used for a maximum period of 6 years, including a storage period of up to 2 years.

NOTICE

The date of manufacture of a hose line is indicated at the hose fittings in a year/month format (e.g. 2016/04).

- Regularly check the hydraulic hoses for damage, at the least before the start of the spreading season, by means of visual inspection.
- Replace the hydraulic hoses if one or several of the following damage types are identified:
 - Damages to the external layer up to the inlay
 - Brittleness of the external layer (formation of cracks)
 - Deformation of the hose
 - Hose moves out of the hose fitting
 - Damages to the hose fitting
 - Reduced firmness and function of the hose fitting due to corrosion
- Before the start of the spreading season, check the age of the hydraulic hoses. Change hydraulic hoses as soon as the prescribed period of storage and usage is exceeded.

9.12.2 Replacing hydraulic hoses

Preparation:

- Ensure that the hydraulic system is **depressurised** and **cooled-down**.
- Position collecting vessels for leaking hydraulic oil under the disconnection points.
- Have suitable closing elements ready in order to prevent leaking of the hydraulic oil from the lines which are not to be replaced.
- Have suitable tools ready.
- Put on protective gloves and protective goggles.
- Ensure that the new hydraulic hose corresponds to the type of the hydraulic hose to be replaced. Particular attention is to be paid to the correct pressure range and hose length.

NOTICE

Please also observe deviating maximum pressure specifications of hydraulic lines to be replaced.

Proceed as follows:

1. Loosen the hose fitting at the end of the hydraulic hose to be replaced.
 2. Discharge the oil from the hydraulic hose.
 3. Loosen the other end of the hydraulic hose.
 4. Immediately discharge the loosened hose end into the oil collecting vessel and close the connection.
 5. Release hose clamps and disconnect the hydraulic hose.
 6. Connect the new hydraulic hose. Tighten the hose fittings.
 7. Secure the hydraulic hose with the hose clamps.
 8. Check the position of the new hydraulic hose.
 - The hose guide must be identical with the one of the old hydraulic hose.
 - There must be no abrasion points.
 - Do not twist the hose or route it under tension.
- ▷ **The hydraulic hoses are now successfully replaced.**

9.12.3 Checking hydraulic motors

- Regularly check all hydraulic motors and at least before every spreading operation.

The hydraulic motors drive the spreading discs. They are located on the left and right under the protective cover of the transmission.

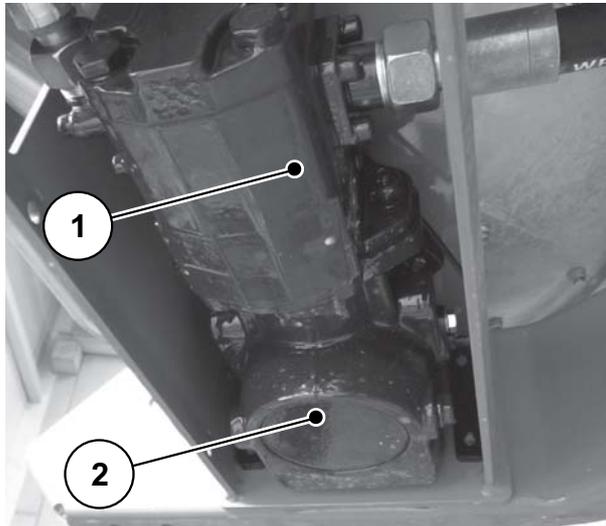


Figure 9.17: Hydraulic motor

- [1] Hydraulic motor
- [2] Transmission

- Check the components for external damages and leaks.

9.12.4 Checking hydraulic pressure filters (optional equipment)

To ensure long and fault-free operation, we recommend application of a hydraulic pressure filter ([figure 9.18](#)). If the hydraulic pressure filter is soiled, replace the filter cartridge.

The pressure filter is equipped with an indicator of soiling.

NOTICE

If the oil is cold or in case of pressure peaks, the indicator pin may trigger although the filter does not yet need to be replaced.

- Push the indicator pin inside after the operating temperature is reached.
- If the indicator pin triggers again, the pressure filter needs to be replaced.

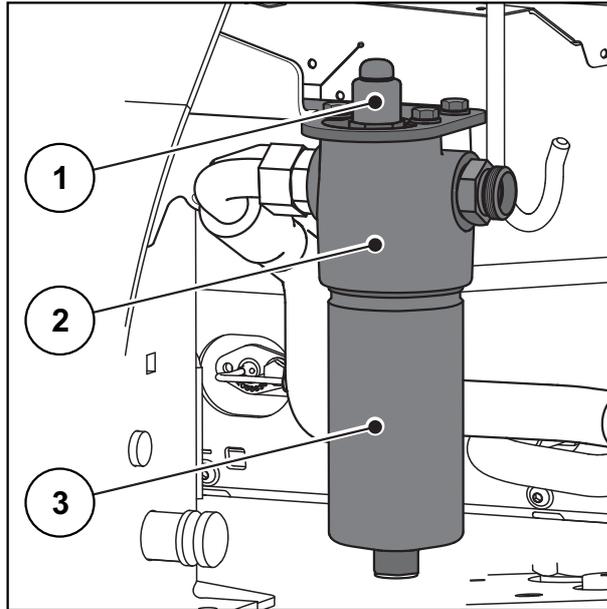


Figure 9.18: Hydraulic pressure filter

- [1] Contamination indicator (position indicator is visible)
- [2] Filter head
- [3] Filter housing

Replacing filter cartridges

- Ensure that the hydraulic system is **depressurised** and **cooled-down**.
- Position a collecting vessel for leaking hydraulic oil under the pressure filter.
- Put on protective gloves and protective goggles.
- 1. Loosen the filter housing [3] with a SW24 spanner.
- 2. Untighten the filter housing from the hydraulic pressure filter.
- 3. Replace the soiled filter cartridge by a new one.
- 4. Clean the filter housing [3] and filter head [2] around the threading and the sealing surface and check for mechanical damage.
- 5. Check the O-rings for damage and replace as necessary.
- 6. Tighten the filter housing [3] with the SW24 spanner up to the limit stop and screw it back by a quarter turn.
- 7. Vent the hydraulic pressure filter.
- ▷ **The filter cartridge has now been replaced successfully.**
- Check all components for external damage and leaks.

9.13 Transmission oil

The transmissions (left/right) of the machine are filled with approx. **0.3 l** of transmission oil.

NOTICE

Only use one type of oil.

- **Never** mix different oil types.

9.13.1 Checking the oil level

Requirements:

- The mineral fertiliser spreader is in a horizontal position.
- Switch off the tractor engine and the ISOBUS machine control unit. Remove the ignition key of the tractor.

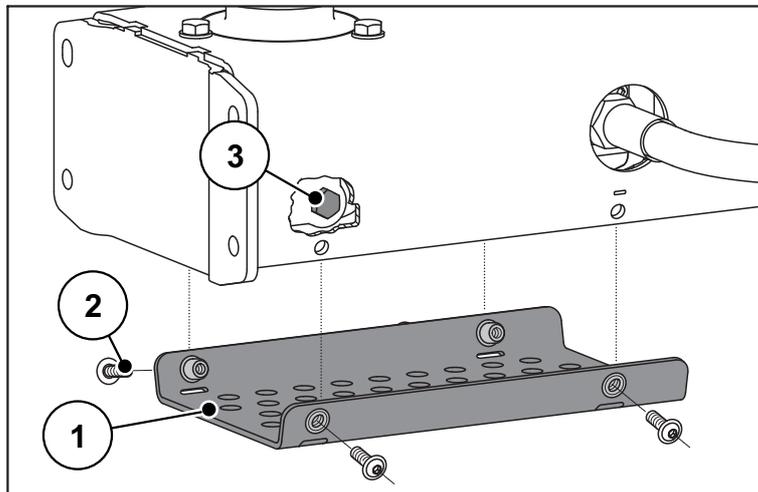


Figure 9.19: Gear oil filling and draining points

- [1] Protective cover
- [2] Protective cover mounting screws
- [3] Drain screw

- Disassemble the protective cover.
- Untighten the drain screw.
- The oil level is satisfactory when the oil reaches the lower edge of the hole.
- Reassemble the protective cover.

9.13.2 Oil change

Under normal conditions, the transmission oil does not need to be changed. However, we recommend changing the oil after 10 years.

A shorter oil change interval is recommended if fertilisers with a high dust content are used and the spreader is frequently cleaned.

- The transmission unit has to be disassembled.

NOTICE

For oil change and disassembly of the transmission unit, please contact your dealer or an authorised specialist workshop.

9.14 Lubrication plan

9.14.1 Lubrication plan

Lubrication points	Lubricant	Description
Metering slide	Grease/oil	Ensure smooth movement and grease regularly.
Spreading disc hub	Grease	Ensure smooth movement of pivot and sliding surfaces and grease regularly.
Upper and lower hitch balls	Grease	Grease regularly
Joints, bushes of agitator drive	Grease/oil	They are designed for dry operation but can be slightly lubricated.
Drop point adjustment, adjustable floor	Oil	Ensure smooth movement and oil regularly from the outer edge inward and from the base outward.
Weigh cells lubrication point	Grease	

9.14.2 Lubrication points

The lubrication spots are distributed over the entire machine and marked correspondingly.

You can identify the lubrication spots by this sign:

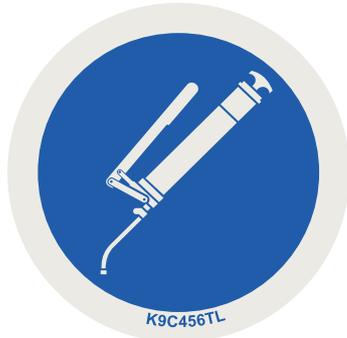


Figure 9.20: Lubrication spot sign

- Always keep the sign boards **clean** and **legible**.

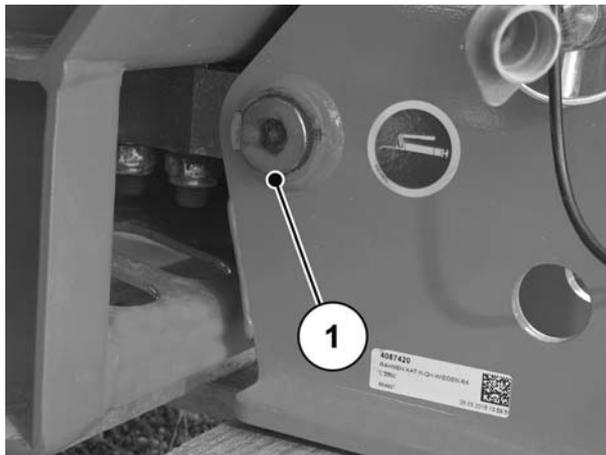


Figure 9.21: Weigh cells lubrication point

[1] Lubrication point

10 Disposal

10.1 Safety

▲ WARNING



Environmental pollution due to unsuitable disposal of hydraulic and gear oil

The hydraulic and gearbox oils are not entirely biodegradable. Therefore, oil must be prevented from entering the environment in an uncontrolled manner.

- ▶ Collect/dam escaped oil with sand, earth or other absorptive material.
- ▶ Collect hydraulic and gear oil in a suitable container provided for the purpose, and dispose of it in accordance with the local statutory requirements.
- ▶ Oil must be prevented from spilling and draining into the sewers.
- ▶ The ingress of oil into the sewage system must be prevented by building dams made of sand and/or earth or by other suitable damming means.

▲ WARNING



Environmental pollution caused by inappropriate disposal of packaging materials

Packaging material contains chemical compounds, which must be dealt with appropriately.

- ▶ Packaging material is to be disposed of at an authorized waste management company.
- ▶ Observe the national regulations.
- ▶ Packaging material may **not** be burned nor disposed of with the domestic waste processing.

▲ WARNING



Environmental pollution caused by inappropriate disposal of components

The incorrect disposal of ingredients and materials is a threat to the environment.

- ▶ Only authorised companies may be commissioned with the disposal.

10.2 Disposal

The following points are applicable without any restriction. Stipulate suitable precautionary measures based on the national legislation and implement them.

1. All components, auxiliary and operating materials from the machine must be removed by specialist staff.

Hereby, these components and substances must be cleanly separated into categories.

2. All waste products are then to be disposed of in accordance with local regulations and directives for recycling or special refuse categories by authorised companies.

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Terms/conditions of warranty

RAUCH units are manufactured with modern production methods and with the greatest care and are subject to numerous inspections.

Therefore RAUCH offers a 12-month warranty subject to the following conditions:

- The warranty begins on the date of purchase.
- The warranty covers material and manufacturing faults. Our liability for third-party products (hydraulic system, electronics) is limited to the warranty of the manufacturer of the equipment. During the warranty period, manufacturing and material faults are corrected free of charge by replacement or repair of the affected parts. Other rights extending beyond the above, such as claims for conversion, reduction or replacement for damages that did not occur in the object of supply are explicitly excluded. Warranty services are provided by authorised workshops, by RAUCH factory representatives or the factory.
- The following are excluded from coverage by the warranty: natural wear, dirt, corrosion and all faults caused by improper handling and external causes. The warranty is rendered void if the owner carries out repairs or modifications to the original state of the supplied product. Warranty claims are rendered void if RAUCH original spare parts were not used. Therefore, the directions in the operating manual must be observed. In all cases of doubt contact our sales representatives or the factory directly. Warranty claims must be submitted to the factory by 30 days at the latest after occurrence of the problem. The date of purchase and the serial number must be indicated. If repairs under the warranty are required, they must be carried out by the authorised workshop only after consultation with RAUCH or the company's appointed representatives. The warranty period is not extended by work carried out under warranty. Shipping faults are not factory faults and therefore are not part of the warranty obligation of the manufacturer.
- No claims for compensation for damages that are not part of RAUCH machines themselves will be accepted. This also means that no liability will be accepted for damage resulting from spreading errors. Unauthorised modifications of RAUCH machines may result in consequential damage, for which the manufacturer will not accept any liability. The manufacturer's liability exclusion will not apply in case of wilful intent or gross negligence by the owner or a senior employee, and in cases where – according to the product liability law – there is liability for personal injury or material damage to privately used objects in the event of defects in the supplied product. It will also not apply in the event that assured properties are absent, if the purpose of the assured properties was to protect the purchaser against damage that does not involve the supplied product itself.

RAUCH Streutabellen
RAUCH Fertilizer Chart
Tableaux d'épandage RAUCH
Tabele wysiewu RAUCH
RAUCH Strooitabellen
RAUCH Tabella di spargimento
RAUCH Spredetabellen
RAUCH Levitystaulukot
RAUCH Spridningstabellen
RAUCH Tablas de abonado



<http://www.rauch-community.de/streutabelle/>



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