

# D 301 | D 601

One-chamber three-point spreader



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Kugelmann Maschinenbau e.K.  
Gewerbepark 1-5  
87675 Rettenbach a.A.  
GERMANY

www.kugelmann.com  
office@kugelmann.com  
+49 (0) 8860 | 9190-0

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Gewerbepark 1-5

87675 Rettenbach a.A. (Germany)

Tel.: +49 (0) 8860 / 9190-0

Fax: +49 (0) 8860 / 9190-19

Mail: office@kugelmann.com

Web: www.kugelmann.com

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We are constantly developing our products to offer our customers maximum convenience. Therefore, we ask for your understanding that the manual can deviate from the product in some regards.

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### 3 General information

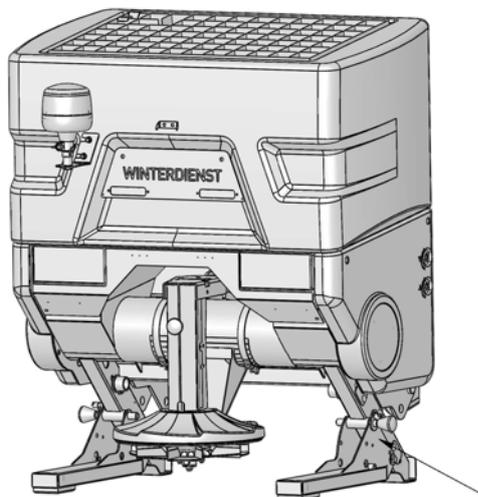
This chapter gives you information on the following:

- Chapter 3.1 "Spreader identification", page 5
- Chapter 3.2 "Service information", page 6
- Chapter 3.3 "EC Declaration of Conformity in terms of the EC Machinery Directive 2006/42/EC", page 7

#### 3.1 Spreader identification

<b>CE</b>	
Type / type:	D 301 / D601
Fabr. - Nr. / serial no.:	
Art. / code:	
Baujahr / YOM:	
<small>www.kugelmann.com D-87675 Reffenbach a. A. Made in Germany</small>	
kugelmann *	

The type plate refers to device type, serial number, year of construction and manufacturer.



You find the type plate at the marked support leg of the spreader.

## **3.2 Service information**

Customer service:

Tel.: +49 (0) 8860 / 9190-90

Mobile: +49 (0) 171 / 75 52 372

Fax: +49 (0) 8860 / 9190-49

E-Mail: [service@kugelmann.com](mailto:service@kugelmann.com)

### 3.3 EC Declaration of Conformity in terms of the EC Machinery Directive 2006/42/EC



We herewith declare that the machine designated below complies with the relevant essential health and safety requirements of the respective EC Directives due to its design and construction, and in the version supplied by us.

If the machine is modified without our consent, this declaration shall cease to apply.

Designation: One-chamber truck-mounted spreader

Machine type: D301 / D601

Relevant EC machinery directives:

91/368/EEC

98/37/EC

93/68/EEC

DIN EN 292-1/292-2/294/349/1050/1553

Rettenbach a.A., November 2015

Josef Kugelmann

## 4 Operating instructions

This chapter gives you information on the following:

- Chapter 4.1 "*Target group*", page 9
- Chapter 4.2 "*Application*", page 9
- Chapter 4.3 "*Conventions used*", page 10
- Chapter 4.4 "*Change history*", page 10

## 4.1 Target group

These operating instructions are intended for skilled persons who are responsible for the following work at the spreader:

- Commissioning
- Control
- Operation
- Use
- Maintenance

At least once a year, all personnel must be trained in the operation of the spreader in accordance with the guidelines of the business liability insurance. The use of the spreader by untrained or unauthorized persons is prohibited.

## 4.2 Application

These operating instructions contain all necessary data and information for a secure control, operation and maintenance of the spreader.

Make sure that all persons responsible for operation or maintenance of the spreader or persons working in the immediate environment of the machine are familiar with the operating and maintenance instructions as well as the safety information in this manual.

These operating instructions are part of the product and have to be kept in a safe place. In case of resale or transfer of the machine to third parties, these operating instructions have to be included.

All information, illustrations and technical data correspond to the technical state at the time of printing. Subject to technical modifications.

## 4.3 Conventions used

This manual uses the following typographic conventions:

Icon	Signal word	Meaning
	Danger	Indicates an imminent dangerous situation, which - in case of non-observance of the safety instructions - will entail death or grievous bodily harm.
	Warning	Indicates a possibly dangerous situation, which - in case of non-observance of the safety instructions - may entail death or grievous bodily harm.
	Caution	Indicates a possibly dangerous situation, which - in case of non-observance of the safety instructions - may result in minor injuries or damage to property.
	Notice	Contains useful information with respect to proper handling of the machine.

## 4.4 Change history

Date	Version	Change
24-11-2015	1.1	First edition

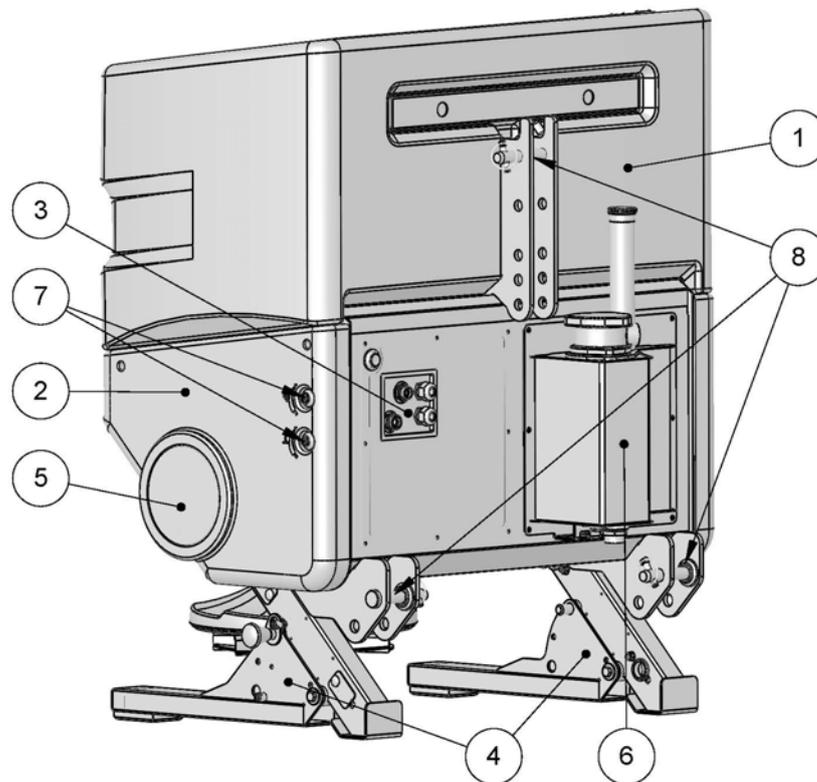
## 5 General description

This chapter gives you information on the following:

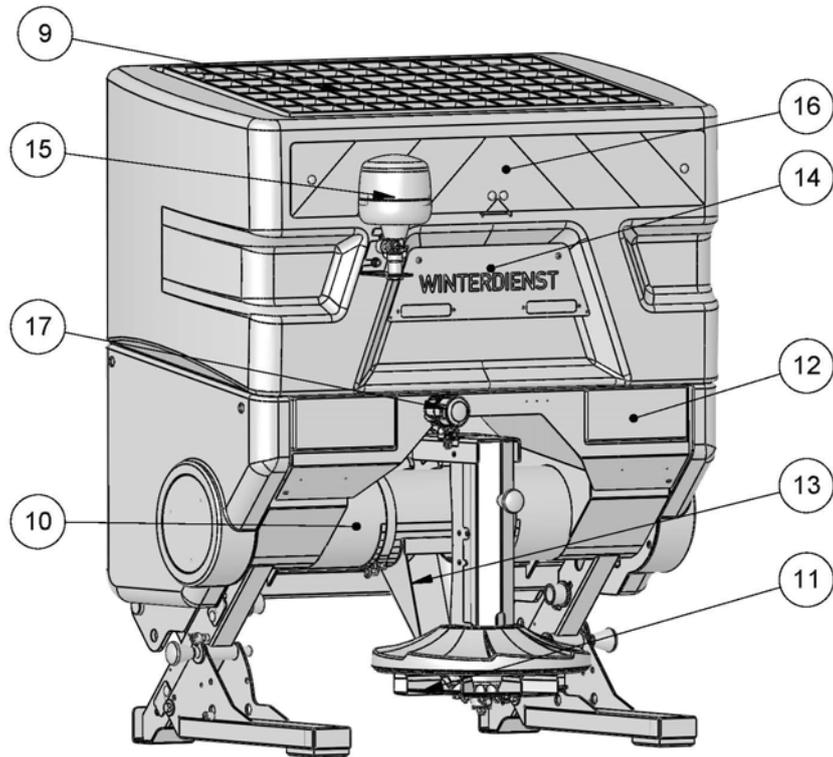
- Chapter 5.1 "Parts", page 11
- Chapter 5.2 "Designated use", page 13
- Chapter 5.3 "Obvious misuse", page 13

### 5.1 Parts

Please see the following illustration for parts of the spreader:



Pos.	Part
1	Plastic container
2	Lateral plastic covers
3	Hydraulic control block
4	Support legs
5	Screw drive (under plastic cover)
6	Optional oil tank for PTO hydraulic pump
7	Setting screws for valve regulation
8	Attachment points



Pos.	Part
9	Grid
10	Basic body with screw conveyor inside
11	Spreading disc
12	Lighting in accordance with StVO (German Road Traffic Regulations)
13	Chute
14	Flasher (optional)
15	Rotating beacon (optional)
16	Warning marking red/white (optional)
17	Working headlight (optional)

## 5.2 Designated use

Please use the spreader exclusively for spreading of salt and/or grit.

Transport and operation of the spreader only at the attachment points provided for this purpose (see Chapter 5.1 "Parts", page 11).

Any kind of use that deviates from the procedure set forth herein is considered contrary to its designated use. The operator of the spreader is liable for any damages arising from such action.

Use, maintenance and reconditioning of the spreader may only be carried out by trained and competent personnel.

To operate the equipment within the limits of its designated use, please note the following:

- These operating instructions as well as all other enclosed documentation.
- Road traffic regulations.
- The relevant accident prevention regulations.
- The generally recognised rules relating to technical safety requirements and occupational health.
- The operating instructions of the carrier vehicle.

## 5.3 Obvious misuse

The spreader may not be used to carry persons or goods.

The spreader shall not be used as lifting attachment.

The spreader and its attached parts may not be used as climbing aid.

The spreader may not spread fertiliser, sand, soil or other organic materials.

## 6 Safety instructions

This chapter gives you information on the following:

- Chapter 6.1 "General safety instructions", page 14
- Chapter 6.2 "Commissioning", page 16
- Chapter 6.3 "Use", page 18
- Chapter 6.4 "Maintenance", page 21
- Chapter 6.5 "Designations", page 25

### 6.1 General safety instructions

---



#### **warning**

Use or maintenance of the spreader by untrained persons.

Risk of serious injury.

- Make sure that all persons responsible for operation or maintenance of the spreader are trained in the operation of the spreader and are familiar with the operating and maintenance instructions as well as the safety information in this manual!
  - Insist on compliance with the applicable safety regulations!
- 



#### **warning**

Loose-fitting garments.

Risk of serious injury.

- Always wear tight-fitting clothes during the operation of the spreader!
-

**warning**

Non-observance of guidelines.

Risk of serious injury or death.

- Please observe the regulations relating to accident prevention!
  - Please observe the generally applicable safety regulations, industrial standards and medical guidelines!
  - Please observe the road transport guidelines!
  - Please pay attention to the general advice in these operating instructions!
- 

**caution**

Accidental ignition of residual dirt.

Risk of injury or property damage.

- Please make sure that the spreader is always kept in a clean condition!
- 

**caution**

Changes at the spreader.

Damage to functionality and danger of property damage.

- Do not make any changes at the spreader!
- 

**caution**

Danger of slipping during filling or during work at the spreader.

Risk of injury.

- Provide a slip-resistant climbing possibility!
  - Ensure secure hold by means of a stable railing!
-

## 6.2 Commissioning

---



### **danger**

Carrier vehicle rolls away when attaching the spreader.

Risk of serious injury or death.

- Before attaching the spreader to the carrier vehicle, apply the parking brake, stop the engine and remove the ignition key!
  - Never stand between carrier vehicle and spreader while the spreader is attached!
  - Apply all locking bolts and screws at the carrier vehicle and secure them!
- 



### **warning**

Overload or possible tilting of the carrier vehicle.

Risk of injury, death or damage to property.

- Please observe axle load limits and admissible overall weight!
- 



### **warning**

Attachment of spreader at a malfunctioning carrier vehicle.

Risk of serious injury or death.

- Please make sure that the carrier vehicle is in a safe and correct condition!
  - Please make sure that the carrier vehicle is equipped with an appropriate braking system!
  - Please make sure that the carrier vehicle is able to transport the spreader and that the spreader may be attached!
  - Before every journey, make sure that the spreader is securely attached to the carrier vehicle!
- 



### **warning**

Starting movement of the spreading disc or conveyor screw when connecting the hydraulic lines.

Risk of serious injury.

- Connect hydraulic lines only if the hydraulic cycles of carrier vehicle and spreader are depressurised!
-

**warning**

Damaged hydraulic lines.

Risk of serious injury.

- Damaged hydraulic lines must be replaced immediately!
  - After 6 years at the latest, replace hydraulic lines even if they are not damaged!
- 

**warning**

Flying salt or grit.

Risk of serious injury.

- Never stay in the working range of the spreader!
- 

**caution**

First commissioning without instruction.

Risk of injury or property damage.

- First commissioning of the spreader must be accomplished by employees of the dealer, the manufacturer or a representative of our works!
- 

**caution**

Commissioning without making sure that the machine is in perfect technical condition.

Risk of injury or property damage.

- Check all important parts before commissioning!
  - Check all safety-related protection devices before commissioning!
  - If applicable, please change damaged parts!
- 

**caution**

Tightening torque at screws too high.

Danger of property damage.

- Please use the table for tightening torques when tightening the screws (see Chapter 15. "Tightening torques", page 50)!
-

## 6.3 Use

---



### **danger**

Carriage of persons on the spreader.

Risk of serious injury or death.

- Do not carry persons on the spreading machine!
- 



### **warning**

Persons present in working range of spreader.

Risk of serious injury or death.

- Never stay in the working range of the spreader!
- 



### **warning**

Careless start-up.

Risk of serious injury or death.

- Before starting up of spreader or during operation, check the area near the spreader!
  - Ensure sufficient visibility!
  - Start the vehicle only with no person or good in the surroundings of the vehicle!
  - Before starting the vehicle, make sure that the spreader is correctly attached and secured!
- 



### **warning**

Changed handling and braking behaviour.

Risk of serious injury or death.

- Please adjust your driving behaviour to the dimensions and the additional weight of the spreader!
  - Adjust the driving speed to the snow conditions as well as to road and traffic environment!
-

**warning**

Rotating parts.

Risk of serious injury or death.

- During operation, never put your hands into spreading disc, conveyor screw or the optional agitator shaft!
  - During the whole operation at the spreader, all plastic side covers must remain attached!
  - During the whole operation at the spreader, the grid must remain mounted!
- 

**caution**

Parts continue to run.

Risk of injury.

- Always wait until all parts stand still before performing any work at the spreader.
- 

**caution**

The hydraulic system is under high pressure.

Risk of injury or property damage.

- If any hydraulic fluid that leaks out passes through the skin, seek medical advice immediately!
- 

**caution**

Heat at parts which use circulating oil as a coolant or at rotating parts.

Risk of injury or property damage.

- After operation, never touch any parts which use circulating oil as a coolant!
  - After operation, never touch any parts which rotated during operation!
- 

**caution**

Carriage of goods on the spreader.

Danger of property damage.

- Do not carry any goods on the spreader!
-

**caution**

Non-observance of regulations for operating attachments on public roads.

Risk of injury or property damage.

- Follow the pertinent rules and regulations of the information sheet for attachments (Gazette of the Federal Ministry of Transport 1990, page 562)!
  - Take measures to compensate limitations of the field of vision!
- 

**caution**

Non-observance of regulations concerning road safety.

Risk of injury or property damage.

- Please make sure that the spreader complies with the regulations concerning road safety!
  - Apply the prescribed lighting applications, warning and protection devices!
  - Comply with the existing guidelines concerning dimensions and weight, the maximum permissible axle load, the tyre carrying capacity, the overall weight and the speed limit valid in the respective country!
- 

**caution**

Operating the spreader in the event of malfunctions.

Risk of injury or property damage.

- In the event of malfunction, please stop the spreader immediately!
  - Resolve the error immediately or ask a workshop!
- 

**caution**

Placing the spreader in an unprotected area.

Risk of injury or property damage.

- Never place the spreader in a highly frequented area or an area accessible to children!
-

**caution**

Placing the spreader on uneven or soft ground.

Risk of injury or property damage.

- Make sure that the spreader (with folded out and secured support legs) is placed on even, solid and stable ground!
- 

**caution**

Delivery volume too high.

Risk of injury or property damage.

- The hydraulic performance of the carrier vehicle must not exceed 50 l/min!
- 

## 6.4 Maintenance

---

**warning**

Non-observance of safety regulations.

Risk of serious injury or death.

- Comply with the safety regulations during all maintenance work!
- 

**warning**

Electric shocks during maintenance work.

Risk of serious injury or death.

- Interrupt power supply before executing work at an electrical device!
- 

**warning**

Draining oil during maintenance work.

Risk of serious injury or death.

- Interrupt the hydraulic supply to carrier vehicle and make sure that the hydraulic cycle is depressurised before working at a hydraulic device!
-

**caution**

Non-observance of maintenance intervals.

Risk of injury or property damage.

- Please pay attention to the prescribed maintenance intervals!
- 

**caution**

Use of wrong spare parts.

Risk of injury or property damage.

- Do only use original parts for repair work!
- 

**caution**

Maintenance work without necessary technical knowledge or appropriate tooling.

Risk of injury or property damage.

- Carry out maintenance work only if you have the necessary expertise as well as suitable tools!
- 

**caution**

Carelessness when handling oil or lubricants.

Risk of injury.

- Avoid skin contact with oil and lubricants!
  - Protect your skin with skin-protection lotion or oil-resistant gloves!
  - Never use oil or lubricants to clean your hands!
  - Change dirty or oily clothes as soon as possible!
-

**caution**

Oil leakage at hydraulic system.

Risk of injury or property damage.

- Periodically check all tubes, lines, couplings and connecting elements concerning leaks and external damage!
  - Only use appropriate tooling during the check!
  - Occurring damages have to be removed immediately!
  - Replace hydraulic lines after 6 years at the latest!
- 

**caution**

Cleaning with high-pressure cleaner.

Danger of property damage.

- Cleaning of bearings, plastic parts, electronic parts and hydraulic lines only with low pressure!
- 

**caution**

Cleaning of metallic surfaces.

Risk of material damage due to detergents.

- Do not use aggressive detergents!
- 

**caution**

Welding operations at the electric cable system.

Danger of property damage.

- Separate the battery connection to the carrier vehicle before carrying out welding operations at the connected spreader.
- 

**caution**

Loose bolted/screw connections.

Danger of property damage.

- Retighten loose bolted connections after repair and maintenance work!
-

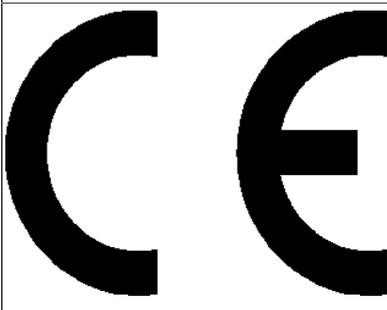
**caution**

Tightening of screw connections.

Danger of property damage.

- When tightening screw connections, always use the prescribed tightening torque (see Chapter 15. "*Tightening torques* ", page 50)!
-

## 6.5 Designations

Marking	Explanation
	<p>Prior to commissioning, read and observe operating and safety instructions!</p>
	<p>Do not enter the danger zone of the machine!</p>
	<p>Risk of injury from rotating parts! Only work at the machine in switched-off mode!</p>
	<p>Never use the spreader or the attachments as climbing aid! Do not stand on spreader!</p>
	<p>Basis for Declaration of Conformity</p>

## 7 Commissioning

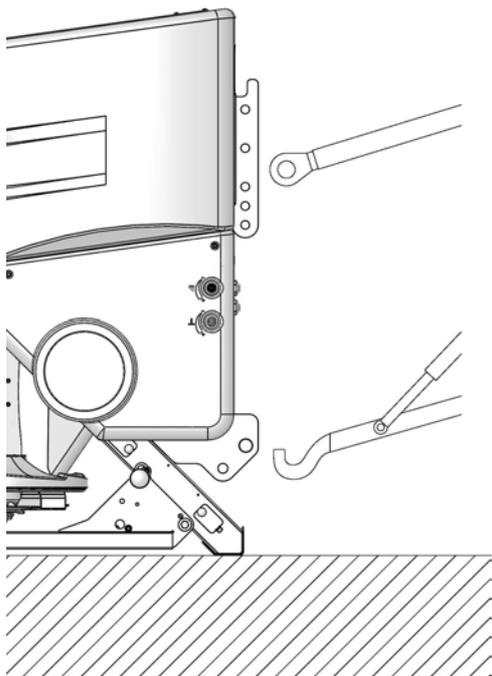
This chapter gives you information on the following:

- Chapter 7.1 "Assembly of spreader", page 26
- Chapter 7.2 "Wiring diagram", page 28
- Chapter 7.3 "Setting of working height", page 29
- Chapter 7.4 "Location of spreading pattern", page 30

### 7.1 Assembly of spreader

The exact procedure for the assembly of the spreader depends on the carrier vehicle. Comply with the operating instructions of the carrier vehicle. The spreader shall only be attached at the attachment points provided for this purpose.

The following steps should be taken:



- 1 Hang in lower link.
- 2 For the upper link, choose the appropriate bore at the spreader (upper and lower link should run as parallel as possible in order to guarantee vertical lifting).
- 3 Secure all locking pins at upper and lower link with the provided securing pins!
- 4 Connect hydraulic lines (first make sure that the hydraulic cycle at the carrier vehicle as well as at the spreader is depressurised).
- 5 Connect lighting with carrier vehicle.
- 6 Connect cable with operating device in carrier vehicle.
- 7 After coupling, fold up and secure support legs!

**danger**

Carrier vehicle rolls away when attaching the spreader.

Risk of serious injury or death.

- Before attaching the spreader to the carrier vehicle, apply the parking brake, stop the engine and remove the ignition key!
  - Never stand between carrier vehicle and spreader while the spreader is attached!
  - Use the correct attachment points (as described above)!
  - Apply all locking bolts and secure them!
- 

**warning**

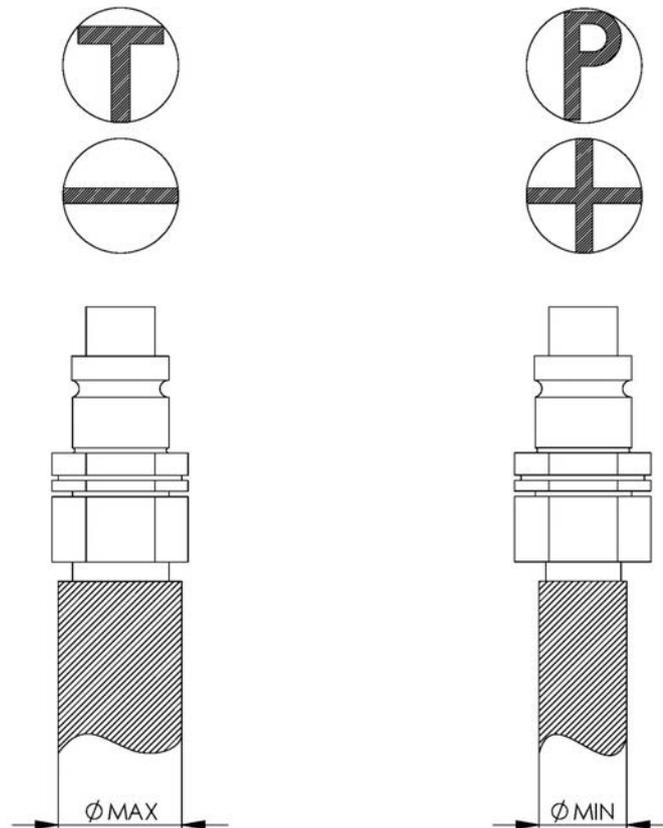
Attachment of spreader at a malfunctioning carrier vehicle.

Risk of serious injury or death.

- Please make sure that the carrier vehicle is in a safe and correct condition!
  - Please make sure that the carrier vehicle is provided with a braking system appropriate for the spreader.
  - Please make sure that the carrier vehicle may transport the spreader and that the spreader may be attached!
-

## 7.2 Wiring diagram

The hydraulic lines must be connected with the hydraulic system of the carrier vehicle as follows:



### notice

If possible, use the pressure-free return flow at the carrier vehicle. If no pressure-free return flow is available, use the marked return flow.



### notice

Make sure that the hydraulic lines are properly installed.

- Consider the laying radii appropriate for the hydraulic lines. Please refer to the assembly instructions of the line manufacturer.
- The hydraulic lines must not be crushed.
- The hydraulic lines must not touch moving parts as chafe marks could result.

**caution**

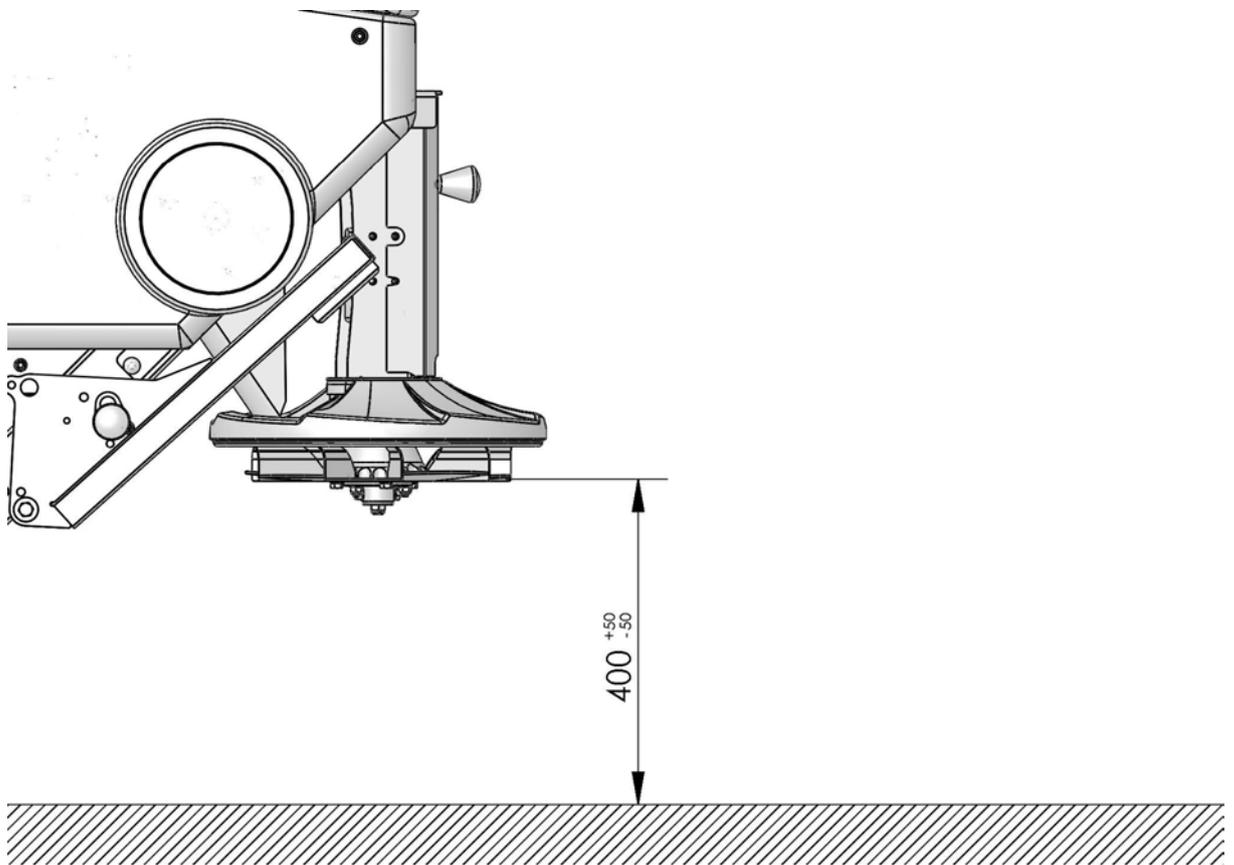
Delivery volume too high.

Danger of property damage.

- The hydraulic performance of the carrier vehicle must not exceed 50 l/min!

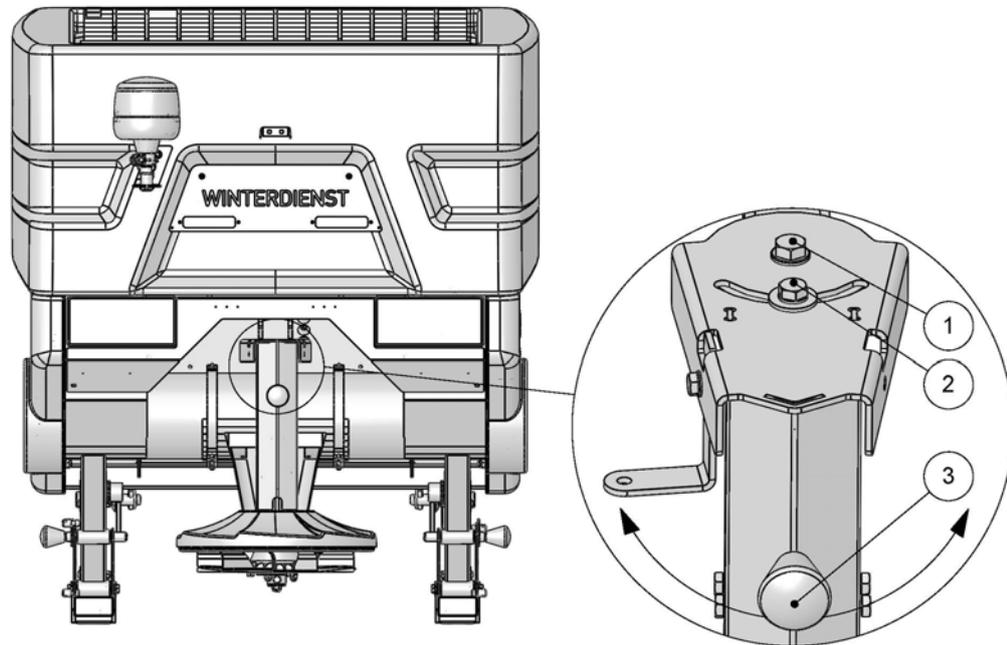
## 7.3 Setting of working height

The height of the spreader should be set so that the lower border of the spreading disc is located approx. 400 mm above the ground.



## 7.4 Location of spreading pattern

The location of the spreading pattern can be set as follows:



Pos.	Function
1	Axis
2	Clamping screw
3	Adjustment lever

- 1 Slacken clamping screw (Pos. 2).
- 2 Swivel into desired position by means of adjustment lever (Pos. 3) around axis (Pos. 1).
- 3 Retighten clamping screw (Pos. 2) (Observe Chapter 15. "Tightening torques", page 50 !)



### caution

Rotating parts.

Risk of injury.

- Never put your hands into the spreading disc during operation!
- Switch off the hydraulic system or the PTO shaft of the carrier vehicle and disconnect the vehicle!

## **8 Operating instructions**

This chapter gives you information on the following:

- Chapter 8.1 "*Checks before operation*", page 31
- Chapter 8.2 "*Functional diagram*", page 32
- Chapter 8.3 "*Working speed and safety*", page 33
- Chapter 8.4 "*Parking spreader*", page 34

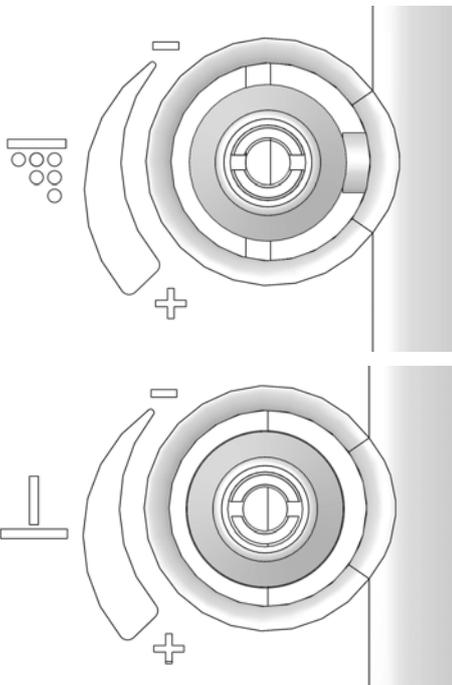
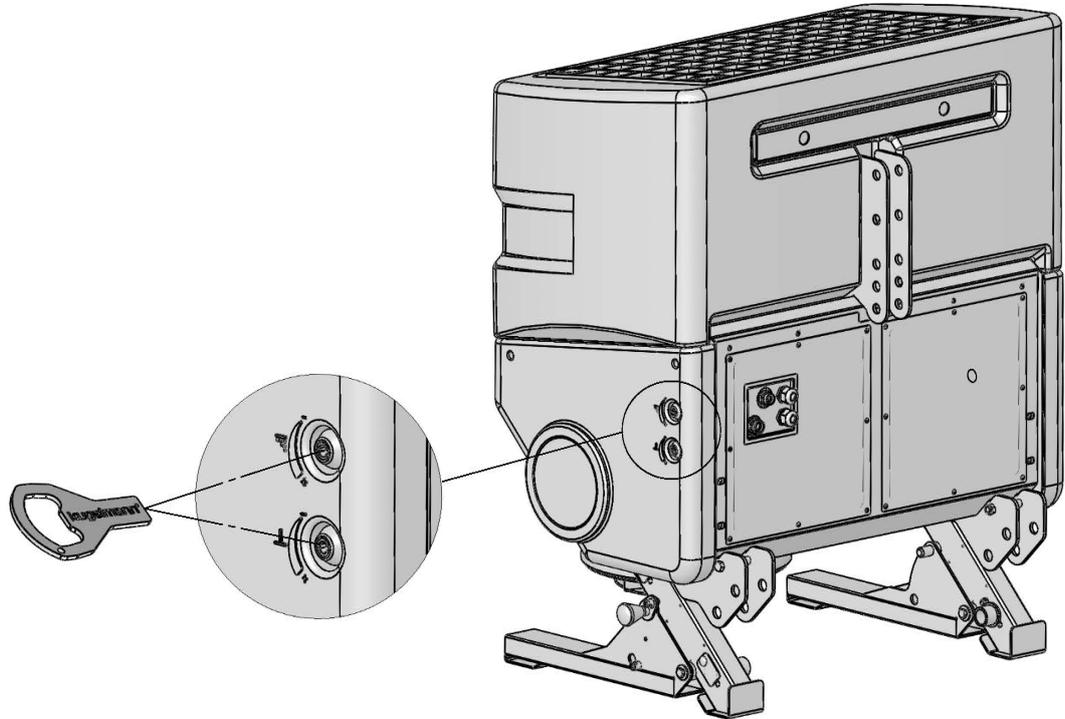
### **8.1 Checks before operation**

Before every operation of the spreader, check whether the hydraulic lines are tight and undamaged. Replace damaged hydraulic lines immediately.

Before every operation of the spreader, check the lighting in accordance with StVO (German Road Traffic Regulations).

## 8.2 Functional diagram

Irrespective of the control system, the functions of the spreader can be controlled by two setting screws fitted at the side:



Setting quantity of spreading material

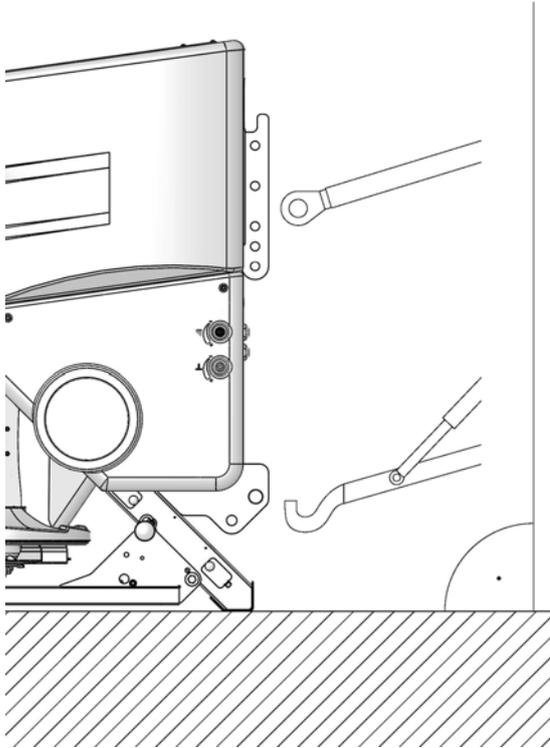
Setting of spreading width

## 8.3 Working speed and safety

When using the spreader, please pay attention to the safety instructions for operation (see Chapter 6.3 "Use", page 18)!

## 8.4 Parking spreader

Please pay attention to the following when parking the spreader:



- Clean the spreader thoroughly and remove any salt residues.
- Use rust inhibitor to protect all bright parts against corrosion.
- Place the spreader only on even, solid and stable ground!
- Make sure that all hydraulic lines and power lines have been separated from the carrier vehicle.
- When parking the spreader, make sure that all support legs are folded out and secured.



### **caution**

Placing the spreader in an unprotected area.

Risk of injury or property damage.

- Never place the spreader in a highly frequented area or an area accessible to children!



### **caution**

Placing the spreader on uneven or soft ground.

Risk of injury or property damage.

- Place the spreader only on even, solid and stable ground!

# 9 Maintenance

This chapter gives you information on the following:

- Chapter 9.1 "Maintenance intervals", page 35
- Chapter 9.2 "Wear parts", page 36
- Chapter 9.3 "Lubrication schedule", page 37
- Chapter 9.4 "Tighten chain", page 38
- Chapter 9.5 "Change hydraulic oil and hydraulic oil filter", page 39
- Chapter 9.6 "Safety", page 40

## 9.1 Maintenance intervals

In order to ensure proper operation, please carry out the following maintenance work in the indicated time intervals:

Interval	Work
Before each use	<ul style="list-style-type: none"> <li>• Visual inspection of the whole spreader.</li> <li>• Oil level check at hydraulic tank (optional).</li> <li>• Check torque support at additional PTO pump (optional).</li> <li>• Check hydraulic lines.</li> <li>• Check lighting.</li> <li>• Check connection to carrier vehicle.</li> </ul>
Monthly	<ul style="list-style-type: none"> <li>• Check chain tension at conveyor screw.</li> <li>• Lubrication (see Chapter 9.3 "Lubrication schedule", page 37).</li> <li>• Check wear parts (see Chapter 9.2 "Wear parts", page 36).</li> </ul>
Yearly	<ul style="list-style-type: none"> <li>• Check by an expert.</li> <li>• Removal of damage to the paintwork.</li> </ul>
After 500 operating hours	<ul style="list-style-type: none"> <li>• Change hydraulic oil (optional hydraulic tank).</li> <li>• Change hydraulic oil filter (optional hydraulic tank).</li> </ul>

## 9.2 Wear parts

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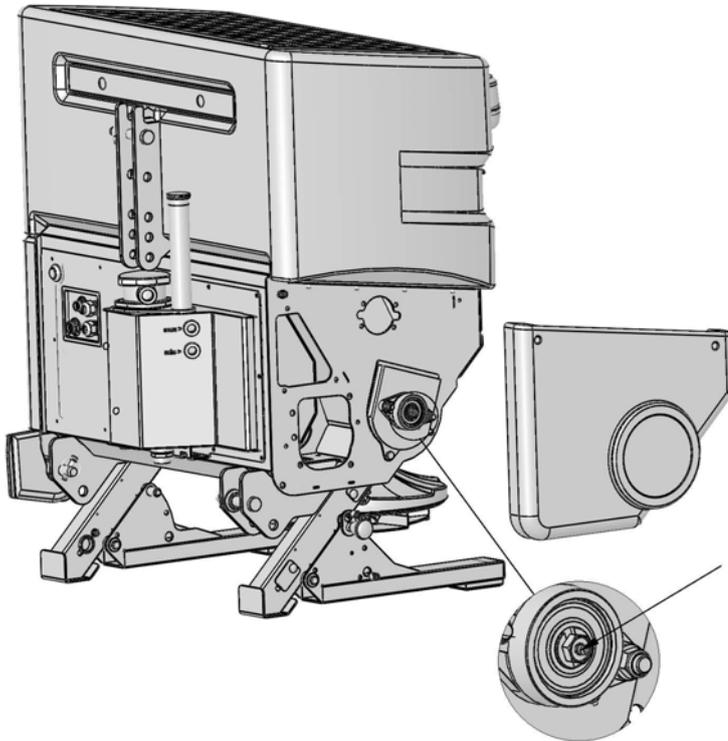
### notice

Wear parts are:

- Spreading disc
  - Conveyor screw
  - Chain and chain wheels
  - Bearing of spreading disc and conveyor screw
  - Illuminants
  - Hydraulic lines (replace every 6 years)
  - Hoses and collars
  - Tarpaulin cover
  - Splash guard
  - Hydraulic motors
  - PTO hydraulic pump (optional)
  - Hydraulic oil filter (optional)
  - Agitator shaft and agitator elements (optional)
  - Bearing freewheel agitator shaft (optional)
-

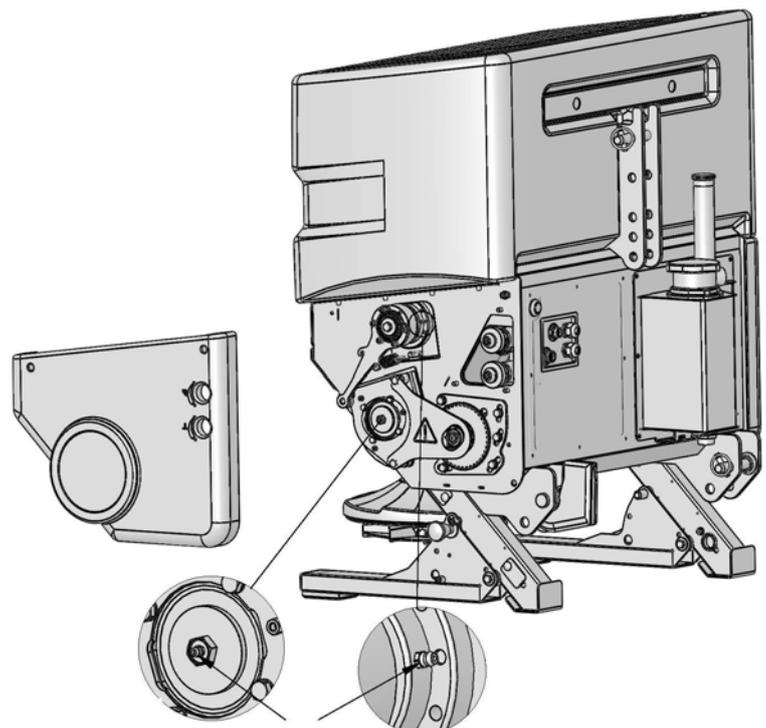
## 9.3 Lubrication schedule

The lubricating nipples at the spreader have to be lubricated according to the maintenance schedule (see Chapter 9.1 "Maintenance intervals", page 35).



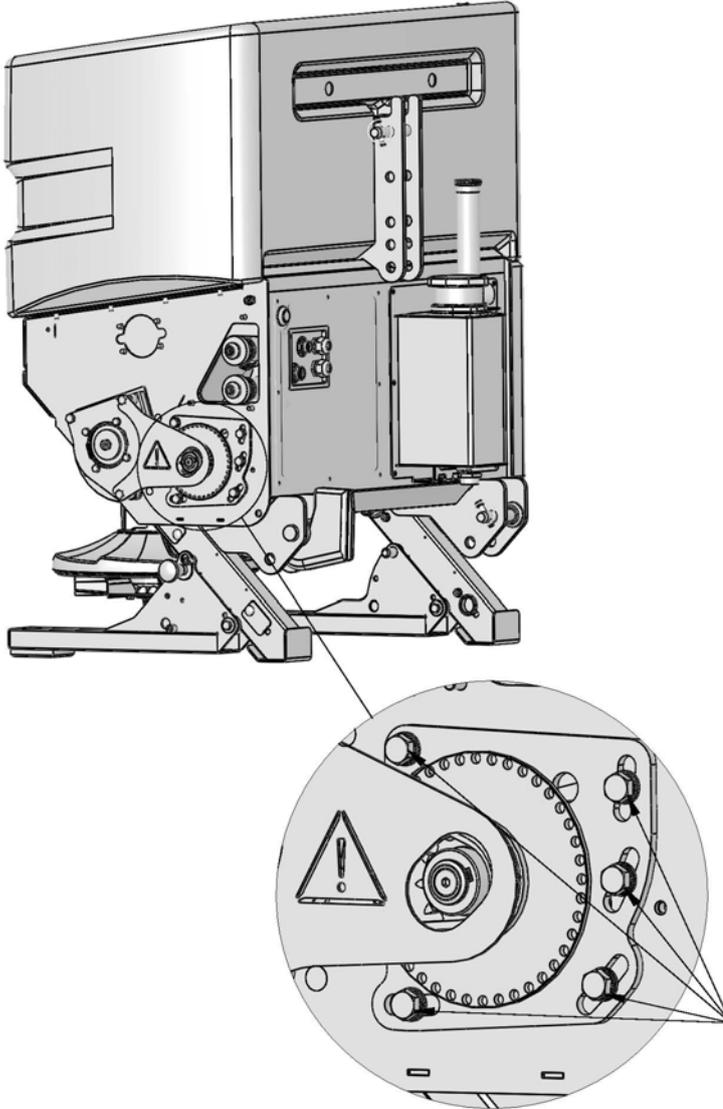
- Remove lateral lids
- Lubricate at lubricating nipple (roller bearing grease)
- Mount lateral lids

- Remove lateral lids
- Lubricate at lubricating nipple (roller bearing grease)
- Lubricate chain (adhesive chain grease)
- optional: Lubricate lubricating nipples at agitator shaft (roller bearing grease)
- Mount lateral lids



## 9.4 Tighten chain

You will find the drive chain of the conveyor screw under the right side lid. Remove the lid (see *Lubrication schedule, page 37*).



- 1 Slacken screws.
- 2 Tighten chain.
- 3 Retighten screws  
(Observe *Tightening torques* , page 50  
!)

## 9.5 Change hydraulic oil and hydraulic oil filter

Only with optional PTO hydraulic pump!



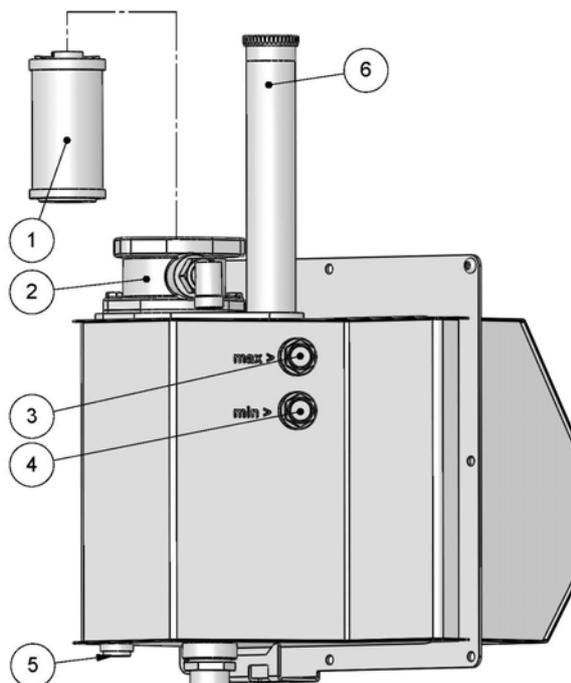
### caution

Contact with hydraulic oil.

Risk of damage to health.

- Avoid direct contact with skin. Wear protective clothing, especially impervious gloves!
- Wear protective goggles. If hydraulic oil gets into your eyes, flush with water for at least 15 minutes!

Change of hydraulic oil and hydraulic oil filter as follows:



Pos.	Function
1	Oil filter
2	Oil filter housing
3	Max. oil filling level
4	Min. oil filling level
5	Oil draining screw
6	Filler neck

- 1 Open oil draining screw (Pos. 5)
- 2 Collect the oil in an appropriate vessel.
- 3 Slacken three screws at the lid of the oil filter housing (Pos. 2)
- 4 Remove the old oil filter (Pos. 1) and dispose of properly.
- 5 Insert the new oil filter and screw the lid of the oil filter housing (Pos. 2) onto it.

- 6 Screw the oil draining screw (Pos. 5) into the tank and tighten it.
- 7 Fill hydraulic oil (HLP 46) into the tank via filler neck (Pos. 6) (oil level should be between min. (Pos. 4) and max. (Pos. 3)).

- 8 Filling quantity:

D301:	21 l
D601:	26 l

## 9.6 Safety

During cleaning and maintenance work, please pay attention to the following:

- Make sure that all hydraulic lines are depressurised.
- Switch off the motor of the carrier vehicle and remove the ignition key.
- If possible, uncouple the carrier vehicle.
- Make sure that the spreader as well as the carrier vehicle are placed on even, solid and stable ground!
- Never use components of the spreader as climbing aid.
- When tightening screw connections, always use the prescribed tightening torques (see Chapter 15. "Tightening torques ", page 50).

Please observe the safety instructions for maintenance (see Chapter 6.4 "Maintenance", page 21).

## 10 Transport

This chapter informs you on necessary precautions that have to be taken when transporting the spreader.



### **warning**

Improper transport of spreader.

Risk of injury or property damage.

- For transport, use only the correct attachment points provided at the spreader!
  - Make sure that the spreader does not slip or fall over during transport!
  - Make sure that all socket pins are secured!
-

## 11 Storage

This chapter informs you on necessary precautions that have to be taken when putting the spreader into stock.



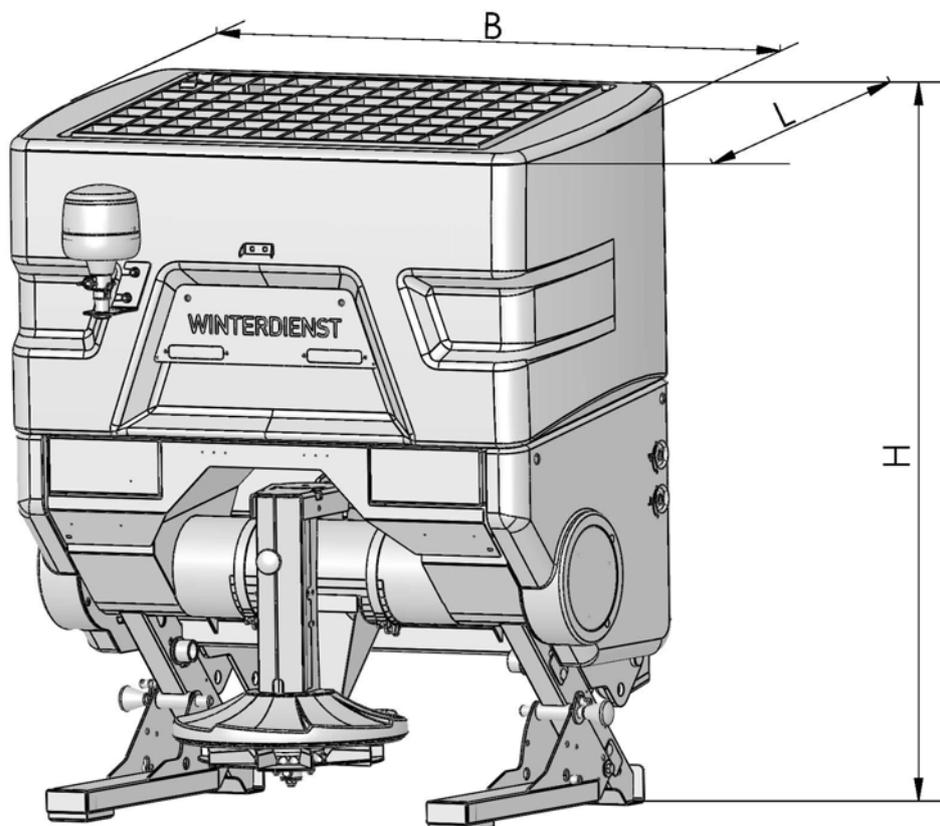
### notice

- Always store the spreader on folded out and secured support legs.
  - Always store the spreader empty.
  - Always store the spreader in a dry and frost-free area.
  - Protect the spreader against direct sunlight.
  - If you disconnect the hydraulic connectors, close the ends of the hydraulic connections with sealing plugs.
  - Clean the interior of the spreader.
  - Repaint damages to the paintwork.
  - After cleaning and repainting, seal the spreader inside and outside with a suitable protective agent, e.g. protective wax or anti-rust spray.
-

## **12     Disconnecting the system**

The spreader must be disposed of in accordance with local or state regulations. Depending on material, dispose of parts with residual waste or hazardous waste or recycle. Kugelmann takes no responsibility for disposal.

## 13 Technical Data



Type	D301	D601
Capacity [m <sup>3</sup> ]	0.3	0.6
Length [mm]	820	820
Width [mm]	1080	1350
Height [mm]	1270	1370
Net weight [kg]	178	223
Operating voltage [V]	12	12
Attachment 3-point CAT	1	1, 2

All specifications without optional accessories!

## 14 Additional equipment

The spreader can be equipped with optional components.

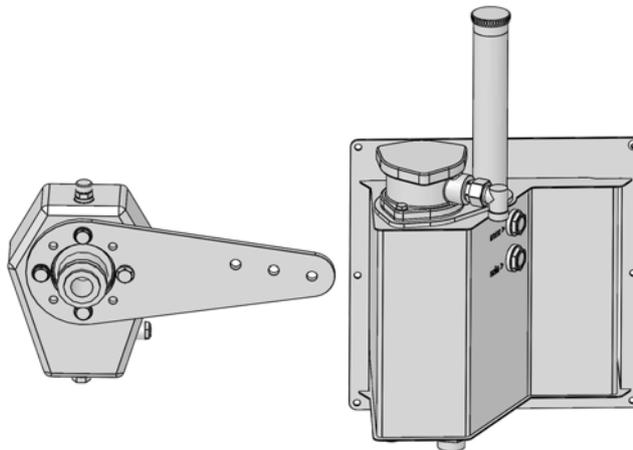
This chapter gives you information on the following:

- Chapter 14.1 "PTO hydraulic pump with hydraulic tank", page 45
- Chapter 14.2 "Agitator shaft", page 46
- Chapter 14.3 "Reversal of screw movement", page 47
- Chapter 14.4 "Lighting and reflectors", page 48
- Chapter 14.5 "Splash guard", page 49

### 14.1 PTO hydraulic pump with hydraulic tank

By means of the additional option "PTO pump with hydraulic tank", a carrier vehicle not disposing of an appropriate hydraulic unit, may be equipped with a spreader.

The attached torque support counteracts the torque of the PTO hydraulic pump of the carrier vehicle. Please attach at an appropriate place.



#### caution

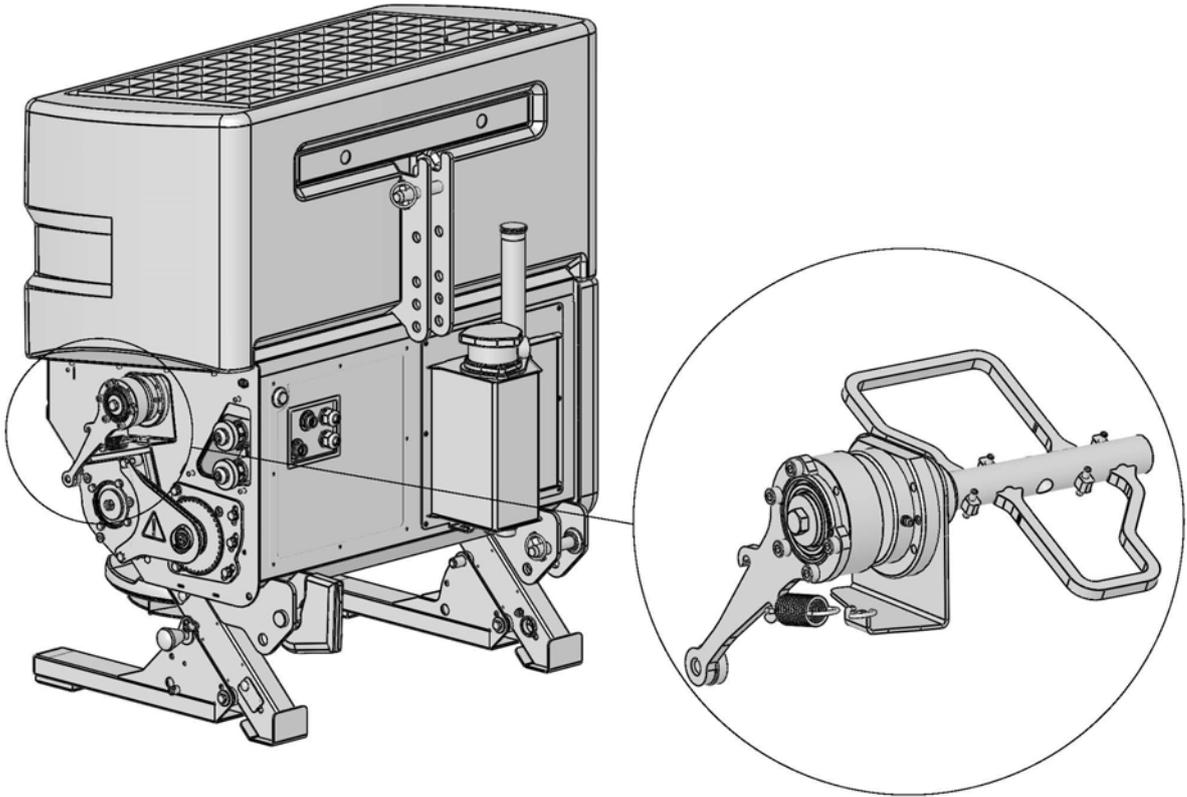
Max. PTO speed exceeded.

Risk of injury or property damage.

- The PTO speed must not exceed 540 rpm!

## 14.2 Agitator shaft

An agitator shaft allows for bulking of the spreading agent and as a result provides a homogeneous spreading pattern.



### **caution**

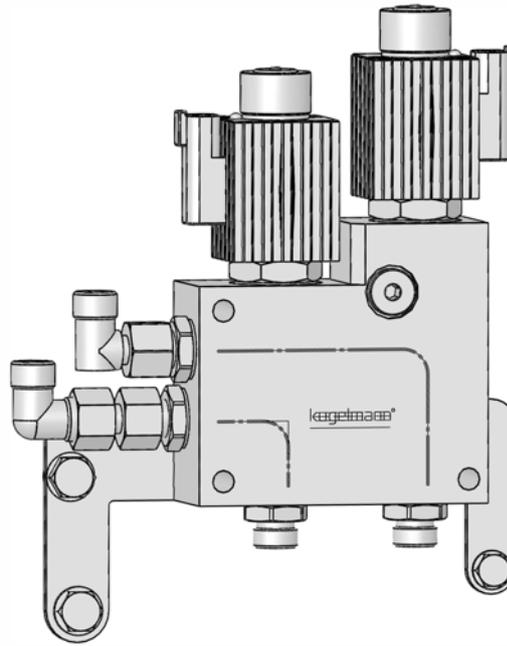
Rotating parts.

Risk of injury.

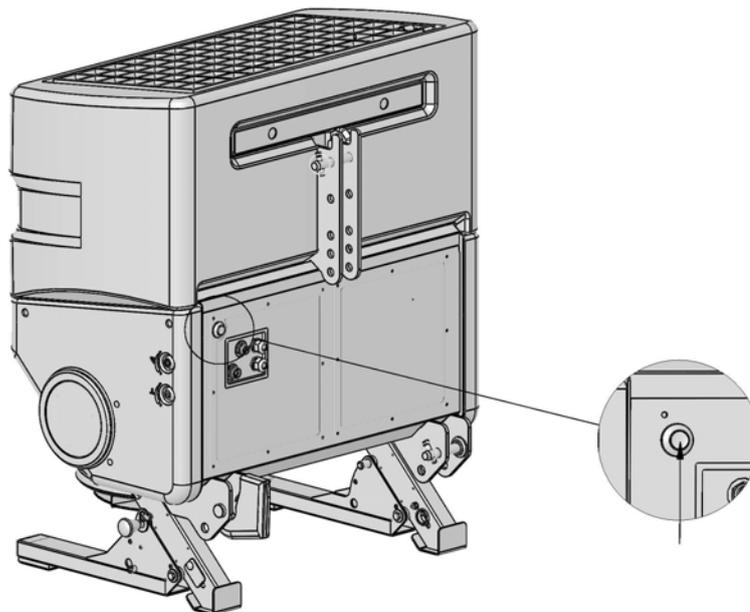
- During the whole operation at the spreader, all plastic side covers must remain attached!
- Never put your hands into the agitator shaft during operation!
- During the whole operation at the spreader, the grid must remain mounted!

## 14.3 Reversal of screw movement

The opposite rotation of the screw conveyor provides for bulking of the spreading agent. Through the reversal of the screw movement, a conveyor screw blocked by spreading material can run smoothly again.

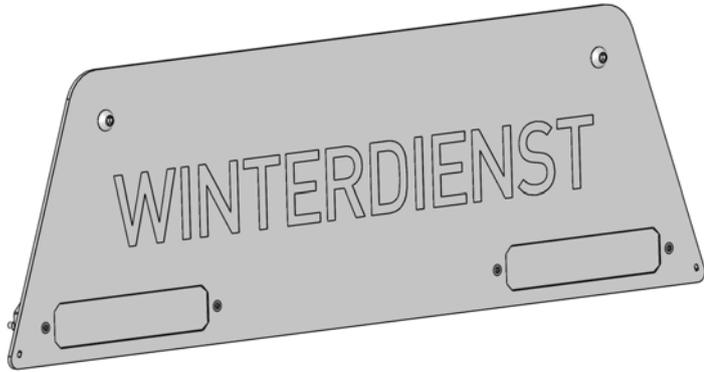


The actuation switch is located here:



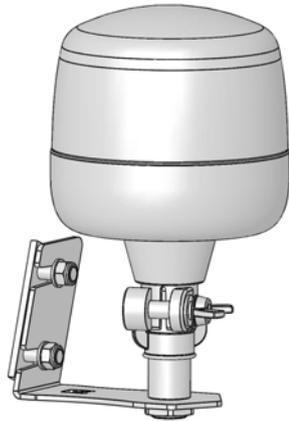
## 14.4 Lighting and reflectors

The following optional lighting is available for the spreader:

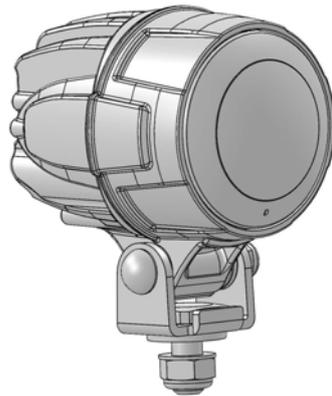


Flasher

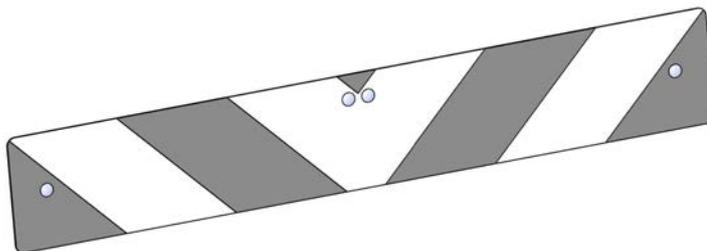
or



Rotating beacon



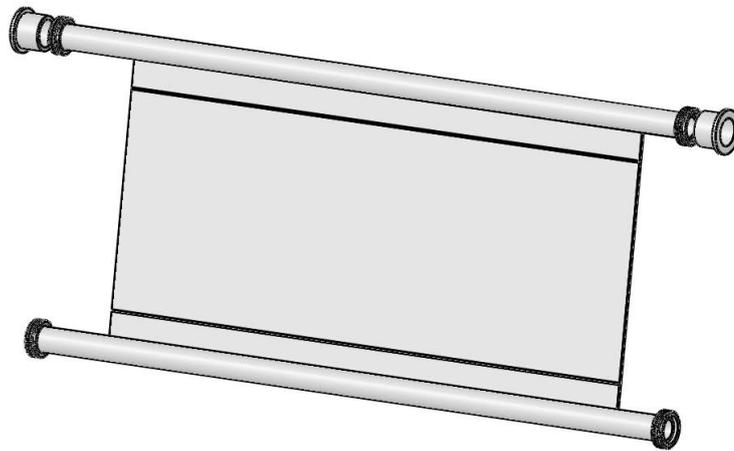
Working headlight



Warning marking red/white

## 14.5 Splash guard

The splash guard protects the carrier vehicle from flying spreading material.



# 15 Tightening torques

## Shaft screws stainless steel

- Metric standard thread
- Property class 70
- $\mu = 0.12$  (Anti-seize paste)

Thread	M5	M6	M8	M10	M12	M14	M16
Tightening torque [Nm]	4	7	16	33	56	93	136

## Shaft screws steel

- metric standard thread
- zinc-plated
- Property classes 8.8 and 10.9
- $\mu = 0.14$  (unlubricated)

Thread	M5	M6	M8	M10	M12	M14	M16
Tightening torque [Nm] 8.8	6	10	25	50	85	140	210
Tightening torque [Nm] 10.9	9	15	35	75	130	200	310

## Shaft screws steel

- metric standard thread
- Zinc-flake coated
- Property classes 8.8 and 10.9
- $\mu = 0.12$  (unlubricated)

Thread	M5	M6	M8	M10	M12	M14	M16
Tightening torque [Nm] 8.8	6	9	24	48	84	133	205
Tightening torque [Nm] 10.9	8	14	34	70	120	180	280

# Warranty

Kugelmann Maschinenbau e.K., 87675 Rettenbach a.A., warrants its machines to be free from defects in material and workmanship and undertakes to replace free of charge all parts ex works which have been purchased by relevant Kugelmann dealers and have been acknowledged as defective after having been checked by Kugelmann. The warranty expressly given shall be limited to a period of 12 months from the date of delivery of the machine to purchaser. All further claims by the customer shall be excluded.

Wear parts are excluded from warranty.

The manufacturer takes no responsibility for third-party products not produced at the works of Kugelmann. Our liability shall be limited to the assignment of claims that we are entitled against the supplier. No warranty will be given for machines purchased second-hand or used and modified or converted machines.



## notice

Please make sure that you fill in your warranty card and send it back to the manufacturer immediately. Claims have to be notified with a warranty claim in writing after their occurrence without undue delay (after 30 days at the latest).

----- ✂

<p><i>Company</i>  <i>Kugelmann Maschinenbau e.K.</i>  <i>Gewerbepark 1-5</i>    <i>87675 Rettenbach a.A.</i>  <i>Germany</i></p>	<p>Device type: .....</p> <p>Serial number: .....</p> <p>Vehicle identification  number: .....</p> <p>Year of construction: .....</p> <p>Address of dealer:  .....  .....  .....</p> <p>Address of user/owner:  .....  .....  .....</p>
---	---

I have read the operating instructions.  
Signature of user: .....

The warranty card has to be sent directly to the manufacturer.  
**ATTENTION:** Warranty claims are only accepted with the warranty card of Kugelmann Maschinenbau e.K.

