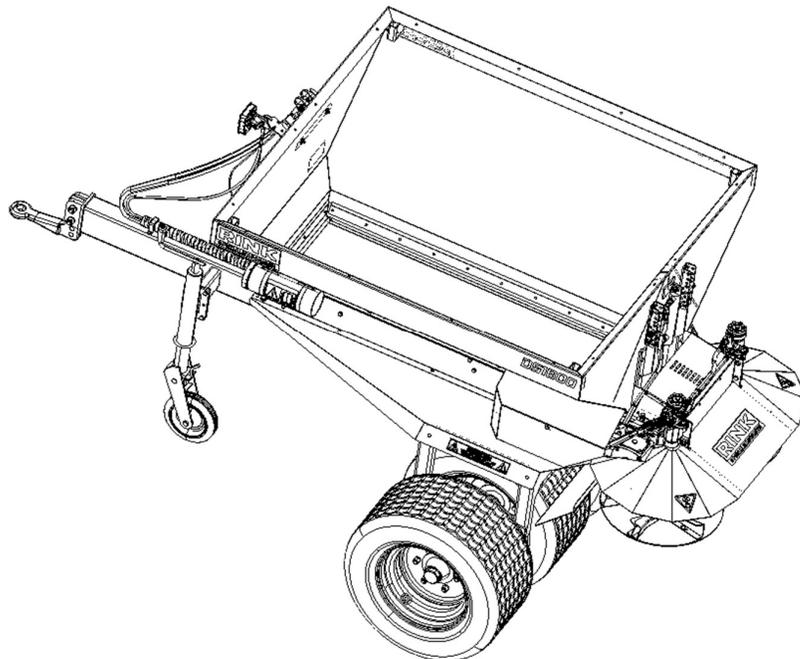




Operating Instructions

RINK Disc Spreader

**Model DS1200, DS1600, DS3100,
DS3800 evo / hybrid**



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1 EC Declaration of Conformity

in the sense of the Machinery Directive 2006/42/EC, Annex II 1. A

Original

EC Declaration of Conformity

in the sense of the Machinery Directive 2006/42/EC, Annex II 1. A



Original

The sole responsibility for issuing this declaration of conformity lies with the manufacturer

Rink Spezialmaschinen GmbH

Alfons-Stübe-Weg 4

88279 Amtzell / Germany

Person established within the Community authorised to compile the relevant technical file

Benedict Klein

Rink Spezialmaschinen GmbH

Alfons-Stübe-Weg 4

88279 Amtzell / Germany

Description and identification of the machine

Product / Article	DS1200, DS1600, DS3100, DS3800
Commercial name	Disc spreader
Model	hybrid & evo
Function	Even spreading of loose spreading materials such as sand, gravel, granulate or similar.

It is expressly declared that the machine complies with all relevant provisions of the following EC directives and regulations:

2006/42/EC	Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery and amending Directive 95/16/EC (recast) (1) Published in L 157/24, 09.06.2006
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Reference of the harmonised standards applied in accordance with Article 7 2:

EN ISO 12100:2010-11	Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010)
EN ISO 4413:2010	Hydraulic fluid power - General rules and safety requirements for systems and their components (ISO 4413:2010)

Amtzell / Germany

Place

Handwritten signature of Benedict Klein in blue ink.

Signature

Benedict Klein
Managing Director

Handwritten signature of Alexandra Mosmann in blue ink.

Signature

Alexandra Mosmann
Managing Director

Page 1/1

2 Safety

2.1 Warnings

2.1.1 Presentation of the warnings

The warning can be extended by a hazard-specific safety sign, e.g. a prohibition of access.



Signal word (e.g. WARNING)

Description of the hazard and the resulting consequences

▶ Measures to avoid the hazard or to reduce the risk

2.1.2 Classification of warnings

Warnings are classified using different signal words:



WARNING

This signal word indicates a possibly dangerous situation.

If appropriate precautions are not taken, death or serious injury may result.



CAUTION

This signal word indicates a possibly dangerous situation.

If appropriate precautions are not taken, minor or moderate injuries may result.



ATTENTION

This signal word indicates a possibly dangerous situation.

If appropriate precautions are not taken, property damage may result.

NOTICE

Contains additional information.

2.2 Safety instructions

The disc spreader was built on the basis of applicable guidelines, laws and standards and corresponds to the state of the art. Possible residual risks may nevertheless cause danger to life and limb of the user or third parties or damage to the disc spreader. To avoid any residual risks, the following safety regulations and warnings in these operating instructions apply:

- Before starting work, make sure that there are no persons or animals in the working and spreading area of the disc spreader.
- Keep a safety distance of 5 to 10 m.
- Carefully read and observe the operating instructions before using the disc spreader.
- Comply with safety regulations, hazard warnings, handling instructions and existing national regulations.
- Observe warning signs attached to the disc spreader.
- Only operate the disc spreader when it is in technically perfect condition.
- Only use the disc spreader for its intended purpose.
- Comply with the connection conditions specified in the technical data.
- Report all faults and damage immediately and have them repaired.
- Only allow work on the disc spreader to be carried out by persons who are instructed, trained and qualified to do so.
- Wear personal protective equipment when servicing the disc spreader. The personal protective equipment consists of:
 - Protective gloves
 - Tight fitting work clothes
 - Protective goggles (only for adjustment work and for troubleshooting during ongoing spreading operation)
- Only operate the disc spreader when all covers are in place. Do not remove or modify any cladding parts or warning signs.

Keep safety and warning notices on the disc spreader complete and in legible condition.

2.3 Safety distance

The specified safety distance refers to the danger from rotating parts and ejected foreign bodies.

DS1200, DS1600, DS3100 = 4 - 12 m

DS3800 = 4 - 14 m



CAUTION

Fast moving spreading materials

Spreading materials moving at fast speed can injure eyes and skin.

The required safety distances depend on the spreading material, its spreading width and the setting of the throwing vanes.

- ▶ Before using the disc spreader, ensure that the safety distance is sufficiently large.
- ▶ Wear safety goggles and protective clothing for adjustment work during spreading operation.

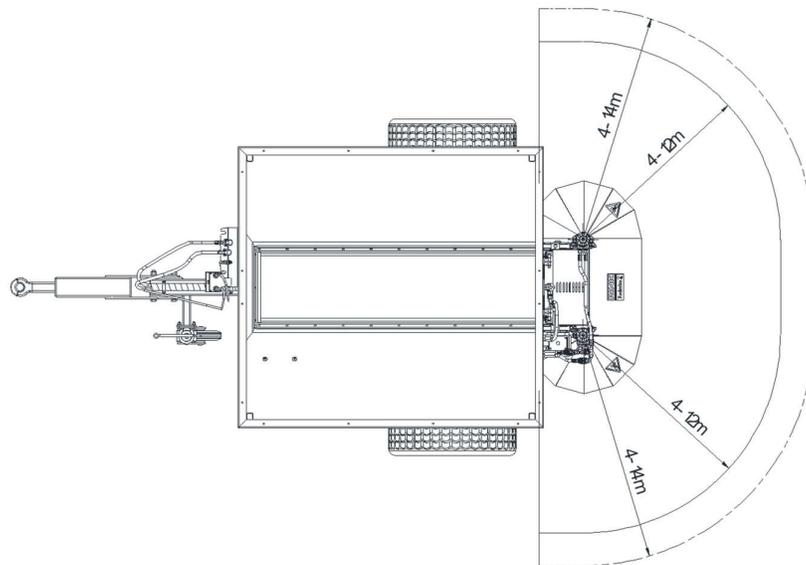


Fig. 1 Safety distance during operation

2.4 Intended use

The RINK Disc Spreader DS1200, DS1600, DS3100 and DS3800 hereinafter referred to as the disc spreader, may only be used for the uniform spreading of fine-grained, loose spreading materials such as sand, gravel or similar.

Depending on the model, the disc spreader is hitched and connected to a towing vehicle or placed on a vehicle with a suitable loading platform.

For intended use, the following conditions and requirements must be met:

- When loading the disc spreader, do not exceed the permissible drawbar load of the towing vehicle.
- Only carry the disc spreader on public roads after registration. Full TÜV certificates and the additional safety devices required for this, such as lighting and wheel chocks, are available on customer request.
- Only operate the disc spreader when it is in technically perfect condition.
- Operate disc spreader only within specific limits, refer to section from 3.3-3.6
- Observe the maintenance cycles specified in the maintenance schedule.
- Follow safety instructions and, above all, keep the safety distance when operating the disc spreader.

The disc spreader may only be used in accordance with its intended use. Failure to observe the intended use may result in the loss of the warranty.

The user is solely responsible for all personal injury and damage to property resulting from non-compliance with the intended use.

2.5 Abnormal use

Any use other than the intended use or any use beyond this is considered abnormal use.

- Carrying persons is prohibited.
- It is prohibited to enter the loading bridge during spreading operation.
- Modifying the disc spreader (attachments and conversions) without the manufacturer's permission is prohibited. If a significant change is made to the disc spreader, operation must be stopped. In order to continue operation, the conformity assessment process according to the Machinery Directive 2006/42/EC must be carried out again.

2.6 Information and safety signs

The following information and safety signs are attached to the disc spreader:

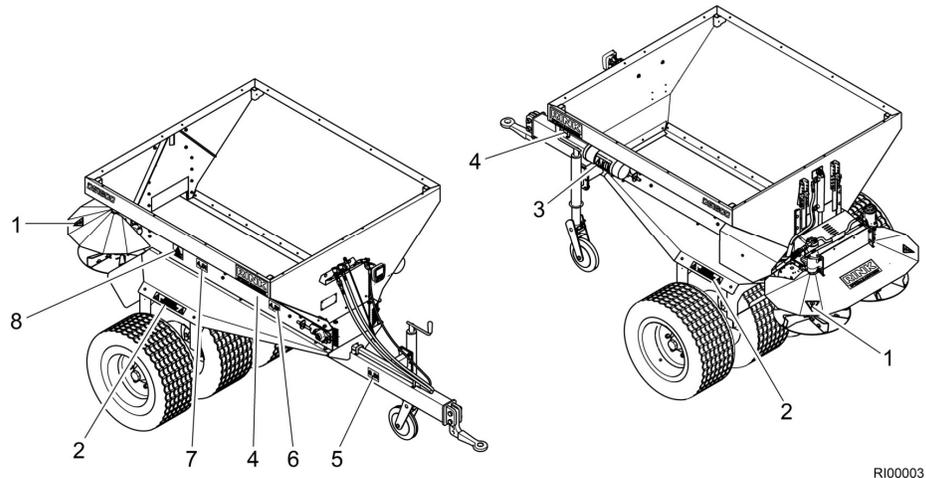


Fig. 2 Information and safety signs

DS1200, DS1600, DS3100

Item	Information/safety sign	Description
1		Warning of rotating rotary discs and serious hand injuries if reaching into the rotation area
2		Prohibition to enter the loading bridge when the machine is running
3		Warning of dangerous situations. Read the operating instructions
4		Warning against spreading materials flung away. Keep the safety distance Switch off the machine before maintenance work and secure it against being switched on again. Read the operating instructions
5		removed
6		removed
7		removed
8		Request to retighten the wheel nuts after the first load run

Disc Spreader DS1200, DS1600, DS31000, DS3800 Operating Instructions

The following information and safety signs are attached to the disc spreader

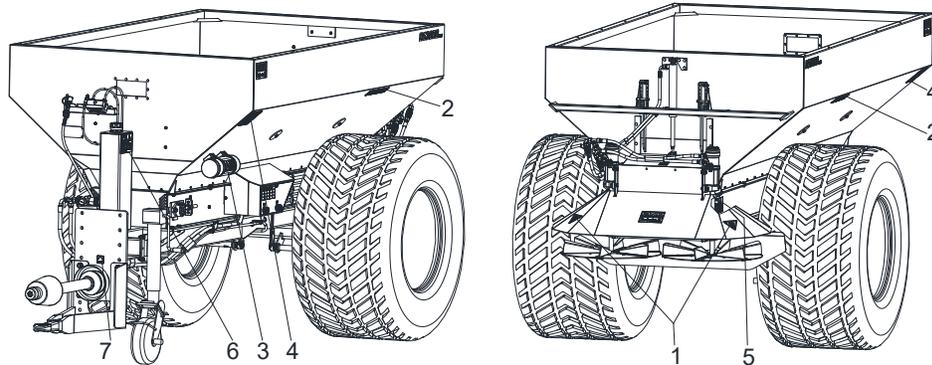


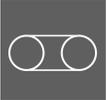
Fig. 3 Information and safety signs

DS3800

Item	Information/safety sign	Description
1		Warning of rotating rotary discs and serious hand injuries if reaching into the rotation area
2		Prohibition to enter the loading bridge when the machine is running
3		Warning of dangerous situations. Read the operating instructions
4		Warning against spreading materials flung away. Keep the safety distance Switch off the machine before maintenance work and secure it against being switched on again. Read the operating instructions
5		Request to retighten the wheel nuts after the first load run
6		Heat warning, observe maximum PTO speed.
7		maximum PTO speed.

2.7 Symbol signs

The following symbol signs are attached to the disc spreader:

Symbol	Description
	Disc, Disc speed
	Conveyor unit, Conveyor unit speed
	Spreader ON / OFF
	Vibration ON
	Hydraulic Gate, OPEN / CLOSE
	ON / OFF

3 Description

NOTICE

The designations right, left, front and rear apply to all parts and assemblies viewed in the direction of travel.

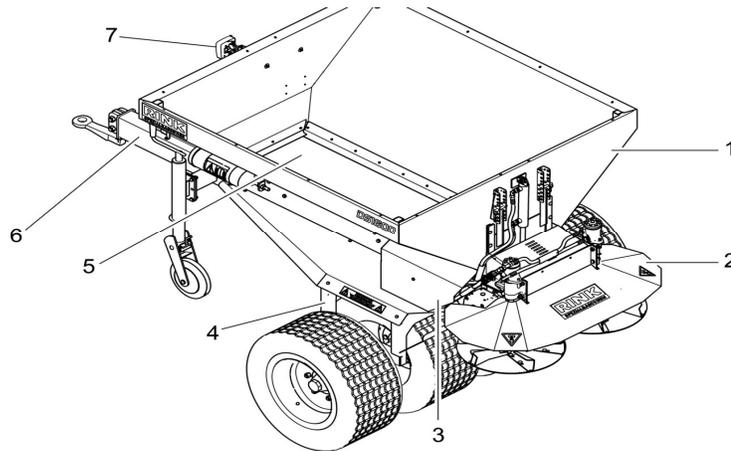
The disc spreader is pulled by a suitable towing vehicle, e.g. tractor, over the ground to be spread. Disc spreaders delivered without chassis can be used on a suitable carrier vehicle.

Depending on the requirements, different suitable spreading materials can be filled into the hopper of the disc spreader. The hopper is closed all around except for the spreader gate opening and is open at the bottom.

A conveyor belt under the hopper conveys the spreading material to the spreader unit. In the spreader unit, the spreading material is distributed onto two spreader discs with throwing vanes. Due to the fast rotation of the spreader discs, the spreading material can be spread up to 12 -14 m over the ground.

The hydraulic motors of the spreader discs and the conveyor belt are connected either to the hydraulic system of the towing vehicle or to the optional external oil supply. An electro-hydraulic control unit controls the hydraulic components.

3.1 Structure



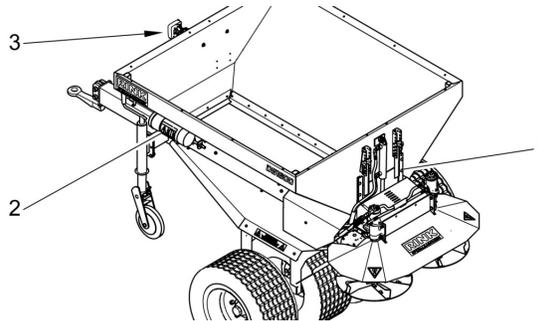
RI00004

Fig. 4 Components

The disc spreader essentially consists of the following components:

- Hopper, complete (Fig. 4/1)
- Spreader unit, complete (Fig. 4/2)
- Electro-hydraulic control unit (Fig. 4/3)
- Chassis, complete (Fig. 4/4)
- Conveyor unit, complete (Fig. 4/5)
- Drawbar (Fig. 4/6)
- VisionX Display operating device / PotiPro Compact operating device (Fig. 4/7)

3.1.1 Hopper, complete



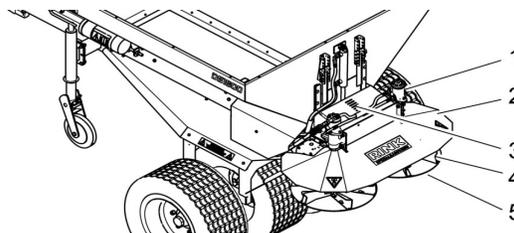
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Fig. 5 Hopper, complete

The hopper for the spreading materials consists of a stable steel construction. The hopper is fixed with bolts to the conveyor unit. At the front there is a holder for the hydraulic connections, the electrical connection and the operating device (Fig. 5/3). When the disc spreader is not hitched, the hydraulic connections, the electrical connection and the operating device are attached to the holder.

The spreader gate opening (Fig. 5/1) is built into the rear wall of the hopper. The spreader gate opening is opened and closed by a hydraulically operated shutter. When the spreading operation is switched on, the hydraulic cylinder retracts, pulling the shutter upwards to the mechanical end stop. The spreader gate opening is open. When the spreading operation is switched off, the hydraulic cylinder extends and pushes the shutter down. The spreader gate opening is closed.

3.1.2 Spreader unit, complete



RI00014

Fig. 6 Spreader unit, complete

The spreader unit consists of the spreader chute (Fig. 6/3), two spreader discs (Fig. 6/5) with adjustable throwing vanes (Fig. 6/4), two infinitely variable hydraulic motors (Fig. 6/1) and a protective cover (Fig. 6/2) over the spreader discs.

The spreader chute (Fig. 6/3) is closed at the top by a cover which can be removed by unscrewing bolts. The rotation speed of the spreader discs is infinitely variable via the speed of the hydraulic motors (Fig. 6/1).

The spreader discs are switched on automatically after the spreading operation is switched on.

3.1.3 Electro-hydraulic control unit

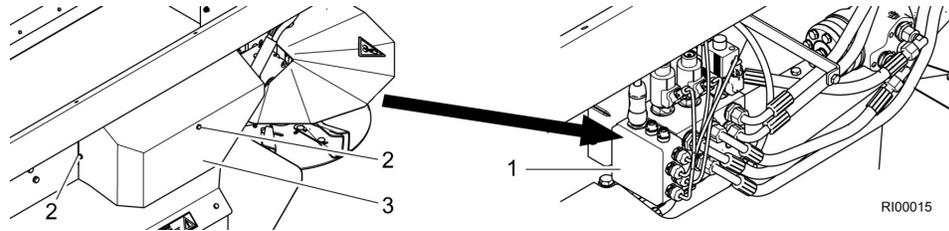


Fig. 7 Electro-hydraulic control unit

The electro-hydraulic control unit (Fig. 7/1) is installed on the left side of the conveyor unit underneath a protective cover. The cover (Fig. 7/3) is fitted to the conveyor unit with 2 bolts (Fig. 7/2). The maximum pressure has been set at the factory.

NOTICE

The set pressure must not be changed.

3.1.4 Chassis, complete

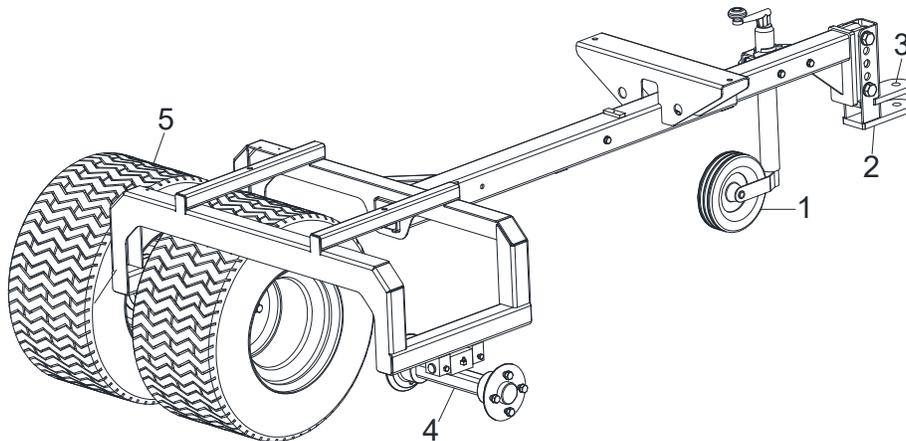


Fig. 8 Chassis, complete DS1200, Bottom hitch

The chassis consists of a profile steel frame to which two running axles (Fig. 8/4) (each with twin tyres (Fig. 8/5)) are attached. The drawbar (Fig. 8/3) is inserted into the profile steel frame. The jockey wheel (Fig. 8/1) with adjustment spindle is bolted to the outside left of the profile steel frame.

Drawbars are available in various designs for the chassis:

- Bottom hitch

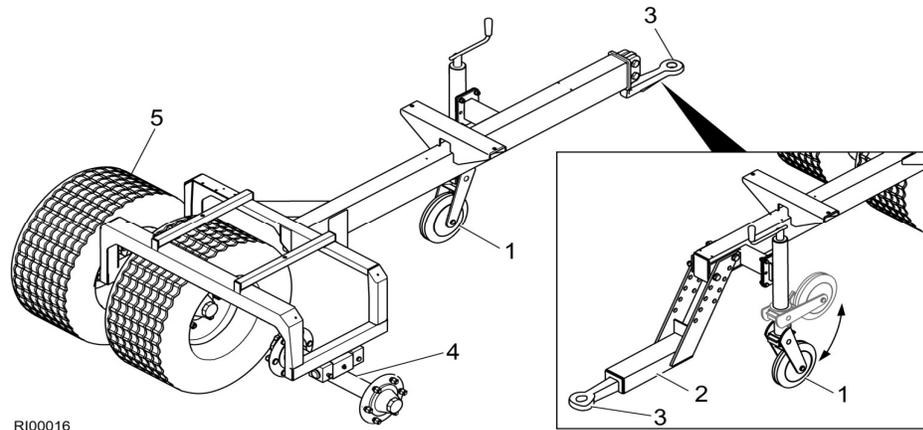


Fig. 9 Chassis, complete DS1600

The chassis consists of a profile steel frame to which two running axles (Fig. 9/4) (each with twin tyres (Fig. 9/5)) are attached. The drawbar with angled drawbar eye (Fig. 9/3) is inserted into the profile steel frame. The jockey wheel (Fig. 9/1) with adjustment spindle is bolted to the outside left of the profile steel frame.

Drawbars are available in various designs for the chassis:

- Straight hitch
- Downward cranked hitch (bottom hitch) (Fig. 9/2)

In the "straight hitch" version, the angled drawbar eye is in the extension of the drawbar. In the "bottom hitch" version, the angled drawbar eye is in the downward-cranked drawbar.

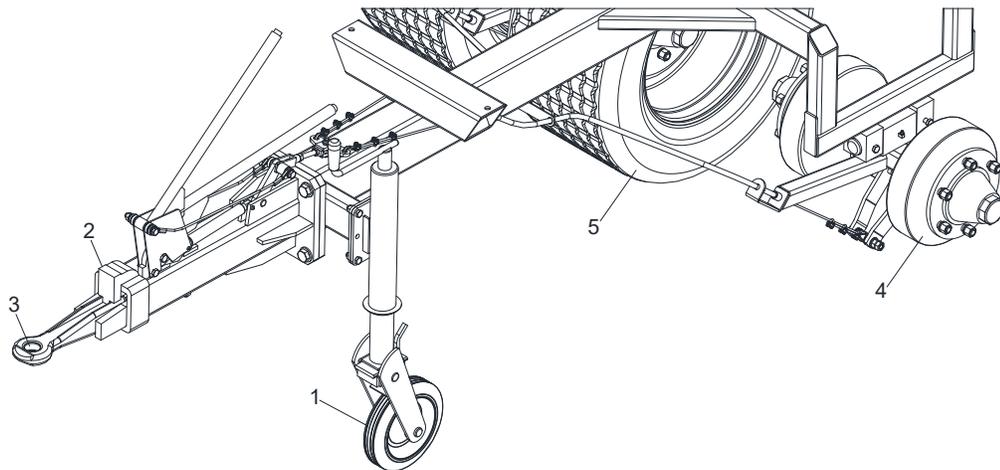


Fig. 10 Chassis, complete DS1600, DS3100 Overrun brake

The chassis consists of a profile steel frame to which two running axles (Fig. 10/4) (each with twin tyres (Fig. 10/5)) are attached. The overrun device (Fig. 10/2) is bolted to the sectional steel frame. The jockey wheel (Fig. 10/1) with adjustment spindle is bolted to the outside left of the profile steel frame. In the "overrun device" version, the drawbar (Fig. 10/3) is connected to the overrun device (Fig. 10/2).

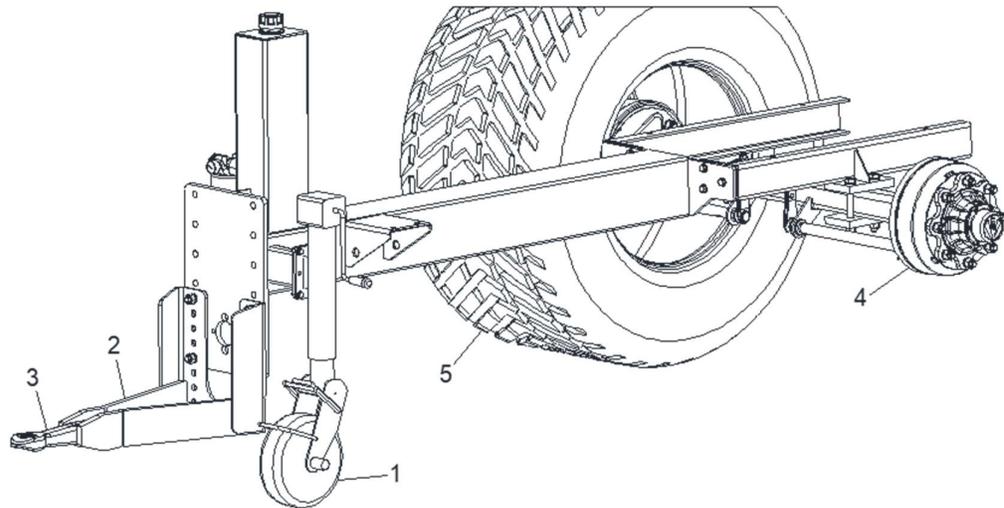
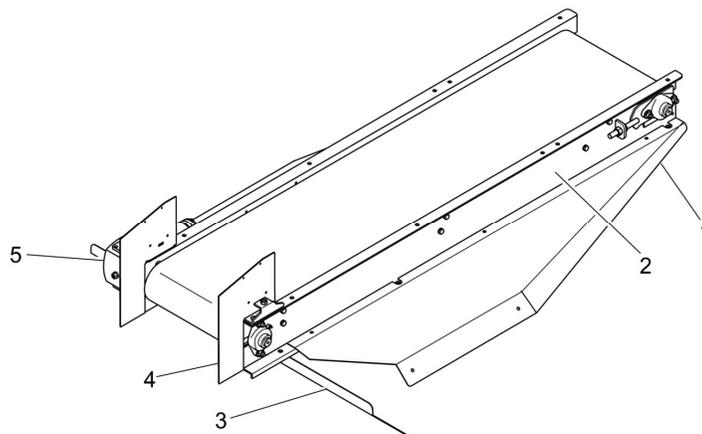


Fig. 11 Chassis, complete DS3800 bottom hitch – straight hitch

The chassis consists of a profile steel frame with an integrated oil tank, to which the brake axle (Fig. 11/4) (with tires (Fig. 11/5)) is attached. The hitch (Fig. 11/2) with welded-in drawbar eye (Fig. 11/3) is screwed onto the profile steel frame. The support wheel (Fig. 11/1) with an adjusting spindle is screwed onto the outside left of the profile steel frame.

3.1.5 Conveyor unit, complete



RI00017

Fig. 12 Conveyor unit, complete

The conveyor unit consists of a conveyor belt with infinitely variable hydraulic motor /Fig. 12/5), the right and left wheel covers (Fig. 12/1), the splash guard (Fig. 12/3) and the side walls (Fig. 12/4) of the spreader chute. The wheel covers, the splash guard and the side walls of the spreader chute are bolted to the conveyor unit (Fig. 12/2) on both sides.

The conveyor unit is bolted to the chassis.

3.1.6 PTO driven external oil supply unit (option)

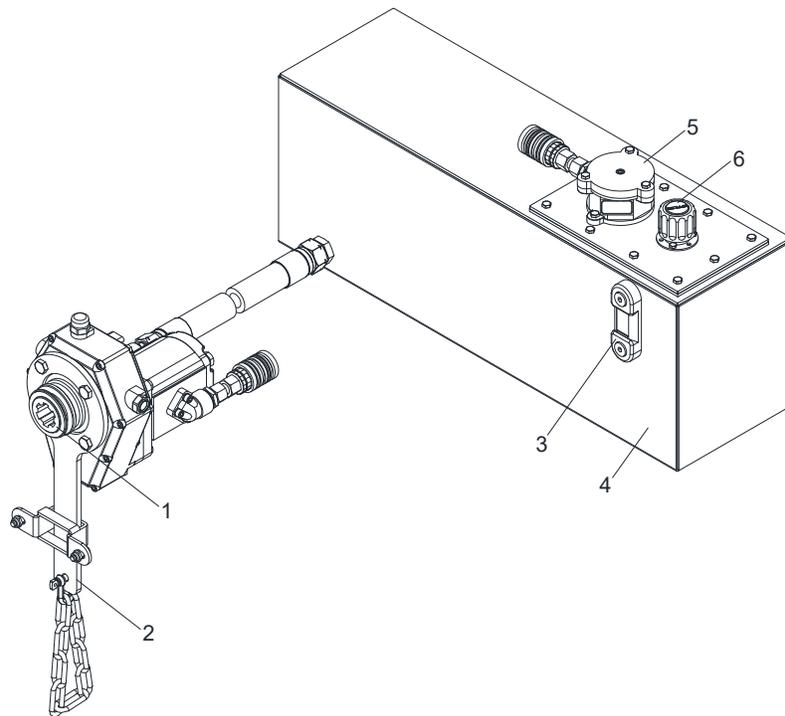


Fig. 13 PTO driven External oil supply unit

The external oil supply unit consists of a PTO gearbox with slip-on pump (Fig. 13/1), torque arm with safety chain (Fig. 13/2), sight glass (Fig. Fig. 13/3), hydraulic tank (Fig. Fig. 13/4), return filter (Fig. 13/5) and filling and venting filter (Fig. 13/6).

The slip-on pump driven via the PTO shaft supplies the machine with the required hydraulic power.

To enable optimum operation, the PTO shaft speed should be approx. 450 1/min, this corresponds to 25 l/min.

The oil temperature, see sight glass (Fig. 11/3), should be approx. 25°C when starting work; if necessary, warm up the hydraulic system.

 ATTENTION

Hydraulic system may become damaged:

- ▶ Before starting work, check the oil level in the hydraulic tank (Fig. 13/3). An insufficient oil quantity can lead to damage or destruction of the hydraulic pump.
- ▶ The PTO shaft may only be switched on when the engine is idling. Switching on the PTO shaft under load can cause the connecting pinion of the gearbox and pump to break.

Attachment of the external oil supply unit for retrofitting:

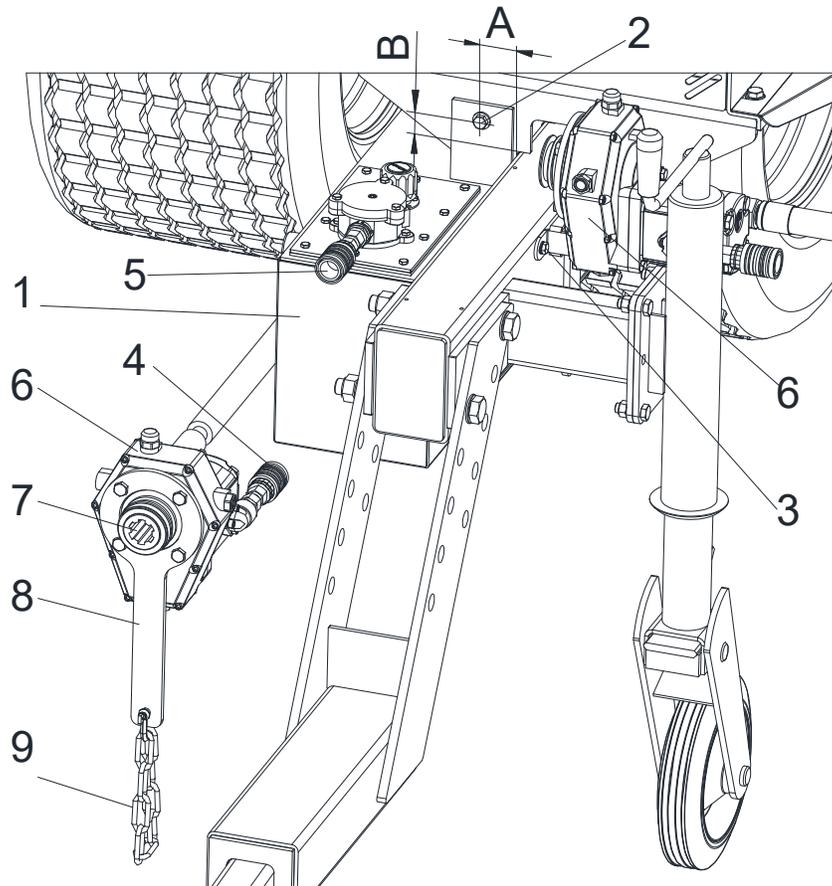


Fig. 14 Attachment of the external oil supply unit

1. To attach the hydraulic tank (Fig. 14/1), the belt support is drilled out with a diameter of 13.5 mm with measurement A (Fig. 14/A) 45 mm (1,77") and measurement B (Fig. 14/B) 35 mm (1,38") and screwed tight with a hexagon head screw M12x130 and lock nut M12 (Fig. 14/2).
2. For start-up, the pressure line of the machine is connected to the free Connection (Fig. 14/4) of the slip-on pump (Fig. 14/6) The return line of the machine (with non-return valve) is connected to the free connection (Fig. 14/5) on the hydraulic tank (Fig. 14/1)
3. The PTO gearbox (Fig. 14/7) with slip-on pump (Fig. 14/6) is attached to the connecting shaft of the tractor and secured against rotation with the torque arm (Fig. 14/8) and safety chain (Fig. 14/9).
4. The holder (Fig. 14/3) can be drilled out and fastened to the drawbar tube with M8 so that the PTO gearbox with slip-on pump (Fig. 14/6+7) can be fixed when the machine is parked.

3.1.7 Infill plates (option)

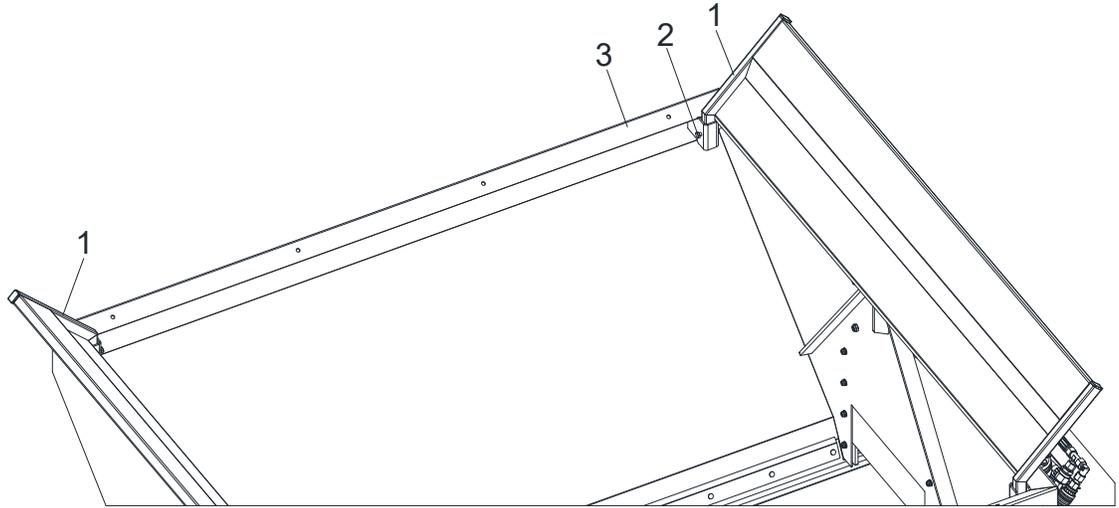


Fig. 15 Infill plates DS1200, DS1600

Two optional infill plates (Fig. 15/1) are fixed at the front and rear in receptacles on the hopper (Fig. 15/3) with screws (Fig. 15/2). The filling plates facilitate filling the hopper and prevent the spreading material from falling off during filling.

3.1.8 Hopper Extension kit (option)

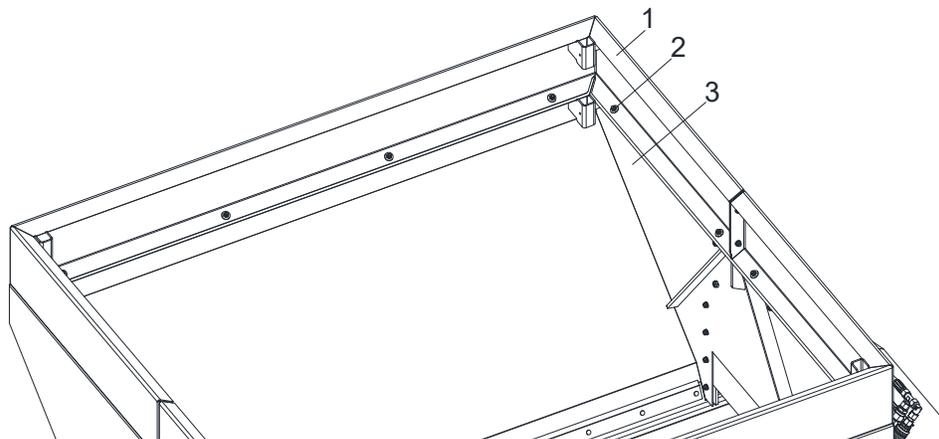


Fig. 16 Hopper extension kit

The optional extension kit (Fig. 16/1) is screwed to the top of the hopper (Fig. 16/3) with bolts, washers and nuts (Fig. 16/2). The extension kit increases the loading volume of the DS1600 disc spreader from 1.60m³ to 2.25m³.

3.1.9 Vibration motors (option)

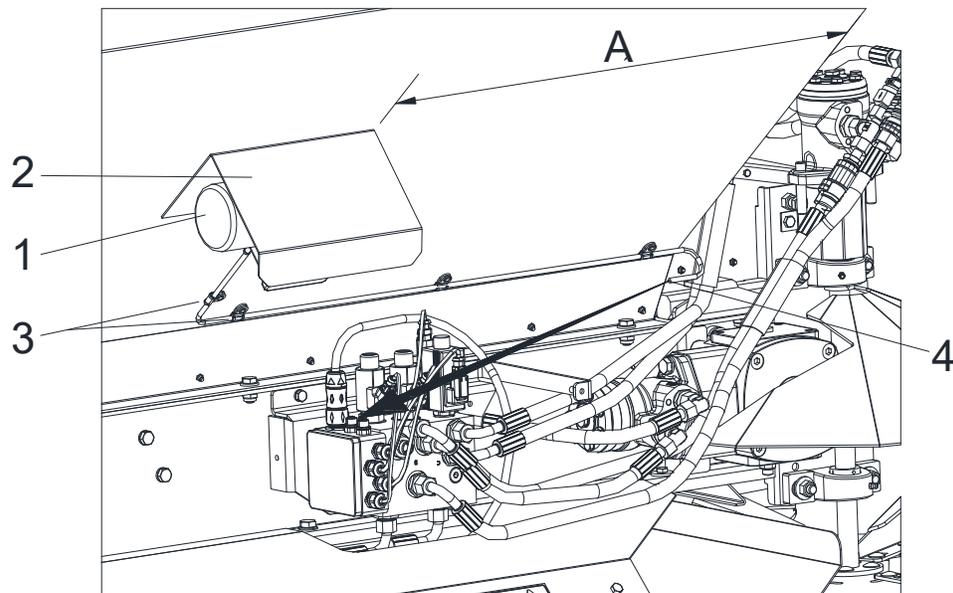


Fig. 17 Vibration motors

Two optional vibration motors (Fig. 17/1) with explosion protection cause the hopper walls to vibrate slightly. This prevents spreading material from sticking to the hopper walls. For installation, the vibration motors (Fig. 17/1) with cover plate (Fig. 17/2) are drilled for M8 and mounted according to dimension A (Fig. 17/A) 700 mm (27.56") from the rear, centered on both sides of the hopper.

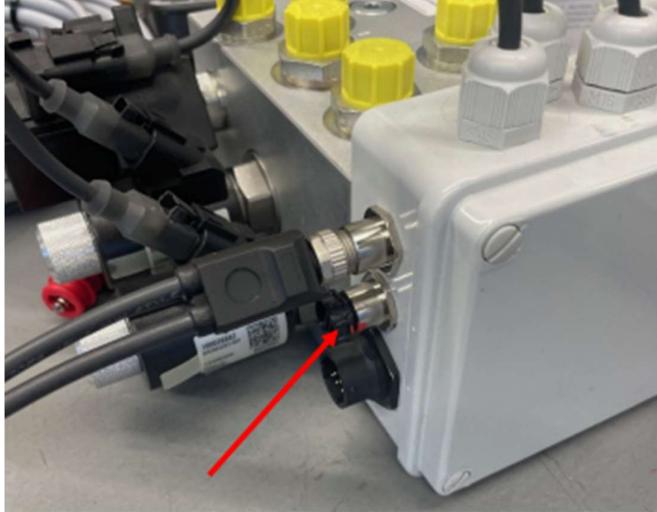
The electric cable is laid using the fixing clamps (Fig. 17/3). Connect the electric cable with plug (Fig. 17/4) to the control block.

The vibration motors are controlled via the operating device.

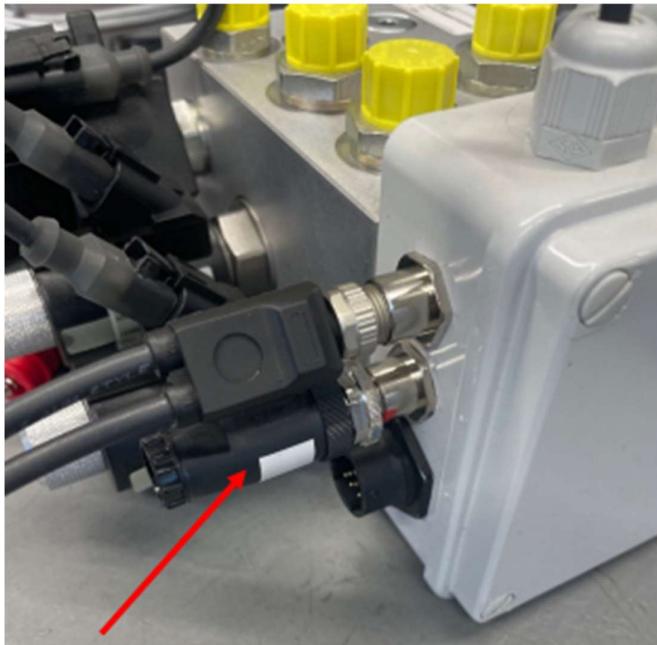
Disc Spreader DS1200, DS1600, DS3100, DS3800 Operating Instructions

Mounting resistance-dongle:

1. Dismounting plastic cap CAN BUS port



2. Mounting resistance dongle



3.1.10 Cross conveyor belt (option)

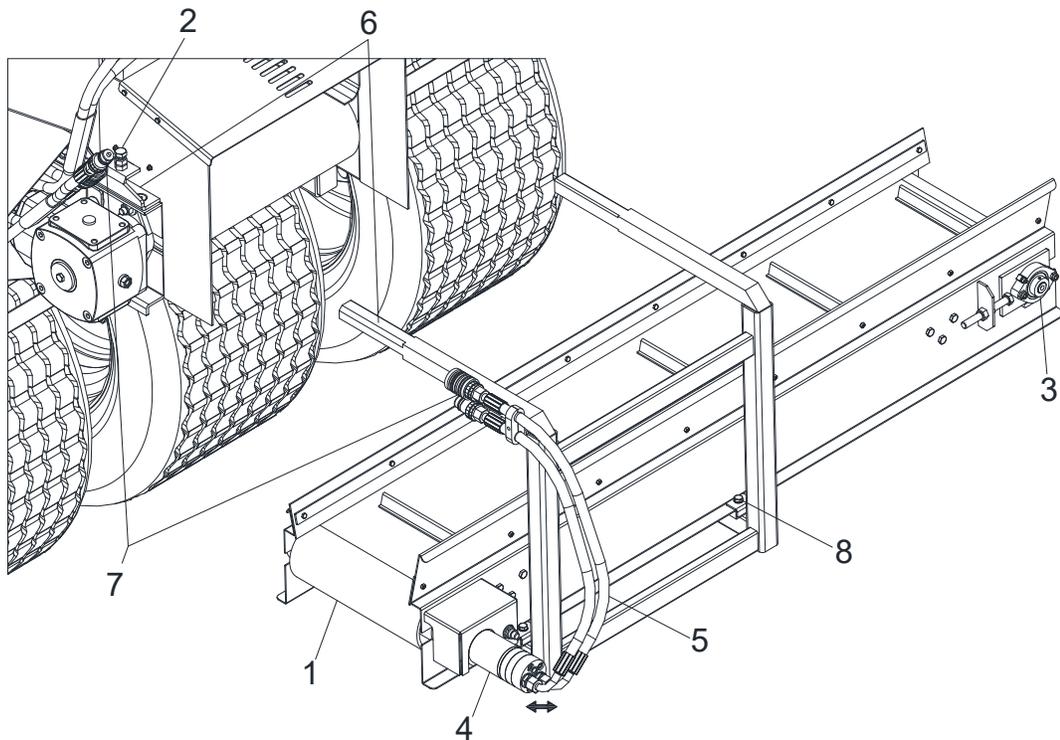


Fig. 18 Cross conveyor belt unit

The optional cross conveyor belt (Fig. 18/1) is used for lateral spreading of the spreading material. The cross conveyor belt is inserted into the same mounting (Fig. 18/2) as the disc spreading unit and bolted to the support (Fig. 18/6). Either the disc spreading unit or the cross conveyor belt unit can be mounted on the disc spreader.

The cross conveyor belt is mounted as follows:

1. Secure the disc spreader against rolling away.
2. Disconnect the hydraulic plug connections (Fig. 18/7).
3. Loosen the screws of the mounting (Fig. 18/2) on both sides and pull off the disc spreading unit.
4. Push the support (Fig. 18/6) of the cross conveyor belt unit (Fig. 18/1) into the
5. receptacle (Fig. 18/6) and secure with the screws (Fig. 18/2) on both sides.
6. Connect the hydraulic connections of the cross conveyor belt (Fig. 18/5) with the counter connections (Fig. 18/7).
7. The cross conveyor belt is switched on and off with the same control elements as the disk spreader unit. To change the direction of rotation, the two hydraulic
8. connections on the hydraulic motor must be swapped. (Fig. 16/4).
9. Depending on the requirements and desired spreading direction, the cross conveyor belt can be shifted to the right and left as far as it will go by loosening the screws (Figure 16/8).

3.1.11 Lift conveyor belt (option)

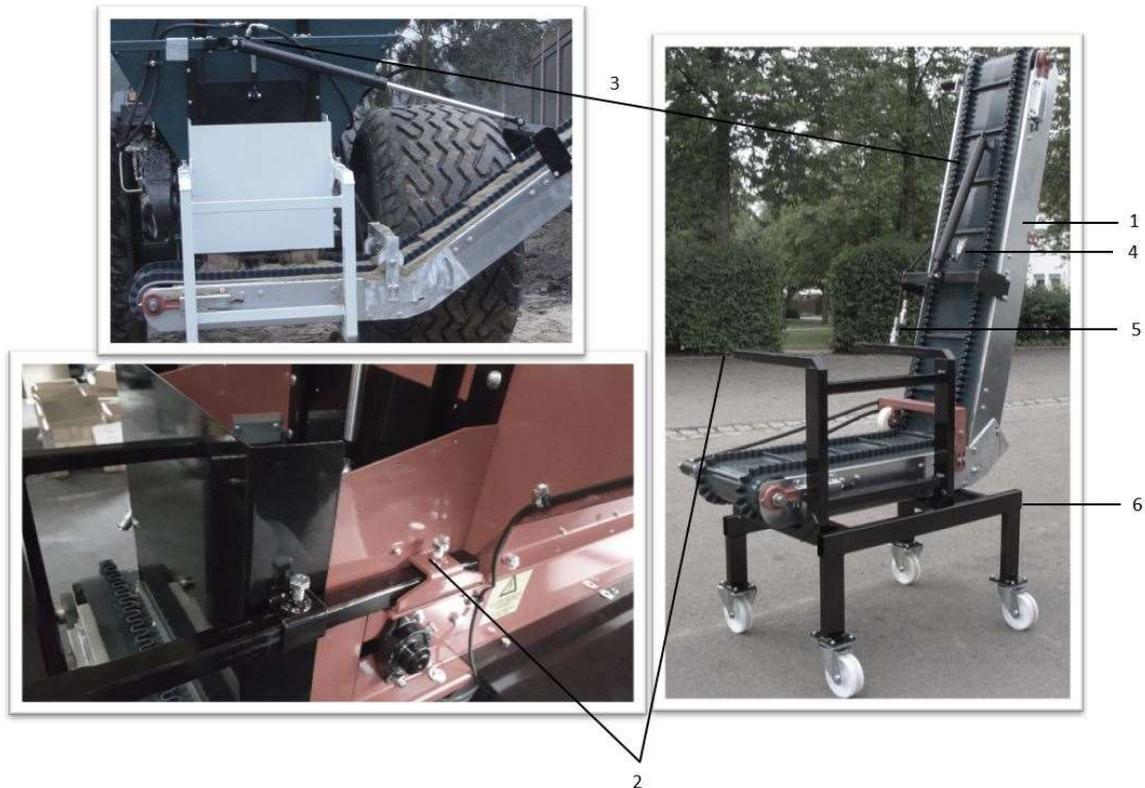


Fig. 19 Lift conveyor belt

The lift conveyor belt (Fig. 17Fig. 19/1) is used for lateral spreading of the spreading material and for transferring the spreading material to another vehicle. The lift conveyor belt is inserted into the same holder (Fig. 18/2) as the disk spreader unit and bolted to the carrier (Fig. 18/2). Either the disk spreader unit or the lift conveyor belt can be mounted on the disc spreader.

The lift conveyor belt is mounted as follows:

1. Secure the disk spreader against rolling away.
2. Disconnect the hydraulic plug connections (Fig. 18/7).
3. Loosen the screws of the mounting (Fig. 18/2) on both sides and remove the disk spreader unit.
4. Slide the carriers (Fig. 19/2) of the lift conveyor belt (Fig. 19/1) into the holder (Fig. 19/2) and secure with the bolts (Fig. 19/2) on both sides.
5. Connect the hydraulic connections of the lift conveyor belt (Fig. 19/5) to the mating connections (Fig. 18/7).
6. Position the cylinder bracket (Fig. 19/3) and screw it in place.
7. Route the hydraulic lines, which are included in the delivery, with the hydraulic plug of the cylinder (Fig. 19/4) to the side of the disc spreader and connect to the towing vehicle. This hydraulic line is used to raise and lower the lift conveyor belt.
8. The lift conveyor belt is switched on and off with the same control elements as the disk spreader.
9. The lift conveyor belt can be stored using the parking chasis (Fig. 19/6).

3.1.12 Hydraulic brake (option)

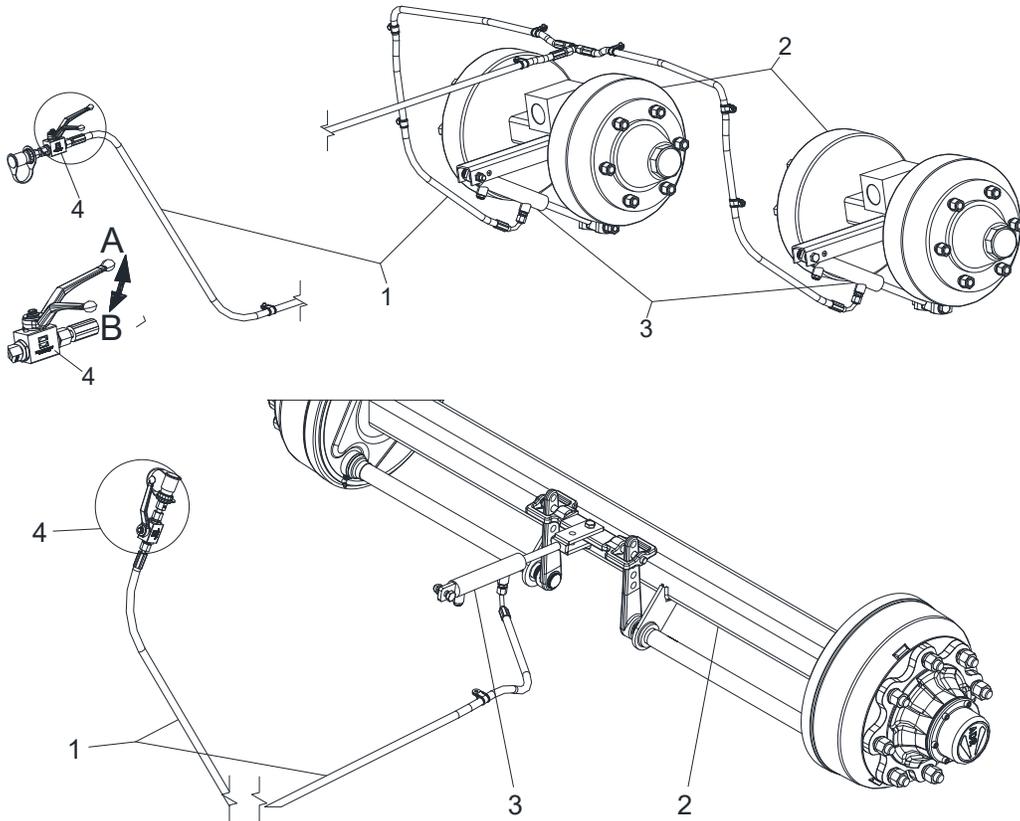


Fig. 20 Hydraulic brake system

The hydraulic brake consists of the following components:

- Brake line (Fig. 20/1)
- Brake axle with drum brake (Fig. 20/2)
- Brake cylinder (Fig. 20/3).
- Block ball valve (Fig. 20/4)

Position A= flow rate open

Position B= flow rate closed

In the hydraulic brake system, the two brake cylinders are actuated hydraulically. The braking force is metered via a brake valve installed in the towing vehicle especially for this purpose. By actuating the brake cylinder, the drum brake of the brake axles is activated and the disc spreader is braked.

The brake lines are connected when the disc spreader is attached to the towing vehicle. To disconnect the disc spreader, secure it against rolling away by applying the brake and closing the block ball valve to position B. This ensures that the brake remains applied even when the machine is uncoupled. Then disconnect the hydraulic hoses from the towing vehicle.

3.1.13 Overrun brake (option)

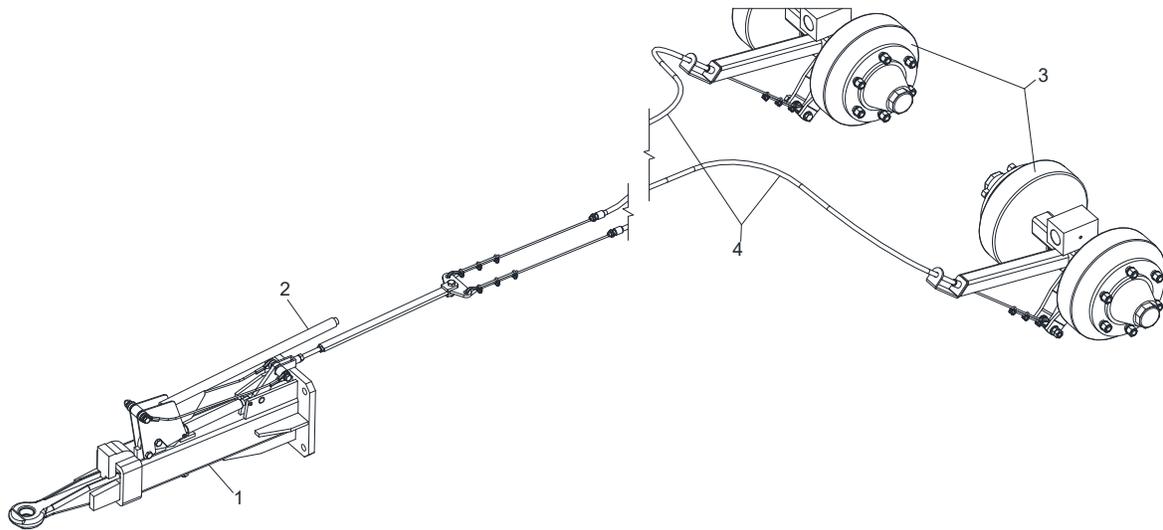


Fig. 21 Overrun brake system

The overrun brake system consists of the following components:

- Overrun device (Fig. 21/1) with brake lever (Fig. 21/2)
- Reverse drive axles (Fig. 21/3)
- Brake cables (Fig. 21/4)

When the towing vehicle decelerates, the thrust of the disc spreader acts against the overrun hitch. This actuates the drum brake of the axle and brakes the disk spreader. When moving off again, the drum brake of the rear axle is automatically released.

The towing eye of the overrun hitch must be connected to the towing vehicle when attaching the disc spreader.

to the towing vehicle. Before driving off, the parking brake must be released by actuating the brake lever.

To unhitch, the spreader must be secured against rolling away by tightening the brake lever.

The disc spreader can then be disconnected from the towing vehicle.

3.1.14 Air brake system (option)

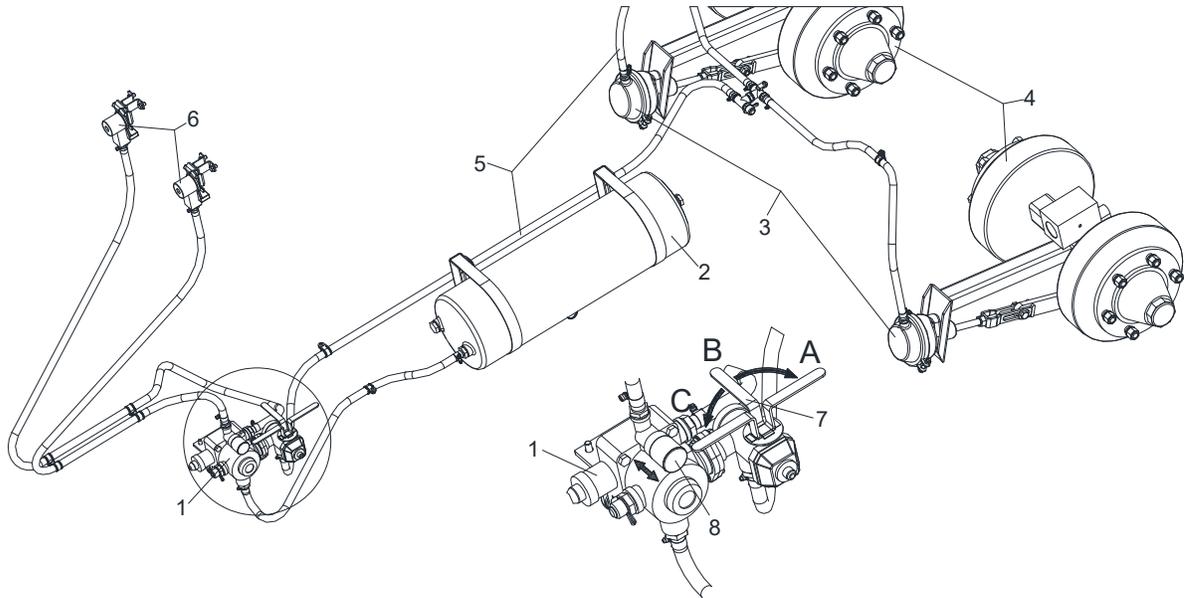


Fig. 22 Air brake system

The air brake system consists of the following components:

- Brake valve (Fig. 22/1) with test connection (Fig. 22/8) and brake force regulator (Fig. 22/7)
- Compressed air reservoir (Fig. 22/2).
- Diaphragm cylinder (Fig. 22/3)
- Brake axles (Fig. 22/4)
- Couplings (Fig. 22/6) Supply line / brake line

The air brake system uses compressed air to control and actuate the diaphragm cylinders. The disc spreader attached to the towing vehicle must be connected to the compressed air system of the towing vehicle via the quick couplings.

The braking force must then be adjusted to the disc spreader using the braking force regulator.

Position A= full machine

Position B=half full machine

Position C= empty machine

When the brake pedal in the towing vehicle is pressed, the diaphragm cylinders are actuated via the brake line according to the preset braking force and the machine is braked via the drum brakes of the brake axles.

The supply line is constantly pressurized with compressed air and supplies the reservoir of the disc spreader with compressed air.

Before unhitching, the parking brake must be activated via the brake valve to prevent the disc spreader from rolling away.

3.1.15 Lightning unit (option DS1200, DS1600, DS3100)

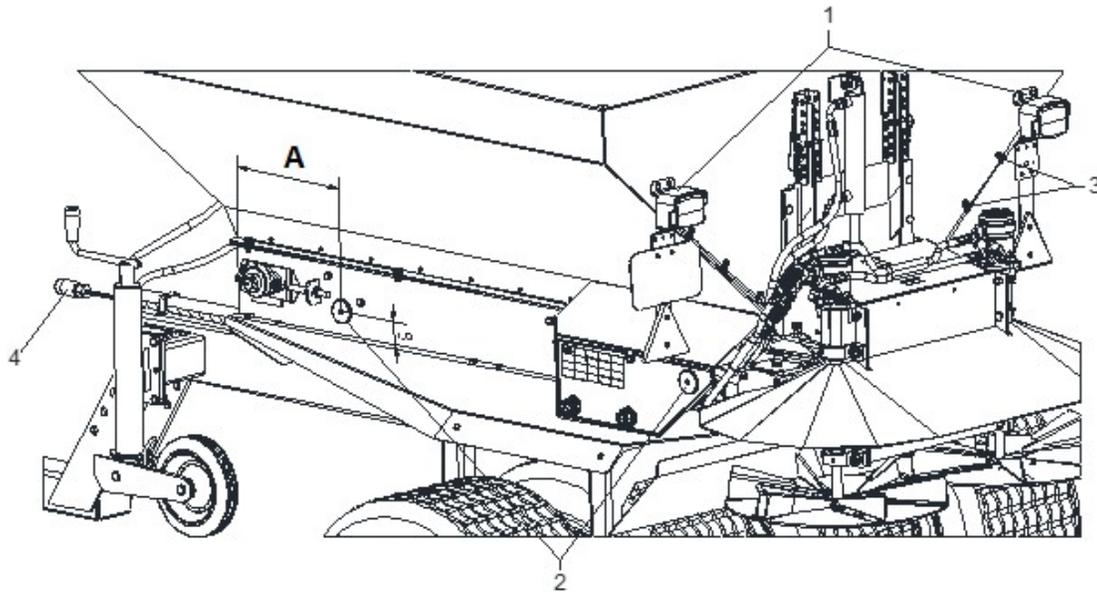


Fig. 23 Mounting the Lightning unit

The optional lighting unit includes four reflectors, LED lighting unit, cable with 7-pin plug and fastening clamps.

The lighting unit is installed as follows:

The regulations applicable in the country of destination must be observed when positioning the lighting unit. Machines with mounted lighting unit comply with the German road permission regulations according to §21 StVZO.

1. Fastening the reflectors (Fig. 21/2):
Attach to the protective cover and to the belt unit with dimension A (Fig. 21/A) 360 mm (14.17") and dimension B (Fig. 21/B) 60 mm (2.36") at the front on both sides and on the opposite side from the rear using 5x16 blind rivets.
Ensure that neither the conveyor belt nor the hydraulic lines are damaged.
2. Attach the LED lighting unit (Fig. 21/1):
The lighting unit (Fig. 21/1) is secured to the rear wall of the hopper of the disc spreader using hexagon bolts M8x12 and hexagon nuts M8.
3. The electric cable with 7-pin plug (Fig. 21/4) is secured using the fastening clamps (Fig. 21/3) and guided forwards under the wheel cover.
4. The lighting unit is connected to the towing vehicle via a seven-pin plug (Fig. 21/4) for the 12V power supply.

3.1.16 Lightning unit (option DS3800)

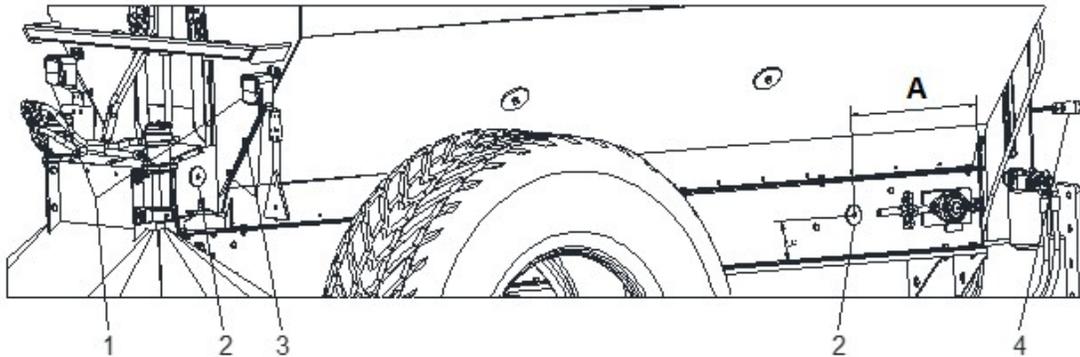


Fig. 24 Mounting the Lightning unit

The optional lighting unit includes four reflectors, LED lighting unit, cable with 7-pin plug and fastening clamps.

The lighting unit is installed as follows:

The regulations applicable in the country of destination must be observed when positioning the lighting unit. Machines with mounted lighting unit comply with the German road permission regulations according to §21 StVZO.

1. Fastening the reflectors (Fig. 24/2):
Attach to the protective cover and to the belt unit with dimension A (Fig. 24/A) 500 mm (19,69") and dimension B (Fig. 24/B) 120 mm (4,72") at the front on both sides and on the opposite side from the rear using 5x16 blind rivets.
Ensure that neither the conveyor belt nor the hydraulic lines are damaged.
2. Attach the LED lighting unit (Fig. 24/1):
The lighting unit (Fig. 24/1) is secured to the rear wall of the hopper of the disc spreader using hexagon bolts M8x12 and hexagon nuts M8.
3. The electric cable with 7-pin plug (Fig. 24/4) is secured using the fastening clamps (Fig. 24/3) and guided forwards under the wheel cover.
4. The lighting unit is connected to the towing vehicle via a seven-pin plug (Fig. 24/4) for the 12V power supply.

3.2 Nameplate

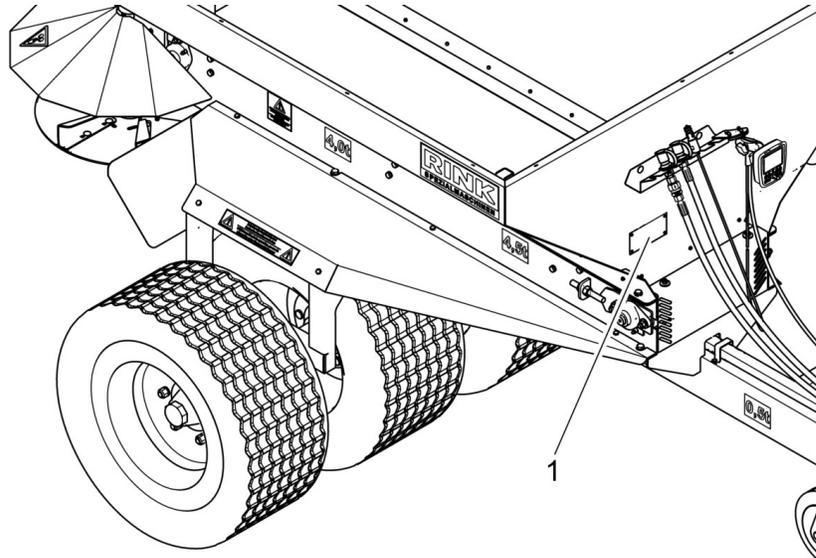


Fig. 25 Nameplate

The nameplate (Fig. 25/1) is attached to the right front of the hopper

3.3 Technical data DS1200

General

Dimensions (length x width x height): 3250 x 1730 x 1550 mm (128" x 68,1" x 61")
Loading quantity: 1.2 m³ (42,4 f³)
Permissible maximum speed: 25 km/h (15,5m mph)
Tractor power: 20 kW (27 HP)
Inner diameter of angled drawbar eye: 40 mm (1,57")
Inner Diameter of Downward cranked hitch (bottom hitch) 22 mm (0,87")

Weights

Permissible total weight: 2.5 t (5512 lbs)
Permissible axle load: 2.0 t (4409 lbs)
Permissible drawbar load: 0.5 t (1103 lbs)
Unladen weight: 490 kg (1081 lbs)

Spreader data

Spread width (infinitely variable): up to 12 m (472")
Spreading thickness: 0.3 to 20 mm (0,01" to 0,79")
Tyre type: 4 x 24x13.00
Tyre pressure: 1.2 bar (17,4 psi)

Hydraulics connection values

Minimum flow rate of towing vehicle: 25 l/min
Minimum oil pressure of towing vehicle: 140 bar (2030,53 psi)

3.4 Technical data DS1600

General

Dimensions (length x width x height): 3800 x 2040 x 1820 mm (150" x 80,3" x 71,7")
Loading quantity: 1.6 m³ (56,5 f³)
Permissible maximum speed: 25 km/h (15,5m mph)
Tractor power: 28 kW (37 HP)
Inner diameter of angled drawbar eye: 40 mm (1,57")
Inner Diameter of Downward cranked hitch (bottom hitch) 50 mm (1,97")

Weights

Permissible total weight: 4.5 t (9921 lbs)
Permissible axle load: 4.0 t (8819 lbs)
Permissible drawbar load: 0.5 t (1103 lbs)
Unladen weight: 1000 kg (2205 lbs)

Spreader data

Spread width (infinitely variable): up to 12 m (472")
Spreading thickness: 0.3 to 20 mm (0,01" to 0,79")
Tyre type: 4 x 400/50-15
Tyre pressure: 1.8 bar (26,1 psi)

Hydraulics connection values

Minimum flow rate of towing vehicle: 25 l/min
Minimum oil pressure of towing vehicle: 140 bar (2030,53 psi)

3.5 Technical data DS3100

General

Dimensions (length x width x height): 4870 x 2300 x 2080 mm (192" x 91" x 81,9")
Loading quantity: 3.1 m³ (109,5 f³)
Permissible maximum speed: 25 km/h (15,5m mph)
Tractor power: 28 kW (45 HP)
Inner Diameter of Downward cranked hitch (bottom hitch) 50 mm (1,97")

Weights

Permissible total weight: 6.5 t (14330 lbs)
Permissible axle load: 6.0 t (13227 lbs)
Permissible drawbar load: 0.8 t (1763 lbs)
Unladen weight: 1300 kg (2866 lbs)

Spreader data

Spread width (infinitely variable): up to 12 m (472")
Spreading thickness: 0.3 to 20 mm (0,01" to 0,79")
Tyre type: 4 x 19.0 - 45/17-10
Tyre pressure: 4.0 bar (58 psi)

Hydraulics connection values

Minimum flow rate of towing vehicle: 25 l/min
Minimum oil pressure of towing vehicle: 140 bar (2030,53 psi)

3.6 Technical data DS3800

General

Dimensions (length x width x height):5087 x 2415 x 2045 mm (201" x 95" x 80,5")
Loading quantity:.....3.8 m³ (134,2 f³)
Permissible maximum speed:.....25 km/h (15,5m mph)
Tractor power:.....44 kW (60HP)
Inner Diameter of Downward cranked hitch (bottom hitch)50 mm (1,97")

Weights

Permissible total weight: 8.0 t (17637 lbs)
Permissible axle load: 7.0 t (15432 lbs)
Permissible drawbar load: 1.0 t (2204 lbs)
Unladen weight:1800 kg (3968 lbs)

Spreader data

Spread width (infinitely variable):.....up to 14 m (551,2")
Spreading thickness: 0.3 to 20 mm (0,01" to 0,79")
Tyre type:2 x 710 50/26.5
Tyre pressure:.....4.0 bar (58 psi)

Hydraulics connection values

Maximum PTO speed:540 u/min

4 Operation



WARNING

Serious injury caused by sharp-edged spreader discs rotating at high speed with throwing vanes

Hands can be very seriously injured.

- ▶ Always wait until the spreader discs have come to a complete stop.
- ▶ Never reach into the working area of the spreader discs.



CAUTION

Noise emission of the disc spreader in combination with the noise emission of the towing vehicle may exceed the limit value of 85 dB(A).

Noise emission of more than 85 dB(A) can permanently damage hearing.

- ▶ If the total noise emission exceeds the limit of 85 dB(A), wear hearing protection.
- ▶ If the total noise emission is 80 to 85 dB(A), hearing protection must be provided.

CAUTION

Sharp-edged shutter and rotating conveyor belt

If the protective cover over the spreader unit has been removed, e.g. for adjustment work, hands may be injured.

- ▶ Switch off the disc spreader. Only then carry out work in the area of the shutter and the conveyor belt.

4.1 Before each ride

- Visually inspect the disc spreader for damage. If damage is visible: repair the damage or contact Rink Spezialmaschinen GmbH.
- Check tyre pressure. If the tyre pressure is visibly too low: fill the tyres with compressed air, refer to section from 3.3-3.6
- Check if the conveyor belt is running in the centre. If the conveyor belt brushes against the side wall of the conveyor unit: adjust the conveyor belt, refer to section Fig. 5512.

4.2 Hitching up and unhitching the disc spreader



ATTENTION

Hydraulic hoses can be damaged.

- ▶ Lay the hydraulic hoses without kinks.
- ▶ Make sure that the hydraulic hoses do not touch the ground or the towing vehicle.

Requirements

- If the disc spreader is equipped with the optional lighting system, the towing vehicle must be equipped with a 7-pin plug connection.
- The towing vehicle is equipped with connections for hydraulic supply or the additional unit "external oil supply" (3.1.6) is available.
- The trailer hitch of the towing vehicle is suitable for the angled drawbar eye of the drawbar.

4.2.1 Hitching up the disc spreader (bottom hitch) DS1200

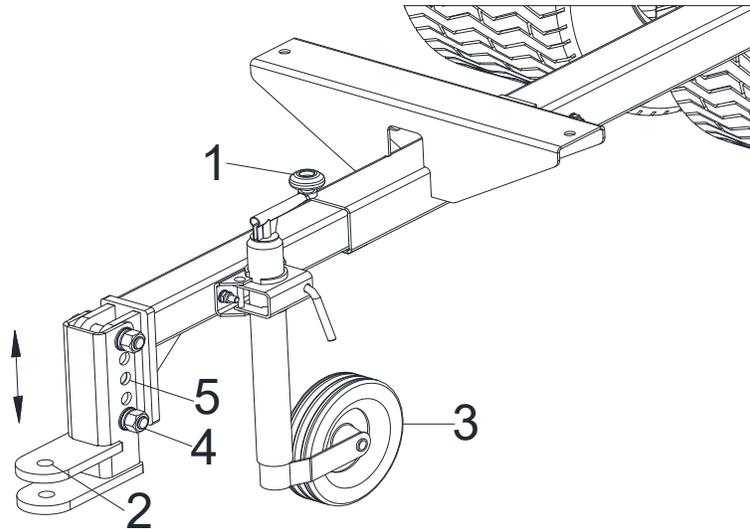


Fig. 26 Connections DS1200

1. Drive the towing vehicle to the front of the drawbar of the disc spreader.
2. If the trailer hitch and the drawbar (Fig. 26/2) are not at the same height the drawbar can be adjusted in height using the bolted connections (Fig. 26/4) and the offset holes (Fig. 26/5).
3. Drive the towing vehicle up to the disc spreader until the drawbar is located under the trailer hitch.
4. Attach the drawbar (Fig. 26/2) to the trailer hitch of the towing vehicle, refer to the operating instructions of the towing vehicle.
5. Connect the hydraulic lines to the towing vehicle. To do this, connect the feed line (Fig. 27/8) and return line (Fig. 27/9) of the disc spreader to the respective hydraulic connections of the towing vehicle.

For external oil supply unit:

Attach the slip-on pump (Fig. 13/1) to the PTO shaft attachment of the towing vehicle and secure it against rotation using the attached torque support Fig. 13/2).

For Lightning unit:

- Connect the electrical cable (Fig. 23) to the towing vehicle.
6. Connect the electrical cable ((Fig. 27/7) to the towing vehicle.
 7. Set the jockey wheel (Fig. 26/3) to the uppermost position. To do this, raise the jockey wheel axle completely with the crank (Fig. 26/1).

4.2.2 Hitching up the disc spreader (straight hitch) DS1600

1. Drive the towing vehicle to the front of the drawbar of the disc spreader.
2. If the trailer hitch and the angled drawbar eye (Fig. 27/2) are not at the same height, the angled drawbar eye can be adjusted in height or even rotated by 90° using the bolted connections (Fig. 27/4) and the offset holes (Fig. 27/5).
3. Attach the angled drawbar eye to the trailer hitch of the towing vehicle, refer to the operating instructions of the towing vehicle.
4. Connect the hydraulic lines to the towing vehicle. To do this, connect the feed line (Fig. 27/8) and return line (Fig. 27/9) of the disc spreader to the respective hydraulic connections of the towing vehicle.

For external oil supply unit:

Attach the slip-on pump (Fig. 13/1) to the PTO shaft attachment of the towing vehicle and secure it against rotation using the attached torque support (Fig. 13/2).

For Lightning unit:

- Connect the electrical cable (Fig. 23) to the towing vehicle.
5. Connect the electrical cable (Fig. 27/7) to the towing vehicle.
6. Set the jockey wheel (Fig. 27/3) to the uppermost position. To do this, raise the jockey wheel axle completely with the crank (Fig. 27/1).

4.2.3 Hitching up the disc spreader (bottom hitch) DS1600, DS3100

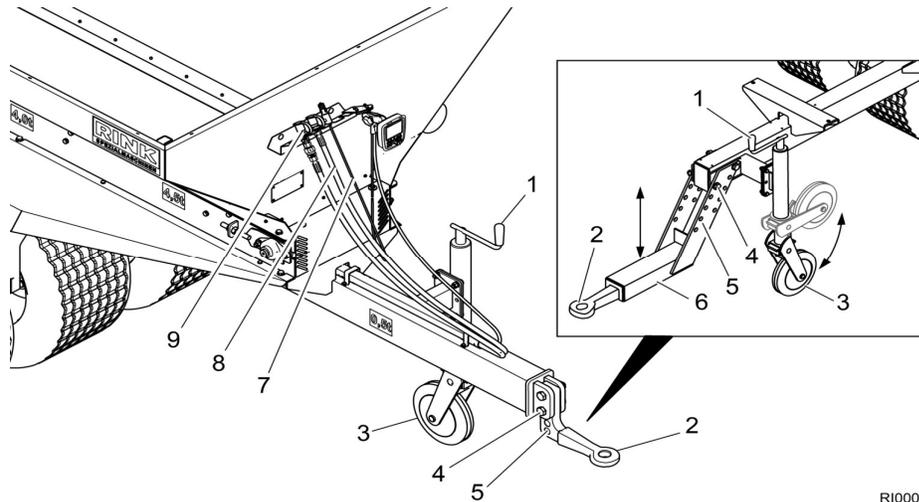


Fig. 27 Connections DS1600, DS3100

RI00006

1. Drive the towing vehicle to the front of the drawbar of the disc spreader.
2. If the trailer hitch and the drawbar eye (Fig. 27/2) are not at the same height, the downward-cranked part of the drawbar with angled drawbar eye can be adjusted in height using the bolted connections (Fig. 27/4) and the offset holes (Fig. 27/5).
3. Drive the towing vehicle up to the disc spreader until the drawbar eye is located under the trailer hitch.
4. Attach the drawbar eye (Fig. 27/2) to the trailer hitch of the towing vehicle, refer to the operating instructions of the towing vehicle.
5. Connect the hydraulic lines to the towing vehicle. To do this, connect the feed line (Fig. 27/8) and return line (Fig. 27/9) of the disc spreader to the respective hydraulic connections of the towing vehicle.

For external oil supply unit:

Attach the slip-on pump (Fig. 13/1) to the PTO shaft attachment of the towing vehicle and secure it against rotation using the attached torque support Fig. 13/2).

For hydraulic brakes / air brake system

Observe the notes under (Fig. 20) or (Fig. 22)

For Lightning unit:

- Connect the electrical cable (Fig. 23) to the towing vehicle.
6. Connect the electrical cable (Fig. 27/7) to the towing vehicle.
7. Set the jockey wheel (Fig. 27/3) to the uppermost position. To do this, raise the jockey wheel axle completely with the crank (Fig. 27/1).

4.2.4 Hitching up the disc spreader (Overrun brake system) DS1600, DS3100

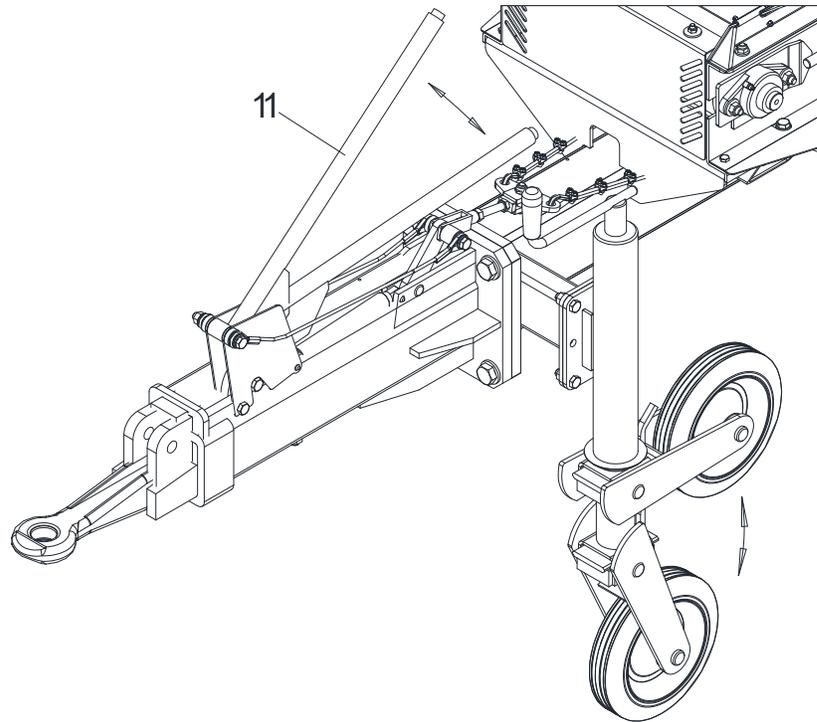


Fig. 28 Connections DS1600, DS3100

1. Drive the towing vehicle up to the disc spreader until the drawbar eye is located under the trailer hitch.
2. Attach the drawbar eye to the trailer hitch of the towing vehicle, refer to the operating instructions of the towing vehicle.
3. Connect the hydraulic lines to the towing vehicle. To do this, connect the feed line (Fig. 27/8) and return line (Fig. 27/9) of the disc spreader to the respective hydraulic connections of the towing vehicle.

For external oil supply unit:

Attach the slip-on pump (Fig. 13/1) to the PTO shaft attachment of the towing vehicle and secure it against rotation using the attached torque support Fig. 13/2).

For hydraulic brakes / air brake system

Observe the notes under (Fig. 20) or (Fig. 22)

For Lightning unit:

- Connect the electrical cable (Fig. 23) to the towing vehicle.
4. Connect the electrical cable (Fig. 27/7) to the towing vehicle.
5. Set the jockey wheel (Fig. 27/3) to the uppermost position. To do this, raise the jockey wheel axle completely with the crank (Fig. 27/1).
6. To drive, release the brake (Fig. 28/11)

4.2.5 Hitching up the disc spreader (bottom/straight hitch) DS3800

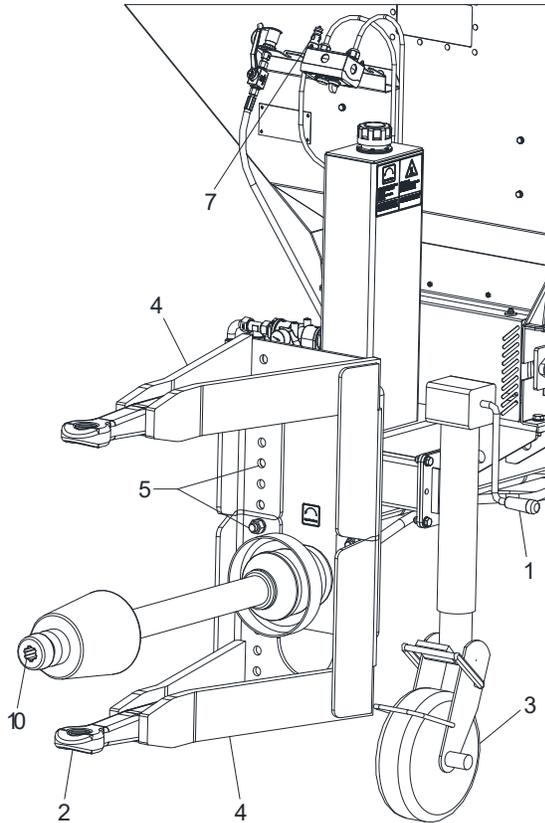


Fig. 29 Connection DS3800

1. Drive the towing vehicle in front of the drawbar of the disc spreader.
2. If the trailer coupling and the towing eye (Fig. 29/2) are not at the same height, the height of the hitch can be adjusted using the screw connections (Fig. 29/4) and the offset holes (Fig. 29/5).
3. Drive the towing vehicle up to the disc spreader until the towing eye is under the trailer coupling.
4. Connect the towing eye (Fig. 29/2) to the towing vehicle's trailer coupling, see the towing vehicle's operating instructions.
5. Connect the PTO:
Attach the PTO (Fig. 29/10) to the towing vehicle and secure it against twisting.

For hydraulic brakes / compressed air brake systems

Observe the notes under (Fig. 20) or (Fig. 22)

For Lightning unit:

Connect the electrical cable (Fig. 23) to the towing vehicle.

6. Place the support wheel Fig. 29/3) in the uppermost position. To do this, turn the support wheel axle completely upwards using the crank (Fig. 29/1).

4.2.6 Unhitching the disc spreader



CAUTION

Pressurised hydraulic connections

When the hydraulic connections of the disc spreader are disconnected from the towing vehicle, pressurised hydraulic oil may escape and enter body orifices.

- ▶ Depressurise the hydraulic system of the towing vehicle. Only then unhitch the disc spreader.

1. Set the jockey wheel (Fig. 26/3), (Fig. 27/3) to the lowest position. To do this, lower the jockey wheel axle completely with the crank Fig. 26/1), (Fig. 27/1).
2. Tighten the brake of the overrun brake system (Fig. 28/11)
3. Disconnect the electrical cable (Fig. 27/7) from the towing vehicle and remove it.
4. Detach the feed line (Fig. 27/8) and return line (Fig. 27/9) from the towing vehicle and remove them.
5. Detach the angled drawbar eye (Fig. 26/2), (Fig. 27/2), (Fig. 28) from the trailer hitch of the towing vehicle, refer to the operating instructions of the towing vehicle.

External oil supply unit:

Detach the slip-on pump (Fig. 13/1) from the PTO shaft connection of the towing vehicle.

Lightning unit:

Disconnect the electrical cable (Fig. 23) from the towing vehicle.

6. For hydraulic brakes / air brake system
Observe the notes under (Fig. 20) or (Fig. 22)

4.3 Operating device

The disc spreader is operated via a operating device (Fig. 4/7), which is connected to the disc spreader via a cable. The operating device is available in three versions:

- Analog Flow Control operating device (evo) (Fig. 30)

The operating device Analog Flow Control is not compatible with the following devices:

- VisionX Display operating device (hybrid) (Fig. 33)
- PotiPro Compact operating device (hybrid) (Fig. 34)

The operating devices VisionX Display and PotiPro Compact are connected to the disc spreader in the same way.

4.3.1 Analog Flow Control operating device (evo)

When the disc spreader is not hitched to a towing vehicle, the operating device is attached to a holder at the front of the hopper. A holder (Fig. 30/3) for the towing vehicle included in the scope of delivery enables the operating device to be attached to the towing vehicle. The disc spreader can then be operated from the towing vehicle.

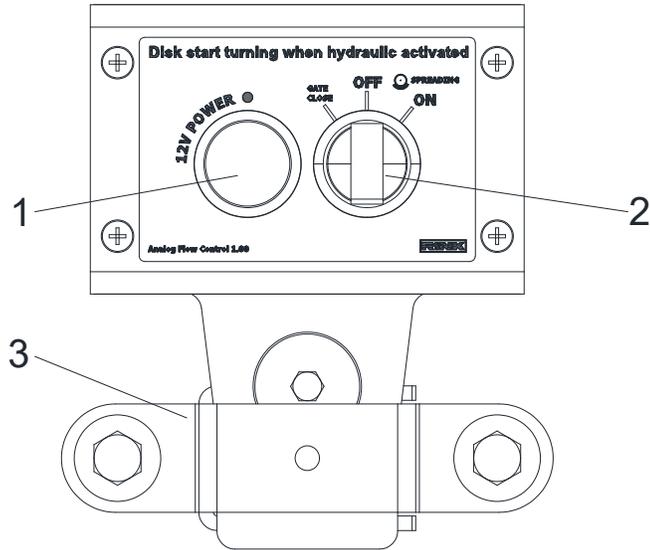


Fig. 30 Analog Flow Control operating device (evo)

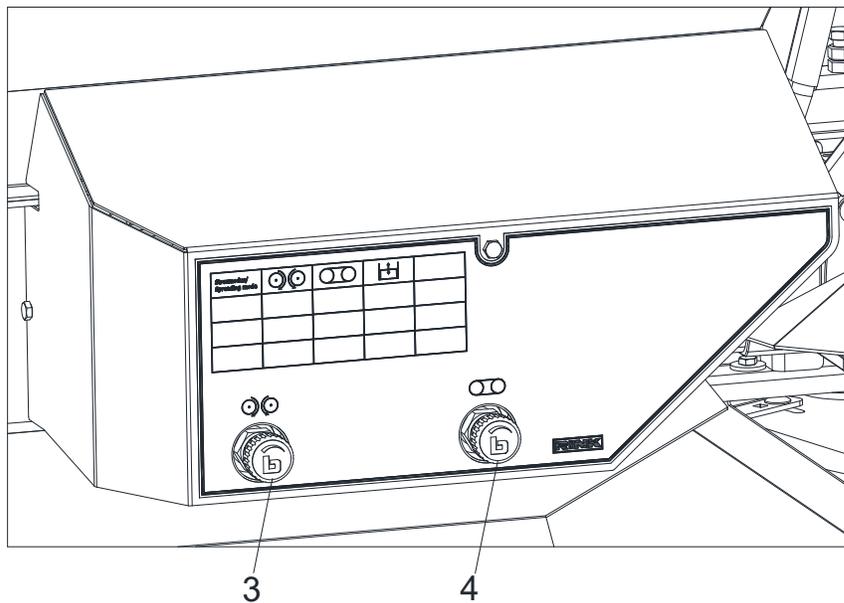


Fig. 31 Analog Flow Control (evo)

Item.	Operating element	Function
1	On/Off illuminated button	Indicates the Analog Flow Control operating device is switched on / switched off.
2	Rotary button	OFF: Gate is closed, conveyor unit is stopped. ON: Gate opens and conveyor unit accelerates to the set speed. Gate close: Gate closes.
3	Rotary control for disc speed	Set speed of spreader discs
4	Rotary control for conveyor speed	Set transport speed

Hydraulic plan (evo):

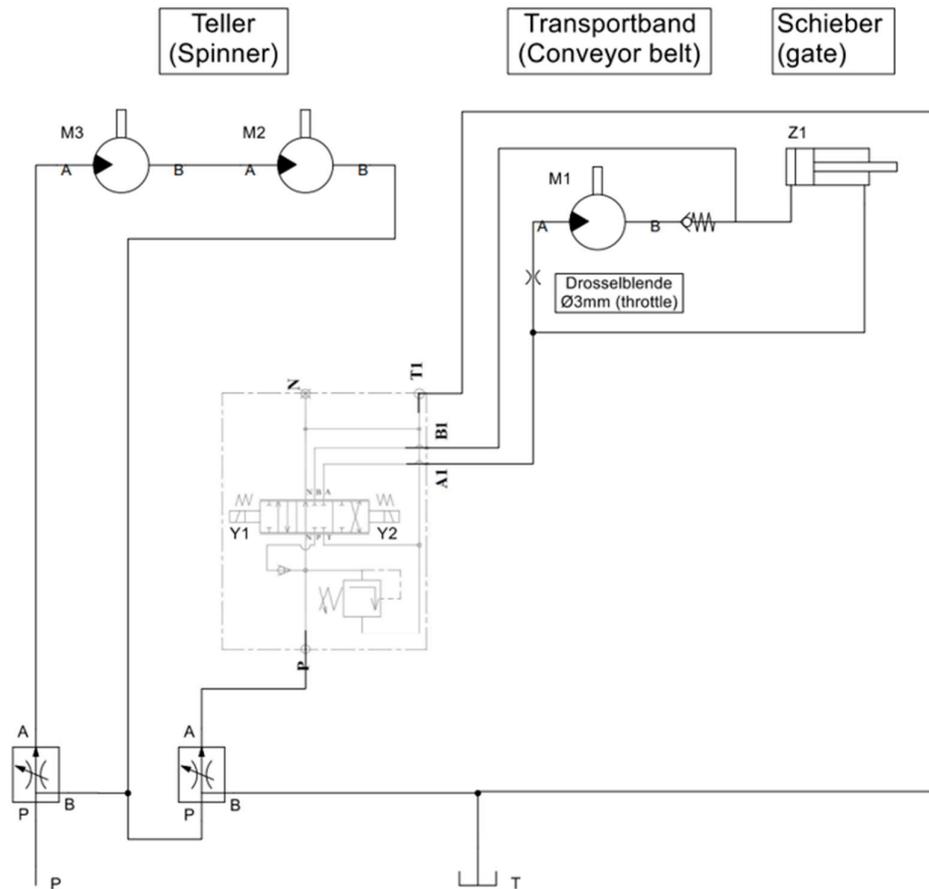


Fig. 32 Hydraulic plan (evo)

4.3.2 VisionX Display operating device (hybrid)

When the disc spreader is not hitched to a towing vehicle, the operating device is attached to a holder at the front of the hopper. A holder (Fig. 33/11) for the towing vehicle included in the scope of delivery enables the operating device to be attached to the towing vehicle. The disc spreader can then be operated from the towing vehicle.

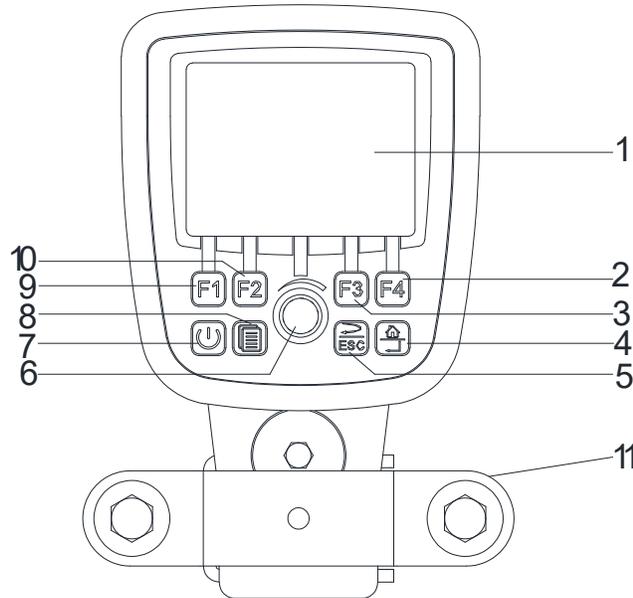


Fig. 33 VisionX Display operating device (hybrid)

Item	Operating element	Function
1	Display	Display current control menu
2	F4 button	Switch on optional vibration motors (the vibration motors are switched off after 20 seconds)
3	F3 button	Set transport speed of conveyor unit
4	Home button	Switch to start menu
5	ESC button	Exit current control menu
6	Rotary control	Increase or reduce the selected value, navigate the control menu, confirm the set value by pressing the rotary control
7	On/Off button	Switch operating device on/off
8	Menu button	Go to the "Settings" control menu (settings are set by the manufacturer)
9	F1 button	Switch on / switch off spreader disc
10	F2 button	Set the speed of the spreader discs

4.3.3 PotiPro Compact operating device (hybrid)

When the disc spreader is not hitched to a towing vehicle, the operating device is attached to a holder at the front of the hopper. A holder (Fig. 34/6) for the towing vehicle included in the scope of delivery enables the operating device to be attached to the towing vehicle. The disc spreader can then be operated from the towing vehicle.

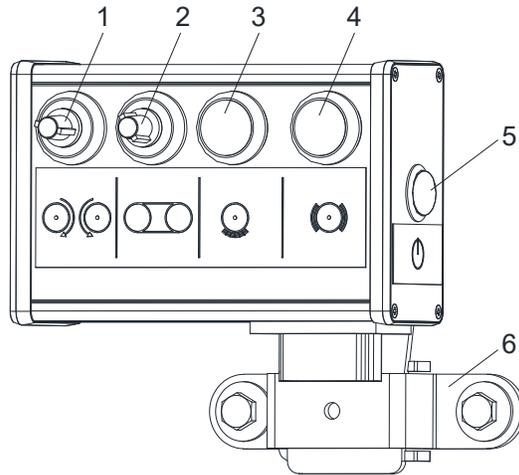


Fig. 34 PotiPro Compact operating device (hybrid)

Item	Operating element	Function
1	Rotary control for disc speed	Set speed of spreader discs
2	Rotary control for conveyor speed	Set transport speed
3	On/Off button for conveyor unit	Switch on / switch off conveyor unit
4	On/Off button for vibration motors	Switch on vibration motors
5	On/Off illuminated button	Switch on / switch off PotiPro Compact operating device

Hydraulic plan (hybrid)

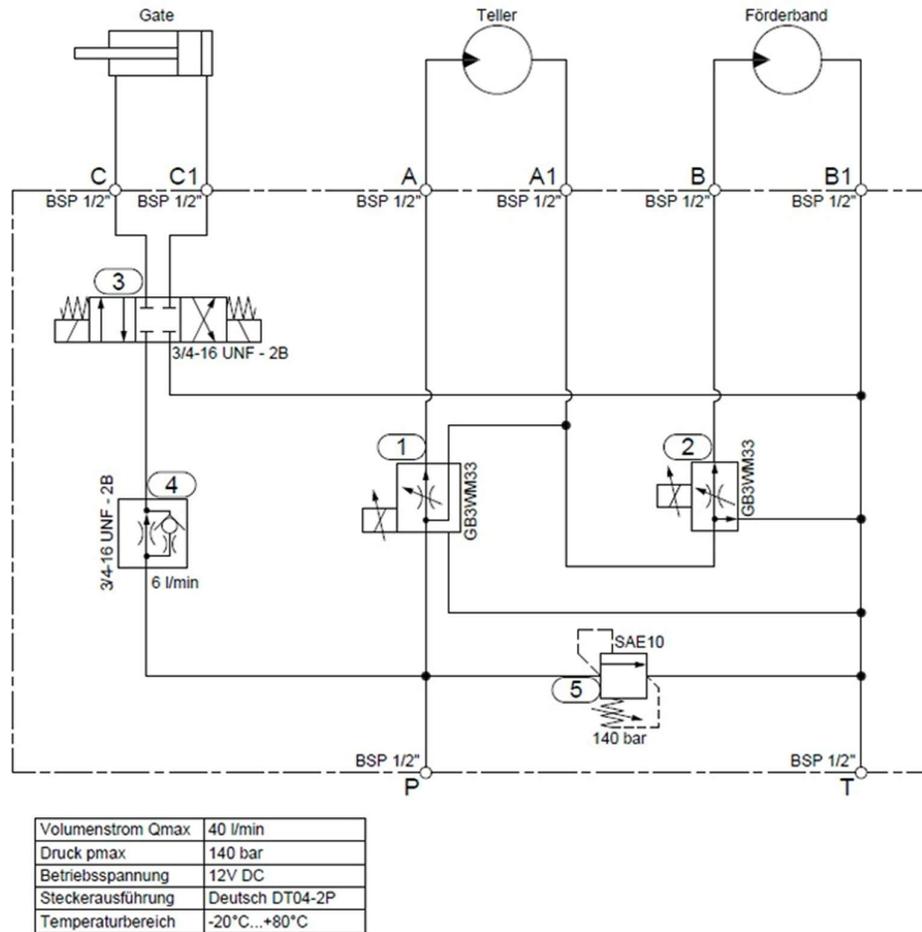


Fig. 35 Hydraulic plan (hybrid)

4.4 Filling spreading material

NOTICE

- ▶ When loading the disc spreader do not exceed the permissible axle load and the permissible total weight, refer to section from 3.3.
 - ▶ Observe the ground bearing capacity of the terrain.
1. Make sure that the disc spreader is switched off. In the switched-off condition, the shutter in the hopper is closed.
 2. Fill the hopper with spreading material by suitable means of transport, e.g. a shovel loader.

4.5 Spreading the material

NOTICE

If necessary, set the spread rate by adjusting transport speed, rotation speed of spreader discs, and spreader gate opening, refer to the following sections. This may be necessary if, for example, the type of spreading material is changed.

4.5.1 Operation with Analog Flow Control (evo)

1. On/Off illuminated button (Fig. 36/1) lights up. Analog Flow Control operating device is switched on.
2. Switch on the hydraulics in the towing vehicle, the spreader discs start to rotate and accelerate up to the set speed.
3. If necessary, set the disc speed using the rotary control for disc speed (Fig. 37/3).
4. When the rotary button (Fig. 36/2) is set to "ON", the gate opens and the conveyor unit accelerates to the set transport speed.
5. If necessary, set the transport speed using the rotary control for conveyor speed (Fig. 37/4).
6. When the rotary button (Fig. 36/2) is set to "OFF", the conveyor unit is stopped.
7. When the rotary button (Fig. 36/2) is set to "Gate close", the gate starts to close. The rotary button must be pressed until the gate is closed.

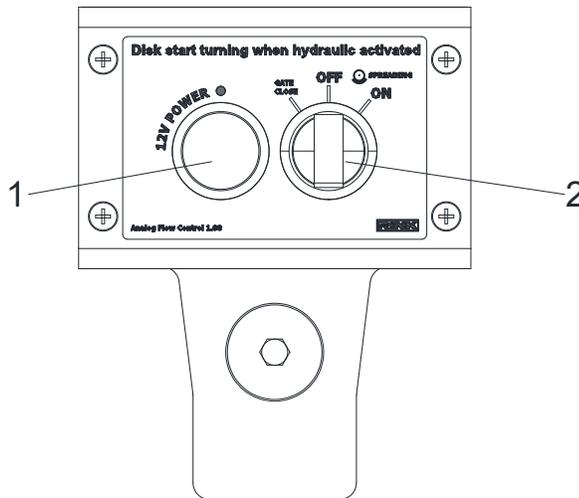


Fig. 36 Analog Flow Control operating device (evo)

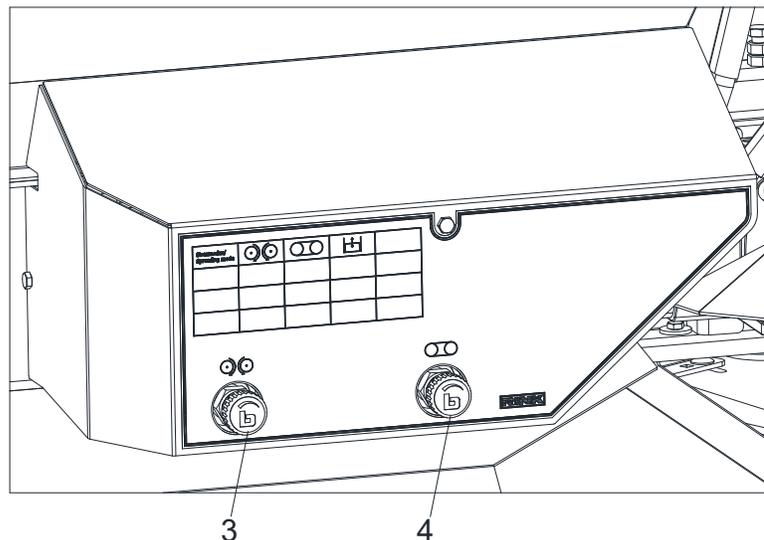


Fig. 37 Analog Flow Control (evo)

4.5.2 Operation with VisionX Display (hybrid)

Start menu

1. Switch on the towing vehicle.
2. Press the On/Off button (Fig. 38/2). The VisionX Display operating device is switched on.
3. Press the rotary control (Fig. 38/1) to switch to the control menu for spreading operation.



Fig. 38 Start menu

Select spreader mode

1. Turn the rotary control (Fig. 39/1) to select the desired spreader mode.
2. Press the rotary control. The spreader mode is selected.
3. If you want to adjust the spreader mode, press the F1 button (Fig. 39/2).
4. If you want to change the name of spreader mode, press the F2 button (Fig. 39/3).

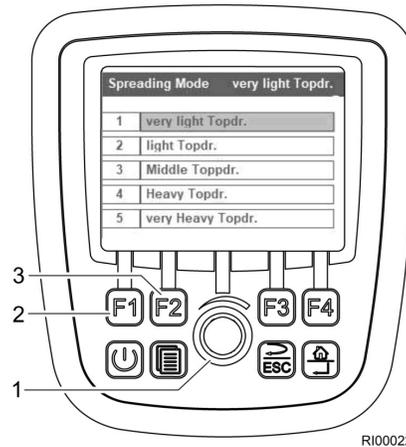


Fig. 39 Spreader mode

Set speed of spreader discs

1. Turn the rotary control (Fig. 40/2) and set the desired disc speed.
2. Press the rotary control. The disc speed is saved.
3. Press the F4 button (Fig. 40/1). The next menu is called up.
4. Press the F1 button (Fig. 40/3). The previous control menu is called up.

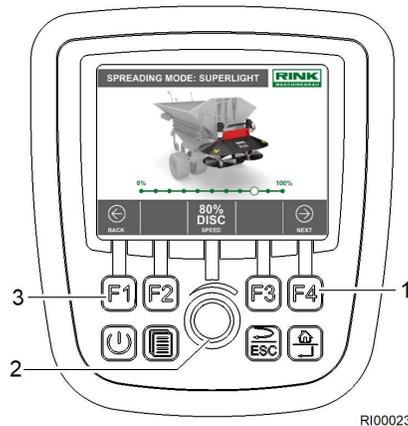


Fig. 40 Set disc speed

Set transport speed

1. Turn the rotary control (Fig. 41/2) and set the desired transport speed for the conveyor unit.
2. Press the rotary control. The transport speed is saved.
3. Press the F4 button (Fig. 41/1). The next menu is called up.
4. Press the F1 button (Fig. 41/3). The previous control menu is called up.

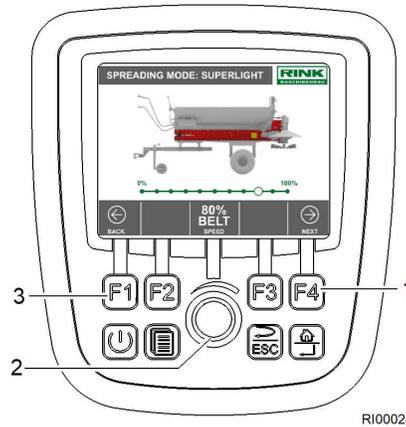


Fig. 41 Set transport speed

Set driving speed

1. Turn the rotary control (Fig. 42/3) and set the desired driving speed for spreading operation.
2. Press the rotary control. The driving speed is saved.
3. If you want to switch between km/h and miles/h units, press the F3 button (Fig. 42/2). The unit is changed.
4. Press the F4 button (fig. 42/1). The next menu is called up.
Press the F1 button (Fig. 42/4). The previous control menu is called up.

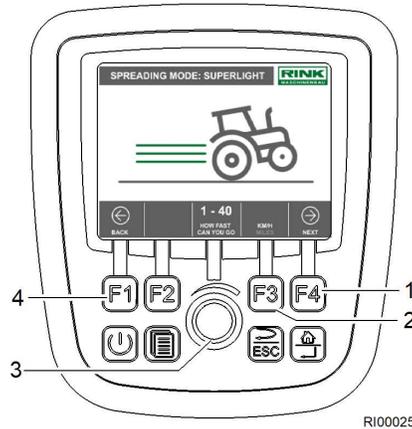


Fig. 42 Set driving speed

NOTICE

In this control menu, you can only save the desired driving speed at which you want to drive.

Set spreader gate opening

1. Turn the rotary control (Fig. 43/2) and set the desired spreader gate opening for spreading operation.
2. Press the rotary control. The spreader gate opening is saved.
3. Press the F4 button (Fig. 43/1). The control menu for spreading operation is called up.
4. Press the F1 button (Fig. 43/3). The previous control menu is called up.

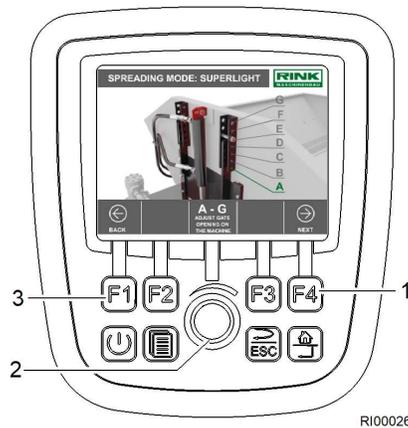


Fig. 43 Set spreader gate opening

NOTICE

In this control menu, the desired shutter opening can only be saved. The position of the shutter end stops must be adjusted manually.

Carry out spreading operation

The position of the shutter limits and the driving speed are displayed in the control menu Spreading.

1. Press the F1 button (Fig. 44/4). The spreader discs start to rotate (the indicator light is light green).
2. When the F2 button (Fig. 44/5) is pressed, the disc speed can be set via the rotary control (Fig. 44/3).
3. When the rotary control is pressed, the shutter opens and the conveyor belt starts running (indicator light changes to green). The conveyor belt cannot be started before the spreader discs have been activated.
4. When the F3 button (Fig. 44/2) is pressed, the transport speed can be set via the rotary control.
5. Option: When the F4 button (Fig. 44/1) is pressed, the vibration motors start vibrating. The vibration motors remain running for 10 seconds and are then automatically switched off.
6. Check spread rate and spread width.
7. If necessary, correct the spread rate.
8. Drive the towing vehicle over the ground to be covered.

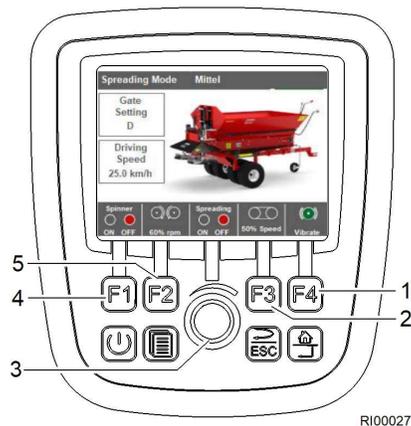


Fig. 44 Carry out spreading operation

Menu

1. When the menu button (Fig. 45/2) is pressed, the control menu Menu opens.
2. Select the desired menu item to be set by turning the rotary control (Fig. 45/1).
3. Press the rotary control. The desired menu item is selected.

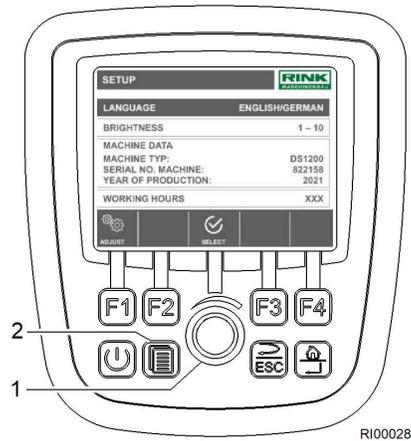


Fig. 45 Menu

4.5.3 Operation with PotiPro Compact (hybrid)

1. Switch on the towing vehicle.
2. Press the On/Off illuminated button (Fig. 46/5). The PotiPro Compact operating device is switched on, the spreader discs start to rotate and accelerate up to the set speed.
3. If necessary, set the disc speed using the rotary control for disc speed (Fig. 46/1).
4. When the On/Off button for conveyor unit (Fig. 46/3) is pressed, the shutter is opened and the conveyor belt accelerates to the set transport speed.
5. When the On/Off button for conveyor unit (Fig. 46/3) is pressed again, the conveyor belt stops and the shutter closes.
6. If necessary, set the transport speed using the rotary control for conveyor speed (Fig. 46/2).
7. If you want to switch on the optional vibration motors, press the On/Off button for vibration motors (Fig. 46/4). The vibration motors remain running for 10 seconds and are then automatically switched off.

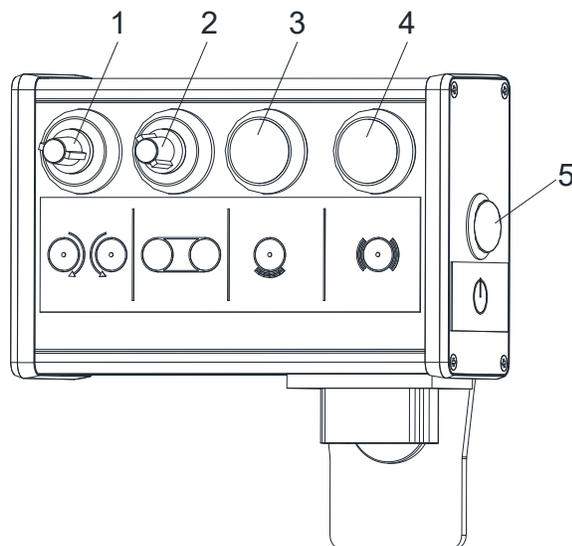


Fig. 46 PotiPro Compact (hybrid)

4.5.4 Adjusting the throwing vanes



! WARNING

Serious injury caused by sharp-edged spreader discs rotating at high speed with throwing vanes

Hands can be very seriously injured.

- ▶ Always wait until the spreader discs have come to a complete stop.
- ▶ Never reach into the working area of the spreader discs.
- ▶ Wear protective gloves when working on the spreader disc.

If the spreading material is unevenly distributed, the throwing vanes must be adjusted. An uneven spread pattern is recognizable by a concentration of material in the inner or outer area of the spread width.

The material concentration is in the outer area of the spread width:

1. Loosen the bolted connections (Fig. 47/1) in the slotted holes of every second throwing blade (Fig. 47/2). To do this, loosen the nuts of the bolted connections underneath the spreader discs.
2. Swivel every second throwing blade (Fig. 47/2) in direction "X".
3. Tighten the bolted connections (Fig. 47/1) again. To do this, tighten the nuts of the bolted connections underneath the spreader discs.

The material concentration is in the inner area of the spread width:

1. Loosen the bolted connections (Fig. 47/1) in the slotted holes of every second throwing blade (Fig. 47/2). To do this, loosen the nuts of the bolted connections underneath the spreader discs.
2. Swivel every second throwing blade (Fig. 47/2) in direction "Y".
3. Tighten the bolted connections (Fig. 47/1) again. To do this, tighten the nuts of the bolted connections underneath the spreader discs.

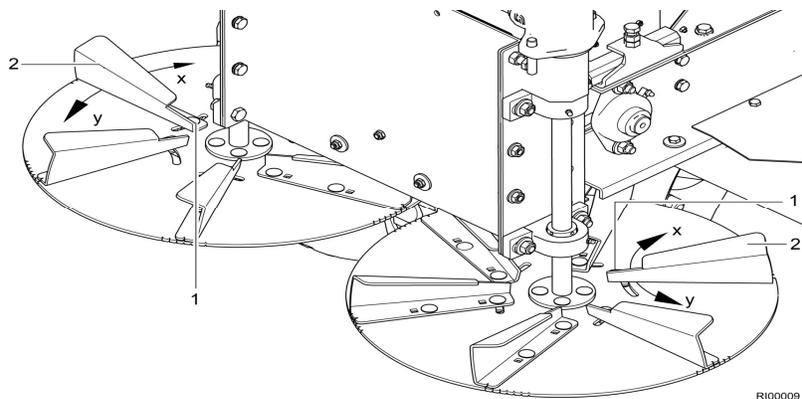


Fig. 47 Adjusting the throwing vanes

4.5.5 Spreader chart

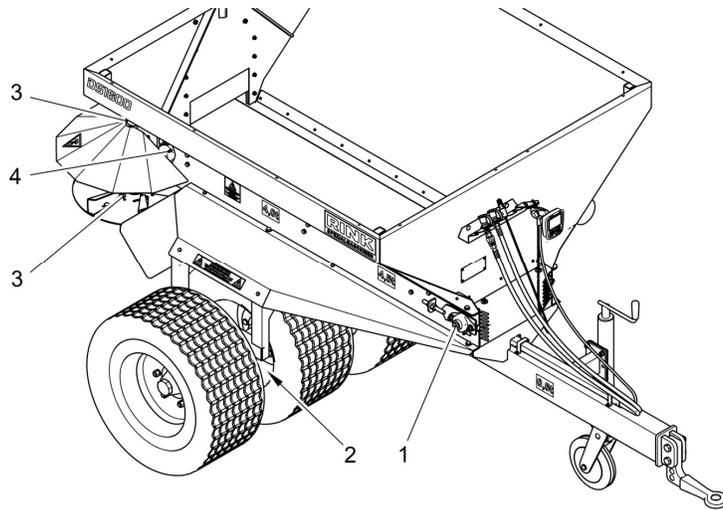
The spreader chart contains guide values for the setting parameters. Depending on the spreading material and the driving speed of the towing vehicle, the results may deviate from the spreader chart and must then be determined by trials.

Spread rate	Spreader disc	Conveyor belt	Shutter level	Spread width
	Operating device	Operating device	Shutter position	
Thin	8-10	8-10	A - B	12 m
Medium	6-7	8-10	C - E	8 m
Thick	4	8-10	F - M	4 m

5 Maintenance and care

Maintain disc spreader according to lubrication and maintenance schedule.

5.1 Lubrication schedule



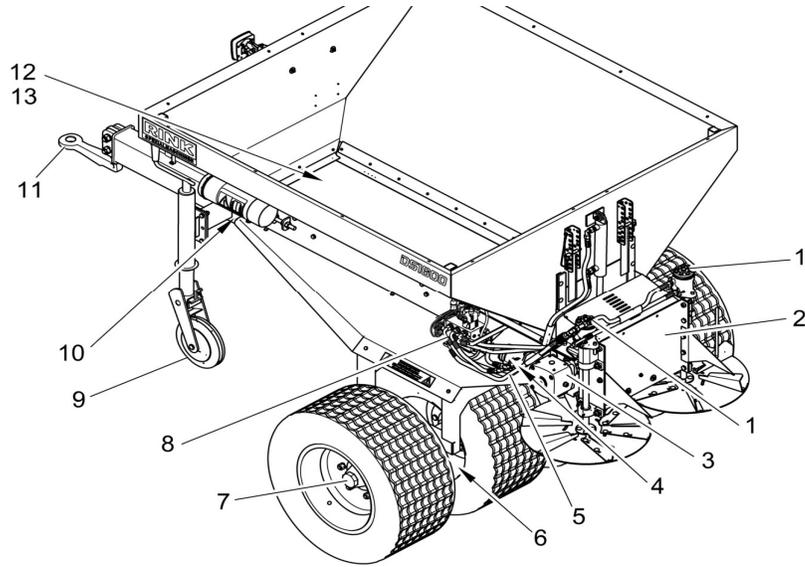
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Fig. 48 Lubrication points

Bearings without grease nipples are maintenance-free.

Item	Lubrication point	Qty.	Lubricant	Operating hours	Comment
1	Bearings, deflection roller of transport unit	2	Multi-purpose grease (e.g. Lubcon Turmogrease LI802 EP)	25 h	On both sides
2	Bearings, wheel axles	2			
3	Bearings, spreader discs	4			
3	Bearings cross conveyor belt (option) (Fig. 18/3) Bearings lift conveyor belt (option) (Fig. 19)	4			
4	Bearings, drive roller of transport unit	2			

5.2 Maintenance schedule



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Fig. 49 Maintenance points (shown without protective covers over spreader unit and control block)

Disc Spreader DS1200, DS1600, DS31000, DS3800 Operating Instructions

Item	Maintenance point	Qty.	Maintenance task	Interval	Comment
1	Hydraulic motors, spreader discs	2	Replace if necessary, check correct fit	-	It must not be possible to pull the motors off, but they should be sufficiently movable and not rigidly fitted
2	Spreader unit	1	Check shutter, spreader discs and throwing vanes for wear	50 h	Have replaced if necessary
3	Conveyor belt gearbox	1	Carry out an oil change	100 h	
4	Hydraulic motor, conveyor unit	1	Replace	-	If defective or leaking
5	Hydraulic hoses and hydraulic fittings <u>For option:</u> External oil supply unit (Fig. 13) Cross conveyor belt (Fig. 18/5) Lift conveyor belt (Fig. 19)	All	Check for leaks and integrity	100 h	Hydraulic hoses must be movable
	Hydraulic hoses <u>For option:</u> External oil supply unit (Fig. 13) Cross conveyor belt (Fig. 18/5) Lift conveyor belt (Fig. 19)	All	Replace	6 years	DGUV 113-020
6	Brakes <u>For option:</u> Hydraulic brake (Fig. 20) Overrun brake (Fig. 21) Air brake (Fig. 22)	2	Check function	100 h	Have replaced if necessary

Item	Maintenance point	Qty.	Maintenance task	Interval	Comment
7	Wheel axle	2	Check wheel play, check wheel nut for tight fit, check tyre pressure	100 h	Wheel play is not permissible
8	Electro-hydraulic control unit	2	Check for leaks and integrity	100 h	
9	Jockey wheel	1	Check condition	100 h	
10	Tensioning device of conveyor belt	2	Retension	When slipping	Refer to section 5.3.1
11	Drawbar	1	Check for wear	100 h	
12	Conveyor belt	1	Check for wear and running in the centre	100 h	Replace if necessary
13	Side wall rubber, front wall rubber	2	Check for wear	100 h	Replace if necessary

5.3 Maintenance work

 **WARNING**

Unexpected restart of the disc spreader

Unexpectedly restarting, sharp-edged components can cause the most serious injuries.

- ▶ Switch off the disc spreader prior to maintenance work and secure it against being switched on again. To do this, disconnect the hydraulic plug connections at the towing vehicle.



 **CAUTION**

Sharp-edged parts

Parts that have become sharp-edged due to material removal can injure hands.

- ▶ Wear protective gloves during maintenance work.

5.3.1 Tensioning the conveyor belt

If the conveyor belt slips, it must be retensioned with the tensioning device.

 **ATTENTION**

If the conveyor belt is tensioned too much or unevenly, the service life of the conveyor belt will be shortened.

- ▶ Tension the tensioning device on both sides of the conveyor belt at the same time.
- ▶ Do not tension the tensioning device too much.

1. Loosen the counter nut (Fig. 50/2) on both sides of the conveyor belt.
2. Turn the nut (Fig. 50/1) clockwise half a turn at a time (evenly on the right and left side of the conveyor belt).
3. Repeat step 2 until the conveyor belt is tensioned again.
4. Tighten the counter nut (Fig. 50/2).

 **ATTENTION**

The conveyor belt must not touch the side of the belt frame, otherwise it will be damaged.

5. Operate the conveyor belt without spreading material and check if the conveyor belt is running in the center.
6. If the conveyor belt is not running in the center, readjust the conveyor belt, refer to section Fig. 55.

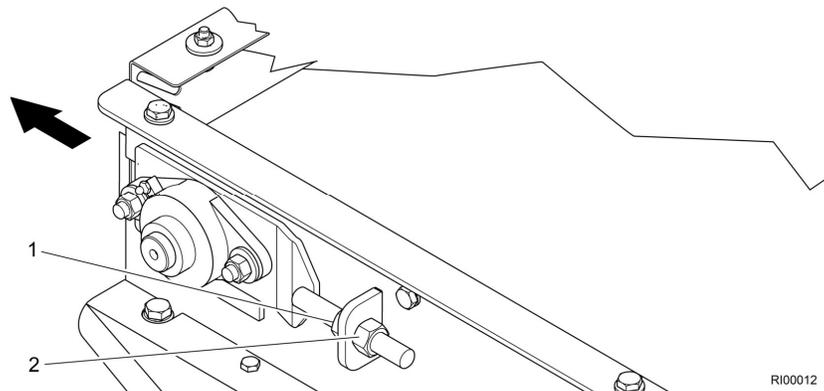
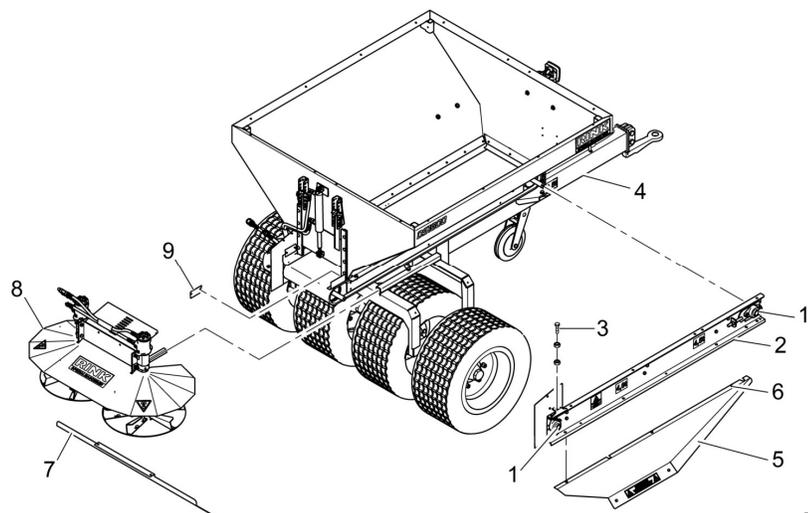


Fig. 50 Tensioning the conveyor belt

5.3.2 Removing and installing the conveyor belt (when empty)

1. Ensure that the hydraulic connections are no longer connected to the towing vehicle or to the external oil supply unit (optional).
2. Remove the spreader unit (Fig. 51/8). To do this, loosen two bolts (Fig. 51/3) and pull out the spreader unit to the rear, either together with an assistant or with a suitable aid.
3. Remove the wheel cover (Fig. 51/5) on the right-hand side. To do this, loosen and remove the bolted connections (Fig. 51/6).
4. Remove the spreader disc splash guard (Fig. 51/7). To do this, loosen the bolted connection from the underside of the conveyor unit and remove it.
5. Remove the rubber cover (Fig. 51/9) on the right-hand side. To do this, loosen and remove the bolted connections in the right-hand side part of the spreader chute.
6. Remove the bolted connections of the hopper to the conveyor unit on the right-hand side.
7. Attach the hopper to a lifting device and secure it against falling.
8. Remove the tension rings of the two bearings (Fig. 51/1) in the right-hand conveyor unit.
9. Remove all bolted connections of the right-hand conveyor unit to the chassis (Fig. 51/4).
10. Carefully pull the right-hand side part (Fig. 51/2) with fitted bearings (Fig. 51/1) off the deflection rollers of the conveyor belt.
11. Pull the conveyor belt from the deflection rollers.
12. Assembly is done in reverse order.



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Fig. 51 Installing and removing the conveyor belt

Tensioning the conveyor belt conveyor belt (when empty)

1. Mark a section of 1000 mm length on the newly installed, still un-tensioned conveyor belt.
2. Tension the conveyor belt as described above in steps 1 and 2 until the marked area has stretched to 1003 mm.
3. Allow the conveyor belt to run in for approx. 30 minutes. If the conveyor belt is running in the center, no further action is required. If the conveyor belt is running off-center and brushing against the conveyor unit, adjust the conveyor belt, refer to section Fig. 55.

5.3.3 Readjusting the conveyor belt (when empty)

1. If the conveyor belt is running to the left, for example, and is brushing against the left side of the conveyor unit, loosen the counter nut (Fig. 52/2) on the left side of the conveyor belt.
2. Gradually turn the nut (Fig. 52/1) half a turn clockwise.
3. Tighten the counter nut (Fig. 52/2).
4. Operate the conveyor belt without spreading material and check if the conveyor belt is running in the center.
5. Repeat step 1 to step 4 until the conveyor belt is running in the center.

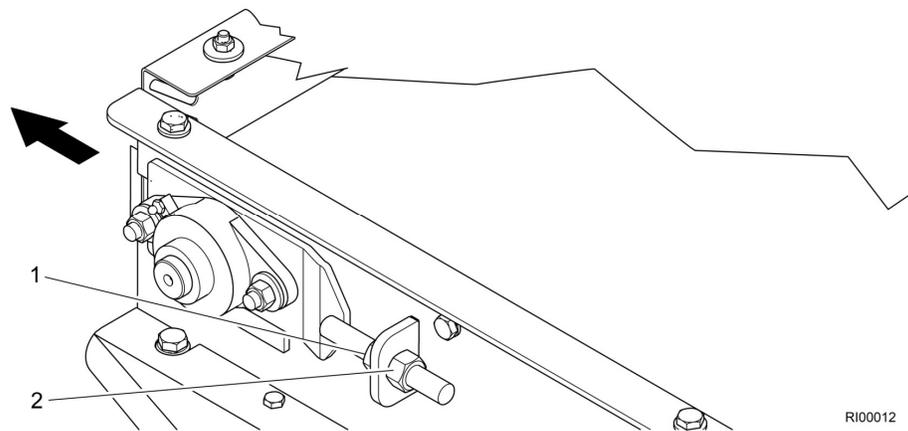


Fig. 52 Readjusting the conveyor belt

5.3.4 External oil supply unit

Oil change on the slip-on pump (every 100 operating hours)

1. Unscrew the breather screw (Fig. 53/7).
2. Loosen the drain plug (Fig. 53/8) and drain the oil.
3. Screw in the filler screw (Fig. 53/7) with a new seal.
4. Rotate the pump 180 degrees. Replace the seal on the sight glass (Fig. 53/9).
5. Fill in oil **SAE85-W140** at the drain (Fig. 53/8) up to the height of the sight glass (Fig. 53/3).
6. Screw in the drain plug (Fig. 53/8) with a new seal.

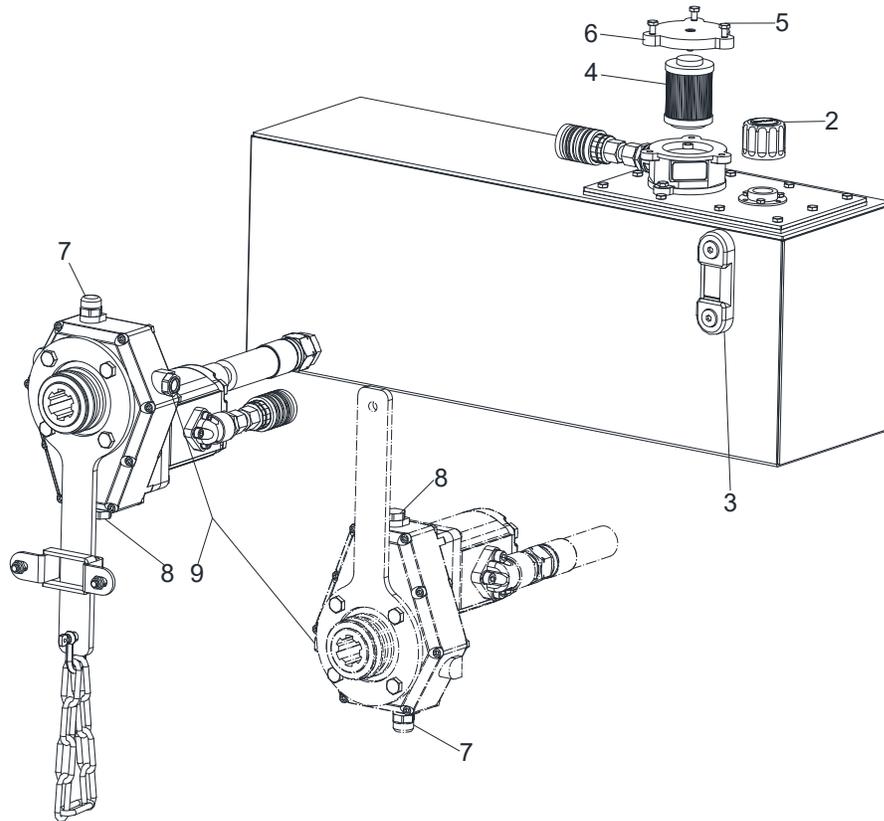


Fig. 53 External oil supply unit DS1200, DS1600, DS3100

Oil change on the hydraulic tank (as required)

1. Loosen the hose (Fig. 53/1) and drain the oil.
2. Re-attach the hose (Fig. 53/1).
3. Remove the cap (Fig. 53/2) from the filler filter.
4. Fill in **Plantosyn 3268 ECO** (Fig. 53/3) up to the middle height of the sight glass.
5. Close the cap (Fig. 53/2).

Filter change on the hydraulic tank (when changing oil or as required).

1. Remove the cover (Fig. 53/6) by loosening the screws (Fig. 53/5).
2. Replace filter element (Fig. 53/4).
3. Reassemble cover (Fig. 53/6) with screws (Fig. 53/5).



ATTENTION

This is a closed hydraulic circuit. To prevent possible contamination prevent:

- ▶ Replace return filter (Fig. 53/4) every 100 operating hours.

5.3.5 Oil supply unit DS3800

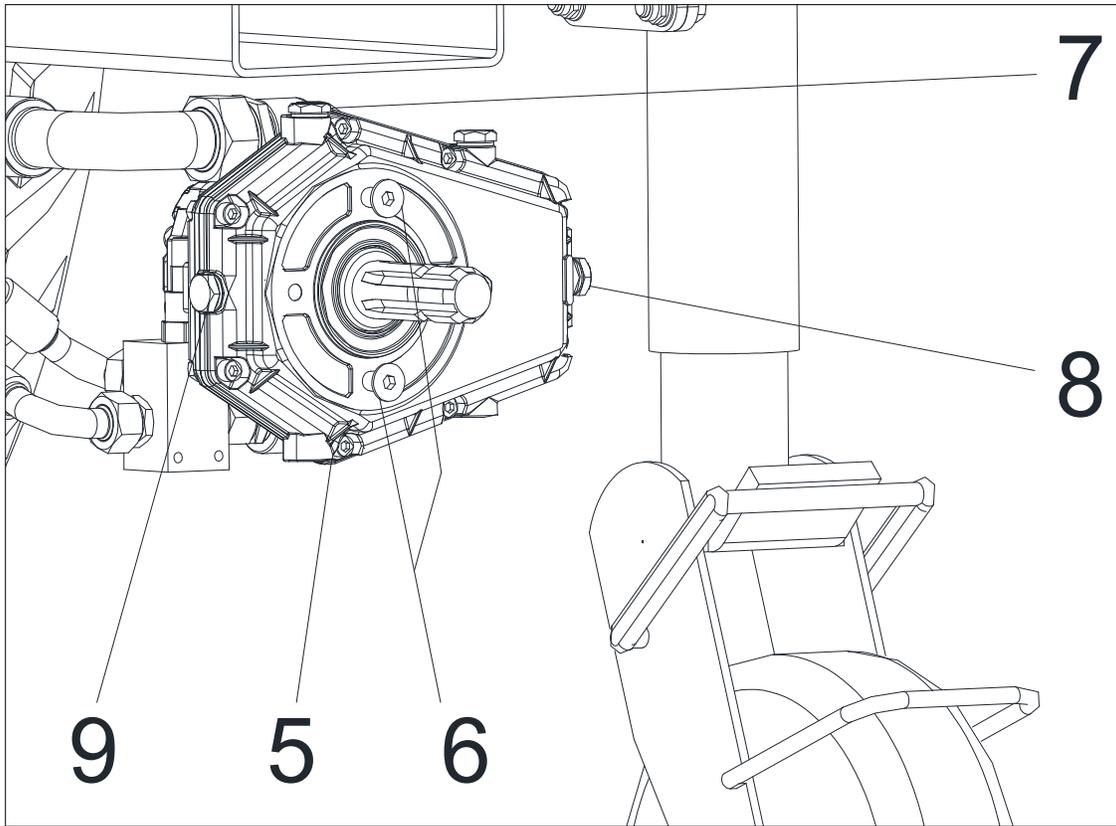


Fig. 54 hydraulic pump unit DS3800

Changing the oil on the PTO pump (every 100 operating hours)

1. Unscrew the vent screw (Fig. 54/7).
2. Loosen the drain screw (Fig. 54/8) on the side and drain the oil.
3. Disassemble the PTO pump, turn it 90 degrees and drain the remaining oil.
4. Screw in the drain screw (Fig. 54/8) with a new seal.
5. Install the PTO pump and fill with **SAE85-W140** oil at the filler opening (Fig. 54/7) up to the level of the sight glass (Fig. 54/9).

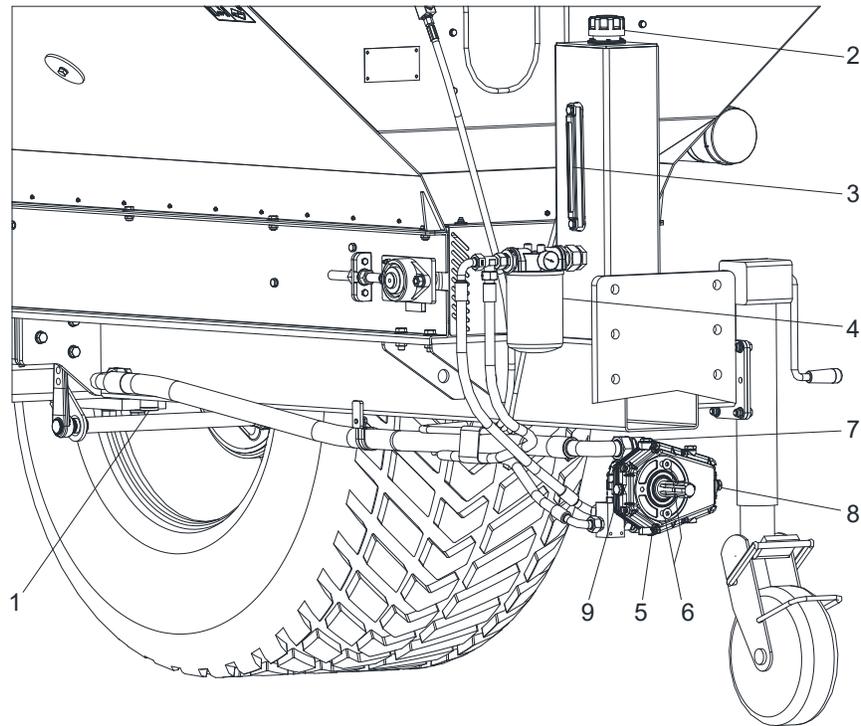


Fig. 55 hydraulic pump unit DS3800

Changing the oil in the hydraulic tank (as required)

1. Loosen the screw plug (Fig. 55/1) and drain the oil.
2. Screw the screw plug (Fig. 55/1) back on.
3. Remove the cap (Fig. 55/2) from the filler filter.
4. **Fill in Plantosyn 3268 ECO** up to the middle of the sight glass (Fig. 55/3).
5. Close the cap(Fig. 55/2).

Changing the filter in the hydraulic tank (when changing the oil or as required)

6. Unscrew the filter cartridge (Fig. 55/4) and dispose it.
7. Screw in the new filter cartridge (Fig. 55/4)

 ATTENTION

This is a closed hydraulic circuit. To prevent possible contamination, prevent:

- Replace return filter (Fig. 55/4) every 100 operating hours.

6 Storage

Store the plate spreader only in a covered and dry place.

Carry out the following measures before storage:

1. Clean the disc spreader.
4. Carry out maintenance work.
5. Oil metal parts with multifunction spray.

7 Transport

For transport, the disc spreader is hitched to the towing vehicle. Transport on public roads is only permitted with road approval (TÜV) and the lighting system must be connected.

2. Hitch up the disc spreader, refer to section 4.2.2.

Drive to the site of operation with the disc spreader hitched up. Do not exceed the maximum permissible speed of the disc spreader, refer to section from 3.3

8 Faults, causes, remedy

If possible, remedy faults according to the fault table. If the fault cannot be remedied, contact Rink Spezialmaschinen GmbH:

Phone +49 (0) 7520 95690

Fax +49 (0) 7520 956940

E-mail: info@rink-spezial.de

Disc Spreader DS1200, DS1600, DS31000, DS3800 Operating Instructions

Fault	Possible cause	Remedy
Hydraulic Gate does not Open	Hydraulic connection not connected correctly Return flow must be pressure less!	Check hydraulic connector plugs
- in almost empty state	Transport speed of conveyor belt too low	Increase transport speed, refer to section 4.5
Spread width is too narrow	Spreader discs rotating too slowly	Increase the rotation speed of the spreader discs, refer to section 4.5
Spreading material height is too thin	Not enough material in the spreader unit	Increase the spreader gate opening. To do this, enlarge the shutter opening, refer to section 4.5.4
	Spreader disc speed too high	Reduce spreader disc speed, refer to section 4.5
	Transport speed of conveyor belt too low	Increase transport speed, refer to section 4.5
Spreading material height is too thick	Too much material in the spreader unit	Reduce the spreader gate opening. To do this, reduce the shutter opening, refer to section 4.5.4
	Spreader disc speed too low	Increase the speed of the spreader discs, refer to section 4.5
	Transport speed of conveyor belt too high	Reduce transport speed, refer to section 4.5
Spread pattern uneven	Adjustment of the throwing vanes not correct	Adjust the throwing vanes, refer to section 4.5.4
Flow rate uneven	Transport speed of conveyor belt too low	Increase transport speed, refer to section 4.5
Conveyor belt does not start	Conveyor belt is slipping	Tension the conveyor belt, refer to section 5.3.1
Hydraulic system is not working	Hydraulic lines not or not correctly connected	Check the connections of the feed and return lines. If both were connected, switch the connections of the feed and return lines

9 Disposal

The disc spreader is made of high-quality materials and also contains recyclable materials such as steel and rubber.

NOTICE

Dispose of these materials separately and in accordance with the legal requirements for waste disposal or recycling in force at the time of disposal at the place of use.



ATTENTION

Hydraulic oil can contaminate soil, sewage system or water.

- ▶ Dispose of hydraulic oil properly and in accordance with the applicable regulations.

Disc Spreader DS1200, DS1600, DS31000, DS3800 Operating Instructions