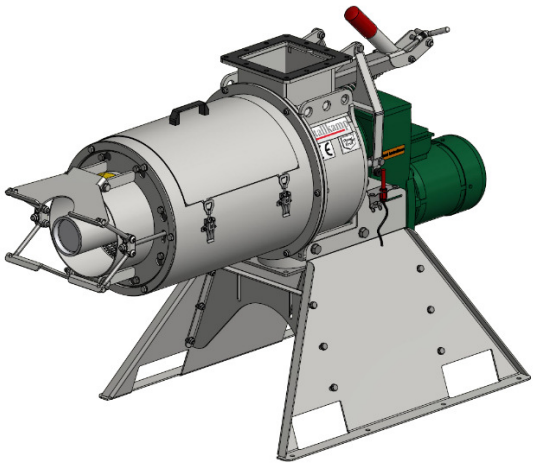
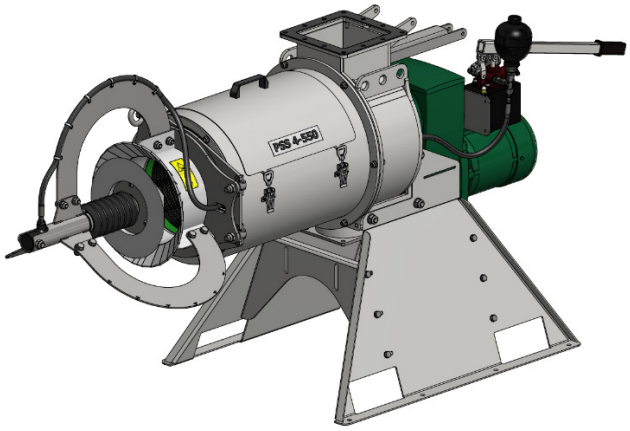
Stallkamp

OPERATING MANUAL

Press screw separator

PSS 4-550-M1301





Document no.: 8500205 Version: March 2013

Space for notes:

General information

- **The technical specifications, weights and measures are to be considered approximate and not binding.**
- **Pictures are for illustration purposes and can deviate from the actual product.**

Date saved: 12.02.2016 07:21:00
Date printed 12/02/2016
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2 DECLARATION OF CONFORMITY PURSUANT TO MACHINERY DIRECTIVE 2006/42/EC (ORIGINAL, GERMAN VERSION)

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Product name: Press screw separator PSS-M1301

Type: PSS 4-550-M1301; 4.0 kW;

We hereby declare that the products listed above conform to the pertinent regulations of the EC Directive:

Machinery Directive 2006/42/EC

including all amendments and conform to the pertinent regulations of the Directive on electromagnetic compatibility:

EMC Directive 2004/108/EC

The following harmonised standards have been applied:

EN ISO 12100-1:2003, Safety of machinery - Basic concepts, general principles for design - Part 1: Basic terminology, methodology

EN ISO 12100-2:2003, Safety of machinery - Basic concepts, general principles for design - Part 2: Technical principles

EN 60204-1:2007-06, Safety of machinery - Electrical equipment of machines; Part 1: General requirements

EN 61000-6-1:2007, Electromagnetic compatibility (EMC) Part 6-1: Generic standards – Immunity for commercial environments

EN 61000-6-2:2005, Electromagnetic compatibility (EMC) Part 6-2: Generic standards – Immunity for industrial environments

Dinklage, dated 12. February 2016

Erich Stallkamp, Managing Director

This declaration is not an assurance of characteristics in the sense of the German law on product liability. The safety instructions provided in the product documentation must be observed. If any conversions or modifications are made to the product, this declaration shall lose its validity with immediate effect.

3 GENERAL INFORMATION

Our devices are developed according to the current state of technology, manufactured with great care and subject to a continual quality control. This operating manual should help you to get to know the device and to employ its proper operational possibilities.

The operating manual contains important notices in order to operate the device safely, appropriately and cost-effectively. It is necessary to observe the operating manual to ensure the reliability and high durability of the device and to avoid hazards.

The operating manual does not take local, on-site requirements into consideration; the operator is solely responsible for ensuring that these are observed, including by external installers.

3.1 Designation of notices in the operating manual

In the operating manual, safety references warning of dangers to persons are identified with the general hazard symbol according to DIN 4844-W9.

In the operating manual, warnings about electrical voltage are identified with the safety signs according to DIN 4844-W8.

All other notices which might restrict the functional reliability of the device or represent a danger for the machine if not observed are marked with the word:

ATTENTION!

This machine unit may not be operated beyond the values defined in the technical documentation with respect to conveying liquid, delivery flow rate, speed, density, pressure, temperature as well as motor power output or other instructions contained in the operating manual or contract documentation. If you have any queries, please consult the manufacturer.

The rating plate displays the most important operating data and the machine serial number. We request that this always be specified in the event of enquiries, subsequent orders and when purchasing spare parts.

Provided that additional information or notes are required or in case of damage, please contact our local field sales employee or contact us directly.

3.2 Unauthorised conversion and spare part manufacture

Conversions and modifications to the devices and their machine units are only permissible with the explicit approval of the manufacturer. The use of non-"original spare parts" abrogates all liability.

4 SAFETY

This operating manual contains fundamental information which must be observed during installation and operation as well as when performing maintenance work on the device.

It is therefore absolutely necessary that the installer as well as the responsible qualified personnel and operator read these instructions before installation and commissioning, and that they are continually available at the location where the machine is operated.

Not only the safety instructions in this operating manual must be observed, but also the warning signs and regulations of the respective professional association in the latest version.

4.1 Qualification of the personnel

The personnel performing the operation, maintenance, inspection and installation must be appropriately qualified for this work.

Area of responsibility, competence and the monitoring of the personnel must be precisely regulated by the operator. If the necessary skills are not available to the personnel, then they should be appropriately trained and instructed.

Furthermore the operator must ensure that the operating staff fully understands the contents of the operating manual.

4.2 Dangers if the safety instructions are not observed

Failure to observe the safety instructions can endanger persons as well as the environment and the machine. Failure to observe the safety instructions results in the loss of all claims for damages.

Specifically, failure to observe instructions can, for example, result in the following hazards:

- Failure of important functions of the device or plant.
- Endangerment of persons due to electrical, mechanical, chemical or other exposure.
- Endangerment of the environment due to leakage of hazardous materials.

WARNING SIGNS

Observe all notices and warning signs. Dangerous gases can escape when agitating the liquid manure.

DANGER OF POISONING!

If the liquid manure is stored below slatted floors, the presence of persons in buildings during agitation or pumping is only permissible with sufficient ventilation. Therefore windows and doors must be open and the ventilator set to full power.

4.3 Safety-conscious work

Observe all safety instructions presented in this operating manual, the existing national regulations for accident prevention as well as possible internal work, operation and safety regulations of the company at all times.

Safety instructions for the operator and attendant:

- ✓ If hot or cold machine parts can pose a hazard, then these parts must be protected on site against contact.
- ✓ Contact protection for moving parts may not be removed while the machine is in operation.
- ✓ Any leakage of dangerous materials must be conducted away so that there is no endangerment to persons and environment. Observe statutory provisions.

4.4 Safety instructions for maintenance, inspection and assembly work

The operator has to ensure that all maintenance, inspection and installation work is carried out by authorised and qualified personnel.

Fundamentally, all work on the machine can only be carried out when the machine is at a standstill.

Directly after completion of the work, all safety and protection equipment must be reattached or made functional.

5 GUARANTEE

This section contains the general particulars for the guarantee. Contractual agreements are always treated with priority and are hereby not rescinded. The period of guarantee is a component of Stallkamp's general terms and conditions. Agreements deviating from this must be specified in writing in the order confirmation.

5.1 General

Stallkamp is obligated to repair every defect to products sold by Stallkamp under the condition:

- ✓ that it is a quality defect of the material, manufacture or design;
- ✓ that the defect is reported in writing to Stallkamp or the Stallkamp representative within the period of the guarantee;
- ✓ that the product is employed exclusively in the specified operating conditions described in the operating manual and employed for the intended purpose;
- ✓ that the monitoring device integrated in the product is correctly connected (temperature protection);
- ✓ that genuine Stallkamp parts are used.

5.2 Exclusion of liability

No guarantee or liability is assumed for damage to the device if one or several of the following points are applicable:

- A faulty configuration of the device on our part because of inadequate or incorrect information from the ordering party or operator;
- Failure to observe the safety instructions, regulations or the necessary requirements in this operating manual which apply according to German law;
- Installation, disassembly or repair of the device not in keeping with the regulations;
- Inadequate maintenance;
- Possible chemical, electrical or electrochemical influences;
- Wear and tear.

Since maintenance has an influence on the safety and functional capability of the device, it is an integral component of the guarantee. The operator of the device is obligated to have the manufacturer himself or a service approved by the manufacturer perform maintenance work according to the regulations of the manufacturer, including the necessary changing of oil and the repair and replacement of wearing parts. The operator is thus obligated to maintain a maintenance and revision list, which facilitates monitoring of the mandatory inspection and maintenance work **(see Point 14)**.

We expressly emphasise that this device is a fluid flow engine in which the protective coating is exposed to constant wear from the abrasive contents of the medium being pumped and should consequently be classed as a wearing part. Wear, damage and secondary damages which result from external influences on the protective coating are expressly excluded from the guarantee. The use of devices and/or the field of application and reliability for the application must be verified by the operator and does not form part of the guarantee.

The liability of Stallkamp thereby excludes any liability for personal damages, material damages or financial losses.

The manufacturer reserves the right to modify the performance, specifications or configuration data without prior information.

6 PRODUCT DESCRIPTION OF PSS-M1301

6.1 General description

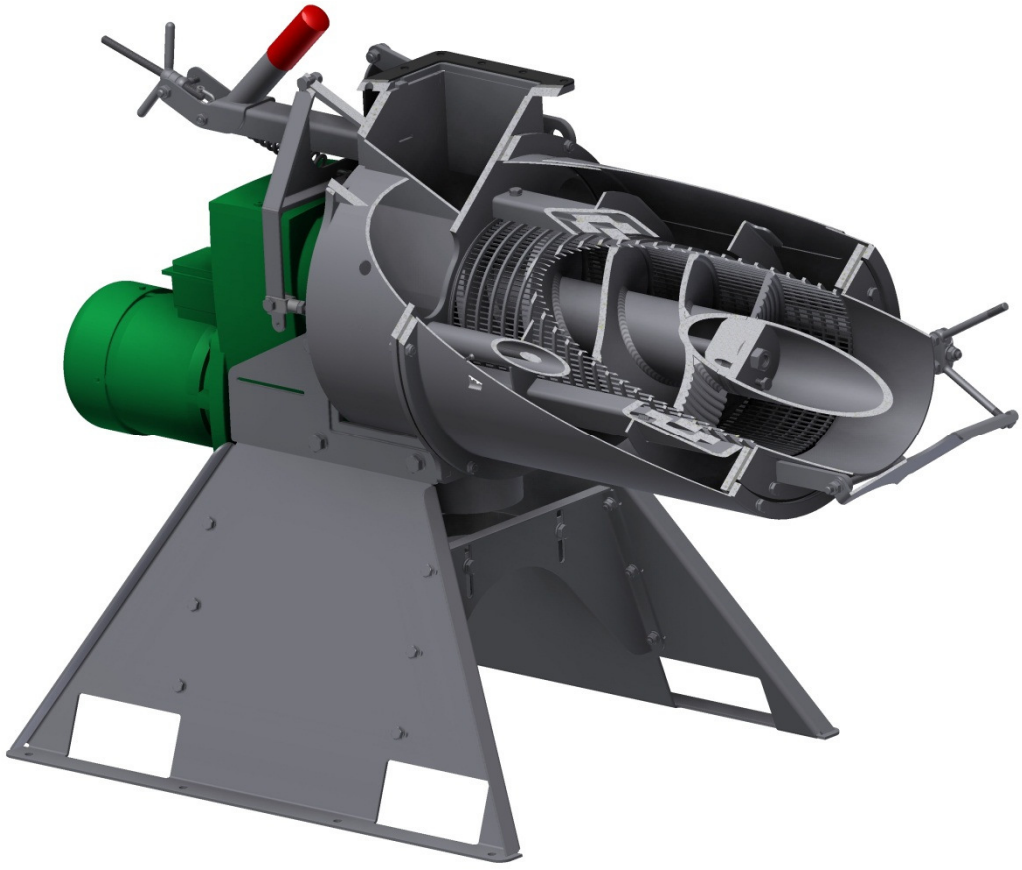
This operating manual applies to the standard model of the Stallkamp press screw separators. The separator must not be operated in explosive environments.

Press screw separator PSS 4-550-M1301 comprising:

- Stainless steel separator housing
- Right-threaded and double-threaded press screw made of V2A 1.4301 stainless steel, hardened with tungsten carbide coating.
- V2A 1.4301 stainless steel sieve basket with defined clearance
- Drive motor 400/690V, 50 Hz, 4.0 kW, 28 rpm
- Temperature of medium being separated up to max. 50°C -> separation without restrictions as long as the motor is not running in the overload range.

6.2 Functional principle

The Stallkamp press screw separator separates solid and liquid fractions from thick and thin raw liquid.



The raw liquid enters the separator via the inlet port. The horizontally aligned screw conveys the raw liquid to the sieve basket. Gravity then forces the liquid fraction of the raw liquid to pass through the sieve basket, where it collects in the housing and is returned to a tank via the outlet port.

The solid fraction of the raw liquid in contrast remains in the sieve basket. The rotating screw collects this fraction from the sieve basket and conveys it to the outlet. A small clearance between the sieve basket and the screw guarantees thorough cleaning of the sieve basket. The solids conveyed to the outlet are squeezed by the adjustable counterpressure of the press flaps or pressing cone in order to extract any remaining liquid from the solids.

The precipitator efficiency and the throughput depend on the following factors:

- The nature of the raw liquid
- The selection of the sieve basket mesh width/type
- The setting of the press flaps or pressing cone pressure
- The nature of the sieve and the screw

6.3 Proper use of the PSS-M1301

The separator is designed for a wide range of applications in which the solid and liquid fractions of pumpable mixed substances need to be separated, for example in the processing of cattle slurry and pig slurry or biomass where the solid and liquid fractions of a solid-liquid mixture need to be separated with the objective of:

- reducing the volume of the natural fertiliser;
- reducing the offensive smell when spreading fertiliser;
- recovery of the solid fraction for litter or fertiliser;
- composting the solids;
- recovery of the liquid for biogas plants with dry fermentation;
- reducing the nutrients for sprinkling of the liquid.

The separation depends on the solid fraction and the viscosity of the liquid.

6.4 Technical data

Press screw separator PSS-M1301 comprising:

- Separator type: separator PSS-M1301
- Threephase motor: 400/690 V, 50 Hz, 3 ph., 1440 rpm
- Protection category: IP55
- Insulating category: F = 155°C
- Motor power output: 4.0 kW, 4-pole
- Nominal current: 8 A
- Gearbox seal: Radial shaft seal ring
- Press screw: Ø 260 mm, incline 250-260 mm, 28 rpm.
- Sieve basket: V2A, 1.4301, clearance 0.35 / 0.50 / 0.75 / 1.00
  optional HD sieve (reinforced) for solids with DM content > 28%
- max. operating pressure: 0.2 bar
- Dimensions: 1630 mm x 760 mm x 1020 mm Separator with flaps
  2000 mm x 760 mm x 1120 mm Separator with hydr. conical head
- Weight: 350 kg

6.5 Type plate PSS-M1301

The type plate displays the most important power and specification data:

Figure 1

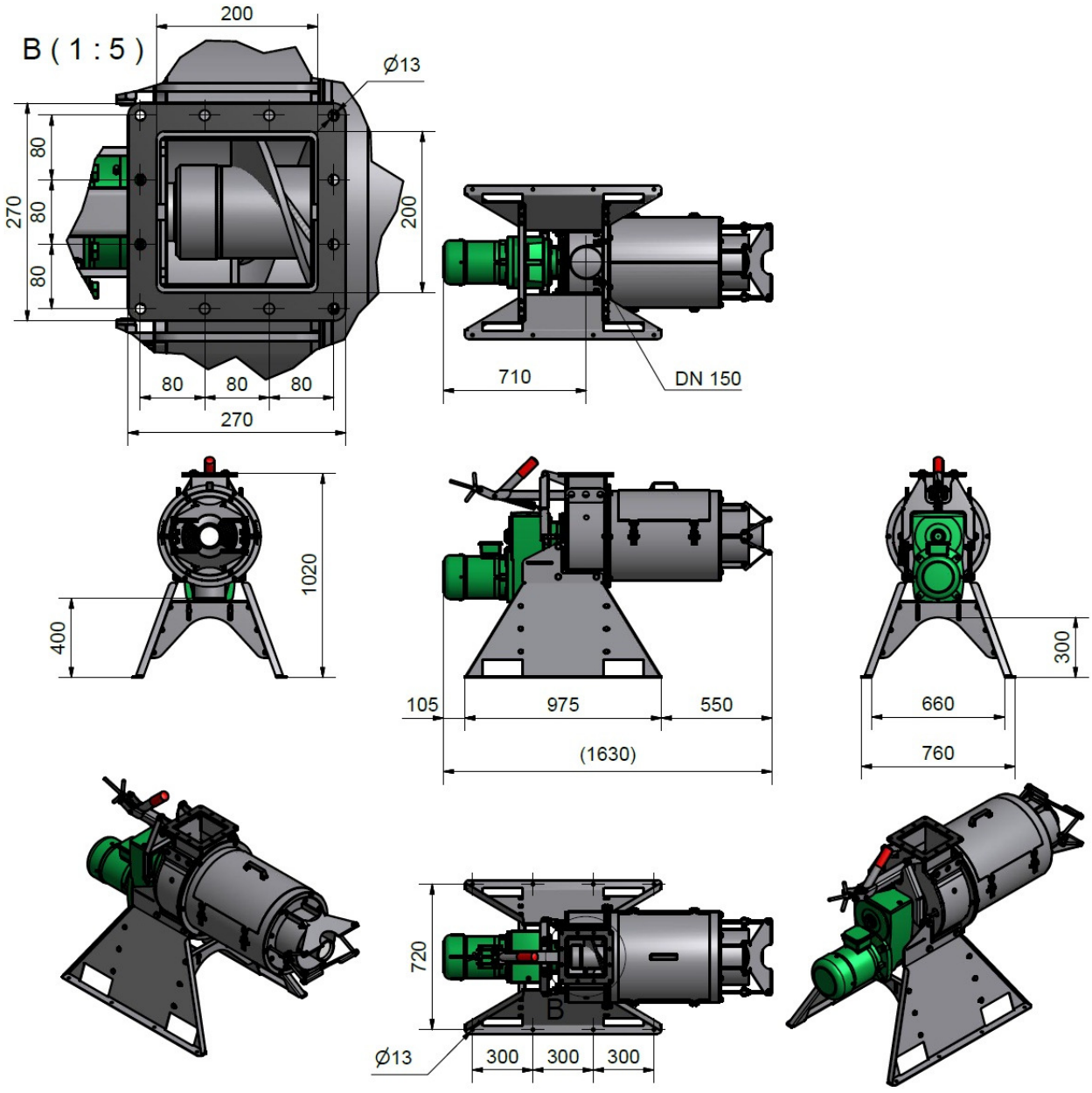
Classification: (e.g. PSS 4-550)

Motor/serial number: (e.g. 0301/000032)

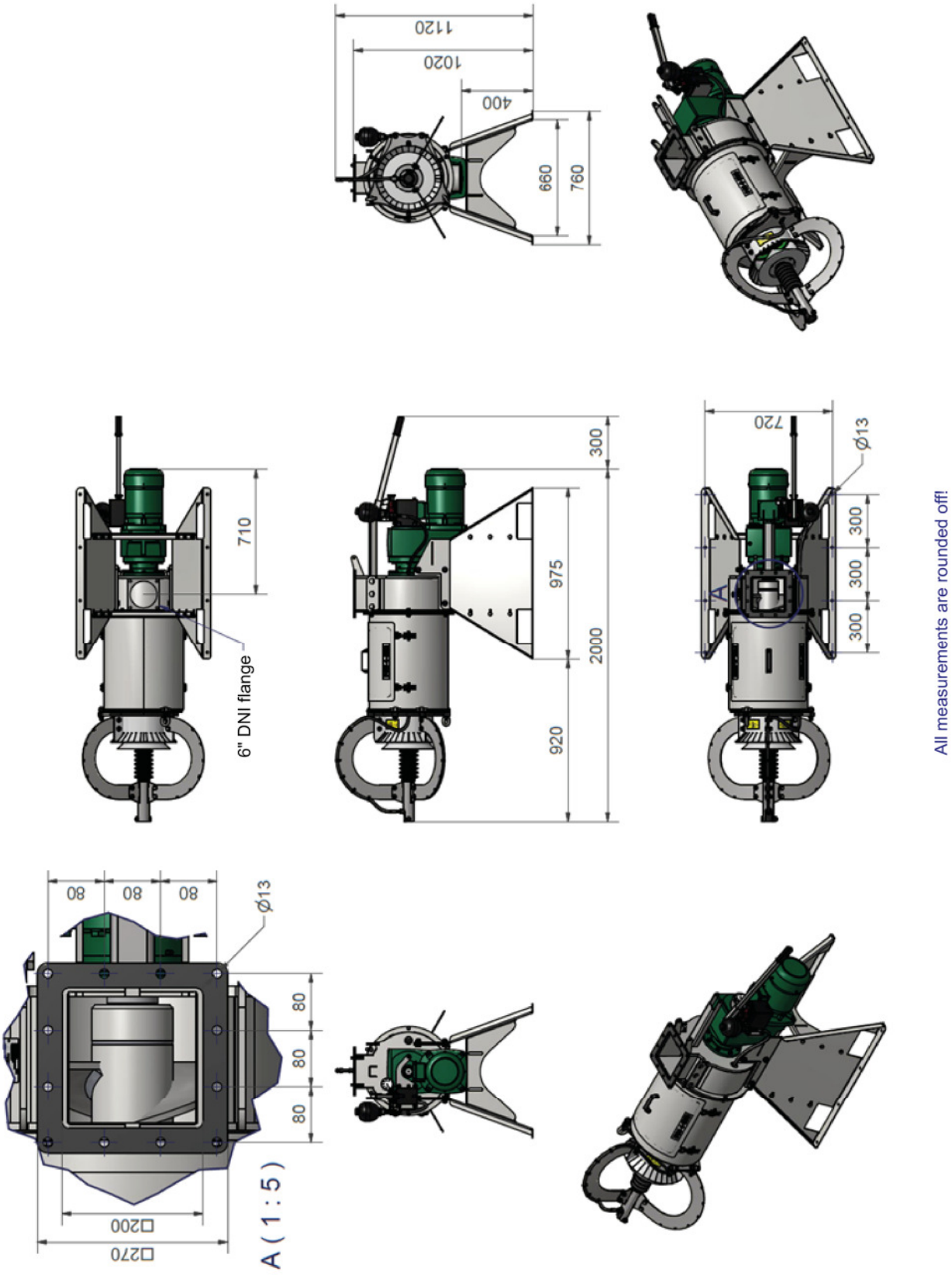
Year of manufacture: (e.g. 2014)

In case of technical queries about the device, the above type plate data must be specified

7 DIMENSIONS OF THE PSS 4-550-M1301



All measurements are rounded off!


1120
1020
400
660
760
710
6" DNI flange
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2000
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All measurements are rounded off!
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8 INSTALLATION OF PSS-M1301

8.1 Scope of delivery

The Stallkamp separator is delivered completely assembled. The supply and disposal lines are connected up by the customer. The following components can be optionally delivered with the separator:

- Switch box for separator and optional pump
- Nozzle bar
- Nozzle bar control
- Hopper incl. float switch
- Infeed pipe fitting with overflow pipe fitting

8.2 Set-up and installation

8.2.1 Transport

To allow safe transport, the separator is equipped with fastening holes and lifting slots for forklift trucks. Please use appropriate means of transport for installation (crane, forklift truck, telehoist load lugger, chains, belts, etc.) in order to guarantee safe installation.

8.2.2 Installation site

The installation site for the separator must comply with the following criteria:

- The separator must be firmly anchored in order to avoid unintentional movement or tilting.
- If the separator is being installed on a frame, the statics must be sufficient for the separator and if applicable the tank when completely full.
- Sufficient access must be permitted for adjustments and maintenance work. It is recommended to keep a clearance of at least 1 m around the separator.
- It must be possible to expel and dispose of the solids freely.
- All disposed of liquids must be able to drain away without pressure.

8.3 Electrical connection

The electrical connection may only be carried out by a certified electrician. The VDE regulations (German Association for Electrical, Electronic & Information Technologies) must be observed. The existing mains voltage and frequency must match the data on the Type Plate of the motor.

The motor of the separator is splash-proof according to IP55. The technical connection conditions of the local energy authorities must be observed during connection. A motor protection device is a prerequisite. The feed cable must be secured in accordance with regulations.

When connecting, ensure that the motor turns in the right direction. If necessary, swap two of the phases (L1, L2, L3) with each other to switch the direction of rotation.

When using a Stallkamp control box, please observe the enclosed manual and the wiring diagram.

8.4 Drive motor

Remove the plug from the ventilation once the separator has reached its final working position. If the separator is moved, this ventilation must be blocked again.

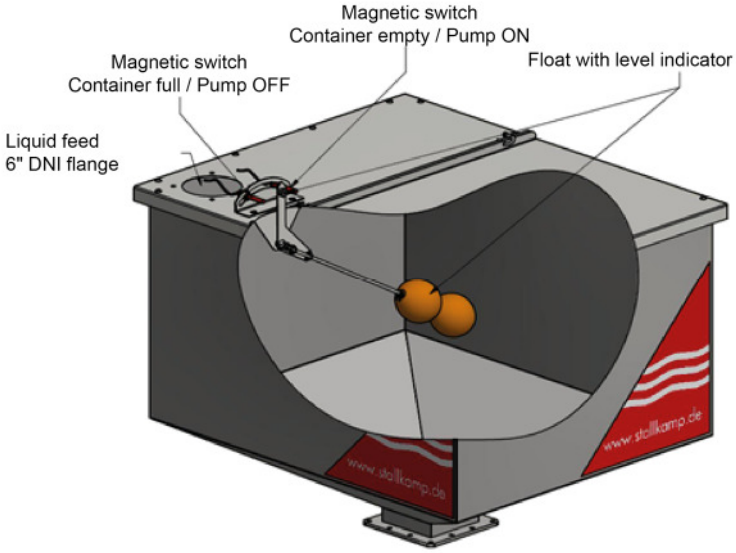
8.5 Connecting the supply and disposal lines

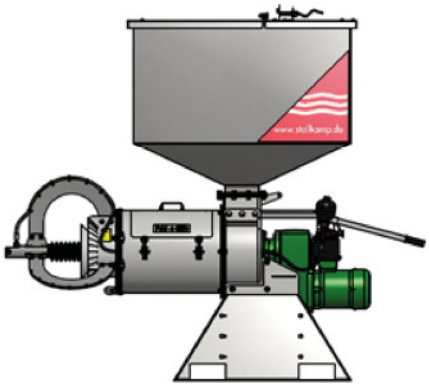
8.5.1 Supply lines

The separator may only be operated with a maximum pressure of 0.2 bar (equivalent to approximately 2 m liquid column). This can be done with a hopper or an E-A-E pipe connection.

8.5.1.1 Hopper

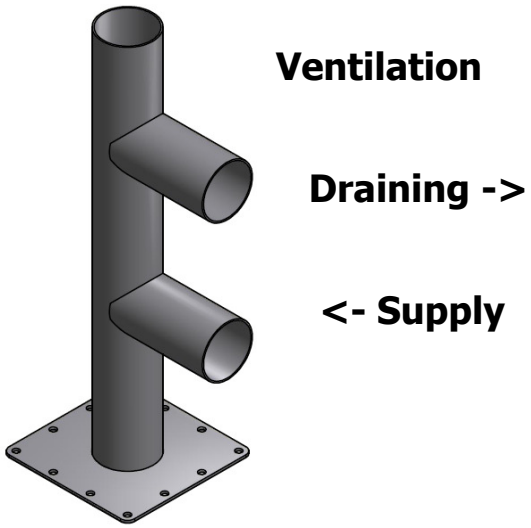
The hopper must be filled by a supply pump. To regulate the fill level, the pump is turned on and off via a float switch. The switching on and off times can be adjusted by moving the magnet switches in the slot.





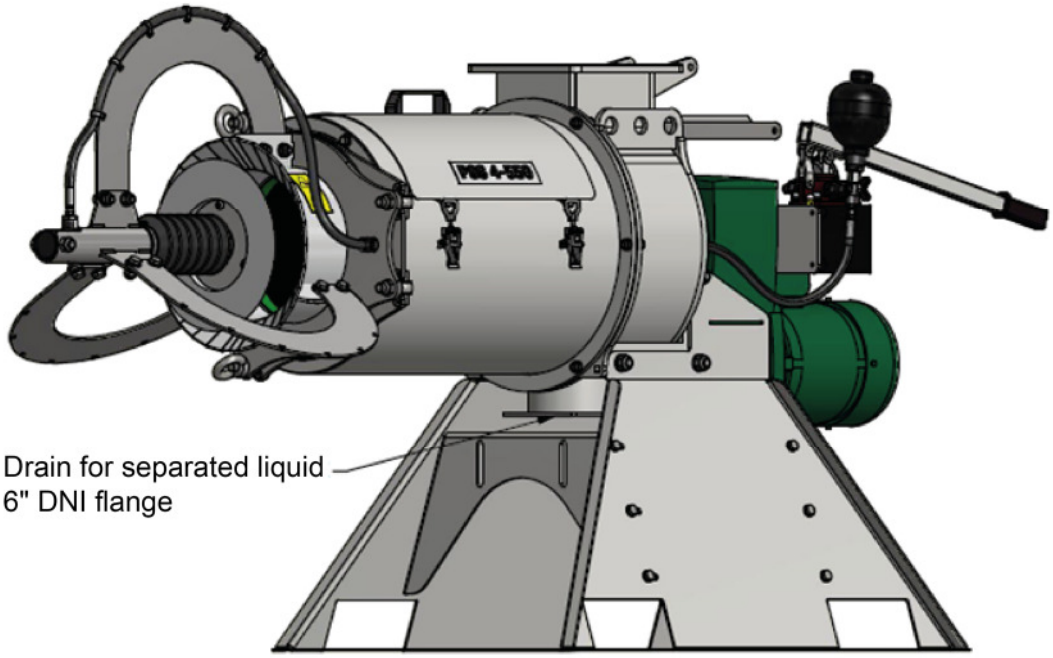
8.5.1.2 Infeed pipe fitting with overflow pipe fitting

Alternatively, the separator can also be supplied via an infeed pipe fitting with overflow pipe fitting. This is done by connecting the 4" infeed pipe fitting to the supply pump. The 4" infeed pipe fitting must feature a pressure-free return line. If liquid exits the ventilation line, the latter should be extended with a 4" tube.



8.5.2 Disposal line

The separate thin stage exits the separator via the disposal fitting.



The outlet is equipped with a 6" DIN flange.

The liquid must be unpressurised and able to drain down freely.

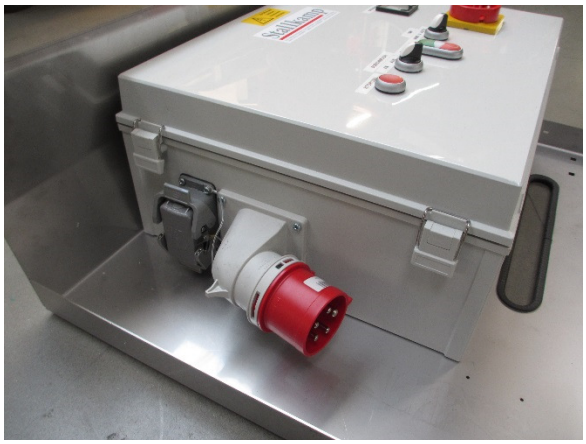
8.6 Control system

The separator can be optionally equipped with a control system. Please refer to the documents included with the control system. The control system can have the following functions:

8.6.1 Power supply / CEE plug

The control system is supplied with power from a CEE plug. Depending on the control system, it can be a 16 A, 32 A or 63 A plug. 32 A plugs also have a phase inverter (illustrated on the right).

The power supply must be protected appropriately depending on the plug!



8.6.2 Error control lamp / switch-key

The red light signals a fault. The separator cannot start if it encounters a fault. When a fault message is thrown the following errors may be present:

- Wrong phase sequence in CEE plug. Switch round the phases.
- Motor protection switch triggered. Check all motor protection switches.

If the error control lamp with an integrated switch-key lights up, there might be additional errors. After correcting the error, the fault must be acknowledged with the switch-key.

- Voltage drop
- External fault signal
- The maximum pumping time has been reached for the hopper.

8.6.3 Ammeter

The ammeter allows the current power consumption of the separator to drop and thus enables you to optimally adjust the machine if you wish to achieve a high dry matter content in the solids.

8.6.4 Start/Stop Separator

The separator is started/stopped with the double push button.

8.6.5 Break-through switch/break-through sensor

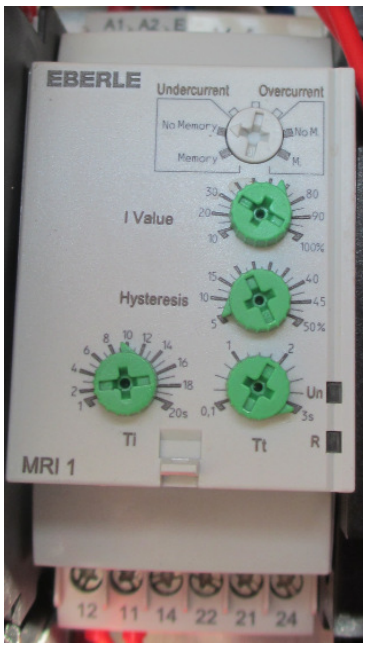
Break-through sensor

The break-through sensor measures the motor's power consumption. Too low power consumption can indicate the lack of a plug or raw liquid. To this end, the sensor must be set as follows:

- **Position** Overcurrent No M.
- **Ti** = 1 s
- **Tt** = 0.1 s
- **Hysteresis** = 5%
- **I value**

  This value must be set depending on the application scenario. This is done by firstly measuring the power consumption during operation based on the ammeter display. The I value must then be set 0.5 to 1 A lower. In this respect, 0% = 0 A and 100% = 15 A. The set value should, however, not be lower than 25% or higher than 60%. The standard values are between 30% and 50%.
  The function can be checked in operation by running the separator idly (turn off supply pumps). If the separator does not turn off automatically, the I value must be increased slightly until the separator switches off automatically.

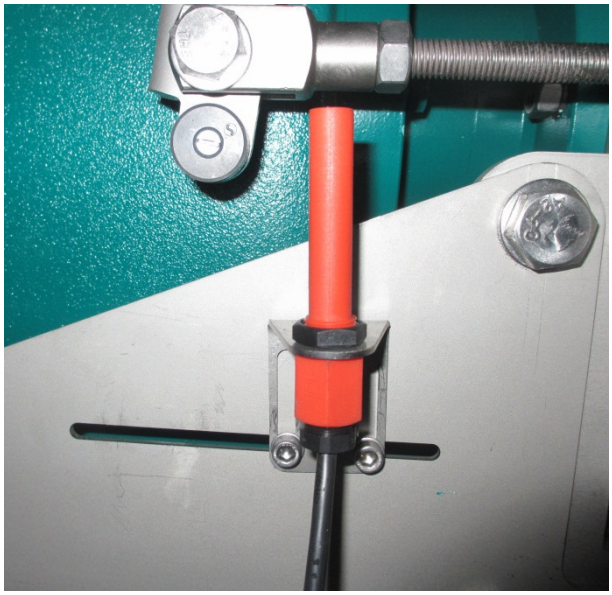
  Example:
  Measured: 7 A power consumption
  Set: 6 – 6.5 A
  ➔ I value: 40-43%



If you wish to deactivate the break-through sensor, the I values should be set to 10%.

Break-through switch (only for version with discharge flaps)

The break-through switch must be set in such way that the magnet is behind the magnet switch during operation. If the flap position is changed, e.g., by foreign bodies or the disintegration of the plug, the position of the flaps changes and an error signal is emitted.

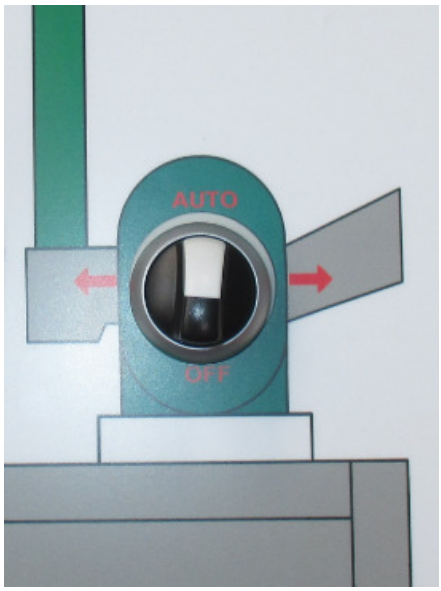


8.6.6 Pump selector switch

The pump(s) can be operated with the selector switch.

Positions:

- AUTO: The pump is controlled by float switch and when the separator is in operation.
- Manual/arrow: Pump is in continuous operation. Pump direction in direction of arrow.
- OFF: Pump deactivated.



8.6.7 Break-through switch

The break-through switch allows the bridging of the break-through switch and sensor to start up the machine.

8.6.8 Pumping time limit of the supply pump

This time relay monitors the pumping time for the hopper (only in AUTO mode).

If the supply pump runs uninterruptedly longer than the predetermined time, the control system switches to fault mode. The fault must be acknowledged with the fault lamp/switch-key.

The following settings are possible:

DIP switch: 

➔ Red potentiometer: from 0.6 to 6 minutes

DIP switch: 

➔ Red potentiometer: from 6 to 60 minutes

9 OPERATING AND COMMISSIONING THE PSS-M1301

9.1 Prior to commissioning: Safety instructions

To avoid damaging the machine and/or potentially fatal injury to persons, you have to observe the following points before commissioning and during operation:

(1) Check the separator and present accessories for optimum stability

(2) Remove foreign bodies and tools from the danger zone.

(3) Inspect all safety equipment/devices

(4) Check the oil level of the gear motor and fill up if necessary. Lubricate the bearing.

(5) Check that the supply and disposal lines are connected correctly and have no leaks. Pressure-free drainage is essential.

(6) Check the direction of rotation.

(7) Check that the motor protection switch is set correctly.

9.2 Initial commissioning

The following describes how the separator is put into operation. When using a hopper, it is recommended to only fill it completely when the separator has been fully inserted.

9.2.1 With discharge flaps

When the separator is started, a plug is required at the outlet of the separator. This can be formed naturally or artificially. If there is a plug available from a previous separation, there is no need to form a new one.

9.2.1.1 Forming your own plugs

To form a plug yourself, you have to ensure that the discharge flaps are completely closed. If so, the supply pump must be switched on for a short time (~ 10 s). In this time, the separator fills with liquid. Then the separator is switched on for approx. 1 minute until no more liquid is separated. These two procedures are repeated until a plug exits the outlet flap.

Caution, liquid can leak from the ejection head during this process!

9.2.1.2 Artificial plugs (recommended)

The artificial plug can be formed from solids like grass, corn, straw and dung. This is done by opening the outlet flap and stuffing the solids into the opening. Then the opening is closed again. Fill the separator with liquid and restart it. Pay attention to the ejection head until a solid plug has formed.

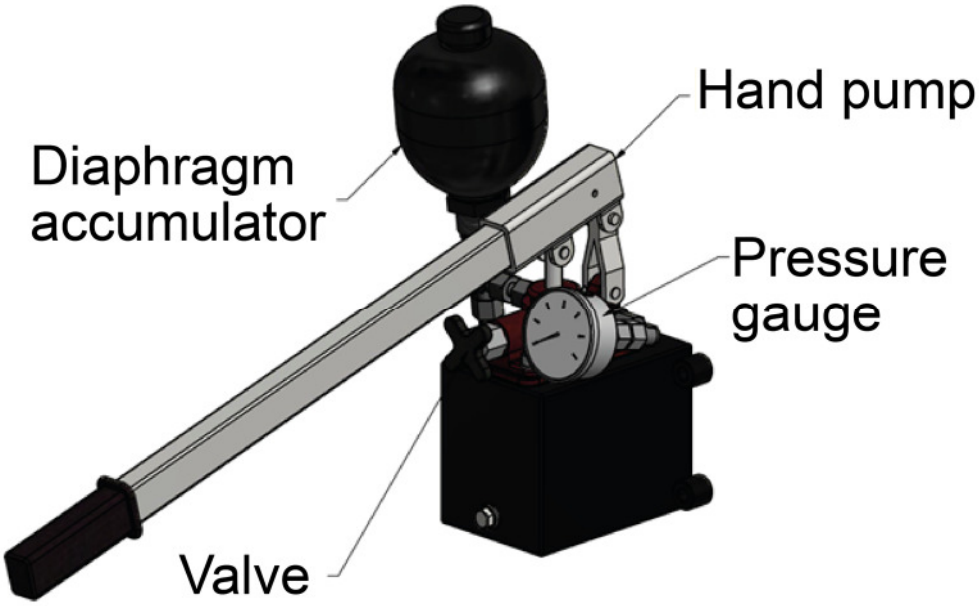
Be careful as liquid may leak out the ejection head during the process, although less than in the previous method!

Open discharge flaps with the clamping lever and fill the cavity of the outlet.

9.2.2 With hydraulic conical head

Close the valve on the hand pump. Operate the hand pump until the conical head closes and the system pressure is approx. 10 bar. Fill the separator with liquid and start it. The conical head moves after a short time and the solid comes out.

Careful as a small amount of liquid may leak out of the conical head during start-up!



9.3 Adjusting the DM content of solids

To regulate the DM content in the solid cake, you have to set the counterpressure. A higher counterpressure leads to a dry solid. If the counterpressure is reduced the moisture content in the solids increases.

Please note:

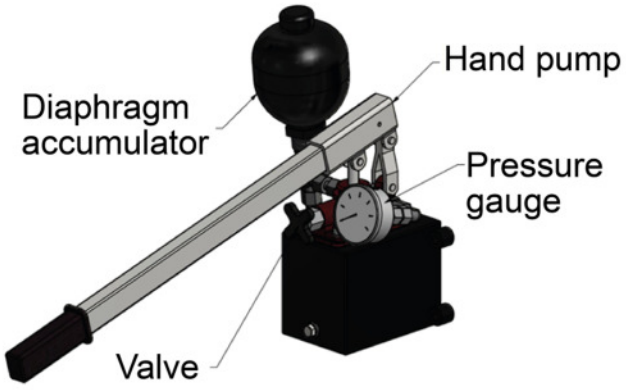
- A dry solid leads to:
  - increased wear of the sieve and press screw
  - higher power consumption. Make sure you don't exceed the maximum permissible power consumption.
  - lower throughput
- An HD sieve is required from a DM content of 28% in the solids. The use of a standard sieve at about 28% DM content in solids may cause the sieve to break!
- If too little counterpressure is applied, there's a risk of breakage at the outlet!
- The change in counterpressure decelerates the output of solids.

9.3.1 With discharge flaps

The regulation of the dry matter in the solids takes place via the adjustment screw above the motor. If it is turned clockwise, the counterpressure increases. If it is turned anti-clockwise, the counterpressure decreases.

9.3.2 With hydraulic conical head

The current counterpressure can be read on the pressure gauge. To increase the pressure, use the hand pump. To minimise the pressure, open the valve slowly and close it at the desired pressure.



9.4 Starting separation

There must be a plug in the outlet when the separation is started. If this is the case, the pumps can be switched to AUTO mode when using a hopper or continuous operation when using an inlet pipe fitting.

Pressing the start button starts the separation.

9.4.1 Break-through protection device

If the separator runs without any significant problems, the break-through protection device can be switched on. If the plug is broken or if there is insufficient supply of liquid, the separator and the supply plump are turned off automatically.

9.5 Switching off the separator

Switch off the supply pump and continue separating until the separator has no more liquid. Then switch off the separator. Turn the main switch to "0".

9.6 Winter operation and extended periods of inactivity

At temperatures under 0°C or during extended periods of inactivity (> 2 weeks), the separator should be completely cleared of liquids and fixed phases following operation. In addition, all the pumps and lines must be drained of liquids. Depending on the control, the lines and pumps may be emptied by changing the conveying direction.

9.7 Locking lever

To remove the plug from the separator quickly or to form the artificial plug, the flap can be released without changing the setting screw. This is done by moving the locking lever backwards. This releases the pressure on the springs, allowing the flap to be opened by hand. To reapply the pressure, the lever must be returned to its original position.

Attention: The locking lever may be under tension. Open slowly! Crushing hazard!

10 MAINTENANCE OF THE PSS-M1301

The specified maintenance and inspection work must be performed regularly. These tasks may only be carried out by trained, qualified and authorised personnel. The operator of the device is obligated to have the manufacturer himself or a service approved by the manufacturer perform maintenance work according to the regulations of the manufacturer, including the necessary changing of oil and the repair and replacement of wearing parts. The operator is thus obligated to maintain a maintenance and revision list, which facilitates monitoring of the mandatory inspection and maintenance work **(see 14 Maintenance and revision list for** PSS-M1301**).**

10.1 Maintenance intervals

The separator must be inspected for damage before every use. In particular the cable must be proven to be free of damage. In addition, the secure positioning of all screws and other fastening devices must be verified.

10.1.1 Recommendation: Every 14 days

10.1.1.1 Lubricate the sealing elements

The separator has a lubricating point (lubrication nipple) with an outlet which controls the seal. The seal must be lubricated with a waterproof, high-performance lubricant.

Important:

The lubrication must always be performed when the machine is running and to be specific:

1.) before use following medium and long pauses in operation (14 days to 4 weeks);

2.) after every use.

The fill level should not exceed 2-4 strokes with respect to the hand lever press.

10.1.2 Recommendation: Every 3 months

10.1.2.1 Check the power consumption at the ammeter

Power consumption is constant during normal operation. Occasional current fluctuations are caused by the consistency of the medium being conveyed. If a constantly increased power consumption is measured, contact our sales representative.

10.1.2.2 Hydraulic system visual inspection

The hydraulic system must be inspected for damages or leaks. Any existing damages or leaks must be rectified.

10.1.3 Recommendation: Every 6 months in continuous operation

10.1.3.1 Check the shaft seal

The shaft seal is a wearing part and must be replaced at the latest every 4,500 operating hours when the separator is in continuous operation. Please contact us or our responsible sales representative.

10.1.4 Recommendation: Every 12 months

10.1.4.1 Controlling the gearbox oil

The oil filling in the gearbox must be checked once annually. If oil is missing or contaminated with water or other media, the separator must be taken out of operation immediately. In this case, the oil must be changed immediately and the shaft seals must be exchanged.

10.1.4.2 Check the tightening torque of all screw connections

Every 9,000 operating hours or at least once annually we recommend checking the secure positioning of the screw connections in the scope of maintenance work. The tightening torques for stainless steel screws in Nm for different thread sizes are shown below:

(M8 = 18 Nm, M10 = 33 Nm, M12 = 57 Nm, M16 = 135 Nm, M20 = 150 Nm)

10.1.4.3 Visual inspection and cleaning of the separator

Every 9,000 operating hours or at least once annually we recommend checking the separator for damage and soiling in the scope of maintenance work. Deposits, blockages and fibrous materials adhering to the opened separator must be removed. The separator can be rinsed with a hose pipe but not with a pressure cleaner. Damaged components must be exchanged immediately. Please contact our sales representative.

10.1.5 Recommendation: Every 6 years

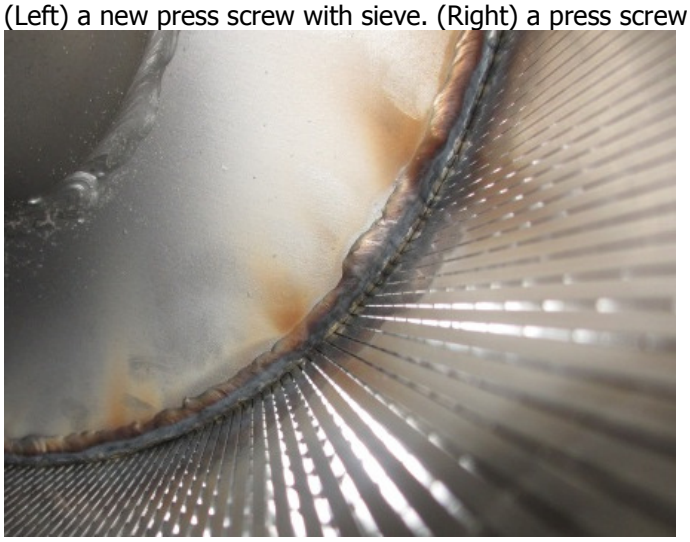
10.1.5.1 Replacing the hydraulic hose

The hydraulic hose must be replaced by a new one after a maximum of 6 years. Replacement is required if damages are noted before this period elapses.

10.2 Control of the clearance width between the screw and the sieve

The clearance width between the screw and the sieve can be controlled in the scope of a visual inspection through the outlet. If the gap between the press screw and the sieve basket is too large, it can result in reduced throughput.

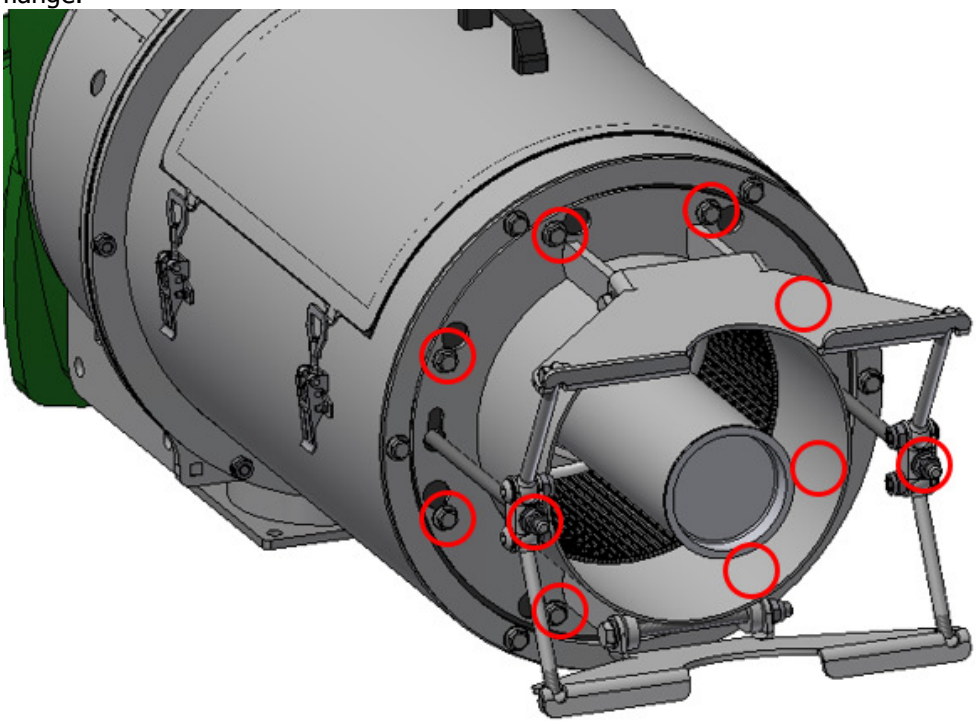
(Left) a new press screw with sieve. (Right) a press screw showing signs of wear.



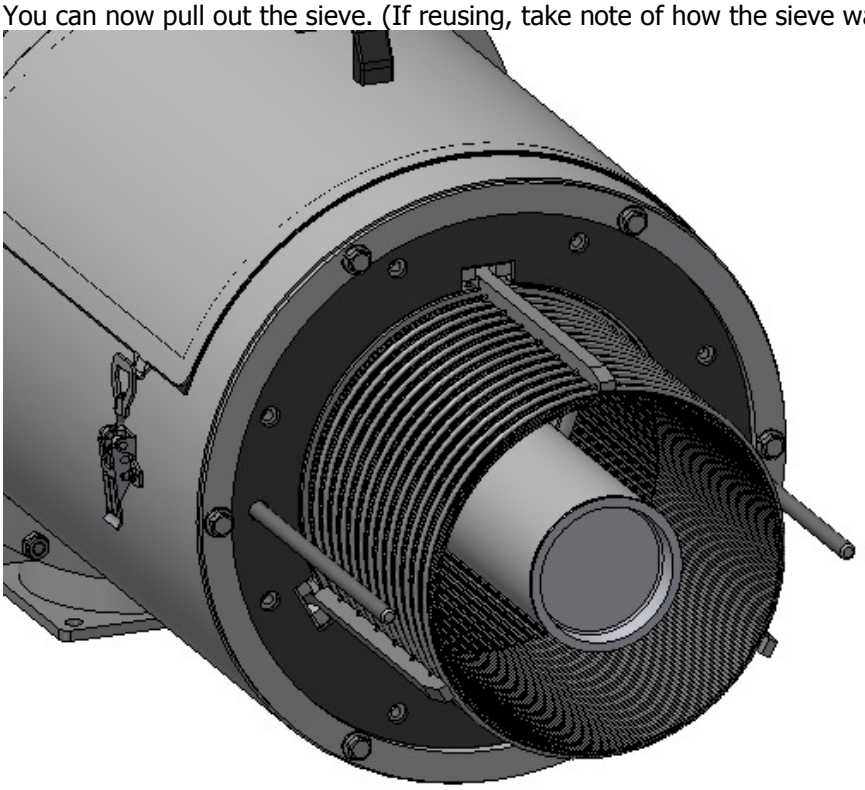
10.3 Replacing the press screw and the sieve basket (version with flaps)

To replace the press screw and/or the sieve basket, proceed as follows:
(*** These steps can be skipped when replacing the sieve basket)

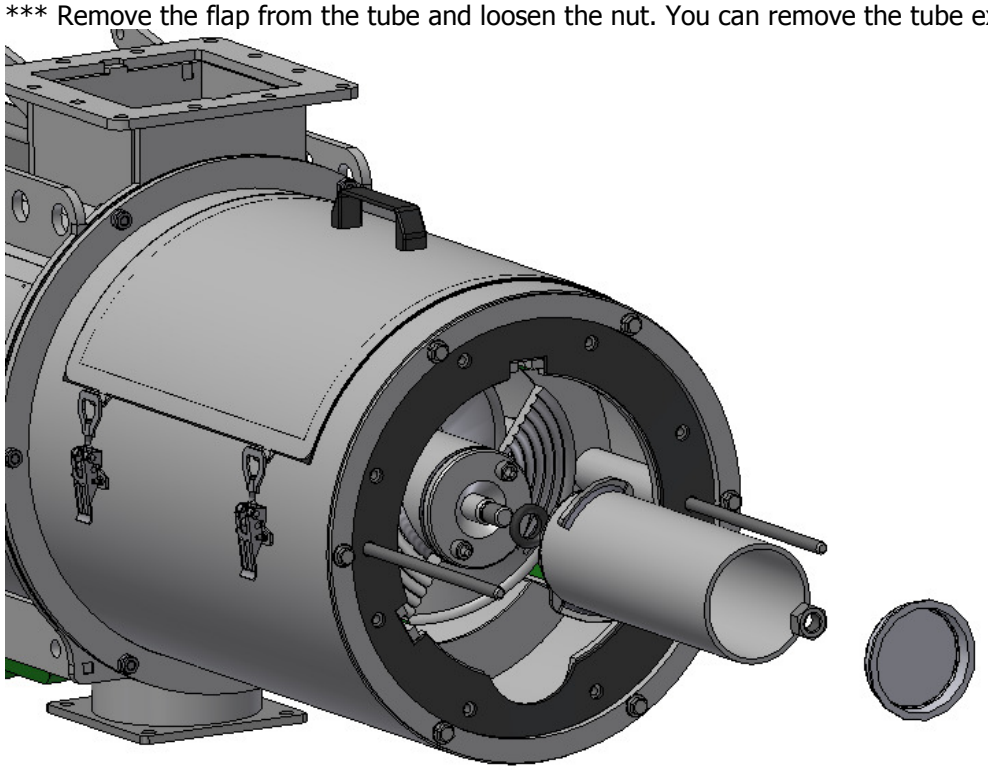
1. Switch off the supply pump and continue separating until all the liquid has been processed.
2. Slacken the flaps and allow the separator to run for approx. 30 seconds.
3. De-energise the machine.
4. Unscrew and remove the outlet by removing the two nuts on the flaps and the 8 screws on the flange.



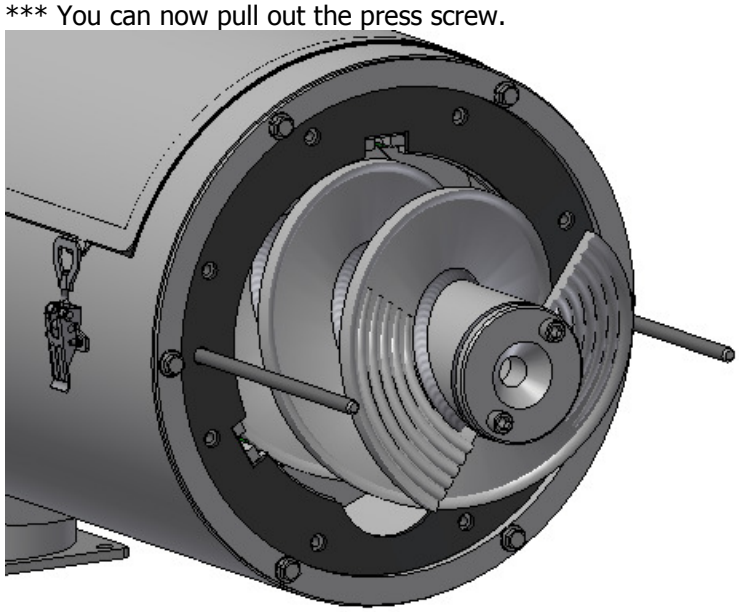
5. You can now pull out the sieve. (If reusing, take note of how the sieve was installed.)



6. *** Remove the flap from the tube and loosen the nut. You can remove the tube extension.



7. *** You can now pull out the press screw.



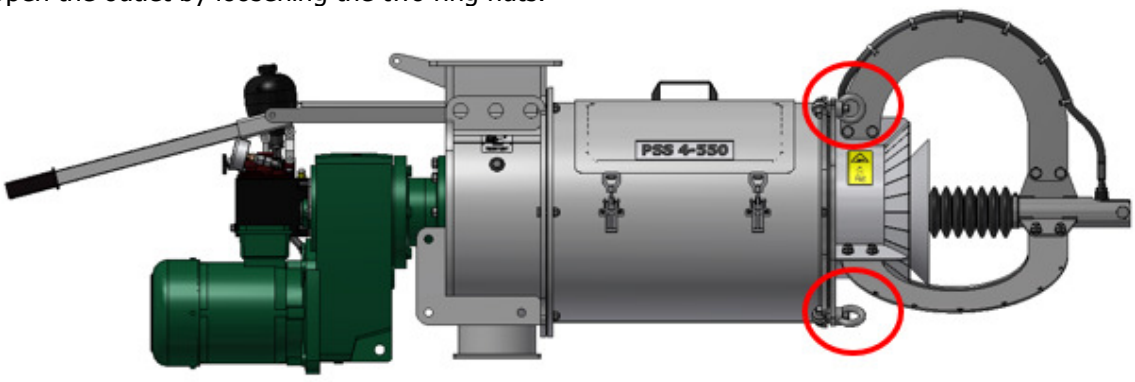
8. Clean the separator from the inside to remove any residues.
9. *** Take the new press screw. Lubricate the bearing surfaces with fitting lubricant and insert the new press screw gently. Secure the press screw again with the O-ring, tube extension and nut.
10. Slide in the new sieve. Pay attention to the installation position of the sieve. The marking must match the direction of rotation of the press screw. If the separator has a low throughput, you can turn the sieve for better performance.
    When using the old sieve, install it the same way as it was before.

11. Mount the outlet again.
12. The machine can be taken into operation again.

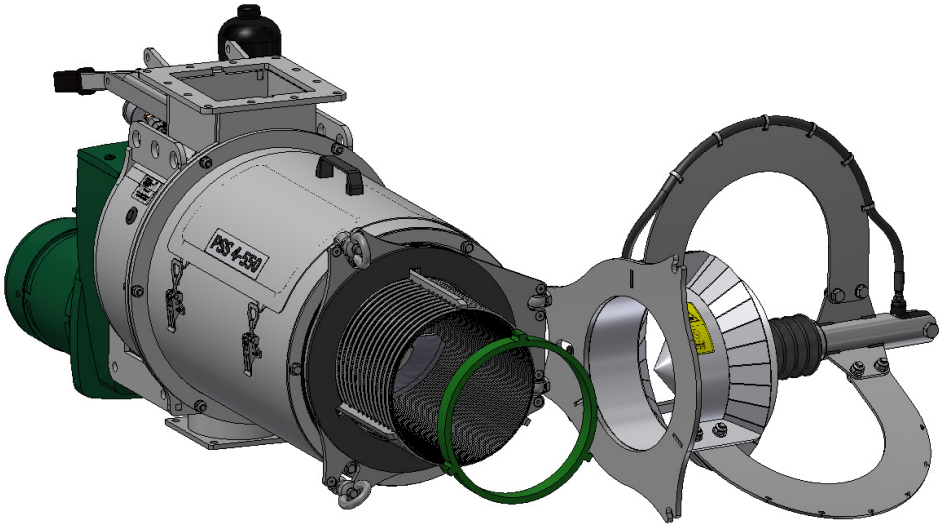
10.4 Replacing the press screw and the sieve basket (version with conical head)

To replace the press screw and/or the sieve basket, proceed as follows:
(*** These steps can be skipped when replacing the sieve basket)

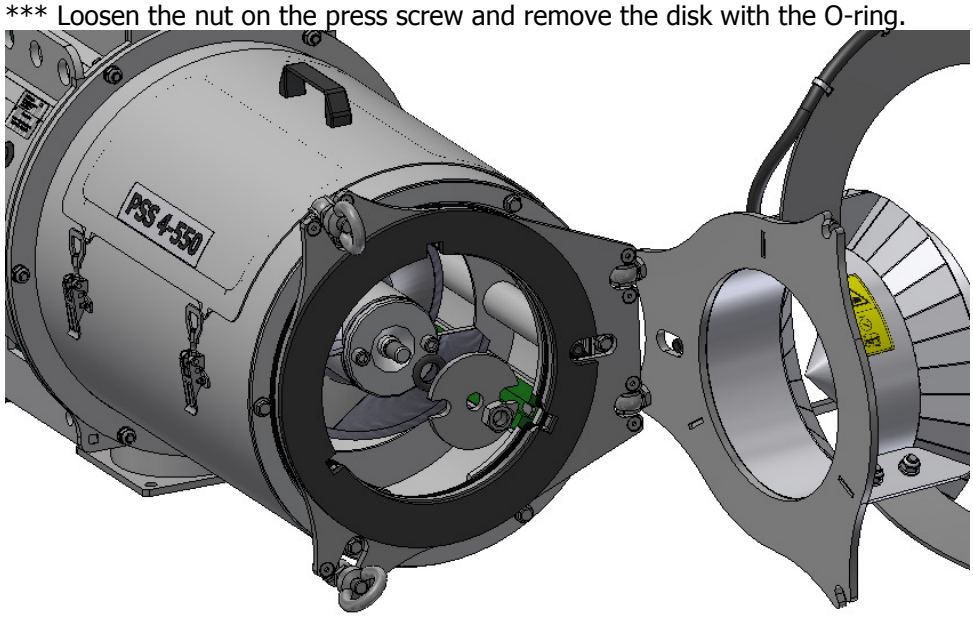
1. Switch off the supply pump and continue separating until all the liquid has been processed.
2. Relieve the pressure with the hydraulic hand pump and allow the separator to run for approx. 30 seconds.
3. De-energise the machine.
4. Open the outlet by loosening the two ring nuts.



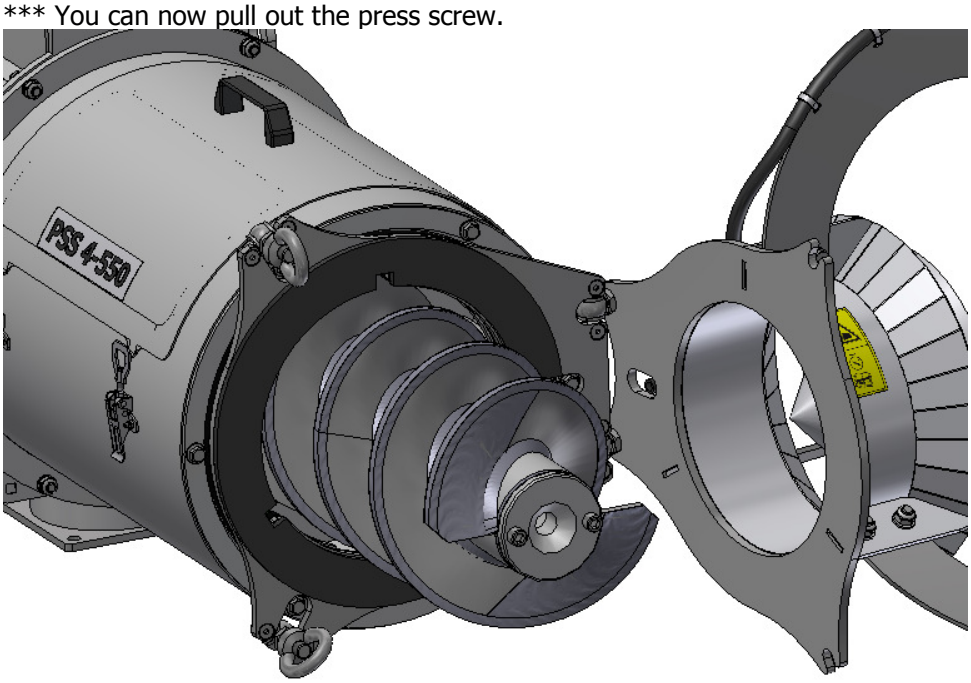
5. Remove the spacer ring. You can now pull out the sieve. (If reusing, take note of how the sieve was installed.)



6. *** Loosen the nut on the press screw and remove the disk with the O-ring.

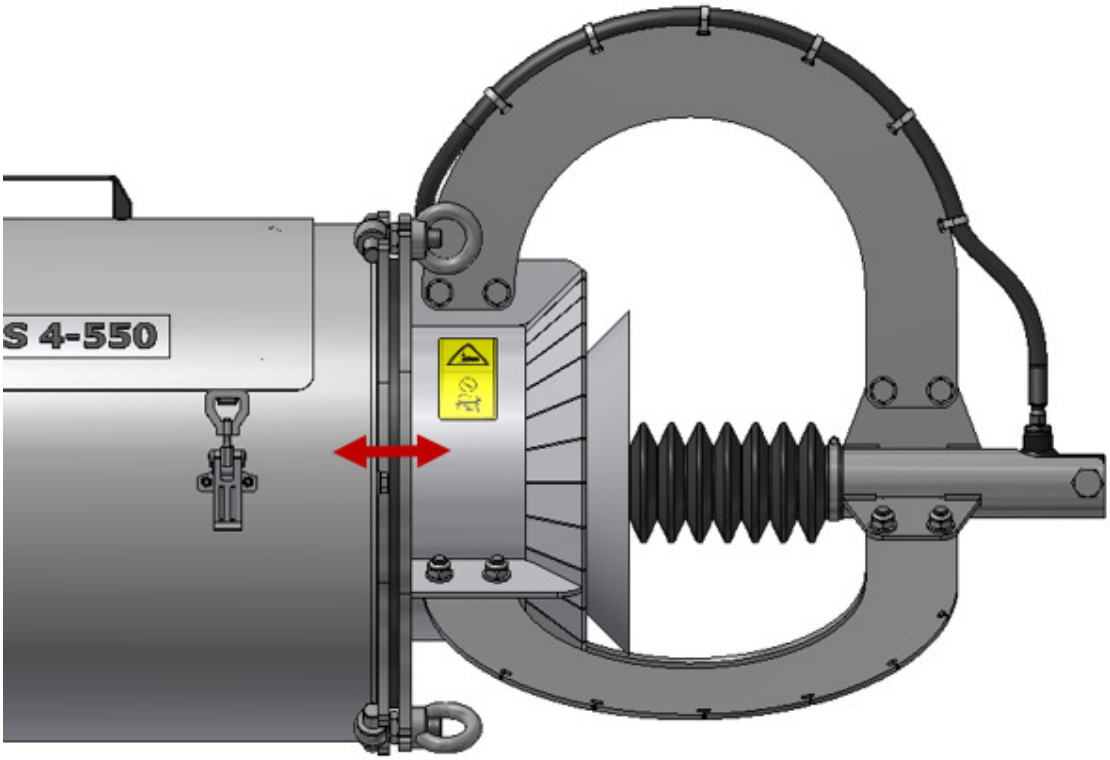


7. *** You can now pull out the press screw.



8. Clean the separator from the inside to remove any residues.
9. *** Take the new press screw. Lubricate the bearing surfaces with fitting lubricant and insert the new press screw gently. Secure the press screw again with the O-ring, disc and nut.
10. Slide in the new sieve. Pay attention to the installation position of the sieve. The marking must match the direction of rotation of the press screw. If the separator has a low throughput, you can turn the sieve for better performance.
    When using the old sieve, install it the same way as it was before.

11. Insert the spacer ring back on and close the flap. Make sure that the sieve doesn't get deformed in the process (**see 10.5 Adjusting the axial play of** the sieve)



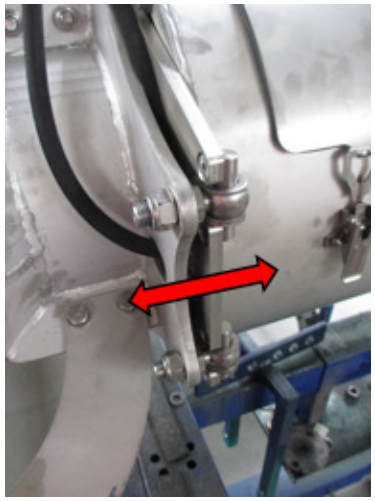
12. The machine can be taken into operation again.

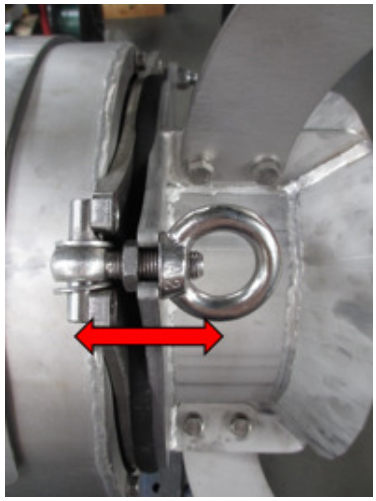
10.5 Adjusting the axial play of the sieve

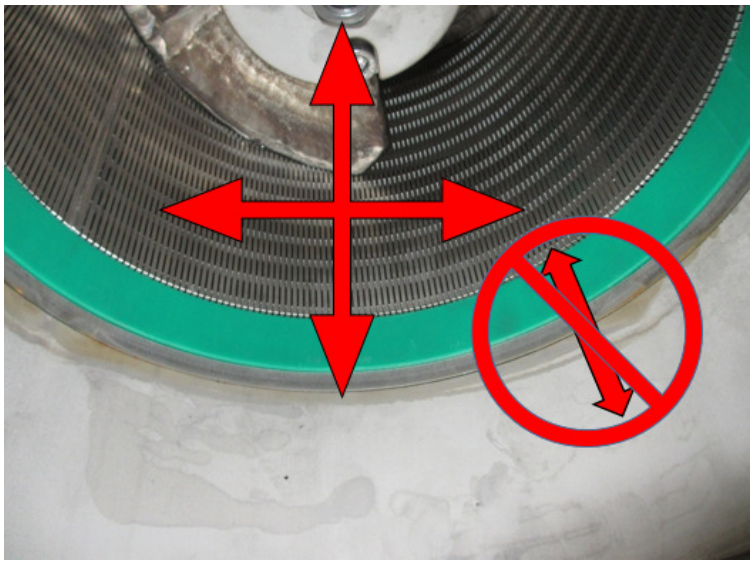
The nuts on the eye screws enable you to set the gap between the contact surface of the outlet and the spacer ring. This should be as low as possible so that the sieve does not move forward during later operation. However, the sieve must not be deformed!

A deformed sieve can lead to high wear of the sieve!

Set the gap in such way that the spacer ring can move slightly to the side, however one shouldn't be able to move it forwards or backwards.







10.6 Recommendation at end of service life

At the end of its service life, the device can be disposed of normally as scrap. The oils should be removed in advance and disposed of properly. The device is composed of various metals: steel, aluminium, copper and stainless steel. Dismantling it into the metal groups considerably increases returns.

11 NOTES

11.1 Regulation of the professional association

The following accident prevention regulations of the Agricultural Professional Association can be found in Paragraph 2.8 under "Special Provisions for Pits and Canals":

Paragraph 2.8

§ 1 Protection against falling in

(1) Pits, ditches, canals, wells and other similar pits in the house and courtyard area must be protected with railings or coverings to prevent persons falling in. If these are not deeper than 100 cm, other safety precautions can suffice.

§ 2 Openings

(1) If removal and entries openings, etc., are opened, it must be guaranteed that persons and objects cannot fall in.

(2) Pits and canals that are customarily entered must have facilities which permit risk-free entry. The openings of these pits and canals must be dimensioned in such a way to allow the rescue of any casualties.

§ 3 Entry

(1) Before entry and during the presence in pits and canals, ensure that sufficient respiratory air is present and that plant facilities are reliably protected against being switched on. The handling of naked flames is not permitted.

(2) Entry for the recovery of an accident victim is only permissible if two other persons secure the entry with a cable which is firmly anchored outside the container.

§ 4 Tanks and canals for animal faeces

(1) For tanks and canals in the open air, it must be guaranteed by suitable measures that fermentation gas cannot flow into the buildings.

(2) Closed tanks in the open air must have vent openings on opposite lying sides.

(3) If containers and canals are found in the buildings - also under slatted floors - it must be guaranteed that fermentation gases are conducted away from the buildings.

(4) If containers and canals in the buildings are furnished with agitating, pumping and rinsing plants, facilities for the removal of fermentation gases must be present which automatically switch on when the agitator and rinsing works are operating. They may only be switched off after conclusion of the work process. The gases conducted away must not endanger persons.

(5) Canals must be designed so as to avoid any unnecessary whirling up of the faeces.

(6) Operating stations for agitating, pumping and rinsing, etc., equipment must be built up over the floor.

(7) Closed rooms in which there are operating stations may not have openings to the tanks and canals.

(8) Operation instructions must be permanently attached to the operating stands.

§ 5 Removal of animal faeces from tanks and canals

(1) No smoking and no naked flames are allowed in the immediate proximity of removal openings during the agitating and removal of faeces.

(2) In the buildings in which there are open tanks and canals, the presence of persons and animals during agitation and removal is only permissible with sufficient ventilation.

§ 6 Warning signs

(1) Easily visible warning signs must be attached to openings of tanks and canals which indicate the danger of the gases.

(2) Refer to the "Information Sheet with Notice, Warning, Prohibition and Rescue Signs" of the Federal Association of Agricultural Trade Associations.

12 SPARE PARTS LIST FOR THE PSS-M1301, 4.0 KW

Separator **Drawing no.: 34-0600-6**

Item	Number	Parts no.	Description
1	2	5101364	Outlet flap on separator
2	6	5200001	Hexagon head screw M10x16 DIN 933 A2
3	6	5200003	Hexagon head screw M10x30 DIN 933 A2
4	6	5200004	Hexagon head screw M10x35 DIN 933 A2
5	20	5200012	Hexagon head screw M10x25 DIN 933 A2
6	2	5200030	Hexagon head screw M12x30 DIN 933 A2
7	2	5200032	Hexagon head screw M12x40 DIN 933 A2
8	2	5200034	Hexagon head screw M12x50 DIN 933 A2
9	6	5200040	Hexagon head screw M16x35 DIN 933 A2
10	6	5200046	Spring ring M10 mm DIN 127 A2
11	8	5200047	Spring ring M12 mm DIN 127 A2
12	2	5200070	Filister head screw with slot M6x12 DIN 84 A2
13	12	5200088	Hex nut M12 mm DIN 934 A2
14	14	5200091	Hex nut M12 mm DIN 985 A2
15	6	5200093	Hex nut M16 mm DIN 985 A2
16	2	5200098	Washer 6.4 DIN 125 A2
17	38	5200100	Washer 10.5 DIN 125 A2
18	15	5200101	Washer 13.0 DIN 125 A2
19	6	5200102	Washer 17.0 DIN 125 A2
20	4	5200145	Filister screw M12x35 ISO 7380 A2
21	2	5200152	Hexagon head screw M12x160 DIN 933 A2
22	2	5200156	Hex nut M20 mm DIN 934 A2
23	2	5200173	Filister head screw M12x20 DIN 912 A2
24	2	5200189	Filister screw M10x25 with internal hexagon ISO 7380 A2
25	8	5200220	Countersunk screw M5x16 DIN 7991 A2
26	2	5200236	Filister head screw M6x12 DIN 912 A2
27	8	5200279	Hex nut M5 DIN 985 A2
28	4	5200316	Eye screw M12x150 DIN 444 A2
29	20	5220070	Hex nut M10 mm DIN 985 A2
30	2	5240055	Thread rod M12x1000 mm V2A DIN 976
31	1	5260000	V4A NIRO shackles 6.0 mm, straight, made of 1.4401
32	1	5310023	Magnet switch MAK 2613 K1 IP67
33	1	5310024	Magnet T62 - N/S
34	1	5320078	PVC handle Ø42.4 x 110 mm red
35	1	5320102	KAPSTO conical closure type 600 B 1040
36	2	5340022	Sticker: "Red arrow"
37	2	5370049	Sticker "CE" mark, screen printing film, PVC, white
38	2	5370050	Film sticker "Stallkamp" 51x150 mm, PVC film
39	1	5370105	Sticker "Check oil level"
40	2	5370266	Sticker stainless steel
41	1	5370310	Screen printing sticker "General hazard" 50x100 mm
42	2m	5480036	Foam rubber profile, natural rubber, black 25x10 mm

43	1		Sieve Ø 260 l=550 separator
		5500861	Clearance width 0.35 - (HD 6090417)
		5500862	Clearance width 0.50 - (HD 6090418)
		5500863	Clearance width 0.75 - (HD 6090419)
		5500864	Clearance width 1.00 - (HD 6090420)
44	4	5500748	Fastener GN831.1 for separator housing
45	1	5500749	Seal for separator housing
46	1	5500750	Rubber seal for separator housing outlet
47	1	5500752	Tension spring 6.3x40x224 mm
48	1	5500759	Rubber seal for separator supply
49	1	5500775	U-shaped hold GN 528.1 black l=117 mm
50	2	5500776	Stainless steel fork head M12
51	1	5500777	Double-armed stainless steel clamping nut M12
52	1	6500991	Separator frame
53	1	6500992	Separator housing
54	1	6500995	Separator outlet pipe
55	1	6501001	Separator outlet lever
56	1	6501002	Separator outlet locking lever
57	1	6501004	Drive unit with bearing/seal
58	1	6090335	Press screw for the separator
59	1	6501008	Separator screw extension
60	1	6501054	Double eye screw M12 for separator outlet
61	3	6501055	Separator guide rail
62	1	7430007	U-clamp D=160 V2A
63	1	7500539	Opening flap 1.4301 for separator housing
64	2	7500550	Double fork for separator outlet
65	1	7500558	Threaded rod M12 l=150 for separator outlet
66	1	7500569	Left foot for separator
67	1	7500570	Right foot for separator
68	2	7500571	Intermediate support for separator foot
69	1	7500572	Flat steel 20x4x40 with thread for separator switch
70	1	7500573	Magnet switch bracket on foot
71	4	7500627	Cross dowel M12 l = 25 mm
72	1	7500630	Shaft Ø25 with thread l=585 separator

Drive unit **Drawing no.: 34-0603-6**

Pos.	Amount	Parts no.	Description
1	1	5180129	Inner ring IR 65x72x25
2	1	5180130	Inner ring IR 55x60x25
3	1	5180133	Axial thrust ball bearing 51112 60x85x17
4	1	5180134	Inner ring IR 65x72x45
5	1	5190006	Radial shaft seal ring 70x60x7 DIN 3760
6	1	5190160	O-ring 65x3.50 NBR70
7	3	5190161	Shaft seal ring 72x95x10 Form A
8	6	5210061	Hexagon head screw M12x40 DIN 933 ST, galv.
9	8	5210077	Filister head screw M12x40 DIN 912 ST, galv.
10	6	5230039	Spring ring M12 mm DIN 127 ST, galv.
11	1	5250114	Fitting key 14x9x80 DIN 6885 A
12	1	5260086	Lubrication nipple M6x1, galv.
13	1	5290379	Offset drive motor 4 kW NORD
14	1	5500720	O-ring 159x7
15	1	5600031	Safety nut GUK M45x1.5, galvanized
16	1	5700054	Fitting key 14x9x100 A DIN 6885 A
17	1	7500563	Drive shaft for separator
18	1	7500628	Housing for separator bearing
19	1	7500629	Housing for separator seal

Outlet pressing cone drawing no. 34-0693-030

Z pos.	Pc.	Parts no.	Description
1	1	5320171	Spacer ring t=15 for hydraulic head
2	1	7090556	Hinge plate - fixed side for hydr. outlet
3	8	5200076	Countersunk screw M10x35 DIN 7991 A2
5	4	7090561	Eye bolt Ø16 for hydr. outlet
7	4	5200250	Eye screw M16x60 Din 444 Form B A2
9	3	5200093	Hex nut M16 mm DIN 985 A2
10	2	5200329	Ring nut M16 DIN 582 A2
11	1	5190212	Seal for hydr. outlet t= 15 mm, EPDM, cellular rubber
12	1	5320161	Spacer ring 30 mm PE1000 Reg. green
13	1	6090378	Outlet pipe, pivoting welding part 1.4301
14	12	5200030	Hexagon head screw M12x30 DIN 933 A2
15	24	5200101	Washer 13.0 DIN 125 A2
16	12	5200091	Hex nut M12 mm DIN 985 A2
17	3	7090550	Brace for hydr. outlet
18	1	6090377	Hydraulic cylinder switch welding part 1.4301
19	1	5130227	Hydraulic cylinder 30 mm, stroke: 200 mm
20	1	5130224	Threaded adapter G3/8" to M12x1.5
21	1	5200127	Hexagon head screw M16x80 DIN 931 A2
23	1	6090379	Conical pressure disc for hydr. outlet
24	6	5200189	Filister screw M10x25 with internal hexagon ISO 7380 A2
25	2	5500917	Worm drive hose clip 50-70 mm, width: 9.0 mm

26	1	5470031	Cylindrical bellow, submerged version
27	1	5500916	PVC collar Ø 50, connection: Clamping sleeve
28	1	7090551	Bellow mounting plate for hydr. outlet
29	1	7090562	Ø300 pressing cone for hydr. outlet
32	6	5320086	T30LL cable tie, natural, 280 x 7.6
36	8	5200048	Spring ring M16 mm DIN 127 A2
38	4	5200367	Hex nut M16 mm DIN 439 A2
39	8	5200366	Countersunk screw M8x20 DIN 7991 A2
41	1	5230139	16x40 roll pin ISO 8752 / DIN 1481
43	1	5130230	Hydraulic hose S2N, metric nominal diameter 6, length: 2600 mm
46	2	5370381	Sieve pressure sticker "Warning Hand Injury" +

Hydraulic hand pump Drawing no.: 34-0603-6

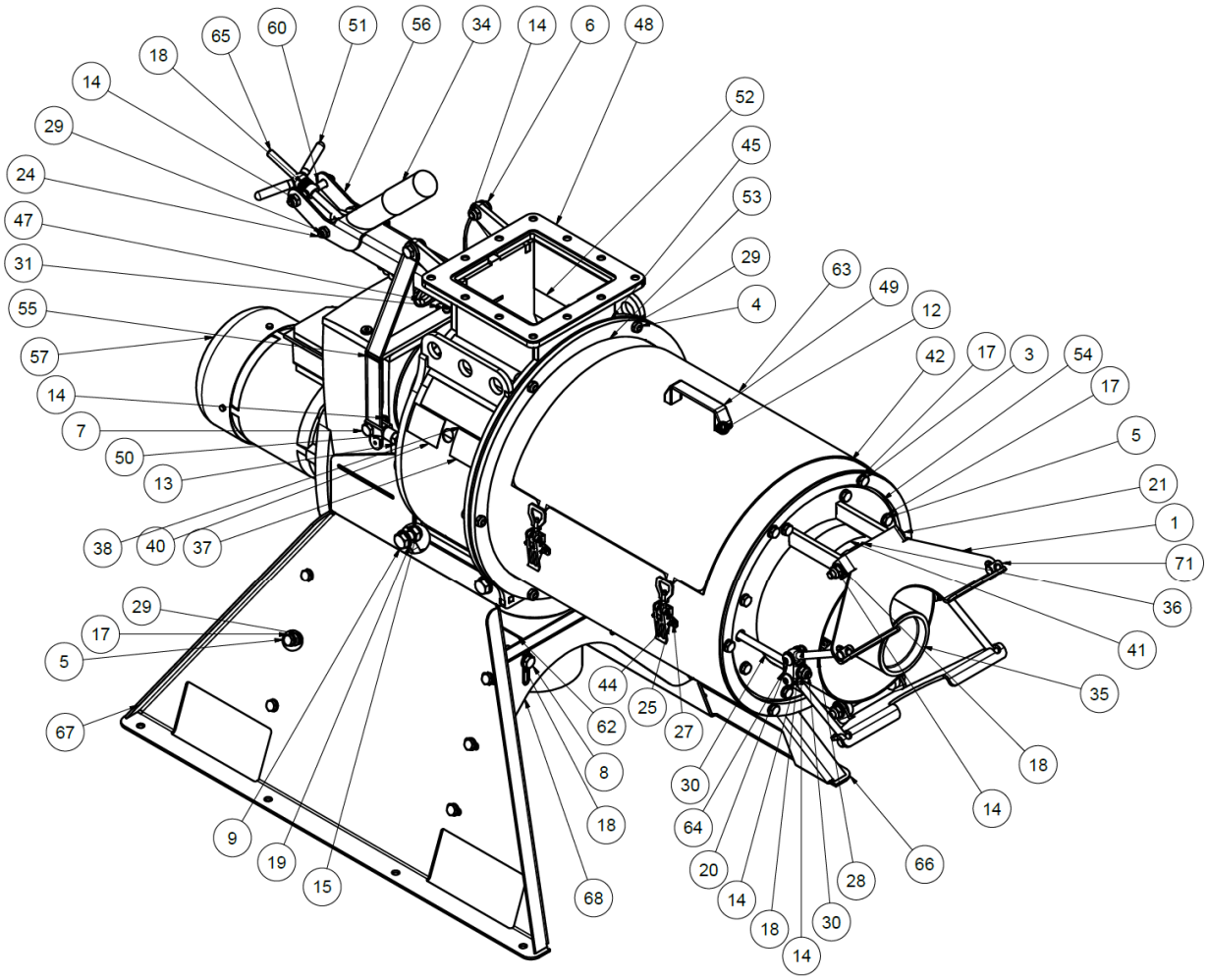
Item	ZPos	Part	Amt	Unit	Description
10	1	5130212	1	pc.	Tank for hand pump
20	2	5130213	1	pc.	Hand pump for tank installation 12.0 ccm
30	3	5130214	1	pc.	Lever for hand pump
40	4	5130216	2	pc.	G3/8" to M16x1.5 threaded adapter, steel
50	5	5130217	1	pc.	M16x1.5 90° angle threaded connector, steel
60	6	5130218	1	pc.	1/4" pressure gauge connector, steel
70	7	5130219	1	pc.	63 - 100 bar glycerine pressure gauge, scale: 0-100 bar
80	8	5130220	1	pc.	M16x1.5 L-shaped threaded connector, steel
90	9	5130221	1	pc.	M16x1.5 double nut, steel
100	10	5130222	1	pc.	G1/2" to M16x1.5 threaded adapter, steel
110	11	5130223	1	pc.	Threaded reducer M16x1.5 to M12x1.5, steel
120	12	5130215	1	pc.	0.5l, 210 bar diaphragm accumulator incl. filling to 5 bar

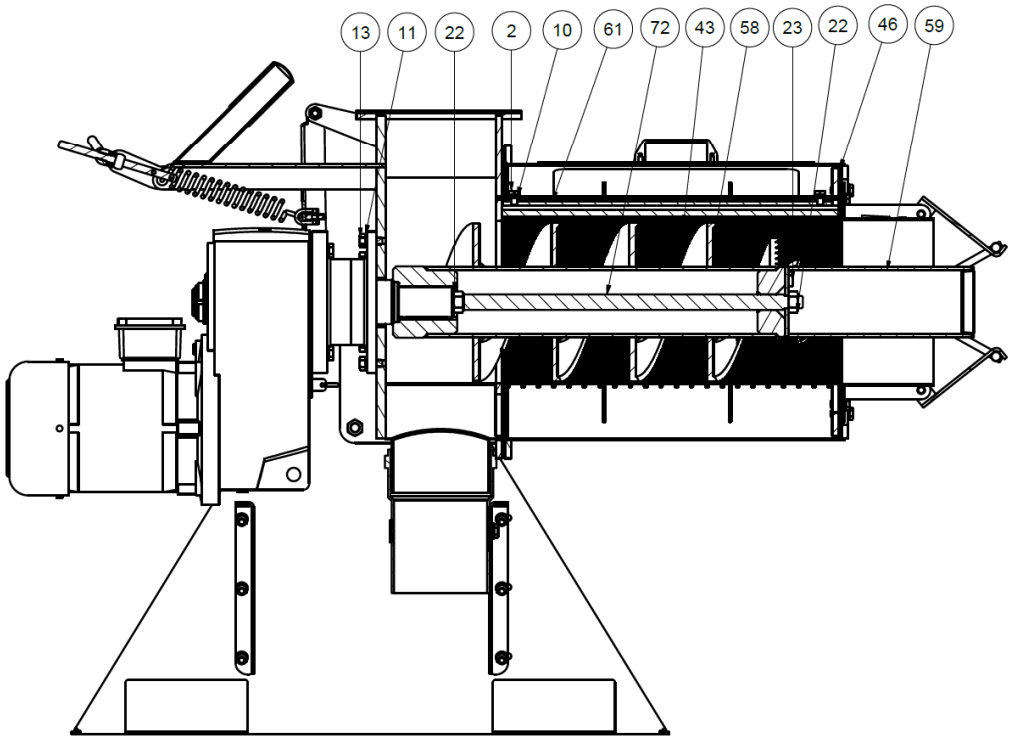
Guide rails, drawing no. 34-0686-005

Item	Pc.	Parts no.	Description
1	1	5320159	Wear ring t=3 mm PE1000 Reg. green
2	3	5320158	Guide rail 51x23 l=530 PE1000 Reg. green
3	6	5200356	M10 x 25 V2A T-head bolt
4	6	5220070	Hex nut M10 mm DIN 985 A2

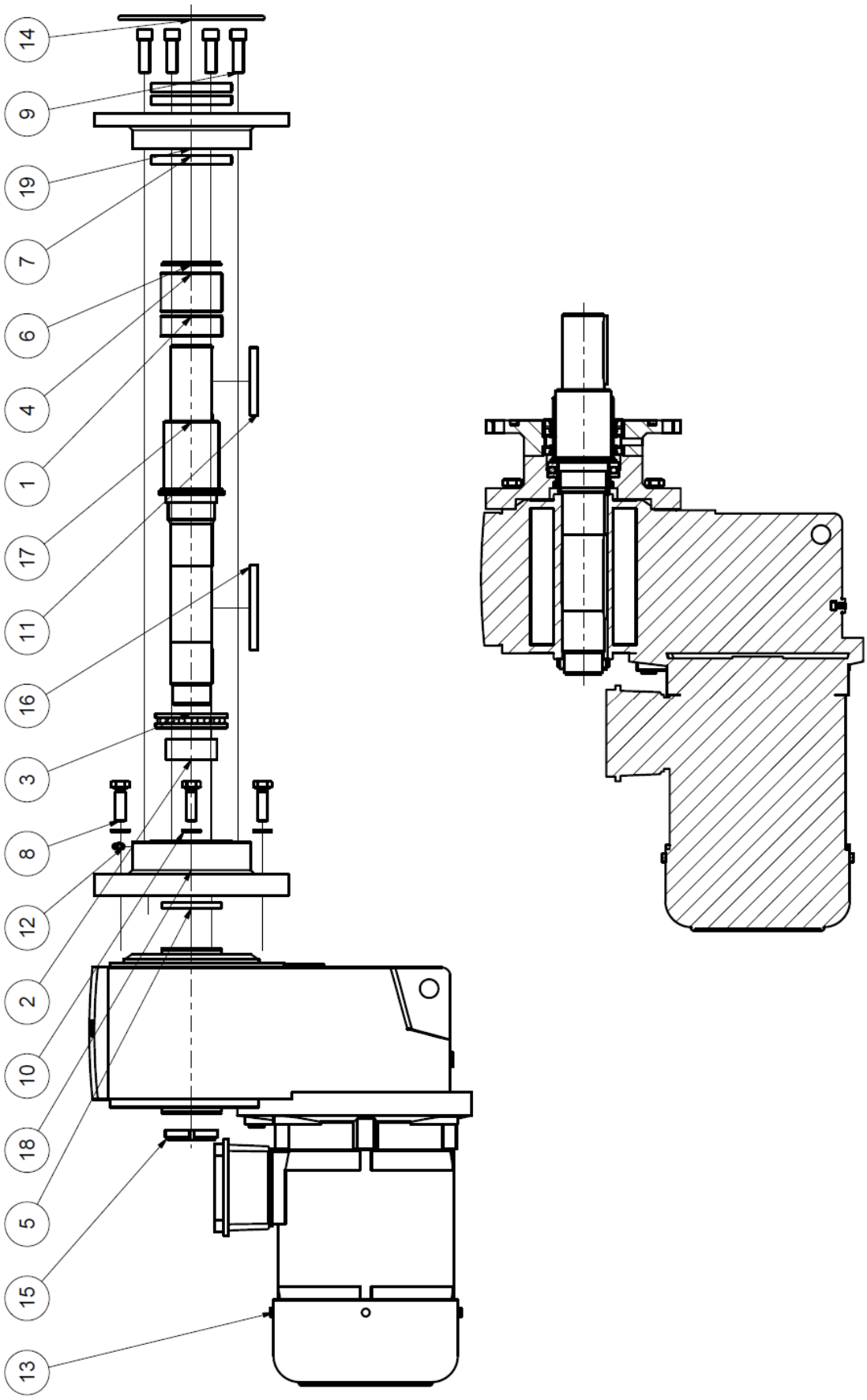
13 Assembly drawing for PSS-M1301, 4.0 kW

Separator **Drawing no.: 34-0600-6**

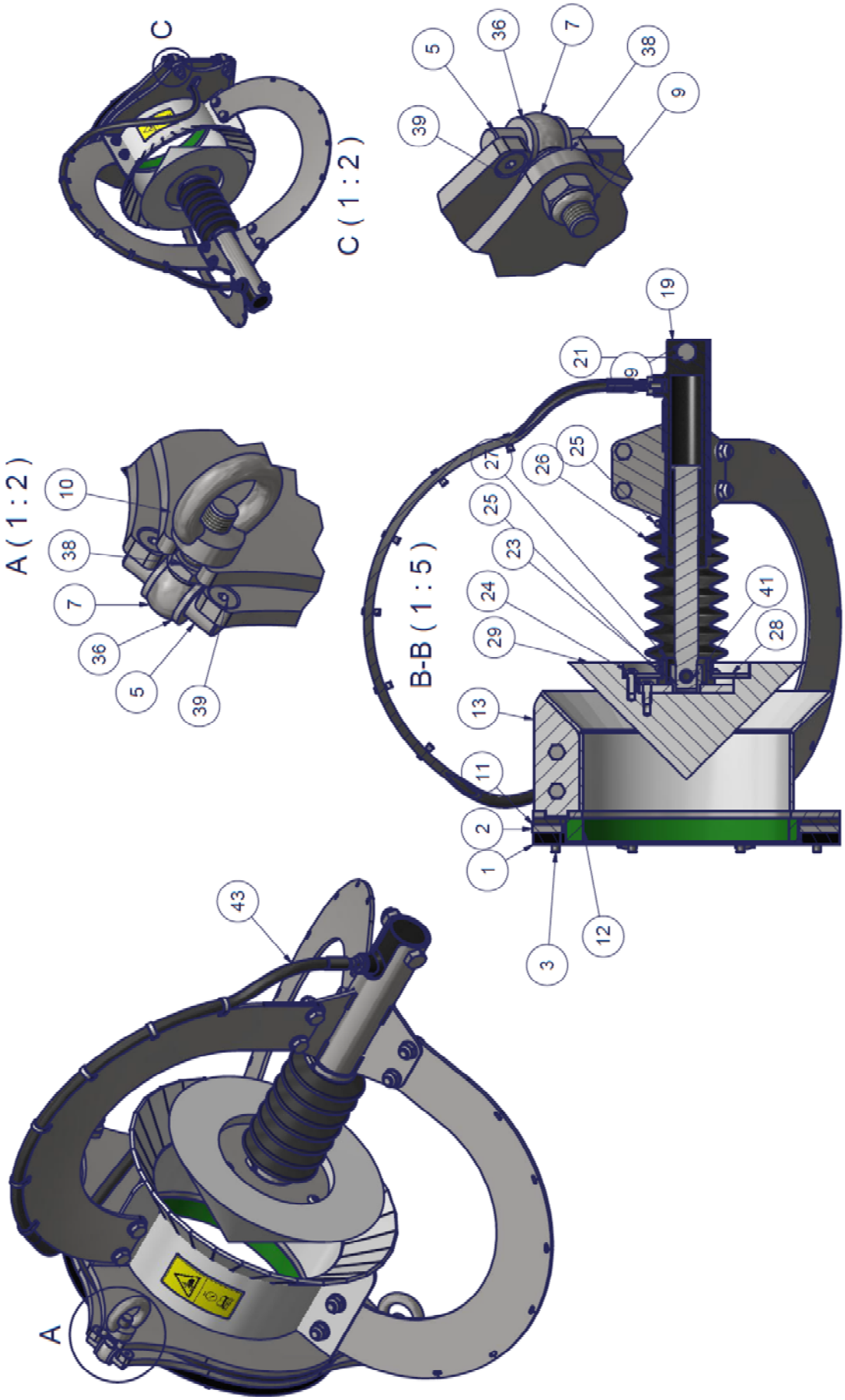




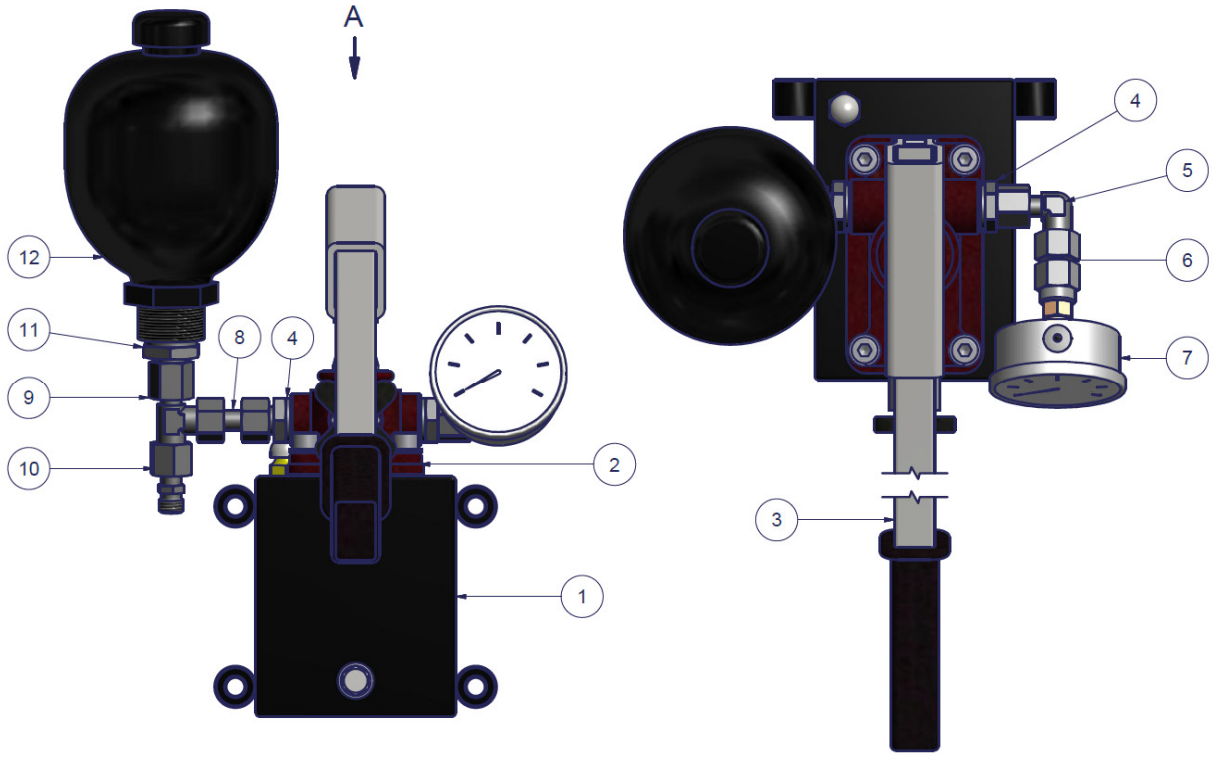
Drive unit **Drawing no.: 34-0603-6**



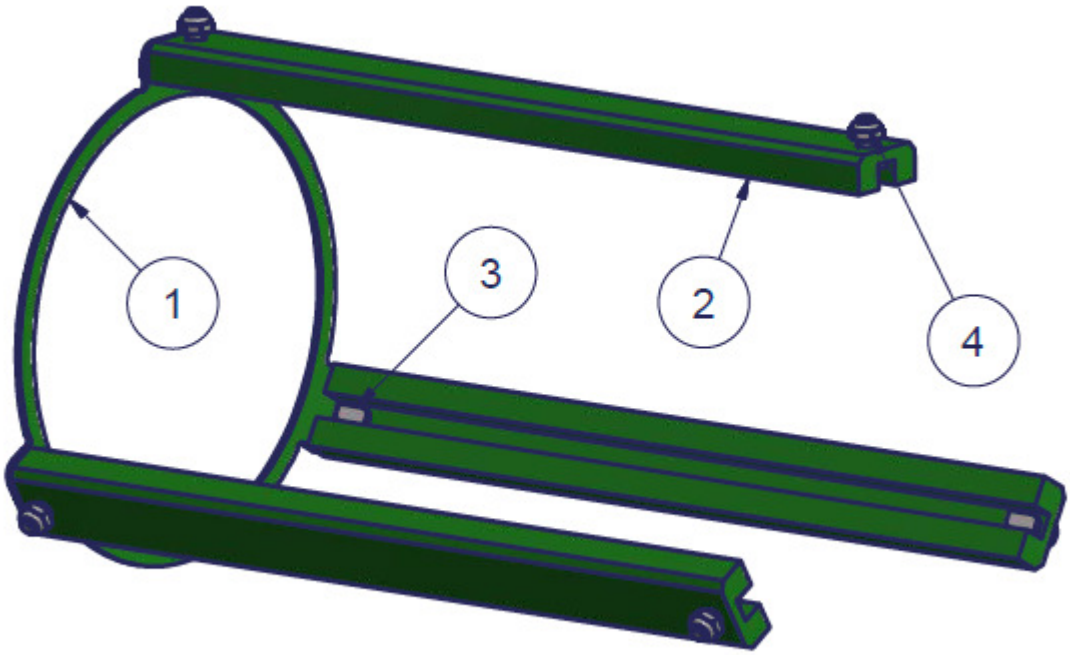
Outlet pressing cone, drawing no. 34-0693-030



Hydraulic hand pump, drawing no. 34-6090369-01



Guide rails, drawing no. 34-0686-005



14 MAINTENANCE AND REVISION LIST FOR PSS-M1301

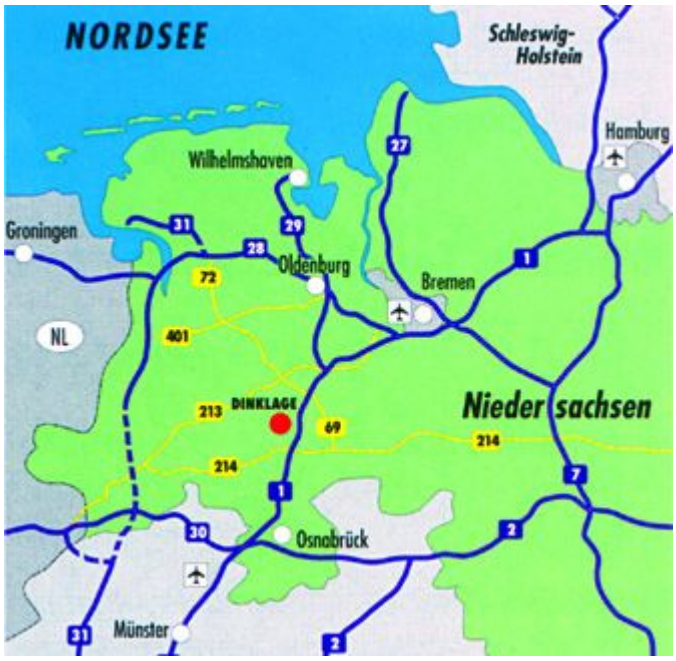
Each person must clearly correctly enter all maintenance and revision work in the list and confirm it with his or her own signature and that of the person responsible.

This list must be submitted to the supervisory bodies of the professional association, the TÜV and the manufacturer on request.

Maintenance / revision on device with the machine no.	Notes	Date	Signature of installer	Signature of person respon-sible

Maintenance / revision on device with the machine no.	Notes	Date	Signature of installer	Signature of person respon-sible

You can find us here



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