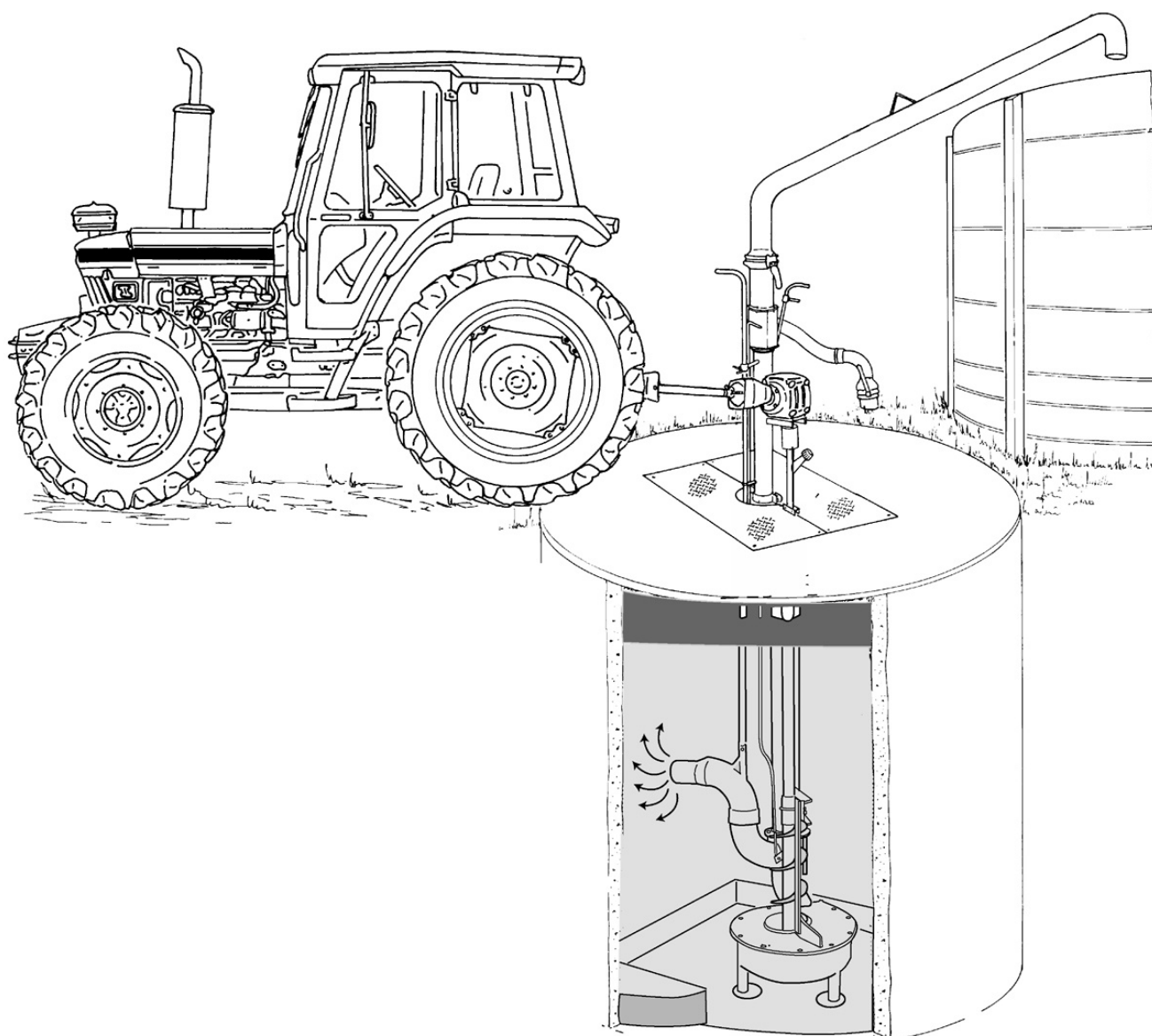


USER MANUAL

SLURRY PUMP / SCREW PUMP

PLEASE READ THIS MANUAL BEFORE USE, AND MAKE SURE TO ALWAYS STORE IT WITH THE MACHINE. THIS MANUAL CONTAINS IMPORTANT INFORMATION ABOUT USE, MAINTENANCE, SAFETY, AND WARRANTY



Højgaards Aps • Fabjergkirkevej 51 • DK-7620 lemvig
Telefon: +45 97 89 30 12 • www.hojgaards.dk



INTRODUCTION

Dear client

You have now received your Højgaards slurry pump or Højgaards screw pump. We have strived for it to live up to your full expectations.

Along with the pump, you will receive this, which will help you to make optimal use of your pump. The instructions are the same for both the Højgaards slurry pump and the Højgaards screw pump. Under section 4.1 maintenance, there are separate instructions for the screw pump. These instructions are clearly displayed as you go along reading the manual.

The manual contains important information about the pump, operations, maintenance, warranty, and reservations for this as well as safety risks during use. The instructions should therefore be read carefully before the pump is used. At the same time, the instructions are to be considered as part of the pump's equipment and must accompany the machine in case of sale.

At Højgaards we constantly aim to make improvements. Therefore, there may, without warning, be made future modifications to specifications and equipment. You will, of course, receive the updated illustrations and texts at the time of purchase.

The Højgaards slurry pump is in compliance with the EC Machine Directive, certified by the applied CE label and the included declaration of conformity.



GENERAL INFORMATION

Content

1. General information	
1.1 Machine description.....	4
1.2 Højgaards data plate.....	5
2. Safety	
2.1 Safety.....	6
3. User manual	
3.1 Installation.....	7
3.2 Tractor connection.....	7
3.3 Electrical connection.....	7
3.4 Operation.....	7
4. Maintenance	
4.1 Inspection and maintenance.....	8
4.2 Service and spare parts.....	9
4.3 Deinstallation.....	9
5. Warranty and Guaranties	
5.1 Terms of sale and delivery.....	10
6. Bilag	
6.1 Installations.....	15
6.2 Slurry pump with bottom inlet.....	19
6.3 Screw pump.....	20



MACHINE DESCRIPTION

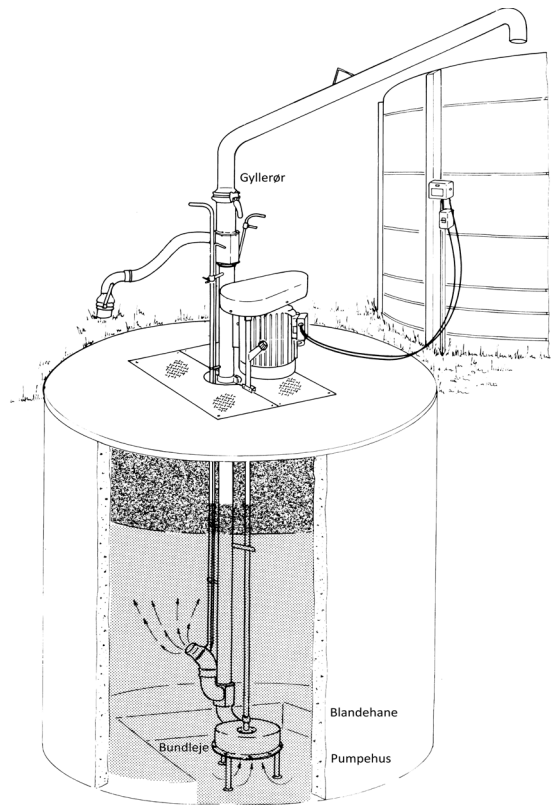
1.1 Machine description

The Højgaards pump is delivered individually for either tractor or electrical operation. The pump only requires a small amount of power.

The Højgaards slurry pump is a powerful and efficient pump with a large and varying output, depending on the slurry texture and speed. The pump is operated by a powerful traction device for either tractor operation, or electrical engines with v-belt traction.

The rotor speed is 864 r/m, at an input speed of 540 r/m. The rotor speed depends on the engine size.

The Højgaards slurry pump is suitable for any kind of liquid manure. Also manure from stables with sawdust and chips. The slurry is lead up through the pump housing and the powerful rotor, into the large slurry pipe, and onto the truck.



Electrical slurry pump

Available with an electrical engine. From 7.5 kW to 22 kW

Tractor pump

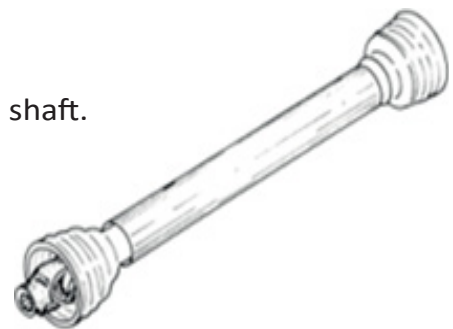
The tractor pump is powered via a power transmission shaft.
The gearbox can file 73.5 kW

Slurry pipe

Is made of 5" or 6" steel pipe

Bottom bearing

Is made of powerful gunmetal and installed with seals, which ensure a long pump working life.





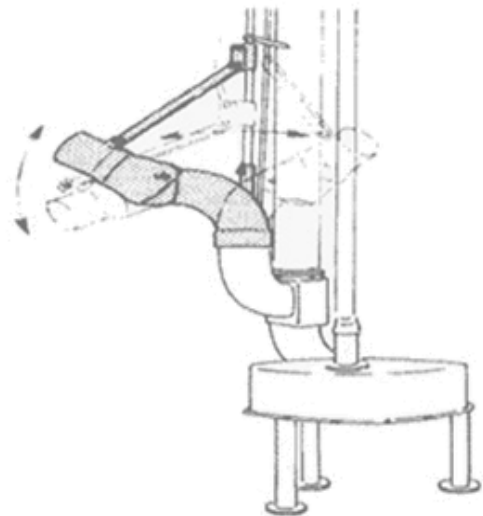
MACHINE DESCRIPTION

The slurry pump

The tractor slurry pump is delivered with equipment for mixing inside the storage tank, as well as fittings or a working platform when needed.

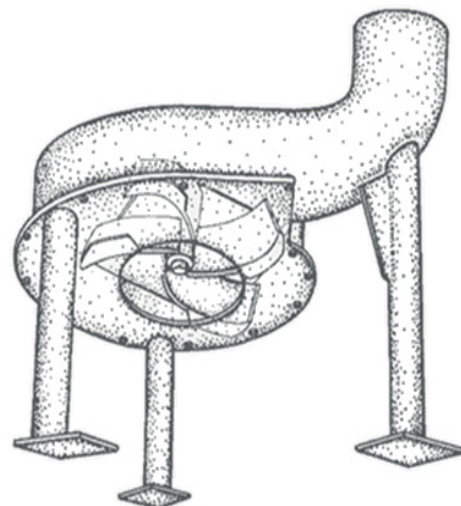
Mixing tap

The mixing tap can be installed firmly and turnable or tiltable and turnable. The mixing tap can be delivered with a flap valve or a taper plug valve, ensuring good mixing inside the storage tank/pre-tank, as well as fittings or a working platform when needed.



Pump-house

The slurry is drawn through the pump-house and/or promoted by the screw. The pump-house has a strong foot, secured with a cover or fitting, to make sure the pump house is secure.



1.2 Højgaards data plate



All products from Højgaard are equipped with a machine plate in accordance with the EU Machinery Directive. The information from the machine plate is necessary when we need to help you find spare parts.

The plate is attached to the motor console.

TYPE: The machine's type and size

NR: The machine's manufacturing number

ÅR: The machine's production year

	HØJGAARDS
DK - 7620 LEMVIG	TLF. +45 97 89 30 12
www.hojgaards.dk	
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	ÅR: <input type="text"/>



SAFETY

2.1 Safety

Do **NEVER** clean, lubricate, maintain, or repair the electrical pump, without turning off, and securing the main switch. The tractor must **ALWAYS** be turned off before cleaning, lubrication, and maintenance or pump repairs.

Make sure that covers on pre-tanks are **ALWAYS** firmly installed, and take care that children and other persons don't fall into channels and tanks.

Check that the tank fixing is installed and fastened correctly, and that nozzles and flanges are fixed before commissioning.

Wirings and electrical repairs must **ALWAYS** be performed by authorised personnel. The engine is **NOT** to be wrapped in plastic film or similar.

NEVER operate a pump without supervision. This may lead to personal injuries. Please consider the risk of pollution in case of accidents or vandalism, resulting in slurry emissions.

Please always make sure that screens are applied and that the PTO shafts are intact and fastened properly. The pump **CANNOT** be started unless all screens are intact and fastened.

Do **NOT** stand between the tractor and the pump during operation.

Never throw hard or massive objects, dead animals or similar into channels and slurry tanks.

Please observe the safety regulations about slurry plants by Work Environment Authority when working with gassy slurry (Long-term preserved slurry).

NEVER ENTER SLURRY CHANNELS OR TANKS.



USER MANUAL

3.1 Installation

(See appendix 1 – overall picture installation series)

Upon installation of the pump in the storage tank, lower the pump with a crane or the like, to the bottom of the tank. Fasten the pump on the tank with a galvanized storage tank fitting or a working platform.

The shaft pipe of electrical and tractor pumps must always be filled with oil. Oil is delivered along with the pump, and must be filled before commissioning. Use 80/90 gear oil or similar. Now the pump is ready for use.

3.2 Tractor connection

Drive the tractor backwards and completely against the pump, and connect the tractor's power transmission shaft with the PTO shaft. Once you have observed all safety regulations, start the tractor and the pump.

The gearbox is designed for transmissions of 73 kW at 540 r/min. The shaft speed should not be exceeded, since this may cause damages to the pump housing and shaft.

3.3 Electrical connection

The engine is splash-proof and is suitable for outdoor placement without screening. To protect the engine from too high a power consumption, and breakdown after sudden blocking, a protection device, or other controls should be installed. Please check that the direction of rotation is counterclockwise.

WIRING AND ELECTRICAL REPAIRS MUST ALWAYS BE PERFORMED BY AUTHORISED PERSONNEL.

3.4 Operation

The slurry should preferably be stirred before pumping.

Please check before start that the tractor pump is installed correctly on the tractor, and that the PTO screens are intact and fastened solidly.

Check the electrical engine and ensure that the direction of rotation is counterclockwise before start. Further, please check that the pump is fixed firmly on the bottom.

In case of inconsistencies during operation, check the cause immediately. If the pump performance decreases or completely fails, there may be foreign objects inside the pump, such as steel wire, rope etc. Only remove these after lifting the pump.



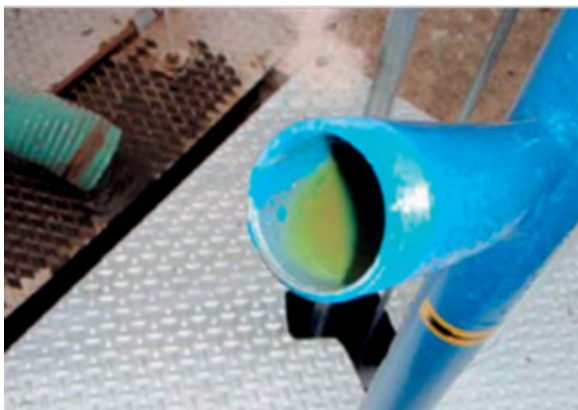
MAINTENANCE

4.1 Inspection and maintenance

Periodic inspection may ensure longer pump durability at low costs. The pump and PTO shafts should be lubricated before use and before long-term shutdown.

The pump is installed on the full-length shaft, with a top bearing and central bearing above the feed auger, and a bottom bearing under the pump housing. To extend pump durability and maintain a high level of performance, please note the following: Lubricate the central bearing with the included gear oil. Pour the oil into the oil pipe until the oil no longer sinks. Please note that the oil seeps slowly down the pipe, since it passes a central bearing on the way. Refill after 1000 m3.

SPECIFIC FOR THE SCREW PUMP is that the bottom bearing must be pressure lubricated at the nipple under the engine bracket/gearbox. The pump is ex. works lubricated with grease and requires no further lubrication before the next lubrication interval. The bottom bearing should be lubricated every 500 m3 with 5-10 pumps with a grease gun, or until you feel resistance within the gun.



The lubrication instructions above are indicative and may vary, depending on slurry texture, pumping intervals and pump operating hours.



MAINTENANCE

The lubrication instructions above are indicative and may vary, depending on slurry texture, pumping intervals and pump operating hours.

The pump rotor should be inspected at least once a year, or after 400 operating hours, maybe more frequently, depending on the operating conditions.

The pump bearings, base plate and rotor should be inspected for wear and tear after 100 operating hours, or in case of decreased performance.

The oil in the gearbox must be checked regularly. Screw off the filling process, to see if the gearbox is half-full. If the oil is white, it is a sign of water running in, and the oil must be changed. Subsequently, please check frequently for this problem. If leaks occur, check the oil level in the gearbox or oil tank more often.

Change the gearbox oil after 1000 operating hours. Use suitable gear oil, 80/90 gear oil.

Upon separation of the pump for the purpose of inspection or repairs, it will normally be necessary to readjust the pump shaft, for the rotor to rotate unimpeded at the pump inlet.

Please remember to empty the pump pipe and pump line before winter, in order to avoid frost shattering.

4.2 Service and spare parts

When using spare parts during service and repairs, that are not identical to the recommended spare parts, the warranty by Højgaards ApS ceases to be valid.

4.3 Deinstallation

When the pump is no longer functional, it must be disposed of in a responsible manner, and according to national laws and regulations about waste disposal.

1. Remove oil from the pump and hand it over to the municipal collection point for hazardous waste
2. Remove plastic and rubber parts and dispose of them in the waste container
3. After removal of the substances/objects above, hand over the pump to the municipally approved product retailers



Warranty and Guaranties

5.1 Terms of sale and delivery

1. General

- 1.1 The following terms of sale and delivery apply to all sales, unless otherwise separately agreed in writing.
- 1.2 The seller's indication of prices, quantity, qualities and dimensions in price lists, brochures, catalogues etc. are approximate and binding only insofar as the agreement between the seller and the buyer explicitly refers to them.
- 1.3 All drawings and other technical documents, or the like, which are handed to the buyer by the seller before or after the conclusion of the agreement belong to the seller. Without the consent of the seller, drawings/documents cannot be used for anything other than the purpose for which they were handed over. The Buyer is not entitled to copy or otherwise reproduce the material without the seller's consent.
- 1.4 The buyer is required to keep secret any technical or commercial information about the seller, of which the buyer has become aware prior to or after the conclusion of the agreement.

2. Offer and Order Conformation

- 2.1. The seller's offer is based on the prices of raw materials, consumables, labour wages as well as freight, insurance, tariffs and exchange rates, etc. applicable at the time of the making of the offer.
- 2.2. The seller reserves the right to change the prices stated in the offer and/or order confirmation if changes in exchange rates, tariffs, taxes or transport costs occur prior to the date of delivery.
- 2.3. All offers made by the seller may be changed and revoked until the seller has sent the order confirmation to the buyer.
- 2.4. An offer is valid for a maximum of 60 days from the date of the offer.
- 2.5. Spoken agreements on specifications for the parts ordered must be confirmed in writing by the seller in order to be valid.
- 2.6. Deliveries include only the parts and/or services expressly mentioned in the offer/ order confirmation.
- 2.7. Orders placed and confirmed cannot be cancelled without Højgaards' written consent.



Warranty and Guaranties

3. Consultation

- 3.1. Højgaards advises the customer within our field of experience, this is done based on Højgaards' best knowledge at the time of providing. The advice and Højgaards cannot accept liability if later experiences lead to other solutions.
- 3.2. Consultation takes place based on the information submitted to Højgaards by the customer.
- 3.3. All advice is indicative and shall not be construed as a genuine functional guarantee without Højgaards' express written confirmation in connection with the conclusion of the purchase contract.
- 3.4. For areas where there is a requirement of the material recommended by Højgaards, Højgaards is not responsible for compliance with norms not communicated in writing to Højgaards.
- 3.5. If Højgaards' products are to be used in processes or constructions such as tanks, to which special requirements apply, the customer is obliged to disclose these requirements. Otherwise, Højgaards is not responsible for compliance.
- 3.6. The provisions set out in clause 3.5 also apply if the goods are sold to a country where requirements differ from Danish requirements.

4. Delivery

- 4.1. The buyer is obligated, at the seller's request, to prepay in part or in full, provided that the amount exceeds DKK 100,000.
- 4.2. Delivery takes place at the agreed time. It is a prerequisite, for the seller to be able to deliver on time, that all information necessary for the completing of the order, has been communicated to the seller at the time of making the order, including all necessary drawings and information, etc.
- 4.3. The agreed date of delivery, stated by the seller, is subject to change based on war, fire, strike, lockout, transport barriers or other force majeure, including delays on the part of subcontractors. If such conditions occur, the delivery time is extended accordingly. The seller has the right to make partial deliveries.
- 4.4. If delivery is delayed due to the buyer's circumstances, the buyer is obligated to make payment at the agreed upon time, just as the buyer must pay the seller's storage costs based on the seller's calculation and at the storage prices determined by the seller.



Warranty and Guaranties

5. Installation works

- 5.1. If the seller is responsible for all or part of the installation of the delivery, the seller must receive separate payment for this. Payment for installation is carried out per account rendered, unless otherwise agreed in writing.
- 5.2. It is the responsibility of the buyer to provide a firm access road intended for a fully loaded lorry with a crane, to ensure that access conditions in no way hinder the seller's ability to deliver or assemble the delivery.
- 5.3. Unless otherwise agreed, Højgaards' will charge for the necessary labour of being at the disposal of the seller at the workplace.
- 5.4. The buyer must provide toilet facilities for the installation staff, at or near the installation site.
- 5.5. The buyer is responsible, to the seller, for the installation to be able to be carried out, under conditions complying with applicable laws and regulations, for the working environment at the installation site.
- 5.6. The Buyer is responsible for notifying the seller in writing, of the safety regulations applicable to staff at the installation site.
- 5.7. It is the buyer's responsibility to provide notification when sufficient safety equipment is not available at the installation site. Rental of scaffolding, work platform, diver, etc. necessitated by a failure to do so is arranged at the seller's initiative and the costs incurred are invoiced to the buyer.
- 5.8. Until such time that the seller's installation is completed, the buyer is obligated to take out the standard contractor's insurance which provides cover against damage for any reason, so that the seller is directly insured according to the insurance policy. If such insurance is not taken out by the buyer, the seller must be put in a position as if the insurance had been taken out.
- 5.9. In the case of electrical work and other types of installation, where an authorisation or expertise other than that possessed by Højgaards (e.g. a diver) is required, the buyer is obligated to make separate payments for the completion. Only Højgaards assesses whether it possesses the necessary competences or whether other expertise must be acquired.

6. Payment

- 6.1. Unless otherwise agreed and confirmed in writing, the purchase price is due for payment no later than 21 days from invoice date.
- 6.2. Any bank charges and fees in connection with payment are paid for by the customer.
- 6.3. If timely payment is not made, interest will be calculated at the applicable rate from the due date.



Warranty and Guaranties

- 6.4. Deferral of the agreed delivery date does not justify a corresponding deferral of payment.
- 6.5. When placing an order, the seller can demand advance payment, if the buyer cannot be credit insured. This can be done by dividing payment into instalments when the order is placed, and the remaining payment before dispatch, or by paying the full order amount, including any shipping costs, when placing the order.

7. Property Rights

- 7.1. The seller retains all rights to the product/service sold until the entire purchase price has been paid, incl. interest and possibly costs.

8. Defects

- 8.1. The product is delivered in the design and condition that is the applicable standard at the time of delivery.
- 8.2. The customer must immediately, upon receipt, inspect the delivery to ensure that it is not defective. Complaints about defects that were, or should have been, discovered during such an inspection, must be made within 14 days of receipt, for the customer to rely on these.
- 8.3. Højgaards only provides compensation in the event of freight damage, if the customer has refused receipt of damaged freight, and reported it to Højgaards within 24 hours.
- 8.4. Return of goods without Højgaards' prior written consent will not be accepted.
- 8.5. Upon notification to Højgaards within a 12-month period from receipt of the goods, defective materials and manufacturing defects are subject to guarantee.
- 8.6. Højgaards undertakes and reserves the right to remedy any defective products at its factory or to replace defective products. Replaced parts will automatically become Højgaards' property and must be returned to Højgaards by agreement.
- 8.7. Services and deliveries that have not been accepted in advance and in writing by Højgaards as services under a guarantee are invoiced following the above general conditions.
- 8.8. Any warranty obligation expires if, without Højgaards' prior written consent, changes are made to the delivered product, or if Højgaards' request for the return of the damaged product is not complied with.
- 8.9. Expenses or costs associated with repatriation and reassembly or similar measures, are not recoverable. This also applies to indirect losses and damage, including operating losses of any kind that are also not recoverable.



Warranty and Guaranties

- 8.10. Any cost of repairs carried out by the customer or any third party without Højgaards' prior written consent will not be reimbursed.
- 8.11. Parts of a foreign make that are included in delivery, e.g., electrical accessories, automatics, etc. are subject to the same guarantee as is given to Højgaards from a subcontractor.

9. Product Liability

- 9.1. The seller is responsible for product liability in accordance with applicable Danish law.
- 9.2. The seller is only liable for property damage if it is proved that the damage is due to gross negligence, or negligence on the part of the seller, or others for whom the seller or another is responsible.
- 9.3. The seller's liability covers only direct property damage and, thus, no loss of earnings, operating losses, or other direct losses.
- 9.4. If any third-party claims are made against one of the parties for product liability, under that provision, the party concerned must immediately notify the other party in writing.
- 9.5. To the extent that the buyer or the person to whom the buyer transfers the sold product, has taken out insurance cover, the seller's liability is limited to cover only insofar as said insurance cover is not adequate.

10. Severability

- 10.1 If - for whatever reason - any part of these terms was to be deemed invalid, the validity of the others will not be affected.



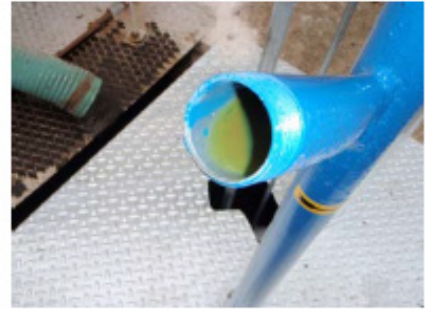
ANNEX

6.1 Installation





ANNEX





ANNEX



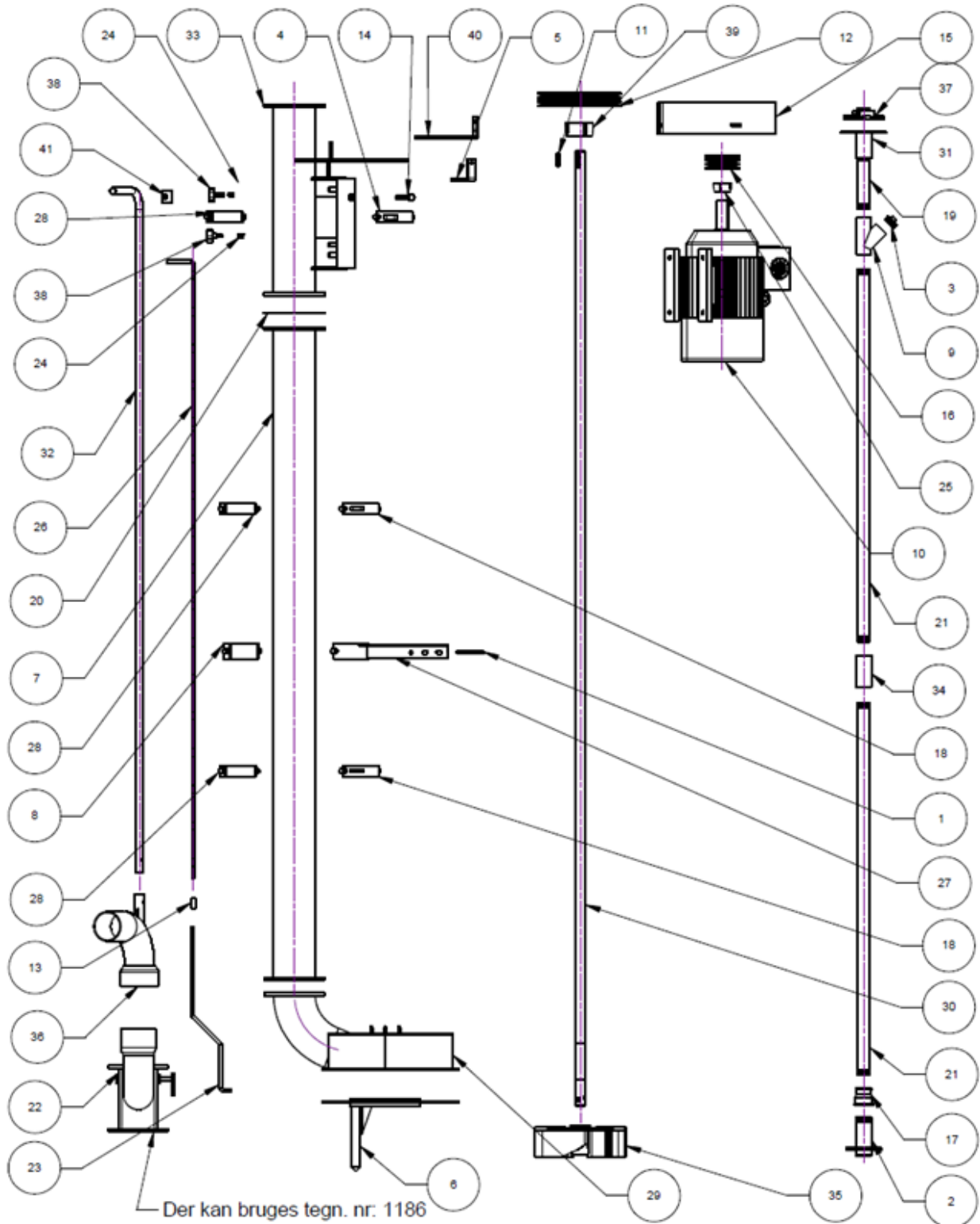


ANNEX





6.2 Slurry pump with bottom inlet





6.4 Screw pump

