

USER MANUAL

MEDIUM PRESSURE 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

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INDLEDNING

Dear Customer

You have received a Højgaards medium pressure pump. We've strived for it to live up to your full expectation.

Along with the pump, you will receive this manual, which will help you make optimal use of your pump.

The manual contains important information about the pump, its use, maintenance, warranty and restrictions, as well as safety risks. The instructions should therefore be read before use of the pump. The instructions are to be considered part of the pump's equipment and must accompany the machine when sold.

It is Højgaard's profile to constantly make improvements. Therefore, without notice, changes in specifications and equipment may occur at any future time. The guide is, of course, updated at the time of sale.

Højgaard's medium pressure pump complies with the requirements of the EU Machinery Directive, which can be attested by the affixed CE mark and the accompanying declaration of conformity.



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MACHINE DESCRIPTION

1.1 Machine description

High-speed medium and high-pressure pumps are delivered individually for electric/tractor operation.

Højgaard's pump is powerful and efficient, with a large and varying performance depending on the consistency and speed of the manure. The pump is driven by a powerful claw clutch, or with PTO operation with an angular gear.

The rotor speed is 1450 rpm for electric operation and for PTO operation 1000/2000 rpm.

The pump is intended for all liquid fertilizers, including sandy liquids, and manure from stables where sawdust and shavings have been used. The slurry is sluiced up through the pump housing and the powerful rotor, up into the large slurry pipe and onto the storage tank.



Electric slurry pump

Can be delivered with an electric motor on request. From 5.5 kW to 30 kW

Tractor pump

The tractor pump is powered via a PTO shaft. Gearbox can take up 75 kW.

Slurry pipes

Made of 4 ", 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 pump

The pump is delivered with various equipment for mixing in a storage tank, as well as fittings or a work platform as required.

Mixing tap

The mixing tap can be mounted quickly, swivel or swivel and tilt bar. A propeller can also be mounted on the shaft.



Pump housing

The manure is sucked up through the pump housing. The pump housing has a strong leg that ensures that the pump is stable.



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

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SAFETY

2.1 Safety

NEVER carry out cleaning, maintenance or repairs on the electric pump without the main switch being switched off and locked. The tractor must **ALWAYS** be switched off and disconnected before cleaning, maintaining or repairing the pump.

ALWAYS make sure that the covers for the front tanks are fixed, and always make sure that children and others cannot fall into ducts and tanks.

Check that the tank attachment is correctly mounted and clamped, and that the nozzles and flanges are clamped before starting.

Electrical installations and electrical repairs must **ALWAYS** be carried out by an authorized electrician. The motor must **NOT** be wrapped with plastic foil or similar.

NEVER let a pump work unattended. This can result in personal injury - also, due to the risk of pollution in the event of an accident or vandalism with manure spills as a result.

Always make sure that the screens are on and that the PTO shafts are intact and securely fastened. The pump must **NOT** be started before all screens are intact and clamped.

NEVER stand between an active tractor and a slurry pump

Never throw hard or massive objects, dead animals, etc. into ducts and slurry tanks.

When working with gaseous manure, the Environmental Authority safety instructions regarding manure systems must be followed carefully.

NEVER ENTER SLURRY CHANNELS OR TANKS.



USER MANUAL

3.1 Montering

(See the appendix to the guide - picture mounting series)

When mounting the pump in the storage tank, the pump is hoisted by crane or similar down to the bottom of the tank. The pump is attached to the tank with a galvanized storage tank bracket or a work platform. The pump is placed vertically in the tank so that the support legs are fixed to the bottom. The pump is mounted with hoses and bends.

The shaft pipes of electric and tractor pumps must always be filled with oil. Oil is supplied with the pump and it must be filled before it is used. A Q8 Goya 150 gear oil must be used. The pump can now be used.

3.2 Connection to tractor

The tractor must be fully backed up to the pump and the tractor's power transmission shaft connected to the PTO shaft. When all safety instructions have been complied with, start the tractor and the pump.

The gearbox is designed to transmit 75 kW at 1000 rpm. The speed should not be exceeded as this may damage the pump housing and shaft.

3.3 Electrical connection

The engine is splashproof in design and can stand outdoors without shielding. To protect the motor against excessive power consumption and a short circuit, in the event of a sudden blockage, motor protection or other instruments should be fitted. Check that the direction of rotation of the motor is counterclockwise.

ELECTRICAL INSTALLATIONS AND ELECTRICAL REPAIRS MUST ALWAYS BE CARRIED OUT BY AN AUTHORIZED ELECTRICIAN.

3.4 Operation

It is a good idea to agitate the manure before pumping begins.

Before starting, check that the tractor pump is correctly fitted to the tractor and that the PTO screens are intact and firmly attached.

The electric motor should be checked before starting, the direction of rotation of the motor must be counterclockwise. Also, make sure that the pump is fixed to the bottom.

If irregularities are found during use, the cause must be investigated immediately. If the pump performance decreases or disappears completely, it may be due to a foreign body in the pump, such as wood, concrete ect. This can only be removed after the pump has been lifted. In the event of a defective claw clutch, the **impeller** is stationary even though the engine is still running.



MAINTENANCE

4.1 Inspection and maintenance

A periodic inspection can ensure that the pump, for modest costs, has a long service life. The PTO shafts should be lubricated before use and before prolonged downtime.

The pump is mounted with a through shaft, and with a bottom and intermediate bearing above the pump housing. To extend the life of the pump and maintain the high performance, it is worth noting the following: The intermediate bearings should be lubricated with the included gear oil. The oil is poured into the oil pipe until the oil no longer sinks. Note that the oil will seep slowly into the pipe as it has to pass an intermediate bearing on the road. Top up after every 1000 m3.

Remember to regularly check the oil level in the sight glass. Remove the cap to pour in oil.

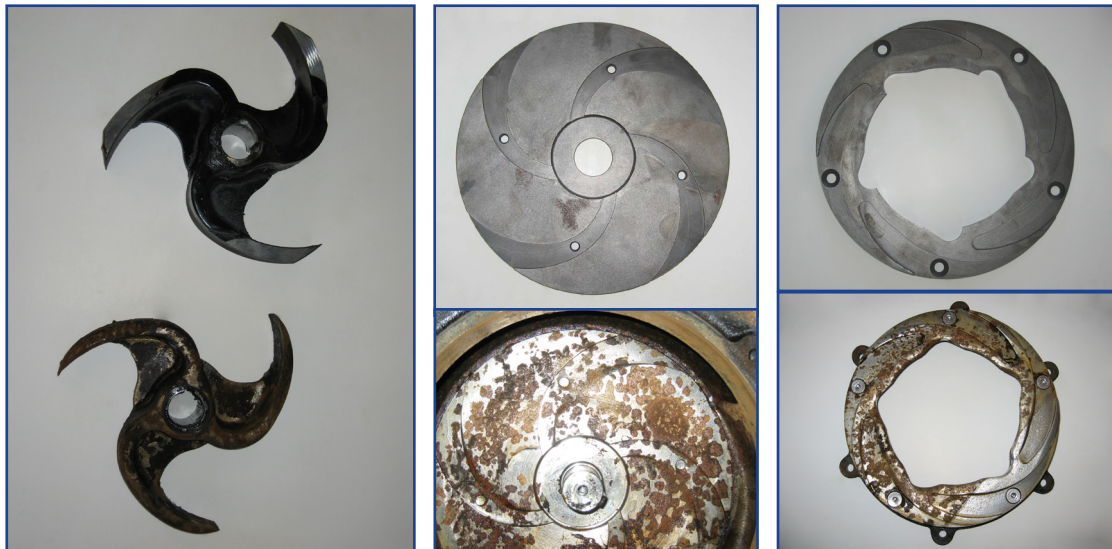




MAINTENANCE

At least once a year, for every 400 operating hours, or more often, depending on the operating conditions, the rotor of the pump should be checked. When operating in sandy liquids, it should be checked more often.

For every 100 operating hours, or if a drop in performance is experienced, the pump base plate, rotor and blade blades should be inspected for wear. Always listen for unexpected noises and vibrations.



During PTO operation, the oil level in the gearbox should be checked regularly. If the oil turns white, it is a sign of water penetration and the oil must be changed. Check frequently if the problem reoccurs. In the event of leaks in the gearbox, the oil level must be checked often.

Oil change on the gearbox should take place after 1000 operating hours. Use a suitable gear oil, Q8 T 55 85w-140 gear oil.

Remember to empty pump pipes and pump lines of manure before winter. This avoids frostbite.

4.2 Service and spare parts

If spare parts are used for service and repair, that are not identical to the recommended ones, the warranty from Højgaard ApS will lapse.

4.3 Demounting

When the pump is no longer operational, it must be disposed of in a safe manner in accordance with the country's waste disposal laws.

1. Oil is removed from the pump and delivered to the municipality's reception site for hazardous waste.
2. Plastic and rubber parts are removed and placed in the waste container.
3. After removing the above, the pump can be handed over to one of the municipality's approved product dealers.



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 Confirmation

- 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.



APPENDIX

6.1 Assembly

