HIGH VOLUME PUMPS
The Dutch shaftless electric pump solution

User Manual

Pumps

Changes

Version	Date	Changes
1	4-6-2021	Original
2	5-7-2022	Revised format and tables
3	12-12-2024	Pumps 50.0 added
4	30-12-2024	Pumps 75.0 added
5	09-07-2025	Pumps 22.0 and 8.0 added

Foreword

Dear Customer,

We are delighted by the choice for our products. Our pump delivers high-performance by using rim drive technology and is highly efficient. It has been designed and manufactured with an eye on convenience, environment friendly character, user-friendliness and safety. Before shipment, every pump is tested extensively by our engineers.

Please take the time to read this operating manual carefully as to ensure safe and proper use of the pump. It is always our intention to improve HVP products, for any comments please do not hesitate to contact us.

Please feel free to contact us with any product inquiries. We wish you all the best with our products.

High Volume Pumps.

Declaration of Conformity

Company name manufacturer	High Volume Pumps
Company address manufacturer	Wanraaij 33 6673 DM Andelst The Netherlands
Product type	Pump

Content

1. General

1.1 Using this user manual

Every person who is operating, servicing, maintaining or using the HVP pump must have read and understood this manual in detail. The manual provides important instructions for the safe and proper use of the pump. After reading this user manual the owner/operator should have an understanding on how to

- Install the product
- Operate the product
- Avoid risks/hazards

Always store this manual close to the pump. We advise to store the manual in a waterproof sealing.

The illustrations in this manual are for illustrative purposes only and are not relevant to the design details of the pump.

1.2 Pictograms

The following pictograms are used in this manual:

Dangerous situation. If this warning is ignored, personal injury up to death or serious damage to the pump may result.

Danger due to electric current. The work may only be carried out by a trained ` electrician

Danger of possible damage to the environment.

Note of useful advice on how to use the pump.

1.3 Copyright

This is a confidential user manual. Only persons who have been authorized on written document by High Volume Pumps. All documents are protected within the meaning of the Copy-right Act.

Disclosure and duplication of documents, including extracts, exploitation and communication of their contents are not permitted. Violations are punishable and oblige to pay damages. We reserve all rights of exercise of industrial property rights.

1.4 Ensure

For safe and pleasant operation and use of the pump, it is recommended to read this manual in full before installing or commissioning the pump. The manufacturer is not liable for damages or improper functioning of the pump as a result from failing to adhere to the operating instructions.

Additionally, please read/check the national regulations before the use of the pump.
The warranty expires, for example, in the case of:

- Usage for another application then intended by the manufacturer or beyond the applications as described within this manual
- Installation not in accordance with the manual
- Use of non-original spare parts and complementary products
- Maintenance/servicing by a non-authorized persons/company.
- Operating HVP pump outside the water
- Damage caused by journeys through overgrown waters (e.g. reeds) or too shallow waters

1.5 Manufacturer details

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6673 DM
Andelst
The Netherlands

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2. Security

2.1 Appropriate use

The HVP pump is to be used as a pump for under water applications. Any other type of application is not allowed without written permission by HVP.

Only power sources which have been approved by HVP should be used in combination with the HVP products.

Danger of destruction! When operating outside the water the pump can be destroyed. Operate the pump only in water.

The intended use also includes people who are servicing/maintaining or operating the HVP have read and understood this user manual. All procedures described in this user manual must be followed.

The manufacturer is not responsible for damages resulting from operation in a way which is not in accordance with this manual. The risk is exclusively for the user/operator.

2.2 Requirements for operators

Only persons who have the right licenses (according to national law) may use the HVP as a pump.

The required qualification can be found in the applicable national regulations and laws of the country in which the application is used.

Repair work, follow-up and maintenance/service may only be carried out by persons with the appropriate training and qualifications.

Persons under the influence of drugs, alcohol or reacting drugs are not allowed to carry out work on the pump or to operate it.

2.3 Safety

In addition to the information in this manual, observe the general legal and other binding regulations for accident prevention and environmental protection as well as basic health and safety regulations.

- Check if the pump is in perfect condition before operating.
- Turn on the pump only when it is placed completely in water. This is the only way to avoid damage to the pump.
- Never remove or change safety devices.
- Before use always inspect the pump for (external) recognizable damage and defects. If any damage and/or defects are recognized they must be reported immediately to a HVP qualified service partner.
- Use only professional and qualified maintenance tools.
- After repairs/maintenance, reattach all dismantled protective devices and ensure proper functioning.
- Every operator is responsible to make sure that the pump is only operated in perfect/non-damaged condition and that all applicable safety requirements and regulations are complied with.

2.4 Maintenance/fault removal

- Check the deadlines for regular inspections specified in the user manual.
- Use only the professional/qualified tools for maintenance/fault removal.

Danger from electric current! Incorrect work on the power supply may result in damage to the pump. Work on the electrical equipment of the pump may only be carried out by a certified electrician.

3. Technical data

3.1 General data

Model	Pump	Pump	Pump	Pump	Pump	Pump
Type	Pump 0.5	Pump 2.5	Pump 3.0	Pump 4.2	Pump 5.0	Pump 8.0
Input voltage	48V or 230V	24V	48V, 230V or 400V	24V	48V or 400V	48V or 400V
Nominal power	0.5kW	2.5kW	3kW	4.2kW	5kW	8.0kW
Maximum RPM	5.000	3.050	4.000	1.750	2.500	2.000
Maximum temperature	85°C	85°C	85°C	85°C	85°C	85°C
Temperature sensor	PT1000	PT1000	PT1000	PT1000	PT1000	PT1000
Maximum depth	5 meters	5 meters	5 meters	5 meters	5 meters	5 meters

Pump	Pump	Pump	Pump	Pump	Pump	Pump
Pump 11.0	Pump 15.0	Pump 22.0	Pump 25.0	Pump 30.0	Pump 50.0	Pump 75.0
48V or voltage on request	48V or voltage on request	48V or voltage on request	96V or voltage on request	110V or voltage on request	400V or voltage on request	400V or voltage on request
11.0kW	15.0kW	22.0kW	25.0kW	30.0kW	50.0kW	75.0kW
1.500	1.700	1.200	900	1.000	1.300	1.500
85°C	85°C	85°C	85°C	85°C	85°C	85°C
PT1000	PT1000	PT1000	PT1000	PT1000	PT1000	PT1000
5 meters	5 meters	5 meters	5 meters	5 meters	5 meters	5 meters

4. Mounting

Use the two holes pattern on the mounting socket when mounting the pump.

- Only mount the pump to a strong and stable mounting bracket.
- See drawings below for mounting holes pattern (6x M10). At least 4 holes should be used.
- Use Loctite 577 on the thread of the M10 stud bolts when mounting the pump.
- The material of the bolts has to be AISI Type 316L stainless steel and with the help of a torque wrench (18 Nm) screw in the bolts.
- The bolts must be mounted so that the thread is completely filled.

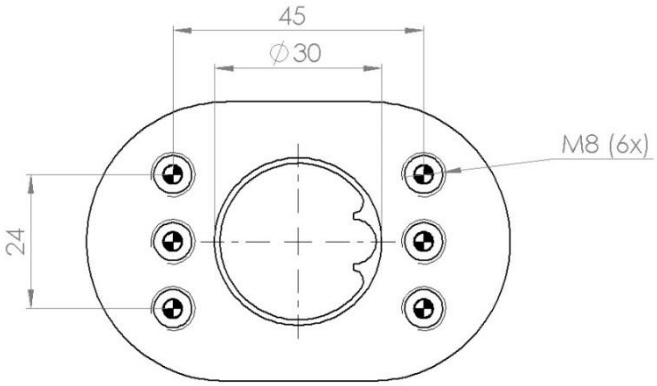


Figure 1: Mounting for the 0.5kW pump.

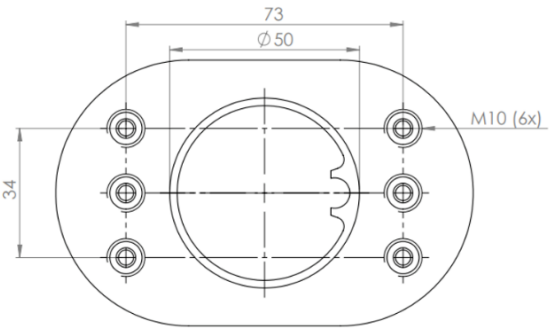


Figure 2: Mounting for the 3.0, 5.0, 8.0kW and 11.0kW pump.

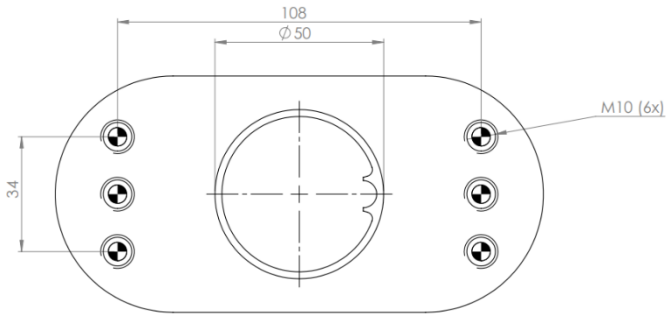


Figure 3: Mounting for 15kW pump.

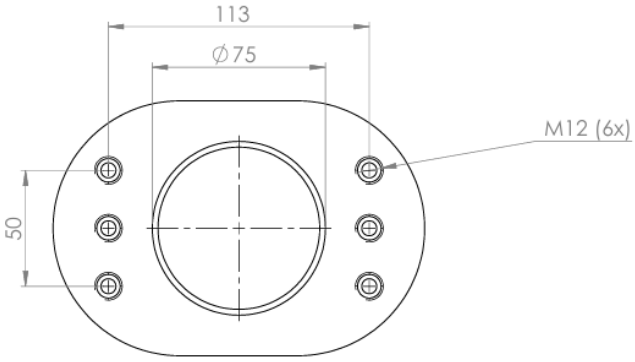


Figure 3: Mounting for 22kW pump.

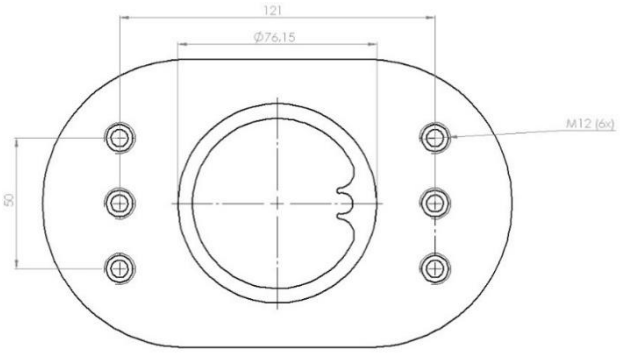


Figure 5: Mounting for the 25/30/50kW pump.

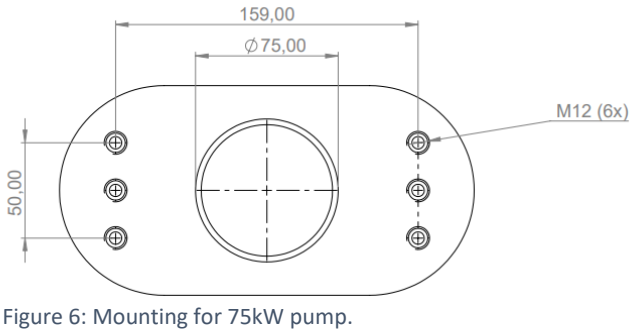
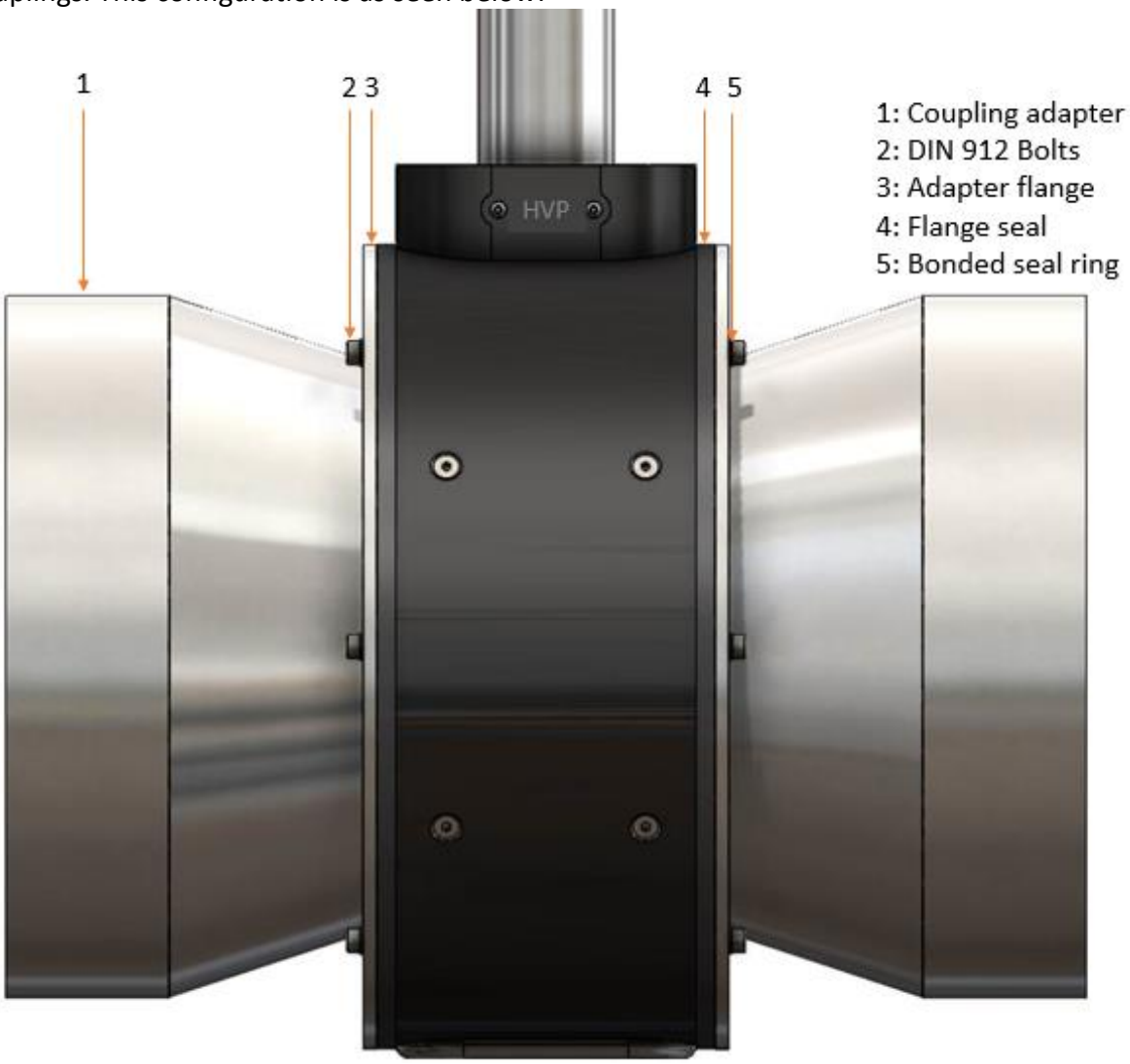


Figure 6: Mounting for 75kW pump.

The second option for mounting a pump is to make use of the available pump tubes and couplings. This configuration is as seen below:



Before installing the pump, verify no damage is visible on the flange seal and extends beyond the pump outside diameter. Furthermore, ensure all bolts are correctly installed with a bonded seal ring and are correctly tightened using a correctly set torque wrench.

For a third option you can use directly mounted pump tunnels with the correctly sized flanges. With the included drawings, you can see exactly which flange fits the pump perfectly

When mounting the pump to the flanges, ensure the following points are considered and addressed. The flanges need to extend beyond the pump outside diameter for a complete seal the pump. For mounting the bolts we advise to use a self-centering bonded seal to prevent water ingress past the bolts. In order to prevent damaging the system make sure to use a correctly set torque wrench.

⚠ Danger of broken pump! When the pump is not installed in the right way there is risk for a broken pump.

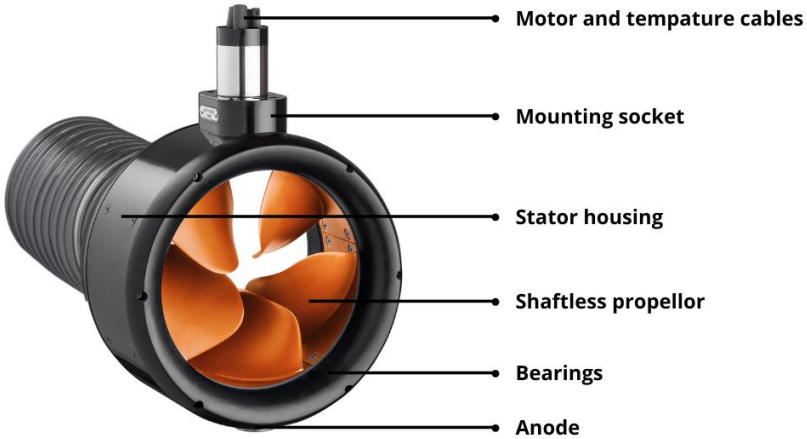
5. Description

5.1 General

The HVP rim drive is a pump system for high volume / low pressure applications. The installation location can be chosen by the client as long as it can be mounted securely and in accordance with this manual. In case of any questions, please contact a HVP or a HVP qualified service center.

The pumps have been designed in such a way that the power supply can be provided by generators or battery packs.

5.2 Construction



The connection of the pump to the hull is depending on the location of connection.

A sticker is connected to each pump, it records the key data as per the EC machinery directive 2006/42/EC.

6. Installation

6.1 Hardware

For the installation always refer to a professional and trained company. The pumps shall only be installed as described by High Volume Pumps.

No client, installation company, dealer or any other person/company is allowed to make any changes to the hardware/software.

All safety equipment like kill switches, fuses, relays, other type of safety products should be installed by a professional and trained company according regulation/law for the country within which the products are used.

When verifying the correct operation of the pump, ensure all DC connections are checked immediately after reaching full power. When performing this check directly after full power is applied, all connections should not be warm to the touch. If connections are hot to the touch, please reinstall the DC connections.

After 10 and after 50 hours of running the mounting socket bolts have to be checked, see chapter 4.

6.1.1 Motor controller

Depending on the choice of motor controller, a wiring schematic should be followed. Always contact HVP for the manual of the motor controller. The motor controller should be connected using shielded cables which are preferably located in stainless steel or aluminum tubing.

6.1.2 Fuses

To ensure a safe system several fuse(s) have to be installed. HVP is not responsible for damage occurred by fuses which were not delivered by HVP.

6.2 Software

High Volume Pumps will provide software which is developed for the specified configuration. Nobody is allowed to make any changes to the software, except High Volume Pumps.

6.3 Batteries

The pumps could additionally be used as a generator. Make sure that the used configuration is suitable for this purpose.

7. Operation

7.1 Preparation

Ensure the following preparations have been carried out before operating the HVP products.

- ✓ Unplug the cable/plug from the power supply.
- ✓ Store the charging cable in a way which as to prevent damage or tripping.
- ✓ Check the remaining capacity of the batteries.

Do not put the pump into operation if the remaining battery capacity is < 20%!

7.2 Operation

- Ensure the following preparations have been carried out before operating:
- Turn on the power supply for the pump.
- Ensure the pump can be put forwards and backwards without noise etc.
- Regularly check the remaining battery capacity during operation. Otherwise there is a risk of having no propulsion.

7.3 Stop operation

Ensure the following actions have been carried out when stopping the use of the pump:

- Turn off the power supply for the pump.
- Connect the charging cable to the charger.
- Make sure that the charging cables are placed in a safe way as to prevent tripping or accidental damage.

Lay down the charging cable as to prevent damage.

7.4 Use frequently

The pump has to be used for a minimum of five hours every three months to make sure the bearings will not seize up.

8. Maintenance & cleaning

8.1 Maintenance

Have the HVP pump checked at least once a year by High Volume Pumps or by an authorized specialist to check for perfect condition. If damage is discovered, it must be rectified immediately by a HVP service partner before operating. Do not use the HVP product when it is damaged.

Danger of destruction! Maintenance should only be performed by authorized personal / service centers. Otherwise, errors may occur which can lead to the destruction of the pump. High Volume Pumps accepts no liability for damages caused by improper maintenance.

Maintenance level	Executor	Working hours	Time
Maintenance level 1	Client	5 hours	Every run
Maintenance level 2	Client	100 hours	One year
Maintenance level 3	HVP Service partner	1.000 hours	Five years

Service task	Level 1	Level 2	Level 3
Test functionality	Propeller turns forward Propeller turns reverse Pump is reacting fast		
Cable connections		Check for damage Visual check Check connectors	
Batteries and cables		Visual check of cables Visual check of connectors Visual check of connections	
Anode		Replacement	
Mechanical connection to hull		Test and repair if necessary	
Waterproofness			Visual check of complete pump
Full product test			Control propeller quality

*The client is responsible to contact a HVP authorized service center for maintenance level 3.

8.1.1 Replacement parts

For information on spare parts and the installation of these parts, contact High Volume Pumps or an authorized Service Partner.

8.1.2 Corrosion protection

A high level of corrosion resistance is ensured by the design of the products and with the selection of the materials. All materials are classified as sea water resistant materials.

To reduce the chance of corrosion:

- Check the anode latest every 6 months. Change the anode every 12 months or after >50% of anode has been destroyed by environment.
- Regularly apply a suitable contact spray (e.g. Wet protect) to cable contacts, data sockets, and data plugs.
- The use of anti-fouling agent is forbidden.
- Only mount original HVP anodes to the pump. Otherwise no guarantees can be given.

8.2 Cleaning

Before starting turn off the power supply, as to prevent accidental activation during the cleaning process.

Injury! When the power supply is switched on, the pump may cause injuries to the limbs when cleaning the HVP pump.

The cleaning intervals depend on the area of application and the number of operating hours. At least, the pump must be cleaned once a year in fresh water.

In case of contaminated, salt water or with frequent use of the pump; the interval between cleaning should be shortened.

Only use fresh water for cleaning.

8.3 Dismounting

The client is not allowed to dismount, remove or disassemble any parts from the products. Examples of activities which are not allowed:

- Removal of mounting rings
- Removal of rotor housing
- Removal of cables
- Removal of mounting socket

Disorders

Make sure that the power supply is switched off and is secured against activation.

Injury! When the power supply is switched on the pump may cause injuries to the user.

Disorder	Possible cause	Fix
The pump is not running.	The main switch is not turned on.	Turn on the main switch.
	The batteries are empty.	Charge the batteries.
	The propeller is blocked.	Check if the propeller is damaged.
	Connection/Wiring is not correct/bad.	Check wiring and connections.
	The motor controller gives an error.	Restart the system
The batteries are not charging.	The plug from the charging cable is not properly plugged into the land-side power supply.	Insert the plug correctly into the land-side power supply.
	The land-side power supply is switched off.	Turn on the land-side power supply.
	The batteries are defect.	Replace the defect batteries.

9. Disposal and environment

10.1 Disposal of waste electrical and electronic equipment

For customers in EU countries

HVP permits all clients to follow the European Directive 2012/19/EU relating to Waste Electrical and Electronic Equipment – WEEE, and to the corresponding national laws. The WEEE Directive forms the basis for handling waste electrical equipment across the whole of the EU. The HVP system is marked with the symbol of a crossed-out rubbish bin. Waste electrical and electronic equipment must not be disposed of as normal household waste, because this could allow entry of pollutants to the environment which have effects injurious to health on humans, animals, and plants, and which build up in the food chain and in the environment. In addition, valuable raw materials are lost in this way. Please therefore direct all waste equipment for separate collection in an environmentally friendly way.

For customers in other countries

HVP permits all clients to follow the European directive 2012/19/EU regarding waste electrical and electronic equipment. We recommend that the system is not discarded as normal household waste, rather this should be disposed of via separate collection in an environmentally friendly way. The applicable national laws may also prescribe this. Therefore, please ensure appropriate disposal of the system as per the regulations which apply in the country within which the pump is used.

10.2 Disposal of batteries

Remove spent batteries immediately, and comply with the following specific disposal information relating to batteries or battery systems:

For customers in EU countries

HVP permits all clients to follow the European directive 2006/66/EC regarding (spent) batteries, as well as to the corresponding national laws. Here the Battery Directive forms the basis for handling batteries throughout the EU. Our batteries are marked with the symbol of a crossed-out rubbish bin. Spent batteries must not be disposed of as normal household waste, because this could allow pollutants to enter the environment which could have effects injurious to health on humans, animals, and plants, and which build up in the food chain and in the environment. In addition, valuable raw materials are lost in this way. Please therefore dispose of the spent batteries exclusively via specially set-up collection points, the dealer, or the manufacturer. There is no charge for handing them in.

For customers in other countries

HVP permits all clients to follow the European directive 2006/66/EC regarding (spent) batteries. The batteries are marked with the symbol of a crossed-out rubbish bin. We recommend that the batteries are not discarded as normal household waste, rather this should be disposed of via separate collection. Your national laws may also prescribe this. Therefore, please ensure appropriate disposal of the batteries as per the regulations which apply in the country within which the pump is used.

10. General conditions for warranty

11.1 Warranty and liability

The warranty period starts from the day of delivery of the HVP system to the end customer.

11.2 Scope of warranty

High Volume Pumps, Wanraaij 33, 6673 DM, Andelst guarantees the end customer of a HVP system, the product is free from material and manufacturing defects during the period of coverage defined below. High Volume Pumps will indemnify the end customer for the costs of correction of a material or manufacturing defect. This indemnification obligation does not apply to any incidental costs caused by a warranty case or to any other financial detriment (e.g. costs for towing, telecommunication, accommodation, subsistence, loss of use, lost time, etc.).

The warranty terminates two years from the day of handover of the product to the end customer. Products used - even temporarily - for professional or official purposes are excluded from the two-year warranty. For these uses, the statutory warranty applies. The guarantee claim expires six months after the discovery of the defect.

High Volume Pumps decides whether defective parts are repaired or replaced. Distributors and dealers who carry out repair work on High Volume Pumps pumps have no power to make legally binding statements on behalf of High Volume Pumps.

Wearing parts and routine maintenance are excluded from the warranty.

High Volume Pumps has the right to refuse warranty claims if:

- The warranty was not submitted correctly (especially failure to make contact before dispatching goods under complaint, absence of a fully completed warranty form and of proof of purchase; see warranty process).
- The product has been used in a manner contrary to instructions.
- The safety, operating, and care information in the instructions were not followed.
- Prescribed maintenance intervals were not complied with and documented.
- The purchased item was in any way converted, modified, or equipped with parts or accessory items which are not expressly authorized by High Volume Pumps or which do not form part of recommended equipment.
- Previous maintenance or repairs were undertaken by companies not authorized by High Volume Pumps, or parts other than original replacement parts were used. This applies unless the end customer can prove that the circumstances resulting in the refusal of the warranty claim have not encouraged the progress of the defect.
- The product has been used for other applications as described.

In addition to the claims arising from this warranty, the end customer has statutory warranty rights arising from his purchase contract with the relevant dealer; these are not restricted by this warranty.

11.3 Warranty process

It is a prerequisite that the warranty process described below is followed for the fulfilment of warranty claims.

For the problem-free handling of warranty cases, we request that the following instructions are complied with:

- In the event of a claim, please contact High Volume Pumps. HVP will provide a return number (RMA Number).
- Should it be necessary to transport products to High Volume Pumps premises, please note that inappropriate transport is not covered by guarantee or warranty.

For queries regarding the warranty process, we can be contacted by means of the details given in this manual.

11.4 Shipment

The client is responsible for shipment, costs and any damage or loss which are related to this shipment.

HIGH VOLUME PUMPS
The Dutch shaftless electric pump solution

Supplier in sustainable
user-friendly electric pumps

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