

Hydro-Units

Installation and operating instructions
Series: Break-Unit DPVCI ECO-Control

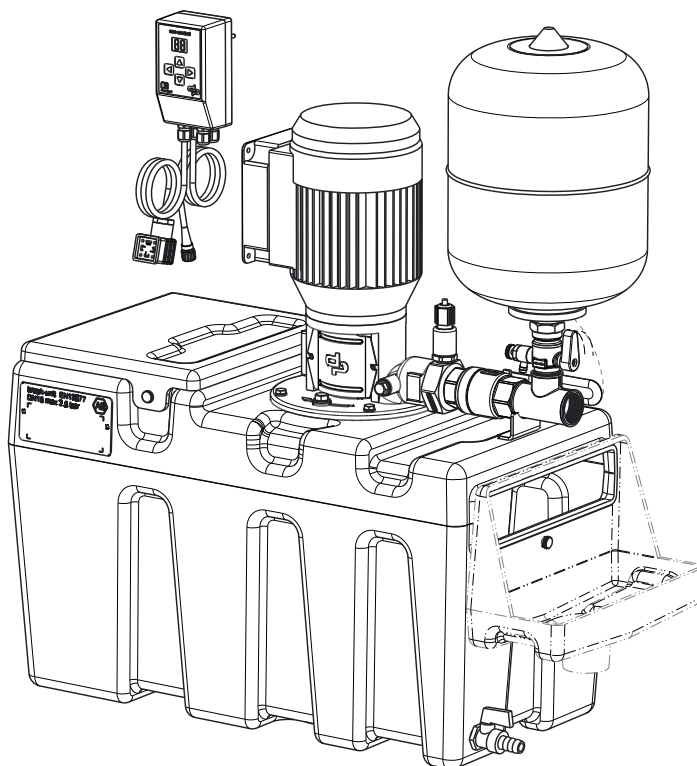


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1 Introduction

1.1 Preface

This manual contains important information for reliable, proper and efficient operation. Compliance with the operating instructions is of vital importance to ensure reliability and a long service life of the product and to avoid any risks.

The first chapters contain information about this manual and safety in general. The following chapters provide information about normal use, installation, maintenance and repairs of the product. The annex contains the declaration(s) of conformity.

- Make yourself familiar with the content.
- Accurately follow the directions and instructions.
- Never change the sequence of the operations to be carried out.
- Keep this manual or a copy of it together with the logbook in a fixed place near the product which can be accessed by all personnel.



ENVIRONMENTAL INSTRUCTION
Remarks with respect to the environment.



FOR INDOOR USE ONLY

Connect the Break-Unit ECO only indoors.



WEEE MARKING

Marking of electrical and electronic equipment in accordance with Article 15(2) of Directive 2012/19/EU.

1.2 Icons and symbols

In this manual and in all accompanying documentation the following icons and symbols are used.



WARNING

Danger of electric tension. Safety sign to IEC 417 - 5036



WARNING

Operations or procedures, if carried out without caution, may cause personal injury or damage to the installation. General hazard sign according to ISO 7000-0434.



READ THE (SUPPLEMENTARY) DOCUMENTATION

Read the user and operating instructions.



ATTENTION

Is used to introduce safety instructions whose non-observance may lead to damage to the installation and its functions.

2 Identification, service and technical support

2.1 Identification, service and technical support

The identification sticker mentions the type/size, the main operating data and the serial number. Please mention these data in all queries, repeat orders and particularly when ordering spare parts. If you need any additional information or instructions not included in this manual or in case of damage, please contact the nearest customer service centre of dp-pumps.

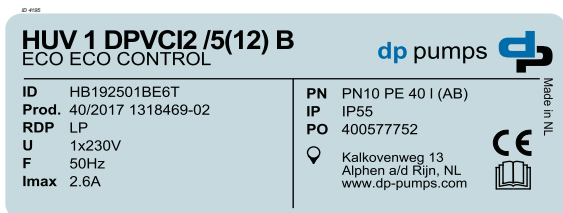


Figure 1: Identification sticker

Table 1: explanation of the sticker

Indication	Meaning
HUV1DPVCI2/5(12) B	Installation type
ECO CONTROL	Type of controller and start-up method
ID	Item number
Prod.	Production week/year and number
RDP	Type of run-dry protection
U	Supply voltage of the installation
F	Frequency of the installation
Imax	Maximum absorbed power of the installation
PN	Pressure class of the installation and construction type
IP	Protection class
PO	Order number

The following address data are available for service and technical support:

Table 2: Address service department

dp-pumps Kalkovenweg 13 2401 LJ Alphen a/d Rijn The Netherlands	Tel: +31 172 488388 Internet: www.dp-pumps.com E-mail: dp@dp-pumps.com
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2.2 Supplementary documentation

This version applies from software version 3.9 of the ECO-Control. Apart from this manual, the documentation given below is available as well:

Table 3: supplementary documentation

Document	Code
Technical documentation about the pump	97004475
Technical documentation about the installation	97004460
Documentation	

Also see: www.dp-pumps.com

Software version	Manual version from:
ECO-Control V 3.4	11/2011
ECO-Control V 3.5	01/2012
ECO-Control V 3.9/4.1	08/2013

Also see: www.dp-pumps.com

3 Warranty

3.1 Terms of warranty

The warranty period is settled by the terms of your contract or at least by the general terms and conditions of sales.



ATTENTION

Modifications or alterations of the product supplied are only permitted after consultation with the manufacturer. Original spare parts and accessories authorized by the manufacturer ensure safety. The use of other parts can invalidate any liability of the manufacturer for consequential damage.



ATTENTION

The warranty relating to the operating reliability and safety of the product supplied is only valid if the product is used in accordance with its designated use as described in the following sections of this manual. The limits stated in the data sheet must not be exceeded under any circumstances.

The warranty becomes invalid if one or more of the points below occur.

- The buyer makes modifications himself.
- The buyer carries out repairs himself or has these carried out by a third party.
- The product has been handled or maintained improperly.
- The product has non original dp-pumps spare parts fitted.

dp-pumps repairs defects under warranty when:

- They are caused by flaws in the design, the material or the production.
- They are reported within the warranty period.

Other terms of warranty have been included in the general terms of delivery, which are available upon request.

4 Safety and environment

4.1 General

This dp-pumps product has been developed using state-of-the-art technology and is manufactured with utmost care and is subject to continuous quality control.

dp-pumps does not accept any liability for damage or injury caused by not following the directions and instructions in this manual or by carelessness during the installation, use or maintenance of the product. Non-compliance with the safety instructions can jeopardize the safety of personnel, the environment and the product itself. Non-compliance with these safety instructions will also lead to forfeiture of any and all rights to claims for damages.

Non-compliance can result in:

- failure of important pump/system functions,
- failure of prescribed maintenance or service,
- injury caused by electrical, mechanical and chemical effects,
- leakage to the environment of hazardous substances,
- explosions.

Depending on the application, extra safety measures may be required. Contact dp-pumps if a potential danger arises during use.



ATTENTION

The owner of the product is responsible for compliance with the local safety regulations and internal company guidelines.



ATTENTION

Not only must the general safety instructions laid down in this chapter on "Safety" be complied with, but also the safety instructions outlined under specific headings.



ATTENTION

The appliance is not to be used by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction.



ATTENTION

Children being supervised not to play with the appliance.

4.2 Users

All personnel involved in the operation, maintenance, inspection and installation of the product must be fully qualified to carry out the work involved and be aware of all applicable responsibilities, authorisations and supervisions. If the personnel in question is not in possession of the required know-how, appropriate training and instruction must be provided. The operator may require the manufacturer/supplier to provide sufficient training and/or instructions. The operator is responsible for ensuring that the contents of the operating instructions are fully understood by the responsible personnel.

4.3 Safety provisions

The product has been designed with the greatest possible care. Original parts and accessories meet the safety regulations. Modifications in the construction or the use of non-original parts may lead to a safety risk.



ATTENTION

Make sure that the product operates within its working range. Only then the product performance is guaranteed.

4.3.1 Labels on the product

The icons, warnings and instructions applied to the product are part of the safety provisions. The labels may not be removed or covered. Labels must remain legible during the entire life of the product. Replace damaged labels immediately.

4.4 Safety precautions

4.4.1 During normal use

- For questions regarding the power supply contact the local electricity company.
- Isolate possible hot parts to avoid injury through direct contact.
- For your safety always assemble undeformed coupling guards (when applicable) before putting the pump into use.
- Always close the terminal box of the motor.
- Always close the control panel where applicable

4.4.2 During installation, maintenance and repair

Only authorised personnel may install, maintain and inspect the product and repair electrical components. Observe the local safety regulations.



WARNING

Before proceeding with any installation, maintenance or repair, disconnect the power supply and secure this disconnection.



WARNING

Surfaces of a pump can be hot after continuous or intermittent operation.



WARNING

Secure the area before starting a pump to avoid hazardous situations with rotating parts.



WARNING

Take utmost care when handling dangerous liquids. Avoid danger to persons or the environment when conducting repairs, draining liquids or venting. It is strongly recommended to place a leakage tray under the pump.



WARNING

Immediately after completing the work, all safety-relevant and protective devices must be re-installed and / or re-activated.



WARNING

Please observe all instructions set out in the chapter "Commissioning" before returning the product to service.

4.5 Return to supplier

- Drain the Break-Unit as per operating instructions.
- Always flush and clean the Break-Unit, particularly if it has been used for handling noxious, explosive, hot or other hazardous fluids.
- If the Break-Unit has handled fluids whose residues could lead to corrosion damage in the presence of atmospheric humidity or could ignite upon contact with oxygen, the Break-Unit must also be neutralised, and anhydrous inert gas must be blown through the Break-Unit to ensure drying.
- Always complete and enclose a certificate of decontamination when returning the Break-Unit, see chapter 12.7 Certificate of Decontamination. Always indicate any safety and decontamination measures taken.



ATTENTION

If required, a blank certificate of decontamination can be downloaded from the web site at: www.dp-pumps.com/certificates-of-decontamination

4.6 Environmental aspects

4.6.1 General

The products of dp-pumps are designed to function in an environmentally friendly way during their entire lifetime. Therefore, when applicable, always use biodegradable lubricants for maintenance.



ENVIRONMENTAL INSTRUCTION

Always act according to the laws, by-laws regulations and instructions with respect to health, safety and the environment.

4.6.2 Product information as per Regulation No. 1907/2006 (REACH)

For information as per chemicals Regulation (EC) No. 1907/2006 (REACH), see www.dp-pumps.com/reach.

4.6.3 Dismantling

The owner is responsible for the dismantling and environmentally friendly disposal of the product.



ENVIRONMENTAL INSTRUCTION

Ask at the local government about the re-use or the environmentally friendly processing of discarded materials.



WEEE MARKING

Electrical or electronic equipment marked with the adjacent symbol must not be disposed of in household waste at the end of its service life. Contact your local waste disposal partner for returns. If the used electrical or electronic equipment contains personal data, the operator is responsible for deleting it before the equipment is returned.

5 Introduction

5.1 General



ATTENTION
dp-pumps advises to install a pressure gauge in the supply and discharge pipes for reading the pressure value independent of the installation.

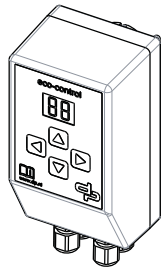


Figure 2: Control units of the type ECO-Control.

Control units of the type ECO-Control are manufactured by dp-pumps.

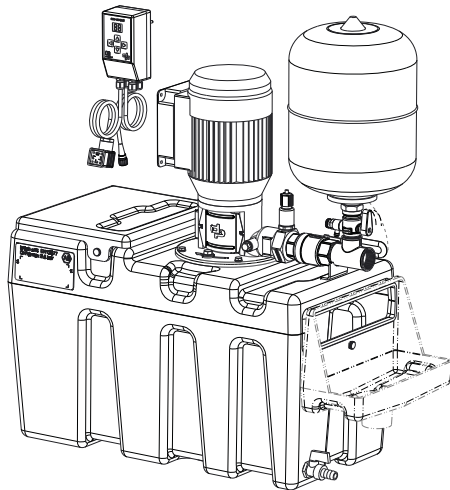


Figure 3: Installations of the type Break-Unit ECO

Installations of the type Break-Unit ECOHUV1DPVCI are manufactured by dp-pumps, Alphen aan den Rijn.

5.2 Intended use

The installation Break-Unit ECO is suitable for increasing the pressure in (process) water installations and for pumping liquids with a viscosity identical to the viscosity of water, within the indicated working range. The installation Break-Unit ECO is set up in order to prevent water from flowing back from the system into the water mains. The water supply company makes a Break-Unit ECO compulsory in accordance with EN 1717 and EN 13077 (AB), if the water user works with substances that are dangerous to public health. For checking the process liquid we refer to EN 1717 and EN 13077. The Break-Unit ECO is built according to EN 1717 and EN 13077.

Any other or further use of the installation is not in conformity with its intended use. dp-pumps does not accept any liability for any damage or injury resulting from this. The installation has been produced in accordance with the actual standards and guidelines. Use the installation exclusively in a perfect technical state, in conformity with the intended use described below.

The *Intended use* as laid down in ISO 12100:2010 is the use for which the technical product is intended according to the specifications of the manufacturer. The use of the product has been described in the available documentation and information. Always observe the instructions as given in the installation and operating instructions. When in doubt the product must be used as becomes evident from its construction, version and function.

5.3 Working range

The working range of the installation can be summarised as follows:

Table 4: Specification of the working range

Type	Break-Unit ECO
Ambient temperature [°C]	+4 to 30
Liquid temperature [°C]	+4 to 30
Max. operating pressure [bar]	6
Min. supply pressure [bar]	at least such, that the supply capacity is in balance with the decrease
Max. supply pressure [bar]	2.5 (on float valve) ¹
Pressure class	PN10
Maximum height	1000 m above sea level

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1. If necessary, install a pressure reducer

Table 5: Specific applications

type	application area
Break-Unit ECO	(Process) water supply systems requiring a non-return protection that complies with class AB according to European standard EN 13077.



5.4 Operation HUV1 DPVCI AB ECO-Control

5.4.1 Normal operation of the pressure controller

The system pressure is controlled using a pressure reader on the discharge side of the installation.

When as a result of a decreasing water volume the pressure drops below the target pressure, the pump will be switched on. See 9.1 Parameter list, parameter 5 for recording the target pressure. The switch-on pressure is the target value minus the band width, the switch-off pressure is the target pressure plus the band width.

The pump will be switched off again when the target pressure has been reached and the minimum run time has expired. The minimum after-run time is continuously optimised. This results in considerable energy savings.

5.4.2 Protection for discharge pressure too high

When the system pressure exceeds the set maximum pressure and the delay time has expired, the high pressure alarm is generated and the pump is switched off.

The fault can only be reset when the pressure is below the value in parameter 7. The pump relay is automatically reset, the alarm is automatically or manually reset, dependent on parameter 8.

5.4.3 Protection for discharge pressure too low

When the system pressure is below the set bottom pressure value (parameter 9) and the delay time (parameter 15) has expired, the control generates an alarm and the pump is switched off. This protection is for detection of pipe breaks, a too large water usage and in some cases for run-dry protection.



ATTENTION
See 12.1 Fault table

5.4.4 Functioning of the run-dry protection (RDP)

5.4.4.1 Model without float switch

The installation has by default not been provided with a float switch for run-dry protection. In this case, the low discharge pressure protection acts as run-dry protection. As soon as the pump has no water left, the discharge pressure drops to 0 bar, which triggers the low discharge pressure protection and the pump is switched off. If the reservoir is filled again, the pump will not automatically fill again and it is not automatically reset. The user must vent the pump (see 7.6.3 Venting the pump installation after an interruption of the medium supply (installation without float switch)) and reset the alarm with the reset button.

In situations in which there regularly is no/insufficient water supply, it is recommended to order the optional float switch or to have this installed.

5.4.4.2 Model with float switch

If a float switch has been mounted in the reservoir, this will act as run-dry protection. As soon as the water level in the reservoir drops below the minimum, the float switch triggers the run-dry contact and the pump is switched off. Now the pump remains filled and as soon as the water level is above the minimum, the pump is reset.

5.4.5 Basic operation minimum run-time correction

The pump may start a maximum number of times per hour (parameter 11). A minimum run time is set in the control (parameter 12).

When the pump makes more switches per hour than the number set for Max starts, the minimum run time will be extended by a correction factor (parameter 13) after one hour.

If after an hour the number of starts has remained below the max. number of starts per hour, the minimum run time will automatically be decreased.

6 Transport

6.1 Transport



WARNING

The installation is transported on a pallet. Carefully slide the installation off the pallet at the place of destination.



WARNING

Hoist the installation according to the applicable hoisting guidelines. Only qualified personnel is allowed to hoist the installation.

Always observe the instructions as indicated by the stickers on the installation.



Figure 4: Piping sticker

1. Transport the installation in the position indicated on the pallet or packaging.
2. Check if the installation is stable.
3. Observe the instructions on the packaging (if present).

6.2 Storage

6.2.1 Preparations for storage

1. Protect the system against the risk of frost.
2. Store the installation in a frost-free environment.
3. Place the installation in the position as indicated on the packaging.
4. When applicable: Keep the vessel under pressure (1/2 bar).

6.2.2 Inspection during storage

1. Turn a shaft every three months¹. This protects the seals from seizure.

1. period may vary per application or medium. Please consult your sales representative for application details.

2. After a storage period of six months or longer, inspect the installation before using it again.

7 Installation

7.1 Mechanical installation



ATTENTION
If parts are missing or damaged, please contact the supplier.



ATTENTION
Provide sufficient support for the ECO-Control, for example by making use of a double wall socket, which will also support the bottom side.



ATTENTION
Remove all packing materials. Check also the inside of the reservoir.

7.2 Set up the system

Preferably set up the system in an area with at least the following properties:

Table 6: Requirements for the installation area

Item	Requirements
Area	<ul style="list-style-type: none"> Clean, dry, frost-free, cool¹ and ventilated and can be provided with light; The surface must be large enough for easy access to the installation. The height of the installation area must meet the minimum requirements. The layout must be such, that any released water can be discharged without causing inconvenience. The system must be free from the walls. The area must be suitable for installing technical equipment The area must be closed for unauthorised people.

1. Cool is defined as a temperature of between 4 °C and 25 °C, and preferably lower than 20 °C.

Follow the instruction below for correct connection of the installation:

- Place the unit on a clean, flat surface (or mount it unto the wall using the optional wall-mounting set).
- Connect the supply pipe stress-free, preferably by means of a pipe compensator (available as an option).

- On beforehand check the pipe pressure in the supply and install a pressure reducer if this is above 2.5 bar (available as an option).
- Connect the discharge pipe stress-free, preferably by means of a three-piece coupling and a pipe compensator (available as an optional connection set).
- Make sure that any leakage water can be discharged without causing any inconvenience. If necessary, connect the optionally available leakage water collector (see 7.3 Connect the leakage water collector (option)).

Proceed as follows to minimise the noise level:

- Fix the supply and discharge pipes correctly using a bracket.
- Mount a pipe compensator in the supply and discharge pipes (option).
- In case of contamination, insert a filter in the supply pipe.
- Pipes must be connected stress-free.
- The diameter of the supply pipes must be large enough.

7.3 Connect the leakage water collector (option)

If the installation has been provided with the optional leakage water collector, this must be connected to a discharge pipe that can drain sufficient water. A 50 mm knee piece with bush is delivered with the connector for connecting a 50 mm PVC pipe. If the leakage water collector set is ordered at a later stage, the mounting instructions for the leakage water collector will be included.



WARNING
Leakage water collection is meant for draining any leakage water, not for discharging the maximum overflow capacity with a completely opened float valve.

7.4 Wall-mounting

The unit can be attached to the wall using the optional wall-mounting set. Use suitable mounting material for this. Follow the manual with more detailed instructions delivered with the mounting set. Attach the installation to the wall brackets using the included plastic screws. The bottom of the reservoir may bulge a little, but it will be pressed flat as soon as the reservoir is filled with water. Then the reservoir will be stable on the brackets.

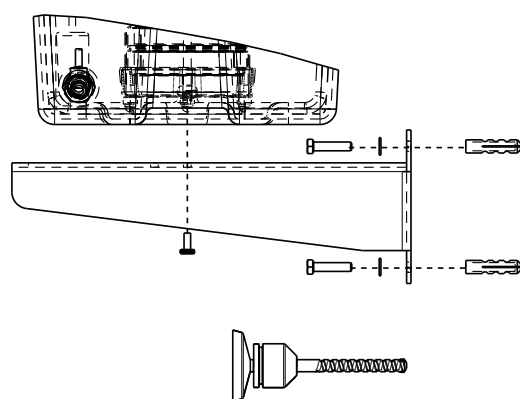


Figure 5: Wall-mounting

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WARNING
The wall and the mounting material must be suitable for the application and the occurring load.

7.5 Electrical installation



WARNING
Only authorized personnel is allowed to connect the installation electrically in accordance with the local regulations.

Electrical connections

- Make sure that the motor specifications correspond with the power supply to which the pump motor is connected.
- Before installing or servicing this pump, be certain pump power source is disconnected.
- Installation and electrical wiring must adhere to state and local codes and must be completed before priming the pump. Check appropriate community agencies, or contact local electrical and pump professionals.

- The Break-Unit ECO should be connected to a maximum 16 amps circuit breaker or maximum 16 amps fuse block in both phases of the electric circuit.
- Connect the installation using an interruptible connection (plug).
- Do not connect pump to a power supply until permanently grounded. For maximum safety, ground pump to a circuit equipped with a fault interrupter device.
- Voltage of power supply must match the voltage of the pump.



WARNING
Break-Unit ECO is not designed for and **CANNOT** be installed in locations classified as hazardous.

7.6 Commissioning

7.6.1 Set the target pressure and the motor current

The control unit has been pre-programmed and pre-set with factory settings (see 'Default values' at the parameter settings concerned).

The following parameters can be set as required:
Table 7: Parameter settings for Break-Unit

Parameter	Description	Default
5	Target value	2.8
6	Band width	0.3
18	Nominal amperage: [A]	I _{nom}

Switch-off pressure = target value + band width,
example: 2.8 + 0.3 = 3.1 bar

Switch-on pressure = target value - band width,
example 2.8 - 0.3 = 2.5 bar.

7.6.2 Venting the pump at initial start-up



WARNING
Installation must be disconnected from the main supply.



WARNING
Supply valve must be closed. Discharge valve must be closed.

Remove one of the vent plugs, which are located on either side of the discharge connection of the pump. Carefully open the supply valve and fill the tank. Wait

10 seconds after filling and then tighten the vent plug back into the pump. Open the discharge valve a little bit (so that the air in the pump can be drained as soon as the pump is started). Connect the ECO-Control to a suitable wall outlet (230V max 16A). The pump will pump some of the air out. Now close the discharge valve, the pump will build up the maximum pressure. By opening and closing the discharge valve several times the pump will be vented further. Finally, carefully open the discharge valve to pressurize the system. Make sure that the pressure doesn't fall below 1.0 bar low pressure security by pressurizing/filling the system.



ATTENTION

If the pump does not reach more than 1.0 bar within the specified time, the low pressure warning will switch off the pump (alarm 18).

- 1 By pressing and holding the right arrow button, the pump can be started manually to get the pressure above the low pressure setting. Keep the discharge valve slightly open.



WARNING

Do not press and hold this button longer than 10 seconds, this may damage the pump.

If the pressure is not above 1.0 bar in 10 seconds, shut the discharge valve. Remove the ECO-Control from the wall outlet. Vent the pump 10 seconds, refit the vent plug and repeat the procedure from step 1. When after repeating these steps the pump is still not building up pressure with a slightly opened discharge valve, do as follows. Remove one of the vent plugs and place a bucket or tank at an angle under the vent opening. Start the pump by pressing and holding the right arrow, so a jet of water and air will come out of the vent opening. Release the button when the jet gets more powerful or the bucket is almost full. Replace the vent plug and continue from step 1.

7.6.3 Venting the pump installation after an interruption of the medium supply (installation without float switch)

If the reservoir is empty and the medium supply is not recovered, follow the instructions described in 7.6.2 Venting the pump at initial start-up

If the reservoir is refilled, but the ECO-Control shows the 18/20 alarm. Probably the pump has to be vented. Proceed as follows: Remove the ECO-Control from

the AC outlet; Close the discharge valve; Check the level in the reservoir; Remove one of the vent plugs from the pump. Wait 10 seconds to increase the water level in the pump. Refit the vent plug. Open the discharge valve a little bit (so that the air in the pump can be drained as soon as the pump is started). Connect the ECO-Control to a suitable wall outlet (230V max 16A). The pump will start up and build up pressure. If the pressure is not above the low pressure setting within a few seconds, the pump stops and the alarm 18/20 appears again. Now follow the instructions in paragraph 7.6.2 to vent the pump from step 1. to further vent the pump.

7.6.4 Pre-pressure of the pressure vessel

For a correct functioning of the installation, the pre-pressure in the pressure vessel must be 0.5 bar lower than the switch-on pressure. Proceed as follows to determine the pre-pressure:

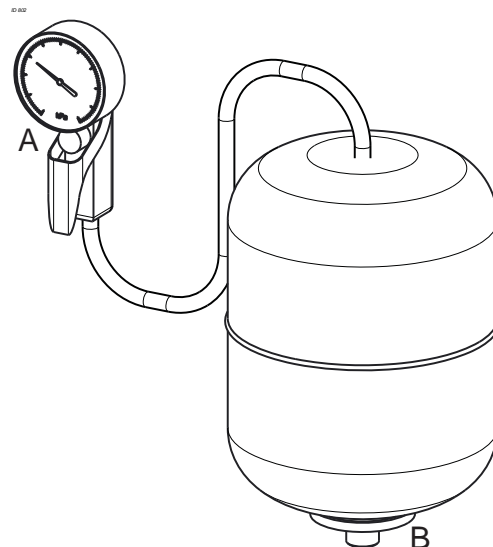


Figure 6: Pre-pressure of the pressure vessel

- 1 Measure the pressure (A) in the vessel when there is no pressure on the water side (B).
- 2 Fill the vessel with nitrogen or air. Preferably use nitrogen.



WARNING

Before putting the installation into use, first put the pressure vessel under pressure. Maximum allowable pre-pressure: 2 bar under the pressure class (PN)

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8 Operation

8.1 General

8.1.1 Operate/read the ECO-Control general

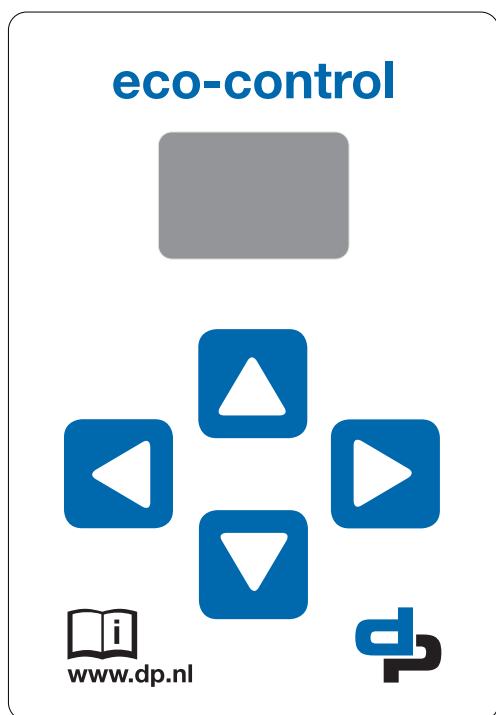


Figure 7: Display ECO-Control

The display is for:

- Reading the process values
- Reading the faults/messages, see table 9 Alarm code at the pressure control
- Reading the parameters
- Reading the parameter values

In the ECO-Control 4 operating/reading conditions are possible:

- Operating mode
- Fault mode
- Parameter setting mode
- Parameter changing mode

The operating modes can be recognised as follows by the:

- Pressure controller at the pressure reading in the display
- Flow/brand controller at the bottom-left point at the second figure in the display
- Fault mode by the change of the display between the operating mode and a fault mode
- Parameter setting mode at the bottom-right point beside the second figure in the display

The parameter changing mode is only accessible through the parameter setting mode and it has no further characteristics.

8.1.2 Indications

- When pressing an arrow key, all faults are reset except for the faults that are still present at that moment
- Pressing one of the arrow keys resets all internal timers, such as the counter of the number of pump starts per hour
- When the power of the ECO-Control is switched off, all counters are reset. The parameter values are retained
- The counter for the test run starts counting as soon as the ECO-Control is empowered. This counter is reset after the test run, which means that the test run moves on each time by the value of parameter 17. This implies that the test run does not take place every day at, for example, 17.00 hours
- The motor current low message is generated on the basis of a measurement. This is based on a percentage parameter 20 of the motor current set in parameter 18
- When parameter 26 is set to 1, the parameters of the ECO-Control are reset to the factory settings

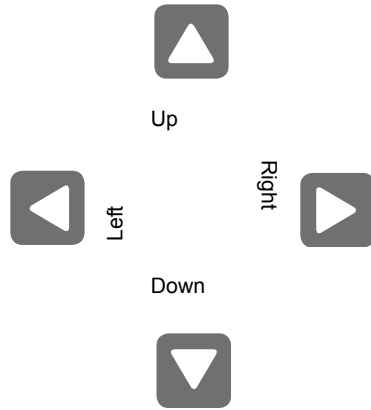
8.2 Indication / fault

The software version is shown for a short time during the start-up.

The screen shows the pressure in the system, flow (1) / no flow (0) or fire alarm (1) / no fire alarm (0) during operation.

8.3 Operation

8.3.1 Arrow keys




Various functions can be called up by means of the arrow keys:

Arrow key left  is for:

- Resetting faults; hold 1 s. By release the key follows a reset
- Switching to the parameter setting mode when pressed for 10 seconds
- Cancelling changes in the parameter changing mode
- Returning to the operating mode from the parameter setting mode

Arrow key right  is for:


- Resetting faults; hold 1 s. By release the key follows a reset
- Switching between the parameter setting mode and the parameter changing mode
- Confirming changes in the parameter changing mode
- Pump test and concurrent reading the motor current

Arrow key up  is for:

- Resetting faults; hold 1 s. By release the key follows a reset
- Calibration² of the motor current (the pump relay is switched off, the motor current is 0 A). Press the key for 10 seconds. The calibration is completed when the display shows the value 0

-
2. This is done in the factory, but it can also be done when replacing the motor and/or the pressure reader.

- Scrolling up through the parameters
- Changing the values in the parameter setting mode and the parameter changing mode, see table 8 Overview of configuration parameters in ECO-Control

Arrow key down  is for:

- Resetting faults; hold 1 s. By release the key follows a reset
- Calibration² of the pressure reader at 4 mA (the pressure reader must be pressureless and have an output of +/- 4 mA) Press the push button for 10 seconds to perform the calibration. The calibration is completed when the display shows the value 0
- Scrolling down through the parameters
- Changing the values in the parameter setting mode and the parameter changing mode, see table 8 Overview of configuration parameters in ECO-Control

9 Parameter settings

9.1 Parameter list



ATTENTION

Hold the left arrow key pressed for 10 seconds to switch to the parameter setting mode.

9.1.1 Settings

Table 8: Overview of configuration parameters in ECO-Control

Parameter	Description	Range	Factory setting	Unit	Explanation	Remark
0	Pump control	1 2 3 4	4	-	1 = Pressure control 2 = Flow control 3 = Fire control 4 = Break unit	Changing this setting does not function as a reset
1	Reset run-dry and temperature alarm	0 1	0	-	0 = Automatic reset 1 = Manual reset	Reset pump + alarm
2	Type of run-dry contact	0 1	1	-	0 = Opening generates an alarm 1 = Closing generates an alarm	NC NO
3	Type of pressure transmitter	0 1	0	-	0 = 0-10 bar 1 = -1-10 bar	Display flashes below 0 bar
4	Action at pressure reader fault	0 1	1	-	0 = Pump on 1 = Pump off	
5	Target value for syst. pressure	0-9.9	2.8	bar		
6	Band width for pressure control	0-9.9	0.3	bar	Defines switching pump on/off	$p_{in} = p_{target} \pm$ band width
7	Limit value high pressure alarm	0-9.9	9.9	bar		Pump off + alarm
8	Reset high pressure alarm	0 1	0	-	0= Automatic reset alarm 1= Manual reset alarm	Autom. reset of the pump when the press. drops again
9	Limit value low pressure alarm	0-9.9	1.0	bar		Pump off + alarm
10	Reset low pressure alarm	0 1	1	-	0= Automatic reset alarm 1= Manual reset alarm	Automatic reset of the pump when sufficient pressure
11	Max number of starts	0-99	20	n/hour	Maximum given by manufacturer	No stop/alarm
12	Minimum run time	0-99	60	s	Against starting frequently	
13	Minimum run-time correction	0-99	10	s	Correction for many/few starts	Minimum = par 12
14	Delay run-dry alarm	0-99	1	s		Pump off + alarm
15	Delay high/low pressure alarm	0-99	2	s		See par 7 - 10
16	Test-run interval	0-99	1	D		D= days
17	Test-run time	0-99	30	s		(Alarm) code 22
18	Nominal motor current	0-9.9	I_{nom}	A	Type plate motor	
19	Delay for exceeding I_{nom}	0-99	5	s		Pump off + alarm
20	Limit value low motor current	0-99	20	%	% of I_{nom}	Alarm (automatic reset)
23	Type of fire alarm contact	0 1	0	-	0 = Opening generates an alarm 1 = Closing generates an alarm	NC NO
24	Alarm contact (output)	0 1	0	-	0 = Closed during alarm 1 = Open during alarm	NO NC
25	Delay for run-dry recovery	0-99	5	s	Delayed pump release	As par 1 = 0
26	Reset all settings	0 1	0	-	0 = No action 1 = Return to factory setting ¹	When par 0 = 1/2/3 -> 2, when 4 it remains 4

1. Attention: in case of a reset all settings return to the factory settings as shown in the parameter list. After a reset, set the correct target value (par 5) and the nominal motor current (par 18). Incorrect settings may result in improper or no functioning of the installation



10 Alarm code table

10.1 Alarm code at pressure control



ATTENTION

The lowest alarm code always has priority over the higher alarm code.

Table 9: Alarm code at the pressure control

Alarm code	Description	Parameter	Automatic reset	Manual reset	Pump relay	Alarm	Remarks
11	Motor current too high/pump off		No	Yes	Off	Yes	Par. 21 does not apply to the pressure control
12	Fire alarm activated	Par. 0 = 1/ 2/4	Yes	No	On	Yes	
		Par. 0 = 3	No	Yes			
13	Run-dry protection activated	Par. 1 = 0	Yes	No	Off	Yes	
14	Run-dry protection activated	Par. 1 = 1	No	Yes	Off	Yes	
15	Temp. Input activated	Par. 1 = 0	Yes	No	Off	Yes	
		Par. 1 = 1	No	Yes	Off	Yes	
16	Pressure reader fault	Par. 4 = 0	Yes	No	On	Yes	
		Par. 4 = 1	Yes	No	Off	Yes	
17	Discharge pressure too high	Par. 8 = 1	No (motor relay Yes)	Yes (alarm relay)	Off	Yes	Only the alarm relay requires manual resetting.
18	Discharge pressure too low	Par. 10 = 1	No (motor relay Yes)	Yes (alarm relay)	Off	Yes	Only the alarm relay requires manual resetting, the pump relay is automatically reset with sufficient pressure
19	Discharge pressure too high	Par. 8 = 0	Yes	No	Off	Yes	
20	Discharge pressure too low	Par. 10 = 0	Yes	No	On	Yes	
21	Motor current too low		Yes	No	On	Yes	
22	Test-run cycle during operation		n/a	n/a	On	No	

11 Maintenance

11.1 Introduction



WARNING
Observe the general safety precautions for installation, maintenance and repair.

11.2 Cleaning instructions



WARNING
Make sure the installation has been switched off.



WARNING
The pump may be hot.


The Break-Unit ECO and the ECO-Control can be cleaned using a dry or slightly moist cloth.

12 Annexes

12.1 Fault table



WARNING
Observe the general safety precautions for installation, maintenance and repair.

Problem	Possible cause	Possible solution	Checkpoints
Leakage along the pump shaft of the pump.	The shaft seal is worn.	Replace the shaft seal.	Check the pump for dirt.
	The pump has run without water.	Replace the shaft seal.	
The pump is vibrating and makes a lot of noise.	There is no water in the pump.	Fill and vent the pump.	
	The bearings of the pump/motor are defective.	Have the bearings replaced by a certified company.	
	The hydraulic system is defective.	Replace the hydraulic system.	
The installation/pump does not start.	No power.	Check the power supply.	<ul style="list-style-type: none"> • Circuit • Fuses
	System pressure too low	Check the water supply, reset the installation 	
	Run-dry protection triggered.	Restore the water supply. Reset the installation.	
The installation/pump supplies insufficient capacity and/or pressure.	There is air in the pump.	Vent the pump.	
	The water meter in the supply pipe is too small.	Install a larger water meter.	
	The outlet and/or inlet valve is closed.	Open both valves.	
The pump continuously starts and stops.	The membrane switch vessel(s) have a leak or an incorrect pressure value.	Have the supplier re-adjust the installation.	

12.2 Dimensions of the installation HUV1 DPVCI 40 L HDPE AB

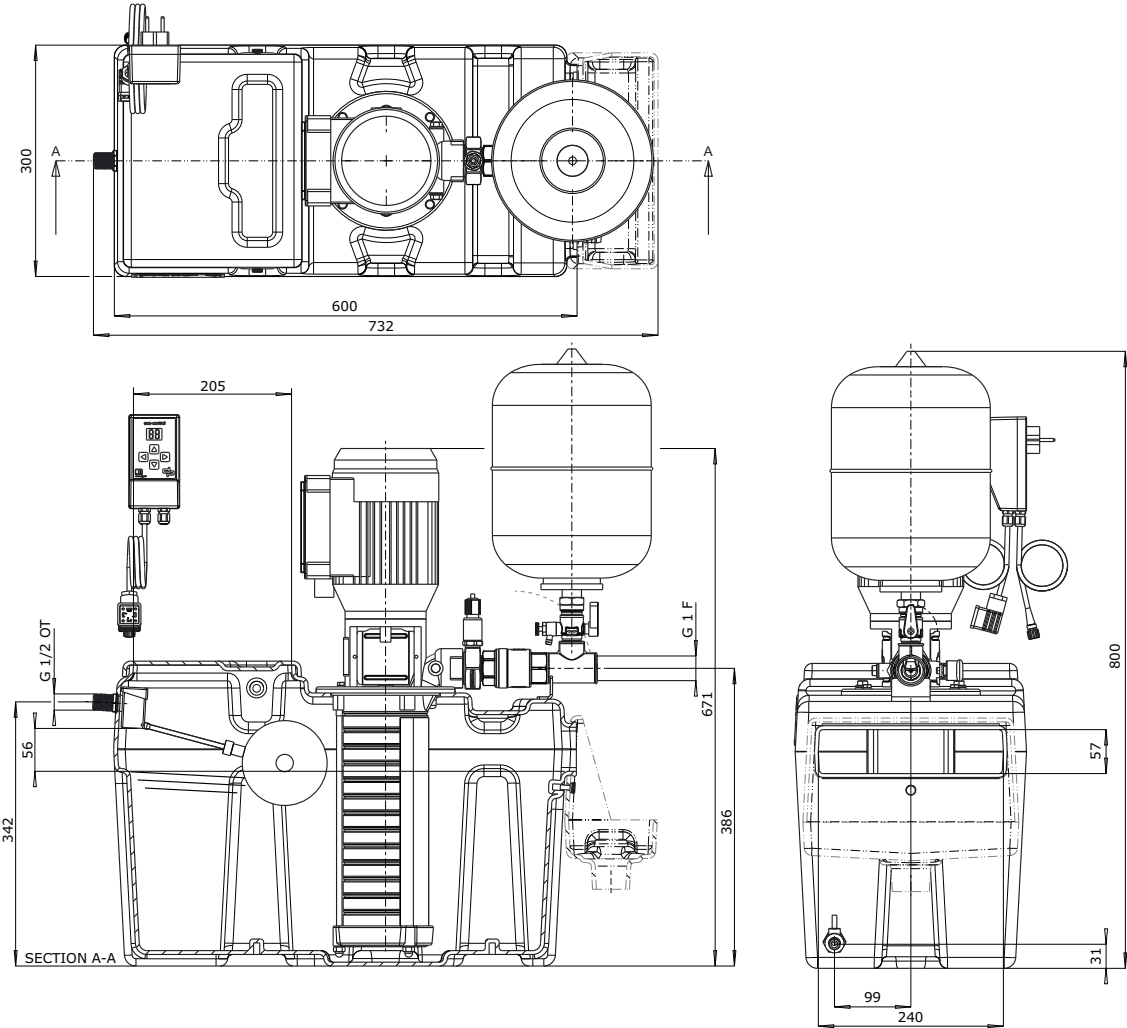


Figure 8: Dimensions HUV1 VCI

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12.3 P&ID

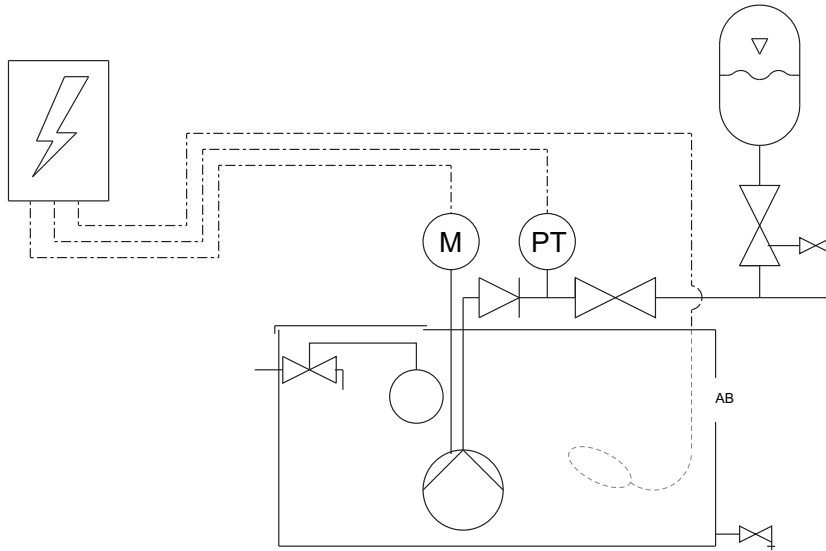


Figure 9: P&ID HUV1 DPVCI PW ECO

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12.4 Control unit ECO-Control

12.4.1 Dimensions ECO-Control

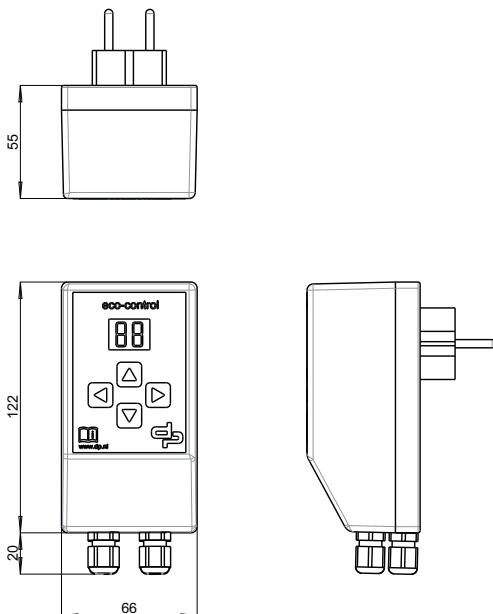


Figure 10: Dimensions ECO-Control

12.4.2 Specification ECO-Control:

- item number DP: 77870400;
- control for 1 pump in a casing with a wall socket connection;
- power 1 x 230 V 50 Hz maximum pre-fuse 16 A slow;
- display with 2 figures for reading the process values and setting parameters;
- keyboard with 4 arrow keys;
- control current ECO-Control protected by an electronic fuse;
- glass fuses 2x 10 A slow, dimensions 20 x 5 mm for protection against short circuit of the pump.

12.4.2.1 Analogue and digital inputs:

- 1x analogue input 4-20 mA power 16 VDC for the pressure reader in the pressure control mode (Par. 0 = 1) / 1.2 VDC for control in the flow control (Par. 0 = 2);
- 1x digital input for RDP (run-dry protection);
- 1x digital input for klaxon connection;
- 1x digital input for fire alarm switch;

12.4.2.2 Digital outputs:

- 1x digital output for pump control 1 x 230 V – 7.20 A (motor max. 1.1 kW – 1 x 230 V)
- 1x digital output for external signal potential free (max. 50 VAC – 1.00 A)

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12.5 Electrical connections

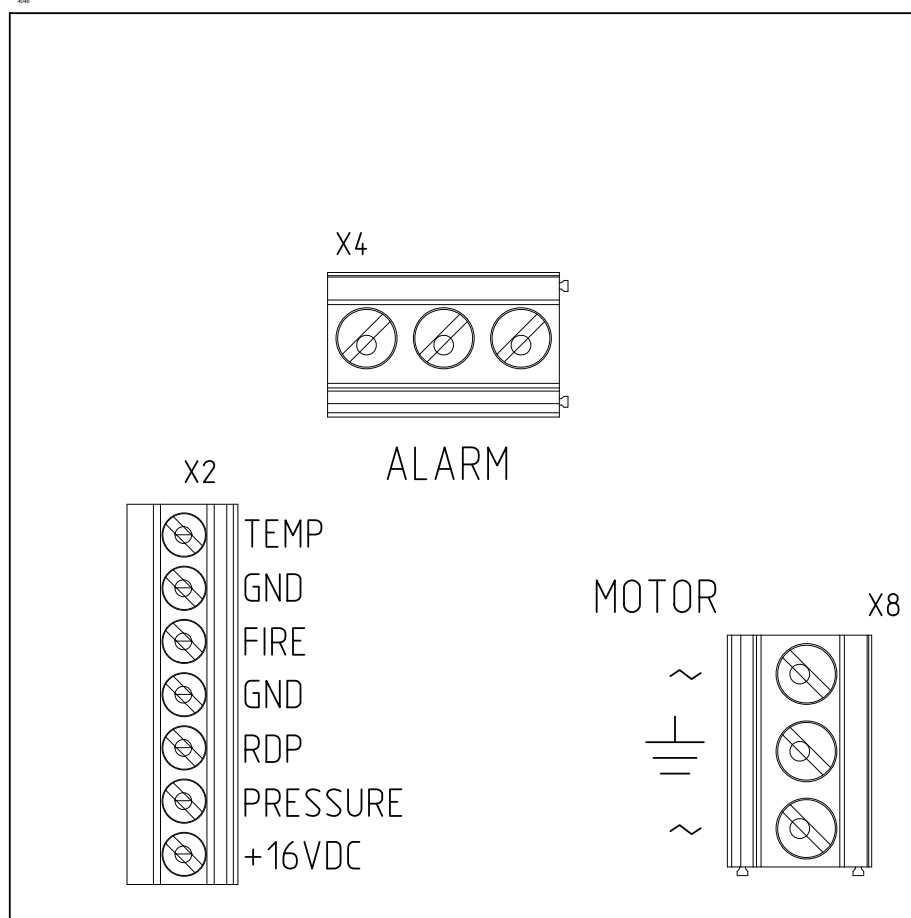


Figure 11: Top view on electrical connections ECO-Control

Table 10: Electrical connections

Terminal:	Code:	Connection:
X2	+16 VDC	Pressure reader / flow switch
	PRESSURE	
	RDP	Run-dry protection
	GND	
	FIRE	External fire alarm
	GND	External temperature monitoring for pump
	TEMP	
X4	ALARM	Alarm for external fault message potential free
X8	MOTOR	Motor cable connection

E10910N2

12.6 EU declaration of conformity

Undersigned:

dp-pumps
Kalkovenweg 13
2401 LJ Alphen aan den Rijn, The Netherlands
Tel: +31 172 48 83 88

Declares as manufacturer entirely on his own responsibility that the product:

Product: Break-Units
Type: HUV PW AB Eco control DOL

Serial number: 40/2021 1000000-1 [...] 52/2023 9999999-99

to which this declaration refers, comply with the following standards:

- ISO 12100:2010
- EN-809+A1/C1:2010
- EN 1717:2000
- EN 13077:2008
- IEC 60204-1:2018
- IEC-61000-6-1:2007
- IEC 61000-6-3/A1:2011

according to the stipulations of:

- Machine directive 2006/42/EC
- EMC directive 2014/30/EU

If the installation is used as a stand-alone product, it is subject to this declaration of conformity.

If the installation is built in into an appliance or assembled with other equipment in certain systems, it shall not be put into operation until a declaration has been issued for the appliance concerned that this complies with the directives listed above.



Alphen aan den Rijn,
2022-06-14

Authorized person:
Menno Schaap
Manager Competence Centre Products

12.7 Certificate of Decontamination

Type: _____
Order number: _____
Delivery date: _____
Applications: _____
Fluid handled: _____

Please tick where applicable:



Corrosive



Oxidising



Flammable



Explosive



Hazardous to health



Seriously hazardous
to health



Toxic



Radioactive



Bio-hazardous



Safe

Reason(s) for return: _____

Comments: _____

The product/accessories have been carefully drained, cleaned and decontaminated inside and outside prior to dispatch/placing at your disposal.

We herewith declare that this product is free from hazardous chemicals, biological and radioactive substances.

- No special safety precautions are required for further handling.
- The following safety precautions are required for flushing fluids, residual fluids and disposal:

We confirm that the above data and information are correct and complete and that dispatch is effected in accordance with the relevant legal provisions.

Place, date and signature

Address

Company stamp

dp pumps

dp pumps
P.O. Box 28
2400 AA Alphen aan den Rijn (NL)

t +31 172 488388

dp@dp-pumps.com
www.dp-pumps.com

2022-06

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Original instructions

Can be changed without prior notice

