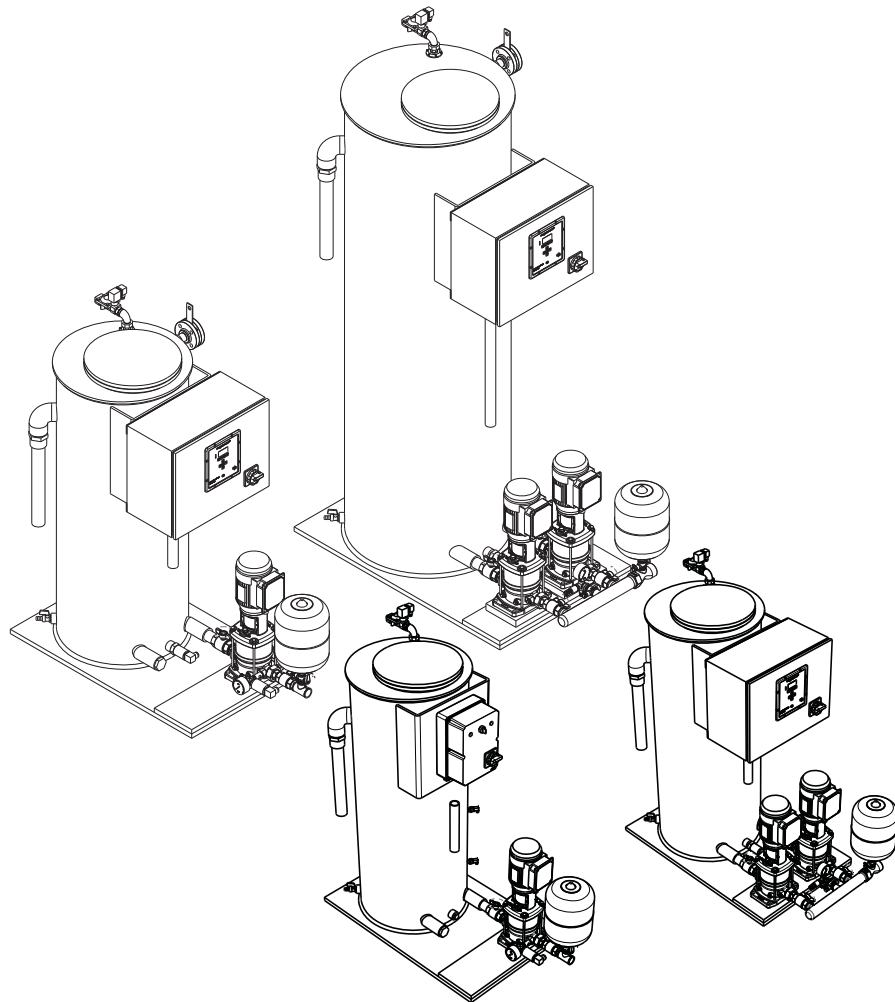


# Break-Units

Installation and operating instructions  
series: HUV1 DPVE Relay DOL AB break  
HUV2 DPVE MC DOL AB break  
HUV1 + HUV2 DPVE MC RWR AB break



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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.



**READ THE (SUPPLEMENTARY) DOCUMENTATION**  
Read the user and operating instructions.



**Look / recognise the product**  
Visual inspection  
Point of attention

## 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 indication for IEC 417 - 5036.



**WARNING**  
Operations or procedures that, if carried out without caution, may lead to personal injury or damage to the product. General hazard indication for ISO 7000-0434.



**ATTENTION**  
Is used to introduce safety instructions non-observance of which may lead to damage to the product and its functions.



**ENVIRONMENTAL INSTRUCTION**  
Remarks with respect to the environment.

## 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: Example: Identification sticker

Table 1: Explanation of the sticker

Indication		Meaning
	HUV2DPVE6/8 B	Installation type
	TNI HUV RWR MC DOL <sup>1</sup>	Type of controller and start-up method
ID	HB226807DB6Y	Item number
Prod.	11/2018 123456-01	Production week/year and number
RDP	PT	Type of run-dry protection
U	1X230V	Required power supply voltage
F	50Hz	Required power supply net frequency
I <sub>max</sub>	13.04A	Maximum absorbed current of the installation
PN	PN10 HDPE 200 I (AF)	Pressure class of the installation and construction type
IP	IP54	International Protection class
PO	1234567	Purchase number

1. RWR stands for Rainwater Harvesting.

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

Table 2: Address service department

DP-Pumps	Tel: +31 172 488388 Fax: +31 172 468930 Internet: www.dp-pumps.com E-mail: dp@dp-pumps.com
Kalkovenweg 13 2401 LJ Alphen a/d Rijn The Netherlands	

### 2.2 Supplementary documentation

Apart from this manual, the documentation given below is available as well:

Table 3: Supplementary documentation

Document	Code
General terms of delivery	119 / 1998
Documentation	
User and operating instructions for pumps	BE00000377
Installation and operation instructions Megacontrol	BE00000508

# 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.
- Dry running of the pump.

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

Persons and/or children who are not qualified to do work on the product should only have access to the product under the supervision of a properly trained person.

## 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.



#### ENVIRONMENTAL INSTRUCTION

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

#### 4.5.2 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.

## 4.5 Environmental aspects

### 4.5.1 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.



# 5 Introduction

## 5.1 1/2 Pumps break-unit AB (with warning pipe)

### 5.1.1 1 Pump relay DOL

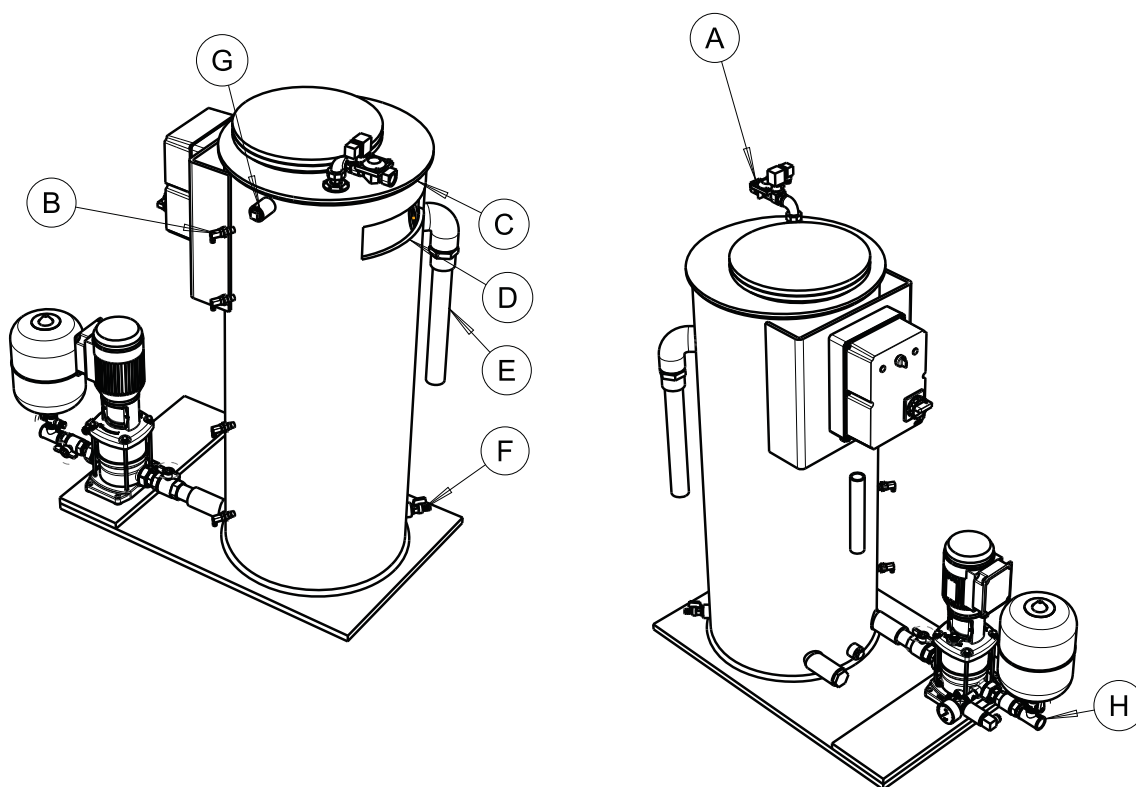


Figure 2: Installations of the type HUV1 DPVE AB (with warning pipe) break

20161050

Table 4: Pos. numbers figure 2 Installations of the type HUV1 DPVE AB (with warning pipe) break

Pos. no.	Description
A	Supply solenoid valve G 3/4 MS 0.2-16 bar
B	4x Electrode holder for level control
C	Emergency vent hole Ø 10 mm
D	Overflow slot 290x92 mm for AB break
E	Overflow PVC 50 mm warning pipe
F	Drain valve G 1/2 x 13 mm drain hose
G	Supply from rainwater reservoir NW25 (G1 BI not for this unit)
H	Discharge connection G 1 BI PN10 / 16 AISI 304

### 5.1.2 2 Pumps MC DOL

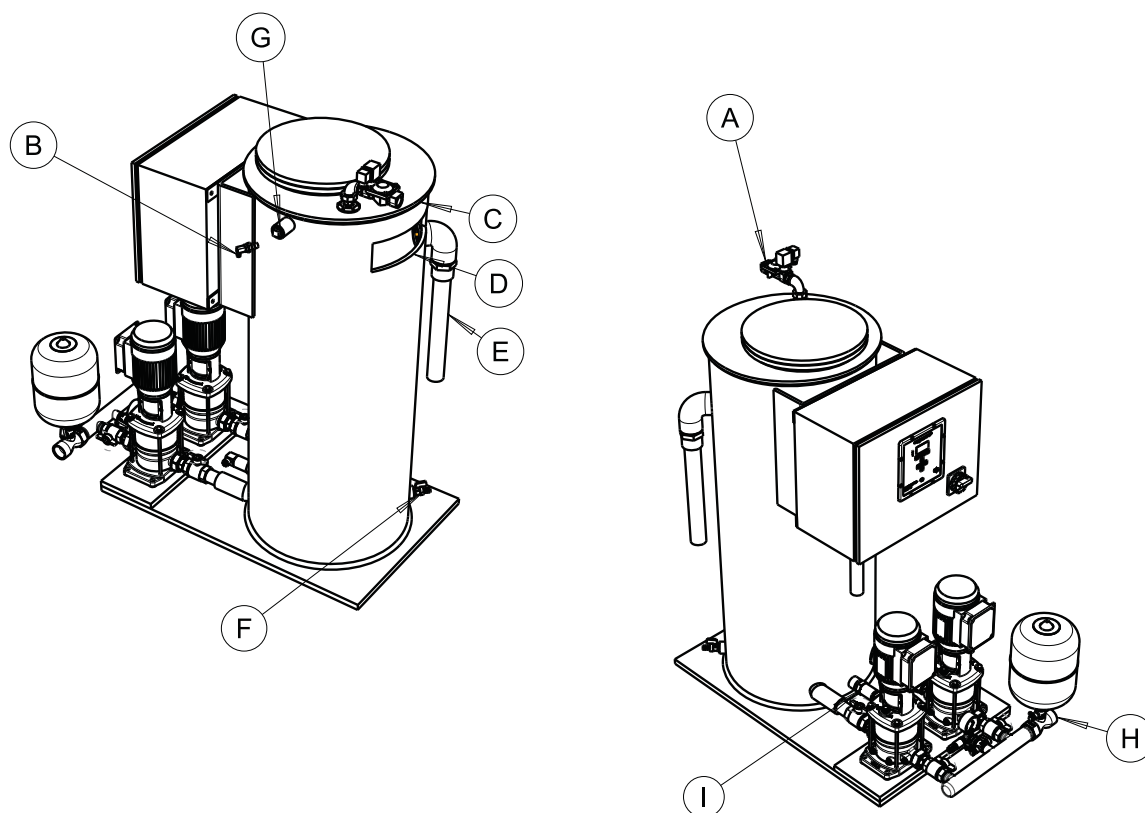


Figure 3: Installations of the type HUV2 DPVE MC AB (with warning pipe) break

20161051

Table 5: Pos. numbers figure 3 Installations of the type HUV2 DPVE MC AB (with warning pipe) break

Pos. no.	Description
A	Supply solenoid valve G 3/4 MS 0.2-16 bar
B	Optional electrode holder serving flood / rainwater pump off / potable network off
C	Emergency vent hole Ø 10 mm
D	Overflow slot 290x92 mm for AB break
E	Overflow PVC 50 mm warning pipe
F	Drain valve G 1/2 x 13 mm drain hose
G	Supply from rainwater reservoir NW25 (G1 BI not for this unit)
H	Discharge connection BI PN10 / 16 AISI 304
I	Level control pressure sensor 0-200 mbar

## 5.2 1/2 Pumps break-unit Rainwater Harvesting (optional)

### 5.2.1 1 Pump MC DOL Rainwater Harvesting

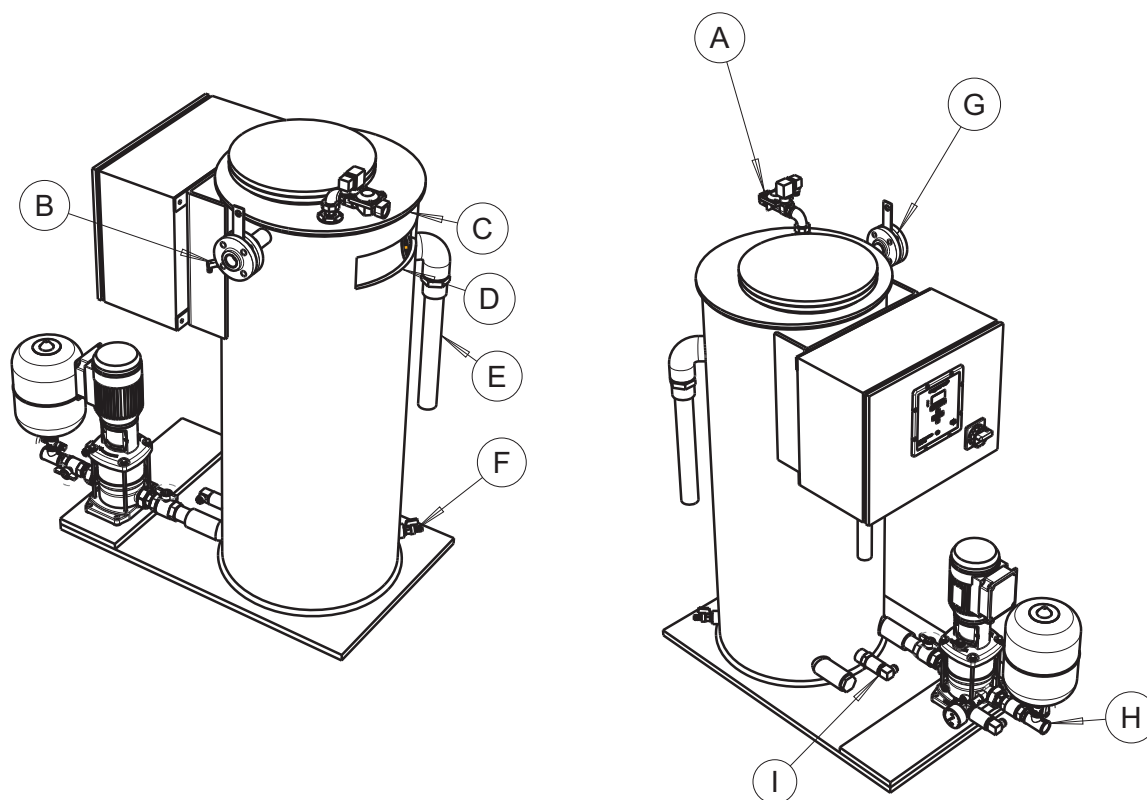


Figure 4: Installations of the type HUV1 DPVE MC AB RWR break

20160043-A

Table 6: Pos. numbers figure 4 Installations of the type HUV1 DPVE MC AB RWR break

Pos. no.	Description
A	Supply solenoid valve G 3/4 MS 0.2-16 bar
B	Optional electrode holder serving flood / rainwater pump off / potable network off
C	Emergency vent hole
D	Overflow slot 290x92 mm for AB break
E	Overflow PVC 50 mm warning pipe
F	Drain valve G 1/2 x 13 mm drain hose
G	Supply from rainwater reservoir NW25 (G1 BI) with orifice 10 mm
H	Discharge connection BI PN10 / 16 AISI 304
I	Level control pressure sensor 0-200 mbar

## 5.2.2 2 Pumps MC DOL Rainwater Harvesting

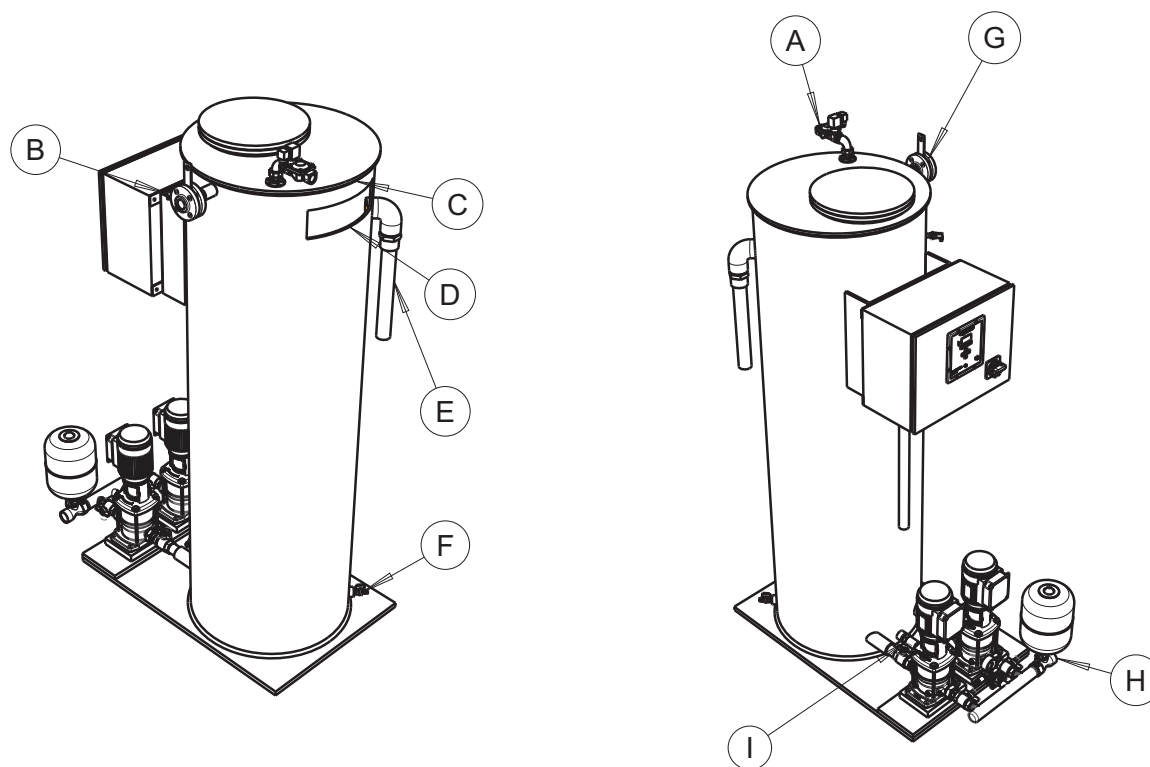


Figure 5: Installations of the type HUV2 DPVE MC AB RWR break

20160012-B

Table 7: Pos. numbers figure 5 Installations of the type HUV2 DPVE MC AB RWR break

Pos. no.	Description
A	Supply solenoid valve G 3/4 MS 0.2-16 bar
B	Optional electrode holder serving flood / rainwater pump off / potable network off
C	Emergency vent hole
D	Overflow slot 290x92 mm for AB break
E	Overflow PVC 50 mm warning pipe
F	Drain valve G 1/2 x 13 mm drain hose
G	Supply from rainwater reservoir NW25 (G1 BI) with orifice 10 mm
H	Discharge connection BI PN10 / 16 AISI 304
I	Level control pressure sensor 0-200 mbar

The Break-Units are produced in DP-Pumps, Alphen aan den Rijn.

## 5.3 Intended use

The installation Break-unit 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 is set up in order to

prevent water from flowing back from the system into the water mains. The waterworks makes a Break-unit compulsory in accordance with EN 1717, EN 13077  $\triangleleft$ AB $\triangleright$ , if the water user works with substances that are dangerous to public health. For checking the process liquid we refer to EN 1717, EN 13077 and EN 14622. The constructive design requirements for the reservoir have been tested by EN 1717, EN 13077 and EN 14622.

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.

### 5.4 Working range

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

Table 8: Specification of the working range

Type	Break-unit
Ambient temperature [°C]	+4 to 30
Liquid temperature [°C]	+4 to 40
Maximum operating pressure [kPa]	1000
Minimum supply pressure [kPa]	20 (on solenoid valve)
Maximum supply pressure [kPa]	250 (on solenoid valve) <sup>1</sup>
Rainwater supply capacity [m <sup>3</sup> /h]	3
Pressure class	PN10
Minimum conductance of medium	100 µS
Maximum height	1000 m above sea level

1. The supply and discharge capacities of the installation have been explained for a maximum pre-pressure on the solenoid valve of 250 kPa. In case of higher pre-pressure values, the discharge capacity may be insufficient. This high pre-pressure will also cause problems with water hammer and incorrect filling of the reservoir. Also see figure: Diagram for passage of the solenoid valve. **ADVICE:** use a pressure reducing valve to reduce the increased pressure.

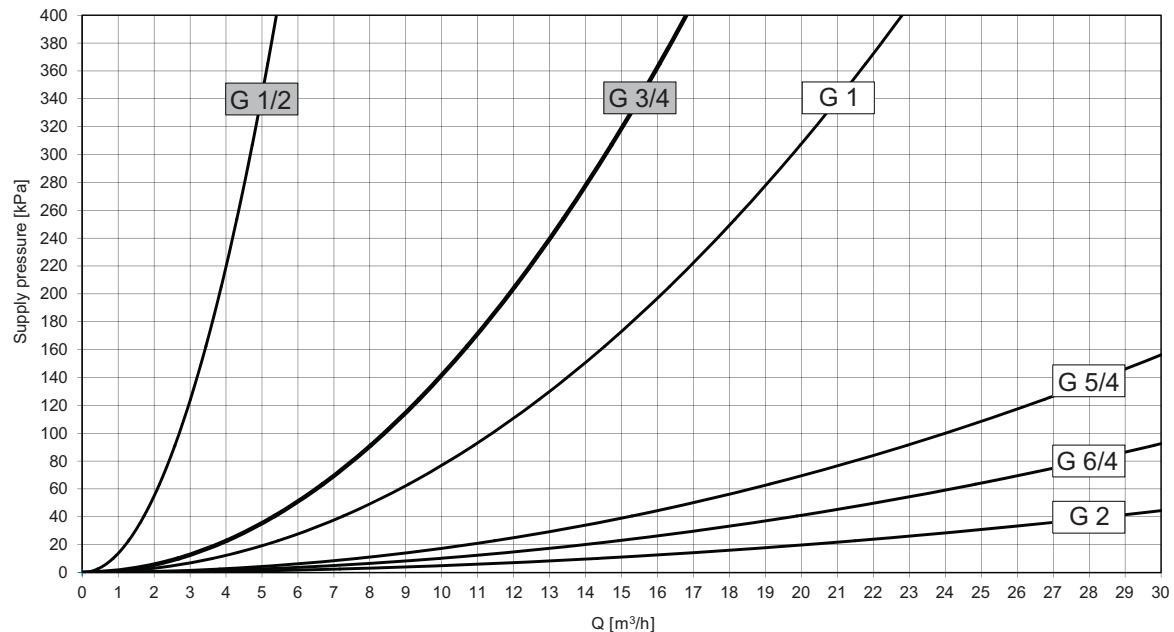




Figure 6: Diagram for passage of the solenoid valve / supply valve



Table 9: Specific applications

type	Shape	application area
Break-unit 	NOT circular	(Process) water supply systems requiring a non-return protection that complies with class AB according to EN 1717 and EN 13077.
Break-unit 	Circular	(Process) water supply systems requiring a non-return protection that complies with class AF according to EN 1717 and EN 14622.

## 5.5 Working of the AB (with warning pipe) break

The warning pipe, a free outlet with a round hole, provides water drainage before the AB atmospheric break is reached. The AB atmospheric breaker is a free outlet with a non-circular water outlet.

## 5.6 Break-unit 1 pump relay controlled

The system is fully automatic. If the water in the tank falls below the "low water" level, the tank will be filled. When the maximum level is reached the pump stops. The system is protected by a dry-running protection by means of an electrode plug. There is no rain water buffering available.

## 5.7 Break-unit 2 pumps Megacontrol

### 5.7.1 Automatic operation (pressure control)

The break-unit works completely autonomously with the control panel.

The pressure in the pressure line is continuously measured via a pressure transducer. If the pressure falls below the set value (setpoint value - bandwidth), the pump is started. If the Megacontrol detects a pressure above the setpoint bandwidth via the pressure transducer, the pump will stop after a certain time.

After this, the pressure booster pump is again ready for the next start.

In the Megacontrol, switching on a 2<sup>nd</sup> pump is blocked. The 2<sup>nd</sup> pump does run in the take-over cycle so that the pumps always have an almost equal number of operating hours.

### 5.7.2 Test run

A test run cycle is set in the Megacontrol. If the pump(s) do not run in 24 hours (programmable) the test run cycle will be started.

At the end of the test run cycle of the 1<sup>st</sup> pump the test run cycle of the 2<sup>nd</sup> pump will start.

## 5.8 Operation of the Rainwater Harvesting system (option)

### 5.8.1 Automatic operation (pressure control)

Rainwater Harvesting system is fully autonomous by the control panel.

The pressure in the discharge line is measured continuously by a pressure sensor. If the pressure drops below the set value (set point bandwidth), the pump is started by DOL motor starters. If the pressure transmitter detects a pressure above set point bandwidth the Megacontrol will stop the pump after a certain time.

After this, the booster pump is ready again for the next start.

The Megacontrol does not allow to start a 2<sup>nd</sup> pump. The 2<sup>nd</sup> pump is used alternately so that the number of working hours will be remain the same as possible.

### 5.8.2 Test run

A test run cycle is set in the Megacontrol. If the pump(s) not run in 24 hours (programmable) the test run cycle will be started.

At the end of the test run cycle of the 1<sup>st</sup> pump the test run cycle of the 2<sup>nd</sup> pump will start.

### 5.8.3 Function break reservoir

The level in the break reservoir is continuously checked by the pressure transmitter. This signal is used by the first start by the Megacontrol to the rainwater pump and if necessary open the solenoid valve. The parameters of the Megacontrol are used to set the liquid level in the break reservoir. The signal of the pressure transmitter is also used for the following alarms and notifications. It can be set by parameters:

- High water level. The alarm will stop the pump. The dry contact will give an (urgent) external alarm.
- Low water level. The alarm will stop the pump. The dry contact will give an (urgent) external alarm
- A critical (low) water level will give a not urgent alarm on the external dry contact.

#### **5.8.4 Function rainwater pump**

The Megacontrol measures the level in the break reservoir. If the level drops below the setpoint level the pump in the rainwater reservoir will be actuated until the shut off level is reached.

The float switch will signal no water in the rainwater reservoir. The activation of the rainwater pump will be stopped. A red light will lit on the Megacontrol. The solenoid valve of the potable water supply is set open/closed on the rainwater pump level set point.

A red light on the Megacontrol will signal a (thermal/ short circuit) overload of the rainwater pump.

#### **5.8.5 Function solenoid valve potable water supply**

If the supply of the rainwater pump is insufficient, the potable water solenoid valve will be opened at a 2nd level by the Megacontrol parameter set points. By reaching the switch-off level the solenoid valve will be closed.

In case of an incident of the rainwater pump (thermal failure and no water in rain water reservoir), the solenoid valve will be activated until the setpoint level of the rainwater pump is reached.

A (thermal/short circuit) overload of the solenoid valve is signalled by a red light on the control panel.

### **5.9 Alerts on the control panel**

#### **5.9.1 Megacontrol**

For operating and installation of the Megacontrol see Megacontrol manual

# 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 7: 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 months<sup>1</sup>. 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 Set up the system

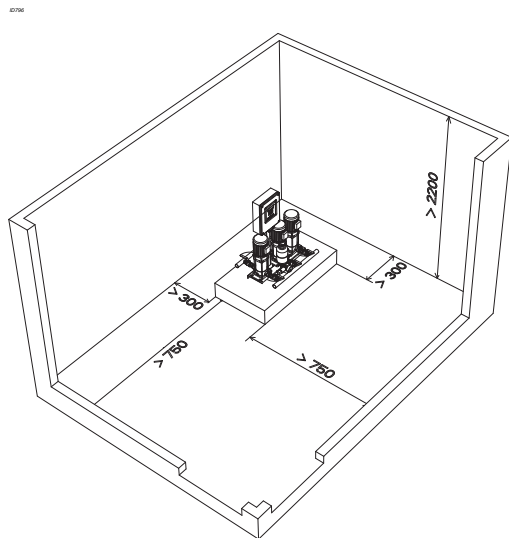


Figure 8: Preferable set-up

796

Preferably set up the system<sup>2</sup> stand-alone in an area that has at least the following properties:

Table 10: Area requirements

Item	Requirements
Area	<ul style="list-style-type: none"> <li>Clean, dry, dust-free, frost-free, cool<sup>1</sup>, well-ventilated, non-condensing and well lit.</li> <li>The surface must be large enough for easy access to the installation.</li> <li>The height of the installation area must meet the minimum requirements.</li> <li>The layout must be such (&gt; 2200 mm), that any released water can be discharged without causing any inconvenience.</li> <li>Drain pit available</li> </ul>
Foundation	<ul style="list-style-type: none"> <li>The system must be free from the walls.</li> <li>The ground must be smooth and level.</li> <li>The foundation must be large enough to carry all.</li> </ul>

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

2. The model of the installation may differ from the installation in the figure

The installation area must be in conformity with EN 1717 and EN 13077 - chapter 'installation areas'.

- Connect the supply pipe to the filling device of the installation (solenoid valve)



### ATTENTION

The diameter of the last metre of the supply pipe may not exceed the solenoid connection diameter.

- Connect the discharge pipe to the discharge pipe of the building (indicated by a sticker).
- Connect the rain water pump discharge pipe to the rain water connection.



### Look / recognise the product

Take note that orifice is mounted

Proceed as follows to minimise the noise level:

- Place the installation at a flat ground.
- 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.
- Connect manifolds stress-free.
- The diameter of the supply pipes must be properly dimensioned.



### ATTENTION

The installation is delivered on a pallet (except for the 999 I model). Carefully slide the installation off the pallet at the place of destination.



### ATTENTION

Mount a shut-off valve in the discharge pipe. This in order to avoid having to drain the entire pipe in case of any repair.

There are two overflow arrangements:

- First overflow, through the warning pipe. This is the circular overflow, executed with a pipe downwards. This is the first overflow arrangement. Connect this overflow with a visible break to the sewer system, according to EN 1717 and EN 13077.
- Second overflow, type AB. This is the rectangular overflow, executed as a hole in the reservoir. When water in the reservoir reaches this critical level due to severe malfunctions in water supply, it is able to run freely on the ground. Therefore, the area where the unit has been installed must be provided with a drain pit or sufficient drain pump to transport spilled water out of the room.

## 7.2 Electrical installation



### WARNING

**Only qualified personnel is allowed to perform the electrical connection of the installation in accordance with the local regulations.**

#### *Electrical connections*

- Make sure that the electrical specifications correspond with the voltage the installation is connected to.
- Connect the installation using an interruptible connection (plug).
- (Optional) The rainwater pump is executed with a power plug. Use one of the following methods to connect the rainwater pump to the control panel:
  - 1 (recommended) Install a wall mounted power socket with a cable connected to the control panel of the installation, and plug in the rainwater pump power plug. Make sure this power socket is marked with a text plate: "for rain water rainwater pump use only".
  - 2 Remove the power plug from the rainwater pump cable and connect the cable directly to the control panel. In this way the power supply for the rainwater pump is always guaranteed, because there is no power plug available that can be disconnected.
- (Optional) Connect the run dry protection of the rainwater pump to the control panel.
- Close the door of the control panel after having completed the installation.

## 7.3 Commissioning



### WARNING

**Never switch on the installation when it does not contain any liquid.**

Before you run the system:

- Flush the installation with potable water, disinfect the system if necessary.

### 7.3.1 In a open or closed circuit with sufficient supply pressure (see figure 9 Closed circuit)

Proceed as follows:

1. Turn off the main power.
2. Close the supply valve (C) and the discharge valve (A).
3. Remove the plug (B) from the motor stool.
4. Gradually open the supply valve (C) until the liquid flows from the plug opening.
5. Close the plug (B) opening.
6. Fully open the supply (C) valve.
7. Turn on the main power
8. Check the direction of rotation of the pump.
9. Fully open the discharge valve (A).

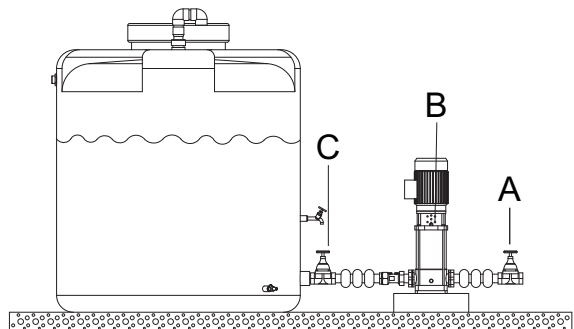


Figure 9: Closed circuit



### ATTENTION

**Seen from the top of the motor the pump must rotate clockwise. In case of a 3-phase motor the rotating direction can be changed by switching two of the three contact wires.**



### WARNING

**Turn off the main from the central control panel**

### 7.3.2 Overload of the pump with a 1-pump installation

When the pump is overloaded, the motor protection will automatically switch off the installation. As an indication, the red fault lamp on the switch box will light up. Proceed as follows to reset the installation:

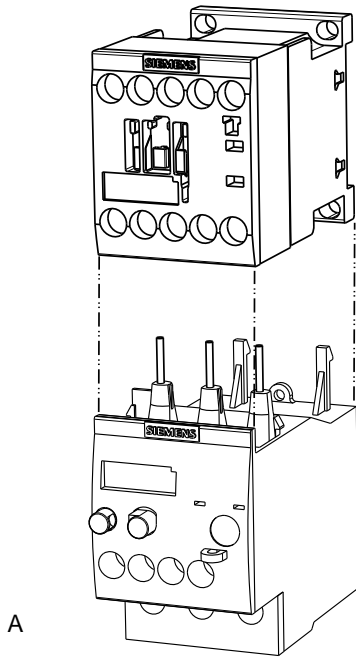


Figure 10: Motor protection relay

1. Disconnect the power supply into the central distribution box or remove the connector/plug from the power socket
2. Open the control panel
3. Selector switch (A) for manual/automatic reset and reset button: With this switch you can choose between manual and automatic reset. A device set to manual reset can be reset locally by pressing the reset button.
4. Close the control panel
5. Connect the power supply into the central distribution box or put the connector/plug back into the power socket.

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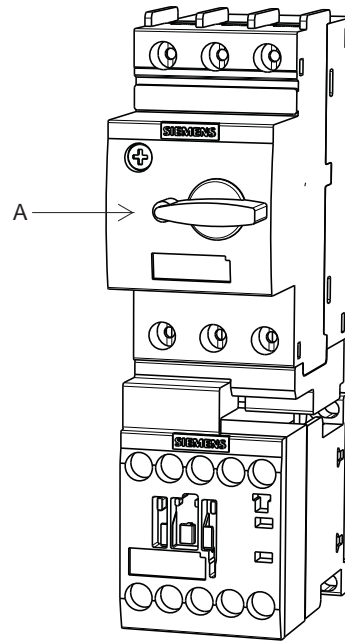


Figure 11: Motor protection switch

1. Remove the connector/plug from the socket
2. Open the control box
3. Press the reset switch (A) first on "0" then to "1" to reset the switch
4. Close the control box
5. Put the connector/plug back into the socket

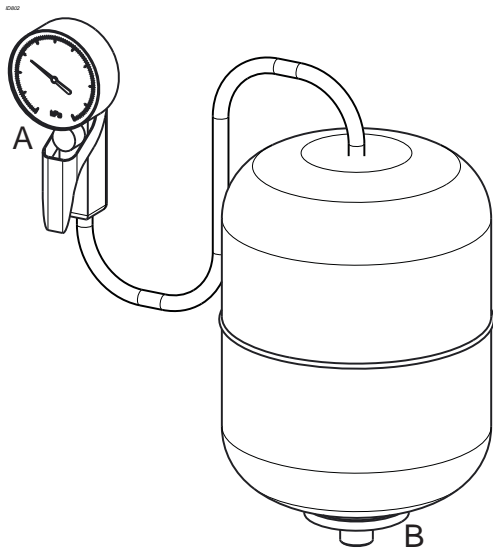
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### 7.3.3 Overload of the pump with a 2-pump installation

When the pump is overloaded, the motor protection will automatically switch off the installation. As an indication, the red fault lamp on the switch box will light up. Proceed as follows to reset the installation:

### 7.3.4 Pre-pressure pressure vessel

For a correct functioning of the installation, the pre-pressure in the pressure vessel must be 50 kPa lower than the switch-on pressure. Proceed as follows to determine the pre-pressure:



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Figure 12: Set the pre-pressure

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. The maximum pre-pressure: 200 kPa below the pressure class (PN).**

# 8 Operation

## 8.1 Operation

The Break-unit is operated automatically.

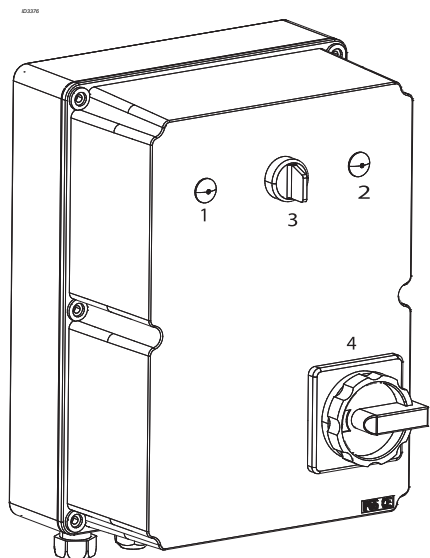


Figure 13: Control panel

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Table 11: Operation

Nr:	Explanation
1	Alarm light THERMAL FAILURE, pump is switched off by the thermal relay.
2	Alarm light, no water. Reservoir is empty, switch off installation.
3	MAN-0-AUTO switch for the pump. MAN Pump on manual control 0 Pump is switched off AUTO Pump on automatic control
4	Main switch

### 8.1.1 Reset after a fault



**WARNING**  
Eliminating faults should only be done by qualified personnel after the cause has been determined.

When there is no water in the reservoir, the run-dry protection will switch off the installation. Filling the reservoir will automatically reset the installation.

In case of a power failure, the installation is automatically switched off. The installation will automatically switch on again when the power returns.

### 8.1.2 Pump overload

When the pump is overloaded, the motor protection will automatically switch off the pump. Proceed as follows to reset the installation:

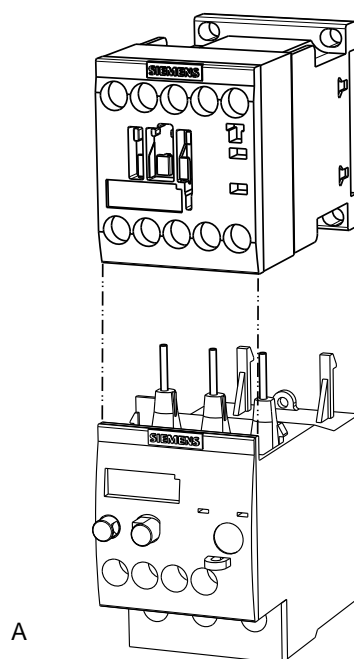


Figure 14: Motor protection relay

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1. Disconnect the power supply into the central distribution box or remove the connector/plug from the power socket
2. Open the control panel
3. Selector switch (A) for manual/automatic reset and reset button: With this switch you can choose between manual and automatic reset. A device set to manual reset can be reset locally by pressing the reset button.

4. Close the control panel
5. Connect the power supply into the central distribution box or put the connector/plug back into the power socket.

## 8.2 Control panel (HMI)

The control panel comprises a back-lit display, function, navigation, and operating keys, LED's, and 2 access points for the service interface. The display shows important information for pump system operation. Data can be displayed in plain text and parameters can be set.

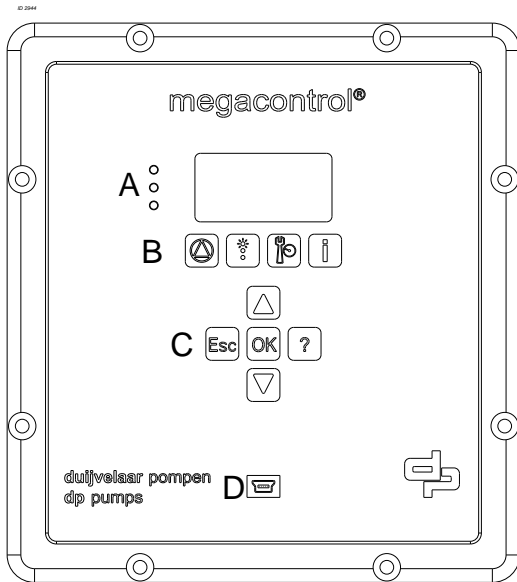


Figure 15: Front Megacontrol

Table 12: Traffic lights

A: LED's
The "traffic light" signals provide information about the pump system's operating status. LED's:
<ul style="list-style-type: none"> <li>• Red: Alert / urgent alarm is active.</li> <li>• Amber: Warning / non-urgent alarm is active.</li> <li>• Green: O.K. / trouble-free operation.</li> </ul>

Table 13: Function keys

B: Function keys	
	Operation
	Diagnosis
	Settings
	Information

Table 14: Navigation keys

C: Navigation keys	
The navigation keys are used for navigating in the menu and for confirming settings.	
	<b>Up or Down</b> <ul style="list-style-type: none"> <li>• Move up / down through the root menu (displays the measured values of the system input);</li> <li>• Move up / down through the menu options or;</li> <li>• Increase / decrease a value when you are entering numerals.</li> </ul>
	<b>Escape key</b> <ul style="list-style-type: none"> <li>• Delete / reset entry (the entry is not saved);</li> <li>• Return to the previous menu level.</li> </ul>
	<b>OK key</b> <ul style="list-style-type: none"> <li>• Access to the quick menu;</li> <li>• Confirm a setting;</li> <li>• Confirm a menu selection.</li> <li>• Go to the next number when you are entering numerals.</li> </ul>
	<b>Help key</b> <ul style="list-style-type: none"> <li>• Displays a help text for each selected menu option.</li> </ul>

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### D: Service interface RS232

The service interface allows a PC / Notebook to be connected with use of the special service port cable. The Megacontrol PC software can be used to configure and parameterize the pump system if you do not have access to a control panel. The Megacontrol software can also be updated via this interface. A second service interface is located on the back side of the controller.

## 8.2.1 Display

The 7-row display contains the following information:

The diagram shows a 7-row display. Row 1 contains a number '1' on the left and '4' on the right. Row 2 is shaded. Row 3 contains a number '3' on the left and a small downward arrow icon on the right. Rows 4, 5, and 6 are shaded. Row 7 contains a number '5' on the left and '00:00' on the right.

Table 15: Display rows

Display	Meaning
1 1-1-1	Displays the selected parameter no.
2 <b>Parameter / Function</b>	Parameter name, Function key: <ul style="list-style-type: none"> <li>• Operation</li> <li>• Diagnosis</li> <li>• Settings</li> <li>• Info</li> </ul>
3 <b>Parameter name</b>	List of selectable parameters
4 <b>Level</b>	Operating level: <ul style="list-style-type: none"> <li>• All</li> <li>• User</li> <li>• Service</li> <li>• Factory</li> </ul>
	"Scroll bar" within the list of selectable parameters
5 <b>MM-YY 00:00</b>	Current date and time

The number of the current menu or parameter is displayed in the top left of the screen. This number indicates the path through the menu levels and, therefore, allows you to quickly locate parameters (see "Parameter list").

The date and time is displayed in the bottom right of the screen. If a fault occurs, this is displayed in the bottom line and alternating with the date and time.

## 8.2.2 Continuous display

When in operation the most common values, like the system pressure are shown on the display continuously. By pushing the navigation buttons Up and Down all selected values are passing by. In Parameter setting 3-10 "Root menu" these values can be selected as preset value. The selected values are marked with a "√"

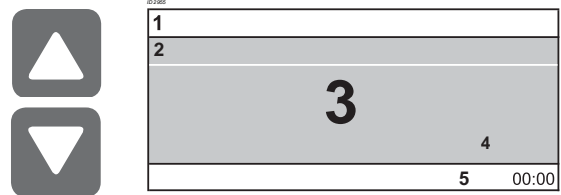


Table 16: Display example

Display	Meaning
1 1-1-1	Displays the selected parameter no.
2 System pressure	
3 525	
4 kPa	
5 <b>MM-JJ 00:00</b>	Current date and time

### 8.2.2.1 Quick menu

Having access to the most used parameters a Quick menu can be entered by pressing the OK key.



### 8.2.3 Access levels

To prevent accidental or unauthorized access to the Megacontrol parameters, various access levels have been defined.

Table 17: Access levels

Access levels:	Explanation:
<b>Standard</b>	Unless users log on to one of the access levels, they will only have limited access to parameters.
<b>User</b>	Access level for expert users. It enables access to all the parameters required for commissioning. You have to enter a password under 3-2-1 "Log in". The standard password for users is <b>7353</b> .
<b>Service</b>	Access level for service technicians. You have to enter a password under 3-2-1 Log in.
<b>Factory</b>	Access level for the manufacturer only.



### ATTENTION

If no keys are pressed for ten minutes, the system automatically returns to the default access level.

#### 8.2.4 Displaying and changing parameters

The parameter numbers contain the navigation path, which helps you find a particular parameter quickly and easily. The first digit of the parameter number indicates the first menu level, which can be called up directly via the four function keys. Subsequent steps are carried out via the navigation keys.



1--Operation



2--Diagnosis



3--Settings



4--Info

#### Example: Parameter 3-5-10 Delta p correction:

First digit of parameter number: **3-5-10**

**3 Settings**    5 Pressure    10 Delta p correction



Press the third function key for Settings. **3-1** appears in the top left of the screen.

Second digit of parameter number: **3-5-10**

**3 Settings**    **5 Pressure**    10 Delta p correction



Change the display **3-1** on the screen (top left) to **3-5** by pressing the navigation keys.



To confirm the selection, press OK. **3-5** appears in the top left of the screen.

Third digit of parameter number: **3-5-10**

**3 Settings**    **5 Pressure**    **10 Delta p correction**



Change the display **3-5-1** on the screen (top left) to **3-5-10** by pressing the navigation keys.



To confirm the selection, press OK. **3-5-10** appears in the top left of the screen.

## 8.3 Manual operation of the pumps

By pressing the Quick access key "Operation", information like system pressure and pump load can be retrieved. Also, the pump operating mode like **Automatic**, **Manual** and **Disabled** can be alternated / selected. Subsequent steps are carried out by using the navigation keys.

#### Example: Parameter 1-2-1 (Pumps) Operation mode:

First digit of parameter number: **1-2-1**

**1 Operation**    2 Pumps    1 Operation mode



Press the first function key for Operation. **1-1** appears in the top left of the screen.

Second digit of parameter number: **1-2-1**

**1 Operation**    **2 Pumps**    1 Operation mode



Change the display **1-1** on the screen (top left) to **1-2** by pressing the navigation keys.



To confirm the selection, press OK. **1-2** appears in the top left of the screen.

Third digit of parameter number: **1-2-1**

**1 Operation**    **2 Pumps**    **1 Operation mode**



To confirm the selection, press OK. **1-2-1** appears in the top left of the screen.



Select the **pump number** by pressing the navigation keys.



To confirm the selection, press OK.



Select the operation mode **manual (on (10 s))**.



To confirm the selection, press OK.



The selected pump will run for a period of 10 seconds and stops. The pump operation mode is changed to **Disabled (off)** This is to avoid that the pump runs unprotected.

### 8.3.1 Putting the pump into automatic operation again

The pump has to be put in operation again by selecting the **Automatic mode**.



Stay in the selected parameter **1-2-1 Operation mode** and press OK.



Select the **pump number** again by pressing the navigation keys.



To confirm the selection, press OK.



Select the operation mode **Automatic**.



To confirm the selection, press OK.

## 8.4 Retrieve and reset a fault

Information about faults can be retrieved by pressing the 'diagnosis' hot key

### Example: Parameter 2-1-1 Current messages



Press the diagnosis key. **2-1 General** appears in the display.



Press the OK key. 2-1-1 Current messages appears in the display.



Press the OK key again. The list with the current faults or the message 'no faults' appears in the display.

When there is a fault that has a circle with a dot in it, the fault is still active



No Water

When there is a fault that has an open circle, the fault is not active, but has not been acknowledged yet.



No Water

When there is a fault that has a circle with a dot in it and a check mark following the fault message, the fault is still active and the fault has been acknowledged as well. When the fault is remedied now, it will be reset immediately.

### Example: Parameter 2-1-2 History



Press the diagnosis key. **2-1 General** appears in the display.



Press the OK key. The display then shows 2-1-1 Current messages; 2-1-2 History.



You can select History by pressing the navigation key.



Press the OK key. The list of faults from the past appears.



You can select the fault by pressing the navigation key.



Press the OK key. The below listed information becomes visible.

The following information about the fault is known:

- Date and time of occurrence of the fault
- Date and time of acknowledgement of the fault
- Date and time of remedy of the fault

# 9 Maintenance

## 9.1 Introduction



### **WARNING**

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

Regular maintenance is necessary for correct operation of the installation. For maintenance of the installation, please contact your supplier. A draft maintenance contract is available upon request.

## 9.2 Lubrication

Standard motors are provided with maintenance free sealed bearings.

## 9.3 Putting the pump out of operation for an extended period

Turn a shaft every three months. This prevents the seals from getting stuck.

Protect an installation against freezing when there is a risk of frost. For this purpose take the measures given below:

1. Close all pump valves.
2. Drain each pump and/or the system.
3. Remove all plugs from a pump.
4. Open the shut-off and drain valve, if present.

# 10 Break-Unit configuration

## 10.1 General

The Break-Unit has a maximum of two pumps. Only one pump is running at the time.

## 10.2 Break-Unit Megacontrol



**ATTENTION**  
See factory settings 3-2-2-1

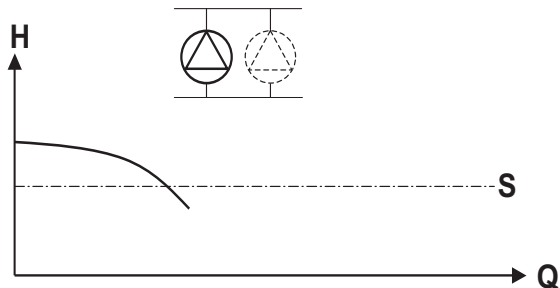


Figure 16: 1 Pump operation

When as a result of an increasing water volume the pressure drops below the pressure set point, one pump will be switched on. When the required system pressure has been reached, the pump is switched off. The minimum run time related switch-off delay is optimized constantly, which results in a considerable energy saving.

Table 18: Specific parameter settings Megacontrol

Parameter	Value
3-3-1	Number of pumps 1 2
3-3-2	Inlet Switch Pressure Level / valve ON-OFF Level / valve prop.
3-3-3	Discharge Fixed Speed
3-5-1	Set point 400 kPa
3-5-3	Bandwidth 30
3-6-2	Min. run time Default 180 s DOL ≤ 2.2 kW 90 s
3-6-3	Min. run time corr. 10 s
3-6-8	Run-dry delay Pressure transmitter 1 s

## 10.3 HUV1 DPVE AB (with warning pipe) break Level control

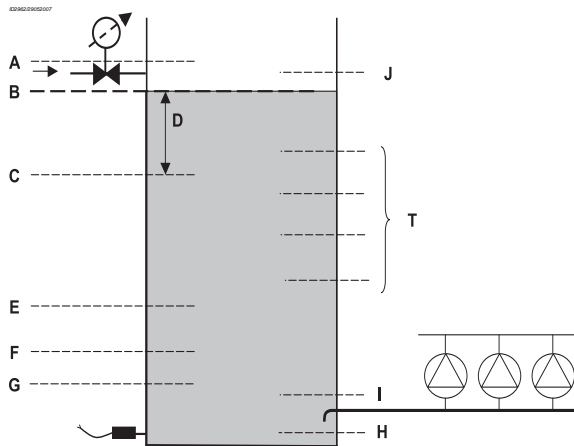


Figure 17: Megacontrol Level control

Table 19: Parameters supply valve ON/OFF

ID	Parameter	Supply valve ON/OFF
A	3-4-1-4-7	High water level
B	3-4-1-4-9-2	Level 1 closed
	3-4-1-4-9-4	Level 1A closed
C	3-4-1-4-9-1	Level 1 open
	3-4-1-4-9-3	Level 1A open
E	3-4-1-4-6	Critical water level
F	3-4-1-4-5	Low level reset
G	3-4-1-4-4	Low level shutdown

Table 20: Parameters supply valve prop.

ID	Parameter	Supply valve prop.
A	3-4-1-4-7	High water level
	3-4-1-4-10-1	Level setpoint 1
	3-4-1-4-10-2	Level setpoint 1A
	3-4-1-4-10-6	Open band
D	3-4-1-4-10-3	Hysteresis
E	3-4-1-4-6	Critical water level
F	3-4-1-4-5	Low level reset
G	3-4-1-4-4	Low level shutdown

Table 21: Parameters general.

ID	Parameter	
H	3-4-1-4-3	Sensor level
I	3-4-1-4-1	0 % level
J	3-4-1-4-2	100 % level

Table 22: Parameters threshold

ID	Parameter	
	3-4-1-4-8	Threshold
T	3-4-1-4-8-1	Threshold 1 ON
	3-4-1-4-8-2	Threshold 1 OFF
	3-4-1-4-8-3	Threshold 2 ON
	3-4-1-4-8-4	Threshold 2 OFF



**ATTENTION**  
Threshold 1/2 contacts are only available with MCIII 6 pumps version by using max. 4 pumps.

## 10.4 Break-Unit MC Rainwater Harvesting (Optional)

It is possible to run three booster pumps and two rainwater pumps (only one running at the time) with the Control unit. Standard will be one or two booster pumps (only one running at the time) and one rainwater pump. The Rainwater Harvesting unit is a separate variant of the 3-3-2 parameter.



**ATTENTION**  
See factory settings 3-2-2-1

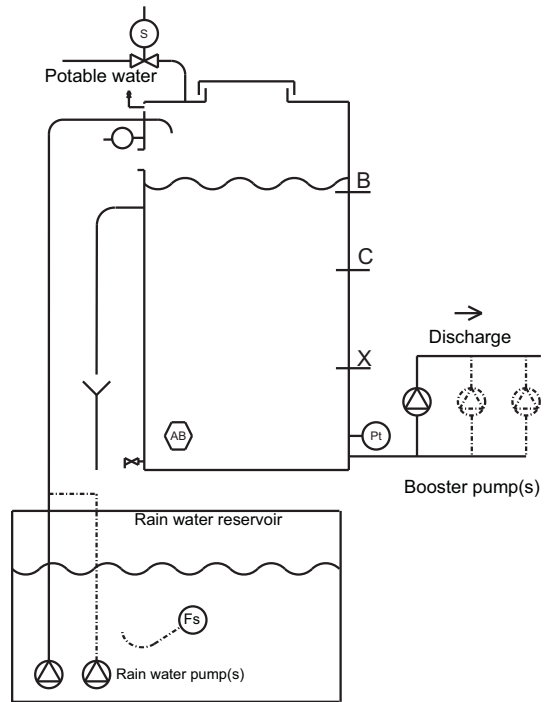


Figure 18: Example level indication

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Table 23: Specific parameter settings Megacontrol

Parameter		Value
3-3-1	Number of pumps	1
		2
3-3-2	Inlet	Rainwater
3-3-3	Discharge	Fixed Speed
3-4-1-4-11	Water supply control	
3-4-1-4-11-1	Level RW-pump Off	90 % (B) <sup>1</sup>
3-4-1-4-11-2	Level RW-pump On	70 % (C) <sup>2</sup>
3-4-1-4-11-3	Level DW-valve open	40 % (X) <sup>3</sup>
3-4-1-4-11-4	Overflow protection	OFF
3-4-1-6	Potable water inlet	
3-4-1-6-1	Refresh interval	336 h
3-4-1-6-2	Force refresh	Off
3-4-1-6-3	Refresh duration	10 s
3-4-1-7	Rainwater inlet	
3-4-1-7-1	Number of pumps	1
3-4-1-7-2	Max. pumpstarts	30
3-4-1-7-3	Max. run time	1800 s
3-4-1-7-4	Check run interval	172800
3-4-1-7-5	Check run duration	2
3-5-1	Set point	400 kPa

Parameter		Value
3-5-3	Bandwidth	30
3-6-2	Min. run time	Default 180 s
		DOL ≤ 2.2 kW 90 s
3-6-3	Min. run time corr.	10 s
3-6-8	Run-dry delay	Pressure transmitter 1 s

1. Level B: Switch off the rainwater pump
2. Level C: Switch on the rainwater pump / Turn off the potable water
3. Level X: Rainwater pump on and let potable water in

Table 24: Inlet control 3-4-1-4-11

Parameter	Inlet control	Value	
3-4-1-4-11-1	Level B	90.0	%
3-4-1-4-11-2	Level C	70.0	%
3-4-1-4-11-3	Level X	40.0	%
3-4-1-4-11-4	Overflow protection	OFF	

- Level B 3-4-1-4-11-1 Rainwater pump OFF.
- Level C 3-4-1-4-11-2 Rainwater pump ON / potable water network OFF.
- Level X 3-4-1-4-11-3 Potable water network ON / Rainwater pump on.
- Overflow protection 3-4-1-4-11-4 Function in combination with the digital input leakage.

If the parameter Overflow protection is "on" and is a WSD input set to "leakage" (additionally 3-3-5 Leakage detection = on) and a humidity sensor is connected, an overflow can be detected. By overflow the rainwater-pump is shut off and at the same time possible potable water inlet is closed immediately. It is a possible additional function if the level sensor fails.

Table 25: Inlet potable water

Parameter	Description	Value	
3-4-1-6-1	Refresh interval	336	h
3-4-1-6-2	Force refresh	Off	
3-4-1-6-3	Refresh duration	10	s

- Refresh interval 3-4-1-6-1 automatic opening of the drinking water network during 3-4-1-6-3 (10 s), when the reservoir level is below C / B.
- Force refresh 3-4-1-6-2 forced opening of the potable water supply.
- Refresh duration 3-4-1-6-3 duration potable water supply.

#### 10.4.1 Potable water supply depends on the water level in the reservoir.

If the water level in the reservoir becomes under level X the solenoid valve in the potable water network opens in addition to the already running rainwater pump. If the water level reaches level C the solenoid valve is closed in the potable water network. If the rainwater pump(s) are not longer available (fault or no rain) the solenoid valve will open for potable water supply to the reservoir. In this case the solenoid valve of the potable network opens at water level C and closes at water level B

#### 10.4.2 The "not forced" hygiene function potable water supply:

Parameter 3-4-1-6-2 "Force refresh" is OFF. When the time, set in parameter 3-4-1-6-1 has expired, the solenoid valve in the potable water network will be forced to open. Condition to this is that the water level in the reservoir is below or will come below water level C. The solenoid valve opens during the time set in parameter 3-4-1-6-3. The message "Hygienic addition" and "Use of potable water" is displayed. If the water level within the time set in parameter 3-4-1-6-3 comes above water level B it will close the solenoid valve. The message "Hyg. add. incomplete" appears in the display. This message is reset only when the water level becomes under water level C. The solenoid valve of the potable water network opens and the complete cycle starts again. If the water level is above level C but below Level B the message "Hyg. add. incomplete" is displayed. This message is reset when the water level drops below water level C, the solenoid valve is opening to start the refresh cycle.

#### 10.4.3 The "forced" hygiene function potable water supply:

Parameter 3-4-1-6-2 "Force refresh" is ON. When the time set in parameter 3-4-1-6-1 has expired, the solenoid valve in the potable network is forced to open independent of the water level in the reservoir. The message "Forced hyg. addition" and "Use of potable water" is displayed. If the water level is below level C, but above level X it will also start the refresh of the potable water supply. The solenoid valve opens during the time set in parameter 3-4-1-6-3. The message "Hygienic addition" and "Use of potable water" is displayed and the rain water pump is switched off when the time has passed, set in parameter 3-4-1-6-3. If the water level is still under level B the rainwater pump will start again. If the water level is above level C but below level B, and a rainwater pump is running, the refreshing will not

started. The "Hyg. add. incomplete" message will appear in the display. The message will be reset when the water levels is back under level C, the solenoid valve of the potable water network will be opened again to redo the complete cycle. Even by a high water level, the message refresh stays in the display.



**ATTENTION**  
For the next text see also section 10.4.4

It is recommended that potable water refreshing parameter 3-4-1-6-2, "Force refresh" is ON, and with sufficient opportunities to drain the water, set the function parameter 3-3-5 "Leakage" and "Overflow protection off" parameter 3-4-1-4 -11-4 on ON. Also use a hardware solution to detect overflow of the water reservoir. The leakage function will stop the rainwater pump and close the solenoid valve of the potable water supply. If the function leakage is activated it must reset manually (default). By insufficient possibilities to drain the water, parameter 3-4-1-6-2, "Force refresh" has to be set on OFF.

#### 10.4.4 Depending on the application, 2 possible variants are conceivable.

Variant 1 Overflow by a properly dimensioned discharge / pump station:

In case of a possible overflow of the reservoir through the discharge, the parameter 3-4-1-6-2 "Force refresh" is set on ON.

The solenoid valve in the potable water network can now, if the refresh interval has expired, always be controlled independently by the water level in the reservoir.

In case of overflow the water will be discharged via the drain.

If a leak detection is mounted and the parameter 3-3-5 is activated, it can be registered by the Megacontrol.

In case of overflow detection (3-4-1-4-11-4) is "ON", the solenoid valve of the potable network will close and a running rainwater pump will be turned off.

Variant 2 Overflow of the reservoir can not be drained:

In the case that an overflow of the reservoir can not be drained set parameter 3-4-1-6-2 "Force refresh" to "OFF".



**ATTENTION**  
In case of a calamity, an overflow is always possible. It is recommended to take additional precautions.

#### 10.4.5 Rainwater inlet 3-4-1-7:

Table 26: Rainwater inlet 3-4-1-7:

Parameter	Description	Value	
3-4-1-7-1	Number of pumps	2	
3-4-1-7-2	Max. pumpstarts	30	
3-4-1-7-3	Max. run time	1800	s
3-4-1-7-4	Check run interval	172800	s
3-4-1-7-5	Check run duration	2	s

- Number of pumps 3-4-1-7-1 Number of rainwater pumps.
- Max. Pump Starts 3-4-1-7-2 Number allowed of starts per hour of the rainwater pump.
- Pump change 3-4-1-7-3 Maximum continuous run time of the rainwater pump. After this time the rainwater pump will be forced to change over.
- Check run interval 3-4-1-7-4 If reservoir level is under level A and the interval time is larger than parameter 3-4-1-7-4 a pump will run on for the period set on parameter 3-4-1-7-5.

The pump will not run if the maximum of starts (parameter 3-4-1-7-2) of the last hour is completed. The stopped pump will give a message. An application with 2 rainwater pumps each pump starts alternately. You can only run one rainwater pump. A parallel operation is not possible.

If the max. pumpstarts is exceeded, the solenoid valve will open at level C and will close at level B.

#### 10.4.6 Switching on permanent potable water:

If the level in the reservoir is below X 3-4-1-4-11-3, the potable water filling takes place and is stopped at level above level C. (normal operation without fault in rainwater function). Message: Level in the reservoir at which the potable water inlet valve is opened. will appear on the display.

If no rainwater is available (fault rainwater pumps / number of starts exceeded or no rainwater) the potable water network valve is opened at level C and closed at level B.

#### 10.4.7 General messages

- Fault rainwater pump (1 or 2) > only warning forwarded to Dig. connection Therm. error P4 or P5
- Fault potable network > only warning forwarded to Dig. connection TVA
- No rainwater > only warning forwarded to Dig. Set. Therm. Error P6
- Leakage (overflow) > alarm, forwarded to the configured input WSD (leakage)
- Starts / h rainwater pump (1-2) > Max pump starts exceeded
- Water refreshing > only warning when hygiene function is active and parameter 3-4-1-6-2 = Off
- forced water refreshing > only warning when hygiene function is active and parameter 3-4-1-6-2 = On
- Using potable water > only a warning when the valve potable water opens due to the level.
- Refresh stopped > if not completed or not exchanged.
- Rainwater pump 1 off > active by parameter 1-2-6-3-1
- Rainwater pump 2 off > active by parameter 1-2-6-4-1
- Rainwater pump Manual 1 > active by parameter 1-2-6-2
- Rainwater pump Manual 2 > active by parameter 1-2-6-2
- Filling reservoir > active by parameter 1-2-6-1

- 1-2-6-3-1 mode rainwater pump 1 > pump can switched on or/off.
- 1-2-6-4-1 mode rainwater Pump 2 > pump can switched on or/off.
- 1-2-6-1 filling up to level B > pump is switched on or/off if the water level is under B. By error on the rainwater pumps the potable water network will fill the reservoir.
- 1-2-6-2 manual run > pump selection (1/2) Checkrun.
- 1-2-6-3-3 run-time pump 1 > run-time hours rainwater pump 1
- 1-2-6-3-4 starts pump 1 > number of starts of pump 1
- 1-2-6-4-3 run-time pump 2 > run-time hours rainwater pump 2
- 1-2-6-4-4 starts pump 2 > number of starts of pump 2

Table 28: 3-2-2-10 Reset rainwater pumps

Parameter	Description	Value
3-2-2-10-1	Reset hrs/starts	OK

Function to reset the operating hours and starts of the two rain water pumps. The corresponding pump must first be selected similar to the M-0-A function.

#### 10.4.8 Functional operation rainwater pump:

Functional operation can only start when the water level in the reservoir is under level B 3-4-1-4-11-1. The functional operation stops when the water level achieved level B.

#### 10.4.9 Monitoring rainwater pumps:

Table 27: 1-2-6 Rainwater pumps

Parameter	Description	Value
1-2-6-3-1	Mode pump 1	On
1-2-6-4-1	Mode pump 2	On
1-2-6-1	Fill up to rainwater pump off	-
1-2-6-2	Manual run	-
1-2-6-3-3	Runtime pump 1	0 h
1-2-6-3-4	Starts pump 1	0
1-2-6-4-3	Runtime pump 2	0 h
1-2-6-4-4	Starts pump 2	0

## 10.5 Special input / output

### 10.5.1 Special input/output

Table 29: Special input/output

Input		
External from (27-29 NC) <sup>1</sup>	The unit can be switched off through an external contact.	
Fire Alarm (28-29 NC) <sup>2</sup>	All pumps can be switched on through an external contact.	
Input1 (connection WSD1 6-7) <sup>3</sup>	Only active when WSD parameter 3-3-4 is on 1 (off) or on 8 (temp).	See parameter 3-8-1-1 for extra functions if this input isn't used for the WSD function
Input2 (connection WSD2 8-9) <sup>3</sup>	Only active when WSD parameter 3-3-4 is not on 3, 4, 6 or 7.	See parameter 3-8-1-2 for extra functions if this input isn't used for the WSD function
Input3 (connection WSD3 10-11) <sup>3</sup>	Only active when WSD parameter 3-3-4 is not on 4 or 7.	See parameter 3-8-1-3 for extra functions if this input isn't used for the WSD function

1. the entire control keeps functioning, but the pumps will be switched off.
2. Fire alarm has higher priority over external contact 'off'.
3. This is a pulse contact for WSD functions, for other applications, it can be used as NC contact.



# 11 Explaining of parameters

## 11.1 Explanation of parameters

### 11.1.1 Pressure settings set points

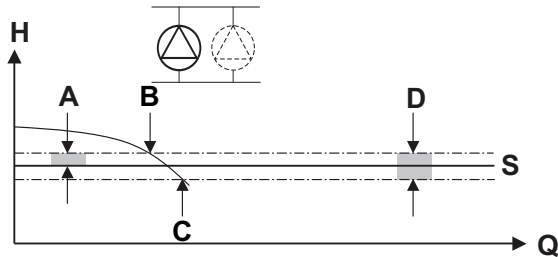


Figure 19: Pressure settings set points fixed speed

Table 30: Pressure settings set points fixed speed

ID	Parameter	
S	3-5-1	Set point
A	3-5-3	Bandwidth
B		Switch-off pressure
C		Switch-on pressure
D		2 x bandwidth

### 11.1.2 Delta p + correction

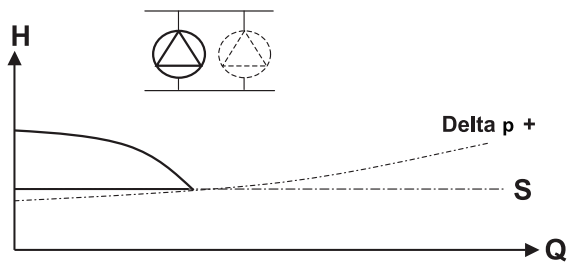


Figure 20: 1-Pump on 1 pump stand-by

Table 31: Parameters set points

ID	Parameter	
S	3-5-1	Set point
+	3-5-10	Delta p

$$y = \frac{\Delta p}{(n^2-1)} x^2 + SP - \frac{\Delta p}{(n^2-1)}$$

- SP = Set point
- y = New set point
- $\Delta p$  = Delta p (always positive)
- n = Total number of pumps of the installation
- x = Number of pumps switched on

### 11.1.3 Delta p - correction

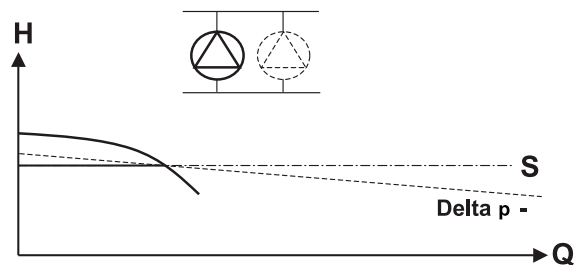


Figure 21: 1-Pump on 1 pump stand-by

Table 32: Parameters set points

ID	Parameter	
S	3-5-1	Set point
-	3-5-10	Delta p

$$y = \frac{\Delta p}{(1-n)} x + SP - \frac{\Delta p}{(1-n)}$$

- SP = Set point
- y = New set point
- $\Delta p$  = Delta p (always positive)
- n = Total number of pumps of the installation
- x = Number of pumps switched on

# 12 Parameters

## 12.1 Parameter list

The parameters of the main menu are related to the standard (default) settings of the installation. The standard (default) settings can be adjusted where necessary and may also be reset whenever required. On the basis of the standard set parameters, an installation will operate as it should. Additional, extra parameters may be used, e.g. those under 'advanced', 'pressure', 'delays' and 'clock'. In order to use these additional parameters, you should activate the corresponding sub menus.



### ATTENTION

For unit-specific values see: 'Factory settings'.



### ATTENTION

Certain parameters are not visible, depending on the configuration.

Table 33: Access level parameter list

Access level	Read	Write
Everybody	e	e
User	c	c
Service	s	s
Factory	f	f
Nobody		n
Development	d	d

### 12.1.1 Parameter list

For the parameter list: See BE00000508 Control units chapter 10

# 13 Faults

## 13.1 Failure messages Megacontrol

Table 34: Faults list Megacontrol

Failure message:	Explanation:	Failure output:
Failure PT. Dis.	Failure Pressure Transmitter discharge side (value >20mA) replace PT and reset system	Urgent
Sys. press.to low	System pressure too long under minimum value (3-5-13)	Urgent <sup>1</sup>
Sys press.to high	System pressure too long above maximum value (3-5-11)	Urgent <sup>1</sup>
Sys. press.to low	System pressure too long under minimum value (3-5-13)	Non urgent <sup>2</sup>
Sys press.to high	System pressure too long above maximum value (3-5-11)	Non urgent <sup>2</sup>
No water	No sufficient water or -pressure available at suction side	Urgent <sup>1</sup>
No water	No sufficient water or -pressure available at suction side	Non urgent <sup>2</sup>
Maintenance req.	Maintenance is required	Non urgent
More pumps fail	More than two pumps out of order	Urgent
No refresh tank #	No water refreshm in tank # (sensed by the flow detector) check precharged air pressure	Urgent
Aver temp to high	Average room temperature to high (sensed by the temperature sensor)	Urgent
Curr temp to high	Current room temperature to high (sensed by the temperature sensor)	Non urgent
Temp.failure Pump #	Failure pump #. Solve problem and reset the system	Non urgent
Failure valve	Failure supply valve. Solve problem and reset the system	Urgent
Inlet sensor fail	Failure inlet Sensor for level or pressure. (signal out of range) replace Sensor and reset system.	Urgent
High water level	Water level in receiver tank too high	Non urgent
Crit. water level	Water level in receiver tank critical (near to empty)	Non urgent
Low water level	Water level in receiver tank too low (system shut down for run dry protection)	Urgent <sup>1</sup>
Low water level	Water level in receiver tank too low (system shut down for run dry protection)	Non urgent <sup>2</sup>
Comm. Error FC #	Communication to variable frequency drive # is broken	Non urgent
Incor. check sum F #	FC # Incorrect check sum within the protocol	Non urgent
Temp. sensor fail	Failure Room Temperature Sensor. replace R.T.S. and reset system	Non urgent
24V out of range	Failure message due to internal 24V supply out of range	Non urgent
5V out of range	failure message due to internal 5V supply out of range	Non urgent
3V out of range	Failure message due to internal 3V supply out of range	Non urgent
External off	Failure message due to an external off command	Urgent
Fire alarm	Failure message due to an external fire alarm command	Urgent
Failure VFD	Failure of the VFD drive at discharge mode VFD change-over or VFD fixed one	Urgent
Br. Wire Sens.dis	Failure Pressure Transmitter discharge side (value lower then 4mA) connect or replace Pressure Transmitter and reset system	Urgent
Br. Wire Sens.Inl	Failure inlet Sensor for level or pressure. (wire break detection) Replace Sensor and reset system.	Urgent
Fail. several FCs	Failure for more than one FC occurs	Urgent
Leakage	There is a leakage in the unit. Solve problem and reset the system	Urgent
Eeprom HW Error	The Eeprom data was not saved due to HW problem	Urgent
Manual off Pump # off		Not urgent
Manual On Pump #		Not urgent
More Pumps off		Not urgent

Failure message:	Explanation:	Failure output:
Internal Failure P#		Not urgent
Mains Failure P#		Not urgent
Over voltageP#		Not urgent
Under voltage P#		Not urgent
Overload Failure P#		Not urgent
Brake resistor P#		Not urgent
Temp. Failure P#		Not urgent
ATM Failure P#		Not urgent
Flushing		Not urgent
Valve opened oftenly		Urgent
Circuit Fail. FC#		Not urgent
Ext. Power Operation	External power supply operation	Not urgent
Setpoint Reduction	Automatic Setpoint Reduction because of inlet pressure dropdown	Not urgent
Factory Test		Not urgent
MPO Failure	Incorrect switching point configured or sensor failure	Not urgent
ASR Shutdown	Automatic Setpoint Reduction Shutdown because of inlet pressure dropdown	Urgent
BC IO not connected		
Failure RW-pump 1	Failure rainwater pump 1. Solve problem and reset the system.	Not urgent
Failure RW-pump 2	Failure rainwater pump 2. Solve problem and reset the system.	Not urgent
No rainwater	No rainwater is available.	Not urgent
Failure DW-valve	Failure of the drinking water inlet valve.	Not urgent
Starts/h RW-pump 1	Maximum starts per hour of rainwater pump 1 are exceeded.	
Starts/h RW-pump 2	Maximum starts per hour of rainwater pump 2 are exceeded.	
Use of potable water	Potable water was used.	Not urgent
Hygienic addition	The tank inlet was flushed with potable water.	Not urgent
Forced hyg. Addition	Flushing of tank inlet with potable water was forced.	Not urgent
Manual Off RW-pump 1		
Manual Off RW-pump 2		
Manual On RW-pump 1		
Manual On RW-pump 2		
Tank filling	The tank is filled due to a triggered start of the rainwater pumps.	
Hyg. add. Incomplete	Hygienic addition was incomplete, because tank was filled or failure of drinking water inlet valve.	
Occured:	Failures that have occurred recently.	
Acknowledged:	Failures that got acknowledged.	
Cleared:	Failures that got cleared	
Data:		
No failures		

1. Manual alarm reset = Urgent.
2. Automatic alarm reset = Not urgent.

## 13.2 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.	
	There is no supply.	Make sure there is sufficient supply.	Check for obstructions in the supply pipe.
	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.	There is no power on the terminal clamps.	Check the power supply.	<ul style="list-style-type: none"> <li>• Circuit</li> <li>• Main switch</li> <li>• Fuses</li> </ul>
The red light 'pump therm' is lit.	The thermal motor protection has been triggered.	Reset the thermal relay. Contact the supplier if this occurs more often.	
	The pressure switch has been set incorrectly.	Have the supplier re-adjust 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 solenoid is not working properly	The orifice is dirty	Clean the orifice	Check the supply
The pumps continuously start and stop.	The membrane switch vessel(s) have a leak or an incorrect pressure value.	Have the supplier re-adjust the installation.	
The red light 'no water' is lit.	no water supply	Open the solenoid valve	Check the supply
	The solenoid valve is defective		Check the control of the solenoid valve. The medium must be <b>conductive!</b> This in connection with the functioning of the electrode control.
The overflow keeps flushing	The solenoid valve remains open	Contact the supplier	
	The power supply of the solenoid valve is malfunctioning	Contact the supplier	
	The solenoid valve stuck	Contact the supplier	

# 14 Annexes

## 14.1 P & ID diagram

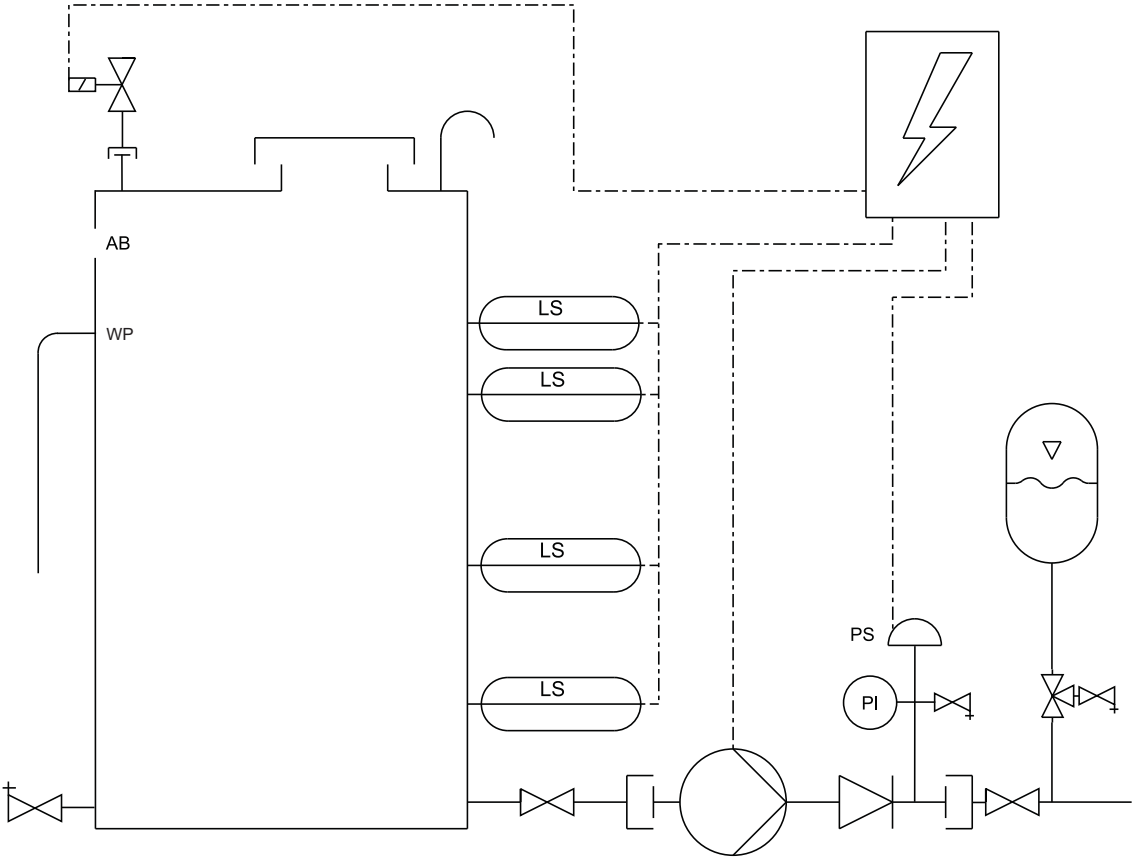


Figure 22: P&ID HUV1 AB (with warning pipe)

20161047 derivative

Table 35: Graphical symbols

Legend					
Air intake / outlet	Valve	Solenoid valve	Pressure indicator	Pressure switch	Warning pipe
Level switch	Non-return valve	Drain valve	Coupling	Pump	Pressure vessel

## 14.2 P & ID diagram 2 pumps

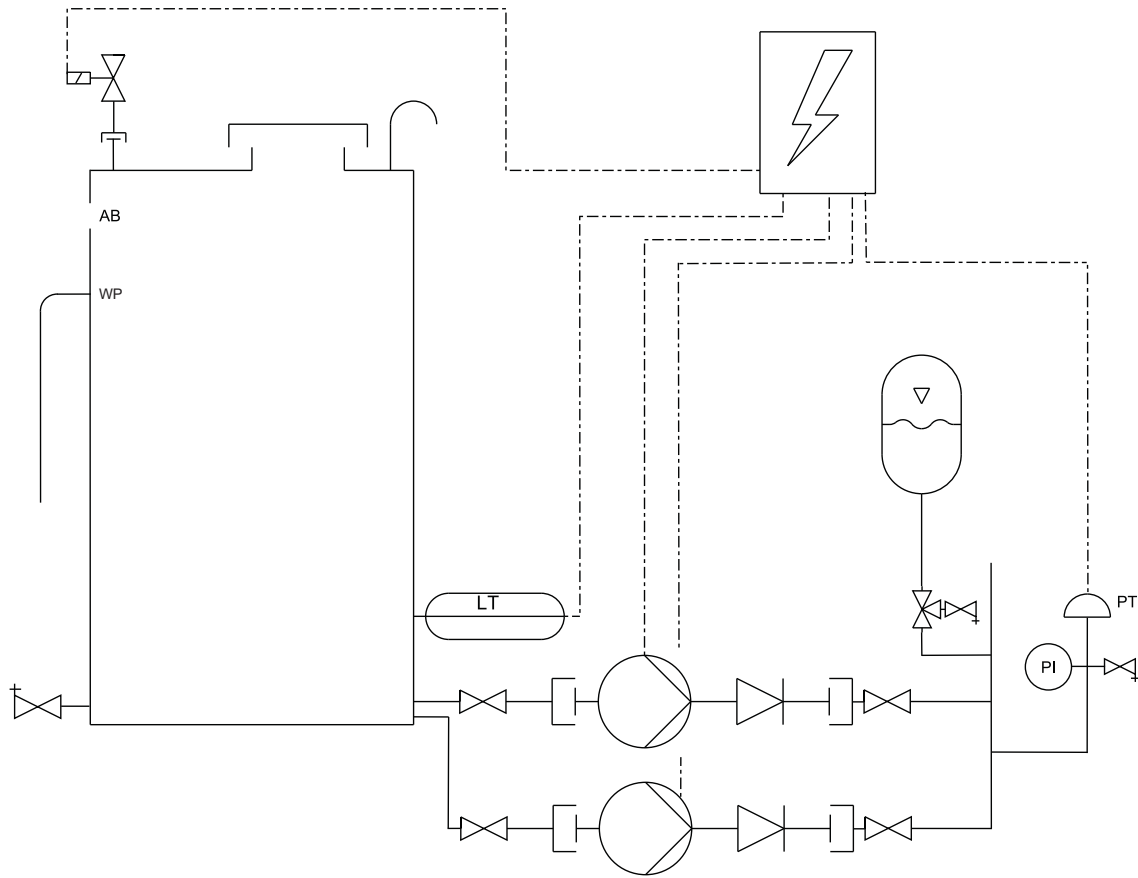






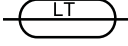







Figure 23: P&ID HUV2 AB (with warning pipe)

Table 36: Graphical symbols

Legend					
					
Air intake / outlet	Valve	Solenoid valve	Pressure indicator	Pressure transmitter	Warning pipe
					
Level transmitter	Non-return valve	Drain valve	Coupling	Pump	Pressure vessel

20161047 derivative

### 14.3 P & ID diagram Rainwater Harvesting (Optional)

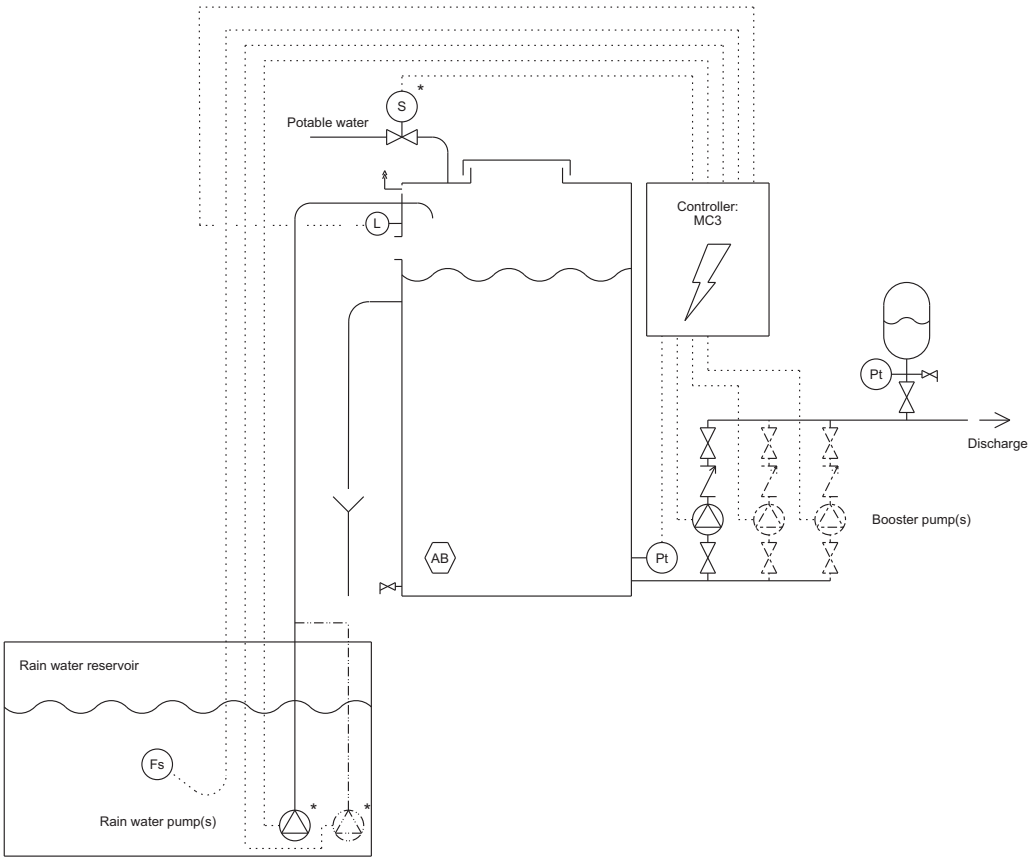


Figure 24: P&ID Rainwater Harvesting

\* Optional L will block these components using the “external off” contact Megacontrol

20130231-C derivative

Table 37: Graphical symbols

Legend						
Pump	Drain valve	Non-return valve	Valve	Solenoid valve	Pressure transmitter	Float switch
Pressure vessel	Drain to sewer					



## 14.4 EC declaration of conformity

Undersigned:

D.P. Industries B.V.  
Kalkovenweg 13  
2401 LJ Alphen aan den Rijn, The Netherlands  
Tel: (+31)(0)-172-48 83 88

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

Product: Break-Unit  
Type: HUV1 DPVE MC AB RWR break  
HUV2 DPVE MC AB RWR break  
HUV1 Relay DOL AB Break  
HUV2 MC DOL AB Break

Serial number: 27/2018 10000000-01 [...] 52/2020 99999999-99

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

- EN 809+A1/C1:2010
- EN ISO 12100:2010
- IEC 60204-1:2006
- EN 1717: 2000
- EN 13077: 2008
- IEC 61000-6-1: 2007
- IEC 61000-6-3/A1: 2011
- IEC 61000-3-2: 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, 14/03/2018

Authorized representative:  
M.H. Schaap, product development.





## **dp pumps**

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

**t** (+31-172) 48 83 88  
**f** (+31-172) 46 89 30

[dp@dp-pumps.com](mailto:dp@dp-pumps.com)  
[www.dp-pumps.com](http://www.dp-pumps.com)

11/2018

BE00000539-D / EN

Original instructions

Can be changed without prior notice

