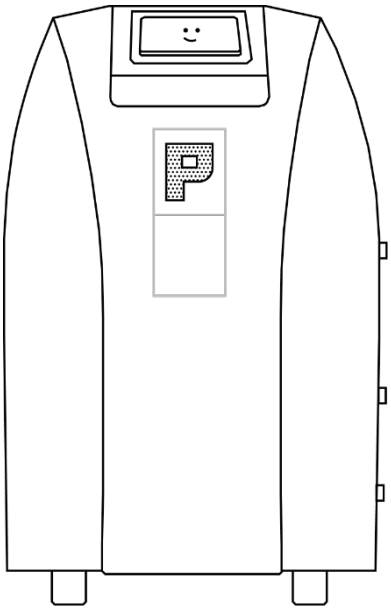
HYDRUN

Pressurisation unit
HY-P

Manual
English
Ver. 260701

Former name: HL Hydronics Soft-X



Support and product feedback

Need help?

You can find guides, frequently asked questions and technical support at hydrun.se/support.

You can also contact us directly:

- support@hydrun.se
- +46 (0)573-216 30

Via your dealer

Our dealers are experienced and knowledgeable about the Hydrun range. They are your closest point of contact for questions regarding

installation, operation and spare parts – and have direct access to our support and expertise.

We'd love to hear from you

We develop and manufacture our products here in Töcksfors, Sweden, based on our experience in operation and installation. That is why we would appreciate it if you could share your views and ideas – big or small. Your feedback helps us to make the next generation of Hydrun products even better.

Would you like to contribute directly?

Please feel free to contact our CEO: bl@hydrun.se

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1. Quick guide

System components

A complete installation of the pressure maintenance unit must always include an installation kit suitable for the type of expansion vessel, as well as an expansion vessel (open pressureless PE vessel, or alternatively a closed pressureless steel vessel).

Automatic filling (Autofill, AF) is a separate model; this function cannot be added retrospectively.

Operating parameters

Maximum system temperature: 70 °C
Installation: 2-metre cable and 230 V, single-phase plug as standard

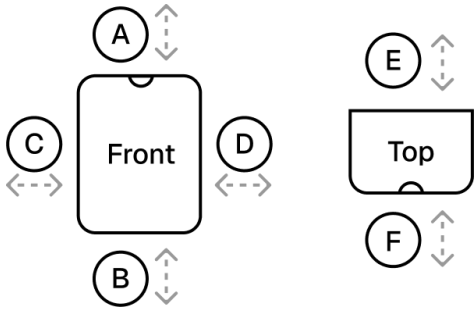
Recommended operating pressure:

HY-P-40	0.7–4 bar
HY-P-55	1.5–5.5 bar
HY-P-70	3–7 bar
HY-P-90	4–9 bar

Installation Dimensions

To ensure a correct installation and proper operation of the unit, it is important to maintain the specified minimum clearances.

A: 1000 mm
B: floor-mounted
C: 400 mm
D: 400 mm
E: 400 mm
F: 500 mm

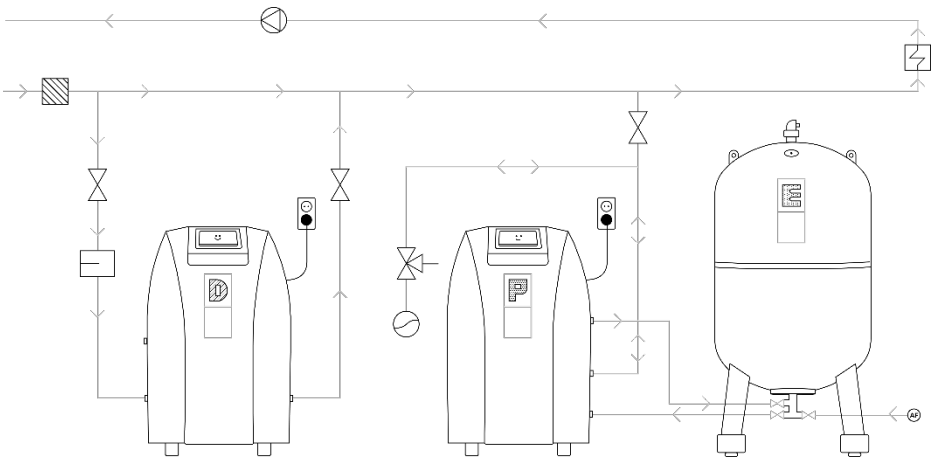


Instructions

Check that all components are correctly installed before commissioning.
Always read the manual in full before starting work.
Correct installation in accordance with the above requirements is essential for operation and a long service life.
Always ensure that the Hydrun P is installed level and is not positioned unevenly or unsteadily.
The unit can be installed on the system’s pipe connections from the side, from above or from below.

Installation

See the schematic diagram for correct installation.
A 50-litre buffer tank must be installed on **the expansion/outlet** if there is dynamic pressure maintenance and venting on the same system.

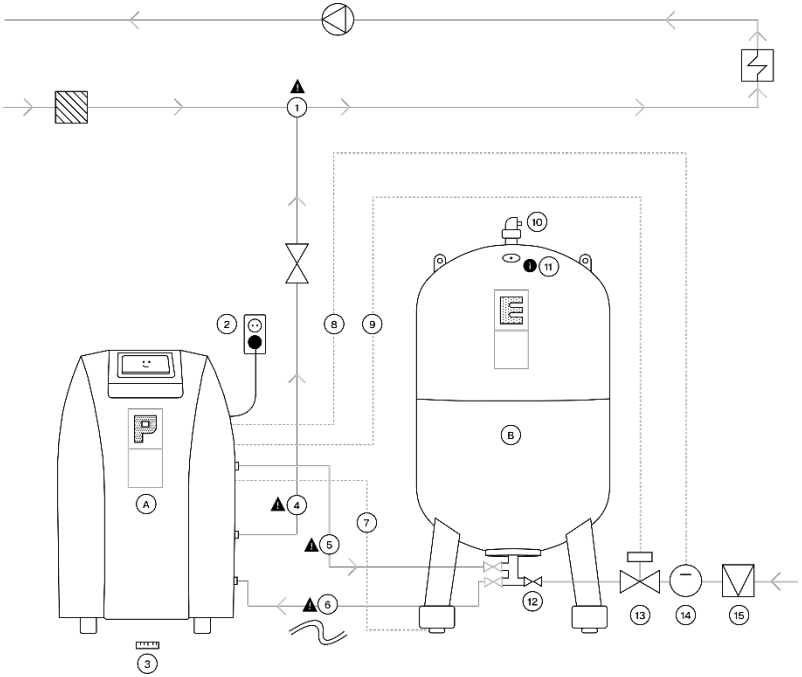


When starting up the HY-P for the first time, it is normal for there to be air in the pump housing. To remove this, you must perform a so-called venting cycle by manually operating the unit.

1. Ensure that the system is filled and has the correct system pressure.
1.1 If you have an open, non-pressurised tank, you can skip straight to step 2. If you have a closed, non-pressurised tank, ensure that it is correctly installed and completely empty of water. You must then zero the tank (see the setting instructions) so that it can measure the level correctly.
2. Bleed the pump before starting it up. Then run the pump manually (P1) and check whether the system pressure has increased and the level in the vessel has decreased. Bleed the pump by opening the bleed nipple on the pump. The bleed nipple is opened by hand. Bleeding may need to be carried out several times before the desired operating pressure is achieved.
3. Check that there is no air in the pump. If you find that the desired pressure cannot be achieved by holding down P1, repeat step 2. Otherwise, proceed to step 4
4. Can the desired pressure be achieved? If so, go to the main menu and press start (NOTE! Only if you have gone through and corrected the settings for setpoint and alarm limits, etc.

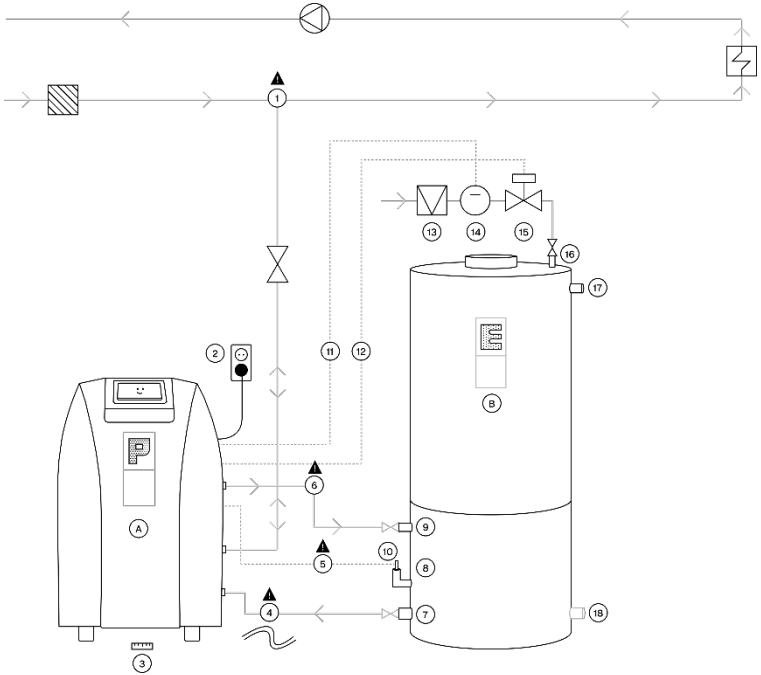
1.1 Quick guide: technical information – closed pressureless vessel

1. Connection to the system's expansion pipe. Suction side of the circulation pump.
2. 2-metre cable and 230 V, single-phase plug
3. Dimensions W500 x D250 x H700 mm.
4. Hydrun flexible connection hoses, connected to the unit's **outlet** connection.
5. Flexible hose to **return**. Included in HY-A-KIT-CV
6. Flexible hose to **suction**. Included in HY-A-KIT-CV
7. Sensor cable between load cell and HY-PD.
8. Pre-assembled cable for connection to water meter. L = approx. 0.5 m. (AF model)
9. Pre-assembled cable for solenoid valve. (AF model)
10. Top vent, to be fitted during installation. (supplied with vessel)
11. Hole for pressureless vessel; it is important that this is not covered or plugged.
12. Connection for automatic top-up. (AF model)
13. Solenoid valve for auto-fill. (AF model)
14. Water meter with pulse signal. (AF model)
15. Backflow preventer (optional)



1.2 Quick guide: technical information – open non-pressurised tank

1. Connection to the system's expansion pipe. Suction side of the circulation pump.
2. 2-metre cable and plug, 230 V, single-phase.
3. Dimensions W500 x D250 x H700 mm
4. Flexible hose to **suction**. Included in connection kit.
5. Sensor cable between the unit and the level sensor cable HY-A-KIT-OV-PD.
6. Flexible hose to **return**. Included in connection kit.
7. Tank connection marked **suction.**
8. Tank connection marked **level sensor.**
9. Tank connection marked **return.**
10. Pressure sensor for level measurement, included in the connection kit HY-A-KIT-OV-PD.
11. Pre-fitted cable for connection to water meter. L = approx. 0.5 m. (AF model)
12. Pre-fitted cable for solenoid valve. (AF model)
13. Backflow prevention (optional)
14. Water meter with pulse signal. (AF model)
15. Solenoid valve for auto-fill. (AF model)
16. Tank **connection**
17. **Overflow** connection
18. Tank connection to auxiliary tank (available as an option)

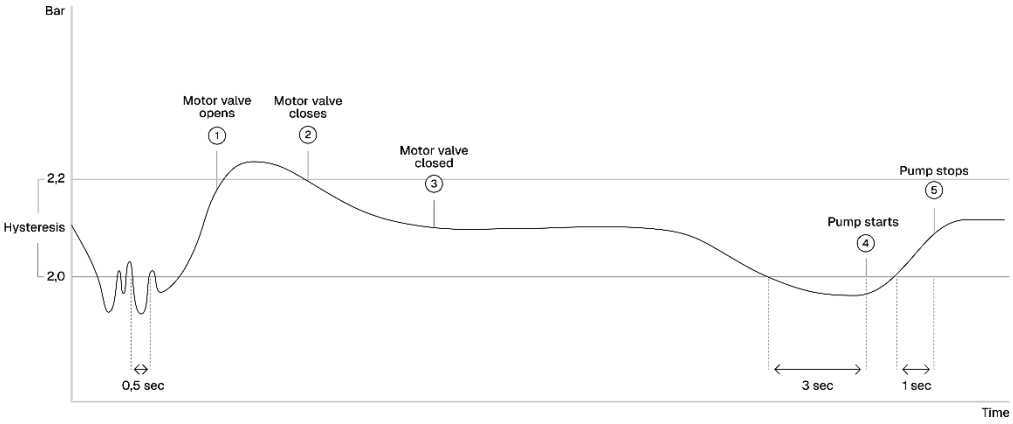


2. Function

The HY-P is a fully automatic pressure-maintaining unit that regulates system pressure via a motorised valve and a soft-start pressure-maintaining pump. The unit uses the motorised valve and the soft-start pump to maintain a constant and stable pressure.
The unit is designed to handle expansion in heating and cooling systems in a smooth and responsive manner. The pressure maintenance unit requires only a setpoint for pressure – the rest is handled automatically.
The clear display shows the current pressure and level in real time.

How it works in practice:

- If the pressure in the system rises too high, the motor valve opens and returns fluid to the vessel until the correct pressure is reached.
- If the pressure drops, the soft-start pump starts and fills the system from the vessel.
- The unit uses opening and closing delays on the motor valve (factory setting: 2s opening, 0s closing) to avoid overshooting and can be adapted to the nature of the system.
- The pump also has start-up and shut-down delays, which minimise unnecessary starts and keep the pressure within the correct range.

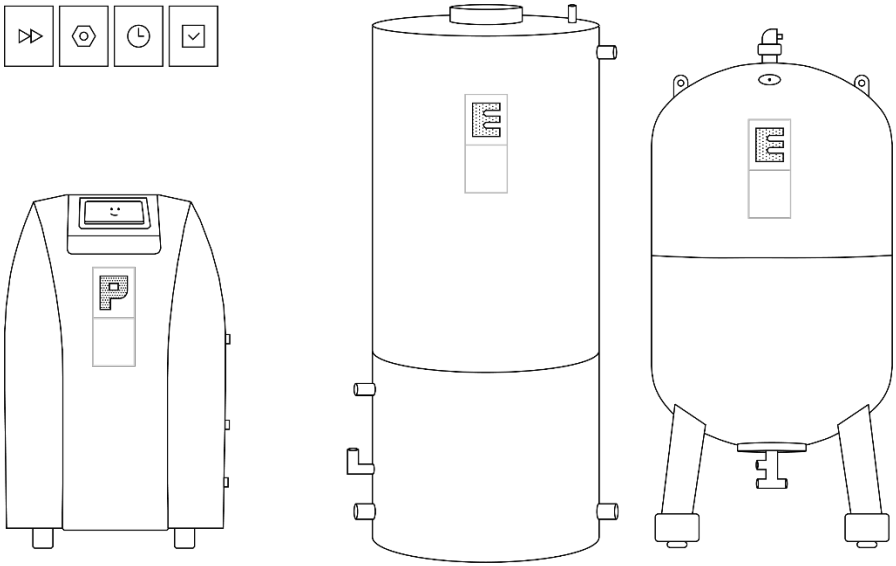


2.1 Auto-fill

The HY-P is available as a separate model with an automatic top-up function. The function is activated if the level in the tank falls below the specified lower limit, whereupon the tank is topped up to the specified upper level limit. The tank is topped up first to minimise air ingress into the system. The function is not included in the standard version but is a separate model that provides extra security in installations with varying volumes or a risk of unmitigated pressure drops.

3. Installation

The HY-P must be installed on the vessel using flexible hoses (included in the kit selected depending on the vessel variant) and connected to the system's return line. The connection to the system does not require a flexible hose. The vessel can be either closed or open. The level sensor or load cell is included in the connection kit for open or closed vessels respectively. The product is equipped with a 230 V plug and can be connected to a fixed electrical installation if required.



4. Technical specifications

Pressure maintenance unit data				
Fluid temperature		Max 70 °C		
Ambient temperature		Max 45 °C		
The following applies to the connection point to an external heating system				
Max. pressure		*10 bar*		
Article	HY-P-40	HY-P-55	HY-P-70	HY-P-90
Weight	22.5 kg	23.8 kg	25.7 kg	26.4 kg
Dimensions H x W x D		750 x 500 x 250 mm		
Noise level		Max 55 dB(A)		
Electrical data				
Voltage		230 V single-phase		
Rated current		10 A		
Overcurrent protection		230 V thermal fuse in electric motor/pump, 400 V motor protection		
Trigger conditions		230 V overheated motor, 400 V circuit breaker calibrated for respective motor power		
Electrical safety isolator		Located above the panel in a fixed installation		
IP rating		IP-54		
Connections				
Suction pipe		1" external thread		
Return pipe		CU22		
Expansion pipe (to system)		CU22		
Manual vessel filling		1/2" external thread		
Automatic vessel filling		1/2" external thread		
Overflow drain		1" external thread		

4.1 Applicable standards

Pump supplier	EN 5001-1, EN 50082-2, EN 60335-1, EN 60335-5-51
Installation	EN 60204-1
Semicond, motor, controllers, starters	EN 50082-2, EN 60947-47-4-2a
Process module	EN 50081-2, EN 61131-2

5. Installation guide

The pressure-maintaining unit and expansion vessel must be installed on the system's return pipe upstream of the circulation pump. This is to achieve the lowest possible temperature and to ensure a constant, correct operating pressure on the suction side of the circulation pump. Furthermore, the pressure-maintaining unit must be placed close to the vessel to ensure the shortest possible **suction** line.

When sizing the pressure maintenance unit, it is recommended that the unit's maximum operating pressure exceeds the system's highest desired system pressure.

The unit is connected to the mains using a pre-fitted plug, which is coiled on the pressure maintenance unit on delivery.

Ensure that overflow water can be directed to a floor drain or via another drainage system.
The installer of the HY-P is responsible for ensuring that the necessary overflow drain is fitted to the tank and that the room has a drain.

For the auto-fill model

The solenoid valve and water meter are packed inside the unit for transport. Open the cover and remove these during installation.

For the automatic fill model, follow these instructions when connecting the tank:

a. Connect the solenoid valve on **the fill connection** to the bottom connection of the tank.
b. Connect the water meter to **the fill connection** so that the volume filled can be monitored over time.
c. Connect the cable to the water meter
d. Connect **the fill connection** to the tank so that the tank is filled and not the system.
e. Connect the power cable from the solenoid valve to terminal 8, N and PE.

5.1 System connection

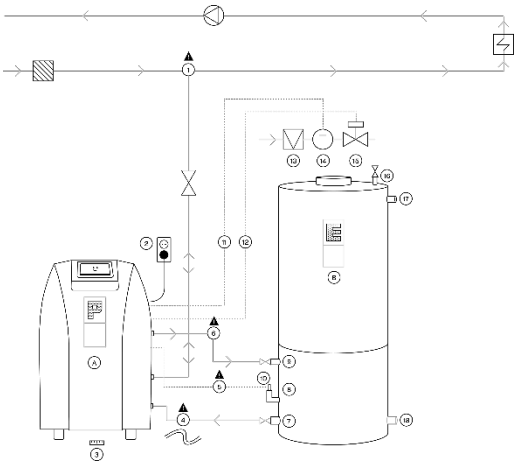
1. Install connections between the HY-P and the tank according to the schematic diagram below. If the unit is not an auto-fill model, proceed to point 3.

2. Install the supplied water meter on **the fill connection**, then connect the white pulse cable to the water meter.

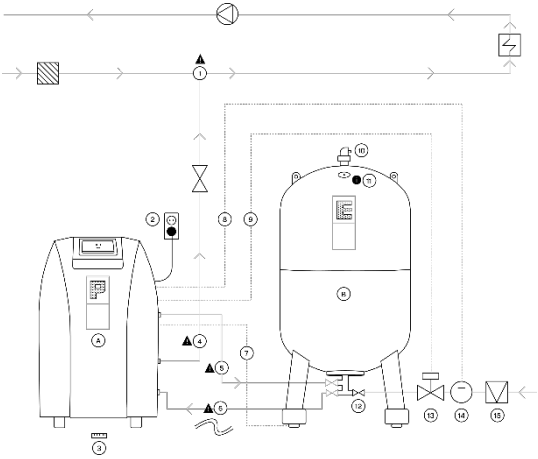
3. Fill the expansion vessel with water to approx. 30% (When the system is cold)

4. Open the shut-off valves to the system

5. The pressure-maintaining unit must be preceded by an all-pole switch. Set it to position "1", or if it is fitted with a plug, plug it into a socket (230 V).

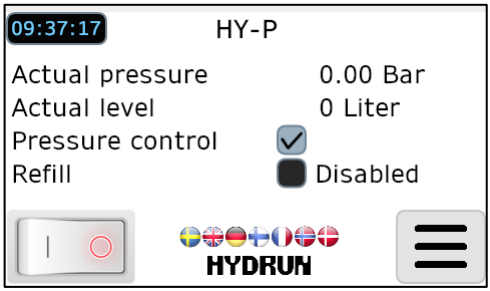


HY-P with open, pressureless vessel



HY-P with closed pressureless vessel

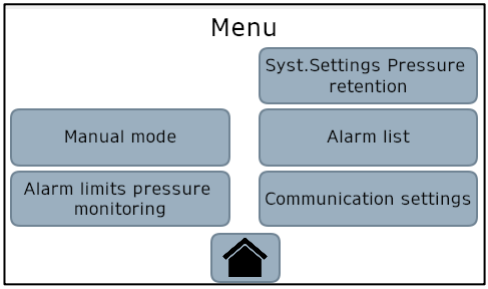
5.2 Control system settings



1. Upon start-up, the main menu appears on the display. The main menu shows the current pressure in the system and the current level in the expansion vessel.

Please note that the **Refill** function is only shown on the display if the unit is an auto-refill model. When a function is active and running, a symbol behind that function will spin.

2. Check that the display shows that the unit is in stop mode.



3. Then press **Menu**, followed by **System settings – pressure maintenance**.

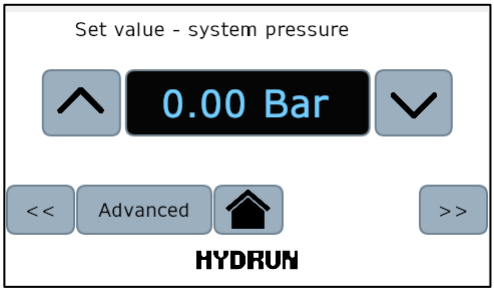
to access the setpoint pressure setting (the system pressure that the HY-P is to monitor and maintain above).
The maximum permitted pressure in the system is then:

= setpoint + 0.4 bar (= factory setting for hysteresis)

Here, use the increase and decrease keys on the display to set the correct pressure in the system. Alternatively, press the digit to be changed and enter the new value using the keypad. All values with borders can be changed in this way.

All changes to settings are saved automatically and take effect immediately.

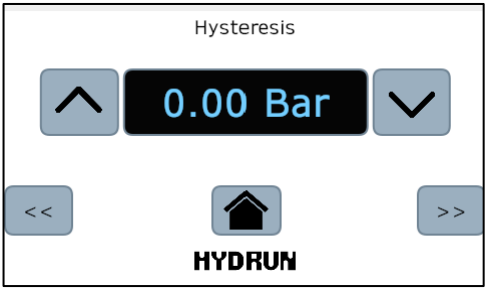
Always bleed the pump via the air nipple on the pump before start-up. NOTE! The pump may need to be bled several times before the desired operating pressure is reached.



The HY-P is supplied with default settings for alarm limits, hysteresis and start/stop delay. The unit is ready to be started; if no changes are required, you can skip ahead to step 16 in the instructions.

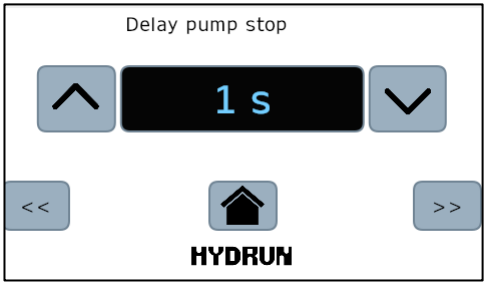
The **Advanced** button takes you to the factory settings preset by the manufacturer. These settings are the most optimal for most systems; if you wish to make changes or have any queries, always consult a specially trained technician or professional in advance.

4. **Hysteresis**
Press **Advanced** until **Hysteresis** appears on the display.
Hysteresis is the difference between pump start (setpoint pressure) and motor valve opening.
The factory setting is 0.4 bar.
To change and set the desired hysteresis, use the increase and decrease keys.

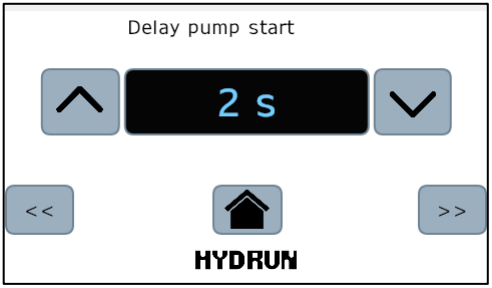


Example: If the setpoint is 2.0 bar and the hysteresis is 0.4 bar, the pump starts when the system pressure drops below 2.0 bar and the motor valve opens when the pressure rises above 2.4 bar. In this way, the system pressure remains stable between 2.0 and 2.4 bar.

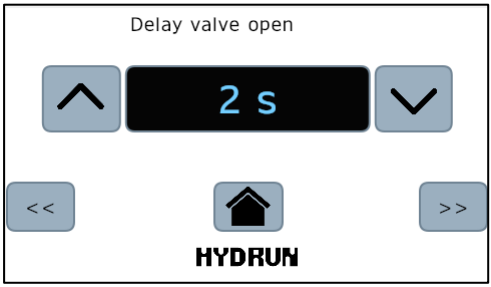
5. Press the right arrow >> to access the switch-off delay function.
This function controls how long the pump continues to run after it has reached the set setpoint.
The factory setting is 1 second.



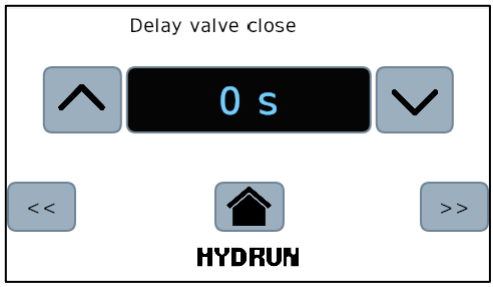
6. Press the right arrow >> to access the start delay function.
This function controls how long the pump should wait before starting after the system pressure has fallen below the setpoint.
The factory setting is 2 seconds.



7. Press the right arrow >> to access the motor valve opening delay function.
This function controls how long the motor valve waits before starting after the system pressure has risen above the set setpoint + hysteresis.
Factory setting: 2 seconds.



8. Press the right arrow >> to access the motor valve closing delay function.
This function controls how long the motor valve waits before closing after the system pressure has fallen back below the setpoint + hysteresis.
Factory setting: 0 seconds.

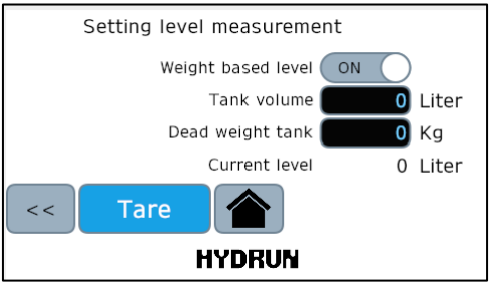


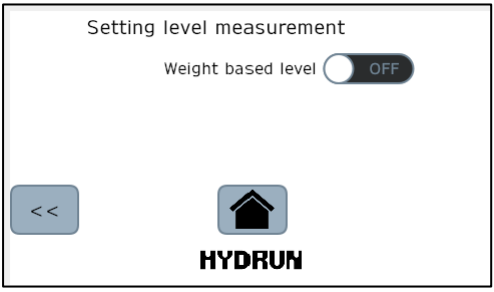
9. Press the **home button**, followed by **Menu**, then **System settings – pressure hold**.
Press the right arrow >> until you reach the **level measurement settings** box.

For a closed, pressureless vessel with a load cell on one leg, the switch should be set to **on**.
For an open, pressureless PE vessel, the switch should be set to **off**.

Also check that the vessel's volume is correct; if not, enter the correct volume (Extra and buffer vessels are not included in the volume).

Weight (kg)	Capacity (L)
35.6 kg	200
42.5 kg	300
60.9 kg	500



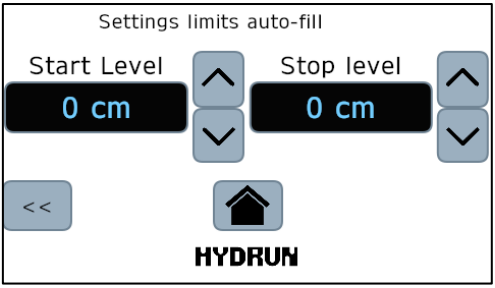


10. Ensure that the tank is empty of water and positioned in its final location at the installation site.
Then press **'tare'**; this ensures that any slope in the floor is taken into account when calculating the vessel's level.
If it is not possible to empty the tank before taring, you can instead enter the tank's own weight; see the table below.

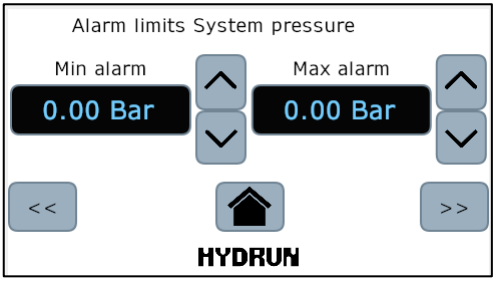
However, this does not provide the exact setting that taring would have given, which may result in the tank not being used to its full capacity. Therefore, ensure that the tank is tared as described above as soon as possible to obtain a correct level measurement.

11. Press the right arrow >> to access the settings for the start and stop levels for automatic refilling.
Note: This applies only to units with automatic refilling.
The HY-P is supplied with refill levels set to 0; with this setting, automatic refill is disabled.

Start level – the level that signals the top-up valve to open.
Stop level – the level in the expansion vessel that signals the refill valve to close.

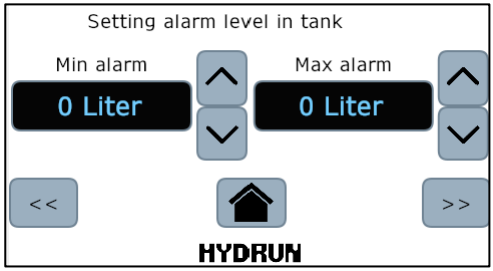


12. Press **the Home button**, followed by **Menu**, and then **Alarm Limits** to access the settings for high and low pressure alarm limits. Use the keys to set the desired pressure; when the system pressure exceeds the alarm limit, the HY-P will sound an alarm and a warning triangle will appear at the top of the display. Repeat the process to set the low-pressure alarm limit. When the pressure falls below this limit, the alarm is activated.



Tank settings

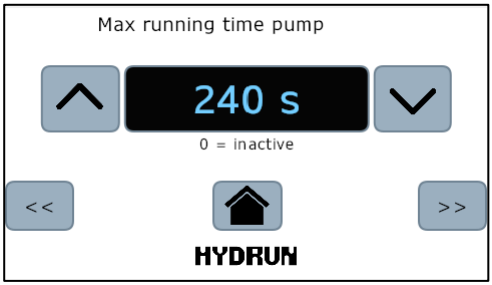
13. Press the right arrow >> to access the settings for the high and low level alarm limits in the tank. The recommended level for the low-level alarm is 15 cm.



Suggested high level: Measure from the centre of the level sensor to approx. 15 cm below the overflow connection and then enter this value as the high-level alarm limit for the tank. Alternatively, if you are using a closed tank, select approx. 85% of the tank volume as the upper limit.

Note! Dry-run protection for the pump is built-in; this alarm limit cannot be adjusted.

14. Press the right arrow >> to go to Max pump running time.
This setting determines how long the pump is allowed to run before it stops; this is to prevent the pump from overheating if, for any reason, it is unable to reach the preset pressure.
When the maximum time is reached, the unit stops and an alarm is triggered. A pop-up window also appears on the main menu, which must be acknowledged before it is possible to start the unit and return to normal operation.

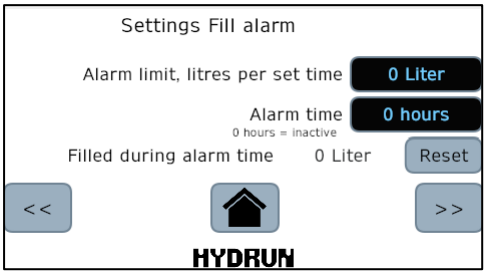


15. Press the right arrow >> to access the settings for limiting auto-fill.

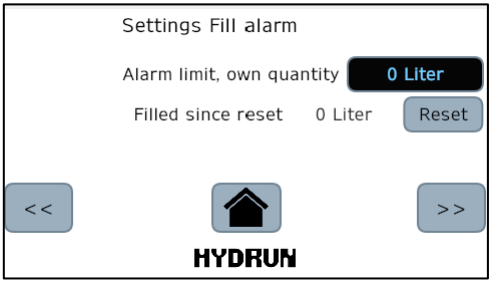
a. Alarm limit litres per set time – here you first specify the volume permitted to be filled into the system. Then, below, you specify the time allowed for this volume to be filled.

In other words, if more than the maximum volume specified is filled within the specified time, an alarm will be triggered and the filling will stop. This view shows how much has been filled during the specified time period. It is possible to reset the volume filled during the alarm period at any time.

If you do not wish this alarm to be active, you can deactivate it by setting the alarm time to 0 litres and 0 hours.

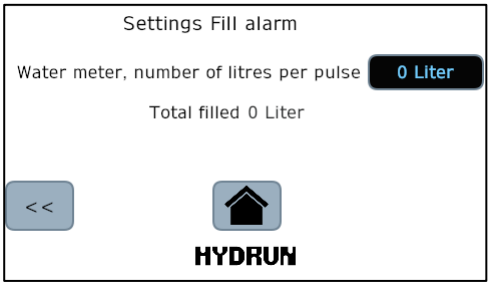


b. The total volume alarm limit is shown on the next page; this specifies the total volume that is permitted to be filled into the system before the unit triggers an alarm and stops refilling. This alarm limit is independent of time and monitors only the volume filled. This menu displays the amount refilled since the reset; it is possible at any time to reset the volume refilled during the alarm interval.



The HY-P is supplied with fill levels set to 0; with this setting, automatic filling is disabled.

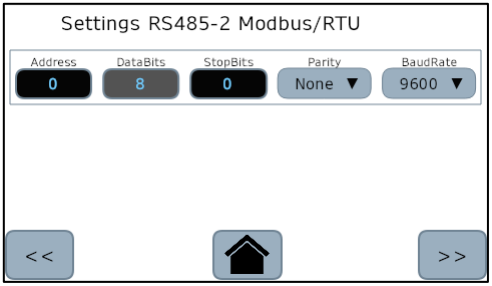
16. Press the right arrow >> to go to **the Refill Alarm Settings**. Here you can set the number of litres per pulse.
10 litres per pulse = factory setting
This should not be changed unless otherwise specified. Here, it is also possible to view the total amount filled over time. This meter cannot be reset.

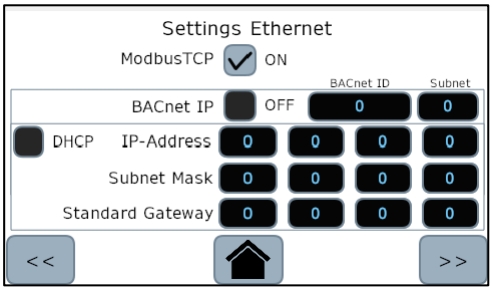


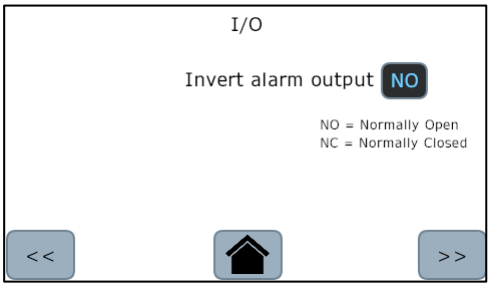
17. The following instructions apply to automatic filling of **closed and open vessels**:
a. Connect the solenoid valve to **the fill connection** on the tank.
b. Connect the water meter to **the fill connection** so that the volume filled can be monitored over time.
c. Connect **the fill connection** to the vessel so that filling takes place into the vessel and not the system.
d. Connect the power cable from the solenoid valve to terminal 8, N and PE.

18. Press the **home button,** followed by **Menu**, and then **Communication** to review the settings for communication with the host system (Modbus TCP, RTU and BACnet)

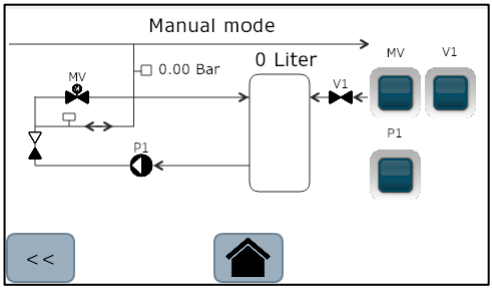
19. Return to the main menu by pressing the Home button. Then press the Start button in the bottom left-hand corner below the display and the HY-P will start.





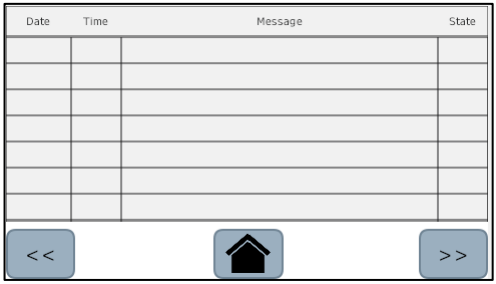


20. **Test the pump and motor valve manually.**
Press Menu >> Manual operation



In this menu, the pump (P1), motor valve (MV) and refill (V1) (if the unit is set to auto-fill) can be operated manually.
Hold down the button for the respective function to start/activate manual operation; release to stop.

21. Return to the main menu via the home button.
Then press Menu followed by **Alarm list**.
Active alarms are displayed here; these may be as follows:



- High pressure
- Low pressure
- High vessel level
- Low tank level
- Dry-run protection
- Maximum pump running time

If a dry-running alarm is triggered, this alarm must be reset using the 'Reset dry-running' button in the main menu, after the tank has been refilled with water, so that the HY-P is then ready to be restarted. The pump is blocked until the alarm has been reset correctly.

22. Return to the main menu via the Home button.
Select Menu – **Alarm list,** then press the right arrow to access **the alarm history**
This displays the alarms that have occurred historically, with the time and type of alarm.

6. Troubleshooting

Below are the most common faults that may occur, along with their causes and recommended actions.

If you experience other fault symptoms, please contact Hydrun's technical support:

support@hydrun.se

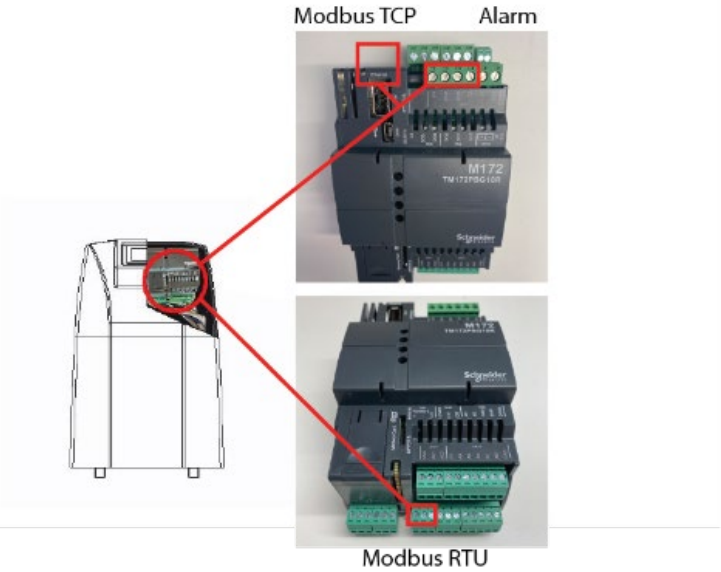
+46 573 21 630

Fault symptom	**Cause**	**Action**
The pump does not reach the correct pressure	1. There may still be air in the pump despite it having been vented via the air nipple on the pump. 2. The maximum operating pressure of the unit is lower than the desired operating pressure in the system.	1. Continue to bleed the pump until the correct pressure is achieved. 2. Switch to a model with a higher maximum operating pressure or reduce the desired operating pressure in the system.
The pump switches on and off	There may be air in the system	Bleed the system and try starting it again. If the problem persists, the system may have an air lock; in this case, it is recommended to install an air vent in the system. Contact Hydrun for more information.
The pump is forced to run a very large number of cycles to reach the correct pressure	Large system (m^3)	Increase the switch-off delay; see point 5 in 5.2 Adjust until the correct level is achieved
No pressure sensor found on delivery	The pressure sensor is packed inside the chassis for the HY-P	Open the chassis, remove the pressure sensor and fit it
The level measurement shows a strange/incorrect value	Incorrect level measurement selected	Go to the menu, select the correct level measurement (weight-based or pressure-based) Weight-based = closed vessel Pressure-based = open vessel PE
The pump runs continuously without stopping and without reaching the correct pressure	Air in the pump	Open the chassis on the HY-P and bleed the pump via the air nipple located on the pump.
Incorrect level in the tank is shown on the display (Tank full)	The tank's weight has not been tared when the tank was empty	1. Enter the vessel's tare weight to set the level measurement 2. Empty the vessel and then tare the weight

6.1 Alarms

Alarm	Cause	Action
High pressure	The system exceeds the set value for the high pressure alarm. See 5.2, point 12	1. Check the cause of the high pressure and rectify it. 2. Adjust the alarm limit
Low pressure	System pressure falls below the set value for the low pressure alarm. See 5.2, point 12	1. Check the cause of the low pressure and rectify it. 2. Adjust alarm limit
High tank level	Level higher than the set value for the high tank level alarm. See 5.2, point 13	1. Check the cause of the high level in the vessel and rectify it. 2. Adjust alarm limit
Low tank level	Level lower than the set value for the low-level alarm in the vessel. See 5.2, point 13	1. Check the cause of the low level in the vessel and rectify it. 2. Adjust the alarm limit.
Pump running dry	The level in the expansion vessel is too low.	Fill the vessel and check for leaks. See section 8.2, point 22, regarding dry running and restarting.
Fill alarm – volume/time exceeded	A larger volume than specified has been added to the system within the time frame specified in the refill settings	Check the reason why the system needed to be topped up. Alternatively, check the alarm limit and adjust it if it is too tight
Refill alarm – total volume exceeded	A larger volume than specified has been added to the system	Check why the system needed to be topped up. Alternatively, check the alarm limit and adjust it if it is too tight
Pump maximum operating time alarm	The pump's maximum permitted operating time has been exceeded	The cause may be air in the pump. Manually operate the motor valve (MV) and valve 2, and run several venting cycles. Check whether the system has a leak, which may cause the pump to be unable to maintain pressure.

6.2 Alarm signals and communication



Modbus RTU default settings

Address	Name	Value
16124	Address	1
16125	Protocol	3=Modbus/RTU
16126	Data bit number	8
16127	Stop bit number	1
16128	Parity protocol	2=Even
16129	Baud rate protocol	2=38400

Modbus TCP:
Connects via Ethernet port, see image.

Modbus RTU:
Connect the cable to terminal block CN1, see image.

Total alarm:
Closed circuit between terminals C5-DO5

9.3 Analogue signals for system pressure and tank level

Connection is made to outputs AOL1 and AOL2.
The terminal blocks are located inside the cover of the HY-P.

- Pressure is taken from AOL1 (0–10 bar).
- Level is taken from AOL2 (0–250 cm).

The value from the analogue outputs is scaled linearly from 0–10 V.

9.4 Automatic filling

Models with automatic filling (AF) come with the cable already fitted.
It is connected to terminal block 8; N and PE are located under the cover of the HY-P, at the far right of the row of electrical components.

6.3 Modbus address list

No.	Address	Description	Unit	Type able	Shell Alarm	Alarm Type	Data type	IEC type	Description of discrete values
1	9000	System pressure	Bar		0.01		Signed 16-bit	INT	
2	9001	Tank level	cm		1		Signed 16-bit	INT	
3	9002	High alarm pressure				B	Boolean	BOOL	0=Normal;1=Alarm
4	9003	Low pressure alarm				B	Boolean	BOOL	0=Normal;1=Alarm
5	9004	High tank level alarm				B	Boolean	BOOL	0=Normal;1=Alarm
6	9005	Low pressure alarm				B	Boolean	BOOL	0=Normal;1=Alarm
7	9006	Dry run alarm protection				A	Boolean	BOOL	0=Normal;1=Alarm
8	9007	Alarm: maximum number of fills reached				A	Boolean	BOOL	0=Normal;1=Alarm
10	9009	Alarm for tank overfilled				A	Boolean	BOOL	0=Normal;1=Alarm
11	9040	Setting for desired minimum system pressure	Bar	Yes	0.01		Signed 16-bit	INT	Set alarm limit
12	9041	High pressure alarm setting	Bar	Yes	0.01		Signed 16-bit	INT	Set alarm limit
13	9042	Low pressure alarm setting	Bar	Yes	0.01		Signed 16-bit	INT	Set alarm limit
14	9043	High-level tank alarm setting	cm	Yes	1		Signed 16-bit	INT	Set alarm limit
15	9044	Low tank level alarm setting	cm	Yes	1		Signed 16-bit	INT	Set alarm limit

16	9045	High volume alarm setting in tank	Litres	Yes	1		Signed 16-bit	INT	Set alarm limit

No.	Address	Description	Unit	Type able	Shell Alarm	Alarm Type	Data type	IEC type	Description of discrete values
17	9046	Low tank volume alarm setting	Litres	Yes	1		Signed 16-bit	INT	Set alarm limit
18	8960	Manual pump operation		Yes			Boolean	BOOL	0=Stop; 1=Run
19	8961	Manual operation of filling valve		Yes			Boolean	BOOL	0=Close; 1=Open
20	8962	Manual operation of motor valve		Yes			Boolean	BOOL	0=Close; 1=Open
21	8963	Reset alarm for maximum number of fills		Yes			Boolean	BOOL	1=Reset
22	8964	Start		Yes			Boolean	BOOL	1=Start
23	8965	Stop		Yes			Boolean	BOOL	1=Stop
24	8966	Reset dry-run protection alarm		Yes			Boolean	BOOL	1=Reset
25	8967	Pressure holding unit					Boolean	BOOL	1=Active
26	8968	Weight-based level measurement, tank (sheet metal)		Yes			Boolean	BOOL	0=Pressure-based level 1=Weight-based level
27	8971	Tare weight in tank		Yes			Boolean	BOOL	1=Tare actual weight
28	8969	Automatic refill option yes/no		Yes			Boolean	BOOL	0=No; 1=Yes
30	9130	Hysteresis setting	Bar	Yes	0.01		Signed 16-bit	INT	

No.	Address	Description	Unit	Write able	Shell Alarm	Alarm Type	Data type	IEC type	Description of discrete values
31	9131	Pump stop delay setting	Sec		1		Unsigned 16-bit	UINT	
32	9132	Pump start delay setting	Sec		1		Unsigned 16-bit	UINT	
33	9133	Motor valve opening delay setting	Sec		1		Unsigned 16-bit	UINT	
34	9134	Motor valve closing delay setting	Sec		1		Unsigned 16-bit	UINT	
35	9135	Setting the initial level for tank refilling	cm		1		Signed 16-bit	INT	
36	9136	Tank refill stop level setting	cm		1		Signed 16-bit	INT	
37	9137	Setting for maximum number of fills	St		1		Signed 16-bit	INT	Set alarm limit
38	9138	Tank tare weight setting	kg		1		Signed 16-bit	INT	
39	9139	Maximum tank volume setting	Litres		1		Signed 16-bit	INT	

7. Maintenance

Pump

The pump requires no maintenance during normal operation; if the pump has been used for contaminated liquids, it must be flushed immediately after use.
Pumps that are not used during periods of frost should be drained to prevent damage.
For pump operation and maintenance, please refer to the extract from the Grundfos installation and operating instructions.

Motor valve

Test the motor valve manually by following the instructions in sections 5.1–21.
Verify that the function is correct.

Annual inspection of the sealed vessel

During the annual service inspection, the following points must be checked:
1. Check all connections for leaks
2. Check that the vent hole on the vessel is clear and allows air to pass through.
3. Ensure that the top vent is open and can release air from the vessel.

Annual inspection of open vessels

During the annual service inspection, the following points must be checked:
1. Check all connections for leaks
2. Open the tank lid. Check the condition of the interior; if there is a build-up of dirt, clean the walls and base of the PE tank.
3. Check that the overflow drain is open and therefore functions correctly if the tank becomes full.
4. Check the non-return valve in the tank lid.
5. Clean the level sensor in the tank. Unscrew the sensor from the tank, clean the connection and refit the sensor.
6. Check **the fill connection**
a. For manual filling, test filling the vessel to verify operation by opening and closing the ball valve.
b. For automatic filling, manually operate the solenoid valve for filling and verify operation.

See section 5.2 - 20 for manual operation.

8. Electrical documentation

General information on electrical safety.

When carrying out service work involving high-voltage current in the machine, always use the local safety switch to disconnect the power supply. From the service location, you must also have a clear view of the safety switch to ensure that it is not accidentally activated by another person.

Where there is no local safety switch, or where the safety switch is not visible, the main switch on the electrical cabinet connected to the power source must always be switched off.

Where the main switch is used, it must, without exception, always be secured with a padlock, and a warning sign must be affixed to the electrical cabinet to indicate that maintenance work is in progress.

If fuses are removed, they must be replaced with circuit breakers fitted using a special tool.

Work involving high-voltage electricity must only be carried out by a suitably qualified person.

Electrical hazards and power disconnection

In this context, a ‘layperson’ refers to the machine operator (a person who is not a qualified electrician or has not received specific training); such a person must not carry out work inside the electrical cabinet, as there is live voltage present.

Work on the machine, other than brief tasks, must not be carried out without first isolating the main switch on the incoming power supply and de-energising the system.

When carrying out electrical work on the machine, call in a qualified or trained person.

Contact the manufacturer for more detailed information regarding the electrical connection of the pump/motor. Upon delivery from Hydrun, this is normally pre-connected.

9. Declaration

EU Declaration of Conformity

In accordance with of European Parliament and Council Decision No 768/2008/EC ANNEX III

1. *Product model/product:*

Product	Tryckhållningsenhet
Model/type	Soft-X
Serial nos	123456

2. Manufacturer: HL Hydronics AB
   Address: Bögatan 40, 67241, Töcksfors
3. *This declaration is issued under sole responsibility of the manufacturer.*
4. *Object of declaration:*
   Product: Machine for handling expansion and maintain pressure in closed heating and cooling systems.
5. *The object of the declaration described above is in conformity with relevant Union Harmonisation legislation:*

2006/42/EC	The Machinery Directive
2014/68/EU	Pressure Equipment Directive (Art 4.3)
2014/30/EU	The Electromagnetic Compatibility Directive (EMCD)
2014/35/EU	The Low Voltage Directive (LVD)
2011/65/EU	The use of certain hazardous substances in electrical and electronic equipment (RoHS 2)

6. *References to the relevant harmonised standards used or references to the other technical specifications in relation to which conformity is declared:*

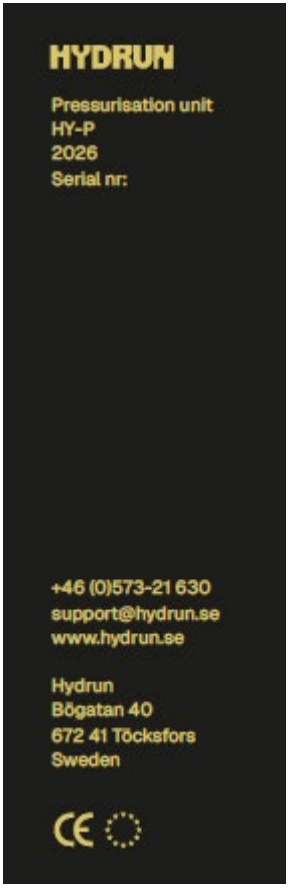
LVD: Reference & Date	***Title***
EN 61010-1:2010	*Safety requirements for electrical equipment for measurement, control, and laboratory use*

EMC: Reference & Date	***Title***
EN 55014-1:2016+A1:2009 +A2:2011	Electromagnetic compability - Requirements for household appliances, electric tools and similar apparatus.
EN 55014-2:2015	Electromagnetic compability - Requirements for household appliances, electric tools and similar apparatus.
EN 61000-6-2:2005+C1:2005	Electromagnetic compability - Generic standards, Immunity for industrial environments.
EN 61000-3-2:2014	Electromagnetic compability - Limits for harmonic current emission (equipment input current = 16 A per phase)
EN 61000-3-3:2013	Electromagnetic compability - Limits, Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipments with rated current = 16 A per phase and not subject to conditional connection.

7. *The technical file is available from the manufacturer at the address above*

Signed for and behalf of:	HL Hydronics
Place of issue:	Töcksfors, Sweden
Date of issue:	14 th February 2023
Name:	Björn Lennartsson
Position:	Chief Executive Officer (CEO)
Signature:	

10. Machine CE marking



The machinery is fitted with a legible and durable marking in accordance with the requirements of Annex 1, point 1.7.3 of the Machinery Directive.

The manufacturer's plate contains the following information:

- Type
- Year of manufacture
- Serial number
- Contact details
- CE marking

11. Delivery exceptions and the buyer's responsibility

PLEASE NOTE! Upon delivery, always check that the product is complete and undamaged.
In the event of any transport damage, report this immediately to the carrier.

The customer/consumer is responsible for the necessary electrical and plumbing connections, as well as ensuring that the necessary drainage is available in the installation area.

General and safety instructions
The HY-PD is designed for stationary operation in a non-mobile installation.

Installation and commissioning of the HY-PD must only be carried out by specially trained personnel/qualified professionals.
The HY-PD must only be used in systems with media permitted in accordance with the technical data.

During any type of maintenance or repair of the HY-PD, it must be disconnected from the power supply.

Information regarding the manufacturer, year of manufacture and serial number can be found on the manufacturer's plate located on the right-hand side of the HY-PD chassis.

Take measures to ensure temperature and pressure safety in the system so that the specified, permitted maximum and minimum operating parameters are not exceeded or fallen short of.

The HY-P has been tested and approved for water, ethanol (max. 29%) and glycol mixtures up to 50% (propylene and ethylene).
Contact your sales representative for further information. Please also refer to the contents of this user manual.

12. Revisions

If a machine undergoes changes that affect its essential health and safety requirements as per the CE marking, the original declaration of conformity ceases to be valid.

All significant design changes or modifications that affect function, performance or risk profile must be documented and risk assessed.

If the change is deemed to affect the machine's compliance with the requirements of the directives, a new CE marking and declaration may be required. As a rule, however, it is sufficient to supplement the existing documentation (technical file and user manual).

Nordic health and safety authorities have agreed that new CE certification is required only in the case of significant changes affecting the safety concept, design, risks or capacity. The replacement of parts that do not alter function or performance does not require new marking.

All major modifications must be risk assessed and documented, even if the CE marking is not affected. The assessment determines whether the original declaration of conformity remains valid. Hydrun is responsible for the machine's CE marking and technical documentation, including future modifications and safety aspects.

If you have any questions or uncertainties regarding changes that may affect health and safety requirements in the design or operating instructions, please contact Hydrun.