

Conversion

SolvisMax 7 with SolvisLea

For connecting the SolvisLea heating pump

Conversion of SolvisMax 7

- Gas to Gas Hybrid
- Oil to Oil Hybrid
- Solo with SolvisLea



1 Information About These Instructions

These instructions are intended for you as a technician from an installation company. You will find the specifications for installation, start-up and maintenance of the system here.

Please keep these instructions with the system so they can be referred to when necessary.

We recommend that you participate in a Solvis training course to ensure safe and proper installation.

As we are interested in improving our technical documentation, we appreciate feedback of any kind.

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A list of our international representatives is provided at www.solvis.com.

Please understand that the telephone numbers are reserved for use by our installers.

Interested system operators should contact their installer.

Symbols used



DANGER

Immediate danger, with serious health consequences and even death.



WARNING

Danger, with potentially serious health consequences.



CAUTION

Possible risk of moderate or light injury.



CAUTION

Risk of damage to unit or system.



Useful information, notes and work tips.



Change of document, referring to another document.



Energy-saving tip with suggestions on how to save energy. This reduces costs and helps protect the environment.

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2 Safety Notes



Observe the safety notes

This is for your own safety.

- Make sure that you are familiar with the safety notes before beginning work.
- Observe and adhere to the relevant safety regulations and the valid accident prevention regulations.
- You should also follow the safety notes from the available system documentation.



Work to be performed by qualified technicians

- Only trained specialist companies may install or maintain the system.
- Only qualified electricians may work on electrical equipment.



CAUTION

Observe instructions

Solvis is not liable for any damage resulting from non-observance of these instructions.

- Read the instructions carefully before operating or installing the system.
- Contact our Technical Sales department if you have any questions.



CAUTION

Do not make any unauthorised modifications

Otherwise, there is no guarantee that the system will function correctly.

- You must not make any changes to the components of the unit.
- Only use original spare parts.

3 System Versions

The conversion kit is suitable for retrofitting a SolvisMax Gas, SolvisMax Oil or SolvisMax Solo (Series 7). It is essential for connecting a SolvisLea Eco (8 kW), SolvisLea 8,3 Premium or SolvisLea (11 kW or 14 kW) heating pump.

The buffer charging station with a speed-controlled pump is used to adjust the output, the sludge separator to protect the heating pump and the switching valve group is used to feed the charging current into the SolvisMax's stratified storage tank, depending on the operating status. When combining the SolvisMax Solo with a SolvisLea Eco 8 kW, the electric heating cartridge contained in the corresponding conversion kit must also be integrated.

4 Scope of Delivery

Conversion kit for SolvisMax with SolvisLea

- Buffer charging station PLAS-WP
- Assembly pack for LM WP 3-way valve (hydraulic power pack with 3-way switching valve for installation in the charging module)
- Sludge separator
- SmartGrid Box
- Sensors and electronic accessories (including Modbus and connection cables, socket boards)

Conversion kit for converting SolvisMax Solo with SolvisLea Eco

Also includes:

- Hydraulic assembly for SolvisLea Eco heating cartridge

Documentation

- Conversion instructions (UBA-MAX-7-LEA, this document)
- “My Solvis System” folder (supplied with the heating pump)

5 Installation

Shutting down the system

1. Shut off the fuel supply if necessary.
2. Shut down the system and disconnect it from the power supply.
3. Open protective cover and disconnect burner plug.
4. Allow the system (burner) to cool down.

If necessary draining the storage tank

Collect the heating system water in suitable containers so that it can be reused.

1. Remove the front casing.
2. Remove the flange insulation.
3. Connect the suction hose of the jet filling pump to the fill and drain connection.

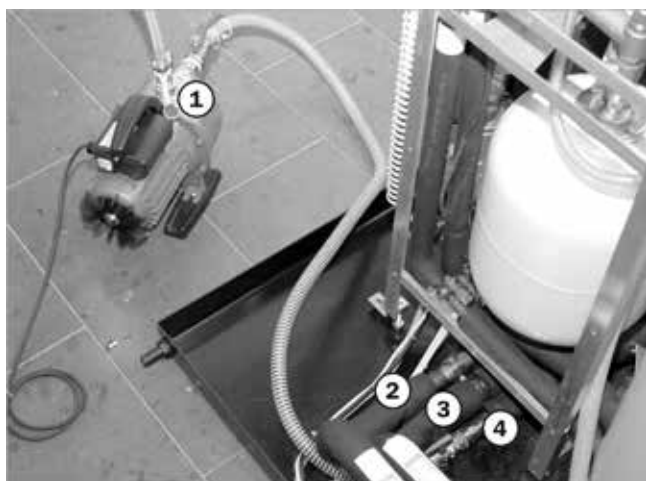


Fig. 1: Connecting the pump

- | | |
|--------------------|-----------------------------|
| 1 Jet filling pump | 3 Heating return |
| 2 Heating flow | 4 Fill and drain connection |
4. Guide the pressure hose into the container.
 5. Open the valve on the fill and drain connection and release the pressure.
 6. Screw off the bleeder on the top storage tank.
 7. Pump off the water and collect it for reuse (see the "Drainage quantities" table).
 8. Close the valve on the fill and drain connection.

Drainage quantities (flange is free)

Storage tank size	Minimum drainage volume [l]
457	200
757	400
957	600

5.1 Conversion charging module

5.1.1 Preparing the WP and WP-SL charging modules

Scope of delivery

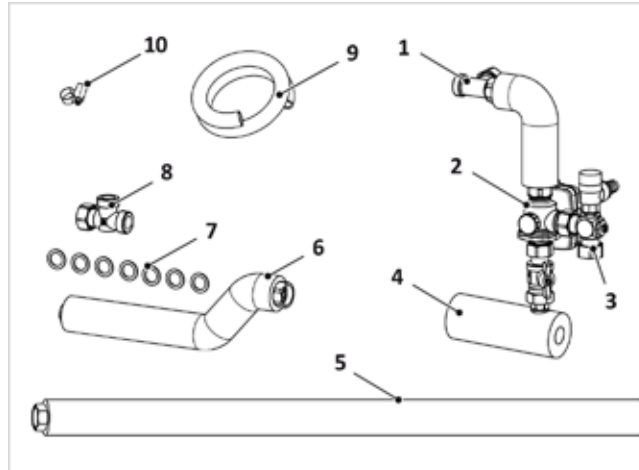


Fig. 2: Assembly pack for LM-WP 3-way valve:

- 1 T-piece (WWS flow)
- 2 3-way switching valve
- 3 Elbow with safety valve and temperature sensor S14
- 4 Corrugated pipe for heating flow
- 5 WP-VL connection pipe:
- 6 Connection pipe for heating flow
- 7 7x seals, 30 x 21 mm
- 8 T-piece G1 (heating flow)
- 9 Hose 0.8 m
- 10 Hose clip

Installation overview

→ Fig. 3 shows the position of the 3-way switching valve at the connections for the storage tank and charging module. The connection pipes for the heating pump and heating flow can be routed through the side pipe lead-through on the right or left.

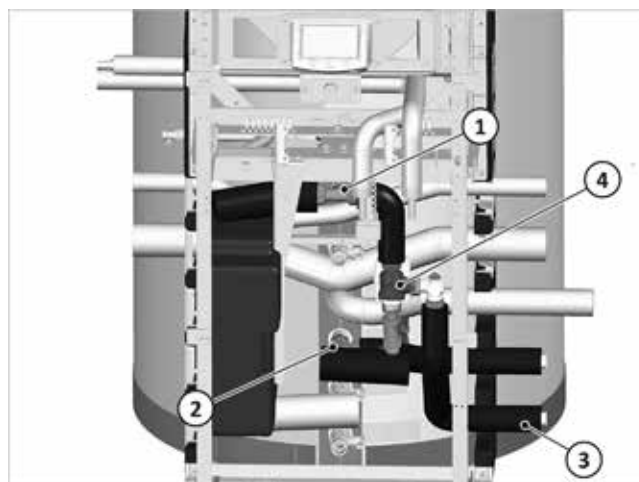


Fig. 3: Position of the 3-way switching valve (connections on the right)

- 1 Step 1: Connection to WWS flow
- 2 Step 2: Connection to heating flow
- 3 Step 3: Routing the heating pump flow (here, on the right)
- 4 3-way switching valve

5 Installation

Installing the switching valve group

For more information about identifying the parts, see
→ fig. 2, p. 7.

1. Fit the supplied switching valve on the WWS flow (1).

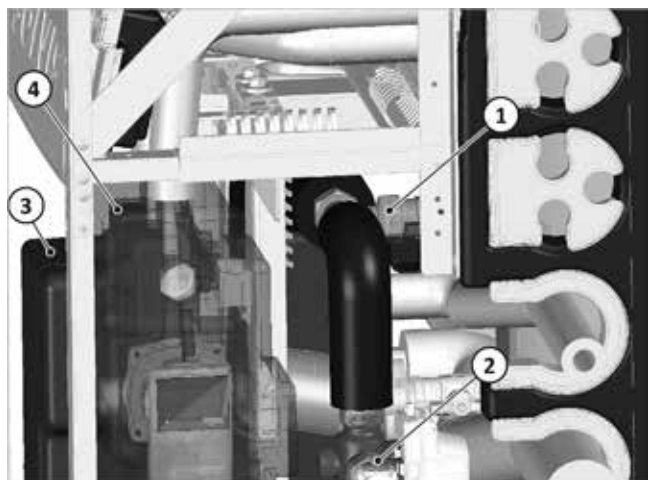


Fig. 4: Fitting the switching valve (WP flow to the right)

- 1 Connection to WWS flow
 - 2 3-way switching valve
 - 3 Hot water station (WWS)
 - 4 Solar heat transfer station (shown as transparent here)
2. Fit the supplied T-piece (8) and seal on the storage tank heating flow connection. Run the heating flow connection pipe (6) into the pipe lead-through on the left or right and tighten it while holding it in place.

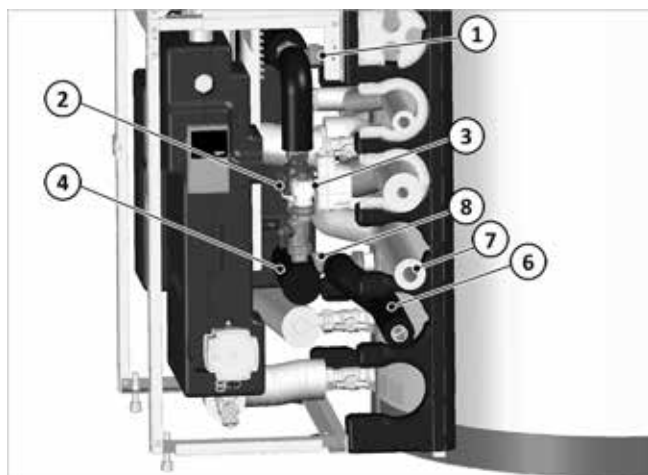


Fig. 5: Fitting the switching valve (WP flow to the right)

- 1 Connection to WWS flow
 - 2 3-way switching valve
 - 3 Elbow with safety valve and temperature sensor S14
 - 4 Corrugated pipe for heating flow
 - 6 Connection pipe for heating flow
 - 7 Heating return
 - 8 T-piece on heating flow
3. Connect the supplied switching valve cable to the switching valve.
 4. Insert the supplied temperature sensor S14 into the immersion tube on the bracket (3) and fasten it in place.

Only for LM-WP

5. Run the heating pump flow pipe (5) into the pipe lead-through on the left or right. Tighten the coupler while holding it in place.

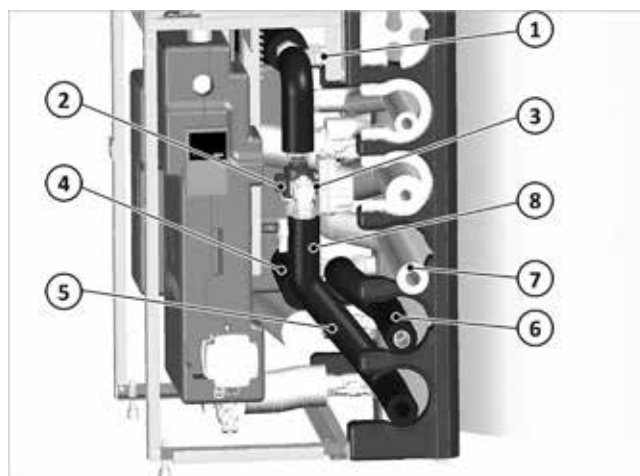


Fig. 6: Fitting the switching valve (WP flow to the right)

- 1 Connection to WWS flow
- 2 3-way switching valve
- 3 Elbow with safety valve and temperature sensor S14
- 4 Corrugated pipe for heating flow
- 5 Heating pump flow pipe
- 6 Connection pipe for heating flow
- 7 Heating return
- 8 T-piece on heating flow

5.1.2 WP-SL charging module add-on for SolvisLea Eco

When the SolvisMax Solo is combined with SolvisLea Eco, the supplied heating cartridge must also be integrated into the heating pump flow in the WP-SL-VSG charging module. This "LM WP-SL HPT assembly pack" (→ fig. 7) replaces the "WP-VL connection pipe" here; see → fig. 2 (5).

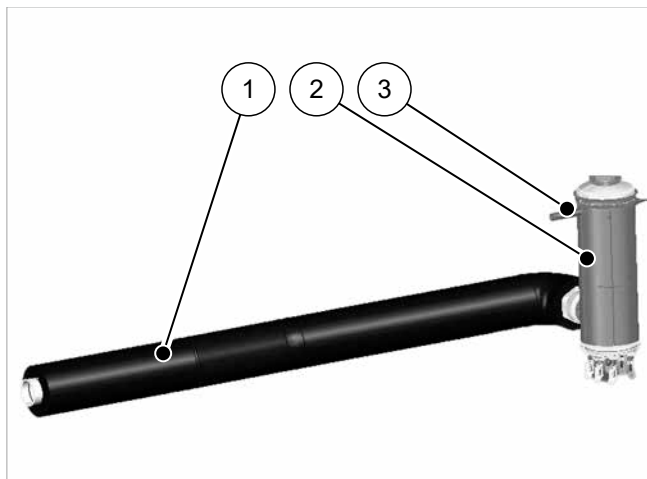


Fig. 7: Heating cartridge with HP flow pipe

- 1 WP-VL Max WP HPT connection pipe
- 2 Ben-Max heating cartridge (incl. mSTL and connection box)
- 3 Sleeve for safety temperature limiter

The following are also included:

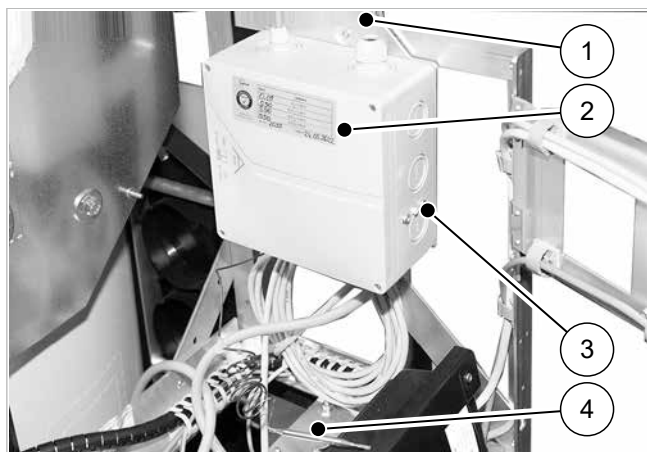


Fig. 8: Connection box for heating cartridge, fitted

- 1 EAK HPT Max retaining plate
- 2 Heating cartridge connection box
- 3 Unlocking heating cartridge malfunctions
- 4 Safety temperature limiter (mSTL)

The retaining plate and connection box are screwed together at the factory. The connection box is already connected to the heating cartridge through a cable and can be fastened to the top of the charging module using two screws/nuts/U-washers.

Position of the components

→ Fig. 9 shows the position of the connection box (1) and heating cartridge (4) in the charging module. The connection pipes for the heating pump and heating flow can be routed through the side pipe lead-through on the right or left.

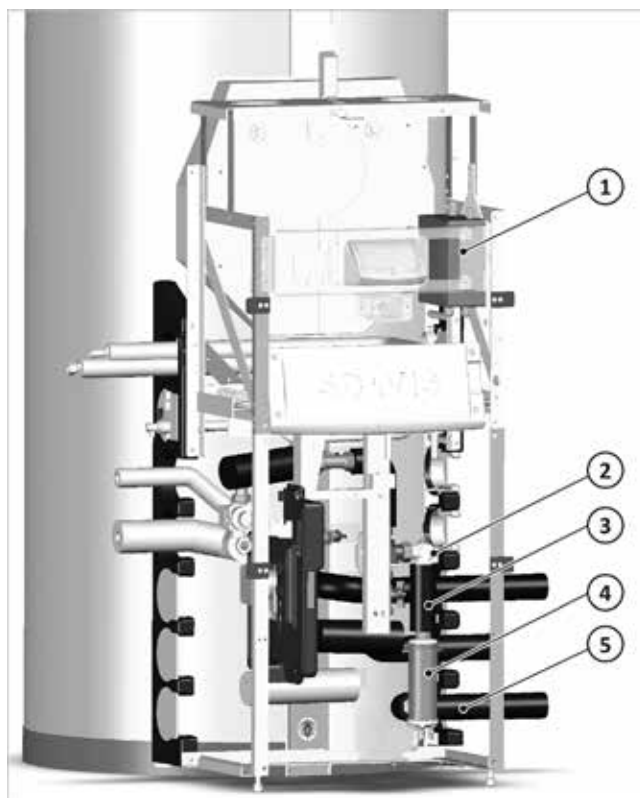


Fig. 9: Position of the components in the charging module

- 1 Junction box
- 2 3-way switching valve
- 3 Temperature volume flow sensor of the switching valve group
- 4 Heating cartridge (incl. mSTL)
- 5 WP-VL Max WP HPT connection pipe

Installing the heating cartridge

1. Prepare the charging module as described in → chapter "Preparing the WP and WP-SL charging modules" on page 7.
2. Fit the heating cartridge to the temperature/volume flow sensor of the switching valve group with seal and route the heating pump flow pipe to the pipe lead-through. Tighten while holding in place.

Installing the connection box

Applies only to SolvisLea Eco with SolvisMax Solo:

1. Screw the connection box onto the top of the charging module; see → fig. 9 (1).

5 Installation

Installing the safety temperature limiter

1. Push the safety temperature limiter (4, → fig. 8) into the sleeve of the heating cartridge and secure it with the spring connector supplied.

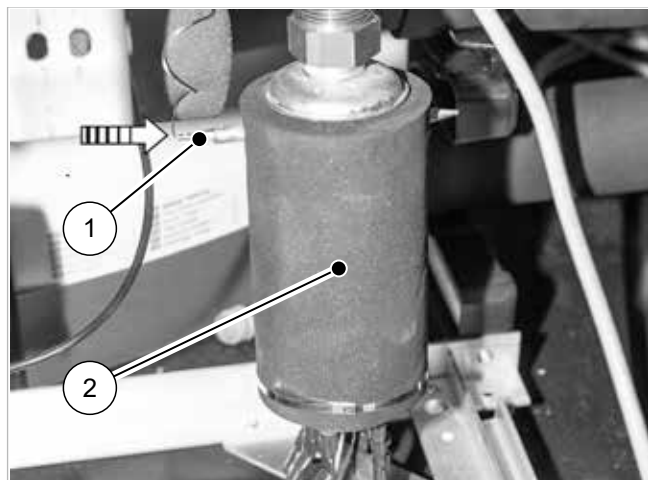


Fig. 10: Push the mSTL into the sleeve

- 1 Safety temperature limiter (mSTL)
- 2 Heating cartridge

5.1.3 Mounting the charging module on the storage tank

Installing the charging module

The charging module contains the appropriate stations and valves for the specific system configuration.

1. Put the charging module in place and fasten it with the nuts. The oblong holes in the frame allow for horizontal alignment (2).

2. Set the clearance (3) on both sides; the height of the clamp can be aligned marginally (1), depending on the tightness of the nuts.

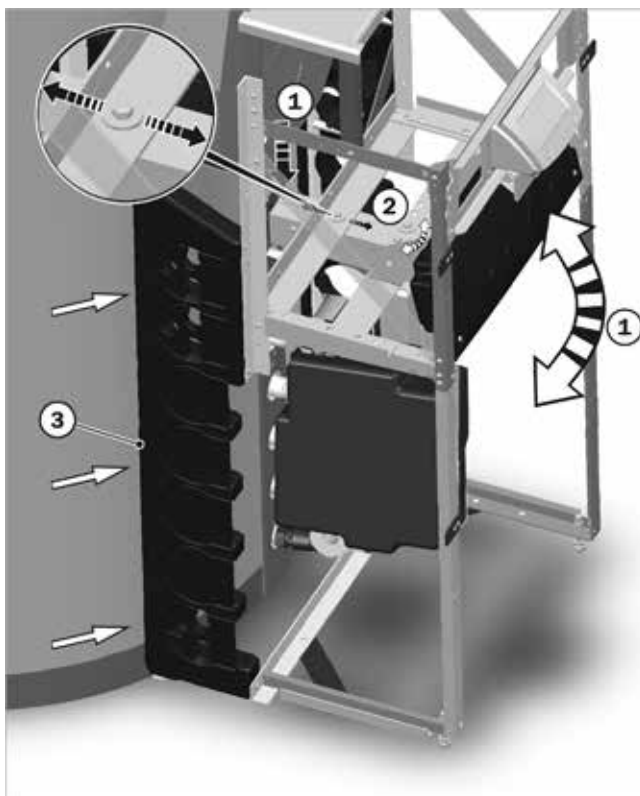


Fig. 11: Aligning the charging module

3. Finally, screw the feet at the front of the frame downwards to the floor.

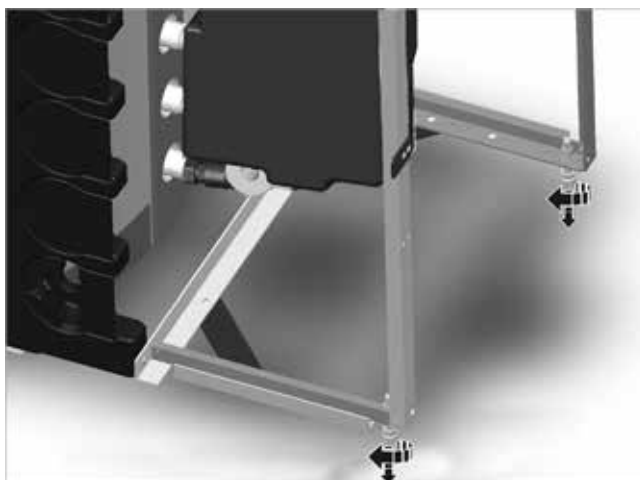
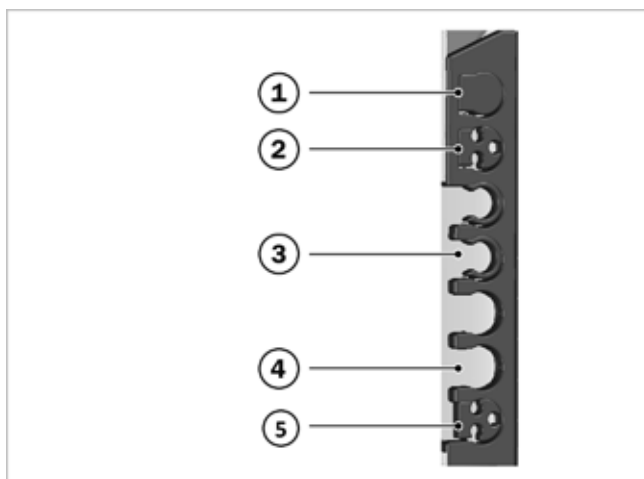


Fig. 12: Screw the frame feet downward to the floor

Pipe lead-throughs

The pipe lead-throughs sit on the side of the frame to the left and right. They are adapted to the different lines using inserts.



- 1 Corrugated pipe
- 2 Bleeder
- 3 Bleeder connection
- 4 Mounting bracket

Fig.13: Inserts for the pipe lead-throughs

- 1 Cover (closes the pipe lead-through)
- 2 3x reducer (for typical burner lines, electrical lines, etc.)
- 3 Reducer insert (e.g. for drinking water)
- 4 No insert (e.g. heating pipes)
- 5 Heating pump flow

Guide the bleed connection

All pipe lead-throughs can be fitted on either the left or right side of the frame.

1. Guide the bleed connection for the storage tank to the second pipe lead-through from the top of the frame with the supplied corrugated pipe and fasten it to the frame using the mounting bracket.

The system operator should be able to reach the bleeder from the outside.

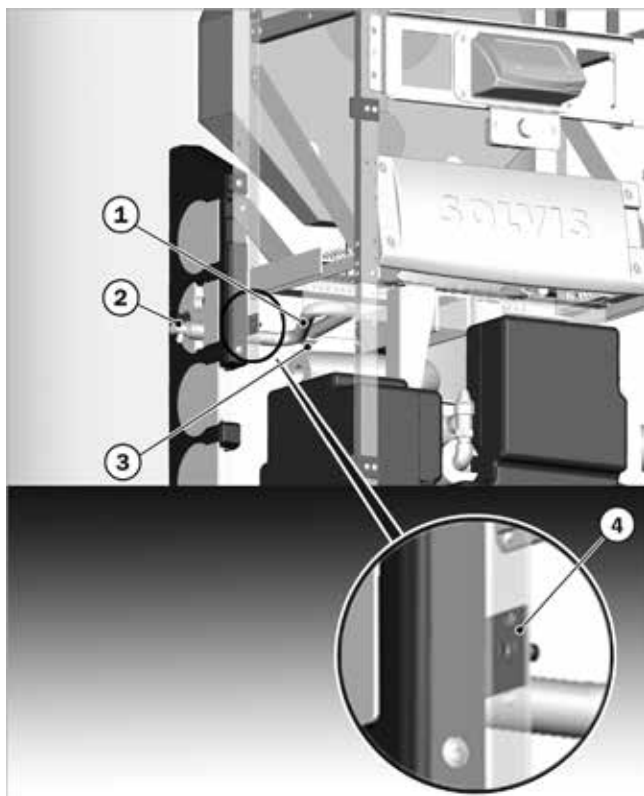


Fig.14: Fit the bleeder connection with the corrugated pipe

5.2 SolvisLea heating pump

The scope of delivery also includes the wall-mounted WP buffer charging station and sludge separator, both of which must be installed in the connection pipes between the storage tank and heating pump.

5.2.1 Installing SolvisLea

Setting up the heating pump

1. Install the heating pump according to the supplied installation instructions and route the connection pipes to the SolvisMax.

5.2.2 Installing the buffer charging station

Installing the wall-mounted WP buffer charging station

1. Attach the supplied PLAS-WP-WM with suitable attachment material to the wall or alternatively directly in the pipe line near the storage tank. The direction of flow should be from bottom to top or horizontal. It can be installed in the flow or return line (observe the direction of flow of the pump).

5.2.3 Installing the sludge separator

Installing the sludge separator

1. Fit the supplied sludge separator into the return line between the SolvisMax and heating pump (see system diagram ALS-MAX-7).

5.2.4 Heating pump connection

Connecting the heating pump to the SolvisMax

1. Connect the return line for the heating pump to the return line shared by the heating circuits (see system diagram ALS-MAX-7).
2. Run the flow line to the SolvisMax charging module and connect it to the heating pump flow line (3) of the charging module.

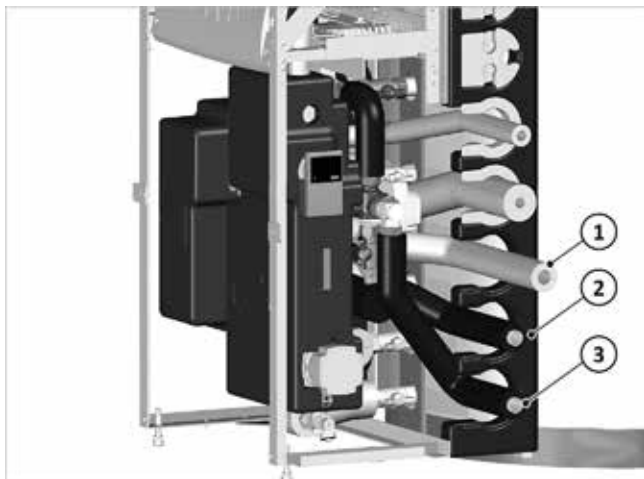


Fig. 15: Hydraulic connection of the heating pump

- 1 Heating pump return
- 2 Heating flow
- 3 Heating pump flow

3. Guide the power cable and the control line for the buffer charging station pump into the front frame through a pipe lead-through (with a 3x reducer insert).
4. Guide the cable further into the mains module housing.



CAUTION

Danger due to overpressure

Potential damage to the heating system

- The system must be secured using a heating safety valve with a reaction pressure of max. 3 bar.

5.3 Electrical connection

5.3.1 General information



DANGER

Risk of electrical shock

Damage to health, cardiac arrest possible.

- Disconnect the system from the mains before carrying out work on it and ensure that it cannot be turned on again



CAUTION

Country-specific regulations

Regulations can differ depending on the country and the region.

- These are to be observed and adhered to in order to ensure safe and faultless operation.
- If certain laws and regulations do not apply in a particular country, they are to be replaced by the country's own specific laws and regulations.



WARNING

In the event of incorrect mains connection

Contact voltages can be extremely hazardous.

- All mains connection work must be performed by authorised technicians.
- Work must be done in compliance with relevant regulations, especially DIN VDE 0100/IEC 60364 (Erection of power installations), accident prevention regulations and the guidelines of the responsible power supply company.
- Before connection, the current type and the mains voltage must be compared with the specifications on the unit nameplate.
- The minimum cross section of all connection lines must be designed in accordance with the power consumption of the unit.
- Only operate the unit while observing the prescribed safety measures and information in these instructions.
- Incorporate the unit into the local equipotential bonding while observing the minimum cross section.
- Ensure that the phase is correct during multi-phase mains connection.

**CAUTION**

Prevent the system from being influenced by electromagnetic fields.

Risk of heating system malfunction or failure.

- Prevent electrostatic discharges.
- Keep strong electrical fields such as those created by mobile phones away from the heating system. These fields can cause sensitive electronic components to malfunction.

**CAUTION****Criteria for line installation**

Malfunction or failure of heating system possible.

- Check that all cable and plug connections are connected correctly.
- The bus and sensor lines must be routed separately from lines over 50 V to prevent the controller from being influenced by electromagnetic fields.
- Do not install control devices directly adjacent to control cabinets or electrical devices.
- The electrical lines must not come into contact with hot parts.
- If possible, run all lines in a cable channel and, if necessary, secure with strain relief devices.

**CAUTION****Criteria for line length**

Risk of heating system fault or failure.

- The total cable resistance for the sensor cables must not exceed 2.5 ohms. For cables with a cross section of 0.25 mm², this corresponds to a length of up to 5 m.
- For cross sections of 0.5 or 0.75 mm², the maximum cable length is 15 or 50 m.
- Sensor cables for temperature sensors should not be unnecessarily long. For very long cables, sensor correction can be performed to minimise the systematic variance errors.
- The sensor cable for volume flow encoders should not be longer than 10 m.

**CAUTION****Observe ambient conditions**

Malfunction or failure of system possible.

- Avoid ambient temperatures outside of the permitted range of 5°C to +50°C.
- Avoid dew condensation and an annual mean relative humidity higher than 75% (briefly 95%).

**Note on unmixed heating circuits**

- With unmixed heating circuits, a sensor must be used on the heating circuit flow and connected to the appropriate input (S12, S13 or S16).
- The item SEN-T105-KTY, for example, is available for this purpose.

5.3.2 Preparing for connection to Modbus

The SolvisControl system controller and the internal heating pump controller communicate via a Modbus connection.

Installing the Modbus junction box

1. Guide the cable on the Modbus junction box through the pipe lead-throughs of the charging module (3x reducer insert).
2. Connect the Modbus cable to the SolvisControl 3. The port next to the ribbon cable is used for this connection.
3. Install the junction box at a suitable location.

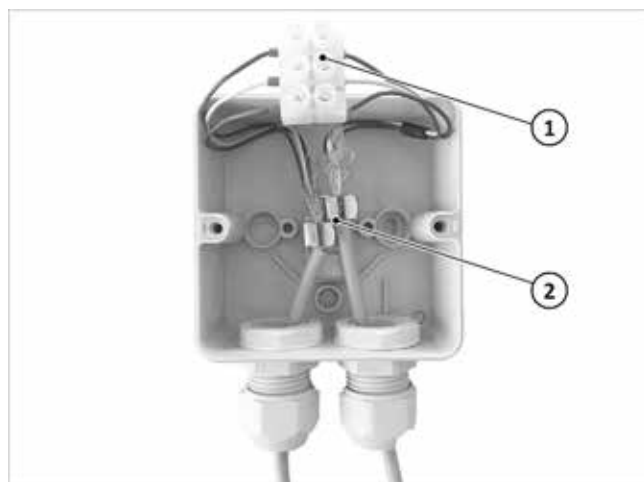


Fig. 16: Attaching the Modbus junction box

- 1 Connection terminals
- 2 Shield clamps

Connecting the Modbus cable from the heating pump

1. Open the junction box.
2. Insert the shielded Modbus cable from the heating pump into the junction box.
3. Strip the cable, expose the shielding and fasten it in the shield clamp.
4. Strip the insulation from the wires and attach wire end sleeves to them.
5. Connect the wires according to the colour coding (brown/white/green) to the pre-assembled terminals.



See also → *SolvisLea (MAL-LEA), SolvisLea Eco (MAL-LEA-E) or SolvisLea 8,3 P (MAL-LEA-8P) installation instructions.*

5.3.3 Connecting the PLAS-WP-WM pump

Connecting the pump

The pump has two connection cables.

1. Route the power and signal cable of the pump to the mains circuit board of the SolvisControl 3.

5 Installation

2. Connect the power cable to output A2 and secure the cable via the strain relief device.
3. Connect the signal cable to output LP as follows:
 - Blue: "LP -"
 - Brown: "LP +"

5.3.4 Connecting the switching valve group

Connecting the switching valve

1. Run the connection cable for the three-way switching valve to the SolvisControl 3 mains circuit board.
2. Connect the power cable to output A14 and secure the cable using the strain relief device.

Connecting flow sensor S14

1. Run the cable for flow temperature sensor S14 to the SolvisControl 3 mains circuit board.
2. Connect the cable socket board to S14.

5.3.5 Connecting SmartGrid (optional)



The following operating states can be implemented via the SmartGrid connection board according to the "SG-ready" label.

- Heating pump lock (e.g. idle period of utility supply company)
- Increased heating pump operation
- External requirement by the utility supply company or heating pump operation, e.g. via energy management system

If not in use, heating pump runs in normal mode.

Installing the SmartGrid Box

1. Install the supplied SmartGrid Box (1) in the charging module, screwing it tight at the top and bottom.

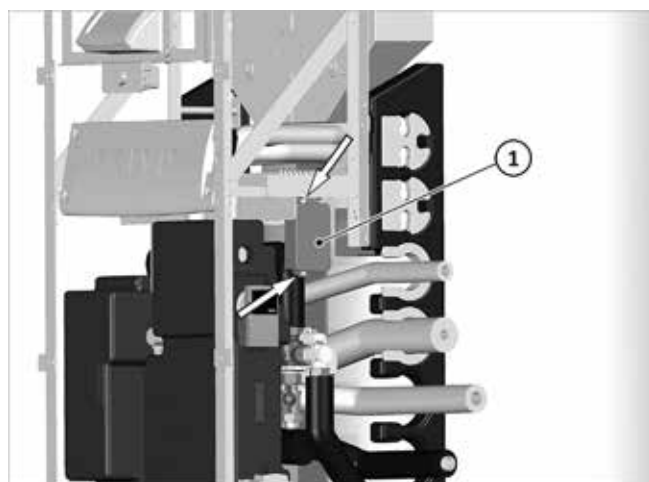


Fig. 17: SmartGrid Box mounted in the charging module

Establishing a power supply for the SmartGrid Box

1. Connect the supplied SmartGrid connection cable to the SmartGrid board.
2. Guide the cable into the mains module housing of the charging module.

3. Plug into the expansion board (see ALS-MAX-7)
4. **MaxSolo with Lea only:** In addition, plug connector A12, which is linked to the connection cable, into the mains module.

Connecting the SmartGrid

1. Route the control line(s) of the SmartGrid device to the connection board of the SolvisMax and connect according to the connection diagram.



For system diagrams and connection diagrams, see the → *SolvisMax 7 system diagram document (ALS-MAX-7)*.

5.3.6 SolvisLea voltage supply

The voltage supply for the internal heating pump controller of the SolvisLea / SolvisLea 8.3 Premium / SolvisLea Eco is provided by the mains circuit board of the WP or WP-SL charging module.

Connecting the voltage supply for SolvisLea

1. Route the three-wire supply line from the SolvisLea to the mains circuit board and connect it to an available area on the expansion board with the PE/N/L terminals.
2. Lead the supply line through the strain relief device and secure.



The compressor itself is supplied with voltage separately and not through the SolvisMax (see → *chapter "Electrical connection" in the installation instructions (MAL-LEA / MAL-LEA-8P / MAL-LEA-E)*).

5.3.7 Voltage supply for heating cartridge

Only the SolvisLea Eco with SolvisMax Solo

Technical data: heating cartridge

- Electrical power: 6.2 kW
- Connection: 2L/N/PE
- Fuses: 2 x B16A

Connecting the heating cartridge

1. Open the connection box and connect the customer's supply line (min. 2.5 mm²) to the feedthrough terminals (1).
2. Close the connection box again.
3. Connect the plugs for the control line on the mains circuit board (A12 and A13).



Fig. 18: Junction box

5.3.8 Completing the connection tasks

Close the protective housing for the mains module

1. Check that all lines have been routed correctly and were not caught while the cover was being closed.
2. Carefully put on the strain relief devices.
3. Check that all the socket boards have been plugged into the mains module.
4. Fasten the cover (1) using 4 screws (2).

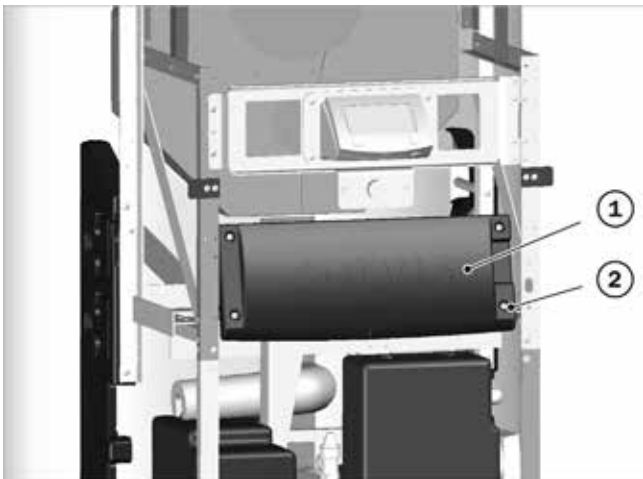


Fig. 19: Attach the cover of the mains circuit board

6 Start-Up

Start-up takes place in the prescribed order:

i The systems folder includes a start-up report that must be filled out completely when starting up the system and kept together with the system.

6.1 Filling the system



CAUTION

Observe the quality of the fill water

There may be damage due to limescale formation/corrosion in the heating system.

- The fill water for the heating system must meet the requirements of VDI 2035, parts 1 and 2.



If water treatment is required for the raw water, we recommend the "Permasoft-ALU" system from Permatrade-Wassertechnik GmbH.



Use the system log included in the plant documentation; it serves as proof of proper heating water treatment.

Fill the system (pressure test)

1. Fill system using boiler filling and emptying valve (1).

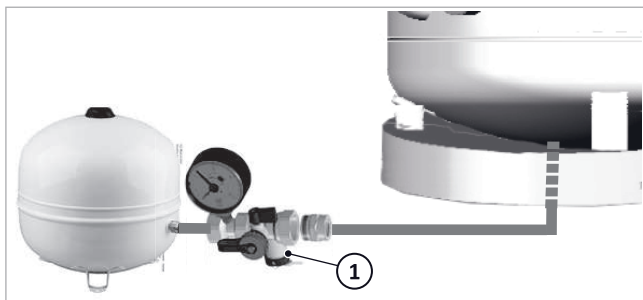


Fig. 20: Boiler filling and emptying valve on the MEV connection group

2. Bleed the system, including the storage tank.
3. Check that there are no leaks.



CAUTION

Pay attention to the pressure in heating system

The safety valve may blow out.

- The maximum permitted pressure is 3.0 bar.
- External devices such as heating pumps may be designed for lower maximum system pressures.



See installation instructions for → MAL-LEA, MAL-LEA-8P, MAL-LEA-E or MAL-MIA heating pumps

4. Set the filling pressure to 0.5 bar above the admission pressure, i.e. between 2.0 and 2.5 bar.

6.2 Flushing the load circuit and SolvisLea



Flush SolvisLea and connection pipes to SolvisMax, see → installation instructions (MAL-LEA/MAL-LEA-8P/MAL-LEA-E).

6.3 Configuration SolvisControl

Configuring the SolvisControl

SolvisControl must be configured before starting up the system.

After configuration, the startup process can be continued.

1. Configure the SolvisControl.



Carry out all the steps described, see → sec. "Configuration of the SolvisControl" in the operating instructions (BAL-SBSX-3-I).

2. Perform the SolvisControl basic settings.



Perform all of the described steps in accordance with → "Basic settings: Heating, water and circulation, if required" in the operating instructions (BAL-SBSX-3-I).



For a basic introduction to operat. the system controller, see → chapter "Operating the SolvisControl" in the operating instructions (BAL-SBSX-3-K).

6.4 Buffer charging station pump

6.4.1 Adjustment options

The Wilo Para 15/8 iPWM or alternatively the IMP NMT Mini PWM is speed-controlled by a PWM signal from the SC-3. The pumps do not need to be set.

6.4.2 Bleeding

Bleeding the pump

If the pump does not bleed automatically, operate the pump manually for a few minutes alternating between high speed and low speed to convey the accumulated air from the pump into the system. Proceed as follows:

1. Switch to the "Installer menu on the SC-3.
2. Select "Outputs" → "More" → "Analogue/PWM" → "Load pump" from the menu.
3. Set "Manual specification" to "100%".
→ Pump runs at maximum speed.
4. Set to "0%" after approx. 20 seconds by pressing "+".
→ Pump does not run.
5. Set to "100%" after approx. 10 seconds by pressing "-".
→ Pump runs at maximum speed.
6. Repeat the procedure for a few minutes.
7. Set "Manual specification" to "Auto".

6.5 Final Tasks

Start up the system with SolvisLea (see MAL-LEA/MAL-LEA-8P/MAL-LEA-E) and hand over the system to the operator.

7 Troubleshooting

7.1 Pumps

Malfunction, cause and remedy



Work to be performed only by qualified technicians

- Troubleshooting must be performed only by qualified specialists.
- Work on the electrical connection must be performed only by qualified electricians.

Fault	Causes	Remedy
The pump does not run even though the power supply is switched on	Faulty electrical fuse	Check fuses
	Pump has no voltage	Correct the interruption to the voltage supply
Pump is making noises	Cavitation due to insufficient flow pressure	Increase the system pressure within the permitted range
		Check the delivery height setting and adjust it to a lower height if necessary
The building is not warming up	The heat output of the heating surfaces is too	Check hydraulic balancing, increase the setpoint if necessary

Wilo PARA malfunction messages

- The malfunction report LED indicates a malfunction

LED	Faults	Causes	Remedy
Lights up red	Blocking	Rotor blocked	Activate manual restart or contact customer service
	Contact / winding fault	Winding faulty	
Flash-ing red	Undervoltage/ overvoltage	Mains voltage supply too low/high	Check the mains voltage and operating conditions; contact customer service.
	Module over-heated	The inside of the module is too warm	
	Short circuit	Motor current too high	
Flash-ing red/ green	Generator operation	Flowthrough of pump hydraulics; pump has no mains voltage	Check mains voltage, water quantity/ -pressure and ambient conditions
	Dry run	Air in the pump	
	Overload	Sluggish motor; pump is operated outside the specification (e.g. high module temperature) The speed is lower than in normal mode.	

7.1.1 IMP NMT Mini PWM malfunction messages

In the event of an error, the three-part level display flashes as follows:

Flashes	Error	Cause/solution
1 x	Load error	• Low water level detected (pump running dry) • Motor overloaded (tough medium / faulty motor)
2 x	Active protection	• Module is hot (power reduced or switched off) • Hardware overloaded (safety shutdown) • Mains voltage too high or too low
3 x	Hot motor	Average motor load too high (pump load is higher than permitted)
4 x	Elec. fault	• LED fault • 15 V missing (internal) or DC voltage in the impermissible range
5 x	Motor fault	Motor is working in the impermissible range
No display		Disconnect and reconnect the mains connection
Pump is not running		Check the connection voltage and fuse

7.2 SolvisLea heating pump



For information about heating pump malfunction messages, see the → *SolvisLea (MAL-LEA)*, *SolvisLea 8,3 Premium (MAL-LEA-8p)* or *SolvisLea Eco (MAL-LEA-E)* installation instructions.

8 Technical Data

8.1 SolvisLea heating pump

 For the technical data for the heating pumps, see the → *SolvisLea (MAL-LEA), SolvisLea 8,3 Premium (MAL-LEA-8p) or SolvisLea Eco (MAL-LEA-E) installation instructions.*

 For system diagrams and connection diagrams, see the → *SolvisMax 7 system diagram document (ALS-MAX-7).*

8.2 Wall-mounted WP buffer charging station

PLAS-WP

Dimensions	
PLAS tube connections	1" male thread, flat sealing
Insulation	Heat insulation shell made from EPP

PLAS-WP hydraulics

PLAS pump	
Manufacturer/type	Wilo PARA 15/8 iPWM1
Installation length	130 mm
Speed control	via PWM1
Permitted media temperature	2 °C to 95 °C
Minimum inflow pressure	0.5 bar (at 95 °C)
Mains connection	230 V ~/ 50 Hz
Maximum power consumption	2 to 75 W
Power consumption	0.03 – 0.38 A
EEL	≤ 0.21

Contrary to the information given in the installation instructions, pumps of the type IMP NMT Mini PWM 15/80-130 may have been installed in the buffer charging stations due to supply bottlenecks.

For use in an external buffer charging station, the pump cables must be extended on site. The existing pump cables can be used for this (cut off plugs and connect cables according to regulations).

Alternatively, 5 m cables can be ordered separately (KB-2-0.5-5000 and KB-3-0.5-5000)

Pump

Name	Value
Type	IMP NMT Mini PWM 15/80-130
Protection class	IP 44
Permitted media temperature (at 30 °C ambient temperature)	2 °C to 95 °C
Maximum permitted operating pressure	10 bar
Minimum inflow pressure (heating side)	0 mWS
Mains connection	230 V ~/ 50 Hz
Maximum power consumption	50 W
Maximum power consumption	0.5 A
Energy efficiency index (EEI)	≤ 0.18

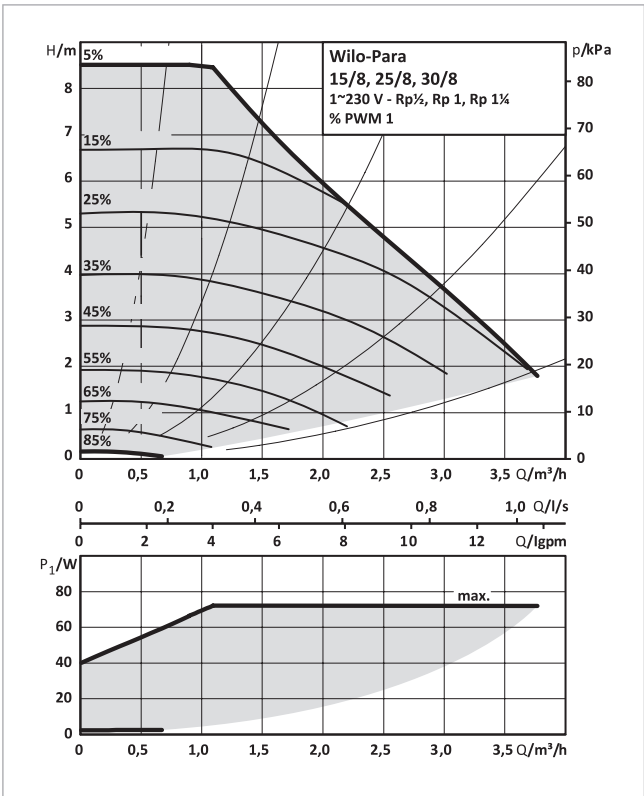


Fig. 21: Wilo PARA 15/8 pump characteristic curves

H Pump height [m]
P₁ Power consumption [kW]
Q Volume flow [m³/h]

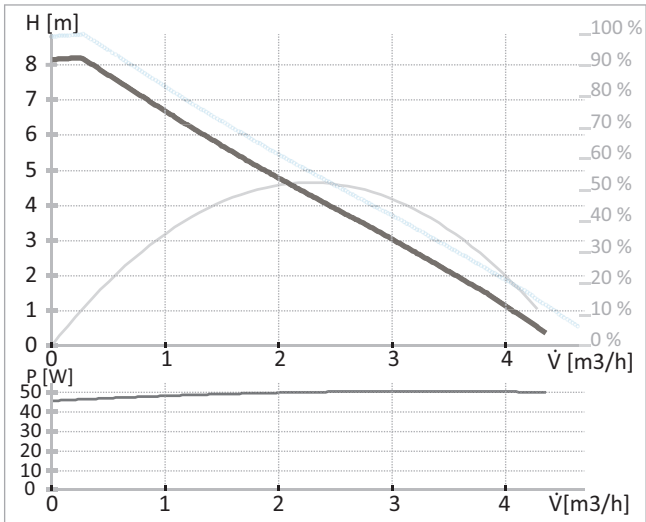


Fig. 22: Pump characteristic curve IMP NMT Mini PWM 15/80-130 (constant speed)

H Pump height [m]
P Power consumption [W]
V Volume flow [m³/h]



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