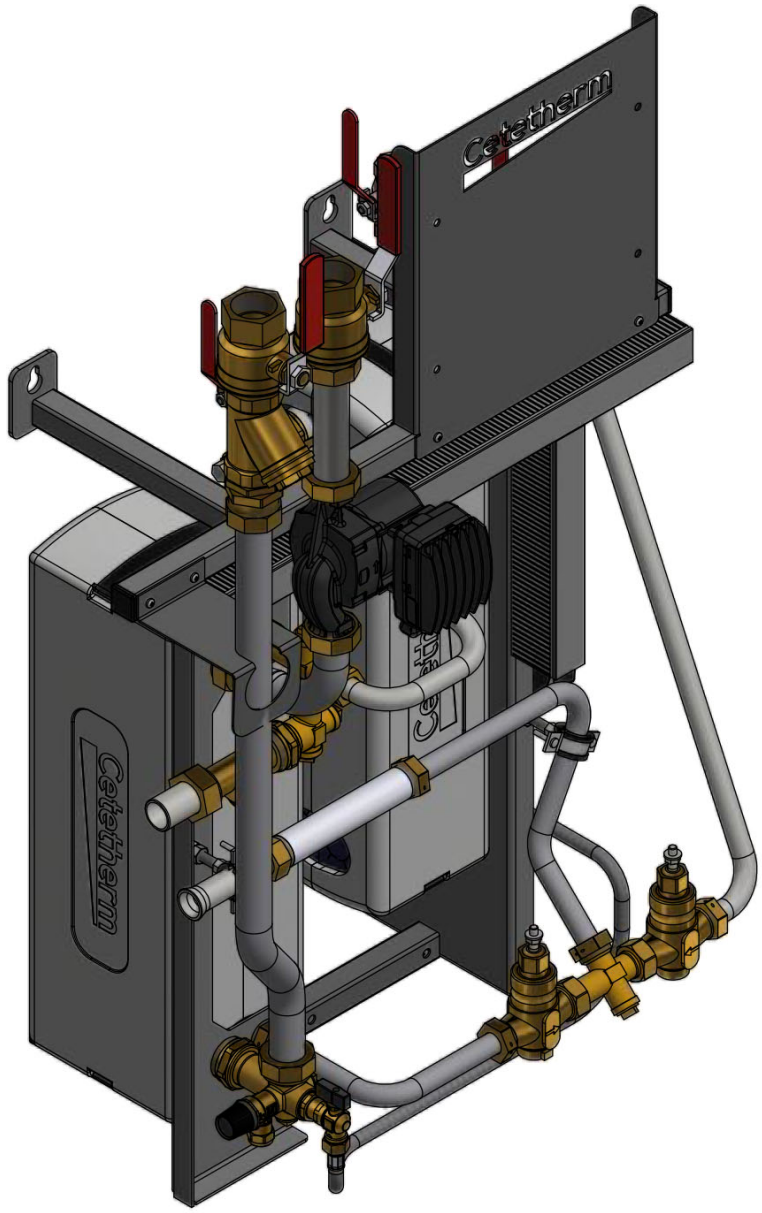
Cetetherm

Installation, service and operating instruction Cetetherm Midi Wall TA

Heating and domestic hot water substation for apartment houses (10-30 apts.)



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For additional online information and manual:

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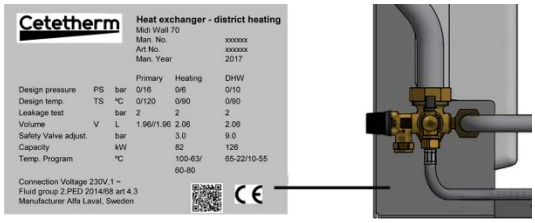

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Cetetherm can without further notice make changes and improvements to the content in this manual if it is necessary due to printing mistakes, wrong information or changes in the hardware or software.

All these types of changes will be included in future release of the manual.

Contents

1 General

Cetetherm Midi Wall is a complete, ready-to-install heating network substation for heating and hot water. It is designed for buildings with a primary connection to a heating network. Cetetherm has years of experience in heating network technology and has developed Midi Wall with well-planned pipe work and with all components easily accessible for inspection and possible future servicing.

1.1 Comfort

Midi Wall has fully automatic temperature control for hot water. The hot water is controlled and maintained at the desired temperature.

1.2 Installation

Before installation this manual must be read.

Well planned pipe work make installation very simple. The Midi Wall is designed for hanging on the wall.

1.3 Long-term security

All components are adjusted together and undergo thorough function testing in accordance with ISO 9001:2015 quality assurance system.
For future servicing requirements, all components are easily accessible and individually replaceable.

1.4 CE-marking

Midi Wall is CE-marked to certify that the substation conforms to international safety regulations. To maintain the validity of the CE marking, only identical replacement parts must be used.

1.5 Information about the document

All pictures in this document are general images.
Mid Wall is available in different models and levels of equipment.

1.6 General warnings

	The installation work must be carried out by an authorized installation contractor. Before the system is taken into operation, it must be pressure tested in accordance with relevant regulations.
	The temperature and the pressure of the district heating water are very high. **Only qualified technicians** can work with the district heating substation. Incorrect operation may cause serious personal injury and result in damage to the building.
	If the hot water temperature is set too high, people may be scalded. If the hot water temperature is set too low, unwanted bacteriological growth may occur in the hot water system. This can result in serious personal injury.
	Parts of the Midi Wall may get very hot and should not be touched.
	Before the substation is connected to the electrical supply, make sure that the secondary heating system is topped up with water. Starting up the system without water will damage the circulation pump.
	When starting up the district heating substation: to avoid the risk of scalding, make sure that no-one draws any hot water until the hot water temperature has been adjusted.
	Start district heating circulation by first opening the valve in the **district heating supply** and then **return** lines, to avoid pollutions in the system. Open the valves slowly to avoid pressure surges. Do the same way with the heating circuit, first open the valve for **heating supply** then **return**.
	Do not shut of the electrical supply to the operator control panel. This will damage the circulation pump, valves, actuators etc.
	The heating station should be placed in a locked space, non-accessible for unauthorized personnel.

2 Operating instructions

2.1 Operation

The temperature and pressure of the incoming heating network water from the culvert network are very high. For this reason, only the heat from this water is used. The heating network water does not enter the heating and hot water systems of the building.

The heat from the heating network water is transferred to the heating and hot water systems of the building in the heat exchangers. The heat is transferred through thin plates of acid-resistant stainless steel which keep the heating network water separate from the systems in the building.

Midi Wall has automatic temperature control for hot water.
The hot water temperature is controlled by a temperature control system which is set to about 55 ºC.

After adjustment, the Midi Wall operates completely automatically. However, in hard water areas it is advisable to be attentive and to remedy any faults in good time if the temperature of the hot water is too high; otherwise the risk of lime deposits in the heat exchanger may increase.

2.2 Safety equipment/inspection

- Daily inspection to check for leaks from pipes or components.
- Weekly inspection to make sure that the operation of the heating and hot water control systems is stable and that the temperature does not fluctuate. Temperature hunting causes unnecessary wear of valves, actuators and heat exchangers.
- Every three months check the safety valves and the pressure in the heating system.

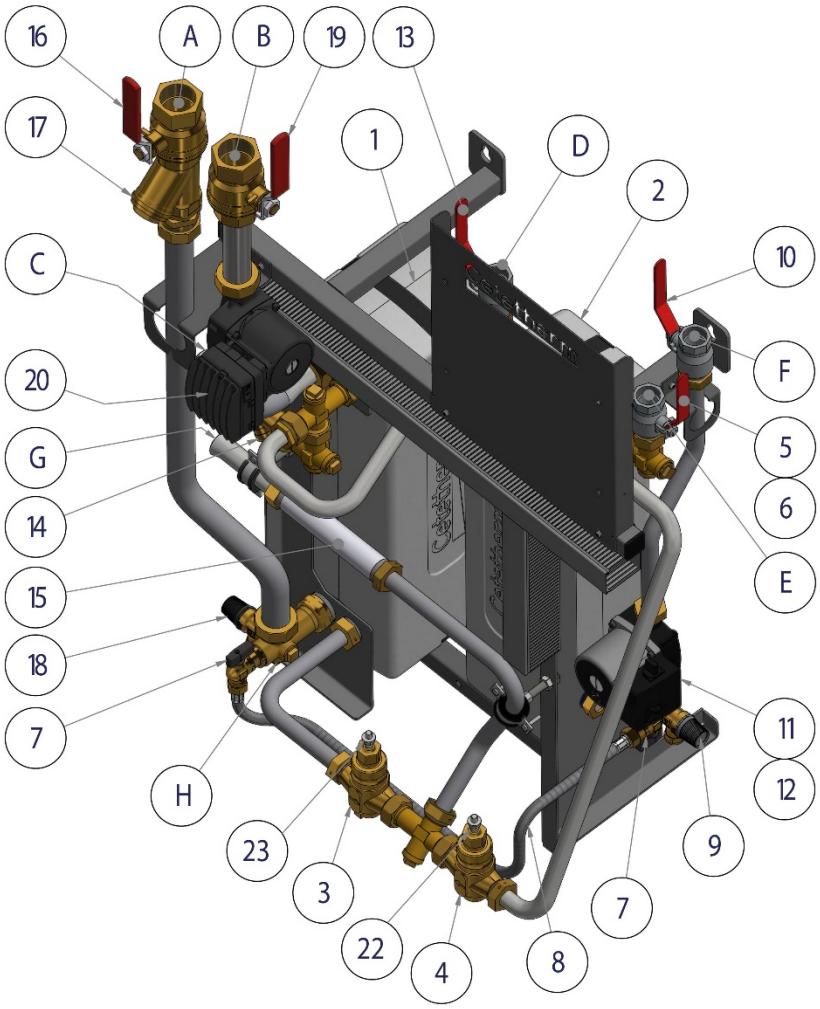
To check the operation of a safety valve, turn its wheel/knob until water escapes from the valve, then close the wheel/knob quickly. Occasionally a safety valve may open automatically to release excess pressure. After a safety valve has been open it is important that it closes properly and does not drip.

Hot water temperature in apartments or one family houses can be set to about 55°C. If the temperature is set too high, there is a risk of scalding. Setting the hot water temperature too low may result in unwanted bacteriological growth in the hot water system.

The heating system is topped up via the topping up valve. Be sure to close the valve when the correct pressure is reached. The water used to top up the system contains oxygen and may cause corrosion in the system. For this reason, the system should be topped up as seldom as possible, at most once

If a joining must be loosened and then re-installed, for example when installing the substation or when replacing a filter unit, the joining gaskets should be exchanged to prevent leaks.

3 Product overview, flowchart and measure sketch



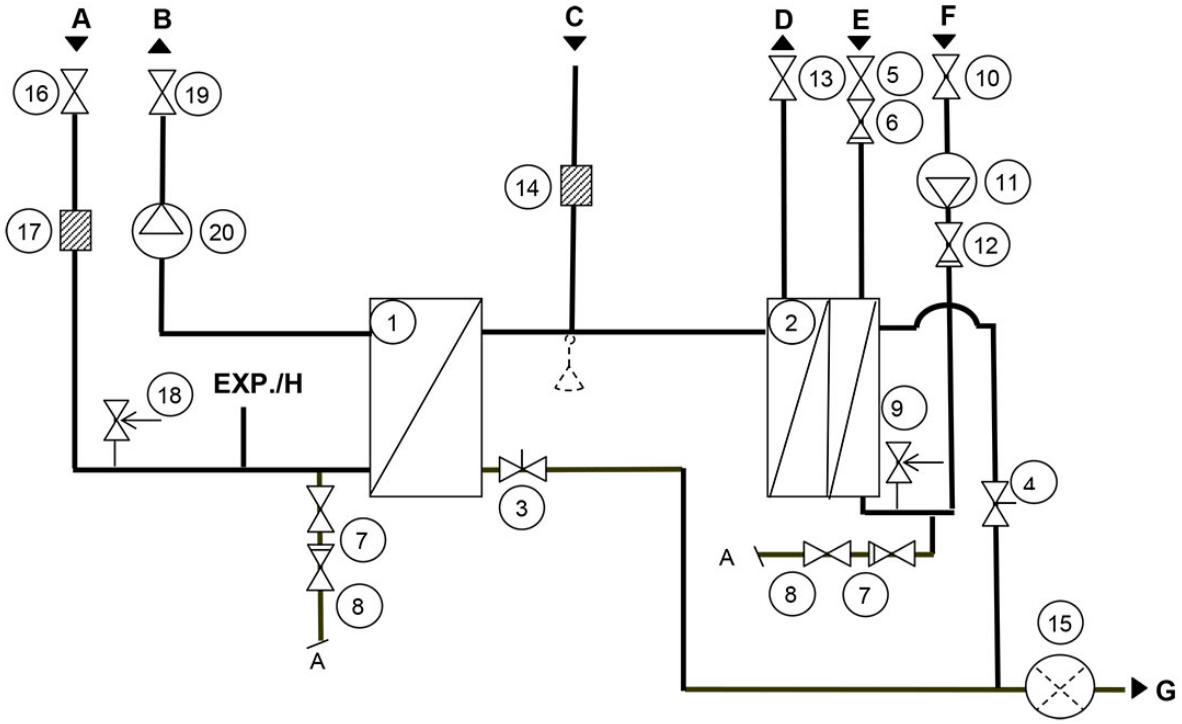
Picture 1

1.	Heat exchanger, heating
2.	Heat exchanger, DHW
3.	Control valve, heating
4.	Control valve, DHW
5.	Shutoff valve, cold water
6.	Check valve, cold water
7.	Filling valve
8.	Hose
9.	Safety valve, cold water
10.	Shutoff valve, DHWC
11.	Pump, DHWC
12.	Non-return valve, DHWC
13.	Shutoff valve, DHW
14.	Strainer, primary in
15.	Dummy, heat meter

*) option

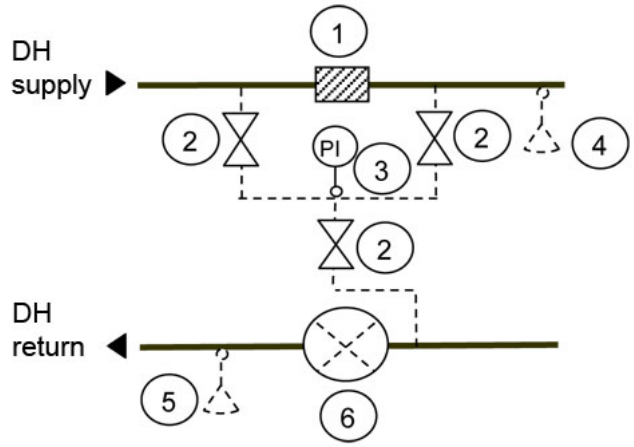
16.	Shutoff valve, heating return
17.	Strainer, heating return
18.	Safety valve, heating
19.	Shutoff valve, heat supply
20.	Pump, heating
22.	Actuator, DHW *
23.	Actuator, heating *
A.	Heating return
B.	Heating supply
C.	District heating supply
D.	DHW
E.	CW
F.	DHWC
G.	District heating return
H.	Connection expansion vessel

3.1 Schematic diagram, main components



Picture 2

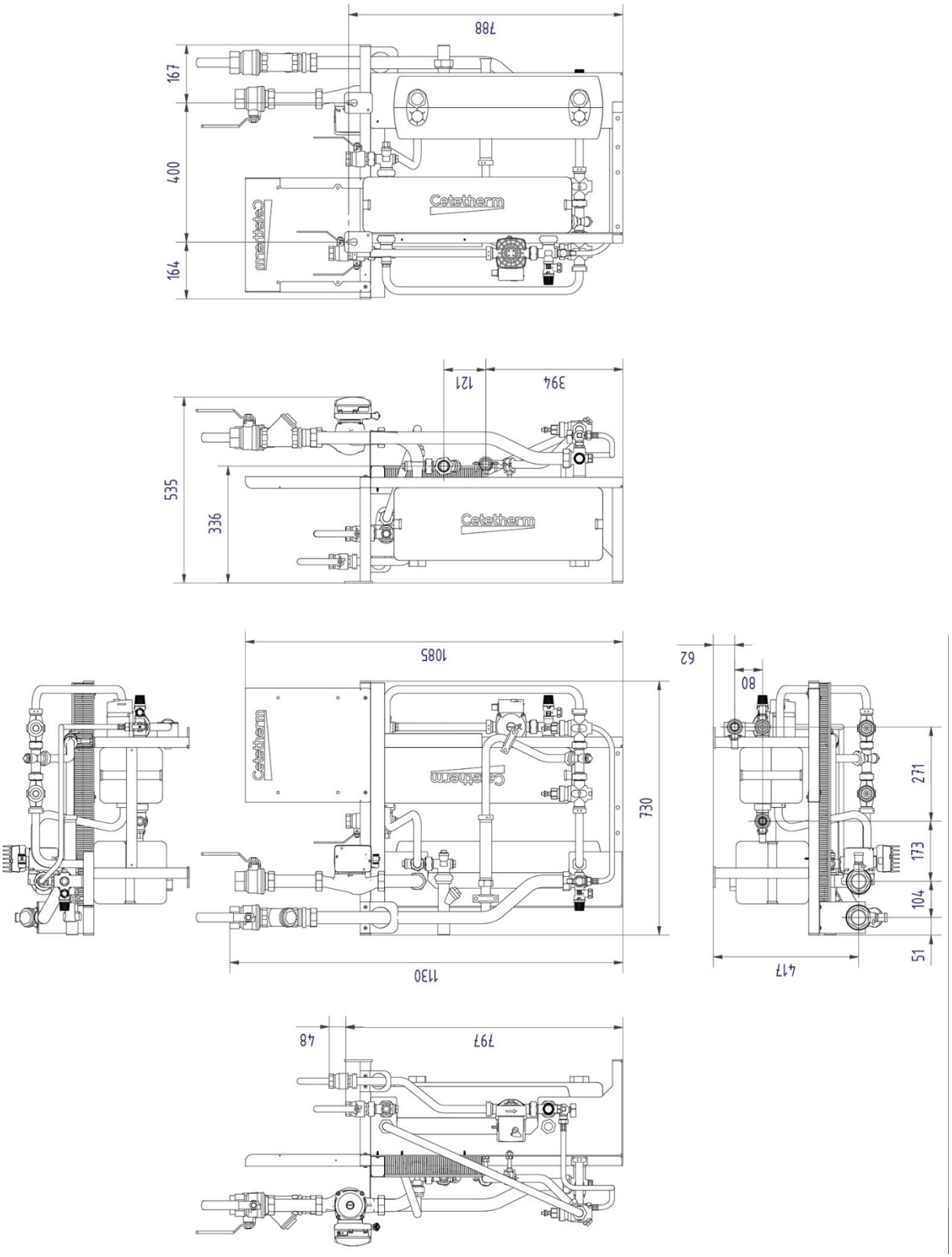
3.2 Option 3-point HB metering



Picture 3

1.	Welded filter
2.	Shut off valves
3.	Manometer clock
4.	Sensor pocket energy meter primary in
5.	Sensor pocket energy meter primary out
6.	Flanged dummy 260mm energy meter

3.3 Measure sketch Midi Wall TA



Picture 4

4 Installation

4.1 Unpacking

- Remove the transport packaging and check that the product has not been damaged in transit and that the consignment agrees with the specifications.
- When lifting the unit, take care not to apply stress to pipes and heat exchangers as this may weaken them Lift the unit in the frame; avoid lifting the unit by holding the heat exchangers. Use pallet lift where applicable, if using back straps these should be attached to the substructure of the substation.

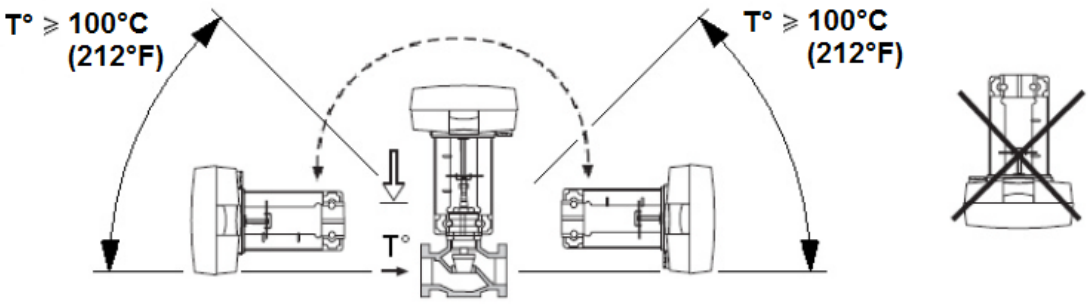
NOTE: Risk of injury lifting heavy objects.

4.2 Preparation

- Choose a suitable installation area in accordance with official regulations.
  The system may generate sounds during operation caused by pumps, regulators systems, flows etc. This should be taken into consideration during installation of the unit, so that possible operational sounds affect the surroundings as little as possible. This means that the system should be installed on well-insulated walls, such as outer walls or on concrete walls.
- Check the applicable regulations of the district heating supplier. The available differential pressure should be at least 100 kPa and at most 600 kPa. Where the differential pressure is higher, a differential pressure controller should be added to the installation.
- Flush heating and hot water systems.

4.3 Mounting

- Mount the substation on a wall with screws and bolts suitable for mounting wall material and substation weight. The distance between floor and screw bracket should be 1420 mm. Note that distance between screws are 400 mm. Mount the floor support on the central, use the middle mounting hole. Raise the central and mount it on the wall.
- Place the substation so that connections, adjustment equipment and safety valves are easily accessible.
- Mount the shutoff valves on district heating supply and return. Shutoff valves are not supplied.
- Connect the pipe works to the connection points, see *4.7 Connection overview*.
- When executing hot work on or close by the substation, all incendiary components should be demounted and removed.
- With supply temperatures above 100°, it is recommended that the actuator is tilted or put down.



Picture 5

- Take rules and instructions regarding hot work into account.
- Connecting pipes shall be suspended so that their weight does not stress the unit.
- All connecting pipes within and connecting to the units' system shall be insulated according to standards and regulations.
- Drainage pipes from safety valves must be taken to floor gully.

- Energy meters must be installed at a prepared location, replacing a gauge block, or following the instructions of the energy supplier.

NOTE: the connection pipe between the valves is just for draining.

- Retighten all connections, including those made at the factory. If connections need retightening after the installation has been taken into service, the system should be depressurised before retightening. **If the system is not depressurised before retightening, gaskets will be damaged.**
- Required expansion volume shall be installed and provided with adequate pre-charge before start up.
- Remount plugs in drain valves after possible draining of circuit.

4.4 Mounting the options

- If the substation is connected to a system sensitive to high temperature or to a low temperature system, for example floor heating, a safety thermostat must be mounted and activated before start up. See *10.1 Safety thermostat*.
- If the substation shall be provided with a 3-point HB metering, see mounting instructions *10.2 3-point or 2+1-point HB metering.*
- If the substation shall be provided with a floor stand, see mounting instructions *10.3 Mounting floor stand*.
- If the substation shall be provided with actuators, see mounting instructions *10.4 Mounting actuator*.

4.5 Adjustments and settings for start up

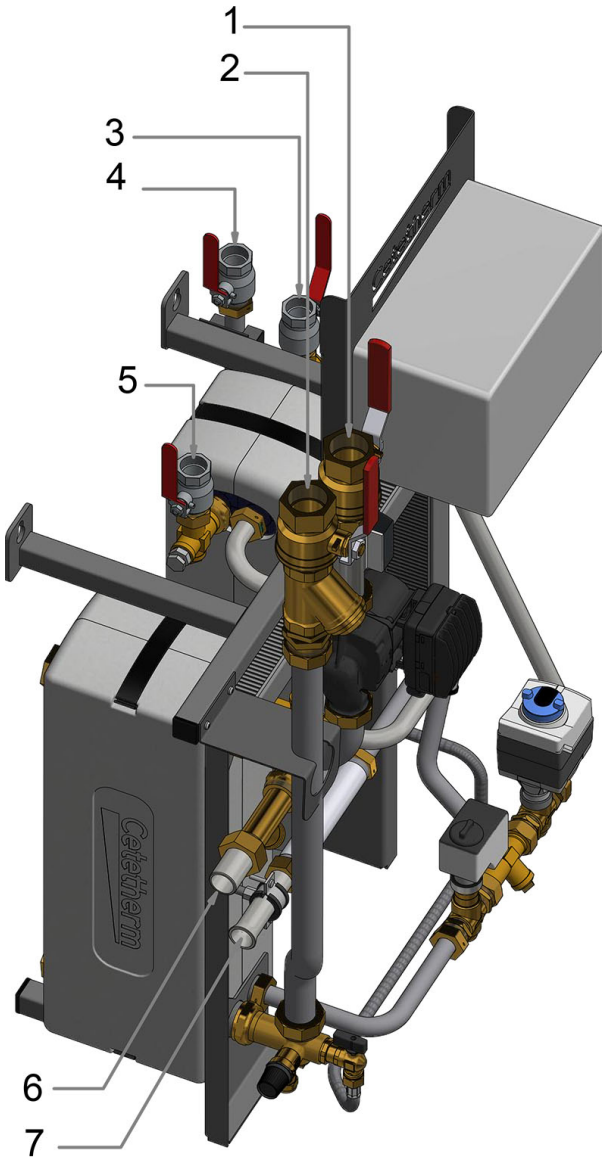
- Open incoming cold-water supply and fill the service water and heating circuits, bleeding off any trapped air.
- Check the operation and opening pressures of the safety valves.
- Adjust the hot water temperature by having a hot water tap open at normal flow rate for a time. Measure the temperature at the draw-off point with a thermometer. The temperature should be approximately 55°C. It takes about 20 seconds to get stable tap water temperature.

  NOTE: Make sure that no cold water is mixed with hot water while making this adjustment.
- Start the heating circulation pump at the strongest flow setting during some minutes. The pressure should be at least 100 kPa during winter and at least 60 kPa during summer.
- Set the pump capacity of the heating circulation pump according to chapter *6, Pump settings and capacity*. Use the lowest setting that manages the heating demand for best electrical efficiency.
- The property owner must be informed on how to operate, adjust and maintain the unit. It is overly important to inform about the safety systems and the risks associated with the high pressure and temperature of the district heating systems water supply.

4.6 Dismantlement

When the time comes for the substation to be dismantled and scrapped it must be disposed of in the correct manner in accordance with local or national regulations.

4.7 Connection overview



Picture 6

1	Heat Supply G1 1/4"	5	DHW G1”
2	Heat Return G1 1/4”	6	DH Supply DN25, weld
3	CW G1”	7	DH Return DN255, weld
4	VVC G1”		

5 Electrical installation

5.1 General

The wiring in Midi Wall conforms to the applicable rules for CE marking and has undergone electrical safety testing and function testing. For permanent installation must the substation be connected to an all-pole isolated switch. This must be done by a duly qualified electrician.
The substation must be connected to a grounded power outlet.

6 Pump settings and capacity

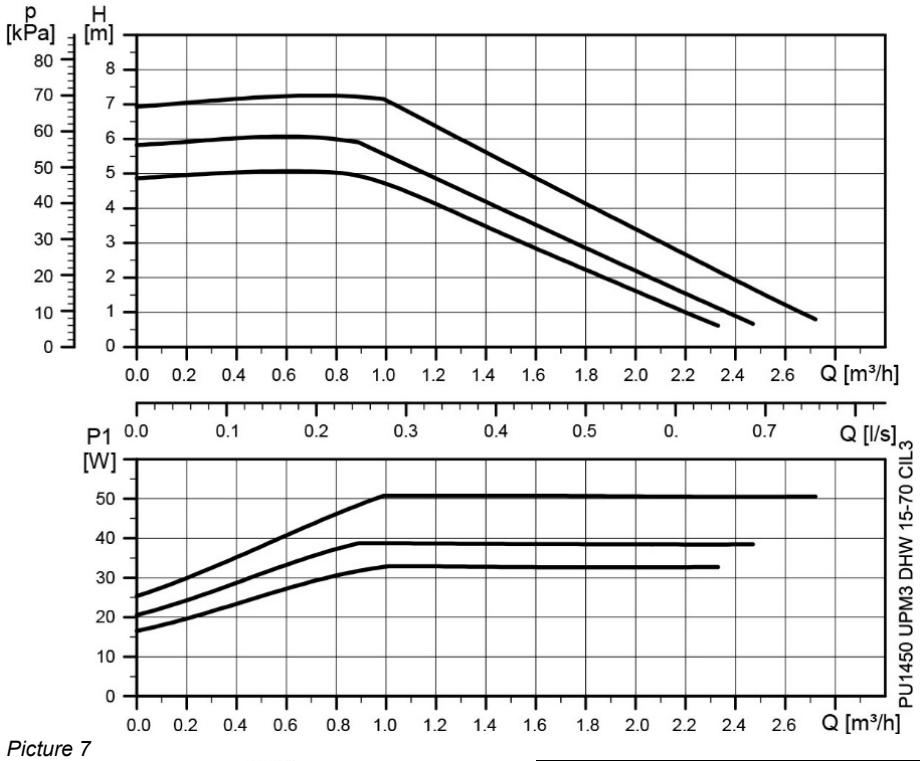
6.1 General

Mini Wall is equipped with two circulation pumps, one for the hot water circulation, DHWC-pump, and one for the heating circuit.

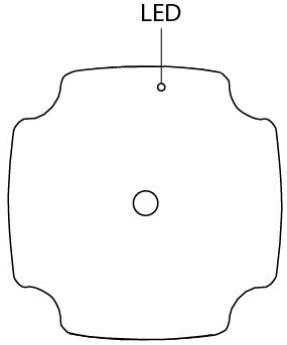
The DHWC pump is a speed-controlled, high-efficiency pump.

The circulation pump for heating circuit is a pressure-controlled pump. The pump for heating circuit is available in two different models.

6.2 DHWC pump Grundfos UPM3 DHW 15–70 CIL3, capacity



Picture 7

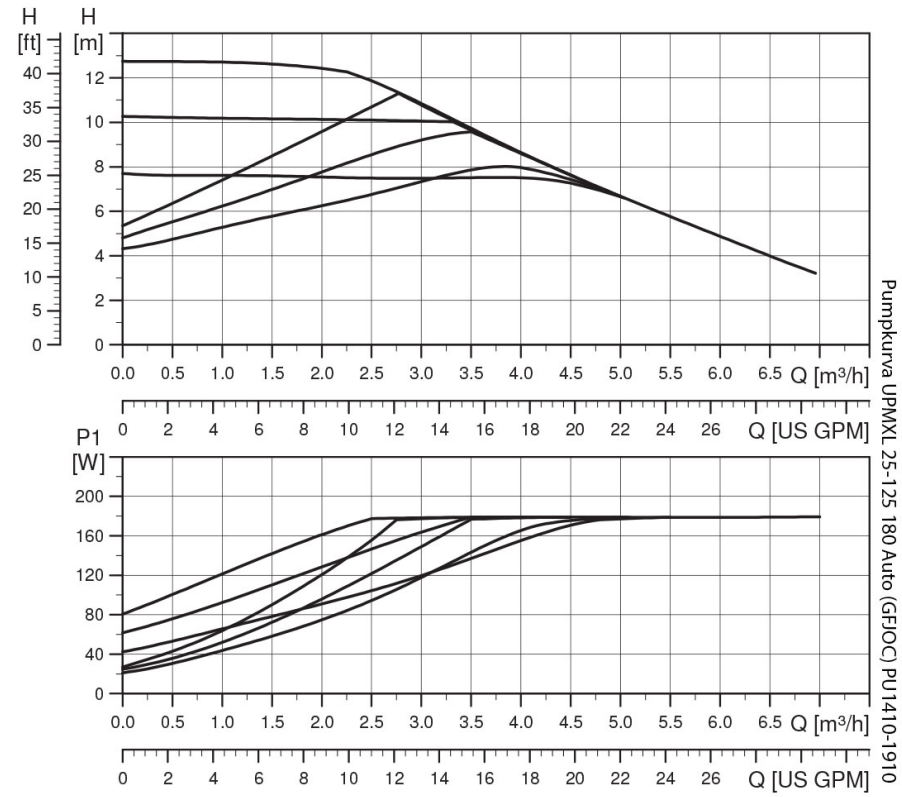


Picture 8

	Green LED	Red LED
No external control	●	
External control	●[1]	
Alarm		●

1) 12 flashes per second

6.3 Heating circuit pump Grundfos UPMXL25-125 180 Auto, settings and capacity



Picture 9

Pumpkurva	MAX.H_{nom}
CP1	7,5 m
CP2	10 m
CP3	12,5 m
PP1	8 m
PP2	9,5 m
PP3	11 m

The heating pump is internally controlled via digital pulse-width modulation.
The user interface allows to select between six control curves in two control modes:

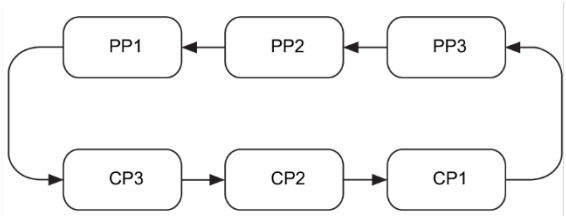
- three proportional pressure curves (PP)
- three constant pressure/power curves (CP).

The pump is factory preset to Proportional pressure curve, PP2.

Flashing fast III II I	PP1
Flashing fast III II I	**PP2**
Flashing fast III II I	PP3
Flashing slow III II I	CP1
Flashing slow III II I	CP2
Flashing slow III II I	CP3

Picture 10, LED indication of the curve setting

6.3.1 Changing pump curve setting



Picture 11, Serial curve setting

1. Push the button for two seconds
   Pump goes to setting mode - LED starts flashing.
2. With each push, the setting changes:
   LED 1-2-3 are permanently on, and then the control curve and mode is changed.
3. Flashing mode:
   - Fast: Proportional pressure
   - Slow: Constant pressure/power
4. After ten seconds not pushing the button:
   - Setting is adapted.
   - Pump returns to operating mode
5. LED 1 or 2 or 3 is permanently on.
   - Pump is running with the selected curve and mode.

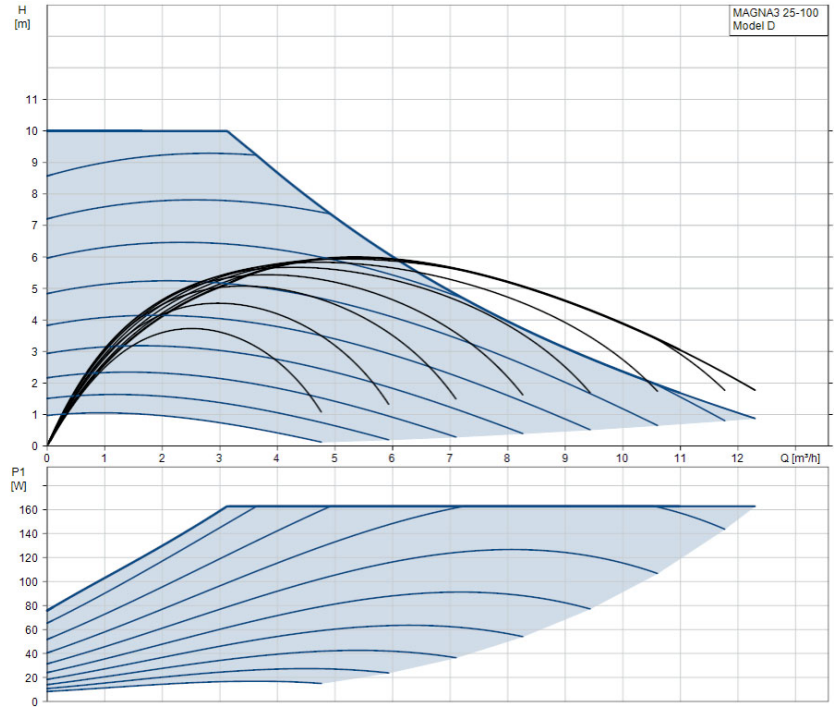
6.4 Heating circuit pump Grundfos Magna3 25–100, settings and capacity

The pumps have been factory-set to AUTOADAPT without automatic night setback.

AUTO$_{ADAPT}$ (factory set)

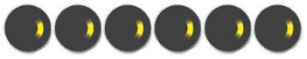
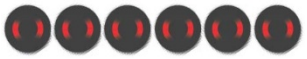
- Recommend control mode for most heating systems.
- Automatically adjusts the pump to actual system characteristics.
- Ensures minimum energy consumption and a low noise level.
- Reduced operating costs and increased comfort.

6.4.1 Heating circuit pump Grundfos Magna3 25-100, capacity



Picture 12

6.4.2 Grundfos Eye operating indications

Grundfos Eye	Indication	Cause
	No lights are on.	The power is off. The pump is not running.
	Two opposite green indicator lights running in the direction of rotation of the pump.	The power is on. The pump is running
	Two opposite green indicator lights are permanently on.	The power is on. The pump is not running.
	One yellow indicator light running in the direction of rotation of the pump.	Warning. The pump is running.
	One yellow indicator light is permanently on.	Warning. The pump has stopped.
	Two opposite red indicator lights flashing simultaneously.	Alarm. The pump has stopped.
	One green indicator light in the middle is permanently on in addition to another indication.	Remote-controlled.

7 Service instructions

To avoid the risk of scalding, make sure that no-one draws any water while servicing the substation.

Grey marked service actions must be carried out by an authorized service technician.

NOTE: Make sure that the Midi Wall substation has been correctly installed.

7.1 Tap water, service instructions

7.1.1 Tap water too cold

Reason	Action
District heating supply too low	**Check the primary inlet temperature** The temperature can be checked by means of the energy meter, minimum 65ºC, or at the district heating medium supply.
District heating strainer clogged	**See** *9.1 Cleaning the district heating strainer*.
Hot water valve and/or actuator does not work	**See** *8.1 Check the function of the hot water valve and actuator.*.

7.1.2 Tap water too warm

Reason	Action
Hot water valve and/or actuator does not work	**See** *8.1 Check the function of the hot water valve and actuator.*

7.1.3 Hot water temperature unstable

Reason	Action
Pending differential pressure	**Check available differential pressure and the primary inlet temperature** The temperature can be checked by means of the energy meter, minimum 65ºC, or at the district heating medium supply.
Faulting settings for drain hot water	**Check pre-set parameters on control panel display** Check set value for drain hot water.
DHWC pump is not running	**Check that the electrical power is on.**
	See *8.3 Check DHWC pump.*
District heating strainer clogged	**See** *9.1 Cleaning the district heating strainer.*

7.1.4 Nosie in the DHWC system

Reason	Action
The DHWC pump capacity set too high	**Reduce the pump capacity** Reduce the pump capacity by selecting a lower setting on the pump when needed.
Air in the DHWC pump	**Vent the DHWC pump** Set the pump to speed III. Loosen the pump motor end nut to and let it stay opened until the air in the pump is released. When the pump has been vented, i.e. when the noise has ceased, set the pump according to the recommendations.
The DHWC pump motor or pump component damaged	**Change pump components or the complete DHWC pump** See *9.3 Change the complete DHWC pump or pump components*.

7.2 Heating system, service instruction

7.2.1 Heating system temperature too high or too low

Reason	Action
The heating control equipment may need to be adjusted	**Check and adjust the heating curve** See separate instruction.
Heating circuit strainer clogged	**See** *9.2 Clean the heating circuit strainer.*
Heating valve and/or actuator does not work	**See** *8.2 Check the function of the heating actuator and valve.*

7.2.2 No heating

Reason	Action
Circulation pump not running	**Check that the electrical power is on.**
	Check pre-set heating parameters in the controller.
Air pockets in the substation or in the heating circuit	**Check the circulation pump** If the pump fails to start after stopping, start the pump at the highest setting.
	Vent the pump The pump is self-venting. Possible remaining air in the pump may cause noise. This noise ceases after a few minutes run time.
Heating circuit strainer clogged	**See** *9.2 Clean the heating circuit strainer.*

7.2.3 Noise in the radiator system

Reason	Action
The heating pump capacity set too high	**Reduce the pump capacity** Reduce the pump capacity by selecting a lower setting on the pump when needed.
Air in the heating pump	**Vent the pump** The pump is self-venting. Possible remaining air in the pump may cause noise. This noise ceases after a few minutes run time.
The heating pump motor or pump component damaged	**Change pump components or the complete pump** If it is necessary to change the driving side of the pump, it can be dismantled without removing the entire pump. **See** *9.4 Change the complete heating pump or pump components*.

7.2.4 Heating temperature unstable

Reason	Action
Pending differential pressure	**Check available differential pressure and the primary inlet temperature** The temperature can be checked by means of the energy meter, minimum 65ºC, or at the district heating medium supply.
District heating strainer clogged	**See** *9.1 Cleaning the district heating strainer*.

7.2.5 Heating system often needs topping up

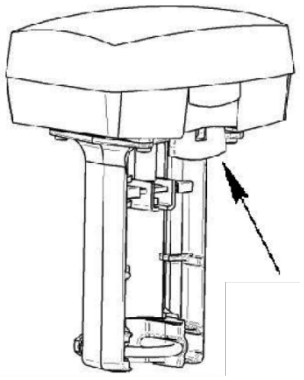
Reason	Action
Leaks in the substation or in the system	**Check the substation and the system for leaks** Leaks from the substation or the heating system causes pressure drops. Repair any leaks on the substation.
The heating system safety valve is leaking or does not work	**Check the heating system safety valve** Check that the safety valve is not leaking and that it works properly. Check the safety valves' function by turning the wheel/knob until water runs out of the valve's waste pipe and then close the valve quickly.
The expansion vessel cannot handle the systems volume changes	**See** *8.4 Check the volume take-up and pressure equalizing of the expansion vessel*.

8 Service actions for the installer

8.1 Check the function of the hot water valve and actuator

⚠	Service actions must be carried out by an authorized service technician.
⚠	Close the shutoff valves for the **DH supply** and **DH return** together with the **cold** and **hot wate**r. Relieve the pressure in the circuit.
⚠	After finishing repair, open the shutoff valves. Start with **DH supply** and then the **return** lines, to avoid pollutions in the system. Open the valves slowly to avoid pressure surges.

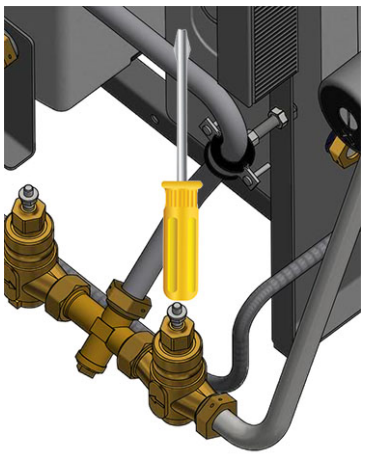
1. Disconnect the power supply to the substation.
2. Lower the manual operation handle to stop the motor. It is easier to lower the manual operation handle if you twist it a little forward and backwards when it is lowered a little.
3. Try to operate the actuator manually by turning the handle.
   - Actuator opens, the screw of the actuator moves against the red mark.
   - Actuator closes, the screw of the actuator moves inwards, against the blue mark. When the actuator closes it pull the valve spindle in.



Picture 13

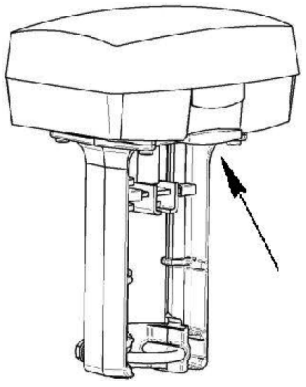
4. Loosen the screws on the brace that holds the actuator to the valve, lift off the actuator.
   Note! The valve can be very hot

   A working valve will be fully open.
5. Carefully press the valve spindle with a tool and check the valve´s travel and spring back.
   NOTE: The valve may be very hot!



Picture 14

6. Carefully press the valve's spindle with a tool and check the valve's travel and spring back.
   NOTE! The valve may be very hot!
7. Mount the actuator on the valve, slide the actuator onto the valve neck, thus making the square nut on the valve spindle fit into the groove on the cross bar. Then slide the brace into the groove on the valve neck and secure the nuts.
8. Raise the operation handle on the actuator to start the motor.
9. Connect the power supply to the substation.

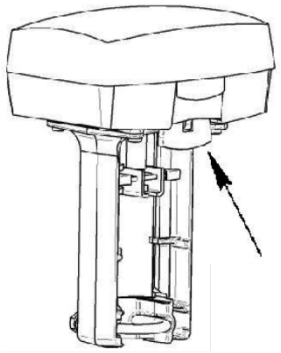


Picture 15

8.2 Check the function of the heating actuator and valve

Service actions must be carried out by an authorized service technician.

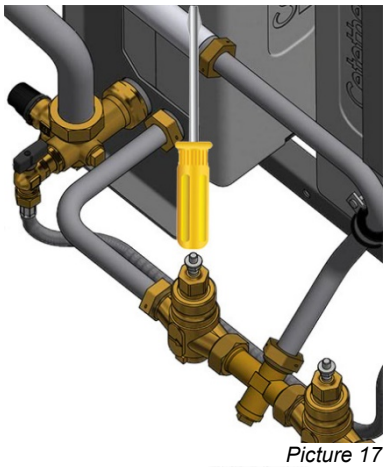
1. Disconnect the power supply to the substation.
2. Lower the manual operation handle to stop the motor. It is easier to lower the manual operation handle if you twist it a little forward and backwards when it is lowered a little.
3. Try to operate the actuator manually by turning the handle.
   - Actuator opens, the screw of the actuator moves against the red mark.
   - Actuator closes, the screw of the actuator moves inwards, against the blue mark. When the actuator closes it pull the valve spindle in.



Picture 16

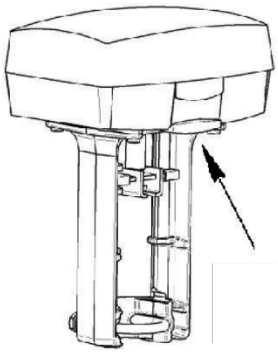
4. Check the flow rate at the energy meter during break in of the valve.
   If the system is lacking an energy meter, disconnect the heating actuator from the valve.
5. Loosen the screws on the brace that holds the actuator to the valve, lift off the actuator.
   Note! The valve can be very hot

   A working valve will be fully open.
6. Carefully press the valve spindle with a tool and check the valve´s travel and spring back.
   NOTE: The valve may be very hot!



Picture 17

7. Mount the actuator on the valve, slide the actuator onto the valve neck, thus making the square nut on the valve spindle fit into the groove on the cross bar. Then slide the brace into the groove on the valve neck and secure the nuts.
8. Raise the operation handle on the actuator to start the motor.
9. Connect the power supply to the substation.



Picture 18

8.3 Check DHWC pump

If the pump fails to start after stopping, try to start it at the highest setting.

Service actions must be carried out by an authorized service technician.

Disconnect the power supply to the pump by pulling off the connecter before carrying out this service.
If the pump is powered when you use a screwdriver to assist the pump to start, the screwdriver may be wrenched out of your hand when the pump starts.

1. If the pump does not start, try starting it by removing the pump motor end nut and helping the pump with the aid of a screwdriver in the notch on the engine shaft.
2. Use a short screwdriver. If the pump is difficult to access, disconnect the heating actuator.
3. Connect the power supply to the pump and try to start again.

Picture 19

8.4 Check the volume take-up and pressure equalizing of the expansion vessel

Check the expansion vessel for possible leakage.

The cause may be that the expansion vessel cannot manage the volume changes on the heating side.
See *9.6 Change the expansion vessel*.

Alternatively, the system´s total volume of water may be too high, i.e. the volume changes are too large for the expansion vessel. If so, add extra expansion volume.

9 Maintenance and repairs

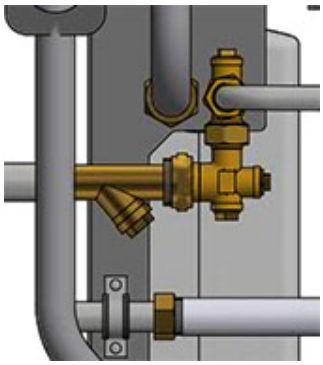
When carrying out repairs, please contact your local service partner.

⚠	Before starting out repairs always close the correct shutoff valves.
⚠	When dismounting a component there will be water coming out, hot and under pressure.

9.1 Cleaning the district heating strainer

⚠	Service actions must be carried out by an authorized service technician.
⚠	The temperature and the pressure of the district heating water are very high. Only qualified technicians can work with the district heating substation. Incorrect operation may cause serious personal injury and result in damage to the building.
⚠	Before starting out repairs close the **DH supply** and **DH return** shutoff valves.
⚠	After finishing repair, open the shutoff valves. Start with **DH supply** and then the **return** line, to avoid pollutions in the system. Open the valves slowly to avoid pressure surges.

1. Disconnect the power supply to the substation.
2. Close the shut-off valves.
3. Use a wrench and release the strainer holder and remove the cartridge.
4. Clean the strainer in water and refit the cartridge. Screw the strainer holder with a momentum of 10-20 Nm.
5. Open the shutoff valves and connect the power supply to the substation.

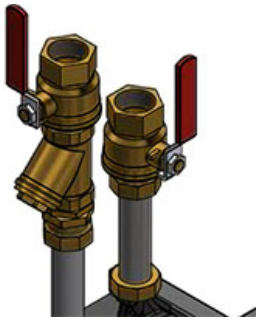


Picture 20

9.2 Clean the heating circuit strainer

⚠	Service actions must be carried out by an authorized service technician.
⚠	Before starting out repairs, close the shutoff valves **DH supply**, **DH return**, **heating supply and heating return**. Release the pressure using the heating circuit safety valve.
⚠	After finishing repair, fill up the heating circuit and vent. Then open the shutoff valves, start with **heat return** and then **supply**, after that open **DH supply** and then the **return** line, to avoid pollutions in the system. Open the valves slowly to avoid pressure surges.

1. Disconnect the power supply to the substation.
2. Close the shut-off valves.
3. Use a wrench and release the strainer holder and remove the cartridge.
4. Clean the strainer in water and refit the cartridge. Screw the strainer holder with a momentum of 10-20 Nm.
5. Fill up the heating circuit using the toping up valve, vent the heating circuit.
6. Open the shutoff valves and connect the power supply to the substation.



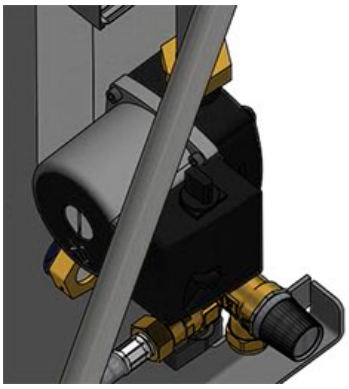
Picture 21

9.3 Change the complete DHWC pump or pump components

⚠	Maintenance and repairs must be carried out by an authorized service technician.
⚠	Before starting out repairs, close the shutoff valves **DH supply**, **DH return**, **cold-water** and **hot water**. Note the setting of the balancing valve (option), then close it. Release the pressure using the DHWC safety valve.
⚠	After finishing repair, fill up the hot water circuit and vent. Open the shutoff valves, start with **DH Supply** and then **DH return,** to avoid pollutions in the system. Open the valves slowly to avoid pressure surges.
⚠	Check the DHWC circulation.

Change the complete pump or just the pump motor.

1. Disconnect the power supply to the substation, disconnect the power cable to the pump.
2. Close the shut-off valves and the balancing valve (option).
3. Choose alternative a or b.
   a) When changing the complete pump, release the brass nuts with a wrench and replace the pump.
   Connect the pump cable.
   b) Only changing the motor, release it by unscrewing four socket head cap screws and replace the motor.
   Connect the pump cable.
4. Open the shut-off valves cold-water and hot water.
5. Open and adjust the balancing valve (option).
6. Vent the circuit by opening a hot water tap.
7. Connect the power supply to the substation.
8. Open the shutoff valves DH Supply and then DH return.



Picture 22

9.4 Change the complete heating pump or pump components

⚠	Maintenance and repairs must be carried out by an authorized service technician.
⚠	Before starting out repairs, close all shutoff valves Release the pressure using the heating safety valve.
⚠	After finishing repair, fill up the **heating circuit** and vent. Open the shutoff valves, start with **heating return** and then **heating supply**, then **DH Supply** and **DH return,** to avoid pollutions in the system. Open the valves slowly to avoid pressure surges.

Change the complete pump or just the pump head.

1. Disconnect the power supply to the substation and the pump.
2. Close the shut-off valves.
3. Choose alternative a or b.
   a) <u>When changing the complete pump</u>, release the brass nuts with a wrench and replace the pump.
   Connect the pump cable.
   b) <u>Only changing the pump head</u>
   Loosen the screw in the clamp that holds the pump head and pump housing together.
   Mount a new pump head, fit and tighten the screw that holds the clamp to 8 Nm ± 1 Nm.
   NOTE! Do not retighten the screw if condensed water is dripping from the clamp.
4. Fill up the heating circuit using the top up valves. Vent the heating circuit.
5. Open the shut-off valves and connect the power supply to the substation.

Picture 23

9.5 Change the heating or hot water valve

⚠	Maintenance work must be carried out by an authorized service technician.
⚠	Disconnecting the power feed to the pump and the substation.
⚠	Before starting out repairs always close the primary supply and return shutoff valves and drain the system. After finishing repair, open the shutoff valves. Start with **primary supply** and then the **return** lines, to avoid pollutions in the system. Open the valves slowly to avoid pressure surges. Do the same on the heating side open first **heat return** and then **supply**. Fill up the system, start the pump and vent.

1. Lower the operation handle on the actuator to stop the motor.
2. Loosen the screws on the brace that holds the actuator to **the** valve, lift off the actuator.
   Note! The valve can be very hot
3. Use a wrench to remove the control valve. Note the arrow direction on the valve.
4. Mount a new valve; **and take especially care to the arrow direction**.
5. Mount the actuator on the valve, slide the actuator onto the valve neck, thus making the square nut on the valve spindle fit into the groove on the cross bar. Then slide the brace into the groove on the valve neck and secure the nuts.
6. Raise the operation handle on the actuator to start the motor.

Picture 24

9.6 Change the expansion vessel

⚠	Maintenance work must be carried out by an authorized service technician.
⚠	Disconnecting the power feed to the pump and the substation.

1. Close the shutoff valves for the radiator supply and return.
2. Replace the expansion vessel.

10 Options

The mounting instructions are described for a new installation. If the kits are supposed to be installed on an already installed subsystem, you will have to release the water pressure and disconnect the electrical power supply before starting. The installation must be carried out by a fully qualified electrician.

10.1 Safety thermostat

Heating systems sensitive to high temperatures for example under-floor heating must be equipped with a safety thermostat. If the heating system is not equipped with the thermostat, the under-floor heating system and floors in general might get damaged.

10.1.1 Installing the safety thermostat

1. Disconnect the substation electrical power supply cable. Disconnect the electrical plug on the circulation pump.
2. Attach the safety thermostat electrical box on the mounting plate.
3. Connect the new power supply cable from the electrical box to the circulation pump.
4. Reconnect the existing power supply cable to the connection on the electrical box.
5. Attach the thermostat to the pipe for heating supply.
6. Set the correct maximum temperature value for the thermostat.
7. Attach all electrical wires with the necessary number of straps. It is important not to attach electrical wires on primary heating pipes and sharp edges.

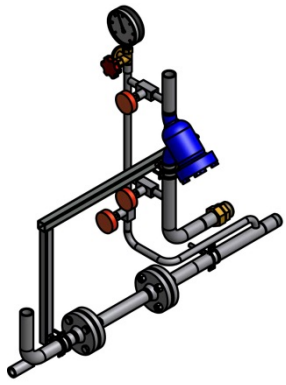
Picture 25

Set recommended settings for under floor heating systems.

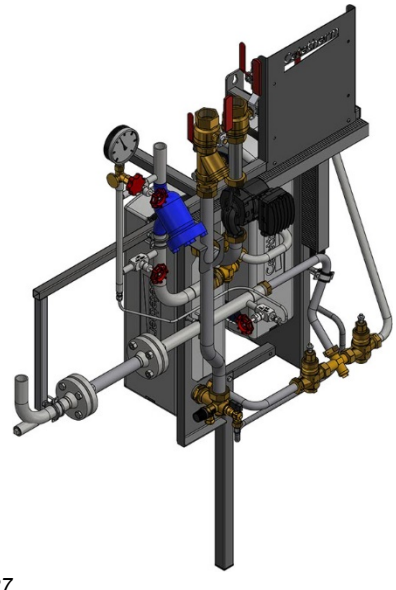
10.2 3-point or 2+1-point HB metering

Mounting the 3-point HB metering:

1. Close the shut-off valves for primary inlet and return.
2. Unscrew the nut preceding the energy meter and remove energy meter and pipe.
3. Unscrew the nut following primary inlet and remove the filter and welding end.
4. Thread the metering profile into the frame´s.
5. Screw the metering and the central together.
6. Open the shut-off valves, first primary inlet then primary return.



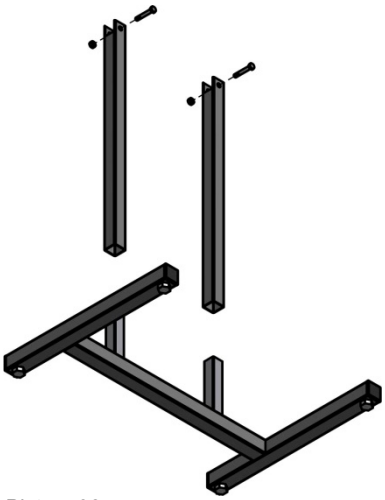
Picture 26



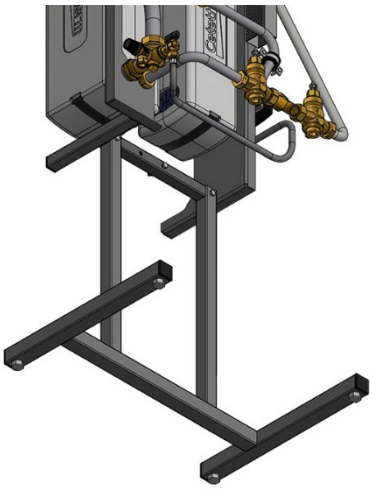
Picture 27

10.3 Mounting floor stand

1. Mount two floor supports to the central. Use the outer mounting holes.
2. Mount the floor stand feet on the floor support.
3. Raise the central against a wall.
4. We recommend that the central is mounted to the wall.
   The distance between floor and screw bracket should be 1330 mm. Note that distance between screws are 400 mm.



Picture 28

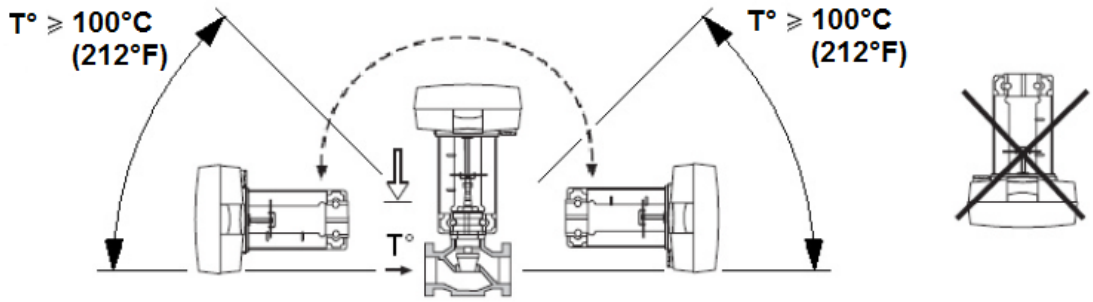


Picture 29

10.4 Mounting actuator

1. Mount the actuator on the valve, slide the actuator onto the valve neck, thus making the square nut on the valve spindle fit into the groove on the cross bar. Then slide the brace into the groove on the valve neck and secure the nuts
2. Remove the actuator lid an attach the wirings.
3. Raise the operation handle on the actuator to start the motor.

With supply temperatures above 100°, it is recommended that the actuator is tilted or put down.



Picture 30

10.5 Balancing valve DHWC

Set the valve to a specific pressure drop according to:

1. Close the valve fully (*Picture 31*).
2. Open the valve the correct numbers of turns (*Picture 32*).
   See the diagram (*Picture 42*) for numbers of turns. In this example 2,3 turns.
3. Using a 3 mm Allen key, turn the inner spindle clockwise until stop.
4. The valve is now set.

To check the setting: Close the valve, the indicator shows 0.0. Open it to the stop position. The indicator then shows the set value, in this case 2.3 (*Picture 32*).

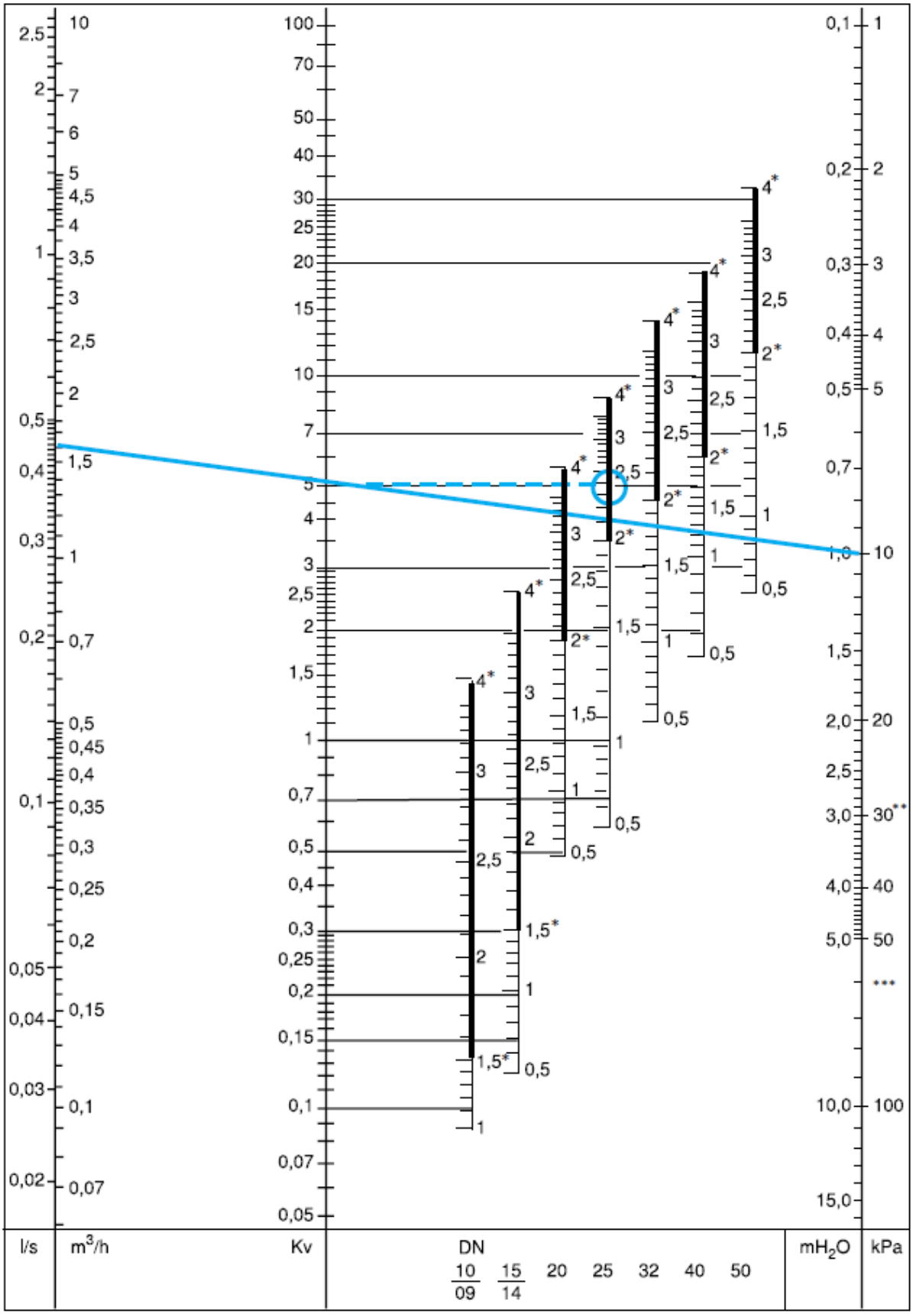
The diagram shows the pressure drop for different settings and flow rates.

Four turns correspond to fully opened valve (*Picture 33*). Opening it further will not increase the capacity.

Picture 31

Picture 32

Picture 33



Picture 34

*) recommended area
**) 25 dB (A)
***) 35 dB (A)

11 Technical data and performance

11.1 Operation data Midi Wall 70

	Primary side	Heating	DHW
Design pressure PS	16 Bar	6 bar	10 Bar
Design temperature TS	120°C	90°C	90°C
Relief pressure safety-valve	-	3 Bar	9 Bar
Volume Heat exchanger, L	1,957/1,957 L	2,06 L	2,06 L

CB60-40L

Temperature program (°C) Heating	**Capacity** kW	**CB** type	**Plates** no	**Plates** primary	**Plates** secondary	**Flow P** l/s	**dPp** kPa	**Flow S** l/s	**dPs** kPa
100-63/60-80 (62,6)	70	60	40	1*19L	1*20L	0,47	2,0	0,85	5,2
100-63/60-80	**82**	**60**	**40**	**1*19L**	**1*20L**	**0,55**	**2,8**	**1,00**	**7,0**
100-53/50-70	118	60	40	1*19L	1*20L	0,63	3,6	1,43	14,0
100-48/45-60 (46,2)	91,3	60	40	1*19L	1*20L	0,42	1,7	1,48	15,0
100-43/40-60 (42,5)	**121,5**	**60**	**40**	**1*19L**	**1*20L**	**0,53**	**2,6**	**1,47**	**15,0**
100-43/40-70	67,5	60	40	1*19L	1*20L	0,30	0,9	0,54	2,3
100-43/40-80	26	60	40	1*19L	1*20L	0,11	0,2	0,16	0,2
100-36/33-40 (33,08)	42	60	40	1*19L	1*20L	0,16	0,3	1,45	15,0

CB60-40L:2

Temperature program (°C) DHW	**Capacity** kW	**CB** type	**Plates** no	**Plates** primary	**Plates** secondary	**Flow P** l/s	**dPp** kPa	**Flow S** l/s	**dPs** kPa
80-23/10-60 (19,1)	157	60	40	1*10 1*9	2*10 L	0,62	23,0	0,75	29,9
80-23/10-60 (16,1)	113	60	40	1*10+1*9	2*10 L	0,34	7,8	0,44	11,1
80-23/10-55 (16,2)	141	60	40	1*10+1*9	2*10 L	0,53	17,5	0,75	30,2
80-23/10-55 (13,9)	102	60	40	1*10 +1*9	2*10 L	0,30	6,1	0,44	11,2
70-25/10-55 (19,8)	**141**	**60**	**40**	**1*10 1*9**	**2*10 L**	**0,67**	**27,2**	**0,75**	**29,9**
70-25/10-55(16,7)	102	60	40	1*10 +1*9	2*10 L	0,37	9,0	0,44	11,1
70-22/10-55 (19,75)	**141**	**60**	**40**	**1*10+1*9**	**2*10 L**	**0,67**	**27,1**	**0,75**	**29,9**
70-22/10-55 (16,65)	102	60	40	1*10+1*9	2*10 L	0,37	9,0	0,44	11,1
65-22/10-55	**126**	**60**	**40**	**1*10+1*9**	**2*10 L**	**0,70**	**29,3**	**0,66**	**24,1**
65-22/10-55 (19,3)	102	60	40	1*10+1*9	2*10 L	0,43	12,0	0,44	11,0

11.2 Operation data Midi Wall 100

	Primary side	Heating	DHW
Design pressure PS	16 Bar	6 bar	10 Bar
Design temperature TS	120°C	90°C	90°C
Relief pressure safety-valve	-	3 Bar	9 Bar
Volume Heat exchanger, L	2,472/1,957 L	2,575 L	2,06 L

CB60-50L

Temperature program (°C) Heating	**Capacity** kW	**CB** type	**Plates** no	**Plates** primary	**Plates** secondary	**Flow P** l/s	**dPp** kPa	**Flow S** l/s	**dPs** kPa
100-63/60-80	**105**	**60**	**50**	**1*24 L**	**1*25 L**	**0,71**	**3,3**	**1,28**	**7,8**
100-53/50-70 (52,95)	147,6	60	50	1*24 L	1*25 L	0,78	4,0	1,79	15,0
100-48/45-60 (46,1)	110,1	60	50	1*24 L	1*25 L	0,51	1,8	1,78	15,0
100-43/40-60 (42,3)	**146,4**	**60**	**50**	**1*24 L**	**1*25 L**	**0,63**	**1,8**	**1,77**	**15,0**
100-43/40-70	87,1	60	50	1*24 L	1*25 L	0,38	1,0	0,70	2,6
100-43/40-80	33,9	60	50	1*24 L	1*25 L	0,15	0,2	0,20	0,3
100-36/33-40 (33,1)	50,8	60	50	1*24 L	1*25 L	0,19	0,3	1,75	15,0
100-33/30-60	109	60	50	1*24 L	1*25 L	0,41	1,2	0,88	4,1

CB60-40L:2

Temperature program (°C) DHW	**Capacity** kW	**CB** type	**Plates** no	**Plates** primary	**Plates** secondary	**Flow P** l/s	**dPp** kPa	**Flow S** l/s	**dPs** kPa
80-23/10-60 (19,1)	157	60	40	1*10 1*9	2*10 L	0,62	23,0	0,75	29,9
80-23/10-60 (17,1)	113	60	40	1*10+1*9	2*10 L	0,43	11,8	0,54	16,2
80-23/10-55 (16,2)	141	60	40	1*10+1*9	2*10 L	0,53	17,5	0,75	30,2
80-23/10-55 (14,65)	102	60	40	1*10 +1*9	2*10 L	0,37	9,1	0,54	16,4
70-25/10-55 (19,8)	**141**	**60**	**40**	**1*10 1*9**	**2*10 L**	**0,67**	**27,2**	**0,75**	**29,9**
70-25/10-55(17,7)	102	60	40	1*10 +1*9	2*10 L	0,47	13,7	0,54	16,3
70-22/10-55 (19,75)	**141**	**60**	**40**	**1*10+1*9**	**2*10 L**	**0,67**	**27,1**	**0,75**	**29,9**
70-22/10-55 (17,7)	102	60	40	1*10+1*9	2*10 L	0,47	13,7	0,54	16,3
65-22/10-55	**126**	**60**	**40**	**1*10+1*9**	**2*10 L**	**0,70**	**29,3**	**0,66**	**24,1**
65-22/10-55 (20,55)	102	60	40	1*10+1*9	2*10 L	0,55	18,4	0,54	16,1

11.3 Operation data Midi Wall 130

	Primary side	Heating	DHW
Design pressure PS	16 Bar	6 bar	10 Bar
Design temperature TS	120°C	90°C	90°C
Relief pressure safety-valve	-	3 Bar	9 Bar
Volume Heat exchanger, L	2,987/1,957 L	3,090 L	2,06 L

CB60-60L

Temperature program (°C) Heating	**Capacity** kW	**CB** type	**Plates** no	**Plates** primary	**Plates** secondary	**Flow P** l/s	**dPp** kPa	**Flow S** l/s	**dPs** kPa
100-63/60-80	**128,5**	**60**	**60**	**1*29 L**	**1*30 L**	**0,86**	**3,9**	**1,57**	**8,7**
100-53/50-70 (52,75)	169,6	60	60	1*29 L	1*30 L	0,89	4,2	2,06	15,0
100-48/45-60 (46)	126,6	60	60	1*29 L	1*30 L	0,58	1,9	2,05	15,0
100-43/40-60 (42,15)	**168,4**	**60**	**60**	**1*29 L**	**1*30 L**	**0,73**	**2,8**	**2,04**	**15,0**
100-43/40-70	106,3	60	60	1*29 L	1*30 L	0,47	1,2	0,86	2,9
100-43/40-80	41,5	60	60	1*29 L	1*30 L	0,18	0,2	0,25	0,3
100-36/33-40 (33,06)	58,47	60	60	1*29 L	1*30 L	0,22	0,3	2,01	15,0
100-33/30-60	133	60	60	1*29 L	1*30 L	0,50	1,4	1,07	4,5

CB60-40L:2

Temperature program (°C) DHW	**Capacity** kW	**CB** type	**Plates** no	**Plates** primary	**Plates** secondary	**Flow P** l/s	**dPp** kPa	**Flow S** l/s	**dPs** kPa
80-23/10-60 (19,1)	157	60	40	1*10 1*9	2*10 L	0,62	23,0	0,75	29,9
80-23/10-60 (18,1)	134	60	40	1*10+1*9	2*10 L	0,52	16,6	0,64	22,3
80-23/10-55 (16,2)	141	60	40	1*10+1*9	2*10 L	0,53	17,5	0,75	30,2
80-23/10-55 (15,35)	121	60	40	1*10 +1*9	2*10 L	0,45	12,7	0,64	22,5
70-25/10-55 (19,8)	**141**	**60**	**40**	**1*10 1*9**	**2*10 L**	**0,67**	**27,2**	**0,75**	**29,9**
70-25/10-55(18,7)	**121**	**60**	**40**	1*10 +1*9	2*10 L	**0,56**	**19,4**	**0,64**	**22,3**
70-22/10-55 (19,75)	**141**	**60**	**40**	**1*10+1*9**	**2*10 L**	**0,67**	**27,1**	**0,75**	**29,9**
70-22/10-55 (18,7)	**121**	**60**	**40**	1*10+1*9	2*10 L	**0,56**	**19,4**	**0,64**	**22,3**
65-22/10-55	**126**	**60**	**40**	**1*10+1*9**	**2*10 L**	**0,70**	**29,3**	**0,66**	**24,1**
65-22/10-55 (21,7)	**121**	**60**	**40**	1*10+1*9	2*10 L	**0,67**	**26,5**	**0,64**	**22,1**

11.4 Operation data Midi Wall 160

	Primary side	Heating	DHW
Design pressure PS	16 Bar	6 bar	10 Bar
Design temperature TS	120°C	90°C	90°C
Relief pressure safety-valve	-	3 Bar	9 Bar
Volume Heat exchanger, L	4,1/1,957 L	4,1 L	2,06 L

CB60-80L

Temperature program (°C) Heating	**Capacity** kW	**CB** type	**Plates** no	**Plates** primary	**Plates** secondary	**Flow P** l/s	**dPp** kPa	**Flow S** l/s	**dPs** kPa
100-63/60-80	**162**	**60**	**80**	**1*39L**	**1*40L**	**1,09**	**2,7**	**1,97**	**8,7**
100-63/60-80 (62,8)	160	60	80	1*39L	1*40L	1,07	2,7	1,95	8,5
100-58/55-75	162	60	80	1*39L	1*40L	0,96	2,2	1,97	8,8
100-58/55-75 (57,2)	160	60	80	1*39L	1*40L	0,93	2,1	1,95	14,9
100-53/50-70 (51,9)	164	60	80	1*39L	1*40L	0,86	1,8	1,98	8,9
100-53/50-70 (51,9)	160	60	80	1*39L	1*40L	0,83	1,7	1,94	8,6
100-48/45-60 (45,6)	122	60	80	1*39L	1*40L	0,58	0,9	1,97	8,9
100-43/40-60 (41,4)	**163**	**60**	**80**	**1*39L**	**1*40L**	**0,71**	**1,2**	**1,97**	**9,0**
100-43/40-60 (41,4)	160	60	80	1*39L	1*40L	0,68	1,1	1,93	8,7
100-43/40-70	144	60	80	1*39L	1*40L	0,63	1,0	1,16	3,3
100-43/40-80	56	60	80	1*39L	1*40L	0,24	0,2	0,34	0,3
100-36/33-40 (33,0)	57	60	80	1*39L	1*40L	0,22	0,2	1,96	9,1
100-33/30-60	133	60	60	1*29 L	1*30 L	0,50	1,4	1,07	4,5

CB60-40L:2

Temperature program (°C) DHW	**Capacity** kW	**CB** type	**Plates** no	**Plates** primary	**Plates** secondary	**Flow P** l/s	**dPp** kPa	**Flow S** l/s	**dPs** kPa
80-23/10-60 (19,1)	157	60	40	1*10 1*9	2*10 L	0,62	23,0	0,75	29,9
80-23/10-60 (18,1)	134	60	40	1*10+1*9	2*10 L	0,52	16,6	0,64	22,3
80-23/10-55 (16,2)	141	60	40	1*10+1*9	2*10 L	0,53	17,5	0,75	30,2
80-23/10-55 (15,35)	121	60	40	1*10 +1*9	2*10 L	0,45	12,7	0,64	22,5
70-25/10-55 (19,8)	**141**	**60**	**40**	**1*10 1*9**	**2*10 L**	**0,67**	**27,2**	**0,75**	**29,9**
70-25/10-55(18,7)	**121**	**60**	**40**	1*10 +1*9	2*10 L	**0,56**	**19,4**	**0,64**	**22,3**
70-22/10-55 (19,75)	**141**	**60**	**40**	**1*10+1*9**	**2*10 L**	**0,67**	**27,1**	**0,75**	**29,9**
70-22/10-55 (18,7)	**121**	**60**	**40**	1*10+1*9	2*10 L	**0,56**	**19,4**	**0,64**	**22,3**
65-22/10-55	**126**	**60**	**40**	**1*10+1*9**	**2*10 L**	**0,70**	**29,3**	**0,66**	**24,1**
65-22/10-55 (21,7)	**121**	**60**	**40**	1*10+1*9	2*10 L	**0,67**	**26,5**	**0,64**	**22,1**

11.5 Technical data

Electrical data:	230V 50Hz 1-phase 290-315W
Noise level:	<70dB(A), 1,6 m above floor level, 1 m from source
Main measurements:	730x510x1115 mm (WxDxH)
Weight:	65-85 kg

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