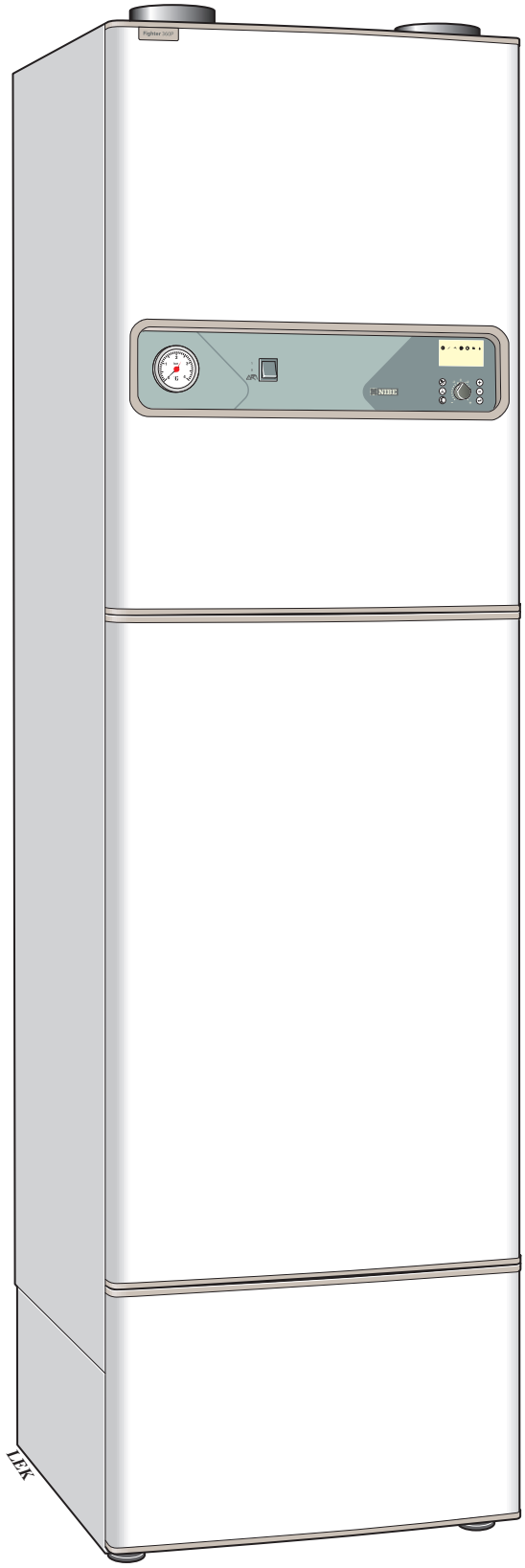
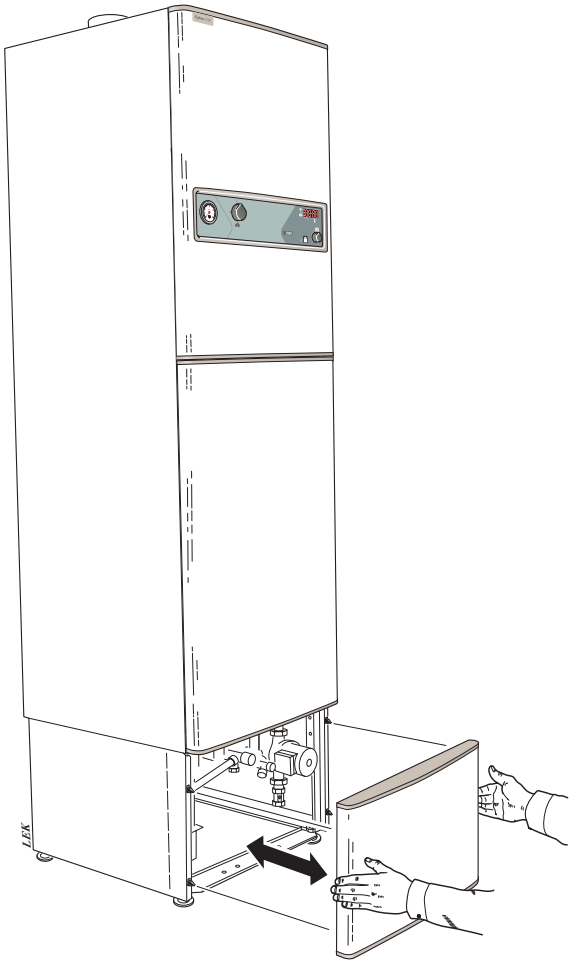
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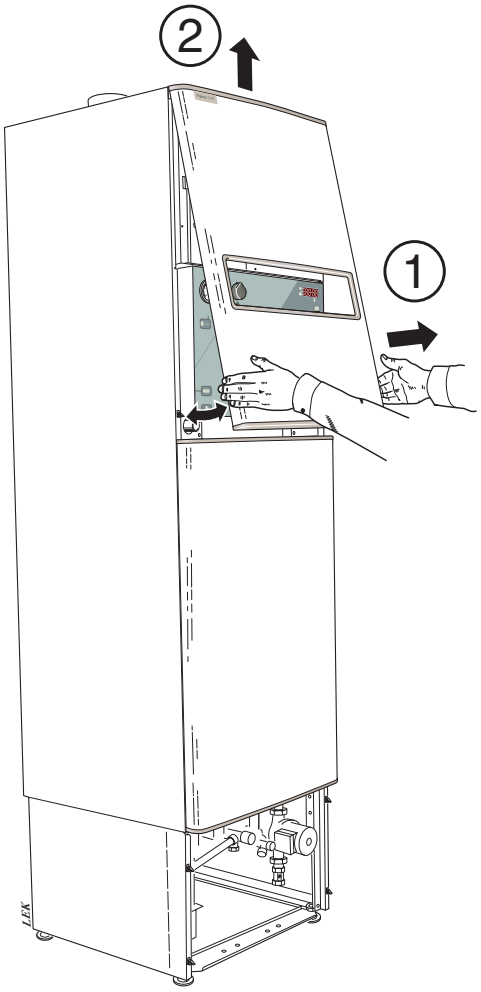
INSTALLATION AND MAINTENANCE INSTRUCTION

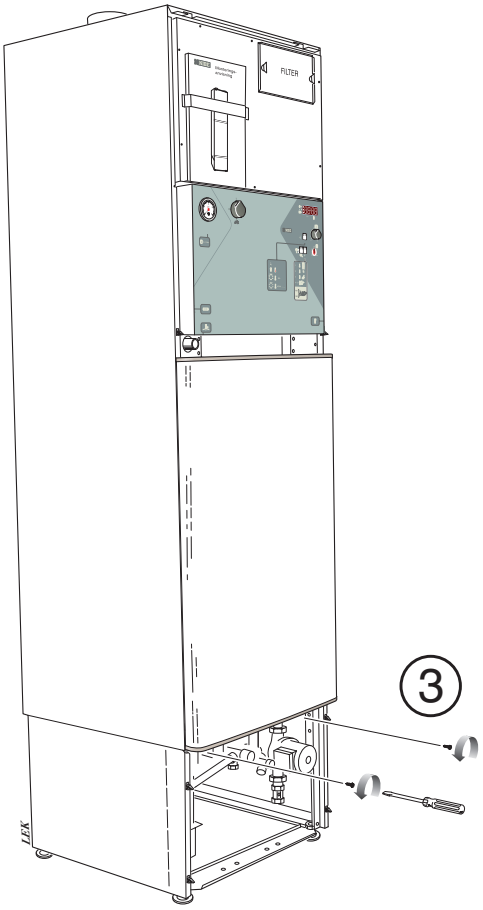
FIGHTER 360P

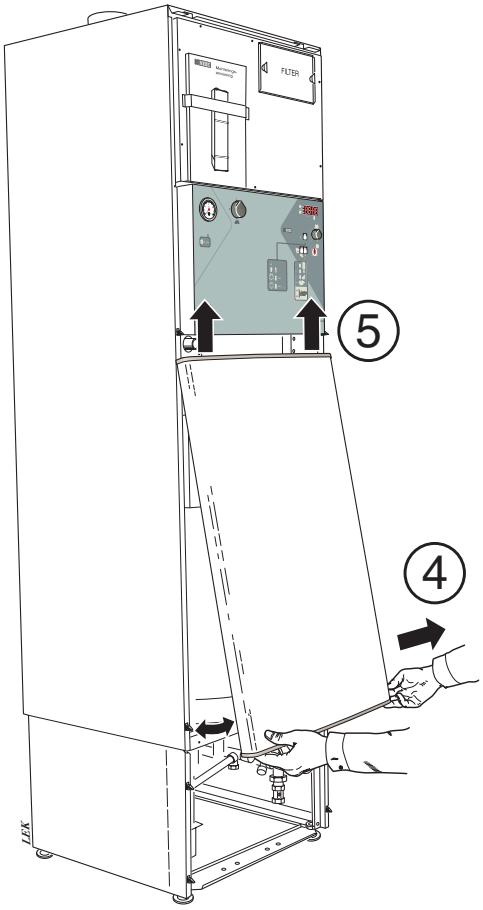


NIBE




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2 General

In order to get the ultimate benefit from your heat pump FIGHTER 360P you should read through this Installation and Maintenance Instruction.

FIGHTER 360P is an exhaust air heat pump. This means that it collects the energy in the ventilation air and uses it for hot water and room heating.

Microprocessors ensure that the heat pump always works efficiently.

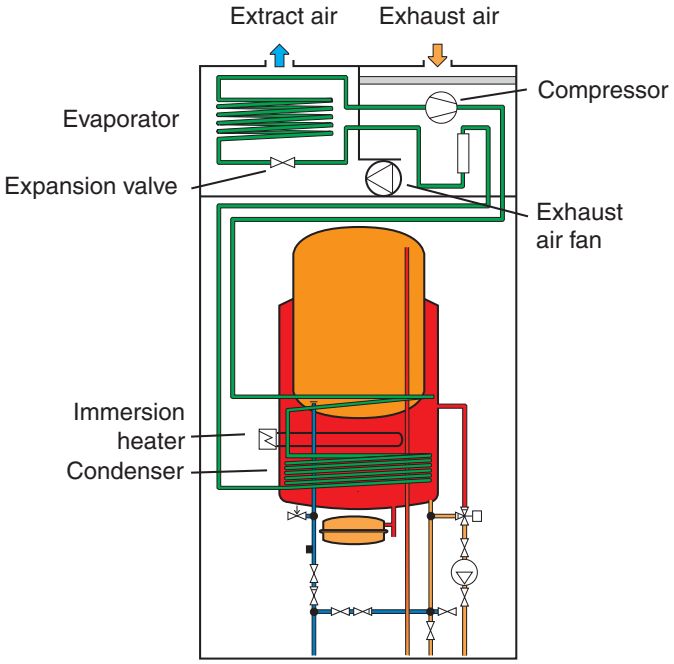
FIGHTER 360P is a Swedish-made quality product which will last a long time and run reliably without unpleasant surprises.

To be filled in when the heat pump has been installed

The serial number (103), should always be stated with all correspondence with NIBE. 089_ _ _ _ _ _ _ _ _ _ _
Installation date
Installer
Pre-pressure in the expansion tank (0.5 bar on delivery)
Chosen output, immersion heater
Circulation pump setting
Selected fan curve, normal speed
Selected fan curve, speed I
Selected fan curve, speed II
Setting Heating curve selection
Setting Offset heating curve

System description 3

Principle of operation



FIGHTER 360P comprises an electric boiler with a copper lined water heater and a heat pump which recovers energy from the ventilation air. The recovered energy is supplied to the heat pump. The heat pump must be installed in a ventilation system intended for mechanical exhaust air.

The output of the immersion heater is max 6,0 kW.

When the exhaust air at room temperature passes through the evaporator, the refrigerant evaporates because of its low boiling point. In this way the heat in the room air is transferred to the refrigerant.

The refrigerant is then compressed in a compressor, causing the temperature to rise considerably.

The warm refrigerant is fed to the condenser, which is in the boiler water. Here the refrigerant gives off its heat to the boiler water, so that its temperature drops and the refrigerant changes state from gas to liquid.

The refrigerant then goes via filters to the expansion valve, where the pressure and temperature are further reduced.

The refrigerant has now completed its circulation and returns to the evaporator.

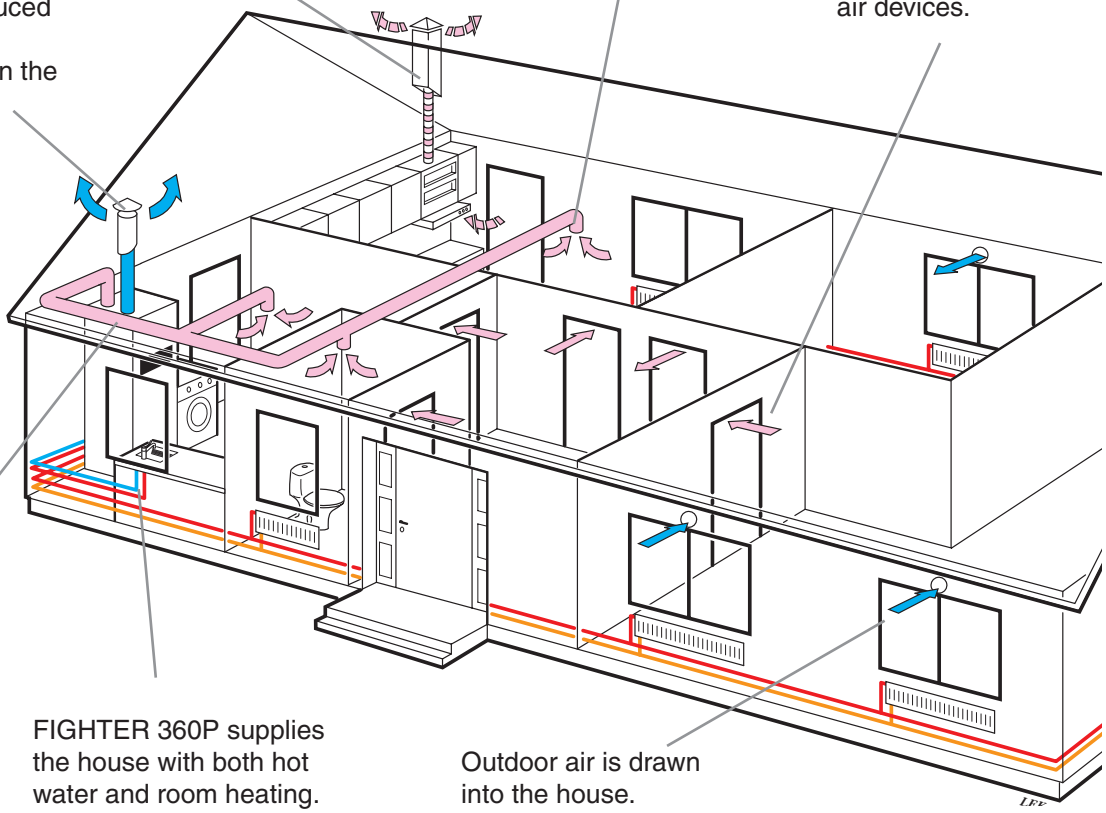
System diagram

When the room air has passed through the heat pump it is discharged. The temperature of the air has been significantly reduced as the heat pump has extracted the energy in the room air.

The air from the kitchen fan goes directly out into a separate duct.

The warm room air is drawn into the air duct system.

Air is transported from rooms with outdoor air devices to rooms with exhaust air devices.



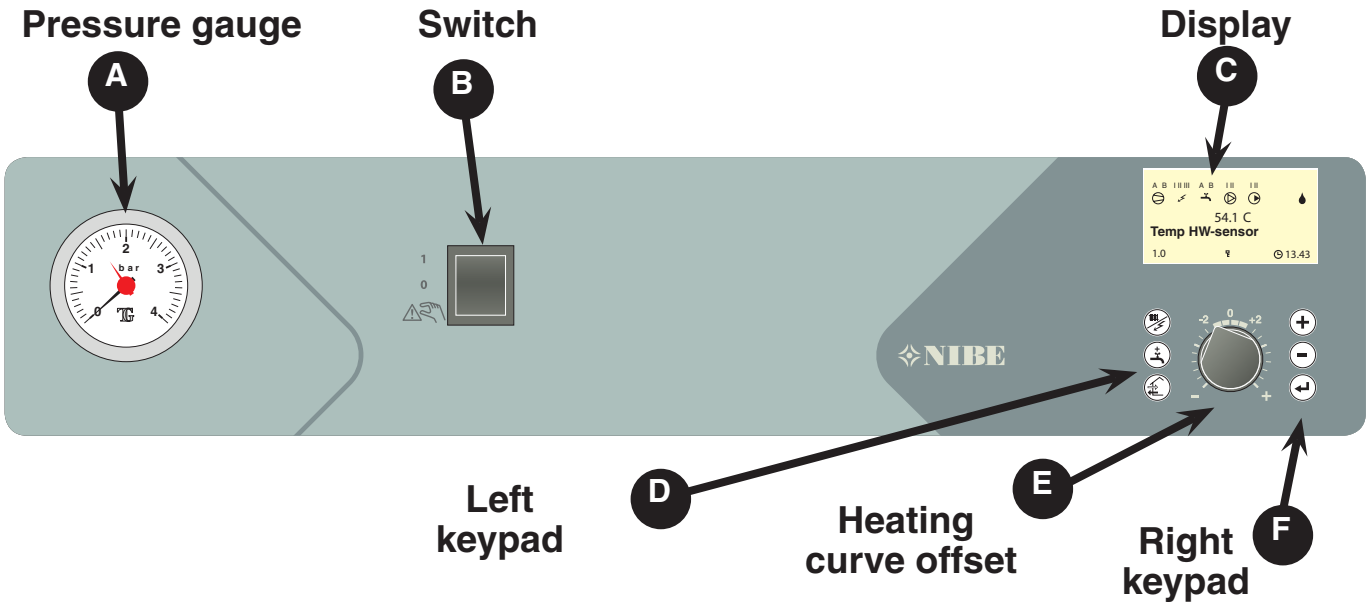
The warm room air is fed to FIGHTER 360P

FIGHTER 360P supplies the house with both hot water and room heating.

Outdoor air is drawn into the house.

4 Front panel

Layout



Explanation

A Pressure gauge

The radiator circuit pressure is displayed here. Gauge graduation is 0 - 4 bar. Normal pressure is 0.5 1.5 bar.

B Switch

with three positions 1 - 0 -⚠

1 Normal mode. All control functions connected.

0 Heat pump off.

⚠ Standby. This position is used in the event of operating disturbances.

The switch must not be turned to 1 or "⚠" before filling the boiler with water.

C Display First row:

Compressor symbol.

Indicates when the compressor is operational.

Supplement symbol

Displayed when supplementary energy is connected, usually the immersion heater. The line indicates which power step/steps are currently connected.

If the lightning symbol flashes, the power output is limited by the load monitor.

I 3 kW supplementary power is connected (1 or 2 kW for single phase installation)

II 4,5 kW supplementary power is connected (0 kW for single phase installation)

III 6 kW supplementary power is connected (2 or 4 kW for single phase installation)

A B

Hot water symbol.

Indicates when the Extra hot water function is activated. A is shown when temporary selected temperature increase is activated and B when periodic temperature increase is activated.

I II

Fan symbol.

Indicates when the fan is operational. Normal speed is indicated by just the fan symbol. When one line is visible fan speed I is activated and when two lines are visible fan speed II is activated.

I II

Heating system symbol.

Indicates when the house is being heated, i.e. the circulation pump is operational. When the heat pump is connected to two heating systems, I is shown for circulation pump 1 and II for circulation pump 2.

Defrosting symbol

Indicates when evaporator defrosting is in progress.

Second row: Value of the current parameter.

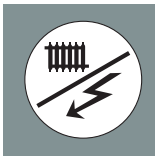
Third row: Description of current display parameter. Normally shows the Hot water temperature

Fourth row: Show the current menu number.



A key lock can be activated in the main menus by simultaneously pressing the Plus and the Minus buttons. The key symbol will then be shown on the display. The same procedure is used to deactivate the key lock.

D Left keypad



Operating mode

This button is used to set the required operating mode with regard to permitting/blocking the circulation pump and supplementary energy.

The different operating modes are:

Winter mode: The circulation pump is operational. Operation of the immersion heater is permitted when there is a need.

Summer mode: The circulation pump and immersion heater are blocked. However, when Extra hot water is activated the immersion heater is connected. The circulation pump is automatically exercised twice a day.

Spring/Autumn mode: The circulation pump is operational. The immersion heater is disabled. However, when Extra hot water is activated the immersion heater is connected.

The current operating mode is shown on the display when the button is pressed and the mode changes when you continue to press the button. The display returns to the normal display mode once the enter button is pressed.



Extra hot water

When the button is pressed the current Extra hot water position is shown on the display, further pressing changes the position in the increments 24, 12, 6 and 3 hours and off. When Extra hot water is activated, the hot water temperature is increased to a higher level (set on menu 1.4) than normal. The temperature then returns to the normal value. The function is active when an A is displayed above the Extra hot water icon.



Fan speed:

This button is used to change the fan speed. Return to normal speed occurs automatically (Does not apply however in the Off position).

Speed II: A choice is made during installation whether this should be a reducing or forced mode. A return to normal speed occurs after a specific time. This time is set under the menu 8.4.2, Return-time speed II. The time can be set from 1 to 10 hours.

Off: Means that the fan stops and hence no ventilation is obtained. Note that the compressor is then blocked too, which means no recovery is obtained. NOTE! In the Off position there is no automatic return to normal speed.

Speed I You can choose whether this should be a reducing or forced mode during installation. A return to normal speed occurs after a specific time. This time is adjustable under menu 7.12, Return-time speed I. The time can be set from 1 to 10 hours or 1 to 16 days.

Normal: Normal fan speed.

The current function is shown on the display when the button is pressed and the mode changes when you continue to press the button. The display returns to the normal display mode once the enter button is pressed.

E Offset heating curve



This knob is used to change the heating curve's parallel offset and in doing so the room temperature. Turning clockwise increases the room temperature. When the knob is turned menu 2.0 is shown on the display screen and the value for the calculated supply temperature changes.

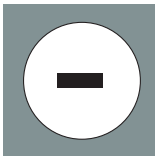
F Right keypad



Plus button

This button is used to scroll through the menu system (forwards) or increase the value of the selected parameter.

See the section, Control Menu system.



Minus button

This button is used to scroll through the menu system (backwards) or lower the value of the selected parameter.

See the section, Control Menu system.



Enter button

This button is used to select a lower menu in the menu system, to activate a parameter change as well as confirm a parameter change.

See the section, Control Menu system.

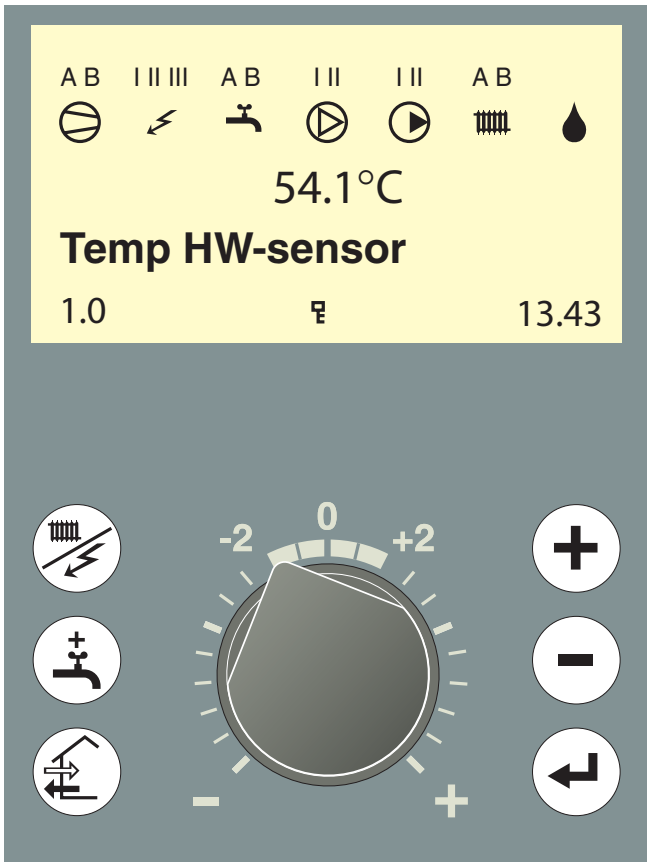
6 Room temperature

Automatic heating control system

The indoor temperature depends on several factors. During the hot season, solar radiation and heat given off by people and equipment are sufficient to keep the house warm. When it gets colder outside, the heating system must be started. The colder its gets, the hotter the radiators must be.

This adjustment is made automatically, however the basic settings must first be made on the boiler, see the section Room temperature – Basic setting.

Room temperature



Basic setting

The basic heating is set using menu 2.4 and with the Offset heating curve knob.

If you do not know the correct settings use the basic data from the map opposite.

If the required room temperature is not obtained, readjustment may be necessary.

NOTE! Wait one day between settings so that the temperatures have time to stabilise.

Readjustment of basic settings.

Cold weather conditions

When the room temperature is too low, the heating curve value is increased in menu 2.1 by one increment.

When the room temperature is too high, the heating curve value is decreased in menu 2.1 by one increment.

Warm weather conditions

If the room temperature is low, increase the offset heating curve setting by one step.

If the room temperature is high, reduce the offset heating curve setting by one step.

Changing the room temperature

Changing the room temperature manually.

If you want to temporarily or permanently lower or raise the indoor temperature relative to the previously set temperature, turn the Offset heating curve knob anticlockwise or clockwise. One to three lines approximately represents a 1 degree change in room temperature.

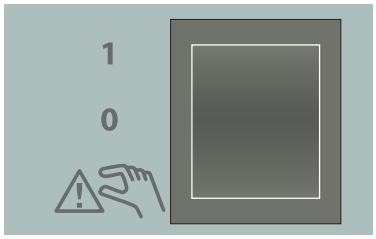
NOTE! An increase in the room temperature may be inhibited by the radiator or floor heating thermostats, if so these must be turned up.

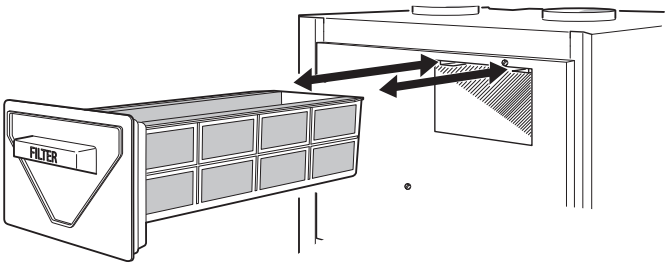
8 Maintenance routines

The heat pump and its ventilation ducting require some regular maintenance when the following points should be checked.

The numbers in brackets refer to the section Component locations.

Cleaning the air filter





The heat pump's air filter needs to be cleaned regularly (approximately 4 – 5 times per year). The interval between cleaning operations varies and depends on the amount of dust in the exhaust air.

- Set the switch to "**0**".
- Open the upper front cover by pulling it out by the lower edge, then lifting it up.
- Pull out the holder (78).
- Take out the filter and shake off any dirt.

  Check that the filter is not damaged. New original filters can be ordered from NIBE.
- Assembly takes place in the reverse order.

The cleaning time intervals vary depending on the amount of dust in the exhaust air.

Also see the section, Alarm indications in the display, FILTER MONITOR.

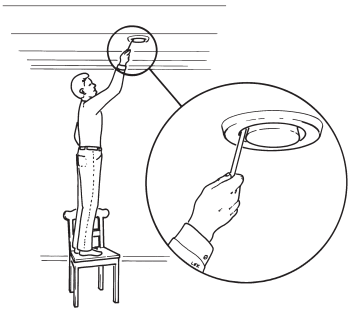
Cleaning the ventilation devices

The building's ventilation devices should be cleaned regularly with a small brush to keep the correct ventilation.

The device settings must not be changed.

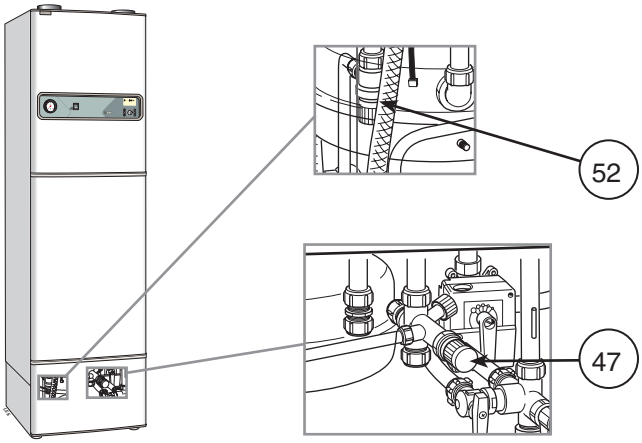
NOTE! If you take down more than one ventilation device for cleaning, do not mix them up.

Check that the ventilation opening (84), behind the lower front cover, is not blocked. Clean if necessary.



Maintenance routines 9

Checking the safety valves



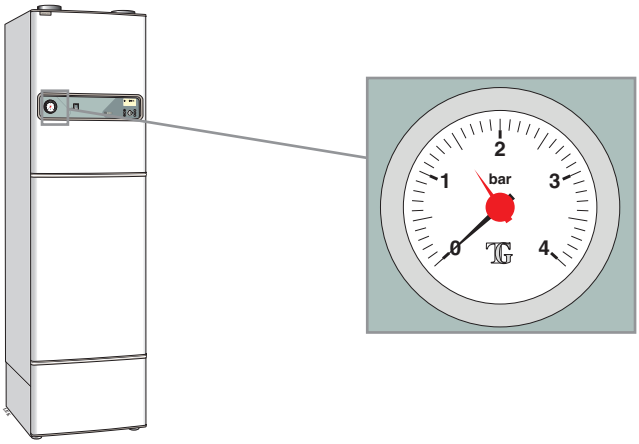
FIGHTER 360P has two safety valves, one for the heating system and one for the water heater.

The heating system's safety valve (52) must be completely tight, but the hot water safety valve (47) may occasionally release some water after hot water has been used. This is because the cold water, which enters the water heater to replace the hot water, expands when heated causing the pressure to rise and the safety valve to open.

Safety valve (52) should be checked once a year, while safety valve (47) should be checked 4 times a year. Check one valve at a time as follows:

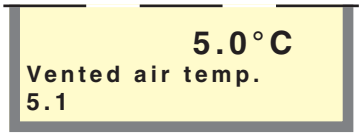
- Open the valve.
- Check that water flows through the valve.
- Close the valve.
- The heating system may need to be refilled after checking the safety valve (52), see the section Commissioning and adjustment – Filling the heating system.

Pressure gauge

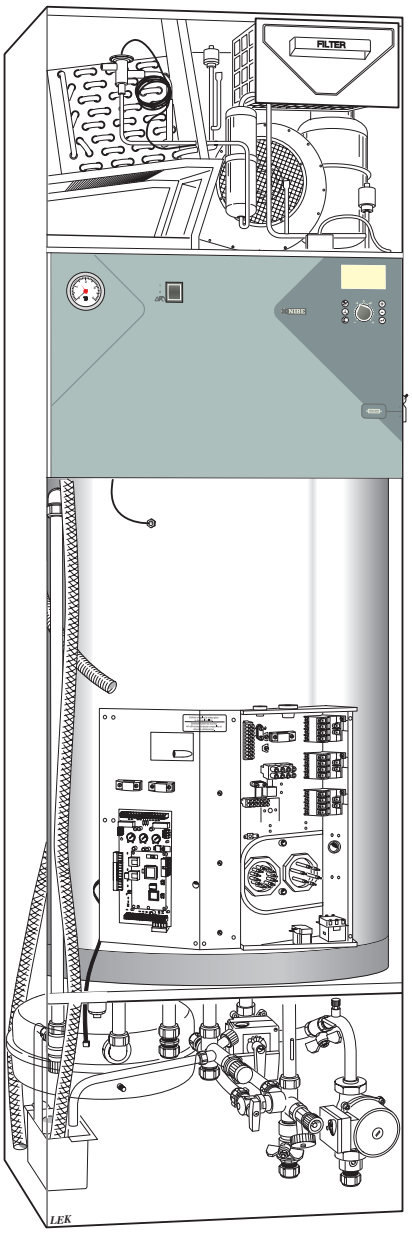


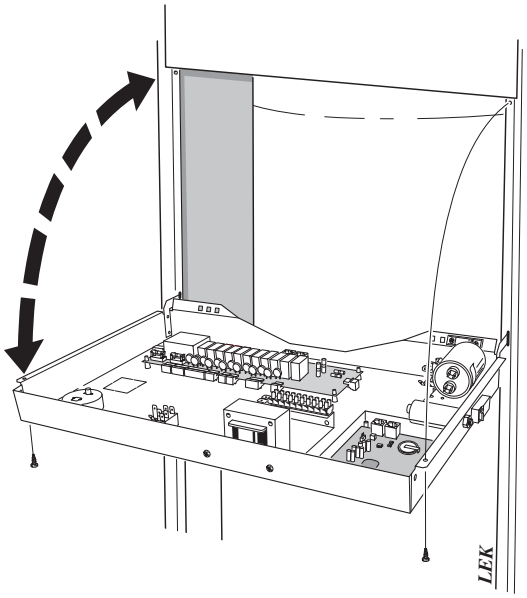
The working range of the heating system is normally 0.5 – 1.5 (bar) Check this on the pressure gauge (42).

Extract air temperature



Check that the temperature of the extract air (menu 5.1) is clearly lower than the room temperature when the compressor is operational, also see section Dealing with malfunctions – High extract air temperature. It is normal that the extract air temperature varies.





Transport and storage

FIGHTER 360P should be transported and stored vertically in the dry. The FIGHTER 360P may however be carefully laid on its back when being moved into a building.

NOTE!

The transport guard around the compressor must be removed before starting.

Handling



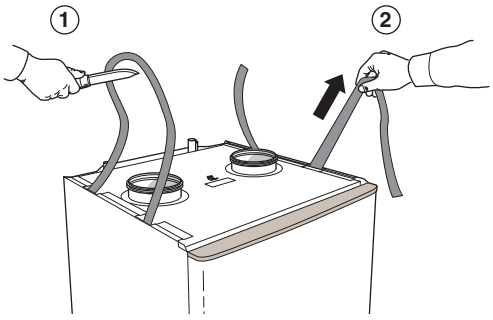
The heat pump contains highly inflammable refrigerant. Special care should be exercised during handling, installation, service, cleaning and scrapping to avoid damage to the refrigerant system and in doing so reduce the risk of leakage.

NOTE!

Work on the refrigerant system must be done by authorised personnel in accordance with the relevant legislation on refrigerants, supplemented by additional requirements for flammable gas, for example, product knowledge as well as service instruction on gas systems with flammable gases.

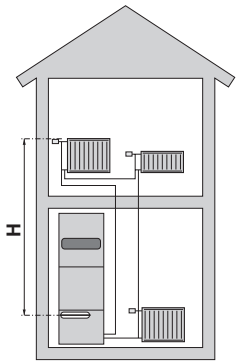
Lifting straps

The lifting straps on top of the heat pump should be removed before starting as these can otherwise cause increased sound levels. These are removed by first cutting with a knife and then pulling them out.



General information for the installer 11

Maximum boiler and radiator volumes



The volume of the expansion vessel (85) is 12 litres and it is pressurised as standard to 0.5 bar (5 mvp). As a result, the maximum permitted height H between the vessel and the highest radiator is 5 metres; see figure. If the standard initial pressure in the pressure vessel is not high enough it can be increased by adding air via the valve in the expansion vessel. The initial pressure of the expansion vessel must be stated in the inspection document. Any change in the initial pressure affects the ability of the expansion vessel to handle the expansion of the water. The maximum system volume excluding the boiler is 285 litres at the above initial pressure.

Installation

The heat pump should preferably be erected with its back about 10 mm from an outside wall in a utility room or similar, to minimise noise nuisance. If this is not possible, a wall that backs on to a bedroom or some other room where noise would be a problem should be avoided. Irrespective of the placement the wall should be sound insulated. **NOTE!** The distance between the heat pump and the wall should be at least 10 mm.

Route pipes so they are not fixed to an internal wall that backs on to a bedroom or living room.

Inspection of the installation

Current regulations require the heating installation to be inspected before it is commissioned. The inspection must be carried out by a suitably qualified person. The above applies to installations with a closed expansion vessel. A new inspection must be made when changing the heat pump or the expansion vessel.

Electric boiler mode

The unit can be used exclusively as an electric boiler, to produce heat and hot water, for example before the collector installation is complete.

Three different operating modes are possible.

Option 1. Electric boiler mode with ventilation

Select menu 8.31 Electric boiler.

Activate Yes.

Option 2. Electric boiler mode without ventilation

Select menu 8.31 Electric boiler.

Activate Yes.

Select fan Off using the Fan speed push button.

Option 3. Standby mode "⚠"

This mode is used when an outdoor sensor is not connected. The heat pump's compressor and electronic control are disabled in the "⚠" position.

The fan is operational (speed I) and the immersion heater is controlled by a separate thermostat.

The numerical display is off. The automatic heating control system is not operational, so manual shunt operation is required. This is done by turning the adjuster screw to manual mode and then turning the shunt lever to the required position.

NOTE!

When returning to normal mode, do not forget to reset the shunt lever to the original position by turning the adjuster screw to A.

12 Pipe connections

General

Pipe installation must be carried out in accordance with current norms and directives.

The system requires a low-temperature design of the radiator circuit. At DUT, the highest recommended temperatures are 55 °C on the supply line and 45 °C on the return line.

When the circulation pump is running, the flow in the radiator circuit must not be completely stopped. In other words, in a system where the radiator flow might stop because all thermostat valves are closed, there must be a bypass valve to protect the circulation pump.

The total volume is 240 litres, with 170 litres in the water heater and 70 litres in the double-jacket space.

The pressure vessel in the FIGHTER 360P is approved for max 9.0 bar (0.9 MPa) in the water heater and 2.5 bar (0.25 MPa) in the double jacket space.

Overflow water from the evaporator collection tray and safety valves goes via non-pressurised collecting pipes to a drain so that hot water splashes cannot cause injury.

NOTE!

The pipe work must be flushed before the heat pump is connected, so that any contaminants do not damage the component parts.

Emptying the water heater

To empty the water heater proceed as follows:

- Disconnect the overflow pipe from the drain connection (79) and connect a hose to a draining pump instead. Where no draining pump is available, the water can be released into the overflow funnel (99).
- Open the safety valve (47).
- Open a hot water tap to let air into the system. If this is not enough, undo a pipe coupling (74) on the hot water side and pull out the pipe.

Docking

Other heat sources can be docked to the FIGHTER 360P Accessories are needed. Contact NIBE AB for information.

Tap water connection

Hot and cold water are connected to pos (74) (hot water) and (73) (cold water).

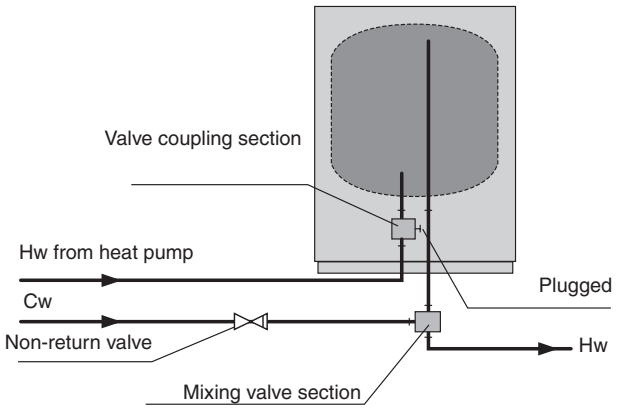
The attendant expansion vessel (107) must be connected to the hot water system.

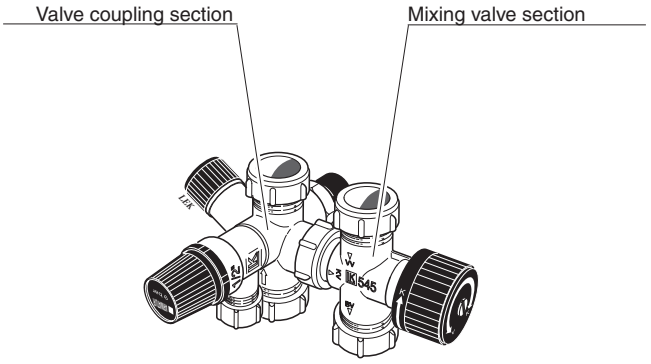
The heat pump should be supplemented with an electric water heater if a bubble pool or other significant consumer of hot water is installed.

If the heater is equipped with a valve connection Ø of 15 mm, this should be replaced with an equivalent (split) Ø 22 mm coupling.

Appropriate heaters are COMPACT 100-300 for floor-mounting and EMINENT 35-100 for wall-mounting.

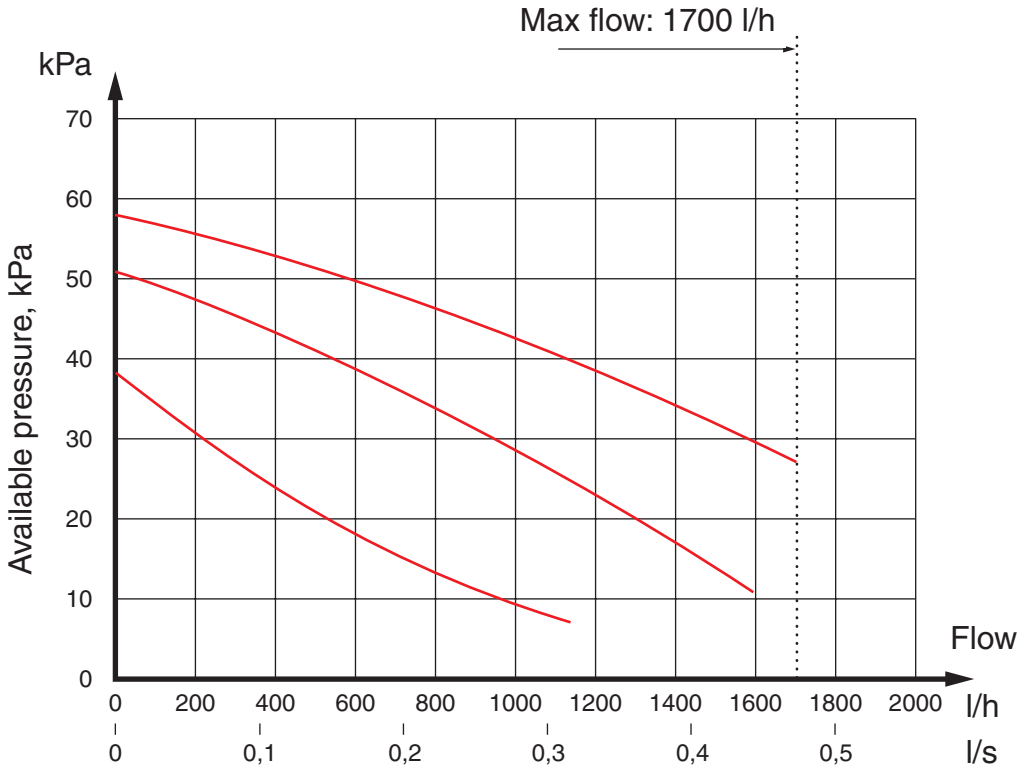
1. Split the valve coupling.
2. Attach the valve coupling section to the heater's incoming cold water.
3. Attach the mixing valve section to the heater's outgoing hot water.
4. Plug the split on the valve coupling section.





Pipe connections

Pump and pressure drop diagrams



Draining the heating system

The hot water can be drained off through drain valve (51) using an R15 (1/2") hose coupling. Remove the cover (80) from the valve. Now screw on the hose coupling and open valve (51).

Open safety valve (52) to let air into the system.

14 Ventilation connection

Ventilation flow

FIGHTER 360P is connected so that all ventilation air except the kitchen fan passes the evaporator (62) in the heat pump. The lowest ventilation flow according to current standards is 0.35 l/s per m^2 floor area. For optimum heat pump performance the ventilation flow should not be less than 110 m^3/h. (31 l/s).

The heat pump's installation area should be ventilated by at least 36 m^3/h (10 l/s).

FIGHTER 360P is equipped with a ventilation opening in the base. As a result, an air flow of about 5 m^3/h (1,4 l/s) is taken directly from the room where the heat pump is installed.

Changing the ventilation capacity is described under Electrical connection - Setting the fan capacity. See also Circuit diagram. The numbering of the curves refers to the numbering on the fan terminal block (22).

Exhaust air duct

The kitchen flue must not be connected to FIGHTER 360P.

Adjustment

To obtain the necessary air exchange in every room of the house, the exhaust air devices must be correctly positioned and adjusted. A defective ventilation installation may lead to reduced heat pump efficiency and thus poorer operating economy, and may result in damage to the house.

Duct installation

To prevent fan noise being transferred to the exhaust air devices, it may be a good idea to install a silencer in the duct. This is especially important if there are exhaust air devices in bedrooms.

As the heat pump contains a flammable refrigerant in the form of propane (R290), the air ducting system must be earthed. This is done by making a sound electrical connection to the exhaust air and vented air ducts with the two earthing cables supplied. The cables must then be connected to the earthing studs on top of the top cover.

Connections should be made via flexible hoses, which must be installed so that they are easy to replace. The extract air duct must be provided with diffusion-tight insulation over its entire length. Provision must be made for inspection of the duct. Make sure that there are no reductions of cross-sectional area in the form of creases, tight bends etc, since this will reduce the ventilation capacity. All joins in the ducting must be sealed and pop-riveted to prevent leakage.

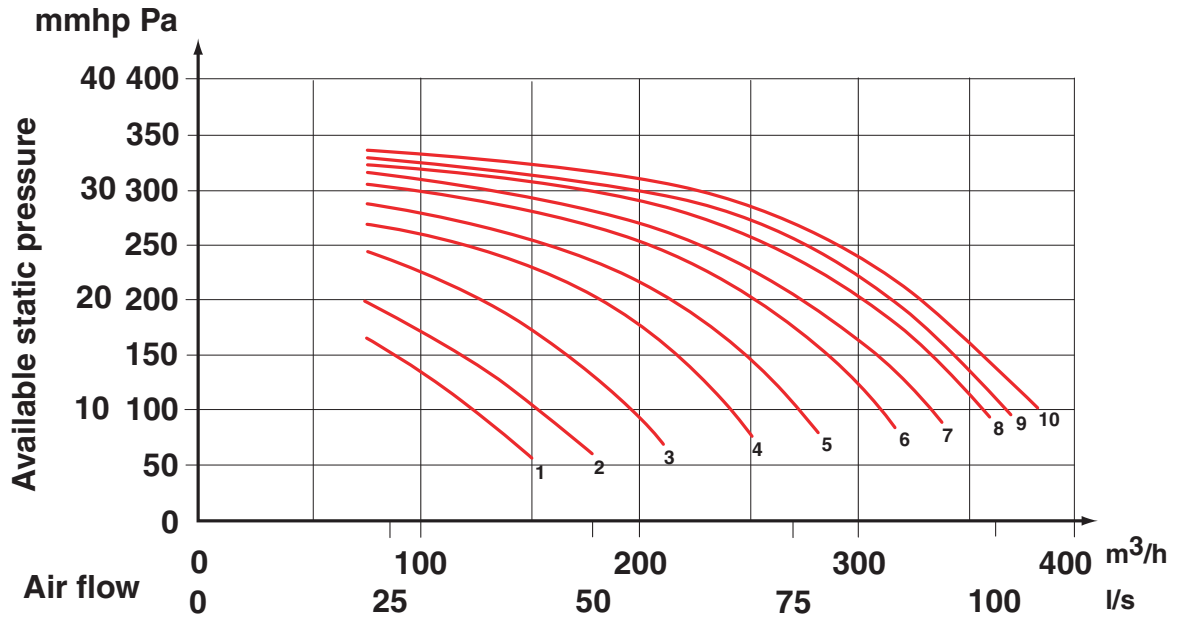
The air duct system should, at a minimum, be of air tightness class B.

NOTE!

A duct in a masonry chimney stack must not be used for extract air.

Fan diagram

The diagram below shows the available ventilation capacity.

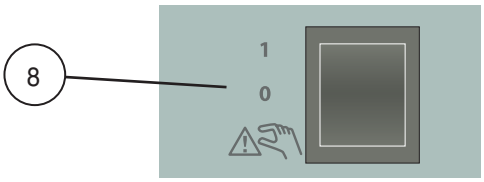


Electrical connection

Connection

FIGHTER 360P must be installed via an isolator switch. Other electrical equipment, except the outdoor sensor and the current sensors, are connected at the factory.

Disconnect the heat pump before insulation testing the house wiring.



NOTE!

The switch (8) must not be moved from 1 or "⚠" until the boiler has been filled with water. Otherwise the temperature limiter, thermostat, compressor and the immersion heater can be damaged.

The supply to the heat pump is connected to terminal (9) via a strain relief. Connection must not be carried out without the permission of the electricity supplier and under the supervision of a qualified electrician. The cable entry conduit is dimensioned for cable with a max Ø 19 mm.

The power is controlled via a contactor which is operated by a microprocessor.

The temperature limiter (6) cuts off the supply to the immersion heater if the temperature rises to between 90 and 100 °C; it can be manually reset by pressing the button on the temperature limiter.

NOTE!

Reset the temperature limiter, it may have tripped during transport.

The automatic heating control system, circulation pump (16) and its cabling, are internally fuse protected with a miniature circuit breaker (7).

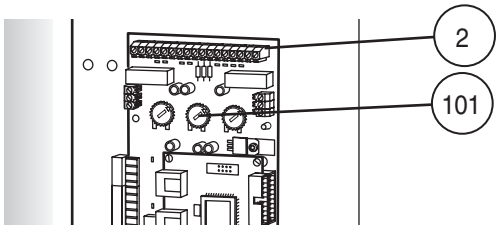
Output as set at the factory

The two immersion heaters have a total maximum output of 13.5 kW. The power rating as set at the factory is 7.5 kW, which corresponds to position C on the knob (101) on the load monitor card (2).

Max phase current

Immersion heater, output (kW)	Knob position	Max load phase (A)
3,0	A	9,3
6,0	B	13,7
7,5	C	15,8
9,0	D	18,0
10,5	E	20,2
13,5	F	24,5

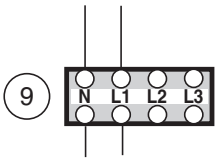
The setting of the different max outputs is done using the knob (101) on the load monitor card (2).



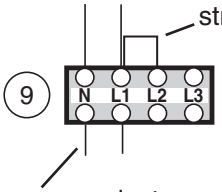
Single phase connection

FIGHTER 360P can be connected to a single phase power suppply.

The connection is made according to the illustrations below depending on the desired maximum output.



Incoming supply 1 x 230V
Max output immersion heater 3 kW.



Incoming supply 1 x 230V
Max output immersion heater 6 kW.
Supplied strap is connected between L1 and L2.
Existing zero conductor is replaced with the supplied zero conductor.

Max phase current, single phase

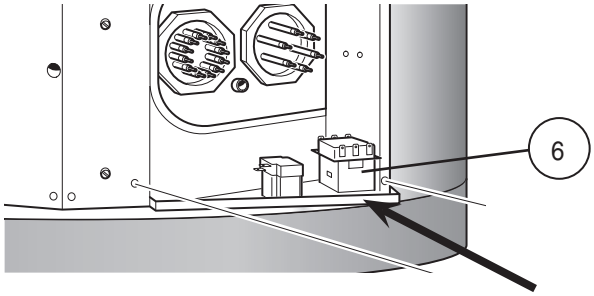
The knob (101) should always be set to position D when using a single phase power supply.

Immersion heater, output (kW)	Max total load phase (A)
3,0	18,0
6,0	31,3

16 Electrical connection

Resetting the temperature limiter

The temperature limiter (6) is accessible from behind the centre front cover and is positioned under the inner protective cover.
The temperature limiter is reset by firmly pressing in its button. The button can be accessed from the underside of the distribution box. The cover on the distribution box does not need to be removed when resetting.



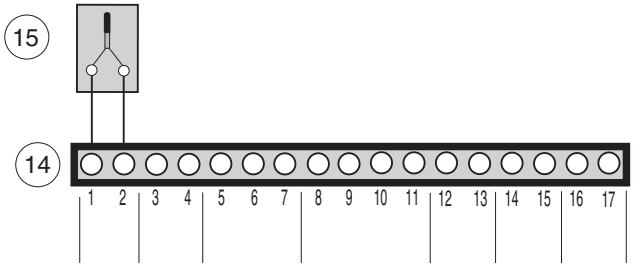
NOTE!

Electrical installation and service must be carried out under the supervision of a qualified electrician in accordance with the stipulations in force.

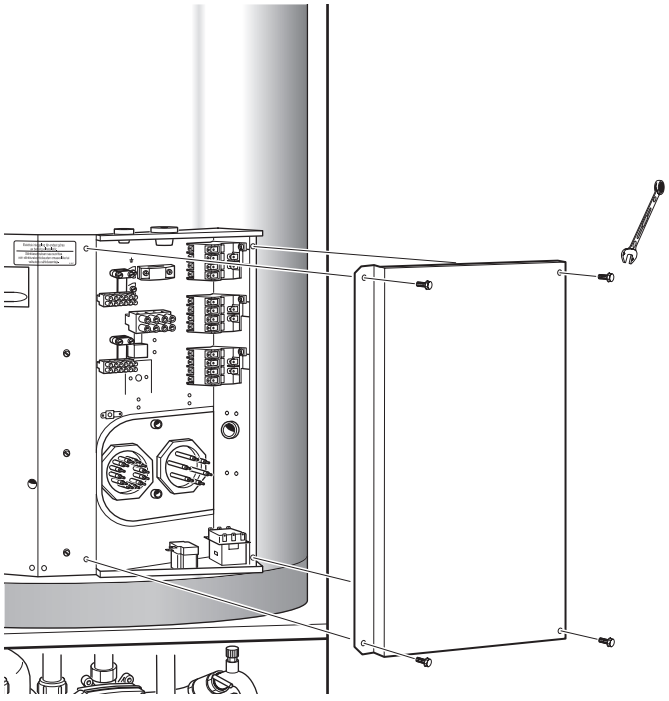
Connecting the outside sensor

Install the outside sensor in the shade on a wall facing north or north-west, so it is unaffected by the morning sun. The sensor is connected with two-wire cable to terminal block (14) positions 1 and 2, on the load monitor card (2).

If a conduit is used it must be sealed to prevent condensation in the sensor capsule. The minimum cable cross section should be 0.4 mm^2 up to lengths of 50 metres, for example, EKKX or LiYY.



Access to the lower electrical connections



Open the centre front cover by removing the four screws. The load monitor card (2), microprocessor card (34), etc are now accessible on the left-hand side. Remove the protection plate by loosening the four screws to gain access to the right-hand side.

NOTE!

Electrical installation and service must be carried out under the supervision of a qualified electrician in accordance with the stipulations in force.

Centralised load control and load monitor

Centralised load control/Tariff

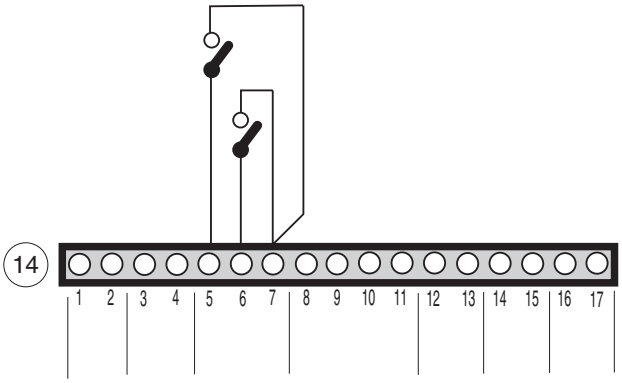
In those cases centralised load control or tariff control is used this can be connected to the terminal block (14) on the load monitor card (2), which is positioned behind the centre front cover.

Tariff "A"

When parts of the electrical output (how much is determined by the max output) are to be disconnected, a potential free contact function is connected between 5 and 7 on terminal block (14).

Tariff "B"

When the complete electrical output is to be disconnected, a potential free contact function is connected between 6 and 7 on terminal block (14).



Load monitor

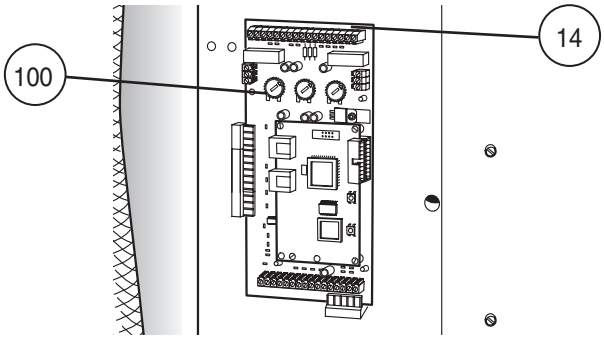
FIGHTER 360P is equipped with an internal load monitor.

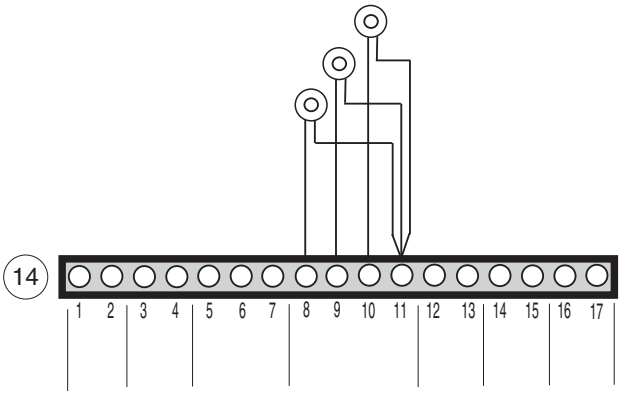
When the load monitor senses an overcurrent on one of the phases, the immersion heater will step down the output until it can be connected again.

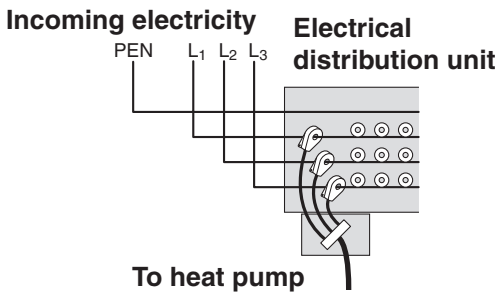
The control system must be set for the installation's main fuse so that the load monitor can work correctly. This is done using the knob (100), marked fuse on the load monitor card (2), which is positioned behind the centre front cover.

The supplied current sensor is connected to the terminal block's (14) terminals marked 8 to 11. Terminal 11 is the common conductor for the three current sensors. See figure.

Cable type: unscreened LiYY, screened LiYCY. Cable cross section, at least 2 x 0.25 for cable lengths up to 50 m.







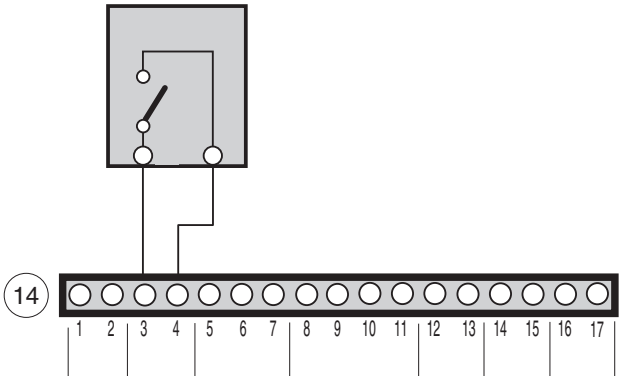
18 Electrical connection

External contacts

Contact for changing the room temperature

An external contact function can be connected to FIGHTER 360P to change the supply temperature and in doing so change the room temperature, for example, a room thermostat or a timer. The contact should be potential free and is connected between terminals 3 and 4 on terminal block (14) on the load monitor card (2).

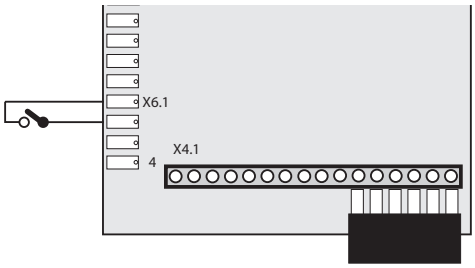
When the contact is made the supply temperature is higher or lower than the selected curve slope. The value for the change is set on menu 2.5, External adjustment. The value is adjustable between -5 and +5. One step corresponds to one step of the heating curve offset.



Contact for activation of Extra hot water

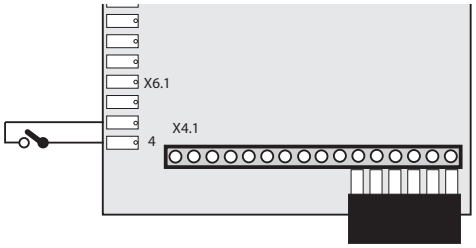
An external contact function can be connected to FIGHTER 360P for activation of the Temporary Extra hot water function. The contact should be potential free and non-locking and is connected via the edge board connector between positions 1 and 2 down on the lower part of the left connection row on the load monitor card (2).

When the contact makes for at least one second the Temporary Extra hot water function is activated. An automatic return to the previously set function occurs after 24 hours. This connection requires the accessory XTS 20.



Contact for activation of Fan speed II

An external contact function can be connected to FIGHTER 360P for activation of fan speed II. The contact should be potential free and non-locking and is connected via the edge board connector between positions 3 and 4 down on the lower part of the left connection row on the load monitor card (2). When the contact makes for at least one second Fan speed II is activated. The return to normal speed occurs according to the time set in menu 7.11, Return-time speed II. This connection requires the accessory XTS 20.



Alarm/alarm outputs

Low priority alarms

The following give a low priority alarm:

Filter monitor, the air filter needs to be cleaned three times a year. This is indicated as a low priority alarm and the operation of FIGHTER 360P is not generally disturbed by this.

Sensor alarm, fault on the low priority sensor gives a low priority alarm and the operating mode is switched to winter and any automatic operations are disabled. Low priority sensors are as follows:

Outdoor sensor-Evaporation sensor-Return sensor-Extract air sensor-Exhaust air sensor.

High priority alarms

The following give a high priority alarm:

High pressure switch (HP) has tripped. Indicated as HP-alarm. The compressor is blocked and FIGHTER 360P switches to electric boiler mode.

LP pressure switch (LP) has tripped. Indicated as LP-alarm. The compressor is blocked and FIGHTER 360P switches to electric boiler mode.

Temperature limiter (TB) has tripped. Indicated as a TL-alarm. The compressor and the immersion heater are blocked, any set automatic operations are disabled as the operating mode switches to spring/autumn.

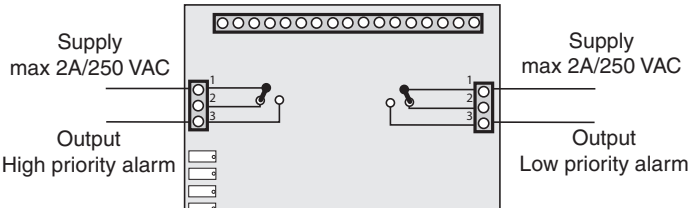
A supply sensor fault is indicated as a Sensor alarm. FIGHTER 360P is force-run solely for hot water charging.

A compressor sensor fault is indicated as a Sensor alarm. The compressor is blocked and FIGHTER 360P switches to electric boiler mode.

An immersion heater sensor fault is indicated as a Sensor alarm. Immersion heater operation is blocked, any set automatic operations are disabled as the operating mode switches to spring/autumn.

A hot water sensor fault is indicated as a Sensor alarm. FIGHTER 360P is force-run solely for hot water charging and automatic mode is engaged

External indication of alarms is possible through the relay function on the load monitor card (2).



In the event of an alarm and without power supply, the contact between 1 and 2 is made.

20 Commissioning and adjusting

Preparations

Check that the switch (8) is set to **0**.

Check that valves (44) and (50) are fully open and that the temperature limiter (6) has not tripped (press the button firmly).

Fill the condensation water hose (97) with a little water to prevent it making a noise. This is done by loosening the hose which is located on the waste water pipe (98) and pouring water in the end of the hose so a water seal arises. Refit the hose.

Filling the water heater and the heating system

- The water heater is filled by first opening a hot water tap and then opening the filling valve (46) fully. This valve should then remain fully open. When water comes out of the hot water tap, it can be closed.
- Open the filling valve (49). The boiler part of the heat pump and the radiator system are now filled with water.
- After a while the pressure gauge (42) will show rising pressure. When the pressure reaches 2.5 (bar) (approx. 25 mvp) a mixture of air and water starts to emerge from the safety valve (52). The filling valve then closed (49).
- Turn the safety valve (52) until the boiler pressure reaches the normal working range (0.5 - 1.5 bar).

Venting the heating system

NOTE! The pipe from the container must be drained of water before the air can be removed. This means that the system is not necessarily vented, despite water emerging from the safety valve (52) when it is opened for the first time.

- Vent FIGHTER 360P through the safety valve (52) and the rest of the heating system through the relevant venting valves.
- Keep topping up and venting until all air has been removed and the pressure is correct.

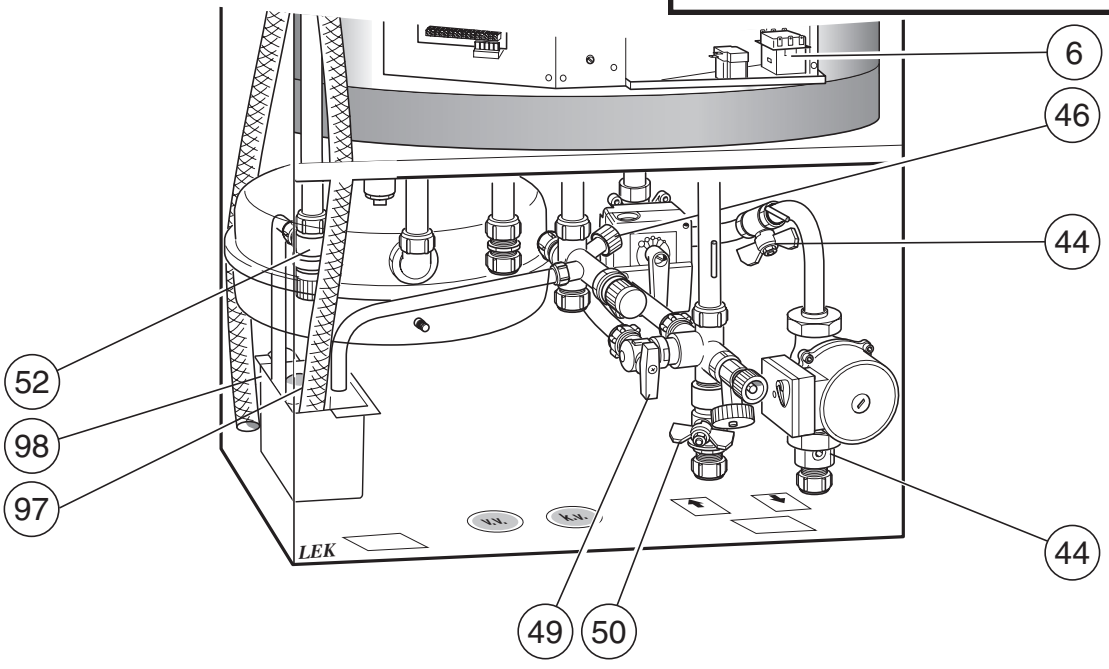
Starting

Set the switch (8) to 1. When the exhaust air temperature drops below 16 °C the compressor does not start. The immersion heater is then used for heating. Displayed as “Low exhaust air” in menu 1.0. When the exhaust air temperature exceeds 16 °C the compressor is permitted to start automatically.

Note! A large area is required to be heated during under-floor heating and therefore it takes a long time before the desired room temperature is reached. In addition, if the outdoor temperature is above +5 °C (Trend calculation parameter, menu 9.1.7), the heat pump's immersion heater will be blocked to save energy. However, this can be temporarily by-passed by activating extra hot water.

NOTE!

Heating curve in menu 2.1 and Max supply temp. in menu 2.5 are adjusted according to the heating system in question.



Commissioning and adjusting

Setting the ventilation

The ventilation flow and correct outlet on the fan terminal block (22) are set out on the ventilation drawing.

- Change the fan capacity by moving the grey cable on the fan terminal block (22) if necessary. Use the lowest possible output to obtain the lowest noise levels.
- Make sure that all outdoor air devices are fully open.
- Set correct ventilation flows on the exhaust air devices.

Now move the white and brown cables to obtain the required exhaust air flow for fan speeds I and II. The white cable corresponds to position I and the brown position II. Note however that the exhaust air flow must never fall below 110 m^3/h (31 l/s).

Readjustment

Air is initially released from the hot water and venting may be necessary. If bubbling sounds can be heard from the heat pump, the entire system requires further venting. NOTE! Safety valve (52) also acts as a manual venting valve. Operate it with care, since it opens quickly. When the system is stable (correct pressure and all air eliminated) the automatic heating control system can be set as required. See the section Room temperature - Setting the Automatic heating control system and Front panel.

Setting the fan capacity

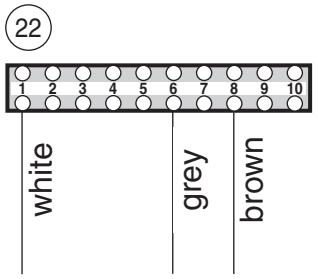
The ventilation capacity is selected by moving the brown, grey and white cables to an appropriate outlet on the terminal block (22). See the section, Ventilation connection - Fan diagram to choose appropriate connections.

The grey cable corresponds to the fan speed in normal mode. The white cable corresponds to speed I.
The brown cable corresponds to speed II.

Example:

Normal:	Lowest possible fan speed is chosen to obtain the planned ventilation flow (grey cable).
Speed II: (forced)	Highest possible fan speed is chosen, however consider ventilation noise (brown cable).
Speed I (reducing)	Lowest possible fan speed is chosen where the min flow is maintained (white cable).

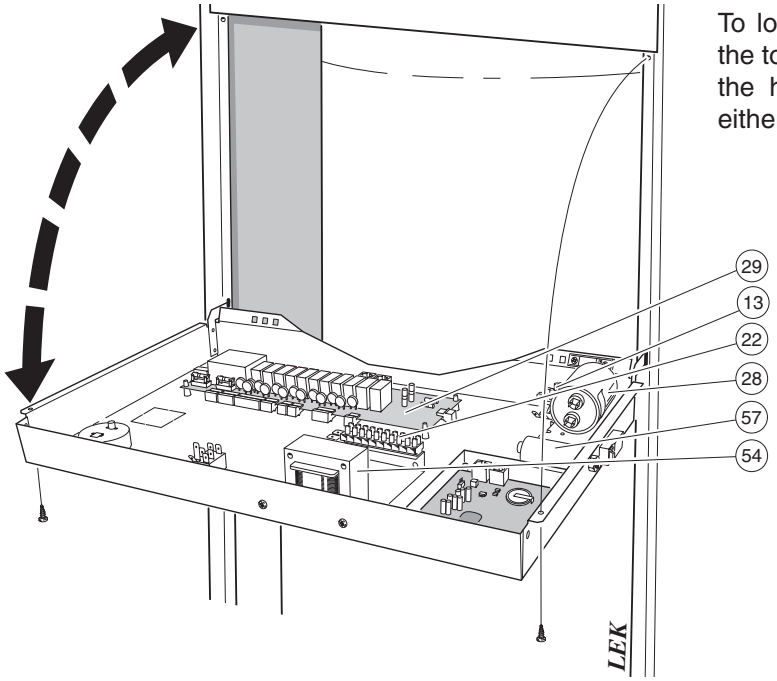
Outlet	Voltage (V)
1	100
2	110
3	125
4	140
5	155
6	170
7	185
8	200
9	215
10	230



In those cases the cable for normal mode is connected to terminal 10 on terminal block (22) a forced fan speed cannot be obtained. Two different reducing modes should then be chosen.

22 Commissioning and adjusting

Opening the front panel



To lower the front panel, unscrew the two screws at the top of the panel. The panel can then be lowered to the horizontal position (where it rests on stops on either side of the front panel).

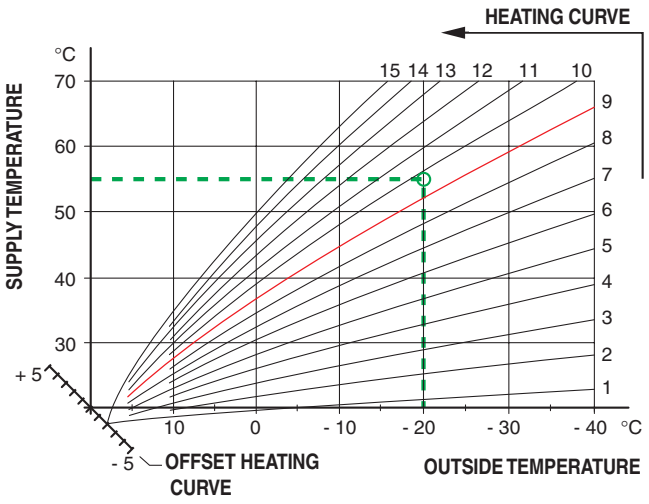
Setting using diagrams

FIGHTER 360P is equipped with outdoor temperature controlled automatic controls. This means the supply temperature is regulated in relation to the current outdoor temperature.

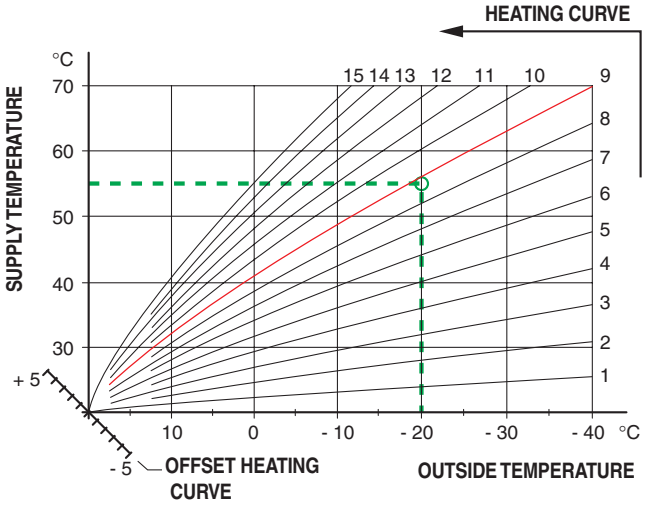
The diagram is based on the dimensioned outdoor temperature in the area and the dimensioned supply temperature of the heating system. When these two values meet, the heating control's curve slope can be read. This is set under menu 2.1, Heating curve.

A suitable value is set using the knob on the front panel, Offset heating curve (38). A suitable value for floor heating is -1 and for radiator systems -2.

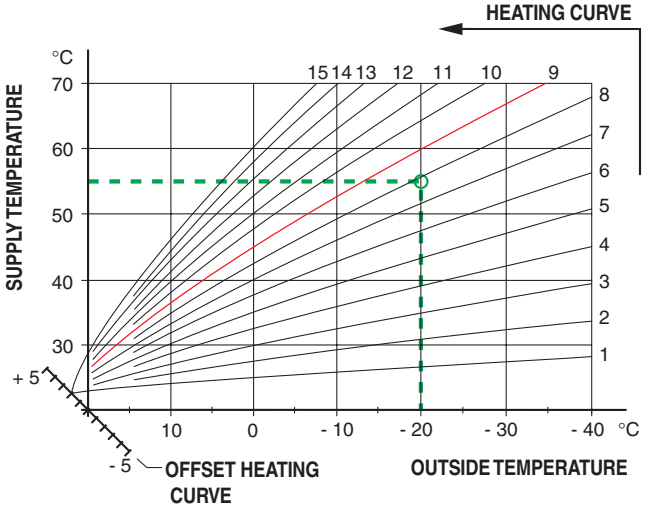
Offset heating curve -2



Offset heating curve 0



Offset heating curve +2



Changing parameters

The display screen shows information about the status of the heat pump.

The Plus and Minus buttons and the Enter button are used to scroll through the menu system as well as to change the set value in some menus.

The Plus button is used to move forward to the next menu on the current menu level and to increase the value of the parameter in menus where this is possible.

The Minus button is used to move back to the previous menu on the current menu level and to decrease the value of the parameter in menus where this is possible.

The Enter button is used to select submenus of the current menu, to permit parameters to be changed and confirm any changes to parameters. When the menu number ends with a zero this indicates there is a submenu.

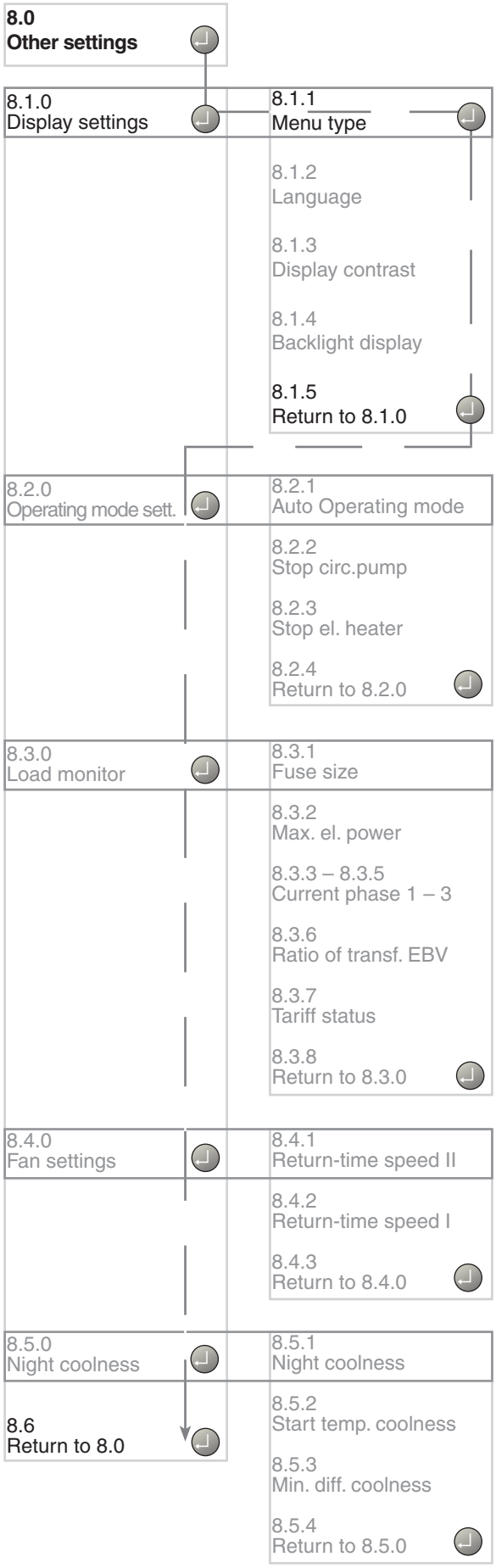
Changing a parameter (value):

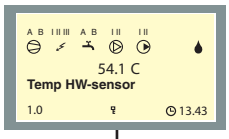
- Access the required menu.
- Press the Enter button, the numerical value starts to flash.
- Increase or decrease the value with the Plus/Minus buttons.
- Confirm by pressing the Enter button.
- Menu 1.0 is automatically displayed again 30 seconds after pressing the last button.

Example

Changing the Menu type/Service mode menu 8.1.1.

- The starting point is menu 1.0
- Press the plus button to move to menu 8.0
- Press the enter button to move to menu 8.1.0
- Press the enter button to move to menu 8.1.1
- Press the enter button to allow the value to be changed.
- Change the value using the plus or the minus button.
- Confirm the chosen value by pressing the enter button.
- Press the minus button to move to menu 8.1.5
- Press the enter button to move to menu 8.1.0
- Press the minus button to move to menu 8.4
- Press the enter button to move to menu 8.0
- Press the plus button to move to menu 1.0





1.0
Temp. HW-sensor

1.1
Temp. compr.sensor

1.2
Temp. el. heat.sens.

1.3
Interval per. XHW

1.4
Stop temperature XHW

1.5
Return to 1.0

2.0
Flow temperature

2.1
Heating curve

2.2
Offset heating curve

2.3
Min. flow temp.

2.4
Max. flow temp.

2.5
External adjustment

2.6
Return temperature

2.7
Return to 2.0

3.0
Flow temperature 2*

3.1
Heating curve 2

3.2
Offset heat. curve 2

3.3
Min. flow temp. 2

3.4
Max. flow temp. 2

3.5
External adjustment2

3.6
Return temperature 2

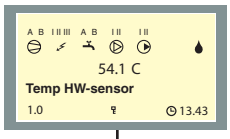
3.7
Return to 3.0

4.0
Outdoor temp.

4.1
Medium outdoor temp.

4.2
Return to 4.0

* Only shown when Shunt group 2 is On in menu 9.1.2.



5.0
Evaporating temp.

5.1
Vented air temp.

5.2
Exhaust air temp.

5.3
Stoptime defrosting

5.4
Compressor starts

5.5
Operat. time compr.

5.6
Alarm temp. exhaust

5.7
Return to 5.0

6.0
Room temp. settings*

6.1
Room balancing

6.2
Room balancing system

6.3
Set room temperature

6.4
Return to 6.0

7.0
Clock

7.1
Date

7.2
Time

7.3.0
Temp set back time 1

7.3.1
Temp set back time 1

7.3.2
Offset heating curve

7.3.3 – 7.3.9
Set time Mon – Sun

7.3.10
Return to 7.3.0

7.4.0
Temp set back time 2

7.4.1
Temp set back time 2

7.4.2
Offset heating curve

7.4.3 – 7.4.9
Set time Mon – Sun

7.4.10
Return to 7.3.0

7.5.0
Timer Extra Hotwater

7.5.1
Timer Extra Hotwater

7.5.2 – 7.5.8
Extra Hw Mon – Sun

7.5.9
Return to 7.5.0

7.6.0
Timer fan

7.6.1
Timer fan

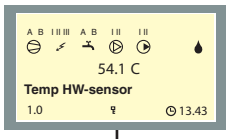
7.7
Start time per. XHW

7.6.2 – 7.6.15
Fan time Mon – Sun
Fan speed Mon – Sun

7.8
Return to 7.0

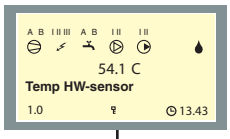
7.6.16
Return to 7.6.0

* Accessory room sensor needed.



8.0
Other settings

8.1.0 Display settings		8.1.1 Menu type
		8.1.2 Language
		8.1.3 Display contrast
		8.1.4 Backlight display
		8.1.5 Return to 8.1.0
8.2.0 Operating mode sett.	8.2.1 Auto Operating mode	
	8.2.2 Stop circ.pump	
	8.2.3 Stop el. heater	
	8.2.4 Return to 8.2.0	
8.3.0 Load monitor		8.3.1 Fuse size
		8.3.2 Max. el. power
		8.3.3 – 8.3.5 Current phase 1 – 3
		8.3.6 Ratio of transf. EBV
		8.3.7 Tariff status
		8.3.8 Return to 8.3.0
8.4.0 Fan settings	8.4.1 Return-time speed II	
	8.4.2 Return-time speed I	
	8.4.3 Return to 8.4.0	
8.5.0 Night coolness	8.5.1 Night coolness	
	8.5.2 Start temp. coolness	
	8.5.3 Min. diff. coolness	
	8.5.4 Return to 8.5.0	
8.6 Return to 8.0		



9.0
Servicemenues

9.1.0
Operating settings

9.1.1
Electric boiler

9.1.2
Shunt group 2

9.1.3
RCU

9.1.4
Circulation pump

9.1.5
Circulation pump 2

9.1.6
Factory pre-set

9.1.7
Trend calc. limit

9.1.8
Time factor el.heat.

9.1.9
Quickstart comp.

9.1.10
Quickstart el.heater

9.1.11
Delay compressor

9.1.12
Time HW to heat

9.1.13
Operating status

9.1.14
Room control mode

9.1.15
Temperature limiter

9.1.16
Return to 9.1.0

9.2.0
Floor drying setting

9.2.1
Op-mode floor drying

9.2.2
Floor drying day

9.2.3
No. of days per. 1

9.2.4
Temperature per. 1

9.2.5
No. of days per. 1

9.2.6
Temperature per. 2

9.2.7
Return to 9.2.0

9.3.0
Alarm log

9.3.1.0 - 9.3.6.0
Alarm 1 - 6

9.3.x.1
Type of alarm

9.3.x.2
Date

9.3.x.3
Time

9.3.x.4
Outdoor temperature

9.3.x.5
Flow temperature

9.3.x.6
Return temperature

9.3.x.7
Temp. HW-sensor

9.3.x.8
Temp. compr.sensor

9.3.x.9
Temp. el. heat.sens.

9.3.x.10
Evaporating temp.

9.3.x.11
Vented air temp.

9.3.x.12
Exhaust air temp.

9.3.x.13
Relay status 1 - 8

9.3.x.14
Relay status 9 - 14

9.3.x.15
Operating status

9.3.x.16
Return to 9.3.x.0

9.3.7
Clear the alarm log

9.3.8
Return to 9.3.0

9.4.0
Testing mode

9.4.1
Force control

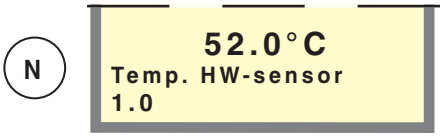
9.4.2
Relay 1 - 8

9.4.3
Relay 9 - 14

9.4.4
Return to 9.4.0

9.5
Return to 9.0

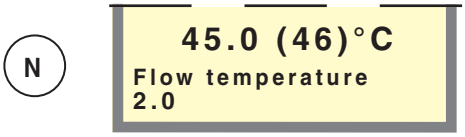
Main menus



Menu 1.0 Temp HW-sensor

The current water temperature (83) in the outer jacket roughly level with the water heater's lower end-plate is shown here. Note that the hot water temperature at the top of the tank is usually higher.

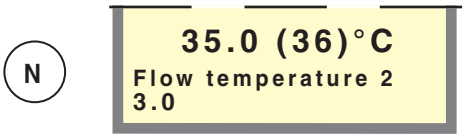
Settings and readings regarding hot water charging are made on the sub-menus to this menu.



Menu 2.0 Flow temperature

The current supply temperature (89) for the heating system is shown here with the calculated supply temperature in brackets.

Settings and readings regarding the heating system are set on the sub-menus to this menu 1.



Menu 3.0 Flow temperature 2

The current supply temperature (FG2) for the heating system is shown here with the calculated supply temperature in brackets.

Settings and readings regarding the heating system are set on the sub-menus to this menu 2.

Only shown when shunt group 2 is in the "On" position in menu 9.1.2.



Menu 4.0 Outdoor temperature

The current outdoor temperature on the outdoor sensor (15) is shown here.

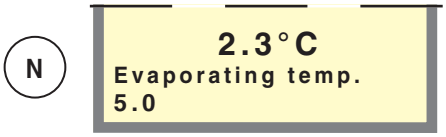
The outdoor, daily average temperature can be read from this sub-menu.

N Normal menus

S Service menus

U Expanded menus

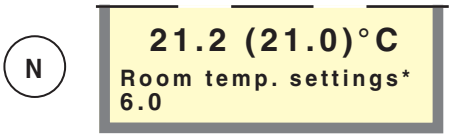
Menu type is changed in menu 8.1.1.



Menu 5.0 Evaporating temp.

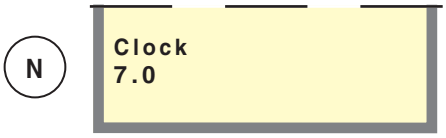
The current evaporation temperature is shown here. This is the temperature of the refrigerant when this has passed the expansion valve. Measured by sensor (86).

Temperatures can be read and settings made for the compressor from these sub-menus.



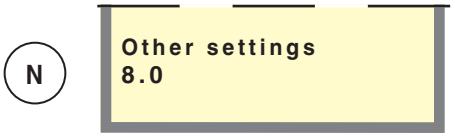
Menu 6.0 Room temperature/Settings*

Current room temperature is displayed here. Desired room temperature is displayed here within brackets. Settings regarding room temperature control can be made in the sub-menus to this menu.



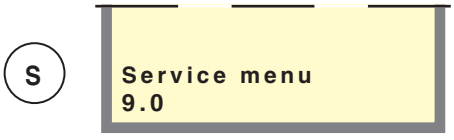
Menu 7.0 Clock

Settings regarding the date and time are made in the sub-menus of this menu. Even different temperature reductions and increases at selected times are set from this menu.



Menu 8.0 Other settings

Settings regarding the menu type, language, operating settings and load monitor readings are made in the sub-menus of this menu.



Menu 9.0 Service menu

This menu and its sub-menus are only shown on the display screen when access has been selected in menu 8.1.1.

Values can be read and various settings can be made from these sub-menus. NOTE! These settings should only be made by persons with the necessary expertise.

*Accessories needed

1.0 Temp. HW-sensor

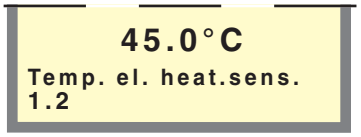
N



Menu 1.1 Temp. compr.sensor

Shows the current temperature on the compressor sensor (94).

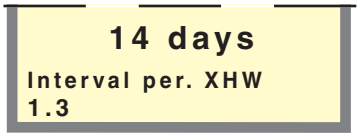
N



Menu 1.2 Temp. el. heat.sens.

Shows the current temperature on the immersion heater (88).

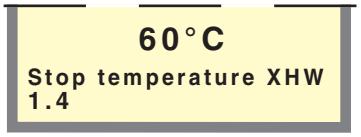
U



Menu 1.3 Interval per. XHW

How often the hot water temperature is increased from the normal level to the extra hot water level is chosen here. The value is adjustable between 1 and 90 days, or Off.

U



Menu 1.4 Stop temperature XHW

The required stop temperature for extra hot water is set here. The value is adjustable between 56 and 65 °C.

N

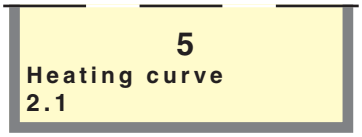


Menu 1.5 Return

Return to Menu 1.0.

2.0 Flow temperature

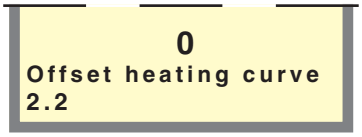
N



Menu 2.1 Heating curve

The curve slope for heating curve is chosen here. The value can be set between curve 1 and 15.

N



Menu 2.2 Offset heating curve

The selected heating curve offset is shown here. The value is adjustable between -10 and +10. NOTE! The value is changed using the Offset heating curve knob.

U



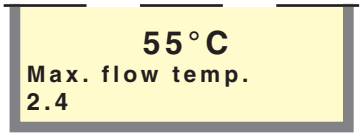
Menu 2.3 Min. flow temp.

The set minimum level for the supply temperature to the heating system is shown here.

The calculated flow temperature never drops below the set level irrespective of the outdoor temperature, curve slope or offset heating curve.

The value is adjustable between 10 and 65 °C.

U



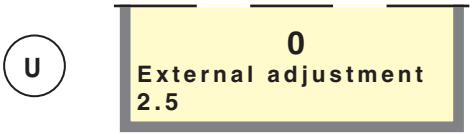
Menu 2.4 Max. flow temp.

The set maximum level for the supply temperature to the heating system is shown here.

The calculated flow temperature never exceeds the set level irrespective of the outdoor temperature, curve slope or offset heating curve.

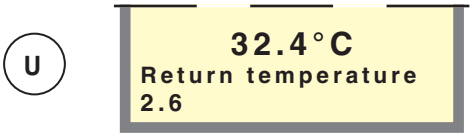
The value is adjustable between 10 and 65 °C.

2.0 Flow temperature



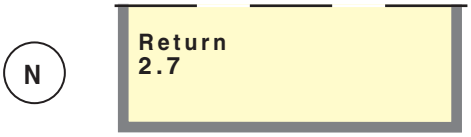
Menu 2.5 External adjustment

Connecting an external contact, see Electrical connections - External contacts, for example, a room thermostat (RT10, accessory) or a timer allows you to temporarily or periodically raise or lower the room temperature. When the external contact is made, the heating curve offset is changed by the number of steps shown here. The value is adjustable between -10 and +10.



Menu 2.6 Return temperature

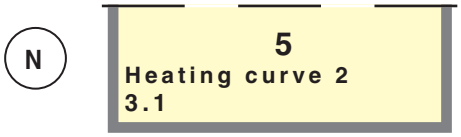
The current temperature of the return water from the heating system on the sensor (93) is shown here.



Menu 2.7 Return

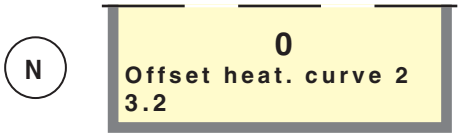
Return to Menu 2.0.

3.0 Flow temperature 2



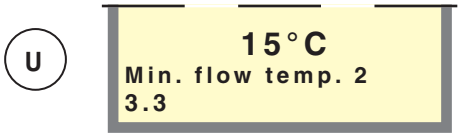
Menu 3.1 Heating curve 2

The curve slope for heating curve 2 is chosen here. The value can be set between curve 1 and 15.



Menu 3.2 Offset heat. curve 2

The offset heating curve 2 is chosen here. The value is adjustable between -10 and +10.

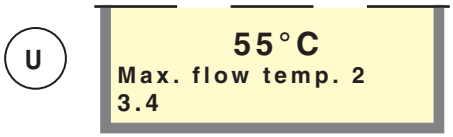


Menu 3.3 Min. flow temp. 2

The set minimum level for flow temperature 2 to the heating system is shown here.

The calculated flow temperature never drops below the set level irrespective of the outdoor temperature, curve slope or offset heating curve.

The value is adjustable between 10 and 65 °C.



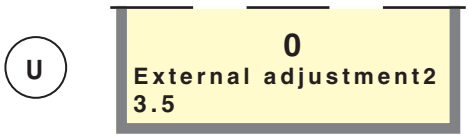
Menu 3.4 Max. flow temp. 2

The set maximum level for flow temperature 2 to the heating system is shown here.

The calculated flow temperature never exceeds the set level irrespective of the outdoor temperature, curve slope or offset heating curve.

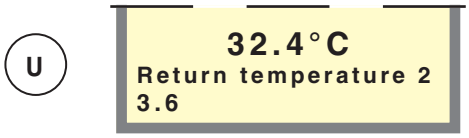
The value is adjustable between 10 and 65 °C.

3.0 Flow temperature 2



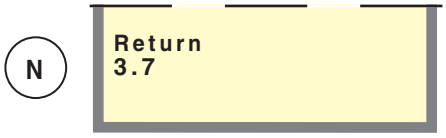
Menu 3.5 External adjustment2

Connecting an external contact, see Electrical connections - External contacts, for example, a room thermostat (RT10, accessory) or a timer allows you to temporarily or periodically raise or lower the room temperature. When the external contact is made, the heating curve 2 offset is changed by the number of steps chosen. The value is adjustable between -10 and +10.



Menu 3.6 Return temperature 2

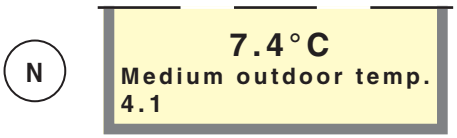
The current temperature of the return water from heating system 2 is shown here.



Menu 3.7 Return

Return to Menu 3.0.

4.0 Outdoor temperature



Menu 4.1 Medium outdoor temp.

The average outdoor temperature over the last 24 hours.



Menu 4.2 Return

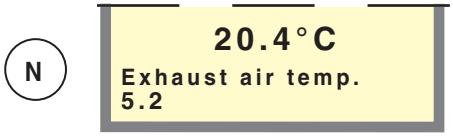
Return to Menu 4.0.

5.0 Evaporating temperature



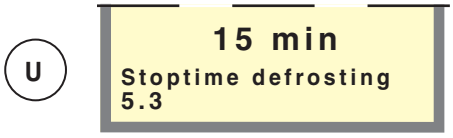
Menu 5.1 Vented air temp.

The current extract air temperature is shown here. This is the temperature of the ventilation air when it has passed the heat pump. Measured by sensor (87).



Menu 5.2 Exhaust air temp.

The current exhaust air temperature is shown here. This is the temperature of the ventilation air before it passes the heat pump. Measured by sensor (92).



Menu 5.3 Stoptime defrosting

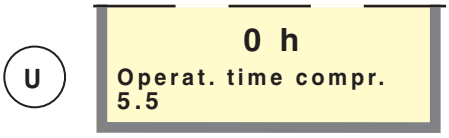
The required defrosting time is set here, i.e. the time that the compressor is at a standstill so that evaporator defrosting can take place when necessary. The value is adjustable between 15 and 25 minutes.

5.0 Evaporating temperature



Menu 5.4 Compressor starts

The number of times that the compressor has been started since the first start up is shown here. The value is saved in the microprocessor and thus is not reset even when the heat pump is switched off using the main power switch.



Menu 5.5 Operat. time compr.

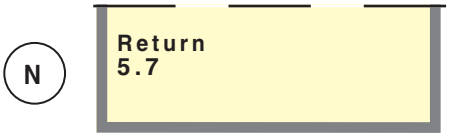
The number of hours that the compressor has been in operation since the first start up is shown here. The value is saved in the microprocessor and thus is not reset even when the heat pump is switched off using the main power switch.



Menu 5.6 Alarm temp. exhaust

When the exhaust air temperature falls below this value, the alarm is shown on the display.

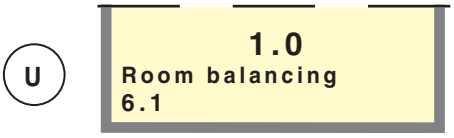
The value is adjustable between 1 and 20 °C. Even in the Off position.



Menu 5.7 Return

Return to Menu 5.0.

6.0 Room temp. settings*

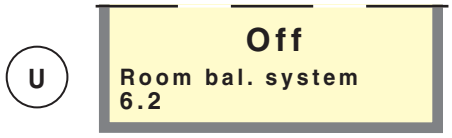


Menu 6.1 Room balancing

The factor that determines how much a deviation between desired and actual room temperature is to affect the supply temperature.

The factor is multiplied by the deviation and corrects the calculated supply temperature with this number. If the deviation is 1 °C and the factor is 3, the flow line temperature changes by 3 °C.

The factor can be adjusted between 0 and 6 in increments of 0.1.



Menu 6.2 Room balancing system

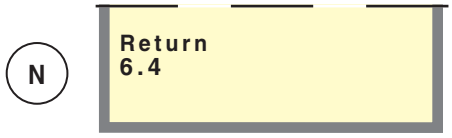
The heating system that the room sensor is to affect is selected here. Can be set to ”Off”, ”Heating system 1”, ”Heating system 2” or ”Heating system 1+2”.



Menu 6.3 Set room temperature

The desired room temperature is set here. Only used when RG05 connected.

The value can be set between 10.0 and 30.0 °C in increments of 0.5 °C.

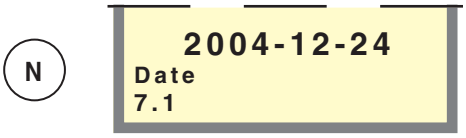


Menu 6.4 Return

Return to Menu 6.0.

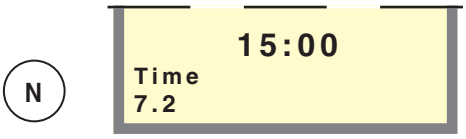
* Requires accessory RG 05 or RG 10 and activation in menu 9.1.14

7.0 Clock



Menu 7.1 Date

The current date is set here.



Menu 7.2 Time

The current time is set here.



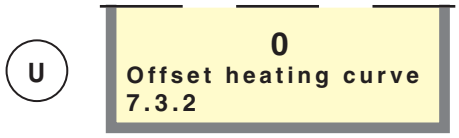
Menu 7.3.0 Temp set back time 1

Settings, e.g. for night reduction can be selected in the sub-menus to this menu.



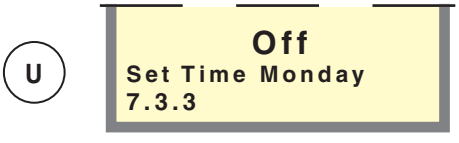
Menu 7.3.1 Temp set back time 1

Here you set which heating system is to be influenced by day changes period 1. When heating system 2 is installed both system 1 and 2 can be selected. Can also be set to Off.



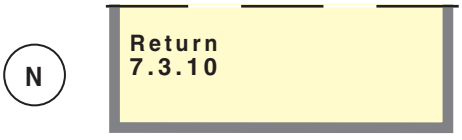
Menu 7.3.2 Offset heating curve

The offset heating curve with day change, e.g. night reduction is chosen here (and with that the room temperature). The value is adjustable between -10 and +10.



Menu 7.3.3 – 7.3.9 Set Time Monday – Sunday

The time for the day change, e.g. night reduction is chosen here.



Menu 7.3.10 Return

Return to Menu 7.3.0.



Menu 7.4.0 Temp set back time 2

Settings, e.g. for night reduction can be selected in the sub-menus to this menu.



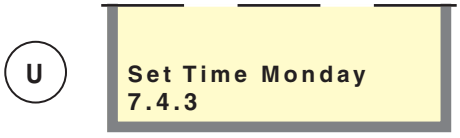
Menu 7.4.1 Temp set back time 2

Here you set which heating system is to be influenced by day changes period 1. When heating system 2 is installed both system 1 and 2 can be selected. Can also be set to Off.



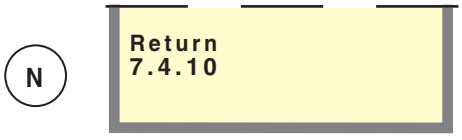
Menu 7.4.2 Offset heating curve

The offset heating curve with day change, e.g. night reduction is chosen here (and with that the room temperature). The value is adjustable between -10 and +10.



Menu 7.4.3 – 7.4.9 Set Time Monday – Sunday

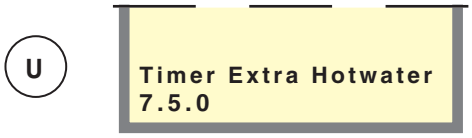
The time for the day change, e.g. night reduction is chosen here.



Menu 7.4.10 Return

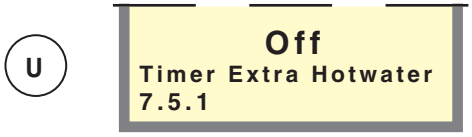
Return to Menu 7.4.0.

7.0 Clock



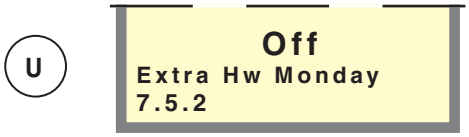
Menu 7.5.0 Timer Extra Hotwater

Settings are made in the sub-menus of this menu when extra hot water is required on a specific day.



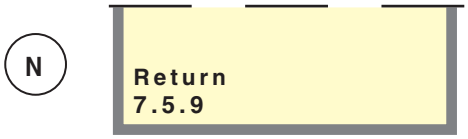
Menu 7.5.1 Timer Extra Hotwater

You choose here whether the time setting should be On or Off.



Menu 7.5.2 – 7.5.8 Extra HW Monday – Sunday

Here you select the period for respective days when extra hot water should be activated. Hours and minutes for both start and stop are shown The same start and stop time deactivates Extra hot water.



Menu 7.5.9 Return

Return to Menu 7.5.0.



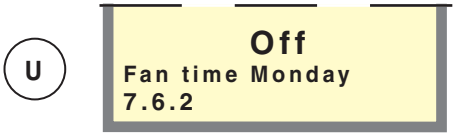
Menu 7.6.0 Timer fan

Fixed time changes in the fan speed can be defined in the sub-menus to this menu.



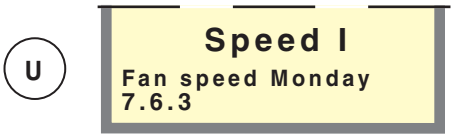
Menu 7.6.1 Timer fan

You choose here whether the time setting for the fan should be on or off.



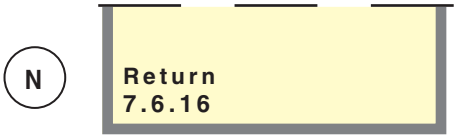
Menu 7.6.2 – 7.6.14 Fan time Monday – Sunday

Here you select the period for respective days when the fan time should be activated. Hours and minutes for both start and stop are shown The same start and stop time deactivates the fan time.



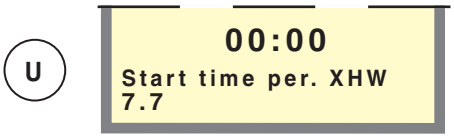
Menu 7.6.3 – 7.6.15 Fan speed Monday – Sunday

The fan speed during the time period set in the previous menu is selected here.



Menu 7.6.16 Return

Return to Menu 7.6.0.



Menu 7.7 Start time per. XHW

The time of day when the periodic increase should start is chosen here. (Number of days between increases is set in menu 1.3)



Menu 7.8 Return

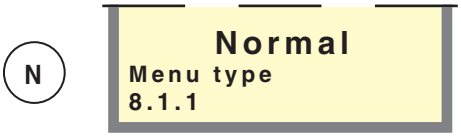
Return to Menu 7.0.

8.0 Other settings



Menu 8.1.0 Display settings

Settings concerning language and menu type are set on the sub-menus to this menu.



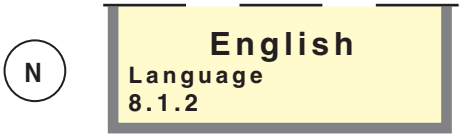
Menu 8.1.1 Menu type

The required menu type is selected here: Normal, extended or service.

N Normal, shows the menus normal users need.

U Extended, shows all menus except the service menus.

S Service, shows all menus, returns to the previous menu level 30 minutes after the last button was pressed.



Menu 8.1.2 Language

The display language is chosen here.



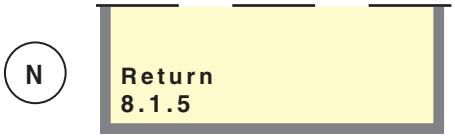
Menu 8.1.3 Display contrast

The display's contrast is set here. The value is adjustable between 0 and 31.



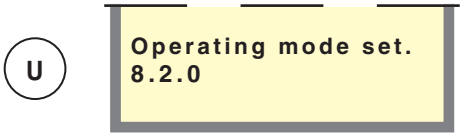
Menu 8.1.4 Backlight display

The display's background lighting in idle mode is set here. Idle mode starts 30 minutes after the last button was pushed. Can be set to Normal, Low or Off



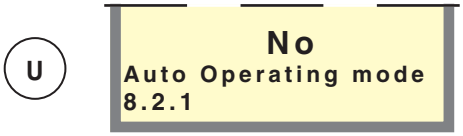
Menu 8.1.5 Return

Return to Menu 8.1.0.



Menu 8.2.0 Operating mode set.

Settings regarding the operating mode can be made in the sub-menus to this menu.



Menu 8.2.1 Auto Operating mode

Here you select whether blocking of the circulation pump and immersion heater should take place automatically as a function of the outdoor temperature (position Yes) or whether blocking should take place manually via the operating mode button (position No).

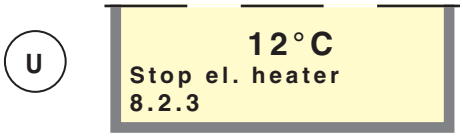
Automatic operating mode can also be selected with the operating mode button.



Menu 8.2.2 Stop circ.pump

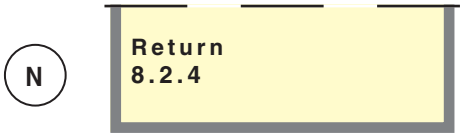
Here you select at what outdoor temperature the circulation pump automatically stops, i.e. at what temperature heat production ceases and the system switches to summer mode. The function only comes into force when Yes is selected in menu 8.2.1. The value is adjustable between 10 and 25 °C.

8.0 Other settings



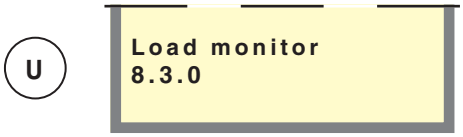
Menu 8.2.3 Stop el. heater

Here you select the outdoor temperature that automatically blocks the immersion heater, i.e. the temperature when additional energy is not used and the system should switch to spring/autumn mode. The function only comes into force when Yes is selected in menu 8.2.1. The value is adjustable between -5 °C and set value for the circulation pump (10 – 25 °C) from the menu 8.2.2.



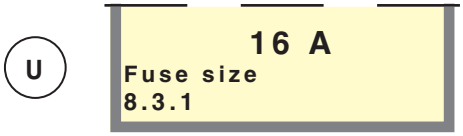
Menu 8.2.4 Return

Return to Menu 8.2.0.



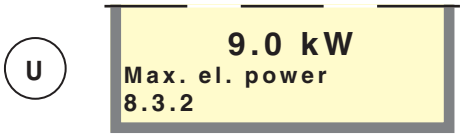
Menu 8.3.0 Load monitor

Settings and readings regarding the load monitor are set on the sub-menus to this menu.



Menu 8.3.1 Fuse size

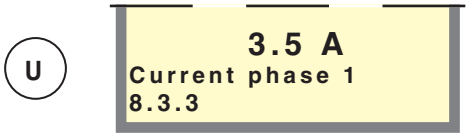
The setting selected on the EBV card (2) knob (100) is shown here.



Menu 8.3.2 Max. el. power

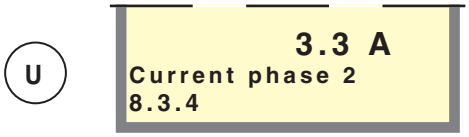
The setting selected on the EBV card (2) knob (101) is shown here.

Note: If a tariff is closed, only the allowed power is shown here.



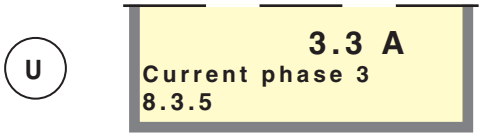
Menu 8.3.3 Current phase 1

Shows the measured current from phase 1. If the value falls below 2.0 A Low is shown.



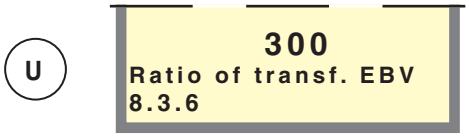
Menu 8.3.4 Current Phase 2

Shows the measured current from phase 2. If the value falls below 2.0 A Low is shown.



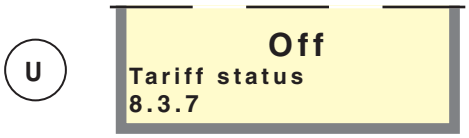
Menu 8.3.5 Current Phase 3

Shows the measured current from phase 3. If the value falls below 2.0 A Low is shown.



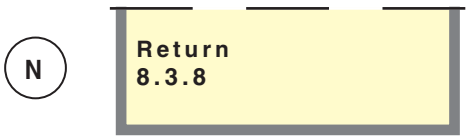
Menu 8.3.6 Ratio of transf. EBV

The transfer value must be defined depending on the current transformers used for the EBV card. The value is adjustable between 100 and 900 in increments of 10. The setting 300 applies for the supplied current transformers.



Menu 8.3.7 Tariff status

Shows the current tariff status.



Menu 8.3.8 Return

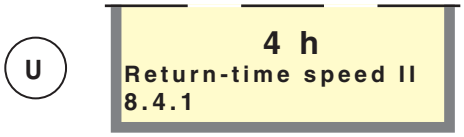
Return to Menu 8.3.0.

8.0 Other settings



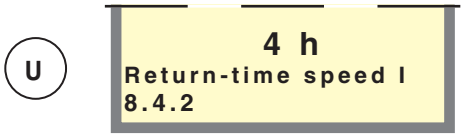
Menu 8.4.0 Fan settings

Settings and readings regarding fan speed are made on the sub-menus to this menu.



Menu 8.4.1 Return-time speed II

Here you select the time that should apply for fan speed II when activated using the Fan speed button, i.e. when the return to normal fan speed should take place. The value can be set from 1 to 10 hours.



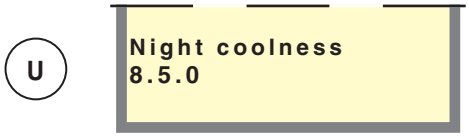
Menu 8.4.2 Return-time speed I

Here you select the time that should apply for fan speed I when activated using the Fan speed button, i.e. when the return to normal fan speed should take place. The value can be set within the ranges 1 to 10 hours or 1 to 16 days.



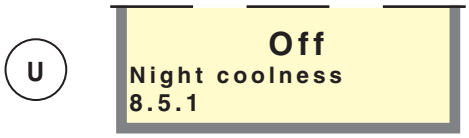
Menu 8.4.3 Return

Return to Menu 8.4.0.



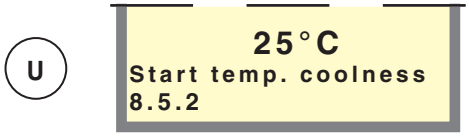
Menu 8.5.0 Night coolness

Pressing the enter button takes you to sub-menus where readings and settings concerning night coolness are made. When the temperature in the house is high and the outdoor air temperature is lower, a cooling effect can be obtained by forcing the fan speed.



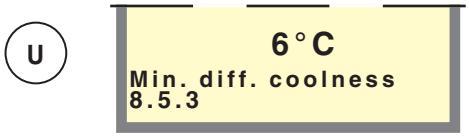
Menu 8.5.1 Night coolness

The night coolness is set On or Off here.



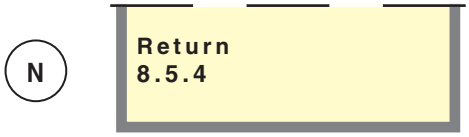
Menu 8.5.2 Start temp. coolness

At what temperature on the exhaust air sensor (92) should night cooling start.



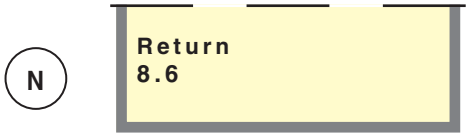
Menu 8.5.3 Min. diff. coolness

The minimum difference between the exhaust air temperature and the outdoor air temperature for night cooling to be activated is chosen here.



Menu 8.5.4 Return

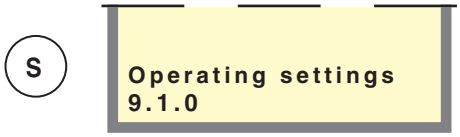
Return to Menu 8.5.0.



Menu 8.6 Return

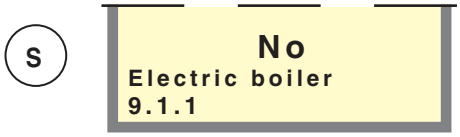
Return to Menu 8.0.

9.0 Service menu



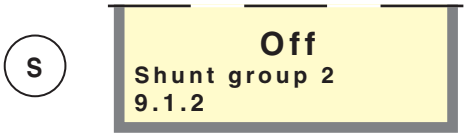
Menu 9.1.0 Operating settings

Settings regarding additional heat, floor drying and a return to the factory settings can be made on the sub-menus in this menu.



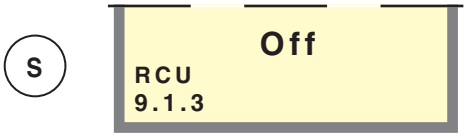
Menu 9.1.1 Electric boiler

The heat pump can be set in electric boiler mode from here. This mode means the compressor is blocked, but all other components function as normal. This mode can be activated if a fault is discovered on the compressor or any other component in the cooling circuit. Note no energy savings are made in this mode. Once the fault has been rectified the heat pump should be switched to normal mode again. The electric boiler mode is activated when Yes is shown on the display screen, otherwise No is shown. When the electric boiler mode is activated, the immersion heater respective circulation pump cannot be blocked with the operating mode button.



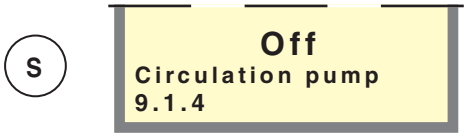
Menu 9.1.2 Shunt group 2

Here you select whether shunt group 2 is connected. NOTE! Requires accessories.



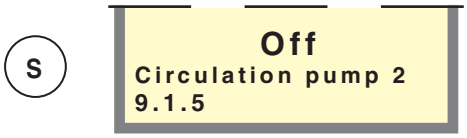
Menu 9.1.3 RCU

The RCU (accessory) is set On or Off here.



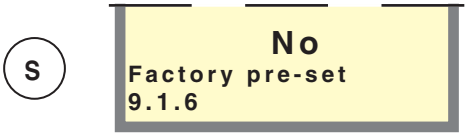
Menu 9.1.4 Circulation pump

The operating mode of the circulation pump for the heating system can be force controlled from this menu. When On is selected the circulation pump runs constantly. When Off is selected the circulation pump is blocked. Note however that a change in the operating mode using the operating mode button disables the change made in this menu.



Menu 9.1.5 Circulation pump 2

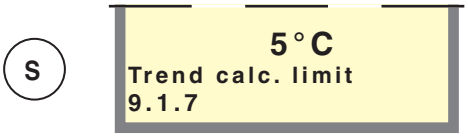
The operating mode for circulation pump 2 for the heating system can be force-controlled from this menu. When On is selected the circulation pump runs constantly. When Off is selected the circulation pump is blocked. Note however that a change in the operating mode using the operating mode button disables the change made in this menu.



Menu 9.1.6 Factory pre-set

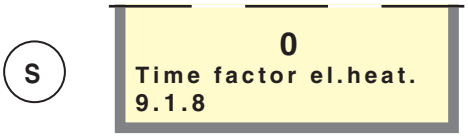
Select Yes and press the enter button to restore the heat pump to the factory settings.

Once the factory settings have been restored the heat pump returns to Menu 1.0.



Menu 9.1.7 Trend calc. limit

At what outdoor temperature trend calculating ceases is selected here. Below this limit trend calculating is not used to enable the additional heat. The value is adjustable between 0 and 20 °C.



Menu 9.1.8 Time factor el.heat.

The time factor of the immersion heater since first start up is shown here. The value is saved in the microprocessor and thus is not reset even when the heat pump is switched off using the main power switch.

9.0 Service menu



Menu 9.1.9 Quickstart comp.

Select Yes in order to reduce the pressure-compensating time to 0 and in doing so permit a quick start of the compressor.

NOTE! The setting returns to No as soon as the heat pump has implemented the action.



Menu 9.1.10 Quickstart el.heater

Normally the electrical output of the immersion heaters is limited to a maximum of 6 kW for the first two hours after the heat pump has been started, i.e. after the main power switch has been set to 1.

Selecting Yes in this menu disengages the two-hour delay.

NOTE! The setting returns to No as soon as the heat pump has implemented the action.



Menu 9.1.11 Delay compressor

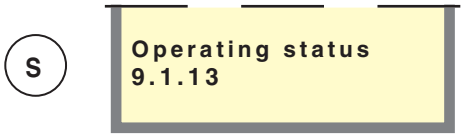
Displays the time to next possible compressor start.



Menu 9.1.12 Time HW to heat

The time between hot water charging and heating is set here.

The time is adjustable between 1 and 120 minutes.



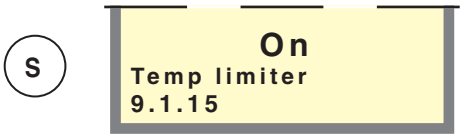
Menu 9.1.13 Operating status

Displays the current operating status (How water/ Switch status/Heating).



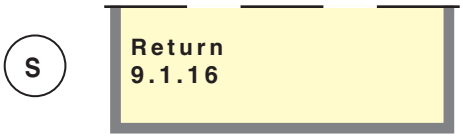
Menu 9.1.14 Room control mode

Any room sensors are activated here. The menu can be set to “Off”, “RG05”, “RG10” or "RE10". Accessories are needed.



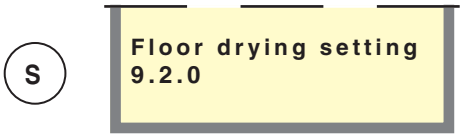
Menu 9.1.15 Temperature limiter

Here the temperature limiter alarm can be selected to be activated or not. Note that the temperature limiter is always active – only the alarm indication can be turned off.



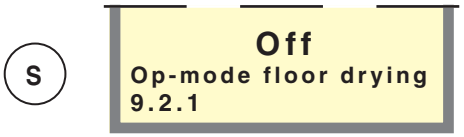
Menu 9.1.16 Return

Return to Menu 9.1.0.



Menu 9.2.0 Floor drying setting

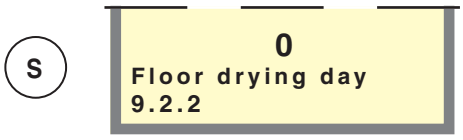
Pressing the enter button takes you to sub-menus for the floor drying settings.



Menu 9.2.1 Op-mode floor drying

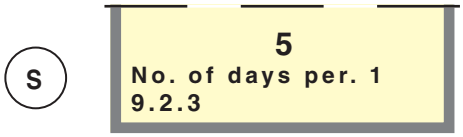
The operating mode for the floor drying function is set here. Selectable modes are:
Off: Normal operation, i.e. the floor drying function is switched off.
Own program: Two fixed temperatures in two periods are adjustable in menu 9.2.3 to 9.2.6.
Fixed program: The flow temperature starts day 0 at 20 degrees and increases each day by 5 degrees. Day 5 the temperature has reached 45 degrees, which is maintained on days 6 and 7. The program is ended on days 8 to 12 with the temperature dropping by 5 degrees each day.

9.0 Service menu



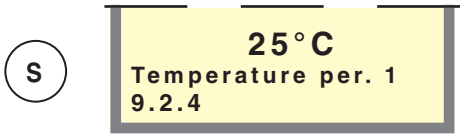
Menu 9.2.2 Floor drying day

Here you can see which day the floor drying function is on. It is also possible here to enter the floor drying program by changing this value. The value is adjustable from 0 to 20 days. The factory setting is 0.



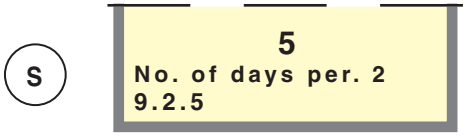
Menu 9.2.3 No. of days per. 1

Here you set the number of days that the flow temperature shall maintain the temperature in menu 9.2.4 when Own program in menu 9.2.1 is selected. The value is adjustable between 1 and 10 days.



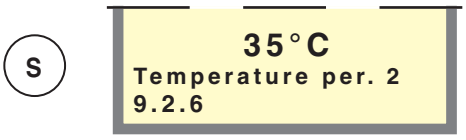
Menu 9.2.4 Temperature per. 1

Here you set the temperature to be maintained on the flow line sensor (FG) during period 1 when Own program is selected in menu 9.2.1. The value is adjustable between 15 and 50 °C.



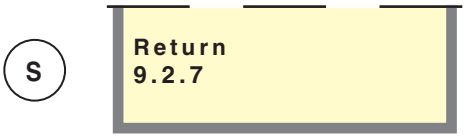
Menu 9.2.5 No. of days per. 2

Here you set the number of days that the flow temperature shall maintain the temperature in menu 9.2.6 when Own program in menu 9.2.1 is selected. The value is adjustable between 1 and 10 days.



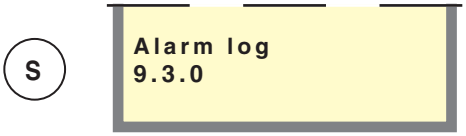
Menu 9.2.6 Temperature per. 2

Here you set the temperature to be maintained on the flow line sensor (FG) during period 2 when Own program is selected in menu 9.2.1. The value is adjustable between 15 and 50 °C.



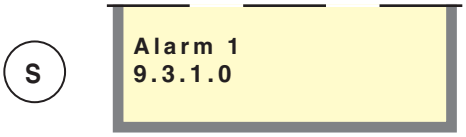
Menu 9.2.7 Return

Return to Menu 9.2.0.



Menu 9.3.0 Alarm log

Pressing the enter button takes you to sub-menus where all operating disturbances and the heat pump's status are logged.

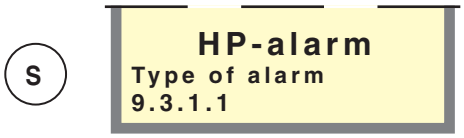


Menu 9.3.1.0 Alarm 1 – 6

Pressing the enter button takes you to sub-menus where the status is shown for the heat pump when the different operating disturbances have occurred. The alarms are sorted chronologically, which means alarm 1 is always the most recent. (When there are no alarms stored, pressing enter has no effect.)

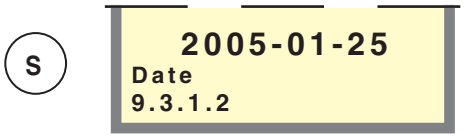
x in the following menus represents the alarm number.

9.0 Service menu



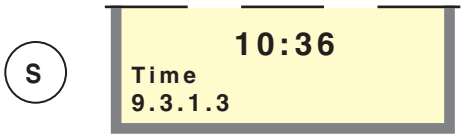
Menu 9.3.x.1 Type of alarm

Shows which alarm has occurred, for example, HP-alarm / TB-alarm, etc.



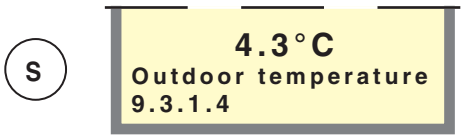
Menu 9.3.x.2 Date

Shows the date when the current alarm tripped.



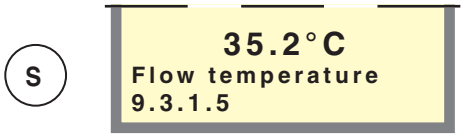
Menu 9.3.x.3 Time

Shows the time when the current alarm tripped.



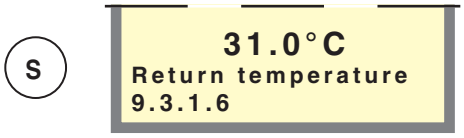
Menu 9.3.x.4 Outdoor temperature

Shows the outdoor temperature on the sensor (15) when the current alarm tripped.



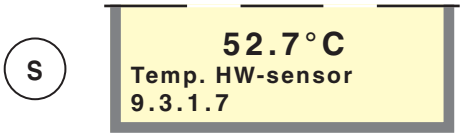
Menu 9.3.x.5 Flow temperature

Shows the flow temperature on the sensor (89) when the current alarm tripped.



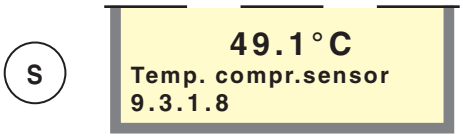
Menu 9.3.x.6 Return temperature

Shows the return temperature on the sensor (93) when the current alarm tripped.



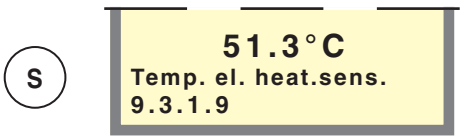
Menu 9.3.x.7 Temp. HW-sensor

Shows the temperature on the hot water sensor (83) when the current alarm tripped.



Menu 9.3.x.8 Temp. compr.sensor

Shows the temperature on the compressor sensor (94) when the current alarm tripped.



Menu 9.3.x.9 Temp. el. heat.sens.

Shows the temperature on the immersion heater sensor (88) when the current alarm tripped.



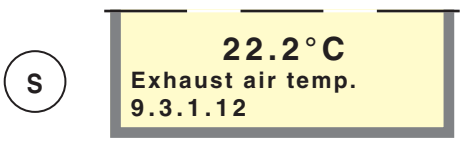
Menu 9.3.x.10 Evaporating temp.

Shows the evaporation temperature on the sensor (86) when the current alarm tripped.



Menu 9.3.x.11 Vented air temp.

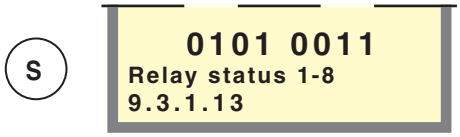
Shows the extract air temperature on the sensor (87) when the current alarm tripped.



Menu 9.3.x.12 Exhaust air temp.

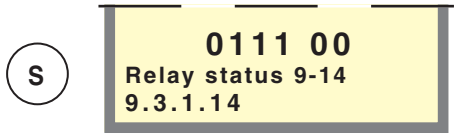
Shows the exhaust air temperature on the sensor (92) when the current alarm tripped.

9.0 Service menu



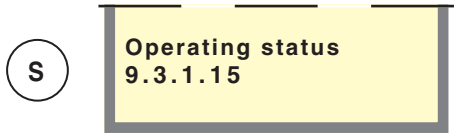
Menu 9.3.x.13 Relay status 1 8

Shows the relay status for relays 1-8 (relay 1 to the far left) when the current alarm tripped.



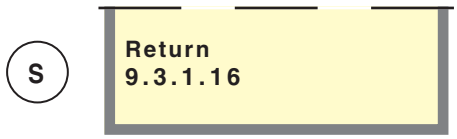
Menu 9.3.x.14 Relay status 9–14

Shows the relay status for relays 9-14 (relay 9 to the far left) when the current alarm tripped.



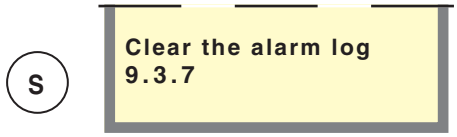
Menu 9.3.x.15 Operating status

Shows the heat pump's operating status when the current alarm tripped.



Menu 9.3.x.16 Return

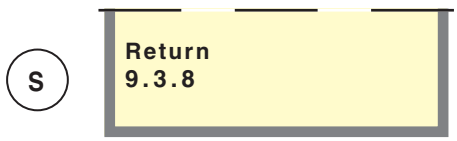
Return to Menu 9.3.x.0.



Menu 9.3.7 Clear the alarm log

Select Yes to clear the alarm log.

NOTE! The setting returns to No as soon as the heat pump has implemented the action.

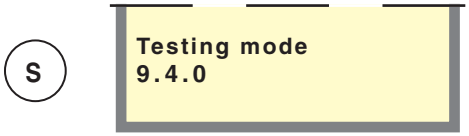


Menu 9.3.8 Return

Return to Menu 9.3.0.

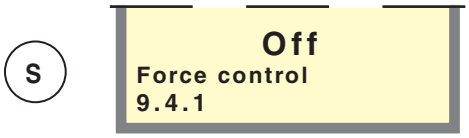
NOTE!

Incorrect management of the menus below can seriously damage the heat pump!



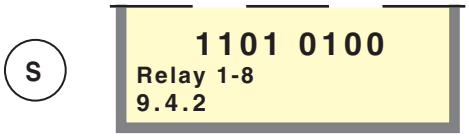
Menu 9.4.0 Testing mode

Pressing the enter button takes you to sub-menus that can be used during installation to check that the correct connection has been carried out.



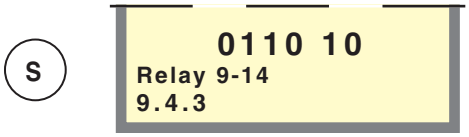
Menu 9.4.1 Force control

When this menu is set to On, the user temporarily takes control of the relays on the relay card. The setting automatically returns to Off, 30 minutes after the last button was pushed or after a restart.



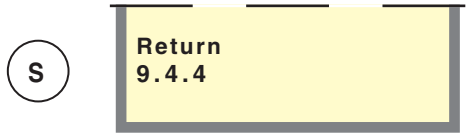
Menu 9.4.2 Relay 1 – 8

Shows the relay status for relays 1–8 (relay 1 to the far left). It is possible to force the relay to the required position using the enter button. The menu is only shown when menu 9.4.1 is set to On.



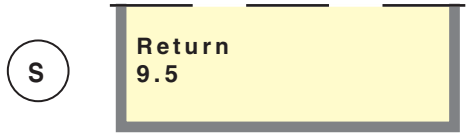
Menu 9.4.3 Relay 9 – 14

Shows the relay status for relays 9–14 (relay 9 to the far left). It is possible to force the relay to the required position using the enter button. The menu is only shown when menu 9.4.1 is set to On.



Menu 9.4.4 Return

Return to Menu 9.4.0.



Menu 9.5 Return

Return to Menu 9.0.

44 Actions with operating disturbances

In the event of malfunctions or operating disturbances first check the points below:

Low temperature or a lack of hot water

NOTE! The hot water capacity can be increased for 24 hours by pressing in the button (18).

- Large amounts of hot water were used.
- Circuit or main MCB tripped.
- Possible earth circuit-breaker tripped.
- Switch (8) set to **0**.
- MCB (7) tripped. See the section Dealing with malfunctions – Resetting the miniature circuit breakers.
- Tripped temperature limiter (6). (Contact service)
- Switch (25) not correctly set.
- Closed or throttled filler valve (46) on the water heater.

Low or a lack of ventilation

- Filter (63) clogged (possibly replace).
- Exhaust air device blocked or throttled down too much.
- Circuit or main MCB tripped.
- Possible earth circuit-breaker tripped.
- MCB (7) tripped. See the section Dealing with malfunctions – Resetting the miniature circuit breakers.
- Fan speed reduced (position I and/or position II) or Off is activated.

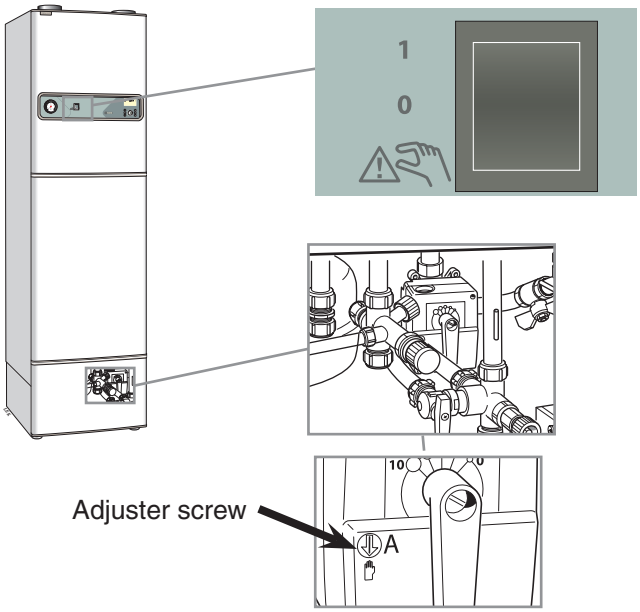
Low room temperature

- Circuit or main MCB tripped.
- Possible earth circuit-breaker tripped.
- MCB (7) tripped. See the section Dealing with malfunctions – Resetting the miniature circuit breakers.
- Tripped temperature limiter (6). (Contact service).
- Incorrect values for the parameters Max. supply temp. (menu 2.5), Heating curve (menu 2.1) or Off-set heating curve (menu 2.2).
- Circulation pump (16) stopped. See the section Dealing with malfunctions – Starting the pump.
- Air in boiler or system.
- Close valves (44) and (50) in the radiator circuit.
- Initial pressure in expansion vessel too low. This is indicated by low pressure on the pressure gauge (42). Contact the installer.

High room temperature

- Incorrect values for the parameters Max. supply temp. (menu 2.5), Heating curve (menu 2.1) or Off-set heating curve (menu 2.2).

Switch position "⚠"



In the "⚠" position the heat pump's compressor and electronic control are disabled.

The fan is operational (speed I) and the immersion heater is controlled by a separate thermostat.

The numerical display is off The automatic heating control system is not operational, so manual shunt operation is required. This is done by turning the adjuster screw to manual mode and then turning the shunt lever to the required position.

NOTE!

When returning to normal mode, do not forget to reset the shunt lever to the original position by turning the adjuster screw to "A".

Cleaning the fan

Should abnormal noise come from the fan, this may need cleaning. Contact your installer.

If the operating disturbance cannot be rectified by means of the above an installation engineer should be called.
If necessary set the Switch to "⚠" (manual shunt operation necessary).

Actions with operating disturbances

Alarm indications on the display

Other information can also be shown on the display besides the standard information. This applies with malfunctions or for calls to take action. This type of information is only shown in menu 1.0 (The display always automatically returns to menu 1.0 approximately 30 minutes after the last button was pressed). This information alternates with menu 1.0's standard information. At the same time the display's background lighting flashes.

The following information can be shown.



FILTER-ALARM

This information is shown every three months and is a call for the air filter to be cleaned, see the section Maintenance routines – Cleaning the air filter. The information disappears when the filter has been cleaned and the main power switch is set to 1 again.



LP-ALARM

This information is shown when the low pressure switch in the cooling circuit has tripped. This may be caused by a too low ventilation flow or too little refrigerant. The information disappears when the pressure switch resets (automatically) and the main power switch is set to 1 again.



SENSOR-ALARM

This information is shown when one of the temperature sensor malfunctions, for example, a broken cable or a short circuit. The information disappears when the cause of the fault has been rectified and the main power switch is set to 1 again.

NOTE!

The product's serial number should always be stated with all correspondence with NIBE.
089_ _ _ _ _ _ _ _ _ _ _ _

46 Actions with operating disturbances

Resetting the temperature limiter

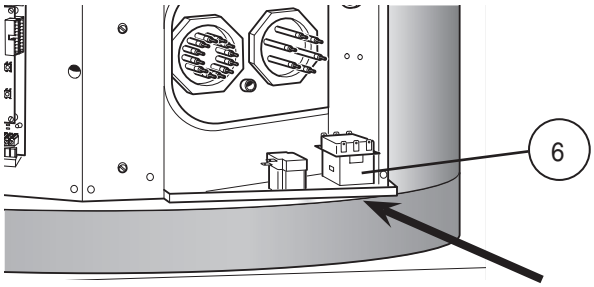


TL-ALARM

This information is shown when the temperature limiter for the immersion heater has tripped. The information disappears when this is done and the main power switch is set to 1 again.

The temperature limiter (6) is accessible from behind the centre front cover and is positioned under the inner protective cover.

The temperature limiter is reset by firmly pressing in its button. The button can be accessed from the underside of the distribution box. The cover on the distribution box does not need to be removed when resetting.

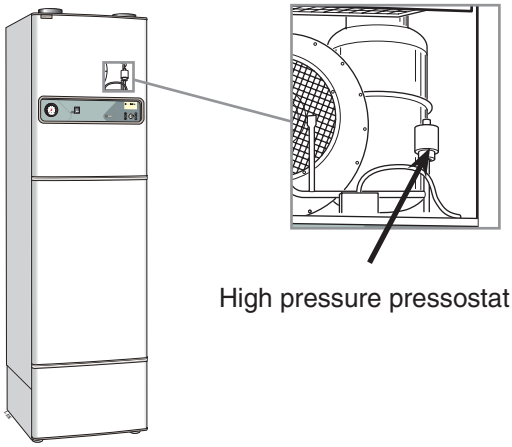


Resetting the high pressure switch



HP-ALARM

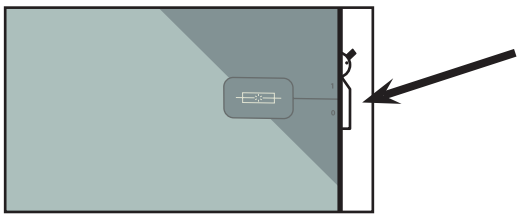
This information is shown when the high pressure switch in the cooling circuit has tripped. This may depend on too high values being set in the menus 2.1 Heating curve, 2.2 Offset heating curve, 3.1 Heating curve 2 and/or 3.2 Offset heating curve 2. The information disappears when the pressure switch resets () and the main power switch is set to 1 again.



High pressure pressostat

Press the button on the top of the tripped high pressure switch to reset it; see diagram. The pressure switch is accessible by opening the filter cover.

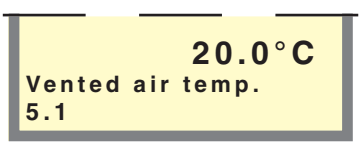
Resetting the miniature circuit breakers



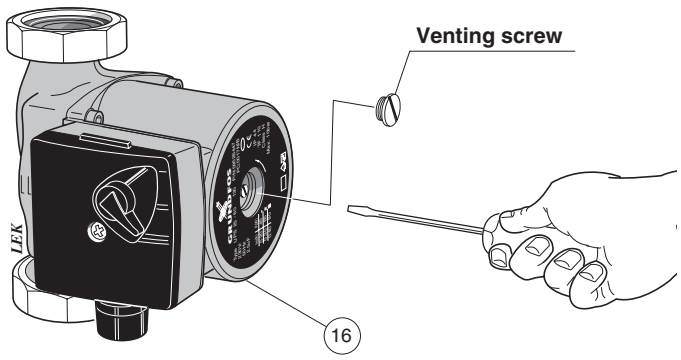
The MCB (7) is accessible behind the upper front access panel and is located to the right of the panel. Normal mode of the MCB is **1** (up).

High extract air temperature

When the extract air temperature (87) (read on menu 5.1) is only insignificantly lower than the room temperature at the same time as the compressor is operational, this indicates a probable fault in the refrigerant circuit or its controller. Request a service. When the compressor is not operational the extract air temperature lies at about the same level as the room temperature.



Helping the circulation pump to start



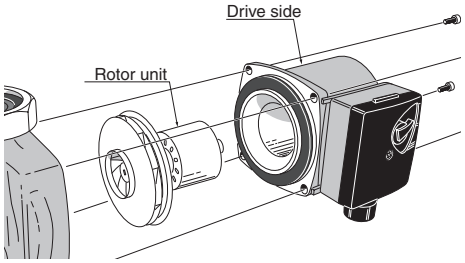
- Shut down FIGHTER 360P by turning the switch (8) to **0**.
- Remove the lower front cover.
- Loosen the air screw with a screwdriver. Hold a cloth around the screwdriver blade as a certain amount of hot water may run out.
- Insert a screwdriver and turn the pump rotor.
- Screw in the air screw.
- Start FIGHTER 360P and check whether the circulation pump runs.

It is usually easier to start the circulation pump with FIGHTER 360P running, switch (8) set to **1**. If helping the circulation pump to start is performed with FIGHTER 360P running, be prepared for the screwdriver to jerk when the pump starts.

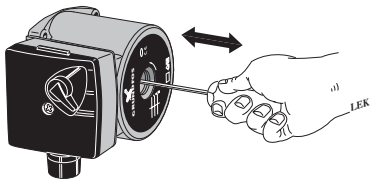
Cleaning the circulation pump

- Set the switch (8) to **0**.
- Close the shut-off valves before and after the circulation pump.
- Loosen the venting screw.
- Remove the connection cover.
- Loosen the power cable.
- Remove the drive side from the pump housing by loosening the screws. Now dismantle the drive side (fig. A).
- Remove the rotor unit (including pump housing) by carefully pulling the pump rotor. If it sits firmly, it can be loosened by knocking the rear of the shaft (fig. B).
- Clean inside the stator can using a cleaning agent (fig. C).
- Also clean the rotor unit using the cleaning agent and lubricate the O-ring with, for example, a soap solution (fig. D).
- Refit the rotor unit.
- Re-assemble the drive side (the flat packing is best placed on the pump housing).
- Connect the power cable.
- Open the shut-off valves.
- Set the switch (8) to **1**.

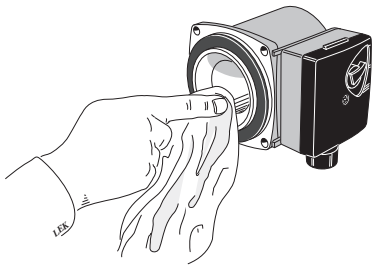
A



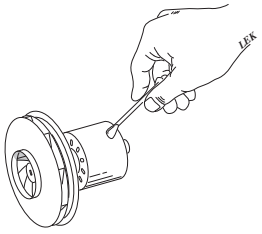
B



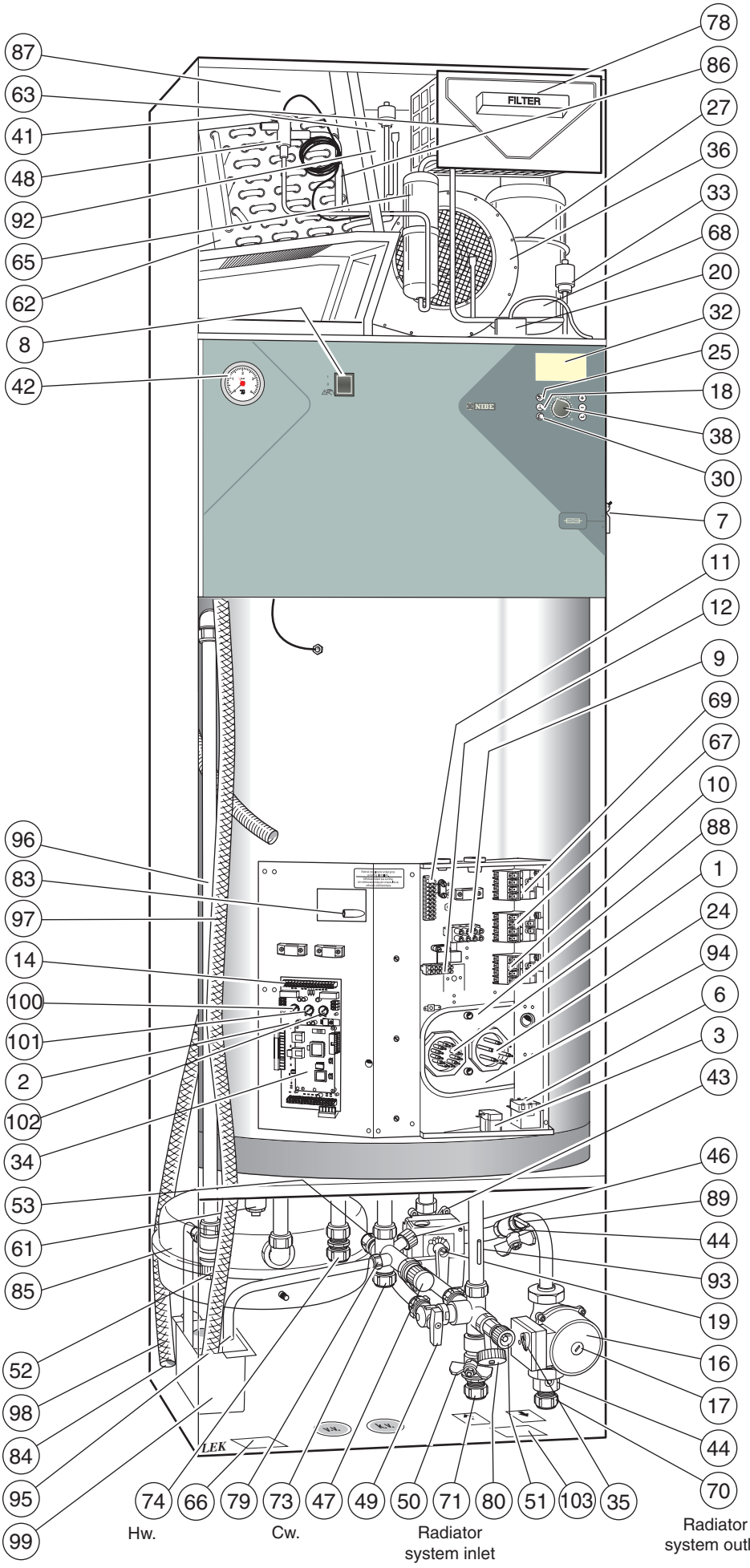
C



D



48 Component placement

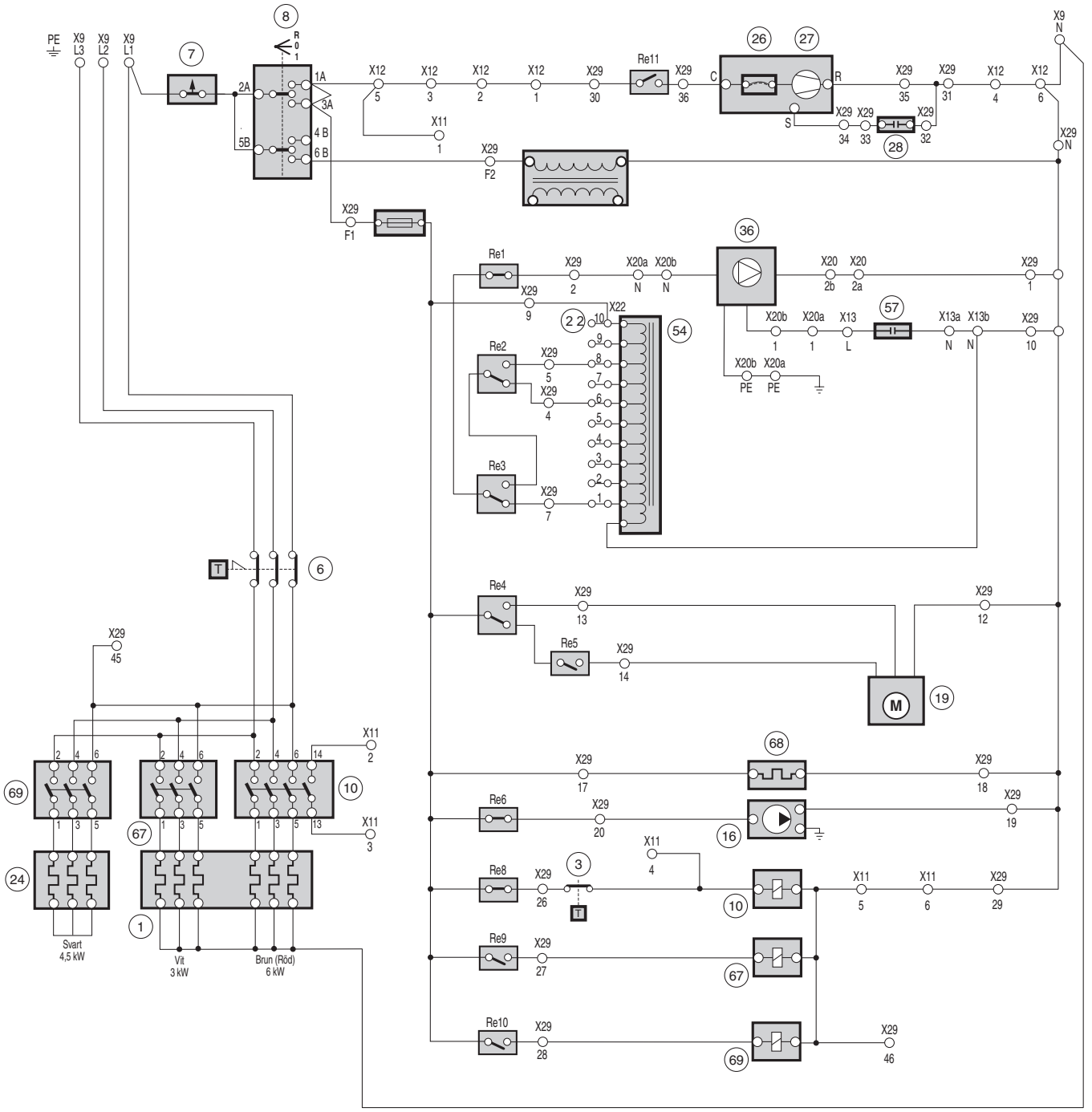


List of components

1 Immersion heater 9 kW
2 Load monitor card
3 Operating thermostat, backup heating
6 Temperature limiter
7 Miniature circuit-breaker
8 Switch, position 1 - 0 - 
9 Terminal block, power supply
10 Contactor, step 3, 6 kW
11 Terminal block, docking
12 Terminal block, docking
13 Terminal block, capacitor
14 Terminal block
15 Outside sensor
16 Circulation pump
17 Air screw, circulation pump
18 Pushbutton, Extra hot water
19 Shunt motor with handwheel
20 Connector, fan
22 Terminal block for fan speed
24 Immersion heater 4.5 kW
25 Push button, Operating mode
26 Motor protection, compressor
27 Compressor
28 Operating capacitor, compressor
29 Relay card with power supply unit
30 Push button, Fan speed
32 Display unit
33 High pressure pressostat
34 Central unit
35 Capacity setting, circulation pump
36 Fan, exhaust air
38 Knob, Offset heating curve
41 Low pressure pressostat
42 Pressure gauge, boiler
43 Shunt valve
44 Shutoff valve, pump and supply radiator circuit
46 Filler valve, water heater
47 Safety valve, water heater
48 Expansion valve
49 Combined filling and non-return valve, heating system
50 Shutoff valve, return line radiator circuit
51 Drain valve, heating system
52 Safety valve, heating system
53 Vacuum valve (hidden)
54 Fan transformer
57 Starter capacitor, exhaust air fan
61 Docking connection, requires special pipe from NIBE
62 Evaporator
63 Air filter (Filter type G2)
65 Drying filter with tank
66 Rating plate
67 Contactor, step 1, 3 kW
68 Compressor heater
69 Contactor, step 2, 4,5 kW

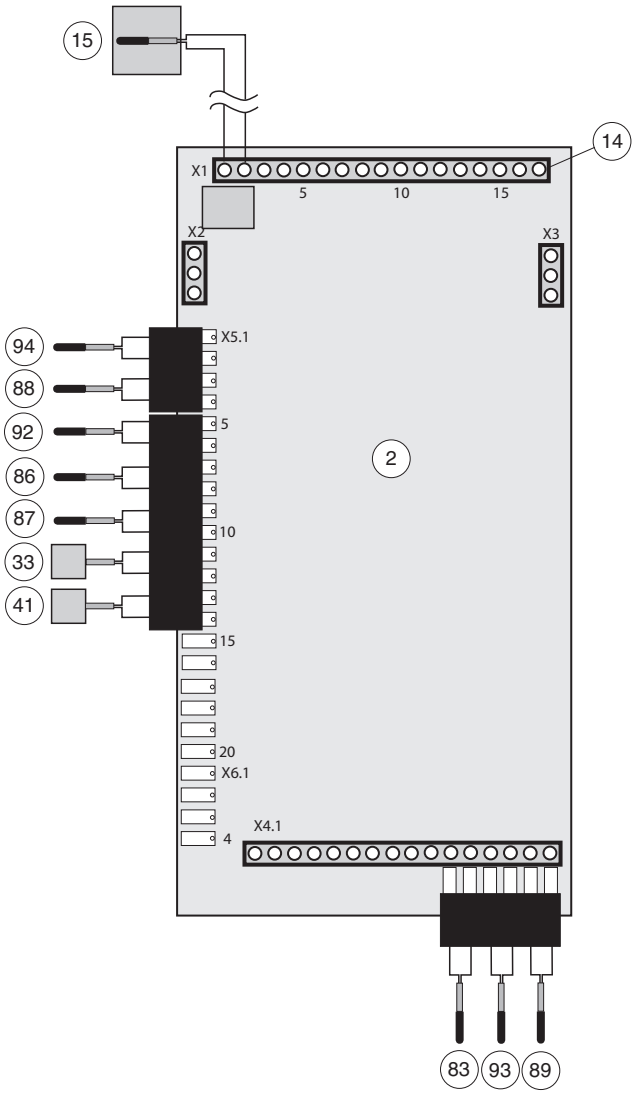
		Connection	Setting out dimensions A	B	C
70	Supply line, radiator circuit	Compression ring Ø 22 mm	100	465	90
71	Return line, radiator circuit	Compression ring Ø 22 mm	130	465	190
73	Cold water connection	Compression ring Ø 22 mm	260	465	290
74	Hot water outlet from water heater	Compression ring Ø 22 mm	290	465	345
78	Filter cover				
79	Drain and overflow water connection, water heater	R 15 male (with compression ring not removed)			
80	Drain connection, heating system	R 15 male			
83	Temperature sensor, hot water				
84	Ventilation opening				
85	Expansion vessel				
86	Temperature sensor, evaporator				
87	Temperature sensor, extract air (concealed)				
88	Temperature sensor, immersion heater operation				
89	Temperature sensor, supply line				
90	Ventilation connection exhaust air	Ø 125 mm	2095	295	160
91	Ventilation connection extract air	Ø 125 mm	2095	295	485
92	Temperature sensor, exhaust air (hidden)				
93	Temperature sensor, return				
94	Temperature sensor, compressor operation				
95	Overflow pipe, safety valve water heater				
96	Overflow pipe, safety valve heating				
97	Condensation water outlet, fan box				
98	Overflow water discharge	PVC-pipe Ø 32 mm (outside diameter)			
99	Collection funnel, waste water				
100	Knob, setting Fuse				
101	Knob, setting Max electrical output				
102	No function				
103	Type plate				

50 Circuit diagram



Sensors

Sensor placement

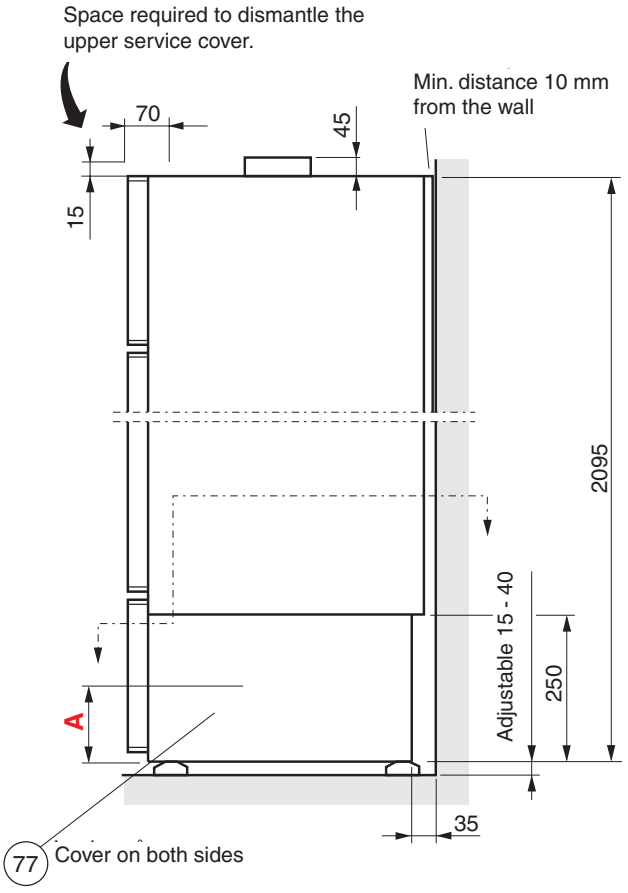


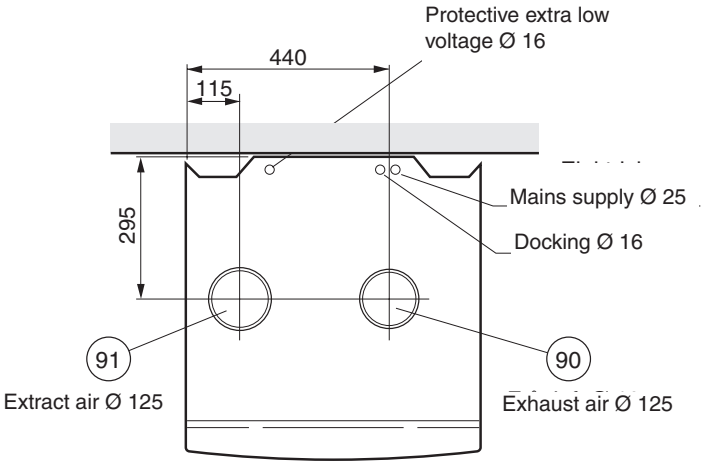
15 Outside sensor
33 High pressure pressostat
41 Low pressure pressostat
83 Temperature sensor, hot water
86 Temperature sensor, evaporator
87 Temperature sensor, extract air
88 Temperature sensor, immersion heater operation
89 Temperature sensor, supply line
92 Temperature sensor, exhaust air
93 Temperature sensor, return
94 Temperature sensor, compressor operation

Temperature sensor data

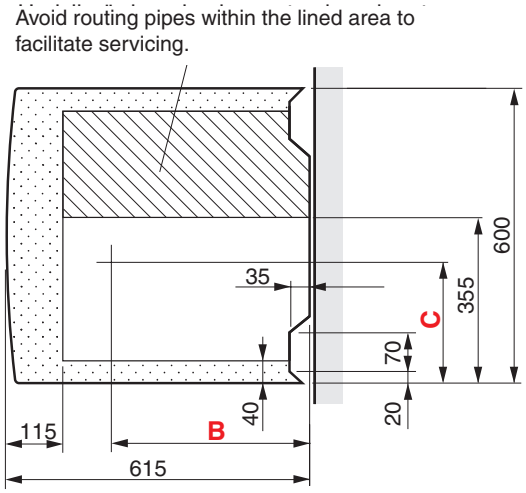
Temperature (°C)	Resistance (kΩ)	Voltage (V)
-40	102,35	4,78
-35	73,51	4,70
-30	53,44	4,60
-25	39,29	4,47
-20	29,20	4,31
-15	21,93	4,12
-10	16,62	3,90
-5	12,71	3,65
0	9,81	3,38
5	7,62	3,09
10	5,97	2,80
15	4,71	2,50
20	3,75	2,22
25	3,00	1,95
30	2,42	1,70
35	1,96	1,47
40	1,60	1,27
45	1,31	1,09
50	1,08	0,94

Dimensions and setting-out coordinates

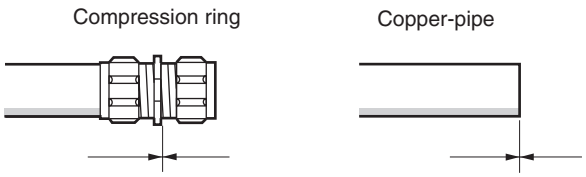




A clear space of 500 mm is needed in front of the heat pump for servicing.



Measuring principle



A, **B** and **C**: See Connection in List of components.

Pipes must not be run from the floor in the area indicated by dots.

Technical specifications

CE IP 21

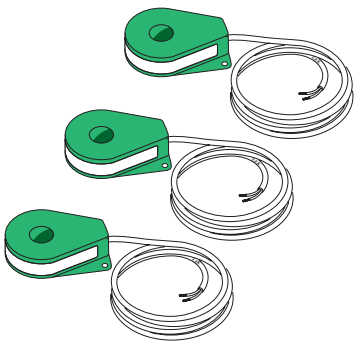
Height (excl. foot: 15 – 40 mm)	2 095	mm
Required ceiling height	2 185	mm
Width	600	mm
Depth	615	mm
Weight	205	kg
Volume total	240	litres
Volume double jacket	70	litres
Volume water heater	170	litres
Supply voltage	400	V~ 3-phase + N
Output immersion heater	13,5	kW (switchable)
Rated output, circulation pump	100	W
Rated output exhaust air fan	170	W
Rated output, compressor	650	W
Enclosure class	IP 21	
Max pressure in storage heater	0,9	MPa (9 (bar)
Max pressure in double jacket volume	0,25	MPa (2.5 (bar)
Breaking value, high pressure pressostat	2,45	MPa (24.5 (bar)
Breaking value, low pressure pressostat	0,15	MPa (1.5 (bar)
Design pressure in double jacket volume	0,25	MPa (2.5 (bar)
Refrigerant volume	420	g
Refrigerant type	R290	(propane)
Sound power level*	44–48	dB(A)
Sound level in the boiler house**	40–44	dB(A)
Article number	089	570

* A-weighted sound power level (L_{wA}). The value varies with the selected fan curve.
** A-weighted sound pressure level (L_{pA}). The value varies with the room's damping capacity. These values apply with a damping of 4 dB.

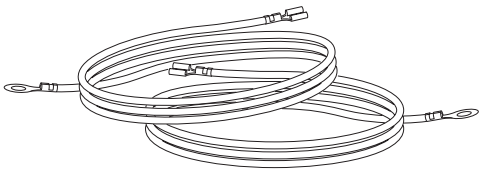
Enclosed kit



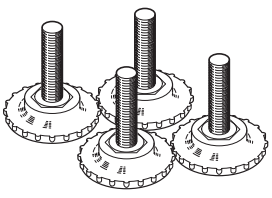
Outside sensor



Current sensor



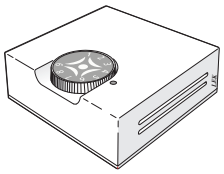
Earth cable



Feet

Room sensor RG 10

In some cases a room sensor can be used as a addition to the ordinary automatic control system.

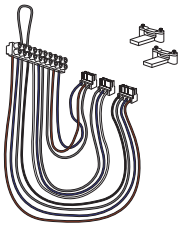


Extra shunt group

Used when there is a need of two different supply temperatures. Installed externally, but controlled from FIGHTER 360P

- Circulation pump
- Shunt motor
- Shunt valve
- Circuit card
- Pipe fittings
- Sensor and cabling

Cables XTS 20



When external activation of Extra hot water respective Fan speed II is wanted.

Room unit RE 10

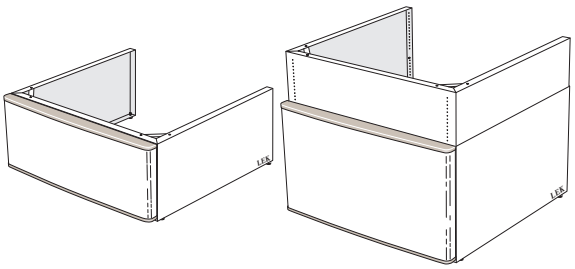
In some cases a room unit can be used as an addition to the ordinary automatic control system.

Part no 067 023



Top cabinet

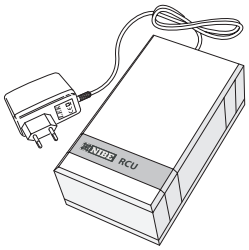
A top cabinet is available as an accessory to conceal the ventilation ducts above the heat pump.



Top cabinet 245 mm. Part no 089 424
Top cabinet 345 mm. Part no 089 426
Top cabinet 385 – 535 mm. Part no 089 428

RCU 10

Communication unit which enables control and supervision of the heat pump over a local network or via the internet.



Part no 418 925

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