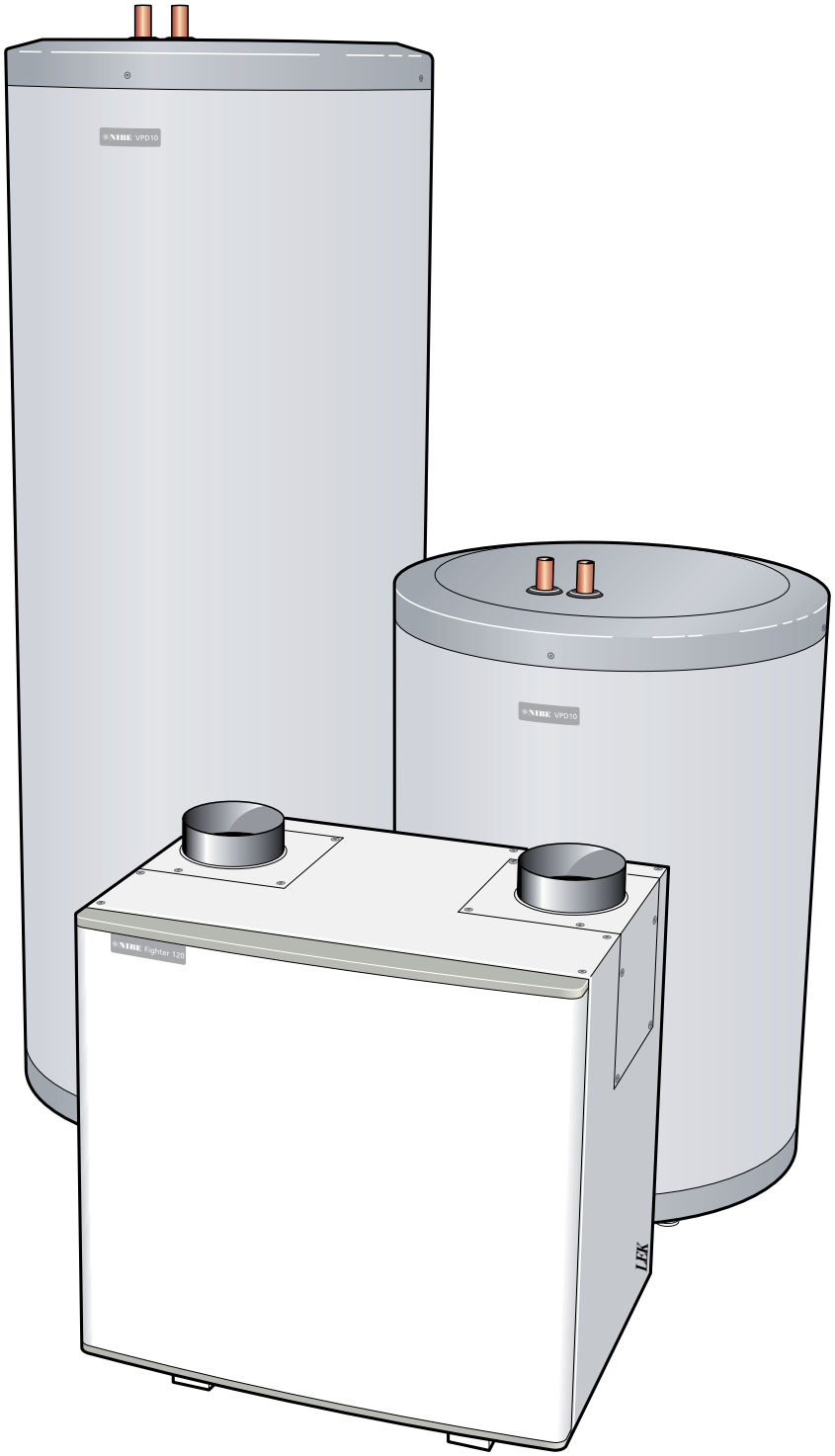
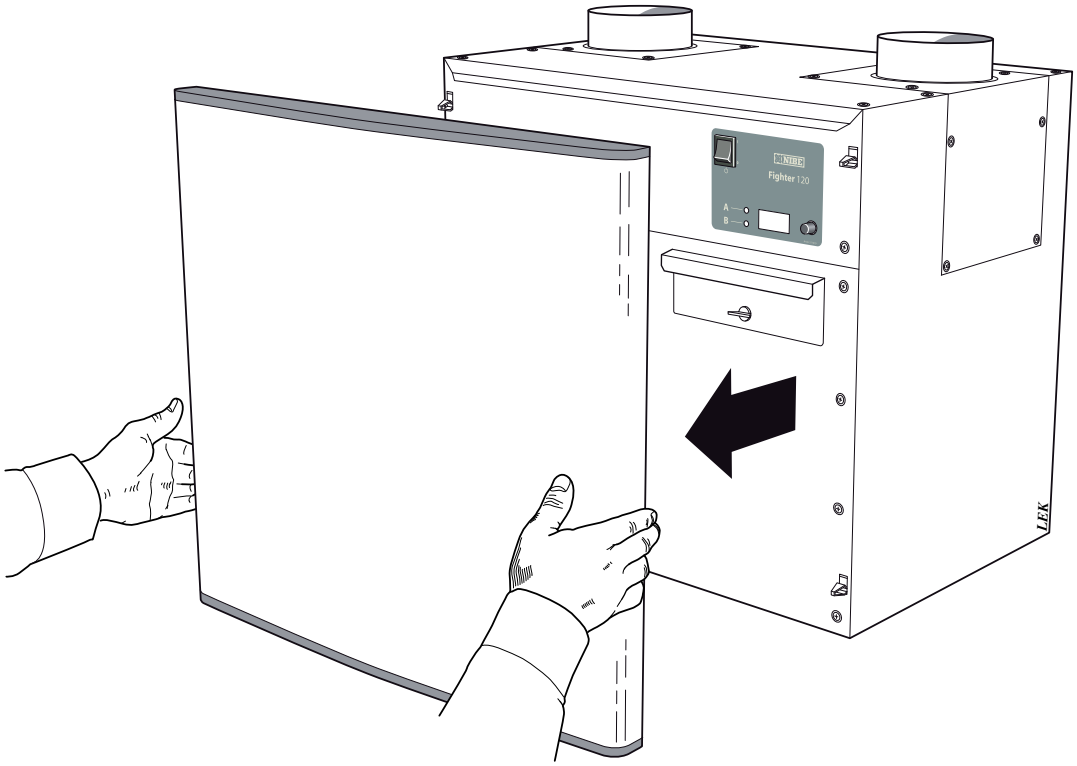
MOS GB 1012-5
FIGHTER 120
M10535

INSTALLATION AND MAINTENANCE INSTRUCTIONS

NIBE FIGHTER 120



NIBE


NIBE
Fighter 120
A
B
LEK

For Home Owners

General

Maintenance routines

Dealing with malfunctions

For the Installer

Installation

Commissioning and adjusting

Miscellaneous

Control

Technical specifications

General

Thank you for relying on NIBE to supply your heat pump and congratulations on choosing FIGHTER 120, a high quality product with a long service life, developed and manufactured in Sweden.

In order to get the ultimate benefit from your FIGHTER 120 you should read through the "For Home Owners" section in this Installation and Maintenance Instruction.

FIGHTER 120 is an exhaust air heat pump. This means that it collects the energy in the ventilation air and uses it for hot water heating.

The heat pump is designed to be installed in houses or similar.

The serial number (103), must always be stated in all correspondence with NIBE. _ _ _ _ _ _ _ _ _ _ _ _ _ _
Installation date:
Installer:
Fan speeds: Low:_____% Medium:_____% High:_____%
Date:_____ Sign:_____

Principle of operation

FIGHTER 120 is a two piece heat pump that is supplied with an air treatment section and a stainless-steel storage heater. The heat pump recovers energy from the ventilation air. The recovered energy supplies hot water via a circuit with water circulating between the air treatment section and heater. The heat pump has an integrated DC fan and must be installed in a ventilation system intended for mechanical exhaust air.

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.

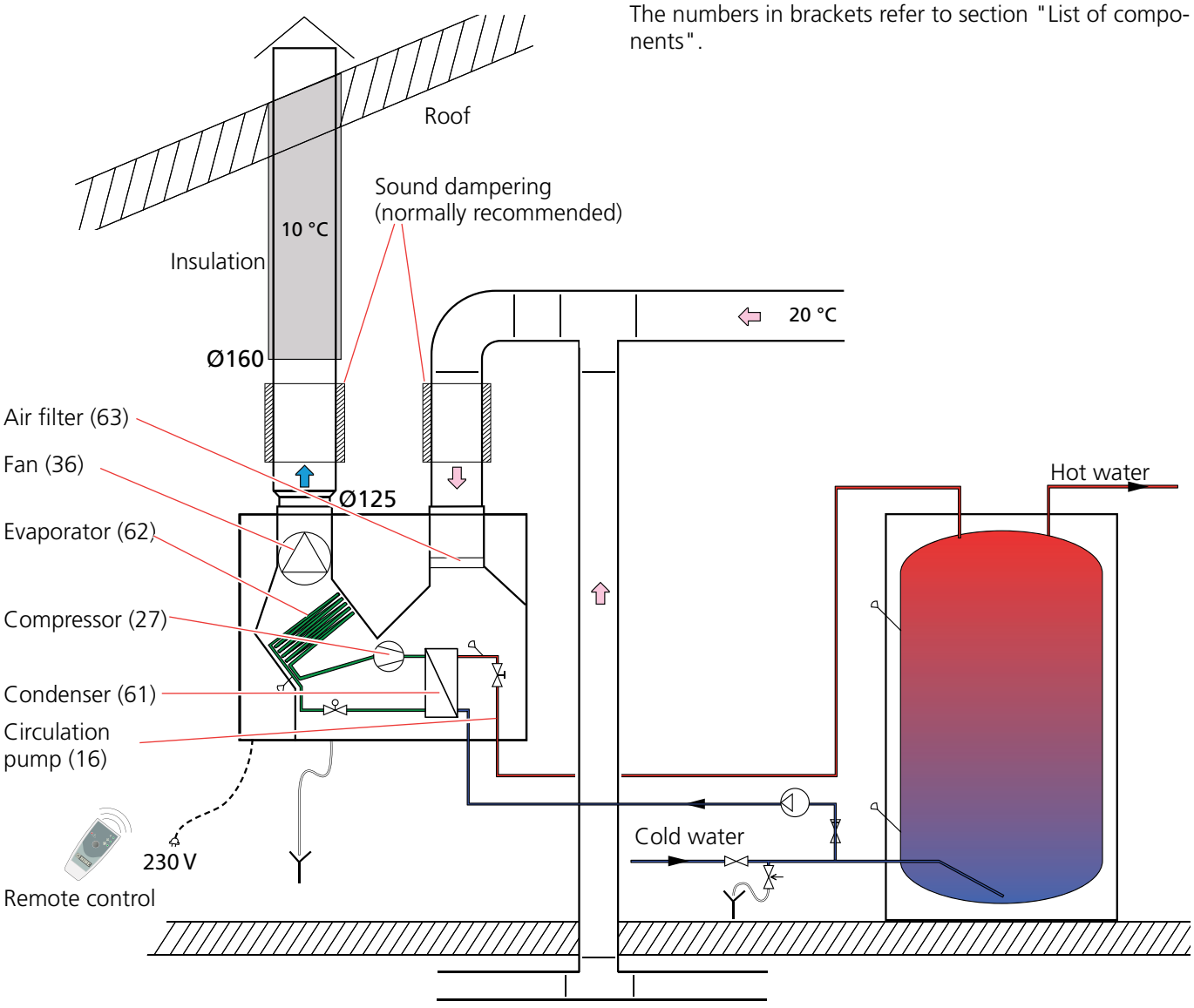
The refrigerant is then compressed in a compressor, causing the temperature to rise considerably.

The hot refrigerant is routed to the condenser where the heat is transferred to the circulating water that is forwarded to the water heater. The temperature of the refrigerant therefore lowers and changes from steam to fluid.

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.

The numbers in brackets refer to section "List of components".



Symbol explanation

	Shut-off valve		Temperature sensor
	Expansion valve		Trimventil
	Non-return valve		Safety valve

System diagram

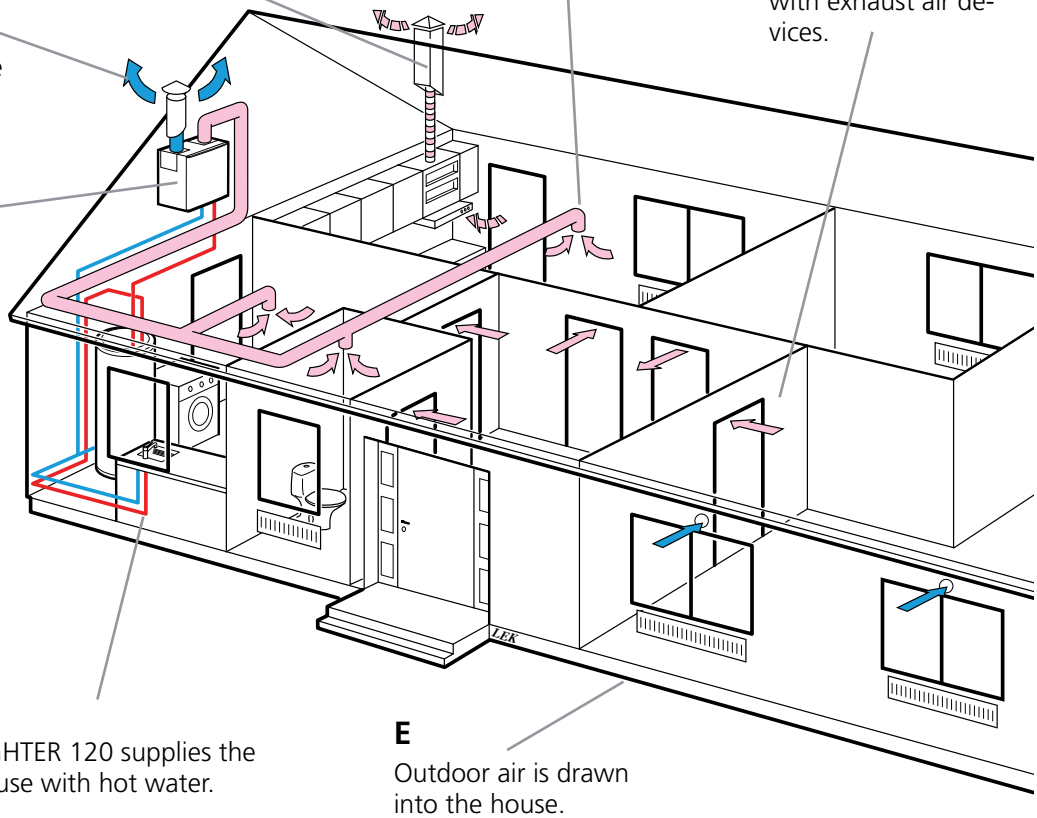
C
When the room air has passed through the heat pump it is discharged. The temperature has then dropped as the heat pump has utilised the energy in the room air.

B
The hot room air is fed to FIGHTER 120.

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

A
The hot room air enters the duct system.

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



D
FIGHTER 120 supplies the house with hot water.

E
Outdoor air is drawn into the house.

Front panel

Pull the front panel forward with both hands in order to gain access to the control panel.

Switch

with two positions:

0 Off

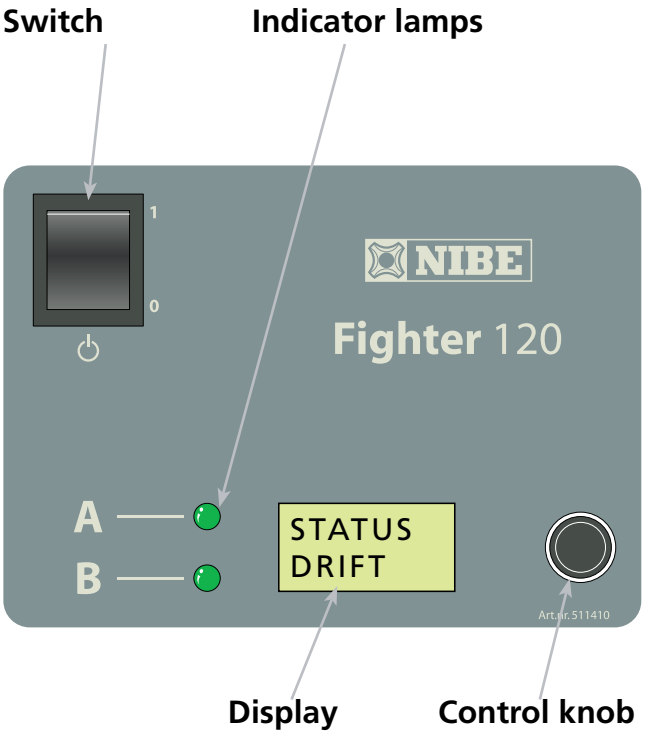
1 On

Display

LCD display that shows operational information and settings for the heat pump.

Control knob

The control knob is used to navigate between menus and to make settings. Refer to the "Control" – "Navigation" section for a detailed description.



Indicator lamps

Lamp	Not lit	Green	Orange	Flashing orange	Flashing red
A	Heat pump off	–	Compressor is operational.	Defrosting in progress	Alarm
B	Heat pump off	Periodic hot water increase activated*	–	Service menus activated	–

* Fulfils requirements for protection against legionella.

Remote control

The remote control is used to control the ventilation flow and to indicate any alarms and filter changes/cleaning.

The remote control can be used to make changes in the ventilation flow by shifting the fan speed between LOW, MEDIUM and HIGH.

The factory setting is that the changes of the remote control are permanent. There is a possibility to let the changes automatically return to the previous setting after a certain time. This time is set in menu "SETTINGS" > "RETURN".

The remote control functions as follows:

Idle mode

For a low remote control power consumption, the unit shifts to idle mode when not in use. The unit "wakes" once every half an hour and determines if there is an alarm. If there is no alarm, it returns to idle mode.

Indication of current fan speed

To view the current speed of the fan, press the button on the remote control once. A green lamp flashes indicating the current fan speed. If the button is not pressed again, the remote control returns to idle mode after 5 seconds.

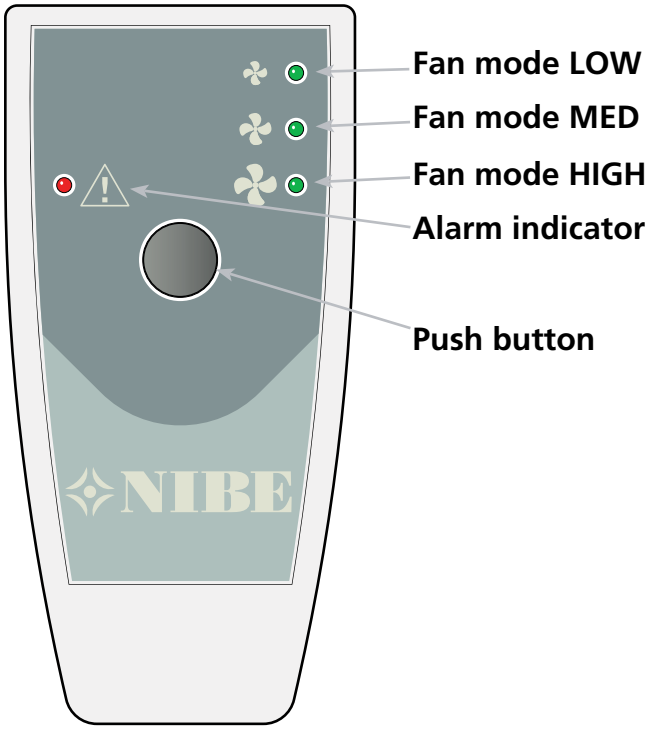
Changing the fan speed

When the button on the remote control is pressed in, a green lamp flashes for the current fan speed. If the button is pressed again, within 5 seconds, the next green lamp starts to flash. When the fan speed flashes, the choice is confirmed by holding the button in until the flashing light shines green continuously. The remote control returns to idle mode 5 seconds after the last button press.

Alarm indication

To see if an alarm has been triggered in the heat pump, press the button once. If the heat pump has received an alarm, this is indicated by a red flashing lamp on the remote control. See section "Dealing with malfunctions" – "Alarms" for information about alarm types. Acknowledge an alarm by switching the current on FIGHTER 120 off and then on.

NOTE! Recurring alarms mean that there is a fault in the installation. Contact your installer!



Remote control outside range

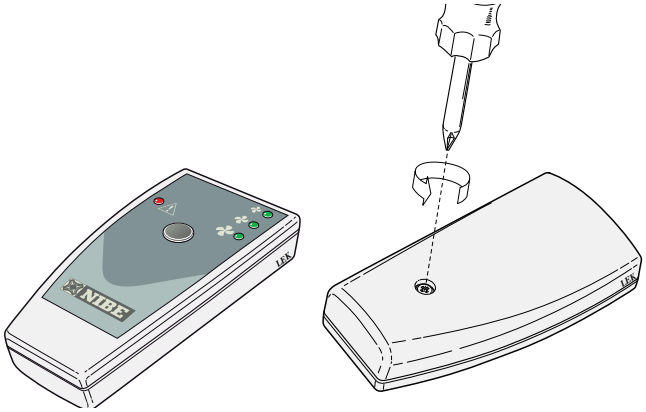
If the remote control's red lamp flashes during 8 seconds after the button is pressed, the remote control is outside its range.

Batteries

Batteries (2 pcs (L)R03 AAA) for the remote control are supplied.

Due to the sensitivity of the remote control to static electricity, it is important not to touch the electrical components of the remote control and to change the batteries according to the following instructions:

- Remove the screw from the reverse of the remote control and open the cover.
- Hold the remote control in one hand and change the batteries with the other. Always use both hands when changing batteries.
- If the remote control is picked up without the cover, always keep one hand on the plastic body before contact with the internal electronics is made.



Basic settings

Hot water production

There are three different comfort levels that can be selected depending on how much water is needed and how hot the water is required to be. Select in menu "SETTINGS" > "COMFORT".

The three comfort levels for hot water production are: ECO, NORMAL and HIGH.

ECO: This only heats the top part of the storage boiler to a standard 56 °C, so that the heat pump works very economically. If you regularly experience a shortage of hot water in this mode, choose one of the following modes.

NORMAL: This heats the complete storage boiler to a standard 56°C so that there is more hot water available for showers, baths etc.

HIGH: This heats the complete storage boiler to a standard 61°C which offers maximum hot water comfort.

Periodic hot water increase

When periodic hot water increase is active, the heat pump will charge the boiler with a water temperature of 62 °C until the bottom temperature has been higher than 60 °C for more than an hour. Then it resumes the level that applied before activation. This protects against the growth of legionella bacteria.

The increase is activated automatically at intervals that depend on the selected setting in menu "SETTINGS" > "LEGIO" > "LEG.INTV". The menu is a service menu and settings are normally made by the installer.

Ventilation

The fan speed in FIGHTER 120 can be selected between three preset modes.

A change of fan speed can be made using the remote control (see section "General" – "Remote control").

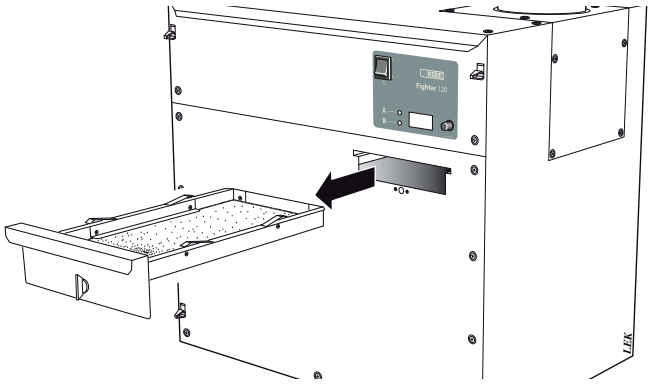
LOW: Reduced ventilation. Should be used temporarily when a lower ventilation flow in the house is acceptable, for example, when nobody is in the house. This mode should not be used for long periods, as there is a risk of a poor indoor climate and moisture damage in the house.

MEDIUM: Should normally be used.

HIGH: Forced ventilation. Should be used temporarily when a higher ventilation flow in the house is required, for example, when many people are in the house. This mode should not be used for long periods, as the house's energy requirement and therefore running costs increases.

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

Cleaning the air filter



The heat pump air filter should be cleaned regularly (about four times a year) by taking it out and shaking off any dirt. If the filter is very dirty, turn it upside-down and wash it carefully with water.

- The front cover is removed by pulling out the upper and lower edges and then lifting it out.
- Set the switch to "**0**".
- Release the filter holder by turning the black knob a quarter of a turn anti-clockwise.
- Pull out the holder, take out the filter and shake off any dirt. Check that the filter is not damaged. New original filters can be ordered from NIBE.
- Carry out assembly in reverse order.

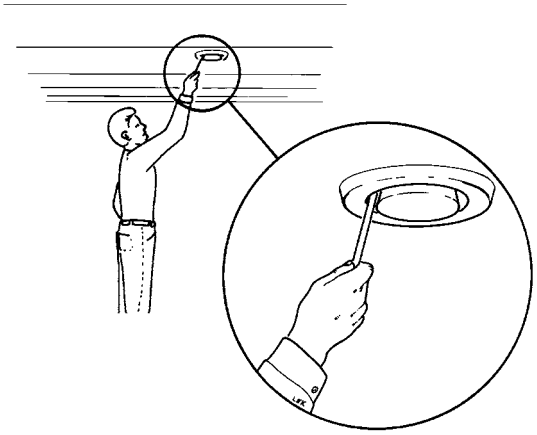
The cleaning time intervals vary depending on the amount of dust in the exhaust air.

The heat pump triggers an alarm when it is time to clean the air filter.

Cleaning the ventilation devices

The ventilation devices in the house should be cleaned regularly to maintain 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.



The numbers in brackets refer to section "List of components".

Checking safety valves

The system's safety valve sometimes releases water after hot water has been tapped. 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.The overflow water pipe from the safety valve must be visible and must not be obstructed. The safety valve must be checked regularly according to the manufacturer instructions. Check as follows:

- Open the valve.
- Check that water flows through the valve.
- Close the valve again.

Emptying the hot water heater

- Cut the power supply and shut-off the cold water supply.
- The hot water heater is emptied by opening the safety valve.
- To supply air to the water heater, open the venting valve (104) and a hot water tap as close to the unit as possible.
  If this is not sufficient, the compression ring coupling by connection (74) on the hot water heater can be released carefully.

Troubleshooting

Symptom	Cause	Action
Low temperature or a lack of hot water	Circuit or main MCB tripped.	Check and replace blown fuses.
	Switch (8) set to 0.	Set the switch to 1.
	Closed or throttled shut-off valve for the hot water heater.	Open shut-off valve.
	High hot water usage.	Wait a few hours and check if the hot water temperature rises. Possibly set the comfort level higher.
	Tripped high pressure pressostat (49).	Contact installers in the event of recurring cases.
Low or a lack of ventilation	Filter (63) clogged.	Clean or replace the air filter.
	Closed or too hard throttled exhaust air device.	Open exhaust air devices.
	Circuit or main MCB tripped.	Check and replace blown fuses.
	Fan clogged.	Clean fan.
Remote control does not work	Discharged batteries.	Replace the batteries.
	The remote control is outside range (red lamp flashes during 8 seconds when button is pressed).	Move closer to the heat pump.
	The remote control is not registered in the heat pump.	Contact installers or register the remote control according to "Installation" – "General information for the installer" – "Registering remote control".
The compressor does not start	Minimum time between compressor starts has not been reached.	Wait 30 minutes and check if the compressor starts.
	The compressor's internal motor protection has tripped.	No action usually required. In recurring cases, the installer should be contacted.
	Alarm tripped.	See section "Alarms".

Alarms

Alarms are shown in the display by the background lighting flashing and text in the main menu shifting between status and current alarm.

The table below describes the alarms that can occur during control.

Acknowledging alarms

When an alarm has been triggered, it can be acknowledged by switching the switch off and on for FIGHTER 120. The alarm then stops.

NOTE! Recurring alarms mean that there is a fault in the installation. Contact your installer!

Alarm no.	Alarm	Alarm description	Action
10	T1 OPEN	Upper hot water sensor (87) is defective.	Contact installer.
11	T1 SHORT	Upper hot water sensor (87) is short-circuited.	Contact installer.
12	T2 OPEN	Evaporation sensor (86) is defective.	Contact installer.
13	T2 SHORT	Evaporation sensor (86) is short-circuited.	Contact installer.
14	T3 OPEN	Flow line sensor (89) is defective.	Contact installer.
15	T3 SHORT	Flow line sensor (89) is short-circuited.	Contact installer.
16	T4 OPEN	Lower hot water sensor (88) is defective.	Contact installer.
17	T4 SHORT	Lower hot water sensor (88) is short-circuited.	Contact installer.
33	HIGH PRS	High pressure pressostat has detected too high pressure in the cooling section. The alarm automatically becomes inactive when the pressure drops back to the permitted level.	No action.
34	HIGH PRS	High pressure pressostat has detected high pressure 3 times within one hour. The alarm must be acknowledged manually.	Contact installer.
50	FROST	Upper hot water sensor (87) has been below 1 ˚C. Automatically inactive when the sensor exceeds 5 ˚C.	Contact installer.
54	OVERHEAT	Upper hot water sensor (87) has been above 95 ˚C. Automatically inactive when the sensor falls below 92 ˚C.	Contact installer.
80	FILTER	Replace or clean air filter. Indication occurs 90 days (default value) after acknowledging the last filter alarm.	Replace/clean air filter.

General information for the installer

Transport and storage

The air treatment section and water heater must be transported and stored upright and dry.

Installation/Suspension

The air treatment section and water heater are installed near floor drains, free standing (minimum 10 mm from walls) and with the back against an outside wall in a utility room or similar type of room to minimise any noise nuisance. If it is not possible to mount the heat pump against an outside wall avoid a wall connecting to a bedroom or living-room.

The water heater is installed standing on the floor.

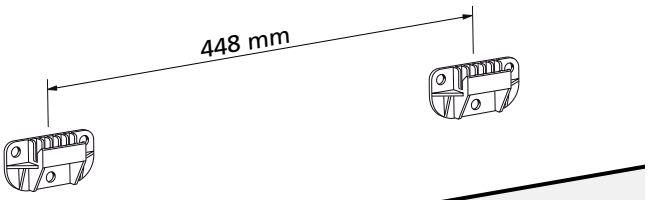
Route pipework so it is not fixed to an internal wall that backs on to a bedroom or living room.

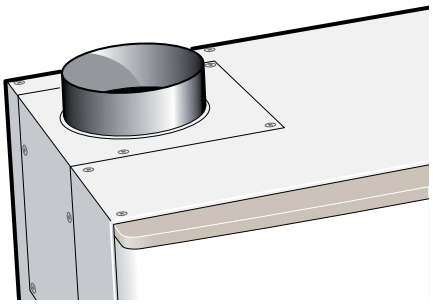
The air treatment section can either be hung on a wall, using the supplied plastic mountings, or fasten with screw on brackets. When suspending on the plastic mountings, first install the mountings on the wall as illustrated below, then hang the air treatment section up.Then screw the unit to the wall via the lower mountings (see image below).

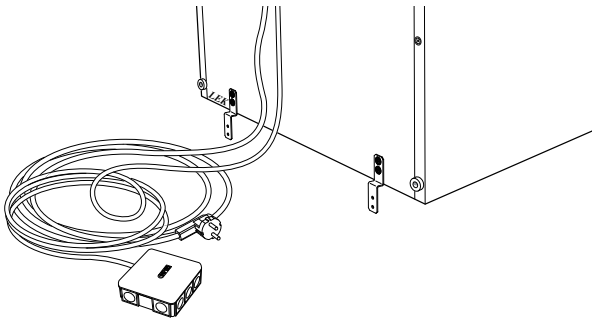
NOTE!

Check that the mountings are located in their applicable grooves on the air treatment section.

Ensure that the air treatment unit is installed horizontally.

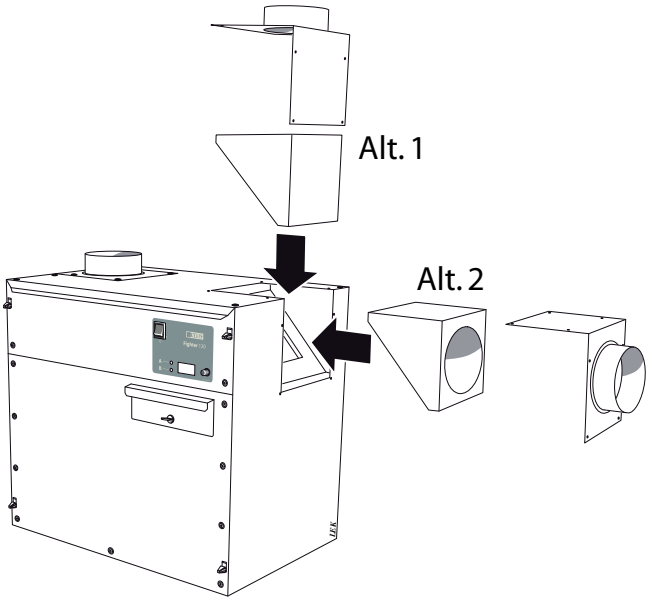






Alternative connection installation

The ventilations connections on FIGHTER 120 can be installed partially upwards (factory installed,) partially laterally. Due to limited space where it is difficult to connect the ventilation ducts, the connections can be made from the side. To facilitate servicing, however, it is recommended to leave 20 – 30 cm above the heat pump, as the fan and electronics are serviced most easily from above.



Refrigerant system

All work in and around the cooling circuit must be carried out by an authorised refrigeration technician.

Calcium

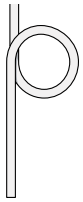
When FIGHTER 120 circulates and heats up fresh water, calcium and other minerals can affect the components' (condenser, valves and circulation pump) cleaning cycle/ service life. If FIGHTER 120 is installed in calcium hard water areas, some form of descaler should be installed in the system.

NOTE!

The heat pump's switch (8) must not be moved to position 1 until the water heater has been filled. Otherwise there is a risk of damaging the heat pump's components.

Pipe installation

- To make the installation economical, NIBE recommends that all pipes between the air treatment section and the water heater are insulated. Insulation should be at least 12 mm thick.
- Internal support bushes should be fitted when a plastic pipe or annealed copper pipe is used.
- Water from the condensed water outlet (92) is routed to a drain using the supplied plastic hose and hose clamp. Shape the hose into a water seal (see image). Overflow water from safety valves goes via overflow cups to a drain so that hot water splashes cannot cause injury.

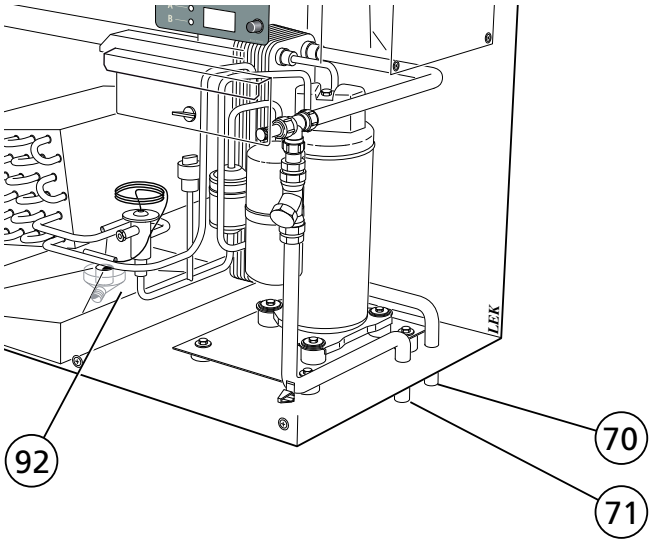


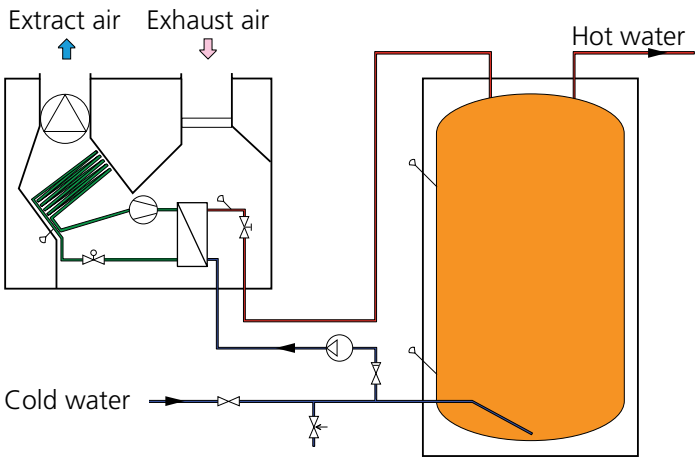
- The pipe installation must be carried out in accordance with current norms.
- Maximum pipe length between the air treatment section and water heater (forwards and backwards) is 15 m.
- The pressure vessel in FIGHTER 120 is approved for max 9.0 bar (0.9 MPa).

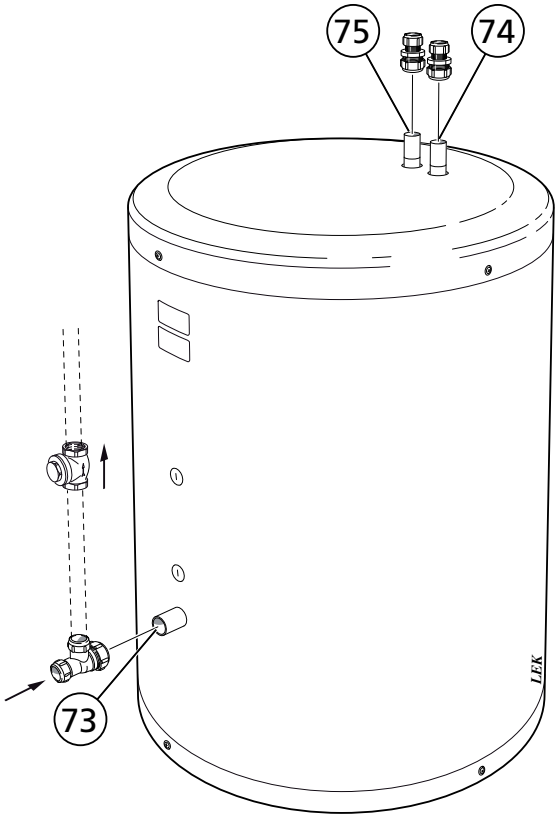
Connection

The enclosed kit includes suitable connectors that can be used for the installation.

- Install the T-coupling in position (73) (blue) according to image below. If Ø15 mm pipes are used, the enclosed internal reducers can be used.
- Connect the return line from pos (70) (blue) on the air treatment section to the right angled connection on the T-coupling. **Install the enclosed non-return valve on this pipe.** The supplied circulation pump must also be installed as low as possible, close to the exchange valve. Note the direction of flow.
- Install a shut-off valve on the incoming cold water pipe.
- Install a safety valve after the shut-off valve on the incoming cold water pipe.
- Connect the incoming cold water to the T-coupling.
- Straight couplings, 22/15 mm, are installed on connections (74) and (75) as illustrated.
- Connect the flow line from pos (71) (white) on the air treatment section to pos (75) (white) on the water heater section.
- Hot water connection to pos (74) (red) on the water heater.







Filling the hot water heater

NOTE!

The heat pump's switch(8) must not be moved to position 1 until the water heater has been filled. Otherwise there is a risk of damaging the heat pump's components.

Fill the hot water heater during commissioning as follows:

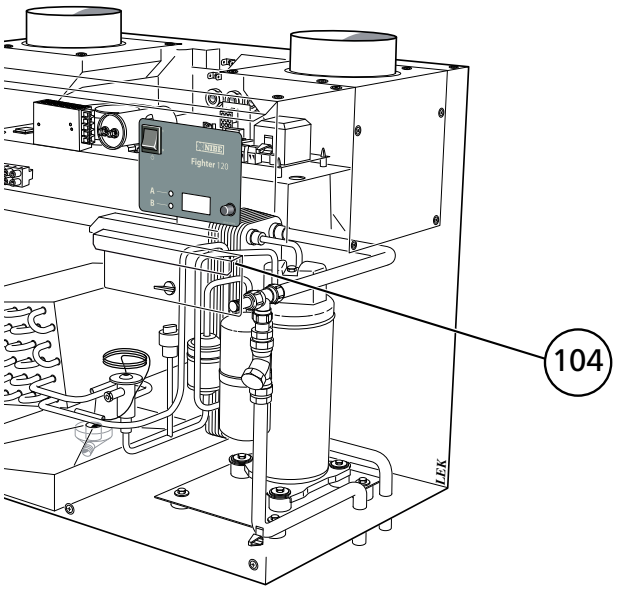
- Open a hot water tap.
- Open the shut-off valve completely. This valve should then be fully open during operations.
- Close the hot water tap when water without mixed air flows from it.
- Open the venting valve (104) until the water without mixed air come out.

NOTE!

Ensure that the circulation pump is filled with water before the heat pump switch (8) is set to 1.

Emptying the hot water heater

- Cut the power supply and shut-off the cold water supply.
- The hot water heater is emptied by opening the safety valve.
- To supply air to the water heater, open the venting valve (104) and a hot water tap as close to the unit as possible.
  If this is not sufficient, the compression ring coupling by connection (74) on the hot water heater can be released carefully.



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.

FIGHTER 120 is connected so that all ventilation air except the kitchen fan passes the evaporator (62) in the heat pump.

Connections must be made using flexible hoses, which should be stretched well and routed to allow easy replacement. 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 duct system must be carried out in accordance with current norms. A minimum of air tightness class B is recommended.

NOTE!

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

Exhaust air devices

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.

Electrical connections

All electrical equipment is connected at the factory.

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

The heat pump is connected to an earthed socket with the factory installed power cord that is supplied with connection plug. When working behind screwed covers, the circuit fuse must be removed or the connection plug pulled out.

Work behind screwed covers may only be carried out under the supervision of a qualified electrician.

Disconnect the heat pump before insulation testing the house wiring.

Circulation pump connection

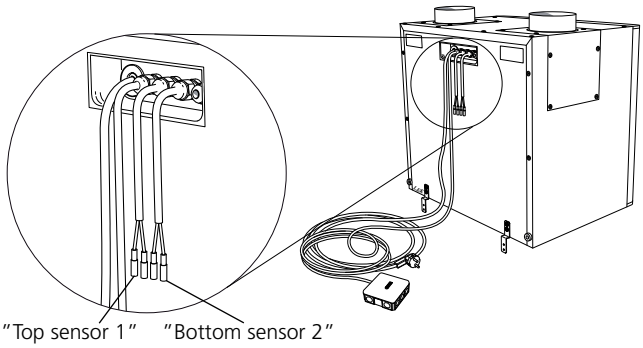
Install the supplied circulation pump close to the heater, as low as possible. Connect the pump in the supplied connector (105), which is connected to FIGHTER 120. The connector must be installed in close proximity to FIGHTER 120. Connect according to the colour codes on the conductors at the respective cable.

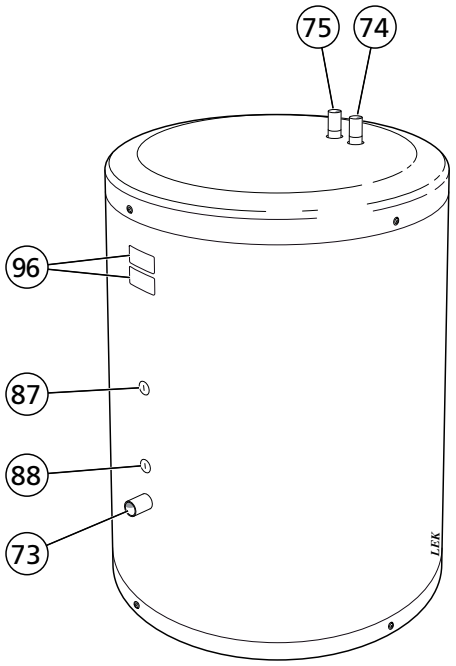
NOTE!

The heat pump's switch(8) must not be moved to position 1 until the water heater has been filled. Otherwise there is a risk of damaging the heat pump's components.

Sensor connection

- Connected the enclosed sensors to the round sleeves that are hanging on the reverse of the air treatment section. If the sensor cables have to be lengthened, a two-wire cable with an area of at least 0,5 mm^2 should be used.
- Place the sensor marked "Top sensor 1" in submerged tube (87) and the sensor marked "Bottom sensor 2" in submerged tube (88) in the hot water heater.





Commissioning

NOTE!

The heat pump's switch(8) must not be moved to position 1 until the water heater has been filled. Otherwise there is a risk of damaging the heat pump's components.

Adjusting the pump flow

In order to regulate the heat pump's circulation pump correctly, the trim valve must be adjusted at installation. This valve is factory set, however, the valve may need adjusting depending on the distance between the air treatment section and the water heater and dimensions of pipes.

A correctly set valve can be checked by allowing the heat pump heat up the water heater from cold. Carry out the following:

- Drain 30 – 50 l to make sure that there is cold water in the bottom of the water heater
- Allow the heat pump (compressor) to start and wait for 15 minutes for all values to stabilise
- Enter menu "VIEW" and check that:
  - "T BOTTOM" is less than 15 °C (If not – drain more water)
  - "T FORWD" = Set value +/- 2 °C (standard 57 °C).
  - "PUMP SPD" = 5 % – 20 %

If "**T FORWD" is lower than the set value or "PUMP SPD" is less than 5 %**, the trim valve (81) must be throttled more. Close the valve in increments of 1/8 of a turn, wait 5 minutes and read off the menus as above. Repeat until the conditions above are fulfilled.

If "**PUMP SPD" is greater than 20 %** the valve should be opened further. Open the valve in increments of 1/8 of a turn, wait 5 minutes and read off the menus as above. Repeat until the conditions above are fulfilled.

Service menus

Some of the menus in the following section are service menus, which means that they cannot be accessed from the start. These menus must only be used by those with sufficient knowledge about the heat pump and its functions.

The service menus are activated as follows:

Go to the SETTINGS menu and press and hold the control knob in for 5 seconds. The service menus are now activated.

The service menus are deactivated automatically after 10 minutes of inactivity, or manually by repeating the procedure for activation.

Registering remote control

To prevent the remote control from being interrupted by other nearby units, it must be registered by the heat pump's internal controller. This is normally carried out at the factory, but may also have to be done after service. Select "SEARCH" in menu " SETTINGS" > "REMOTE". The button on the remote control must be depressed and held depressed within 5 seconds until the remote control's serial number is shown in the heat pump display. This is also acknowledged on the remote control, all lamps light for a short time.

Hot water settings

NOTE! The temperature levels for the hot water are factory set and normally do not need to be changed. In certain cases, changes can be made as follows:

Temperature levels for the three comfort levels, ECO, NORMAL and HIGH are set in the menu system. First activate the comfort level in question.

ECO

The heat pump supplies hot water to the top of the water heater. The temperature of the supplied hot water can be changed in menu "SETTINGS." > "PUMP" > "FWD". The factory setting is 56°C.

The compressor is switched on and off by the upper hot water sensor (87).

Cut-off temperature is set in menu "SET ECO". The factory setting is 53 °C.

Cut-in temperature is set in menu "SETTINGS" > "HEATPUMP" > "T DIFF" where the cut-in temperature is "SET ECO" - "T DIFF". The factory setting is 4 °C.

NORMAL

The heat pump supplies hot water to the top of the water heater. The temperature of the supplied hot water can be changed in menu "SETTINGS." > "PUMP" > "FWD". The factory setting is 56°C.

The compressor is cut-in and cut-out by the lower hot water sensor (88).

Cut-off temperature is set in menu "SET NORM". The factory setting is 53 °C.

Cut-in temperature is set in menu "SETTINGS" > "HEATPUMP" > "T DIFF" where the cut-in temperature is "SET NORM" - "T DIFF". The factory setting is 4 °C.

HIGH

The heat pump supplies hot water to the top of the water heater. The temperature of the supplied hot water can be changed in menu "SETTINGS." > "PUMP" > "FWD". The factory setting is 61 °C.

The compressor is cut-in and cut-out by the lower hot water sensor (88).

Cut-off temperature is set in menu "SET HIGH". The factory setting is 57 °C.

Cut-in temperature is set in menu "SETTINGS" > "HEATPUMP" > "T DIFF" where the cut-in temperature is "SET NORM" - "T DIFF". The factory setting is 4 °C.

Periodic hot water increase

When periodic hot water increase is active, the heat pump will charge the boiler with a water temperature of 62 °C until the bottom temperature has been higher than 60 °C for more than an hour.. Then it resumes the level that applied before activation. This protects against the growth of legionella bacteria.

The "SETTINGS" > "LEGIO" > "LEG.INTV" menu indicates how often the increase is to be activated. The interval is adjustable between 1 and 30 days. The function can also be deselected by selecting AV. The factory setting is 14 days.

Adjusting the ventilation flow

The installer must make any adjustments to the three ventilation speeds. Each speed can be adjusted between 30 and 100 %. See the fan diagram below for desired fan capacity. The percentage of the curves refer to the setting in the menu. The menus below are under "SETTINGS" > "FAN".

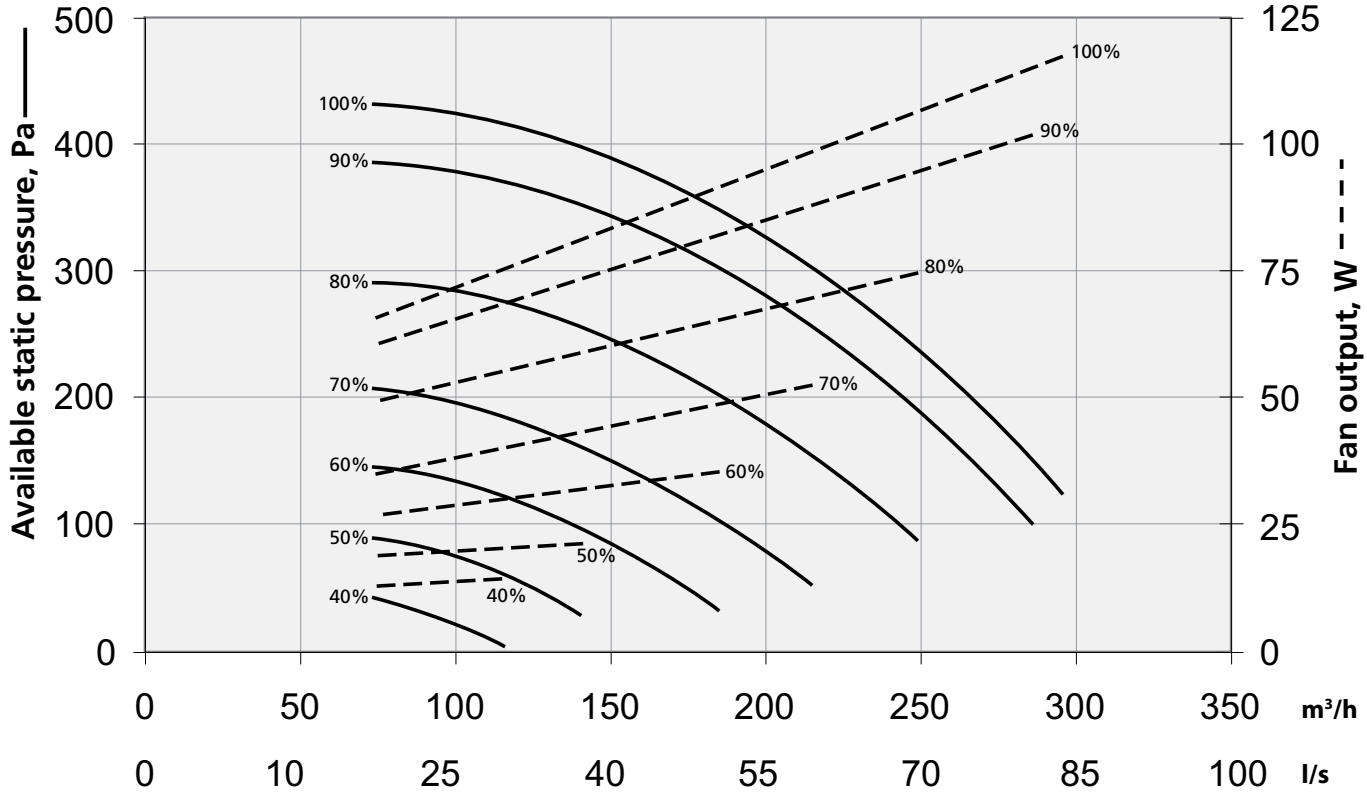
- The ventilation flow of the building under normal conditions is set with "MED".
- Reduced ventilation ("LOW") is set so that the heat pump's minimum permitted volume flow does not fall below (75 m³/h).
- Forced ventilation ("HIGH") is set as desired. Note that high fan speeds affect the noise level in the ventilation system.

The fan mode for when the compressor is running is set in menu "CPR ON". The fan mode for when the compressor is shut-off is set in menu "CPR OFF". A temporary change of fan speed can be made using the remote control(see section "General" – "Remote control").

Minimum flow should conform to the demands as set out in applicable norms. For optimum fan operation the ventilation flow must not fall below 75 m³/h (20 l/s).

Fan diagram

The diagram below shows the available ventilation capacity.



Navigation

All navigation between menus and change of adjustable parameters is carried out using the control knob. Menus with an arrow in the lower right-hand corner contain sub-menus. To view the sub-menus press the control knob in once. To return to a higher menu level, each level ends with "MENU UP". Pressing the control knob in once jumps one level up in the menu tree.

Press the control knob in once to change parameter in the menus. The number/text starts to flash, which means that the value/option can be changed by turning the control knob clockwise or anticlockwise. To confirm the changes press the control knob in once.

Example

To change the setting of the remote control's return time speed, carry out the following:

- Turn the knob until "SETTINGS" is shown in the display.
- Press the knob to enter the sub-menu.
- Turn the knob until "RETURN" is displayed.
- Press the knob to activate value changing.
- Turn the knob to select the desired value.
- Press the knob to confirm the change.
- Turn the knob to access "MENU UP".
- Press the knob to go up a level in the menu tree and to return to the start.

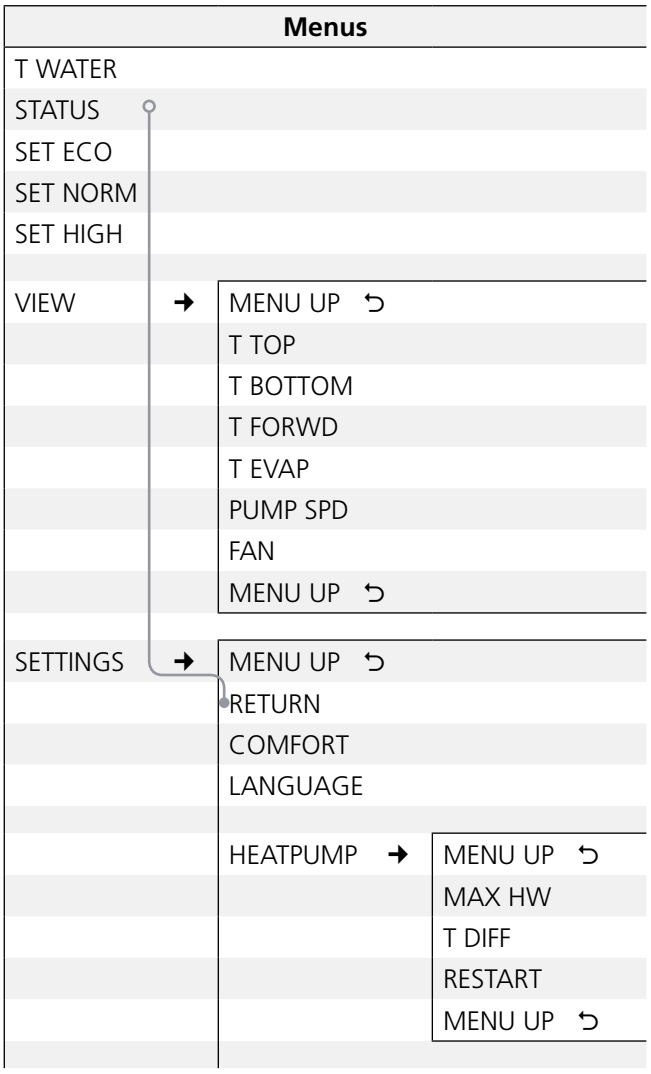
Service menus

Note that several of the menus are service menus, which means that they cannot be accessed at the starting point. These menus must only be used by those with sufficient knowledge about the heat pump and its functions.

The service menus are activated as follows:

Go to the SETTINGS menu and press and hold the control knob in for 5 seconds. The service menus are now activated.

The service menus are deactivated automatically after 10 minutes of inactivity, or manually by repeating the procedure for activation.



Control

Menus			Setting range	Factory settings
T WATER			–	–
STATUS			–	–
SET ECO			5 – 65 °C	53 °C
SET NORM			5 – 65 °C	53 °C
SET HIGH			5 – 65 °C	57 °C
VIEW →	MENU UP ⮌			
	T TOP		–	–
	T BOTTOM		–	–
	T FORWD		–	–
	T EVAP		–	–
	PUMP SPD		–	–
	FAN		–	–
	MENU UP ⮌			
SETTINGS →	MENU UP ⮌			
	RETURN		--- / 1 – 150 h	1 h
	COMFORT		ECO/NORM/HIGH	NORM
	LANGUAGE		ENGLISH/SWEDISH/DANISH/ DUTCH	ENGLISH
SERVICE MENUS	HEATPUMP →	MENU UP ⮌		
		MAX HW	40 – 65 °C	65 °C
		T DIFF	1 – 10 °C	4 °C
		RESTART	1 – 30 minutes	12 min
		MENU UP ⮌		
	DEFROST →	MENU UP ⮌		
		DEF.TIME	10 – 60 minutes	30 min
		FAN	LOW/MED/HIGH	MED
		MENU UP ⮌		
	LEGIO →	MENU UP ⮌		
		LEG.INTV	OFF / 1 – 30 days	7 days
		MENU UP ⮌		

	Description
	Indicates current hot water temperature. In ECO operating mode, the temperature is displayed according to the upper hot water sensor (87) and in NORM and HIGH, the temperature is displayed according to the lower hot water sensor (88).
	Indicates the current status: RUN (Normal operation) / DEFROST (Defrosting mode) / LEGIO (Periodic hot water increase activated) / MANUAL (Forced control activated).
	The compressor's stop temperature when comfort mode ECO is selected. Controlled by the upper hot water sensor (87).
	The compressor's stop temperature when comfort mode NORM is selected. Controlled by the lower hot water sensor (88).
	The compressor's stop temperature when comfort mode HIGH is selected. Controlled by the lower hot water sensor (88).
	The temperature as well as pump and fan speeds can be read off under the menu VIEW.
	Indicates the hot water temperature in the upper section of the tank, sensor (87).
	Indicates the hot water temperature in the lower section of the tank, sensor (88).
	Indicates the flow line temperature from HP to water heater, sensor (89).
	Indicates evaporation temperature, sensor (86).
	Indicates the pump speed in percent, 0 to 100 %.
	Indication of current fan speed: SLOW/MED/HIGH/REMOTE.
	If the control knob is held in for longer than 5 seconds in this mode, the service menus are activated.
	The time before the ventilation flow returns to normal flow after it is changed with the remote. When set at the factory setting, "---", the remote control changes are permanent.
	The desired comfort mode for hot water production is selected here.
	Selection of language.
	Maximum hot water temperature in the water heater at the upper hot water sensor (87).
	Temperature difference between start and stop of the compressor.
	Minimum time between compressor starts.
	Defrosting starts when the evaporation temperature becomes too low. The compressor stops and the ventilation flow heats the evaporator until the defrosting time (DEF.TIME) has been exceeded and the evaporation temperature is above 7 °C.
	Defrosting time.
	Fan speed during defrost.
	How often the periodic hot water increase (legionella protection) is to be activated is set here.

Control

Menus			Setting range	Factory settings
SETTINGS continued	FAN →	MENU UP ⮌		
		FAN LOW	30 – 100 %	40 %
		FAN MED	30 – 100 %	65 %
		FAN HIGH	30 – 100 %	90 %
		CPR ON	LOW/MED/HIGH	FAN MED
		CPR OFF	OFF/LOW/MED/HIGH	FAN MED
		MENU UP ⮌		
SERVICE MENUS	PUMP →	MENU UP ⮌		
		CPR ON	OFF/ON	OFF
		DELAY	0 – 120 s	30 s
		CPRDELAY	0 – 120 s	30 s
		FWD	ECO/NORMAL: 40 – 65 °C HIGH: 40 – 65 °C	ECO/NORMAL: 56 °C HIGH: 61 °C
		TFWDMAX	40 – 67 °C	65 °C
		GAIN	0,0 – 10,0	1,5
		TN	5 – 600 s	200 s
		TD	5 – 600 s	5 s
		MENU UP ⮌		
	FILTER →	MENU UP ⮌		
		INTERVAL	30 – 150 days	90 days
		MENU UP ⮌		
	REMOTE →	MENU UP ⮌		
		SEARCH	–	–
		MENU UP ⮌		
	MENU UP ⮌			
ALARM →	MENU UP ⮌			
	ALARM		–	–
	ALARMLOG →	MENU UP ⮌		
		AL1:5	–	–
		AL2:5	–	–
		AL3:5	–	–
		AL4:5	–	–
		AL5:5	–	–
		MENU UP ⮌		
	MENU UP ⮌			

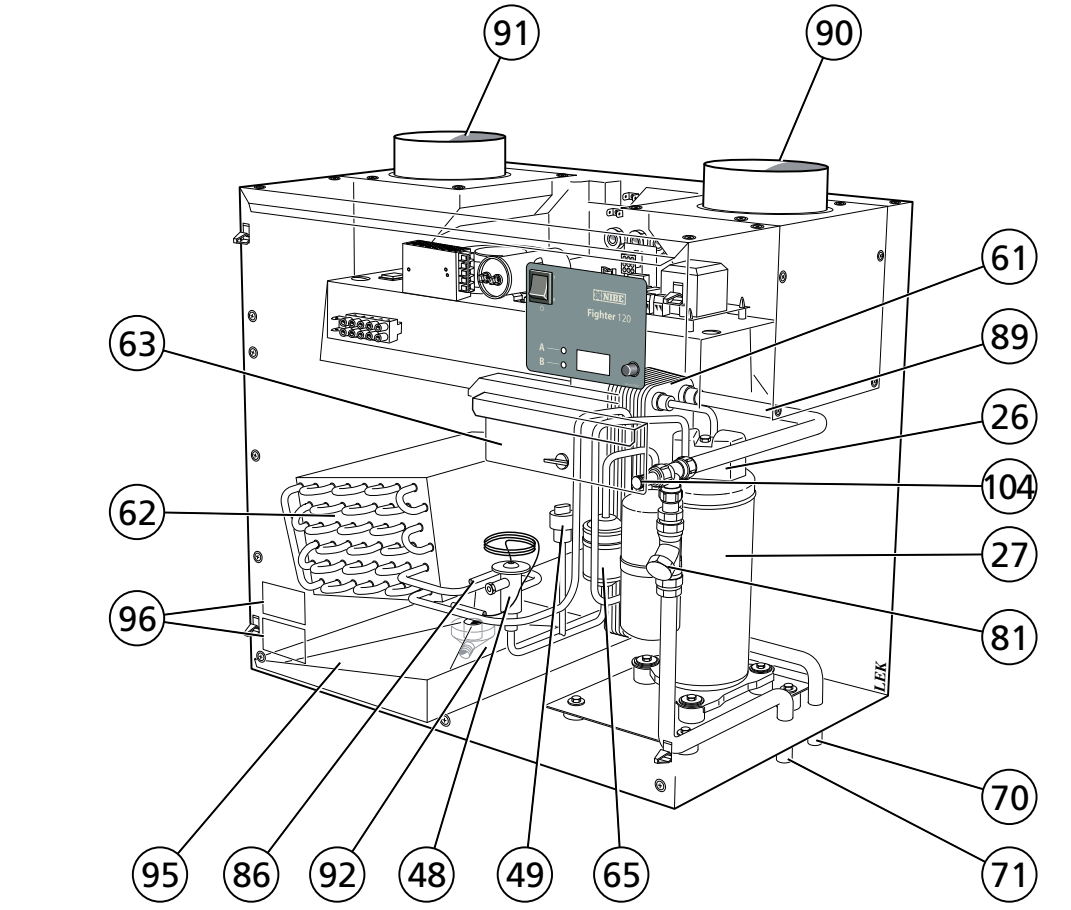
	Description
	Setting the fan speed FAN LOW.
	Setting the fan speed FAN MED.
	Setting the fan speed FAN HIGH.
	Fan speed when the compressor is running.
	Fan speed when the compressor is off.
	Compressor operation. Must be in mode ON.
	The time from when the circulation pump started to when the compressor is to start.
	The time from when the compressor stopped to when the circulation pump is to stop.
	Flow line temperature during comfort mode ECO, NORMAL and HIGH. Setting only applies to current comfort mode.
	Maximum permitted flow line temperature.
	Pump control parameters.
	Pump control parameters.
	Pump control parameters.
	Interval between filter change or cleaning.
	Search of corresponding remote controls. See section "Commissioning and adjusting" – "Registering remote control".
	Shows the current alarm.
	The alarm log displays the last five alarms.

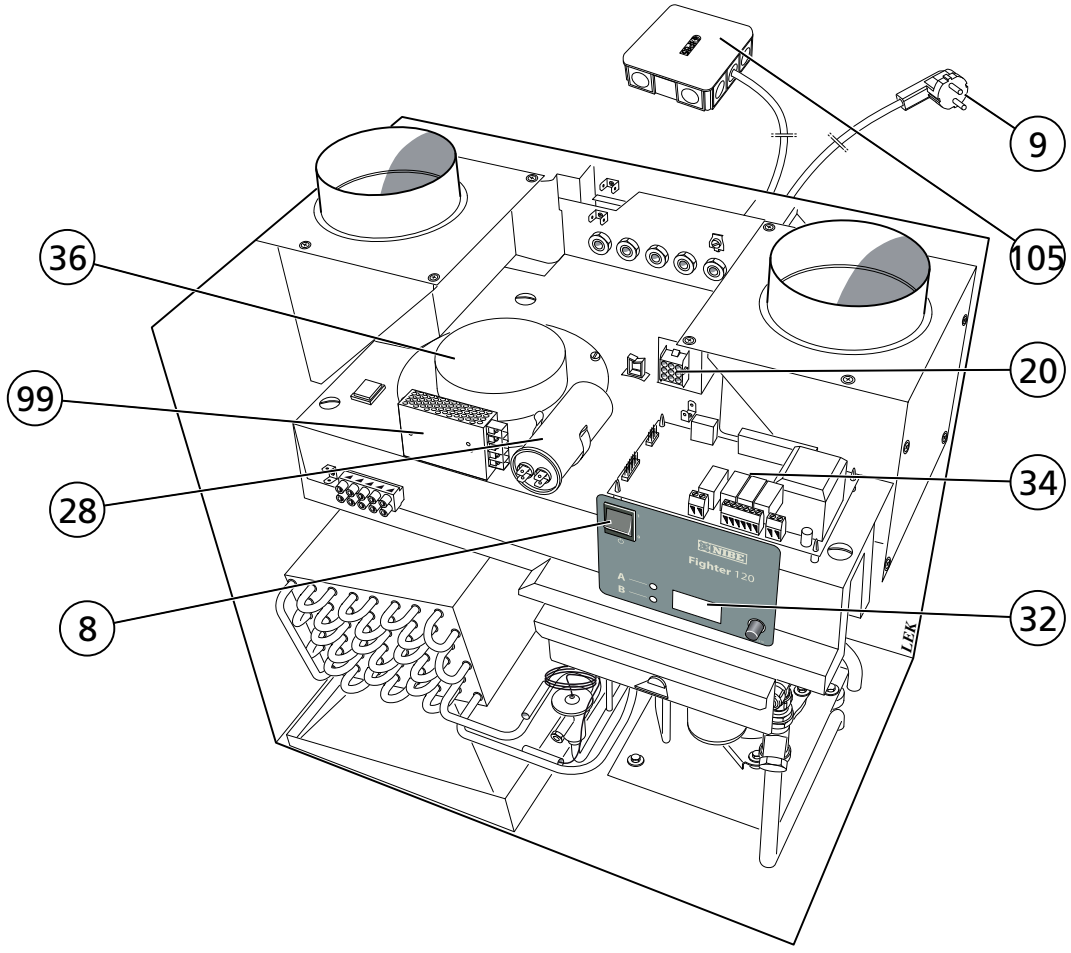
Control

Menus			Setting range	Factory settings
SERVICE →	MENU UP ⮌			
	NIBE		–	–
SERVICE MENUS	MANUAL →	MENU UP ⮌		
		ACTIVATE	YES/NO	NO
		COMPRESS	OFF/ON	OFF
		FAN	OFF/ON	OFF
		PUMP	OFF/ON	OFF
		PUMP SPD	0 – 100 %	0 %
		FAN SPD	0 – 100 %	0 %
		MENU UP ⮌		
	RUN TIME →	MENU UP ⮌		
		HEATPUMP	–	–
		COMPRESS	–	–
		PUMP	–	–
		MENU UP ⮌		
	FILTER →	MENU UP ⮌		
		DUE IN	–	–
		MENU UP ⮌		

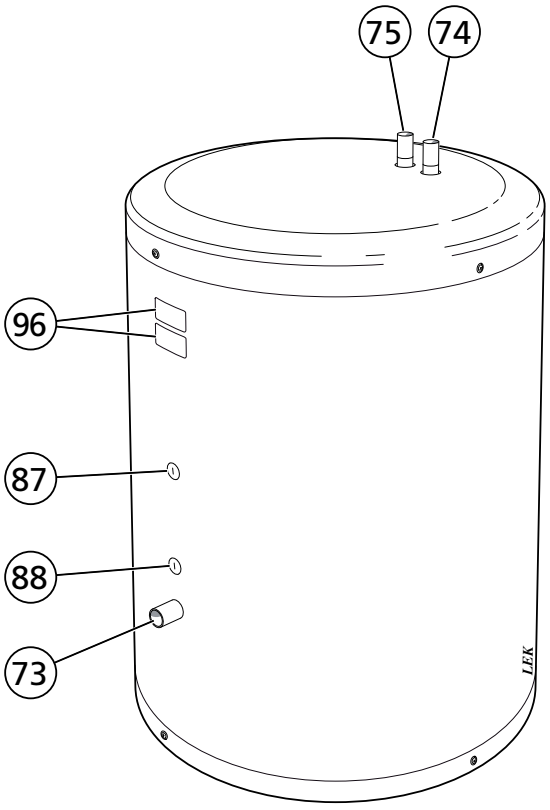
	Description
	Indicates the heat pump's program software version.
	The MANUAL menus have a timeout of 10 minutes.
	Activates manual operation.
	Manual control of compressor.
	Manual control of fan.
	Manual control of circulation pump.
	Pump speed.
	Fan speed.
	Total heat pump operation time.
	Total compressor operation time.
	Total circulation pump operation time.
	Remaining time until next filter change/cleaning.

Component locations



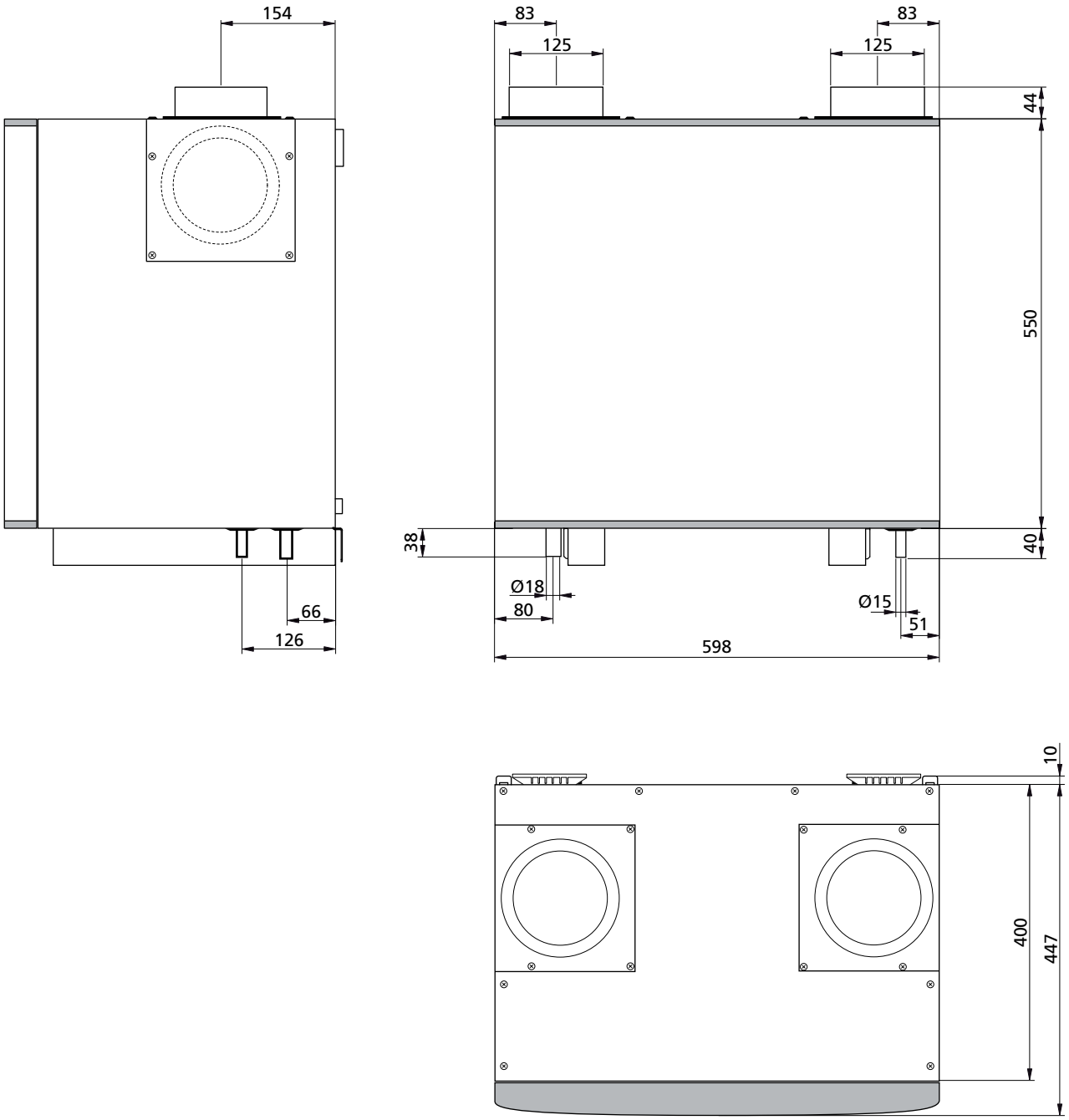


8 Switch, positions 0 1
9 Incoming supply
16 Circulation pump
20 Connector, fan
26 Motor protection, compressor
27 Compressor
28 Starting capacitor, compressor
32 Display card
34 Control card
36 Fan
48 Expansion valve
49 High pressure pressostat
61 Condenser
62 Evaporator
63 Air filter
65 Drying filter
70 Connection, return line, blue (Ø15 mm)
71 Connection, flow line, white (Ø15 mm)
73 Connection, cold water, blue (Ø 28 mm)
74 Connection, hot water, red (Ø 22 mm)
75 Connection, flow line from HP, white (Ø 22 mm)
81 Trim valve
86 Temperature sensor, evaporator
87 Temperature sensor, upper hot water
88 Temperature sensor, lower hot water
89 Temperature sensor, supply line
90 Ventilation connection exhaust air, (Ø125 mm)
91 Ventilation connection exhaust air, (Ø125 mm)
92 Condensation water outlet
95 Condensation water seal
96 Rating plate
99 Transformer, cirkulationpump
104 Venting
105 Junction box

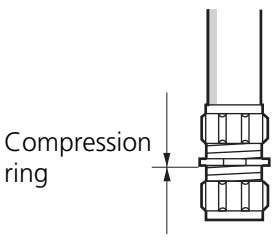


Dimensions and setting-out coordinates

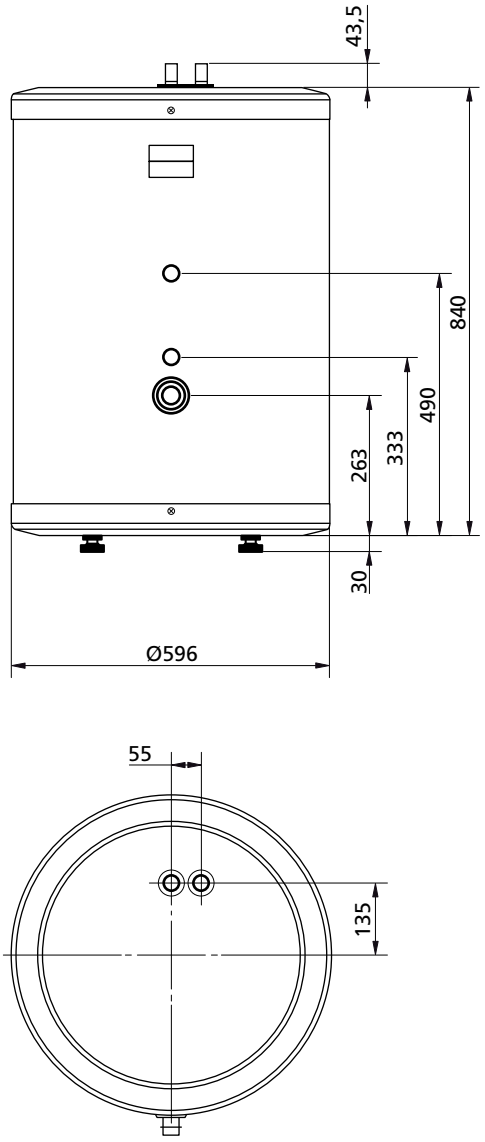
Air treatment section



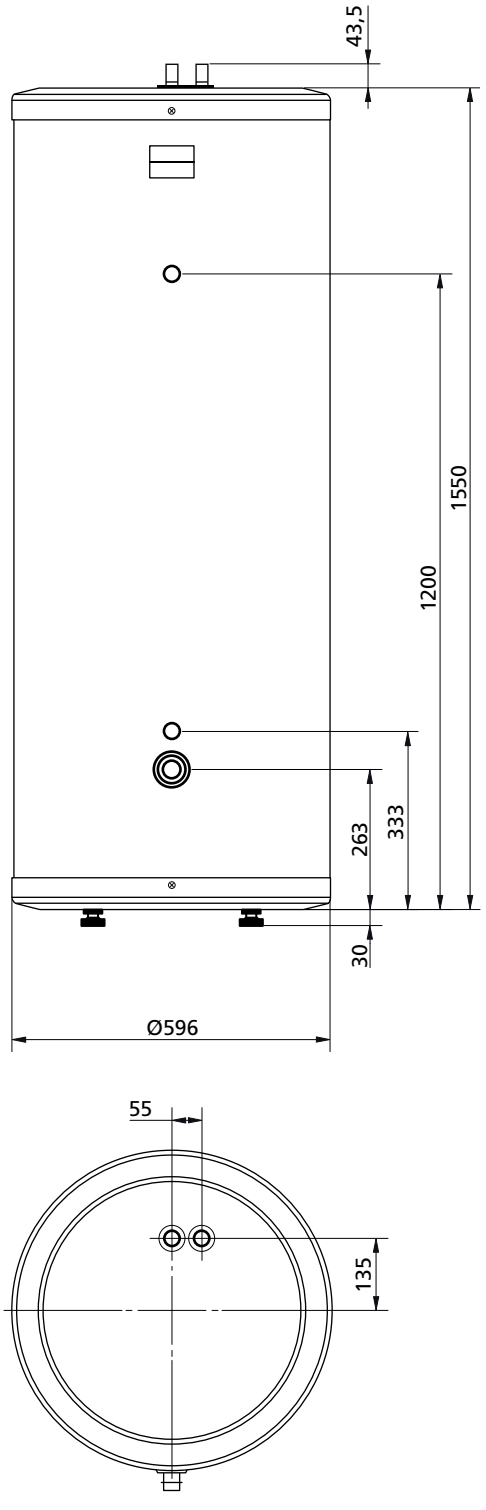
Measuring principle



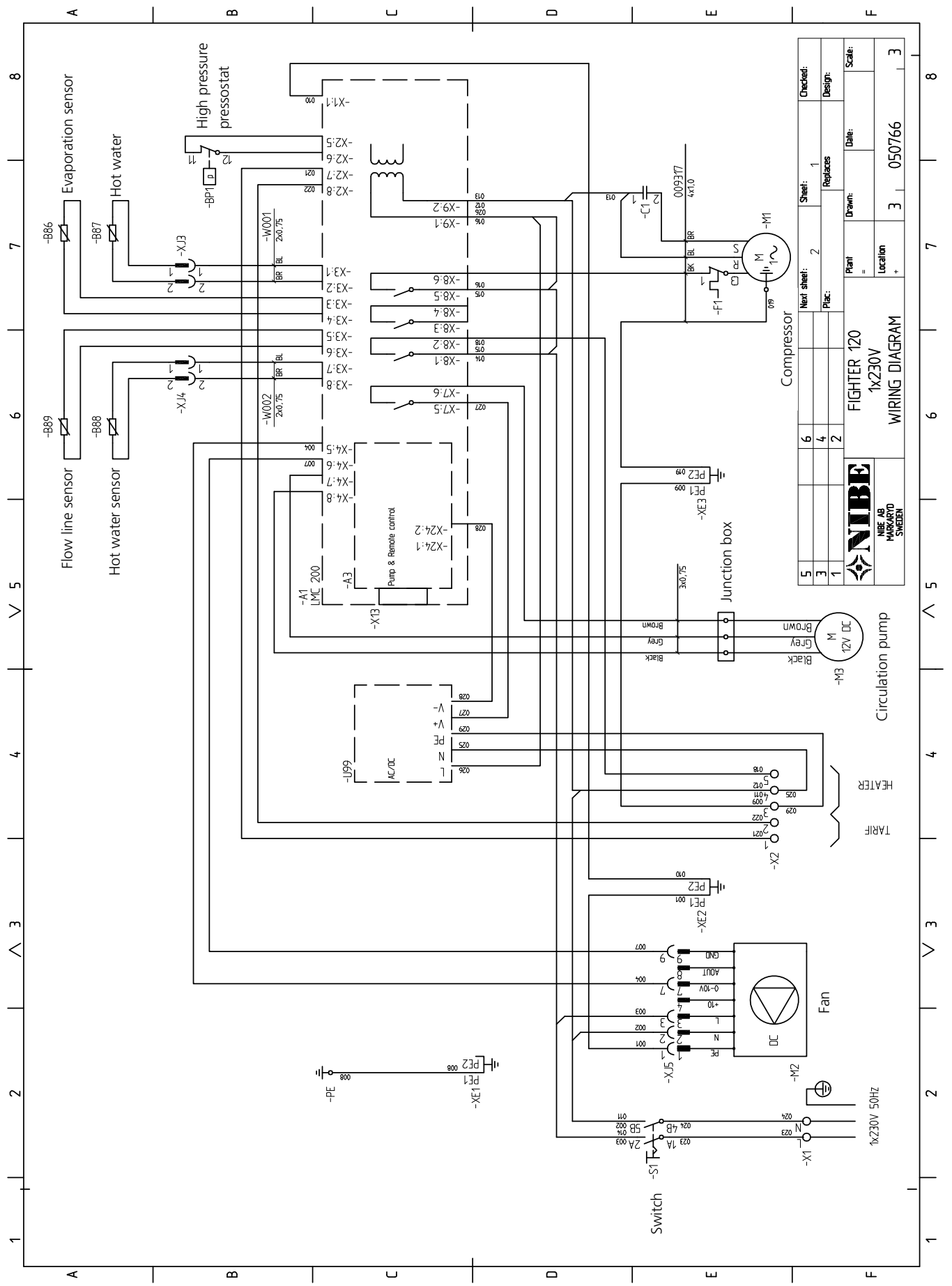
Water heater, 150 litres



Water heater, 300 litres

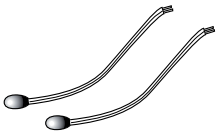


Electrical circuit diagram

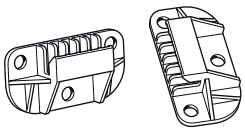


Enclosed kits

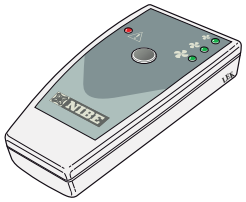
Enclosed kit 1



Temperature sensor x2
Part no. 418 027

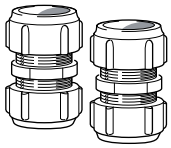


Plastic mounting x2
Part no. 434 606

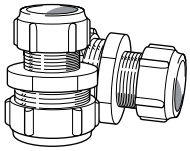


Remote control
Part no. 618 775

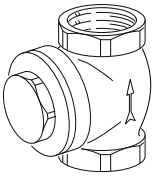
Enclosed kit 2



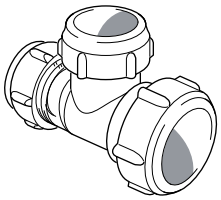
Straight coupling 15/15 x2
Part no. 024 007



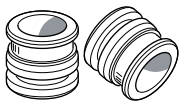
Straight coupling 22/15 x2
Part no. 424 673



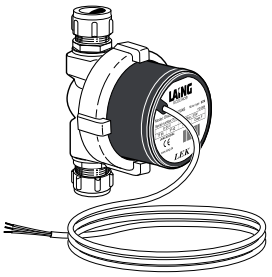
Non-return valve x1
Part no. 424 716



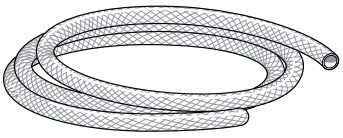
T-coupling 28/22/15 x1
Part no. 424 674



Internal reducer conex 22/15 x2
Part no. 024 296



Cirkulation pump x1
Part no. 624 876



Hose
Part no. 034 020

Hose damp
Part no. 024 217

Technical specifications

Air treatment section

CE IP 21

Height	600 mm
Width	600 mm
Depth	456 mm
Net weight	38 kg
Supply voltage	230 V~ 1-phase + N
Rated output, compressor	245 W
Rated output, circulation pump	10 W
Driving power fan (DC)	25 – 110 W
Enclosure class	Drip proof IP21
Max sound level at 260 m³/h	45 dBA
Refrigerant amount	470 g
Refrigerant type	R134a
Break pressure high pressure pressostat	2,0 MPa (20.0 (bar)
Max flow line temperature, compressor	65 °C
Connection, flow line (white)	15 mm*
Connection, return line (blue)	15 mm*

Water heater

CE

Volume	150 l			300 l		
Height	840 mm			1 550 mm		
Diameter	596 mm					
Net weight	31 kg			53 kg		
Connection, hot water (red)	22 mm*					
Connection, cold water/ HP return (blue)	28 mm*					
Connection, HP front (white)	22 mm*					
Hot water volumes:						
Comfort mode	ECO	NORM	HIGH	ECO	NORM	HIGH
Volume 40 °C hot water**	> 90 l	180 l	200 l	> 90 l	385 l	425 l

* Compression ring coupling for 15 mm copper tube included.

** At 10 °C incoming cold water temperature.

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NIBE