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Operating instructions

Electric mobile boilers 19 kW / 40 kW

FHEMB19, FHEMB40



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Symbols and terms used

All safety and warning information in this manual has been clearly highlighted. The following symbols and signal words are used for warnings.

	Danger Warns you of hazards that could result in personal injury or significant property damage.
	Danger Operating disruptions may occur if you do not follow these instructions.
	Risk of electric shock Indicates a situation that may result in an electric shock.
	Risk of burns Indicates a situation that may cause burns due to high or low temperatures.
	Danger of explosion Indicates a situation that may result in an explosion.
	Warning: Flammable material
	Tip Reference to useful information on using the device
	Information
Abbreviations:	
Etc.	Safety temperature limiter
BE	Diaphragm expansion tank
KFE	Ball valve filling / emptying
VL	Lead-up
RL	Return
HK	Heating circuit
TWW	Hot drinking water
mWS	Meter water column

2 Important safety regulations

IMPORTANT SAFETY INSTRUCTIONS FOR BOILER READ THESE INSTRUCTIONS CAREFULLY BEFORE CONNECTING THE BOILER TO THE HEATING CIRCUIT. Installation and connection must only be carried out by qualified personnel.	
Danger of misuse!	
	Use the device only for the purpose described in this manual. Otherwise you may endanger yourself or damage the device.
Danger from unauthorized changes!	
	Never modify the device or any part of it without obtaining a safety certificate from the manufacturer. Doing so endangers yourself and others. Serious injuries and/or significant property damage may result.
Danger for unauthorized operating personnel!	
	Only work with the device if you have been properly instructed and have understood the contents of this operating manual.
	Never bypass the settings of the safety devices. The device must not be used in potentially explosive areas Before performing any maintenance on the unit, the electrical power supply must be disconnected.
Danger from fire and smoking!	
	Never smoke or light a fire on or in the system while working on or in the heating system. Otherwise, you endanger yourself. Serious injuries or significant property damage may result.
Risk of burns!	
	Do not touch the device or internal components during or immediately after operation.
Risk of electric shock!	
	Work on electrical components must be carried out by qualified personnel in compliance with local regulations.

3 Technical data

Please refer to the following tables for the respective technical data and connection values for your model

3.1 FHEMB19

Circulation pump:	max. 3,0 m ³ /h, max. 5,5 mWS		
Heating connection:	VL/RL DN 25, bayonet lock		
Volumen MAG:	10 Litre		
Recommended operating pressure:	1.5 – 2.0 bar (safety valve = 3.0 bar)		
Protection class:	IP 44		
Heating operation:	20 – 80° C		
Heating output:	3 kW	11 kW	19 kW
Electrical connection:	CEE 16 A /230V/50Hz/1 phase	CEE 16 A /400V/50Hz/3 phase	CEE 32 A /400V/50Hz/3 phase
Control:	MHRQ2		
	Digital and programmable screed heating programs		
Screed heating programmes:	6 Pre-installed programs Creating your own programs is possible		

3.2 FHEMB40

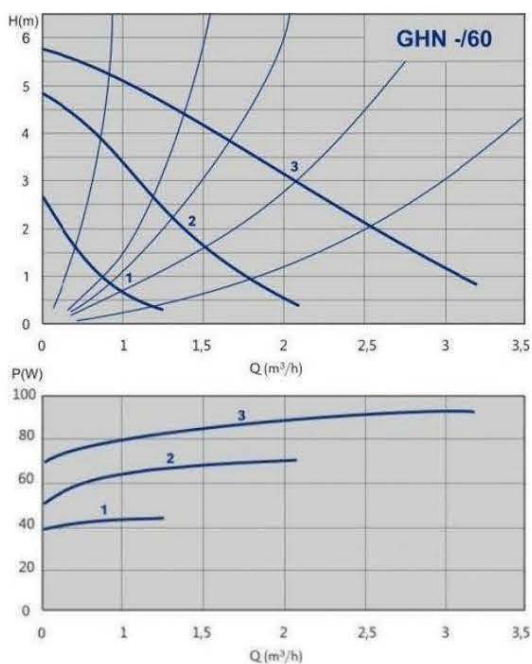
Circulation pump:	max. 5,5 m ³ /h, max. 6,5 mWS		
Heating connection:	VL/RL DN 25, bayonet lock		
Volume MAG:	10 Litre		
Recommended operating pressure:	1.5 – 2.0 bar (safety valve = 3.0 bar)		
Protection class:	IP 44		
Heating operation:	20 – 80° C		
Heating output:	8 kW	16 kW	40 kW
Electrical connection:	CEE 16 A /400V/50Hz/3 phase	CEE 32 A /400V/50HZ/3 phase	CEE 63 A /400V/50Hz/3 phase
Control:	MHRQ2		
	Digital and programmable screed heating programs		
Screed heating programmes:	6 Pre-installed programs Creating your own programs is possible		

3.3 Intended use

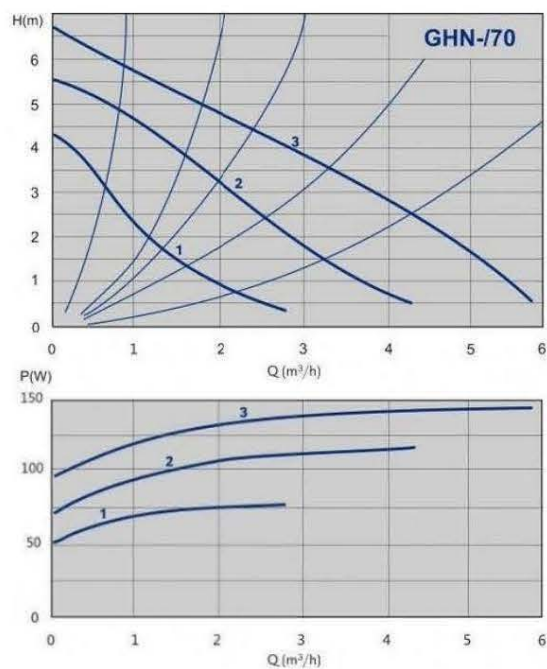
The mobile electric boilers are compact and fully functional mobile electric heating units for universal use in the event of heating malfunctions as emergency heating, during work on the boiler, for frost protection, for screed heating, or for preventive/initial heating, e.g., to prevent icing in a geothermal heat pump.

3.4 Pump characteristic curve

FHEMB19



FHEMB40



4 Setup / Commissioning

4.1 Transport

- Never lift or secure the device by the fittings.
- Store the device in a dry, frost-free and dust-free place.
- Disconnect the device from the power source before storing it.
- Only store the device after use when it is completely empty.

This ensures that no damage occurs to the device during transport and storage.

4.2 Installation and commissioning

- Ensure the surface is firm and level.
- Secure the device against rolling away
- Before commissioning, the shaft of the heating circuit pump must be checked for free movement
To prevent damage to the motor winding or impeller.



We recommend using a magnetite separator on the heating system.



Installation and commissioning may only be carried out by qualified personnel

4.2.1 Connection

Check whether the ball valves with handle are closed (pos. 1 and 2, Figure 1).
Close these if necessary.

Connect the connection lines for return flow (blue, item 2, image 1) and flow (red, image 1, item 2) to the on-site heating system.



(Image 1)

4.2.2 Filling and venting

- Attach a vent line to the flow line (item 4, figure 2).
- Attach a water supply line to the KFE (item 6, figure 2).
- Open the KFE for the water supply line and the ventilation line.
- Fill the device until there is no more air in the device.
- Close the KFE on the flow line (item 4, picture 2) and pay attention to the pressure indicator (item 5, Figure 2). The recommended operating pressure is 1.5 – 2 bar.
- Connect the device to the power supply (item 7, Figure 2). • Set the current selector switch to the desired connection (item 8, Figure 2).



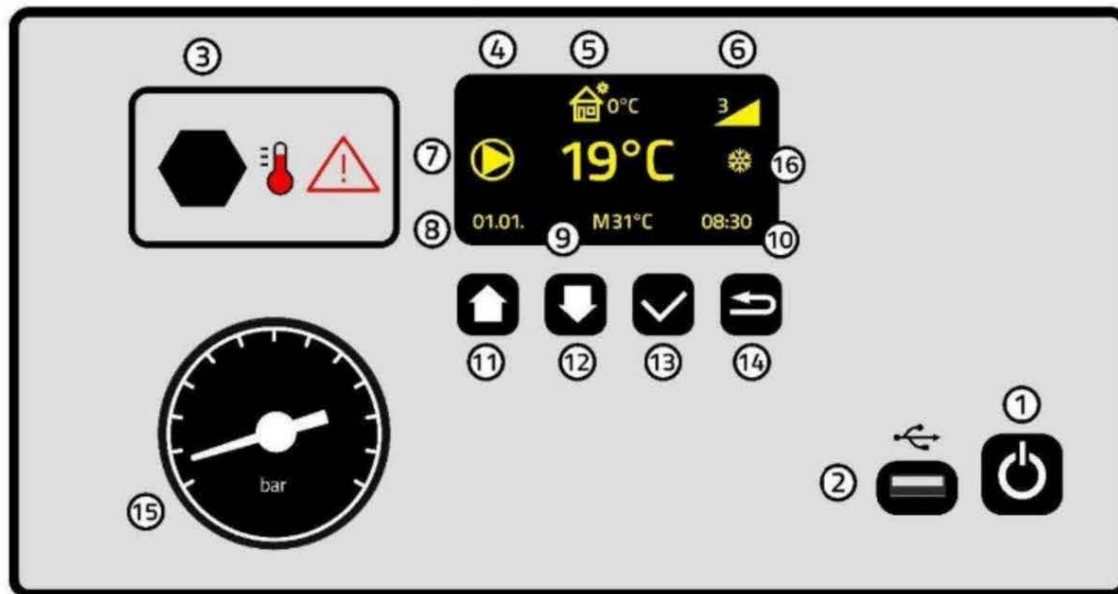
(Image 2)

- Never vent or fill the device when it is connected to the power supply.

4.2.3 Setting the control

4.2.3.1 Overview of the regulation

Installation and commissioning may only be carried out by qualified personnel



- 1 On/Off button
- 2 USB ports
- 3 STB
- 4 Boiler temperature
- 5 Outdoor temperature (only for devices with outdoor temperature sensor)
- 6 Number of active heating levels
- 7 Heating circuit pump in operation
- 8 Datum
- 9 Operating mode: Manual M or  Screed heating programme
- 10 Time
- 11 Multifunction button
- 12 Multifunction button
- 13 Enter key / Select program
- 14 Back / Check program info
- 15 Pressure indicator
- 16 Frost protection active

4.2.3.1 Menu overview

1. Menu Programs • User

program • Pre-installed

programs • Own programs after
uploading with USB stick

2. User menu • Select

language • User program

• Power limitation • Set clock

• Basic settings • Information

3. Service menu •

Underfloor heating •

Outdoor temperature sensor / weather-compensated •

Heating circuit pump run-on • Stand-

by temperature • Min. flow

temperature • Max. flow temperature

• Power level switch-on delay • Set

date and time • Delete log files • Reset counters •

Reset to factory settings

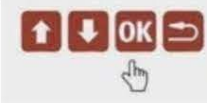
4.2.3.2 Heating manually

If no screed heating program or weather-compensated control is active, you can use the device to deliver a constant water temperature. This is indicated by an "M" next to the target temperature. You can set the desired temperature directly on the control using the two arrow buttons, as described in the following section.

4.2.3.3 Setting the flow temperature

	Press the arrow buttons (11 and 12) up or down to set the desired temperature. Confirm the change with the Enter key (13).
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4.2.3.4 Start program / Cancel program

	Press the Enter key (13) to select the heating program. Use the arrow keys (11 and 12) to set the desired program and confirm with the Enter key (13). Press the Enter key (13) to cancel the program. To do this, select yes or no using the buttons (11 and 12) and confirm your selection with the enter button (13).
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4.2.4 Screed heating programmes

4.2.4.1 Start user program

The heating program called user program is an individual heating program that can be created directly on the heater from software version 3.00.

You can individually set the temperatures in the user menu for up to 30 days.

Instructions on how to individually configure the user program can be found in section 4.2.5.5 Configuring the user program.

You can then select the user program in the program list.

4.2.4.2 Pre-installed programs

	Day heating for tiling DIN 1264-4	Functional heating DIN 1264-4	OE-Norm B 3732	OE-Norm B 2242-2	Suissetec cement drying standard	Calcium sulfate CaSO ₄
1	25°C	25°C	20°C	20°C	20°C	20°C
2	30°C	25°C	25°C	25°C	20°C	20°C
3	35°C	25°C	30°C	30°C	20°C	20°C
4	40°C	50°C	35°C	35°C	20°C	20°C
5	45°C	50°C	40°C	40°C	20°C	20°C
6	50°C	50°C	45°C	45°C	20°C	20°C
7	50°C	50°C	45°C	50°C	20°C	25°C
8	50°C		45°C	50°C	20°C	25°C
9	50°C		35°C	50°C	20°C	25°C
10	50°C		25°C	40°C	20°C	50°C
11	50°C			30°C	20°C	50°C
12	50°C			20°C	20°C	50°C
13	50°C			20°C	20°C	50°C
14	50°C			20°C	20°C	
15	50°C				20°C	
16	50°C				20°C	
17	45°C				20°C	
18	35°C				20°C	
19	25°C				20°C	
20					20°C	
21					25°C	
22					25°C	
23					25°C	
24					50°C	
25					50°C	
26					50°C	
27					50°C	
Program finished: 25°C						

Create program file via Logs

- To download and install the Windows app **Logs app** contact Flexiheat UK
- Start the **Logs program**.
- In the main menu, click on • Click the **New Program button**.
- Enter the **name** you want for the program.
- Enter the number of **days** for your program.
- In the **Temperatures** line, enter your desired temperatures and separate them with a comma without any spaces.
- Insert an empty USB stick into a free USB slot. (The USB stick must be **FAT32** formatted).
- Click **Export** and select the USB stick as the storage location. • Close the program.
- **Important:** The downloaded file must be named **FLEXIHEAT.PRG** . Any other names must be changed. (e.g., FLEXIHEAT(1).PRG must be changed to FLEXIHEAT.PRG)
- Connect the USB stick to the controller (connection 2).
- Select **Update Setup Files** using the arrow keys (11 and 12) and confirm with Enter. (13

Read log data

- Connect a USB stick • If setup files are available, use the arrow keys (11 and 12) to select log data to USB and confirm with the Enter key (13).
- If no setup files are available, the log data will be automatically written to USB loaded.

Create protocol

- Connect the USB stick to your PC or notebook.
- Start the **Logs program**.
- Click on the menu bar
- Select the folder with your recordings on the USB stick.
- By double-clicking on the recording in the Logs program you can view the recording as text and graphics.

To create a PDF report, enter (in the main menu) Your company data and then select a recording. In the menu, select the form and click **Save Protocol as PDF**. fill

4.2.4.4 Query the remaining runtime from the program

	Press the Back button (14) to check the remaining running time of the program.
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4.2.5 User menu

4.2.5.1 Accessing the user menu

- Press the Enter key (13) for more than 5 seconds to enter the user menu to call up.

4.2.5.2 Select language

- Select the desired language using the arrow keys (11 and 12) and confirm with the Enter key (13).

4.2.5.3 Power limitation

- Select the desired number of heating levels using the arrow keys (11 and 12) and confirm with the enter key (13).

4.2.5.4 Setting the clock

- Use the arrow keys (11 and 12) to set the desired time and confirm with the enter key (13).

4.2.5.5 Setting the user program (from software version 3.00)

- Select the desired number of days using the arrow keys (11 and 12) and confirm Press the Enter key (13).
- Use the arrow keys (11 and 12) to change the temperature for day #1 to the desired Value and confirm with the Enter key (13).
- Repeat this process for all subsequent days until you see Day #1 again
If this is the case, confirm with the back button (14).
- Use the arrow keys (11 and 12) to change the final temperature that the heater should maintain after the heating program has ended and confirm this with the enter key (13).
- Exit the main menu with the back button (14) • Press the enter button briefly and select the menu item with the arrow buttons (11 and 12) "User program" and confirm with the Enter key (13)

4.2.5.6 Factory settings

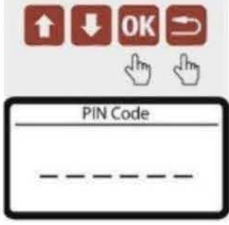
- Use the arrow keys (11 and 12) to select yes or no and confirm with the enter key (13).

4.2.5.7 Information

- Software version is displayed. • Use the arrow keys (11 and 12) up or down to display the operating hours.

4.2.6 Service menu

4.2.6.1 Access the service menu



Press the buttons (13 and 14) for at least 5 seconds to access the service menu.

Enter the PIN by pressing the following key combination 334112:

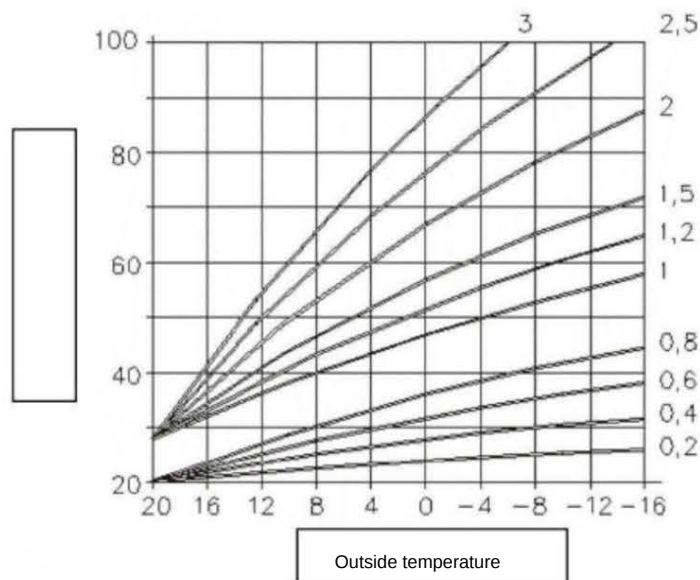
OK 2x Enter 1x Up 2x Down 1x

4.2.6.2 Underfloor heating

- Underfloor heating on - flow temperature setting range 15° – 45°C.
- Underfloor heating off - flow temperature setting range 15° - 90°C.

4.2.6.2 Outdoor temperature sensor / weather-dependent

Set heating curve (only for devices with outside temperature sensor)



- Underfloor heating ON - Heating curve 0.1 – 0.9
- Underfloor heating OFF - Heating curve 1 - 3 •

Select the desired heating curve using the arrow keys (11 and 12) and confirm with the enter key (13) confirm.

- The heating curve can only be adjusted when the outdoor sensor is active. •

This function is only available on devices with an outdoor sensor.

4.2.6.4 Heating circuit pump run-on

- 0 – 15 minutes
- Select the desired time using the arrow keys (11 and 12) and confirm with the enter key (13).

4.2.6.5 Stand-by Temperature

- 10° - 50°
- Select the desired stand-by temperature using the arrow keys (11 and 12) and confirm with the Enter key. (13) confirm.

4.2.6.6 Min. Flow Temperature

- You can set the minimum boiler temperature to 15° - 50° C.
- Select the desired temperature using the arrow keys (11 and 12) and confirm with the Enter key (13) confirm.

4.2.6.7 Max. flow temperature

- You can set the maximum boiler temperature to 50° - 90° C. (max. operating temperature Permanently 80°C)
- Select the desired temperature using the arrow keys (11 and 12) and confirm with the Enter key (13) confirm.

4.2.6.8 Switch-on delay power levels

- You can set the time between switching on two power levels between 15 – 360 Set seconds.
- Select the desired temperature using the arrow keys (11 and 12) and confirm with the Enter key (13) confirm.

4.2.6.9 Date and time

- Select the desired date or time using the arrow keys (11 and 12) and press Confirm with the Enter key (13).

4.6.2.10 Delete log files

- Use the arrow keys (11 and 12) to select “Delete log files” and confirm with Press the Enter key (13) to confirm your selection to delete the log files stored on the controller.

4.2.6.11 Reset counter

- You can reset the operating hours of individual heating elements. The total operating time of the boiler cannot be reset.
- Select the desired heating element or all heating elements using the arrow keys (11 and 12) and confirm with the Enter key (13). Use the arrow keys (11 and 12) to select YES or NO and confirm with the Enter key.

4.2.6.12 Factory settings

- Use the arrow keys (11 and 12) to select YES or NO and confirm with the Enter key (13).

4.2.7 Putting the boiler out of service

- Close the ball valves on the supply line (red, Figure 1, Chapter 3.3.1) and the return line (red, Figure 1, Chapter 3.3.1). Drain the system at the lowest point, if possible.

5 Malfunctions: Causes and Solutions

5.1 General

Fault •	Possible cause	Fix
Heating cools down	No mains voltage	- Check fuse on site - Check supply line - F1 and circuit breakers in the device and in the on-site Check distributor - Check whether the system is switched on
	System pressure too low or too high. (Pressure should be at least 1.5 bar, maximum pressure 3 bar)	- At low pressure - Refill water - if the pressure is too high - Drain water
	Flow and • Flow temperature should Check return temperature	right with the Boiler temperature (+/- 5°)
	Air in the system	Vent the system
	No circulation	- Check pump for functionality - Check barriers
	STB has triggered (110°C) •	Unlock STB
	Incorrect setting Room thermostat	- Attitude Check room thermostat - Bridge room thermostat missing
• Display is dark	Fuse F1 on the circuit board • Replace fuse F1 defect	
• Heating too warm	Error message on Control, burner or Check pump	To troubleshoot the Error list of the respective Check device
	Check the temperature setting on the control	Set temperature
• Residual current circuit breaker cannot be switched on	- STB puncture - Heating elements defective	- Check or replace STB - Check or replace heating elements

• Target temperature not visible	• Bridge room thermostat missing • Target temperature is set via Room thermostat controlled	• Check if bridge for Room thermostat is present • Check the room thermostat setting.
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5.2 Error code table control MHRQ2

Error code on the display	Cause	remedy
• Air in the boiler	• Not sufficiently vented •	• Vent the device (Chapter 3.3.2)
• Temperature sensor XXX interrupted	• Temperature sensor XXX has no proper contact or is defective	• Check plug connections for tightness or check cables for damage • Replace temperature sensor
• Temperature sensor XXX short circuit	• Temperature sensor XXX is defective	• Check cable for damage • Replace temperature sensor
• Overtemperature / Safety chain Check pressure and STB	• Safety temperature limiter has been triggered • Fine-tuning of the Heating circuit pump defective	• Safety temperature limit • Replace the fine fuse (located on the motherboard)

5.3 Heating circuit pump

Disturbance	Possible cause	Fix
• Pump makes noise • Air in the system	• Pump defective • Incorrect operating mode and Power set • Pump performance too low	• Vent the system • Replace pump • Adjust pump • Check pump settings

6 Maintenance

6.1 Regular maintenance

- Clean the device after each use.
- Check and clean the heating elements after each use. Remove coarse dirt using a soft plastic brush. Limescale deposits can be removed with a mild descaling cleaner.
- Clean the dirt trap in the return line after each use.
- Clean the boiler regularly using a scale remover.
- Check the STB before every use.
- Before each start-up, check that the shaft of the heating circuit pump moves freely.

Please note the statutory inspection periods

6.3 Storage

- Only store the device after use when it is completely empty.
- Turn all ball valves to the 45° position.
- This ensures that no damage occurs to the device during storage.

EC Declaration of Conformity



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declare in exclusive responsibility that the product

FHEMB19, FHEMB40

from Serial number

	2001/95/EG	Product safety: general rules
to which this declaration relates is in conformity with the following standards	2006/42/EG	Machinery Directive
		directive Machines
	2014/35/EU	Electrical devices for use within certain limits
	2014/30/EU	electromagnetic compatibility

The following harmonized standards were applied

EN ISO 12100 Safety of machinery and equipment

EN ISO13849-1 Safety-related parts of control systems

DIN EN 60204-1 Safety of electrical equipment

EN 61000-6-2 Electromagnetic compatibility
EN 61000-6-4

