MOECK & MOECK

MOECK WARMING SYSTEM®
User training – TWINWARM BB

CONTENT

Follow instructions for use

Target patient group
adult patients
paediatric patients (premature infants from 700 g)

Indications
For the treatment of patients in medical facilities who require temperature management. It is designed to treat both adult and paediatric patients (premature infants from 700 g).

Premature infants and babies absorb the ambient temperature faster!
The vital signs of young patients **must be monitored continuously**.

→ Warm to a **maximum of 40 °C**, if necessary, reduce the airflow output stage to 1 - 2.

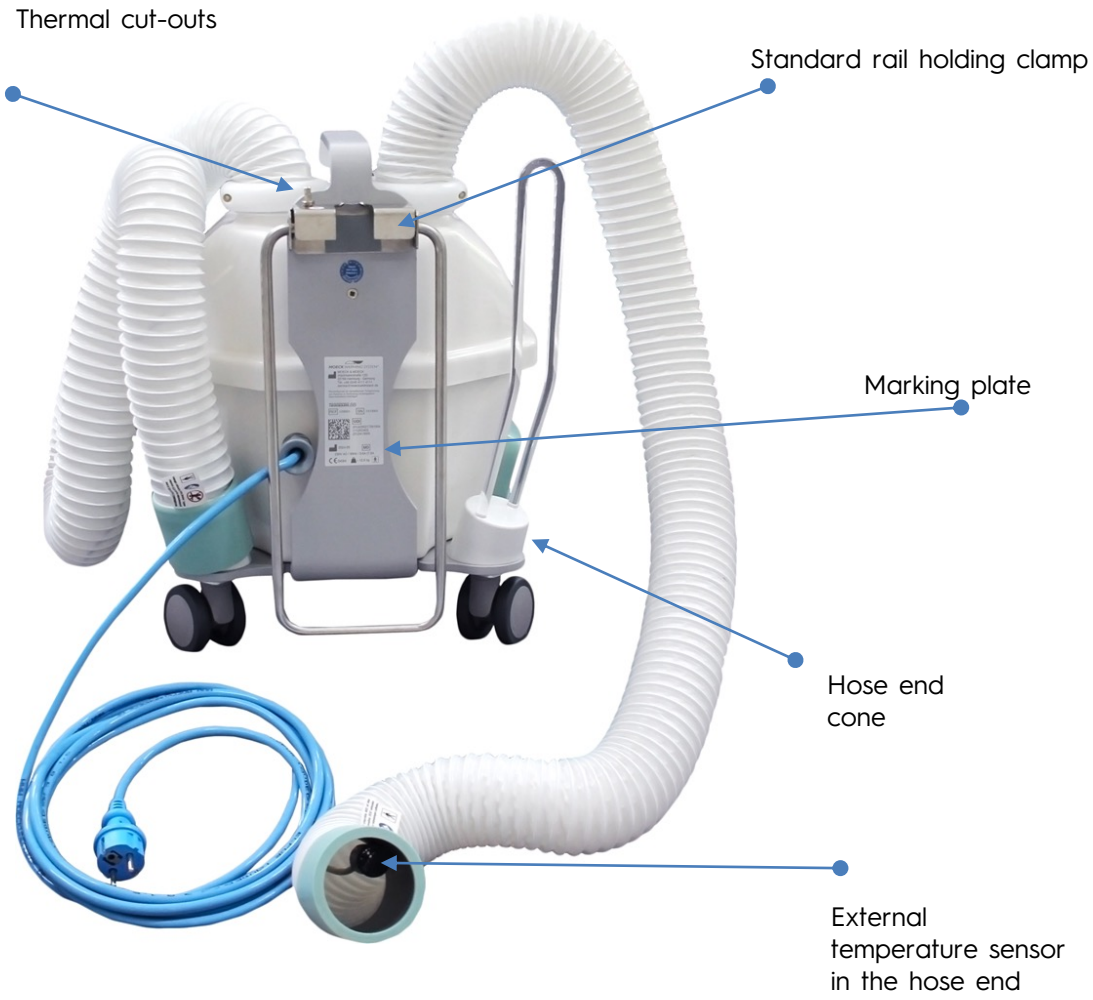
- The device must not be used on several patients at the same time.
- Always secure the patient so they cannot slip/fall off before switching on the device! Be sure to follow the instructions for use for the warming blanket/mat.
- The connected compatible warming blankets/mats should not come into contact with unhealed wound surfaces. Unhealed wound surfaces must be covered.
- Warming body parts distal to an arterial clamp can cause burns if not monitored.
- The forced air warming device includes only "mild" cooling, and **no active cooling**.
- The patient's body temperature must be taken according to your institution's guidelines and the patient must be checked for any possible skin reactions. The patient's vital signs should be checked regularly.

- The device should only be used by **trained medical personnel**!
- Do **not** operate the device **without filters or with defective ones!** There is a risk of fire if the heater comes into contact with dust and lint!
- The surface of the forced air warming device must be checked for mechanical damage before each use. Do not use the device if it has mechanical damage or if it is not fixed securely or secured on a hard surface. Otherwise, it may cause injury.
- CAUTION: Do not place the device under the operating table's armboard!

- **Do not operate if a blanket is not connected.** WARNING! The hose nozzle MUST be connected to a suitable convective BLANKET, otherwise burns may occur.

CONTENT

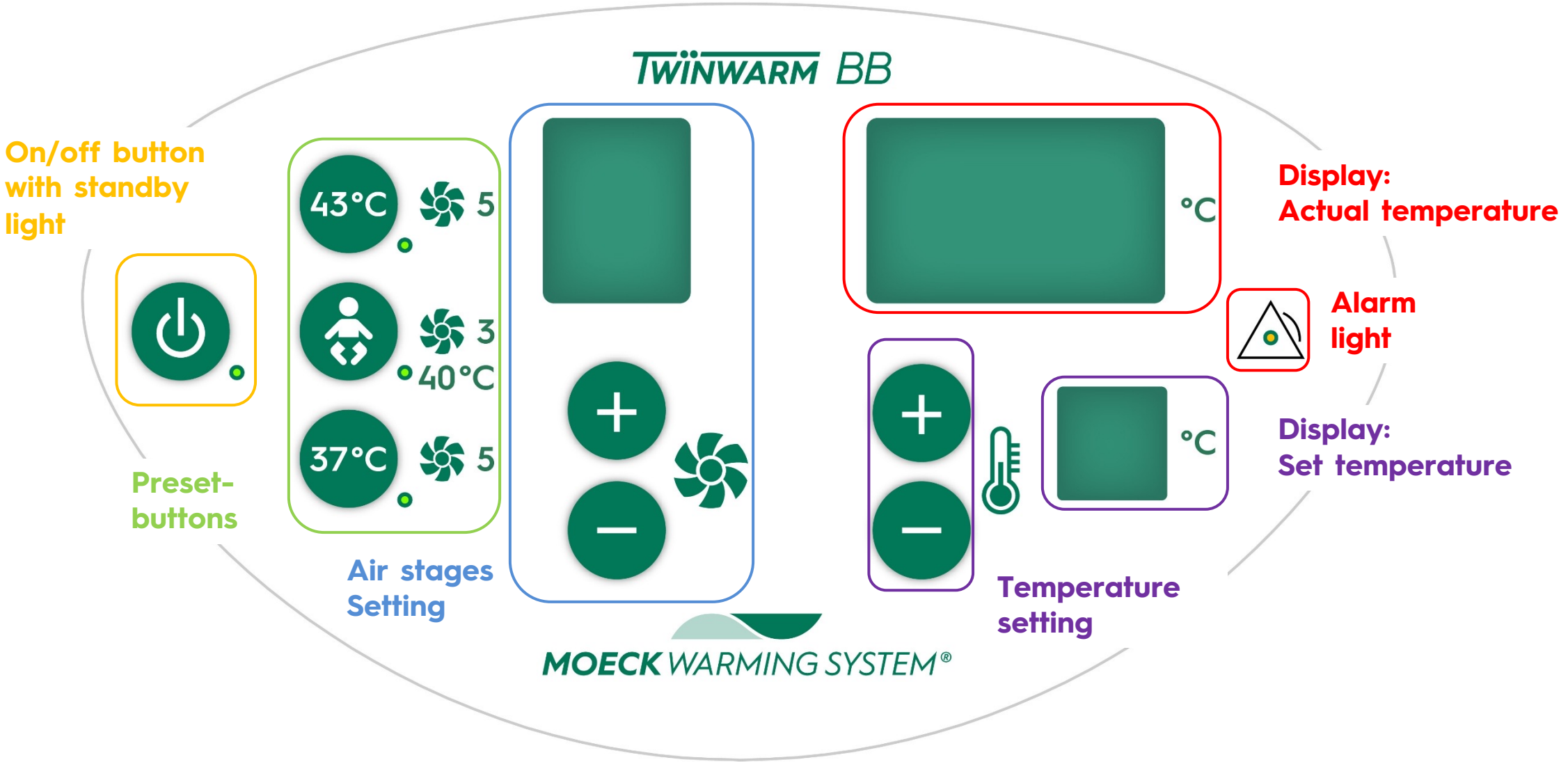

Carrying handle
Hose clamp
Control panel
Cover
Filter attachment

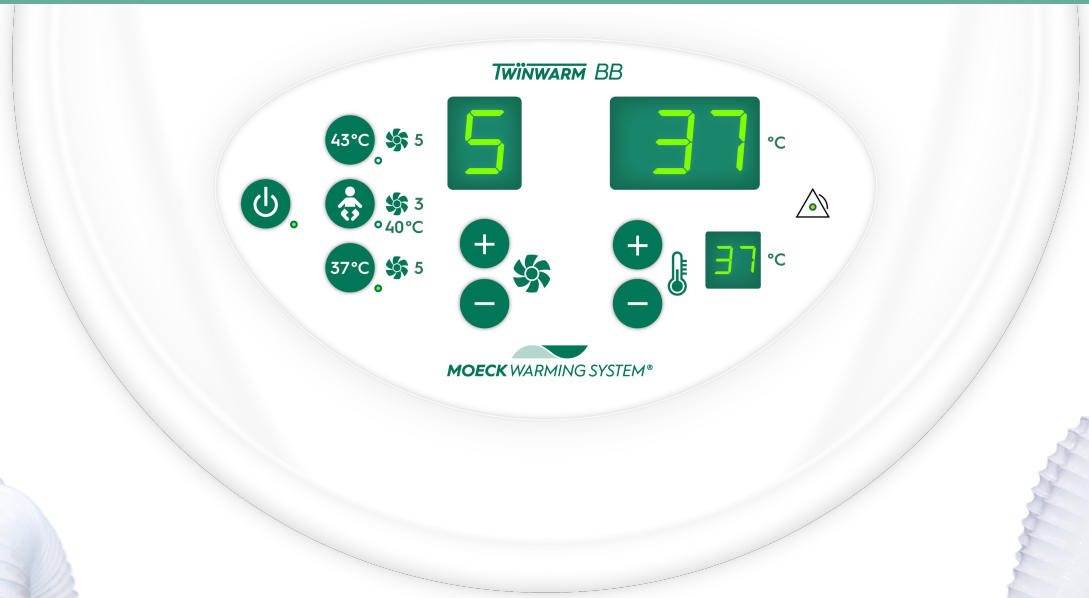

Thermal cut-outs
Standard rail holding clamp
Marking plate
Hose end cone
External temperature sensor in the hose end

To reduce the risks associated with dangerous mains voltage and fire:

- The power cable must be visible and freely accessible at all times. The plug of the power cable serves as a disconnecting device. The wall socket should be as close as possible and freely accessible.
- Do not use the warming device if the power cable looks like it may be damaged.
- This device may only be connected to a power supply with a protective conductor.

- When the device is connected to a power source, parts of it are live, even if it is in standby mode. Before cleaning/opening the device, unplug it from the mains!


TWINWARM BB
On/off button with standby light
43°C
5
3
40°C
37°C
5
°C
Display: Actual temperature
Alarm light
Preset-buttons
Air stages Setting
°C
Display: Set temperature
Temperature setting
MOECK WARMING SYSTEM®


TWINWARM BB
43°C
5
3
40°C
37°C
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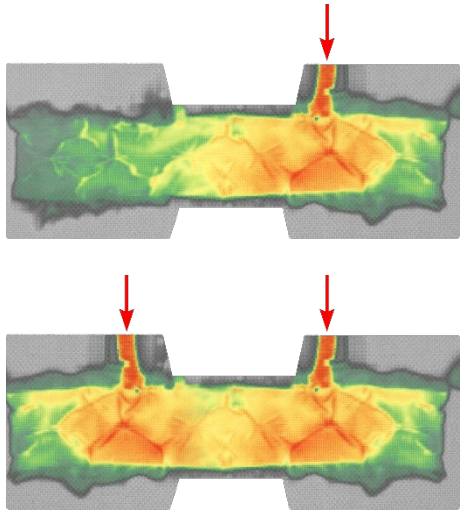
°C
37
°C
MOECK WARMING SYSTEM®



Single-hose operation:

- If you are not using the second heating hose, it must be pushed onto the Hose end receptacle and closed with an airtight seal by the Hose end cone on the bottom of the housing. The warm air thus only reaches the warming blanket/mat through the other hose.

- E.g., use with small blanket volume, such as BKK blanket

- Both hoses are fitted with a sensor

→ Free choice as to which of the two hoses is used for heating

→ The hose end receptacle is used to hold the hoses when the device is switched off; in single-hose operation, it is used to seal the second, unused hose airtight.

Compatibility

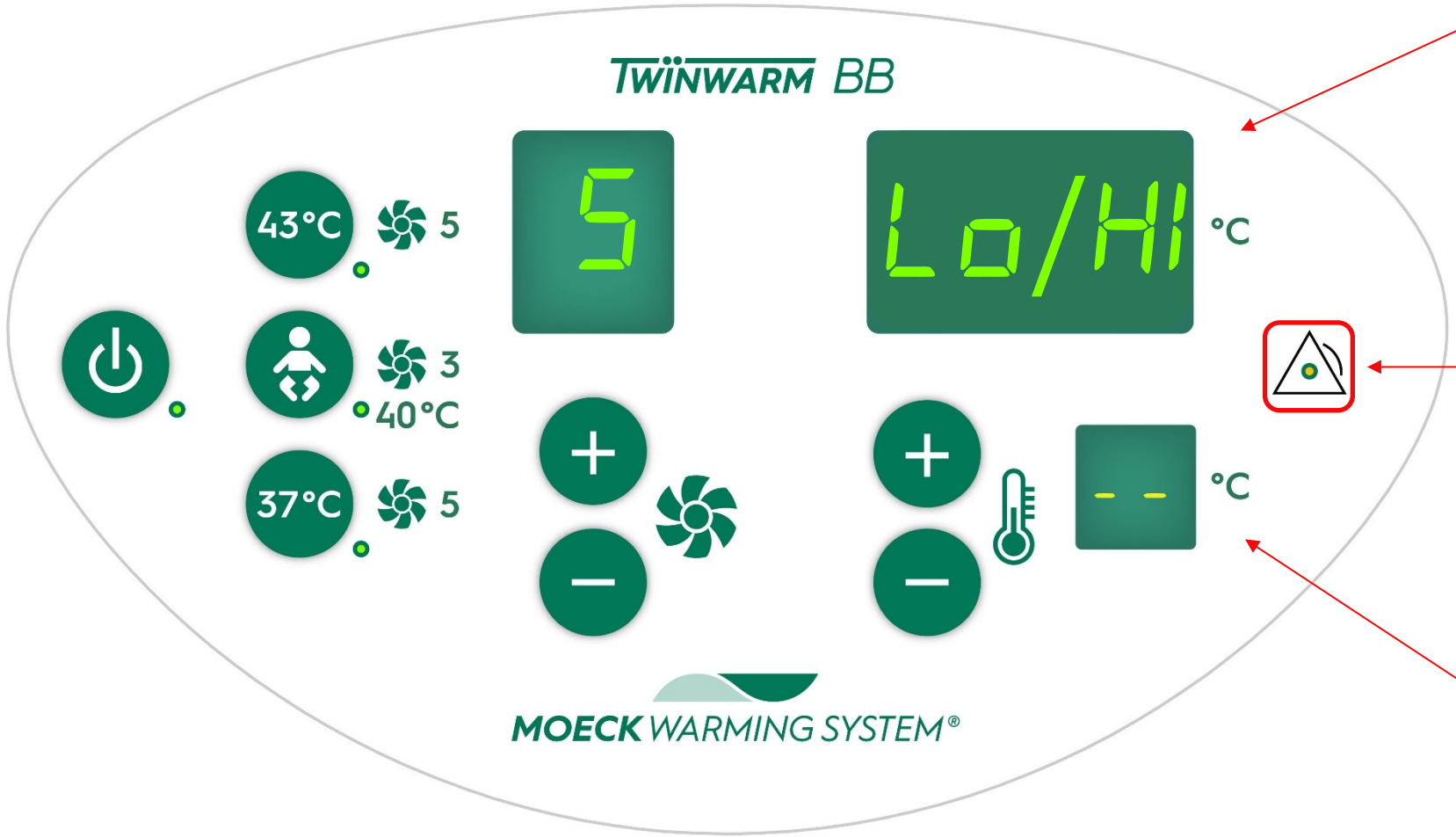
The **TWINWARM BB** forced air warming device may only be operated with **MOECK WARMING SYSTEM®** warming blankets/mats or with other compatible warming blankets. Please always follow the respective instructions for use.

More information is available on our homepage www.moeckundmoeck.de or on request.

CONTENT

Display		Possible cause	Explanation/Solution
	HI	**Desired temperature setting up to 40 °C selected:** The emitted air temperature is more than 2.5 °C but less than 3 °C higher than the desired temperature. If the emitted air temperature is more than 3 °C higher, a low priority alarm is triggered. **Desired temperature setting over 40 °C selected:** The emitted air temperature is more than 2.5 °C but less than 5 °C higher than the desired temperature. If the emitted air temperature is more than 5° C higher, a low priority alarm is triggered.	This can occur when you make major changes to the selected temperature. Over time: If the temperature difference persists for more than 3 minutes, a low-priority alarm is triggered.
	Lo	**Desired temperature setting up to 40 °C selected:** The emitted air temperature is more than 2.5 °C but less than 3 °C below the desired temperature. If the emitted air temperature is more than 3 °C under the desired temperature, a low priority alarm is triggered. **Desired temperature setting over 40 °C selected:** The emitted air temperature is more than 2.5 °C but less than 5 °C lower than the desired temperature. If the emitted air temperature is more than 5 °C below the desired temperature, a low priority alarm is triggered.	This is normal when you start up the device or make major changes to the selected temperature. Over time: If the temperature difference persists for more than 3 minutes, a low-priority alarm is triggered

Note: A non-inflated warming blanket/mat is a sign that the device is malfunctioning!

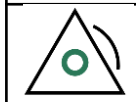


The preselected temperature has not yet reached/exceeded.

The Alarm light lights up or flashes in the event of an error, accompanied by an alarm sound and an error code that appears on the control panel's display fields

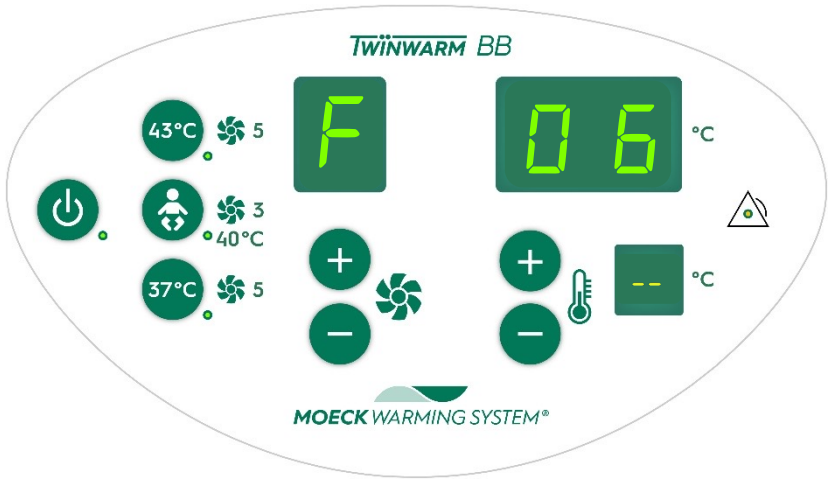
Display: Operation with ambient temperature

→ Heating off

Temperature alarms (beep sequence “c – d”)			
Display		**Possible cause**	**Explanation/Solution**
	Hi	The emitted air temperature is more than 3 °C (desired ≤ 40 °C) or 5 °C (desired > 40 °C) higher than the desired temperature.	This can occur when you make major changes to the selected temperature. Over time: Alarm goes off immediately after the alarm condition occurs. After 1.5 minutes, the device switches to standby mode with the error display.
	Lo	The emitted air temperature is more than 3 °C (desired ≤ 40 °C) or 5 °C (desired > 40 °C) lower than the desired temperature.	This is normal when you start up the device or make major changes to the selected temperature. Over time: Alarm goes off 45 seconds after the alarm condition occurs. After 1.5 minutes, the device switches to standby mode with the error display.
	F00	Interior temperature too high (> 56 °C)	Temperature inside the device is too high. The device switches to standby mode with the error display.
	F01	Thermal cut-outs switch has been triggered	Temperature inside the device is too high. The device switches to standby mode with the error display.

General alarms (beep sequence “c – c”)			
Display		**Possible cause**	**Explanation/Solution**
	F04	Internal power supply	Hardware error. The device switches to standby mode with the error display. The alarm is only deactivated after the error is acknowledged (2×). For further instructions see Error acknowledgement
	F05	Memory (electronic memory)	
	F06	The airflow is interrupted/blocked	Check that: the air can flow freely through the hoses into the blankets, the filters are not clogged, a compatible MoeckWarmingSystem® warming mat/blanket is being used. Over time: After 3 minutes of the alarm condition, the device switches to standby mode with the error display. Please note: Warming is temporarily switched off during this error for safety reasons

General alarms (beep sequence “c – c”)			
Display		**Possible cause**	**Explanation/Solution**
	F07	Internal transmission path	Hardware error. The device switches to standby mode with the error display. The alarm is only deactivated after the error is acknowledged (2× ). For further instructions see Error acknowledgement section
	F08	Internal temperature sensor	
	F09	Heating	
	F 10	External temperature sensor – right	
	F 11	External temperature sensor – left	
	F 12	Control panel	
	F 13	Relay	



Procedure in the event of low-priority alarms with device shutdown

Acknowledge error message by pressing 2x (baby button)

Switch the device on again

- After a successful self-test, the device works as usual.
- If the device repeats the error message when restarting after the self-test, return the device for service or repair.

When the F06 alarm is displayed, if need be, eliminate the cause of the error message (e.g. straightening out a kink in the warm air hose) as described.

When the F09 alarm is displayed, resolve the cause of the error message (e.g. Device not acclimatised during start-up).

CONTENT

- Do not clean, disinfect or service the forced air warming device while it is in operation.
- The device should only be serviced and repaired by qualified service personnel and according to the manufacturer's instructions.
- Clean and disinfect the device before sending it in for maintenance and before disposing of it. Deliveries of contaminated medical devices should be transported in such a way that these medical devices cannot contaminate anything.
- Defective coarse filters and significant soiling are signs that the area behind the coarse filters inside the device is contaminated. In which case, this area must be cleaned further. This should only be done by a trained service technician.

Procedure to be followed

1 Unplug the mains plug before cleaning the device.

2 Check the surface of the forced air warming device for mechanical damage such as cracks or broken housing parts before cleaning. If you find any mechanical damage, contact the service department or send the forced air warming device for repair (also see Instructions for Use BB5300).

3 Clean the device with a soft cloth and a cleaning solution containing mild soap. To do this, wring out the cloth you are using thoroughly, so that no excess water drips onto the device. A soft brush can be used if there is significant soiling. Then dry the device with a cloth.

4. The device must be disinfected after each use in accordance with the local hygiene guidelines in place. Efficient wipe disinfection is achieved with a suitable disinfectant*. Refer to the hazard and safety precautions of the disinfectant manufacturer.

Using a suitable disinfectant*

4.1 Remove a damp cloth from the disinfectant box and fold once.
4.2 Wipe the surfaces to be disinfected three times with the moist cloth, so that the whole surface is wetted.
4.3 As soon as the disinfectant has soaked in, repeat step 4.2 with a second cloth.
4.4 For optimal disinfection, the application time must not be less than 5 minutes.

Steps 4.1 to 4.3 should be carried out on all relevant surfaces.

** mikrozid PAA+ wipes von Schülke & Mayr GmbH*
The disinfectant mikrozid® PAA+ wipes from Schülke & Mayr GmbH has been validated for the TWINWARM BB forced air warming device in accordance with the provisions of the Medical Device Regulation (EU) 2017/745.

Cleaning instructions

- The following surfaces of the Twinwarm BB should be cleaned and disinfected with particular caution:
  - Warm air hose
  - Hose clamp
  - Control panel
  - Carrying handle
  - Power cable
- The filter frames of the air inlet filters can be cleaned and disinfected in the same way as the outer surfaces of the device.

- The hoses can be lightly stretched to make cleaning and disinfection easier.

- Do not immerse the hoses directly in disinfectant solution.

Changing the coarse filters

The coarse filters can be accessed from the outside (Filter attachment with Fleece filter) should be changed or cleaned when necessary.

The detailed procedure is outlined in the BB5300 user manual in section 5.2 Changing the coarse filter.

Changing the EPA filter

The EPA filter must be replaced after two years at the latest (e.g. as part of SI testing) or when necessary (e.g. weakened airflow, dirt/contamination inside the device).
Instructions for changing the EPA filter can be found in the service manual BB5304.

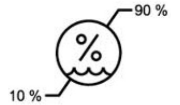
A safety check must always be carried out after an EPA filter change, as well as after disconnection of the protective conductor!
As part of this safety check, the temperature sensors are checked every 2 years.
Instructions for carrying out the safety check can be found in the BB5304 service manual.

CONTENT

Ambient condition	
Operating temperature	15 °C to 35 °C
Humidity	10 % to 90 % relative humidity
Height above sea level	Max. 2000 m
Storage/transport conditions	0 °C to 50 °C

Failure to comply with the specified ambient conditions during operation or storage may impair the function or reduce the service life of the air warming device.

The device must be packaged in accordance with the specifications of the BB5400 packaging instructions.

Manufacturer	
Top	
Fragile packaged goods	
Air humidity, limitation	
Temperature limitation	
Protect from moisture