MELAG
competence in hygiene

User Manual

Careclave® 618

Combination steam sterilizer

from software version 21.0.3

EN

CE 0197

Dear customer,

We thank you for your confidence demonstrated by the purchase of this MELAG product. As an owner-run and operated family concern founded in 1951, we have a long history of successful specialization in hygiene products for practice-based use. Our focus on innovation, quality and the highest standards of operational reliability has established MELAG as the world's leading manufacturer in the instrument reprocessing and hygiene field.

You, our customer are justified in your demand for the best products, quality and reliability. Providing **"competence in hygiene"** and **"Quality – made in Germany"**, we guarantee that these demands will be met. Our certified quality management system is subject to close monitoring: one instrument to this end is our annual multi-day audit conducted in accordance with EN ISO 13485. This guarantees that all MELAG products are manufactured and tested in accordance with strict quality criteria.

The MELAG management and team.

Contents

1 General guidelines

Please read this user manual carefully before commissioning the device. The manual includes important safety instructions. Make sure that you always have access to digital or printed version of the user manual.

Please read this user manual carefully before starting to use the accessories. The user manual includes important safety information. Make sure that you always have access to digital or printed version of the user manual.

Should the manual no longer be legible, is damaged or has been lost, you can download a new copy from MELAG download centre at www.melag.com.

Symbols used

Symbol	Explanation
	Indicates a dangerous situation, which if not avoided, could entail slight to life-threatening injuries.
	Indicates a dangerous situation, which if not avoided, could lead to burns.
	Draws your attention to a situation, which if not avoided, could result in damage to the instruments, the practice fittings or the device.
	Draws your attention to important information.

Formatting rules

Example	Explanation
`Universal-Program`	Words or phrases appearing on the display of the device are marked as display text.
	Prerequisites for the following handling instruction.
	Refer to the glossary or another text section.
	Information for safe handling.

Disposal

MELAG devices are synonymous with high quality and a long life-span. When you eventually need to decommission your MELAG device, the required disposal of the device can take place with MELAG in Berlin.

Dispose of accessories and consumption media which you no longer require in the appropriate manner. Comply with all relevant disposal specification in terms of possibly contaminated waste.

The packaging protects the device against transport damage. The packaging materials have been selected for their environmentally-friendly disposability and can be recycled. Returning the packaging to the material flow reduces the amount of waste and saves raw materials.

Dispose of spare parts that are no longer used, e.g. seals, properly.

MELAG draws the operator's attention to the fact that they are responsible for deleting personal data on the device to be disposed of.

MELAG draws the operator's attention to the fact that they may be legally obliged (e.g. in Germany according to ElektroG) to remove used batteries and accumulators non-destructively before handing over the device, provided they are not enclosed in the device.

2 Safety

When operating the device, comply with the following safety instructions as well as those contained in subsequent chapters. Use the device only for the purpose specified in these instructions. Failure to comply with the safety instructions can result in injury and/or damage to the device.

Qualified personnel

- Both instrument reprocessing and the sterilization of instruments and textiles with Careclave may only be performed by ▸qualified personnel.
- The operator must ensure that the users have been trained in the operation and safe handling of the device.
- The operator must ensure that the users are regularly trained in the operation and safe handling of the device.

Setup, installation and commissioning

- Check the device after unpacking for any damage suffered during transport.
- The device should only be setup, installed and commissioned by MELAG authorised persons.
- Have the electrical connection, the connections for supply and wastewater and compressed air set up only by a specialist.
- The device is not suitable for operation in explosive atmospheres.
- Install and operate the device in a frost-free environment.
- The device is conceived for use outside the patient area. The device should be located a minimum of 1.5 m radius away from the treatment area.

Power cable and power plug

- Only the power cable included in the scope of delivery may be connected to the device.
- The power cable may not be replaced by a cable determined to be insufficient.
- Comply with all legal requirements and locally-specified connection conditions.
- Never operate the device if the plug or power cable are damaged.
- The power cable or plug should only be replaced by ▸authorised technicians.
- Never damage or alter the power plug or cable.
- Never unplug by pulling on the power cable. Always take a grip on the plug.
- Ensure that the power cable does not become jammed in.
- Never lead the cable along a source of heat.
- Never fix the power cable with sharp objects.
- The mains socket must be freely accessible after installation so that the device can be disconnected from the electrical mains at any time if necessary by pulling the mains plug.

Spring safety valve

- The free movement of the valve rod must be guaranteed. For example, the spring safety valve must not be taped or blocked. Install the device in such a way that the proper functioning of the spring safety valve is guaranteed.

Reprocessing and sterilization

- Follow the manufacturer's instructions of your textile articles and instruments regarding their reprocessing and sterilization.
- Comply with the relevant standards and directives applicable to the reprocessing and sterilization of textiles and instruments (in Germany e.g. from the ▸RKI and ▸DGSV).

Normal operation

- The door area and the area of the cooler and the safety valves at the rear of the device can become hot while the device is switched on and remain hot for a long time after it is switched off.
- The sterile filter is no longer effective if it has become wet. Stop using the sterile filter and replace it.
- Do not replace the sterile filter during a program run.

Program abort

- Please observe that opening the door following a program abort can lead to hot steam leaving the sterilization chamber.
- Observe the instructions shown on the display of the device. Sterilize the affected ▸load after re-wrapping.

Maintenance

- Maintenance should only be performed by ▸authorised technicians.
- Maintain the specified servicing intervals.
- Only original MELAG spare parts may be used.

Repair

- Never open the device housing. Incorrect opening and repair can compromise electrical safety and pose a danger to the user. The device may only be opened by an ▸authorised technician who must be a ▸qualified electrician.

Malfunctions

- Should the device issue the same malfunction message repeatedly, turn off the device and if necessary, inform your stockist.
- The device may only be serviced by ▸authorised technicians.

Notification requirement in the event of serious accidents in the European Economic Area

- Please note that all serious accidents which occur in connection with the medical product (e.g. death or serious deterioration in the state of health of a patient) which were presumably caused by the product, must be reported to the manufacturer (MELAG) and the relevant authority of the member state, in which the user and/or patient resides.

Personal protective equipment

- The removal of the Carebox should only be carried out with an aid, e.g. a protective glove.
- The sterilized equipment should only be removed using an aid, e.g. protective glove or tray lifter.

3 Performance specifications

Intended use

Careclave is intended for use in the medical field, especially in dentistry. This device is not intended to be used in a patient environment. In accordance with ▸EN 13060 this device is a steam sterilizer (autoclave) with type B cycles. As a universal steam sterilizer, it is suited to highly-demanding sterilization tasks. It can be used to sterilize, e.g., narrow lumen instruments – both wrapped or unwrapped – and textiles.

In addition, Careclave can be used to reprocess compatible connectible dental instruments (e.g. transmission instruments) in a container (Carebox) provided for this purpose. The internal and external cleaning as well as the subsequent thermal disinfection comply with the specifications of ▸EN ISO 15883-1 and -2. Optionally, sterilization with type S cycles can be carried out instead of thermal disinfection, or automatic care can be carried out with care oil.

WARNING

Any attempt to sterilize liquids can result in a ▸delay in boiling. This can result in burns and damage to the device.

- Never use this device to sterilize fluids. It is not licensed for the sterilization of fluids.

User benefits

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With the help of Careclave, you can fully comply with the reprocessing recommendations of the German Commission for Hospital Hygiene and Infection Prevention at the ▸RKI, as well as the normative requirements from ▸EN 13060 and ▸EN ISO 15883-1 and -2.

Reprocessing of semi-critically classified dental transmission instruments

The simultaneous reprocessing of a maximum of eight dental transmission instruments takes place exclusively in the Carebox. For successful cleaning and disinfection, the transmission instruments must be connected to the appropriate adapters. Cleaning and disinfection take place both in the inner area of the dental instrument (interior cleaning) and on the outer surfaces (exterior cleaning). During subsequent care with care oil, only the drive areas of the dental transmission instruments are specifically treated. Depending on the program selected, either thermal disinfection is carried out before care or sterilization after care.

Reprocessing of semi-critically classified connectible hollow bodies

The simultaneous reprocessing of a maximum of eight ultrasonic and air scaler tips takes place exclusively in the Carebox. For successful cleaning and disinfection, the tips must be connected to the appropriate adapters. Cleaning and disinfection take place both in the inner area of the tips (internal cleaning) and on the outer surfaces (external cleaning). Depending on the program selected, either thermal disinfection or sterilization is then carried out.

Combined sterilization

In the Care-B program, reprocessing in the Carebox is possible in combination with type B sterilization. This allows you to sterilize instruments or tips in the Carebox as well as critically classified (wrapped) and narrow instruments in the sterilization chamber in one program run.

Program runs for the Carebox

Cleaning & disinfection

Careclave can simultaneously clean and thermally disinfect up to eight dental transmission instruments or ultrasonic and air scaler tips. For successful cleaning and disinfection, the instruments in the Carebox must be connected to the adapters provided.

Cleaning and disinfection takes place both in the inner area of the dental instrument (internal cleaning) and on the external surfaces (external cleaning). Cleaning is done with demineralised water, partly with the support of compressed air pulses and without the use of chemicals.

During the program run, the following steps (phases) are completed:

Carebox detection

Carebox detection (*Carebox-Connect*) determines the type of Carebox used (Blue/Green) and activates (Carebox Blue) or deactivates (Carebox Green) the care for the program run.

Pre-cleaning

Pre-cleaning is done with cold water. The transmission instruments soiled and contaminated by proteins or coarse organic adhesions are cleaned mechanically to avoid denaturation (coagulation) due to excessively high water temperatures. At the end of pre-cleaning, the rinse liquor is drained to remove the proteins and other contaminants from the system.

Intermediate cleaning

In intermediate cleaning, a new rinse liquor is used and further soiling is dissolved. During this process, the temperature of the rinse liquor rises slightly. At the end of intermediate cleaning, the rinse liquor is drained again to further lower the residual contamination.

Final cleaning

In final cleaning, the newly introduced rinse liquor is continuously heated. At a temperature of 55 °C, any remaining organic deposits and soiling are dissolved from the instruments.

Disinfection (Program Care-Therm)

Immediately after final cleaning, ▸A0-value controlled thermal disinfection takes place at a temperature above 92 °C. The rinse liquor from the final cleaning is reused for thermal disinfection. The disinfection phase is conceived so as to reach an A0 value of at least 3000. This eliminates vegetative bacteria and fungi or fungal spores and inactivates viruses (incl. HBV, HCV) and achieves the effective range AB according to the specifications of the ▸Robert Koch Institute.

The transmission instruments prepared with this method are suitable for use in treatments with the risk classification semi-critical B.

Care (optional)

During care, the care oil is specifically dosed only into the drive areas of the transmission instruments. The dosing system is designed so that each instrument, regardless of its type, receives a sufficient amount of the care oil.

Sterilization

Sterilization S (Program Care-S)

Instead of disinfection in the Carebox, sterilization with type S cycles (according to ▸EN 13060) can also be carried out. This is specially designed for the steam penetration of dental transmission instruments. Sterilization is carried out at a temperature of 134 °C and with a sterilization time of 3:30 min. The transmission instruments prepared in this way are suitable for use in treatments with the risk classification semi-critical B.

Sterilization B (Program Care-B)

Instead of sterilization exclusively in the Carebox, sterilization of the Carebox including the entire chamber can also be carried out with type B cycles (according to ▸EN 13060). This is additionally designed for the steam penetration of product with narrow lumen (hollow body A), both wrapped and unwrapped. Sterilization takes place at a temperature of 134 °C and with a sterilization time of 5:30 min. The wrapped transmission instruments prepared in the sterilization chamber are suitable for use in treatments with a risk classification of critical B.

Drying

Drying before the end of the program not only serves to intensively dry the inner lumen of the instruments, but also to empty the Carebox. It is carried out both as vacuum drying and in the form of compressed air drying. Apart from conformity with ▸EN 13060, drying also contributes to maintaining the value of your instruments. In the Care-B program, drying is also designed for wrapped loads in the sterilization chamber.

Program runs for the sterilization chamber

A reprocessing program runs in three main phases: the air removal and heating up phase, the sterilization phase and the drying phase. After program start, you can follow the program run on the display. It shows the chamber temperature and pressure as well as the time until the end of drying.

Program phases of a standard sterilization program

Program phase	Description
1. Air removal and heating up phase	**Air removal** The air removal phase comprises the conditioning and the fractionating phase. During conditioning, steam is repeatedly injected into and removed from the ▸sterilization chamber. This generates over-pressure and the residual air is removed. Then, during fractionation, the mixture of air and steam is evacuated from the sterilization chamber and steam is injected. This procedure is also called the fractionated vacuum procedure.
	Heating The continued steam injection into the sterilization chamber leads to an increase in pressure and temperature which continues until the program-specific sterilization parameters have been reached.
2. Sterilization phase	**Sterilizing** If the pressure and temperature correspond to the program-dependent nominal values, the sterilization phase begins. The corresponding process parameters (pressure and temperature) are held at sterilization level.
3. Drying phase	**Pressure release** The sterilization phase is followed by pressure release from the sterilization chamber.
	Drying The sterile material is dried using a vacuum (vacuum drying).
	Ventilation Upon program end, the sterilization chamber is filled with sterile air via the sterile filter and adjusted to the ambient pressure.

Program phases of the vacuum test

Program phase	Description
1. Evacuation phase	The sterilization chamber is evacuated until the pressure for the vacuum test has been reached.
2. Equilibration time	An equilibration time of five minutes will follow.
3. Measurement time	The measurement time amounts to ten minutes. The pressure increase within the sterilization chamber is measured during the measurement time. The evacuation pressure and the equilibration time or measurement time are shown on the display.
4. Ventilation	The chamber is ventilated after the end of the measuring time.
5. Test end	The display shows the test result, the batch number, the total number of batches and the leakage rate.

Care procedure

Careclave offers the possibility of caring for transmission instruments with the help of an integrated function for distributing and dosing care oil. Furthermore, chuck care can be done manually with the ADDcare integrated care station.

The Carebox Blue is used for the reprocessing of instruments that must be maintained with maintenance oil.

The amount of care oil applied to the transmission instruments is sufficient for the next treatment. In addition, observe the instructions of the instrument manufacturer to prevent damage to the transmission.

See also:

- Oiling the chucks [▸ page 39]

Sterilization procedure

The steam sterilizer sterilizes on the basis of the ▸fractionated vacuum procedure. This guarantees the complete and effective wetting/penetration of the load with saturated steam.

The steam sterilizer uses the double jacket technology to generate the sterilization steam, i.e. the steam sterilizer is fitted with a separate steam generator combined with a double-walled sterilization chamber. After heating, steam is held constantly available in the double jacket. This gives the walls of the sterilization chamber a defined temperature and protects the sterilization chamber from overheating. This especially effective procedure supports the quick ▸evacuation of the air from the sterilization chamber, the sterilization packaging and instrument cavities. This permits the sterilization of large quantities of instruments or textiles directly one after each other, thereby achieving excellent drying results.

Type of the feed water supply

The steam sterilizer works with a one-way ▸feed water system. This means that it uses fresh feed water (demineralized or distilled water) for every sterilization procedure. The quality of the feed water is subject to permanent monitoring via integrated ▸conductivity measurement. If combined with careful preparation of the instruments, this serves largely to prevent stain accretion on the instruments and soiling of the steam sterilizer.

Safety equipment

Internal process monitoring

A ▸process evaluation system is integrated in the electronics of the steam sterilizer. It compares the process parameters (such as temperature, time and pressure) during a program run. It monitors the parameters in terms of their threshold values during control and regulation and guarantees safe and successful sterilization. A monitoring system checks the device components of the steam sterilizer for their functionality and their plausible interaction. If one or more parameters exceeds pre-determined threshold values, the steam sterilizer issues warnings or malfunction messages and if necessary, aborts the program. In the case of a program abort, follow the instructions on the display.

The steam sterilizer uses an electronic parameter control. This enables the steam sterilizer to optimise the total operating time of a program in dependence on the load.

Internal logic monitoring

The electronics of the steam sterilizer monitor the successful program run by means of two separate test processes. When a program has been successfully completed, it is shown on the display as a successful program. In addition, the status LED below the display illuminates green.

Door mechanism

Careclave constantly checks pressure and temperature in the sterilization chamber and prevents the door from being opened when over-pressure has built up in the sterilization chamber. The motor-driven automatic door locking mechanism opens the door slowly by turning the locking spindle. This also holds the door whilst it opens. Pressure equalisation will have been performed by the time that the door is completely open, even following pressure differences.

Automatic monitoring of the feed water

The quantity and quality of the ▸feed water is automatically checked before every program start.

Performance characteristics of sterilization programs

The results in this table show which inspections were performed on the steam sterilizer. The marked fields demonstrate compliance with all the applicable sections of the standard ▸EN 13060.

Type tests	Universal-B	Quick-S	Prion-B	Gentle-B	Care-B	Care-S
Program type in accordance with ▸EN 13060	Type B	Type S	Type B	Type B	Type B	Type S
▸Dynamic pressure test of the sterilization chamber	X	X	X	X	X	X
▸Air leakage	X	X	X	X	X	X
▸Empty chamber test	X	X	X	X	X	X
▸Solid load	X	X	X	X	X	X
▸Porous partial load	X	--	X	X	X	--
▸Porous full load	X	--	X	X	X	--
▸Simple hollow items	X	--	X	X	X	X
▸Product with narrow lumen	X	--	X	X	X	--
▸Single wrapping	X	--	X	X	X	--
▸Multiple wrapping	X	--	X	X	X	--
Drying ▸solid load	X	X	X	X	X	--
Drying ▸porous load	X	--	X	X	X	--
Sterilization temperature	134°C	134°C	134°C	121°C	134°C	134°C
Sterilization pressure	2.1 bar	2.1 bar	2.1 bar	1.1 bar	2.1 bar	2.1 bar
Sterilization time	5:30 min	3:30 min	20:30 min	20:30 min	5:30 min	3:30 min
X = Complies with all applicable sections of the standard ▸EN 13060						

4 Description of the device

Scope of delivery

Please check the scope of delivery before setting up and connecting the device.

Standard scope of delivery

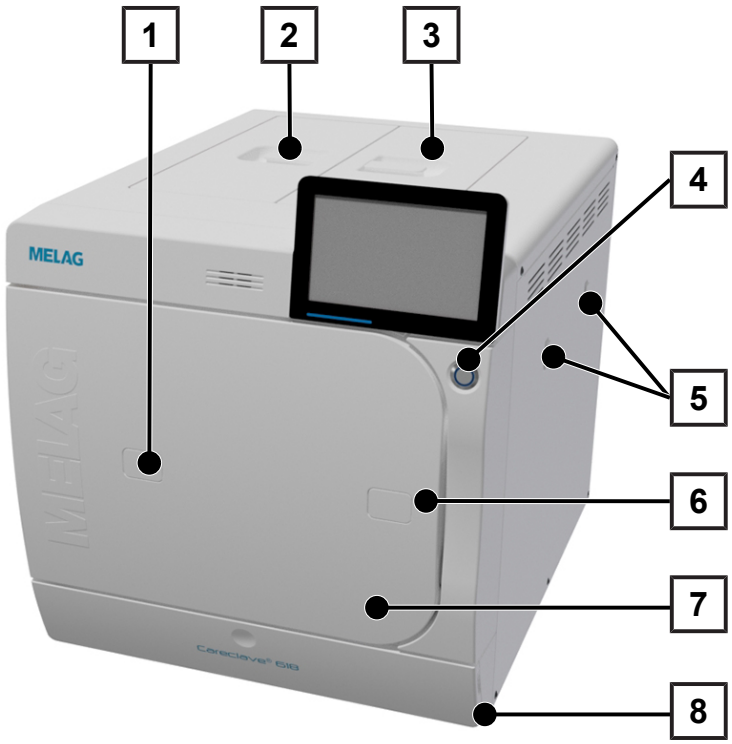
- Careclave 618
- Careclave user manual
- Technical manual
- User manual accessories for Careclave
- Manufacturer’s inspection report and declaration of conformity
- Warranty certificate
- Record of installation and setup
- Instruction protocol
- Instrument logbook
- Power cable
- 2x carrying strap
- Installation set consisting of
  - Double-chamber siphon
  - 3x hollow screw G 1/4“
  - 3x QSS-E swivel
  - 6x Cu seal 13.5x18.5
  - 2x Cu seal 13.5x20
  - Hose PUR (black), 5 m
  - Hose PTFE , 5 m
  - 2x double hose nozzle for siphon
  - Cold water adapter 3/4" to 1/4"
  - Coupling plug for compressed air to hose 6 mm
  - 2x fitting
  - 2x QSS-E straight
- 4x cover caps for niches for mounts in the side wall
- Tray lifter
- Heat protection gloves
- Allen key with which to open the door in an emergency
- Screwdriver (TX 6)
- Drain hose
- MELAG oil for door lock nut
- Test gauge TR16 for door lock nut
- USB flash drive
- 2x can of MELAG Care Oil (1x installed and 1x stock)

Optional

- Carebox
- Short/long mount for trays and sterilization container

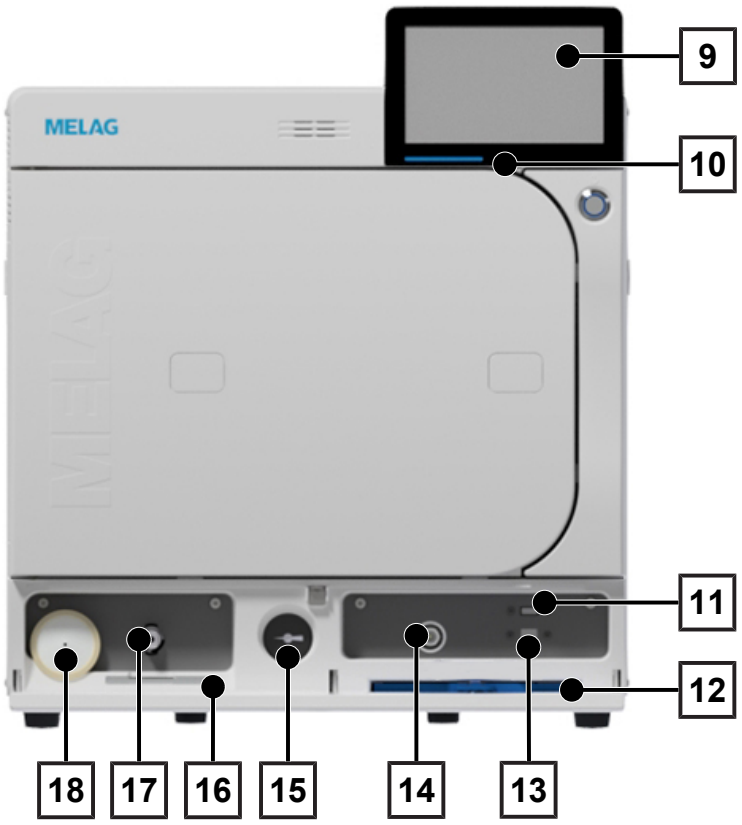
Views of the device

View from front



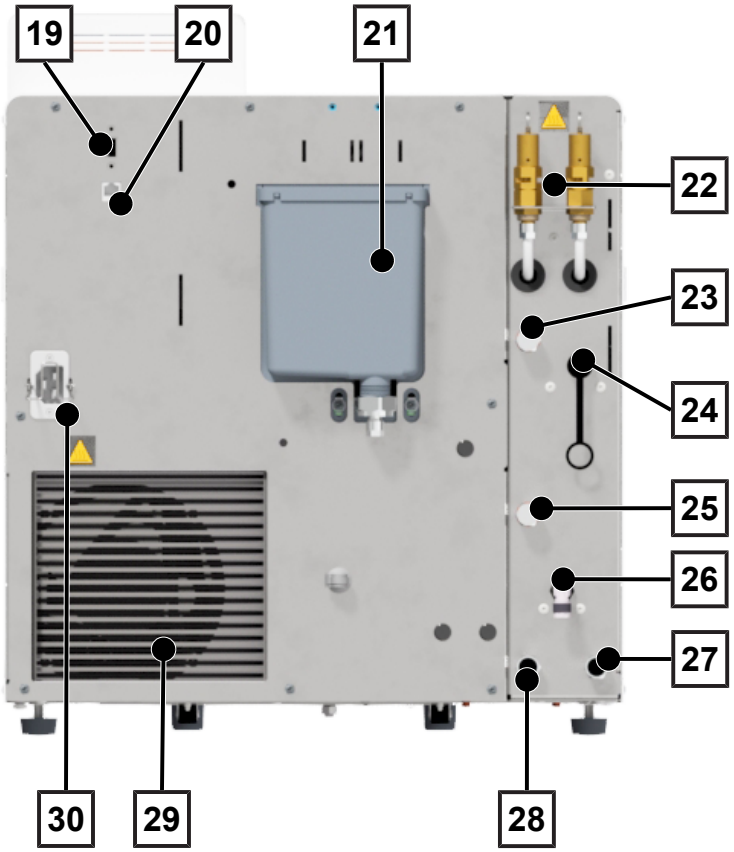
1 Access to the validation fitting
2 Feed water tank cover
3 Accessories compartment cover
4 Power switch
5 Optional: Mounts for Carebox
6 Opening for door opening in an emergency
7 Door
8 Service hatch

Front view, with open service hatch



9 Smart touch display
10 LED status bar
11 USB connection
12 Dust filter
13 Service connection
14 Overheat protection reset button
15 Manometer for pressure display on the double jacket steam generator
16 Allen key with which to open the door in an emergency
17 Drain valve for emptying the feed water tank
18 Sterile filter

Rear view, without cover



19 USB connection
20 Ethernet connection
21 Overflow funnel
22 Spring safety valves
23 Feed water connection of the filling pump
24 Electrical connection of the filling pump
25 Wastewater connection MELAdem (optional)
26 Wastewater connection
27 Feed water connection MELAdem
28 Compressed air connection
29 Cooler
30 Power cable connection

Service hatch

The service hatch is magnetic and can be opened by pulling on any side.

Symbols on the device

Type plate

	Manufacturer of the medical device
	Date of manufacture of the medical device
MD	Identifies a medical device
SN	Medical device serial number from the manufacturer

Article number of the medical device

Information about the chamber volume

Operating temperature of the device

Indicates the permitted temperature range (min./max.) of the water supply

Operating pressure of the device

Flow pressure at the connected compressed air connection from min. to max.

Flow pressure at the connected water inflow from min. to max.

Electrical connection of the device: AC current

Read this user manual carefully before commissioning the device.

In affixing this CE mark, the manufacturer declares that this medical product fulfils the basic requirements of the Medical Device Directive. The four-digit number confirms that this is monitored by an approved certification agency.

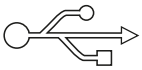
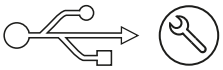
In affixing this CE mark, the manufacturer declares that this product fulfils the basic requirements of the Pressure Equipment Directive. The four-digit number confirms that this is monitored by an approved certification agency.

The device may not be disposed as domestic waste. The vendor is responsible for appropriate disposal of the device - it must be delivered to the vendor to be disposed of.
MELAG devices are synonymous for long-term quality. When you eventually need to decommission your MELAG device, we offer a special disposal service. Simply contact your stockist.

Warning symbols

This symbol indicates that the marked area becomes hot during operation. Contact with it during or shortly after operation can pose the danger of burns.

Device symbols - front

Symbol	Description	Symbol	Description
	Sterile filter		Dust filter/device filter
	Drain connection		Overheat protection reset button
	USB connection		Service connection

Device symbols - rear

Symbol	Description	Symbol	Description
Aqua dem 	Feed water connection, water treatment unit	**Osmosis drain** 	Wastewater connection, water treatment unit
Pump aqua dem 	Connection, filling pump	**Drain** 	Wastewater connection
Air 	Compressed air connection	**Pump power** 	Electrical connection of the filling pump

Power switch

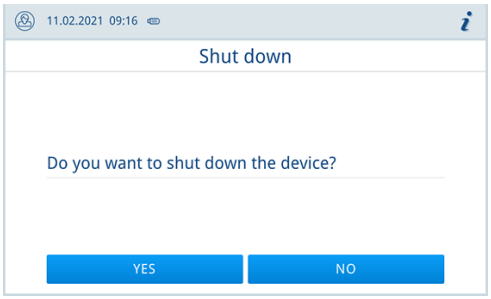
PLEASE NOTE

The device cannot be shut down during a running program.

By pressing the power switch, you can call up the shutdown dialogue.

By pressing the power switch again, you switch the device on again.

If the power switch is pressed for longer than 5 seconds, the device is restarted.



The illumination of the power switch indicates the status of the device.

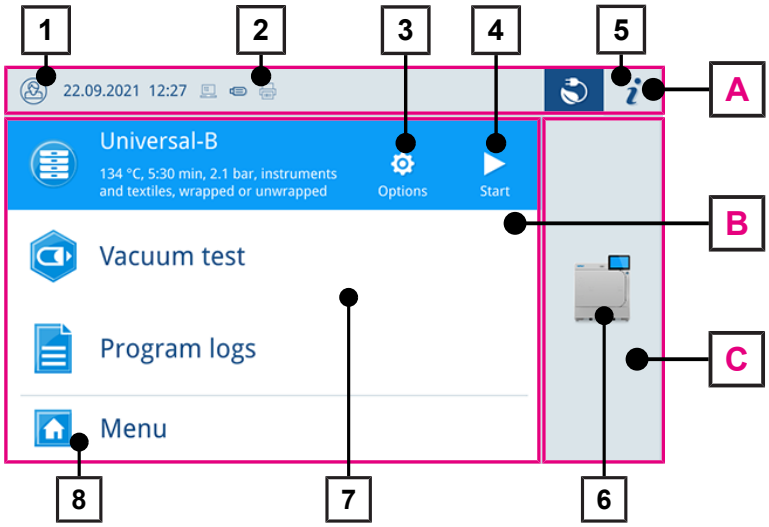
State	Description
illuminated	The device is shut down.
not illuminated	The device is in standby or a program is running.
pulsing	The device is powering up.

Smart touch display

The user interface consists of a colour 7-inch touch display.

The selected menu item is always highlighted in colour.

The display of the areas (A, B, C) is dynamic and can change depending on the device status. Due to the dynamic display, the display and position of the buttons on the device may differ from the illustrations shown.



1 Logon/logoff user role
2 Activated/connected output media
3 Program options
4 Starting the program
5 Device information
6 Opening the door
7 Favourites menu*)
8 Menu
A Information area (minimised display)
B Menu area (maximised display)
C Device function area (minimised display)

*) recommended programs and functions for quick access

Buttons in the program selection

Button	Description
▶	Starting the program
⚙	Select program options and start program
✕	Aborting/ending the program

Buttons in the information area

Button	Description
i	Show or hide **`Device status`**
	Open or close **`Device status`**
	Malfunction message present Show or hide malfunction message
	Warning message present Show or hide warning message
	Energy-saving activated Show or hide Energy-saving dialogue

Chuck care buttons

Symbol	Description	Button
	Chuck care is switched off	Switch on chuck care
	Chuck care is switched on	Switch off chuck care
	Chuck care venting is switched on	Switch off chuck care

Symbols of the output media

Symbol	Output media	Description
	MELAtrace	Output to MELAtrace
	FTP	Output to an FTP server
	USB flash drive	Output to a USB stick connected to the USB port
	Label printer	Output to a connected label printer

LED status bar

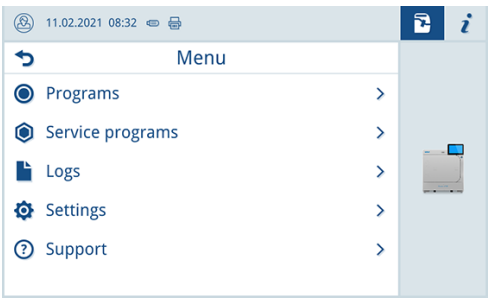
The LED status bar on the lowest edge of the display indicates different situations with various colours.

Colour	Description
Blue	Device is in operation, no program active Program in progress
Green	Program successfully completed Drying in progress
Red	Malfunction message Program abort in progress Program not successfully completed
Yellow	Warning message

Menu

The **`Menu`** gives you access to the programs available in the device mode, to various settings and to the log output.

The **`Support`** menu item contains service contact details and the **`License information`**.



Device mode

Careclave mode

When Careclave mode is activated, the Carebox symbol is displayed in the information area.

Symbol	Meaning
	Careclave mode active

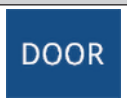
The device can be operated in Careclave mode (with Carebox) or in Vacuclave mode (as an steam sterilizer).

PLEASE NOTE

Careclave mode can only be activated by inserting a Carebox.

Door mode

When door mode is activated, the door mode symbol is displayed in the information area.

Symbol	Meaning
	Door mode active

The device can be operated in door mode to switch on the device and open the door. No device processes are activated in the background.

The following functions are available in door mode:

- Door mode
- Change settings
- Subsequent log issue

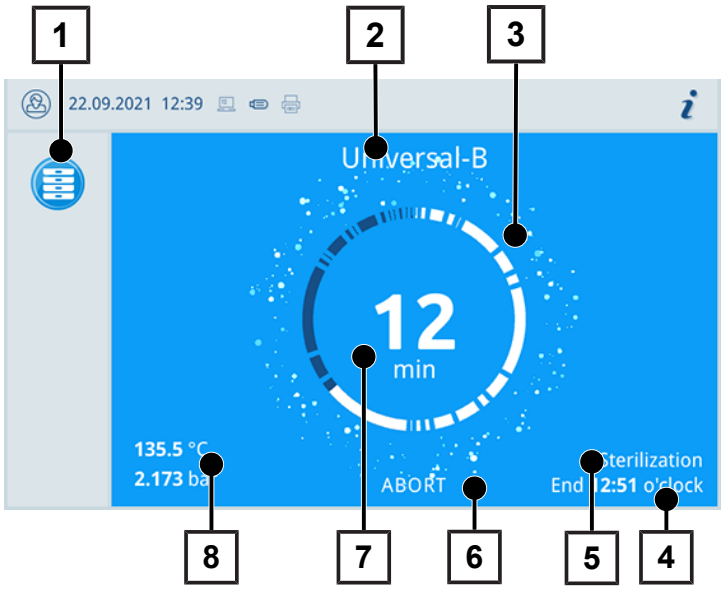
See also:

- Activating/deactivating door mode [▸ page 24]

Program run

During a program run, all important information is shown on the display.

If no input is made on the display, the program display maximises and overlays the menu. Touch the display to show the menu.



1 Program information for current program
2 Program name
3 Busy indicator
4 Estimated end of the program
5 Program phase
6 Abort/end button
7 Remaining run time (remaining program duration)
8 Program parameters (temperature/ pressure)

The display indicates whether the sterilization phase has been completed successfully. The busy indicator and the LED status bar both change from blue to green as soon as the drying phase is initiated.

5 Opening and closing the door

The device is fitted with a motor-driven automatic door locking mechanism with a threaded spindle.

Opening the door

PLEASE NOTE

The door is to be left open only whilst loading and unloading the device. Keeping the door closed saves energy.

Please observe the following when opening the door:

- Never use force to open the door.
- Do not pull vigorously at the door to open it. The door opens automatically.

1. Open the door by pressing **OPEN DOOR**.
   The button is displayed when the menu area is minimised.
   ➥ The door opens automatically.
2. Open the door completely until it snaps into place.

See also:

- Checking and oiling the door lock [▸ page 70]

Closing the door

When closing the door, comply with the following instructions to guarantee faultless operation of the door locking mechanism:

- Never slam the door.
- Press the door closely to the housing.
- Hold the door closed for min. 3 s until the door lock engages.

▶ To close the door, press it firmly inwards until the automatic door lock engages.

➥ After the door has been closed, the display returns to the default view. The door is locked pressure-tight upon program start.

PLEASE NOTE

The door can only be closed with the oil can inserted.

For safety reasons, the automatic door lock is deactivated when no oil can is present.

See also:

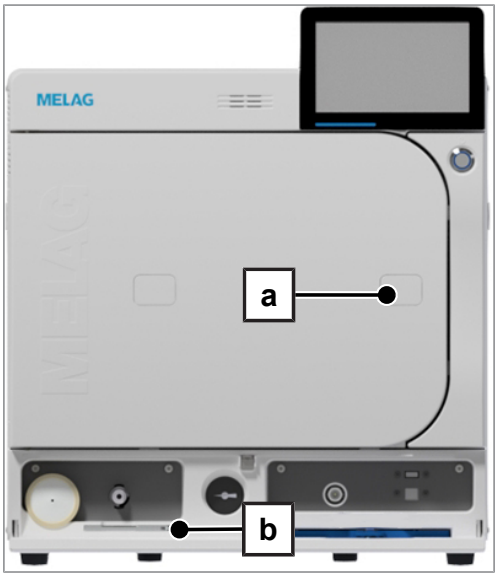
- Replacing the oil can [▸ page 69]

Manual door emergency-opening

In emergency situations e.g. power failure, the door can be opened in the following fashion:

1. Switch off the steam sterilizer and remove the power plug from the socket.

2. Remove the cover cap (pos. a) in order to enable the emergency door opening by pressing the cover cap in on one side.



3. Insert the Allen key (5 mm) included in the scope of delivery into the opening. The Allen key can be stored in the specially designed bracket behind the service hatch (pos. b).

CAUTION

When the door is opened in an emergency, hot water vapour may escape and hot water may be present in the sterilization chamber and in the Carebox.

This could result in scalding.

- Never touch the load, the sterilization chamber or the door with unprotected hands. The components are hot.
- The water that may be present can be seen through the transparent lower section of the Carebox.

4. Turn the Allen key to open the door in a clockwise direction.

   ➥ The door opens a crack.

5. Remove the Allen key.

6. Open the door and return the cover cap.

Activating/deactivating door mode

1. Switch on the device.
2. Touch the bottom two corners of the display during device startup.

   ➥ The symbol for the door mode appears in the information area.

3. Press the symbol for the door mode to deactivate it.

See also:

- Device mode [▸ page 21]

6 First steps

Setup and installation

PLEASE NOTE

Comply with the specifications of the technical manual during setup and installation. This contains all building-side requirements.

Record of installation and setup

The record of installation and setup is to be completed by the responsible stockist and a copy sent to MELAG as proof of the correct setup, installation and initial commissioning. This is a constituent part of any guarantee claim.

Feed water supply

Steam sterilization requires the use of ▸distilled or ▸demineralized water, known as ▸feed water. Annex C of ▸EN 13060 specifies the guideline values to be observed.

The steam sterilizer requires approx. 4 L feed water for the first filling of the steam generator.

The supply with ▸feed water is effected either via an external water storage container, which must be filled periodically with water of the corresponding quality, or automatically via a water treatment unit (e.g. MELAdem 53/53C or MELAdem 47).

Compressed air supply

According to ▸EN 13060, the device must not be operated without the sterile filter integrated in the compressed air hose.

The requirements for the compressed air are described in the chapter Technical data [▸ page 94].

The device cannot be operated in Careclave mode without a compressed air supply. If the device needs to be operated in Vacuclave mode without compressed air, the `Carebox detection` must be deactivated.

See also:

- Technical data [▸ page 94]
- Program options [▸ page 60]

Adapter installation

Comply with the following for safe handling:

- The Carebox Blue is used for the reprocessing of instruments that must be maintained with maintenance oil.
- The Carebox Green is used for the reprocessing of instruments that must not be maintained with maintenance oil.
- Use only original accessories.

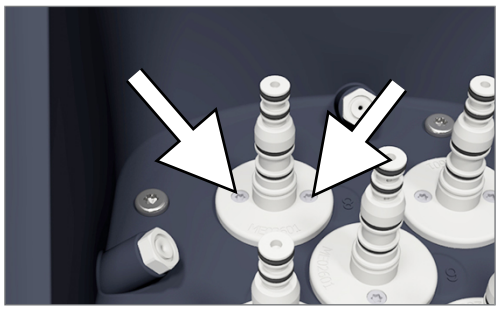
The following must be fulfilled or present:

✓ The adapters for transmission instruments, hollow-body instruments or unused connections.

✓ A new sealing washer, a new O-ring and screws for each adapter.

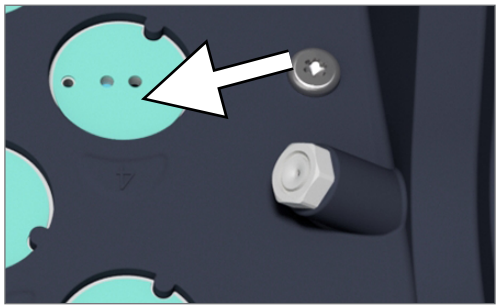
✓ A TX6 screwdriver.

1. Loosen and remove the screws of the existing adapter.

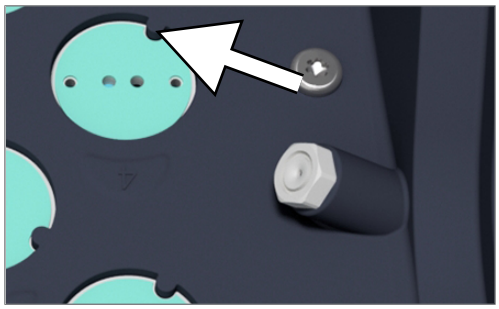


2. Remove the adapter.

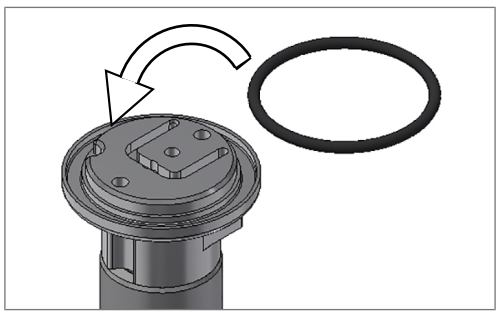
3. Remove the sealing washer and any residue from the seal.
Be careful not to scratch the seal face of the Carebox.



4. Insert the new sealing washer by aligning it with the recess and hole pattern.



5. Insert the new O-ring into the adapter.



6. Insert the new adapter by aligning it with the recess.

7. Screw the adapter tight.

8. Perform the **`Carebox test`**.

PLEASE NOTE

Further information on the installation of special adapters, e.g. ME22407, can be found in the user manual “Accessories for Careclave”.

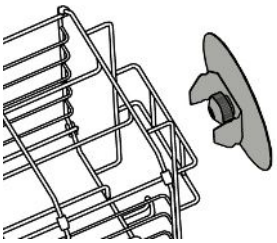
See also:

- Carebox test [▸ page 56]

Load mounts

Detailed information regarding the various mounts, their combinability with various load holders and their application can be found in the user manual “Accessories for Careclave”.

A spring clip is located on the rear panel of the sterilization chamber to fix the mount.



Switching on the device

The following must be fulfilled or present:

- ✓ The device is connected to the power supply.
- ✓ The feed water supply is secure.
- ✓ The wastewater disposal is connected.
- ✓ The compressed air supply is secure.

1. Switch on the device at the power switch.
   - ➥ The double jacket steam generator is ventilated, whereby the air flow can cause a hissing noise.
2. The welcome screen is displayed. The display then switches to the Favourites menu.

➥ The feed water level is checked and pre-heated immediately after activation.

After device activation, a ▸heating up time of a maximum of 15 minutes is required. This time is required for the pre-heating of the double jacket steam generator.

PLEASE NOTE

You can start a program immediately without waiting for the heating up time.

See also:

- Views of the device [▸ page 15]

7 Important information for routine operation

PLEASE NOTE

MELAG offers you an example hygiene plan to help you integrate the Careclave into the hygiene process in your daily practice.

- You can find the example hygiene plan in the download centre of the MELAG website under *Manufacturer recommendation*.

***Manufacturer's recommendation for the routine operation of type B steam sterilizers*[1)]**

When is it necessary to make checks?	How should the checks be made?
Once per working day	▪ Visual inspection of the Carebox (sieve, cover and media seals, O-rings) ▪ Visual check of the door seal and the door lock for damage ▪ Check the operating media (electricity, ▸feed water and water connection if necessary) ▪ Check the documentation media (printer paper, computer, network) MELAG recommends performing the steam penetration test with MELAcontrol Helix/MELAcontrol Pro in the Universal-Program (test system in accordance with ▸EN 867-5).
Once a week	▪ Vacuum test Tip: In the mornings before starting work – the steam sterilizer must be cold and dry ▪ Carebox test (with all Careboxes)
Batch-related tests	With "Critical B" instruments: ▪ MELAcontrol Helix/MELAcontrol Pro must be used as ▸batch control with every sterilization cycle. With "Critical A" instruments: ▪ The process indicator (type 5 in accordance with ▸EN ISO 11140) must be used as batch control with every sterilization cycle. With "Critical A + B" instruments: ▪ MELAcontrol Helix/MELAcontrol Pro must be used as batch control with every sterilization cycle. This simplifies the working procedure and increases security. You can omit the daily steam penetration test with MELAcontrol Helix/MELAcontrol Pro (see above). The use of another test system in accordance with ▸EN 867-5 is possible. The number of the available test systems means that MELAG is not able to provide technical support when using a different system.

PLEASE NOTE

Document the results of the tests.

- The indicator test strips used need not be stored.

[1)] in accordance with the current recommendations from the Robert Koch Institute

8 Careclave mode

Preparation and pre-cleaning

- If instruments are to be subject to manual preparation for cleaning, ensure that no media or tools/resources are deployed which could damage their surface. Never use any aggressive cleaning agents, wire or brass wire brushes or metal scourers. Information regarding correct instrument reprocessing is available from your instrument manufacturer.
- Remove water-insoluble treatment substances (e.g. dental cement, root canal disinfectants, alginates or silicones) directly after use by manual cleaning. Consult the product data sheets of the treatment substances.
- Other substances can also necessitate manual pre-cleaning. These include ultrasound gels and other auxiliary substances.
- Check hollow bodies (transmission instruments, cannulas, etc.) for free passage.
- Disassemble dismountable instruments for reprocessing according to the manufacturer's instructions.
- Remove corroded or defective instruments. Crusted instruments must be subject to a basic cleaning or repair.
- ▸KRINKO/▸BfArM (2012) recommend that instruments of the risk class “Semi-critical B” and “Critical B” are subjected to pre-cleaning directly after use.

Loading the Carebox

WARNING
Danger from contaminated transmission instruments.

Observe the following when loading the Carebox:

- The instruments are contaminated after treatment and have sharp edges and tips. Use suitable protective gloves when loading the Carebox.
- Do not use the protective gloves used for loading for further operation of the device.
- Check the instruments for free passage before loading to prevent residues from impairing the disinfection.
- Only dental transmission instruments or hollow bodies may be reprocessed inside the Carebox. These must be attached to the adapters provided for this purpose. It is not possible to reprocess instruments or hollow bodies that are not attached to adapters.

Transmission instruments should be reprocessed immediately after use.

NOTICE
Correct instrument care

Observe the type of Carebox (Blue/Green) when loading.

- Instruments which may not be cared for (oiled) belong in the Carebox Green.
- Instruments which require care belong in the Carebox Blue.

⇨ This will prevent damage to the instrument due to incorrect care.

The following must be fulfilled or present:

✓ There are no tools (drills) in the chucks.

✓ The Carebox has no visible contamination.

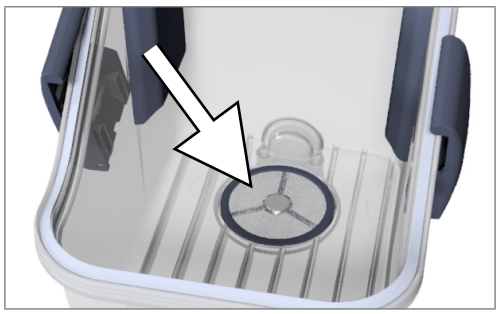
PLEASE NOTE

MELAG recommends that the Carebox be fully loaded.

If necessary, adapters can remain unfitted.

This does not reduce the oil consumption.

1. Bring the Carebox into the dirty area.
2. Insert the transmission instruments onto the adapters as far as they will go.
   - ➥ The heads point sideways to the edge.
   - ➥ The instrument engages audibly and noticeably.
3. For Sirona T1 Classic:
   Align the transmission instrument so that the connections of the spray channels match the receptacles provided in the adapter.
4. Check that the transmission instrument and adapter are correctly connected by gently pulling on the instrument.
5. For tips:
   Screw the tip onto the adapter using the torque wrench provided by the instrument manufacturer.
   - ➥ Reprocessing with a torque wrench connected is possible, as far as this has been approved by the manufacturer for automatic reprocessing.
6. Check in the lower section whether the Carebox sieve is inserted and fixed from below with the safety spring.



7. Check in the lower section whether the lateral media filters are inserted.

8. Place the upper section on the lower section of the Carebox.
9. Carry out a wipe disinfection of the outside of the Carebox with a fully virucidal disinfectant.
10. **NOTICE! If the latches are very difficult to close, check the cover to ensure that it is correctly seated.** Close the latches on both sides until you hear and feel them engage.

11. Carry out a wipe disinfection of the underside of the Carebox with a fully virucidal disinfectant.

See also:

- Adapter installation [▸ page 25]
- Changing the filter [▸ page 75]

Loading Careclave

The following must be fulfilled or present:

✓ The Carebox has been cleaned and disinfected from the outside before it is moved to the clean side of the reprocessing room.

✓ The sterilization chamber is dry.

✓ The outside of the Carebox is dry and cooled down.
Please note: A Carebox that can only be handled with heat protection gloves is too hot and must be cooled down before it is processed in Careclave.

✓ There is no metallic foreign body on the magnet of the lower section of the Carebox.

1. Open the door completely until it snaps into place.

2. Place the Carebox on the upper mount in the inside of the door with a slight incline.

3. Slowly guide the Carebox to the lower mount until the magnetic connection engages.

   ➥ The display shows `Carebox installed` and switches to Careclave mode.

4. Close the door.

   ➥ The door is automatically pulled towards the device.

➥ Careclave is ready for program selection.

PLEASE NOTE

Avoid incrustation of impurities.

- Immediately make a program selection and start Careclave.
  - ⇨ If no program start has occurred after twenty seconds, the warning “Carebox warming” is displayed and a warning tone is emitted.

Selecting the program

WARNING

Danger due to subsequent contamination

- Do not use potentially contaminated gloves to operate the device.
- If in doubt, clean and disinfect the affected surfaces with a surface disinfectant.

WARNING

In the Care-S and Care-Therm program, no reprocessing takes place in the sterilization chamber!

Program loading

Program		Packaging	Especially suitable for	Loading
Care-S		Carebox*)	Transmission instruments semicritical B	Carebox with intended loading (max. 8 pcs)
Care-Therm**)		Carebox*)	Transmission instruments semicritical B***)	Carebox with intended loading (max. 8 pcs)
Care-B		Carebox	Transmission instruments semicritical B***)	Carebox: with intended loading (max. 8 pcs)
		Single and multiple wrapped instruments	Instruments critical B Products with narrow lumen	Sterilization chamber: short mount for trays with solid load max. 5 kg

*) Reprocessing takes place exclusively in the Carebox. No reprocessing takes place in the sterilization chamber.

**) There must be a pause of four minutes between the execution of two Care-Therm programs.

***) The transmission instruments are heated with steam and must be temperature-resistant up to 135 °C.

PLEASE NOTE

If you are reprocessing loads in the sterilization chamber in the Care-B program, observe the sections on preparation, load, removal and storage in the chapter Vacuclave mode [▸ page 41].

See also:

- Preparing the load [▸ page 41]
- Loading the steam sterilizer [▸ page 42]
- Removing the sterile material [▸ page 48]
- Storing sterile material [▸ page 49]

Program parameters

Program	Tempera-ture	Pressure	Disinfection/ sterilization time	Operating time*)	Drying
Care-S	134 °C	2.1 bar	03:30 min	23:24 min	03:04 min
Care-Therm	--	--	A0 > 3000	18:25 min	03:04 min
Care-B	134 °C	2.1 bar	05:30 min	43:30 min	15 min

*) The operating times with Carebox Green are approx. two minutes shorter.

PLEASE NOTE

If the feed water or ambient temperature is too high, the operating time can be extended by up to eight minutes.

Starting the program

The door locks pressure-tight upon program start. The device performs automatic tests, e.g. a quantity check and conductivity measurement of the feed water.

1. Press **START PROGRAM**.
2. Confirm the subsequent dialogue window with **START PROGRAM**.
3. With enabled **Authentication at Reprocessing program start**, authenticate by entering a PIN.

➥ During the program run, the display shows the current program duration, the current parameters and the expected end of the program.

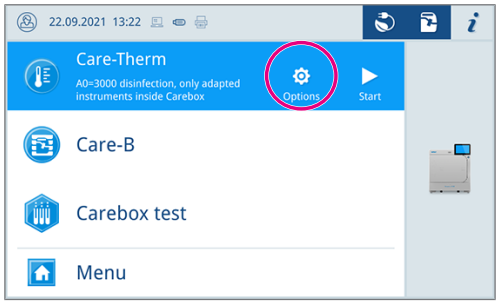
If no input is made on the display, the program display maximises and overlays the menu. Touch the display to show the menu.

Program options

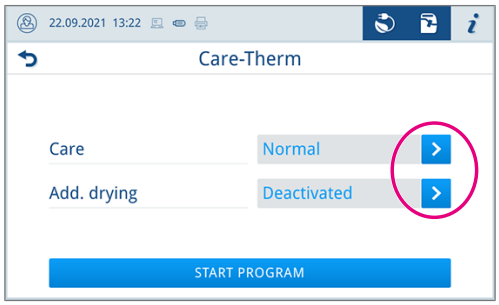
The **Options** button can be used to change settings one time for the selected program.

The options available in the menu depend on the device mode, the selected program and the user role.

1. Press the **Options** button.



2. Select the desired options.



3. Start the program with **START PROGRAM**.
4. With enabled **Authentication at Reprocessing program start**, authenticate by entering a PIN.
5. Confirm the subsequent dialogue window with **START PROGRAM**.

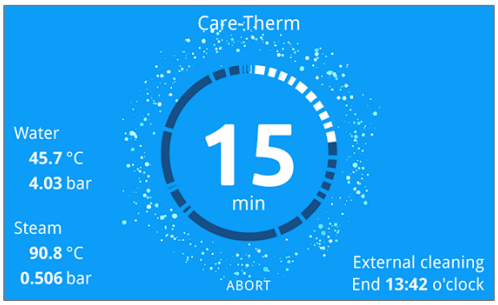
See also:

- Program options [▸ page 60]

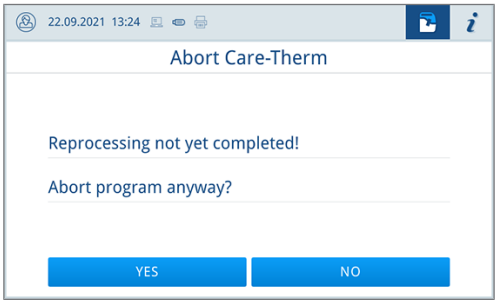
Manual program abort

You can abort the program at any time. If you abort the program before the end of the sterilization phase, the load is **not** sterile.

1. Press **ABORT** to abort a program.



2. Confirm the security query with **YES**.



➥ The load is not processed.

➥ Aborting the program may take a few minutes as steam and condensate are removed from the chamber.

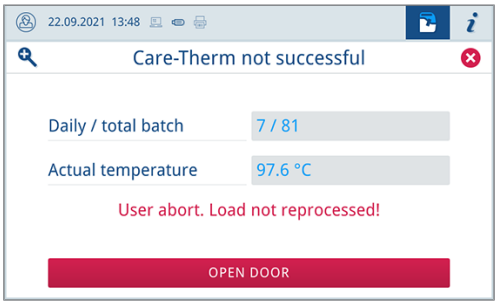
CAUTION

When the door is opened after a program abort, hot steam may escape and hot water may be present in the sterilization chamber and the Carebox.

This could result in scalding.

- Never touch the load, boiler or door with unprotected hands. The components are hot.
- The water that may be present can be seen through the transparent lower section of the Carebox.

3. Press **OPEN DOOR** to remove the load.



PLEASE NOTE

After the program has been aborted, the Carebox must cool down and be dry on the outside before reprocessing can be performed in Careclave.

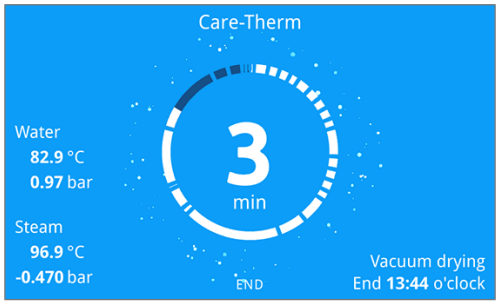
Ending the program prematurely

You can end the program prematurely. If you abort the program before the end of the drying phase, the load is not completely dried and should be used immediately.

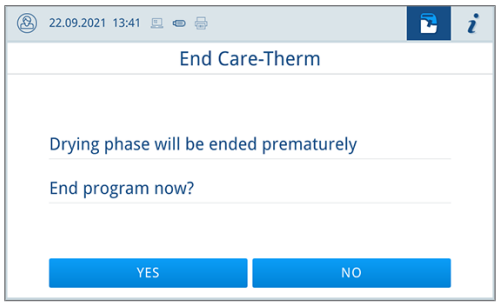
The following must be fulfilled or present:

✓ The drying phase has been reached.

1. To end the program prematurely, press **END**.



2. Confirm the termination of the drying process with **YES**.



➥ The program will be aborted prematurely.

Program is ended

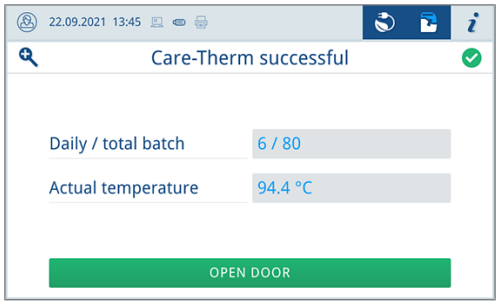
PLEASE NOTE

If the program has been carried out successfully, a corresponding message appears on the display and the status LED below the display illuminates green.

- If the display indicates that the program was not successful or the LED does not illuminate green, the program must be repeated.

1. Before opening the door, you can view further values for the program that has just been completed (e.g. the plateau time or the conductivity) by pressing the magnifying glass symbol.

2. Press **OPEN DOOR** to remove the load.



3. With enabled **Authentication at Reprocessing program end**, authenticate by entering a PIN.

If automatic log output after the end of the program is activated in the **Settings** > **Log output** menu, the log of the run program is output to the activated output media after the door is opened.

Removing the Carebox

CAUTION
Danger of burns from hot parts and hot condensate.

Comply with the following specifications when removing the Carebox:

- Never touch the Carebox, the inside of the device or the inside of the door with bare hands. The components are hot.
- Use suitable protective gloves to remove the Carebox.
  The Carebox and the instruments may be over 100 °C hot after the program run.
- After the program run, there may still be a small amount of hot condensate in the Carebox. The condensate may drip out when the Carebox is removed or carried. Any condensate that may be present can be seen through the transparent lower section of the Carebox.
- When opening the Carebox, make sure that you do not come into direct contact with hot condensate.

The following must be fulfilled or present:

✓ End of the program has been reached

1. Unlock the door by pressing **OPEN DOOR**.
2. Open the door completely until it snaps into place.
3. **CAUTION! Danger of burns from hot parts and hot condensate.** Remove the Carebox.

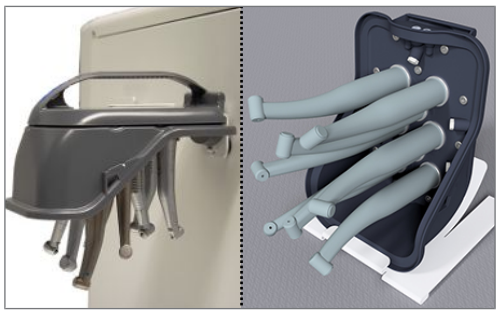
4. Close the door.

   ➥ The door is automatically pulled towards the device.

PLEASE NOTE
If the transmission instruments are to be used later, you can leave the Carebox closed during cooling.
In this case, it takes at least thirty minutes for the transmission instruments to cool down.

5. **CAUTION! Danger of burns from hot condensate.** Separate the upper section of the Carebox from the lower section of the Carebox to allow the transmission instruments to cool down.

6. Place the upper section of the Carebox in the Carebox cover holder or hang it on the side wall of the Careclave.



7. Allow the instruments to cool down.

PLEASE NOTE

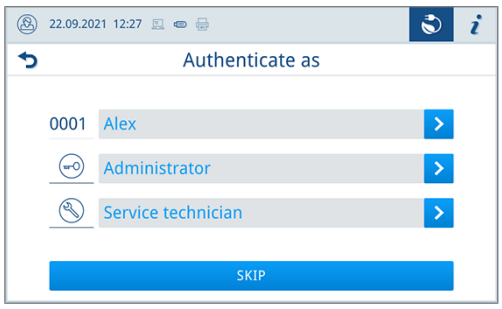
For fast and safe cooling of the instruments, MELAG recommends the Cooling Box.

See Cooling with the Cooling Box [▸ page 39].

Approval process

According to ▸RKI "Hygiene requirements for the treatment of medical products", instrument reprocessing ends with the documented approval for storage and application of the ▸sterile material. The approval process consists of ▸batch indication and batch approval and must be performed by authorised and expert personnel.

Batch approval comprises the checking of the process parameters using the sterilization results on the device and the sterilization log as well as checking of the individual packaging for damage and residual moisture. The sterilization log records the approval of the ▸batch and any indicators. Depending on the setting in the user administration, approval for the ▸sterile material requires the user PIN of the person who provides approval for the batch and the indicators.



See also:

- Logging [▸ page 50]
- Administrative settings [▸ page 62]

Removing instruments and hollow objects

CAUTION

Danger of burns from hot parts and hot condensate.

Comply with the following for safe handling:

- To ensure safe removal of the instruments and hollow objects, check whether they have cooled down sufficiently.
- Reprocess any instruments and hollow bodies that have fallen off adapters. They are not sterile.
- If necessary, take additional measures to cool down the instruments and hollow bodies:
  - Using the Cooling Box: Cooling time approx. four minutes
  - Cool down in the ambient air with the Carebox open: Cooling time at least fifteen minutes
  - Cool down in the closed Carebox: Cooling time at least thirty minutes

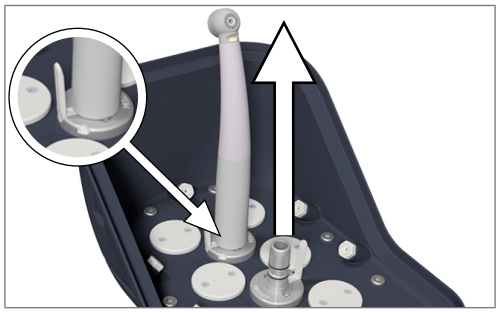
1. Check that the transmission instrument is firmly seated.

   ➥ Should the connection work loose after reprocessing, the instrument must be reprocessed again.

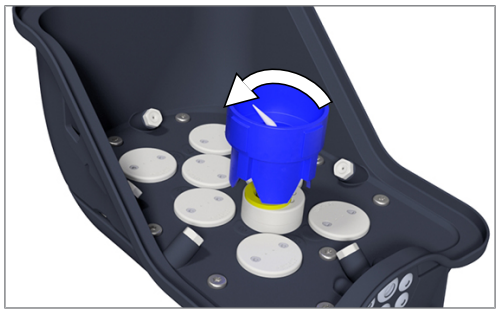
2. Hold the upper section of the Carebox with one hand.

3. When using an adapter for Sirona T1 Classic:
   Pull the transmission instrument forcefully and in a straight direction from the adapter with your other hand.

4. When using an adapter with an ISO coupling:
   Operate the latch with your other hand and then pull the transmission instrument from the adapter forcefully and in a straight direction.



5. When using an adapter for tips:
   Unscrew the adapter using the torque wrench.



6. Keep the Carebox on the clean side.

PLEASE NOTE

The transmission instruments are dried by compressed air/vacuum drying of the inner channels.

The result of the drying process strongly depends on the type and design of the instruments.

- Check the drying result of the transmission instruments and, if necessary, dry them with medical compressed air after removal.

Cooling with the Cooling Box

The following must be fulfilled or present:

✓ The Cooling Box is switched on.

✓ The upper section of the Carebox has been separated from the lower section.

NOTICE

Danger of short circuit

- Allow any wet instruments and hollow bodies to drip off before placing the upper section of the Carebox on the device.

1. Place the upper section of the Carebox on the cooling chamber of the device.

2. Check whether the upper section of the Carebox is correctly positioned on the seal of the cooling chamber.
3. Start a program run by pressing the corresponding program selection button.

Oiling the chucks

Chuck systems must be regularly maintained with suitable care products and oils. Comply with the information provided by the instrument manufacturer.

PLEASE NOTE

To ensure proper functioning of the collets, MELAG recommends oiling them once a week.

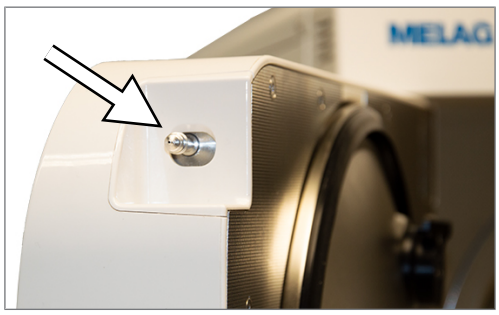
Chuck care must be performed after reprocessing with the Carebox.

- Perform the chuck care in addition to the care of the instruments by the Care programs.
- Comply with the information provided by the instrument manufacturer.

The integrated ADDcare care station can be used to care for the instruments. Proceed as follows:

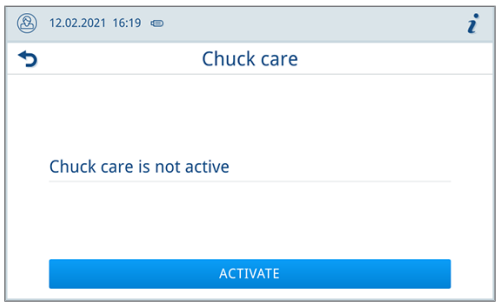
1. Open the door completely until it snaps into place.

2. Start chuck care by briefly pressing (1 s) on the nozzle or by pressing the chuck care button.



   ➥ The dialogue for chuck care appears on the user interface.

3. Press **ACTIVATE**.



4. Briefly press the instrument onto the nozzle with the chuck unlocked to perform chuck care.

5. Press the instrument briefly onto the nozzle repeatedly until oil emerges from the instrument head.

6. Then carefully clean the nozzle with a dry, lint-free cloth.

7. Press the chuck care button to switch off chuck care.

   ➥ The dialogue for chuck care appears on the user interface.

8. Press **DEACTIVATE**.

PLEASE NOTE

If chuck care is not performed, the dialogue is automatically closed.

9 Vacuclave mode

Preparing the load

Always clean and disinfect properly before sterilization. Only in this way is it possible to guarantee the subsequent sterilization of the ▸load. The materials used, cleaning agents and reprocessing procedure are of decisive significance.

Reprocessing the instruments

Unwrapped sterile material loses its sterility on contact with ambient air. If you intend to store your instruments sterilely, wrap them in suitable packaging before sterilization.

Ensure the following when reprocessing used and brand-new instruments:

- Observe both the instrument manufacturer's instructions regarding reprocessing and sterilization as well as the relevant standards and directives (in Germany, for example, from ▸RKI, ▸DGSV and ▸DGUV Regulation 1).
- Clean the instruments exceptionally thoroughly e.g. using an ultrasonic device or washer-disinfector.
- Rinse the instruments after cleaning and disinfecting, where possible with demineralised or distilled water and then dry the instruments thoroughly with a clean, non-fuzzing cloth.
- Use only those care agents suitable for steam sterilization. Consult the manufacturer of the care agents. Do not use any water repellent agents or oils impermeable to steam.
- When using ultrasonic devices, care equipment for handpieces and washer-disinfectors, comply with the manufacturer's reprocessing instructions.

NOTICE

The presence of residual disinfection and cleaning fluids results in corrosion.

This could result in increased maintenance requirements and a restriction of the steam sterilizer function.

Reprocessing textiles

Comply with the following points when reprocessing textiles and putting the textiles in sterilization containers:

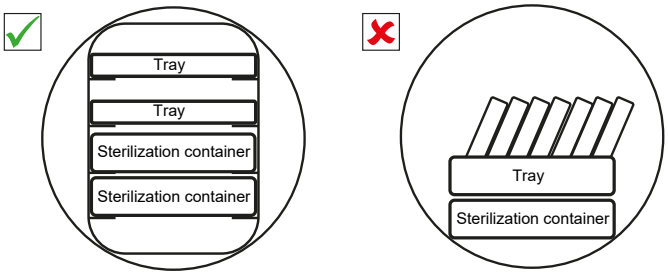
- Comply with both the manufacturer's instructions of the textiles regarding reprocessing and sterilization as well as the relevant standards and directives (in Germany e.g. from the ▸RKI and ▸DGSV).
- Arrange the folds in the textiles parallel to each other.
- Stack textiles vertically wherever possible and not too closely together in the sterilization container. This enables the development of flow channels.
- If textile packages do not remain together, wrap the textiles in sterilization paper.
- Only ever sterilize dry textiles.
- The textiles may not be permitted to come into direct contact with the sterilization chamber; otherwise they will become saturated with ▸condensate.

Loading the steam sterilizer

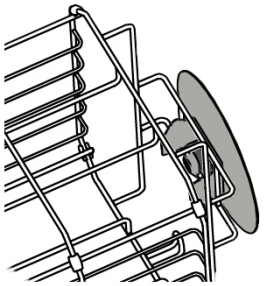
Effective sterilization and good drying is only possible if the steam sterilizer has been loaded correctly.

Ensure the following during loading:

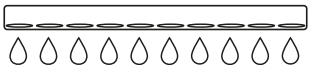
- Insert trays or sterilization containers in the chamber only with their appropriate mount.



- Slide the mount into the sterilization chamber to its fullest extent. The holder must engage audibly and noticeably in the spring clip.



- Use perforated trays such as those from MELAG. Only in this way can ▸condensate drain off. Non-perforated bases or half-shells for holding the ▸load lead to poor drying results.



- The use of paper tray inserts can result in poor drying results.
- Wherever possible, ensure the separate sterilization of textiles and instruments in separate sterilization containers or sterilization packaging. This leads to better drying results.

Packaging

Only ever use packaging materials and systems (▸sterile barrier systems) which fulfil the standard ▸EN ISO 11607-1. The correct use of suitable packaging is important in achieving successful sterilization results. You can use re-usable rigid packaging systems or soft packaging such as transparent sterilization packaging, paper bags, sterilization paper, textiles or fleece.

Closed sterilization containers

WARNING

Risk of contamination due to insufficient steam penetration or poor drying.

- Use only suitable sterilization containers.
- Do not cover the perforations when stacking the sterilization containers so that the condensate can drain off.

Please comply with the following when using closed sterilization containers:

- Use aluminium sterilization containers. Aluminium retains and conducts heat and thus accelerates drying.
- Closed sterilization containers must be either perforated or have a valve on at least one side. MELAG sterilization containers (e.g. MELAstore Boxes) fulfil the requirements for successful sterilization and drying.
- Wherever possible, ensure that sterilization containers are only stacked on top of those of identical size, so that the condensate can run down their sides.
- Ensure that the perforations are not covered when stacking the containers.

Soft sterilization packaging

WARNING

Risk of contamination due to insufficient drying

To improve the drying results for full loads of soft sterilization packages, the setting **`Drying`**: **`Intelligent`** must be activated.

▸Soft sterilization packaging can be used in both sterilization containers and on trays. Please comply with the following when using soft sterilization packaging e.g. MELAfol:

- Arrange soft sterilization packaging in a perpendicular position and at narrow intervals.
- Place transparent sterilization packages on their edge wherever possible and with the paper side facing downwards.
- Do not place multiple soft sterilization packages flat on top of each other on a tray or in a container.
- When loading the steam sterilizer, make sure that either the film or paper sides of different bags are facing each other.
- If the seam seal tears during sterilization, this could be caused by the choice of undersized packaging. Re-pack the instruments with larger packaging and perform sterilization again.
- Should the seam seal rip during sterilization, extend the sealing pulse on the sealing device or make a double seam.

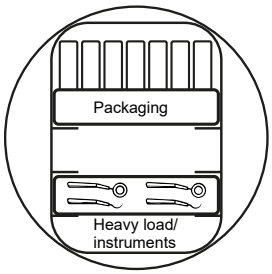
Multiple wrapping

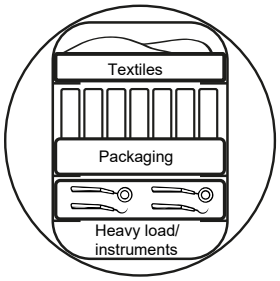
The steam sterilizer works with a fractionated vacuum procedure. This permits the use of ▸multiple wrapping.

Mixed loads

Observe the following when sterilizing ▸mixed loads:

- Always place textiles at the top.
- Place the sterilization containers at the bottom.
- Place unwrapped instruments at the bottom.
- Place the heaviest loads at the bottom.
- Place transparent sterilization packaging and paper bags at the top - except in combination with textiles. In this case, place them at the bottom.





Selecting the program

Now select the sterilization program according to how and whether the load is packed. It is also necessary to take into account the temperature resistance of the load. All sterilization programs are displayed in the **Programs** menu. The following tables list the correct program for each load.

Program loading

Program		Packaging	Especially suitable for	Load*)
Universal-B		Single and multiple wrapped	Mixed loads Products with narrow lumen	▪ Textiles (multiple wrapped) 2 kg ▪ Instruments (single and multiple wrapped) 6 kg ▪ Solid load (container**) / unwrapped instruments) 11 kg ▪ Mixed load (textile/solid) 1.5 kg / 5.5 kg
Quick-S		Unwrapped	Unwrapped loads	▪ Solid load 7 kg
Prion-B		Single and multiple wrapped	Instruments under suspicion of carrying the danger of infection through abnormally altered proteins (e.g. Creutzfeldt–Jakob, BSE)	▪ Textiles (multiple wrapped) 2 kg ▪ Instruments (single and multiple wrapped) 6 kg ▪ Solid load (container**) / unwrapped instruments) 11 kg ▪ Mixed load (textile/solid) 1.5 kg / 5.5 kg
Gentle-B		Single and multiple wrapped	Textiles; thermo-unstable items (e.g. plastic, rubber articles)	▪ Textiles (multiple wrapped) 2 kg ▪ Instruments (single and multiple wrapped) 6 kg ▪ Solid load (container**)) 6 kg ▪ Thermo-unstable items / unwrapped instruments 7 kg ▪ mixed load (textile/solid) 1.5 kg / 5.5 kg

*) The max. weight per component is 2 kg for instruments or textiles.

**) checked with sterilization containers / MELAstore Box. Other load configurations must be checked individually and locally.

Program parameters

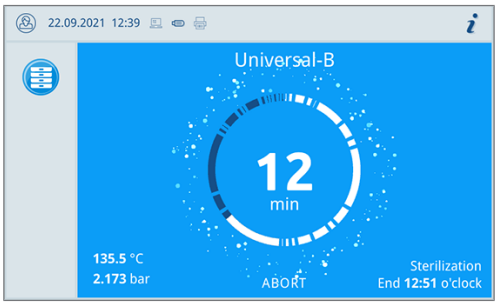
Program	Sterilization temperature	Sterilization pressure	Sterilization time	Operating time*)	Intelligent drying	Time-controlled drying
Universal-B	134 °C	2.1 bar	5:30 min	13-20 min	5-25 min	15 min
Quick-S	134 °C	2.1 bar	3:30 min	9-15 min	5-25 min	15 min
Prion-B	134 °C	2.1 bar	20:30 min	28-35 min	5-25 min	15 min
Gentle-B	121 °C	1.1 bar	20:30 min	27-37 min	5-25 min	15 min

*) without drying, with a full load and dependent on the load and set-up conditions (such as e.g. water temperature and mains voltage)

Starting the program

With the start of the program, the door closes pressure-tight and the device checks the quantity of feed water and its conductivity.

1. Press **START PROGRAM**.
2. Confirm the subsequent dialogue window with **START PROGRAM**.
3. With enabled **Authentication at Reprocessing program start**, authenticate by entering a PIN.



➥ During the program run, the display shows the current program duration, the current parameters and the expected end of the program.

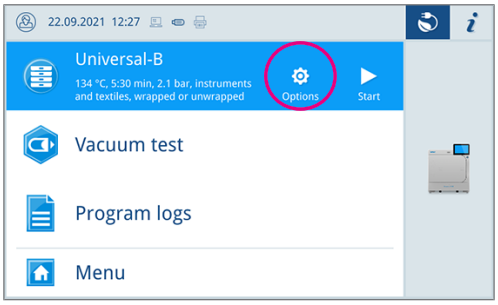
If no input is made on the display, the program display maximises and overlays the menu. Touch the display to show the menu.

Program options

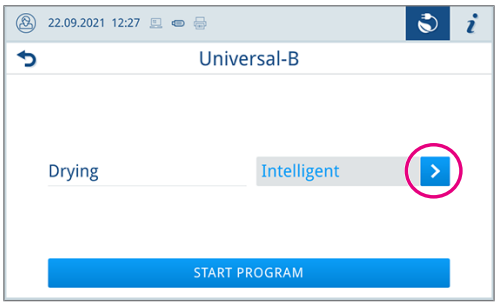
The **Options** button can be used to change settings one time for the selected program.

The options available in the menu depend on the device mode, the selected program and the user role.

1. Press the **Options** button.



2. Select the desired option.



3. Start the program with **START PROGRAM**.
4. With enabled **Authentication at Reprocessing program start**, authenticate by entering a PIN.
5. Confirm the subsequent dialogue window with **START PROGRAM**.

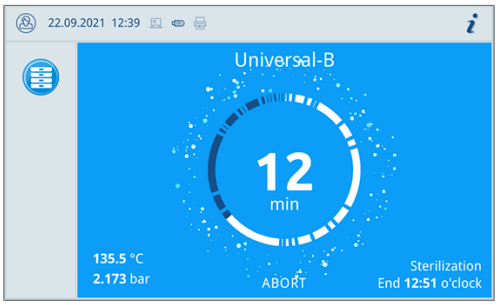
See also:

- Program options [▸ page 60]

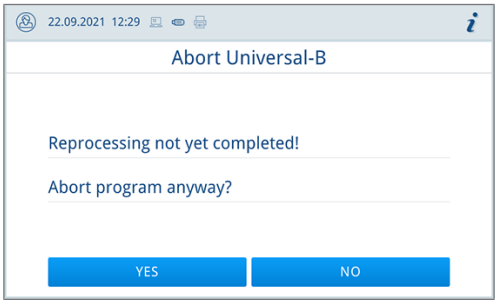
Manual program abort

You can abort the program at any time. If you abort the program before the end of the sterilization phase, the load is **not** sterile.

1. Press **ABORT** to abort a program.



2. Confirm the security query with **YES**.



➥ The load is not sterile.

➥ Aborting the program may take a few minutes as steam and condensate are removed from the chamber.

CAUTION

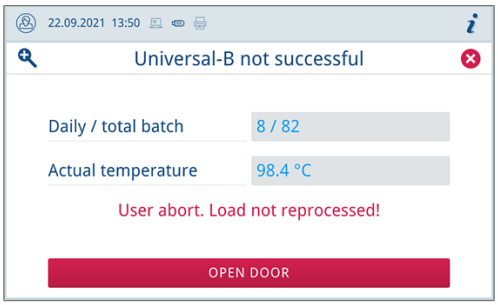
When the door is opened after a program abort, hot steam may escape and hot water may be present in the sterilization chamber.

This could result in scalding.

- Never touch the load, the sterilization chamber or the door with unprotected hands. The components are hot.

---

3. Press **OPEN DOOR** to remove the load.



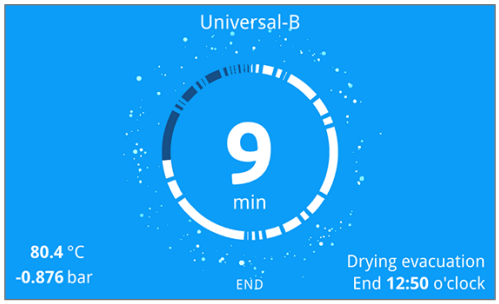
Ending the program prematurely

You can end the program prematurely. If you abort the program before the end of the drying phase, the load is not completely dried and should be used immediately.

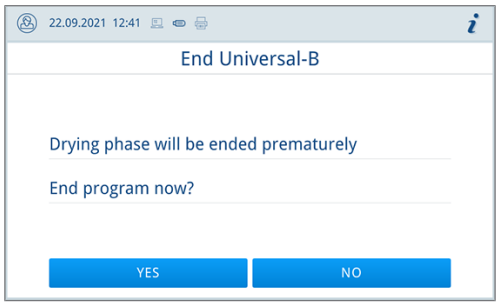
The following must be fulfilled or present:

✓ The drying phase has been reached.

1. To end the program prematurely, press **END**.



2. Confirm the termination of the drying process with **YES**.



➥ The program will be aborted prematurely.

See also:

- Program options [▸ page 60]

Program is ended

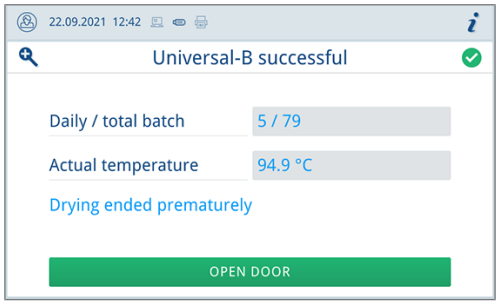
PLEASE NOTE

If the program has been carried out successfully, a corresponding message appears on the display and the status LED below the display illuminates green.

- If the display indicates that the program was not successful or the LED does not illuminate green, the program must be repeated.

1. Before opening the door, you can view further values for the program that has just been completed (e.g. the plateau time or the conductivity) by pressing the magnifying glass symbol.

2. Press **OPEN DOOR** to remove the load.



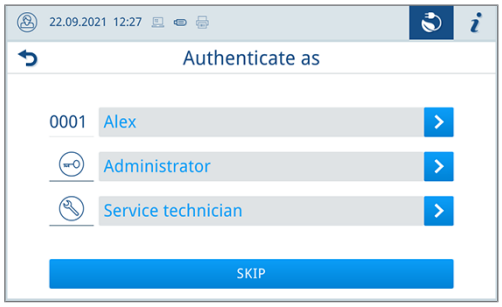
3. With enabled **Authentication at Reprocessing program end**, authenticate by entering a PIN.

If automatic log output after the end of the program is activated in the **`Settings`** > **`Log output`** menu, the log of the run program is output to the activated output media after the door is opened.

Approval process

According to ▸RKI "Hygiene requirements for the treatment of medical products", instrument reprocessing ends with the documented approval for storage and application of the ▸sterile material. The approval process consists of ▸batch indication and batch approval and must be performed by authorised and expert personnel.

Batch approval comprises the checking of the process parameters using the sterilization results on the device and the sterilization log as well as checking of the individual packaging for damage and residual moisture. The sterilization log records the approval of the ▸batch and any indicators. Depending on the setting in the user administration, approval for the ▸sterile material requires the user PIN of the person who provides approval for the batch and the indicators.



See also:

- Logging [▸ page 50]
- Administrative settings [▸ page 62]

Removing the sterile material

CAUTION

Danger of burns from hot loads

- Use a tray lifter or heat protection gloves.

CAUTION

Unsterile instruments resulting from damaged or burst packaging. This endangers the health of your patients and practice team.

- Should the packaging be damaged or have burst after sterilization, wrap the load again and re-sterilize it.

If you remove the ▸sterile material from the device directly after the end of the program, it is possible that the instruments can be partially damp. According to the red brochure of the Arbeitskreis für Instrumentenaufbereitung (▸AKI), the tolerable residual moisture is – in practice – a few drops of water capable of evaporating within 15 min, but actual pools of water are not acceptable.

Comply with the following specifications when removing the sterile material:

- Never use force to open the door. This could damage the device or result in the emission of hot steam.
- Hold the mount level when removing it from the device. Otherwise, the load could slide off.
- Hold the tray level when removing it from the steam sterilizer. Otherwise, the load could slide off.
- When removing the load from the device separately, ensure that the mount does not slide out unintended.
- Use a tray lifter or suitable protective gloves to remove the tray.
- Never touch the sterile material, the sterilization chamber, the mount or the inside of the door with bare hands. The components are hot.
- Check the packaging of the sterilized equipment for damage when removing it from the device. Should the packaging be damaged, re-pack the load and re-sterilize it.

Storing sterile material

The maximum storage time is dependent on the packaging and the storage conditions. Please observe the regulatory requirements for the storage period of ▸sterile materials (in Germany e.g. ▸DIN 58953, Part 8 or the ▸DGSV guidelines) as well as the following listed criteria:

- Follow the manufacturer's instructions on the packaging, e.g. when setting the storage period when printing labels.
- Comply with the maximum storage duration in accordance with the packaging type. Comply with the manufacturer’s information on the packaging.
- Do not store the ▸sterile material in the reprocessing room.
- Store the sterile material in a dust-protected environment e.g. in a closed instrument cabinet.
- Store the sterile material in an environment protected against moisture.
- Store the sterile material in an environment protected against excess temperature variations.

10 Logging

Batch documentation

The batch documentation serves as proof of the successful conclusion of the program and represents an obligatory part of quality assurance. The device internal log memory saves such data as the program type, batch and process parameters of all the programs completed.

To obtain the batch documentation, you can output the internal log memory and transfer its data to various output media. This can be performed immediately at the end of every program or at a later point, such as at the end of the day.

If authentication is activated, the user ID and the result of the approval process are documented in the log header and, if required, on a label.

Capacity of the internal log memory

The device is equipped with an internal log memory. This saves all the data regarding the programs automatically. The capacity of the internal log memory is sufficient for at least 4000 logs. If the internal log memory is full, a warning appears at program start and the oldest log is overwritten.

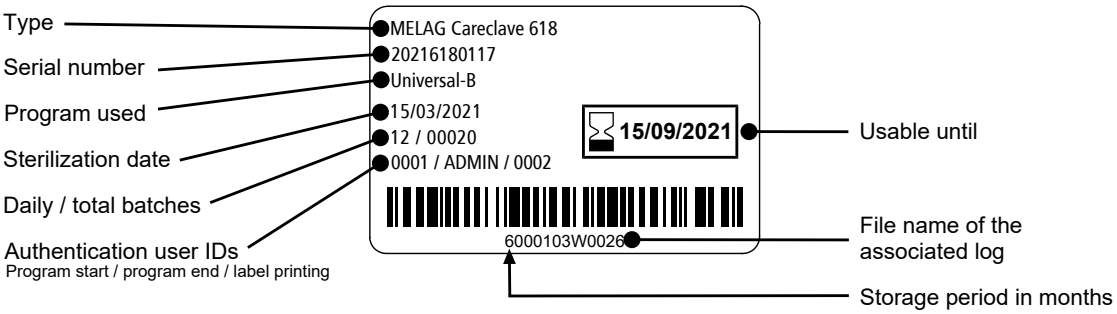
The number of free log memory locations can be viewed under **`Device status > Device`**.

See also:

- User administration [▸ page 63]
- Authentication [▸ page 64]
- Batch approval [▸ page 64]

Label printer

The use of a label printer facilitates batch traceability. Using the sterilization date, the storage duration, batch number, user ID of the person approving the application for use, the steam sterilizer used and the file name it is possible to assign the sterilized instruments to the patient and sterilization batch. Faultless packages containing sterile material are marked with labels after sterilization. As such, the preconditions for correct “Approval” by the person conferred with the task of reprocessing are given. All information regarding the correct sterilization procedure can be attributed to the instruments used in patient records.



See also:

- Label print [▸ page 62]
- Log list [▸ page 51]

Logs menu

The **Logs** menu provides you with the following options:

- Display and output of program logs
- Display and output of malfunction logs
- Display and output of status log
- Display and output of system log
- Printing of labels

You can issue logs subsequently and independently of the time of a program end. Before the log output, you can select the output media.

Log types

Log type	Description
Program log	Log of a program
Malfunction logs	Log with faults that occurred outside a program run
Status log	Summary of all important settings and system statuses
System log	List of all the malfunctions and changes to the system in order of time (log book) The system log is output in English.

See also:

- Log output [▶ page 61]
- Label print [▶ page 62]

Log list

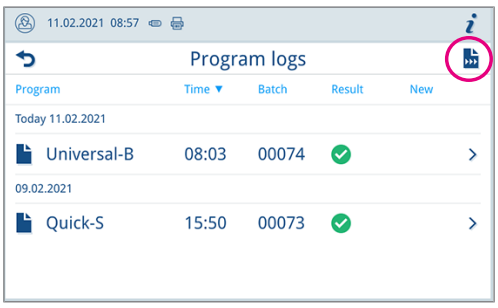
In the log list you can view all logs in detail. It displays all the logs present in the memory. You can sort the list by pressing the column headings.

The **Result** column shows whether the program ended successfully or not.

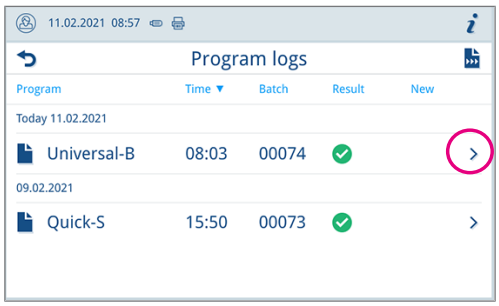
Symbol	Description
	Program successfully completed
	Program not successfully completed

Logs that have not yet been output are marked with a dot in the **New** column.

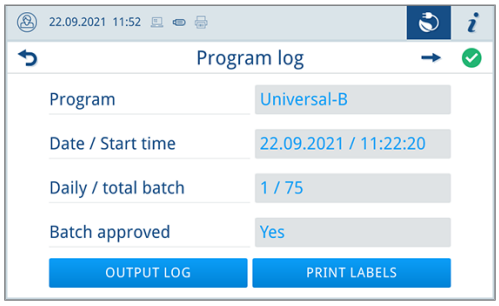
1. Press the button at the top right to customise the **Log output options** and output multiple logs.



2. Press the button with the arrow to view and output a log.

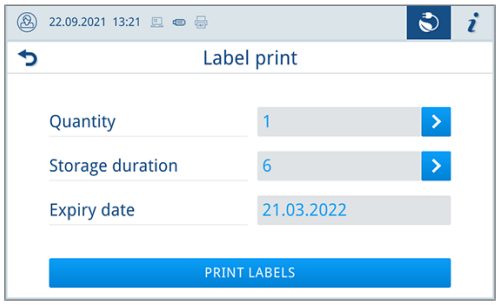


3. Press **OUTPUT LOG** to enter the **Log output options** and output the displayed log.



4. Press **PRINT LABELS** to open the label printing dialogue.

5. Press the button with the arrow to change the **Quantity** or the **Storage duration**.



   ➥ Confirm the changes with **OK**.

6. Press **PRINT LABELS** to print labels for the displayed log.

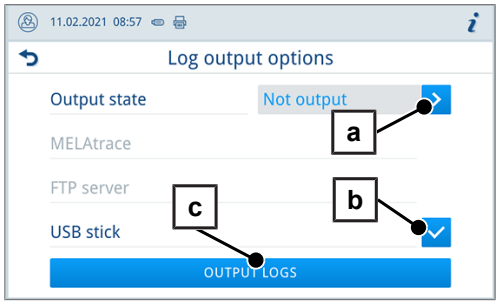
See also:

- Log output [▸ page 61]
- Log output options [▸ page 52]
- Label print [▸ page 62]

Log output options

In the **Log output options** menu, you can set which logs are to be output and then output the logs.

1. Press the button with the arrow (pos. a) to select the desired output status (see following table).



2. Activate the desired output medium (pos. b).

   ➥ Unavailable output media are displayed greyed out.

3. Press **OUTPUT LOGS** (pos. c).

➥ The output takes place on the selected output media.

Output status

The following settings are possible:

Output status	Description
Not output	All logs that are not output will be output.
Last	The log of the last successful completed program is outputted.
All	The logs of all successfully completed programs will be outputted.

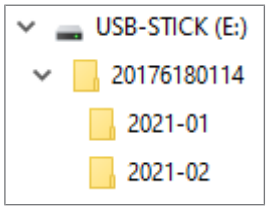
Finding logs

Storage location for logs

When transferring the logs to a USB stick, they will be stored in a separate folder in the main directory. Direct transfer of the logs to a computer via the network and using the MELAG FTP server allows you to work directly in the FTP server to determine directly where on your computer the device directory with log files is to be saved. With output via MELAtrace, you can work directly in the program to determine the folder in which they are to be saved.

Log directory

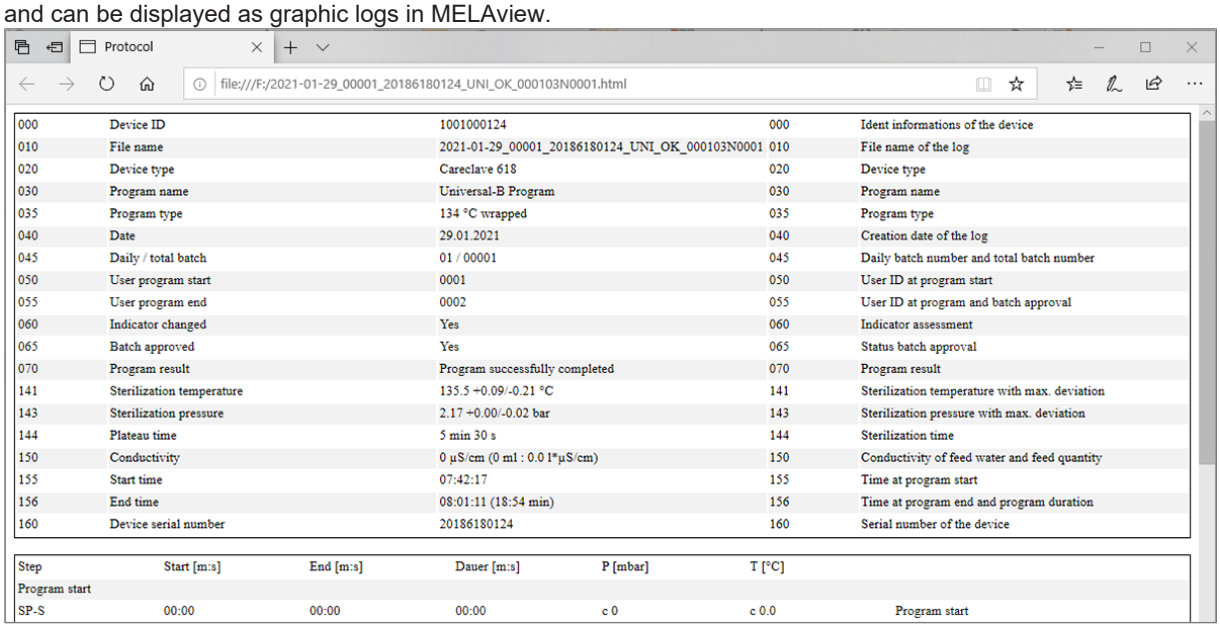
A folder is created on all memory media (USB stick or computer) after log output containing the serial number of the issuing device. This folder contains sub-folders with the month of log generation e.g. 2021-01 for January 2021. This contains all logs generated by the device this month.



Displaying logs on the computer

The log files are generated in html format and can be displayed and printed on the computer with a web browser or in MELAtrace/MELAview.

The program, malfunction and status logs contain a legend entry for each line. The program logs contain graphic data and can be displayed as graphic logs in MELAview.



000	Device ID	1001000124	000	Ident informations of the device
010	File name	2021-01-29_00001_20186180124_UNI_OK_000103N0001	010	File name of the log
020	Device type	Careclave 618	020	Device type
030	Program name	Universal-B Program	030	Program name
035	Program type	134 °C wrapped	035	Program type
040	Date	29.01.2021	040	Creation date of the log
045	Daily / total batch	01 / 00001	045	Daily batch number and total batch number
050	User program start	0001	050	User ID at program start
055	User program end	0002	055	User ID at program and batch approval
060	Indicator changed	Yes	060	Indicator assessment
065	Batch approved	Yes	065	Status batch approval
070	Program result	Program successfully completed	070	Program result
141	Sterilization temperature	135.5 +0.09/-0.21 °C	141	Sterilization temperature with max. deviation
143	Sterilization pressure	2.17 +0.00/-0.02 bar	143	Sterilization pressure with max. deviation
144	Plateau time	5 min 30 s	144	Sterilization time
150	Conductivity	0 µS/cm (0 ml : 0.0 1*µS/cm)	150	Conductivity of feed water and feed quantity
155	Start time	07:42:17	155	Time at program start
156	End time	08:01:11 (18:54 min)	156	Time at program end and program duration
160	Device serial number	20186180124	160	Serial number of the device

Step	Start [m:s]	End [m:s]	Dauer [m:s]	P [mbar]	T [°C]	
Program start						
SP-S	00:00	00:00	00:00	c 0	c 0.0	Program start

11 Function tests

Service programs

Service programs in Vacuclave mode

Program	Program name	Operating time	Use/function
	Vacuum test	18 min	For measuring the leakage rate, test with a dry and cold device (test without load)
	Bowie & Dick test	15 min	Steam penetration test with special test package (available from specialist stockists)
	Draining	5 min	For emptying and pressure release of the double jacket steam generator, e.g. for service, decommissioning or before transport

Service programs in Careclave mode

Program	Program name	Operating time	Use/function
	Carebox test	3 min	For checking the Carebox without load
	Oil dosing venting*)	22 min	For diagnosis and maintenance of the oil dosing system
*) Administrator login required			

See also:

- Vacuum test [▸ page 55]
- Bowie & Dick test [▸ page 56]
- Emptying [▸ page 79]
- Carebox test [▸ page 56]

Vacuum test

The device can be checked for leakages in the steam system using the vacuum test. This determines the leakage rate at the same time.

Perform a vacuum test in the following circumstances:

- Once a week in routine operation
- During commissioning
- Following longer operating pauses
- In the case of a corresponding malfunction (e.g. in the vacuum system)

PLEASE NOTE

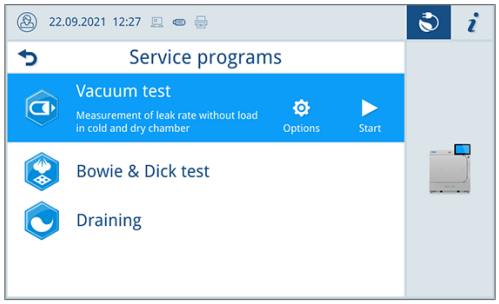
Perform the vacuum test with the device in a cold and dry state.

The following must be fulfilled or present:

✓ There is no Carebox in the Careclave.

1. Switch on the device.

2. Working in the **Service programs** menu, select **Vacuum test** and press **Start**.



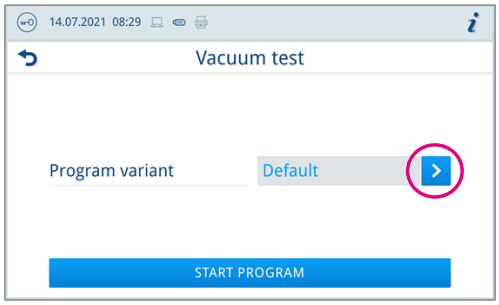
➥ The vacuum test is started in the **Default** program version.

➥ The evacuation pressure and the equilibration time or measurement time are shown on the display. The chamber is ventilated after the end of the measuring time. Then the message will be shown on the display with an indication of the leakage rate. Should the leakage rate be too high i.e. over 1.3 mbar, a corresponding message will be shown on the display.

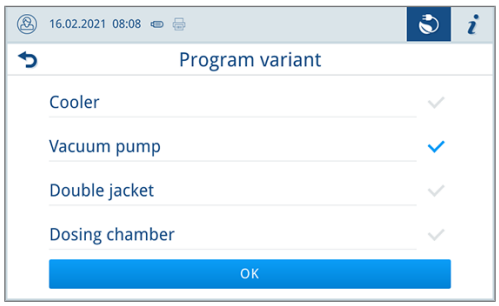
Options for the vacuum test

Under **Options**, you can extend the vacuum test to areas that are connected to the sterilization chamber. In this way, you can also evaluate their leak tightness.

1. Press the button with the arrow to select another variant of the vacuum test.



2. Select the desired variant and accept it with **OK** at the end of the list.



3. Start the vacuum test with **START PROGRAM**.

Bowie & Dick test

The ▸Bowie & Dick test serves as proof of steam penetration of ▸porous materials such as e.g. textiles. You can perform a routine function check for proof of steam penetration. Use the Bowie & Dick test program to this end. Specialist stockists provide various test systems for the Bowie & Dick test. Perform the test according to the test system manufacturer's specifications.

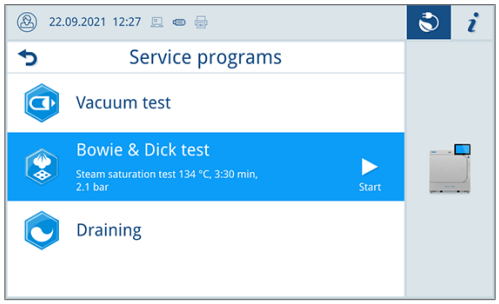
The following must be fulfilled or present:

✓ A new test system.

✓ There is no Carebox in the Careclave.

✓ The sterilization chamber is empty.

1. Place the test system in the sterilization chamber according to the manufacturer's instructions.
2. Close the door.
3. Working in the **Service programs** select **Bowie & Dick test** and press **Start**.



Carebox test

Use the **Carebox test** to check that the Carebox and its supply channels are functioning correctly.

Perform a **Carebox test** in the following circumstances:

- Once a week during routine operation, after the vacuum test
- During initial start-up of a Carebox or device
- After each adapter exchange
- Following longer operating pauses
- In the case of a corresponding malfunction (e.g. Internal cleaning or Carebox detection)

PLEASE NOTE

The distribution of the rinse liquor directly affects the cleaning performance of Careclave. Blocked channels in the upper section of the Carebox or in the instrument adapters can prevent successful cleaning.

PLEASE NOTE

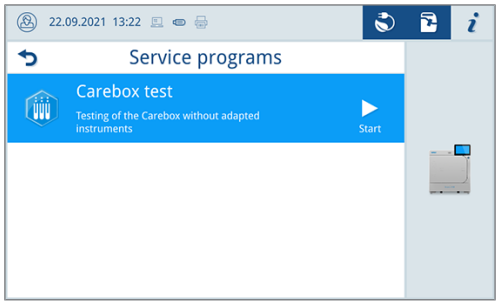
If several Careboxes are used, all Careboxes must be checked.

The following must be fulfilled or present:

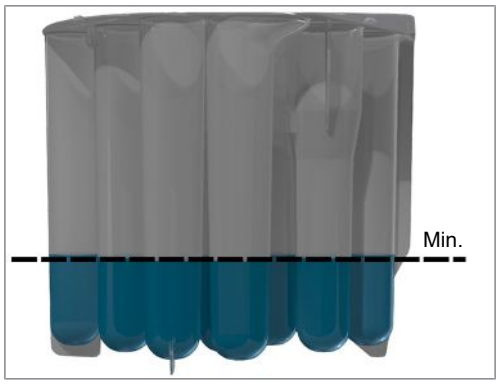
- ✓ The measuring device.
- ✓ There are no transmission instruments or hollow bodies in the Carebox.

1. Slowly and carefully place the measuring device in the lower section of the Carebox, making sure that it is correctly aligned.

2. Close the Carebox.
3. Load the device with the Carebox.
4. Start the `Carebox test` service program.



5. Remove and open the Carebox.
6. **CAUTION! Danger of burns.** Remove the measuring device.
7. Check that all filling levels are at or above the minimum level line.



8. Answer the following question according to the result.
9. If a filling level is below the line for the minimum level, repeat the `Carebox test`.
10. If the minimum level is still not reached, please contact your stockist or MELAG customer service.

12 Settings

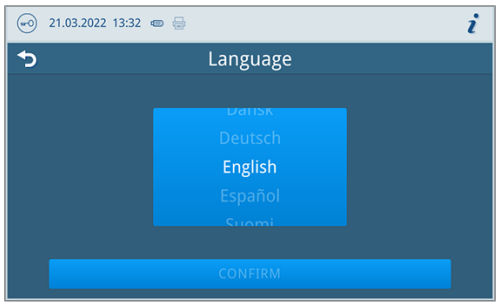
General settings

General settings can be changed by any user.

Language

In the **Settings** > **Language** menu, you can switch between the enabled languages.

1. Set the desire language.



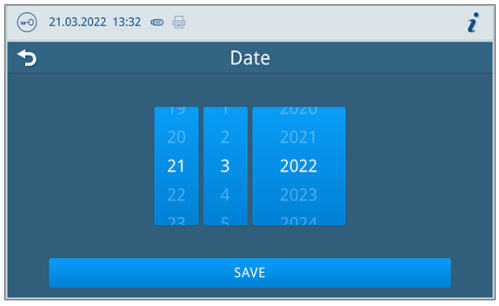
2. Press **CONFIRM** to accept the changes.

➥ The dialogues on the display and the log texts are changed to the selected language.

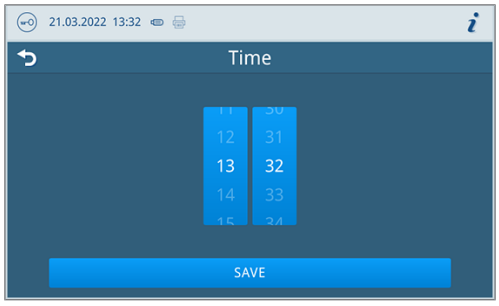
Date and time

Date and time of the device must be correctly set for proper batch documentation. Ensure that you take into account any clock change in autumn and spring, as this is not adjusted automatically. Set the date and time as follows:

1. Open the **Settings** menu.
2. Select the **Date** menu item.
3. Set the date.



4. Press **SAVE** to accept the changes.
5. Select the **Time** menu item.
6. Set the time.



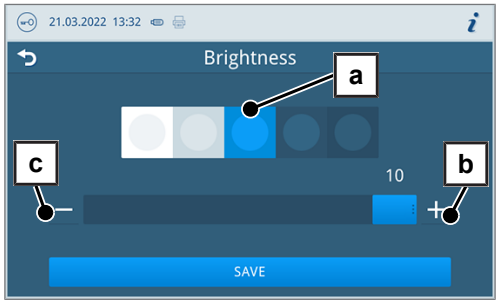
7. Press **SAVE** to accept the changes.

Display brightness

In the **Settings** > **Brightness** menu, you can individualise the brightness of the display.

The display brightness is adjusted immediately. The colour bar (pos. a) gives you an impression of the colour contrast.

1. Move the slider to the left or right or press the plus (pos. b) or minus (pos. c) buttons.



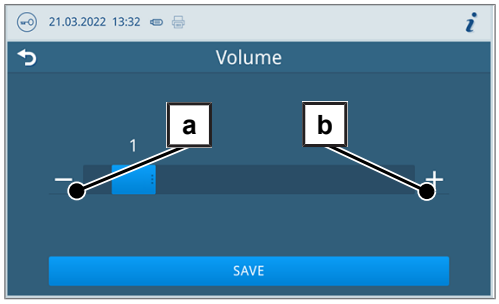
   ➥ The display brightness can be adjusted in ten steps.

2. Press **SAVE** to accept the changes.

Volume

In the **Settings** > **Volume** menu, you can individualise the sound output.

1. Move the slider to the left or right or press the minus (pos. a) or plus (pos. b) buttons.



   ➥ The volume can be adjusted in ten steps.

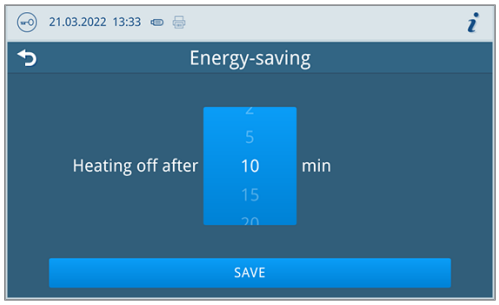
   ➥ At level 0, the sound is switched off.

2. Press **SAVE** to accept the changes.

Energy-saving

In the **Settings** > **Energy-saving** menu, you can set after how long the device is inactive the heating is switched off.

1. Set the desired switch-off time in minutes on the number wheel.

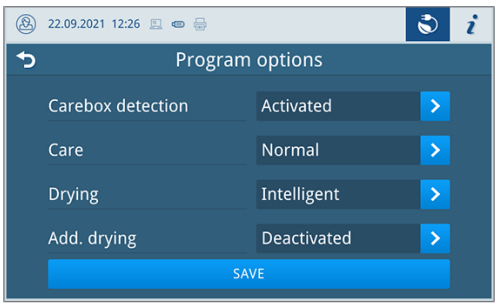


2. Press **SAVE** to accept the changes.

Program options

In the **Settings** > **Program options** menu, you can set default settings for program options.

1. Press the button with the arrow to make changes.



2. Activate or deactivate the desired setting by selecting or deselecting it.
3. Confirm the changes with **OK**.
4. Press **SAVE** to accept the changes.

The following settings are possible:

Device mode	Designation	Short description
General	Carebox detection	Checks the Carebox holder of the inside of the door for a Carebox and the Carebox inserted.
Careclave	Care: Normal	Cares for the instruments connected to the instrument adapters with care oil.
	Care: Intensive	Cares for the instruments connected to the instrument adapters with ample care oil.
	Care: Off	Does not perform any care. Comply with the information in the cleaning instructions from the instrument manufacturer.
Careclave	Add. drying	Performs additional drying in the Carebox to optimise the drying of the Carebox.
Vacuclave	Drying: Intelligent	Automatically monitors and ends the drying phase once the load is dry.
	Drying: Time-controlled	Ends the drying phase after a specified duration.

Carebox detection

Before the program starts, the device checks whether there is a Carebox on the suspension in the sterilization chamber.

If a Carebox is detected, the version (Blue/Green) is checked as well as whether all channels to be cleaned are accessible.

Drying

You have the option to change the preset drying mode once at the program start via **Program options**.

Time-controlled drying

In the case of timed drying, the duration of the drying phase is determined by the program.

If you want to activate time-controlled drying, proceed as follows:

▶ Press the drying button to select the option **Time-controlled** if you want time-controlled drying to take place during the next program run.

Intelligent drying

In contrast to a conventional time-controlled drying process, the duration of the intelligent drying is automatically calculated using the residual moisture in the sterilization chamber. The drying phase is ended as soon as the load is dry. A number of factors play a role in this process including e.g. the type of the load, wrapped or unwrapped, the load quantity, the distribution of the load in the sterilization chamber etc.

If you want to activate intelligent drying, proceed as follows:

▶ Press the drying button to select the option **Intelligent** if you want intelligent drying to take place during the next program run.

PLEASE NOTE

Intelligent drying is activated in the delivery state.

Log output

In the **Settings** > **Log output** menu, you can set how the log should be output by default for each output medium.

The following output media can be activated and configured:

- MELAtrace
- FTP
- USB on USB stick

The following settings are possible:

Option	Description
Deactivated	No log output possible, even with output medium connected
Manual	Manual log output possible via the log list
Automatic (immediately after program run)	Automatic log output after end of the program for the defined programs

You can activate the log output for several output media at the same time.

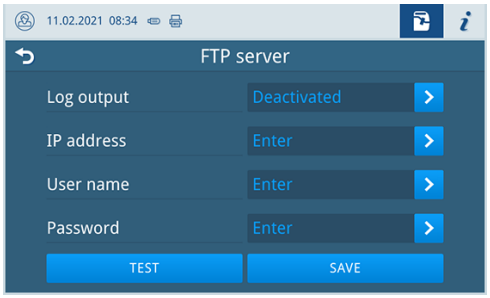
- For activated output media, the symbol in the information area is displayed faintly.
- For activated and connected output media, the symbol is displayed in full.
- Output media that are not activated are not displayed, even if they are connected.

For the option **Automatic** a dialogue follows for the definition for which programs the automatic log output should take place.

FTP server configuration

Under the FTP menu item, the configuration of the FTP server is also carried out via the IP address, the user name and the password.

The **TEST** button can be used to test the set configuration.



USB

You can only connect one USB stick. Output to multiple USB sticks is not possible.

See also:

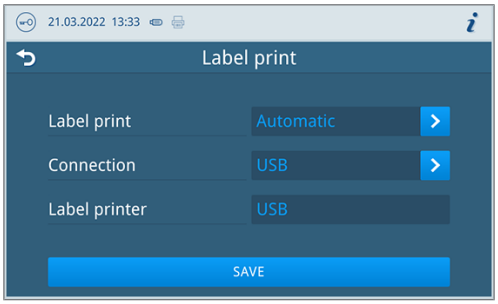
- Log list [▶ page 51]
- Log output options [▶ page 52]
- Smart touch display [▶ page 19]
- Label print [▶ page 62]

Label print

In the **Settings** > **Label print** menu, you can configure the label printer and set default settings.

The label printer can be connected via USB or via integration into a local network (LAN). If several devices access the label printer, it must be integrated via a local network (LAN).

1. Press the button with the arrow to make changes.



2. Activate or deactivate the desired setting by selecting or deselecting it.

   ↪ For the option **Automatic** a dialogue follows for the definition for which programs the automatic label print should take place.

3. Confirm the changes with **OK**.

4. Press **SAVE** to accept the changes.

The following settings are possible:

Option	Description
Deactivated	No label print possible, even with label printer connected
Manual	Manual label print possible via the log list
Automatic (immediately after program run)	Label printing dialogue is displayed for the specified programs after each program run.

The number of labels to be printed can be set in the label printing dialogue. The storage period can also be set for successfully completed reprocessing programs.

The last storage time set during label printing is taken over individually for each program as a presetting for the next label printing.

No labels can be printed if the program run has not been completed successfully or the batch has not been released.

See also:
- Label printer as output medium [▸ page 50]
- Log list [▸ page 51]

Water supply

In the **Settings** > **Water supply** supply menu, you can switch to a manual water supply.

The following settings are possible:

Designation	Description
Automatic	The feed water is automatically supplied via the *MELAdem feed water connection*.
Manual	Before starting the program, the feed water tank must be filled manually. The required amount is about two litres. **PLEASE NOTE**: The feed water tank must be filled before each program start.

Administrative settings

To make administrative settings, such as changes to the user administration, you must log on as an **Administrator** or a **Service technician**.

See also:
- Logging on user role [▸ page 66]

User administration

An individual ID and user PIN can be issued to every user to facilitate reliable traceability via the approval process after the end of a sterilization program. With the user PIN, the user can authenticate himself before the batch is approved.

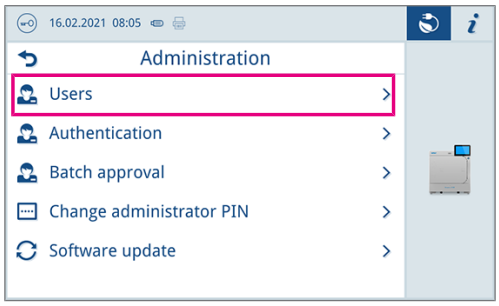
Only created users are authorised to approve and can approve a batch with their user PIN.

In the **Settings** > **Administration** you can create or edit users.

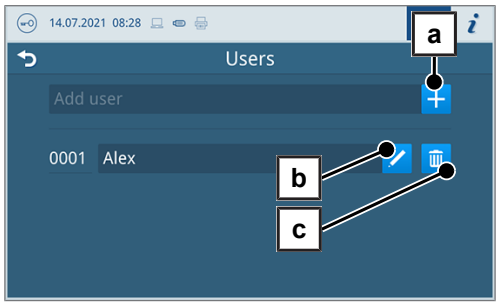
The following must be fulfilled or present:

✓ The logged-in user role is: Administrator or Service technician.

1. Select the **Users** menu.

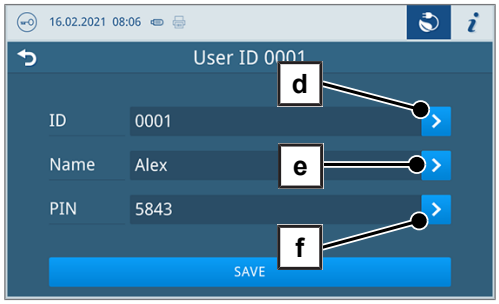


2. Press the plus button (pos. a) to create a new user.



3. Edit (pos. b) or delete (pos. c) the user using the buttons next to the user name.

4. Press the buttons with the arrow to change the ID (pos. d), the user name (pos. e) or the PIN (pos. f).



5. Confirm the changes with **OK** and accept the changes with **SAVE**.

PLEASE NOTE

You can determine the necessity of user authentication via a PIN in the Authentication menu.

See also:

- Authentication [▶ page 64]
- Batch approval [▶ page 64]

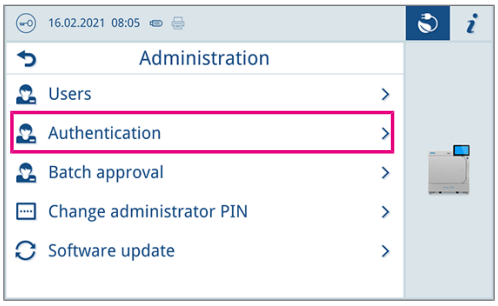
Authentication

In the **Settings** > **Administration** menu, you can activate authentication (PIN entry) for the start or end of the program.

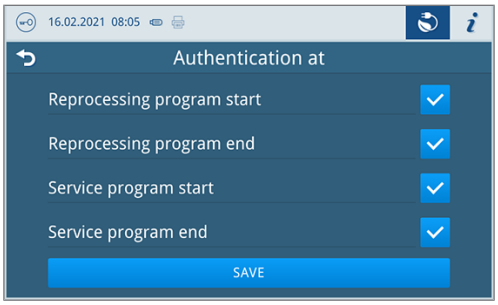
The following must be fulfilled or present:

✓ The logged-in user role is: Administrator or Service technician.

1. Select the **Authentication** menu.



2. Activate or deactivate the desired setting by selecting or deselecting it.



3. Press **SAVE** to accept the changes.

The following settings are possible:

Designation	Description
Reprocessing program start	PIN entry required to start a program
Reprocessing program end	PIN entry required to open a door
Service program start	PIN entry required to start a service program
Service program end	PIN entry required to open door after a service program

PLEASE NOTE

All options are disabled in the factory settings.

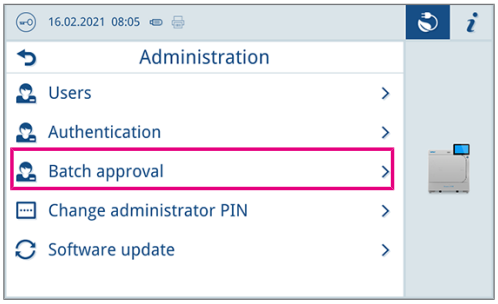
Batch approval

In the **Settings** > **Administration** menu you can activate the batch approval after the program has ended successfully and the indicator assessment.

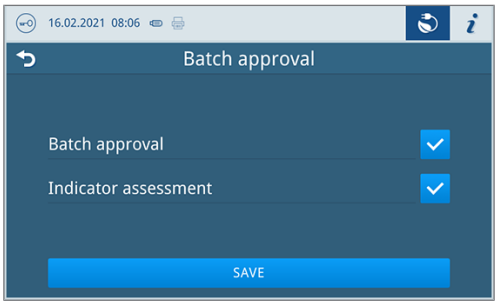
The following must be fulfilled or present:

✓ The logged-in user role is: Administrator or Service technician.

1. Select the **Batch approval** menu.



2. Activate or deactivate the desired setting by selecting or deselecting it.



3. Press **SAVE** to accept the changes.

The following settings are possible:

Log type	Description
Batch approval	Batch approval after successful program end
Indicator assessment	Indicator assessment after successful program end

Administrator PIN

You can change the administrator PIN in the **Settings** > **Change administrator PIN** menu.

The administrator PIN (default: 1000) can be edited like every other user PIN and should be changed after delivery.

Software update

In the **Settings** > **Administration** menu, you can perform a software version update.

NOTICE

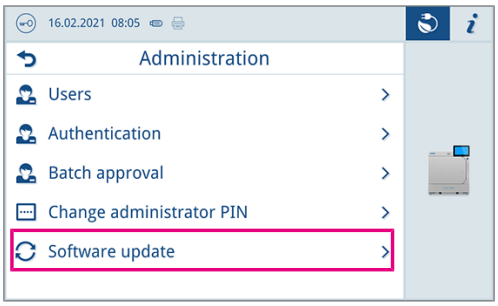
During a software update, all program logs are deleted.

- Check whether all required logs have been output to an output medium.

The following must be fulfilled or present:

- ✓ The logged-in user role is: Administrator or Service technician.
- ✓ A USB stick in FAT 32 format with installation data.
- ✓ All required logs have been output.

1. Select the **Software update** menu.



2. Insert a USB stick with the installation data in any USB connection.
3. Press **NEXT** to perform the software update.
   ➥ During the software update, the device independently performs one or more restarts.

See also:

- Log list [▸ page 51]

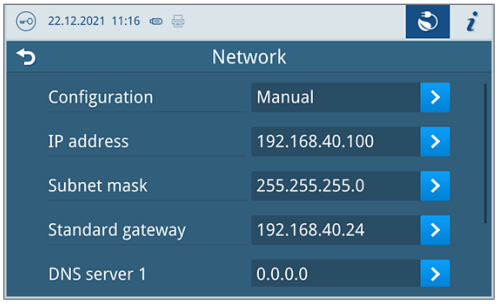
Network

In the **Settings** > **Network** menu, you can select an automatic configuration via DHCP or enter the required address details manually.

The following must be fulfilled or present:

✓ The logged-in user role is: Administrator or Service technician.

1. Press the button with the arrow to make changes.

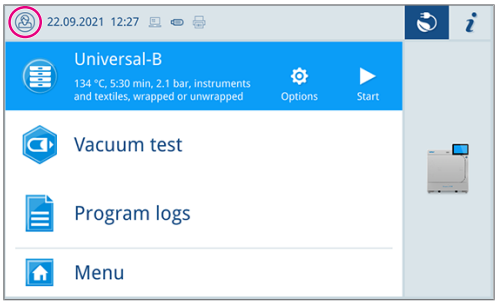


2. Press **SAVE** to accept the changes.

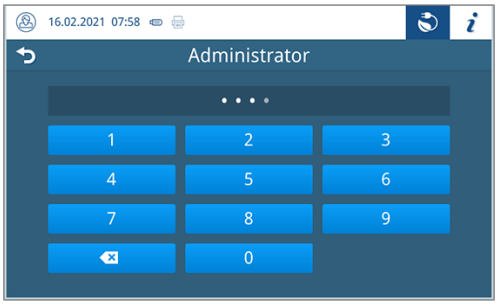
Logging on user role

To log on a user role, proceed as follows:

1. Press the user role button.



2. Select the desired role, e.g. Administrator.
3. Enter the associated PIN.



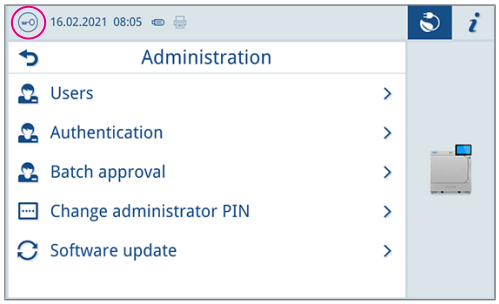
➥ The symbol of the user role button changes.

➥ Further setting options are now available in the menu.

Logging off a user role

In order to log off a user role, proceed as follows:

1. Press the user role button.



2. Press **LOGOUT**.

↪ The symbol of the user role button changes.

Service settings

To make service settings, such as a **Software reinstallation**, you must log in as a Service technician. Only authorised technicians have access to the further service documents required for this purpose.

See also:

- Logging on user role [page 66]

13 Maintenance

PLEASE NOTE

The maintenance work described below can be performed by the user as part of in-house maintenance.

All maintenance activities beyond this must only be carried out by an authorized technician.

Servicing intervals

Interval	Measure	Device components
Daily	Check for soiling, deposits or damage	Chamber inc. door seal and chamber sealing face, door lock, mount for the load
Daily	Check the Carebox for contamination and clean if necessary	Carebox
	Check the Carebox sieve for contamination and clean if necessary	Carebox lower section
	Check O-rings on the adapters for presence, wear or damage and replace if necessary	Carebox upper section
	Visual inspection of the seals (housing seal and media seals) and replace if necessary	Carebox
Weekly	Cleaning	all device components and the Carebox
	Carebox test	Carebox
Every 2 months	Clean, check and oil the locking spindle and nut	Door mechanism
Upon display request	Changing the oil can	Door
	Changing the media filter	Carebox
After 600 cycles (recommended)	Change adapter seals (O-rings)	Carebox
1x annually or following 1000 cycles	Replace the dust filter	behind the service hatch
After 24 months or 3000 cycles	Maintenance	By the authorized customer services working in accordance with the maintenance instructions
As required	Cleaning the surfaces	Housing parts

Accessories

Also comply with the maintenance intervals of the optional accessories.

Interval	Measure	Device component
After 24 months	Change the HEPA filter	Cooling Box
After 24 months	Replace the housing seal	Cooling Box

See also:

- Cleaning [▸ page 71]

Replacing the oil can

NOTICE

Danger due to incorrect cleaning and care of the transmission instruments

Can result in damage to the transmission instruments.

- Use MELAG Care Oil only.

PLEASE NOTE

After changing the oil can, carry out a filter change on all Careboxes.

The filters retain oil in the Carebox. If a filter is missing, clogged or defective, this can lead to malfunctions or severe oiling of the sterilization chamber.

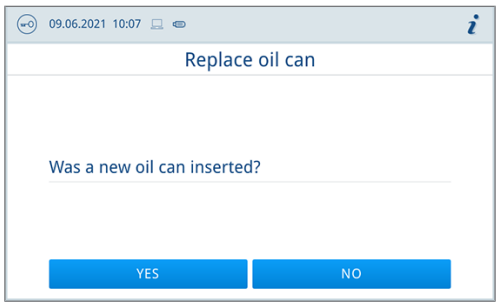
The following must be fulfilled or present:

✓ A new oil can with adequate best-before date.

✓ The device is switched on.

1. Open the door completely until it snaps into place.
2. Screw the cover in the side of the door.

3. Remove the oil can.
4. Insert the new oil can into the door.
5. Screw the cover cap back in up to the locking points.
6. Reset the counter by answering the question with **YES**.



7. Close the door.
8. After changing the oil can, carry out a media filter change on all Careboxes.

See also:

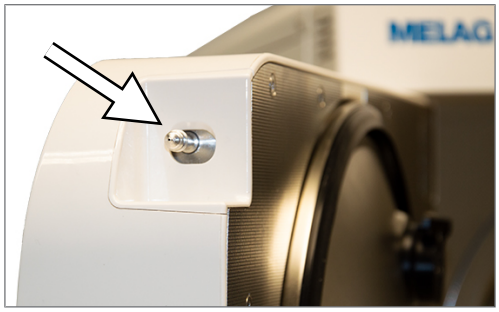
- Changing the filter [▸ page 75]

Venting the chuck care system

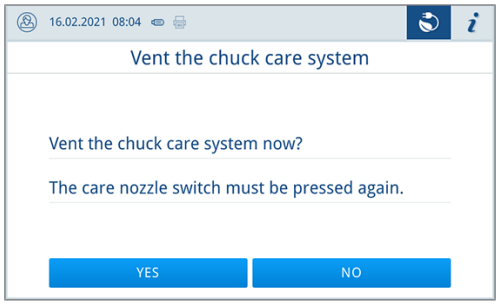
PLEASE NOTE

Venting of the chuck care system is only necessary in case of malfunction.

1. Press an instrument or lint-free cloth onto the care nozzle for more then five seconds to vent the chuck care system.



2. Activate venting by answering the question with **YES**.



3. Press the care nozzle until you hear an acoustic signal.

➥ The chuck care system has been vented.

See also:

- Oiling the chucks [▸ page 39]

Checking and oiling the door lock

NOTICE

Wear of the door lock

Only use MELAG oil.

Check and oil the door lock every two months as follows:

1. Clean the locking spindle and nut with a non-fuzzing cloth.
2. Insert the test gauge into the door lock nut as far as it will go and turn it 180°. If this is not possible or resistance can be felt, the door lock nut is worn. Have the door lock nut replaced by an authorised technician.
3. Put two drops of oil in the door lock nut.

   ➥ The oil will be distributed automatically by closing the door.

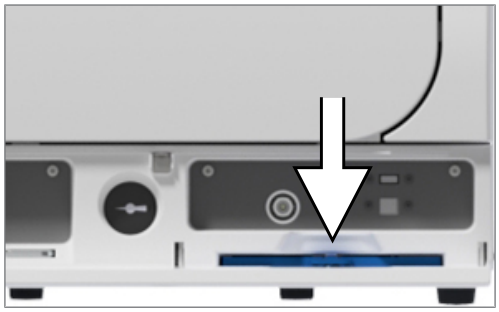
Changing the dust filter

The following must be fulfilled or present:

✓ A new and dry dust filter.

✓ The device is switched on.

1. Open the service hatch.



2. Press down the centre of the grip and pull out the dust filter.

3. Insert the new dust filter until it snaps into place.
   The latch nose of the grip must point upwards.
4. Close the service hatch.
5. Answer the following question with YES.

Cleaning

NOTICE

Inappropriately performed cleaning can lead to the scratching of and damage to surfaces and the development of leaks in sealing surfaces.

This also favours the development of soiling deposits and ▸corrosion in the ▸sterilization chamber.

- Comply with all information regarding cleaning of the part affected.
- Do not use any hard objects for cleaning such as a metal saucepan cleaner or a steel brush.

Sterilization chamber, chamber sealing face, mount, trays

To maintain the value of your device and to avoid persistent contamination and deposits, MELAG recommends daily cleaning of the surfaces (e.g. with the MELAG chamber cleaning set).

Cleaning the sterilization chamber, chamber sealing face, mount and trays

The following must be fulfilled or present:

✓ The device has been switched off and the power plug has been unplugged from the socket.

✓ The device has been completely cooled.

✓ Trays or sterilization containers and the associated mount have been removed from the sterilization chamber.

1. Wet the surfaces to be cleaned completely with the cleaning fluid.
   Please note: You should not allow cleaning fluid to enter the piping coming from the sterilization chamber.

2. Spread the cleaning fluid evenly with a non-fuzzing cloth.
3. Allow the cleaning fluid to act and evaporate for a sufficient time.
4. Using a new non-fuzzing cloth, spread ample amounts of demineralised water over the cleaned surfaces.
5. Wipe the surfaces thoroughly to remove cleaning residues. Repeat this process as necessary after wringing out the cloth.

   ➥ Residues of cleaning fluids can ignite or cause deposits on the instruments.
6. Allow the cleaned areas to dry completely. This may take a few minutes.
7. Finally, wipe the cleaned surfaces with a dry, non-fuzzing microfibre cloth.
8. Clean the door seal with neutral liquid detergent.

Housing parts

Where necessary, clean the housing parts with a neutral fluid cleaner or spirit.

Comply with the following specifications when disinfecting the housing parts:

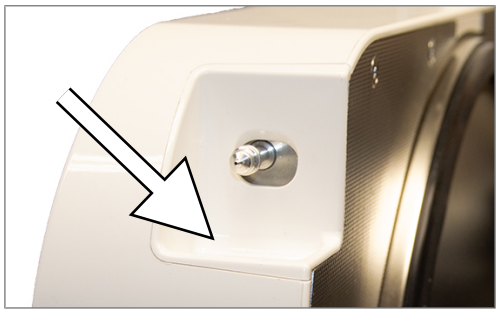
- Use wipe disinfectants and not spray disinfectants. This prevents disinfectant from getting into inaccessible places or ventilation slots.
- Only use alcohol-based surface disinfectants (ethanol or isopropanol) or alcohol-free disinfectants based on quaternary ammonium compounds.
- Do not use disinfectants containing secondary and tertiary alkylamines or butanone.

Floor trough - chuck care system

The following must be fulfilled or present:

✓ A dry and non-fuzzing cloth.

▶ Wipe out the floor trough with a cloth.



Cleaning the feed water tank

Drain the feed water tank

The following must be fulfilled or present:

✓ A drain hose (included in the scope of delivery).

✓ A collection container (with a capacity of up to 3 l, normally 150 ml flows out).

✓ The device is not in operation. The device should cool down for approx. 15 min after switching off.

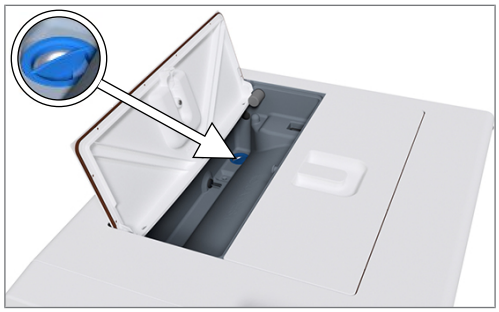
1. Switch off the device.
2. Open the service hatch.
3. Place the collection container in front of the device and the end of the drain hose in the collection container.
4. Push the drain hose onto the drain valve until it noticeably snaps into place. The knob must be horizontal.

5. Open the drain valve by turning the knob 1/4 in an anti-clockwise direction.

6. Drain the water into the collection container.
7. To remove the drain hose, turn the drain valve into the vertical position again.
8. Close the service hatch.

Cleaning the feed water tank

1. Open the cover cap on the top of the device.
2. Put the cover aside.
3. Check the tank for contamination and, if necessary, clean it with a sponge and solvent-free, non-alkaline cleaner (e.g. washing-up liquid).
4. Remove the tank filter from the base of the feed water tank by pulling it out.



5. Clean the tank filter under running water or with the MELAjet spray pistol for MELAdem 40.
6. Check the cleaning result against the light.
7. Reinsert the tank filter.
8. Reinsert the cover cap correctly and close it.

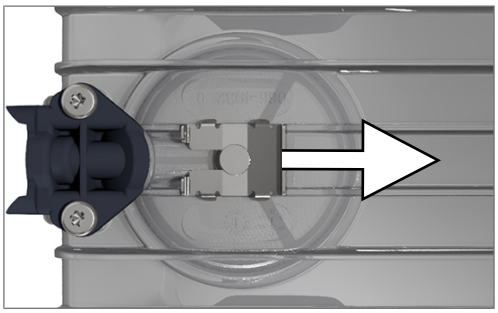
Clean Carebox

Cleaning surfaces

1. Clean the entire Carebox under running water and, if necessary, with a soft brush.
2. If contamination is visible, remove the sieve or filters and clean them separately.
3. If necessary, clean the Carebox with a sponge and solvent-free, non-alkaline cleaning agent (e.g. washing-up liquid).
   Then remove the cleaning agent completely with water.
4. Finally, dry the Carebox with a soft, lint-free cloth.

Cleaning the sieve

1. On the underside of the Carebox, release the fixing clamp of the Carebox sieve by pulling it out in the direction of the arrow.



2. Press against the pins from below and remove the sieve from inside the Carebox base.

3. Clean the sieve under running water with a soft brush or with the MELAjet spray pistol.
4. Check the cleaning result against the light.
5. Reinsert the sieve.
6. Reinsert the fixing clamp.

PLEASE NOTE

MELAG recommends storing the Carebox on the clean side.

Disinfect the Carebox before transferring it to the clean side.

Carebox

Changing the filter

PLEASE NOTE

After changing the oil can, carry out a filter change on all Careboxes.

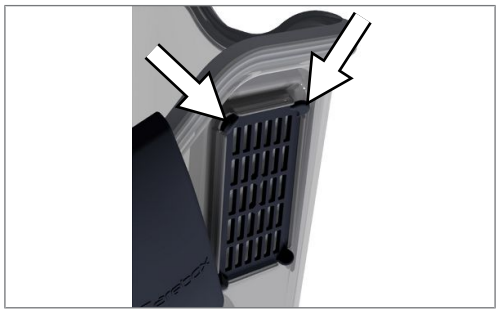
The filters retain oil in the Carebox. If a filter is missing, clogged or defective, this can lead to malfunctions or severe oiling of the sterilization chamber.

The following must be fulfilled or present:

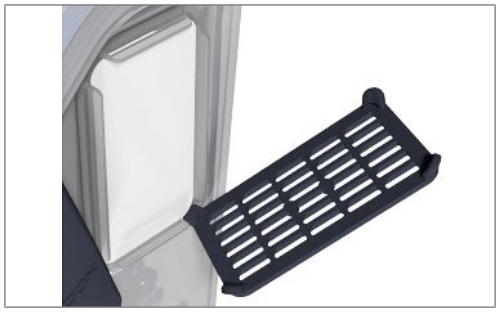
✓ Two new filters.

1. Perform a detailed visual inspection of the new filters to check for damage, e.g. holes.

2. Remove the cover of the filter by pulling on the two upper plastic tabs.



3. Remove the filter using one of the plastic tabs on the cover.



4. Insert the new filter.
5. Replace the cover by placing it at the bottom first.
6. Change the filter on the opposite side.

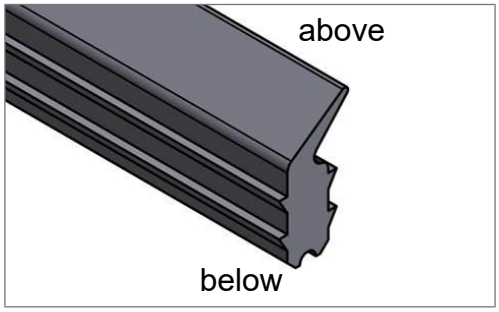
Replace the Carebox housing seal

The following must be fulfilled or present:

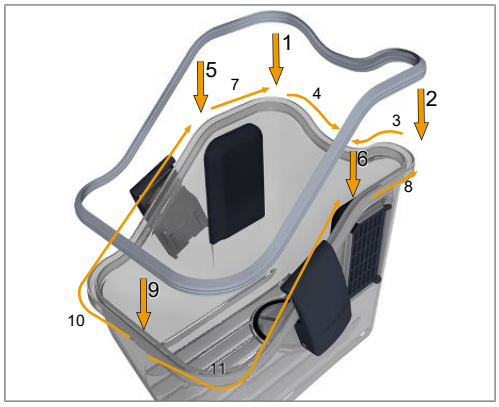
✓ A new Carebox housing seal.

1. Pull out the housing seal upwards using the fingers or with the help of tweezers.

2. When inserting the housing seal, note the correct orientation of the curvature.

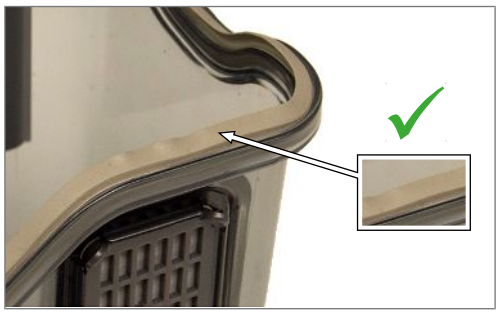


3. Insert the new housing seal by hand. Fix it in the sealing groove in the order shown.
Start with the upper part and press the edges going downwards into the sealing groove at the end.



4. **NOTICE! Do not pull on the housing seal.** Press the housing seal into the sealing groove circumferentially.

5. Check the housing seal for correct position.



➥ The sealing lip may have small wave after insertion. However, these waves should be avoided to avoid leakage that may occur.

Changing the media seals

The following must be fulfilled or present:

✓ A new set of media seals (five small, two large).

1. Remove the six media seals (1-6) on the rear side of the Carebox upper section, e.g. using tweezers.

2. Remove the media seal (7) on the rear side of the Carebox lower section, e.g. using tweezers.
3. Insert the new media seals by pressing them in.
4. Check the media seals for correct position.

Change adapter seals

PLEASE NOTE

Perform a detailed visual inspection of the new adapter seal to check for damage, e.g. cracks.

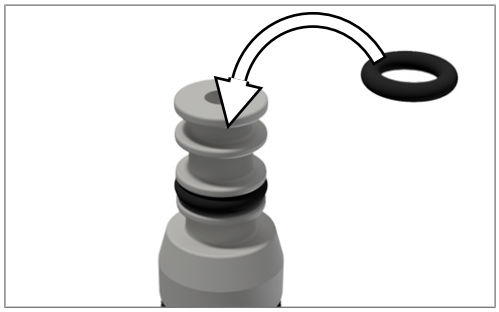
The following must be fulfilled or present:

✓ A new adapter seal (O-ring).

✓ If necessary, use aids such as a pointed object.

1. Remove the damaged adapter seal by disconnecting it or cutting it open.
   Do not damage the adapter in the process.

2. Insert the new adapter seal.



3. Check the adapter seal for correct position.

See also:
- Adapter installation [▸ page 25]

Maintenance

NOTICE

Continuing operation beyond the maintenance interval can result in malfunctions in the device.

- Maintenance should only be performed by trained and authorised service technicians or stockist technicians.
- Maintain the specified servicing intervals.

Regular maintenance is vital to ensure reliable operation and value retention of the device. All function and safety-relevant components and electrical units must be checked during maintenance and replaced where necessary. Maintenance must be performed in accordance with the pertinent maintenance instructions of the device.

Maintenance work is to be performed regularly after 3000 program cycles but must be performed after 24 months. The steam sterilizer will issue a maintenance message at the relevant time.

14 Pause times

Duration of the operating pause

Duration of the operating pause	Measure
Short pauses between two sterilization processes	▪ Keep the door closed to save energy ▪ Set Energy-saving as required
Pauses which last longer than an hour	▪ Switching off device
Longer pauses e.g. over night or the weekend	▪ Leave the door ajar to prevent premature wear and the sticking of the door seal ▪ Switching off device ▪ If present, shut off the water inflow of the water treatment unit
Longer than two weeks	▪ Perform the **Draining** service program ▪ Perform a **Vacuum test**. ▪ After a successful vacuum test, perform an empty sterilization in a reprocessing program

See also:

- Energy-saving [▸ page 59]
- Service programs [▸ page 54]

Starting after long pauses

After a long period of non-use, the device will heat up after being switched on.

Decommissioning

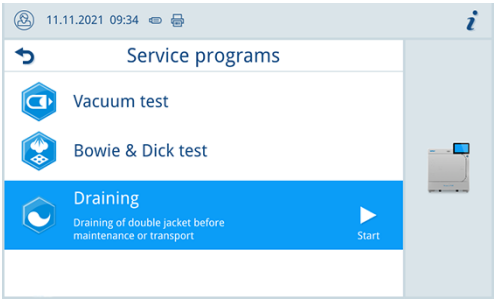
When decommissioning the device for a long pause (e.g. due to holiday), proceed as follows:

1. Empty the double jacket steam generator, see Emptying [▸ page 79].
2. Switch on the device at the power switch.
3. Disconnect the power plug from the socket and if necessary, allow the device to cool.
4. Empty the internal storage tank via the drain hose.
5. Shut off if present, the water inflow of the water treatment unit.

Emptying

You have the option of emptying the water in the double jacket steam generator easily via the Draining program. In order to do so, the device is heated once, building up pressure in the double jacket so that the water can be emptied fully from the double jacket steam generator.

1. Working in the **Service programs** menu, select the **Draining** program and press **Start**.



2. Confirm the dialogue window.
   ➥ The double jacket steam generator is emptied.
3. Confirm the message `Draining successful`.
   ➥ The device switches to door mode.
4. Switch off the device.

Transport

CAUTION

Danger of injury from incorrect carrying.

Lifting and carrying too heavy a load can result in spinal injury. Failure to comply with these provisions can result in crushing.

- The device should always be carried by two people.
- Use the correct carrying straps to carry the device.

Symbols on the packaging


Indicates the temperature limits to which the device can be safely exposed.


Denotes a device that may break or be damaged if handled carelessly.


Indicates a device that must be protected against moisture.


Indicates the upper limit of humidity to which the device can be safely exposed.

On-site transport

To transport the device within a room or floor, proceed as follows:

1. Decommission the device, see Decommissioning [▸ page 79].
2. Disconnect the connection hoses connected on the rear of the device.
3. Install the carrying aid.

Off-site transport

To transport the device over longer distances, to different floors or for shipping, proceed as follows:

1. Decommission the device, see Decommissioning [▸ page 79].
2. Pack the device so that it is protected from mechanical hazards (e.g. blows) and moisture.
3. Observe the transport and storage conditions, see Technical data [▸ page 94].

15 Malfunctions

Not all notifications on the display are malfunction messages. Warnings and malfunction messages are issued on the display with an event number. This number serves identification purposes.

	Nature of the display notification	Description
	Messages	Many messages are notifications. They serve to inform and provide assistance in the operation of the device.
	Warnings	Warning messages are displayed when necessary. Warning messages contain instructions that help to ensure smooth operation and to recognise undesirable conditions. Comply with these warnings early in order to avoid malfunctions.
	Malfunction messages	Malfunction messages are issued when it is not possible to ensure safe operation or safety of sterilization. These can appear on the display shortly after activating the steam sterilizer or during a program run. If a malfunction occurs during a program run, the program will be aborted.

Troubleshooting online

All messages with current descriptions can be found in the Troubleshooting portal on the MELAG website (https://www.melag.com/en/service/troubleshooting).

Before contacting the technical service

Ensure that you have complied with all instructions relating to a warning or malfunction message issued on the display of the device. The following table contains a summary of the most important events. Should you be unable to find the relevant event, or your efforts do not redress the problem, you can contact your stockist or the MELAG customer service. To enable us to give the best possible service, please have the serial number of your device, the malfunction number and a detailed description of the malfunction to hand.

Malfunction logs

In the **`Logs`** > **`Malfunction logs`** menu, you can view malfunction logs and output them to a USB stick.

See also:

- Logs menu [▸ page 51]
- Log list [▸ page 51]

General events

The following tables indicates possible causes for certain events and the corresponding operating information for their remedy. Should you be unable to find the relevant event, or your efforts do not redress the problem, you can contact your nearest stockist or authorised MELAG customer service provider.

Event	Possible cause	What you can do
Poor cleaning outcome	Encrusted soiling on the instruments.	Do not allow soiling to dry on. Rinse off soiling immediately.
		Immediately make a program selection and start Careclave after inserting a Carebox.
Excessive care oil in the Carebox	Unnecessary oil leakage at unused adapters	Load all adapters with instruments or replace unused adapters with dummy adapters as standard.

Event	Possible cause	What you can do
Insufficient drying in the program Care-Therm	Unsuitable loading of the Carebox Green	Activate **Add. drying**. Use the program Care-S instead of the program Care-Therm.

Warning and malfunction messages

Event	Possible cause	What you can do
10026	The oil can is empty.	Please replace the oil can. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
10062	The lack of water in the feed water tank could not be remedied within the monitoring time.	Ensure water supply (main valve) or fill in case of supply from canisters
10063	The manual feed water supply is activated. The device must be filled with at least 1.5 l of demineralised water.	Please supply the device with sufficient demineralised water before starting the program or ensure an automatic water supply via a water treatment unit. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
10082	In the program start, the counter for the feed quantity is evaluated. The limit value is exceeded. Therefore, starting the program is not possible.	The automatic emptying was skipped several times because the drying was ended manually. Starting the program is not possible before the “Empty double jacket” service program has been carried out. Please start the “Empty double jacket”service program. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
10093	In the program start, the counter for the rinse value is evaluated. The limit value is exceeded. Therefore, starting the program is not possible.	The automatic emptying was skipped several times because the drying was ended manually. Starting the program is not possible before the “Empty double jacket” service program has been carried out. Please start the “Empty double jacket”service program. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
10094	In the program start, the system checks whether the vacuum test can be performed successfully at the current ambient temperature.	The ambient temperature of the device is very high. Allow the device to cool down. Observe the set-up conditions. Ensure that the device is sufficiently ventilated. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
10098	A failure of the supply voltage was detected in the program run.	Connect the device to a specially fused power supply to which no other electrical device is connected. Check the power cable on the rear of the device to ensure that it is firmly seated. Attach the safety latch.
10099	A failure of the supply voltage was detected in the program run of a service program.	Connect the device to a specially fused power supply to which no other electrical device is connected. Check the power cable on the rear of the device to ensure that it is firmly seated. Attach the safety latch.

Event	Possible cause	What you can do
10101	The float switch (S13) in the overflow funnel detects a short-term impermissible water level, which indicates a blockage in the wastewater system.	Short-term wastewater blockage - please check wastewater hose for kinks or, if applicable, a closed shut-off. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
10102	The float switch (S13) in the overflow funnel detects a permanently impermissible water level, which indicates a blockage in the wastewater system.	Permanent wastewater blockage - please check wastewater hose for kinks or, if applicable, a closed shut-off.
10104	Contact Carebox K4. The status of the Carebox (inserted/not inserted) changes when the door is closed.	The Carebox is detected by a magnetic switch on the door of the Carebox. If you sterilize magnetic loads in the Carebox, please place them at the back of the chamber so as not to interfere with the magnetic detection.
10109	Door process. The limit current for the door motor was exceeded during opening. Apparently, the door locking mechanism or the door motor is blocked.	The automatic opening of the door is disturbed. Please allow the device to cool down and open the door using the tool in the media board. Please ensure regular oil maintenance of the door spindle and door nut. If this occurs repeatedly, please contact the technical service.
10117	Door process. The monitoring time when opening the door has expired and both the door contact switch K1 and K2 signal a closed door.	The automatic opening of the door is disturbed. Please allow the device to cool down and open the door using the tool in the media board. Please ensure regular oil maintenance of the door spindle and door nut. If this occurs repeatedly, please contact the technical service.
10120	Door process. The limit current for the door motor is exceeded when opening from the pressure-tight status (Z4) to the vapour-tight status (Z3). Apparently, there is a blockage of the door.	The automatic opening of the door is disturbed. Please allow the device to cool down and open the door using the tool in the media board. Please ensure regular oil maintenance of the door spindle and door nut. If this occurs repeatedly, please contact the technical service.
10130	Double jacket feeding. The maximum feed quantity or feed duration when feeding feed water into the double jacket has been exceeded.	Remove and clean the filter in the feed water tank.
10134	Vacuum system cooling. The temperature at the cooler cannot be reduced sufficiently within the monitoring time. Apparently, the cooling system has a fault.	Please allow the device to cool down. Please observe the set-up conditions. Please ensure sufficient ventilation of the device.
10137	Evacuation/test during vacuum test. The maximum permissible pressure was exceeded in the waiting or test phase of the vacuum test.	Please allow the device to cool down. Check the door seal for visible defects. Please clean the door seal with a damp cloth.

Event	Possible cause	What you can do
10145	Monitoring time only runs when evacuation is started in negative pressure. Malfunction is triggered if evacuation cannot be completed within the monitoring time.	Please check the dust filter for contamination and replace it if necessary. The intake area of the cooling system under the device must be free; check for paper or similar items underneath the device which could stop the air flow. Please ensure that the device is sufficiently ventilated. Heat dissipation must be able to take place freely, ensure ventilation; conversion cabinets are not recommended. Please observe the set-up conditions (e.g. ambient temperature). Check the loading of the device for compliance with the permissible loading quantities. Check the pressure release filter in the chamber for blockage.
10165	Double jacket emptying. The maximum runtime for emptying has expired.	Please allow the device to cool down. Please observe the set-up conditions. Please ensure sufficient ventilation of the device. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
10168	Abort routine. The Carebox could not be emptied successfully during the abort routine.	The Carebox tank could not be emptied. **CAUTION! There may be hot water in the Carebox.** Please clean the Carebox daily under running water. Please clean the sieve in the lower section of the Carebox. If this occurs repeatedly despite cleaning, please contact the technical service. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
10169	Please contact technical services	Please contact technical services. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
10179	Chamber pressure release. The pressure release valve had to be opened several times before a pressure drop occurred.	Check the chamber to see if any debris from loading or packing is clogging the fittings. Remove and check the coarse filter at the back bottom of the chamber for blockages. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
10187	Circulation emptying. The maximum permissible duration of the circulation emptying process was exceeded without the Carebox being emptied.	Check the sieve in the lower section of the Carebox and clean if necessary. Check the pressure drain line on the back of the device (hatched drop) for kink-free installation.
10194	Start-up time of the circulation pump. The intended circulation pressure (S2) for pulsed circulation is not reached. There may be blockage in the circulation circuit.	Please check the seals of the Carebox and clean the Carebox sieve.
10195	Pre-cleaning test. The temperature of the fresh water is too high. Pre-cleaning is not possible under these conditions.	The temperature of the incoming water is too high for a cold wash; ensure compliance with the installation requirements.

Event	Possible cause	What you can do
10196	Care. The dosing chamber for the care oil could not be emptied within the blow-out limit time.	Please check the compressed air supply (compressor, main valve). Please check the media seals of the Carebox.
10198	Care. The dosing chamber for the care oil could not be blown out within the runtime.	Please check the compressed air supply (compressor, main valve). Please check the media seals of the Carebox.
10199	Care. The dosing of the care oil has failed.	The oil can is completely empty. Please insert a new oil can. Replace the media separation filter on the side of the Carebox at the same time.
10200	Carebox pressure reduction. The pressure reduction in the Carebox takes too long.	Check the sieve in the lower section of the Carebox and clean if necessary. Check condition of media seals and replace if necessary. Check the pressure drain line on the back of the device (hatched drop) for kink-free installation.
10201	Final cleaning. The maximum time for heating up the rinse liquor has expired.	Make sure that at least one instrument has spray channels as these are subjected to flow for heating. Alternatively, an adapter slot can also be left empty to enable heating.
10202	Wash liquor heating. The temperature increase is smaller than expected. The wash liquor is being heated up too slowly.	Make sure that at least one instrument has spray channels as these are subjected to flow for heating. Alternatively, an adapter slot can also be left empty to enable heating. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
10203	Carebox water which is detected by a pressure increase in the chamber. As this is a warm wash, the protein load of the wash liquor is already so low that only a warning message is issued at this point.	Please make sure that the Carebox is correctly seated. If this occurs repeatedly, replace the small seals on the back of the Carebox. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
10204	Final cleaning. The maximum time that the limit pressure in the chamber may be exceeded during the heating of the rinse liquor has expired.	Check condition of media seals and replace if necessary. Check the status of the Carebox housing seal and replace if necessary. Check installation of splash guard and media separation filter (PTFE) on the sides of the Carebox base and correct if necessary. Check the pressure drain line on the back of the device (hatched drop) for kink-free installation. Check the pressure release filter in the chamber for blockage.
10207	Pre-cleaning. The maximum permitted temperature for pre-cleaning has been exceeded; pre-cleaning is not possible.	The Carebox must cool down between cycles. Use the Cooling Box. If continuous operation is desired, Carebox can be operated with two or more Careboxes in alternation. A pause time of 4 min between cycles must be observed.
10208	External cleaning. The circulation pressure when circulating the rinse liquor is too low.	Please check the Carebox seals and clean the Carebox sieve.

Event	Possible cause	What you can do
10212	Spray channel cleaning. A leakage of the Carebox was detected during the cleaning of the spray channels.	Please make sure that the Carebox is correctly seated. If this occurs repeatedly, replace the small seals on the back of the Carebox. Check the condition of the green flat seals under the adapters and replace if necessary. Check whether adapters are fitted at all adapter positions of the Carebox.
10213	Drive channel cleaning. A leakage of the Carebox was detected during the cleaning of the drive channels.	Please make sure that the Carebox is correctly seated. If this occurs repeatedly, replace the small seals on the back of the Carebox.
10214	Reverse feeding. A leakage of the Carebox was detected during reverse feeding.	Please make sure that the Carebox is correctly seated. If this occurs repeatedly, replace the large seals on the back of the Carebox lower section.
10215	External cleaning. A leakage of the Carebox was detected during external cleaning.	Please check the condition of the media seal of the Carebox and replace it if necessary. Check the condition of the Carebox housing seal and replace it if necessary. Check the condition of the O-ring seal under the adapters and replace if necessary. Check whether adapters are fitted at all adapter positions of the Carebox. Check the sterilization chamber for contamination. If this occurs repeatedly, replace the seals on the back of the Carebox.
10216	Steam inlet drive channels. The limit time for the pressure build-up at the steam inlet drive channels has been exceeded.	Make sure that at least one instrument has drive channels as these are subjected to flow for heating. Alternatively, an adapter slot can also be left empty to enable heating.
10217	Steam inlet spray channels. The limit time for the pressure build-up at the steam inlet spray channels has been exceeded.	Make sure that at least one instrument has spray channels as these are subjected to flow for heating. Alternatively, an adapter slot can also be left empty to enable heating.
10228	Door process. Closing the door of the Carebox is only possible when an oil can is inserted.	Please insert an oil can. If you do not have a full oil can available, you must insert the (possibly empty) oil can that has been removed before you can close the door. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
10230	The pneumatic Carebox detection delivers illogical values. Although a Carebox is inserted (contact switch), the pressure increase suggests a missing Carebox.	The Carebox must be dry on the outside before it is inserted in the Carebox; falling drops can cause an excessively high pressure increase. Please check the media seals of the Carebox.
10231	The pneumatic Carebox detection delivers illogical values. Although a Carebox is inserted (contact switch), the pressure increase suggests a missing Carebox. There may be very impermeable instruments at positions 5 and 8 or at positions 6 and 7.	The Carebox must be dry on the outside before it is inserted in the Carebox. Falling drops can cause an excessively high pressure increase. Please check the media seals of the Carebox. Please change the instrument position in the Carebox. Insert an instrument from position 5 or 8 into position 1 to 4 and an instrument from position 6 or 7 into position 1 to 4.
10233	The pneumatic Carebox detection delivers illogical values. Although no Carebox is inserted (contact switch), the pressure increase suggests a Carebox is inserted.	Please check the compressed air supply (compressor, main valve). Please check the media seals of the Carebox.

Event	Possible cause	What you can do
10234	The continuity check of the Carebox delivers impermissible values.	Flow through the Carebox is not possible. Please check the compressed air supply as well as the instruments and adapters for free passage. Run the **Carebox test** service program.
10235	The continuity check of the Carebox delivers impermissible values. No pressure increase is detected when flow passes through V20.	Flow through the Carebox is not possible. Please check the compressed air supply as well as instruments and adapters at position 5 and 8. Run the **Carebox test** service program.
10236	The continuity check of the Carebox delivers impermissible values. No pressure increase is detected when flow passes through V16.	Flow through the Carebox is not possible. Please check the compressed air supply as well as instruments and adapters at position 6 and 7. Run the **Carebox test** service program.
10237	The continuity check of the Carebox delivers impermissible values. No pressure increase is detected when flow passes through V19.	Flow through the Carebox is not possible. Please check the compressed air supply as well as instruments and adapters at position 2 and 3. Run the **Carebox test** service program.
10238	The continuity check of the Carebox delivers impermissible values. No pressure increase is detected when flow passes through V18.	Flow through the Carebox is not possible. Please check the compressed air supply as well as instruments and adapters at position 1 and 4. Run the **Carebox test** service program.
10239	The continuity check of the Carebox delivers impermissible values. No pressure increase is detected when flow passes through V22.	Make sure that at least one instrument has spray channels as these are subjected to flow for heating. Alternatively, an adapter slot can also be left empty to enable heating.
10241	Pressure-controlled evacuation. This is triggered when the termination gradient is violated in a gradient-monitored process, which leads to an abort of the program run (in the context of pressure-controlled evacuation/pressure gradient monitoring). The vacuum performance is insufficient.	Please check the dust filter for contamination and replace it if necessary. The intake area of the cooling system under the device must be free; check for paper or similar items underneath the device which could stop the air flow. Please ensure that the device is sufficiently ventilated. Heat dissipation must be able to take place freely, ensure ventilation; conversion cabinets are not recommended. Please observe the set-up conditions (e.g. ambient temperature). Check the loading of the device for compliance with the permissible loading quantities. Check the pressure release filter in the chamber for blockage.
10242	This is triggered when the termination gradient is violated in a gradient-monitored process, which leads to an abort of the program run (in the context of clock-controlled evacuation VT/ pressure gradient monitoring). The vacuum performance is insufficient.	Please check the dust filter for contamination and replace it if necessary. The intake area of the cooling system under the device must be free; check for paper or similar items underneath the device which could stop the air flow. Please ensure that the device is sufficiently ventilated. Heat dissipation must be able to take place freely, ensure ventilation; conversion cabinets are not recommended. Please observe the set-up conditions (e.g. ambient temperature). Check the loading of the device for compliance with the permissible loading quantities. Check the pressure release filter in the chamber for blockage.

Event	Possible cause	What you can do
10253	This is triggered when the Carebox is hooked in and the door is closed without starting a program or performing other activities on the GUI. The aim is to prevent a contaminated Carebox from being stored in the warm device, which would lead to unnecessary drying of the contamination.	Remove the Carebox or start a reprocessing program. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
10256	Monitoring pressure gradient during evacuation. The pressure change at pressure sensor S1 is too low during evacuation.	Please check the dust filter for contamination and replace it if necessary. The intake area of the cooling system under the device must be free; check for paper or similar items underneath the device which could stop the air flow. Please ensure that the device is sufficiently ventilated. Heat dissipation must be able to take place freely, ensure ventilation; conversion cabinets are not recommended. Please observe the set-up conditions (e.g. ambient temperature). Check the loading of the device for compliance with the permissible loading quantities. Check the pressure release filter in the chamber for blockage.
10257	Monitoring pressure gradient during evacuation in the vacuum test. The pressure change at pressure sensor S1 is too low during evacuation.	Please check the dust filter for contamination and replace it if necessary. The intake area of the cooling system under the device must be free; check for paper or similar items underneath the device which could stop the air flow. Please ensure that the device is sufficiently ventilated. Heat dissipation must be able to take place freely, ensure ventilation; conversion cabinets are not recommended. Please observe the set-up conditions (e.g. ambient temperature). Check the loading of the device for compliance with the permissible loading quantities. Check the pressure release filter in the chamber for blockage.
10262	Chamber support pressure. The support pressure could not be built up within the specified time.	Please check the compressed air supply (compressor, main valve). Please check the media seals of the Carebox.
10263	Monitoring pressure gradient during pressure release of General Carebox detection. The pressure change at pressure sensor S1 is too low during pressure release.	The Carebox must be dry on the outside before it is inserted in the Carebox; falling drops can cause an excessively high pressure increase. There should be no puddles in the chamber, e.g. from a previous program stop. If necessary, remove residual moisture from the chamber or allow it to evaporate. Check the pressure drain line on the back of the device (hatched drop) for kink-free installation. Check the pressure release filter in the chamber for blockage.

Event	Possible cause	What you can do
10264	Monitoring pressure gradient during pressure release after continuity check. The pressure change at pressure sensor S1 is too low during pressure release.	The Carebox must be dry on the outside before it is inserted in the Carebox; falling drops can cause an excessively high pressure increase. Check the pressure drain line on the back of the device (hatched drop) for kink-free installation. Check the pressure release filter in the chamber for blockage.
10266	Pressure-controlled evacuation. The pressure change is less than expected; the vacuum performance is decreasing.	Please check the dust filter for contamination and replace it if necessary. The intake area of the cooling system under the device must be free; check for paper or similar items underneath the device which could stop the air flow. Please ensure that the device is sufficiently ventilated. Heat dissipation must be able to take place freely, ensure ventilation; conversion cabinets are not recommended. Please observe the set-up conditions (e.g. ambient temperature). Check the loading of the device for compliance with the permissible loading quantities. Check the pressure release filter in the chamber for blockage. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
10267	Clock-controlled evacuation. The pressure change is less than expected; the vacuum performance is decreasing.	Please check the dust filter for contamination and replace it if necessary. The intake area of the cooling system under the device must be free; check for paper or similar items underneath the device which could stop the air flow. Please ensure that the device is sufficiently ventilated. Heat dissipation must be able to take place freely, ensure ventilation; conversion cabinets are not recommended. Please observe the set-up conditions (e.g. ambient temperature). Check the loading of the device for compliance with the permissible loading quantities. Check the pressure release filter in the chamber for blockage. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
10268	Steam intake. The pressure change is less than expected; the steam intake performance is decreasing.	Check the loading of the device for compliance with the loading quantities. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
10269	Ventilation. The volume flow during ventilation is lower than expected.	Check the sterile air filter in the media board; if it is heavily worn or blocked, replace it. This is only a warning. The reprocessing result is not affected. You can continue to use the device.

Event	Possible cause	What you can do
10270	Pressure release. The pressure change is less than expected; the pressure release speed is decreasing.	Please check the dust filter for contamination and replace it if necessary. The intake area of the cooling system under the device must be free; check for paper or similar items underneath the device which could stop the air flow. Please ensure that the device is sufficiently ventilated. Heat dissipation must be able to take place freely, ensure ventilation; conversion cabinets are not recommended. Please observe the set-up conditions (e.g. ambient temperature). Check the loading of the device for compliance with the permissible loading quantities. Check the pressure release filter in the chamber for blockage. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
10271	Conductivity monitoring. The warning value for poor conductivity was exceeded. A program start is still possible	Have a regenerated cartridge ready for your water treatment unit. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
10272	Conductivity monitoring. The warning value for insufficient conductivity was exceeded in the cleaning. A program start is still possible	Have a regenerated cartridge ready for your water treatment unit. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
10273	Conductivity monitoring. The limit value for insufficient conductivity was exceeded in the program start. A program start is not possible	Ensure the supply of DI water of suitable quality. Insert a regenerated cartridge into your water treatment system.
10274	Conductivity monitoring. The limit value for insufficient conductivity was exceeded in the cleaning. A program start is not possible	Ensure the supply of DI water of suitable quality. Insert a regenerated cartridge into your water treatment system.
10275	This is triggered when the measuring turbine (S9) of the feed pump (P1) indicates that the volume flow is too low.	Please remove and clean the filter in the storage tank.
10276	Reverse feeding. The measuring turbine (S9) of the feed pump (P1) indicates that the volume flow is too low.	Please remove and clean the filter in the storage tank.
10277	Program start. The filling level of the oil can is low, so it can be assumed that an oil care operation can no longer be performed successfully in the foreseeable future (~20 ml).	Please have a can of MELAG Care Oil ready for replacement. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
10278	The manual feed water supply is activated. The device must be filled with at least 1.5 l of demineralised water.	Please supply the device with sufficient demineralised water before starting the program or ensure an automatic water supply via a water treatment unit.

Event	Possible cause	What you can do
10279	Carebox pressure release. The pressure change is less than expected; the pressure release speed is decreasing.	Please clean the Carebox daily under running water. Please clean the sieve in the lower section of the Carebox. If this occurs repeatedly despite cleaning, please contact the technical service. Wastewater blockage - please check wastewater hose for kinks or, if applicable, a closed shut-off. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
10280	Monitoring pressure gradient during pressure release of General Carebox detection. The pressure change at pressure sensor S1 is too low during pressure release.	The Carebox must be dry on the outside before it is inserted in the Carebox; falling drops can cause an excessively high pressure increase. There should be no puddles in the chamber, e.g. from a previous program stop. If necessary, remove residual moisture from the chamber or allow it to evaporate. Check the pressure drain line on the back of the device (hatched drop) for kink-free installation. Check the pressure release filter in the chamber for blockage.
10281	Monitoring pressure gradient during pressure release. The pressure change at pressure sensor S1 is too low during pressure release.	Please check the dust filter for contamination and replace it if necessary. The intake area of the cooling system under the device must be free; check for paper or similar items underneath the device which could stop the air flow. Please ensure that the device is sufficiently ventilated. Heat dissipation must be able to take place freely, ensure ventilation; conversion cabinets are not recommended. Please observe the set-up conditions (e.g. ambient temperature). Check the loading of the device for compliance with the permissible loading quantities. Check the pressure release filter in the chamber for blockage.
10282	Monitoring pressure gradient during pressure release of General Carebox detection. The pressure change at pressure sensor S1 is too low during pressure release.	The Carebox must be dry on the outside before it is inserted in the Carebox; falling drops can cause an excessively high pressure increase. There should be no puddles in the chamber, e.g. from a previous program stop. If necessary, remove residual moisture from the chamber or allow it to evaporate. Check the pressure drain line on the back of the device (hatched drop) for kink-free installation. Check the pressure release filter in the chamber for blockage.

Event	Possible cause	What you can do
10283	Pressure-controlled evacuation. This is triggered when the termination gradient is violated in a gradient-monitored process, which leads to an abort of the program run (in the context of pressure-controlled evacuation/pressure gradient monitoring). The vacuum performance is insufficient.	Please check the dust filter for contamination and replace it if necessary. The intake area of the cooling system under the device must be free; check for paper or similar items underneath the device which could stop the air flow. Please ensure that the device is sufficiently ventilated. Heat dissipation must be able to take place freely, ensure ventilation; conversion cabinets are not recommended. Please observe the set-up conditions (e.g. ambient temperature). Check the loading of the device for compliance with the permissible loading quantities. Check the pressure release filter in the chamber for blockage.
10286	Pressure-controlled evacuation. This is triggered when the termination gradient is violated in a gradient-monitored process, which leads to an abort of the program run (in the context of pressure-controlled evacuation/pressure gradient monitoring). The vacuum performance is insufficient.	Please check the dust filter for contamination and replace it if necessary. The intake area of the cooling system under the device must be free; check for paper or similar items underneath the device which could stop the air flow. Please ensure sufficient ventilation of the device. Heat dissipation must be able to take place freely, ensure ventilation; conversion cabinets are not recommended. Please observe the set-up conditions (e.g. ambient temperature). Check the loading of the device for compliance with the permissible loading quantities. Check the pressure release filter in the chamber for blockage.
11000	The log output was aborted due to a connection error.	Please check the connection of the device to the practice network via the network interface on the back of the device. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
11001	Several USB sticks are directly connected to the device	Please connect only one USB stick to the device. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
11002	The USB stick is not plugged in although write access to the USB stick has been requested.	Please insert the USB stick. If necessary, use the USB connection on the rear of the device. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
11003	The USB storage medium does not have enough free space to store the required log data.	Please save the log data on the USB stick in the practice network and then empty the USB stick to output the new logs. This is only a warning. The reprocessing result is not affected. You can continue to use the device.

Event	Possible cause	What you can do
11004	The writing of the log data to the USB storage medium has failed.	Please insert the USB stick in the media board. If necessary, use the USB socket on the rear of the device. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
11006	The maximum number of program logs not output was reached. The oldest log will be overwritten the next time the program is run.	Please output the internally stored logs to a USB stick or to your practice network. The log output can also be done automatically; this must be configured in the settings menu. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
11007	The printer cover is open while a print job was being sent.	Please close the printer cover. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
11008	The paper of the printer is used up.	Please load a new roll of labels into the printer. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
11009	A printer is configured but not connected.	Please connect the printer via the network interface on the back of the device. Please restart the printer. First start the device and then the printer. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
11011	Several printers are directly connected to the device	Please connect only one printer to the device. Please restart the printer. First start the device and then the printer. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
11012	The paper of the printer will be used up soon.	Please have a new roll ready. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
11013	General printer error	Please restart the printer. First start the device and then the printer. This is only a warning. The reprocessing result is not affected. You can continue to use the device.
11100	The log output was aborted due to a connection error.	Please check the connection of the device to the practice network via the network interface on the back of the device. This is only a warning. The reprocessing result is not affected. You can continue to use the device.

16 Technical data

Device type	**Careclave 618**
Device dimensions (H x W x D)	56.2 x 48.0 x 65.3 cm
Empty weight	69 kg
Operating weight	82.5 kg
Sterilization chamber	
Chamber diameter	250 mm
Chamber depth	350 mm
Chamber volume/steam generator	17.8 l / 4.4 l
Carebox	
Volume Carebox	2.4 l
Electrical connection	
Power supply	220-240 V 50 Hz
Max. voltage range	Fluctuations of the mains supply voltage up to ± 10 % of the nominal voltage
Max. power consumption in operation	3000 W
Max. power consumption in idle mode	0.5 W
Building fuse protection	min. 13 A, residual current device with rated residual current = 30 mA
Length of the power cable	2 m
Overvoltage category	transient overvoltage up to the values of overvoltage category II
Degree of contamination (in accordance with EN 61010)	2
Ambient conditions	
Installation location	interior of a building
Noise emission LP(a) in 1 m distance	70 dB(A)
Heat emission per hour (with maximum load)	1.7 KW
Ambient temperature	5-40 °C (ideal range 16-26 °C)
Relative humidity	max. 80 % at temperatures of up to 30 °C, max. 50% at 40 °C (decreasing in linear fashion in-between)
Degree of protection (in accordance with IEC 60529)	IP20
Transport and storage conditions	Temperature: -5 to +40 °C, air humidity: < 80%
Max. altitude	2000 m
Feed water	
Max. water consumption	5 l/h
Max. water consumption in the Care-Therm program	1.0 l
Max. water consumption in the Care-S program	1.2 l
Max. water consumption in the Care-B program	1.3 l
Average water consumption	2.5 l/h
Water quality (feed water)	distilled or demineralized water in accordance with EN 13060, Appendix C
Water temperature	1 °C - 35 °C
Cold water (for connection of the water treatment unit)	
Min. static water pressure (WTU)[2)]	2 bar
Max static water pressure (WTU)	10 bar

[2)] When using a MELAdem 47, the minimum static water pressure is 3.0 bar. If the static water pressure is less than 3.0 bar, the pressure increase pump (art. no. ME22500) must be used on the MELAdem 47.

Water quality (water treatment unit)	potable water
Compressed air	
Min. pressure	4 bar relative
Max. pressure	8 bar relative
Min. compressed air supply	55 Nl/min
Average compressed air supply	50 Nl/cycle
Compressed air quality	dried, condensate-free, bacteria-free, oil-free and filtered (filter fineness ≤ 2 µm)
Wastewater	
Max. throughflow volume (wastewater)	2 l/min
Max water temperature (wastewater)	90 °C for 30 s, max. 98 °C for 1 s
Working and operating pressures	
Permissible operating pressure chamber	-1 bar to + 3 bar relative[3)]
Permissible operating pressure jacket	-1 bar to + 3 bar relative[3)]
Working pressure chamber/jacket	2.2 bar relative

[3)] Set pressure of the spring-loaded safety valve: 2.7 bar (standard)

17 Accessories and spare parts

You can obtain the specified articles and an overview of further accessories from your stockist.

Accessories for the device

Category	Article	Art. no.
Mounts	Mount C "Plus" for 6 trays or 3 MELAstore Boxes 100	ME81370
	Mount D "Plus" for 2 MELAstore Box 200 or 2 MELAstore Box 100 and 2 narrow trays	ME82640
	Mount E "Plus" for 6 trays (standard) and 2 narrow trays	ME82400
	Mount F "Plus" for 3 MELAstore Box 100 and 2 narrow trays	ME82660
	Mount 4+2 for Careclave for 4 trays (short) and 2 narrow trays (short)	ME21778
	Mount 6+2 for Careclave for 6 trays (short) and 2 narrow trays (short)	ME22346
Trays	Tray (29 x 19 cm)	ME00280
	Tray (27 x 11 cm)	ME01320
	Tray (18.5 x 13.5 cm) for Careclave	ME21774
	Tray (11.5 x 10.7 cm) for Careclave	ME21776
Package holder	Package holder	ME22410
Films	MELAfol 501	ME00501
	MELAfol 502	ME00502
	MELAfol 751	ME00751
	MELAfol 752	ME00752
	MELAfol 1001	ME01001
	MELAfol 1002	ME01002
	MELAfol 1502	ME01502
	MELAfol 2002	ME02002
	MELAfol 2051	ME02051
	MELAfol 2502	ME02502
Sterilization container with disposable paper filter according to EN 868-8	15K (18 x 12 x 4.5 cm)	ME01151
	15M (35 x 12 x 4.5 cm)	ME01152
	15G (35 x 12 x 8 cm)	ME01153
	17K (20 x 14 x 5 cm)	ME01171
	28M (32 x 16 x 6 cm)	ME01284
	28G (32 x 16 x 12 cm)	ME01285
MELAstore System	MELAstore Tray 50 (18 x 11.8 x 3 cm)	ME01180
	MELAstore Tray 100 (27.5 x 17.6 x 3 cm)	ME01181
	MELAstore Tray 200 (27.5 x 17.6 x 4.3 cm)	ME01182
	MELAstore Box 100 (31.2 x 19 x 4.6 cm)	ME01191
	MELAstore Box 200 (31.2 x 19 x 6.5 cm)	ME01192

General accessories

Category	Article	Art. no.
Test body system	MELAcontrol Helix consisting of a Helix test body and 250 indicator strips	ME01080
	MELAcontrol Pro consisting of a Helix test body and 40 indicator strips	ME01075
	MELAcontrol Pro refill pack	ME01076
Water treatment	MELAdem 47 reverse osmosis unit	ME01049
	MELAdem 53/MELAdem 53 C	ME01038/ME01036
Water supply	Filling pump	ME65010
	Pressure increase pump for MELAdem 47	ME22500
Cleaning	Chamber cleaning set	ME01081
For the documentation	USB flash drive	ME19901
	MELAprint 60 Label Printer	ME01160
	Network cable (cross-over), 2 m	ME15813
	Network cable (cross-over), 5 m	ME15814
	Network cable (cross-over), 10 m	ME15815
Other	Water stop valve	ME01056
	Surface-mounted siphon	ME37410
	Carrying system	ME21121
	Cooling Box	ME11000

Carebox accessories

Category	Article	Art. no.
Carebox	Carebox Green	ME10704
Carebox	Carebox Blue	ME10708
Carebox	Table mount for Carebox upper section	ME22161
Carebox Blue	Adapter for turbines with KaVo connector (MULTIflex)	ME02601
Carebox Blue	Adapter for turbines with Sirona connector	ME02602
Carebox Blue	Adapter for unused connections	ME02603
Carebox Blue	Adapter for Sirona T1 Classic	ME02604
Carebox Blue	Adapter for turbines with W&H connector (Roto Quick)	ME02605
Carebox Blue	Adapter for contra angle heads KaVo/BienAir	ME02606
Carebox Blue	Adapter for ISO connector (INTRA)	ME02607
Carebox Blue	Adapter for BienAir turbine connector	ME02608
Carebox Blue	Adapter for Midwest connection (4/5 hole)	ME02609
Carebox Blue	Adapter for exterior spray channels for Carebox Blue	ME21914
Carebox Blue	O-rings for ISO adapter (10 pcs)	ME02627
Carebox Blue	O-rings for Sirona T1 Classic adapter (5 pcs)	ME02624
Carebox Blue	O-rings for Sirona turbine adapters (9 pcs)	ME02622
Carebox Blue	O-ring set for KaVo turbine adapters (Multiflex) (set for 1 adapter)	ME02621
Carebox Blue	O-ring set for W&H turbine adapter (Roto Quick) (set for 1 adapter)	ME02625
Carebox Blue	O-ring for set of BienAir turbine adapters (set for 1 adapter)	ME02628
Carebox Green	Adapter M3.0 x 0.5 mm, external thread, external thread	ME80750
Carebox Green	Adapter M3.6 x PH1.5 P0.5, internal thread, internal thread	ME80751
Carebox Green	Adapter M3.0 x 0.35 mm, external thread, external thread	ME80752
Carebox Green	Adapter M3.5 x 0.35 mm, internal thread, internal thread	ME80755
Carebox Green	Adapter M3.0 x 0.6 mm, external thread, external thread	ME80756

Category	Article	Art. no.
Carebox Green	Adapter M3.5 x 0.6 mm, internal thread, internal thread	ME80760
Carebox Green	Adapter M3.0 x 0.5 mm, internal thread, internal thread	ME80790
Carebox Green	Adapter M8x1 eccentric	ME22407

Spare parts

Category	Article	Art. no.
Careclave	MELAG oil for door lock nut	ME27515
Careclave	Test gauge TR16 for door lock nut	ME27522
Careclave	Care Oil	ME84740
Careclave	Dust filter	ME82260
Careclave	Sterile filter	ME84790
Careclave	Feed water tank filter	ME21358
Careclave	Power cable with hot appliance plug	ME21301
Careclave	Nozzle, chuck care	ME80016
Carebox	Carebox measuring device	ME21273
Carebox	Carebox holder for the device side	ME22162
Carebox upper section	Screwdriver TX6 for adapters	ME21867
Carebox upper section	Sealing set for adapter foot	ME21328
Carebox upper section and Carebox lower section	Set media seals for Carebox: 2x media seal - big 5x media seal - small	ME21465
Carebox lower section	Carebox filter (12 pcs.)	ME21412
Carebox lower section	Sieve for Carebox	ME10701
Carebox lower section	Housing seal	ME21404
Carebox lower section	Fixing clamp for the sieve	ME21692

Glossary

A0-value
The A0 value represents a standard for the elimination of microorganisms and the deactivation of viruses in the disinfection procedure with damp heat. The A0 value depends on temperature and time.

Air leakage
is a location through which air can pass in and out without this being desired. Verification of the leakage serves to prove that the volume of air ingress in the chamber during the vacuum phase does not exceed a value which would prevent steam penetration of the sterilizer load and that the air leakage does not cause the possible contamination of the sterilizer load during the drying phase.

AKI
AKI is the abbreviation for “Arbeitskreis Instrumentenaufbereitung”

Authorised technician
The term “authorised technician” refers to an employee of a customer service provider or stockist who has been trained and authorised by MELAG to perform maintenance and installation work on MELAG devices. Only they may carry out this work.

Batch
The batch is the composition of items which has been subject to the same reprocessing procedure.

BfArM
Federal Institute for Drugs and Medical Devices (Bundesinstitut für Arzneimittel und Medizinprodukte, BfArM) in Germany.

Bowie & Dick test
Steam penetration test with a standard test package; described in EN 285; the test is recognized in the large-scale sterilization industry.

Competent personnel
Trained personnel in accordance with national specifications for the respective area of application (dentistry, medicine, podiatry, veterinary medicine, cosmetics, piercing, tattoo) with the following contents: knowledge of instruments, hygiene and microbiology, risk assessment and classification of medical devices and instrument reprocessing.

Condensate
Fluid (e.g. water) produced by the cooling of and resultant separation from the vaporous state.

Conductivity
is the ability of a conductive chemical substance or mixture of substances to conduct or transfer energy or other substances or particles in space.

Corrosion
The chemical alteration or destruction of metal materials by water and chemicals

Delay in boiling
This refers to the phenomenon that it is possible under certain circumstances to heat a fluid beyond its boiling point without them boiling. This represents an unstable state; even low-level agitation can produce a large bubble within the shortest period, which expands explosively.

Demineralised water
Water without the minerals usually found in normal spring or tap water; is produced through ion exchange of normal tap water. It is used here as feed water.

DGSV
Abb.: Deutsche Gesellschaft für Sterilgutverordnung (German Association for the Sterilized Equipment Ordinance). The DSGV training centres are specified in DIN 58946, part 6 as “Requirements of personnel”.

DGUV Regulation 1
DGUV is the abbreviation for “Deutsche Gesetzliche Unfallversicherung” (German Statutory Accident Insurance). The regulation 1 governs the principles of prevention.

DIN 58953
Standard – sterilization, sterile equipment supply

Distilled water
From the Latin aqua destillata; also referred to as aqua dest; water which to a great extent is free from salts, organic material and micro-organisms, is produced from normal tap water or pre-cleaned water through the process of distillation (evaporation and subsequent condensation). Distilled water is used, for example, as feed water for steam sterilizers.

Dynamic pressure test of the sterilization chamber
Serves to prove that the rate of pressure variations during a sterilization cycle does not exceed a particular value which could result in the damage of the packaging material. [see also EN 13060]

Empty chamber test
Test run without a load, performed to assess the performance of a sterilizer without the influence of a load; facilitating verification of the temperatures maintained in comparison to the temperatures set. [see EN 13060]

EN 13060
Standard – small steam sterilizers

EN 867-5
Standard – non-biological systems for use in sterilizers – part 5: The determination of indicator systems and test bodies for the performance inspection of type B and type S small sterilizers.

EN ISO 11140-1
Standard – the sterilization of products for use in medical treatment – chemical indicators – part 1: General requirements

EN ISO 11607-1
Standard - packaging for medical devices to be sterilized in the final packaging - Part 1: Requirements placed on materials, sterile barrier systems and packaging systems

EN ISO 15883
Standard - Washer-disinfectors

Evacuation
Creation of a vacuum in a vessel

Feed water
Feed water is required to produce steam for sterilization. Guide values for water quality in accordance with EN 285 / EN 13060 – Appendix C

Fractionated vacuum procedure
A technical procedure in steam sterilization; the repeated evacuation of the sterilization chamber in alternation with steam injection.

FTP
Abbr.: (File Transfer Protocol) is a data transmission procedure serving to transport data from the internet. This data can include programs, files or even information. Special FTP programs (FTP clients) serve to load the data onto a server.

Heat-up phase
The time required after the steam sterilizer has been switched on / after the start of a sterilization program, to heat the double-jacket steam generator before the sterilization procedure starts. The duration is dependent on temperature at which sterilization takes place.

KRINKO
Abbreviation for “Kommission für Krankenhaushygiene und Infektionsprävention” (Commission for Hospital Hygiene and Infection Prevention) at the Robert Koch Institute in Germany.

Load
Products, devices or materials that are reprocessed together in one operating cycle.

Mixed loads
wrapped and unwrapped load within a single batch

Multiple wrapping
e.g. wrapped instruments sealed in a double layer of film or wrapped in film and placed in an additional container or a container wrapped in textiles.

Porous
Pervious to liquids and air, e.g. textiles

Porous full load
Serves to prove that the values set on the control satisfy the necessary sterilization conditions in porous loads with a maximum mass for which the sterilizer is designed in accordance with EN 13060 [see also EN 13060].

Porous partial load
Serves to prove that the values set on the control allow steam to enter the pre-determined test package quickly and equally [see also EN 13060]

Process evaluation system
Also known as the self-monitoring system – this observes itself and compares the various sensors during a current program.

Product with narrow lumen
An article open on one side to which the following applies: $1 \leq L/D \leq 750$ and $L \leq 1500$ mm or an article with an opening on both sides which is: $2 \leq L/D \leq 1500$ and $L \leq 3000$ mm and which does not correspond to a hollow body article B; L…length of hollow body article; D…Diameter of hollow body article [see also EN 13060]

Qualified electrician
Person with suitable technical training, knowledge and experience so that he or she can recognise and avoid hazards that can be caused by electricity [see IEC 60050 or for Germany VDE 0105-100].

RKI
Abbreviation for “Robert Koch Institute”. It is one of the most important bodies for the safeguarding of public health in Germany.

Simple hollow bodies
An article open on one side to which the following applies: $1 \leq L/D \leq 5$ and $D \geq 5$ mm or an article with an opening on both sides which is: $2 \leq L/D \leq 10$ and $D \geq 5$ L…hollow body article length D… hollow body article diameter [see EN 13060]

Single wrapping
Wrapped once e.g. instruments sealed in foil – in opposition to: Multiple wrapping

Soft sterilization packaging
e.g. a paper bag or transparent sterilization packaging

Solid
Without hollows or gaps, solid, compact, closed

Solid load
Serves to prove that the necessary sterilization conditions have been reached within the entire load with the values set in the control. The load must represent the largest weight of massive instruments designed for sterilization in a sterilizer in accordance with EN 13060. [see also EN 13060]

Sterile barrier system

A closed minimum packaging which prevents the entrance of micro-organisms e.g. through sealing bags, sealed and re-usable containers and folded sterilization towels etc.

Sterile material

Also referred to as a batch: a load which has already been sterilized, i.e. is sterile

Sterilization chamber

The interior of a sterilizer accommodates the load

Vacuum

In common parlance, an area devoid of all materialIn the technical sense: volumes with a reduced gas pressure (at least air pressure)

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Original instructions

Your stockist

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