MELAG
competence in hygiene

User manual

Careclave® 618

Combination steam sterilizer

from software version 22.0.3

EN

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.

CE 0197

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.

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	Description
⚠ WARNING	Indicates a dangerous situation, which if not avoided, could entail slight to life-threatening injuries.
⚠ CAUTION	Indicates a dangerous situation, which if not avoided, could entail slight to moderate injuries.
NOTICE	Indicates a dangerous situation, which if not avoided, could result in damage to the instruments, the practice fittings or the device.
PLEASE NOTE	Draws your attention to important information.
	Indicates the section in the document that contains content relevant for the service technician.

Formatting rules

Example	Description
see **Chapter 2**	Reference to another text section within this document.
`Log`	Words or phrases appearing on the display of the device are marked as display text.
	Prerequisites for the following handling instruction.
	Reference to the glossary or another text section.
	Information for safe handling.

Disposal

MELAG devices are synonymous with long-term quality. When you eventually need to decommission your MELAG device, the required disposal of the device can be carried out by MELAG in Berlin. Simply contact your stockist.

Dispose of components, spare parts, accessories, equipment and consumables that you no longer need properly. Comply with all relevant disposal regulations regarding potentially contaminated waste.

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

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 are regularly trained in the operation and safe handling of the device.

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 only be replaced by an original spare part from MELAG.
- 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 bend or twist the power cable excessively.
- Never unplug by pulling on the power cable. Always take a grip on the plug.
- Never place any heavy objects on the power cable.
- 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.

Normal operation

- The door area as well as the cooler and safety valves at the rear of the device may become hot during operation and remain hot for an extended period after switching off.
- Do not replace the sterile filter during a program run.

Opening the housing

- 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.

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

- Please note that all series incidents that occur in relation to a ▸medical device (e.g. death or a serious deterioration in a patient's state of health), which were presumably caused by the device must be reported to the manufacturer (MELAG) and the competent authority of the member state in which the user and/or the patient resides.

3 Performance specifications

Intended use

The Careclave 618 is used to sterilize medical instruments (including complex hollow bodies) and textiles, either wrapped or simple-/double-wrapped or inside a sterilization container, with hot steam.

EN 13060 classifies this device as a class B sterilizer (autoclave).

In addition, Careclave 618 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. Alternatively, automatic care with dental oil or class S sterilization according to EN 13060 can be carried out instead of thermal disinfection.

The care of transmission instruments with dental oil does not fulfil a medical purpose in the strict sense, but merely serves the purpose of equipment servicing.

Careclave 618 is intended for use in the medical field, especially in dentistry. The device is conceived for use outside the patient care area.

Typical user groups are doctors, trained personnel and service technicians.

⚠ WARNING

Warning of material damage and injury

Any attempt to sterilize fluids can result in a ▸delay in boiling. This can cause damage to the device and/or scalding.

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

Performance features of this steam sterilizer

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.

Instrument care

Careclave offers the possibility of caring for transmission instruments with the help of an integrated function for distributing and metering care oil. Furthermore, chuck care can be done manually with the ADDcare integrated care station, see Oiling the chucks [▸ page 75]. The Carebox Blue is used for reprocessing instruments that must be maintained with care oil.

Safety equipment

Internal process monitoring

A ▸process evaluation system is integrated in the electronics of the device. 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 and ensures safe and successful reprocessing. A monitoring system checks the device components of the device for their functionality and their plausible interaction. If one or more parameters exceeds pre-determined threshold values, the device issues warning or malfunction messages and if necessary, aborts the program. In the case of a program abort, follow the instructions on the display.

The device works with an electronic parameter control. This serves to optimise the total operating time of a program in dependence on the load.

Internal logic monitoring

The device's electronics monitor the 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

The device constantly checks pressure and temperature in the sterilization chamber and prevents the door from being opened during the program run and when over-pressure has built up. The motor-driven automatic door locking mechanism opens the door slowly by turning the locking spindle. This also holds the door whilst it opens. Even if pressure differences exist, the pressure equalisation takes place until the door is completely open.

Quantity and quality of the feed water

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

Type of the feed water supply

The device works with a feed water one-way system. It uses fresh ▸feed water in the form of ▸demineralised or ▸distilled water for each sterilization procedure. The quality of the feed water is subject to permanent monitoring via integrated ▸conductivity measurement. If combined with a proper preparation of the instruments, this serves largely to prevent stain accretion on the instruments and soiling of the device.

Sterilization procedure

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

The steam sterilizer uses 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 chamber itself from overheating.

This procedure supports the quick ▸evacuation of the air from the sterilization chamber, the sterilization packages and instrument cavities. This allows you to sterilize large quantities of instruments or textiles in a very short time and achieve very good drying results.

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 reprocessing 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 method 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 program 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, so-called 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 5 min will follow.
3. Measurement time	The measuring time is 10 min. 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 sterilization 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.

Program runs for the Carebox

Cleaning and disinfection

Up to eight dental transmission instruments or ultrasonic and air scaler tips can be cleaned and thermally disinfected simultaneously in the Carebox. 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 carried out without the use of chemicals, with demineralised water and partly with the support of compressed air pulses.

Program phases of a cleaning and disinfection program in the Carebox

Program phase	Description
1. 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.
2. Pre-cleaning	Precleaning 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 precleaning, the rinse liquor is drained to remove proteins and other contaminants from the system.
3. Intermediate cleaning	In intermediate cleaning, a new rinse liquor is used and further contamination 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.
4. Final cleaning	In final cleaning, the newly introduced rinse liquor is continuously heated. At a temperature of 55 °C, any remaining organic deposits and contamination are dissolved from the instruments.
5. Thermal disinfection (Care-Therm program)	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 kills vegetative bacteria, fungi and their spores and viruses (incl. HBV, HCV). Thus, the effective range AB is achieved in accordance with the specifications of the ▸RKI. The thermally disinfected transmission instruments are suitable for use in treatments with the risk classification “Semi-critical B”. Thermally disinfected ultrasonic and air scaler tips must subsequently still be sterilized in their packaging so that they are suitable for use in treatments with a "Critical B" risk classification.
6. Care (optional)	During care, the care oil is specifically metered 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.
7. 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 the instruments.

Sterilization

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

Up to eight dental transmission instruments or ultrasonic and air scaler tips can be sterilized simultaneously in the Careclave.

Program phases of a sterilization program in the Carebox

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 method 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	**Sterilization S (Care-S program)** Sterilization is carried out in the Carebox with type S cycles (according to ▸EN 13060). 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 plateau period of 3:30 min. The transmission instruments reprocessed in this way are suitable for use in treatments with the risk classification “Semi-critical B”.
	Sterilization B (Care-B program) Sterilization is carried out with type B cycles (according to EN 13060) in the Carebox including the entire sterilization chamber. This is additionally designed for the steam penetration of wrapped and unwrapped products with narrow lumen. Sterilization takes place at a temperature of 134 °C and with a plateau period of 5:30 min. The wrapped transmission instruments reprocessed in the sterilization chamber are suitable for use in treatments with a risk classification of “Critical B”.
3. Drying phase	**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.

Performance characteristics of reprocessing 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 bodies	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
Plateau period	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

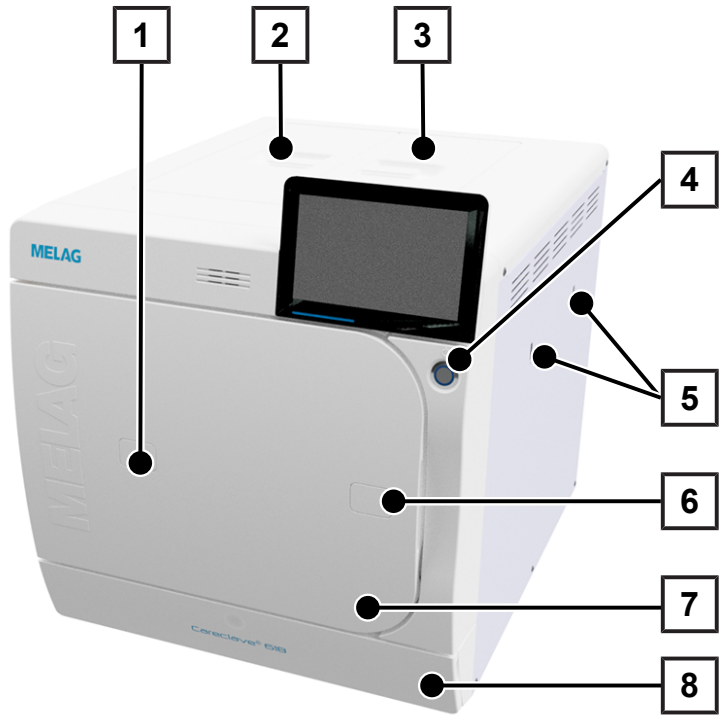
Please check the scope of delivery before setting up and connecting the device.

- Careclave 618
- User manual
- Manufacturer’s inspection report and declaration of conformity
- Warranty certificate
- Record of installation
- Instruction protocol
- Instrument logbook
- Tray lifter
- MELAG USB stick
- Drain hose
- Power cable
- 4x Cover cap for openings, side wall
- 2x Carrying strap (2 pcs.)
- Allen key for opening the door in an emergency
- Test gauge TR16 for door lock nut
- MELAG oil for door lock nut
- Care oil MELAG Care Oil (already inserted)
- Heat protection gloves
- Screwdriver (TX6)
- Installation material

For other components that can be used with the device, see Components, accessories and spare parts [▸ page 139].

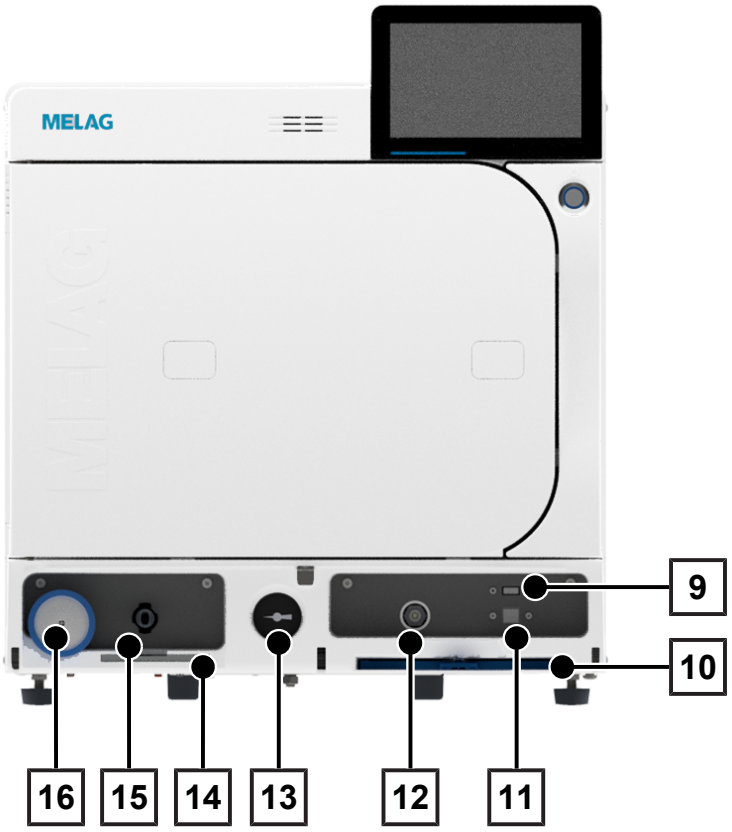
Views of the device

View from the front



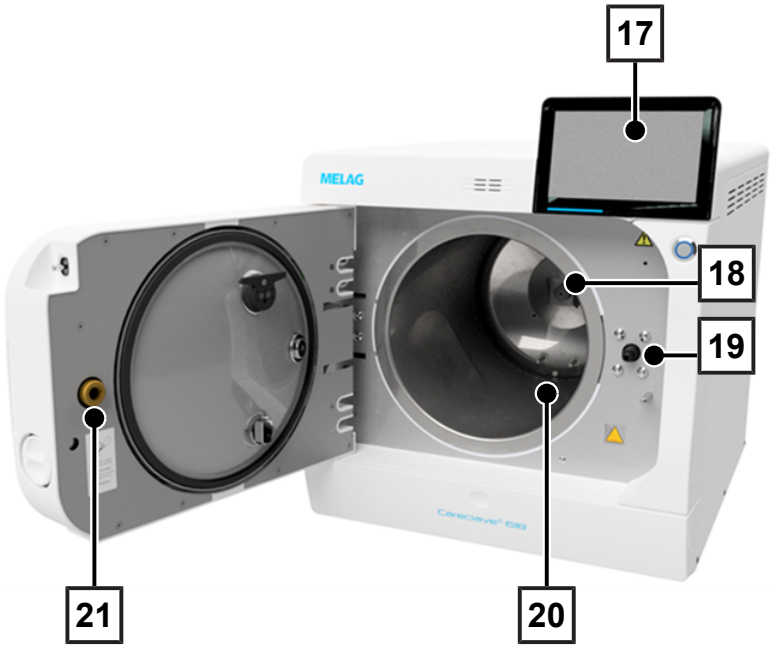
1 Access to the validation fitting
2 Feed water tank cover
3 Accessories compartment cover
4 Power button
5 Mounts for Carebox (optional)
6 Opening for door opening in an emergency
7 Door
8 Service hatch

View from the front, with open service hatch



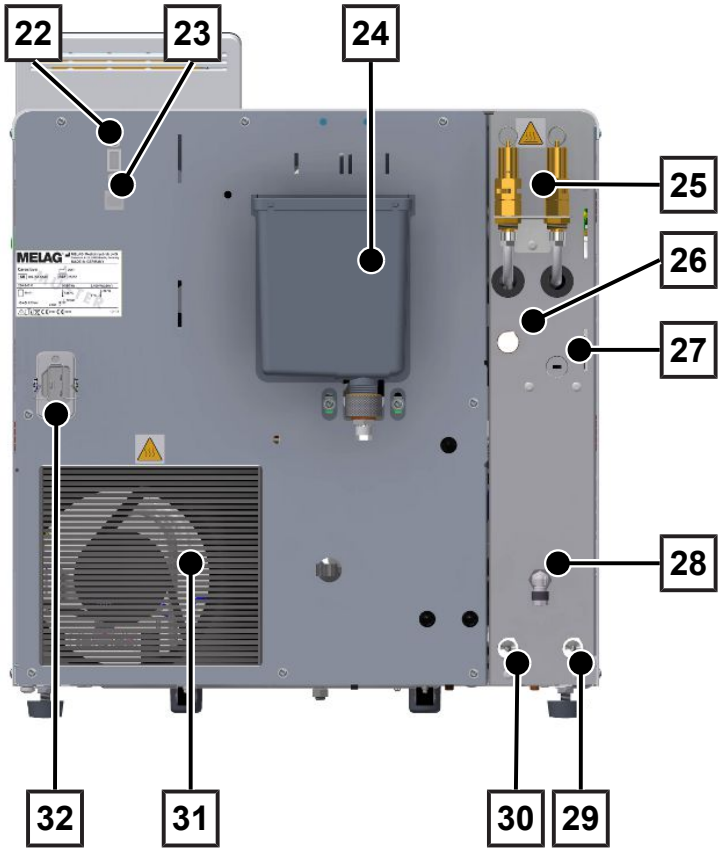
9 USB port
10 Dust filter
11 Service connection
12 Overheat protection reset button
13 Manometer (double jacket steam generator)
14 Allen key with which to open the door in an emergency
15 Feed water tank drain valve
16 Sterile filter

View from the front, with open door



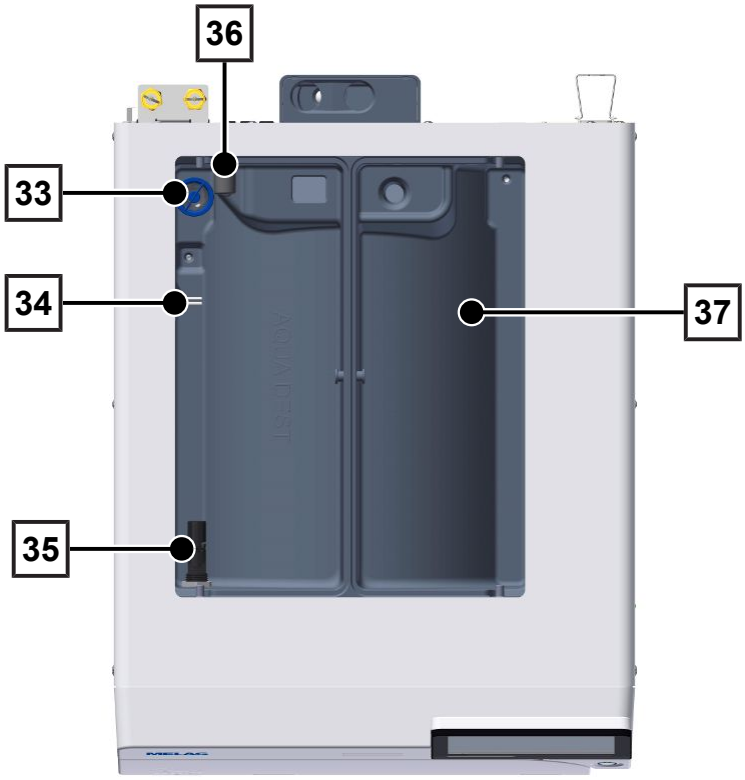
17 Colour touch display
18 Spring clip
19 Locking spindle
20 Pressure release filter
21 Door lock nut

View from the rear, without cover



22 USB port
23 Ethernet connection
24 Overflow funnel
25 Spring loaded safety valves
26 Feed water connection of the filling pump
27 Electrical connection of the filling pump (optional)
28 Wastewater connection
29 Feed water connection, water treatment unit
30 Compressed air connection
31 Cooler
32 Power cable connection

Top view



33 Tank filter
34 Conductivity sensor
35 Float switch
36 Feed water inlet
37 Accessories compartment

Symbols on the device

Type plate

Manufacturer of the product

Date of manufacture of the product

MD — Label as medical device

REF — Article number of the product

SN — Serial number of the product

Observe user manual or electronic user manual

Do not dispose of product in household waste

CE marking

Identification number of the notified body responsible for conformity assessment according to Pressure Equipment Directive 2014/68/EU

Identification number of the notified body responsible for conformity assessment according to Regulation (EU) 2017/745 on medical devices

Volume of the sterilization chamber

Working overpressure in sterilization chamber

Operating temperature in sterilization chamber

Permissible temperature range of water supply

Permissible pressure of water supply

Permissible range of compressed air supply

Electrical connection of the product: Alternating current (AC)

Warning symbols

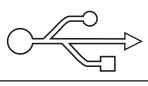
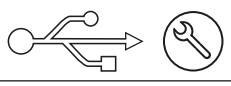
The marked area becomes hot during operation. Contact with it during or shortly after operation can pose the danger of burns.

Rear of the device

The WaterMark certificate is a seal of quality for plumbing and drainage products in Australia and New Zealand.

It confirms that a product meets the requirements of the ABCB (Australian Building Codes Board) and is approved for application.

Device symbols - front

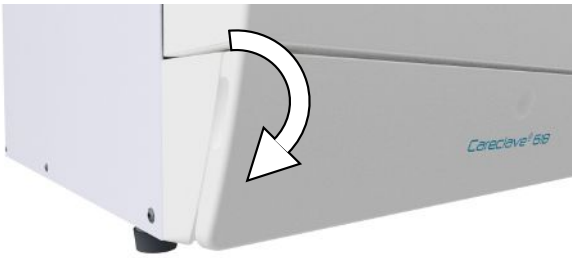
Symbol	Description	Symbol	Description
	Sterile filter		Dust filter/device filter
	Drain connection		Overheat protection reset button
	USB connection		Service connection

Device symbols - rear

Symbol	Description	Symbol	Description
Air	Compressed air connection	**Aqua dem**	Feed water connection, water treatment unit
Pump aqua dem	Feed water connection of the filling pump	**Pump power**	Electrical connection of the filling pump (optional)
Drain	Wastewater connection	--	--

Service hatch

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

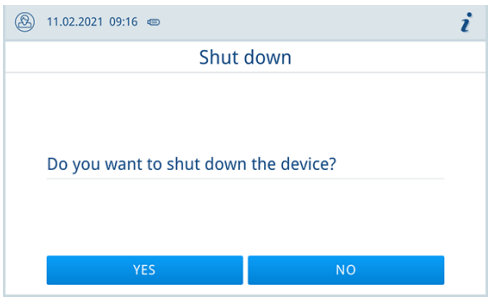


Power button

PLEASE NOTE The device cannot be shut down during a running program.

Press the power button to open the shutdown dialog.

Press the power button again to restart the device.



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

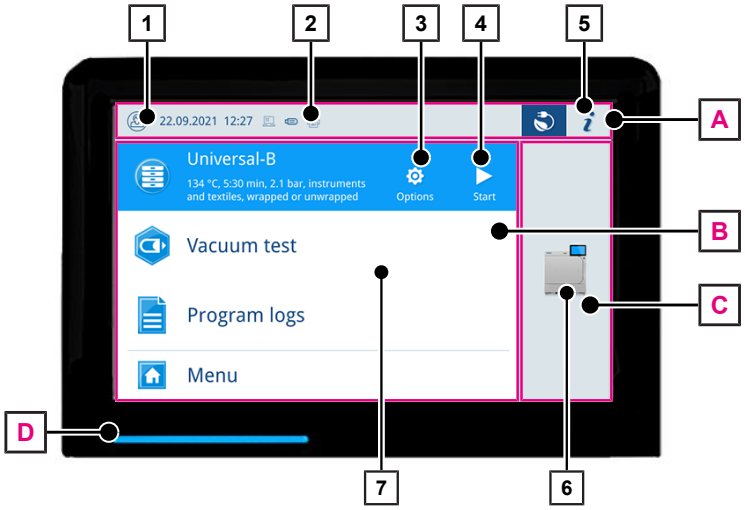
State	Description
illuminated	The device is shut down.
not illuminated	The device is in standby or a program is running.
pulsing	The device is starting up.

Colour touch display

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

The selected menu item is 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 Login/logout user role
2 Activated/connected output media
3 Program options
4 Start program
5 Device status
6 Opening the door
7 Favourites menu*)
A Information area
B Menu area
C Device function area
D LED status bar

*) recommended programs and functions for quick access

Symbol of the device mode

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

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

Symbol	Description
	Careclave mode active

PLEASE NOTE Careclave mode can only be activated by inserting a Carebox.

User role symbols

Symbol	User role	Description
	Practice employee	Operating the device, making general settings
	Administrator	Operating the device, making administrative settings
	Service technician	Operating the device, making administrative settings and service settings

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
	MELAprint 60[1)]/80	Output to a connected label printer

Buttons in the information area

Button	Description
	Show or hide `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 dialog

Buttons in the program selection

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

Chuck care buttons

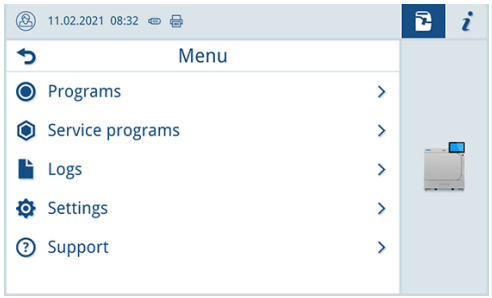
Symbol	Description	Button
	Chuck care is switched off	Switch on chuck care
	Chuck care is switched on	Switch off chuck care
	Chuck care venting is switched on	Switch off chuck care

[1)] from model BTP-580II

Menu

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

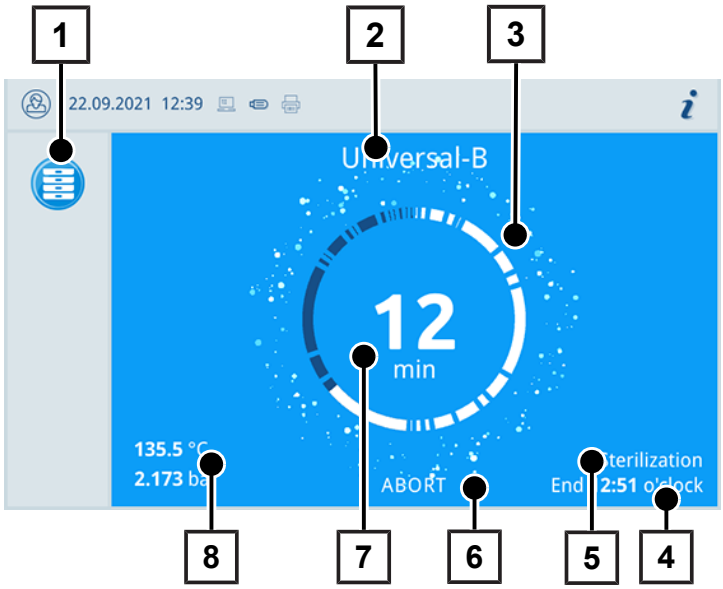
The **Support** menu item contains service contact details and the **License information**.



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 Running program
2 Program name
3 Busy indicator
4 Estimated end of the program
5 Program phase
6 Cancel/Exit 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.

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 running
Green	Program successfully completed, drying in progress
Red	Malfunction message, program abort in progress, program not completed successfully
Yellow	Warning message

Load mounts

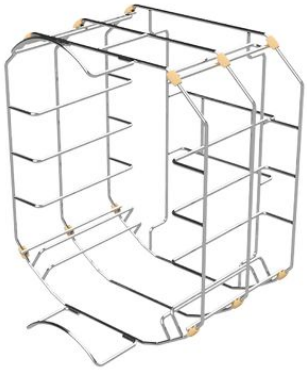
The mount is used to hold trays, the MELAstore Box or sterilization containers. A mount is not absolutely necessary for the sterilization of sterilization containers or MELAstore Box.

For more information on the articles, see Components, accessories and spare parts [▸ page 139].

Mounts for Careclave 618

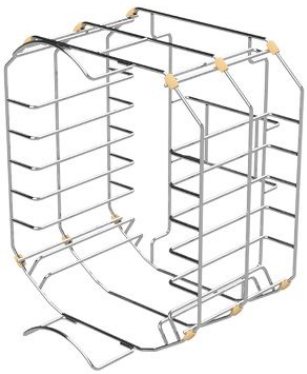
For an overview of the configuration options see Overview of the loading variants [▸ page 26]. The following illustrations show examples of configuration options:

Mount 4+2



for max. 4 trays (18.5 x 13.5 cm)
and 2 narrow trays (11.5 x 10.7 cm)

Mount 6+2



for max. 6 trays (18.5 x 13.5 cm)
and2 narrow trays (11.5 x 10.7 cm)

“Plus” mounts

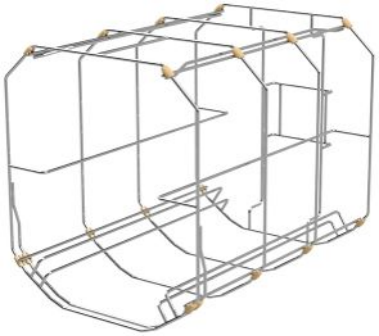
For an overview of the configuration options see Overview of the loading variants [▸ page 26]. The following illustrations show examples of configuration options:

Mount C Plus

for max. 6 trays

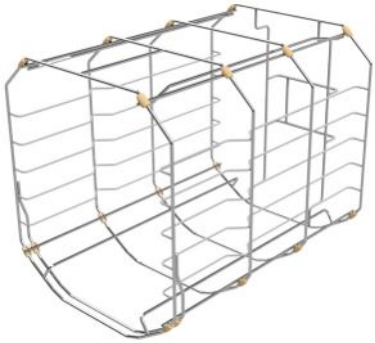
for max. 3 MELAstore Box 100 (mount rotated by 90°)

Mount D Plus



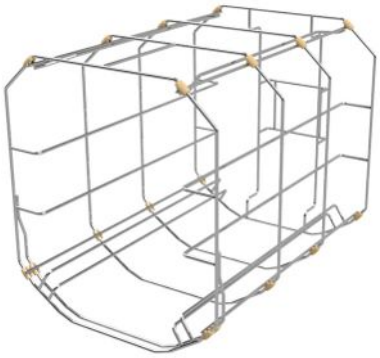
for max. 2 MELAstore Box 200 and 2 narrow trays

Mount E Plus



for max. 6 trays and 2 narrow trays

Mount F Plus



for max. 3 MELAstore Box 100
and 2 narrow trays

Universal holder

PLEASE NOTE For easier unloading take trays out from top to bottom.

For an overview of the configuration options see Overview of the loading variants [▸ page 26].

The following illustrations show examples of configuration options:

for max. 6 trays
and 2 narrow trays

for max. 2 MELAstore Box 100,
1 MELAstore Box 200 and
2 narrow trays

for max. 2 MELAstore Box 200
and 2 narrow trays

for max. 2 MELAstore Box 100,
2 trays and 2 narrow trays

for max. 1 MELAstore Box 200,
3 trays and 2 narrow trays

for max. 3 shallow trays
and 2 narrow trays

for max. 3 shallow trays,
1 MELAstore Tray 200,
2 MELAstore Tray 100
and 2 narrow trays

for max. 1 shallow tray, 3 trays,
1 MELAstore Tray 100 and
2 narrow trays

Overview of the loading variants

In the following overview, you can see which loading variants are possible with the respective mount.

Please adhere to the maximum load quantities for the Careclave mode, see Selecting the program [▶ page 67], and for the Vacuclave mode, see Selecting the program [▶ page 79].

	Tray (18.5 x 13.5 cm)	Tray (11.5 x 10.7 cm)
Mount 4+2	4+2	
Mount 6+2	6+2	

	Tray	Package holder	Sterilization container				MELAstore Box	
	short	short	15K	17K	28M	28G	100	200
Mount C Plus	6	1	3	3	2	1	3	-
Mount D Plus	2+2*)	1	4+2*)	2	2	-	2+2*)	2+2*)
Mount E Plus	6+2*)	1	6	3	2	1	-	-
Mount F Plus	3+2*)	1	6+2*)	2	2	1	3+2*)	-

	Tray for Universal Mount	Package holder	Sterilization container				MELAstore Box	
	short	short	15K	17K	28M	28G	100	200
Universal holder	6+2*)	1	6+2	2	2	1	3+2*)	2+2*)

*) This mount can additionally accommodate two narrow trays (art. no. ME01320, depth 27 cm).

Inserting and removing the mount

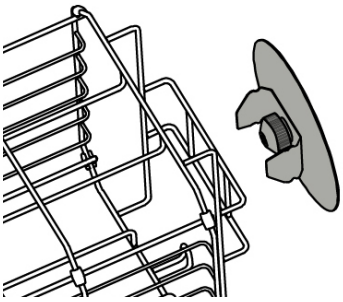
The mount is fitted with slide clips on their edges. These protect the sterilization chamber against scratches and simplify pushing in and pulling out during loading and unloading. The scope of delivery of the mount includes further replacement slide clips. Replace any slide clips exhibiting visible wear immediately, see Replace slide clips [▸ page 114].

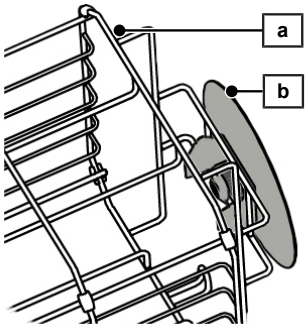
Note the following when inserting and removing the mount:

1. Remove the bag with the slide clips before first use of the mount.

2. There is a spring clip on the rear wall of the sterilization chamber to secure the mount.

   Insert the mount (Pos. a) into the sterilization chamber until it stops. The mount must engage audibly and noticeably in the spring clip (Pos. b).



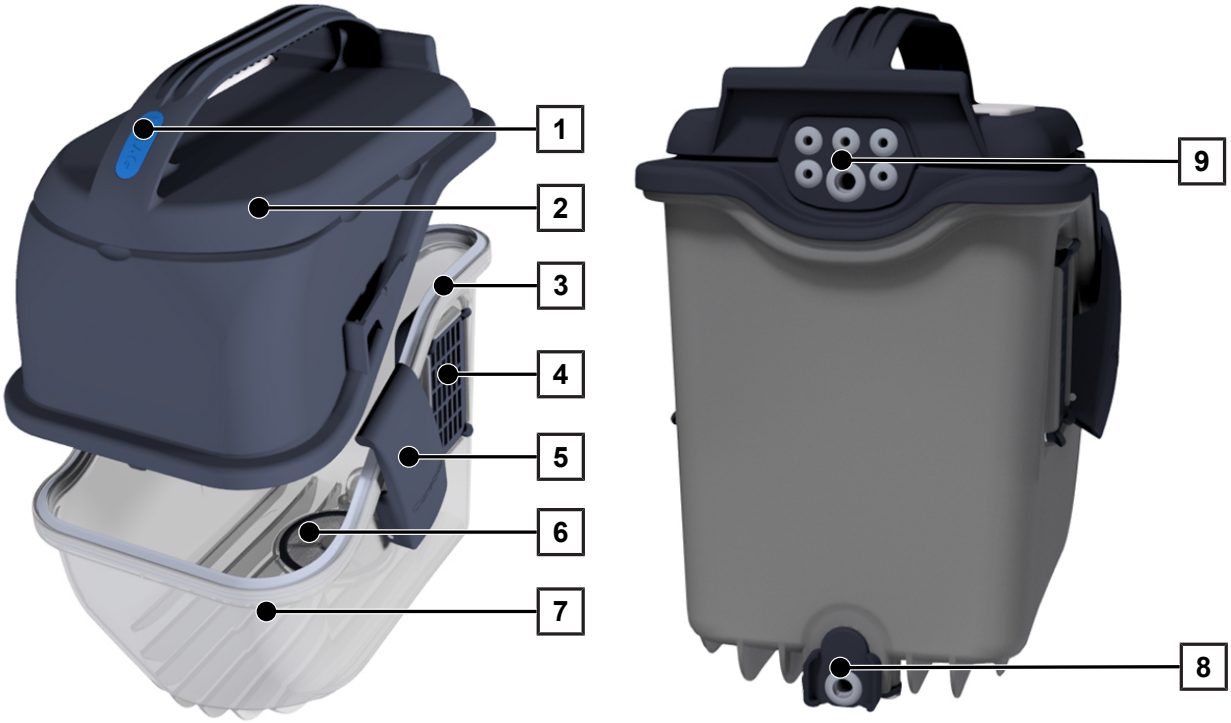


   ➥ The mount is fixed in the device and remains in the sterilization chamber during loading and unloading.

3. To remove the mount, pull it out of the spring clip with both hands.

Carebox

Carebox views



1 Colour coding, Carebox Blue/Green
2 Carebox upper section (incl. adapter)
3 Housing seal
4 Carebox filter (behind cover)
5 Fastener
6 Sieve for Carebox
7 Carebox lower section (incl. Sieve for Carebox)
8 Media seal, Carebox lower section
9 Media seals, Carebox upper section

PLEASE NOTE The Carebox lower section is magnetic at the rear. Keep it away from objects that are sensitive to magnetism or can be attracted to the magnet.

Adapters for the Carebox Blue

The adapters for the Carebox Blue are used to connect different steam sterilisable, dental transmission instruments, whose drive channels have to be maintained with oil.

Comply with the following for safe handling:

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

PLEASE NOTE A constantly updated overview of the compatibility of the adapters can be found on the MELAG website. Only the instruments listed on the website and those listed below are compatible.

Basic adapters

The adapter for unused connections is used to load an unused connection of the Carebox Blue. The adapter for external spray channels is used to flush up to three external spray channels on transmission instruments.

PLEASE NOTE Instruments cannot be connected on the basic adapters.

For more information on the articles, see Components, accessories and spare parts [▸ page 139].

Basic adapters	
Adapter for unused connections Installing adapters [▸ page 59]	
Adapter for exterior spray channels (incl. 1 m hose) Installing adapters [▸ page 59]	

Adapters for transmission instruments

The adapters are used for the internal cleaning and care of transmission instruments in the Carebox Blue.

For more information on the articles, see Components, accessories and spare parts [▸ page 139].

Transmission instruments		Adapters for transmission instruments		Unlocking mechanism
Handpieces and contra angles	Intracoupling	Adapter for ISO coupling (INTRA) Installing adapters [▸ page 59] Loading the Carebox [▸ page 63] Removing instruments from Carebox [▸ page 73]		unlocking latch
	Sirona T1 Classic	Adapter for Sirona T1 Classic Installing adapters [▸ page 59] Loading the Carebox [▸ page 63] Removing instruments from Carebox [▸ page 73]		without unlocking mechanism
	Heads of the KaVo contra angles	Adapter for KaVo/BienAir contra angle heads Installing adapters [▸ page 60] Loading the Carebox [▸ page 63] Removing instruments from Carebox [▸ page 73]		without unlocking mechanism
Turbines	Bien-Air	Adapter for BienAir turbine connector Installing adapters [▸ page 59] Loading the Carebox [▸ page 63] Removing instruments from Carebox [▸ page 73]		unlocking latch
	NSK Phatelus	Adapter for turbines NSK connector (Phatelus) Installing adapters [▸ page 59] Loading the Carebox [▸ page 63] Removing instruments from Carebox [▸ page 73]		without unlocking mechanism

Transmission instruments		Adapters for transmission instruments		Unlocking mechanism
	W&H ROTO QUICK	Adapter for turbines W&H coupling (Roto Quick) Installing adapters [▸ page 59] Loading the Carebox [▸ page 63] Removing instruments from Carebox [▸ page 73]		without unlocking mechanism
	Sirona quick coupling R/F	Adapter for turbines with Sirona connector Installing adapters [▸ page 59] Loading the Carebox [▸ page 63] Removing instruments from Carebox [▸ page 73]		without unlocking mechanism
	KaVo MULTIflex	Adapter for turbines with KaVo connector (MULTIflex) Installing adapters [▸ page 59] Loading the Carebox [▸ page 63] Removing instruments from Carebox [▸ page 73]		without unlocking mechanism
	Midwest	Adapter for Midwest connection (4/5 hole) Installing adapters [▸ page 60] Loading the Carebox [▸ page 63] Removing instruments from Carebox [▸ page 73]		union nut

Adapters for the Carebox Green

The adapters for the Carebox Green are used to connect different steam sterilisable, dental prophylaxis handpieces.

Comply with the following for safe handling:

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

PLEASE NOTE

A constantly updated overview of the compatibility of the adapters can be found on the MELAG website. Only the instruments listed on the website and those listed below are compatible.

Adapter connections

The adapter M8x1, concentric is used to load a connection of the Carebox Green. The adapter M8x1, eccentric increases the distance between the individual connections in the Carebox. This can be necessary in case of torque spanners for tips with large outside diameter.

PLEASE NOTE Instruments cannot be connected on the adapter connections. They are used for connection points for instrument adapters.

For more information on the articles, see Components, accessories and spare parts [▸ page 139].

Adapter connections	
Adapter M8x1, concentric Installing adapters [▸ page 60]	
Adapter M8x1, eccentric Installing adapters [▸ page 60]	

Adapters for powder jet handpieces

The adapters are used for internal cleaning of powder jet handpieces in the Carebox Green.

For more information on the articles, see Components, accessories and spare parts [▸ page 139].

Powder jet handpieces	Adapters for powder jet handpieces		Unlocking mechanism
EMS AIR-FLOW	Adapter for EMS AIR-FLOW Handy 3.0 Installing adapters [▸ page 60] Loading the Carebox [▸ page 63] Removing instruments from Carebox [▸ page 73]		side latch fastener
	Adapter for EMS AIR-FLOW Prophylaxis Master Installing adapters [▸ page 60] Loading the Carebox [▸ page 63] Removing instruments from Carebox [▸ page 73] Replace adapter seals [▸ page 118]		side latch fastener

Adapters for multifunction cannulas

The adapters are used for internal cleaning of multifunction cannulas in the Carebox Green.

For more information on the articles, see Components, accessories and spare parts [▸ page 139].

Multifunction cannula	Adapters for multifunction cannulas		Unlocking mechanism
KaVo 3-function cannula / KaVo multifunction cannula	Adapter for KaVo multifunctional cannula Installing adapters [▸ page 59] Loading the Carebox [▸ page 63] Removing instruments from Carebox [▸ page 73]		without unlocking mechanism

Adapters for ultrasonic and air scaler tips and ultrasonic handpieces

The adapters are used to clean the interiors of ultrasonic and scaler tips and ultrasonic handpieces.

For more information on the articles, see Components, accessories and spare parts [▸ page 139].

Tips and handpieces	Adapters for tips and ultrasonic handpieces		Compatible with
Ultrasonic and air scaler tips	Adapter M3.0 x 0.5 mm, internal thread Installing adapters [▸ page 60] Loading the Carebox [▸ page 63] Removing instruments from Carebox [▸ page 73]		**KaVo** SONICflex 2000, 2003 | **EMS** Piezon/Piezon LED | **Sirona** SIROAIR L | **W&H** air scaler: Proxeo, Synea, Alegra | **Komet** SonicLine: Komet SF1LM | **NSK** air scaler: Ti-Max S970, AS2000
	Adapter M3.0 x 0.5 mm, external thread Installing adapters [▸ page 60] Loading the Carebox [▸ page 63] Removing instruments from Carebox [▸ page 73]		**KaVo** SONOsoft, PiezoLUX | **EMS** Piezon/Piezon LED | **W&H** Piezo Scaler: Tigon, Tigon+, Pyon 2 Surgery: Piezomed | **Komet** PiezoLine EM1, PiezoLine KA1, PiezoLine KA2 | **NSK** Varios EMS | **Mectron** Multipiezo, PiezoSmart, Micropiezo, Compact Piezo | **Hu-Friedy** Piezo E-Series (EMS)
	Adapter M3.6 x PH1.5 P0.5, internal thread Installing adapters [▸ page 60] Loading the Carebox [▸ page 63] Removing instruments from Carebox [▸ page 73]		**KaVo** SONICflex quick 2008
	Adapter M3.0 x 0.35 mm, external thread Installing adapters [▸ page 60] Loading the Carebox [▸ page 63] Removing instruments from Carebox [▸ page 73]		**KaVo** PiezoLED, PiezoSoft
	Adapter M3.5 x 0.35 mm, internal thread Installing adapters [▸ page 60] Loading the Carebox [▸ page 63] Removing instruments from Carebox [▸ page 73]		**Planmeca** | **LM** ProPower
	Adapter M3.0 x 0.6 mm, external thread Installing adapters [▸ page 60] Loading the Carebox [▸ page 63] Removing instruments from Carebox [▸ page 73]		**Acteon (Satelec)** Newtron, Suprasson | **NSK** Varios NSK, Satelec | **Hu-Friedy** Piezo S-Series (NSK, Satelec, Hu-Friedy) | **Ultradent** Newtron

Tips and handpieces	Adapters for tips and ultrasonic handpieces		Compatible with
	Adapter M3.5 x 0.6 mm, internal thread Installing adapters [▸ page 60] Loading the Carebox [▸ page 63] Removing instruments from Carebox [▸ page 73]		**Sirona** Siroson, Sirosonic, PerioSonic | **Komet** PiezoLineSI1 | **Dürr** Vector Scaler
Ultrasonic handpieces	Adapter M3.0 x 0.35 mm, internal thread Installing adapters [▸ page 60] Loading the Carebox [▸ page 63] Removing instruments from Carebox [▸ page 73]		**KaVo** PiezoLED, Piezosoft
	Adapter M3.0 x 0.6 mm, internal thread Installing adapters [▸ page 60] Loading the Carebox [▸ page 63] Removing instruments from Carebox [▸ page 73]		**Acteon** Newtron, Suprasson | **NSK** Varios (Satelec)
	Adapter M3.5 x 0.6 mm, external thread Installing adapters [▸ page 60] Loading the Carebox [▸ page 63] Removing instruments from Carebox [▸ page 73]		**Sirona** Siroson, Sirosonic, PerioSonic

Marking discs

The marking discs are used to visually distinguish the adapters for tips. This can prevent instruments from being accidentally screwed onto the wrong adapters and damaging the thread.

For more information on the articles, see Components, accessories and spare parts [▸ page 139].

Instruments	Marking discs		Compatible with
Adapter for tips	Marking discs for adapters Art. no. ME80769		Adapters for tips (Art. no. ME80750, ME80751, ME80752, ME80755, ME80756, ME80760, ME80790)

Attaching marking discs

1. If an adapter for ultrasonic and air scaler tips is already installed, unscrew it from the adapter connection M8x1, concentric or eccentric.
2. Push the marking disc over the thread of the adapter for ultrasonic and air scaler tips.
3. Screw the adapter for ultrasonic and air scaler tips with marking disc onto the adapter connection M8x1, eccentric.

5 Installation requirements

⚠ WARNING

Warning of material damage and injury

Failure to comply with the setup conditions can cause damage to the device and/or injuries.

- The device should only be setup, installed and commissioned by MELAG authorised persons.
- The device is not suitable for operation in explosive atmospheres.
- The device is intended for use outside the patient treatment area. The device should be located a minimum of 1.5 m radius away from the treatment area.

Installation location

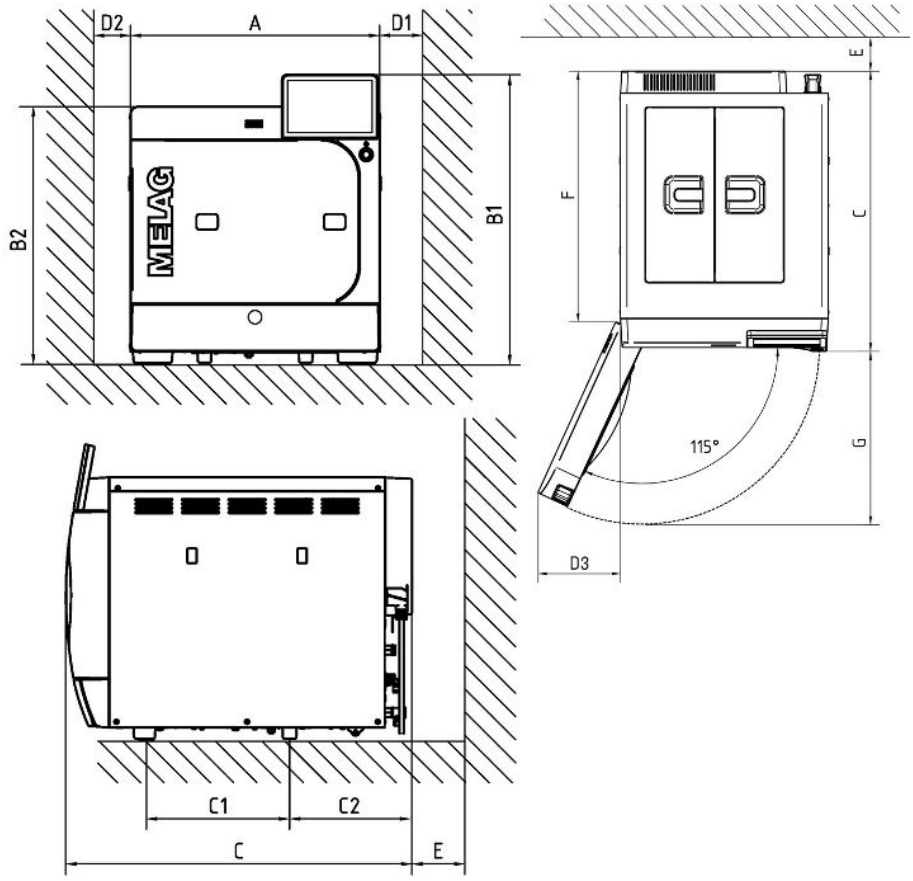
Steam egress can occur during operation. Do not set up the device in the immediate proximity of a smoke detector. Maintain clearance from materials which could suffer damage from steam.

Make sure that the ambient conditions meet the requirements, see Technical data [▸ page 137].

Electromagnetic environments

When assessing the electromagnetic compatibility (EMC) of this device, the emission limits for Class B devices and the immunity for operation in a basic electromagnetic environment are based on ▸IEC 61326-1. The device is thus suitable for operation in all facilities including those in residential areas and those that are directly connected to a public mains supply that also supplies buildings used for residential purposes. The floor should be made of wood or concrete or be tiled with ceramic tiling. If the floor is fitted with synthetic material, the relative humidity must be at least 30 %. Humidity reduces the development of electrostatic discharges.

Space requirements



Dimensions		Careclave 618
Width	A	48 cm
Height	B1	56.2 cm
Height without colour touch display	B2	49.7 cm
Chamber depth	C	35 cm
Clearance between the device feet	C1	27.05 cm
Clearance from rear device foot up to the rear panel	C2	23.1 cm
Min. clearance to right side (heat emission)	D1	7 cm
Min. clearance to left side (heat emission)	D2	3 cm
Distance to the door hinge side 115°	D3	19 cm
Min. clearance to the rear	E	1 cm
Clearance when door fully open	F	58 cm
Max. swivel distance with open door	G	38.5 cm
Min. clearance to the top	--	B1 + 4 cm
Min. clearance at the top (for complete opening of the tank cover)	--	B1 + 13 cm

Additional space requirement for the feed water supply

If the device is operated with a water treatment unit or filling pump with storage tank, additional space is required. It is necessary to ensure free access to the hoses and cables of the device leading to the water treatment unit.

Dimensions	MELAdem 47	
	Osmosis module	Pressure tank
Height	46 cm	40 cm
Width	40 cm	--
Depth	18 cm	--
Diameter	--	Ø 28 cm

Space is required above the MELAdem 53 / MELAdem 53 C for free access to the hose connections.

Dimensions	MELAdem 53	MELAdem 53 C
Diameter	24 cm (26 cm incl. water inlet hose)	24 cm (26 cm incl. water inlet hose)
Height of the unit incl. connecting parts	57 cm (approx. 62 cm incl connection kit)	45 cm (approx. 49.5 cm incl. connection kit)

Requirements for incorporating the device

NOTICE

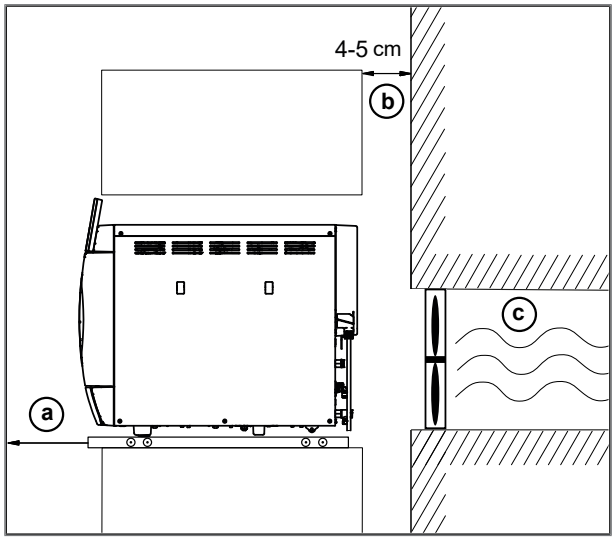
Warning of material damage from heat accumulation

The function and life of the device can be compromised if heat dissipation via the cooler is restricted.

- Only install the device if adequate air circulation is ensured.

If the incorporation of the device is absolutely necessary, it must be ensure that the device can be removed for maintenance and operation (pos. a). In addition, one of the following measures must be implemented:

1. In the installation space, there must be an exhaust shaft in the rear area that discharges the warm air upwards (pos. b).
2. There must be an exhaust shaft in the rear area of the installation space that actively discharges the warm air to the rear (pos. c).



Mains connection

Make sure that the electrical connection meets the requirements on site, see Technical data [▸ page 137].

Water connection

	Feed water	Wastewater
Connection in the practice	• water treatment unit, e.g. MELAdem 47 • optional: external storage container with filling pump	• wall outlet (nominal width DN 40) or U-trap (flush outflow)
Installation height	--	min. 30 cm below the device
Measures for protecting the drinking water	The device has an internal free fall section (safety combination AB) to protect the drinking water. To protect the MELAdem 47, MELAdem 53 and MELAdem 53 C water treatment units, MELAG recommends the installation of a safety combination according to EN 1717. Further country specific measures may be required for protecting the drinking water.	

Connection of a water treatment unit

	MELAdem 47	MELAdem 53/53 C
Permissible hydraulic pressure	2-6 bar	1.5-10 bar
Water stop	It is necessary to install a water stop with shut-off valve for the connection of a water treatment unit.	

Compressed air connection

Comply with the following for safe handling:

- Do not connect the device to the supply network for medical gases, e.g. for ventilation and anaesthesia equipment, in accordance with EN ISO 7396-1.
- Only use compressed air for treatment units in accordance with EN ISO 7494-2.
- Always operate the device in Careclave mode with a compressed air supply. If you want to operate the device in Vacuclave mode without compressed air, you must deactivate **`Carebox detection`**, see Program options [▸ page 99].

Make sure that the compressed air meets the requirements, see Technical data [▸ page 137].

System and network safety

The device is fitted with multiple external interfaces. Comply with the following information pertaining to the use of these interfaces to ensure safe operation of the device, especially to ensure incorporation in the local network (LAN).

Interfaces and connections

Comply with the following for safe handling:

- Only connect the hardware to the device which is listed in the following table.
- Only use the software which has been intended for the purpose and approved by the manufacturer.
- When performing a device software update, use only the update data authorised by MELAG for the corresponding device type.

Interface	Type	Hardware	Software/purpose
USB	Type-B	USB type-A socket (via USB type-B to type-A cable)	MELAview Service Saving log data, querying device data using diagnostics mode
USB	Type-A	MELAG USB flash drive with FAT32 file system	Saving log data
		MELAG USB flash drive with FAT32 file system and software update container	Device software update
		MELAprint 60/80	Label print
Ethernet	Ethernet IEEE 802.3	Switch port (Practical network)	MELAtrace saving log data, querying device data
			FTP server save log data
			Label printing via MELAprint 60

Operating the device with memory media

To prevent data loss, only use memory media to save the log data with the following characteristics:

- functional (without malware, etc.)
- writeable
- formatted with a correct file system (FAT32)

Perform regular data backup. Restrict access to the device and systems with access authorisation to the necessary circle of persons.

Only use MELAG USB sticks.

Operating the device in the local network (LAN)

An Ethernet/IP-based network connection (LAN) is required to operate the device in a local network. In its delivery state, the device is configured to obtain the IP address automatically from a DHCP server operated in a LAN.

Comply with the following for safe handling:

- To avoid security vulnerabilities, do not connect the device to a public network (e.g. the internet).
- Check the IP address carefully during the conversion for a manual configuration before connecting the device to the LAN. An incorrectly-entered IP address can cause IP conflicts in the network and thus disturb another device in your network.

In the LAN with a firewall, only permit connections to and from the device which correspond to the intended use of the device. All ports not used are blocked on the device side.

The device is able to make the following connections as standard:

Log	Source port	Destination port	Direction	Purpose
TCP	63000 - 64000	21	Outgoing	FTP control
TCP	any	63000 - 64000	Listening/ Incoming	FTP (passive) data transfer (device set to FTP logging)
UDP	68	67	Outgoing	Communication to DHCP server - requests to the DHCP server
UDP	67	68	Listening/ Incoming	Answers from DHCP server(s)
TCP	any	3333	Listening/ Incoming	Data transfer log data (device set to TCP logging)
UDP	62000	3000	Outgoing	Broadcast search printer
UDP	3000	62000	Listening/ Incoming	Search answers printer
TCP	≥ 1025	9100	Outgoing	Data transfer to the printer

Network bandwidth/Quality of Service (QoS)

The device does not place any requirements on the LAN bandwidth for data transfer, that exceed the standard time-out times of the respective logs.

Process	Volume max.	Volume normal
Program log	1 MB	200 kB
Malfunction log	64 kB	10 kB
Status log	64 kB	20 kB
System log	40 MB	--

6 Setup and installation

⚠ WARNING

Warning of material damage and injury

Improper installation can cause a short-circuit, fire, water damage or an electric shock. Serious injuries and/or damage to the device can result.

- The device should only be setup, installed and commissioned by MELAG authorised persons.

Comply with the following for safe handling:

- Do not install or operate the device in potentially explosive areas.
- Install and operate the device in a frost-free environment.
- Have the electrical connection and the water supply and waste water connections installed only by trained personnel.
- For the initial commissioning, observe all instructions described in the user manual.
- Position the device in such a way that the faultless functioning of the spring loaded safety valve is guaranteed. The spring loaded safety valve must be able to move freely and not become stuck or blocked.

Record of installation

The record of installation must be completed by an authorised technician, as evidence of proper setup, installation and initial commissioning and for warranty claims, and a copy sent to MELAG.

Unpacking the device

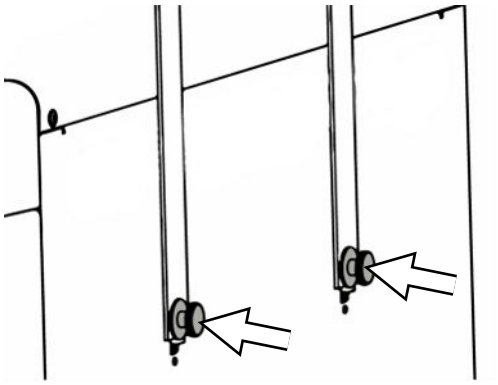
⚠ CAUTION

Warning of injury

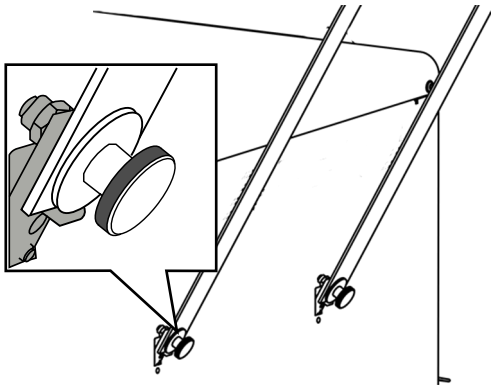
Lifting and carrying the device incorrectly can cause spinal damage, crushing injuries and bruising.

- Carry the device with at least two people.
- Use the correct carrying straps to carry the device (Art. no. ME21121).
- Comply with the safety regulations that apply to you.

1. Remove the steam sterilizer from the box using the carrying straps.
2. Check the device after unpacking for any damage suffered during transport.
3. To remove the straps, loosen the four knurled screws.



4. Pull the fastening system out of the device openings and unhook the carrying straps from the side wall.



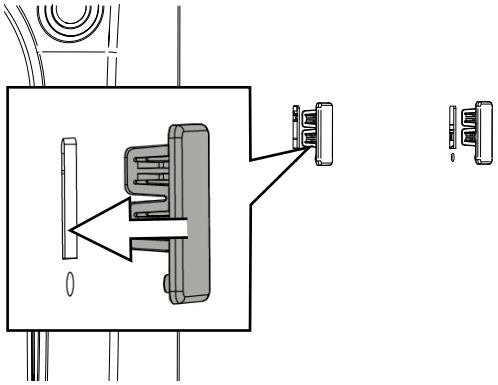
5. Keep the carrying straps.

Closing the device openings

There are two rectangular openings on both side walls of the device after removing the carrying straps. These can be closed with the cover caps included in the scope of delivery. Alternatively, the mount for the Carebox can be attached there.

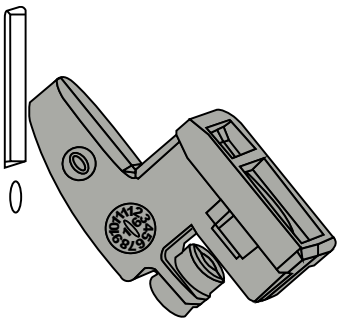
Attaching the cover caps

▶ Press the cover caps into the recesses as shown.



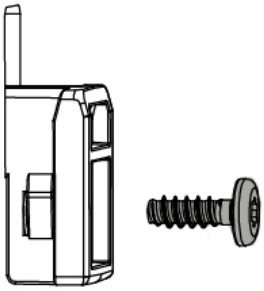
Attaching the mount for the Carebox

1. Insert the fastening hook into one of the recesses at an angle and pointing upwards.

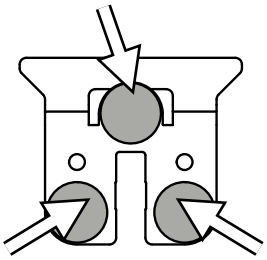


2. Pull the fastening hook vertically downwards until it snaps into place.

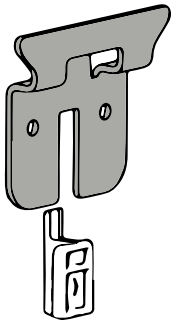
3. Fasten the hook with the enclosed screw.



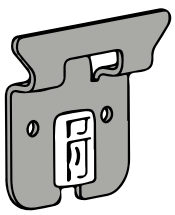
4. Glue the three spacers to the back of the mount for the Carebox.
PLEASE NOTE: The spacers are intended for installation on the side wall of the device. For a room wall installation, the spacers are not used.



5. Place the mount over the corresponding recess on the device (moisten the spacers for easier mounting).



6. Pull the Carebox mount onto the fastening hook vertically downwards until it snaps into place.



Connecting the power cable and removing the chamber contents

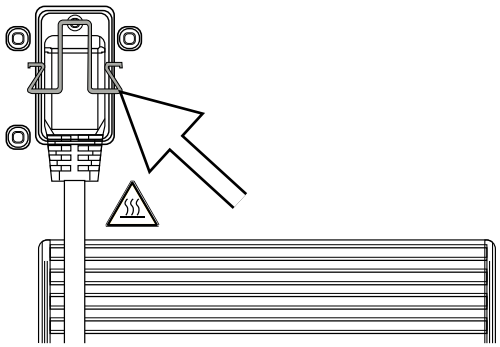
NOTICE

Warning of material damage from incorrect temperature

Operating the device outside the specified ambient temperature (5-40 °C) can lead to damage to individual device components (e.g. circuit boards, vacuum pump, etc.).

- Allow the device to acclimatise to the required ambient temperature (5-40 °C) before switching it on for the first time.

1. Connect the power cable to the rear of the device and fold down the safety latch.



2. Connect the device power plug to the mains socket.
3. Power up the device by pressing the power button. The start screen appears on the display.

   ➥ After a short waiting time, the favourites menu is displayed.
4. Press the **OPEN DOOR** button to open the door.
5. Remove all components, accessories and equipment parts from the sterilization chamber.
6. Close the door.
7. Press the power button to shut down the device.
8. Remove the mains plug to disconnect the device from the power supply.

Installation examples

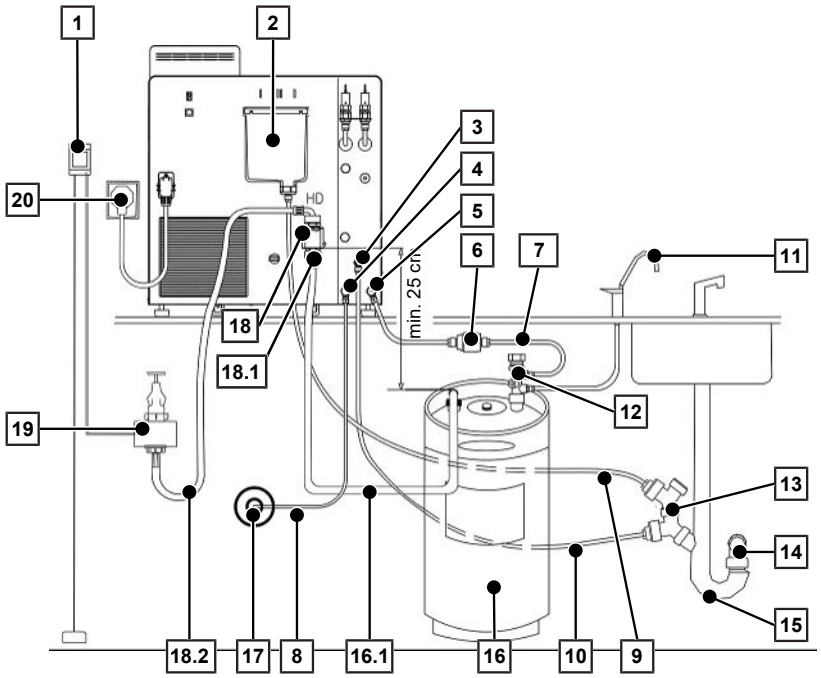
On the following pages you will find examples for the recommended types of installation for the supply of feed water and the disposal of wastewater.

PLEASE NOTE

For detailed information on the cold water connection of the water treatment unit, see the user manual of the unit.

Example 1 - Automatic water supply and disposal with ion exchanger MELAdem 53/53 C (HD)

Use the installation set supplied for installation. The direct connection of the water treatment unit to the domestic water supply also requires the installation of a water stop.



Position	Description	Art. no.	Note
1	Water stop (leakage water detector with shut-off valve and probe)	ME01056	--
2	Overflow funnel	--	present on device-side
3	**Wastewater connection**	--	--
3.1	Threaded connection (1/8" on hose 8/6 mm)	ME89120	present on device-side
4	**Compressed air connection**	--	--
4.1	Swivel elbow union 6/4mm x G 1/4	ME23006	included in installation set
5	**Feed water connection, water treatment unit**	--	--
5.1	Swivel elbow union 6/4mm x G 1/4	ME23006	included in installation set
6	Filter for MELAdem	ME48240	optionally available to order
7	PUR hose 6/4 mm (10 m, black)	ME28820	included in installation set
8	PUR hose 6/4 mm (10 m, black)	ME28820	included in installation set
9	PTFE hose (8/6 mm, 5 m)	ME39180	included in installation set
10	PTFE hose (8/6 mm, 5 m)	ME39180	included in installation set
11	Water tap for MELAdem	ME91900	optionally available to order
12*)	Water distributor for MELAdem 53	ME69005	optionally available to order

Position	Description	Art. no.	Note
13	2x **Double hose grommet for siphon**	ME37400	included in installation set
13.1	Copper seal for 1/4" external thread	ME32050	included in installation set
13.2	Screw-in fitting 1/4” OT on hose 8/6 mm	ME38710	included in installation set
13.3	Wastewater adapter G1/4" internal thread	ME56930	included in installation set
14	Wall drain NW40	--	on-site
15	Double-chamber siphon	ME26635	included in installation set
16	**MELAdem 53 with 2 containers (20 l each)/ MELAdem 53 C with 2 containers (15 l each)**	ME01036/ ME01038	optionally available to order
16.1	Connection hose (2.5 m)	ME70904	contained in ME01038/ ME01036
17	**Compressed air supply**	--	on-site
17.1	Coupling plug for compressed air to hose 6 mm	ME80230	included in installation set
18	**Safety combination HD with wall mount incl. hose (2.5 m)**	ME70686	optionally available to order
18.1	Safety combination HD with wall mount (according to EN 1717)	--	contained in ME70686
18.2	Water inlet hose EN 1717 (2.5 m)	ME24930	contained in ME70686
19	Water tap 3/4" with safety combination	ME37310	optionally available to order
20	Mains connection	--	on-site
*) Alternatively, the Cold water adapter 3/4" to 1/4" (direct connection water hose) (Art. no. ME09037) can be used.			

NOTICE

Warning of material damage from improper installation

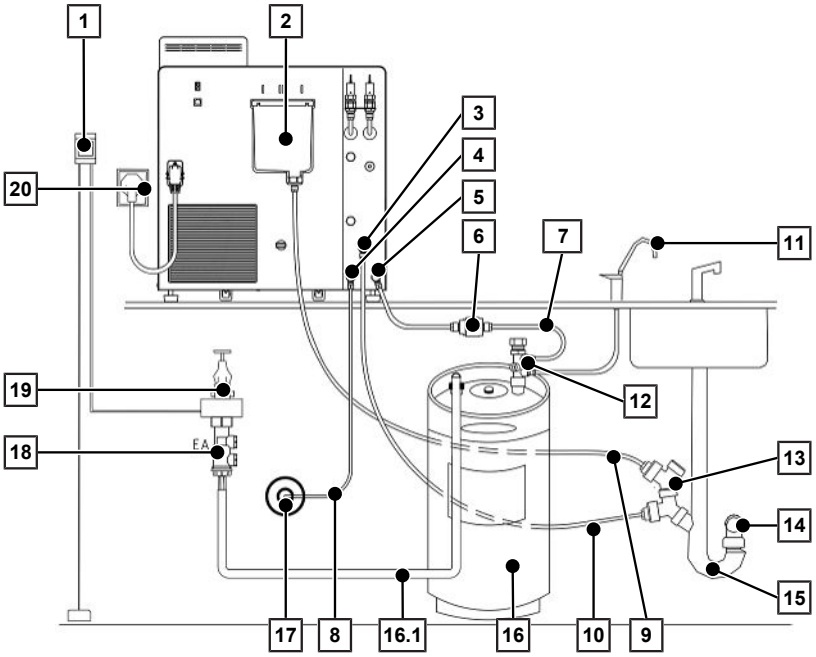
There is a risk of water damage if the water connection is installed improperly.

- Check all water connections and joints.

1. Cut the PUR 6/4 mm (5 m) hose for the compressed air supply and the feed water connection into two suitable pieces.
2. Connect the compressed air supply.
3. Connect the MELAdem 53/53 C water treatment unit to the feed water connection of the device either via a cold water adapter or using a water distributor.
4. Fasten the safety combination HD to the wall. When doing so, pay attention to the flow direction indicated on the safety combination. Observe the minimum distance of the fall section (25 cm) under the safety combination. **PLEASE NOTE:** An EN 1717 compliant installation to the drinking water system requires a water tap with safety combination.
5. Install the water stop.
6. Connect the overflow funnel and the wastewater connection of the device to the existing double chamber siphon of the domestic water supply, see Connecting the device to the wastewater [▸ page 52].
7. In the menu **`Settings`** > **`Water`**, check whether the water supply is set to **`Automatic`**.

Example 2 - Automatic water supply and disposal with ion exchanger MELAdem 53/53 C (EA)

Use the installation set supplied for installation. The direct connection of the water treatment unit to the domestic water supply also requires the installation of a water stop.



Position	Description	Art. no.	Note
1	Water stop (leakage water detector with shut-off valve and probe)	ME01056	--
2	Overflow funnel	--	present on device-side
3	**Wastewater connection**	--	--
3.1	Threaded connection (1/8" on hose 8/6 mm)	ME89120	present on device-side
4	**Compressed air connection**	--	--
4.1	Swivel elbow union 6/4mm x G 1/4	ME23006	included in installation set
5	**Feed water connection, water treatment unit**	--	--
5.1	Swivel elbow union 6/4mm x G 1/4	ME23006	included in installation set
6	Filter for MELAdem	ME48240	optionally available to order
7	PUR hose 6/4 mm (10 m, black)	ME28820	included in installation set
8	PUR hose 6/4 mm (10 m, black)	ME28820	included in installation set
9	PTFE hose (8/6 mm, 5 m)	ME39180	included in installation set
10	PTFE hose (8/6 mm, 5 m)	ME39180	included in installation set
11	Water tap for MELAdem	ME91900	optionally available to order
12*)	Water distributor for MELAdem 53	ME69005	optionally available to order

Position	Description	Art. no.	Note
13	2x **Double hose grommet for siphon**	ME37400	included in installation set
13.1	Copper seal for 1/4" external thread	ME32050	included in installation set
13.2	Screw-in fitting 1/4” OT on hose 8/6 mm	ME38710	included in installation set
13.3	Wastewater adapter G1/4" internal thread	ME56930	included in installation set
14	Wall drain NW40	--	on-site
15	Double-chamber siphon	ME26635	included in installation set
16	**MELAdem 53 with 2 containers (20 l each)/ MELAdem 53 C with 2 containers (15 l each)**	ME01036/ ME01038	optionally available to order
16.1	Connection hose (2.5 m)	ME70904	contained in ME01038/ ME01036
17	**Compressed air supply**	--	on-site
17.1	Coupling plug for compressed air to hose 6 mm	ME80230	included in installation set
18	Non return (check) valve type EA	ME75300	optionally available to order
19	Water tap 3/4" with safety combination	ME37310	optionally available to order
20	Mains connection	--	on-site
*) Alternatively, the Cold water adapter 3/4" to 1/4" (direct connection water hose) (Art. no. ME09037) can be used.			

NOTICE

Warning of material damage from improper installation

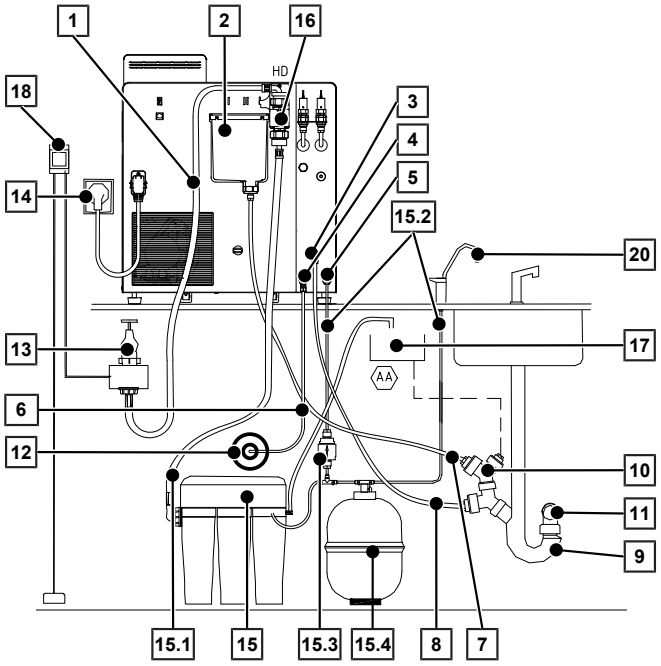
There is a risk of water damage if the water connection is installed improperly.

- Check all water connections and joints.

1. Cut the PUR 6/4 mm (5 m) hose for the compressed air supply and the feed water connection into two suitable pieces.
2. Connect the compressed air supply.
3. Connect the MELAdem 53/53 C water treatment unit to the feed water connection of the device either via a cold water adapter or using a water distributor.
4. Install the water stop.
5. Connect the overflow funnel and the wastewater connection of the device to the existing double chamber siphon of the domestic water supply, see Connecting the device to the wastewater [▸ page 52].
6. In the menu **`Settings`** > **`Water`**, check whether the water supply is set to **`Automatic`**.

Example 3 - Automatic water supply and disposal with reverse osmosis unit MELAdem 47 (HD)

Use the installation set supplied for installation. The direct connection of the water treatment unit to the domestic water supply also requires the installation of a water stop.



Position	Description	Art. no.	Note
1	Water inlet hose EN 1717 (2.5 m)	ME24930	--
2	Overflow funnel	--	present on device-side
3	**Wastewater connection**	--	--
3.1	Threaded connection (1/8" on hose 8/6 mm) (preinstalled)	ME89120	present on device-side
4	**Compressed air connection**	--	--
4.1	Swivel elbow union 6/4 mm x G1/4		contained in installation set
5	**Feed water connection, water treatment unit**	--	--
5.1	Swivel elbow union 6/4 mm x G1/4		contained in installation set
6	PUR hose 6/4 mm (10 m, black)	ME28820	contained in installation set
7	PTFE hose (8/6 mm, 5 m)	ME39180	contained in installation set
8	PTFE hose (8/6 mm, 5 m)	ME39180	contained in installation set
9	Double-chamber siphon	ME26635	contained in installation set
10	2x **Double hose grommet for siphon**	ME37400	contained in installation set
10.1	2x Copper seal for 1/4" external thread	ME32050	contained in installation set
10.2	2x Screw-in fitting 1/4” OT on hose 8/6 mm	ME38710	contained in installation set
10.3	2x Wastewater adapter (G1/4" internal thread)	ME56930	contained in installation set
11	Wall drain NW40	--	on-site

Position	Description	Art. no.	Note
12	**Compressed air supply**	--	on-site
12.1	Coupling plug for compressed air to hose 6 mm	ME80230	contained in installation set
13	Water tap 3/4" with safety combination	ME37310	optionally available to order
14	Mains connection	--	on-site
15	**MELAdem 47 reverse osmosis unit**	ME01047	--
15.1	Water inlet hose (2.5 m)	ME37220	contained in ME01047
15.2	PUR hose 6/4 mm (10 m, black)	ME28820	contained in ME01047
15.3	Filter for MELAdem	ME48240	contained in ME01047
15.4	Pressure tank MELAdem 47 (with shut-off valve and hose)	ME57065	contained in ME01047
16	Safety combination HD (assembly on the device)	ME82384	--
17	Type AA safety device for separation from wastewater disposal in accordance with EN 1717	--	on-site
18	Water stop (leakage water detector with shut-off valve and probe)	ME01056	--
19	Water tap for MELAdem	ME91900	optionally available to order
--	PTFE hose (8/6 mm, 5 m)	ME39180	optionally available to order

NOTICE

Warning of material damage from improper installation

There is a risk of water damage if the water connection is installed improperly.

- Check all water connections and joints.

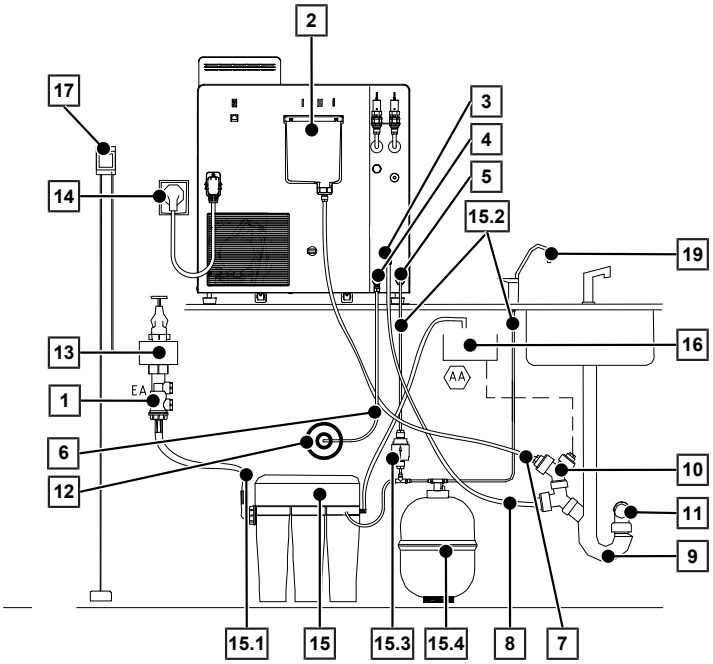
PLEASE NOTE

If the line pressure is less than 3 bar or if several devices are operated simultaneously, the pressure increase pump (Art. no. ME22500) for MELAdem 47 must be used.

1. Cut the PUR 6/4 mm (5 m) hose for the compressed air supply and the feed water connection into two suitable pieces.
2. Connect the compressed air supply.
3. Connect the MELAdem 47 water treatment system to the feed water connection of the device. Place the filter for MELAdem in between.
4. Hook the safety combination HD into the fastening next to the overflow funnel and fix it in place with the screw supplied. When doing so, pay attention to the flow direction indicated on the safety combination.
5. Install the water stop.
6. Connect the overflow funnel and the wastewater connection of the device to the existing double chamber siphon of the domestic water supply, see Connecting the device to the wastewater [▸ page 52].
7. In the menu **`Settings`** > **`Water`**, check whether the water supply is set to **`Automatic`**.

Example 4 - Automatic water supply and disposal with reverse osmosis unit MELAdem 47 (EA)

Use the installation set supplied for installation. The direct connection of the water treatment unit to the domestic water supply also requires the installation of a water stop.



Position	Description	Art. no.	Note
1	Non return (check) valve type EA	ME75300	--
2	Overflow funnel	--	present on device-side
3	**Wastewater connection**	--	--
3.1	Threaded connection (1/8" on hose 8/6 mm) (preinstalled)	ME89120	present on device-side
4	**Compressed air connection**	--	--
4.1	Swivel elbow union 6/4 mm x G1/4		included in installation set
5	**Feed water connection, water treatment unit**	--	--
5.1	Swivel elbow union 6/4 mm x G1/4		contained in installation set
6	PUR hose (black) 6/4 mm	--	contained in installation set
7	PTFE hose (8/6 mm)	--	contained in installation set
8	PTFE hose (8/6 mm)	--	contained in installation set
9	Double-chamber siphon	ME26635	contained in installation set
10	2x **Double hose grommet for siphon**	ME37400	contained in installation set
10.1	2x Copper seal for 1/4" external thread	ME32050	contained in installation set
10.2	2x Screw-in fitting 1/4” OT on hose 8/6 mm	ME38710	contained in installation set
10.3	2x Wastewater adapter (G1/4" internal thread)	ME56930	contained in installation set
11	Wall drain NW40	--	on-site

Position	Description	Art. no.	Note
12	**Compressed air supply**	--	on-site
12.1	Coupling plug for compressed air to hose 6 mm	ME80230	contained in installation set
13	Water tap	--	on-site
14	Mains connection	--	on-site
15	**MELAdem 47 reverse osmosis unit**	ME01047	--
15.1	Water inlet hose (2.5 m)	ME37220	contained in ME01047
15.2	PUR hose 6/4 mm (10 m, black)	ME28820	contained in ME01047
15.3	Filter for MELAdem	ME48240	contained in ME01047
15.4	Pressure tank MELAdem 47 (with shut-off valve and hose)	ME57065	contained in ME01047
16	Safety combination HD (assembly on the device)	ME82384	--
17	Type AA safety device for separation from wastewater disposal in accordance with EN 1717	--	on-site
18	Water stop (leakage water detector with shut-off valve and probe)	ME01056	--
19	Water tap for MELAdem	ME91900	optionally available to order
--	PUR hose 6/4 mm (10 m, black)	ME28820	optionally available to order
--	PTFE hose (8/6 mm, 5 m)	ME39180	optionally available to order

NOTICE

Warning of material damage from improper installation

There is a risk of water damage if the water connection is installed improperly.

- Check all water connections and joints.

PLEASE NOTE

If the line pressure is less than 3 bar or if several devices are operated simultaneously, the pressure increase pump (Art. no. ME22500) for MELAdem 47 must be used.

1. Cut the PUR 6/4 mm (5 m) hose for the compressed air supply and the feed water connection into two suitable pieces.
2. Connect the compressed air supply.
3. Connect the MELAdem 47 water treatment system to the feed water connection of the device. Place the filter for MELAdem in between.
4. Install the water stop.
5. Connect the overflow funnel and the wastewater connection of the device to the existing double chamber siphon of the domestic water supply, see Connecting the device to the wastewater [▸ page 52].
6. In the menu **`Settings`** > **`Water`**, check whether the water supply is set to **`Automatic`**.

Connecting the device to the wastewater

NOTICE

Warning of property damage due to incompatibility with care oil

Wastewater fittings may be damaged if they are not resistant to care oil.

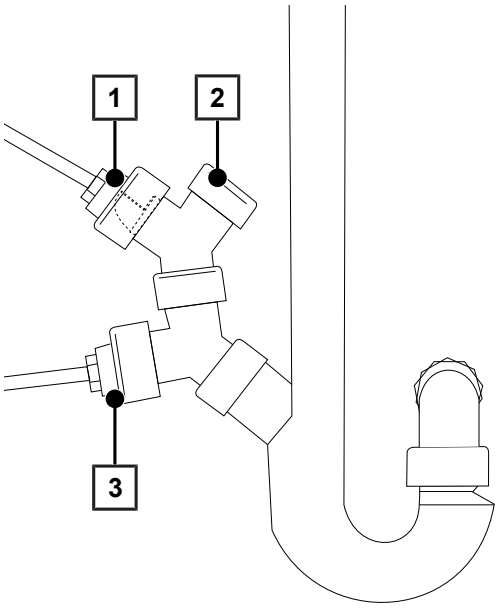
- Always use the Careclave connection set for connecting to the wastewater network.
- Connect the device exactly as shown in the following illustration

To ensure safe operation of the device, the wastewater must be able to flow freely and unobstructed to the wall outlet. Comply with the following:

- The outlet hose should be kept as short as possible (maximum 2.5 m).
- The outlet hose must be laid with a continuous fall and kink-free.
- The wall outlet should be located at least 30 cm under the device.

1. Cut two suitable outlet hoses from the supplied PTFE hose.
2. Remove the check valve from the double hose nozzle (pos. 3) for connecting the wastewater connection.
3. Connect the overflow funnel (pos. 1) and the wastewater connection (pos. 3) of the device with separate hoses via the double hose nozzle to a double chamber siphon.
4. Pour 500 ml into the overflow funnel and perform a drain test.

   ↪ The overflow funnel must empty within 30 s.



1 Outlet hose overflow funnel with check valve
2 Optional wastewater connection for another device or a water treatment unit
3 Outlet hose without check valve

Connecting the 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 137].

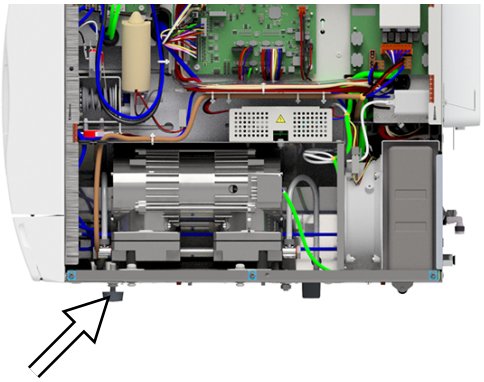
1. Assemble the compressed air connection consisting of the banjo bolt (G 1/4"), screw-in fitting, and two copper seals (13.5×18.5).
2. Mount the assembled compressed air connection on the steam sterilizer.
3. Shorten the PUR 6/4 hose to the required length.
4. Connect the PUR hose to the steam sterilizer.
5. Connect the PUR hose with the coupling plug to the compressed air supply on the building side.

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 Program options [▸ page 99].

Aligning the device

The unit feet are already preset and locked based on a horizontal worktop. If the worktop is not horizontal, the front feet of the unit must be unscrewed by about three rotations from the horizontal position of the chamber in order to give the device a slight backwards tilt.

1. Place a spirit level on the chamber flange.
2. Align the device horizontally.
3. Unscrew the front device feet by three turns.



Checking the software version

1. Open the status of the device with ℹ in the header of the display.
2. Check the software version.
3. Update the software if necessary, see Software update [▸ page 105].

Checking water supply and disposal

1. Check the water supply and disposal in the **`Settings> Water`** menu.
2. If necessary, set the water supply and disposal according to the installation variant, see Installation examples [▸ page 43].

Checking 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, as this is not adjusted automatically.

1. Check the date and time in the header of the display.
2. If necessary, set the date and time in the **`Settings`** menu, see Date and time [▸ page 97].

Checking the display brightness and volume

1. If necessary, adjust the brightness of the display in the **Settings** > **Brightness** menu, see Display brightness [▸ page 98].
2. If necessary, adjust the volume in the **Settings** > **Volume** menu, see Volume [▸ page 98].

Test runs

Carry out the following test runs after the installation and record the results in the installation log.

Drain test

Carry out a drain test after installing the water supply/disposal.
PLEASE NOTE: In case of parallel operation of multiple devices, include the wastewater quantity of all devices and perform the test while the other devices are in operation.

▶ Pour 500 ml into the overflow funnel.

➥ The overflow funnel must empty within 30 s.

Vacuum test with cold sterilization chamber

Carry out a **Vacuum test** with an empty, cold sterilization chamber.

Universal-B program

If the vacuum test was successful, run the **Universal-B** program with 1.5 kg load (instruments).

Check for leaks

After the **Universal-B** program, check the installed hose connections for leaks.

Program Care-Therm

Run the **Care-Therm** program with the Carebox inserted.

Carebox test

Run the service program **Carebox test** for each available Carebox.

Oil dosing air removal

Run the service program **Oil dosing venting** without instruments.

PLEASE NOTE To run the **Oil dosing venting** service program, it is necessary to log in as an **Administrator** or **Service technician**.

Electrical test in accordance with EN 50678 (VDE 0701) or national standard

This check is only necessary if the housing has been opened.

Resetting the maintenance counter

The maintenance counter runs even in device not yet in operation.

▶ Reset the maintenance counter, see separate instructions “Resetting the maintenance counter“ (doc. AS_001-21).

Setting up the Carebox

1. Remove the Carebox from its packaging.
2. Replace the preinstalled adapters for unused connections with the required instrument adapters, see Installing adapters [▸ page 59].
3. If necessary, replace the supplied Carebox identification label with an individually labelled version.

Instructing the users

Explain all user-typical properties for the documentation and setting options for the user in accordance with the record of installation.

The documents included in the scope of delivery (e.g. works test certificate) must be kept by the operator. The declaration of conformity of the Pressure Equipment Directive and the Medical Devices Regulation are included in the manufacturer's inspection report.

7 First steps

Starting up the device

The following must be fulfilled or present:

- ✓ The device is connected to the power supply.
- ✓ The feed water supply is secured, see Feed water supply [▸ page 58].
- ✓ The wastewater disposal is secured.
- ✓ The compressed air supply is secured.

1. Start up the device by pressing the power button, see Device views [▸ page 15].
   - ➥ The start screen appears on the display.
   - ➥ The double jacket steam generator is preheated after filling.

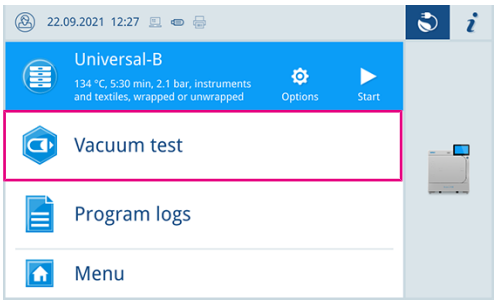
PLEASE NOTE

In the case of automatic feed water supply, the device may attempt to supply feed water into the feed water tank after start-up.

If no feed water is available yet, a malfunction message is displayed, see Malfunctions [▸ page 121].

2. Wait until the favourites menu is displayed.
   PLEASE NOTE: You can start a program immediately without waiting for the ▸preheating time.

   Within the first 30 s after the device is started, switch to the `Vacuum test` to prevent automatic preheating.



Opening and closing the door

The device has 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.

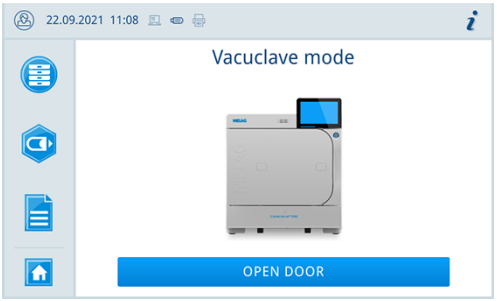
Please observe the following when opening the door:

- Never use force to open the door.

The following must be fulfilled or present:

✓ The device is switched on and booted up.

▶ Open the door by pressing **OPEN DOOR**.
The button is displayed when the menu area is minimised.



↪ The door unlocks automatically.

Closing the door

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

- Do not slam the door.
- Keep pressing the door closed until the door lock engages.

1. Press the door firmly for at least 3 s.

   ↪ The door locks automatically.

↪ After the door has been closed, the display returns to the default view.

↪ The door is locked pressure-tight upon program start.

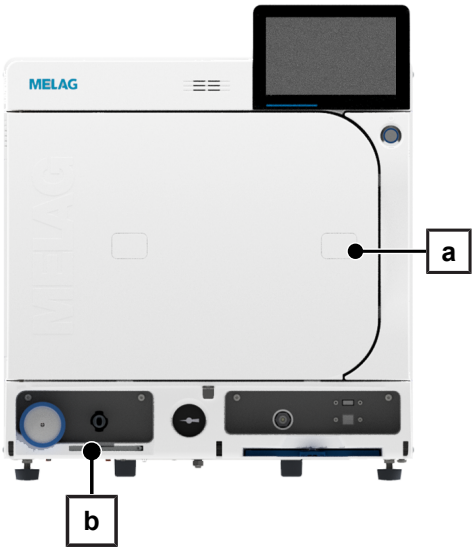
PLEASE NOTE The door can only be closed with the oil can inserted. For safety reasons, the automatic door lock is deactivated when no oil can is present, see Replacing the oil can [▸ page 111].

Manual door emergency opening

The door can be opened manually via the emergency opening following a power failure or malfunction.

1. Switch off the device 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

Warning of scalding

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.

The water that may be present can be seen through the transparent lower section of the Carebox.

- Never touch the load, the sterilization chamber or the door with unprotected hands.

4. Tighten the Allen key clockwise.

   ➥ The door opens a crack.

5. Remove the Allen key.

6. Open the door and return the cover cap.

Feed water supply

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

The feed water is either supplied via a separate water treatment unit (e.g. MELAdem 47) or a filling pump with external reservoir.

The steam sterilizer requires approx. 4 l of feed water for the first filling of the steam generating system.

Use of a water treatment unit

A water treatment unit is directly connected to the drinking water supply. The respective system is selected in accordance with the number of sterilization runs per day and the type of the load.

❗ PLEASE NOTE

Should you wish to use a water treatment unit from another manufacturer, consult MELAG.

Using an external storage container

⚠ WARNING

Warning of contamination

Algae growth contaminates the feed water in the storage container.

- To prevent algae from forming, do not expose the storage container to sunlight.

For the feed water supply via an external storage container, the feed water is pumped into the device via a filling pump. For a storage container with a capacity of 25 l, the quantity of feed water is sufficient for at least 10 sterilizations.

1. Fill the storage container with a sufficient quantity of demineralised water.
2. Before each program start, check the condition and level of the feed water in the storage container.

Installing adapters

Comply with the following for safe handling:

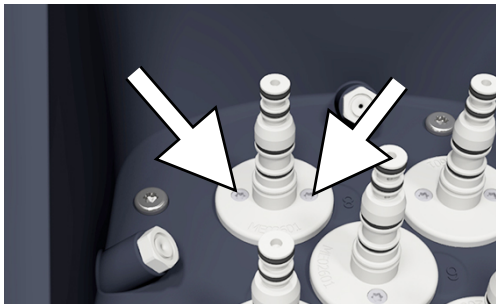
- Use the accessories only for the Careclave. Disregard can cause personal injuries or damage to the device.
- When using additional accessories from other manufacturers to secure instruments, especially hollow-body instruments, follow the instructions in the operating manual provided by the manufacturer of the accessories.
- Before using the accessories for the first time, check them for manufacturing residues and damage. Clean the accessories in the device. To do so, carry out a suitable program without load.

Depending on the adapter, also follow the steps in the following table; see Installing special adapters [▸ page 60].

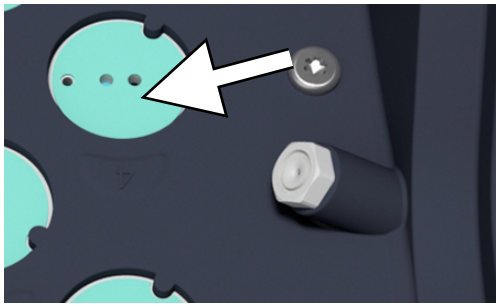
The following must be fulfilled or present:

- ✓ Instrument adapter or adapter for unused connections
- ✓ One new sealing washer, one new O-ring and screws for each adapter
- ✓ Screwdriver TX6

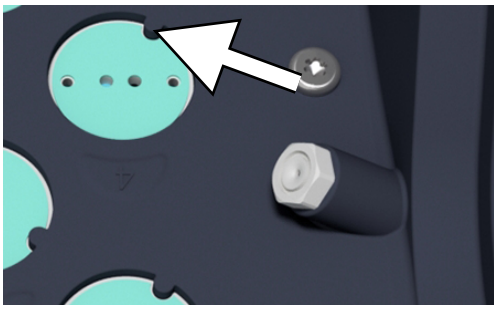
1. Unscrew the screws of the existing adapter and remove the adapter from the Carebox.



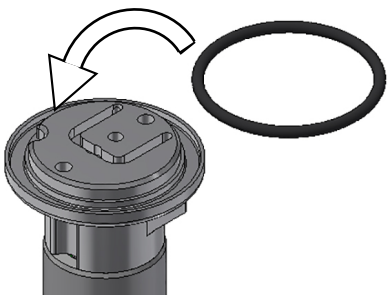
2. Remove the sealing washer and any residue from the seal. Be careful not to scratch the sealing surface of the Carebox.



3. Insert the new sealing washer by aligning it with the notch and hole pattern in the Carebox.



4. Replace the O-ring on the inside of the adapter foot.

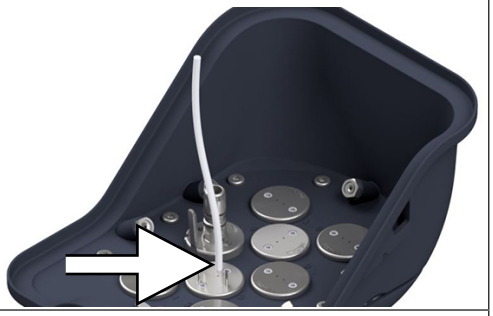


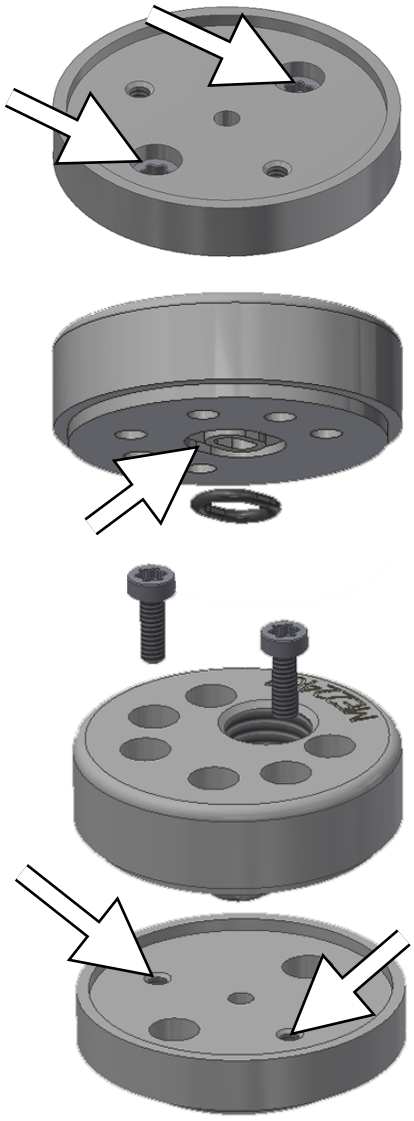
5. Insert the new adapter by aligning it with the notch in the Carebox.

6. Screw the adapter tight.

7. Carry out the **`Carebox test`**, see Carebox test [▸ page 94].

Installing special adapters

Carebox	Adapters	Installation	
Carebox Blue	Adapter for external spray channels (basic adapter)	▶ Install the in position 3 or 6 so that the external spray channels can be easily connected to the hoses.	
	Adapter for KaVo contra-angle heads	✓ An adapter for ISO coupling (INTRA) is installed, see Installing adapters [▸ page 59]. ▶ Fit the adapter for KaVo/BienAir on an ISO adapter.	
	Adapters with union nut	1. Turn the union nut of the adapter until the openings for the fixing screws are accessible. 2. Screw the adapter tight.	

Carebox	Adapters	Installation	
Carebox Green	Adapter M8x1, eccentric	**1.** Screw the lower section of the adapter tightly onto the Carebox, see Installing adapters [▸ page 59]. **2.** Check whether the O-ring is present in the upper part of the adapter and insert it if necessary. **3.** Screw the upper section onto the lower section.	
	Adapters with side latch fastener	✓ The adapter connection M8x1, concentric or eccentric, is installed. ▶ Screw the instrument adapter hand-tight onto the adapter connection M8x1, concentric or eccentric.	
	Adapters for ultrasonic and air scaler tips	✓ The adapter connection M8x1, concentric or eccentric, is installed. **1.** Attach a marking disc if you want to distinguish multiple tips from each other visually, see Marking discs [▸ page 33]. **2.** Screw the instrument adapter hand-tight onto the adapter connection.	
	Adapters for ultrasonic handpieces	✓ The adapter connection M8x1, concentric or eccentric, is installed. ▶ Screw the instrument adapter hand-tight onto the adapter connection.	

8 Important information for routine operation

Manufacturer's recommendation for the routine operation of type B steam sterilizers[2)]

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 gasket 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.
Once a week	• Vacuum test • **Tip:** In the morning, 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 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 test strips used need not be stored.

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

9 Reprocessing in Careclave mode

Video tutorial

See also “Operation” (https://www.melag.com/service/tutorial/careclave).

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 download this in the MELAG download centre at www.melag.com (*Validation and manufacturer recommendation*).

- Create a work instruction for your practice’s quality management system on instrument reprocessing. Use the example hygiene plan from MELAG as a reference.

Preparing the load

Preparation and pre-cleaning

Comply with the following for safe handling:

- ▸KRINKO/▸BfArM (2012) recommend that instruments of the risk class “Semi-critical B” and “Critical B” are subjected to precleaning directly after use.
- 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 precleaning. These include ultrasound gels and other auxiliary substances.
- 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.
- 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.
- Instruments that are permanently contaminated or not maintained may not be processable or may be damaged during processing.

Loading the Carebox

WARNING

Warning of contamination

When loading the Carebox, you may injure and infect yourself on contaminated instruments with sharp edges and points.

- Wear appropriate personal protective equipment when loading the Carebox (e.g. suitable protective gloves).

NOTICE

Warning of material damage from incorrect loading

Incorrect care in the Carebox may damage instruments.

- Observe the type of Carebox (Blue/Green) when loading.
- Instruments which require care (oiling) belong in the Carebox Blue.
- Instruments which may not be cared for (oiled) belong in the Carebox Green.

Comply with the following for safe handling:

- Only steam sterilisable, dental transmission and hollow body instruments may be reprocessed in the Carebox. These must be fastened on the adapters provided for this purpose.

- Only use instruments intended for mechanical reprocessing by the manufacturer. Please ensure that you observe the information provided by the instrument manufacturers according to ISO 17664. It is important to comply with the specifications from the instrument manufacturer regarding cleaning instruments for the first time after purchasing new instruments.
- Instruments should be reprocessed immediately after use.
- It is not possible to reprocess instruments that are not fixed on adapters.
- Instruments must only be processed on compatible, correctly mounted adapters.
- Only use instruments made of stainless steel or other non-corroding materials.

The following must be fulfilled or present:

✓ The Carebox is intact and clean, see Maintaining the Carebox [▸ page 114].

✓ All adapters required are installed in the Carebox, see Installing adapters [▸ page 59].

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

PLEASE NOTE

MELAG recommends that the Carebox be fully loaded. If necessary, adapters can remain unfitted. This does not reduce the oil consumption.

In case of partial loading, after the reprocessing process, there may be more oil on the external areas of the instruments.

1. Disinfect the surface on the dirty side of the reprocessing room where the Carebox is to be placed for loading. Alternatively, use a hygienic disposable underlay.
2. Bring the Carebox to the dirty side and place it on the hygienically clean surface.
3. Open the Carebox and hold the Carebox upper section in one hand while using the other hand to insert the instruments onto the adapters until they stop.

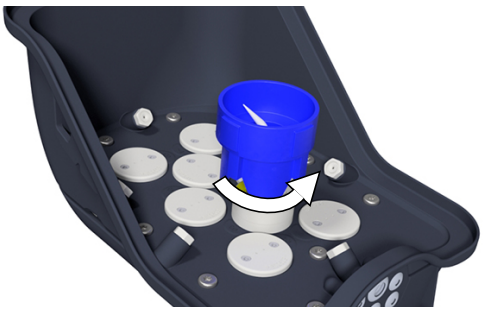
   ➥ The heads point sideways to the edge.

   ➥ The instruments engage audibly and noticeably.

4. **Optional:** Attach instruments to special adapters according to the following table; see Loading the Carebox [▸ page 65].
5. Check that the instruments are seated correctly by gently pulling.
6. Place the Carebox upper section back onto the lower section as quickly as possible. Leave the Carebox latches open for now.
7. **WARNING! Warning of contamination. Wearing contaminated gloves can result in secondary contamination on the clean side of the reprocessing room. Change your gloves before disinfecting the Carebox.**
8. With the Carebox upper section in place, disinfect all outer surfaces of the Carebox using a virucidal surface disinfectant. **PLEASE NOTE:** Also pay attention to heterogeneous surface areas such as the filter grilles and the grooves on the underside of the handle.

9. Disinfect the surfaces underneath the locking handles before closing the Carebox.
10. **NOTICE! Warning of property damage. Forcing the Carebox closed may damage it. Check that the cover is properly seated if the locks are difficult to close.** Press down the locking handles of the Carebox on both sides until you hear and feel them engage.
11. Disinfect the underside of the Carebox, paying attention to the recesses between the support ribs.
12. Disinfect the resting surface for the Carebox before placing it down again after disinfection.
13. Remove your personal protective equipment and perform hygienic hand disinfection.
14. Bring the Carebox into the clean area as quickly as possible.

Attaching on special adapters

Carebox	Adapters	Installation	
Carebox Blue	Adapter for external spray channels (basic adapter)	✓ A suitable adapter for the instrument to be connected is additionally installed. 1. Cut the silicone hose included in the scope of delivery to the required length. **PLEASE NOTE:** The silicone hose may not sag, form loops or fit too tight. 2. Push the silicone hose onto one of the channels at the edge of the adapter. 3. Plug the instrument onto the matching adapter. 4. Connect the silicone hose to the external spray channel of the instrument.	
Carebox Green	Adapters for ultrasonic and air scaler tips	▶ Screw the tip onto the adapter using the torque spanner provided by the instrument manufacturer. **PLEASE NOTE:** Reprocessing with a torque spanner connected is possible, provided that this has been approved by the manufacturer for automatic reprocessing.	
	Adapters for ultrasonic handpieces	▶ Screw the handpiece onto the adapter.	

Inserting the Carebox

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 outside of the Carebox is dry and cooled down.
- ✓ There is no metallic foreign body on the magnet of the lower section of the Carebox.
- ✓ The sterilization chamber is dry.

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, see Opening and closing the door [▸ page 56].

➥ Careclave is ready for program selection.

NOTICE

Warning of material damage due to drying contamination

Heating up the device can cause contaminants to dry onto instruments if the program is not started promptly. If no program start has occurred after twenty seconds, the warning “Carebox warming” is displayed and a warning tone is emitted.

- Immediately make a program selection and start Careclave.

Selecting the program

Video tutorial

See also “Program selection” (https://www.melag.com/service/tutorial/careclave).

⚠ WARNING

Warning of contamination

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

- Ensure that the selected program matches the device load in order to guarantee successful reprocessing.

⚠ WARNING

Warning of secondary contamination

If you touch the device with the same gloves that have come into contact with contaminated parts, there is a risk of secondary contamination.

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

Overview of Care-Programs

Program	Packaging	Especially suitable for	Load	Operating time[3]	Drying
Care-Therm[1] A0 > 3000	Carebox[2]	• Transmission instruments “Semi-critical B”	Carebox with intended loading (max. 8 pcs)	18:25 min	3:04 min
Care-S[4] 134°C 2.1 bar 3:30 min	Carebox[2]	• Transmission instruments “Semi-critical B“[5]	Carebox with intended loading (max. 8 pcs)	23:24 min	3:04 min
Care-B[4][6] 134°C 2.1 bar 5:30 min	Carebox	• Transmission instruments “Semi-critical B“[5]	Carebox with intended loading (max. 8 pcs)	43:30 min	15 min
	Single and multiple wrapped instruments	• Instruments “Critical B” with narrow lumen	Sterilization chamber: short mount for trays with solid load of max. 5 kg		

[1] Wait at least four minutes between two Care-Therm programs.

[2] Reprocessing takes place exclusively in the Carebox. No reprocessing takes place in the sterilization chamber.

[3] Including drying when fully loaded and depending on load and installation conditions (e.g. mains voltage); operating times with Carebox Green are approx. two minutes shorter. If the feed water or ambient temperature is too high, the operating time can be extended by up to eight minutes.

[4] Perform cleaning and disinfection of the instruments before sterilization.

[5] The transmission instruments are heated with steam and must be temperature-resistant up to 135 °C.

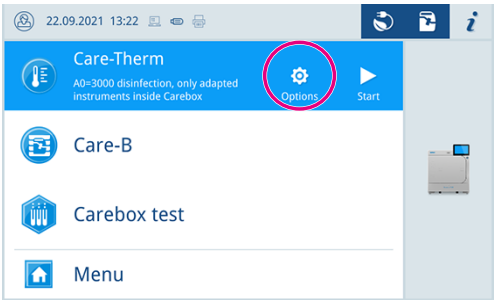
[6] When reprocessing instruments in the sterilization chamber, observe the sections on preparation, loading, removal and storage, see Reprocessing in Vacuclave mode [▸ page 77].

Options

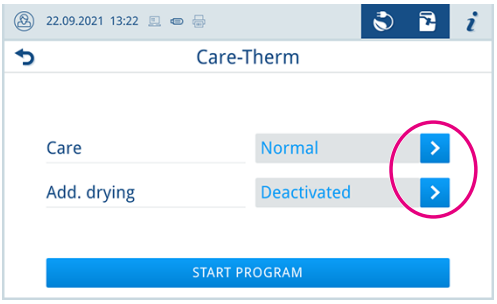
Use the **Options** button to customize default settings for the selected program. Basic default settings can be configured in the Program options menu, see Program options [▸ page 99].

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, see Program options [▸ page 99].



3. Start the program with **START PROGRAM**.
4. If **Authentication at Reprocessing program start** is activated, enter the PIN, see Authentication [▸ page 104].

Starting the program

The following must be fulfilled or present:

- ✓ The sterile filter is screwed into the device.
- ✓ The load has been prepared, see Preparation and pre-cleaning [▸ page 63].
- ✓ The Carebox is loaded and hooked in, see Loading the Carebox [▸ page 63] and Inserting the Carebox [▸ page 66].
- ✓ The date and time are set correctly, see Date and time [▸ page 97].
- ✓ The desired program has been selected.

1. Press **START PROGRAM**.
2. Confirm the subsequent dialogue window with **START PROGRAM**.
3. If **Authentication at Reprocessing program start** is activated, enter the PIN, see Authentication [▸ page 104].

↪ 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.

Manual program abort

⚠ WARNING

Warning of contamination

If a program is terminated before drying starts, the load is **not** sterile.

- Re-wrap the load if necessary.
- Repeat the sterilization of the load.

⚠ CAUTION

Warning of scalding

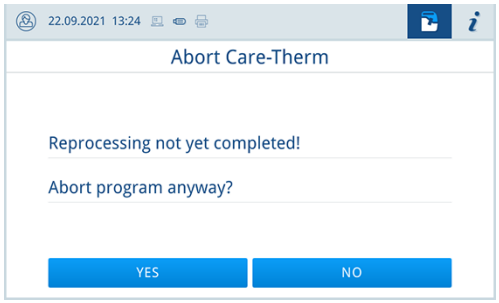
When the door is opened after a program abort, hot steam may escape and hot water may be present in the sterilization chamber and the Carebox. This could result in scalding.

The water that may be present can be seen through the transparent lower section of the Carebox.

- Never touch the load, the sterilization chamber or the door with unprotected hands.

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

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

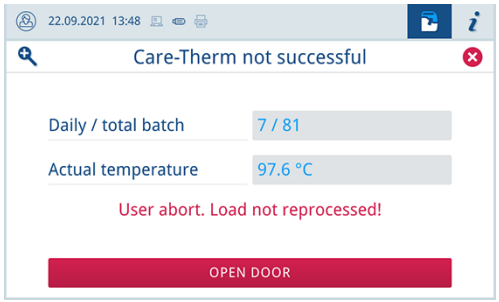


➥ The load is not processed.

➥ Cancelling the program can take a few minutes as steam and condensate are removed from of the chamber.

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

PLEASE NOTE: By pressing 🔍, you can display additional values for the completed program (e.g. the plateau period or the conductivity).



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.

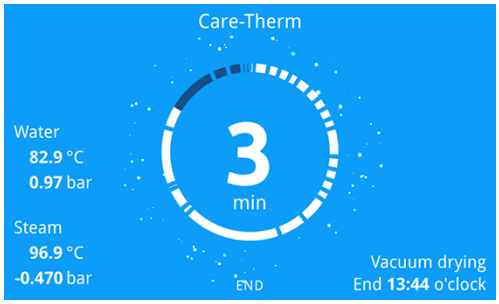
Ending the program prematurely

You can end the program prematurely. If you exit the program before the drying has finished, the load is not completely dried and should be used immediately.

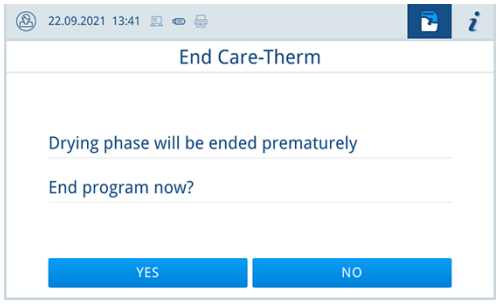
The following must be fulfilled or present:

✓ The reprocessing program is in the drying phase.

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



2. Confirm the end of drying with **YES**.



➥ The program will be aborted prematurely.

Program is ended

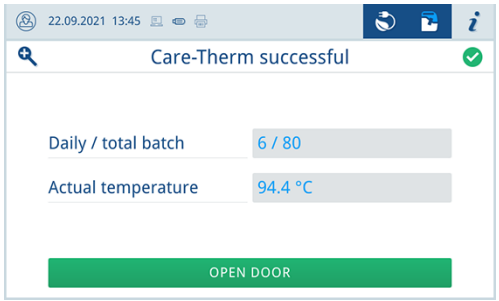
PLEASE NOTE If the program has been carried out successfully, a corresponding message appears on the display and the status LED below the display illuminates green.

- Repeat the program if the display indicates the program was unsuccessful or the LED does not light up green.

1. Before opening the door, press the magnifying glass symbol to look up other values of the exited program (e.g. the plateau period or the conductivity).

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

   PLEASE NOTE: By pressing 🔍, you can display additional values for the completed program (e.g. the plateau period or the conductivity).



3. If **Authentication at Reprocessing program end** is activated, enter the PIN, see Authentication [▸ page 104].

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 “Anforderungen an die Hygiene bei der Aufbereitung von Medizinprodukten” [Hygiene requirements for the reprocessing of medical devices], instrument reprocessing ends with the documented approval. The approval process includes batch approval and must be carried out by authorised and competent personnel. For the **Care-B** program, the indicator of the test body system is also evaluated, see Indicator assessment [page 85].

Batch approval

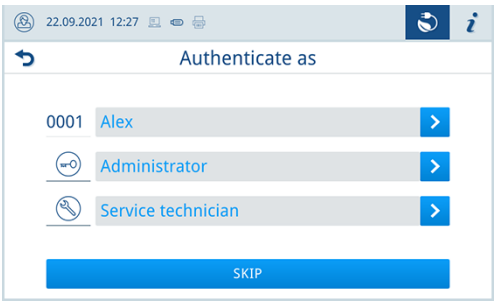
The batch approval includes checking the process parameters using the reprocessing results at the device and the log as well as checking the individual wrapped and unwrapped instruments for damage and residual moisture. The log records the approval of the batch and any indicators.

The following must be fulfilled or present:

✓ Batch approval is activated, see Batch approval [page 104].

1. When prompted for batch assessment, press **YES** to release the batch.

2. If a user PIN is required to release the batch, enter the PIN, see Authentication [page 104].



➥ The batch approval result is logged and program post-processing continues.

Removing the Carebox

⚠ CAUTION

Warning of burns

After the completion of a program run, the Carebox is hot. There is a risk of burns from hot parts and hot condensate during removal.

- Never touch the load, the sterilization chamber or the door with unprotected hands.
- Use heat protection gloves to remove the Carebox.

Comply with the following specifications when removing the Carebox:

- 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.
- 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, see Opening and closing the door [▸ page 56].

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 73].

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.

1. **NOTICE! The Carebox upper section may only be handled with an aid, e.g. a protective glove.**
   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.

Removing instruments from Carebox

⚠ WARNING

Warning of contamination

If adapters and/or instruments are loose after reprocessing, there is a risk that they were insufficiently processed. **Sterility cannot** be guaranteed.

- Check all instruments and adapters for tight fit.
- If necessary, carry out the reprocessing again, after you have ensured tight and correct fit.

⚠ CAUTION

Warning of burns

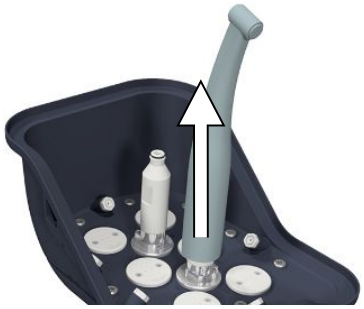
After the completion of a program run, the instruments in the Carebox are hot. There is a risk of burns from hot parts and hot condensate during removal.

- Never touch the load, the sterilization chamber or the door with unprotected hands.
- Only remove sufficiently cooled instruments and hollow bodies.
- Take additional cooling measures if needed; see the following table.

Cooling times overview

Use of the Cooling Box (art. no. ME11000)	approx. 4 min
Cooling in ambient air (opened Carebox)	min. 15 min
Cooling in ambient air (closed Carebox)	min. 30 min

1. Hold the upper section of the Carebox with one hand.
2. Firmly and straightly pull the instrument upward off the adapter using the other hand.



3. **Optional:** Remove instruments from special adapters according to the following table.
4. Keep the Carebox on the clean side of the reprocessing room.

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.

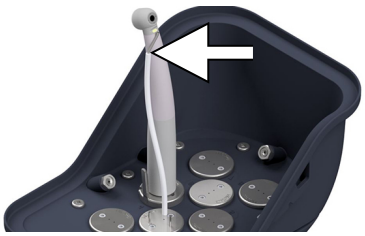
Removing special adapters

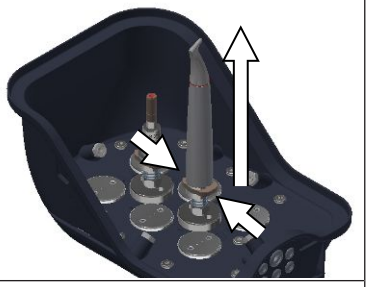
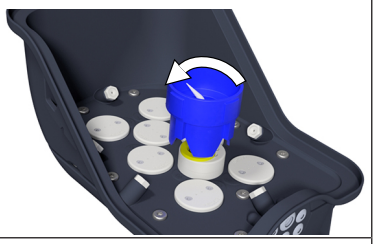
WARNING

Warning of contamination

For adapters for external spray channels, loosely seated silicone tubes may slip off the channels during the program run and result in reduced cleaning performance.

- Check the instruments after the program for slipped silicone hoses.
- If silicone hoses have slipped off, the instrument concerned must be reprocessed again.

Carebox	Adapters	Installation	
Carebox Blue	Adpapter for external spray channels (basic adapter)	1. Pull the silicone hose off the external spray channel of the instrument. 2. Remove the instrument. 3. Pull the silicone hose off the external spray channel of the adapter.	 
	Adapters with union nut	▶ Turn the union nut of the adapter and pull the instrument forcefully straight upwards off the adapter.	

Carebox	Adapters	Installation	
Carebox Green	Adapters with side latch fastener	▶ Operate the side latch fastener and pull the instrument forcefully straight upwards off the adapter.	
	Adapters for ultrasonic and air scaler tips	▶ Use a torque spanner to unscrew the tip from the instrument adapter.	
	Adapters for ultrasonic handpieces	▶ Unscrew the handpiece from the adapter.	

Oiling the chucks

Video tutorial

See also “Chuck care” (https://www.melag.com/service/tutorial/careclave).

PLEASE NOTE

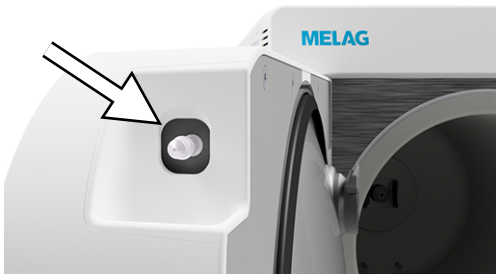
To ensure proper functioning of the chucks, MELAG recommends oiling them once a week. Chuck care must be performed after reprocessing with the Carebox.

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

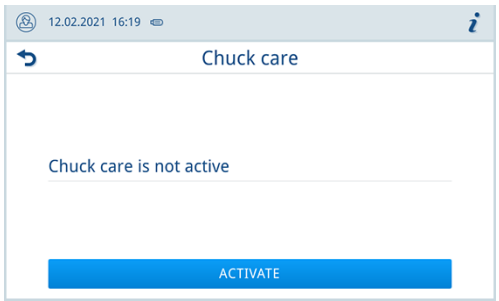
The integrated ADDcare care station can be used to care for the instruments. Proceed as follows:

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.



3. Press `ACTIVATE`.
PLEASE NOTE: If chuck care is not performed, the dialog is automatically closed.



4. Briefly press the instrument onto the nozzle with the chuck unlocked to perform chuck care.
PLEASE NOTE: Do not hold down the push button during chuck care of KaVo instruments.

5. Press the instrument briefly onto the nozzle repeatedly until oil emerges from the instrument head.
PLEASE NOTE: The amount of care oil applied to the transmission instruments is sufficient for the next treatment.
6. Carefully clean the nozzle with a dry, lint-free cloth.
7. Press the chuck care button to switch off chuck care.
8. Press **DEACTIVATE**.

PLEASE NOTE If chuck care is not performed, the dialog is automatically closed.

10 Reprocessing in 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.

Comply with the following for safe handling:

- Only ever use packaging material and systems which have been cleared by their manufacturer for steam sterilization.
- Only use original MELAG articles or third-party articles approved by MELAG. No warranty can be provided for non-approved third-party articles, even if validation has been successfully carried out.

Reprocessing 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.

When ▸reprocessing used and brand-new instruments, comply with the following:

- Always observe both the instrument manufacturer's reprocessing instructions and the relevant standards, guidelines 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 washing and disinfecting, where possible with demineralised or distilled water, and then dry the instruments thoroughly with a clean, non-fuzzing cloth.
- Re-dry the spray, air and water channels using medical compressed air.
- 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. MELAG recommends the use of MELAG Care Oil Spray.
- When using ultrasound devices, care equipment for handpieces and washer-disinfectors, comply with the manufacturer's reprocessing instructions.
- Remove any residual disinfection and cleaning fluids to avoid corrosion. Otherwise, this could result in increased maintenance requirements and a restriction of the device function.
- Instruments that are permanently contaminated or not maintained may not be processable or may be damaged during processing.

Reprocessing textiles

The incorrect reprocessing of textiles, e.g. a textile package can prevent steam penetration or produce poor drying results. This may result in the textiles **not** being sterile.

Comply with the following points when ▸reprocessing textiles and placing the textiles in sterile containers:

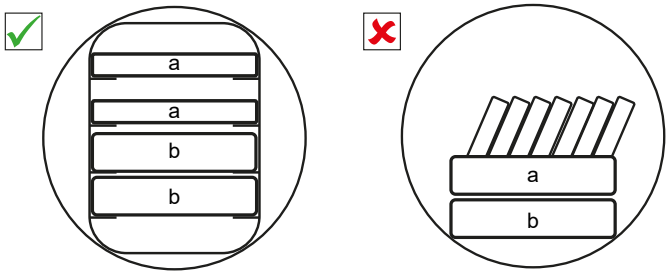
- Comply with both the reprocessing instructions of the textile manufacturer the relevant standards, guidelines and directives (in Germany e.g. of the ▸RKI and ▸DGSV).
- Arrange the folds in the textiles parallel to each other.
- Stack textiles vertically wherever possible and not too closely together in the sterile 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.

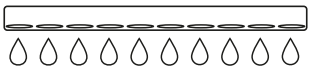
Ensure the following during loading:

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



a Tray
b Sterile container

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



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 package, paper pouches, sterilization paper, textiles or fleece.

Closed sterile containers

Please comply with the following when using closed sterile containers:

- Use aluminium sterile containers. Aluminium retains and conducts heat and thus accelerates drying.
- Closed sterile containers must be either perforated or have a valve on at least one side. MELAG sterile containers, e.g. MELAstore Box, fulfil the requirements for successful sterilization and drying.
- Wherever possible, ensure that sterile 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 sterile containers so that the condensate can drain off.

Soft sterilization packaging

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

- Arrange transparent sterilization packages on edge and close together. If this is not possible, place them 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 pouches are facing each other.
- If the seal seam tears during sterilization, this could be caused by the choice of undersized packaging. Pack the instruments with larger packaging and perform sterilization again.
- Should the seal seam tear during sterilization despite sufficient bag size, adjust the sealing temperature on the sealing device or make a double seam.

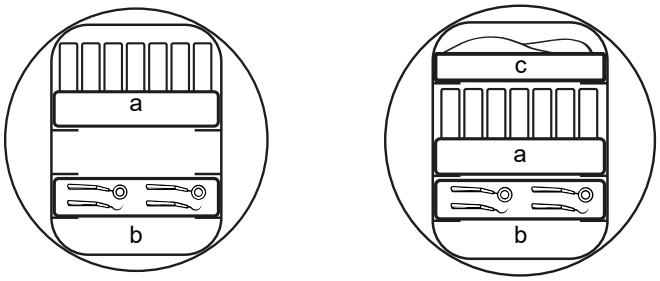
Multiple wrapping

The device uses a fractionated vacuum procedure. This permits the use of multiple wrapping.

Mixed loads

Please observe the following when sterilizing mixed loads:

- Always place textiles at the top
- Sterile containers at the bottom
- Place unwrapped instruments at the bottom
- Place the heaviest loads at the bottom
- Transparent sterilization packages and paper packages on the top. Exception: At the bottom in combination with textiles



a Wrappings
b Heavy loads/instruments
c Textiles

Load quantities

Max. weight per component

Load*)	
Max. weight per component	2 kg
*) for MELAG mounts, trays, sterile containers, see Components, accessories and spare parts [page 139]	

Selecting the program

All sterilization programs are displayed in the **`Programs`** menu. The following tables list the correct program for each load.

When selecting the sterilization program, proceed as follows:

- Select the sterilization program based on which products you want to sterilize.
- Select the sterilization program according to whether and how the load is wrapped.
- Observe the permissible max. load quantities.
- Note the temperature resistance of the load.

Overview of sterilization programs

Program	Especially suitable for		Maximum load quantity	Operating time*)	Drying
 Universal-B 134 °C 2.1 bar 5:30 min	• transmission instruments • products with narrow lumen • simple hollow bodies	Instruments: • single wrapped • double wrapped • unwrapped	 6 kg 6 kg 11 kg	13-20 min	5-30 min
		Textiles: • double wrapped	2 kg		
		Sterile container	11 kg		
		Mixed load: • textile • container/ unwrapped instruments	 1.5 kg 5.5 kg		
 Quick-S 134 °C 2.1 bar 3:30 min	• simple solid instruments • simple hollow bodies	Instruments: • unwrapped	 7 kg	9-15 min	5-30 min
		No textiles and sterile containers			
 Gentle B 121 °C 1.1 bar 20:30 min	• thermo-unstable equipment (e.g. plastic, rubber, textiles) • products with narrow lumen • simple hollow bodies	Instruments: • single wrapped • double wrapped • unwrapped	 6 kg 6 kg 11 kg	27-37 min	5-30 min
		Textiles: • double wrapped	2 kg		
		Sterile container	11 kg		
		Mixed load: • textile • container/ unwrapped instruments	 1.5 kg 5.5 kg		

Program	Especially suitable for		Maximum load quantity	Operating time*)	Drying
Prion-B 134 °C 2.1 bar 20:30 min	Instruments with more stringent sterilization requirements**): • products with narrow lumen • simple hollow bodies	Instruments: • single wrapped • double wrapped • unwrapped	 6 kg 6 kg 7 kg	28-35 min	5-30 min
		Textiles: • double wrapped	 2 kg		
		Sterile container	6 kg		
		Mixed load: • textile • container/ unwrapped instruments	 1.5 kg 5.5 kg		

*) Without drying, with a minimal to full load and dependent on the load / packaging and setup conditions (such as e.g. mains voltage) If the device is started cold, the time may be extended by a few minutes.

**) The Prion-Program provides an extended plateau period at 134 °C to help reduce the risk of prion transmission - particularly when users comply with the applicable national or institutional requirements for handling potential prion contamination. The Prion-Program does not ensure complete inactivation of prions and does not claim prion inactivation.

Use the Prion-Program only as part of a validated overall reprocessing procedure, including thorough pre-cleaning and, where required, chemical prion decontamination in accordance with the applicable guidelines.

Use the Prion-Program only in accordance with the national or international guidelines applicable to you, e.g. “Hygiene requirements for the reprocessing of medical devices. Recommendation of the Commission for Hospital Hygiene and Infection Prevention (▸KRINKO) at the Robert Koch Institute (▸RKI) and the Federal Institute for Drugs and Medical Devices (▸BfArM)” (2012, PMID: 23011095; German national guideline).

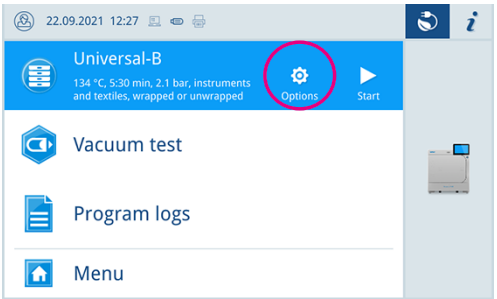
Always discard reusable medical instruments that have been in contact with high- or medium-risk tissue from patients with suspected or confirmed Creutzfeldt-Jakob disease - whether owned or borrowed. Prion proteins may be resistant to conventional sterilization processes!

Options

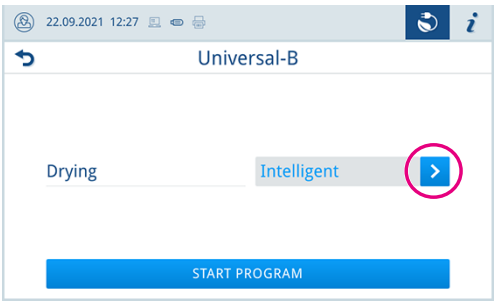
Use the **Options** button to customize default settings for the selected program. Basic default settings can be configured in the Program options menu, see Program options [▸ page 99].

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

1. Press the **Options** button.



2. Press to change the drying type.
PLEASE NOTE: In the Program options menu, you can set this permanently, see Program options [▸ page 99].



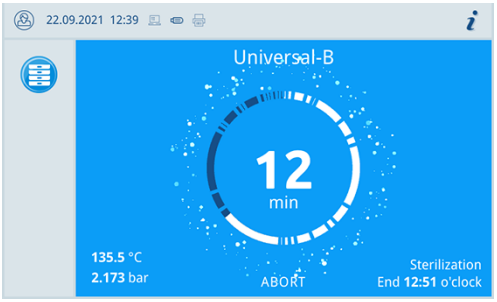
3. Start the program with **START PROGRAM**.
4. If **Authentication at Reprocessing program start** is activated, enter the PIN, see Authentication [▸ page 104].
5. Confirm the subsequent dialogue window with **START PROGRAM**.

Starting the program

The following must be fulfilled or present:

- ✓ The load has been cleaned and disinfected, see Preparing the load [▸ page 77].
- ✓ The device is loaded correctly, see Loading the steam sterilizer [▸ page 78].
- ✓ The max. load quantity has not been exceeded, see Selecting the program [▸ page 79].
- ✓ The date and time are set correctly, see Date and time [▸ page 97].
- ✓ The desired program has been selected.

1. Press **START PROGRAM**.
   ↪ The door locks pressure-tight upon program start. The device checks the quantity of feed water and its conductivity.
2. If **Authentication at Reprocessing program start** is activated, enter the PIN, see Authentication [▸ page 104].



Aborting the program manually

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.

⚠ WARNING

Warning of contamination

If a program is terminated before drying starts, the load is **not** sterile.

- Re-wrap the load if necessary.
- Repeat the sterilization of the load.

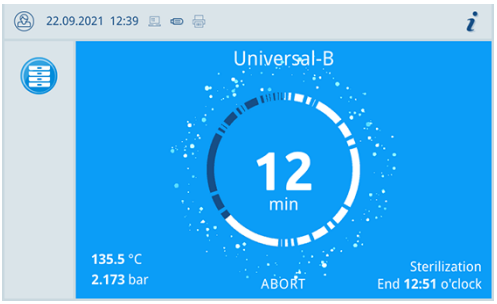
⚠ CAUTION

Warning of scalding

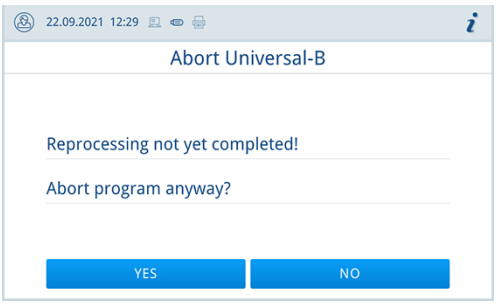
When the door is opened after a program abort, hot steam may escape and hot water may be present in the sterilization chamber. This could result in scalding.

- Never touch the load, the sterilization chamber, the mount or the inside of the door with bare hands.
- Use a tray lifter or heat protection gloves to remove the load.

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



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

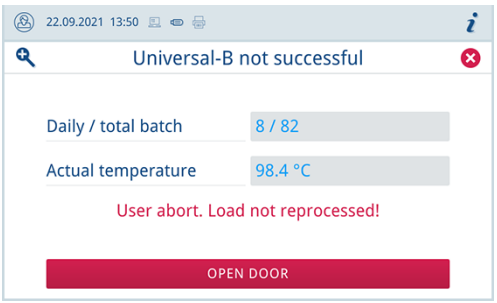


➥ The load is **not** sterile.

➥ Cancelling the program can take a few minutes as steam and condensate are removed from of the chamber.

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

PLEASE NOTE: By pressing 🔍, you can display additional values for the completed program (e.g. the plateau period or the conductivity).



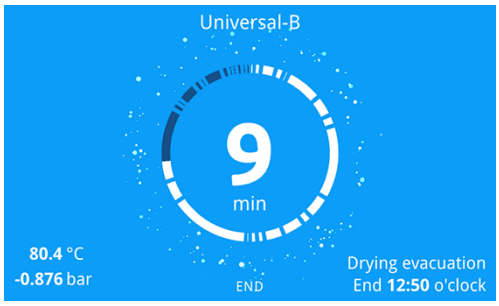
Ending the program prematurely

You can exit the program during the drying. If you exit the program before the drying has finished, the load is not completely dried and should be used immediately.

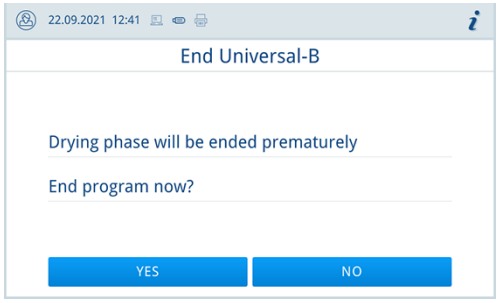
The following must be fulfilled or present:

✓ The reprocessing program is in the drying phase.

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



2. Confirm the end of drying with **YES**.



↪ The program will be aborted prematurely.

Program is ended

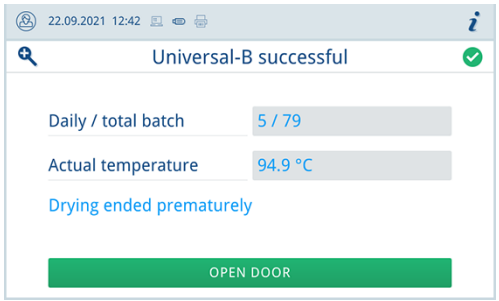
PLEASE NOTE

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

- Repeat the program if the display indicates the program was unsuccessful or the LED does not light up green.

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

   PLEASE NOTE: By pressing 🔍, you can display additional values for the completed program (e.g. the plateau period or the conductivity).



2. If **Authentication at Reprocessing program end** is activated, enter the PIN, see Authentication [▸ page 104].

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 “Anforderungen an die Hygiene bei der Aufbereitung von Medizinprodukten” [Hygiene requirements for the reprocessing of medical devices], instrument reprocessing ends with the documented approval of the ▸sterile material. The approval process consists of the indicator assessment and batch approval. Both must be performed by authorised and competent personnel.

Indicator assessment

The following must be fulfilled or present:

✓ Batch approval is activated, see Batch approval [▸ page 104].

✓ Indicator assessment is activated, see Batch approval [▸ page 104].

1. Remove the batch checker from the sterilization chamber and check the result.
2. Evaluate the result on the display.

   If the indicator has changed colour or no indication has been given, the batch can be released. If the indicator has not changed colour, batch approval is not possible.

➥ The result of batch approval and indicator assessment is logged and program post-processing continues.

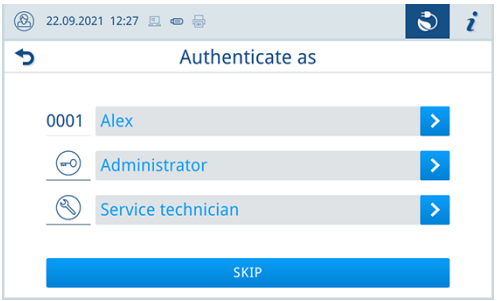
Batch approval

The batch approval includes checking the process parameters using the sterilization results at the device and the sterilization log as well as checking the individual packaging for damage and residual moisture. The sterilization log records the approval of the ▸batch and any indicators.

The following must be fulfilled or present:

✓ Batch approval is activated, see Batch approval [▸ page 104].

1. When prompted for batch assessment, press **YES** to release the batch.
2. If a user PIN is required to release the batch, enter the PIN; see Authentication [▸ page 104].



➥ The batch approval result is logged and program post-processing continues.

Removing the sterile material

⚠ WARNING

Warning of contamination

If packaging is damaged or has burst after sterilization, the instruments are unsterile.

- Re-wrap the load.
- Carry out the sterilization again.

⚠ CAUTION

Warning of burns

After a program cycle, the sterilized items are hot. There is a risk of burns from hot parts and hot condensate during removal.

- Never touch the sterile material, the sterilization chamber, the mount or the inside of the door with bare hands.
- Use a tray lifter or heat protection gloves to remove the load.

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), single drops of water (no puddles) that dry off within 15 min are considered tolerable residual moisture in practice.

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.
- Keep the trays horizontal when removing them from the device. Otherwise, the load could slide off.
- When removing the load from the device separately, ensure that the mount does not slide out unintended.

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 at the label printer. Comply with the maximum storage duration in accordance with the packaging type.
- 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.

11 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

All data of the programs run are stored automatically in the internal log memory. The capacity of the internal log memory is sufficient for 100 logs.

If the internal log memory is full, a warning appears on the display. In this case, output the logs concerned onto the defined output medium [page 90]. If you continue the program without outputting the logs, the oldest log is overwritten automatically.

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

MELAG recommends outputting logs automatically, see Log output [page 100].

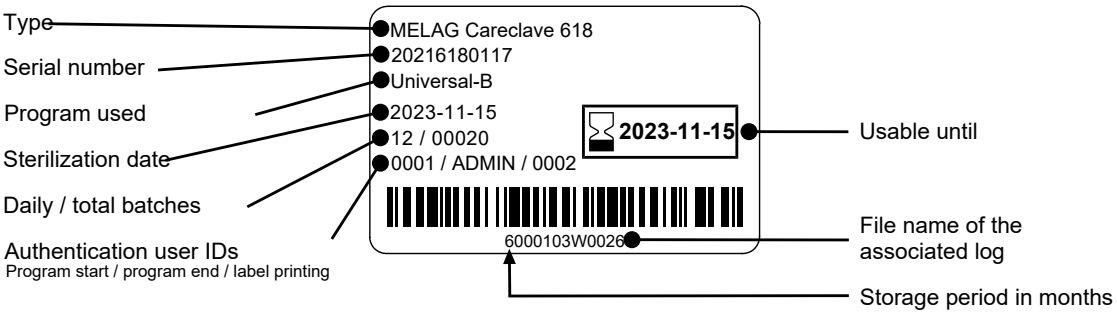
Label printer

The use of a label printer facilitates batch traceability. By entering the following data, the sterile material can be assigned to the patient and the sterilization batch:

- Sterilization date
- Storage duration
- Batch number (daily / total batches)
- User ID (person who has authorised the sterile material for use)
- Device (type, serial number, program used)
- File name

For further information on setting up the label printer, see Label print [page 101].

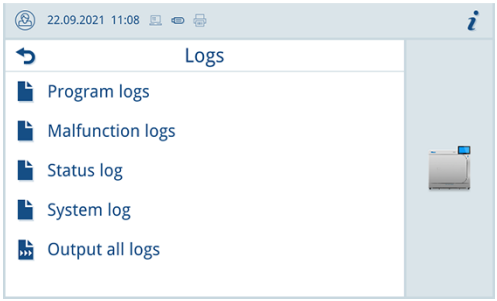
Faultless packages containing sterile material are marked with labels after sterilization. As such, the preconditions for correct approval by the person conferred with the task of reprocessing are given. All information regarding the correct reprocessing process can be attributed to the instruments used in patient records.



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, see Label print [▶ page 101]



You can issue logs subsequently and independently of the time of a program end. Before the log output, you can select the output media, see Output media [▶ page 90].

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.

List of logs

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.

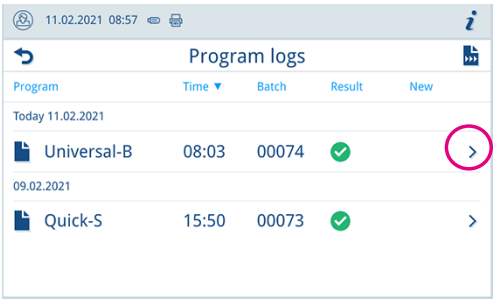
The **Result** column shows symbolically whether the program ended successfully or not.

Symbol	Description
	Program completed successfully
	Program not completed successfully

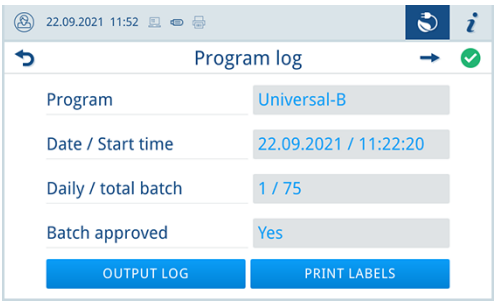
Logs that have not yet been output are marked with a dot in the **New** column.

Outputting logs

1. In the log list, press the button with the arrow to view and output a log.



2. Press **OUTPUT LOG** to output the displayed log.



➥ The **Log output options** are opened, see Log output options [▸ page 89].

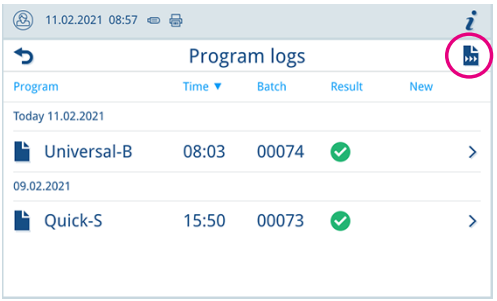
Log output options

In the **Log output options** menu you can set the type of logs to be output and the output medium.

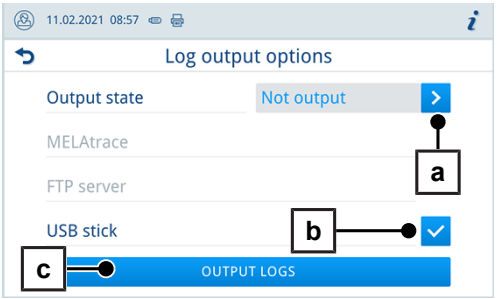
The following settings are possible:

Output status	Description
Not output	All logs that are not output will be output.
Last	The log of the last successful completed program is output.
All	All logs of the selected log type are output.

1. In the log list, press the button at the top right to customise the **Log output options** and output multiple logs.



2. Press the button with the arrow (pos. a) to select the desired output status.



3. Activate at least one output medium (pos. b).

   ➥ Unavailable output media are greyed out.

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

➥ The output takes place on the selected output media.

Output media

The following output media can be activated and configured in the **`Settings`** > **`Log output`** menu for batch documentation or log output:

- MELAtrace
- FTP
- USB
- Printer

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.

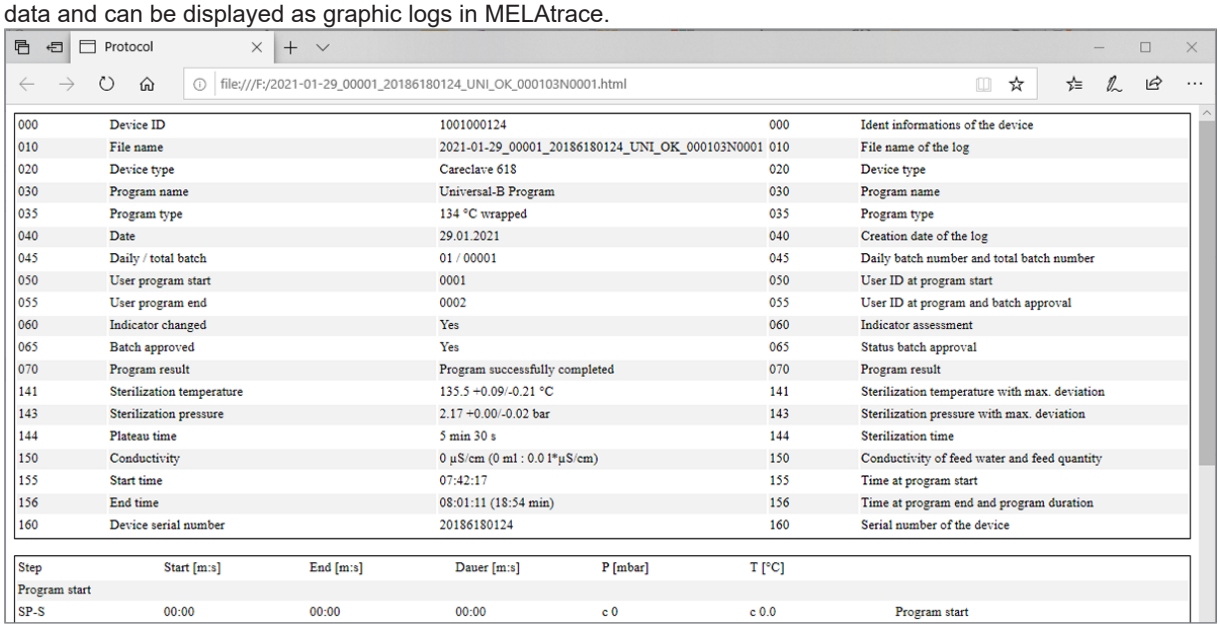
PLEASE NOTE You can only connect one USB storage medium.

Symbol	Output media	Description
	USB flash drive	Output to a USB stick connected to the USB port
	FTP	Output to an FTP server
	MELAtrace	Output to MELAtrace
	MELAprint 60[3)]/80	Output to a connected label printer

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.

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



[3)] from model BTP-580II

Saving logs

Storage location for logs

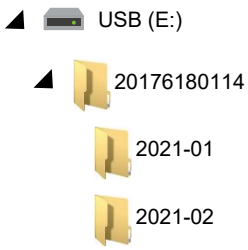
When transferring the logs to a USB stick, they will be stored in a separate folder in the main directory.

Transfer of the logs to a computer via the network and using the MELAG FTP server allows you to work 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 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.



12 Function checks

Service programs

Service programs in Vacuclave mode

Program name	Program	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 name	Program	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 or Service technician login required			

Vacuum test

Video tutorial

See also “Routine checks Careclave” (https://www.melag.com/service/tutorial/careclave).

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)

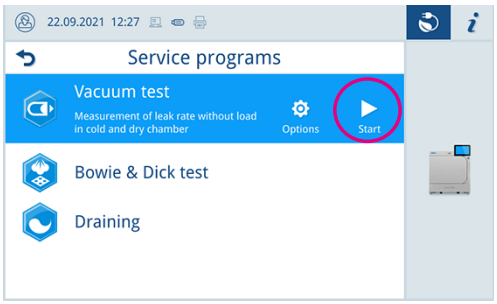
PLEASE NOTE Perform the vacuum test with the device in a cold and dry state.

The following must be fulfilled or present:

✓ There is no Carebox in the Careclave.

1. Switch on the device.

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



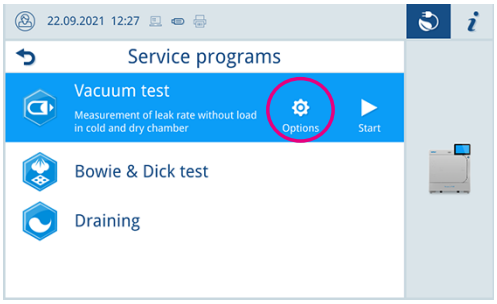
➥ The vacuum test is started in the **Default** program version.

➥ The leakage rate is shown on the display after the vacuum test has been completed. If the leakage rate is higher than 1.3 mbar, a corresponding message will appear.

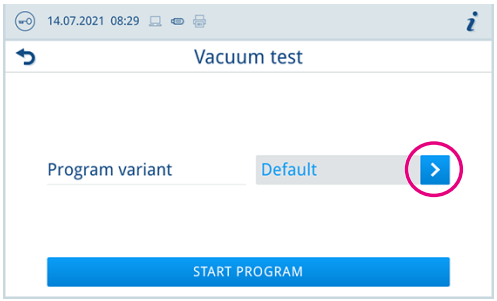
Options for the vacuum test

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.

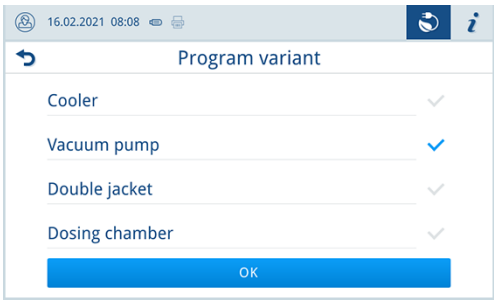
1. In the **Service programs** menu, select **Vacuum test** and press **Options**.



2. Press > to select another variant of the vacuum test.



3. Select the required variant and accept it with **OK**.



4. 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. Use **Bowie & Dick test** service program for a routine function check. Stockists provide various test systems for the Bowie & Dick test. Perform the test according to the test system manufacturer's specifications.

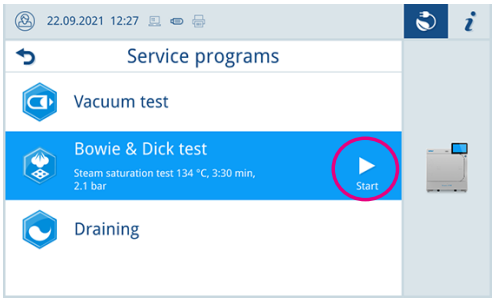
The following must be fulfilled or present:

✓ 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** menu, select the **Bowie & Dick test** and press **Start**.



Carebox test

Video tutorial

See also "Routine checks Carebox" (https://www.melag.com/service/tutorial/careclave).

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.

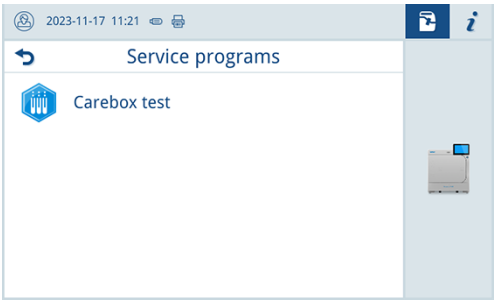
The following must be fulfilled or present:

✓ The measuring device.

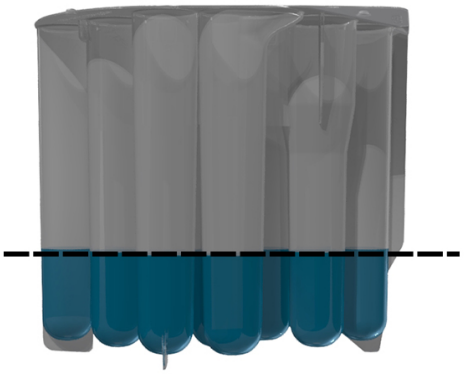
✓ There are no transmission instruments or hollow bodies in the Carebox.

1. 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 with suitable tools.
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.

Measuring device

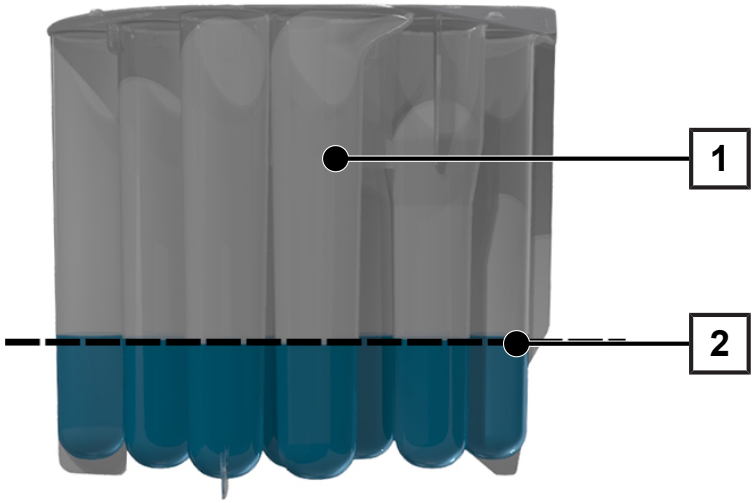
The measuring device is used for functional testing of the Carebox and its supply channels in the Careclave. It is needed for the **Carebox test** and must be used together with the Carebox.

PLEASE NOTE

The measuring device is only temperature resistant up to 100 °C and can therefore not be sterilized. Use the device only to perform the Carebox test.

For more information on application, see the Careclave user manual.

View of measuring device



1 Measuring device
2 Line for the minimum level

13 Settings

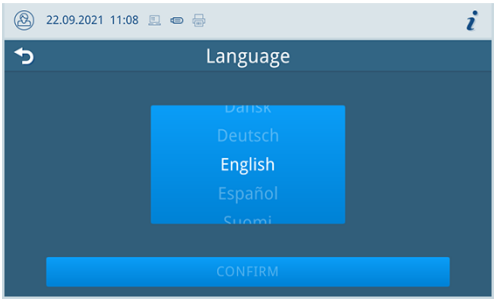
General settings

General settings can be changed by any user.

Language

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

1. Set the desired language.



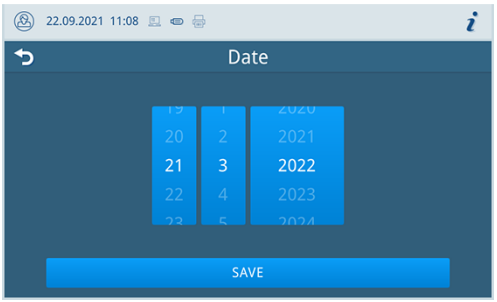
2. Press **CONFIRM** to accept the changes.

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

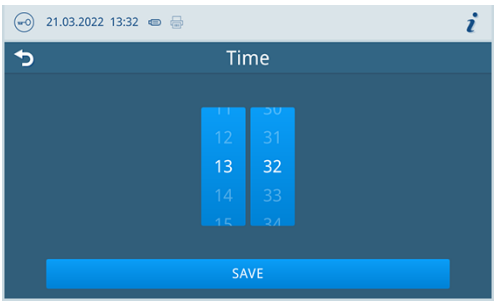
Date and time

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.



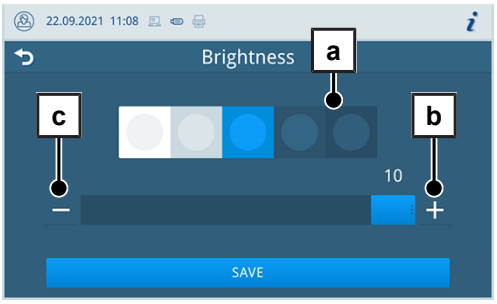
7. Press **SAVE** to accept the changes.

Display brightness

In the **Settings** > **Brightness** menu, you can set 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.



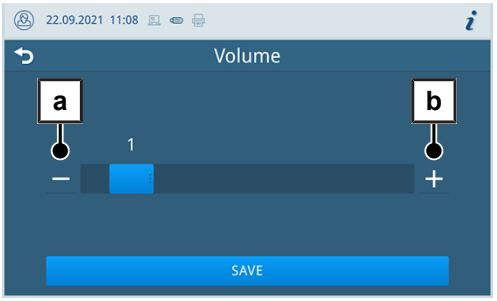
   ➥ The display brightness can be adjusted in ten steps.

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

Volume

In the **Settings** > **Volume** menu, you can set the volume of 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.

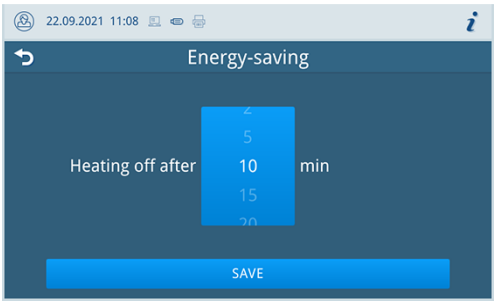
   ➥ At level 0, the sound is switched off.

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 heater is switched off.

1. At the number wheel set after how many minutes the heater is switched off automatically.

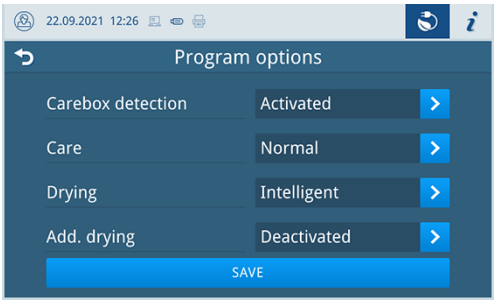


2. Press **SAVE** to accept the changes.

Program options

In the **Settings** > **Program options** menu, you can make default settings for drying.

1. Press 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:

The following settings are possible:

Device mode	Designation	Short description
General	Carebox detection	Checks the Carebox mount of the inside of the door for a Carebox and the Carebox inserted before the program starts (Blue/Green).
	Drying: Intelligent	Automatically monitors and ends the drying phase once the load is dry. **PLEASE NOTE:** Intelligent drying is activated in the delivery state.
	Drying: Time-controlled	Ends the drying phase after a specified duration.
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.

Time-controlled drying

With time-controlled drying, the duration of the drying phase is determined by the program.

Intelligent drying

In contrast to time-controlled drying, 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.

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 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	Automatic log output after program cycle or malfunction

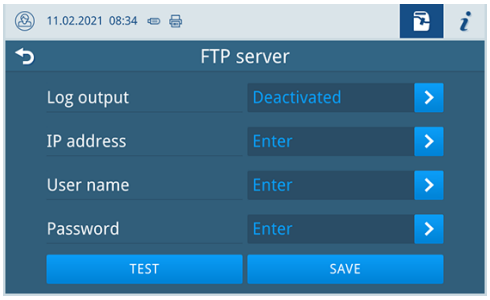
For the option **Automatic** a dialog follows for the definition for which programs the automatic log output should take place.

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

FTP server

Under the **FTP** menu item, the FTP server is configured via the IP address, the user name and the password.

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



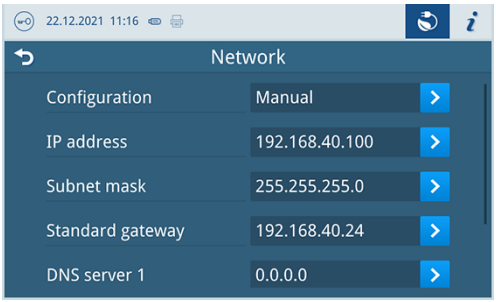
Network

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 › to make changes.

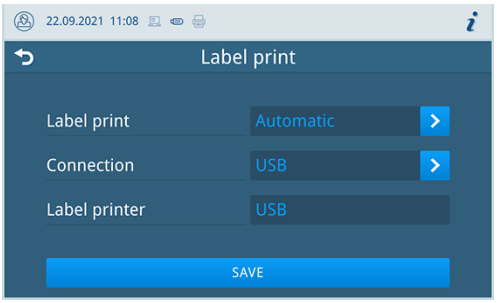


2. Press **SAVE** to accept the changes.

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 the network (LAN), the Ethernet interface, or the USB interface.

1. Press 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.

Water

In the **Settings** > **Water** menu you can change the water supply and disposal settings. The default setting is **Automatic**.

Water supply

You can set the feed water supply to **Automatic** or **Manual**.

Designation	Description
Automatic	The feed water is supplied automatically via the MELAdem feed water connection or the filling pump 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.

Water disposal

You can set the disposal of wastewater to **Automatic** or **Manual**.

Designation	Description
Automatic	The wastewater is automatically disposed of via the overflow funnel into the building's wastewater installation.
Manual	The wastewater is disposed of via the overflow funnel into an external wastewater container. The container is monitored by a level sensor and must be emptied regularly. MELAG recommends daily emptying. The capacity of the wastewater container is at least 10 cycles.

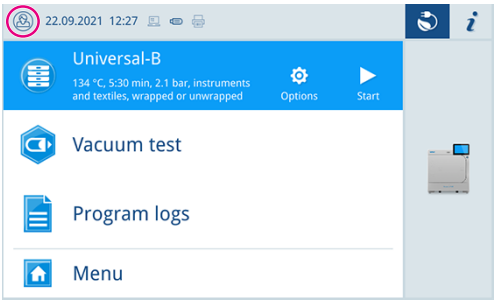
Administrative settings

To make administrative settings, such as changes to the user administration, you must log in as an **`Administrator`** or **`Service technician`**, see Logging on user role [▸ page 102].

Logging on user role

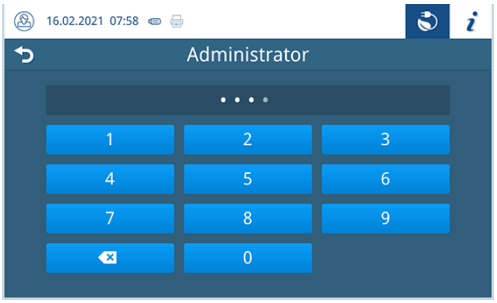
To log on a user role, proceed as follows:

1. Press the user role button.



2. Select the desired role, e.g. **`Administrator`**.

3. Enter the associated PIN.



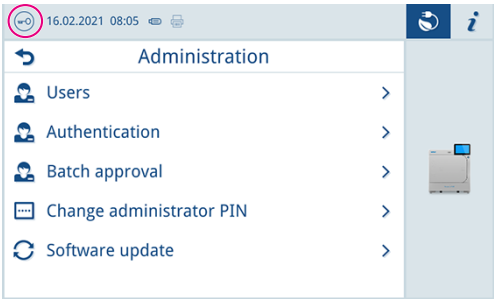
➥ The symbol of the user role button changes.

➥ 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.

Users

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, see Authentication [▸ page 104].

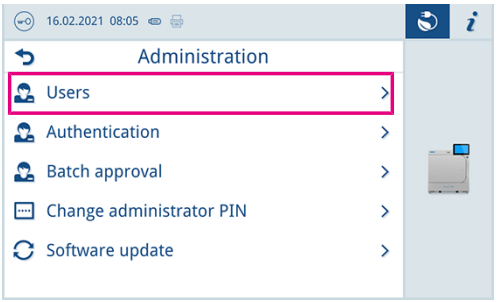
Only created users are authorised to approve and can approve a batch with their user PIN, see Batch approval [▸ page 104].

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

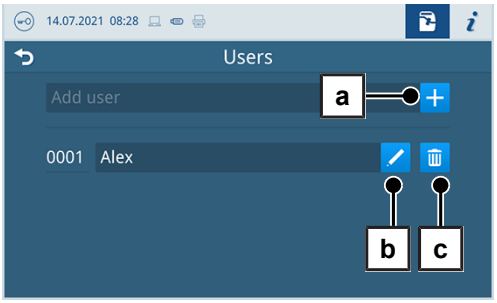
The following must be fulfilled or present:

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

1. Select the **Users** menu.

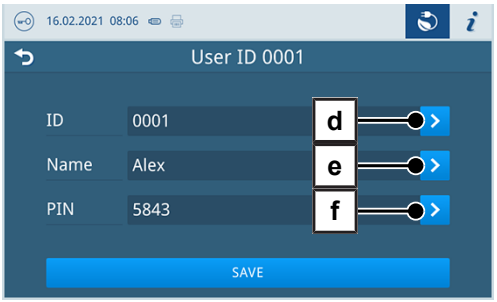


2. Press the plus button (pos. a) to create a new user.



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

4. Press the buttons with the pen 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 [▸ page 104] menu.

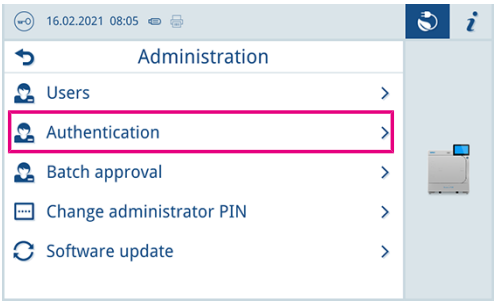
Authentication

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

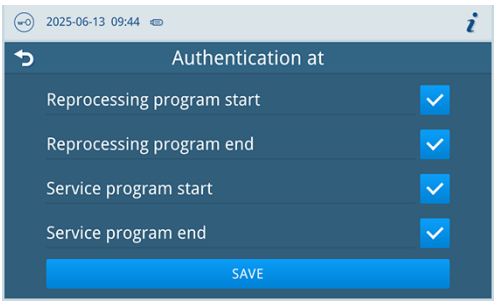
The following must be fulfilled or present:

✓ 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 reprocessing program
Reprocessing program end	PIN entry required to open door after the end of a reprocessing program
Service program start	PIN entry required to start a service program
Service program end	PIN entry required to open door after the end of a service program

PLEASE NOTE All options are disabled in the delivery state.

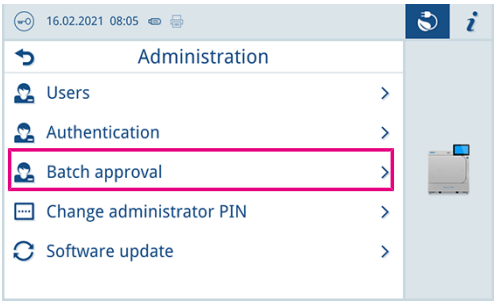
Batch approval

In the **Settings** > **Administration** menu you can activate the batch approval and the indicator assessment.

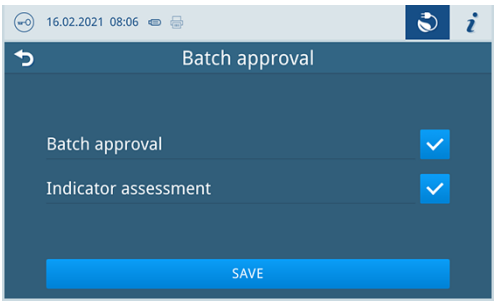
The following must be fulfilled or present:

✓ 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

Changing the administrator PIN

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

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

Software update

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

PLEASE NOTE

During a software update, all program and malfunction logs are deleted.

- Check whether all required logs have been output to an output medium.
- Please observe the further information in the separate instruction “Information regarding software update and re-installation”. You can find the document in the download centre on our website at www.melag.com/service/downloadcenter.

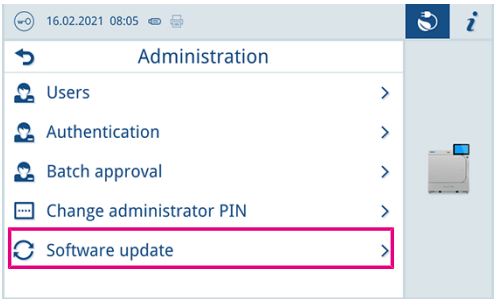
The following must be fulfilled or present:

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

✓ A USB stick in FAT32 format with the current update files

✓ All required logs have been output.

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



2. Insert the USB stick with the installation data into the USB connection on the display.

3. Press **NEXT** to perform the software update.

   ➥ During the software update, the device independently performs one or more restarts.

Service settings

To make service settings, such as a **`Software reinstallation`**, you must log in as a **`Service technician`**, see Logging on user role [▸ page 102]. Only ▸authorised technicians have access to the further service documents required for this purpose.

14 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 may only be carried out by an authorised technician.

Servicing intervals

Interval	Measure	Device components
Daily	Check the operating media - electricity, feed water, wastewater	Operating media
	Check the documentation media - printer, network, USB	Documentation media
	Check the sterilization chamber for soiling, deposits or damage and clean if necessary	Sterilization chamber including door gasket and chamber seal face, door lock, mount for the load
	Check the Carebox for soiling, clean if necessary	Carebox
	Check the housing seal and media seals for presence, wear and damage, replace if necessary	Carebox lower section
	Check of the Carebox sieve for soiling, clean if necessary	Carebox lower section
	Check the adapter seals for presence, wear and damage, replace if necessary	Carebox upper section
Weekly	Check and clean if necessary	All device components (e.g. feed water tank)
	Cleaning	Carebox
	Carebox test	Carebox
	Vacuum test (in the morning before starting work when the device is cold and dry)	Vacuum system
Annually	Clean the sieve	Feed water tank
Every 2 months	Check, clean and oil the door lock	Door lock (locking spindle and nut)
Upon display request	Replace the oil can	Door
	Replace the Carebox filters	Carebox lower section
	Replace the Carebox sieve	Carebox sieve
After 600 cycles (recommended)	Replace the adapter seals (O-rings)	Carebox upper section
After 1000 cycles	Replace the dust filter	Dust filter (behind service hatch)
After 1000 Care programs	Replace the Carebox sieve	Carebox sieve
After 24 months or 3000 cycles	Maintenance	by the authorised technician working in accordance with the maintenance instructions
As required	Clean the surfaces	Housing parts

Accessories

Also comply with the maintenance intervals of the optional accessories.

Interval	Measure	Device components
after 24 months	Replacing the HEPA filter	Cooling Box
after 24 months	Replacing the housing seal	Cooling Box

Cleaning

NOTICE

Warning of material damage from incorrect cleaning

Inappropriately performed cleaning can lead to the scratching of and damage to surfaces as well as the development of leaks in sealing faces. This also favours the development of soiling deposits and ▸corrosion in the ▸sterilization chamber.

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

Sterilization chamber, door gasket, mount, trays

To maintain the value of your device and to avoid persistent contamination and deposits, MELAG recommends weekly cleaning of the surfaces. Use the Chamber Protect chamber cleaning set or, if not available, a neutral liquid cleaner or spirit.
PLEASE NOTE: Note the instructions for use of the cleaning agent.

The following must be fulfilled or present:

- ✓ Chamber Protect (if not available: neutral liquid cleaner or spirits)
- ✓ The door is open.
- ✓ The device is switched off and has cooled down completely.
- ✓ Trays or sterile containers and the associated mount have been removed from the sterilization chamber.

1. Apply the cleaning agent on a lint-free cloth.
2. Use a lint-free cloth to uniformly spread the cleaning agent on the surfaces to be cleaned.
   PLEASE NOTE: Do not allow cleaning agent to get into the pipes coming from the sterilization chamber.
3. Allow the cleaning fluid to act and evaporate for a sufficient time. This may take a few minutes.
4. Wet a new lint-free cloth with plenty of demineralised water.
5. **NOTICE! Warning of material damage. Residues of cleaning agents can ignite or cause deposits on the instruments. Wipe down the cleaned surfaces thoroughly.**
   After wringing out the cloth, repeat this process if necessary.
6. Allow the cleaned surfaces to dry completely. This may take a few minutes.
7. Wipe the cleaned surfaces with a dry, lint-free microfibre cloth.

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.

Feed water tank

Drain the feed water tank

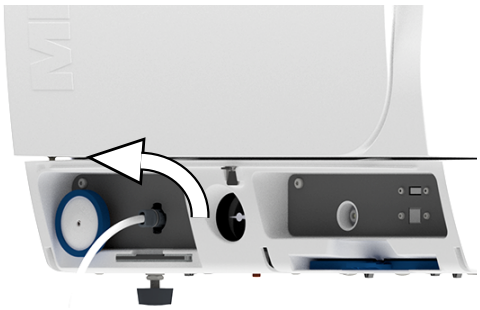
The following must be fulfilled or present:

✓ Collection container with a minimum capacity of 3 l

✓ Drain hose (included in the scope of delivery)

✓ The device has been switched off.

1. Open the service hatch.
2. Fit the knob of the drain hose onto the drain valve of the feed water tank until it noticeably latches into position.
   PLEASE NOTE: The valve must be in a horizontal position.
3. Place the collection container in front of the device and place the end of the drain hose in the collection container.
4. Open the drain valve by turning the knob of the drain hose 1/4 in an anti-clockwise direction.



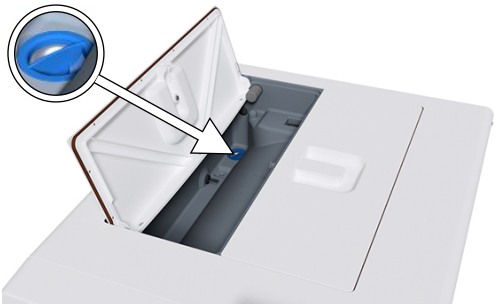
5. Drain the water into the collection container.
   PLEASE NOTE: It is advisable to leave the drain hose connected until after the cleaning so that any cleaning fluid residues can be flushed out.

Clean the feed water tank

The following must be fulfilled or present:

- ✓ Drain hose (included in the scope of delivery)
- ✓ Solvent-free, non-alkaline cleaning agent (e.g. washing-up liquid)
- ✓ The device has been switched off.
- ✓ The tank is completely empty.

1. Open the cover cap on the top of the device.
2. Check the tank for soiling and, if necessary, clean it with a sponge and solvent-free, non-alkaline cleaning agent (e.g. washing-up liquid).
3. Rinse any cleaning agent residue with demineralised water.
4. Pull the tank filter out of the bottom of the feed water tank.



5. Clean the tank filter under running water or with the MELAjet spray pistol.
6. Check the cleaning result against the light.
7. Reinsert the tank filter.
8. Reinsert the cover cap correctly and close it.
9. To remove the drain hose after cleaning the feed water tank, turn the drain valve back to the horizontal position.
10. Close the service hatch.

Avoiding staining

Only proper cleaning of the instruments prior to sterilization enables you to avoid residue from being released from the load under steam pressure during sterilization. Loosened dirt residue can clog the filter, fittings and valves of the device and deposit themselves on the instruments and in the sterilization chamber as deposits and stains.

All steam-conducting parts of the device consist of non-rusting material. This rules out the development of rust caused by the device. Any rust which develops is always extraneous rust.

Incorrect instrument reprocessing can result in the accretion of rust even on stainless steel instruments of leading manufacturers. Often, a single instrument which drops rust can suffice to cause the development of rust on other instruments or in the device. Remove foreign rust from the instruments using chlorine-free stainless steel cleaning fluid (see Cleaning [▸ page 108]) or send the damaged instruments to the manufacturer.

The extent of stain accretion on the instruments is also dependant on the ▸feed water used for steam generation.

Checking and oiling the door lock

NOTICE

Warning of material damage from wear

If the door lock is not oiled regularly it can become worn. Pressure-tight closing of the door can no longer be ensured.

- Check and oil the door lock every two months.
- Use MELAG oil (included in the scope of delivery) to oil the door lock.

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.

Replacing the oil can

Video tutorial

See also “Replacing oil and Carebox filter“ (https://www.melag.com/service/tutorial/careclave).

NOTICE

Warning of material damage from incorrect oil maintenance

Using the wrong oil for maintenance can damage transmission instruments. MELAG recommends using MELAG Care Oil (included in the scope of delivery).

- Use MELAG Care Oil (included in the delivery) to lubricate the door lock.

PLEASE NOTE

After changing the oil can, carry out a Carebox filter change on all Careboxes. The filters retain oil in the Carebox. If a filter is missing, blocked or defective, this can lead to malfunctions or severe oiling of the sterilization chamber.

The following must be fulfilled or present:

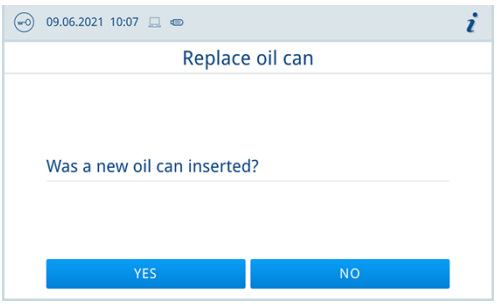
✓ A new oil can with adequate best-before date.

✓ 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**.

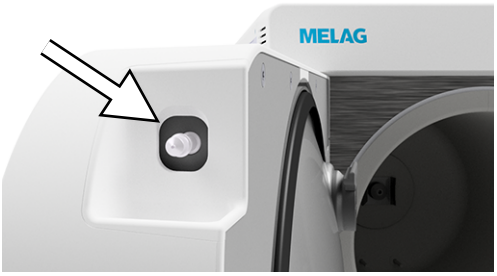


7. Close the door, see Opening and closing the door [▸ page 56].
8. After changing the oil can, carry out a Carebox filter change on all Careboxes, see Replacing the filter [▸ page 115].

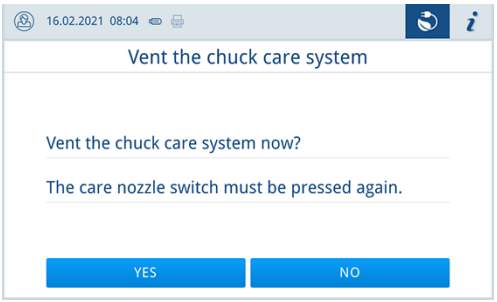
Venting the chuck care system

PLEASE NOTE Air removal of the chuck care system is only necessary in case of malfunction.

1. Press an instrument or lint-free cloth on the chuck care nozzle for more than five seconds.



2. Activate air removal by answering the question with **YES**.



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

➥ The air has been removed from the chuck care system.

Replacing the sterile filter

Comply with the following for safe handling:

- 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.

The following must be fulfilled or present:

✓ A new and dry sterile filter, see Spare parts [▸ page 141].

1. Open the service hatch.
2. Unscrew the sterile filter counter-clockwise from the holding socket.
3. Replace the sterile filter with a new sterile filter.
4. Turn the new sterile filter clockwise straight into the holding socket.

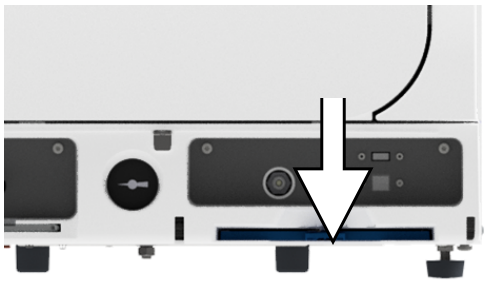
Changing the dust filter

The following must be fulfilled or present:

✓ A new and clean dust filter, see Spare parts [▸ page 141]

✓ 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. Confirm the query with **YES**.
   ↪ The dust filter counter is reset.
5. Close the service hatch.

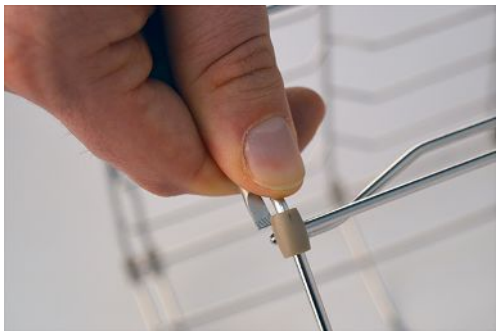
Replace slide clips

If individual sliding clips show signs of wear, you can replace them as follows:

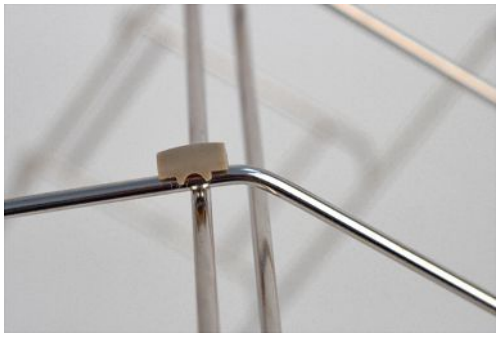
The following must be fulfilled or present:

✓ New sliding clip, see Spare parts [▸ page 141]

1. Remove the previous sliding clip by carefully levering the sliding clip upwards with a small slotted screwdriver. Take care not to damage or scratch the wires in the process.



2. Press the new sliding clip onto the metal bar at the same position on the wire cross until you feel it snap into place.



Maintaining the Carebox

Video tutorial

See also “Routine checks Carebox” (https://www.melag.com/service/tutorial/careclave).

Clean Carebox

NOTICE

Warning of material damage from incorrect cleaning

Mechanical cleaning can scratch or damage the Carebox and cause a leak.

- Clean the Carebox manually once a week to prevent damage to the material.

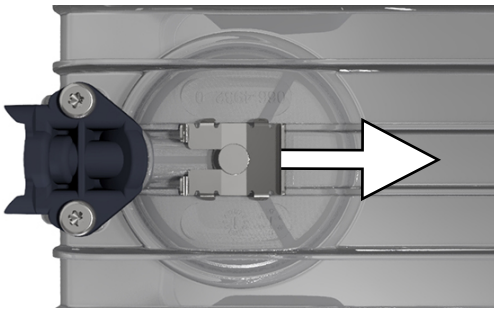
PLEASE NOTE

MELAG recommends storing the Carebox on the clean side. Disinfect the Carebox before transferring it to the clean side.

1. If contamination is visible, remove the sieve and clean it separately, Clean the sieve [▸ page 115].
2. Replace the Carebox filters in case of visible contamination, see Replacing the filter [▸ page 115].
3. If necessary, clean the entire Carebox with a soft brush or a sponge with solvent-free, non-alkaline cleaning agent (e.g. washing-up liquid).
4. Rinse off any cleaning material residue completely under running water.
5. Dry off the Carebox with a soft, lint-free cloth.

Clean the sieve

1. On the underside of the Carebox lower section, release the fixing clamp of the 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 lower section of the Carebox.
3. **WARNING! Warning of contamination. If maintenance intervals are not observed, the hygienic condition of the Carebox can no longer be guaranteed. Replace the filter after 1000 Care programs.**
4. Clean the sieve under running water with a soft brush or with the MELAjet spray pistol.
5. Check the cleaning result against the light.
6. Insert the cleaned sieve in the Carebox.
7. Secure the sieve with the fixing clamp on the underside of the Carebox lower section.
8. Reset the counter for the Care programs after replacing the sieve.

Replacing the filter

Video tutorial

See also “Replacing oil and Carebox filter“ (https://www.melag.com/service/tutorial/careclave).

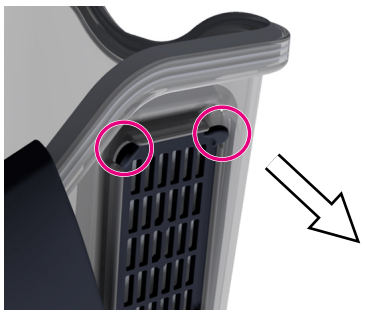
PLEASE NOTE

After changing the oil can, carry out a Carebox filter change on all Careboxes. The filters retain oil in the Carebox. If a filter is missing, blocked or defective, this can lead to malfunctions or severe oiling of the sterilization chamber.

The following must be fulfilled or present:

✓ Two new Carebox filters.

1. Perform a detailed visual inspection of the new Carebox filters to check for damage, e.g. holes.
2. Remove the mount of the Carebox filter by pulling on the two upper plastic tabs.



3. Remove the old Carebox filter using one of the plastic tabs on the mount.

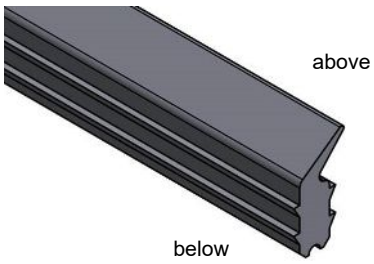
4. Insert the new Carebox filter.
5. **PLEASE NOTE:** Make sure that the colour of the mount matches the colour of the Carebox cover.
   Replace the mount by placing it at the bottom first. Then press it firmly all around.
6. Replace the Carebox filter on the opposite side in the same way.

Replacing the housing seal

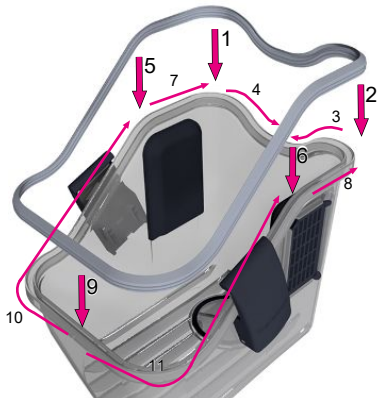
The following must be fulfilled or present:

✓ A new Carebox housing seal.

1. Pull out the seal upwards using the fingers or with tweezers.
2. When inserting the seal, note the correct orientation of the curvature.

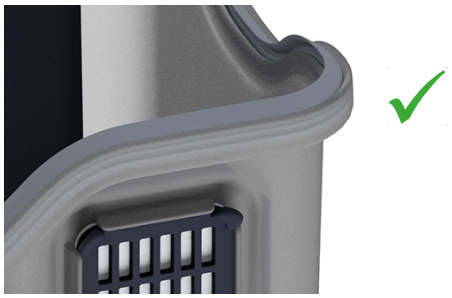


3. Insert the new seal by hand and fix it in the seal groove in the order shown.
   NOTICE! Do not pull on the housing seal.



4. Press the seal into the sealing groove circumferentially. Start with the upper part and press the edges going downwards into the seal groove at the end.

5. Check the seal to ensure it is positioned correctly.



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

Replacing 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 to ensure they are positioned correctly.

Replace 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. **NOTICE! Do not damage the adapter.**
Remove the damaged adapter seal by disconnecting it or cutting it open.

2. Insert the new adapter seal, see Installing adapters [▸ page 59].

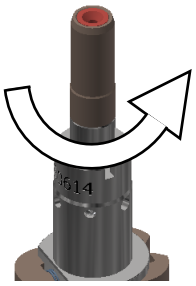
3. Check the adapter seal to ensure it is positioned correctly.

Replace the adapter seal (Adapter for EMS AIR-FLOW Prophylaxis Master)

The following must be fulfilled or present:

✓ A new adapter seal (Art. no. ME22964)

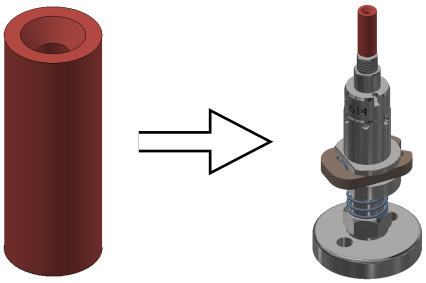
1. Remove the plastic cap from the adapter tip by turning it counterclockwise.



➥ Under it there is a red seal.

2. Carefully pull the seal off the adapter tip.

3. Pull the new seal over the adapter tip.
NOTICE! Make sure that the flat end of the seal points in the direction of the adapter foot.



4. Turn the plastic cap onto the adapter tip.

Maintenance

Comply with the following for safe handling:

- Maintain the specified maintenance intervals. Continuing operation beyond the maintenance interval can result in malfunctions in the device.
- Have maintenance performed only by trained and authorised technicians using the original MELAG maintenance set.
- If components that are not included in the maintenance set have to be replaced during maintenance, only original spare parts from MELAG may be used for the replacement.

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.

Perform maintenance regularly after every 3000 cycles, but after 24 months at the latest.

15 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, see Energy-saving [▸ page 98]
Pauses which last longer than an hour	• Shut down 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 • Shut down device • If present, shut off the water inflow of the water treatment unit
Longer than two weeks	**Before starting the operating pause:** • Leave the door ajar to prevent premature wear and the sticking of the door seal • Shut down device • If present, shut off the water inflow of the water treatment unit • Empty the internal storage tank • Perform the **Draining** service program, see Service programs [▸ page 92] **Following the operating pause:** • Perform a **Vacuum test** • After a successful vacuum test, perform an empty sterilization in a reprocessing program

Decommissioning

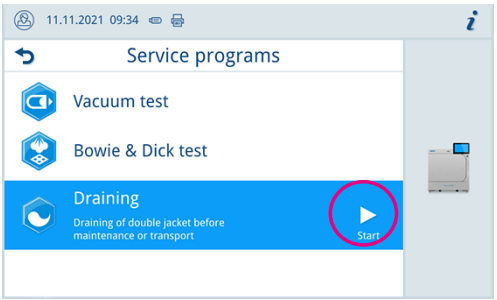
When decommissioning the device for a long pause (e.g. due to holiday), proceed as follows:

1. Empty the double jacket steam generator, see Draining [▸ page 119].
2. Shut down the device by pressing the power button.
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.

Draining

You can drain the water in the double jacket steam generator 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 `Draining successful` message.
4. Switch off the device.

Transport

⚠ CAUTION

Warning of injury

Lifting and carrying the device incorrectly can cause spinal damage, crushing injuries and bruising.

- Carry the device with at least two people.
- Use the correct carrying straps to carry the device (Art. no. ME21121).
- Comply with the safety regulations that apply to you.

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 119].
2. Disconnect the connection hoses connected on the rear of the device.

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 119].
2. Fit the carrying strap.
3. Pack the device so that it is protected from mechanical hazards (e.g. blows) and moisture.
4. Observe the transport and storage conditions, see Technical data [▸ page 137].

16 Malfunctions

Comply with the following for safe handling:

- 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.

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.

	Type of message	Description
	Warning	Warnings contain instructions that help you to ensure smooth operation and to identify undesirable states. Comply with these warnings in good time to avoid malfunctions. The reprocessing result is not affected. You can continue to use the device.
	Malfunction message	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 starting up 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

Follow the instructions that appear on the device's display that relate to a warning or malfunction message. 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. Have the number of your device, the event number and a detailed description of the malfunction to hand so that we can help you.

Malfunction logs

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

General events

The following tables indicate 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.
Insufficient drying in the Care-Therm program	Unsuitable load of the Carebox Green	Activate **`Add. drying`**. Use the Care-S program instead of the Care-Therm program.

Warning and malfunction messages

Event	Possible cause	What you can do
10025	The oil can is almost empty.	Have a new oil can ready.
10026	The oil can is empty.	Replace the oil can.
10062	The required amount of feed water was not delivered to the feed water tank within the specified time (70 s).	Ensure the water supply at the main valve, or fill the external storage container when using the filling pump.
10063	The manual feed water supply is activated. The device must be filled with at least 1.5 l of demineralised water.	Before starting the next program, fill the feed water tank with at least 1.5 L of demineralised water or ensure an automatic water supply via a water treatment unit.
10067	The dust filter was removed.	Insert the dust filter (art. no. ME82260).
10071	The running program was terminated by the user.	**WARNING! The load is not processed.** Restart the program.
10081	The emptying of the double jacket was skipped multiple times because the program was terminated early during drying.	Do not terminate the program early during drying. If this occurs repeatedly, please contact the technical service.
10082	The emptying of the double jacket was skipped multiple times because the program was terminated early during drying.	Start the `Draining` service program.
10086	The maintenance interval will soon expire (days).	Please contact the technical service and schedule a maintenance appointment.
10090	The warning value of the dust filter counter has been exceeded.	a) Replace the dust filter (art. no. ME82260). b) Confirm the query with YES to reset the dust filter counter.
10091	The maintenance interval will soon expire (cycles).	Please contact the technical service and schedule a maintenance appointment.
10092	The emptying of the double jacket was skipped multiple times because the program was terminated early during drying.	Do not terminate the program early during drying. If this occurs repeatedly, please contact the technical service.
10093	The emptying of the double jacket was skipped multiple times because the program was terminated early during drying.	Start the `Draining` service program.
10094	The current ambient temperature of the device is too high to perform a vacuum test.	a) Allow the device to cool down. b) Observe the installation and ambient conditions (e.g. temperature, distances) and ensure sufficient ventilation of the device.
10098	A supply voltage failure was detected during the program run.	**WARNING! The load is not processed.** a) Connect the device to a specially fused power supply to which no other electrical device is connected. b) Check the power connection cable at the rear of the device to ensure that it is firmly seated and put on the safety bracket.
10099	A supply voltage failure was detected during the program run.	**WARNING! The load is not processed.** a) Connect the device to a specially fused power supply to which no other electrical device is connected. b) Check the power connection cable at the rear of the device to ensure that it is firmly seated and put on the safety bracket.

Event	Possible cause	What you can do
10100	The float switch is jammed due to soiling in the feed water tank. This may cause the feed pump to draw in air.	a) Check the feed water tank for soiling and the float switch for ease of movement. b) Clean both components as described in the User Manual.
10101	The float switch in the overflow funnel (S13) detected a short-term impermissible water level. This points to a blockage in the wastewater system.	Check whether the outlet hose at the rear of the device (hatched drop) is kinked.
10102	The float switch in the overflow funnel (S13) detected a continuous impermissible water level. This points to a blockage in the wastewater system.	Check whether the outlet hose at the rear of the device (hatched drop) is kinked.
10104	The status of the Carebox (inserted/not inserted) changes when the door is closed.	Place magnetic loads at the greatest possible distance from the Carebox to avoid interfering with magnetic Carebox detection. If this occurs repeatedly, please contact the technical service.
10109	The automatic unlocking of the door is faulty. The door locking mechanism or the door motor is possibly blocked.	a) Allow the device to cool down and open the door using the Allen key behind the service hatch. b) Ensure regular oil maintenance of the door spindle and door nut. If this occurs repeatedly, please contact the technical service.
10113	The automatic locking of the door is faulty. The door locking mechanism or the door motor is possibly blocked.	a) Check the door for blockages. b) Ensure regular oil maintenance of the door spindle and door nut. If this occurs repeatedly, please contact the technical service.
10117	The automatic unlocking of the door is faulty. Both door contact switches (K1 + K2) signal a closed door.	a) Allow the device to cool down and open the door using the Allen key behind the service hatch. b) Ensure regular oil maintenance of the door spindle and door nut. If this occurs repeatedly, please contact the technical service.
10120	The automatic unlocking of the door is faulty. The door may be blocked.	a) Allow the device to cool down and open the door using the Allen key behind the service hatch. b) Ensure regular oil maintenance of the door spindle and door nut. If this occurs repeatedly, please contact the technical service.
10125	The door could not be opened completely. One door contact switch (K2) is open, one door contact switch (K1) is closed.	Remove any objects that may be blocking the door from the outside. If this occurs repeatedly, please contact the technical service.
10130	The maximum quantity or duration when feeding feed water into the double jacket has been exceeded.	a) Remove the filter from the feed water tank. b) Clean the filter under running water and re-insert it. If this occurs repeatedly, please contact the technical service.

Event	Possible cause	What you can do
10132	A pressure equalisation between the sterilization chamber and the environment was not achieved within the specified time.	Check the sterile filter behind the service hatch and replace it if it is soiled or blocked. If this occurs repeatedly, please contact the technical service.
10134	The temperature at the cooler could not be lowered sufficiently within the specified time. The cooling system may be faulty.	a) Allow the device to cool down. b) Observe the installation and ambient conditions (e.g. temperature, distances) and ensure sufficient ventilation of the device. If this occurs repeatedly, please contact the technical service.
10137	The maximum permissible pressure was exceeded in the waiting or test phase of the vacuum test.	a) Allow the device to cool down. c) Check the door gasket for visible defects and replace it if necessary. c) Clean the door gasket with a damp cloth. If this occurs repeatedly, please contact the technical service.
10145	The evacuation is faulty. The vacuum was not generated within the specified time.	a) Check the dust filter for contamination and replace it if necessary. b) Check whether paper or similar underneath the device is blocking the air flow of the cooling system. c) Check whether the permissible load quantities of the device have been observed. d) Check the pressure release filter in the sterilization chamber for blockages. e) Observe the installation and ambient conditions (e.g. temperature, distances) and ensure sufficient ventilation of the device. If this occurs repeatedly, please contact the technical service.
10165	The double jacket was not emptied within the specified time.	a) Allow the device to cool down. b) Observe the installation and ambient conditions (e.g. temperature, distances) and ensure sufficient ventilation of the device.
10168	The Carebox was not emptied during the abort routine.	**CAUTION! There may be hot water in the Carebox.** a) Check the fit and condition of the Carebox. Clean it if necessary. b) Check the sieve in the lower section of the Carebox and clean it if necessary. c) Replace the filter after 1000 Care programs. b) Check the condition of the media seals on the rear of the Carebox and replace them if necessary. e) Check whether the outlet hose at the rear of the device (hatched drop) is kinked. If this occurs repeatedly, please contact the technical service.

Event	Possible cause	What you can do
10169	The abort routine was completed with an emergency release. The sterilization chamber can contain hot steam and hot water.	**CAUTION! The sterilization chamber can contain hot steam and hot water.** Allow the device to cool down. If this occurs repeatedly, please contact the technical service.
10179	The pressure release valve had to be opened several times before a pressure drop occurred.	a) Check the sterilization chamber for any residues from the load or wrapping that may be blocking the nozzles (small openings in the sterilization chamber). b) Check the pressure release filter in the sterilization chamber for blockages.
10187	Draining takes too long. The Carebox was not emptied.	**CAUTION! There may be hot water in the Carebox.** a) Check the fit and condition of the Carebox. Clean it if necessary. b) Check the sieve in the lower section of the Carebox and clean it if necessary. c) Replace the filter after 1000 Care programs. b) Check the condition of the media seals on the rear of the Carebox and replace them if necessary. e) Check whether the outlet hose at the rear of the device (hatched drop) is kinked. If this occurs repeatedly, please contact the technical service.
10194	The required circulation pressure was not reached. The circulation circuit may be blocked.	a) Check the fit and condition of the Carebox. Clean it if necessary. b) Check the sieve in the lower section of the Carebox and clean it if necessary. c) Replace the filter after 1000 Care programs. b) Check the condition of the media seals on the rear of the Carebox and replace them if necessary. If this occurs repeatedly despite cleaning, please contact the technical service.
10195	The temperature of the feed water is too high. Precleaning is not possible.	Ensure that the installation requirements have been met.
10196	The metering chamber for the care oil could not be blown out within the specified time.	a) Check the compressed air supply as well as the instruments and adapters for free passage. b) Check the condition of the media seals on the rear of the Carebox and replace them if necessary. If this occurs repeatedly, please contact the technical service.
10198	The metering chamber for the care oil was not blown out within the specified time.	a) Check the compressed air supply as well as the instruments and adapters for free passage. b) Check the condition of the media seals on the rear of the Carebox and replace them if necessary. If this occurs repeatedly, please contact the technical service.

Event	Possible cause	What you can do
10199	The oil can is empty.	**NOTICE! Remember to replace the filter of the Carebox at the same time as replacing the oil can.** a) Replace the oil can. b) Replace the Carebox filters on the side of the Carebox.
10200	The pressure release in the Carebox did not take place within the specified time.	a) Check the fit and condition of the Carebox. Clean it if necessary. b) Check the sieve in the lower section of the Carebox and clean it if necessary. c) Replace the filter after 1000 Care programs. d) Check the condition of the media seals and replace them if necessary. e) Check whether the outlet hose at the rear of the device (hatched drop) is kinked. If this occurs repeatedly, please contact the technical service.
10201	The rinse liquor is heating up too slowly.	a) Make sure that at least one instrument with a spray channel is connected in the Carebox. b) Alternatively, leave one adapter slot empty. If this occurs repeatedly, please contact the technical service.
10202	The rinse liquor is heating up too slowly.	a) Make sure that at least one instrument with a spray channel is connected in the Carebox. b) Alternatively, leave one adapter slot empty. If this occurs repeatedly, please contact the technical service.
10203	A pressure increase was detected in the sterilization chamber. The cause of the pressure increase is a leakage in the Carebox.	a) Check the fit and condition of the Carebox. Clean it if necessary. b) Check the condition of the media seals on the rear of the Carebox and replace them if necessary. If this occurs repeatedly, replace the seals on the back of the Carebox.
10204	During final cleaning, the allowable pressure in the sterilization chamber was exceeded. The cause is a leakage in the Carebox.	a) Check the fit and condition of the Carebox. Clean it if necessary. b) Check the condition of the media seals on the rear of the Carebox and replace them if necessary. c) Check the condition of the Carebox housing seal and replace it if necessary. d) Check the Carebox filters and filter grilles on the sides of the Carebox lower section, and correct their position or replace them if necessary. e) Check whether the outlet hose at the rear of the device (hatched drop) is kinked. f) Check the pressure release filter in the sterilization chamber for blockages.

Event	Possible cause	What you can do
10207	The temperature for precleaning is too high. The Carebox is too hot. Precleaning is not possible.	a) Allow the Carebox to cool down between program runs (accelerate cooling if necessary using the Cooling Box). b) Operate the Careclave in continuous operation with at least two Careboxes in alternation. Observe a pause time of at least 4 min between program runs.
10208	The required pressure during circulation of the rinse liquor was not reached.	a) Check the fit and condition of the Carebox. Clean it if necessary. b) Check the condition of the media seals on the rear of the Carebox and replace them if necessary. c) Check the condition of the Carebox housing seal and replace it if necessary. d) Check the sieve in the lower section of the Carebox and clean it if necessary. e) Replace the filter after 1000 Care programs. If this occurs repeatedly, please contact the technical service.
10211	A Carebox leakage was detected.	a) Check the fit and condition of the Carebox. Clean it if necessary. b) Check the condition of the media seals on the rear of the Carebox and replace them if necessary. c) Check the condition of the green flat seals under the adapters and replace if necessary. d) Check whether an adapter is fitted at all adapter positions of the Carebox. e) Make sure that the short tray guide rack is correctly engaged in the sterilization chamber in the Care-B program. f) Check whether the outlet hose at the rear of the device (hatched drop) is kinked. If this occurs repeatedly, please contact the technical service.
10212	A leakage of the Carebox was detected during the cleaning of the spray channels.	a) Check the fit and condition of the Carebox. Clean it if necessary. b) Check the condition of the media seals on the rear of the Carebox and replace them if necessary. c) Check the condition of the green flat seals under the adapters and replace if necessary. d) Check whether an adapter is fitted at all adapter positions of the Carebox. If this occurs repeatedly, please contact the technical service.

Event	Possible cause	What you can do
10213	A leakage of the Carebox was detected during the cleaning of the drive channels.	a) Check the fit and condition of the Carebox. Clean it if necessary. b) Check the condition of the media seals on the rear of the Carebox and replace them if necessary. c) Check the condition of the green flat seals under the adapters and replace if necessary. d) Check whether an adapter is fitted at all adapter positions of the Carebox. If this occurs repeatedly, please contact the technical service.
10214	A leakage of the Carebox was detected during reverse feeding.	a) Check the fit and condition of the Carebox. Clean it if necessary. b) Check the condition of the media seals on the rear of the Carebox and replace them if necessary. c) Check whether the sieve of the Carebox and the sieve's retaining spring are installed correctly. If this occurs repeatedly, please contact the technical service.
10215	A leakage of the Carebox was detected during external cleaning.	a) Check the fit and condition of the Carebox. Clean it if necessary. b) Check the condition of the Carebox media seals and replace them if necessary. c) Check the condition of the Carebox housing seal and replace it if necessary. d) Check the condition of the O-ring seal under the adapters and replace if necessary. e) Check whether an adapter is fitted at all adapter positions of the Carebox. f) Check whether the splash guard in the lower part of the Carebox is inserted on both sides and positioned with the opening facing downward. g) Check the sterilization chamber for contamination. If this occurs repeatedly, please contact the technical service.
10216	The steam inlet into the drive channels did not take place within the specified time.	a) Connect at least one instrument with a drive channel inside the Carebox. b) Alternatively, leave one adapter slot empty to enable heating.
10217	The steam inlet into the spray channels did not take place within the specified time.	a) Make sure that at least one instrument with a spray channel is connected in the Carebox. b) Alternatively, leave one adapter slot empty.
10226	The feed water tank is almost empty.	Before starting the next program, fill the feed water tank with 1.5 l of demineralised water or ensure an automatic water supply via a water treatment unit.

Event	Possible cause	What you can do
10228	No oil can is inserted. Closing the door is only possible when an oil can is inserted.	a) Insert an oil can. b) If you do not have a full oil can available, insert the (possibly empty) oil can that has been removed to close the door.
10230	No Carebox was detected via compressed air, although a Carebox is inserted. No new Care program can be performed. Falling droplets may have caused a high pressure increase.	a) Check that the outside of the Carebox is dry before inserting it. b) Check the condition of the media seals on the rear of the Carebox and replace them if necessary. If this occurs repeatedly, please contact the technical service.
10231	No Carebox was detected via compressed air, although a Carebox is inserted. No Care program can be started. Falling droplets may have caused a high pressure increase or very impermeable instruments may be located in the Carebox (positions 5 and 8 or positions 6 and 7).	a) Check that the outside of the Carebox is dry before inserting it. b) Check the condition of the media seals on the rear of the Carebox and replace them if necessary. c) Change the instrument position in the Carebox. Insert an instrument from position 5 or 8 into position 1-4 and an instrument from position 6 or 7 into position 1-4. If this occurs repeatedly, please contact the technical service.
10233	A Carebox was detected via compressed air, although no Carebox is inserted. No sterilization program can be started.	a) Check the compressed air supply as well as the instruments and adapters for free passage. b) Check the condition of the media seals on the rear of the Carebox and replace them if necessary. If this occurs repeatedly, please contact the technical service.
10234	Flow through the Carebox is obstructed. No pressure increase was detected.	a) Check the compressed air supply as well as the instruments and adapters for free passage. b) Run the Carebox test service program. If this occurs repeatedly, please contact the technical service.
10235	Flow through the Carebox is not possible. No pressure increase was detected at V20.	a) Check the compressed air supply as well as instruments and adapters at position 5 and 8. b) Run the **`Carebox test`** service program. If this occurs repeatedly, please contact the technical service.
10236	Flow through the Carebox is not possible. No pressure increase was detected at V16.	a) Check the compressed air supply as well as instruments and adapters at position 6 and 7. b) Run the **`Carebox test`** service program. If this occurs repeatedly, please contact the technical service.

Event	Possible cause	What you can do
10237	Flow through the Carebox is not possible. No pressure increase was detected at V19.	a) Check the compressed air supply as well as instruments and adapters at position 2 and 3. b) Run the **Carebox test** service program. If this occurs repeatedly, please contact the technical service.
10238	Flow through the Carebox is not possible. No pressure increase was detected at V19.	a) Check the compressed air supply as well as instruments and adapters at position 1 and 4. b) Run the **Carebox test** service program. If this occurs repeatedly, please contact the technical service.
10239	Flow through the Carebox is obstructed. No pressure increase was detected at V22.	a) Make sure that at least one instrument with a spray channel is connected in the Carebox. b) Alternatively, leave one adapter slot empty. If this occurs repeatedly, please contact the technical service.
10241	The evacuation is faulty. The vacuum performance is insufficient. The program run was cancelled.	a) Check the dust filter for contamination and replace it if necessary. b) Check whether paper or similar underneath the device is blocking the air flow of the cooling system. c) Check whether the permissible load quantities of the device have been observed. d) Check the pressure release filter in the sterilization chamber for blockages. e) Observe the installation and ambient conditions (e.g. temperature, distances) and ensure sufficient ventilation of the device. If this occurs repeatedly, please contact the technical service.
10242	The evacuation is faulty. The vacuum performance is insufficient. The program run was cancelled.	a) Check the dust filter for contamination and replace it if necessary. b) Check whether paper or similar underneath the device is blocking the air flow of the cooling system. c) Check whether the permissible load quantities of the device have been observed. d) Check the pressure release filter in the sterilization chamber for blockages. e) Observe the installation and ambient conditions (e.g. temperature, distances) and ensure sufficient ventilation of the device. If this occurs repeatedly, please contact the technical service.
10250	A Carebox Green has been detected. This is not compatible with the selected program.	a) Use the Carebox Blue. b) Check the compressed air supply. 4-8 bar rel. should be available.

Event	Possible cause	What you can do
10253	The door was closed with the Carebox inserted, without starting a program. Storing contaminated instruments in a warm device can lead to unnecessary drying of the contamination.	Remove the Carebox or start a reprocessing program.
10256	The pressure change at the pressure sensor (S1) is too low during evacuation. The vacuum was not generated within the specified time.	a) Check the dust filter for contamination and replace it if necessary. b) Check whether paper or similar underneath the device is blocking the air flow of the cooling system. c) Check whether the permissible load quantities of the device have been observed. d) Check the pressure release filter in the sterilization chamber for blockages. e) Observe the installation and ambient conditions (e.g. temperature, distances) and ensure sufficient ventilation of the device. If this occurs repeatedly, please contact the technical service.
10257	The pressure change at the pressure sensor (S1) is too low during evacuation. The vacuum was not generated within the specified time.	a) Check the dust filter for contamination and replace it if necessary. b) Check whether paper or similar underneath the device is blocking the air flow of the cooling system. c) Check whether the permissible load quantities of the device have been observed. d) Check the pressure release filter in the sterilization chamber for blockages. e) Observe the installation and ambient conditions (e.g. temperature, distances) and ensure sufficient ventilation of the device. If this occurs repeatedly, please contact the technical service.
10262	The compressed air support pressure in the sterilization chamber was not built up within the specified time.	a) Check the compressed air supply as well as the instruments and adapters for free passage. b) Run the **`Carebox test`** service program. If this occurs repeatedly, please contact the technical service.
10263	During the pressure release of Carebox detection, the pressure change at pressure sensor (S1) is too low. The pressure release did not take place within the specified time.	a) Check that the outside of the Carebox is dry before inserting it in the Careclave. b) If necessary, remove residual moisture from the sterilization chamber or allow it to evaporate. c) Check whether the outlet hose at the rear of the device (hatched drop) is kinked. d) Check the pressure release filter in the sterilization chamber for blockages. If this occurs repeatedly, please contact the technical service.

Event	Possible cause	What you can do
10264	During pressure release as part of Carebox detection (continuity check), the pressure change at pressure sensor (S1) is too low. The pressure release did not take place within the specified time. Falling droplets may have caused a high pressure increase.	a) Check that the outside of the Carebox is dry before inserting it in the Careclave. b) If necessary, remove residual moisture from the sterilization chamber or allow it to evaporate. c) Check whether the outlet hose at the rear of the device (hatched drop) is kinked. d) Check the pressure release filter in the sterilization chamber for blockages. If this occurs repeatedly, please contact the technical service.
10266	A drop in vacuum performance has been detected.	a) Check the dust filter for contamination and replace it if necessary. b) Check whether paper or similar underneath the device is blocking the air flow of the cooling system. c) Check whether the permissible load quantities of the device have been observed. d) Check the pressure release filter in the sterilization chamber for blockages. e) Observe the installation and ambient conditions (e.g. temperature, distances) and ensure sufficient ventilation of the device. If this occurs repeatedly, please contact the technical service.
10267	A drop in vacuum performance has been detected.	a) Check the dust filter for contamination and replace it if necessary. b) Check whether paper or similar underneath the device is blocking the air flow of the cooling system. c) Check whether the permissible load quantities of the device have been observed. d) Check the pressure release filter in the sterilization chamber for blockages. e) Observe the installation and ambient conditions (e.g. temperature, distances) and ensure sufficient ventilation of the device. If this occurs repeatedly, please contact the technical service.
10268	A decreasing steam inlet speed was detected.	Check whether the permissible load quantities of the device have been observed. If this occurs repeatedly, please contact the technical service.
10269	A decreasing speed during ventilation was detected.	Check the sterile filter behind the service hatch and replace it if it is soiled or blocked. If this occurs repeatedly, please contact the technical service.

Event	Possible cause	What you can do
10270	A decreasing speed during pressure release was detected.	a) Check the dust filter for contamination and replace it if necessary. b) Check whether paper or similar underneath the device is blocking the air flow of the cooling system. c) Check whether the permissible load quantities of the device have been observed. d) Check the pressure release filter in the sterilization chamber for blockages. e) Observe the installation and ambient conditions (e.g. temperature, distances) and ensure sufficient ventilation of the device. If this occurs repeatedly, please contact the technical service.
10271	The conductivity of the feed water is poor (≤40 µS/cm). A program start is still possible.	Replace the water in the feed water tank without delay or restore the capacity of the water treatment unit in accordance with the user manual.
10272	The conductivity of the feed water is poor (≤40 µS/cm). A program start is still possible.	Replace the water in the feed water tank without delay or restore the capacity of the water treatment unit in accordance with the user manual.
10273	The conductivity of the feed water is insufficient (≤60 µS/cm). A program start is not possible.	Replace the water in the feed water tank without delay or restore the capacity of the water treatment unit in accordance with the user manual.
10274	The conductivity of the feed water is insufficient (≤60 µS/cm). A program start is not possible.	Replace the water in the feed water tank without delay or restore the capacity of the water treatment unit in accordance with the user manual.
10275	The water inlet into the double jacket is too low (≤120 ml/min).	a) Remove the filter from the feed water tank. b) Clean the filter under running water and re-insert it. If this occurs repeatedly, please contact the technical service.
10276	The water inlet into the Carebox is too low (<120 ml/min).	a) Remove the filter from the feed water tank. b) Clean the filter under running water and re-insert it. If this occurs repeatedly, please contact the technical service.
10277	The oil can is almost empty (~20 ml).	Have a new oil can ready.
10278	The manual feed water supply is activated. The device must be filled with at least 1.5 l of demineralised water.	Before starting the next program, fill the feed water tank with at least 1.5 l of demineralised water or ensure an automatic water supply via a water treatment unit.

Event	Possible cause	What you can do
10279	A decreasing speed during pressure release via the Carebox was detected.	a) Check the fit and condition of the Carebox. Clean it if necessary. b) Check the sieve in the lower section of the Carebox and clean it if necessary. c) Replace the filter after 1000 Care programs. b) Check the condition of the media seals on the rear of the Carebox and replace them if necessary. e) Check whether the outlet hose at the rear of the device (hatched drop) is kinked. If this occurs repeatedly, please contact the technical service.
10280	During pressure release as part of Carebox detection, the pressure change at pressure sensor (S1) is too high. The pressure has been released too quickly. Falling droplets may have caused an excessive pressure increase.	a) Check that the outside of the Carebox is dry before inserting it in the Careclave. b) If necessary, remove residual moisture from the sterilization chamber or allow it to evaporate. c) Check whether the outlet hose at the rear of the device (hatched drop) is kinked. d) Check the pressure release filter in the sterilization chamber for blockages. If this occurs repeatedly, please contact the technical service.
10281	During pressure release as part of Carebox detection, the pressure change at pressure sensor (S1) is too high. The pressure has been released too quickly.	a) Check the dust filter for contamination and replace it if necessary. b) Check whether paper or similar underneath the device is blocking the air flow of the cooling system. c) Check whether the permissible load quantities of the device have been observed. d) Check the pressure release filter in the sterilization chamber for blockages. e) Observe the installation and ambient conditions (e.g. temperature, distances) and ensure sufficient ventilation of the device. If this occurs repeatedly, please contact the technical service.
10282	During pressure release as part of Carebox detection (continuity check), the pressure change at pressure sensor (S1) is too low. The volume flow during pressure release is too low. Falling droplets may have caused an excessive pressure increase.	a) Check that the outside of the Carebox is dry before inserting it in the Careclave. b) If necessary, remove residual moisture from the sterilization chamber or allow it to evaporate. c) Check whether the outlet hose at the rear of the device (hatched drop) is kinked. d) Check the pressure release filter in the sterilization chamber for blockages. If this occurs repeatedly, please contact the technical service.

Event	Possible cause	What you can do
10283	The vacuum was built up too quickly. The vacuum performance is too high. The program run was cancelled.	a) Check the dust filter for contamination and replace it if necessary. b) Check whether paper or similar underneath the device is blocking the air flow of the cooling system. c) Check whether the permissible load quantities of the device have been observed. d) Check the pressure release filter in the sterilization chamber for blockages. e) Observe the installation and ambient conditions (e.g. temperature, distances) and ensure sufficient ventilation of the device. If this occurs repeatedly, please contact the technical service.
10286	The vacuum was built up too quickly. The vacuum performance is too high. The program run was cancelled.	a) Check the dust filter for contamination and replace it if necessary. b) Check whether paper or similar underneath the device is blocking the air flow of the cooling system. c) Check whether the permissible load quantities of the device have been observed. d) Check the pressure release filter in the sterilization chamber for blockages. e) Observe the installation and ambient conditions (e.g. temperature, distances) and ensure sufficient ventilation of the device. If this occurs repeatedly, please contact the technical service.
11000	The connected USB stick was not recognised. It may not be correctly formatted.	a) Format the USB stick using the FAT file system. b) Replace the USB stick if the message continues to appear.
11001	Multiple USB sticks are connected. Only one USB stick is supported.	Remove all USB sticks except one.
11002	No USB stick is connected.	Connect a USB stick to the interface behind the service hatch.
11003	There is not enough free space on the USB stick for the required log data.	a) Transfer the logs from the USB stick to your computer. b) Delete the saved logs from the USB stick to create memory space for the new logs.
11004	The output of the log data on the USB stick has failed.	Connect a USB stick to the interface behind the service hatch.
11006	The maximum number of program logs not output has been reached. The oldest log will be overwritten during the next program run.	a) Transfer the internally stored logs to a USB stick or into your practice network. b) Alternatively, configure automatic log output in the settings menu.
11007	The printer cover was open while a print job was being sent.	Close the printer cover.
11008	The label roll in the printer is used up.	Load a new label roll into the printer.
11009	A printer is configured but not connected.	a) Connect a printer to the network interface on the back of the device. b) Restart the device. c) Restart the printer.

Event	Possible cause	What you can do
11011	Multiple printers are connected. Only one printer is supported.	a) Remove all printers except one. b) Restart the device. c) Restart the printer.
11012	The label roll in the printer is almost used up.	Hold a new label roll ready.
11013	General printer error.	a) Restart the device. b) Restart the printer.
11100	The log output was cancelled due to a connection error.	Check the network interface at the back of the device.
14105	An actuator/sensor error has occurred.	In case of malfunction (open load) at AIN10: Switch the device off and on again to rectify the error. If this occurs repeatedly, please contact the technical service and state which sensor/ actuator is affected by the malfunction.
14137	An actuator/sensor error has occurred.	In case of malfunction (open load) at ACOUT 1 and 2: Press the reset button of the overheating protection behind the service hatch. If this occurs repeatedly, please contact the technical service and state which sensor/ actuator is affected by the malfunction.
14138	An actuator/sensor error has occurred.	In case of malfunction (open load) at ACOUT 1 and 2: Press the reset button of the overheating protection behind the service hatch. If this occurs repeatedly, please contact the technical service and state which sensor/ actuator is affected by the malfunction.
19999	A software error has occurred.	Restart the device by pressing the Power button and keeping it pressed for several seconds. If this occurs repeatedly, please contact the technical service.

17 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
Floor loading (normal operation)	2.6 kN/m²
Floor loading (pressure resistance test)	2.91 kN/m²
Sterilization chamber	
Diameter	25 cm
Depth	35 cm
Volume (chamber / steam generator)	17.8 l/4.4 l
Carebox	
Volume	2.4 l
Electrical connection	
Power supply	220-240 V, 50 Hz
Max. voltage range	207-253 V Fluctuations of the mains supply voltage up to ± 10 % of the nominal voltage
Electrical power	3000 W
Max. power consumption in idle state	0.5 W
Building fuse	13 A, RCD 30 mA
Length of the power cable	2 m
Overvoltage category (in accordance with EN 61010-1)	transient overvoltages up to the values of overvoltage category II
Disconnecting device	Power connector
Other	Additional socket 220-240 V, 50 Hz for printer MELAprint 60/80
Ambient conditions	
Installation location	interior of a building (dry and protected from dust)
Installation surface	level, horizontal and waterproof/sealed
Noise emission LP(a) in 1 m distance	63.1 dB(A)
Heat emission (with max. load)	1.7 kWh
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
Degree of contamination (in accordance with EN 61010)	2

Feed water	
Average water consumption	2.5 l/cycle
Max. water consumption	5 l/cycle
Max. water consumption in the program Care-Therm	1.0 l
Max. water consumption in the program Care-S	1.2 l
Max. water consumption in the program Care-B	1.3 l
Min. flow pressure	0.5 bar at 1.0 l/min
Water temperature	5-35 °C (ideal 15-20 °C)
Water quality	Distilled or demineralised water in accordance with EN 13060, Appendix C
Cold water (when using a water treatment unit)	The technical data for the cold water can be found in the user manual of the relevant water treatment unit.
Compressed air	
Min. pressure	4 bar relative
Max. pressure	8 bar relative
Min. supply	55 Nl/min
Average consumption	50 Nl/cycle
Quality	Dried, condensate-free, bacteria-free, oil-free and filtered (filter fineness ≤ 2 µm)
Wastewater	
Max. throughflow volume	2 l/min
Max. water temperature	90 °C for 30 s, maximum 98 °C for 1 s
Working and operating pressures	
Permitted operating pressure, sterilization chamber	-1 bar to +3 bar relative
Permitted operating pressure jacket	-1 bar to +3 bar relative
Working pressure sterilization chamber/double jacket steam generator	2.2 bar relative

18 Components, accessories and spare parts

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

Careclave components

Category	Article	Art. no.
Holders	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
	Universal mount (short)	ME22921
Trays	Tray (11.5 x 10.7 cm)	ME21776
	Tray (18.5 x 13.5 cm)	ME21774
	Tray (29 x 19 cm)	ME00280
	Tray, narrow (27 x 11 cm)	ME01320
	Tray for universal mount (short)	ME22923
	Tray for universal mount, flat (short)	ME22925
Package holder	Package holder	ME22410

Carebox components

Category	Article	Art. no.
Carebox	Carebox Blue	ME10708
	Carebox Green	ME10704
Carebox Blue	Adapter for turbines KaVo coupling (MULTIflex)	ME02601
	Adapter for turbines Sirona coupling	ME02602
	Adapter for unused connections	ME02603
	Adapter for Sirona T1 Classic	ME02604
	Adapter for turbines W&H coupling (Roto Quick)	ME02605
	Adapter for KaVo/BienAir contra angle heads	ME02606
	Adapter for ISO coupling (INTRA)	ME02607
	Adapter for BienAir turbines	ME02608
	Adapter for Midwest connection (4/5 hole)	ME02609
	Adapter for turbines NSK connector (Phatelus)	ME02611
	Adapter for external spray channels	ME21914

Category	Article	Art. no.
Carebox Green	Adapter M8x1, concentric	ME22406
	Adapter M8x1, eccentric	ME22407
	Adapter for EMS AIR-FLOW Handy 3.0	ME80613
	Adapter for EMS AIR-FLOW Prophylaxis Master	ME80614
	Adapter for KaVo multifunctional cannula	ME80803
	Adapter M3.0 x 0.5 mm, external thread	ME80750
	Adapter M3.6 x PH1.5 P0.5, internal thread	ME80751
	Adapter M3.0 x 0.35 mm, external thread	ME80752
	Adapter M3.5 x 0.35 mm, internal thread	ME80755
	Adapter M3.0 x 0.6 mm, external thread	ME80756
	Adapter M3.5 x 0.6 mm, internal thread	ME80760
	Adapter M3.0 x 0.5 mm, internal thread	ME80790

Careclave accessories

Category	Article	Art. no.
Films	MELAfol 501 (pouch, 5 x 25 cm, 1000 pcs.)	ME00501
	MELAfol 502 (roll, 5 cm x 200 m)	ME00502
	MELAfol 751 (pouch, 7.5 x 25 cm, 1000 pcs.)	ME00751
	MELAfol 752 (roll, 7.5 cm x 200 m)	ME00752
	MELAfol 1001 (pouch, 10 x 25 cm, 1000 pcs.)	ME01001
	MELAfol 1002 (roll, 10 cm x 200 m)	ME01002
	MELAfol 1502 (roll, 15 cm x 200 m)	ME01502
	MELAfol 2002 (roll, 20 cm x 200 m)	ME02002
	MELAfol 2051 (side gusset bag, 20 x 50 cm, 100 pcs.)	ME02051
	MELAfol 2502 (roll, 25 cm x 200 m)	ME02502
Test body system	MELAcontrol Helix	ME01082
	SteriHero Helix	ME01084
Sterilization container with single-use paper filter according to EN 868-8	15K (18 x 12 x 4.5 cm)	ME01151
	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 Box 100 (31.2 x 19 x 4.6 cm)	ME01191
	MELAstore Box 200 (31.2 x 19 x 6.5 cm)	ME01192

Other equipment

Category	Article	Art. no.
Test body system	MELAcontrol Pro (incl. 40 indicator strips)	ME01075
	MELAcontrol Pro refill pack (250 pcs. incl. seal)	ME01076
Water treatment	MELAdem 47 reverse osmosis unit	ME01047
	Pressure increase pump for MELAdem 47	ME22500
	MELAdem 53 with 2 containers (20 l each)	ME01038
	MELAdem 53 C with 2 containers (15 l each)	ME01036
Water supply	Water stop (leakage water detector with shut-off valve and probe)	ME01056
	Filling pump	ME65010
Door	Test gauge TR16 for door lock nut	ME27522
	Allen key for door emergency opening	ME36810
Documentation	USB stick	ME19901
	MELAprint 60 label printer	ME01160
	MELAprint 80 universal printer	ME01108
	Network cable, 2.5 m	ME15817
	Network cable, 5 m	ME15814
	Network cable, 10 m	ME15815
	Fast Ethernet Switch	ME76600
Other	Carrying strap (2 pcs.)	ME21121
	Tray lifter	ME28888
	Heat protection gloves	ME89600
	Chamber Protect chamber cleaning set	ME01081
	Cooling Box	ME11000
	Table mount for Carebox upper section	ME22161

Spare parts

Careclave spare parts

Category	Article	Art. no.
Careclave	MELAG oil for door lock nut	ME27515
	Test gauge TR16 for door lock nut	ME27522
	MELAG Care Oil	ME84740
	Dust filter	ME82260
	Sterile filter	ME22872
	Feed water tank filter	ME21358
	Tank lid	ME21431
	Nozzle for chuck care	ME80016
	Power cable with hot device plug	ME21301
	Power cable C21 type E+F	ME21301
	Power cable C21 Type J (SEV) (Switzerland)	ME21302
	Power cable C21 Type I (AS3112) (Australia)	ME21303
	Power cable C21 Type I (GB2099-1/GB1002) (China)	ME21304
	Power cable C21 Type G (United Kingdom)	ME21305
	Power cable C21, type CEE16, blue	ME21306
	Power cable C21 Type K (Denmark)	ME21307
	Power cable C21 Type H (Israel)	ME21308

Carebox spare parts

Category	Article	Art. no.
Carebox	Measuring device for Carebox	ME21273
	Carebox mount for device side	ME22162
	Mount for Carebox Green filter	ME21405
	Mount for Carebox Blue filter	ME21406
Carebox upper section	Screwdriver TX6 for adapters	ME21867
	Sealing set for adapter foot (8 pcs.)	ME21328
Carebox lower section	Carebox filter (12 pcs.)	ME21412
	Sieve for Carebox	ME10701
	Housing seal	ME21404
	Fixing clamp for the sieve	ME21692
Carebox upper section and Carebox lower section	Set of media seals for Carebox (2 large, 5 small): 2x media seal large 5x media seal small	ME21465

Carebox adapter spare parts

Category	Article	Art. no.
Carebox Blue	O-rings for ISO adapter (10 pcs.)	ME02627
	O-rings for Sirona T1 Classic adapter (5 pcs.)	ME02624
	O-rings for Sirona turbine adapters (9 pcs.)	ME02622
	O-ring set for KaVo turbine adapters (Multiflex) (set for 1 adapter)	ME02621
	O-ring set for W&H turbine adapter (Roto Quick) (set for 1 adapter)	ME02625
Carebox Green	O-ring set for BienAir turbine adapters (set for 1 adapter)	ME02628

19 Technical tables

Feed water quality

Minimum requirements to the feed water following EN 13060, Appendix C

Substance/property	Feed water
Evaporation residue	≤ 10 mg/l
Silicon oxide, SiO_2	≤ 1 mg/l
Iron	≤ 0.2 mg/l
Cadmium	≤ 0.005 mg/l
Lead	≤ 0.05 mg/l
Traces of heavy metal apart from iron, cadmium, lead	≤ 0.1 mg/l
Chloride	≤ 2 mg/l
Phosphate	≤ 0.5 mg/l
pH value	5 - 7.5
Appearance	≤ colourless, clear, without sediments
Hardness	≤ 0.02 mmol/l

Precision and drift behaviour

Sensors

Temperature sensors

Sensor type	PT 1000 Class A according to DIN EN 60751
Precision (at 135 °C)	± 0.42 K
Drift per year	± 0.05 K
Drift in 5 years	± 0.25 K

Pressure sensor

Sensor type	Piezoresistant absolute pressure sensor 0 to 4000 mbar
Precision	± 0.3 % corresponds to ± 12 mbar corresponds to approx. ± 0.13 K steam
Drift per year	± 0.2 % corresponds to ± 8 mbar corresponds to approx. ± 0.09 K steam
Drift in 5 years	± 1.0 % corresponds to ± 40 mbar corresponds to approx. ± 0.44 K steam

Measuring chains

Measuring chain for the temperature measurement on the electronics (without sensor)

Precision (at 135 °C)	± 0.2 K
Drift per year	± 0.005 K
Drift in 5 years	± 0.025 K

Measuring chain for the pressure measurement on the electronics (without sensor)

Precision	± 0.2 % corresponds to ± 8.0 mbar corresponds to approx. ± 0.09 K steam
Drift per year	± 0.004 % corresponds to ± 0.16 mbar corresponds to approx. ± 0.017 K steam
Drift in 5 years	± 0.02 % corresponds to ± 0.8 mbar corresponds to approx. ± 0.09 K steam

After 1 year

Entire measurement sequence of temperature measurement

Precision (at 135 °C)	at pure addition of indiv. malfunctions approx. ± 0.70 K
	according to Gauss's law of propagation approx. ± 0.47 K

Entire measurement sequence of pressure measurement

Precision	at pure addition of indiv. errors	± 0.70 % corresponds to ± 28.0 mbar corresponds to approx. ± 0.30 K steam temperature
	per Gaussian law of propagation	± 0.41 % corresponds to ± 16.5 mbar corresponds to approx. ± 0.18 K steam temperature

After 5 years

Entire measurement sequence of temperature measurement

Precision (at 135 °C)	at pure addition of indiv. malfunctions approx. ± 0.70 K
	according to Gauss's law of propagation approx. ± 0.47 K

Entire measurement sequence of pressure measurement

Precision	at pure addition of indiv. errors	± 0.70 % corresponds to ± 28.0 mbar corresponds to approx. ± 0.30 K steam temperature
	per Gaussian law of propagation	± 0.41 % corresponds to ± 16.5 mbar corresponds to approx. ± 0.18 K steam temperature

Nominal value tolerances

Step	P [mbar$_a$]	T [°C]	Care-S and Care-B	Care-Therm	Universal-B	Gentle-B	Quick-S	Program phase
			Tolerance P/T					
SP-S	---	---	---	---	---	---	---	Program start
CP1	---	---	---	---	---	---	---	Carebox detection
KU1	w 3000	---	+2000/ -200	◄	x	x	x	External cleaning
ZU1	w 3000	---	+2000/ -200	◄	x	x	x	External cleaning
WU1	w 3000	w 55	P: +2000/ -200 and T≥ 55 °C	◄	x	x	x	Outdoor cleaning warm
DH1	---	A0 3000	x	min. A0 3000	x	x	x	Disinfection heating *)
P1	---	---	---	---	x	x	x	Maintenance process
P2	---	---	---	---	x	x	x	Maintenance process
SV1	c 500	---	+30/-30	x	x	x	x	Pre-evacuation
SK11	c 525	---	+100/-20	x	x	x	x	Steam inlet drive channels
SK12	c 550	---	+100/-20	x	x	x	x	Steam inlet spray channels
SK13	c 1500	---	+100/-20	x	x	x	x	Steam inlet sterilization chamber

Step	P [mbar$_a$]	T [°C]	Care-S and Care-B	Care-Therm	Universal-B	Gentle-B	Quick-S	Program phase	
			Tolerance P/T						
SH1	c 1500	---	+100/ -100	x	x	x	x	Conditioning hold	
SF2	c 500	---	+30/-30	x	x	x	x	Fractionation evacuation	
SK21	c 525	---	+100/-20	x	x	x	x	Steam inlet drive channels	
SK22	c 550	---	+100/-20	x	x	x	x	Steam inlet spray channels	
SK11	c 1900	---	x	x	+100/-20	c 1800 ●	c 1800 ●	Conditioning steam inlet	
SK12	c 1900	---	x	x	+100/ -500	c 1800 ●	●	Conditioning hold	
SK13	c 1300	---	x	x	+20/-50	●	●	Conditioning pressure release	
SF12	c 300	---	x	x	+30/-30	●	c 225 ●	Fractionation evacuation	
SF13	c 2100	---	x	x	+100/-20	c 1800 ●	●	Fractionation steam inlet	
SF21	c 1300	---	x	x	+20/-50	●	●	Fractionation pressure release	
SF22	c 200	---	x	x	+30/-30	●	c 150 ●	Fractionation evacuation	**)
SF23	c 2100	---	x	x	+100/-20	c 1800 ●	x	Fractionation steam inlet	
SF31	c 1300	---	x	x	+20/-50	●	x	Fractionation pressure release	
SF32	c 500	---	x	x	+30/-30	●	x	Fractionation evacuation	
SF33	c 2000	---	x	x	+100/-20	c 1500 ◄	◄	Fractionation steam inlet	
SH1	c 2950	---	+60/-60	x	◄	c 1850 ◄	◄	Hold steam inlet	
SH2	c 2950	---	+60/-60	x	◄	c 1950 ◄	◄	Hold control	
SS1	c 3031	c 134	+60/-60	x	◄	c 2080 ◄	◄	Sterilization entry	
SS2	c 3170	c 135.3	+60/-60	x	◄	c 2150 ◄	◄	Sterilization	
SA1	c 3000	---	+20/-50	x	x	x	x	Pressure release Carebox	
SA2	c 1943	---	+20/-50	x	1300	◄	◄	Pressure release	
VAT	c 190	---	---	◄	◄	x	x	Drying evacuation	
TDL	c 741	---	---	◄	◄	x	x	Drying compressed air	
ST12	c 80	---	x	x	---	---	---	Drying hold	
ST13	c 180	---	x	x	---	---	---	Drying ventilation	
ST21	c 80	---	x	x	---	---	---	Drying evacuation	
ST22	c 80	---	x	x	---	---	---	Drying hold	**)
ST23	c 180	---	x	x	---	---	---	Drying ventilation	
ST31	c 80	---	x	x	---	---	---	Drying evacuation	
ST32	c 80	---	x	x	---	---	---	Drying hold	
SB12	c ***)	---	---	---	---	---	---	Ventilation	
SP-E	---	---	Value	◄	◄	◄	◄	Program end	

Key:

*) only Care-Therm

**) only Universal-B

● as in the Universal-B

--- not specified

c = chamber (chamber pressure)

***) ambient pressure

◄ as in the Care-S

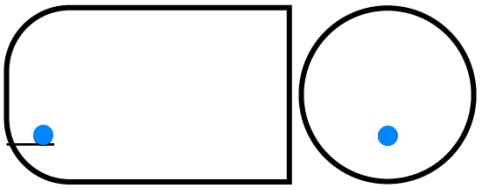
x not applicable

w = water (rinse liquor pressure)

Empty chamber test

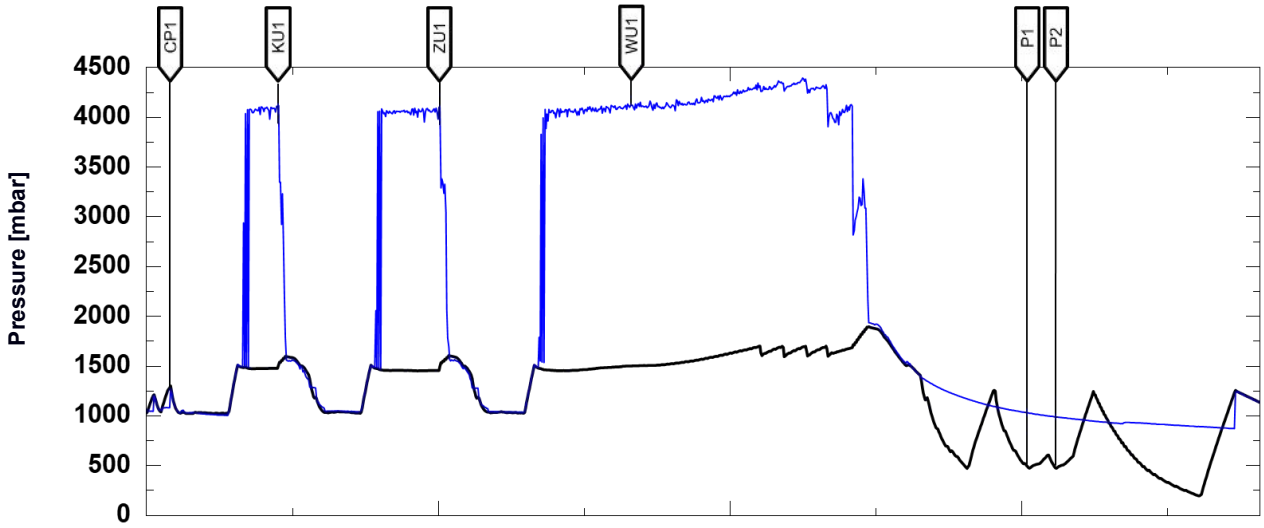
The coldest point in the sterilization chamber during the empty chamber test lies directly on the temperature sensor (see circular marking in the following figure). The temperature in the rest of the sterilization chamber is almost the same all over (0.6 K range).

Schematic side and fore view of the sterilization chamber

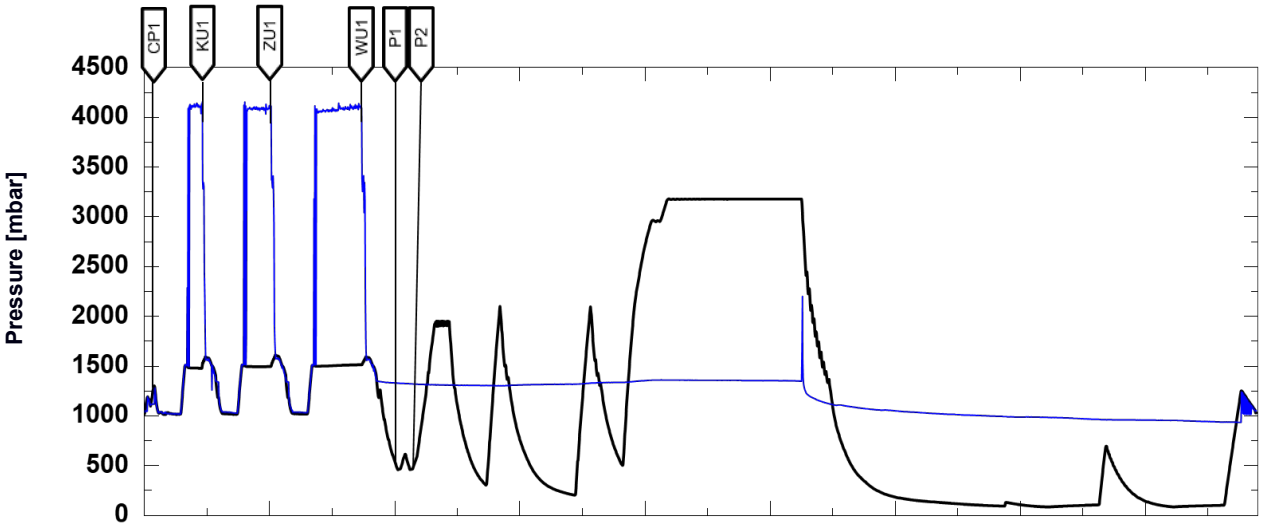


Pressure-time chart

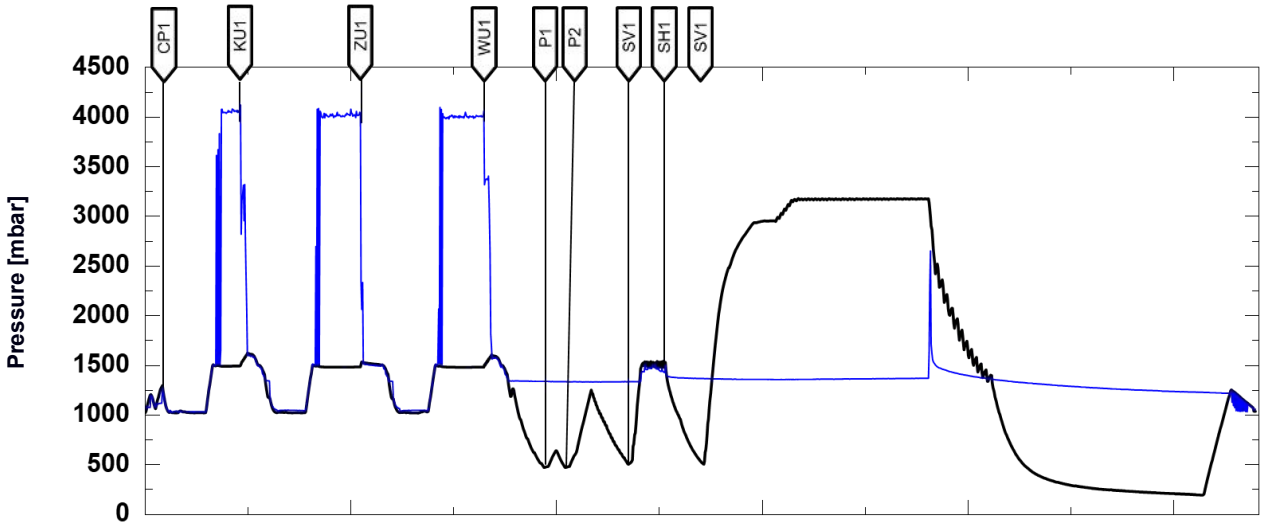
Pressure-time diagram for Care-Therm, A0 > 3000



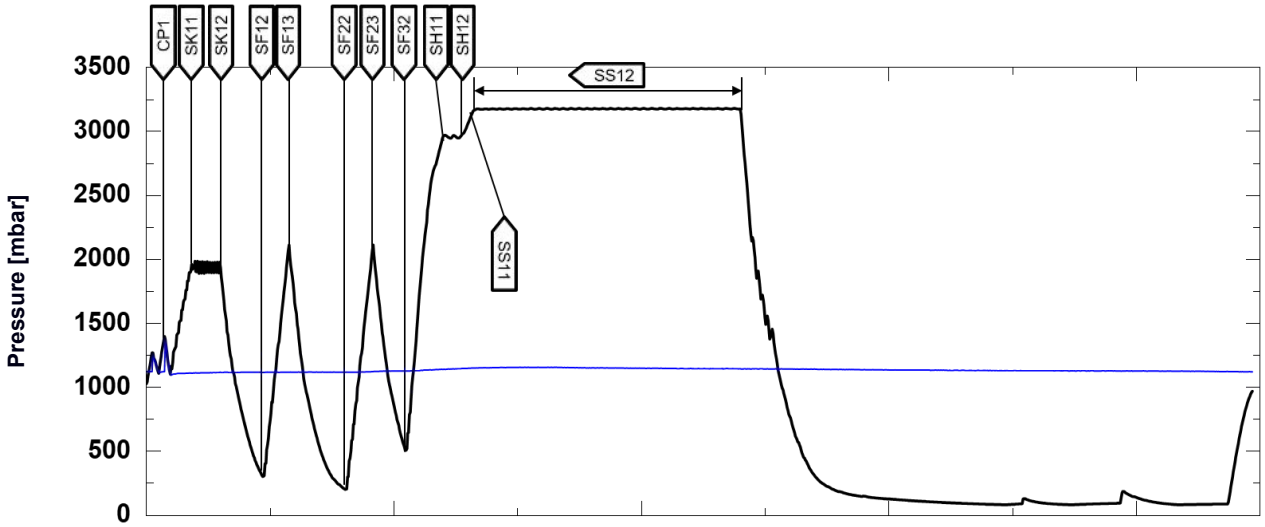
Pressure-time diagram for Care-B



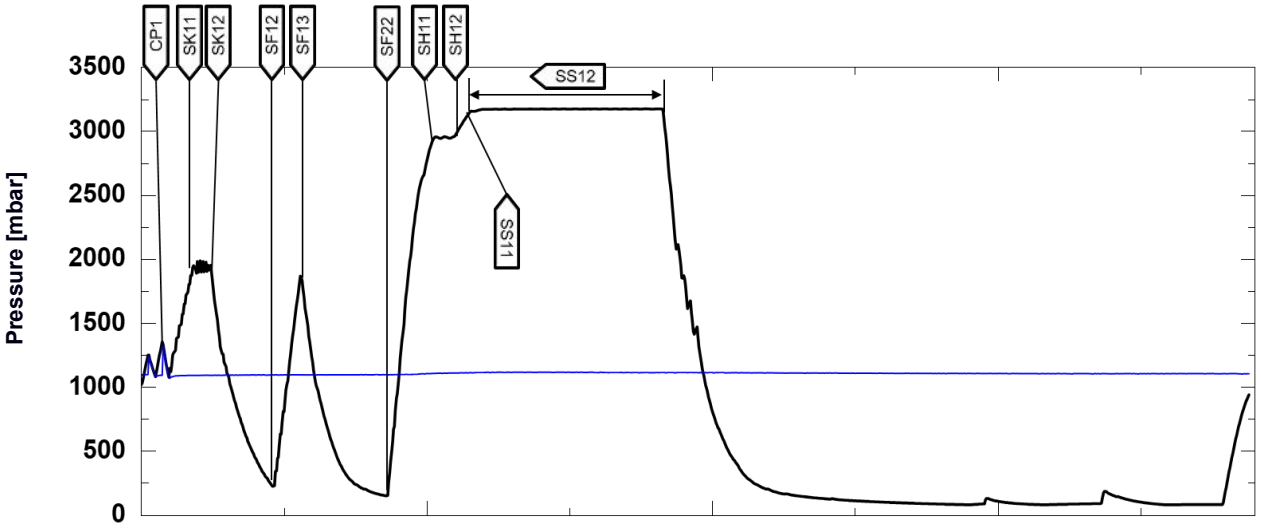
Pressure-time diagram for Care-S, 134°C and 2.1 bar



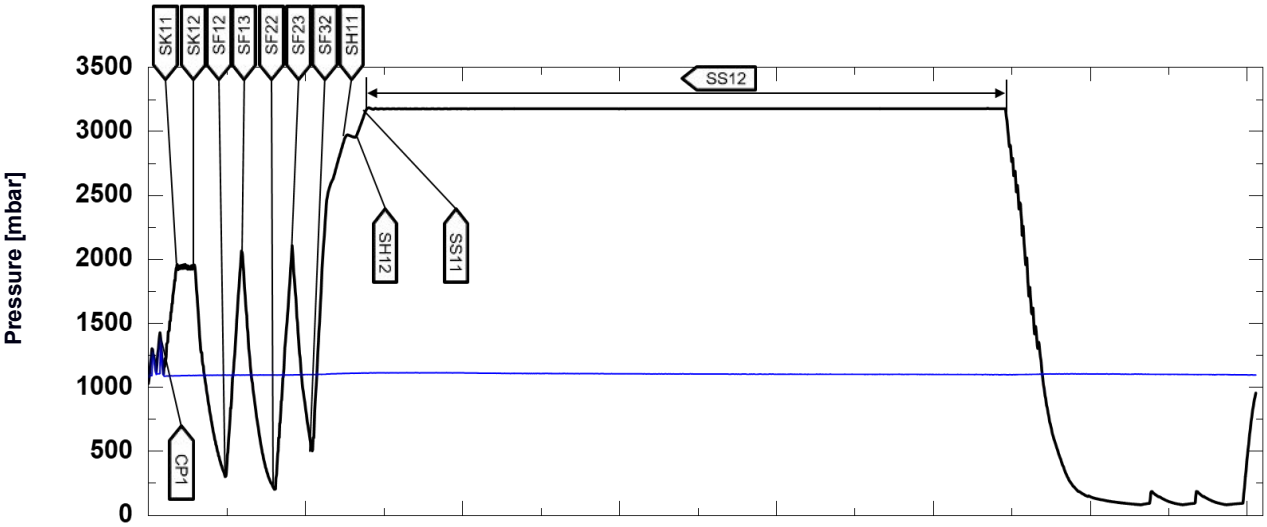
Pressure-time diagram for Universal-B, 134°C and 2.1 bar



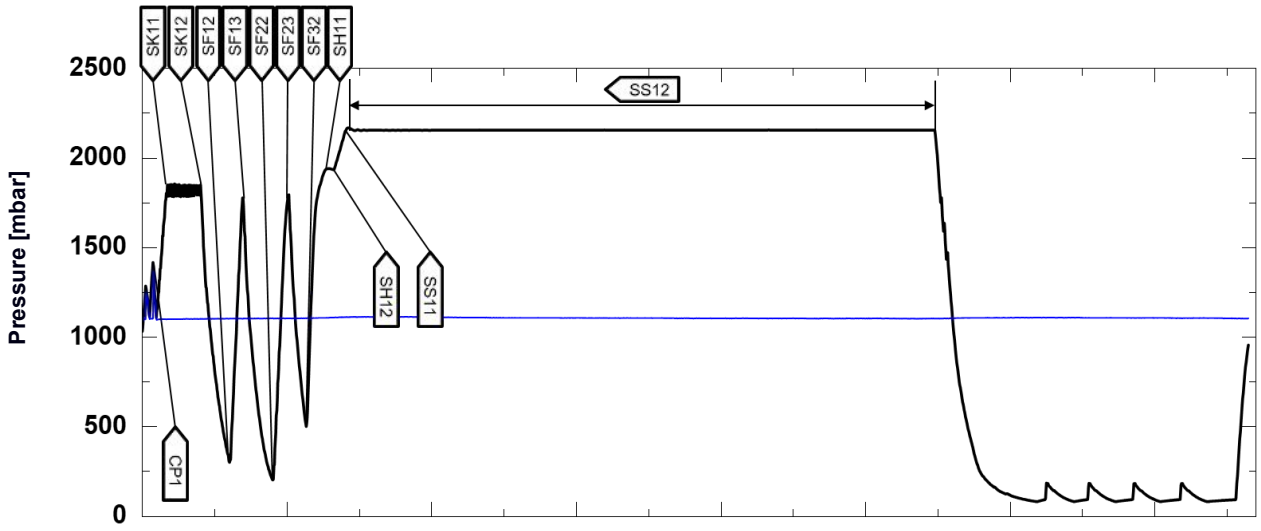
Pressure-time diagram for Quick-S



Pressure-time diagram for Prion-B



Pressure-time diagram for Gentle-B



Type plate steam generator

CE 0035 PED 2014/68/EU
DIN EN 13445:2014 Fluid group: 2
MELAG Medizintechnik GmbH & Co. KG, Geneststr.6-10, D-10829 Berlin

	Jacket:	Chamber:
Ps=Pd:	-1...3 bar	-1...3 bar
Ts,max=Td:	145°C	145°C
Ts,min:	5°C	5°C
Volume:	4,4 l	17,8 l
PT:	6,3 bar	4,7 bar
Test date:MM/JJJJ		Power:3kW
S/N:ABJJXXXXX-vv		MELAG:82420

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.

Accessory
Accessories are independent articles that are used with one or several medical devices. Accessories specifically and directly assist the intended purpose of the medical device.

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

AKI
AKI is the abbreviation for “Arbeitskreis Instrumentenaufbereitung” [Instrument Reprocessing Working Group].

Authorised technician
An authorised technician is a person intensively trained and authorised by MELAG who has sufficient specific device and technical knowledge. 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
BfArM is the abbreviation for “Bundesinstitut für Arzneimittel und Medizinprodukte” [Federal Institute for Drugs and Medical Devices] in Germany.

Bowie & Dick test
The Bowie & Dick test is a vapour penetration test with standard test package, see EN 285. This test is recognised in large-scale sterilization.

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.

Component
A component is a part of a medical device, which is delivered with it but is not permanently connected to it. A component supports or achieves the intended purpose of the medical device for at least one use case. It is not an independent accessory or medical device.

Condensate
Condensate is a liquid (e.g. water) that emerges from the vapour state when cooled and thus separates.

Conductivity
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
Corrosion is the chemical alteration or destruction of metallic materials by water and chemical substances.

Delay in boiling
Superheating is the phenomenon that it is possible under certain circumstances to heat liquids beyond their boiling point without them boiling. This condition is unstable. Low-level agitation can produce a large bubble within the shortest period; this can expand explosively.

Demineralised water
Demineralised water does not contain minerals that are found in normal spring or tap water. It is obtained from tap water by ion exchange and used as feed water.

DGSV
DGSV is the abbreviation for “Deutsche Gesellschaft für Sterilgutversorgung” [German Society for Sterile Supply]. The training guidelines of the DGSV are listed in DIN 58946, Part 6 as requirements for 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 for “Sterilization – Sterile supply”

Distilled water
Distilled water is largely free of salts, organic substances, and micro-organisms. It is obtained by distillation (evaporation and subsequent condensation) from normal tap water or pre-purified water. Distilled water is used as feed water.

Dynamic pressure test
The dynamic pressure test serves to prove that the rate of pressure variations in the sterilization chamber during a sterilization cycle does not exceed a particular value which could result in the damage of the packaging material, see EN 13060.

Empty chamber test
The empty chamber test is a test without a load and is performed to assess the performance of the steam sterilizer without the influence of a load. This allows the temperatures and pressures obtained to be checked against the intended settings, see EN 13060.

EN 13060
Standard for “Small steam sterilizers”

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

EN ISO 11607-1
Standard for “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 for “Washer-disinfectors”

Equipment
Equipment is an article that can be used with the medical device, however, it is not necessary for assisting and/or achieving the intended purpose of the medical device. It is not an independent accessory or medical device.

Evacuation
Evacuation is the creation of a vacuum in a vessel.

Feed water
Feed water is required to generate the water vapour for sterilization; guide values for water quality in accordance with EN 285 or EN 13060 – Appendix C.

Fractionated vacuum procedure
The fractionated vacuum process is a technical process of steam sterilization. This procedure includes the repeated evacuation of the sterilization chamber in alternation with steam injection.

FTP
FTP (File Transfer Protocol) is a data transmission procedure serving to transfer 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.

IEC 61326-1
Standard for “Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements”

KRINKO
KRINKO is the abbreviation for “Kommission für Krankenhaushygiene und Infektionsprävention” [Commission for Hospital Hygiene and Infection Prevention] at the Robert Koch Institute in Germany.

Load
The load includes products, equipment, or materials that are reprocessed together in one operating cycle.

Medical device
Medical device means any instrument, apparatus, appliance, software, implant, reagent, material or other article intended by the manufacturer to be used, alone or in combination, for human beings for one or more of the specific medical purposes in accordance with Regulation (EU) 2017/745 Article 1, Paragraph 4.

Mixed loads
The load within a batch includes both packed and unpacked products.

Multiple wrapping
The load is sealed in a double layer of film, instruments wrapped in foil are additionally planed in a container or containers wrapped in textiles.

pH Value
The pH value is a measure of the strength of the acid or alkali effect of a watery solution.

Porous
Porous describes the property of materials (e.g. textiles) to allow water, air, or other liquids to pass through.

Porous full load
The porous full load specification serves to prove that the values set at the control satisfy the necessary sterilization conditions in porous loads with the maximum density for whose sterilization a steam sterilizer is designed to EN 13060.

Porous partial load
The porous partial load specification serves to prove that the values set on the control allow steam to enter the pre-determined test package quickly and equally, see EN 13060.

Pre-heating time
The preheating time is the time required for preheating the double-jacket steam generator after starting up the device or after starting a reprocessing program before the sterilization process starts. The duration depends on the sterilization temperature.

Process evaluation system
The process evaluation system (also known as “self-monitoring system”) monitors itself and compares sensors during running programs.

Product with narrow lumen
A product with narrow lumen is either open on one side or on both sides. The following applies for an article open on one side: $1 \leq L/D \leq 750$ and $L \leq 1500$ mm. The following applies for an article open on both sides: $2 \leq L/D \leq 1500$ and $L \leq 3000$ mm and which does not correspond to the hollow body B (L = hollow body length, D = hollow body diameter), see EN 13060.

Qualified electrician

The qualified electrician has the suitable technical training, knowledge, and experience to recognise and avoid hazards that can be caused by electricity, see IEC 60050 or for Germany VDE 0105-100.

Reprocessing

Reprocessing is a measure to prepare a new or used healthcare device for its intended purpose. Reprocessing includes cleaning, disinfection, sterilization and similar procedures.

RKI

RKI is the abbreviation for “Robert Koch-Institut” [Robert Koch Institute]. The Robert Koch Institute is the central institution for the detection, prevention, and control of diseases, especially infectious diseases.

Simple hollow bodies

A simple hollow body is either open on one side or both sides, see EN 13060. The following applies for an article open on one side: $1 \leq L/D \leq 5$ and $D \geq 5$ mm. The following applies for an article open on both sides: $2 \leq L/D \leq 10$ and $D \geq 5$ (L = hollow body length, D = hollow body diameter).

Single wrapping

The load is wrapped once in a sterile barrier system (e.g. transparent sterilization package). The opposite of this is multiple wrapping.

Soft sterilization packaging

A soft sterilization wrapping is a paper bag or a transparent sterilization package.

Solid

Solid describes the property of a product that is made of non-porous material that has no bulges or other design features that offer greater or equal resistance to steam penetration than a simple hollow body.

Solid load

The solid load specification 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 solid instruments for whose sterilization a steam sterilizer is designed to EN 13060.

Sterile barrier system

The sterile barrier system is a minimum level of sealed packaging that prevents the entry of micro-organisms (e.g. sealed pouches, sealed reusable containers, folded sterilization wipes) and allows for the aseptic delivery of the product at the point of use.

Sterile material

Sterile goods are successfully sterilized (i.e. sterile) goods. Sterile goods are also referred to as batches.

Sterilization chamber

The sterilization chamber is the part of the steam sterilizer where the load is sterilized.

Vacuum

Colloquially, vacuum is a space free of matter. In the technical sense, it is a volume with reduced gas pressure (mostly air pressure).

competence in hygiene

Certificate of Suitability

According to the recommendations of the Commission for Hospital Hygiene and Infection Prevention at the Robert Koch Institute

Manufacturer:	MELAG Medizintechnik GmbH & Co. KG
Address:	Geneststraße 6-10 10829 Berlin
Country:	Germany
Product:	Careclave® 618
Type of device:	Combination steam sterilizers (steam sterilizer with washer-disinfector functionality)
Classification:	Class IIb
Device type acc. to EN 13060:	Type B

We herewith declare that the above designated product is suited for sterilization of

- **Solid instruments (wrapped and unwrapped)**
- **Porous goods (wrapped and unwrapped)**
- **Products with narrow lumen (wrapped and unwrapped)**
- **Simple hollow items (wrapped and unwrapped)**

Instructions on load quantities and loading variants are specified in the user manual and must be observed. We herewith declare that the following test system is suited for testing the above cited steam sterilizer.

- **MELA*control*® Helix and MELA*control*® Pro**

In addition, the Careclave is intended for the reprocessing of dental transfer instruments and hollow bodies classified as semi-critical, which are connected in the Carebox:

- **Handpieces**
- **Contra-angles**
- **Turbines**
- **Ultrasonic and air scaler tips**

The internal and external cleaning as well as the subsequent thermal disinfection comply with the specifications of **EN ISO 15883-1 and -2**. Optionally, automatic lubrication with care oil can also be carried out.

Be sure to observe the manufacturer's instructions for medical devices intended for sterilization according to EN ISO 17664-1.

Berlin, 07.09.2023

Dr. Steffen Gebauer
(Management)

Quality - made in Germany

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Original instructions

Responsible for content: MELAG Medizintechnik GmbH & Co. KG

BA_CC618_EN.pdf | Rev. 5 - 25/1635 | Modification date: 2025-10-24