User manual

MELAtherm® 10

Washer-Desinfector

as of software version 1.309

EN

Dear doctor,

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 treatment 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 systems is subject to close monitoring: one instrument to this end is our annual multi-day audit conducted in accordance with ISO 13485 and ISO 9001. 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 safety information

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 named in these instructions. Failure to comply with the set-up conditions can result in malfunctions or damage to the device and/or human injury.

Power cable and power plug

- Observe the legal regulations and supply conditions of your local electricity company.
- Never operate the device if the mains cable or power plug are damaged.
- The power cable and plug should only be replaced by authorized persons.
- Never damage or alter the plug or mains cable.
- Never unplug by pulling on the power cable. Always take a grip on the plug.
- Make sure that the power cable is not clamped.
- Never install the cable along a source of heat.
- Never fix the power cable with sharp objects.

Set-up installation and commissioning

- Check the device for any damage suffered during transport after unpacking.
- Only have the device set up, installed, and started up by people authorized by MELAG.
- The connections for electrical provision and water supply and discharge must be set-up by trained personnel.
- In accordance with current VDE specifications, the device is unsuitable for operation in explosive atmospheres.
- The device is conceived for use outside patient surroundings. The device should be located at least 1.5 m away (radius) from the treatment area.
- The documentation media (computer, CF card reader etc.) must be placed in such a way that they cannot come into contact with liquids.
- Observe all the information contained in the technical manual during commissioning.

Daily operation

- Use only those instruments designed by their manufacturer for automatic treatment in a washer-disinfector. Comply with the instructions issued by the instrument manufacturer in accordance with DIN EN ISO 17664. It is especially important to observe the manufacturer's information when treating newly purchased instruments for the first time.
- Use only original MELAG accessories or those from other suppliers authorized for use by MELAG.
- When using additional accessories to accept instruments, especially hollow-bodied instruments, it is necessary to observe the information contained in the manufacturer's operating instructions.
- Observe the relevant standards and directives applicable to the treatment of instruments in your country as well as the treatment information from the instrument manufacturer.
- The personnel responsible for instrument treatment must be sufficiently trained and schooled.
- The fore ventilation slits must not be covered.
- Only operate the device with the basis basket provided for this purpose.

Process agents

- Handle all process agents with care. The cleaning, neutralization and rinsing aids contain irritants and even caustic substances.
- Use only those process agents approved by MELAG for this device. Observe the operating and safety information from the process agent manufacturer. If, despite observation of the manufacturer's inform-

ation, the process agents have a negative effect on the material of the instruments or the device, liability lies with the manufacturer of the process agents.

- The use of process agents not approved by MELAG absolves MELAG of all liability whatsoever for any damage to the device or the instruments.
- Should you have any questions concerning the compatibility of the process agents with the instruments, please consult the manufacturer. MELAG provides information for the application of the process agents in the device but does not take any responsibility for their effects on the instruments.
- Any fluids in the drawer and the floor tank underneath can also contain process agents in case of damage. Ensure that you observe the information of the respective process agent manufacturer.

Maintenance

- Have the maintenance done only by authorized persons.
- Maintain the specified servicing intervals.

Transport and storage

- Install and operate the device in a frost-free environment.
- Store and transport the device in a generally frost-free environment.
- Avoid strong vibrations.

Malfunctions

- Should the device issue the same malfunction message repeatedly, turn off the device and if necessary, inform your stockist.
- Only have the device repaired by authorized persons.

2 Scope of delivery

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

Standard scope of delivery

- Washer disinfector MELAtherm®10
- User manual
- Technical manual
- Record of installation and set-up
- Manufacturer's inspection report
- Certificate of Conformity
- Warranty certificate
- Instructions for the use and care of the accessories
- MELAflash CF card for documentation
- 1 L container for rinse aid
- 5 L container for cleaning agent
- Feed funnel for the regeneration salt
- Starter package of regeneration salt
- Open-end wrench for injector rail
- Transfer spigot for process agent containers
- Effluent hose with hose clamp Ø 16-25/9 mm

Optionally

- Accessories according to the delivery note

3 General Guidelines

Please read this user manual carefully before commissioning the device. The operating manual includes important safety information. The functionality and value-retention of this device depend primarily on the care accorded to it. Make sure to keep the User Manual close to the device. It represents a component of the product.

User group and validity

This manual applies for the devices MELAtherm® 10 DTA and MELAtherm® 10 DTB. This manual is addressed to doctors, their assistants and service departments.

Intended use

In accordance with DIN EN ISO 15883-1 and -2, this device is designed for application in a medical context, e.g. clinics and medical and dental practices. You can subject thermo-stable medical instruments (i.e. instruments which are heat resistant to a temperature of 95 °C) to automatic cleaning as long as they are suitable for this purpose. The cleaning is undertaken via the use of water and a chemical cleaning agent. Subsequent disinfection is performed by thermal disinfection.

This device is NOT suitable for treatment of:

- Thermo-instable instruments, e.g. flexible endoscopes
- Wastes for disposal and in the lab area
- Dishes
- Bedpans

Symbols used

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

Formatting rules

Example	Explanation
see **Chapter 2**	Reference to another text section within this document
`Settings`	Words or phrases appearing on the display of the device are marked as display text.

Symbols on the device

Manufacturer of the medical product

Date of manufacture of the medical product

Medical product serial number from the manufacturer

Article number of the medical product

Refers to the lowest and highest water temperature to which the device can be safely subjected.

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

Internal device fuse, rated in amperes [A]

The operating manual includes important safety information. Failure to comply with these instructions can result in injury and material damage.

Please read this user manual carefully before commissioning the device.

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

The device may not be disposed as domestic waste. The vendor is responsible for appropriate disposal of the device - it must be delivered to the vendor to be disposed of. By the designation of an apparatus with this symbol, the manufacturer furthermore declares that he satisfies all requirements of the law concerning the release, redemption and environmentally sound disposal of electric and electronic appliances.

Disposal

MELAG devices are synonymous for long-term quality. When you eventually need to decommission your MELAG device, we offer a special disposal service. Simply contact your stockist.

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 flow reduces the amount of waste and saves raw materials. Dispose of all non-required packaging materials at the collection points of the dual system.

Dispose of waste from process agents in accordance with the specifications from the manufacturer of the process agents. Information regarding this topic is provided by the safety data sheets or can be obtained directly from the manufacturer of the process agents.

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

4 Performance specifications

User Benefits

Universal use

The device cleans and disinfects. The disinfection phase is conceived so as to reach an A0-value of at least 3000. This eliminates vegetative bacteria and fungi/fungal spores and disables viruses (inc. HBV, HCV) thus reaching the effective range AB in according to the (German) RKI directive.

Active drying

The device has an active drying facility. This means that after cleaning and disinfection, the instruments are dried inside (interior lumen) and out via an integrated drying fan. The HEPA-Filter guarantees drying with contamination-free air. Automatic treatment of hollow-bodied instruments is also possible. This protects the instruments from stain accretion and rusting. The geometry of some hollow-bodied instruments such as turbines, requires additional drying.

Automatic sieve recognition

The device recognizes automatically before a program start whether the fine sieve has been inserted in the base of the washing chamber. Thus it avoids a situation in which instrument components enter the opening of the drain pump or the circulation pump and thus compromising the function of the pumps, rinse arms and the injector rail.

Internal water softening

The device has an internal softening plant. The water hardness of the local drinking water is set in the device. The internal water softening unit then automatically adjusts itself to the best solution. This ensures a optimal instrument decontamination result.

Monitoring the rotation speed of the rinse arms

The rotation speed of the rinse arms is subject to permanent monitoring during a program run. This ensures that the cleaning process proceeds properly and the rinse arms do not become blocked e.g. by protruding instruments in the washing chamber.

Monitoring the cleaning pressure

The cleaning pressure is monitored during a program run via a pressure sensor. This ensures effective cleaning. Excess foam generation results in the interruption of the program run.

Metering monitoring

The required amounts of cleaner and neutralizer are measured out using a hose measuring pump. A measurement turbine performs flow monitoring. The rinse aid is metered using a hose metering pump subject to monitoring for rotation speed.

Drawer for process agents

The drawer in the lower area of the device provides storage space for the process agents cleaning agent, neutralizer and rinse aid.

Automatic conductivity measurement

If the device is provided with DI water in the final rinse, the DI water is subject to automatic, internal conductivity measurement.

Emergency opening of the door

The door can be opened manually via the emergency release following a power outage or malfunction.

Program sequence

The program steps are indicated on the display during the program run:

Pre-cleaning

Pre-cleaning is performed with softened water and without process agents. It is temperature controlled. All proteins on the instruments must be removed entirely. It is necessary to avoid denaturation resulting from too a high water temperature. These and other coarse organic deposits are removed during pre-cleaning.

Cleaning

The actual cleaning is performed during the cleaning process. The washing chamber is heated until reaching the program-specific temperature. This is then held during the holding time. The cleaner is added automatically before the holding time begins.

Neutralization

The main cleaning is followed immediately by neutralization. Neutralization reduces alkalinity and frees the instruments from acid-soluble deposits such as lime scale and extraneous rust etc. During this process, a specified amount of cold process water is pumped into the washing chamber. This is followed by the addition / mixing of a measured amount of neutralizer.

Intermediate rinsing

Intermediate rinsing is a preparatory step to disinfection to reduce the residual concentration of the process agents.

Disinfection

Intermediate rinsing is followed by thermal disinfection at a temperature of over 90 °C.

Drying

The instruments are then dried by the integrated drying fan from inside and out. This prevents rust accretion on the instruments.

Displaying the batch counter

The display shows the last batch number run and the total batch counter after a program end or the end of a program abort.

Approved process agents

NOTICE

Observe the operating and safety information from the process agent manufacturer. Process agents from different manufacturers may not be mixed. Any change to another authorized combination may only be performed by trained service partners. The metering concentration must be adapted to local conditions. This is to be performed by the service technician during setup in accordance with the manufacturer's information.

NOTICE

Observe the operating and safety information from the process agent manufacturer. If, despite observation of the manufacturer's information, the process agents have a negative effect on the material of the instruments or the device, liability lies with the manufacturer of the process agents. The use of process agents not approved by MELAG absolves MELAG of all liability whatsoever for any damage to the device or the instruments.

The following combinations of process agents were tested for suitability for use with MELAtherm 10, brought into circulation since 01-07-2012:

Manufacturer	Cleaner	Neutralizer	Rinse aid
Alpro*	TR-3	TR-Neutralizer	TR-Clear
B. Braun	Helimatic cleaner alkaline	Helimatic neutralizer C	Helimatic rinse neutral
Bode	Dismoclean 21 clean	Dismoclean 25 acid	Dismoclean 64 neutra-dry
Borer*	deconex 28 ALKA ONE-x deconex 22 LIQ-x	deconex 25 ORGANACID deconex 26 MINERALACID	deconex 64 NEUTRADRY
Dr. Schumacher	Thermoton Cleaner	Thermoton N	Thermoton clear
Dr. Weigert	neodisher MediClean forte neodisher MediClean Dental	neodisher N neodisher Z neodisher N dental neodisher Z dental	neodisher MediKlar neodisher MediKlar dental neodisher MediKlar special
Schülke+	thermodent alka clean thermosept RKF forte thermosept alka clean forte	thermodent neutralizer thermosept NKP thermosept NKZ	thermodent clear thermosept BSK
Henry Schein	Eurosept Thermo Cleanser	Eurosept Thermo Neutralizer	Eurosept Thermo Rinse

*When using process agents of manufacturers Alpro or Borer, it **is absolutely essential** and regardless of the maintenance message after twelve month to replace all hoses of the dosing unit during maintenance. Ensure that the process media selected are suitable for your instruments. Please address any questions to the manufacturer of the process agents. Please observe and comply with the notes specific to the process agents contained in the maintenance record.

***Preset metering concentrations*[1)]**

Program	Cleaner	Neutralizer	Rinse aid
Universal-Program	6 ml/l	1.5 ml/l	0.3 ml/l
Quick-Program	6 ml/l	1.5 ml/l	0.3 ml/l
Intensive Program	8 ml/l	1.5 ml/l	0.3 ml/l
Ophthalmo-Program	6 ml/l	1.5 ml/l	--------

[1)] For using drinking water (hardness range medium - hard) we recommend the dosage concentrations specified above. The metering concentration must be adjusted individually depending on the local conditions. The pre-set metering quantities can be used for various combinations of process agents. Observe the operating and safety information of the process agent manufacturer. This information can be read-off from the canister in the units "ml/l" or on separate data sheets provided by the manufacturer. The process-relevant parameters must be adapted depending on the nature of the soiling, the quality of the tap water and other framework conditions. Please contact the manufacturer of the process agents regarding this question.

5 Description of the device

Views of the device

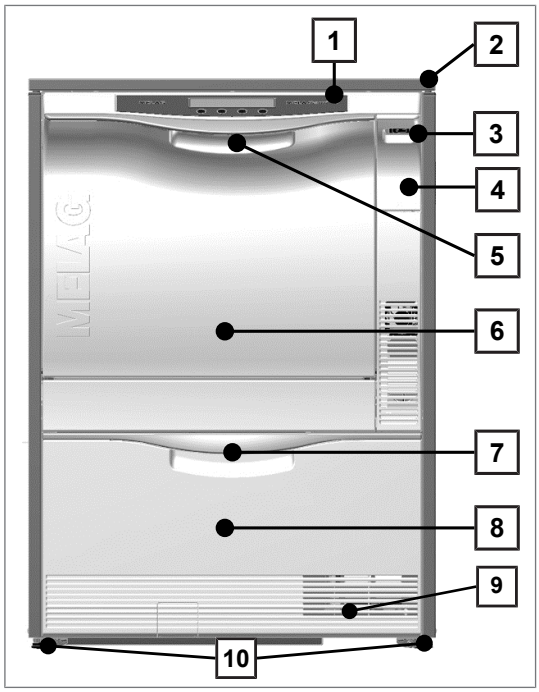


Fig. 1: Fore view

1 Operating and display field
2 Cover plate (optional)
3 Power switch
4 Cover for CF card slot and Ethernet data interface (for service)
5 Door grip
6 Hinged door, opens forwards
7 Drawer handle
8 Drawer for process agents
9 Ventilation slots (air outlet with active drying)
10 Device foot

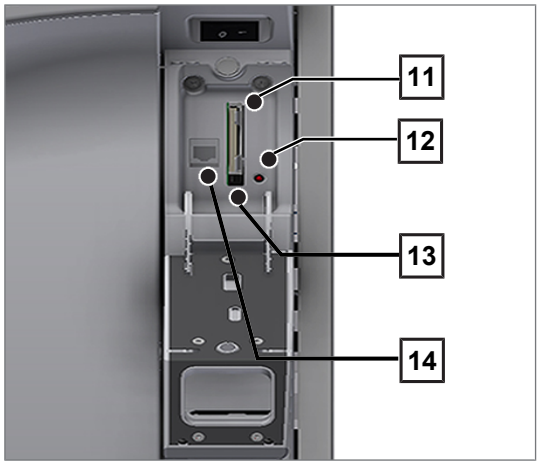


Fig. 2: Cover cap CF card slot open

11 Card slot
12 LED
13 Ejection button
14 Ethernet data connection

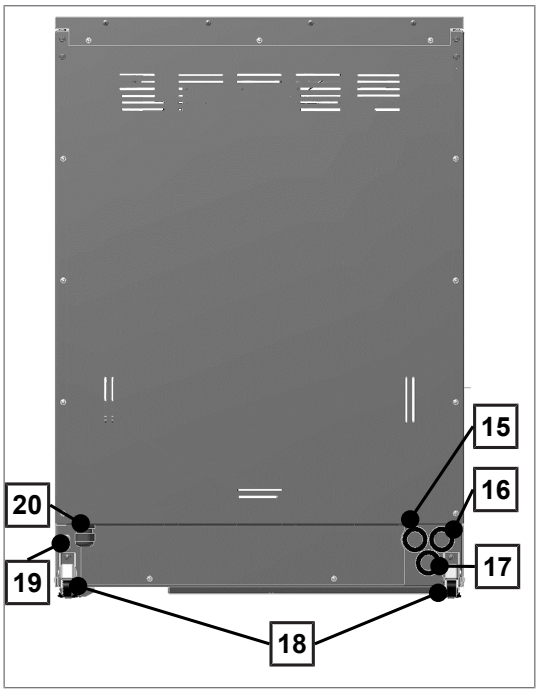


Fig. 3: View from rear

15 Connection for de-ionised water (DI water)
16 Connection for cold water
17 Effluent connection
18 Transport rollers
19 Ethernet data connection for permanent network connection
20 Mains power cable

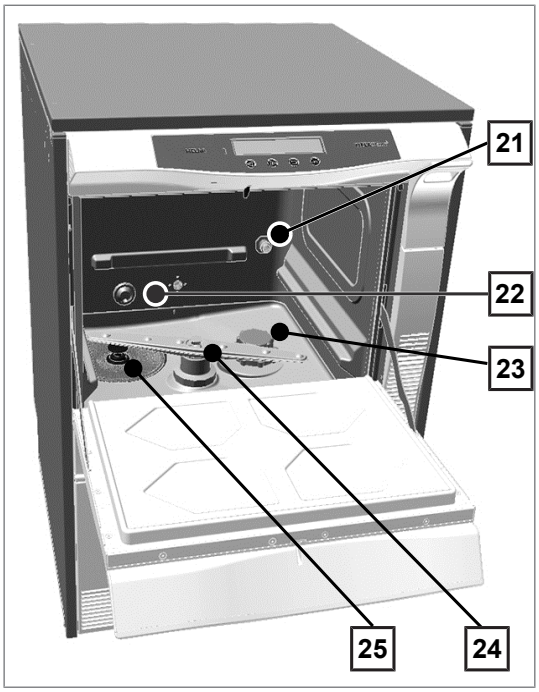


Fig. 4: View inside

21 Connection tube for injector rails
22 Cold water inflow (CW) and deionised water (DI)
23 Salt container
24 Lower rinse arm
25 Coarse and fine sieve

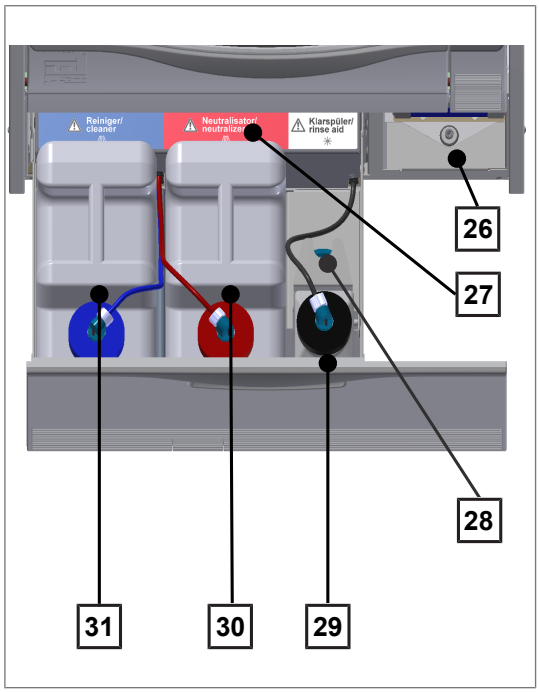


Fig. 5: Process agent drawer, open

26 Drying filter
27 Assignment of the process agents
28 Suction lance bracket
29 Container for rinse aid with suction lance
30 Container for neutralizer with suction lance
31 Container for cleaning agent with suction lance

Operating panel and acoustic signals

The control panel consists of a two-line LED display and four membrane keys.

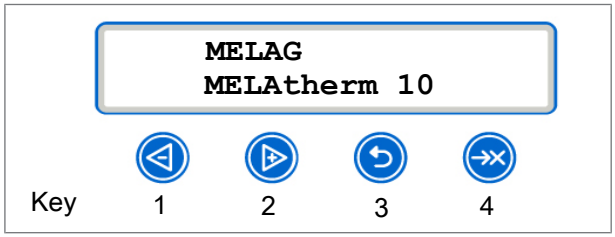


Fig. 6: 2-row LED display

Table 1: Key functions

Key		Function/Explanation
1...2	or	Navigation: BACKWARDS - FORWARDS to adjust a value: REDUCE, INCREASE
3		Unlocking door, BACKWARDS, CANCELLATION Leave menu
4		Confirming messages (ENTER, OK, YES, SELECTION). QUIT with warning or malfunction messages
1+2	and	The system status is displayed with information relating to the device e.g. serial number, software version, daily and total batches etc.
1+3	and	QUIT + DOOR, i.e. to acknowledge the program abort and unlock the door
3...4	or	Deletes all logs located in the internal log memory

Acoustic Signals

The device issues acoustic signals for information purposes.

Table 2: Acoustic Signals

Signal / tone	Meaning
1x	Confirmation, warning or message
3x	Refill with salt soon; program abort; end of the abort after drying abort reached
5x	Program completed successfully
10x	Malfunction

Menu structure

MAIN MENU

- P01 Universal-Program
- P02 Quick-Program
- P03 Intensive-Program
- P04 Ophthalmo-Program
- Z01 Rinsing
- Z02 Emptying
- Z03 Conductivity measurement DI
- Z04 Air removal
- Z05 Regeneration
- Z06 Time metering 60s
- **M01 → DOCU MENU (Output of a saved log via the following output media)**
  - Select output medium: Automatic, CF card, MELAprint, PC
  - 01 Log list
  - 02 Last log
  - 03 Logs of day
  - 04 Logs of week
  - 05 Logs of month
  - 06 All logs
  - 07 Last malfunction log
  - 08 Malfunction logs Day
  - 09 Malfunc. log Week
  - 10 Malfunc. log Month
  - 11 All malf. logs
  - 12 Caption log
  - 13 Status log
  - 14 System log
  - 15 Format CF card
- **M02 → SETUP-MENU**
  - 01 DI water
  - 02 Automatic logging
  - └ ✚
  - 03 Date
  - 04 Time
  - 05 Display contrast
  - 06 Language
  - 07 Water (hardness) °dH
  - 08 → DIAGNOSIS + SERVICE
    - > AC outputs (AC-OUT)
    - > DC outputs (DC-OUT)
    - > Analogue inputs
    - > Counter inputs
    - > Digital inputs
    - SERVICE MENU
    - └ ✚
    - Maintenance Counter Date
    - DEMO mode

Water softening unit

The tap water is processed in a water softening unit to produce optimal cleaning results.

▶ Use coarse-grain regeneration salt (NaCl) to regenerate the water softening unit.

NOTICE

The fitted water softening unit has been optimized for a degree of hardness of 0–40°dH.

For higher degrees of hardness than 40°dH, you will require a dedicated water softening unit.

NOTICE

An incorrectly set degree of hardness can result in a higher salt consumption or limescale deposits on the instruments.

When using a dedicated water softening unit, the residual hardness of the dedicated water softening unit must also be set in the setup menu.

Table 3: Water hardness conversion table

°dH	mmol/l	°f	°e		°dH	mmol/l	°f	°e		°dH	mmol/l	°f	°e
1	0.2	2	2		15	2.7	27	19		28	5.0	50	36
2	0.4	4	3		16	2.9	29	20		29	5.2	52	37
3	0.5	5	4		17	3.1	31	22		30	5.4	54	38
4	0.7	7	5		18	3.2	32	23		31	5.6	56	39
5	0.9	9	7		19	3.4	34	24		32	5.8	58	41
6	1.1	11	8		20	3.6	36	25		33	5.9	59	42
7	1.3	13	9		21	3.8	38	27		34	6.1	61	43
8	1.4	14	10		22	4.0	40	28		35	6.3	63	44
9	1.6	16	12		23	4.1	41	29		36	6.5	65	46
10	1.8	18	13		24	4.3	43	31		37	6.7	67	47
11	2.0	20	14		25	4.5	45	32		38	6.8	68	48
12	2.2	22	15		26	4.7	47	33		39	7.0	70	49
13	2.3	23	17		27	4.9	49	34		40	7.2	72	51
14	2.5	25	18										

6 Settings

SETUP menu

The setup menu contains settings for the date, time and display contrast.

Navigate in the setup menu as follows:

1. Press  to navigate in the main menu to `M02->SETUP-MENU`.
2. Press  to open the setup menu.
3. Press  to leave the setup menu.
4. Press  to save changes or hold  depressed to discard the changes.

Setting the water supply

If the device is connected to a DI water supply e.g. MELAdem 53/MELAdem 53 C or another water treatment unit, this must be set on the device. In its delivery state, the water supply has been set to `DI water YES`.

To alter this setting proceed as follows:

1. Press  to open the setup menu.
   ↪ This display registers the option `01 DI-Water YES`.
2. Press  in order to change the option.
   ↪ The value `YES` flashes.
3. Press  or  to switch between `YES` and `NO`.
4. Press  to accept `Yes` o `No`.
   ↪ The value no longer flashes.
5. Press  to leave the setup menu.
   ↪ The selected value is automatically saved when leaving the setup menu.

Setting automatic logging

Settings relating to log output are made in Menu `02 Automatic logging`. The settings made here are saved for the respective output medium. The display image shows whether the option for log issue is `ACTIVE`. Detailed information regarding logging is provided in chapter Logging [▸ page 38].

Determining the output medium

You are able to output the logs of the completed programs on various media: Comply with the specifications of the manufacturer's operating manual of the respective device.

The example shows how to use the CF card as an output medium. Proceed in a similar manner to set a different output medium.

Working in the SETUP menu [▸ page 18] set the output medium as follows:

1. Press  to navigate to `02 Automatic logging`.

2. Press  to open the menu `02 Automatic logging`.
   ↪ The selectable output media are displayed consecutively.
3. Press  repeatedly to navigate in the setup menu to `01 CF card YES`.
   ↪ The display of `YES` indicates that the log is to be saved on the CF card.
4. Press  if this value is to be changed.
   ↪ The value `YES` flashes.
5. Press  or  to switch between `YES` and `NO`.
6. Press  to save the new value.
   ↪ The value no longer flashes.
7. Press  to leave setup menu `02 Automatic logging`.
   ↪ The selected value is automatically saved when leaving the setup menu.

Determining the log format

You can find more detailed information regarding the log formats 0001 and 0002 here: Determining the format for the program logs [▸ page 41].

Setting date and time

Date and time of the device must be correctly set for proper batch documentation.

PLEASE NOTICE

The time is not set automatically.

- The time setting to summer or winter time must be performed manually.

Setting the date

Working in the SETUP menu [▸ page 18] set the output medium as follows:

1. Press  to navigate to `03 Date`.
2. Press  to change the date.
   ↪ The display changes to `03 Change date`.
3. Press  repeatedly to choose between day, month and year.
4. Press  to activate the selected parameters (day, year).
   ↪ The current value flashes.
5. Press  or  to reduce or increase the value.
6. Press  to save the new value.
   ↪ The value no longer flashes.
7. Press  to change the month next. Proceed in a similar fashion here.
8. Press  to leave the setup menu.
   ↪ The selected value is automatically saved when leaving the setup menu.

Setting the time

Working in the SETUP menu [▸ page 18] set the time as follows:

1. Press  repeatedly to navigate to `04 Time`.
2. Press  in order to change the language.
   ➥ The display changes to `04 Change date`.
3. Press  to activate the selected parameters.
   ➥ The current value flashes.
4. Press  or  to reduce or increase the value.
5. Press  to save the new value.
   ➥ The value no longer flashes.
6. Press  to leave the setup menu.
   ➥ The selected value is automatically saved when leaving the setup menu.

Setting the display contrast

Working in the SETUP menu [▸ page 18] set the display contrast as follows:

1. Press  repeatedly to navigate to `05 Display contrast`.
2. Press  to activate the selected parameters.
   ➥ The current value flashes.
3. Press  or  to reduce or increase the value.
4. Press  to save the new value.
   ➥ The value no longer flashes.
5. Press  to leave the setup menu.
   ➥ The selected value is automatically saved when leaving the setup menu.

Selecting the language

You can choose between two languages. Language 0001 is usually the local language or English, Language 0002 is English or other required language Working in the SETUP menu [▸ page 18] set the language as follows:

1. Press  repeatedly to navigate to `06 Language`.
2. Press  to activate the selected parameters.
   ➥ The current value flashes.
3. Press  to change to `language 0002`.
4. Press  to save the new value.
   ➥ The value no longer flashes.
5. Press  to leave the setup menu.

↪ The selected value is automatically saved when leaving the setup menu.

Other languages can also be installed. To this end, the corresponding language update file must be downloaded on the device from the CF card. Please consult your MELAG customer services or stockist for this.

Setting the water hardness

Working in the SETUP menu [▸ page 18] set the water hardness as follows:

1. Press  repeatedly to navigate to `07 Water °dH`.
2. Press  to activate the selected parameters.
   ↪ The current value flashes.
3. Press  or  to reduce or increase the value.
4. Press  to save the new value.
   ↪ The value no longer flashes.
5. Press  to leave the setup menu.
   ↪ The selected value is automatically saved when leaving the setup menu.

You can find a water hardness conversion table in the chapter Description of the device [▸ page 13] under Water softening unit [▸ page 17].

7 First steps

Setup and Installation

PLEASE NOTICE

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

Record of installation and set-up

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

Testing in daily operation

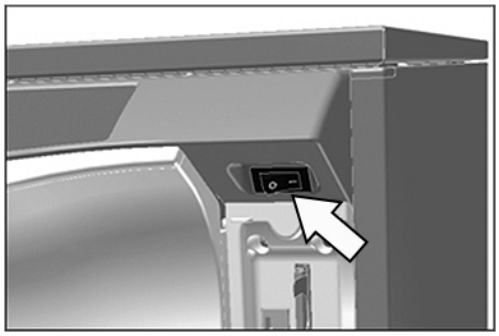
Check the following items every day before work starts:

- The nozzles of the upper and lower rinse arms are accessible and clean.
- The rinse arms can be turned freely.
- The coarse and fine sieves are clean and have been rinsed.
- The washing chamber interior and the door seal are intact.

Comply with the instructions regarding daily inspections and cleaning contained under Maintenance [▸ page 46].

Switching the device on and off

▸ Switch the device on or off at the power switch.



Opening and closing the door

The door is automatically closed via a motor. For this reason, it is important that the device is connected to the power supply and is switched on. The door unlocks automatically after a successful program run. The door cannot be opened following a power outage. In such a case, activate the door emergency release [▸ page 23].

NOTICE

The door can only be opened during a program run using a program abort.

The door is unlocked after the program abort has been acknowledged and sufficient cooling has been performed.

Opening the door

1. Switch on the device at the power switch.
2. Press the  key.
   ↪ The door is unlocked.
3. Open the door forwards to open.

Closing the door

▶ Shut the door upwards and press it until the motorized lock sets in.

Emergency release of the door

CAUTION

Danger of scalding from hot steam.

Hot steam could be released upon opening the door.

- Never operate the emergency release while a program is active.
- Wear suitable protective clothing.

DANGER

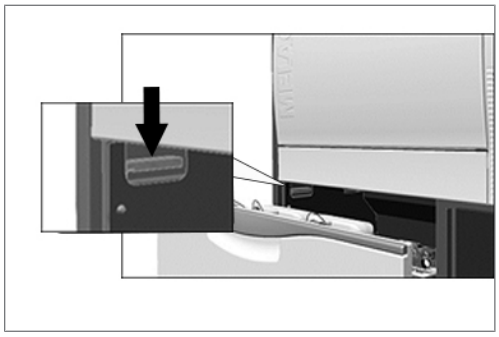
Danger of contamination from insufficient disinfection

A program aborted by emergency release is classed as not completed successfully. Process water can remain in the washing chamber; the instruments have not been disinfected completely.

- The instruments must be subject to renewed treatment.

Proceed as follows to activate the emergency release:

1. Pull out the process agent drawer.

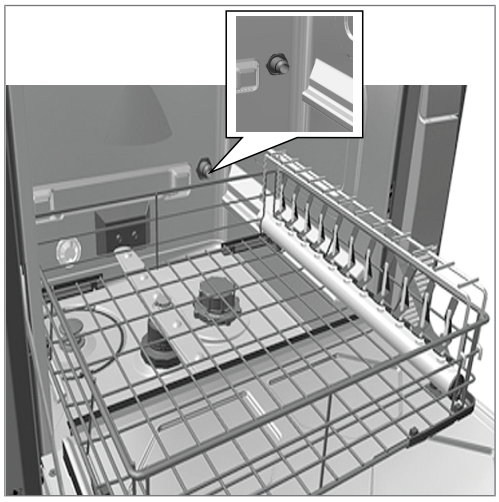


   ↪ An emergency release grip is located at the front left-hand side of the device.
2. Press down on the grip until you hear a clicking sound.
3. To do so, pull the door forwards strongly using its handle.

Inserting the basis basket

A port for the connection of the injector rail is located on the right-hand rear side of the washing chamber of the washer-disinfector.

▸ Slide the basis basket with the injector rail opening into the washing chamber until it connects to this port.



Filling the regeneration salt

CAUTION

Danger of injury from insufficient protective measures!

Performing work without first taking the corresponding protective measures can result in Injuries.

- Comply with the working safety measures required by the respective tasks.

NOTICE

Malfunctions of the water softening unit from unsuitable regenerating salt.

Fine grain regeneration salt can cause device malfunctions. We do not recommend the use of pellets, as the salt dissolves too slowly.

- Use only special, coarse grain regeneration salt (additive-free NaCl).
- Never use cooking salt, table salt, de-icing salt, cattle salt or road salt. These salts usually contain insoluble components.
- Never pour cleaning agent or other process agents in the salt container.

Filling the regenerating salt for the first time (by the service technician upon first installation)

1. Fill enough water in the salt container **once** until it overflows. This enables dissolution of the salt.
   ➥ No further water is required for all subsequent salt fillings.
2. Fill the salt container with 1 kg of regenerating salt.
   ➥ The device can only be operated if the salt container contains sufficient regenerating salt.

Re-filling regenerating salt

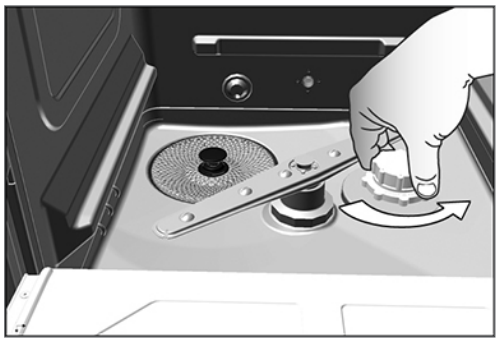
Insufficient regenerating salt will result in the display of the corresponding display notification.

- Display of `Refill with salt soon` means that you can perform up to ten washing runs depending on the program selected and the hardness of the water.
- Display of `Salt exhausted. Please refill` means that you should refill with regenerating salt immediately. Otherwise you will be unable to start a further program.

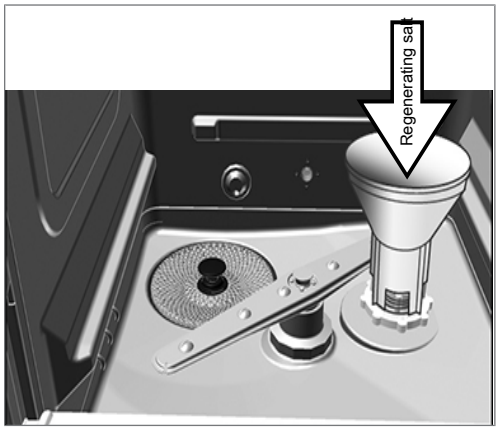
You can refill the regenerating salt at any time without the corresponding display notification. After filling, start the supplementary “Rinse” program to remove overflowing brine and salt residue from the washing chamber.

In order to refill the regeneration salt, proceed as follows:

1. Acknowledge the notification `Refill with salt soon` with the key.
2. Open the door.
3. Remove the basis basket.
4. Open the lid of the salt container by turning it anti-clockwise.



5. Insert the filling funnel for the regenerating salt in the opening.
6. Fill the salt container with regenerating salt using the filling funnel.



7. Clean the edge of the filling opening of salt residue.
8. Remove the filling funnel and screw on the lid of the salt container.
9. Insert the basis basket.
10. Wait three minutes and then start the rinsing program without (instrument) load.

Regenerating the water softening unit

The internal water softening unit regenerates automatically in certain intervals. The program run time is extended by a number of minutes. You can regenerate the water softening unit manually after e.g. having filled it with salt without a warning having previously been issued.

▶ To do so, start the “Regeneration” program.

Metering process agents

The concentration of the process agents is set once during the initial device setup performed by the customer services technician (see technical manual). During a program run, the preset concentration of the relevant process agents is metered automatically.

Holding process agents ready

DANGER

Danger of acid burns by irritant substances!

Improper handling of the process agents may cause caustic burns and health damage.

- Protect your eyes, hands, clothing and all surfaces from contact with the process agents.
- Comply with the information from the manufacturer of the process agents.
- Every type of fluid (e.g. in the drawer, in the device floor tank or fluid emerging from the device) issued from the device as the result of damage could potentially contain aggressive process agents.

NOTICE

Damage to instruments and the device from unsuitable process agents!

- Use only those process agents approved by MELAG for use in this device.
- Comply with the information from the process agent manufacturer.

An insufficient filling level of a certain process agent means will trigger the display of the corresponding display message. In this case, replace or refill the process agent container.

Comply with the following provisions pertaining to the use of the process agents:

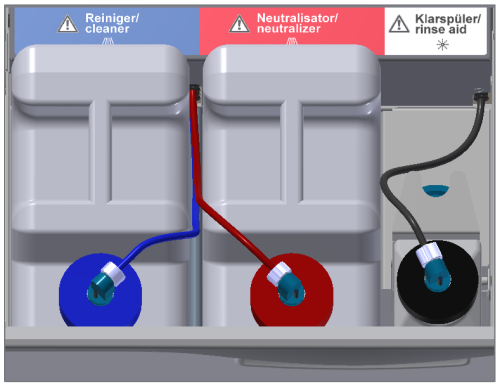
- When re-filling, please use the same process agents, set on the device during installation (see the tie-on label on the can in the drawer).
- Changing the combination of process agents may only be performed by a qualified and trained service technician.
- Every change of a process agent in a validated device necessitates revalidation.
- Use a a citric acid based neutralizer for the treatment of dental transfer instruments.
- Use a mild alkali cleaner wherever possible on technical, hygienic and ecological reasons.
- Check that your instruments are compatible for use with rinse aid.
- All air should be removed from the metering hoses before commissioning or after changing a container. See Bleeding the metering hoses [▸ page 28].

Containers for process agents

Every process agent has its own container and a suction lance with screw-on lid:

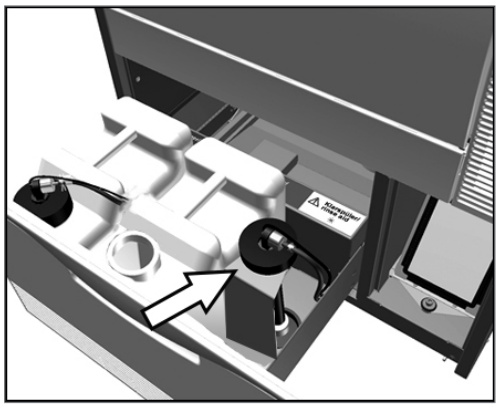
- Cleaning agent: 5 L container with a blue suction lance screw-on lid
- Neutralizer: 5 L container with a red suction lance screw-on lid
- Rinse aid: 1 L container with a black suction lance screw-on lid

▸ Place the container in the drawer in accordance with with the process agent assignment. A container can only be closed correctly if the colour of the process agent matches that of the screw-on lid of the suction lance.



Clean the container and change the neutralizer

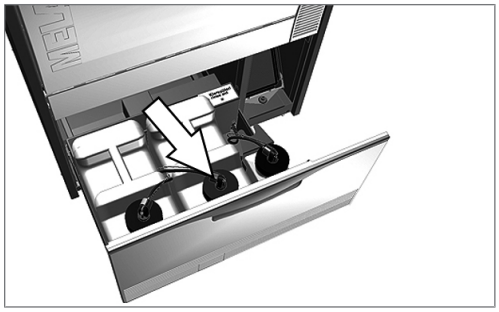
1. Unscrew the suction lance from the container and place it the suction lance bracket.



2. Place the new container in the process agents drawer and screw on the suction lance.

   ↪ The screw-on lid of the suction lance points forwards.

3. Vent the metering hose (see Bleeding the metering hoses [▸ page 28]).



Refilling rinse aid

PLEASE NOTICE

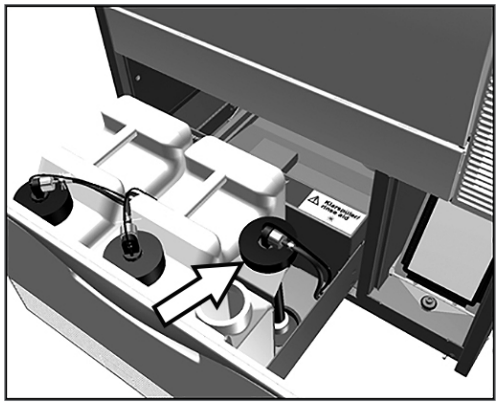
When treating ophthalmologic instruments rinse aid may not be used.

PLEASE NOTICE

If the instrument surfaces are streaky this could be caused by too much rinse aid.

Proceed as follows to fill an empty container with rinse aid:

1. Unscrew the suction lance from the container and place it in the bracket behind it.



2. Transfer the rinse aid from the original packaging into the MELAG container.
   - ➥ Use the drain tap included in the scope of delivery for ease of filling.
   - ➥ Fill the container with rinse aid ¾ full, otherwise the rinse aid will overflow during insertion of the suction lance.
3. Screw the suction lance onto the container.
4. Vent the metering hose (see Bleeding the metering hoses [▸ page 28]).

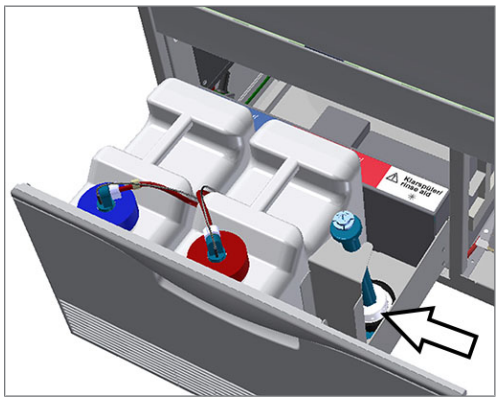
Bleeding the metering hoses

The process agent hoses must be vented after filling the container, performing a product change or removing the suction lances. Air removal removes all air pockets from the metering hoses and permits good metering.

✓ *Place the suction lances of non-used process agents (e.g. the rinse aid) in the suction lance bracket during the “Air removal” program.*

✓ *The “Air removal” program must be started twice after initial filling of the container.*

1. Insert the suction lance of the non-used process agent head-first in the suction lance bracket **before the program start**.



2. Press the key repeatedly to navigate to `Z04 Air removal` in the main menu.
3. Start the “Air removal” program by pressing the key.

8 Cleaning and Disinfection

The nature of the load

Comply with the specifications of the document *Instructions for the use and care of accessories* when loading the device. Only use the loading pattern specified and approved within the scope of the validation. This device can clean and disinfect max. 10 kg of the following type of load:

- Massive instruments
- Hollow-bodied instrument e.g. aspirator tips, which are fixed to injector nozzles or
- transfer instruments e.g. handpieces by using the adapter

Further accessories may be required when **reprocessing ophthalmological instruments** (not available from MELAG). The operator is responsible for validating the procedure in combination with special load accessories It is especially important that feed lines to hollow-bodied instruments are maintained without kinking and as short as possible.

Arranging the load

DANGER

Danger of injury from sharp and pointed instruments.

Using inappropriate procedures to load the device with sharp and pointed instruments can result in injuries. Baskets and sieve cassettes with wire meshes or other openings do not provide any protection against penetration by sharp instruments.

- Wear protective gloves.
- Proceed with caution when sorting sharp and pointed instruments.
- Arrange sharp and pointed instruments in such a way as to prevent the danger of injury.

NOTICE

Use only those instruments designed by their manufacturer for automatic treatment in a washer-disinfector.

- Some brands are only authorized for thermal disinfection after a specific year of manufacture.
- Comply with the information from the relevant instrument manufacturer.

To arrange the load, the basis basket must be used as a minimum (see chapter First steps [▸ page 22], Inserting the basis basket [▸ page 24]). Instruments and other accessories such as insert racks, instrument baskets, wash trays are placed in the baskets. The basis basket with an injector rail is available for the treatment of hollow-bodied instruments.

Further accessories and their user instructions such as insert racks for wash trays, sieve cassettes and instrument baskets etc. are listed in the document *Instructions for the use and care of the accessories.*

Please comply with the following specifications when arranging the load:

- Empty all residual liquids from containers before arranging them in the device. Rinse away any liquids (e.g. disinfectant solutions) thoroughly.
- Never place any individual instruments directly in the basis basket. Use baskets or trays to this end.
- Ensure that instruments do not protrude from the sides of the instrument basket or the basis basket. Protruding instruments can damage the seal and the surface of the door or the side walls of the washing chamber. The instruments can break.
- Place hollow-bodied instruments in the device in such a way as to ensure safe rinsing. If necessary, use the accessories developed especially for the treatment of hollow-bodied instruments such as injector nozzles, Luer connections, adapters etc. See the information for the use and care of the accessories.

- Avoid blockages of the rinse arm from instruments protruding upwards or downwards. The rinse arms must be able to rotate freely.
- Avoid spray shadow. A good cleaning outcome depends on the correct arrangement of the instruments.
- Arrange all containers such as glasses, basins etc. with their opening pointing downwards.
- Place components with openings or compressions at an angle, so that the water can run off them.
- Only use thermostable instruments approved by their manufacturer for treatment.

Decontaminating hollow-bodied instruments

DANGER

Danger of contamination from insufficient disinfection

- Residue on the hollow-bodied instruments can impair disinfection.
- Check the hollow-bodied instruments for free passage before treatment.

PLEASE NOTICE

All openings must be connected to an accessory piece when using a multiway terminal blocks or the injector rail. Only then can correct functioning be guaranteed.

- Seal non-used openings with sealing screws.

PLEASE NOTICE

Use a filter insert for hollow-bodied instruments with an inside diameter ≤ 0.8 mm.

- Do not use any reusable filter screen and central filters in the treatment of ophthalmological instruments.

Comply with the following specifications before automatic treatment:

- Flush all hollow-bodied instrument after use with patients / before automatic treatment.
- Treat only those hollow-bodied instruments which guarantee sufficient and reproducible rinsing. Remove instruments with a recognisably reduced throughflow.
- Use only MELAG adapters (accessories list) for the injector rail to treat hollow-bodied instruments. The suitability of the hollow-bodied instruments for the respective adapter and the sufficient flushing of the instruments can only be proven by validation.
- Check the connections between the adapter and the hollow-bodied instrument for stability both before and after treatment. Should a connection work loose after treatment, the instruments must be treated again.
- Comply with the cleaning and replacement intervals when using filter inserts. The cleaning and replacement intervals are listed in the separate document *Instructions for the use and care of the accessories*.
- When treating dental and ophthalmologic transfer instrument, observe and comply with the special treatment notes in the chapter Decontaminating ophthalmological instruments [▸ page 32].

Rule for use of filters or filter discs:

Diameter of the inner lumen	Insert of a filter
≤ 0.8 mm	Filter required e.g. a triple distributor with a filter disc
> 0.8 mm	no filter necessary, direct connection of the adapter to the injector rail possible

Decontaminating dental transfer instruments

Suitable program

Treat turbines and handpieces in the Universal-Program or the Intensive-Program.
The Quick-Program has **not** been approved for the treatment of dental transfer instruments, as it is impossible to verify the level of soiling in the instrument interior.

Comply with the following specifications before automatic treatment:

- The exterior surfaces of the handpieces should be free of all residue e.g. dental cement.
- The air and spray channels must be entirely clear.
- Avoid the drying-on of soiling, especially on the handpieces.
- Use a a citric acid based neutralizer for the treatment of dental transfer instruments.

Care of the instruments and adapters.

Leading manufacturers recommend drying the spray / air / water channels immediately after cleaning and disinfection using clean (medical) compressed air and then maintenance with suitable maintenance and care products and oils. Please observe all relevant national specifications.

The adapter for handpieces should be checked for dirt at regular intervals. Clean the individual adapter components under running water where necessary. The silicon inserts can be rubbed with a damp, non-fuzzing cloth.

Decontaminating ophthalmological instruments

Please comply with national recommendations for the cleaning of medical products under the aspect of decontamination of infectious prion proteins (vCJK).

DANGER

Danger of contamination from biological interactions.

Devices used to treat ophthalmologic instruments may only be used exclusively for this purpose.

- Do not treat any instruments which are used for operations of the posterior segment surgery (contact with retinal tissue, sub-retinal fluid and the optical nerve).
- These devices should be fitted with a suitable filter system: Ophthalmological instruments may only be treated using the filter discs (MELAG art. no. 64375).

NOTICE

Use only those instruments designed by their manufacturer for automatic treatment in a washer-disinfector.

- Some brands are only authorized for thermal disinfection after a specific year of manufacture.
- Comply with the information from the relevant instrument manufacturer.

NOTICE

Do not use a rinse aid to treat ophthalmological instruments.

- Remove the container for the rinse aid from the process agents drawer and hang the black suction lance in the suction lance bracket.

PLEASE NOTICE

Use demineralized water to treat ophthalmological instruments.

- To this end, connect a mixed-bed resin cartridge.

Suitable program

Treat ophthalmological instruments in the Ophthalmo-Program. Only this program enables monitoring of the conductivity during the disinfection phase; this ensures an uncritical residual conductivity.

Comply with the following specifications before automatic treatment:

- Cleaning should be undertaken with a mildly alkali cleaner. Neutralization should be effected with a citric acid based neutralizer.
- Flush all hollow-bodied instruments with DI water following patient use / before automatic treatment
- Treat only those hollow-bodied instruments which guarantee sufficient and reproducible rinsing. Remove instruments with a recognisably reduced throughflow.
- All hollow-bodied instruments should be connected with the rinse bar designed for the purpose.
- Ensure that plugs and / or cables from phaco handpieces are not able to slip through the basis basket, otherwise the rinse arm can become blocked.
- Try to prevent dirt from drying or encrusting on and in the instruments.
- Dry the hollow-bodied instrumts with clean (medical) compressed air after treatment in order to remove any residual moisture.
- When using the rinsing system, individual outlets which are not connected can be sealed with suitable accessories.

Instrument care

Comply with the manufacturer's instructions regarding the care and maintenance of the instruments / the load accessories.

Routine controls

Perform a routine check of the pH value after treatment of the hollow-bodied instruments.

1. Blow through the hollow-bodied instruments with medical compressed air onto indicator paper (e.g. From Macherey-Nagel: PEHANON pH 4.0-9.0). The ph-value should be 0.5 or even more exact.
2. Compare the value displayed on the indicator paper with the pH value of the final rinse water from the previous performance qualification.
3. Should you discover any deviations, contact the customer services.

Overview of programs

- Choose the program according to the level of soiling of the load. Comply with the specifications from the validation.
- The Universal-Program is sufficient for every-day general cleaning and disinfection. The Quick-Program is designed for lightly-soiled instruments.

The following table lists the correct program for each load.

Table 4: Programs and operating times

Program	Nature of the instruments / degree of soiling	Operating time* excl. drying time	
		DTA	DTB
Universal-Program 90°C, 5 min.	▪ For normal-heavily soiled instruments. This complies with the general hygiene-related requirements of DIN EN ISO 15883-1.	36 min	53 min
Quick-Program 90°C, 5 min.	▪ For unsoiled or only lightly-soiled instruments ▪ like the Universal-Program but without the pre-cleaning. ▪ **Not suitable** for hollow-bodied instruments (e.g. aspirator tips, handpieces, turbines, cannulas)	30 min	47 min
Intensive-Program 90°C, 5 min.	▪ For particularly heavily soiled instruments ▪ like the Universal-Program, but with a longer cleaning time	40 min	57 min
Ophthalmo Program 90°C, 5 min.	▪ For ophthalmological instruments ▪ like the Universal-Program, but with a longer cleaning time, double intermediate rinsing without rinse aid	42 min	59 min
*The operating times represent average values and apply only for the recommended running water pressure at a cold water temperature of 15 °C.			

Table 5: Additional programs

Additional programs	Application	Operating time*
Rinsing, 3 min. no disinfection, without process agents	▪ For rinsing strongly-soiled instruments (e.g. blood) A disinfection program must then be started. ▪ To rinse out the washing chamber after adding salt; without process agents, no disinfection	3 min
Emptying	▪ Pumping out residual water in the washing chamber	1 min
Conductivity measurement DI	▪ For measuring the conductivity of the DI water	2 min
Air-removal	▪ After filling / changing the process agents, i.e. product change etc. ▪ With decommissioning and commissioning	5 min
Regeneration	▪ Regenerating the internal water softening unit	8 min
Time metering	▪ Only for technicians	--
*The operating times represent average values and apply only for the recommended running water pressure at a cold water temperature of 15 °C.		

Selecting, starting and following the program

NOTICE

Unsupervised operation of the device can result in damage to the device or your facility.

In such a case, MELAG does not accept any liability.

- Never operate the device unattended. Unattended operation is performed at the operator's risk.

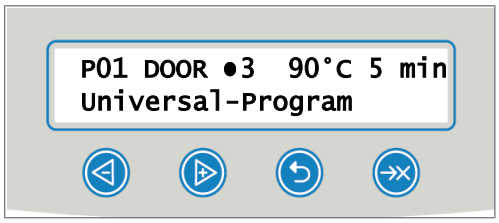
Ensure compliance with the following prerequisites in order to secure the optimal cleaning performance before every program start:

- The process agents containers are sufficiently full.
- The injector rail nozzles / adaptor are clean.
- The rinse arms can be turned freely.
- The load must be arranged correctly.
- Baskets and inserts are inserted correctly.

Selecting and starting a program:

1. Select a program in accordance with the Program overview [▸ page 33].

2. Navigate to the desired program using  . The display shows the program names, the temperature and the holding time.



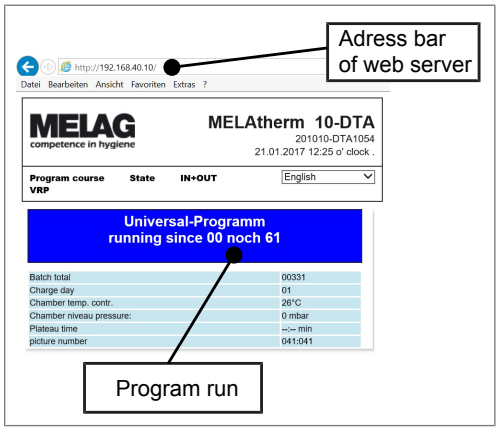
3. Start the selected program with  .

Following the program run on the computer

You can follow the current progress of a program run on every computer in the practice network. To do so, an IP address must be issued for the device and it must be incorporated in the practice network.

1. Open a web browser window in the practice PC (we recommend Mozilla Firefox or Internet Explorer).

2. Enter the device IP address in the address bar of the web browser, e.g. 192.168.70.206 and confirm with [Enter].



➥ The program run and the device information such as e.g. serial number, device software version will be shown.

Manual program abort

NOTICE

Cancellation of a current program by deactivation at the power switch may cause damage at the device.

- Never abort a program by switching off at the power switch.

Abort the program during drying

CAUTION

Danger of burns from hot instruments and surfaces.

The instruments and chamber can remain hot even after the device has been switched off.

- Allow the device to cool before removing the instruments.
- Wear suitable protective gloves.

WARNING

Nucleation because of residual dampness.

If a program is aborted during drying, residual dampness will remain on the instruments.

- Only abort a current program in exceptional reasons.
- Dry the instruments manually.

If a program is aborted during drying the program is classed as having been ended successfully. Proceed as follows to abort the program during drying:

1. Wait until the display shows the message `Universal-Program drying abort 4`.
2. Press the  key to abort the program. Confirm the abort with `YES`.
3. To open the door, press  and  simultaneously.

Abort the program before the start of drying

CAUTION

Danger of burns from hot instruments and surfaces.

The instruments and chamber can remain hot even after the device has been switched off.

- Allow the device to cool before removing the instruments.
- Wear suitable protective gloves.

WARNING

Danger of infection from program abort.

If a program is interrupted before the start of a drying phase, the load is taken as not having been cleaned and disinfected. This endangers the health of the patient and the practice team.

- Only abort a current program in exceptional reasons.
- Never open the door after a program start.
- Treat the instruments again after a program abort.

Press the  key to abort a current program before drying begins and follow the information on the display.

Removing the load after program end

CAUTION

Danger of burns from hot instruments and surfaces.

The instruments and chamber can remain hot even after the device has been switched off.

- Allow the device to cool before removing the instruments.
- Wear suitable protective gloves.

PLEASE NOTICE

Open the door immediately after the end of the program to prevent the accretion of condensation.

PLEASE NOTICE

Dry the hollow-bodied instruments with clean (medical) compressed air after treatment in order to remove any residual moisture.

NOTICE

Soiling can become encrusted even after a rinsing program; this could result in instrument corrosion.

- Remove the instruments from the washing chamber after every program run.
- Do not leave the instruments in the washing chamber overnight.

The display message indicates when and whether a program has ended successfully. The display shows the last batch number run and the total batch counter after a program end or the end of a program abort.

1. Press  and open the door.
2. Remove the load whilst complying with all the hygiene and working safety regulations.

   ↪ Do not leave the instruments in the washing chamber overnight, otherwise this can result in corrosion of the instruments.

The load is only classed as having been cleaned and disinfected if all the following points have been satisfied. Otherwise, treat the load afresh.

- The program has been performed without interruption or malfunction.
- Instruments must be completely clean and dry.
- Hollow-bodied instruments are fixed.
- The interior of the hollow-bodied instruments are accessible.
- The injector rail still sits snugly on the connection tube in the washing chamber.
- The nozzles and connections to the basis basket are still connected.

9 Logging

Batch documentation

The batch documentation acts as proof of the successful conclusion of the sterilization process and represents an obligatory part of quality control. The data, such as type of program as well as batch and process parameters of the completed programs, are stored in an internal log memory of the device.

To obtain the batch documentation, you can read out 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.

As delivered, the MELAflash CF card is set as the output medium. Setting a different output medium or activating the internal log memory is outlined under Settings [▸ page 18].

Capacity of the internal log memory

The device is equipped with an internal log memory. This saves all the data regarding the sterilization program automatically. The capacity of the internal log memory is sufficient for 15-20 logs. If the internal log memory is full, the display will show the warning `Internal program log memory full, do not output all logs`. If this warning is issued, provide the specified output medium (see Settings [▸ page 18] menu → Logging) and output the affected log (→ Logging [▸ page 18] menu). If the program is continued, the logs are deleted automatically; the last ten saved logs remain in the log memory.

We recommend outputting logs immediately.

Outputting logs immediately and automatically

- The text log is issued on the selected output medium after the end of the program run. At the same time, this text log is saved in the internal log memory and marked as “outputted”.
- If multiple output media have been activated, all activated output media must be connected to the device. Otherwise, the text logs are saved in the internal memory and are classed as “not outputted”.
- If the internal log memory is full, the device will register all the text logs which are classed as “not outputted”. The warning 386 appears after the program start. You can acknowledge this warning with the  key in order to continue the program run.
- With warning 372, logs not yet outputted must be outputted manually. Only then is a program start possible. The log memory is deleted automatically after manual issue; the last ten logs remain in the log memory. The manual outputting of logs is outlines under Subsequent log output [▸ page 41].

Output media

You can output the logs of the finished programs via the following output media:

- MELAflash CF card
- A computer via the practice network (LAN)
- MELAprint 42 log printer with network adaptor

The output media can be combined in any fashion. Thus it is possible both to save logs on the CF card (included in the scope of delivery) and also to print them on the log printer.

PLEASE NOTICE

Further information about the log printer (e.g. the duration of the readability of the log print-out) is specified in the appendant operating manual.

Using the CF card as an output medium

NOTICE

When the CF card is pulled from the card slot prematurely or if it is treated improperly, data loss, damage to the CF card, the device and/or its software may occur!

- Never push the CF card in the slot with force.
- Never remove the CF card from the slot whilst it is being written or read.

  ⇨ The red LED next to the card slot on the right will illuminate red in short irregular intervals during reading and writing access.
- Hold the CF card cover cap closed during operation so that the CF card ejection button is not actuated by mistake.

Inserting the CF card

The card slot for the CF card is located behind the cover cap on the right, adjacent to the door below the power switch. When inserting the CF card in the slot, ensure that it is aligned correctly.

1. Open the CF card cover cap.
2. Insert the CF card in the slot with the contacts at the front. The MELAG logo on the CF card points towards the LED.

3. Slide the CF card in the card slot until it clicks. Do not use force. When the CF card has been placed correctly, the red LED will illuminate shortly.
4. Close the cover cap.

Removing the CF card

1. Open the CF card cover cap.
2. Press the ejection button and remove the CF card.
3. Close the cover cap.

Using the computer as an output medium

You can either connect a computer directly to a device or via a network if the following conditions are fulfilled:

- The computer is fitted with a network card with a RJ45 bushing (LAN).
- An FTP server or an FTP service is installed on the computer (when the log is issued via FTP).
- A suitable program, e.g. MELAtrace/MELAview, is installed (when the log is issued via TCP).

Outputting logs immediately and automatically

As delivered, the MELAflash CF card is set as an output medium in the setup menu and thus the automatic log output at the end of a program (immediate output = YES) is thus activated. Log output on multiply activated media is performed successively. You can select or add an alternative output medium for automatic log output.

Text logs

The following requirements must be fulfilled in order to output text logs immediately after the end of a program.

- In the setup menu → 02 Autom. logging → immediate output is set to `YES`.
- In the setup menu → 02 Autom. logging → at least one output medium is selected and 02 Autom. logging is thus set to `ACTIVE`.
- The activated output medium is available (e.g. The MELAprint 42 log printer or a CF card).

Graphic Logs (optional)

The following additional requirements must be fulfilled in order to record graphic logs:

- In the SETUP MENU → 02 Autom. logging → Graphic logs, at least one output medium is set to `YES`.
- At least one of the output media selected corresponds to an output medium for the text logs. This means that at least the computer or the CF card must be activated as an output medium for both log types.
- The selected output medium has been connected.

NOTICE

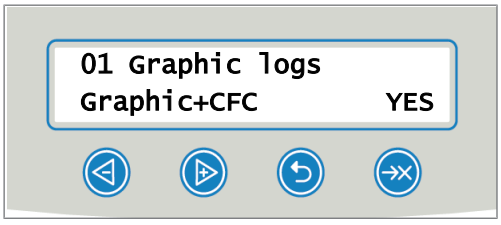
Graphic logs cannot be saved in the internal log memory and cannot be outputted via the log printer MELAprint 42.

- Save the graphic logs on the CF card or the computer.

The following settings can be made to record graphic logs:

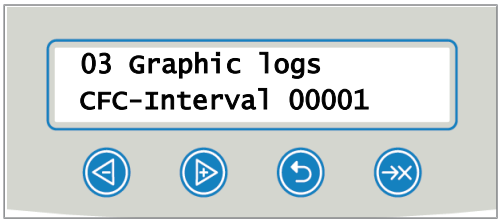
Graphics & CFC

One of the selected output media must conform with the selected output medium for text logs.



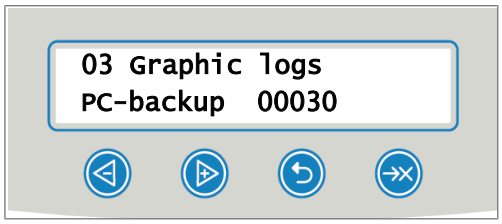
CFC interval

CFC interval or PC interval indicates the time intervals in which the program curve is recorded on the CF card or computer. The smaller the time interval, the more exact the curve. In the example, the time interval is set at 1 second.



PC backup

PC backup indicates the time interval in which the graphic logs are to be saved on the computer by the device. In the example, the backup interval is set to 30 seconds.



Subsequent log output

The Docu menu provides the option of issuing logs subsequently and independently of the point of the program end. Proceed as follows:

1. Press or to navigate to the `DOCU MENU`.
2. Press to open the `DOCU MENU`.
3. Press repeatedly to select an output medium. If you want to assume the settings from the menu `Automatic logging`, select the option `automatic`.
4. Press to get to the option `Log type`.
5. Press to choose between the log types, e.g. `last log`, `log of the day`, etc.
6. Press the key in order to start the log output.

Deleting the saved logs

Save the logs on an output medium before deleting them.

1. Press or to navigate to the `DOCU MENU`.
2. Press to open the Docu menu.
3. Press to get to the option `Log type`.
4. Press to navigate to `06 All logs`.
5. Hold and depressed to delete all logs.

Determining the format for the program logs

The log format enables you to determine which of the data saved is to be outputted. You can choose between the format (0001) and the more comprehensive format (0002). The log format (0002) is the standard format. Working in the setup menu, you can select the log format for the program log (see Logging [▸ page 38]).

Log types

In addition to logs for successfully completed programs, there are many other types of log. These can be issued via the list in the Docu menu. You can identify the log type by the ending of its file name.

Table 6: Overview of log types

Ending	Stands for	Explanation
PRO	Program log	Log of a successfully completed program
GPD	Graphic log	The log in which the process is recorded graphically
STR	Malfunction log	Log of an aborted program
STB	Malfunction in standby	Log with malfunctions without a program having run
LOG	System log	List of all the malfunctions and changes to the system in order of time (log book)
STA	Status log	Summary of all the important settings and system states (counter, measured values etc.) + a list of all procedure-relevant parameters (VRP)
LEG	Legend log	Contains all step abbreviations used in the program log
DEM	Demo log	Log of a successfully completed simulated program in DEMO mode (only for presentation purposes)
DES	Demo malfunction	Log of a program simulated as interrupted (presentation)

Example of a program log for a successful finished Program

```
----------------------------------------
10 MELAG MELAtherm 10-DTA
----------------------------------------
15 Program: Ophthalmo-Program
20 TARGET      °C            min
21 Pre-clean: 22.0           01:30
23 Cleaning : 55.0           10:00
28 Disinfect: 90.0           05:00
30 Date     : 17.02.2016
35 Batch    : Day:10  Total:00010
=====
40 Program successfully ended
======
50 ACTUAL          °C    +/- K   min
51 Pre-clean: 29.1 +0.2/-0.2 01:30
53 Cleaning: 57.2 +1.2/-0.3 10:00
58 Disinfect: 91.9 +0.2/-0.2 05:00 3962
------
60 Conductivity : 9.8 (12.6) µS/cm
65 Start time: 11:19:21
70 End time : 12:49:32 (90:11 min)
======
80 SN:201610-DTA1288
======
81 Firmware : V1.309 01.03.2013
82 Parameter: V1.314 25.02.2015
83 UI       : V1.305 25.01.2013
----------------------------------------
Step   Start   End   Time  °C   ml mbar
--> Process start
S1X01   0:00   0:00   0:00 52.3 ---- ---
--> Pre-cleaning
V1E01   0:00   0:03   0:03 52.3 ---- ---
V1P01   0:03   0:09   0:06 52.2 ---- ---
V1S12   0:09   0:13   0:04 52.2  350 ---
...
--> Cleaning
R1E02   4:19   4:19   0:00 35.1 ---- ---
R1P01   4:19   4:25   0:06 35.3 ---- ---
R1U03   4:25   4:54   0:29 35.4 ---- ---
R1S02   4:25   5:16   0:51 25.2 5555 ---
...
--> Neutralizing
N1E02  16:14  16:14   0:00 56.8 ---- ---
N1P01  16:14  16:20   0:06 56.8 ---- ---
N1U01  16:20  16:48   0:28 56.3 ---- ---
N1S03  16:20  17:05   0:45 35.9 5055 ---
...
-.-> Intermediate rinsing
Z1E02  18:03  18:04   0:01 35.1 ---- ---
...
--> Disinfecting
D1E02  19:47  19:48   0:01 24.3 ---- ---
D1P01  19:48  19:53   0:05 24.5 ---- ---
D1U03  19:53  20:29   0:36 25.5 ---- ---
D1S05  19:53  20:52   0:59 25.8 5035 ---
...
--> Drying
T1E01  35:15  35:28   0:13 89.0 ---- ---
T1T04  35:15  38:25   3:10 79.8 ---- ---
T1K02  35:15  38:25   3:10 79.8  704 ---
...
--> Process end
E1Z01  60:52  61:00   0:08 61.0 ---- ---
----------------------------------------
>> Never change code in following row <<
490000ED0077000A6DFB0209030004C200000000
>> Proof of authenticity batch log <<
----------------------------------------
Voltage max/min: 241/217
KW:21.5   VE:5035
0.0   0.0   -0.00   0.0  -0.00
--et1---et2----eps----etu----epx---END--
```

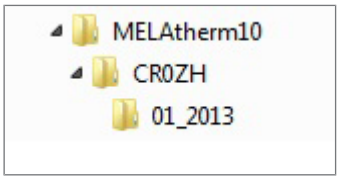
10	Header: Device name
15	Program name
21 23 28	Target values of the temperature and holding time of the partial cycles
30	Date
35	Daily and total batches
40	Control display
42	Program abort (appears if program unsuccessful)
51 53	ACTUAL-value Temperature (range) in C°, holding time of the partial cycles
58	ACTUAL-value Temperature conditions of the disinfection, A0 value
60	Conductivity of the DI water for the final rinse
65	Time upon program start
70	Time upon program end
80	Device serial number
81	Installed firmware version
82	Installed parameter version
83	Installed user interface
Time min.	Time (mm:ss), since the program start Duration (mm:ss), of a program step
°C	Temperature of the rinse liquor in the washing chamber in Celsius
ml	Volume of CW/DI water, the process agent consumed during a process step
mbar	Rinse pressure
92	Up to 5 warnings as required
95	If necessary, malfunction numbers of the program aborts
	Proof of authenticity: Authenticity proof; should never be changed; permits inference that the data was created and not changed on an autoclave from MELAG. Sensor measurement values are displayed in the case of a malfunction. The values are helpful for a technician.

Finding the logs

PLEASE NOTICE

Do not rename the directory, otherwise logs will be stored in both the renamed directory as well as the new device directory generated automatically by the device.

All storage media (CF card or computer) contain a directory with the encoded serial number of the device concerned following log output. The folder name consists of five characters identical with the first five characters of every log, e.g. CR0ZH. This directory contains a sub-directory with the month of log generation e.g. 01_2013 for January 2013. This contains all logs generated by the device this month. The device directory is entered in the main directory on the CF card.



The device checks the storage medium after every type of log output (immediate output after a completed cycle or the transfer of multiple logs simultaneously). Should a directory not exist, it creates one of device and a month. If logs are issued on the same storage medium more than once, a “duplicated" directory will be created under the device directory in which these logs will be saved only once.

Given direct log transfer to a computer, set the storage location in the program (FCP, FTP) used on your computer.

10 Function tests

Automatic and manual functional check

Automatic

The device components are monitored and checked automatically for their functionality and interplay. Should the parameter thresholds be exceeded, the device will issue warnings or malfunction messages. If necessary, it will abort a program with the relevant notification. The device will also display messages when a program has been completed.

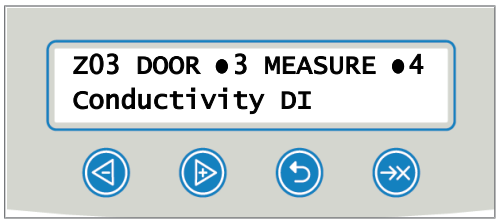
Manual

You can follow the program run on the display and use the log recorded to check the success of a program. Further information is provided in chapter Logging [page 38].

Measuring conductivity

You can access the water quality of the DI wateron the device on the display at any time providing, that it is switched on.

- Press  to start the “Conductivity measurement DI” program.



11 Maintenance

DANGER

All servicing work, especially that performed in the washing chamber may only be performed after a successful disinfection program.

- Comply with the working safety regulations.

Daily checks and cleaning

NOTICE

Incorrect cleaning can damage the surfaces and sealing faces. Scratched or damaged surfaces and leaking sealing faces favour soiling deposits and corrosion in the washing chamber.

- Comply with all information regarding cleaning of the parts affected.

NOTICE

When the coarse and fine sieves are missing, residue may enter the flushing circuit and impair the device function.

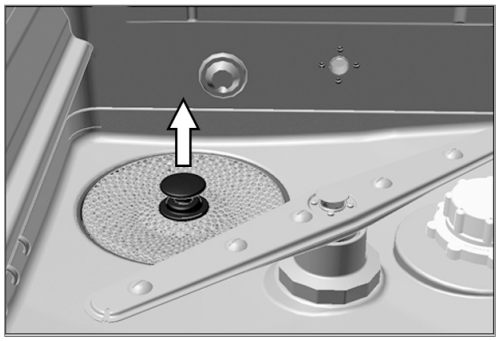
- Ensure that the coarse and fine sieves are always in place before program start.

Inspection of the sieves in the washing chamber

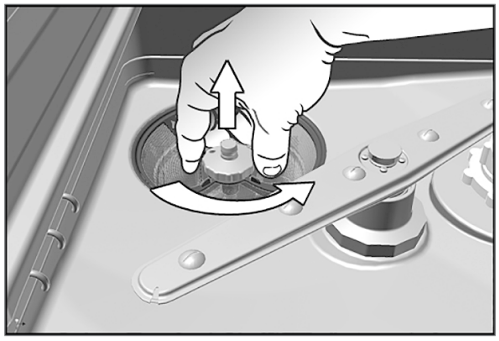
A coarse and a fine sieves are fitted in the washing chamber. The sieves are designed to hold back dirt particles or soiling from the instruments. They can become blocked over time.

1. Inspect the coarse and the fine sieves for soiling.

2. Turn the coarse filter all the way to the right by the handle and remove upwards.



3. Turn the knurled nut on the fine sieve rightwards and pull the fine sieve upwards.



4. Inspect the coarse and the fine sieves for soiling.

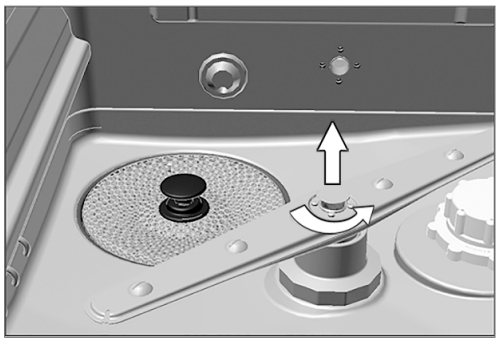
5. Rinse the soiled sieve under running water. Do not use any dishwashing detergent. Remove deposits with a soft brush.

Checking the rinse arms

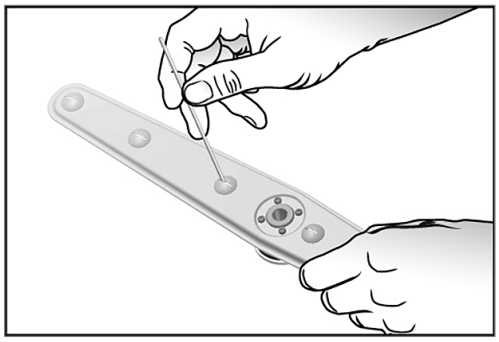
Dirt particles can block the nozzles of the rinse arms. Check both rinse arms regularly and rinse the nozzles if necessary.

1. Check that the coarse and the fine sieves are installed.

2. Turn the knurled nut on the rinse arm rightwards and remove it.



3. Clean blocked nozzles with a thin pointed object.



4. Return the rinse arms and ensure their free movement.

Checking the door seal

Check the door seal for impurities, deposits or damage on a daily basis. If necessary, clean the door seal with a moist, non-fuzzing cloth and conventionally-available neutral liquid cleaning fluid.

Inspection of passage of the nozzles of the injector rail

To test whether the nozzles on the injector rails are blocked, the nozzles must be held upright under running water. If the water flows freely through the nozzles, they are not blocked.

Checking the accessories

Subject the accessories for damage, deposits and soiling on a monthly basis, unless the document *Instructions for the use and care of the accessories* indicates otherwise.

Cleaning on demand

Operating unit and plastic front

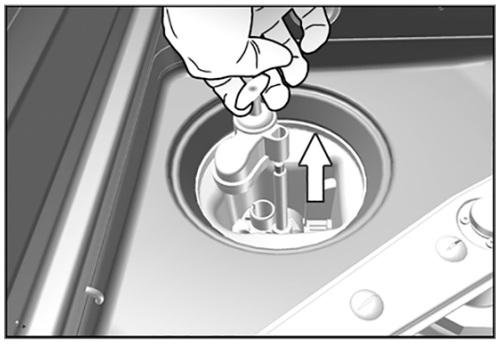
Comply with the following specifications for cleaning:

- Use a soft, non-fuzzing cloth.
- Use a chlorine- and vinegar-free cleaning fluid or a plastics cleaning agent.
- Check the material compatibility before application!
- Never use solvents or benzene.
- Use surface disinfectants which are suitable for plastics. Observe the manufacturer's information on the respective surface disinfectant.

Pump pit and non-return valve

If the rinse water has not been removed entirely after a program, the non-return valve must be cleaned.

1. Remove the coarse and fine sieves and remove the residue and deposits from the pump pit.
2. Remove the non-return valve upwards by pulling on its grip and pull it out of the pump pit.



3. Clean the non-return valve under running water. Do not use any dishwashing detergent.
4. Replace the non-return valve and the fine and coarse sieve in the pump pit.
5. Start the “Rinse” program.

Avoiding staining

Stains on the instruments or the device can develop from poor water quality. In particular, heavy metals or chloride deposits can result in the development of stains and rust. To avoid the development of stains on the instruments or the washing chamber, we recommend a final rinse with deionised water (DI water). All water-conducting parts of the device are made of non-rusting materials. This excludes the formation of stains or rust caused by the device. Often a rust-producing instrument already suffices for third-party rust to form on the other instruments or in the device. Further information is provided in the document *How to optimise cleaning and protect instruments.*

Changing the filter in the drying fan

Exceeding the permissible level of blockage can result in a worsened drying outcome. For this reason, the device checks the degree of blockage automatically. Exceeding the tolerances results in the issue of the relevant display message.

DANGER

Careless touching of the HEPA filter may damage the lamellae.

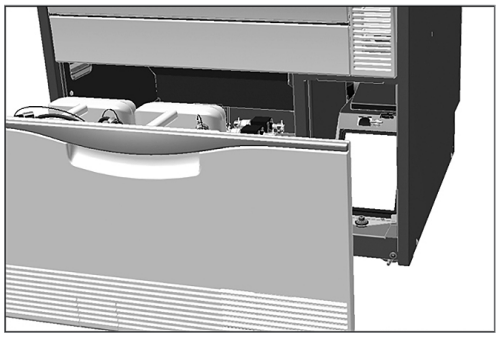
This may impair filter services and recontamination of the disinfected instruments.

- Only touch the HEPA filter by the frame and do not damage the lamellae.

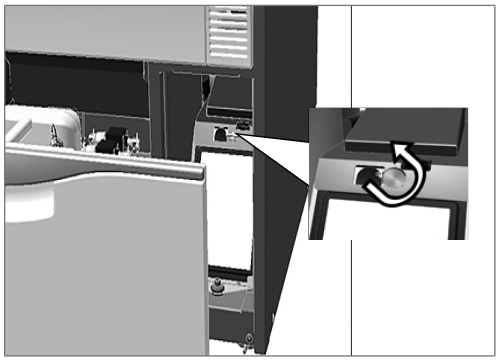
PLEASE NOTICE

The pre-filter and HEPA filter must be changed yearly (e.g. during maintenance).

1. Pull the process agent drawer forwards.

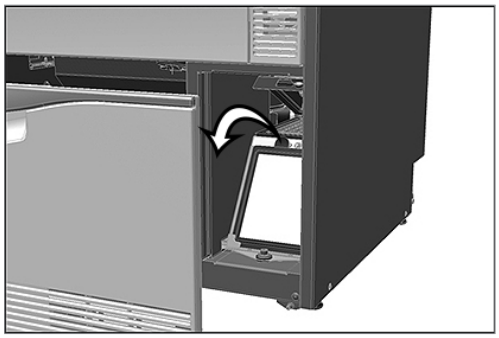


2. Undo the screw on the cover cap of the drying fan by hand and lift up the cover cap.



3. Pull out the pre-filter upwards and replace it.

4. Take out the HEPA filter upwards and replace it.



5. Close the cover cap and turn the screw hand-tight.

Maintenance

NOTICE

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

- Maintenance should only be performed by trained customer services technicians, or specialist dealer technicians. Consult your specialist dealer or the nearest MELAG customer services point.
- Maintain the specified servicing intervals.

Regular maintenance is indispensable for the retention of value and the reliable practice operation of the device. All function and safety-relevant components and electrical units are checked during maintenance and replaced where necessary. Maintenance is carried out according to the maintenance instructions relevant for this device.

Maintenance is to be performed after every 1000 cycles or after 18 months at the latest. Please note any restrictions arising from the process agents used (see Approved process agents [▸ page 11]).

(Process) validation

A reproducible cleaning and disinfection outcome can only be ensured via correct operation (inc. use of suitable accessories). The practice operator is responsible for ensuring reproducibility through the use of batch, routine and / or periodic inspections (e.g. validation).
This requirement is made (in Germany) by e.g. the *Medizinprodukte-Betreiberverordnung* (§ 4 Abs. 2 MPBetreibV); DGKH, DGSV and AKI directives and the recommendations from the Robert-Koch-Institut. This requirement is also made in international regulations. This is based on DIN EN ISO 15883, which is also valid in Germany.
Please observe all valid national regulations and specifications. In case of doubt, please consult the relevant professional association.

- Only use the loading pattern specified and approved within the scope of the validation.
- We cannot provide a guarantee for non-MELAG accessories, even if they are in possession of validation.

12 Pause times

Pause times between individual programs are not necessary. Instruments can be re-arranged and then cleaned and disinfected directly after a program run or interruption.

Run the "Rinse" program twice before treatment following pause times longer than two days e.g. following a weekend.

Given an ophthalmic application, run an empty batch (Ophthalmo-Program) twice before treatment following pause times longer than two days in order to flush the DI cartridge

Long operating pauses (longer than two weeks)

- Decommission the device if you plan to have a pause of over two weeks (see).

Decommissioning

Preparation for transport

Decommissioning in preparation for transport outside the practice should only be undertaken by MELAG-authorized individuals.

Following longer operating pauses

DANGER

Danger of acid burns by irritant substances!

Improper handling of the process agents may cause caustic burns and health damage.

- Protect your eyes, hands, clothing and all surfaces from contact with the process agents.
- Comply with the information from the manufacturer of the process agents.
- Every type of fluid (e.g. in the drawer, in the device floor tank or fluid emerging from the device) issued from the device as the result of damage could potentially contain aggressive process agents.

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

1. Remove the suction lances from the container and place them in a canister of water. The suction lances should be immersed to a minimum of 80%.
2. Run the “air-removal“ program to free the metering system from process agents.
3. Return the suction lances to the process agents and screw them on tightly.
4. The interior of the washing chamber must be dry.
5. Switch off the device at the power switch.
6. Remove the mains plug from the socket after use.
7. Turn off the water inflow.

Recommissioning

NOTICE

Run the `Air removal` program twice before running the first decontamination process. Then start the usual disinfection program with an unloaded basis basket.

▶ Comply with the specifications in chapter First steps [▸ page 22] when performing the recommissioning.

Transport within the practice

CAUTION

Danger of injury from incorrect carrying.

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

- Two people are necessary to carry the device.
- Please ensure that you comply with the transport instructions.

Comply with the following provisions pertaining to transport within the practice:

- Empty the device entirely
- Remove the inserts and the basis basket.
- Seal the water inflow hose
- Close the door before moving the device.
- Avoid strong vibrations.

Frost protection

Operate, store and transport the device in a generally frost-free environment. Should any residual fluids freeze in the device, the device should be held at room temperature for a minimum of two hours so that they can thaw.

Re-startup after change of locality

When recommissioning after a move, proceed as with the first commissioning (see chapter First steps [▸ page 22]).

13 Malfunctions

Warnings are marked in the display with a **W** and malfunction messages with an **F**. Follow the operating procedures shown in connection with a warning text or an error message on the display of the device.

General events

It serves to inform and provides assistance in the operation of the device. Malfunction-free operation of the device is still possible.

Warning

A warning helps to ensure malfunction-free operation and recognition of undesirable situations. React to a warning quickly to prevent the resulting malfunction.

Malfunction message

Malfunction messages are issued when it is not possible to ensure safe operation or cleaning and disinfection. These can appear on the display shortly after switching on the device or while a program is running. If a malfunction occurs during a program run, the program will be discontinued.

WARNING

Danger of infection from program abort.

If a program is interrupted before the start of a drying phase, the load is taken as not having been cleaned and disinfected. This endangers the health of the patient and the practice team.

- Only abort a current program in exceptional reasons.
- Never open the door after a program start.
- Treat the instruments again after a program abort.

General events

CAUTION

Danger of injury from insufficient protective measures!

Performing work without first taking the corresponding protective measures can result in Injuries.

- Comply with the working safety measures required by the respective tasks.

The following table indicates possible causes for certain events and the corresponding operating information for their remedy. Should you be unable to find the relevant event, or your efforts do not redress the problem, you can contact your nearest stockist or authorized MELAG customer service provider. Please have your device serial number and a detailed description of the malfunction contained in the malfunction message to hand.

Incident	Possible cause	Remedy
Banging or rattling noise in the washing chamber during a program run.	The rinse arm bangs against instruments or containers. The load moves in the washing chamber.	Interrupt the program and re-arrange the load. Re-start the program again.

Incident	Possible cause	Remedy
White layer on the instruments	1. The internal water softening unit has not been programmed correctly. 2. Water-insoluble, hardened treatment residue (e.g. dental cement or root canal disinfectants) remain on the instruments. The instruments can also be covered by residue of ultrasound gel.	1. Check the water hardness of the tap water and reset the internal water softening unit if necessary, see Description of the device [▸ page 13]. 2. Remove the residue manually immediately after instrument application.
Poor cleaning outcome	1. The basis baskets / insert baskets / racks / are loaded incorrectly or overfull. 2. Load results in a spray shadow. 3. The cleaning agent is unsuitable for this type of soiling. 4. Encrusted soiling on the instruments. 5. Rinse arm nozzles or injector rail nozzles blocked. 6. Sieve in the pump pit soiled.	1. Ensure correct arrangement and avoid overloading. 2. Ensure the correct arrangement of the instruments. 3. Use a suitable cleaning agent for automatic cleaning 4. Do not allow soiling to dry on. Rinse off soiling immediately. 5. Rectify the blockage in accordance with the description provided in chapter Maintenance [▸ page 46]. 6. Clean the coarse and fine sieves in accordancewith the description provided in Maintenance [▸ page 46].
Empty display	1. The device is not switched on. 2. The fuse in domestic installation has tripped. This can be caused by operating a number of electrical devices at the same time.	1. Check that the device is connected to the power supply and is switched on. 2. Check the house fuse (see type plate for the min. fuse).
Display message: `Salt store empty/Refill salt. Then wait for signal.`	There is almost no regeneration salt left.	Fill the salt container with regenerating salt. The signal (a tone) informs the operator that the salt in the salt container has been recognized and that operation can be continued.
Residual moisture on and/or in the instruments.	1. The basis baskets / insert baskets / racks / are loaded incorrectly or overfull. 2. The interior structure of the instruments is too complex / the volume is too low.	1. Ensure correct arrangement and avoid overloading. 2. Dry the instruments with clean (medical) compressed air.

Warnings

Warning	Incident	Possible cause	Remedy
W372	Internal program log memory is full, not all logs have been outputted!	▪ The log memory is full. ▪ The log memory contains c. 30 program logs which have not been issued. Further logs are in the memory and cannot be outputted because the memory is full.	1. Re-start the program. 2. Output all logs via the Docu menu. 3. Delete all logs if necessary.

Warning	Incident	Possible cause	Remedy
W386	Progr. log memory almost full Not all logs issued.	▪ If the batch documentation is activated, un-issued logs are stored in the memory. ▪ The program log memory is almost full.	1. Check the automatic logging settings after the program run. 2. Check whether the set output medium has been connected. 3. Output all logs via the Docu menu and restart the device. See Logging.
W397	No connection to the computer	The computer was selected as an output medium but the system is unable to register a computer.	Check the network connection to the FTP server (user name / password).
W414	Rinse aid just exhausted	The rinse aid has been exhausted.	Replace the rinse aid storage container, working in accordance with the working safety regulations. Alternatively, refill. **NOTE** No signal from neutralizer float switch
W424	Neutralizer just exhausted	The neutralizer has been exhausted.	Replace the neutralizer storage container, working in accordance with the working safety regulations. Alternatively, refill. **NOTE** No signal from neutralizer float switch
W425	Cleaner just exhausted	The cleaning agent has been exhausted.	Replace the cleaning agent storage container, working in accordance with the working safety regulations. Alternatively, refill. **NOTE** No signal from neutralizer float switch
W428	Re-fill the salt soon	There is almost no regeneration salt left	Re-fill the regenerating salt.
W501	Re-fill the salt soon	There is almost no regeneration salt left	Re-fill the regenerating salt.
W502	Computer connection not recognized	1. The FTP server program has not started 2. An Ethernet cable is not connected 3. With a TCP connection: MELAview/MELAtrace has not been started / there is no connection. Settings in MELAview incorrect. The settings on the device or computer are incorrect	1. Re-start the MELAview/MELAtrace program and connect. 2. Check the settings in MELAview/MELAtrace. 3. Check the network settings on the device and computer Start the FTP server program. Connect an Ethernet cable.
W533	Caution! Temp. high. Open door? DOOR *1+*3 NO *4	The temperature of the washing chamber is a minimum of min. 55°C when program is finished or is interrupted.	Acknowledge with the 1+3 keys and open the door. **CAUTION!** The instruments are hot!
W534	Temperature too high Please wait	The temperature in the washing chamber is too high. The door cannot be unlocked - danger of scalding.	Leave the washing chamber to cool. You can now open the door. **CAUTION!** The instruments are hot!

Warning	Incident	Possible cause	Remedy
W549	Poor DI water quality	The MELAdem cartridge is almost exhausted. The warning is issued above 15 µS.	Start the additional program conductivity measurement. If the displayed value is under 15 µS, treatment can continue without any further measures. If the value is over 15 µS the cartridge must be replaced soon. No treatment is possible after a value of 60 µS.
W622	Maintenance required	The maintenance period / the permissible number of cycles has been reached since the first commissioning or the last maintenance.	Arrange a maintenance appointment; the device can still be used.
W671	Poor conductivity/Final rinse	1. The Ophthalmo-Program places higher requirements on the quality of final rinse water. Should thepump pit determine a conductivity of >15 µS and <25 µS, the device issues a warning. 2. The MELAdem cartridge is almost exhausted. 3. Possible carry-over of process agents and / or deposits which lead to an increased conductivity in the final rinse.	1. Ascertain the conductivity in the inflow via the “Conductivity measurement” program. Replace the MELAdem cartridge over a conductivity of 15 µS. Check the replacement cartridge for its state. It may need to be regenerated quickly, in order to ensure problem-free operation. 2. If a conductivity measurement of over 15 µS is measured, replace the MELAdem cartridge. If the conductivity measurement returns a figure lower than 15 µS, contact the technical service dept., specifying the malfunction number. 3. Check the load: The opening of bowls, basins and receptacles must point downwards so that liquor cannot collect in them. Check all hollow bodies for their free accessibility and correct position before treatment.

Malfunction messages

Fault	Incident	Possible cause	Remedy
F410	Rinse aid exhausted.	The container for the rinse aid has been exhausted.	Replace the rinse aid container, working in accordance with the working safety regulations. Alternatively, refill. **NOTE** No signal from neutralizer float switch Start the “Air removal” program.
F411	Neutralizer exhausted	The container for the neutralizer has been exhausted.	Replace the neutralizer container, working in accordance with the working safety regulations. **NOTE** No signal from neutralizer float switch Start the “Air removal” program.
F412	Cleaner exhausted	The container for the cleaning agent has been exhausted.	Replace the cleaning agent container, working in accordance with the working safety regulations. **NOTE** No signal from neutralizer float switch Start the “Air removal” program.

Fault	Incident	Possible cause	Remedy
F426	Air-bubble formation R Start Air removal	1. The cleaning agent has been exhausted, air is being transported. 2. The hose to the suction lance is kinked (in the visible area) 3. Air bubbles can develop in the metering system after long immobilization times.	1. Replace the cleaning agent container, working in accordance with the working safety regulations. **NOTE** No signal from neutralizer float switch Start the “Air removal” program. 2. Replace any areas of kinking or crushing on the metering hose and start the “Air removal” program. 3. Start the “Air removal” program.
F427	Air-bubble formation N Start air removal: if unsuccessful, please contact the Service department	1. The cleaning agent container has been exhausted, air is being transported. 2. The hose to the suction lance is kinked (in the visible area) 3. Air bubbles can develop in the metering system after long immobilization times.	1. Replace the neutralizer container, working in accordance with the working safety regulations. **NOTE** No signal from neutralizer float switch Start the “Air removal” program. 2. Replace any areas of kinking or crushing on the metering hose and start the “Air removal” program. 3. Start the “Air removal” program.
F431	Min. rate of supply R not met. Please start Air removal	1. The container for the cleaning agent has been exhausted / is nearly empty. 2. The hose to the suction lance is kinked (in the visible area) 3. Air bubbles can develop in the metering system after long immobilization times.	1. Replace the cleaning agent container, working in accordance with the working safety regulations. **NOTE** No signal from neutralizer float switch Start the “Air removal” program. 2. Replace any areas of kinking or crushing on the metering hose and start the “Air removal” program. 3. Start the “Air removal” program.
F432	Min. rate of supply N not met. Please start Air removal	1. The container for the neutralizer has been exhausted / is nearly empty. 2. The hose to the suction lance is kinked (in the visible area)	1. Replace the neutralizer container, working in accordance with the working safety regulations. **NOTE** No signal from neutralizer float switch Start the “Air removal” program. 2. Replace any areas of kinking or crushing on the metering hose and start the “Air removal” program.
F433	Water in the chamber after pumping out	1. The coarse or fine sieve are blocked. 2. The water flows out of the effluent hose and back into the pump pit. 3. The non-return valve is missing or has been fitted incorrectly. 4. The non-return valve is blocked by foreign bodies.	1. Clean the coarse and the fine sieve. 2. Insert the non-return valve in the pump pit correctly. 3. Subject the non-return valve to a visual inspection for foreign bodies, remove them if necessary.

Fault	Incident	Possible cause	Remedy
F451	Consult the user manual F451	One of the washing chamber temperature sensors measures an incorrect temperature.	Check the load and re-sort it if necessary. Then re-start the program.
F464	Check the inflow tap	1. The water inflow tap has not been opened completely. 2. The sieve in the water connection is blocked. 3. The cold water inflow hose is kinked.	1. Open the cold water inflow tap. 2. Remove the sieve in the cold water inflow connection and check for soiling. Clean the sieve if necessary. 3. Check the installation of the cold water inflow hose; it must be free of kinks.
F465	Consult the user manual F465	The MELAtherm was programmed for the connection of a water treatment unit. This has not been connected.	Working in the Setup menu, set the DI connection to NO.
F466	Check the inflow tap	1. The water inflow tap has not been opened completely. 2. The sieve in the aqua stop valve is blocked. 3. The DI inflow hoses are kinked.	1. Open the water inflow tap to the DI cartridge. Check the connection / open the DI water supply. 2. Remove the sieve in the aqua stop valve and check it for soiling. Clean if necessary. 3. Check the installation of the DI inflow hoses.
F467	Check the inflow tap	1. The water inflow tap has not been opened completely. 2. The sieve in the water connection is blocked. 3. The cold water inflow hose is kinked. 4. The practice internal aqua stop does not open.	1. Open the cold water inflow tap. 2. Remove the sieve in the cold water inflow connection and check it for soiling. Clean if necessary. 3. Check the installation of the cold water inflow hose and remove any kinks. 4. Check the practice aqua stop for its function (if given).
F476	The drying pressure has not been reached.	The lid on the drying fan has not been closed correctly.	Check whether the drying fan cover has been sealed correctly.

Fault	Incident	Possible cause	Remedy
F484	Consult the user manual F484	1. The basis basket has been inserted incorrectly or not at all. 2. Strong foam generation: The instruments are pre-cleaned in a foam-generating solution or are dropped in and subject to insufficient rinsing. 3. Non-cleared process agents (rinse aid or cleaning agent) were used / the metering concentration has been set incorrectly. 4. Large receptacles are to be placed in the basket with the opening facing upwards. Otherwise, they take the water from the rinse liquor. 5. The blind cap on the injector rail could have leaks.	1. Check whether the basis basket has been fitted correctly. The injector rail should be located on the right-hand side and dock with the blind cap on the port of the rear wall (see Inserting the basis basket [▸ page 24]). 2. Re-start the program again. If a malfunction message is displayed, open the door. – Check for foam in the washing chamber. – **PLEASE NOTE:** do not pre-treat the instruments. Remove any strongly encrusted soiling manually. 3. Check whether the connected process agents have been approved by MELAG. Check the settings of the metering concentration and if necessary, arrange for the technical service to correct them. 4. Setup the containers with their opening facing downwards. 5. Check the black plastic seal on the fore-side of the injector rail for its stability.
F505	Salt storage empty	The salt storage has been exhausted. No new regeneration can be performed.	Re-fill the regenerating salt. A program can then be started if the salt has dissolved in the water. Do not start the program until the regenerating salt has been filled and the signal tone has sounded.
F509	Emergency overflow F509 Stop water intake	Liquid in the floor trough.	▪ Switch off the device and close the water inflow tap. Check whether external influence has enabled water to enter the device. **CAUTION!** Avoid contact with liquids in the device floor trough; they can include process agents. ▪ Contact your technical service provider and name the device serial number and the malfunction number displayed.
F512	NOT disinfected! Power outage F512. Warning! Load NOT disinfected!	A running program was interrupted by a power outage.	Acknowledge with the “4” key. The program must be restarted as the disinfection is not guaranteed. Do not switch off the device at the power switch whilst a program is running.

Fault	Incident	Possible cause	Remedy
F531	Emergency unlocking	Emergency unlocking activated during a current program	**PLEASE NOTE** The emergency release may only be actuated in an emergency. Clear with the key "4" and close the door. The program must be restarted as the disinfection is not guaranteed.
F535	Fine sieve not found	The fine sieve is missing or has been fitted incorrectly.	Insert the fine sieve correctly. The arrow must point to the rear left-hand corner.
F536	Cleanthe blockage of the upper rinse armBlockage upper rinse arm, Please clean	1. The upper rinse arm is mechanically blocked. 2. The drive nozzles of the rinse arms are blocked. 3. The basis basket has been inserted incorrectly or not at all.	1. Check whether the load is blocking the revolution of the rinse arms 2. Remove and clean the rinse arms. 3. Insert the basis basket correctly. The injector rail must be located on the right-hand side of the basis basket and dock onto the port on the washing chamber. Otherwise, the connection of the injector rail remains open and sufficient rinse pressure will not build up.
F537	Blockage lower rinse arm	1. The lower rinse arm is mechanically blocked. 2. The drive nozzles of the rinse arms are blocked. 3. The basis basket has been inserted incorrectly or not at all.	1. Check whether the load is blocking the revolution of the rinse arms. 2. Remove and clean the rinse arms. 3. Insert the basis basket correctly. The injector rail must be located on the right-hand side of the basis basket and dock onto the port on the washing chamber. Otherwise, the connection of the injector rail remains open and sufficient rinse pressure will not build up.
F538 F539	Min. speed upper rinse arm. clean the rinse arm. Please clean.	1. The basis basket has been inserted incorrectly or not at all. As a result, the injector rail connections remain open and it is not possible to establish sufficient rinse pressure. 2. The drive nozzles of the rinse arms are blocked. 3. Fine deposits have accrued on the rinse arm bearing / the white slide rail which inhibit the true run.	1. Insert the basis basket correctly. 2. Remove and clean the rinse arms. 3. Remove and rinse the rinse arms. Clean the rinse arm bracket and the white slide rail with a cloth and check them for deposits.
F548	DI water quality sufficient	The MELAdem cartridge is exhausted.	Replace the MELAdem cartridge from a conductivity of 60 µS.

Fault	Incident	Possible cause	Remedy
F549	Poor DI water quality	The MELAdem 53 cartridge is almost exhausted. Warning from a conductivity of 15 µS.	▪ Start the additional program conductivity measurement. If the displayed value is lower than 15 µS, treatment can continue without any further measures. ▪ If the value is over 15 µS the cartridge must be replaced soon. ▪ No treatment is possible after a value of 60 µS.
F571	Brine in chamber Start regeneration	The program cannot be started as brine is still in the water softening module or washing chamber.	Start the “Regeneration” program.
F583	Consult the user manual F583	The CW water inflow was interrupted during the program run.	Check the water supply. The water supply must be fully-functional during the entire program run.
F620	Foaming during circulating	1. The instruments are pre-cleaned in a foam-generating solution or are dropped in and subject to insufficient rinsing. 2. Non-cleared process agents (rinse aid or cleaning agent) were used / the metering concentration has been set incorrectly.	1. Place the instruments in the MELAtherm without pre-treatment. Encrusted residue must be removed by hand. 2. Check whether the connected process agents have been approved by MELAG. Check the settings of the metering concentration and if necessary, arrange for the technical service to correct them.

14 Technical Data

Table 7: Device dimensions MELAtherm 10 DTA/DTB

Device type	Free standing	Under-desk unit	Cabinet device
Dimensions (HxWxD)[1]	83.6 x 59.8 x 67.83 cm	81.8 x 59.8 x 67.83 cm	124 x 59.8 x 67.83 cm
Empty weight	85 kg	79 kg	106 kg
Floor loading	c. 2800 N/m²	c. 2800 N/m²	c. 4100 N/m²
Max. set-up height	1500 m (it may be necessary to reduce the disinfection temperature depending on the installation height. Consult technical manual)		

Device type	MELAtherm 10 DTA	MELAtherm 10 DTB
Electrical connection	3N AC 380-415V; 50/60 Hz; 3x16 A; 9.3 kW [2]	3N AC 220-240V; 50/60 Hz; 3x16 A; 3.3 kW[3]
Washing chamber (HxWxD)	29 x 45.5 x 42.3 cm	
Volume of the washing chamber	84 L	
Max. load of the door	15 kg	
Max. audibility (cleaning)	62 dBA	
Waste heat	0.75 kWh (2.7 MJ)	
Ambient temperature	5-40 °C (recommended max. 25 °C)	
Relative humidity	max. 80% at 31 °C, decreasing in a linear fashion up to a relative humidity of 50% at 40 °C	
Installation category	2	
Air pressure	75 kPa – 106 kPa	
Connection CW / DI water	3/4“ internal thread (for the connection to a standard 3/4“ connection with external thread)	
Effluent water connection	DN21	
Water quality	Drinking water according to Drinking Water Ordinance (TrinkW2001) / observe local specifications	
Minimum flow pressure	150 kPa (1.5 bar)	
Recommended flow pressure	250 kPa (2.5 bar)	
Max. water pressure	1000 kPa (10 bar)	
Max effluent temperature	93 °C (<1 min, ca. 5,5 l)	
Cold water temperature	1 - 26 °C	
Amount of effluent water per hour	ca. 30 L (in small intervals)	
Capacity of drain pump	Max. 40 l/min. (Volume in effluent hose)	
Length of the inflow hoses and outlet hose	each 1.80 m (extension optionally available)	
Length of power cable	2 m	
Degree of soiling	Category 2	
Degree of protection (following IEC 60529)	IP20	
CE mark	CE 0197	

[1] Appropriate for a 60-cm deep working surface
[2] Observe the maximum voltage range of 360-440V
[3] Observe the maximum voltage range of 207-253V

15 Accessories and Spare Parts

Accessories

You can obtain the specified articles together with an overview of further accessories from your stockist. Information regarding the instrument decontamination accessories can be found in the current MELAG price list.

	Article	Order no.
Optionally available	Floor unit (HxWxD 40 cm x 59.8 cm x 59.8 cm)	11020
	Stainless steel cover plate (HxWxD 1.8 cm x 59.8 cm x 59.8 cm)	65310
Water treatment	MELAdem 53	01038
	MELAdem 53 C	01036
For documentation:	MELAflash CF card	01043
	MELAflash card reader	01048
	MELAprint 42 log printer	01042
	Ethernet adapter for MELAprint 42	40295
Process agents	5 l canister for process agents	64010
	1 l container for rinse aid	60910
Others	Pre-filter	68130
	HEPA filter	51240
	Feed funnel	68200
	Outlet tap for rinse aid	70100

MELAG

16 Documentation and approval

Personal number
Device number
Batch number

Personal number / Device number / Batch number	Program/ load	Process successful?	Process approval?	Approval instruments?	Remarks	Signature
Treated on		☐ yes ☐ no	☐ yes ☐ no	☐ yes ☐ no ☐ Partially		
Treated on		☐ yes ☐ no	☐ yes ☐ no	☐ yes ☐ no ☐ Partially		
Treated on		☐ yes ☐ no	☐ yes ☐ no	☐ yes ☐ no ☐ Partially		
Treated on		☐ yes ☐ no	☐ yes ☐ no	☐ yes ☐ no ☐ Partially		
Treated on		☐ yes ☐ no	☐ yes ☐ no	☐ yes ☐ no ☐ Partially		
Treated on		☐ yes ☐ no	☐ yes ☐ no	☐ yes ☐ no ☐ Partially		
Treated on		☐ yes ☐ no	☐ yes ☐ no	☐ yes ☐ no ☐ Partially		
Treated on		☐ yes ☐ no	☐ yes ☐ no	☐ yes ☐ no ☐ Partially		
Treated on		☐ yes ☐ no	☐ yes ☐ no	☐ yes ☐ no ☐ Partially		

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.

Authorized personnel

An authorized personnel can be a medical stockists, depot technicians or MELAG-authorized customer services trained by MELAG.

Batch

Collection of sterilization material which has been processed together in the same sterilization program.

Cleaner

The cleaning agent serves the removal of organic material (e.g. blood). The maximum pH value of the working solution of a mildly-alkaline cleaning agent is 11.

DI water

Demineralized water, also known as de-ionized water or deionate. Water (H2O) which does not contain the minerals (salts, ions) found in source and tap water.

Empty batch

Program run without a load or accessories (only with a basis basket).

Neutralizer

In addition to neutralizing the cleaning agent, the neutralizer serves to protect the instruments and brightens their stainless steel surface.

pH value

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

Rinse aid

The rinse aid serves the subsequent rinsing of the instruments before drying. The rinse aid dries the load faster and without stain accretion.

VDE

German abbreviation "Verband der Elektrotechnik, Elektronik und Informationstechnik e.V." (Alliance of the Electronics, Electrotechnical and IT Industry).

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Your stockist

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