Hygoclave 50
Hygoclave 50 Plus

EN



Installation and operating instructions

6045050000

DÜRR DENTAL

2025/03 REV 3.1

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Important information

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SYMBOLS

HAZARD
Paragraphs marked with this symbol contain instructions that you must follow carefully to avoid damaging the device, injuring the operator and possibly the patient.

WARNING
These instructions warn that you must take particular care to avoid situations that could damage the device.

PROHIBITION
This icon highlights what you must not to do, to avoid damaging the device.

TIPS
With this icon, you are given information to allow you to use the device more effectively.

WARNING
General warning symbol.

WARNING
Risk or hazard symbol. Consult the manual.

SYMBOLS SHOWN ON THE PRODUCT

CE 0051 — European conformity marking (CE) with identification number of the Notified Body for Class IIa, IIb, III medical devices. Notified Body No. 0051: IMQ S.p.A., Italy

OFF symbol. Located on the mains switch (Fig. 1 §2).

SN — Indicates the manufacturer serial number with which a specific medical device can be identified.

Consult the user manual or the service manual.

After its useful life, the device must be collected separately from other waste according to the differentiated waste collection regulations. Illegal disposal of the product will result in application of fines defined by the individual legislations.

When the device is in operation, there must always be a tray holder and a tray positioned on the bottom shelf.

SOS — This symbol is located in proximity of the water loading point to be used in the event of an emergency.

This symbol is located in proximity of the water draining point.

This symbol is located in proximity of the water loading point.

This symbol is located in proximity of the points on the machine where there is a potential risk of burns.

This symbol is located next to the USB connection point to the device.

Indicates the medical device manufacturer as **defined in the EU Directives 90/385/EEC, 93/42/EEC and 98/79/EC.** This symbol is accompanied by the name and address of the manufacturer.

REF — Indicates the catalogue number of the manufacturer with which the medical device can be identified.

PACKAGING SYMBOLS

HIGH

DO NOT WET

DO NOT USE HOOKS

70°C / - 20°C — **STORAGE TEMPERATURE TRANSPORT CONDITION**

P
500 hPa ÷ 1060 hPa — **ATMOSPHERIC PRESSURE**

FRAGILE

DO NOT ROLL

Kg Max — **MAX SUPPORTED WEIGHT**

RH
10% I 90% — **RELATIVE HUMIDITY**

RECYCLABLE CARDBOARD

PACKAGING
We recommend keeping the packaging for handling the device in the future. In the event of disposal, separate the various parts in accordance with the differential collection regulations.

1 Safety standards

Follow all instructions in this manual.
The autoclave may only be used by personnel specially trained for the sterilization process in medical practices, podiatry practices and beauty centers under the responsibility of the medical director and the supervisor for the sterilization process.
The autoclave may only be used by personnel who have been instructed on the contents of these instructions for use. The medical facility in which the autoclave is installed is responsible for training in the operation and maintenance of the product. It must keep training records and check that the personnel have understood the training.
Assembly, upgrades, maintenance and repair may only be carried out by Dürr Dental or by an agency authorized by Dürr Dental for this purpose. The operator is responsible for ordering service only from authorized agencies. There are no procedures by which the user can check the correct function of the unit himself.

1.1 Intended users

- medical staff (dentists, chiropodists)
- dental hygienists
- employees in beauty salons

USER PROFESSIONAL QUALIFICATIONS
Degree in medicine
Dental hygienist

MINIMUM SKILLS
Those required by the professional qualification
Course on use based on this manual for unqualified users

LANGUAGE COMPREHENSION
Those acquired for the professional qualification

EXPERIENCE
That required to carry out the profession

POSSIBLE USER HANDICAPS
Full use of an upper limb is required
Eyesight compatible with the profession

1.2 Intended use

It is a small steam autoclave for sterilising tools, rotary instruments, reusable medical devices and porous materials (e.g. fabrics) using saturated steam at a temperature of 121°C or 134°C.

1.3 General safety warnings

The product must be used for its intended use in accordance with the provisions of this manual.
Any use that does not comply with the instructions in the instruction manual could compromise the safety level of the device.
Do not make any modification to the equipment without the written authorization by the manufacturer.
The user is responsible for installation, training users, maintenance and any legal requirements related to the device, including the periodic checks described in this manual.
DÜRR DENTAL shall not be liable for harm to things and/or people caused by failure to use the product correctly as described in this manual. Failure to comply with the provisions of this manual will void any liability of the manufacturer and the product warranty.
The device discharges air from a small hole at its bottom rear. Do not obstruct this vent **(17 fig. 2)**.
Do not place the autoclave on an unstable table or surface.

Fire or overheating hazard warnings
Only put products that are resistant to steam sterilisation inside, in accordance with the manufacturer's provisions.
Do not place the device on a flammable surface.
The device is not suitable for use in oxygen-rich or potentially explosive atmospheres.
Do not block the air vents on the equipment casing during installation or operation.
Comply with the minimum distance requirements in detail if the autoclave is recessed.

Electrical hazard warnings
The device must be connected to the electrical mains.
The electrical system must comply with the IEC 364-1 standard and the "National regulations for installation of electrical systems in premises intended for medical purposes".
Check that the mains supply matches the power supply voltage indicated on the plate on the autoclave rear panel. If in double, consult your dealer.
The plug on the autoclave has an earth connection. Make sure that you use an earthed socket and position the device where it is not difficult to disconnect the plug.
If you use an extension cable, make sure that the cable type is adequate for the equipment consumption.
Do not attempt to carry out maintenance on the autoclave when it is connected to the power. Disconnect the power cable from the mains before working on the machine.
Maintenance or repair operations must be carried out by persons that have obtained a training certificate issued by the manufacturer or Dürr Dental in the capacity of Exclusive Distributor.
Do not carry out maintenance work other than that described in this manual. Any work not indicated in this manual could compromise equipment safety. Contact DÜRR DENTAL technical service for any work that is not specified.

Equipment explosion hazard warnings
Do not use any acids or corrosive substances to clean any parts of the autoclave. Specifically, do not use hydrochloric acid or any detergent that contains chlorine. Using these substances may compromise the mechanical integrity of the equipment and create an explosion hazard.
The pressure chamber is protected by a safety valve: annually check that it is working correctly.
Do not carry out maintenance work other than that described in this manual. Any work not indicated in this manual could compromise equipment safety. Contact DÜRR DENTAL technical service for any work that is not specified.

Contamination hazard warnings
The autoclave must be installed in a suitable hygienically controlled environment.
Clean the chamber before using the device for the first time. The autoclave works with distilled or demineralised water (see technical specifications in chapter 7.1 or discribed in EN 13060 Appendix C). The device would not work properly with any other substance. Consult DÜRR DENTAL technical service if an unsuitable liquid is put inside.
Do not use toxic substances during the sterilisation process. Do not touch the contents of the discharge tank.
Do not put substances or products that contain heavy metals (lead, mercury, bromine, hexavalent chromium) into the chamber. If released, these products could contaminate the autoclave plumbing circuit and render it unusable.
NEVER REUSE WATER
Do not carry out maintenance work other than that described in the manual.
Only put heat-resistant products that do not release hazardous substances into the sterilisation chamber. Always consult the manufacturer's technical specifications to ensure that the products can be sterilised.
All items must be decontaminated and thoroughly cleaned and dried before being sterilised.
We recommend using chemical indicators to confirm the sterilisation process.

Operation failure hazard warning

If an error message appears while a sterilisation cycle is running, it will be necessary to repeat the cycle.
Accidentally dropping the device may deform it and compromise proper operation. If this happens, have a full check done by technical support.
If there are instruments that are joined together, they must be divided or located in the most ventilated and spacious place possible.
Lab coats or other reusable fabrics must be washed and dried after use and before sterilisation to remove any organic material and increase the “life” of the fabric by restoring its natural water content (i.e. humidity level).
Comply with the load limits defined in this manual for each type of sterilisation load.

Crushing of body parts hazard warnings

The equipment has motorised door closure. Only hold the door by the handle, or push it from the outside.
Be careful of your finger/hand position while closing the door. Do not leave fingers or other body parts between the door and the machine while it is closing.

Burn hazard warnings

To prevent possible burns, extract the trays with the dedicated pincers provided.
Before cleaning any surface, make sure that it has cooled down.

Infect hazard warnings

The autoclave performs a sterilisation process. However, the user must guarantee the effectiveness of the sterilisation process by following the guidelines as well as the data provided by the autoclave.
Therefore, strictly follow the protocols defined in this manual to ensure that the process continues to be effective.

Warnings against the risk of operator infection

Despite the water in the drain tank undergoing the sterilization process, there is still a risk of biological contamination. It is therefore prohibited to touch the drain tank water. For disinfection follow the recommended procedures in Section 5.

Note

The device, when on, must always have the tray holder and tray on the lower shelf.

1.4 Operating and transport environmental conditions

In its packaging, the equipment can withstand the following environmental conditions for no more that 26 weeks:
Ambient temperature from -20°C to +70°C
Relative humidity from 10% to 90%
Atmospheric pressure from 500 to 1060 mBar.

The appliance must be used in the following environmental conditions:
- internal use
- altitude up to 3000 m
- Atmospheric pressure from 700 hPa to 1060 hPa
- temperature from 5°C to 40°C
- max relative humidity 85%
- max mains voltage variation ± 10%
- installation category (overvoltage category) II
- pollution degree rating 2
- ambient lighting 500 lx

1.5 Environmental disposal instructions

Pursuant to directives 2012/19 EC and 2011/65 EC on waste electrical and electronic equipment and the restriction of the use of certain hazardous substances in electrical and electronic equipment, waste cannot be disposed of as urban waste, but must be collected separately.
When purchasing new equipment of an equivalent type on a one-for-one basis, the equipment that has reached the end of its life must be returned to the dealer for disposal. Regarding reuse, recycling or the other forms of waste recovery mentioned above, the manufacturer must carry out the steps defined by the individual national legislation.
Adequate separate collection for future use of the equipment assigned for recycling, treatment and environmentally friendly disposal helps to prevent possible negative effects on the environment and on human health, and promotes recycling and/or reuse of the materials that make up the equipment.
The crossed-out bin symbol (see symbols on page 38) on the device or on its packaging indicates that the product must be disposed of separately from other waste at the end of its life.

2 Equipment description

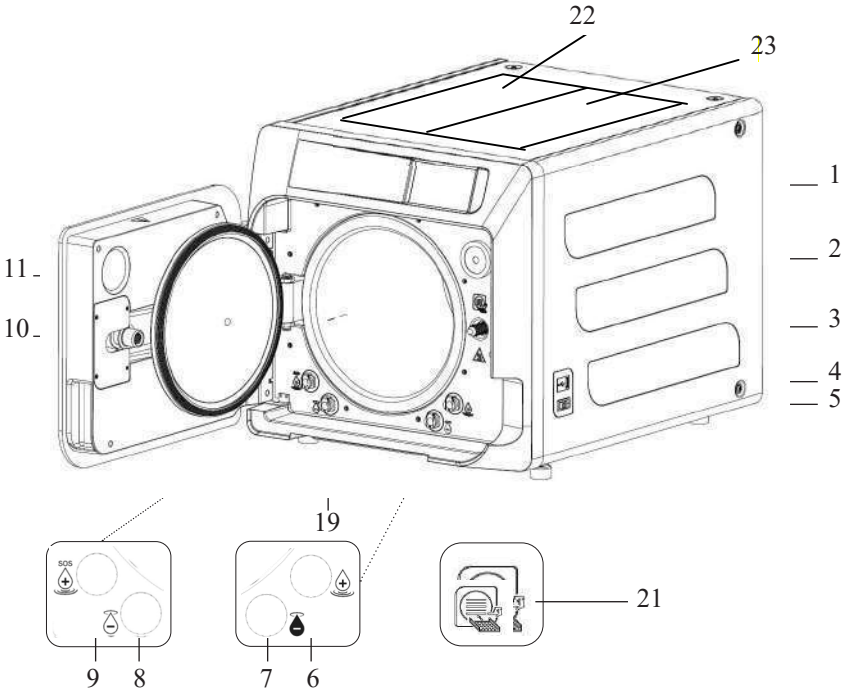


Fig. 1
1. Touch screen display
2. Bio-x filter
3. Motorised closure screw
4. USB port
5. Main switch
6. Feed tank filling connection
7. Discharge tank draining connection
8. Feed tank draining connection
9. Manual feed tank emergency filling connection
10. Nut screw for motorised closure
11. Door cover
19. Dust filter
21. Tray holder symbol
22. Loading tank opening
23. Drain tank opening

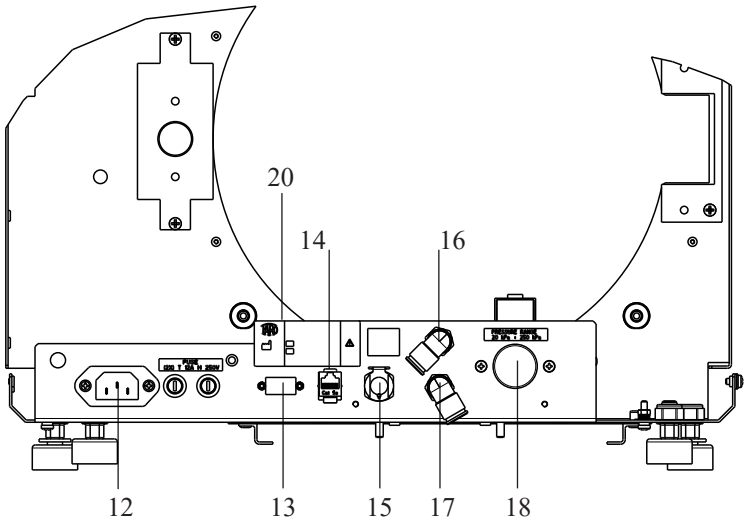


Fig. 2 – Rear view
12. Power supply
13. RS-232 port for external printer
14. LAN port
15. Discharge tank drain connection for main drain system
16. Discharge tank vent
17. Feed tank vent
18. Solenoid valve for filling the feed tank from the mains water supply (Allowable pressure from 20 kPa to 250 kPa)

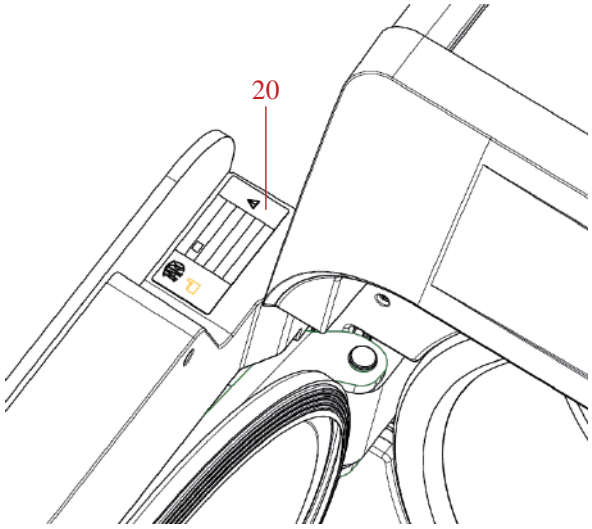


Fig. 2 and Fig. 3
20. Data plate

2.1 Variants

The following autoclave variants are available:

SERIES	HC 50	
TYPE	Hygoclave 50	Hygoclave 50 Plus
REF	604 910 XXXX	604 920 XXXX
Values XXX		
0001	Only type B, 230V, 50/60 Hz	
0002	Only type B, 240V, 50 Hz	
0003	CH, Only type B, 230V, 50/60 Hz	
0004	Only type B, 220V, 50/60 Hz	
0005	Only type S, 230V, 50/60 Hz	
0006	Only type S, 240V, 50 Hz	
0007	CH, Only type S, 230V, 50/60 Hz	
0008	Only type S, 220V, 50/60 Hz	
0009	Type B+S, 230V, 50/60 Hz	
0010	Type B+S, 240V, 50 Hz	
0011	CH, Type B+S, 230V, 50/60 Hz	
0012	Type B+S, 220V, 50/60 Hz	
0013	UK, Only type B, 230V, 50/60 Hz	
0014	UK, Only type S, 230V, 50/60 Hz	
0015	UK, Type B+S, 230V, 50/60 Hz	
0025	AU, Type B+S, 230 V, 50/60 Hz	

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2.2 Main features

The vacuum pump ensures an optimal sterilisation process in which the steam interacts properly with the load being processed, including any cavities.

2.2.1 Sterilisation programs

- **Type B**
  - 134°C **Standard**
  - 134°C **Standard +**
  - 134°C **Prion**
  - 134°C **B-Flash**
  - 121°C **Standard**
- **Special cycle**
  - Drying only
- **Type S**
  - 134°C **Fast S**
  - 134°C **Universal S**
  - 121°C **Softprogramm**

2.2.2 Test programs

- Vacuum test: checks the ability to hold a vacuum
- Bowie & Dick test: checks steam penetration into porous loads
- 121 or 134°C Helix test: checks steam penetration into hollow loads

The autoclave is available with the following storage devices:
- USB port (USB peripheral not supplied).
- RS-232 port (for DÜRR DENTAL printer, NOT supplied).

2.2.3 Water filling systems

Automatic: with the aid of a pump inside the autoclave.
Mains connection possibility of connecting a demineralisation system, to increase autonomy. It must be installed by an authorised technician.
Manual: as an alternative, the device is equipped with a manual emergency filling system at the FRONT **(9 fig. 1).**

2.2.4 Automatic sterilisation parameter control

During sterilisation, the pressure, temperature and time are continuously monitored by an automatic process control system.

2.2.5 Motorised closure

The autoclave has a motorised closure system to ensure a good seal. It is based on a screw and nut screw. Closure works with a pre-locking mode that activates when the door is shut. The door is only closed fully when the cycle starts.

2.2.6 Bio-X filter

This injects sterile air into the chamber during the drying and pressure balancing phases.

2.2.7 USB port

This port can be used by medical staff for data download.
Exclusively use a USB Key from version 1.1 with a capacity of less than 8 GB.

2.2.8 Serial port - RS232

Port dedicated exclusively to connection of the Hygoprinter Easy printer. Use the dedicated serial cable provided with the printer. Use only the dedicated Hygoprint Easy printer (order number 6048100167).

2.2.9 Touch screen display

This manages the autoclave fully through a menu system.

2.2.10 LAN connection

This port is only for connecting a LAN. Protocol used: 100Base-T. Connect only an Ethernet cable.

2.2.11 Safety devices

The steriliser is equipped with the following safety devices:

- Mains fuses
These protect the equipment from faults in the heating elements by disconnecting the electric power supply.

- Electronic circuit protection fuses
These prevent faults in the transformer primary circuit and low-voltage loads by disconnecting one or more low-voltage circuits.

- Safety valve
This prevents any overpressure in the sterilisation chamber by releasing steam to restore a safe pressure. It opens at a pressure of 350kPa (±10%).

- Steam generator thermal switch
This stops the steam generator from overheating by disconnecting its electrical power supply. It trips at a temperature of 220°C ±7°C.

- Chamber thermal switch
This protects the pressure vessel heating element from overheating by disconnecting its electric power supply. It trips at a temperature of 150°C ±4°C.

- Door lock mechanism safety microswitch
This provides feedback when the door and the door lock system are not in the correct position or when the door lock mechanism is not working correctly.

- Pressure switch
This prevents the door from being opened accidentally during the program when the machine is pressurised (even in the event of a blackout).

- Overflow system
This prevents water from flowing out onto live parts if the level sen-

sor does not work by draining excess water to the outside.

- Built-in sterilisation process assessment system
This uses a microprocessor to continuously monitor the sterilisation process parameters. In the event of a fault, it immediately stops the program and generates alarms.

- Steriliser operation monitoring
When the machine is powered, this monitors all of its important parameters in real time. In the event of a fault, it generates alarm messages and, if necessary, stops the cycle.

2.3 Accessories included in the medical device certification

Only the following accessories are included in the medical device certification:

- The tray support
- 5 trays
- 1 tray extraction pincer
- 1 filling hose
- 1 drain hose
- 1 funnel
- 1 bottle of lubricating oil

Any other accessory mentioned in this manual does not form part of the CE 0051 certification.

TYPE TESTS CARRIED OUT ON AUTOCLAVES

Type test carried out in accordance with the EN13060 standard

	Cycles B	Cycles S
Pressure dynamic in sterilisation chamber	X	X
Air leakage	X	X
Empty chamber	X	X
Solid load - Double wrapping	X	X*
Small porous load Double wrapping	X	X*
Full porous load Double wrapping	X	-
Narrow lumen element	X	X
Drying, solid load Double wrapping	X	X*
Drying, full porous load Double wrapping	X	-

* - NA for Fast S cycle

3 Installation

THE DEVICE MUST BE INSTALLED BY QUALIFIED TECHNICIANS.

- Check that the installation spaces comply with the indications given in the dimensions. To recess the autoclave inside a cabinet, there must be enough space all around (20 mm sideways, 50 mm at the top, 30 mm at the back) it to ensure effective ventilation, and a wide opening at the rear for the power cable. Make sure that there is sufficient air flow to properly cool the heat exchanger.

- Install the steriliser on a perfectly horizontal flat surface and make sure that it is strong enough to support the weight of the device (approximately 60 kg);

To prevent contact with water or other liquids that could cause short circuits and/or potential danger to the operator, do not install the steriliser too close to basins, sinks or similar places;

Do not install the steriliser in excessively damp or poorly ventilated places;

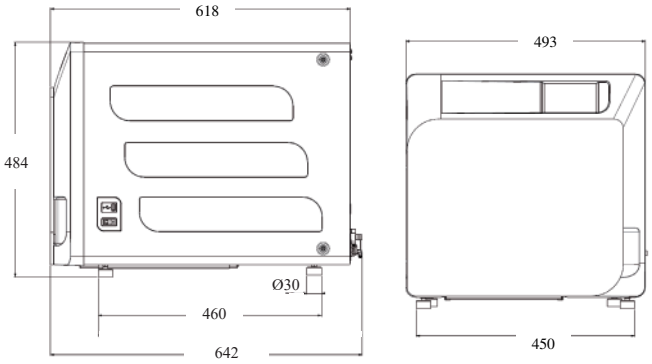
Do not install the machine in environments where there is gas, flammable vapours and/or explosives;

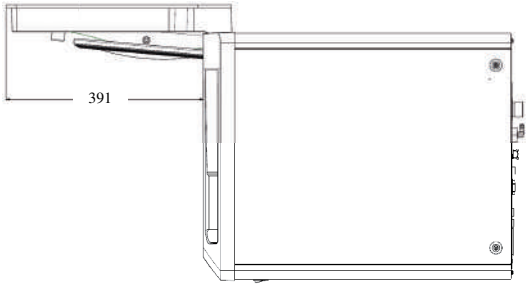
- Position the equipment so that the mains switch is easily accessible.

- Install the equipment so that the power cable is not bent of pinched. It must be free to move to the power socket.

- Install the equipment so that any external filling/ drain hoses are not bent or pinched. They must be free to move to the drain tank.

External dimensions





There are two lifting points on the autoclave base. When handling the equipment briefly, it must be done by two people; the lifting points (for straps) are located on the equipment feet. For longer handling, insert the pallet provided under the equipment.

Free the autoclave from the packaging.

- Position the autoclave on the support (table or cabinet) using straps.
- Make sure that the supporting surface is not made of flammable material.
- Remove the straps and keep them for future handling.
- **Use a spirit level to check that the support base is level in both directions, otherwise level the autoclave using its adjustable front feet.**
- **Check that the power socket used is earthed.**
- **Check that the mains voltage matches that on the autoclave plate.**
- Insert the autoclave plug, making sure that the cable is not pinched and that it can be unplugged easily.
- The plug is the mains means of connection to the mains power, so it must be easy for the operator to access and use it.

Electrical connections

In accordance with the laws and/or regulations in force, the steriliser must be connected to an earthed power socket with adequate current capacity for the equipment consumption (see the data plate).

The socket must be properly protected by a residual current circuit breaker with the following specifications:

- Nominal current In 16 A
- Differential current Idn 0.03 A

CAUTION: The manufacturer shall not be liable for damage caused by installing the steriliser with inadequate and/or unearthed electrical systems.

NOTE: Always connect the power cable directly to the power socket.

Do not use extension cables, adapters or other accessories.

3.1 FIRST POWER-UP

- Press the main switch (5 Fig. 1). The green light on the switch will turn on to indicate that the device is powered.

1 - Wait for the main screen to load
2 - Select the desired language.
3 - Warranty Activation" screen.
4 - Home page loading following the choices made during warranty activation.
Select the "07 open door" icon to open the door and extract the supplied accessories from the chamber.

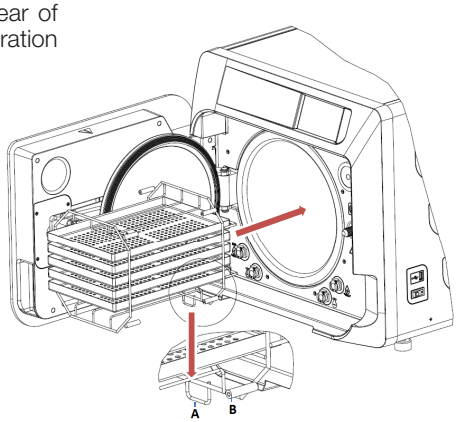
EXAMPLE OF LANGUAGES SCREEN



HOME PAGE SCREEN

01 "Sterilisation cycles" menu
02 "Test" menu
03 "Settings" menu
04 "Data Output" menu
05 Last sterilisation cycle run
06 Last test run
07 Unlock door
08 Water filling

"WARRANTY ACTIVATION" SCREEN on the website www.duerrdental.com:
The screen will appear every 24 hours for 30 days. Please register your device on Dürr Dental's website (www.duerrdental.com) to benefit from an additional year of warranty free of charge. When you press the "A" button you will see the "Registration Confirmation" screen.



Check that the accessories include:

- Documentation (instruction manual)
- The tray support
- 5 trays
- 1 tray extraction pincer
- 1 filling hose
- 1 drain hose
- 1 funnel

WARNING

- Insert the tray holder as shown in the figure
- The tray holder must be inserted into the chamber with foot "A" facing down and positioned at the bottom of the chamber. The position of foot "A" must be respected both when using 3 trays and 5 trays
- The tray holder must always have rubber protection "B" mounted on the eight supports

If the fresh water tank is filled automatically, the autoclave MUST NOT be connected directly to the mains water supply. In this case, a water treatment system for demineralization of the tap water (e.g. Hygodem 90 oder Hygopure 90) MUST be used. Such a system must ensure the required specifications for fresh water quality (see chapter 7.1).

The following test runs are recommended after installation:

- Vacuum test
- Perform empty chamber test/empty sterilisation. E.g. with 134°C B-Flash programme (Attention: Bottom tray must be inserted)

Validation for commissioning

The device has been subjected to a type test in accordance with EN 13060. Test loads are used for this purpose. In order to ensure correct sterilisation in routine surgery procedures, it is necessary to perform a test with the real routine loading or with a loading that allows conclusions to be drawn about the real loading.
This validation (inspection qualification (IQ), operational qualification (OQ) and performance qualification (PQ)) should be performed by correspondingly trained experts or by a test laboratory.
Follow the country-specific regulations. See also EN 13060 and EN ISO 17665-1

4 Operating instructions

Operate the autoclave as follows:
- Press the main switch **(5 fig. 1).** The green light on the switch will turn on to indicate that the device is powered.
- Wait for the main screen to load

USING THE MENUS



01 Sterilisation programs
02 Test programs
03 Settings
04 Data output
05 Last cycle run
06 Last test run
07 Open door
08 Water fillng

4.1 SYMBOLS

Description	Icon	What it does/what it means
Scree name		Indication icon only. Cannot be selected. Shows the name of the selected screen.
Time		Indication icon only. Cannot be selected. Shows the name of the selected screen.
Date		Indication icon only. Cannot be selected. Shows the name of the selected screen.
Back		Returns to the previous screen.
Home		Returns to the home screen.
Confirm		Confirms certain kinds of actions.
Cycles		Goes to the cycles screen where you can select the desired cycle.
Test		Goes to the tests screen whre you can select the desired test.
Settings		Goes to the machine settings screen.
Data output		Goes to the data output screen.
Open door		Opens the door.
Water filling		Goes to the water filling screen.
134°C Standard cycle		Goes to the 134°C standard cycle screen, which displays all of the cycle specifications.
134°C Standard+ cycle		Refers to the Cycle 134°C Standard+ screen (with 4 instead of 3 fractionations levels), in which all cycle properties are specified.
121°C Standard cycle		Goes to the 121°C standard cycle screen, which displays all of the cycle specifications.
134°C Prion cycle		Goes to the 134°C Prion cycle screen, which displays all of the cycle specifications.
134°C B Flash cycle		Goes to the 134°C B Flash cycle screen, which displays all of the cycle specifications.
Drying cycle		Goes to the drying cycle screen. This is considered a special cycle to be used when an additional drying cycle is needed.
Programmed stard		Programs the cycle start time. The set time is displayed beside the corresponding icon.
Increment drying		Increments the drying time. The value entered will update the drying time in the cycle.
Next		Increases the value in the relative field by one or goes to the next option.
Previous		Decreases the value in the relative field by one or goes to the previous option.
Vacuum Test		Goes to the Vacuum Test screen, which displays all of the cycle specifications.
134°C Helix Test		Goes to the 134°C Helix Test screen, which displays all of the cycle specifications.
134°C Bowie & Dick Test		Goes to the 134°C Bowie & Dick Test screen, which displays all of the cycle

Description	Icon	What it does/what it means
121°C Helix Test		Goes to the 121°C Helix Test screen, which displays all of the cycle specifications.
Programmed start		Programs the test start time.
Next		Increases the value in the relative field by one unit or goes to the next option.
Prevoius		Decreases the value in the relative field by one unit or goes to the previous option.
User settings		Goes to the user setting screen. You can choose from: add user, delete user, edit/change user. This section can only be accessed by the administrator user “Admin”, who will be askedto enter a PIN.
Date/time settings		Goes to the data/time settings screen. Sets the time (hours, minutes) and date (dd/mm/yyyy).
Language settings		Goes to the language settings screen. Selecting a different language automatically returns to the setting screen with all the fields updated in the selected language.
Mesurement unit settings		Goes to the measurement unit settings screen. Changes the pressure measurement unit.
Connectivity settings		Goes to the connectivity settings screen.
Water parameter settings		Goes to the water parameter settings screen. Changes the water filling type (manual at the front or water mains at the rear). Displays the water quality. There are three levels: green, yellow and red, with the cursor on the corresponding level.
Printer settings		Goes to the pinter settings screen. Sets manual or automatic printing.
Service		Goes to the service action, after entering a PIN. The service section has dedicated graphics to show users where they are.
Next		Increases the value of the relevant field by one unit or move to the next option.
Prevoius		Decreases the value of the relevant field by one unit or move to the previous option.
ENGLISH		Sets the language for all menus to ENGLISH.
ITALIAN		Sets the language for all menus to ITALIAN.
FRENCH		Sets the language for all menus to FRENCH.
GERMAN		Sets the language for all menus to GERMAN.
SPANISH		Sets the language for all menus to SPANISH.
TURKISH		Sets the language for all menus to TURKISH.
POLISH		Sets the language for all menus to POLISH.
PORTUGUESE		Sets the language for all menus to PORTUGUESE.
CZECH		Sets the language for all menus to CZECH.
HUNGARIAN		Sets the language for all menus to HUNGARIAN.

Description	Icon	What it does/what it means
Croatian		Sets the language for all menus to CROATIAN.
Greek		Sets the language for all menus to GREEK.
Ethernet settings		Goes to the Ethernet settings screen, where you can set the network parameters (IP address, subnet mask, gateway).
Add users		Goes to the user data entry screen (name, surname, PIN).
Edit users		After you have selected which user to edit, it goes to the user edit scan (name, surname, PIN).
Delete users		After you have selected which user to delete, it asks for confirmation.
Admin user		Goes to the Admin data (name, surname, PIN).
Generic user		From the edit section, it goes to the user data (name, surname, PIN). From the deleted section, it determines which user is to be deleted.
Alphanumeric keypad		Allows you to enter letters, numbers and symbols . Eg. To select the letter C, press the corresponding key 4 times (2, A, B, C).
Usb		Goes to the screen whre you can load cycles onto a USB pen drive. After inserting the USB drive, you can select the cycles that you want to transfer.
Print		Goes to the screen whre you can print reports, labels and barcodes. The icon will be disabled if the printer is not connected.
Info		Goes to the screen with the machine manufacturing information: SN, PN, installation date, configuration, FW, no. of cycles, website.
Barcode		Selects barcode printing. Once selected, a menu appears from which you can choose the number of labels to print. Printing starts when you confirm.
Report		Selects and activates cycle report printing.
Label		Selects label printing. Once selected, a menu appears from which you can choose the number of labels to print. Printing starts when you confirm.
Increase		Increases the value in the relative field by ten.
Decrease		Decreases the value in the relative field by ten.
STOP water filling		Stops the muanual water filling pump.
START water filling		Starts the muanual water filling pump. The button is disabled when filling from the water mains.
Previous		Goes to the previous option in the scrolling menu.
Next		Goes to the next option in the scrolling menu.
Next		Increases the value in the relative field by one or goes to the next option.
Previous		Dencreases the value in the relative field by one or goes to the previous option.
Programmed start icon		Indication icon only. Cannot be selected. Shows the start time of the selected cycle.
Pressure indicator		Indication icon only. Cannot be selected. Shows the pressure in the selected cycle.
Maximum instrument load indicator		Indication icon only. Cannot be selected. Shows the maximum instrument load for the selected cycle.

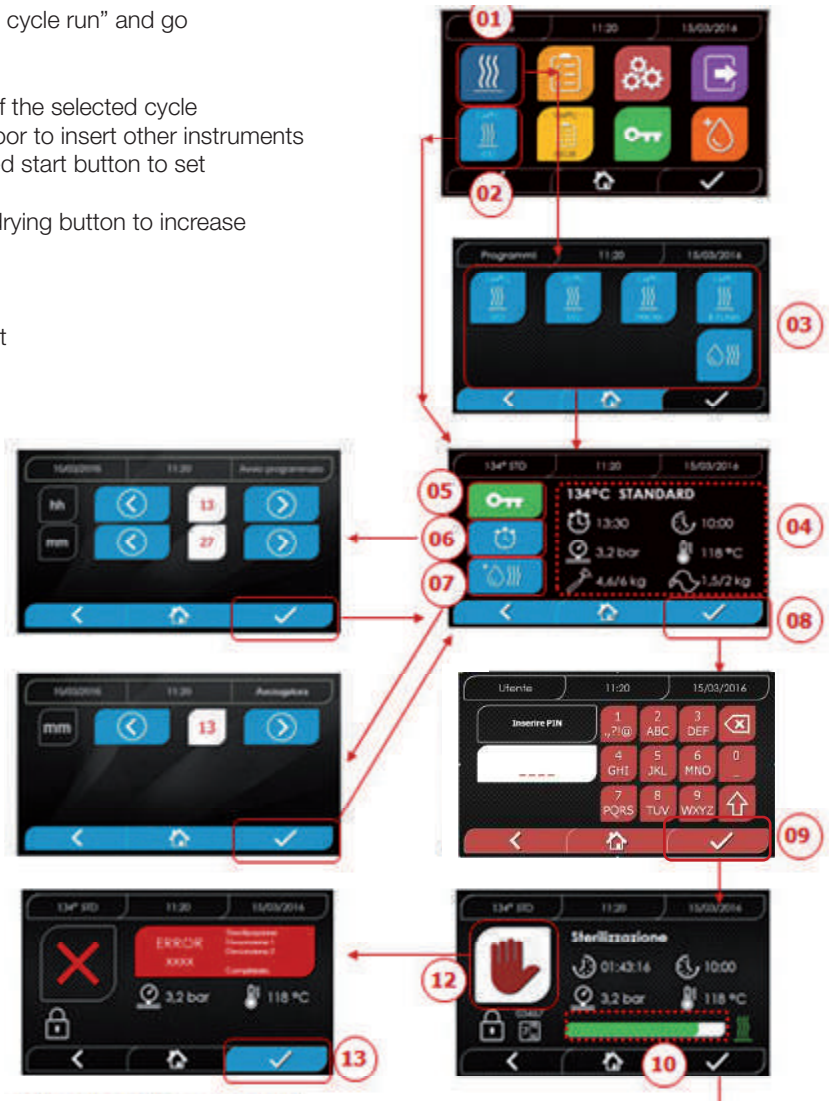
Description	Icon	What it does/what it means
Remaining time indicator		Indication icon only. Cannot be selected. Shows the reamining drying time in the cycle (to be checked) .
Temperature indicator		Indication icon only. Cannot be selected. Shows the temperature in the selected cycle.
Maximum textile load indicator		Indication icon only. Cannot be selected. Shows the maximum textile load for the selected cycle.
Door lock indicator		Indication icon only. Cannot be selected. Shows that the door is closed and locked.
Cycle count indicator		Indication icon only. Cannot be selected. Shows the cycle counter.
Stop cycle/test		Stops a cycle/test at any time. Press the icon for at least 3 seconds to activate it. After 3 seconds, the cycle/test will stop and the machine is put in a safe state.
Cycle completed confirmation		Indication icon only. Cannot be selected. Appears when the cycle has ended correctly.
Cycle error		Indication icon only. Cannot be selected. Appears when the cycle has been stopped by an error or manually by the operator.
Cycle progres bar		The cycle progress bar advances according to the following phases: 1. Preheating phase 2. Vacuum phase 1 3. Pressure ramp-up phase 1 4. Vacuum phase 2 5. Pressure ramp-up phase 2 6. Vacuum phase 3 7. Pre-sterilisation phase 8. Balancing phase 9. Sterilisation phase 10. Discharge phase 11. Drying phase 12. Pressure balancing
Sterilisation complete		Indication icon only. Cannot be selected. Appears when the sterilisation phase is complete (not the cycle). Allows the user to stop the cycle to remove the instruments, skipping the drying phase.
Feed tank maximun level		Appears when the water in the feed tank reaches the maximum level. Water filling stops automatically.
Feed tank intermediate level		Appears when the watern in the feed tank is between the minimum and maximum levels.
Feed tank minimum level		Appears when the water in the feed tank is close to the minimum level.
Water quality		Indication icon only. Cannot be selected. IShows the water quality bar.
Water quality bar		The cursor position indicates the water quality. Green: quality OK Yellow: critical quality area → messagge generated Red: quality not OK → messagge generated and machine stops.

4.2 Menu architecture

- Home
  - Sterilisation programs
  - Last sterilisation program run
  - Test programs
  - Last test program run
  - Settings
    - User management
    - Date and time
    - Printer
    - Language
    - Measurement unit
    - Water parameters
    - Connectivity
    - Service
  - Data output
    - Usb
    - Printer
    - Info
  - Open door
  - Water filling

4.3 Selecting sterilisation programs

01 Select the “Sterilisation cycles” menu
02 Alternatively, directly select “Last cycle run” and go to step 04
03 Select the desired cycle
04 Screen with all the parameters of the selected cycle
05 (Optional) You can open them door to insert other instruments
06 (Optional) Select the programmed start button to set the start time
07 (Optional) Select the increment drying button to increase the cycle drying time
08 Start the cycle
09 (If active) enter the user PIN.
On confirming, the cycle will start



10 You can use the green bar to monitor the cycle progress
11 When the cycle finishes, press the confirm button to return to the Home screen. If the Cycle Validation Protocol Management is enabled, at the end of the cycle, when you confirm the selection by, the system shows the Cycle Validation Protocol screen.
12/13 You can stop the cycle manually by holding done the “Stop cycle” buttonh for 3 seconds. Wait for the machine to be put in a safe condition and press the confirm button (13) for 2 seconds and then press Home to return to the home screen.
14/15 Cycle Validation Protocol: The selection of the Batch, Load and/or Indicator validation options generates the relative information in the cycle report: “Batch Ok” – “Batch Fail” “Indicator OK” - “Indicator Fail” – “No Indicator”. “Load OK” - “Load Fail” - “No Load” * The confirmation button (15) will be “Operational” when the user makes a selection.
16 For the validation of Batch, Load and/or Indicator, the user must enter his PIN. When the confirmation button is pressed (16), the system generates the Cycle Report PDF with the identification of the User who performed the cycle validation.







EN

4.3.1 Overview of the sterilisation programmes

The preheating phase for a cold device is approx. 10 minutes. On the home screen, you have the option of pressing the blue cycle menu button. There you can choose between different sterilisation programmes.

B CYCLES

- **134°C Standard cycle: 5.5 min.** sterilization plus drying phase.
- **134°C Standard + cycle: 5.5 min.** sterilization plus drying phase. 4 vacuum
- **134°C Prion cycle: 20 min.** sterilization plus drying phase. 4 vacuum phases
- **134°C B-Flash cycle: 5.5 min.** sterilization plus drying phase.
- **121°C Standard cycle: 20.5 min.** sterilization plus drying phase.

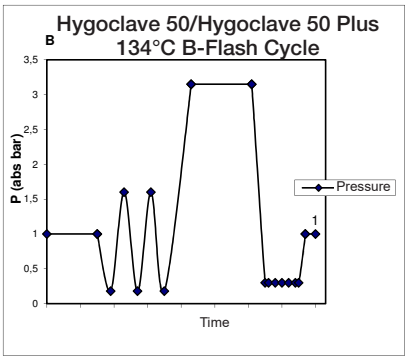
S CYCLES

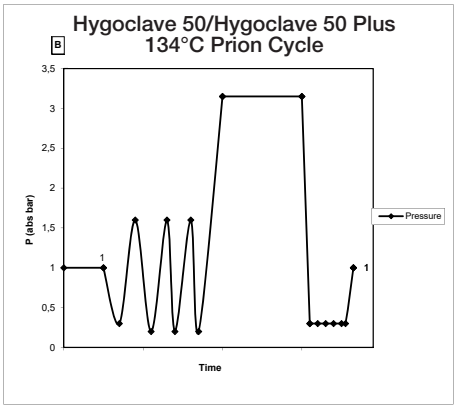
- **134°C Fast S Cycle: 3,5 min.** of sterilisation plus the drying phase
- **134°C Universal S Cycle: 3,5 min.** of sterilisation plus the drying phase
- **121°C Softprogramm Cycle: 15,5 min.** of sterilisation plus the drying phase

SPECIAL CYCLES

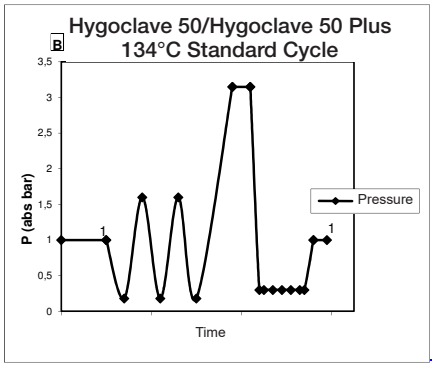
- **Drying cycles:** drying phase only

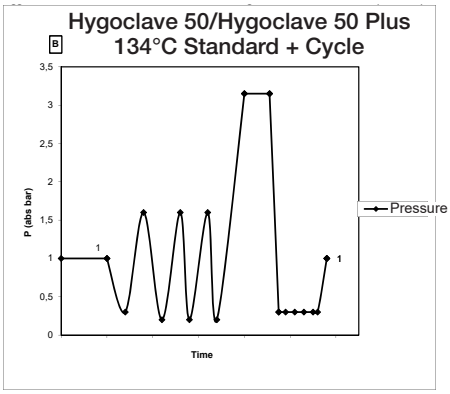
NOTE: For each available sterilisation cycles, the manufacturer must perform the Works Tests in accordance with EN 13060 (par. 7.3). Any available cycles for which the manufacturer has not performed the Works Tests must undergo Installation Tests in accordance with EN 13060 par. 7.4.

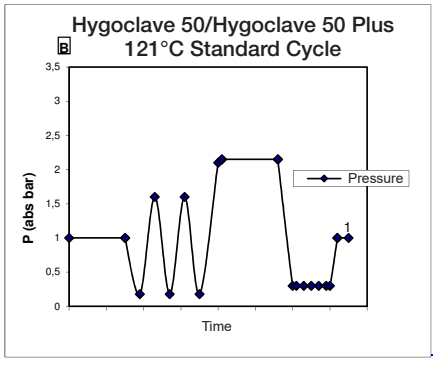




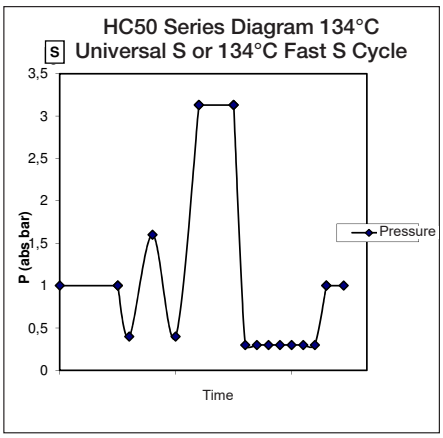
4.3.2 Cycle Diagram type B

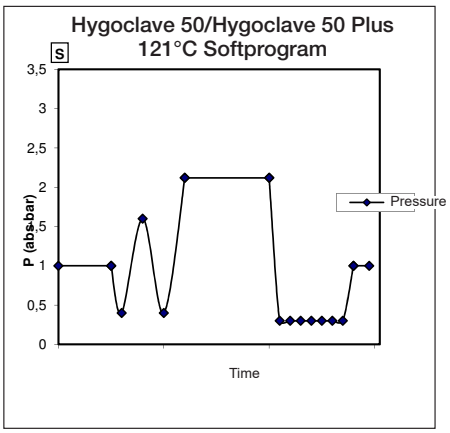






4.3.3 Cycle Diagram type S





4.4 Sterilisation program specifications

		Sterilisation cycles type B					Sterilisation cycles type S		
Cycle name		Standard	Standard +	B-Flash	Prion	Standard	Fast S	Universal S	Softprogramm
Sterilisation temperature		134°C				121°C	134°C	134°C	121°C
Sterilisation pressure		316 kPa				214kPa	316 kPa	316 kPa	214kPa
Number of vacuum phases		3	4	3	4	3	2	2	2
Sterilisation phase duration		5,5 min	5,5 min	5,5 min	20 min	20,5 min	3,5 min	3,5 min	15,5 min
Minimum drying phase duration		16 min	16 min	6 min	16 min	16 min	5 min	16 min	16 min
Average total cycle duration	HC 50	37 min	38 min	26 min	49 min	56 min	20 min	30 min	41 min
	HC 50 Plus	38 min	39 min	27 min	50 min	57 min	21 min	31 min	42 min
Average H_20 consumption	17 Liter	415 ml	430 ml	300 ml	525 ml	455 ml	260 ml	260 ml	295 ml
	22 Liter	455 ml	470 ml	315 ml	565 ml	500 ml	275 ml	275 ml	300 ml
Average energy consumption	17 Liter	515 Wh	530 Wh	390 Wh	600 Wh	547 Wh	340 Wh	375 Wh	410 Wh
	22 Liter	646 Wh	655 Wh	425 Wh	710 Wh	654 Wh	410 Wh	450 Wh	480 Wh

* Average values including preheating phase, drying and at maximum load.

4.5 Putting the material to be sterilised in the chamber

Package the load very carefully, making sure that the medical devices are compatible with the chosen packaging.
The chosen packaging material must be:
- Compatible with the sterilisation process.
- Compatible with the labelling system.

Only use medical packaging that is compliant with: EN 868-5 and ISO 11607-1 qualified for 134°C cycles.
To check that the thermodynamic sterilisation cycle has completed successfully, always put a class 5 chemical indicator in together with the load in accordance with ISO 11140-1. Choose the indicator according to the selected cycle (121°C or 134°C)
Place the clean material on the trays and distribute them evenly.

The chamber can contain a maximum of:

	B Cycles					S Cycles		
	Standard - Prion - Standard + Cycles			134 B-Flash Cycles		134 Fast	134 Universal & 121 Softprog.	
	Unpacked solid material	Packed solid material	Porous load	Packed solid material	Porous load	Unpacked items*	Packed solid material	Porous load
HC 50	5,5 kg	3,5 kg	1,5 kg	0,5 kg	0,2 kg	2,2 kg	2,5 kg	0,3 kg
HC 50 Plus	6,5 kg	4 kg	2 kg	0,7 kg	0,3 kg	2,2 kg	3,0 kg	0,4 kg

* Solid material, simple hollow items, narrow lumen items.

Objects in bags must be placed on the trays with the transparent part of the package facing up.

4.5.1 Preparing the material

First of all, remember that when handling and moving contaminated material, it is good practice to take the following precautions:
- Wear suitably thick rubber gloves and a face mask;
- Wash your already-gloved hands with a germicidal detergent;
- Always use a tray to transport instruments.
- Never transport then directly in your hand;
- To avoid the risk of contracting hazardous infections, protect you hands from contact with any sharp or pointed parts;
- Immediately separate any items that must not be sterilised or that cannot support the process;
- When you have finished handling the unsterile material, wash your still-gloved hands thoroughly. All materials and/or instruments to be sterilised must be perfectly clean and free of any kind of residue (organic/inorganic deposits, paper fragments, cotton/gauze pads, limescale, etc.).

NOTE
In addition to causing problems during the sterilisation process, failure to clean and remove residues can damage the instruments and/or the steriliser.

NOTE
In addition to causing problems during the sterilisation process, failure to clean and remove residues can damage the instruments and/or the steriliser.

Proceed as described to clean effectively:
1. Rinse the instruments under a jet of running water immediately after use;
2. Separate metal instruments by material type (carbon steel, stainless steel, brass, aluminium, chromium, etc.) to prevent electrolytic oxidisation;
3. Wash with an ultrasonic cleaner containing a mixture of water and germicidal solution, carefully following the manufacturers recommendations. Alternatively, use a thermal disinfector.
4. For better results, use a detergent specifically for ultrasonic cleaning, with a neutral pH.

NOTE
Solutions that contain phenol or quaternary ammonium based compounds can corrode the instruments and the metal parts of the ultrasonic equipment.

5. After washing, rinse the instruments thoroughly and check that the residues have been completely removed. Repeat the washing cycle or wash by hand if necessary.

EN

NOTE
To prevent the formation of limescale stains, rinse with deionised or distilled water if possible. Always dry the instruments if you use hard tap water.
For handpieces (turbines, counterangles, etc.), in addition to the above, use special equipment that will clean them properly inside (which may also include lubrication).

NOTE
When the sterilisation program has finished, remember to lubricate the handpiece internal mechanisms with special oil. These precautions will ensure that the lifetime of the instrument is not reduced.

EN

CAUTION
Refer to the instrument/material manufacturer's instructions and make sure that it is compatible before treating it in the autoclave. Strictly follow the usage methods for detergents and disinfectants and the operating instructions for automatic washing and/or lubrication equipment.
For textiles, (or porous materials in general), such as lab coats, napkins, caps and similar, wash them thoroughly and dry them before treating them in the autoclave.

NOTE
Do not use strong detergents that contain chlorine and/or phosphates. Do not bleach with chlorine-based products. These components could damage the tray supports, the trays and any metal instruments in the sterilisation chamber.

4.6 Filling and draining water

Volume of water used for a sterilisation cycle/load with the highest consumption: 700ml
Minimum water tank filling level: 1.1 litres

4.6.1 Filling the feed tank

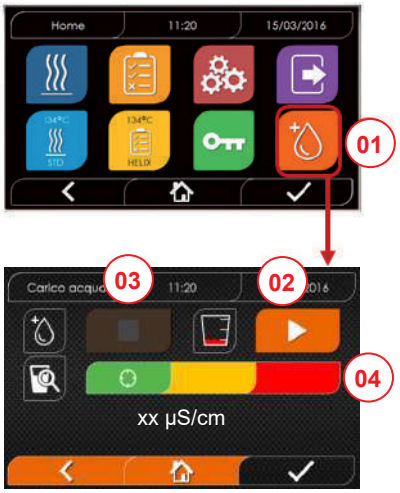
- Only use water that complies with the technical specifications given in 7.1 and the requirements according to EN 13060 Appendix C.
- The display shows MSG001 (empty load tank), fill the feed tank in one of the following two ways:

Automatic filling from the front

- Insert the part of the hose with the quick coupling into the water filling fitting **(6 fig. 1)** and put the other end into the water container.
- Select the "water filling" menu 
- Press the icon "PLAY WATER FILLING"  to start the water filling pump.
- Filling stops automatically when the water reaches the maximum level in the feed tank .
- Press the icon "STOP"  to voluntarily stop filling.

REAR AUTOMATIC FILLING

In case of connection to the demineralization system **(18 fig. 2)** the filling of the charging tank is automatic at the beginning and end of the sterilization cycle. During the water loading the machine cannot perform sterilization cycles and tests.



01 Select the "Water filling" menu
02 Select "Start" to start filling
03 Select "Stop" to stop filling
04 The cursor position indicates the water quality

N.B. Filling will stop automatically when the maximum level has been reached, and you will return to the Home screen

Manual loading tank filling

Open the cover of the loading tank identified.
Fill the tank with water according to the specifications provided. Do not exceed the maximum level line on the tank.
Close the cover.



Emergency manual filling

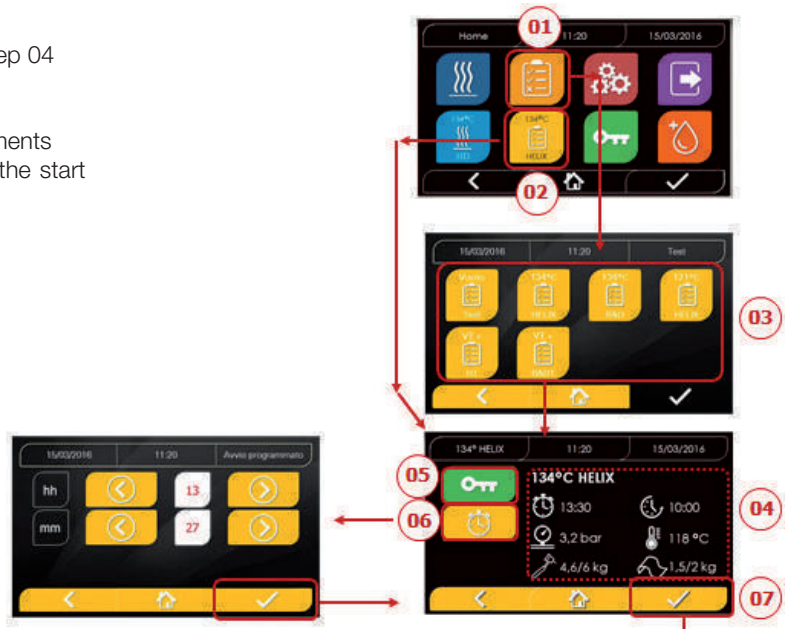
- Insert the part of the hose with the quick coupling into the hole **(9 fig. 1)**
- Insert the funnel into the other end of the hose and pour in a maximum of 2 litres of distilled water.
- **In case of connection to demineralization system (18 fig. 2) the loading tank is filled automatically.**

4.6.2 Draining the discharge tank

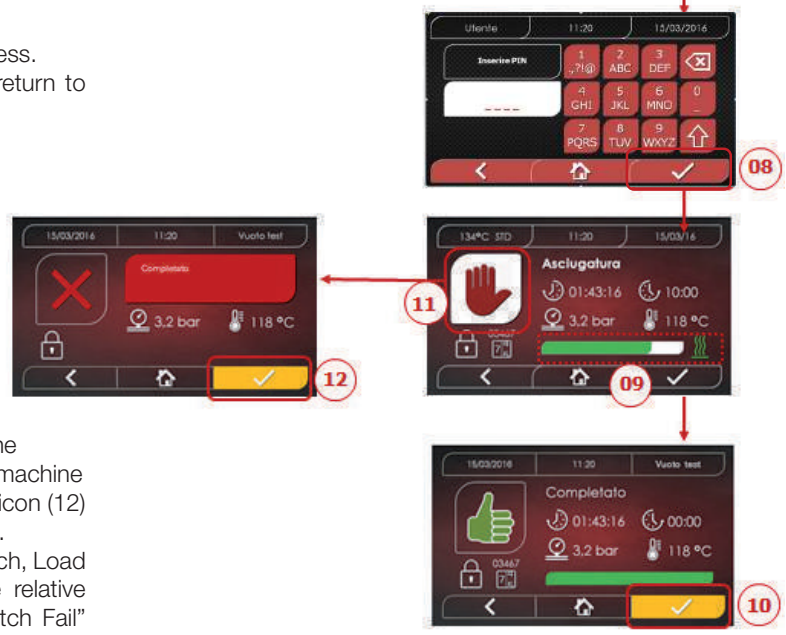
- Insert the end of the hose without the quick coupling into a container to collect the drained water.
- Insert the quick coupling into the hole **(7 fig. 1)** and position the container under the autoclave to drain the tank.
- **Drain the water in compliance with the waste disposal regulations in force.**
- **Possibility to use the drain tank outlet, placed at the back (15 fig. 2).**

4.7 Test programs

01 Select the “Test cycles”menu
02 Alternatively, directly select “Last test run” and go to step 04
03 Select the desired cycle
04 Screen with all the parameters of the selected cycle
05 (Optional) you can open the door to insert other instruments
06 (Optional) Select the programmed start button to set the start time
07 Start the test cycle
08 (If anebled) enter the user PIN.
On confirming, the test cycle will start.



09 You can use the green bar to monitor the cycle progress.
10 When the cycle finishes, press the confirm icon to return to the Home screen.



11-12 You can stop the cycle manually by holding done the “STOP CYCLE” button for 3 seconds. Wait for the machine to be put in a safe condition and press the confirm icon (12) and then press Home to return to the home screen.
14/15 Cycle Validation Protocol: The selection of the Batch, Load and/or Indicator validation options generates the relative information in the cycle report: “Batch Ok” – “Batch Fail” “Indicator OK” - “Indicator Fail” – “No Indicator”. “Load OK” - “Load Fail” - “No Load” * The confirmation button (15) will be “Operational” when the user makes a selection.
16 For the validation of Batch, Load and/or Indicator, the user must enter his PIN. When the confirmation button is pressed (16), the system generates the Cycle Report PDF with the identification of the User who performed the cycle validation.



EN

4.7.1 Test program types

Selecting the “test” sub-menu accesses the list of test cycles that autoclave can run:

- Vacuum Test
- 134°C Helix Test
- 121°C Helix Test
- 134°C Bowie&Dick Test

4.7.2 Vacuum test

The vacuum test is used to check the appliance for leaks in the sterilisation chamber.
Perform the vacuum test in the following situations:
- Once a week in routine operation
- During initial commissioning
- After breaks in operation longer than 2 weeks
- After replacing the door seal.

Carry out the vacuum test on a cold and dry appliance.

The test start for the vacuum test may be carried out up to a maximum temperature of 45°C in the sterilisation chamber.
- Switch on the unit
- Select the vacuum test under Test programmes
- Start the Vacuum test

Result:
A vacuum test is deemed to have been passed if the air leakage rate does not exceed a specified value and the temperature does not fluctuate by more than 3 K during the test.
The value of the air leakage rate is listed in the vacuum test log.

4.7.3 Bowie-Dick test

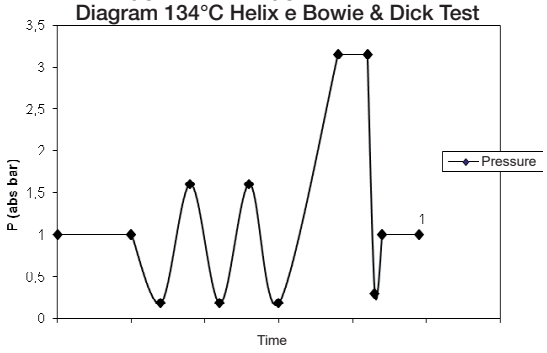
The Bowie-Dick test is used to prove steam penetration into the test load. It is designed in such a way that, if proof is obtained that steam has penetrated into the test load, it can be assumed that steam will penetrate into the routine loads. It is usually not possible to perform a Bowie-Dick test in the original sense on small steam sterilisers, as the test was developed for large-scale sterilisers in accordance with EN 285 and is based on a washing package of 7 kg (or 4 kg for a reduced test package), which would exceed the chamber volume or cause a malfunction. For this reason, either use a standard test package for small steam sterilisers with a suitable indicator system or a corresponding alternative indicator system.
In order to test performance, it is possible to routinely perform proof of steam penetration.
Carry out the test in accordance with the manufacturer’s information.
- Switch on the unit
- Select the Bowie & Dick Test under Test programmes
- Start the Bowie & Dick Test

4.7.4 Helix test

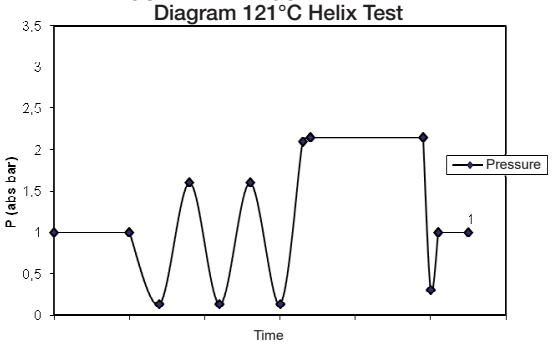
The Helix test is a single-use test system for steam sterilisers with fractionated pre-vacuum for monitoring sterilisation cycles at 121 °C or 134 °C.
This test may only be used for sterilisation processes with an upstream vacuum phase sterilisation process.

4.7.5 Test diagrams

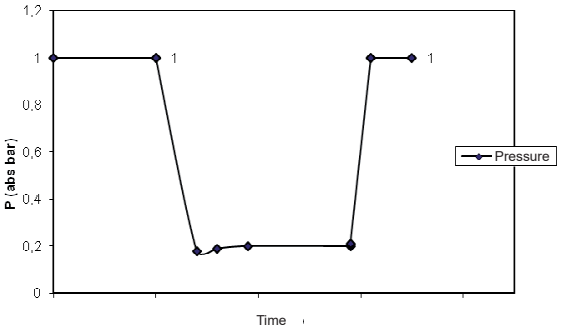
Hygoclave 50/Hygoclave 50 Plus
Diagram 134°C Helix e Bowie & Dick Test



Hygoclave 50/Hygoclave 50 Plus
Diagram 121°C Helix Test

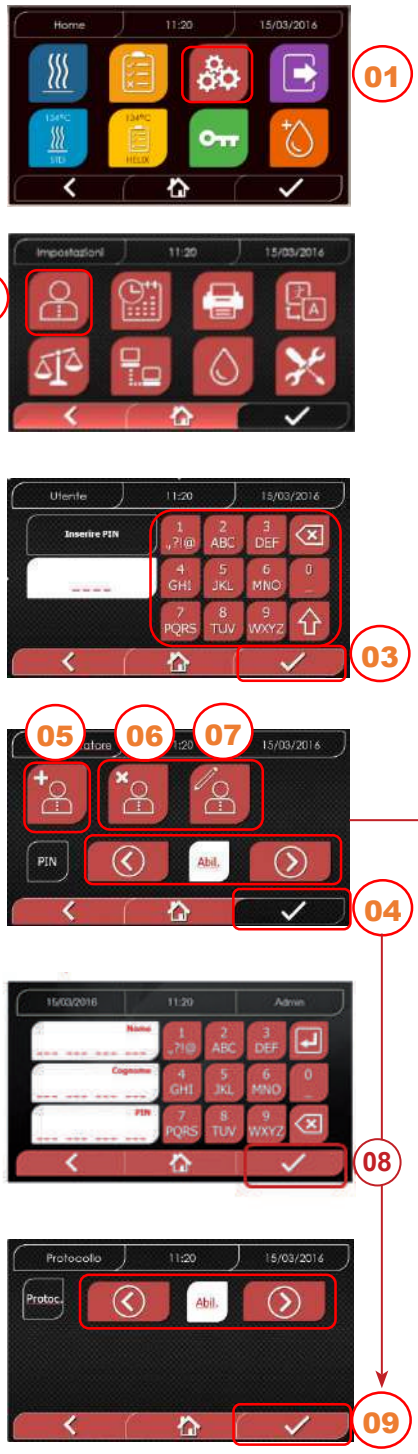


Hygoclave 50/Hygoclave 50 Plus
Diagram Vacuum Test



4.8 Settings

4.8.1 User settings



01 Select “Settings”

02 Select “User”

03 Enter the administrator pin (factory setting “2222”) and confirm
With the Administrator PIN (2222), it is possible to set the users and to manage their PIN and the Cycle Validation Protocol.

04 Click on the arrows to enable or disable the USERS function.
When the function is enabled, a user PIN will be requested every time a cycle/test is started.
If PIN User Management is enabled, upon confirmation you willgo to the new Cycle Validation Protocol Management screen. If PIN User Management is disabled, upon confirmation of the selection, the confirmation button ④ will become “Non-Operational”.

05 When the “Users” function is enabled, you can ADD other users

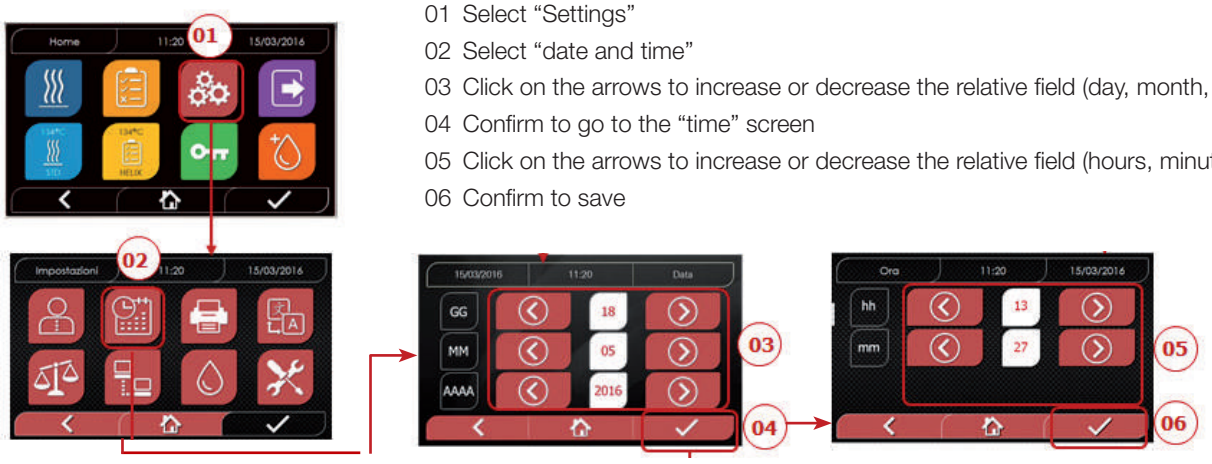
06 When the “Users” function is enabled, you can DELETE previously created users

07 When the “Users” function is enabled, you can EDIT previously created users

08 Confirm to save

09 By enabling the Protocol Management PIN, the Cycle Validation Protocol is activated at the end of the cycle.
The Confirmation button ⑨ will be “Operational” when the user changes the Disable/Enable state.

4.8.2 Date and time settings



01 Select “Settings”

02 Select “date and time”

03 Click on the arrows to increase or decrease the relative field (day, month, year)

04 Confirm to go to the “time” screen

05 Click on the arrows to increase or decrease the relative field (hours, minutes, 12/24)

06 Confirm to save

EN

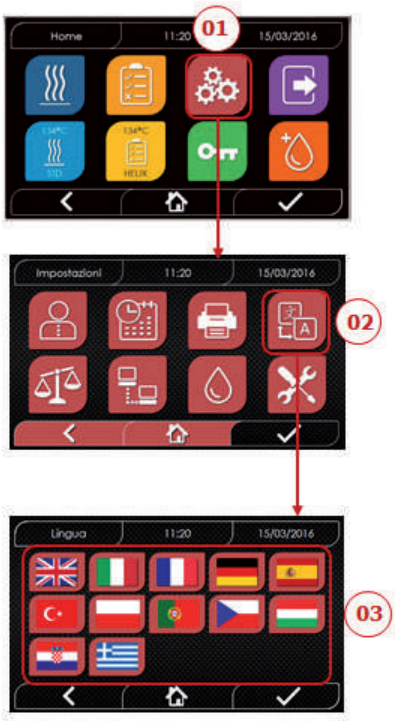
EN

4.8.3 Printer settings



01 Select “Settings”
02 Select “Printer”
03a Click on the arrows to change from automatic to manual print mode and vice versa
03b Click on the arrows to select the type of the printing (Report – Label – Barcode Label)
03c Click on the arrows to select the Model of the printer (Hygoprint Easy – MCP7810X)
04 Confirm to save

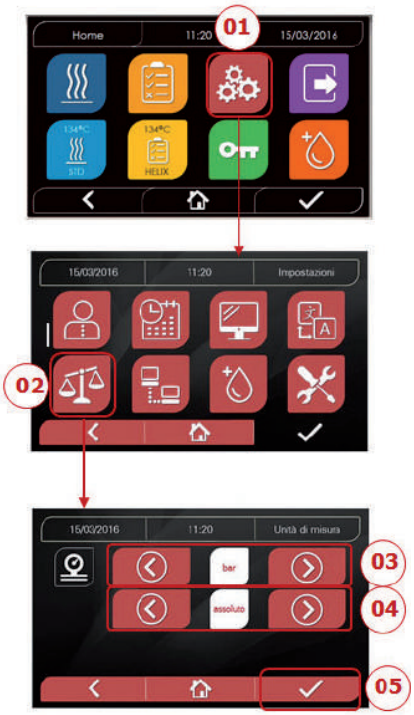
4.8.4 Language settings



EXAMPLE OF LANGUAGES SCREEN

01 Select “Settings”
02 Select “Language”
03 Click on the desired language

4.8.5 Measurement unit settings



01 Select “Settings”
02 Select “Measurement unit”
03 Click on the arrows to change from “bar” to “kPa” to “mbar”
04 Click on the arrows to change from “absolute” to “relative”
05 Confirm to save

4.8.6 Water settings



01 Select “Settings”
02 Select “Water settings”
03 Click on the arrows to change from front filling (manual) to rear filling (from the demineralization system)
04 Confirm to save

4.8.7 Connections



ETHERNET
01 Select “Settings”
02 Select “Connectivity”
07 Select “ETHERNET”
08/09/10 Click on the relative fields and enter the data
11 Confirm to save

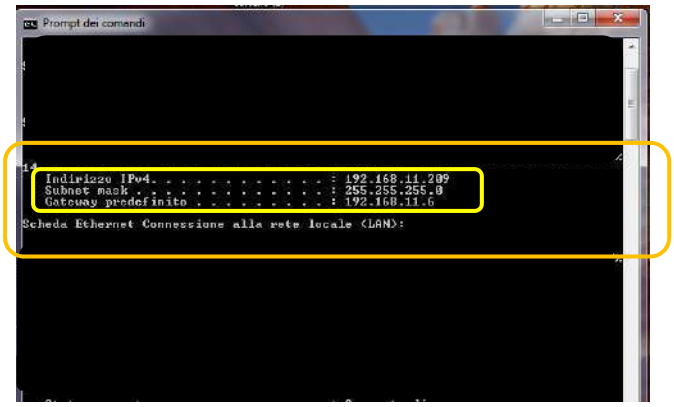
4.8.8 Hygoclave 50 / Hygoclave 50 Plus - Ethernet Connection

The Hygoclave 50/Hygoclave 50 Plus series sterilizers can be connected to a local Ethernet network by means of a specific cable connected to the special connector (14 - fig. 2) located in the rear of the autoclave.
Through a PC or other device connected to the network (smartphone, tablet, etc.) with the use of a Web Browser (Internet browsing program like Internet Explorer, Firefox, Chrome, etc.) and by knowing the TCP-IP number assigned to the sterilizer, you will be able to monitor the machine to know its operating status and download the reports of the cycles performed.

EN

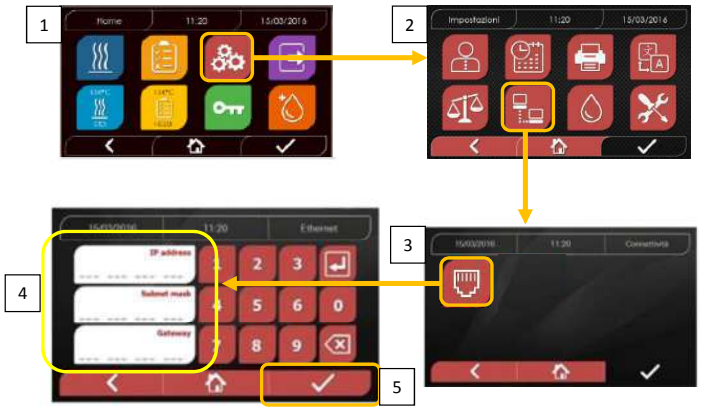
ETHERNET NETWORK CONNECTION CONFIGURATION

The sterilizer Web Server only works with a network with active DHCP and static IP.
The number chosen as the machine address must be compatible with the range assigned by the DHCP server of the local network and its Subnet Mask.
To find out the local network numbering range on Windows systems, you can use the IPCONFIG command from a “Command Prompt” window (accessible from “All Programs – Accessories”):



For a correct configuration you must assign to the IP address of the machine: - a number belonging to the local network defined by the first 3 values of the IP address: in the example above it is **"169.254.190.xxx"**; - as the last number a value not assigned to the local network: e.g. **"169.254.190.158"**.
Therefore the complete IP address of the sterilizer could be of the type: **169.254.190.158**

Once you know the IP address and Subnet Mask to be assigned to the machine you must enter these values in the setting screen of the autoclave Ethernet parameters using the keyboard and save the data:

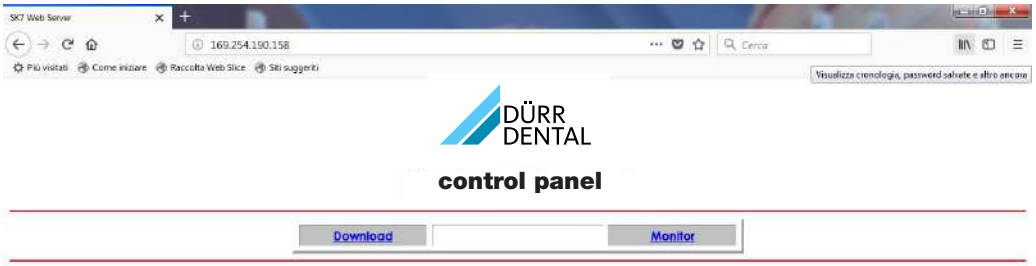


Note: The Gateway address is not important for local network communications.

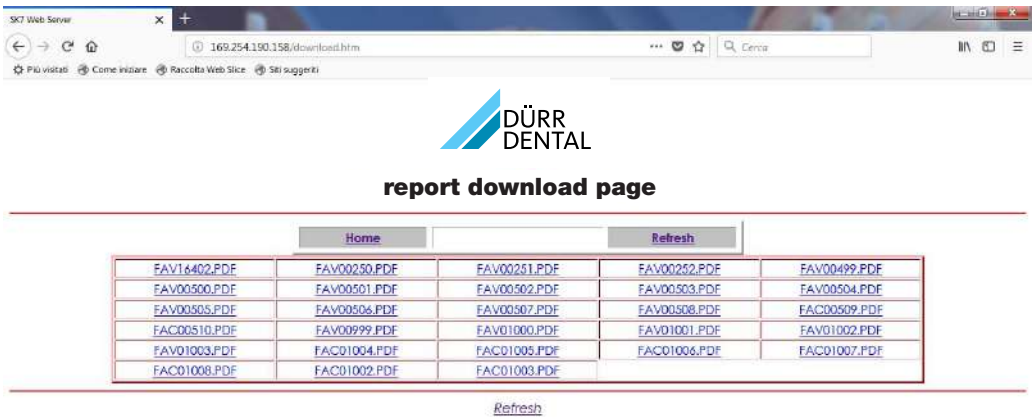
Once the Ethernet configuration data has been entered and saved, the autoclave must be switched off and on again so that the data can be used by the Web Server of the machine.

At this point, with the sterilizer turned on on the Home screen, from a PC connected to the local network, or directly connected to the machine via Ethernet cable, you must open the Web Browser (Internet browsing program like Internet Explorer, Firefox, Chrome, etc.) and in the address field you must enter the IP address previously entered in the sterilizer (in our e.g. **169.254.190.158**). You will then have access to a "Hygoclave 50 / Hygoclave 50 Plus control panel" web page dedicated to downloading reports of cycles that the machine has performed ***(Download)*** or to monitor its operation ***(Monitor):***

Hygoclave 50 / Hygoclave 50 Plus control panel

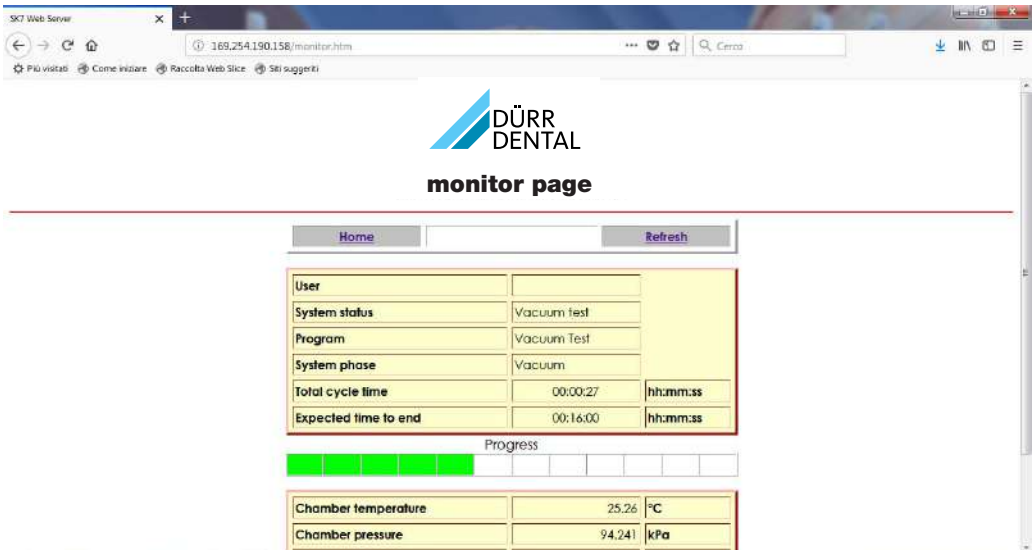


Hygoclave 50 / Hygoclave 50 Plus report download page





Hygoclave 50 / Hygoclave 50 Plus monitor page



4.8.9 Monitoring the unit with VistaSoft Monitor

If the device is connected to the network then it can be monitored with the VistaSoft Monitor software. VistaSoft Monitor shows the current status along with messages and faults on the device. In addition, VistaSoft Monitor also helps with maintenance of the device - the software warns when maintenance work is due.

For further information please refer to the VistaSoft Monitor manual (order number 2110300001)

4.9 Data output

USB

01 Select the “Data output” menu
02 Select the USB symbol
03 Insert the USB pen drive and waitfor it to be recognised
04 Select the number of cycles to transfer
05 Confirm and wait for the transfer to complete
13 Download progress bar-graph
Button to stop the data download

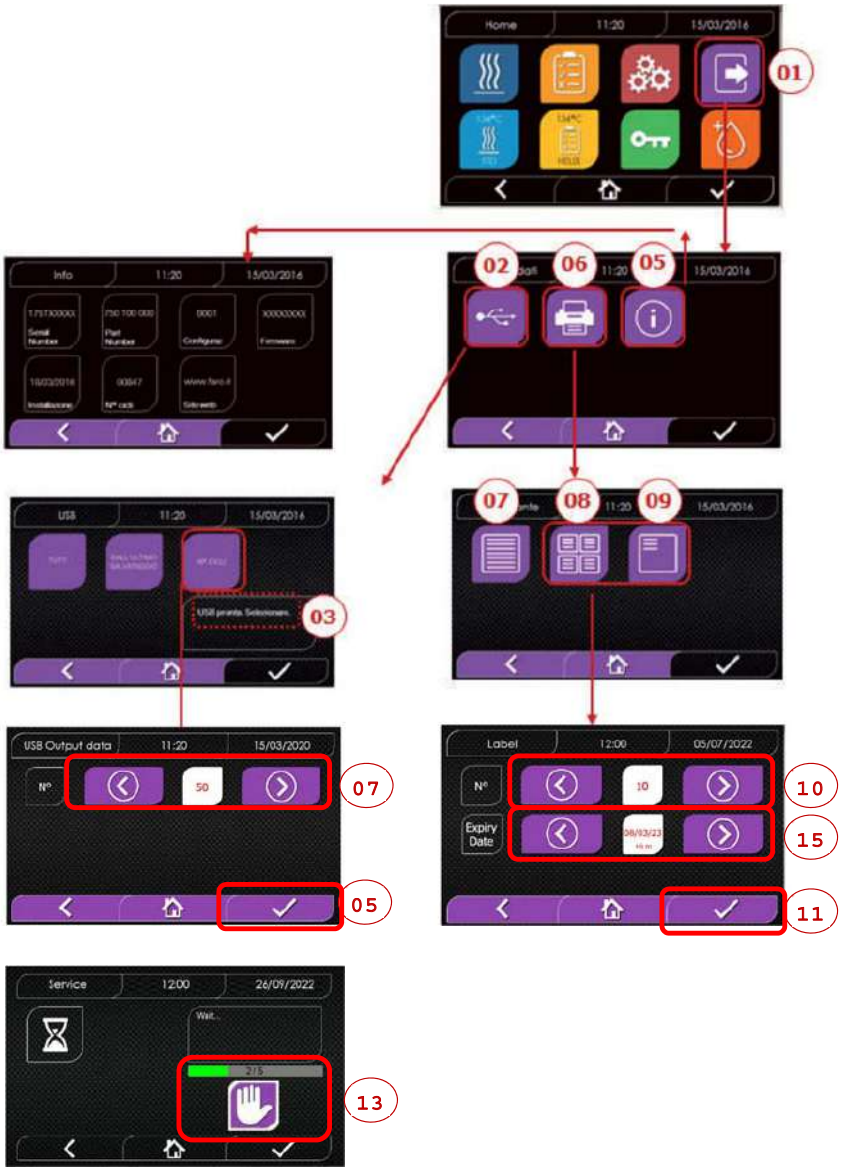
EN

PRINTER

01 Select the “Data output” menu
06 Select the PRINTER symbol
07/08/09 Select the printout type (report, labels, barcodes)
10 Select the number of labels/barcodesto print
11 Confirm printout
12 Setting of the Expiry Date

INFO

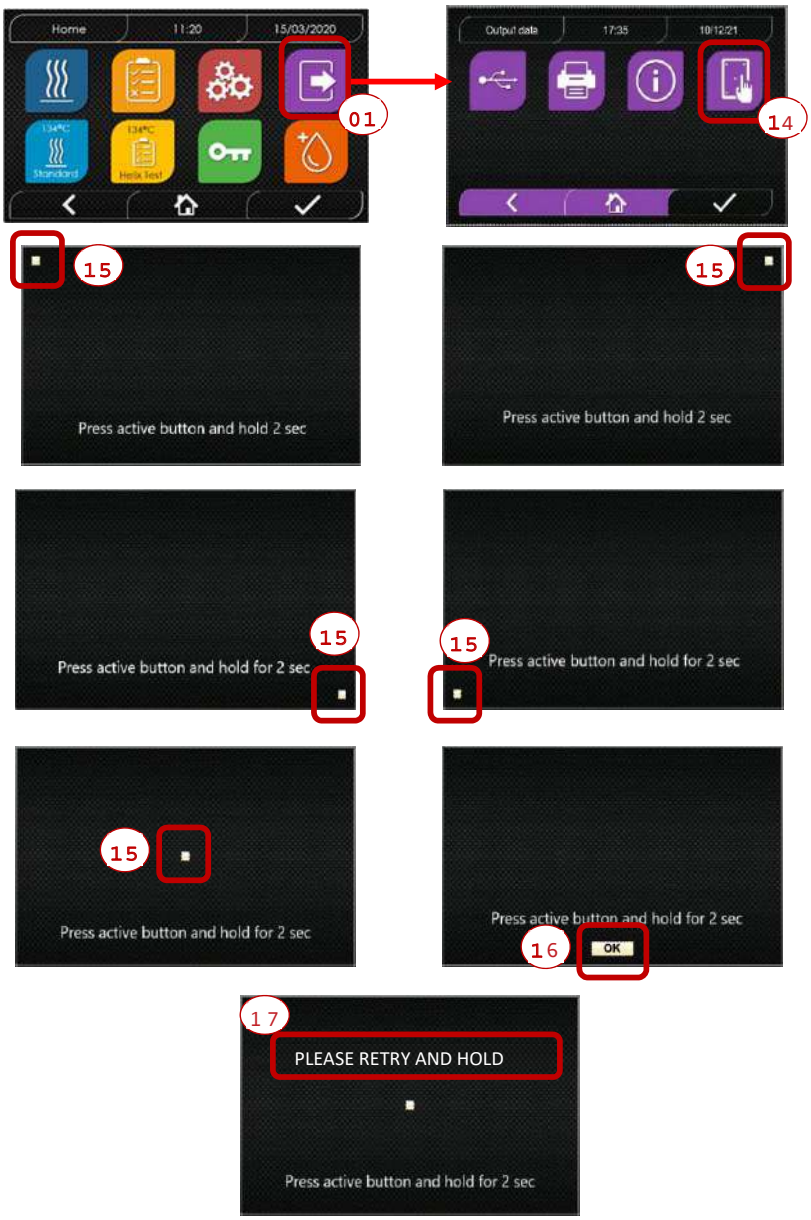
01 Select the “Data output” menu
05 Select the INFO symbol



4.9 Additional information

DISPLAY CALIBRATION

01 Select the “data output” menu
14 Select the “DISPLAY” symbol
15 Click on the white square on each screen (for a minimum of 2 seconds)
16 Confirm on the “OK” symbol
17 Error warning during calibration



EN

EXAMPLE PRINTOUT

DÜRR DENTAL SE
Höpfigheimer Str. 17, 74321
Bietigheim-Bissingen
Phone +49 07142 705 0

Firmware
firmware version

Serial Number
aa m STN xxx nnnnnn — aa= year; m= month; xxx= model; nnnnn= progressive no.

Water Quality
conducibility

Program
134 Standard — program name

Start
Date Time

Time (hh:mm:ss)	Press (kPa)	Temp (°C)	
Pre-heating			
time	pressure	temperature	values at the end of the preheating phase
Fractional Vacuum			
time	pressure	temperature	values on reaching the 1st vacuum threshold
time	pressure	temperature	values on reaching the pressure threshold
np = xxx			np= xxx number of injection pump pulses
time	pressure	temperature	values on reaching the 2nd vacuum threshold
time	pressure	temperature	values on reaching the pressure threshold
np = xxx			np= xxx number of injection pump pulses
time	pressure	temperature	values on reaching the 3rd vacuum threshold
time	pressure	temperature	values on reaching the pressure threshold
np = xxx			np= xxx number of injection pump pulses
Equilibration			
time	pressure	temperature	initial values
time	pressure	temperature	final values
Sterilization			
time	pressure	temperature	print values every xx seconds (with xx equal to 10s or 15s or 30s or 60s)
...	...	...	
...	...	...	
...	...	...	
...	...	...	
time	pressure	temperature	final values
Pmax =	...		maximum and minimum values during the entire sterilisation
Pmin =	...		
Tmax =	...		
Tmin =	...		
np =	...		number of injection pump pulses during the sterilisation
Discharge			
time	pressure	temperature	value at the end of the phase
Dry			
time	pressure	temperature	value at the end of the phase
npv = yyy			npv= yyy number of vacuum pulses
Pressure Balance			
time	pressure	temperature	value at the end of the phase

End
Date Time
Duration — duration of the entire cycle
OK

Cycle Number
aaaaa/bbbbb (ccccc) — aaaaa= no. of successful cycles; bbbbb= no. of cycles started (total); ccccc= no. of cycles started for the specific cycle

User
Administrator (Name and Surname) — user name of user management if active

Signature

_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Validation protocol

Batch OK or Fail
Load OK or Fail - No Load
Indicator OK or Fail - No Indicator

Information relating to Batch, Load and Indicator validation. This data is present only if the user has activated the Cycle Validation Protocol.

User
Administrator (Name and Surname)

Name of the user that validated the cycle data (if the Cycle Validation Protocol has been activated).

Signature

_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

5 ROUTINE MAINTENANCE

5.1 Mainenance Plan

User	
Daily, before work starts	Check and clean: Door seal, Chamber cover / Door disc and chamber edge Cleaning of housing parts
Monthly / After 50 cycles	Check, cleaning and lubrication: Door spindle / screw and nut Check and cleaning: Chamber and Accessories (trays, tray rack) Check and cleaning: Chamber filter, dust filter
Quarterly / 500 cycles	Replacement: Bacteriological filter / Bio-X filter (6048100019) Checking and cleaning: Water tanks
Annually / 1000 cycles	Replacement: Door seal (6048100018)
Technician	
2 years / 2000 cycles	Maintenance by trained service technician Maintenance kit (6048100015)

Before cleaning any surface, make sure that it has cooled down.

5.1.1 Cleaning the sterilisation chamber and internal components

Use a soft, fuzz-free cloth soaked in water to clean the tray holder, the trays and the chamber to prevent damage. In case of limescale deposits, moisten the cloth with white apple vinegar to carefully remove the deposits.
Afterwards, clean with distilled water and dry everything thoroughly.
Do not use abrasive cloths for cleaning to avoid damage.
If limescale deposits are present, the cause must be checked immediately.
The formation of white spots at the bottom of the chamber indicates that the water quality does not meet the required characteristics.
If it is necessary to disinfect the sterilisation chamber, we recommend the use of FD 322 or FD 333 from Dürr Dental. **The device must be cold for this step.** Afterwards, please clean the chamber and the components again with distilled water to remove disinfectant residues.

5.1.2 Cleaning the door cover

Use a soft, fuzz-free cloth soaked in water to clean the door cover to prevent damage.In case of limescale deposits, moisten the cloth with white apple vinegar to carefully remove the deposits.
Afterwards, clean with distilled water and dry everything thoroughly.
Do not use abrasive cloths for cleaning to avoid damage.
If it is necessary to disinfect the door cover, we recommend the use of FD 322 or FD 333 from Dürr Dental. **The device must be cold for this step.** Afterwards, please clean the chamber and the components again with distilled water to remove disinfectant residues.

5.1.3 Cleaning the door panel

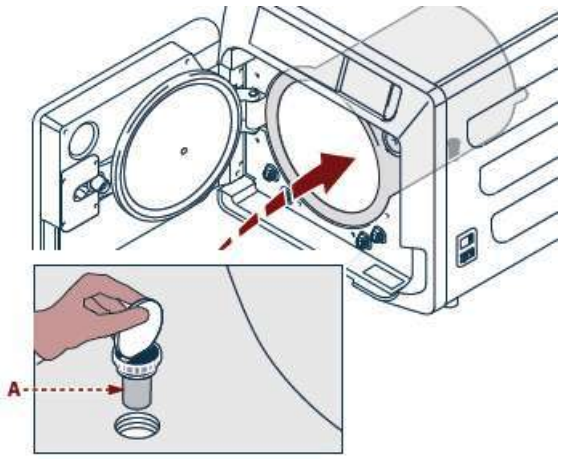
Use a soft, fuzz-free cloth soaked in alcohol to clean the door cover to prevent damage. Then dry everything thoroughly.
Do not use abrasive cloths for cleaning to avoid damage.
If it is necessary to disinfect the door panel, we recommend the use of FD 322 or FD 333 from Dürr Dental.

5.1.4 Cleaning the door seal

Use a soft, fuzz-free cloth soaked in water to clean the tray holder, the trays and the door seal to prevent damage. In case of limescale deposits, moisten the cloth with white apple vinegar to carefully remove the deposits.
Then dry everything thoroughly.
Do not use abrasive cloths for cleaning to avoid damage.

5.1.5 Cleaning the chamber filter

- Remove the trays together with the tray rack from the chamber
- Unscrew the chamber filter (back bottom) anti-clockwise
- Now rinse the filter under running water and then dry it
- The filter can then be screwed back in.



5.1.6 Replacing the Bio-X filter

Open the autoclave door. You can now unscrew and replace the filter **(2 Fig. 1).**
Screw on the new filter clockwise, making sure that it is screwed on correctly.

5.1.7 Replacing the door seal

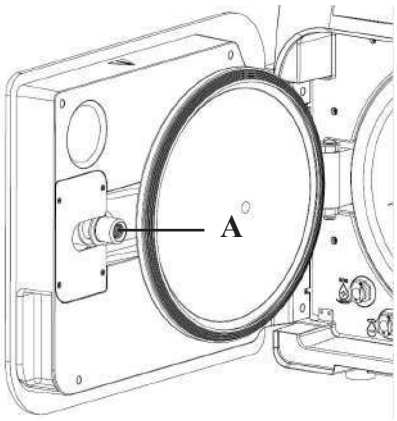
The door seal can be replaced by the user or the technician.

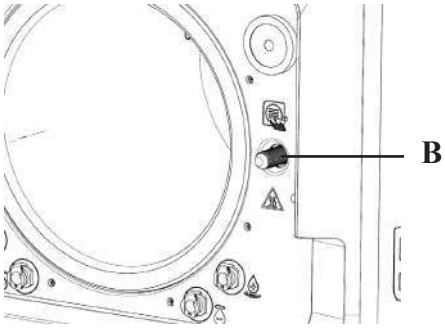
5.1.8 Cleaning the dust filter

Pull out the dust filter **(19 Fig. 1)** from the underside of the Hygoclave, rinse it carefully with water and dry it before refitting.

5.1.9 Lubricating and cleaning the screw and nut screw

Every 50 cycles, clean and lubricate with silicone grease the inside of the threaded bushing “A” located on the door .





Clean screw “B” on the front panel using a soft cloth.

Never use hydrochloric acid or detergents containing chlorine to clean any part of the autoclave.

5.1.10 Cleaning the water tanks

Use a soft, fuzz-free cloth soaked in water to clean the fresh water and waste water tanks to avoid damage.
Do not use abrasive cloths for cleaning to avoid damage.
If there are deposits in the fresh and waste water tanks, we recommend using FD 322 or FD 333 from Dürr Dental. Then clean the water tanks again with distilled water to remove disinfectant residues.

Cleaning and disinfection of water tanks

- If a water tretment system is pressent, close its tap water
- Switch off the autoclave
- Empty the fresh water and waste water tank
- Clean the water tank as described above
- Refill the water tank with demineralised water (see section 7.1).
- Then carry out 2 x B-Flash cycles.

5.2 Maintenance

Maintenance of the device is necessary after 2 years/2000 cycles. A reminder message to carry out maintenance appears on the display.

The maintenance must only be carried out by an authorised and qualified service technician.
The maintenance consists of replacing, cleaning and checking some parts, as indicated in the relative table.

The work consists of the following:

Replacement of the parts included in the maintenance kit (6048100015)

Check:
- Safety valve check
- Leakage current check
- Hose checks: hoses maintain performance until they physically break, in which case they do not work. Only replace them with DÜRR DENTAL spare parts.

When finished, the qualified technician will issue a certificate stating that the autoclave maintenance was carried out.
Comply with the intervals specified or indicated in this manual and in the additional sheets. Only use ORIGINAL SPARE PARTS. Failure to comply will void the equipment warranty.

Before proceeding with the operations indicated above, always switch off the main switch **(5 Fig. 1)** and make sure that the chamber is cold.

5.3 Periodic process effectiveness and safety checks

When	What	Explanation
Working day	Bowie & Dick Test / Helix Test	We recommend the steam penetration test with Helix in the universal program. E.g. with Hygotest (Helix test body according to EN 867-5 and EN-ISO 11140-1)
Weekly	Vacuum Test	In the morning before starting work. The autoclave must be cold for this test.

6 Troubleshooting guide

6.1 Error Codes

Code	Message	Description	Reset procedure
ER 001	Dooring closing timeout	The door closing time is too long	B
ER 002	Door switch	Door switch error condition	B
ER 003	Door unlocking timeout	The door unlocking time is too long	B
ER 004	Door opening timeout	The door opening time is too long	B
ER 006	Very poor water quality	The water conducivity is higher than 30uS/cm	B
ER 007	Floating feed tank in unexpected condition	Floating feed tank in unexpected condition	B
ER 100	Vacuum timeout during preheating	The vacuum preheating phase time is too long	A
ER 101	Pressure rise timeout during preheating	The vacuum preheating phase time is too long	A
ER 110	Vacuum pressure timeout	The time to reach the vacuum pressure is too long	A
ER 120	Discharge pressure timeout	The time to reach the thermodynamic discharge pressure is too long	A
ER 121	Pressure difference	The pressure increase is lower than the set parameter	A
ER 130	Discharge time	The pressure discharge time is too long	A
ER 140	Sterilisation pressure timeout	The time to reach the sterilisation pressure is too long	A
ER 141	Pressure difference	The pressure increase is lower than the set parameter	A
ER 150	T chamber high	The chamber temperature is over the top limit for sterilisation	A
ER 151	T chamber low	The chamber temperature is below the bottom limit for sterilisation	A
ER 152	T theoretical high	The theoretical temperature is over the top limit for sterilisation	A
ER 153	T theoretical low	The theoretical temperature is below the bottom limit for sterilisation	A
ER 154	Temperature difference	The difference between the chamber and theoretical temperature is over the allowed limit	A
ER 160	Final discharge	The final discharge time is too long	A
ER 171	Vacuum pressure timeout	The time to reach the vacuum pressure is too long	A
ER 172	AV block	The measured pressure is below the set parameter for the drying phase	A
ER 173	Vacuum pressure timeout	The time to reach the vacuum pressure is too long	A
ER 180	Balancing timeout	The pressure balancing time is too long	A
ER 200	Vacuum test timeout	The time to reach the vacuum pressure is too long in the vacuum test	A
ER 201	Vacuum test: first phase	Failure to comply with the parameters in the first phase of the vacuum test	A
ER 202	Vacuum test: second phase	Failure to comply with the parameters in the 2nd phase of the vacuum test	A
ER 203	Vacuum test: temperature	Failure to comply with the temperature limits during the vacuum test	A
ER 204	Vacuum test: balancing	Pressure balancing failed in the vacuum test	A
ER 310	Vacuum pressure threshold reached timeout	The time to reach the test vacuum pressure threshold has been exceeded	A
ER 340	Test pressure rise timeout	The time to reach the test vacuum pressure threshold has been exceeded	A
ER 341	Pressure delta	Pressure delta	A
ER 342	Safety valve open	The safety valve has opened during test execution	A
ER 355	Test execution timeout	The test execution time has been exceeded	A
ER 360	Final discharge timeout	The time to discharge the pressure has been exceeded	A
ER 370	AV lock during drying	Pressure measurement less than the parameter established in the drying phase during the test	A
ER 380	Pressure balancing timeout	The pressure balancing time has been exceeded during test execution	A

6.2 Alarm Codes

Code	Message	Description	Reset procedure
AL 001	Reset pressed	The reset button was pressed	A/B
AL 002	Blackout	A blackout has occurred	A/B
AL 003	Water filling time	The time to fill the feed tank is too long	A
AL 100	Chamber probe fault	The chamber probe reading circuit is faulty	A
AL 101	Generator probe fault	The generator probe reading circuit is faulty	A
AL 102	Bandle probe fault	The pipe bundle probe reading circuit is faulty	A
AL 103	Pressure transducer	The pressure tansducer is faulty	A
AL 104	Door microswitch	The door microswitch has opened unexpectedly	A
AL 105	Safety microswitch	The safety microswitch has opened unexpectedly	A
AL 200	Chamber safety cut-off	The chamber has exceeded the safety temperature	A
AL 201	Generator safety cut-off	The generator has exceeded the safety temperature	A
AL 202	Bundle safety cut-off	The pipe bundle has exceeded the safety temperature	A
AL 203	Safety valve fault	The pressure has exceeded the maximum trip threshold of the safety valve	A
AL 300	Hardware error Reboot the system	There is no synchronisation for managing AC loads and checking the mains frequency	A
AL 301	Valve drive voltage	There is no valve drive voltage due to a PTC trip	A
AL 302	Mains frequency error	The mains frequency is < 45 Hz or > 65 Hz	A
AL 303	Watchdog trip	Program execution has crashed	A
AL 304	Communication error with Main Board Reboot system	There is a communication fault between the main board and the CPU board	A
AL 305	Hardware error	Hardware fault on the main board	A
AL 306	Hardware error	Hardware fault on the main board	A
AL 307	Hardware error	Hardware fault on the main board	A
AL 308	Hardware error	Hardware fault on the main board	A
AL 309	Hardware error	Hardware fault on the main board	A
AL 310	Hardware error	Hardware fault on the main board	A
AL 311	Hardware error	The cycle has incorrectly been closed – Software error	A
AL 401	Generator temperature low	Generator failure	A
AL 402	Band temperature low	Band failure	A

6.3 Messages

Code	Phase	Message
Msg001	Standby or cycle start	Feed tank empty
Msg002	Standby or cycle start	Feed tank full
Msg003	Pin entry	Incorrect Pin
Msg004	Water loading	Poor water quality
Msg005	Cycle start	Door open
Msg008	Vacuum Test start	Chamber temperature over limit
Msg009	Machine switch-on	Serial number inconsistency between CPU and MB
Msg010	Machine switch-on	Lubricate the automated system of the door
Msg011	Machine switch-on	Replace the Bio-X filter
Msg012	Machine switch-on	Conduct maintenance
Msg013	Incorrect date	System date incorrect - Check
Msg014	Do vacuum test	Do vacuum test
Msg016	PIN too short	PIN too short
Msg017	Duplicate PIN	PIN already exists
Msg018	MB FW revision incompatible with CPU FW	Firmware version incompatible – contact Technical Support

6.4 Reset procedures

Reset procedure "A"

If the cycle is "running", reset the error by selecting the confirm icon on the safety screen and then select the Home icon to return to the initial screen.

Reset procedure "B"

Reset the error be selecting the confirm icon on the safety screen.

N.B. In the event of faults that compromise sterilisation/test cycle execution, the cycle selection icons on the Home screen will be disabled.

6.5 Troubleshooting

Code	Possible cause	Possible solution
ER 001	There is a malfunction in the motorised door closing/opening system.	Reset the machine. Repeat the door closing procedure. If the problem persists, contact technical support.
ER 002	There is a malfunction in the motorised door closing/opening system.	
ER 003	There is a malfunction in the motorised door closing/opening system.	
ER 004	There is a malfunction in the motorised door closing/opening system.	
ER 006	The water quality is very poor.	Reset the machine. Very poor water quality: empty the feed tank and refill it with better quality water. If the problem persists, contact technical support.
ER 007	Floating feed tank in unexpected condition.	Reset the machine. Check the condition of the floating feed tank. If the problem persists, contact Technical Support.
ER 100	There is a leak in the machine plumbing circuit or a malfunction in the vacuum pump.	Reset the machine. Check that the door seal is clean and positioned correctly, then repeat the selected program. If the problem persists, contact technical support.
ER 101	There is a leak in the machine plumbing circuit.	Reset the machine. Check: a) that the door seal is clean and positioned correctly; b) that there is water in the feed tank; c) the amount of load in the chamber. Then repeat the selected program. If the problem persists, contact technical support.
ER 110	There is a leak in the machine plumbing circuit or a malfunction in the vacuum pump.	Reset the machine. Check: a) that the door seal is clean and positioned correctly; b) that the filter in the chamber is clean and positioned correctly. Then repeat the selected program. If the problem persists, contact technical support.
ER 120	There is a leak in the machine plumbing circuit or a malfunction in the water injection pump.	Reset the machine. Check: a) that the door seal is clean and positioned correctly; b) that there is water in the feed tank; c) the amount of load in the chamber. Then repeat the selected program. If the problem persists, contact technical support.
ER 121	There is a leak in the machine plumbing circuit or a malfunction in the water injection pump.	
ER 130	There is a malfunction in the machine discharge system.	Reset the machine. Check the amount of load in the chamber and repeat the selected program. If the problem persists, contact technical support.
ER 140	There is a leak in the machine plumbing circuit or a malfunction in the water injection pump.	Reset the machine. Check: a) that the door seal is clean and positioned correctly; b) that there is water in the feed tank; c) the amount of load in the chamber. Then repeat the selected program. If the problem persists, contact technical support.
ER 141	There is a leak in the machine plumbing circuit or a malfunction in the water injection pump.	
ER 150	There is a leak in the machine discharge system or a chamber loading error.	Reset the machine. Check: a) the tray support position and the tray position in the chamber; c) the amount of load in the chamber. Then repeat the selected program. If the problem persists, contact technical support.
ER 151	There is a malfunction in the sterilisation condition holding system or a chamber loading error.	Reset the machine. Check: a) that the door seal is clean and positioned correctly; b) that there is water in the feed tank; c) the amount of load in the chamber. Then repeat the selected program. If the problem persists, contact technical support.

Code	Possible cause	Possible solution
ER 152	There is a malfunction in the sterilisation condition holding/control system.	Reset the machine. Check: a) that there is water in the feed tank; b) the amount of load in the chamber. Then repeat the selected program. If the problem persists, contact technical support.
ER 153	There is a malfunction in the sterilisation condition holding/control system.	
ER 154	There is a malfunction in the sterilisation condition holding/control system.	Reset the machine. Check: a) the tray support position and the tray positions in the chamber; b) that there is water in the feed tank; c) the amount of load in the chamber. Then repeat the selected program. If the problem persists, contact technical support.
ER 160	There is a malfunction in the machine discharge system.	Reset the machine. Check the amount of load in the chamber and then repeat the selected program. If the problem persists, contact technical support.
ER 171	There is a leak in the machine plumbing circuit or a malfunction in the vacuum pump.	Reset the machine. Check: a) that the door seal is clean and positioned correctly; b) that the filter in the chamber is clean and positioned correctly. Then repeat the selected program. If the problem persists, contact technical support.
ER 172	There is a malfunction in the machine drying system.	Reset the machine. Check the amount of load in the chamber and the Bio-X filter condition, then repeat the selected program. If the problem persists, contact technical support.
ER 173	There is a leak in the machine plumbing circuit or a malfunction in the vacuum pump.	Reset the machine. Check: a) that the door seal is clean and positioned correctly; b) that the filter in the chamber is clean and positioned correctly. Then repeat the selected program. If the problem persists, contact technical support.
ER 180	There is a malfunction in the pressure balancing system.	Reset the machine. Check the amount of load in the chamber and the Bio-X filter condition, then repeat the selected program. If the problem persists, contact technical support.
ER 200	There is a leak in the machine plumbing circuit or a malfunction in the vacuum pump.	Reset the machine. Check: a) that the door seal is clean and positioned correctly; b) that the filter in the chamber is clean and positioned correctly. Then repeat the selected program. If the problem persists, contact technical support.
ER 201	There is a leak in the machine plumbing circuit.	Reset the machine. Check that the door seal is clean and positioned correctly, the repeat the selected program. If the problem persists, contact technical support.
ER 202	There is a leak in the machine plumbing circuit.	
ER 203	A Vacuum Test is running in chamber conditions other than ambient temperature.	Reset the machine. Repeat the Vacuum Tes, making sure that the chamber is at ambient temperature. If the problem persists, contact technical support.
ER 204	There is a malfunction in the pressure balancing system.	Reset the machine. Repeat the selected program. If the problem persists, contact technical support.
ER 310	Leak in the hydraulic circuit of the machine or malfunctioning of the vacuum pump.	Reset the machine. Check: a) that the door seal is clean and positioned correctly; b) that the filter in the chamber is clean and positioned correctly. Then repeat the selected program. If the problem persists, contact technical support.
ER 340	Leak in the hydraulic circuit of the machine or malfunctioning of the water injection pump.	Reset the machine. Check: a) that the door seal is clean and positioned correctly; b) that there is water in the feed tank; c) the amount of load in the chamber. Then repeat the selected program. If the problem persists, contact technical support.
ER 341	Leak in the hydraulic circuit of the machine or malfunctioning of the water injection pump.	
ER 342	The safety valve has opened during test execution.	Replace the safety valve.
ER 355	The test execution time has been exceeded.	Check the condition of the safety valve and replace it if necessary.
ER 360	Malfunction in the machine discharge system.	Reset the machine. Check the amount of load in the chamber and then repeat the selected program. If the problem persists, contact technical support.
ER 370	Malfunction in the machine drying system.	Reset the machine. Check the amount of load in the chamber and the Bio-X filter condition. Then repeat the selected program. If the problem persists, contact technical support.
ER 380	Malfunction in the machine pressure balancing system.	
AL 001	The reset button was pressed.	Reset the machine.
AL 002	A blackout has occurred.	Reset the machine. Check: a) that the power cable is connected correctly; b) that the is mains power in the system. Then repeat the selected program. If the problem persists, contact technical support.

Code	Possible cause	Possible solution
AL 003	There is a malfunction in the feed tank water filling system.	Reset the machine. Check that the water filling hose is positioned and connected correctly, then repeat the selected procedure. If the problem persists, contact technical support. If water comes out of the overflow fitting at the rear, contact technical support.
AL 100	There is a malfunction in the chamber probe reading circuit.	Reset the machine. Repeat the selected program. If the problem persists, contact technical support.
AL 101	There is a malfunction in the generator probe reading circuit.	
AL 102	There is a malfunction in the pipe bundle probe reading circuit.	
AL 103	There is a malfunction in the pressure transducer reading circuit.	Reset the machine. Repeat the selected program. If the problem persists, contact technical support.
AL 104	There is a malfunction in the door closing/opening control system.	
AL 105	There is a malfunction in the door closing/opening control system.	
AL 200	There is a malfunction in the temperature control system.	
AL 201	There is a malfunction in the temperature control system.	
AL 202	There is a malfunction in the temperature control system.	
AL 203	There is a malfunction in the pressure control system.	Reset the machine. Contact technical support.
AL 300	There is a malfunction in the electronic system.	Reset the machine. Repeat the selected program. If the problem persists, contact technical support.
AL 301	There is a malfunction in the electronic system.	
AL 302	There is a malfunction in the electronic system.	
AL 303	There is a malfunction in the electronic system.	
AL 304	There is a malfunction in the electronic system	
AL 305	There is a malfunction in the electronic system.	
AL 306	There is a malfunction in the electronic system.	
AL 307	There is a malfunction in the electronic system.	
AL 308	There is a malfunction in the electronic system.	
AL 309	There is a malfunction in the electronic system.	
AL 310	There is a malfunction in the electronic system.	
AL 311	There is a malfunction in the electronic system.	
AL 401	Generator malfunction.	
AL 402	Band malfunction.	

6.6 Message solutions

Code	phase	Message	Possible solution
Msg001	Standby or cycle start	Feed tank empty	Fill the feed tank
Msg002	Standby or cycle start	Feed tank ful	Empty the discharge tank
Msg003	Pin entry	Incorrect Pin	Enter the correct Pin
Msg004	Water loading	Poor water quality	Change the water in the feed tank with better quality water
Msg005	Cycle start	Door open	Close the door
Msg008	Vacuum Test start	Chamber temperature over limit	Repeat Vacuum Test when the chamber temperature returns below the allowed limit (45°C)
Msg009	Machine switch-on	Serial number inconsistency between CPU and MB	Contact The Dürr Dental Technical Service
Msg010	Machine switch-on	Lubrificate the automated system of the door	Lubrificate the autoamted system according to the instructions in par. 5.1.9 of the user manual
Msg011	Machine switch-on	Replace Bio-X filter	Replace the Bio-X filter with original Dürr Dental spare part
Msg012	Machine switch-on	Conduct maintenance	Contact service technician for routine maintenance
Msg013	Machine switch-on	Incorrect date	Set clock/calendar of the machine again. If the problem persists, contact the Dürr Dental Technical Service
Msg014	Machine switch-on or cycle start	Do vacuum test	Do vacuum test
Msg016	Pin entry	Pin too short	Entry 4-digit PIN
Msg017	Pin entry	Duplicate PIN	Entry correct PIN
Msg018	Machine switch-on	MB FW revision incompatible with CPU FW	Contact the Dürr Dental Technical Service

EN

7 Techical specifications

	Hygoclave 50			Hygoclave 50 Plus		
Power supply voltage	220 V	230 V	240 V	220 V	230 V	240 V
Mains frequency	60 HZ	50/60 HZ	50 HZ	60 HZ	50/60 HZ	50 HZ
Power	1880 W	2050 W	2230 W	2010 W	2200 W	2400 W
Maximum current consumption	8,5 A	8,9 A	9,3 A	9,1 A	9,6 A	10,0 A
Fuse (6.3x32)	T12 A H 250v			T12 A H 250v		
Noise level	<60dB (A)					
Electric shock protection class	Class I					
IP degree of protection	IPX0					
Operationg temperature	From 5°C to 40°C					
Chamber volume	approx. 17 litres			approx. 22 litres		
Usable chamber volume	approx. 11 litres			approx. 14 litres		
Feed tank volume	5,2 litres					
Weight per unit area of empty machine	202 kN/m2			216 kN/m2		
Weight per unit area at full load	237 kN/m2			251 kN/m2		
Empty machine weight	57 kg			61 kg		
Fully loaded machine weight	67 kg			71 kg		
Safety valve calibration pressure	2,5 bar			2,33 bar		

7.1 Water specifications (distilled or demineralized)

Conductivity at 20°C	0÷15 green µS/cm 15÷40 yellow µS/cm > 40 red µS/cm
Chlorides	<2.0 mg/l
pH at 20°C	5.0 - 7.0

8 Spare parts codes

6046100101 : Tray handle
6048100023 : 17 L tray
6048100024 : 22 L tray
6048100019 : Bio-X-Filter
6048100018 : Door seal
6048100015*: Maintenance Kit HC40/50
6048100152 Tray rack 17 L.
6048100153 Tray rack 22 L.
6048100044 Lubricant Oil for door
6048100073 Water connection set
6048100155 Stylus pen with magnet
6048100154 USB-Stick

* The maintenance must only be carried out by an authorised and qualified service technician

Hersteller/Manufacturer:
DUERR DENTAL FARO STERILIZATION S.r.l.
Via Faro, 15 - 20876 Ornago
(MB) ITALY

CE
0051

Vertreiber/Distributor:
DÜRR DENTAL SE
Höpfigheimer Str. 17
74321 Bietigheim-Bissingen
Germany
Fon: +49 7142 705-0
www.duerrdental.com
info@duerrdental.com

DÜRR DENTAL