

Translation of the Original Operating Manual
Original Operating Manual

LVSA 40/60 40/75 50/60 50/70

Laboratory Vertical Autoclave



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1 Foreword

1.1 Notes on the manual

This operating manual contains behavioural instructions from the manufacturer for the owner of the device and for everyone involved in set-up, operation, maintenance and repair.

The photos in this operating manual may differ from the specifics of your device.

In this operating manual, the term “product” is used for products not yet sterilized, and the term “sterile materials” for products that have already been sterilized.

This operating manual describes the Laboratory Vertical Autoclave LVSA 40/60, 40/75, 50/60 and 50/70. The devices are essentially the same and differ only in the size of the usable space and in their equipment.

This operating manual describes all possible equipment. It is therefore possible that it describes equipment that is not on your device. The possible equipment is listed in the “Device equipment” chapter, [see page 14](#).

Your device’s equipment can be found in the contract specification of your order.

1.2 Symbols in the text

The device is built to the current state of the art and is safe to operate. Nonetheless, the device may pose unpreventable hazards.

This operating manual uses the following symbols to designate hazards when working with the device or to give information on handling the device:



CAUTION

This symbol — along with the signal word CAUTION — indicates a death or health hazard to personnel. The text that follows explains the hazard and its effects and provides instructions for preventing the hazard. Failure to heed the instructions can cause health problems or death.



ATTENTION

This symbol — along with the signal word ATTENTION — indicates a hazard to the device or parts thereof. The text that follows explains the hazard and its effects and provides instructions for preventing the hazard. Failure to heed the instructions can cause severe damage to the device.



NOTE

This symbol appears above paragraphs that give useful or important information on properly handling the device. This information helps prevent problems and makes handling the device easier.

Moreover, this operating manual uses safety symbols in accordance with DIN 4844 and BGV A8 (the implementation of EC directive 2006/42/EC).

1.3 Responsibility of the owner

The device is built to the current state of the art and is safe to operate. Nonetheless, the device may pose hazards that cannot be prevented through design.

For safe operation, the owner must ensure that:

- Everyone involved in the set-up, operation, maintenance or repair of the device is familiar with the device's safety equipment and knows what to do when there is a malfunction.
- Everyone involved with the set-up, operation, maintenance or repair of the device wears personal safety equipment (safety goggles, close-fitting safety clothing, safety shoes, safety gloves, etc.).
- Everyone involved with set-up, operation, maintenance or repair of the device has read the relevant portions of the operating manual and understands them.
- The operating manual is always stored within reach.
- Only those people work on the device who are familiar with the fundamental work safety and accident prevention regulations, are trained in handling the device and are authorized for their respective activity.
- When the machine is being operated, qualified first-aid technicians can be called in and can perform any necessary first aid.
- All procedures, authorities and responsibilities in the area of the device are unmistakably specified.
- The personnel's safety-conscious work is regularly checked.
- The device is always in operational condition.
- The device and entire work area are always clean and tidy.
- All safety equipment is operational.
- All prescribed maintenance/inspections are performed at the specified intervals.
- No modifications, additions or conversions are made to the device without the manufacturer's consent. This also applies to changes to the software in the programmable control systems.
- All laws, regulations and accident prevention rules that apply to the device are adhered to — even if they are not explicitly stated here.



NOTE

When in doubt, or if further questions arise, please contact our service department, [see page 103](#).

1.4 EC declaration of conformity



NOTE

A sample EC declaration of conformity is shown below. The original for your device can be found in the documentation included.

Revision 03 Gültig ab 02.01.2017	Konformitätserklärung <i>Conformity Declaration</i>	
F 410-H	Formblatt	Seite 1 von 2

Konformitätserklärung

nach Druckgeräterichtlinie 2014/68/EU für eine Baugruppe

Conformity Declaration

Pressure Equipment Directive 2014/68/EU for assemblies

Der Hersteller / *the Manufacturer*

Zirbus technology GmbH

Hilfe Gottes 1

37539 Bad Grund

erklärt hiermit, dass das Gerät / *hereby declares that the device*

Typ / <i>Type</i>	Labor-Vertikal-Stand-Autoklav	
Bezeichnung / <i>Description</i>	LVSA	
Baujahr / <i>Year of construction</i>	XXX	
Herstell-Nr. / <i>Serial no.</i>	XXX	
	Kammer / <i>Chamber</i>	Doppelmantel / <i>Double jacket</i>
Volumen / <i>Volume</i>	XX Liter	
Zulässiger max. Druck PS: <i>Permissible max. pressure</i>	3,0 bar	
Zul. max. /min Temperatur TS <i>Permissible min./max temperature TS</i>	143 °C	
Fluidgruppe / <i>Fluid group</i>	2	
Kategorie / <i>Category</i>	II	

der Druckgeräterichtlinie 2014/68/EU entspricht.

is equivalent to the Pressure Equipment Directive 2014/68 / EU

Angewandte Konformitätsbewertungsverfahren:

Modul H

Applied conformity assessment procedures:

Angewandte Normen und tech. Spezifikationen:

AD 2000

Applied standards and tech. specifications:

Weitere angewandte EG-Richtlinien:

2014/35/EU + 2006/42/EWG

Other applied EC directives:

Eingeschaltete benannte Stellen

Engaged notified body

Überwachung QS-System:

HSB UK - 2561

Monitoring QS-system

Bad Grund, XX.XX.XXXX

Ort, Datum / *Place, Date:*

Unterschrift / *Signature*

2 Information on the device

2.1 Type plates

The device's type plate is on the cladding plate on the right side of the device.



The type plate of the pressure tank is on the front of the chamber — behind the front cladding plate.



2.2 Scope of delivery

After unpacking, make sure the delivery is complete and intact.

- Is the delivery correct according to your order's contract specifications?
- Are any parts of the delivery damaged?
- Is the operating manual included in the local language?
- Is the technical documentation included?

2.3 Parts of the device

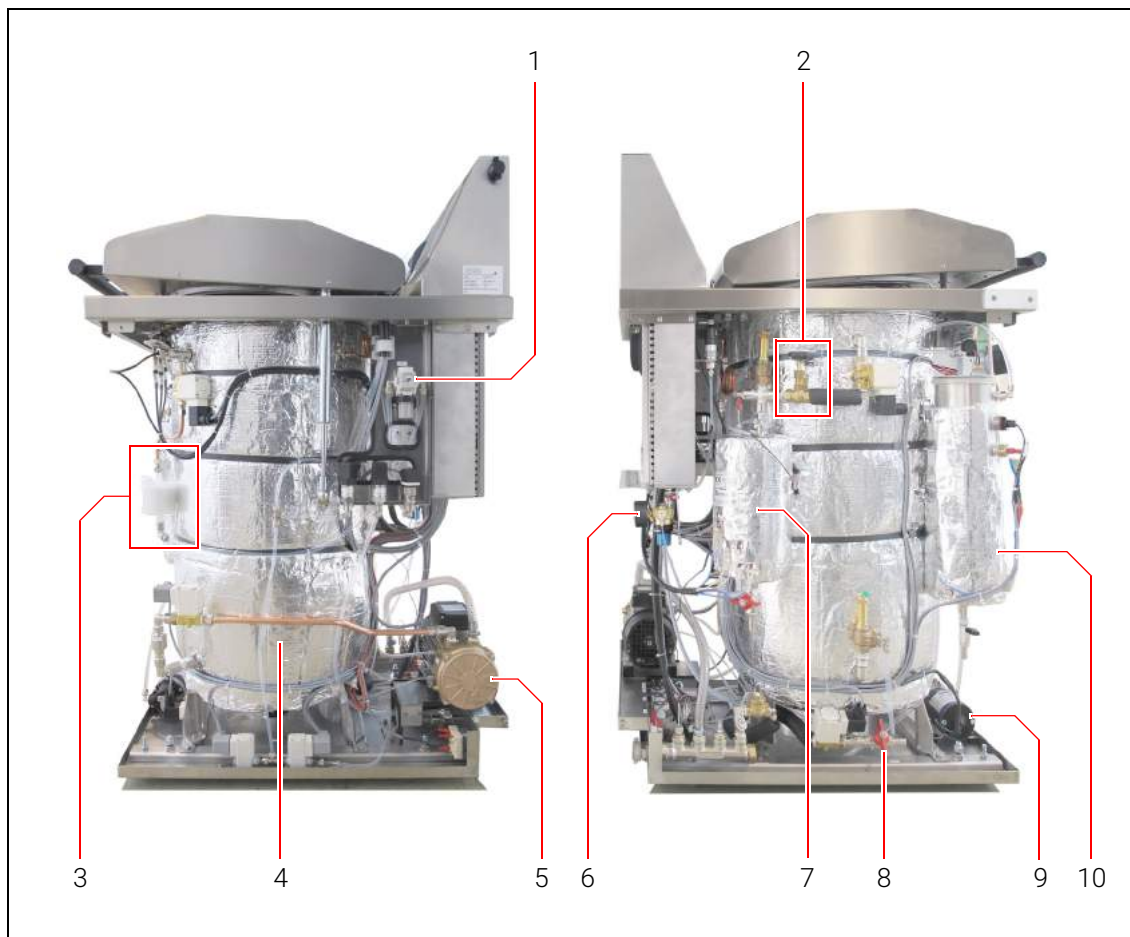


Pos.	Designation
1	Lid
2	ON/OFF switch
3	Log printer (option)
4	Touchscreen
5	USB or Ethernet interface
6	Supply connections
7	Chamber seal
8	Product temperature sensor
9	Chamber with inserted basket



NOTE

The following illustrations show the device with the cover plates removed. Settings to pressure regulators, throttles, etc. are to be changed only by trained personnel.



Pos.	Designation
1	Pressure regulator support pressure (factory setting: 2.5 bar)
2	Steam inlet needle valve
3	Air inlet filter (version per specification)
4	Chamber
5	Vacuum pump
6	Water pressure regulator (factory setting: 0.5 bar)
7	Steam generator
8	Chamber drainage valve
9	Steam generator filling pump
10	Tank for de-ionised water

2.4 Technical data

2.4.1 Dimensions and weights

LVSA	40/60	40/75	50/60	50/70
External dimensions (W x D) [mm]	550 × 750	550 × 750	750 × 900	750 × 900
Chamber volume [litres]	80	96	133	153
Usable space (Ø × H) [mm]	Ø 400 × 620	Ø 400 × 770	Ø 500 × 680	Ø 500 × 780
Weight	Depending on the model and equipment, the device weighs up to 230 kg.			

2.4.2 Load capacities

The value to the left shows the number of Schott flasks, and the value to the right shows the number of Erlenmeyer flasks.

	250 ml	500 ml	1000 ml	2000 ml	5000 ml
LVSA 40/60	42 / 28	26 / 16	18 / 10	8 / 6	2 / 1
LVSA 40/75	63 / 42	39 / 24	27 / 15	8 / 6	2 / 1
LVSA 50/60	74 / 46	46 / 30	32 / 18	16 / 10	8 / 3
LVSA 50/70	111 / 69	69 / 45	48 / 27	16 / 10	8 / 3

2.4.3 Connection data

Medium	Description
Discharge	3/4", maximum height 200 mm
Electrical connection	3-phase 400 V, 50/60 Hz, 16 A Ceekon socket, distance 1.5 metres (US connection data: 3-phase 208 V, 60 Hz, 25 A Ceekon socket, distance 1.5 metres)
De-ionised water	3/4" shut-off valve external thread, pressure 0.5–2.5 bar per DIN EN 205, appendix B, table B1
Cold water	3/4" shut-off valve external thread, pressure 2.5–5.0 bar maximum hardness 10° German hardness / 1.783 mmol/L
Compressed air	3/8" shut-off valve internal thread, pressure 5.0–7.0 bar Water-, dust- and oil-free (DIN ISO 8573-1:2010, Class 4)
Coolant feed	3/4" shut-off valve external thread, pressure 2.5–5.0 bar maximum hardness 10° German hardness / 1.783 mmol/L Temperature 6°C–10°C
Coolant return	3/4" shut-off valve external thread, pressure 2.5–5.0 bar, Δ 0.5 bar Temperature 12 °C–16 °C

The connections vary depending on the device's equipment.

2.5 Device equipment

This operating manual describes the Laboratory Vertical Autoclave LVSA 40/60, LVSA 40/75, LVSA 50/60 and LVSA 50/70. The devices are essentially the same and differ only in the size of the usable space and in their equipment.

This operating manual describes all optional device equipment.

Your device's equipment can be found in the contract specification of your order.

The seven standard equipment levels are described below.

BASIC LAB For simple solid or liquid products without dry removal.	• Steam generator
DRY LAB For non-infected solid products that require intense subsequent drying.	• Steam generator • Water ring vacuum pump
QUICK LAB • BASIC For large quantities of liquid products.	• Steam generator • Rapid water re-cooling system with air-circulating fan
QUICK LAB For non-infected solid or liquid products that require intense subsequent drying — not suitable for liquids in closed containers.	• Steam generator • Water ring vacuum pump • Rapid water re-cooling system with air-circulating fan
QUICK LAB • ADVANCED For non-infected solid or liquid products that require intense subsequent drying — suitable for liquids in closed containers	• Steam generator • Water ring vacuum pump • Rapid water re-cooling system with air-circulating fan • Steam / Air Mixture Method (DLGV)
SAFE LAB For use in S2 laboratory For infected solid products that require intense subsequent drying.	• Steam generator • Water ring vacuum pump • Exhaust Air Filtration (ALF)
COMPLETE LAB For use in S2 laboratory For infected solid and liquid products that require intense subsequent drying.	• Steam generator • Water ring vacuum pump • Exhaust Air Filtration (ALF) • Rapid water re-cooling system with air-circulating fan

3 Usage

3.1 Intended use

**CAUTION**

INJURY HAZARD! DAMAGE TO DEVICE!

The device must be operated only by trained, authorized personnel. Improper operation of the device can cause severe injury and damage the device.

The device is intended solely for sterilizing or heating solid materials or liquids depending on the device's equipment (see the chapter "Device equipment" [on page 14](#)).

Any other or added use is considered unintended. ZIRBUS TECHNOLOGY GmbH is not liable for harm to people or equipment due to unintended use of the device.

Intended use means that:

- All safety instructions in this operating manual are followed.
- Inspection and maintenance instructions are adhered to.
- General, national and company safety regulations are observed.

Examples of unintended use may include:

- Working with explosive products,
- Working with products that contain acids,
- Working with chemicals,
- Heating edible products in the device or keeping them warm,
- "Disinfecting" living things in the device,
- Filling the chamber with loose products,
- Sterilizing solid and liquid products together,
- Modifying the device's electrical components,
- Installing replacement parts that do not meet required specifications.

3.2 Product requirements

- Liquids in open or closed containers
- Solids
- Goods with open cavities
- Empty glassware
- Non-infectious waste bags and goods
- Infectious waste bags and goods (S2 or higher)
- Fermenters
- Infected or non-infected mixed waste
- Infected or non-infected waste bag with liquid contents

3.3 Improper use



CAUTION

INJURY HAZARD! DAMAGE TO DEVICE!

- The device must be operated only by trained, authorized personnel. Improper use of the device can cause severe injury and damage the device.
- Before each program launch, make sure that the products in the chamber are suitable for sterilisation with the device.
- Before launching the program, make sure that a program is being used that matches the products in the chamber.
- If you are not 100% sure, do not launch the program!

Avoid misapplication: Especially be sure of the following points:

- Make sure that the set temperature can be used for the product.
- Make sure that the selected program can be used for the product.

Example:

A liquid product is to be sterilized. A program for solid products is selected. The liquid product boils over when the pressure is relieved.

- Make sure that no loose products are filled into the chamber. The products must always be in pails or baskets.
- Make sure that solid and liquid products are not sterilized together.
- Make sure that the product temperature sensor during sterilisation of liquid products is in a reference vessel with the correct level of liquid. The reference vessel must reflect the highest individual volume.
- Make sure that when sterilizing liquids with a temperature greater than 30°C, the gravitation process is selected for air elimination.

4 Safety

4.1 General safety instructions

This chapter familiarizes you with the safety equipment on the device. It informs you about proper handling of the device and points to possible hazards.

The device is built to the current state of the art and is safe to operate. Nonetheless, the device may pose hazards to people and property if it is used improperly or not as intended, or if the safety instructions are not followed.

To eliminate hazards to personnel as much as possible, dangerous areas of the device must be protected with reasonable safety equipment.



CAUTION

INJURY HAZARD! DAMAGE TO DEVICE!

Safety equipment is not to be modified, removed or disabled. Unprotected parts of the device can cause injury or death.

Before work is done on electrical components, they must be drained of electricity. Observe the relevant safety regulations when, for operational reasons, you need to work with the power on.

The owner is responsible for safe operation of the device.

- The general, national and company safety regulations, such as wearing safety goggles, close-fitting safety clothing, safety gloves, etc., must be followed.
- The device must be operated only in technically perfect conditions. Any change to the device must immediately be reported to the nearest supervisor.
- The responsibilities for operation, maintenance and repair must be unambiguously regulated and adhered to, so that there is no unclear authority when it comes to safety.
- The safety instructions in the individual chapters of this operating manual and in the suppliers' operating manuals must be observed.

4.2 Impermissible operating conditions

It is forbidden to operate the device if:

- Faults or damage are detected.
- Maintenance intervals have been exceeded or not observed.
- Safety equipment has been removed or does not work.
- Mechanical or electrical functions do not run properly.
- Something is unclear about the product to be sterilized or the associated program.

4.3 Qualification of personnel

Only trained, qualified personnel are to work with the device. The personnel must be familiar with the device, its specifications and the programs available.

Moreover, the personnel must be able to judge which solid and liquid products are allowed to be sterilized or heated in which containers.

The owner of the device must unambiguously specify personnel responsibility for operation, maintenance and repair.

Work on the device's electrical system must be done only by a qualified electrical expert or by a person specially trained according to the electro-technical rules.

4.4 Warning signs on the device

Dangerous places on the device are marked with warning signs according to DIN 4844.

Mandatory signs are attached to the device to indicate necessary actions.

Warning signs, mandatory signs and other instructional signs on the device must always be clearly legible. Illegible or damaged warning signs must be replaced immediately.

The following warning signs, mandatory signs and instructional signs are attached to the device.

Symbol	Meaning	Example
	Hot surface warning	Lid
	Crushing hazard	Lid
	Electrical voltage warning	Terminal box, distributor box
	General hazard warning	Various locations on the device
		Device cover

4.5 Safety equipment



CAUTION

INJURY HAZARD!

Safety equipment is not to be modified, removed or disabled. Unprotected parts of the device can cause injury or death.

Safety functions of the cover

The cover lock must be released from the controls to open the cover. Conditions: Temperature below 80°C, pressure 980 mbar.

Chamber safety valve

If overpressure arises in the chamber, the safety valve opens and relieves the overpressure in a controlled manner and then closes again.

Condition: Chamber pressure above 2.8 bar rel.

Temperature limiter for steam generator

If the steam generator heater overheats due to a malfunction, the temperature limiter shuts off the heater.

Condition: Heater temperature above 180°C.

Chamber safety pressure switch:

The cover lock must be released by the safety pressure switch to open the cover.

Condition: Chamber pressure below 1200 mbar.

4.6 Residual hazards

The safety equipment on the device protects from injury. Nonetheless, some activities still pose an injury hazard.



ATTENTION

INJURY HAZARD!

- Residual hazards can be avoided only through proper behaviour.
- Always stay an adequate distance from the hazard locations and keep the following residual hazards in mind.

Parts that carry current when the device is shut off

- The cable to the ON/OFF switch always carries voltage.
- Even if the ON/OFF switch is shut off, individual components in the electrical cabinet carry voltage.
- Current-carrying parts are safe to touch with fingers. However, it is still hazardous to touch current-carrying parts with tools.

Hot components of the device

- If the device has not cooled, its surfaces pose a burn hazard, especially in the chamber and the inside of the cover.
- Check the temperature before touching: Wear proper safety equipment.

Hot sterile materials

- When the cover is opened, a cloud of vapour may escape from the chamber.
- Stay a safe distance away.
- When the cover lock is released, the sterile materials and baskets or pails may be very hot.
- Check the temperature before touching: Wear proper safety equipment.

Hazards from the product

- Products to be sterilized may pose hazards.
- It must be ensured that the product can be sterilized safely. If you are not 100% sure, do not launch the program!
- It must be ensured that the product can be sterilized with the selected program. If you are not 100% sure, do not launch the program!

5 Transport, set-up and connection

5.1 Transporting the device

The device is delivered packed onto a pallet and can be transported to the set-up location with a lift truck.

The device must be lifted from the pallet with suitable, tested lifting equipment.

Depending on the model and equipment, the device weighs up to 230 kg.

During transport, lifting and movement, all relevant and company-internal safety regulations must be observed. Only suitable, tested lifting equipment is to be used.



ATTENTION

INJURY HAZARD! DAMAGE TO DEVICE!

- There is a tilting hazard when the lift truck transports the device.
- The lift truck must cover the entire frame of the device — use only suitable lift trucks.
- Be sure to stabilize the device. Transport must be done slowly and cautiously, especially when manoeuvring on curves.



NOTE

The device can be moved on ball casters.

For this, the adjustable feet must be set to the highest position, [see page 23](#).

5.2 Setting up the device



NOTE

Set-up plans for the devices can be found in Chapter 14 “Technical appendix”.

- Set-up plan LVSA 40/60, [see page 135](#).
- Set-up plan LVSA 40/75, [see page 136](#).
- Set-up plan LVSA 50/60, [see page 137](#).
- Set-up plan LVSA 50/70, [see page 138](#).

5.2.1 Environmental conditions

For optimal operation of the device, the following environmental conditions must be maintained.

Temperature	+10°C...+30°C
Air humidity	max. 75%
Air pressure	700 hPa...1060 hPa

5.2.2 Unpacking

The device is delivered packed onto a pallet.

1. Carefully open the cardboard with an appropriate tool.
When cutting open the cardboard, make absolutely sure that the blade of the cutting tool used is no longer than 15 mm.
2. Carefully remove the cardboard.
3. Remove the packing material from around the device.
4. Remove the bubble wrap from the device.
5. Dispose of the packing material according to national regulations.



5.2.3 Aligning the device

The device can be freely set up – it does not need to be anchored to the floor.

For optimal operation, the device must be set up horizontally. Alignment must be done with a precision bubble level. The precision bubble level must be set on the device's surface with the cover open.

1. Remove the cover plates.
2. Loosen the lock nuts (A) on the adjustable feet (B).
3. Set the adjustable feet by turning the adjustment screws (C).
4. Set all four adjustable feet so that the device stands horizontally and the adjustable feet bear an equal load.
5. After adjusting the lock nuts, tighten them again.



NOTE

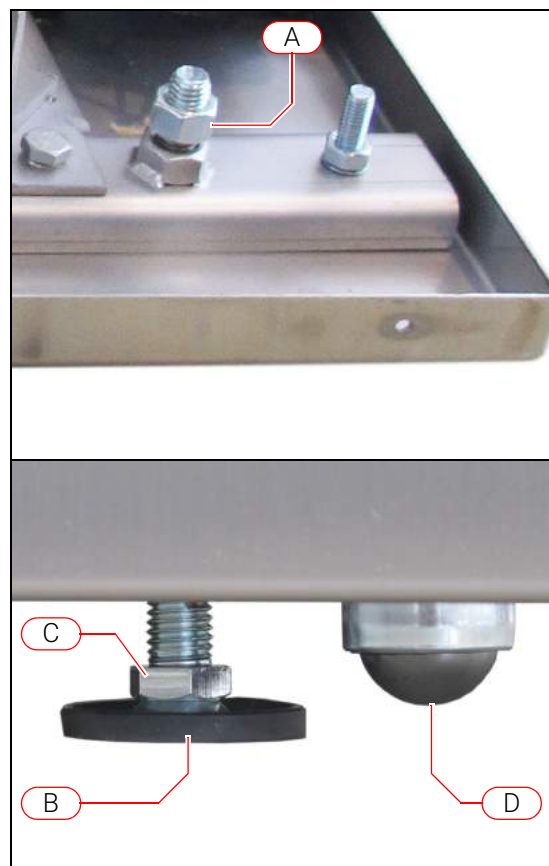
If all four adjustable feet are set to the top position, the device can be moved on ball casters (D).



CAUTION

INJURY HAZARD! DAMAGE TO DEVICE!

The device must only be operated if it is standing on the adjustable feet and is correctly aligned. It is forbidden to operate a device that stands only on ball casters.



5.3 Connecting the device

5.3.1 Electrical connection



CAUTION

DEATH HAZARD!

For permanently wired devices without plugs, the electrical connection is to be made only by a trained electrical technician.

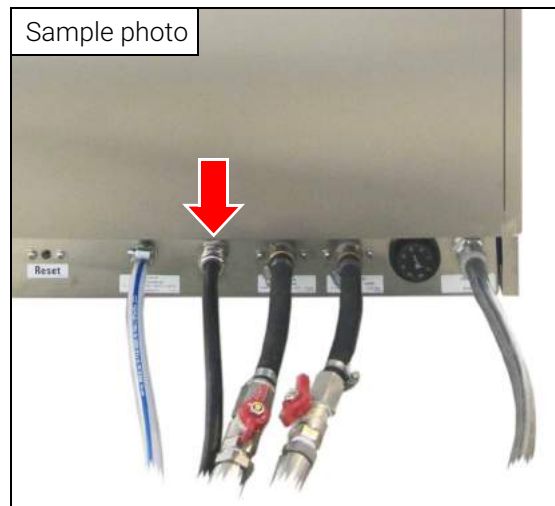
Specification:

- 3-phase 400 V, 50/60 Hz, 16 A
(USA: 3-phase 208 V, 60 Hz, 25 A)
- Ceekon socket



NOTE

The arrangement of the connections may vary depending on the device's type and equipment. Each connection is clearly marked with a sticker.



5.3.2 Compressed air connection

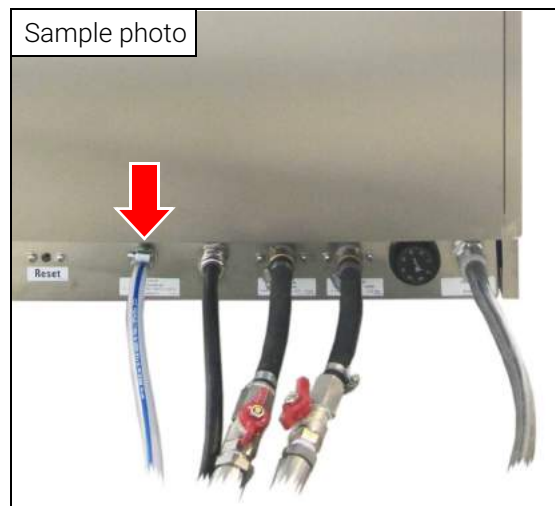
Specification:

- 3/8" shut-off valve internal thread
- Pressure 5.0 - 7.0 bar
- According to DIN ISO 8573-1:2010, Class 4



NOTE

The arrangement of the connections may vary depending on the device's type and equipment. Each connection is clearly marked with a sticker.



5.3.3 Water connection

Cold water

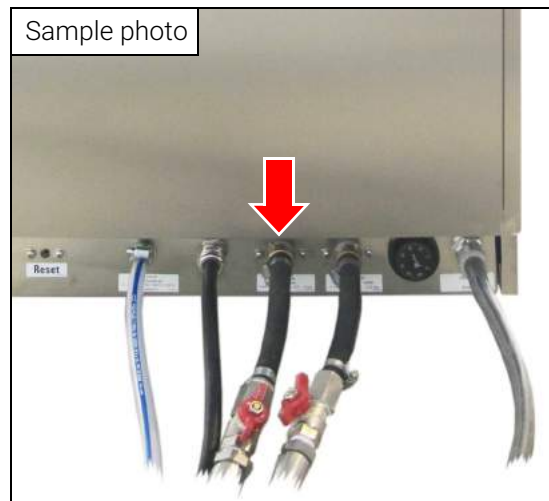
Specification:

- 3/4" external thread with shut-off valve
- Pressure 2.5 - 5.0 bar,
- Maximum hardness 10°
German hardness / 1.783 mmol/L
- < 20°C water temperature



NOTE

The arrangement of the connections may vary depending on the device's type and equipment. Each connection is clearly marked with a sticker.



De-ionised water

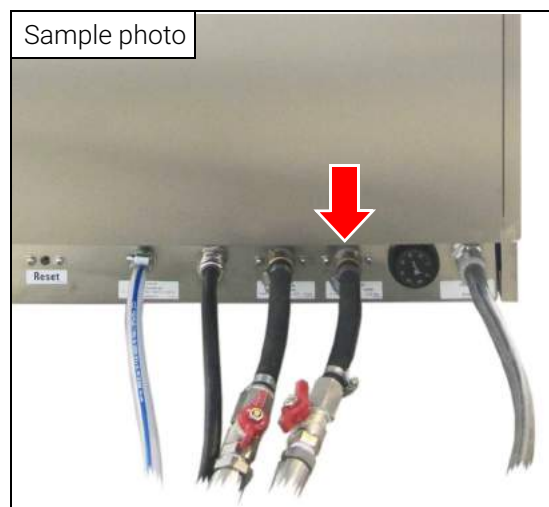
Specification:

- 3/4" external thread with shut-off valve
- Pressure 0.5 - 2.5 bar
- DIN EN 205, appendix B, table B1
- De-ionised water quality:
0.2 µS/cm - 5 µS/cm
The device is adjusted to the de-ionised water quality of 0.5 µS/cm on site.
If the de-ionised water quality is worse than 2 µS/cm, a trained person must read-just the fill level of the steam generator.



NOTE

The arrangement of the connections may vary depending on the device's type and equipment. Each connection is clearly marked with a sticker.



Discharge

Specification:

- 3/4"
- Maximum height 200 mm
- The temperature of the discharge water is at least 60°C, and if there is a malfunction up to 100°C. The discharge hose must be designed for these temperatures.



CAUTION

The temperature of the discharge water can be up to 100°C if there is a malfunction.

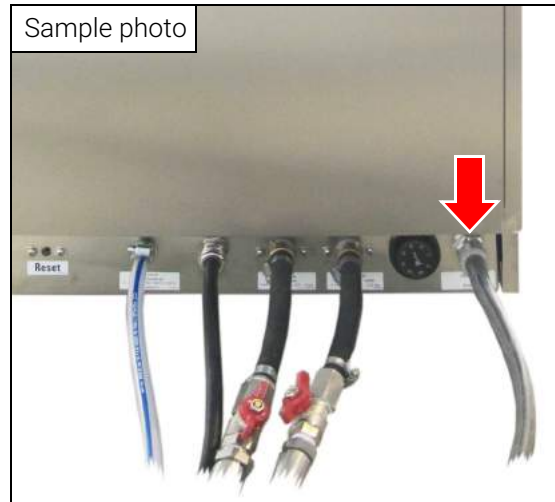
- Check the temperature before releasing the discharge hose.
- Let the discharge water cool before loosening the discharge water hose.



NOTE

The arrangement of the connections may vary depending on the device's type and equipment. Each connection is clearly marked with a sticker.

Sample photo



6 Operating elements and displays

6.1 ON/OFF switch

The toggle switch turns the device on and off.

- Up position "O"
Device off
- Bottom position "I"
Device on



6.2 Touchscreen

The device's major functions are controlled from the touchscreen and the visualization.

The current device status is also shown.

The touchscreen is operated by touching with a finger or an entry stylus.



NOTE

Complete information on the visualization can be found in Chapter 11 "Touchscreen and visualization" starting [on page 41](#) et seq.



6.3 USB/Ethernet interface (option)

The device is equipped with a USB interface or an Ethernet interface.

- USB interface

When a USB stick is inserted, after a program is launched, the process is recorded to the USB stick.

If the program DataLog ([see page 125](#)) is installed on a PC, the recorded program processes can be viewed as diagrams.

- Ethernet interface

When the LAN cable is plugged in and the SteriLog software is launched, after a program is launched the process is recorded on the internal company network.

If the SteriLog program ([see page 114](#)) is installed on a PC, in the company network, the program processes can be recorded and saved.



NOTE

The programs DataLog and SteriLog run on Windows PCs. The programs are delivered on a CD with the device.

6.4 Log printer (option)

When activated in the visualization, the log printer prints a log after every production run.



NOTE

Information on configuring the log printer can be found in Chapter 11 "Touchscreen and visualization" [on page 52](#).



6.5 Reset button for steam generator

When the steam generator's temperature is too high, overheat protection activates and the steam generator is deactivated.

A corresponding error message appears on the touchscreen.

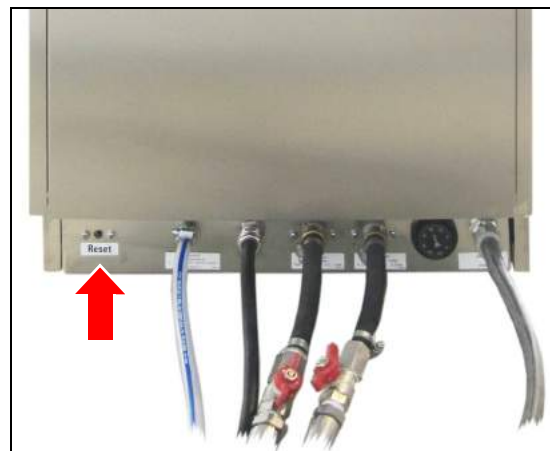
Firmly press the reset button to reset the triggered overheat protection.

The error message must be dismissed on the touchscreen.



NOTE

If the overheat protection cannot be reset with the RESET button, there is an error that requires maintenance or repair.



6.6 Thermostat discharge temperature

The thermostat is for setting which discharge temperature active cooling starts at.

Factory setting: 40°C

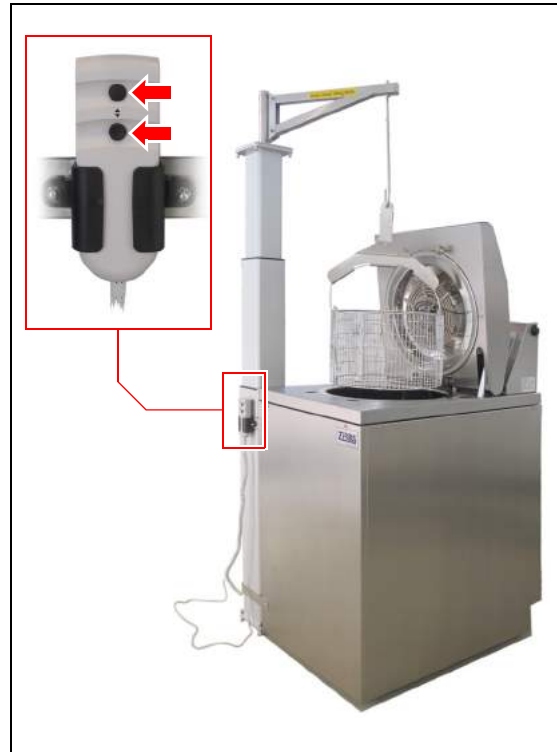


6.7 Lifting and pivoting mechanism (option)

The lifting and pivoting mechanism allows baskets and pails to be lifted and swung out of the chamber with no effort.

Operation is by remote control.

- Upper pushbutton:
Lifting the boom
- Lower pushbutton:
Lowering the boom



7 Commissioning, decommissioning

7.1 Commissioning

The device is usually commissioned by trained service technicians from ZIRBUS TECHNOLOGY GmbH.

If commissioning is done in Germany without ZIRBUS TECHNOLOGY GmbH, the owner must:

- announce the device's commissioning to the workers' compensation board.
- have an inspection made according to the Industrial Safety Ordinance by a notified body (TÜV, Dekra, etc.).

If the device is not commissioned in Germany, the owner must ensure adherence to the laws, regulations and guidelines that apply to autoclaves in his country.



NOTE

It makes sense to have the future operator take part in the commissioning. This promotes understanding of the new device and allows questions to be answered.

7.2 Decommissioning

7.2.1 Decommissioning

If the device is out of operation for more than a week, perform the following work steps:

- Turn the device off.
- Empty the chamber (discharge valve)
- Clean the chamber.
- Close or clamp off the supply lines (electricity, water compressed air).
- Clean the entire device.
- Let the vacuum pump dry and apply corrosion protection; see the manufacturer's documentation.
- Empty the de-ionised water tank (discharge valve).
- Empty the steam generator (discharge valve).
- Protect the entire device from moisture and dust.
- Take suitable corrosion protection measures.
- Prepare a decommissioning log and file it with the device documentation. This will make re-commissioning easier.

7.2.2 Storage conditions

If the device is taken out of operation and stored, it must be carefully covered and stored under the following environmental conditions.

**ATTENTION**

DAMAGE TO THE DEVICE!

The storage conditions listed below must absolutely be observed. Failure to do so can cause considerable damage to the device.

If the device is temporarily stored before commissioning or during conversions, rebuilds, etc., the following environmental conditions must be observed:

Temperature	+10°C...+40 °C
Air humidity	max. 95%
Air pressure	500 hPa... 1060 hPa

7.2.3 Disposal

The device must be disposed of according to the applicable disposal guidelines.

After careful cleaning by the customer, the device will be dismantled, transported away and properly disposed of by Zirbus mechanics at customer request and at calculated cost.

**NOTE**

If the device or parts of it are contaminated (irreparably contaminated), Zirbus will not perform the disposal. In that case, the device's owner is responsible for disposal.

8 Switching off and on

8.1 Switching on

1. Put the ON/OFF switch in "I" position.

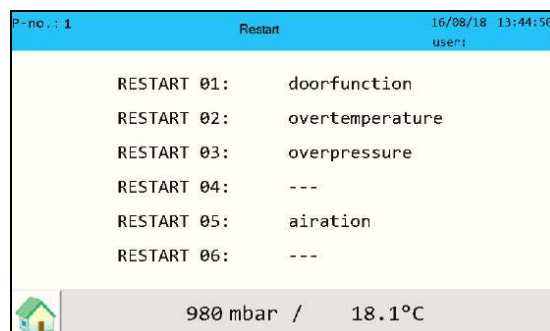
- The controls launch.
- A blue progress bar appears.



- A "Start screen" with the device type and number appears briefly.
- A system check takes place.



- If there is an error, the "Restart" control screen appears.
 - At the highlighted step, the start conditions are not met, e.g. if readings are not yet below the limit values.
2. In regard to the highlighted message, wait until the device has eliminated the reason for the message, [see page 64](#).
If the device does not take the possible measures, there is a defect, and Zirbus service must be contacted. [see page 103](#).



- The "Program selection" control screen appears.
- The control screen is launched. No user is logged on.



8.2 Switching on after a power failure

If a power failure has interrupted a running program, after the controls boot up, the control screen "Power failure" appears on the touch-screen.

The interrupted program can be restarted or the cover opened.



If no running program was interrupted by the power failure, no action needs to be taken.

8.3 Switching off

1. Wait until the program has quit or cancel the program.



NOTE

When cancelling a program, check whether the sterilisation process has not completed and needs to be repeated.

2. Put the ON/OFF switch in "0" position.
3. Based on company specifications, close the supply lines, if necessary.



9 Pneumatics

9.1 Compressed air

The following versions of the device requires a fixed compressed air connection.

- Quick Lab Basic
- Quick Lab
- Quick Lab Advanced
- Complete Lab

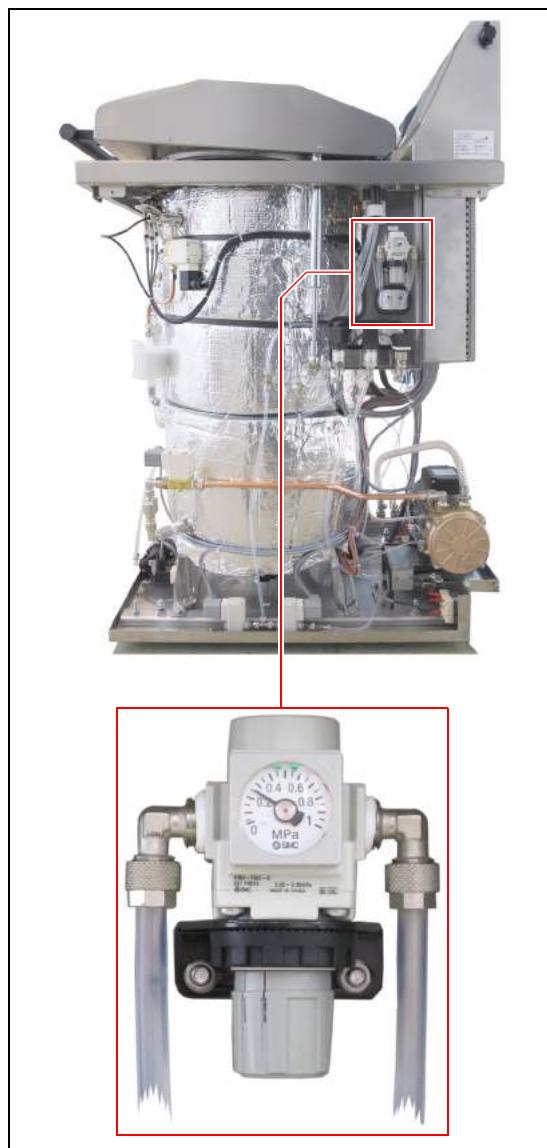
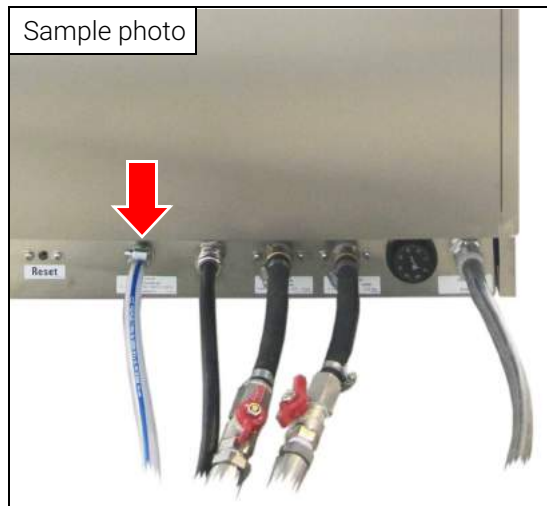
Specification:

- 3/8" shut-off valve internal thread
- Pressure 5.0–7.0 bar
- According to DIN ISO 8573-1:2010, Class 4

On the right side of the device, behind the cover plate, there is a regulator for setting the support pressure.

The setting is basic and normally does not need to be adjusted.

Factory setting: 2.5 bar



9.2 Vacuum

The vacuum pump is used for eliminating the air from the chamber.

The vacuum pump is on the back of the device behind the cover plate.

The following versions of the device have a vacuum pump.

- Dry Lab
- Quick Lab
- Quick Lab Advanced
- Safe Lab
- Complete Lab

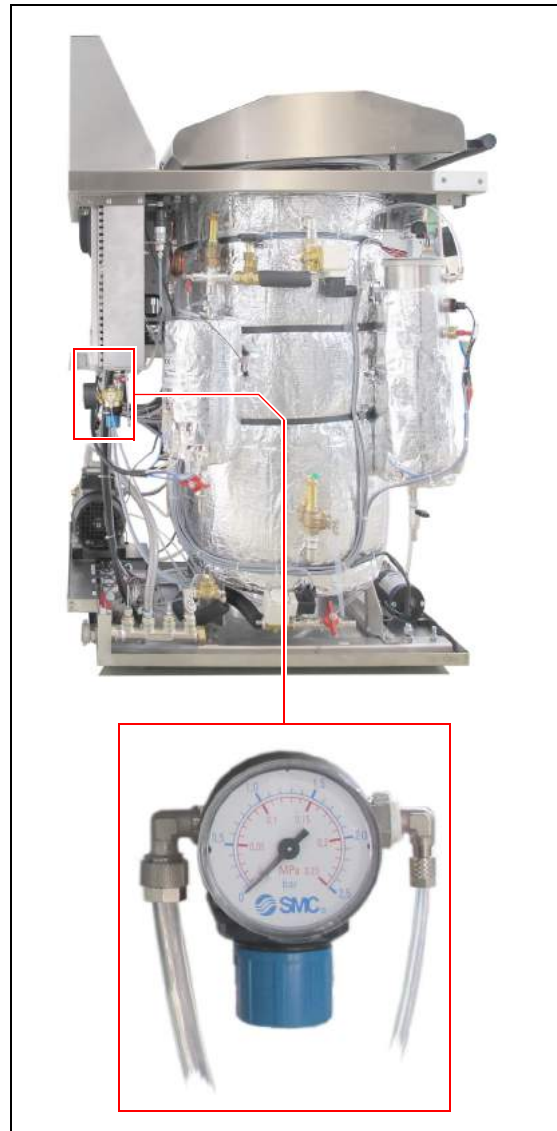
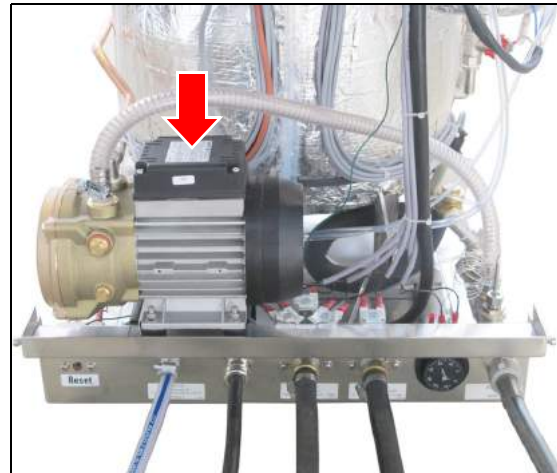
On the back of the device, behind the cover plate, there is a regulator for adjusting the water pressure for the vacuum pump.

The setting is basic and normally does not need to be adjusted.

Factory setting: 0.5 bar

**NOTE**

More information on the vacuum pump can be found in the manufacturer's documentation.



10 Working with the device



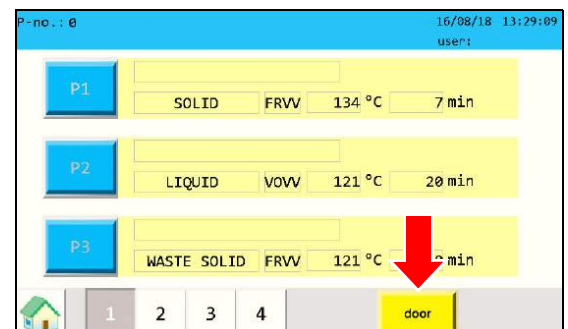
CAUTION

INJURY HAZARD! DAMAGE TO DEVICE!

- The device must be operated only by trained, authorized personnel. Improper use of the device can cause severe injury and damage the device.
- Before each program launch, make sure that the products in the chamber are suitable for sterilisation with the device.
- Before launching the program, make sure that a program is being used that is suitable for the products in the chamber.
- If you are not 100% sure, do not launch the program!
- Never sterilize solid and liquid products together.
- Load the device with products only in the baskets or pails provided. Never fill the chamber with loose products.
- After the program ends, the chamber and sterile materials are still very hot. There is a burn hazard!
- After the program ends, when the cover is opened, a cloud of vapour may escape from the chamber. Stay a safe distance away.

10.1 Loading the device

1. Put the ON/OFF switch in "I" position, [see page 27](#).
 - The controls launch.
 - A blue progress bar appears.
 - A "Start screen" with the device type and number appears briefly.
 - A system check takes place.
2. Tap the DOOR button.
 - The cover lock opens.



Program sequence

3. Open the cover!



ATTENTION

Load the device with products only in the baskets or pails provided. Never fill the chamber with loose products. Never sterilize solid and liquid products together.

4. Load the chamber according to the equipment, specification and company-internal regulations.
5. Position the product temperature sensor.
 - When sterilizing liquid media, position the product temperature sensor in a reference vessel. The reference vessel must match the largest individual volume.
 - When sterilizing solid goods, position the product temperature sensor in the middle of the products.
6. Check the surface of the cover seal for cleanliness. Clean the seal surface, if necessary.
7. Close the cover.
 - The cover locks automatically when it is folded down.

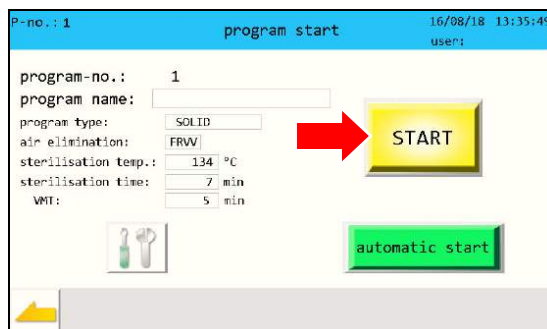


10.2 Program sequence

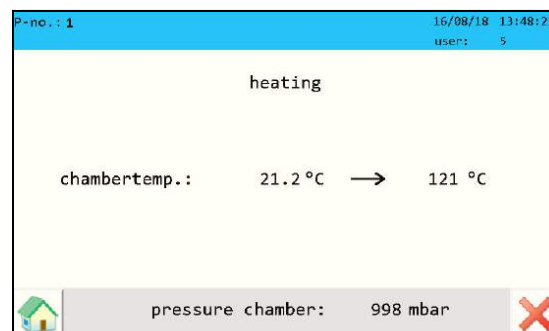
1. In the "Program selection" control screen, tap the button (P1 to P10) for the suitable program.



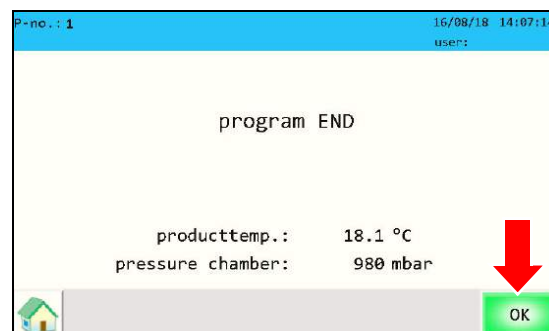
- The "Launch program" control screen appears.
- 2. Tap the START button.
- Sterilisation with the selected program starts.



- The “Program sequence” control screens are shown.
- The program-specific sterilisation steps are performed.
- On the touchscreen, the sterilisation steps and the relevant actual values are shown.



- After the program has run, the “End of program” control screen appears.
3. Tap the OK button.



- The “Program selection” control screen appears.



10.3 Removing the sterile materials

1. Tap the DOOR button.

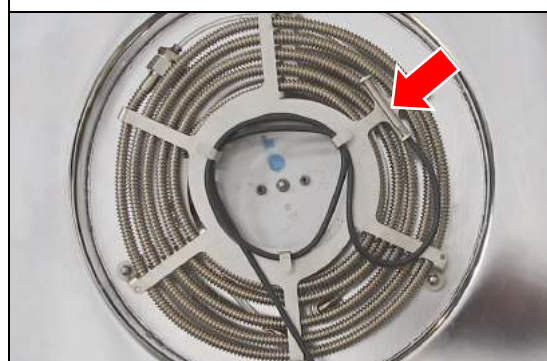
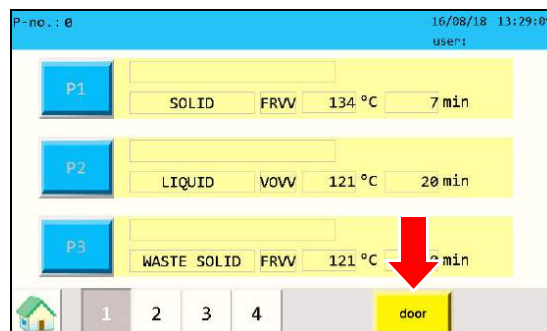
- The cover lock opens.



CAUTION

INJURY HAZARD!

- After the program ends, the chamber and sterile materials are still very hot. There is a burn hazard!
 - When the cover is opened, a cloud of vapour may escape from the chamber. Keep a safe distance away.
2. Open the cover.
 3. Remove the product temperature sensor from the sterile materials and wind it in the cover.
 4. Remove the sterile materials from the chamber.



11 Touchscreen and visualization

The device is controlled from the touchscreen. All necessary settings can be made from the touchscreen.

All entries are made by touching the touchscreen with a finger or with an entry stylus suitable for touch-sensitive operating panels.



ATTENTION

DAMAGE TO THE TOUCHSCREEN!

Use of pointed, sharp or acidic objects for operating the touchscreen can cause irreparable damage to the surface.

- Operate the touchscreen with a finger or with a suitable entry stylus.
- There are protective films for the touchscreen. The film prevents the touchscreen from being scratched or soiled. A protective film should always be adhered.



NOTE

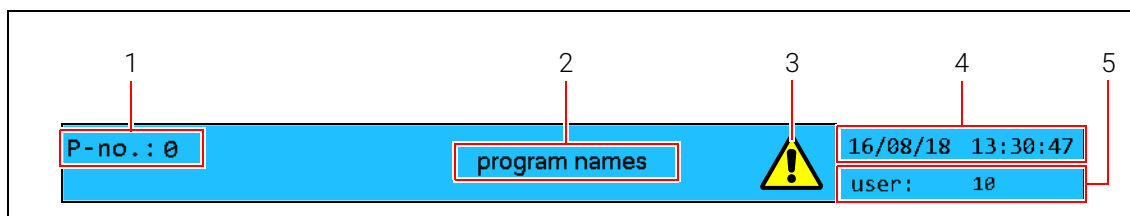
The control screens are adapted to the device's equipment and therefore show only the functions and settings possible on your device.

This chapter describes all possible control content. It is therefore possible that the chapter contains content that does not apply to your device.

The control screens shown can therefore differ from those of your device.

11.1 Headers in control screens

The header is the same in all control screens.

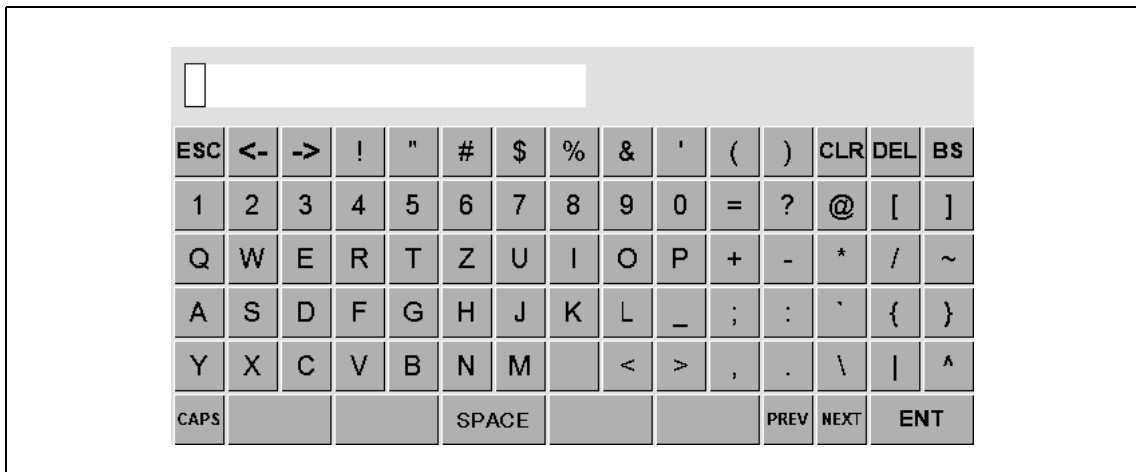
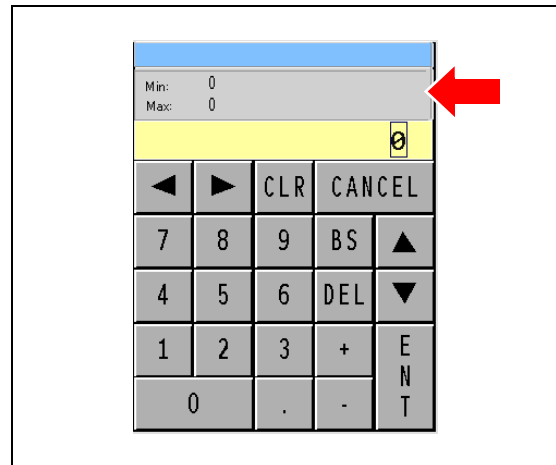


Pos.	Designation
1	Number of the last selected program.
2	Name of the control screen.
3	Warning symbol: If a malfunction occurs, the warning symbol is shown. • Tapping the warning symbol shows the "Alarm list" control screen, see page 62.
4	Current date and time.
5	Logged-in user. • If no number is shown, no user is logged in. • If no user is logged in, only the present programs can be started.

11.2 Entering text and numbers

When needed, one of the virtual keyboards is shown for entering text or numbers.

- The upper area of the numeric keypad shows the range of possible values. Entries beyond the defined value range are not adopted by the controls.
- After the text or numbers have been entered, and the ENTER key has been tapped, the virtual keyboard goes away.



11.3 Password-protected areas / user login

Showing some control screens or calling up certain functions requires specific user rights, [see page 73](#).

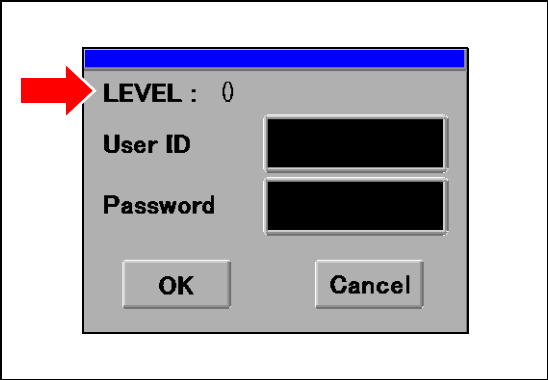
These areas are password protected.

If calling up a specific function requires the user to log in, the user login screen appears.

In the user login, the top line shows the necessary user level.

After the correct user ID (with the required user level) and the correct user level are entered, the relevant functions are allowed.

The passwords are pre-set in user administration, [see page 72](#).



The image shows a user login dialog box. At the top, it says 'LEVEL : 0'. Below that are two input fields labeled 'User ID' and 'Password'. At the bottom are two buttons: 'OK' and 'Cancel'. A red arrow points to the 'LEVEL : 0' text.

Standard passwords

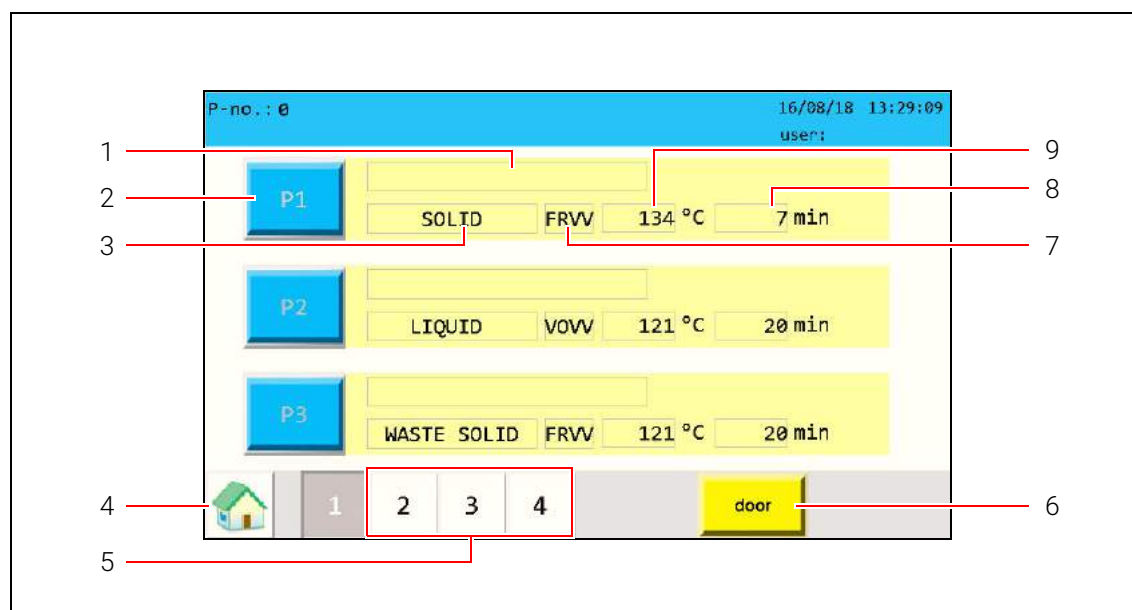
Level	Password
1 + 2	255
3 + 4	9200
5 + 6	9222
7	Available in consultation with ZIRBUS TECHNOLOGY GmbH

11.4 Control screens

11.4.1 “Program selection” control screen

After the device is turned on from the ON/OFF switch, the “Program selection” control screen appears on the touchscreen.

Explanation of the control screen



Pos.	Description
1	Editable program name see page 77
2	The “Launch program” control screen for the selected program is called up. • A program must be released to be started. see page 68
3	Program's type see page 53
4	The control screen “Actual values” is called up. see page 45
5	The control screens “Program selection 2-4” are called up. In the controls, 10 programs can be created. The programs P1 to P7 are pre-set, but can be changed. Programs 11 and 12 are fixed and cannot be changed. • P11: Bowie-Dick test • P12: Vacuum air test see page 79
6	The cover lock opens.
7	Type of air elimination in this program see page 54
8	Sterilisation time (STt) in this program
9	Sterilisation temperature (STT) in this program

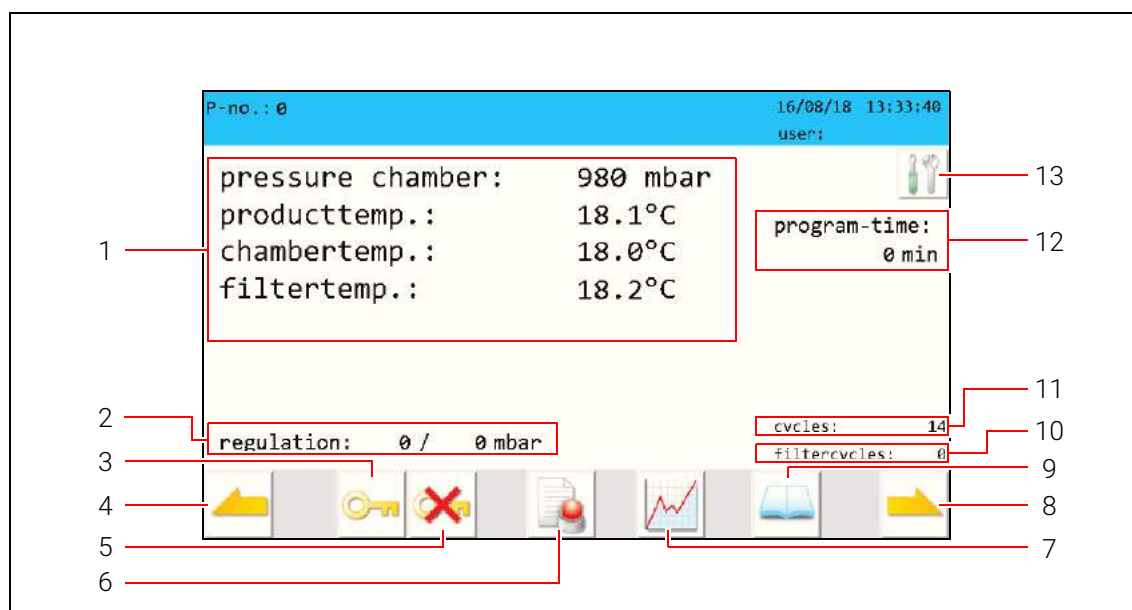
11.4.2 “Actual values” control screen

This control screen shows the actual values and offers access to the submenus and other control screens.

From the “Program selection” control screen, the following buttons must be clicked to get to this control screen:



Explanation of the control screen



Pos.	Description	
1	Display of actual values Which actual values are shown depends on the device's equipment.	
2	As the program runs, it shows the target pressure value of the pressure control band of the current program step.	
3	The “User login” control screen appears.	see page 43
4	The previous control screen appears.	see page 44
5	The user is logged off.	
6	The “Alarm list” control screen appears.	see page 62
7	The “Process” control screen appears.	see page 63
8	The “Flowchart” control screen appears.	see page 48
9	The “Current program” control screen appears.	see page 47
10	Filtering cycle counter (option with Complete Lab and Safe Lab equipment packages) Counts each launch of a program of the “Waste solid” or “Waste liquid” type.	
11	Cycle counter Counts every program launch.	
12	Runtime of the current program	
13	The “Functions” pop-up window appears.	see page 46

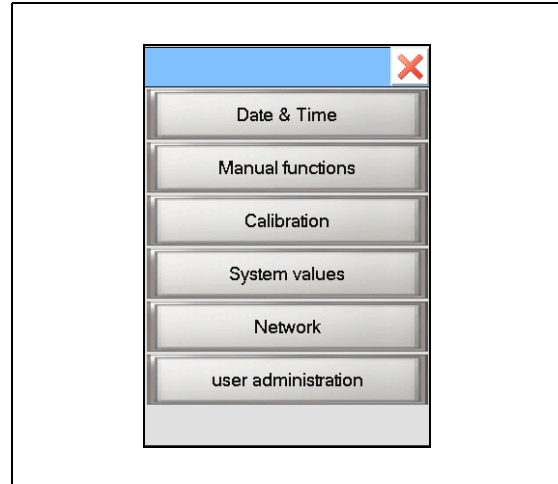
“Functions” pop-up window

From the “Program selection” control screen, the following buttons must be clicked one after the other to get to this pop-up window.



From the pop-up window, various functions and settings are called up.

- **DATE & TIME**
The “Date & time” control screen appears, [see page 65](#).
- **MANUAL FUNCTIONS**
The “Manual functions” control screen appears, [see page 66](#).
- **CALIBRATION**
The “Calibration” control screen appears, [see page 69](#).
- **SYSTEM VALUES**, for service technicians only.
- **NETWORK (option)**
The “Network” control screen appears, [see page 70](#).
- **USER ADMINISTRATION**
The “User administration” control screen appears, [see page 71](#).



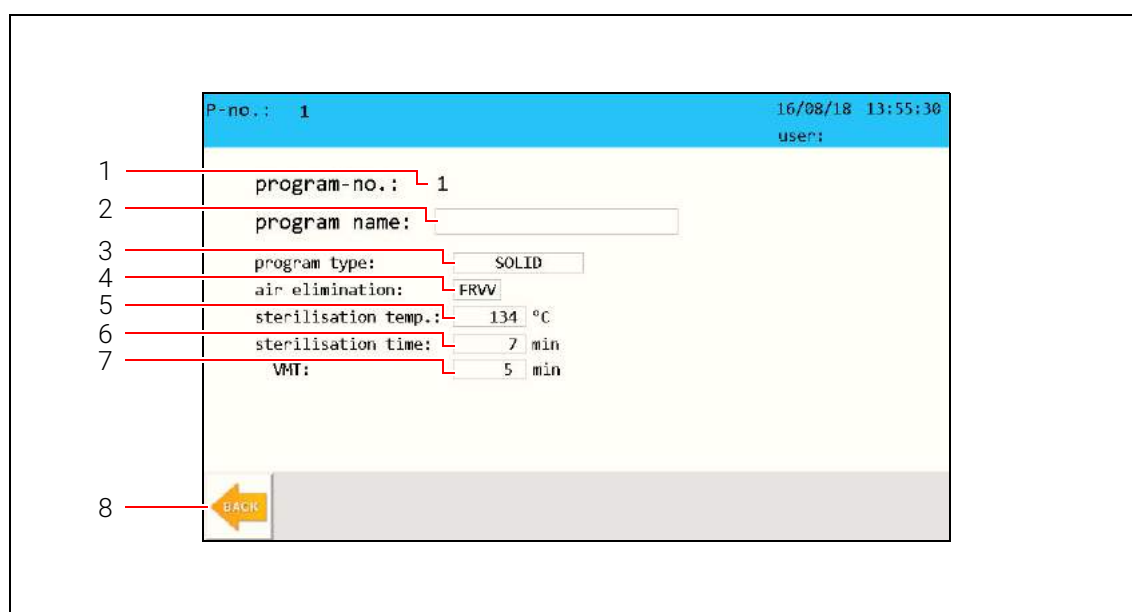
11.4.3 “Current program” control screen

The control screen shows the parameters for the current program. The parameters cannot be edited here.

From the “Program selection” control screen, the following buttons must be clicked one after the other to get to this control screen:



Explanation of the control screen



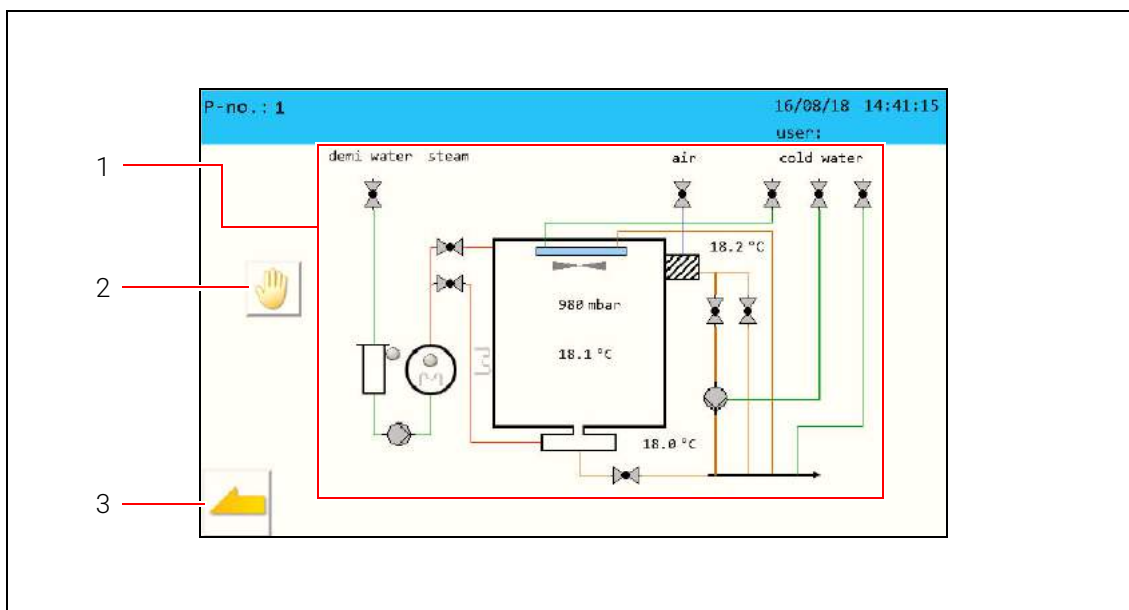
Pos.	Description
1	Number of the program.
2	Editable program name.
3	Program type
4	Type of air elimination
5	Sterilisation temperature (STT)
6	Sterilisation time (STt)
7	Vacuum Drying Time (VDT)
8	The previous control screen appears.

11.4.4 “Flowchart” control screen

From the “Program selection” control screen, the following buttons must be clicked one after the other to get to this control screen:



Explanation of the control screen



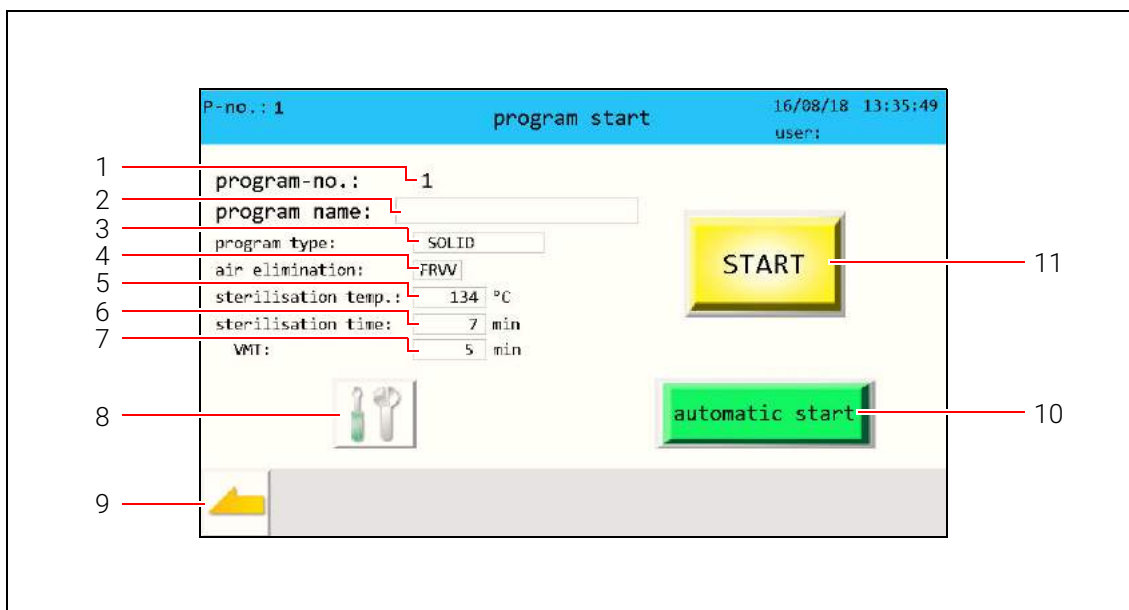
Pos.	Description
1	Overview of the functional components (valves, pumps) of the device and their status. • Green: Component active. • Grey: Component not active. • Lines and steam lines drawn in red. • The flowchart differs with the device's equipment.
2	Control boxes for starting the functional components are shown (password protected). • Activating the control boxes turns the functional component on and off.
3	The control screen “Actual values” is called up. see page 45

11.4.5 “Launch program” control screen

From the “Program selection” control screen, the following buttons must be clicked to get to this control screen:



Explanation of the control screen

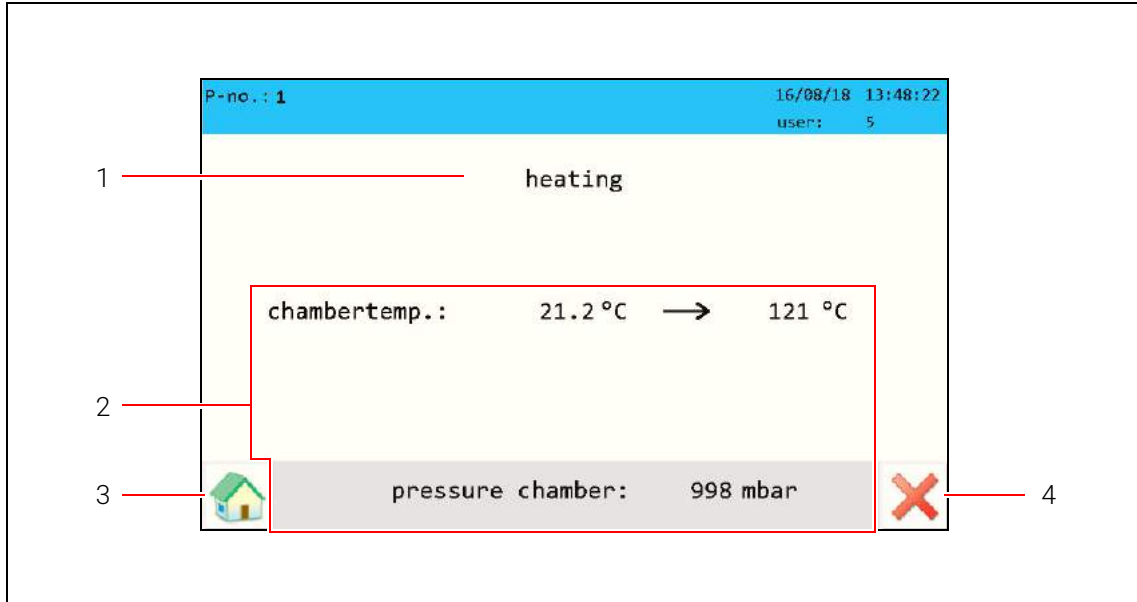


Pos.		Description
1	Number of the program to be started.	
2	Editable program name.	see page 77
3	Program type	see page 53
4	Type of air elimination	see page 54
5	Sterilisation temperature (STT)	
6	Sterilisation time (STt)	
7	Vacuum Drying Time (VDT)	
8	The “Edit program” control screen appears.	see page 52
9	The “Program selection” control screen appears.	see page 44
10	The “Automatic start” control screen appears.	see page 61
11	The program launches. Depending on the program, control screens for the current status of the program procedure appear.	

11.4.6 “Program procedure” control screen

The progress of the program procedure is shown in various control screens.

Explanation of the control screen

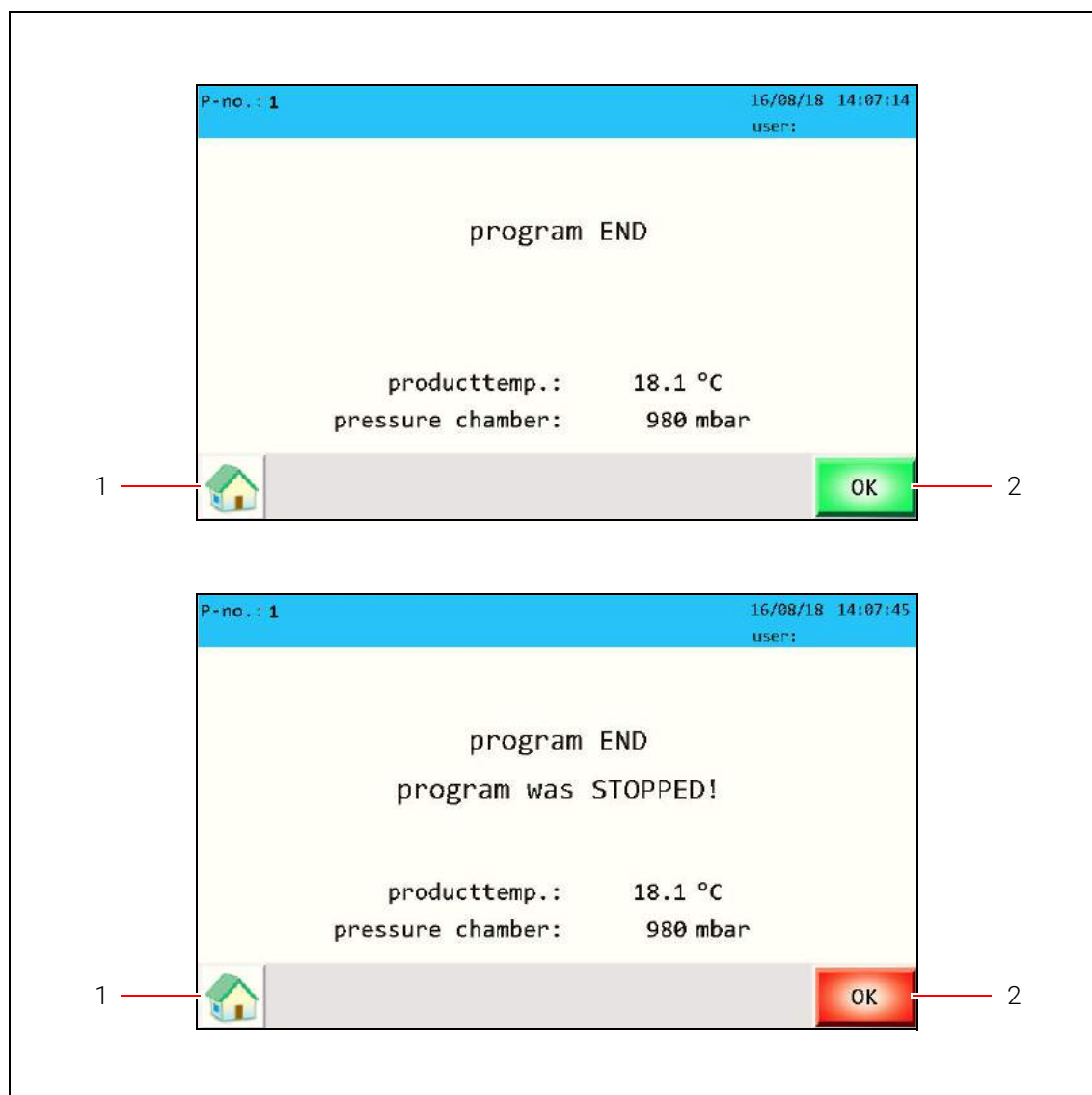


Pos.	Description
1	Current program step.
2	Display of the current actual and target values of the program step. If the target value is reached, the next program step starts.
3	The control screen “Actual values” is called up. see page 45
4	Cancel program. - After a security question, the program is interrupted. - The “End program” control screen appears. see page 51

11.4.7 “End program” control screen

Depending on whether the program was executed error-free or was cancelled, various control screens are shown.

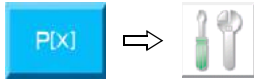
Explanation of the control screen



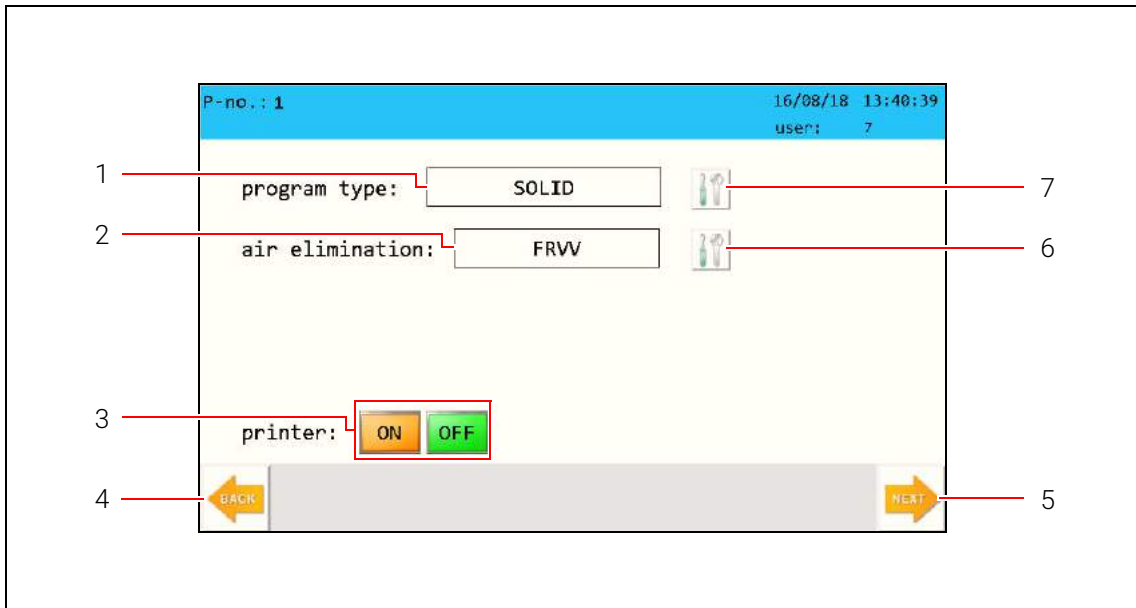
Pos.		Description
1	The control screen “Actual values” is called up.	see page 45
2	The “Program selection” control screen is called up.	see page 44

11.4.8 “Edit program” control screen (1)

From the “Program selection” control screen, the following buttons must be clicked one after the other to get to this control screen:



Explanation of the control screen



Pos.	Description
1	Display of the selected program type.
2	Display of the selected air elimination. FRVV (Fractionated vacuum): • VOVV, 1st FRVV: Pressure value [mbar] for the first vacuum level • 2nd FRVV: Pressure value [mbar] for the second vacuum level • 3rd FRVV: Pressure value [mbar] for the third vacuum level • Heating up: Pressure value [mbar] is allowed into the chamber until steam. Heating occurs after every vacuum level. • Vacuum levels: Number of vacuum levels. Up to 10 vacuum levels are possible. Vacuum levels 4 to 10 are done for pressure values of 3rd FRVV. GRAV (Gravitation) VOVV (Pre-vacuum) DLGV (Steam / air mixture method)
3	The log printer is turned on or off for the program (option).
4	The “Launch program” control screen appears. see page 49

Pos.		Description
5	The next program-specific control screen appears. - SOLID - LIQUID - STEAMING - WASTE SOLID - WASTE LIQUID	see page 55 see page 57 see page 59 see page 55 see page 57
6	The "Air elimination" pop-up window appears.	see page 54
7	The "Program type" pop-up window appears.	see page 53

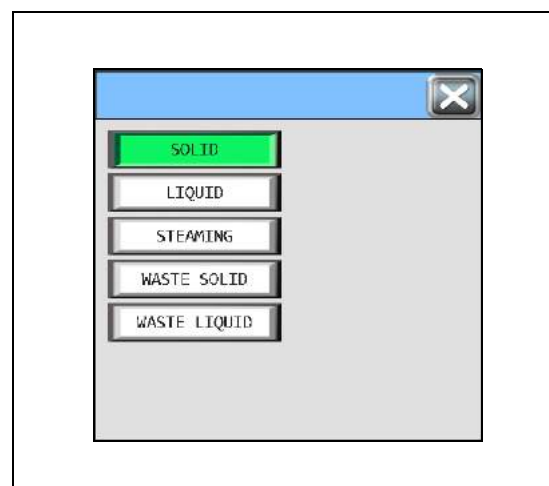
"Program type" pop-up window

From the "Program selection" control screen, the following buttons must be clicked one after the other to get to this pop-up window.



The program type is selected in the pop-up window.

- SOLID: Solids program
- LIQUID: Liquids program
- STEAMING: Warming
- WASTE SOLID: Solid waste program
- WASTE LIQUID: Liquid waste program



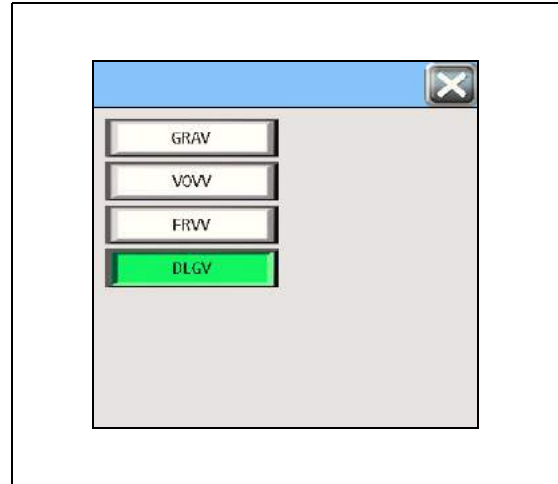
"Air elimination" pop-up window

From the "Program selection" control screen, the following buttons must be clicked one after the other to get to this pop-up window.



The type of air elimination is selected in the pop-up window.

- GRAV: Gravitation
Draw air from the chamber without a vacuum, only by vapour feed.
- VOVV: Pre-vacuum
Draw air from the chamber using a vacuum once and then by vapour feed.
- FRVV: Fractionated vacuum
Draw air from the chamber using a vacuum more than once and then by vapour feed.
- DLGV: Steam / air mixture method:
Heating up the chamber without air elimination.

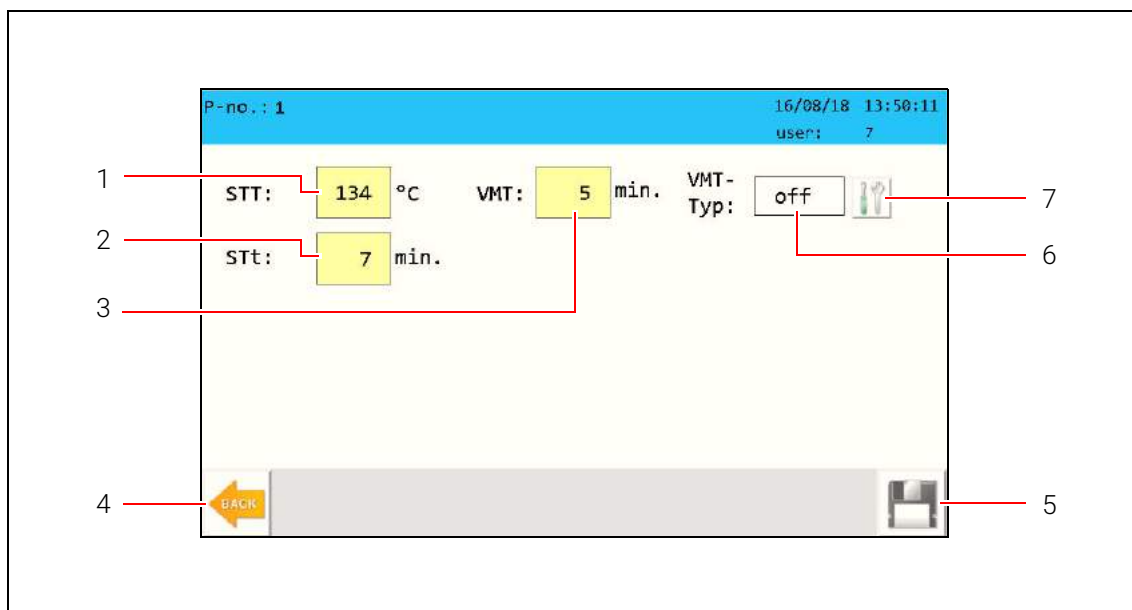


11.4.9 “Edit program” control screen (2) – Program type SOLID / WASTE SOLID

From the “Program selection” control screen, the following buttons must be clicked one after the other to get to this control screen:



Explanation of the control screen



Pos.	Description	
1	Sterilisation temperature Tapping the entry field allows the temperature to be entered.	
2	Sterilisation time Tapping the entry field allows the time to be entered.	
3	Vacuum drying (duration) Tapping the entry field allows the time to be entered.	
4	The previous control screen appears.	see page 52
5	The program is saved.	
6	The type of vacuum drying is shown.	
7	The “Vacuum drying” pop-up window appears.	see page 56

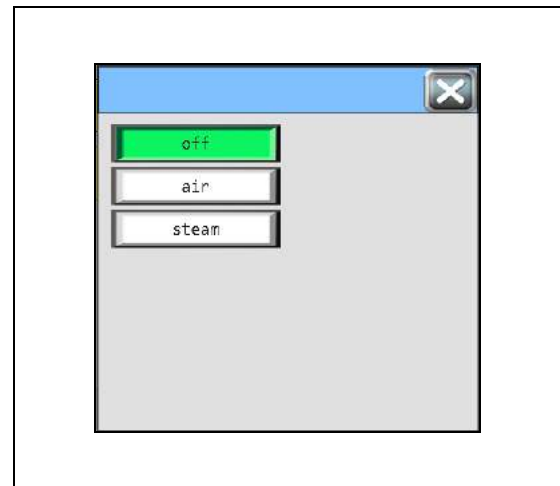
“Vacuum drying” pop-up window

From the “Program selection” control screen, the following buttons must be clicked one after the other to get to this pop-up window.



The type of vacuum drying is selected in the pop-up window.

- Off
Vacuum drying without interim ventilation.
- Air
Vacuum drying with interim ventilation (air).
- Steam
Vacuum drying with interim ventilation (steam).

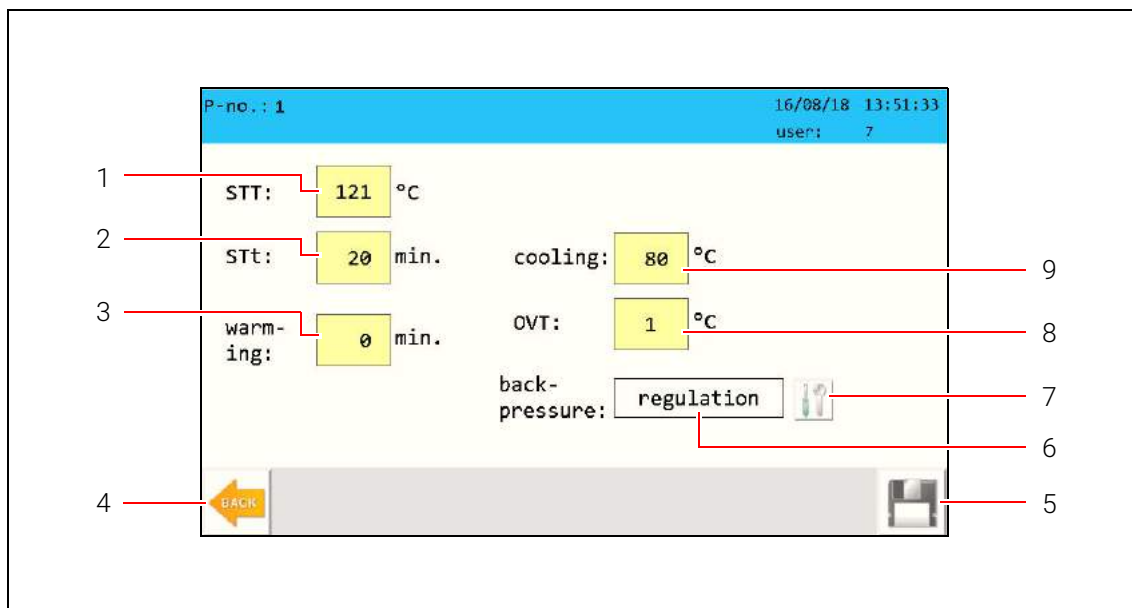


11.4.10 “Edit program” control screen (2) – Program type LIQUID / WASTE LIQUID

From the “Program selection” control screen, the following buttons must be clicked one after the other to get to this control screen:



Explanation of the control screen



Pos.	Description	
1	Sterilisation temperature Tapping the entry field allows the temperature to be entered.	
2	Sterilisation time Tapping the entry field allows the time to be entered.	
3	Warming time - Time during which the sterile materials are kept warm after the sterilisation time ends. (Fixed warming temperature: 60°C) - Tapping the entry field allows the time to be entered. - After the warming time is over, the program ends.	
4	The previous control screen appears.	see page 52
5	The program is saved.	
6	The type of counterpressure is shown. A counterpressure can be used to prevent liquids from over-boiling.	
7	The “Counterpressure” pop-up window appears.	see page 58

Pos.		Description
8	Over-temperature - To achieve faster heating and to prevent heat from going below the sterilisation temperature, an over-temperature can be entered. - Tapping the entry field allows the temperature to be entered.	
9	Cooling - Temperature to which the product is cooled at the end of the program, before the cover can be opened. - Tapping the entry field allows the temperature to be entered.	

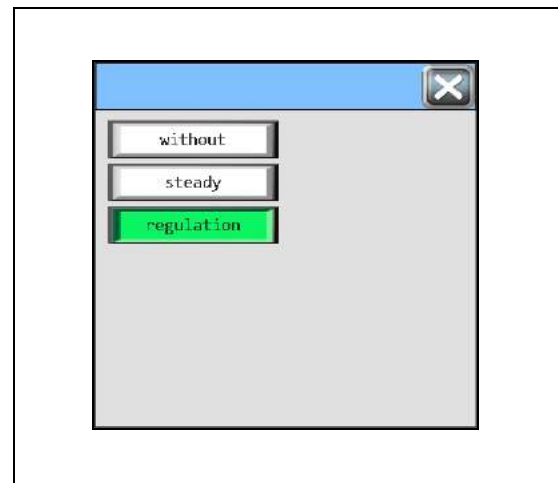
“Counterpressure” pop-up window

From the “Program selection” control screen, the following buttons must be clicked one after the other to get to this pop-up window.



The type of counterpressure is selected in the pop-up window.

- Without
Without counterpressure, self-cooling
- Steady
Constant: The pressure from sterilisation with air is maintained until the cooling temperature is reached.
- Regulation
Ramp: Dynamic counterpressure process, in which the pressure falls along with the temperature

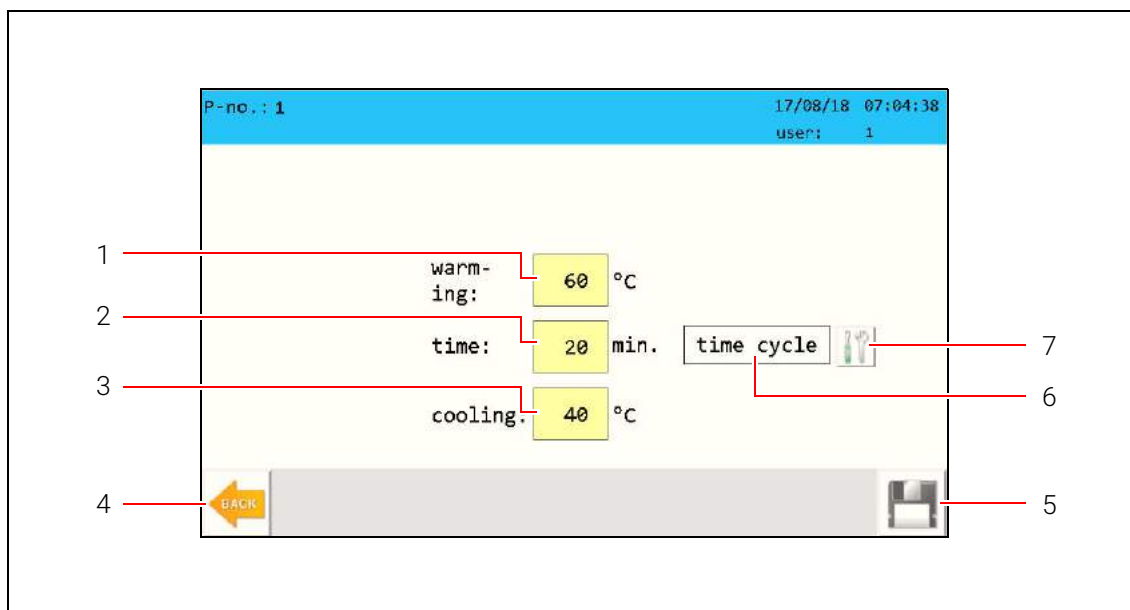


11.4.11 “Edit program” control screen (2) – Program type STEAMING

From the “Program selection” control screen, the following buttons must be clicked one after the other to get to this control screen:



Explanation of the control screen



Pos.	Description	
1	Warming temperature Tapping the entry field allows the temperature to be entered.	
2	Warming time Tapping the entry field allows the time to be entered.	
3	Cooling - Temperature to which the product is cooled at the end of the program, before the cover can be opened. - Tapping the entry field allows the temperature to be entered.	
4	The previous control screen appears.	see page 52
5	The program is saved.	
6	The warming function mode is shown.	
7	The “Warming mode” pop-up window appears.	see page 58

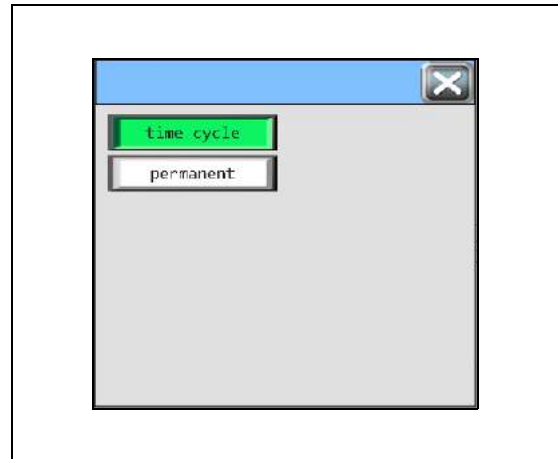
“Warming mode” pop-up window

From the “Program selection” control screen, the following buttons must be clicked one after the other to get to this pop-up window.



The warming function mode is selected in the pop-up window.

- Time cycle
The program runs until the warming time is over.
- Permanent
The program runs until it is cancelled, [see page 50](#).



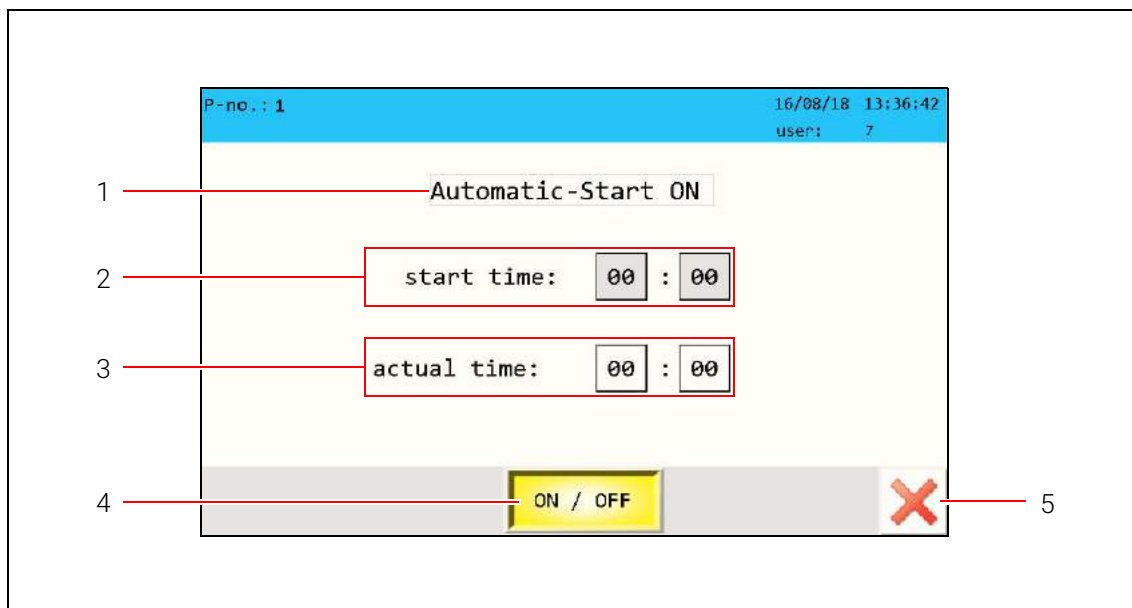
11.4.12 “Automatic start” control screen

In this control screen, the time for automatic execution of a program can be entered.

From the “Program selection” control screen, the following buttons must be clicked one after the other to get to this control screen:



Explanation of the control screen



Pos.	Description
1	Automatic start display turned on or off
2	Start time • Tapping the entry field allows the start time to be entered.
3	The current time is displayed.
4	Automatic start is turned on or off. • Button lights up: Automatic start is on. • Button does not light up: Automatic start is off.
5	Cancel • Entries are not adopted. No automatic start takes place. • The “Launch program” control screen appears.

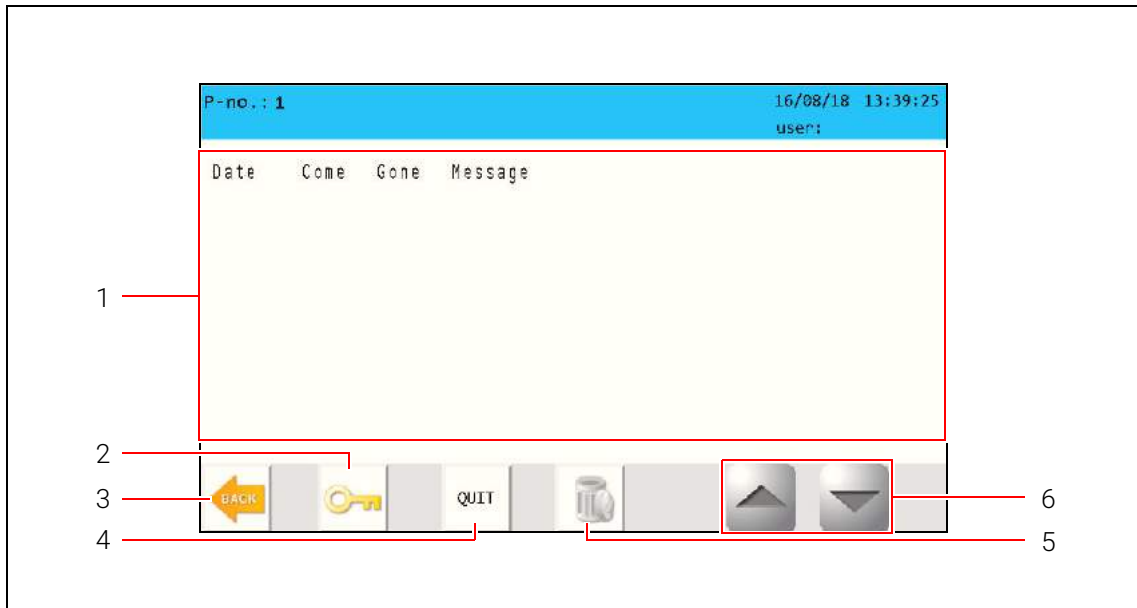
[see page 49](#)

11.4.13 “Alarm list” control screen

From the “Program selection” control screen, the following buttons must be clicked one after the other to get to this control screen:



Explanation of the control screen



x

Pos.	Description
1	List of messages.
2	The “User login” control screen appears. see page 43
3	The previous control screen appears.
4	Remaining messages are dismissed after a recheck, if the cause of the message no longer exists.
5	Delete alarm list.
6	Arrow keys for navigating through the messages.

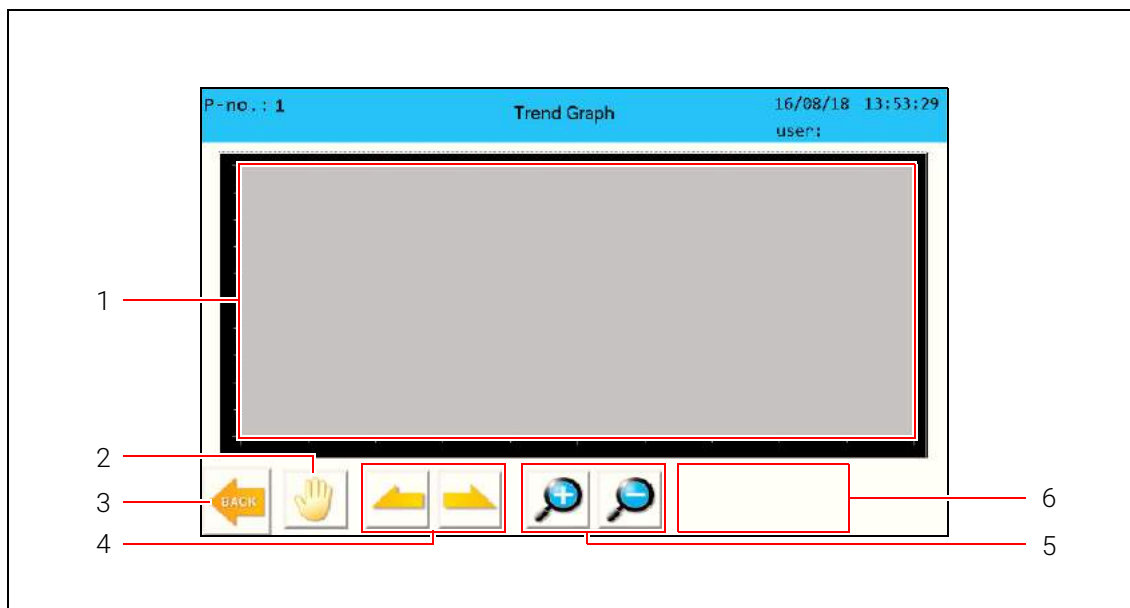
11.4.14 "Process" control screen

This control screen graphically displays the program process by using the parameters.

From the "Program selection" control screen, the following buttons must be clicked one after the other to get to this control screen:



Explanation of the control screen



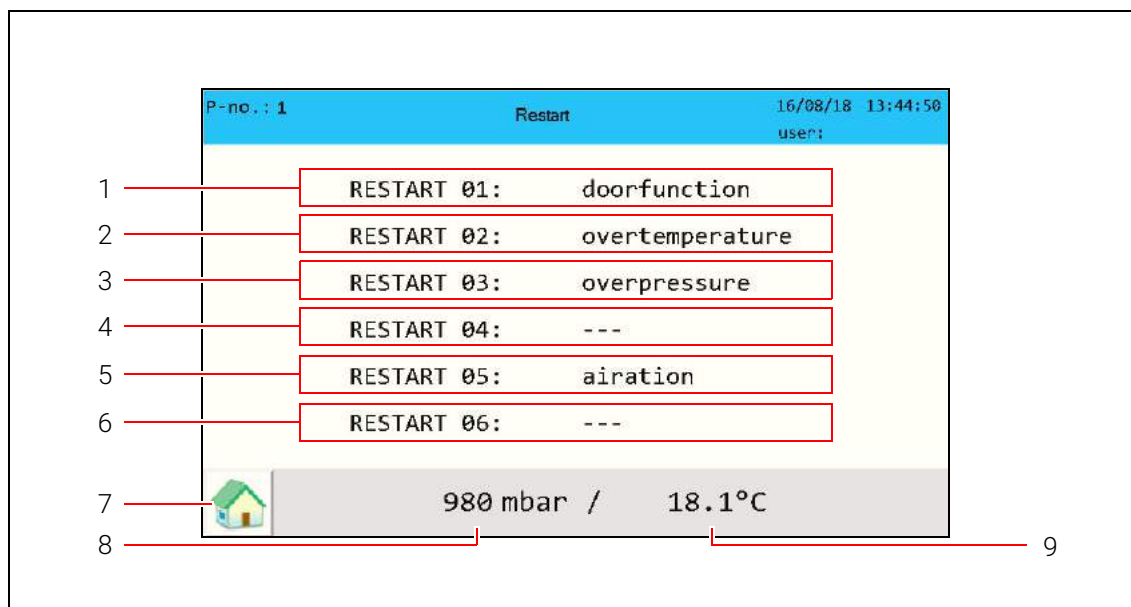
Pos.	Description
1	Graphic representation of the current program process.
2	Scroll (see Pos. 4) and zoom functions (see Pos. 5) in the diagram are activated/deactivated.
3	The previous control screen appears.
4	Scroll along the diagram's time axis.
5	Graphic representation is enlarged/reduced.
6	Legend

11.4.15 “Restart” control screen

If an error is found during the system check at device start-up, it is displayed on the control screen.

Based on the message shown, the associated settings must be checked.

Explanation of the control screen



Pos.	Description	
1	Error in door control (cover) Possible solution: • Contact service, see page 103 .	
2	Over-temperature error: Safety temperature of 80°C exceeded Possible solution: • Wait until the device has lowered the temperature. • If the temperature does not decrease, service must be contacted, see page 103 .	
3	Over-pressure error: Chamber pressure greater than 1080 mbar. Possible solution: • Wait until the device has lowered pressure. • If the pressure does not decrease, service must be contacted, see page 103 .	
4	- Reserve -	
5	Ventilation error: Chamber pressure lower than 930 mbar. Possible solution: • Wait until the device has evened out the under-pressure. • If the under-pressure does not balance out, service must be contacted, see page 103 .	
6	- Reserve -	
7	The control screen “Actual values” is called up.	see page 45
8	Current chamber pressure.	
9	Current chamber temperature.	

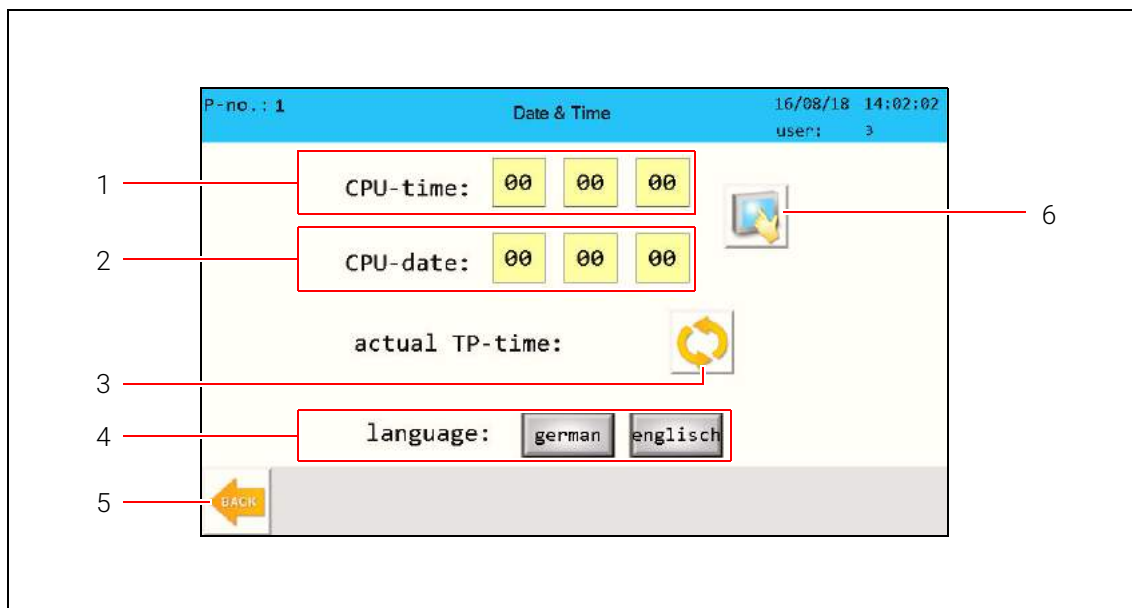
11.4.16 "Date & time" control screen

In this control screen, the date, time and display language of the visualization can be changed.

From the "Program selection" control screen, the following buttons must be clicked one after the other to get to this control screen:



Explanation of the control screen



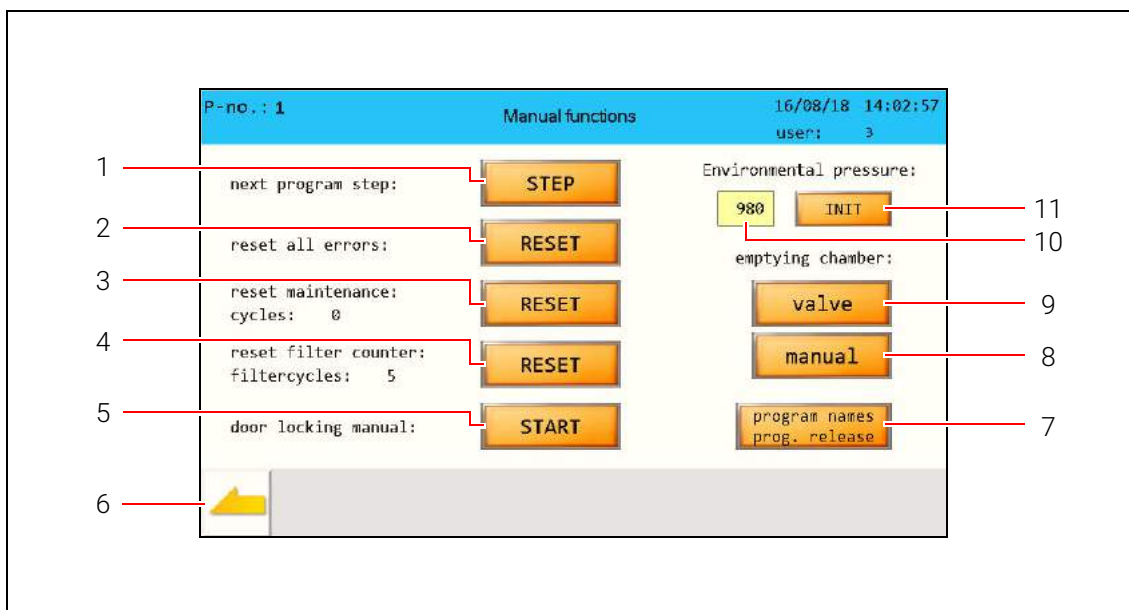
Pos.	Description
1	Current PLC time. - Standard/daylight time change does not occur automatically. - To change the PLC time, first the PLC time must be stopped, see [6]. - Tapping the entry field allows the PLC time to be entered. - After the PLC time is entered, it must be restarted, see [6]. see page 84
2	Current PLC date. - To change the PLC date, first the PLC time must be stopped, see [6]. - Tapping the entry field allows the PLC date to be entered. - After the PLC date is entered, it must be restarted, see [6]. see page 84
3	The displayed time and date are updated in the header on the touchscreen based on the PLC time and date.
4	Switching languages Tapping a button switches the display language of the visualization to the desired language.
5	The control screen "Actual values" is called up. see page 45
6	Stop PLC time.

11.4.17 “Manual functions” control screen

From the “Program selection” control screen, the following buttons must be clicked one after the other to get to this control screen:



Explanation of the control screen



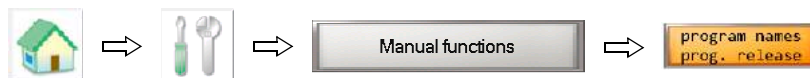
Pos.	Description	
1	The program process moves to the next step in the program.	
2	Reset all errors. • Certain errors can only be reset with this button: Error No.: 121, 127, 171	see page 86
3	The maintenance cycle counter is reset.	
4	(Option) The cycle counter for filter maintenance is reset.	
5	Door locking is opened in jog mode.	
6	The control screen “Actual values” is called up.	see page 45
7	The “Program names” control screen appears.	see page 68
8	Discharge valve with support pressure is opened/closed to empty the chamber. • Blue: Valve is released for manual control. • The valve can only be opened if it is released for manual control, see [9].	

Pos.		Description
9	Discharge valve with support pressure for emptying the chamber is released/locked for manual control. • Blue: Valve is released for manual control.	
10	Environmental pressure • Tapping the entry field allows the environmental pressure [mbar] to be entered. The entry is not adopted by the controls until the button INIT [11] is tapped. • The environmental pressure is set once at the set-up location. If the set-up location changes, the environmental pressure may have to be adjusted.	
11	Adopts the entered value of the environmental pressure [10] into the controls.	

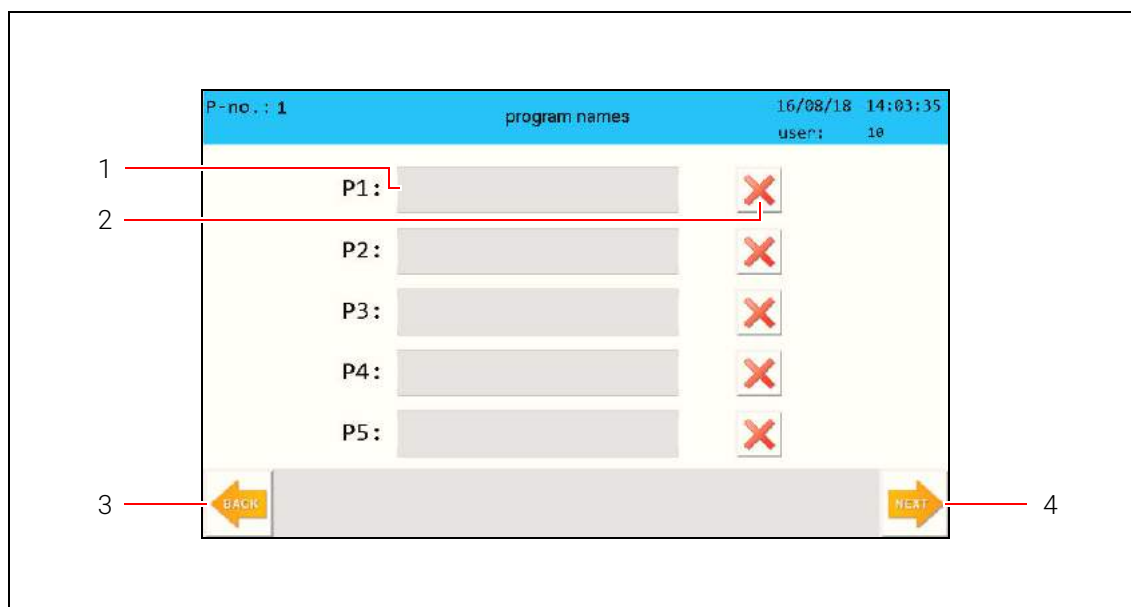
11.4.18 "Program name" control screen

In this control screen, the program can be named and locked or released for execution.

From the "Program selection" control screen, the following buttons must be clicked one after the other to get to this control screen:



Explanation of the control screen



Pos.	Description	
1	Program name can be entered. Tapping the entry field allows the program name to be entered.	
2	Lock/release program. - Red X: Program locked. The program can no longer be selected in the "Program selection" control screen. - Green tick: Program released. The program can be selected in the "Program selection" control screen.	see page 44
3	The "Manual functions" control screen is called up.	see page 66
4	The "Program names (2)" control screen is called up. In the control screen, programs P1 to P10 can be edited in the same way.	

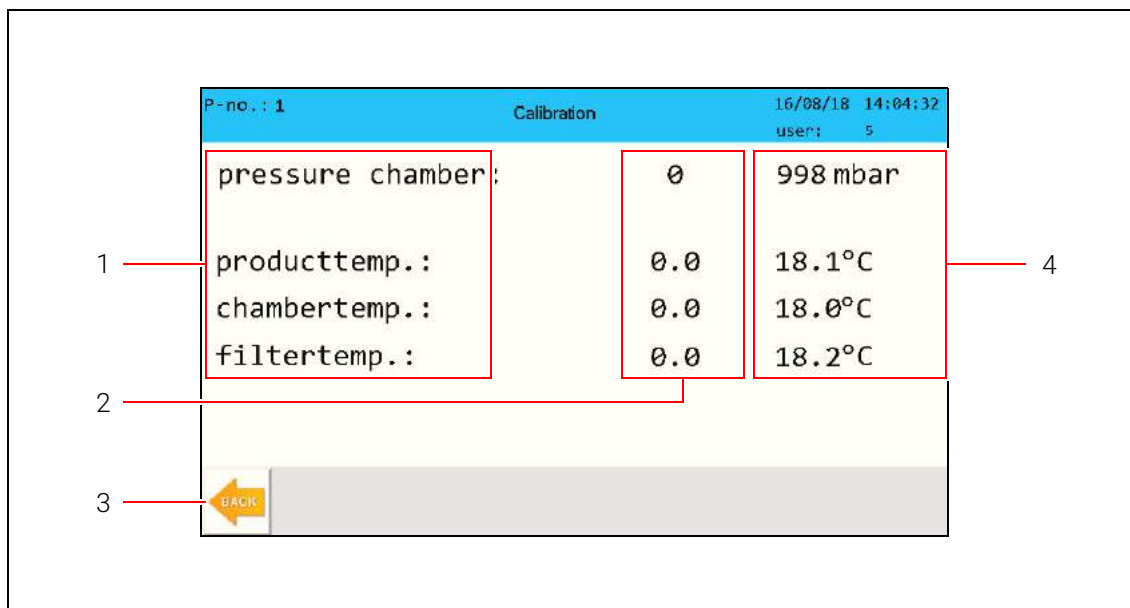
11.4.19 "Calibration" control screen

In this control screen, the calibratable offset values parameters can be entered.

From the "Program selection" control screen, the following buttons must be clicked one after the other to get to this control screen:



Explanation of the control screen



Pos.	Description	
1	Calibratable parameters of the device. The parameters differ with the device's equipment.	
2	Offset for the parameters Tapping the entry field allows the offset to be entered.	
3	The control screen "Actual values" is called up.	see page 45
4	Measured parameter values of the device sensors.	

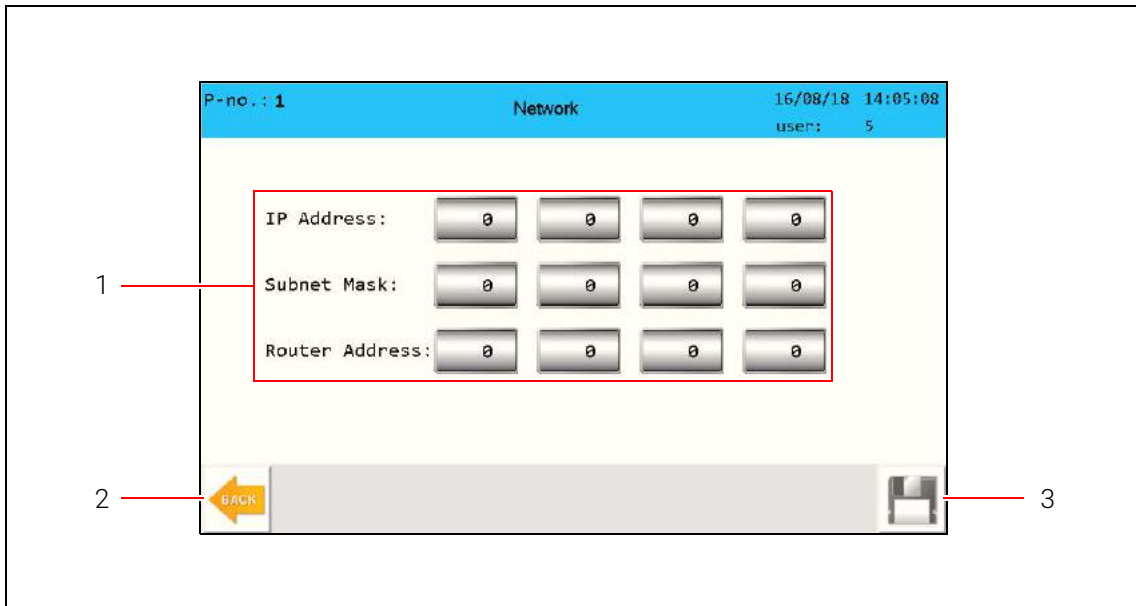
11.4.20 "Network" control screen

This control screen is only present if an Ethernet interface is installed.

From the "Program selection" control screen, the following buttons must be clicked one after the other to get to this control screen:



Explanation of the control screen



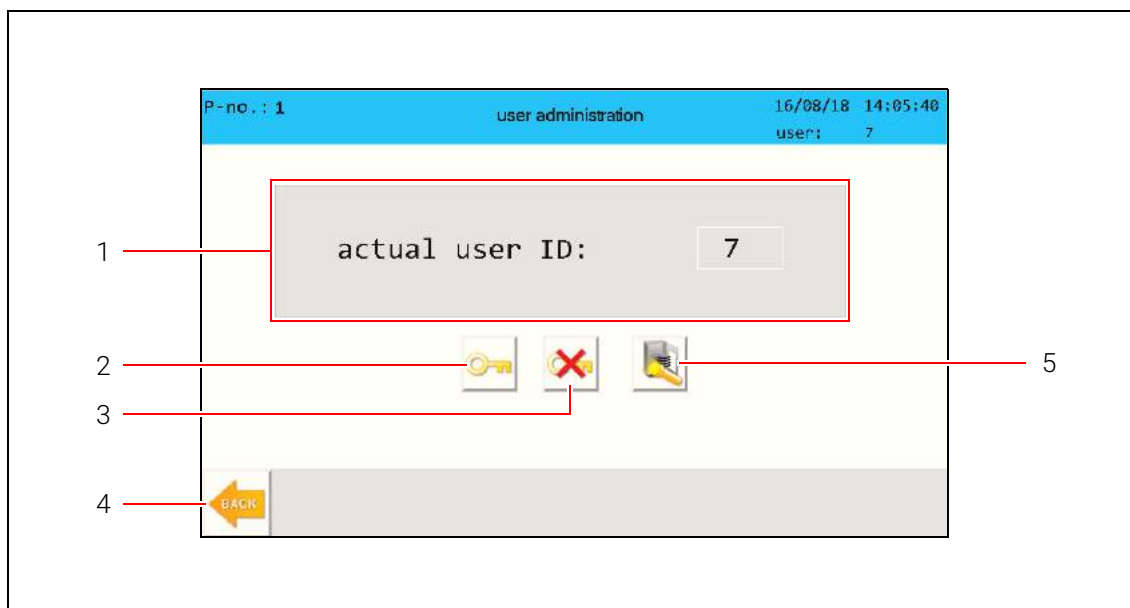
Pos.	Description
1	Entry fields for network information.
2	The control screen "Actual values" is called up. see page 45
3	Save entries.

11.4.21 "User administration" control screen (1)

From the "Program selection" control screen, the following buttons must be clicked one after the other to get to this control screen:



Explanation of the control screen



Pos.	Description
1	Currently logged-in user.
2	The "User login" control screen appears. see page 43
3	The user is logged on.
4	The control screen "Actual values" is called up. see page 45
5	The "User administration" (2) control screen is called up. see page 72

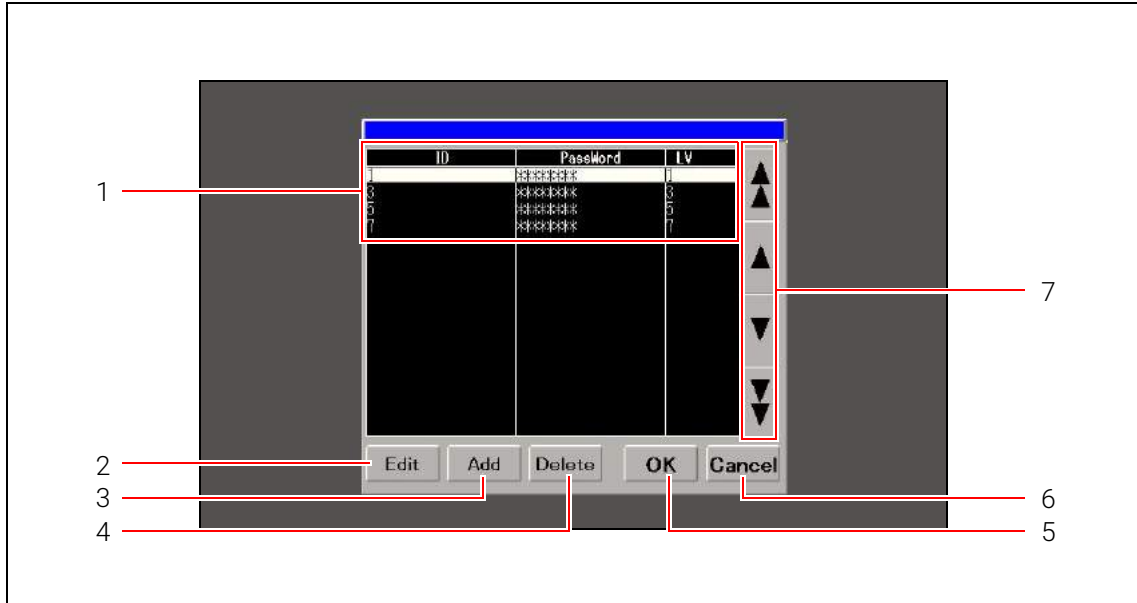
11.4.22 "User administration" control screen (2)

In this control screen, users can be set up, edited and deleted.

From the "Program selection" control screen, the following buttons must be clicked one after the other to get to this control screen:



Explanation of the control screen



Pos.	Description
1	Overview of the entered user with ID, password and user level. Depending on the user level, the user has various rights. see page 73
2	A highlighted user can be edited.
3	A new user can be added.
4	A highlighted user can be deleted after a security question.
5	Changes to user administration are saved. The "User administration" control screen appears. see page 71
6	Changes to user administration are not saved. The "User administration" control screen appears. see page 71
7	Buttons for scrolling through the overview.

User rights

User level	Change program	Date & time	Manual functions	Calibration	System parameters
1 + 2	✓	✗	✗	✗	✗
3 + 4	✓	✓	✓	✗	✗
5 + 6	✓	✓	✓	✓	✗
7	✓	✓	✓	✓	✓

✓ Access ✗ No access

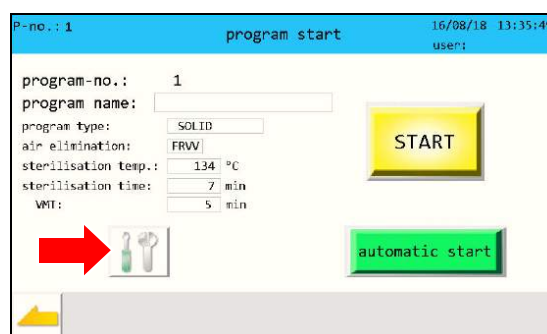
11.5 Edit program

How to edit a program:

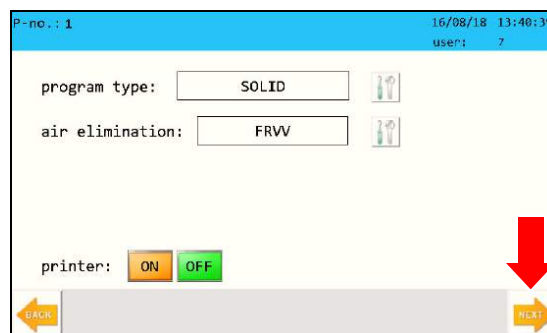
1. In the "Program selection" control screen, tap the button (P1 to P10) for the program to be edited.



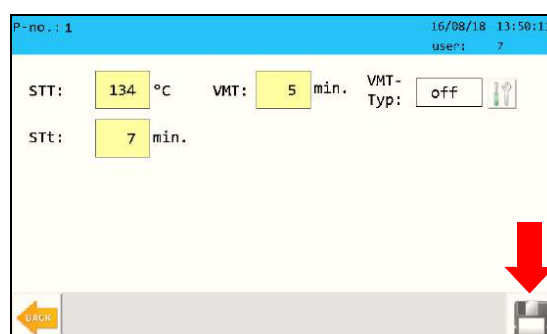
- The "Program start" control screen appears.
2. Tap the EDIT button.



- The "Edit program (1)" control screen appears.
3. Make the desired settings, [see page 52](#).
4. Tap the NEXT button.



- The "Edit program (2)" control screen appears.
Based on the program type selected, a special control screen appears.



5. Make the desired settings, [see page 57](#) et seq.
6. Tap the SAVE button.
- The program has been edited.

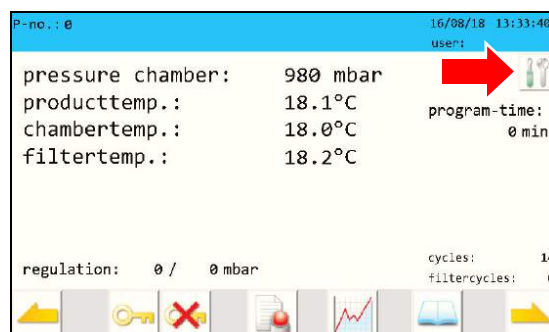
11.6 Lock/release programs

How to lock or release programs:

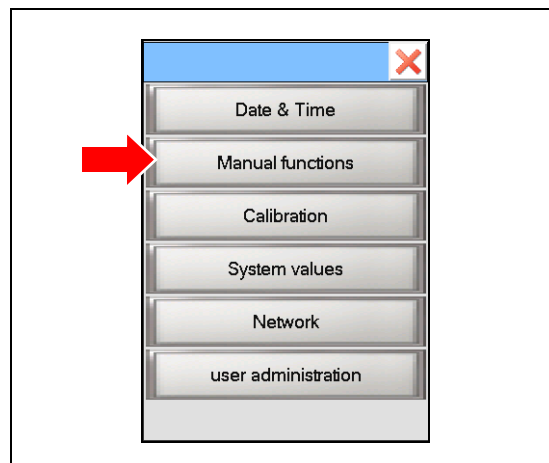
1. In the "Program selection" control screen, tap the HOME button.



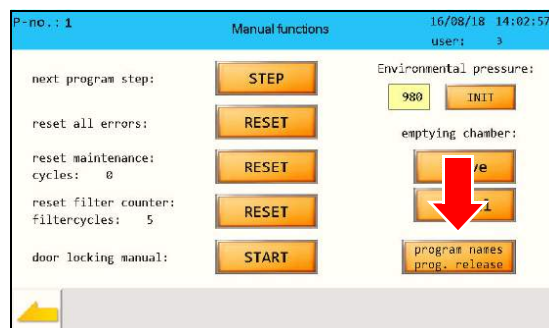
- The "Actual values" control screen appears.
2. Tap the "Functions" button.



- The "Functions" pop-up window appears.
3. Tap the "Manual functions" button.



- The "Manual functions" control screen appears.
4. Tap the button PROGRAM NAMES PROG. RELEASE



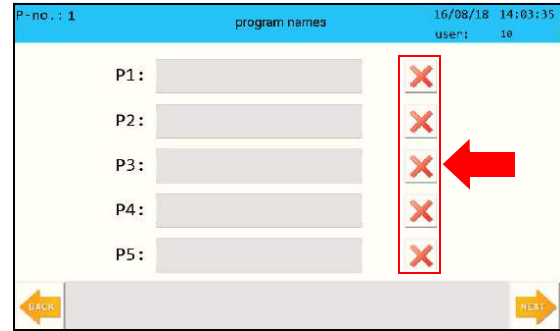
Touchscreen and visualization

Lock/release programs

- The "Program names" control screen appears.
- 5. Tap the button for the desired program to release or lock it.

Red X: Program locked.

Green tick: Program released.



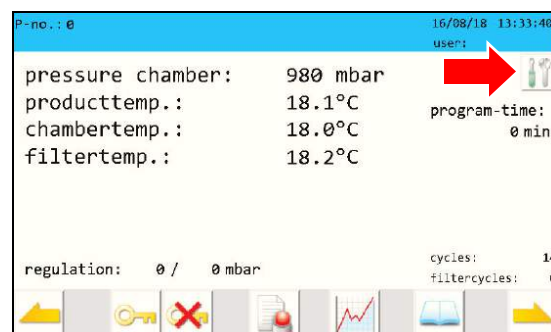
11.7 Naming programs

How to name a program:

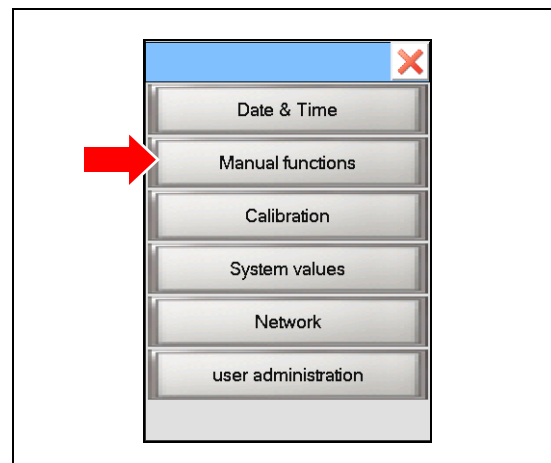
1. In the "Program selection" control screen, tap the HOME button.



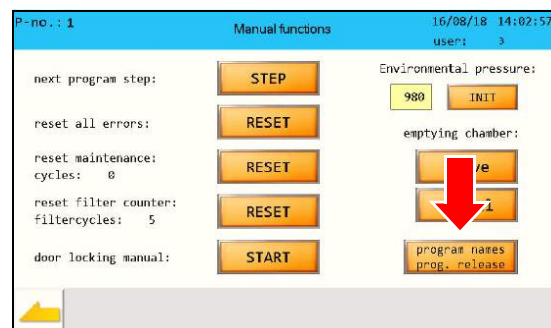
- The "Actual values" control screen appears.
2. Tap the "Functions" button.



- The "Functions" pop-up window appears.
3. Tap the "Manual functions" button.



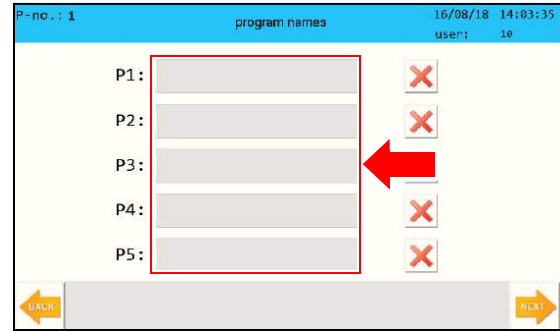
- The "Manual functions" control screen appears.
4. Tap the button PROGRAM NAMES RELEASE PROG.



Touchscreen and visualization

Naming programs

- The "Program names" control screen appears.
5. Tapping the entry field allows a name to be entered for the desired program.



11.8 Pre-set program parameters

11.8.1 Program P1

Program type	Basic Lab	Dry Lab	Quick Lab Basic	Quick Lab	Quick Lab Advanced	Safe Lab	Complete Lab
Program type	Solid						
Air elimination	GRAV	VOVV 70 mbar	GRAV	VOVV 70 mbar	VOVV 70 mbar	VOVV 70 mbar	VOVV 70 mbar
Sterilisation temperature	121°C	121°C	121°C	121°C	121°C	121°C	121°C
Sterilisation time	20 min.	20 min.	20 min.	20 min.	20 min.	20 min.	20 min.
Drying time	-	20 min.	-	15 min.	15 min.	15 min.	15 min.
Loading recommendation	Simple goods such as empty glassware without dry removal	Simple goods such as empty glassware and goods with free cavities or made of plastic that need intensive subsequent drying, such as pipette tips	Simple goods such as empty glassware without dry removal	Simple goods such as empty glassware and goods with free cavities or made of plastic that need intensive subsequent drying, such as pipette tips			

11.8.2 Program P2

Program type	Basic Lab	Dry Lab	Quick Lab Basic	Quick Lab	Quick Lab Advanced	Safe Lab	Complete Lab
Program type	Solid						
Air elimination	GRAV	FRVV 70 mbar 100 mbar 130 mbar 1600 mbar	GRAV	FRVV 70 mbar 100 mbar 130 mbar 1600 mbar	FRVV 70 mbar 100 mbar 130 mbar 1600 mbar	FRVV 70 mbar 100 mbar 130 mbar 1600 mbar	FRVV 70 mbar 100 mbar 130 mbar 1600 mbar
Sterilisation temperature	134 °C	134 °C	134 °C	134 °C	134 °C	134 °C	134 °C
Sterilisation time	7 min.	7 min.	7 min.	7 min.	7 min.	7 min.	7 min.
Drying time	-	15 min.	-	15 min.	15 min.	15 min.	15 min.
Loading recommendation	Simple goods such as empty glassware without dry removal	Simple goods such as empty glassware and goods with free cavities or made of plastic that need intensive subsequent drying, such as pipette tips	Simple goods such as empty glassware without dry removal	Simple goods such as empty glassware and goods with free cavities or made of plastic that need intensive subsequent drying, such as pipette tips			

11.8.3 Program P3

Program type	Basic Lab	Dry Lab	Quick Lab Basic	Quick Lab	Quick Lab Advanced	Safe Lab	Complete Lab
Program type	Liquid						
Air elimination	GRAV	VOVV 100 mbar	GRAV	VOVV 100 mbar	VOVV 100 mbar	VOVV 100 mbar	VOVV 100 mbar
Sterilisation temperature	121 °C	121 °C	121 °C	121 °C	121 °C	121 °C	121 °C
Sterilisation time	20 min.	20 min.	20 min.	20 min.	20 min.	20 min.	20 min.
Cooling	80 °C -R*	80 °C -R*	80 °C -R*	80 °C -R*	80 °C -R*	80 °C -R*	80 °C -R*
Loading recommendation	Liquids in open containers		Large quantities of liquids in open containers				

* R: "ramp" counterpressure, [see page 58](#).

11.8.4 Program P4

Program type	Basic Lab	Dry Lab	Quick Lab Basic	Quick Lab	Quick Lab Advanced	Safe Lab	Complete Lab
Program type	Liquid						
Air elimination	GRAV	GRAV	GRAV	GRAV	DLGV	GRAV	GRAV
Sterilisation temperature	121 °C	121 °C	121 °C	121 °C	121 °C	121 °C	121 °C
Sterilisation time	20 min.	20 min.	20 min.	20 min.	20 min.	20 min.	20 min.
Cooling	80 °C -S*	80 °C -S*	80 °C -S*	80 °C -S*	80 °C -S*	80 °C -S*	80 °C -S*
Loading recommendation	Liquids in closed containers		Large quantities of liquids in closed containers				

* S: Counterpressure constant, [see page 58](#).

11.8.5 Program P5

Program type	Basic Lab	Dry Lab	Quick Lab Basic	Quick Lab	Quick Lab Advanced	Safe Lab	Complete Lab
Program type	Waste solid						
Air elimination	SPEA/ pulsing	FRVV 70 mbar 200 mbar 350 mbar 500 mbar 1600 mbar	SPEA/ pulsing	FRVV 70 mbar 200 mbar 350 mbar 500 mbar 1600 mbar	FRVV 70 mbar 200 mbar 350 mbar 500 mbar 1600 mbar	FRVV 70 mbar 200 mbar 350 mbar 500 mbar 1600 mbar	FRVV 70 mbar 200 mbar 350 mbar 500 mbar 1600 mbar
Sterilisation temperature	134 °C	134 °C	134 °C	134 °C	134 °C	134 °C	134 °C
Sterilisation time	20 min.	20 min.	20 min.	20 min.	20 min.	20 min.	20 min.
Drying time	-	5 min.	-	5 min.	5 min.	5 min.	5 min.
Loading recommendation	Non-infectious waste bags and goods					Infectious waste bags and goods (S2 or higher)	

11.8.6 Program P6

Program type	Basic Lab	Dry Lab	Quick Lab Basic	Quick Lab	Quick Lab Advanced	Safe Lab	Complete Lab
Program type	Waste liquid						
Air elimination	SPEA/pulsing	VOVV 100 mbar	SPEA/pulsing	VOVV 100 mbar	VOVV 100 mbar	VOVV 100 mbar	VOVV 100 mbar
Sterilisation temperature	134 °C	134 °C	134 °C	134 °C	134 °C	134 °C	134 °C
Sterilisation time	20 min.	20 min.	20 min.	20 min.	20 min.	20 min.	20 min.
Cooling	80°C -R*	80°C -R*	80°C -R*	80°C -R*	80°C -R*	80°C -R*	80°C -R*
Loading recommendation	Non-infected liquids					Infected liquids (S2 or higher)	

* R: "ramp" counterpressure, [see page 58](#).

11.8.7 Program P7

Program type	Basic Lab	Dry Lab	Quick Lab Basic	Quick Lab	Quick Lab Advanced	Safe Lab	Complete Lab
Program type	Waste liquid						
Air elimination	SPEA/pulsing	FRVV 70 mbar 500 mbar 1600 mbar	SPEA/pulsing	FRVV 70 mbar 500 mbar 1600 mbar	FRVV 70 mbar 500 mbar 1600 mbar	FRVV 70 mbar 500 mbar 1600 mbar	FRVV 70 mbar 500 mbar 1600 mbar
Sterilisation temperature	134 °C	134 °C	134 °C	134 °C	134 °C	134 °C	134 °C
Sterilisation time	20 min.	20 min.	20 min.	20 min.	20 min.	20 min.	20 min.
Cooling	80°C -R*	80°C -R*	80°C -R*	80°C -R*	80°C -R*	80°C -R*	80°C -R*
Loading recommendation	Non-infected mixed waste	Non-infected waste bag with liquid contents	Non-infected mixed waste	Non-infected waste bag with liquid contents		Infected waste bag with liquid contents	

* R: "ramp" counterpressure, [see page 58](#).

11.8.8 Programs P8 – P10

Programs P8 to P10 are freely programmable.

11.8.9 Program P11 – Bowie-Dick test

Program type	Basic Lab	Dry Lab	Quick Lab Basic	Quick Lab	Quick Lab Advanced	Safe Lab	Complete Lab
Program type	Bowie-Dick test						
Air elimination	-	FRVV 70 mbar 80 mbar 90 mbar 1400 mbar	-	FRVV 70 mbar 80 mbar 90 mbar 1400 mbar	FRVV 70 mbar 80 mbar 90 mbar 1400 mbar	FRVV 70 mbar 80 mbar 90 mbar 1400 mbar	FRVV 70 mbar 80 mbar 90 mbar 1400 mbar
Sterilisation temperature	-	134 °C	-	134 °C	134 °C	134 °C	134 °C
Sterilisation time	-	3.5 min.	-	3.5 min.	3.5 min.	3.5 min.	3.5 min.
Drying time	-	2 min.	-	2 min.	2 min.	2 min.	2 min.
Loading	Bowie-Dick test package						

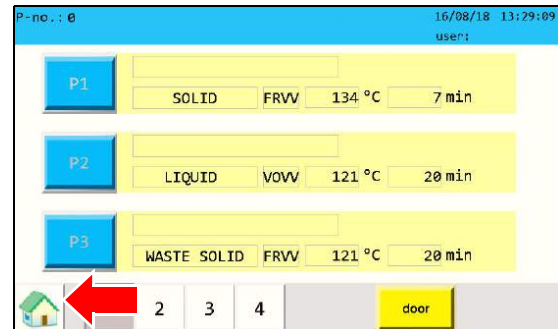
11.8.10 Program P12 – Vacuum air test

Program type	Basic Lab	Dry Lab	Quick Lab Basic	Quick Lab	Quick Lab Advanced	Safe Lab	Complete Lab
Program type	vacuum air test						
Air elimination	-	VOVV	-	VOVV	VOVV	VOVV	VOVV
Vacuum target value	-	70 mbar	-	70 mbar	70 mbar	70 mbar	70 mbar
Adjustment time/ Test time	-	5 min/10 min	-	5 min/10 min	5 min/10 min	5 min/10 min	5 min/10 min
Max. pressure rise	-	13 mbar	-	13 mbar	13 mbar	13 mbar	13 mbar
Loading	Cold, dry, empty chamber						

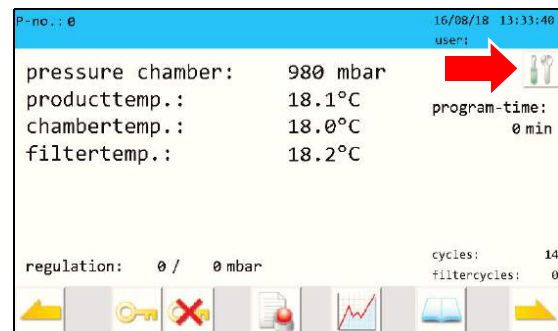
11.9 Change date and time

How to change the date and time

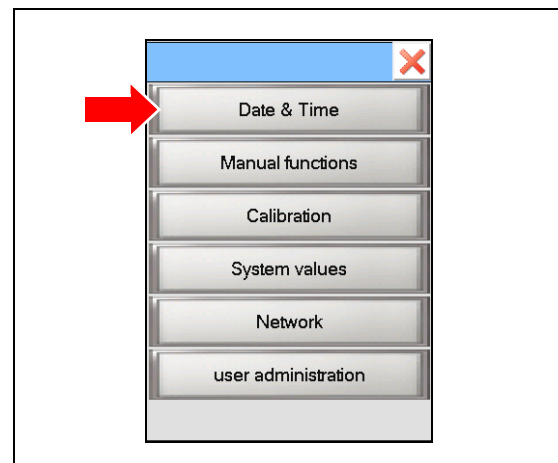
1. In the "Program selection" control screen, tap the HOME button.



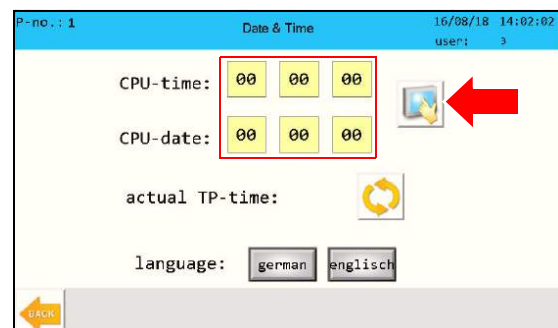
- The "Actual values" control screen appears.
2. Tap the "Functions" button.



- The "Functions" pop-up window appears.
3. Tap the "Date & Time" button.



- The "Date & Time" control screen appears.
4. Tap the button "Stop PLC time".
 5. Change the PLC time and date in the entry fields.
 6. Tap the button "Stop PLC time" again and restart the time.
 7. Tap the button "Update TP time".
- The PLC time and date have been updated.



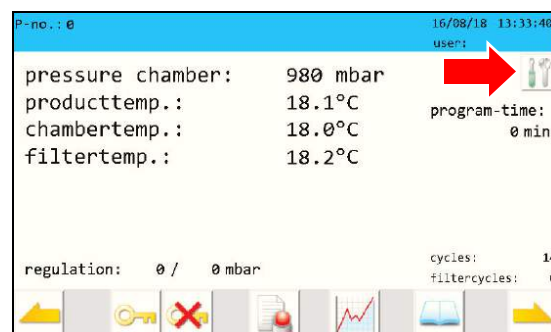
11.10 Change visualization language

How to change the visualization language:

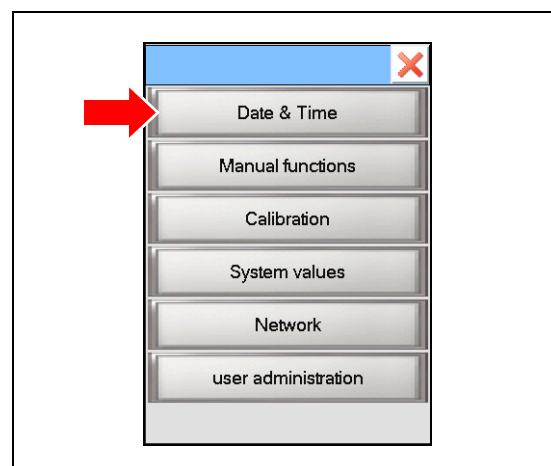
1. In the "Program selection" control screen, tap the HOME button.



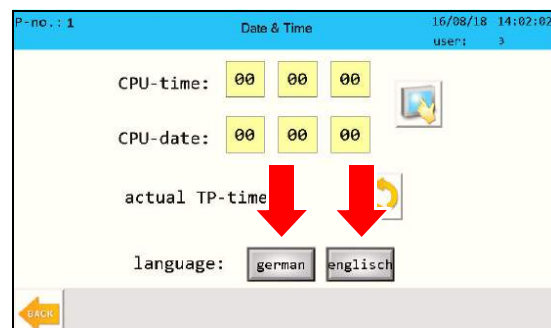
- The "Actual values" control screen appears.
2. Tap the "Functions" button.



- The "Functions" pop-up window appears.
3. Tap the "Date & Time" button.



- The "Date & Time" control screen appears.
4. Tap the button for the desired language.
- The visualization language has been changed.



12 Troubleshooting



CAUTION

INJURY HAZARD! DAMAGE TO DEVICE!

- Troubleshooting is to be done only by trained, authorized personnel. Improper troubleshooting on the device can cause severe injury and damage the device.
- If the cover panels are removed and the device is not cooled, hot surfaces and lines pose a burn hazard.
- The chamber and sterile materials may be very hot. There is a burn hazard!
- When the cover is opened, a cloud of vapour may escape from the chamber. Keep a safe distance away.
- Before working, unplug the device.
- Observe the electro-technical safety rules.
- Follow the general accident prevention measures.

If an error occurs on the system or a malfunction message is present, a description of the error can be found on the display under the error messages menu. If you can localize and repair these errors yourself, make sure that all safety and accident prevention regulations are followed.

12.1 Error table

Alarm No.	Message text	Cause	Solution
1	Temperature sensor product (1) regulation shows an incorrect value	Temperature sensor TCI 1 is defective	Replacing the temperature sensor
		Analogue input is defective	Replacing the analogue card
21	Temperature sensor chamber bottom regulation shows an incorrect value	Temperature sensor TCI1.1 is defective	Replacing the temperature sensor
		Analogue input is defective	Replacing the analogue card
22	Temperature sensor chamber top regulation shows an incorrect value	Temperature sensor TCI1.2 is defective	Replacing the temperature sensor
		Analogue input is defective	Replacing the analogue card
23	Temperature sensor filter exhaust (1) regulation shows an incorrect value	Temperature sensor TCI6 is defective	Replacing the temperature sensor
		Analogue input is defective	Replacing the analogue card
61	Pressure sensor chamber regulation shows an incorrect value	Pressure sensor PCI1 is defective	Replace the pressure sensor
		Analogue input is defective	Replacing the analogue card

Alarm No.	Message text	Cause	Solution
91	Motorprotection switch vacuum pump has triggered	Drive motor for vacuum pump M1 is using too much power	Check the power consumption
		No three-phase current	Check the voltage supply
		Power contactor defective.	
		Vacuum pump M1 is stuck.	Check vacuum pump M1, and replace if necessary
		Motor defective	
121	Overheating protection steam generator has triggered	Not enough water in steam generator.	Reset TA5 overheat protection after the steam generator cools down.
		Heating contactor defective	Check water level in steam generator.
		Pressure switch PC5 defective or set wrong	Test fill level sensor LC5 for operation
		Conductivity of de-ionised water too high.	Check heating contactor
			Check pressure switch PC5
			Check water quality.
125	De-ionised water level too low	De-ionised water supply interrupted on site.	Check de-ionised water supply
		Float switch LC4 defective	Check float switch LC4 for operation and replace if necessary
		Water valve Y20 dirty or defective.	Clean screen insert in water valve, check voltage supply to valve, replace valve if necessary.
127	Filling steam generator too long	De-ionised water supply too low, see Alarm 125	Check de-ionised water supply as under Alarm 125.
		Air in filling pump M2	Ventilate filling pump M2, loosen the connection between M2 and the valve and start the pump.
		Filling pump M2 defective	Check operation of the pump
		Filling valve Y21 defective	Check operation of the filling valve
		Check valve RV5 leaky or defective.	Check operation of the check valve
		Control relay defective	Check operation of the control relay

Alarm No.	Message text	Cause	Solution
140	Safety chain chamber has triggered	Chamber seal defective	Check chamber seal
		Steam inlet valve Y4 or Y4.1 leaky	Check the steam inlet valve
		Support pressure valve Y10 leaky	Check the support pressure valve
		Condensation valve Y6 blocked	Check the condensation valve
143	Control voltage 24VDC not ok	The 24VDC control fuse has triggered	Replace the fuse, and analyse the short circuit, if necessary
		Power transformer overloaded or defective	Check the power transformer
146	Vacuum setpoint not reached	Door seal leaky	Check water supply
		Chamber sieve or exhaust filter clogged.	Visually check the door seal for damage.
		Vacuum pump M1 does not provide the necessary suction performance.	Check chamber sieve FI1.1 and the exhaust filter.
		Vacuum valve Y3 defective or clogged	Check the vacuum valve.
		Vacuum pump water supply inadequate or too hot.	Check the vacuum pump according to manufacturer specifications.
		Pipe and valve system leaky.	Check the pipe and valve system for leaks.
171	Door motor drives too long	Door drive motor is defective or the electrical connection is interrupted.	Check the motor and electrical connection — replace motor if necessary.
		Control relay is defective.	Check the relay, and replace if necessary.
		Door limit switch is set wrong or is defective.	Check/adjust the door limit switch.
172	Door switch (door 1) not ok	Door limit switch B2 is defective	Check operation of the door limit switch.
		Door limit switch B2 is set wrong	Check settings of door limit switch
		Electrical connection to PLC interrupted.	

Alarm No.	Message text	Cause	Solution
176	Gasket pressure door (1) too low	Pressure switch PCA1 defective	Check the pressure switch
		Door seal defective	Visually check the door seal for damage.
		Valve Y1 defective	Check operation of the valve
		Valve Y1, Y2 and/or check valve RV7 leaky.	Check the valve and check valve for leaks.
		Compressor defective	Check the compressor.
		Compressed air too low	Check the compressed air supply.
178	Gasket door (1) not tight	Door seal for door 1 is leaky.	Visually check the door seal for damage.
		Hoses leaky.	Check operation of the valve seal
		Valve seal on Y1 leaky	Check the valve seal and check valve for leaks.
		Valve seal from Y2 leaky	
		Check valve RV7 leaky	
		Air elimination system doesn't work right.	Check the chamber discharge valve or, for devices with exhaust filters, the discharge filter valve.
191	Sterilisation temperature too low	Door seal leaky	Visually check the door seal for damage.
		Temperature sensor TCI1 placed wrong	Check the position of temperature sensor TCI 1 — this should not be isolated.
		Program configured wrong	Check program parameters, and adjust them if necessary.
		Wrong program launched	
		Steam supply too weak	Check steam supply.
		Temperature sensor TCI1.1, TC1 or TCI6 defective or shows the wrong measurement value.	Temperature sensor TCI1.1, TC1 or TCI6.
192	Sterilisation temperature longer than 5min. too low	See Alarm 191	Do an empty chamber run with the same program parameters

13 Care and maintenance



CAUTION

INJURY HAZARD! DAMAGE TO DEVICE!

- Maintenance is to be done only by trained, authorized personnel. Improper maintenance on the device can cause severe injury and damage the device.
- If the cover panels are removed and the device is not cooled, hot surfaces and lines pose a burn hazard.
- The chamber and sterile materials may be very hot. There is a burn hazard!
- When the cover is opened, a cloud of vapour may escape from the chamber. Keep a safe distance away.
- Before working, unplug the device.
- Observe the electro-technical safety rules.
- Follow the general accident prevention measures.

For reliable operation over the long term, not only are the set-up location and the quality of the media important, but also care and maintenance.



NOTE

Failure to adhere to the service intervals for basic maintenance voids the warranty!

13.1 Maintenance plan

13.1.1 Basic maintenance

Basic maintenance of the system is required every 750 cycles. The number of cycles can be found in the actual values menu, [see page 45](#).

Basic maintenance should always be performed by a service technician trained by ZIRBUS TECHNOLOGY GmbH.

ZIRBUS TECHNOLOGY GmbH will be happy to provide a maintenance proposal or name an authorized service partner near you.

13.1.2 Maintenance tasks

Designation	Interval	Remarks
Bowie-Dick test, alternatively to a sterilisation run with a solids program and a maximum temperature of 134°C.	Weekly; as needed	see page 94 see page 38
Visual inspection of cover seal for contamination and wear	Weekly; as needed	see page 91
Visual inspection of the product temperature sensor for damage	Weekly	see page 91
Chamber cleaning	Weekly	see page 91
Cleaning of the dirt trap in the chamber	As needed	see page 91
Vacuum air test	As needed	see page 94

Visual inspection of cover seal for contamination and wear

- Inspection of the cover seal surface for dirt particles
- If necessary, wiping the cover seal and sealing surface to the chamber seal clean with a soft cloth.
Make sure there are no glass particles on the seal or sealing surface.
- Inspection of the cover seal surface for wear or dirt.

Visual inspection of the product sensor for damage

- Check the connection hose of the temperature sensor for damage, breakage, etc.
- Check the measuring tip of the temperature sensor for damage, breakage, etc.

Cleaning the chamber

1. Remove coarse dirt particles with a cloth.
2. Clean the chamber with a moist sponge and a non-aggressive cleaner.
3. Lift the bottom panel and clean under it also.
4. Re-insert the bottom panel.

Cleaning of the dirt trap in the chamber (chamber sieve)

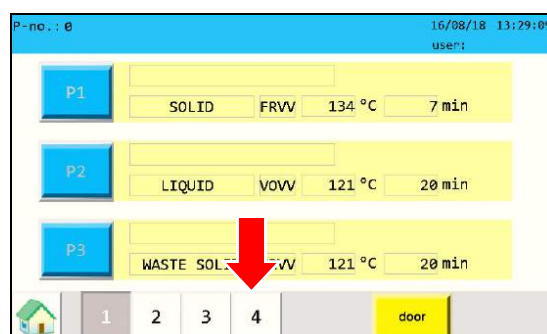
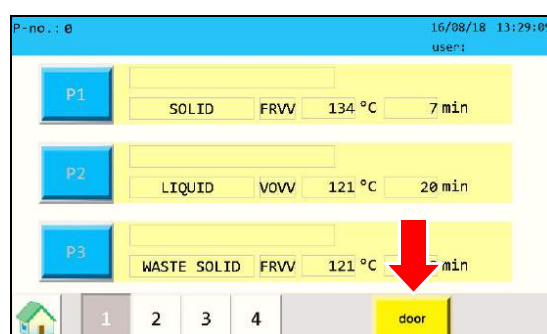
1. Remove the bottom plate from the chamber.
2. Remove the chamber sieve from the chamber by turning the sieve anti-clockwise.
3. Rinse out the chamber sieve with water and remove any remaining dirt.
4. Re-install the chamber sieve by turning it clockwise.
5. Re-insert the bottom plate.

Performing a Bowie-Dick test

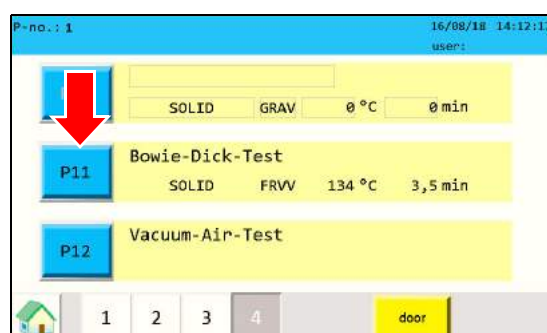
Only for the equipment versions:

- Dry Lab
- Quick Lab
- Quick Lab Advanced
- Safe Lab
- Complete Lab

1. Turn the device on.
 - The device starts.
 - The “Program selection” control screen appears.
2. Tap the DOOR button.
 - The cover lock opens.
3. Open the cover.
4. Place the prepared Bowie-Dick test materials in the chamber.
5. Close the cover.
 - The cover locks automatically.
6. Tap the “4” button.



- The “Program selection” (4) control screen appears.
7. Tap the P11 button.
 - The “Launch program” control screen appears.
 8. Tap the START button.
 - The Bowie-Dick test starts.
 - The program process is shown on corresponding control screens.
 - If errors occur during the test, please notify Zirbus service, [see page 103](#).



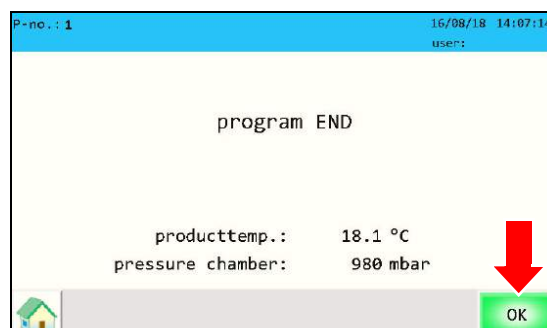
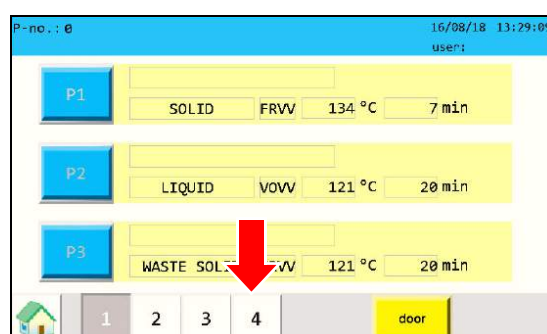
- The "Program end" control screen appears.
9. Tap the OK button.
- The Bowie-Dick test has been performed.



Performing a vacuum air test

Only for the equipment versions:

- Dry Lab
 - Quick Lab
 - Quick Lab Advanced
 - Safe Lab
 - Complete Lab
1. Turn the device on.
 - The device starts.
 - The “Program selection” control screen appears.
 2. Tap the “4” button.
 - The “Program selection” (4) control screen appears.
 3. Tap the P12 button.
 - The “Launch program” control screen appears.
 4. Tap the START button.
 - The vacuum air test starts.
 - The program process is shown on corresponding control screens.
 - If errors occur during the test, please notify Zirbus service, [see page 103](#).
 - The “Program end” control screen appears.
 5. Tap the OK button.
 - The vacuum air test has been performed.



13.2 Replacement and wear parts

13.2.1 Range LVSA 50/60 and 50/70 (Complete Lab version)

Item No.	Description	Component	Replacement part	Wear part	Remarks
EL07171	Water pressure regulator WR110-02-X224	-V7		x	Replace every 5 years or after 3,750 loads
ETH07303	VE separation tank ø 120, H.400 300W 230V	NT1	x		Replacement as needed
ETS03111	Touchpanel GP4402WW with 7.0" TFT wide display	6A1	x		Replacement as needed
ETM02001	Thermostat 0-120°C switching diff. +3°C, sensor ø 6.5 x 95 mm capillary tube 1000 mm	TC3		x	Replace every 3 years or after 2250 loads
ETM06046	Temperature switch +95°C, G3/8 bracket type S6410	TC1.1		x	Replace every 3 years or after 2250 loads
ETM04070	Temperature switch +60°C 1 opener G3/8	TC4	x		Replacement as needed
ETM01008	Temperature sensor ø 6 x 50 mm, 2 x 3 lead, Kl. A	TCI1,TCI1.1,TCI6		x	Replace annually or every 750 loads, whichever comes first.
ETV01000	Sterilfilter 0.09m ² , 0.2 µm, 88mm long, 1/2" for ALF I, max. 130 cycles at 130°C	-FI1		x	Replace according to notification on display
EL00302	Plug-in socket with relay and status display; each with 2 changers; DC 24 V	5Q9, 8Q2, 8Q3, 10Q1		x	Replace every 3 years or after 2250 loads
EL00303	Plug-in socket with relay and status display; each with 2 changers; AC 230 V	9Q1, 9Q4		x	Replace every 3 years or after 2250 loads
EL00501	Safety clamp with latch for G fuse insert 5x 20mm	-1F1 -1F2 - 2F3	x		As needed
ETA06025	Safety valve Mu G1/2, EPDM seal, 2,8 bar, brass	-ÜV1	x		Replacement at TÜV inspection
ETA06013	Safety valve 1/2", 5.0 bar, ø 12 mm, angle valve,	-ÜV5	x		Replacement at TÜV inspection
ETP03001	SHURflo 8000, 230 V, 5.0 l/m, interval with adapter # 8145	M2	x		Replace every 5 years or after 3,750 loads

Care and maintenance

Replacement and wear parts

Item No.	Description	Component	Replacement part	Wear part	Remarks
ETM07001	Float switch, horiz., external RSF73Y050QM	LC4		x	Replace annually or every 750 loads, whichever comes first.
ETA05009	Check valve 3/8", PN16, stainless steel/FKM	-RV4, -RV5		x	Replace every 3 years or after 2250 loads
ETA05003	Check valve 1/8"/ Ø6mm, AKH06B-01S	RV4.1, RV7		x	Replace every 3 years or after 2250 loads
ETA09072-9	Regulator AR20-F02E-B	-V1	x		As needed
ETM04011	Programmable transducer dTrans T05	9B1	x		As needed
ETM07031	Level regulator LC - 01 24VDC	LC5		x	Replace every 5 years or after 3,750 loads
ETA05010	Needle valve 1/4", PN 100, brass	-KH5.1	x		As needed
ETA07008	Mini-ball valve with short lever, 1/4	"KH4	x		As needed
ETP05018	Mini-hoist gear 27:1 incl. spindle TR 8.8x3x300 mm	M3	x		Replace every 10 years or after 7500 loads
ETM05019	Mechanical pressure switch 0.5..8 bar G1/4B, S4250	PC5, PCA1		x	Replace every 5 years or after 3,750 loads
ETM06018	Manometer 063, 0..10 bar, G1/4, red mark at 3.5 bar, Zirbus log with triangular front ring	-PI5	x		As needed
ETA01006	Solenoid valve, RMV-359 triple, 3/4"-JG8, 240V, 8.4 VA, 180°C	Y15, Y16, Y17		x	Replace every 2 years or after 1500 loads
ETA01004	Solenoid valve, RMV-159 single, 3/4"-JG8, 240V, 8.4 VA, 180°	Y20		x	Replace every 2 years or after 1500 loads
ETP07010	Fan MU1238A-51B, 120 x 120	M10		x	Replace every 5 years or after 3,750 loads
ETE01010	Power contactor DILM 7-10 AC	9Q2		x	Replace every 3 years or after 2250 loads
ETE01004	Power contactor 1S 15kW/400V,AC DILM32-10(230V50/60H)	-9Q3		x	Replace every 3 years or after 2250 loads
ETS03100	Coupling RJ45, black IE-FCM-RJ45-C	6K10	x		As needed

Item No.	Description	Component	Replacement part	Wear part	Remarks
ETF04005	Corrugated hose RS 341L00, 1.4404, DN 6, NL=3150 mm		x		As needed
ETA07012	Ball valve 3/8" i/a	-KH1, KH5	x		As needed
ETE07004	Inductive sensor IFRM 12P1704/S14L	B1, B2, B3		x	Replace every 4 years or after 3000 loads
MO0818-A	HST 500, LVSA 50/70, LVSA 50/90, LSA 500 door seal			x	Replace annually or every 750 loads, whichever comes first.
ETE07002	Auxiliary switch NHI-E-11-PKZO	3F1		x	Replace every 3 years or after 2250 loads
ETP07019	Grate FL12 120 x 120	M10	x		
ETP07011	Grate FG12D 120 x 120	M10	x		As needed
ETS03300	FX5U-32MR/ES	-6K1	x		As needed
ETP03007	Liquid ring vacuum pump VI-30-55.0017	M1	x		As needed
EL07175	Filter basket external thread, L-SK2-1/2-VA	FI1.1	x		As needed
ETH05051	Drum heater HSSD/M 1,410x200 mm, 230V/845 W, 2 m connection line.	E1 + -TC2		x	Replace every 5 years or after 3,750 loads
EL08013	ON/OFF switch, black, punch dimensions 25x22 mm, 16A 230V switch I/O	-1S1	x		As needed
ETM04004	Pressure transmitter Midas SI0...4 bar, 4..20 mA	PCI1	x		As needed
ETA09119	Throttle check valve 1/8"m acc.	RV4.2	x		As needed
ETH07301	Steam generator ø 144, 9000 W, 230 V	DG1 + -TA5		x	Replace every 5 years or after 3,750 loads
ETE08016	CEE plug 16 A type 13A	-XS1	x		As needed
EL07172	Fastening set pressure regulator B21-1P	-V7	x		As needed
ETM06062	Mechanical pressure switch 0.2..2 bar G1/4B	PA1		x	Replace every 5 years or after 3,750 loads
ETA02056	2/2 way vacuum valve 3/8", DN10, 24V	Y3		x	Replace every 3 years or after 2250 loads

Care and maintenance

Replacement and wear parts

Item No.	Description	Component	Replacement part	Wear part	Remarks
ETA02049	2/2 way solenoid valve for steam	Y4,Y10,Y21,Y6,Y8,Y4.1		x	Replace every 3 years or after 2250 loads
ETA02053-B	2/2 way compressed air valve VX210HL	Y1, Y2		x	Replace every 3 years or after 2250 loads
EL00500	2-line base terminal, series 2002	-1F1 -1F2 -2F3	x		
EL02657	Rubber bumper 40x30M8-FORMB		x		
16000460-3-31	KP. holder pipe, NBA 60, index A		x		
16000460-3-32	KP. holder WS. m. Fue. NBA 60		x		
ETE06009	Power adapter DPP120-24, 24 V, 7,5 A	1T1	x		
ETE09060-1	DC speed controller H-Tronic 24V/DC	3K1	x		
ETP05023	Disc motor GDM1-010F144U-35-02-00A-FRR-K-AN-0-000	M4		x	Replace every 5 years or after 3,750 loads
ETS03306	FX5-8EYR/ES	7K1	x		
ETS03307	FX5-4AD-PT-ADP analogue input module for temperature sensor	6K1.1	x		
ETE03013	Motor protection switch PKZM 0-4	3F1		x	Replace every 5 years or after 3,750 loads
ETE08206	PVC sensor cable 4x0.34mm ²	B1, B2, B3	x		
ETF00325	Seal PTFE-sheathed DN 76,1 NW 65			x	Replacement per message on display with filter ETV01000
MO0790	Gas spring 10/24-200-485-350N			x	Replace every 5 years or after 3,750 loads

13.2.2 Range LVSA 40/60 and 40/75 (Complete Lab version)

Item No.	Description	Component	Replacement part	Wear part	Remarks
EL07171	Water pressure regulator WR110-02-X224	-V7		x	Replace every 5 years or after 3,750 loads
ETH07303	VE separation tank ø 120, H.400 300W 230V	NT1	x		Replacement as needed
ETS03111	Touchpanel GP4402WW with 7.0" TFT wide display	6A1	x		Replacement as needed
ETM02001	Thermostat 0-120°C switching diff. +3°C, sensor ø 6.5 x 95 mm capillary tube 1000 mm	TC3		x	Replace every 3 years or after 2250 loads
ETM06046	Temperature switch +95°C, G3/8 bracket type S6410	TC1.1		x	Replace every 3 years or after 2250 loads
ETM04070	Temperature switch +60°C 1 opener G3/8	TC4	x		Replacement as needed
ETM01008	Temperature sensor Ø 6 x 50 mm, 2 x 3 lead, Kl. A	TC11,TC11.1,TC16		x	Replace annually or every 750 loads, whichever comes first.
ETV01000	Sterilfilter 0.09 m ² , 0.2 µm, 88mm long, 1/2" for ALF I, max. 130 cycles at 130 °C	-FI1		x	Replace according to notification on display
EL00302	Plug-in socket with relay and status display; each with 2 changers; DC 24 V	5Q9, 8Q2, 8Q3, 10Q1		x	Replace every 3 years or after 2250 loads
EL00303	Plug-in socket with relay and status display; each with 2 changers; AC 230 V	9Q1, 9Q4		x	Replace every 3 years or after 2250 loads
EL00501	Safety clamp with latch for G fuse insert 5x 20 mm	-1F1 -1F2 -2F3	x		As needed
ETA06025	Safety valve Mu G1/2, EPDM seal, 2,8 bar, brass	-ÜV1	x		Replacement at TÜV inspection
ETA06013	Safety valve 1/2", 5.0 bar, ø 12 mm, angle valve,	-ÜV5	x		Replacement at TÜV inspection
ETP03001	SHURflo 8000, 230 V, 5.0 l/m, interval with adapter # 8145	M2	x		Replace every 5 years or after 3,750 loads
ETM07001	Float switch, horiz., external RSF73Y050QM	LC4		x	Replace annually or every 750 loads, whichever comes first.

Care and maintenance

Replacement and wear parts

Item No.	Description	Component	Replacement part	Wear part	Remarks
ETA05009	Check valve 3/8", PN16, stainless steel/FKM	-RV4, -RV5		x	Replace every 3 years or after 2250 loads
ETA05003	Check valve 1/8"/ Ø6mm, AKH06B-01S	RV4.1, RV7		x	Replace every 3 years or after 2250 loads
ETA09072-9	Regulator AR20-F02E-B	-V1	x		As needed
ETM04011	Programmable transducer dTrans T05	9B1	x		As needed
ETM07031	Level regulator LC - 01 24VDC	LC5		x	Replace every 5 years or after 3,750 loads
ETA05010	Needle valve 1/4", PN 100, brass	-KH5.1	x		As needed
ETA07008	Mini-ball valve with short lever, 1/4	"KH4	x		As needed
ETP05018	Mini-hoist gear 27:1 incl. spindle TR 8.8x3x300 mm	M3	x		Replace every 10 years or after 7500 loads
ETM05019	Mechanical pressure switch 0.5..8 bar G1/4B, S4250	PC5, PCA1		x	Replace every 5 years or after 3,750 loads
ETM06018	Manometer 063, 0..10 bar, G1/4, red mark at 3.5 bar, Zirbus log with triangular front ring	-PI5	x		As needed
ETA01006	Solenoid valve, RMV-359 triple, 3/4"-JG8, 240V, 8.4 VA, 180°C	Y15, Y16, Y17		x	Replace every 2 years or after 1500 loads
ETA01004	Solenoid valve, RMV-159 single, 3/4"-JG8, 240V, 8.4 VA, 180°	Y20		x	Replace every 2 years or after 1500 loads
ETP07010	Fan MU1238A-51B, 120 x 120	M10		x	Replace every 5 years or after 3,750 loads
ETE01010	Power contactor DILM 7-10 AC	9Q2		x	Replace every 3 years or after 2250 loads
ETE01004	Power contactor 1S 15kW/400V,AC DILM32-10(230V50/60H)	-9Q3		x	Replace every 3 years or after 2250 loads
ETS03100	Coupling RJ45, black IE-FCM-RJ45-C	6K10	x		As needed
ETF04005	Corrugated hose RS 341L00, 1.4404, DN 6, NL=3150 mm		x		As needed
ETA07012	Ball valve 3/8" i/a	-KH1, KH5	x		As needed

Item No.	Description	Component	Replacement part	Wear part	Remarks
ETE07004	Inductive sensor IFRM 12P1704/S14L	B1, B2, B3		x	Replace every 4 years or after 3000 loads
MO0819-A	LVSA 40/60, LTA 400, HST / MDA / LTA 3x3x6 door seal			x	Replace annually or every 750 loads, whichever comes first.
ETE07002	Auxiliary switch NHI-E-11-PKZO	3F1		x	Replace every 3 years or after 2250 loads
ETP07019	Grate FL12 120 x 120	M10	x		
ETP07011	Grate FG12D 120 x 120	M10	x		As needed
ETS03300	FX5U-32MR/ES	-6K1	x		As needed
ETP03006	Liquid ring vacuum pump VI8-GRD.0002	M1	x		As needed
EL07175	Filter basket external thread, L-SK2-1/2-VA	FI1.1	x		As needed
ETH05050	Drum heater HSSD/M 1.184x200 mm, 230V/720 W, 2 m connection line.	E1 + -TC2		x	Replace every 5 years or after 3,750 loads
EL08013	ON/OFF switch, black, punch dimensions 25x22 mm, 16A 230V switch I/O	-1S1	x		As needed
ETM04004	Pressure transmitter Midas SI0...4 bar, 4..20 mA	PCI1	x		As needed
ETA09119	Throttle check valve 1/8"m acc.	RV4.2	x		As needed
ETH07300	Steam generator ø 120, 6000 W, 230 V	DG1 + -TA5		x	Replace every 5 years or after 3,750 loads
ETE08016	CEE plug 16 A type 13A	-XS1	x		As needed
EL07172	Fastening set pressure regulator B21-1P	-V7	x		As needed
ETM06062	Mechanical pressure switch 0.2..2 bar G1/4B	PA1		x	Replace every 5 years or after 3,750 loads
ETA02056	2/2 way vacuum valve 3/8", DN10, 24V	Y3		x	Replace every 3 years or after 2250 loads
ETA02049	2/2 way solenoid valve for steam	Y4,Y10,Y21 ,Y6,Y8,Y4.1		x	Replace every 3 years or after 2250 loads
ETA02053-B	2/2 way compressed air valve VX210HL	Y1, Y2		x	Replace every 3 years or after 2250 loads

Care and maintenance

Replacement and wear parts

Item No.	Description	Component	Replacement part	Wear part	Remarks
EL00500	2-line base terminal, series 2002	-1F1 -1F2 -2F3	x		
EL02657	Rubber bumper 40x30M8-FORMB		x		
16000460-3-31	KP. holder pipe, NBA 60, index A		x		
16000460-3-32	KP. holder WS. m. Fue. NBA 60		x		
ETE06009	Power adapter DPP120-24, 24 V, 7,5 A	1T1	x		
ETE09060-1	DC speed controller H-Tronic 24V/DC	3K1	x		
ETP05023	Disc motor GDM1-010F144U-35-02-00A-FRR-K-AN-0-000	M4		x	Replace every 5 years or after 3,750 loads
ETS03306	FX5-8EYR/ES	7K1	x		
ETS03307	FX5-4AD-PT-ADP analogue input module for temperature sensor	6K1.1	x		
ETE03013	Motor protection switch PKZM 0-4	3F1		x	Replace every 5 years or after 3,750 loads
ETE08206	PVC sensor cable 4x0.34 mm ²	B1, B2, B3	x		
ETF00325	Seal PTFE-sheathed DN 76,1 NW 65			x	Replacement per message on display with filter ETV01000
MO0879	Gas pressure spring 10/23-200-485-500N			x	Replace every 5 years or after 3,750 loads

14 Service

14.1 Contact information

Zirbus service can be contacted at:

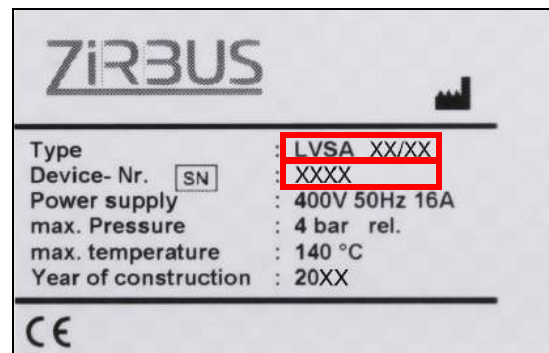
E-mail: info@zirbus.de

or

Tel.: +49 5327 83 80 10

For service queries, please always provide the device type and serial number.

You can find the information on your device's type plate, [see page 8](#).



15 Technical appendix

15.1 Optional equipment

15.1.1 Lifting and pivoting mechanism

The lifting and pivoting mechanism allows baskets and pails to be lifted and swung out of the chamber with no effort.

The lifting and pivoting mechanism is attached to the device with two metal brackets.

The insertable bracket mount must be chosen according to the size of the basket or pail.

Operation is by remote control.

- Load capacity:
maximum 30 kg
- Power supply:
230 volts with electrical plug
(Socket is on autoclave or can be added.)



NOTE

If you need information on the lifting and pivoting mechanism, please contact Zirbus service, [see page 103](#).



15.1.2 Log printer

In the operating console, there is a recess for the log printer.

When activated in the visualization, the log printer prints a log after every production run.

If added later, the printer must be integrated into the PLC.



NOTE

If you need information on the log printer, please contact Zirbus service, [see page 103](#).



15.2 MXComponent V1.02

Batch Documentation

via

Ethernet

Installation and Program Settings

TABLE OF CONTENTS

1. INTRODUCTION	3
2. SYSTEM REQUIREMENTS.....	3
3. INSTALLING THE COMMUNICATION SOFTWARE	3
4. SET UP OF THE CONNECTION	6

1. Introduction

MXComponent is the interface between your Zirbus device and the batch documentation ZirbusSteriLog and ZirbusDryLog. After installing the MXComponent you may set up the communication. MXComponent is subsequently running in the background and does not have to be executed again.

2. System Requirements

MXComponent requires the following minimum system requirements:

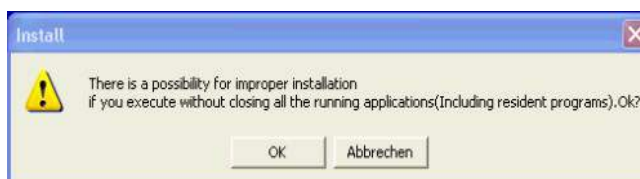
Processor with 800 megahertz (MHz) or faster
At least 256 megabytes (MB) of memory (RAM)
Microsoft Windows XP with Service Pack (SP) 3 or
Microsoft Windows 7 32bit

3. Installing the Communication Software

Close all applications currently running on your computer.
Insert the CD into the drive and then load the CD via My Computer. Navigate to the following folder:



Then run the file "setup.exe".



Confirm this information when you have closed all applications currently running on your computer by clicking "OK".

If you receive a different message,

open the folder 

and run the file "setup.exe".

Follow the installation.

Go back to the directory



on the CD and run the file "setup.exe" once more.



Again, confirm this information with "Next>".



Enter your name and company here. Confirm with "Next>".



Enter the product ID. Confirm with "Next>".

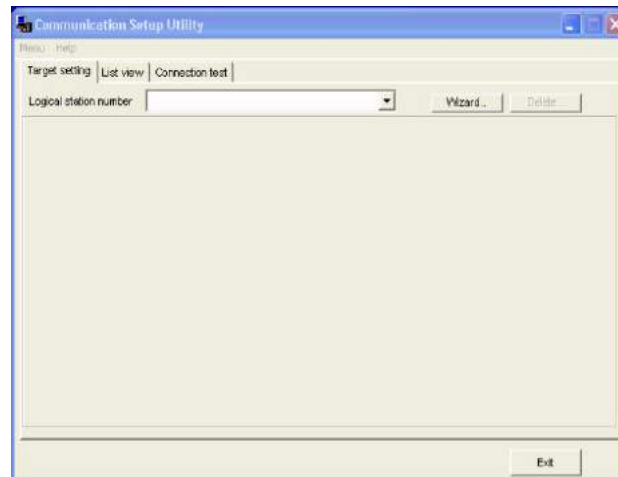


Confirm with "Next>" if you do not want to change the storage location.

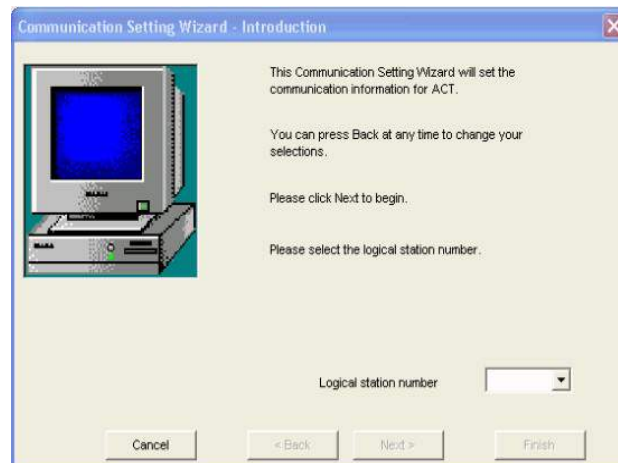
The software is now installed on your computer. Close the installation by pressing the "Finish" button.

4. Set Up of the Connection

Press the "Start" button and navigate to the Applications folder. Run the program "Communication Setup Utility."

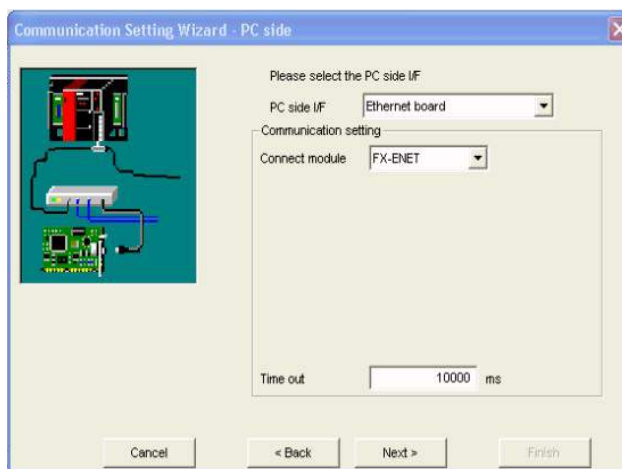


Press the button "Wizard."



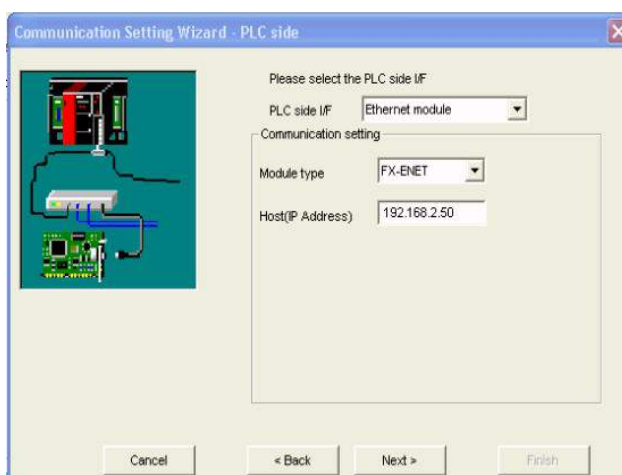
Enter the value "0" under "Logical station number" and confirm with "Next>".

Configure the following settings.



PC side I/F → Ethernet board
 Connection module → CPU module(FX5)
 Time out → 10000 ms

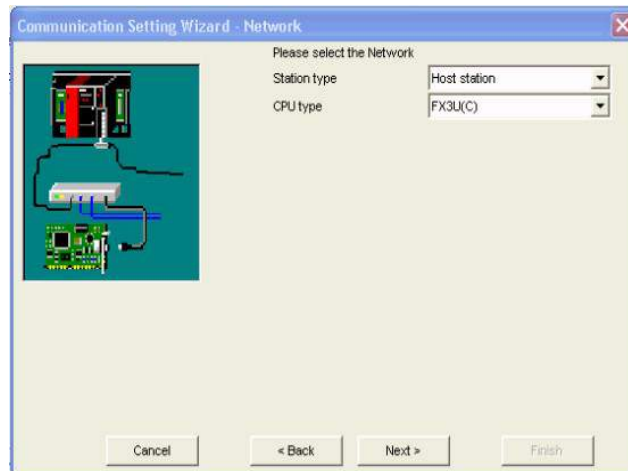
Confirm with "Next>".



PLC side I/F → CPU module(FX5)

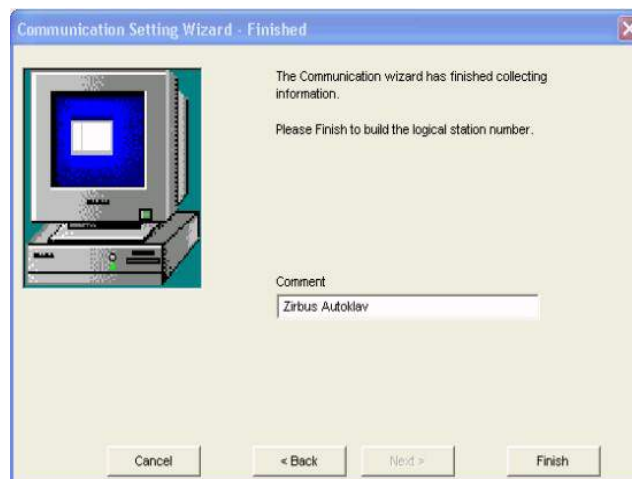
Set the IP - address of your ZIRBUS device/system.
 Host (IP Address) → e.g.: 192.168.2.50

Confirm with "Next>".



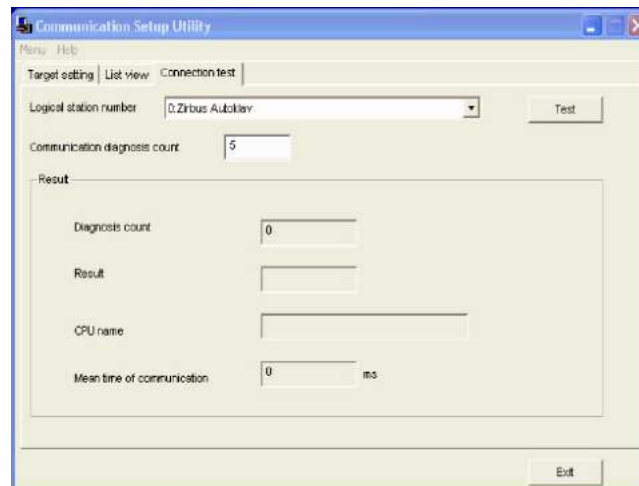
Station type → Host station
CPU type → FX5U

Confirm with "Next>".



Here you can enter a name for the connection.
for example: Zirbus autoclave.
Confirm with "Finish."

If you have already set the IP - address on your ZIRBUS device/system and the ZIRBUS device/system is switched on, you can test the connection by pressing the "test" button.



15.3 ZirbusSteriLog V3.01

Batch Documentation with ZirbusSteriLog

Installation and Program Description

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1. INTRODUCTION	3
2. SYSTEM REQUIREMENTS.....	3
3. INSTALLATION.....	4
3.1. ZIRBUSSTERILOG	4
3.2. ACCESS 2010 RUNTIME	6
3.3. MX COMPONENT (NETWORK VERSION ONLY).....	6
3.4. CONNECT AUTOCLAVE WITH PC (SERIAL VERSION ONLY).....	6
4. ZIRBUSSTERILOG	7
4.1 FIRST START	7
4.2 OVERVIEW.....	8
4.3 SETTINGS	9

1. Introduction

Batch documentation with ZirbusSteriLog in real time. After program start at the autoclave the documentation is started automatically. The analog values such as temperature and pressure are stored depending on the recording rate and shown in the diagram. The individual program steps are documented. The set program parameters such as program number, program type, sterilization temperature and sterilization time are recorded as well. After sterilization, MIN and MAX values of temperature and pressure as well as the reached sterilization time are documented. Batch start, batch end, and program duration are also displayed. You have the option to enter a corresponding program name for each program. You can enter the loading before or during a batch. All messages of the autoclave are recorded and documented before and during the program. If a program is terminated in the autoclave, the documentation is, depending on the setting, automatically printed out at the selected printer and additionally stored as a PDF file. You also have the option of storing the recorded analog data in a CSV file. The documentation corresponds to the requirements of DIN EN 285.

2. System Requirements

ZirbusSteriLog requires the following minimum system requirements:

- Processor with 800 megahertz (MHz) or faster
- At least 256 megabytes (MB) of memory (RAM)
- Microsoft Windows XP with Service Pack (SP) 3 or
- Microsoft Windows 7 32bit
- Microsoft Access 2010 or Microsoft Access 2010 Runtime

3. Installation

3.1. ZirbusSteriLog

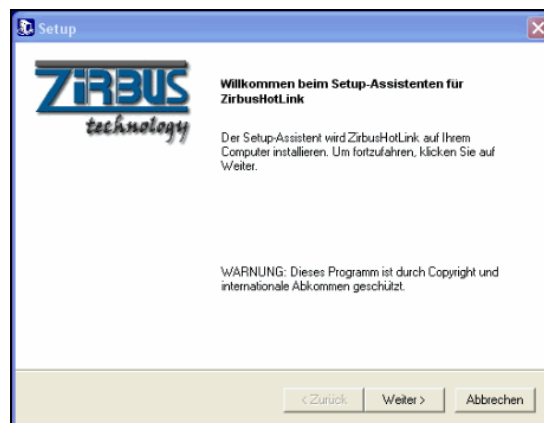
Insert the CD into the drive and then load the CD via My Computer. You have the option to install ZirbusSteriLog as a serial version or network version.

If you wish to connect your Zirbus autoclave directly with the PC via a null modem cable, please install the serial version. When using the network version, however, your Zirbus autoclave must be connected to the Ethernet network.

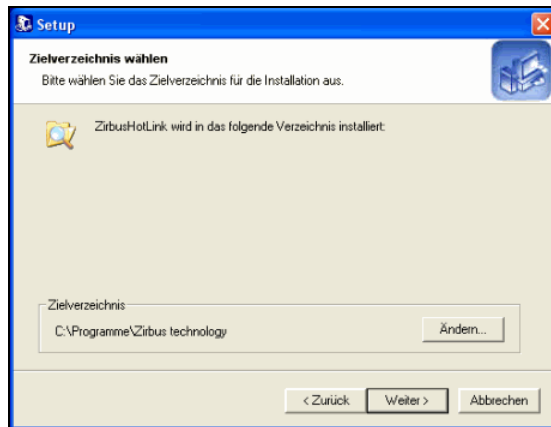


Now open the respective folder and run the file "setup.exe".

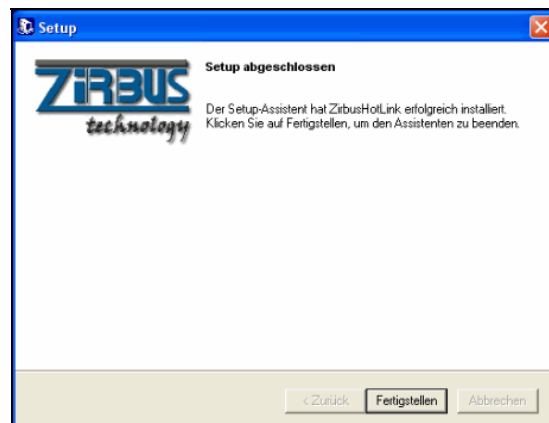
Follow the installation program.



Choose an installation directory. Make sure that the PC user has read/write access for the installation directory.



The installation is complete.



3.2. Access 2010 Runtime

If Access 2010 is not installed on your target system, the installation of Access 2010 Runtime is required. Start the installation file "Access2010Runtime" on the CD and follow the installation program.

3.3. MX Component (Network Version Only)

If your Zirbus autoclave has an Ethernet interface and you have installed ZirbusSteriLog as network version, please install the software MXComponent. Follow the installation instructions "MXComponent_V100" on the CD.

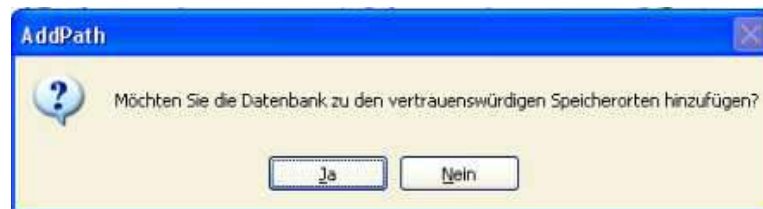
3.4. Connect Autoclave with PC (Serial Version Only)

The serial version only requires connecting your PC to the Zirbus autoclave with a null modem cable. However, the maximum permitted cable length is 10 meters.

4. ZirbusSteriLog

4.1 First Start

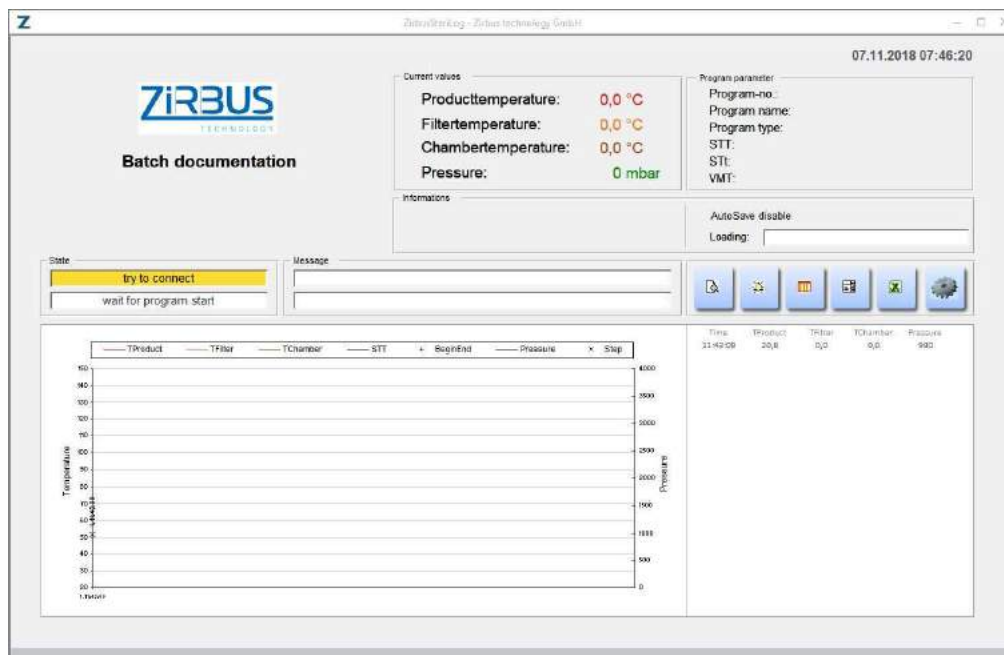
When you start the batch documentation for the first time you receive a security warning. Confirm with "OK". Then you have the option to classify the file location as trustworthy.



When you confirm this message with "Yes" at the next startup the security warning will not appear again.



4.2 Overview



opens the batch documentation



displays all messages of the Zirbus autoclave



displays the program history of the Zirbus autoclave



displays the program name



exports the batch to Microsoft Excel

After you have adjusted the settings described in Section 4.3, the message "Read OK" should be displayed in the "status" window. ZirbusSteriLog is now ready for documentation.

4.3 Settings

Before you can use the batch documentation, you need to configure the settings.
To do so press the button

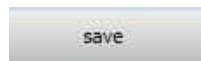


Interface: Set the COM port of the connection with the Zirbus autoclave here.

Documentation: Select the output of the documentation.
To do so press the button "Printer," "PDF," or "CSV".

Then set the file location for PDF and CSV files. You can also search for a directory with the magnifying glass. In "Recording Rate" you can set the interval of recordings. The default interval is set to 5 sec. The button "Disk" activates AutoSave. This stores the documentation after a preset time while a program is running.

Press the button afterwards



Now set the equipment data. To do so press the button

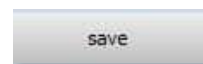


Equipment data: Enter the equipment designation e.g. HST 6x6x6 and then the device number such as 11/3001.

Analog values: Here, you can determine by pressing the appropriate buttons, which sensors on the Zirbus autoclave are in place.

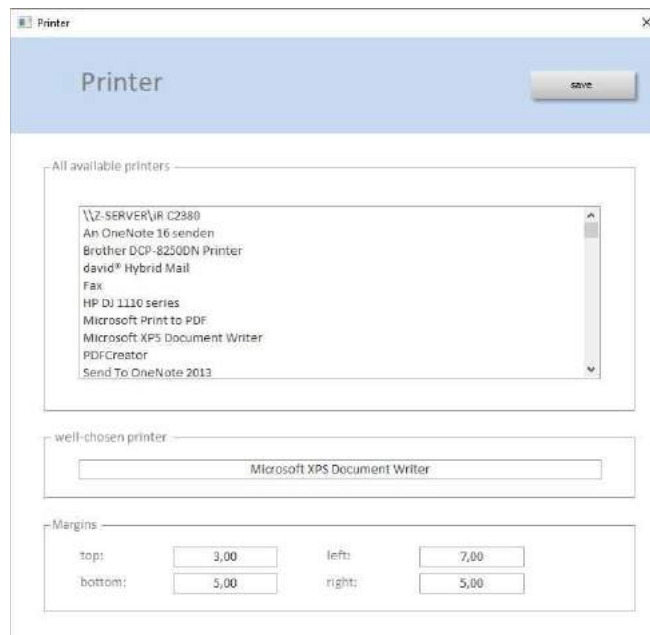
Vacuum air test: Set the program number of the vacuum air test at the Zirbus autoclave.

Press the button afterwards



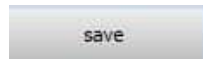
Now set the printer. To do so press the button





Select the printer for printing out the documentation. Under side edges, you can set the margins for the documentation.

Press the button afterwards



With button  you again have the option, as described in section 4.1, to classify the installation directory as trustworthy.

15.4 ZirbusDataLog V3.02

Batch Documentation with ZirbusDataLog

Installation and Program Description

TABLE OF CONTENTS

1. INTRODUCTION	3
2. SYSTEM REQUIREMENTS.....	3
3. INSTALLATION.....	4
3.1. ZIRBUSDATALOG	4
3.2. ACCESS 2010 RUNTIME.....	5
3.3. WINDOWS TIME FORMAT SETTINGS	5
4. ZIRBUSDATALOG.....	6
4.1 FIRST START	6
4.2 OVERVIEW	7
4.3 SETTINGS	8
4.4 IMPORT DATA.....	9

1. Introduction

Batch documentation with ZirbusDataLog via storage medium.
After program start at the autoclave all relevant data is recorded onto a storage medium, such as a USB stick. This recorded data can then be uploaded, evaluated and documented with ZirbusDataLog. The analog values such as temperature and pressure are hereby displayed in a diagram. The individual program steps are documented. The set program parameters such as program number and sterilization temperature are recorded as well. The sterilization phase is evaluated and documented in MIN and MAX values of temperature and pressure as well as reached sterilization time. Batch start, batch end, and program duration are also displayed. You have the option to enter a corresponding program name for each program. All messages of the autoclave are recorded and documented during the program. You have the option to export the recorded data. The display of the documentation meets the requirements of DIN EN 285.

2. System Requirements

ZirbusDataLog requires the following minimum system requirements:

Processor with 800 megahertz (MHz) or faster
At least 256 megabytes (MB) of memory (RAM)
Microsoft Windows XP with Service Pack (SP) 3 or
Microsoft Windows 7 32bit
Microsoft Access 2010 or Microsoft Access 2010 Runtime

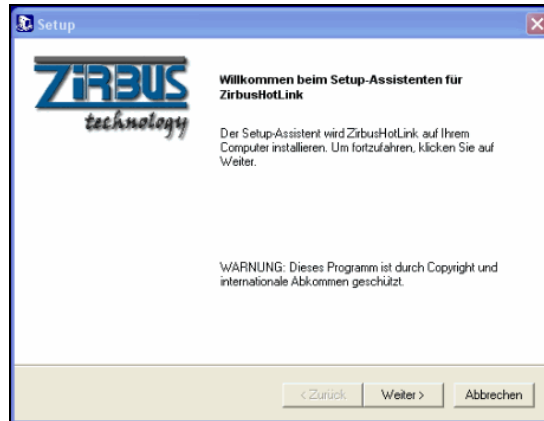
3. Installation

3.1. ZirbusDataLog

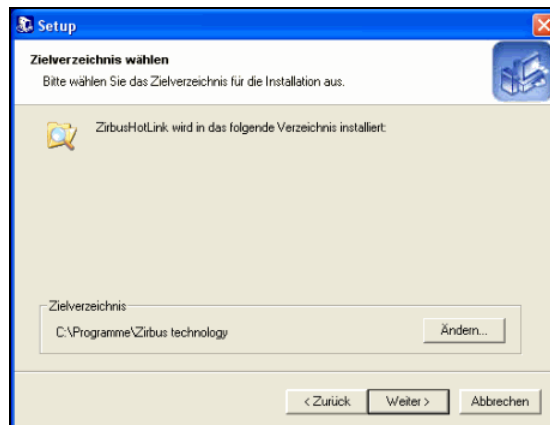
Insert the CD into the drive and then load the CD via My Computer.

Now run the file "setup.exe".

Follow the installation program.



Choose an installation directory. Make sure that the PC user has read/write access for the installation directory.



The installation is complete.

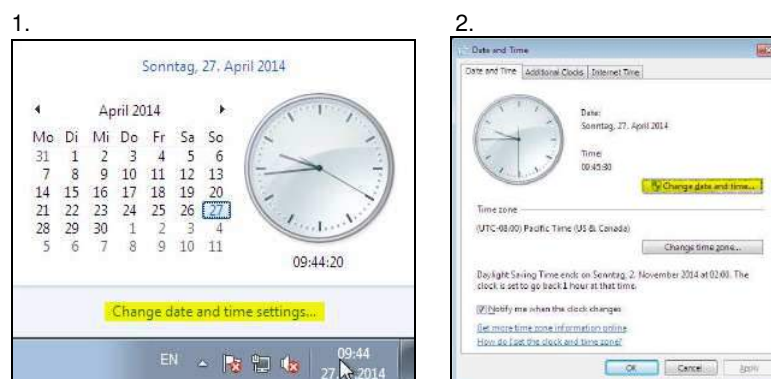


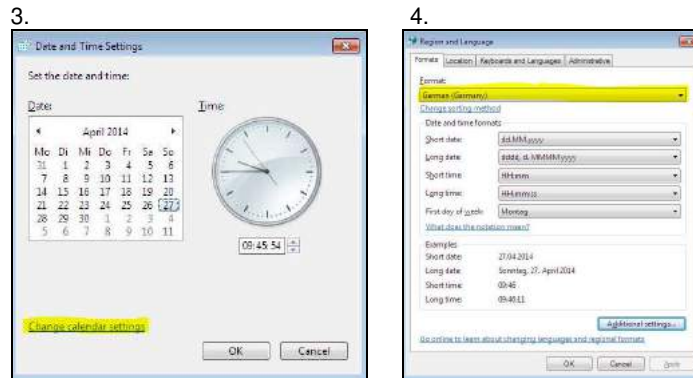
3.2. Access 2010 Runtime

If Access 2010 is not installed on your target system, the installation of Access 2010 Runtime is required. Start the installation file "Access2010Runtime" on the CD and follow the installation program.

3.3. Windows time format settings

It's important to set the Windows time format to "German". The following steps are to do:





4. ZirbusDataLog

4.1 First Start

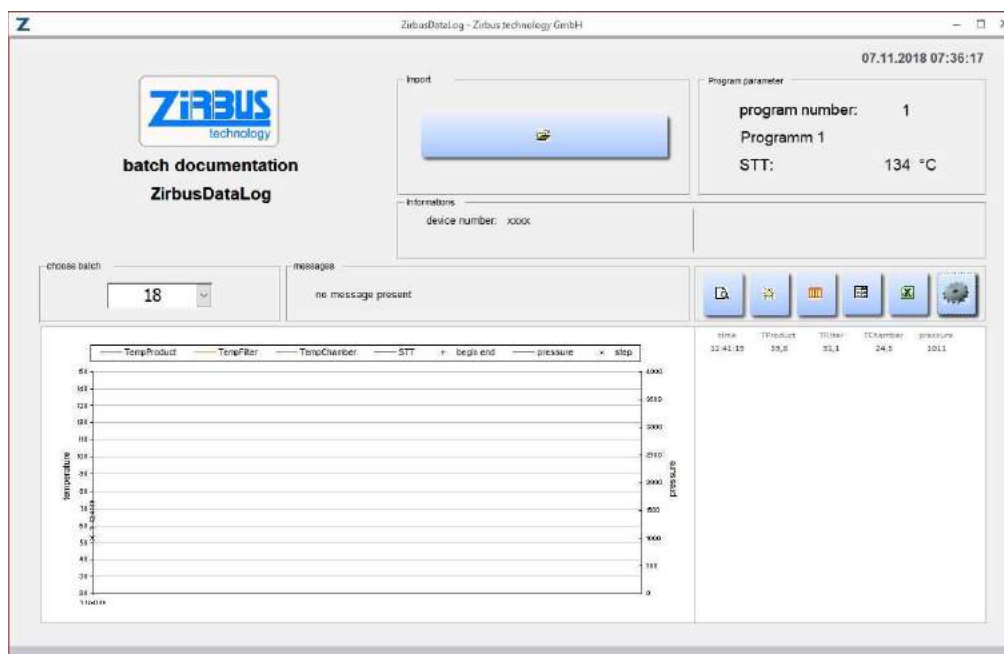
When you start the batch documentation for the first time you receive a security warning. Confirm with "OK". Then you have the option to classify the file location as trustworthy.



When you confirm this message with "Yes" at the next startup the security warning will not appear again.



4.2 Overview



opens the "Import data" menu



opens the batch documentation



displays all messages of the batch



displays the program history of the batch



displays the program name



exports the batch to Microsoft Excel

After you have imported the settings under Section 4.3 and the data as described in Section 4.4, you can select a batch under "Select Batch."

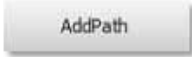
4.3 Settings

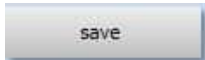
Before you can use the batch documentation, you need to configure the settings.
To do so press the button



Analog values: Here, you can determine by pressing the appropriate buttons, which sensors on the Zirbus autoclave are in place.

Vacuum air test: Set the program number of the vacuum air test at the Zirbus autoclave.

With button  you again have the option, as described in section 4.1, to classify the installation directory as trustworthy.

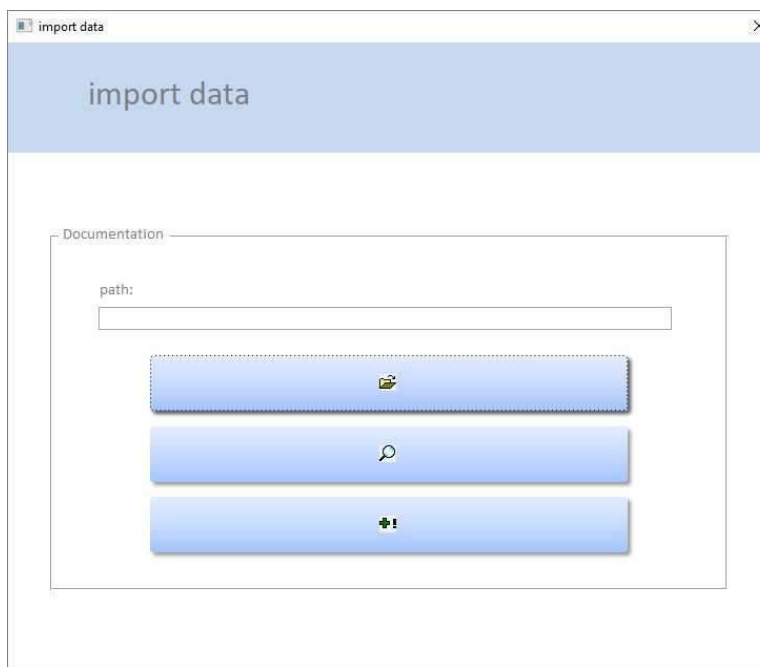
Press the button afterwards 

4.4 Import Data

Press the button



The following window opens up:



Press button  to select the log file.

You can then view the selected data with .

Press button  to import data.

15.5 List of abbreviations

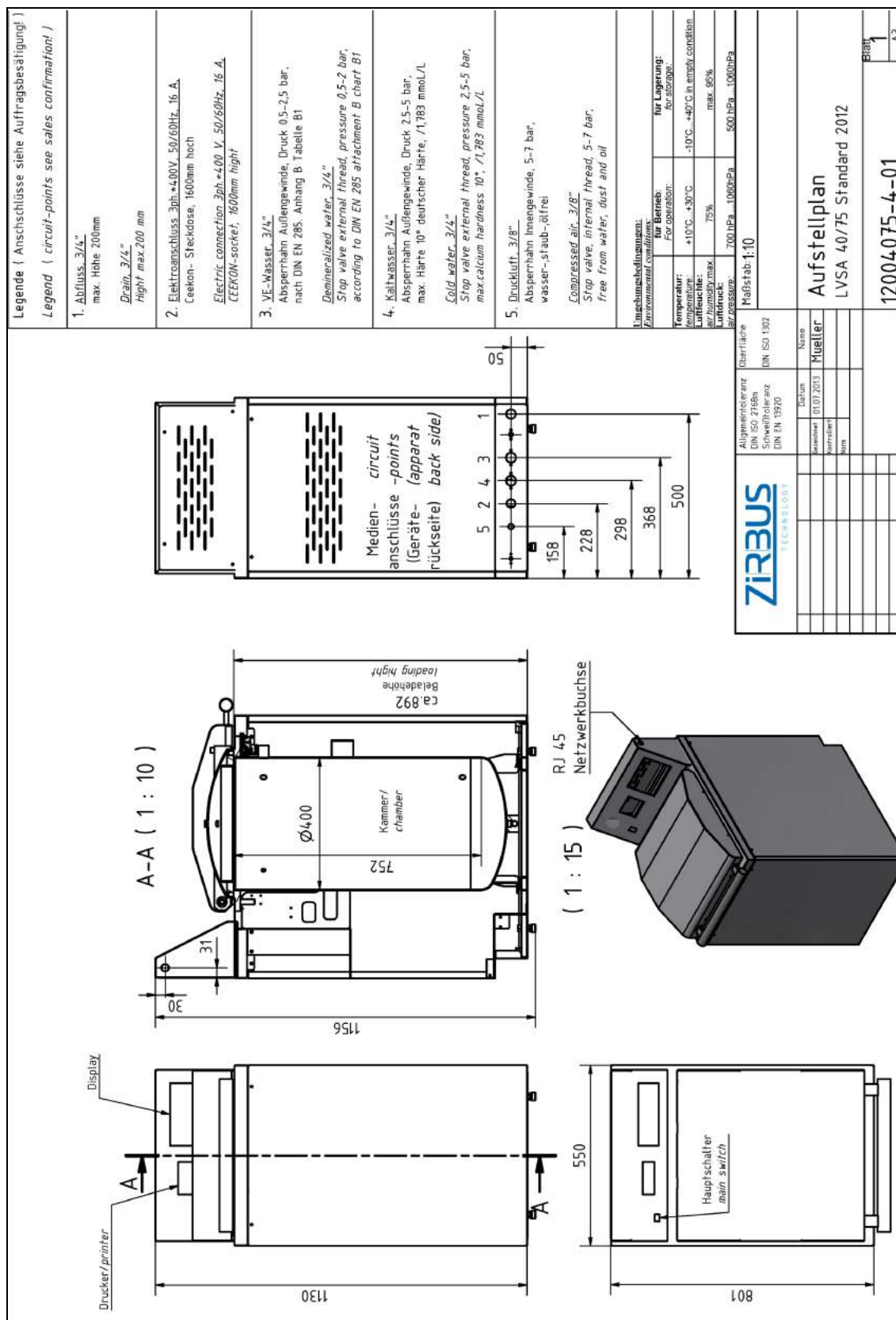
The table lists and explains abbreviations used in the visualization.

Abbreviation	Meaning
DLGV	Steam-air mixture method Heating of the chamber under increased pressure.
FRVV	Fractionated vacuum Draw air from the chamber using a vacuum more than once and then by vapour feed.
GRAV	Gravitation Draw air from the chamber without a vacuum, only by vapour feed.
VOVV	Pre-vacuum Draw air from the chamber using a vacuum once and then by vapour feed.
SPEA	Steam pulse evacuation of air (Steam pulse evacuation of air)
PLC	Programmable logic control
STT	Sterilisation temperature Temperature at which sterilisation is performed.
STt	Sterilisation time Time for which sterilisation is performed.
TP	Touchpanel
ÜBT	Over-temperature To safely reach the sterilisation start temperature, the over-temperature 134 +1° can be entered to prevent the error message "STT not reached".
VE	Fully desalinated Fully desalinated water used for the steam generator.
VMT	Vacuum drying Drying with vacuum after the sterilisation process is completed.

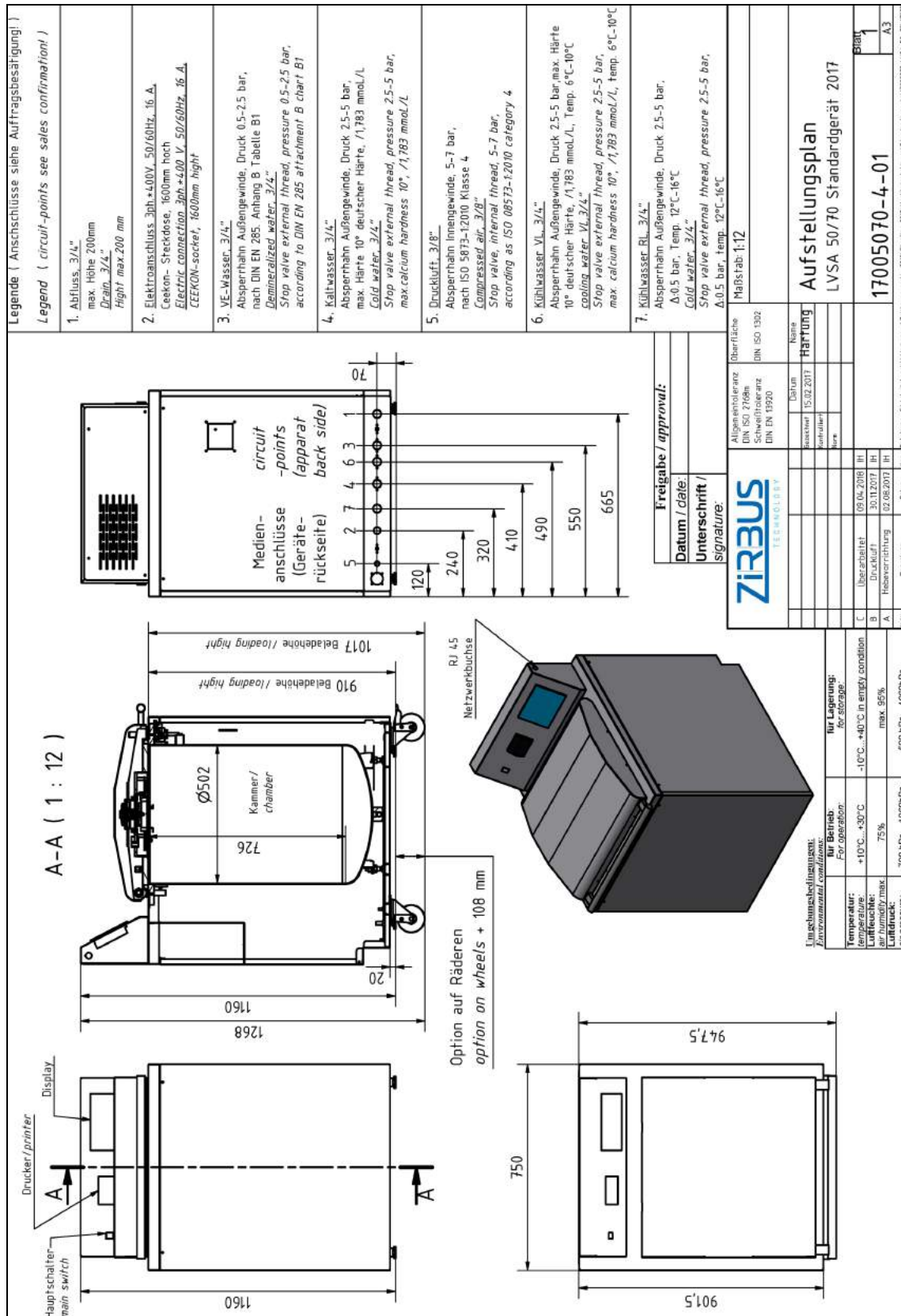
15.6.1 Set-up plan – LVSA 40/60



15.6.2 Set-up plan – LVSA 40/75



15.6.4 Set-up plan – LVSA 50/70



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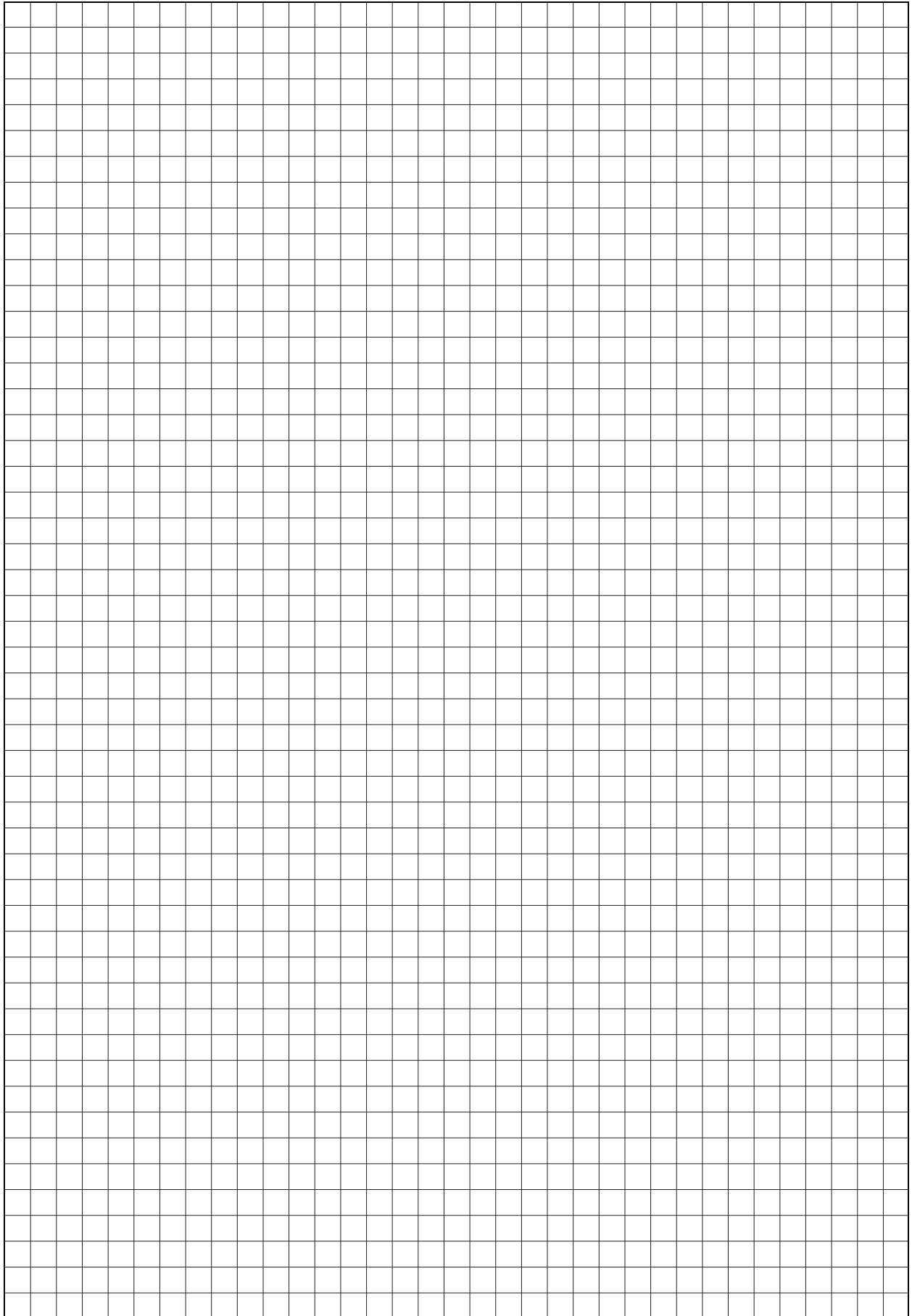
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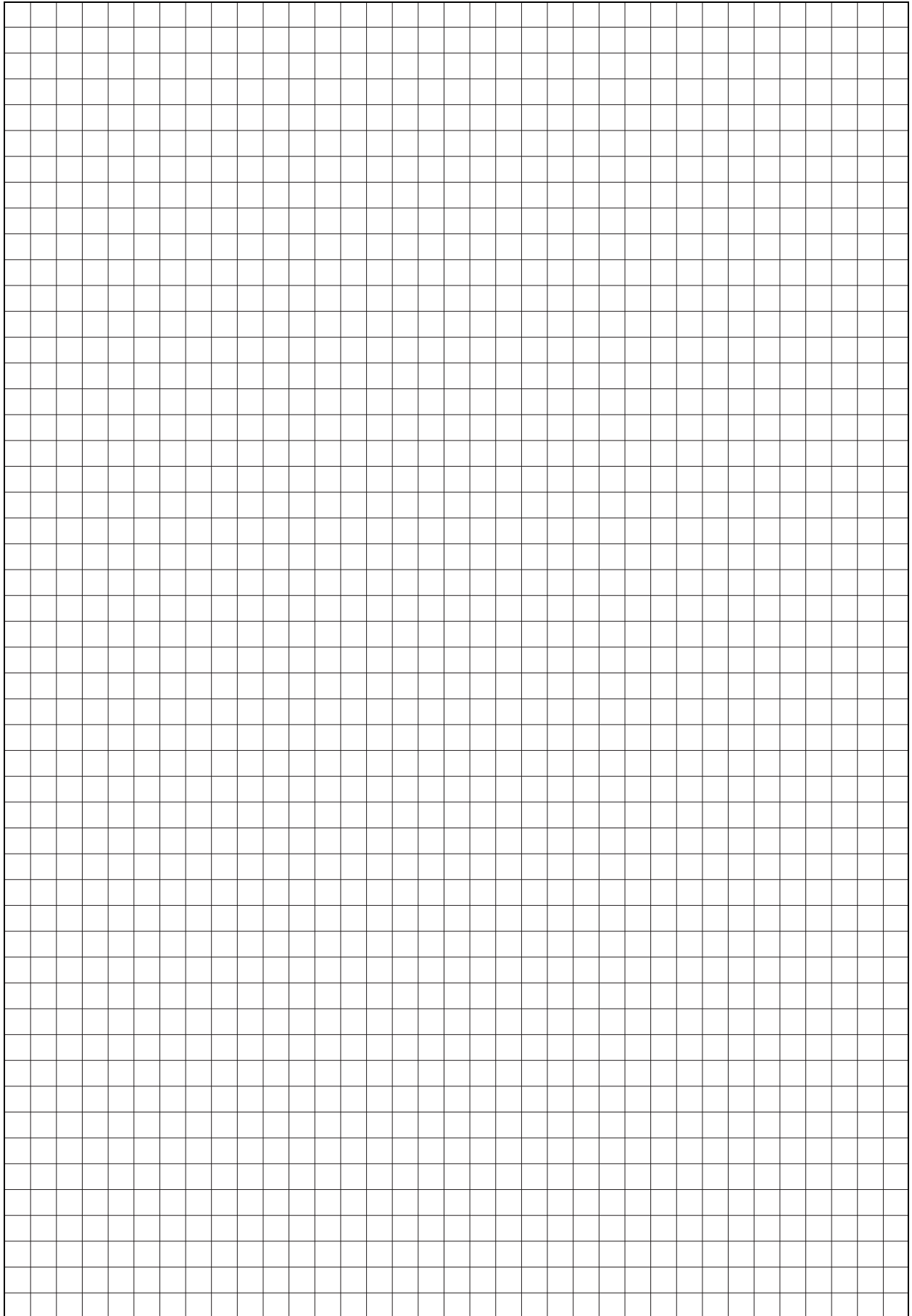
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