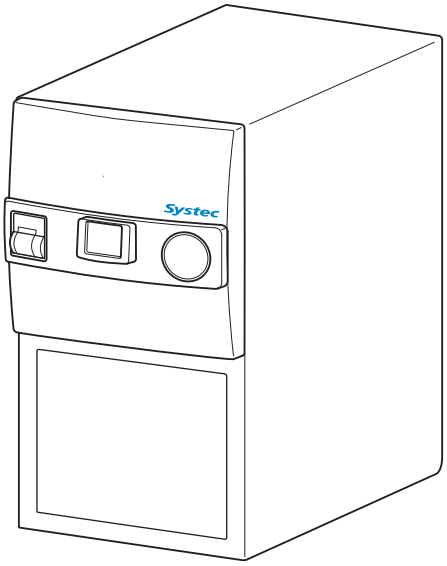
OPERATING MANUAL
SYSTEC HX SERIES



Model: Systec _____

Serial No.: _____

Options installed: See rear

Revision: 1.0

13.05.2011

CE 0871

If you did not order a cooling system, then your device is automatically equipped with “air cooling via inside air ventilation without support pressure, only for open vessels”.

Rapid cooling with cooling water, without loss of liquid in the sterilised item, for open and tightly-closed vessels up to 1000 ml, with support pressure via sterile-filtered compressed air.

☐ Art. No. 6058

Internal radial fan for increasing the efficiency of the rapid cooling. The cooling time is reduced by approx. 50% compared to water cooling without a radial fan.

☐ Art. No. 9511

Ultra-cooler, additional heat exchanger used in connection with optional water cooling and optional radial fan on Systec HX series and Systec HX series 2D. Reduction of cooling time by 90% compared to normal cooling (cooling time approx. 15–60 minutes for sterilisation of liquids in 1000 ml containers, depending on load).

☐ Art. No. 9521

Spray cooling via recirculation of sterile water and cooling via the heat exchanger with support pressure via sterile-filtered compressed air (over 90% time-saving in comparison to normal cooling).

☐ Art. No.

Vacuum unit with water ring vacuum pump for a simple, segmented pre-vacuum. For improving air removal from the sterilisation chamber, porous items, hollow objects and for sterilising waste in destruction bags. Including post-vacuum for drying and ventilation using sterile filters.

For Systec HX-320 to Systec HX-430 and Systec HX-320 2D to Systec HX-430 2D.

☐ Art. No. 9604

Super-dry liner heating during the post-vacuum for absolute drying and for pre-warming before the start of the program to reduce condensate.

☐ Art. No. 9608

Exhaust filter during heating phase and sterilisation of the condensate for infectious material including filter cartridge, for Systec HX series and Systec HX series 2D.

☐ Art. No. 8032

Glass test program according to ISO 4802-2, DIN 52339.

☐ Art. No. 9612

Durham program, special program for sterilising Durham tubes.

☐ Art. No. 7777

Free steam program, max. temperature 100 °C, cooling to end temperature of 95 °C.

☐ Art. No. 9995

Steam-air mixture, facility and program for sterilisation in the steam-air mixture process without cooling.

☐ Art. No. 1099

Hot water sprinkling

☐ Art. No.

Extension of temperature/pressure for facility and program to 150 °C and 5 bar.

☐ Art. No. 9607

Printer

☐ Art. No. 8011

Aquastop to block the water supply when a hose breaks. A separate Aquastop is needed for unprocessed water and demineralised water.

☐ Art. No. 9997

Silent 200 air compressor

☐ Art. No. 8505

F0 value calculation

☐ Art. No.

Audit trail

☐ Art. No.

Ramp program

☐ Art. No.

Fermenter program

☐ Art. No.

Repeating program cycle

☐ Art. No.

Extension of the temperature hold time

☐ Art. No.

Contents

List of figures

List of tables

1 NOTES ON THIS MANUAL

This manual describes all operations when handling the device. It is:

- Used to inform the user of this product
- Aimed specifically at qualified technical personnel with many years of experience

The manual should be passed on together with the product.

For technical personnel instructed in its use, brief instructions describe the operational steps involved in everyday use of the device.

1.1 Proper use

An appendix with the following documents is part of this operating manual:

- Pipe and circuit diagram
- List of replacement parts
- Evaluation report on internal pressure dimensioning in accordance with DIN EN 13445, when required (does not apply to all countries)
- Declaration of conformity in accordance with Pressure Equipment Directive 97/23/EC
- Logbook

1.2 Diagrams

All diagrams in this operating manual are only examples. Deviations from the diagrams are possible, depending on the model and size. The original diagrams included in the text must always be used for all work.

1.3 Copyright declaration

2 DEVICE DESCRIPTION

Aim of this section

This section gives you an overview of the functions and design of the device.

Contents

2.1 Description of functions

The devices described in this operating manual are used for sterilisation in steam or steam-air mixtures. They are state-of-the-art and built according to standard safety regulations.

With their innovative design characteristics, they make the process cycles simpler, safer and more precise. The processes can be reproduced and validated:

- Microprocessor control with plain text menu via touchscreen
- Individual setting of parameters for sterilisation processes
- Steam generation in own steam generator
- Segmented heating
- Thermostatically controlled exhaust steam condenser
- Keep-warm function
- Automatic start of the device
- Optional: Operation according to FDA CFR21, part 11

The wide range of options mean that these devices can be optimally adapted to everyday laboratory life.

2.2 Design

2.2.1 Control elements and connections

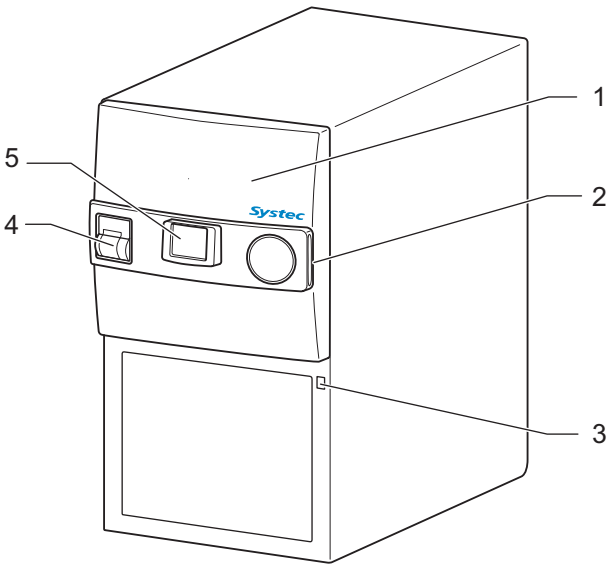


Fig. 1: Door closed

1 Door
2 Recessed grip
3 Main switch
4 Printer (optional)
5 Touchscreen

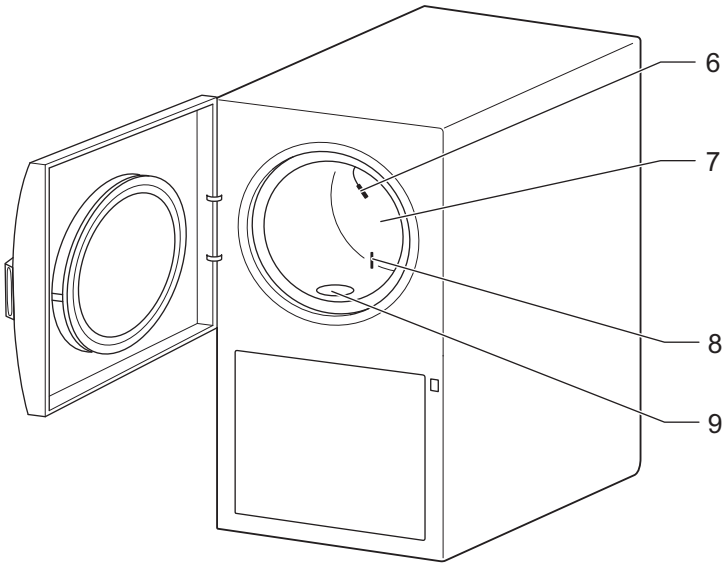


Fig. 2: Door open

6 Flexible temperature sensor
7 Sterilisation chamber
8 Water level sensor
9 Dirt strainer

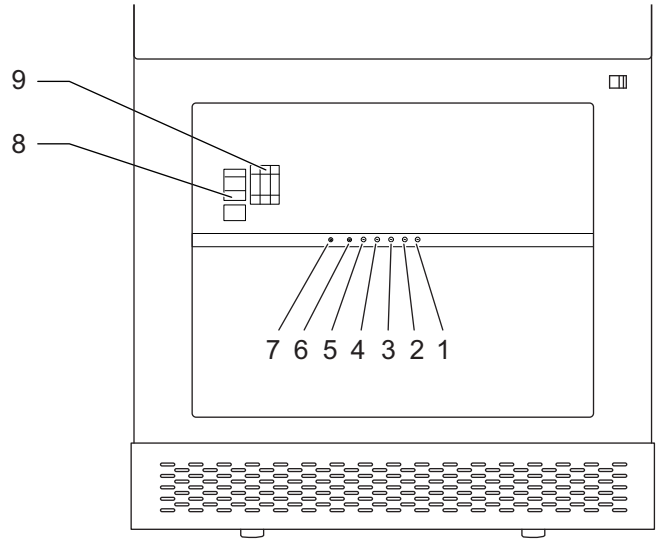


Fig. 3: Fuses on front of device (with lower service door removed)

1 Fan
2 Circulation pump (optional)
3 Membrane pump (only on devices without vacuum pump)
4 Demineralised water pump
5 Controller
6 Safety temperature limiter for heater 2
7 Safety temperature limiter for heater 1
8 Motor circuit-breaker for vacuum pump
9 Main fuse

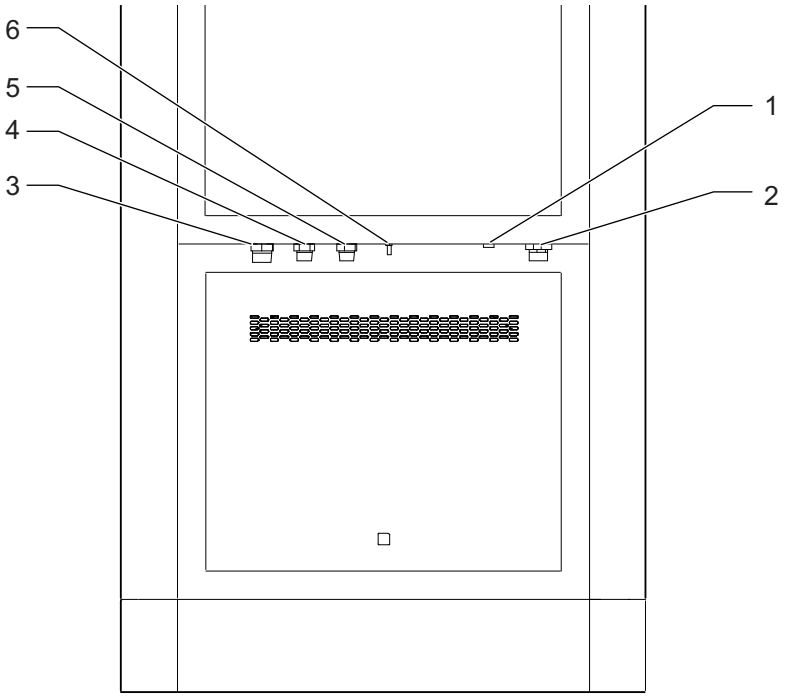


Fig. 4: Connections on rear of device

1 Serial interface (RS-232 for connection to a PC)
2 Power supply (3 phase, 380–400 V + N + PE), 32 A (optional 50 A)
3 Waste water (1") outer thread (drain provided by customer, temperature-resistant to 103 °C)
4 Cooling water (3/4") outer thread, pressure > 1 bar, 500 l/h
5 Demineralised water (3/4") outer thread, pressure > 1 bar, 30 l/h
6 Compressed air (7.2 mm quick release connector), pressure > 6 bar
- 2 m^3/h for devices without support pressure supply
- 10 m^3/h for devices with support pressure supply

2.2.2 Operation via touchscreen

The device is operated solely using the touchscreen (see chapter 4, “Operation”).

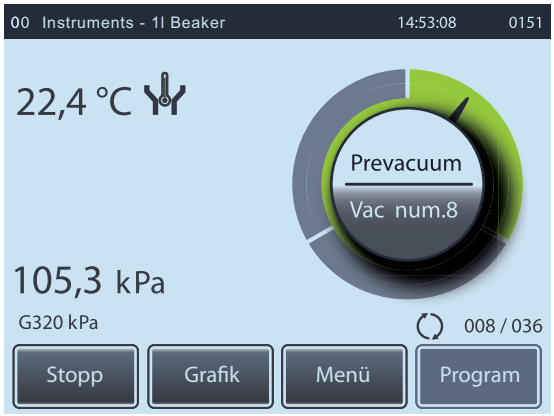


Fig. 5: Touchscreen

2.3 Proper use

The device is used for the sterilisation of liquids and solids in steam or a steam-air mixture.

The use of other applications in steam or a steam-air mixture can be checked on request.

Other use or use beyond that described above is considered as improper use.

The operator must ensure that the product to be sterilised is suitable for steam sterilisation in the device with the options installed. This applies in particular to devices without a vacuum unit, for example, when sterilising hollow objects and porous materials.

Systec GmbH is not responsible for any damage resulting from improper use.

Proper use also includes the following:

- Observation of all the instructions in the operating manual
- Adherence to inspection and maintenance work
- Operation of the device by persons instructed by trained technical personnel
- Adherence to the operator's working and safety regulations.

We accept no responsibility for damages resulting from improper use.

The device is not approved according to the Medical Devices Law (see EN 285).

Impermissible use of the device is, for example:

- Sterilisation of surgical instruments

2.4 Structural alterations to the device

No alterations, extensions or modifications may be made to the device without the manufacturer's authorisation. This also applies to welding performed on supporting parts or parts relevant to safety, such as pressure boilers and all attachment parts.

All modification measures require written authorisation from Systec GmbH.

- Machine parts that are not in a perfect condition should be immediately replaced.
- Only use original replacement parts.

In the case of parts from other manufacturers, there is no guarantee that they are designed and produced so as to satisfy stress and safety requirements.

2.5 Technical thresholds

- The permitted pressure and temperature must not exceed the pressure-temperature values detailed in this operating manual (see chapter 10 “Technical data”). The specifications on the type plate / label must be observed.
- Permissible sterilised items and containers are those that possess the biological, chemical and physical characteristics required for safety in everyday laboratory use, and are suitable for steam sterilisation in the device with the options installed. This must be ensured by their state-of-the-art condition or from operator experience.

2.6 Warranty and liability

Our “General sale and delivery conditions” apply at all times. These are available to the operator from the signing of the contract, at the latest. Warranty and liability claims in the event of personal injury or material damage are rendered ineffective if caused by one or more of the following reasons:

- Improper use of the device.
- Improper mounting, commissioning, operation or maintenance of the device, or non-adherence to the German Ordinance on Industrial Safety and Health.
- Operation of the device with defective safety equipment or safety and protection devices that have not been installed correctly or are not functioning correctly.
- Non-observance of the instructions in the operating manual.
- Transportation, storage, assembly, installation, commissioning or decommissioning made by a service technician who is not authorised by Systec.
- Unauthorised structural alterations to the device.
- Insufficient monitoring of components exposed to wear.
- Incorrectly performed repairs.
- Disasters caused by foreign bodies or force majeure.

2.7 Guarantee and service

Your Systec device is a high-quality product. We hereby declare that this device is free from material and processing defects, and provide a one-year guarantee against defects in components or their processing. We are only obliged to repair or replace devices or their components after we have examined them, and only if the damage can be demonstrated to have occurred within two years of the delivery date.

If you have difficulties operating the device and cannot find the solution in these operating instructions, please contact Systec GmbH under the telephone number given above.

- Do not attempt to repair the device yourself under any circumstances!

Systec service hotline: +49 (0)641 982120

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3 SAFETY

Aim of this section

This section gives you an overview of the fundamental safety aspects when handling the device.

Contents

3.1 Observing the instructions in the operating manual

This operating manual:

- Informs you about safe handling and trouble-free operation
- Informs you about fundamental safety instructions and safety regulations
- Contains important instructions on how to operate the device safely
- Must be observed by all persons working on the device

In addition, the valid on-site rules and regulations regarding accident prevention must be observed, particularly the printer guidelines.

3.2 Obligations of the operator

The system operator is obliged to:

- Register the system with the relevant authorities according to its use and the applicable local regulations
- Operate the system with the required technical safety measures
- Only use trained and authorised personnel for all work, such as electrical installation, commissioning and maintenance
- Only allow persons to work on the device who are familiar with the fundamental regulations on work safety and accident prevention, who have been instructed on handling the device and who have read the operating manual carefully, understood it and confirmed this with their signature

- Check that personnel are working in a safety-conscious manner at regular intervals.

3.3 Obligations of personnel

All persons who work with the device are obliged to:

- Observe the fundamental regulations regarding work safety and accident prevention
- Use the prescribed personal protective equipment
- Perform only the assigned tasks
- Read this operating manual carefully and confirm with their signature that they have understood it

3.4 Residual risks when handling the device

The devices are state-of-the-art and built according to standard safety regulations. Nevertheless, the danger of death or injury to the user or a third party, or damage to the device or other material assets, can arise when using the device.

For this reason, the device is only to be used:

- As intended
- In a faultless condition with regard to safety

Faults that could negatively affect safety must be resolved immediately.

The following residual risks result from the device function, and must always be taken into account:

3.4.1 Burns

After sterilisation:

- Hot clouds of steam can escape and lead to burns
- Surfaces inside the container or near the sterilised item can be hot and can lead to burns if touched

3.4.2 Heavy loads

Fully-loaded baskets or fillers can be too heavy to lift manually when loading or unloading. If this is the case, the baskets or fillers should be partially unloaded beforehand.

3.4.3 Hazardous substances

When sterilising solids or liquids that have been contaminated with hazardous substances, the prescribed personal protective equipment appropriate for the hazardous substances in question must be used.

3.4.4 Danger of fire or explosion

When sterilising flammable or explosive solids or liquids, the prescribed procedures for the flammable or explosive substances in question must be observed.

3.4.5 Maintenance

The service doors must be removed for maintenance and repair work (e.g. replacing defective fuses).

Always disconnect the device from the power supply before removing the service doors.

3.4.6 Operation

After using the device, ensure that it is properly switched off at the main switch and that all supply sources are closed (e.g. cooling water and compressed air supply).

To avoid water damage, we recommend the “Aquastop” option as an additional safety measure.

3.4.7 Risks due to wear

The device must be serviced at regular intervals set by the operator, as specified in the maintenance guidelines. The manufacturer recommends regular maintenance every 500 cycles, or at least once a year.

3.5 Specific risks of individual sterilisation procedures

Additional specific risks can arise when using particular sterilisation programs. You will find specific instructions regarding these risks and how to avoid them in the corresponding descriptions in the following sections of this operating manual.

3.5.1 Incorrect use of the solids program

When sterilising liquids in glass containers with the solids program, a delay in boiling can occur and the glass container can shatter.

3.6 Warning instructions and safety signs

In addition to the basic and specific safety instructions, risks can arise through dangerous working procedures.

These procedures are indicated as follows:

WARNING

These points warn of a danger of serious or fatal injuries. A safety sign corresponding to the particular type of danger gives an additional warning.

- Follow the instructions for preventing the danger.

ATTENTION

These points refer to possible damage to the device or to the sterilised item.

- Follow the instructions exactly to prevent incorrect operation or destruction of the device.

3.7 Supplementary instructions

Any operating variations or additional notes on the basic working procedures are indicated as follows:

These points provide information on additional or alternative procedures that are possible under certain circumstances, for example.

4 OPERATION

Aim of this section

This section gives you an overview of the device requirements with regards to location, basic operation and loading of various sterilised items.

Contents

4.1 Commissioning

4.1.1 Installation site

Note the following when selecting an installation site for the device:

- The installation site must be selected so that all sides of the device are accessible.
- The permissible load on the cover at the installation site must not be exceeded (see chapter on “Technical data”).
- Only original hoses provided by the manufacturer are to be used.

Connections

The supply and disposal connections should be located in the immediate vicinity of the device. Hoses and cables must be laid so that kinking is avoided. An overview of necessary supply connections can be found in chapter 2 (“Device description”).

Prevent water damage!

Connect the drain hose securely to the drain provided by customer.

Contact the manufacturer if you have queries about the connections. The contact details can be found in chapter 2 of this manual.

4.1.2 Installation and training

Installation must be carried out by an authorised service technician!
The service technician ensures that the device is connected correctly, performs a function test, and enters the device-specific data in the logbook.

Following the installation, the service technician gives the users a briefing on the device. The technician enters the names of the trained persons together with the date of training into the logbook, and confirms the work with signature.

4.1.3 User guide and brief instructions

The operator creates a user guide on how to operate the device and positions it in the immediate vicinity of the device in a place where it can be clearly seen, together with the brief instructions.

The user guide must meet the applicable regulations of the country in question.

4.2 Control elements

Familiarise yourself with the operation of the device and the control elements before using it for the first time (see chapters 2 and 4).

4.2.1 Main switch

The main switch switches the power supply to the device on and off. Always switch off the device at the main switch after use, or if danger has been detected in the device.

Interruption of the power supply

When the power supply is switched off during operation, the current process is interrupted.
When switched on again, the device continues the process from the point of interruption. Any relevant error messages remain on the touchscreen. The pressure and temperature values displayed reflect the current state.

4.2.2 Door

Danger of burns when opening the door!

After sterilisation, the surfaces of the door and the sterilisation container are hot. When the door is opened, hot clouds of steam and hot water can escape.

- Always move the door using the recessed grip.
- Wear the prescribed personal protective equipment.

Automatic door lock!

The devices are equipped with an automatic door lock. A locking ring meshes with the door and locks it securely.
To facilitate the locking process, a vacuum is created when the door closes which holds the door closed until the locking ring has mechanically locked the door.

Closing the door:

- Press the door in and hold it briefly until the locking ring has clearly locked.

Opening the door:

Press the OPEN function key. The door is unlocked and automatically opens by 3 to 4 cm. To open the door completely, use the recessed grip.

A locking device prevents the door from being opened accidentally. The door lock can only be unlocked if the unloading temperature has been reached and the sterilisation chamber is in a depressurised state.

4.3 Touchscreen

The device is controlled by a microprocessor. The entire operation is made on the touchscreen.

The current program parameters and all device states are displayed on the touchscreen.

Basic touchscreen display

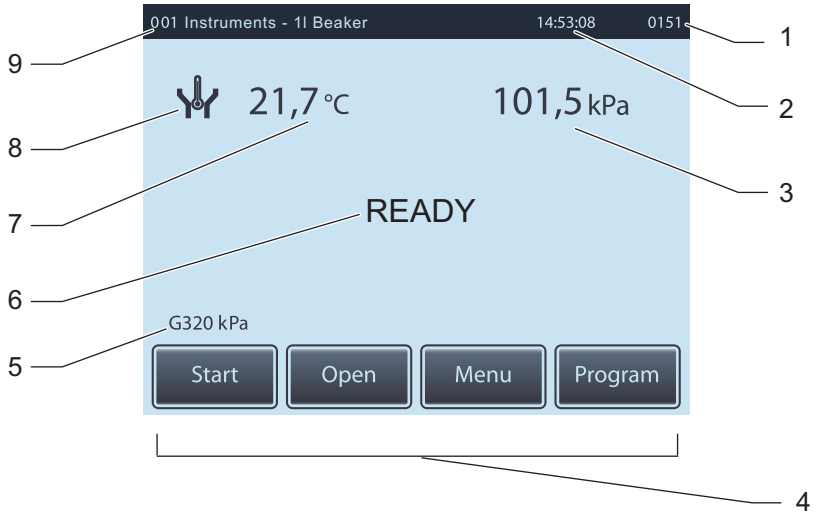


Fig. 6: Basic touchscreen display

1 Cycle counter (increases by “1” after every sterilisation cycle)

2 Time

3 Current pressure in the sterilisation chamber

4 Function keys

5 Current pressure in steam generator

6 Text box with instructions (plus error messages and status information, when applicable)

7 Current temperature of the selected control sensor

8 Symbol display of the control sensor selected for the current program:

- Flexible temperature sensor

- Fixed sensor

9 Selected program number and name

10 Additional name (optional)

Touchscreen during a program cycle

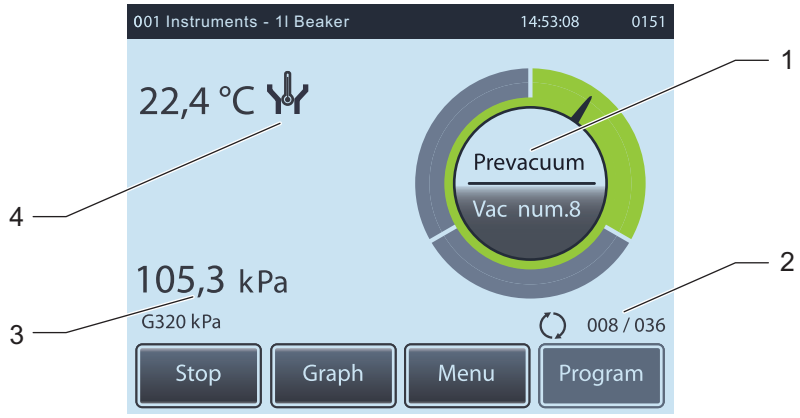


Fig. 7: Touchscreen during a program cycle

1 Progress bar for program cycle

2 Counter for repeating program cycles (current cycle/set number)

3 Current pressure in the sterilisation chamber

4 Symbol display of the control sensor selected for the current program:

- Flexible temperature sensor

- Fixed sensor

Touchscreen in standby mode with preset start time

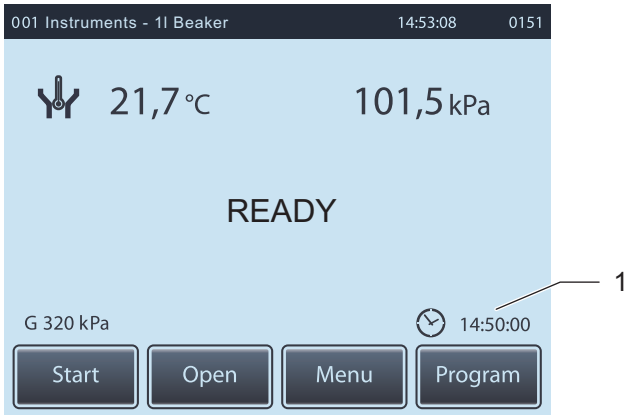


Fig. 8: Touchscreen in standby mode

1 Set start time at which a selected program should be started

The displayed language can be set. The displays in this operating manual correspond to the factory setting of the device. Depending on the language setting selected, the display text can differ from the examples given here. If you would like to adapt the language setting to your needs, the following table provides you with a comparison of the available display texts in the respective language.

English	German	Spanish	French	Italian	Polish	Russian
Screen Text						
CYCLE PARAMETERS	PARAMETER	PARÁMETRO	PARAMÈTRES	PARAMETRO	PARAMETRY	ИЗМЕНИТЬ УСИЛ/СМЕЩ
SET PARAMETER	PARAMETER ÄNDERN	CAMBIAR PARÁMETRO	MODIFIER PARAMÈTRES	MODIFICA PARAMETR0	ZMIANA PARAMETRU	РАССЧ. УСИЛ/СМЕЩ
MENU	MENÜ	MENÚ	MENU	MENU	MENU	ДАТА/ВРЕМЯ
PROGRAM	PROGRAMME	PROGRAMAS	PROGRAMMES	PROGRAMMI	PROGRAMY	ВХОДЫ
CALIBRATION	KALIBRIEREN	CALIBRAR	CALIBRAGE	CALIBRATURA	KALIBROWANIE	АНАЛОГОВЫЕ ВХОДЫ
SET GAIN OFFSET	GAIN/OFFSET ÄNDERN	CAMBIAR GAIN/OFFSET	MODIF GAIN/OFFSET	MODIF. GAIN/OFFSET	ZMIANA GAIN/OFFSET	ЦИФРОВЫЕ ВХОДЫ
CALC.GAIN OFFSET	GAIN/OFFSET BERECH.	CALC. GAIN/OFFSET	CALCUL GAIN/OFFSET	CALC. GAIN/OFFSET	OBLICZ. GAIN/OFFSET	ЦИФРОВЫЕ ВЫХОДЫ
DATE/TIME	DATUM/ZEIT	FECHA/HORA	DATE/HEURE	DATA/ORARIO	DATA/GODZINA	СЕРВИСНОЕ МЕНЮ
INPUTS	EINGÄNGE	ENTRADAS	ENTRÉES	INPUT	WEJŚCIA	ПАРОЛЬ
ANALOG INPUTS	ANALOGE EINGÄNGE	ENTRADAS ANALÓGICAS	ENTRÉES ANALOGIQUES	INPUT ANALOGICI	WEJŚCIA ANALOGOWE	ЯЗЫК
DIGITAL INPUTS	DIGITALE EINGÄNGE	ENTRADAS DIGITALES	ENTRÉES NUMÉRIQUES	INPUT DIGITALI	WEJŚCIA CYFROWE	ВРЕМЯ ПУСКА
DIGITAL OUTPUTS	DIGITALE AUSGÄNGE	SALIDAS DIGITALES	SORTIES NUMÉRIQUES	OUTPUT DIGITALI	WYJŚCIA CYFROWE	ИНФОРМ. О СИСТЕМЕ
SERVICE MENU	SERVICE MENÜ	MENÚ DE SERVICIO	MENU SERVICE	MENU SERVIZIO	MENU SERWISOWE	ПОЛЬЗОВАТ. МЕНЮ
PASSWORD	PASSWORT	CONTRASEÑA	MOT DE PASSE	PASSWORD	HASŁO	ПАМЯТЬ
LANGUAGE	SPRACHE	IDIOMA	LANGUE	LINGUA	JĘZYK	КОНТРАСТНОСТЬ
START BY TIME	STARTZEIT	HORA DE INICIO	HORAIRE DE DÉPART	ORARIO DI AVVIO	GODZ. ROZPOCZĘCIA	НАСТРОЙКА
SYSTEM INFO	SYSTEM INFO	INFO DE SISTEMA	INFO SYSTÈME	INFORMAZ. SISTEMA	INF. SYSTEMOWA	ДОКУМЕНТАЦИЯ
USER MENU	BENUTZER MENÜ	MENÚ DE USUARIO	MENU UTILISATEUR	MENU UTENTE	MENU UŻYTKOWNIKA	ОБСЛУЖИВАНИЕ
MEMORY	SPEICHER	MEMORIA	MÉMOIRE	MEMORIA	PAMIĘĆ	ИНФОРМАЦИЯ
SCREEN CONTRAST	KONTRAST	CONTRASTE	CONTRASTE	CONTRASTO	KONTRAST	ПРИМЕР. ЗАГРУЗКА
SETUP	EINSTELLUNG	CONFIGURACIÓN	RÉGLAGE	IMPOSTAZIONE	USTAWIENIE	ОПИСАНИЕ НЕИСПР.
DOCUMENTATION	DOKUMENTATION	DOCUMENTACIÓN	DOCUMENTATION	DOCUMENTAZIONE	DOKUMENTACJA	ИНСТР. ПО БЕЗОП
MAINTENANCE	WARTUNG	MANTENIMIENTO	MAINTENANCE	MANUTENZIONE	KONSERWACJA	СБРОС СИСТЕМЫ
INFORMATION	INFORMATION	INFORMACIÓN	INFORMATION	INFORMAZIONI	INFORMACJA	ИМЯ ПОЛЬЗОВАТЕЛЯ
SAMPLE LOAD	BEISPIELBELAD	CARGA DE	CHARGEMENT	ESEMPIO	NAŁAD.	СПИСОК

English	German	Spanish	French	Italian	Polish	Russian
	UNG	MUESTRA	EXEMPLE	CARICAMENTO	PRZYKŁAD.	ПОЛЬЗОВАТ
ERRORS DESCRIPTION	FEHLERBESCHREIBUNG	DESCRIPCIÓN ERRORES	DESCRIPTION ERREURS	DESCRIZIONE ERRORE	OPIS BŁĘDU	ВЫБОР УРОВНЯ
SAFETY INSTRUCTION	SICHERHEITSANW.	INST. DE SEGURIDAD	INSTRUCT. SÉCURITÉ	ISTRUZ.DI SICUREZZA	INSTR. BEZPIECZ.	ПОИСК
RESET SYSTEM	SYSTEM ZURÜCKSETZEN	REINICIAR SISTEMA	RÉINITIAL. SYSTÈME	RESET SISTEMA	RESETOWANIE SYSTEMU	ПОР. НОМЕР
USER NAME	BENUTZERNAME	NOMBRE DE USUARIO	NOM UTILISATEUR	NOME UTENTE	NAZWA UŻYTKOWNIKA	ДАТА
USERS LIST	BENUTZERLISTE	LISTA DE USUARIO	LISTE UTILISATEURS	LISTA UTENTI	LISTA UŻYTKOWNIKÓW	ВРЕМЯ
SELECT LEVEL	LEVEL AUSWAHL	SELECCIÓN DE NIVEL	SÉLECTION LEVEL	SELEZIONE LIVELLO	WYBÓR POZIOMU	ЗАДАН. ПРОГРАММЫ
SEARCH	SUCHEN	BÚSQUEDA	RECHERCHER	CERCA	SZUKANIE	ТИП НЕИСПР.
Load Number	LAUFNUMMER	NÚMERO DE CARGA	NUMÉRO D'ORDRE	NUMERO PROGRESSIVO	NUMER PRZEBIEGU	ПАМЯТЬ ПРОЦЕССА
Date	DATUM	FECHA	DATE	DATA	DATA	ПАМЯТЬ НЕИСПР.
Time	ZEIT	HORA	HEURE	ORARIO	GODZINA	ПРОТОКОЛ СОБЫТИЙ
DEFAULT PROGRAMS	VORGABEPROGRAMME	PROGRAMAS PREDET.	PROGRAMMES PRESCR.	PROGRAMMI PREIMPOS.	PROGRAMY DOMYŚLNE	ПОР. НОМЕР
GENERAL INFO	FEHLERART	TIPO DE ERROR	TYPE D'ERREUR	TIPO DI ERRORE	RODZAJ BŁĘDU	ДАТЧИКИ РАСПЕЧ.
PROCESS LOG	PROZESSSPEICHER	REGISTRO DE PROCESO	MÉMOIRE PROCESSUS	MEMORIA DI PROCESSO	PAMIĘĆ PROCESÓW	ГРОМКОСТЬ
ERROR LOG	FEHLERSPEICHER	REGISTRO DE ERRORES	MÉMOIRE ERREURS	MEMORIA DI ERRORE	PAMIĘĆ BŁĘDÓW	ИЗМЕНИТЬ УСИЛ/СМЕЩ
AUDIT TRAIL	EREIGNISSPROTOKOLL	REGISTRO DE EVENTOS	COMPTE RENDU ÉVÉN.	REGISTRO EVENTI	PROTOKÓŁ ZDARZENIA	РАССЧ. УСИЛ/СМЕЩ
LOAD NUMBER	LAUFNUMMER	NÚMERO DE CARGA	NUMÉRO D'ORDRE	NUMERO PROGRESSIVO	NUMER PRZEBIEGU	ДАТА/ВРЕМЯ
PRINT SENSORS	SENSOREN AUSDRUCK	IMPRESIÓN SENSORES	IMPRESS. SONDES	STAMPA SENSORI	CZUJNIKI DO WYDRUKU	ВХОДЫ
SOUND VOLUME	LAUTSTÄRKE	VOLUMEN	VOLUME	VOLUME	GŁOŚNOŚĆ	АНАЛОГОВЫЕ ВХОДЫ
Event types						
Start	Start	Inicio	Start	Avvio	Rozpoczęcie	Пуск
Stop	Stopp	Fin	Stop	Stop	Zatrzymanie	Стоп
Clear	Quit	Cancelar	Quit	Riscontro	Potwierdzanie	Квитировать
Maintenance	Wartung	Mantenimiento	Maintenance	Manutenzione	Konserwacja	Обслуживание
Source Failure	Medienfehler	Error de medio	Erreur produit	Errore mezzo fisico	Błąd źródła	Неиспр. сред
Gain/Offset	Gain/Offset	Gain/Offset	Gain/Offset	Gain/Offset	Gain/Offset	Усил/Смещ
Restore G/O	G/O zurücksetz	Restaurar G/O	Réinit. G/O	Reset G/O	Resetowanie G/O	Сброс усил/смещ
Param.Chng	Param.Änderung	Cambio de parámetro	Modif. Param.	Modifica parametro	Zmiana param.	Измен параметров
Date/Time	Datum/Zeit	Fecha/hora	Date/heure	Data/orario	Data/Godzina	Дата/Время
Door1 Oper.	Tür1 geöffnet	Puerta1 abierta	Porte1 ouverte	Porta1 aperta	Otwarte drzwi1	Дверца1 открыта
Door2 Oper.	Tür2 geöffnet	Puerta2 abierta	Porte2 ouverte	Porta2 aperta	Otwarte drzwi2	Дверца2 открыта
Progr. Mod.	Prog änderung	Cambio de prog.	Modif. prog	Modifica programma	Zmiana progr.	Измен. прогр.
Users Mod.	Benutz. änder.	Cambio de usuario	Modif. utilis.	Modifica utente	Zmiana użytk.	Измен. польз.

English	German	Spanish	French	Italian	Polish	Russian
Event description						
Start pressed	Start gedrückt	Inicio pulsado	Bout. Start enfoncé	Avvio premuto	Naciśn. Rozpoczęcie	Нажат Пуск
Stop pressed	Stopp gedrückt	Fin pulsado	Bouton Stop enfoncé	Stop premuto	Naciśn. Zatrzymanie	Нажат Стоп
Clear pressed	Quit gedrückt	Cancelar pulsado	Bouton Quit enfoncé	Riscontro premuto	Naciśn. Potwierdz.	Нажат Квитир
Maintenance changed	Wartung geändert	Cambio manten.	Maintenance modif.	Manutenz. modif.	Zmieniona konserw.	Обслуж. изменено
Source Failure	Medienanschluss fehlt	Falla de medio	Raccordt manquant	Attacco m.fis.asse.	Brak podł. do źród.	Нет подвода среды
Gain/Offset changed	Gain/Offset geändert	Cambio Gain/Offset	Gain/Offset modifié	Gain/Offset mod.	Zmien. Gain/Offset	Измен. усил/смещ
Restore Gain/Offset	Gain/Offset zurückgesetzt	Rest. Gain/Offset	Gain/Offset réinit.	Gain/Offset resett.	Zreset. Gain/Offset	Сброшено усил/смещ
Parameters Change	Parameter geändert	Cambio de parámetro	Paramètres modifiés	Parametro modific.	Zmieniony parametr	Изменены параметры
Date/Time Change	Datum/Zeit geändert	Cambio fecha/hora	Date/heure modifiée	Data/orario modif.	Zmien. Data/Godzina	Измен. дата/время
Door1 Operation	Tür1 geöffnet	Puerta1 abierta	Porte1 ouverte	Porta1 aperta	Otwarte drzwi1	Дверца1 открыта
Door2 Operation	Tür2 geöffnet	Puerta2 abierta	Porte2 ouverte	Porta2 aperta	Otwarte drzwi2	Дверца2 открыта
Programs list modified	Programliste geändert	Lista prog. modif.	Liste prog. modif.	Lista progr. mod.	Zmien. lista progr.	Изм список прогр
Users list modified	Benutzerliste geändert	Lista usuar. modif.	Liste utilis modif.	Lista utenti mod.	Zmien. lista użytk.	Изм список пользов
Stage names						
Not Avaliable	Nicht Verfügbar	No disponible	Non disponible	Non disponibile	Brak dostępności	Не доступен
StandBy	Bereitschaft	En espera	Veille	Disponibilità	Gotowość	Готовность
Vacuum	Vakuum	Vacío	Vide	Vuoto	Próżnia	Вакуум
WaterInlet	Wassereinlass	Admisión de agua	Entrée d'eau	Ingresso acqua	Wpust wody	Впуск воды
Heating	Aufheizphase	Calentamiento	Phase de chauffage	Fase di riscaldam.	Faza nagrzewania	Фаза нагрева
Sterilize	Sterilisierphase	Esterilización	Phase stérilisation	Fase di sterilizza.	Faza sterylizacji	Фаза стерилизации
Exhaust	Ablass	Purga	Ecoulement	Scarico	Spust	Слив
Dry	Trocknung	Secado	Séchage	Essiccazione	Suszenie	Сушка
Cooling	Kühlung	Enfriamiento	Refroidissement	Raffreddamento	Chłodzenie	Охлаждение
Fail	Fehler	Error	Erreur	Errore	Błąd	Неисправность
Hold	Haltephase	Fase de espera	Phase de maintien	Fase di trattenim.	Faza zatrzymania	Фаза поддержания
Test	Test	Prueba	Test	Test	Test	Тест
Messages						
Sensor Error	Sensor Fehler	Error de sensor	Erreur sonde	Errore sensore	Błąd czujnika	Неиспр. датчика
Low Chamb.Temp.	Low Chamb.Temp.	Temp. cám. baja	Temp.chamb.base	Low Chamb.Temp.	Niska temp. kom.	Низкая темп. кам
High Chamb.Temp.	High Chamb.Temp.	Temp. cám. alta	Temp.chamb.haute	High Chamb.Temp.	Wys. temp. kom.	Выс. темп. кам.
No Gen.Water	kein Gen. Wasser	Sin agua gen.	Pas d'eau gén.	nessuna gen.acqua	Brak wody gen.	Нет общ. воды
Gen.Press High	Gen. Überdruck	Presión gen. alta	Surpress. gén.	gen. Sovrappres.	Nadciśn. gen.	Общ. изб. давл.
Comp.Air Error	keine Druckluft	Sin aire comp.	Pas d'air comp.	assenza aria com.	Brak pow. spręż.	Нет сжатого возд
High Chamb.Press	High Chamb.Press	Pres. cám. alta	Press.Chamb.haute	High Chamb.Press	Wys. ciśn. kom.	Выс. давл. кам.
Low	Low	Pres. cám. baja	Press.Chamb.bas	Low	Niska ciśn. kom.	Низкое давл. кам.

English	German	Spanish	French	Italian	Polish	Russian
Chamb.Press	Chamb.Press		se	Chamb.Press		
Door Lock Error	Verriegelung!	Error de bloqueo	Verrouillage !	Bloccaggio!	Blokada!	Блокировка!
No Chamb Water	Kammer o. Wasser	Cámara sin agua	Pas d'eau chamb.	Camera o acqua	Komora bez wody	Камера без воды
Door Not Closed	Tür offen	Puerta abierta	Porte ouverte	Porta aperta	Otw. drzwi	Открыть дверцу
Manual Stop	Benutzerabbruch	Parada manual	Arrêt manuel	Interruz manuale	Przerwanie ręczne	Прекращ. пользов
No Demin. Water !	kein VE Wasser!	Sin agua dem.	Pas d'eau démin.	ass.acqua demin.!	Brak wody dem.!	Нет демин. воды!
Low Vacuum	kein Vakuum	Sin vacío	Pas de vide	assenza vuoto	Brak próżni	Нет вакуума
Low Steam	kein Dampf	Sin vapor	Pas de vapeur	assenza vapore	Brak pary	Нет пара
Chamb.Press.Err	Kam.Druck.Fehler	Error pres.cámara	Err. press.chamb.	Errore press. cam.	Błąd ciśn. w kom.	Кам. давл неиспр
Door Lock Error!	Verriegelung!	Error de bloqueo	Verrouillage !	Bloccaggio!	Blokada!	Блокировка!
Door SW. Error	Tür Schalter	Int. puerta	Commut. porte	Interrutt. porta	Przełącz. drzwi	Выключ дверцы
Door Lock Error!!	Verriegelung!!	Error de bloqueo	Verrouillage !!	Bloccaggio!!	Blokada!!	Блокировка!!
No Demin. Water	kein VE Wasser	Sin agua dem.	Pas d'eau démin.	ass.acqua deminl.	Brak wody dem.	Нет демин. воды
Test Fail	Test gescheitert	Prueba fallida	Echec test	Test fallito	Neg. wynik testu	Тест не удался
No Tap Water	kein Kühlwasser	Sin agua fría	Pas d'eau froide	ass.acqua raffre.	Brak wody chłodz.	Нет охлажд воды
Door2 Lock Error	Verriegelung2	Error de bloqueo2	Verrouillage2	Bloccaggio2	Blokada2	Блокировка2
Door2 Not Closed	Tür 2 offen	Puerta2 abierta	Porte 2 ouverte	Porta 2 aperta	Otw. drzwi 2	Дверца 2 открыта
Door2 Lock Error!	Verriegelung2!	Error de bloqueo2	Verrouillage2 !	Bloccaggio2!	Blokada2!	Блокировка2!
Door2 SW. Error	Tür2 Schalter	Int. puerta2	Commut. porte2	Interrutt. porta2	Przeł. drzwi2	Выключ дверцы2
Door2 Lock Error!!	Verriegelung2!!	Error de bloqueo2	Verrouillage2 !!	Bloccaggio2!!	Blokada2!!	Блокировка2!!
No I2C Com.	keine I2C Kom.	Sin com. I2C	Pas de comm. I2C	nessun I2C com.	Brak kom. I2C	Нет связи I2C
Gen.Sens.Err	Gen. Sens. Fehler	Error sens. gen.	Err gén. sond.	Errore gen. sens.	Błąd czujn. gen.	Общ.датч.неиспр
Sel. Temp. Error	Sel. Temp. Fehler	Error sel. temp.	Err temp. sél.	Errore sel. temp.	Błąd temp. sel.	Выб.темп.неиспр
Memory Error	Speicher Fehler	Error memoria	Erreur mémoire	Errore memoria	Błąd pamięci	Ошибка памяти
Flash Error	Flash Fehler	Error flash	Erreur flash	Errore flash	Błąd flash	Ошибка флэш-пам
Error Saving Log	Fehler beim Sp.	Error al guardar	Err. sauveg.	Errore nel salv.	Błąd podcz. zap.	Ошибка при сохр.
Flash Check Error	Flash Prüffehler	Error control flash	Err vérif. flash	Errore con.flash	Błąd kontr. flash	Ошибка пров. флэш
Panel Conn. Err.	Panel Con. Fehler	Error con. panel	Err conn panneau	Errore con.pann.	Błąd poł. z pan.	Неиспр соед. пан
Text						
FAIL	Fehler	Error	Erreur	Errore	Błąd	Неисправность
CYCLE ENDED	Programm beendet	Fin de programa	Programme terminé	Programma terminato	Program zakończony	Программа завершена
Dry	Trocknung	Secado	Séchage	Essiccazione	Suszenie	Сушка
READY	Bereit	Secado	Prêt	Pronto	Gotowe	Готово
kPa	kPa	kPa	kPa	kPa	kPa	кПа
°C	°C	°C	°C	°C	°C	°C
PSI	PSI	PSI	PSI	PSI	PSI	PSI
Clean Electrode	Elektrode reingen	Limpiar electrodo	Nettoyer électrode	Pulizia elettrodi	Czyszczenie elektrody	Очистить электрод
PSIg	PSIg	PSIg	PSIg	PSIg	PSIg	PSIg
Ing	Ing	Ing	Ing	Ing	Ing	Ing
°F	°F	°F	°F	°F	°F	°F
DONE	erledigt	Hecho	Exécuté	eseguito	Wykonane	выполнено
NOT READY	nicht Bereit	No listo	Pas prêt	non pronto	Brak gotowości	не готово
READ	lesen	Leer	Lire	leggi	Odczyt	читать
Gain	Gain	Gain	Gain	Gain	Gain	Усиление
Offset	Offset	Offset	Offset	Offset	Offset	Смещение

English	German	Spanish	French	Italian	Polish	Russian
20	20	20	20	20	20	20
SAVE	Speichern	Guardar	Sauvegarder	Salva	Zapamiętanie	Сохранить
EXIT	Exit	Salir	Quitter	Esci	Wyjście	Выйти
O.K.	O.K.	O.K.	O.K.	O.K.	OK	OK
Calib	Kalib	Calib	Calib	Calib	Kalib	Калиб
SET	SET	AJUSTAR	SET	IMPOSTA	USTAWIANIE	УСТ
Time:	Zeit :	Hora :	Temps :	Orario :	Godz. :	Время :
Date:	Datum :	Fecha :	Date :	Data :	Data :	Дата :
Drain Condense ?	Kondensat ablassen ?	¿Purgar condensado?	Evacuer condensat ?	Scarica condensato ?	Czy spuścić skropliny?	Слить конденсат?
Door Open	Tuer ist offen	Puerta abierta	La porte est ouverte	La porta è aperta	Drzwi są otwarte	Дверца открыта
Water Inlet	Wassereinlass	Admisión de agua	Entrée d'eau	Ingresso acqua	Wpust wody	Впуск воды
Heating to Stay1	Aufheizen "Stay1"	Calentar "Stay1"	Chauffage "Stay1"	Ricaldamento "Stay1"	Nagrzewanie "Stay1"	Нагрев "Stay1"
Stay1	Haltezeit "Stay1"	Tiempo espera "Stay1"	Temps de maintien "Stay1"	Tempo tratten. "Stay1"	Czas zatrzymania "Stay1"	Время выдержки "Stay1"
Heating to Stay2	Aufheizen "Stay2"	Calentar "Stay2"	Chauffage "Stay2"	Ricaldamento "Stay2"	Nagrzewanie "Stay2"	Нагрев "Stay2"
Stay2	Haltezeit "Stay2"	Tiempo espera "Stay2"	Temps de maintien "Stay2"	Tempo tratten. "Stay2"	Czas zatrzymania "Stay2"	Время выдержки "Stay2"
Heating to Ster	Aufheizphase	Calentamiento	Phase de chauffage	Fase di riscaldamento	Faza nagrzewania	Фаза нагрева
Sterilize	Sterilisierphase	Esterilización	Phase de stérilisation	Fase di sterilizzazione	Faza sterylizacji	Фаза стерилизации
Exh-Fast	Ablass	Purga	Ecoulement	Scarico	Spust	Слив
Exh-Slow	Ablass	Purga	Ecoulement	Scarico	Spust	Слив
Air Cooling	Raumluftkühlung	Enfriamiento de aire	Refroidissement air ambiant	Raffreddam. aria amb.	Chłodzenie temp. pomieszcz.	Охлажд. воздуха пом.
Cooling	Kühlung	Enfriamiento	Refroidissement	Raffreddamento	Chłodzenie	Охлаждение
Water Cool	Kühlung	Enfriamiento	Refroidissement	Raffreddamento	Chłodzenie	Охлаждение
Holding Temp	Warmhaltephase	Fase mant. temp.	Phase de maintien au chaud	Fase tratten. calore	Faza zatrzymania ciepła	Фаза поддержания
Prevacuum-Vac	Vakuum	Vacío	Vide	Vuoto	Próżnia	Вакуум
Prevacuum-Stay	Haltephase	Fase de espera	Phase de maintien	Fase di trattenimento	Faza zatrzymania	Фаза поддержания
Prevacuum-Press	Dampfstoss	Golpe de vapor	Expulsion de vapeur	Spinta vapore	Uderzenie pary	Паровой удар
Prevacuum-Exh	Dampfablass	Purga de vapor	Evacuation de la vapeur	Scarico vapore	Spust pary	Сброс пара
Opening Door	Tür öffnet	Apertura puerta	La porte s'ouvre	La porta si apre	Otwarte drzwi	Дверца открывается
sec	sek	seg.	sec	sec	sek.	с
min	min	min.	min	min	min.	мин
hour	Stunde	Hora	Heure	Ora	Godzina	Час
day	Tag	Día	Jour	Giorno	Dzień	День
month	Monat	Mes	Mois	Mese	Miesiąc	Месяц
year	Jahr	Año	Année	Anno	Rok	Год
Reset System???	System Reset ???	¿Reiniciar sistema?	Réinitialiser système ???	Reset sistema ???	Czy zresetować system ???	Сброс системы???
Restore Values?	Werte wiederherstellen?	¿Restablecer valores?	Restaurer valeurs ?	Ripristina i valori?	Czy przywrócić wartości?	Восстановить значения?
Autoclaves	Autoclaves	Autoclaves	Autoclaves	Autoclavi	Autoklawy	Автоклавы
Pulse Num:	Pulse Nr.	N° pulso	N° d'impulsion	Nr. impulsi	Nr impulsu	№ импульса
On Test	Testphase	Prueba	Phase de test	Fase di test	Faza testowa	Тест-фаза

English	German	Spanish	French	Italian	Polish	Russian
TEST PASSED	TEST BESTANDEN	PRUEBA APROBADA	TEST RÉUSSI	TEST SUPERATO	POZYTYWNY WYNIK TESTU	ТЕСТ ПРОЙДЕН
DOOR	TÜR ÖFFNEN	APERTURA PUERTA	OUVRIR LA PORTE	APRI PORTA	OTWIERANIE DRZWI	ОТКРЫТЬ ДВЕРЦУ
FLUSH	ABLASS	PURGA	ECOULEMENT	SCARICO	SPUST	СБРОС
Reset Wait...	Reset - Warten…	Reinicio, espere...	Réinitialisation - Patientez…	Reset - attendi…	Reset - proszę czekać...	Сброс - ждите…
CoolCompAir	Kühlung + Druck	Enfr. + presión	Refroidissement + pression	Raffreddamento + pressione	Chłodzenie + ciśnienie	Охлажд + давл
Received Packet #	Empfangenes Paket #	Recibidio paquete n°	Paquet reçu #	Pacchetto ricevuto #	Odebrany pakiet #	Полученный пакет #
Programming Wait.	Programmierung - Warten…	Programación, espere...	Programmation - Patientez…	Programmazione - attendi…	Program. - proszę czekać...	Программировани е - ждите…
Fonts & Messages	Fonts & Messages	Fuentes y mensajes	Polices & messages	Caratteri e messaggi	Czcionki i komunikaty	Шрифты и сообщения
Param,Gain Offset	Parameter, Gain Offset	Parámetro, gain offset	Paramètres, Gain Offset	Parametri, Gain Offset	Parametry, Gain Offset	Параметры, усил смещ
Main	Main	Principal	Principal	Principale	Gł.	Главная
Drivers	Treiber	Drivers	Pilote	Driver	Sterowniki	Драйвер
Process	Prozess	Proceso	Processus	Processo	Proces	Процесс
Program Complete	Programm komplett	Programa completo	Programme complet	Programma completo	Program kompl.	Программа выполнена
Wait...	Warten…	Espere...	Patientez…	Attendi…	Proszę czekać...	Ждите…
Loading	Laden	Carga	Chargement	Carica	Wczytywanie	Загрузка
Backup Wait...	Backup - Warten…	Backup, espere...	Backup - Patientez…	Backup - attendi…	Tw. kopii zap. - pr. czek....	Резерв. данных- ждите…
Touch calibration	Touchkalibrierung	Calibración de toque	Calibrage touches	Calibratura touch	Kalibracja ekranu dotyk.	Сенс. калибровка
Loading new Data	Lade neue Daten	Cargando nuevos datos	Chargement nouvelles données	Carica nuovi dati	Wczytywanie nowych danych	Загружаю новые данные
Saving Wait…	Speichern - Warten…	Guardando, espere...	Enregistrement - Patientez…	Salva - attendi…	Zapamięt. - pr. czekać...	Сохранение - ждите…
Changing Language	Sprache wird gewechselt	Cambiando idioma	La langue est modifiée	La lingua viene modificata	Język jest zmieniany	Идет смена языка
No Liquids!!!	keine Flüssigkeiten!!!	¡Sin líquidos!	Pas de liquides !!!	assenza di liquidi!!!	Brak płynów!!!	Нет жидкостей!!!
Start Download	Start Download	Iniciar descarga	Démarrage téléchargement	Avvia download	Rozpoczęcie zapisu	Пуск скачать
Pan.Ver:	Pan.Ver:	Ver. pan.:	Ver. pan. :	Ver. pan.:	Wer.pan.:	Пан.вер:
Sys.Ver:	Sys.Ver:	Ver. sis.:	Ver. sys. :	Ver. sis.:	Wer. sys.:	Сис.вер:
Ser.Num:	Ser.Num:	N° ser.:	Num. série :	Num. ser.:	Num.ser.:	Сер.ном:
Drain Condense	Kondensat Ablass	Purga de condensado	Ecoulement condensat	Scarica condensato	Spust kondensatu	Слив конденсата
please wait..	Bitte warten…	Espere...	Veuillez patienter...	Attendi…	Proszę czekać...	Ждите…
Opening Door2	Tür 2 öffnet	Apertura puerta2	La porte 2 s'ouvre	La porta 2 si apre	Otw. drzwi 2	Дверца 2 открыв
Front Panel	Front Panel	Panel del.	Panneau avant	Pannello frontale	Panel przedni	Лиц. панель
Back Panel	Back Panel	Panel tras.	Panneau arrière	Pannello posteriore	Panel tylny	Зад. панель
Access denied	Tuer gesperrt	Puerta bloq.	Porte bloquée	Porta bloccata	Zablokowane drzwi	Дверца заблок
Door2 Open	Tür 2 offen	Puerta2 abierta	Porte 2 ouverte	Porta 2 aperta	Otw. drzwi 2	Дверца 2 открыта
Username Exist!	Benutzername vorhanden!	¡Nombre usuario ya existe!	Nom utilisateur existant !	Nome utente presente!	Nazwa użytkownika istnieje!	Имя пользователя имеется!

English	German	Spanish	French	Italian	Polish	Russian
Type new name	versuchen Sie es erneut	Inténtelo nuevamente	Essayez encore !	fare un nuovo tentativo	Proszę spróbować ponownie	Попытайтесь еще раз
Password too small!	Passwort zu kurz!	¡Contraseña muy corta!	Mot de passe trop court !	Password troppo breve!	Hasło jest za krótkie!	Слишком короткий пароль!
Username too small!	Benutzername zu kurz!	¡Nombre usuario muy corto!	Nom d'utilisateur trop court!	Nome utente troppo breve!	Nazwa użytk. jest za krótka!	Слишком кор. имя польз!
Delete Current Program?	akt. Programm Löschen?	¿Borrar prog. actual?	Supprimer programme actuel ?	cancella il program. attuale?	Czy usunąć bieżący program?	Удалить тек. программу?
.	.	.	.	.	.	.
Resolution	Auflösung	Resolución	Résolution	Risoluzione	Rozwiązanie	Разрешение
Min.Value	Min. Wert	Valor min.	Valeur min.	Valore min.	Wartość min.	Мин. значение
Max.Value	Max. Wert	Valor máx.	Valeur max.	Val. massimo	Wartość maks.	Макс. значение
Wrong Typing	Falsche Eingabe	Datos incorrectos	Saisie erronée	Inserimento scorretto	Niewłaściwe dane	Неверный ввод
This Action will	Dieser Vorgang	Esta acción	Cette procédure	Questo procedimento	Ta operacja spowoduje	Этот процесс
Delete all users!	löscht alle Benutzer	borra todos los usuarios	supprime tous utilisateurs	cancella tutti gli utenti	usunięcie wszyst. użytk.	удаляет всех пользователей
%	%	%	%	%	%	%
Printing...	druckt…	Imprimiendo...	Impression en cours...	stampa…	drukowanie w toku...	печатает…
Save changes?	Änderung Speichern?	¿Guardar cambios?	Enregistrer modifications ?	Salva le modifiche?	Czy zapisać zmianę?	Сохранить изменение?
Stage :	Phase:	Fase:	Phase :	Fase:	Faza:	Фаза:
ON	AN	ON	MARCHE	ON	WŁ.	ВКЛ
OFF	AUS	OFF	ARRÊT	OFF	WYŁ.	ВЫКЛ
User Name :	Benutzername:	Nombre usuario:	Nom d'utilisateur :	Nome utente:	Nazwa użytkownika:	Имя пользователя:
Signature :	Unterschrift :	Firma :	Signature :	Firma :	Podpis :	Подпись :
Not Avaliable	nicht verfügbar	No disponible	Non disponible	non disponibile	niedostęp.	не имеется
EVENT DETAILS	EVENT DETAILS	DETALLES DE EVENTO	DÉTAILS ÉVÉNEMENT	DETTAGLI EVENTO	SZCZEGÓŁY ZDARZENIA	ПОДРОБНОСТИ СОБЫТИЯ
Event Type :	Event Typ:	Tipo de evento:	Type d'événement :	Tipo evento:	Typ zdarzenia:	Тип события:
Program :	Programm:	Programa:	Programme :	Programma:	Program:	Программа:
Stage :	Phase:	Fase:	Phase :	Fase:	Faza:	Фаза:
Error description :	Fehlerbeschreibung:	Descripción de error:	Description des erreurs :	Descrizione errore:	Opis błędu:	Описание ошибки:
Num. of changes :	Anz. Der Änderungen:	Cant. de cambios:	Nbe de modifications :	Vis. delle modifiche:	Liczba zmian:	Кол-во изменений:
Parameter name	Parametername	Nombre de parámetro	Nom du paramètre	Nome parametro	Nazwa parametru	Имя параметра
Old value	Alterwert	Valor anterior	Ancienne valeur	Valore vecchio	Poprzednia wartość	Старое значение
New Value	Neuerwert	Valor nuevo	Nouvelle valeur	Valore nuovo	Nowa wartość	Новое значение
No changes were made	keine Änderungen	No hubo cambios	Pas de modification	nessuna modifica	Brak zmian	Нет изменений
Source Type :	Medientyp:	Tipo de medio:	Type de produit :	Tipo di mezzo fisico:	Typ źródła:	Тип среды:
Analog Source :	Analog Source :	Medio analógico:	Source analogique :	Analog Source :	Źródło analogowe:	Аналог. источник:
Last values restored by user!	alte Werte wiederhergestellt!	¡Valores anteriores restaurados!	Anciennes valeurs restaurées!	vecchi valori ripristinati!	Pop. wartości przywrócone!	Старые значения восстановл!
Search result for date	Suchergebnis - Datum	Resultado búsq. por fecha	Résultat recherche - date	Risultato ricerca - data	Wynik wyszukiwania -	Результат поиска - дата

English	German	Spanish	French	Italian	Polish	Russian
					data	
Search result for load number	Schergebnis - Laufnummer	Resultado búsq. por n° carga	Résultat recherche - no ordre	Risultato ric. - num. progr.	Wynik wyszuk. - nr przeb.	Результат поиска - пор. номер
Next	Weiter	Siguiente	Continuer	Avanti	Następny	Дальше
Prev	Zurück	Anterior	Retour	Indietro	Poprzedni	Назад
Exit and terminate printing?	Druckvorgang abbrechen?	¿Interrumpir impresión?	Interrompre l'impression ?	Interrompi proced.di stampa?	Czy przerwać oper. drukow.?	Прервать печать?
Updated Time:	Zeit aktualisiert:	Hora actualizada:	Temps actualisé :	Orario aggiornato:	Zaktualizowana godzina:	Время обновлено:
Updated Date:	Datum aktualisiert:	Fecha actualizada:	Date actualisée :	Data aggiornata:	Zaktualizowana data:	Дата обновлена:
Door1 opening by user	Tür1 geöffnet vom Benutzer	Puerta1 abierta por usuario	Porte1 ouverte utilisateur	Porta1 aperta dall'utente	Drzwi1 otwarte przez użytk.	Дверца1 открыта пользоват.
Door2 opening by user	Tür2 geöffnet vom Benutzer	Puerta2 abierta por usuario	Porte2 ouverte utilisateur	Porta2 aperta dall'utente	Drzwi2 otwarte przez użytk.	Дверца2 открыта пользоват.
You can update Date/Time	Datum/Zeit kann nur im	¡La fecha/hora sólo puede	La date/heure ne peut être	La data/l'orario può essere	Datę/godz. można zaktualiz.	Дату/время можно обновить
only on StandBy!	Standby aktualisiert werden!	actualizarse en standby!	actualisée qu'en veille !	aggiornato solo in standby!	tylko w trybie czuwania!	только в режиме готовности!
Invalid Date typed!	Ungültiges Datum!	¡Fecha no válida!	Date invalide !	Data non valida!	Niewłaściwa data!	Неверная дата!
Invalid Time typed!	Ungültige Zeit!	¡Hora no válida!	Heure invalide !	Orario non valido!	Niewłaściwa godzina!	Неверное время!
BAR	BAR	BAR	BAR	BAR	BAR	БАР
PSIa	PSIa	PSIa	PSIa	PSIa	PSIa	PSIa
+%	+%	+%	+%	+%	+%	+%
PROGRAM DESCRIPTION	PROGRAMMBESCHREIBUNG	DESCRIPCIÓN DE PROGRAMA	DESCRIPTION PROGRAMMES	DESCRIZIONE PROGRAMMA	OPIS PROGRAMU	ОПИСАНИЕ ПРОГРАММЫ
PROGRAMS SELECTION	PROGRAMMAUSWAHL	SELECCIÓN PROGRAMAS	SÉLECTION PROGRAMMES	SELEZIONE PROGRAMMA	WYBÓR PROGRAMU	ВЫБОР ПРОГРАММЫ
PROGRAMS SORT	PROGRAMMSORTIERUNG	CLASIFICACIÓN PROGRAMA	TRI PROGRAMMES	CLASSIFICAZIONE PROGRAMMA	SORTOWANIE PROGRAMÓW	СОРТИРОВКА ПРОГРАММ
Delete Current User?	Aktuellen Benutzer löschen?	¿Borrar usuario actual?	Supprimer utilisateur actuel?	Cancella gli attuali utenti?	Czy usunąć bież. użytkownika?	Удалить тек. пользователя?
Saving data,	Daten Speicherung,	Guardando datos,	Sauvegarde des données,	Salvataggio dati,	Zapamiętanie danych,	Сохранение данных,
Please wait...	Bitte warten…	Espere...	Veuillez patienter...	Attendi…	Proszę czekać...	Ждите…
(deleted)	(gelöscht)	(borrado)	(supprimé)	(cancellato)	(usunięte)	(удалено)
(modified)	(geändert)	(modificado)	(modifié)	(modificato)	(zmienione)	(изменено)
Replace filter in	Filterwechsel in	Cambiar filtro en	Changement de filtre dans	Sostituzione filtro in	Wymiana filtra w	Замена фильтра через
Replace gasket in	Türdichtung wechseln in	Cambiar junta de puerta en	Changement joint porte dans	Sostituzione guarnizione porta in	Wymiana uszczelki drzwi w	Замена уплотн. дверцы через
Maintenance in	Wartung in	Mantenimiento en	Maintenance dans	Manutenzione in	Konserwacja w	Обслуживание через
Maintenance on	Wartung im	Mantenimiento en	Maintenance dans	Manutenzione in	Konserwacja podczas	Обслуживание через
cycles	Läufen	ciclos	Cycles	Cicli	przebiegów	Циклы
Cancel	Cancel	Cancelar	Annuler	Cancella	Anulowanie	Отменить
Replace filter!	Filter wechseln!	¡Cambiar filtro!	Changer filtre !	Sostituisci filtro!	Konieczna wymiana filtra!	Заменить фильтр!
Filter replaced?	Filter gewechselt?	¡Cambio el filtro!	Filtre changé ?	Filtro sostituito!	Filtr wymieniony?	Фильтр заменен?

English	German	Spanish	French	Italian	Polish	Russian
Replace door gasket!	Türdichtung wechseln!	¡Cambiar junta de puerta!	Changer joint porte !	Sostituisci guarnizione por.!	Wymienić uszczelkę drzwi!	Заменить уплотн. дверцы!
Door gasket replaced?	Türdichtung gewechselt?	¿Cambio la junta de puerta?	Joint porte changé ?	Guarnizione porta sostituita?	Wymieniona uszczelka drzwi?	Уплотн. дверцы заменено!
Perform maintenance!	Wartung durchführen!	¡Realice mantenimiento!	Effectuer maintenance !	Esegui la manutenzione!	Wykonać konserwację!	Выполнить обслуживание!
Maintenance done?	Wartung durchgeführt?	¿Realizó el mantenimiento?	Maintenance effectuée ?	Manutenzione eseguita!	Konserwacja wykonana?	Обслуживание выполнено?
SET CYCLE START TIME	STARTZEIT EINSTELLEN	AJUSTAR HORA DE INICIO	RÉGLER HEURE DÉMARRAGE	IMPOSTAZIONE ORARIO DI AVVIO	USTAWIANIE CZASU ROZPOCZĘCIA	НАСТРОЙКА ВРЕМЕНИ ПУСКА
Print Text						
Time :	Zeit :	Hora :	Temps :	Orario :	Godz. :	Время :
Date :	Datum :	Fecha :	Date :	Data :	Data :	Дата :
POWER ON	System an	Sistema enc.	Syst. activé	Sistema ON	System wł.	Система вкл
20	20	20	20	20	20	20
Load No.:	Laufnr.:	N° carga:	N° d'ordre :	N.ro progr.:	Nr przeb.:	Пор. №:
Sys.Ver.:	Sys.Ver.:	Ver. sis.:	Ver. sys. :	Ver. sis.:	Wer.sys.:	Сис.вер:
Ser.Nr. :	Ser.Nr. :	N° ser.:	Num. série:	Num. ser.:	Nr ser. :	Сер.ном:
0-Exhaust	0-Ablass	0-Purga	0-Ecoulement	0-Scarico	0-Spust	0-слив
1-Exhaust	1-Ablass	1-Purga	1-Ecoulement	1-Scarico	1-Spust	1-слив
2-Air Cool	2-Raumluft	2-Aire amb.	2-Air ext.	2-Aria ambi.	2-Temp. pow.	2-возд пом
3-Cooling	3-Kühlung	3-Enfriam.	3-Refroidiss	3-Raffredda.	3-Chłodzenie	3-охлажд
4-Cooling	4-Kühlung	4-Enfriam.	4-Refroidiss	4-Raffredda.	4-Chłodzenie	4-охлажд
5-Cooling	5-Kühlung	5-Enfriam.	5-Refroidiss	5-Raffredda.	5-Chłodzenie	5-охлажд
6-Cooling	6-Kühlung	6-Enfriam.	6-Refroidiss	6-Raffredda.	6-Chłodzenie	6-охлажд
Cycle :	Progr.:	Progr.:	Progr. :	Progr.:	Progr.:	Прогр.:
C	C	C	C	C	C	C
F	F	F	F	F	F	F
kPa	kPa	kPa	kPa	kPa	kPa	кПа
BAR	BAR	BAR	BAR	BAR	BAR	БАР
PSIa	PSIa	PSIa	PSIa	PSIa	PSIa	PSIa
Process	Verfahren	Proceso	Procédure	Procedimento	Proces	Процесс
sec	sec	seg.	sec	sec	sek.	с
min	min	min.	min	min	min.	мин
Hour	Hour	Hora	Hour	Ora	Godz.	Час
day	day	día	day	giorno	dzień	День
month	month	mes	month	mese	miesiąc	Месяц
POWER OFF	System aus	Sistema apa.	Syst. désact	Sistema OFF	System wył.	Систем выкл
POWER ON	System an	Sistema enc.	Syst. activé	Sistema ON	System wł.	Система вкл
Vv	Vv	Vv	Vv	Vv	Vv	Vv
Ww	Ww	Ww	Ww	Ww	Ww	Ww
Hh	Hh	Hh	Hh	Hh	Hh	Hh
Ss	Ss	Ss	Ss	Ss	Ss	Ss
Ee	Ee	Ee	Ee	Ee	Ee	Ee
Dd	Dd	Dd	Dd	Dd	Dd	Dd
Cc	Cc	Cc	Cc	Cc	Cc	Cc
Ff	Ff	Ff	Ff	Ff	Ff	Ff
Oo	Oo	Oo	Oo	Oo	Oo	Oo
Tt	Tt	Tt	Tt	Tt	Tt	Tt
Rr	Rr	Rr	Rr	Rr	Rr	Rr
Rr	Rr	Rr	Rr	Rr	Rr	Rr
Time	Zeit	Hora	Temps	Orario	Godz.	Время

English	German	Spanish	French	Italian	Polish	Russian
FAIL	Fehler	Error	Erreur	Errore	Błąd	Неисправ
CYCLE ENDED!	PROGRAMMENDE	FIN PROGRAMA	FIN PROGRAMM	FINE PROGRA.	KON. PROGR.	КОНЕЦ ПРОГР
TEST ENDED!	TEST OKAY!	¡PRUEBA OK!	TEST OKAY !	TEST OK!	TEST OK!	ТЕСТ ОК!
CYCLE FAIL!	ABBRUCH!	INTERRUPCIÓN	INTERRUP. !	INTERRUZIONE	PRZERWANIE!	ОТМЕНА!
TEST FAIL!	FEHLER!	¡FALLA!	ERREUR !	ERRORE!	BŁĄD!	ОШИБКА!
Max Temp:	Max Temp:	Temp. máx.:	Temp. max. :	Temp. max:	Maks. temp.:	Макс темп:
Min Temp:	Min Temp:	Temp. mín.:	Temp. min :	Temp. min:	Min. temp.:	Мин темп:
Operator:	Benutzer:	Usuario:	Utilisateur:	Utente:	Użytkownik:	Пользов:
Gain Offset	Gain Offset	Gain Offset	Gain Offset	Gain Offset	Gain/Offset	Усил смещ
System Reset	System Reset	Reinicio	Réinit. syst	Reset sistema	Zreset. sys.	Сброс сист
Printer Test	Druckertest	Prueba imp.	Test imprim.	Test di stampa	Test druk.	Тест принт
Filter Count	Filter Lauf	Ciclo filtro	Cycle filtre	Cic.di filt.	Przeb. fil.	Фильтр цикл
.	.	.	.	.	.	.
FO Heat :	FO Heat :	FO Heat :	Chauff. FO:	FO Heat :	FO nagrz.:	FO нагр:
FO Ster :	FO Ster :	FO Ster :	Stér. FO :	FO Ster :	FO ster.:	FO стер:
FO Exh :	FO Exh :	FO Exh :	Evac. FO :	FO Exh :	FO spus.:	FO выт:
FO Total:	FO Total:	FO Total:	Total FO :	FO Total:	FO łącz.:	FO всего:
Jan	Jan	Ene	Jan	Gen	Sty	Янв
Feb	Feb	Feb	Fév	Feb	Lut	Фев
Mar	Mar	Mar	Mar	Mar	Marz	Мар
Apr	Apr	Abr	Avr	Apr	Kwi	Апр
May	Mai	May	Mai	Mag	Maj	Май
Jun	Jun	Jun	Juin	Giu	Cze	Июн
Jul	Jul	Jul	Juil	Lug	Lip	Июл
Aug	Aug	Ago	Août	Ago	Sie	Авг
Sep	Sep	Sep	Sep	Set	Wrz	Сен
Oct	Okt	Oct	Oct	Ott	Paź	Окт
Nov	Nov	Nov	Nov	Nov	Lis	Нов
Dec	Dez	Dic	Déc	Dic	Gru	Дек
Digital Inputs	Dig Eingänge	Ent. dig.	Entrées num	Input digit.	Wej. cyfr.	Цифр входы
Digital Outputs	Dig Ausgänge	Salidas dig.	Sorties num	Output digi.	Wyj. cyfr.	Цифр выходы
Programs						
Instruments	Festkörper	Instrumentos	Solides	Corpi solidi	Ciała stałe	Твердые тела
Waste (Bags)	Abfall fest	Desecho sólido	Déchets solides	Rifiuti solidi	Odpady stałe	Твердые отходы
Liquid Waste	Abfall flüssig	Desecho líquido	Déchets liquides	Rifiuti liquidi	Odpady płynne	Жидкие отходы
Liquids	Flüssigkeiten	Líquidos	Liquides	Liquidi	Płyny	Жидкости
Cleaning	Reinigen	Limpieza	Nettoyage	Pulizia	Czyszczenie	Очистка
Vac-Test	Vakuumtest	Prueba vacío	Test de vide	Test vuoto	Test próżni	Вакуум-тест
BD-Test	BD-Test	Prueba BD	Test BD	Test BD	Test BD	BD-тест
Free Steam	Dampftopf	Unidad de vapor	Autoclave	Riscaldamento a vap.	Naczynie parowe	Пароприемник
Glass Test	Glastest	Prueba de vaso	Test verre	Test vetro	Test szkła	Тест стекла
Steam Air	Dampf/Luft	Vapor/aire	Vapeur/air	Vapore/aria	Para/Powietrze	Пар/воздух
Durham	Durham	Durham	Durham	Durham	Durham	Дарем
Hot Water	Heisswasser	Agua caliente	Eau chaude	Acqua bollente	Gorąca woda	Горячая вода
Fermenter	Fermenter	Fermentador	Fermenteur	Fermentatore	Fermenter	Ферментер
Empty	leer	Sin carga	vide	vuoto	puste	Пусто
Buttons						
START	START	INICIO	START	AVVIO	START	ПУСК
STOP	STOPP	FIN	STOP	STOP	ZATRZ.	СТОП

English	German	Spanish	French	Italian	Polish	Russian
SHOW	ANZEIGE	MOSTRAR	AFFICH.	VISUAL.	WYŚW.	ИНДИК
QUIT	QUIT	SALIR	QUIT	RISCON.	WYJŚCIE	КВИТ
MENU	MENÜ	MENÚ	MENU	MENU	MENU	МЕНЮ
PRINT	DRUCKEN	IMPRIME	IMPRIM.	STAMPA	DRUKOW.	ПЕЧАТЬ
READ	LESEN	LEER	LIRE	LEGGI	ODCZYT	ЧТЕНИЕ
OPEN	ÖFFNEN	ABRIR	OUVRIR	APRI	OTWIER.	ОТКРЫТЬ
FLUSH	LEEREN	VACIAR	VIDER	SVUOTA	OPRÓŻN.	ОПОРОЖН
WAIT	WARTEN	ESPERAR	ATTEND.	ATTENDI	CZEK.	ЖДАТЬ
YES	JA	SÍ	OUI	SÌ	TAK	ДА
NO	NEIN	NO	NON	NO	NIE	НЕТ
CLEAR	QUIT	SALIR	QUIT	RISCON.	POTW.	КВИТ
SET	SET	AJUSTAR	SET	IMPOSTA	USTAW.	УСТ
EXIT	EXIT	SALIR	EXIT	USCITA	WYJŚCIE	ВЫХОД
GRAPH	GRAFIK	GRÁFICO	GRAPHIQ	GRAFICA	GRAFIKA	ГРАФИК
BACK	ZURÜCK	VOLVER	RETOUR	INDIET.	POWRÓT	НАЗАД
ABC	ABC	ABC	ABC	ABC	ABC	ABC
SPACE	LEER	ESPACIO	VIDE	VUOTO	PUSTE	ПУСТО
Menu						
Language	Sprache	Idioma	Langue	Lingua	Język	Язык
User Menu	Benutzermenü	Menú de usuario	Menu utilisateurs	Menu utente	Menu użytkownika	Пользоват меню
Service Menu	Servicemenü	Menú de servicio	Menu service	Menu Servizio	Menu serwisowe	Сервисное меню
System Info	Systeminfo	Info del sistema	Info système	Informaz. sistema	Informacja syst.	Информ. о сист
Language						
Dansk	Dänisch	Danés	Danois	Danese	Duński	Датский
Deutsch	Deutsch	Alemán	Allemand	Tedesco	Niemiecki	Немецкий
English	Englisch	Inglés	Anglais	Inglese	Angielski	Английский
Espanol	Spanisch	Español	Espagnol	Spagnolo	Hiszpański	Испанский
Francais	Französich	Francés	Français	Francese	Francuski	Фразуский
Italiano	Italienisch	Italiano	Italien	Italiano	Włoski	Итальянский
Magyar	Ungarisch	Húngaro	Hongrois	Ungherese	Węgierski	Венгерский
Norsk	Norwegisch	Noruego	Norvégien	Norvegese	Norweski	Норвежский
Polski	Plonisch	Polaco	Polonais	Polacco	Polski	Польский
Portuguesa	Protugiesisch	Portugués	Portugais	Portoghese	Portugalski	Португальский
Dutch	Niederländisch	Holandés	Néerlandais	Olandese	Holenderski	Нидерландский
Suomi	Finnisch	Finlandés	Finlandais	Finnico	Fiński	Финский
Svenska	Schwedisch	Sueco	Suédois	Svedese	Szwedzki	Шведский
User menu						
Date/Time	Datum/Zeit	Fecha/hora	Date/heure	Data/orario	Data/Godzina	Дата/Время
User List	Benutzerliste	Lista usuarios	Liste utilisat.	Lista utenti	Lista użytkow.	Список пользов
Program List	Programmliste	Lista programas	Liste programmes	Lista programmi	Lista programów	Список программ
Memory	Speicher	Memoria	Mémoire	Memoria	Pamięć	Память
Screen Contrast	Kontrast	Contraste	Contraste	Contrasto	Kontrast	Контрастность
Sound Volume	Lautstärke	Volumen	Volume	Volume	Głośność	Громкость
Options						
Analog Inputs	Analoge Eingänge	Entradas analóg.	Entrées analogiq.	Input analogici	Wejścia analogowe	Аналоговые входы
Digital I/O	Digitale E/A	E/S digitales	E/S numériques	I/O digitali	We/Wy cyfrowe	Цифр вход-выход
Calibration	Kalibrieren	Calibración	Calibrage	Calibratura	Kalibrowanie	Калибровка

English	German	Spanish	French	Italian	Polish	Russian
Manual Output Set	Ausgänge setzen	Ajustar salidas	Régler sorties	Impostazi. output	Ustawanie wyjść	Устан выходов
Memory	Speicher	Memoria	Mémoire	Memoria	Pamięć	Память
Maintenance	Wartung	Mantenimiento	Maintenance	Manutenzione	Konserwacja	Обслуживание
Print Sensors	Sensoren Ausdruck	IImpresion sensores	Impress sondes	Stampa senosi	Czujniki do wydruku	ДАТЧИКИ РАСПЕЧ.
Calibration						
Change GainOffset	G/O ändern	Cambiar G/O	Modif. G/O	Modifica G/O	Zmiana G/O	Измен усил/смещ
Calc. GainOffset	G/O berechnen	Calcular G/O	Calcul. G/O	Calcolo G/O	Obliczanie G/O	Расчет усил/смещ
Restore Values	G/O zurücksetzen	Restaurar valores	Réinit. G/O	Reset G/O	Pon. ustaw. G/O	Сброс усил/смещ
Log `main` menu						
Process Log	Prozessspeicher	Registro proceso	Mémoire processus	Memoria di proc.	Pamięć procesów	Память процесса
Error Log	Fehlerspeicher	Registro errores	Mémoire erreurs	Memoria di errore	Pamięć błędów	Память неиспр.
Audit Trail	Ereignisprotokoll	Registro eventos	Compte rendu évén	Registro eventi	Protokół zdarzeń	Протокол событий
Log error menu						
General Info	Fehlerart	Tipo de error	Type d'erreur	Tipo di errore	Rodzaj błędu	Тип неисправн
Analog Inputs	Analoge Eingänge	Entradas analógicas	Entrées analogiq.	Input analogici	Wejścia analogowe	Аналоговые входы
Digital Inputs/Outputs	Digitale E/A	E/S digitales	E/S numériques	I/O digitali	We/Wy cyfrowe	Цифр вход-выход
`Maintenance`						
Replace Filter in:	Filter wechsel in:	Cambiar filtro:	Chgt filtre ds :	Sostit.filtro in:	Wymiana filtra w:	Зам фильтра чер:
Replace Gasket in:	Türdichtung wechseln in:	Cambiar junta en:	Chgt joint p. ds:	Sostit.gua.po.in:	Wym. usz. drz. w:	Зам уплотн дв ч:
Maintenance in cycles:	Wartung in Zyklen:	Mant. en ciclos:	Maintence ds c.:	Manuten.in cicli:	Konserw. w cykl.:	Обсл через цик:
Maintenance on:	Wartung im:	Mantenimiento en:	Maintence ds:	Manutenzione in:	Konserwacja w:	Обслуже через:
Notification start:	Anzeige der Meldung ab:	Inicio notif.:	Affich mess dès:	Visuali. mess.da:	Wyśw. zgłosz. od:	Индик сообщ от:
Cycles	Zyklen	Ciclos	Cycles	Cicli	Cykle	Циклы
System info						
System	System	Sistema	Système	Sistema	System	Система
Machine name:	Maschinenname:	Nombre máquina:	Nom machine :	Nome macchina:	Nazwa maszyny:	Название машины:
Machine type:	Maschinentyp:	Tipo de máquina	Type machine :	Tipo macchina:	Typ maszyny:	Тип машины:
Serial Num:	Seriennummer:	Número de serie:	Numéro de série :	Numero di serie:	Numer seryjny:	Серийный номер:
Software ver:	Softwareversion:	Versión software:	Version logiciel:	Vers. software:	Wer. oprogram.:	Версия ПО:
Analog ver:	Analogversion:	Ver. analógica:	Version analog:	Vers. analogica:	Wer. analogowa:	Аналог. версия:
Manufacturer:	Hersteller:	Fabricante:	Constructeur :	Produttore:	Producent:	Изготовитель:
Address:	Adresse:	Dirección:	Adresse :	Indirizzo:	Adres:	Адрес:
Email:	Email:	Email:	E-mail :	E-mail:	E-mail:	Email:
Web:	Web:	Web:	Internet :	Web:	WWW:	Интернет:
Systec HX	Systec HX	Systec HX	Systec HX	Systec HX	Systec HX	Systec HX
CPanel	Cpanel	Cpanel	Cpanel	Cpanel	Cpanel	Cpanel

English	German	Spanish	French	Italian	Polish	Russian
Not ready						
No Tap Water	kein Kühlw.	Sin agua fr.	Pas d'eau fr	as. a. raff.	B. wody chł.	Нет ох воды
Chamb.No Wtr	k. Kammerw.	Sin agua ca.	Pas eau cham	as. acq. ca.	B. wody kom.	Нет кам вод
Gen. Low Prs	Gen. Druck	Presión gen.	Press gén.	gen. press.	Ciśn. gen.	Общ давл
Not Closed	offen	Abierto	Ouvert	apri	otw.	Открыто
No Demin Wtr	kein VE-W.	Sin agua de.	Pas eau dém	ass. acqua	B. wody dem.	Нет дем вод
No Comp.Air	keine Druckl	Sin aire co.	Pas air comp	ass. ar. co.	B. pow. spr.	Нет сж возд
Tank empty	Tank leer	Tanque vacío	Réserv. vide	serb. vuoto	Pusty poj.	Бак пустой
Repl. Filter	Filtertausch	Camb. filtro	Chan. filtre	sost. filt.	Wym. filtra	Замен фильт

Tab. 1: Overview of the text display, depending on the language setting selected

4.4 Using the menu

All device functions can be accessed via the touchscreen menus. However, the basic operation always remains the same.

4.4.1 Menu structure

The main menu is accessed by pressing the Menu function key in the basic display. The following menu items can be selected from here.

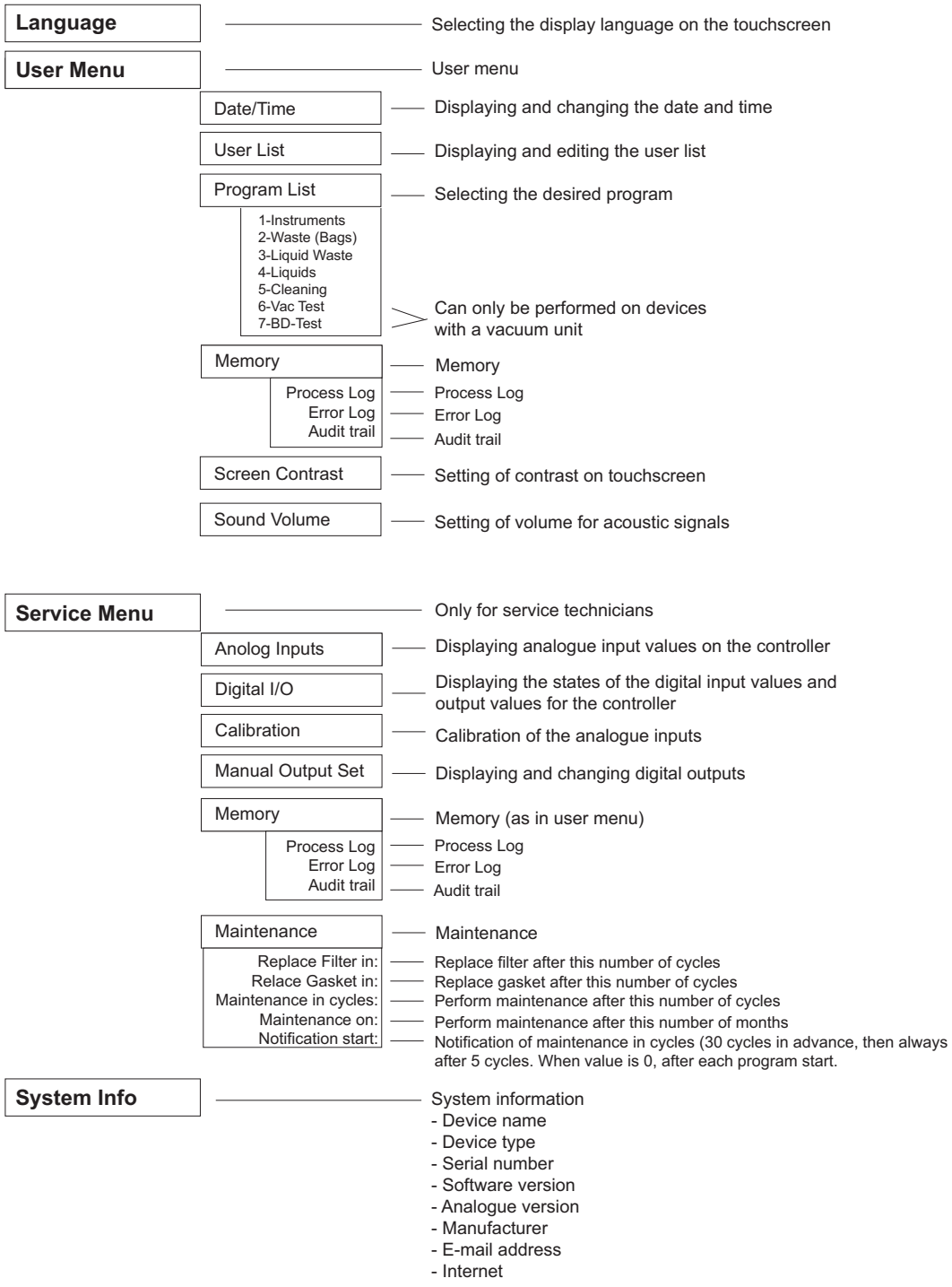


Fig. 9: Overview of the menu structure

4.4.2 Function keys

The following function keys are available on the device touchscreen:

START	Starts the selected program
OPEN	Unlocks the door
MENU	Displays the main menu
PROGRAM	Displays the programs
CLEAR	Acknowledges error messages
GRAPH	Graphical display of the program cycle
BACK	Goes back to the progress display
STOP	Stops the program
FLUSH	Drains the condensate

Tab. 2: Overview of function keys

4.4.3 Symbols

The following symbols are displayed on the touchscreen, depending on the menu currently in use.

All menus	
	Return to the basic touchscreen display
	Confirm entry
	Scroll back through the menu
	- Scroll upwards or downwards by line or in steps - Change values
	Scroll to previous page
	Scroll to next page
	Save changed values
Menu -> Service menu -> Calibration	
	Recalculate values
	Accept values
Menu -> User menu -> Program List	
	Create new program

	Edit program
	Delete program
Menu -> Program	
	Change program parameters
Menu -> User menu -> User List	
	Add user to list
	Change user data
	Delete user from list
	Move line downwards
	Move line upwards
Menu -> Service menu -> Memory	
	Search data record by serial number and/or date
	Exit search results
	Print data

Tab. 3: Functional overview of arrow keys

4.4.4 Functions according to the access level

As the autoclave software can be set according to the “FDA CFR21, part 11” guideline, the following functions may only be used after entering your access data.

Function	Factory settings	Standard settings according to “FDA”
	0 = Inactive, 1 – 5 = Access level	
Open door	0	1
Start program	0	1
Stop program	0	1
Select program	0	1
Acknowledge error	0	1
Set date / time	0	1
Change parameters	1 - 5	1 - 5
Manage users	5	5
Manage programs	5	5
Maintenance	0	1

Tab. 4: Functions according to the access level

4.4.5 Example: Changing the date and time

Fig. 10: Using the menu: Basic touchscreen display

- Press Menu to access the main menu.

The four menu items on the main menu are displayed:

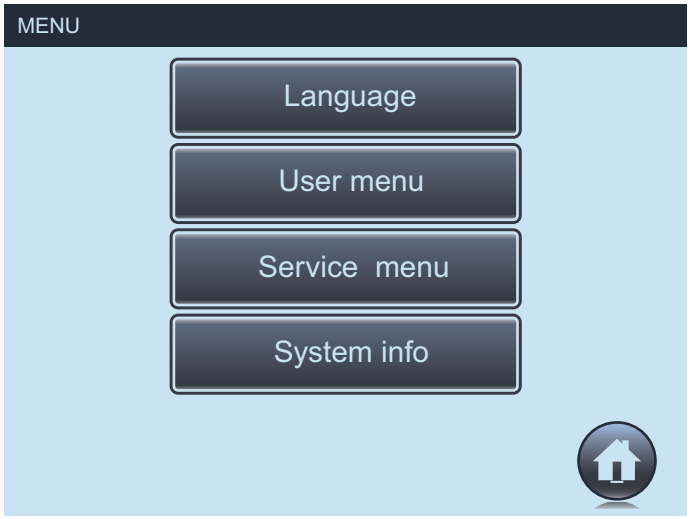


Fig. 11: Using the menu: Main menu

- Press User Menu to access the user menu.

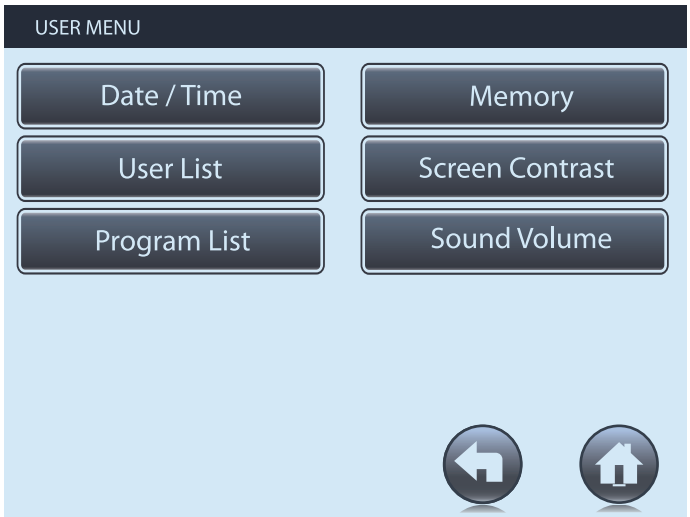


Fig. 12: Using the menu: Navigation to the desired menu item

- Press Date/Time to select the desired menu item.

The first number to be set is displayed in white.

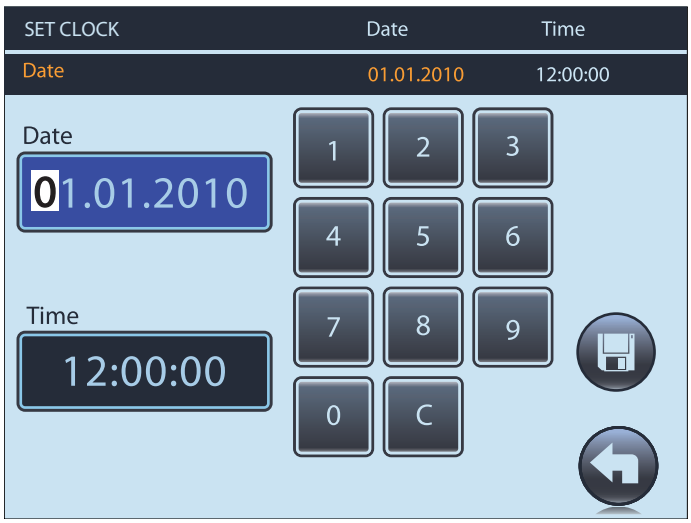


Fig. 13: Using the menu: Selecting the desired menu item

- Press the field where the value should be changed. The activated field is displayed in blue.
- Enter the current date or time.

The display switches automatically to the next value after each entry.

- Press  to save the setting.
- Press  to go back to the user menu.

4.4.6 Creating a user

The following three users are preset at the factory:

User	Password	Access level
user	00	1
admin	00	5
systec	Only for service technicians	-

Tab. 5: Users created at the factory

Each user is assigned an access level. The access level (1 – 5) determines which functions a user is allowed to use.

Users can only be created by operators with administrator rights. Operators assigned to access level 5 have administrator rights. Multiple users can be assigned to the highest access level, all of whom will then have administrator rights.

No new users can be created if all administrators are deleted from the user list. However, all existing users can still start programs. Contact Systec service in this case.

A new user is created as follows:

- Access the user list:

MENU -> USER MENU -> USERS LIST

- Enter your access data.

The users list appears.

Fig. 14: Users list

- Press  to create a new user.
- Enter the desired user name and define a password.
- Confirm your entry.

The user name and password must be at least two characters long.

- The access level selection screen appears.

Fig. 15: Access level

- Enter the access level of the user.
- The program list appears.

Fig. 16: Assigning programs

- Select the desired programs by pressing the symbol to the right of the program display.
- Confirm your selection.
- Press the program that you wish to sort.

The program list appears again for sorting the programs.

Fig. 17: Sorting the programs

- Move the program to the desired position using the  symbols.
- Confirm the sorted program sequence.
- The user list appears again.

You can now create further users or exit the user list.

You can save your changes when the user list is exited:

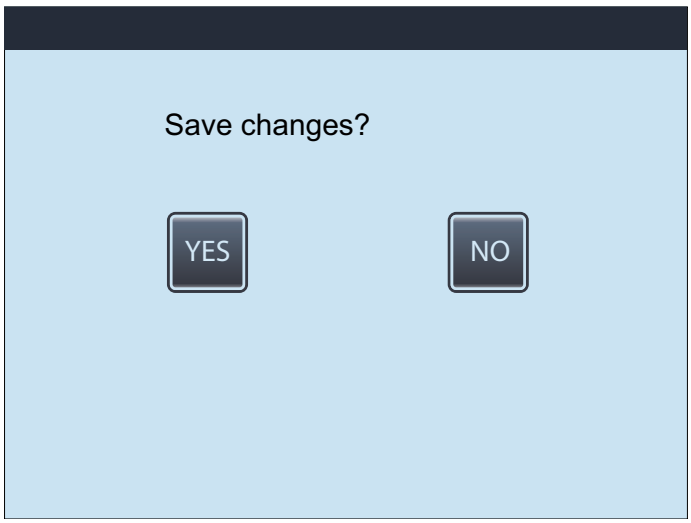


Fig. 18: Saving the user list

Press YES to save the changes in the user list.

User data can be edited by pressing  (e.g. allocation of a new access level to a user).

Users can be deleted from the list by pressing  .

4.4.7 Creating programs

- Access the program list:

MENU -> USER MENU -> PROGRAM LIST

- Enter your access data (user name and password).

A list of existing programs is displayed.

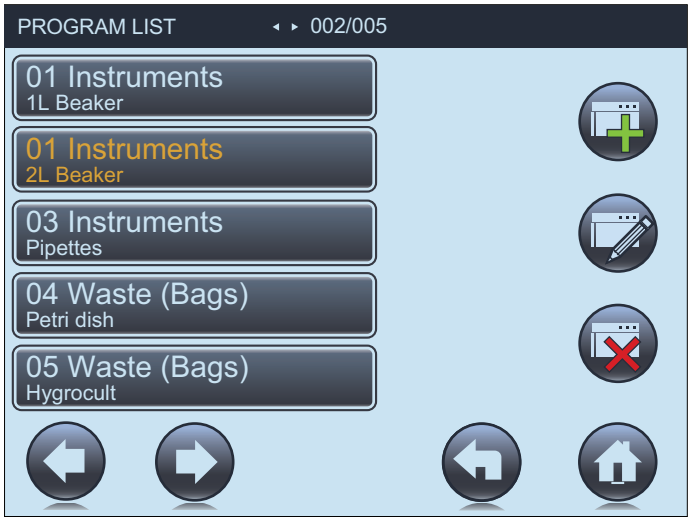


Fig. 19: Program list

- Press  to create a new program.

A list of factory-default program types is displayed.

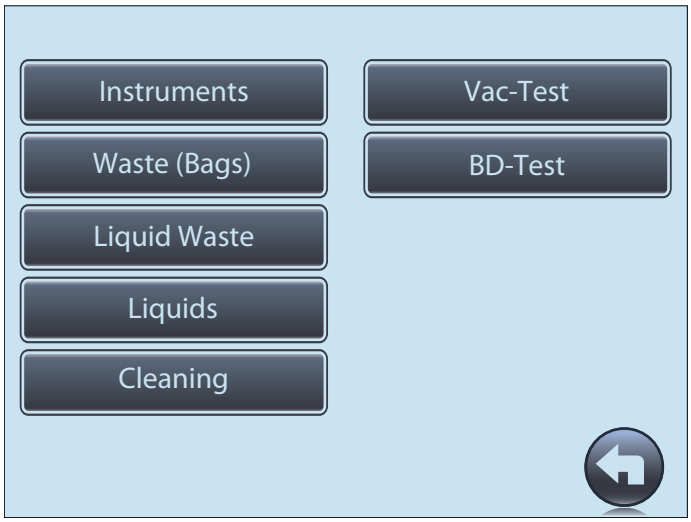


Fig. 20: Program types

- Select the desired program type.
- Confirm your entry.

The program description appears.

Fig. 21: Program description

- If multiple solids programs of the same type are created, then enter an additional name (max. 20 characters) in order to differentiate between them.
- Confirm the entry to return to the program list.

You can save your changes when the program list is exited.

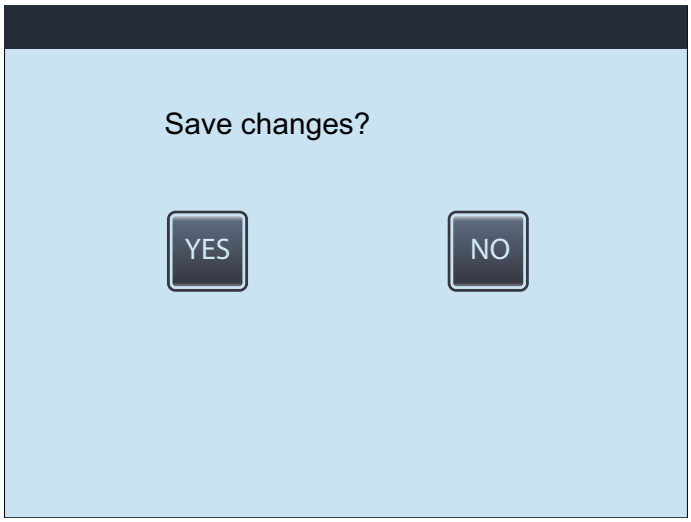


Fig. 22: Saving a newly-created program

Press Yes to save the newly-created program.

The program type and/or additional name of the selected program can be changed by pressing  .

The selected program can be deleted from the list by pressing  .

4.4.8 Changing the program parameters

- Press the Program function key in the basic display.

The program list appears.

Fig. 23: Program list

- Select a program.

- Press  to access the parameter list.

The parameter list appears (CYCLE PARAMETERS).

Fig. 24: Parameter list

- Press the parameter that you wish to change.
- Press  to change the parameter.

Fig. 25: Changing parameters

- Enter the new value (with decimal places).
- Confirm your entry with  .
- When necessary, select further parameters and change their values as described above.

The changed values are automatically saved when you exit the parameter list.

4.5 Data memory

4.5.1 Process log

The last 500 print logs are saved in the process log.

- Access the process log:
  `Menu -> User Menu -> Memory -> Process Log`

Fig. 26: Sample process list

The following are displayed on the touchscreen:

Cycle number / program name / time / date

The complete log for the selected process is printed out by pressing  .

You can search for cycles according to a specific date or cycle number using the search function  .

The results list is exited by pressing  .

If several matches are shown in the search list, then you can select and print out one cycle.

4.5.2 Error log

Up to 500 error messages are saved in the error log.

- Access the error log:
  `Menu -> User Menu -> Memory -> Error Log`

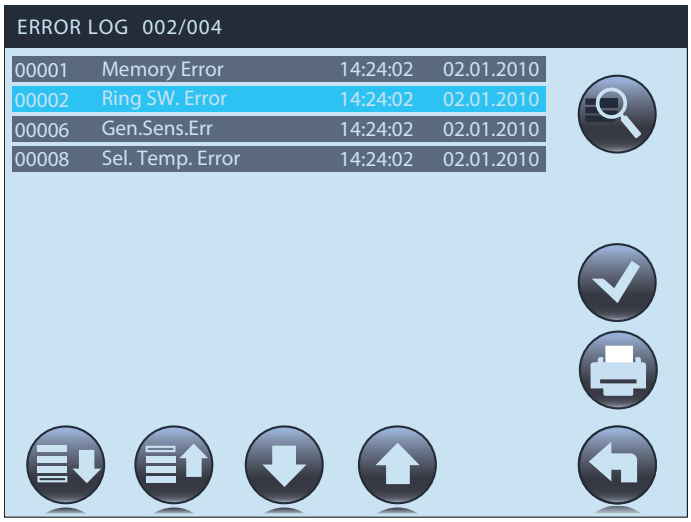


Fig. 27: Sample error list

The following are displayed on the touchscreen:

Cycle number / error name / time / date

Detailed information on a cycle is displayed after the cycle is selected and confirmed by pressing  :

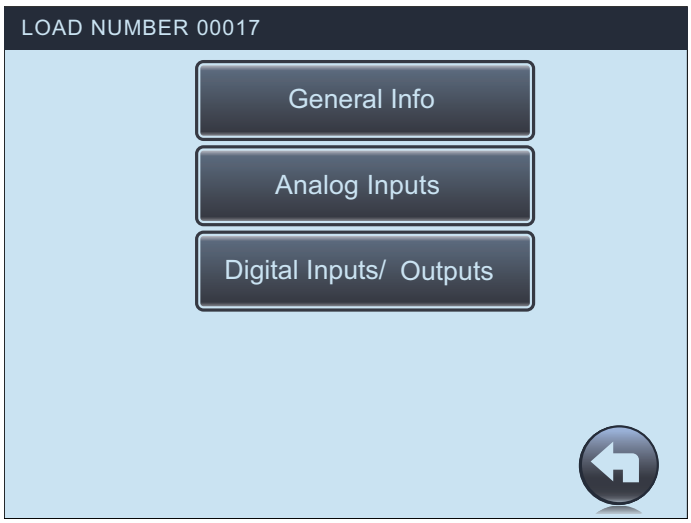


Fig. 28: Selection of cycle information

The following can be displayed:

- General Info
- Analog Inputs
- Digital Inputs/Outputs

Press  to print out all data.

You can search for cycles according to a specific date or cycle number using the search function  .

The results list is exited by pressing  .

If several matches are shown in the search list, then you can select one cycle and display the corresponding cycle data.

Confirm your selection with  .

4.5.3 Event-based data memory (audit trail, optional)

Up to 999 events are saved and can be displayed.

Data for the following events can be saved:

- Starting the program
- Stopping the program
- Opening the door
- Acknowledging errors
- Setting date / time
- Changing parameters
- Managing users
- Managing programs
- Maintenance
- Calibration

You must enter your access data if one of these events occurs.

- Access the event list:
  `MENU -> User Menu -> Memory -> Audit trail`

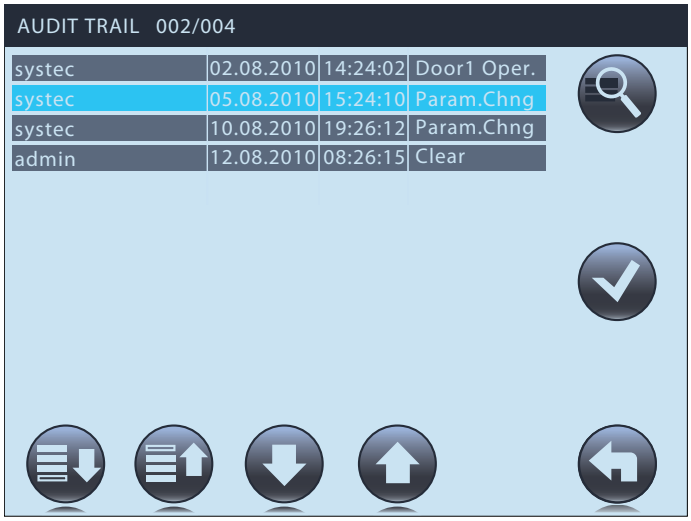


Fig. 29: Example: Event list

- Select an event.
- Confirm your selection with  .

The selected program is shown.

Fig. 30: Example: Saved data for an event

The following can be shown for an event:

- User Name
- Date
- Time
- Event Type
- Program
- Load No.

You can search for events on a specific date using the search function  .

4.5.4 Acknowledging error messages

If an error occurs, a corresponding error message appears on the touchscreen.

- Wait until the program has finished.
- Rectify the error.
- Press the CLEAR function key.

4.6 Sensor printout (only for service technicians)

Menu -> Service Menu -> Print Sensors

You can select the sensors you wish to print data from.

- Select the desired sensors by pressing the symbol to the right of the sensor.
- Save your selection with  .

If no sensors are selected, the data from the sensors normally used is printed out.

4.7 Sterilisation

Four different sterilisation programs are created at the factory. Up to 100 programs can be created and adapted according to your requirements.

The following gives you an overview of the operations you must carry out for sterilisation.

4.7.1 Overview

WARNING

Danger when safety instructions are not observed!
This brief overview requires previous knowledge of the relevant safety instructions when working with autoclaves and sterilised items.

- Consult the “Safety” chapter and familiarise yourself with the fundamental risks involved in handling the device.
- Pay attention to the following instructions concerning the individual process steps.

To sterilise, proceed as follows:

- Select the appropriate program for the item being sterilised.
- Load the autoclave with the item to be sterilised.
- Position the flexible temperature sensor, when required.
- Close the door.
- Start the selected sterilisation program.

The sterilisation process then takes place automatically. The controller measures the current temperature, pressure and time values, checks these against the saved set values and adjusts the procedure accordingly.

End of program

When the sterilisation procedure has ended, an acoustic signal sounds and `Cycle ended` appears in the display.

Proceed as follows to remove the sterilised item:

- Open the door.
- Remove the sterilised item from the sterilisation chamber and proceed as prescribed by your company.

The device is now ready for the next sterilisation process.

If the device will not be used for several hours:

- Close the door.
- Switch the device off at the main switch.

4.7.2 Selecting the program

Depending on the sterilised item, a suitable sterilisation process must be selected in order to:

- Rule out risks to personnel and to the laboratory
- Guarantee a successful sterilisation result

The selection of a suitable sterilisation process is made by selecting a corresponding program.

The program overview is accessed by pressing the Program function key. The most important sterilisation parameters of the program are displayed after a program is selected.

The basic touchscreen display is shown after the program is confirmed. The selected program can be started here.

At least four sterilisation programs, one cleaning program and two test programs are preset at the factory. These settings correspond to DIN 58951-2 recommendations for steam sterilisers used for laboratory items.

The devices are flexible in their design in order to be suitable for all standard laboratory applications. Therefore, the program parameters are variable to a large degree.
Make sure that you only use programs and sterilised items that can withstand the physical conditions in the autoclave and correspond to your company regulations. If necessary, see the “Parameters” section and familiarise yourself with how to adapt the sterilisation parameters to your requirements.

An exact description of the individual sterilisation programs is found in chapter 5 (“Sterilisation programs”). The following table gives a brief overview of the recommended sterilisation programs and their parameters:

Sterilised item	**Sterilisation temperature (SterTemp)**	**Sterilisation time (SterTime)**	**Unloading temperature (EndTemp)**
Solids, instruments	121 °C	20 min.	120 °C
Waste (bags)	121 °C	20 min.	99 °C
Liquid waste	121 °C	20 min.	80 °C
Liquids	121 °C	15 min.	80 °C

Tab. 6: Recommended sterilisation parameters for various items

4.7.3 Loading the device with solids

WARNING

Danger of explosion when sterilising liquids!
The sterilisation of liquids using solids cycles causes danger through boiling delays or exploding vessels, and can result in serious injuries.

- Only sterilise liquids in the corresponding liquid programs.

WARNING

Danger of burns when removing solids!
In solids cycles, the door can be opened when the atmospheric pressure has been reached. The temperature in the device or that of the sterilised products can still be 100 °C or more, which leads to burns.

- Wear suitable protective clothing when removing the products.

ATTENTION

Danger of an incomplete and non-reproducible sterilisation!
The products and packaging used must be suitable for sterilisation.
Ensure the following:

- The products must be suitable for steam sterilisation at temperatures >121 °C or >134 °C.
- Any packaging used must be permeable to steam.
- The products must not be not sterilised in tubs or similar vessels, as the products could then be damp or even wet on removal.
- Only set a permissible sterilisation temperature when sterilising plastics, hoses etc.

- Place the flexible temperature sensor in the holder provided.
- Load the device with the products to be sterilised. Position the products either on the perforated bottom plate or in a wire-mesh basket.

4.7.4 Loading the device with liquids

WARNING

Danger of burns!
A device with a temperature-dependent door lock is required for the sterilisation of liquids.

- Position the flexible temperature sensor in the liquid or a reference vessel so that the temperature can be measured in the liquid.
- To avoid incorrect temperature measurements, use a reference vessel with the same size and fill volume as the largest vessel containing the liquid to be sterilised.

WARNING

Danger of explosion when sterilising liquids!
The sterilisation of liquids using solids cycles causes danger through boiling delays or exploding vessels, and can result in serious injuries.

- Only sterilise liquids in the corresponding liquid programs.

WARNING

Danger of explosion with tightly-closed vessels!
Tightly-closed vessels can burst if they are sterilised in programs without rapid cooling and a support pressure supply. When removed, they exhibit a considerably higher temperature than the set unloading temperature.

- Make sure that any vessels to be sterilised are not closed tightly under any circumstances.

WARNING

Danger of burns when removing liquids!
Leaking or escaping liquids can cause scalding or burns.

- Only remove vessels filled with liquid with extreme care whilst adhering to all safety instructions.
- Wear suitable protective clothing.

ATTENTION

Danger of damage to the device caused by escaping liquid!
The vessels must be able to withstand the sterilisation temperature (>121 °C).

- Always select temperature-resistant vessels when sterilising liquids.

Condensation build-up when using tubs

The accumulating condensate collects in the tub or in the “Stainless steel buckets with array of holes above”.

Liquids can be sterilised in open vessels. Tightly-closed vessels of up to 1000 ml can also be used with the “Rapid cooling with support pressure” option.

Both programs with water cooling and without active cooling can be used for sterilising open vessels.

- Place the vessels filled with liquid on the perforated bottom plate or in the wire-mesh basket.

When using open vessels, the volume of the liquid to be sterilised may be reduced by up to 5 % after the sterilisation process due to boiling. The filling level for open vessels may be a maximum of 75 % of the fill volume.

Additional safety feature
The operator can set a cooling rate that specifies a minimum cooling time, depending on the cooling system and the load. For example, if the temperature sensor has not been placed in the liquid by the user, or the vessel bursts during the sterilisation procedure, the effective room temperature is measured and not the temperature of the media. However, the effective room temperature is far less than the temperature of the media during the cooling phase. Because of this incorrect value, the device can already be opened at this point even though the liquids are still boiling. The minimum cooling time ensures that the device can only be opened when this cooling time has elapsed, regardless of the unloading temperature.
The cooling rate (K/min) must be measured and set by the user depending on the load type.
The minimum cooling rate is determined automatically.

4.7.5 Loading the device with waste in bags

WARNING

Danger of explosion when sterilising liquid waste!
The sterilisation of liquid waste in “Waste in bag” programs causes danger through boiling delays or exploding vessels and can result in serious injuries.

- Only sterilise laboratory waste in solid form and with only a small proportion of liquid (max. 50 ml).
- Sterilise liquid waste in the corresponding “Liquid waste” programs.

WARNING

Danger of burns when unloading!

- Only remove the sterilised items from the device with extreme care whilst adhering to all safety instructions.
- Wear suitable protective clothing when removing the products.

ATTENTION

Danger of damage to the device caused by leaking containers!
Rubbish bags and other containers can leak, which results in contamination of the device and possible malfunctions.
- Sterilise waste in tubs.

ATTENTION

Danger of damage to the temperature sensor!
The sterilised item melts during sterilisation. The flexible temperature sensor will be damaged if it is placed in the sterilised item.
- Place the temperature sensor in the holder provided.

ATTENTION

Danger of malfunctions due to incomplete air extraction!
For an optimal result, the steam must reach all parts of the item being sterilised. Overloading the device can lead to insufficient air extraction and may cause malfunctions.
Reliable sterilisation can only be achieved on devices equipped with a vacuum unit.
- Do not overload the device.

- Place the flexible temperature sensor in the holder provided.
- Position the sterilised item in a tub.

4.7.6 Closing the door

Close the door after loading the device in accordance with the guidelines.

The Systec HX series is equipped with an automatic door lock.
A locking ring meshes with the door and locks it securely.
To facilitate the locking process, a vacuum is created when the door closes which holds the door closed until the safety ring has mechanically locked the door.

To close the door:

- Press the door in until the seals come into contact.

The vacuum is created. You can follow this procedure on the touchscreen: The displayed chamber pressure (kPa) falls slightly.

- Hold the door in this position until the door locking device has clearly locked.

The READY message on the touchscreen indicates that the door is completely closed.

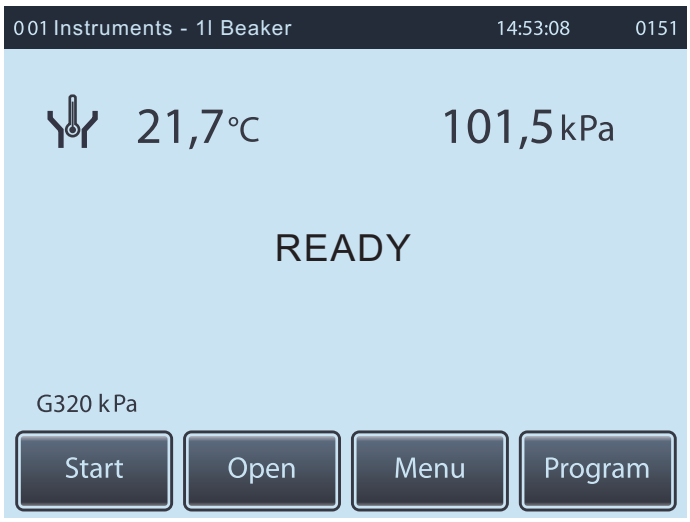


Fig. 31: READY message for closed door

4.7.7 Starting the program

If an optional printer is installed, this automatically logs the entire program cycle from the start of the program.
The last metre of the paper roll is indicated by a red stripe.
If necessary, consult chapter 6.9 on how you have to put in a new roll of paper.

- After the door is closed, start the selected program by pressing the Start function key.

As explained in the previous section, no liquids may be sterilised in solids programs.

To prevent liquids being sterilised accidentally in a solids cycle, a safety query is displayed after pressing the Start function key.

When you are sure that no liquids are in the device, confirm this query with YES.

From this point on, the controller takes over the entire procedure. A progress bar on the touchscreen indicates the current status of the program cycle.

Preselectable starting time

If the StartByTime parameter is set to “1” in the selected program, the current time and date appear after the Start function key is pressed. You can now set the desired start time and save it with “Confirm”. The autoclave switches to standby mode. The standby mode is exited by pressing any area of the touchscreen.

4.7.8 End of program

After the completion of a sterilisation program, an acoustic signal sounds and Cycle ended appears in the display.

The sterilisation process is completed and the item can be removed and used in accordance with your company regulations, as described under “Opening the door” and “Removing the sterilised item”.

4.7.9 Stopping the program

If you wish to end a program prematurely, you must stop the current running process.

ATTENTION

Danger of incomplete sterilisation!
Depending on the point at which the sterilisation process is interrupted, sterilisation may be incomplete. An interruption in the heating or sterilisation phase causes the process to pass directly to the final cooling phase.

- Repeat the entire sterilisation process to guarantee complete sterilisation.

Work is not accelerated by cancelling the process (e.g. during the cooling phase). Bear in mind that the door can only be opened when the unloading temperature has been reached and atmospheric conditions are found inside the sterilisation chamber.

- Press the Stop function key.

Manual Stop appears on the touchscreen.

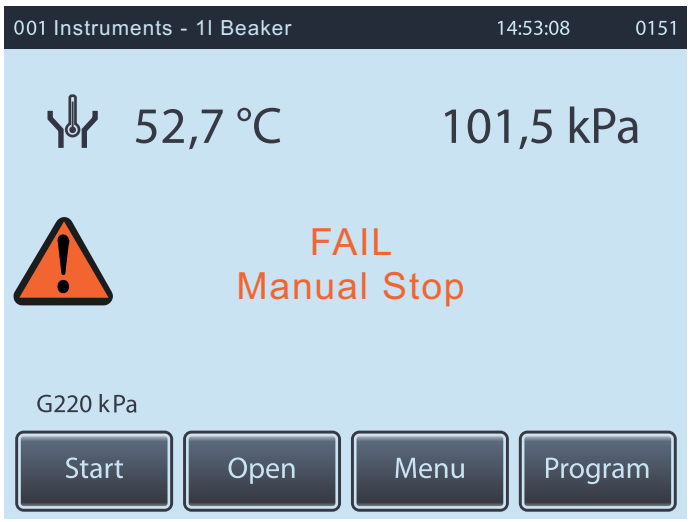


Fig. 32: Manual Stop message after process is stopped by user

- Acknowledge the error message by pressing the CLEAR function key.

The interrupted sterilisation process cannot be continued after a manual stop. It must be started again, if desired.

4.7.10 Program error

If an error occurs, a corresponding error message appears on the touchscreen.

- Wait until the program has finished.
- Rectify the error.
- Press the CLEAR function key.

ATTENTION

Danger of incomplete sterilisation!
Depending on the point at which the sterilisation process is interrupted, sterilisation may be incomplete. An interruption in the heating or sterilisation phase causes the process to pass directly to the final cooling phase.

- Repeat the entire sterilisation process to guarantee complete sterilisation.

If you are not sure about the meaning of an error message and how to resolve it, consult chapter 8.

4.7.11 Opening the door

When the sterilisation process is completely finished and the specified unloading temperature and atmospheric conditions have been reached, the OPEN message appears on the touchscreen.

The door can now be opened.

WARNING

Danger of burns when opening the door!
After sterilisation, the surfaces of the door and the sterilisation container are hot. When the door is opened, hot clouds of steam and hot water can escape.

- Always move the door using the recessed grip.
- Wear the prescribed personal protective equipment.

- Press the Open function key.

The door then opens outwards automatically by approx. 3 cm.

- Open the door using the recessed grip until it reaches the stop.

Measuring the water level in the sterilisation chamber after the end of the program:

A water level sensor in the sterilisation chamber registers any liquid collected within. If there are more than 3 litres of water in the chamber at the end of a sterilisation program, the device will prevent the door from being opened. Water remaining in the sterilisation chamber cannot leak out after, for example, a program error and program interruption have occurred. Drain condense appears on the touchscreen.

– Device without exhaust filter:

After the end of the program, the chamber electrode measures if there is still water in the device. If this is the case, the fast exhaust valve is opened and the water is ejected using compressed air with max. 120 kPa. The pressure is then released via the exhaust valve and Please wait is displayed on the touchscreen. The door is released once the chamber reaches atmospheric pressure. Open appears on the touchscreen.

– Devices with exhaust filter:

The procedure is the same as for devices without an exhaust filter, however the start of condensate drainage must be confirmed by pressing Flush as shown in the touchscreen after the Drain condense ? message.

You have the following options:

- The condensate should flow into the drain.
- The condensate must be drained into a separate container (if necessary with a drain hose feeding into a container) for it to be processed further. This may be as a result of a faulty process.

4.7.12 Removing the sterilised item

WARNING

Danger of burns when unloading!

- Only remove the sterilised items from the device with extreme care whilst adhering to all safety instructions.
- Wear suitable protective clothing when removing the products.

- If required, remove the flexible temperature sensor from the sterilised item (reference vessel) and fix this to the holder provided.
- Take the sterilised item out of the sterilisation chamber and proceed with it according to your company regulations.

4.8 Special features of pass-through autoclaves

For pass-through autoclaves, see the separate design plan.

With the pass-through autoclaves, you can only ever open one door. If you open the door on the clean room side, the door on the device side is automatically locked, and vice versa.

When commissioning the appliance, the service technician sets the type of locking and enters it in the appliance log book.

All users with at least access level 5 can also change the type of locking.

"Door mode" setting	Door locking
1	Only one door can be opened at a time.
2	The door on the clean room side (door 2) can only be opened: – after a successful cycle run and – if the opposite door has not been opened.
3	The door on the device side can only be opened: – after a successful cycle run and – if the opposite door has not been opened.
4	The door on the device side or the clean room side can only be opened: – after a successful cycle run and – if the opposite door has not been opened.

Tab. 7: Setting the "Door mode"

The appliance can be operated by means of the control panels on either side, which have equal priority. You can always see the position of the opposite door on the touchscreen.

In contrast to one-door autoclaves, the doors on pass-through autoclaves open with a slight delay.

4.9 Parameters

The parameters for the individual sterilisation cycles can be adjusted to suit the individual circumstances in your company.

- If you are unsure about the parameter setting of the device, then inform yourself about it first before starting a program.

The following descriptions provide recommendations that correspond to the normal factory setting. The parameters described can differ from the actual settings of your device depending on the options selected and the individual delivery configuration.

Program	**SterTemp** Sterilisation temperature	**SterTime** Sterilisation time	**DryTime** Drying time (only with optional vacuum unit)	**EndTemp** Unloading temperature
	[°C]	**[min]**	**[min]**	**[°C]**
Solids, instruments	121	20	10	120
Waste (bags)	121	20	0	99
Liquid waste	121	20	0	80
Liquids	121	20	0	80
Cleaning	134	15	0	120
Vac Test	--	--	--	--
BD-Test	134	3,5	1	120

Tab. 8: Default parameter settings

Depending on the risks involved, setting parameters requires a specific access level. A complete description of the parameters that can be adjusted in access levels 2 to 5 can be found under “Meaning of the individual parameters”.

4.9.1 Calling up saved parameters for the desired program

You can view the basic program parameters in the program list in order to check the values.

- Press the Program function key in the basic display.

The program list appears.

Fig. 33: Program list

- Select a program.

The basic parameters for the selected program are displayed.

The following values are shown:

SterTemp	Sterilisation temperature in °C	See “Meaning of the individual parameters”
SterTime	Sterilisation time in minutes	
DryTime	Drying time in minutes	
Pulse	Pre-vacuum cycles or pulse of segmented heating	
EndTemp	Unloading temperature in °C	

Tab. 9: Basic parameters

- Press  to exit the program list and return to the basic display.

4.10 Changing parameters

- Press the Program function key in the basic display.

The program list appears.

Fig. 34: Program list

- Select a program.
- Press  to access the parameter list.

The parameter list appears (CYCLE PARAMETERS).

Fig. 35: Parameter list

- Press the parameter that you wish to change.
- Press  to change the parameter.

Fig. 36: Changing parameters

- Enter the new value (with decimal places).
- Confirm your entry with  .
- When necessary, select further parameters and change their values as described above.

The changed values are automatically saved when you exit the parameter list.

WARNING

Danger when parameters are changed!
The preset programs in the device can be changed significantly using the parameters, which can lead to an incomplete sterilisation.

- Changes and modifications may only be made by trained technical personnel.

If the audit trail is not activated, then all modifications should be noted down in the logbook.

4.11 Meaning of the individual parameters

You can adjust the device functions to suit your individual requirements using the parameters.

WARNING

Danger when parameters are changed!
The preset programs in the device can be changed significantly using the parameters, which can lead to an incomplete sterilisation.

- Changes and modifications may only be made by trained technical personnel.

If the audit trail is not activated, then all modifications should be noted down in the logbook.

Specific access levels (2 to 5) are a prerequisite for displaying and changing certain values, as shown in the table below.

The following program parameters can be displayed and changed here (the use of certain parameters is dependent on the options installed):

Name	**SterTemp**		
Description	**Sterilisation temperature**		
Access level	**Level 2**		
	Increment	Minimum value	Maximum value
	0.1 °C	**60 °C**	**140 °C** optional: 150 °C (Option: Extension of the temperature and pressure ranges to 150 °C and 5 bar)

Name	**SterTime**		
Description	**Sterilisation time**		
Access level	**Level 2**		
	Increment	Minimum value	Maximum value
	0.1 min	**0 min**	**300 min**

Name	**DryTime**
Description	**Drying time** **(can only be used when drying is active)**
Access level	**Level 2**

Increment	Minimum value	Maximum value
0.1 min	**0 min**	**300 min**

Name	**SterTimeDays**
Description	**Sterilisation time in days**
Access level	**Level 2**

Increment	Minimum value	Maximum value
1 day	**0 days**	**99 days**

Name	**EndTemp**
Description	**Unloading temperature** If the temperature in the device or sterilised item is higher than the set value, then the door remains locked and the program is not completed.
Access level	**Level 2**

Increment	Minimum value	Maximum value
0.1 °C	**40 °C**	**80 °C** (liquid) **99 °C** (waste) **120 °C** (solid)

Name	**Pulses**
Description	**Number of steam/vacuum pulses** in the pre-treatment phase The number of steam pulses for pre-vacuum cycles or segmented heating can be set with this parameter.
Access level	**Level 2**

Increment	Minimum value	Maximum value
1	**0**	**7**

Name	**PulseVac1**
Description	**Vacuum value of the first vacuum pulse (No. 1)** A value of 100 means: No vacuum pump, segmented heating.
Access level	**Level 3**

Increment	Minimum value	Maximum value
0.1 kPa	**10 kPa**	**100 kPa**

Name	**PulsVacT1**
Description	**Run-on time of the first vacuum pulse** Defines the time for which the vacuum must be maintained after the set vacuum value “PulseVac1” (No. 7) has been reached.
Access level	**Level 3**

Increment	Minimum value	Maximum value
1 sec	**1 sec**	**1800 sec**

Name	**PulsePress 1**
Description	**Steam pressure level for the first steam pulse**
Access level	**Level 3**

Increment	Minimum value	Maximum value
0.1 kPa	**10 kPa**	**250 kPa**

Name	**PulseVac2**
Description	**Vacuum value of the second and subsequent vacuum pulses** A value of 100 means: No vacuum pump, segmented heating.
Access level	**Level 3**

Increment	Minimum value	Maximum value
0.1 kPa	**10 kPa**	**100 kPa**

Name	**PulseVacT2**
Description	**Run-on time for the subsequent pulses** Defines the time for which the vacuum must be maintained after the set vacuum value “PulseVac2” (No. 10) has been reached for the second and subsequent pulses.
Access level	**Level 3**

Increment	Minimum value	Maximum value
1 sec	**1 sec**	**1800 sec**

Name	**PulsePress 2**
Description	**Steam pressure level for the second and subsequent steam pulses**
Access level	**Level 3**

Increment	Minimum value	Maximum value
0.1 kPa	**10 kPa**	**250 kPa**

Name	**PulseVac3**
Description	**Vacuum value of the last vacuum pulse** A value of 100 means: No vacuum pump, segmented heating.
Access level	**Level 3**

Increment	Minimum value	Maximum value
0.1 kPa	**10 kPa**	**100 kPa**

Name	**PulseVacT3**
Description	**Run-on time of the last vacuum pulse** Defines the time for which the vacuum must be maintained after the set vacuum value “PulseVac3” (No. 13) has been reached for the last pulse.
Access level	**Level 3**

Increment	Minimum value	Maximum value
1 sec	**1 sec**	**1800 sec**

Name	**PulsePress 3**
Description	**Steam pressure level for the last pulse**
Access level	**Level 3**

Increment	Minimum value	Maximum value
0.1 kPa	**10 kPa**	**250 kPa**

Name	**ExShootOn**
Description	**Clocking of the steam exhaust valve (“On time”)** In conjunction with “ExShootOff” (No. 17), the length of time the steam exhaust valve is switched on can be controlled when using cycles with a slow steam exhaust.
Access level	**Level 3**

Increment	Minimum value	Maximum value
1/10 sec	**0 sec**	**100 sec**

Name	**ExShootOff**
Description	**Clocking of the steam exhaust valve (“off-time”)**
Access level	**Level 3**

Increment	Minimum value	Maximum value
1/10 sec	**0 sec**	**100 sec**

Name	**HoldTemp**
Description	**Hold temperature** Temperature that should be maintained after the sterilisation cycle in the pressure container (if “HoldTime” (No. 19) is greater than 0). **For liquid programs only!**
Access level	**Level 3**

Increment	Minimum value	Maximum value
0.1 °C	**40 °C**	**80 °C**

Name	**HoldTime**
Description	**Hold time** Time for which the product is held at the HoldTemp after reaching the EndTemp: 0 = Function inactive 1 = Time is infinite (until the “STOP” button is pushed with the door open) 2 = Hold function using steam valve, max. 24 hours > 2 = Time in minutes
Access level	**Level 3**

Increment	Minimum value	Maximum value
0.1 min	**0**	**300 min**

Name	**AutoOpenDoor**
Description	**Automatic opening of the door** Defines whether the door should open automatically at the end of a trouble-free program cycle. 0: Door remains closed, 1: Door opens 2D devices: 0: Doors remain closed, 1: Door on device side opens 2: Door on bioshield side opens
Access level	**Level 3**

Increment	Minimum value	Maximum value
1	**0**	**2**

Name	**CycleCounter**
Description	**Material test** Number of repeating sterilisations for material tests.
Access level	**Level 4**

Increment	Minimum value	Maximum value
1	**0**	**99**

Name	**CycleCtr.Time**
Description	**Pause interval** Interval between sterilisation cycles if “CycleCounter” is greater than 1.
Access level	**Level 4**

Increment	Minimum value	Maximum value
0.1 min	**0 min**	**999.9 min**

Name	**ExternSteam**
Description	**Steam specification** Specifies whether the autoclave is heated with auxiliary steam. **0: Internal steam generator, 1: Auxiliary steam (external)**
Access level	**Level 4**

Increment	Minimum value	Maximum value
1	**0**	**1**

Name	**StartByTime**
Description	**Specification of starting time** Enables you to set a time and date for starting a selected sterilisation program. The setting is made when the program starts. 0 = Inactive, 1 = Active
Access level	**Level 3**

Increment	Minimum value	Maximum value
1	**0**	**1**

Name	**F0 Enable**
Description	**Determination of the actual sterilisation effect** At the end of the program, the sterilisation effect in the heating and cooling phases is printed out, as calculated according to the F0 formula. The calculation starts at 130 °C. 0 = Function inactive 1 = F0 values of the heating, sterilisation and cooling times are printed out on the printer (optional) and displayed with the PC software. 2 = The sterilisation time is automatically shortened by the F0 times of the heating and sterilisation times. 3 = The sterilisation time is automatically shortened by the F0 time of the sterilisation time and double the F0 time of the heating phase. This is only used if the cooling time roughly corresponds to the heating time.
Access level	**Level 4**

Increment	Minimum value	Maximum value
1	**0**	**3**

Name	**Temp2Val**
Description	Permitted overshoot of the chamber temperature compared to the set sterilisation temperature.
Access level	**Level 4**

Increment	Minimum value	Maximum value
0.1 °C	**0 °C**	**50 °C**

Name	**Sensor2Dif**
Description	Temperature sensors that actively intervene in the controlling process.
Access level	**Level 4**

Increment	Minimum value	Maximum value
0.1 °C	**0 °C**	**50 °C**

Name	**HeatGenPrsF**
Description	Factor for increased steam pressure in the steam generator during the heating phase. Ensures that the steam temperature is adequate.
Access level	**Level 4**

Increment	Minimum value	Maximum value
1	**0**	**300**

Name	**SterGenPrsF**
Description	Factor for increased steam pressure in the steam generator during the sterilisation phase. Ensures that the steam temperature is adequate.
Access level	**Level 4**

Increment	Minimum value	Maximum value
1	**0**	**300**

Name	**CoolPressF**
Description	Factor for the auxiliary pressure, regulated during the cooling phase according to the set sterilisation temperature if ExhMode is 3, 4, 5, 6 or 8 and compressed air is connected. With the optional steam-air mixture program, this function is also effective during the heating and sterilisation phases.
Access level	**Level 4**

Increment	Minimum value	Maximum value
1	**1**	**300**

Name	**CoolMinPress**
Description	Defines whether a minimal amount of auxiliary pressure should remain in the sterilisation chamber until the end of the program. This function is only possible if ExhMode is set to 5, 6 or 8.
Access level	**Level 4**

Increment	Minimum value	Maximum value
1	**0**	**300**

Name	**CoolRateTemp**
Description	If the temperature at the sensor drops by more than the set value per minute then the cooling phase is only ended after the calculated cooling time has expired, regardless of the measured temperature (only active on liquid programs).
Access level	**Level 4**

Increment	Minimum value	Maximum value
0.1 °C	**0 °C**	**30 °C**

Name	**DryMode**
Description	**Drying mode**: 0 = Evacuation of the chamber during the drying time, the coil is heated at the same time. 1 = Pulsed evacuation, the coil is heated at the same time, evacuate until the pressure is less than “DryVac” then break the vacuum with sterile, filtered air and restart the evacuation, etc. 2 = Evacuation to the set value “DryVac”, coil is not heated at the same time (e.g. autoclaving waste). 3 = Drying with compressed air, the coil is heated at the same time.
Access level	**Level 4**

Increment	Minimum value	Maximum value
1	**0**	**3**

Name	**DryVac**
Description	Value of the vacuum to be reached in the drying phase.
Access level	**Level 4**

Increment	Minimum value	Maximum value
0.1 kPa	**5 kPa**	**150 kPa**

Name	**VacuumRate**
Description	Factor for the rate of evacuation. Used if the chamber is evacuated and sterilised using filters.
Access level	**Level 4**

Increment	Minimum value	Maximum value
1	**0**	**100**

Name	**VBreak Rate**
Description	Factor for the rate of breaking the vacuum. Used if the chamber is evacuated and sterilised using filters.
Access level	**Level 4**

Increment	Minimum value	Maximum value
1	**0**	**100**

Name	**ExhaustRate**
Description	Factor for the rate at which steam is released. Used if the chamber is evacuated and sterilised using filters.
Access level	**Level 4**

Increment	Minimum value	Maximum value
1	**0**	**100**

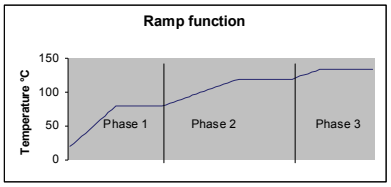
Name	**SterPrintT**
Description	Print interval time for the printer in the sterilisation phase.
Access level	**Level 4**

Increment	Minimum value	Maximum value
1 sec	**0 sec**	**3600 sec**

Name	**PrintTimer**
Description	Print interval time for the printer outside the sterilisation process.
Access level	**Level 4**

Increment	Minimum value	Maximum value
1 sec	**0 sec**	**600 sec**

Name	**HeatTime1**
Description	**Ramp function** Heating time until the first ramp (or the temperature selected in phase 1) is reached.



Access level	**Level 4**		
	Increment	Minimum value	Maximum value
	0.1 min	**0 min**	**9999 min**

Name	**StayTime1**
Description	**Ramp function** Time for which the temperature set for phase 1 is held.
Access level	**Level 4**

Increment	Minimum value	Maximum value
1 sec	**0 sec**	**9999 sec**

Name	**StayTemp1**
Description	**Ramp function** “Holding temperature” for the 1st ramp.
Access level	**Level 4**

Increment	Minimum value	Maximum value
0.1 °C	**3 °C**	**130 °C**

Name	**HeatTime2**
Description	**Ramp function** Heating time until the 2nd ramp (or the temperature selected in phase 2) is reached.
Access level	**Level 4**

Increment	Minimum value	Maximum value
0.1 min	**0 min**	**9999 min**

Name	**StayTime2**
Description	**Ramp function** Time for which the temperature set for phase 2 is held.
Access level	**Level 4**

Increment	Minimum value	Maximum value
1 sec	**0 sec**	**9999 sec**

Name	**StayTemp2**
Description	**Ramp function** “Holding temperature” for the 2nd ramp.
Access level	**Level 4**

Increment	Minimum value	Maximum value
0.1 °C	**3 °C**	**130 °C**

Name	**HeatSterTime**
Description	**Ramp function** Heating time until the sterilisation temperature is reached (phase 3 = sterilisation phase).
Access level	**Level 4**

Increment	Minimum value	Maximum value
1 min	**0 min**	**3600 min**

Name	**Exh.Time**
Description	**Parameter, e.g. for glass test program** Defines the exhaust time from the sterilisation temperature up to EndTemp. “ExhMode” must be set to 1.
Access level	**Level 4**

Increment	Minimum value	Maximum value
0.1 min	**0 min**	**1000 min**

Name	**DoorMode**		
Description	Defines whether the door should be opened after the end of the program (and which door) on pass-through autoclaves. 0 = Device is not a pass-through autoclave. 1 = Only one door can be opened at a time. 2 = Bioshield side (back panel): Can only be opened when the sterilisation chamber was sterilised again after the door is opened on the device side. 3 = Device side (front panel): Can only be opened when the sterilisation chamber was sterilised again after the door was opened on the bioshield side. 4 = If one of the doors was opened, then the other cannot be opened until the sterilisation chamber has been sterilised again.		
Access level	**Level 5**		
	Increment	Minimum value	Maximum value
	1	**0**	**4**

Tab. 10: Meaning of the individual parameters

5 STERILISATION PROGRAMS

Aim of this section

This section gives you an overview of the factory-set programs and their suitability for certain items being sterilised. An illustrative graph shows the typical pressure and temperature curves for each of the programs described.

Contents

5.1 Overview

The following table gives a quick overview of the preset programs. The parameters described can differ from the actual settings of your device depending on the options selected and the individual delivery configuration.

In specific cases, the programs can be adapted to the particular requirements of your laboratory. Up to 100 programs in total can be saved. We recommend that you enter the changed programs in the table in the logbook and, if necessary, attach a description of the changed programs to it.

Program name	Items to be sterilised	Parameter setting		
		SterTemp	SterTime	UnloadTemp
1	Solids, Instruments	121 °C	20 min.	≤ 120 °C
2	Waste (Bags)	121 °C	20 min.	≤ 99 °C
3	Liquid Waste	121 °C	20 min.	≤ 80 °C
4	Liquids	121 °C	15 min.	≤ 80 °C
5	Cleaning	134 °C	3 min.	120 °C
6	Vac-Test	--	--	--
7	BD-Test	134 °C	3.5 min.	≤ 120 °C

Tab. 11: Overview of the available sterilisation programs

*only for appliances with a vacuum device

5.2 Solids program

5.2.1 Applications

The solids program (instruments) is used for the sterilisation of all kinds of solids, such as instruments, glass and sundry materials for which the manufacturer recommends sterilisation in the autoclave.

5.2.2 Preset parameters

Sterilisation temperature	121
Sterilisation time	20 minutes
Drying time	0 minutes without vacuum device 10 minutes with vacuum device

Tab. 12: Preset parameters

5.2.3 Program start

A solids program can only be started after confirmation by the user.

After the START function key is pressed, the message No Liquids!!! informs you that the program is not suitable for the sterilisation of liquids. You must first confirm this message before starting the program.

5.2.4 Typical program cycles

If a vacuum device is present, a triple pre-vacuum is created before the heating process. If there is no vacuum device, fractionated heating is performed in the heating up phase.

After the sterilisation temperature has been reached, it remains constant for the duration of the specified sterilisation time.

After the sterilisation period has elapsed, the steam is released rapidly out of the sterilisation chamber until atmospheric pressure has been reached.

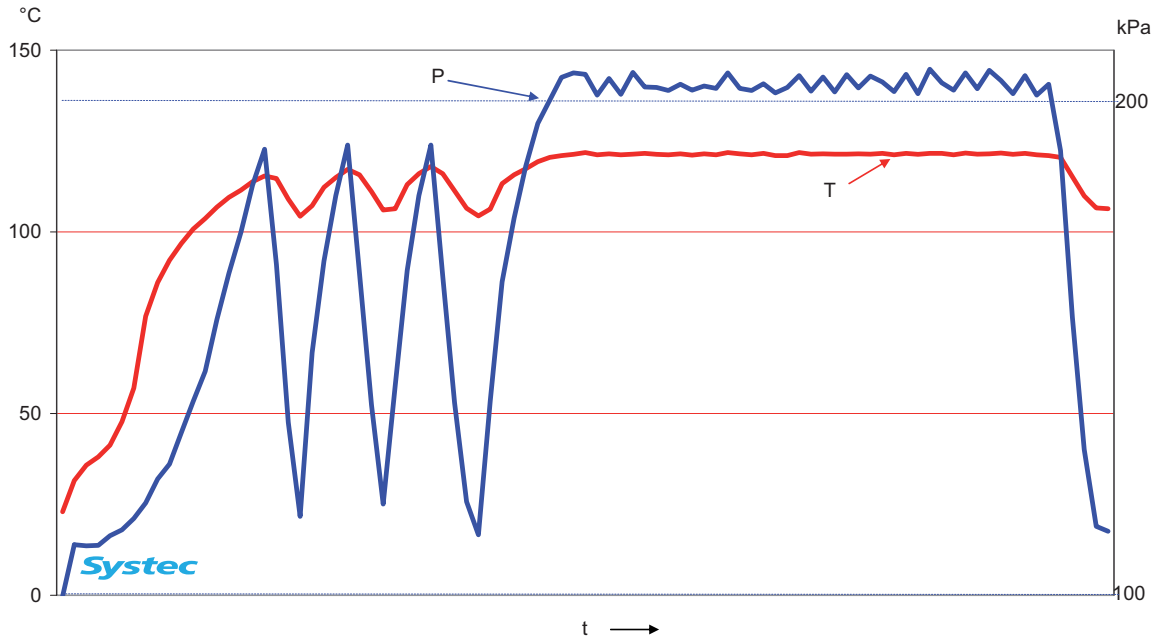


Fig. 37: Graph with typical pressure/temperature curves for a solids program (here with triple fractionated heating)
P: pressure curve, T: temperature curve, t: time

5.3 Waste bags program

5.3.1 Applications

The “Waste (Bags)” program is used for the sterilisation of normal laboratory waste in bags (solid waste with low liquid content < 50 ml).

5.3.2 Preset parameters

Sterilisation temperature	121
Sterilisation time	20 minutes
Unloading temperature	99 °C

Tab. 13: Preset parameters

5.3.3 Typical program cycle

If a vacuum device is present, a triple pre-vacuum is created before the heating process. If there is no vacuum device, fractionated heating is performed in the heating up phase.

After the sterilisation temperature has been reached, it remains constant for the duration of the specified sterilisation time.

After the sterilisation period has elapsed, there is a controlled release of the steam out of the sterilisation chamber until atmospheric pressure has been reached.

If a vacuum device is present, a post-vacuum of 50 kPa and ≈ 80 °C is created.

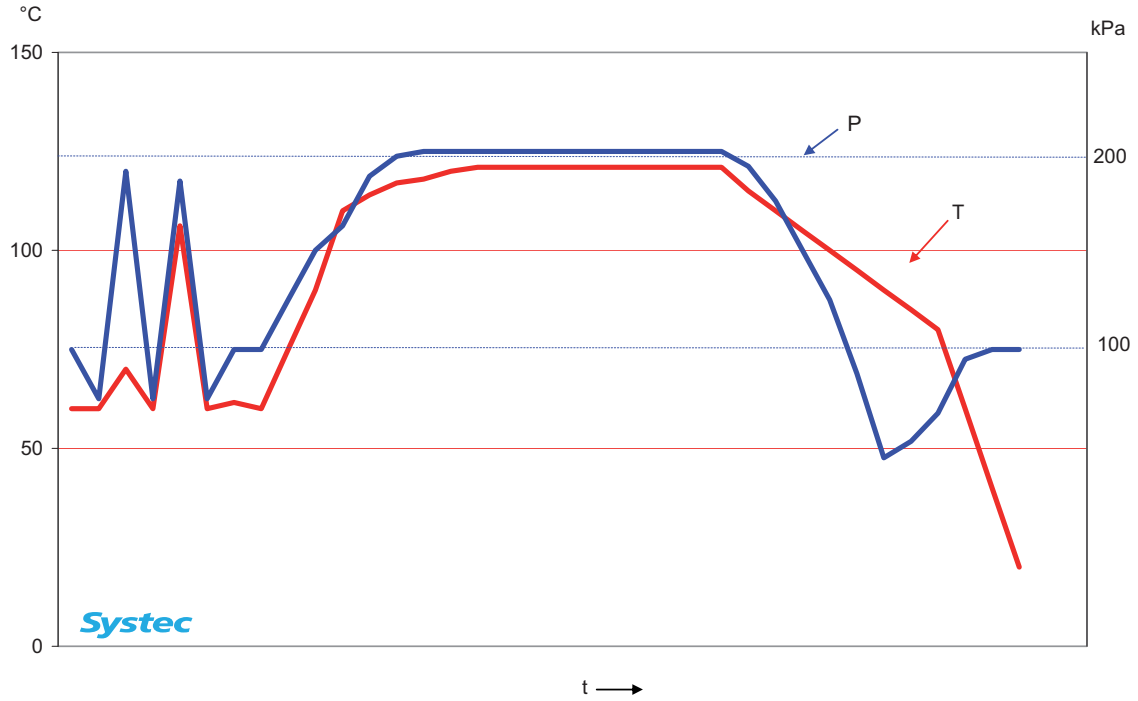


Fig. 38: Graph with typical pressure/temperature curves for the “Waste in bags” program (here with triple pulsating heating)
P: pressure curve, T: temperature curve, t: time

5.4 Liquid Waste program

5.4.1 Applications

The “Liquid Waste” program is used for the destruction of liquid laboratory waste in bottles or vessels.

WARNING

Danger of burns!
A device with a temperature-dependent door lock is required for the sterilisation of liquids.

- Position the flexible temperature sensor in the liquid or a reference vessel so that the temperature can be measured in the liquid.
- To avoid incorrect temperature measurements, use a reference vessel with the same size and fill volume as the largest vessel containing the liquid to be sterilised.

WARNING

Danger of explosion with tightly-closed vessels!
Tightly-closed vessels can burst if they are sterilised in programs without rapid cooling and a support pressure supply. When removed, they exhibit a considerably higher temperature than the set unloading temperature.

- Make sure that any vessels to be sterilised are not closed tightly under any circumstances.

Sterilisation temperature	121 °C
Sterilisation time	20 minutes
Unloading temperature	80 °C

Tab. 14: Preset parameters

5.4.2 Typical program cycle

After the sterilisation temperature has been reached, it remains constant for the duration of the specified sterilisation time.

After the sterilisation period has elapsed, the optional built-in cooling apparatus, or the conventional cooling process, is used for cooling until the unloading temperature has been reached.

- It is absolutely necessary to observe the safety instructions given in chapter 6, with regard to the in-built cooling apparatus.

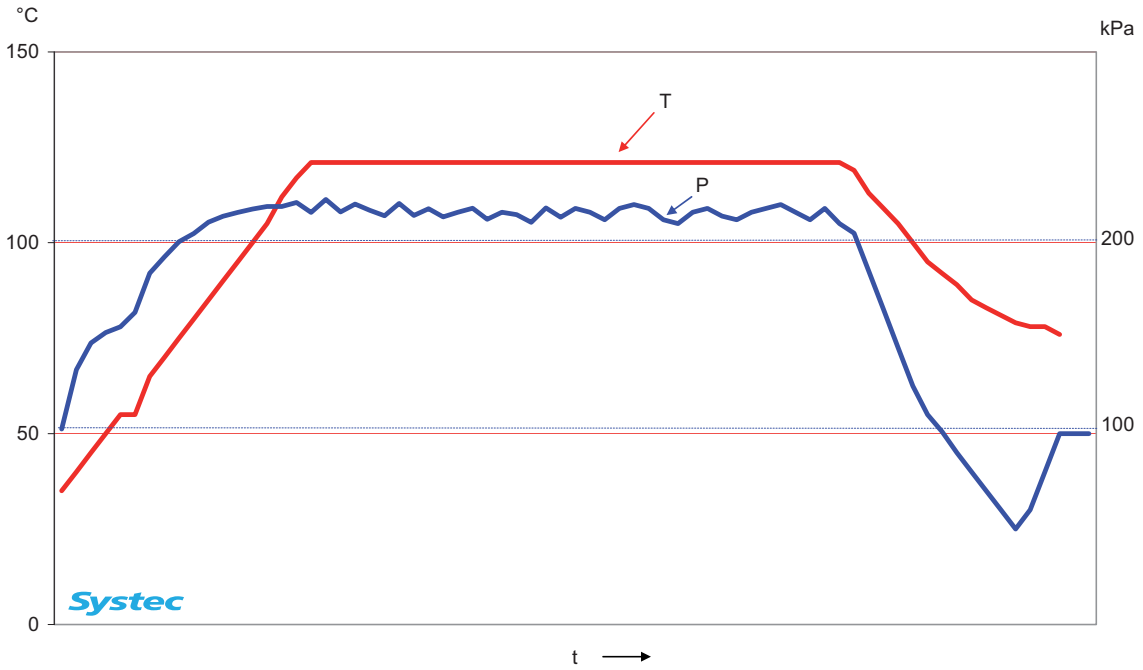


Fig. 39: Graph with typical pressure/temperature curves for the “Liquid Waste” program
P: pressure curve, T: temperature curve, t: time

5.5 Liquids programs

5.5.1 Applications

The Liquids program is used for the sterilisation of liquids in suitable vessels.

WARNING

Danger of burns!
A device with a temperature-dependent door lock is required for the sterilisation of liquids.

- Position the flexible temperature sensor in the liquid or a reference vessel so that the temperature can be measured in the liquid.
- To avoid incorrect temperature measurements, use a reference vessel with the same size and fill volume as the largest vessel containing the liquid to be sterilised.

WARNING

Danger of explosion with tightly-closed vessels!
Tightly-closed vessels can burst if they are sterilised in programs without rapid cooling and a support pressure supply. When removed, they exhibit a considerably higher temperature than the set unloading temperature.

- Make sure that any vessels to be sterilised are not closed tightly under any circumstances.

5.5.2 Preset parameters

Sterilisation temperature	121 °C
Sterilisation time	15 minutes
Unloading temperature	80 °C

Tab. 15: Preset parameters

5.5.3 Typical program cycle

After the sterilisation temperature has been reached, it then remains constant for the duration of the sterilisation period.

After the sterilisation period has elapsed, the program uses the optional in-built cooling apparatus to cool down until the unloading temperature has been reached.

If an optional cooling facility is not fitted, the device cools using inside air ventilation.

Air cooling for inside air ventilation only for open vessels, without support pressure

WARNING

Danger of explosion with tightly-closed vessels!
Tightly-closed vessels can burst if they are sterilised in programs without rapid cooling and a support pressure supply. When removed, they exhibit a considerably higher temperature than the set unloading temperature.

- Make sure that any vessels to be sterilised are not closed tightly under any circumstances.

ATTENTION

Danger of malfunction caused by overboiling easily-foaming substances!
For substances that tend to form foam, a considerable loss can occur by overboiling them. As a consequence, the device can be damaged by some of the substance remaining in hoses and connections.

- Use rapid cooling with support pressure for the sterilisation of easily-foaming substances.

Operating principle:

After the sterilisation phase has ended, the steam is released in a controlled way. The speed of steam release can be set over the “ExShootOn and ExShootOff” parameter in steps of 0.1 seconds.

When a pressure of approx. 110 kPa has been reached, the chamber is cooled more efficiently with a ventilator with inside air. This causes a vacuum in the sterilisation chamber. When the unloading temperature has been reached, the sterilisation chamber is flushed with sterile, filtered air and the atmospheric conditions are established.

The time saved in the cooling phase, in comparison to normal cooling, is approx. 70%.

- It is absolutely necessary to observe the safety instructions given in chapter 6, with regard to the in-built cooling apparatus.

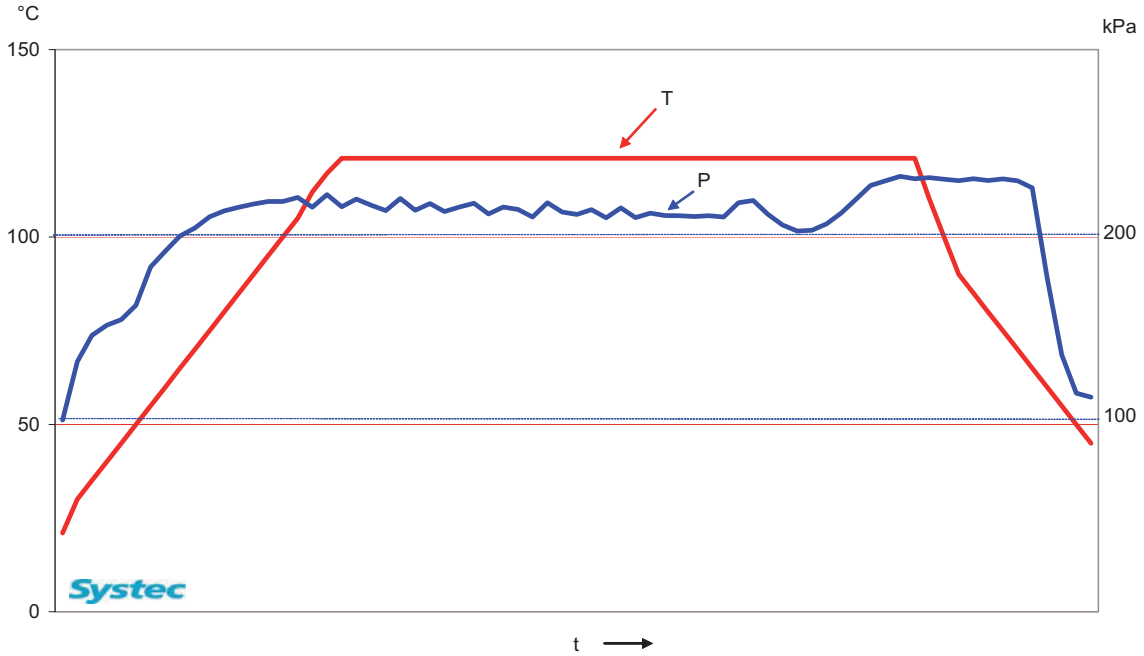


Fig. 40: Graph with typical pressure/temperature curves for the Liquids program with the option “Rapid cooling with support pressure”
P: pressure curve, T: temperature curve, t: time

5.6 Cleaning program

WARNING

Danger of explosion and burns due to vessels in the sterilisation chamber!
Vessels can burst in the device or during removal.

- Only use the cleaning program when the sterilisation chamber is empty!

5.6.1 Applications

The “Cleaning” program is used for cleaning the device. To do this, the appliance heats up to a temperature of 134 °C and sterilises the interior for one minute.

5.6.2 Preset parameters

Sterilisation temperature	134 °C
Sterilisation time	1 minute
Unloading temperature	120 °C

Tab. 16: Preset parameters

5.6.3 Typical program cycle

Heat until the sterilisation temperature has been reached.

After the sterilisation temperature has been reached, it remains constant for the duration of the specified sterilisation time.

After the sterilisation period has elapsed, the steam is released rapidly out of the sterilisation chamber until atmospheric pressure has been reached.

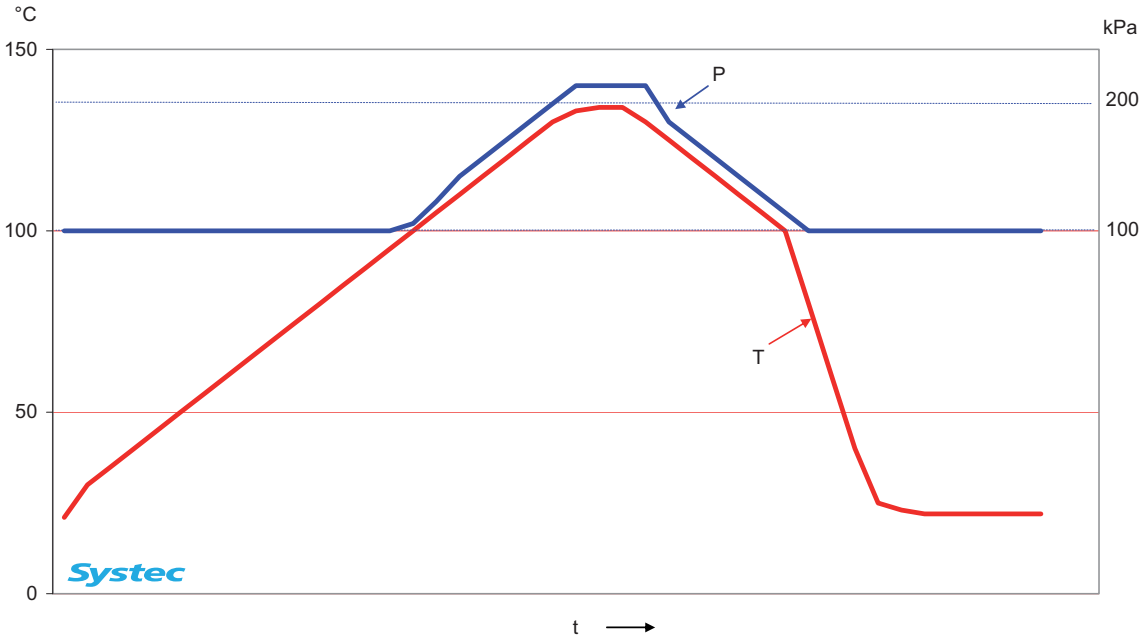


Fig. 41: Graph with typical pressure/temperature curves for the cleaning program
P: pressure curve, T: temperature curve, t: time

5.7 Vacuum test program

5.7.1 Applications

The “Vac-Test” program can only be performed if the device is equipped with a vacuum apparatus and this is activated.

The vacuum test is used for checking for leaks on the appliance.

5.7.2 Program cycle

ATTENTION

Danger of a distorted test result!
The basic requirement for the performance of a vacuum test is that the sterilisation chamber is approximately at room temperature when starting the cycle and that it is dry.

- Satisfy yourself that the sterilisation chamber is cold and dry.

The vacuum pump operates until a pressure of 15 kPa (150 mbar) has been reached. Then all valves close and the vacuum pump switches off.

The following five minutes stabilise the pressure in the sterilisation chamber; after that, the pressure may rise by a maximum of 1.3 kPa (13 mbar) within ten minutes.

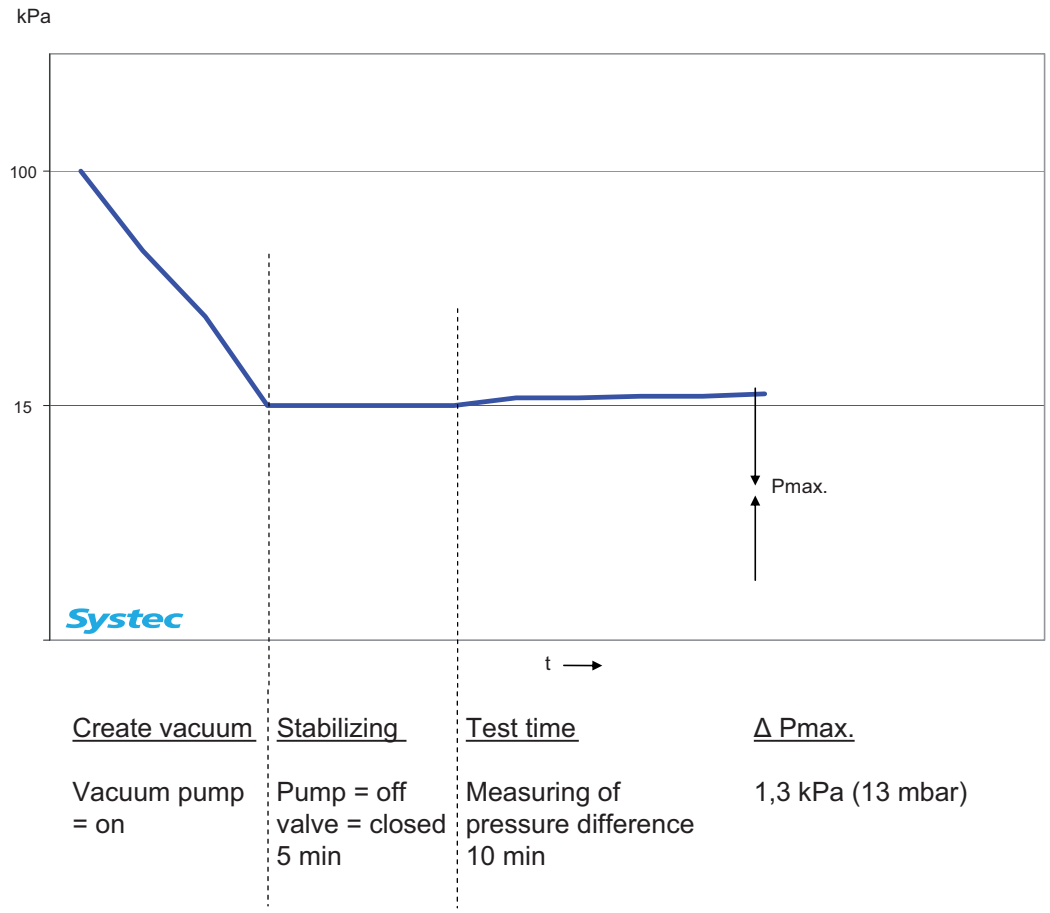


Fig. 42: Graph with a typical pressure curve for the vacuum program
t: time

5.8 Bowie-Dick test program

5.8.1 Applications

The “BD-Test” program can only be performed if the device is equipped with a vacuum apparatus and this is activated.

The Bowie-Dick test is used, in accordance with EN285, to test whether air is extracted properly from the appliance. If the Bowie-Dick test has been passed, this indicates that steam has penetrated the test pack rapidly and consistently.

5.8.2 Program cycle

The vacuum device evacuates in 3 pulses until a pressure of 15 kPa (150 mbar) has been reached for each one. Then the device heats up to a temperature of 134 °C.

After 3.5 minutes, rapid steam expulsion is performed.

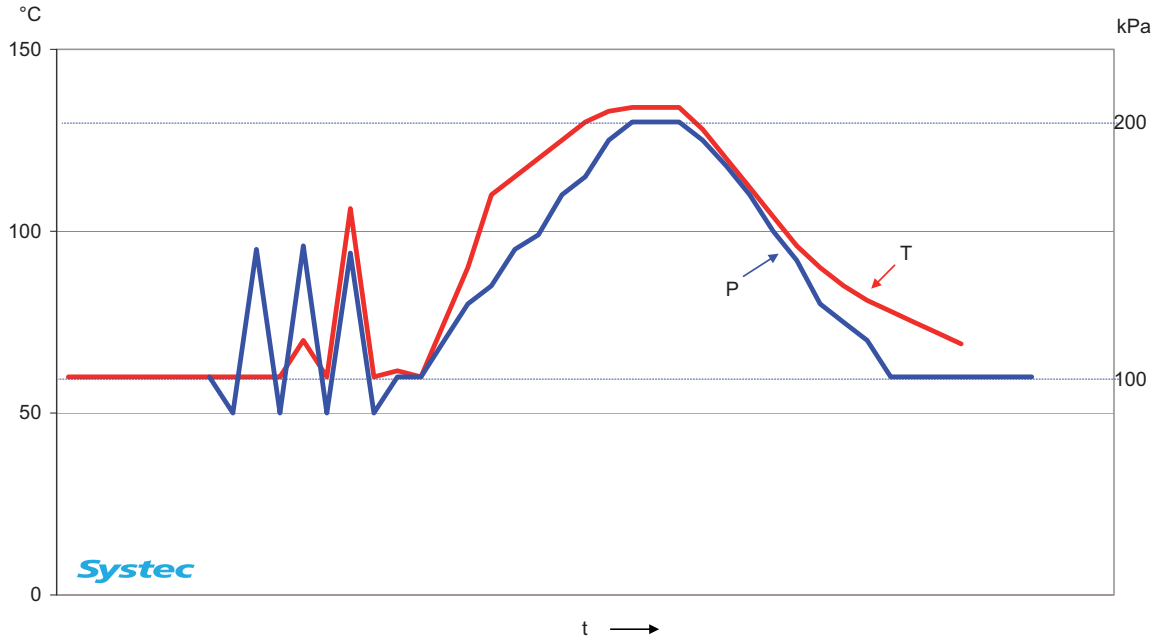


Fig. 43: Graph with typical pressure/temperature curves for the Bowie-Dick test program
P: pressure curve, T: temperature curve, t: time

6 OPTIONS

Aim of this section

This section describes the options provided to you by Systec GmbH.
If you have ordered an appliance with options, these are already integrated into the appliance.
However, purchasable options can also be retrofitted, e.g. if you wish to change your application.

The cooling system options described below can be partly combined.
Please contact Systec GmbH to evaluate a cooling system optimally adapted to your application.

Contents

6.1 Rapid cooling with cooling water, without loss of liquid in the sterilised item, for open and tightly-closed vessels up to 1000 ml, with support pressure via sterile-filtered compressed air

ATTENTION

Danger of damage to the device caused by water being too hard!
To avoid calcification in the helical tube, the total quantity of alkaline earth ions in unprocessed water may not exceed 2 mmol/l. This corresponds to a total hardness of 11° German hardness. Water softening equipment may be required.

- If the hardness is more than 11°, please contact Systec GmbH.

For the support pressure supply, there must be sufficient oil-free, dehydrated compressed air (approx. chamber volume x 10 m^3/h).
If the support pressure supply should fail, conventional cooling will take place.

Thanks to the support pressure supply, this type of rapid cooling is also suitable for the sterilisation of liquids in shut vessels up to 1000 ml.

The loss of liquid in the item being sterilised during rapid cooling with cooling water and support pressure is less than 1%.

Operating principle:

After the sterilisation phase has ended, the steam in the sterilisation chamber is replaced with sterile-filtered compressed air (support pressure) and the helical tubes are immediately flooded with cooling water. After the unloading temperature is reached, the support air is vented and atmospheric conditions are established.

Using rapid cooling with cooling water, the cooling periods are reduced by approx. 70% in comparison to normal cooling.

6.2 Spray cooling via recirculation of sterile water and cooling via the heat exchanger, with support pressure via sterile-filtered compressed air

ATTENTION

Danger of damaging the sterilised item!
Spray cooling is only suitable for the sterilisation of tightly-shut or covered items. Vessels must be suitable for this type of cooling.

- Cover open items being sterilised with the laminar sheet (not supplied).

Operating principle:

After the sterilisation phase, the steam in the sterilisation chamber is replaced by compressed air.

The sterilised feed water is cooled via a plate heat exchanger with cooling water and sprayed over the item being sterilised via nozzles.

The time saved in the cooling phase, in comparison to normal cooling, is approx. 90%.

6.3 Vacuum unit with water ring vacuum pump for a simple, segmented pre-vacuum

The vacuum apparatus is used for pre- and post-vacuum generation. It is essential for the safe sterilisation of porous substances and hollow objects (e.g. tubes).

Operating principle:

A pre-vacuum is created before the heating phase starts, which evacuates air from the items to be sterilised. This ensures that steam completely penetrates any cavities, and prevents the formation of air pockets. In the Solids and Waste (bags) programs, a triple pre-vacuum is set as standard.

Once the atmospheric conditions have been reached after the sterilisation phase is complete, a post-vacuum is generated to dry the sterilised items. Irritation caused by odour generated during sterilisation is minimised.

A condensation trap is installed to accelerate the vacuum.

A condensation separator is installed to protect the pump from scaling and optimise the consumption of cooling water.

6.4 Superdry

The Superdry option is used to reduce the condensation in the heating-up phase, and it supports the drying process. Condensation is reduced

considerably if the appliance is filled and closed approx. 15 minutes before the program starts.

6.5 Exhaust filter

This system is required when sterilising infectious material.

WARNING

Danger of infection when replacing the exhaust filter cartridge!
The exhaust filter cartridge is not always sterile. There is therefore a risk of infection when it is changed.

- Wear protective clothing.
- Re-sterilise used filter cartridges separately after exchanging them.
- Dispose of the exhaust filter cartridge in accordance with the applicable on-site health and safety regulations.

WARNING

Danger of infection if sterilisation is not completed!
During the sterilisation of infectious material, non-sterile condensate can be left behind in the sterilisation chamber if the process is not completed successfully.

- You must adhere to the work and safety regulations applicable on site.

Operating principle:

Air that leaves the device during the heating and sterilisation phases passes through an exhaust filter cartridge and is thus cleaned. The exhaust filter cartridge is also sterilised during the sterilisation phase.

Replacing the exhaust filter cartridge: See chapter “Maintenance, cleaning, care”.

Safe condensate drainage

The accumulated condensate can only be let out into the drain when it is certain that the sterilisation cycle has been successfully completed.

If the process was not completed successfully, the condensate is not drained off automatically, but rather the message `Drain condensate` appears at the end of the cycle.

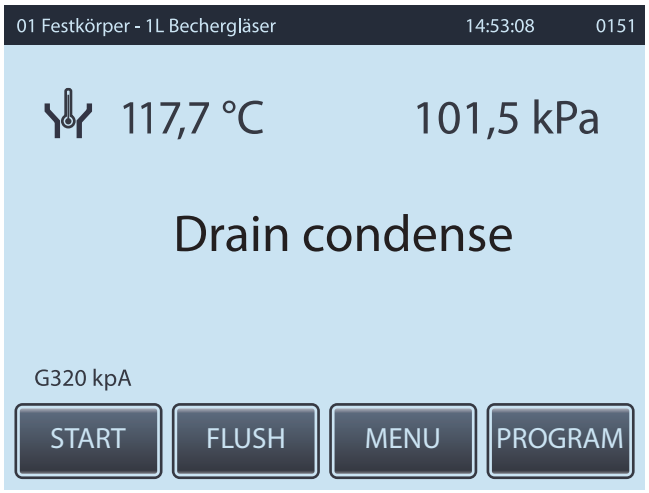


Fig. 44: Exhaust filter: Drain condensate message

Now you can collect any potentially contaminated water in a separate container and process it accordingly:

- Press the FLUSH function key.

This message appears in the display: Drain condensate and the condensate is drained off. Then the appliance returns to the basic display.

You can repeat the sterilisation process or start another process:

- Press the START function key or select a program in MENU.

The temperature sensor is fitted permanently in the exhaust filter.

6.6 Durham program

The Durham program is used to prepare Durham tubes.

The air is removed from the fermentation tubes during the sterilisation process.

6.7 Free steam program

The Free steam program is used to remove pre-sterilised nutrient media.

The max. process temperature (SterTemp) that can be set is 101 °C, and the unloading temperature 99 °C.

The Free steam pot program is not suitable for sterilising.

6.8 Steam-air mixture option or Hot water sprinkling option

Operating principle:

For sterilising liquids in closed vessels, plastic bottles, bags, tins, blister packaging, food packaging etc. As there is a steam-air mixture in closed vessels, these options make it possible to create a similar atmosphere in the

sterilisation chamber and effectively prevent damage or deformation to the vessels.

By setting an appropriate support pressure for the entire process, the pressure in the sterilisation chamber is adjusted to the prevailing pressure in the vessels.

To do this, the temperature in the reference vessel is measured using a temperature sensor. The steam pressure that corresponds to the temperature measured is increased by an adjustable factor. The adjustment is made by modifying the CoolPressF parameter (1.0 to 3.0 times the corresponding steam pressure in percent accordingly).

The total pressure is limited to 500 kPa absolute pressure. The requirement is a compressed air supply with sufficient positive pressure.

The safety valve opens at a tolerance of +/- 10%, generally at higher rather than lower temperatures. Therefore, under sterilisation conditions, it already opens at 450 kPA.
If required, the safety valve can be thermally insulated to prevent this from occurring.

Homogeneous temperature distribution in the sterilisation chamber

A radial fan is also installed in the sterilisation chamber for homogeneous temperature distribution. It circulates the steam-air mixture constantly throughout the entire process.

For the hot water sprinkling option, a circulating pump is installed for homogenous temperature distribution.

The following parameters can be set for this option:

No.	Parameters	Description	Access level	Range of values	Factory setting
31	Temp2Val	Maximum temperature in the heating phase. Measured by an additional temperature sensor.	3	1–10 °C	2 °C above sterilisation temperature
36	HeatGenPrsF	Increased steam pressure in the steam generator during the heating phase. HeatGenPrsF = CoolPrsF + 20 - 100	3	0–300%	100%
37	SterGenPrsF	Increased steam pressure in the steam generator during the heating phase. HeatGenPrsF = CoolPrsF + 20 - 100	3	0–300%	100%
38	CoolPressF (Cycle 35)	Auxiliary pressure during the cooling phase corresponding to the set sterilisation temperature. For Steam-air mixture / Hot water sprinkling program: Auxiliary pressure during the entire process corresponding to the set temperature	3	0–300%	Depends on program
39	CoolMinPress (Cycle 38)	Defines whether “minimal” auxiliary compressed air pressure should remain in the sterilisation chamber until the end of the program.	3	100–300 kPa	Depends on program

Tab. 17: Parameters for Steam-air mixture or Hot water sprinkling option

If you have any questions about setting the parameters required for a particular process, or about the positioning of the temperature sensor in the reference vessel, please contact Systec service on +49 (0)641 982120.

6.9 Printer

The appliance can also be equipped with a printer to document parameters while a program is running.

If you have ordered an appliance with a printer, the printer is already integrated into the appliance.
However, the printer can also be retrofitted.
The option can be set in the parameter list under access level 3 (parameters: PrintTimer, SterPrinterT).

ATTENTION

Danger of damage to the printing mechanism!

- Never use the printer without paper.
- Only use the manufacturer's original paper rolls (58 mm in width).

The last metre of the paper roll is indicated by a red stripe.

Although printed on normal paper, direct sunlight can fade the print.

- Protect the printouts from direct sunlight.

The printer starts automatically and logs the following parameters during performance of the cycle.

Header data:

- Real time and date (at the beginning and end of the log)
- Software version and serial number
- Cycle number
- Selected program
- Preselected sterilisation temperature
- Preselected sterilisation time
- Steam exhaust mode
- Unloading temperature
- Blank field for operator's signature

Program cycle:

In each line the respective phase is displayed by means of the corresponding symbol, as shown in this table:

International		German	
W	Water inlet	W	Wasserzufuhr
P	Pulses	P	Pulse
H	Heating	H	Heizen
S	Sterilisation	S	Sterilisieren
E	Exhaust	A	Ablass
D	Drying	T	Trocknen
C	Cooling	K	Kühlung
F	Fail	F	Fehler

Tab. 18: Printer symbols for documentation of the program cycle

Symbols:

- The beginning of a phase is symbolised by a capital letter
- and all data recorded within this phase by a small letter.

For each phase:

- The time elapsed (in minutes and seconds) since the beginning of the program and
- the current temperature and pressure are given, as described in chapter 4.7.

End of the program:

At the end of the cycle the following message appears:

`CYCLE ENDED` or `TEST PASSED`

If the cycle has not been completed correctly, e.g. because of a premature termination or an error, `CYCLE FAIL!` or `Test Fail!` appears with the corresponding error message.

Footer:

The following data is also provided at the end of the cycle:

- Minimum temperature reached during the sterilisation cycle
- Maximum temperature reached during the sterilisation cycle
- Blank field for operator's signature

6.9.1 Replacing the paper and ribbon

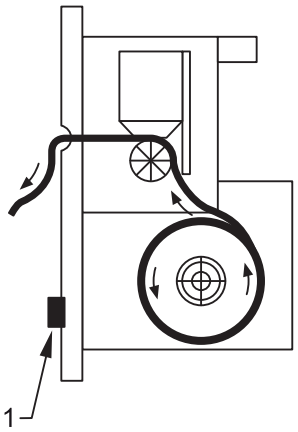


Fig. 45: Feeding the printer

1 Green key for feeding paper

The paper is inserted as follows:

ATTENTION

Danger of damage to the printer!

- Never pull the paper manually out of the guide slot.
- To feed the paper always press the green key.

The paper must roll off backwards!
Fit the spindle as shown on the sticker in the paper drawer.
The side of the spindle with the paper feed must be either on the right or the left.

1. Withdrawing the paper:
- Open the cover and take out the empty roll with the spindle.

2. Feeding paper into the printer:
- Cut off the start of the paper in a straight line.
- Feed the start of the paper into the printer.
- Press the green key and hold it down until the paper has been pulled in about 30 mm.

The edge of the paper is clearly protruding from the printer.

3. Inserting the paper:
- Put the new paper roll on the spindle.
- Push the spindle into the gap provided in the housing until it audibly clicks into place.

4. Closing the printer:
- Insert the paper through the slot in the cover.
- Close the cover.

Changing the ribbon:

1. Taking out the ribbon:
- Open the cover of the printer.
- Press down on the left side of the ribbon cartridge.

The ribbon cartridge swings forward and can be taken out.

2. Inserting a ribbon:
- Tighten the ribbon by turning the grooved wheel in the direction of the arrow.
- Put the ribbon cartridge on the holder.
- Pull the strips of paper through the ribbon cartridge and ribbon.
- Insert the cartridge by pressing gently.

3. Closing the printer:
- Insert the paper through the slot in the cover.
- Close the cover.

6.10 Aquastop

The “Aquastop” option is an additional safeguard against water damage.

ATTENTION

- Observe the safety instructions supplied with the device.
- Check regularly that the appliance is working correctly.

6.11 Repeat mode

This mode enables the user to have a selected program cycle repeat automatically up to 99 times with the “CycleCounter” function. A pause time between the individual program cycles can also be set.

Parameter setting:

Access level 4, CycleCounter parameters

- No repetition = 0
- Number of cycles = 1–99

Access level 4, CycleCtr.Time parameters

- No pause time = 0
- Pause time (standby) = 1–999.9 minutes

6.12 PC software

The PC software enables documentation, programming and controlling of the device via a PC.

We also have separate information material about the PC software. If interested, simply request it from us!

7 MAINTENANCE, CLEANING, CARE

Aim of this section

This section gives you an overview of the measures for maintenance and care to be regularly carried out.

Contents

7.1 Responsibilities of the operator

The operator is obliged to:

- instruct the user on operation and safety regulations and, if required, to reinstruct them at regular intervals.
- keep the device in a faultless condition with regard to safety.
- stop using the appliance as soon as any safety-related defect is found.
- observe all safety regulations and guidelines applying to the device and the environment in which it is operated.
- have the operational safety of the appliance checked every five years by an authorised regulatory agency, for devices with a pressure per litre of product ≥ 1000 (chamber contents in litres x max. excess operating pressure in bar). If you have any questions, please contact your Systec contractual partner.

7.2 Preventive measures

The maintenance and care tasks described in this section must be carried out at regular intervals. This guarantees that

- the good working order and reliability of the appliance is maintained.
- errors and defects are recognised early.
- the service life of the appliance is increased.

The prescribed tasks can be quickly and easily carried out by the user or technical personnel.

7.3 Care of the device

ATTENTION

Danger of damage to the device caused by aggressive cleaning agents!
Steel wool, wire brushes and aggressive cleaning agents scratch the surface and can do long-term damage to the appliance.

- For example, use citric acid as the cleaner, of which 25–30 ml should be dissolved in a litre of water.
- Clean the outer surfaces of the device with a soft cloth.

7.3.1 Removing contaminants from the sterilisation chamber

- Before starting the program cycle, check the sterilisation chamber for impurities, e.g. glass splinters, medium that has leaked out, etc.
- Remove any impurities in the correct manner.
- You must remove any contaminants from the dirt trap immediately.

ATTENTION

Danger of damage to the device caused by impurities!
The operating safety of the appliance can no longer be ensured if the sterilisation chamber has been contaminated by medium that has leaked out.

- Empty the sterilisation chamber immediately.
- Run the cleaning program immediately after emptying the sterilisation chamber.

7.3.2 Daily care of the device

- Clean the door gasket with a soft cloth.
- Clean the bearing faces (sterilisation chamber, door) with a soft cloth.

7.3.3 Weekly care of the device

- Remove the baskets or other vessels from the appliance.
- Clean the sterilisation chamber and the baskets with a mild cleaning agent and water. Use only a soft cloth or a sponge.
- All devices have a dirt strainer in the interior of the sterilisation chamber. The strainer can be taken out without using tools and cleaned.

ATTENTION

Danger of the device malfunctioning when dirty!
If the water level electrodes in the sterilisation chamber are dirty, the measurement results will be distorted.

- Clean the electrodes with a soft cloth, using alcohol if necessary.

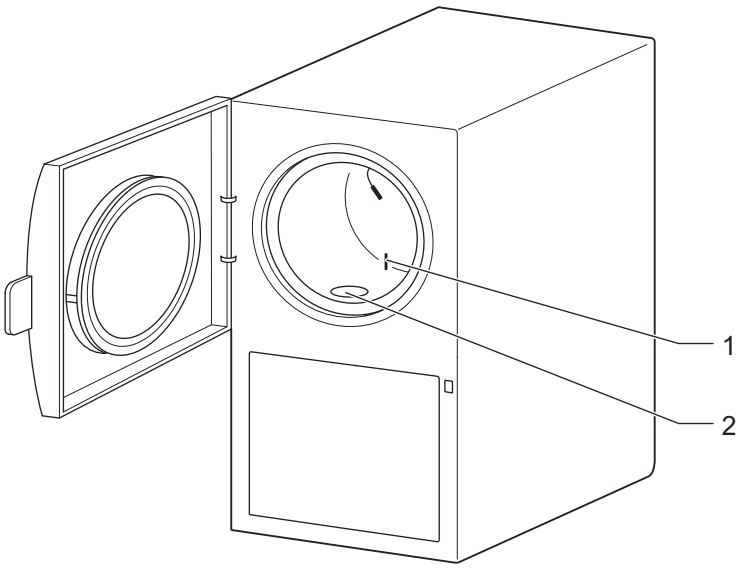


Fig. 46: Location of the water level electrodes and dirt strainer

Pos.	
1	Water level electrode
1	Dirt strainer

Tab. 19: Location of water level electrodes and dirt strainer

7.4 Maintenance tasks to be carried out regularly

- Check the condition of the supply cables at regular intervals for kinks or possible mechanical damage. After the end of a sterilisation program, close all the valves and taps of the supply cables, such as those for cooling water and compressed air.
- The appliance is equipped with 2 safety valves: one is located at the steam generator, the other at the sterilisation chamber. If the device is regularly (at least once a year) inspected by an authorised customer service agent, it is not necessary to relieve the valves as a precaution. If this is not the case, a qualified person must follow the appropriate regulations and ensure that the valves function correctly.
  The sealing rings, bayonets and locks on the valves must also be checked.
- To prevent the flexible temperature sensor (PT 100) from becoming damaged, it should be placed in the holder integrated in the sterilisation chamber as soon as the door is opened. Check the cable to the temperature sensor. You must replace it if it is damaged.

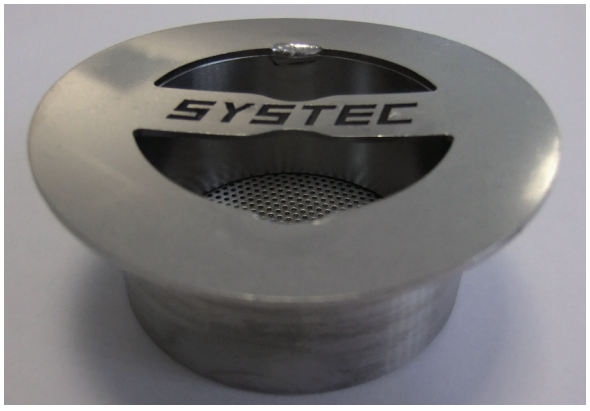


Fig. 47: Dirt strainer

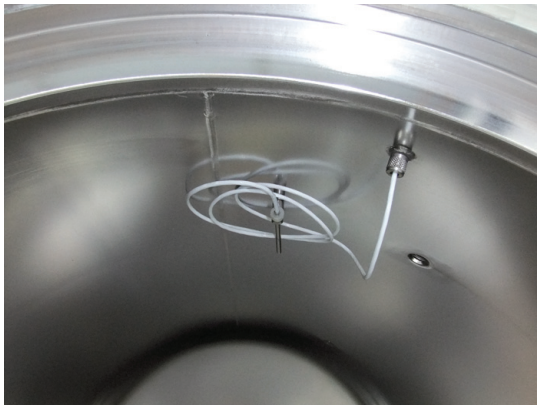


Fig. 48: Holder for the flexible temperature sensor

7.5 Replacing the exhaust filter cartridge

The exhaust filter cartridge should be replaced after approx. 150 sterilisation cycles.

The `Replace filter!` message appears on the touchscreen at the appropriate time.

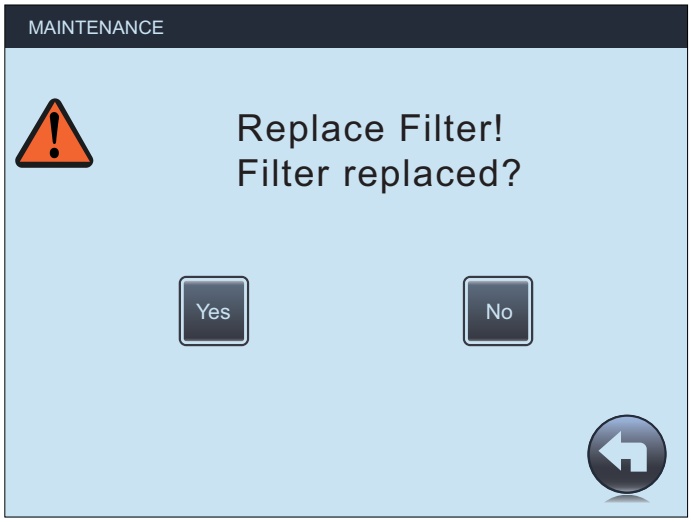


Fig. 49: “Replace filter!” message

- Press the `No` function key: The selected program starts and the cycle counter continues counting. The message `Replace filter` now appears every time a program is started.
- Press the `Yes` function key: The exhaust filter cartridge is replaced as described below. The cycle counter is reset. You confirm the filter change by entering the code for access level 1.

Replacement

The exhaust filter cartridge may only be changed if the device is in a depressurised state.

The exhaust filter cartridge is located at the top in a housing. You therefore need a suitable aid, e.g. a ladder, to reach it.

WARNING

Danger of accidents due to unsteady auxiliary equipment!
There is a risk of injury if the other equipment is placed on an unsuitable surface.

- Ensure that the auxiliary equipment is stable.

WARNING

Danger of infection when replacing the exhaust filter cartridge!
The exhaust filter cartridge is not always sterile. There is therefore a risk of infection when it is changed.

- Wear protective clothing.
- Re-sterilise used filter cartridges separately after exchanging them.
- Dispose of the exhaust filter cartridge in accordance with the applicable on-site health and safety regulations.

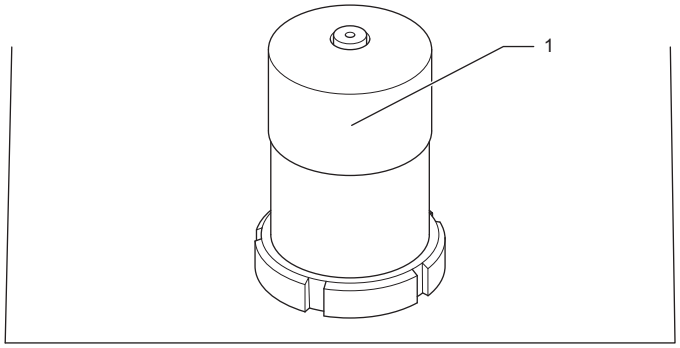


Fig. 50: Filter housing cover

- Remove the cover (1) of the filter housing.

WARNING

Danger of burns due to hot filter housing!
Beware of burning yourself on hot filter housing components when replacing the exhaust filter cartridge.

- Let the filter housing cool down or wear suitable protective clothing (gloves).

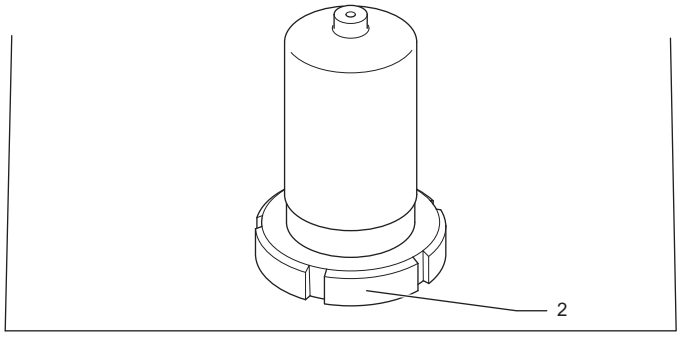


Fig. 51: Filter housing

- Undo the cap nut (2) with the hook spanner supplied.
- Lift the housing to remove it.

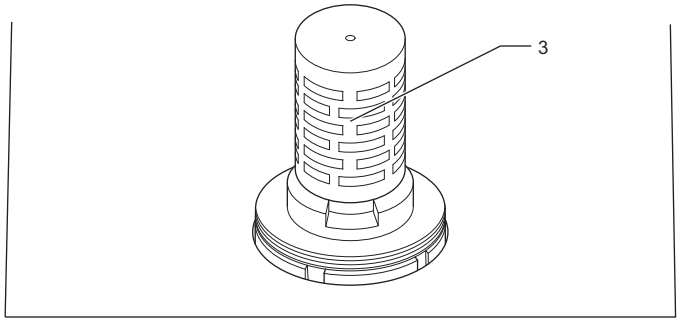


Fig. 52: Exhaust filter cartridge

- Turn the exhaust filter cartridge (3) anti-clockwise as far as it will go.
- Lift the cartridge to remove it.
- Insert the new cartridge.
- Turn the cartridge at least 90°, or clockwise as far as it will go.
- Refit the filter housing. Make sure that the seal is seated correctly.
- Fit the cover.

7.6 Maintenance performed by technical customer service

In addition to all maintenance and care tasks carried out by the operator or user, it is imperative to have the device maintained by a technical customer service agent at regular intervals. This not only increases the reliability of the product, but you can also then rest assured that the appliance has been tested for safety in keeping with all applicable norms and guidelines.

We recommend maintenance by a qualified person every 500 cycles, or at least once a year. The maintenance intervals can vary according to the type and frequency of use.

Please contact us and we will be glad to advise you on the type of maintenance appropriate for you, and also perform the maintenance work for you:

Systec GmbH Laboratory Systems Technology

Sandusweg 11

35435 Wettenberg, Germany

Tel.: +49 (0)641 982120

Fax: +49 (0)641 982121

8 ERROR DESCRIPTIONS

Aim of this section

This section gives you an overview of the error messages of the appliance and the measures required to rectify the errors.

Contents

8.1 Description and correction of errors

One of the following error messages appears on the touchscreen:

- Acknowledge all error messages with the Clear function key.

Error description	Possible cause	Remedy Contact the Service department if necessary
Sensor error SelTempErr GenSenseErr The displayed chamber pressure is > 550 kPa or the displayed temperature is < 5 °C or > 155 °C	Temperature or pressure sensor is faulty	Replace faulty sensor
No vacuum The device has not reached the preselected vacuum after 40 mins.	Leak in sterilisation chamber Vacuum pump faulty Water supply to liquid ring vacuum pump lacking	Check the sterilisation chamber for leakages Check the vacuum pump fuse – see chapter 02 “Device description”. Check water supply
No steam The device has not reached the preselected pressure within 40 minutes	Heating power too low Steam loss due to leakage	Check that the device is working correctly Check the heating power Check the safety temperature limiter – see chapter 02 “Device description”
Low Chamb.Temp. The sterilisation temperature has not been reached within the preset maximum heating time The temperature went below the set sterilisation temperature by more than 1.0 K during the sterilisation phase; the cycle is terminated	Power failure Heating faulty Sensor not placed correctly (in the item being sterilised). A cushion of air may have formed during the destruction of waste Incorrect sterilisation program selected	Check that the device is working correctly Position the sensor correctly Select an appropriate sterilisation program Check the safety temperature limiter

Error description	Possible cause	Remedy Contact the Service department if necessary
High Chamb.Temp. A temperature > 145 °C has been measured in the pre-vacuum or heating phase The temperature went above the set sterilisation temperature by more than 3.5 K in the sterilisation phase and the cycle is terminated	PT 100 sensor faulty Pressure controller faulty	Check the temperature sensor for damage and replace it if necessary
Low Chamb.Press. The pressure went below the pressure for correlating the temperature in the sterilisation phase and the cycle is terminated	Pressure sensor faulty Insufficient steam supply	Check the safety temperature limiter
High Chamb.Press. The pressure went above the pressure for correlating the sterilisation temperature and the cycle is terminated	Pressure sensor faulty	Check the pressure sensor
Gen. excess pressure The pressure in the steam generator is greater than permitted	Pressure sensor faulty HeatGenPrssF or SterGenPrsF parameter has been set too high	Check the pressure sensor Check the setting of the HeatGenPrsF or SterGenPrsF parameter
Manual stop The Stop key was pressed, and the program cycle is interrupted	User has interrupted program cycle	Acknowledge the message
Lock (For pass-through autoclaves, on the device side) Lock2 (Only for pass-through autoclaves, on the clean room side) Door not closed correctly, or error reported by door lock when door is open	The end switches for the control monitoring of the locking ring are not working The locking ring is not opening or closing completely The safety pressure switch is faulty The end switches are misaligned The locking ring does not open An end switch is jammed or misaligned	Check the end switches Check the safety pressure switch Check the compressed air supply to the pneumatics Check the end switch and the locking ring Before removing the error message, the appliance must be switched off and switched on again at the main switch
No cooling water The vacuum pump is not taking	No water supply to vacuum pump	Check connections, turn on water tap

Error description	Possible cause	Remedy Contact the Service department if necessary
in water		Switch the appliance off and back on again via the main switch to remove the message Check the vacuum pump fuse – see chapter 02 “Device description”
No demin. water The feed pump of the steam generator is not circulating water After a timer runs out, the upper water level electrode reports: No water	No water supply to the steam generator’s feed pump The steam generator was empty and therefore not filled within the preset time	Check connections, turn on water tap Switch the appliance off and back on again via the main switch to remove the message Check the water feed pump fuse
No gen. water The lower water level electrode reports the absence of water even though the upper one reports the presence of water	The lower water level electrode reports the absence of water	Check the connections of the lower and upper water level electrodes
Chamber without water! For devices with spray cooling, the water level electrode in the sterilisation chamber reports an absence of water during the program	Leak in sterilisation chamber Insufficient water was poured in	Check the drain valve and the connections to the sterilisation chamber Pour in more water

Tab. 20: Error messages

8.2 Messages

Message	Possible cause	Measure
NOT READY	Door is not shut	Close the door, start the appliance, and follow any instructions in the display
	Steam generator has not yet built up the required steam pressure	
	Steam generator has no water	
	The pressure or temperature sensor displays an abnormal value	
	For appliances with exhaust filtration: the exhaust filter must be replaced	
	For appliances with spray cooling: there is no water in	

Message	Possible cause	Measure
	the sterilisation chamber	
	Sterilisation chamber or reservoir container not sufficiently full of demineralised water	
Repl. Filter	Recommended number of cycles has been reached	For replacing the filter, see chapter 7.5
Comp.Air Error	Compressed air is not available. The cooling is stopped	Check the connection. As soon as compressed air is available, the cooling is activated
Drain Condensate ?	There is residual water in the sterilisation chamber after the cycle	For draining the condensate, see chapter 6.5
Access denied	Door not completely unlocked yet	Wait until the message has disappeared and the door can be opened
Test failed	Vacuum test failed Sterilisation chamber has a leak	- Check the door seal - If there is an exhaust filter housing, check that it is sitting firmly

Tab. 21: Messages

8.3 Service address

Should you require technical support, please contact:

Systec GmbH Laboratory Systems Technology

Sandusweg 11

35435 Wettenberg, Germany

Tel.: +49 (0)641 982120

Fax: +49 (0)641 982121

We will help you to resolve any problems and support you in all technical questions and queries on how to use the equipment.

9 DECOMMISSIONING

9.1 Decommissioning

ATTENTION

Consider the qualifications of the personnel!
The device may only be decommissioned by a qualified person.

9.2 Disposal

- Dispose of the machine in accordance with the applicable laws and regulations.
- If applicable, de-register the device.
- You may have to, or could be able to, return parts to the manufacturer.

Parts contaminated with dangerous substances must be marked as such before sending them!

You may not dispose of the appliance with normal refuse at the end of its service life. In this case, ensure that your device and any accessories are disposed of properly, in accordance with the national regulations.

9.3 Returning the appliance

When sending the device to Systec for repair or retrofitting, use the original packaging.

- Always contact us before sending an appliance to us.
- Please tell us the reason why you are sending it back and consult with us about the necessary steps to be taken.

In accordance with EU guidelines, the owner of appliances that have come into contact with dangerous substances is responsible for the appropriate disposal or the correct declaration for transport of the appliance. At the same time, our company is responsible for protecting our employees against dangerous substances. For this reason, we inform you that:

– All appliances sent back to us must be free from any kind of dangerous substance (acids, alkalis, biogenic dangerous substances etc.).
– The appliances must be decontaminated and residual dangerous substances neutralised. Please note that with some appliances, there are some cavities in the interior of the housing that are difficult to clean, and in which might be the remains of dangerous substances.
– On returning the appliance, it must be confirmed in writing in the accompanying documents that the above measures have been carried out.

If the owner of the appliance cannot perform these measures, the costs arising from the removal of the dangerous substances, to carry out repairs, are charged to the owner of the appliance.

9.4 Storage

The appliance may only be prepared for storage by a service technician authorised by Systec.

When storing, ensure that the device is protected against external influences!

- If necessary, put it in packing.

10 TECHNICAL DATA

Aim of this section

This section gives you an overview of the technical data of the appliances.

Contents

10.1 Specifications

10.1.1 Measurements and weights

MODEL	Unit	HX-210	HX-320	HX-430	HX-540	HX-650
Boiler diameter	mm	740	740	740	740	740
Depth (chamber)	mm	500	750	1000	1250	1500
Chamber volume, total/nominal	l	280/210	385/320	495/430	602.5/540	710/650
Chamber operating pressure	bar	-1/+4	-1/+4	-1/+4	-1/+4	-1/+4
Chamber operating temperature	°C	-10/150	-10/150	-10/150	-10/150	-10/150
Height	mm	1682.5	1682.5	1682.5	1682.5	1682.5
Width	mm	930	930	930	930	930
Depth	mm	1035	1285	1535	1785	2035
Net weight	kg	540	555	605	637.5	705
Required floor load (for water pressure test)	kg/m^2	850	850	850	850	850
Total weight	kg	820	940	1100	1240	1420
Steam generator volume	l	16	16	16	16	16
Operating pressure of steam generator	bar	+5	+5	+5	+5	+5
Operating temperature of steam generator	°C	160	160	160	160	160

Tab. 22: Measurements and weights for HX series

MODEL	Unit	HX-320 2D	HX-430 2D	HX-540 2D	HX-650 2D
Boiler diameter	mm	740	740	740	740
Depth (chamber)	mm	750	1000	1250	1500
Chamber volume, total/nominal	l	370/320	480/430	590/540	700/650
Height	mm	1682.5	1682.5	1682.5	1682.5
Width	mm	930	930	930	930
Depth	mm	1210	1460	1710	1960

Tab. 23: Measurements for 2D devices in HX series

10.1.2 Electrical data, water connection pressure, materials used

Number of heating elements	2
Heating performance [W]	18000/24000
Voltage	3 x 380 V–400 V, 50/60 Hz
Current consumption [A]	32/50

Tab. 24: Electrical data

Contact pressure of unprocessed water [bar]	1–10

Tab. 25: Water connection pressure

Chamber material	ST. ST. 1.4571 (316 Ti)
Door material	ST. ST. 1.4571 (316 Ti)
Steam generator material	ST. ST. 1.4571 (316 Ti)
Housing material	ST. ST. 1.4301 (304)
Chamber and door insulation	Melamine resin foam
Steam generator insulation	Melamine resin foam

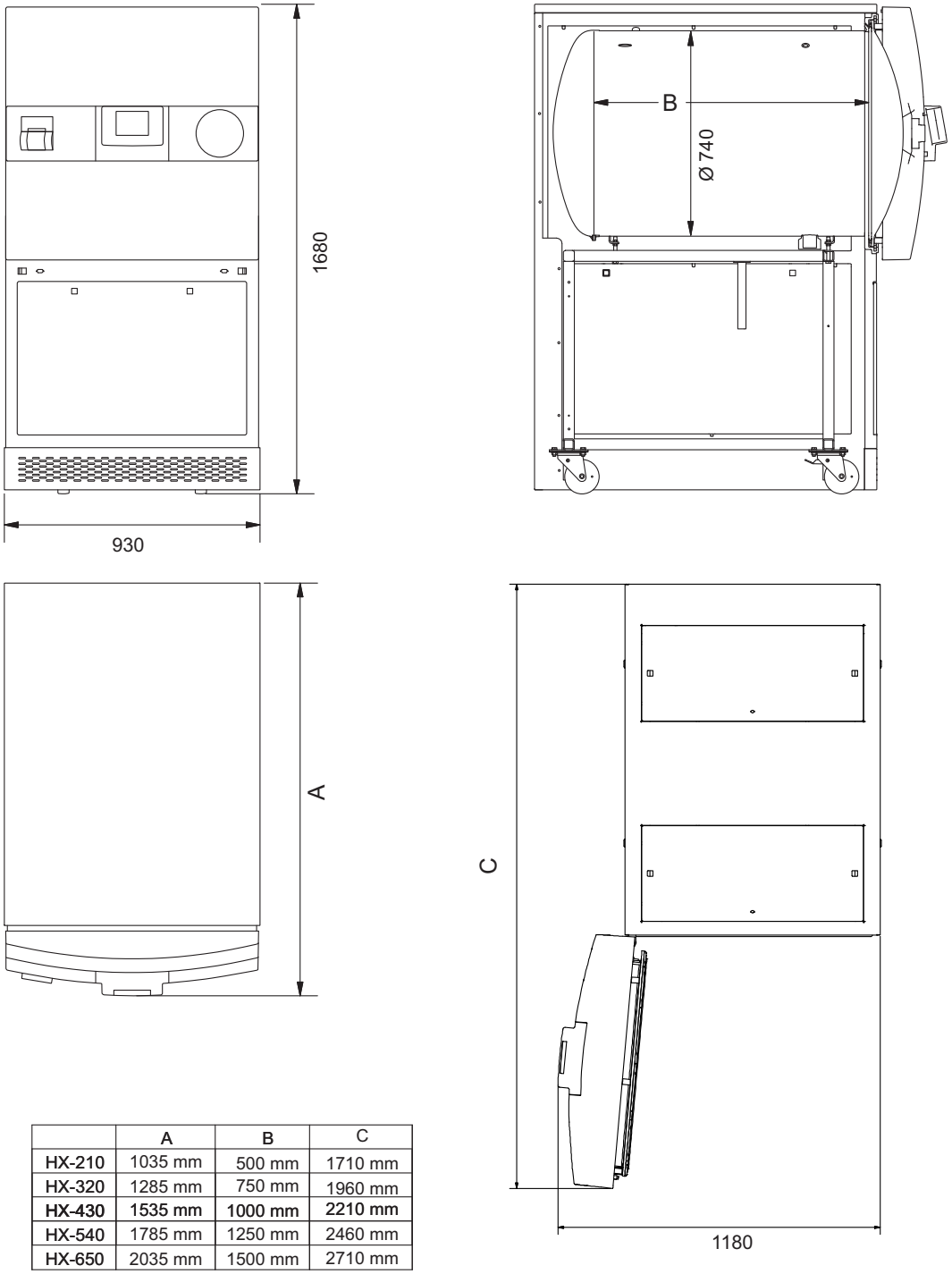
Tab. 26: Materials used

10.2 Loading capacity of Systec HX series

Model	H-210	H-320 (-2D)	H-430 (-2D)	H-540 (-2D)	H-650 (-2D)
250 ml	192	288	360	456	552
500 ml	84	126	168	210	238
1000 ml	50	78	100	120	150
2000 ml	18	28	42	53	65
5000 ml	7	11	15	18	23

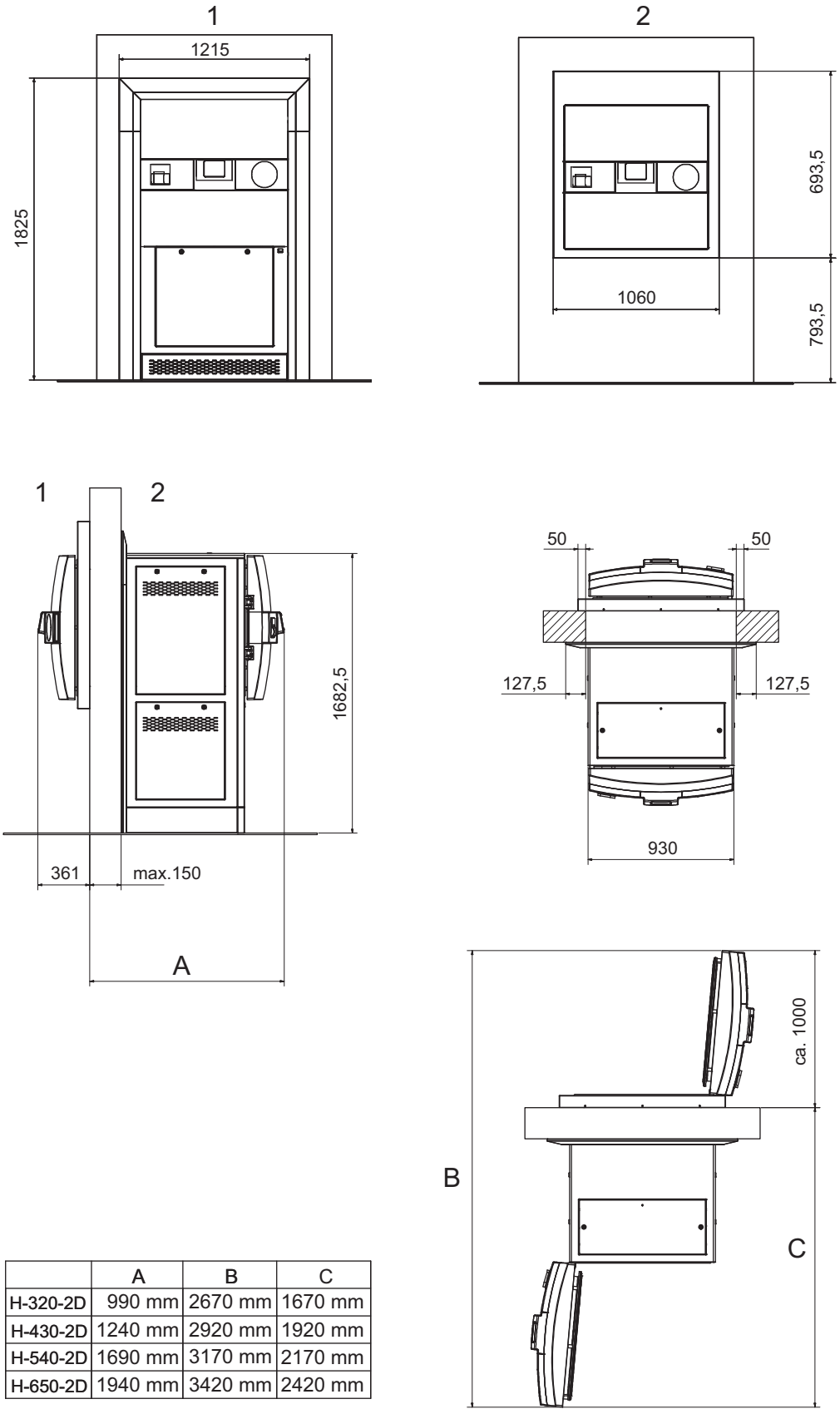
Tab. 27: Maximum loading capacity when loading with media flasks (Schott)

10.3 Dimensional drawings



	A	B	C
HX-210	1035 mm	500 mm	1710 mm
HX-320	1285 mm	750 mm	1960 mm
HX-430	1535 mm	1000 mm	2210 mm
HX-540	1785 mm	1250 mm	2460 mm
HX-650	2035 mm	1500 mm	2710 mm

Fig. 53: External dimensions for Systec HX



	A	B	C
H-320-2D	990 mm	2670 mm	1670 mm
H-430-2D	1240 mm	2920 mm	1920 mm
H-540-2D	1690 mm	3170 mm	2170 mm
H-650-2D	1940 mm	3420 mm	2420 mm

Fig. 54: External dimensions for Systec H-2D; 1 = machine side, 2 = bioshield side

10.4 Sound and heat emission

Noise level [dbA]	
All models	< 70
Heat emission [W/h]	
HX-210	< 1000
HX-320	< 1200
HX-430	< 1400
HX-540	< 1600

Tab. 28: Sound and heat emission

10.5 Water quality

ATTENTION

Danger of damage to the device caused by incorrect water quality!
The quality of the cooling water (unprocessed water) and demineralised water used has a considerable influence on the performance and service life of the device, including the reproducibility of the sterilisation results.

- Adhere to the water quality thresholds.

– Unprocessed water with drinking water quality is used for cooling and for an optimum vacuum arrangement.
– Demineralised water is the medium for sterilisation.

DIN 58951-2 states that the following thresholds must be adhered to:

Unprocessed water quality for conductivity (at 20 °C)	∑ alkaline earth ions ≤ 2.0 mmol/l, corresponding to a total hardness of 11° German hardness
Demineralised water for conductivity (at 20 °C)	< 15 µS/cm and ∑ alkaline earth ions < 0.02 mmol/l

Tab. 29: Quality requirements for the water used

11 LOGBOOK

Systec GmbH

Laboratory Systems Technology

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Fax +49 (0)6 41 98211 – 21

E-mail: Info@Systec-Lab.de

Internet: www.systec-lab.de

Place of manufacture
(stamp)

Appliance:	Autoclave		
Model:	Systec		
Serial number:			
Year of manufacture:			
Location:			
Date of commissioning:			
Commissioned by:		**Signature:**	
Operator:			

Date	Employee instructed in usage	Signature

Service provider

The logbook contains 3 service pages.

The appliance logbook is to be kept for at least five years after the appliance is decommissioned.

Maintenance log

Date	Work carried out/parts replaced	Signature

Date	Work carried out/parts replaced	Signature

Date	Work carried out/parts replaced	Signature

12 PLANS, DRAWINGS, CERTIFICATES

Aim of this section

In this section you will find all plans, drawings and certificates for the devices.