Instruction Manual

SC 2700 Centrifuge

SARSTEDT No: 90.183.000

CE

SARSTEDT

Contents

Instruction Manual SC 2700 Centrifuge

1. *Product description*

1.1 Safety Information

This symbol signals safety-relevant information and indicates possibly dangerous situations. Only use the centrifuge if you have read this safety information.

Failure to observe this information can result in injury or damage.

Intended use includes compliance with all information in the instruction manual and performance of required service and maintenance work.

1.2 Intended use

This HERMLE centrifuge is used to separate mixtures of substances with different densities, especially for the preparation and processing of samples from the human body in the context of an in-vitro diagnostic application, in order to enable the use of in-vitro diagnostic agents for their intended purpose. As an in-vitro diagnostic agent (e.g. blood sample vial) can be used in the centrifuge, the centrifuge is considered to be an in-vitro diagnostic device according to Directive (EU) 2017/746.

HERMLE centrifuges are exclusively intended for use indoors and for operation by trained and qualified personnel.

Only use original HERMLE rotors and accessories. Any other or further use is not deemed to be intended use. HERMLE Labortechnik GmbH does not accept any liability for damage due to this cause.

1.3 Brief Description

The SC 2700 device is a non-cooled centrifuge which can be operated with mains voltages of 100 - 230 V using the appropriate mains cable for the specific country.

A swing-out rotor is used in this centrifuge.

All relevant programs with fixed or variable parameters can be called up with keys. All set values are permanently displayed in the LCD display.

The centrifuge is powered by a maintenance-free brush-type motor.

Please refer to “Table 1: Technical data“ (see ANNEX Pg. 29) for detailed technical data.

1.4 Scope of Delivery

- 1 SC 2700 centrifuge
- 1 SC 2700 Instruction Manual
- 1 Swing-out rotor, 6-cavity
- 1 Set of sleeves
- 1 Mains cable

Instruction Manual SC 2700 Centrifuge

1.5 Installing the centrifuge

1.5.1 Unpacking

The **SC 2700** centrifuge is delivered in a carton.

Remove the straps, open the carton and remove the centrifuge. The instruction manual which is enclosed with the centrifuge must be kept at the installation location!

1.5.2 Space requirement

The centrifuge must be placed on a horizontal, vibration-free and levelled laboratory bench.

According to the recommendations of EN 61010-2-020, during centrifuging a clear safety area of 30cm must be maintained, in which there are no objects whose destruction could cause damage.

Under no circumstances must the centrifuge be placed in front of a window which is exposed to intensive sunlight or in front of heating elements, as the attainable sample temperatures are related to an average room temperature of +23°C.

1.5.3 Installation

Proceed as follows:

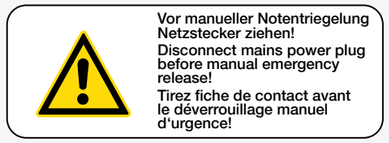
- Check that the mains voltage matches the details on the type plate.
- The mains connection for the centrifuge must be equipped with a 10 A fuse (Type K triggering characteristic for appliances).
- In case of emergency, mains disconnection with an emergency switch must be installed, if possible outside of the room.
- Connect the mains plug to the mains (plug socket) (the plug socket for the connection cable must be freely accessible or able to be disconnected at all times). Set the mains switch to position I (see 2.2). Open the lid by pressing the LID / STOP key.
- Remove the transportation protective packaging from the chamber.

1.6 Signs and information

1.6.1 Product type plate

Company address:	Hermle Labortechnik GmbH, Siemensstr. 25, D-78564 Wehingen
TYPE:	Product type designation
REF:	Product order number
Serial number:	Product serial number
	Manufacturer
	Date of manufacture
MAX. Speed:	Max. permissible speed of the device
KIN. EN.:	Max. kinetic energy with the corresponding rotor
U/I/f:	Permissible mains voltage / max. power consumption / mains frequency
P:	Electrical power consumption
	Read the instruction manual before putting the device into operation
	Labeling of compliance with standards and directives.
	Disposal information (see Section 6.3, Pg. 26)
	RoHS labelling (see Section 6.4, Pg. 26)

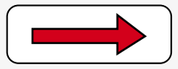
1.6.2 Warning and information signs on the device



Unplug before manually unlocking or opening the housing

General hazard point

Biological hazard warning



Direction of rotation - clockwise for the rotor drive

1.6.3 Hazards, precautions and warranty

This device may only be used by trained and qualified personnel. They must have carefully read the instruction manual and must be familiar with the functions of the device.

The following safety measures must be observed to protect persons and the environment:

- According to the recommendations of EN 61010-2-020, hazardous substances must not be located within 30 cm of the centrifuge during centrifuging.
- The **SC 2700** centrifuge is not explosion-protected and therefore must not be operated in rooms or areas where there is an explosion hazard. Centrifuging of flammable, explosive, radioactive substances, or chemicals which react violently with each other is prohibited. The final decision regarding the risks associated with the use of such substances is the responsibility of the user of the centrifuge.
- Centrifuging of toxins and pathogenic micro-organisms without suitable safety systems, i.e. vessels without seals, or vessels with defective seals is prohibited. The user is obliged to carry out suitable disinfection measures if hazardous substances or parts of these have entered into the rotor chamber. In general, the usual laboratory precautions must be observed when centrifuging infectious substances. Please consult your safety officer as necessary!
- Under no circumstances may the lid of the centrifuge be opened while the rotor is still rotating or is moving with a centrifugal velocity of > 2m/s.

1.6.4 Excluded modes of operation

- Incorrectly installed centrifuge, rotor and accessories
- Operation with the centrifuge partially disassembled (e.g. without cover panel).
- Operation of the centrifuge after modifications to mechanical or electrical assemblies by unauthorised persons.
- Operation of the centrifuge with rotors and accessory components which have not been explicitly approved by HERMLE Labortechnik GmbH, with the exception of normal glass and plastic centrifuging vessels.
- Centrifuging of highly corrosive substances which may cause material damage and impair the mechanical strength of the centrifuge and rotor.
- Centrifuging with rotors and sleeves which show signs of corrosion or mechanical damage.

The manufacturer only considers itself responsible for the safety and reliability of the centrifuge if:

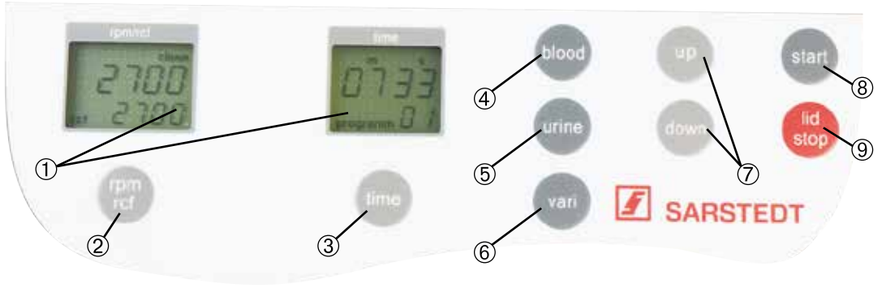
- The device is used according to the instruction manual.
- Modifications, repairs or other work have been carried out by persons authorised by HERMLE Labortechnik GmbH and the electrical installation in the relevant room complies with IEC requirements.

1.6.5 Warranty

The centrifuge was delivered after completion of all tests and quality inspections. However, if manufacturing faults become apparent during routine operation, you are entitled to compensation within 12 months of the date of delivery for the basic device and the supplied rotor. The warranty becomes void in the event of incorrect operation; use which is not intended; or unauthorised modifications to the rotors or the centrifuge.

We reserve the right to modifications for the purpose of further technical development.

1.7 Operating and display elements



1	LCD display	set values, actual values
2	rpm/rcf	speed/ g-number
3	time	duration of centrifuging
4	blood	blood centrifuging program
5	urine	urine centrifuging program
6	vari	variable parameter setting
7	up/down	setting key for variable parameter settings
8	start	start centrifuging
9	lid/stop	unlock lid / stop or interrupt centrifuging

1.7.1 LCD display

The following illustration shows the display elements of the LCD display.

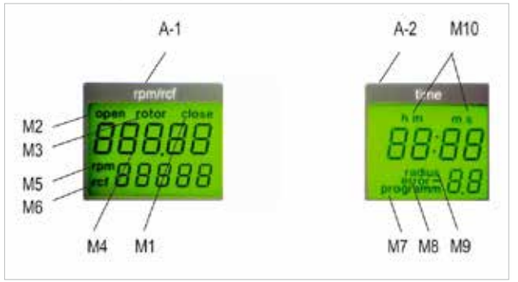


Figure 1

Display fields:

A-1 Display field– “rpm/rcf”
A-2 Display field– “time”

Messages / display field texts:

M1	“close”	M7	“program”
M2	“open”	M8	“error”
M3	“rotor”	M9	“radius”
M4	Rotor No.	M10	h m s
M5	“rpm”		
M6	“rcf”		

Note:

After switching on the centrifuge, the display field “rpm/rcf” (A-1) briefly displays the current software version and then the device type “2700”.

Figure 2

1.8 Basic settings

1.8.1 Accessing the “Basic Settings” menu

The following options exist in the basic settings menu:

- Acoustic signal when switching on/off
- Switching key tones on/off

The following operating data can also be accessed in this menu:

- Number of starts
- Number of operating hours of the centrifuge
- Motor run time
- Software version
- Error list
- Imbalance sensor function
- Keyboard function
- Hardware version
- Link circuit voltage in Volts
- Display test

To access these, open the lid of the centrifuge and switch off the mains switch. Then switch the mains switch on again. The current software version and the device type are displayed for approx. 3 seconds (see Figure 2). During this time, simultaneously press the “time” (3) and “lid/stop” (9) keys. After this, a display test will be performed for approx. 3 seconds, in which all possible displays are shown simultaneously (see Figure 3).

Figure 3

Note:

- Return to the normal operating mode is made by briefly switching off the centrifuge.

- All changes must be saved by pressing the “start” key (8). Visual confirmation is given with the text “store” in the “rpm/rcf” display field (A-1). The selections are only effective after confirmation.

1.8.2 Acoustic signal when switching on/off

Open the “Basic Settings” menu as described in 1.8.1. Then press the “time” key (3). The currently selected menu item flashes in the “time” (A-2) display field. Now select the letter “L” with the “up” (7) or “down” (7) keys. The text “on sound” is displayed in the “rpm/rcf” (A-1) display field. If the “rpm/rcf” key (2) is now pressed, the text “on” flashes and the tone can be switched off with the “up” (7) and “down” (7) keys. (See Figure 4).

After saving with the “start” key (8), the normal operating mode can be resumed by briefly switching off the centrifuge.

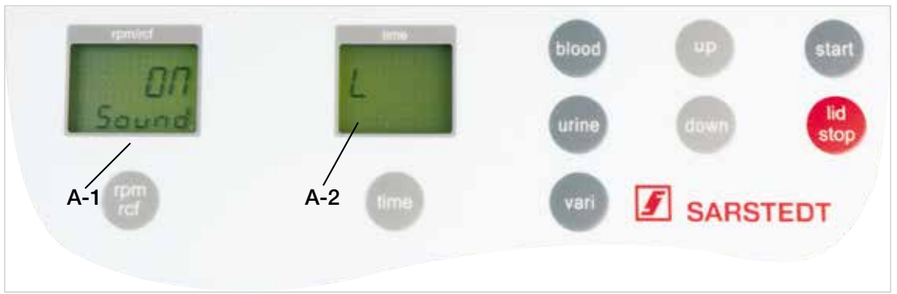


Figure 4

1.8.3 Switching the key tones on/off

Open the “Basic Settings” menu as described in 1.8.1. Then press the “time” key (3). The currently selected menu item flashes in the “time” (A-2) display field. Now select the letter “b” with the “up” (7) or “down” (7) keys. The text “ON/BEEP” is displayed in the “rpm/rcf” (A-1) display field. If the “rpm/rcf” key (2) is pressed, the tone can be switched On (On) Off (Off) with the “up” (7) and “down” (7) keys. (See Figure 5).

After saving with the “start” key (8), the normal operating mode can be resumed by briefly switching off the centrifuge.

Figure 5

1.8.4 Accessing operating data

The operating data of the centrifuge can be accessed in the “Basic Settings” menu. Open the “Basic Settings” menu as described in 1.8.1.

Press the “time” key (3). The currently selected menu item flashes in the “time” (A-2) display field.

The various information can be accessed with the “up” (7) and “down” (7) keys.

A = Previous centrifuge starts

H = Previous operating hours

h = Motor run time

S = Software version

E = List of previous error messages

F = Imbalance sensor function

P = Key function

d = Hardware version

U = Link circuit voltage in Volts

The list of the last 99 error messages can be viewed by pressing the “rpm/rfc” key (2) and scrolling with the “up” (7) and “down” (7) keys. The corresponding error codes are shown in the “rpm/rcf” (A-1) display field. The first two digits show the serial numbering of the errors which have occurred. The third and fourth digits show the error code which was stored. Please refer to “Table 5: Error Messages” for the meanings of these (see ANNEX Pg. 30).

In this case too, the centrifuge must be briefly switched off to return to the normal operating mode.

Figure 6

2. *Operation*

2.1 Inserting and loading the rotors

2.1.1 Inserting the rotors

Clean the drive shaft and the rotor mounting hole with a clean, grease-free cloth. Place the rotor on the drive shaft (see Figure 7). Take care that the transverse pin of the motor shaft is fully inserted into the groove of the rotor (see Figure 8). Hold the rotor with one hand and fasten the locking screw by screwing it clockwise onto the motor shaft (see Figure 9).

Figure 7

Figure 8

Figure 9

NOTE:

For safety reasons, check that the locking screw is still tight before each run.

Never centrifuge with rotors which show signs of corrosion or mechanical damage.

Never centrifuge highly corrosive substances which cause material damage and impair the mechanical strength of rotors and centrifuges.

2.1.2 Loading the rotor

The rotor must only be loaded symmetrically (see Figure 10 and 11). The sleeves must only be used with the vessels for which they are intended. Weight differences between the filled sample vessels must be kept small. Balancing with weighing scales is recommended. This protects the drive and reduces running noise.

It is permissible to load the rotor with only 2 or 4 vials. For this, all of the rotor positions must be loaded with sleeves.

Figure 10: WRONG

Figure 11: CORRECT

2.1.3 Loading and overloading the rotor

“Table 2: Permissible Filling Weight” (see ANNEX Pg. 30) lists the approved rotor with its maximum permissible speed and the maximum total permissible filling weight. The rotor load and maximum permissible speed specified by the manufacturer (see label on the rotor) must not be exceeded.

2.1.4 Removing the rotor

Hold the rotor with one hand and loosen the locking screw by unscrewing it from the motor shaft counter-clockwise (see Figure 8).

2.2 Mains switch

The mains switch is located on the rear side of the centrifuge (see Figure 12).

Figure 12: Mains switch

After switching on the device switch, the lid of the device must first be opened and closed again before the centrifuge can be started.

2.3 Device lid

2.3.1 Unlocking the lid

After completion of a run, or after closing the lid of the device, the text “close” (M1) is shown in the “rpm/rcf” (A-1) display field. At the same time, the rotor type “221.88” is displayed. The lid of the device can be unlocked by pressing the “lid/stop” key (9). Once the lid lock has fully unlocked, the text “open” (M2) is displayed and the lid can be opened.

Figure 13

2.3.2 Closing the lid

The lid is closed by lightly pressing it. The text “open” (M2) disappears. To indicate readiness for starting, the text “close” (M1) is displayed in the “rpm/rcf” (A-1) display field. At the same time, the text “rotor” (M3) and the identification number of the rotor are shown in this display field. With this, all rotor-specific data such as the maximum speed and run time are adopted.

All texts labeled with numbers refer to Figure 13.

NOTE: Before closing the lid, check that the rotor is tightly fastened.

2.4 “Blood” program

The program for centrifuging blood samples is accessed by pressing the “blood” key (4). The text “program 01” (M7) is shown in the display field “time” (A-2). The parameters for the RCF value and the time are fixed and cannot be changed. Press the “start” key (8) to start centrifuging.

Details of the parameters for the “blood” program” are listed in Table 6: “blood” and “urine” program parameters (see Annex Pg. 31).

2.5 “Urine” program

The program for centrifuging urine samples is accessed by pressing the “urine” key (5). The text “program 02” (M7) is shown in the display field “time” (A-2). The parameters for the RCF value and the time are fixed and cannot be changed. Press the “start” key (8) to start centrifuging.

Details of the parameters for the “urine” program” are listed in Table 6: “blood” and “urine” program parameters (see Annex Pg. 31).

2.6 “vari” program

The “vari” program provides the option of variably setting the RCF value or the speed and duration of centrifuging. Press the “vari” key (6) and proceed as described in the following two sections. After the required parameters have been set, press the “start” key (8) to start centrifuging.

2.6.1 Pre-selection of the RCF value or speed

This pre-selection is activated with the “rpm/rcf” key (2). When this key is pressed once, the text “rcf” (M6) flashes. Pre-selection of the speed can be selected be pressing the key again. The flashing text “rpm” (M5) is displayed. The required value can then be set with the “up” (7) and “down” (7) keys. The set value is displayed permanently in the display field (A-1) before, during and after the run.

All texts labeled with numbers refer to Figure 14.

Figure 14

The RCF value can be pre-selected between 6 x g and the maximum permissible centrifugal acceleration of the centrifuge or the rotor. The same applies for the pre-selection of the speed. The setting range is between 200 rpm and the maximum permissible speed of the centrifuge or the rotor.

“Table 3: Max. Permissible Speed and RCF Value of the Approved Rotor” (see ANNEX Pg. 30) lists the approved rotor with its maximum permissible speed and the corresponding RCF value.

Note:

Observe the maximum permissible speeds for your sample vessels. (Manufacturer’s specification) see also 3.1.5

2.6.2 Run time pre-selection

The run time can be pre-selected in three ranges from ten seconds up to 99 hours 59 minutes.

1. Range from ten seconds up to 59 minutes 50 seconds in ten second increments
2. Range from one hour up to 99 hours 59 minutes in one minute increments
3. Continuous running range “cont” which is interrupted with the “lid/stop” key (9).

The run time can be selected with the lid of the device open or closed.

Press the “time” key (3) to activate the run time setting.

In the “time” display field (A-2) the display “m : s” or “h : m” (M10) flash depending on the previous setting. The required value can then be set with the “up” (7) and “down” (7) keys. If 59 min 50 sec are exceeded the display automatically switches to “h : m”.

If 99 hours 59 min are exceeded the text “cont” is displayed in the “time” (A-2) display field. Continuous running can only be interrupted with the “lid/stop” key (9). The remaining run time is always displayed. The run time begins to count down as soon as the set speed has been reached.

All texts labeled with numbers refer to Figure 15.

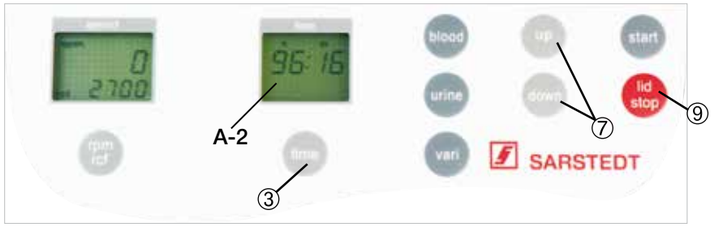


Figure 15

2.7 Starting and stopping the centrifuge

2.7. 1 Starting the centrifuge

After the required program or variable parameter settings have been selected, the centrifuge can be started with the “start” key (8). After the run time has elapsed the centrifuge is stopped automatically.

Figure 16

2.7. 2 Stopping the centrifuge

A run can be interrupted with the “lid/stop” key (9) (see Figure 16). After the key has been pressed, the centrifuge brakes to a stop.

2.8 Imbalance

If the rotor is unevenly loaded the drive is switched off during the acceleration phase (starting). The rotor brakes to a stop.

If the word “error” (M8) and the error number “01” are displayed in the “time” field (A-2), the weight difference between the two samples is too large. -> Balance the samples precisely.

Load the rotor as described in point 2.1.2 and 2.1.3.

If the word “error” (M11) and the error number “02” are displayed in the “time” field (A-2)(see Figure 17), this may due to the following cause. -> The imbalance sensor is defective.

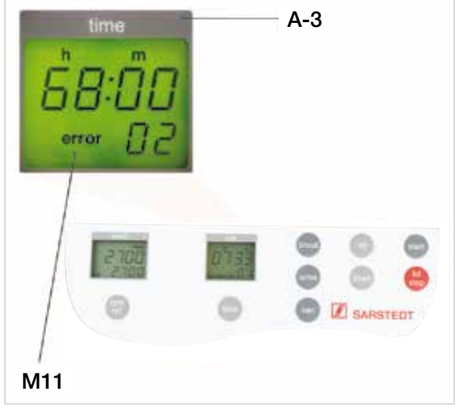


Figure 17

3. Maintenance

3.1 Care and maintenance

3.1.1 General

Care:

Care of the centrifuge is essentially limited to cleaning the accessible surfaces of the device, the rotor and the rotor accessories.

Do not use corrosive cleaning agents or abrasive polishes.

Rotor fractures may result from even the slightest damage.

If metallic components of the rotor come into contact with corrosive media, the affected areas and components must be thoroughly treated with a mild cleaning agent.

Such corrosive media include for example:

Alkalis, alkaline soap solutions, alkaline amines, strong acids, solutions with heavy metals, anhydrous chlorinated solvents, salt solutions, e.g. seawater, phenol, halogenated hydrocarbons.

Cleaning – Device, rotors, accessories:

- Switch off the device and disconnect the power supply before starting cleaning or disinfection. Do not allow liquids to enter inside the housing.
- Do not disinfect the device by spraying.
- In addition to hygienic reasons, cleaning also has the purpose of preventing corrosion due to dirt.
- To prevent damage to the device, the rotors and accessories, only neutral cleaning agents whose pH value is in the range from 6-8 may be used for cleaning. Alkaline cleaning agents (pH value > 8) must not be used.
- After cleaning, the rotors must be briefly dried in a hot air cabinet (maximum temperature +50°C).
- Condensation may form due to humidity or samples which are not hermetically sealed.
- The condensate must be regularly removed from the rotor chamber with a cloth.

General cleaning care must be carried out every 10 to 15 runs, however at least once per week.

- Only reconnect the device to the power supply when it is completely dry.
- Do not disinfect with UV, beta or gamma radiation or other energetic radiation.

3.1.2 Cleaning / disinfecting the device

1. With the lid open, switch off the mains switch and unplug from the power supply.
2. Loosen the locking screw by turning it counter-clockwise.
3. Remove the rotor.
4. Use the previously described agents (see 3.1.1) to clean and disinfect the device and the rotor chamber.
5. Wipe all accessible surfaces of the device and its accessories, including the mains cable, with a damp cloth.
6. Thoroughly clean the rubber seals of the rotor chamber with water.
7. Rub the dry rubber seals with glycerine or talcum to prevent them from becoming brittle. Other components of the device, e.g. the lid lock, motor shaft and rotor chamber must not be greased.
8. Clean the motor shaft with a clean, lint-free cloth.
9. Check the device and its accessories for corrosion and damage.

Every six months at least, remove dust deposits from the ventilation slits of the centrifuge with a paintbrush or hand brush. Switch off the centrifuge and unplug it before doing this.

3.1.3 Cleaning / Disinfecting the rotor

1. Clean and disinfect the rotor and sleeves with the previously described agents (see 3.1.1).
2. Use a bottle brush to clean and disinfect the cavities in the rotor.
3. Thoroughly clean the rotor and sleeves with water. Pay special attention to the sleeve cavities.
4. Place the rotor and the sleeves on a cloth to dry. Place the sleeves with the cavities facing downwards so that residual liquid can run out of the holes.
5. Clean the rotor mount with a clean, lint-free cloth and check for damage. Do not grease the motor mount.
6. Place the dry rotor on the motor shaft.
7. Tighten the locking screw by turning it clockwise.

3.1.4 Disinfecting PPS rotors

Autoclaving

Autoclaving may cause deformation of plastic components such as rotor bodies!

The recommended work cycle of this is: 15 – 20 min at 121°C (1 bar).

NOTE: Do not exceed the sterilisation time and temperature, as the mechanical strength of the plastic is reduced by repeated sterilisation.

Before autoclaving, the plastic rotor and sleeves must be carefully cleaned to prevent dirt residues from burning in.

Chemical residues whose effect on plastic is negligible at room temperatures may attack and destroy plastic at the high temperatures of the autoclaving process. After cleaning, the objects must be thoroughly rinsed with distilled water before autoclaving. Cleaning agent residues may cause cracks, white discoloration and spots.

NOTE: The rotor and sleeves may only be autoclaved ten times at the most. After this they must be replaced.

Gas sterilisation

The rotor and sleeves may be gas sterilised with ethylene oxide. Depending on the duration of the application, the objects must be ventilated for an adequate period before being used again.

Chemical sterilisation

Treat the rotor and sleeves with normal disinfection agents.

NOTE: Before using cleaning or decontamination methods other than those recommended by the manufacturer, the user must contact the manufacturer to ensure that the intended method will not damage the centrifuge or the rotors.

3.1.5 Glass breakage

Observe the centrifuging parameters as recommended by the manufacturer of the vessel. Centrifuging vessels have an increasing level of breakage as the g number (speed) increases. Splintered glass must be removed from the rotor, the sleeve and the rotor chamber immediately. Fine splinters of glass scratch the surface protection of the rotors and the centrifuge chamber.

If glass splinters enter the rotor chamber, wear is caused by the air circulation. This very fine dust severely contaminates the centrifuge chamber, the rotors and the samples.

If necessary, replace the rotor and the sleeves to prevent further damage. Check the rotor and the sleeves for residues and damage at regular intervals.

NOTE: Please observe the manufacturer's specifications for the glass vessels.

3.2 Duration of use for rotors and sleeves

Rotors and sleeves have a maximum duration of use of **3 years** from the date of commissioning.

Prerequisites for the duration of use:

Correct use, undamaged condition, recommended care.

4. Troubleshooting

4.1 Error messages: Cause / Remedy

The error messages assist in indentifying any faults which may occur. The diagnoses in this section may not always be correct, as these relate to theoretically occurring faults and their remedies.

Please inform us of all faults which you have found, which are not listed in this section. This is the only way in which we can supplement and improve this instruction manual.

Thank you for your help in advance.

4.2 Overview of possible error messages and help for remedying faults

4.2.1 Unlocking the lid in case of power failure

In case of power failure or failure of the electronics, the samples may be removed by opening the lid manually.

Proceed as follows (see Figure 18):

- Switch off the device and unplug it. Wait until the rotor has come to a standstill (this may take several minutes)
- A plastic plug is located on the front left underside of the centrifuge. Remove this plug.
- A cord is attached to this plug, which is connected to the electrical lid lock.
- The lid lock can be released by lightly pulling on the cord.
- Now open the centrifuge lid.
- Switch the centrifuge on again.

Figure 18

4.2.2 Description of the error message system

The error message “error” (M8) is given by a two digit number in the “time” window (A-2) (Example, see Figure 19). Details of the possible error messages are listed in “Table 5: Error Messages” (See Annex Pg. 30).

Figure 19

5. *Acceptance for repair*

Health hazard due to contaminated devices, rotors and accessories

Please note the following when returning the centrifuge, rotors or accessory components to the manufacturer for repair:

To protect persons, the environment, and material, the centrifuge must be decontaminated before returning it to SARSTEDT AG & Co. KG.

Enclose the fully completed

“Return form: Decontamination Declaration” (see ANNEX Pg. 33)

together with the serial number in the return consignment.

We reserve the right to charge customers for all costs for cleaning and disinfection measures which we incur due to the acceptance of contaminated centrifuges and accessories.

Return of mains cables

Please also return the mains cable with the centrifuge. This eliminates the risk of a defective mains cable. If no mains cable is included with the centrifuge, a new mains cable will be supplied and charged for.

Thank you for your understanding.

6. *Transport, storage and disposal*

6.1 Transport

Remove the rotor from the centrifuge before transport.
Only transport the centrifuge in the original packaging.
Use transport aids for transportation over longer distances.

	Air temperature	Rel. humidity	Air pressure
General transport	- 25 to 60 °C	10 to 75 %	30 to 106 kPa

6.2 Storage

The following ambient conditions must be complied with for storage of the centrifuge:

	Air temperature	Rel. humidity	Air pressure
General transport	- 25 to 55 °C	10 to 75 %	30 to 106 kPa

6.3 Disposal

The relevant statutory regulations must be observed for disposal of the product.

Information regarding disposal of electrical and electronic devices in the European Community.

Within the European Community, disposal of electrically operated devices is governed by national regulations based on the Directive 2002/96/EC for old electrical and electronic devices (WEEE).

According to this, as of 13/08/2005, all devices which are supplied in a business-to-business context, in which this product is categorised, may no longer be disposed of in communal or domestic waste. In order to document this, these devices are provided with the following labels:

As disposal regulations may differ within different countries of the EU, we request that you consult your supplier as necessary.

In Germany, this obligation for labeling applies as of 23/03/2006. As of this date, the manufacturer must offer a reasonable possibility for returning devices which it supplies after 13/08/2005. For all devices which were delivered prior to 13/08/2005 the final user is responsible for proper disposal.

6.4 RoHS II Declaration of Conformity

HERMLE Labortechnik GmbH, Siemensstrasse 25, 78564 Wehingen hereby declares that all manufactured products comply with RoHS II Directive 2011/65/EU of the European Parliament and Council of 08/06/2014 for the limitation of particular hazardous substances in electrical and electronic devices.

7. *Annex*

EC Declaration of Conformity

EG Konformitätserklärung

EC Conformity Declaration

CE

Hermle Labortechnik GmbH - Siemensstr. 25 - D-78564 Wehingen – Germany

Das bezeichnete Produkt entspricht den einschlägigen grundlegenden Anforderungen der aufgeführten EG-Richtlinien und Normen. Bei einer nicht mit uns abgestimmten Änderung des Produktes oder einer nicht bestimmungsgemäßen Anwendung verliert diese Erklärung ihre Gültigkeit.

The Product named below fulfills the relevant fundamental requirements of the EC directives and standards listed. In the case of unauthorized modifications to the product or an unintended use this declaration becomes invalid.

Produkttyp
Product Type

Laborzentrifugen mit Zubehör nach „IVD (sonstige Produkte)"
Laboratory centrifuge with accessories to "IVD (other device)"

Typenbezeichnung
Typ Designation

SC 2700

Einschlägige EG-Richtlinien / Normen
Relevant EC Directives / Standards

(EU) 2017/746 Anhang/Annex III); 2014/35/EU; 2014/30/EU, RoHS II 2011/65/EG, 2006/42 EG ; DIN EN 61010-1: 2011-07; DIN EN 61010-2-020:2017; DIN EN 61010-2-101: 2002, DIN EN 61010-2-011 :2017 DIN EN ISO 14971: 2018-08; DIN EN ISO 13485: 2016-08

HERMLE LABORTECHNIK

Wehingen, 08.10.2020
(gültig bis/valid until 21.12.2021)

Alexander Hermle
Geschäftsführer - Managing Director

Table 1: Technical data

Manufacturer	**HERMLE Labortechnik GmbH, 78564 Wehingen**	
Type designation	SC 2700	
Dimensions		
Width	35 cm	
Depth	43 cm	
Height	26 cm	
Weight without rotor and packaging	16.5 kg	
Max. speed	4,310 rpm	
Max. volume	6 x 10 ml	
Max. RCF	2,700 x g	
Permissible density	1.2kg /dm^3	
Permissible kinetic energy	236 Nm	
Electrical connection AC	100 – 230 V / 50-60 Hz single phase	
Mains voltage fluctuation	± 10 %	
Power consumption	1.6 – 0.8 A	
Connection value	110 W	
Radio interference suppression	DIN EN 61326-0	
Obligation for inspection (BGR 500)	No	
Normal ambient conditions (EN/IEC 61010-1)		
Installation location	only indoors	
Height	Up to 2000 m above sea level	
Ambient temperature	2°C to 35 °C	
Humidity	Maximum relative humidity 80% for temperatures up to 31°C, linearly decreasing to 50% relative humidity at 35°C.	
Overvoltage category (IEC 60364-4-443)	II	
Contamination level	2	
Device protection class I	Protection class (DIN EN 60529) IP 20	
Not suitable for use in explosion hazard areas.		
EMC Interference emission, interference resistance	EN / IEC 61326-1 Class B	FCC Class B
Noise level (depending on rotor)	≤ 54 dB(A)	
To be entered by the operator		
Inventory no:		
Monitoring no:		
Installation location:		
Maintenance contract:		
Service office	HERMLE Labortechnik GmbH	
	Siemensstraße 25	
	78564 Wehingen	
	Tel.: (49)7426 / 96 22-17	
	Fax: (49)7426 / 96 22-49	

Table 2: Permissible filling weight

Rotor number	Max. RCF	Total filling weight
221.88 V01	2,700 x g	150 g

Table 3: Max. speed and RCF values for the authorised rotor

Rotor number	Max. speed	RCF value
221.88 V01	4,310 rpm	2,700 x g

Table 4: Acceleration and braking times

Rotor number	Acceleration value	Braking value
221.88 V01	Blood program (2700 x g): 34 s	25 s
	Urine program (500 x g): 11 s	12 s
	Variable program (2700 x g): 25 s	25 s

Table 5: Error messages

Error no:	Description
1	Imbalance
2	Imbalance sensor malfunction
14	Speed sensor problem
15	Standstill monitor malfunction
16	Incorrect direction of motor rotation
18	Device too hot, allow to cool down
19	Power consumption too high
33	Lid open while motor running
43	Link circuit undervoltage
44	Link circuit overvoltage
47	Current detection error
55	Overspeed
80	Internal EEPROM memory error
81	Internal EEPROM program data memory error

Instruction Manual SC 2700 Centrifuge

Table 6: “Blood” and “Urine” program parameters

Program	RCA	RPM	Speed
01 – “Blood”	2,700 x g	4,310 rpm	8 min
02 – “Urine”	500 x g	1850 rpm	5 min

Table 7: List of symbols and abbreviations

Symbols / Abbreviations	Unit	Meaning
n (=rpm)	[min-1]	Revolutions per minute
RCF	[x g]	Relative centrifugal force

Return form: Decontamination Certificate

Decontamination Declaration for return of goods

This must be enclosed with all returns of devices and assemblies!

The fully completed decontamination declaration is a prerequisite for the acceptance and further processing of the return. If no declaration is enclosed, we will perform decontamination and invoice this to you.

First name, surname: _____

Organisation / Company: _____

Street: _____

Postcode: _____ **Town:** _____

Tel.: _____ **Fax:** _____

Email: _____

Please fill in using block capitals.

Item.	Quantity	Decontaminated object	Serial number	Description / Remarks
1				
2				
3				
4				

Have the above components come into contact with the following substances?

Aqueous solutions, buffers, acids, alkalis which are hazardous to heath: _____ ☐ Yes ☐ No

Potentially infectious agents: _____ ☐ Yes ☐ No

Organic reagents and solvents: _____ ☐ Yes ☐ No

Radioactive substances: _____ ☐ α ☐ β ☐ γ ☐ Yes ☐ No

Proteins which are hazardous to health: _____ ☐ Yes ☐ No

DNA: _____ ☐ Yes ☐ No

Have these substances entered into the device / assembly? _____ ☐ Yes ☐ No

If so, which? _____

Description of decontamination measures for the listed components:

_____

_____

_____

_____

I hereby declare that proper decontamination has been performed:

Company/Dept.: _____ Place and date: _____

Signature / stamp of authorised person: _____

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Notes

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Notes

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BA 039-1120

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