

CORNING

LSE™ Compact Centrifuge

INSTRUCTION MANUAL

Models:

6755 – 120V

6756 – 100V

6758 – 230V UK

6759 – 230V EU



CONTENTS

1 PRODUCT DESCRIPTION

- 1.1 Usage in accordance with safety standards
 - 1.1.1 General Information
 - 1.1.1.1 Hazards and precautions
 - 1.1.1.2 Brief description
 - 1.1.1.3 Safety Standards
 - 1.1.1.4 Extent of supply
 - 1.1.1.5 Warranty
- 1.2 Installation
 - 1.2.1 Installation of the centrifuge
 - 1.2.1.1 Unpacking the centrifuge
 - 1.2.1.2 Space requirements
 - 1.2.1.3 Installation
- 1.3 Technical Data
- 1.4 Conformity Declaration
- 1.5 Basic Adjustments
 - 1.5.1 Access to mode "operating data "
 - 1.5.2 Call up of operating data

2 OPERATION

- 2.1 Installation of rotors
 - 2.1.1 Mounting and loading angle rotors
 - 2.1.2 Mounting and loading swing out rotors
 - 2.1.3 Overloading of rotors
 - 2.1.4 Removing the rotors
- 2.2 Operation
 - 2.2.1 Power switch
 - 2.2.2 Lid release
 - 2.2.3 Lid lock
 - 2.2.4 Pre-selection of speed/RCF-value
 - 2.2.5 Pre-selection of running time
 - 2.2.6 Pre-selection of brake intensity and acceleration
 - 2.2.7 Starting the centrifuge
 - 2.2.8 "Stop"key
- 2.3 Safety features
 - 2.3.1 Imbalance detection

3 MAINTENANCE

- 3.1 Service and Maintenance
 - 3.1.1 Maintenance and cleaning
 - 3.1.2 Glass breakage
 - 3.1.3 Disinfection of Alu-rotors
 - 3.1.4 Disinfection of PP-rotors
 - 3.1.5 Cold room removal

4 TROUBLE SHOOTING

- 4.1 Error messages: Cause / Solution
- 4.2 Survey of possible error messages and their solutions
 - 4.2.1 Lid release during power failure
 - 4.2.2 Description of the error message system
 - 4.2.3 Error messages

5 RECEIPT OF CENTRIFUGES TO REPAIR AND DISPOSAL

- 5.1 Receipt of Centrifuges to Repair
- 5.2 Disposal

1 PRODUCT DESCRIPTION

1.1 Usage in accordance with safety standards

1.1.1 General information

1.1.1.1 Hazards and precautions

Before setting the centrifuge into operation, please read this instruction manual carefully!

This centrifuge must not be operated by unqualified personnel not being familiar with the correct use of the unit. Always, use the original accessories only!

For your personal safety, please pay attention to following precautions:

- The **Corning LSE™ Compact Centrifuge** is not explosion-proof and must therefore not be operated in explosion-endangered areas or locations. During centrifugation, it is prohibited to stay within the safety zone of 30 cm around the centrifuge or deposit hazardous substances within this area.
- Centrifugation of flammable, explosive and radioactive substances or substances, which chemically react with high energy, is strictly prohibited!
- Never spin toxic or pathogenic material without adequate safety precautions, i.e. centrifugation of buckets / tubes without or with defective hermetic sealing's is strictly prohibited.
- The user is obligated to perform appropriate disinfection procedures in case dangerous substances have contaminated the centrifuge and / or its accessories. When centrifuging infectious substances, always pay attention to the General Laboratory Precautions. If necessary, contact your safety officer!
- It is prohibited to run the centrifuge with rotors other than listed for this unit.
- Under no circumstances open the lid of the centrifuge while the rotor is still running or rotating with a speed of > 2 m/s.

Following rules must strictly be adhered to:

- Do not operate the centrifuge in case it is not installed correctly.
- Do not operate the centrifuge when dismantled (e.g. without housing).
- Do not run the centrifuge when mechanical or electrical assembly groups have been tampered with by unauthorized persons.
- Do not use accessories such as rotors and buckets, which are not exclusively approved by Corning, Incorporated. except commercially available centrifuge tubes made of glass or plastic.
- Do not spin extremely corrosive substances, as they may cause material damages and impair mechanical resistance.

- Do not operate the centrifuge with rotors or buckets, which show any signs of corrosion or mechanical damage.

1 PRODUCT DESCRIPTION

The manufacturer is responsible for safety and reliability of the centrifuge, only if:

- The unit is operated in accordance with this instruction manual.
- Modifications, repairs or other adjustments are performed by Corning-authorized personnel and the electrical installation of the related location corresponds to the IEC-regulations.

1.1.1.2 Brief description

Corning LSE™ Compact Centrifuge is a small centrifuge. You can use swing out and angle rotors in this centrifuge. Rotors are not included with the centrifuge and can be purchased separately. All relevant run parameters can easily be set with keys and be pre-selected with the main adjusting knob. All pre-selected, respectively actual values are permanent displayed on large LED's. The lid is latched and released with an electronic lid lock. The centrifuge has a powerful, maintenance-free motor with a low noise level.

1.1.1.3 Safety standards

Following standards have been considered for the production of our centrifuges:

- Accident Prevention Regulation for electrical units and installations UVV VBG 4
- Accident Prevention Regulation for centrifuges as per BGR 500; Chapter 2.11; Part 3
- DIN 58970 part 1, 2 and 4 for centrifuges and tubes
- Electrical Interference Suppression according to interference degree B as per VDE 0871
- Electrical Safety as per IEC 1010-1 and IEC 1010-2-D
- European Standard PR EN 61 010-1 and PR EN 61 010-2-2

1 PRODUCT DESCRIPTION

1.1.1.4 Extent of supply

Following parts are supplied as accessories with each centrifuge:

- 1 Instruction manual (included with each centrifuge)

1.1.1.5 Warranty

The centrifuge has been subjected to thorough testing and quality controls.

In the unlikely case of any manufacturing faults occurring, the centrifuge and rotors are covered by warranty for a period of two years from date of delivery.

This warranty becomes invalid in case of mishandling, damage and negligence and further in case of usage of inappropriate spare parts and / or accessories or unauthorized modification of the unit.

Technical modification rights are reserved by the manufacturer in respect to technical improvement.

1.2 Installation

1.2.1 Installation of the centrifuge

1.2.1.1 Unpacking the centrifuge

The **Corning LSE™ Compact Centrifuge** is supplied in a carton. Remove the strap retainer, open the carton and remove the centrifuge. Remove all material inside unit. The instruction manual must always be kept with the centrifuge.

1.2.1.2 Space requirements

The centrifuge should be installed on an even and solid surface, if possible on a laboratory cabinet / table or some other solid vibration free surface.

In order to enable a safe and smooth operation, level the centrifuge with a spirit level.

The centrifuge must be placed in a way, that there is a minimum space of 30 cm on each side of the unit in order to ensure necessary heat dissipation.

Do not place the centrifuge next to a window or a heater, where it could be disposed to excessive heat, as the performance of the unit is based on an ambient temperature of 23°C.

Safety regulations require that the safety area of 30 cm around the unit is marked in order to indicate that neither hazardous substances nor persons should be within this area during centrifugation.

1.2.1.3 Installation

Follow these steps:

- Check whether power supply corresponds with the one named on the manufacturer's rating label which is mounted on the rear panel.

- The line voltage circuit breaker is max. 10 A (type K) slow release for commonly used instruments.
 - In case of emergency, there must be an emergency switch off installed outside the room in order to disconnect the power supply of the unit.
 - Remove the transport spacer blocks from the motor shaft (see chapter 2.2.2)
- The socket for the power cord must be easy to reach respectively easy to disconnect!**



1 PRODUCT DESCRIPTION

1.3 Technical Data

Type / Model	Corning LSE™ Compact Centrifuge	
Dimensions		
Width	28 cm	
Depth	37 cm	
Height	26 cm	
Weight	15 kg	
Noise level (max.)	60 +2,0 dB (A)	
Max. speed	6000 rpm	
Max. volume	6 x 50 ml	
Max. RCF	4185 x g	
Admissible density	1,2 kg/dm ³	
Admissible kinetic energy	1694 Nm	
Electrical connection AC	230 V / 50 Hz 1 ph	120 V / 60 Hz 1 ph
Current	0,55 A	1,1 A
Connected load	100 Watt	100 Watt
Interference suppression	VDE 0871, Funkentstörgrad B	
Test obligations	no	
To be filled in by purchaser:		
Inventory-No.:	_____	
Check-No.:	_____	
Location:	_____	
Maintenance contract:	_____	
Your service department		
Your agent	_____	

1 PRODUCT DESCRIPTION

1.4 Conformity declaration

<p>Declaration of Conformity</p> <p style="text-align: center;"></p> <p>Corning Life Sciences hereby confirms that the product</p> <p style="text-align: center;">Corning LSE™ Compact Centrifuge Models: 6755, 6756, 6757, 6758</p> <p>Is in accordance with the following directives and standards:</p> <table><tr><td>2006/95/EC</td><td>Low Voltage Directive</td></tr><tr><td>2004/108/EC</td><td>EMC Directive</td></tr><tr><td>2006/95/EC</td><td>Machine Directive</td></tr><tr><td>2002/95/EC</td><td>RoHS</td></tr><tr><td>2006/96/EC</td><td>WEEE</td></tr></table> <p style="text-align: center;"> _____ Michael Rosenblum</p>	2006/95/EC	Low Voltage Directive	2004/108/EC	EMC Directive	2006/95/EC	Machine Directive	2002/95/EC	RoHS	2006/96/EC	WEEE	<p>This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to both Part 15 of the FCC Rules and the radio interference regulation of the Canadian Department of Communications. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference which case the user will be required to correct the interface at his own expense.</p>
2006/95/EC	Low Voltage Directive										
2004/108/EC	EMC Directive										
2006/95/EC	Machine Directive										
2002/95/EC	RoHS										
2006/96/EC	WEEE										

1 PRODUCT DESCRIPTION

1.5 Basic adjustments

Before the first operation and after each rotor change, you have to enter the respective rotor type.

Part #	Description	Rotor Code
480136	Corning® LSE™ 6 x 50 mL Fixed Angle Rotor	97
480137	Corning® LSE 12 x 15 mL Fixed Angle Rotor	96
480138	Corning® LSE 6 x 5 mL Swing-Out Rotor	68
480139	Corning® LSE 18 x 1.5 mL Fixed Angle Rotor	95
480143*	Corning® LSE 15/50 mL Fixed Angle Combi Rotor *For serial numbers before 7412 5031 (120V) or 7412 0011 (230V) -multiply the displayed G force by 1.05	96
	*For serial numbers after 7412 5031 (120V) or 7412 0011 (230V)	53

Switch on the unit and open the lid. Now press simultaneously the keys "lid" (1) and "stop" (2). In the display "rpm/rcf" then appears the old settled rotor type, i. e. "96". With the adjustment knob (7) you can settle the used rotor now. (See photo 1) To adopt the data in the unit please press the "start" key. Inside the display the stroke "store" appears to the confirmation.

Now all important rotor parameters for the centrifuge are stored.

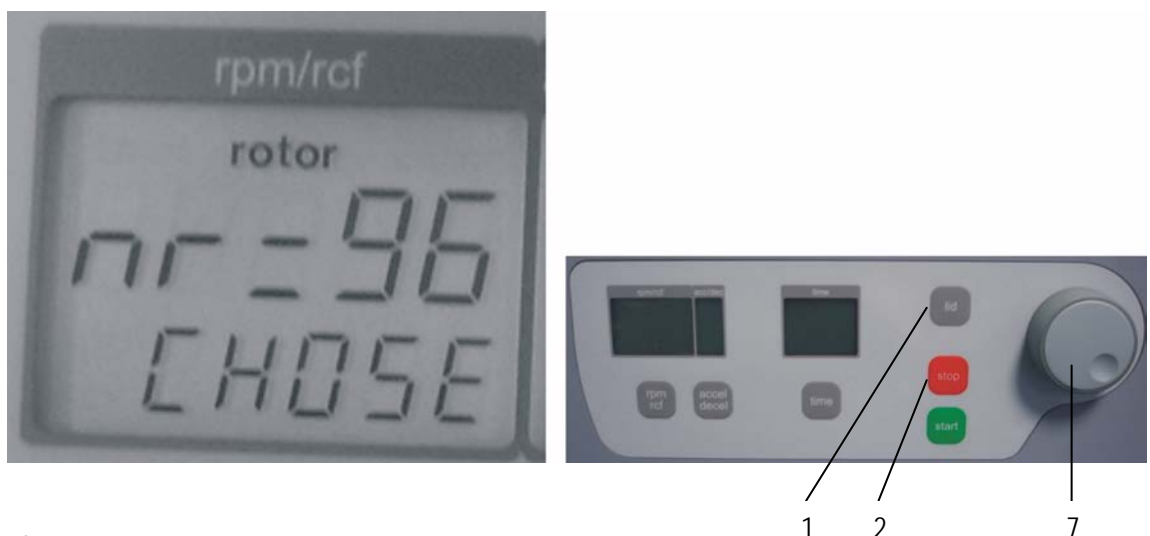


Photo 1

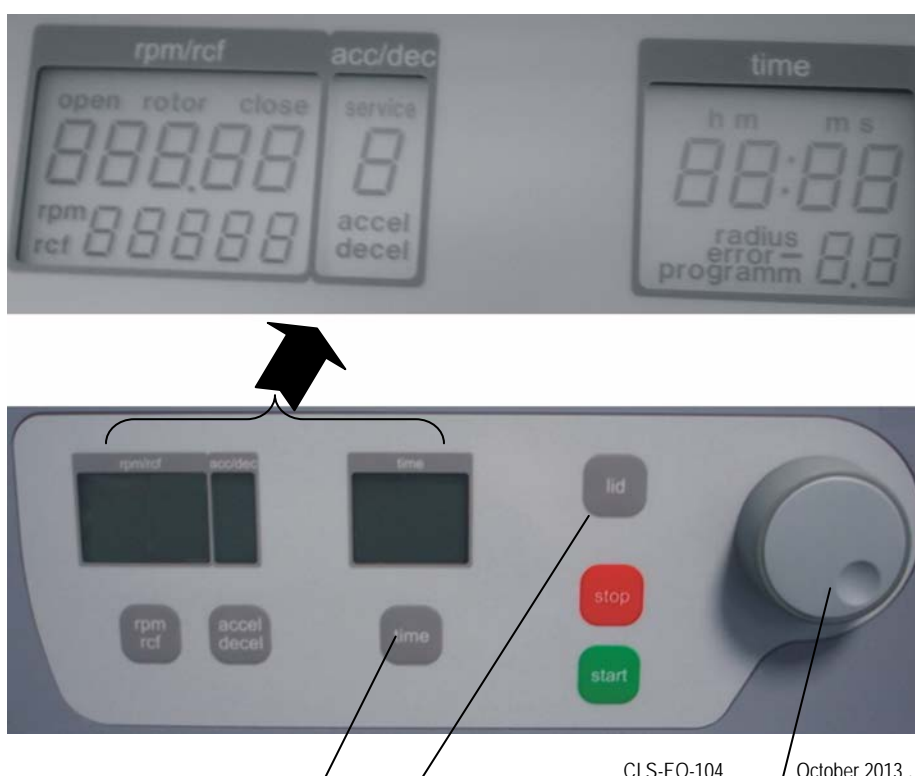
1 PRODUCT DESCRIPTION

1.5.1 Access to mode "Operating Data"

In this mode you can check the following points:
These are in detail:

1. Number of starts
2. Operating hours of the centrifuge
3. Software-version
4. Error list
5. Operation of imbalance sensor
6. Operation of keyboard
7. Display test

If the centrifuge is still turned off, press simultaneously the keys "time" (4) and „lid" (1) and turn on the main switch of the centrifuge. Now release both keys again. As a result a display test is executed for approx. 5 seconds. All possible indications will appear at the same time (see photo 2).



ATTENTION:

Please notice that you must enter the program as described under point 1.5.1 to change the adjustments of the points 1.5.2. After you have stored the settings you change to the normal program mode again by switch off the centrifuge for a short while.

1 PRODUCT DESCRIPTION

1.5.2 Call up of operating data

In the mode "Basic Adjustments" you can call up the operating data of the centrifuge.

Please proceed as described under point 1.5.1 to enter this program mode.

Press the key "accel/decel"(5). In the display "accel/decal" flashes the word "service".

With the adjusting knob (7) the different information can be called up:

- | | | |
|---|---|--|
| A | = | previous starts of the centrifuge (see photo 3a) |
| H | = | previous operating hours |
| S | = | software version |
| E | = | list of previous error messages |
| F | } | only for service purpose |
| U | | |
| P | | |
| C | | |

The list of the last 99 error messages can be looked over by pressing the key „rpm/rcf“ (6) and leaf through it by the adjusting knob (7). The respective error codes appear in the display „rpm/rcf“

(see photo 3b). Please look up in chapter 4.2.3 of this instruction manual for the relevant meanings.

The first two numbers (X) indicate the appeared errors ongoing from 00 to 99, the last two numbers (Y) indicate the error code (i. e. 02 = imbalance sensor is defective).

Here as well you must shortly switch off the centrifuge for changing to the normal program mode again.

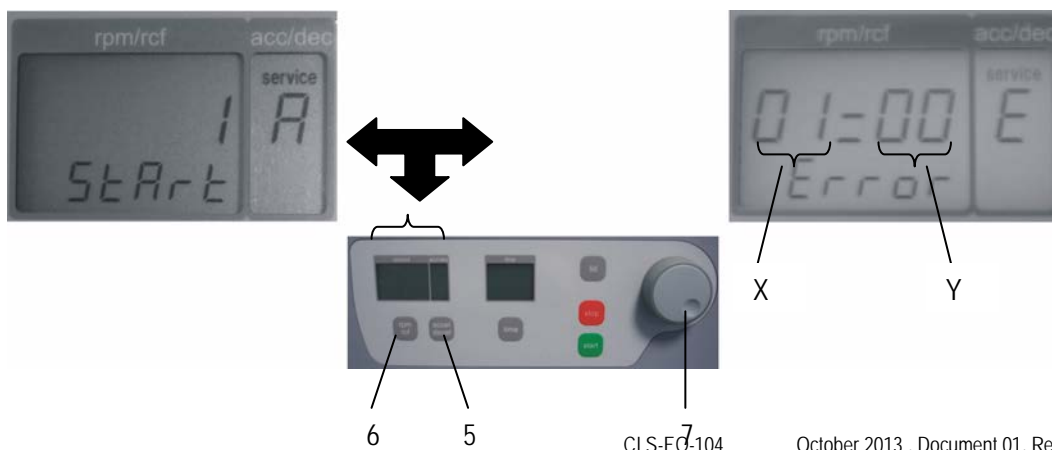


Photo 3a

Photo 3b

2 OPERATION

2.1 Installation of rotors

2.1.1 Mounting and loading angle rotors

Clean the drive shaft as well as the location hole of the rotor with a clean, grease-free piece of cloth.
Place the rotor onto the drive shaft. (see photo 4)
Take care that the motor shaft is plugged completely in the rotor nut.

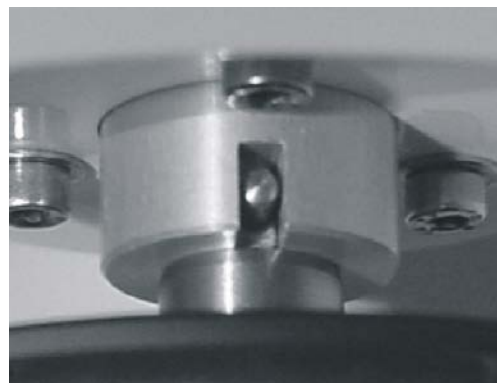


Photo 4



Photo 5

ATTENTION:

For reasons of safety you should check the fixing screw before each run!! (see photo 5)

2 OPERATION

Hold the rotor with one hand and secure the rotor to the shaft by turning the fixing screw (1) clockwise. (see photo 6).

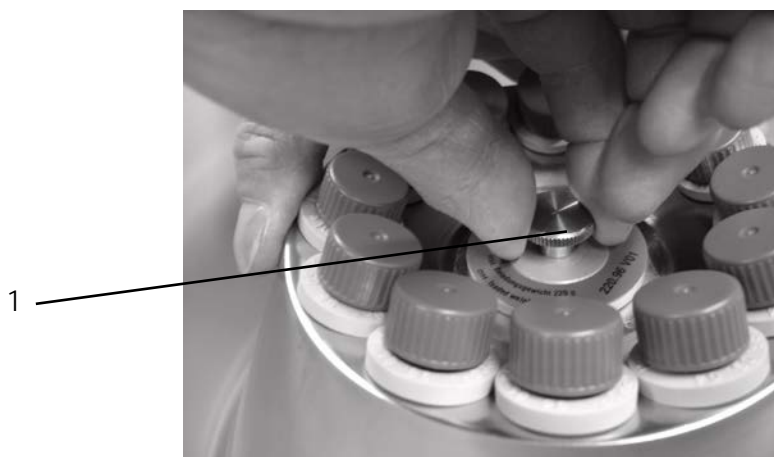


photo 6

ATTENTION:

For reasons of safety you should check the fixing screw before each run!! (see photo 6)

It is allowed to operate e.g. a 12-place-rotor with 2 or 4 loaded tubes only.
But the loaded borings must be opposite each other.



Photo 7: wrong



Photo 8: correct

2 OPERATION

2.1.2 Mounting and loading swing out rotors

Clean the drive shaft, as well as the location hole of the rotor with a clean and grease-free cloth. Put the rotor to the motor shaft. Take care that the motor shaft is plugged completely in the rotor nut.

Hold the rotor with one hand and secure the rotor to the shaft by turning the rotor screw (1) clockwise.

The charging of the buckets and the adapters must be done appropriately photo 10.

In principle swing out rotors may not be taken in operation until all buckets or racks are put into the rotor.

The bolts at the rotor must be easily greased with silicone grease.

The sample tubes have to be filled evenly by eye and put into the drillings or tube racks. The weight difference of the loaded buckets should not exceed approx. 1.0 g.

It is allowed to operate e.g. a 6-place-rotor with 2 loaded buckets only. But the loaded buckets must be opposite to each other. Make sure that the unloaded buckets also be put inside the rotor (see photo 9 and 10).

ATTENTION:

Swing out rotors may be taken in operation only if all places are filled in with four buckets!!

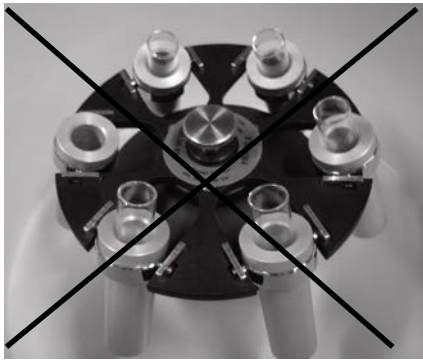


Photo 9: wrong



Photo 10: right

2 OPERATION

2.1.3 Overloading of rotors

The maximum load permitted for a rotor, which is determined by the manufacturer, as well as the maximum speed allowed for this rotor (see label on rotor), must not be exceeded.

The liquids the rotors are loaded with should have an average homogeneous density of 1.2 g/ml or less when the rotor is running at maximum speed.

In order to spin liquids with a higher density, the speed has to be reduced according to the following formula:

$$\text{Reduced speed } n_{\text{red}} = \sqrt{\frac{1.2}{\text{higher density}}} \times \text{max. speed } (n_{\text{max}}) \text{ of the rotor}$$

Example:



$$n_{\text{red}} = \left\lceil \frac{1.2}{1.7} \right\rceil \times 4.000 = 3.360 \text{ rpm}$$

In case of any questions, please contact the manufacturer!

2.1.4 Removing the rotor

Untighten the rotor fixing screw and lift the rotor vertical out of the centrifuge.

ATTENTION:

Do not operate the centrifuge with rotors or buckets which show any signs of corrosion or mechanical damage.

Do not operate with extremely corrosive substances which could damage the rotor and buckets.

2.2 Operation

2.2.1 Power switch

The power switch is down on the bottom on the left side of the unit.

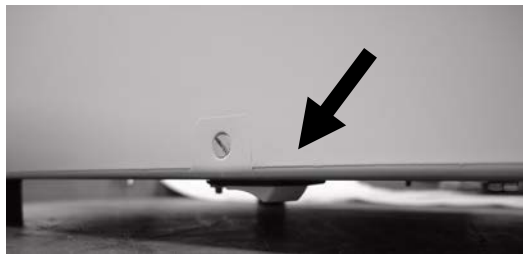


Photo 11

Attention:

After turn on the power switch you have to open the lid of the unit first, before starting the centrifuge.

2 OPERATION

2.2.2 Lid release

After the run, respectively closing the lid of the centrifuge, it appears in the display "rpm/rcf" the word "close" (8). At the same time the pre-selected rotor type is indicated, too, i. e. "nr 96" (11). During the run you can call up the rotor type at any time by pressing the key "lid" (1). By pressing the key "id" (1) you can release the lid of centrifuge. As soon as the lid is completely released, it appears the word "open" (9). Now you can open the lid of the centrifuge. (see photo 12)

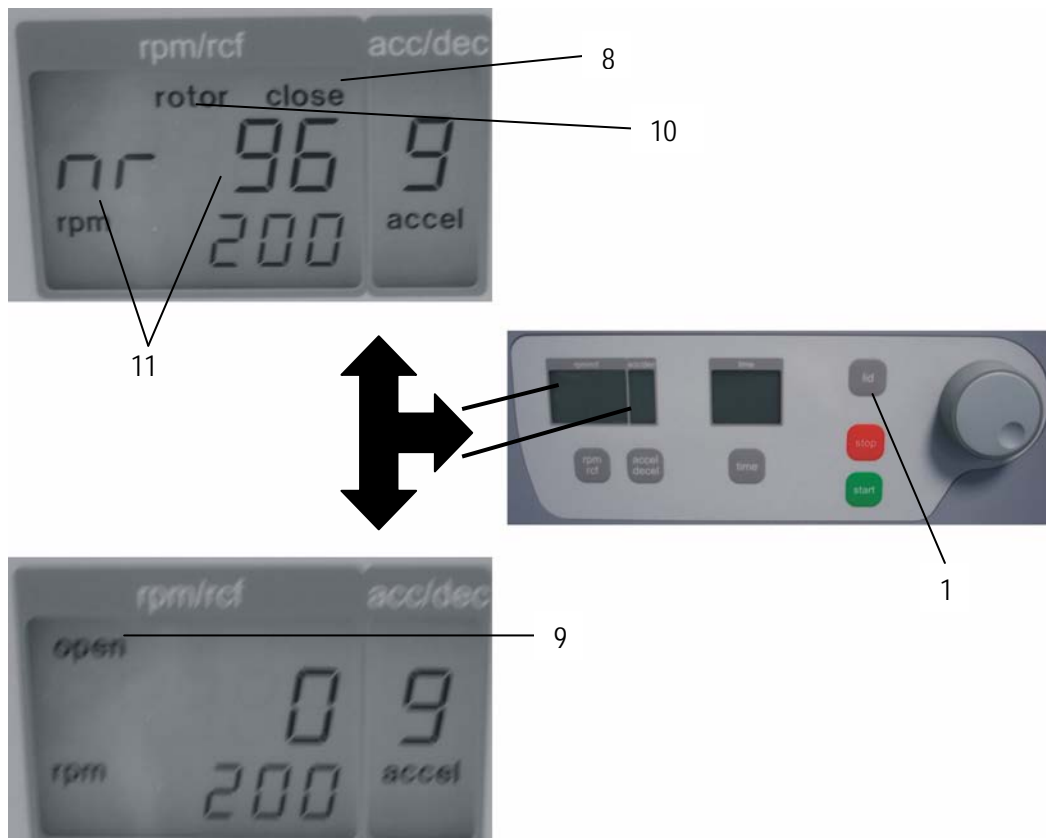


Photo 12

2.2.3 Lid lock

Attention: Before closing the lid please check if the rotor is tighten, and that all 6 buckets have been put in the swing out rotor.

The lid must only be pressed slightly to its lock. After the lock is closed, at the same time disappears the word "open" (9) in the display.

As a sign that the centrifuge is ready for starting it appears in the display "rpm/rcf" the word "close" (8). Simultaneously it appears in that display the word "rotor" (10), as well as the code number of the rotor, which is in the centrifuge i. e. "nr 96" (11).

With that all rotor specifically data, like e. g. max. speed, acceleration etc., are adopted. (see photo 12)

2 OPERATION

2.2.4 Pre-selection of speed / RCF-value

Through the key "rpm/rcf" (6) this pre-selection is activated. By pressing the key once the word "rpm" (12) flashes.

By pressing the key once again the pre-selection of the centrifugal forces may be chosen. Then it appears the flashing word "rcf" (13).

You can set the desired values with the adjusting knob (7). In the display (14) the regulated value is shown permanently, before, during and after the run.
 The speed is adjustable between 200 rpm and maximum revolution of the centrifuge resp. the maximum permissible revolution of the pre-selected rotor.
 It is the same with the pre-selection of the RCF-value. The setting range is between 20 x g and the maximum permissible centrifugal force of the rotor.
 The maximum speed of the CORNING COMPACT is 6000 rpm resp. 4180 x g.

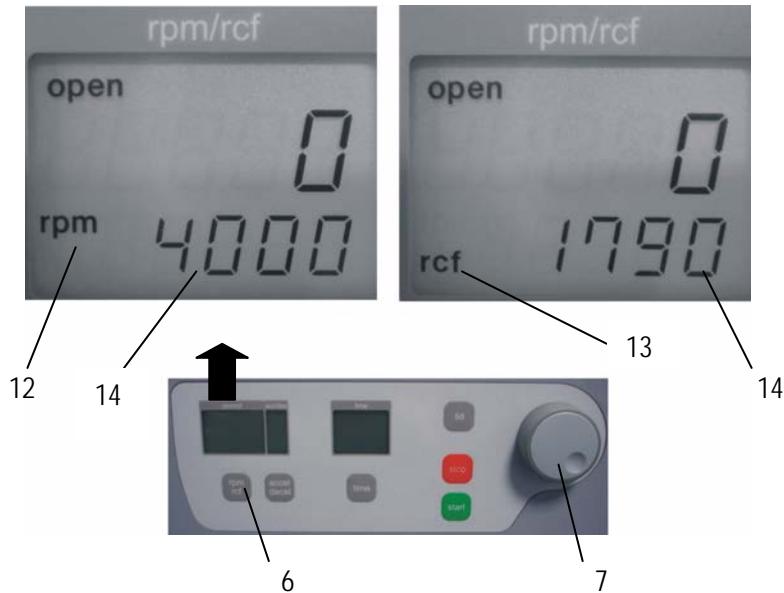


Photo 13

Max. Revolution per minutes of the valid rotors

Rotor-Number	Max. Revolution	RCF
		Value
480137	6000 rpm	4180 xg
480136	6000 rpm	3820 xg
480139	6000 rpm	2930 xg
480138	3500 rpm	1450 xg
480143	6000 rpm	4427 xg

Attention:
 Please notice the maximum permissible revolutions of your test tubes!! (Producer Indication)

2 OPERATION

2.2.5 Pre-selection of running time

The running time can be pre-selected in three different ranges from 10 seconds up to 99 hours 59 minutes.

1. Range from 10 seconds up to 59 minutes 50 seconds in steps of 10 seconds
2. Range from 1 hour up to 99 hours 59 minutes in steps of 1 minutes
3. Range continuous run "cont", which can be interrupted by the key "stop" (2).

The running time can be pre-selected whether with open or closed lid of the centrifuge.

To activate the setting of the running time press the key "time" (4).

In the display "time" flashes the indication "m: s" or "h: m" (15), depending on the previous setting.

To set the desired value use the adjusting knob (7). After exceeding of 59 min 50 sec the indication (15) changes automatically in "h : m". After exceeding of 99 hours 59 min the word "cont" appears in the display "time". That continuous run can only be interrupted by pressing the key "stop" (2).

The display shows always the remaining running time.

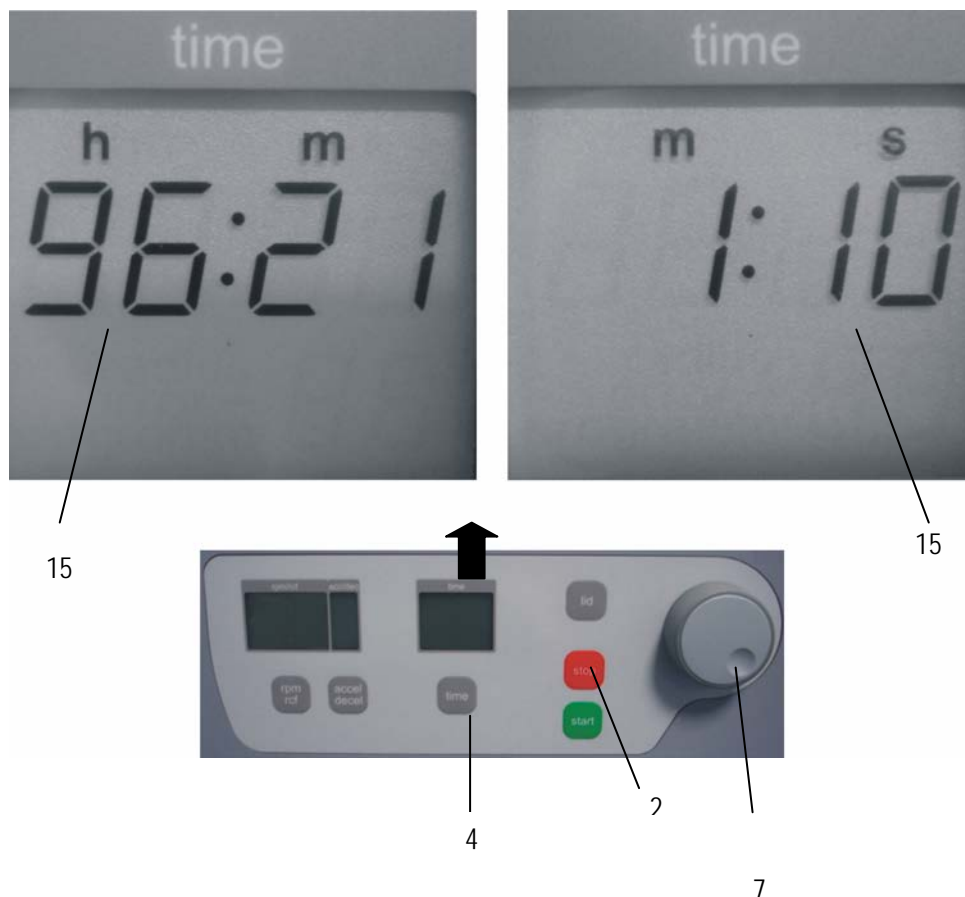


Photo 14

2 OPERATION

2.2.6 Pre-selection of brake intensity and acceleration

Through the key "accel/decal" (5) this function is activated.

By pressing the key once the word "accel" (16) flashes in the display "acc/dec". The desired acceleration can be pre-selected by the adjusting knob (7). The value 0 is equivalent to the lowest and the value 9 to the highest acceleration.

By pressing the key "accel/decal" (5) twice, in the display "acc/dec" indicates the word "decal" (17). Now the desired brake intensity can be pre-selected by the adjusting knob (7). The value 9 is equivalent to the shortest and the value 0 to longest possible brake time.

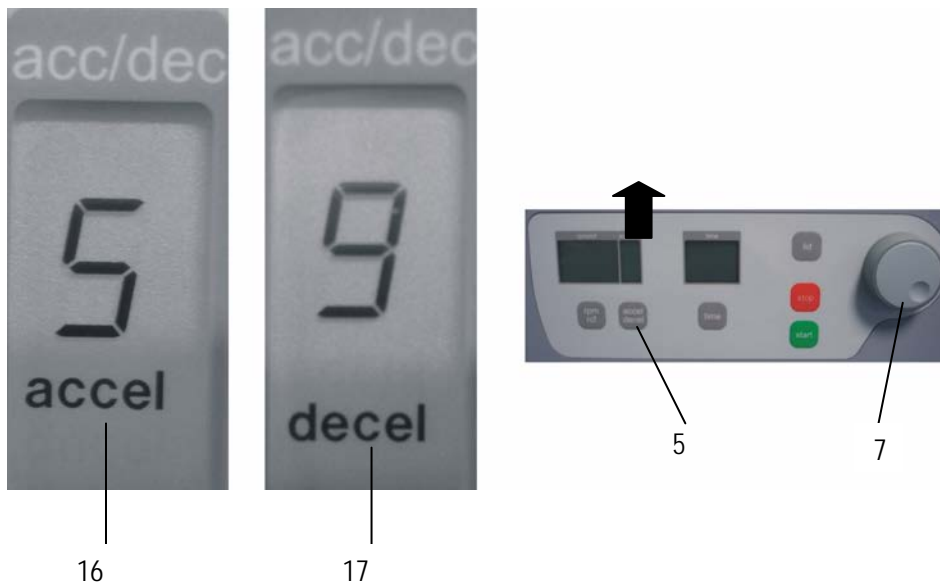


Photo 15

Acceleration- and deceleration times Corning LSE™ Compact Centrifuge (120 V / 230 V) in seconds

Rotor-Number	Acceleration values		Deceleration values	
	Level 0	Level 9	Level 0	Level 9
480137	70	40	150	35
480136	80	35	150	35
480139	60	11	30	10
480138	35	8	25	7
480143	65	38	165	45

2 OPERATION

2.2.7 Starting the centrifuge

After closing the lid you can start the centrifuge with the key "start" (3).
By the key "start" (3) you can start runs with manually pre-selected parameters.
When the respective pre-selected running time has ended then the centrifuge will stop automatically or you can interrupt the run in the mode "cont" with the key "stop" (2).



Photo 16

2.2.8 The "STOP" key

By the "stop" key (2) you can interrupt the run at any time. After pressing the key the centrifuge decelerates with the respective pre-selected intensity down to stand still.



Photo 17

2 OPERATION

2.3 Safety features

2.3.1 Imbalance detection

In case of the rotor not being equally loaded, the drive will turn off during acceleration. The rotor decelerates to stand still.

When in the display "time" the word "error" together with the number "01" (18) appear, the weight difference of the samples is too huge. Weight out the samples exactly, Load the rotor as described in chapter 2.1.1.

When in the display "time" the word "error" together with the number "02" (18) appear, there could be following reasons:

- The imbalance switch is defective.

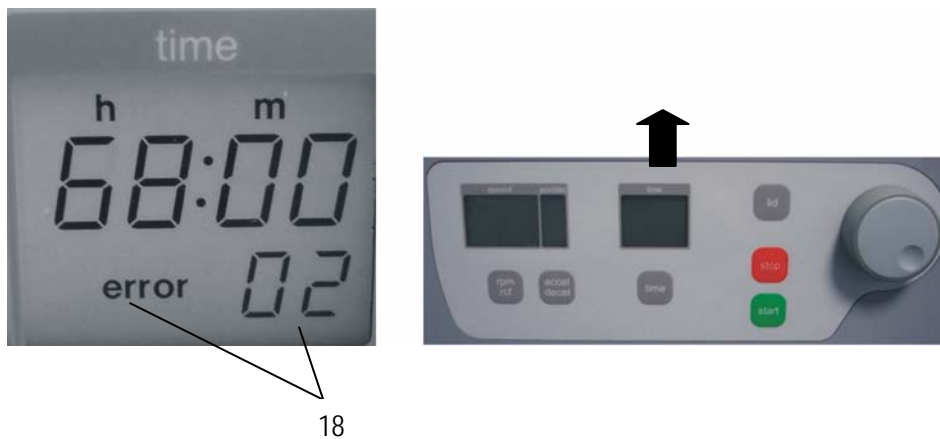


Photo 18

3 MAINTENANCE

3.1 Service and maintenance

3.1.1 Maintenance and cleaning

Maintenance:

Maintenance of the centrifuge is confined to keeping the rotor, the rotor chamber and the rotor accessories clean as well as to regularly lubricating the rotor insert bolts of a swing out rotor (if available).

Vaseline, available in nearly each store, is the most suitable lubricant. The Vaseline must be free of resin and acids. Lubricants containing molybdate and graphite are not allowed.

Please pay special attention to anodized aluminium parts. Breakage of rotors can be caused even by slightest damages.

In case of rotors, buckets or tube racks getting in touch with corrosive substances the concerned spots have to be cleaned carefully.

Corrosive substances are for instance:

- Alkalis
- Alkaline soap solutions
- Alkaline amines
- Concentrated acids
- Solutions containing heavy metals
- Water-free chlorinated solvents
- Saline solutions, e.g. salt water

Cleaning:

Thorough cleaning not only has its purpose in hygiene but also in avoiding corrosion based on pollution.

In order to avoid damaging anodized parts such as rotors, reduction plates etc., only pH-neutral Detergents with a pH-value of 6-8 may be used for cleaning. Alkaline cleaning agents (pH-value > 8) must not be used.

After cleaning, please ensure all parts are dried thoroughly, either by hand or in a hot-air cabinet (max. Temperature + 50°C).

It is necessary to coat anodized aluminium parts with anti-corrosion oil regularly in order to increase their life-spans and reduce corrosion predisposition.

Due to humidity or not hermetically sealed samples, condensate may be formed. The condensate has to be removed from the rotor chamber with a soft cloth regularly.

The maintenance procedure has to be repeated every 10 to 15 runs, but at least once a week.

3 MAINTENANCE

3.1.2 Glass breakage

With high g-values, the rate of glass tube breakage increases. Glass splinters have to be removed immediately from rotor, buckets, adapters and the rotor chamber itself. Fine glass splinters will scratch and therefore damage the protective surface coating of a rotor.

If glass splinters remain in the rotor chamber, fine metal dust will build up due to air circulation. This very fine, black metal dust will extremely pollute the rotor chamber, the rotor, the buckets and the samples.

ATTENTION:
Please notice the producer indication!

3.1.3 Disinfection of alu-rotors

In case of infectious material spilling into the centrifuge, the rotor and rotor chamber have to be disinfected right after the run. Rotors may be autoclaved at a maximum temperature of 121°C.

The rotor and rotor chamber should be cleaned with a universal, neutral disinfection agent, e.g. on formalin base. A disinfection spray is most suitable in order to easily reach all difficult to access spots.

ATTENTION:
Before applying any other cleaning resp. Decontamination method than recommended by the manufacturer, contact the manufacturer to ensure yourself, you would not damage the unit or the rotor by applying the designated method!

3.1.4 Disinfection of PP-rotors

Autoclaving

The recommended time for autoclaving: 15 – 20 min at 121°C (1 bar)

ATTENTION: The sterilization time of 20 min. must not be exceeded. Sterilization again and again will cause reduction of the mechanical resistance of the plastic material.

Before the autoclaving the PP-rotor and adapter must thoroughly be cleaned to avoid the burning in of dirty residues.

You can disregard the consequences of some chemical residues to plastic materials at ambient temperatures. But at the high temperatures of the autoclaving those residues may corrode and destroy the plastic. The objects must be thoroughly washed up with distilled water after the cleaning but before the autoclaving. Residues of any cleaning liquids may cause fissures, whitening and stains.

Gassterilization

Boxes, bottles and rotors may be gas sterilized with Ethylenoxyd. According to the duration of the application you may give long enough an airing to the items after the sterilization and before using them again.

ATTENTION: Because the temperature may rise during the sterilization, rotors, boxes and bottles must not be closed respectively must be totally unscrewed.

Chemical sterilization

Bottles, boxes and rotors may be treated with the usual liquid disinfectants.

3.1.5 Cold room removal

Prior to removing centrifuge from a cold room, place unit inside a plastic bag. Once removed from cold room place unit on a level surface and allow it to return to room temperature inside the bag.

TROUBLE SHOOTING

4.1 Error messages: cause / solution

Preface:

The error messages are listed to help localize possible errors faster.

The diagnose referred to in this chapter may not always be the case, as they are only theoretically occurring errors and solutions.

4.2 Survey of possible error messages and their solutions

4.2.1 Lid release during power failure (Emergency Lid Release)

In case of power failure or malfunction, the lid of the centrifuge can be opened manually in order to protect your samples.

Please proceed as follows:

- Switch the centrifuge off and unplug the power cord.
- At the left side of the centrifuge housing there is a plastic stopper. Remove this stopper, fastened to it there is a string which is connected to the electronic lid lock.
- If you pull the string slightly the lid will open.
ATTENTION: Don't put your hands in the rotor chamber as long as the rotor is still spinning!
- Push the plastic stopper back in the unit again, for go on working.
(see photo 19)



Photo 19

4 TROUBLE SHOOTING

4.2.2 Description of the error message system

The error message is shown in the "time" display through a two-digit number (19). At the same time the word "error" (20) is indicated in the display (see photo 20).

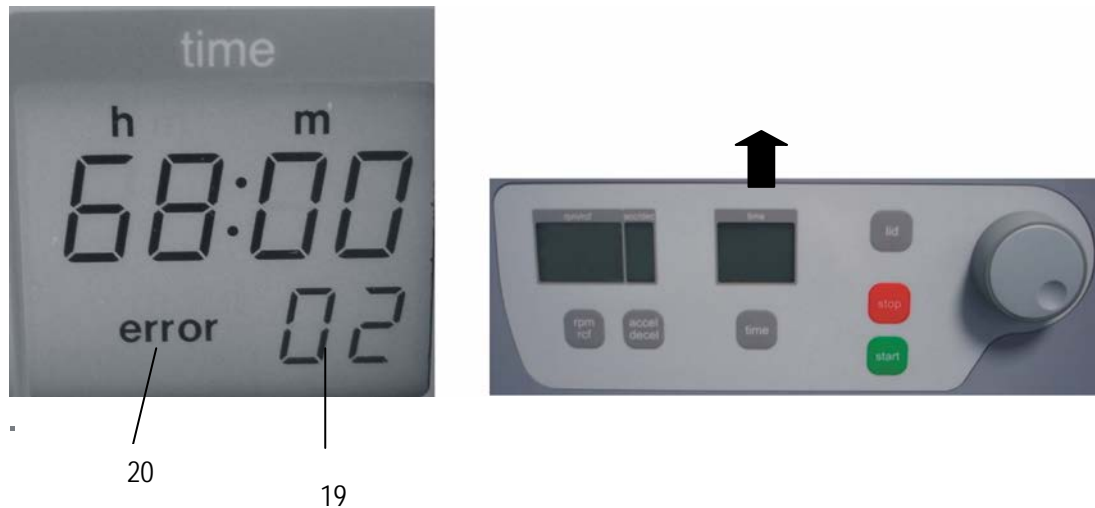


Photo 20

4.2.3 Error messages

Errors that may be indicated in the LCD display:

Error No.:	Description
01	Imbalance arose
02	Imbalance sensor is defective
14	Leap of speed is too big between 2 measurements
30	Motor is blocked or defective
33	Open lid while the motor is running
34	Lid contact defective
55	Overspeed
60	Under voltage in the intermediate circuit
70	Blackout of the relay

5 RECEIPT OF CENTRIFUGES TO REPAIR AND DISPOSAL

5.1 Receipt of centrifuges to repair

In case of returning the centrifuge for repairing to the manufacturer, please notice the following:
The centrifuge **must** be decontaminated and cleaned before the shipment for the protection of persons, environment and material.

We reserve the right to accept contaminated centrifuges.

Further on all costs occurred for the cleaning and disinfection of the units will go to the debit of the customer's account.

Thank you for your cooperation!

Enclosure: Retraction form (see page 26)

5.2 Disposal

The "crossed-out wheellie bin" symbol, if present on the product, indicates that the product was planned for use in a country complying with the Waste Electrical and Electronic Equipment EU Directive, 2002/96/EC. This symbol indicates that this equipment must not be disposed of with unsorted municipal waste. It is the product user's responsibility to correctly dispose of waste equipment by handing it over to an authorized facility for separate collection and recycling. It is the product user's responsibility to decontaminate waste equipment from biological, chemical, and/or radiological hazards prior to disposal.



Additional information pertaining to the disposal of Corning equipment per the WEEE Directive can be obtained at www.corning.com/weee.

Decontamination certificate at goods return delivery

Enclose at all returns of equipment and assemblies absolutely!

The completely full declaration about the decontamination is prerequisite for the assumption and further processing of the return. If no corresponding explanation is enclosed, we carry out decontamination with costs at your expense.

Please fill out in block capitals:

Surname; last name: _____

Organization/company: _____

Street: _____

ZIP CODE: _____ **place:** _____

Telephone: _____ **fax:** _____

E-mail: _____

Pos.	Crowd	Decontaminated object	Serial number	Description/comment
1				
2				
3				
4				

Are these the parts listed above in touch come with the following substances?

Health endangering watery solutions, buffers, acids, alkalis; Yes No

Potentially infectious agents; Yes No

Organic reagents and solvent; Yes No

Radioactive substances; α .. β .. γ .. Yes No

Health endangering proteins; Yes No

DNA; Yes No

These substances have reached the equipment/assembly? Yes No

Which one if yes:

Description of the measures for the decontamination of the listed parts:

I confirm the proper decontamination:

Company / dept.: _____ place and date: _____

Signature of the authorized person: _____

Please register your warranty online at
<http://www.corning.com/lifesciences/warranty>

CORNING

Corning Incorporated
Life Sciences
836 North Street, Suite 3401
Tewksbury, MA 01876
USA

t 800.492.1110
t 978.442.2200

f 978.442.2476

www.corning.com/lifesciences

**Worldwide
Support Offices**
ASIA
Australia/New Zealand
t 0402-794-347

China
t 86 21-2215-2888
f 86 21-6215-2988

India
t 91-124-4604000
f 91-124-4604099

Japan
t 81 3-3586 1996
f 81 3-3586 1291

Korea
t 82 2-796-9500
f 82 2-796-9300

Singapore
t 65 6733-6511
f 65 6861-2913

Taiwan
t 886-2-2716-0338
f 886 2-2716-0339

EUROPE

France
t 0800 916 882
f 0800 918 636

Germany
t 0800 101 1153
f 0800 101 2427

The Netherlands
t 31 20 655 79 28
f 31 20 659 76 73

United Kingdom
t 0800 376 8660
f 0800 279 1117

All other European Countries
t 31 (0) 20 659 60 51
F 31 (0) 20 659 7673

LATIN AMERICA

Brasil
t (55-11) 3089-7419
f (55-11) 3167-0700

Mexico
t (52-81)8158-8400
f (52-81) 8313-8589

